

ROBOTICS

# Product specification

Robot stopping distances according to  
ISO 10218-1



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**Product specification**  
**Robot stopping distances according to ISO 10218-1**

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# Overview of this specification

## About this specification

This specification contains stopping distances and times for category 0 and category 1 stops, as required by EN ISO 10218-1 Annex B.

## Usage

This specification should be used when calculating the safe distance in applying safeguarding devices.

## Who should read this manual?

This specification is intended for:

- Personnel working with planning of robot systems

## References

Documentation referred to in the manual, is listed in the table below.

Document name	Document ID
<i>Safety manual for robot - Manipulator and IRC5 or OmniCore controller</i> <sup>i</sup>	3HAC031045-001
Product specifications for the respective robots	
Standard: <i>EN ISO 10218-1, Annex B</i>	

<sup>i</sup> This manual contains all safety instructions from the product manuals for the manipulators and the controllers.




## Revisions

Revision	Description
-	First edition. Release 13.2.
A	Release 14.1. The following robots are added: <ul style="list-style-type: none"> <li>• IRB 120</li> <li>• IRB 140</li> <li>• IRB 6700</li> <li>• IRB 260</li> <li>• IRB 460</li> <li>• IRB 660</li> <li>• IRB 760</li> </ul>
B	Release 15.1. The following robots are added: <ul style="list-style-type: none"> <li>• IRB 6700 variants</li> <li>• IRB 1200</li> <li>• IRB 1520</li> <li>• IRB 1600</li> </ul> Descriptions about the data and measurements are updated.
C	Release 15.2. The following robots are added: <ul style="list-style-type: none"> <li>• IRB 2400</li> </ul>

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## Overview of this specification

Continued

Revision	Description
	<ul style="list-style-type: none"> <li>IRB 4400</li> <li>IRB 8700</li> </ul>  <b>Note</b> Category 0 values are missing for IRB 7600 2.80 m 340 kg.
D	Release 16.1. The following robots are added: <ul style="list-style-type: none"> <li>New variants for IRB 1600ID</li> </ul> This revision includes the following additions and/or changes: <ul style="list-style-type: none"> <li>A description of how to measure the stopping distance and time for your installation is added, see <a href="#">Measuring stopping distance and time on page 17</a>.</li> </ul>
E	Release 16.1. <ul style="list-style-type: none"> <li>Rename of the new variant IRB 1600ID - 6/1.55 to IRB 1660ID - 6/1.55.</li> <li>Re-inserted IRB 1600ID-4/1.5 that was missing in the previous revision.</li> </ul>
F	Release 16.2. <ul style="list-style-type: none"> <li>Improved measurements for 4-axis articulated robots.</li> <li>Category 0 values are added for IRB 7600 340/2.80.</li> </ul>
G	Release 17.2. <ul style="list-style-type: none"> <li>Updated data for all previously published robots.</li> <li>Added information about naming conventions, see <a href="#">Naming of product variants in this document on page 15</a>.</li> <li>The following robots are added:               <ul style="list-style-type: none"> <li>IRB 360</li> </ul> </li> </ul>  <b>Note</b> For stop category 0, the robot may hit the mechanical stops before the speed is reduced to 0. <ul style="list-style-type: none"> <li>IRB 6700Inv</li> </ul>
H	Release 19A. The following robots are added: <ul style="list-style-type: none"> <li>IRB 6790</li> <li>IRBP K, IRBP L, IRB R</li> </ul>  <b>Note</b> Data for IRBP C will be added in a later release.
J	The following robots are added: <ul style="list-style-type: none"> <li>IRB 910SC</li> </ul>
K	The following robots are added: <ul style="list-style-type: none"> <li>IRBP A, IRBP B, IRBP D</li> <li>Corrected names in tables for IRBP R.</li> </ul>
L	The following robots are added: <ul style="list-style-type: none"> <li>IRB 910INV</li> <li>IRB 1100</li> <li>IRBP C</li> </ul>
M	Added back IRB 2600, that was accidentally removed from revision L.

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Revision	Description
N	Added correct graphics for IRB 2600. The graphics used in revisions J to M are not correct.
P	Release 20C. The category 0 stop data for all IRBP is updated with graphics. The following robots are added: <ul style="list-style-type: none"> <li>• IRB 1300</li> </ul>
Q	Release 20C. The following robots are added: <ul style="list-style-type: none"> <li>• IRB 760, 445 kg variant</li> </ul> The description about measurement and calculation is updated.
R	Release 21A. The following robots are added: <ul style="list-style-type: none"> <li>• IRB 390</li> </ul>
S	Release 21B. The following robots are added: <ul style="list-style-type: none"> <li>• CRB 1100</li> <li>• CRB 15000</li> </ul>
T	Release 21C. The following robots are added: <ul style="list-style-type: none"> <li>• IRB 920</li> </ul> The graphs for IRB 1660ID are corrected.
U	Release 22A. The following robots are added: <ul style="list-style-type: none"> <li>• IRB 1300-12/1.4</li> <li>• IRB 5710</li> <li>• IRB 5720</li> </ul> The robot IRB 260 is removed as it is phased out from the official product offer.
V	Release 22B. The following robots are added: <ul style="list-style-type: none"> <li>• IRB 365</li> </ul>
W	Release 22C. The following robots are added: <ul style="list-style-type: none"> <li>• IRB 1010</li> <li>• IRB 920, new variants</li> </ul>
X	Release 22D. The following robots are added: <ul style="list-style-type: none"> <li>• CRB 1300</li> </ul>
Y	Release 23A. <ul style="list-style-type: none"> <li>• IRB 365, new variants</li> <li>• The robot IRB 140 is removed as it is phased out from the official product offer.</li> <li>• The robot IRB 6640 is removed as it is phased out from the official product offer.</li> </ul>
Z	Release 23B. <ul style="list-style-type: none"> <li>• The data for the CRB 15000 and IRB 5710/5720 robots is moved to their respective product specification. All documents are available on <a href="http://www.abb.com/robotics">www.abb.com/robotics</a>.</li> </ul> The data for new robots is included in their respective product specification.

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## Overview of this specification

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Continued

Revision	Description
	<ul style="list-style-type: none"><li>Removed duplicated pages for IRB 1010.</li></ul>
AA	<p>Release 23C.</p> <p>The following robots are added:</p> <ul style="list-style-type: none"><li>IRB 1510</li></ul> <p>The data for the CRB 1100, CRB 1300, IRB 1010, IRB 1100, IRB 1300, IRB 910INV, and IRB 920 robots is moved to their respective product specification. All documents are available on <a href="http://www.abb.com/robotics">www.abb.com/robotics</a>.</p> <p>The data for new robots is included in their respective product specification.</p>

# 1 About the data

## Robot stopping distances and times

For articulated and SCARA robots, all measurements and calculations of stopping distances and times are done according to ISO 10218-1, with single axis motion on axes 1, 2, and 3. If more than one axis is used for the movement, then the stopping distance and time can be longer. Normal delays of the hardware and software are taken into account.

For delta robots (parallel arm) the values are based on movement by all axes, as these axes always move together. Only stopping times are presented.

For positioners the values are based on single axis movement.

The stop categories 0 and 1 are according to IEC 60204-1.

## Category 0 stops

The stopping distance and time for category 0 stops are simulated using maximum speed, maximum payload, and the arm stretched out to the maximum reach.



### Note

For SCARA robots without brakes on axis 1 and 2, the stopping distances for category 0 stops in actual applications can be longer than those stated in this document because without brakes, it is the friction that will stop the robot (on axes without brakes).

## Category 1 stops

The stop category 1 data are based on calculations in simulation of worst case scenarios. The data for stop category 1 are verified by measurements.

The simulations and verifications are done with the default value (100%) for the system parameter *AccSet*. Changing this value will affect the stopping distances and times (only for robots running on versions prior to RobotWare 6.01).



### Note

The stop category 1 is a controlled stop and will therefore have less deviation from the programmed path compared with a stop category 0.

## Robots

For robots the stopping distance and time for category 1 stop is provided for three arm extensions and three payloads. These variables are 100%, 66%, and 33% of the maximum values for the robot.

The speed and zone data in the simulations are based on TCP0.

## Positioners

For positioners the stopping distance and time is provided for three payloads. No extension zones are applicable. The payloads are 100%, 66%, and 33% of the maximum values for the positioner.

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# 1 About the data

Continued

Positioners with more than one station are presented with only one station data as the stations are identical.

## Loads

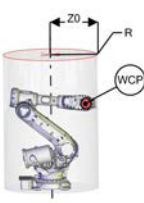
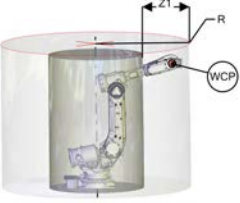

The used loads represent the rated load, with rated inertia in the load diagram, maximum cog z, and zero cog x and cog y. No arm load is used. The load diagrams are available in the respective product specification.

At 66% load and 33% load, the mass and inertia are reduced to 66% and 33% but cog z is the same as for 100% load.

## Extension zones for articulated robots

The extension zone for the stop category 1 is based on the wrist center point (WCP).

The extension zone limits describe the size of the respective zones. Radius R is measured from the axis-1 center.

Zone 0 (Z0)	Zone 1 (Z1)	Zone 2 (Z2)
Radius (R) is 0-33% of maximum reach of the wrist center point (WCP).	Radius (R) is 33-66% of maximum reach of the wrist center point (WCP).	Radius (R) is 66-100% of maximum reach of the wrist center point (WCP).
 xx1300002264	 xx1300002265	 xx1300002266

## Speed

For robots the TCP0 speed is measured in meters per second when the stop is triggered.

For positioners the speed is the angular speed in radians per second.

## Stopping distances

The stopping distance is measured in degrees.



### Note

The stopping distances are presented as angles. Large angles with TCP0 close to the rotation center do not necessarily correspond to a long stopping distance. Therefore a large stop angle can represent a short TCP stop distance.



### Note

The stopping distance for delta robots is measured in meters.

## Stopping times

The stopping time is measured in seconds.

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## Limitations

The stopping distance can vary depending on additional loads on the robot.

The stopping distance for category 0 stops can vary depending on the individual brakes and their friction.

This document includes the robot variants that are part of the official product offer at the time of the release of this revision.

---

## Naming of product variants in this document

The product variants presented in this document are named according to their reach and capacity. This corresponds to their official variant name but there are a few exceptions where the the names do not match due to different data sources. For example, IRB 6650S 125/3.5 is listed as IRB 6650S 3.45 m 125 kg.

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## 2 Measuring stopping distance and time

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### Preparations before measuring

For measurement and calculation of overall system stopping performance, see ISO 13855:2010.

The measurement shall be done for the selected stop category. The emergency stop button on the robot controller is configured for stop category 0 on delivery. A risk assessment can conclude the need for another stop category. The stop category can be changed through the system parameter *Function* (topic *Controller*, type *Safety Run Chain*). In case of deviations of the default configuration of stop category 0, then this is detailed in the product specification for the respective manipulator.



#### CAUTION

The measurement and calculation of overall stopping performance for a robot must be tested with its correct load, speed, and tools, in its actual environment, before the robot is taken into production.

All load and tool data must be correctly defined (weight, CoG, moment of inertia). The load identification service routine can be used to identify the data.



#### CAUTION

Follow the safety instructions in the respective product manual for the robot.

---

### Measuring with TuneMaster

The software TuneMaster can be used to measure stopping distances and times for ABB robots. The TuneMaster software contains documentation on how to use it.

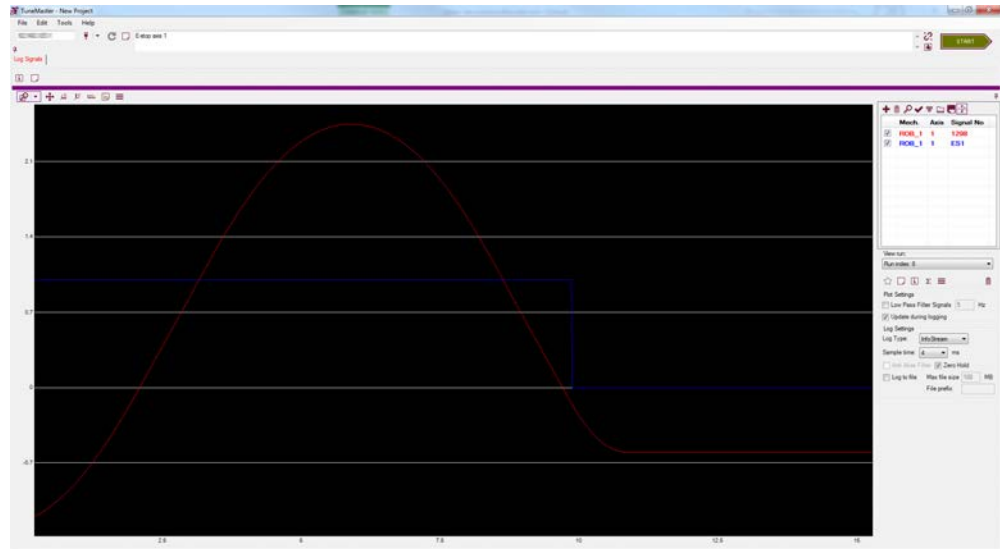
- 1 Download TuneMaster from [www.abb.com/robotics](http://www.abb.com/robotics), section **RobotStudio - Downloads - RobotWare Tools and Utilities**.
- 2 Install TuneMaster on a computer. Start the TuneMaster app and select **Log Signals**.
- 3 Connect to the robot controller.
- 4 Define the I/O stop signal to use for measurement, for example, ES1 for emergency stop.
- 5 Define the signal number to use for measurement, 1298 for axis position. The value is given in radians.
- 6 Start the logging in TuneMaster.
- 7 Start the test program on the controller.
- 8 When the axis has reached maximum speed, press the emergency stop button.
- 9 In TuneMaster, measure the stopping distance and time.
- 10 Repeat for all installed emergency stop buttons until the identified hazards due to stopping distance and time for axes have been verified.

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## 2 Measuring stopping distance and time

Continued

### Example from TuneMaster



xx160000386

## 3 IRB 120

### 3.1 IRB 120 0.58 m 3 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	28.9	0.15
2	32.8	0.17
3	27.4	0.12

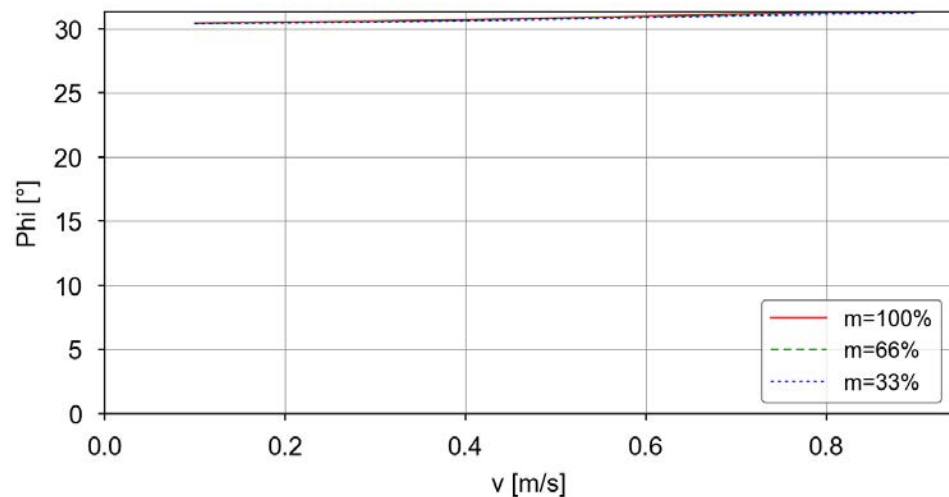
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.193
1	0.193	0.387
2	0.387	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

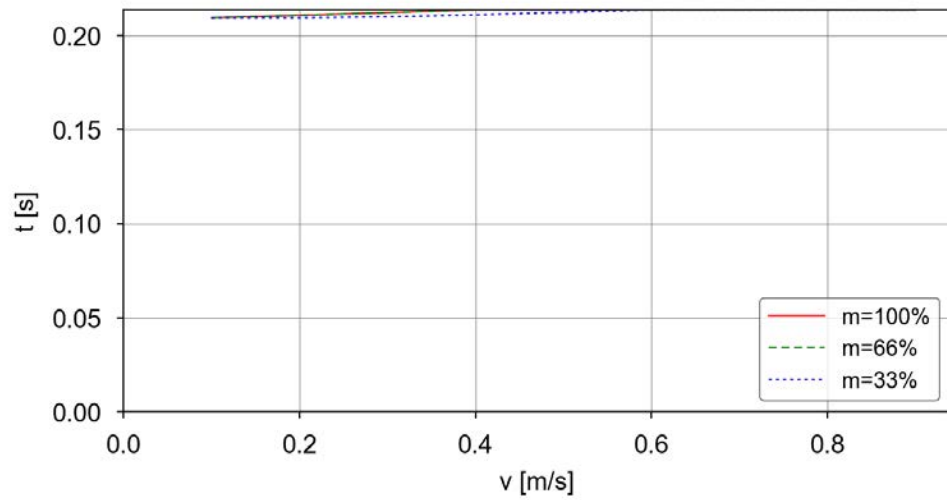


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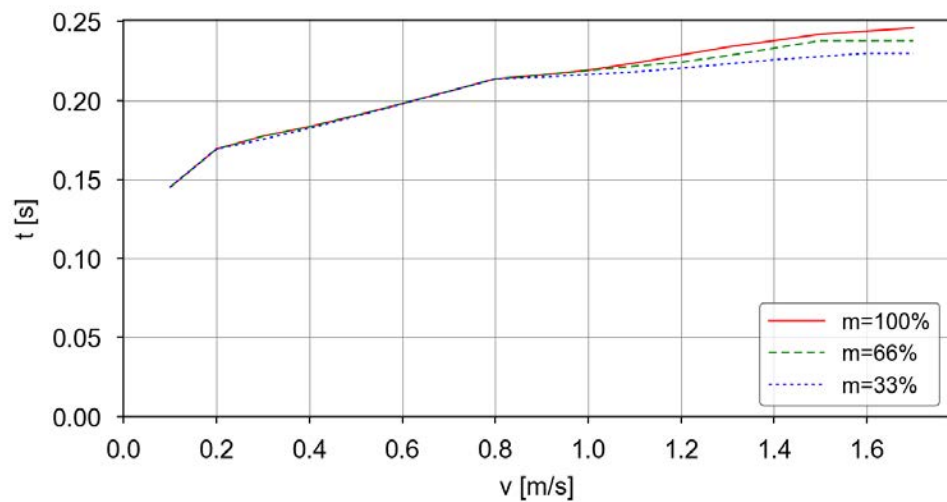
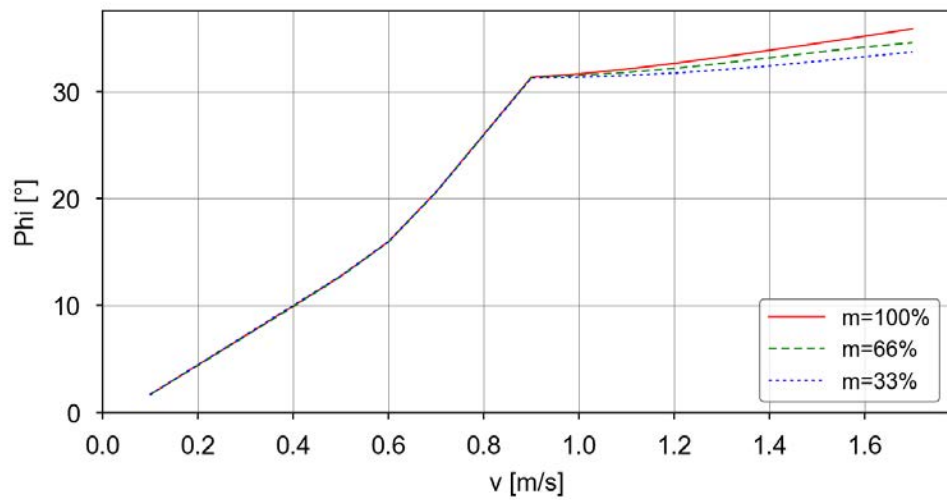
### 3 IRB 120

#### 3.1 IRB 120 0.58 m 3 kg

Continued

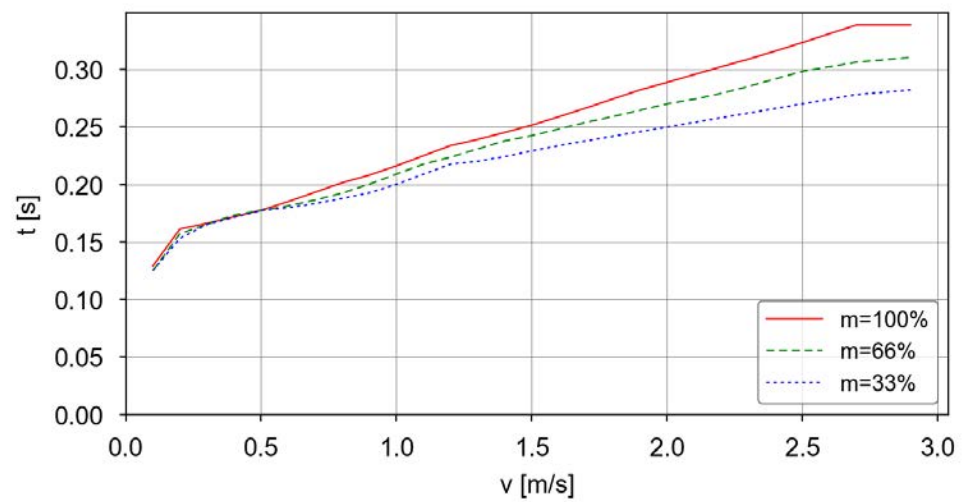
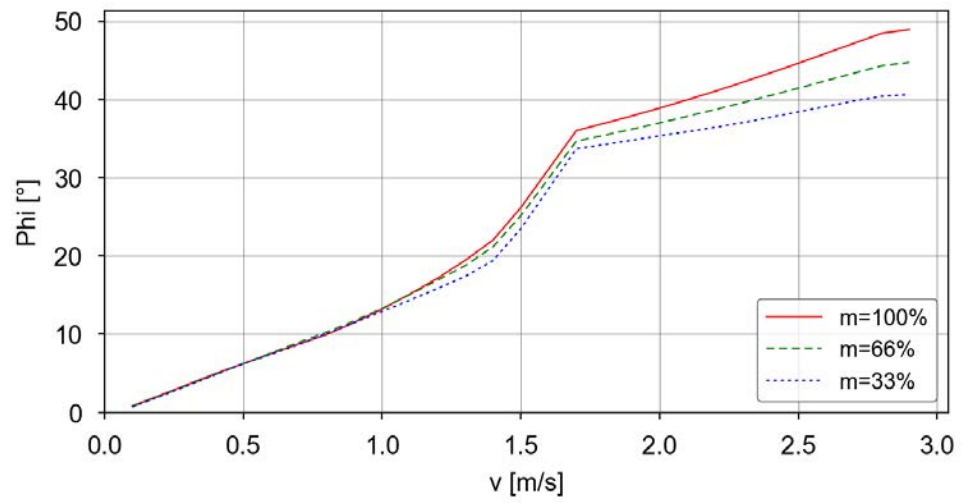


#### Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

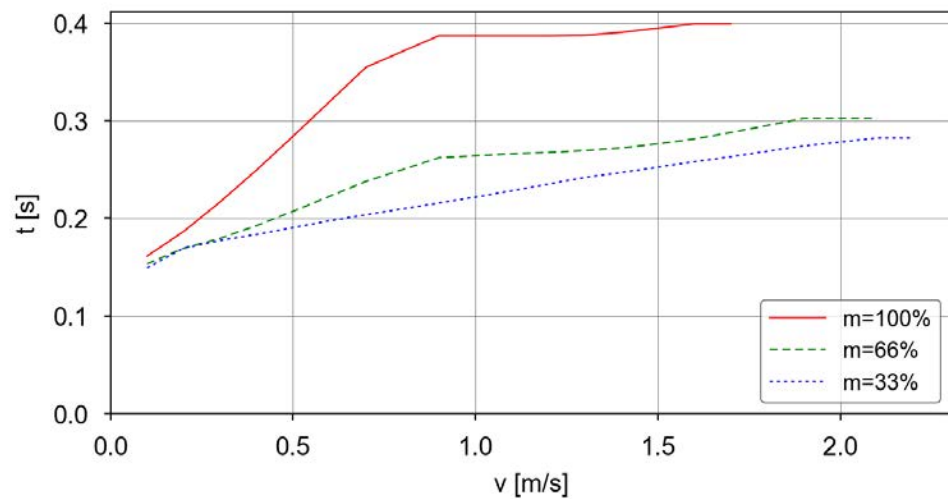
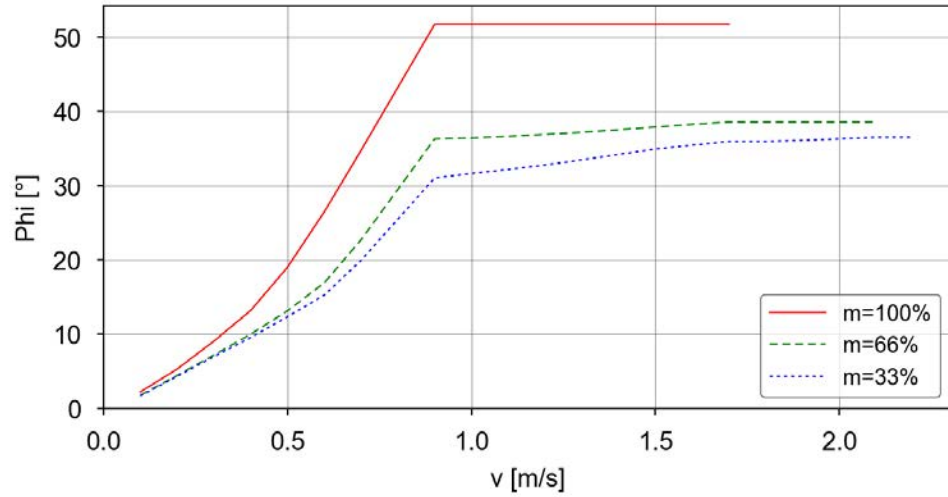
### 3 IRB 120

#### 3.1 IRB 120 0.58 m 3 kg

Continued

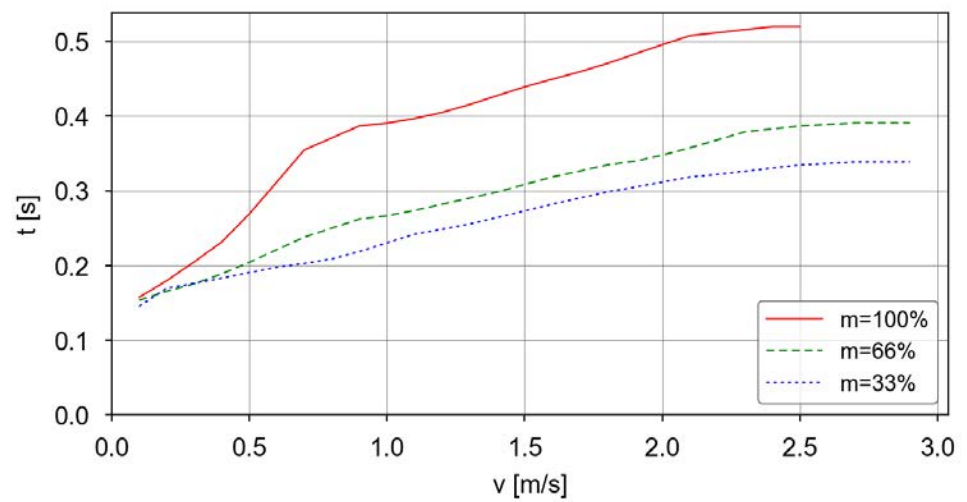
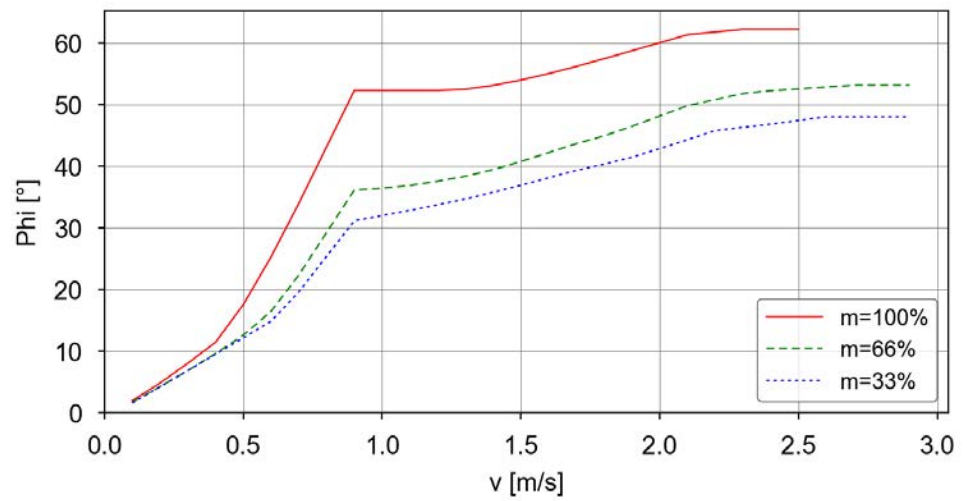
#### Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



Continues on next page

## Extension zone 1, stopping distance and stopping time



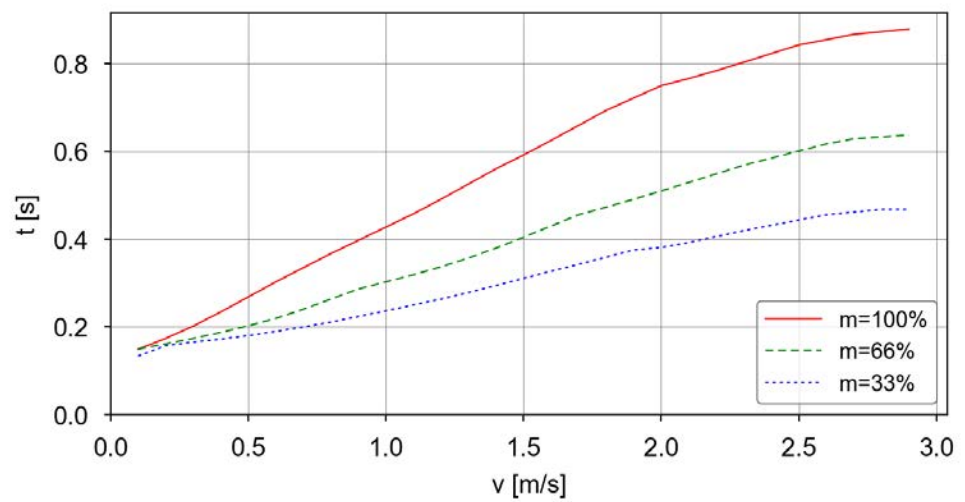
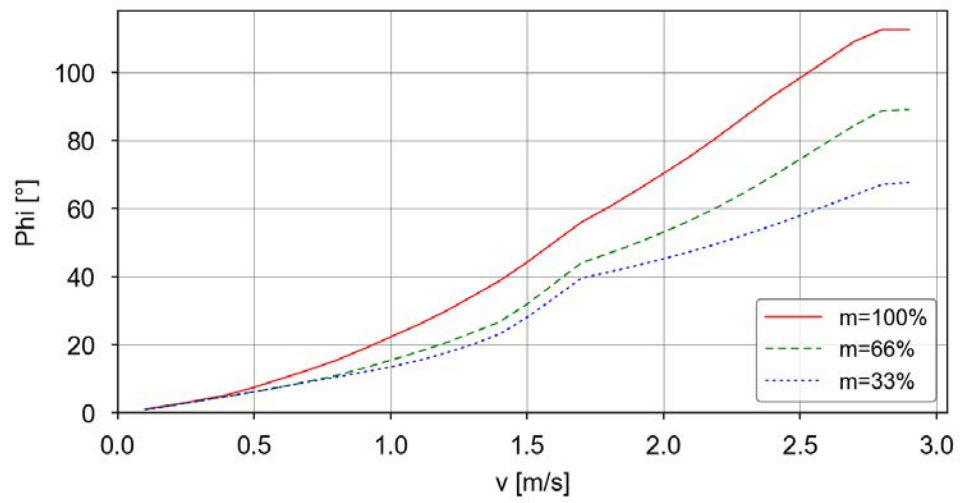
Continues on next page

### 3 IRB 120

#### 3.1 IRB 120 0.58 m 3 kg

Continued

Extension zone 2, stopping distance and stopping time

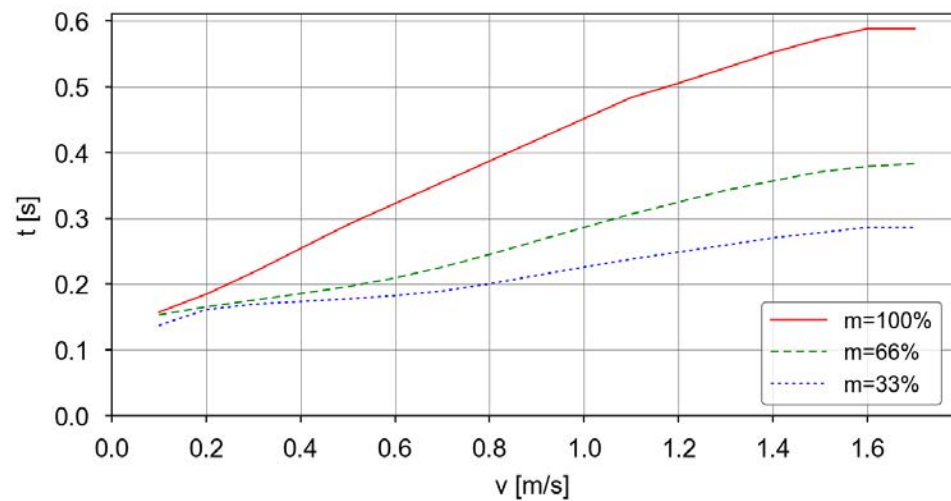
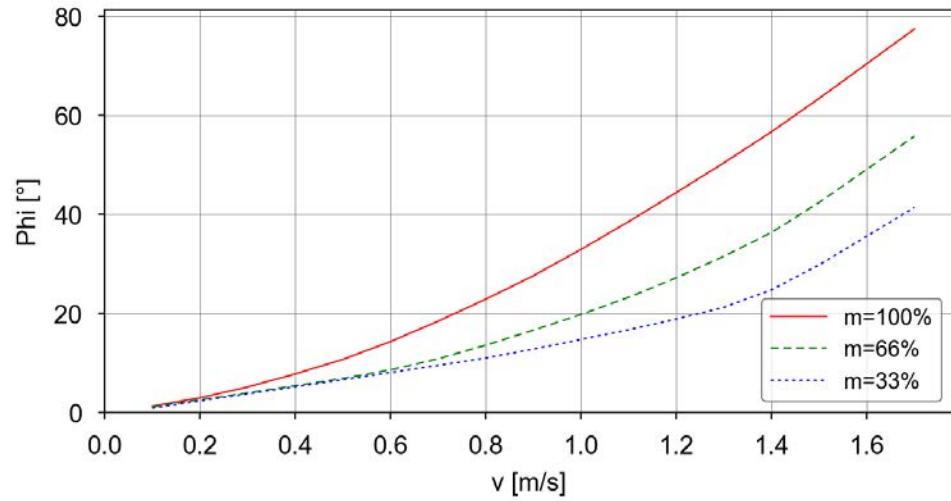


Continues on next page



## Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



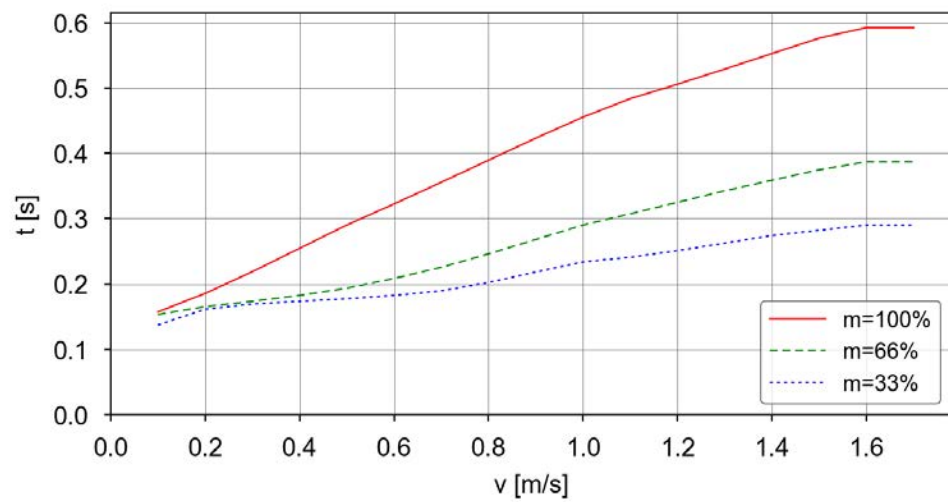
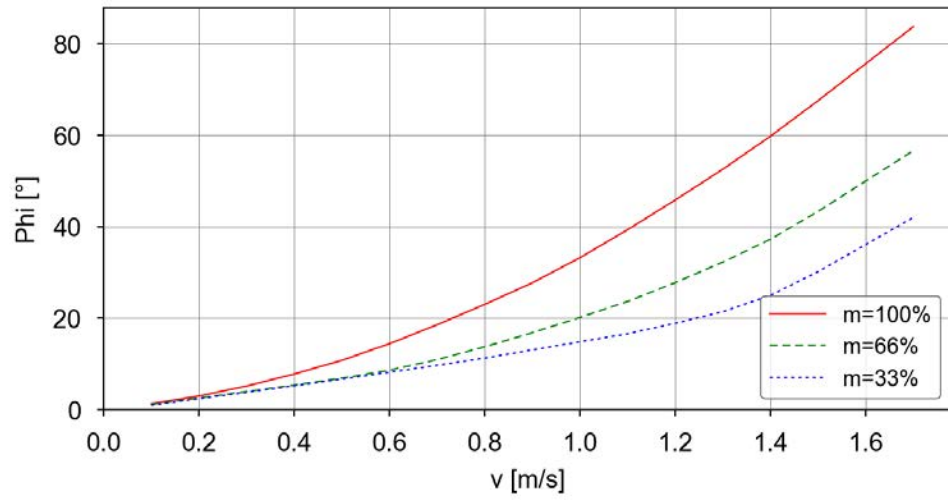
Continues on next page

### 3 IRB 120

#### 3.1 IRB 120 0.58 m 3 kg

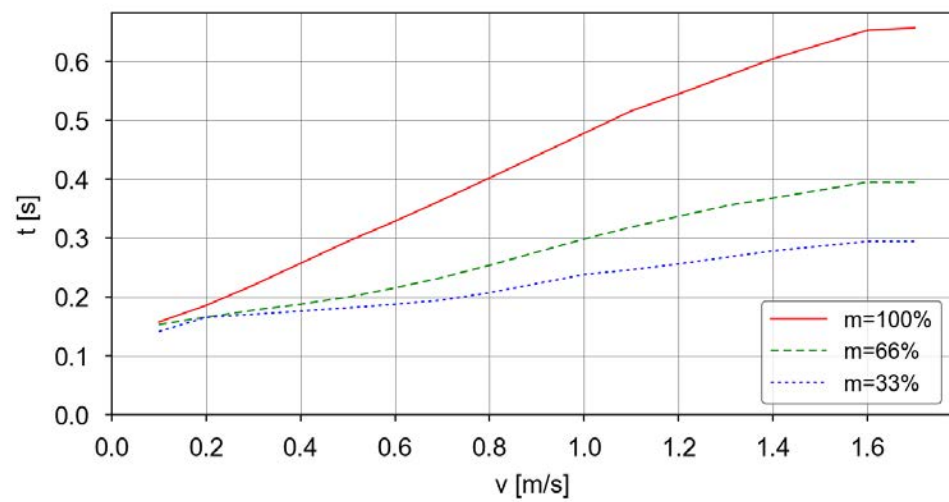
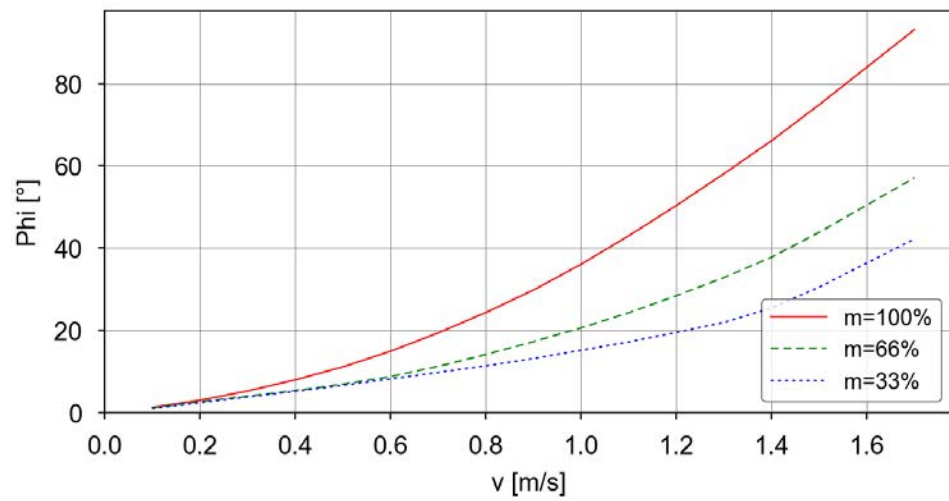
Continued

#### Extension zone 1, stopping distance and stopping time



Continues on next page

## Extension zone 2, stopping distance and stopping time



### 3 IRB 120

#### 3.2 IRB 120T 0.58 m 3 kg

#### 3.2 IRB 120T 0.58 m 3 kg

##### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	28.6	0.14
2	33.2	0.17
3	27.3	0.12

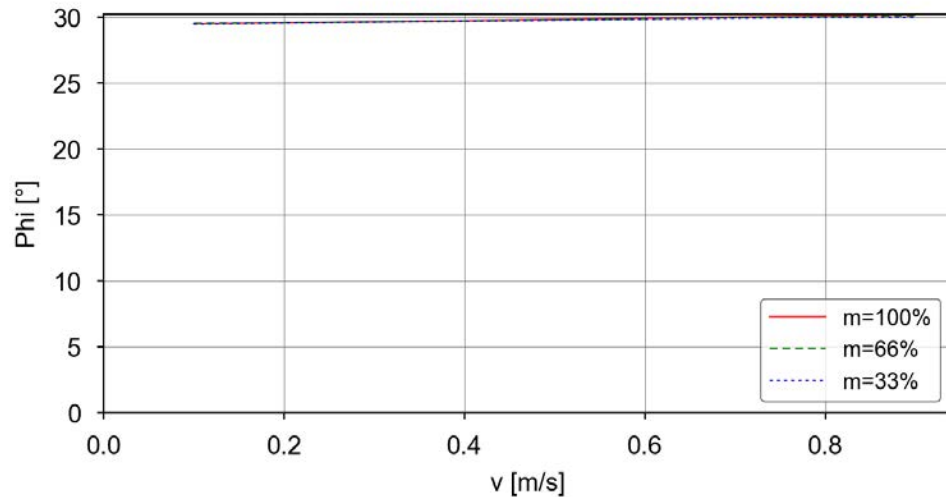
##### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

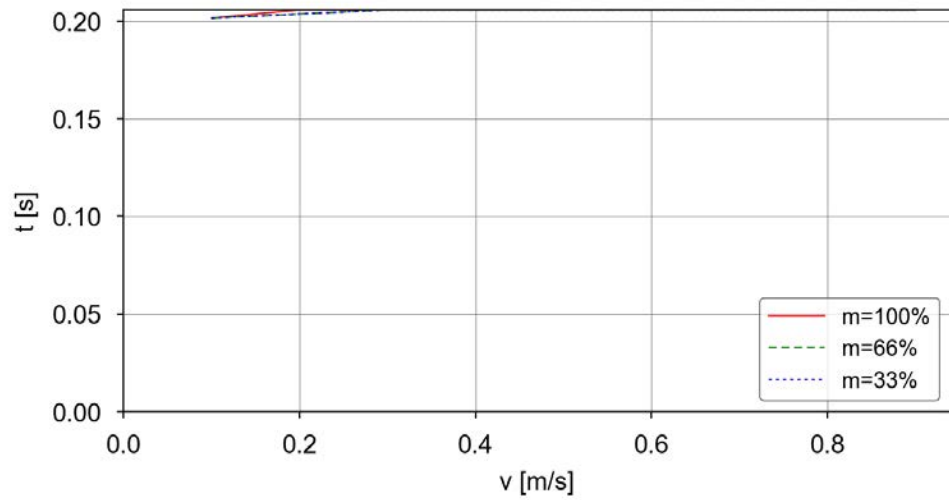
Zone	wcp min (m)	wcp max (m)
0	0	0.193
1	0.193	0.387
2	0.387	max reach

##### Category 1, Axis 1

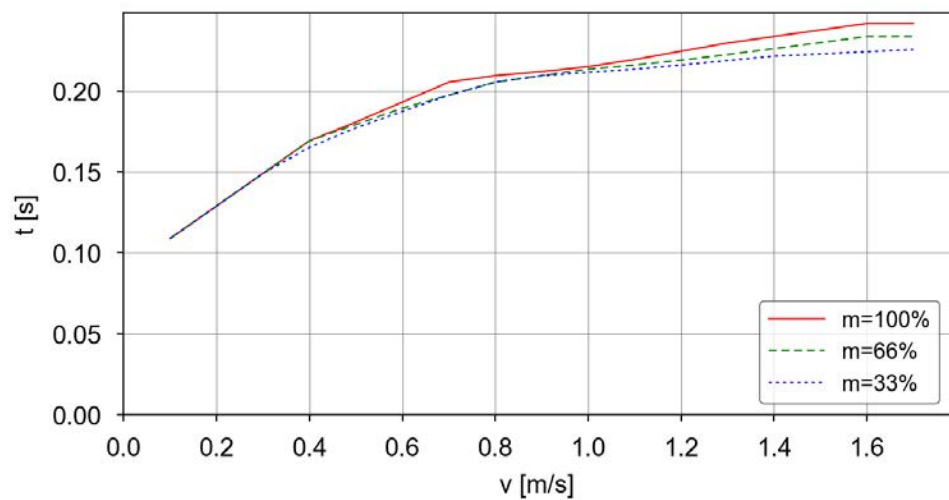
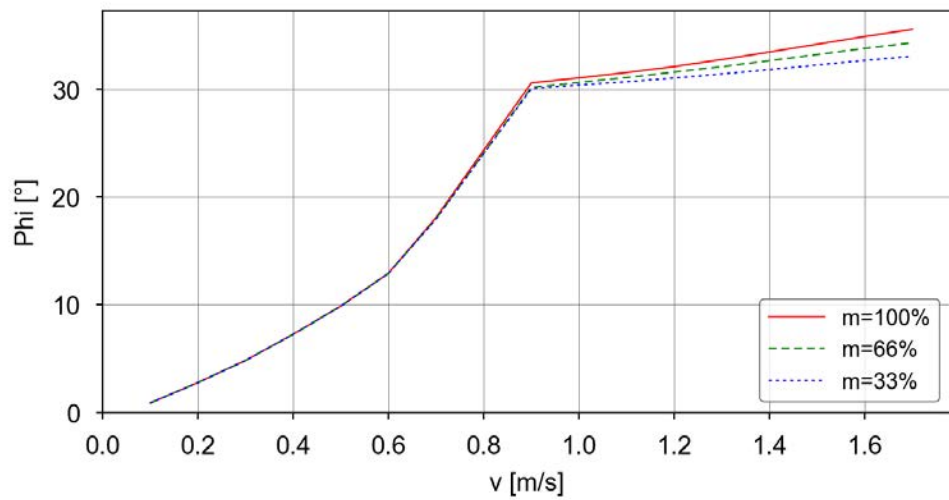
Extension zone 0, stopping distance and stopping time



Continues on next page



Extension zone 1, stopping distance and stopping time



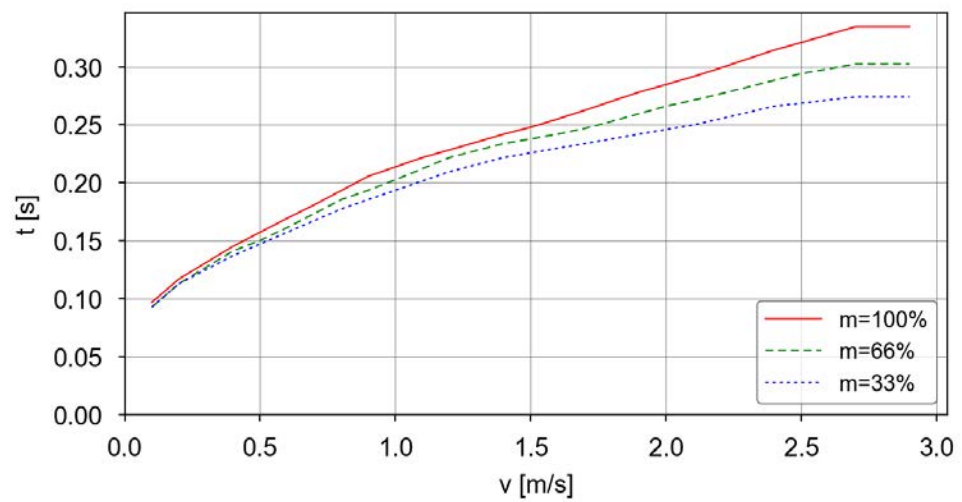
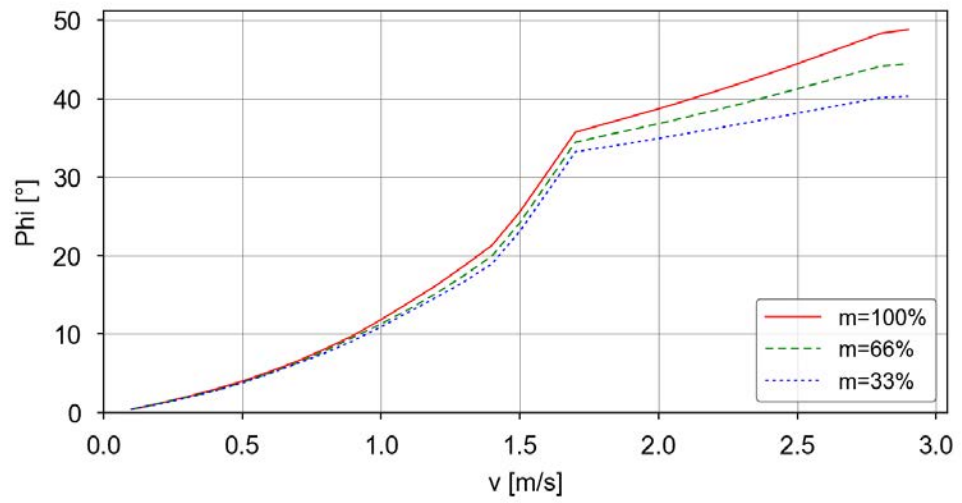
Continues on next page

### 3 IRB 120

#### 3.2 IRB 120T 0.58 m 3 kg

Continued

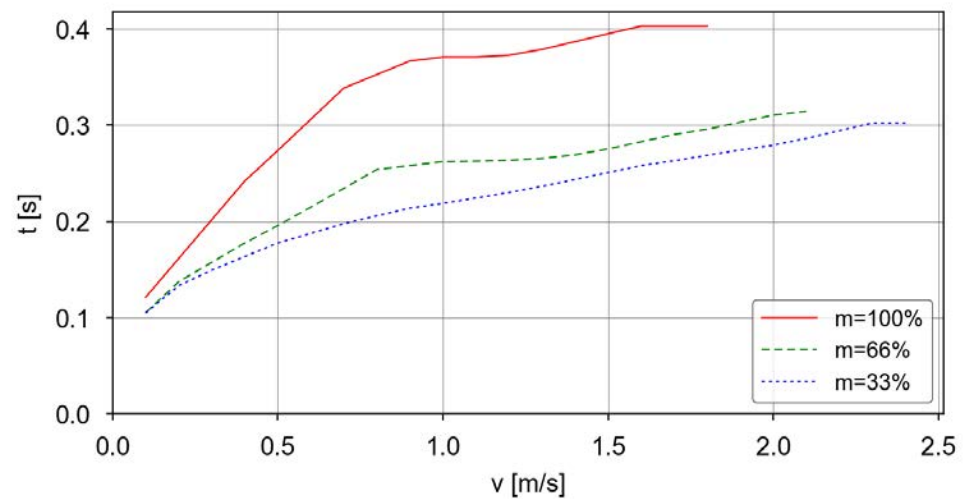
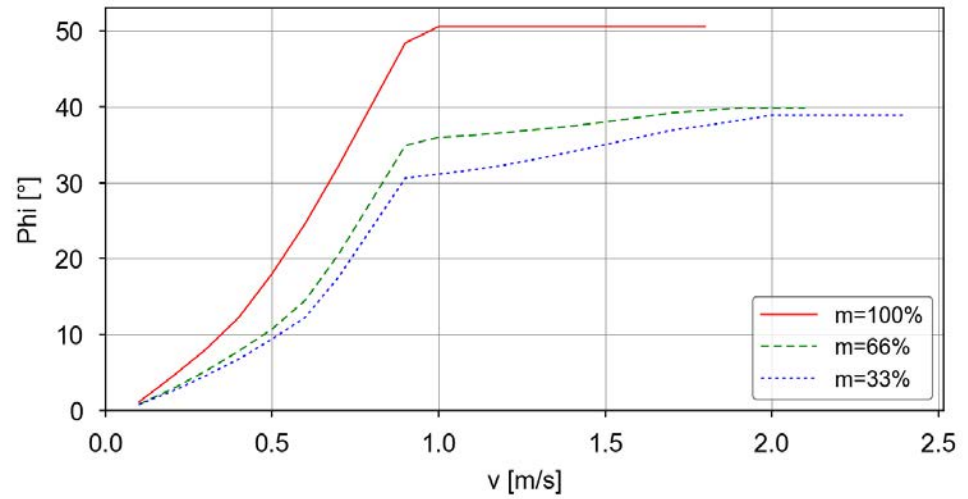
#### Extension zone 2, stopping distance and stopping time



Continues on next page

## Category 1, Axis 2

## Extension zone 0, stopping distance and stopping time



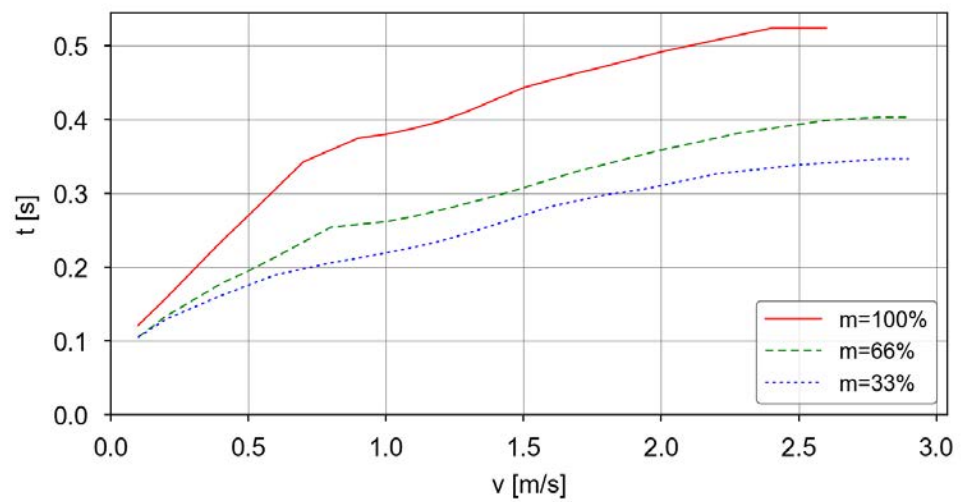
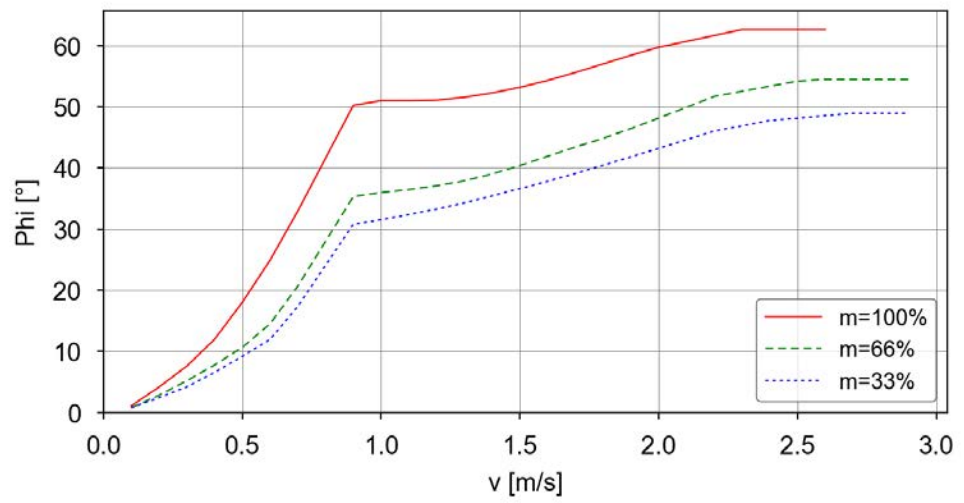
Continues on next page

### 3 IRB 120

#### 3.2 IRB 120T 0.58 m 3 kg

Continued

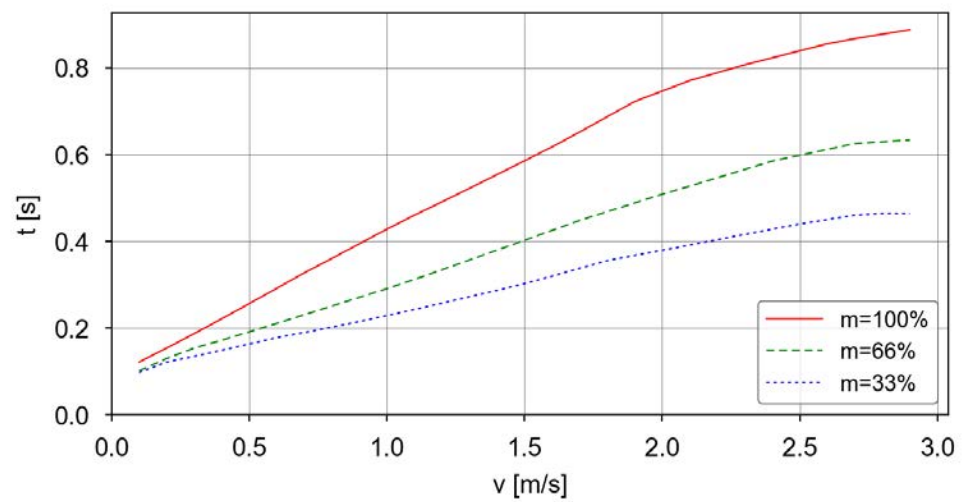
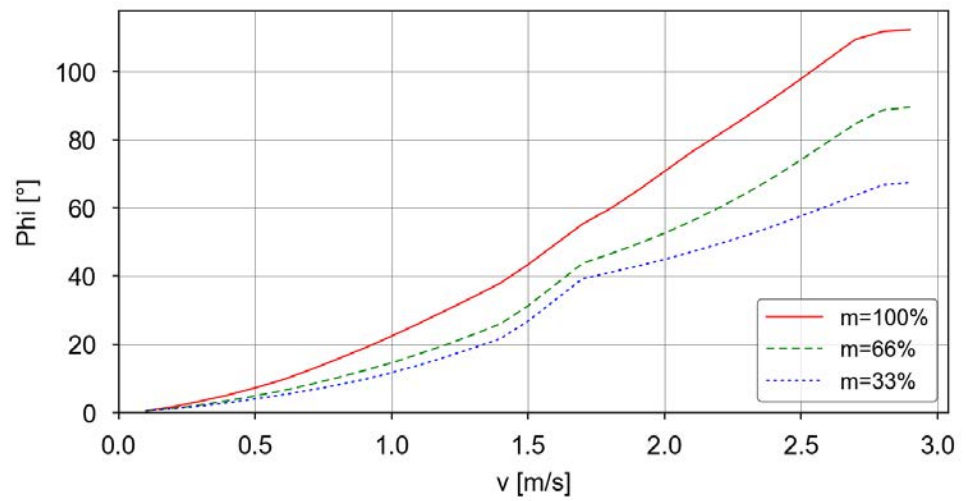
#### Extension zone 1, stopping distance and stopping time



Continues on next page



## Extension zone 2, stopping distance and stopping time



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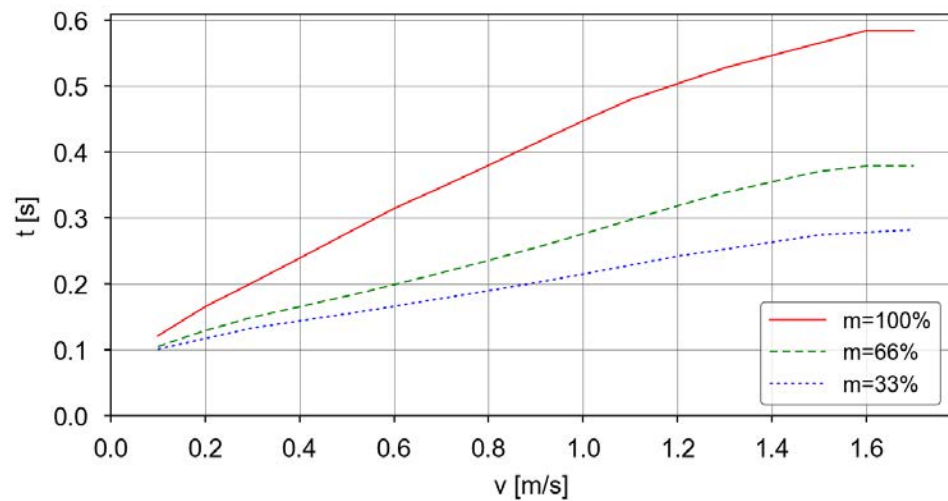
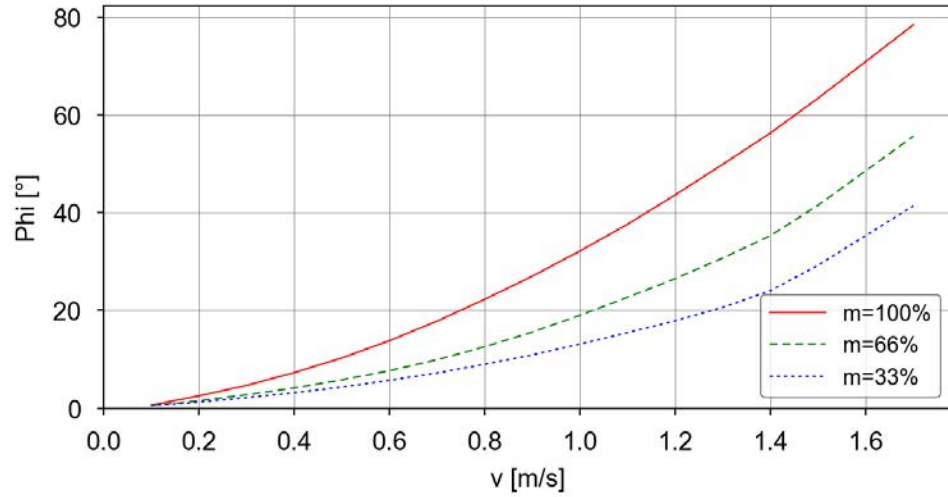
### 3 IRB 120

3.2 IRB 120T 0.58 m 3 kg

Continued

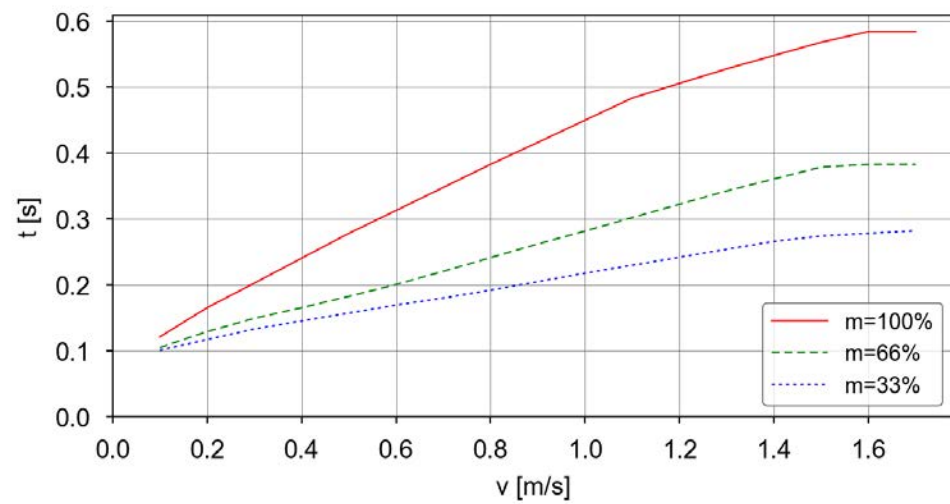
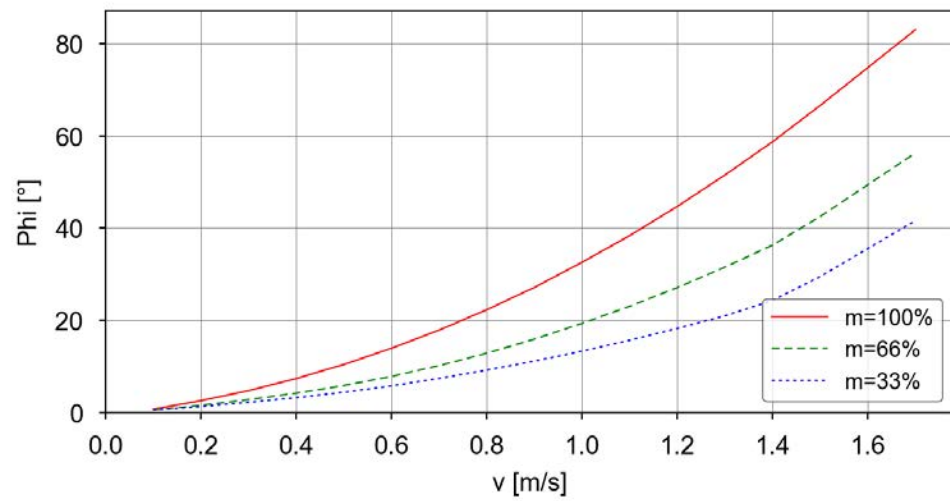
#### Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



Continues on next page

## Extension zone 1, stopping distance and stopping time



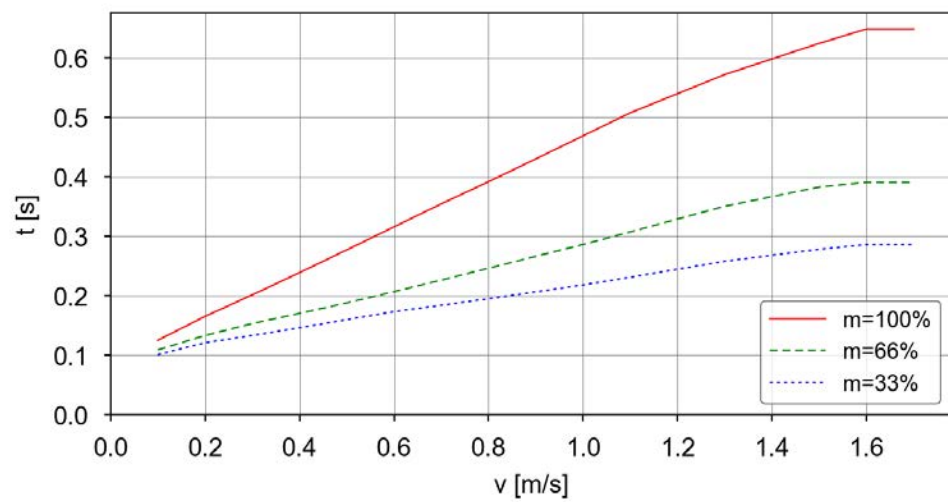
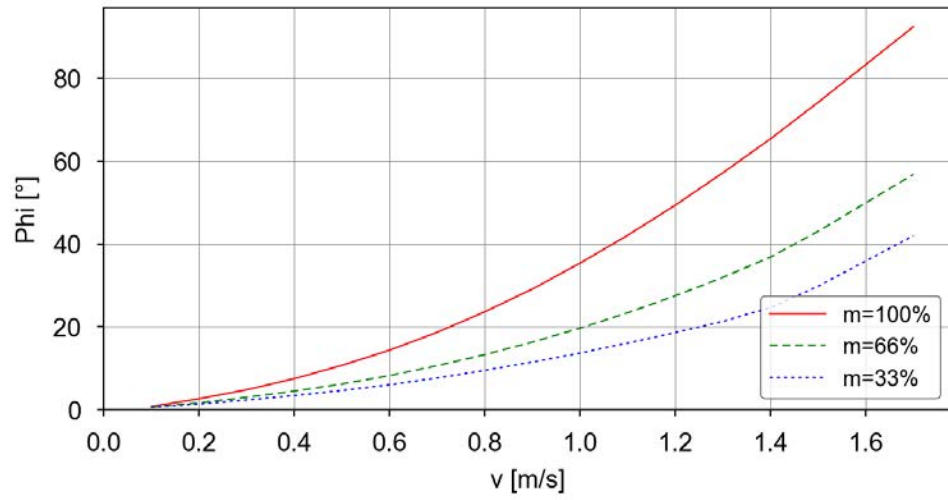
Continues on next page

### 3 IRB 120

#### 3.2 IRB 120T 0.58 m 3 kg

Continued

Extension zone 2, stopping distance and stopping time



## 4 IRB 910

### 4.1 IRB 910SC 0.45 m 3 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	42.9	0.21
2	72.2	0.22
3	3.98	0.16

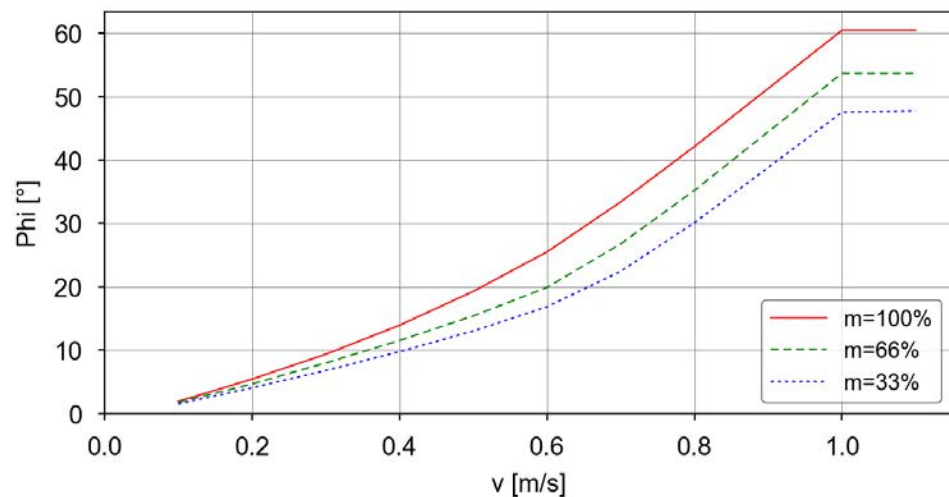
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.15
1	0.15	0.3
2	0.3	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

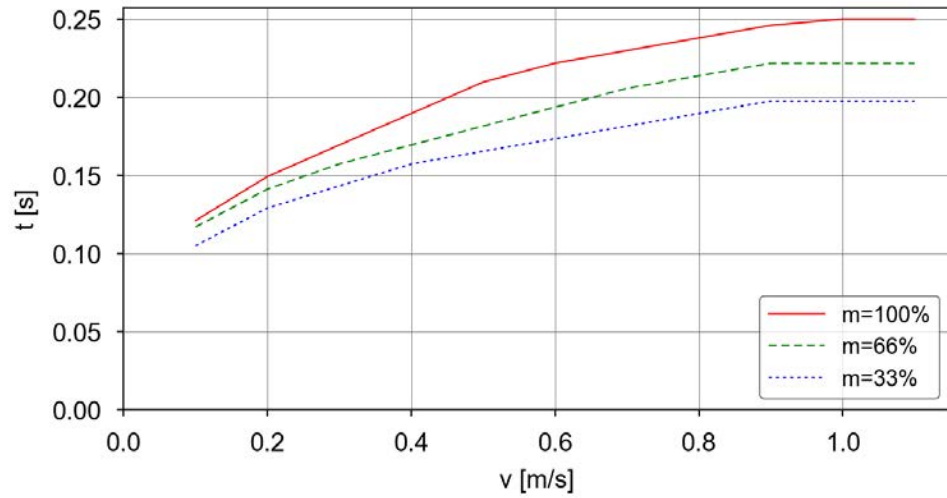


*Continues on next page*

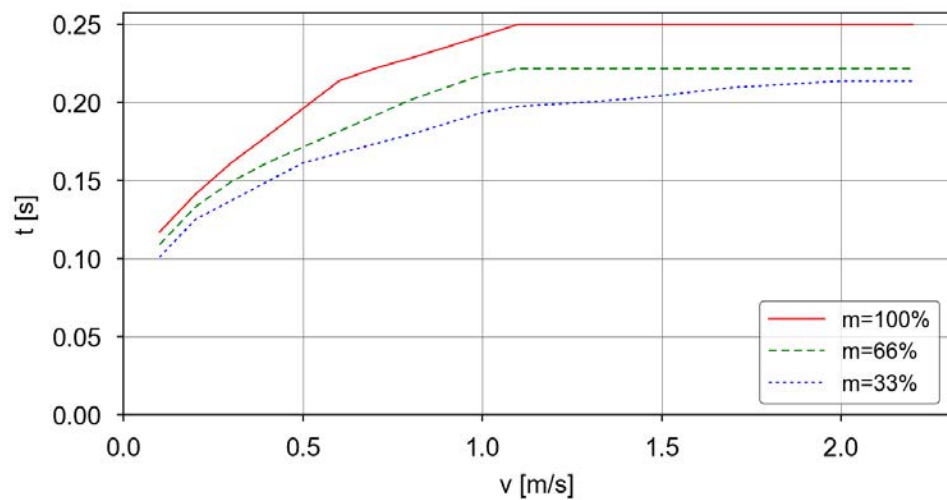
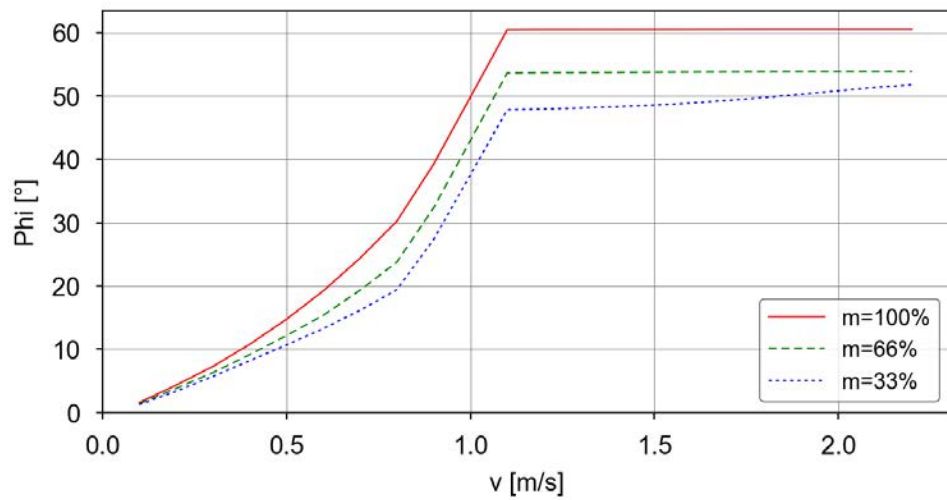
## 4 IRB 910

### 4.1 IRB 910SC 0.45 m 3 kg

Continued

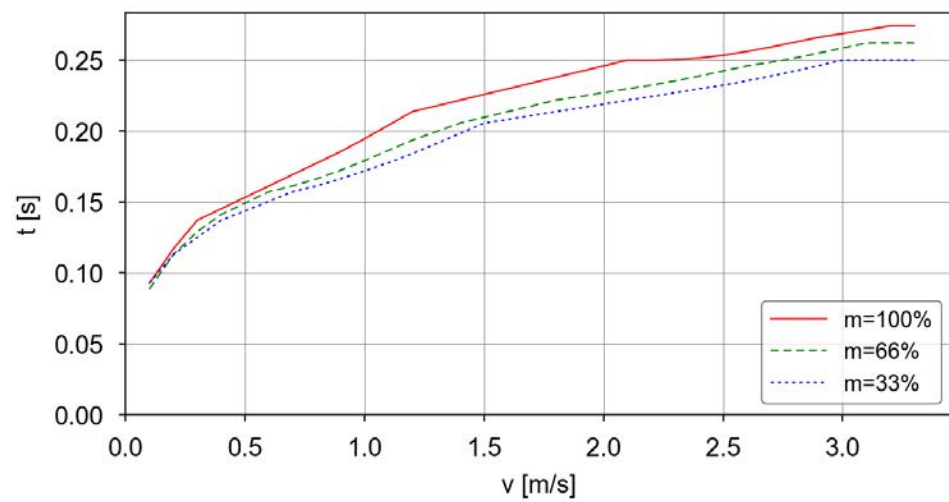
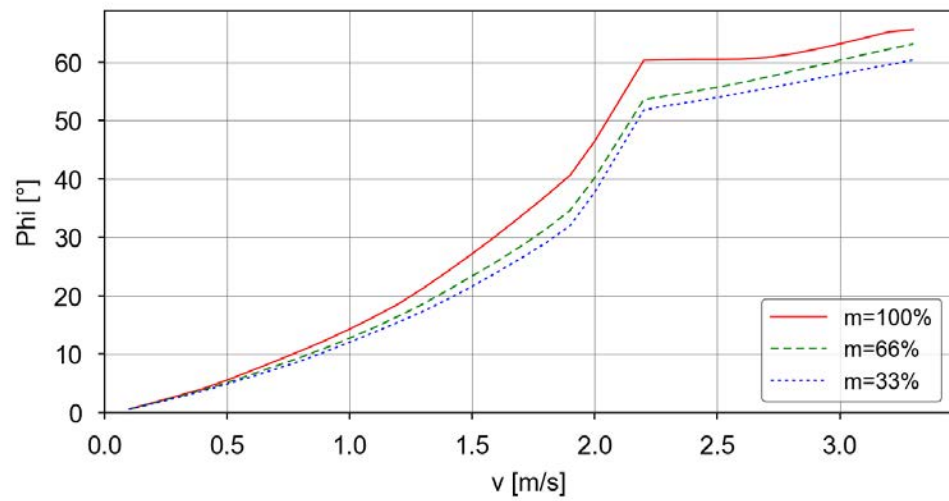


### Extension zone 1, stopping distance and stopping time



Continues on next page

## Extension zone 2, stopping distance and stopping time



Continues on next page

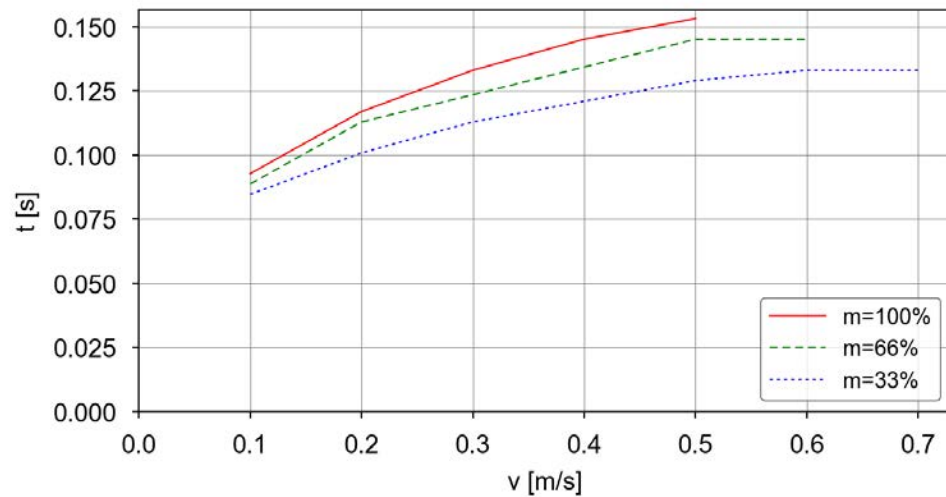
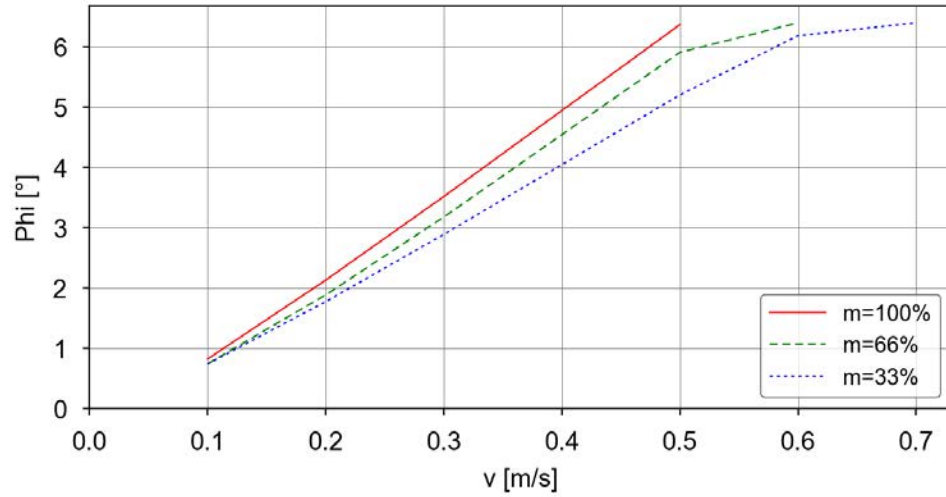
## 4 IRB 910

### 4.1 IRB 910SC 0.45 m 3 kg

Continued

#### Category 1, Axis 2

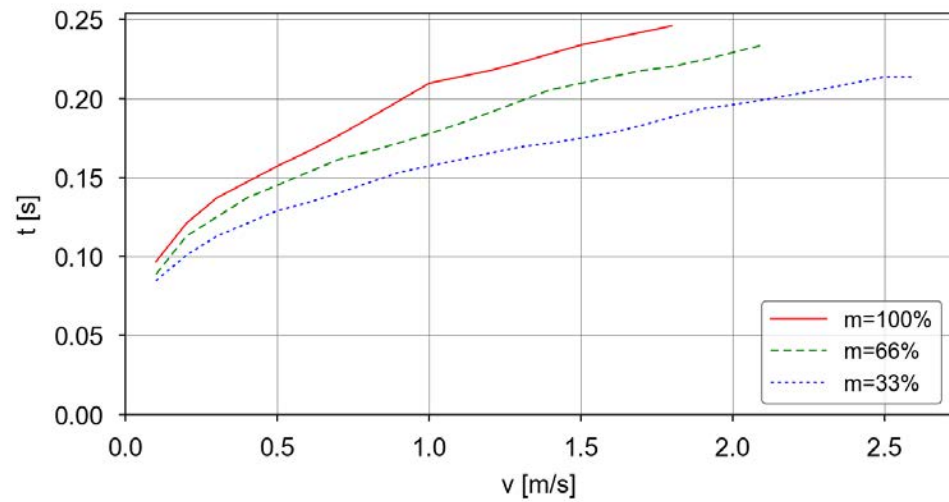
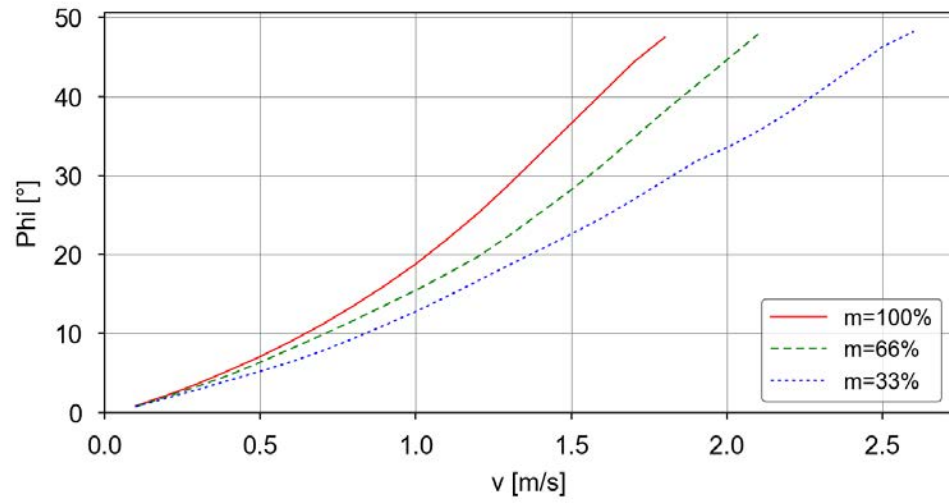
Extension zone 0, stopping distance and stopping time



Continues on next page



Extension zone 1, stopping distance and stopping time



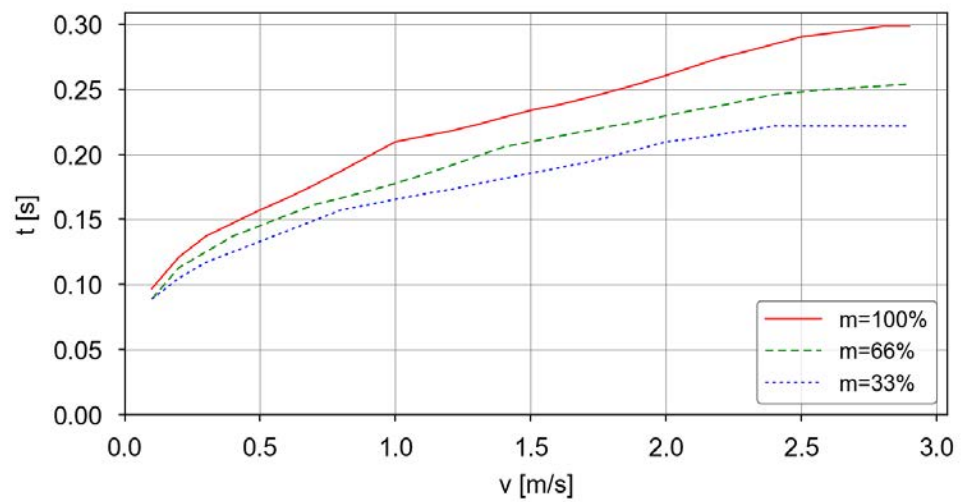
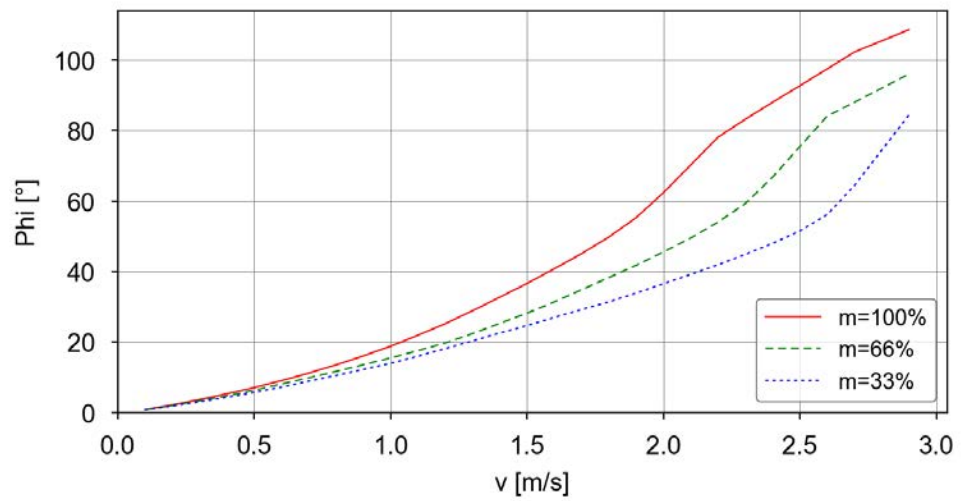
Continues on next page

## 4 IRB 910

### 4.1 IRB 910SC 0.45 m 3 kg

Continued

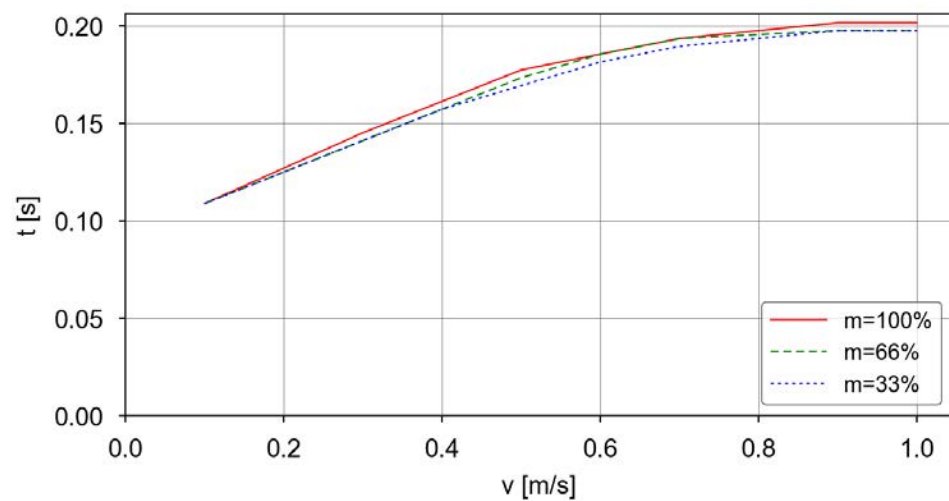
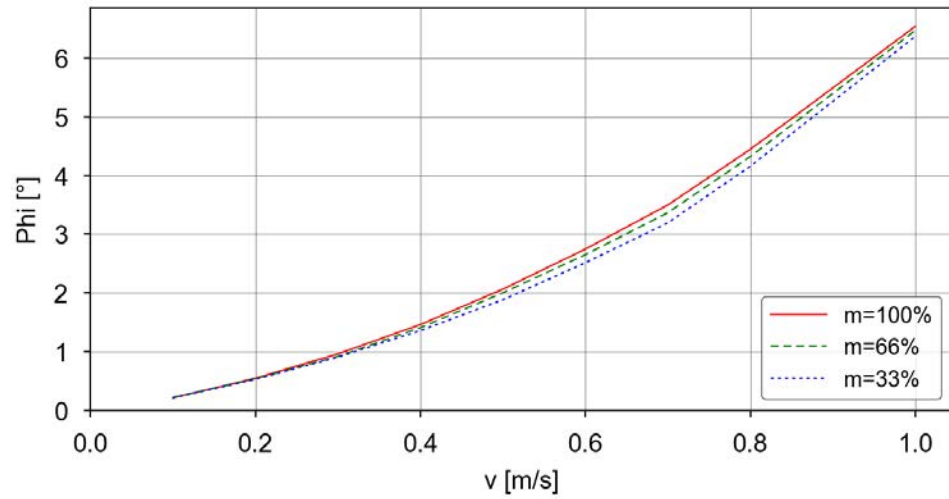
Extension zone 2, stopping distance and stopping time



Continues on next page

## Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



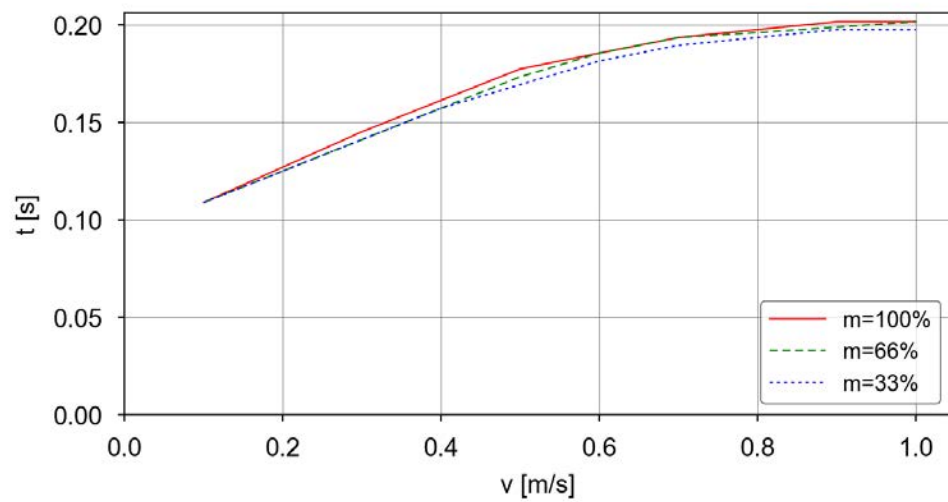
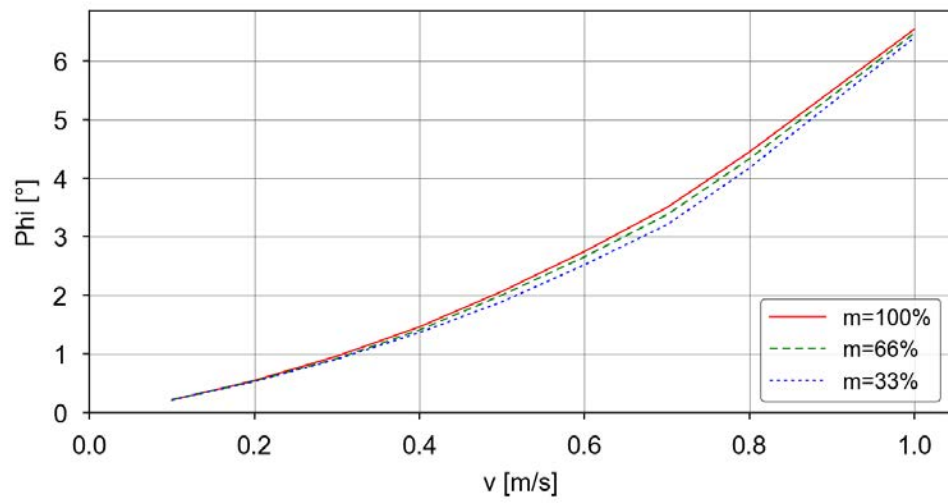
Continues on next page

## 4 IRB 910

### 4.1 IRB 910SC 0.45 m 3 kg

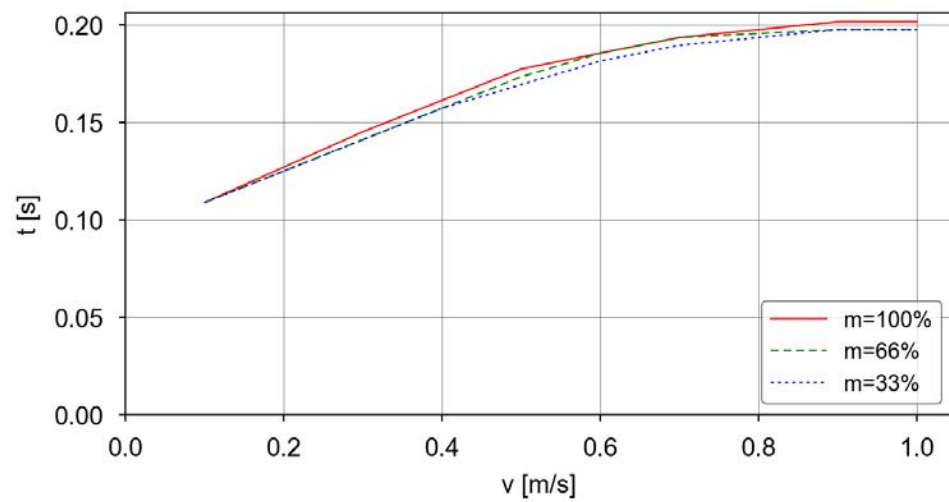
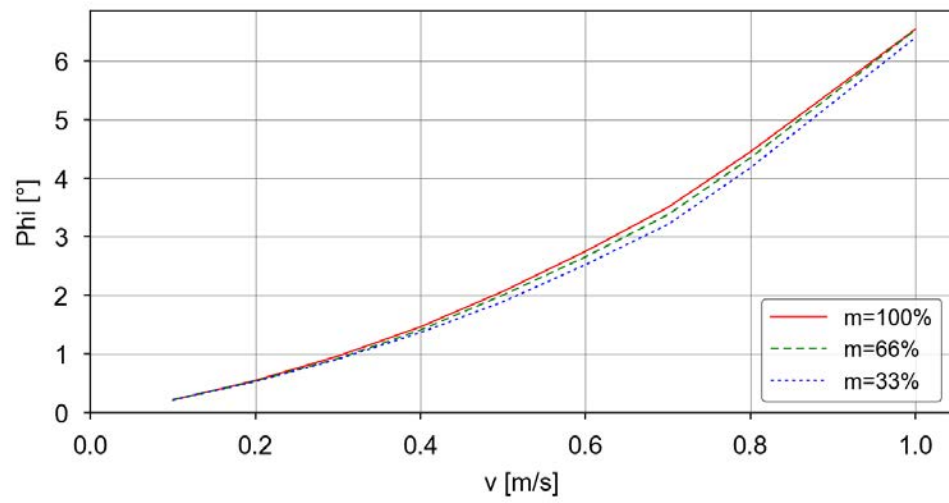
Continued

Extension zone 1, stopping distance and stopping time



Continues on next page

## Extension zone 2, stopping distance and stopping time



## 4 IRB 910

### 4.2 IRB 910SC 0.55 m 3 kg

### 4.2 IRB 910SC 0.55 m 3 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	52.75	0.27
2	71.9	0.23
3	3.98	0.16

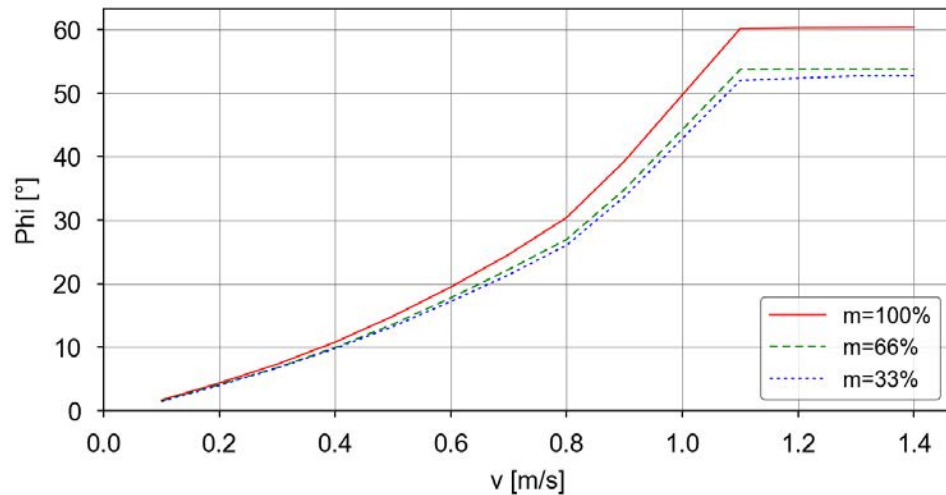
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

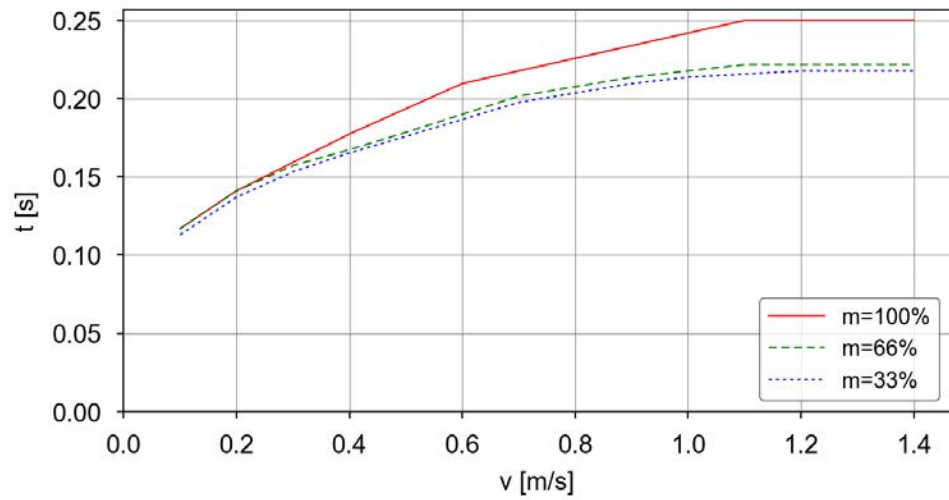
Zone	wcp min (m)	wcp max (m)
0	0	0.183
1	0.183	0.367
2	0.367	max reach

#### Category 1, Axis 1

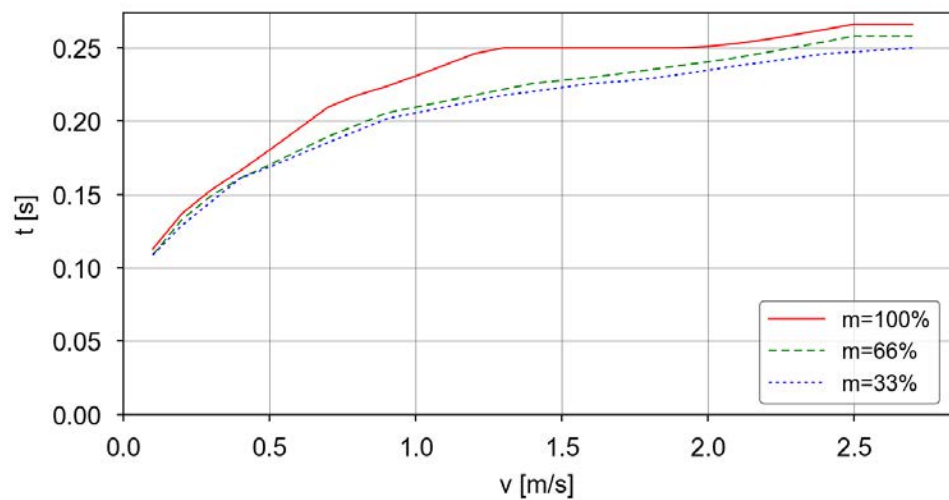
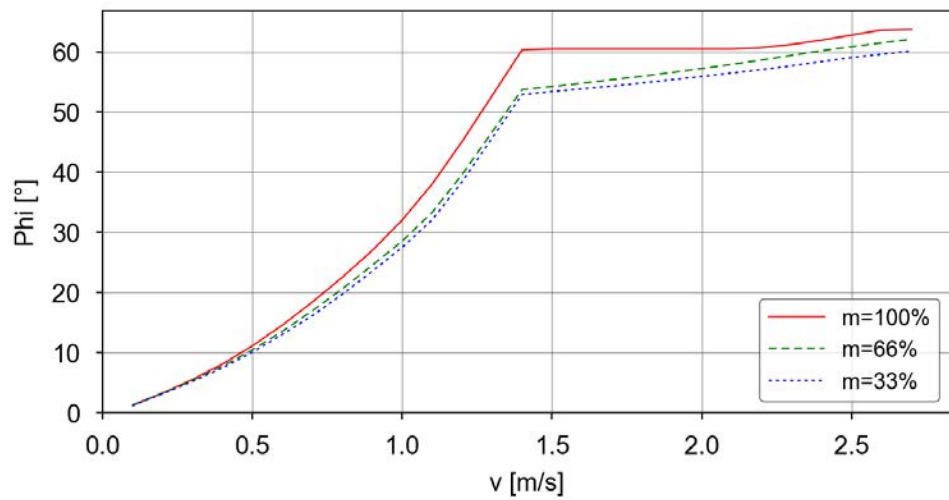
Extension zone 0, stopping distance and stopping time



Continues on next page



Extension zone 1, stopping distance and stopping time



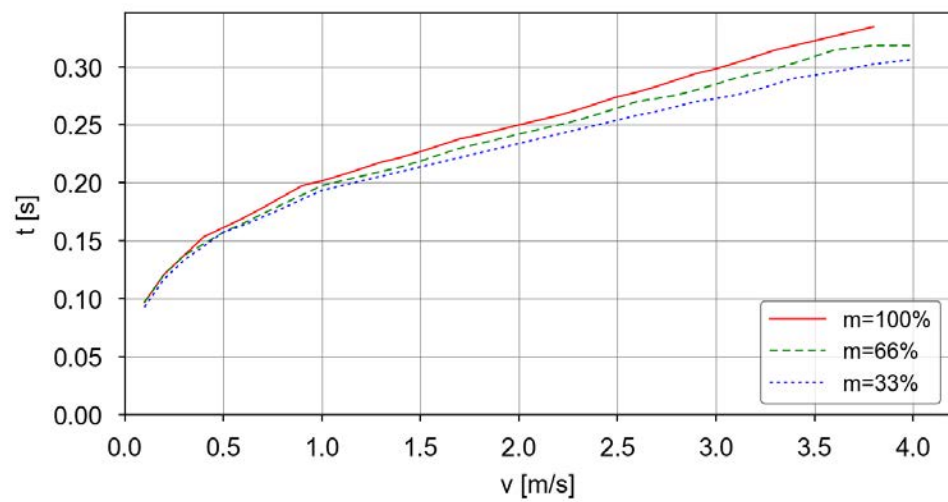
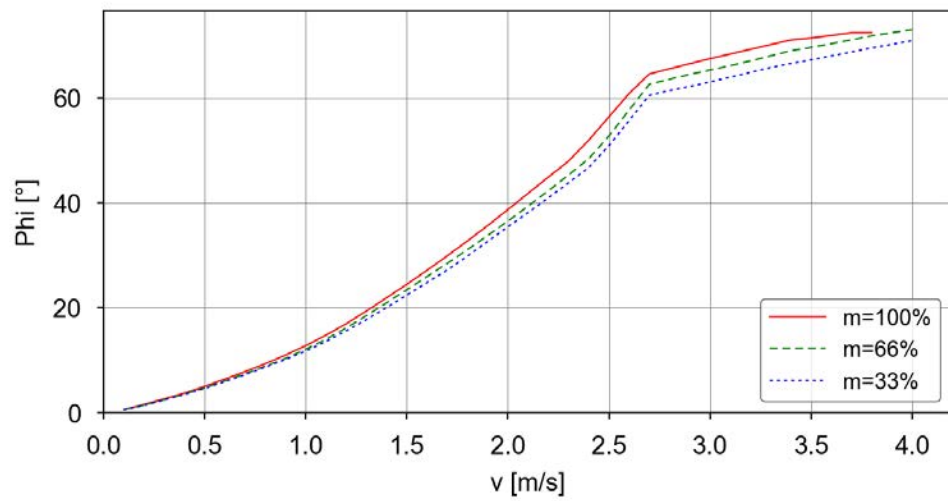
Continues on next page

## 4 IRB 910

### 4.2 IRB 910SC 0.55 m 3 kg

Continued

Extension zone 2, stopping distance and stopping time

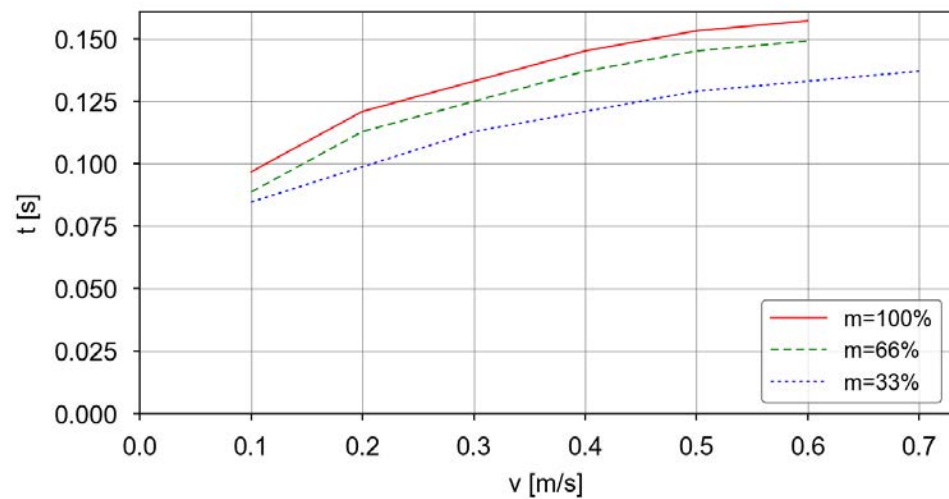
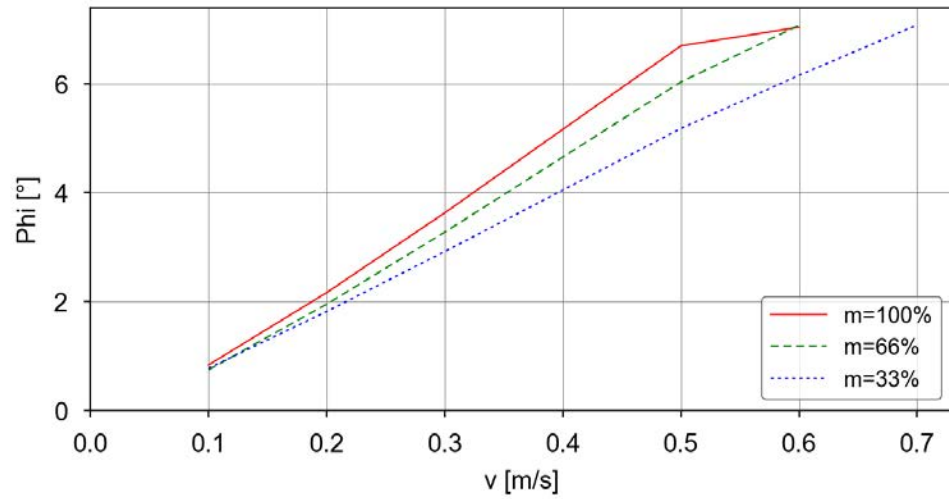


Continues on next page



Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



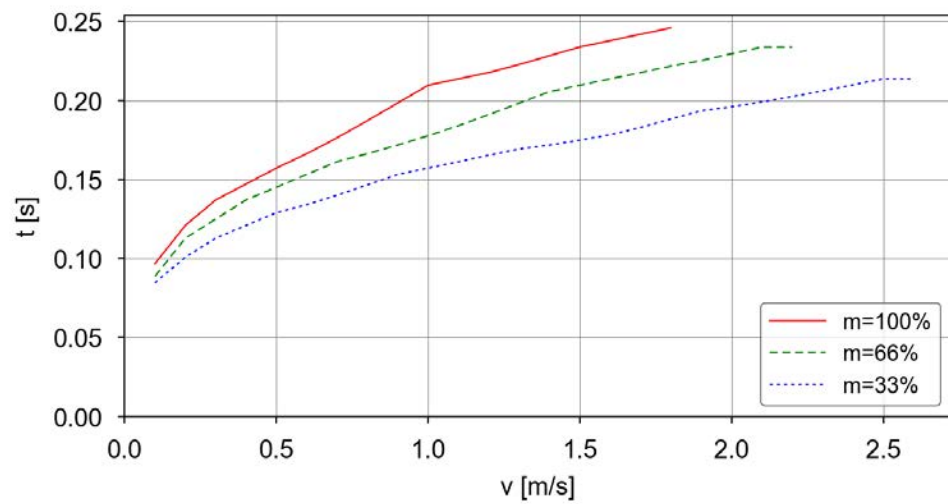
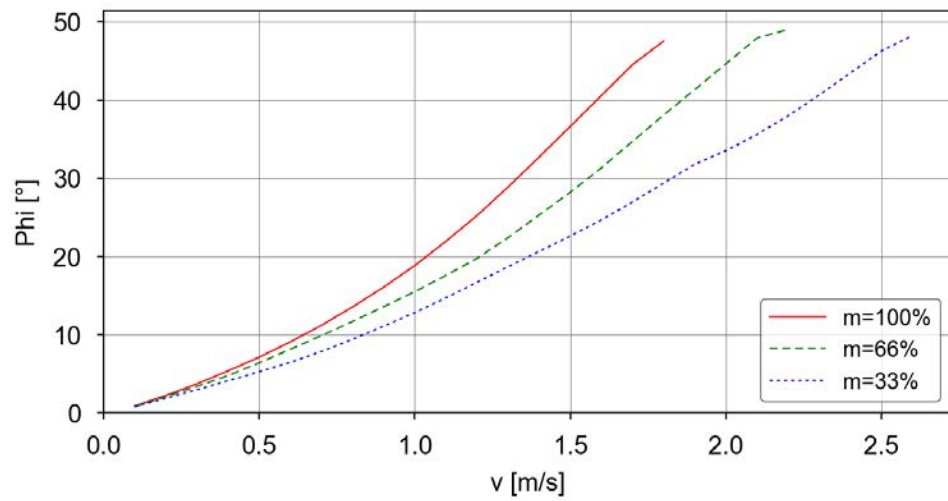
Continues on next page

## 4 IRB 910

### 4.2 IRB 910SC 0.55 m 3 kg

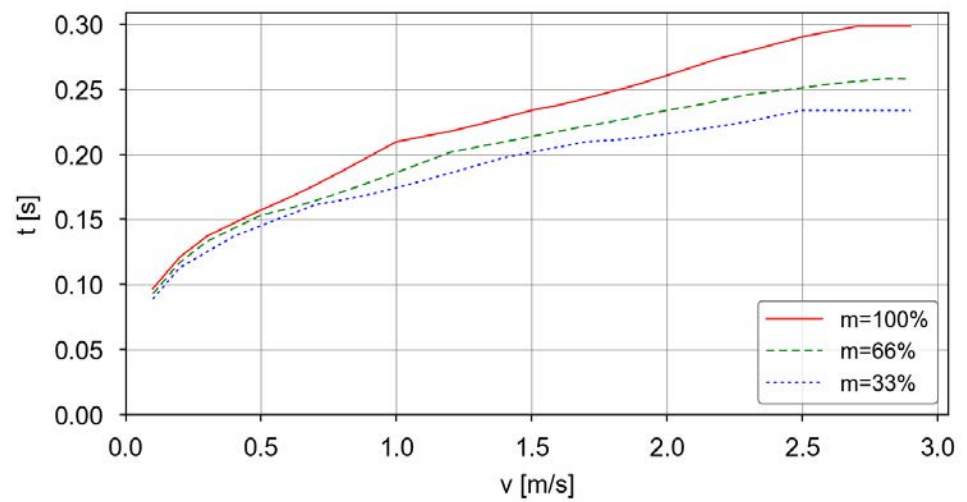
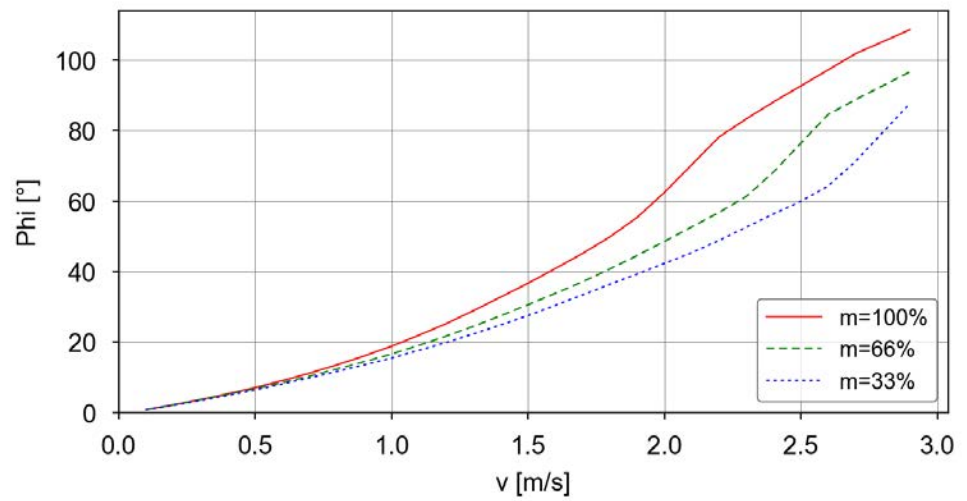
Continued

#### Extension zone 1, stopping distance and stopping time



Continues on next page

## Extension zone 2, stopping distance and stopping time



Continues on next page

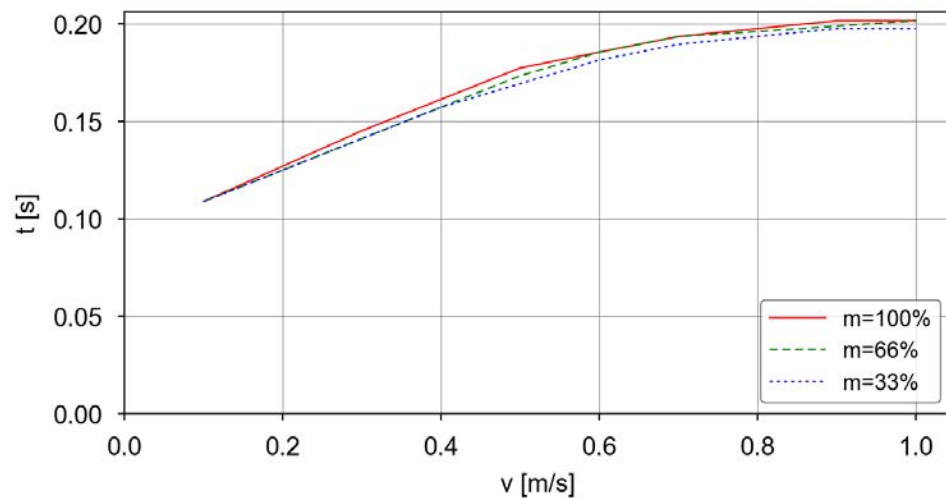
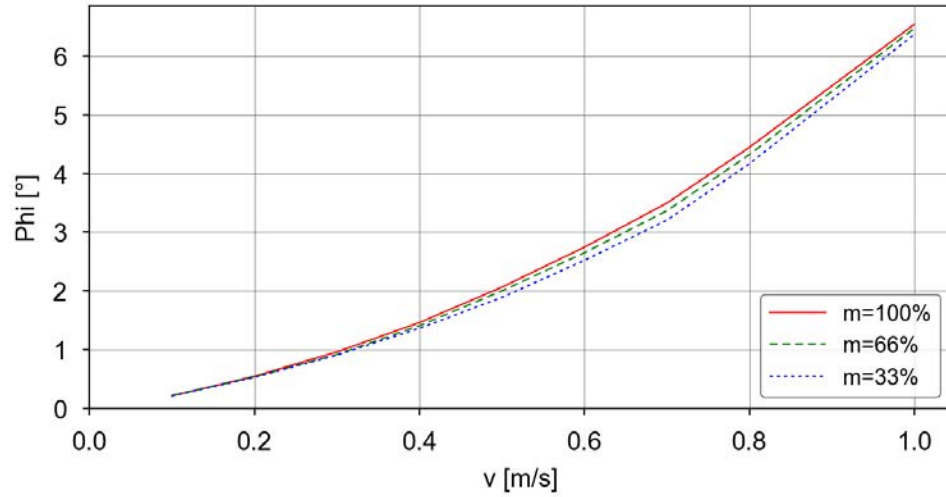
## 4 IRB 910

### 4.2 IRB 910SC 0.55 m 3 kg

Continued

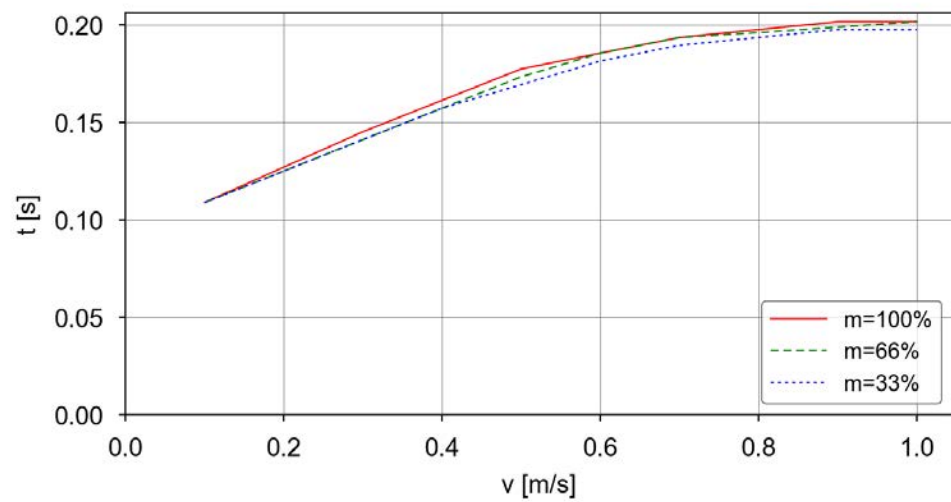
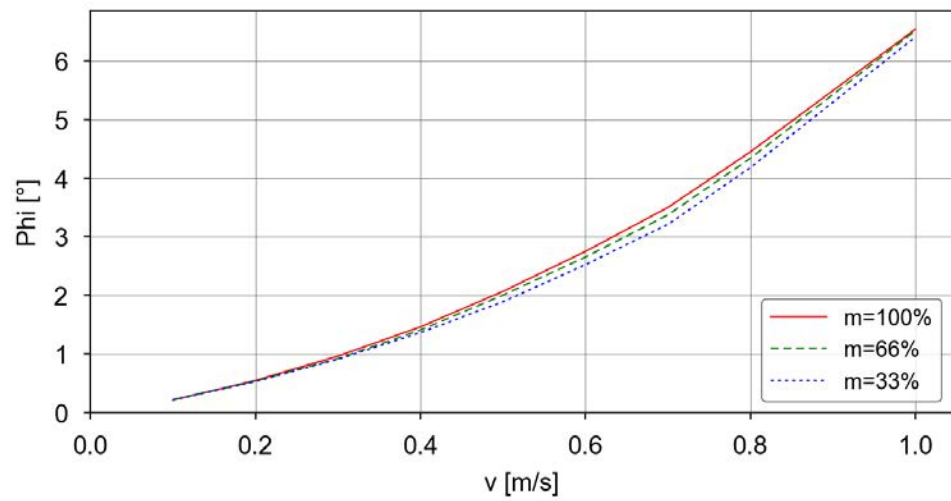
#### Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



Continues on next page

## Extension zone 1, stopping distance and stopping time



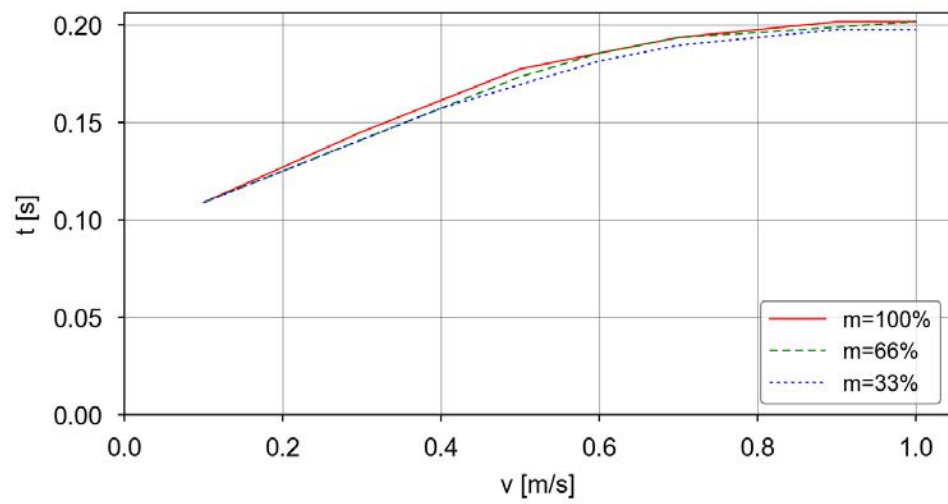
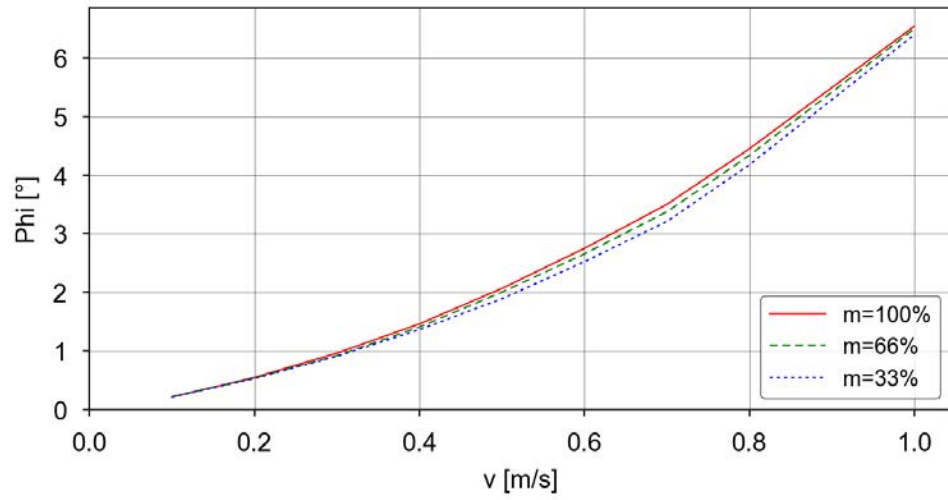
Continues on next page

## 4 IRB 910

### 4.2 IRB 910SC 0.55 m 3 kg

Continued

Extension zone 2, stopping distance and stopping time



### 4.3 IRB 910SC 0.65 m 3 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	49.33	0.29
2	66.6	0.22
3	3.98	0.16

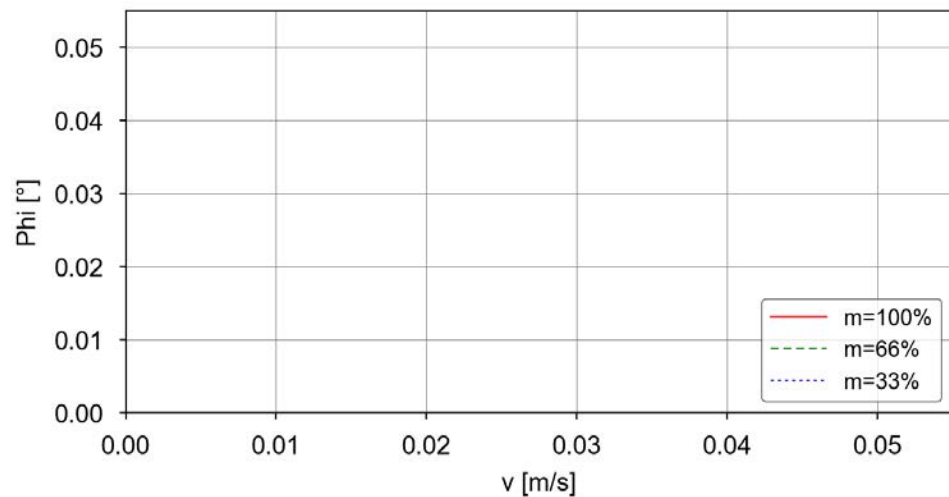
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.217
1	0.217	0.433
2	0.433	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

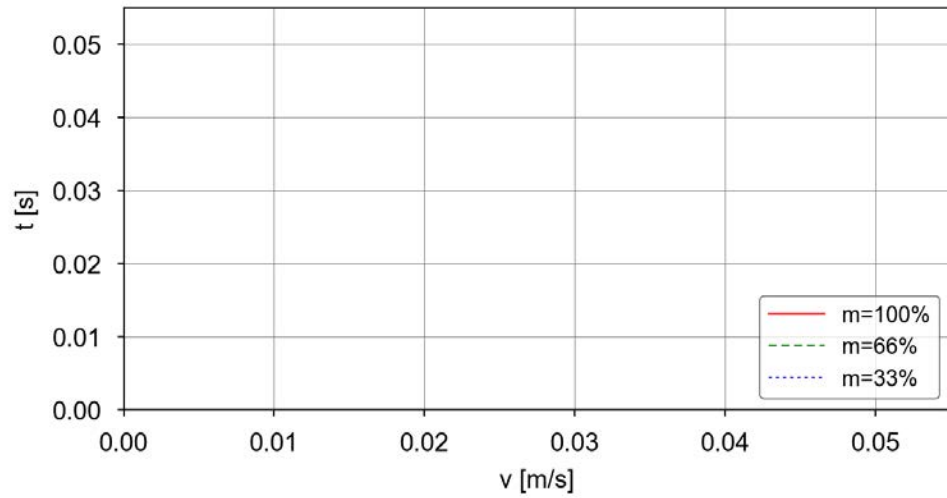


*Continues on next page*

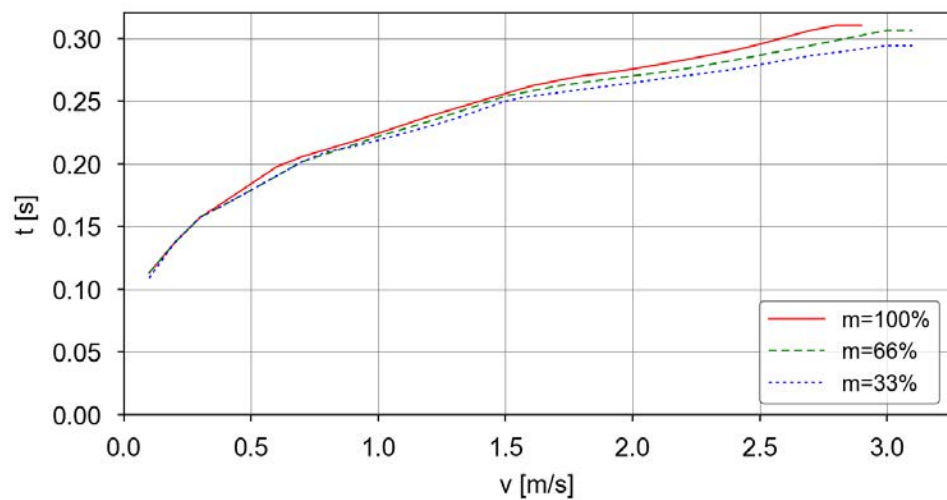
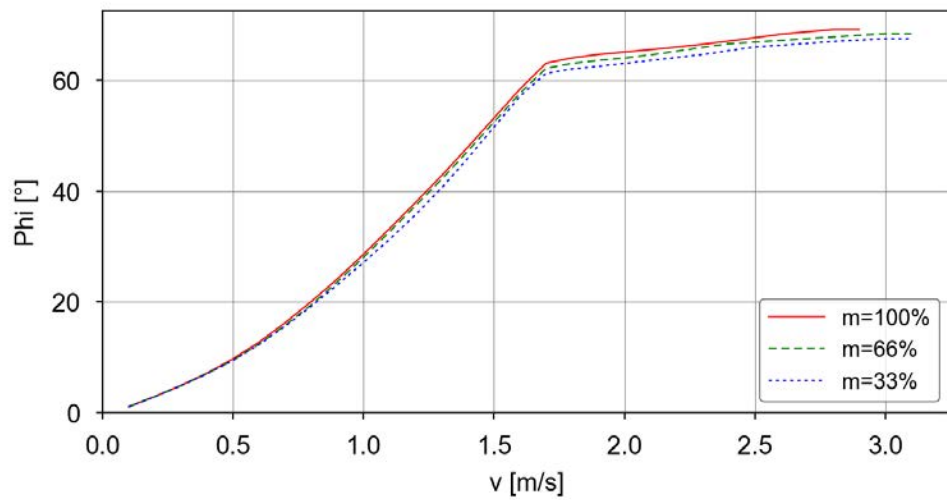
## 4 IRB 910

### 4.3 IRB 910SC 0.65 m 3 kg

Continued



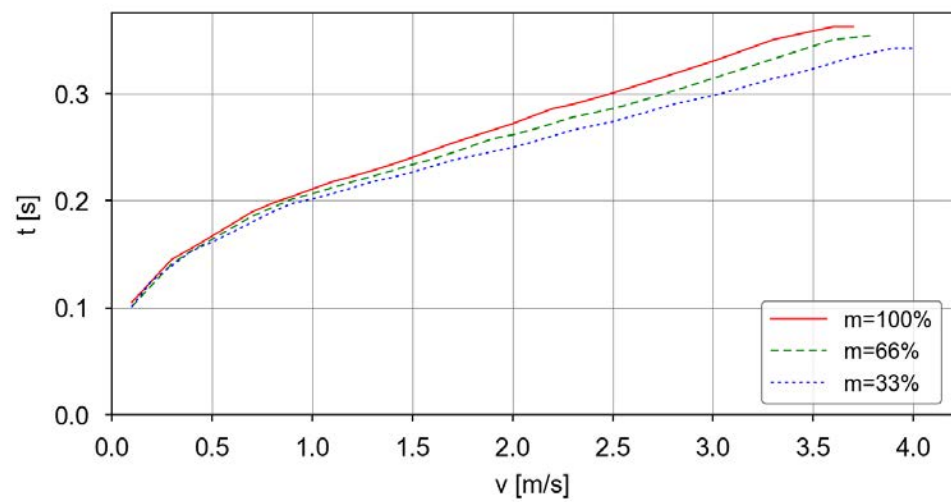
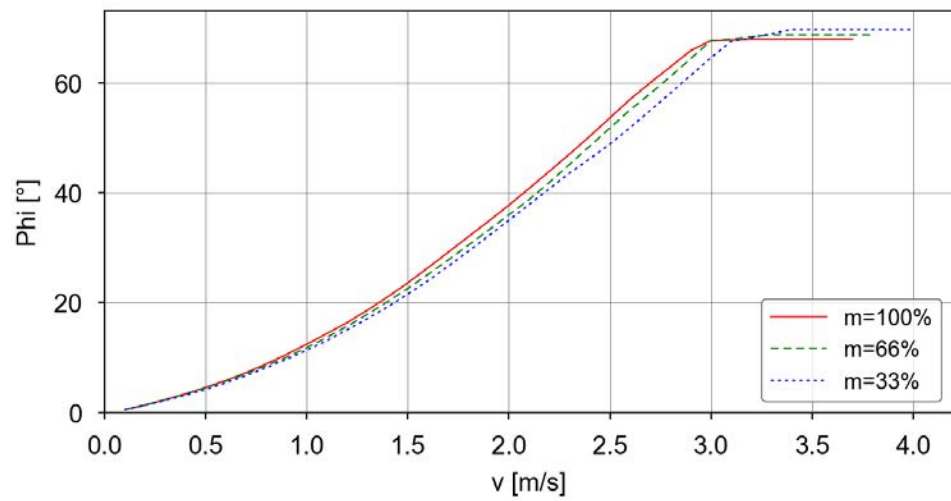
### Extension zone 1, stopping distance and stopping time



Continues on next page



## Extension zone 2, stopping distance and stopping time



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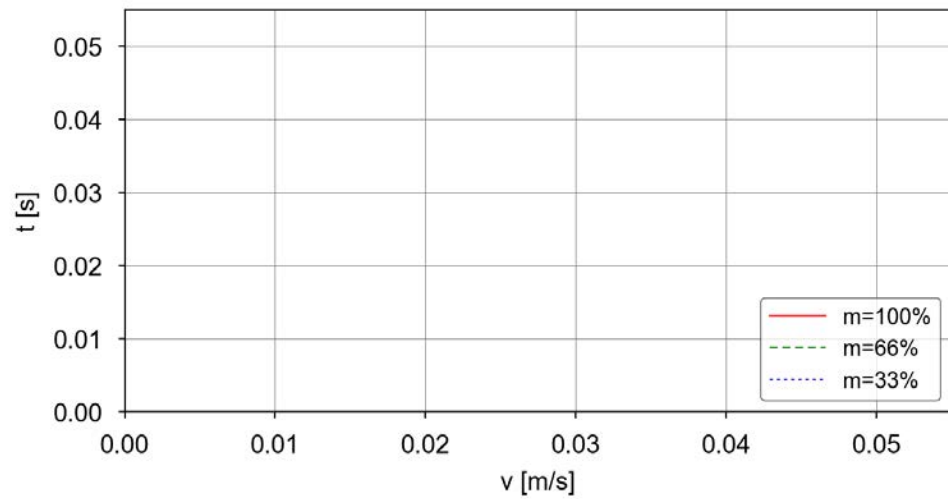
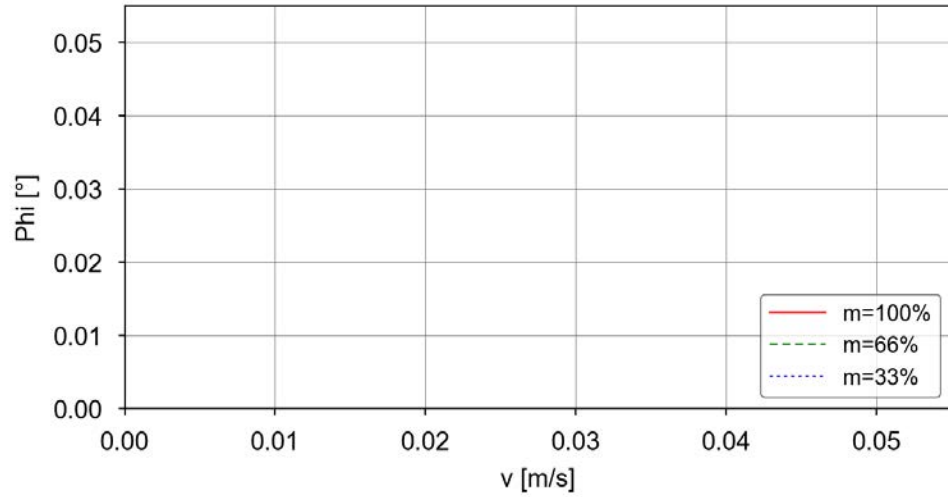
## 4 IRB 910

### 4.3 IRB 910SC 0.65 m 3 kg

Continued

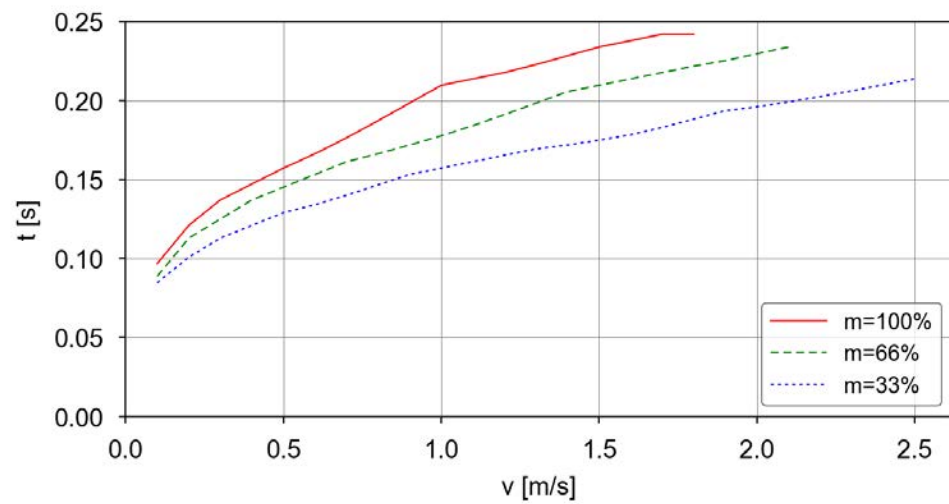
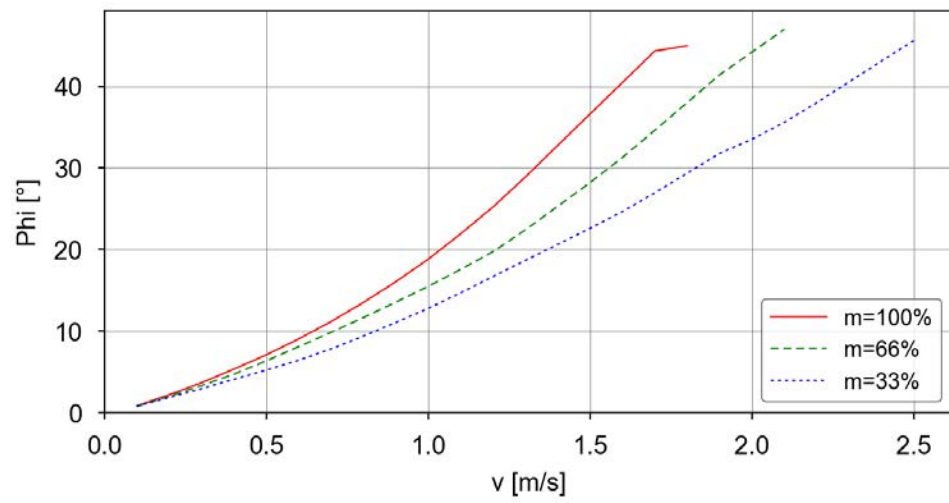
#### Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



Continues on next page

Extension zone 1, stopping distance and stopping time



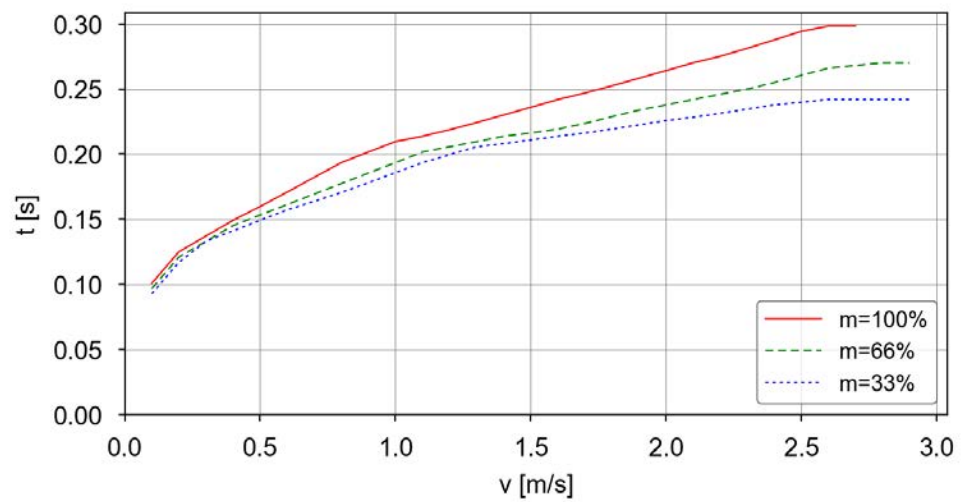
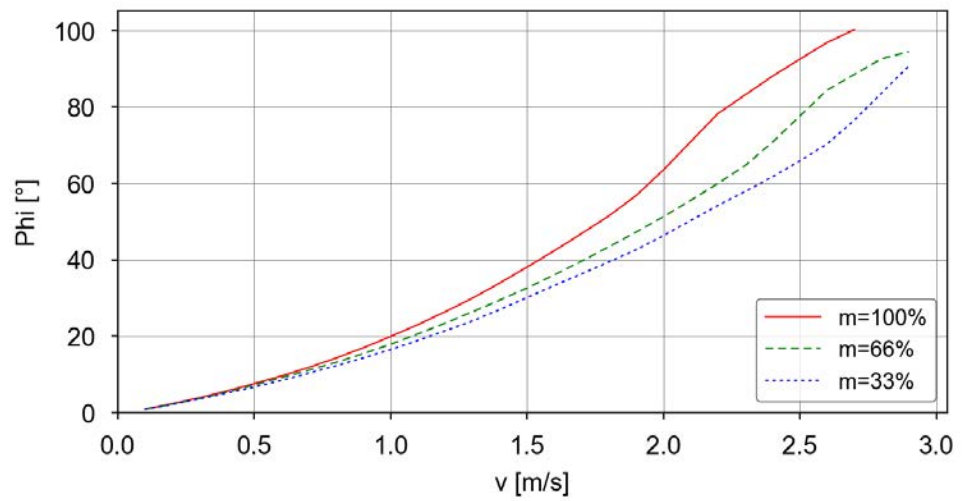
Continues on next page

## 4 IRB 910

### 4.3 IRB 910SC 0.65 m 3 kg

Continued

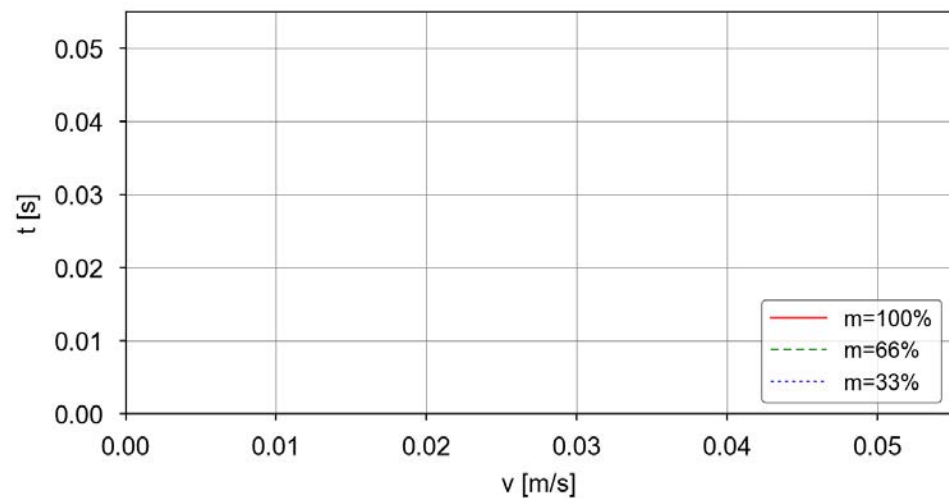
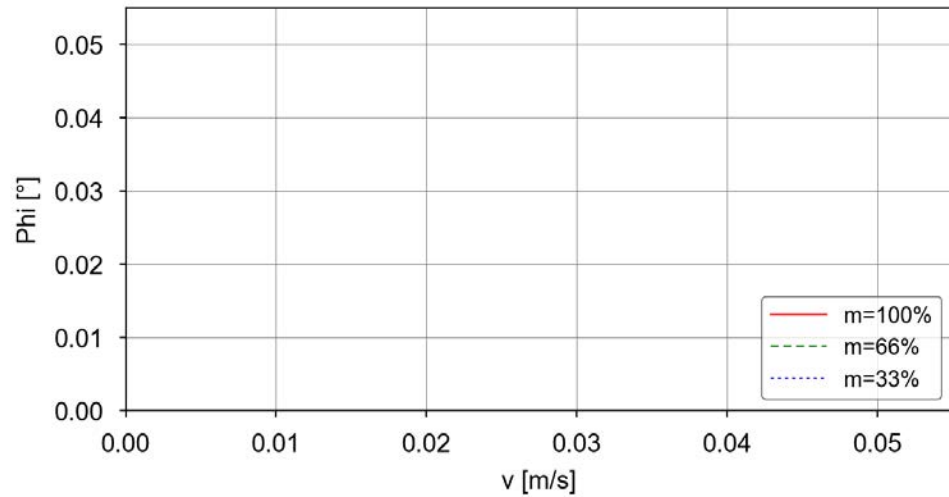
Extension zone 2, stopping distance and stopping time



Continues on next page

## Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



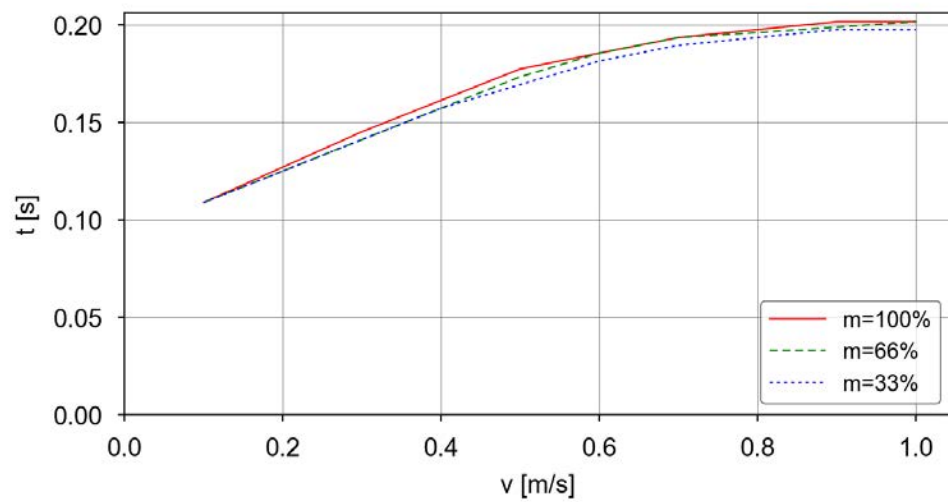
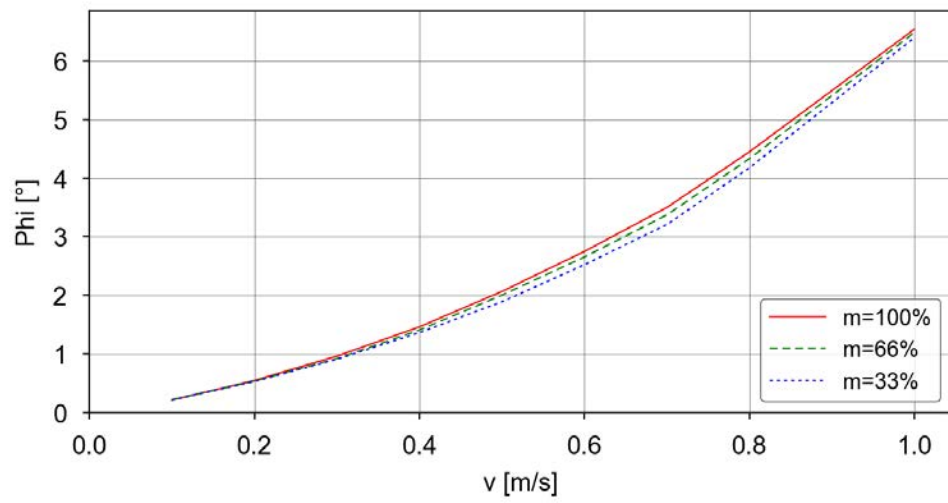
Continues on next page

## 4 IRB 910

### 4.3 IRB 910SC 0.65 m 3 kg

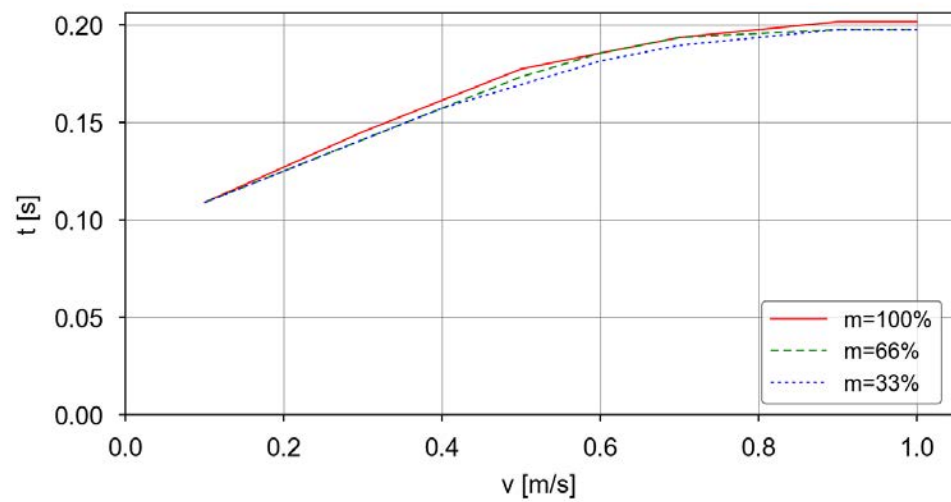
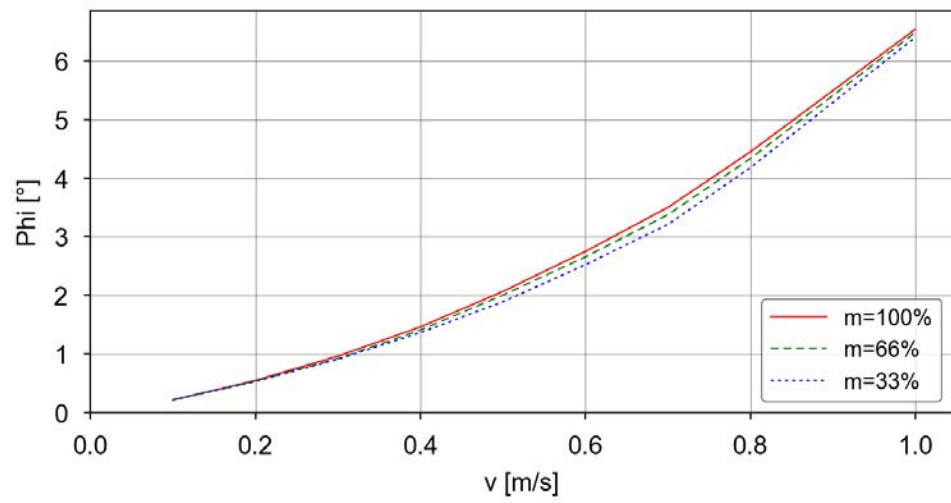
Continued

Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time



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## 5 IRB 1200

### 5.1 IRB 1200 0.7 m 7 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	32.7	0.14
2	37.2	0.22
3	37.6	0.16

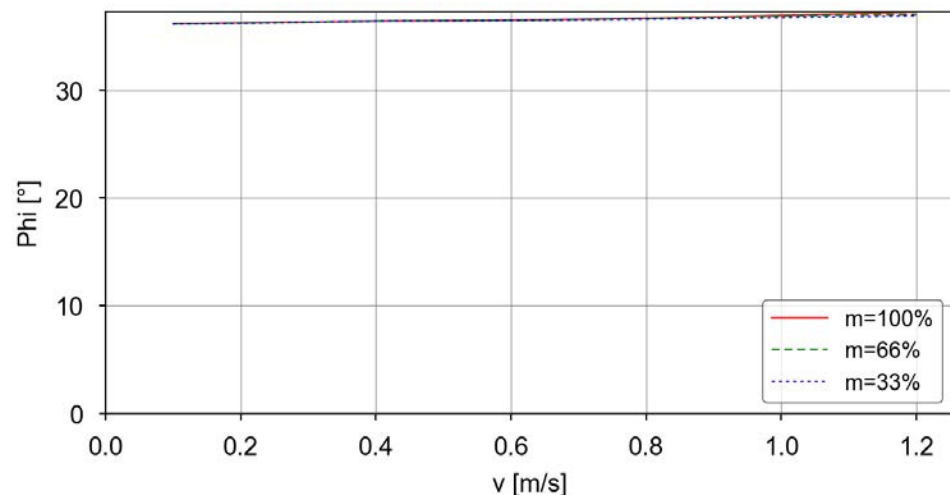
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.235
1	0.235	0.469
2	0.469	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

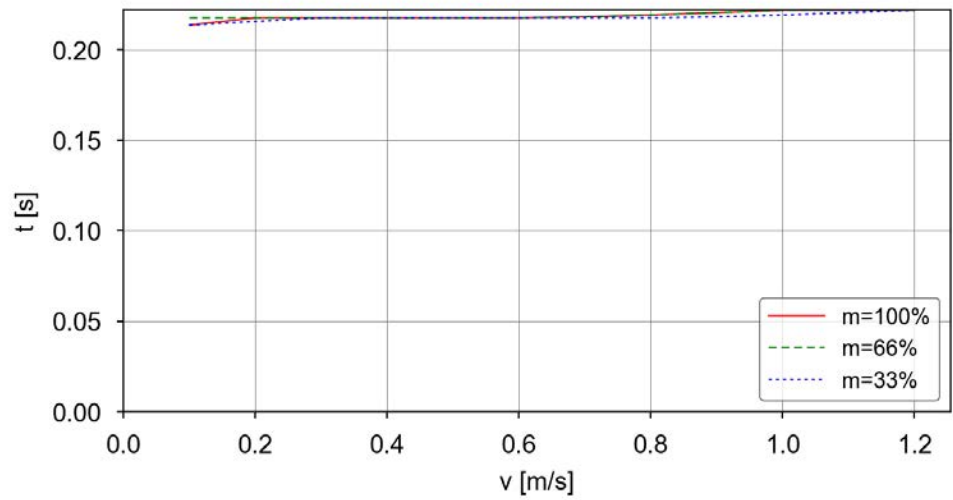


*Continues on next page*

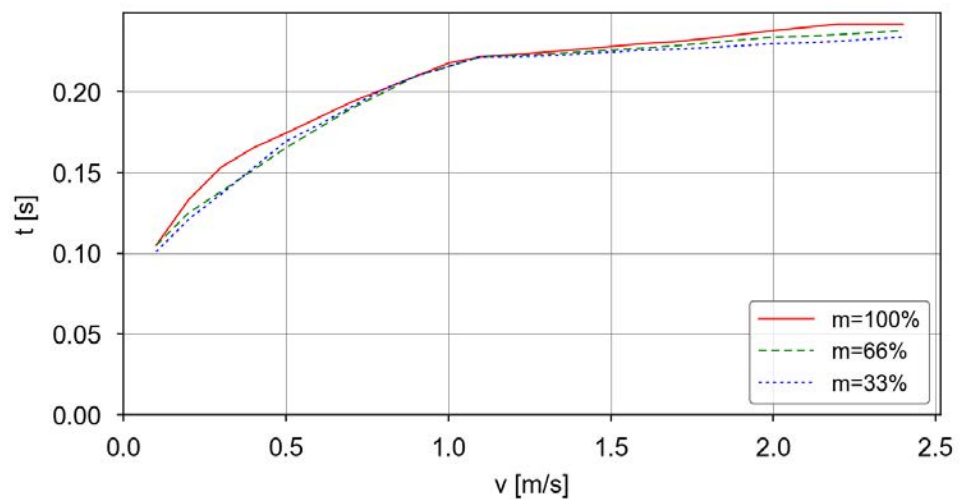
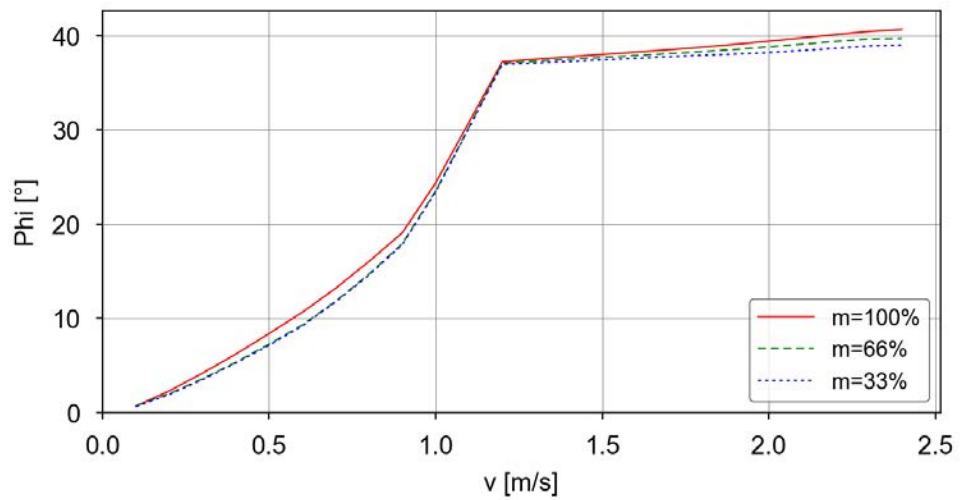
## 5 IRB 1200

### 5.1 IRB 1200 0.7 m 7 kg

Continued

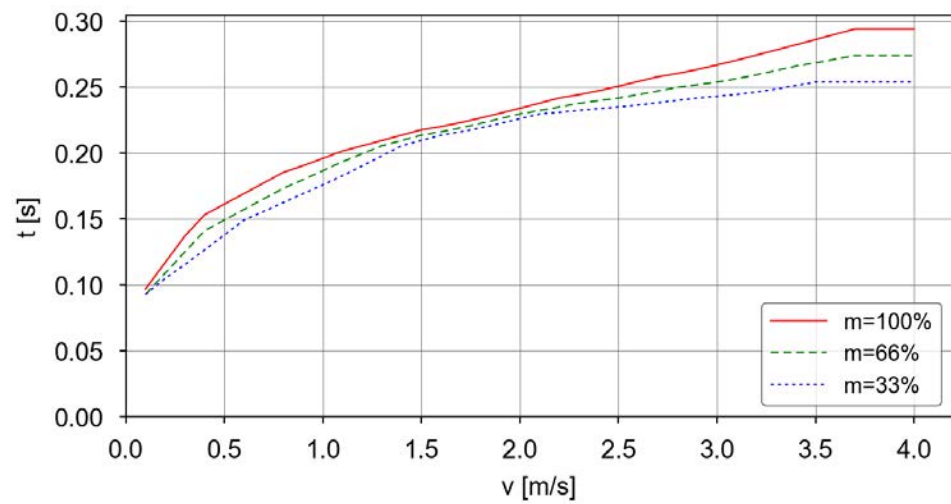
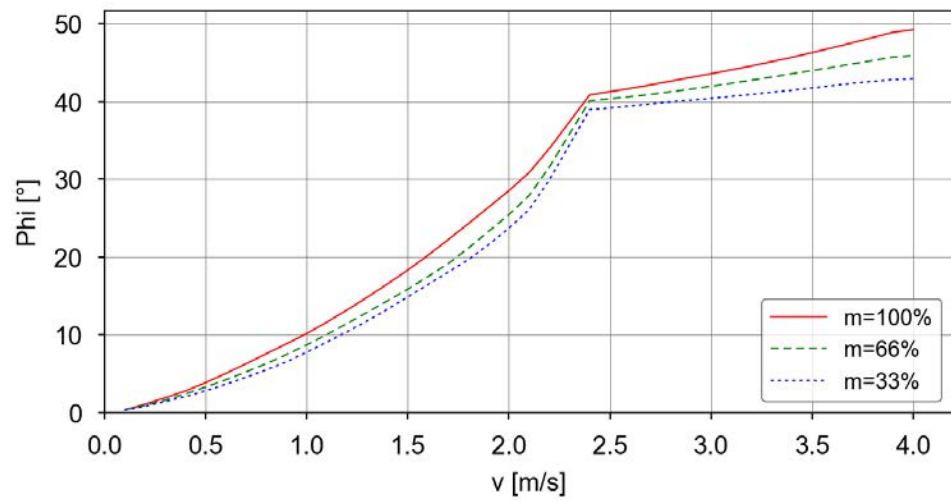


#### Extension zone 1, stopping distance and stopping time



Continues on next page

## Extension zone 2, stopping distance and stopping time



Continues on next page

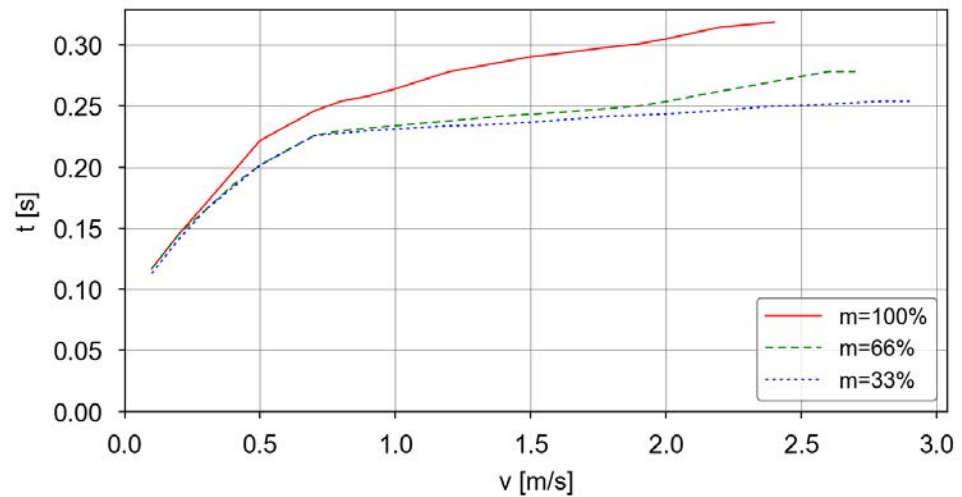
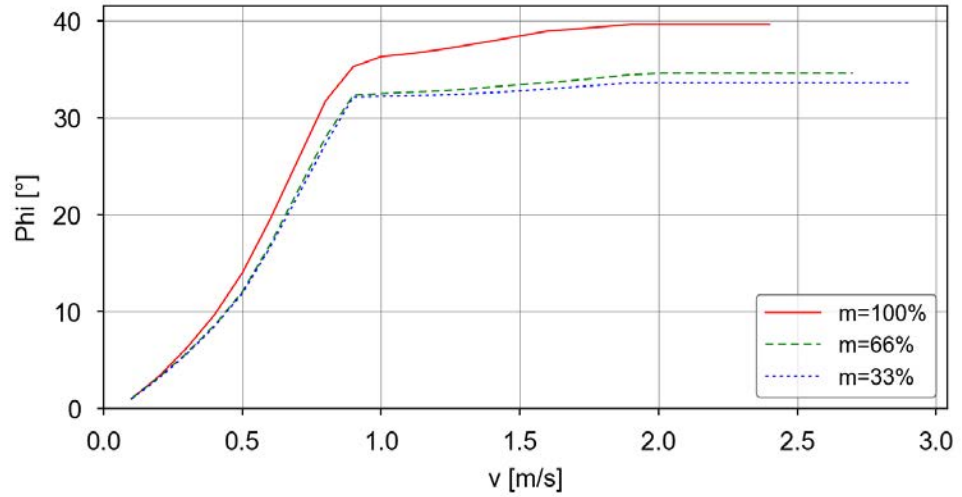
## 5 IRB 1200

### 5.1 IRB 1200 0.7 m 7 kg

Continued

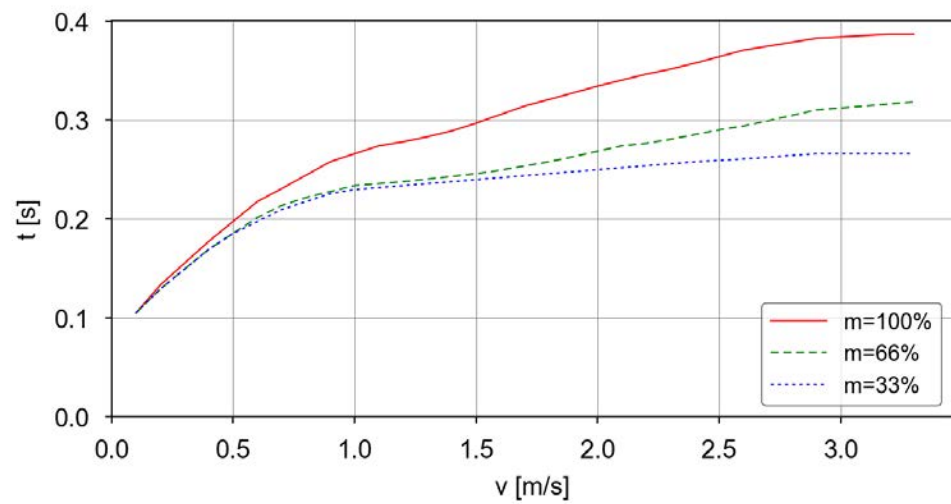
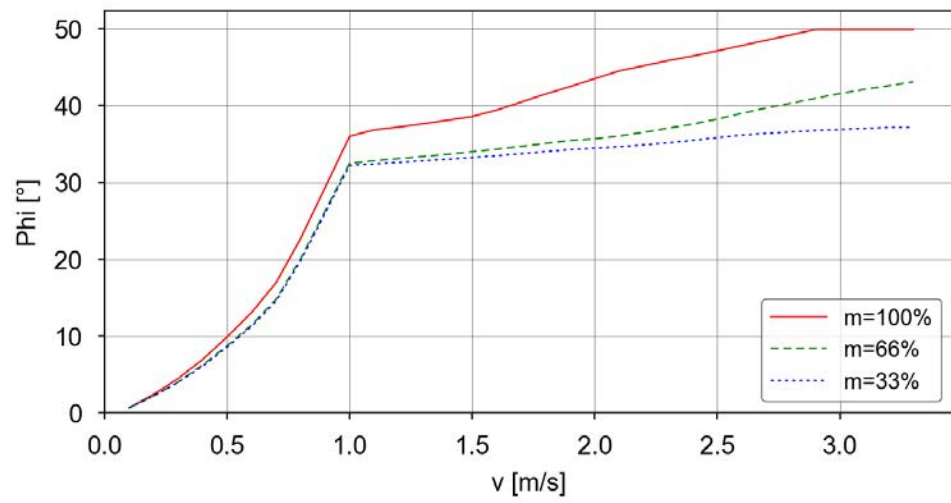
#### Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



Continues on next page

Extension zone 1, stopping distance and stopping time



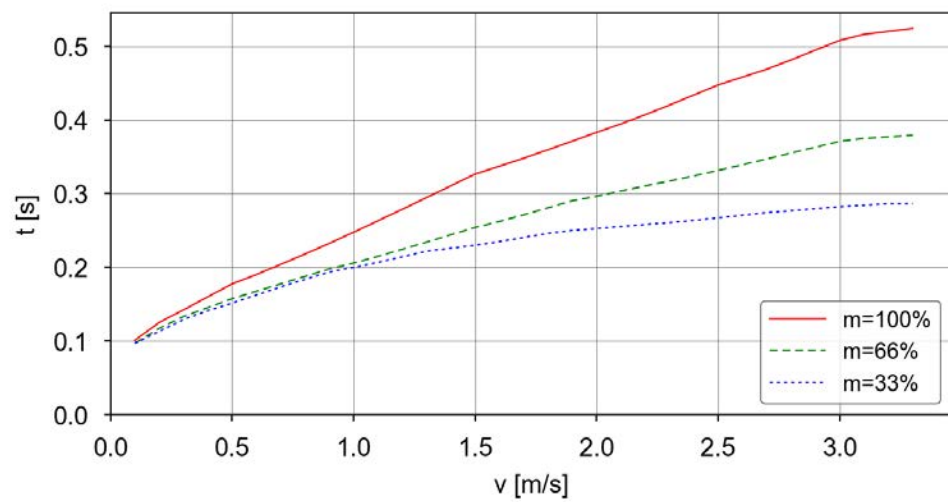
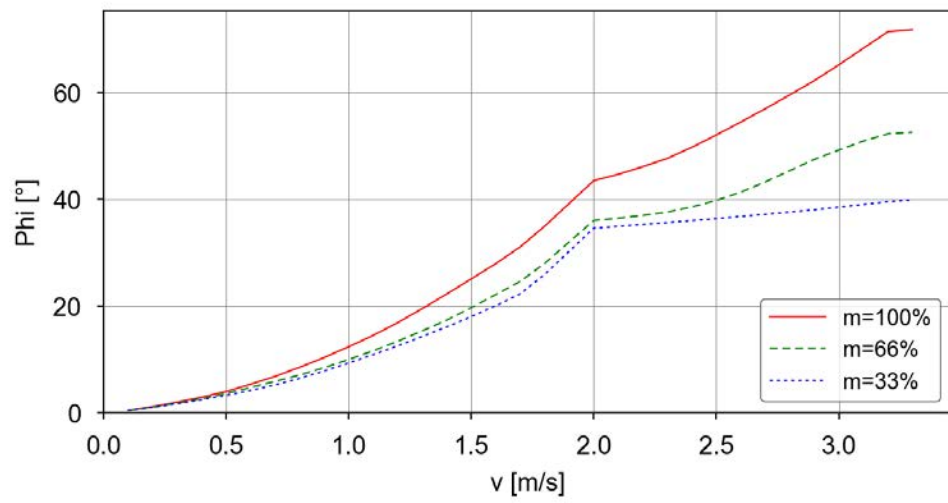
Continues on next page

## 5 IRB 1200

### 5.1 IRB 1200 0.7 m 7 kg

Continued

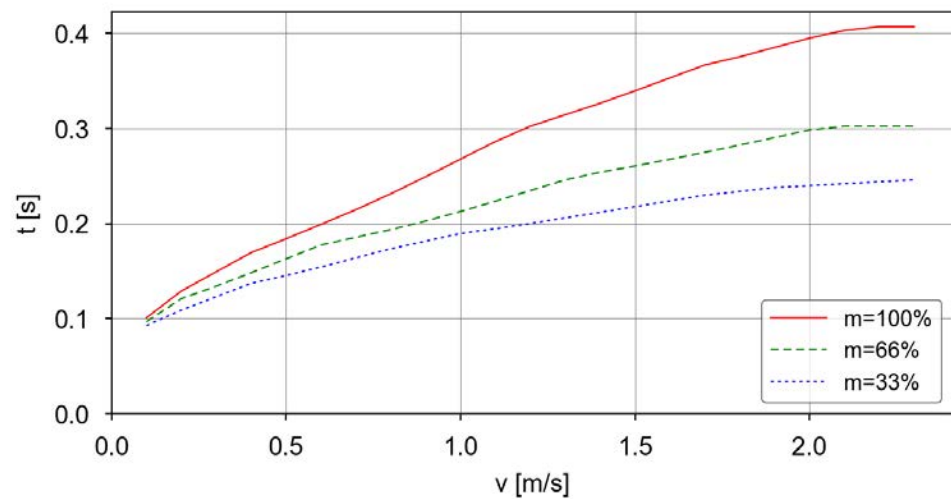
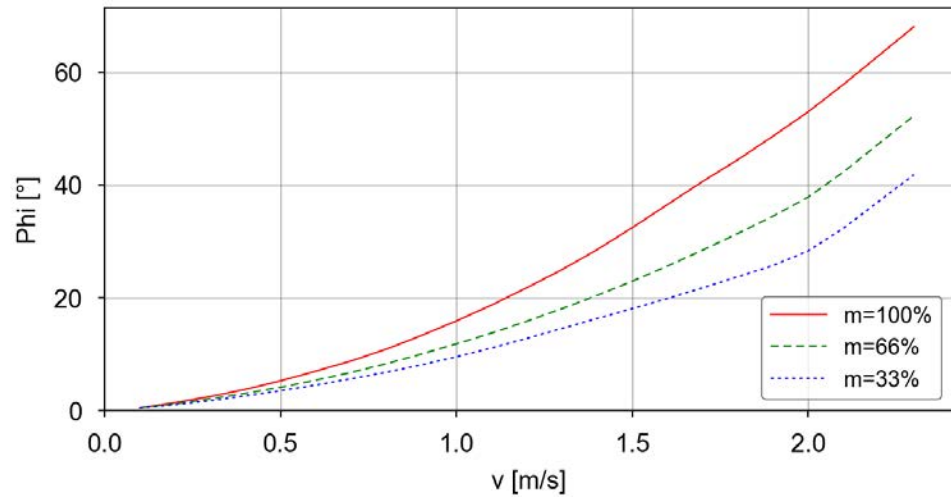
Extension zone 2, stopping distance and stopping time



Continues on next page

## Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



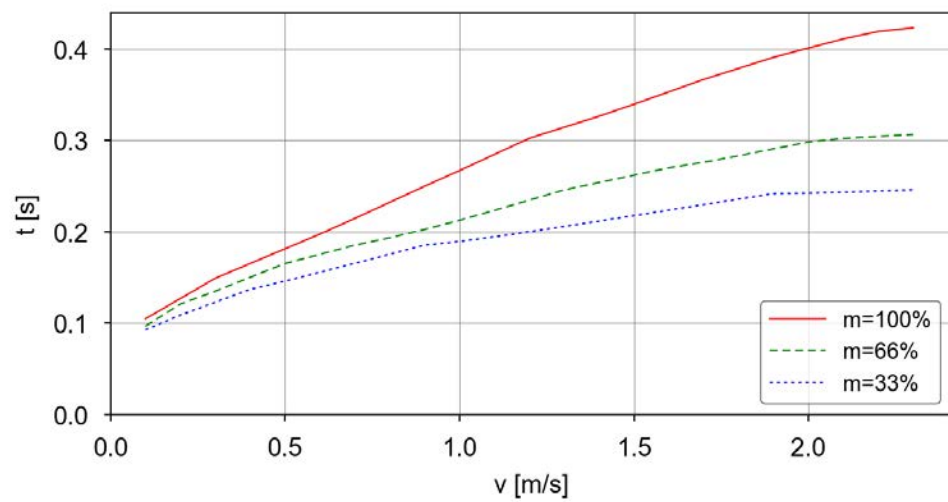
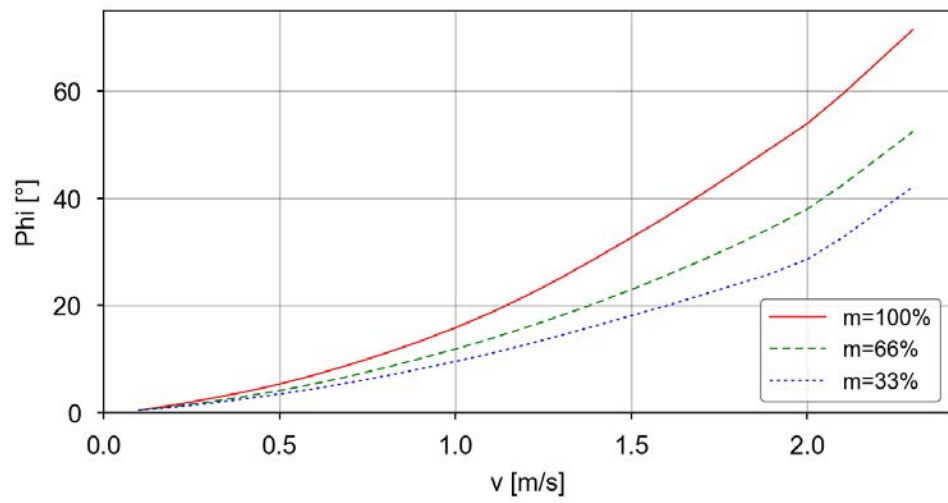
Continues on next page

## 5 IRB 1200

### 5.1 IRB 1200 0.7 m 7 kg

Continued

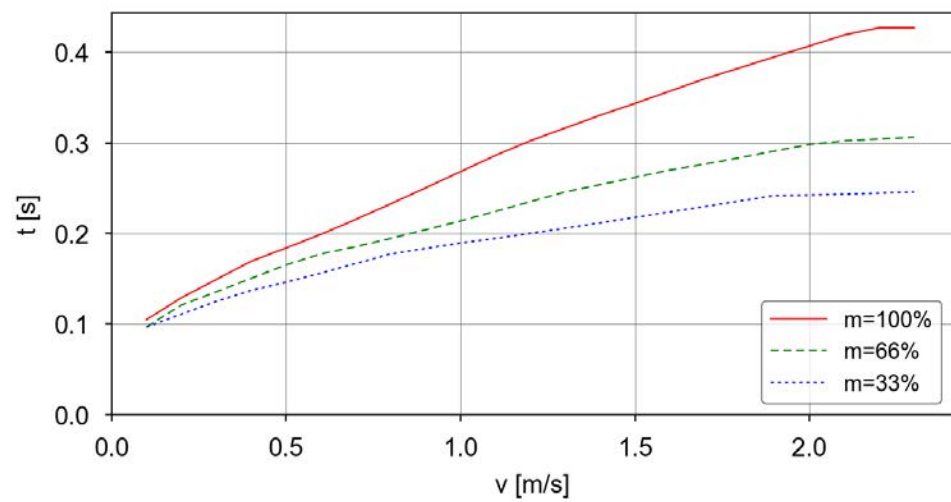
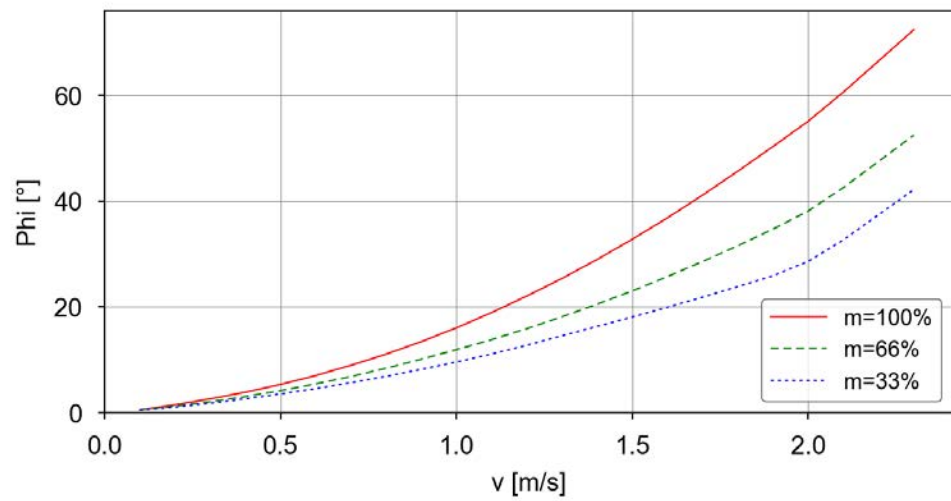
Extension zone 1, stopping distance and stopping time



Continues on next page



## Extension zone 2, stopping distance and stopping time



## 5 IRB 1200

### 5.2 IRB 1200 0.7 m 7 kg

### 5.2 IRB 1200 0.7 m 7 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	32.7	0.14
2	37.1	0.22
3	37.6	0.16

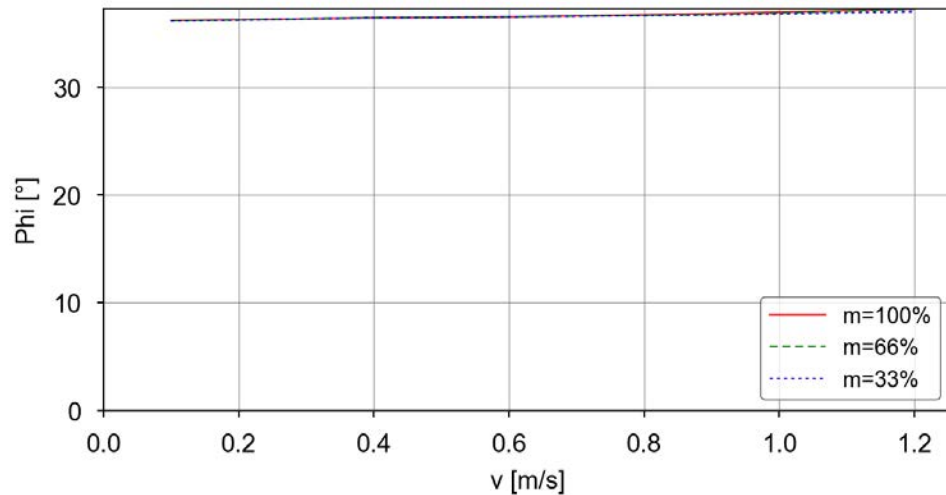
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

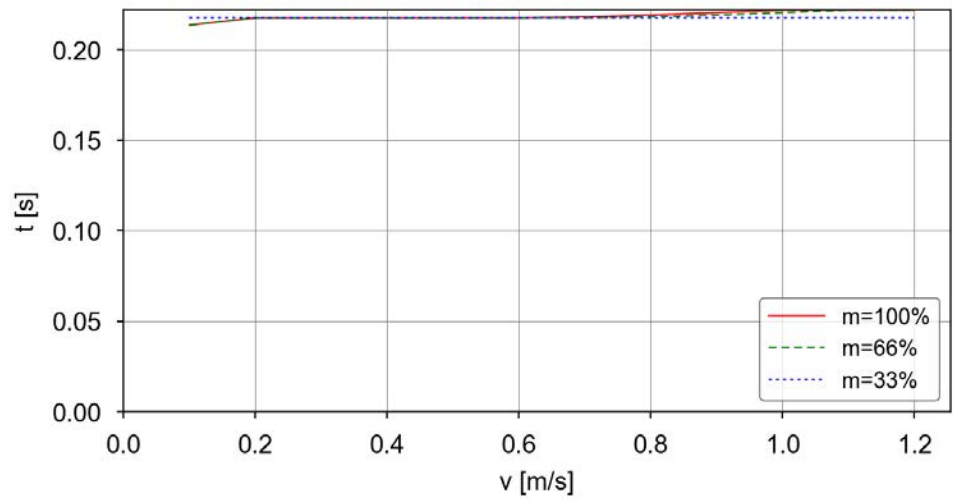
Zone	wcp min (m)	wcp max (m)
0	0	0.235
1	0.235	0.469
2	0.469	max reach

#### Category 1, Axis 1

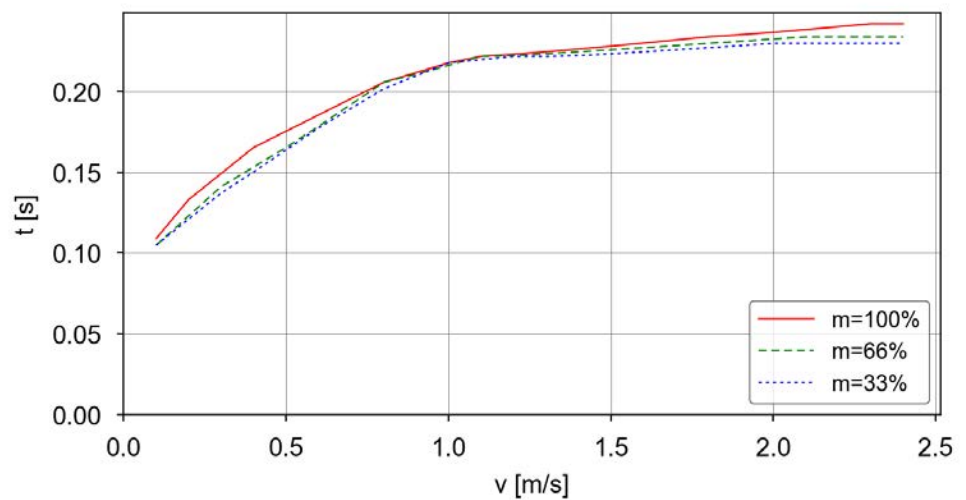
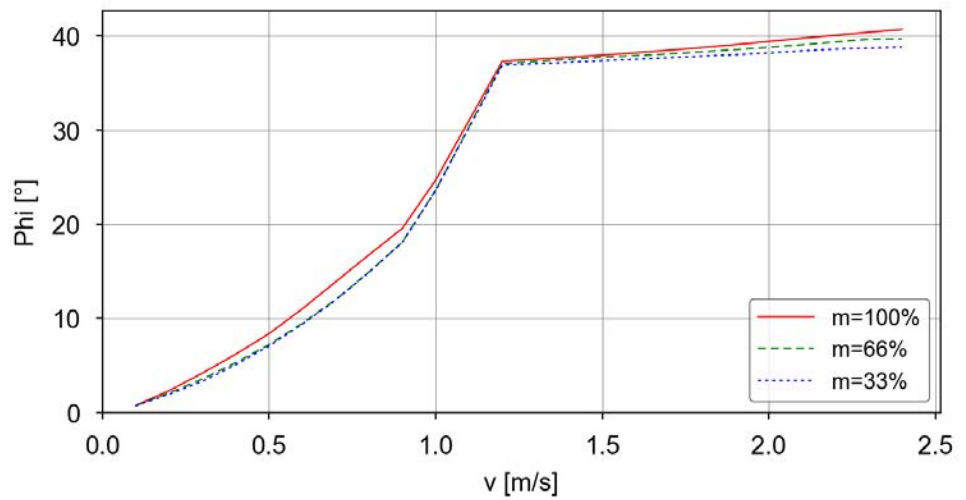
Extension zone 0, stopping distance and stopping time



Continues on next page



Extension zone 1, stopping distance and stopping time



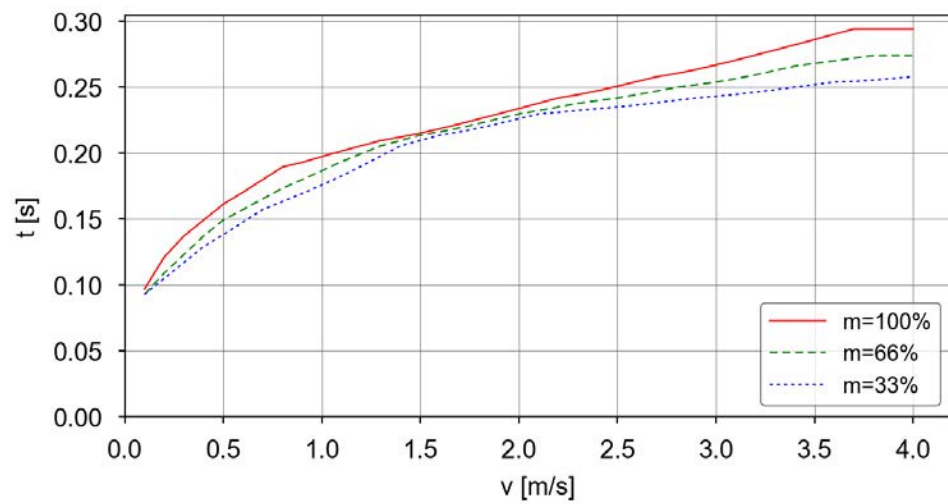
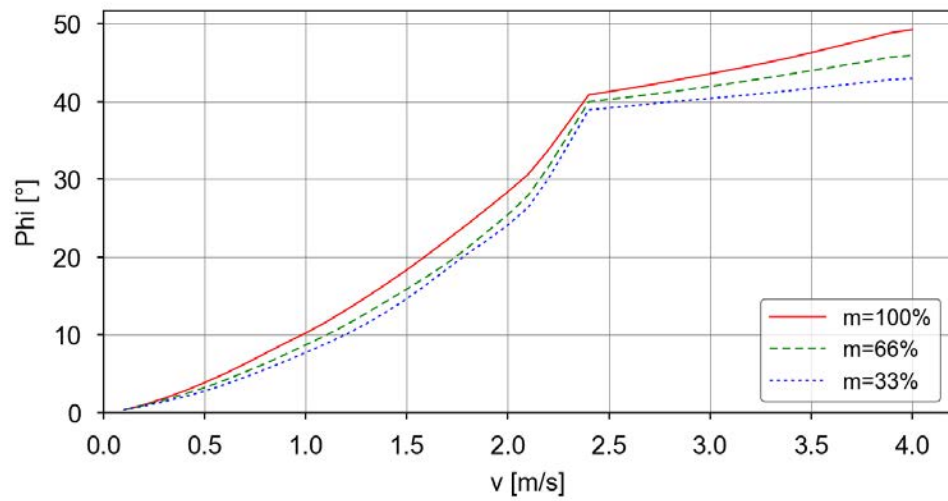
Continues on next page

## 5 IRB 1200

### 5.2 IRB 1200 0.7 m 7 kg

Continued

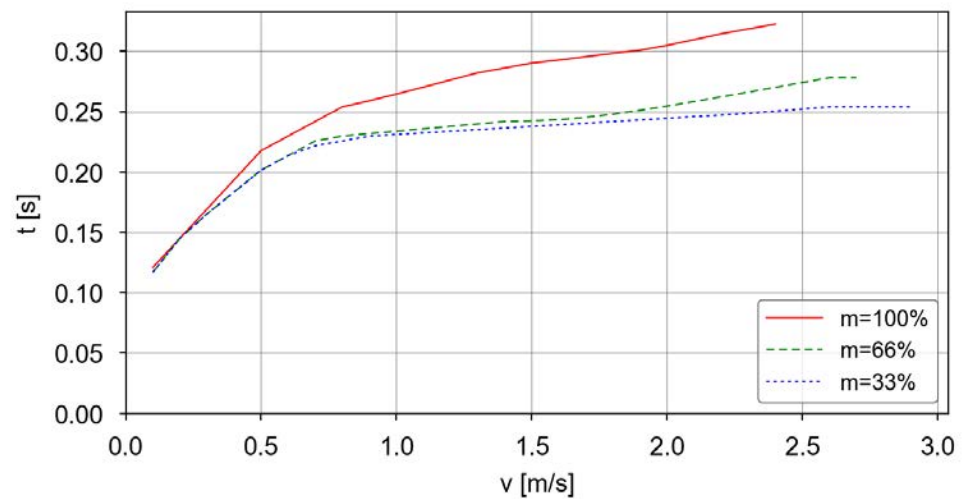
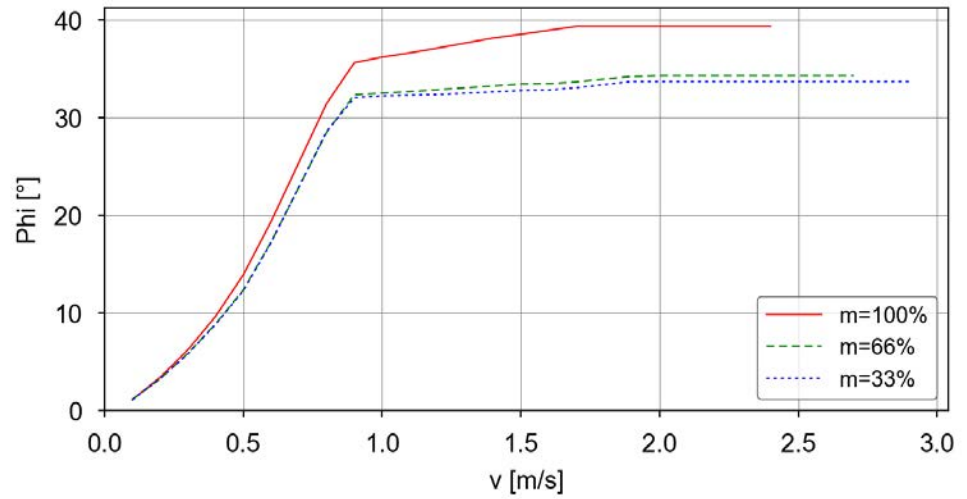
#### Extension zone 2, stopping distance and stopping time



Continues on next page

## Category 1, Axis 2

## Extension zone 0, stopping distance and stopping time



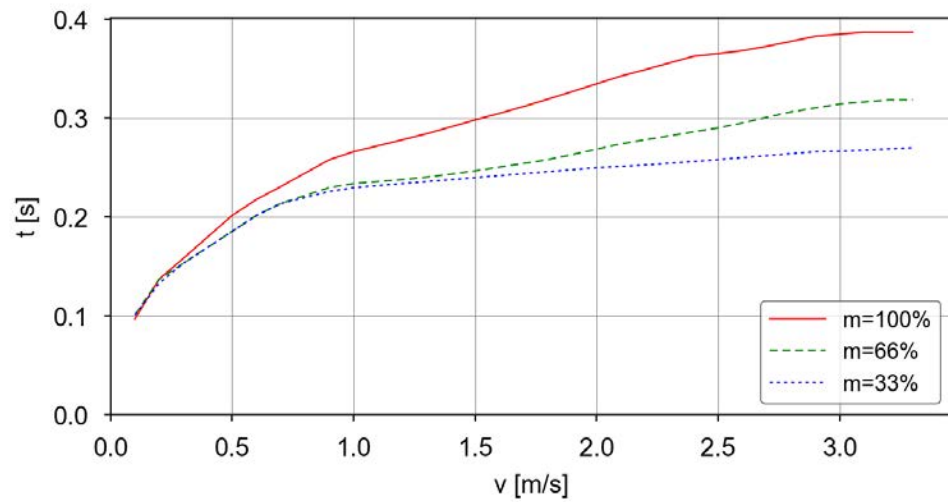
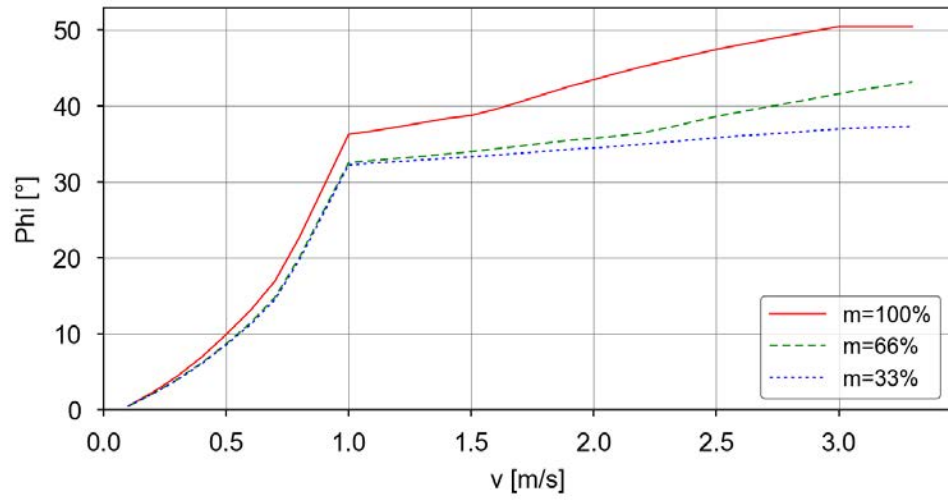
Continues on next page

## 5 IRB 1200

### 5.2 IRB 1200 0.7 m 7 kg

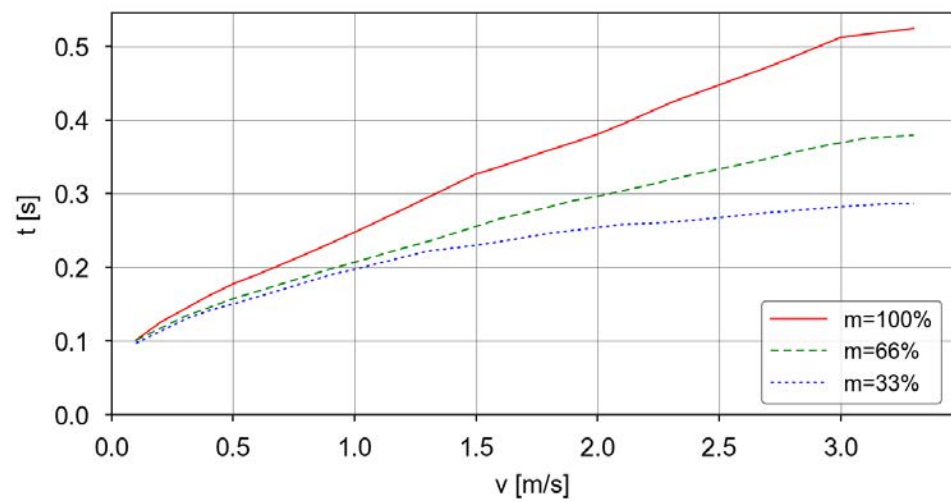
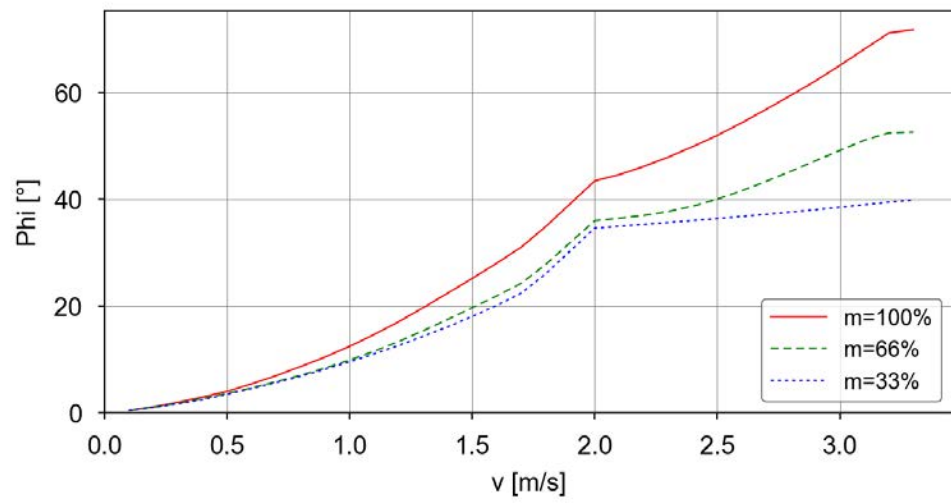
Continued

#### Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

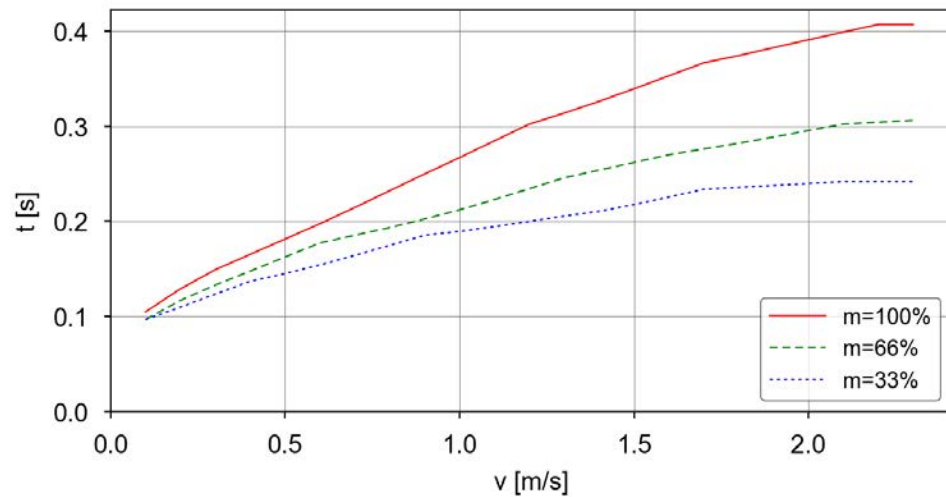
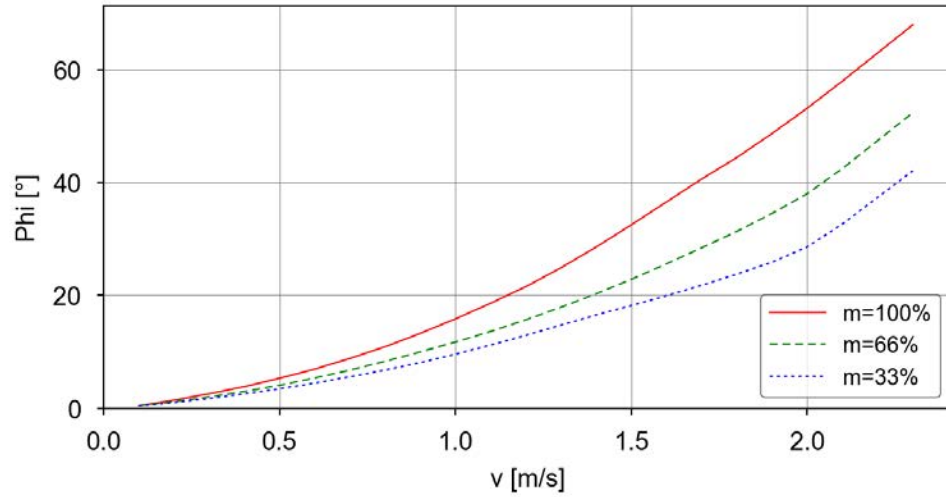
## 5 IRB 1200

5.2 IRB 1200 0.7 m 7 kg

Continued

### Category 1, Axis 3

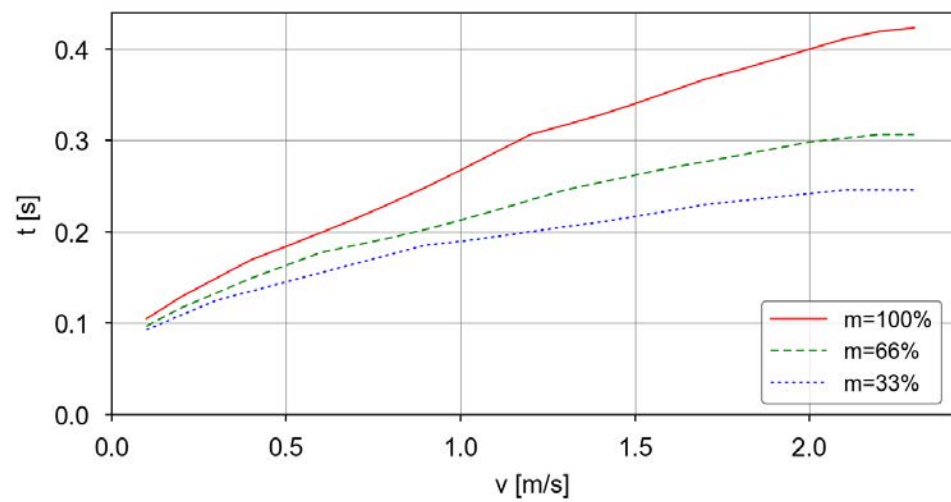
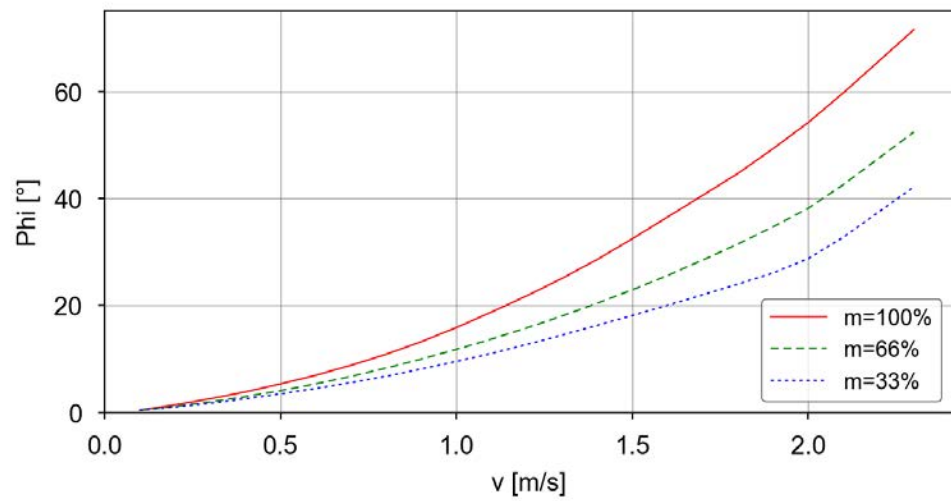
Extension zone 0, stopping distance and stopping time



Continues on next page



## Extension zone 1, stopping distance and stopping time



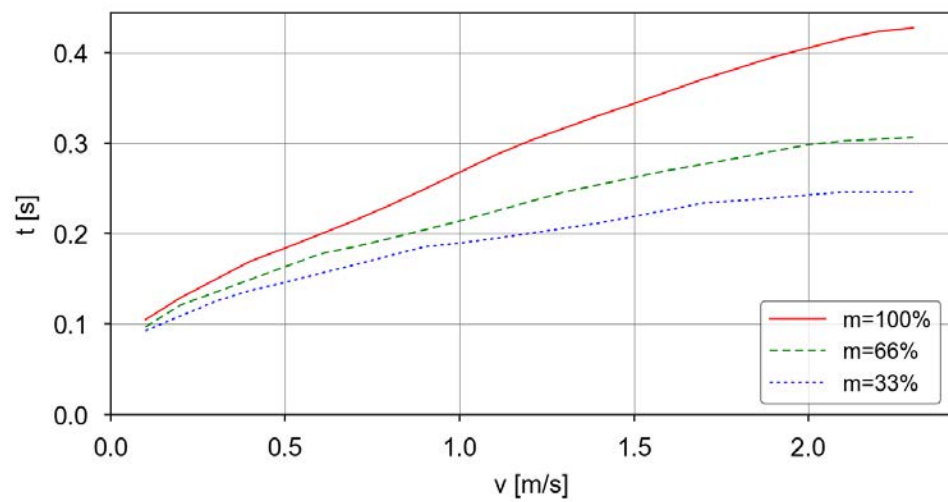
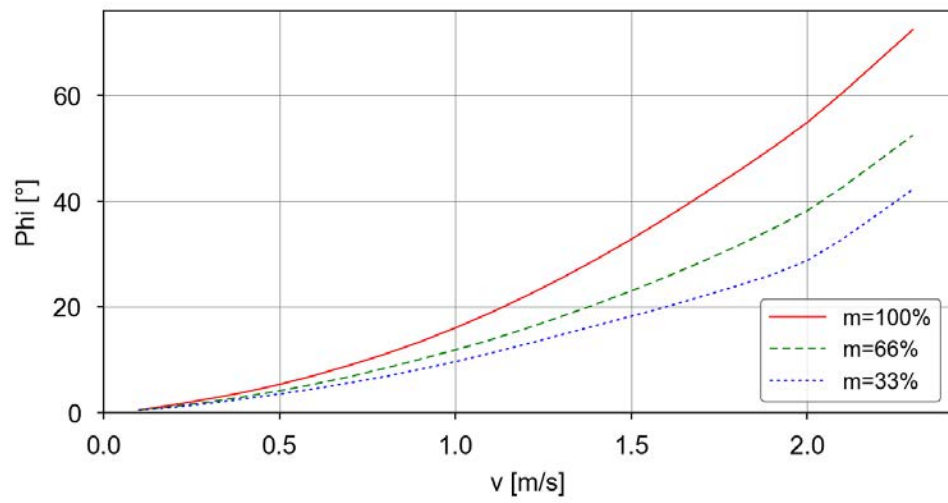
Continues on next page

## 5 IRB 1200

### 5.2 IRB 1200 0.7 m 7 kg

Continued

Extension zone 2, stopping distance and stopping time



### 5.3 IRB 1200 0.9 m 5 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	39.1	0.19
2	45.8	0.29
3	42.1	0.2

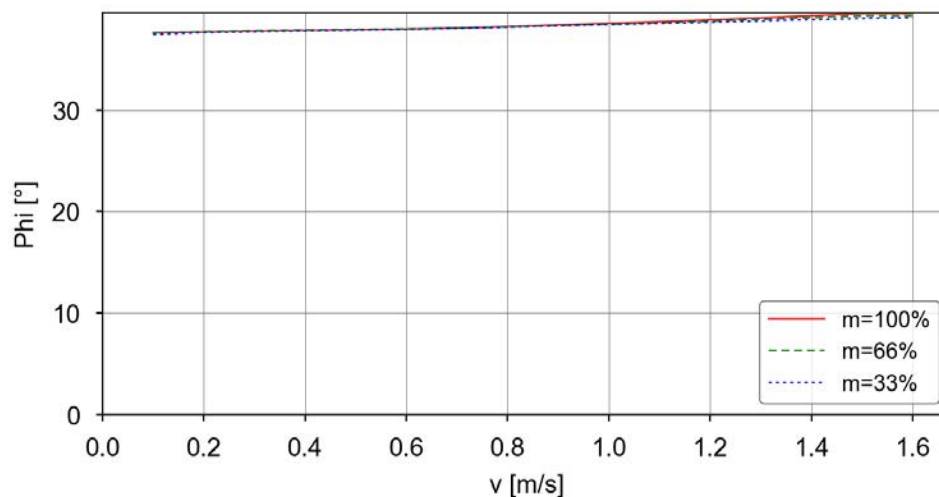
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.3
1	0.3	0.601
2	0.601	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

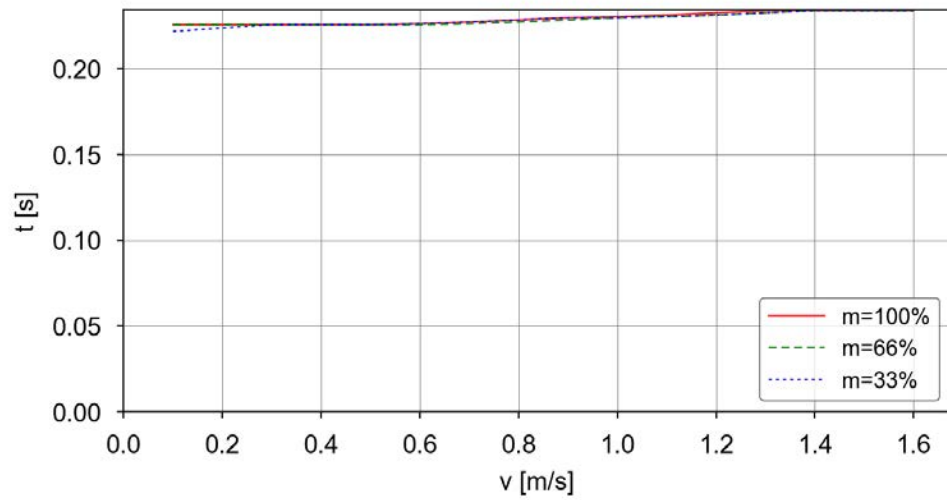


*Continues on next page*

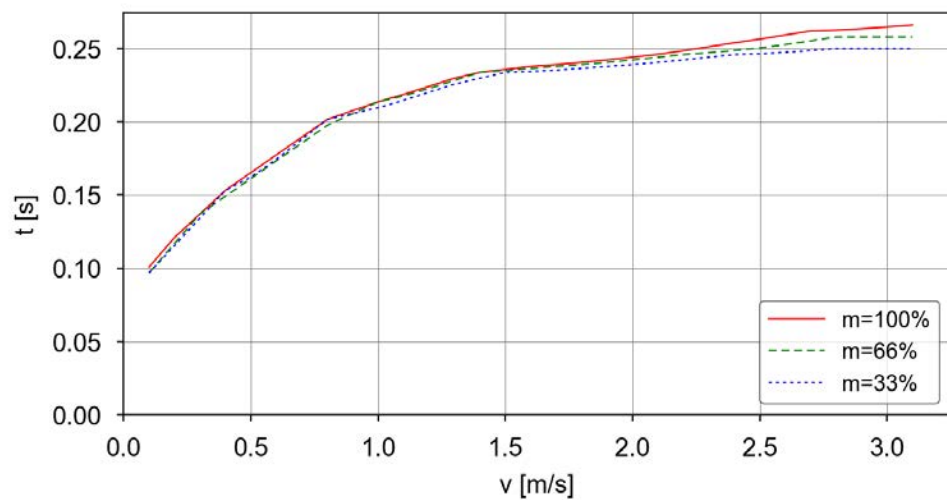
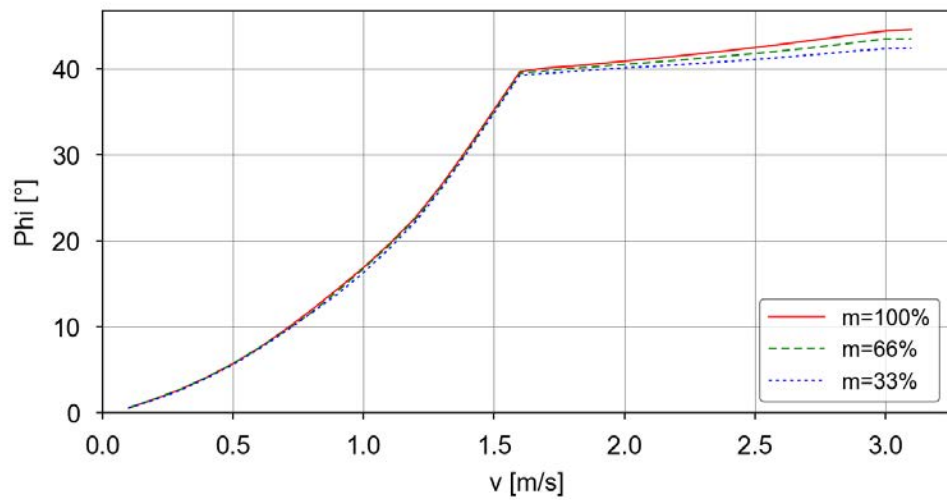
## 5 IRB 1200

### 5.3 IRB 1200 0.9 m 5 kg

Continued

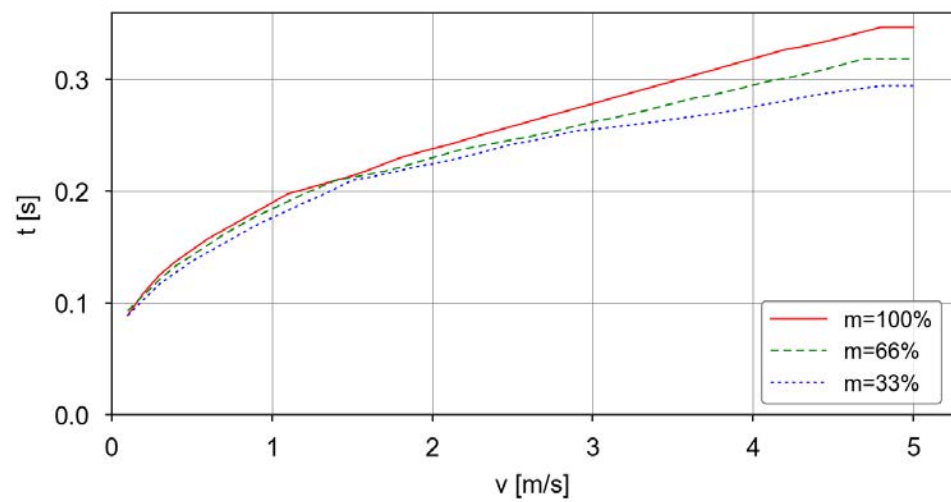
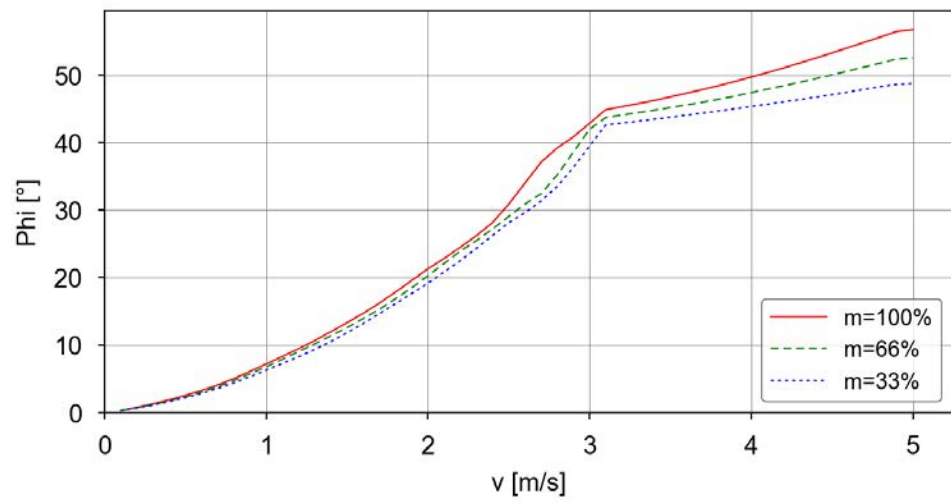


#### Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

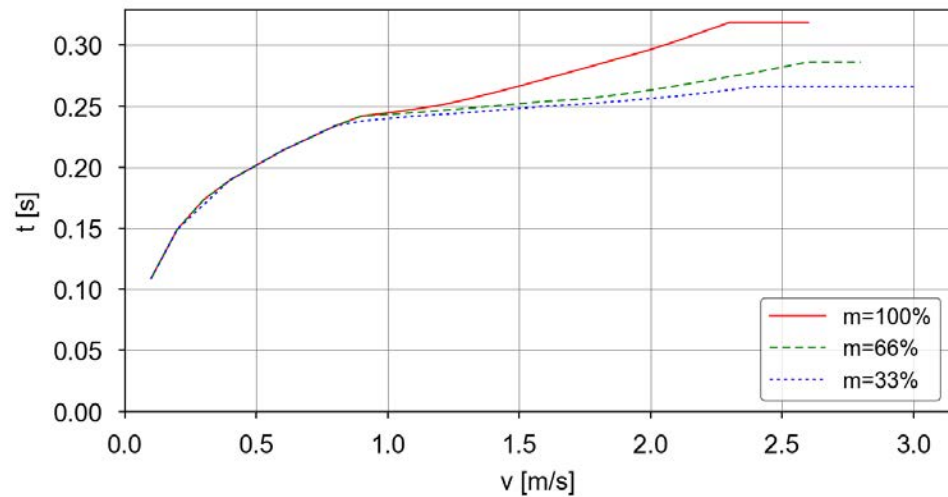
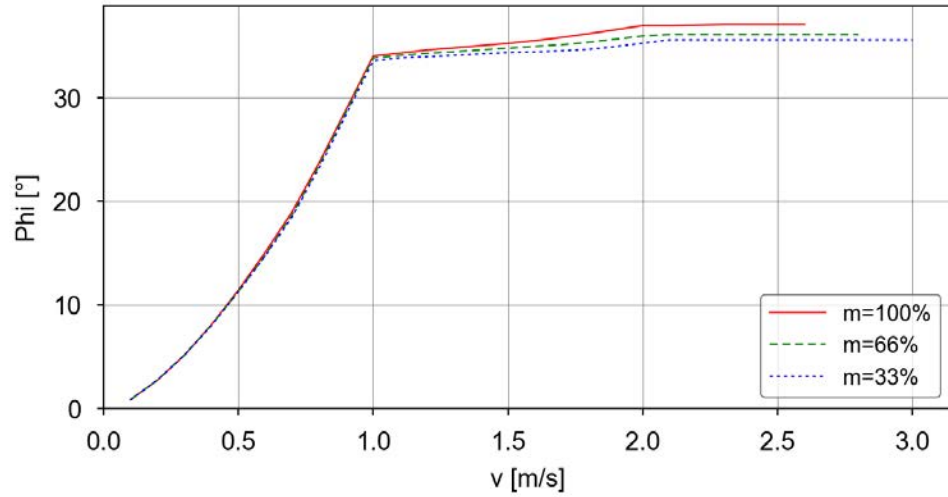
## 5 IRB 1200

### 5.3 IRB 1200 0.9 m 5 kg

Continued

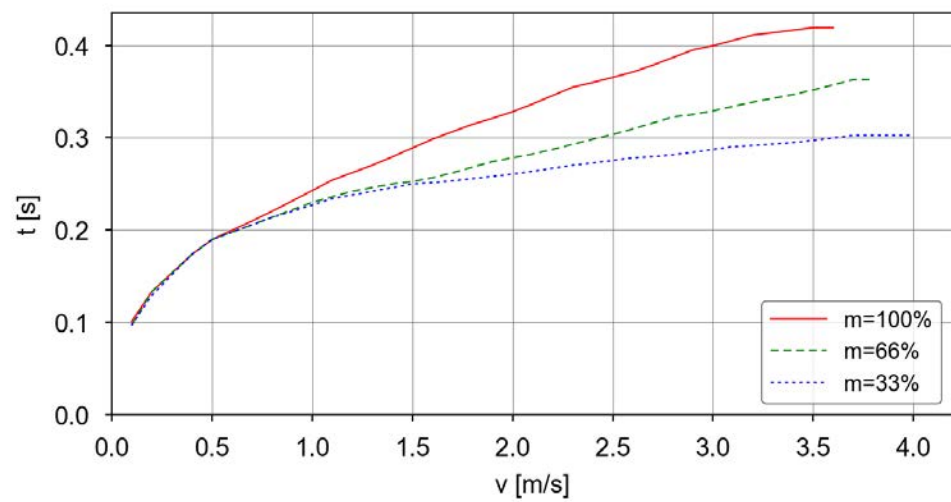
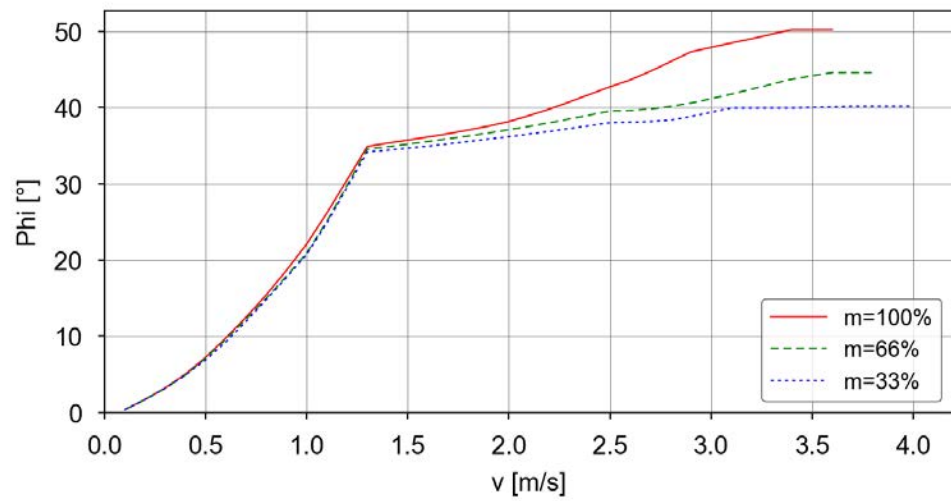
#### Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



Continues on next page

## Extension zone 1, stopping distance and stopping time



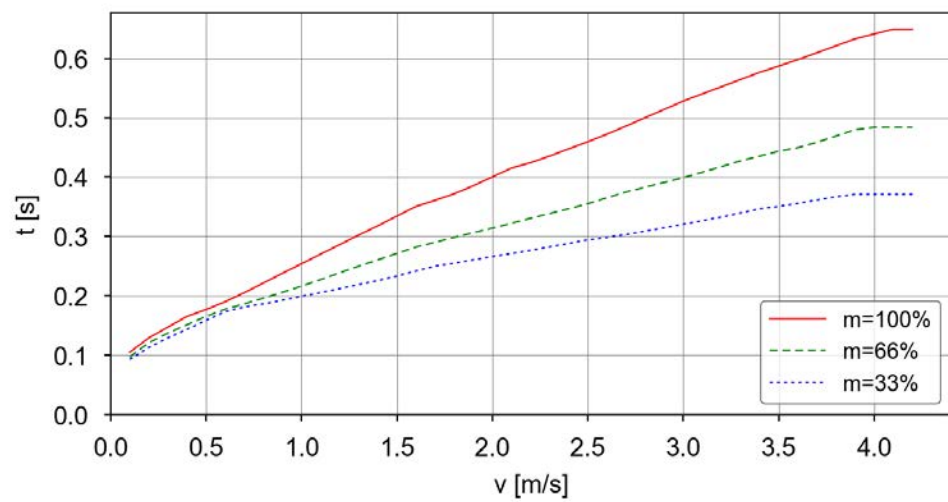
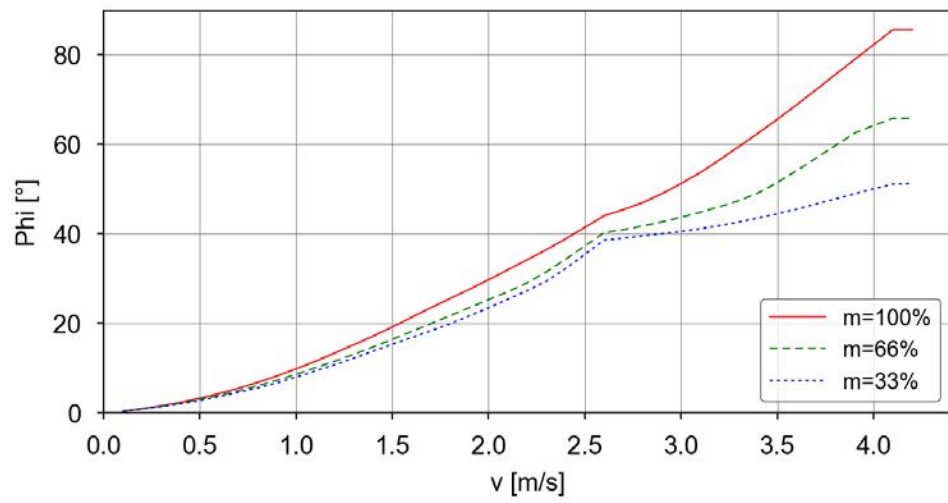
Continues on next page

## 5 IRB 1200

### 5.3 IRB 1200 0.9 m 5 kg

Continued

Extension zone 2, stopping distance and stopping time

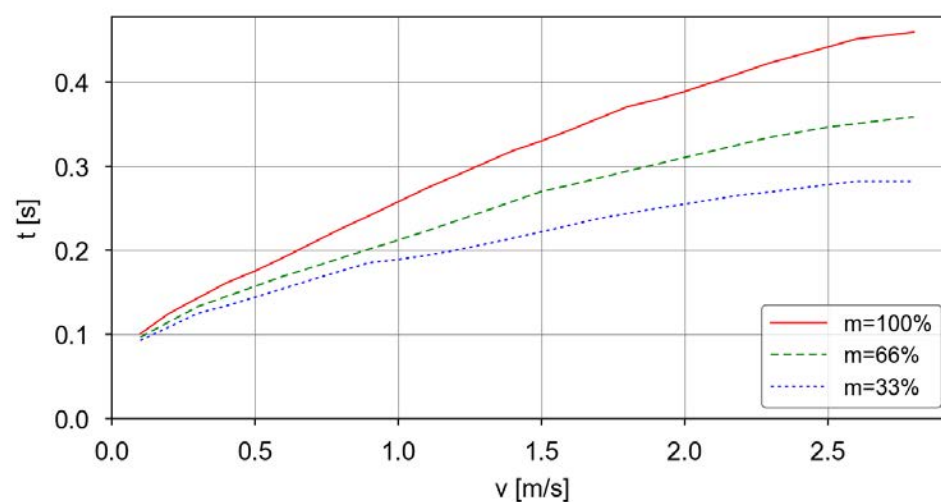
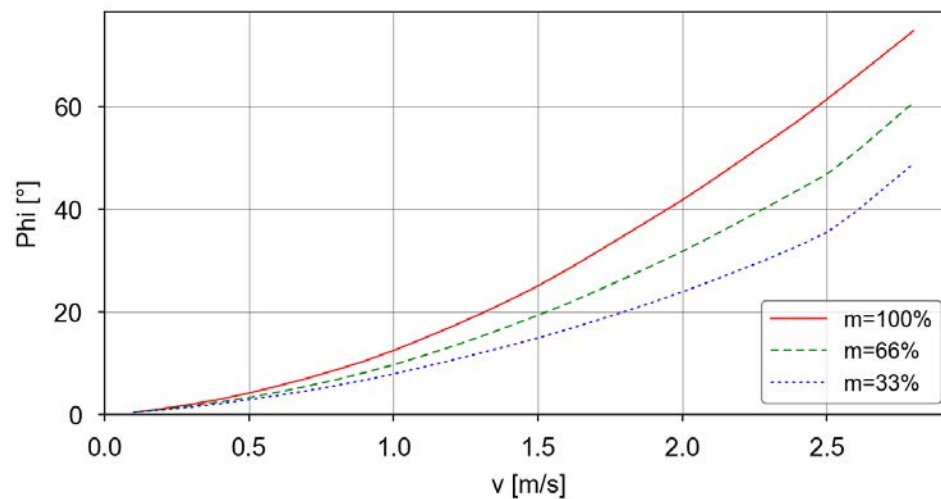


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## Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



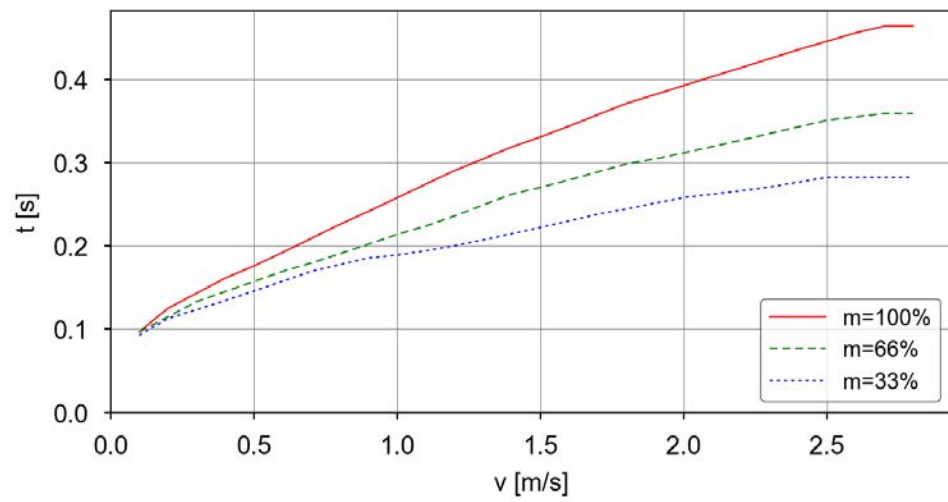
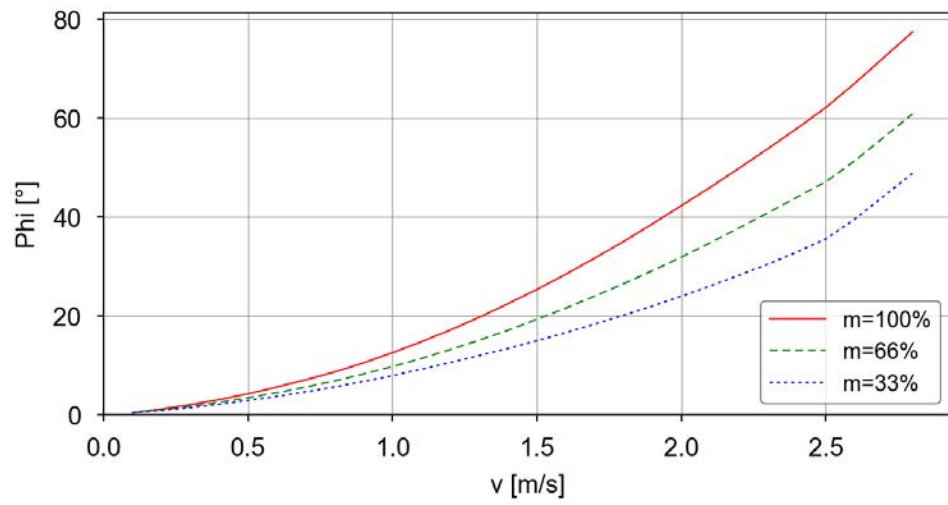
Continues on next page

## 5 IRB 1200

### 5.3 IRB 1200 0.9 m 5 kg

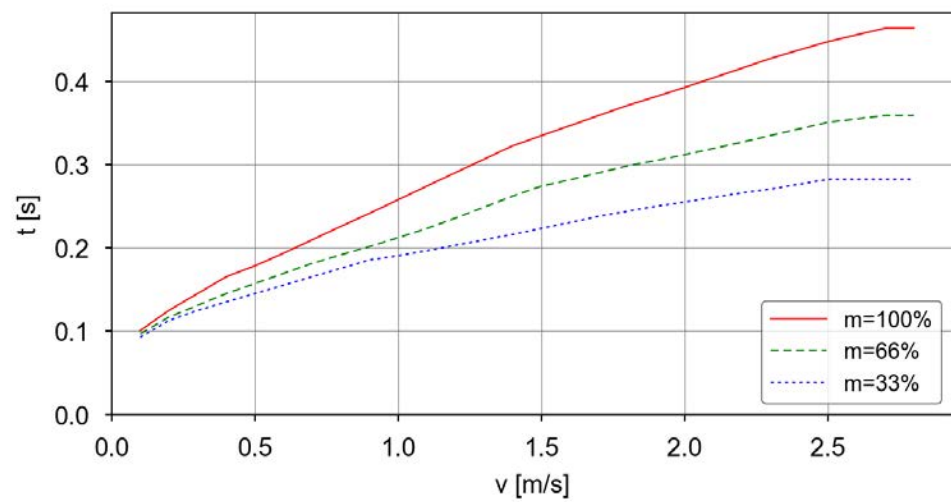
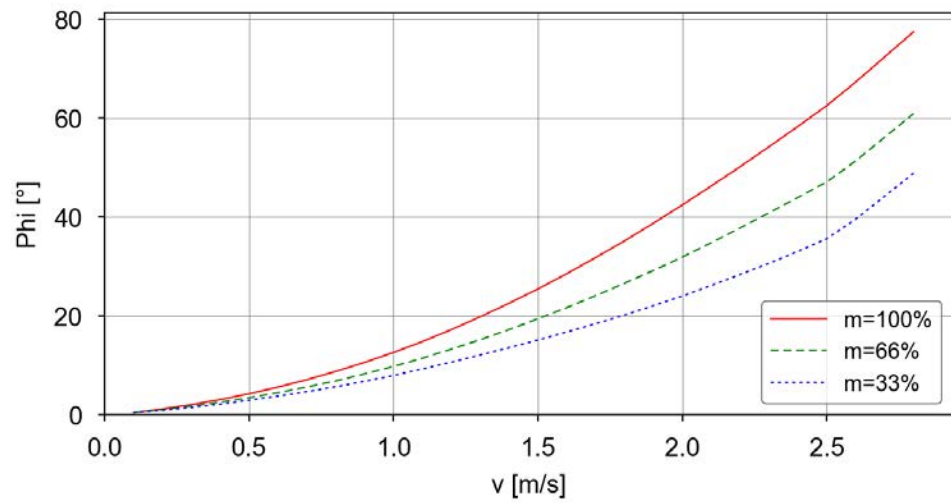
Continued

#### Extension zone 1, stopping distance and stopping time



Continues on next page

## Extension zone 2, stopping distance and stopping time



## 5 IRB 1200

### 5.4 IRB 1200 0.9 m 5 kg

### 5.4 IRB 1200 0.9 m 5 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	39.1	0.19
2	45.6	0.29
3	41.9	0.2

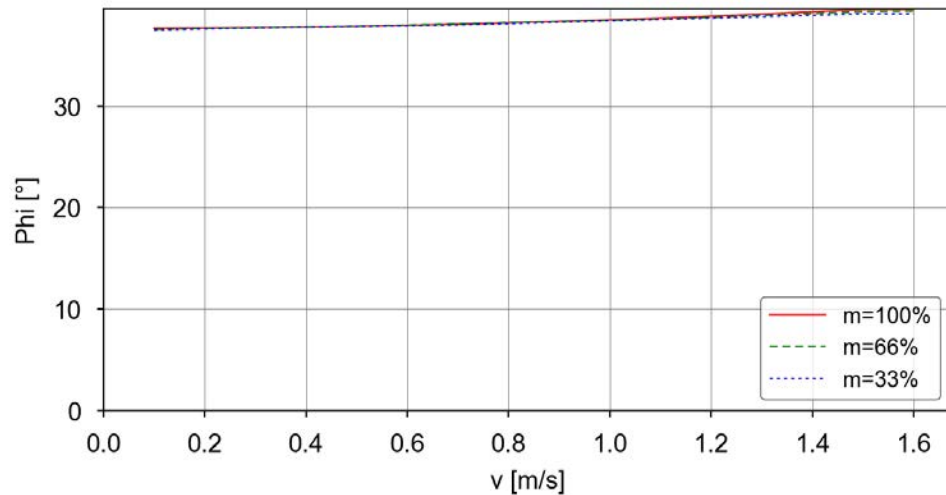
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

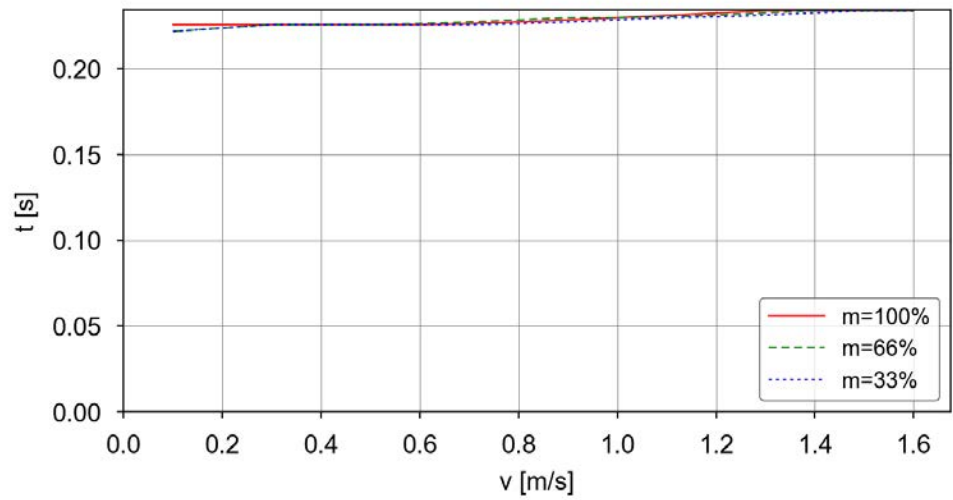
Zone	wcp min (m)	wcp max (m)
0	0	0.3
1	0.3	0.601
2	0.601	max reach

#### Category 1, Axis 1

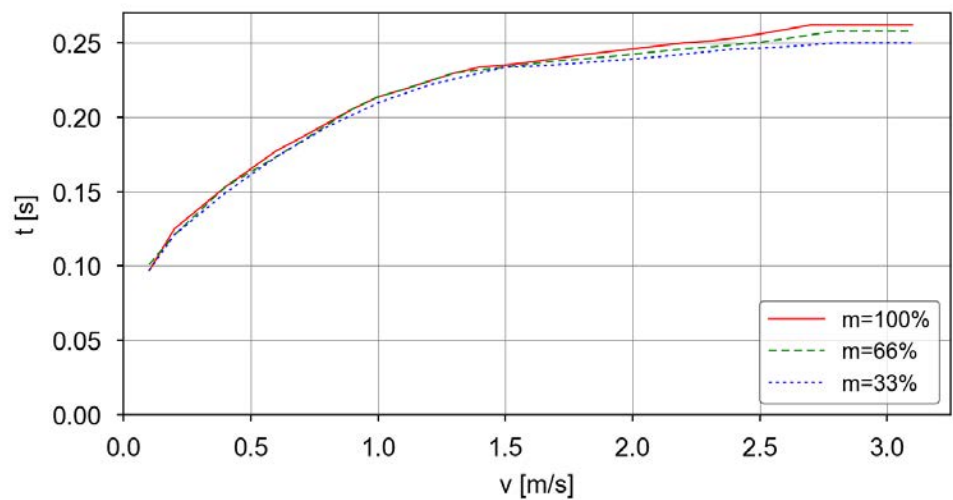
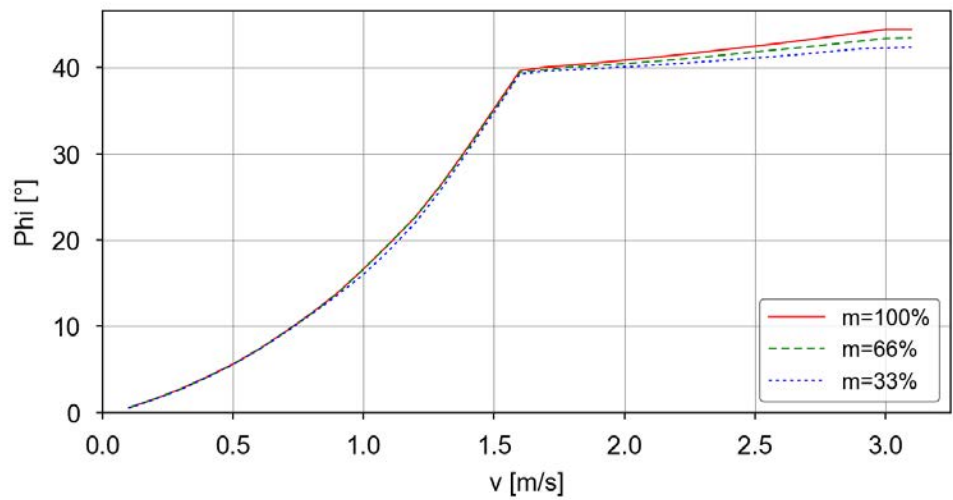
Extension zone 0, stopping distance and stopping time



Continues on next page



Extension zone 1, stopping distance and stopping time



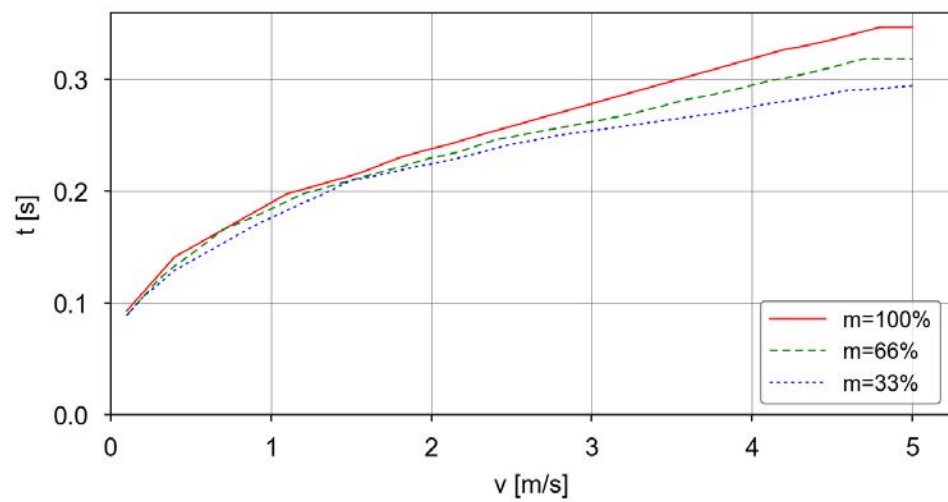
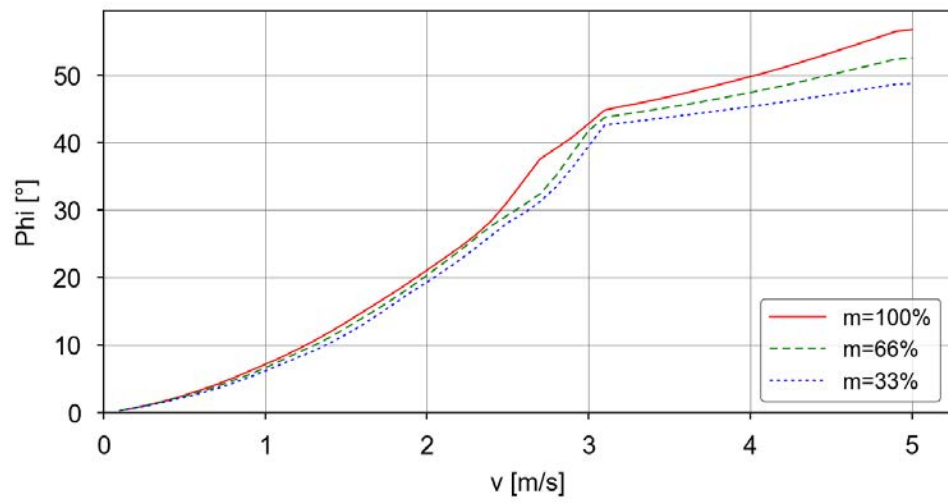
Continues on next page

## 5 IRB 1200

### 5.4 IRB 1200 0.9 m 5 kg

Continued

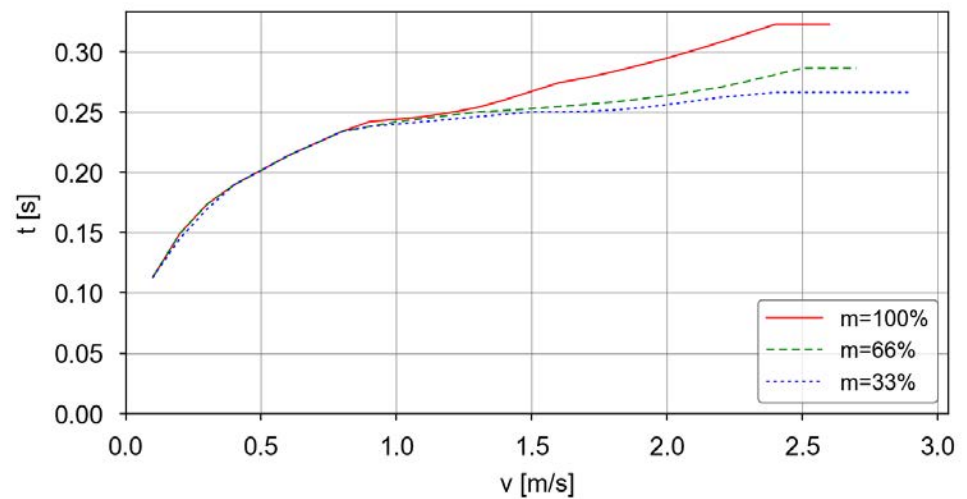
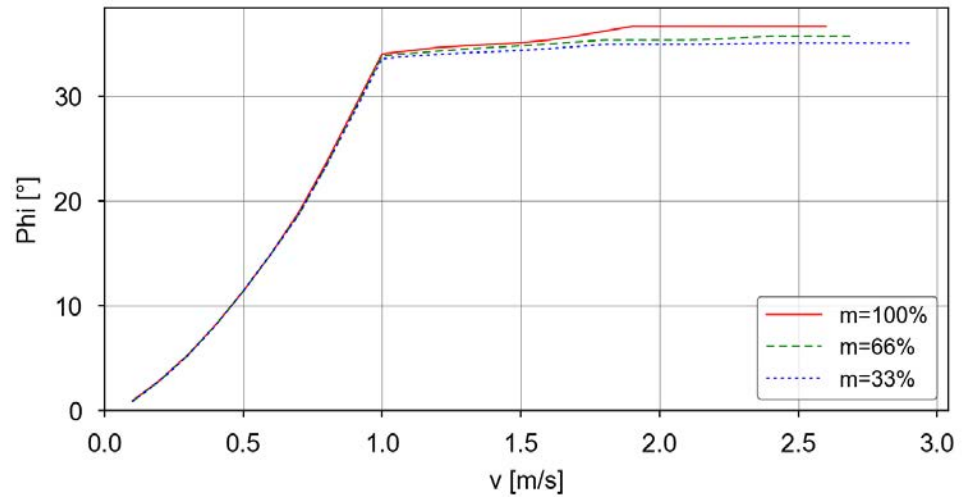
Extension zone 2, stopping distance and stopping time



Continues on next page

## Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



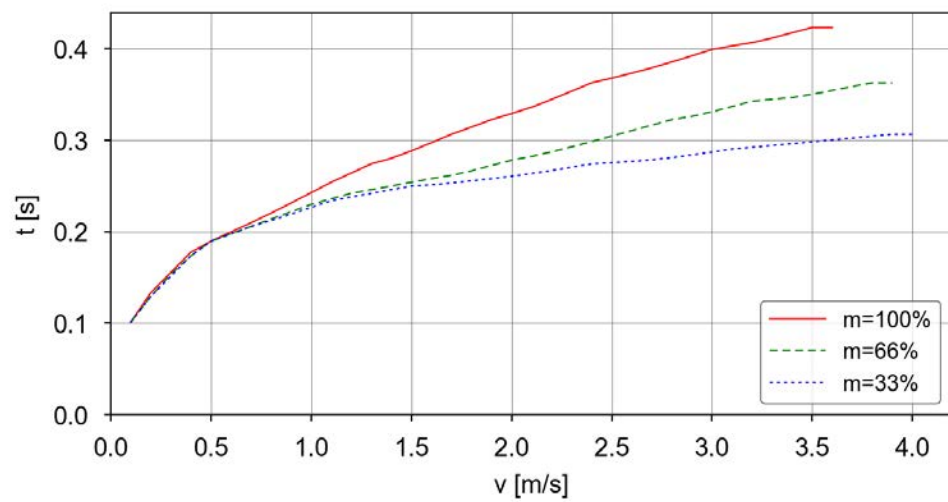
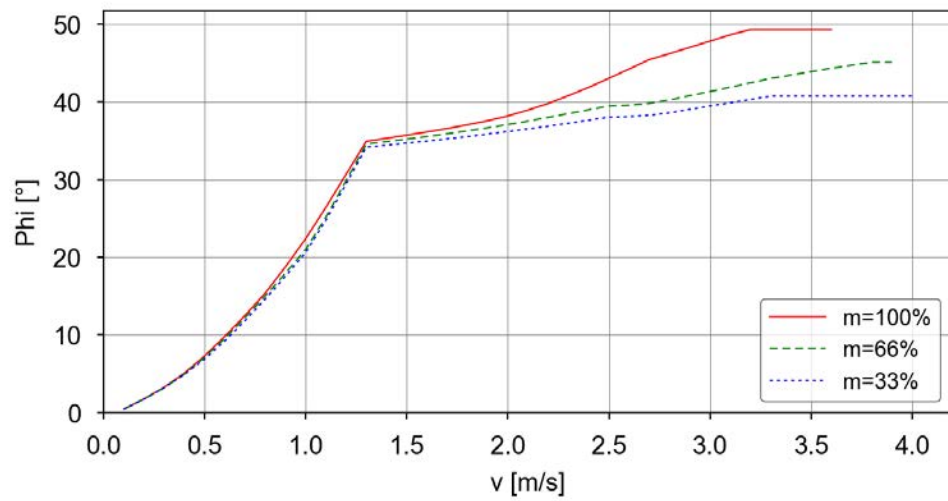
Continues on next page

## 5 IRB 1200

### 5.4 IRB 1200 0.9 m 5 kg

Continued

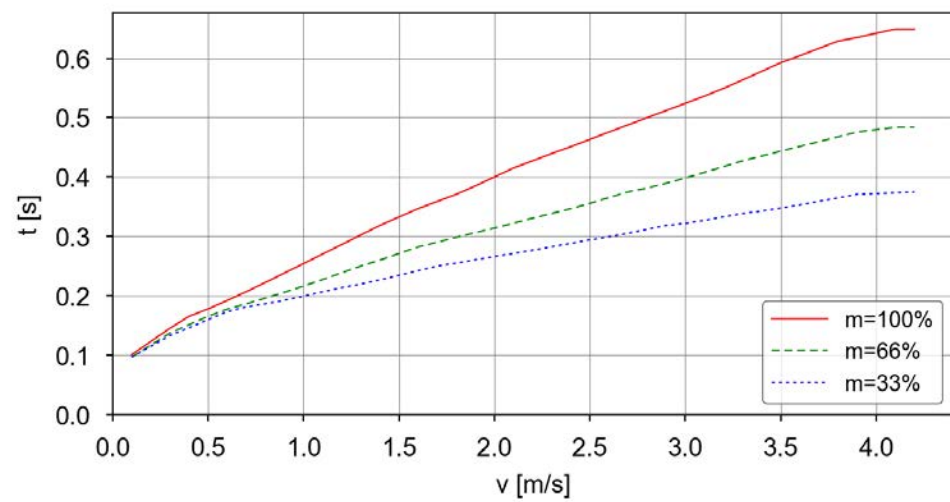
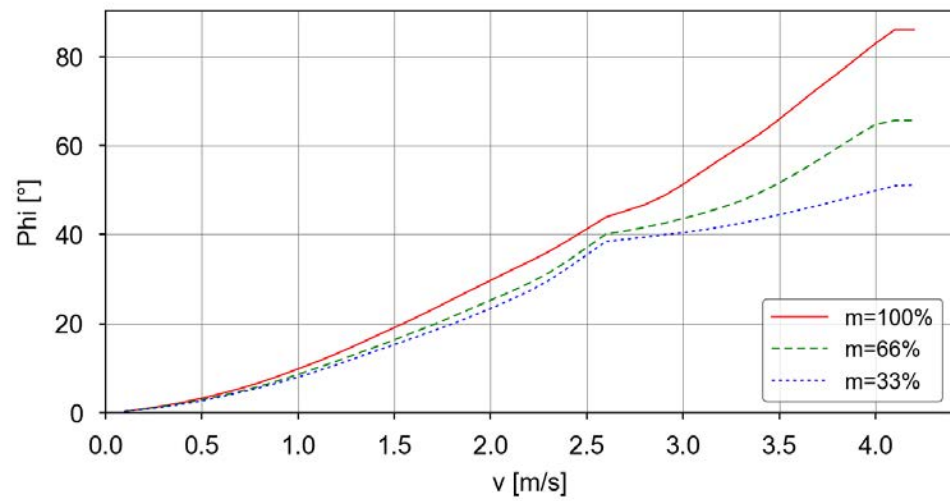
#### Extension zone 1, stopping distance and stopping time



Continues on next page



## Extension zone 2, stopping distance and stopping time



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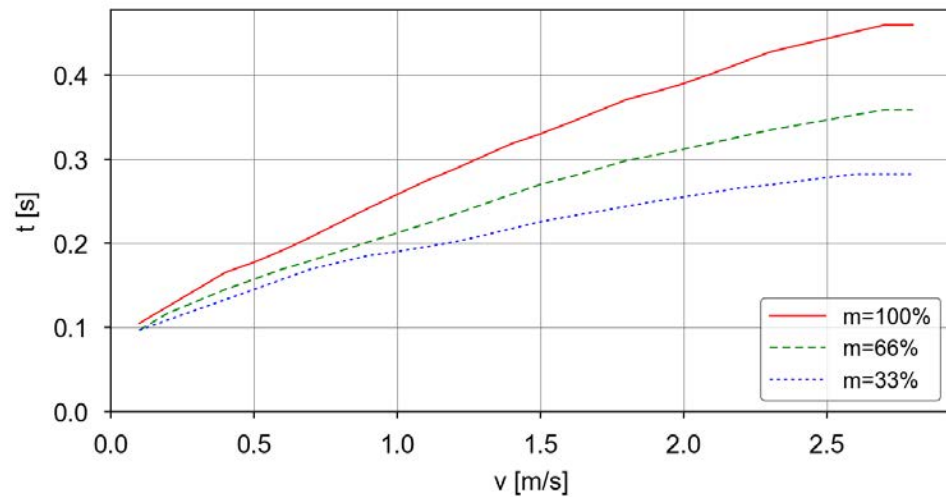
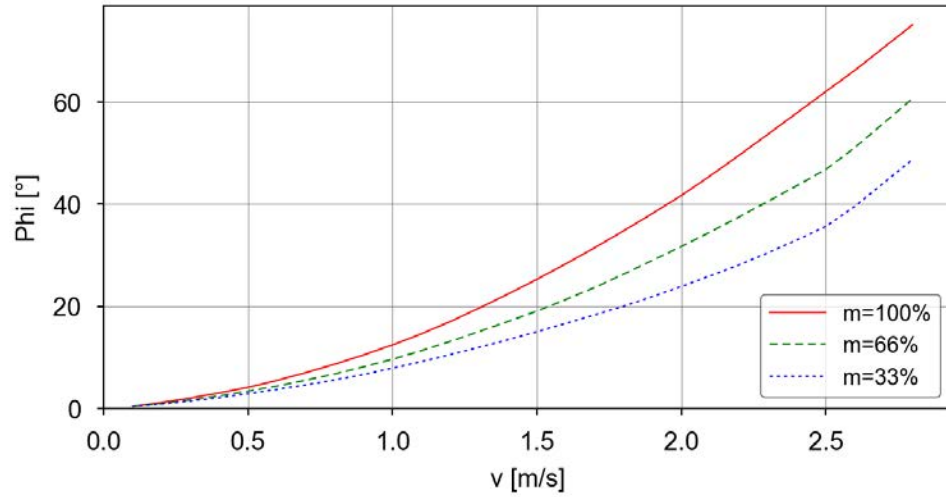
## 5 IRB 1200

5.4 IRB 1200 0.9 m 5 kg

*Continued*

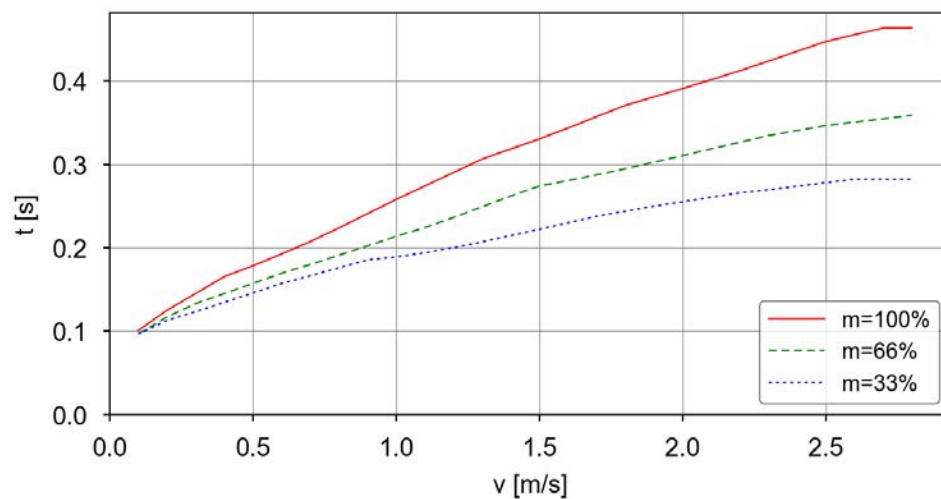
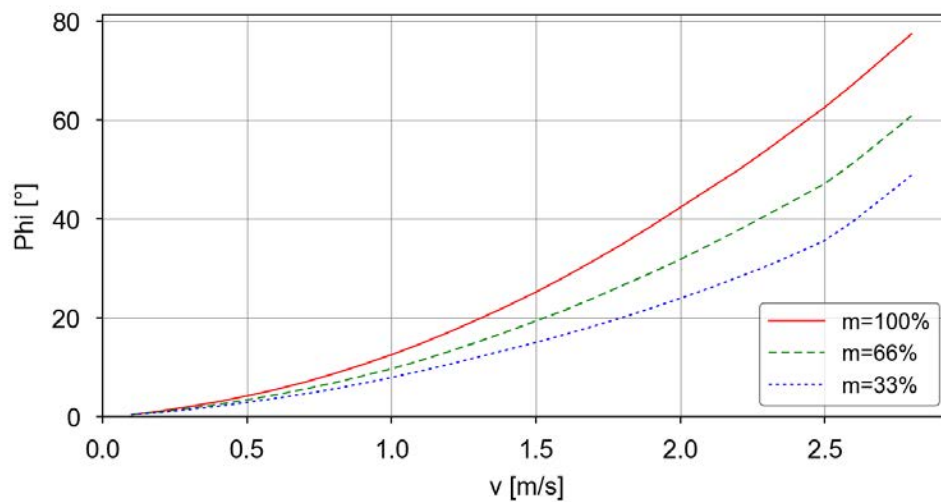
### Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



*Continues on next page*

Extension zone 1, stopping distance and stopping time



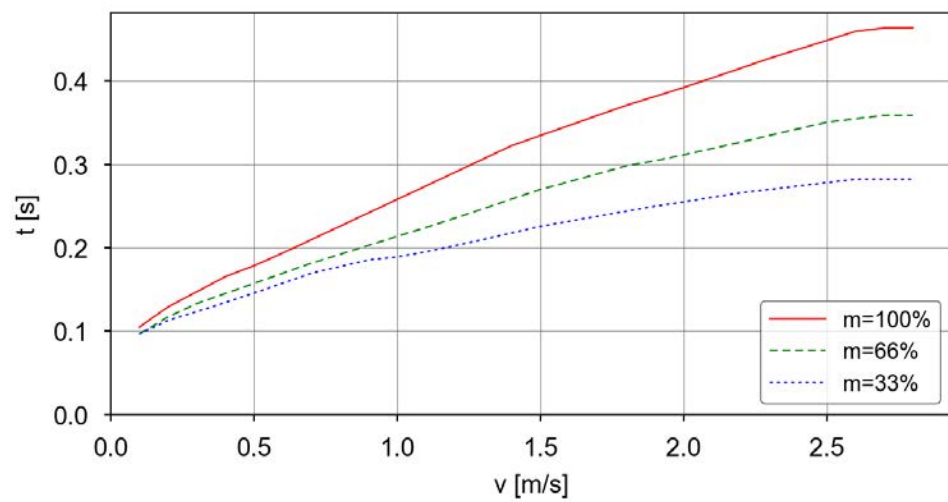
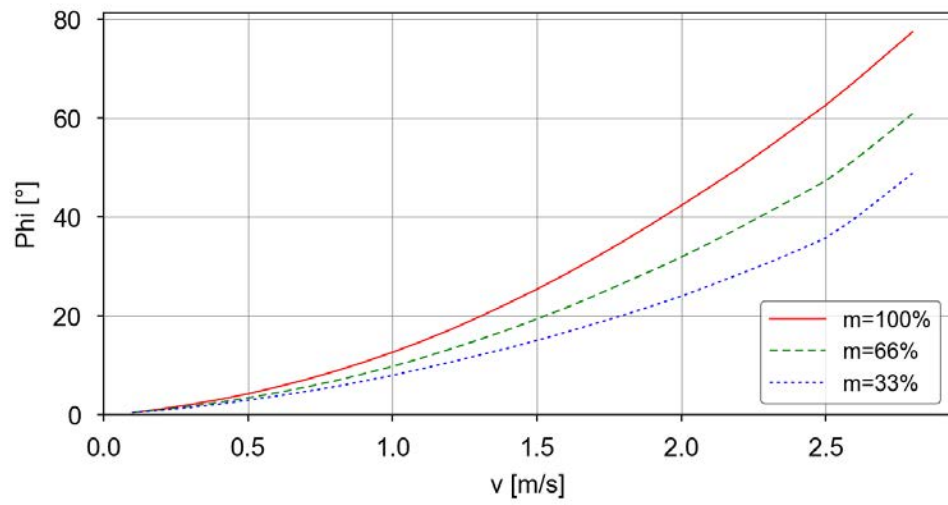
Continues on next page

## 5 IRB 1200

### 5.4 IRB 1200 0.9 m 5 kg

Continued

#### Extension zone 2, stopping distance and stopping time



## 6 IRB 1410

### 6.1 IRB 1410 1.44 m 5 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	26.2	0.34
2	19.4	0.2
3	14.0	0.15

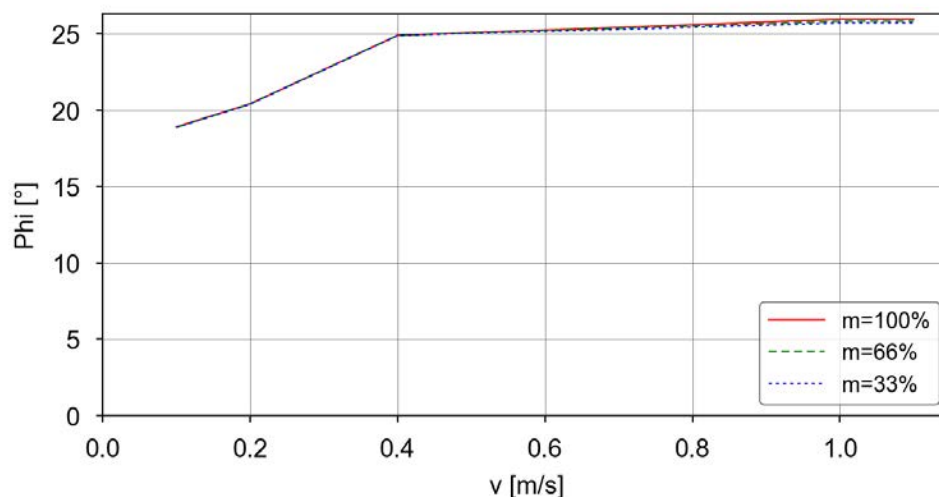
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.481
1	0.481	0.962
2	0.962	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

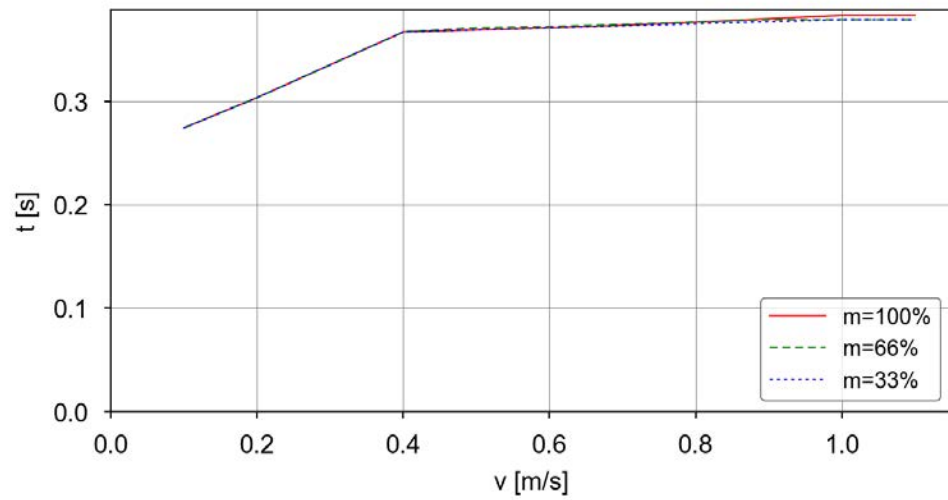


*Continues on next page*

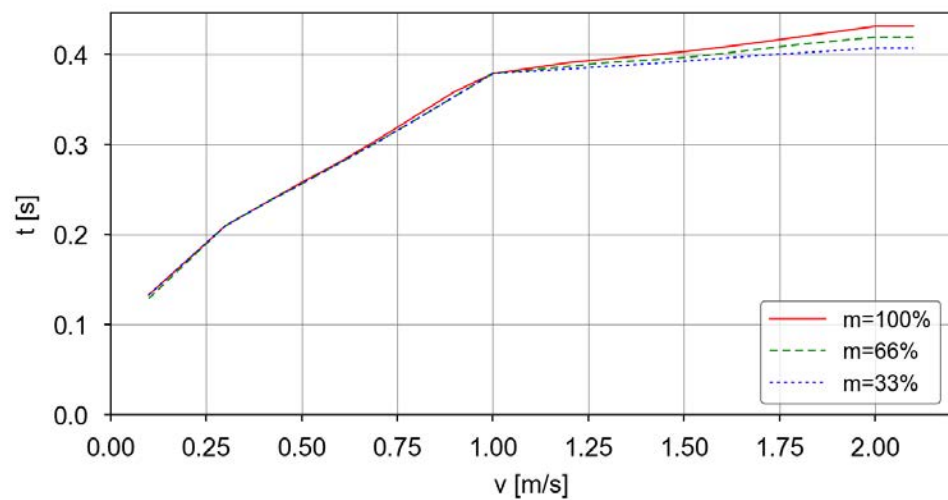
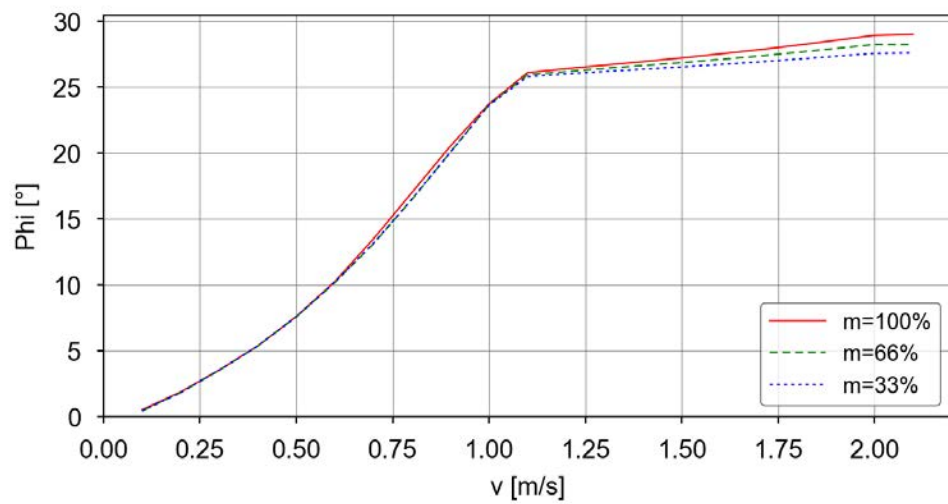
## 6 IRB 1410

### 6.1 IRB 1410 1.44 m 5 kg

Continued

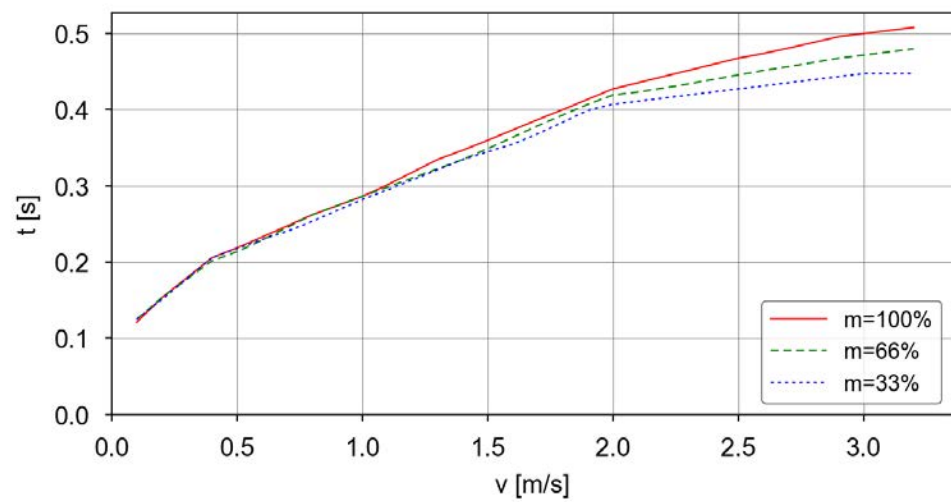
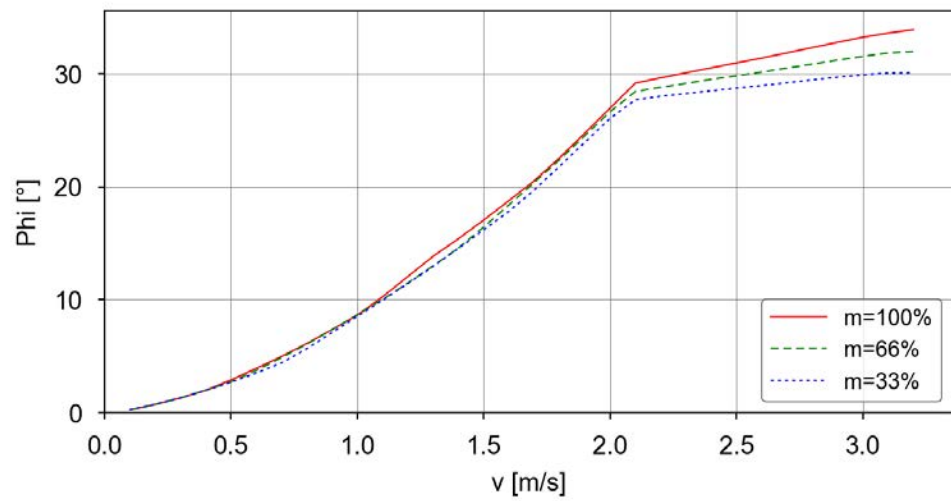


### Extension zone 1, stopping distance and stopping time



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## Extension zone 2, stopping distance and stopping time



Continues on next page

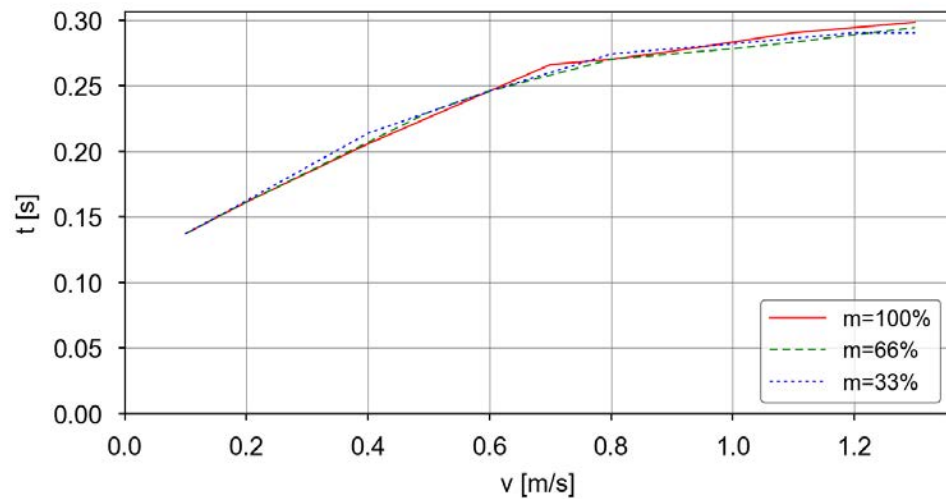
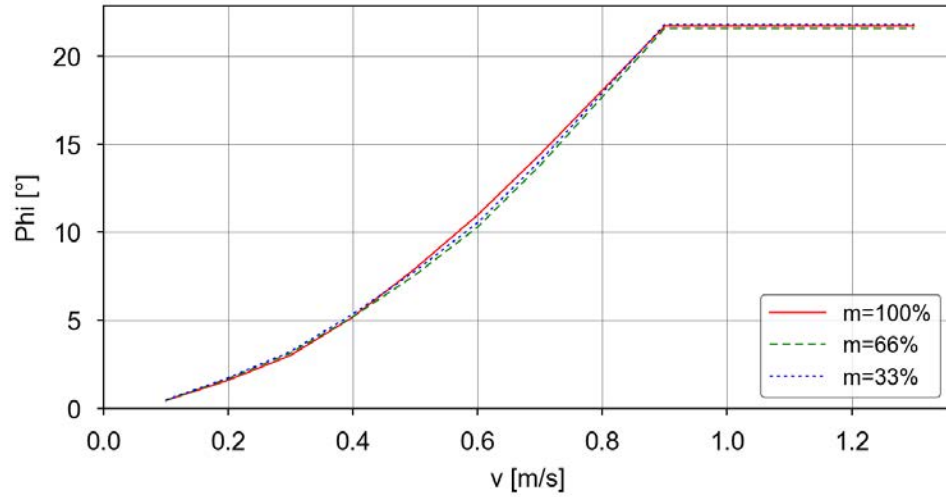
## 6 IRB 1410

### 6.1 IRB 1410 1.44 m 5 kg

Continued

#### Category 1, Axis 2

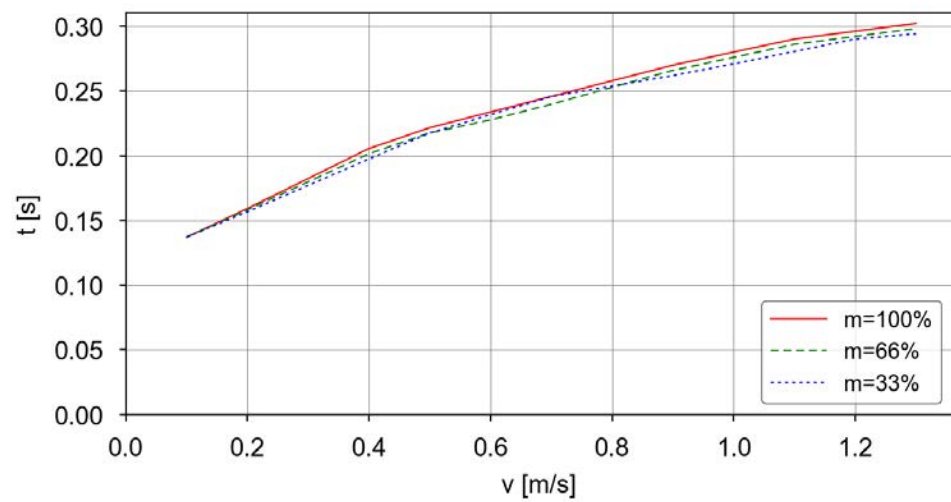
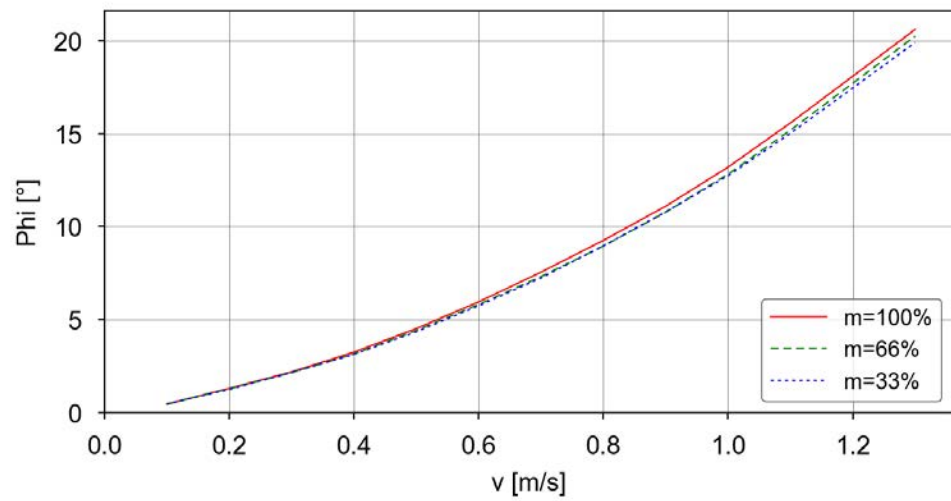
Extension zone 0, stopping distance and stopping time



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## Extension zone 1, stopping distance and stopping time



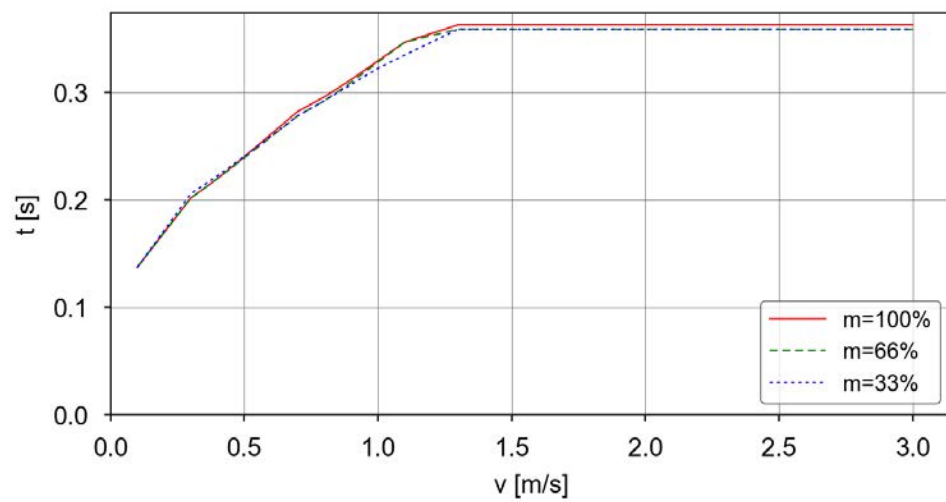
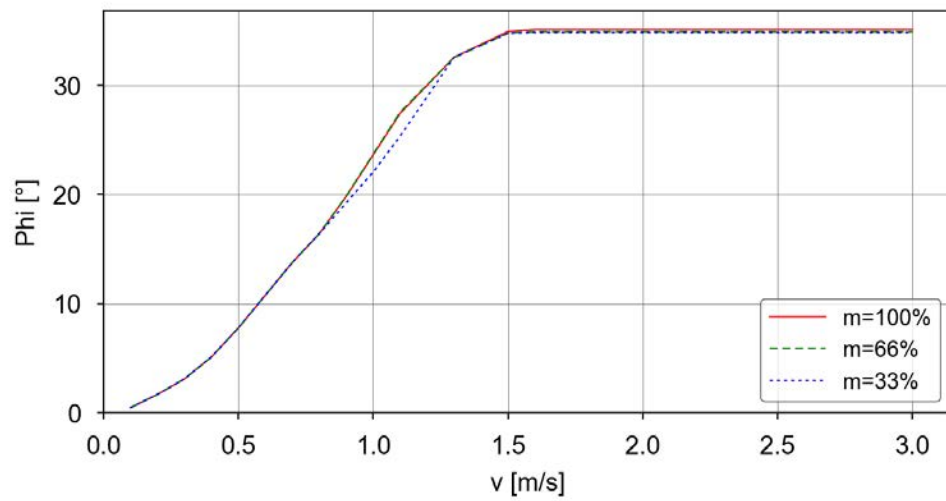
Continues on next page

## 6 IRB 1410

### 6.1 IRB 1410 1.44 m 5 kg

Continued

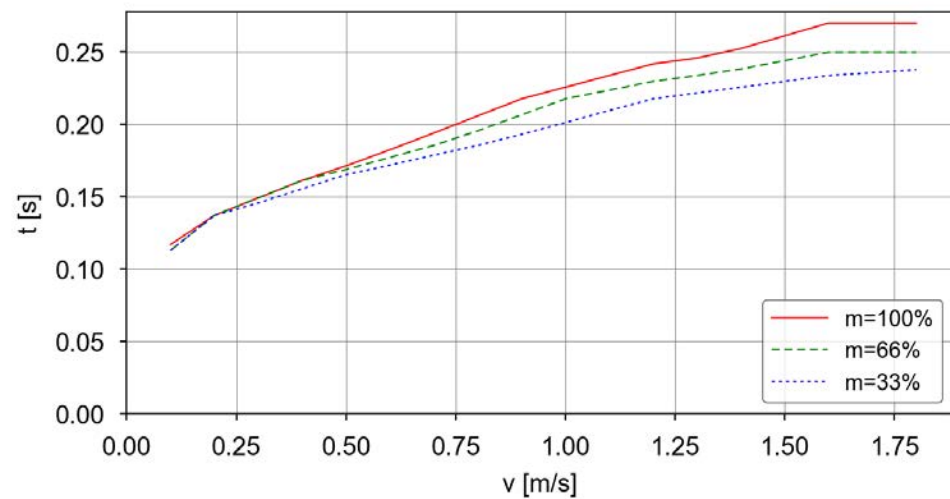
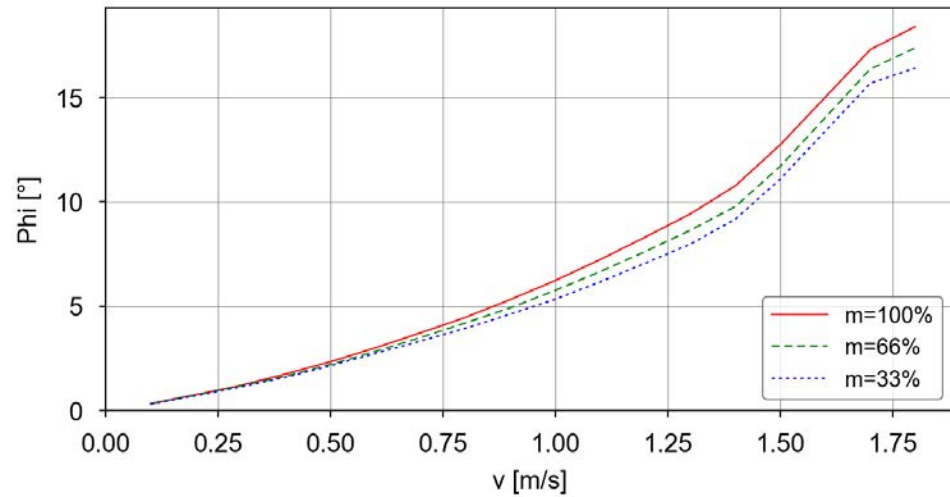
Extension zone 2, stopping distance and stopping time



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## Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



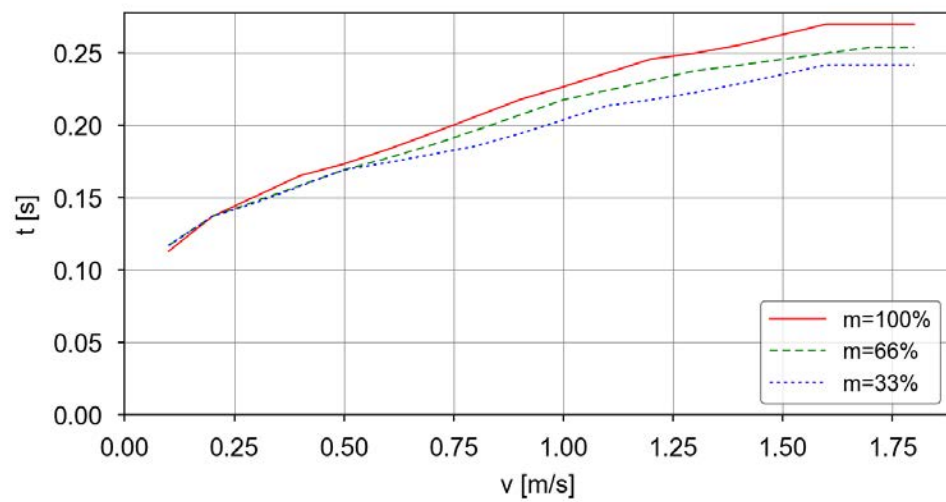
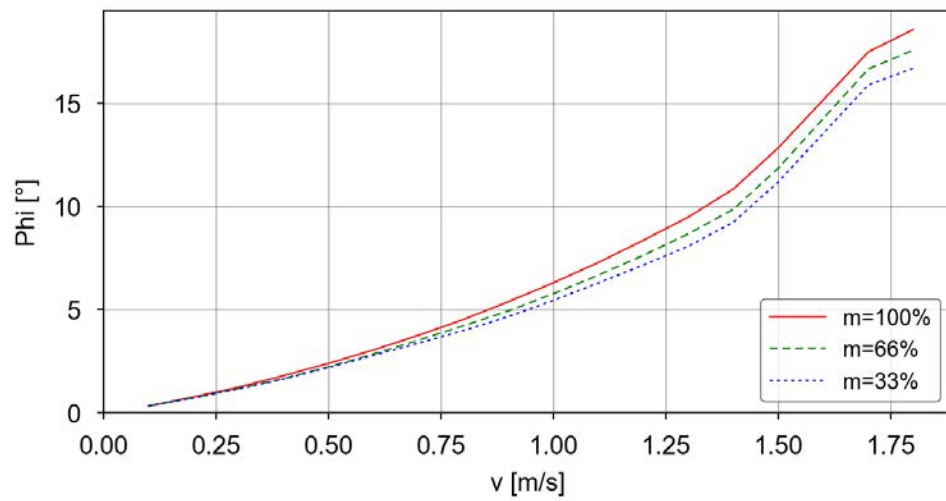
Continues on next page

## 6 IRB 1410

### 6.1 IRB 1410 1.44 m 5 kg

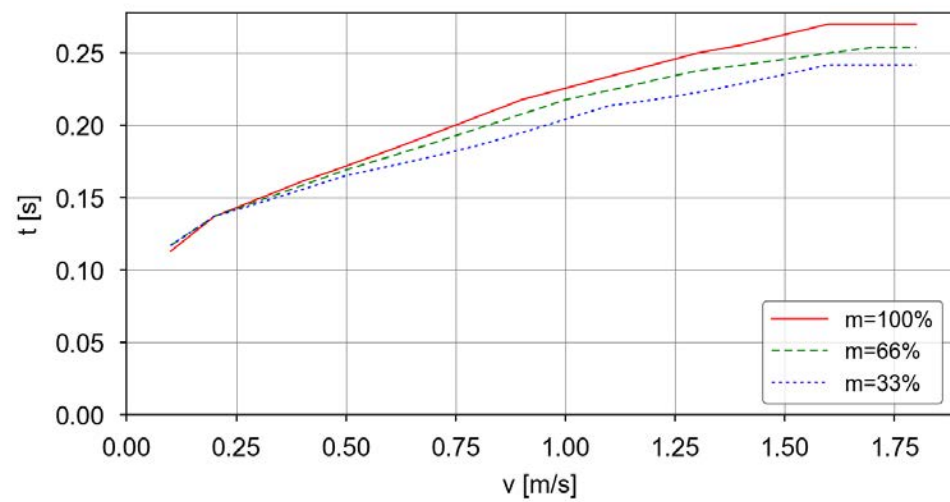
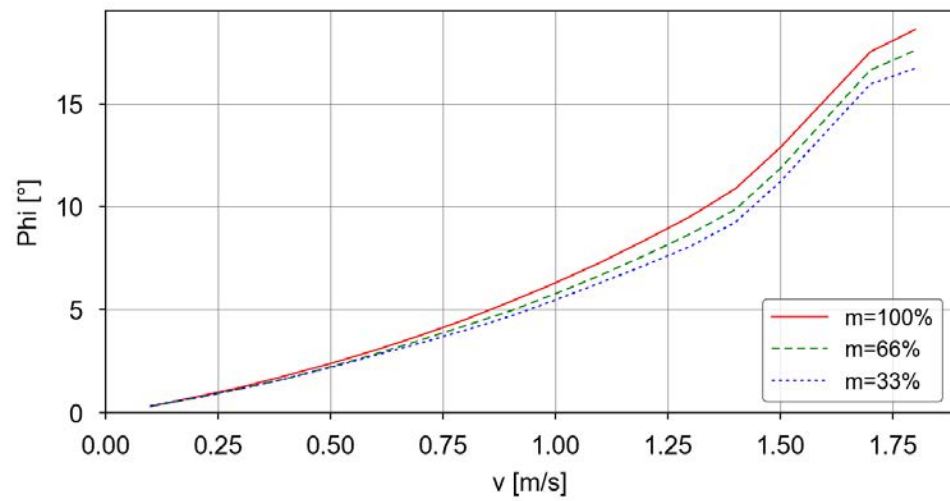
Continued

Extension zone 1, stopping distance and stopping time



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## Extension zone 2, stopping distance and stopping time



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## 7 IRB 1510

### 7.1 IRB 1510ID 1.5 m 4 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	20.2	0.22
2	18.5	0.17
3	15.0	0.12

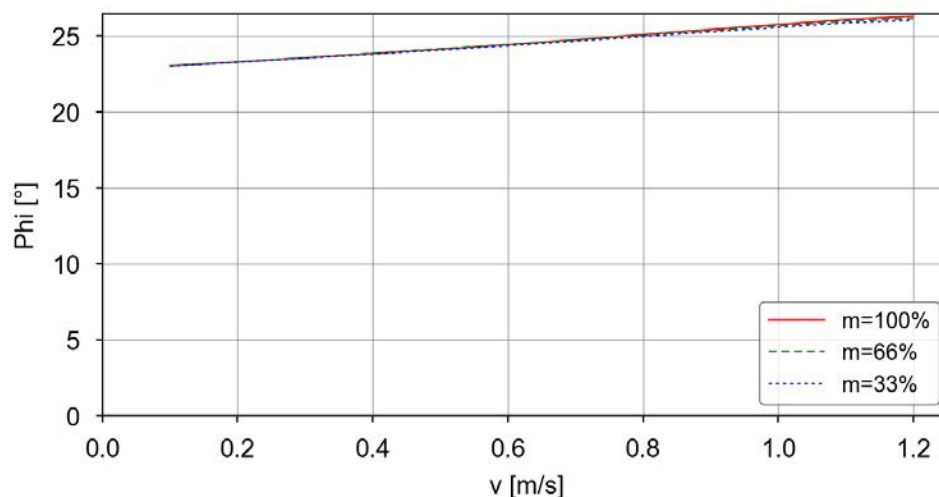
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.5
1	0.5	1.0
2	1.0	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

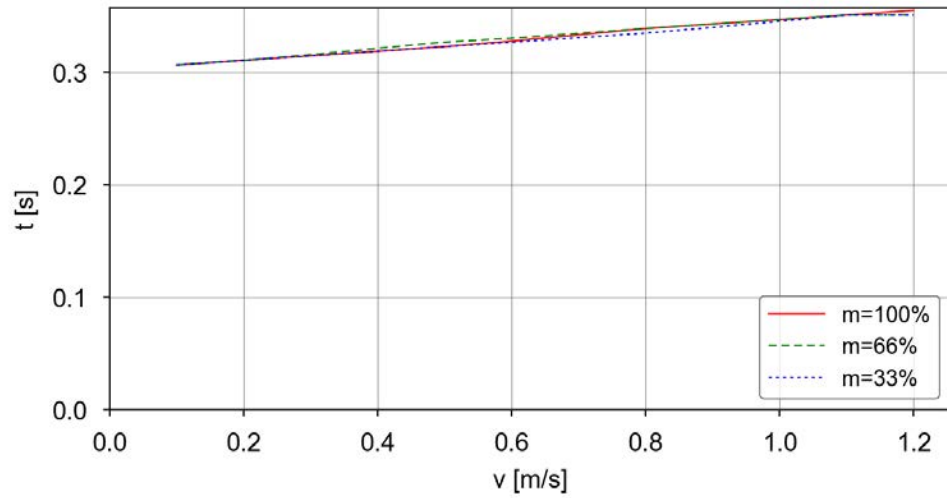


*Continues on next page*

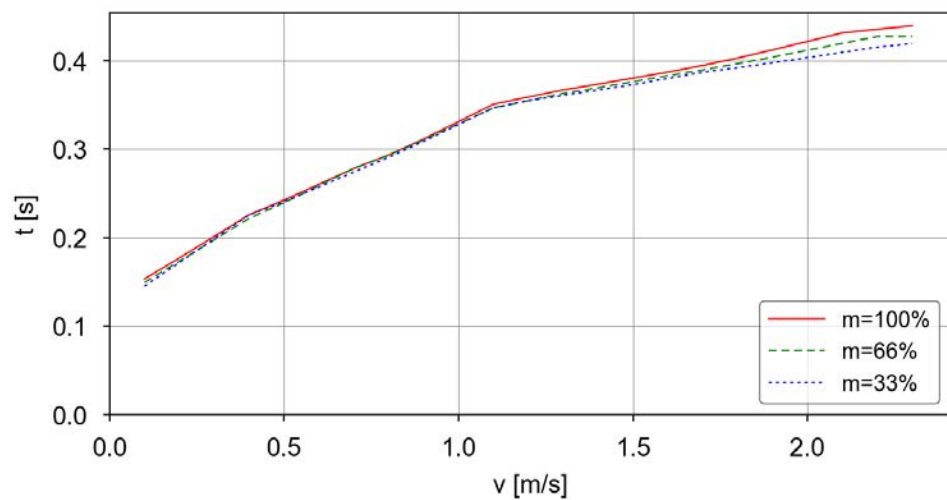
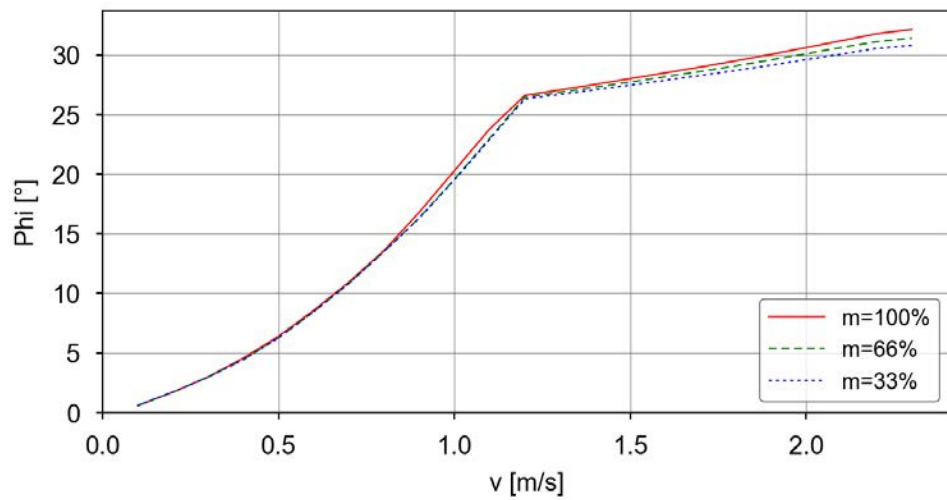
## 7 IRB 1510

### 7.1 IRB 1510ID 1.5 m 4 kg

Continued



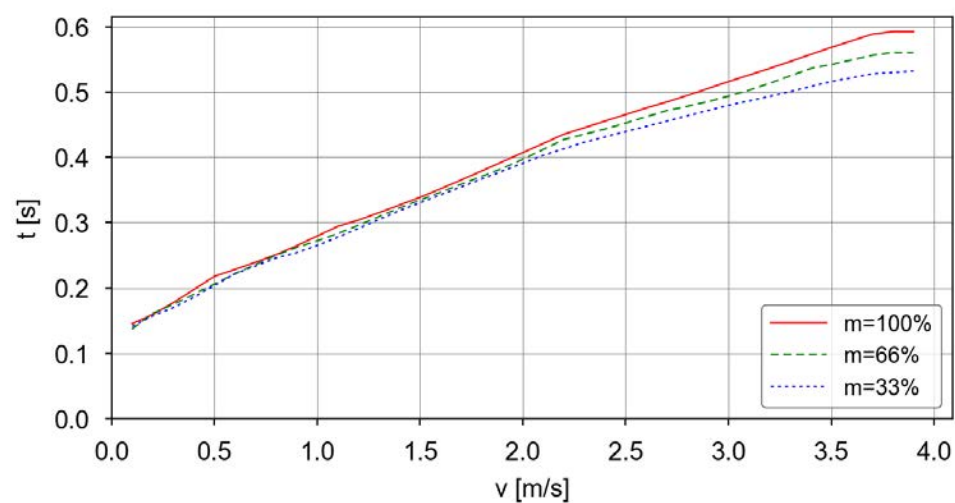
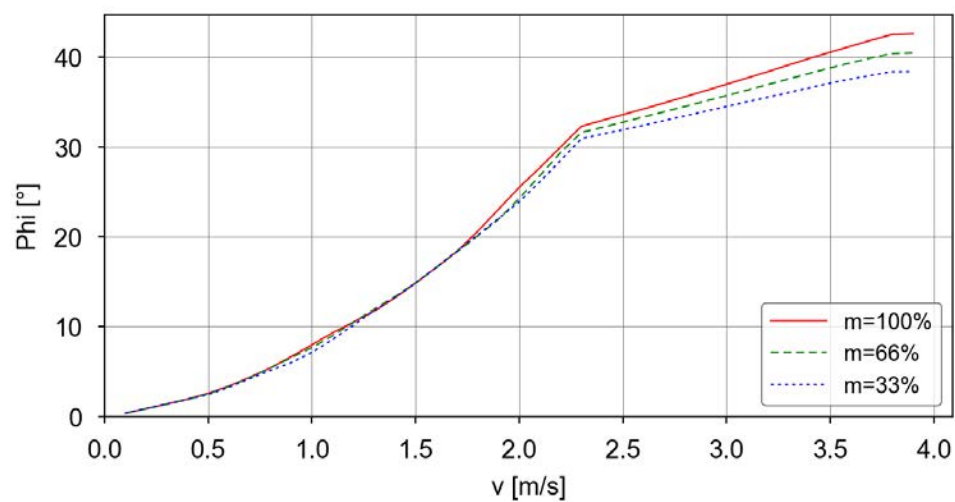
#### Extension zone 1, stopping distance and stopping time



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## Extension zone 2, stopping distance and stopping time



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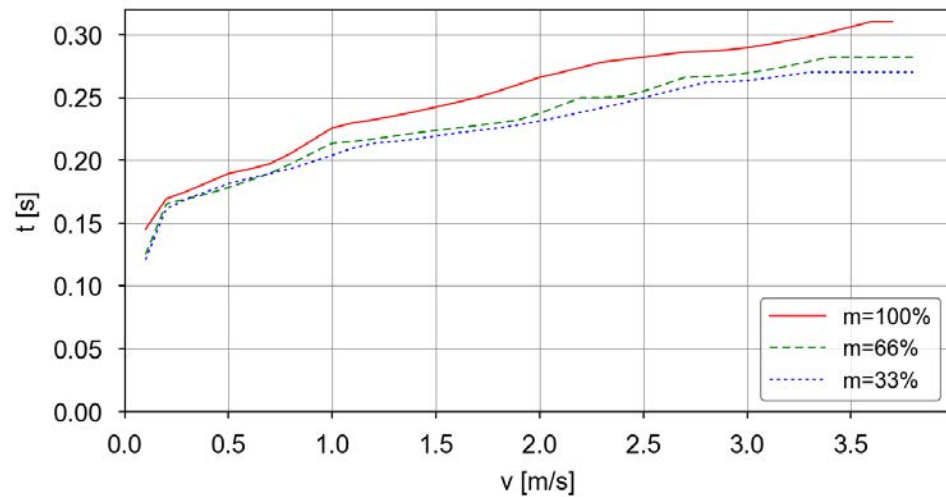
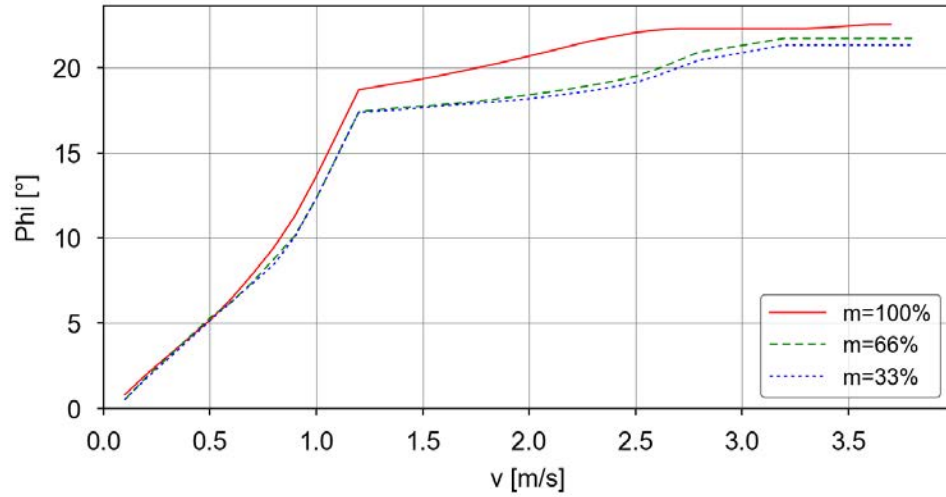
## 7 IRB 1510

7.1 IRB 1510ID 1.5 m 4 kg

Continued

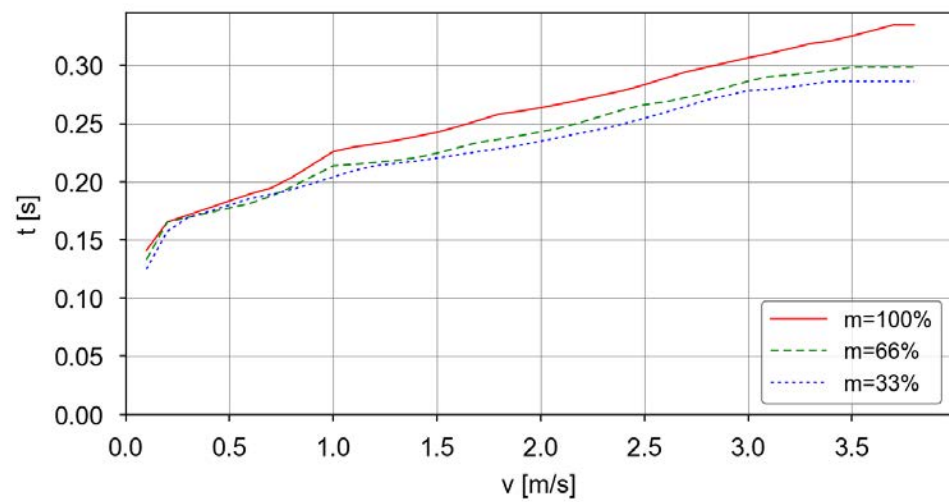
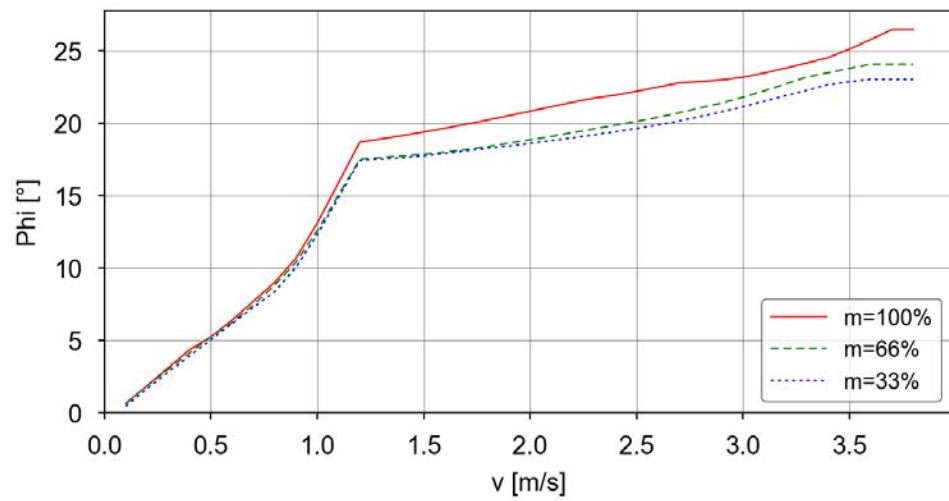
### Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



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## Extension zone 1, stopping distance and stopping time



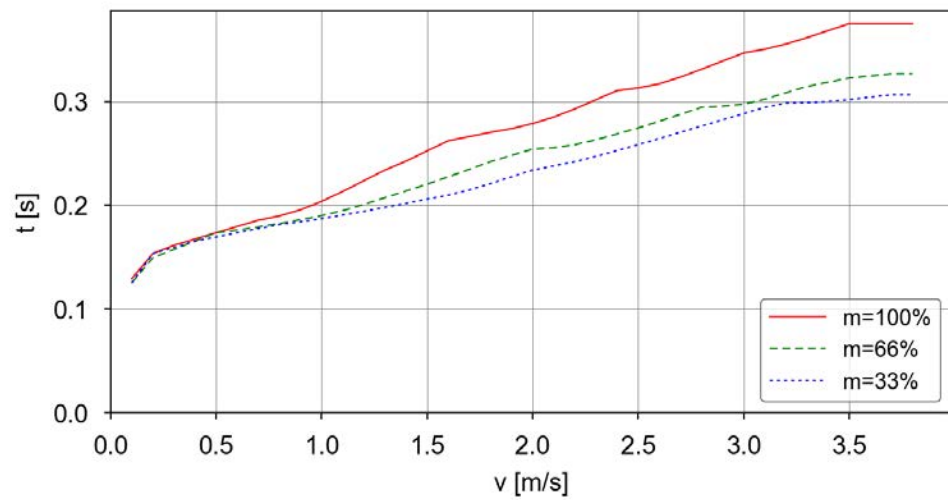
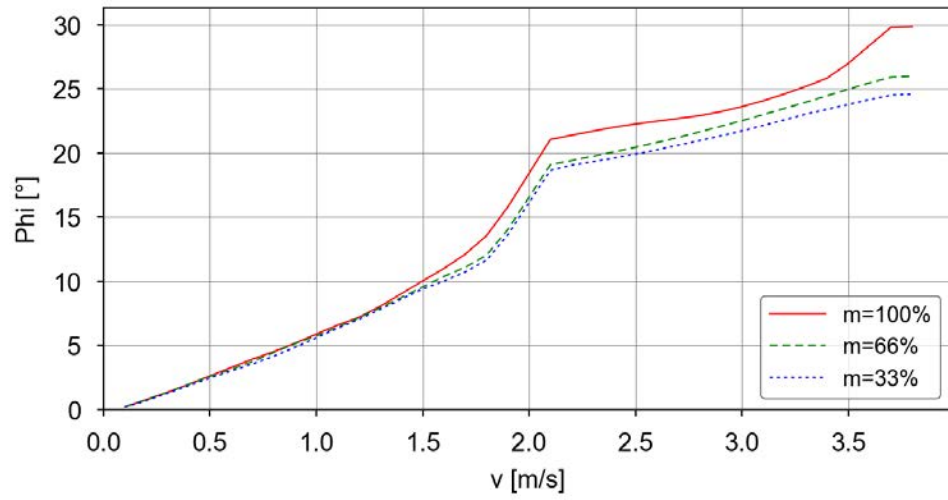
Continues on next page

## 7 IRB 1510

7.1 IRB 1510ID 1.5 m 4 kg

Continued

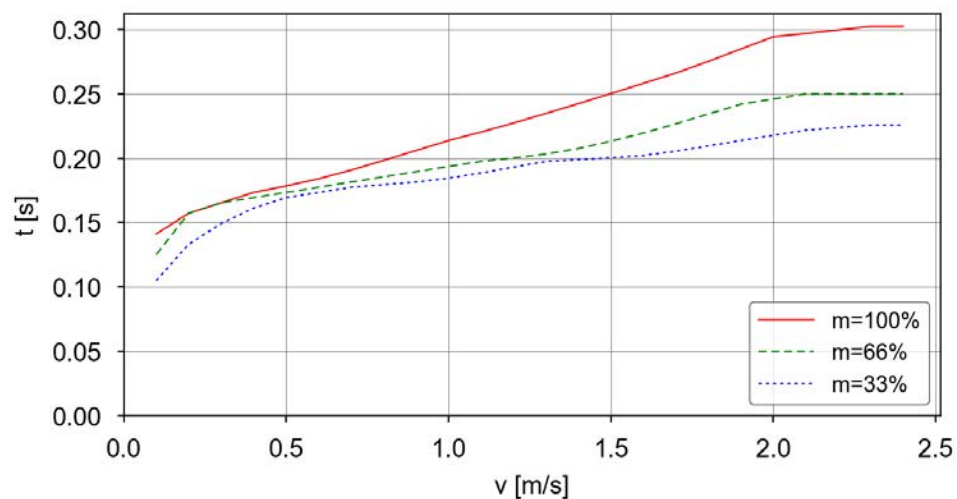
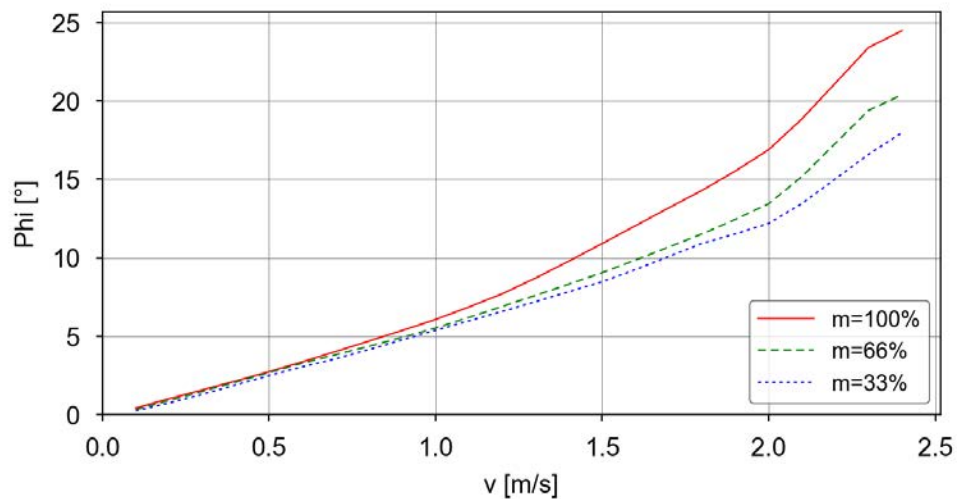
Extension zone 2, stopping distance and stopping time



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## Category 1, Axis 3

## Extension zone 0, stopping distance and stopping time



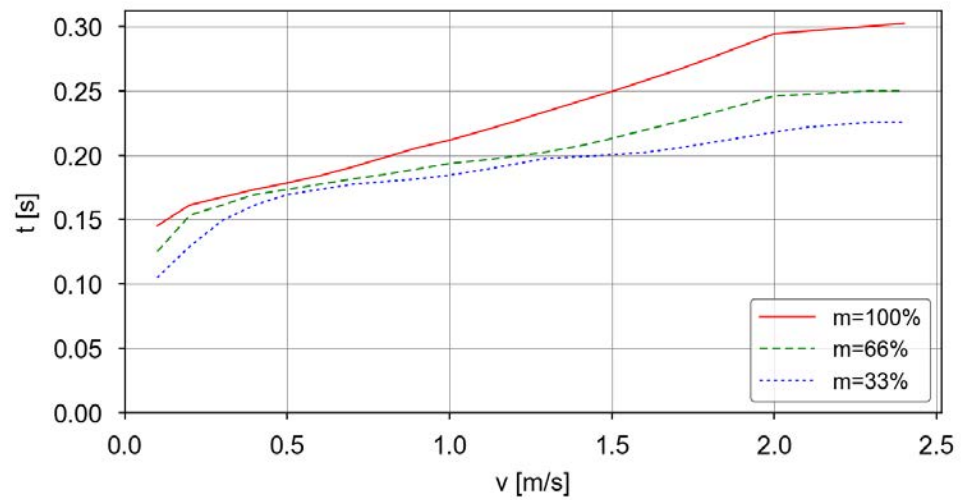
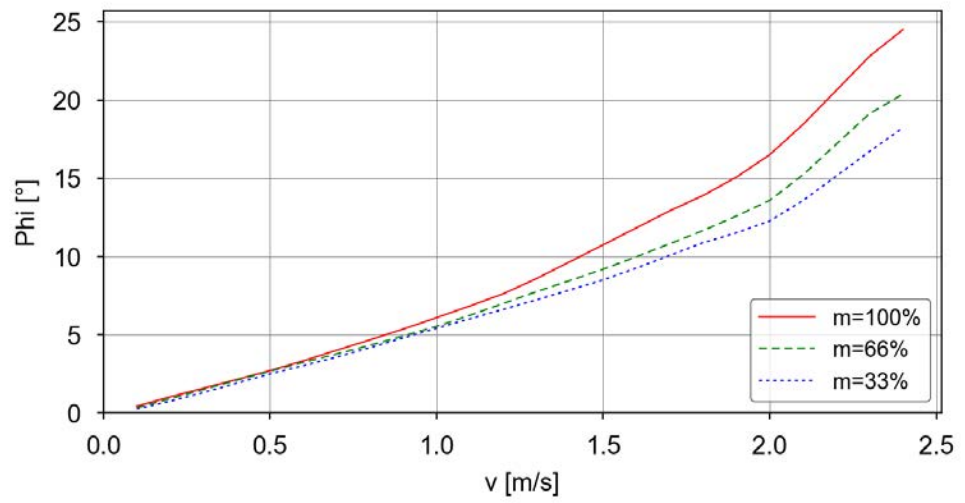
Continues on next page

## 7 IRB 1510

### 7.1 IRB 1510ID 1.5 m 4 kg

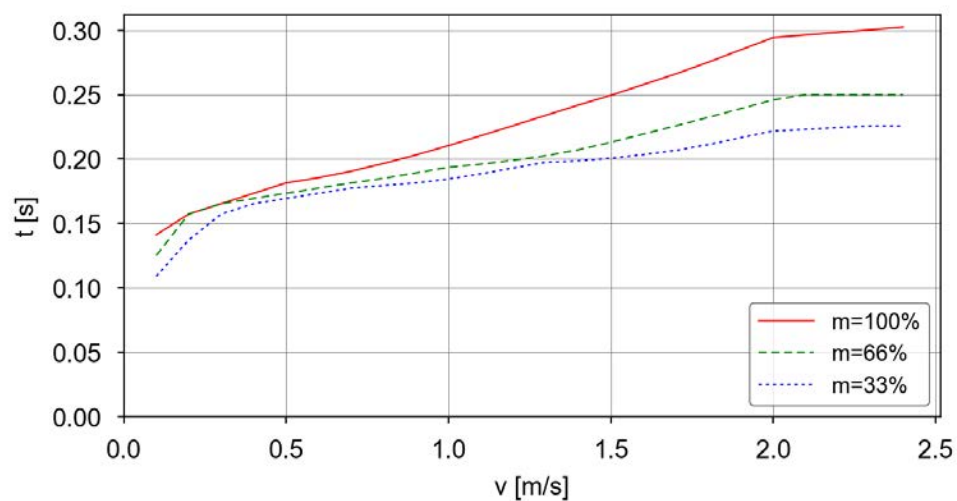
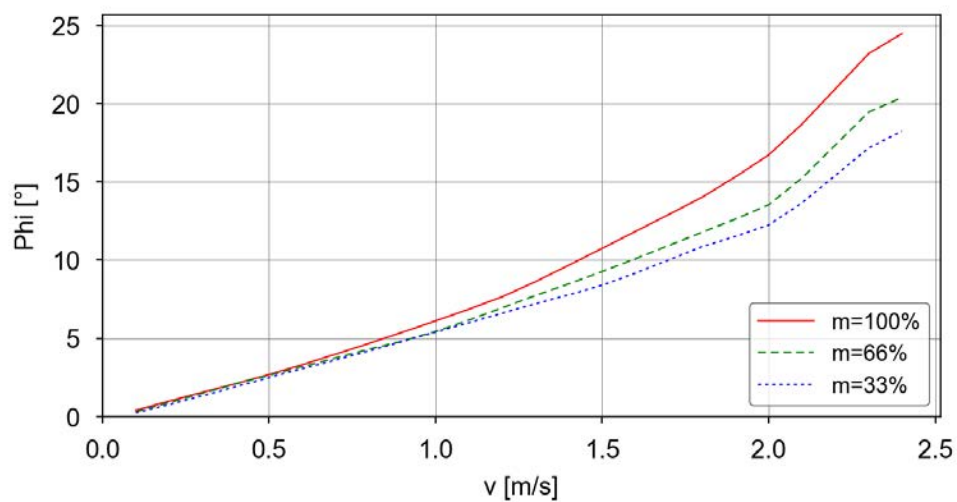
Continued

#### Extension zone 1, stopping distance and stopping time



Continues on next page

## Extension zone 2, stopping distance and stopping time



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## 8 IRB 1520

### 8.1 IRB 1520ID 1.5 m 4 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	20.2	0.22
2	18.5	0.17
3	15.0	0.12

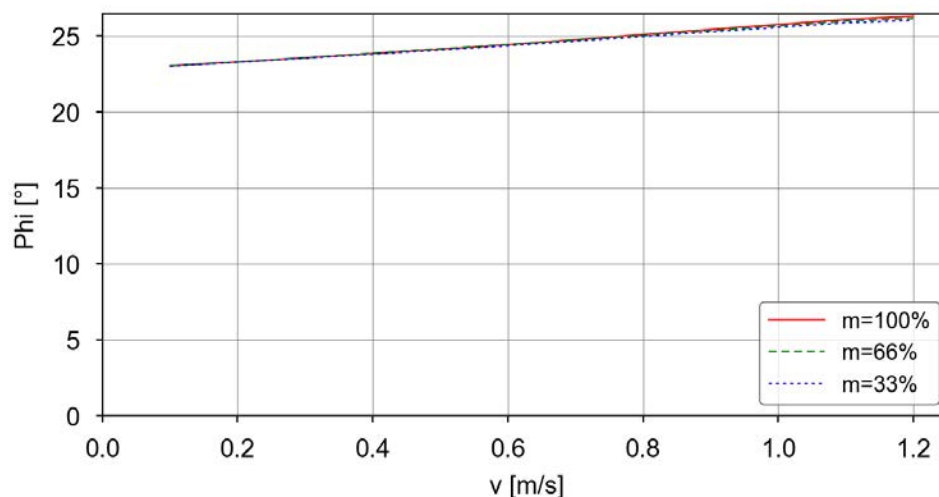
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.5
1	0.5	1.0
2	1.0	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

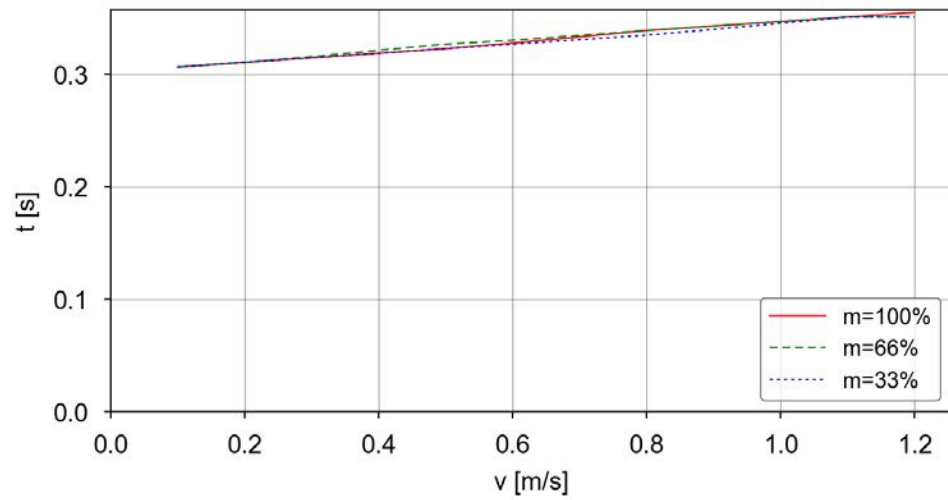


*Continues on next page*

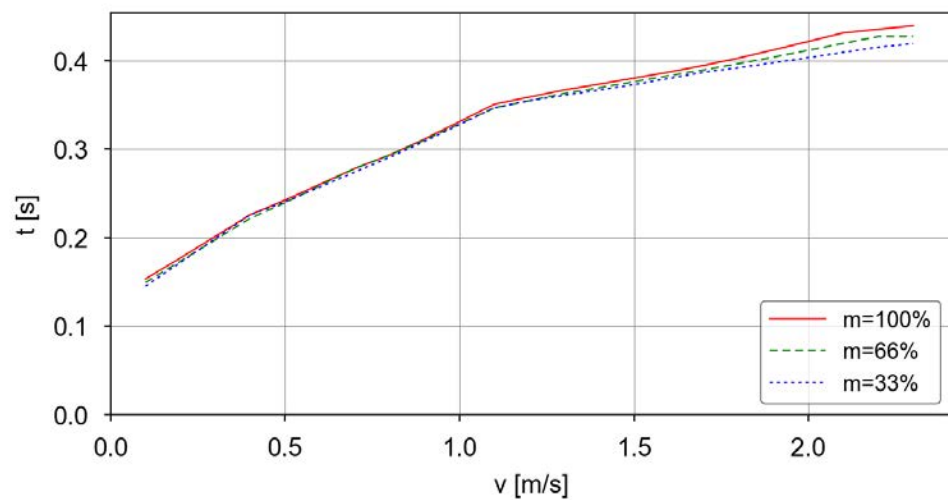
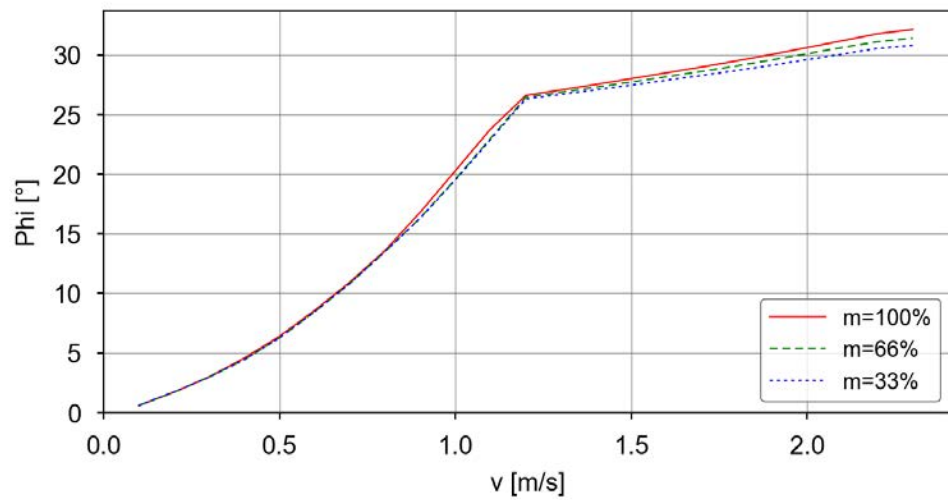
## 8 IRB 1520

### 8.1 IRB 1520ID 1.5 m 4 kg

Continued

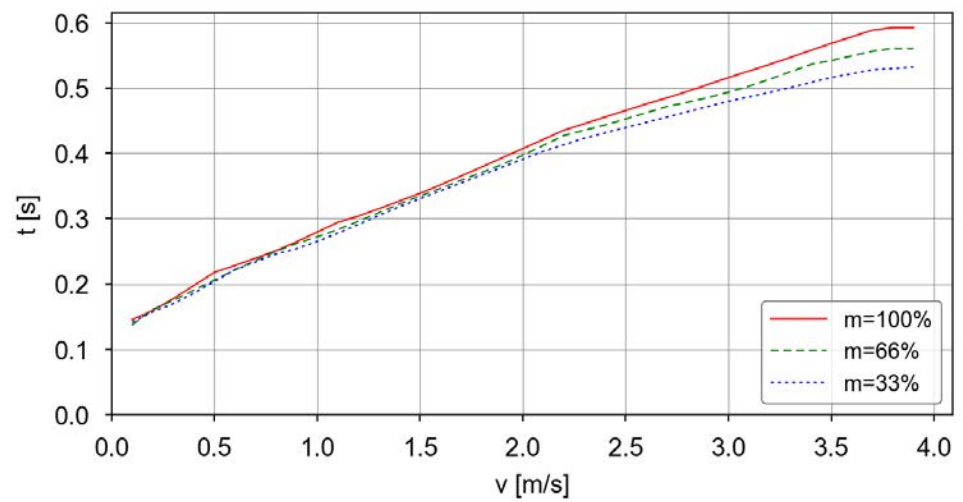
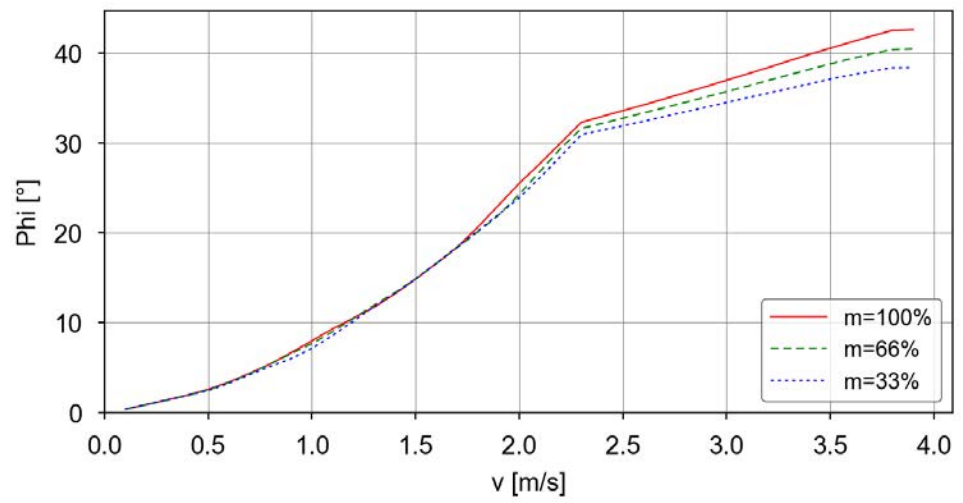


#### Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

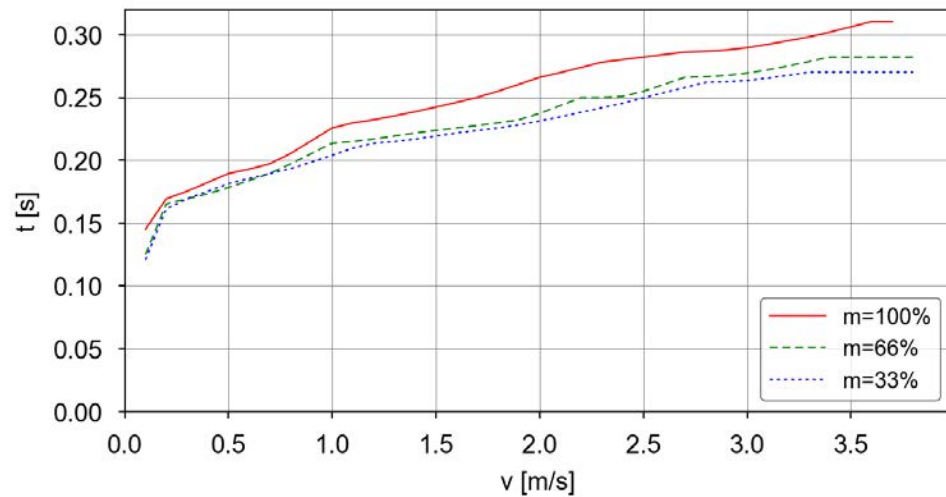
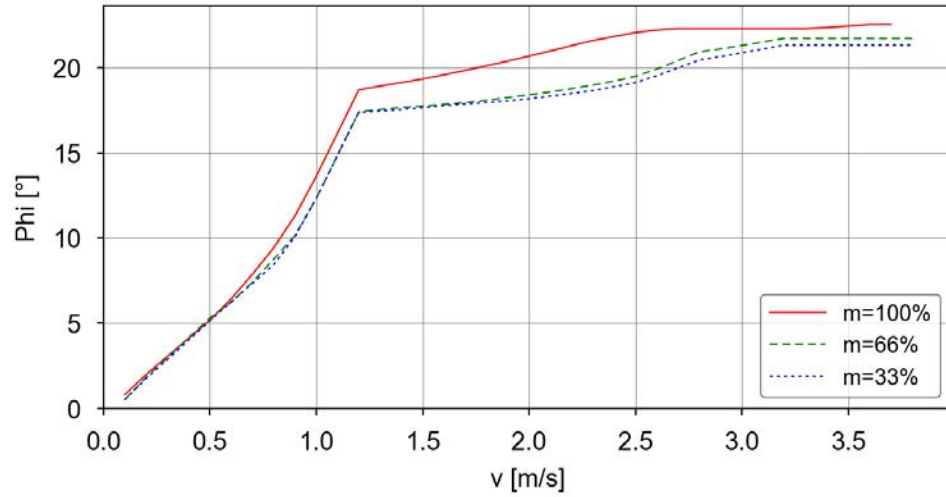
## 8 IRB 1520

### 8.1 IRB 1520ID 1.5 m 4 kg

Continued

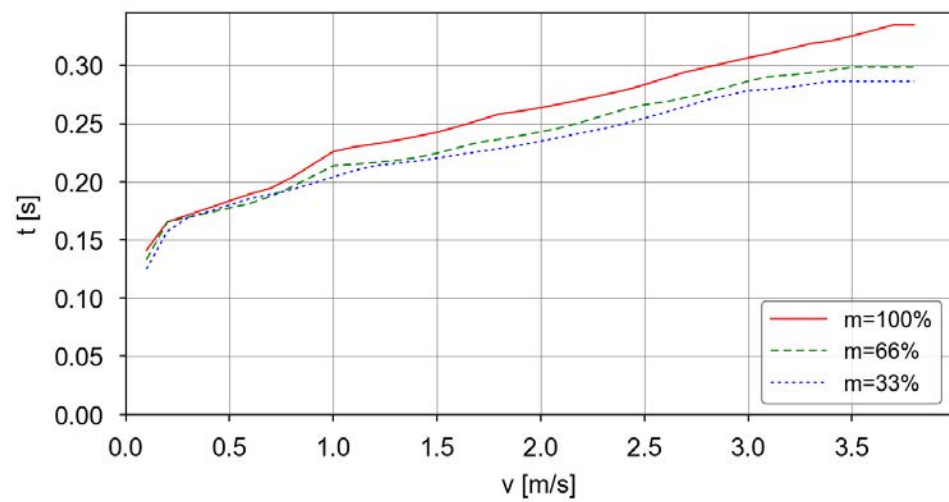
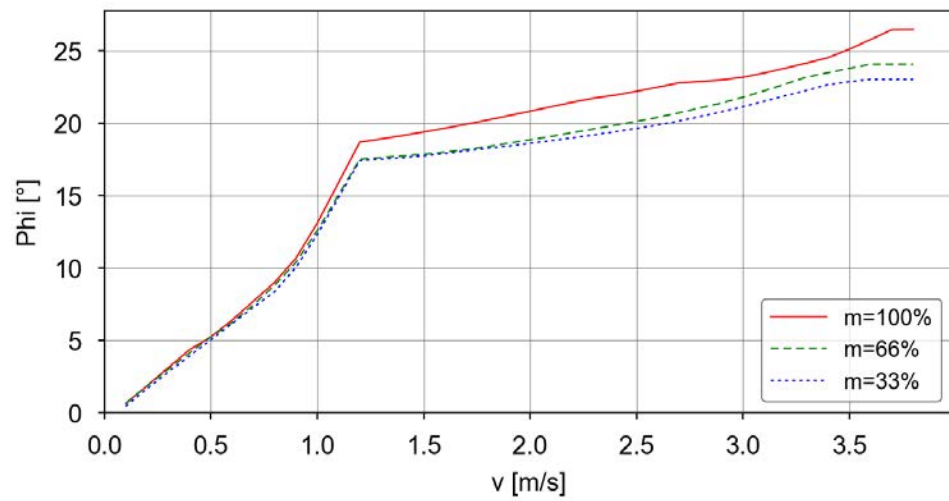
#### Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



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## Extension zone 1, stopping distance and stopping time



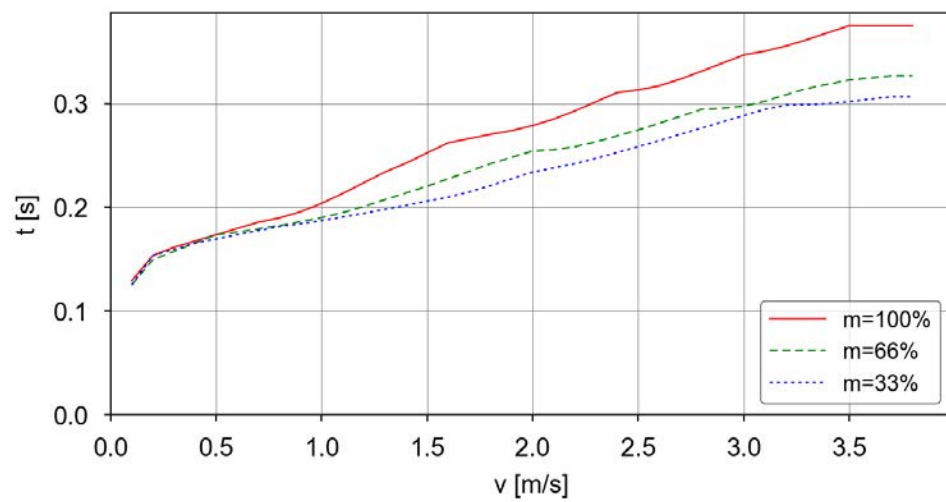
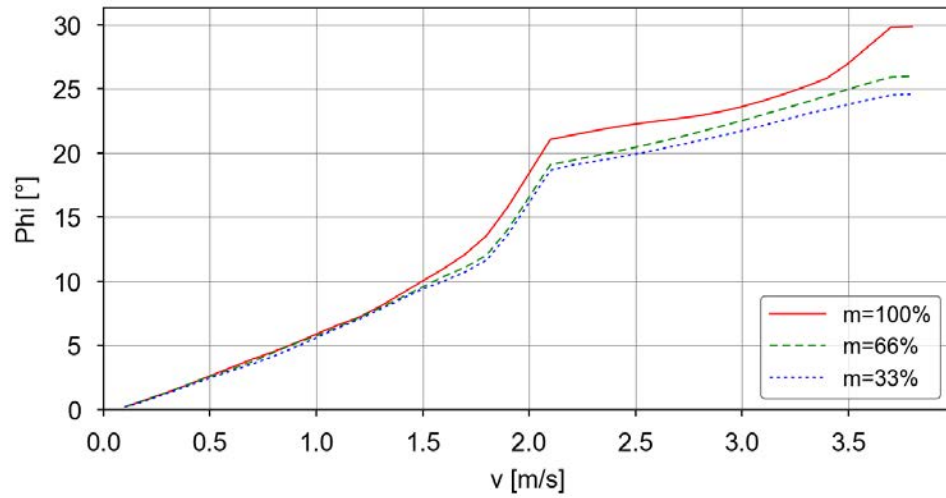
Continues on next page

## 8 IRB 1520

### 8.1 IRB 1520ID 1.5 m 4 kg

Continued

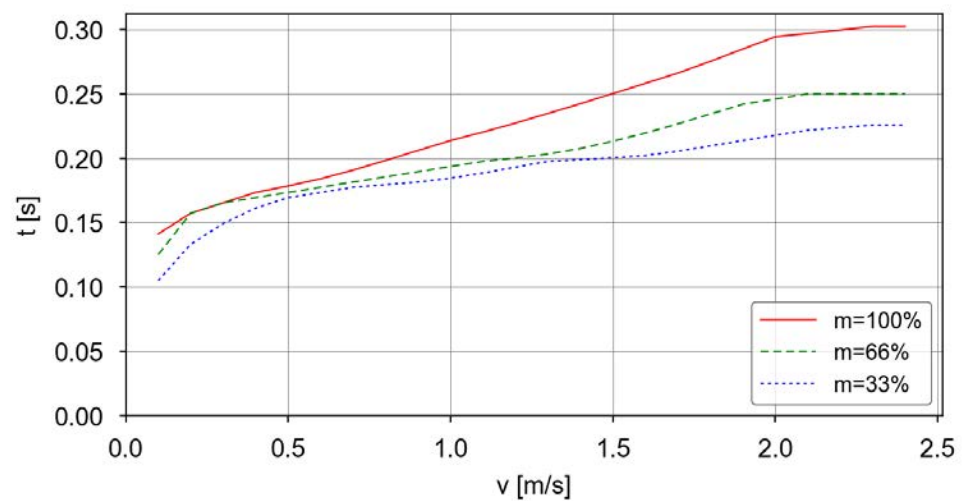
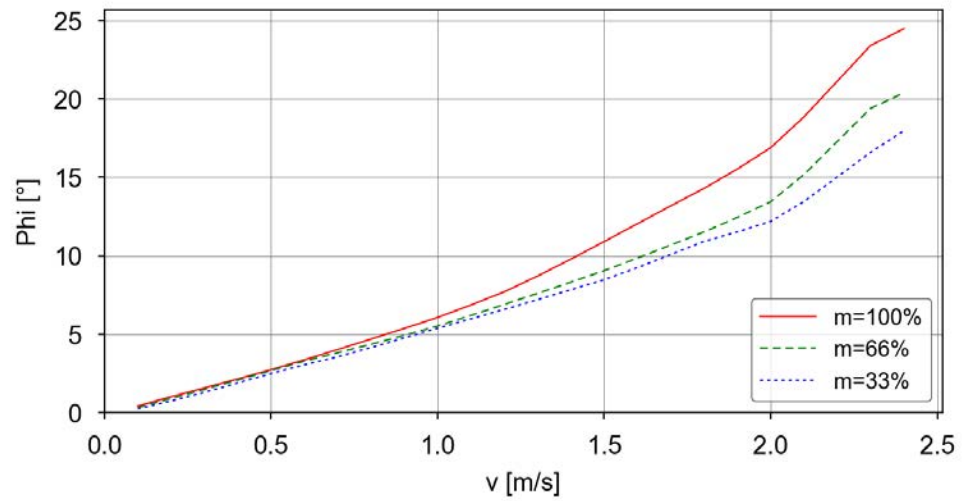
#### Extension zone 2, stopping distance and stopping time



Continues on next page

## Category 1, Axis 3

## Extension zone 0, stopping distance and stopping time



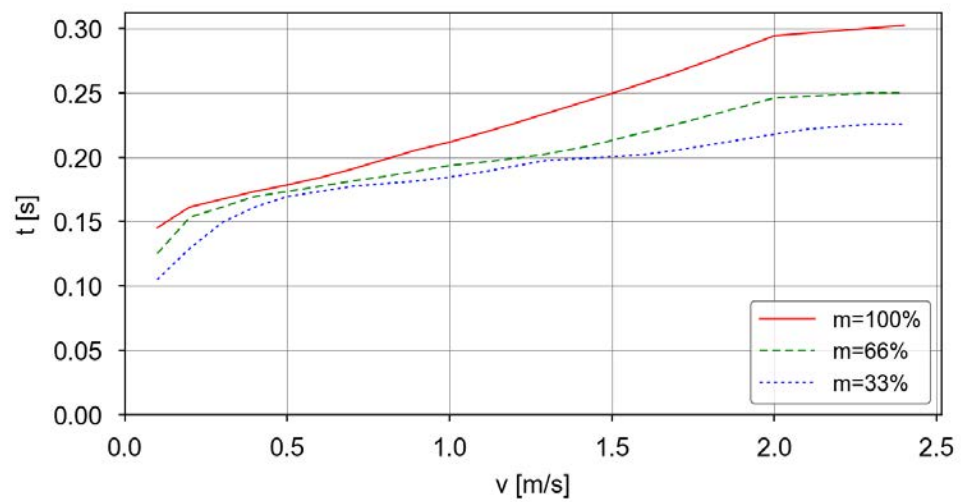
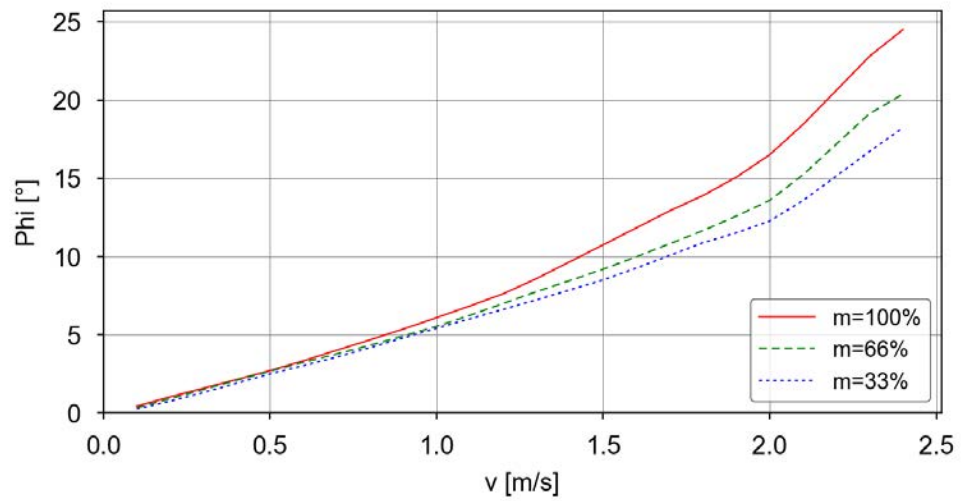
Continues on next page

## 8 IRB 1520

### 8.1 IRB 1520ID 1.5 m 4 kg

Continued

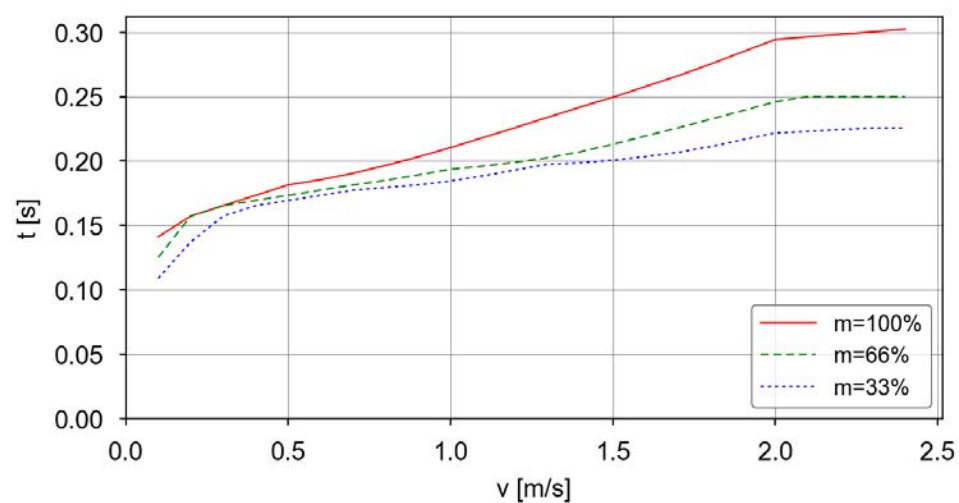
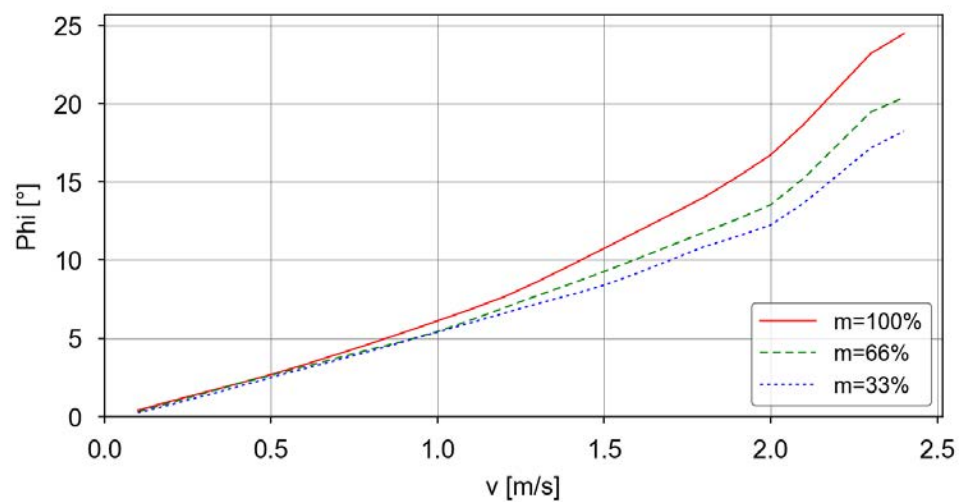
#### Extension zone 1, stopping distance and stopping time



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## Extension zone 2, stopping distance and stopping time



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## 9 IRB 1600

### 9.1 IRB 1600 1.2 m 6 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	19.7	0.17
2	16.8	0.12
3	16.1	0.1

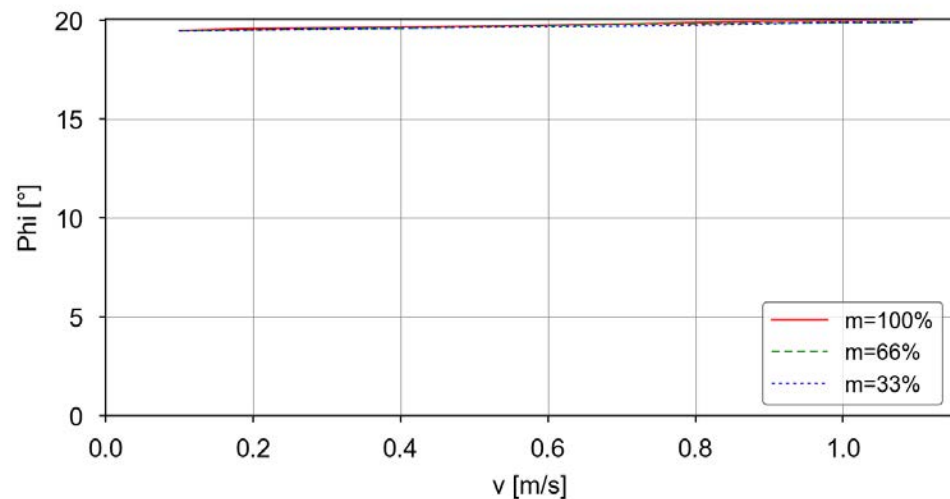
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.408
1	0.408	0.817
2	0.817	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

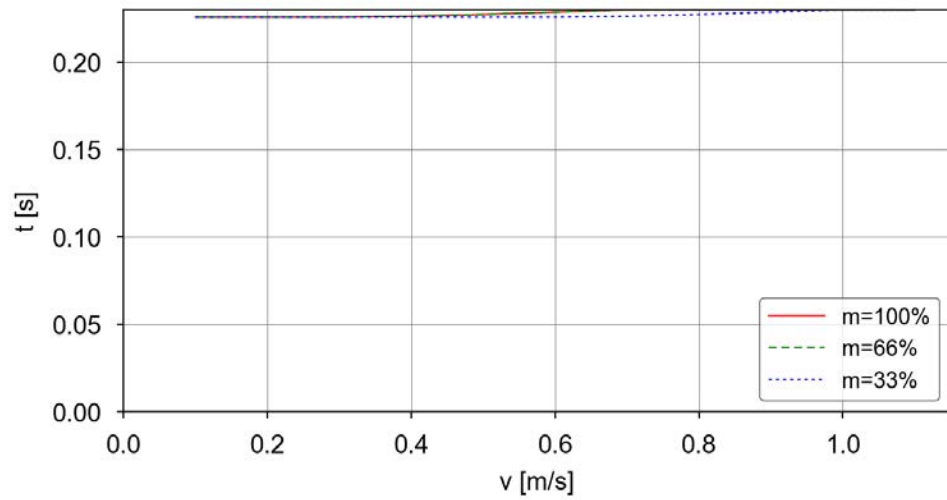


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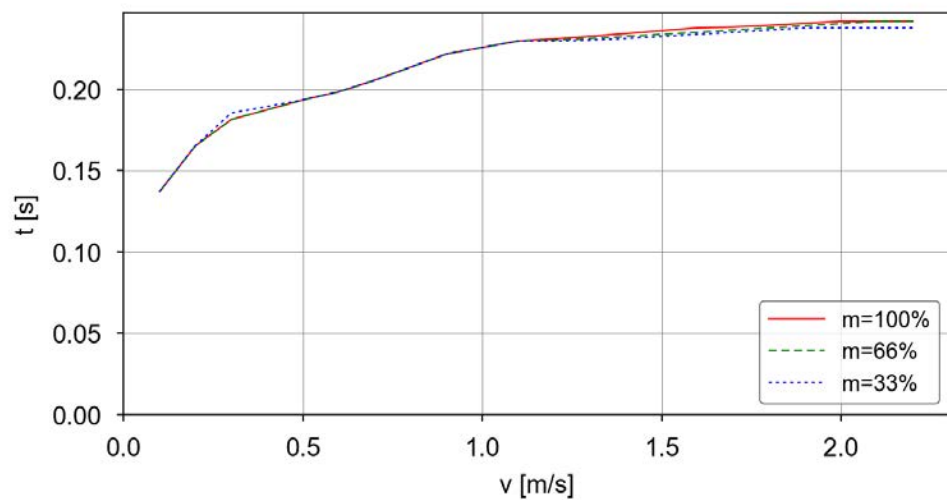
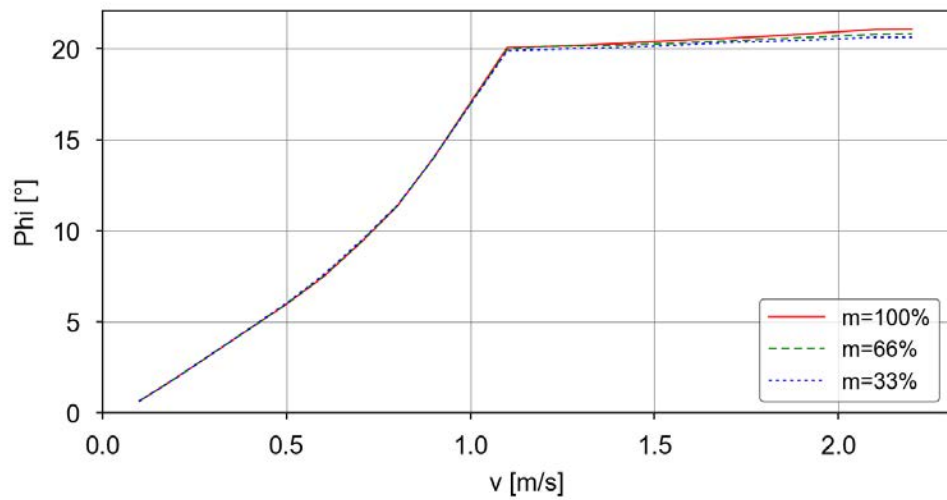
## 9 IRB 1600

### 9.1 IRB 1600 1.2 m 6 kg

Continued

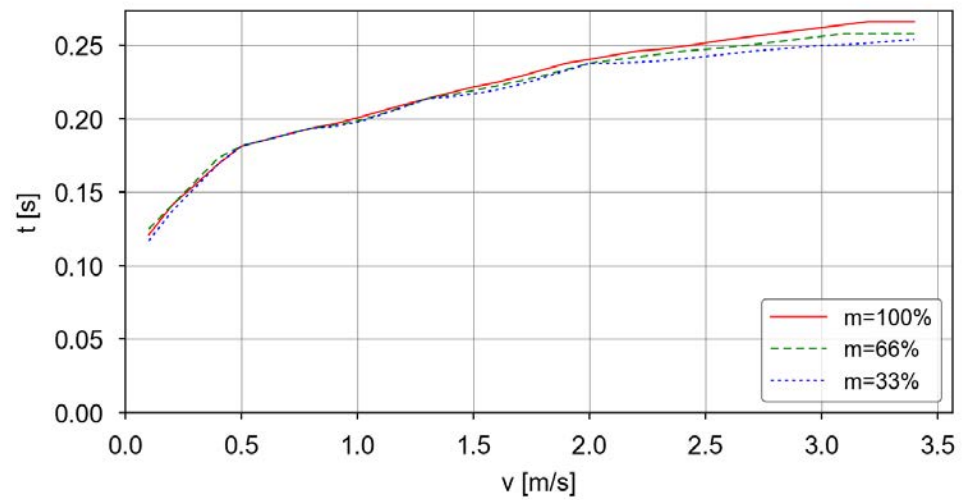
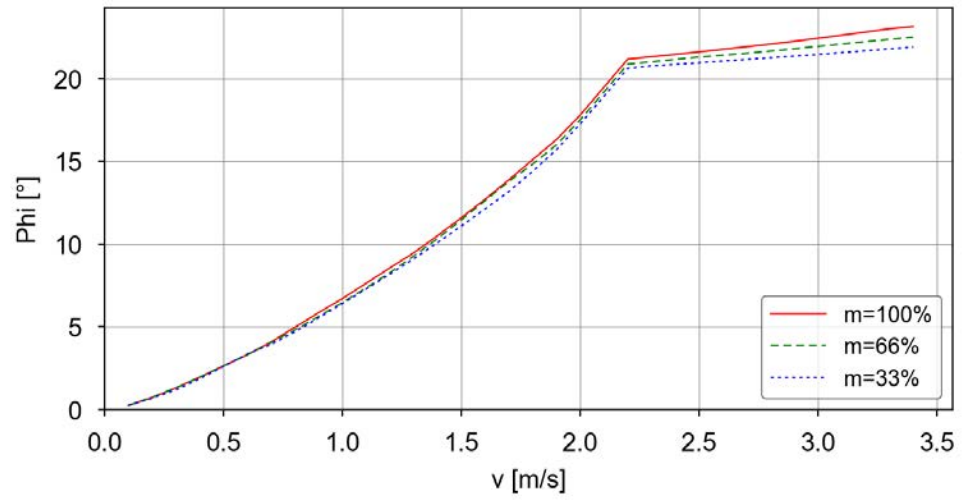


#### Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

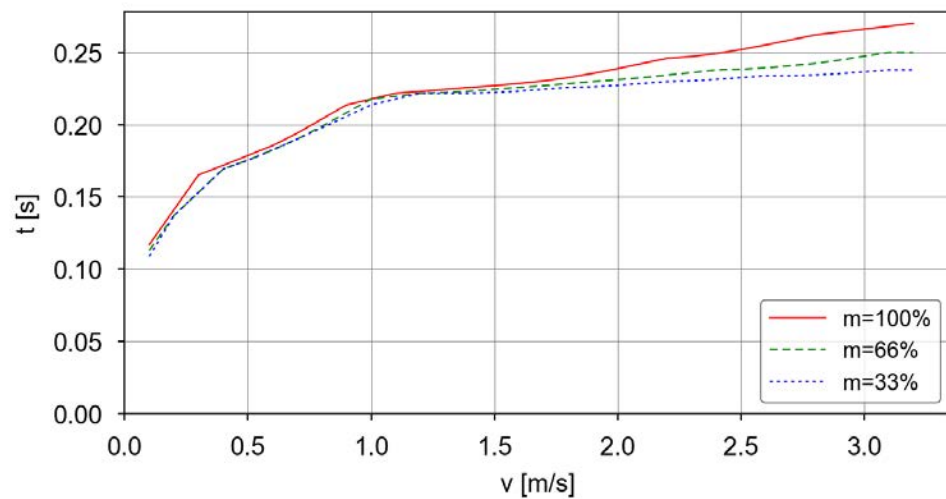
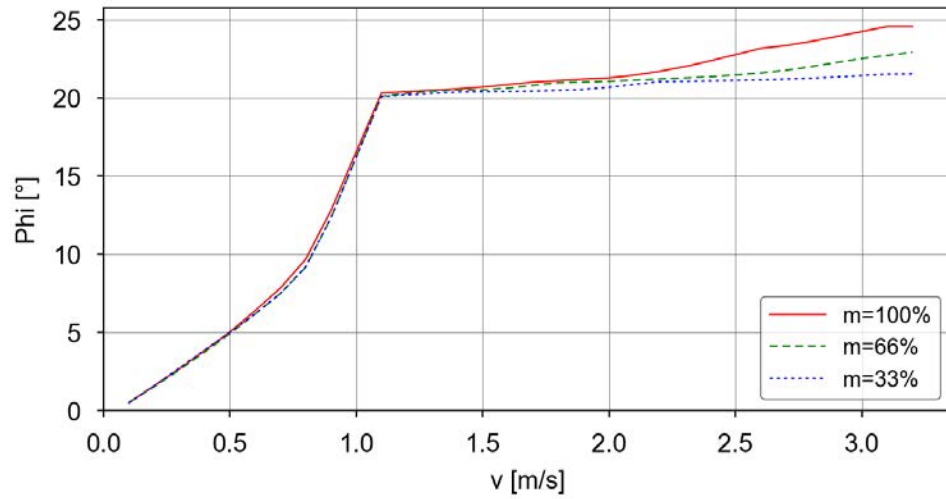
## 9 IRB 1600

9.1 IRB 1600 1.2 m 6 kg

Continued

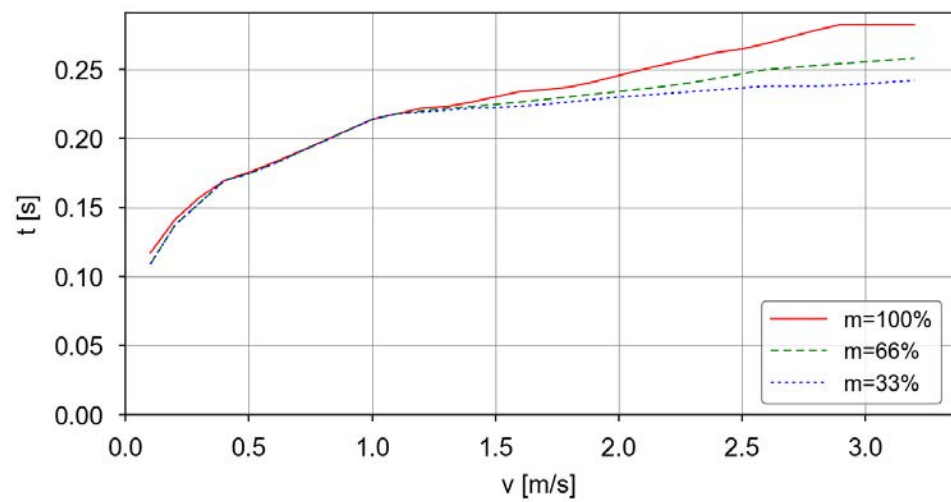
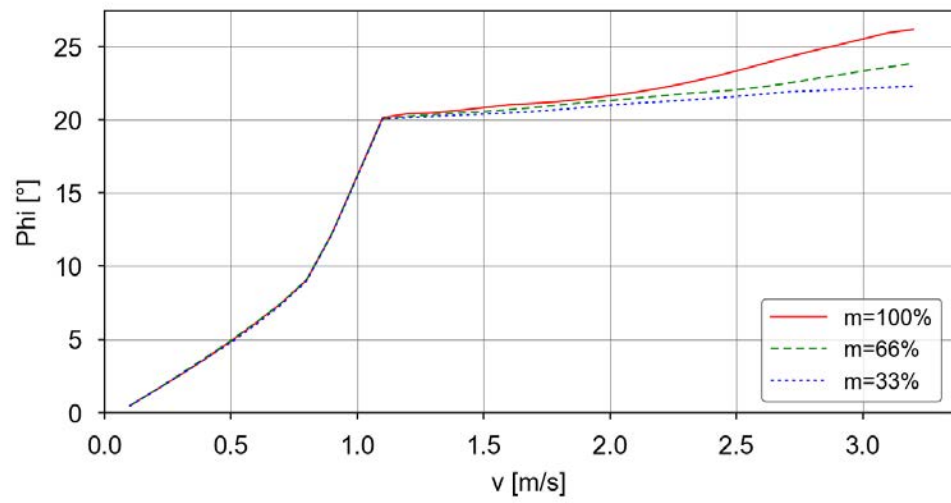
### Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



Continues on next page

Extension zone 1, stopping distance and stopping time



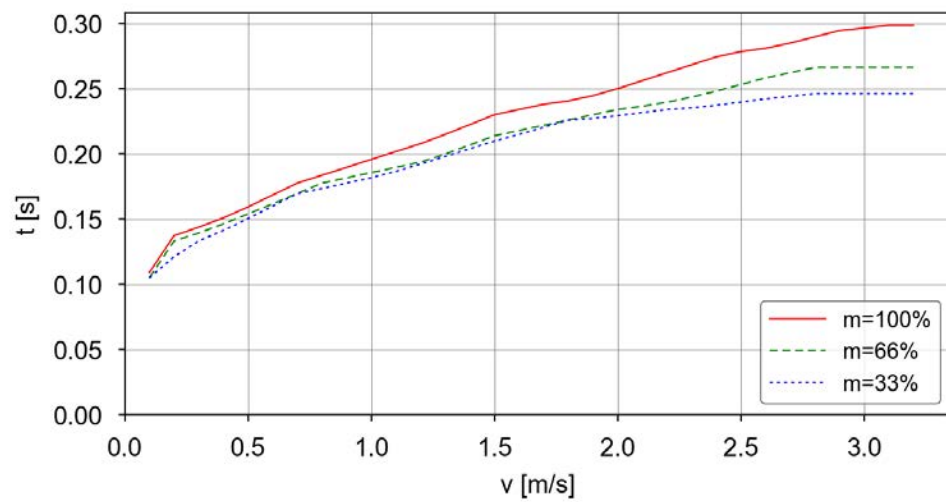
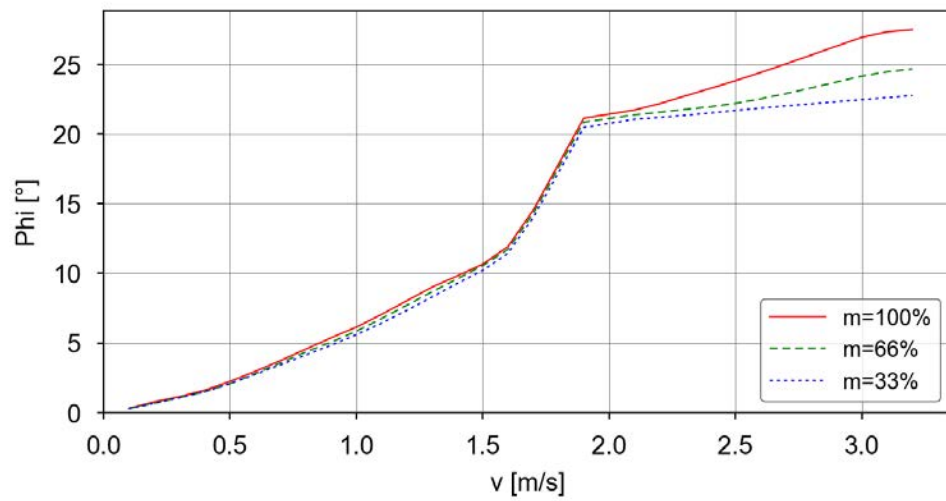
Continues on next page

## 9 IRB 1600

### 9.1 IRB 1600 1.2 m 6 kg

Continued

Extension zone 2, stopping distance and stopping time

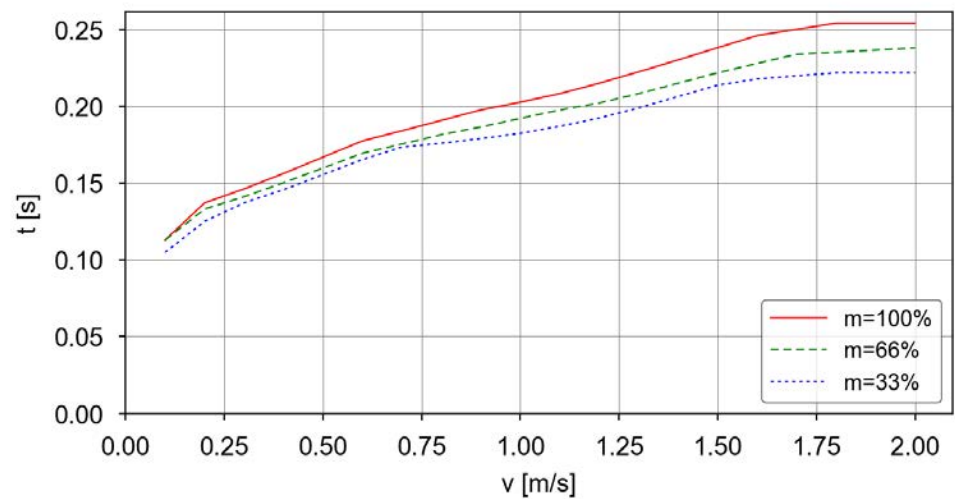
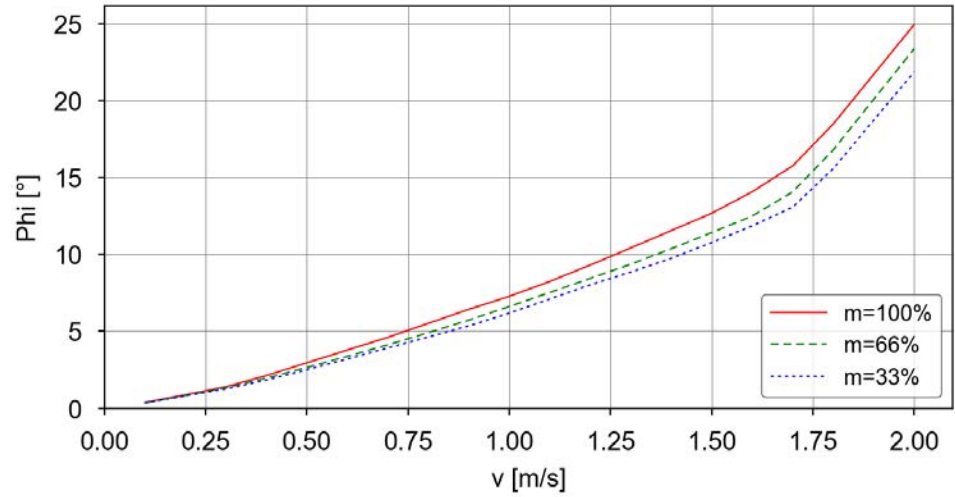


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Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



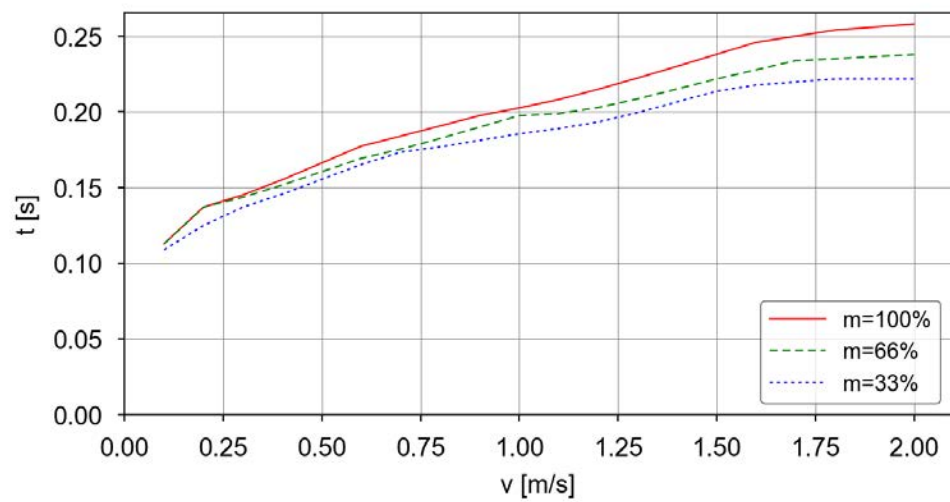
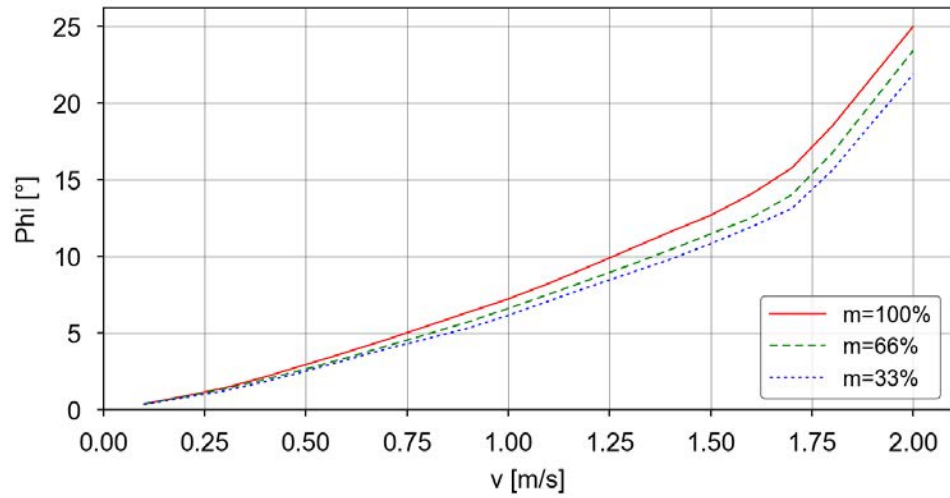
Continues on next page

## 9 IRB 1600

### 9.1 IRB 1600 1.2 m 6 kg

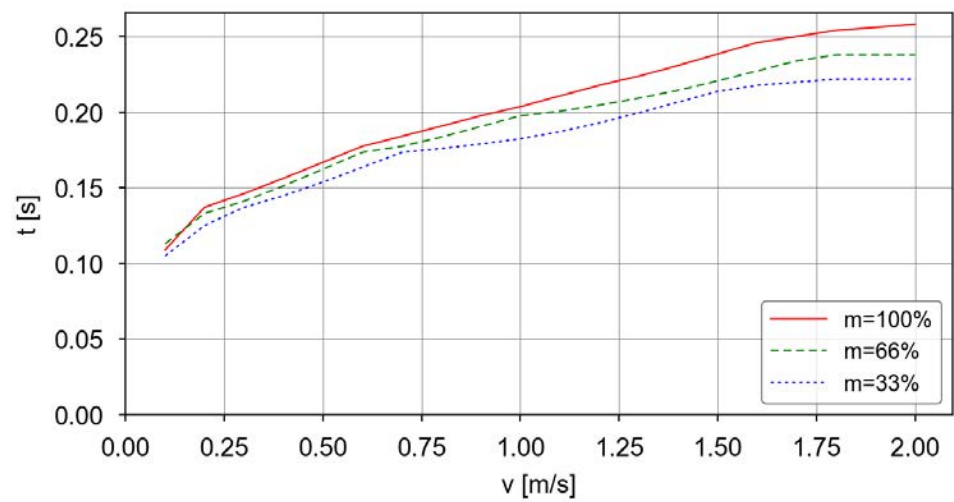
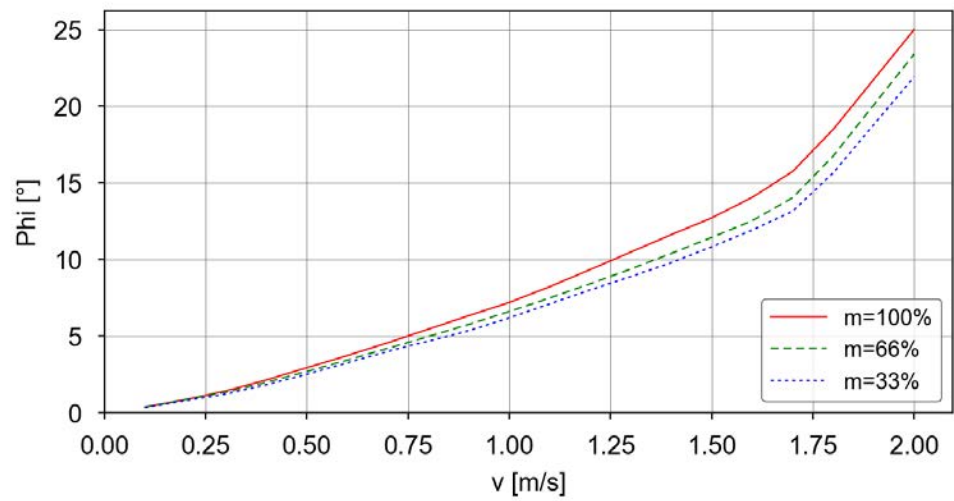
Continued

#### Extension zone 1, stopping distance and stopping time



Continues on next page

## Extension zone 2, stopping distance and stopping time



## 9 IRB 1600

### 9.2 IRB 1600 1.2 m 10 kg

### 9.2 IRB 1600 1.2 m 10 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	22.7	0.17
2	26.1	0.2
3	22.3	0.15

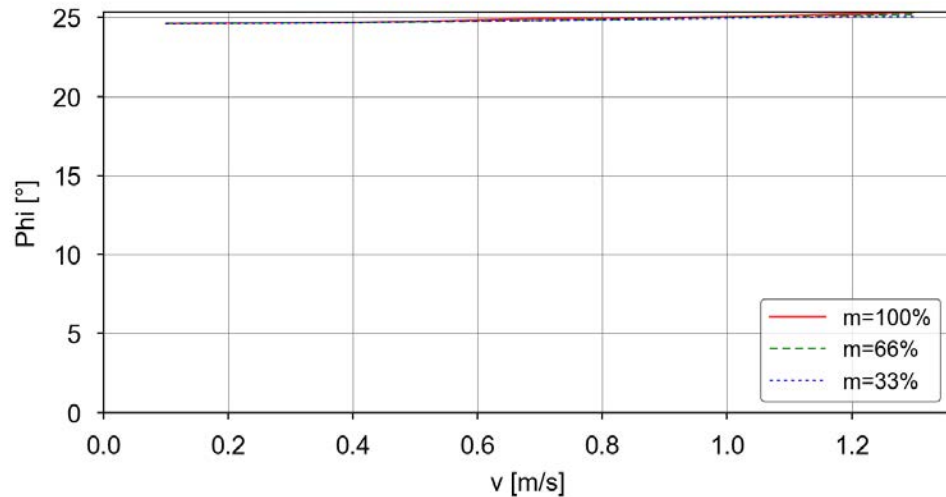
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

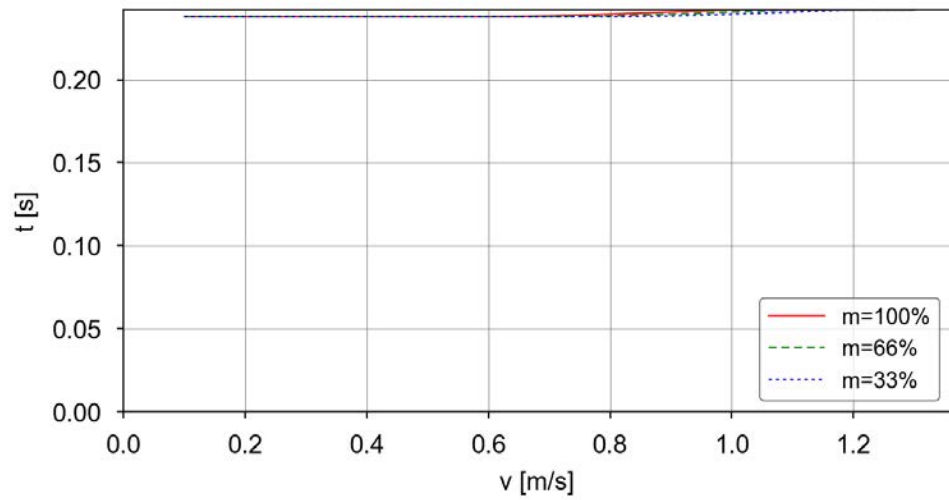
Zone	wcp min (m)	wcp max (m)
0	0	0.408
1	0.408	0.817
2	0.817	max reach

#### Category 1, Axis 1

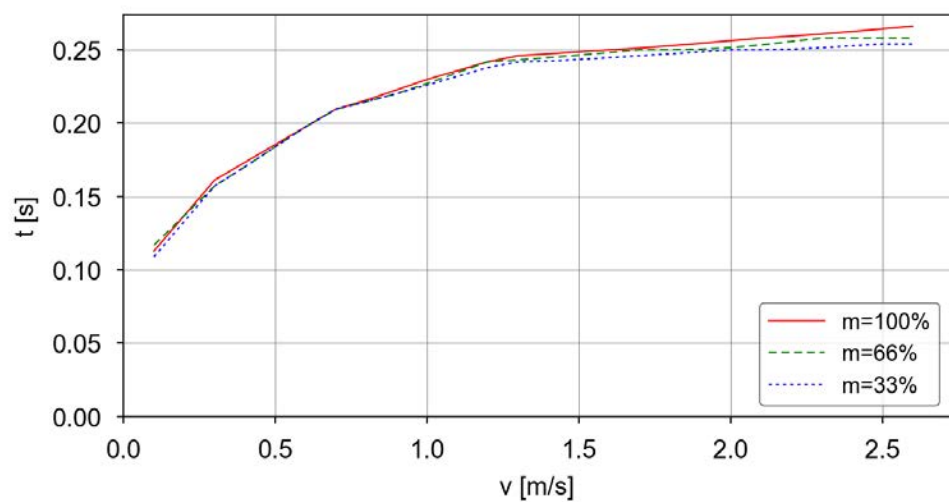
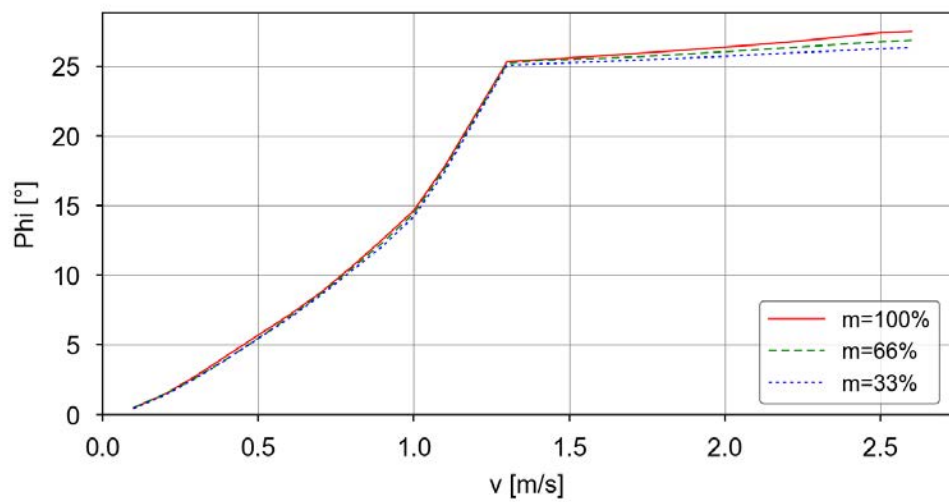
Extension zone 0, stopping distance and stopping time



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Extension zone 1, stopping distance and stopping time



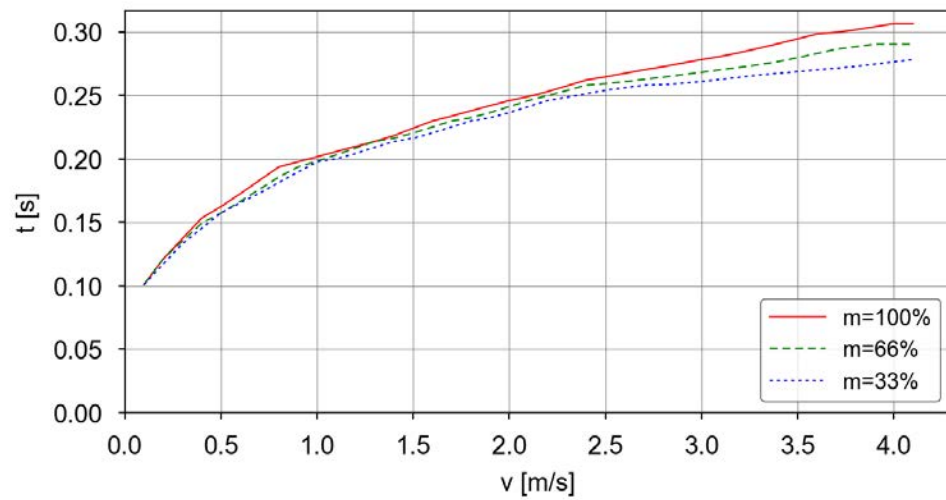
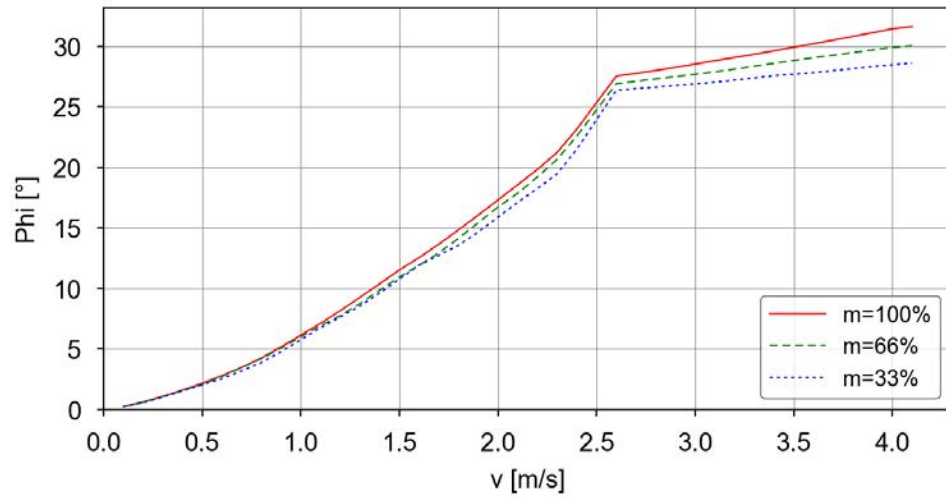
Continues on next page

## 9 IRB 1600

### 9.2 IRB 1600 1.2 m 10 kg

Continued

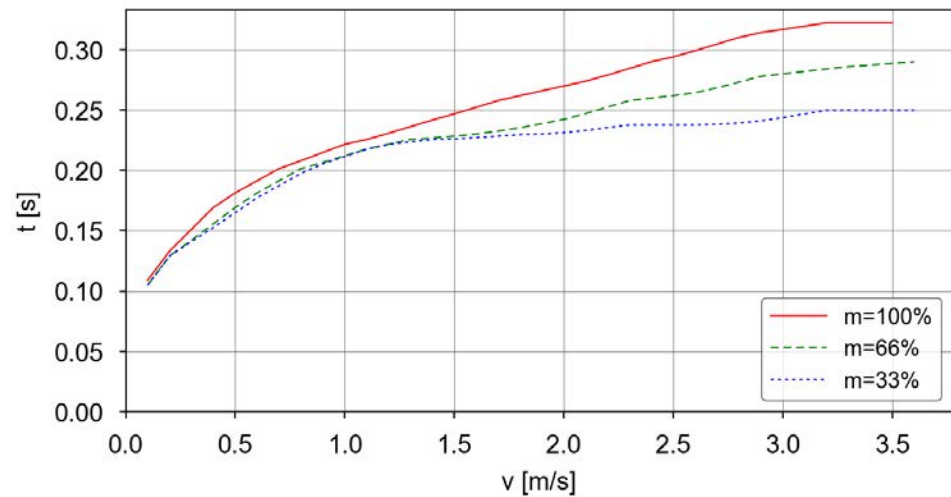
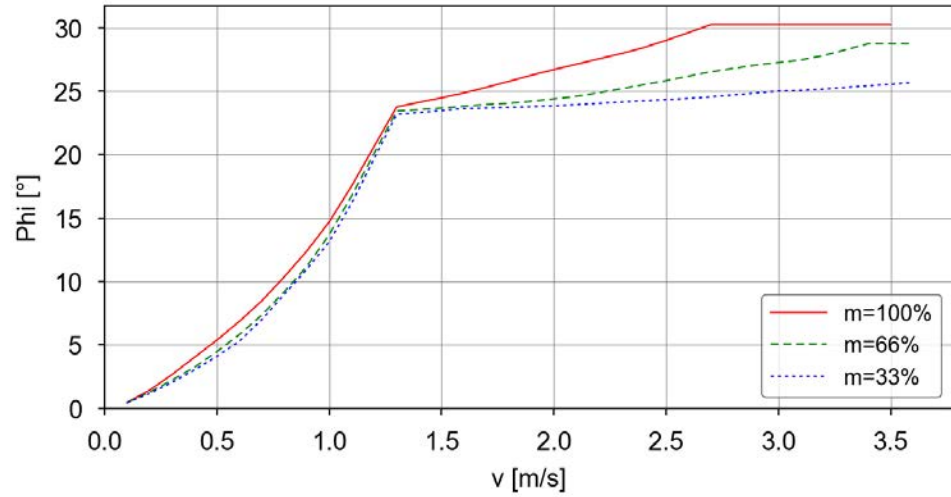
#### Extension zone 2, stopping distance and stopping time



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Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



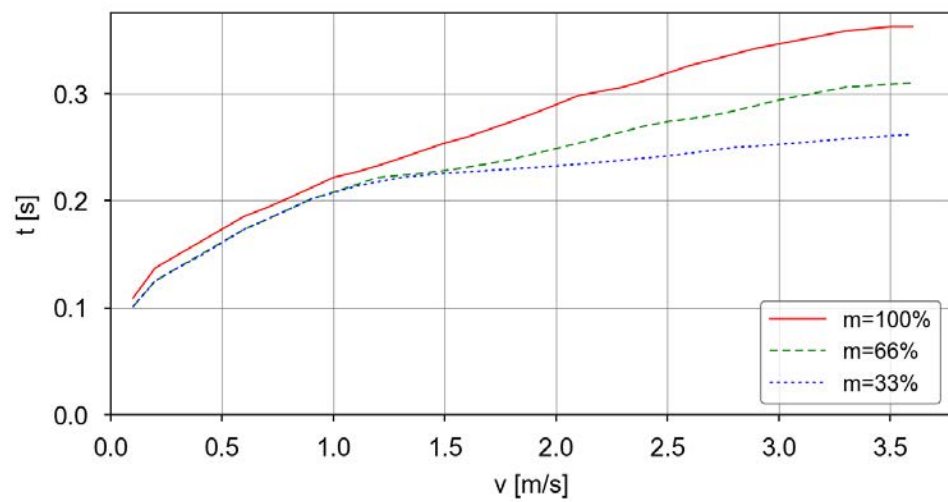
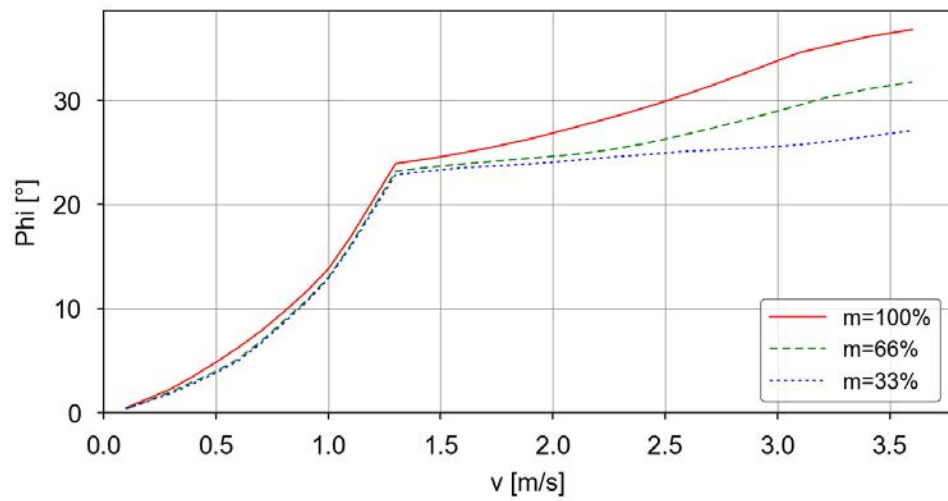
Continues on next page

## 9 IRB 1600

### 9.2 IRB 1600 1.2 m 10 kg

Continued

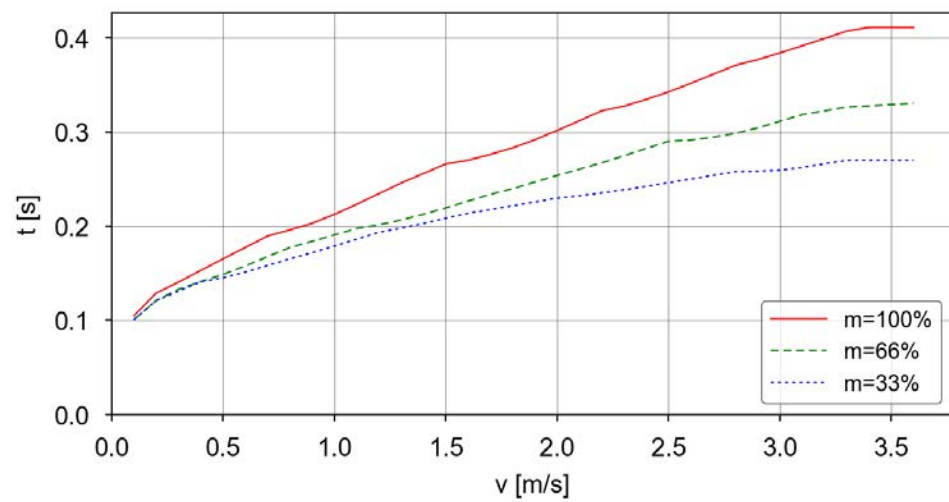
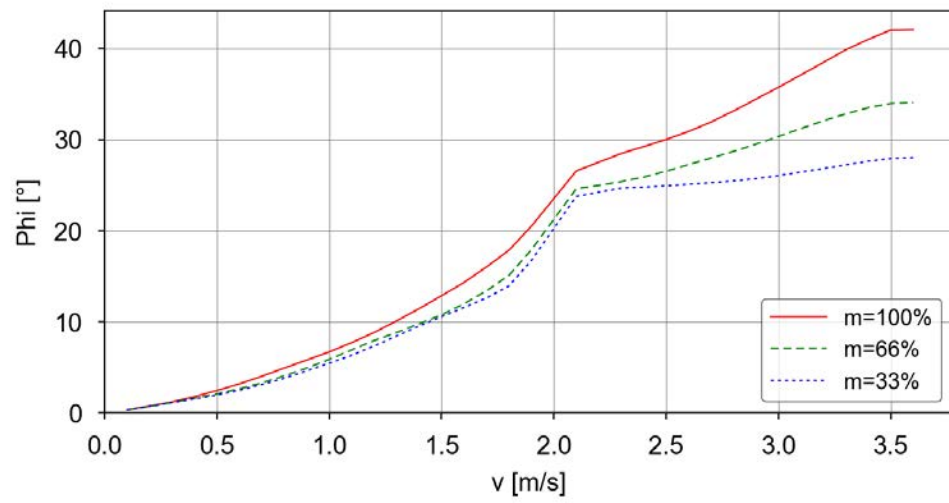
Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time



Continues on next page

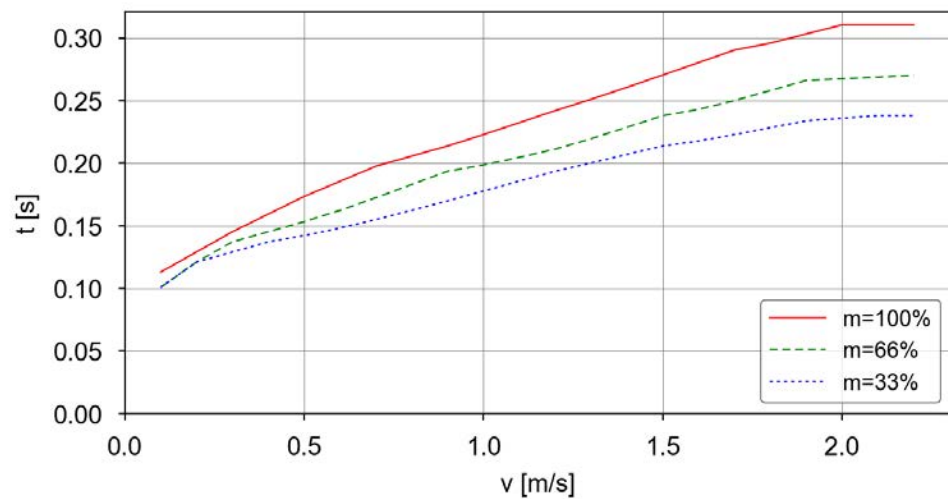
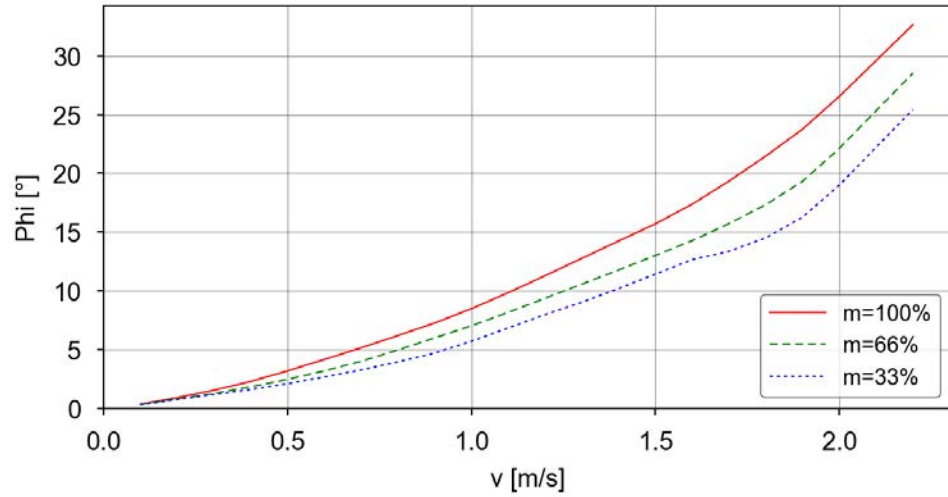
## 9 IRB 1600

### 9.2 IRB 1600 1.2 m 10 kg

Continued

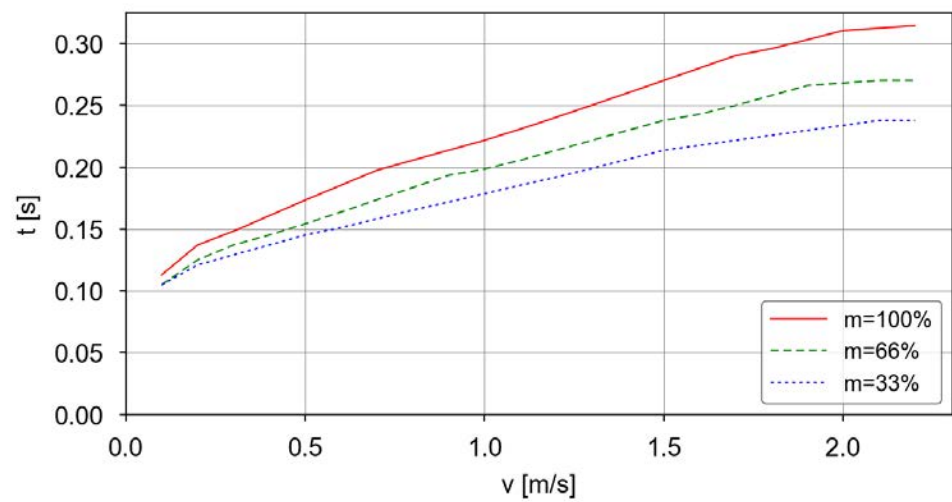
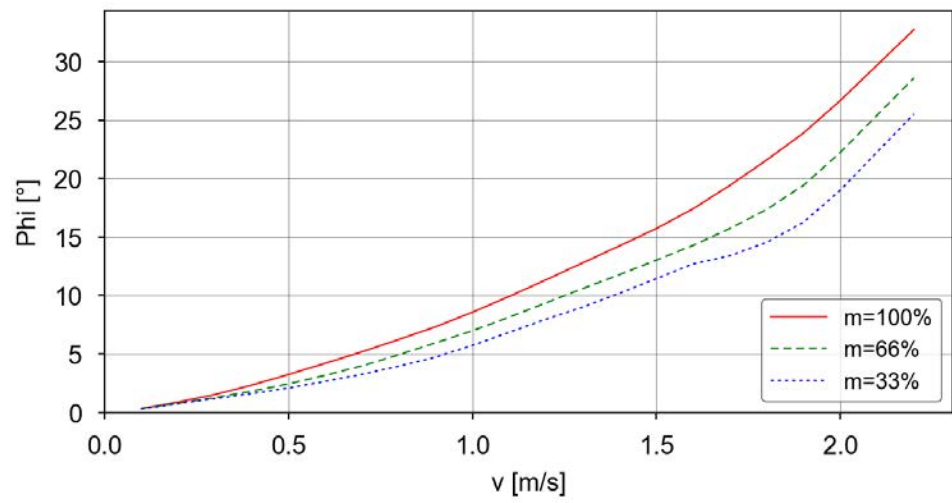
#### Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



Continues on next page

Extension zone 1, stopping distance and stopping time



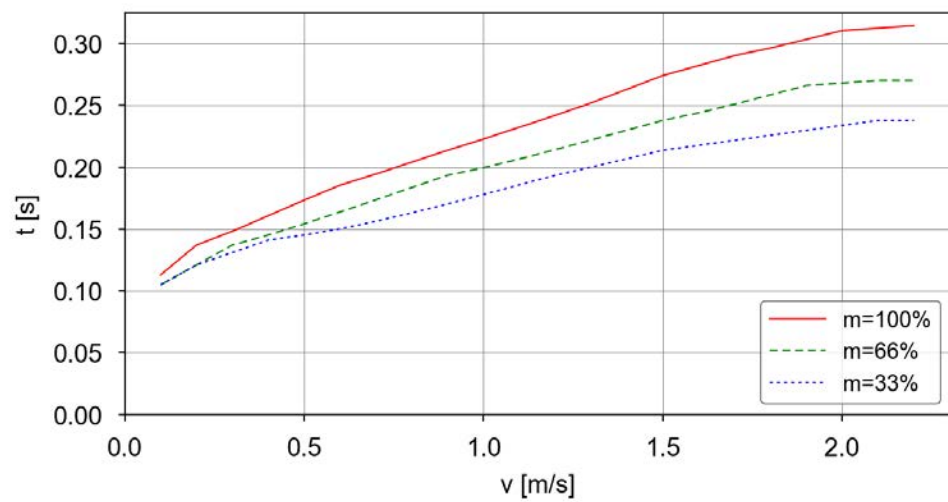
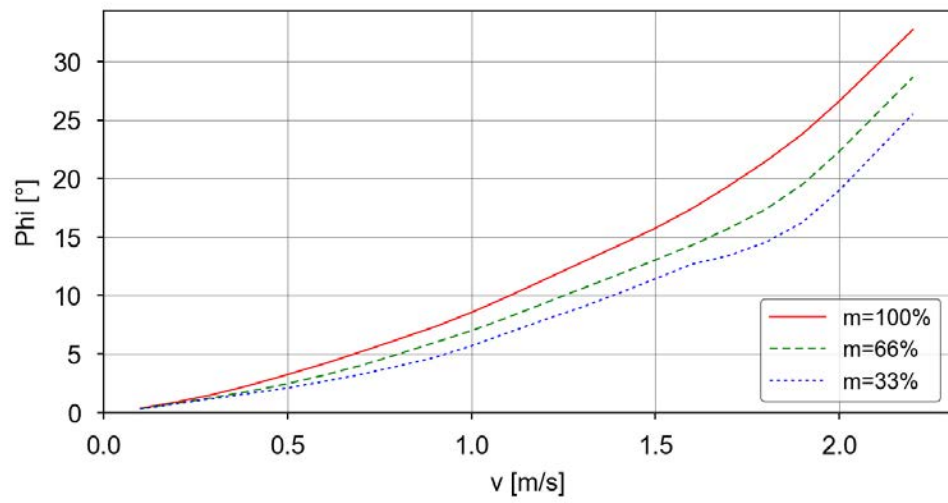
Continues on next page

## 9 IRB 1600

### 9.2 IRB 1600 1.2 m 10 kg

Continued

Extension zone 2, stopping distance and stopping time



### 9.3 IRB 1600 1.45 m 6 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	23.4	0.2
2	22.0	0.17
3	15.8	0.1

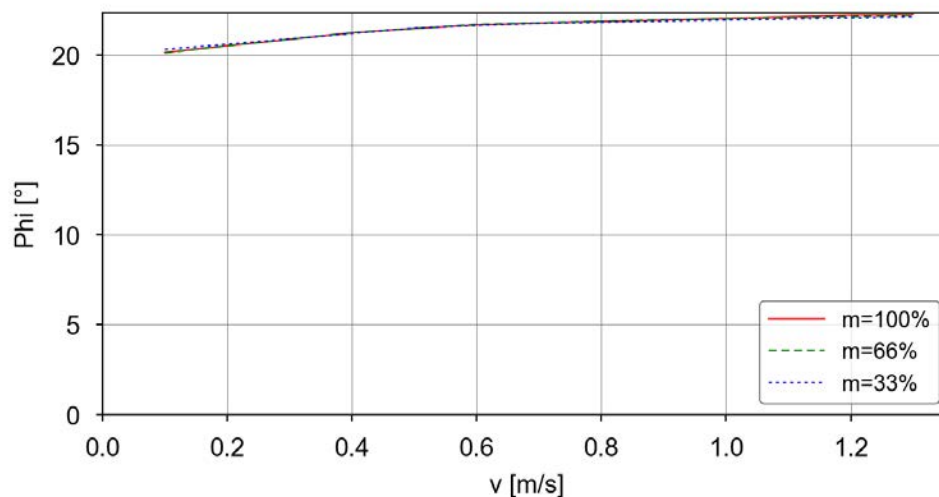
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.483
1	0.483	0.967
2	0.967	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

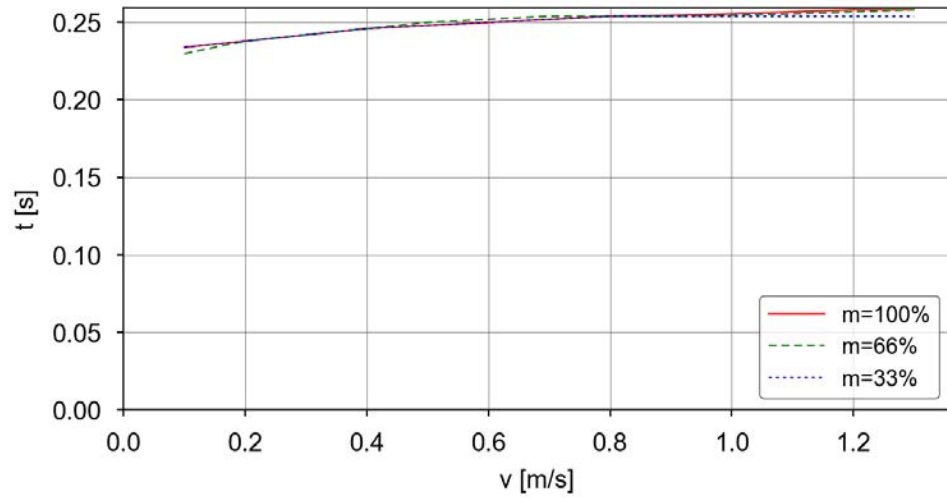


*Continues on next page*

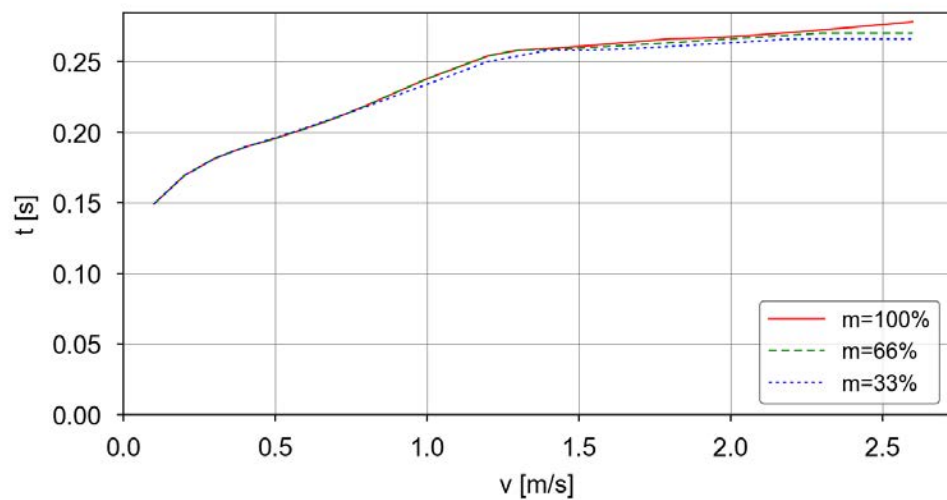
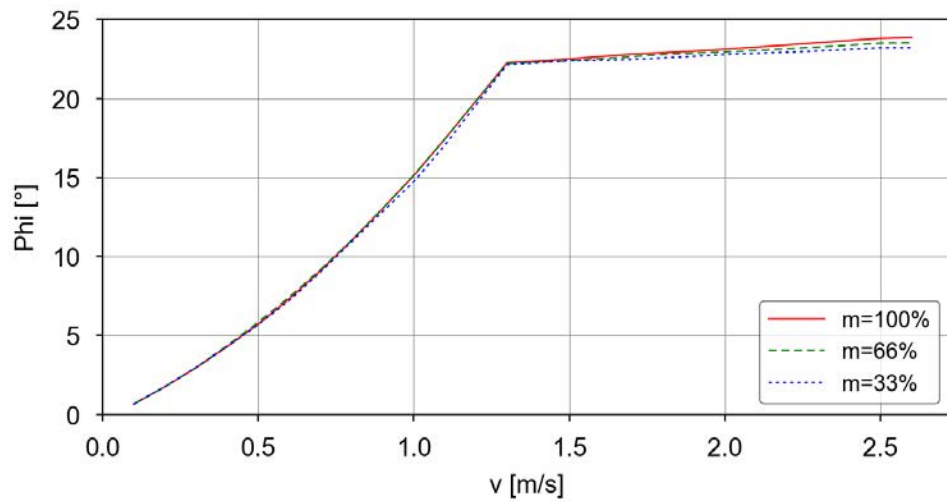
## 9 IRB 1600

### 9.3 IRB 1600 1.45 m 6 kg

Continued

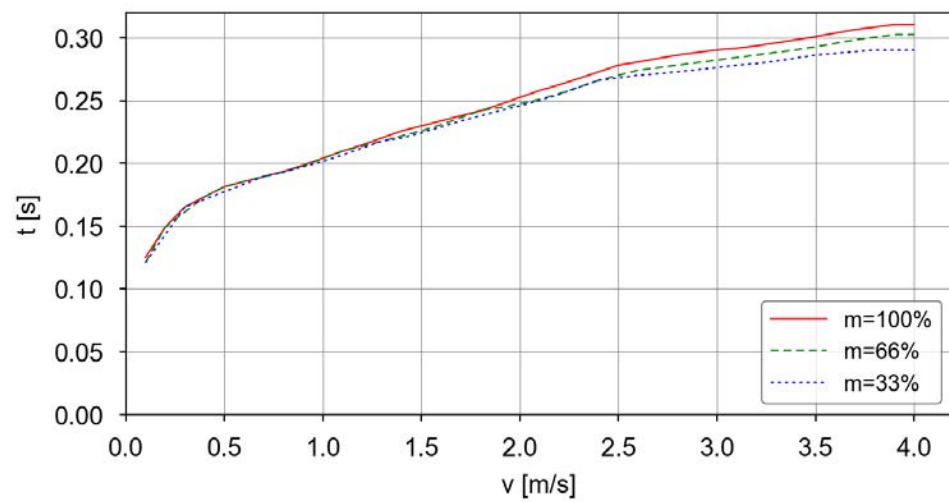
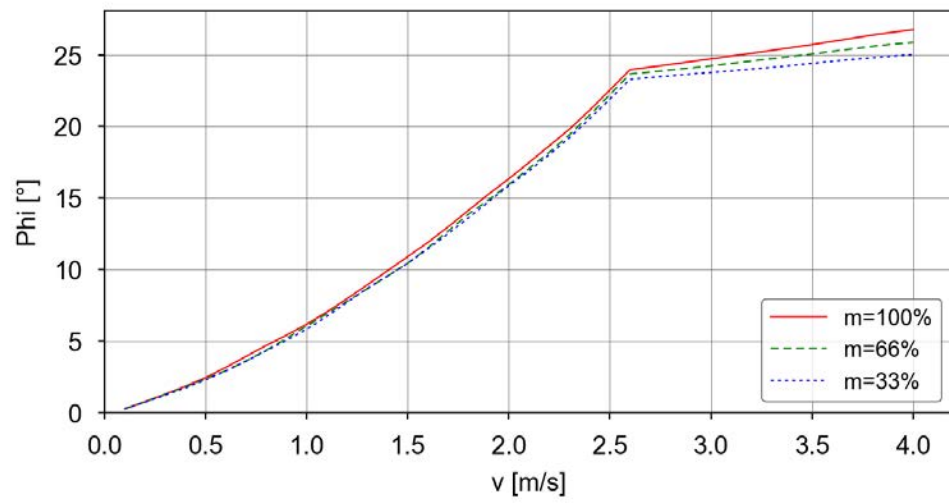


#### Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

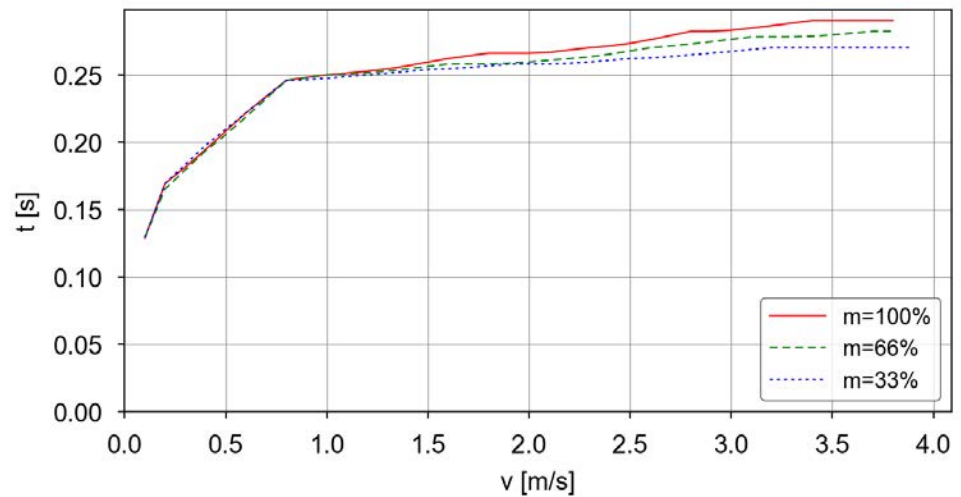
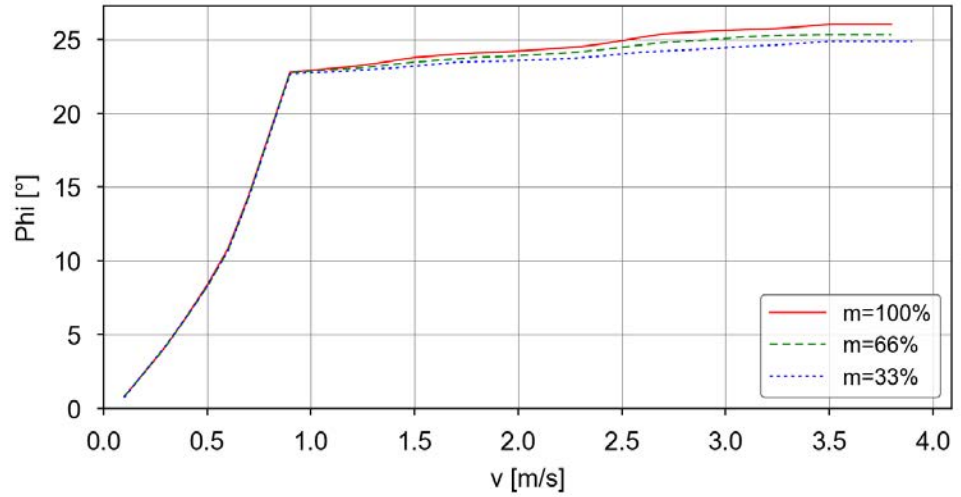
## 9 IRB 1600

9.3 IRB 1600 1.45 m 6 kg

Continued

### Category 1, Axis 2

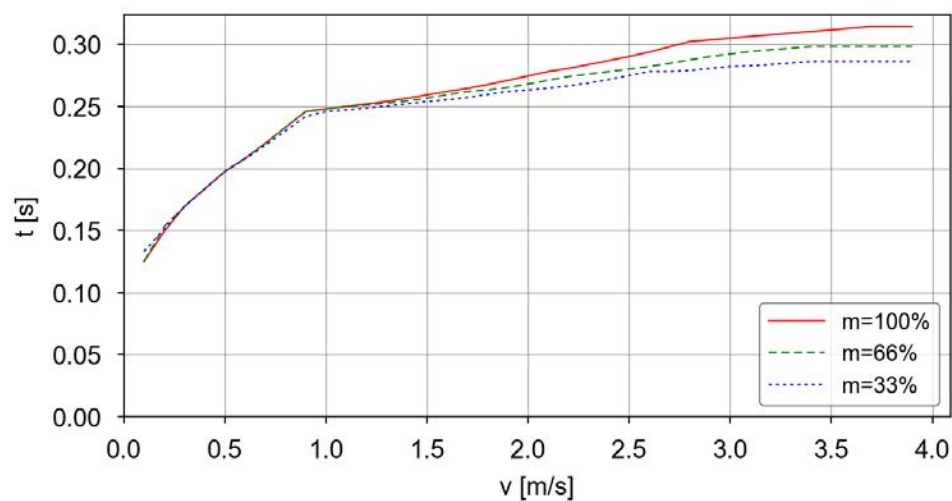
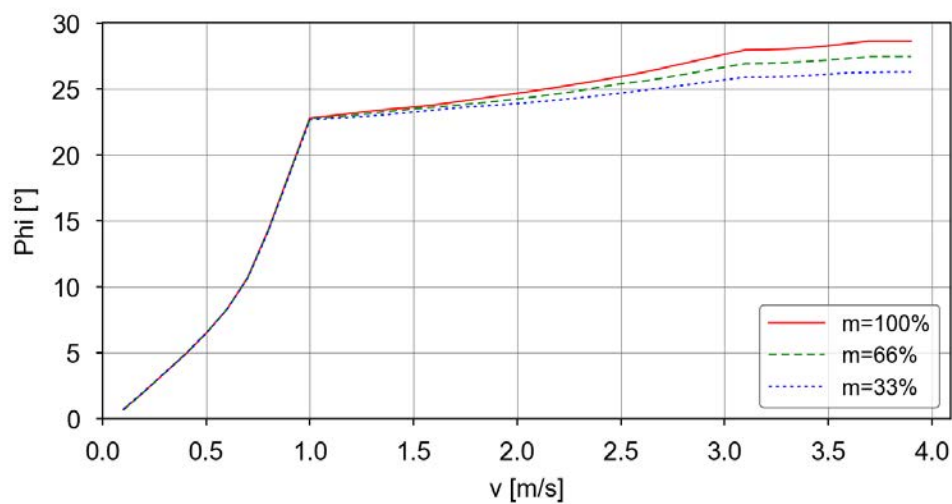
Extension zone 0, stopping distance and stopping time



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Extension zone 1, stopping distance and stopping time



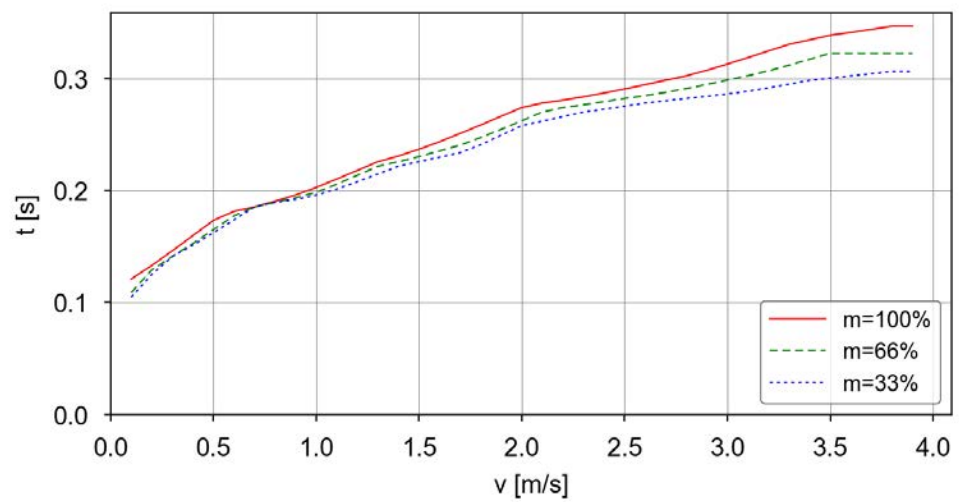
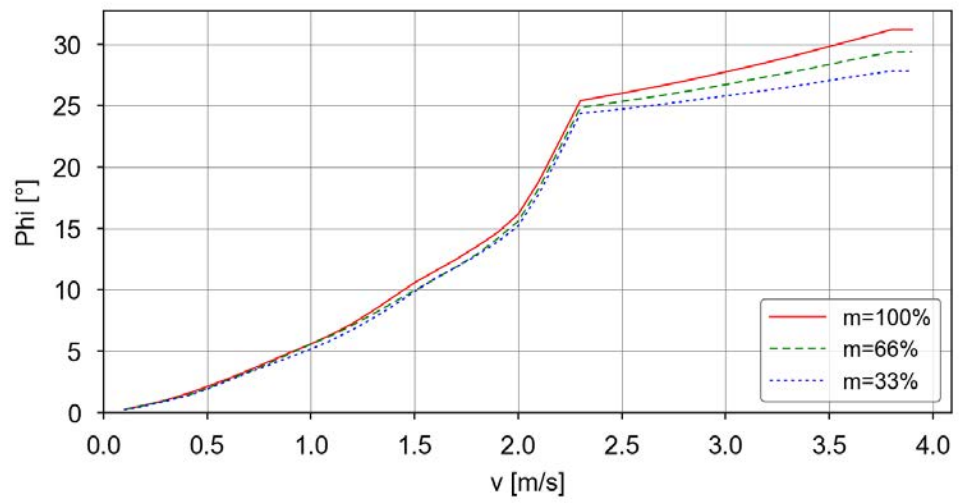
Continues on next page

## 9 IRB 1600

9.3 IRB 1600 1.45 m 6 kg

Continued

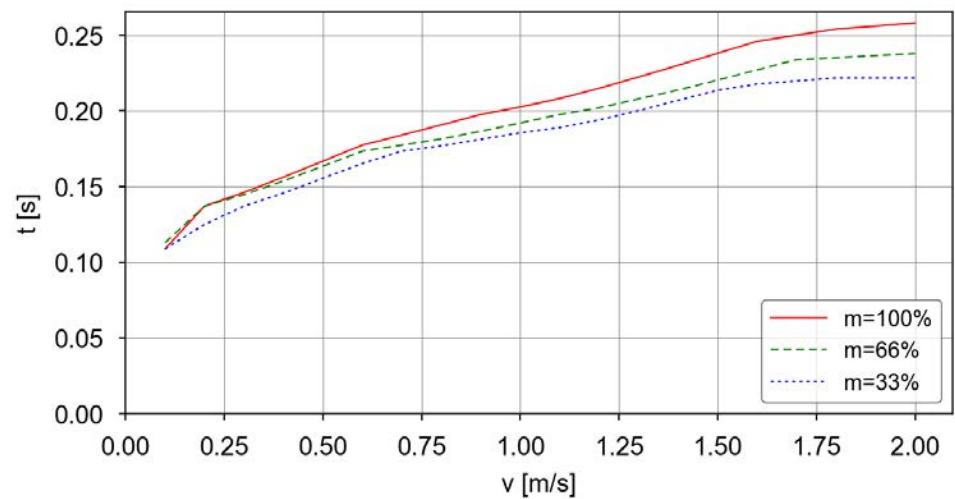
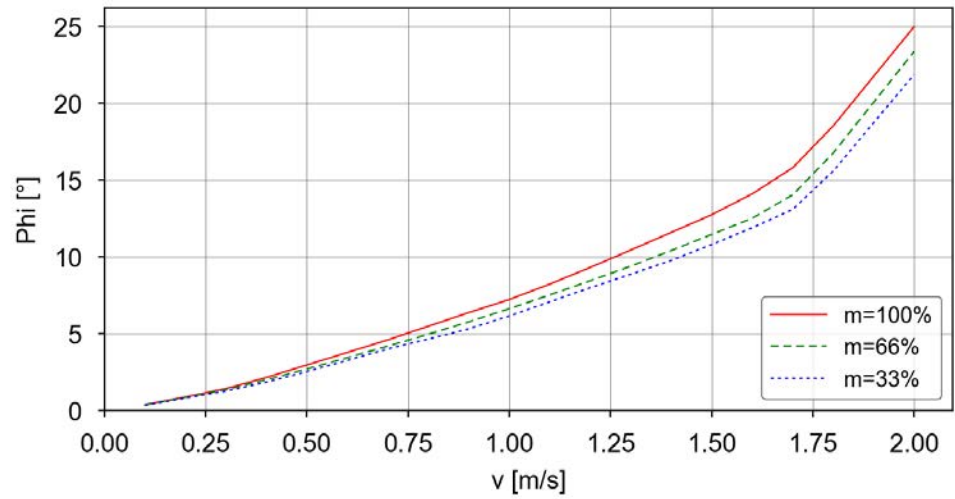
Extension zone 2, stopping distance and stopping time



Continues on next page

Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



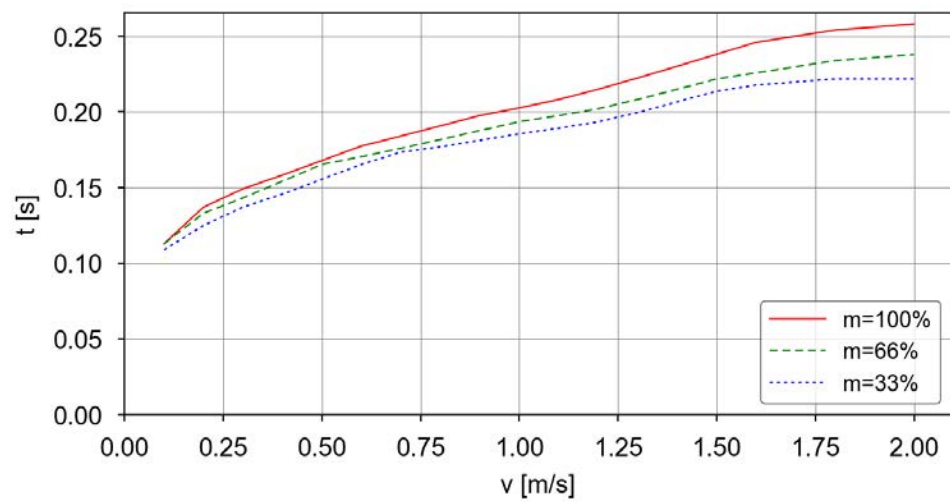
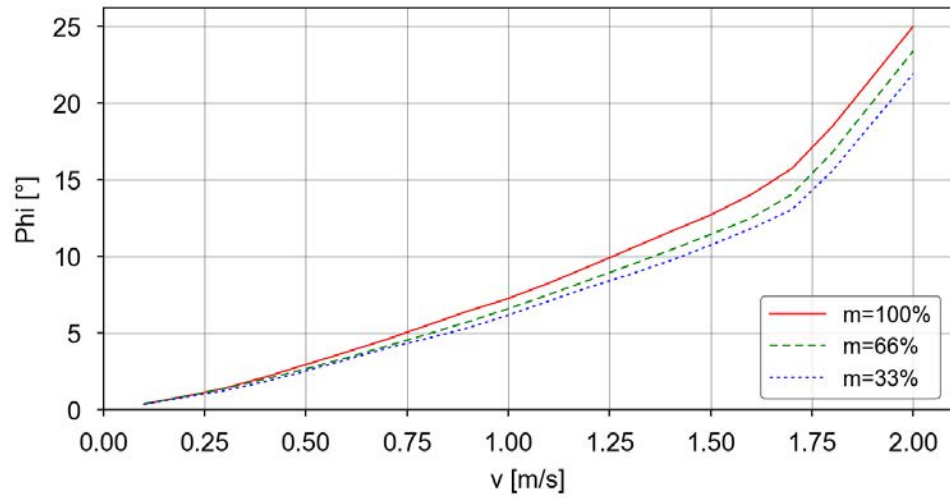
Continues on next page

## 9 IRB 1600

9.3 IRB 1600 1.45 m 6 kg

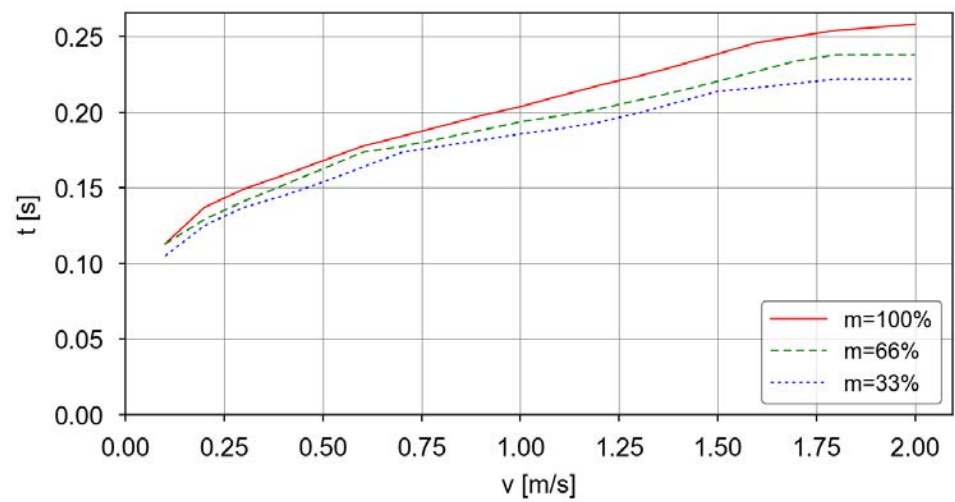
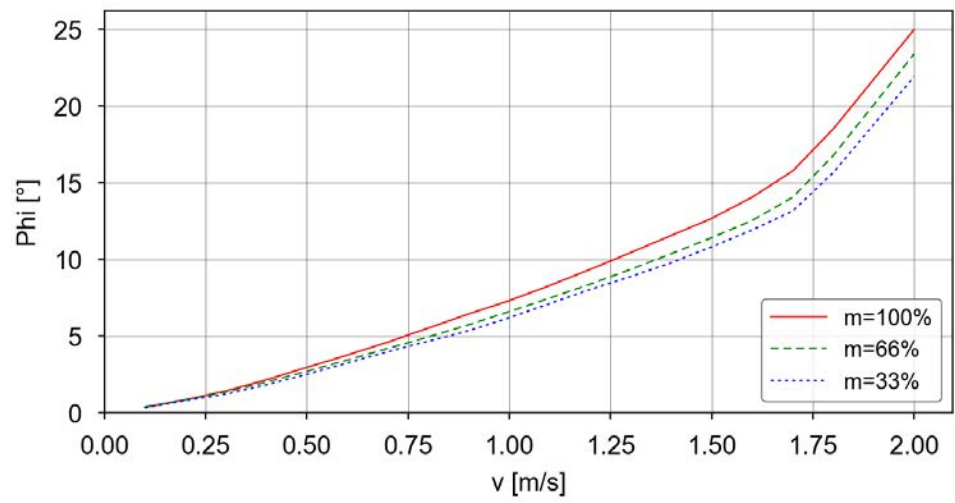
*Continued*

Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time



## 9 IRB 1600

### 9.4 IRB 1600 1.45 m 10 kg

### 9.4 IRB 1600 1.45 m 10 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	27.9	0.22
2	30.9	0.25
3	22.3	0.15

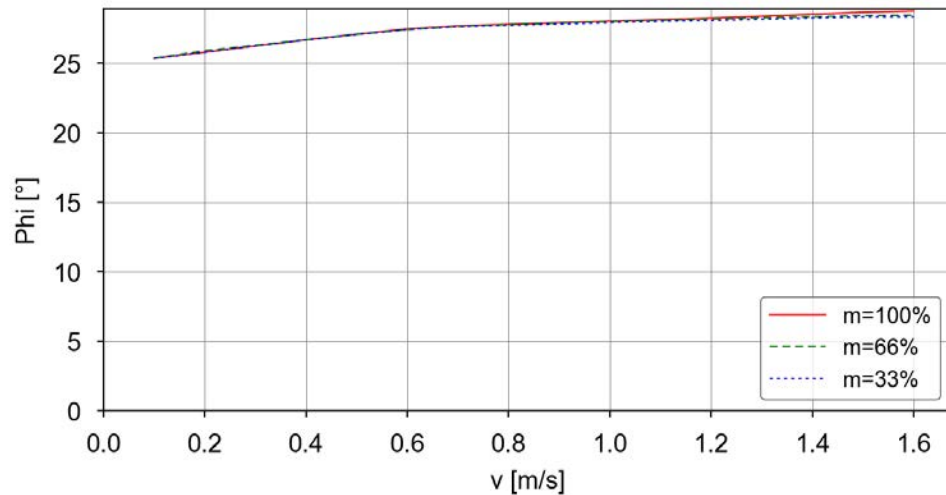
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

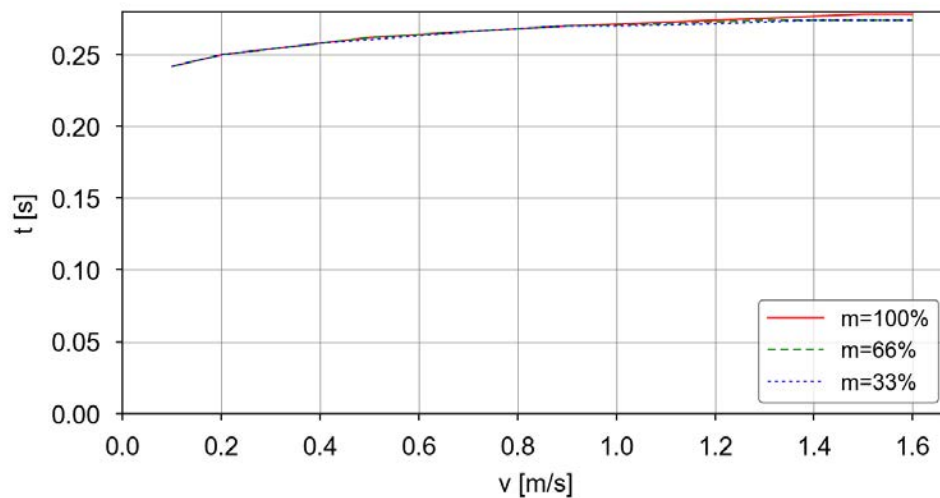
Zone	wcp min (m)	wcp max (m)
0	0	0.483
1	0.483	0.967
2	0.967	max reach

#### Category 1, Axis 1

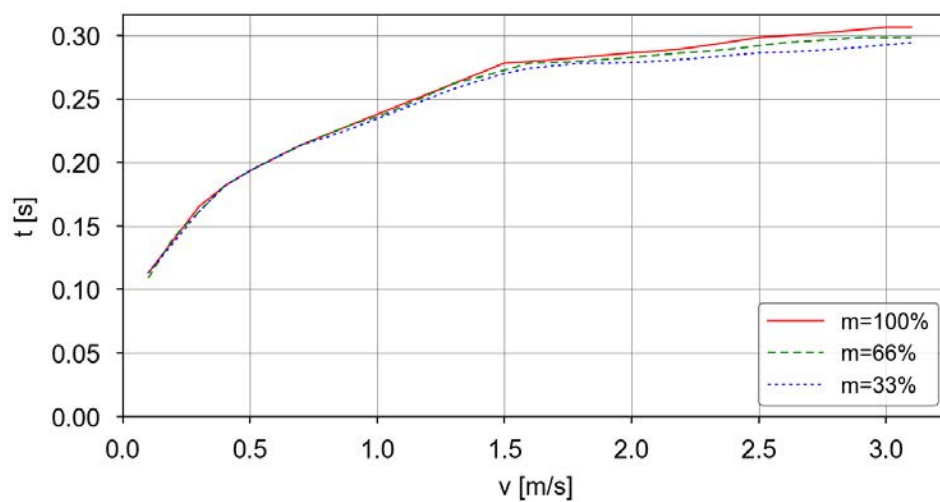
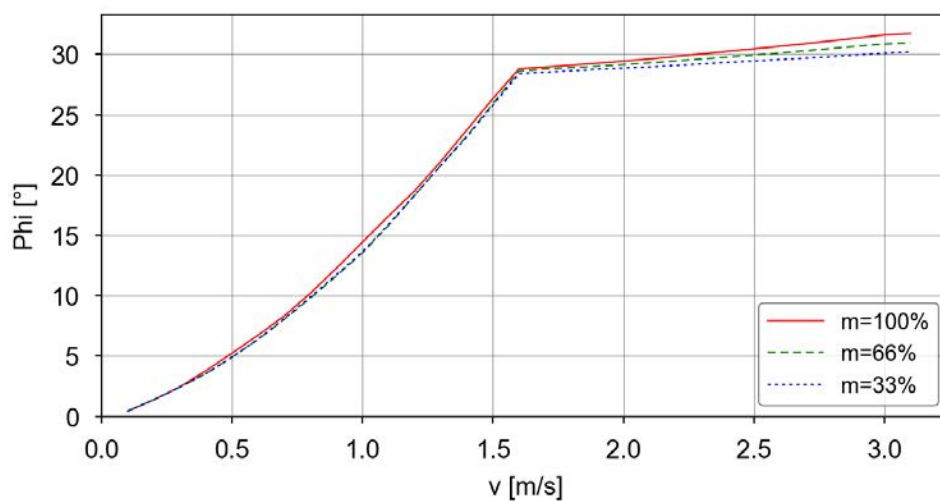
Extension zone 0, stopping distance and stopping time



Continues on next page



Extension zone 1, stopping distance and stopping time



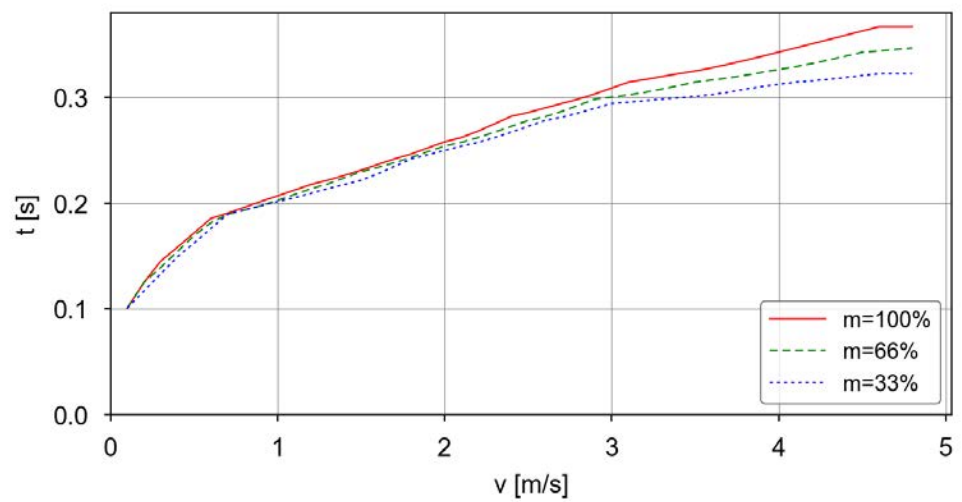
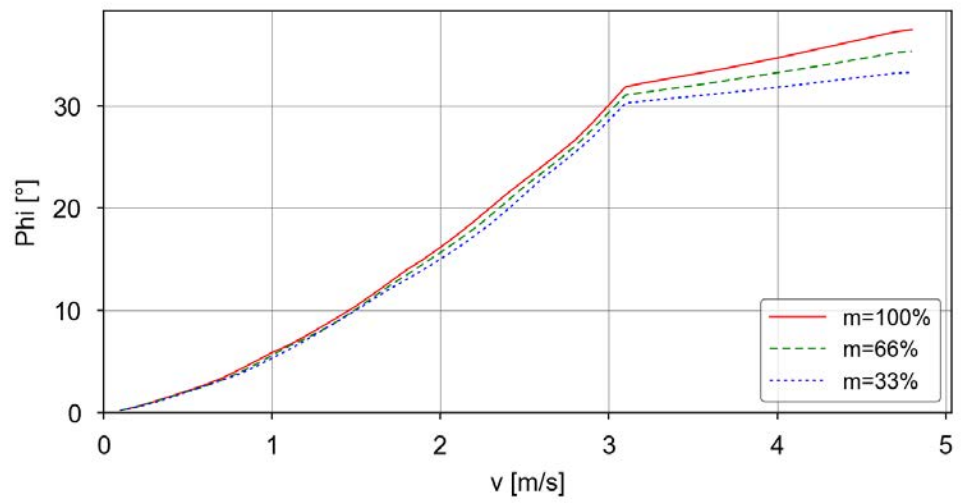
Continues on next page

## 9 IRB 1600

### 9.4 IRB 1600 1.45 m 10 kg

Continued

Extension zone 2, stopping distance and stopping time

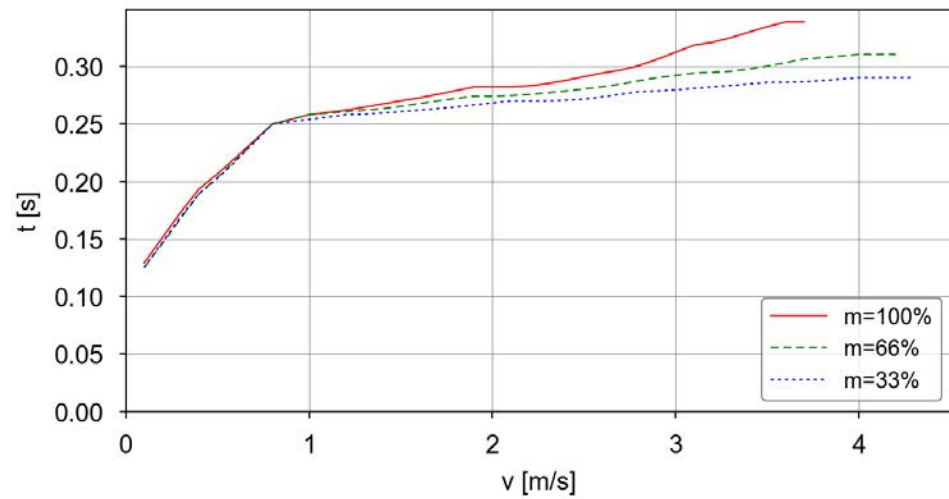
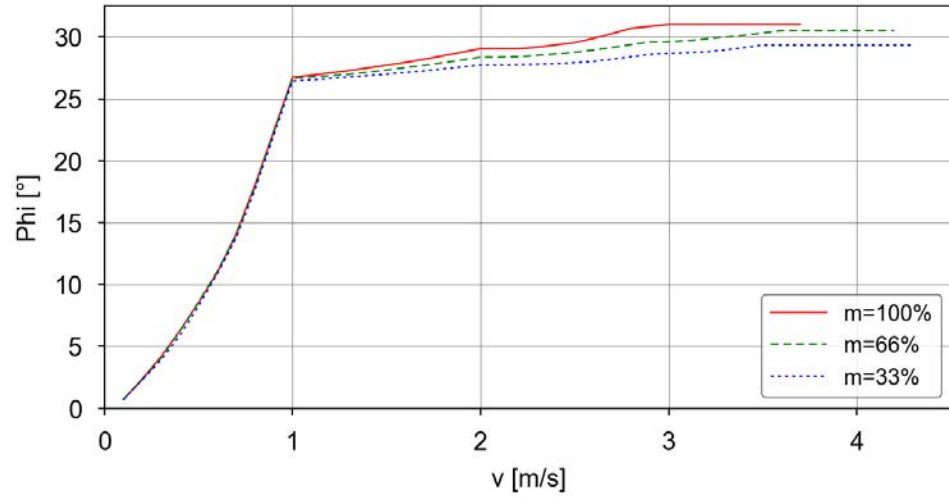


Continues on next page



Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



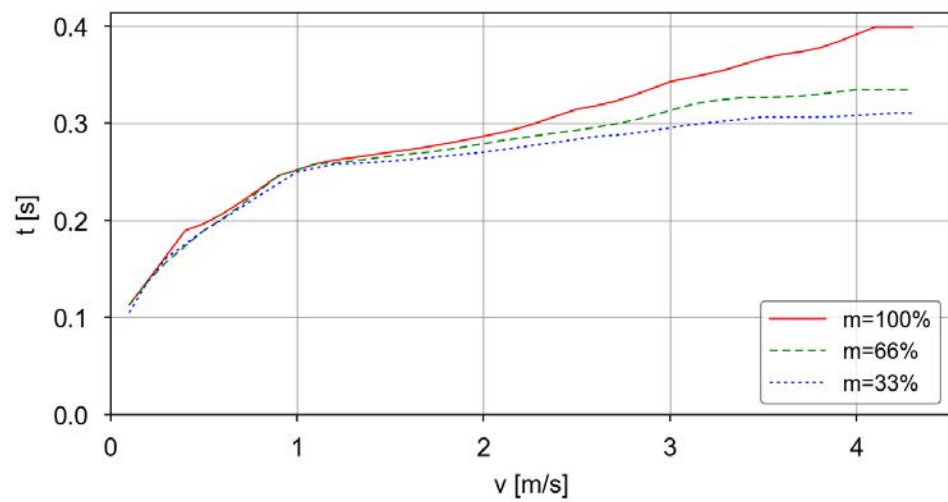
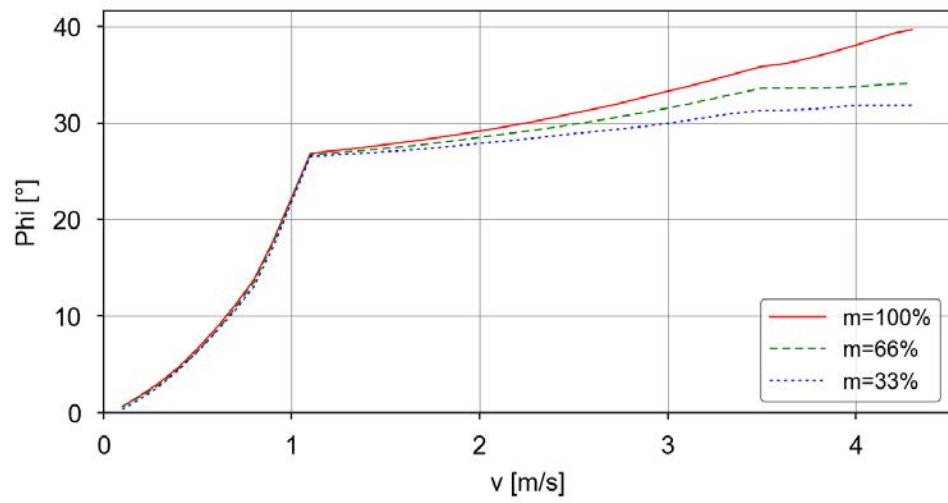
Continues on next page

## 9 IRB 1600

9.4 IRB 1600 1.45 m 10 kg

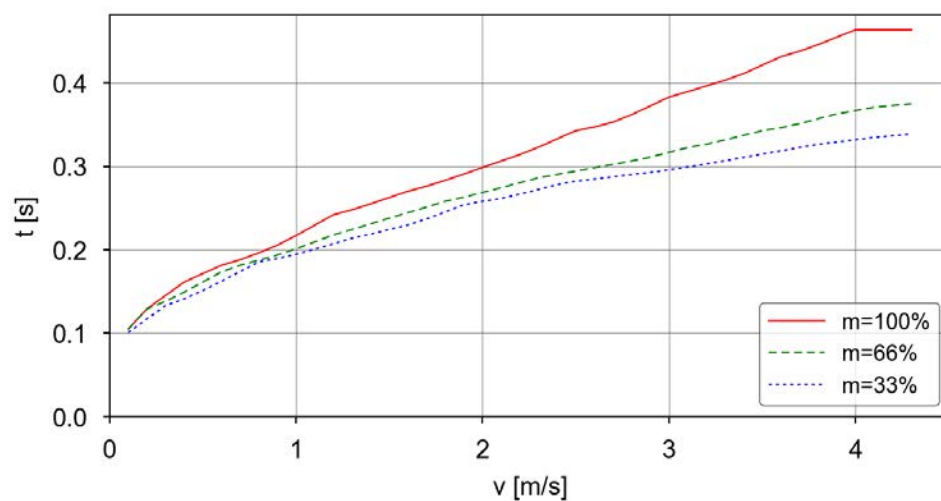
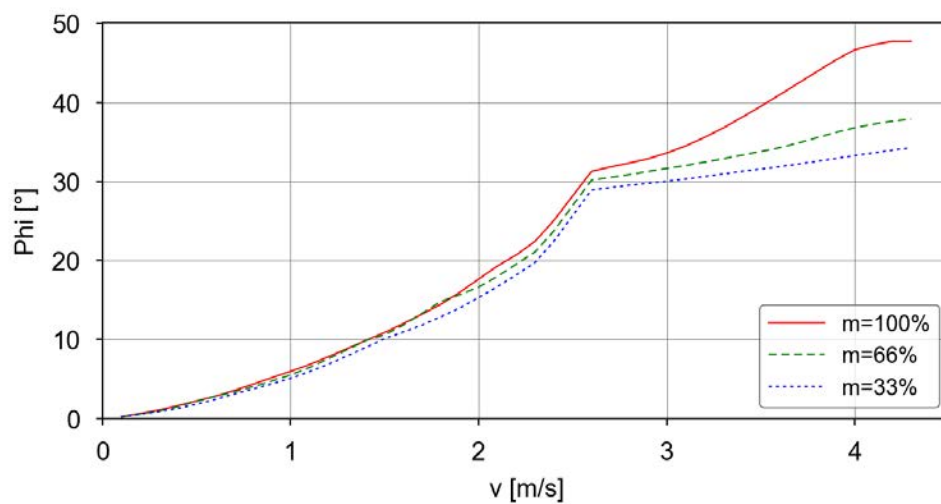
Continued

Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

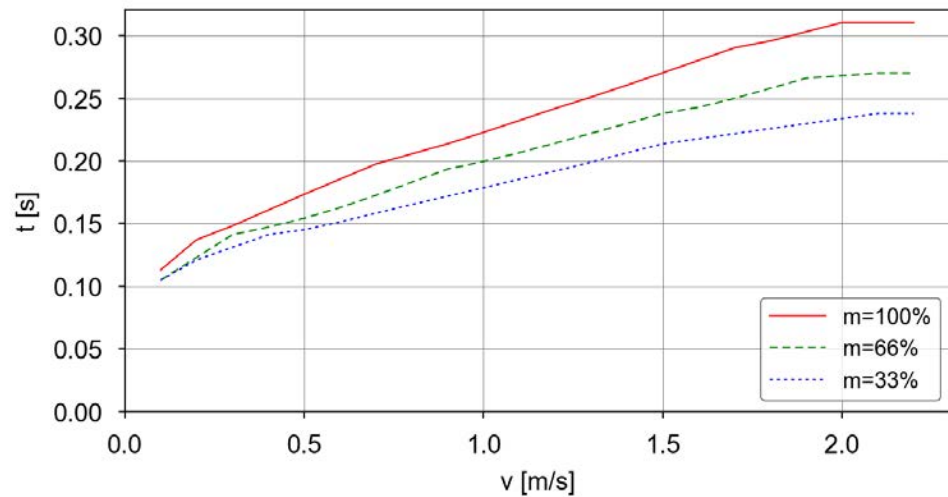
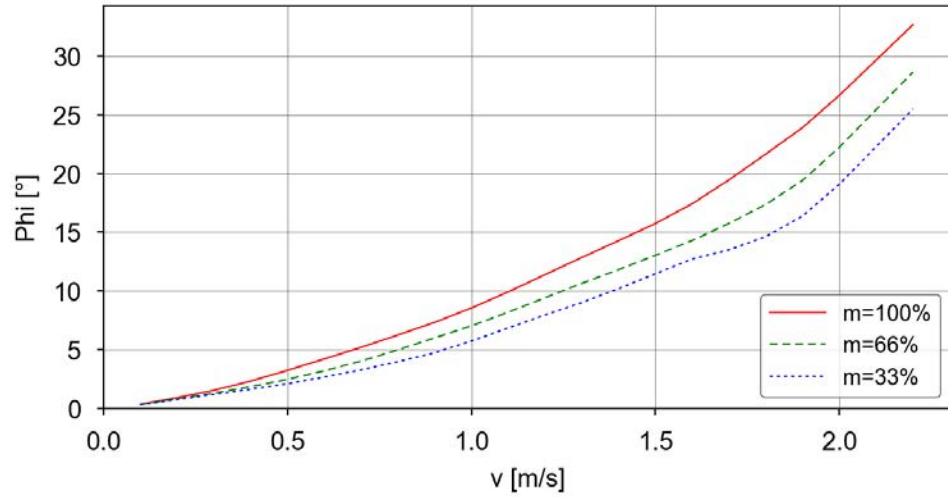
## 9 IRB 1600

9.4 IRB 1600 1.45 m 10 kg

Continued

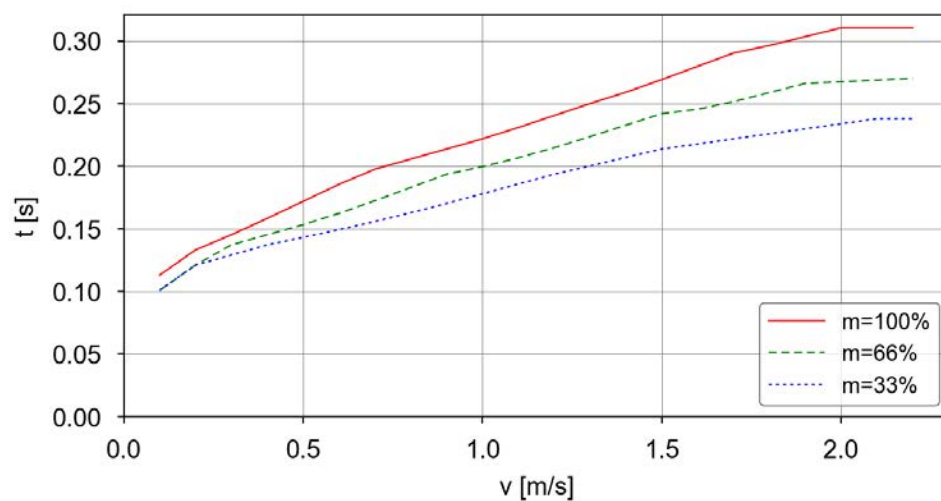
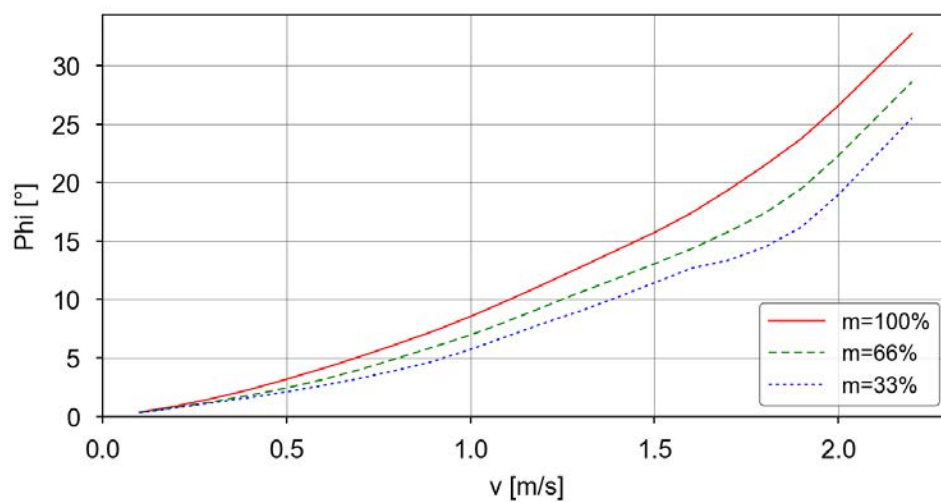
### Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



Continues on next page

Extension zone 1, stopping distance and stopping time



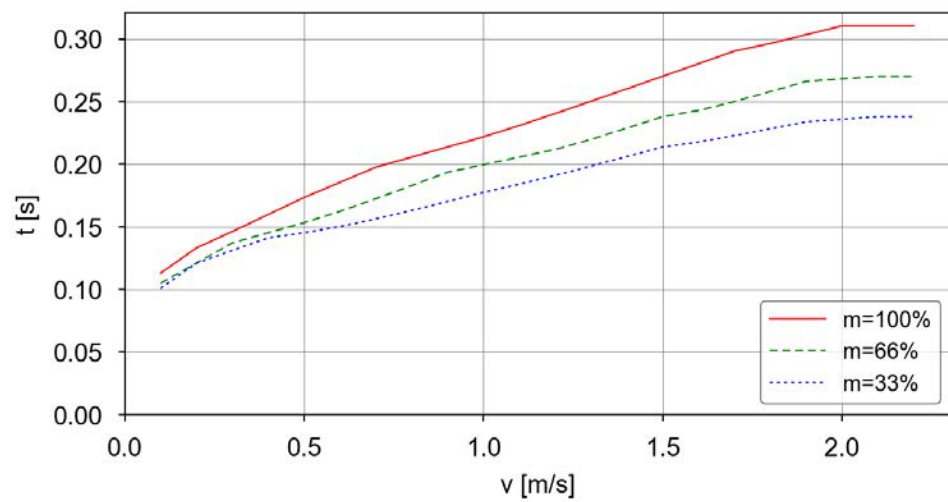
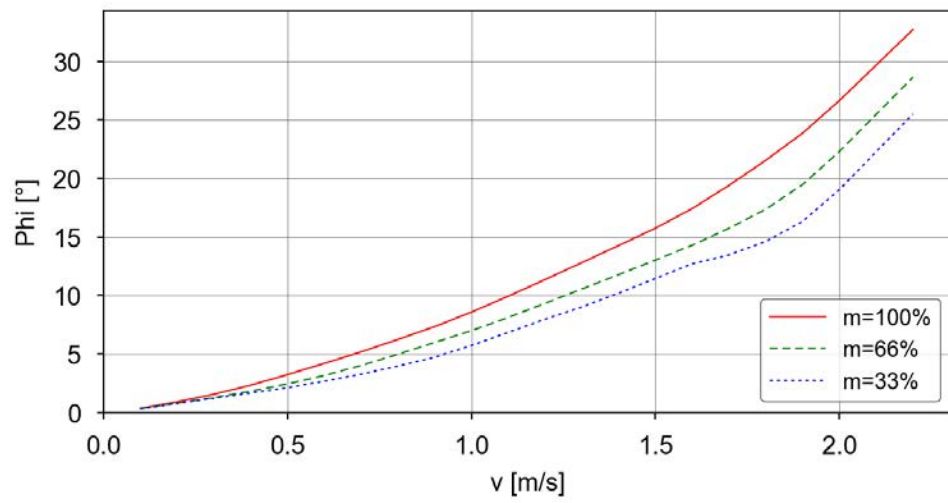
Continues on next page

## 9 IRB 1600

### 9.4 IRB 1600 1.45 m 10 kg

Continued

Extension zone 2, stopping distance and stopping time



## 9.5 IRB 1600ID 1.5 m 4 kg

### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	32.2	0.25
2	29.1	0.22
3	21.5	0.15

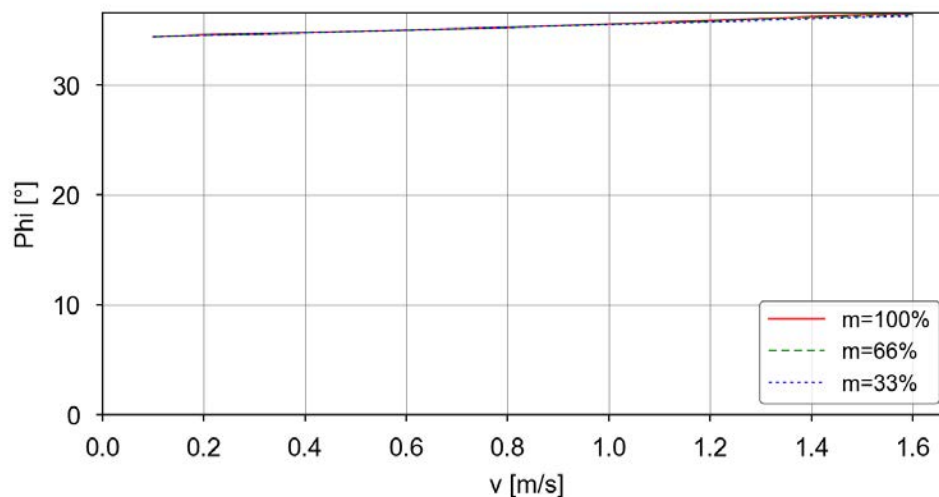
### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.5
1	0.5	1.0
2	1.0	max reach

### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

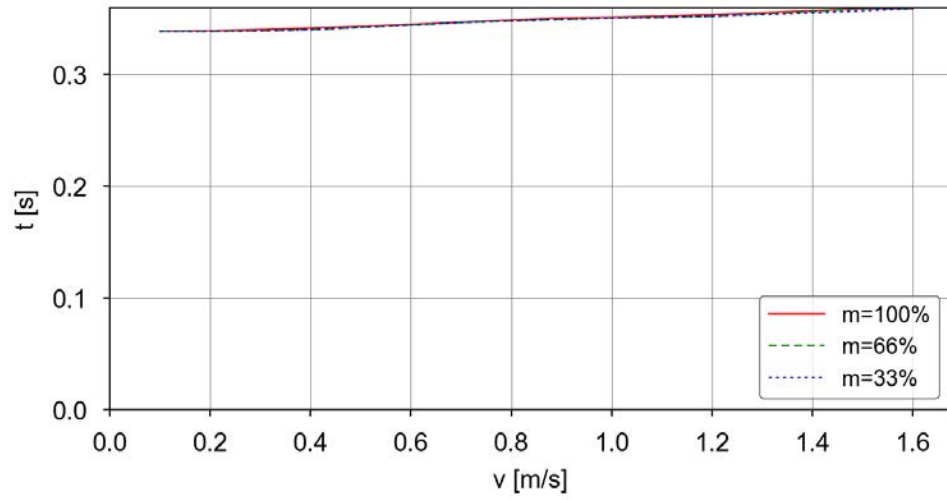


*Continues on next page*

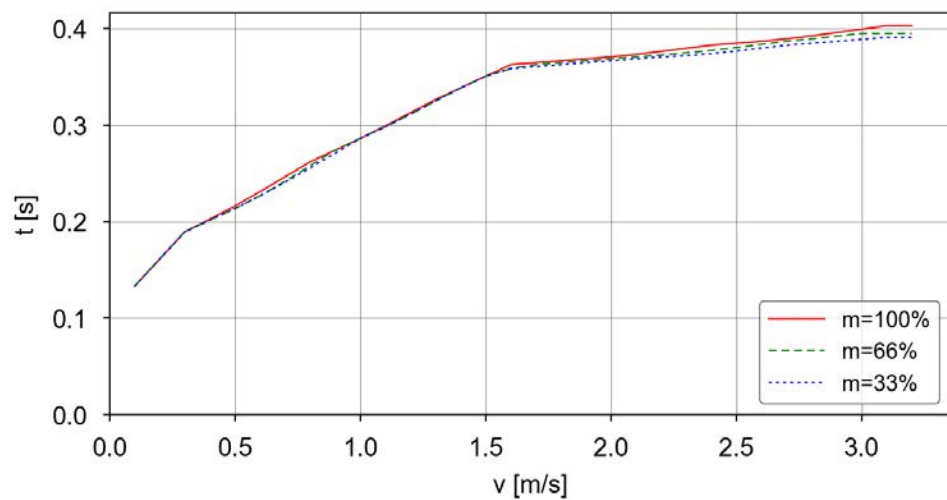
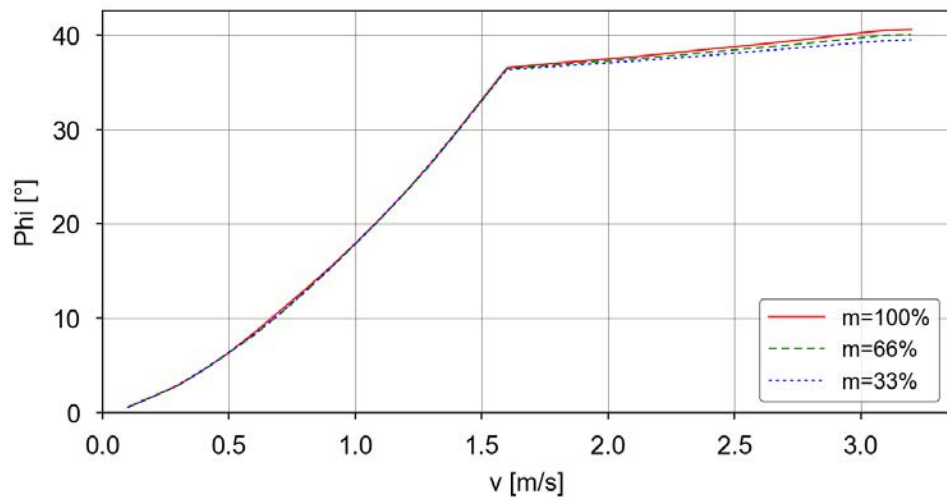
## 9 IRB 1600

9.5 IRB 1600ID 1.5 m 4 kg

Continued



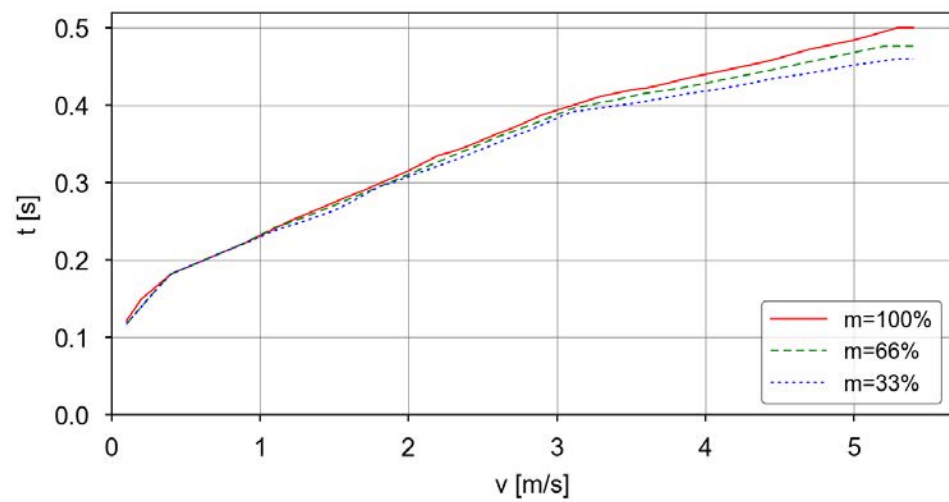
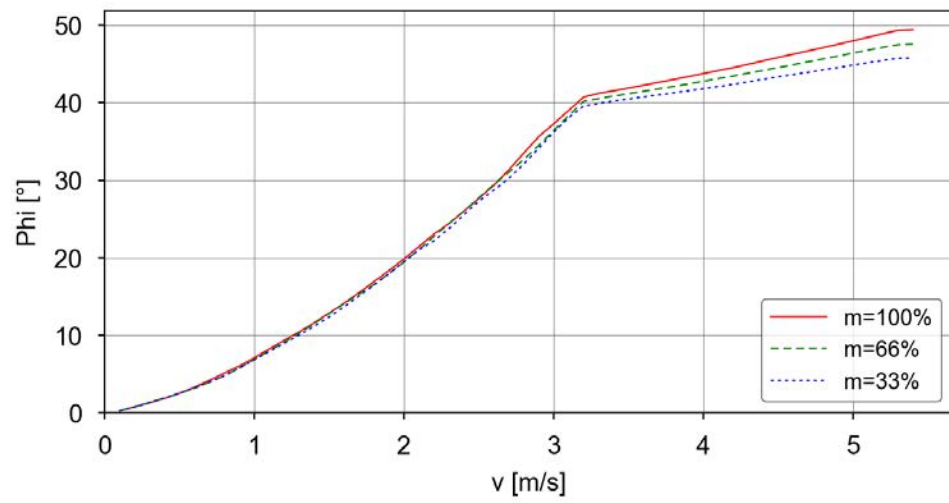
Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time



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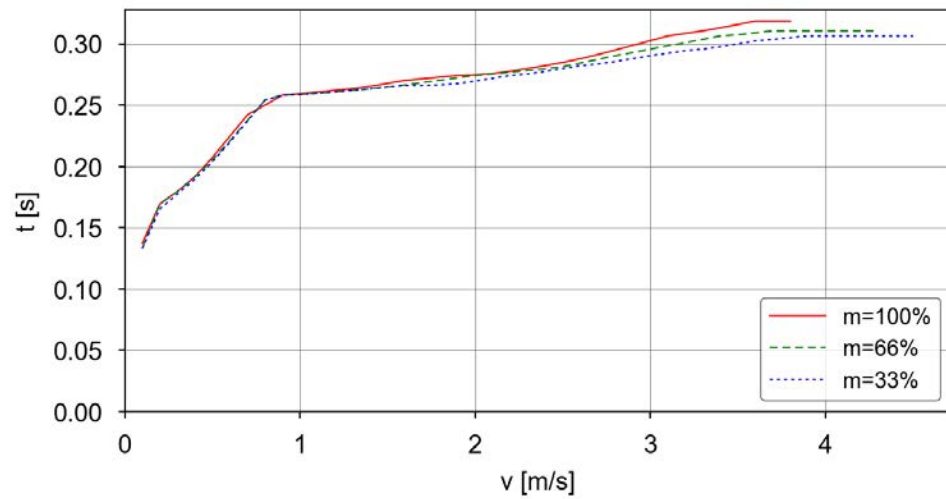
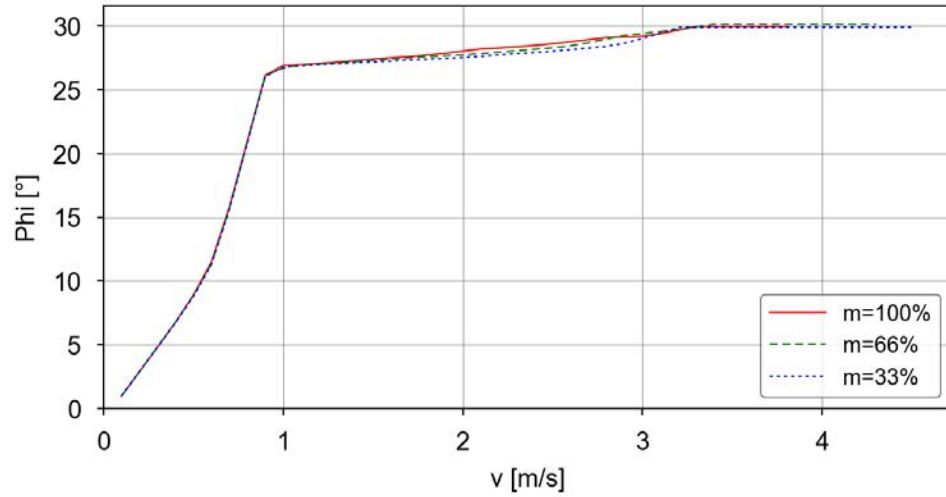
## 9 IRB 1600

9.5 IRB 1600ID 1.5 m 4 kg

Continued

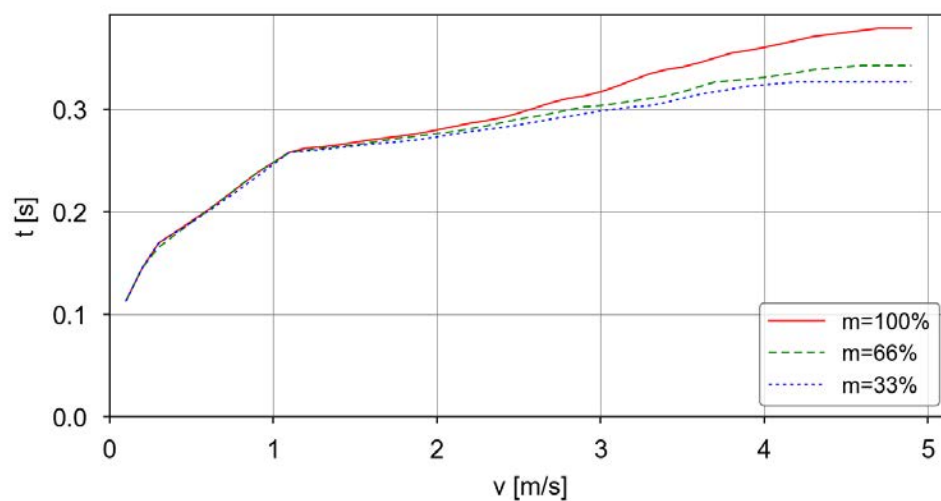
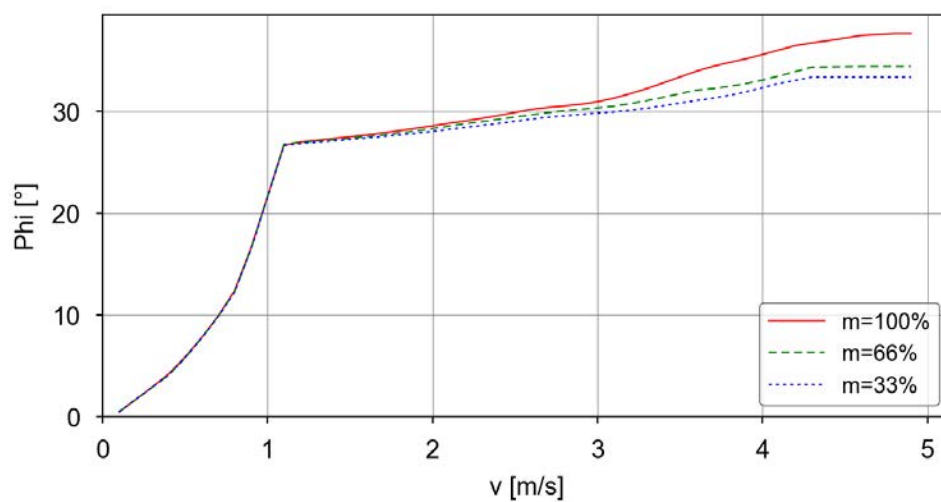
### Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



Continues on next page

Extension zone 1, stopping distance and stopping time



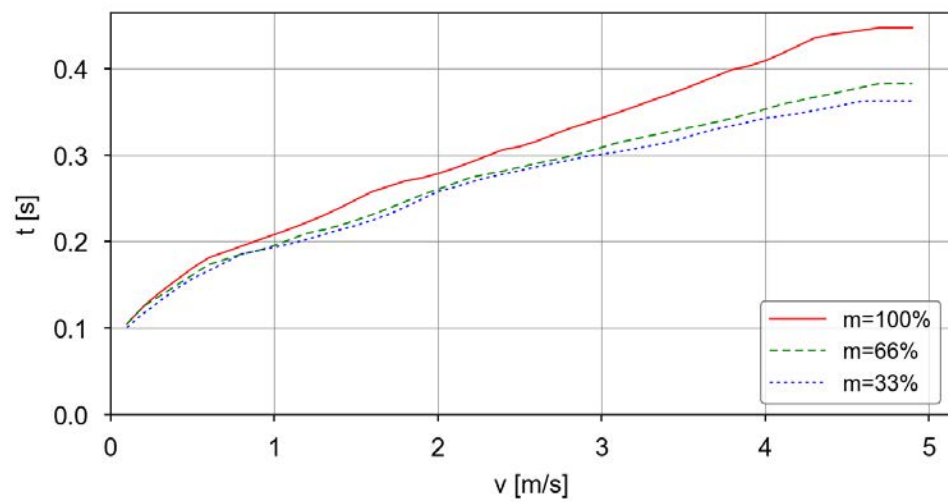
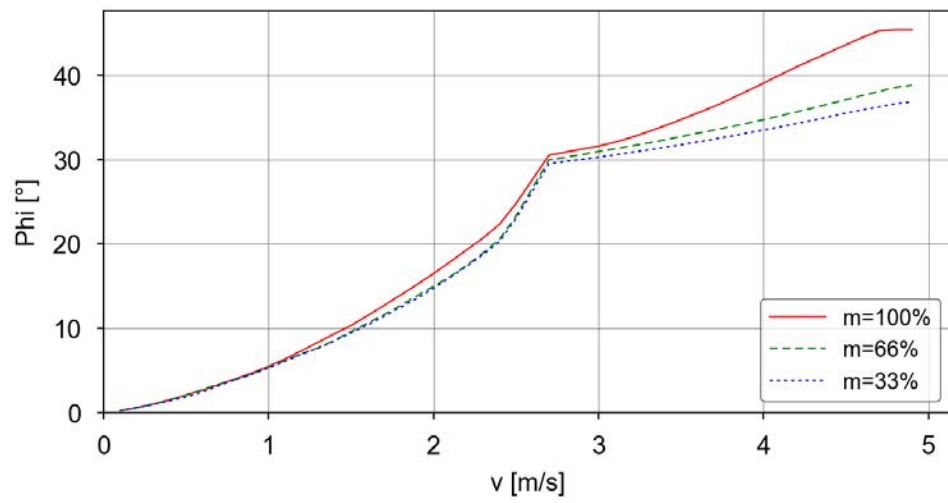
Continues on next page

## 9 IRB 1600

9.5 IRB 1600ID 1.5 m 4 kg

Continued

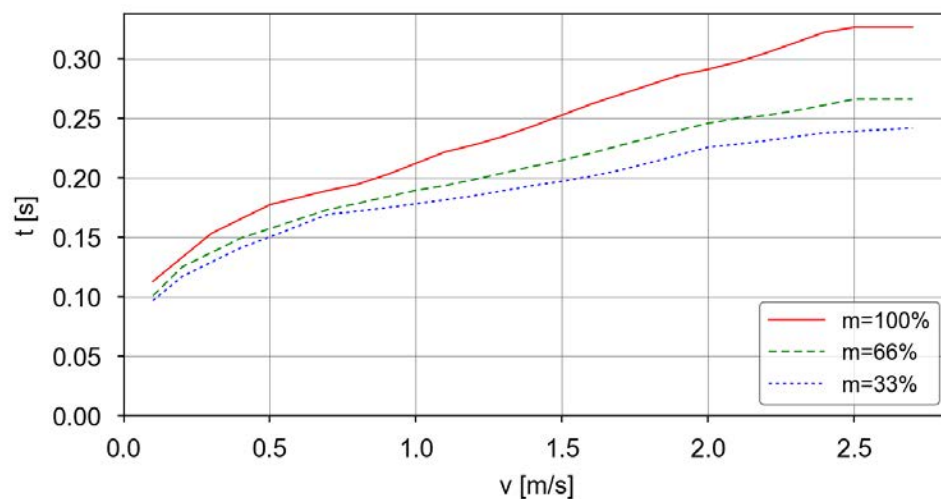
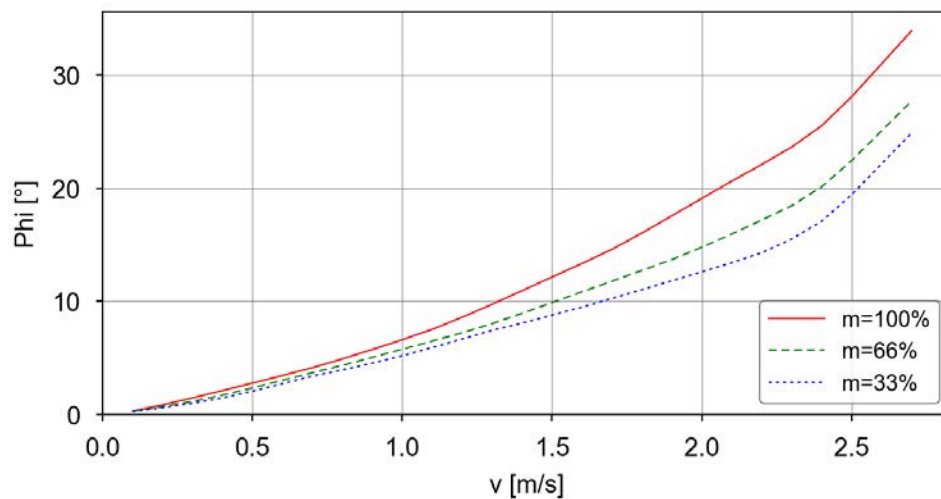
Extension zone 2, stopping distance and stopping time



Continues on next page

Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



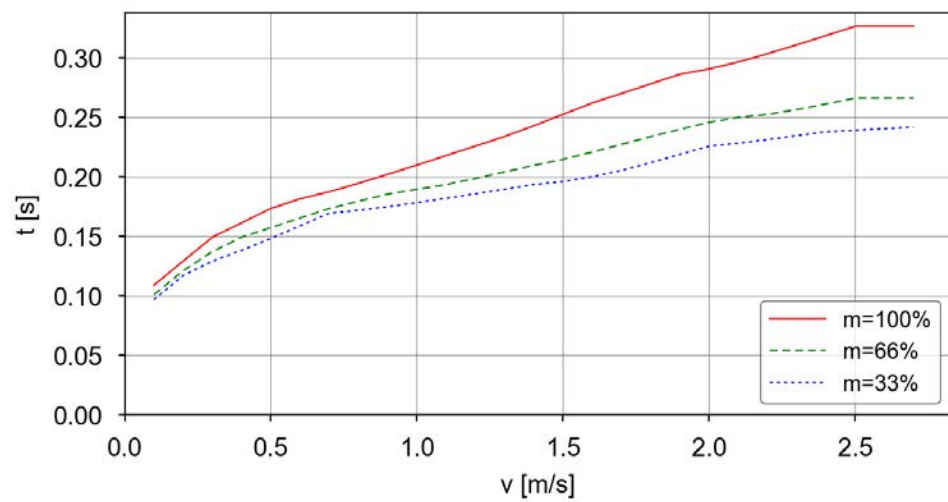
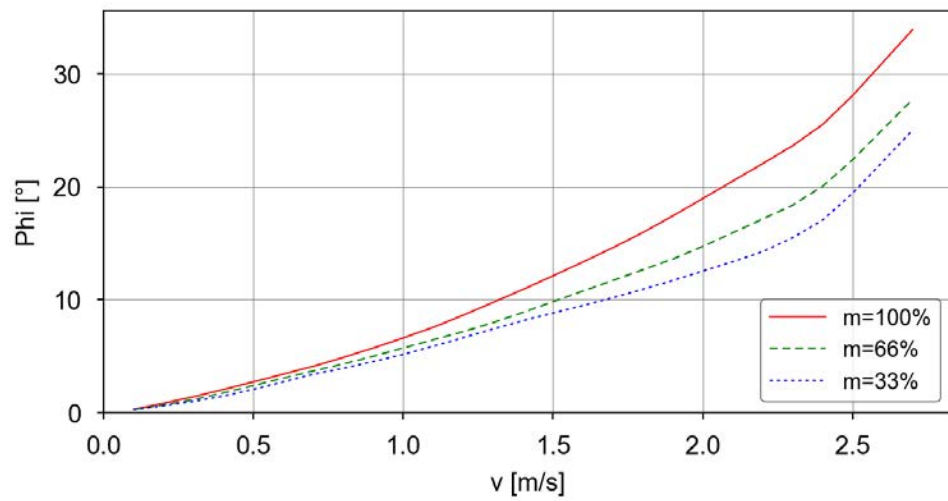
Continues on next page

## 9 IRB 1600

9.5 IRB 1600ID 1.5 m 4 kg

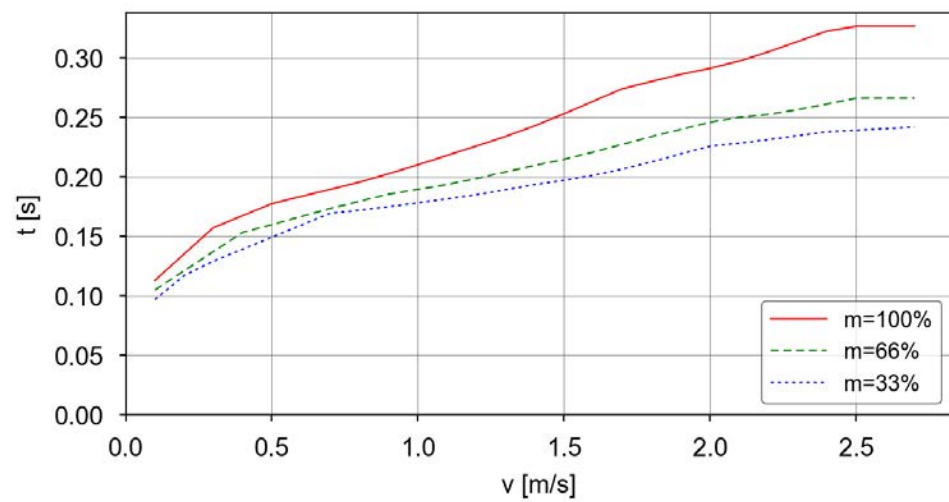
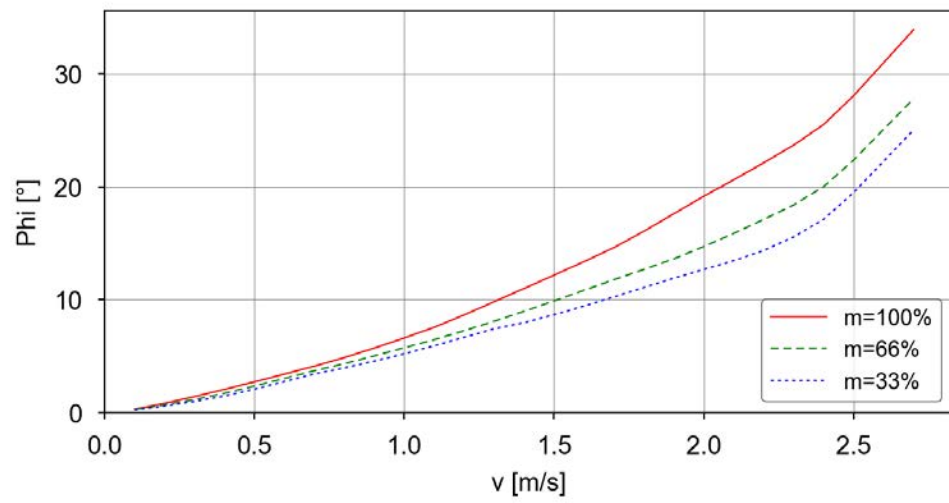
Continued

Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time



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## 10 IRB 1660

### 10.1 IRB 1660ID 1.55 m 4 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	29.6	0.22
2	40.2	0.34
3	26.8	0.2

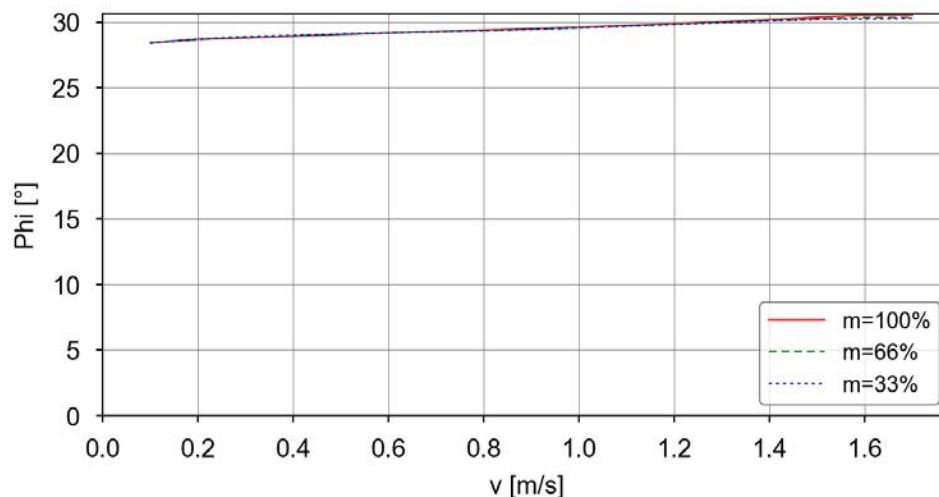
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.0
1	0.0	0.0
2	0.0	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

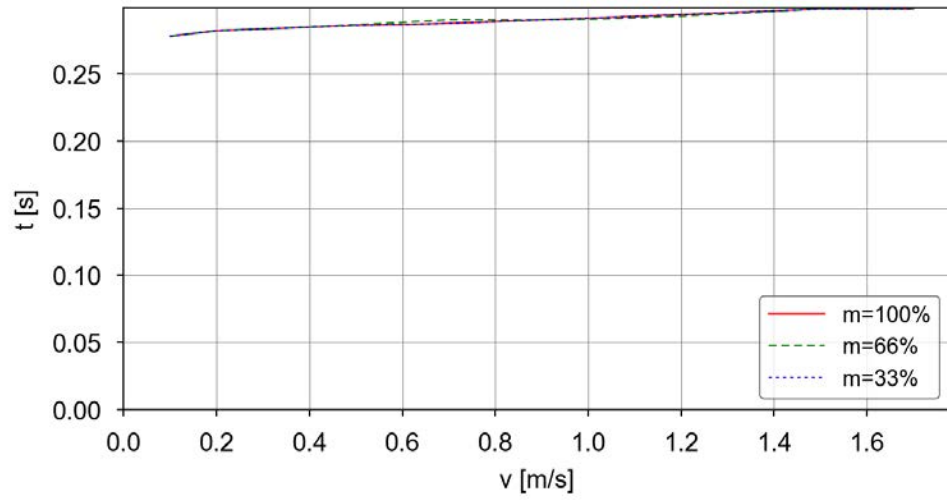


*Continues on next page*

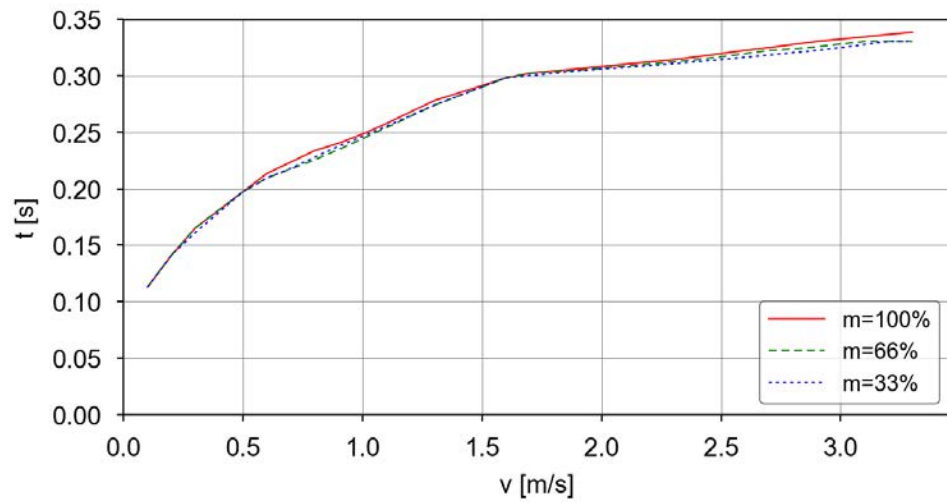
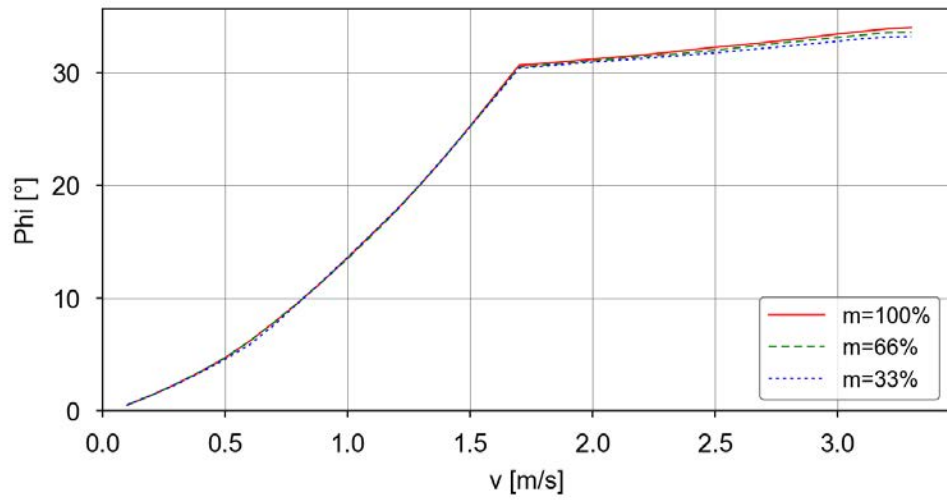
# 10 IRB 1660

## 10.1 IRB 1660ID 1.55 m 4 kg

Continued

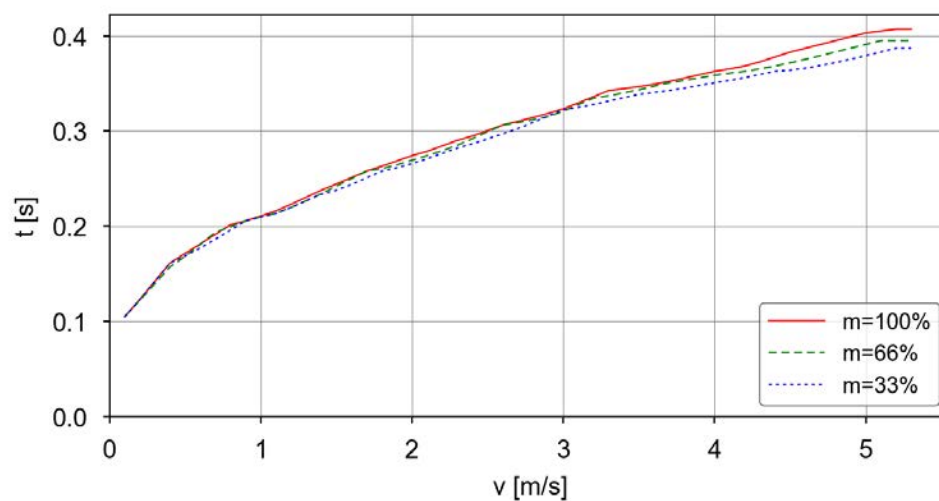
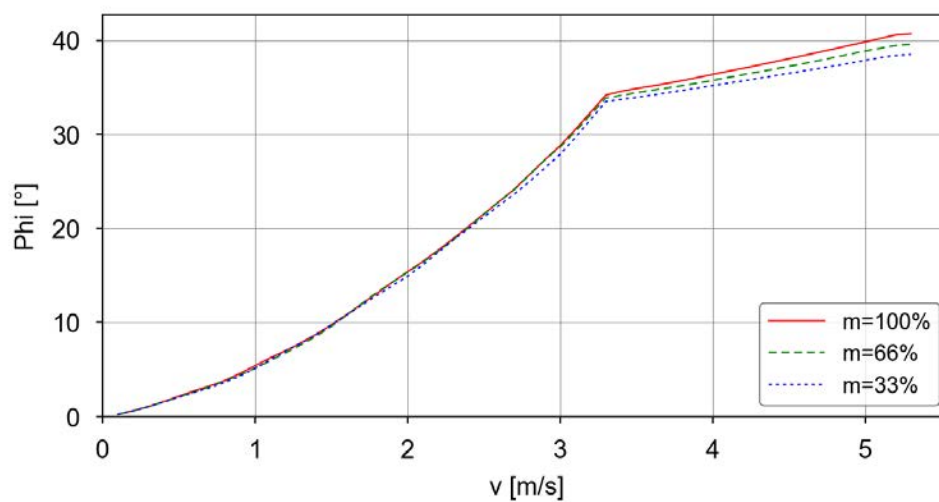


### Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

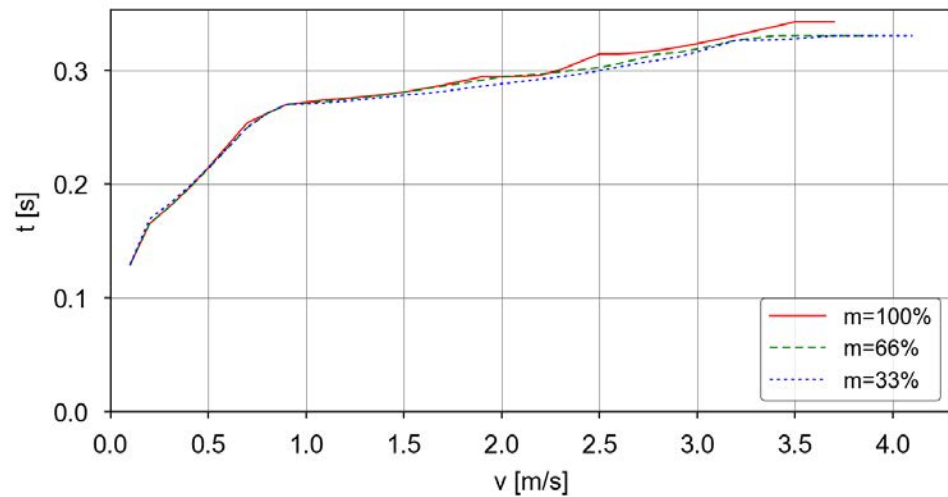
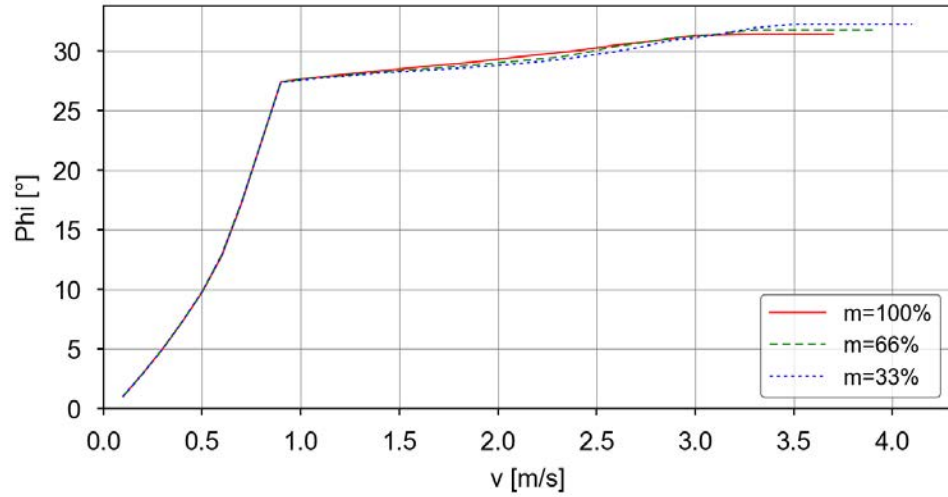
# 10 IRB 1660

10.1 IRB 1660ID 1.55 m 4 kg

Continued

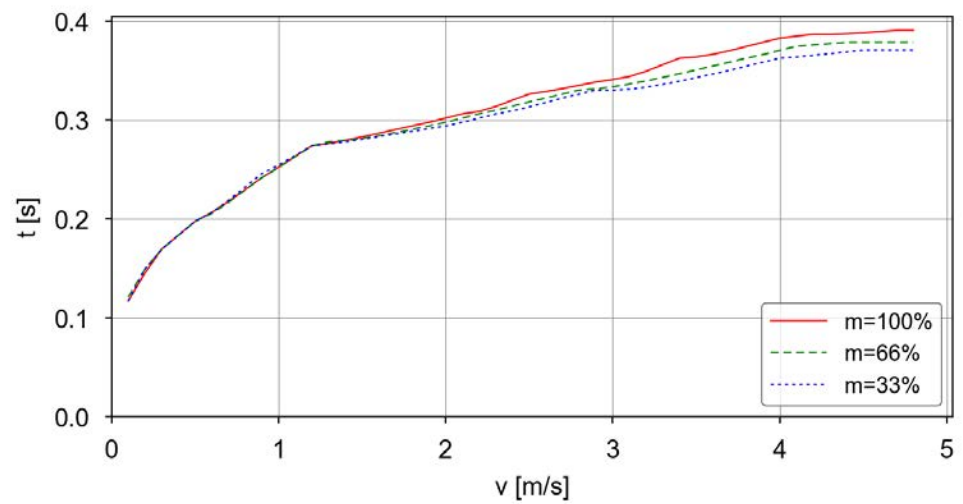
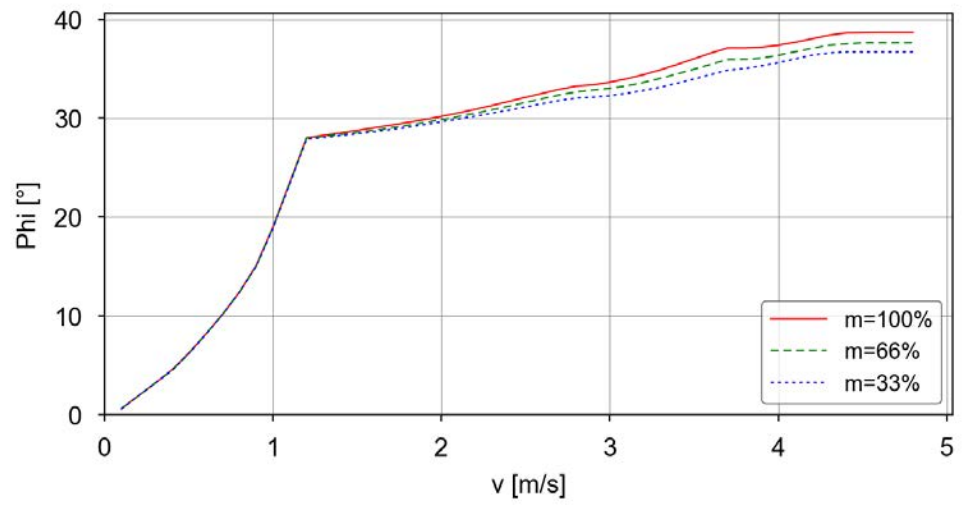
## Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



Continues on next page

Extension zone 1, stopping distance and stopping time



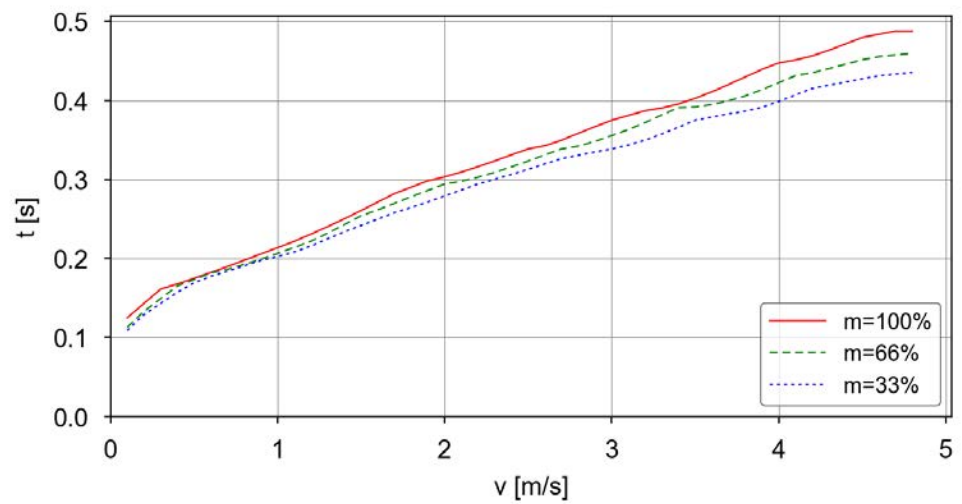
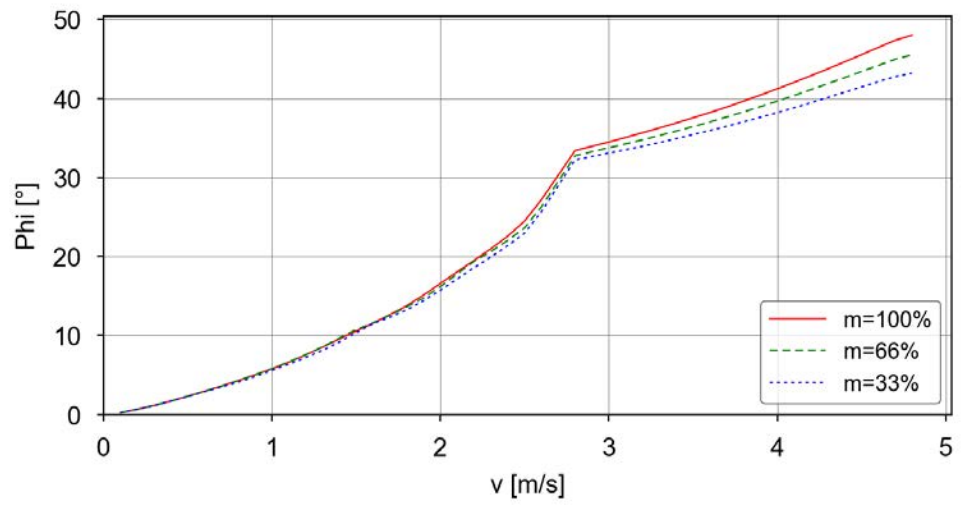
Continues on next page

## 10 IRB 1660

### 10.1 IRB 1660ID 1.55 m 4 kg

Continued

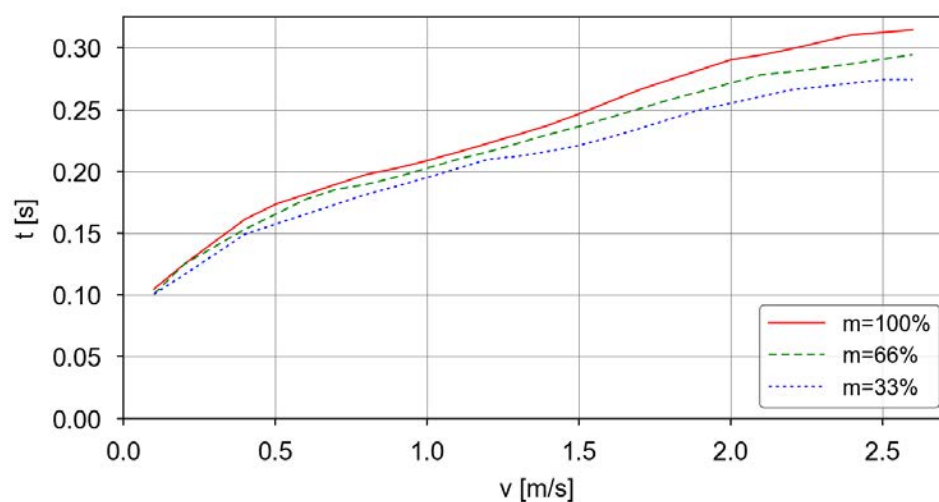
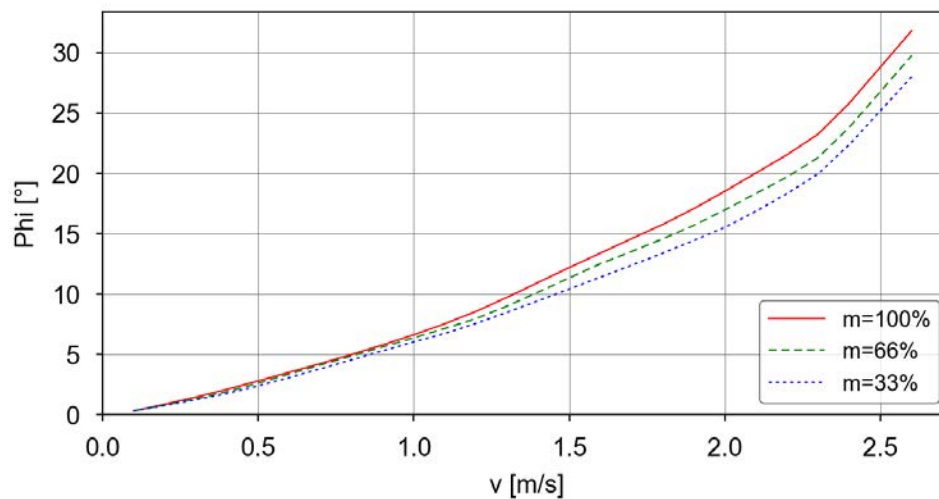
#### Extension zone 2, stopping distance and stopping time



Continues on next page

Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



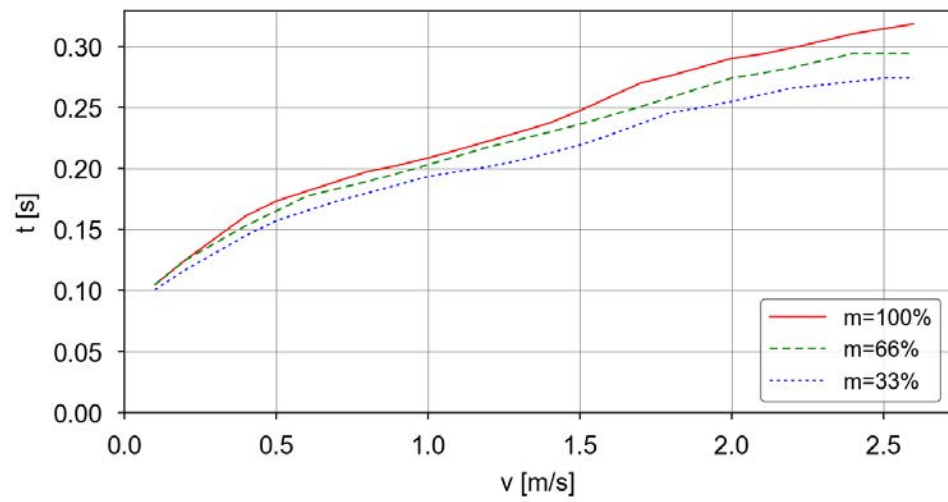
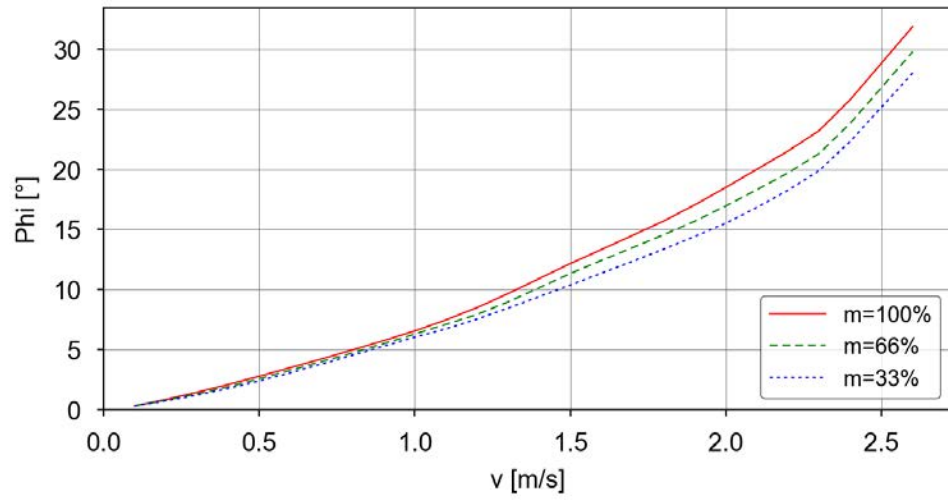
Continues on next page

# 10 IRB 1660

## 10.1 IRB 1660ID 1.55 m 4 kg

Continued

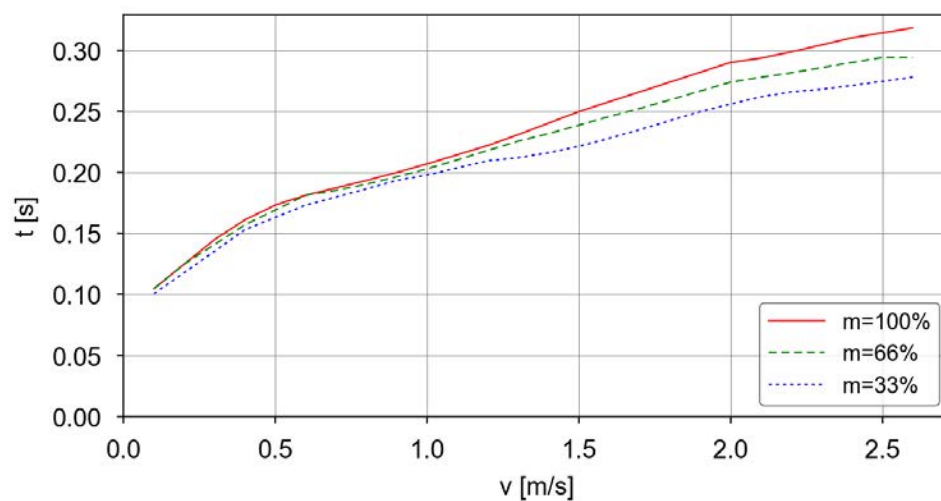
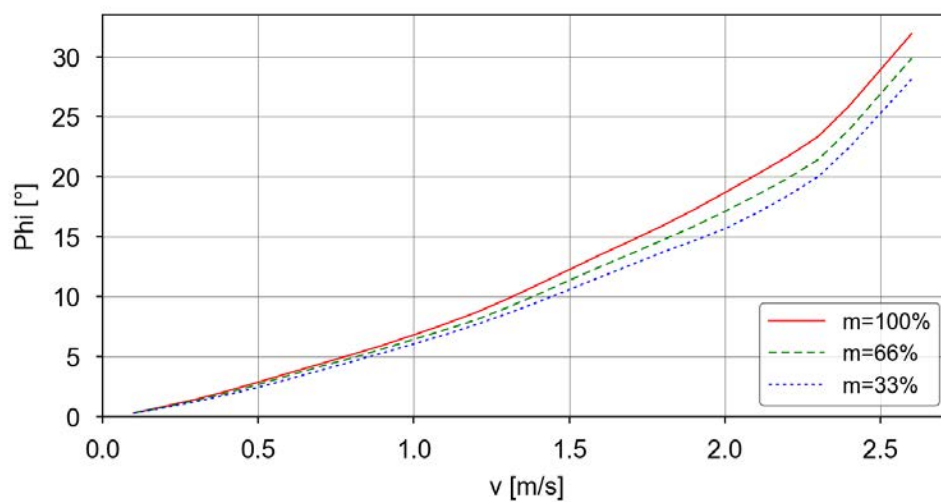
### Extension zone 1, stopping distance and stopping time



Continues on next page



Extension zone 2, stopping distance and stopping time



## 10 IRB 1660

### 10.2 IRB 1660ID 1.55 m 6 kg

### 10.2 IRB 1660ID 1.55 m 6 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	29.5	0.22
2	39.5	0.32
3	26.6	0.2

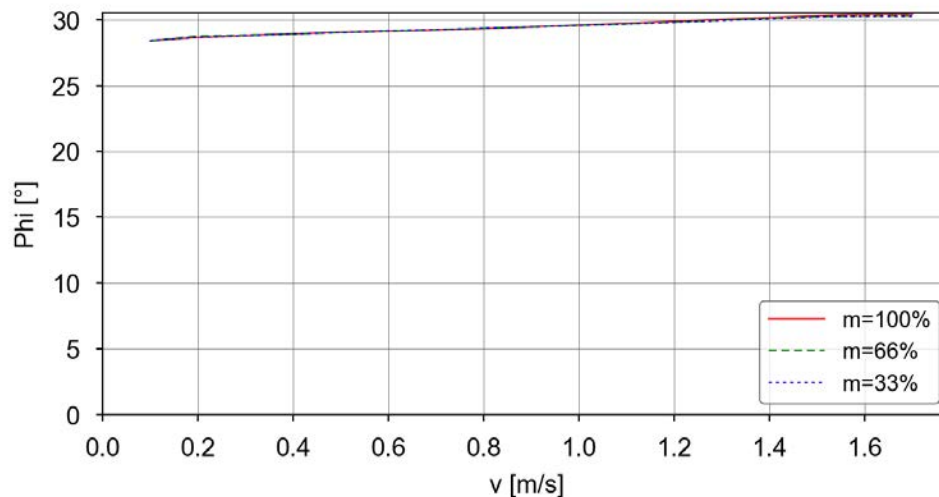
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

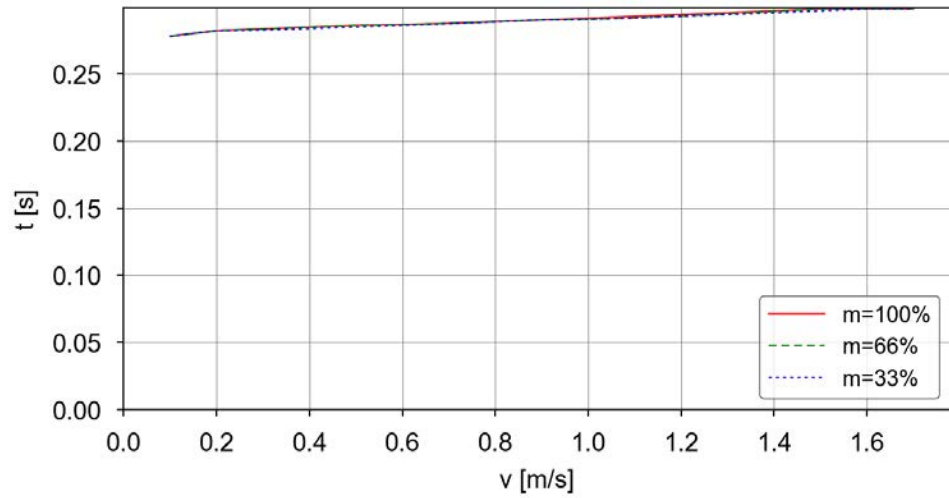
Zone	wcp min (m)	wcp max (m)
0	0	0.0
1	0.0	0.0
2	0.0	max reach

#### Category 1, Axis 1

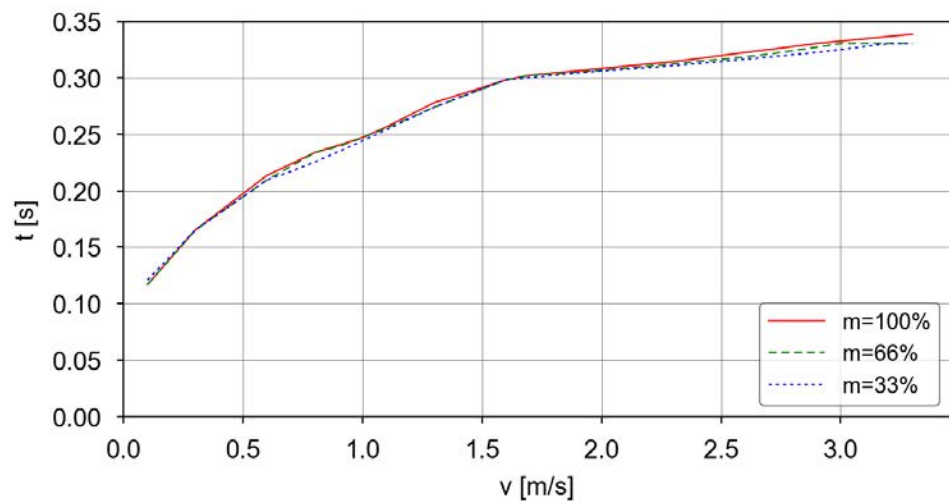
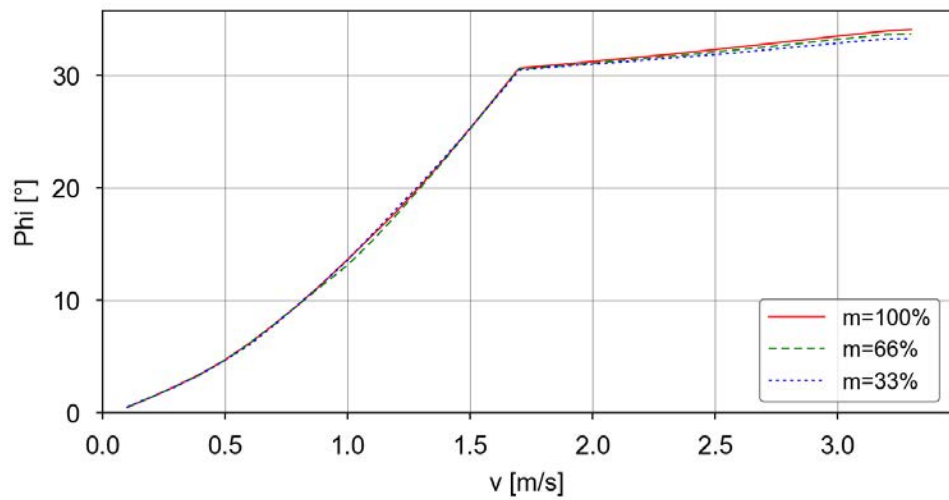
Extension zone 0, stopping distance and stopping time



Continues on next page



Extension zone 1, stopping distance and stopping time



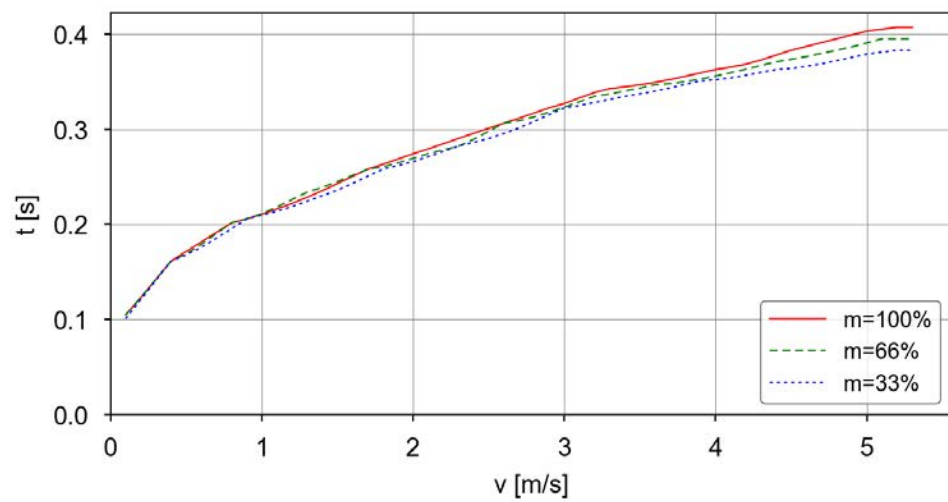
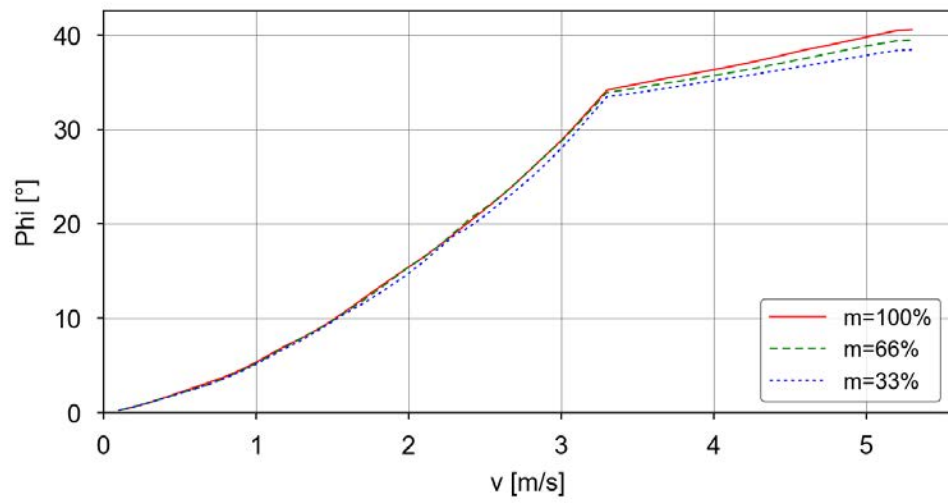
Continues on next page

## 10 IRB 1660

10.2 IRB 1660ID 1.55 m 6 kg

Continued

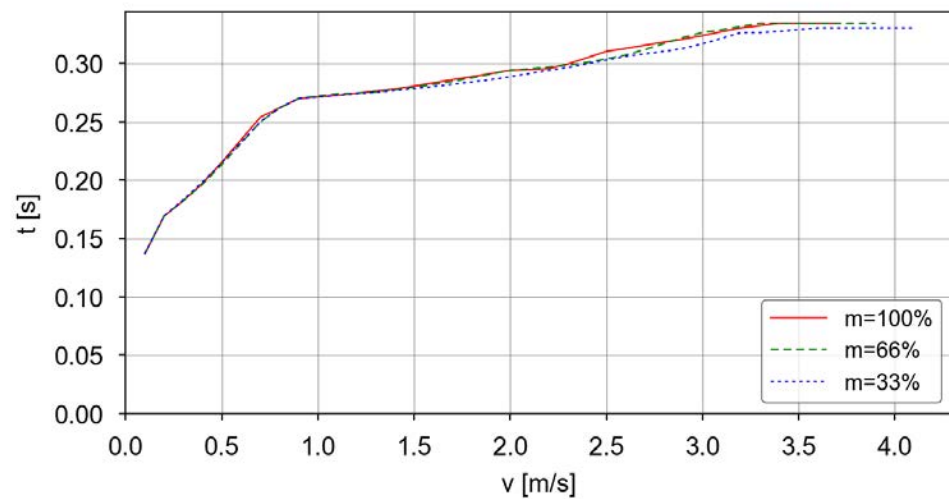
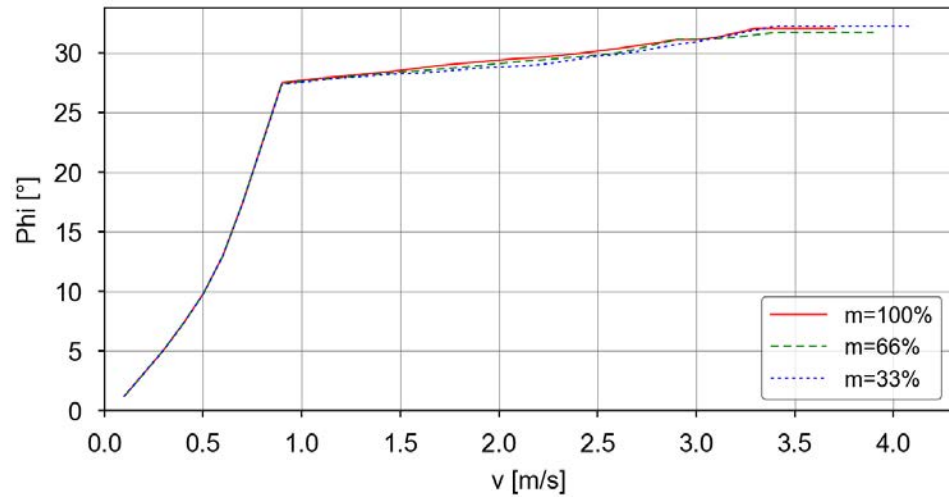
Extension zone 2, stopping distance and stopping time



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## Category 1, Axis 2

## Extension zone 0, stopping distance and stopping time



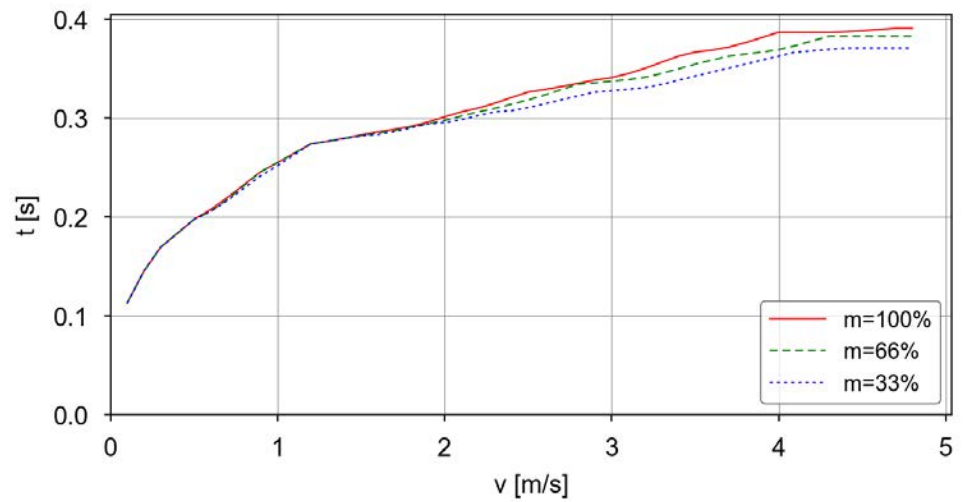
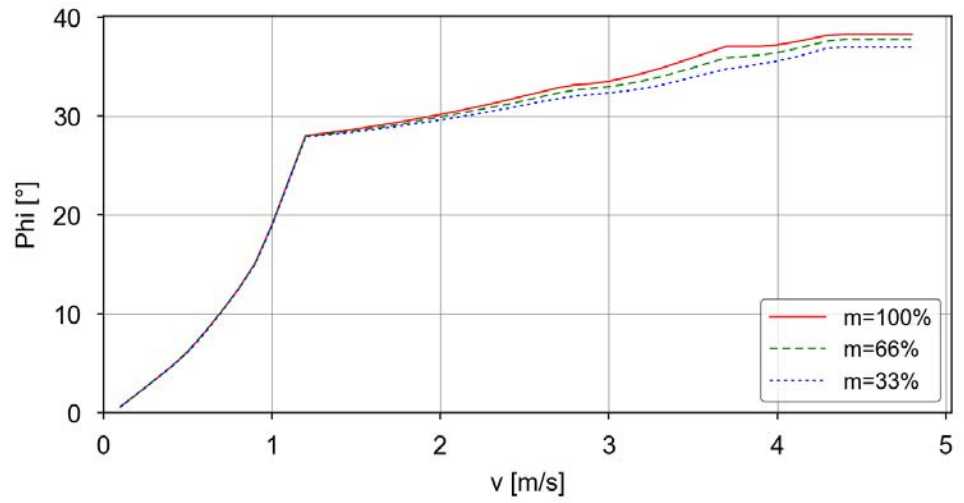
Continues on next page

# 10 IRB 1660

## 10.2 IRB 1660ID 1.55 m 6 kg

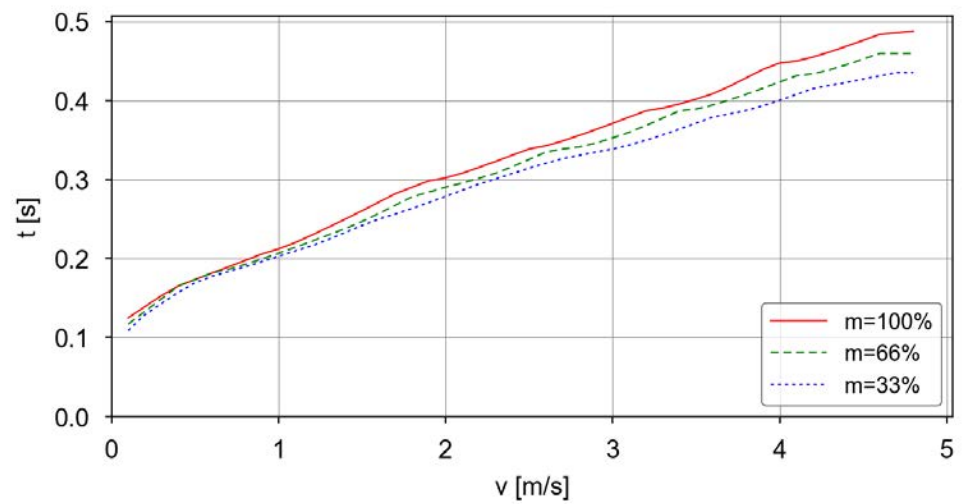
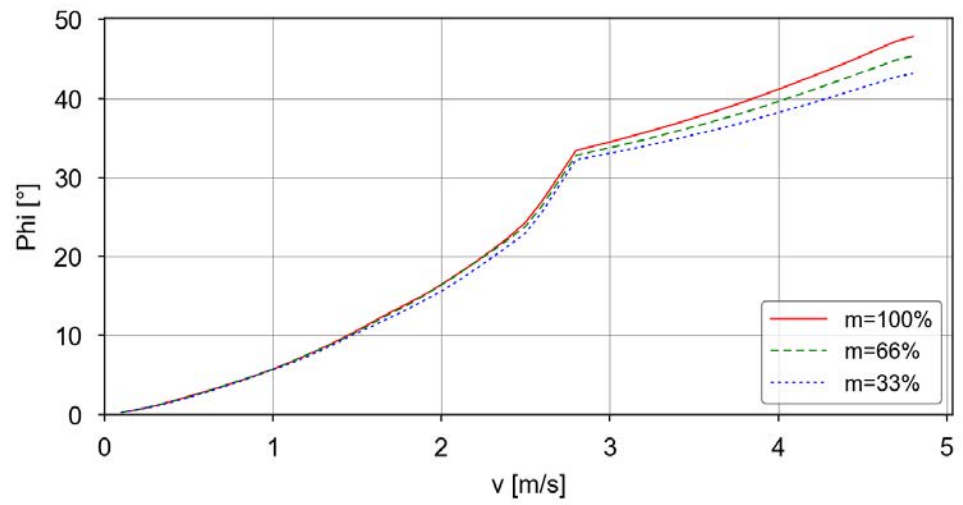
Continued

### Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

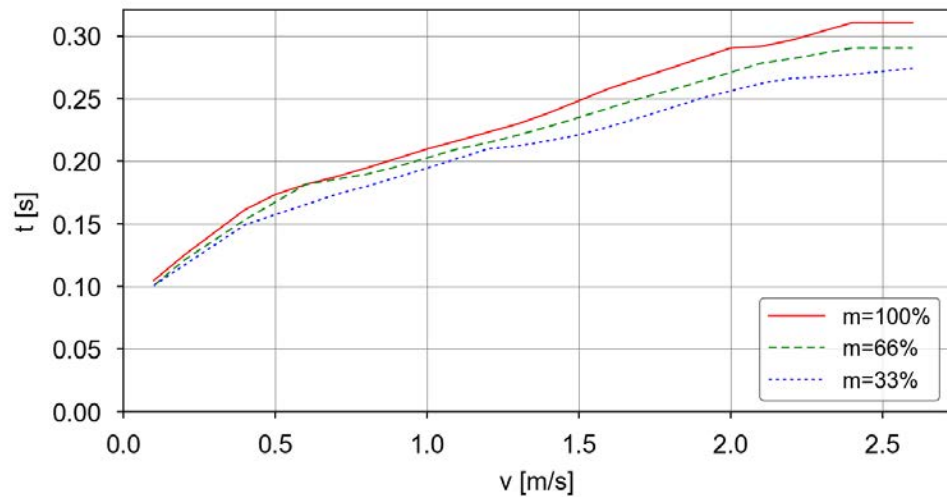
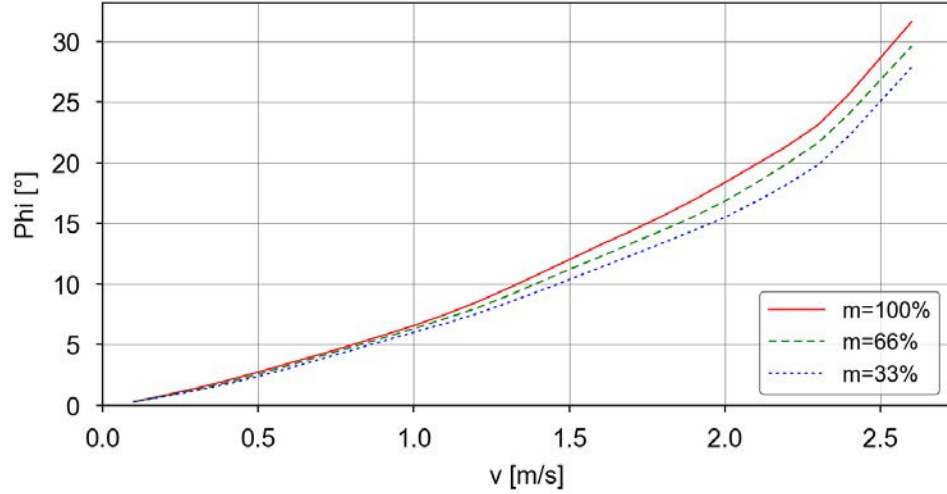
# 10 IRB 1660

10.2 IRB 1660ID 1.55 m 6 kg

Continued

## Category 1, Axis 3

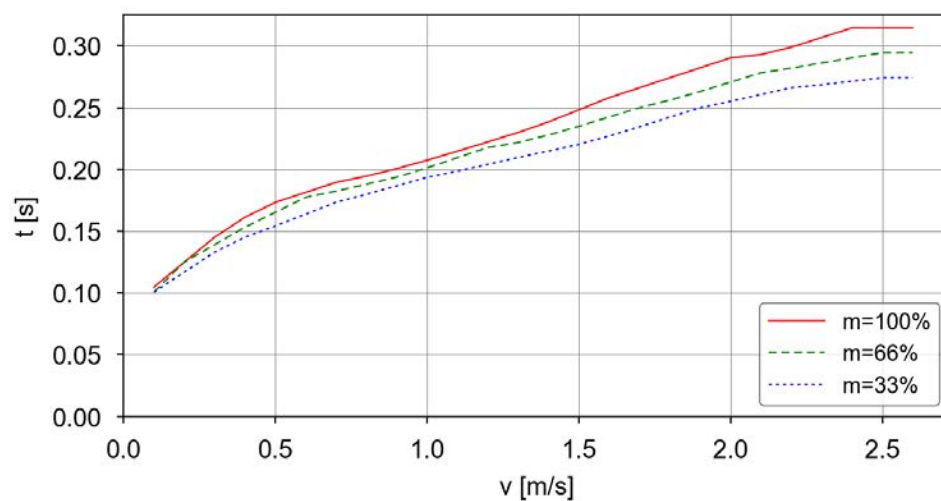
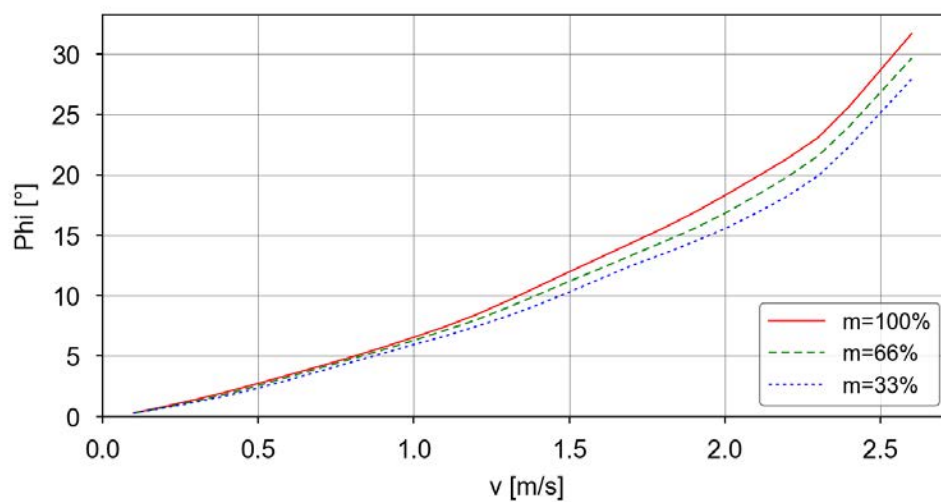
Extension zone 0, stopping distance and stopping time



Continues on next page



Extension zone 1, stopping distance and stopping time



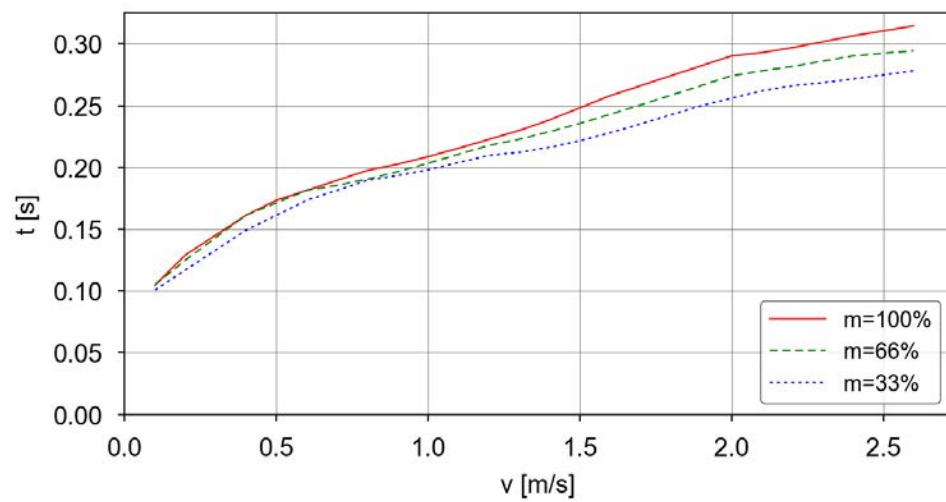
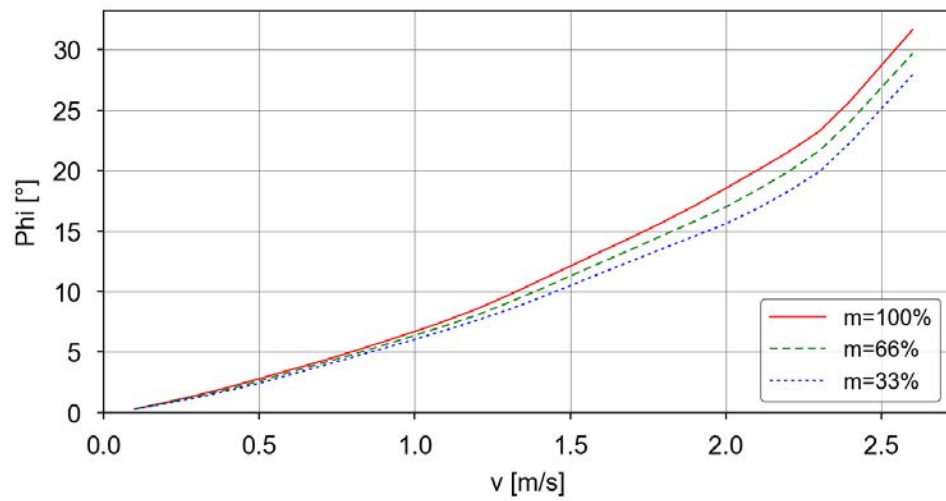
Continues on next page

## 10 IRB 1660

### 10.2 IRB 1660ID 1.55 m 6 kg

Continued

#### Extension zone 2, stopping distance and stopping time



# 11 IRB 2400

## 11.1 IRB 2400 1.5 m 10 kg

### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	46.9	0.51
2	36.4	0.32
3	22.8	0.2

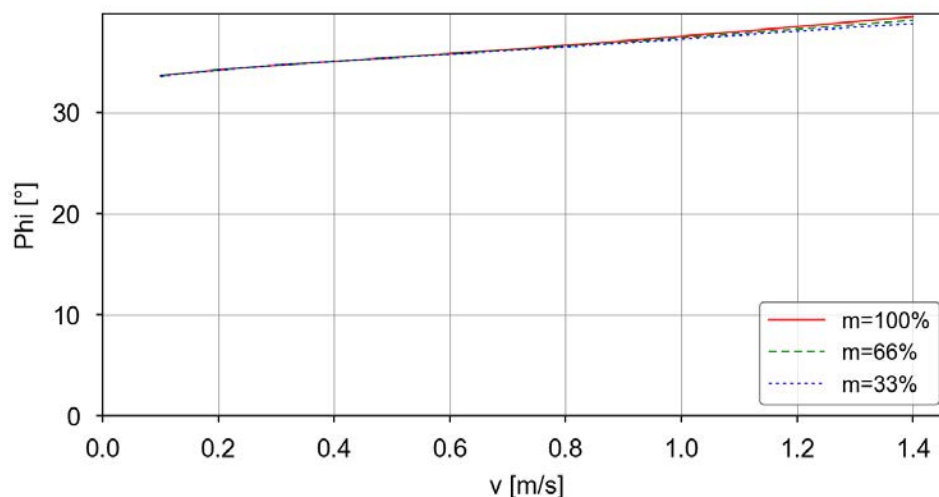
### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.524
1	0.524	1.048
2	1.048	max reach

### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

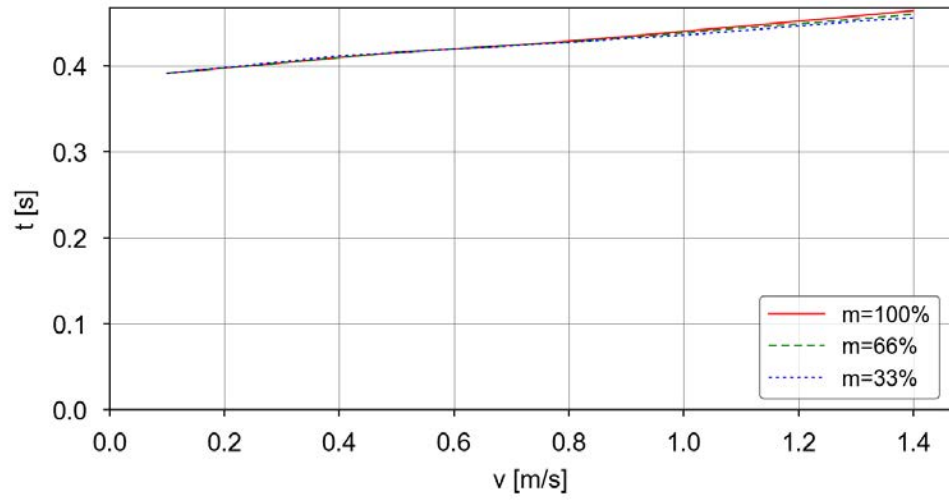


*Continues on next page*

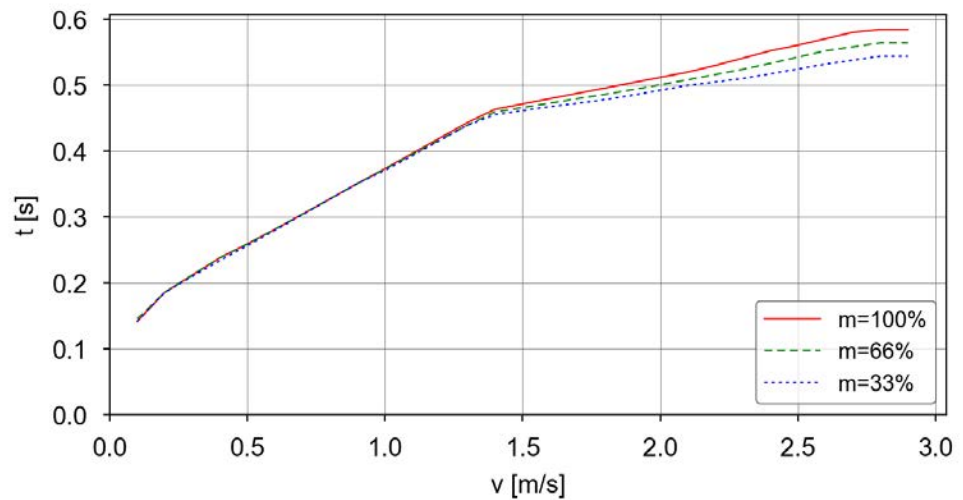
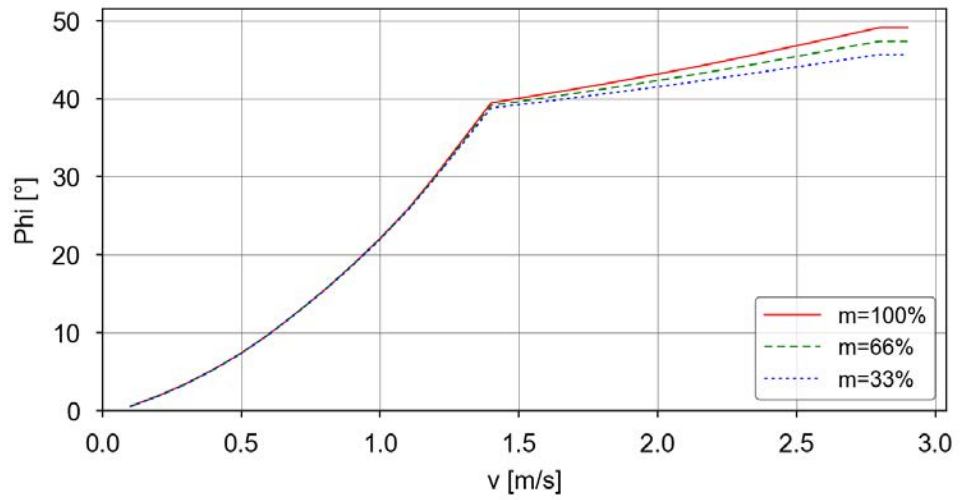
# 11 IRB 2400

## 11.1 IRB 2400 1.5 m 10 kg

Continued

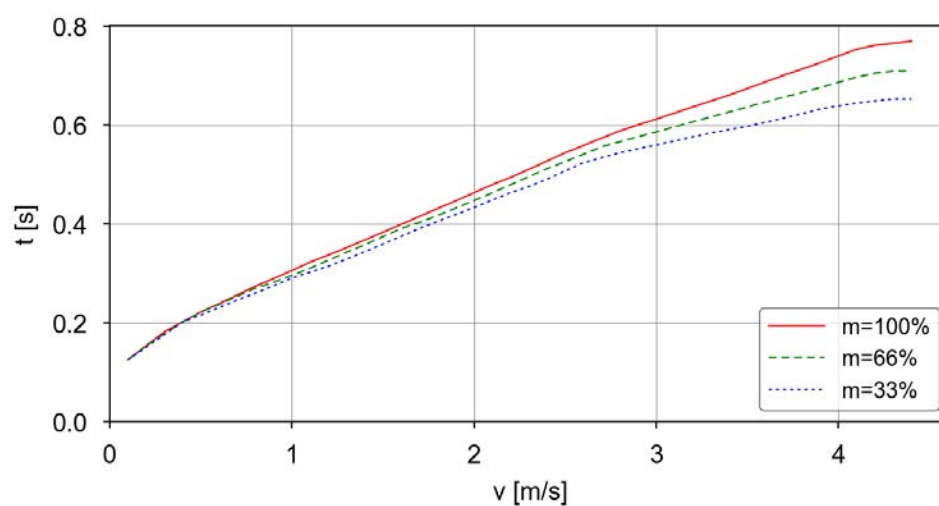
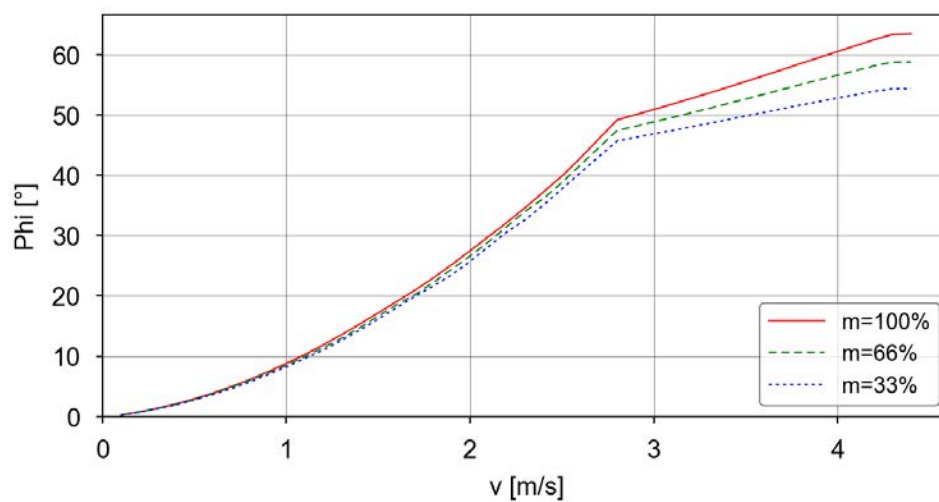


### Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

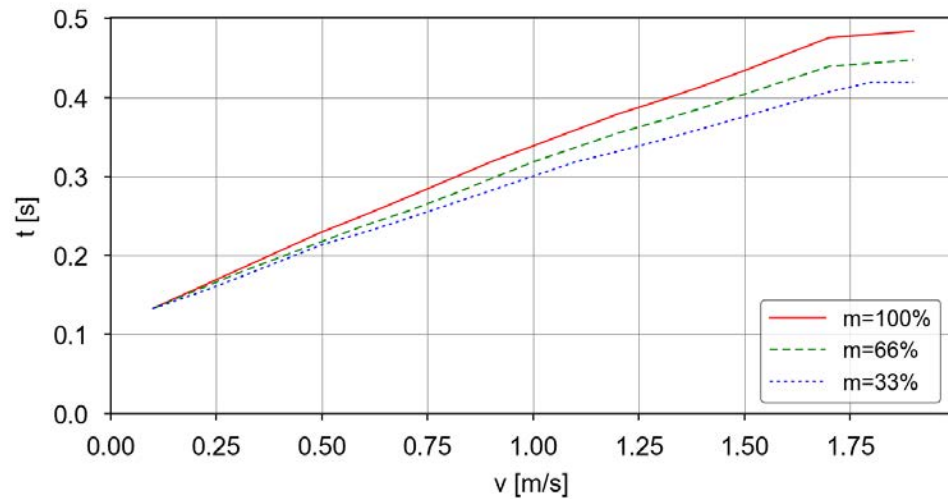
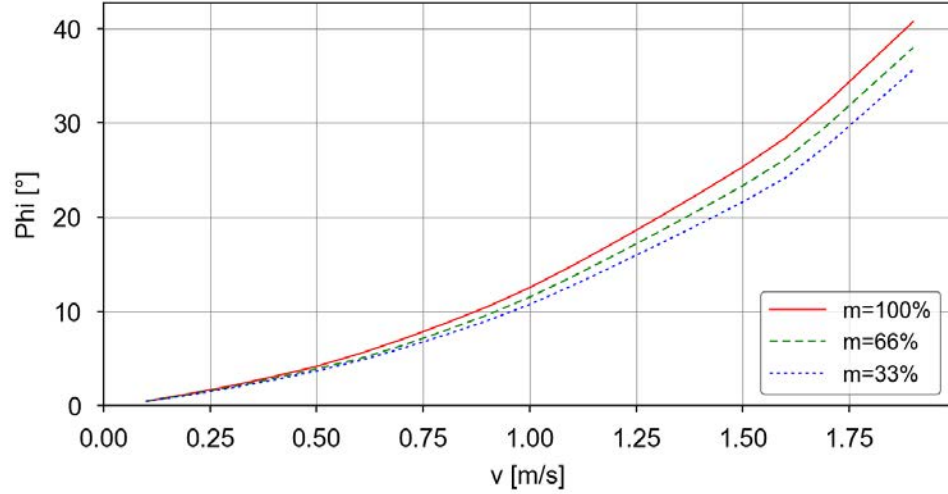
# 11 IRB 2400

## 11.1 IRB 2400 1.5 m 10 kg

Continued

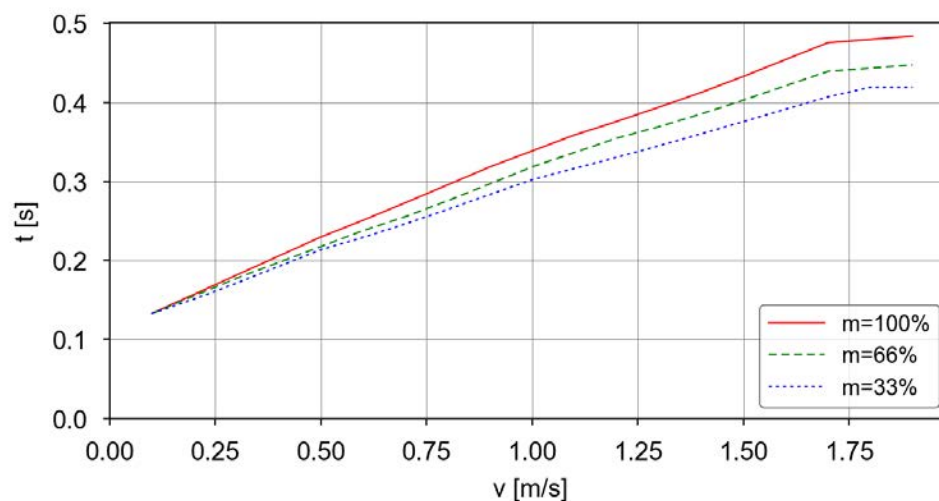
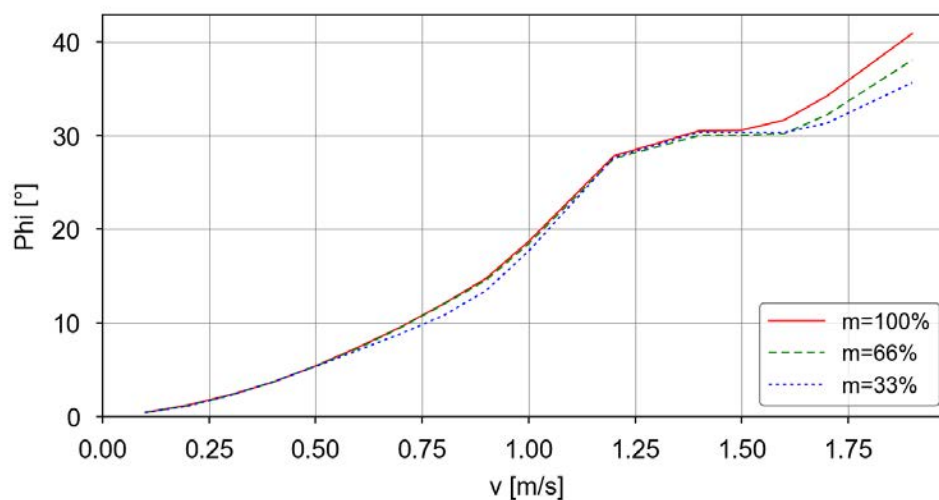
### Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



Continues on next page

Extension zone 1, stopping distance and stopping time



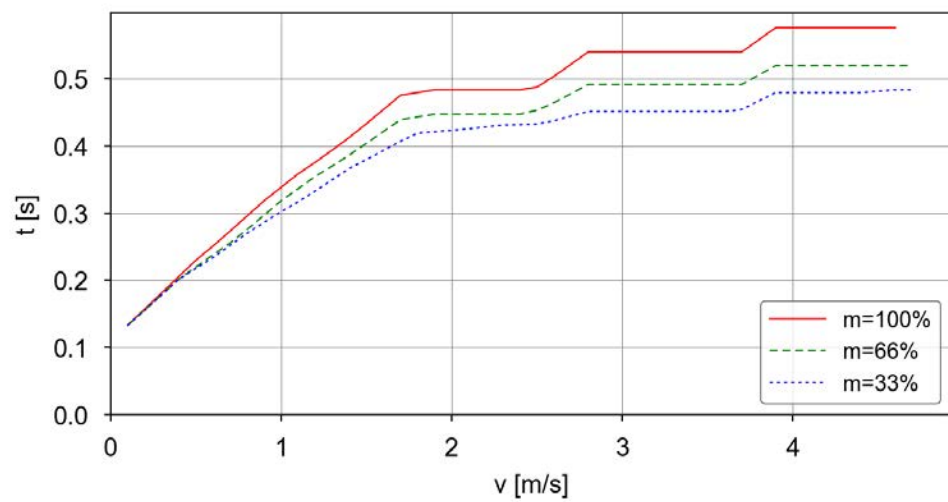
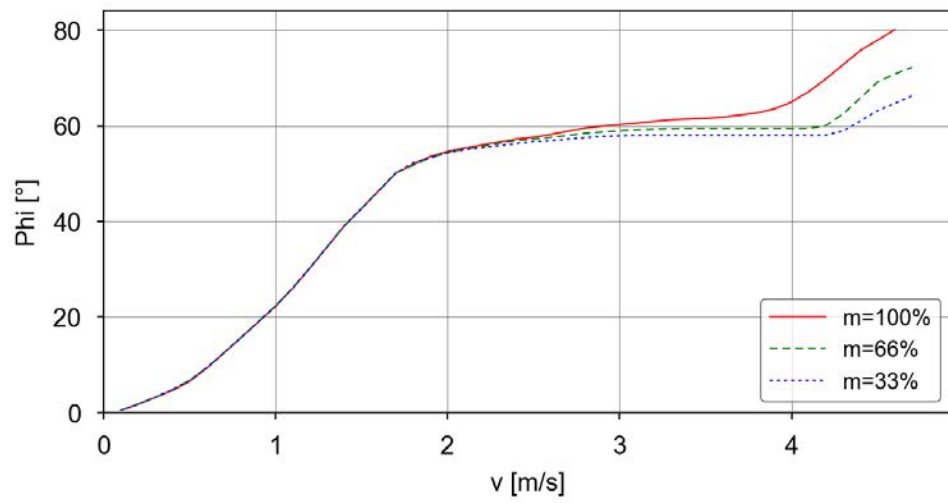
Continues on next page

# 11 IRB 2400

## 11.1 IRB 2400 1.5 m 10 kg

Continued

### Extension zone 2, stopping distance and stopping time

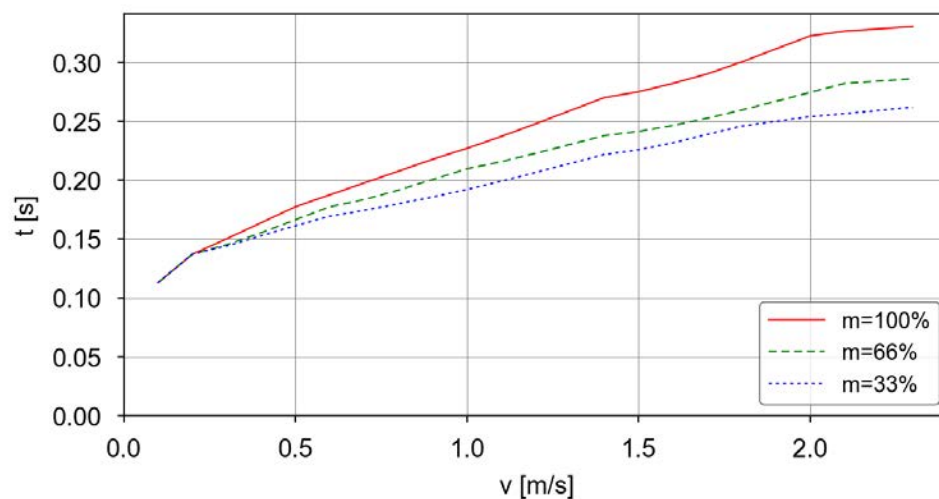
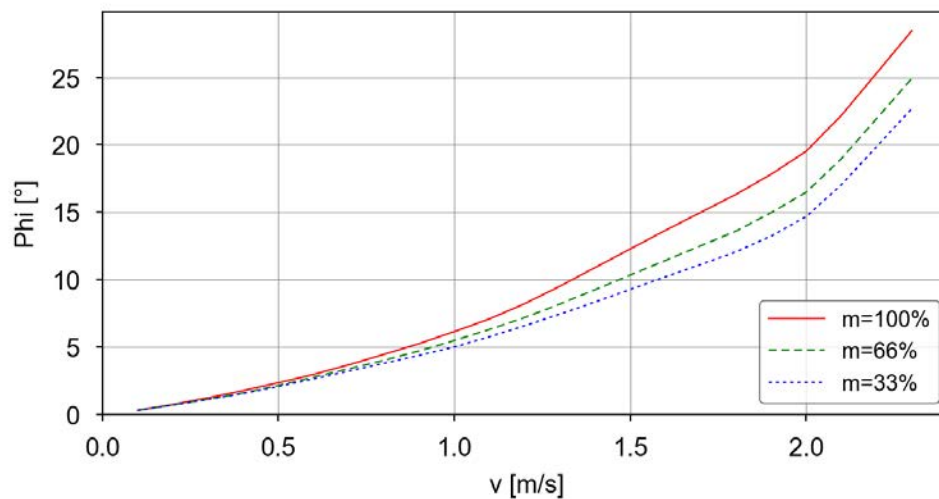


Continues on next page



Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



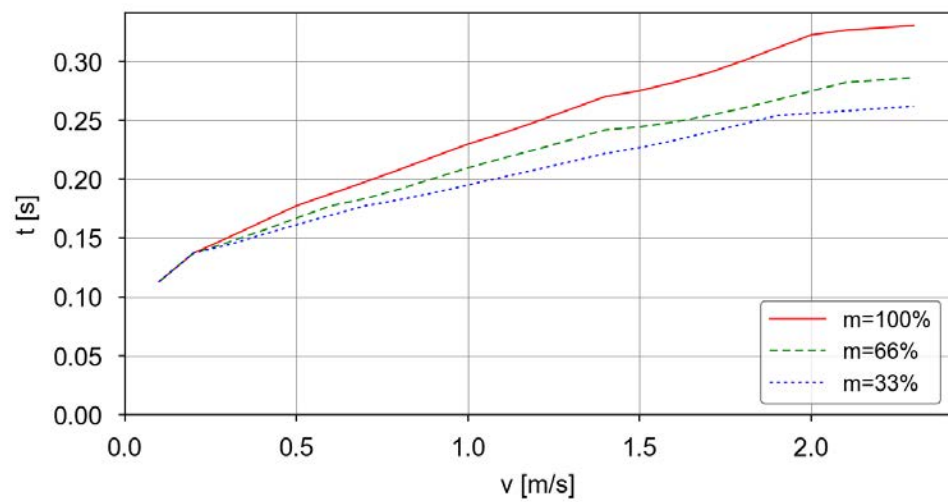
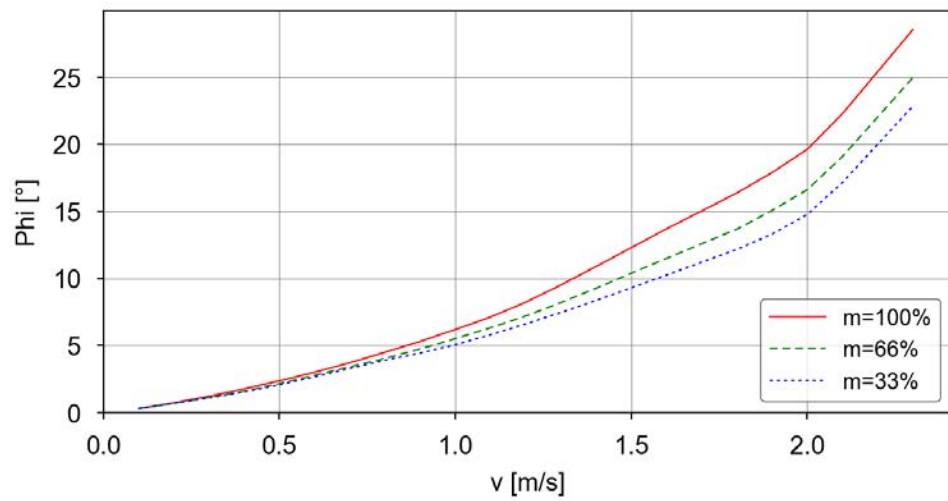
Continues on next page

# 11 IRB 2400

## 11.1 IRB 2400 1.5 m 10 kg

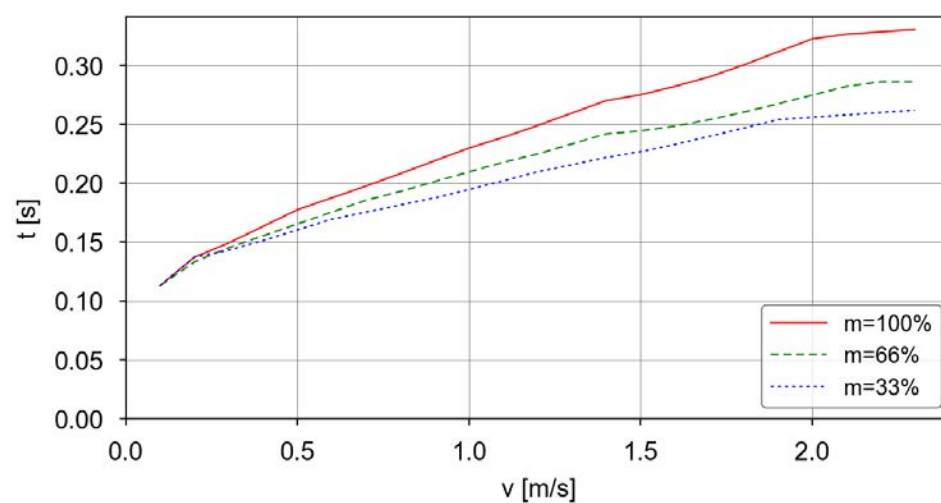
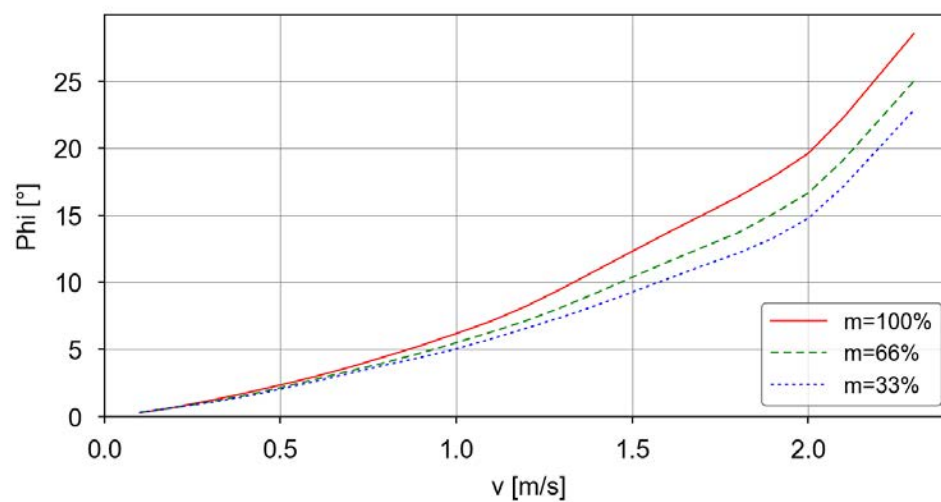
Continued

### Extension zone 1, stopping distance and stopping time



Continues on next page

## Extension zone 2, stopping distance and stopping time



## 11 IRB 2400

### 11.2 IRB 2400 1.5 m 16 kg

### 11.2 IRB 2400 1.5 m 16 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	53.2	0.61
2	36.1	0.32
3	29.1	0.27

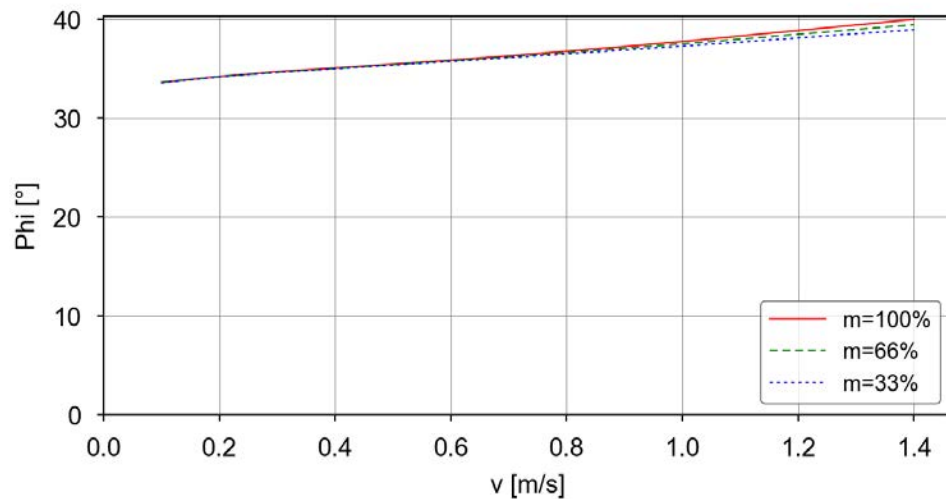
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

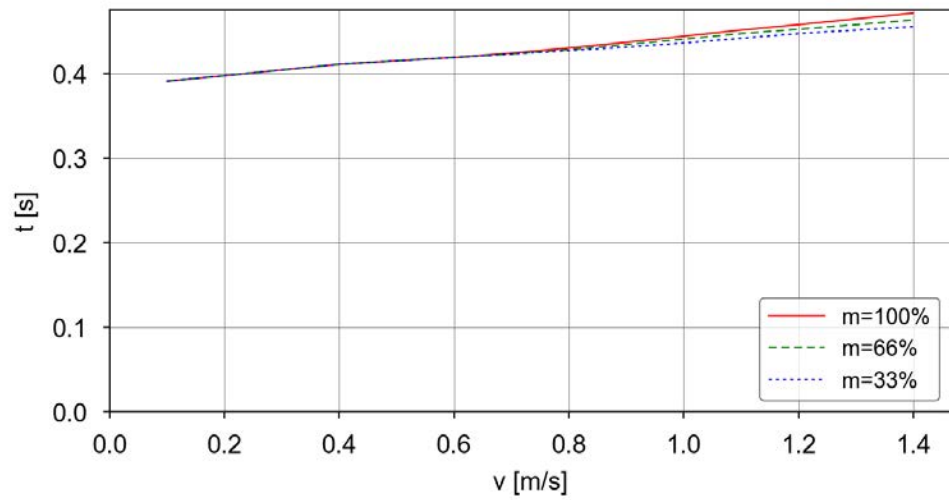
Zone	wcp min (m)	wcp max (m)
0	0	0.524
1	0.524	1.048
2	1.048	max reach

#### Category 1, Axis 1

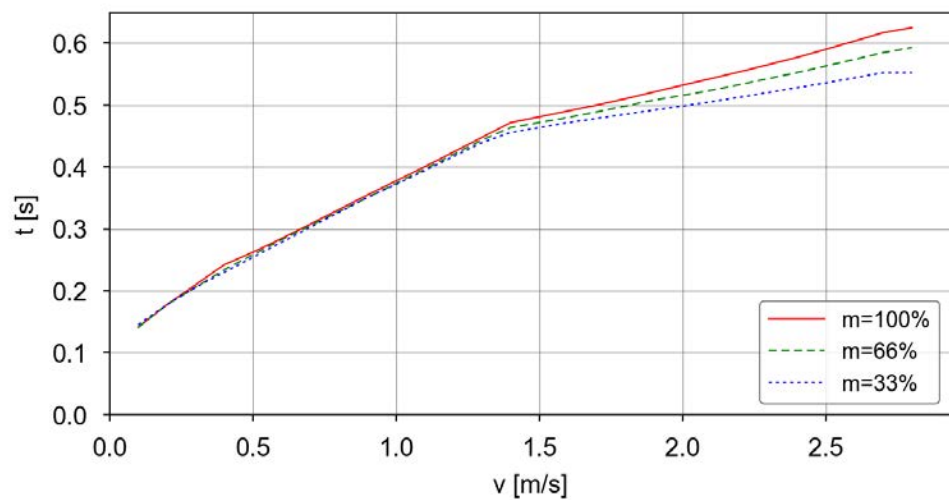
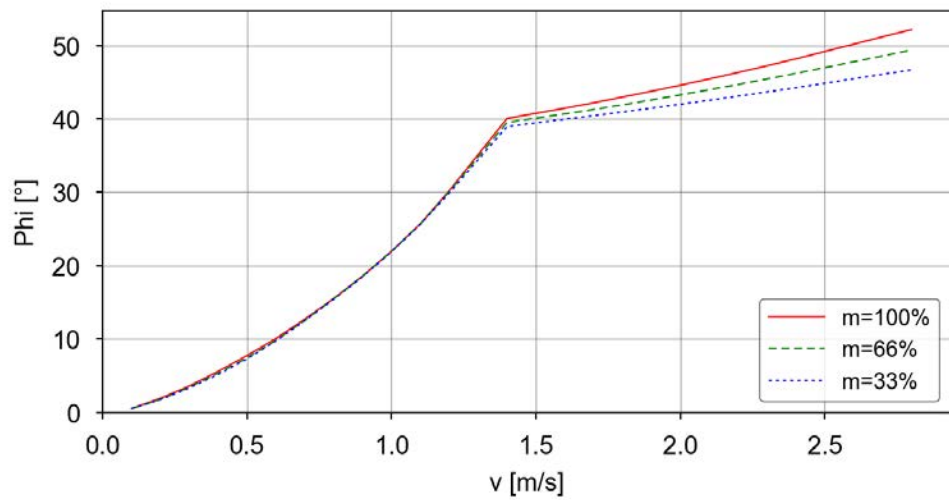
Extension zone 0, stopping distance and stopping time



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Extension zone 1, stopping distance and stopping time



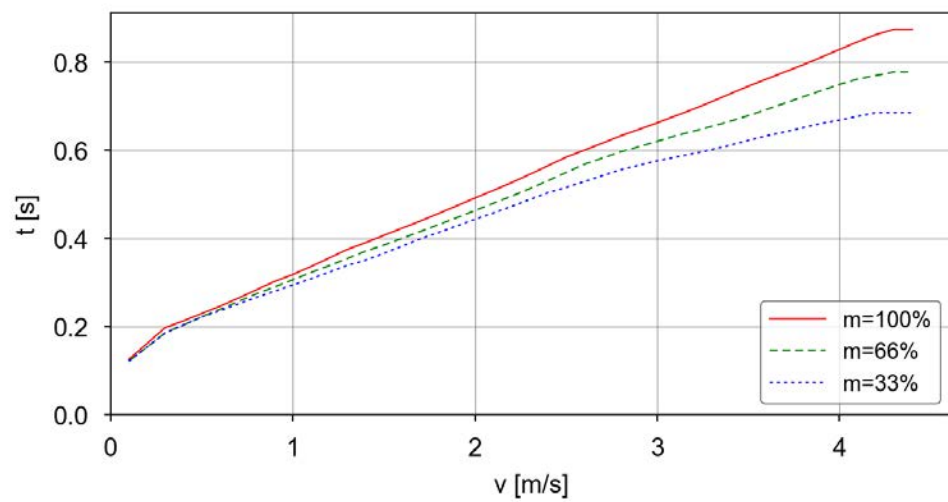
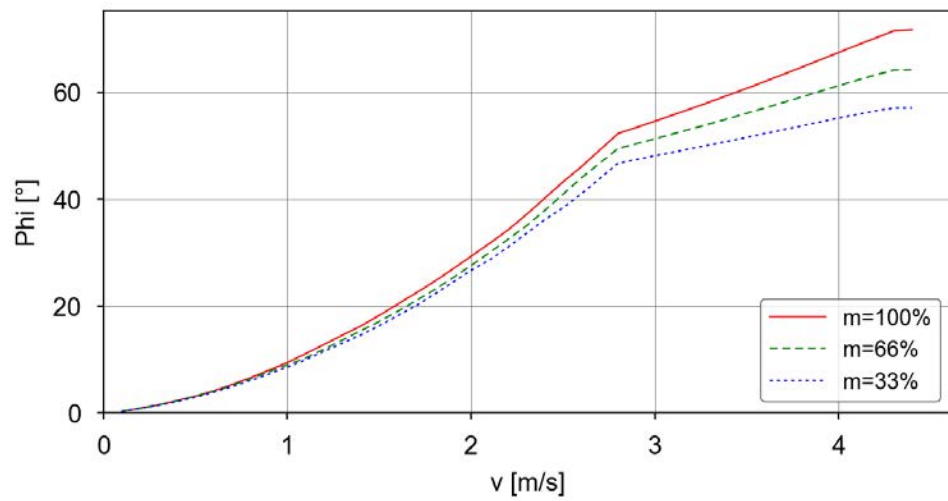
Continues on next page

# 11 IRB 2400

## 11.2 IRB 2400 1.5 m 16 kg

Continued

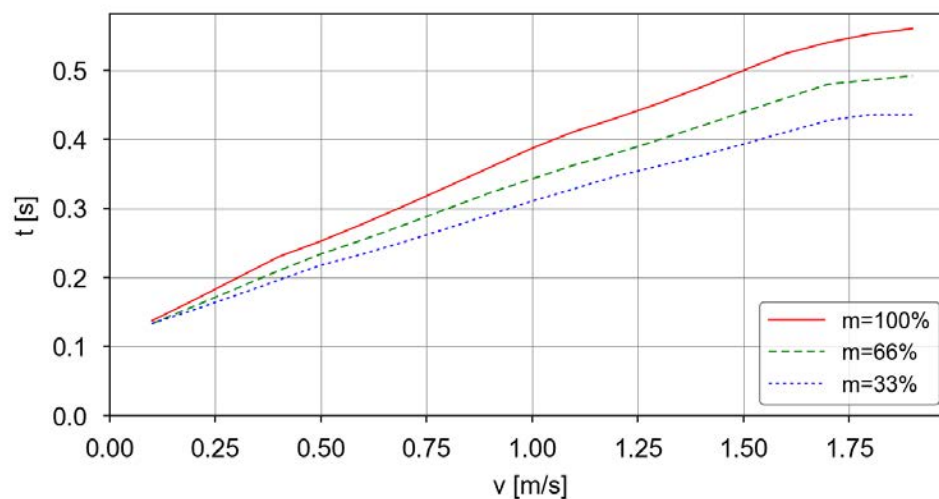
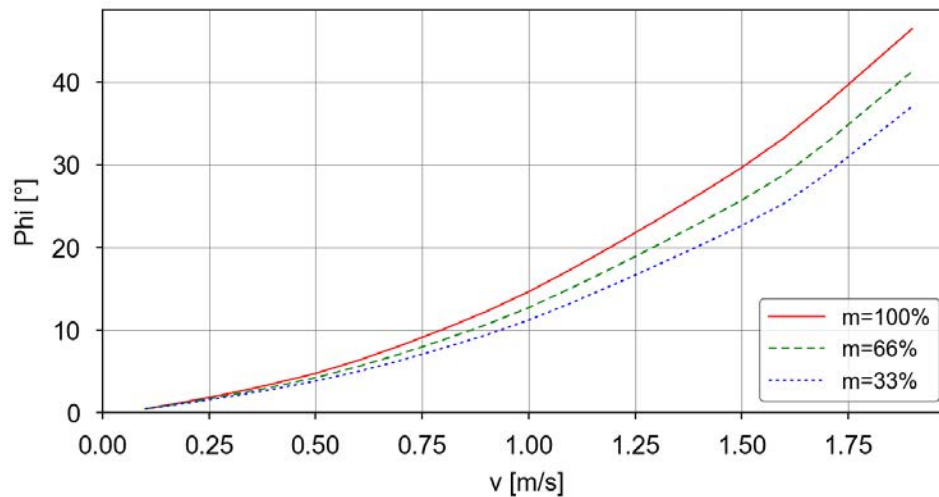
### Extension zone 2, stopping distance and stopping time



Continues on next page

Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



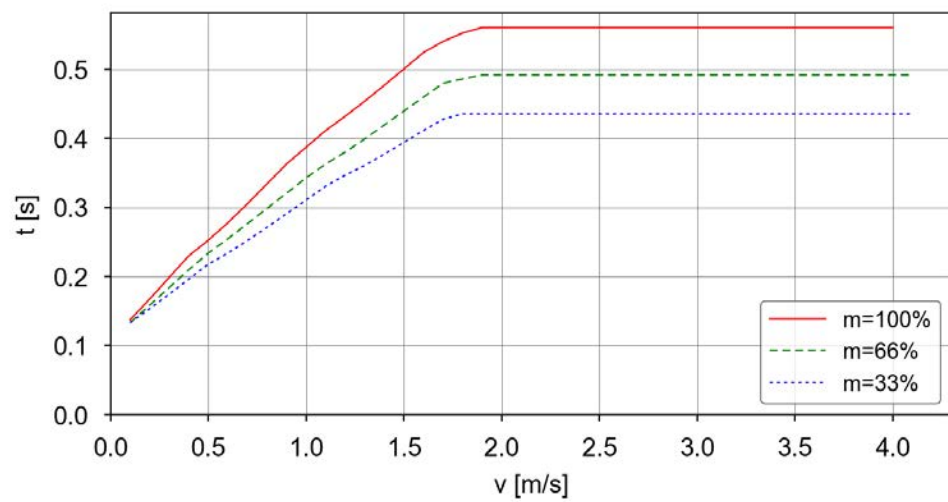
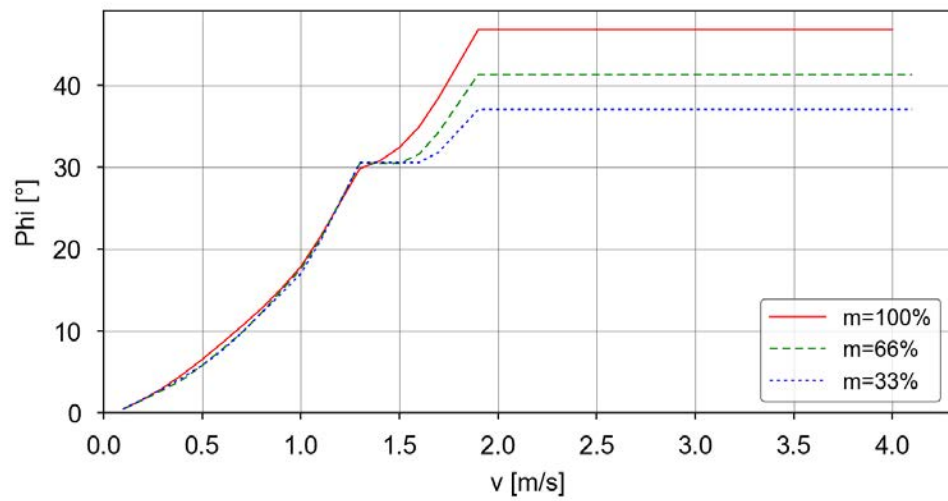
Continues on next page

# 11 IRB 2400

## 11.2 IRB 2400 1.5 m 16 kg

Continued

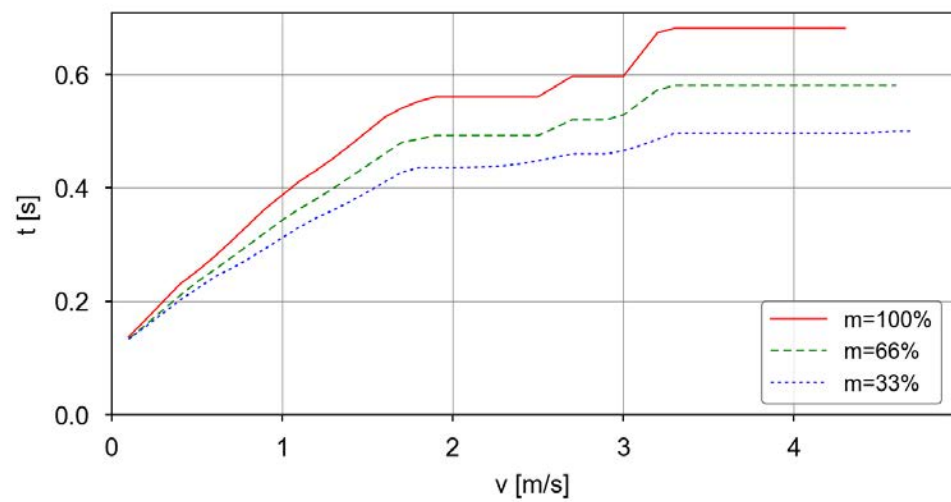
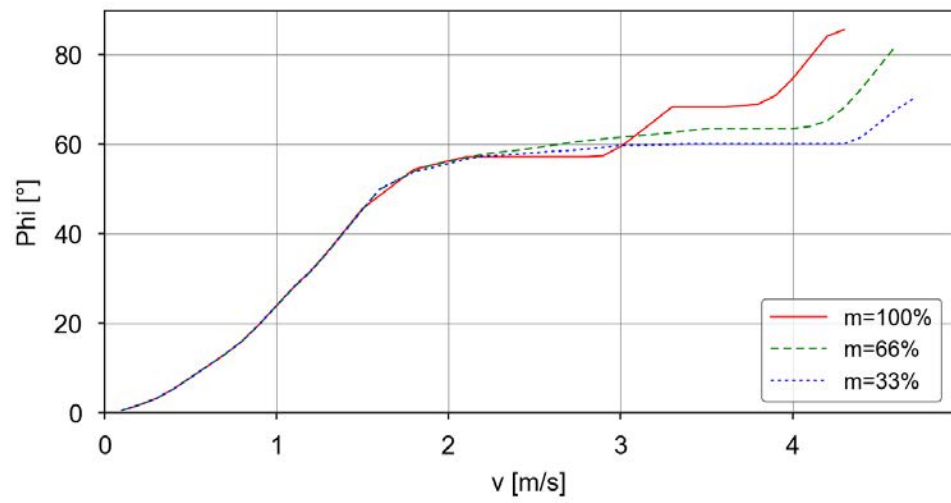
### Extension zone 1, stopping distance and stopping time



Continues on next page



Extension zone 2, stopping distance and stopping time



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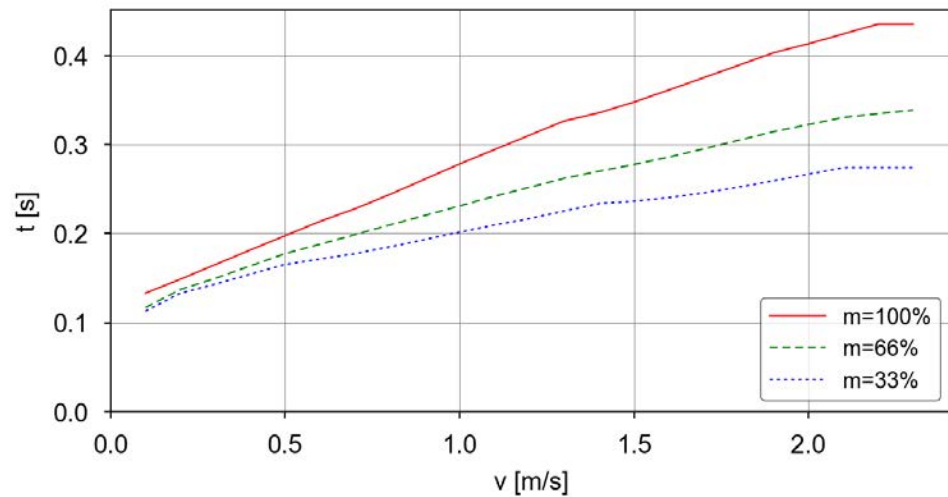
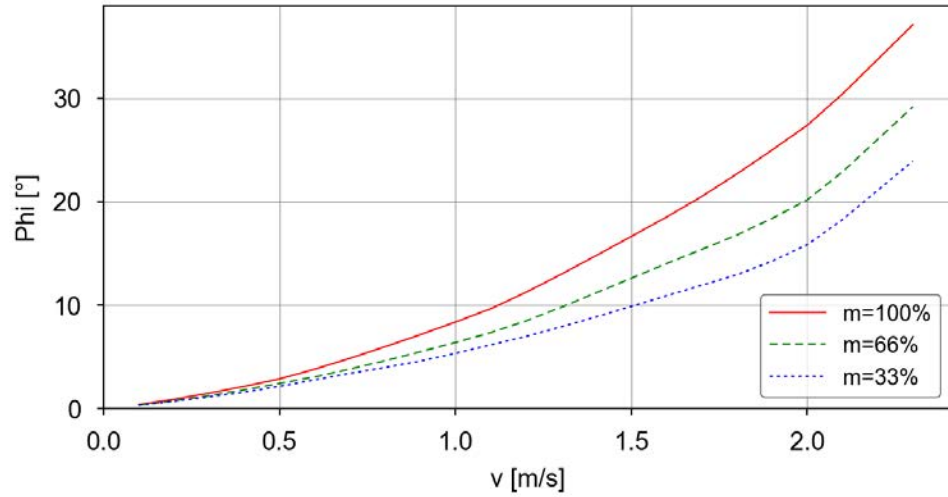
# 11 IRB 2400

11.2 IRB 2400 1.5 m 16 kg

Continued

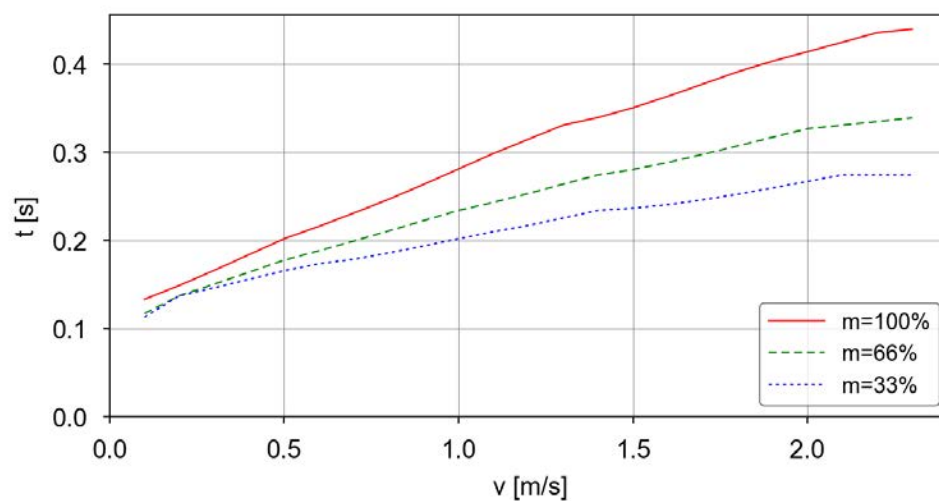
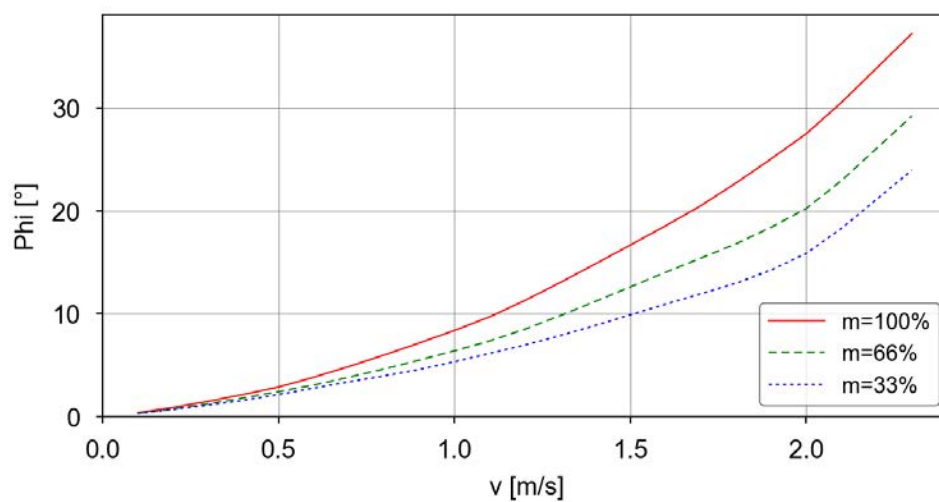
## Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



Continues on next page

Extension zone 1, stopping distance and stopping time



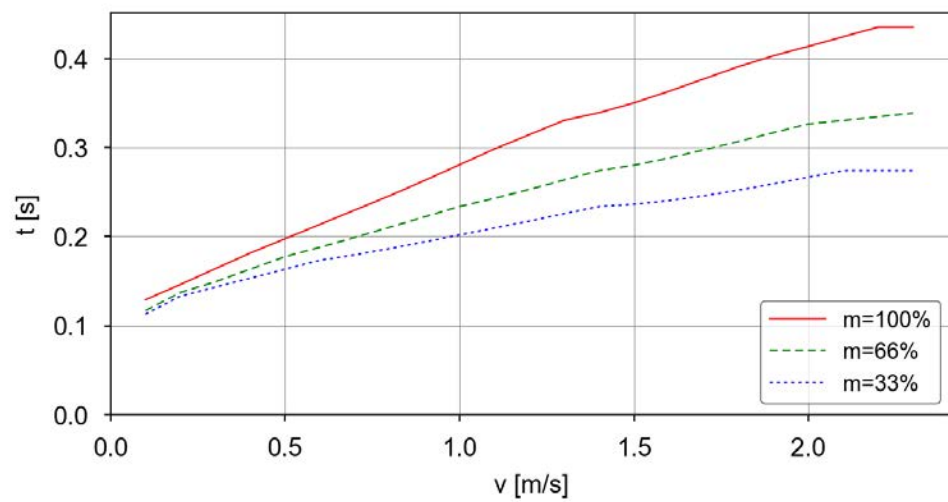
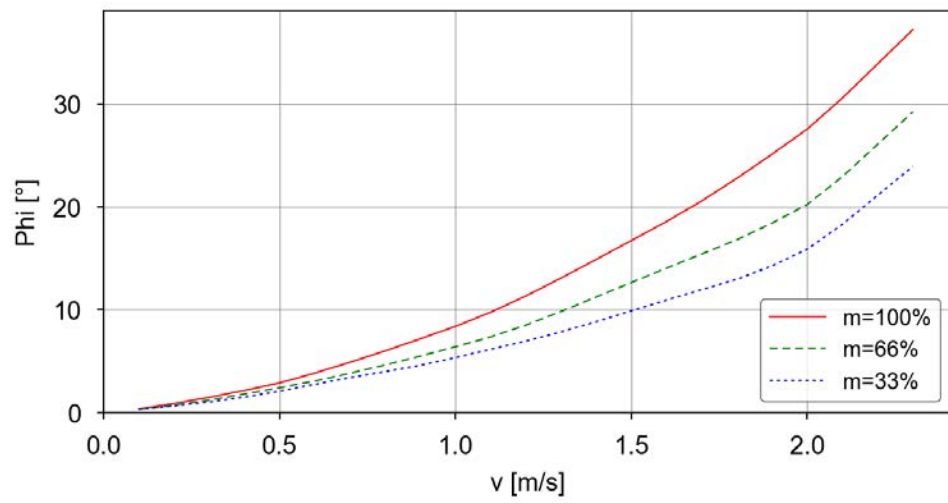
Continues on next page

# 11 IRB 2400

## 11.2 IRB 2400 1.5 m 16 kg

Continued

### Extension zone 2, stopping distance and stopping time



## 12 IRB 2600

### 12.1 IRB 2600 1.65 m 12 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	26.6	0.2
2	26.9	0.2
3	18.2	0.12

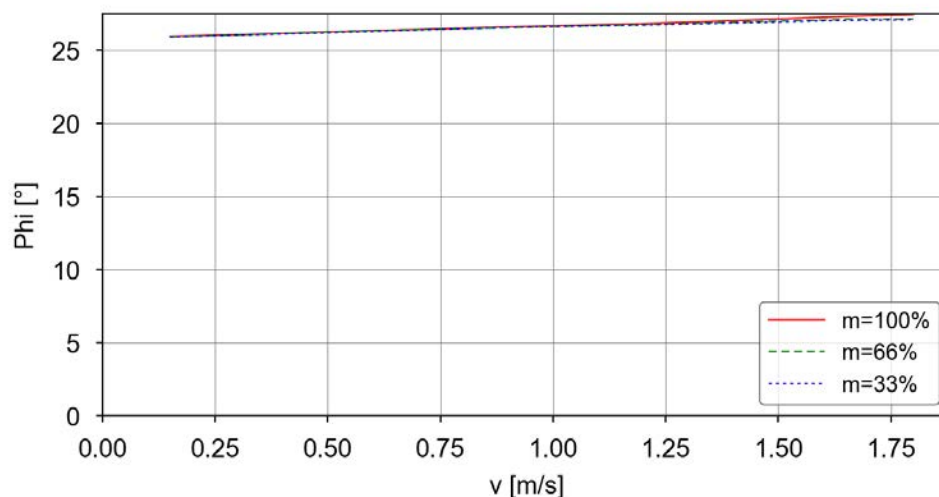
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.0
1	0.0	0.0
2	0.0	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

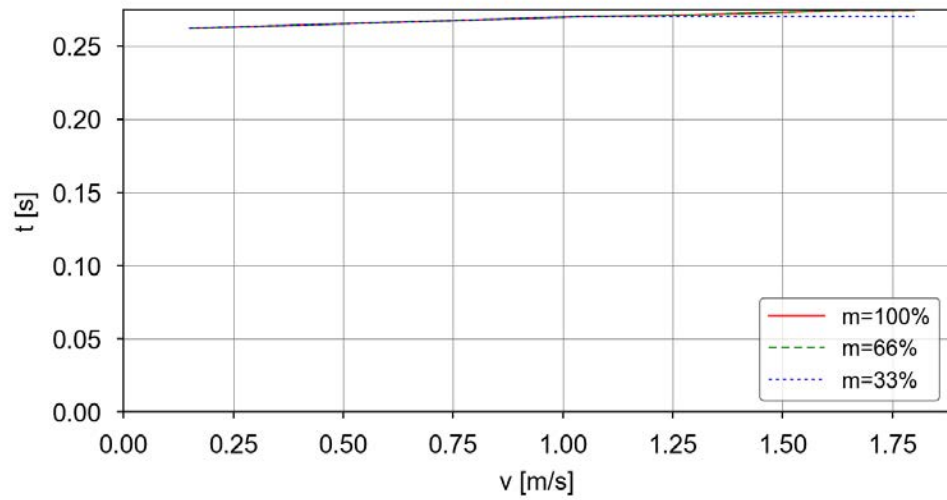


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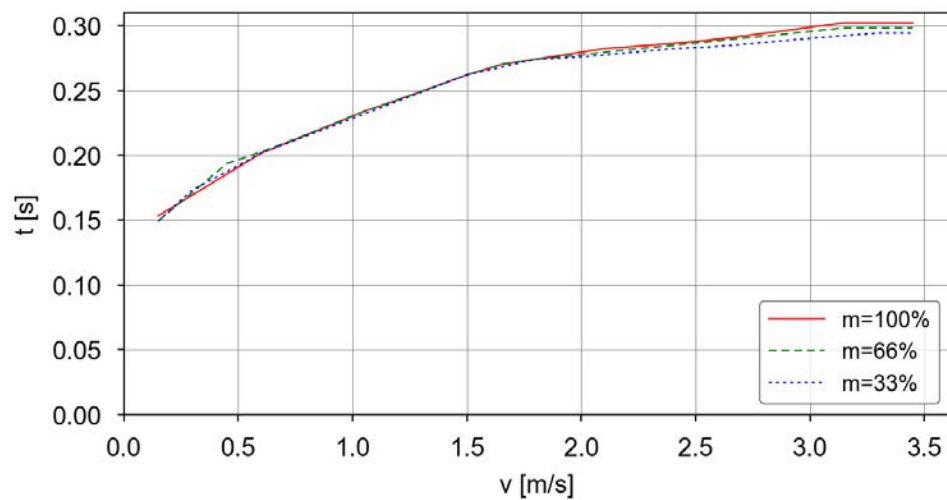
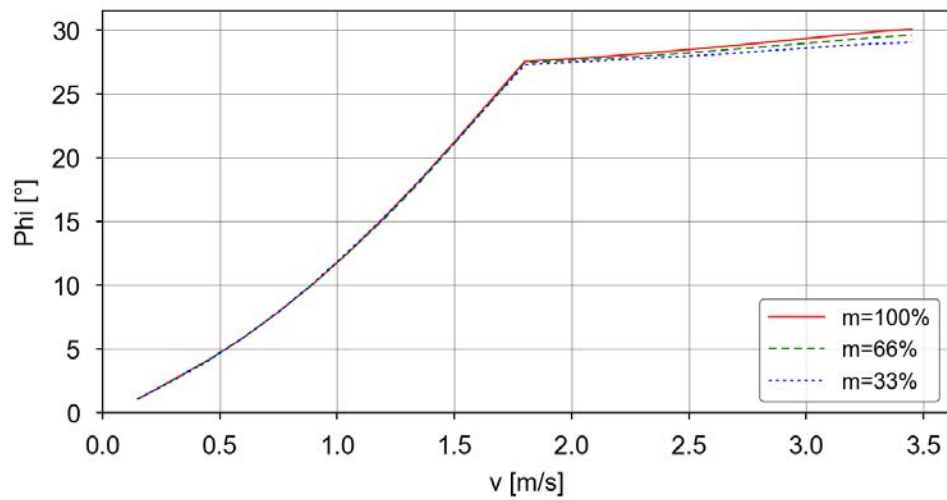
## 12 IRB 2600

### 12.1 IRB 2600 1.65 m 12 kg

Continued

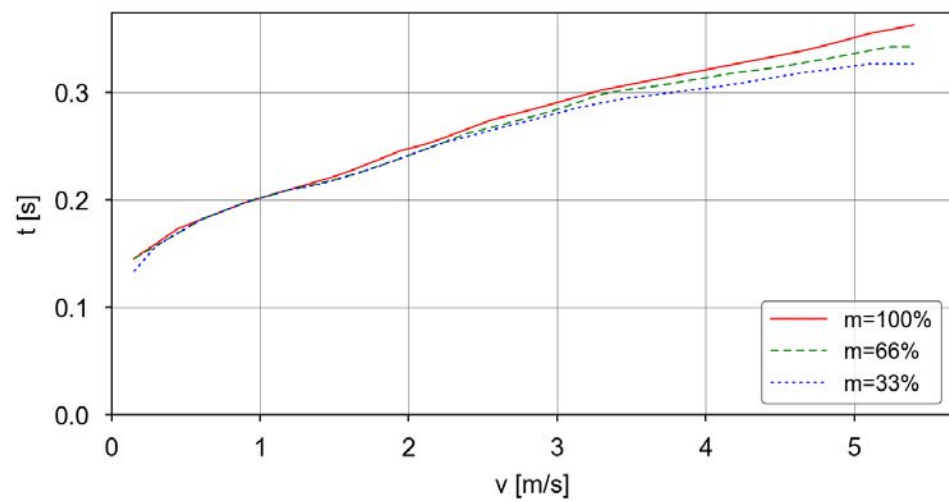
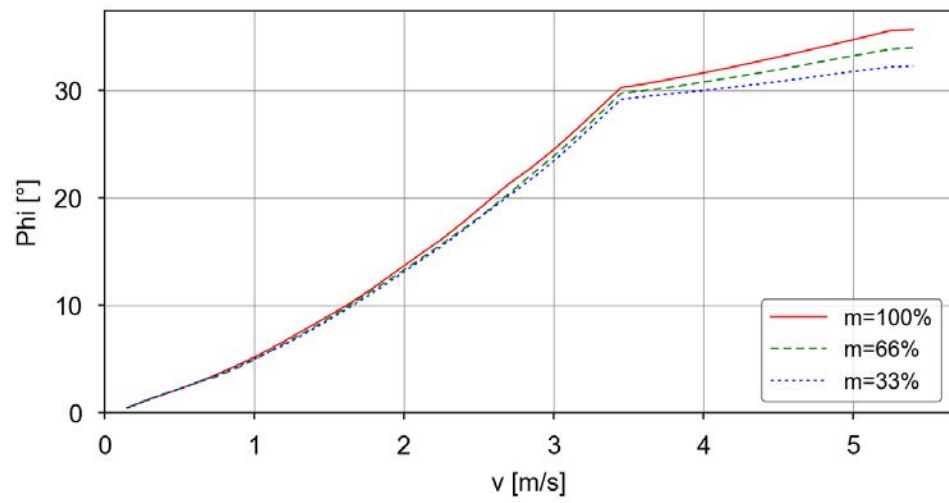


#### Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

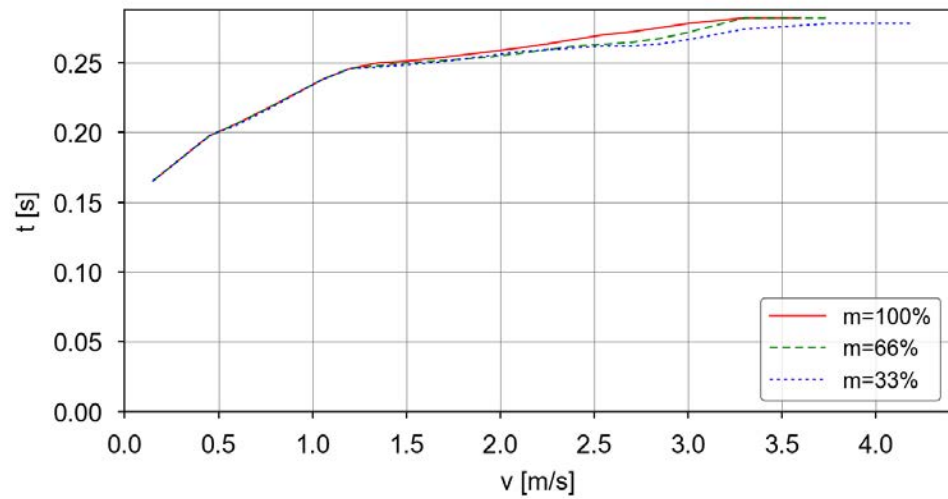
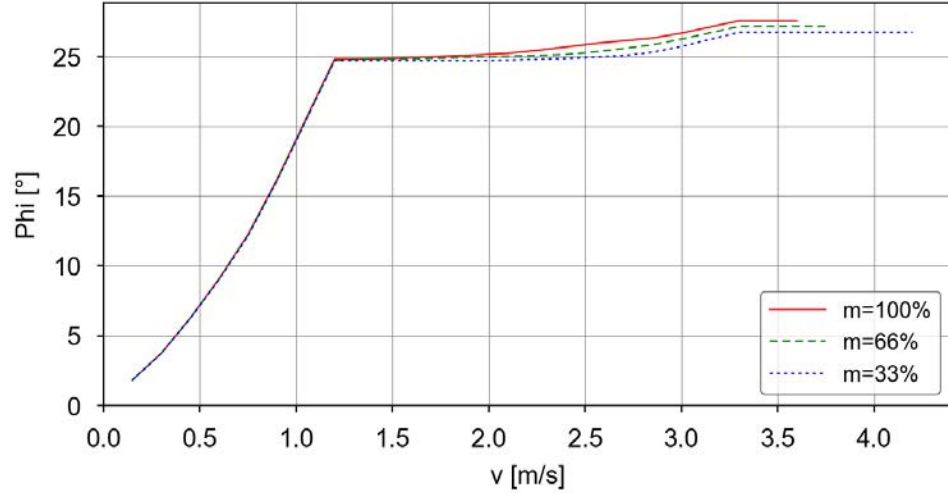
## 12 IRB 2600

12.1 IRB 2600 1.65 m 12 kg

Continued

### Category 1, Axis 2

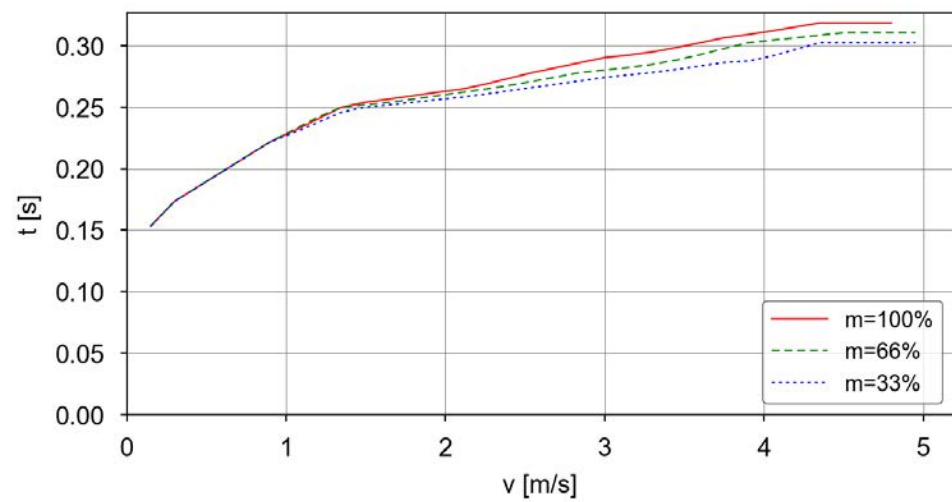
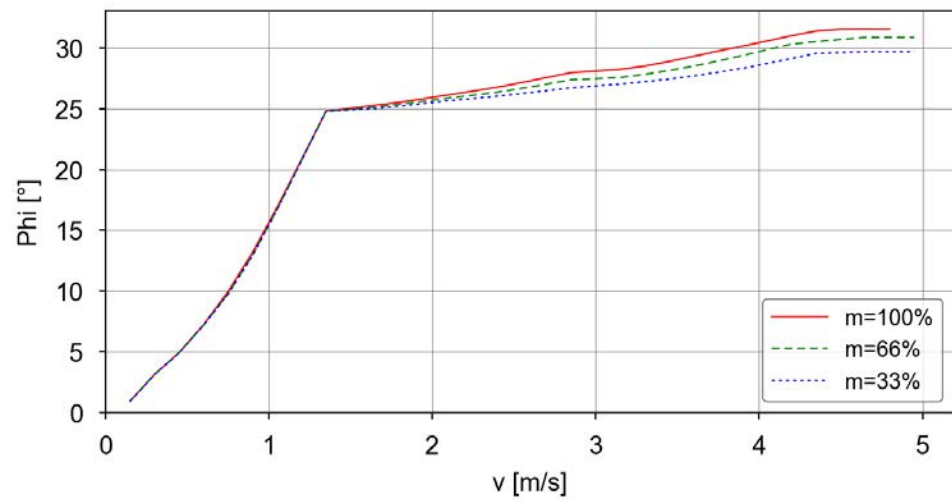
Extension zone 0, stopping distance and stopping time



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## Extension zone 1, stopping distance and stopping time



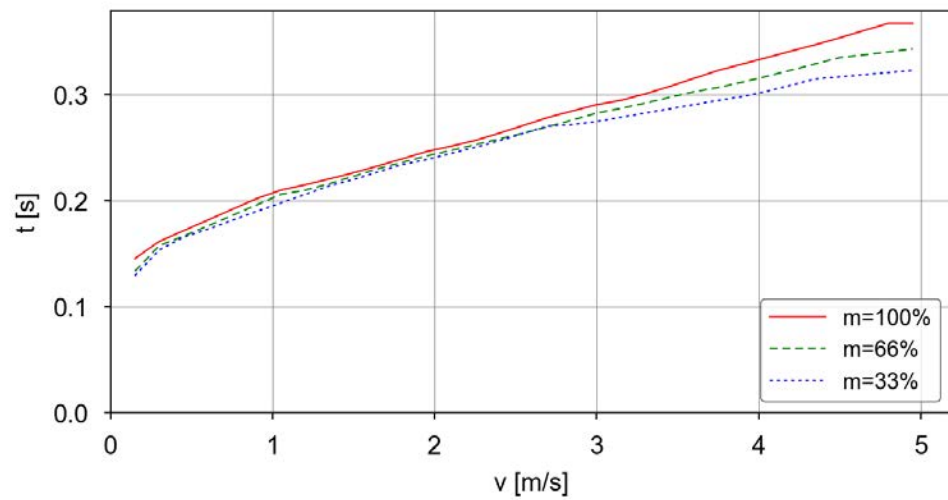
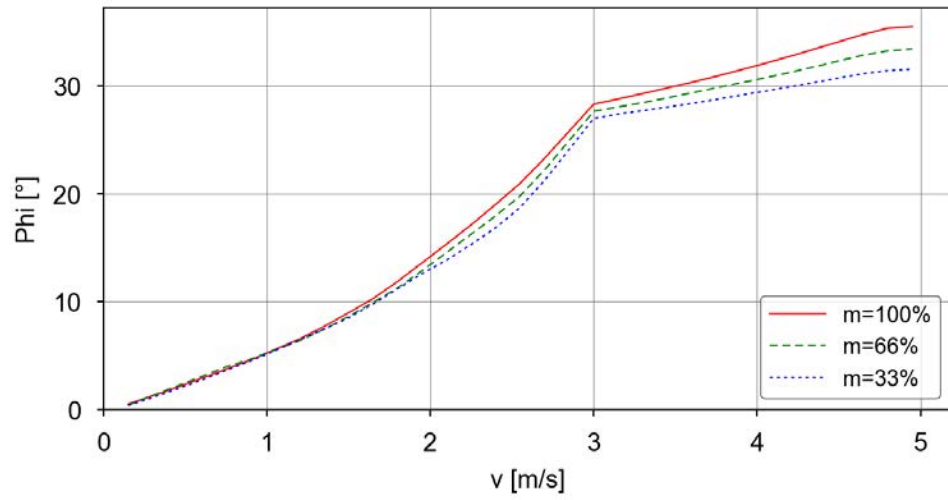
Continues on next page

## 12 IRB 2600

### 12.1 IRB 2600 1.65 m 12 kg

Continued

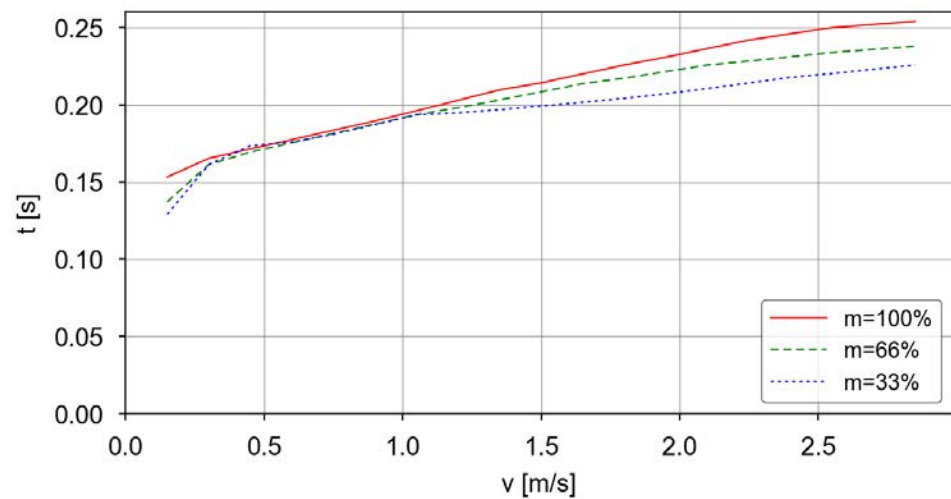
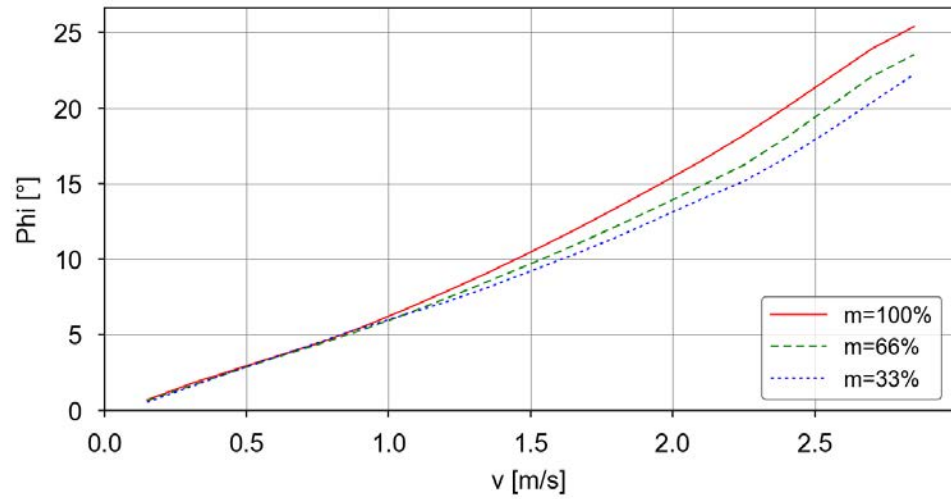
#### Extension zone 2, stopping distance and stopping time



Continues on next page

Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



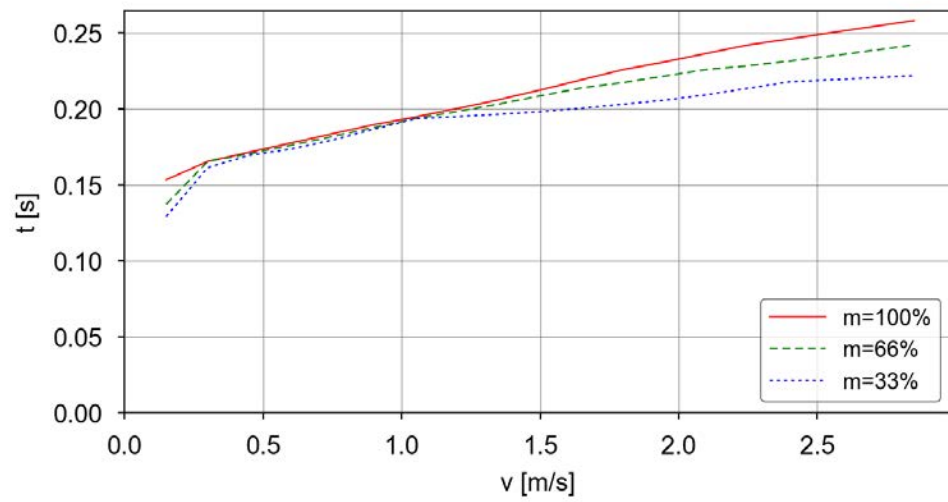
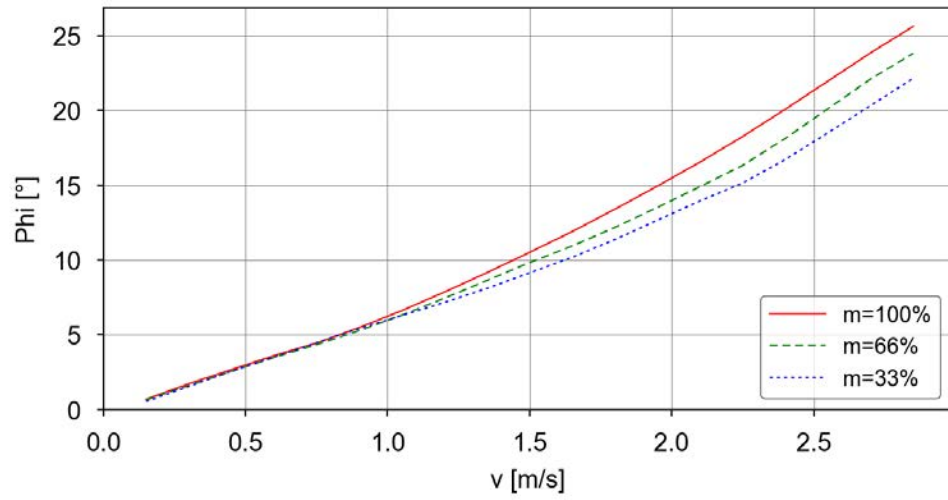
Continues on next page

## 12 IRB 2600

### 12.1 IRB 2600 1.65 m 12 kg

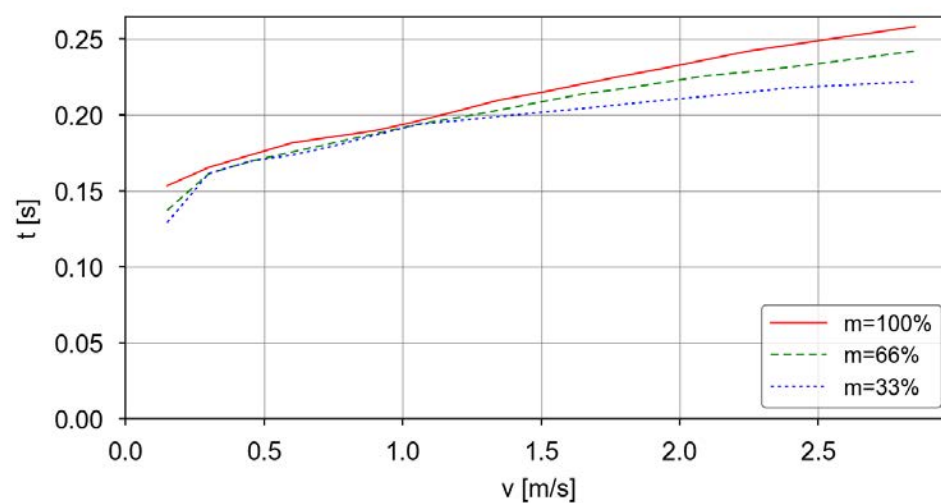
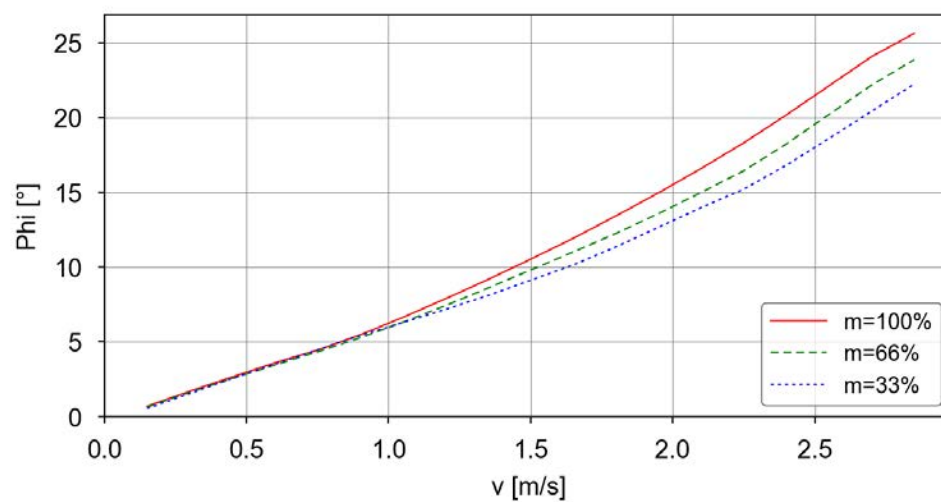
Continued

#### Extension zone 1, stopping distance and stopping time



Continues on next page

## Extension zone 2, stopping distance and stopping time



## 12 IRB 2600

12.2 IRB 2600 1.65 m 20 kg

### 12.2 IRB 2600 1.65 m 20 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	28.7	0.22
2	30.5	0.25
3	22.4	0.17

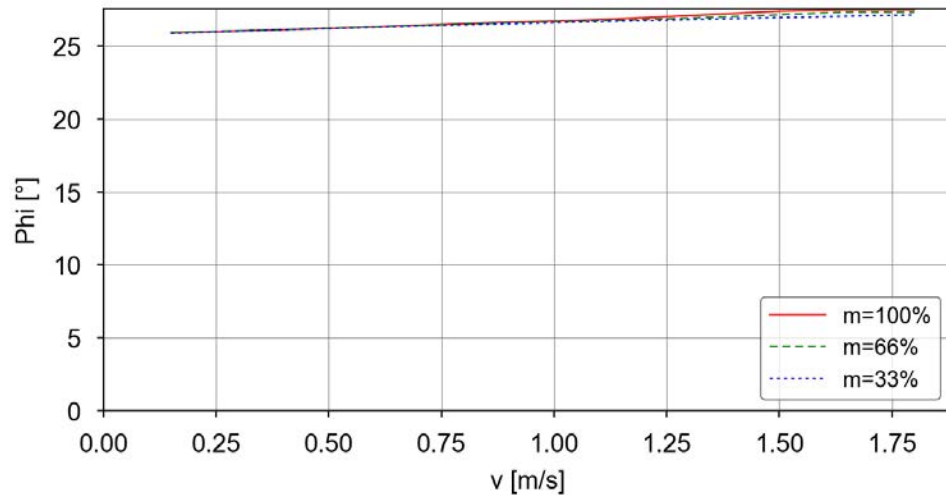
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

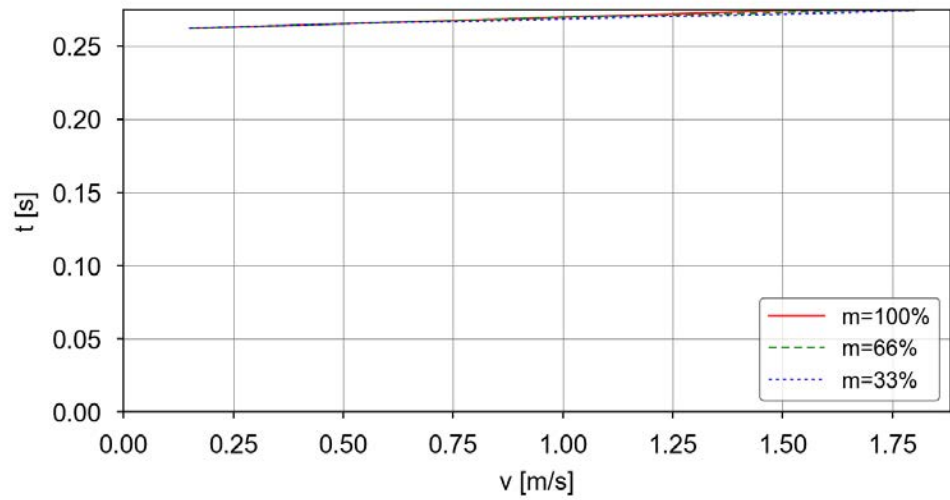
Zone	wcp min (m)	wcp max (m)
0	0	0.0
1	0.0	0.0
2	0.0	max reach

#### Category 1, Axis 1

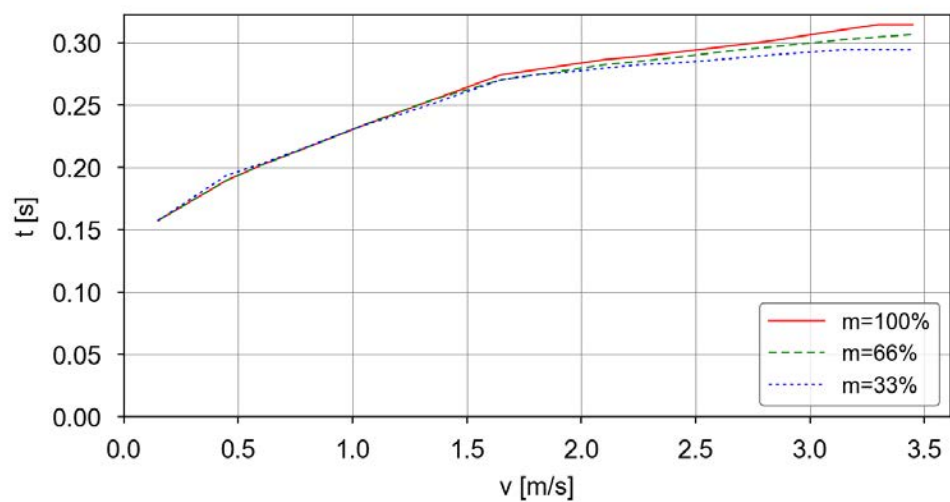
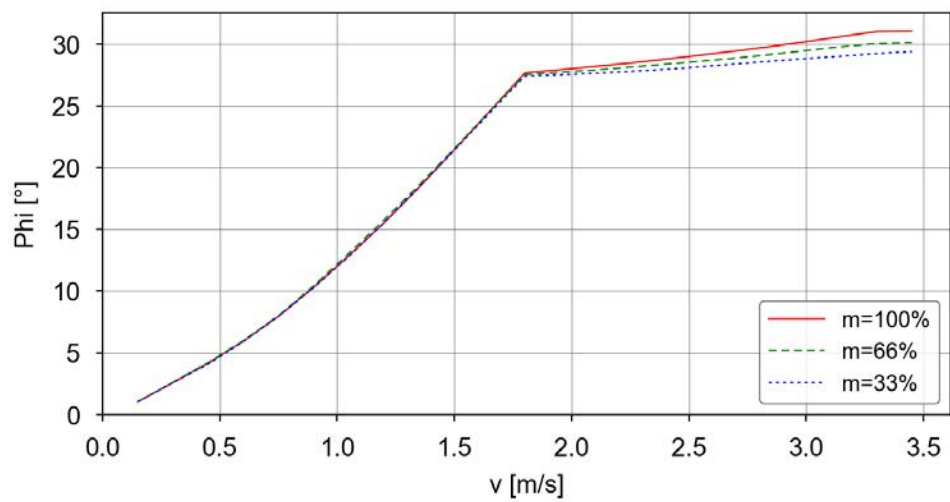
Extension zone 0, stopping distance and stopping time



Continues on next page



Extension zone 1, stopping distance and stopping time



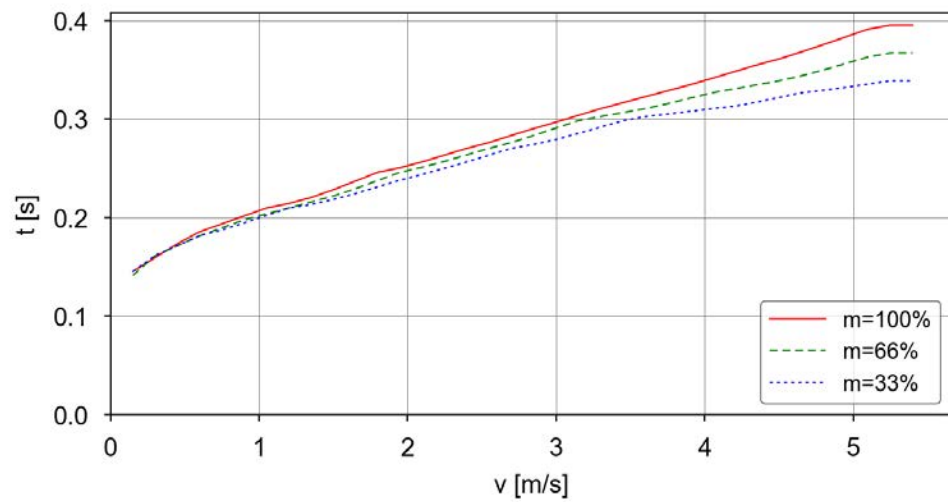
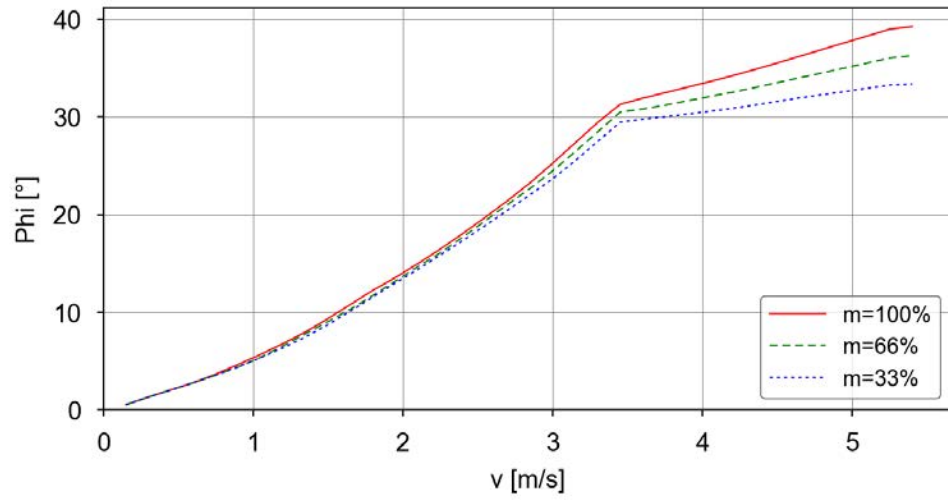
Continues on next page

## 12 IRB 2600

12.2 IRB 2600 1.65 m 20 kg

Continued

Extension zone 2, stopping distance and stopping time

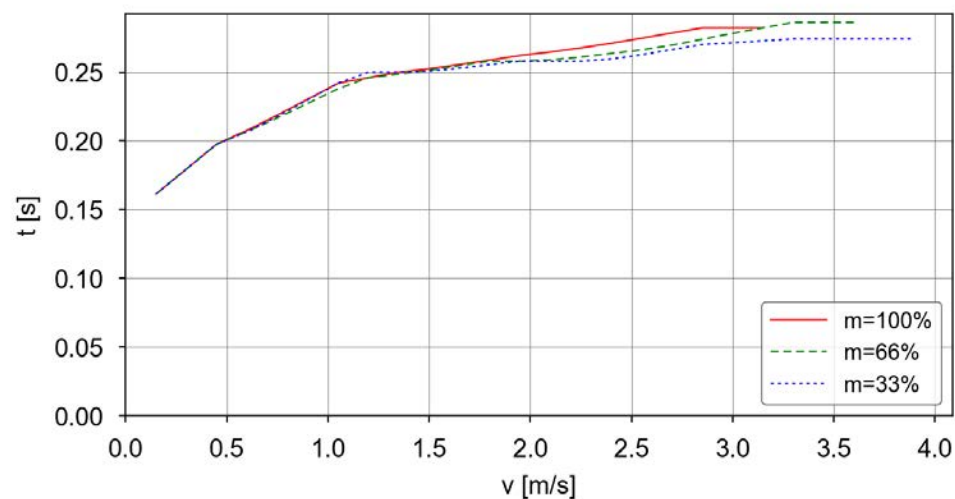
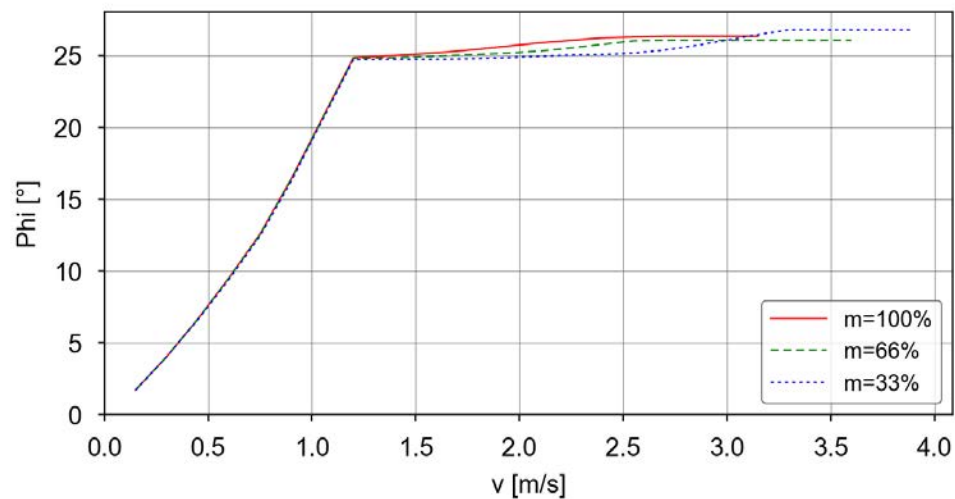


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## Category 1, Axis 2

## Extension zone 0, stopping distance and stopping time



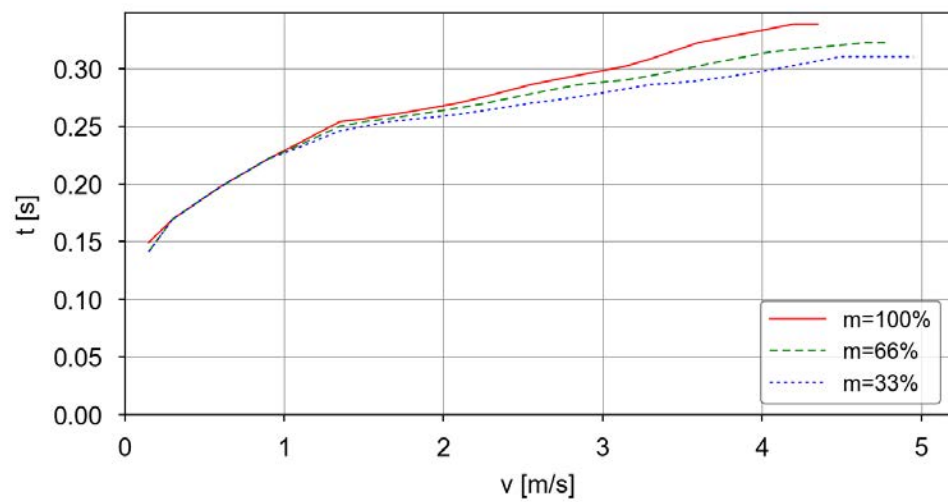
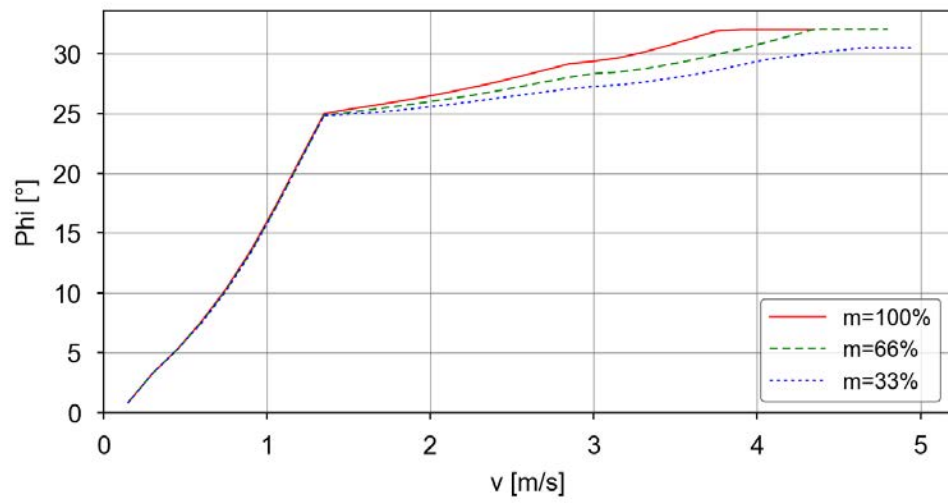
Continues on next page

## 12 IRB 2600

12.2 IRB 2600 1.65 m 20 kg

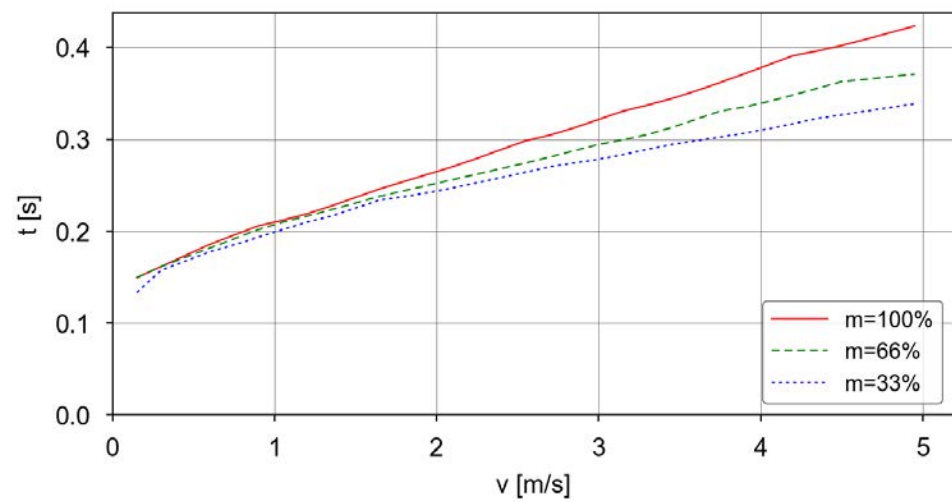
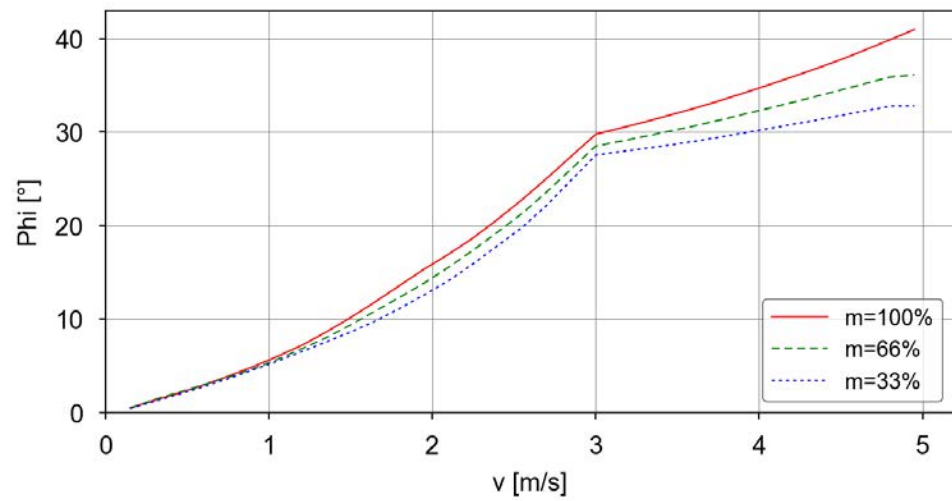
Continued

Extension zone 1, stopping distance and stopping time



Continues on next page

## Extension zone 2, stopping distance and stopping time



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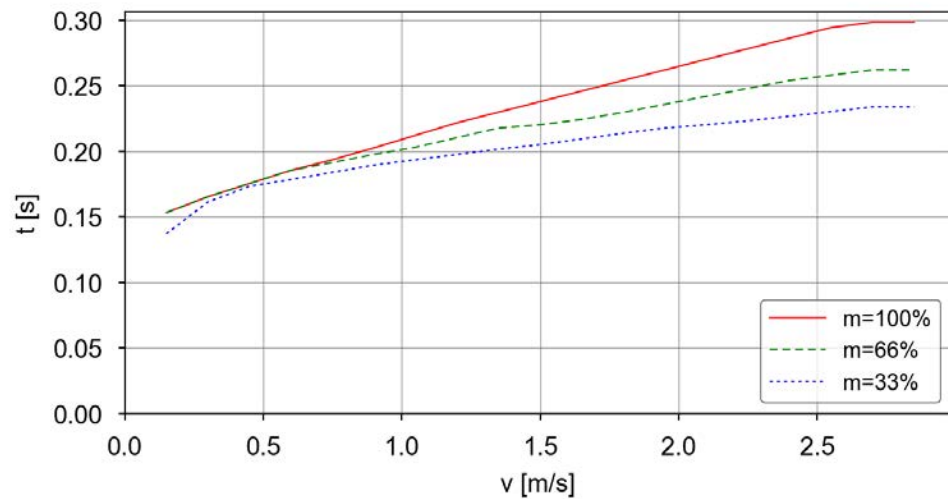
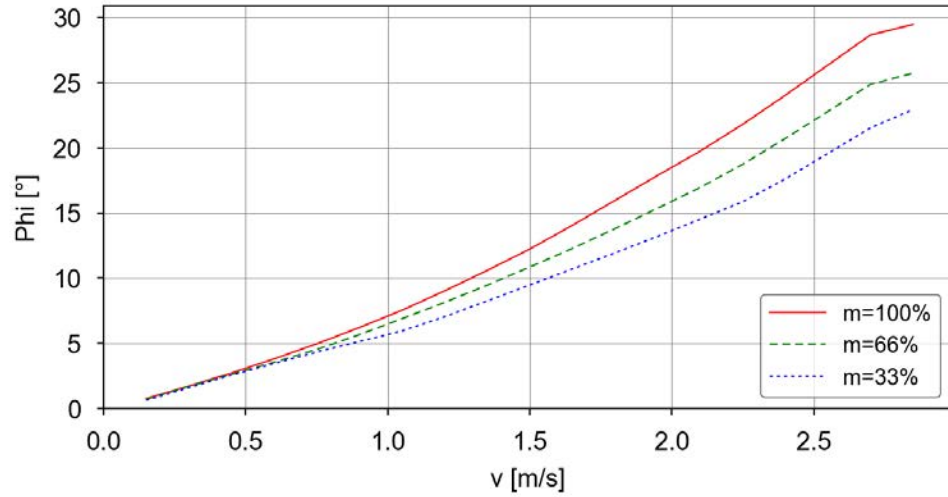
## 12 IRB 2600

12.2 IRB 2600 1.65 m 20 kg

Continued

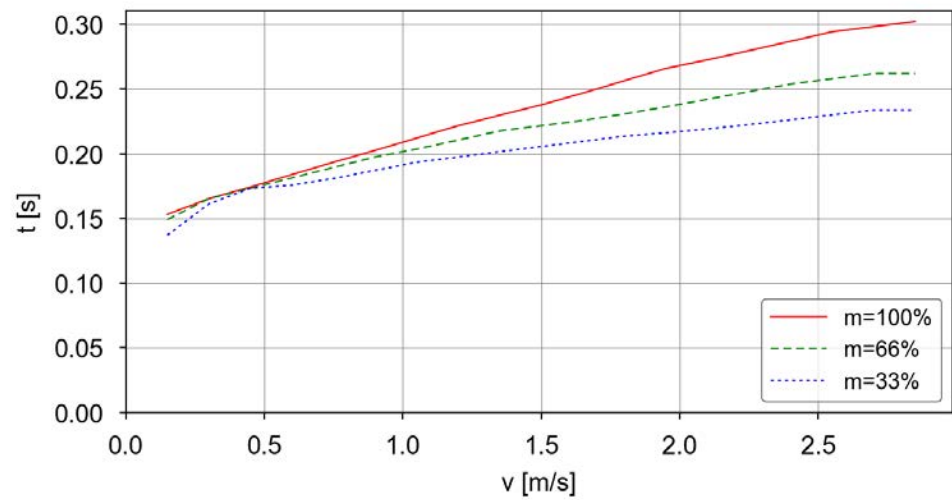
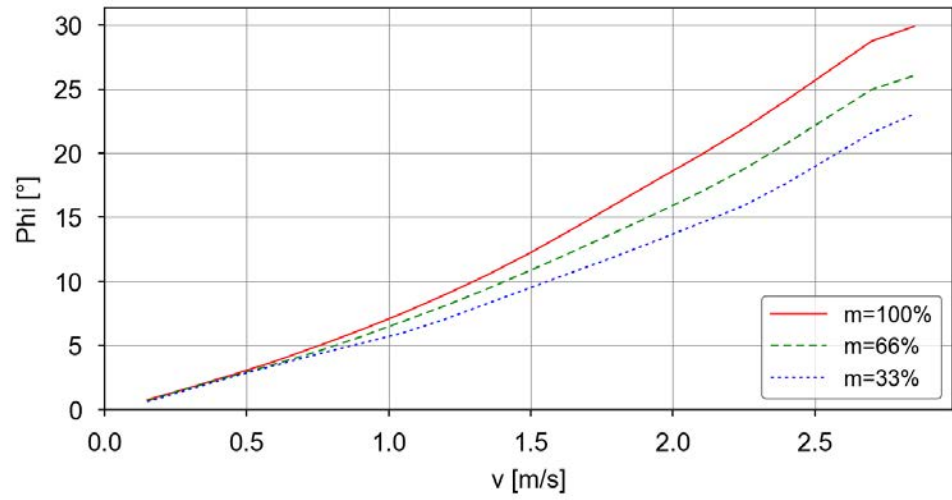
### Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



Continues on next page

Extension zone 1, stopping distance and stopping time



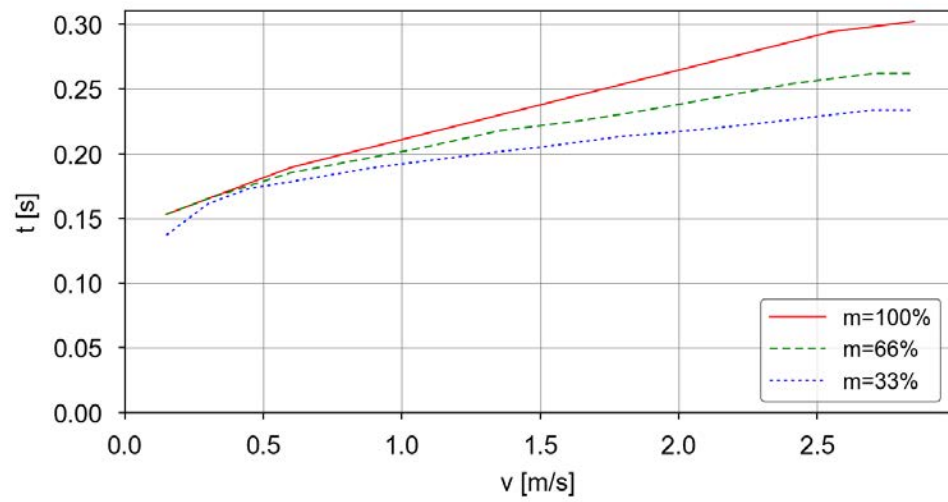
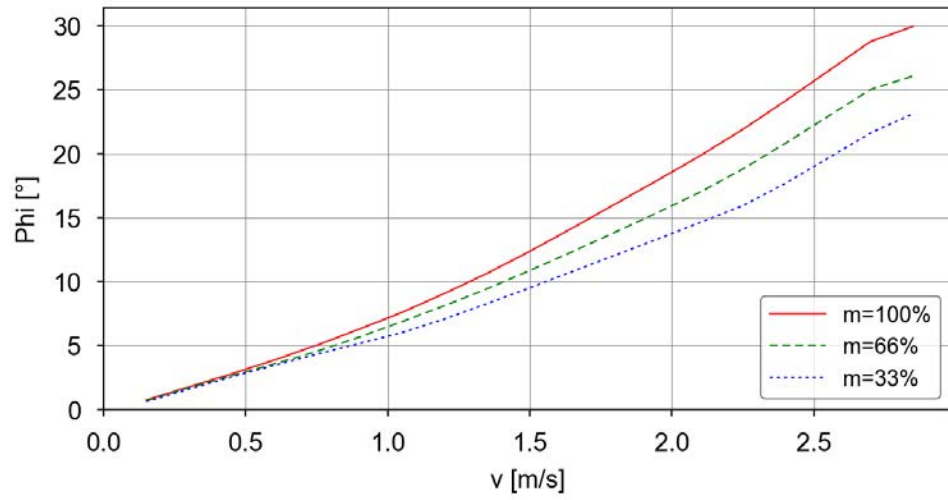
Continues on next page

## 12 IRB 2600

12.2 IRB 2600 1.65 m 20 kg

Continued

Extension zone 2, stopping distance and stopping time



## 12.3 IRB 2600 1.85 m 12 kg

### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	30.3	0.25
2	30.9	0.25
3	17.8	0.12

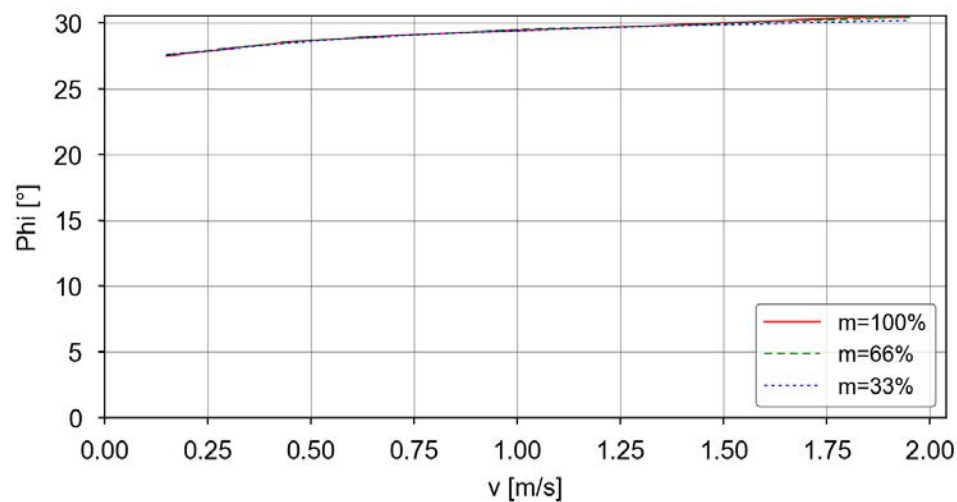
### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.0
1	0.0	0.0
2	0.0	max reach

### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

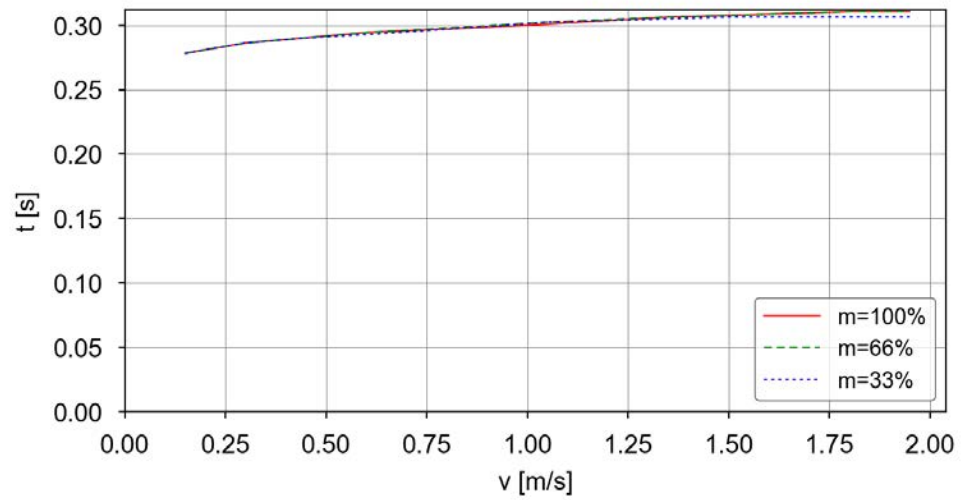


*Continues on next page*

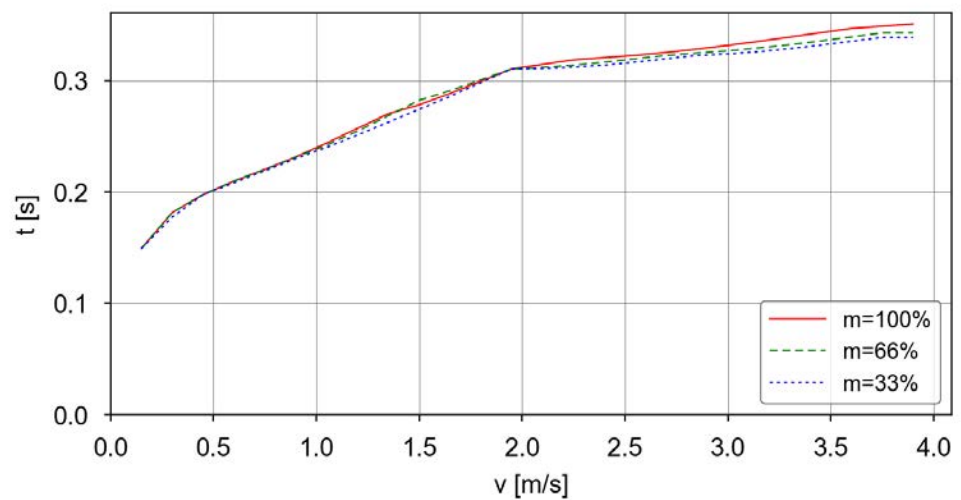
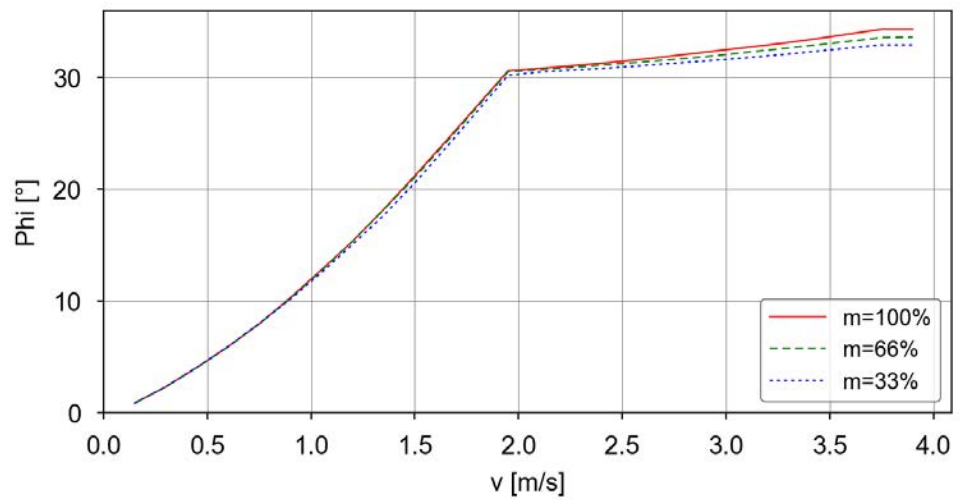
## 12 IRB 2600

### 12.3 IRB 2600 1.85 m 12 kg

Continued



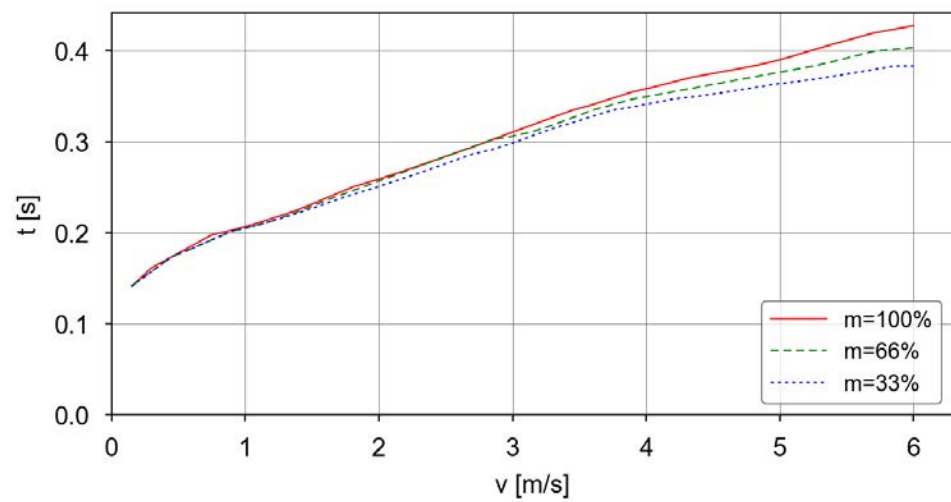
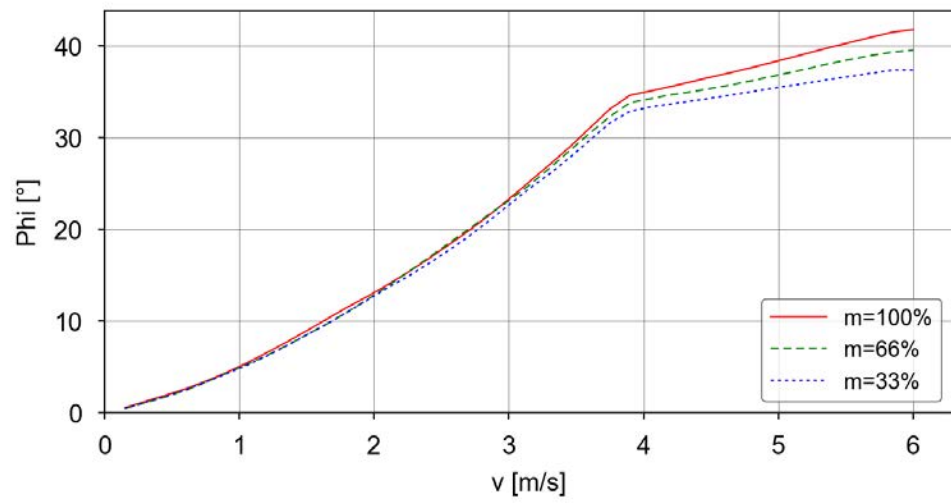
### Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time



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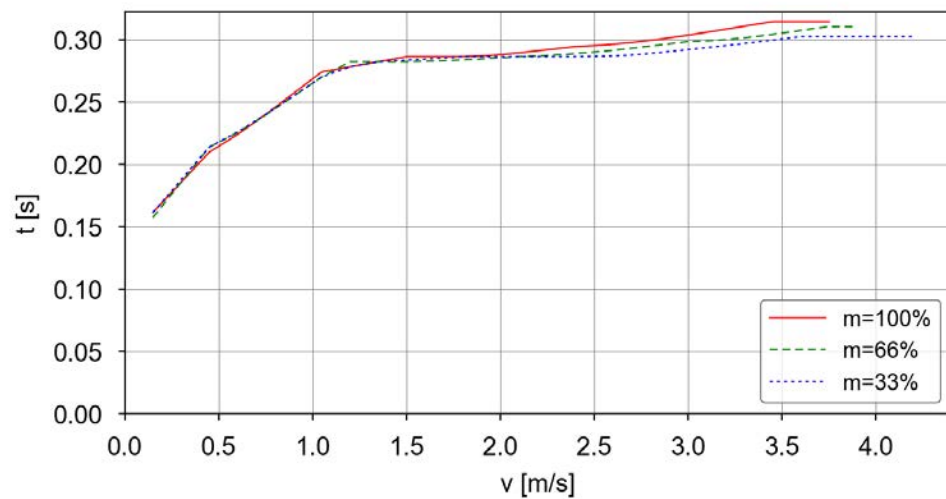
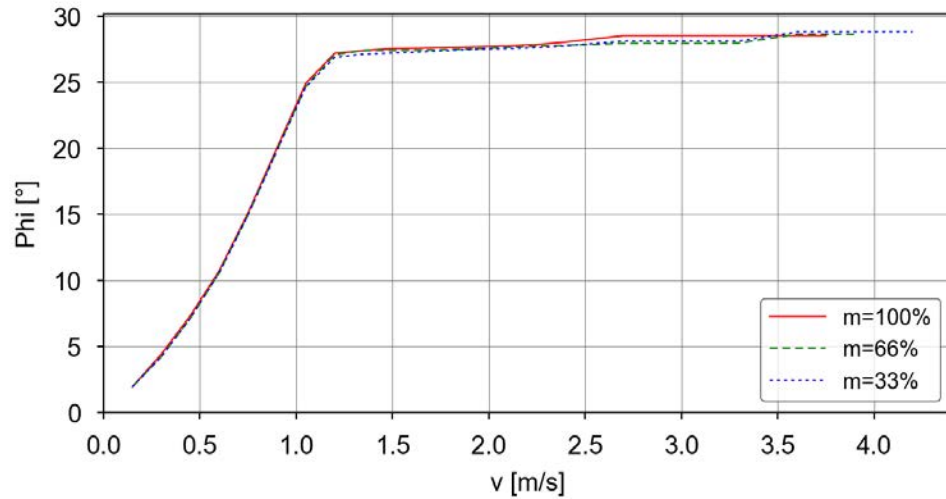
## 12 IRB 2600

12.3 IRB 2600 1.85 m 12 kg

Continued

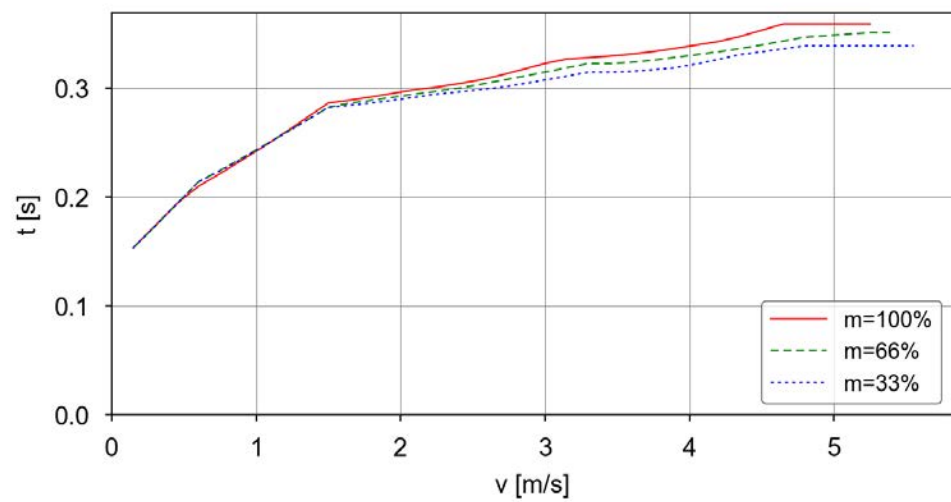
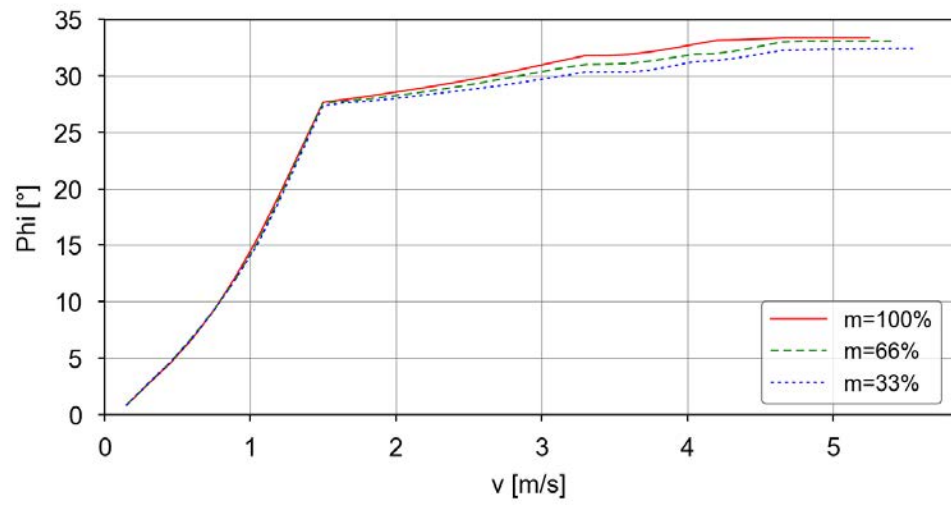
### Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



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Extension zone 1, stopping distance and stopping time



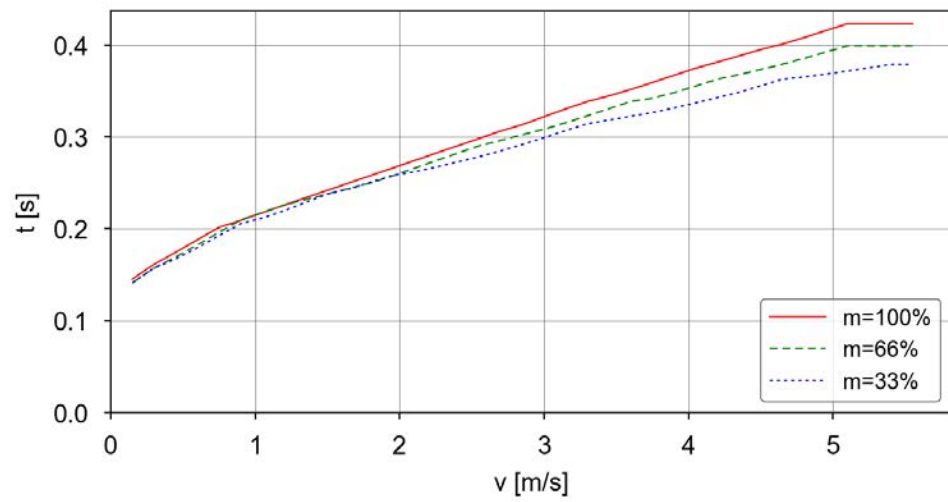
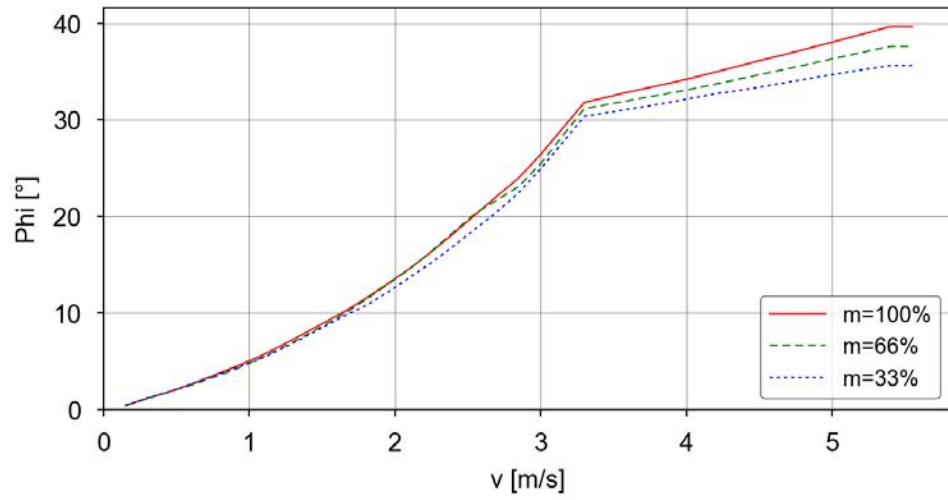
Continues on next page

## 12 IRB 2600

### 12.3 IRB 2600 1.85 m 12 kg

Continued

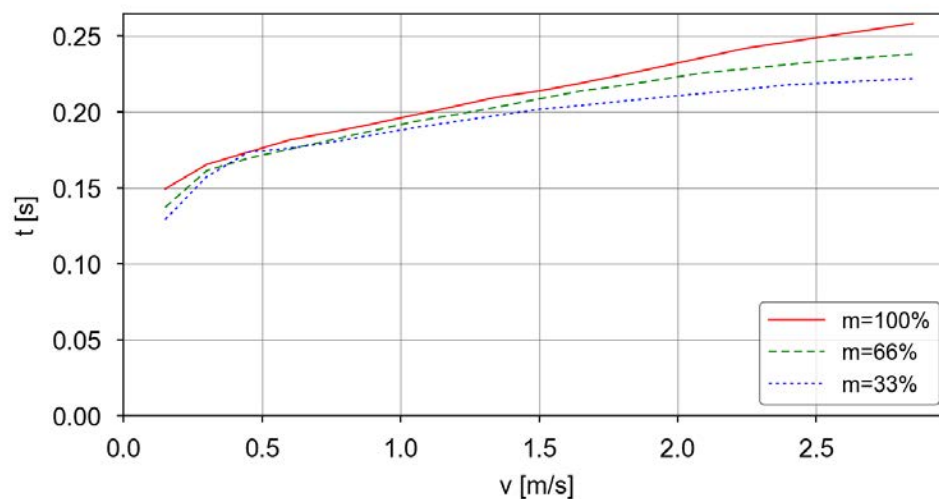
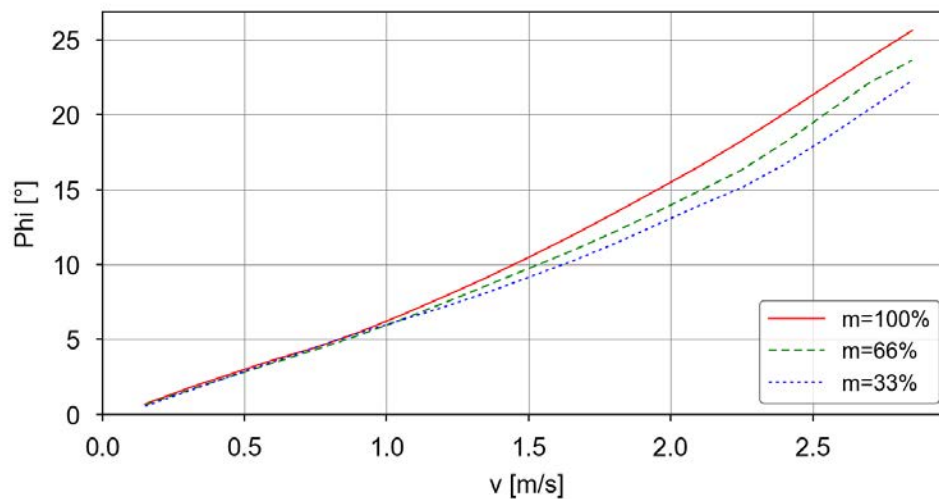
#### Extension zone 2, stopping distance and stopping time



Continues on next page

Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



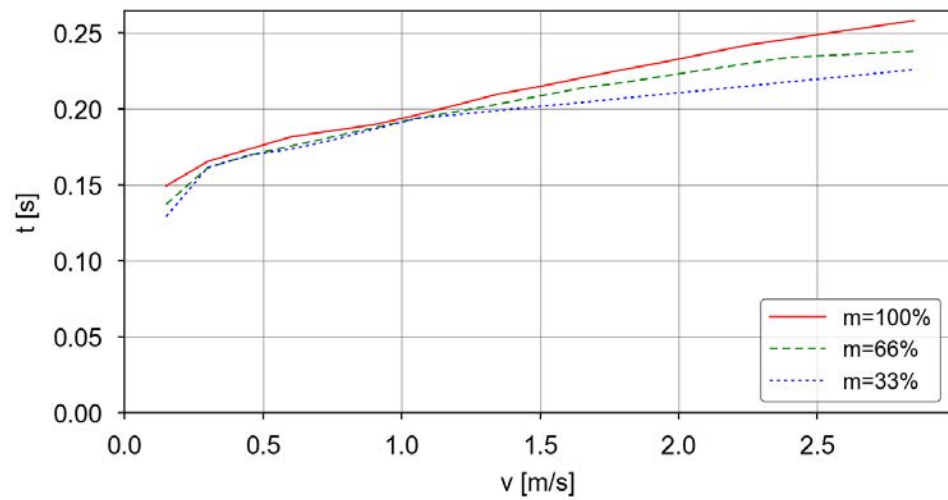
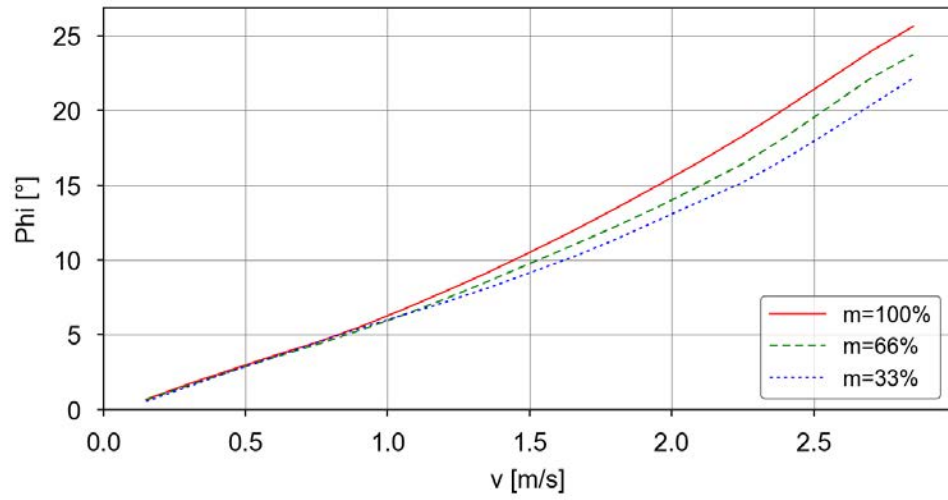
Continues on next page

## 12 IRB 2600

### 12.3 IRB 2600 1.85 m 12 kg

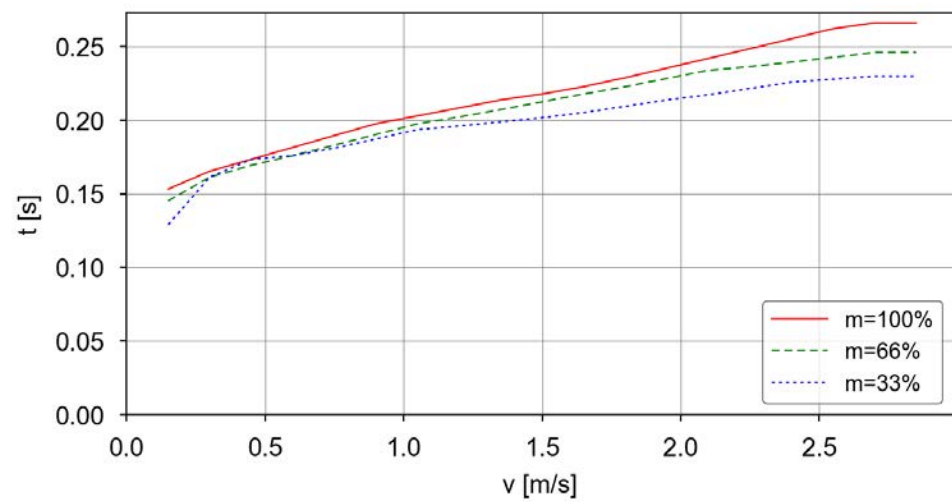
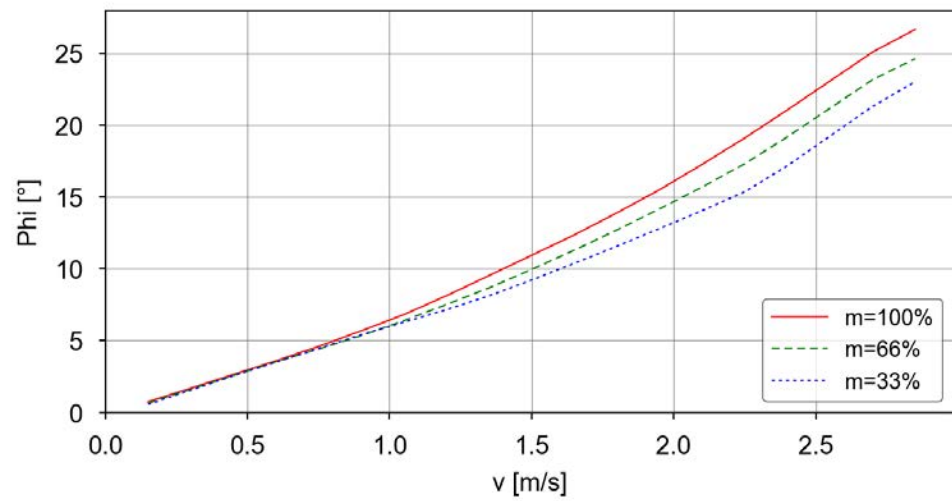
Continued

#### Extension zone 1, stopping distance and stopping time



Continues on next page

## Extension zone 2, stopping distance and stopping time



## 12 IRB 2600

### 12.4 IRB 2600ID 1.85 m 15 kg

### 12.4 IRB 2600ID 1.85 m 15 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	33.1	0.27
2	34.4	0.27
3	20.7	0.15

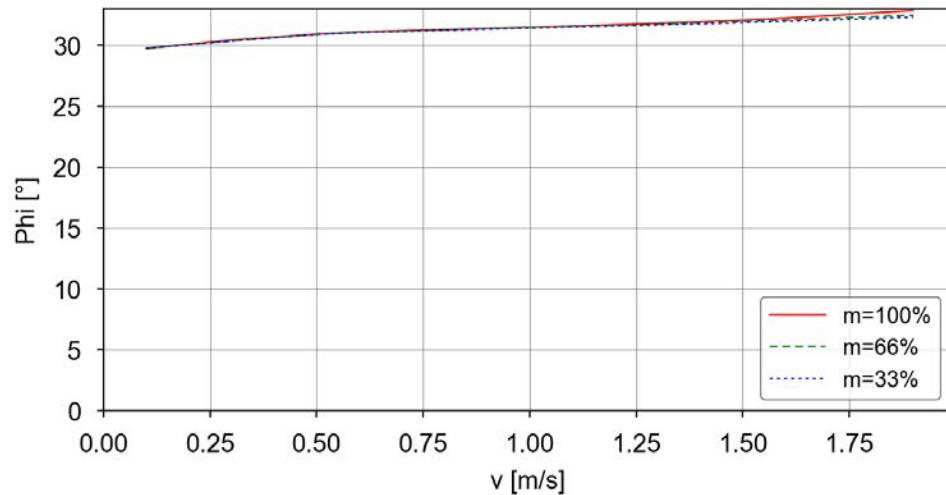
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.617
1	0.617	1.233
2	1.233	max reach

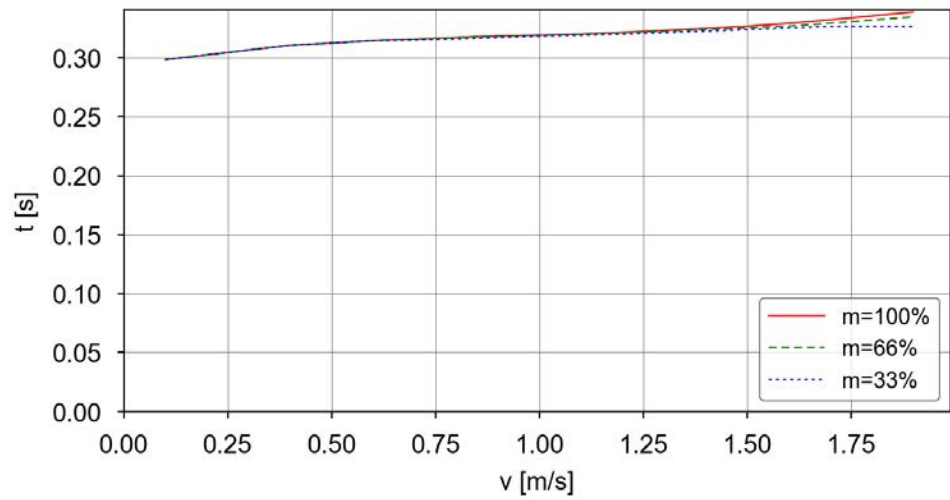
#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

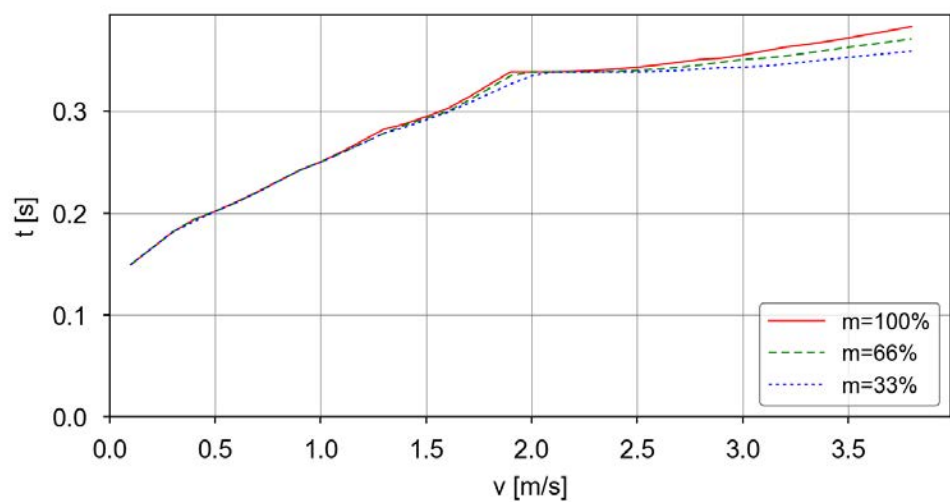
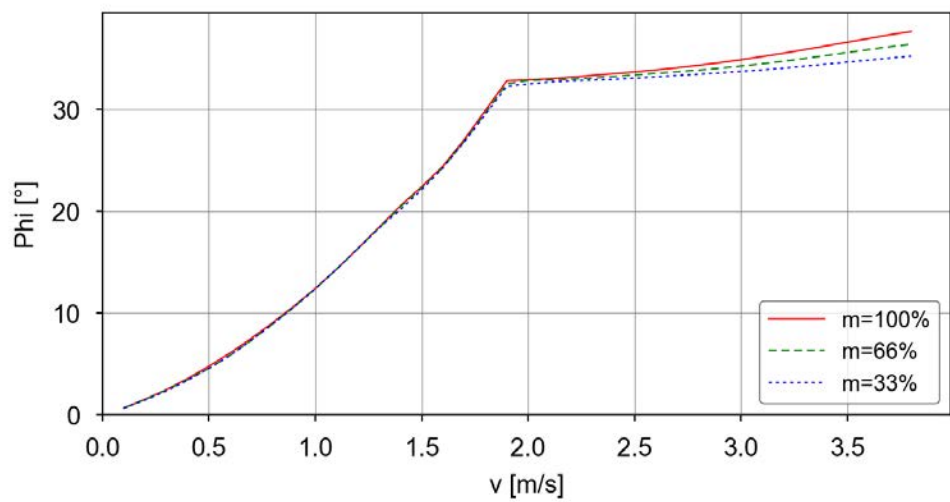


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Extension zone 1, stopping distance and stopping time



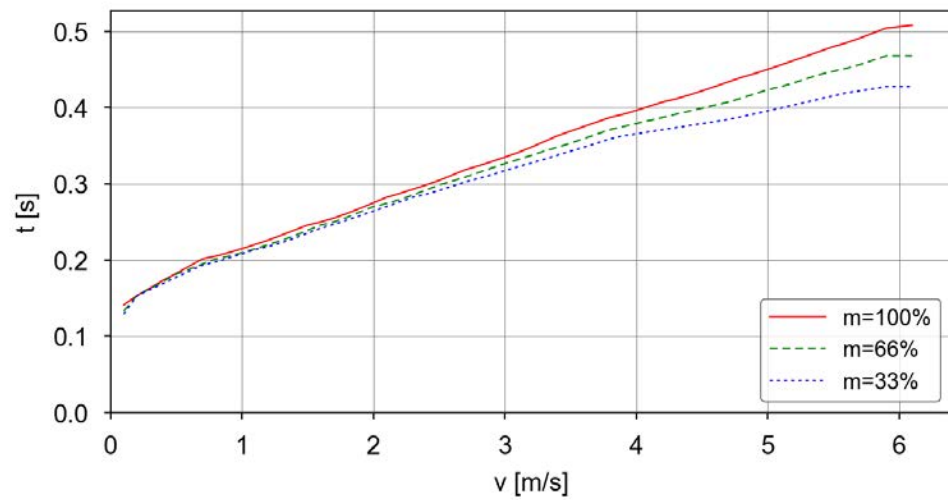
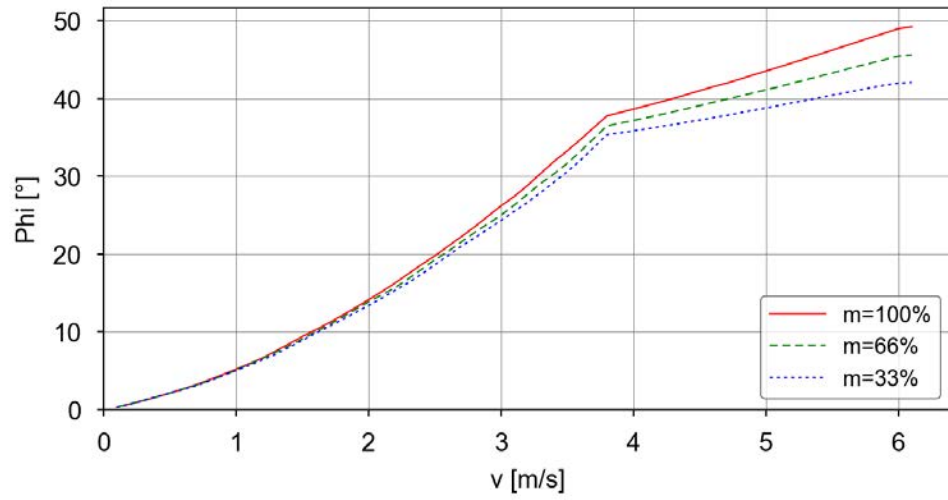
Continues on next page

## 12 IRB 2600

### 12.4 IRB 2600ID 1.85 m 15 kg

Continued

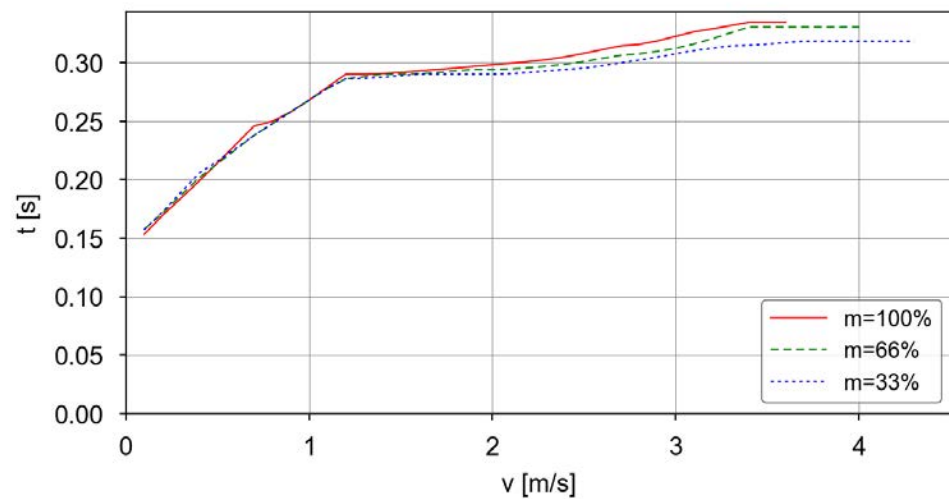
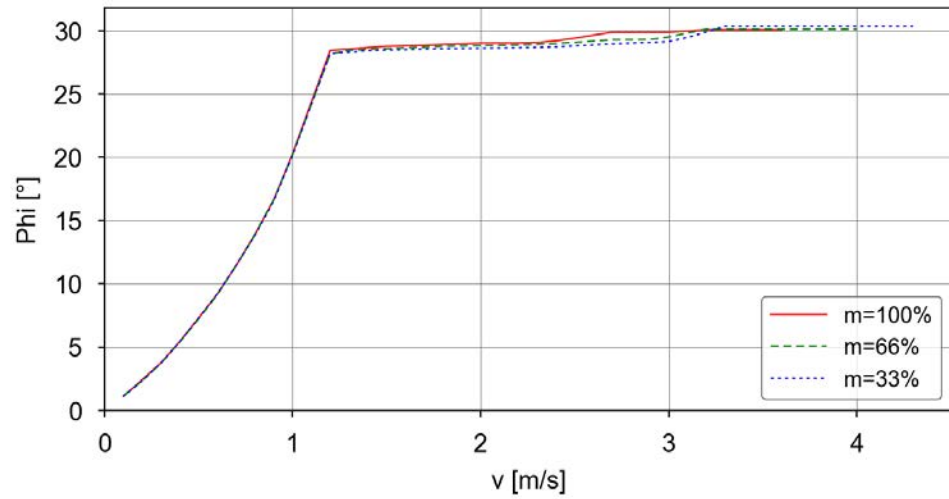
#### Extension zone 2, stopping distance and stopping time



Continues on next page

## Category 1, Axis 2

## Extension zone 0, stopping distance and stopping time



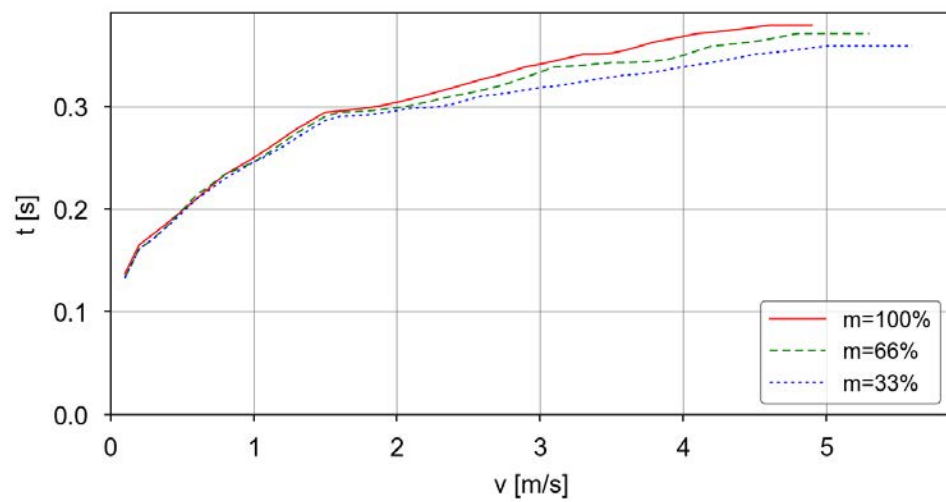
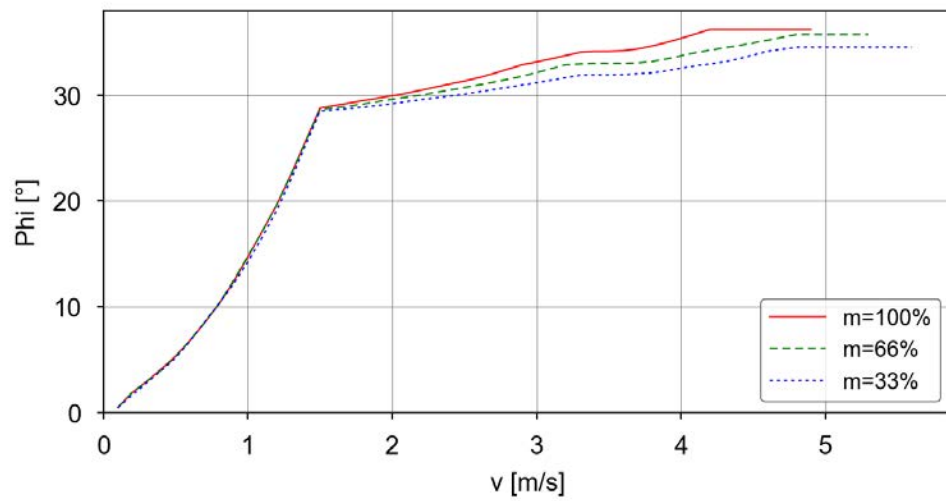
Continues on next page

## 12 IRB 2600

### 12.4 IRB 2600ID 1.85 m 15 kg

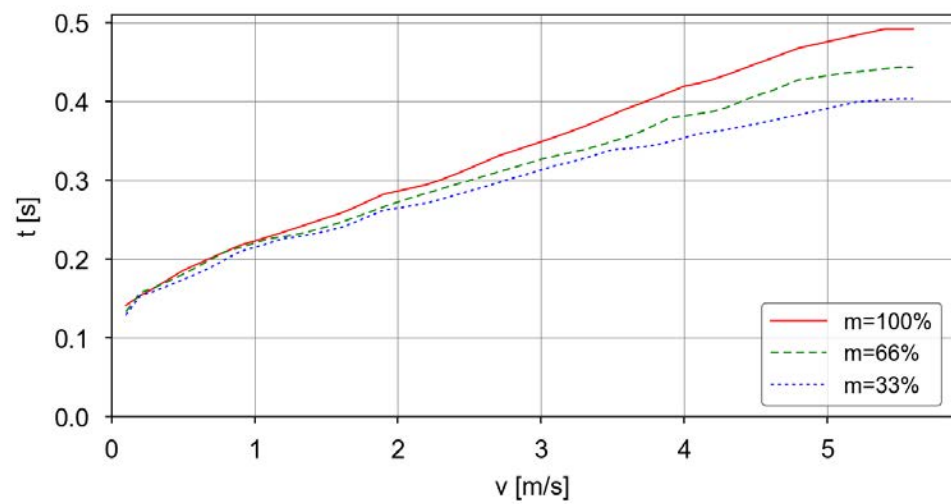
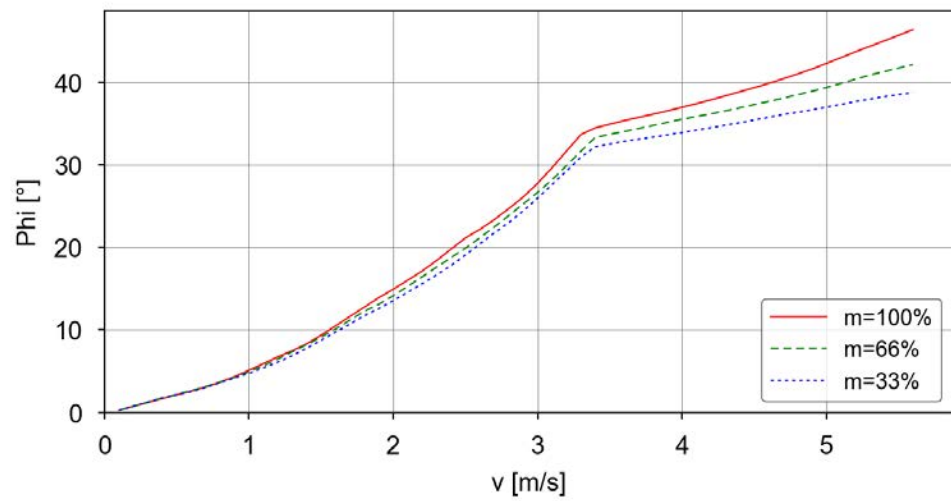
Continued

Extension zone 1, stopping distance and stopping time



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## Extension zone 2, stopping distance and stopping time



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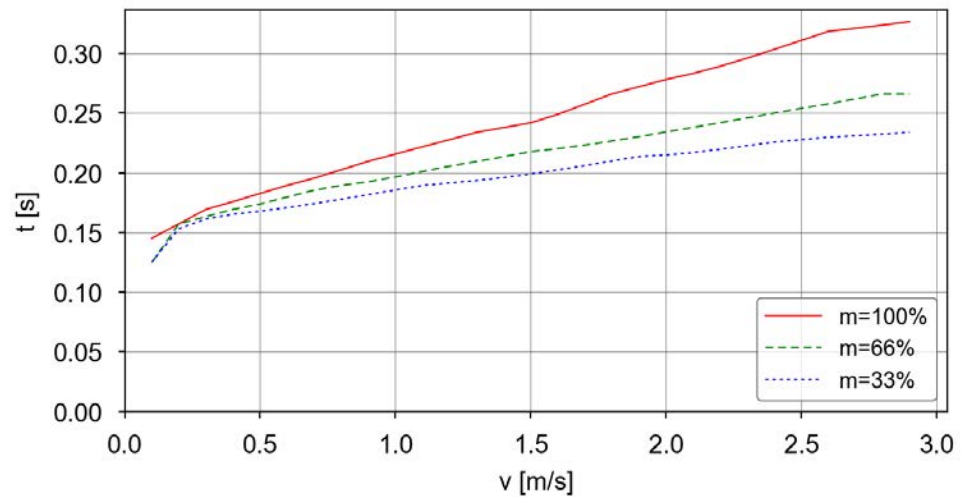
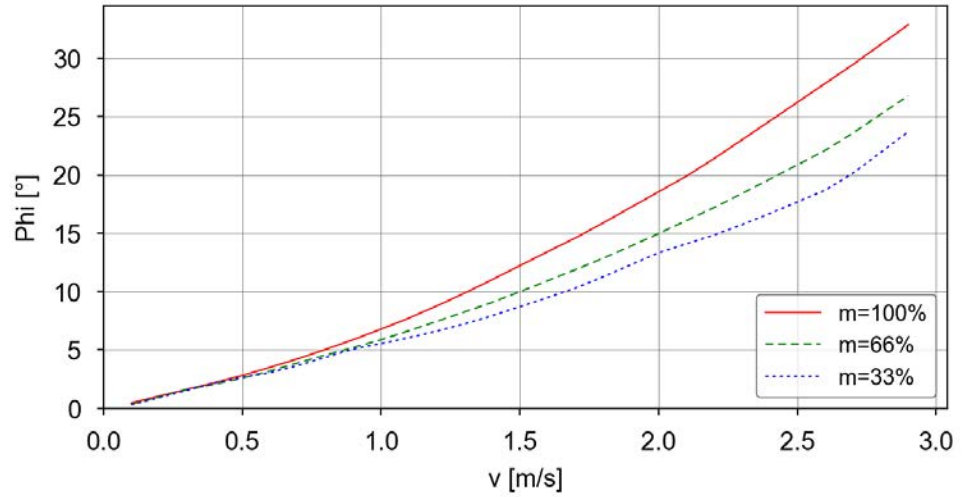
## 12 IRB 2600

12.4 IRB 2600ID 1.85 m 15 kg

Continued

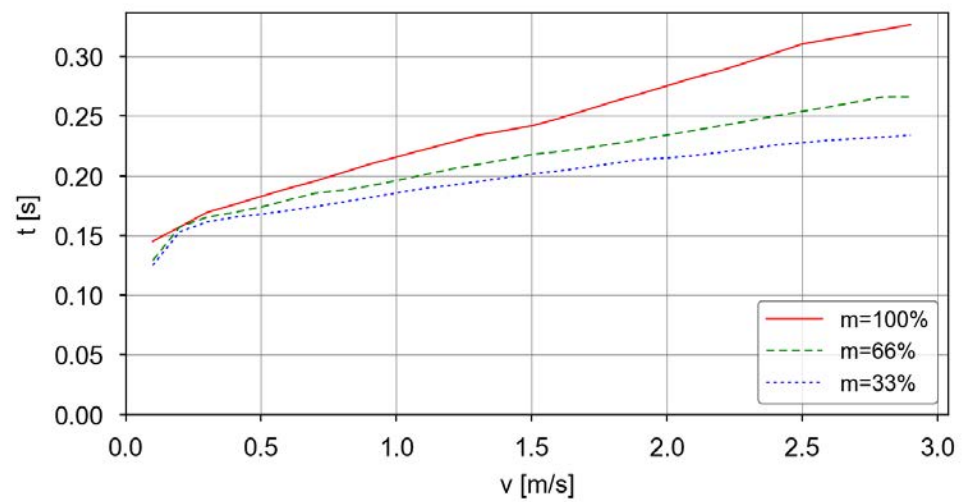
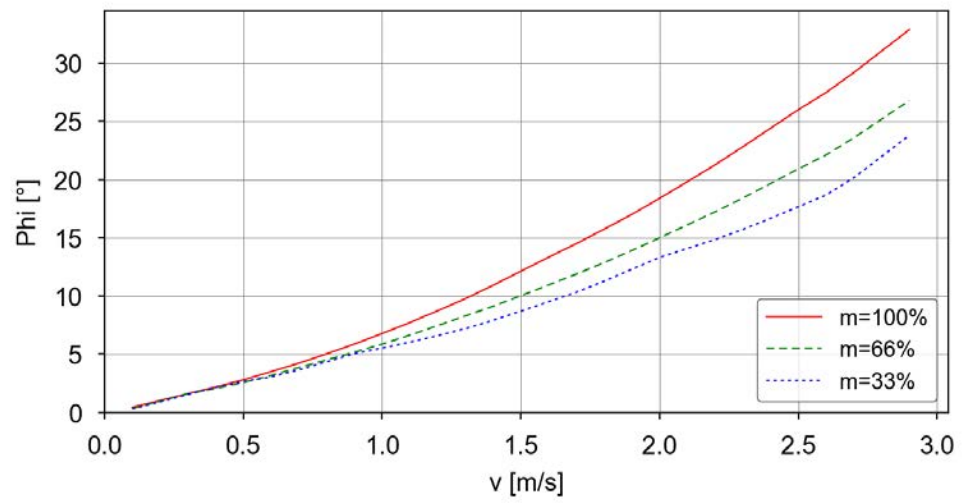
### Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



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Extension zone 1, stopping distance and stopping time



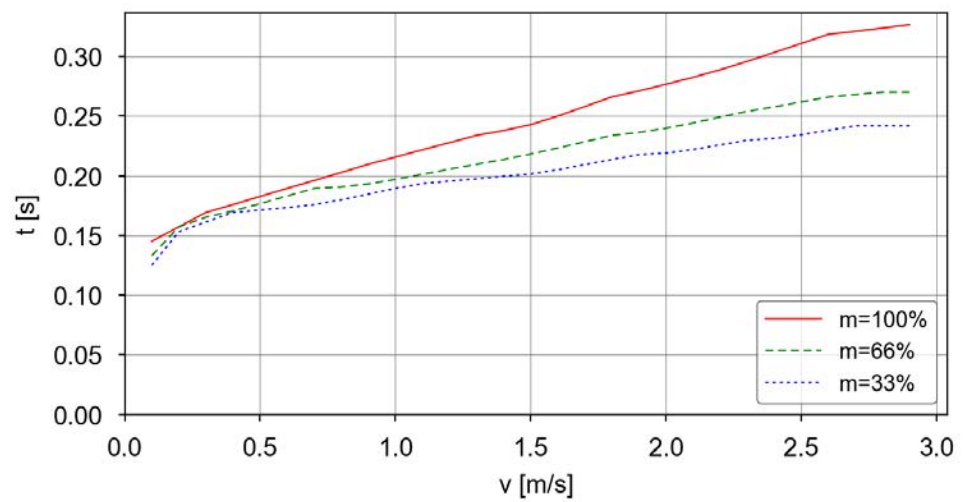
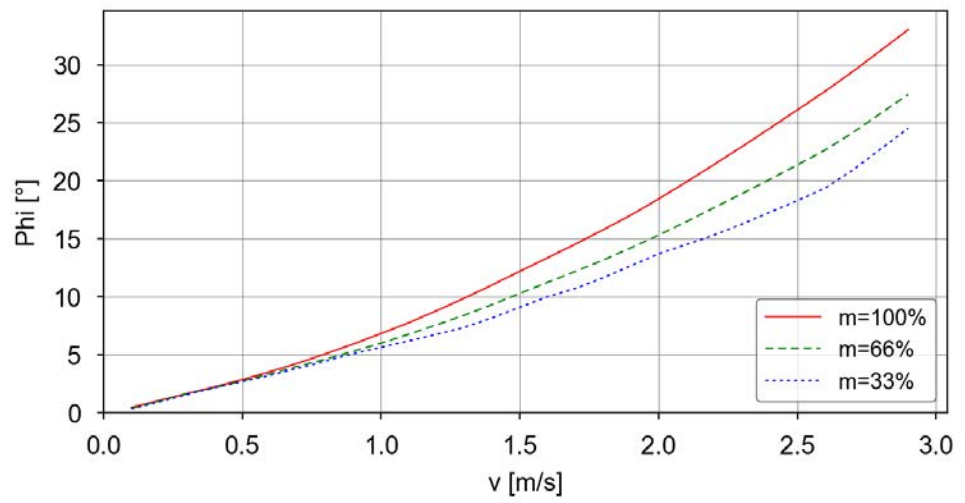
Continues on next page

## 12 IRB 2600

### 12.4 IRB 2600ID 1.85 m 15 kg

Continued

#### Extension zone 2, stopping distance and stopping time





## 12.5 IRB 2600ID 2.00 m 8 kg

### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	31.8	0.27
2	33.7	0.29
3	23.0	0.17

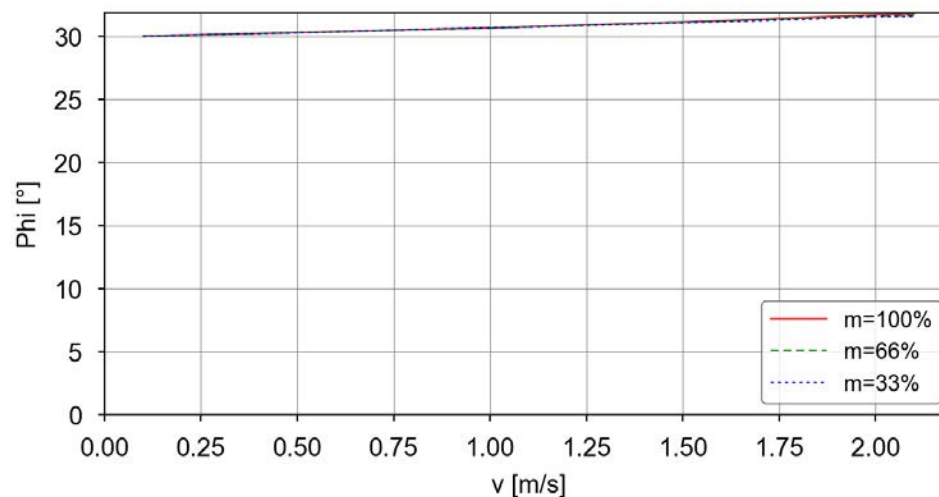
### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.667
1	0.667	1.333
2	1.333	max reach

### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

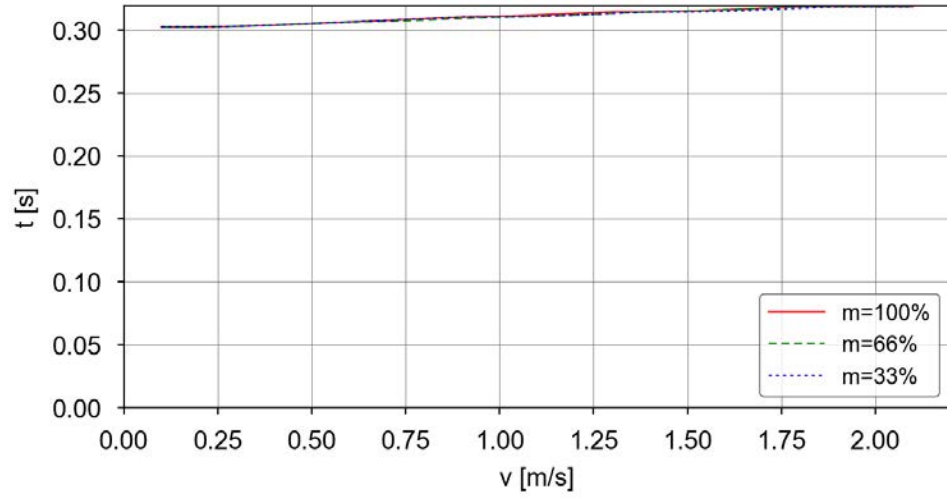


*Continues on next page*

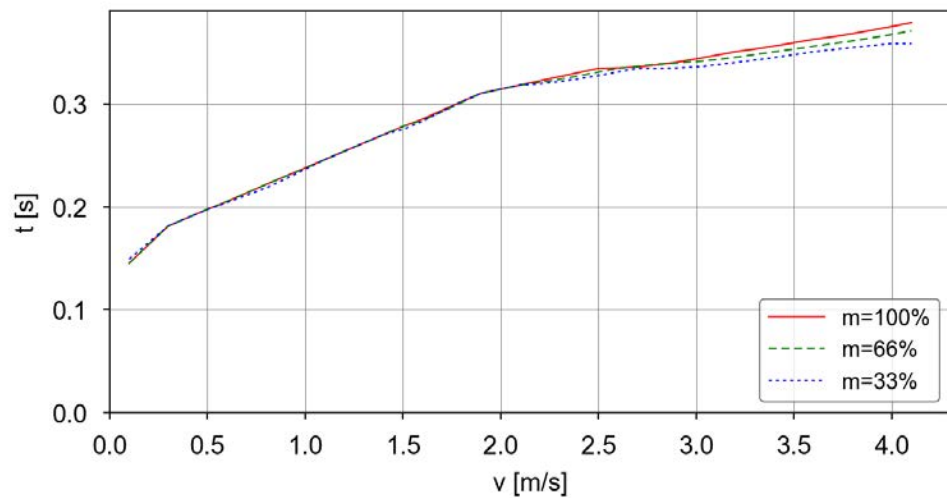
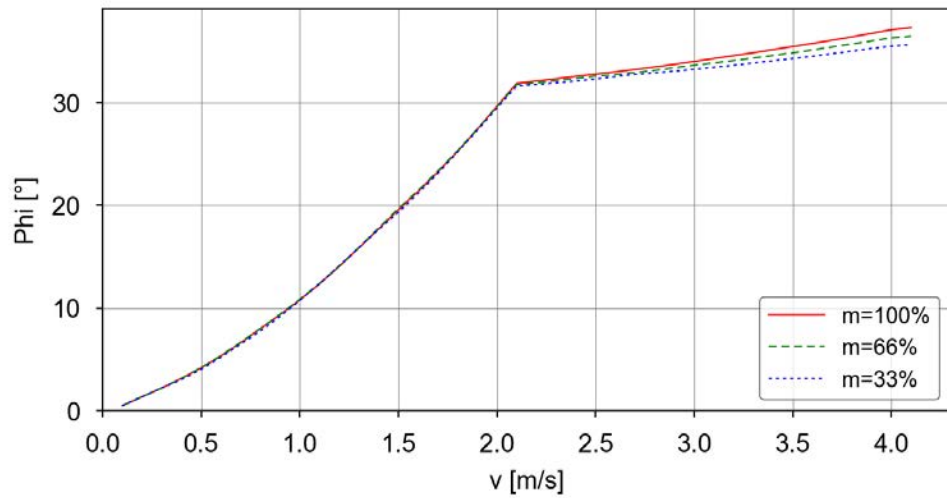
## 12 IRB 2600

12.5 IRB 2600ID 2.00 m 8 kg

Continued

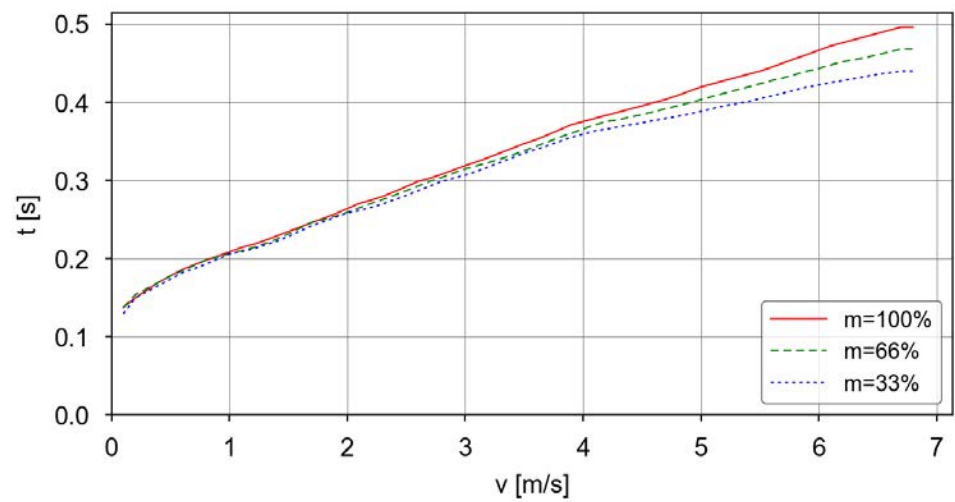
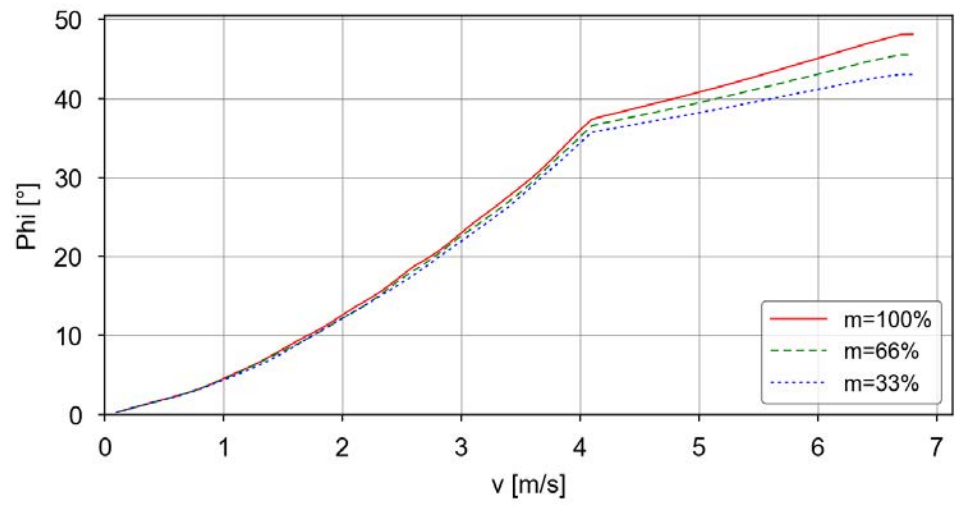


Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

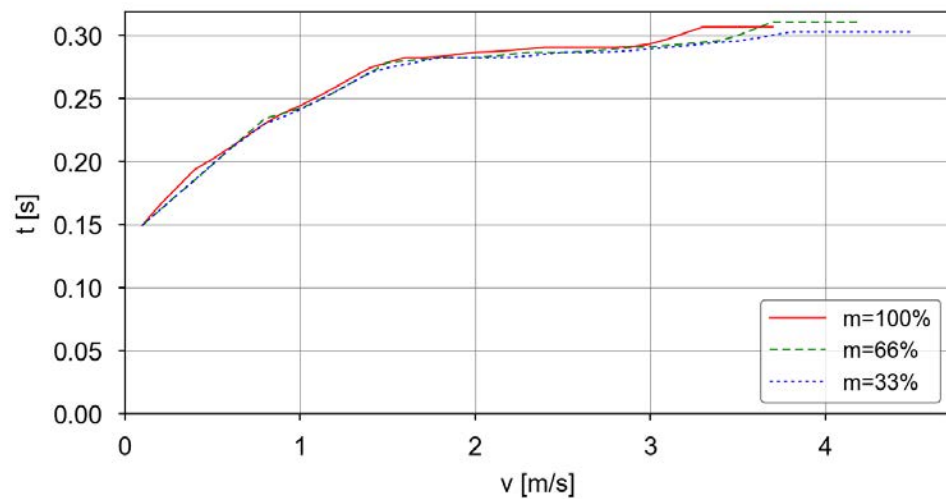
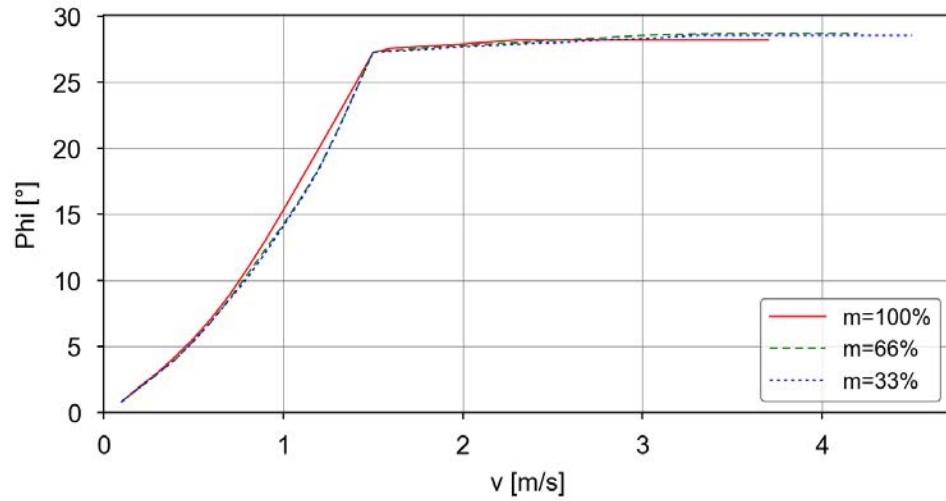
## 12 IRB 2600

12.5 IRB 2600ID 2.00 m 8 kg

Continued

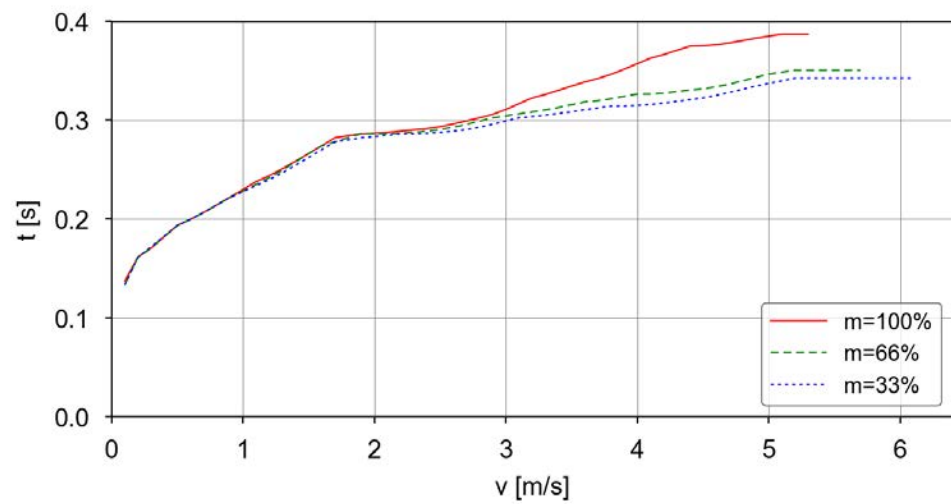
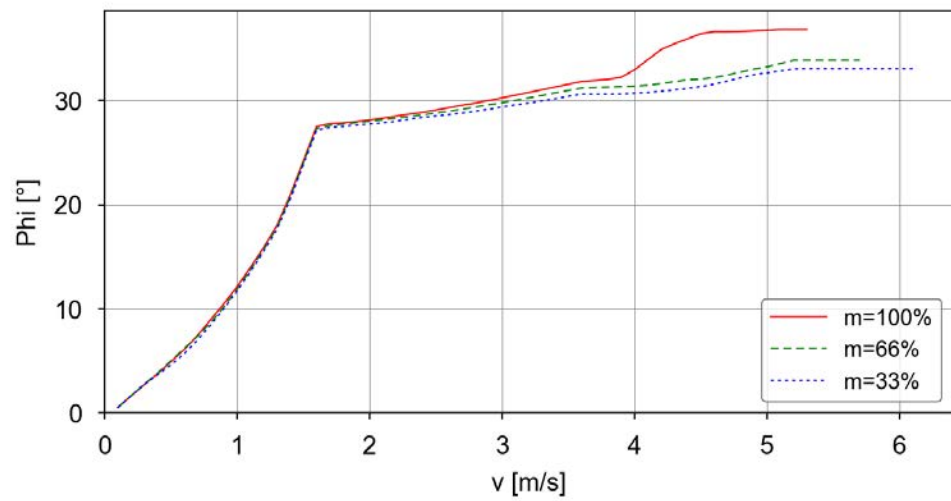
### Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



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## Extension zone 1, stopping distance and stopping time



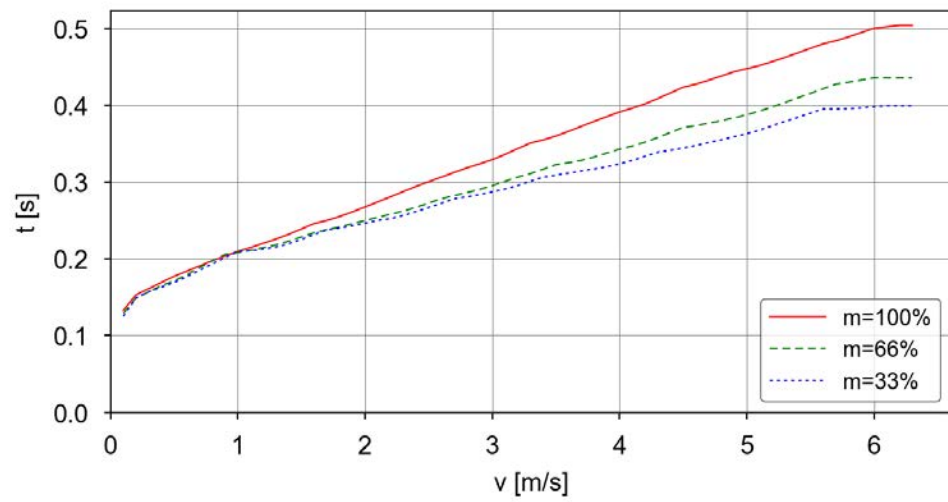
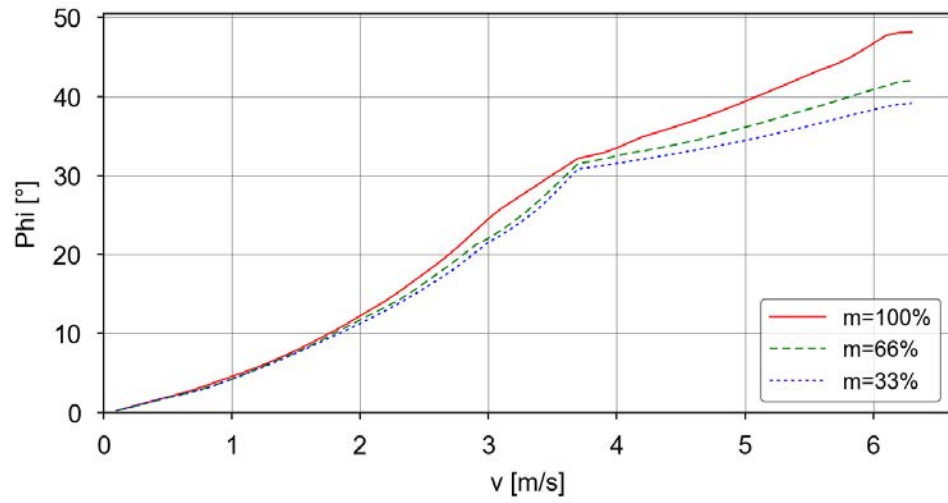
Continues on next page

## 12 IRB 2600

12.5 IRB 2600ID 2.00 m 8 kg

Continued

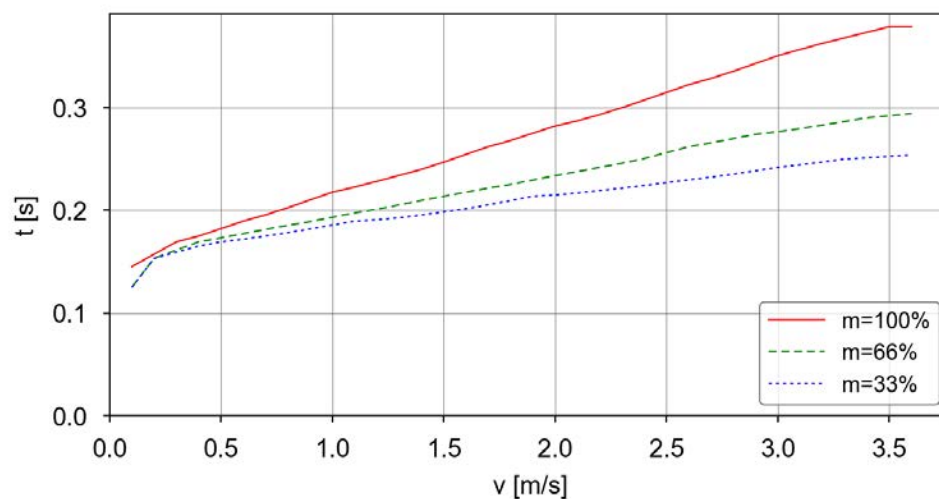
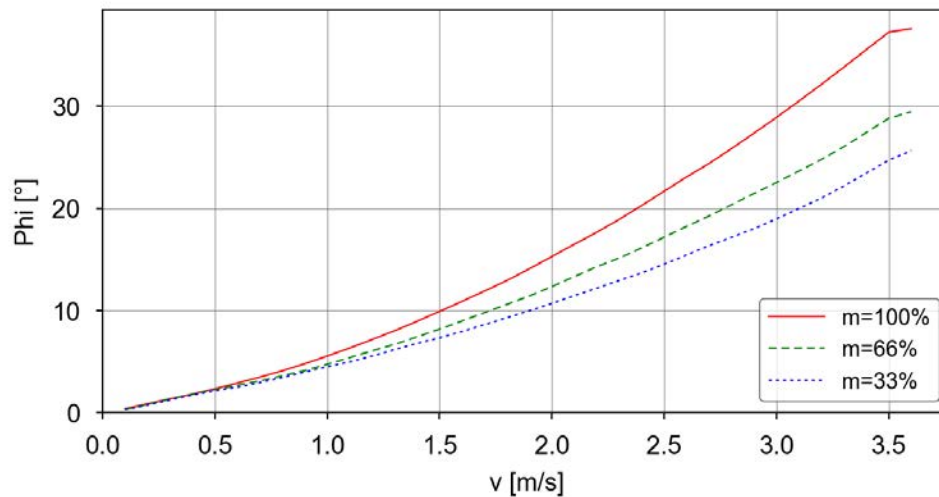
Extension zone 2, stopping distance and stopping time



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Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



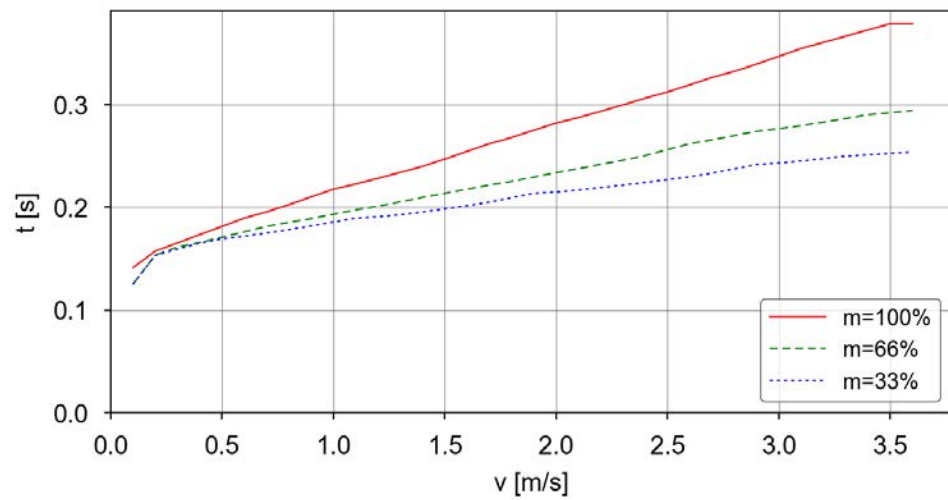
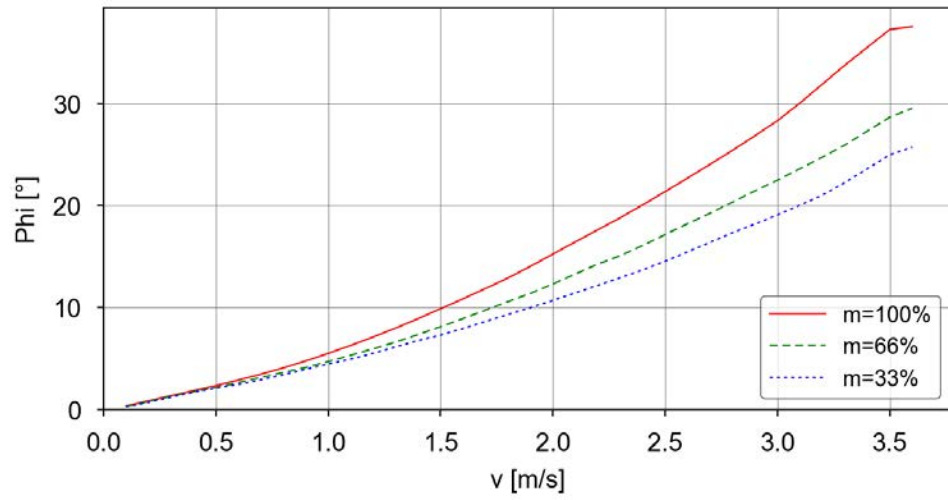
Continues on next page

## 12 IRB 2600

12.5 IRB 2600ID 2.00 m 8 kg

Continued

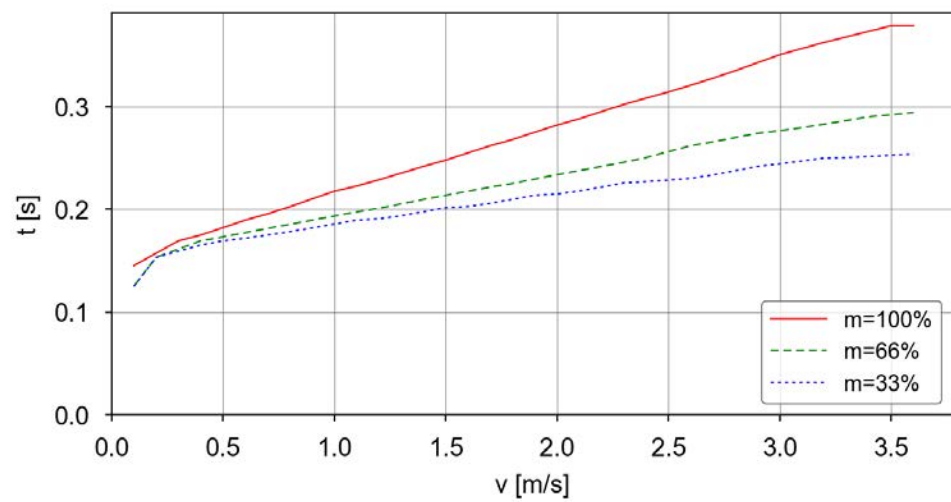
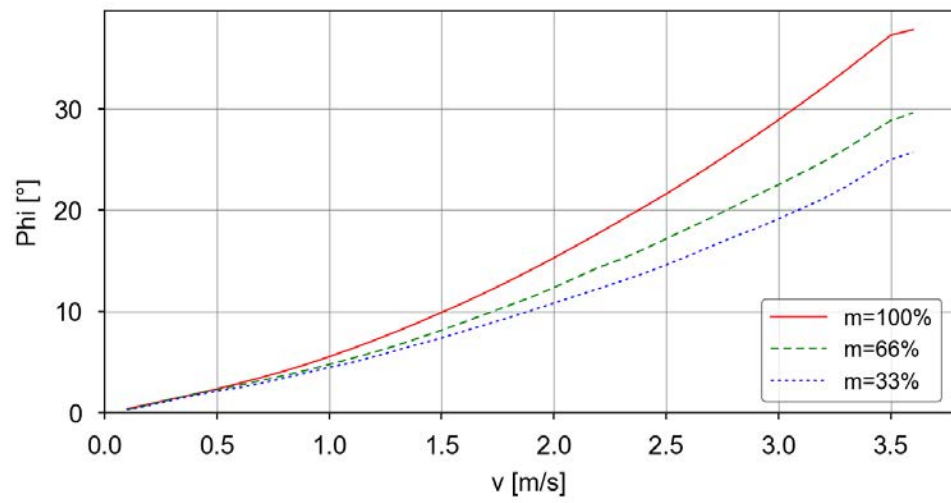
Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time



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## 13 IRB 4400

### 13.1 IRB 4400 1.95 m 45 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	67.8	0.8
2	18.8	0.22
3	18.2	0.22

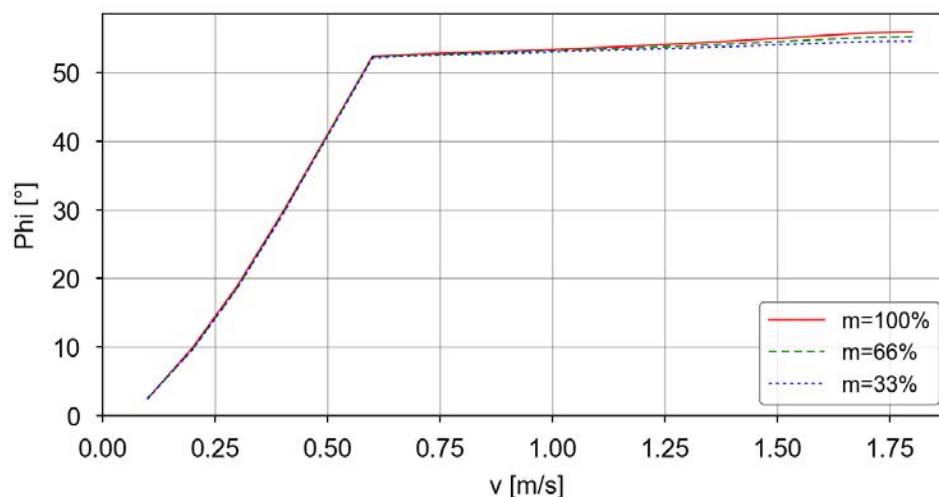
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.661
1	0.661	1.322
2	1.322	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

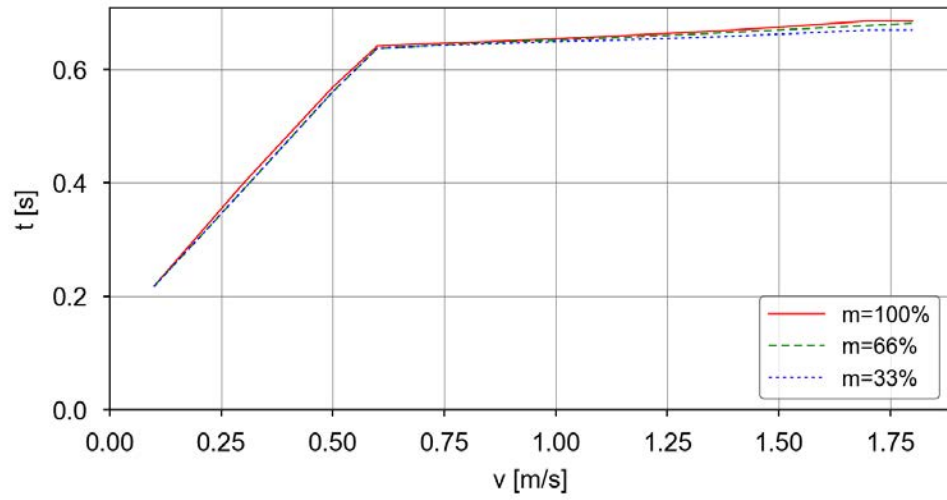


*Continues on next page*

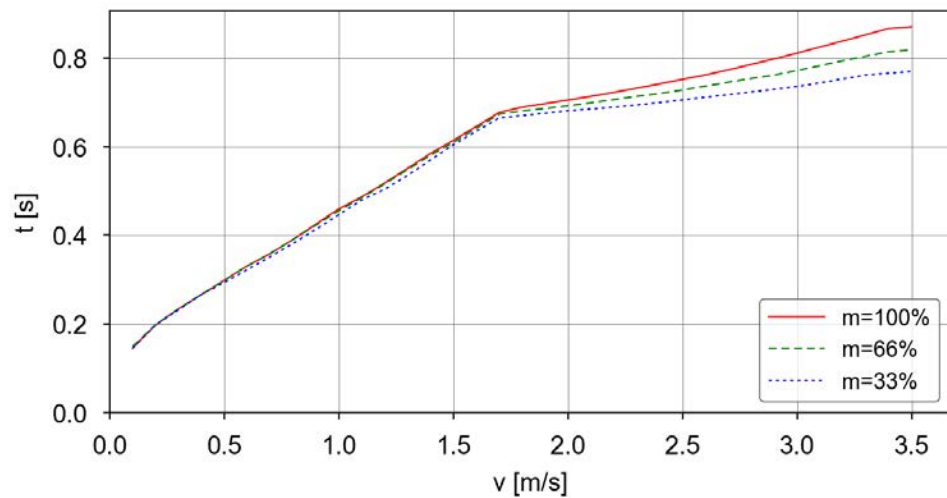
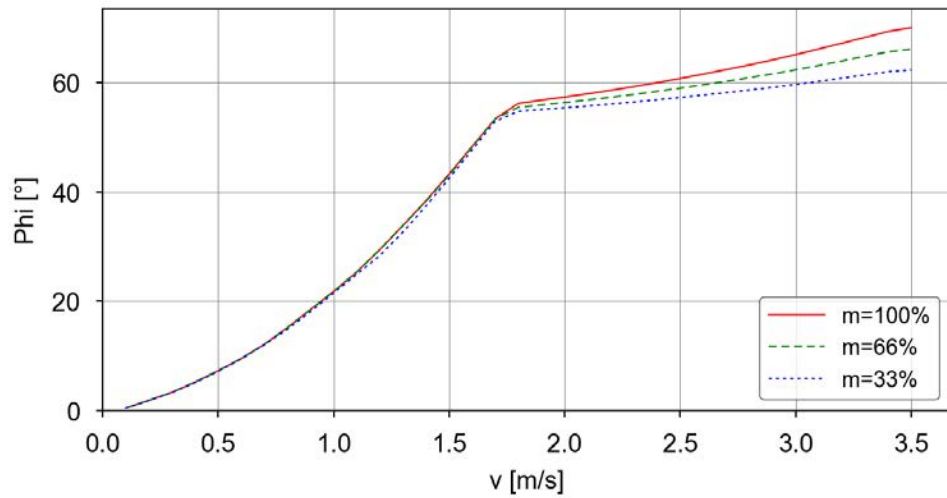
# 13 IRB 4400

## 13.1 IRB 4400 1.95 m 45 kg

Continued

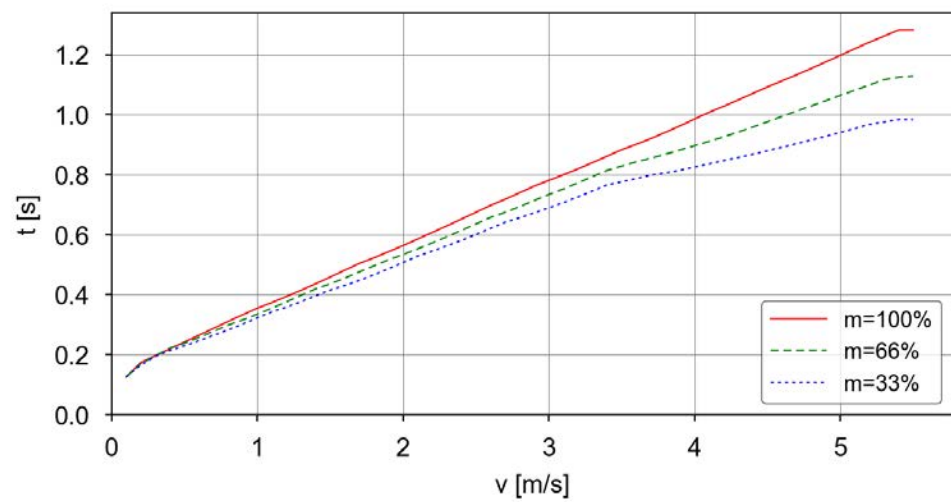
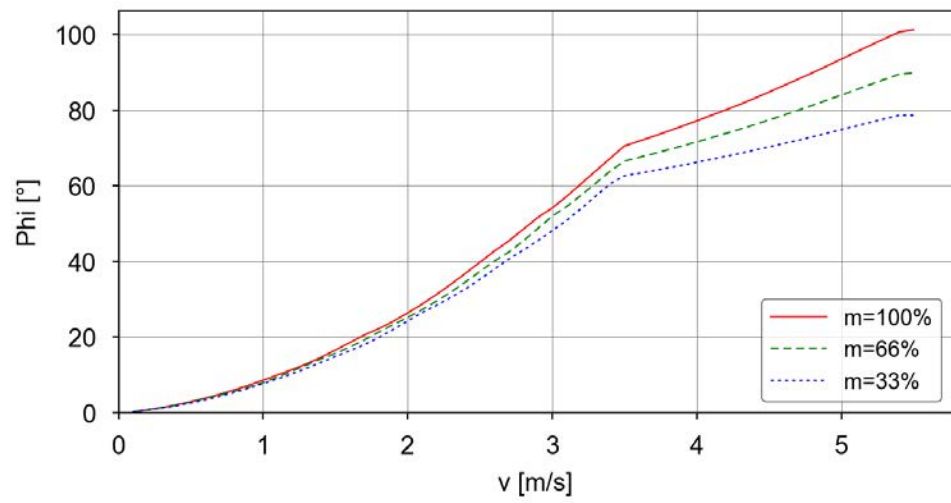


### Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time



Continues on next page

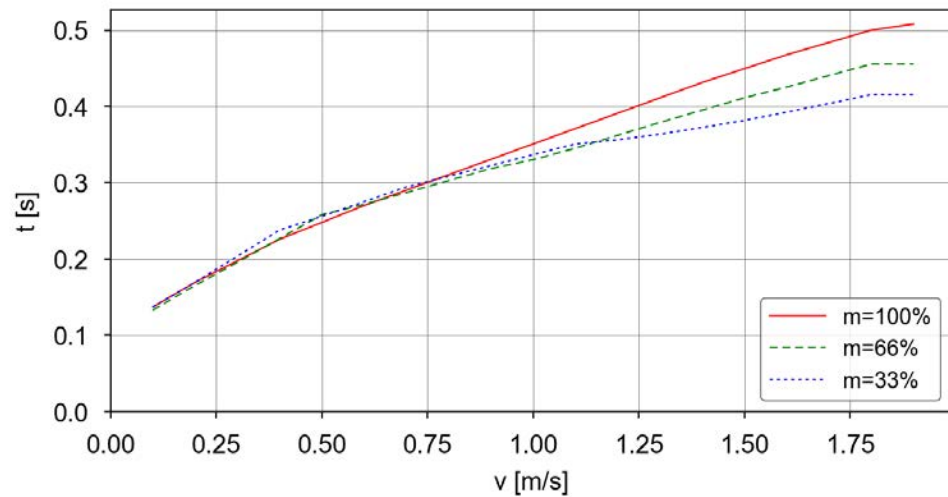
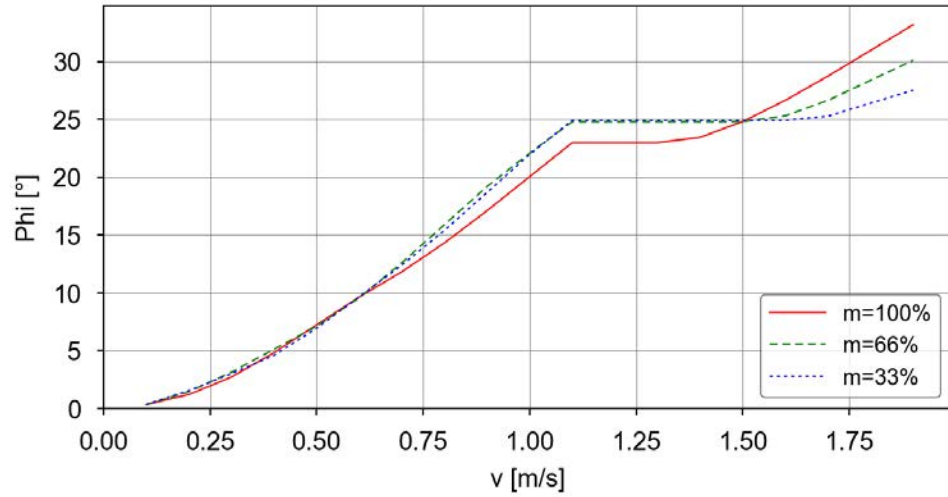
# 13 IRB 4400

13.1 IRB 4400 1.95 m 45 kg

Continued

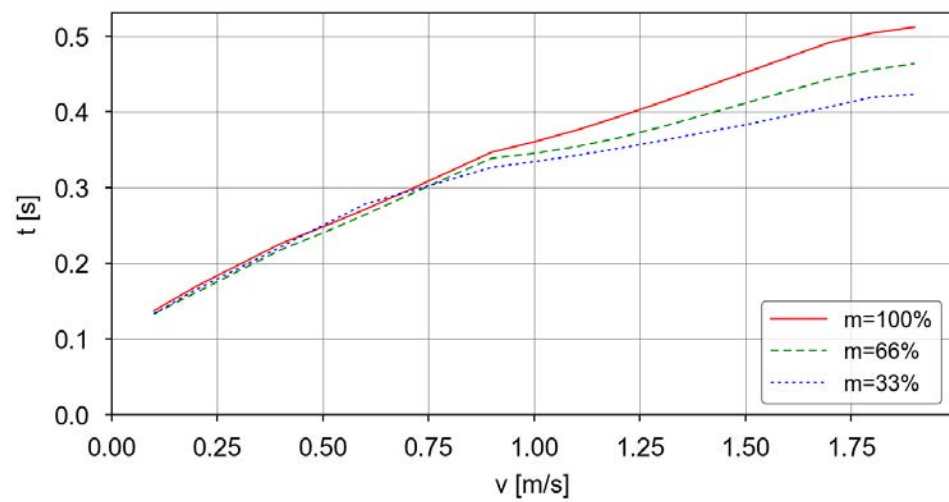
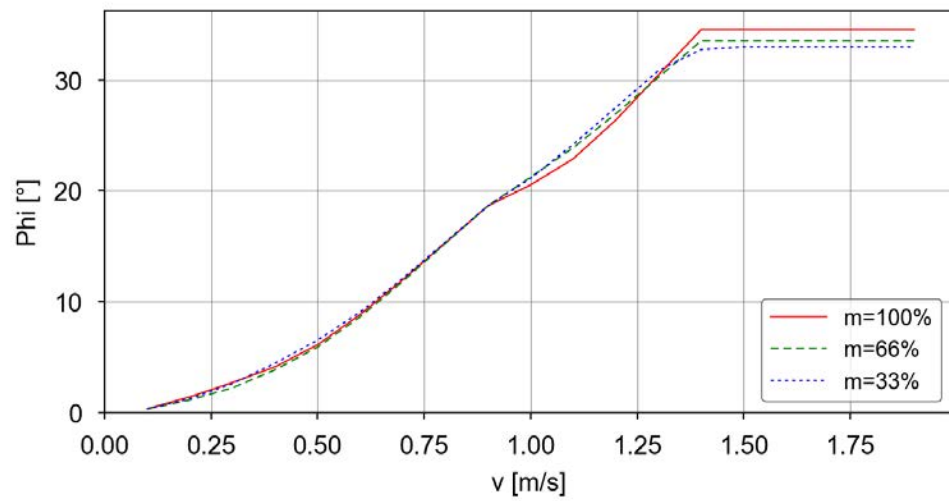
## Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



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Extension zone 1, stopping distance and stopping time



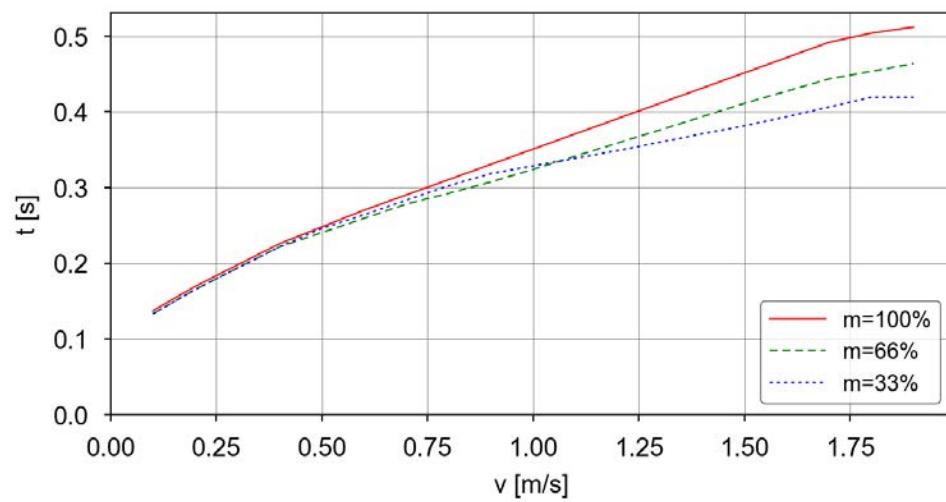
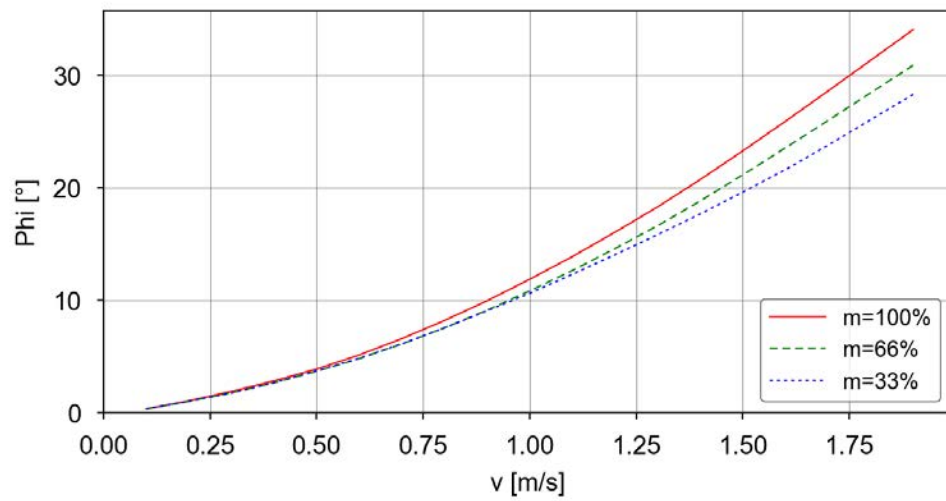
Continues on next page

## 13 IRB 4400

### 13.1 IRB 4400 1.95 m 45 kg

Continued

Extension zone 2, stopping distance and stopping time

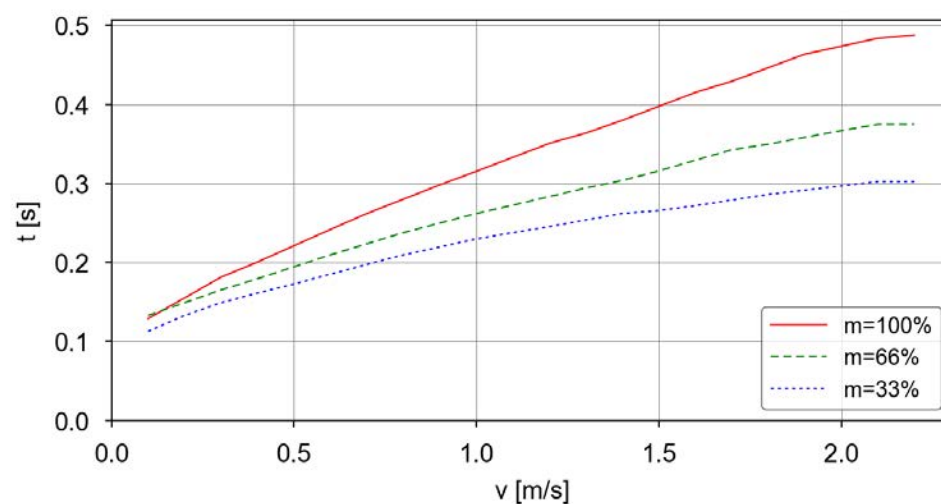
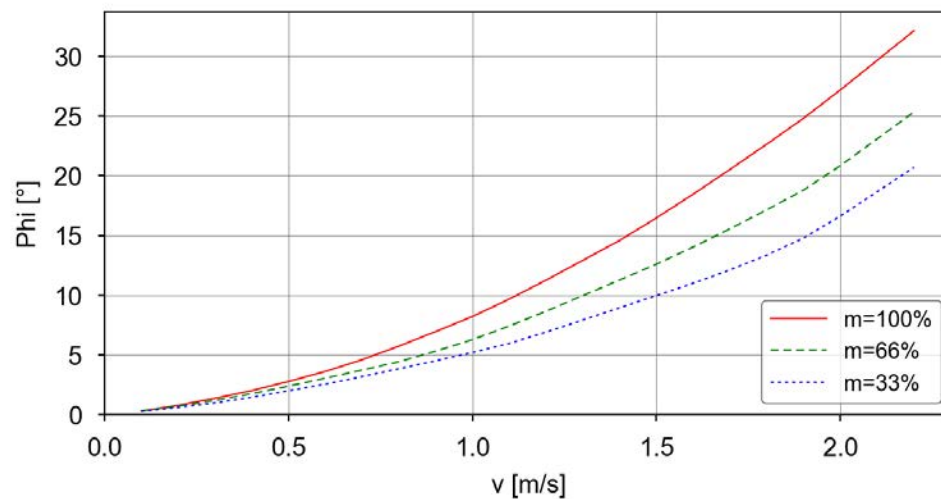


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## Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



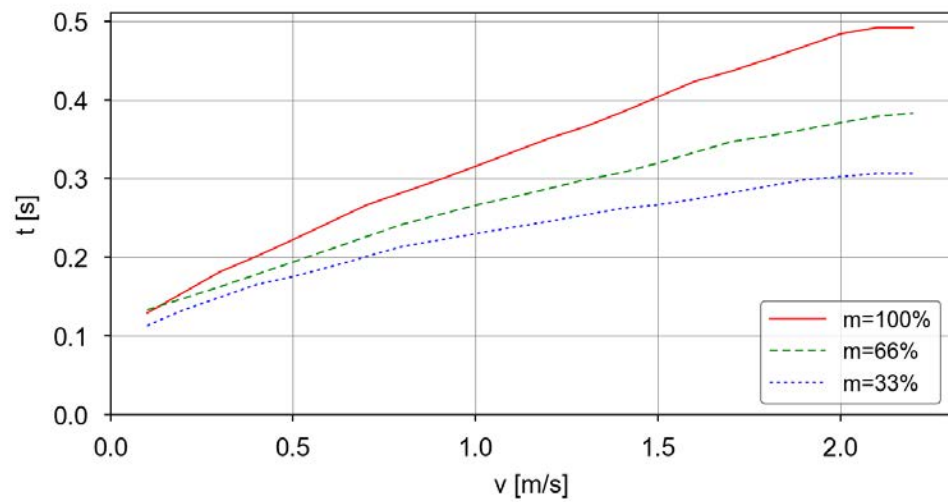
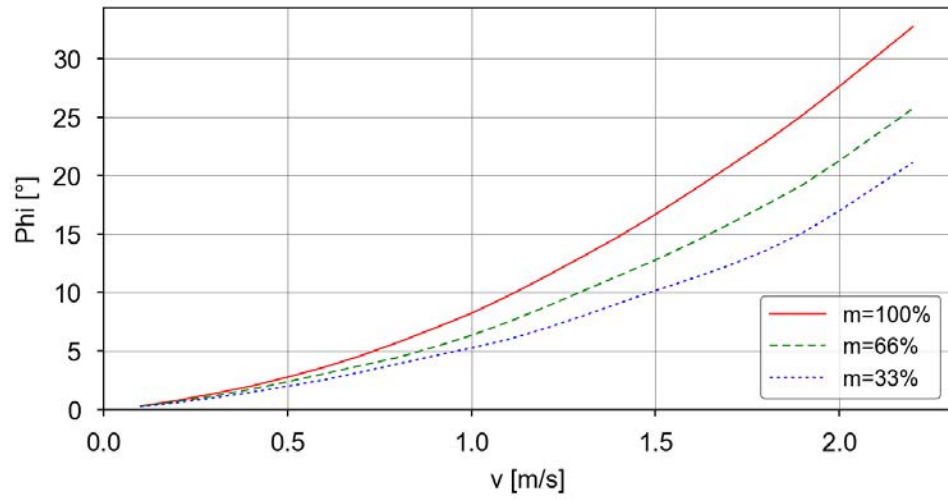
Continues on next page

# 13 IRB 4400

## 13.1 IRB 4400 1.95 m 45 kg

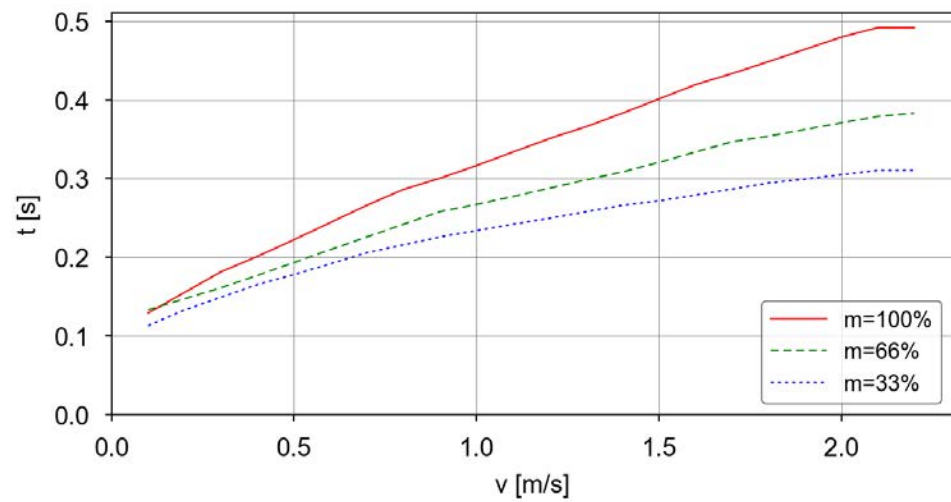
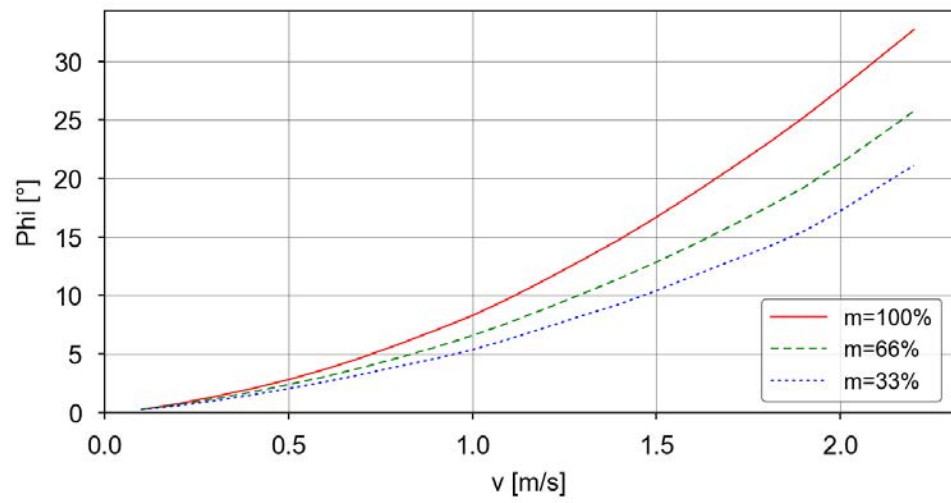
Continued

### Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



## 13 IRB 4400

13.2 IRB 4400 1.95 m 60 kg

### 13.2 IRB 4400 1.95 m 60 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	75.1	0.9
2	20.2	0.25
3	20.6	0.27

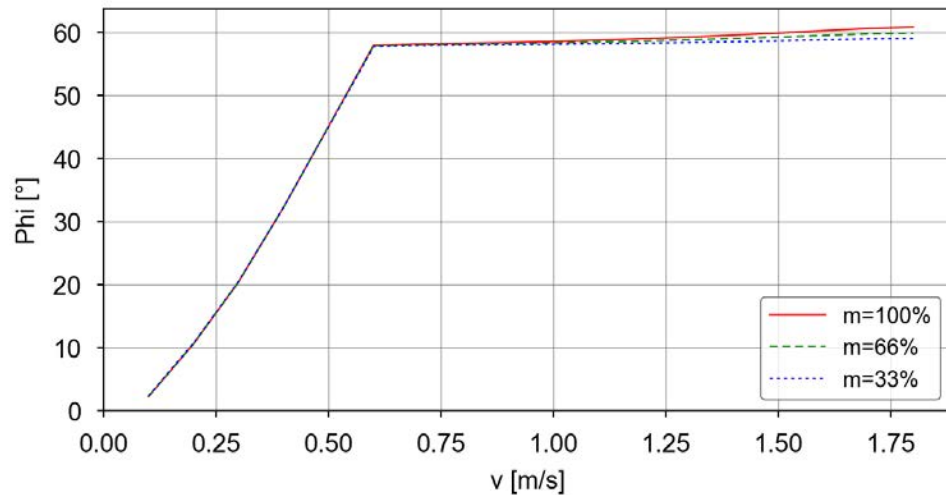
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

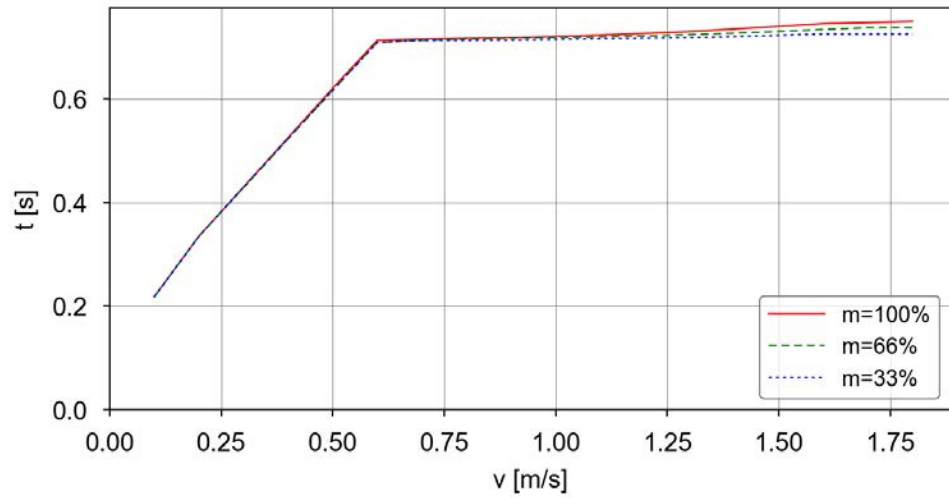
Zone	wcp min (m)	wcp max (m)
0	0	0.661
1	0.661	1.322
2	1.322	max reach

#### Category 1, Axis 1

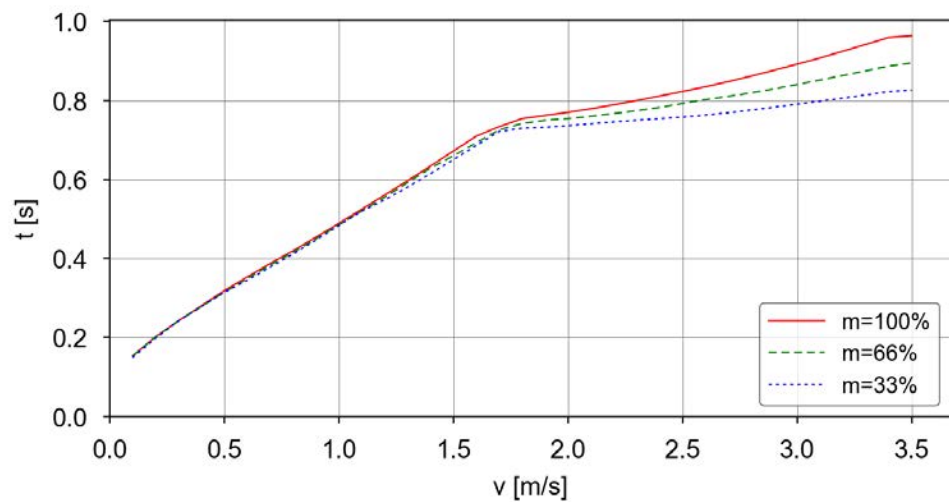
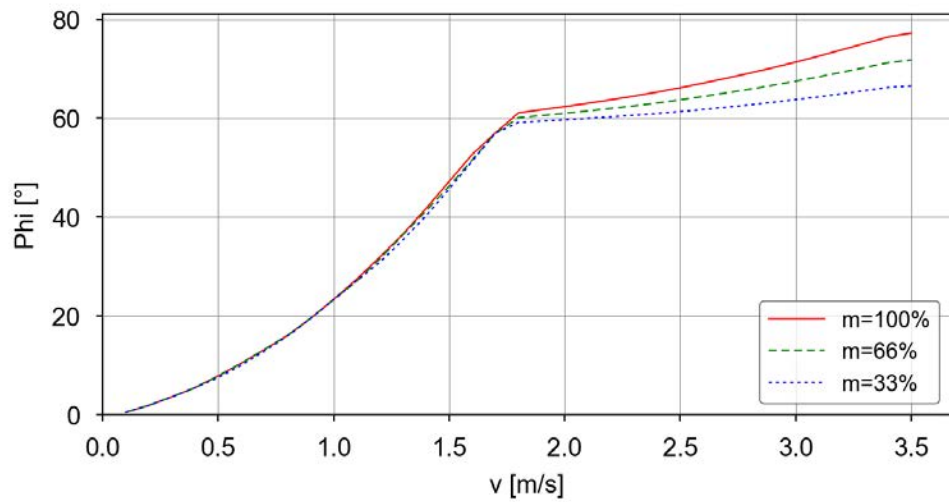
Extension zone 0, stopping distance and stopping time



Continues on next page



Extension zone 1, stopping distance and stopping time



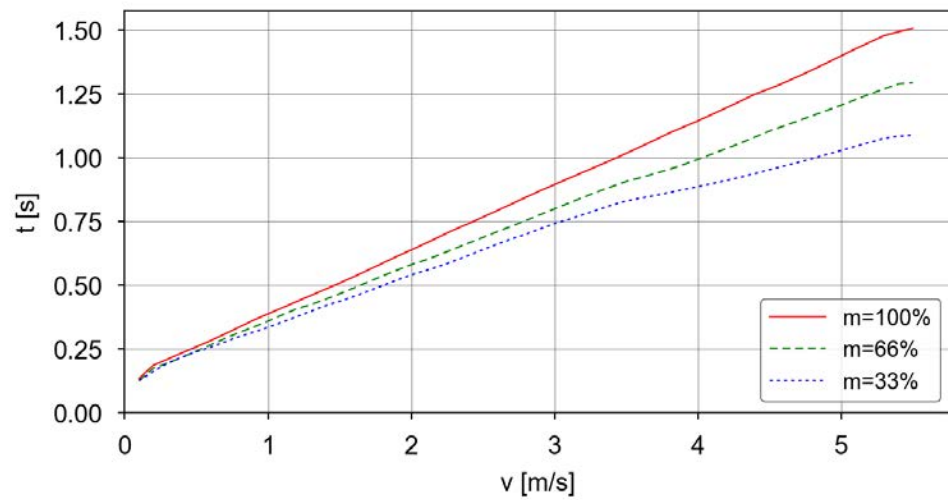
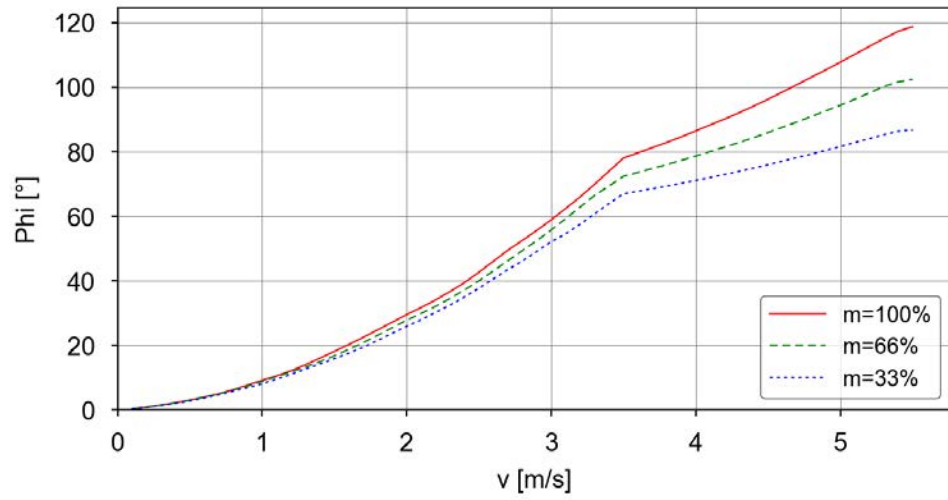
Continues on next page

# 13 IRB 4400

13.2 IRB 4400 1.95 m 60 kg

Continued

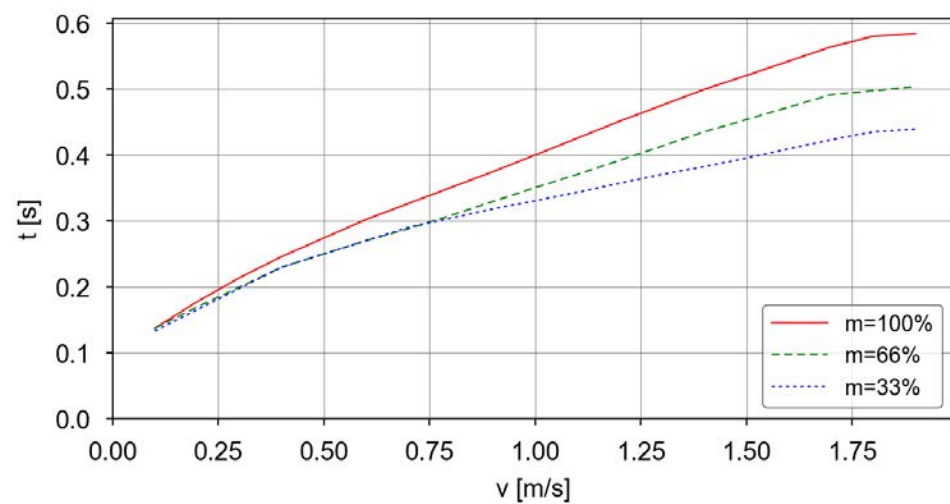
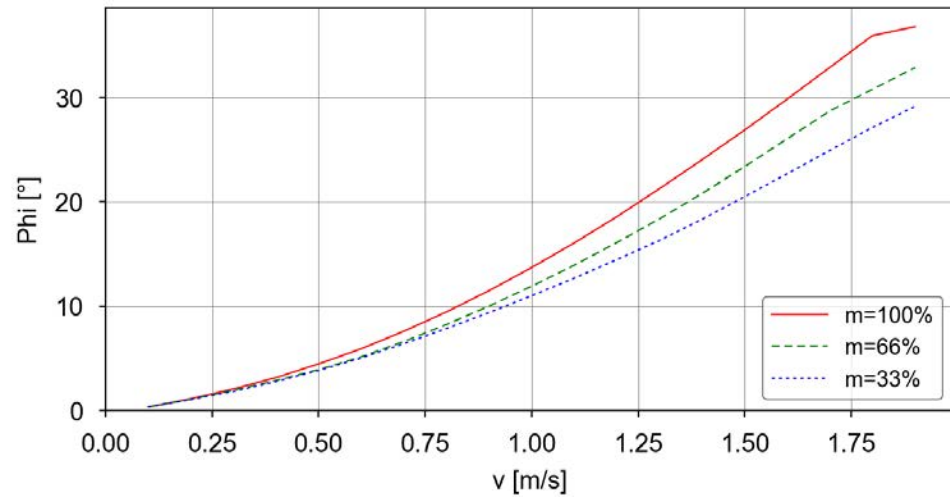
## Extension zone 2, stopping distance and stopping time



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## Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



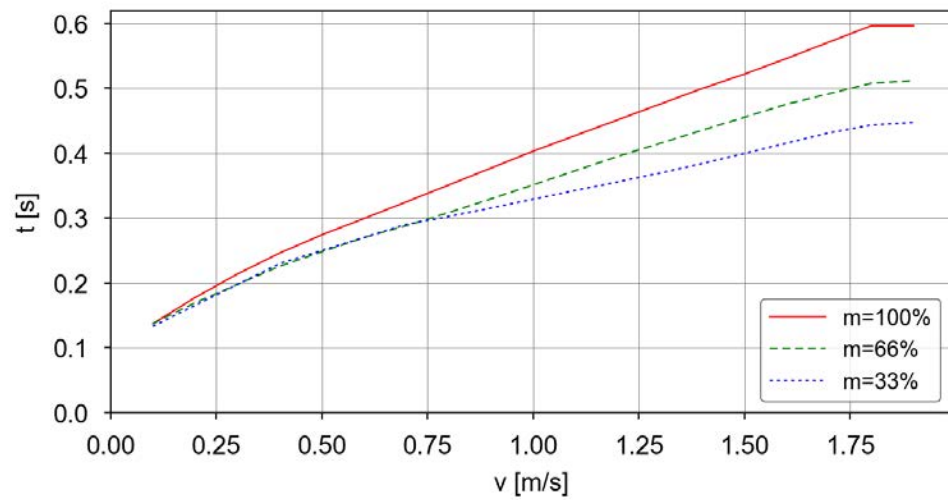
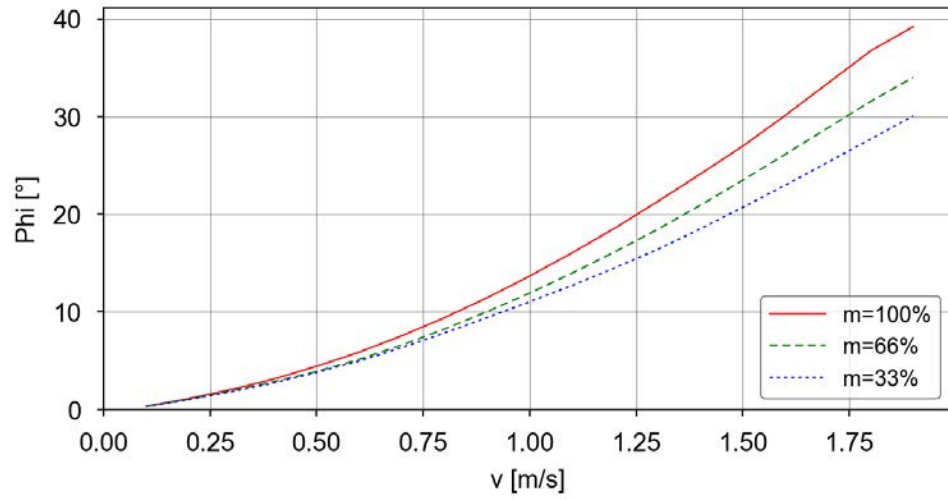
Continues on next page

# 13 IRB 4400

13.2 IRB 4400 1.95 m 60 kg

Continued

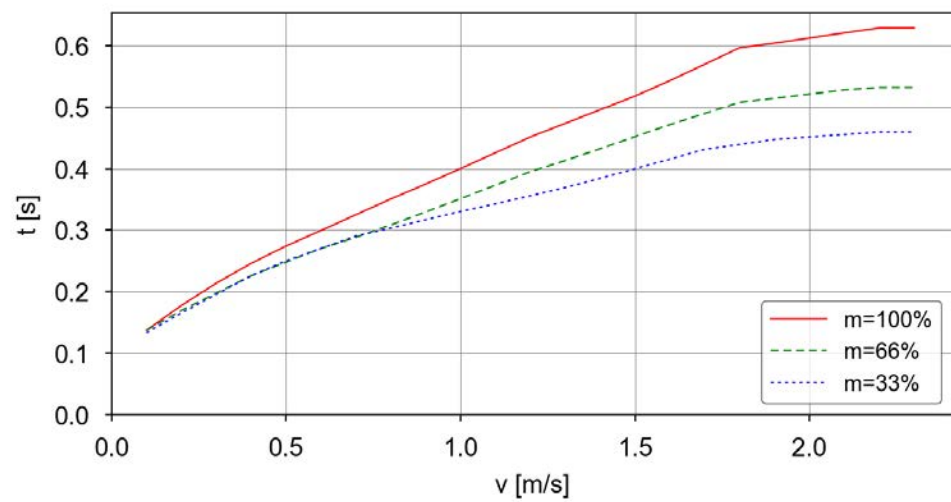
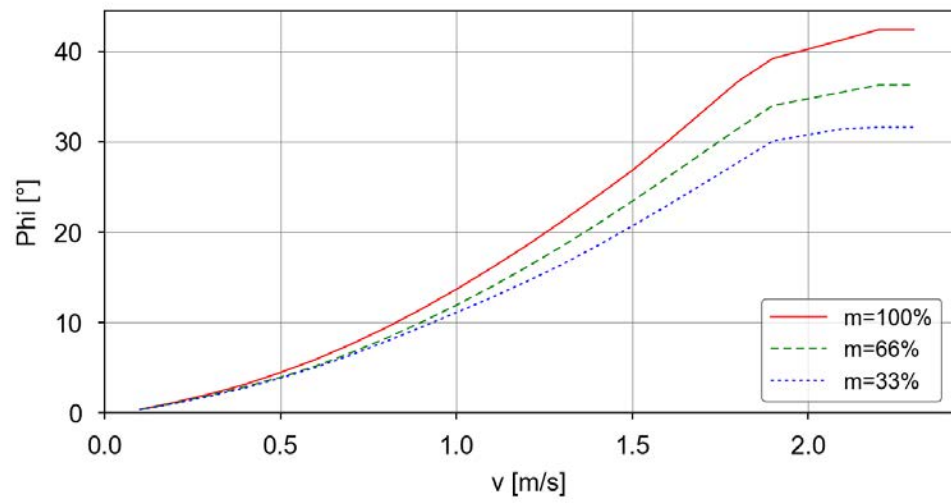
## Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time



Continues on next page

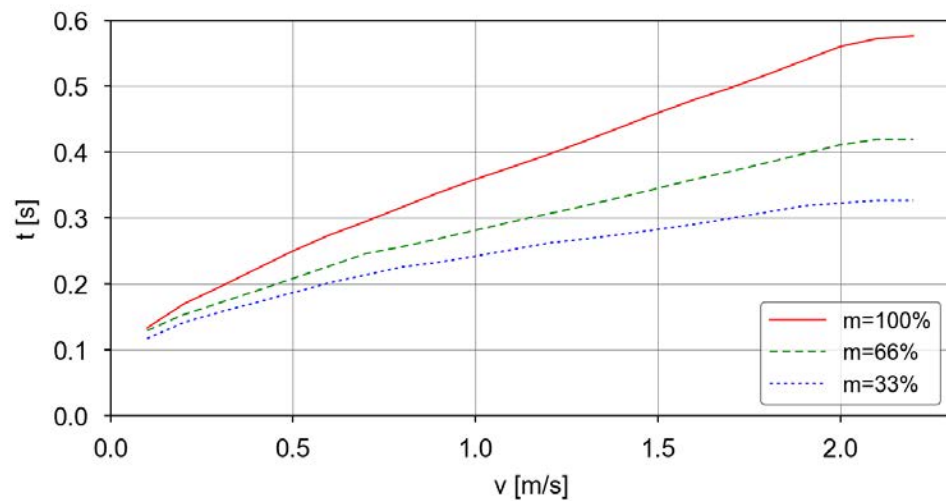
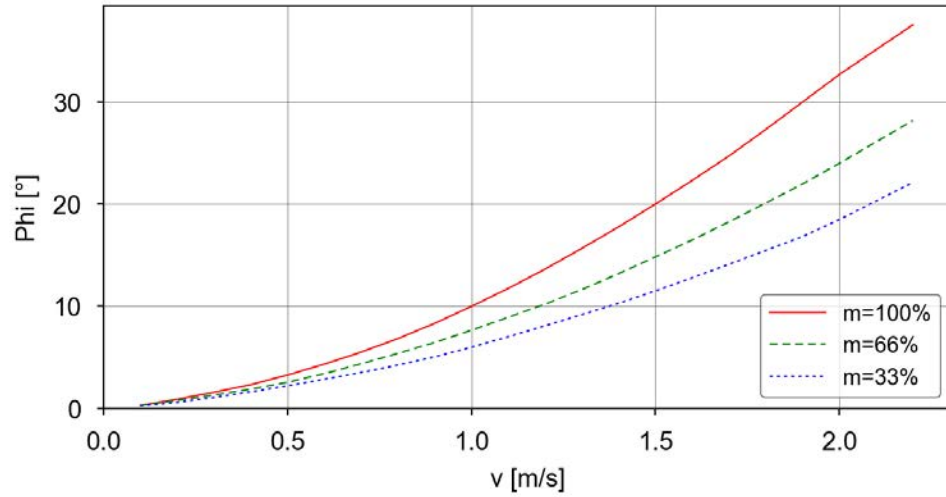
## 13 IRB 4400

13.2 IRB 4400 1.95 m 60 kg

Continued

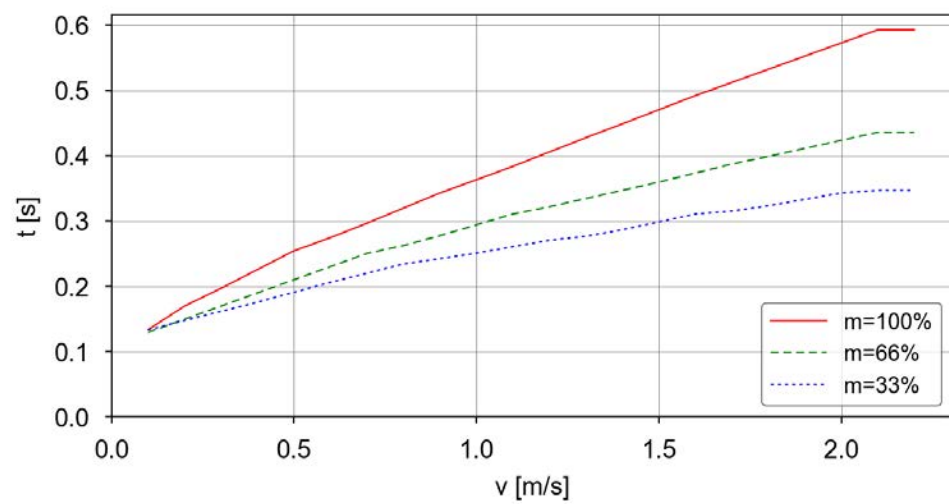
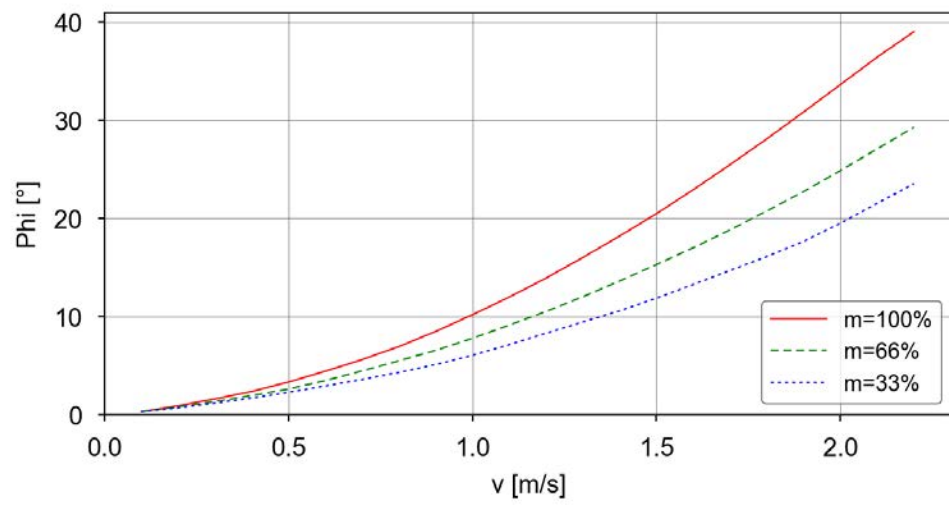
### Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



Continues on next page

Extension zone 1, stopping distance and stopping time



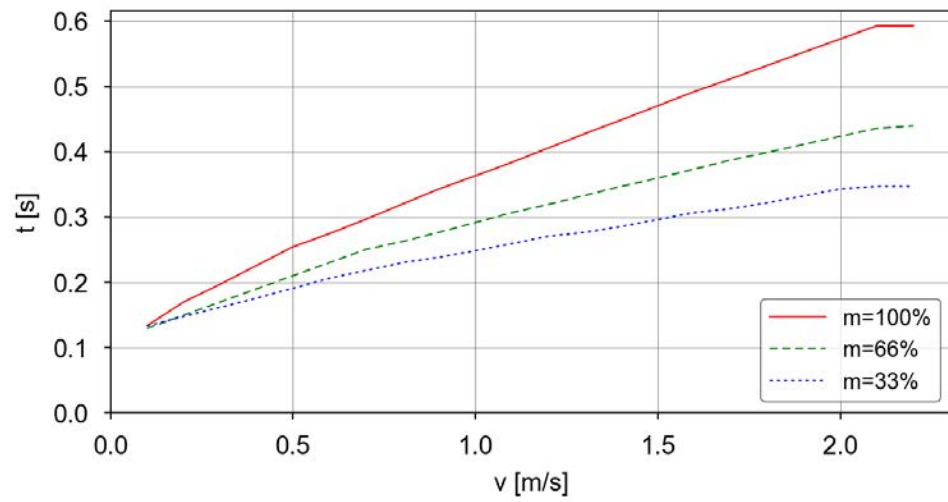
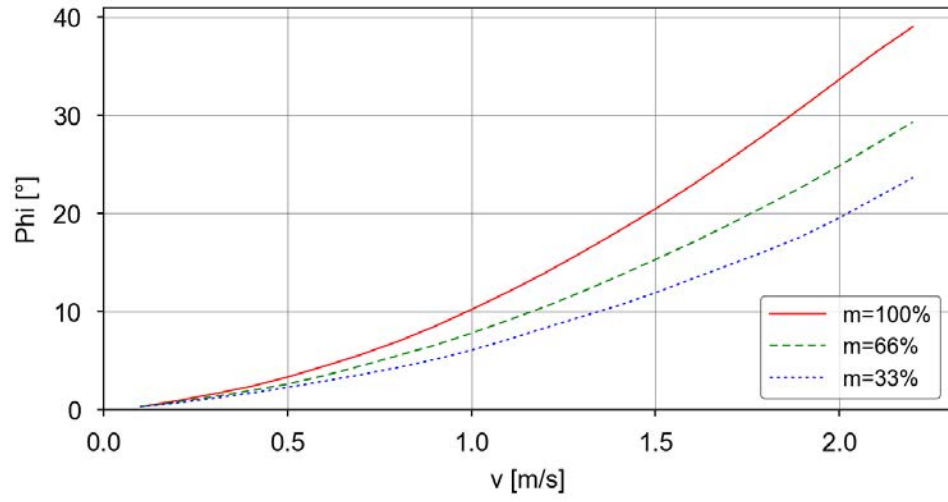
Continues on next page

# 13 IRB 4400

13.2 IRB 4400 1.95 m 60 kg

Continued

## Extension zone 2, stopping distance and stopping time



### 13.3 IRB 4400 2.6 m 10 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	51.3	0.58
2	21.1	0.2
3	19.0	0.17

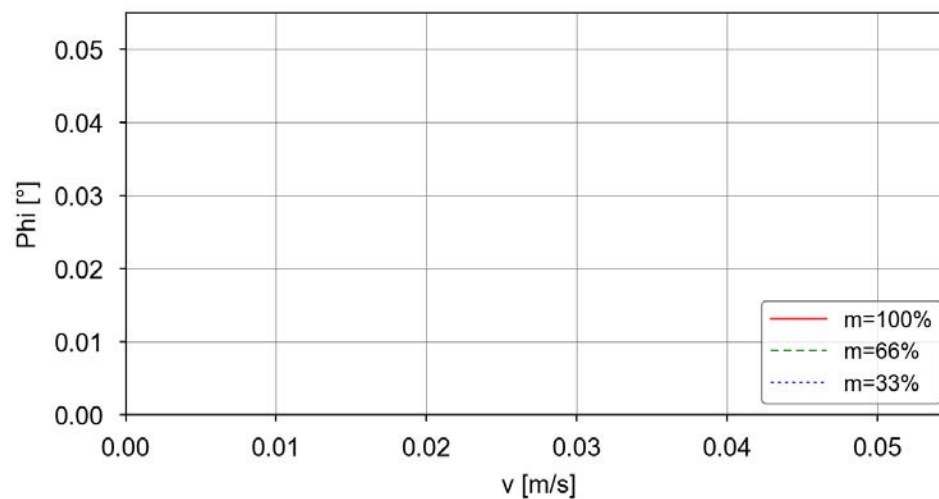
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.0
1	0.0	0.0
2	0.0	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

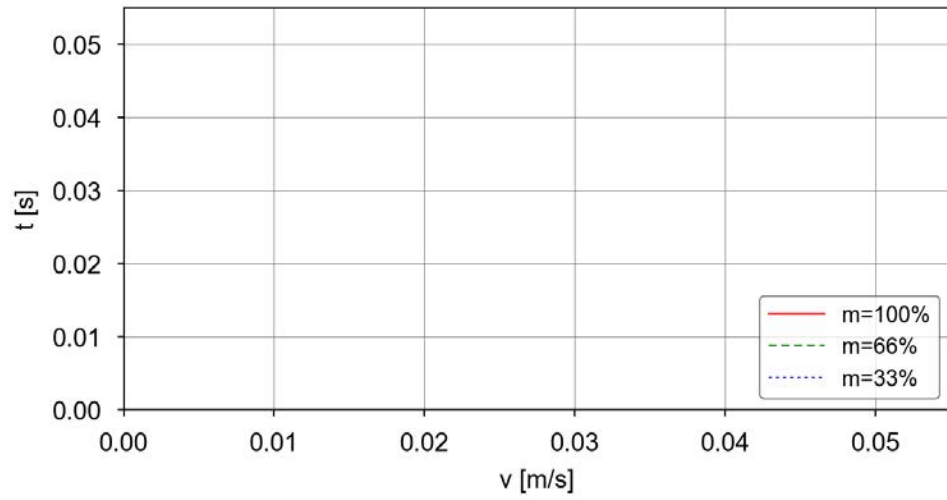


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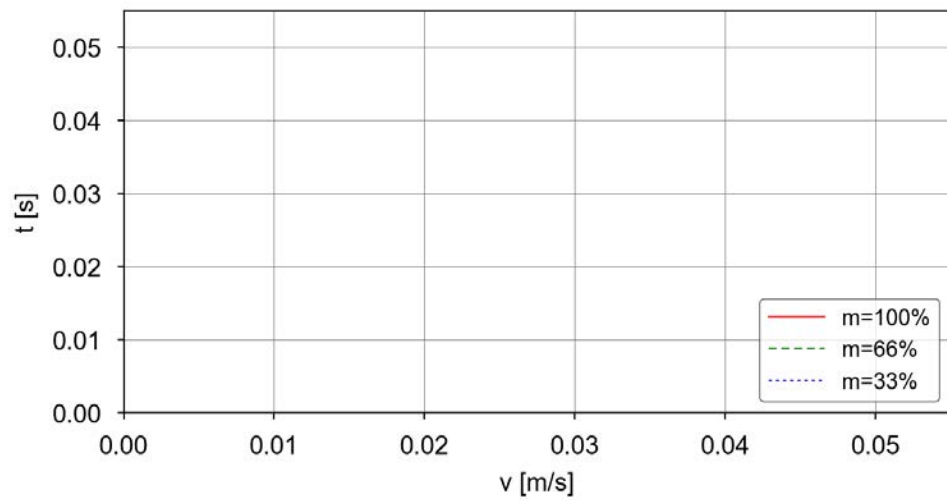
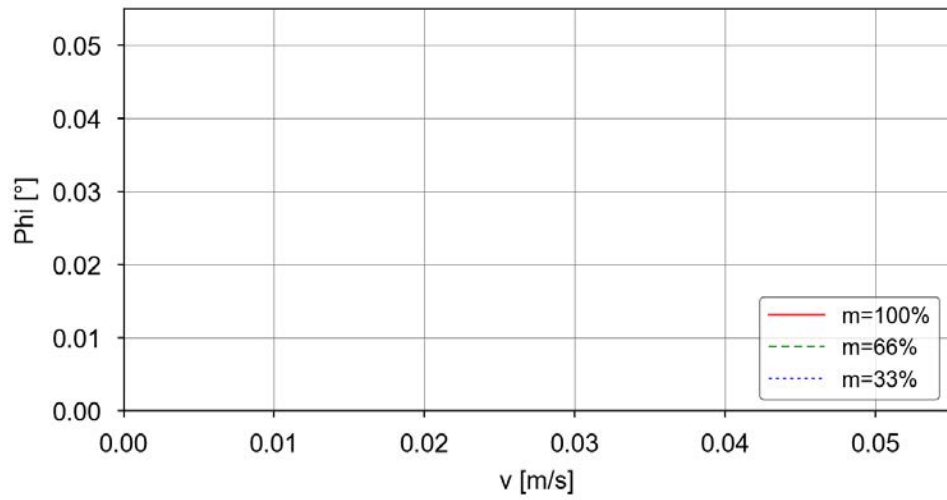
# 13 IRB 4400

## 13.3 IRB 4400 2.6 m 10 kg

Continued

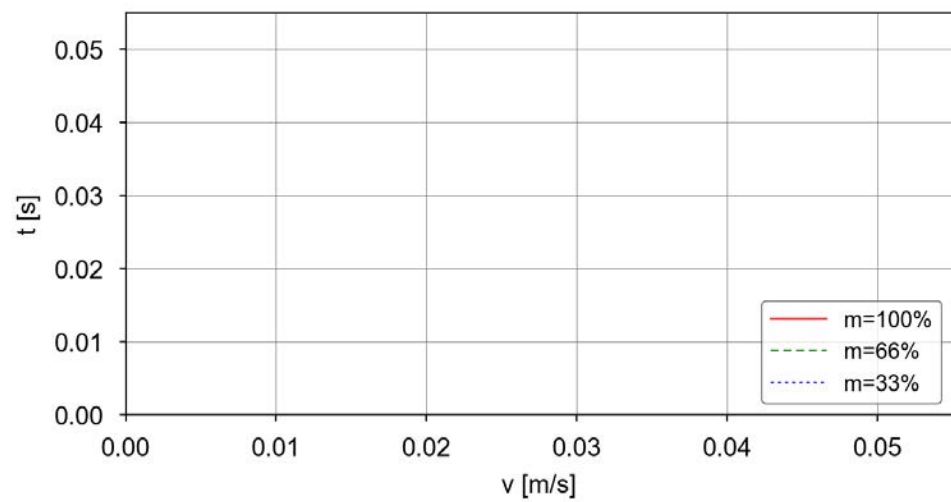
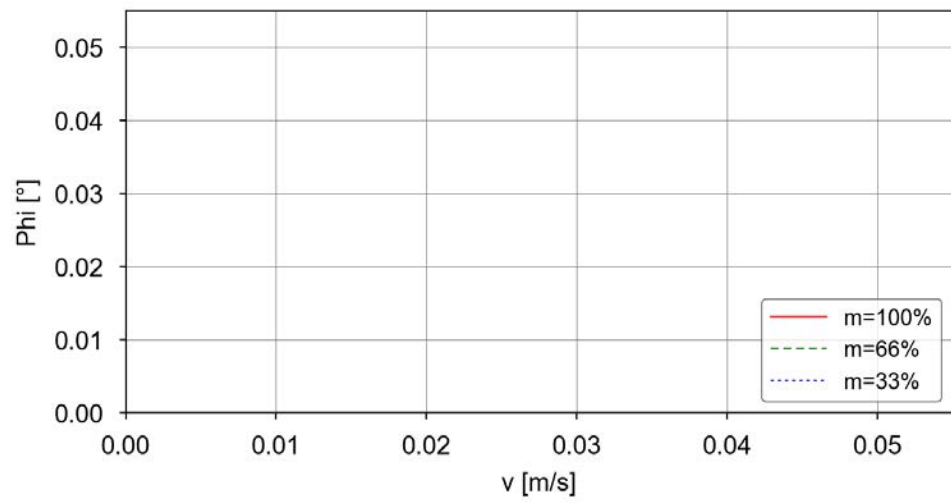


### Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time



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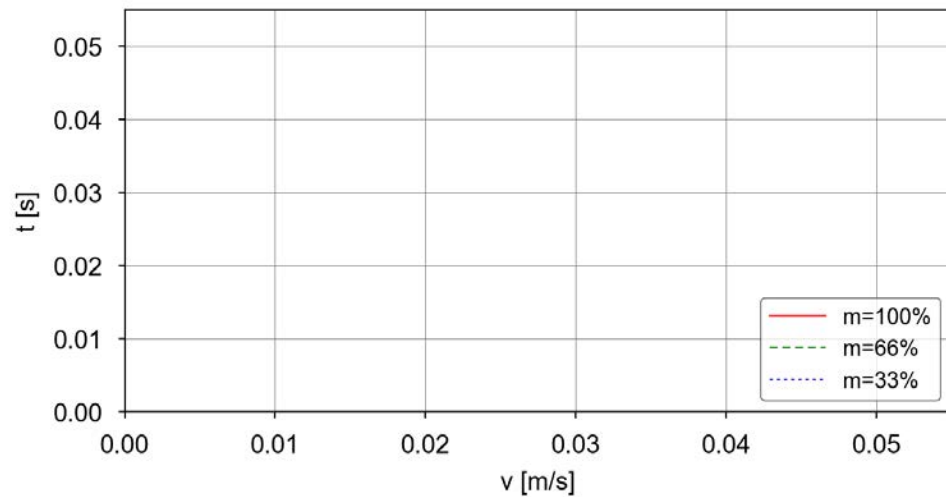
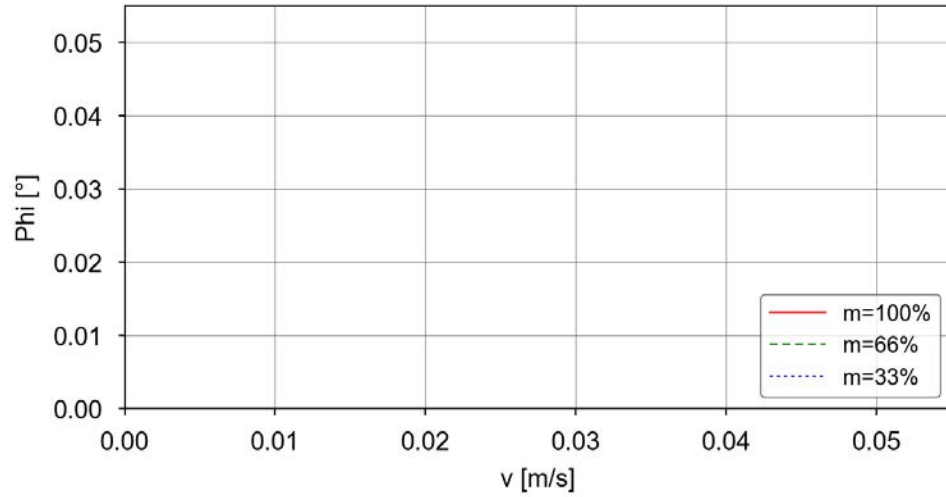
## 13 IRB 4400

13.3 IRB 4400 2.6 m 10 kg

Continued

### Category 1, Axis 2

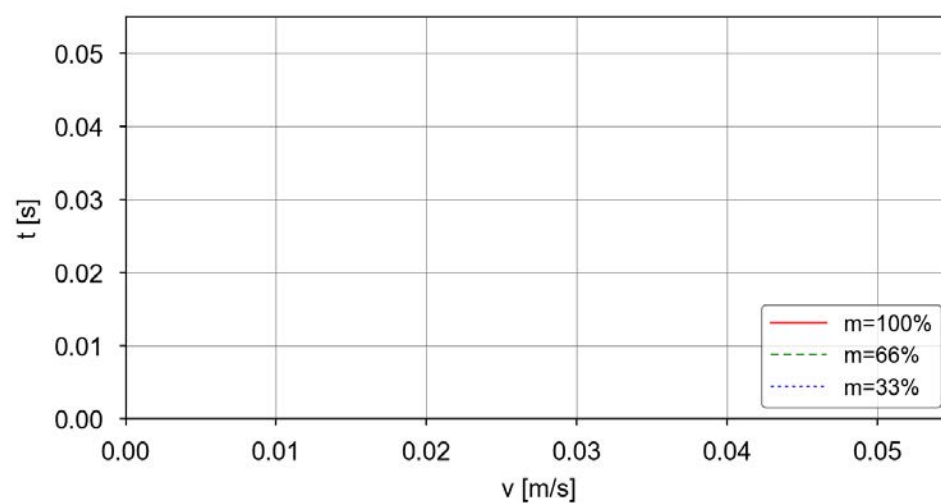
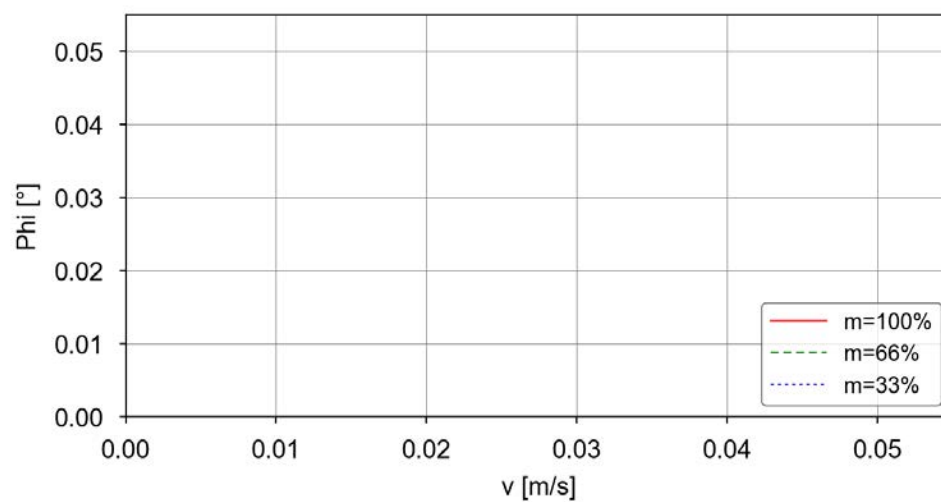
Extension zone 0, stopping distance and stopping time



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## Extension zone 1, stopping distance and stopping time



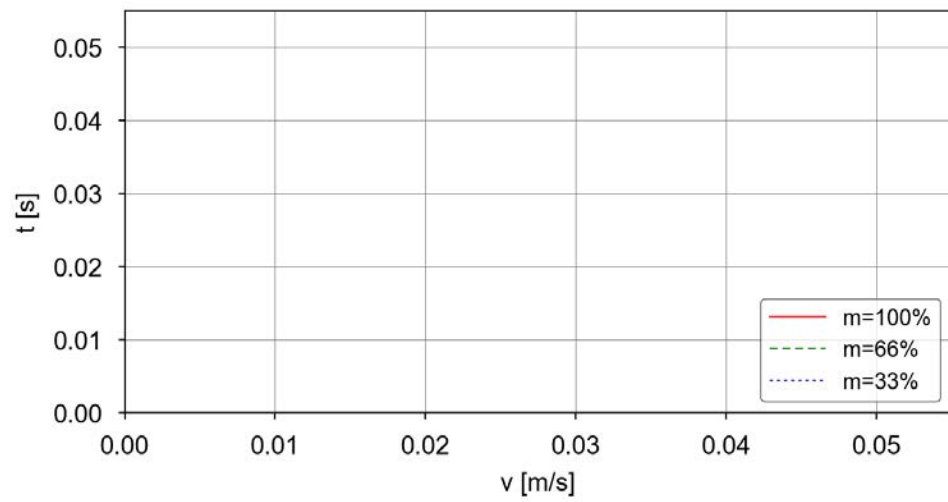
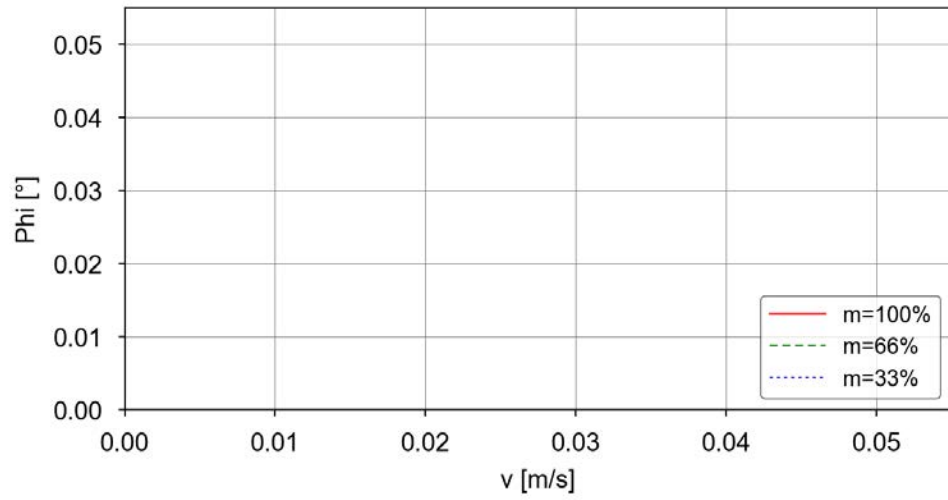
Continues on next page

## 13 IRB 4400

13.3 IRB 4400 2.6 m 10 kg

*Continued*

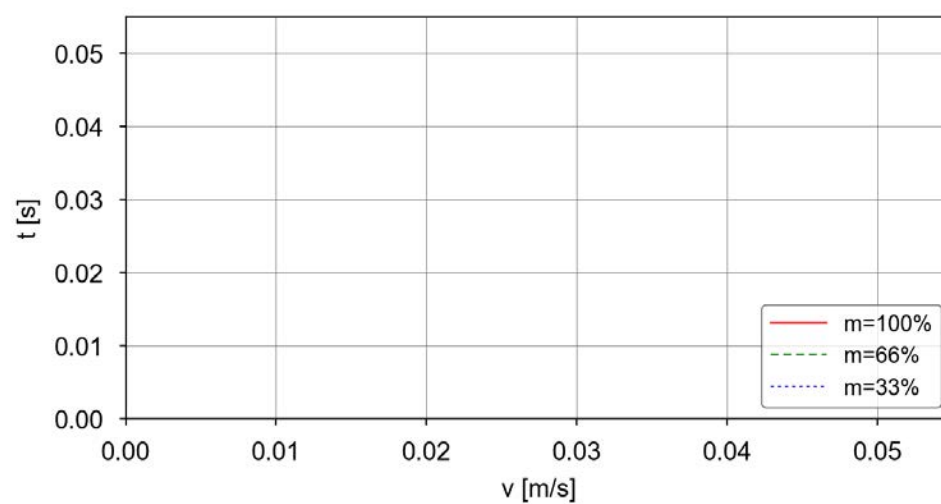
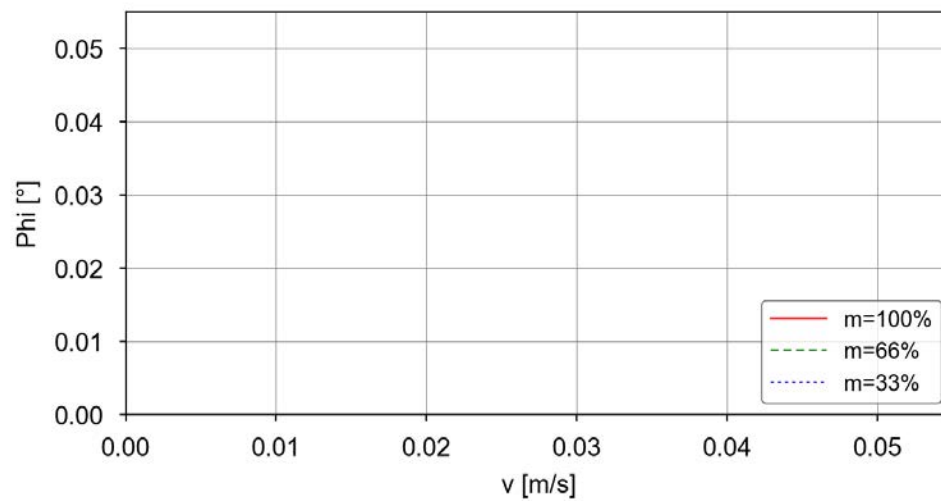
Extension zone 2, stopping distance and stopping time



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## Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



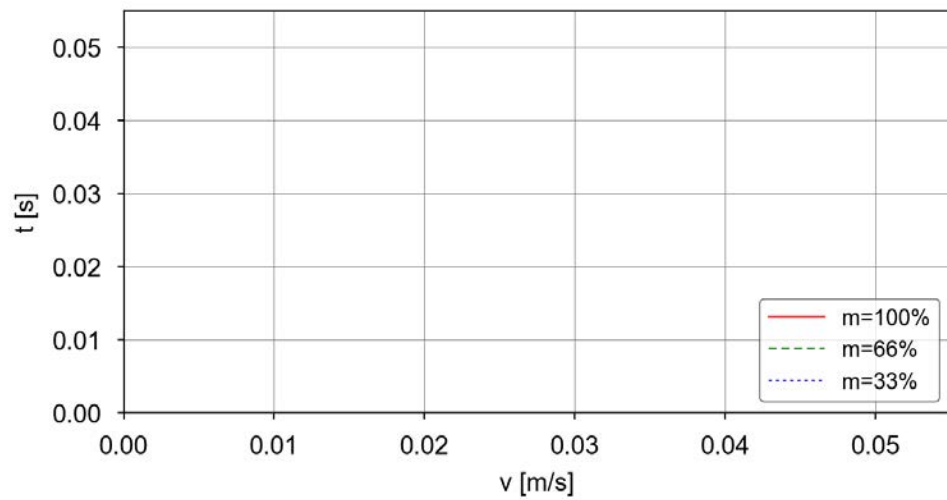
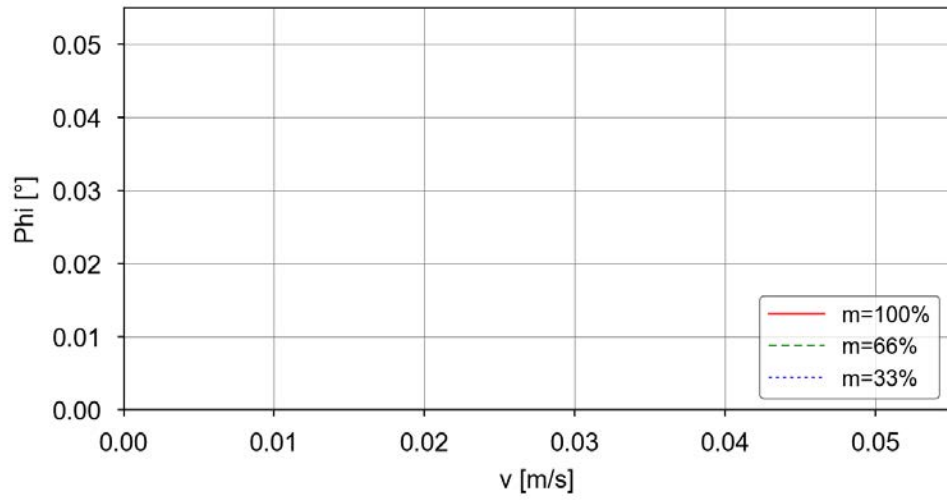
Continues on next page

# 13 IRB 4400

13.3 IRB 4400 2.6 m 10 kg

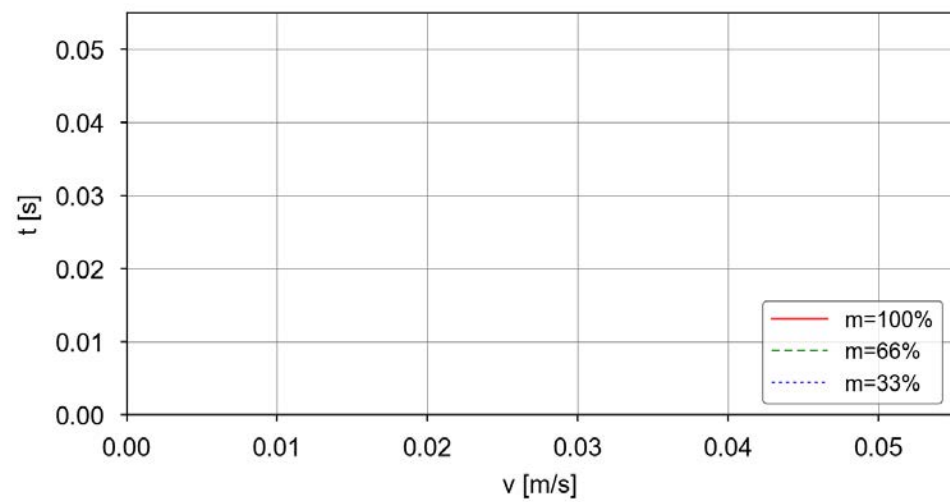
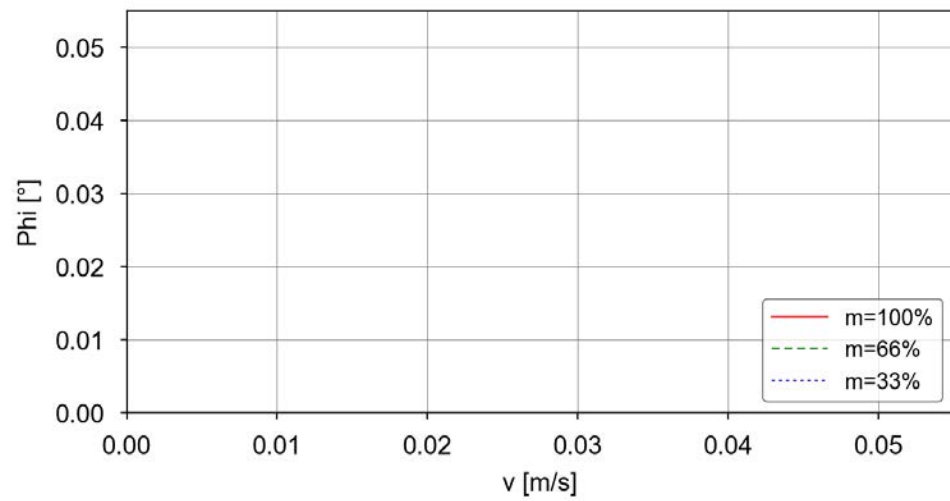
Continued

Extension zone 1, stopping distance and stopping time



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## Extension zone 2, stopping distance and stopping time



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## 14 IRB 4600

### 14.1 IRB 4600 2.05 m 45 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	60.5	0.58
2	37.1	0.32
3	25.3	0.2

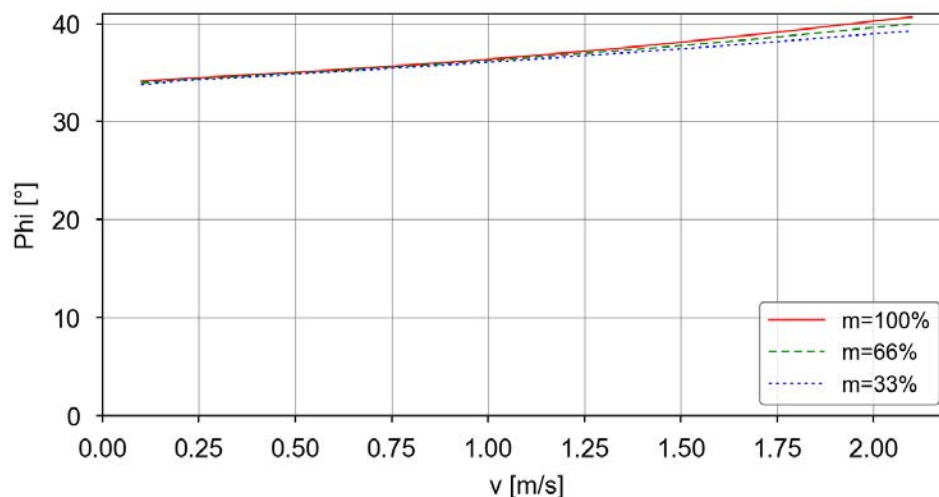
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.684
1	0.684	1.367
2	1.367	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

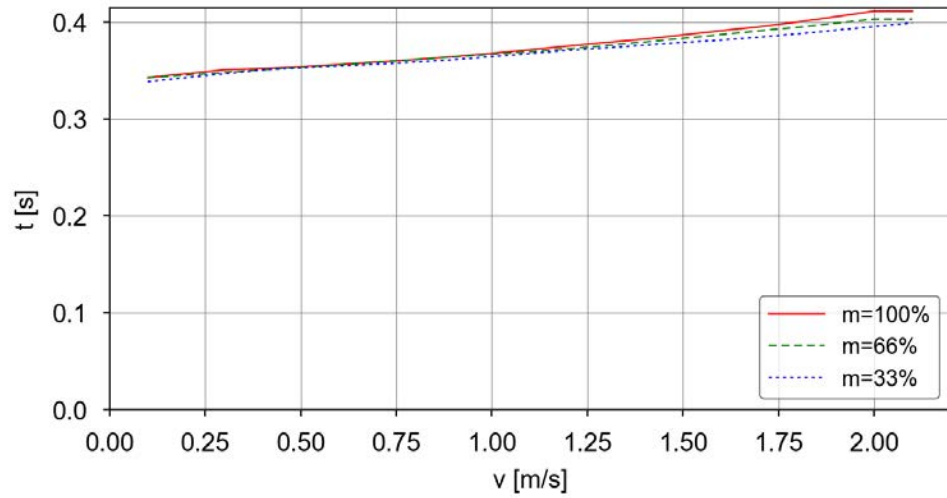


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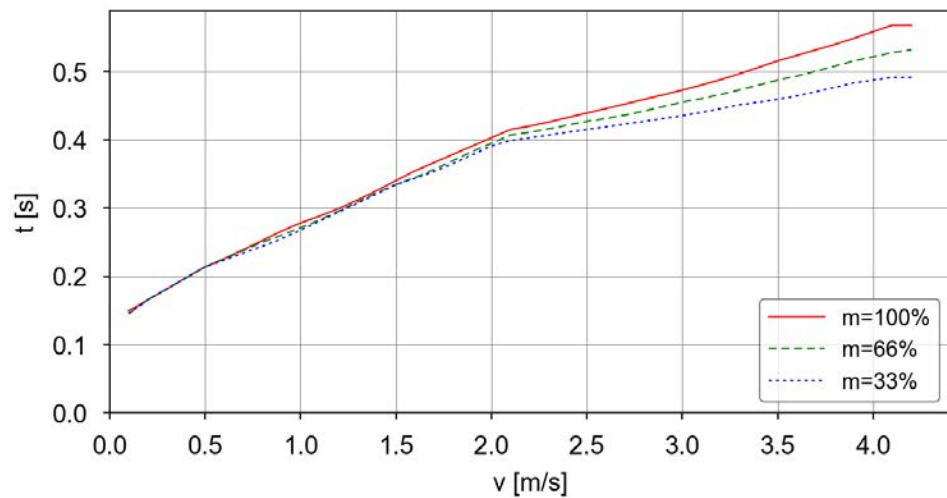
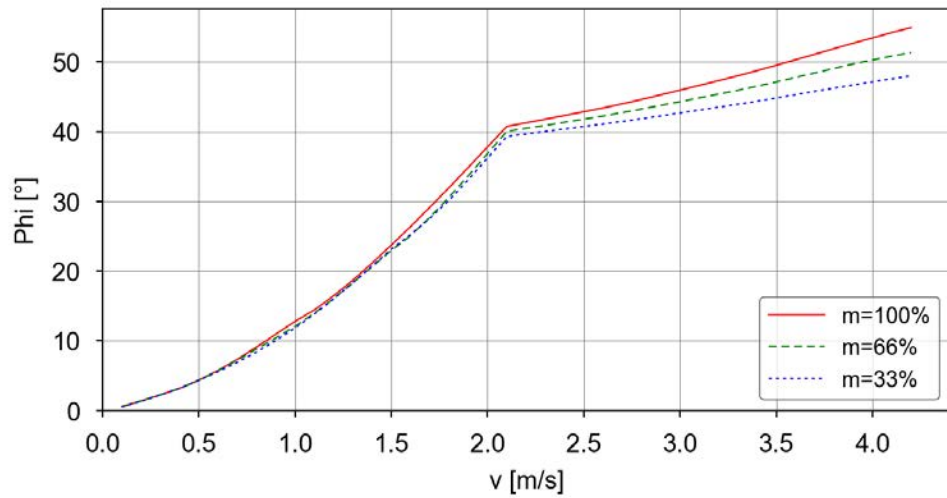
# 14 IRB 4600

## 14.1 IRB 4600 2.05 m 45 kg

Continued



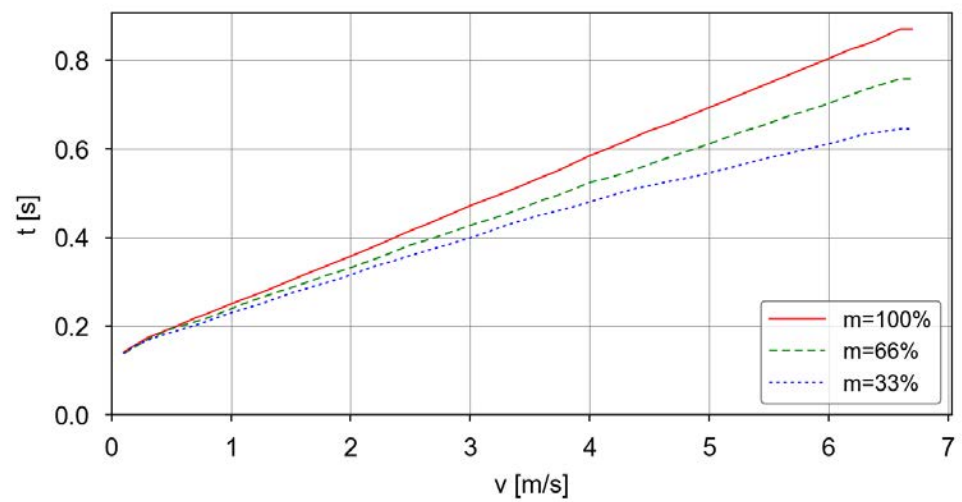
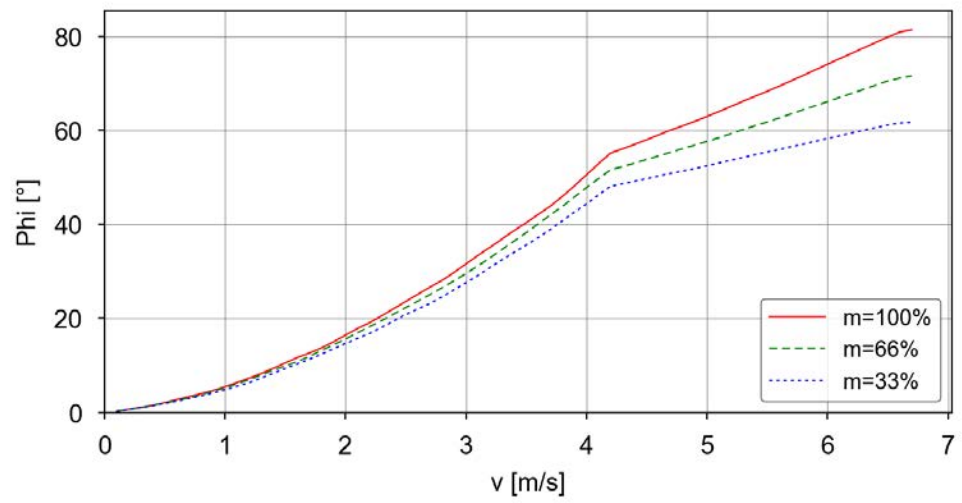
### Extension zone 1, stopping distance and stopping time



Continues on next page



Extension zone 2, stopping distance and stopping time



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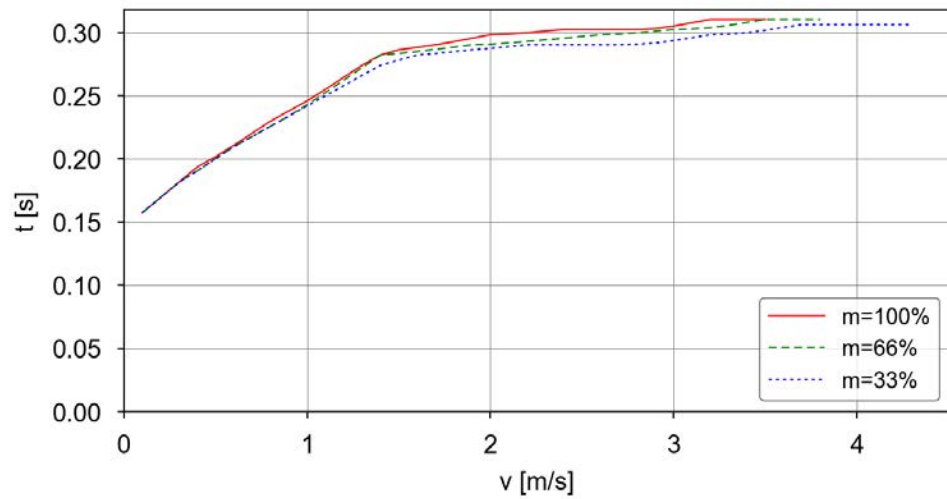
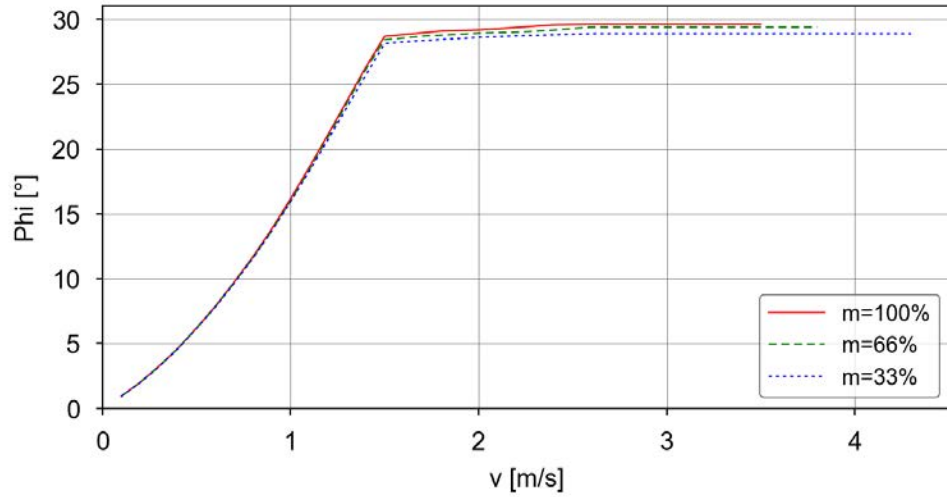
# 14 IRB 4600

14.1 IRB 4600 2.05 m 45 kg

Continued

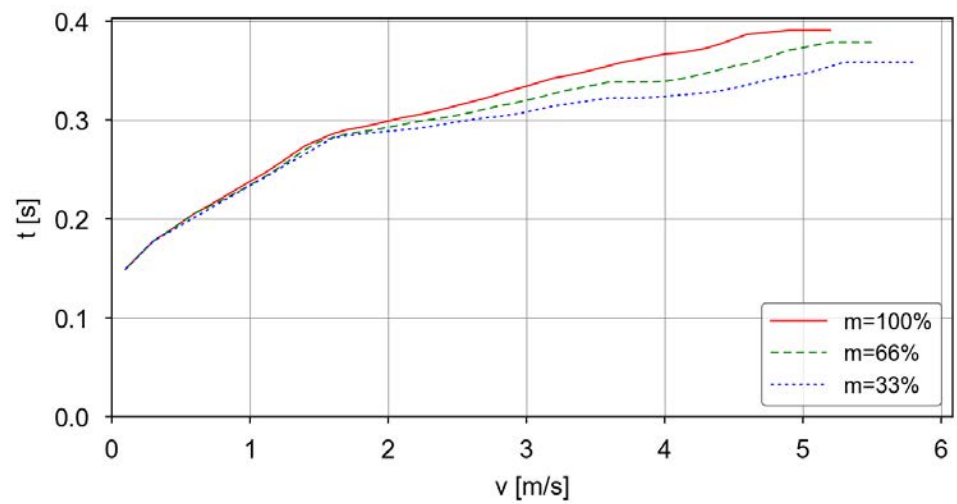
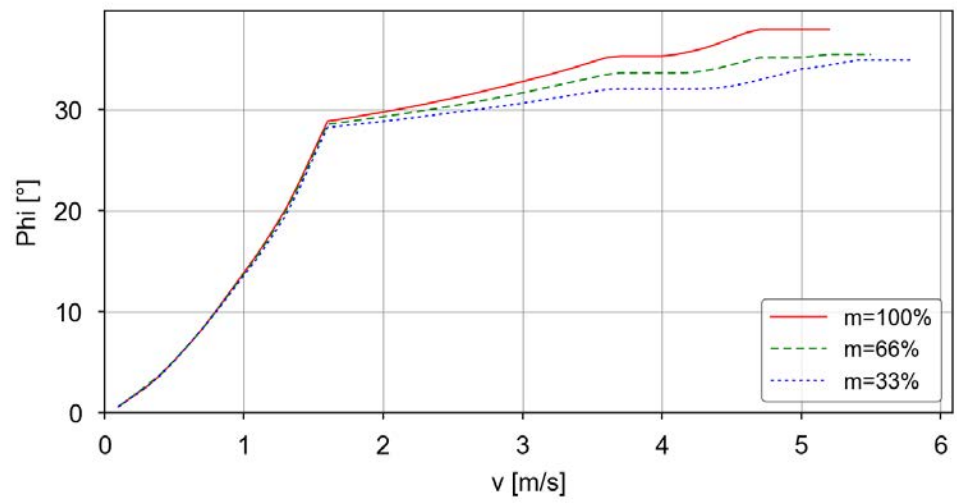
## Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



Continues on next page

Extension zone 1, stopping distance and stopping time



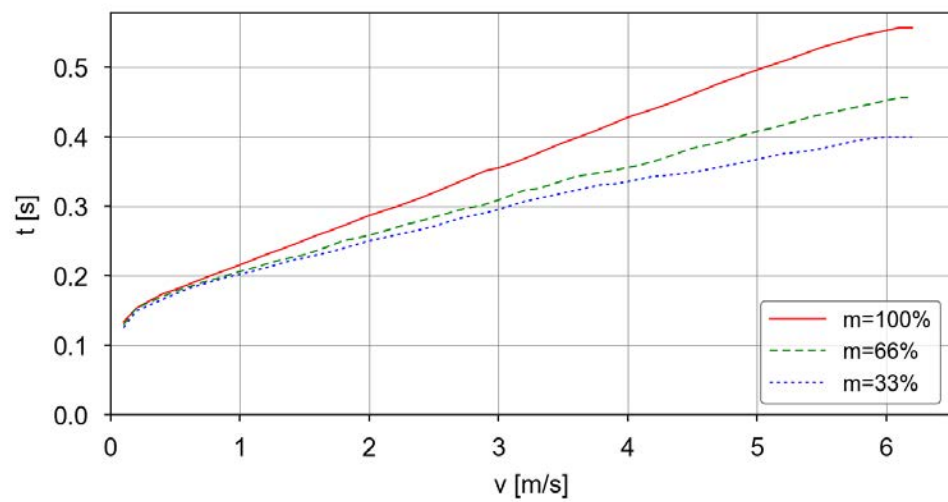
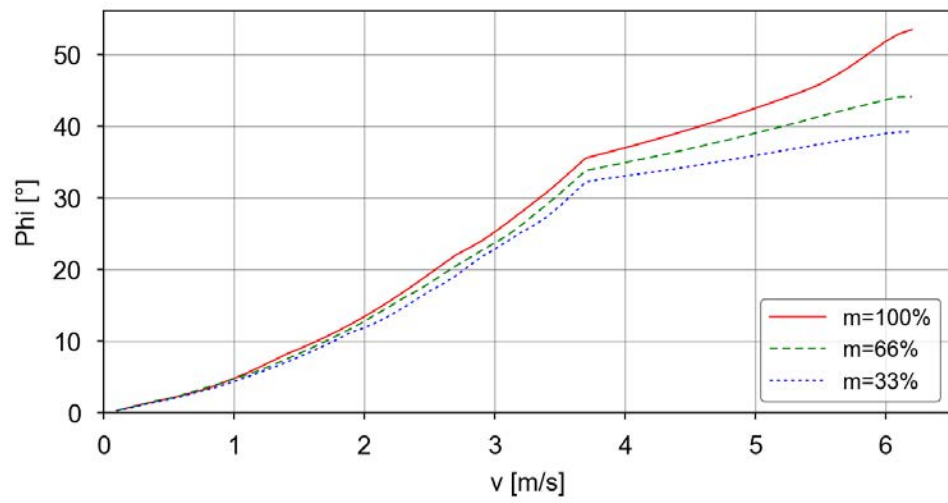
Continues on next page

## 14 IRB 4600

### 14.1 IRB 4600 2.05 m 45 kg

Continued

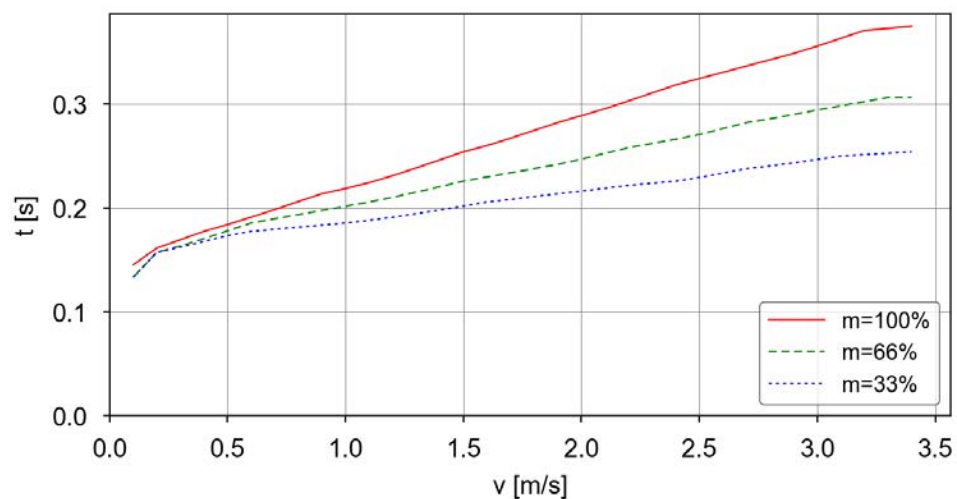
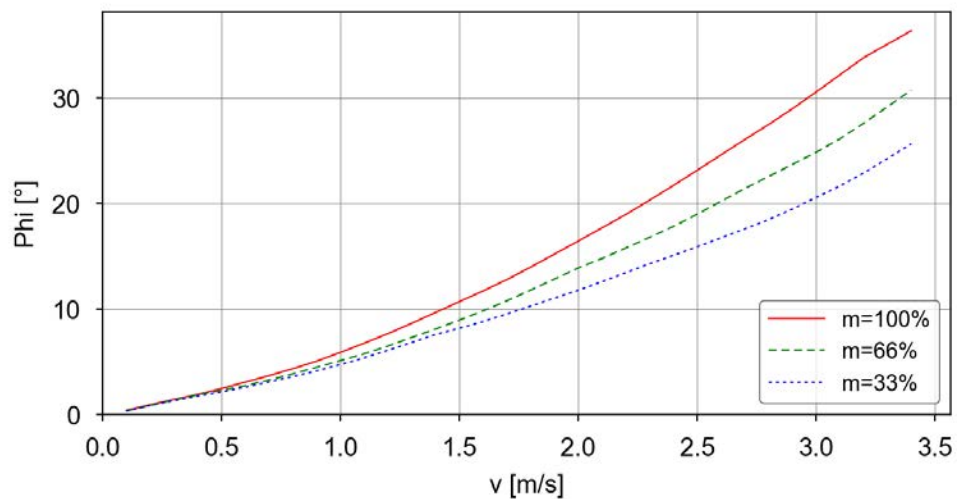
#### Extension zone 2, stopping distance and stopping time



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Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



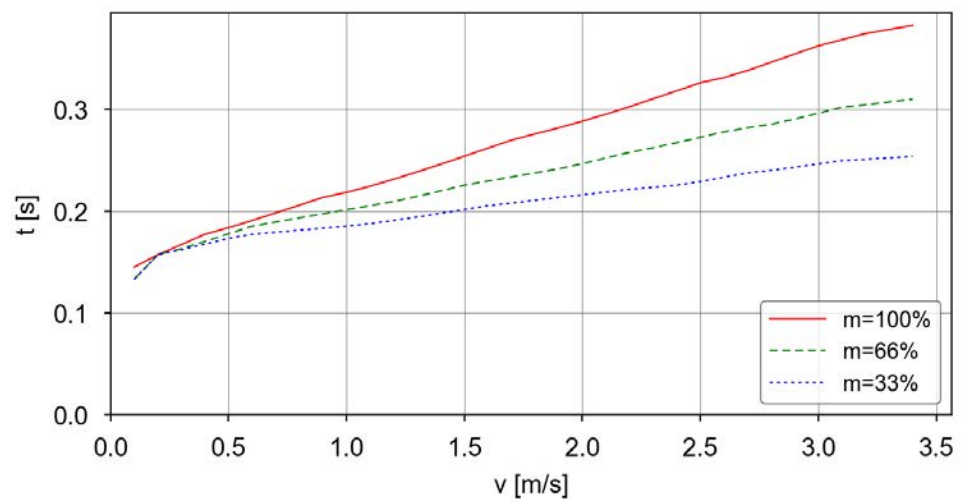
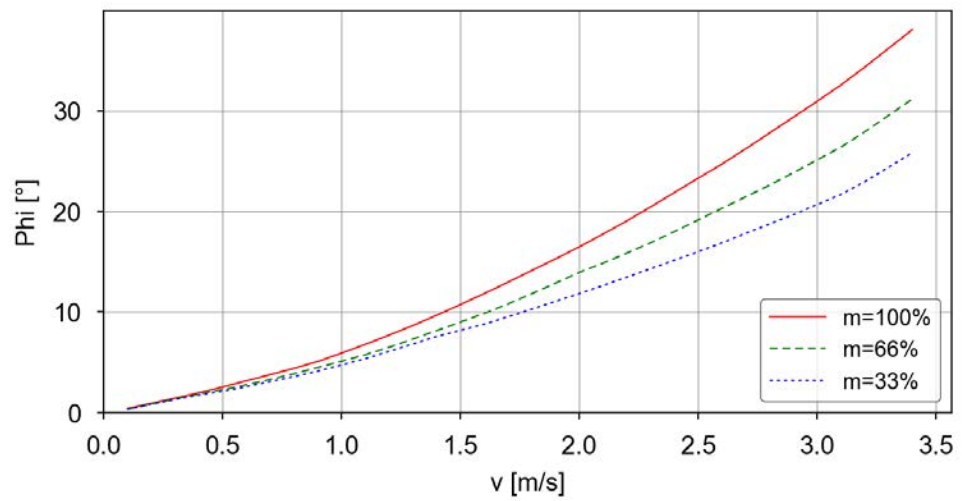
Continues on next page

## 14 IRB 4600

### 14.1 IRB 4600 2.05 m 45 kg

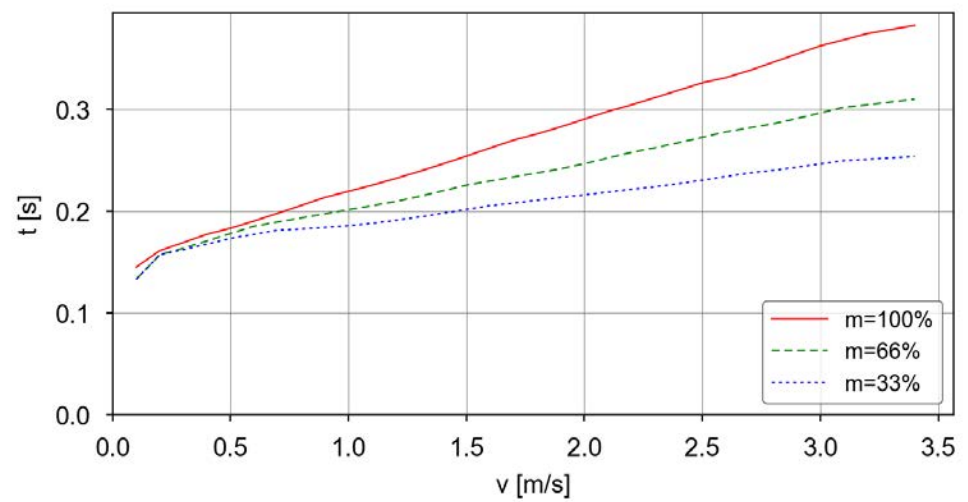
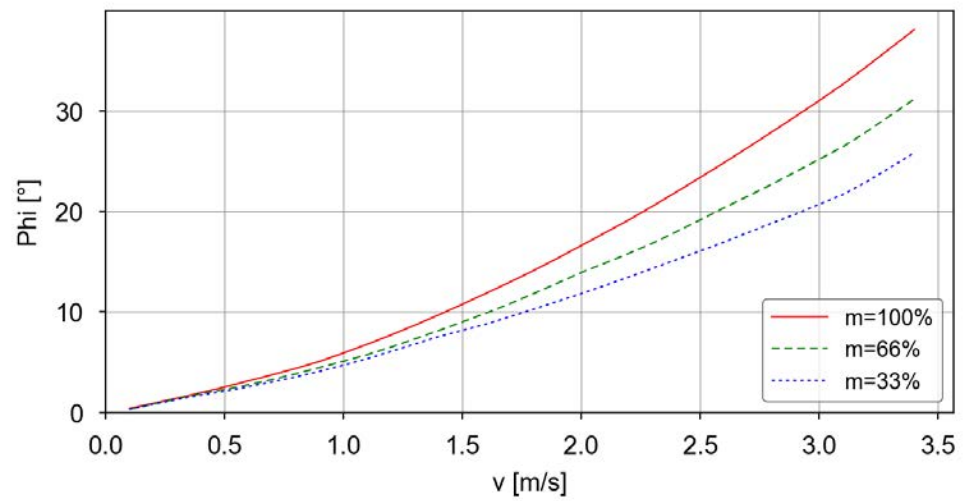
Continued

Extension zone 1, stopping distance and stopping time



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## Extension zone 2, stopping distance and stopping time



## 14 IRB 4600

### 14.2 IRB 4600 2.05 m 60 kg

### 14.2 IRB 4600 2.05 m 60 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	62.9	0.66
2	40.3	0.37
3	32.8	0.27

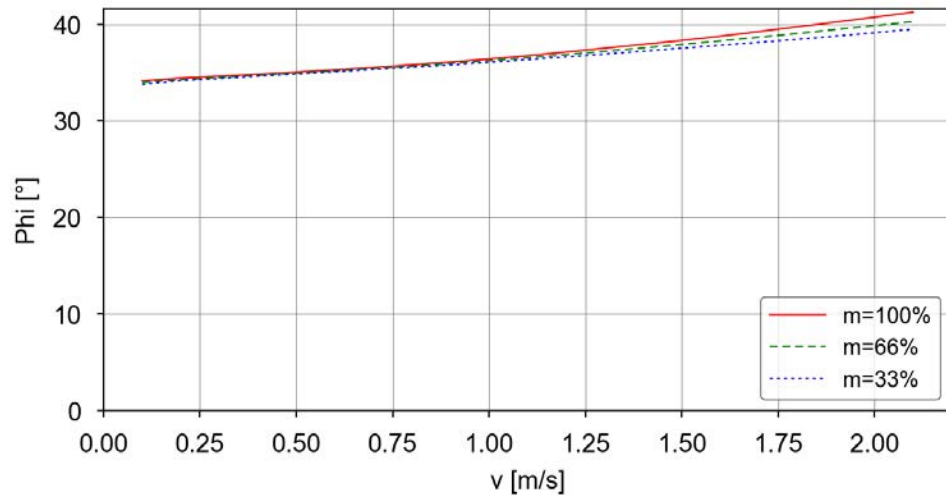
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.684
1	0.684	1.367
2	1.367	max reach

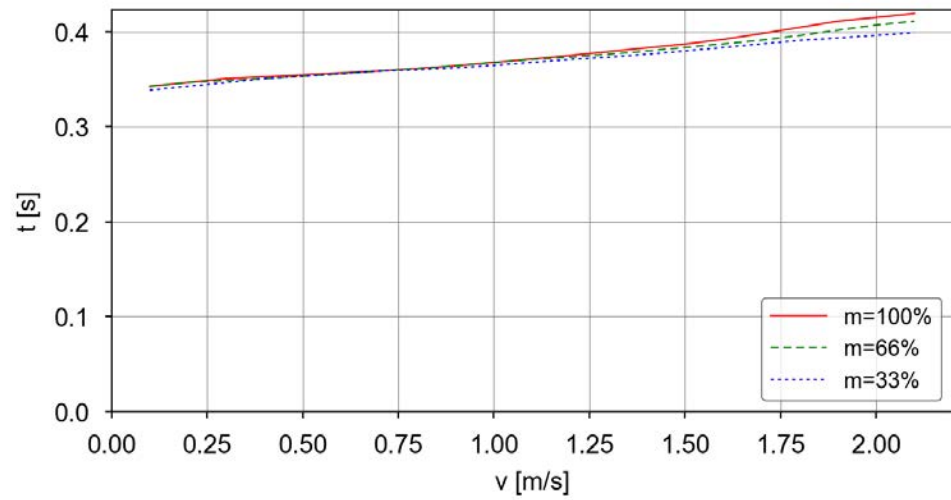
#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

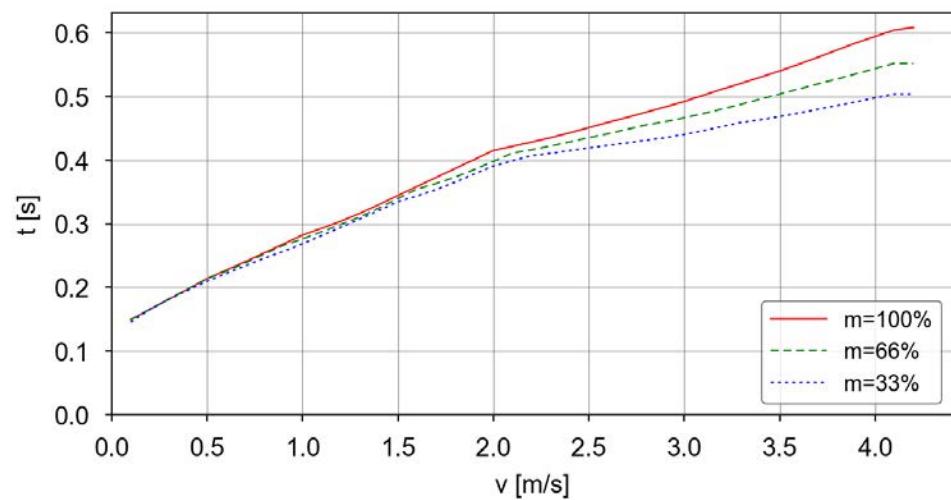
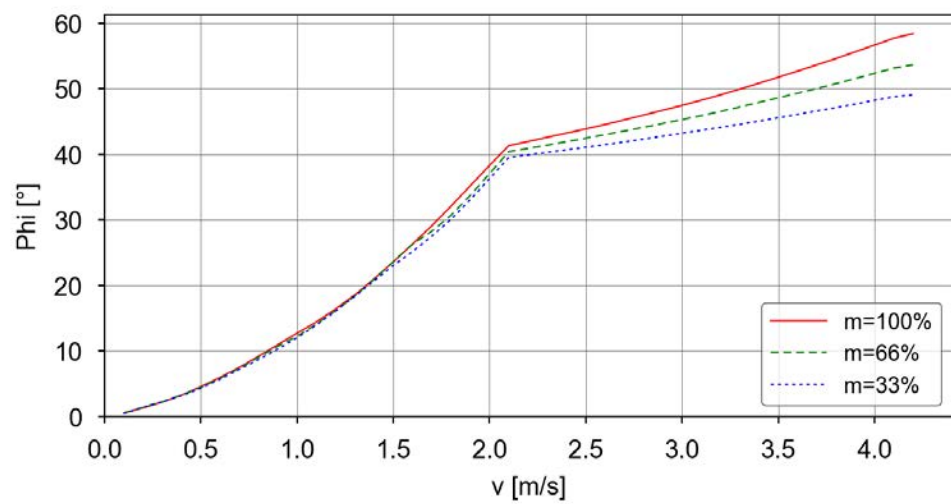


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Extension zone 1, stopping distance and stopping time



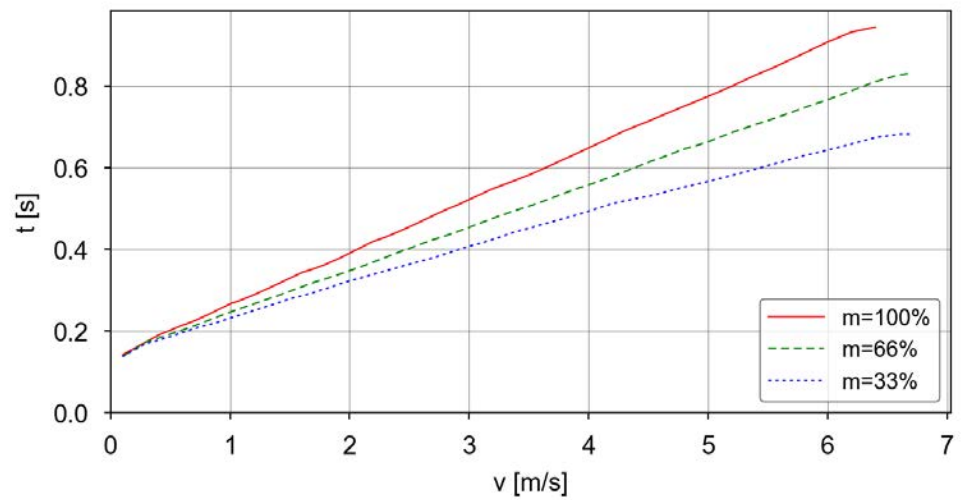
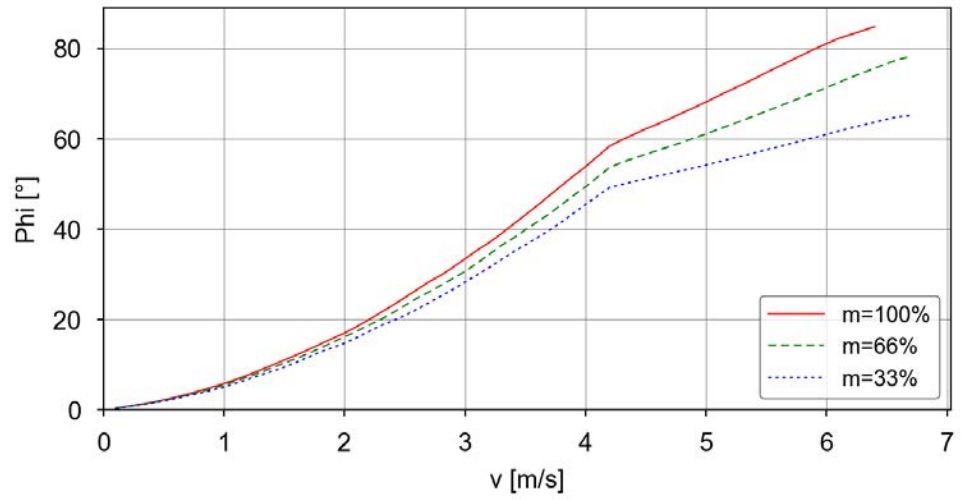
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# 14 IRB 4600

## 14.2 IRB 4600 2.05 m 60 kg

Continued

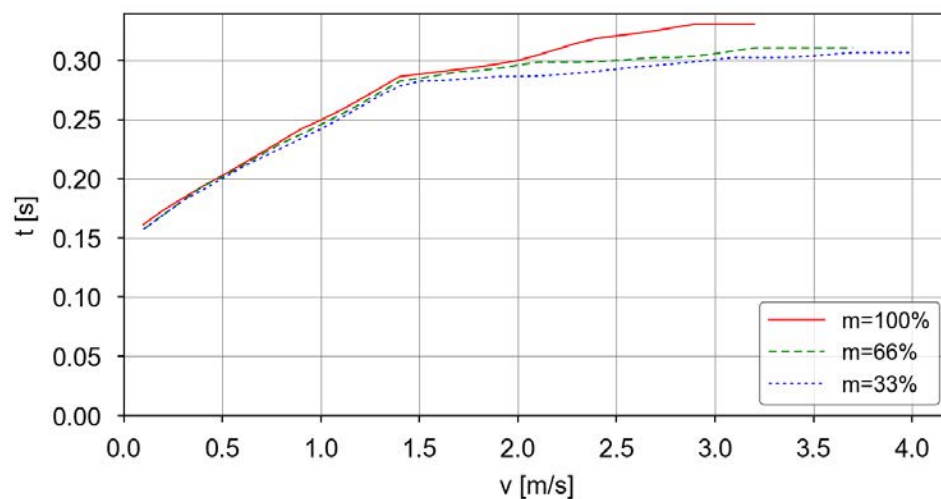
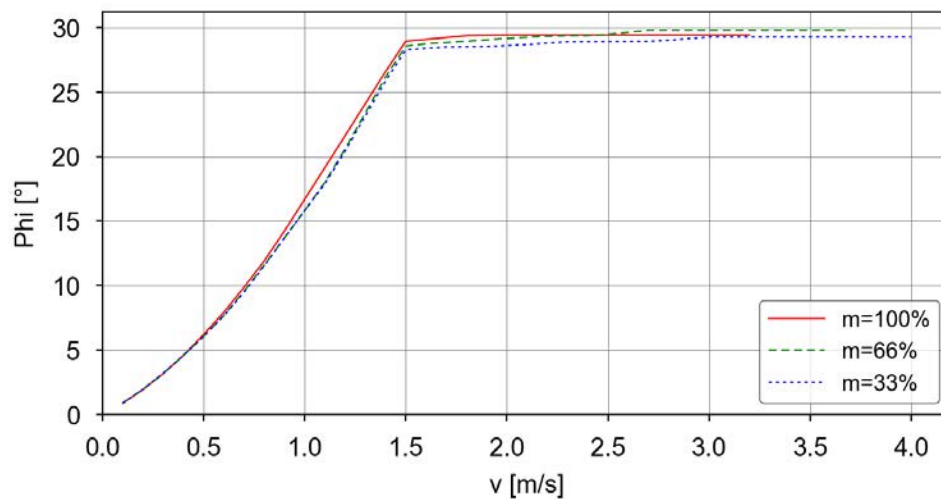
### Extension zone 2, stopping distance and stopping time



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Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



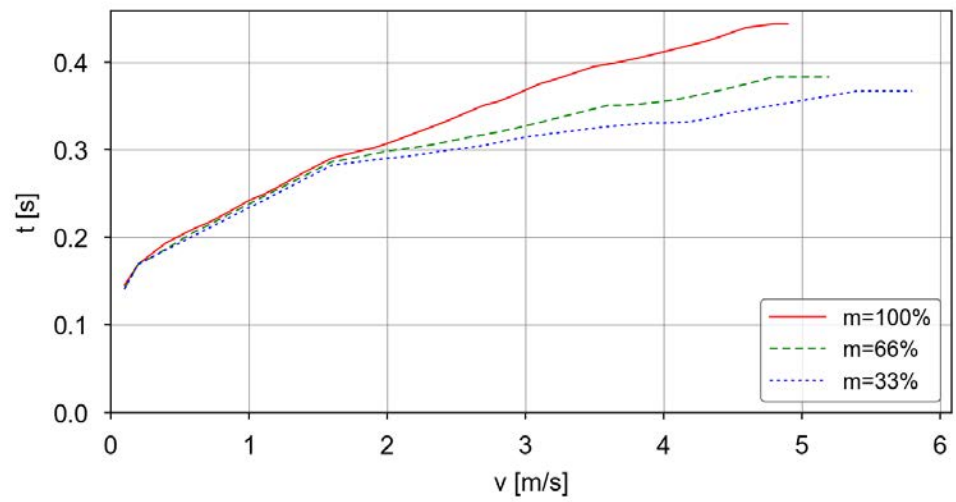
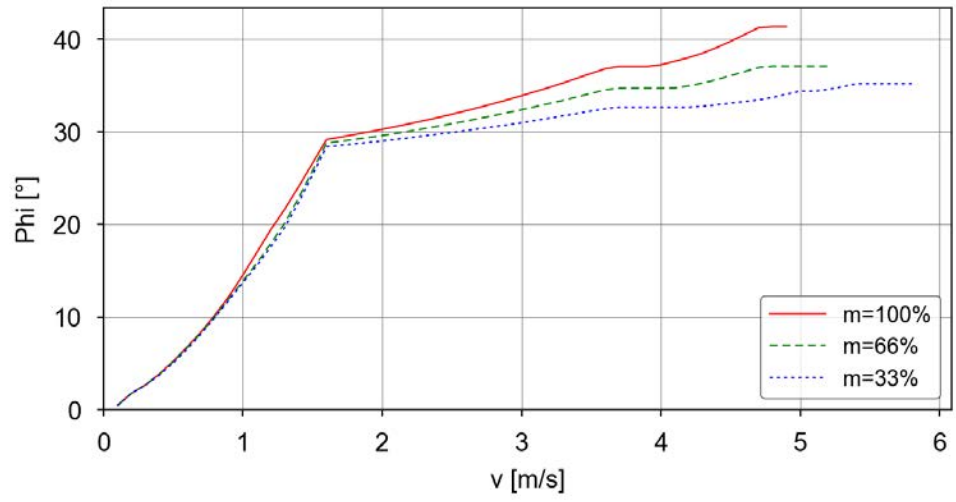
Continues on next page

# 14 IRB 4600

## 14.2 IRB 4600 2.05 m 60 kg

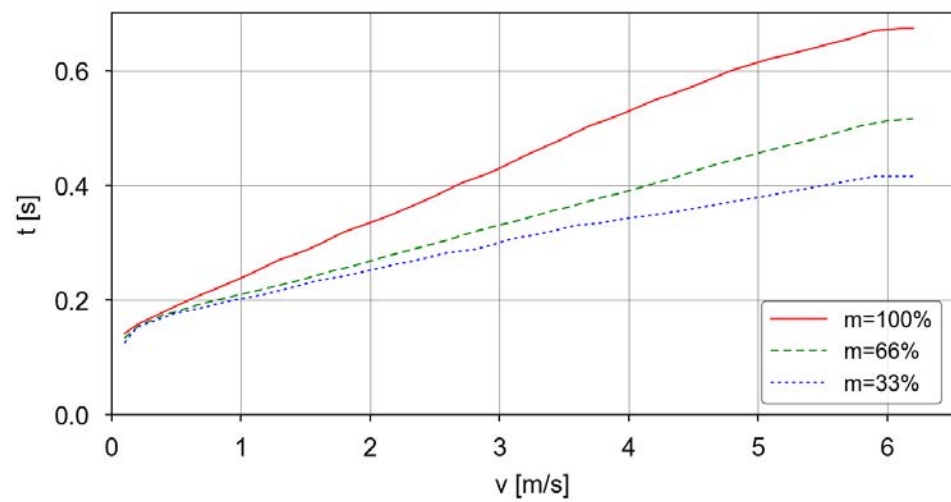
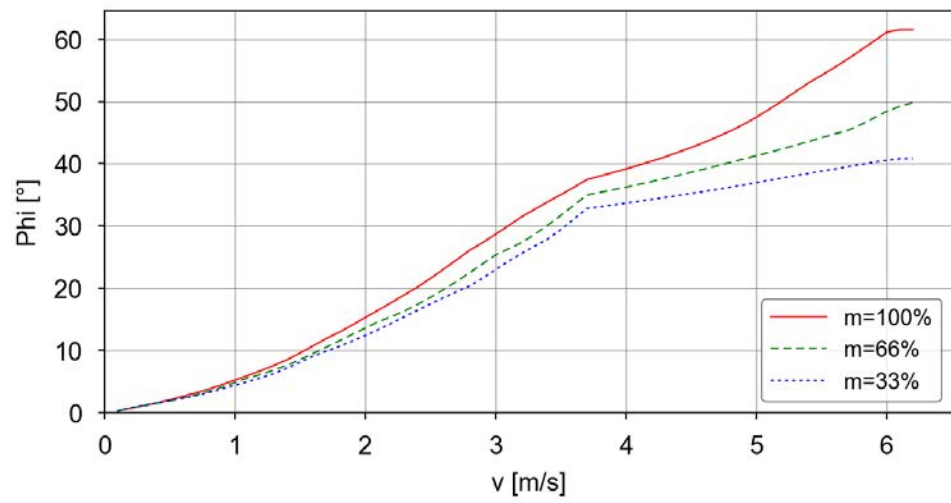
Continued

### Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

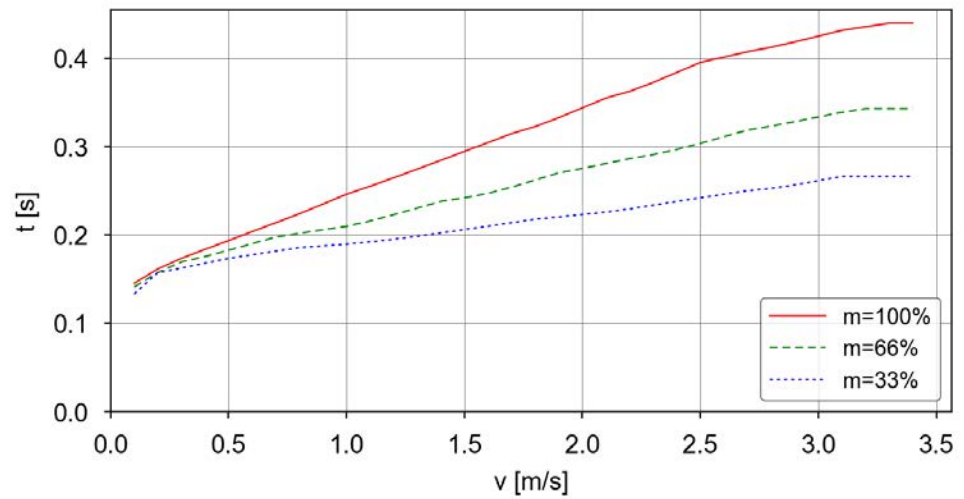
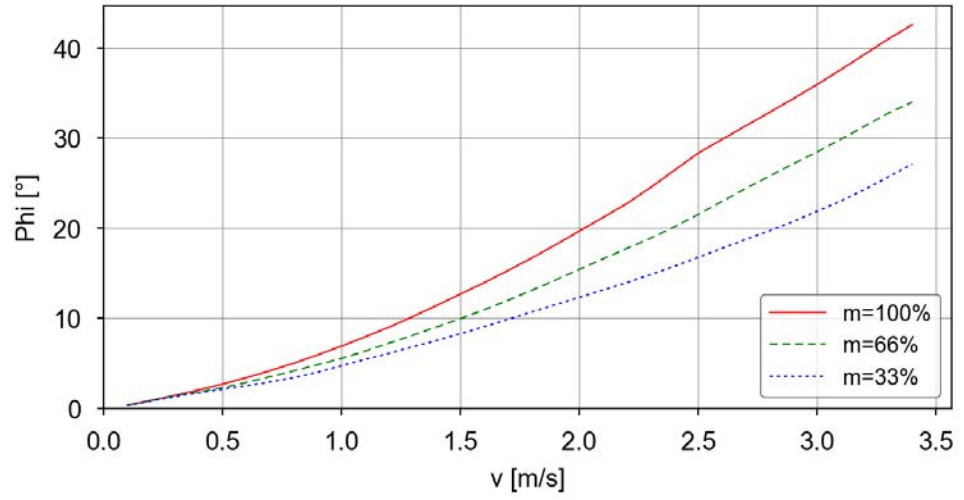
# 14 IRB 4600

14.2 IRB 4600 2.05 m 60 kg

Continued

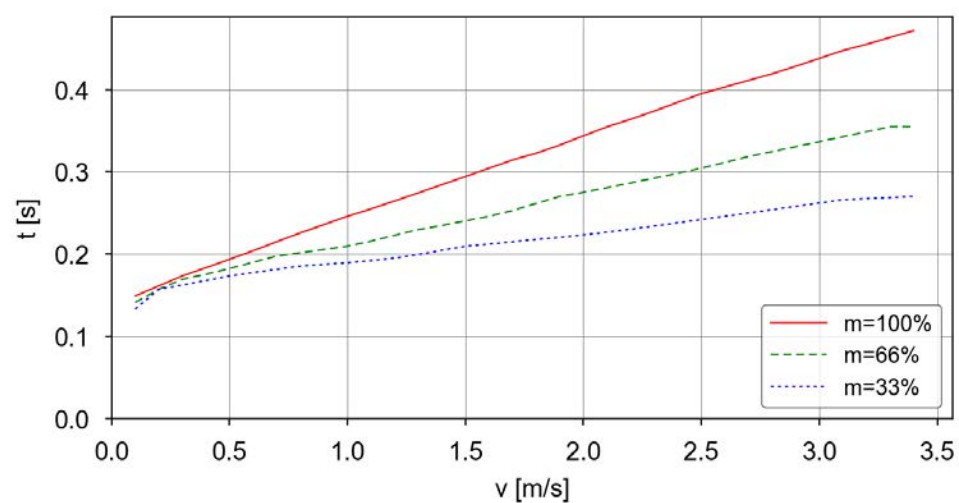
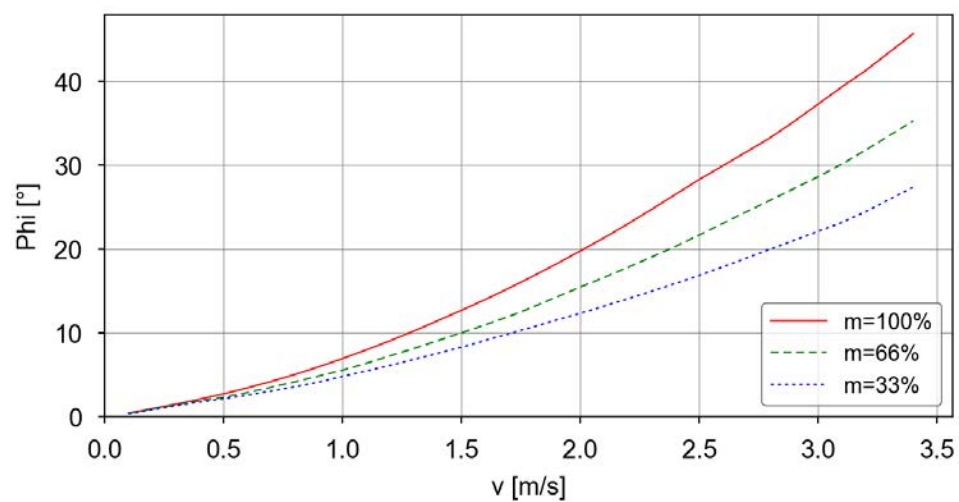
## Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



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## Extension zone 1, stopping distance and stopping time



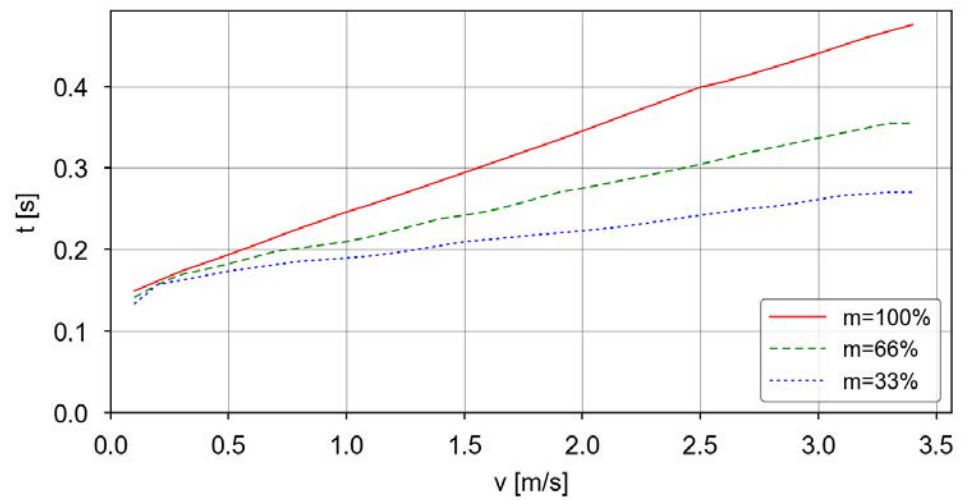
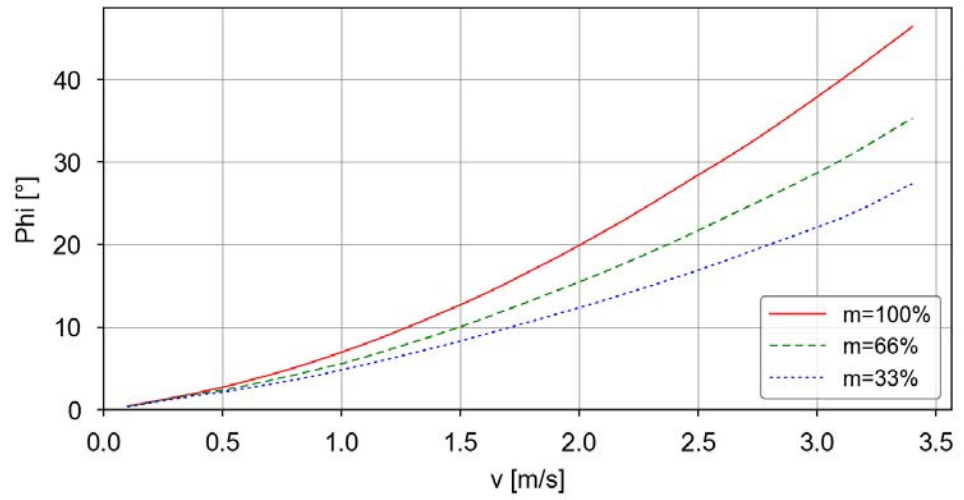
Continues on next page

# 14 IRB 4600

## 14.2 IRB 4600 2.05 m 60 kg

Continued

### Extension zone 2, stopping distance and stopping time





### 14.3 IRB 4600 2.50 m 20 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	53.9	0.51
2	33.9	0.29
3	22.2	0.17

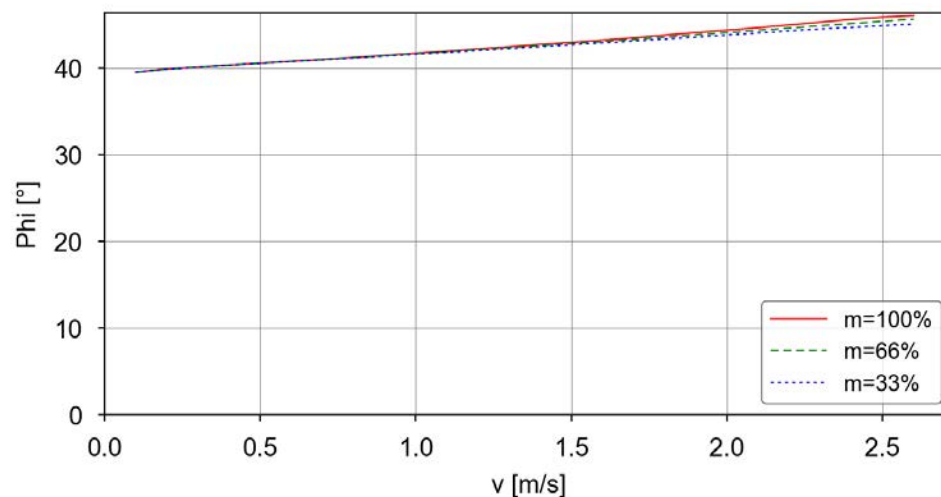
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.838
1	0.838	1.675
2	1.675	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

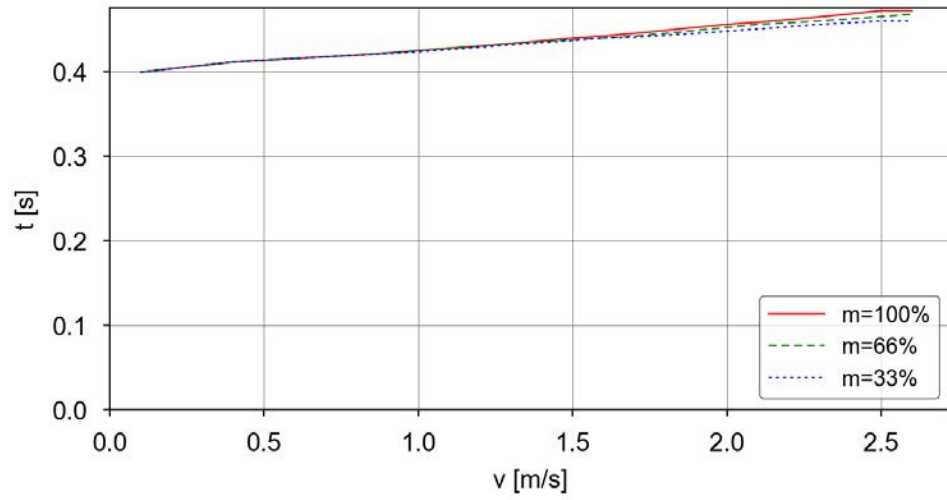


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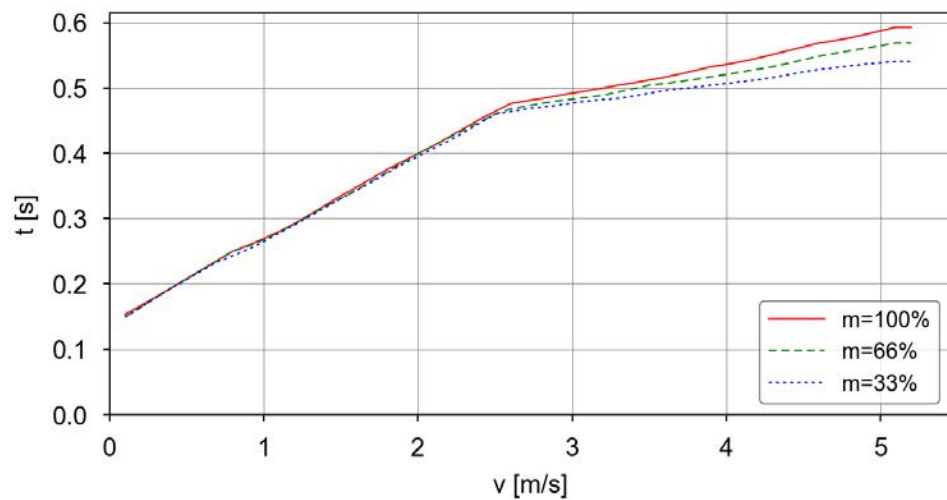
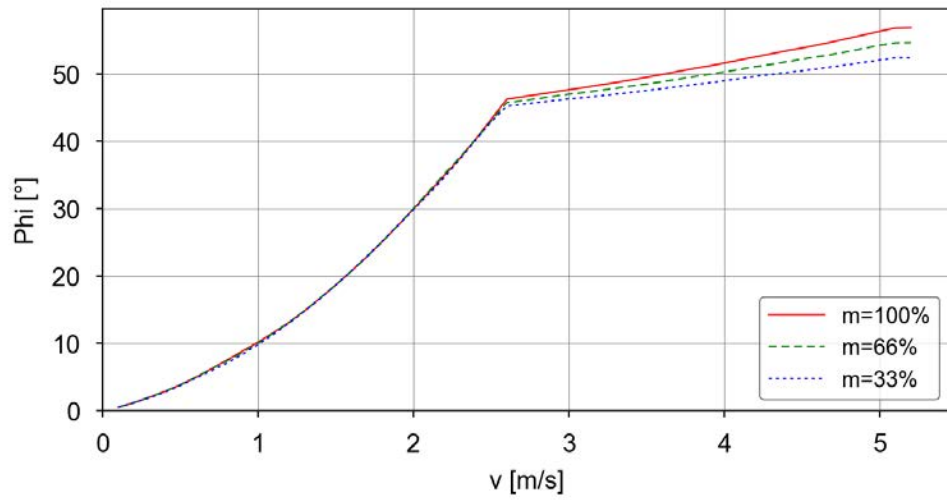
# 14 IRB 4600

## 14.3 IRB 4600 2.50 m 20 kg

Continued

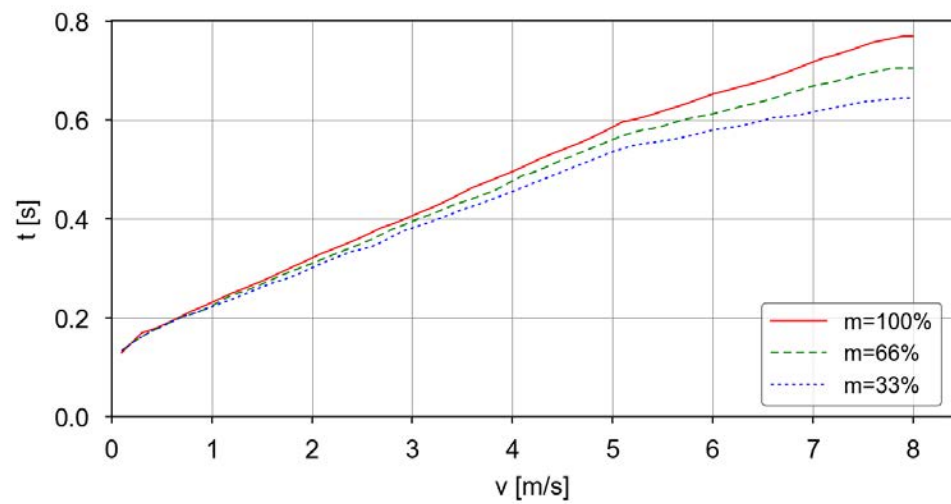
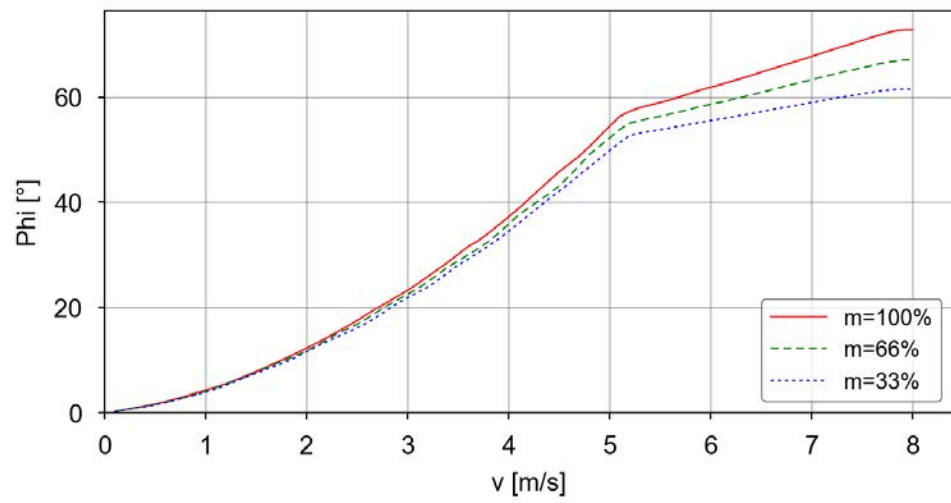


### Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

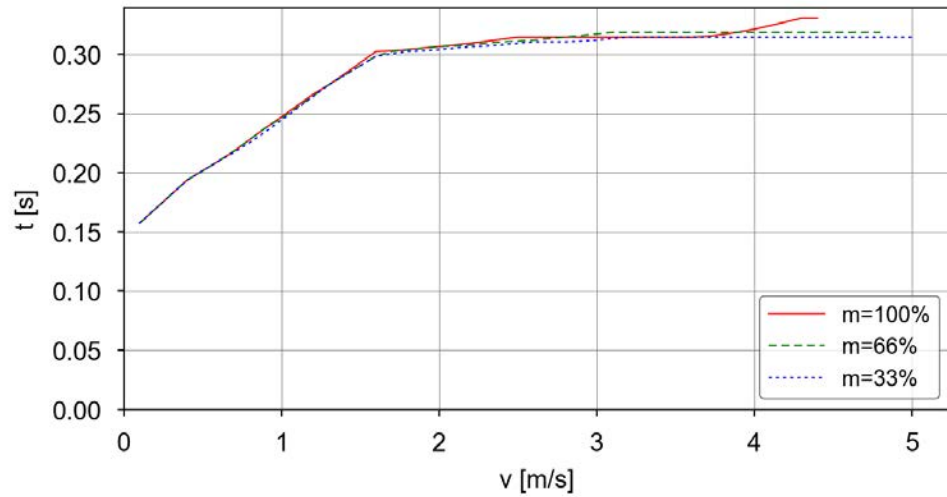
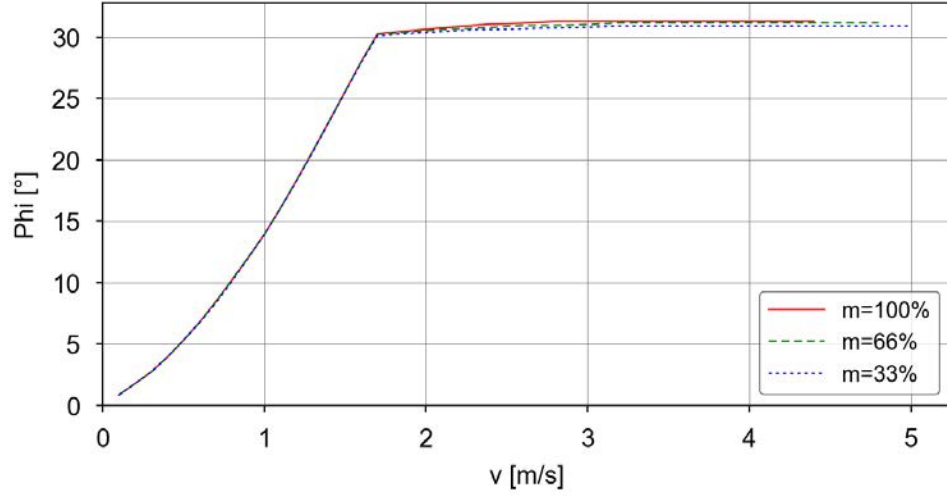
# 14 IRB 4600

14.3 IRB 4600 2.50 m 20 kg

Continued

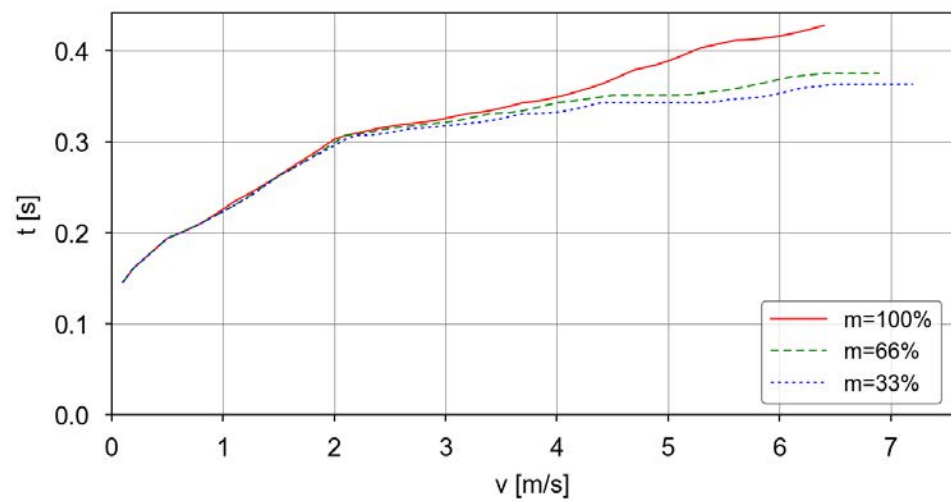
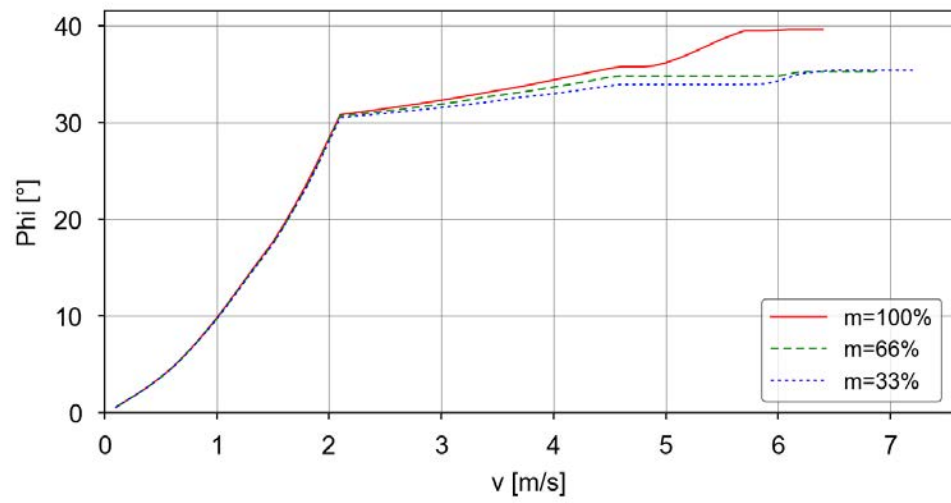
## Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



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Extension zone 1, stopping distance and stopping time



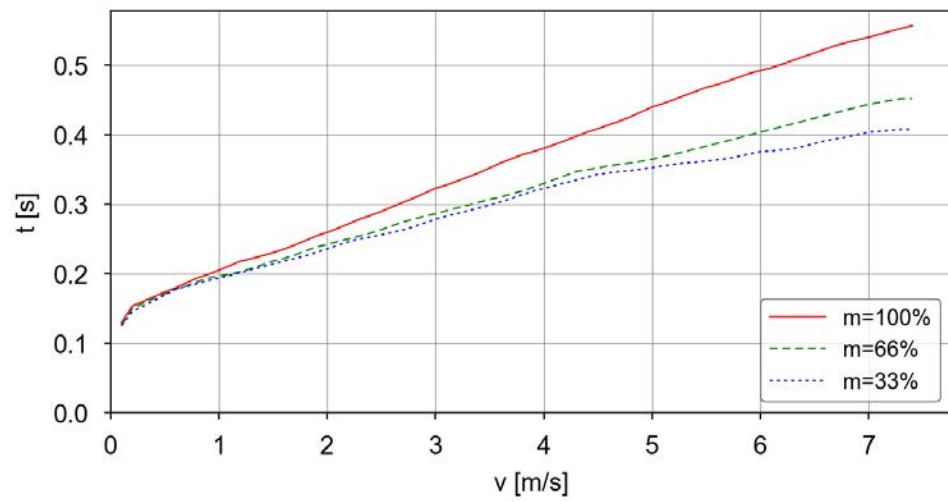
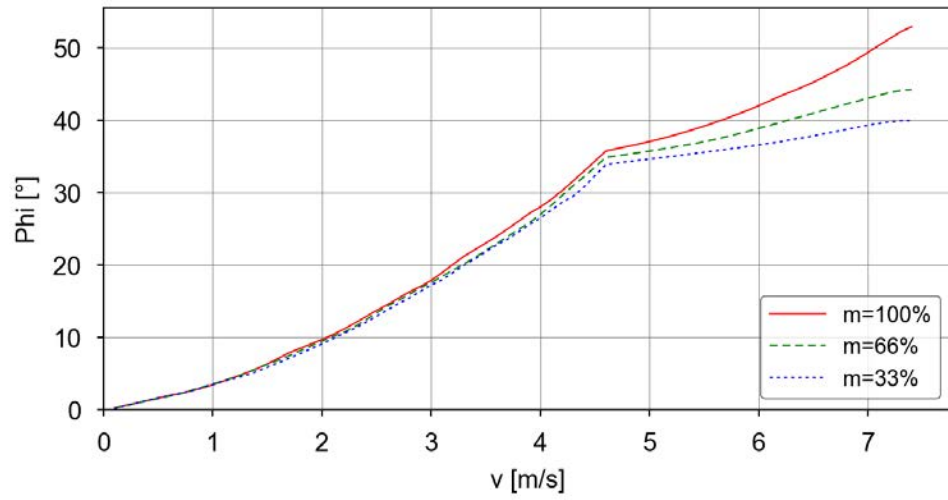
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# 14 IRB 4600

## 14.3 IRB 4600 2.50 m 20 kg

Continued

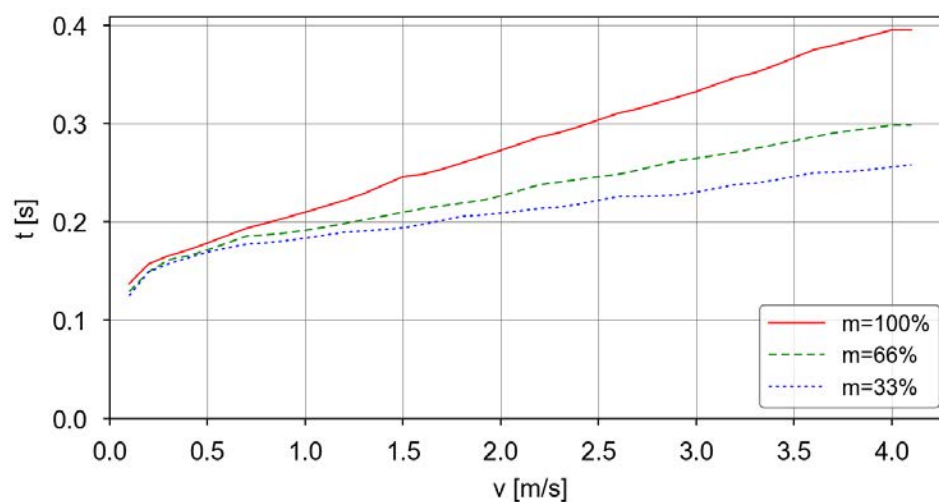
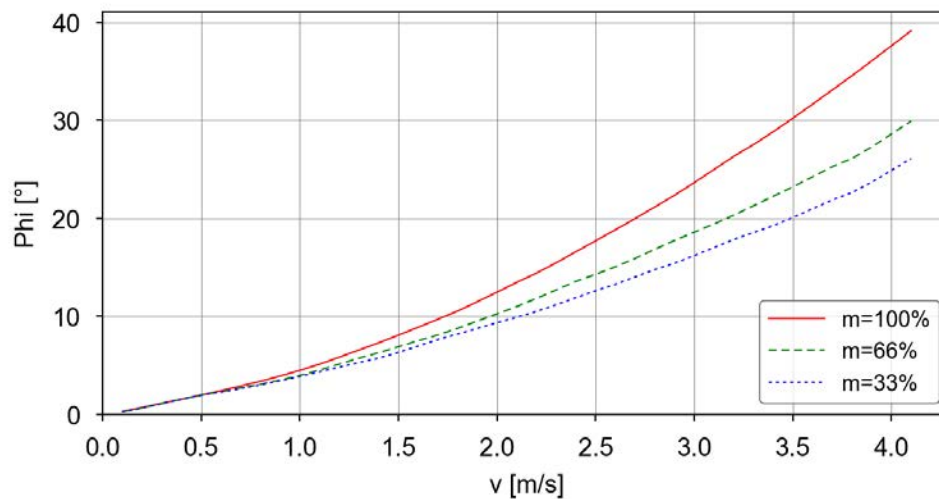
### Extension zone 2, stopping distance and stopping time



Continues on next page

Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



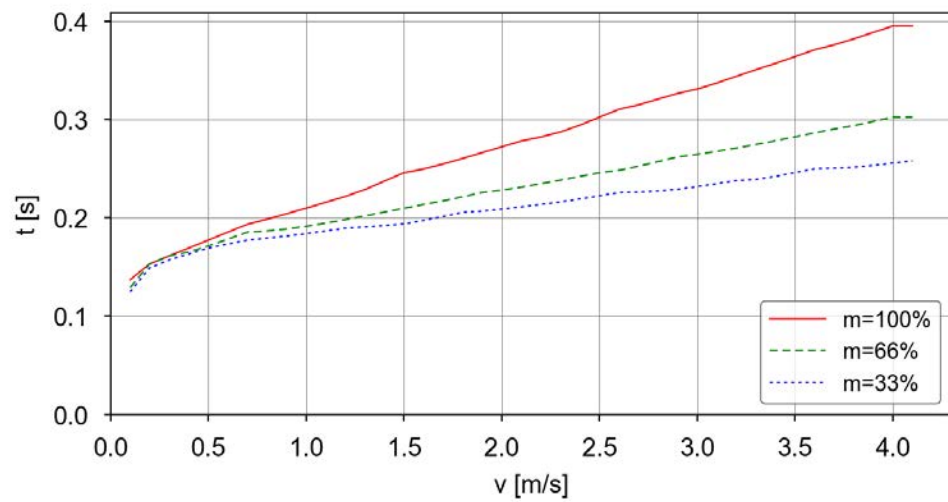
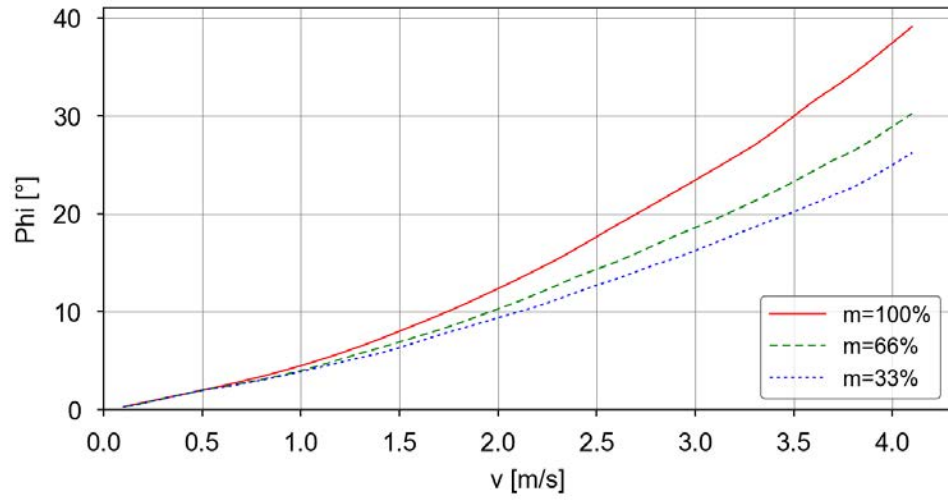
Continues on next page

# 14 IRB 4600

## 14.3 IRB 4600 2.50 m 20 kg

Continued

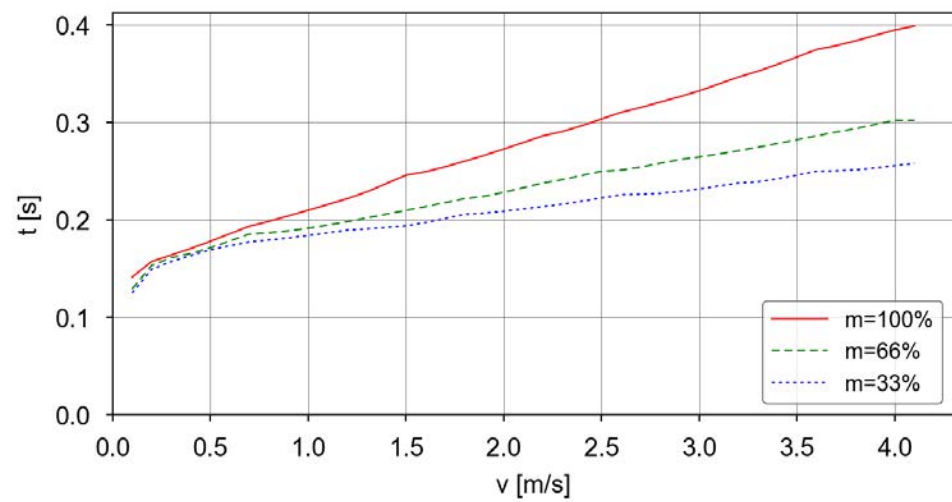
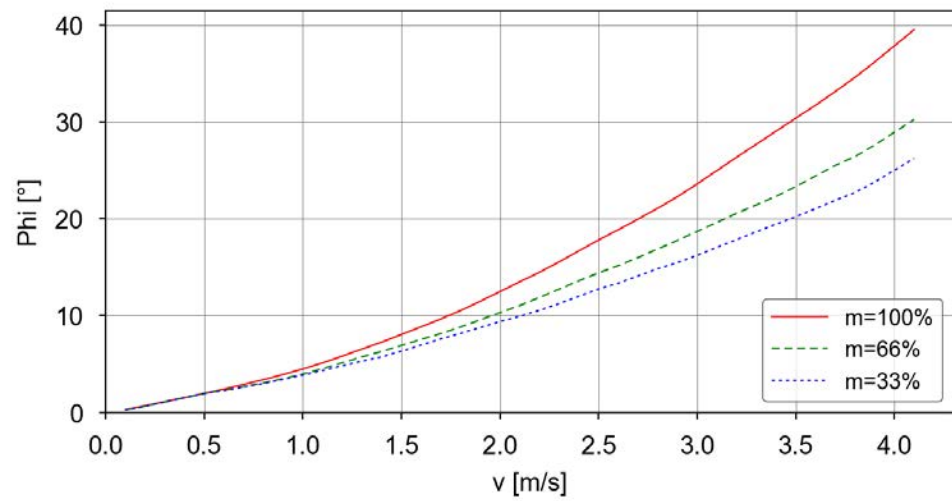
### Extension zone 1, stopping distance and stopping time



Continues on next page



## Extension zone 2, stopping distance and stopping time



## 14 IRB 4600

### 14.4 IRB 4600 2.55 m 40 kg

### 14.4 IRB 4600 2.55 m 40 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	61.7	0.71
2	41.9	0.37
3	30.2	0.25

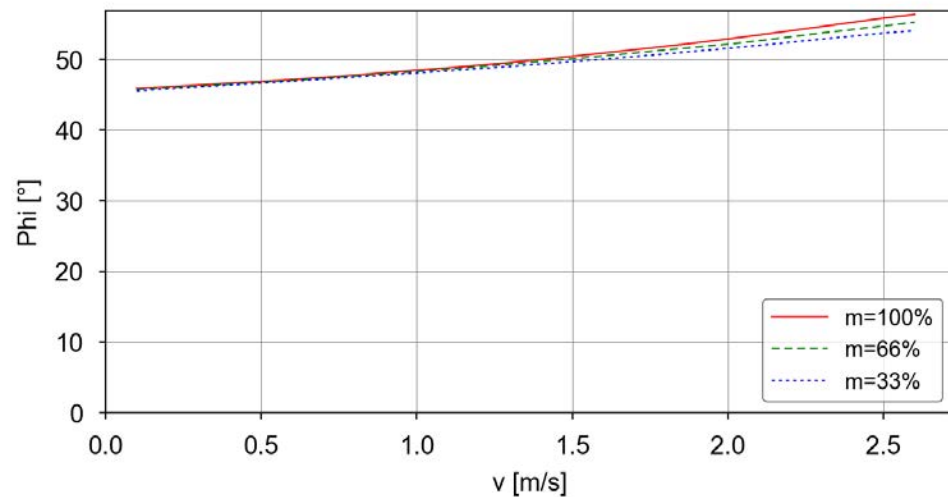
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

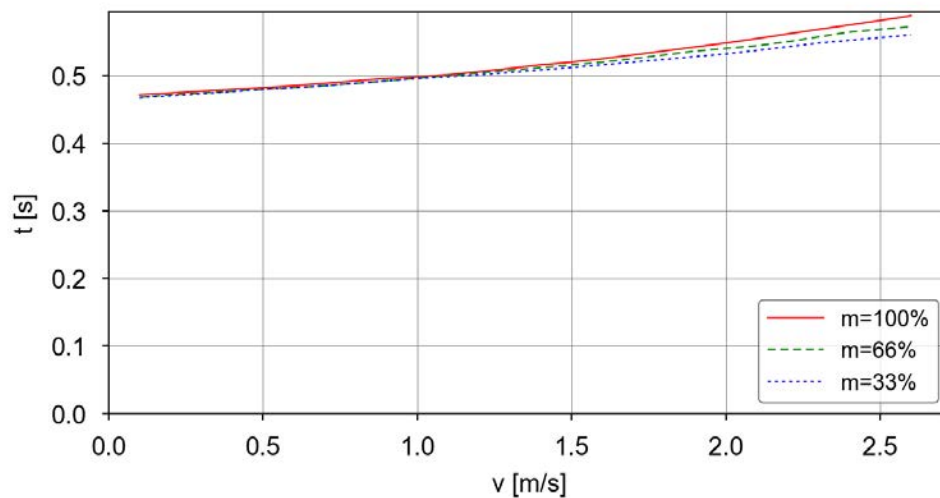
Zone	wcp min (m)	wcp max (m)
0	0	0.851
1	0.851	1.701
2	1.701	max reach

#### Category 1, Axis 1

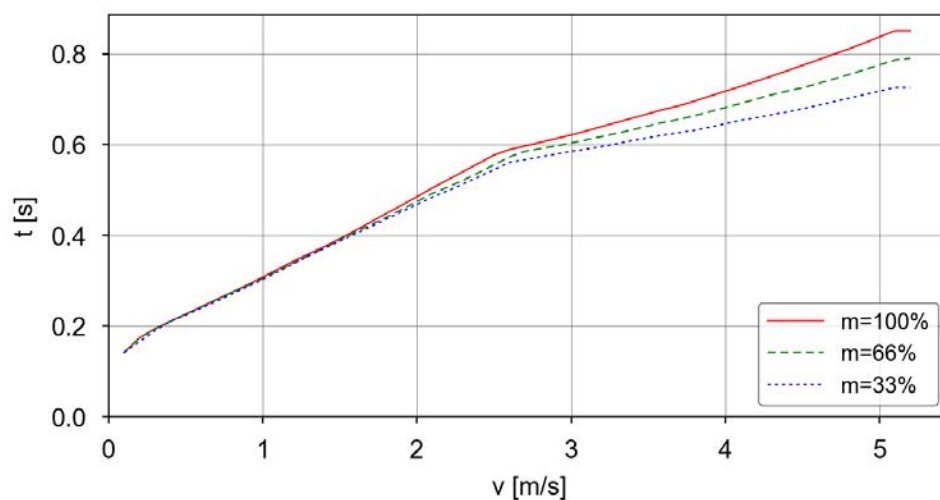
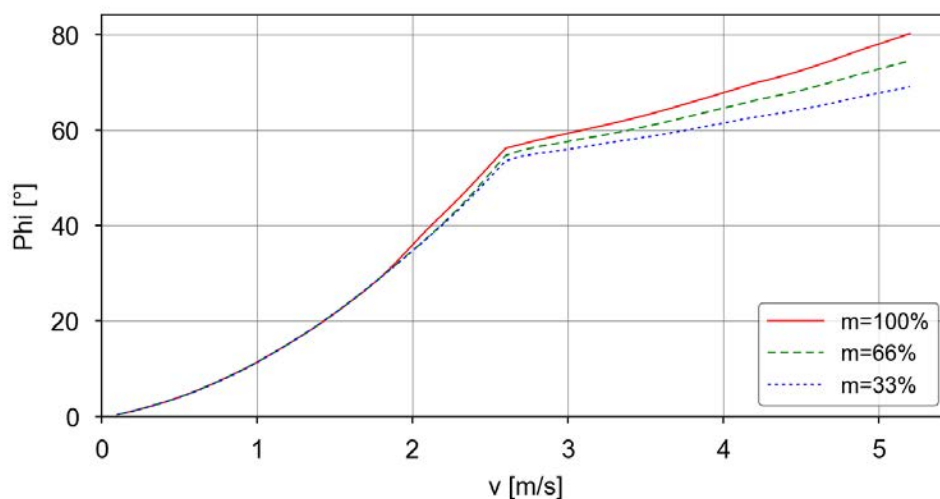
Extension zone 0, stopping distance and stopping time



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Extension zone 1, stopping distance and stopping time



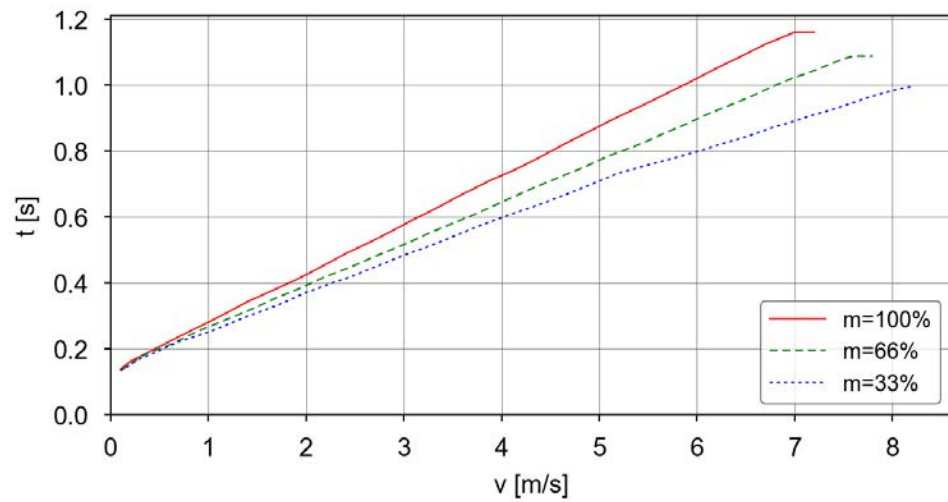
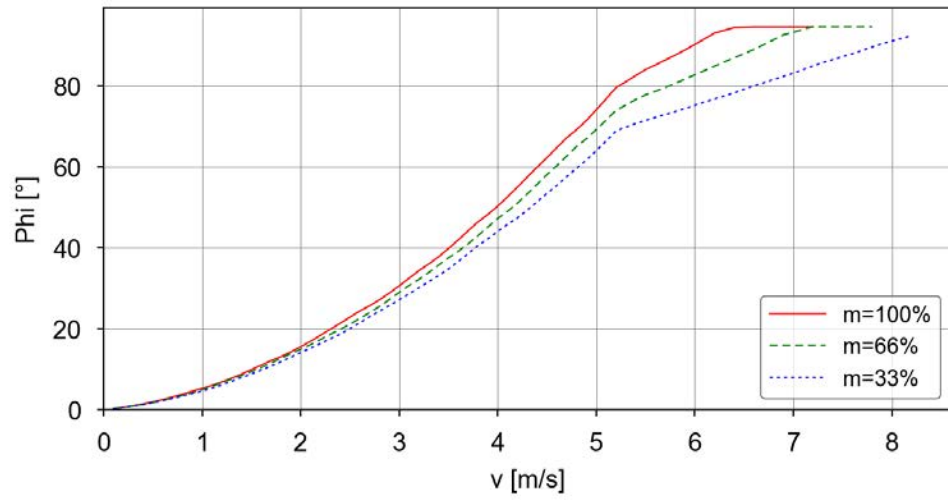
Continues on next page

# 14 IRB 4600

## 14.4 IRB 4600 2.55 m 40 kg

Continued

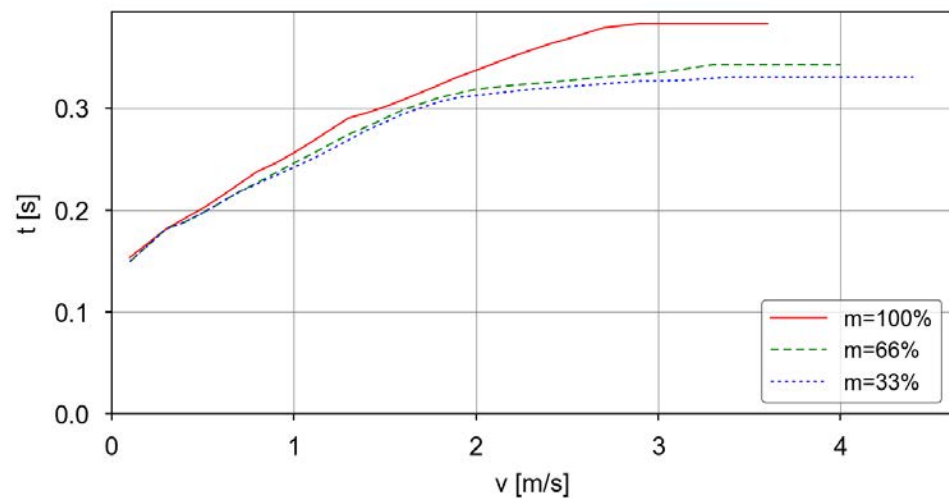
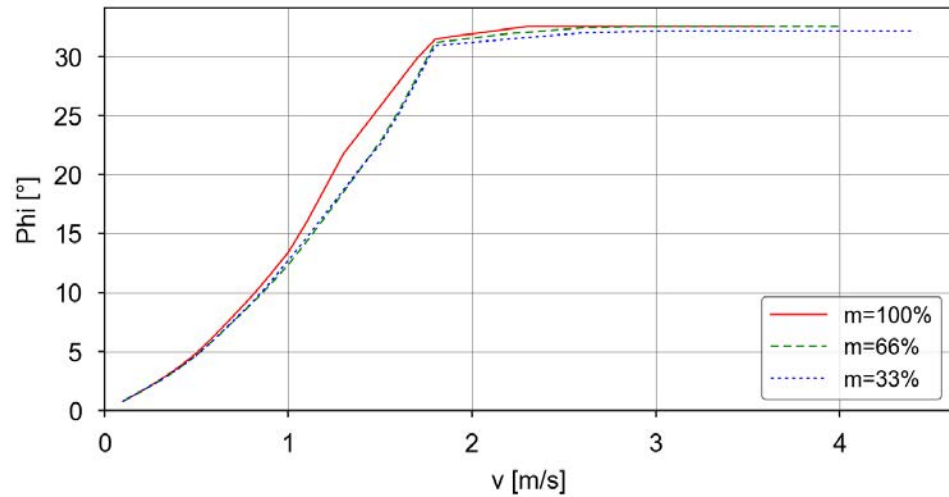
### Extension zone 2, stopping distance and stopping time



Continues on next page

## Category 1, Axis 2

## Extension zone 0, stopping distance and stopping time



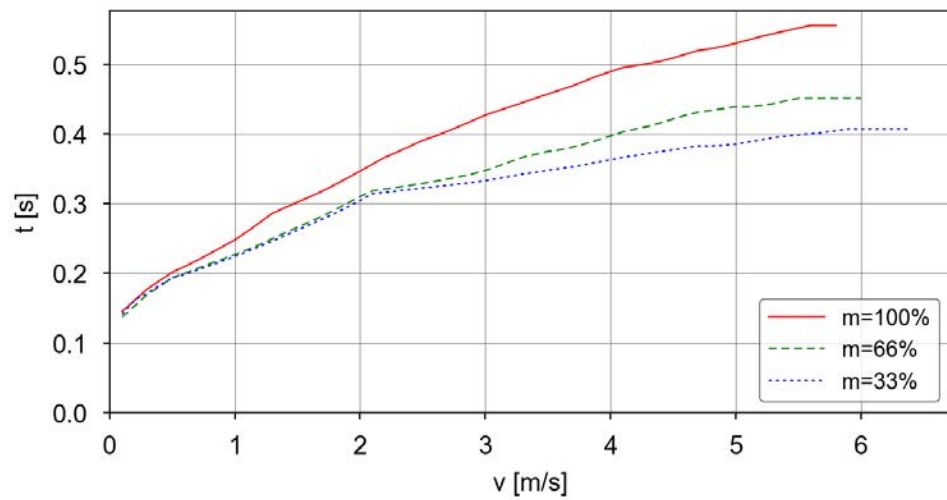
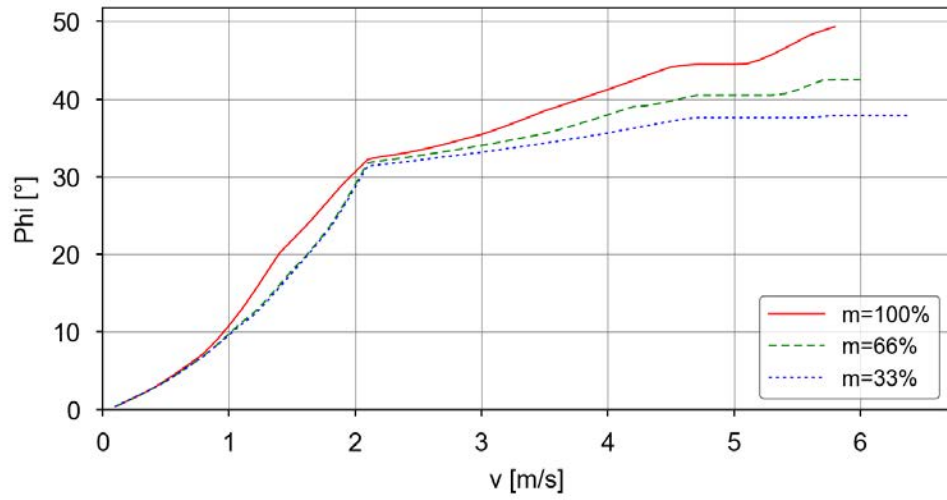
Continues on next page

# 14 IRB 4600

## 14.4 IRB 4600 2.55 m 40 kg

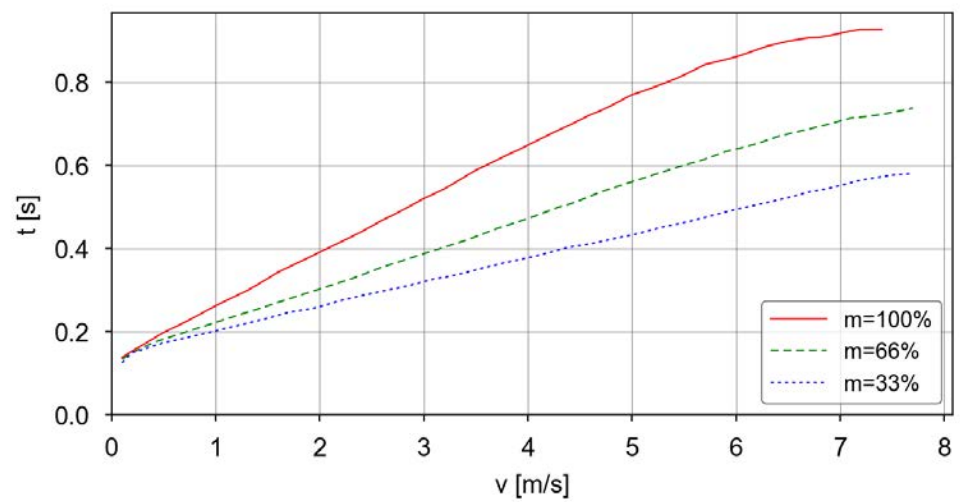
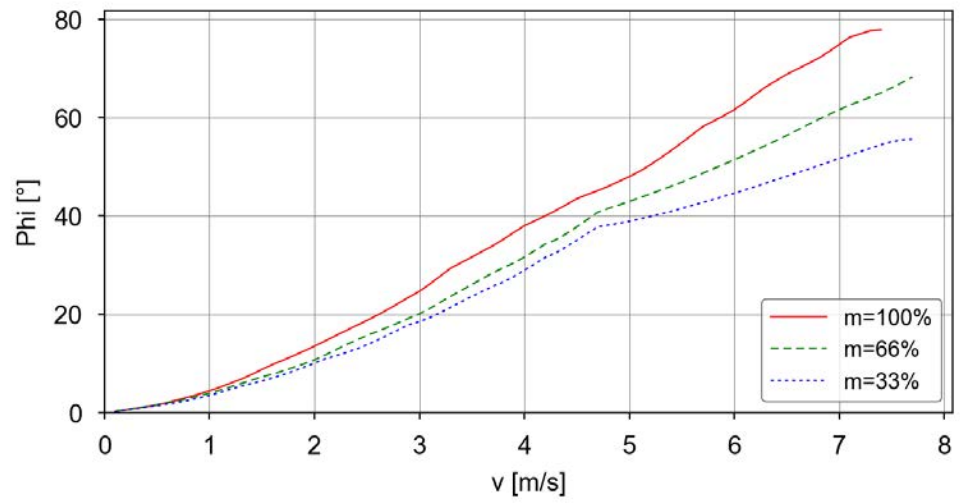
Continued

### Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

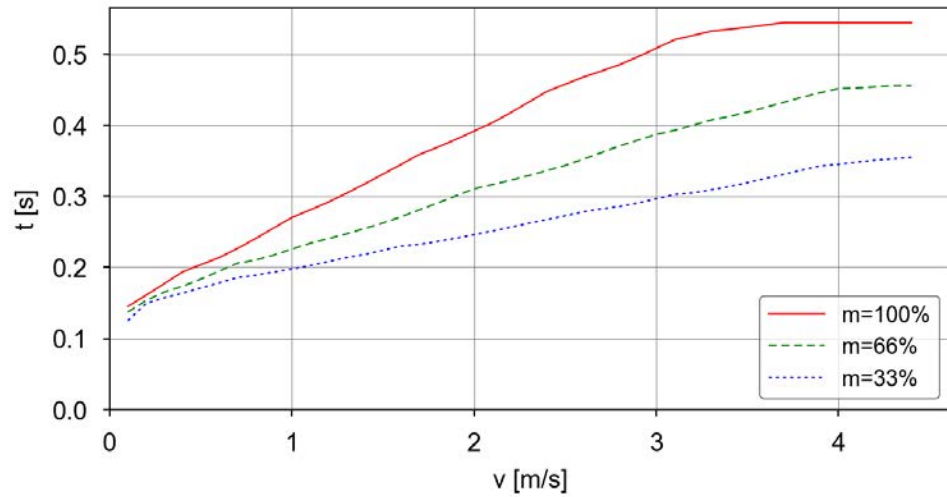
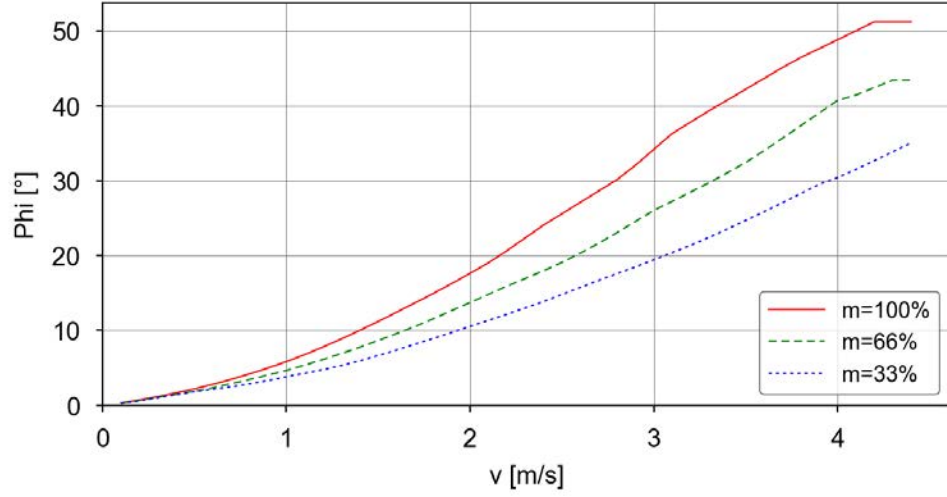
# 14 IRB 4600

14.4 IRB 4600 2.55 m 40 kg

Continued

## Category 1, Axis 3

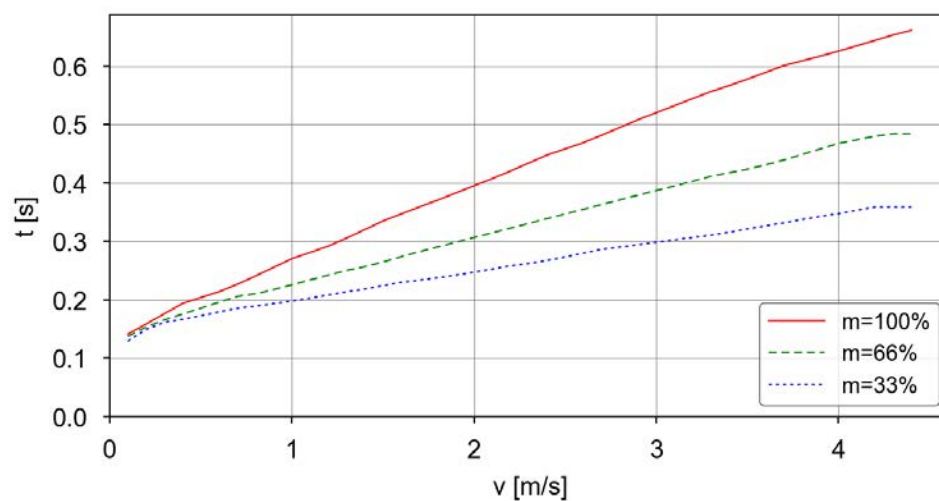
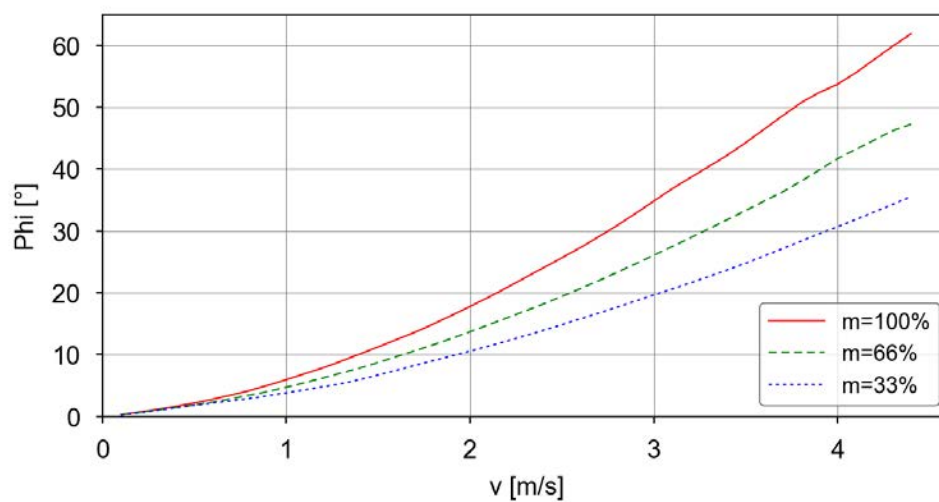
Extension zone 0, stopping distance and stopping time



Continues on next page



Extension zone 1, stopping distance and stopping time



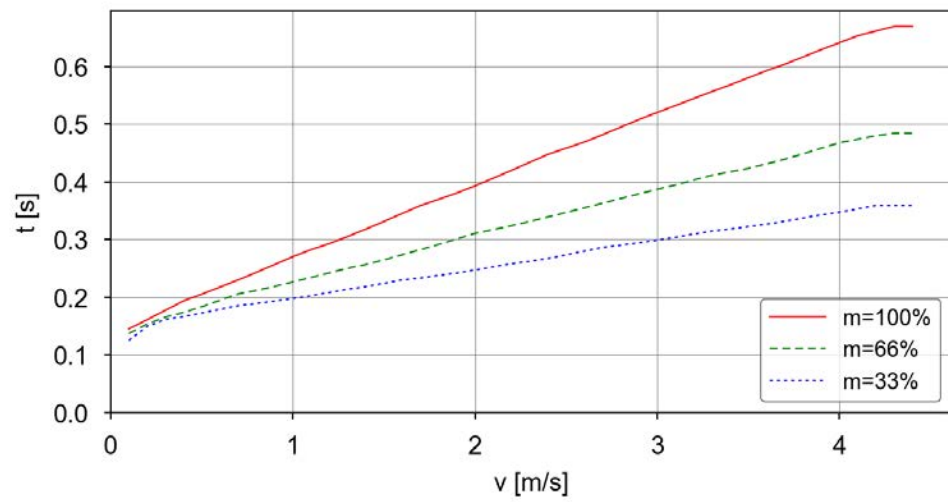
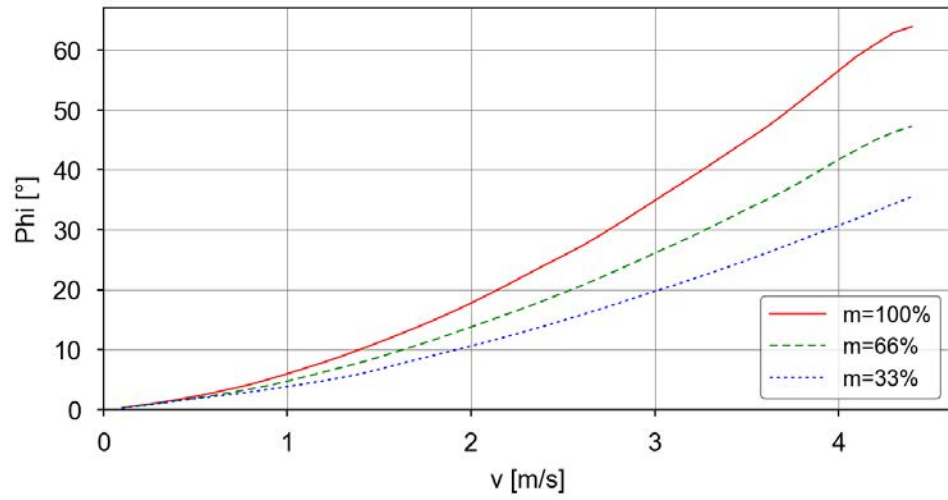
Continues on next page

# 14 IRB 4600

## 14.4 IRB 4600 2.55 m 40 kg

Continued

### Extension zone 2, stopping distance and stopping time



## 15 IRB 6620

### 15.1 IRB 6620 2.20 m 150 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	29.1	0.49
2	25.2	0.44
3	19.0	0.29

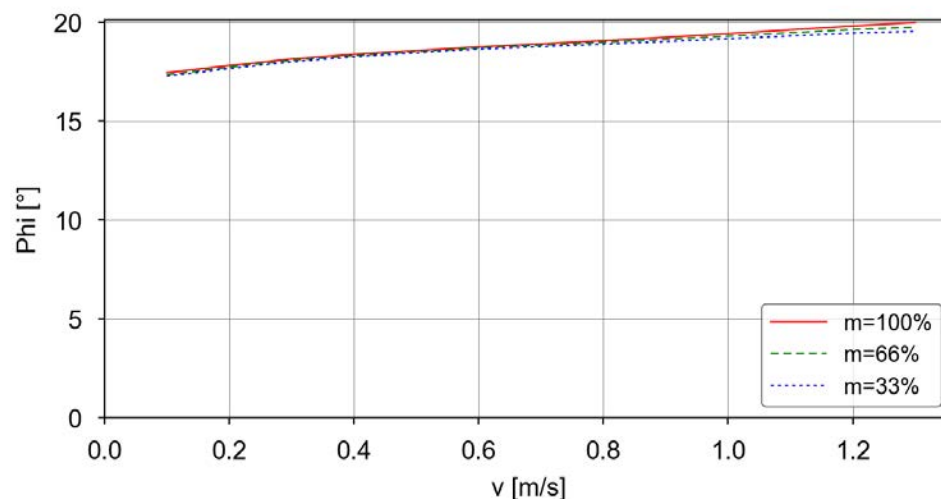
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.735
1	0.735	1.47
2	1.47	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

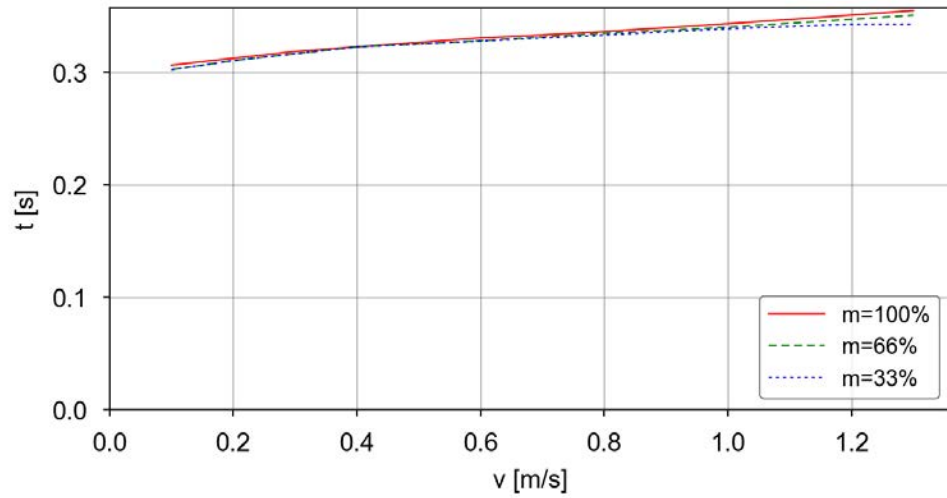


*Continues on next page*

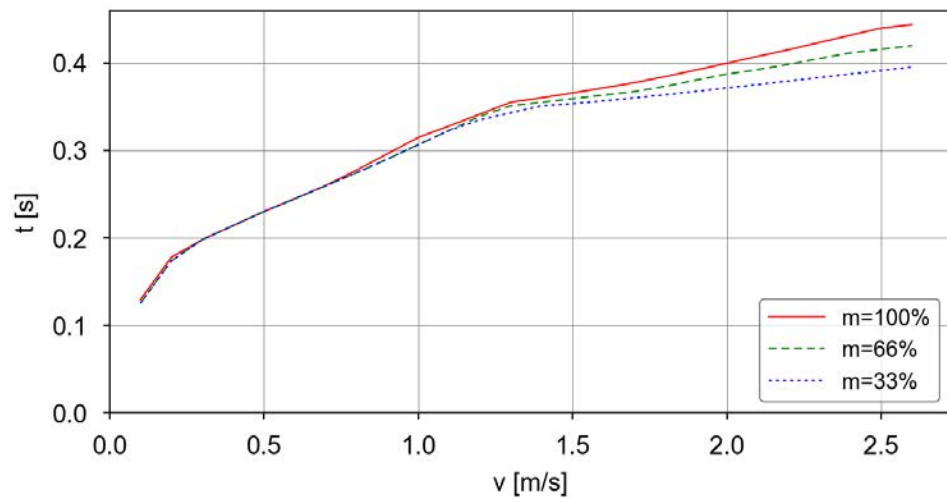
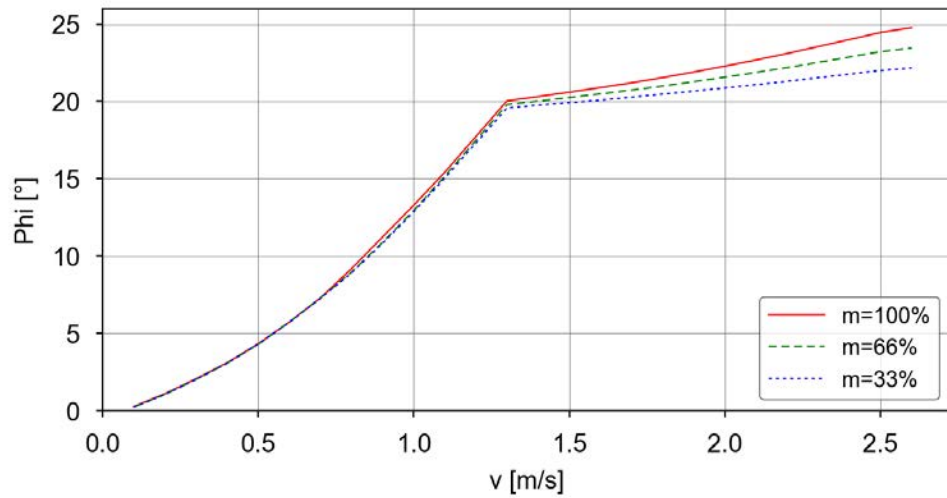
# 15 IRB 6620

## 15.1 IRB 6620 2.20 m 150 kg

Continued

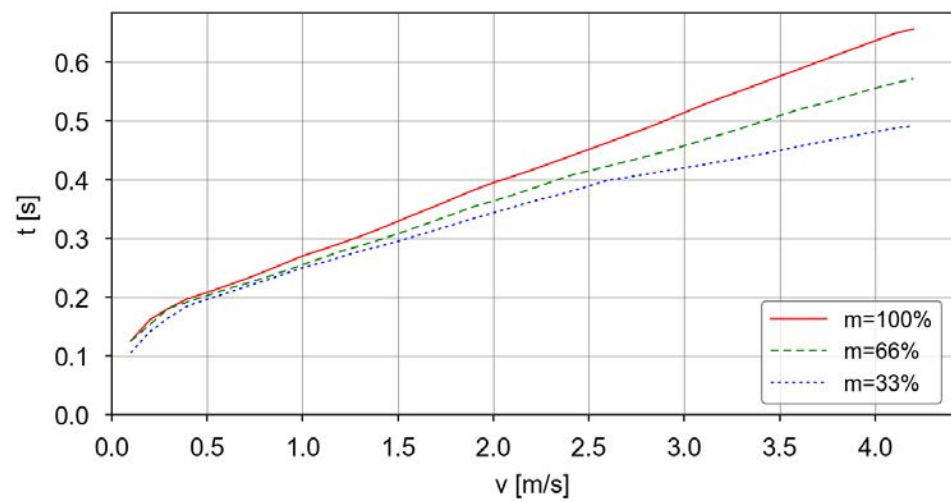
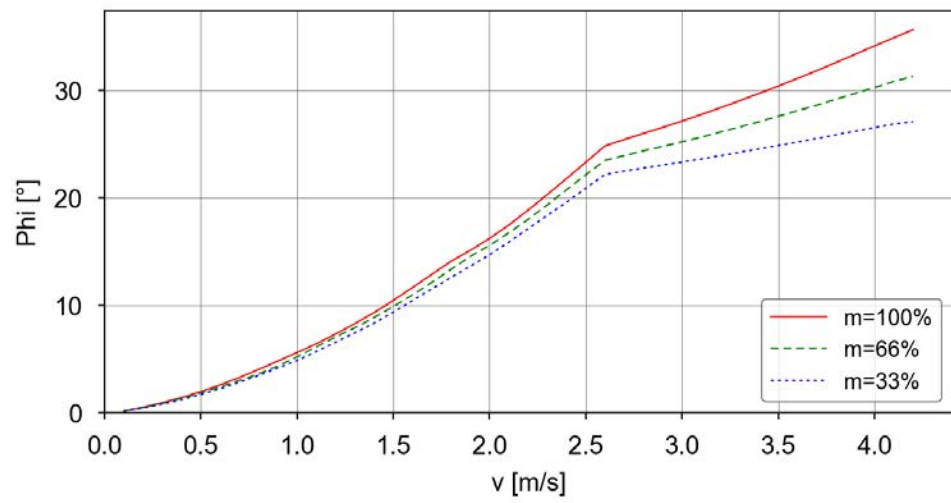


### Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

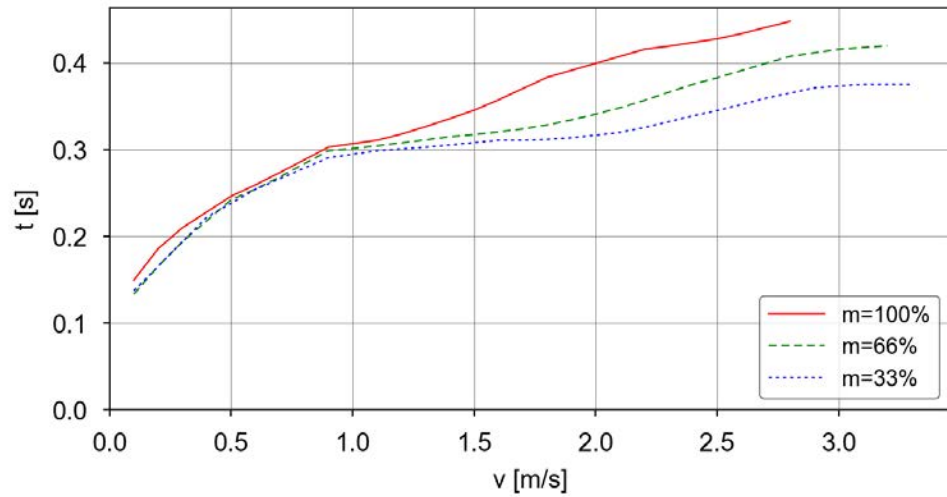
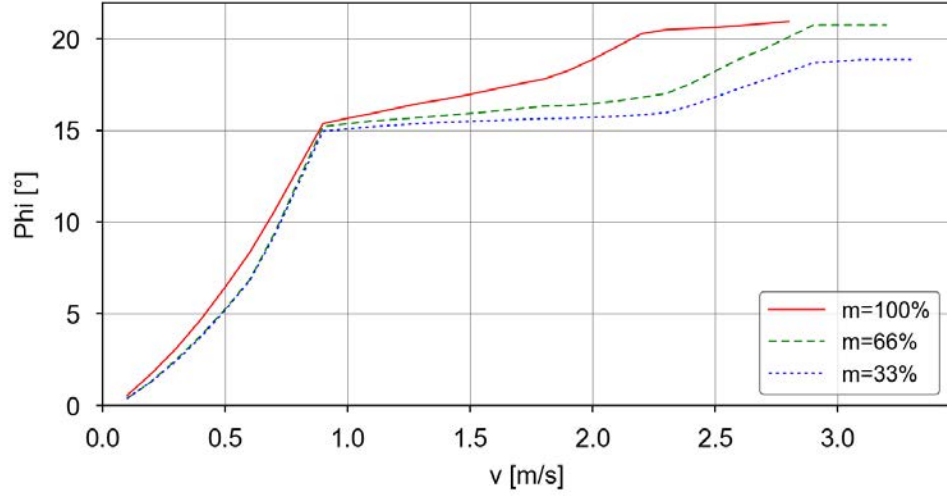
# 15 IRB 6620

15.1 IRB 6620 2.20 m 150 kg

Continued

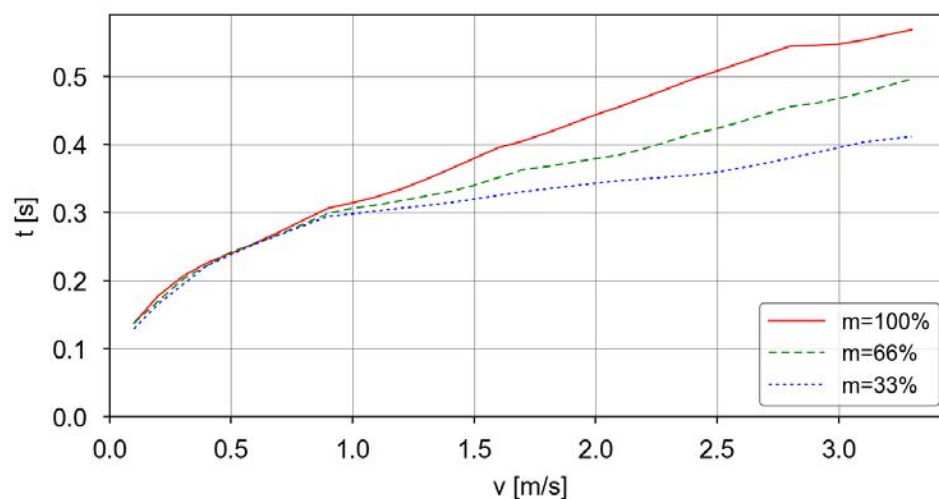
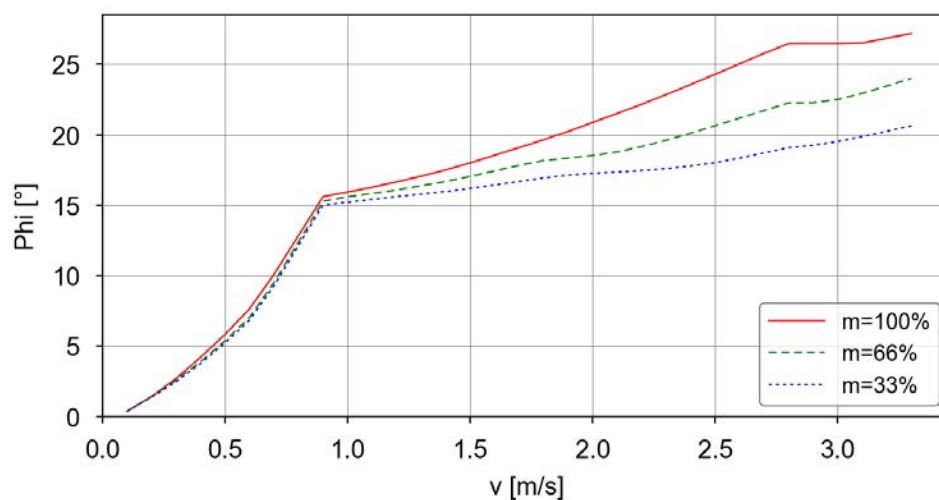
## Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



Continues on next page

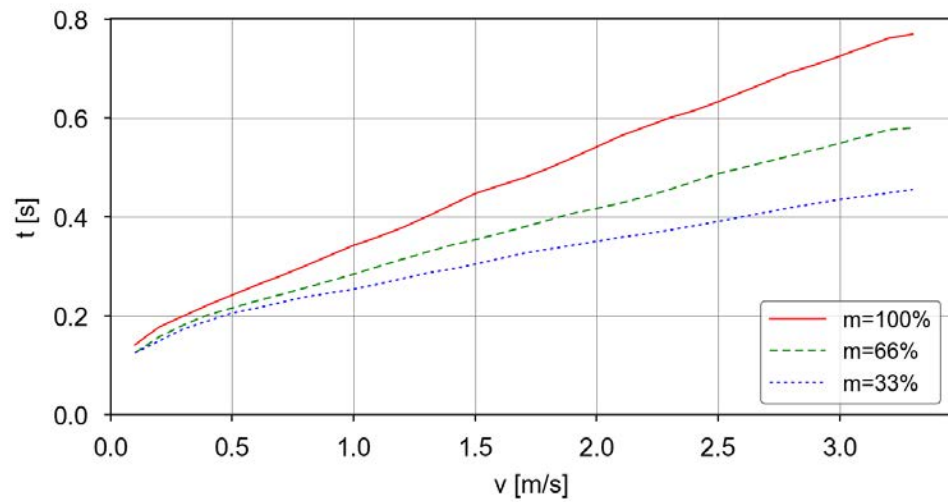
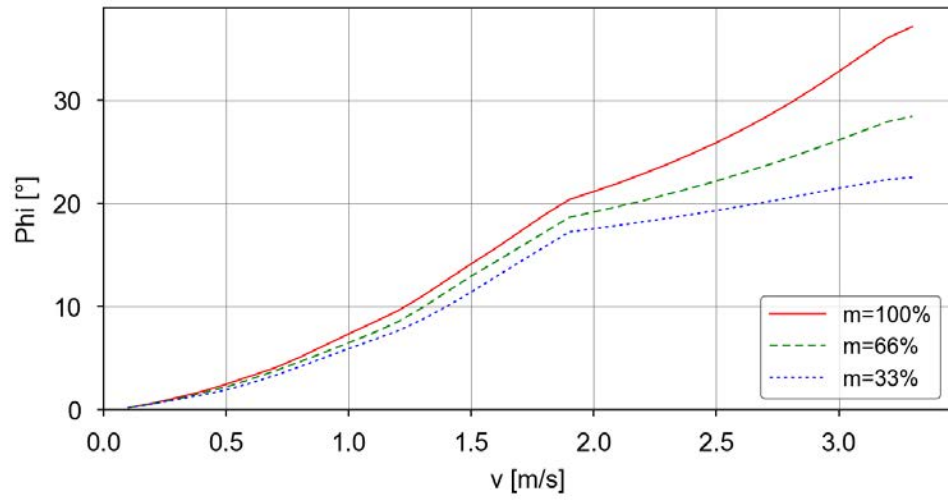
Extension zone 1, stopping distance and stopping time



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Continued

Extension zone 2, stopping distance and stopping time

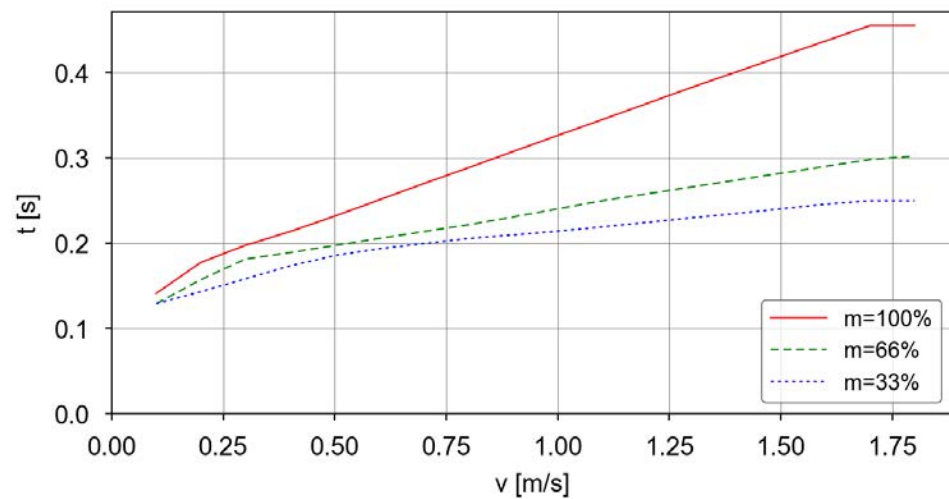
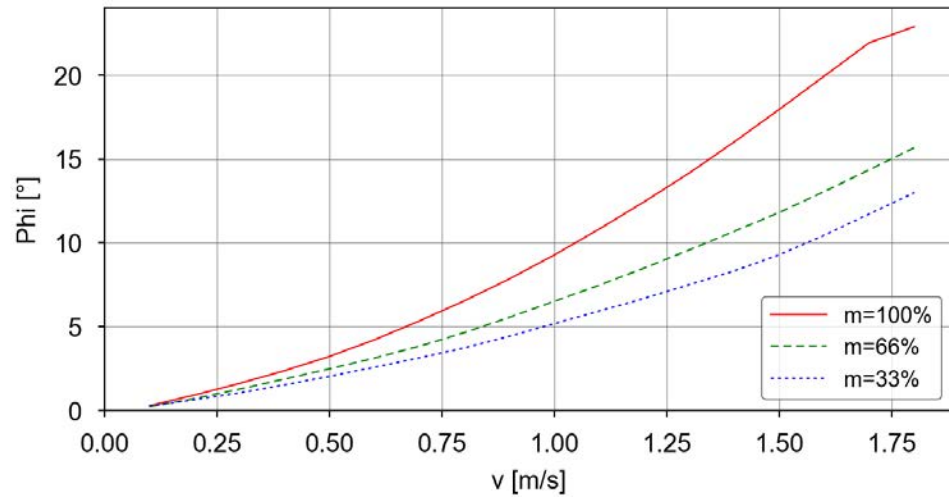


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## Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



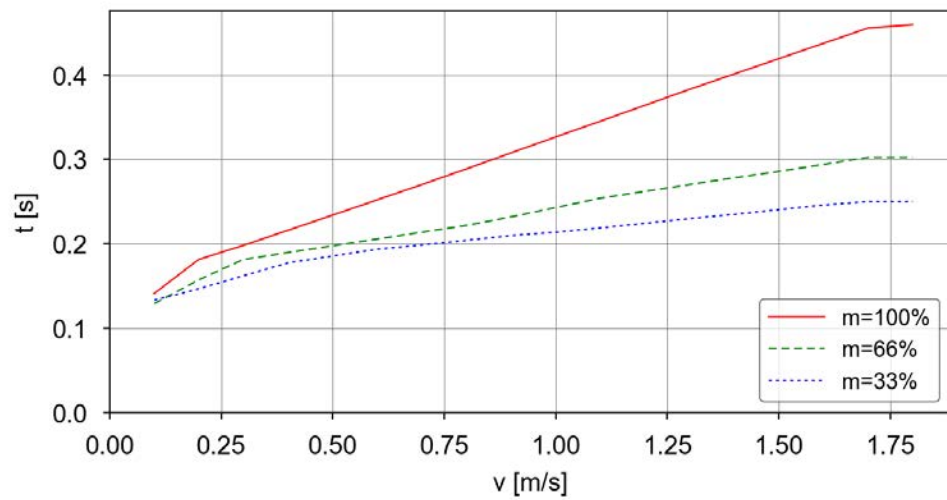
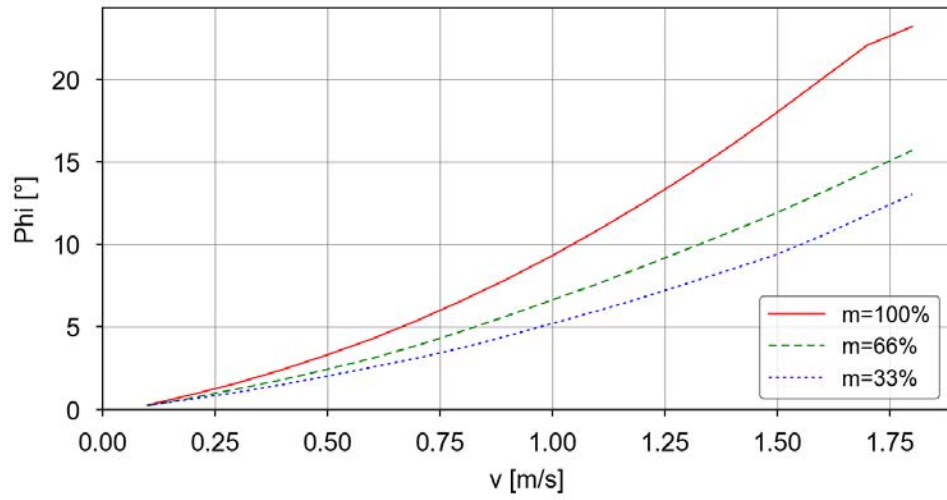
Continues on next page

# 15 IRB 6620

15.1 IRB 6620 2.20 m 150 kg

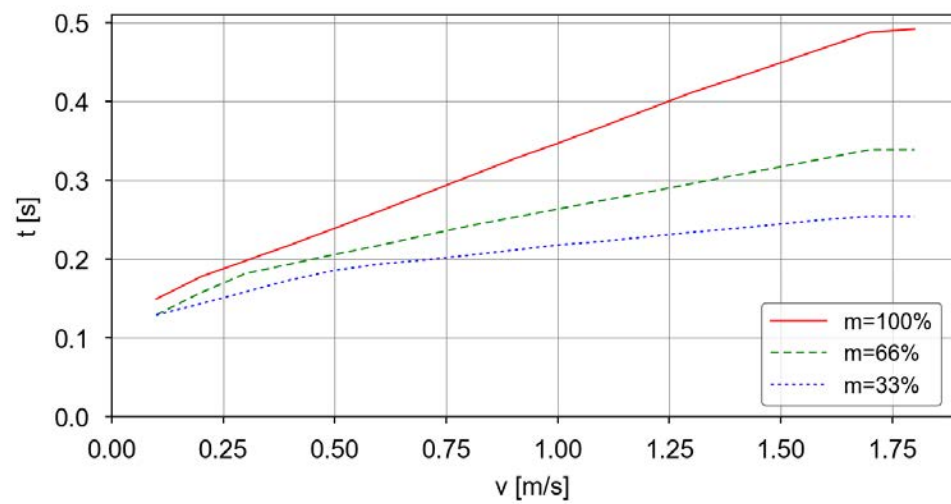
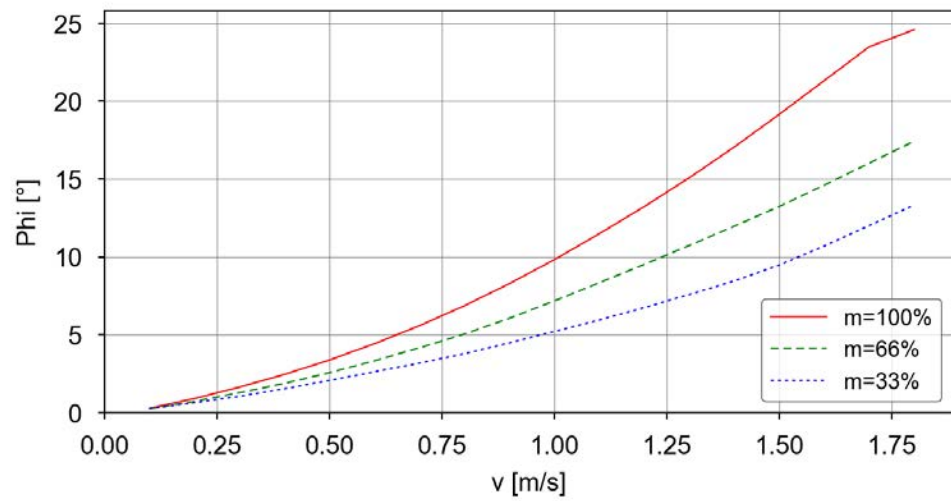
Continued

Extension zone 1, stopping distance and stopping time



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## Extension zone 2, stopping distance and stopping time



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## 16 IRB 6650

### 16.1 IRB 6650S 3.00 m 200 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	51.5	0.95
2	34.5	0.63
3	20.0	0.32

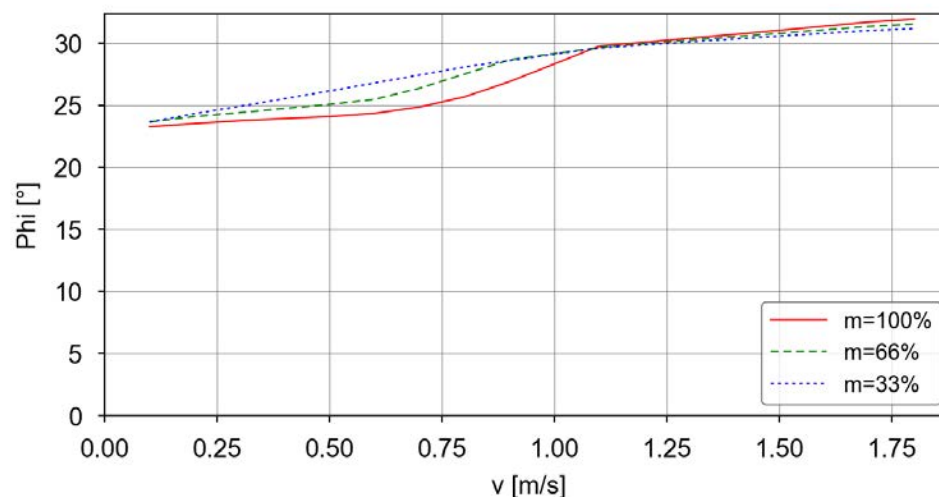
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	1.013
1	1.013	2.026
2	2.026	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

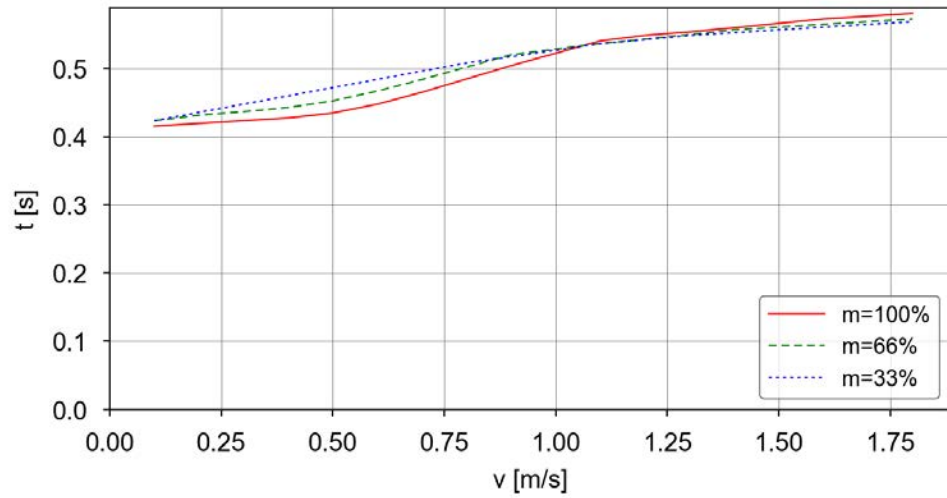


*Continues on next page*

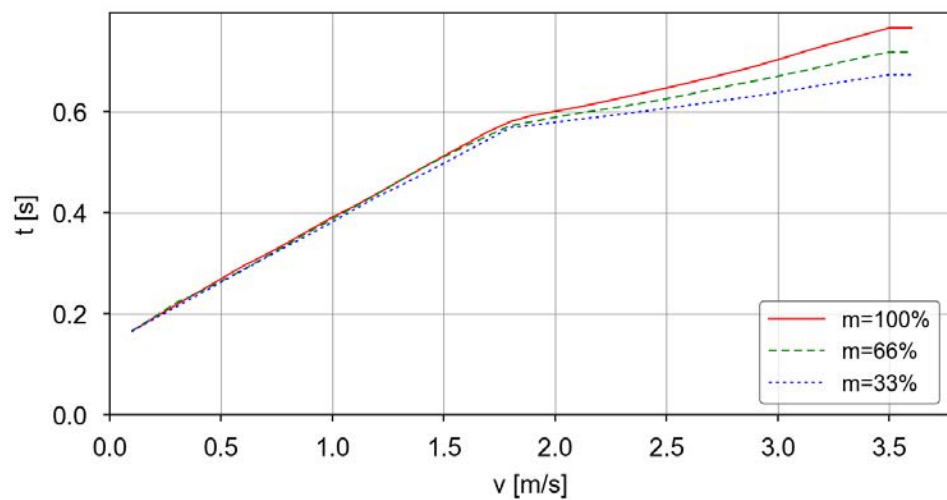
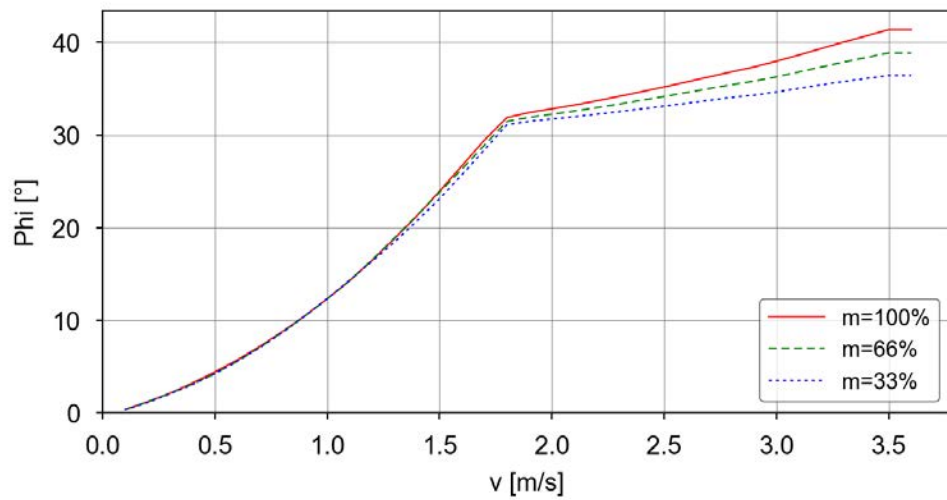
## 16 IRB 6650

### 16.1 IRB 6650S 3.00 m 200 kg

Continued

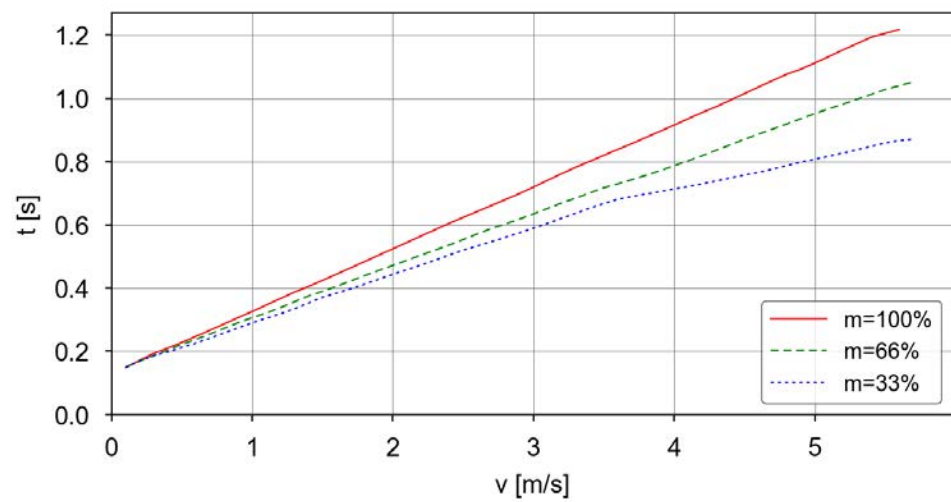
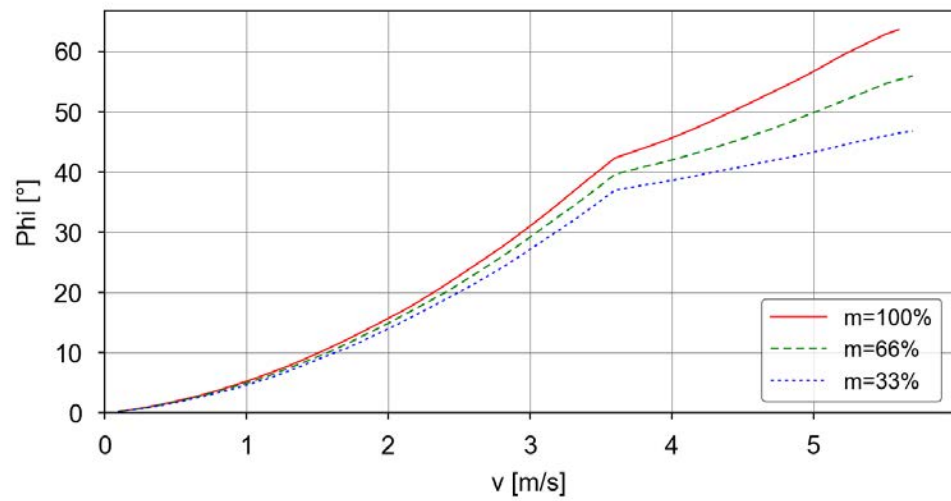


#### Extension zone 1, stopping distance and stopping time



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## Extension zone 2, stopping distance and stopping time



Continues on next page

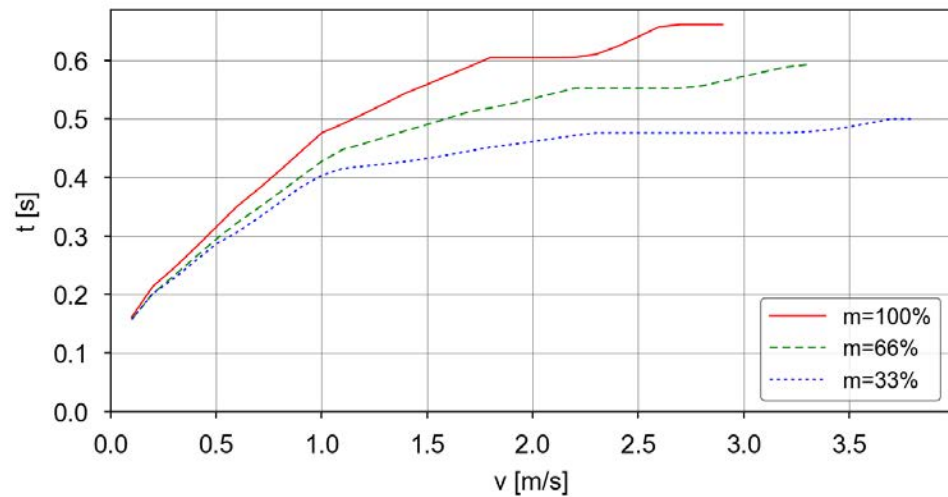
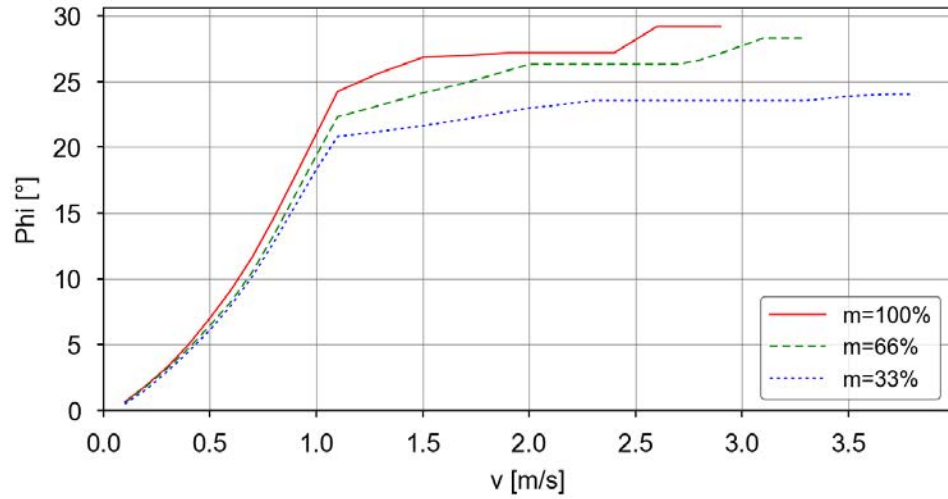
# 16 IRB 6650

16.1 IRB 6650S 3.00 m 200 kg

Continued

## Category 1, Axis 2

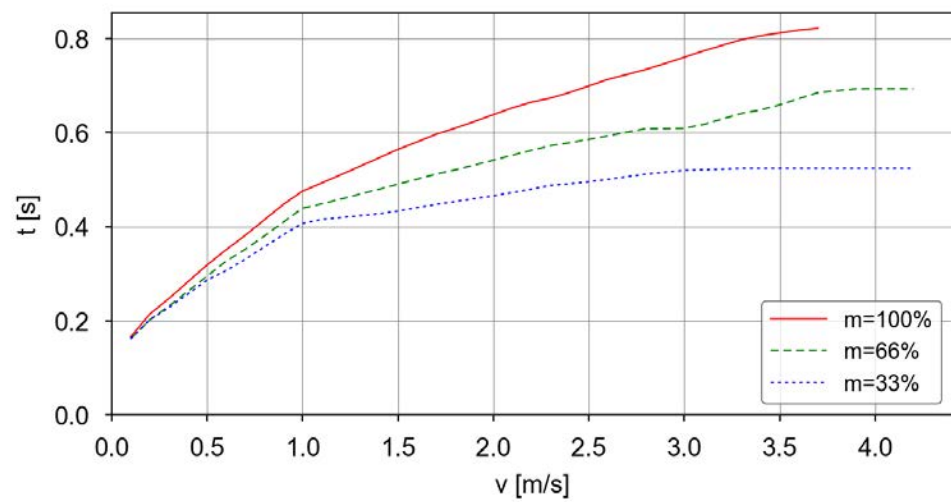
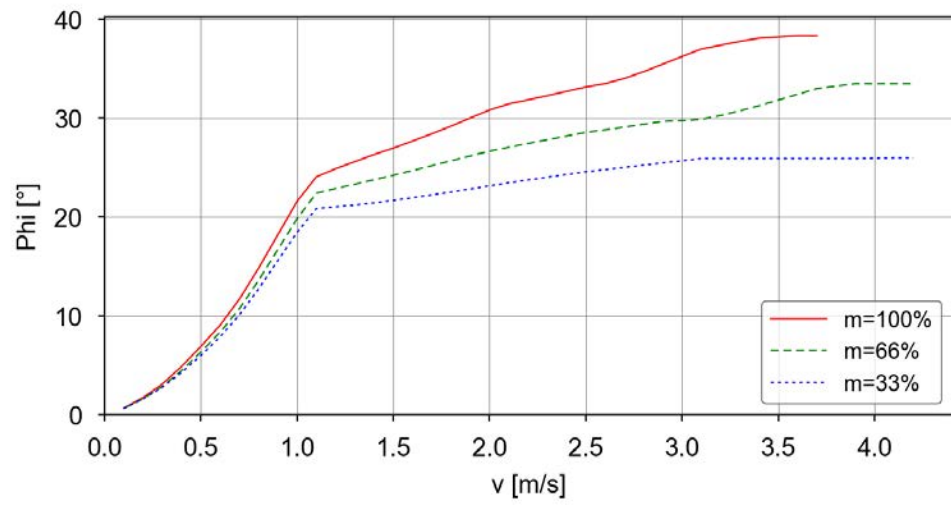
Extension zone 0, stopping distance and stopping time



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Extension zone 1, stopping distance and stopping time



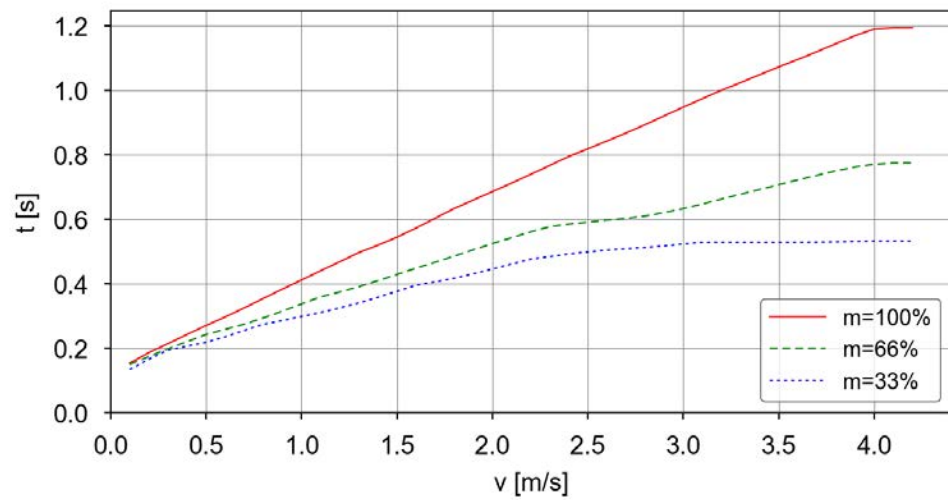
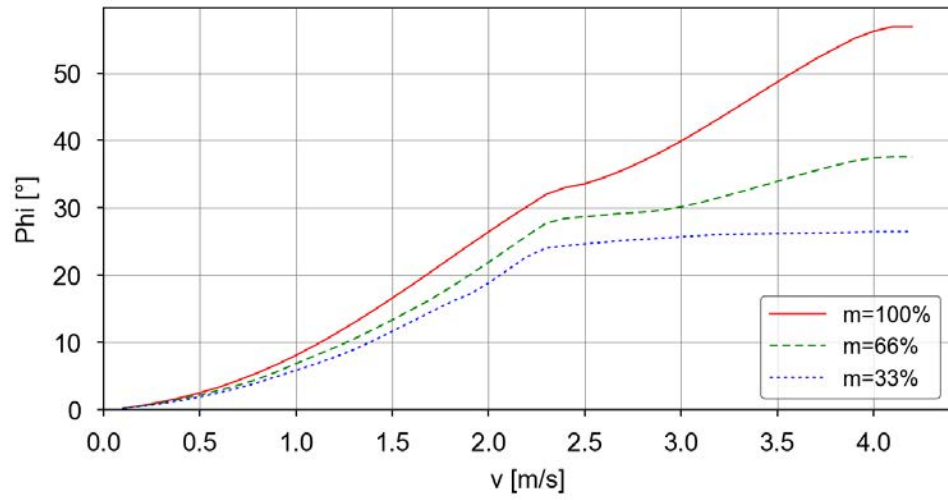
Continues on next page

# 16 IRB 6650

## 16.1 IRB 6650S 3.00 m 200 kg

Continued

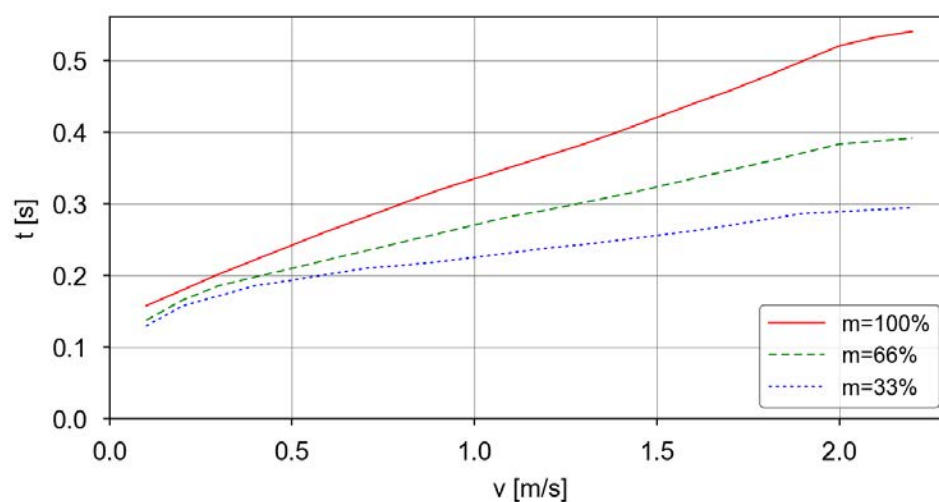
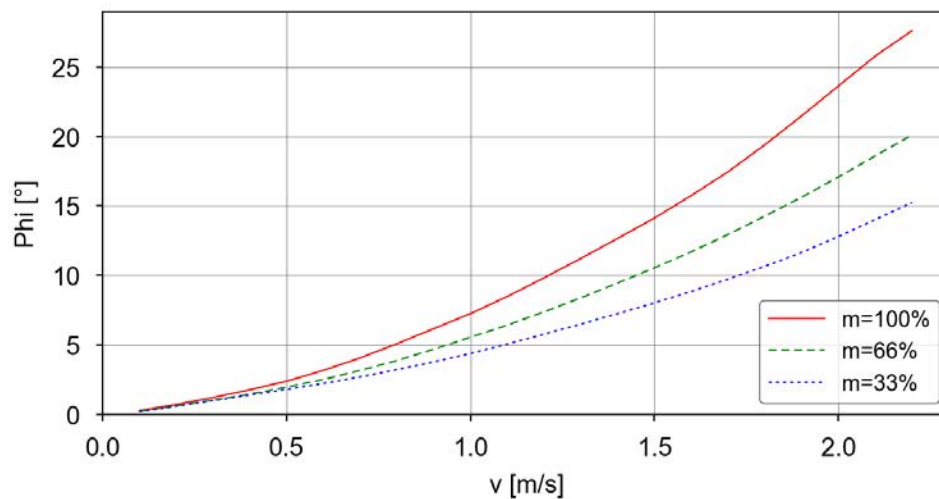
### Extension zone 2, stopping distance and stopping time



Continues on next page

Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



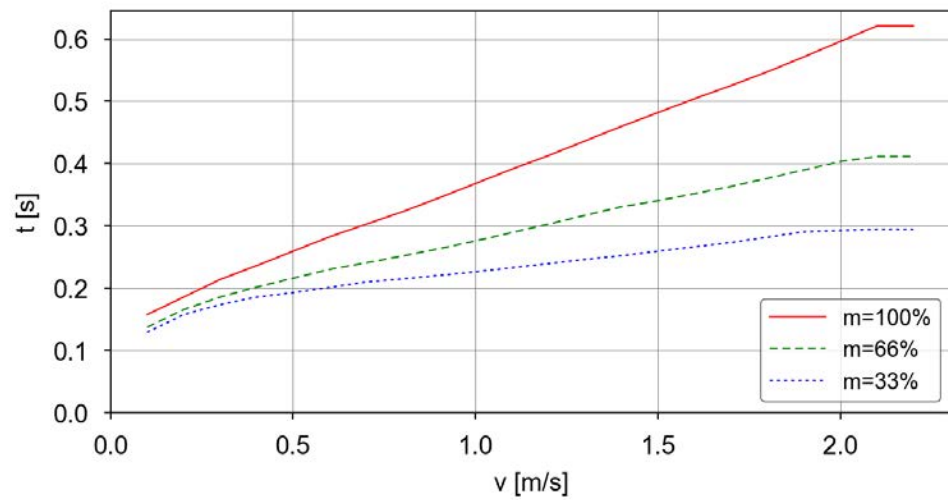
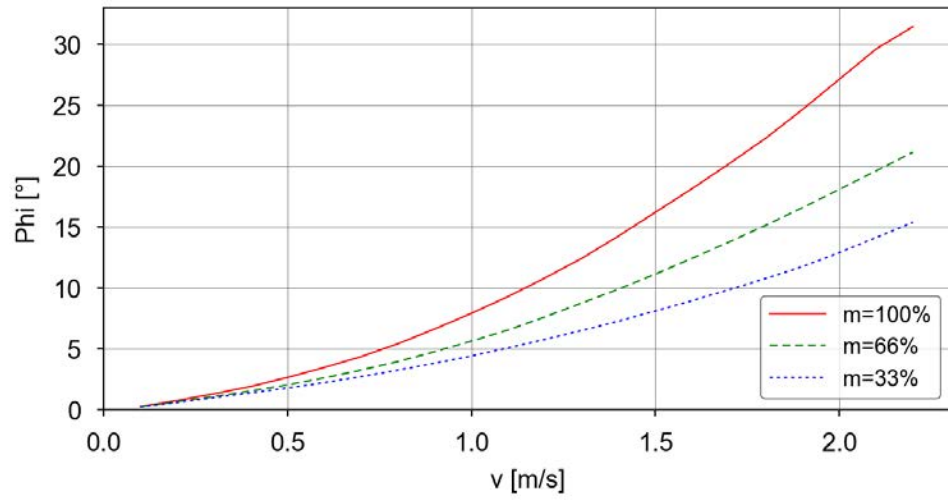
Continues on next page

# 16 IRB 6650

16.1 IRB 6650S 3.00 m 200 kg

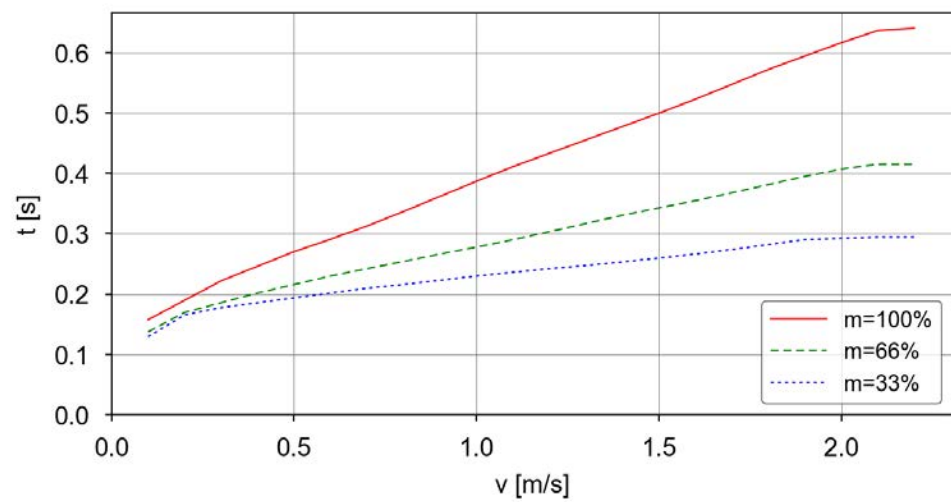
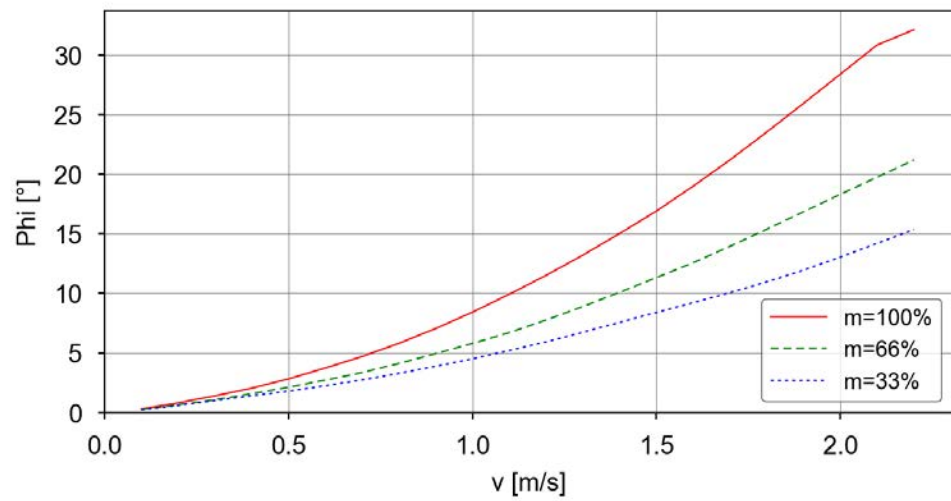
Continued

Extension zone 1, stopping distance and stopping time



Continues on next page

## Extension zone 2, stopping distance and stopping time



16.2 IRB 6650S 3.45 m 125 kg

Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	52.8	0.95
2	33.4	0.61
3	20.3	0.32

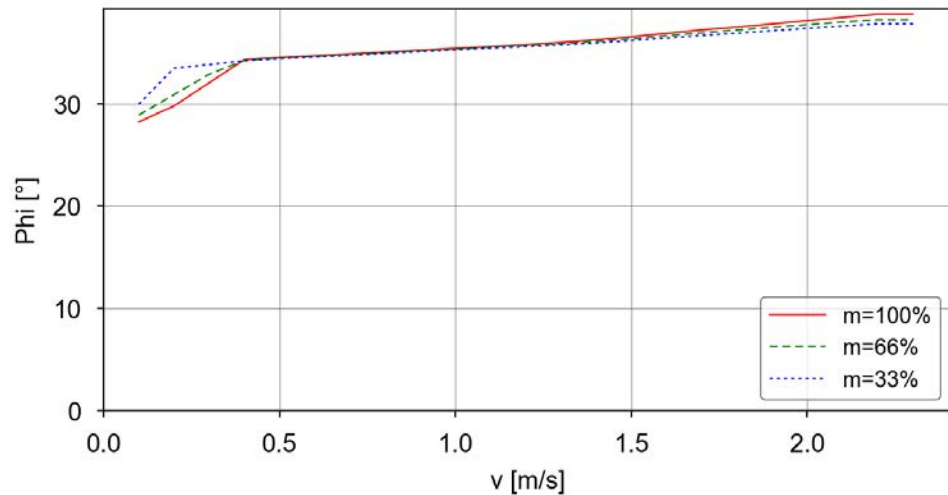
Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

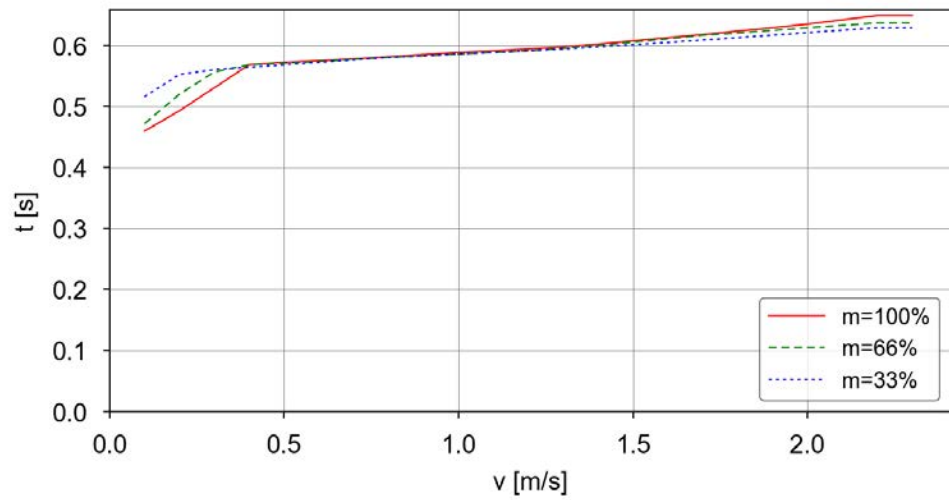
Zone	wcp min (m)	wcp max (m)
0	0	1.161
1	1.161	2.323
2	2.323	max reach

Category 1, Axis 1

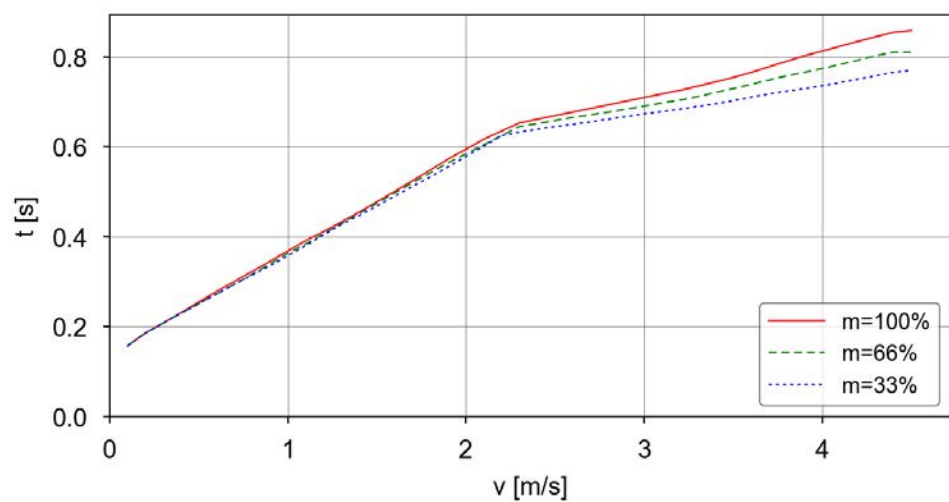
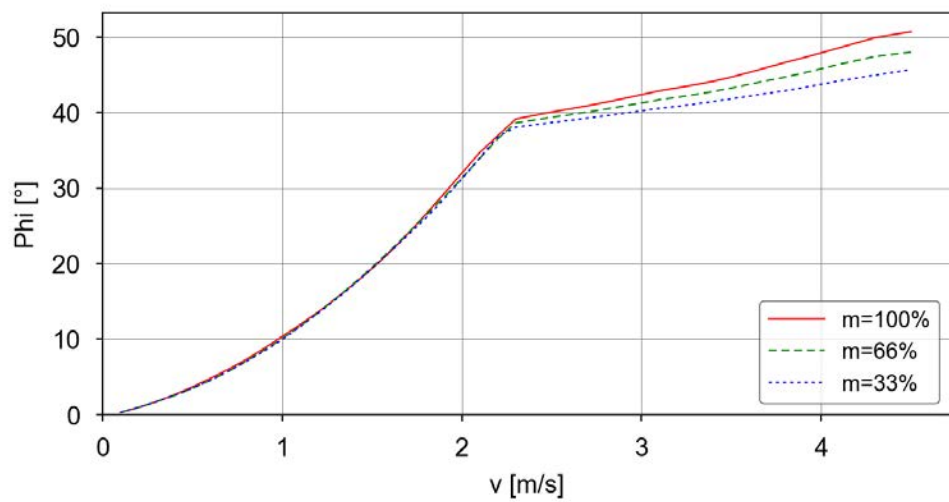
Extension zone 0, stopping distance and stopping time



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Extension zone 1, stopping distance and stopping time



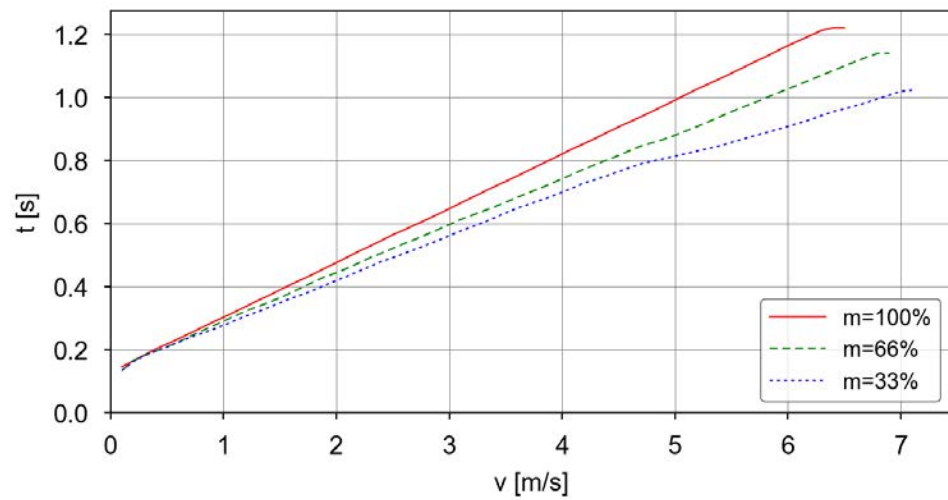
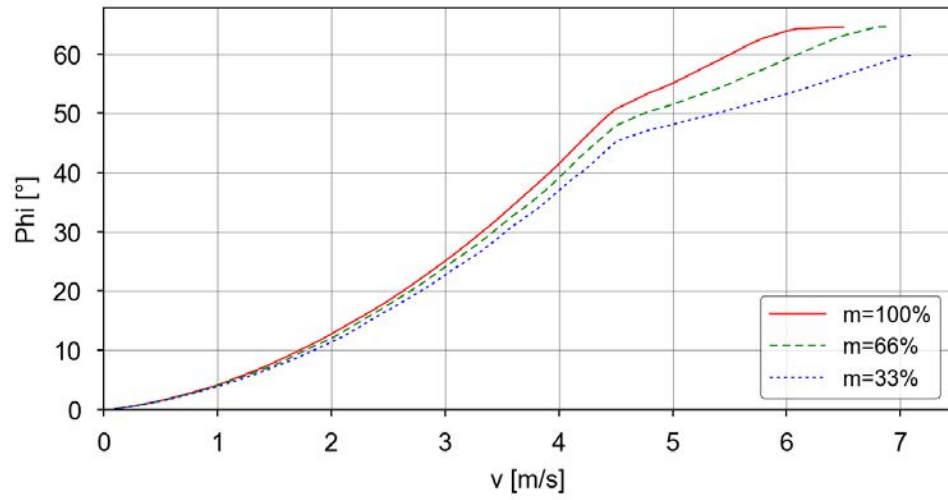
Continues on next page

# 16 IRB 6650

16.2 IRB 6650S 3.45 m 125 kg

Continued

Extension zone 2, stopping distance and stopping time

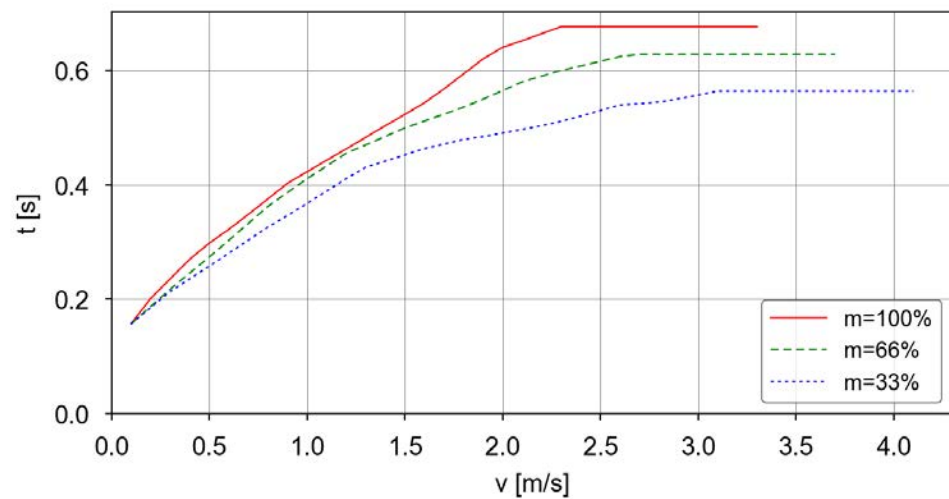
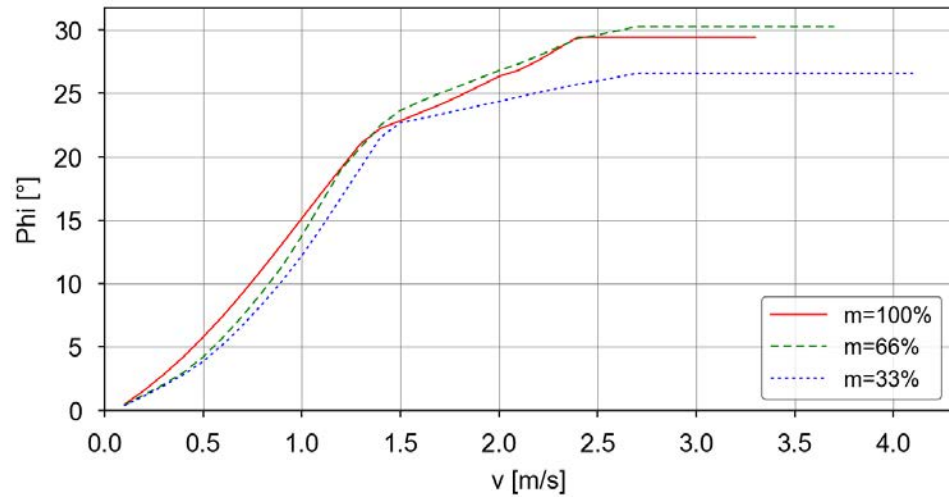


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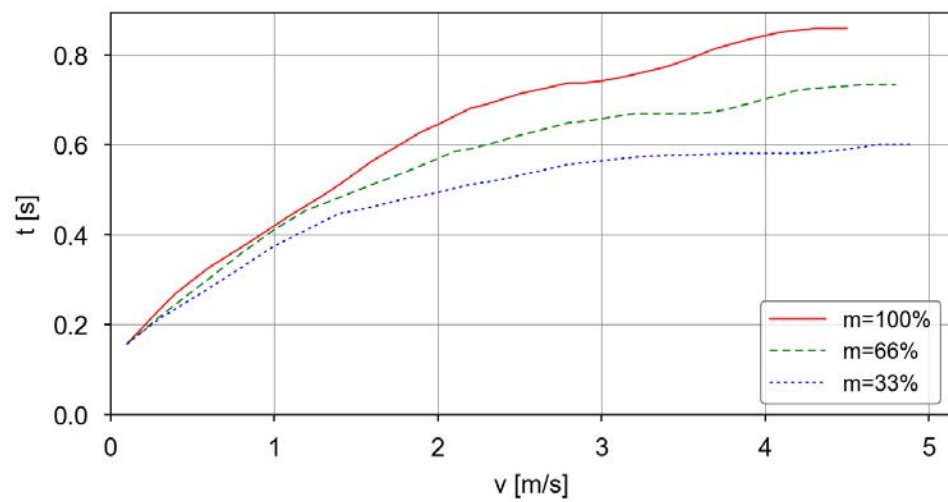
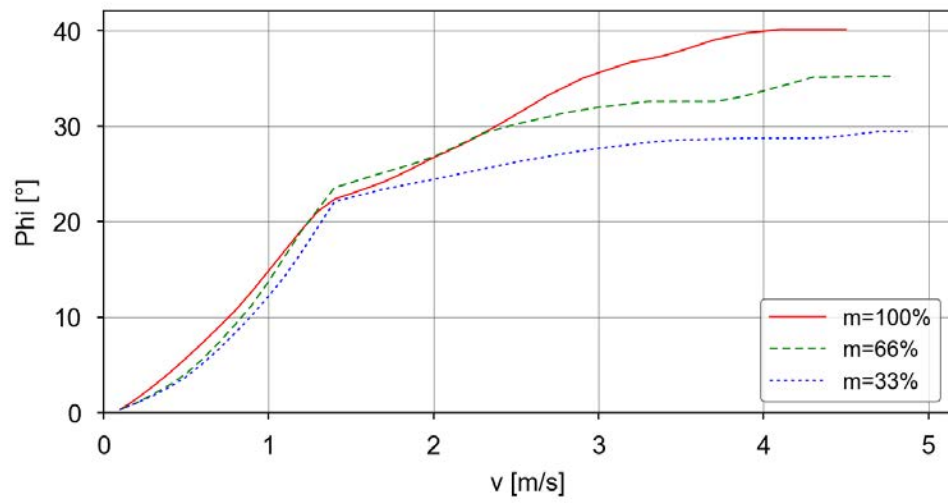
## Category 1, Axis 2

## Extension zone 0, stopping distance and stopping time



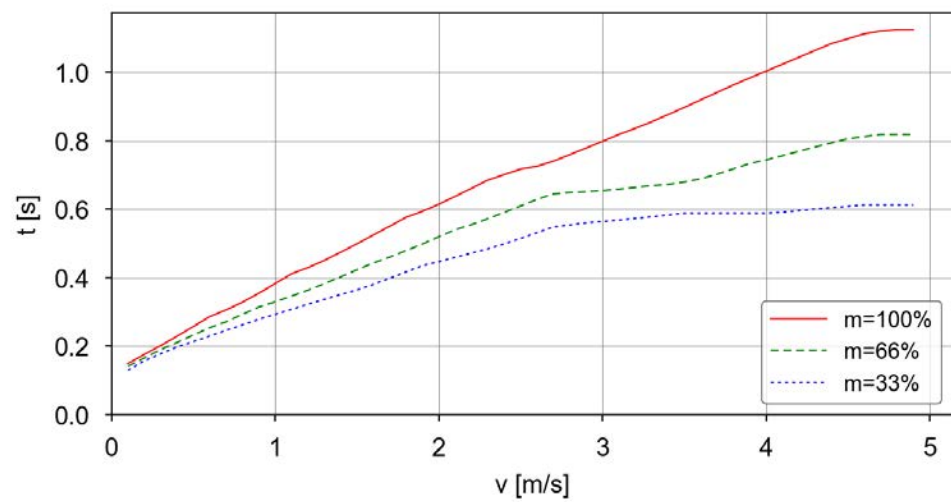
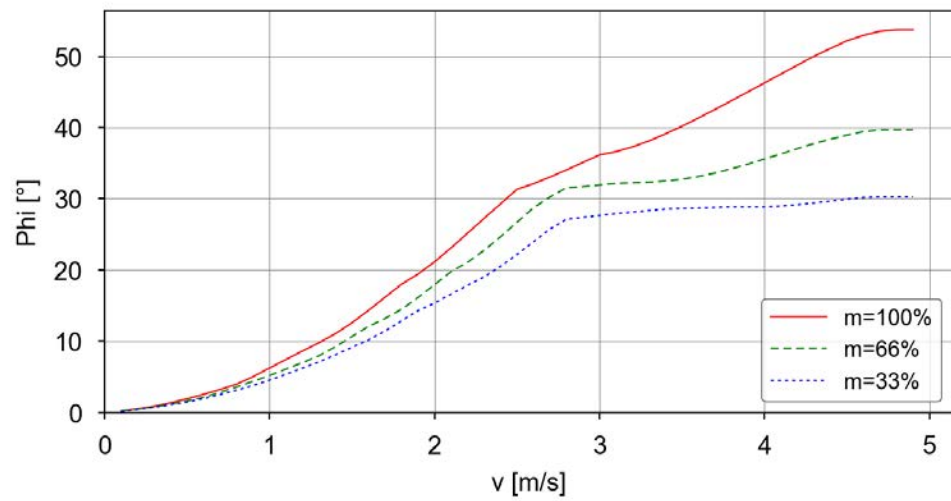
Continues on next page

Extension zone 1, stopping distance and stopping time



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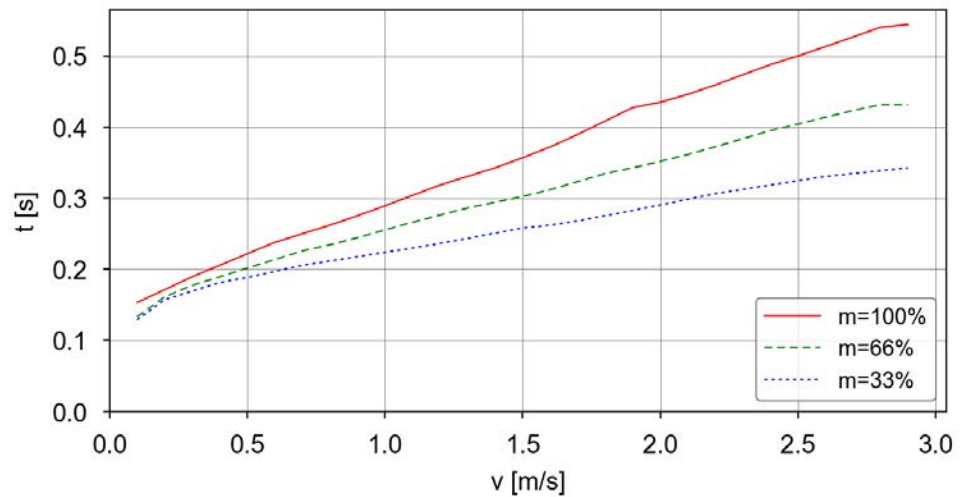
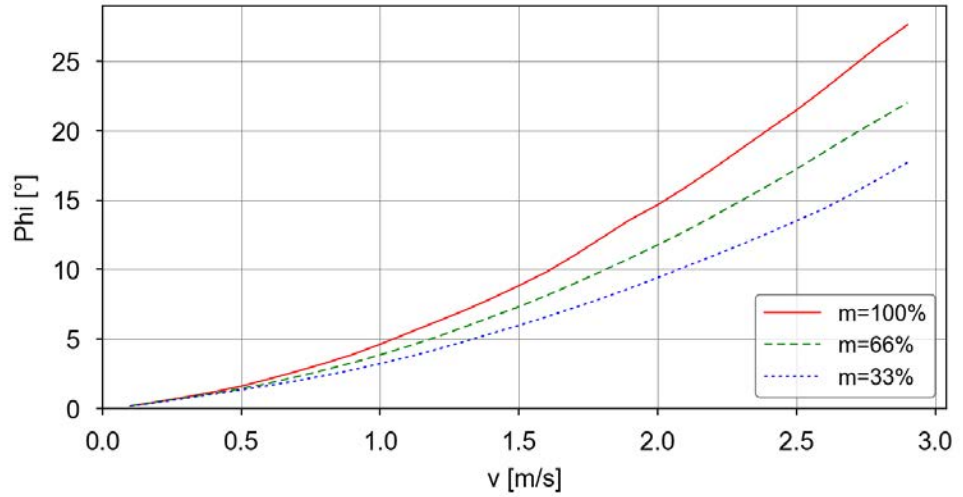
## Extension zone 2, stopping distance and stopping time



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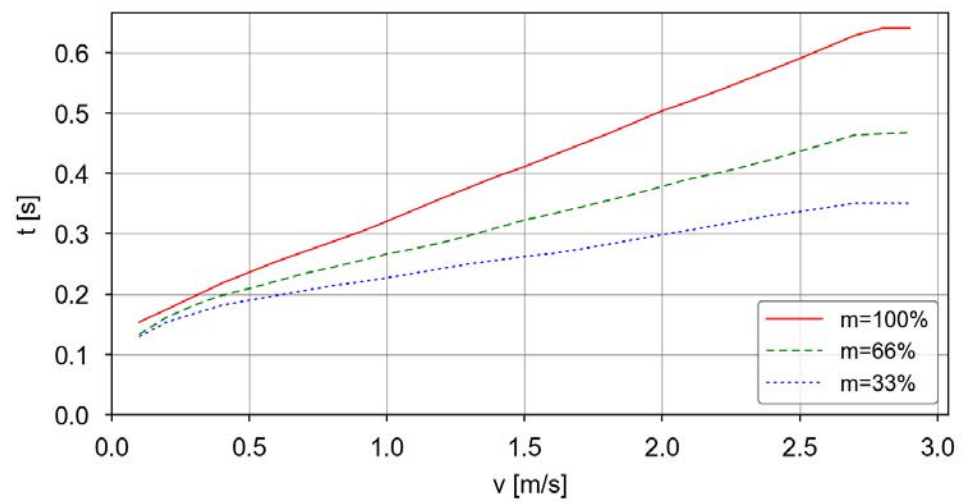
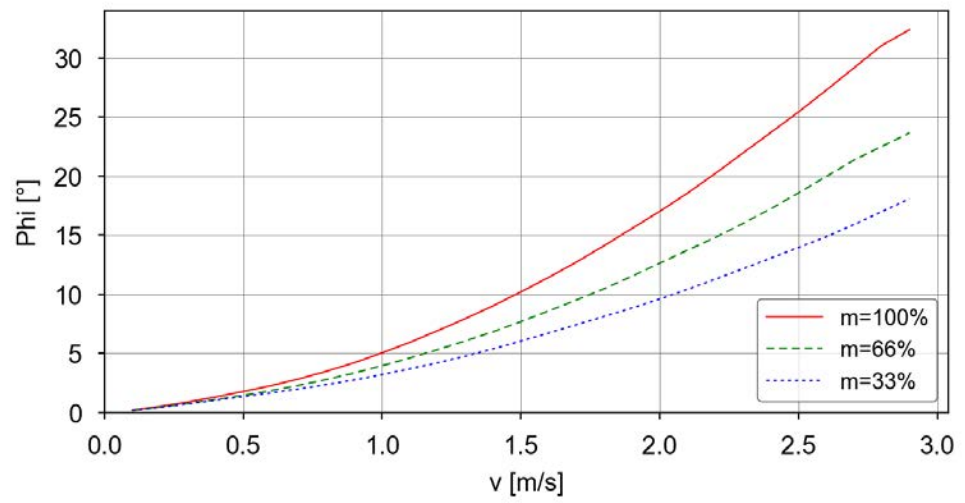
Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



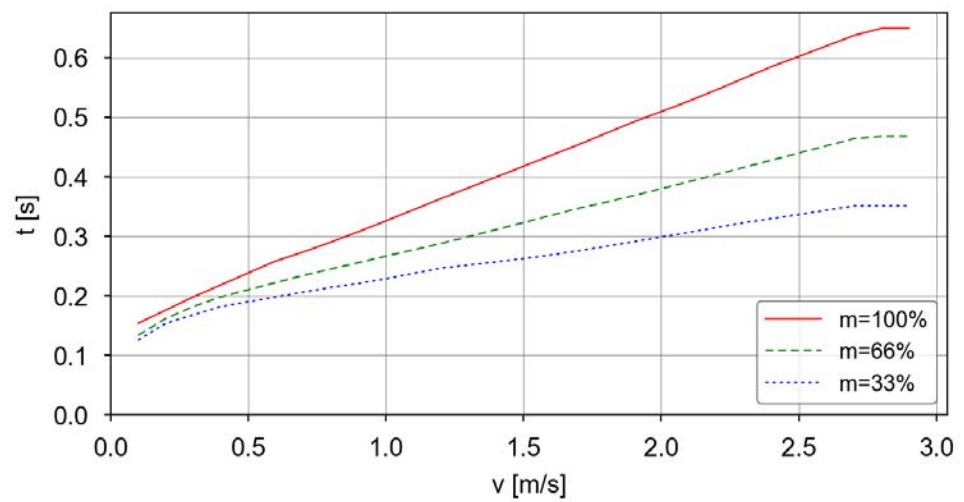
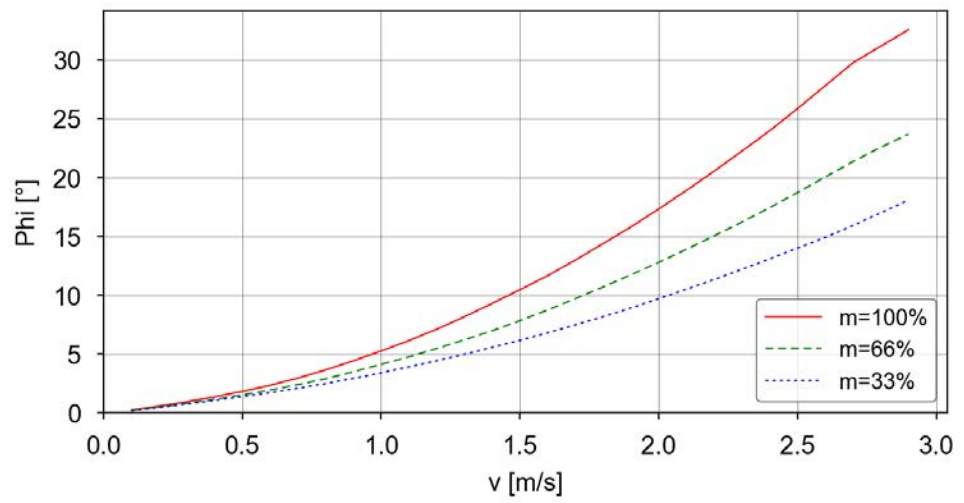
Continues on next page

Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



## 16.3 IRB 6650S 3.90 m 90 kg

### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	51.2	0.97
2	37.0	0.68
3	23.9	0.39

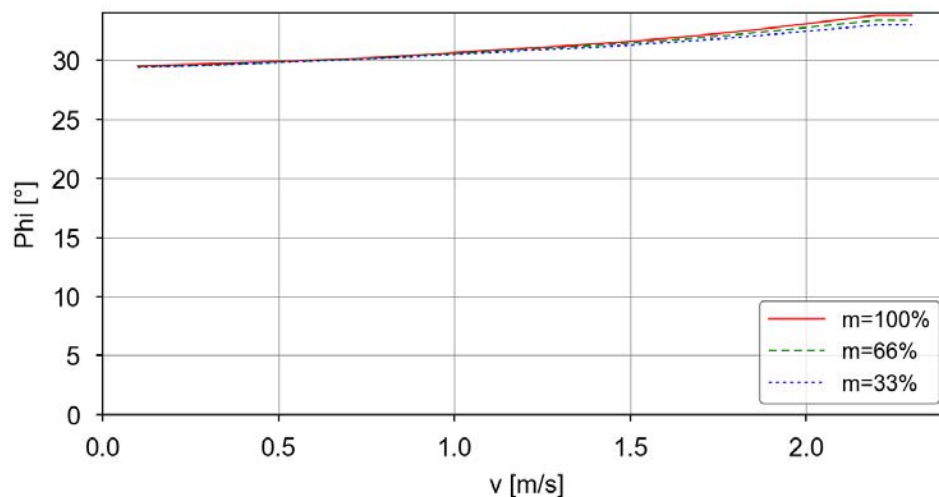
### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	1.311
1	1.311	2.621
2	2.621	max reach

### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

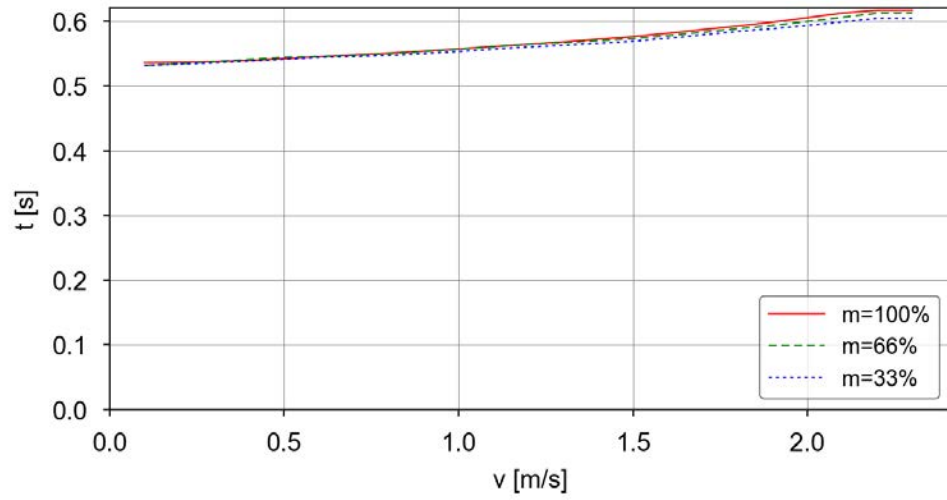


*Continues on next page*

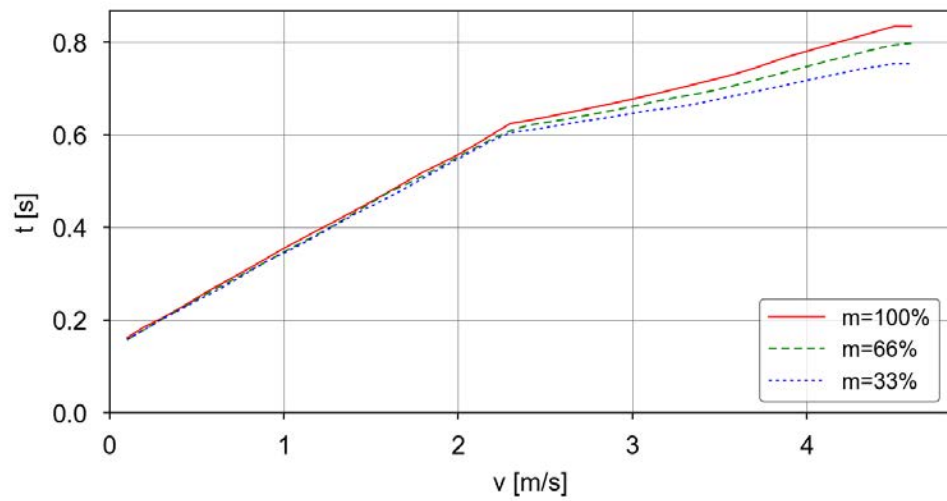
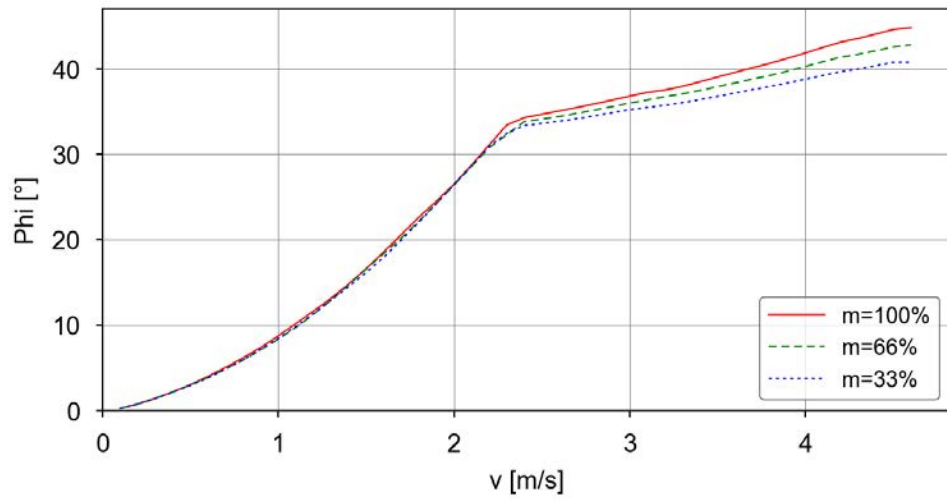
# 16 IRB 6650

## 16.3 IRB 6650S 3.90 m 90 kg

Continued



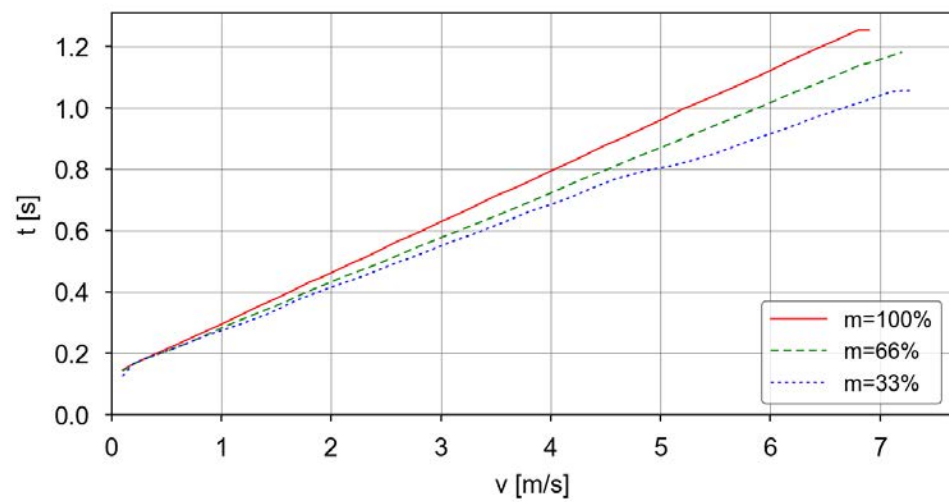
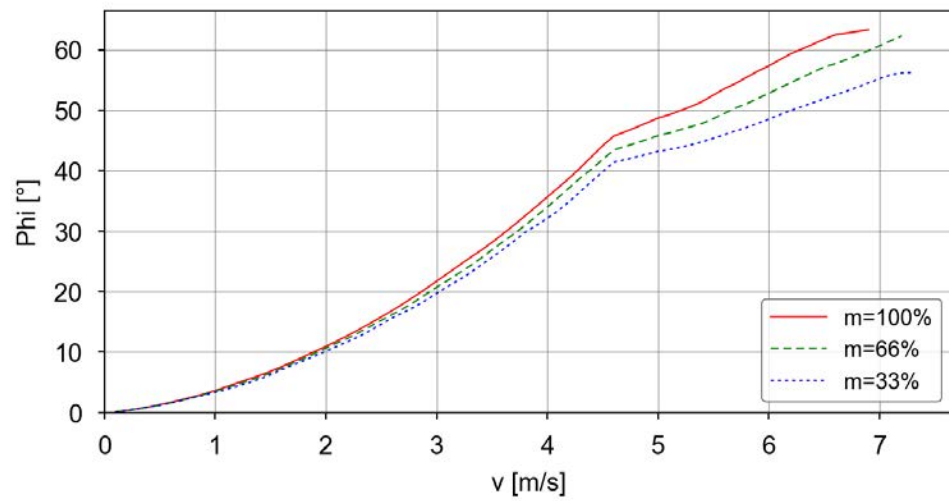
### Extension zone 1, stopping distance and stopping time



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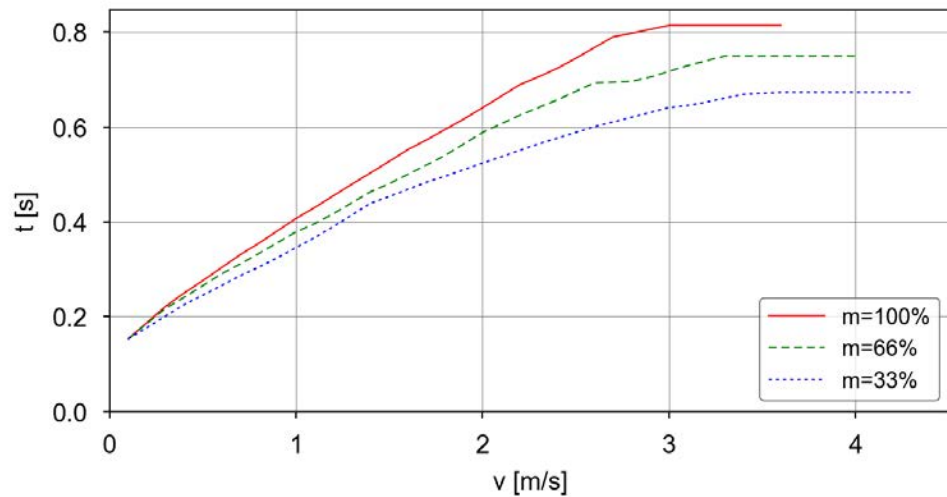
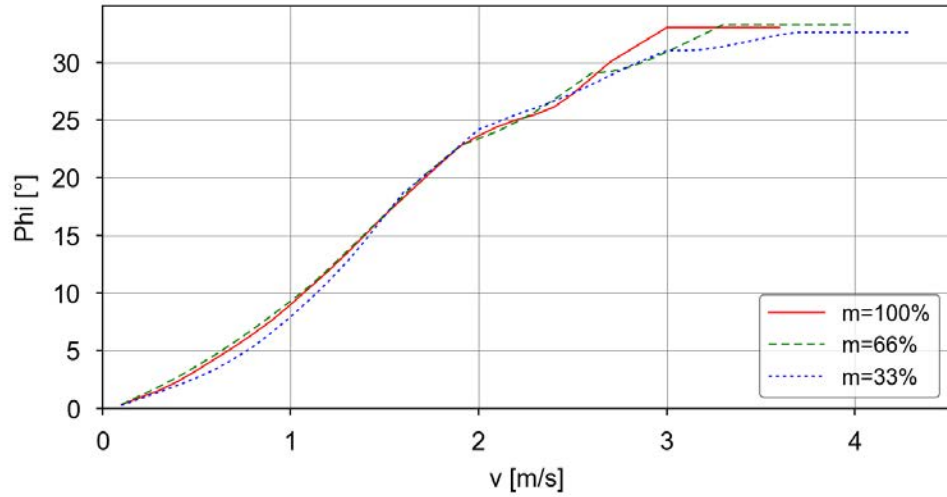
## Extension zone 2, stopping distance and stopping time



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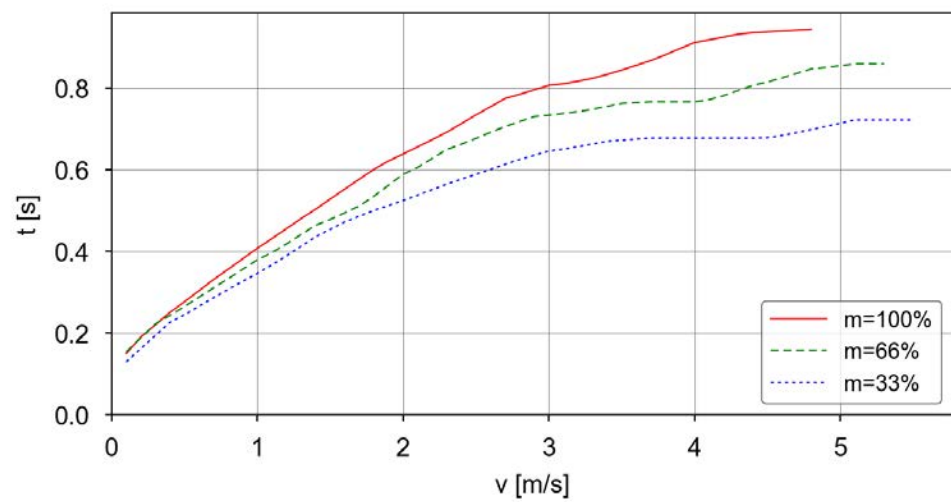
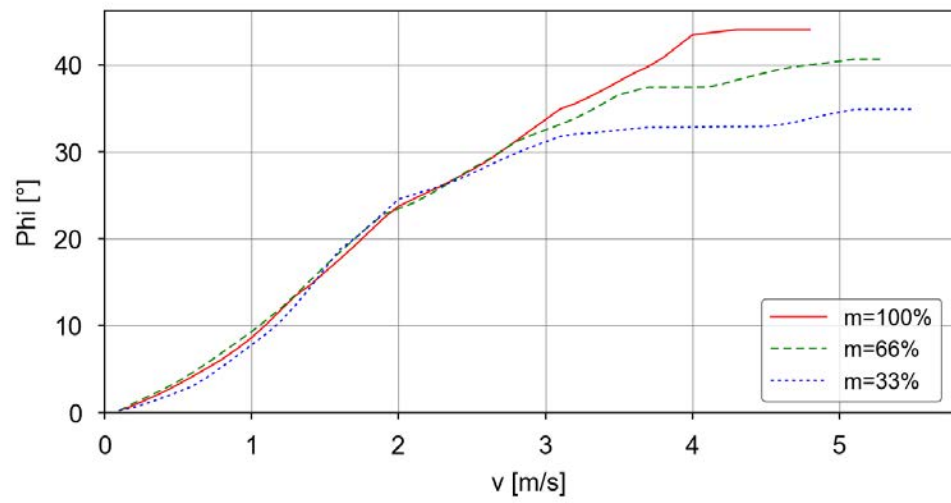
Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



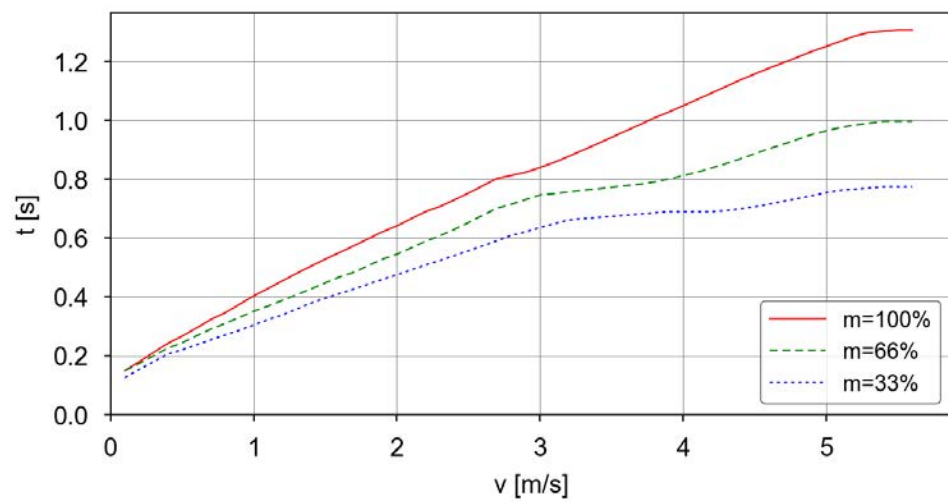
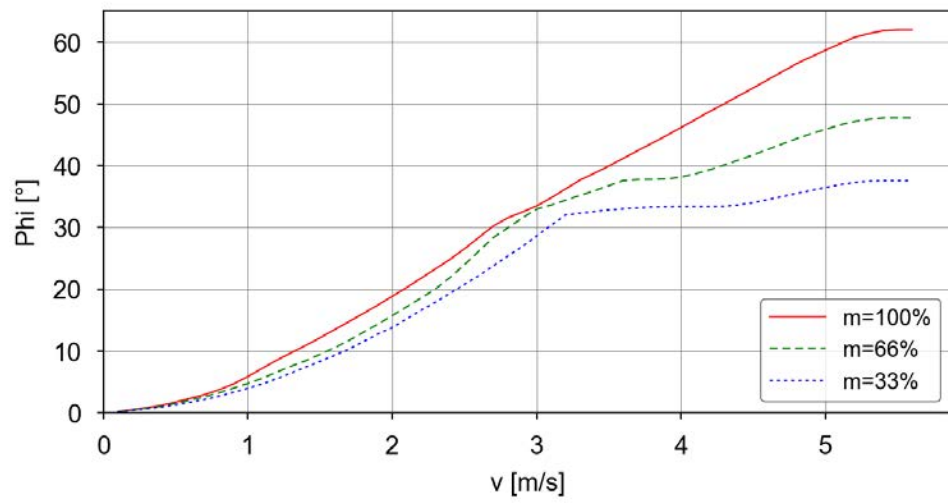
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Extension zone 1, stopping distance and stopping time



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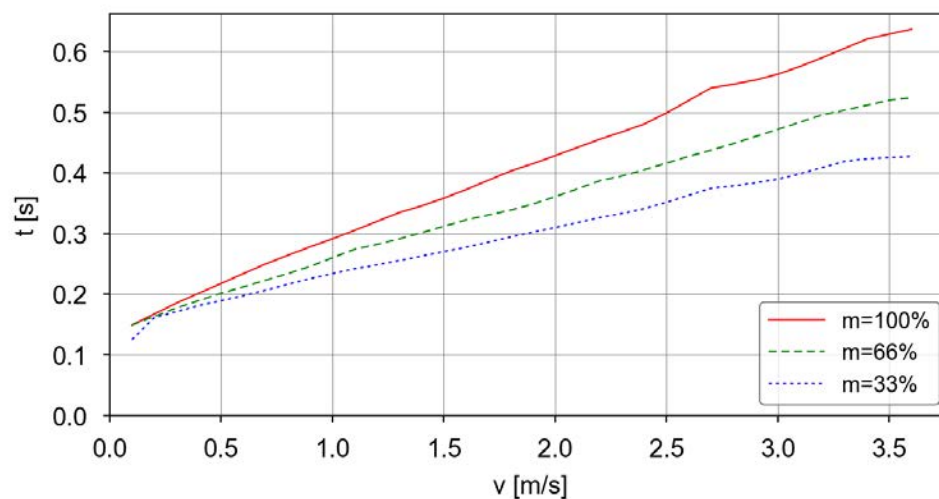
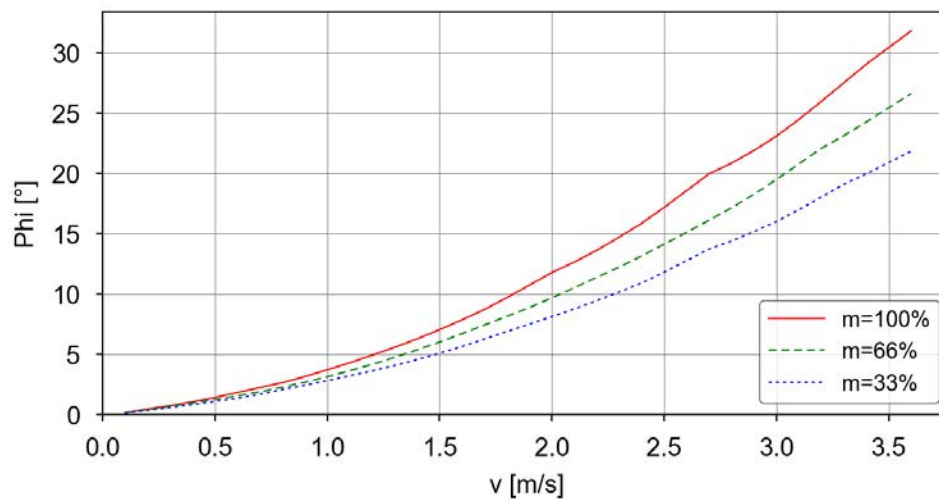
Extension zone 2, stopping distance and stopping time



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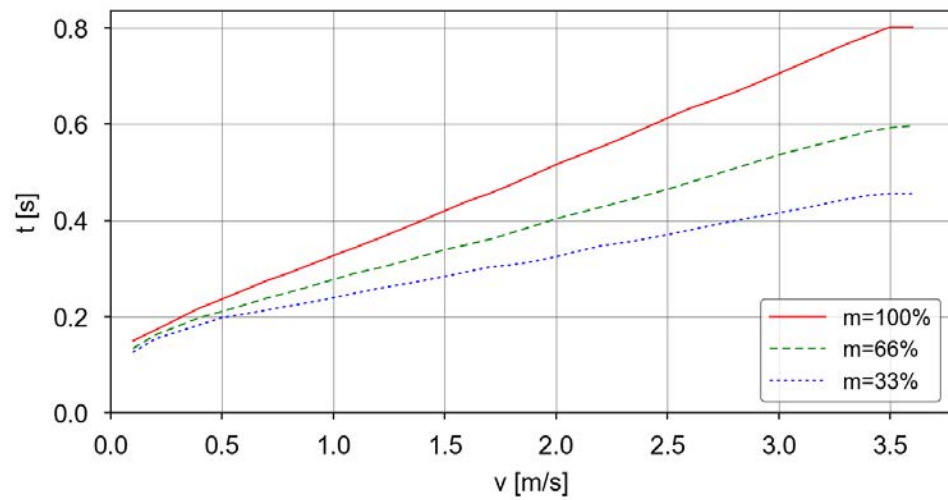
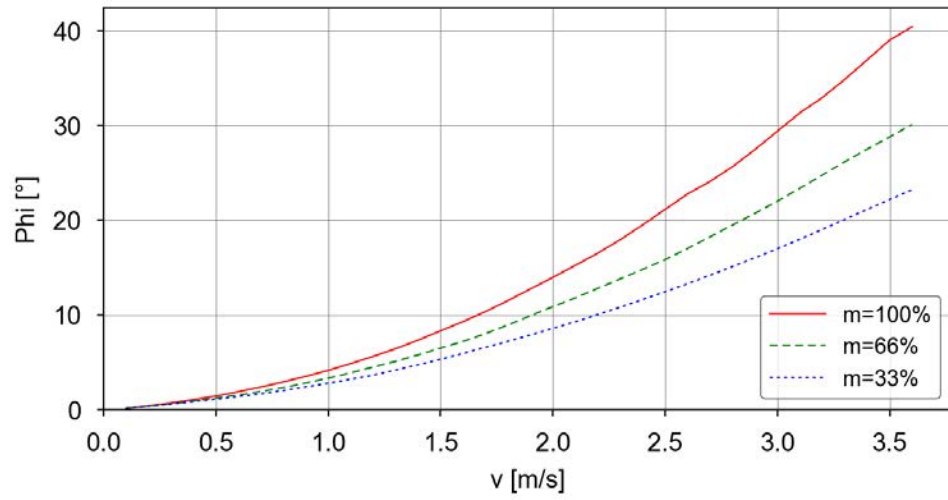
Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



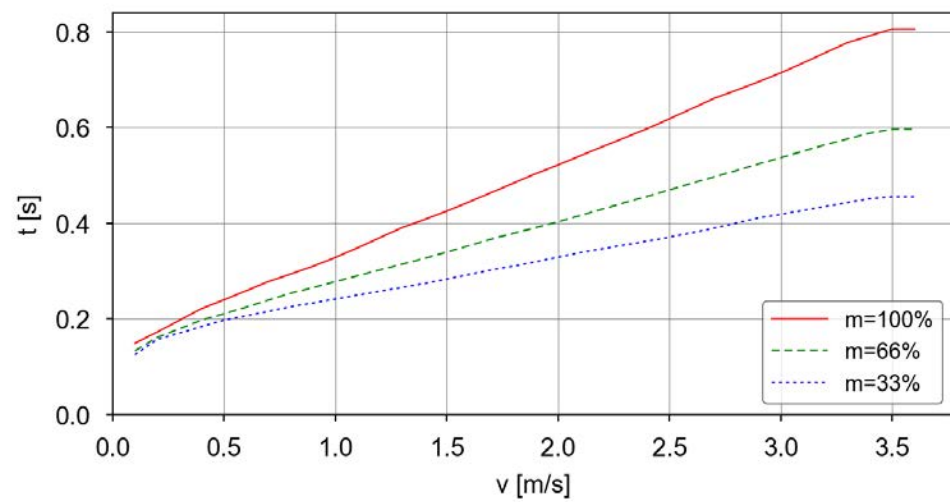
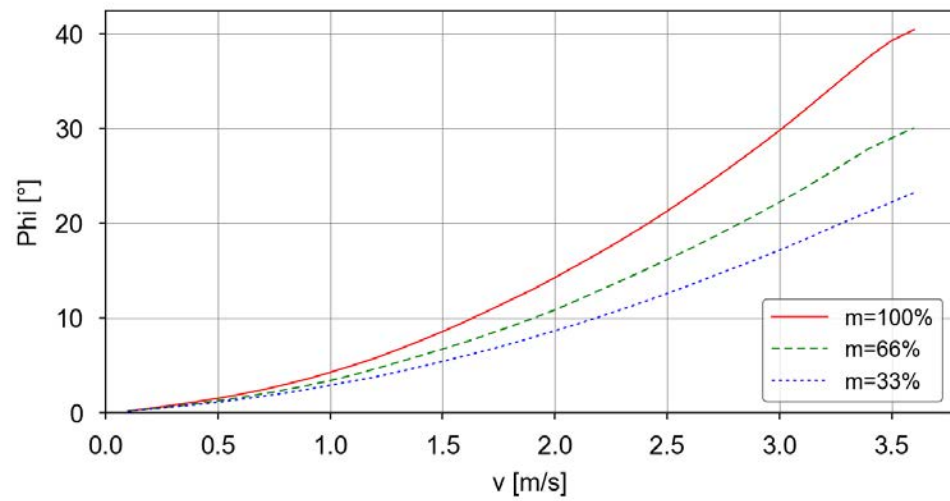
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Extension zone 1, stopping distance and stopping time



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## Extension zone 2, stopping distance and stopping time



16.4 IRB 6650SLeanID 3.0 m 190 kg

Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	45.7	0.83
2	26.2	0.46
3	13.8	0.22

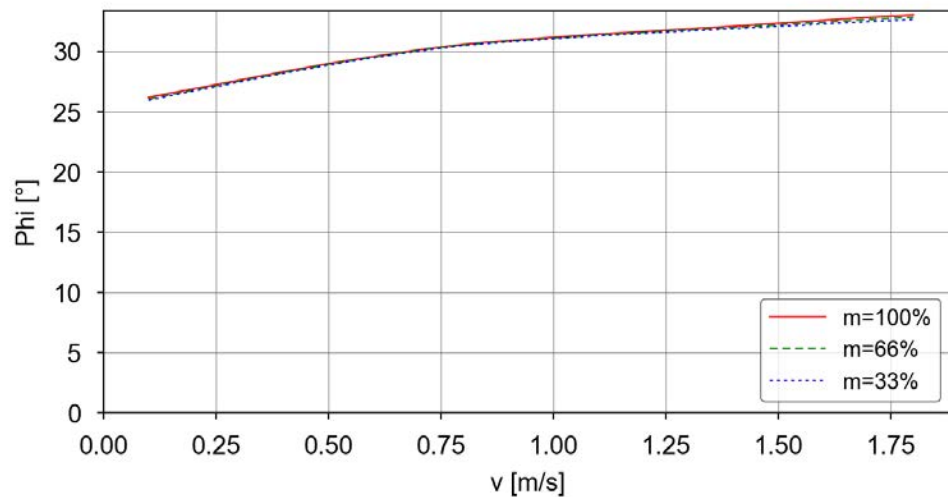
Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	1.013
1	1.013	2.027
2	2.027	max reach

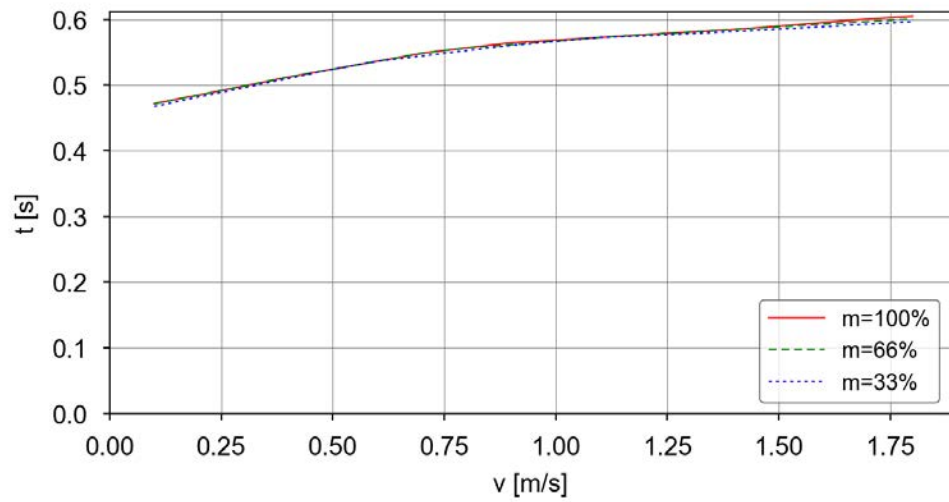
Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

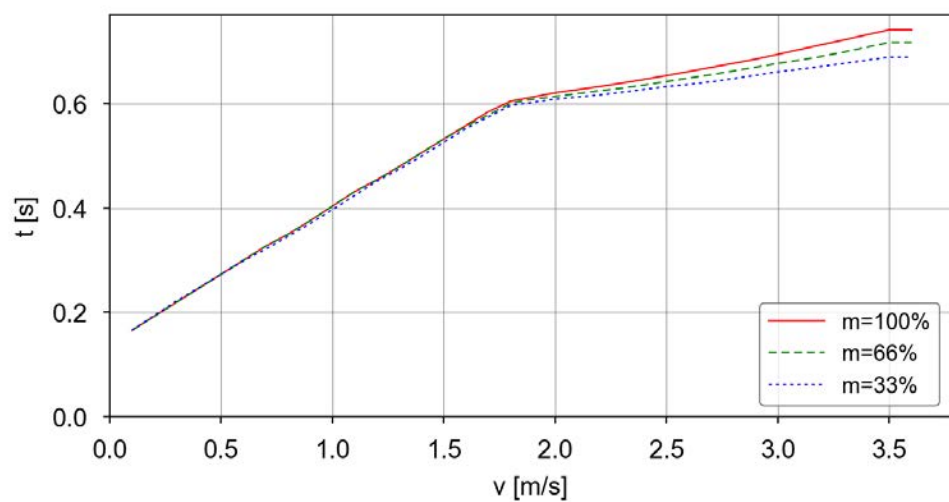
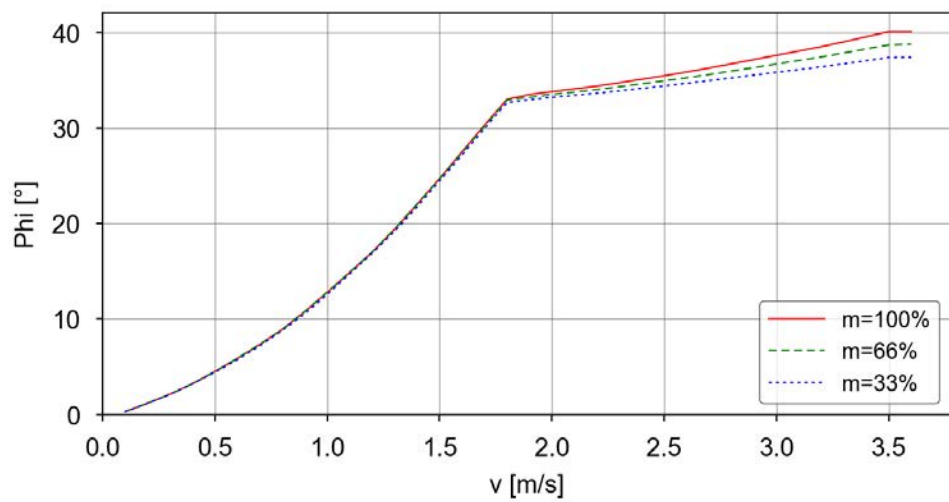


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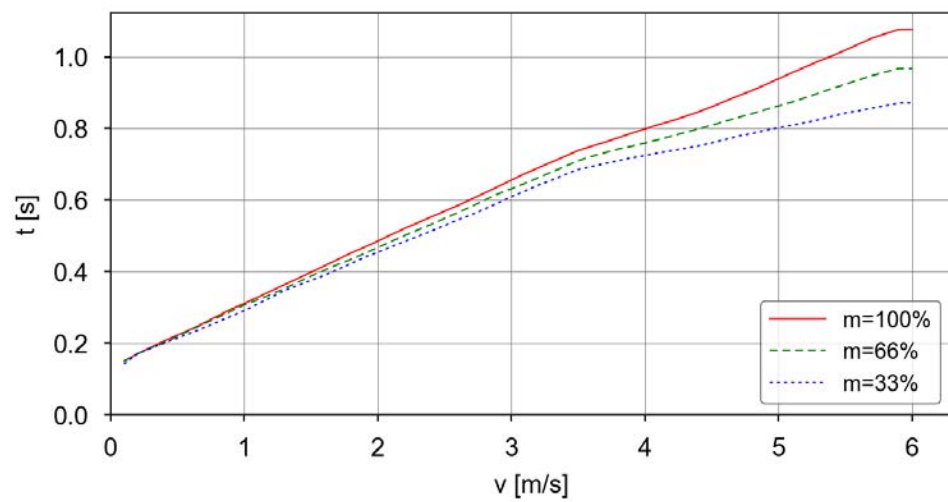
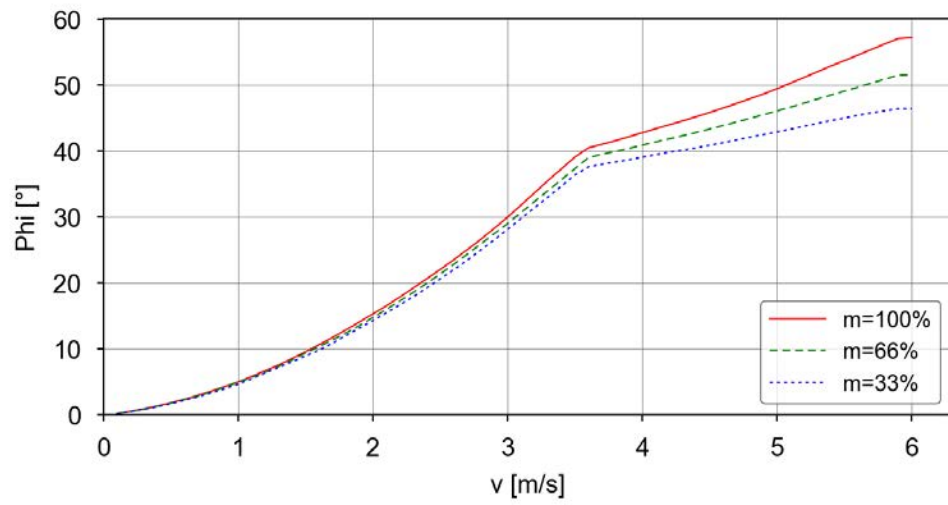


Extension zone 1, stopping distance and stopping time



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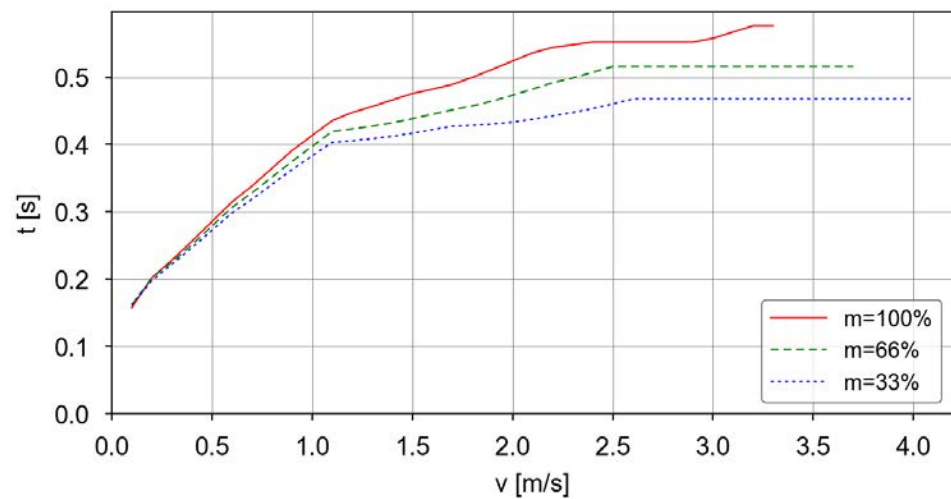
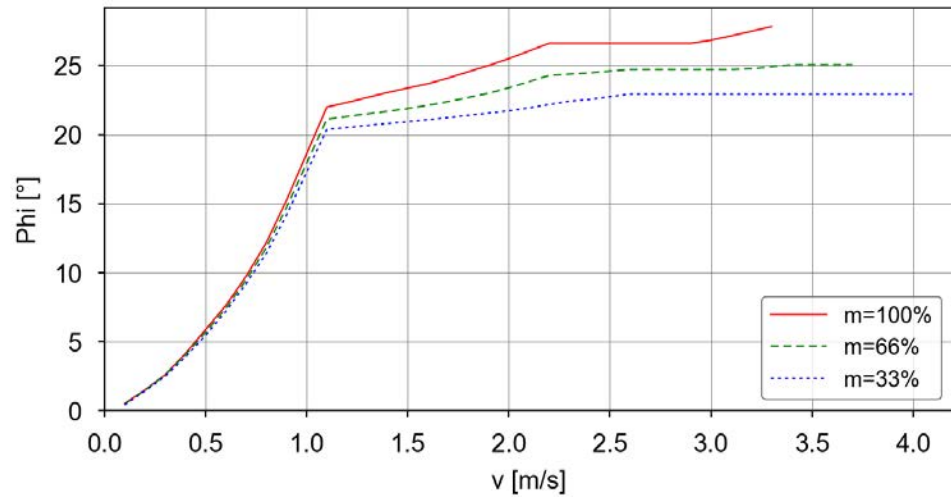
Extension zone 2, stopping distance and stopping time



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## Category 1, Axis 2

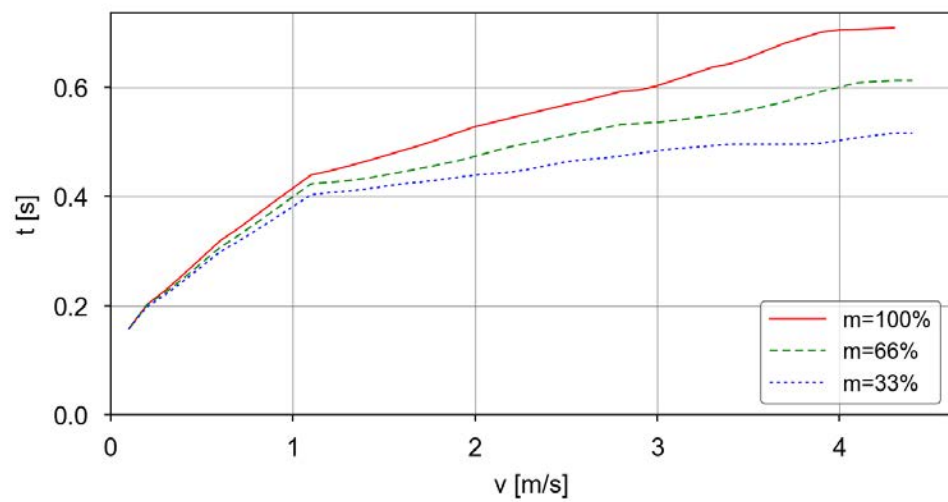
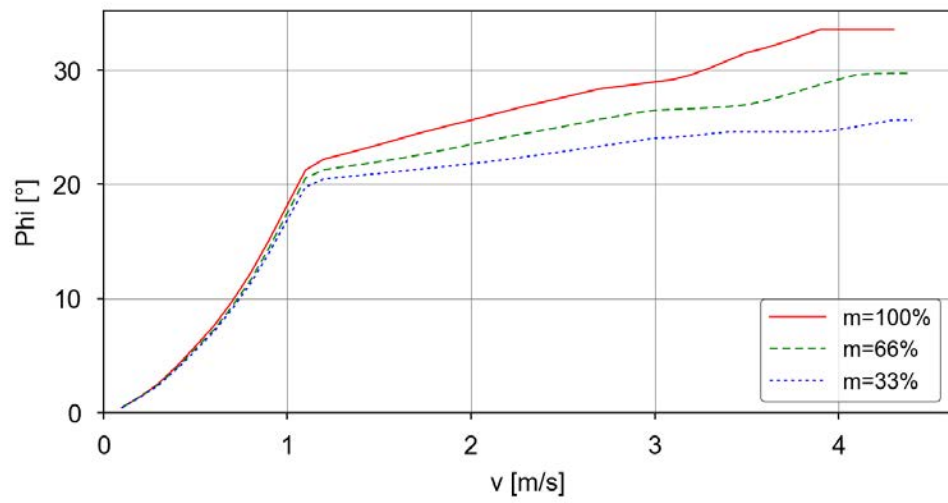
Extension zone 0, stopping distance and stopping time



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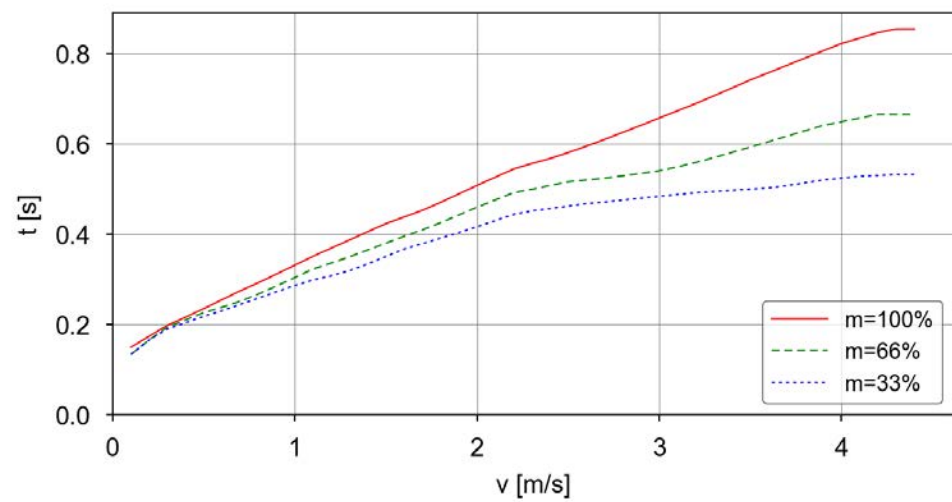
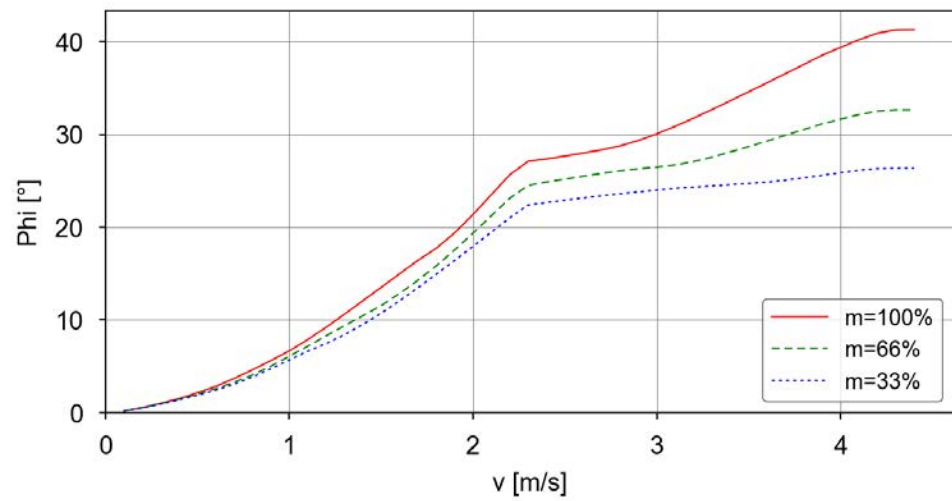
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Extension zone 1, stopping distance and stopping time



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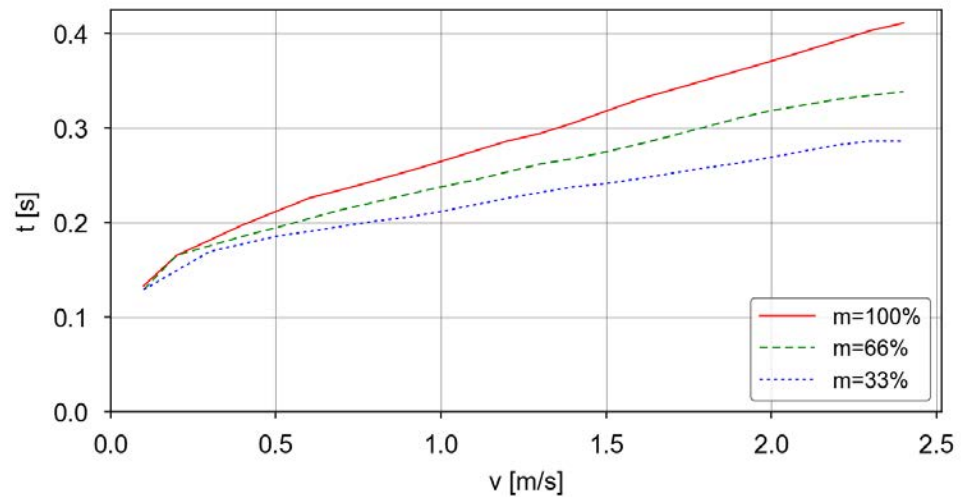
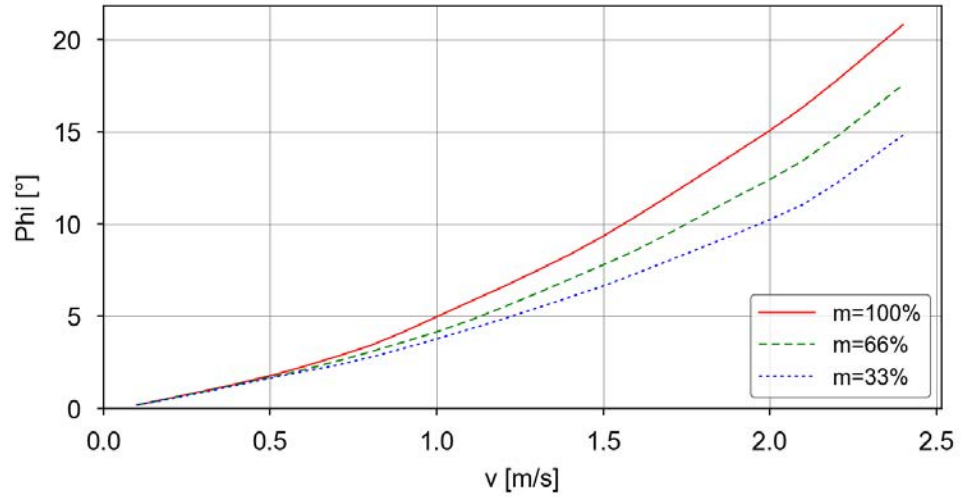
## Extension zone 2, stopping distance and stopping time



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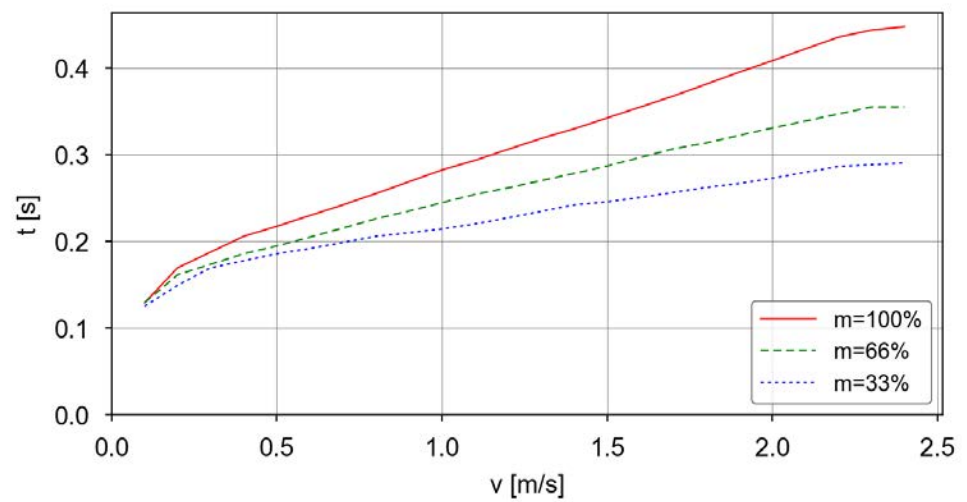
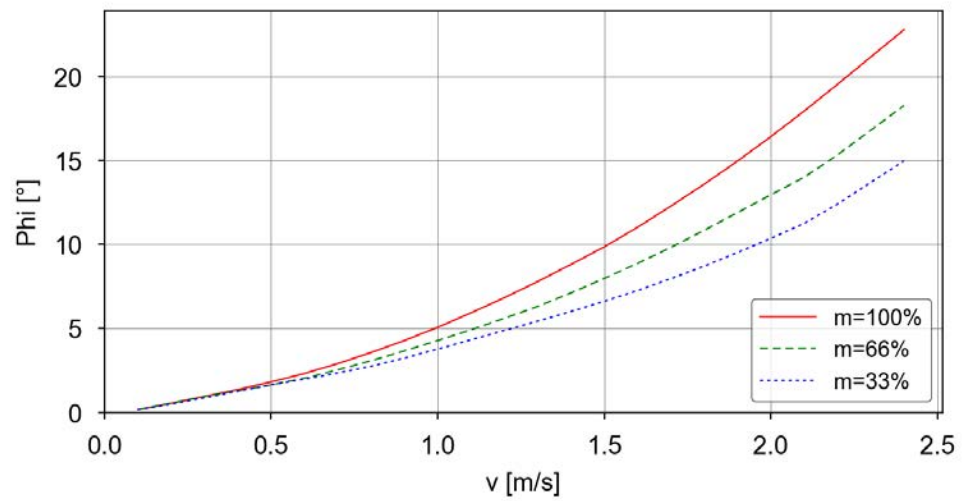
Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



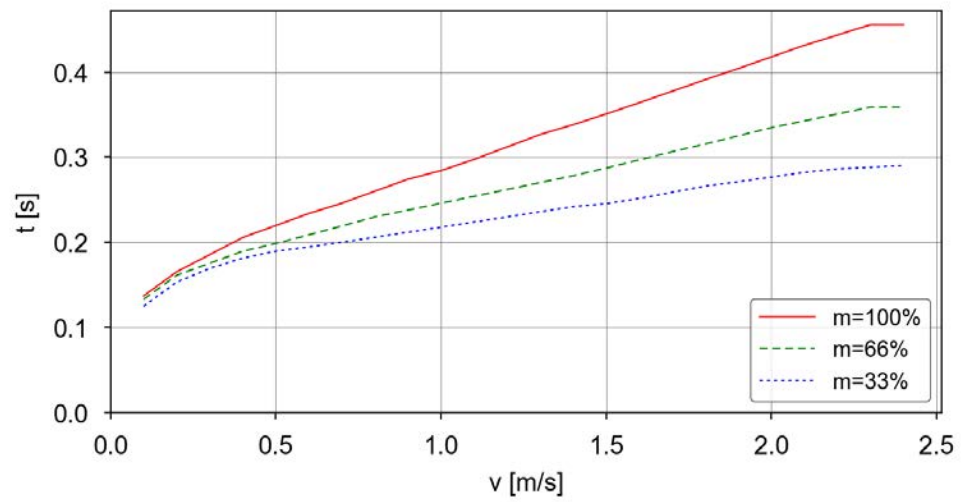
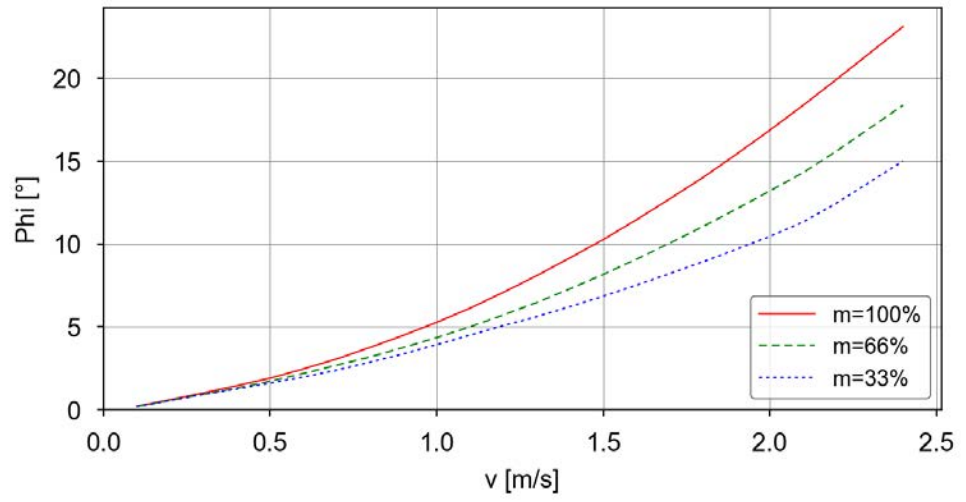
Continues on next page

## Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time





## 16.5 IRB 6650SLeanID 3.5 m 100 kg

### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	50.6	0.9
2	34.9	0.66
3	20.5	0.34

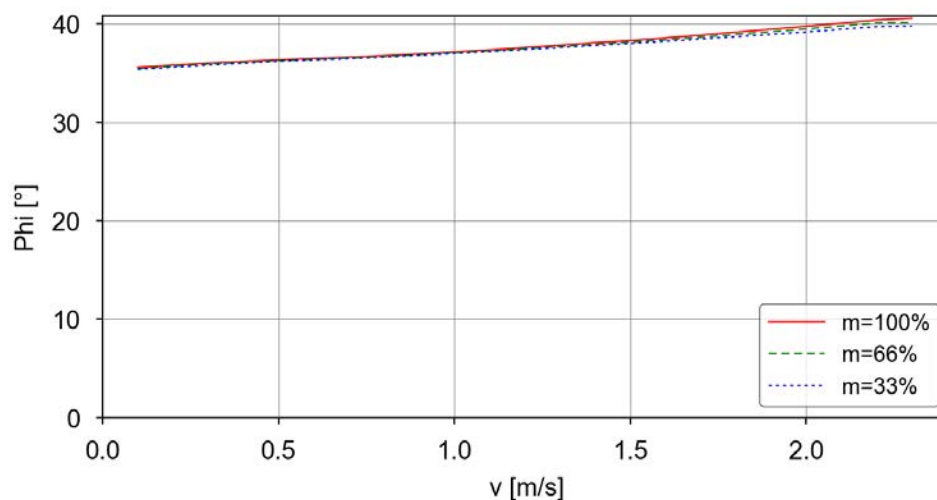
### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	1.162
1	1.162	2.323
2	2.323	max reach

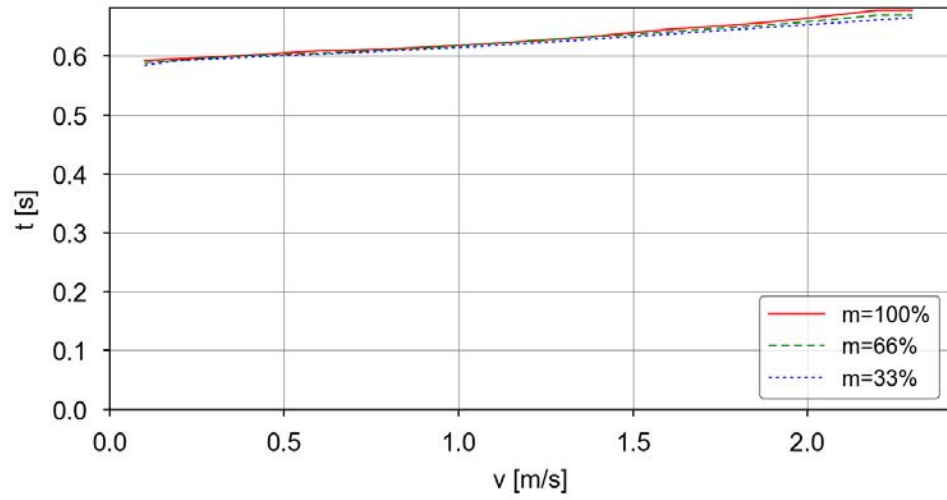
### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

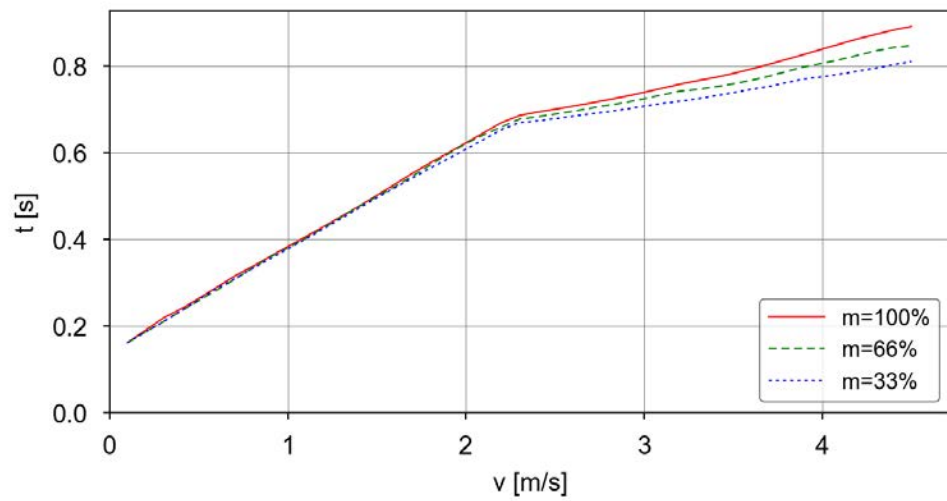
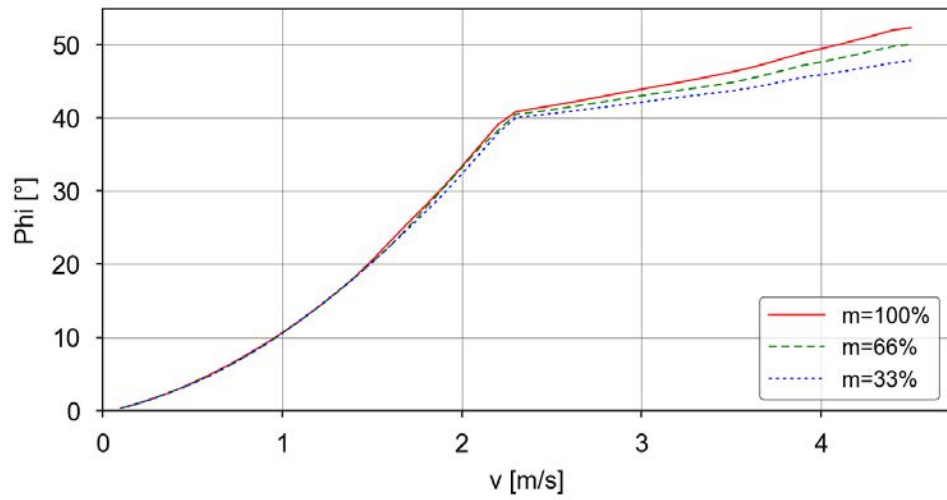


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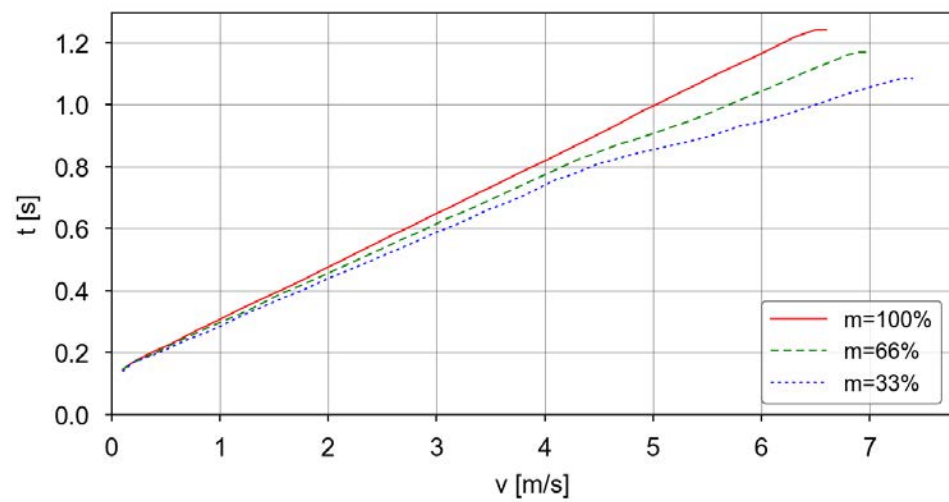
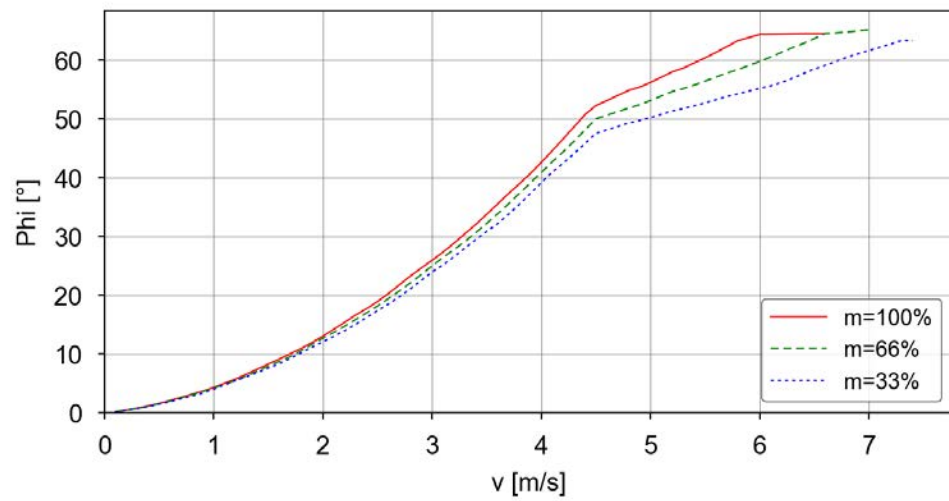


Extension zone 1, stopping distance and stopping time



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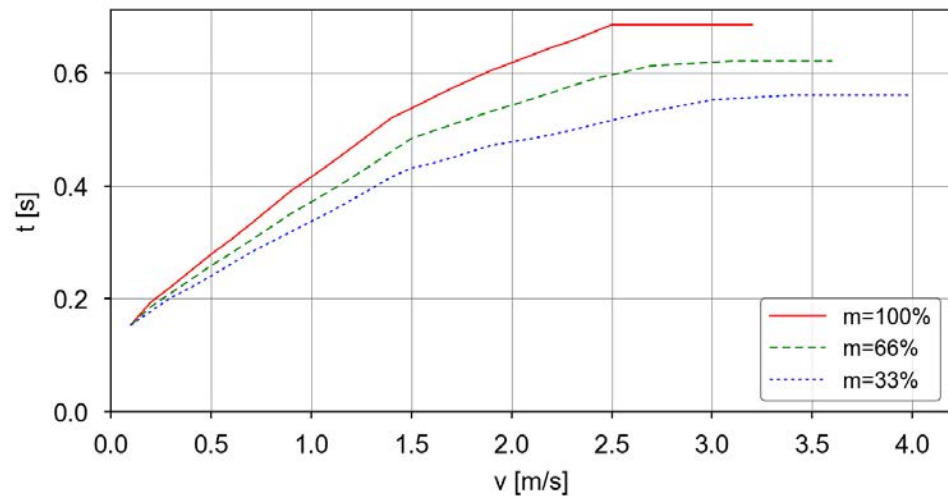
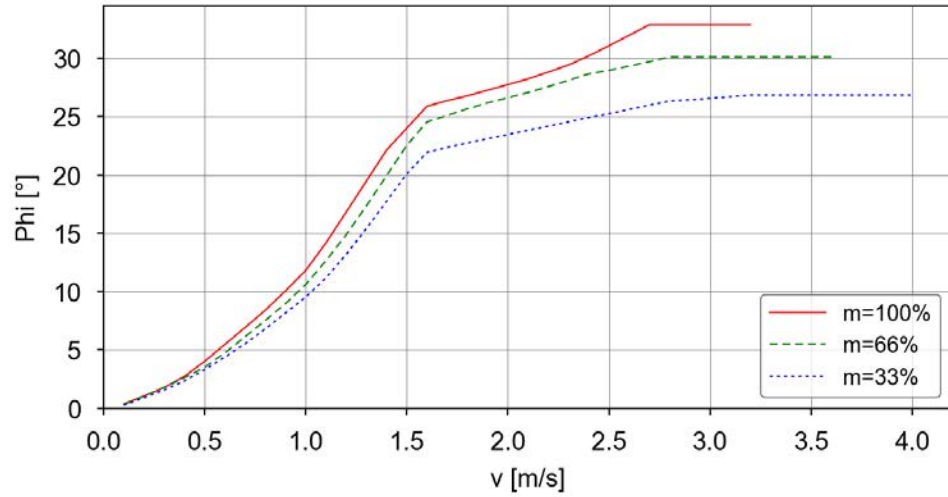
## Extension zone 2, stopping distance and stopping time



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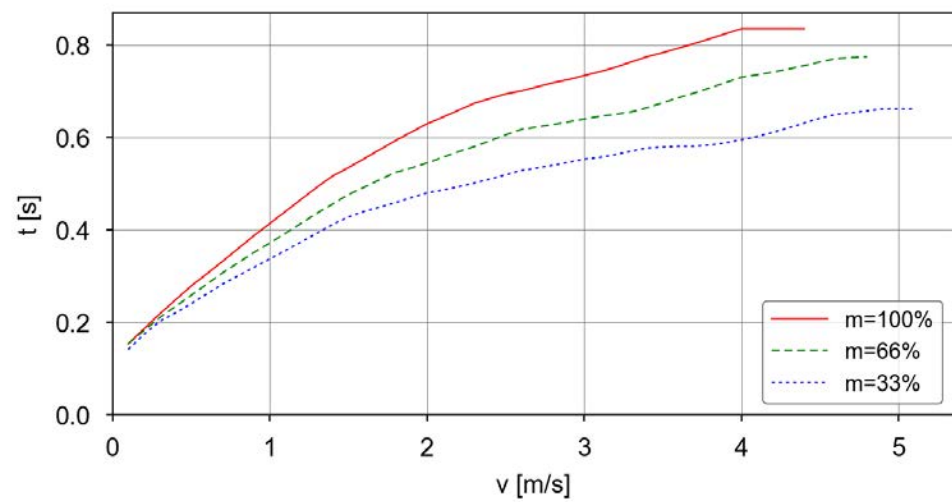
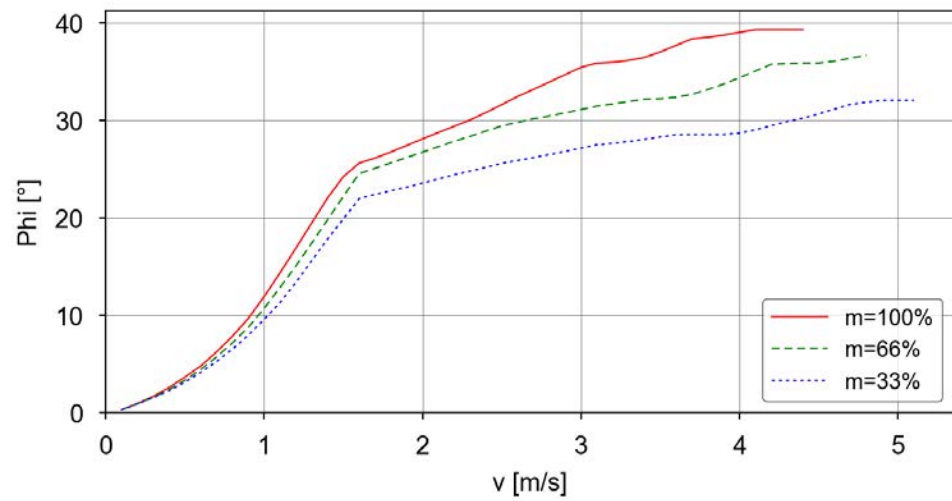
Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



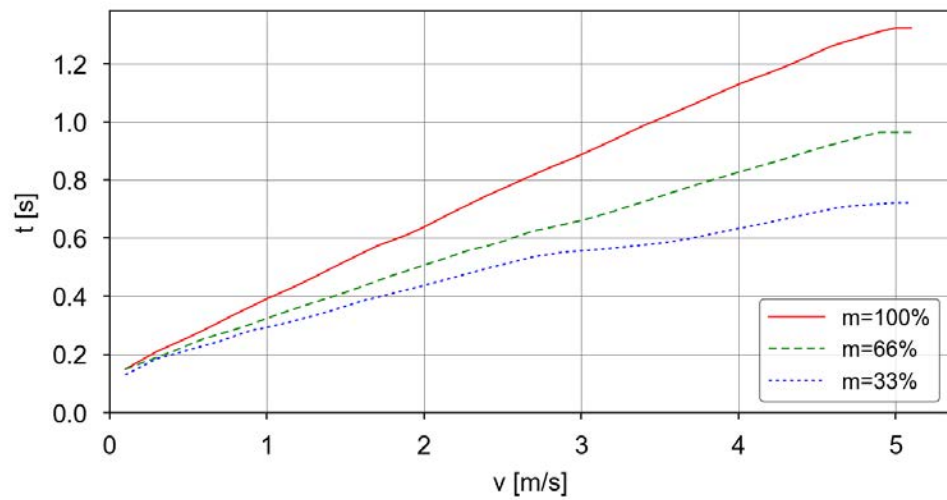
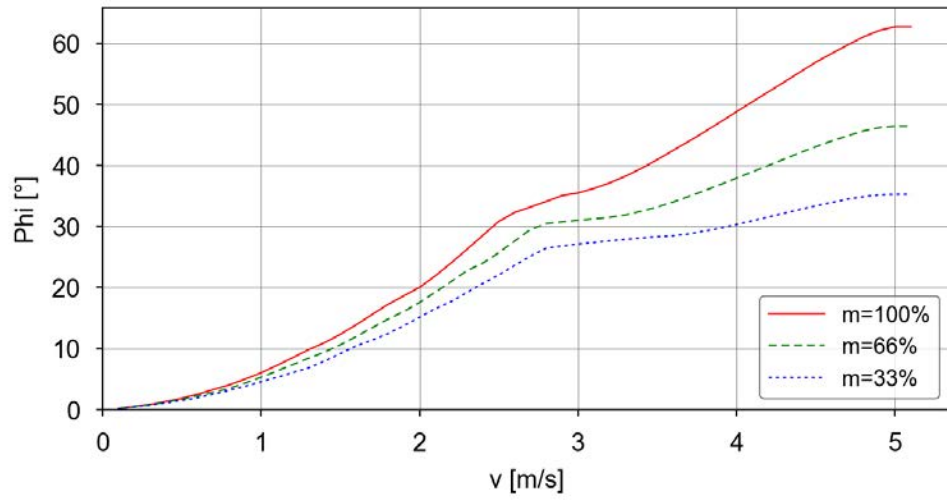
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## Extension zone 1, stopping distance and stopping time



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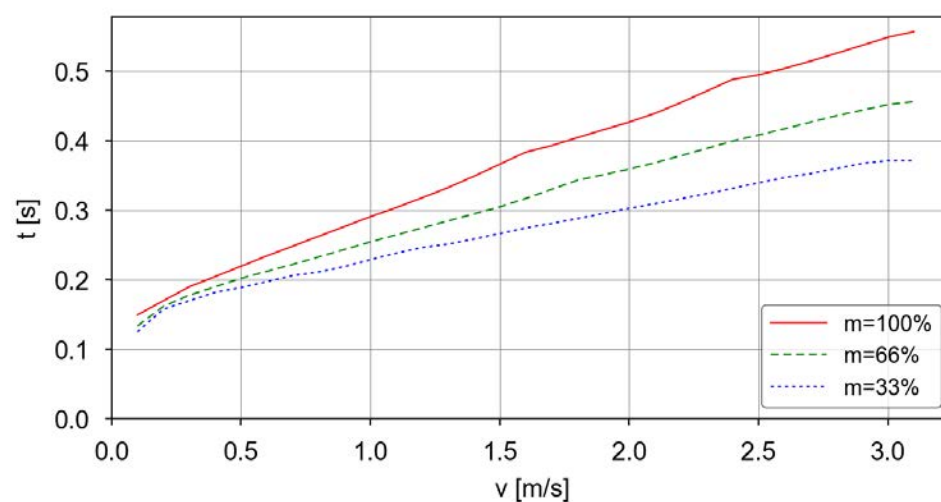
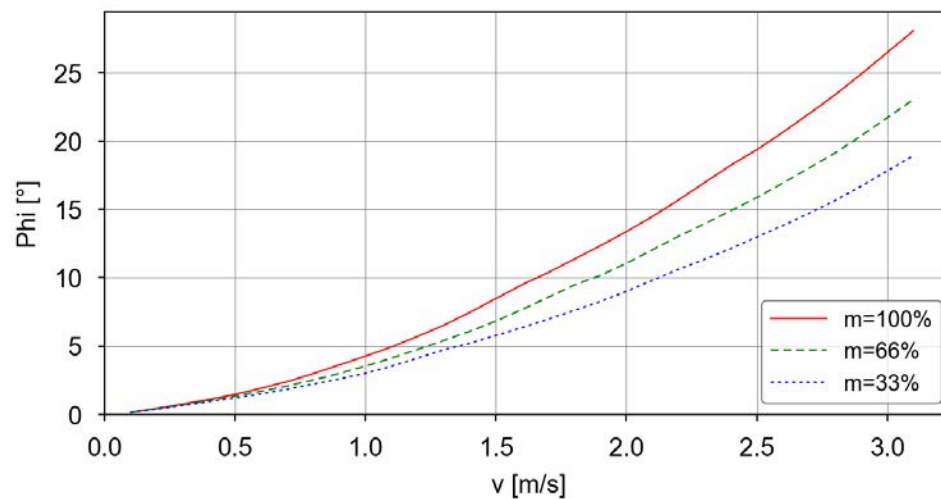
Extension zone 2, stopping distance and stopping time



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## Category 1, Axis 3

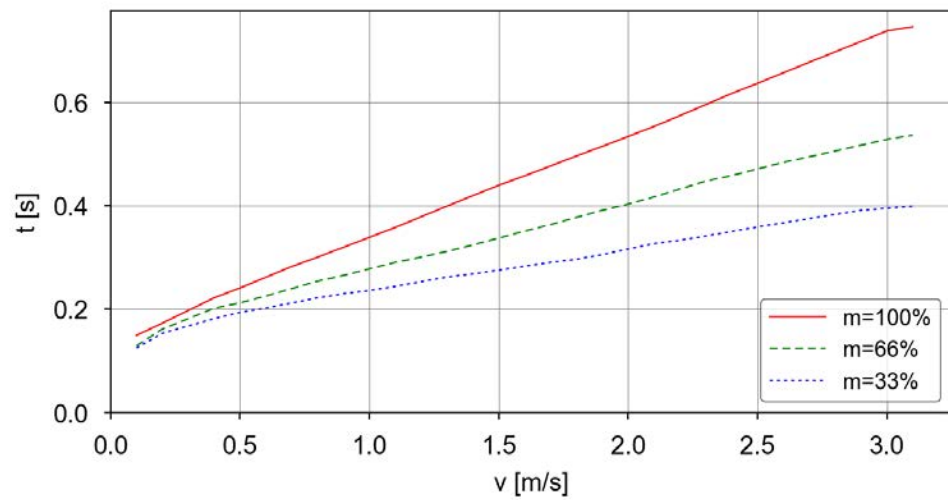
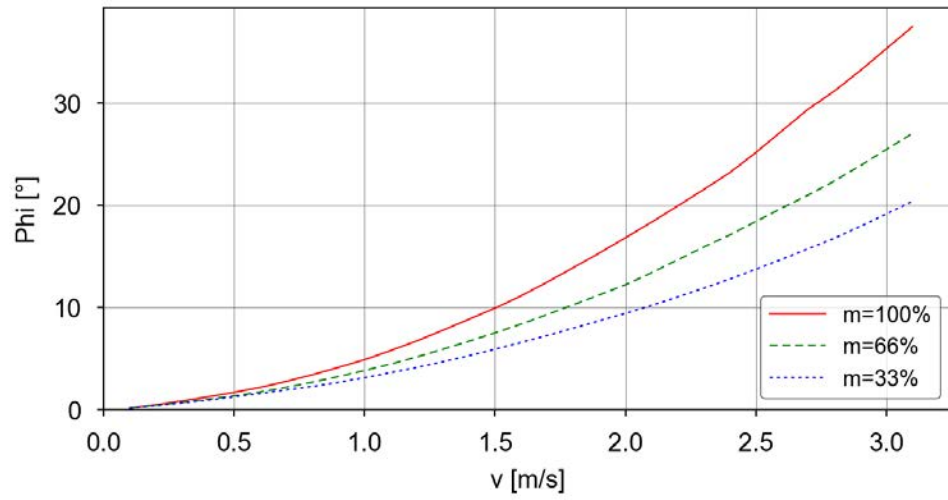
Extension zone 0, stopping distance and stopping time



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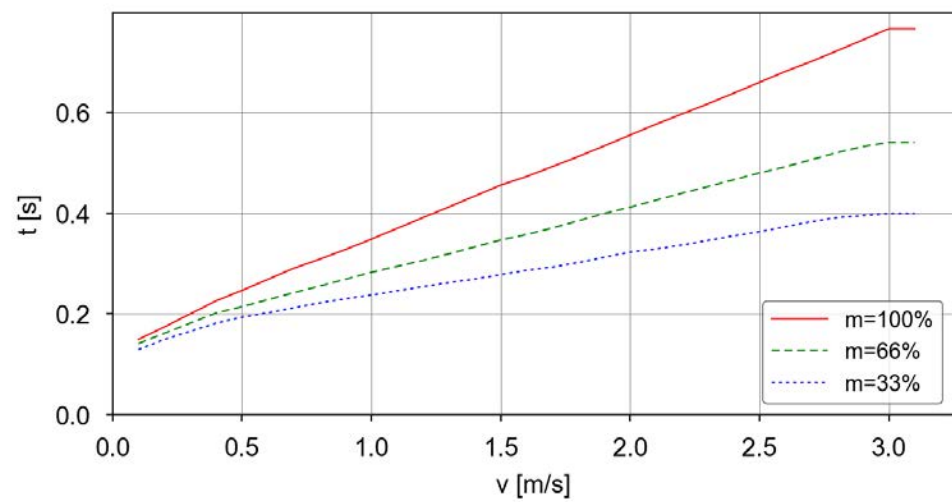
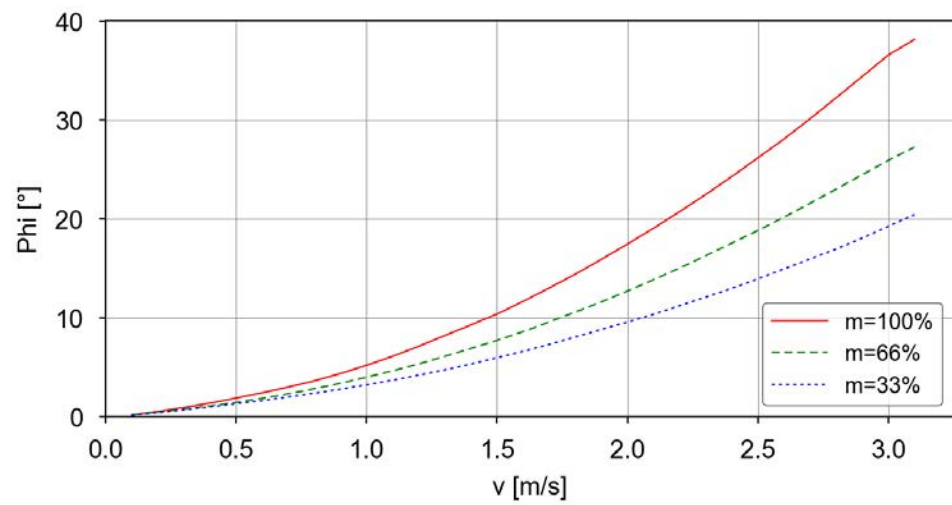
Extension zone 1, stopping distance and stopping time



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## Extension zone 2, stopping distance and stopping time



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## 17 IRB 6660

### 17.1 IRB 6660 1.90 m 205 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	21.1	0.32
2	15.1	0.15
3	19.6	0.27

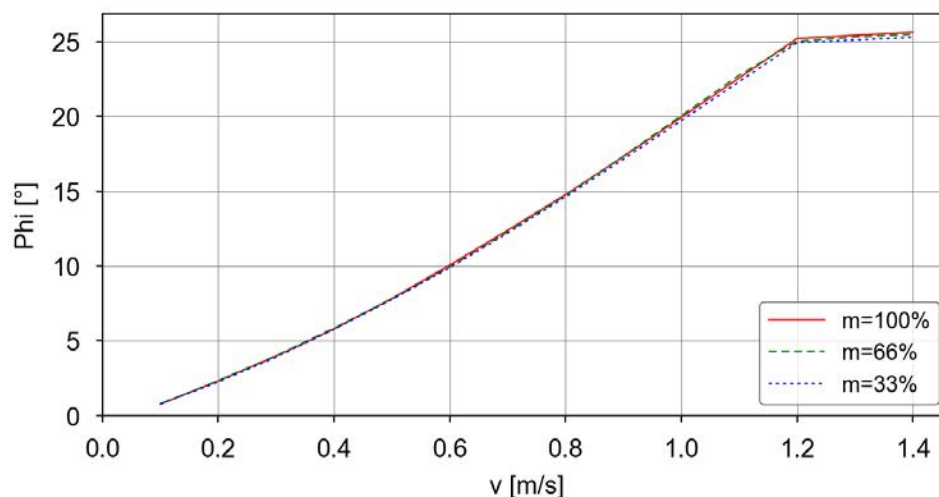
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.644
1	0.644	1.289
2	1.289	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

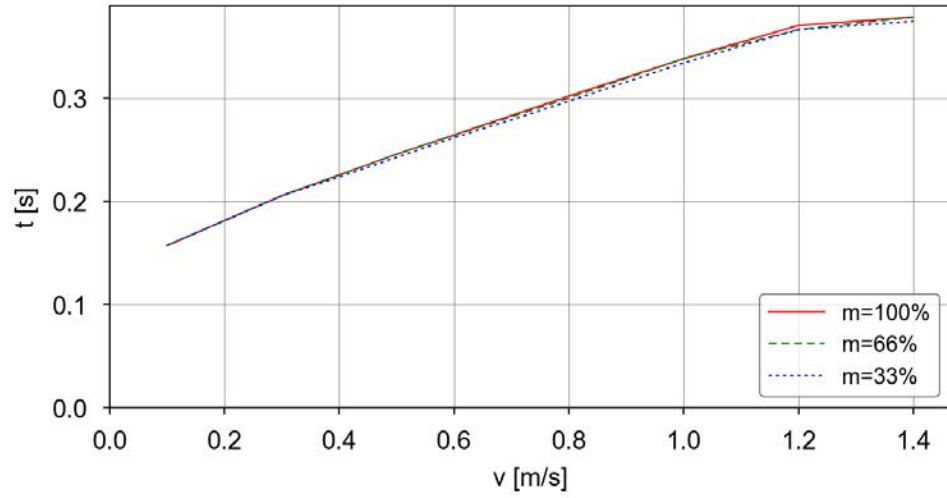


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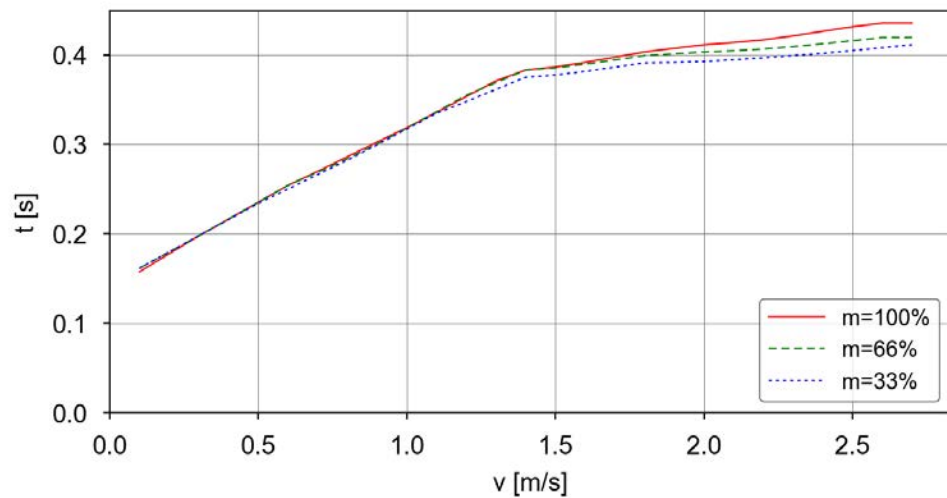
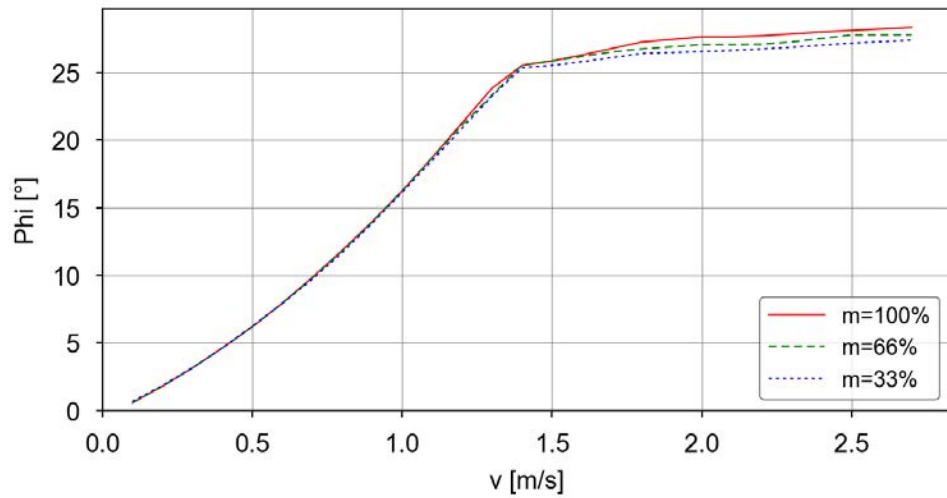
# 17 IRB 6660

17.1 IRB 6660 1.90 m 205 kg

Continued

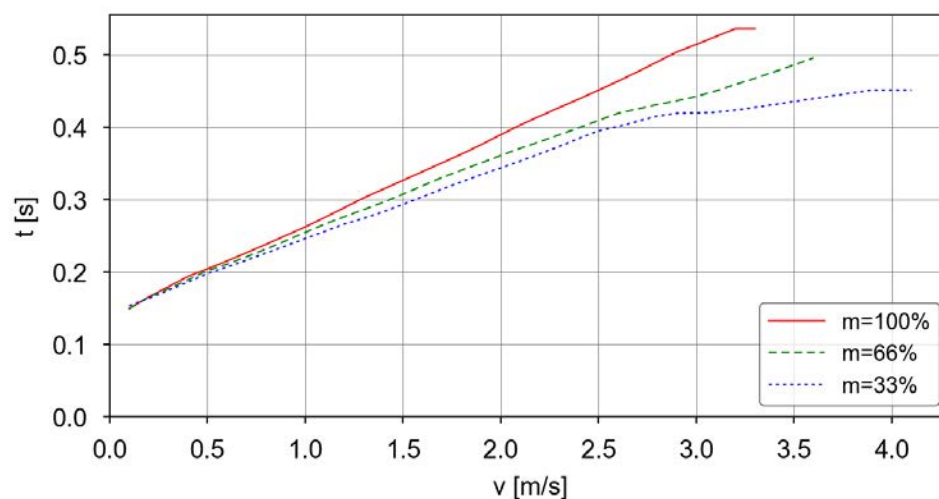
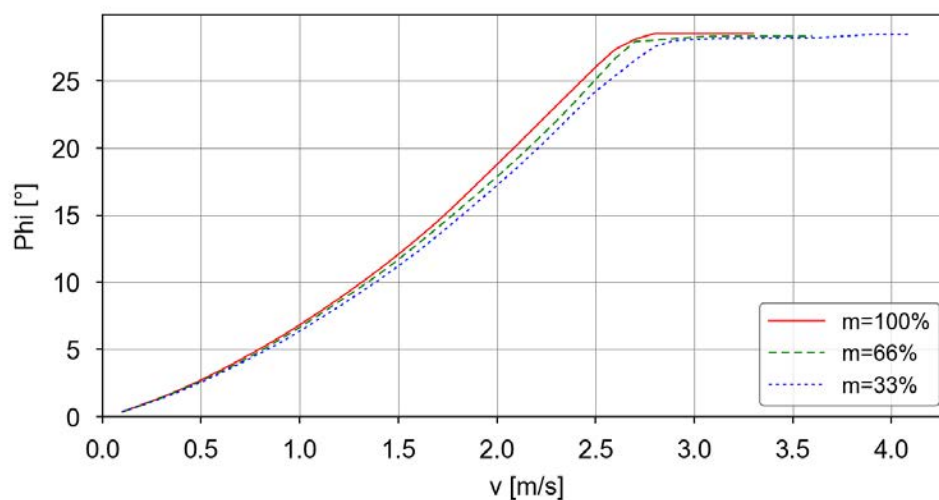


Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time



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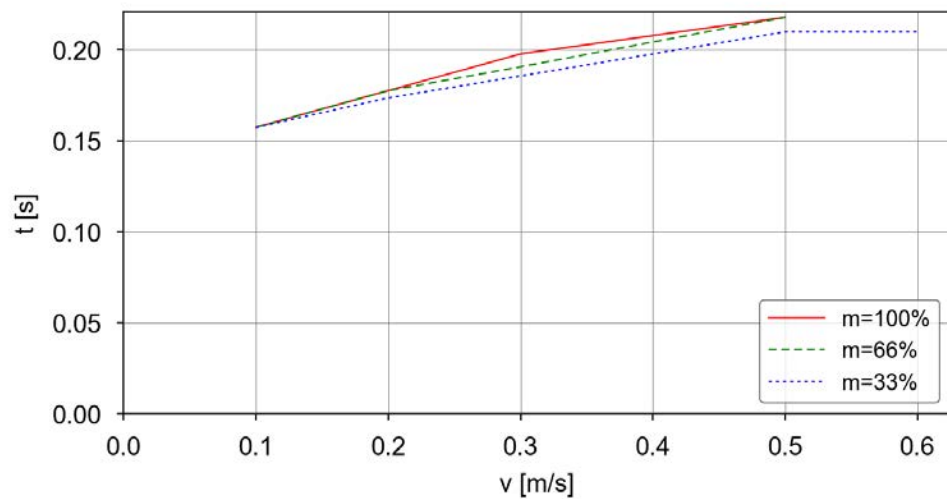
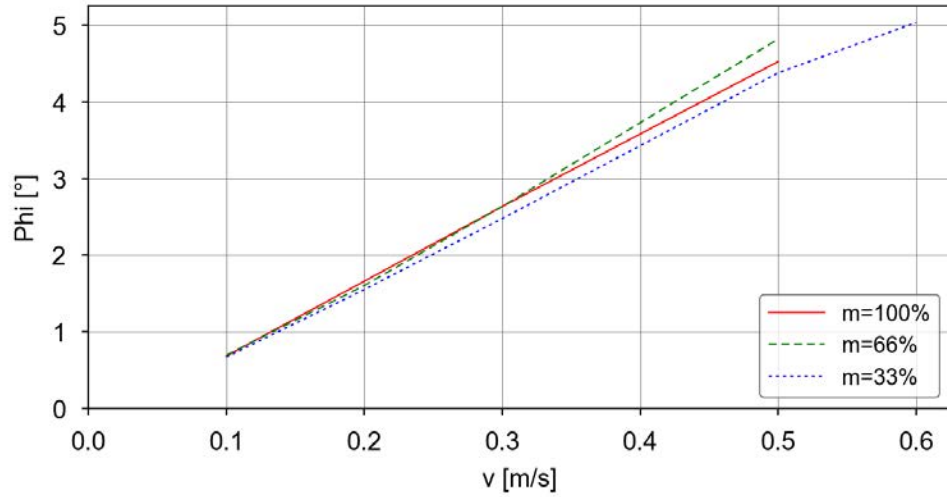
# 17 IRB 6660

17.1 IRB 6660 1.90 m 205 kg

Continued

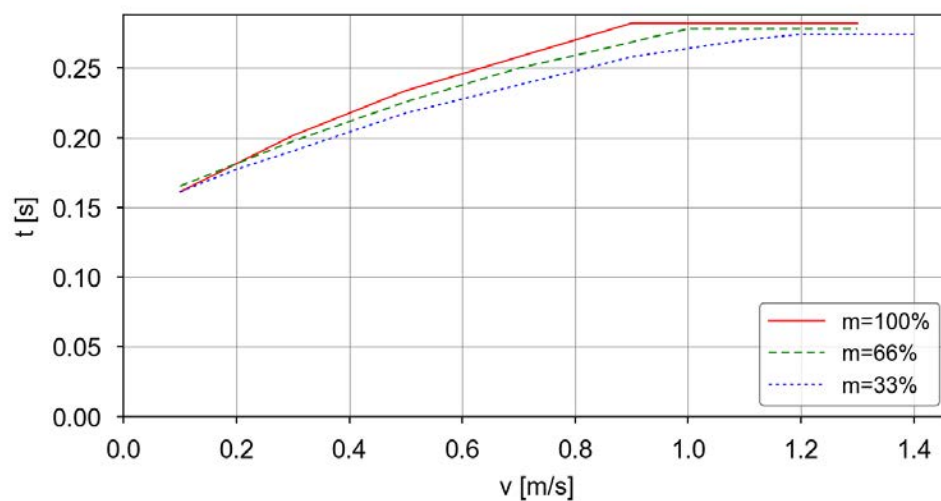
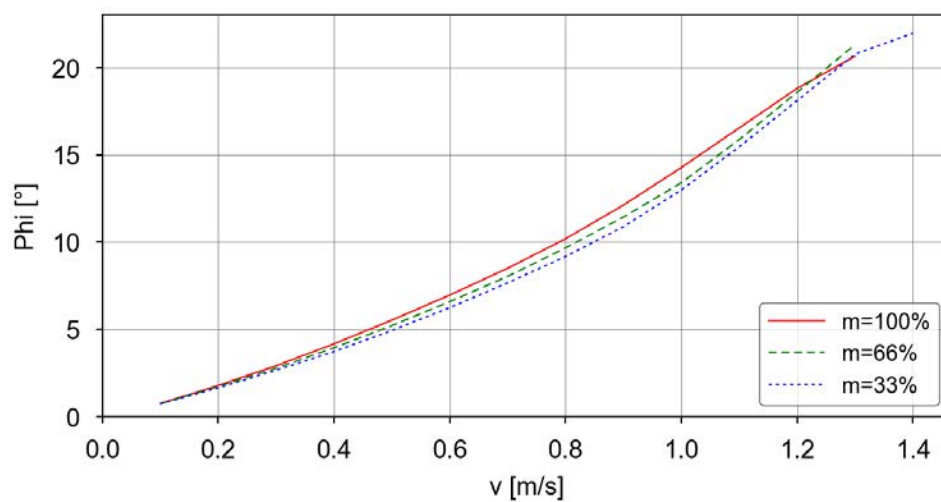
## Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



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Extension zone 1, stopping distance and stopping time



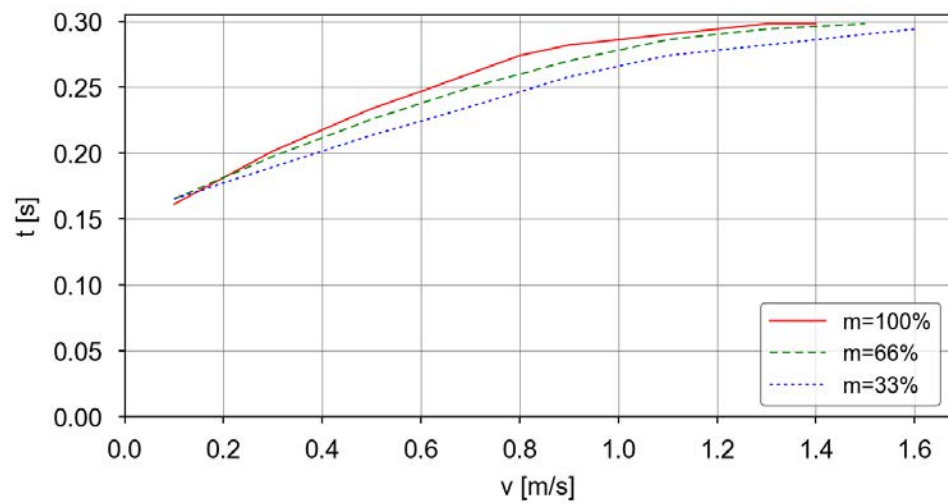
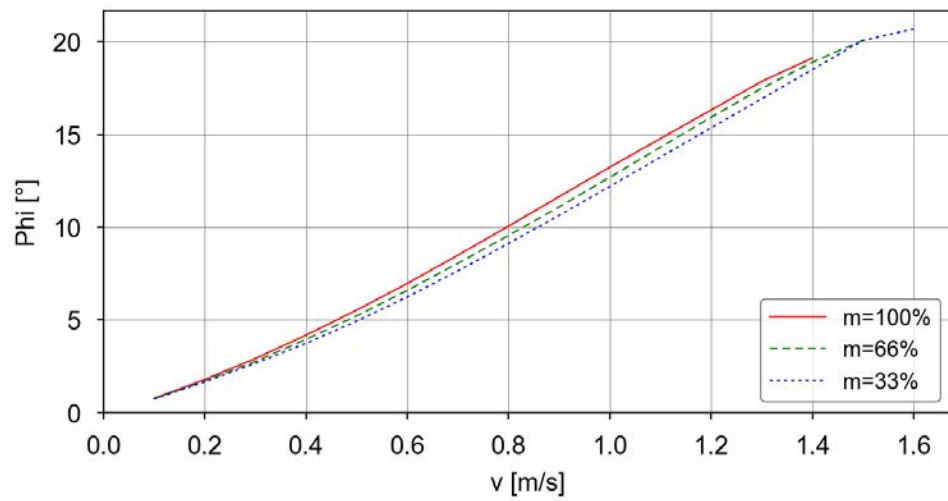
Continues on next page

## 17 IRB 6660

17.1 IRB 6660 1.90 m 205 kg

Continued

Extension zone 2, stopping distance and stopping time

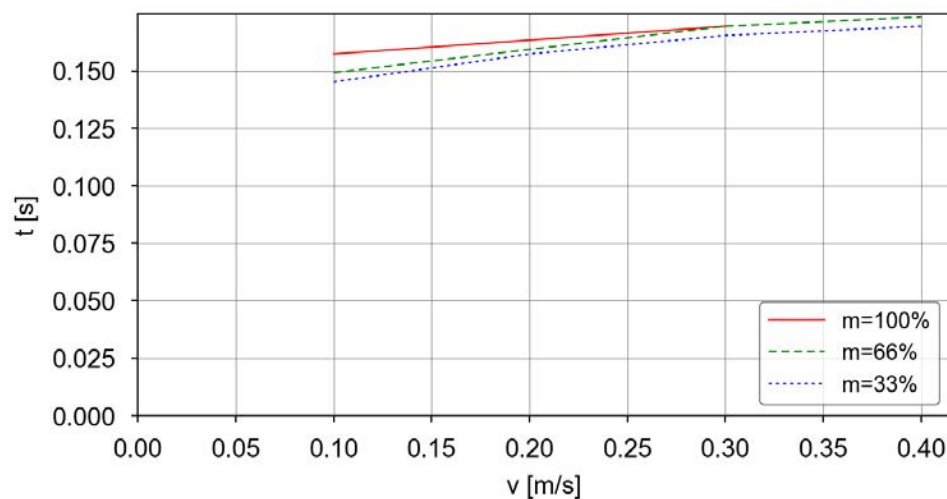
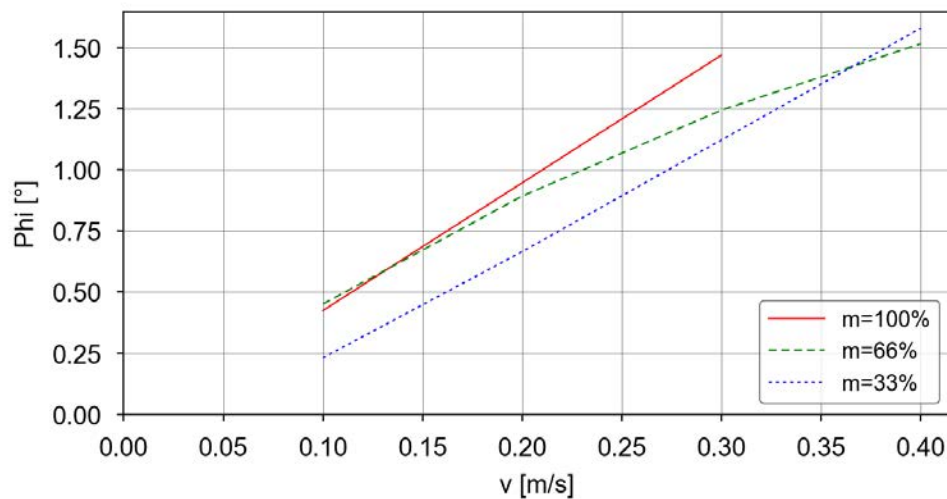


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Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



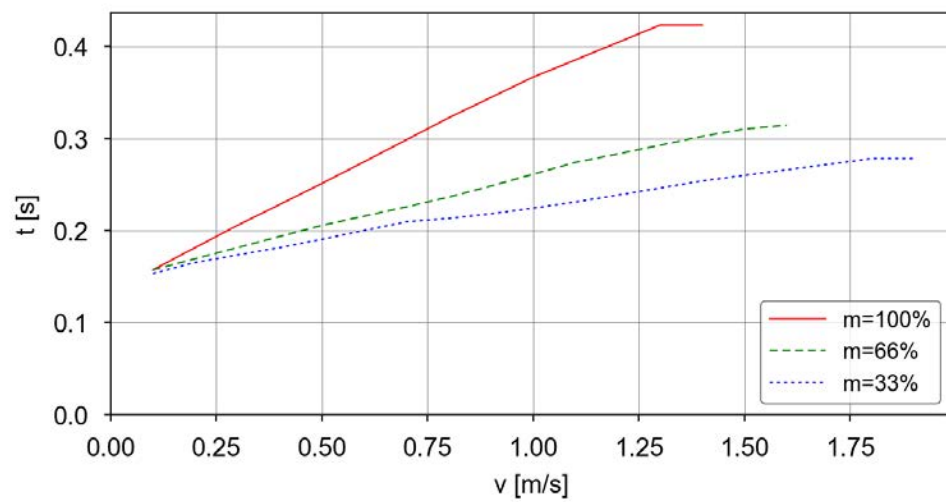
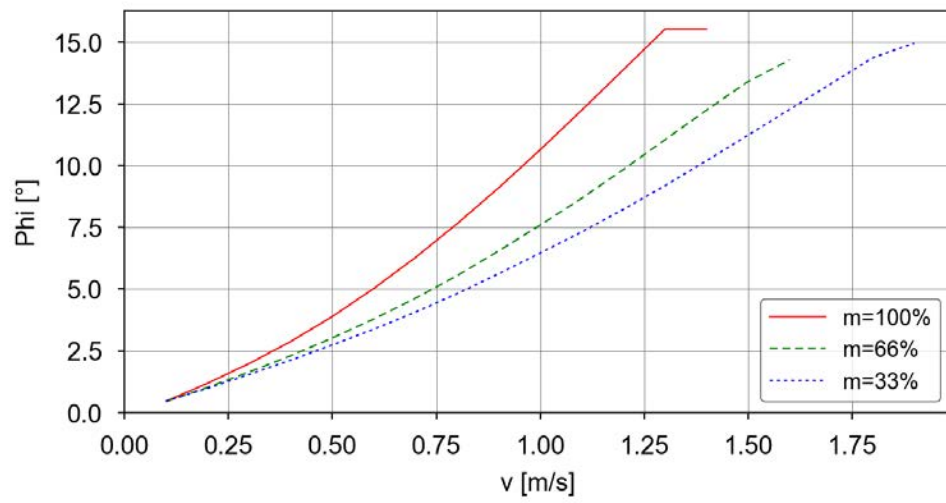
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## 17 IRB 6660

17.1 IRB 6660 1.90 m 205 kg

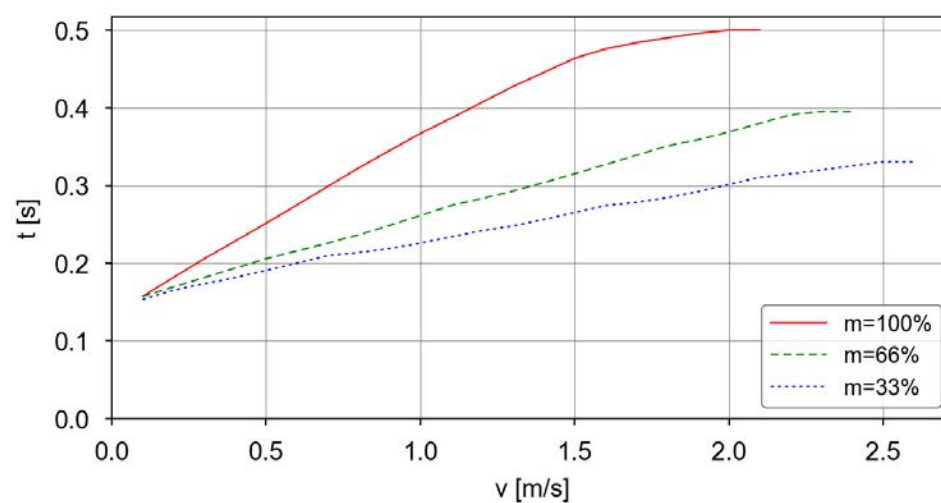
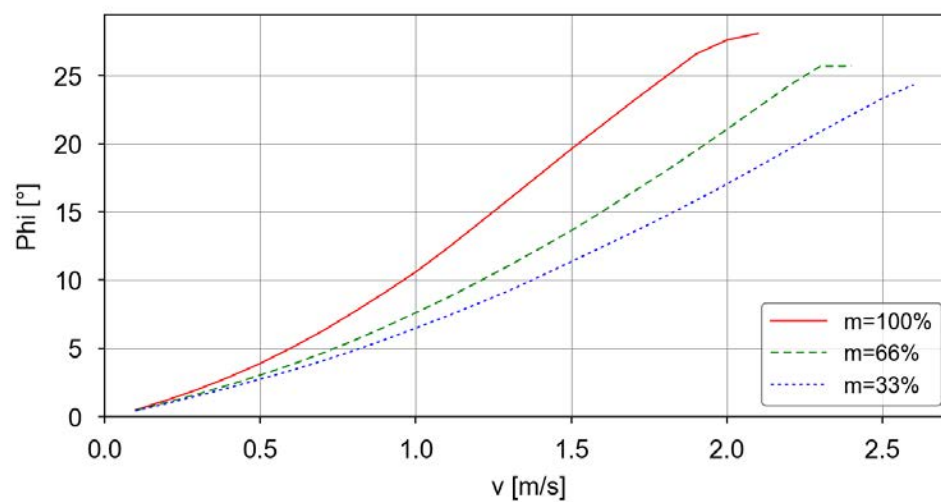
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Extension zone 1, stopping distance and stopping time



Continues on next page

## Extension zone 2, stopping distance and stopping time



17.2 IRB 6660 3.10 m 130 kg

Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	39.8	0.61
2	34.0	0.42
3	36.6	0.44

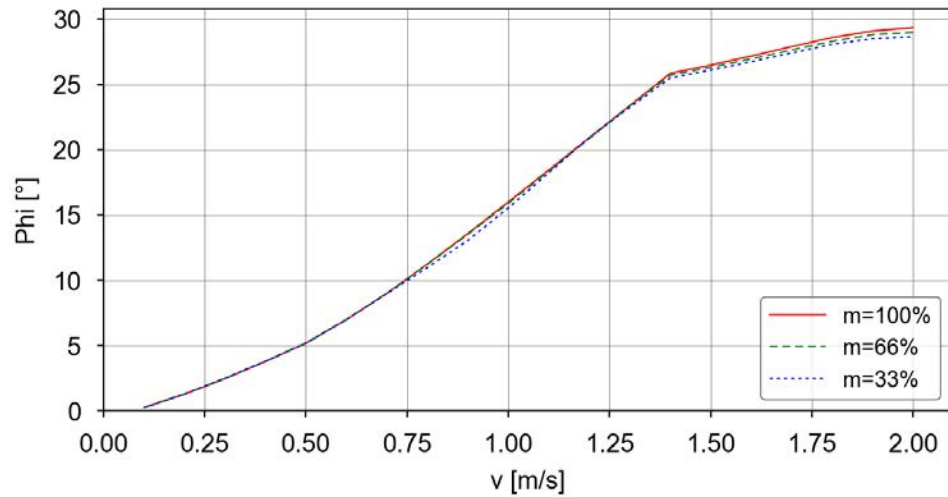
Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

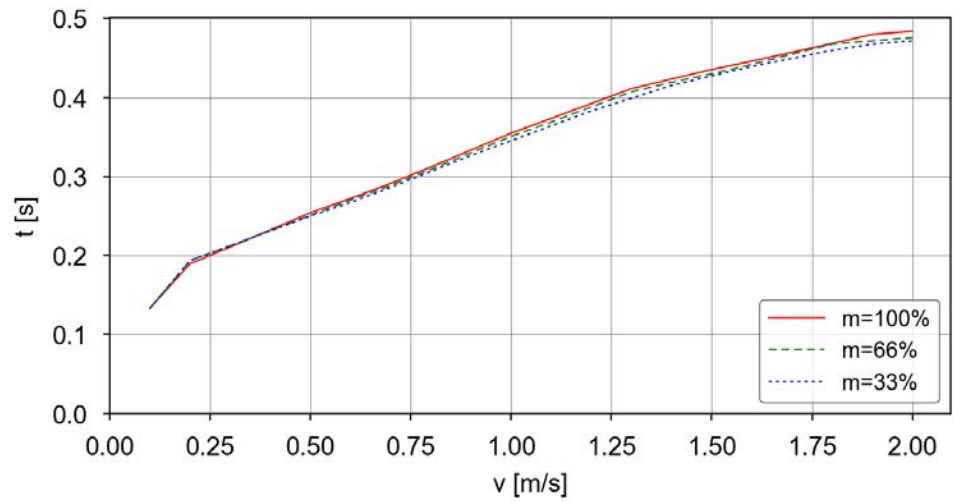
Zone	wcp min (m)	wcp max (m)
0	0	1.035
1	1.035	2.071
2	2.071	max reach

Category 1, Axis 1

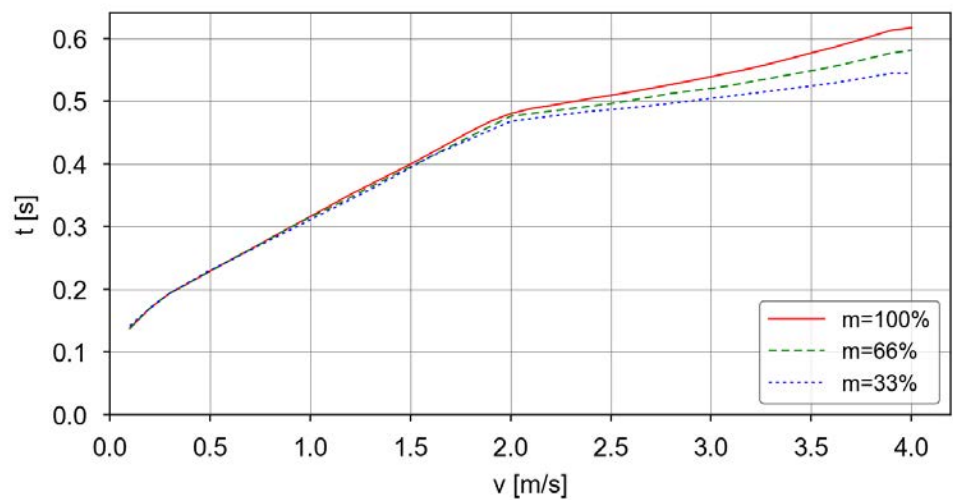
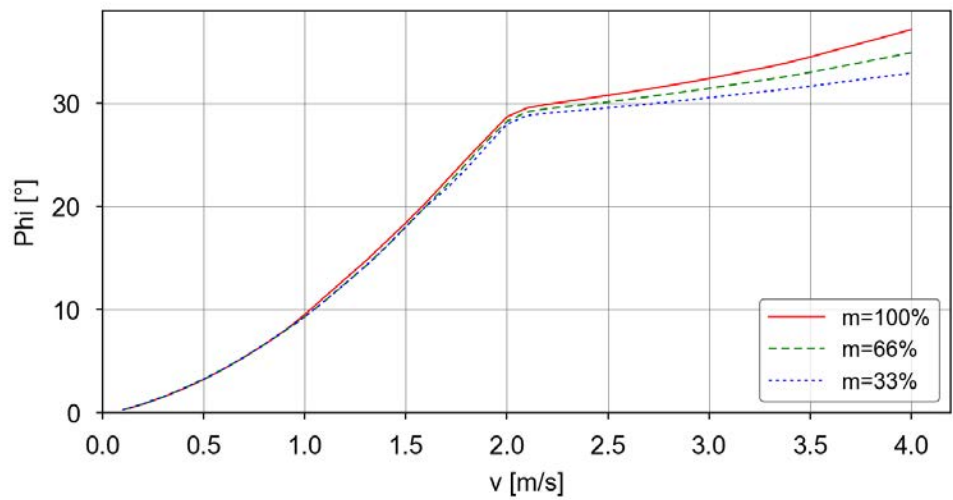
Extension zone 0, stopping distance and stopping time



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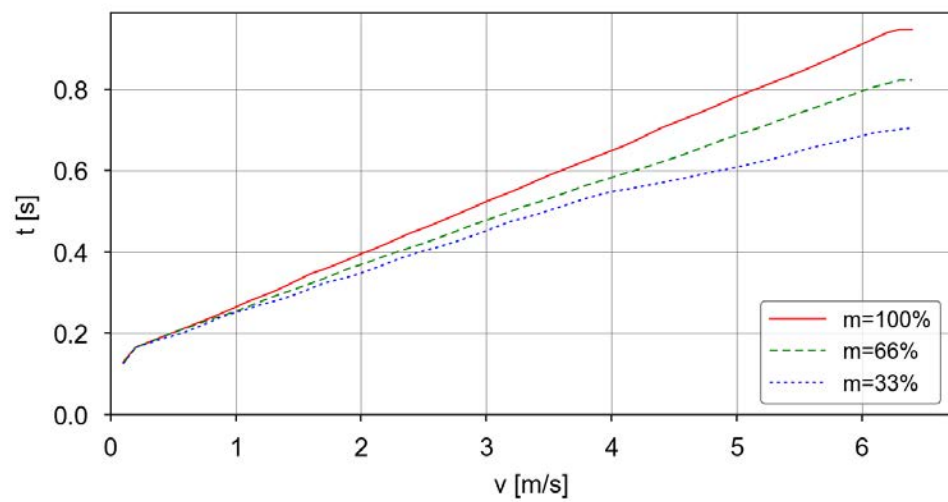
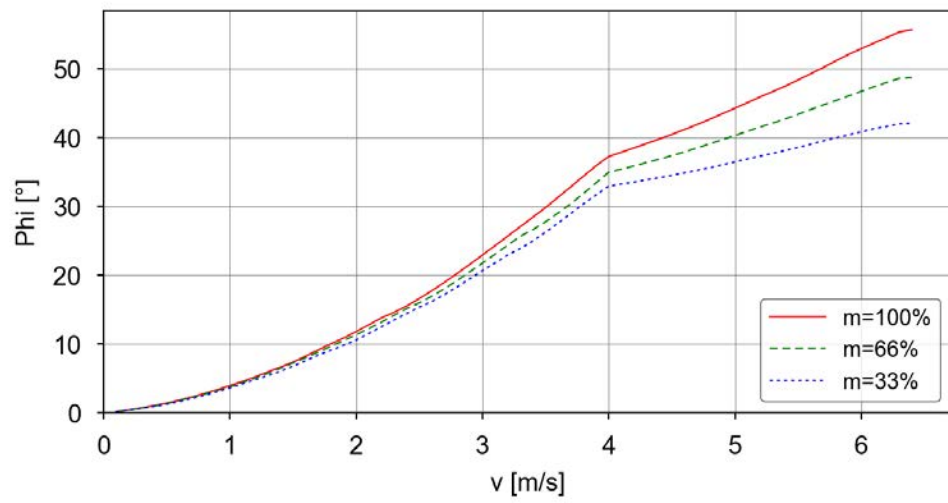


Extension zone 1, stopping distance and stopping time



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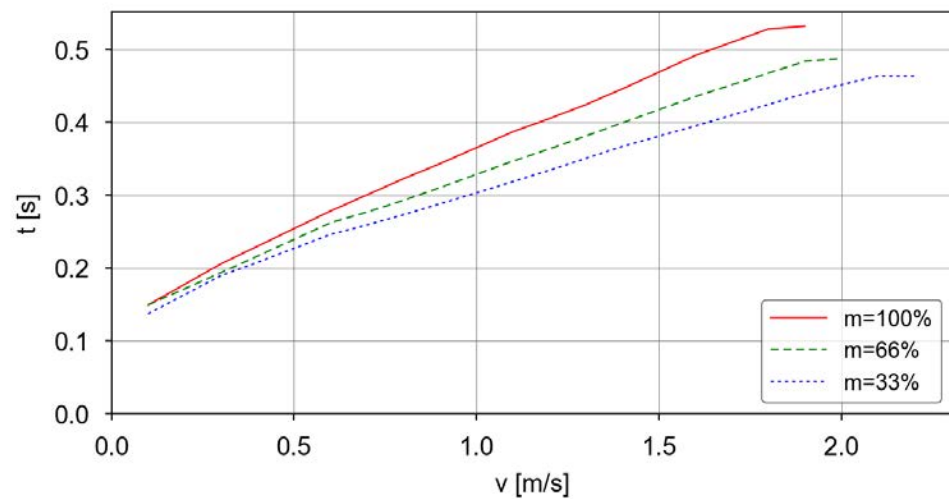
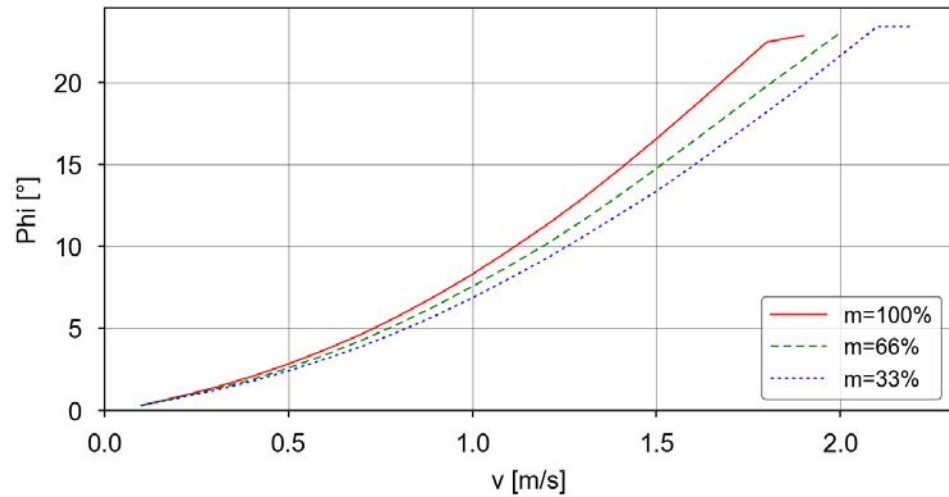
Extension zone 2, stopping distance and stopping time



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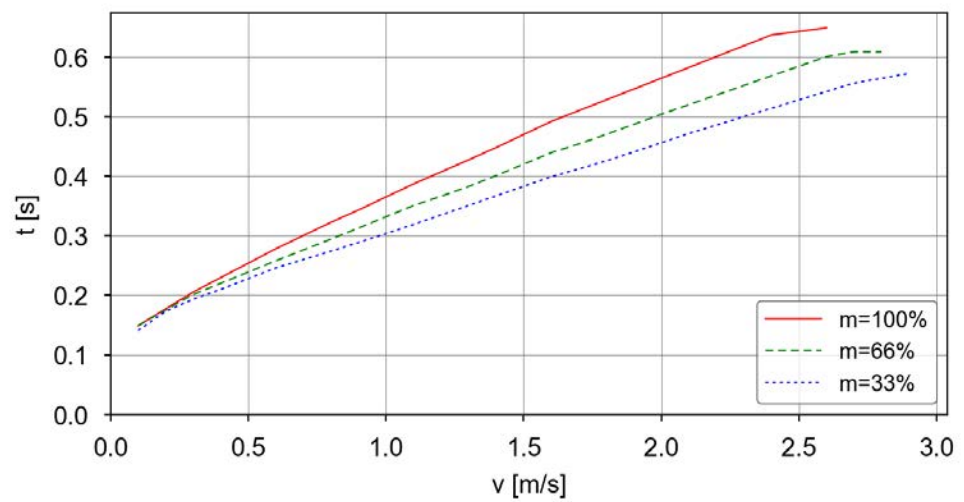
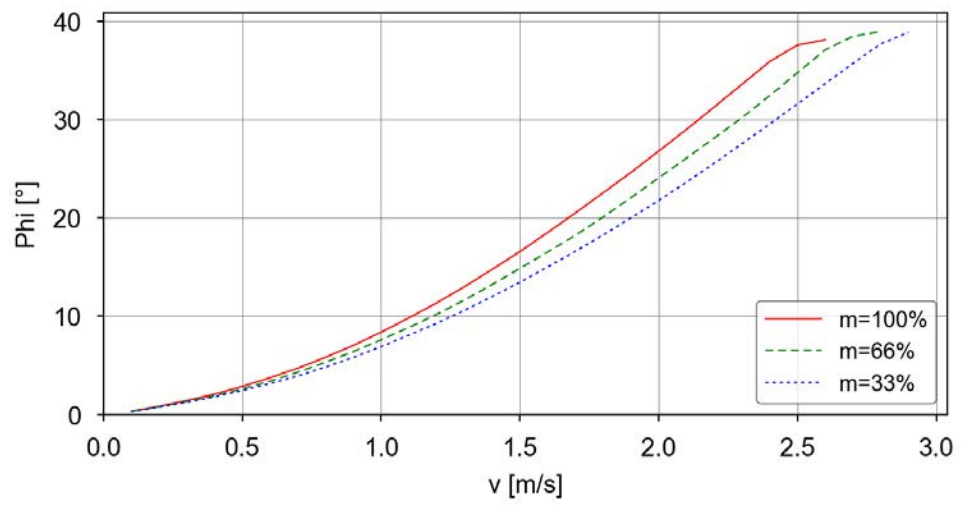
## Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



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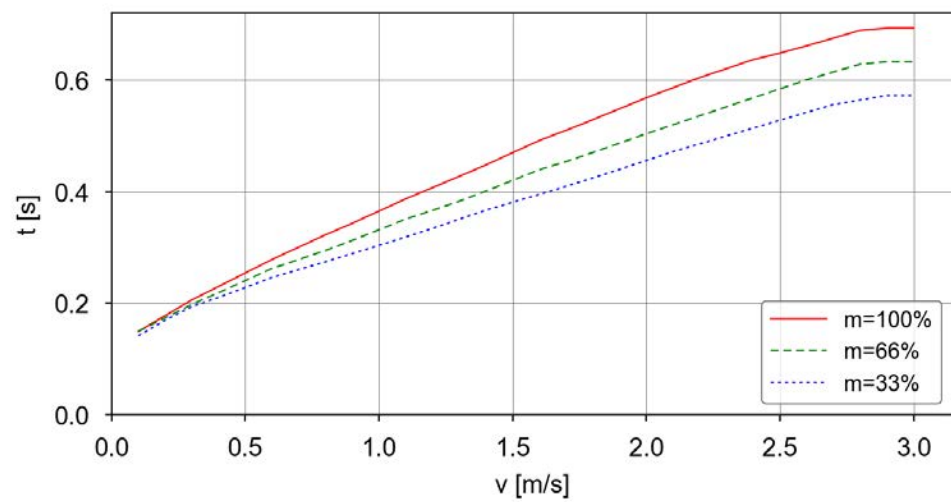
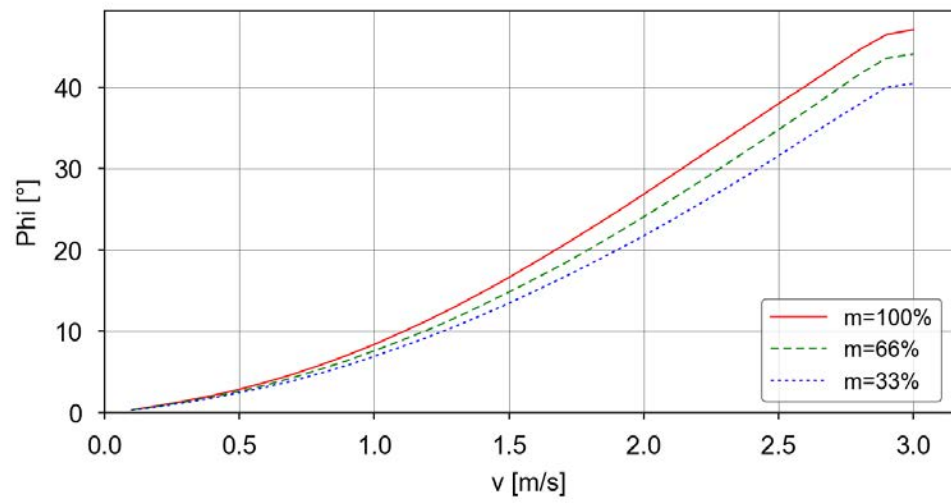
Extension zone 1, stopping distance and stopping time



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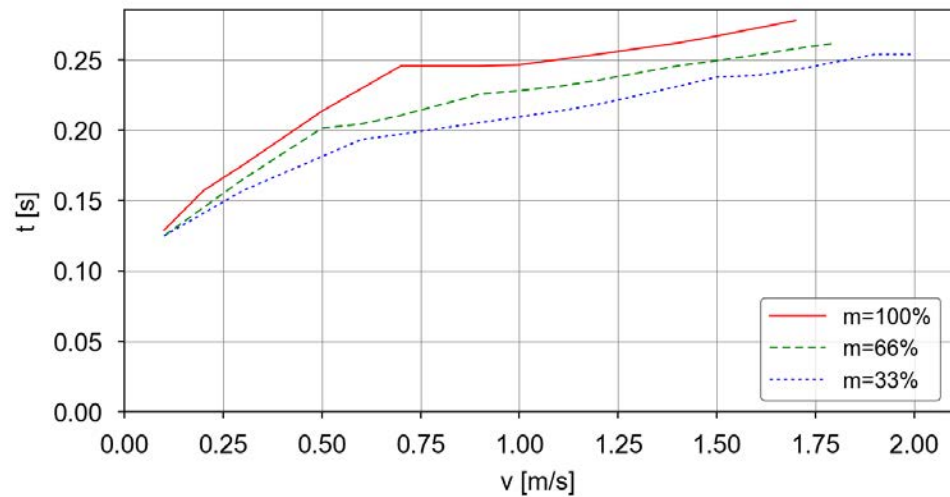
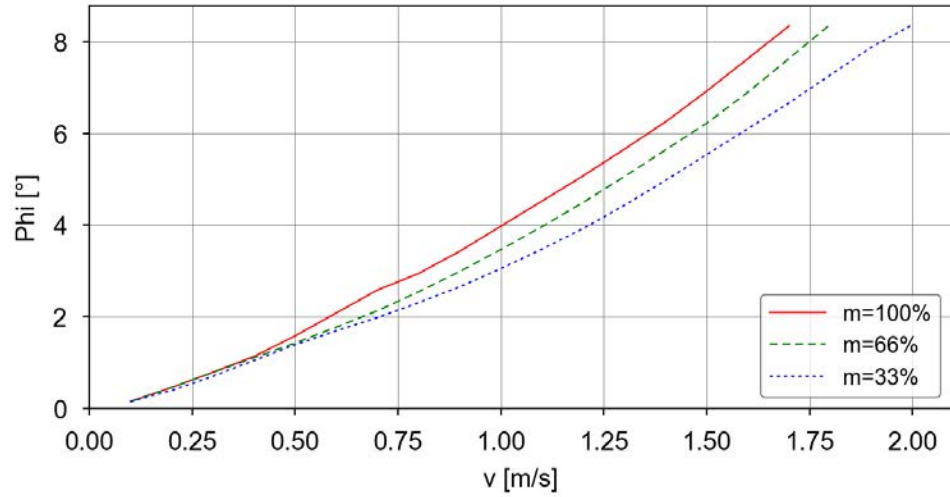
Extension zone 2, stopping distance and stopping time



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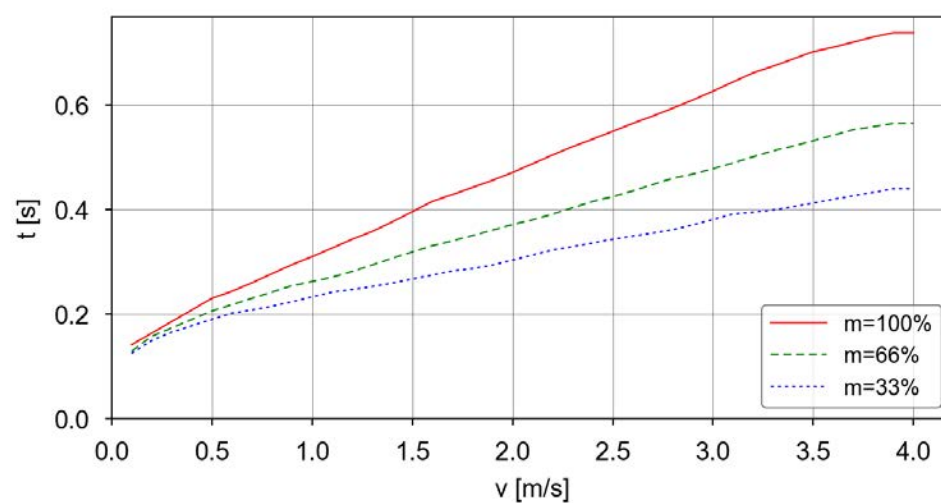
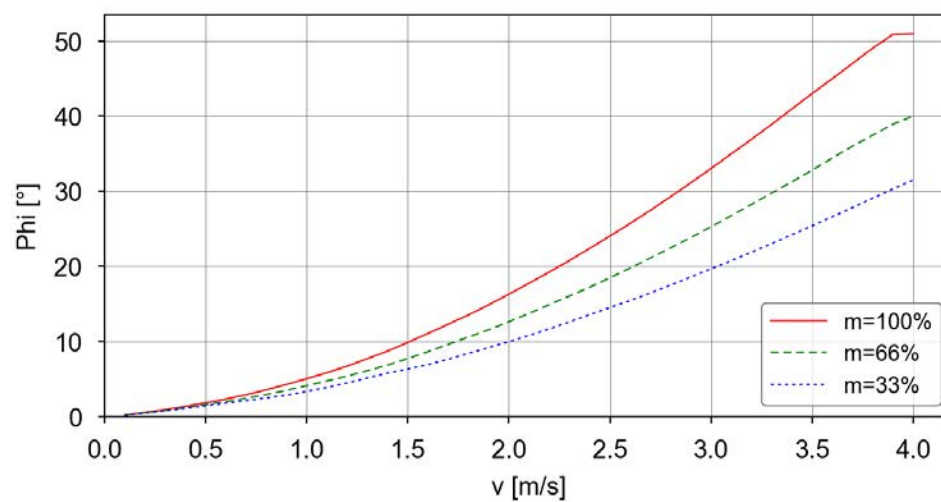
Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



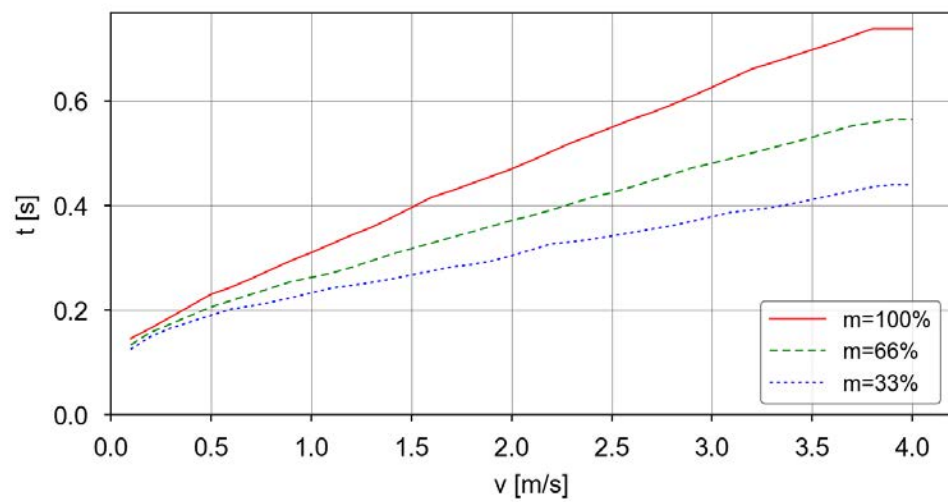
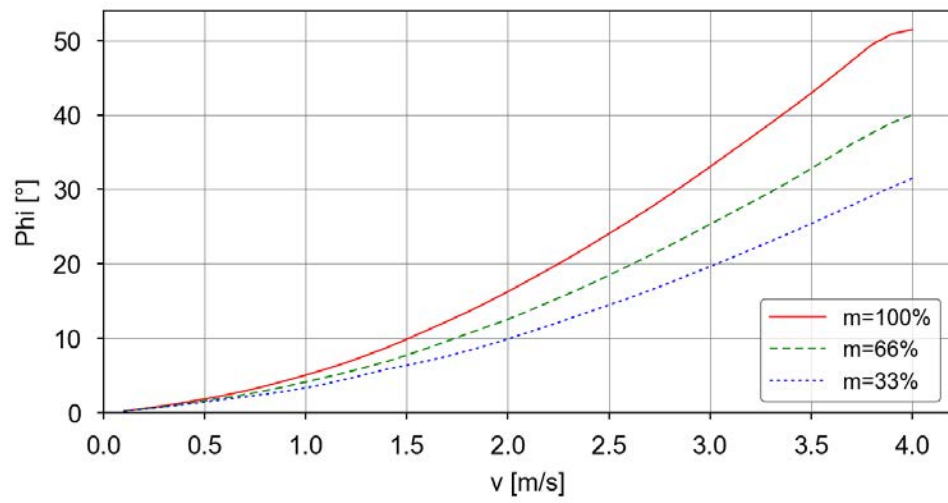
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## Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time



## 17.3 IRB 6660 3.35 m 100 kg

### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	40.1	0.63
2	33.9	0.42
3	36.5	0.46

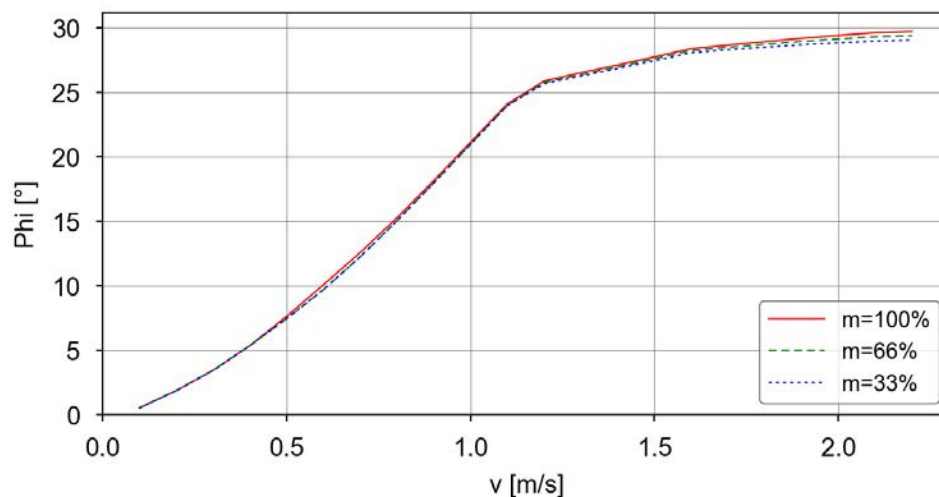
### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	1.118
1	1.118	2.235
2	2.235	max reach

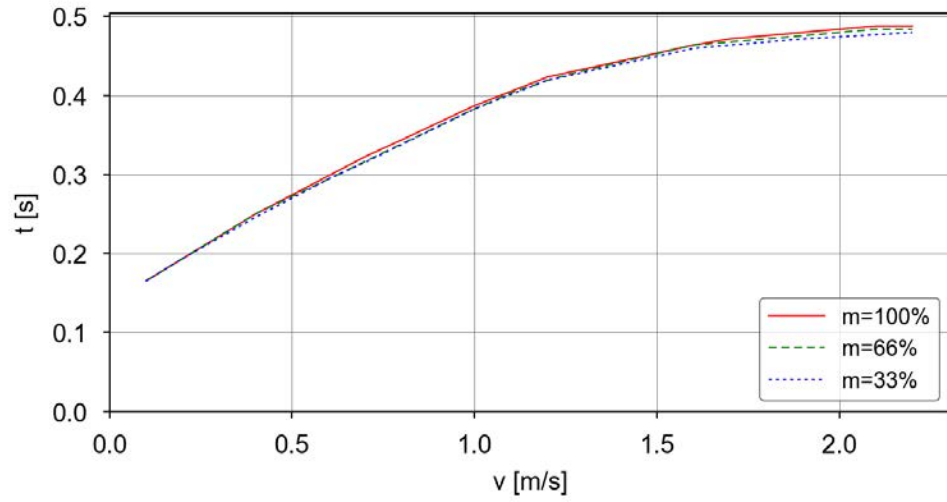
### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

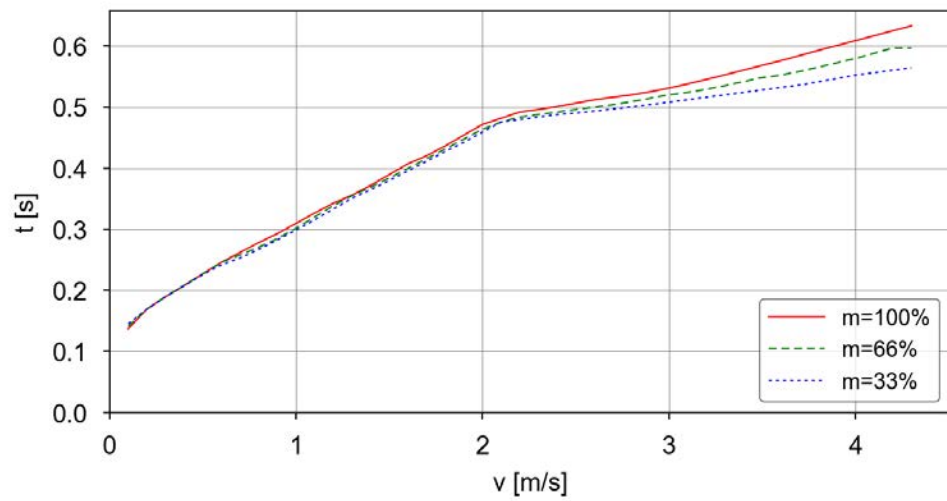
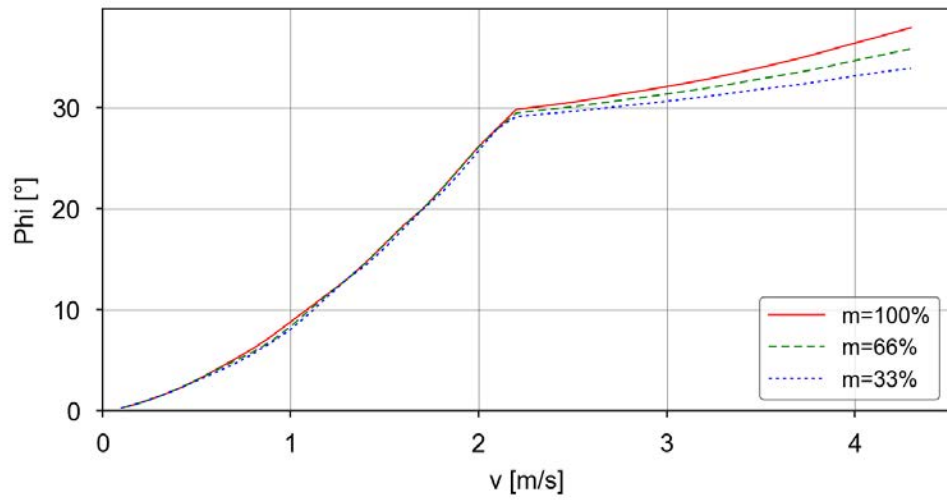


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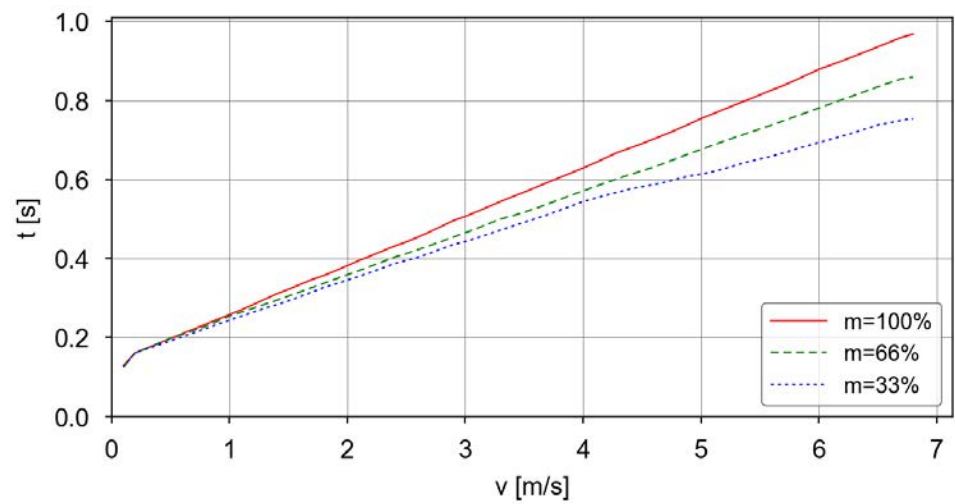
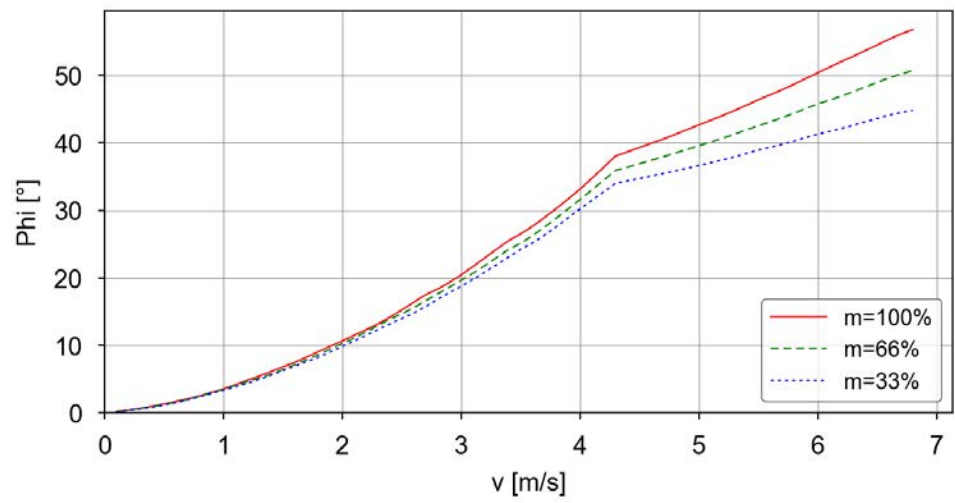


Extension zone 1, stopping distance and stopping time



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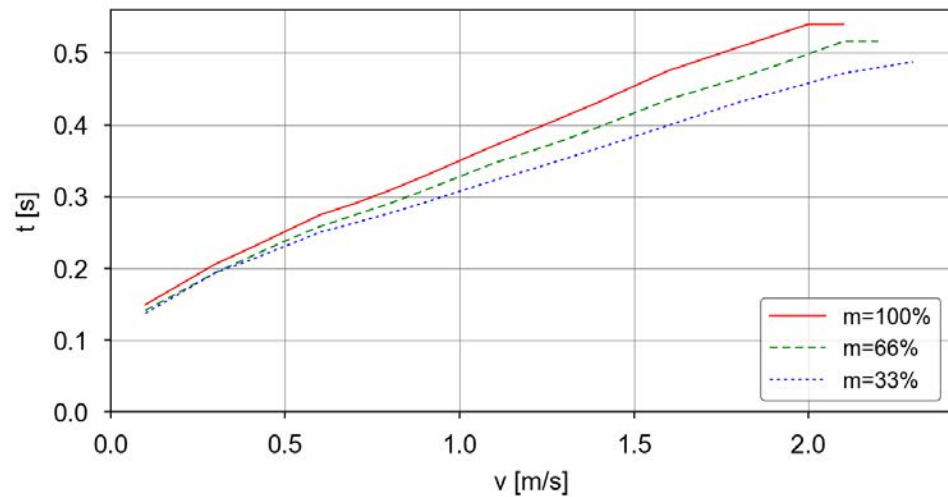
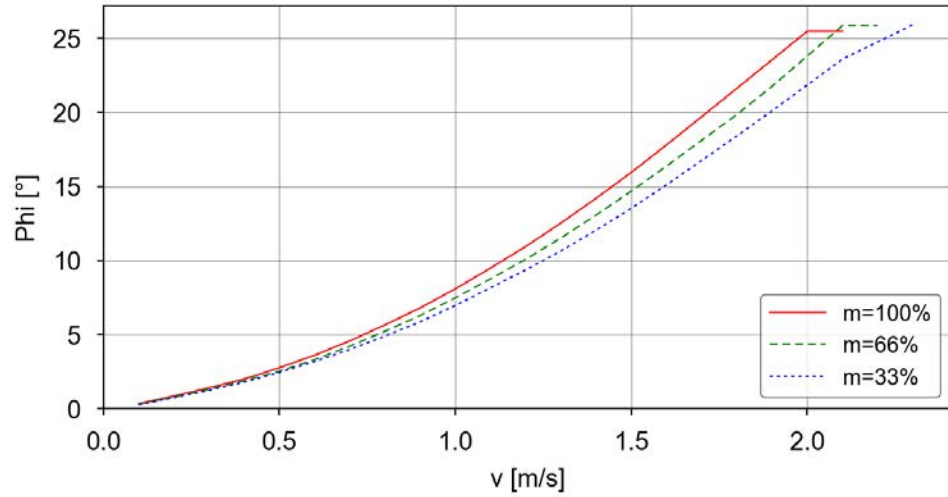
Extension zone 2, stopping distance and stopping time



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Category 1, Axis 2

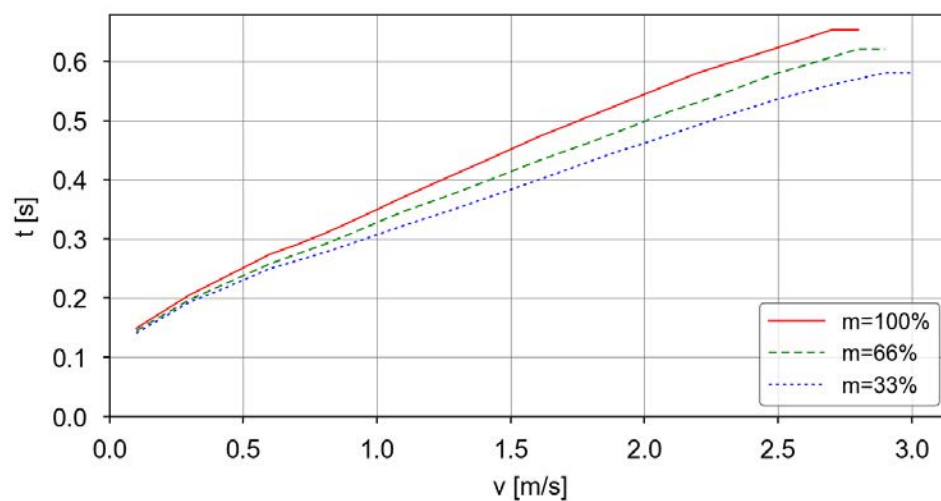
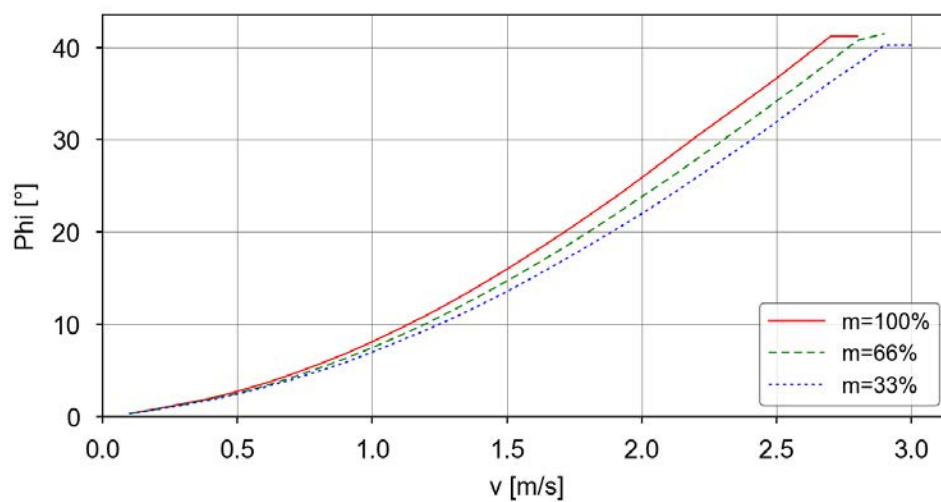
Extension zone 0, stopping distance and stopping time



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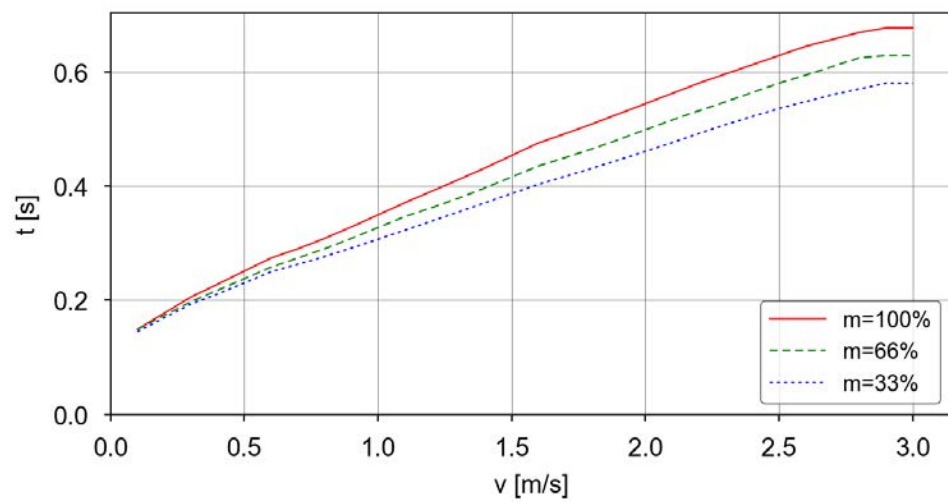
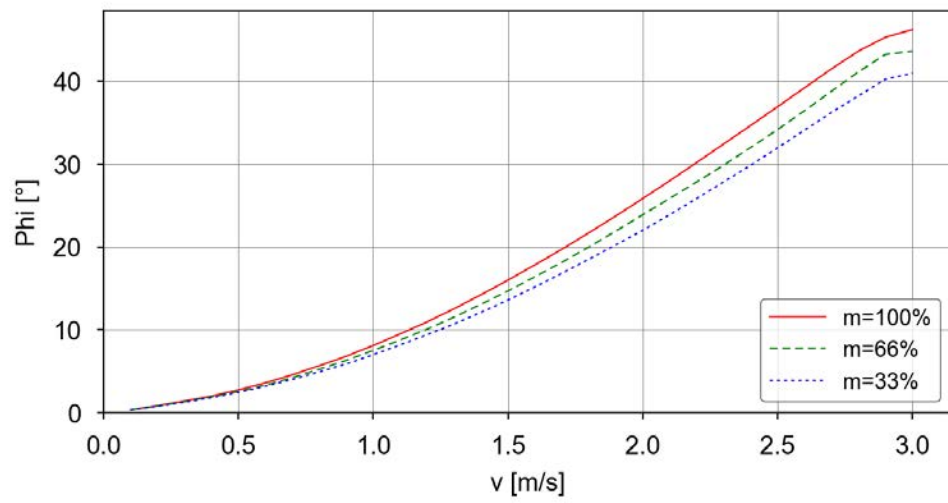


Extension zone 1, stopping distance and stopping time



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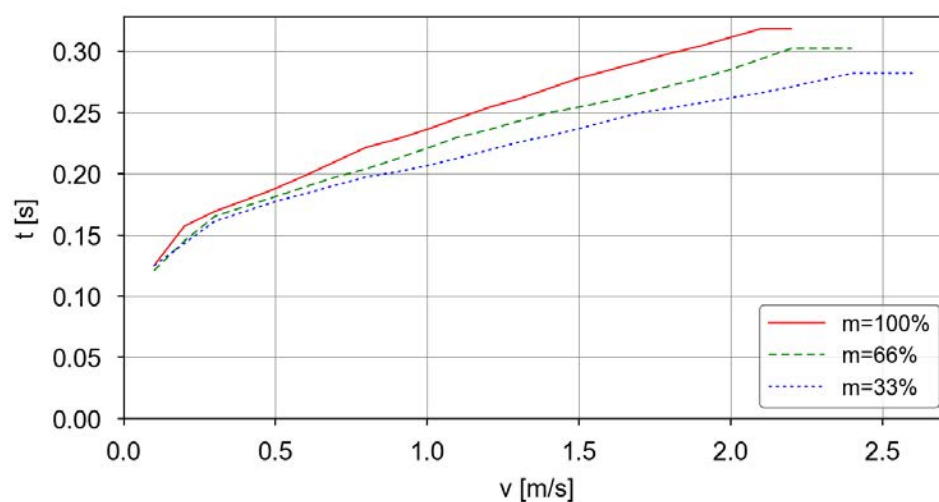
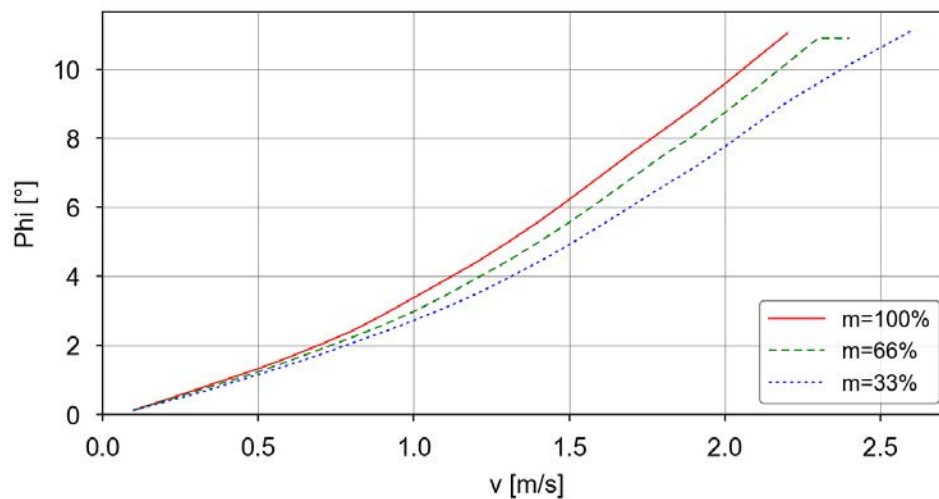
Extension zone 2, stopping distance and stopping time



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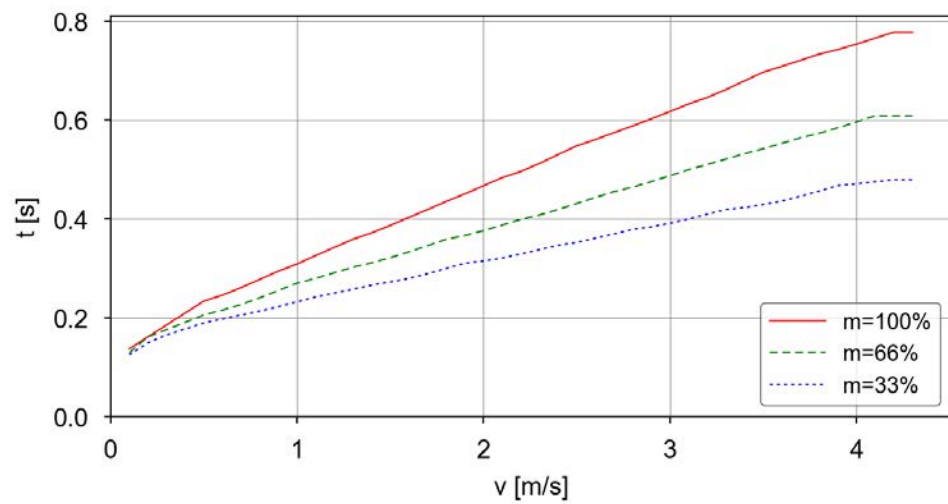
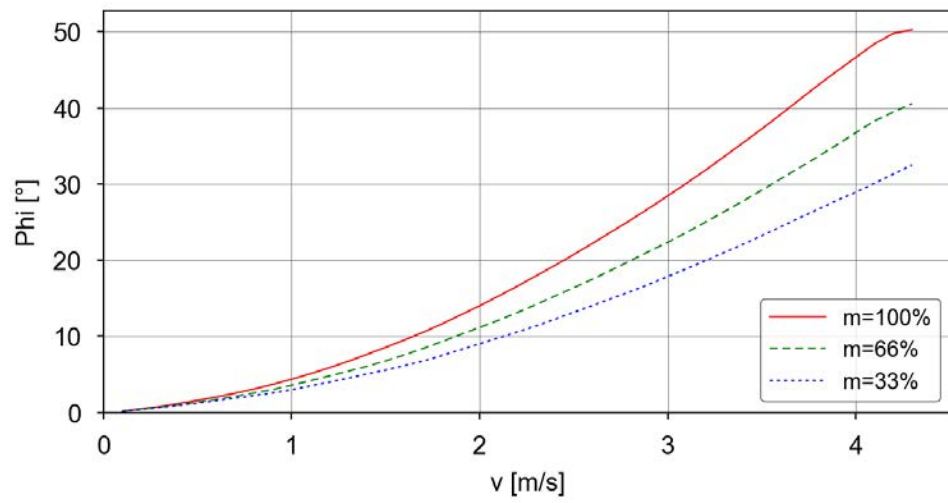
Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



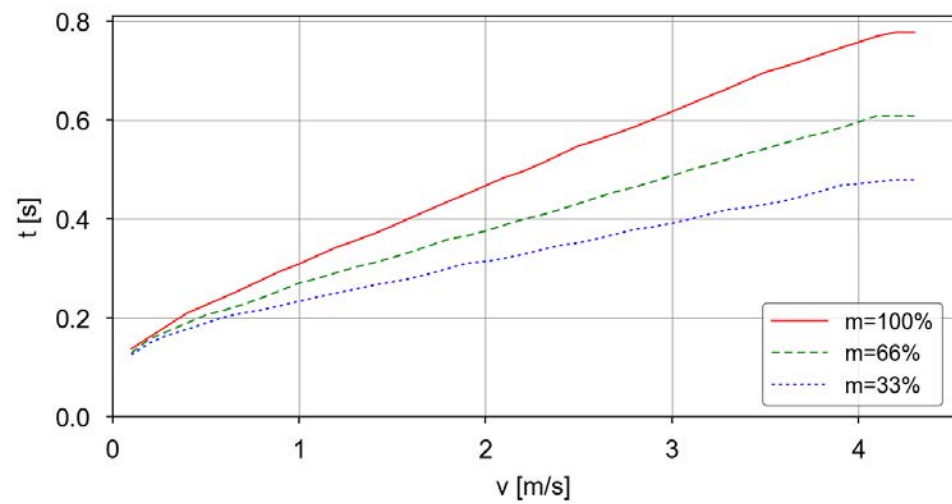
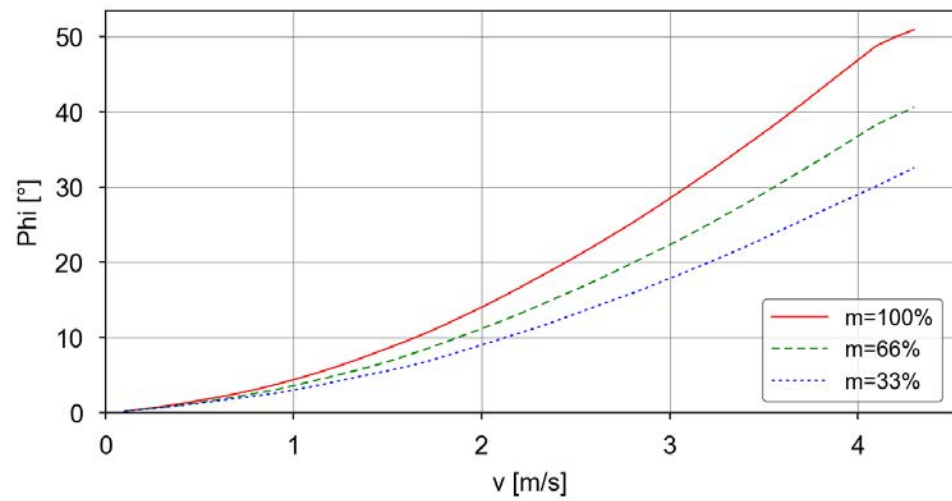
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Extension zone 1, stopping distance and stopping time



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## Extension zone 2, stopping distance and stopping time



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## 18 IRB 6700

### 18.1 IRB 6700 2.60 m 200 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	40.8	0.66
2	25.1	0.37
3	19.3	0.25

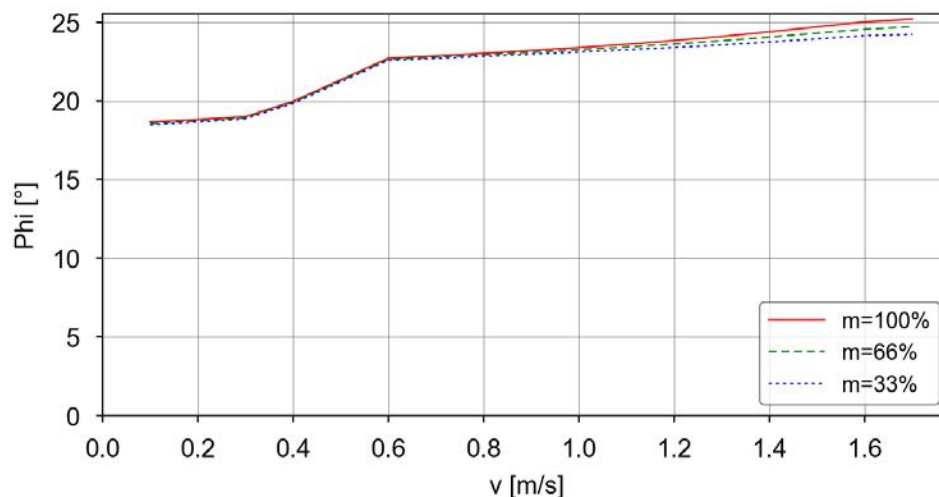
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.867
1	0.867	1.734
2	1.734	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

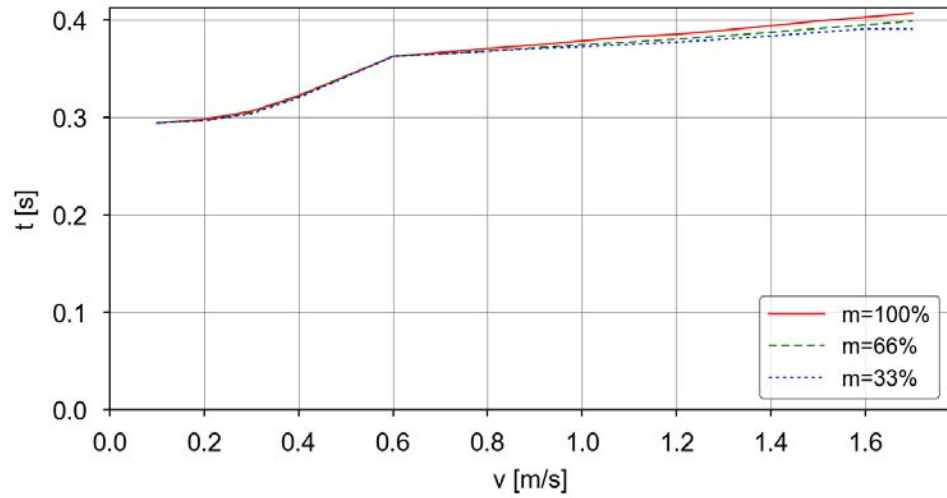


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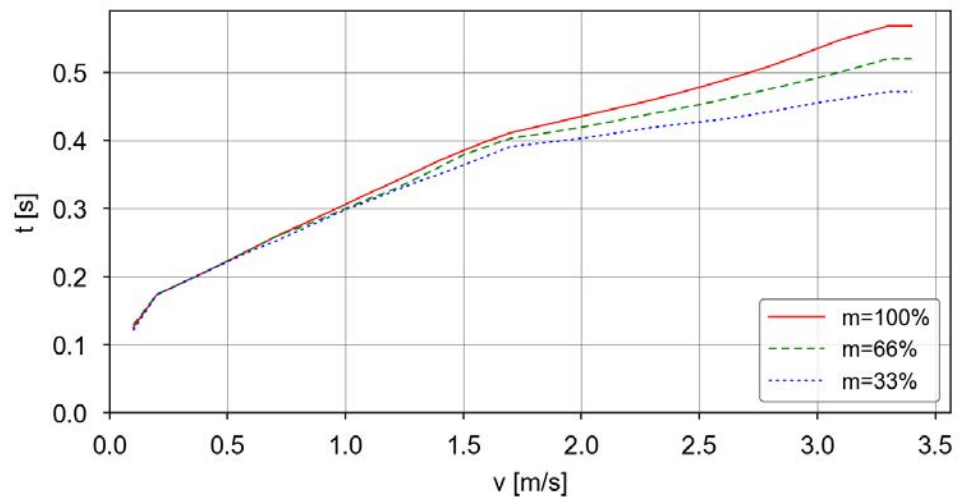
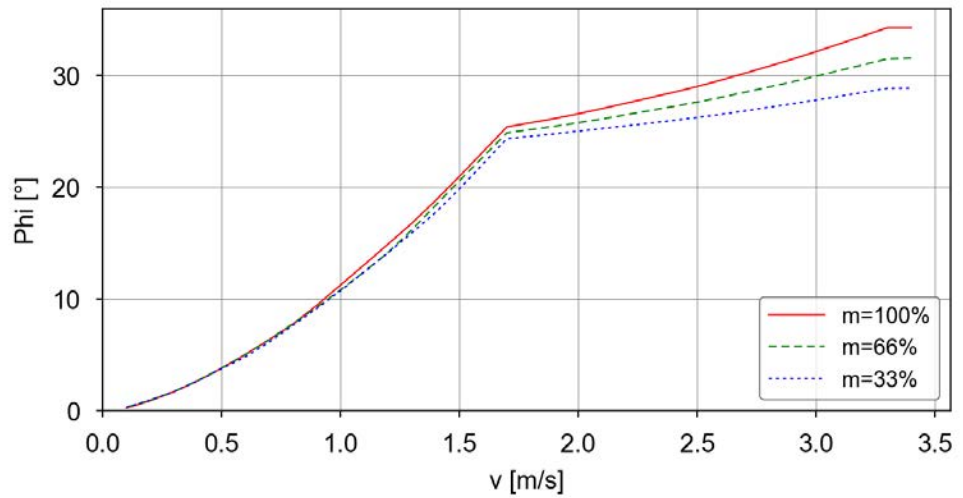
# 18 IRB 6700

## 18.1 IRB 6700 2.60 m 200 kg

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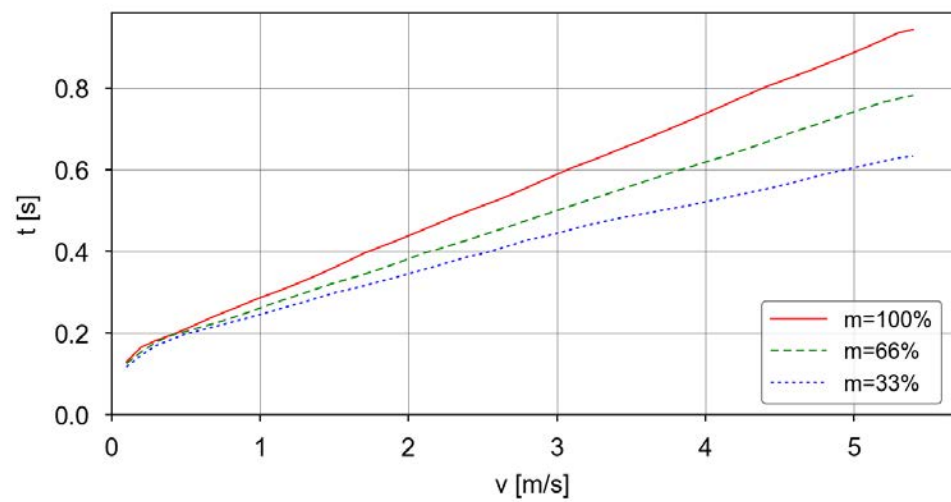
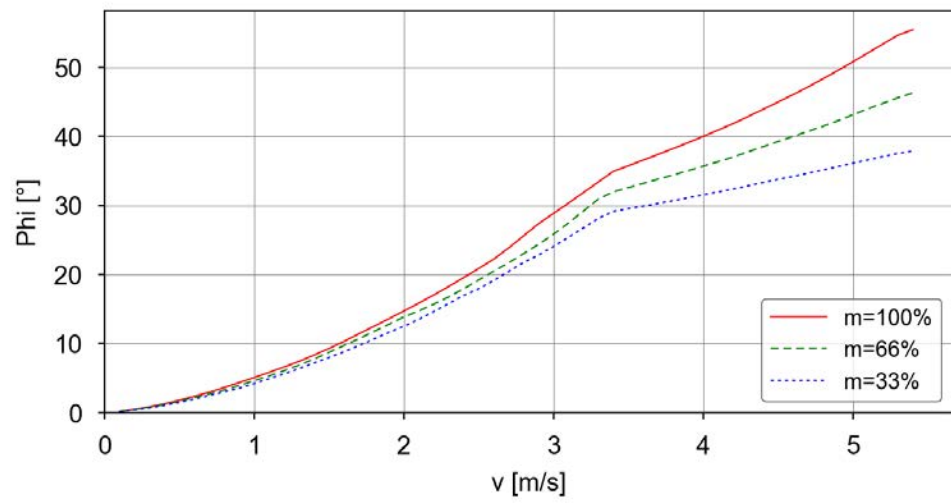
### Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time



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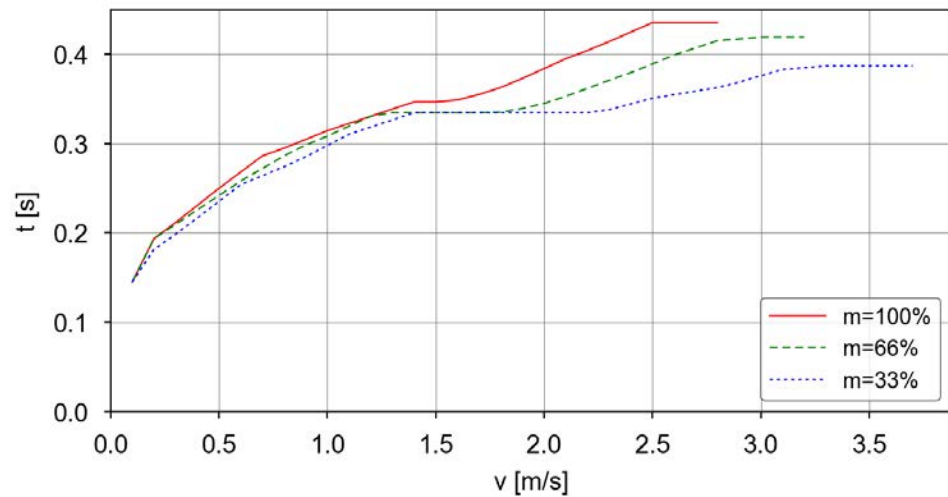
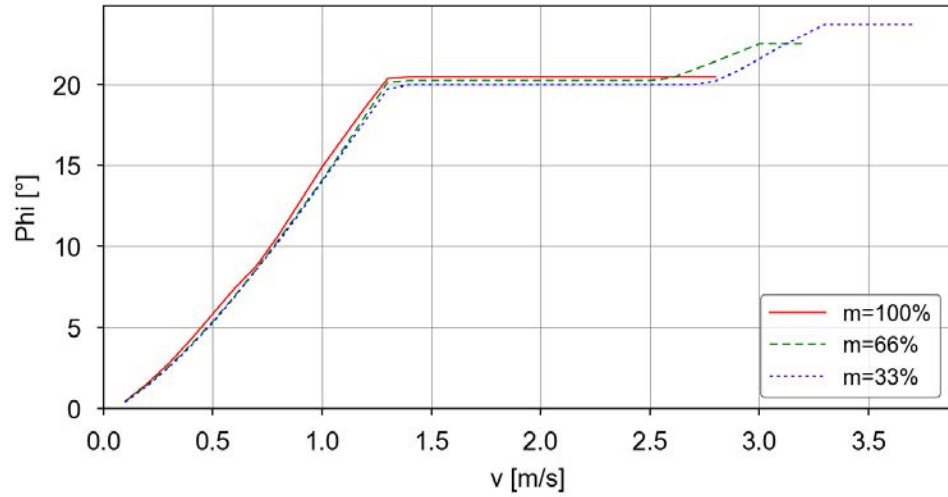
# 18 IRB 6700

18.1 IRB 6700 2.60 m 200 kg

Continued

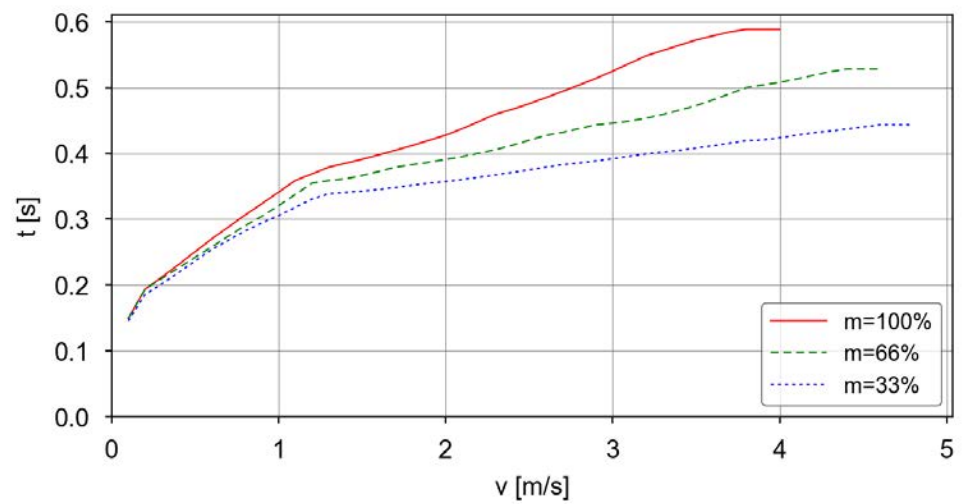
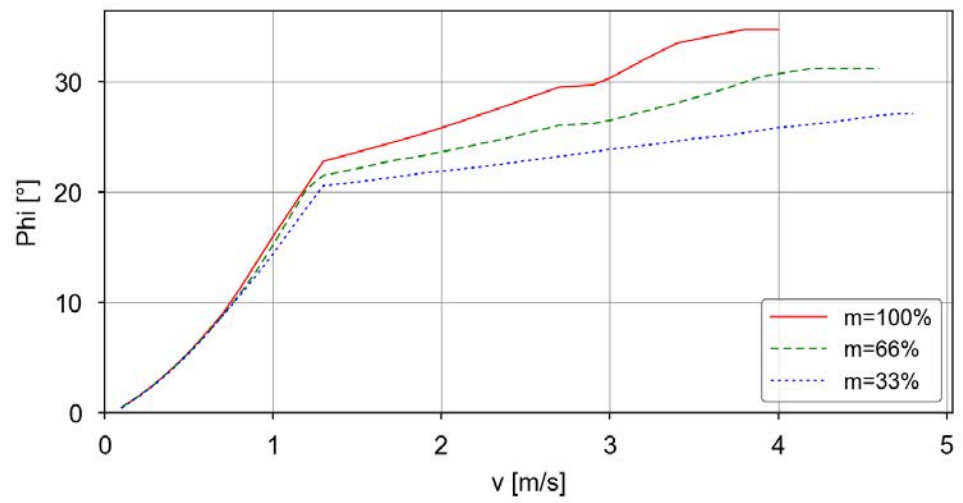
## Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



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Extension zone 1, stopping distance and stopping time



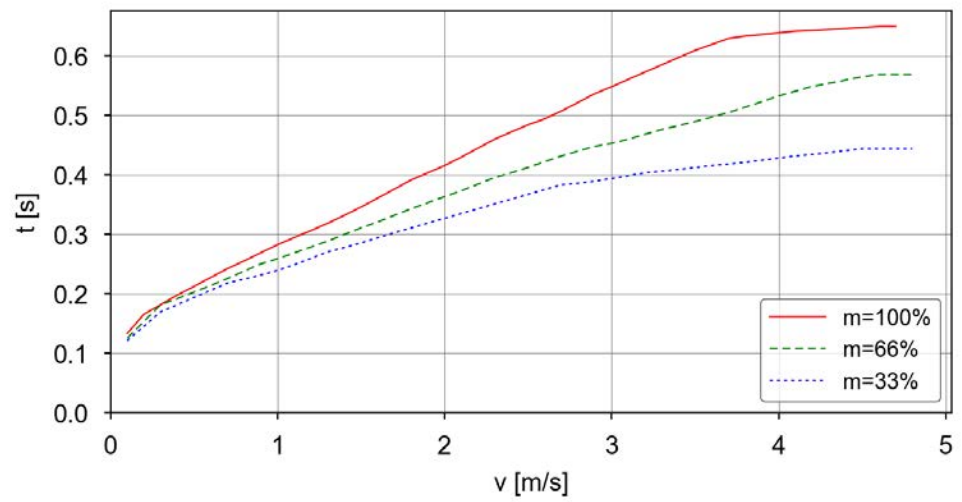
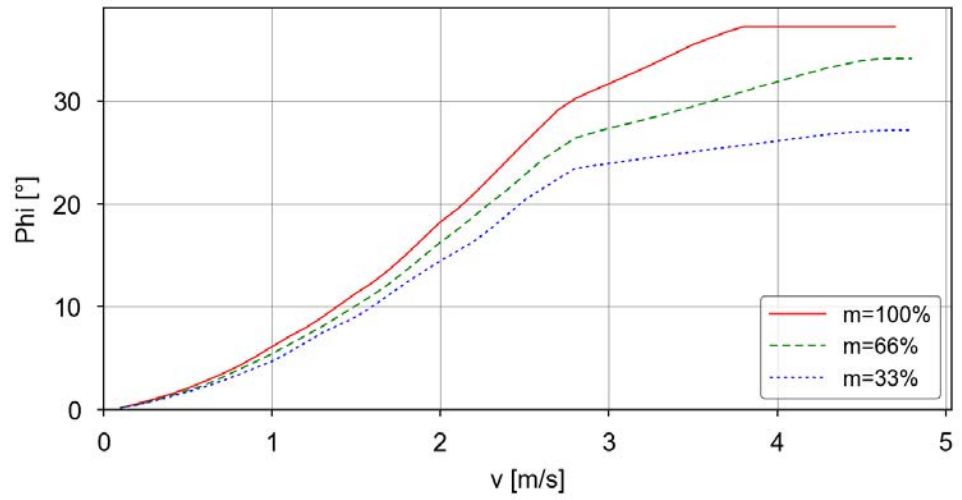
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# 18 IRB 6700

## 18.1 IRB 6700 2.60 m 200 kg

Continued

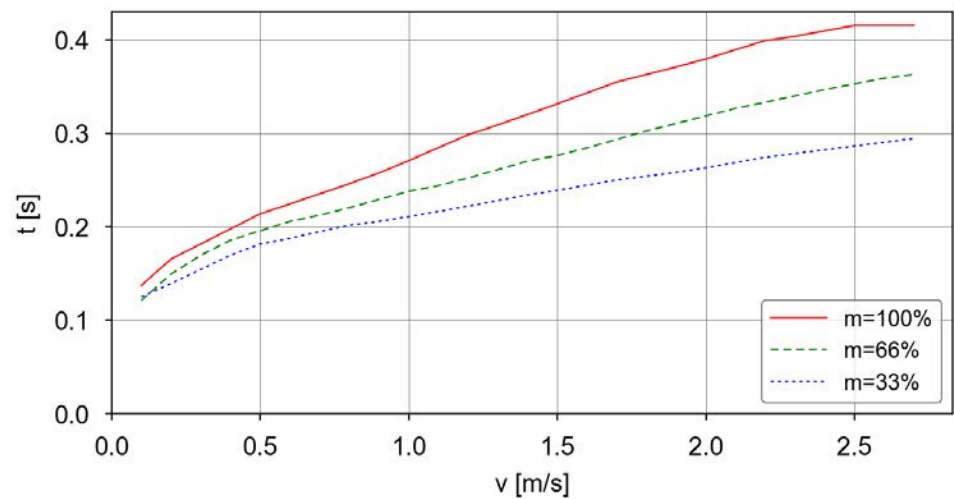
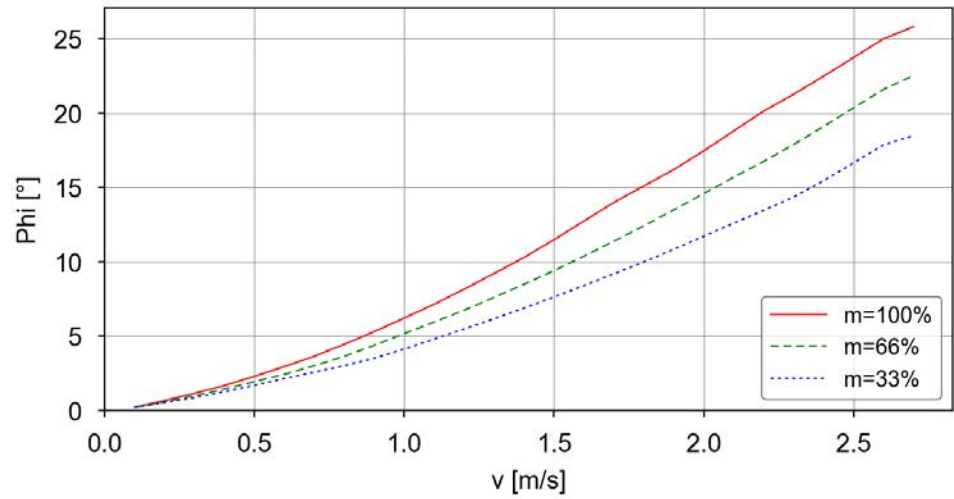
### Extension zone 2, stopping distance and stopping time



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## Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



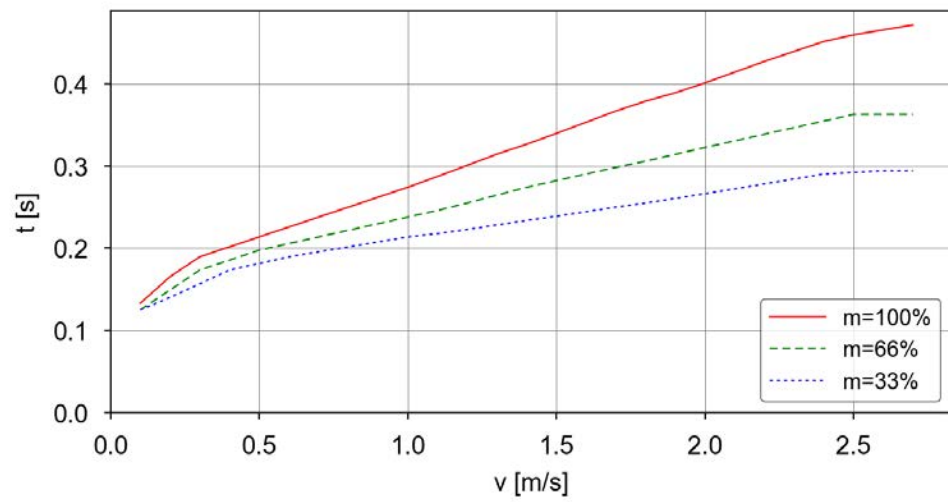
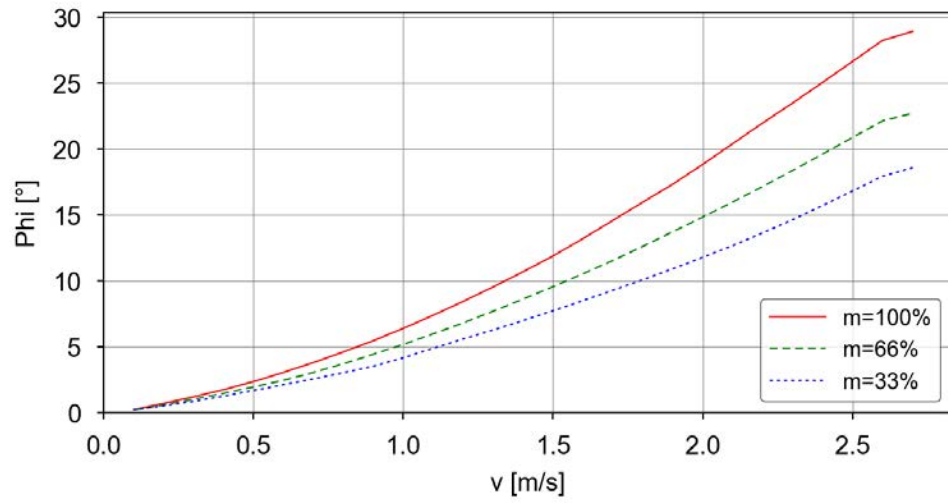
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# 18 IRB 6700

## 18.1 IRB 6700 2.60 m 200 kg

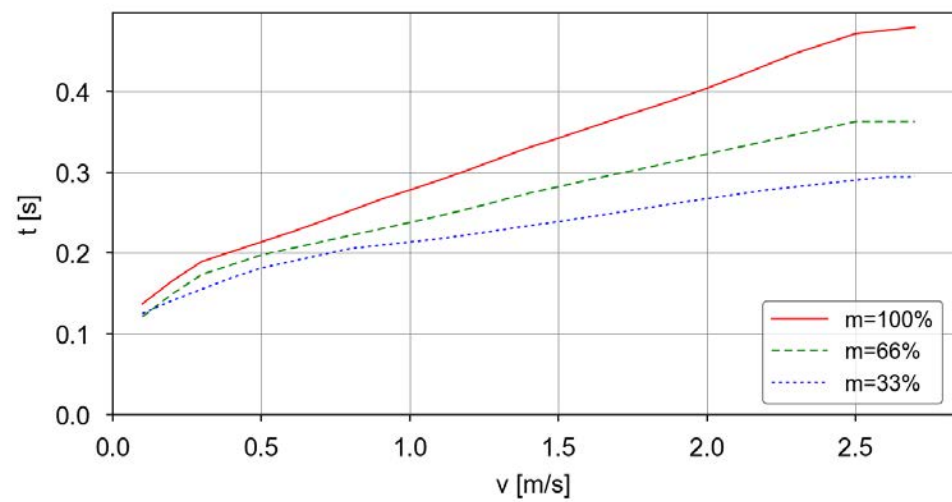
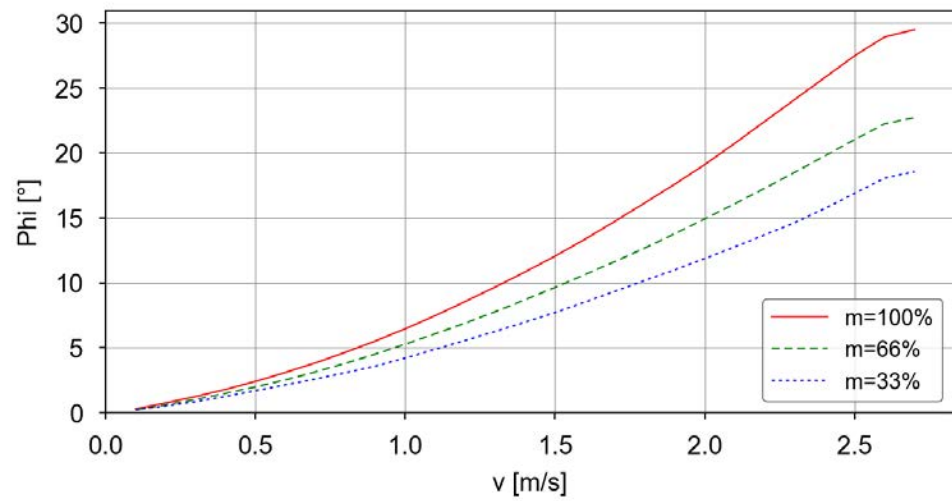
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### Extension zone 1, stopping distance and stopping time



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## Extension zone 2, stopping distance and stopping time



18.2 IRB 6700 2.65 m 235 kg

Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	38.2	0.68
2	20.3	0.37
3	14.4	0.22

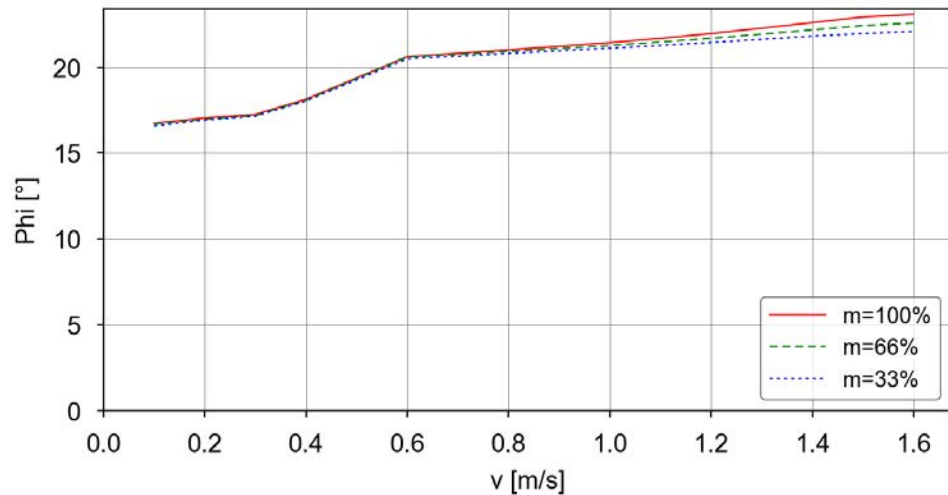
Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.883
1	0.883	1.767
2	1.767	max reach

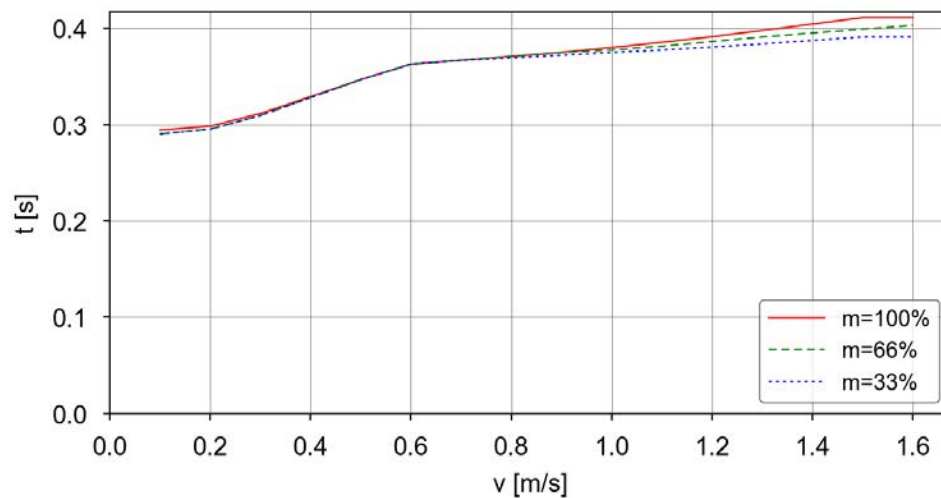
Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

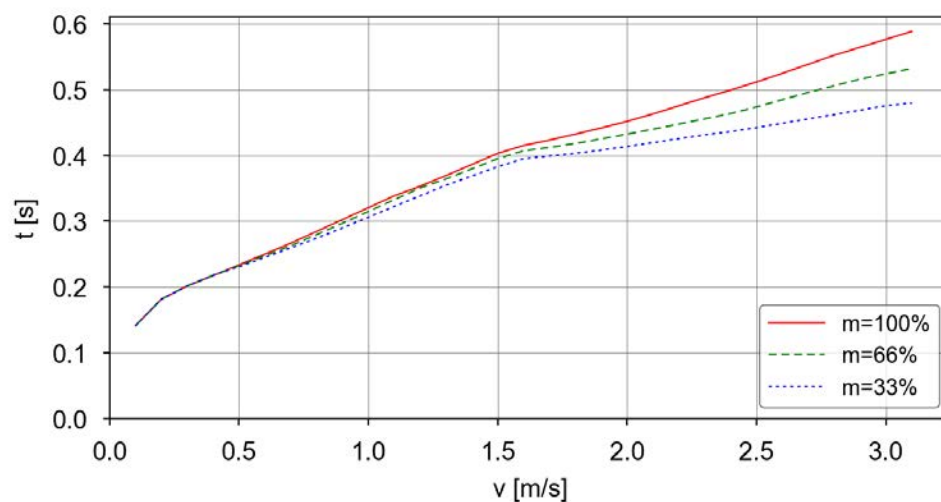
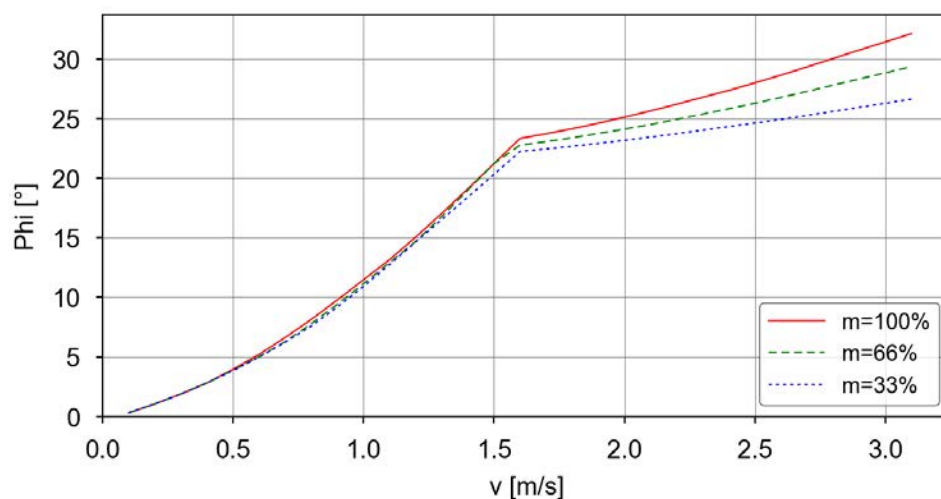


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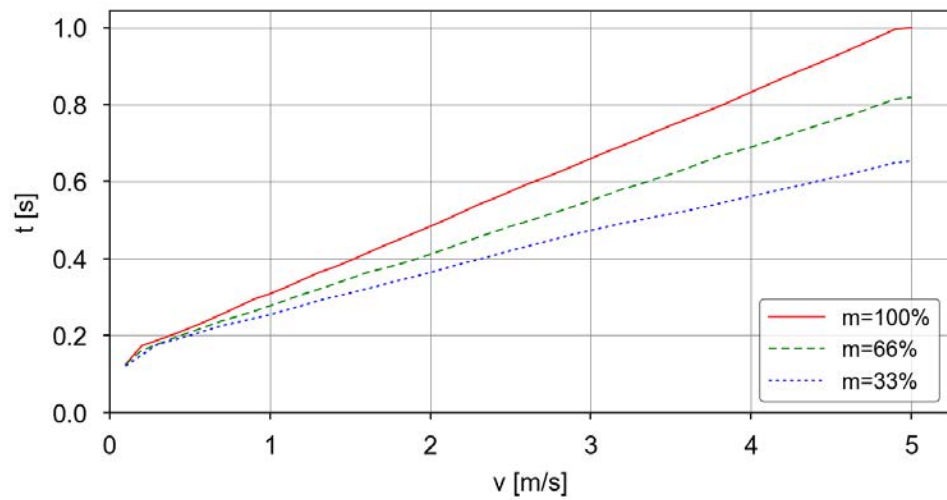
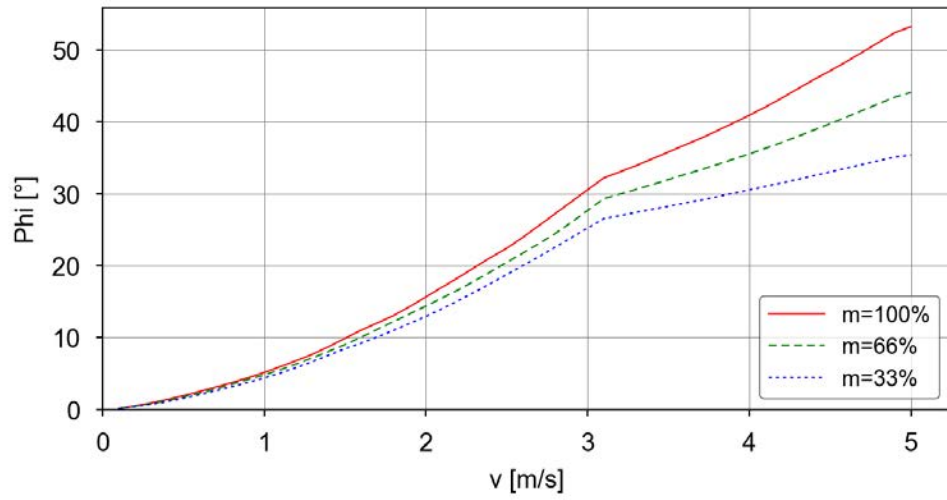


Extension zone 1, stopping distance and stopping time



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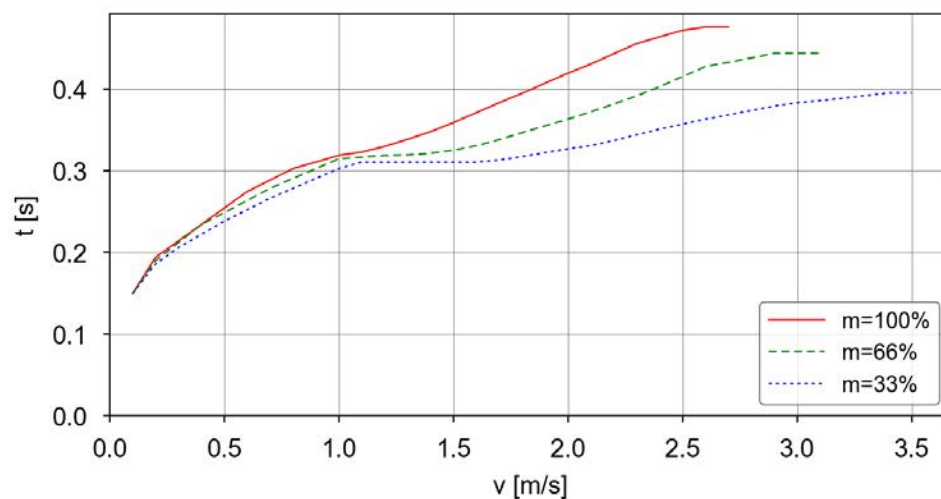
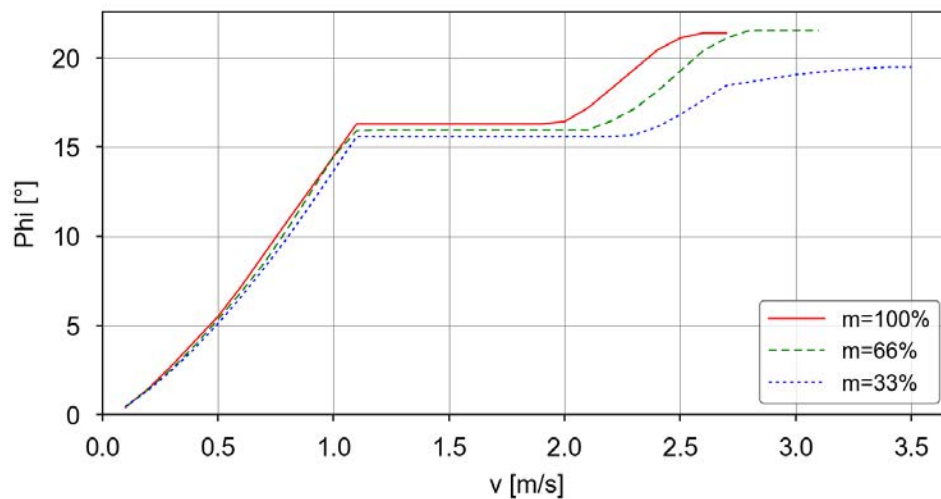
Extension zone 2, stopping distance and stopping time



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Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



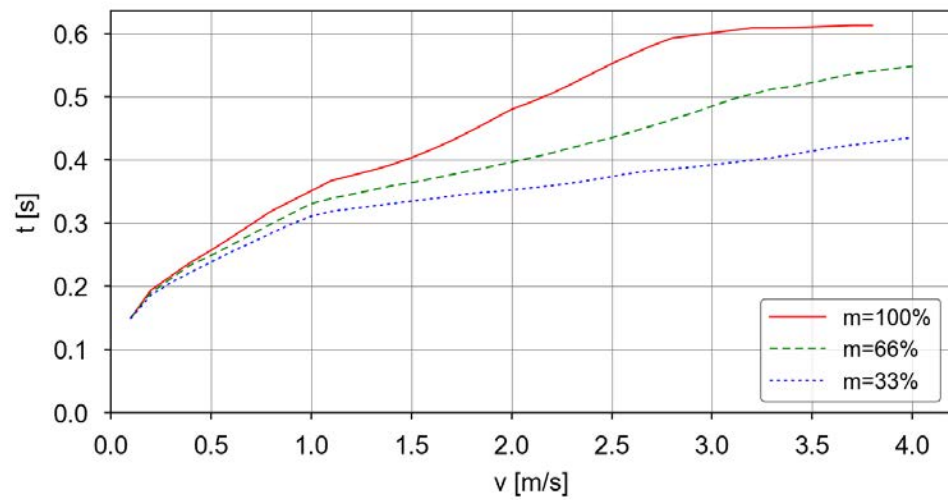
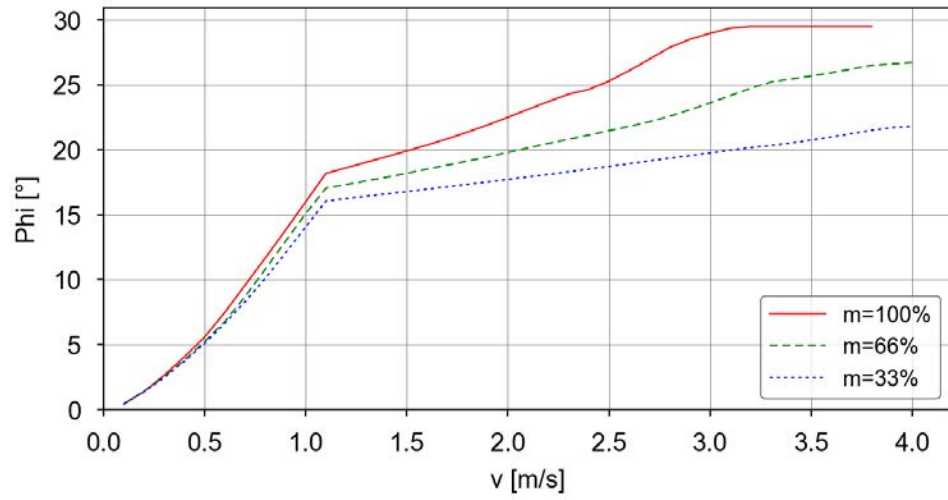
Continues on next page

# 18 IRB 6700

18.2 IRB 6700 2.65 m 235 kg

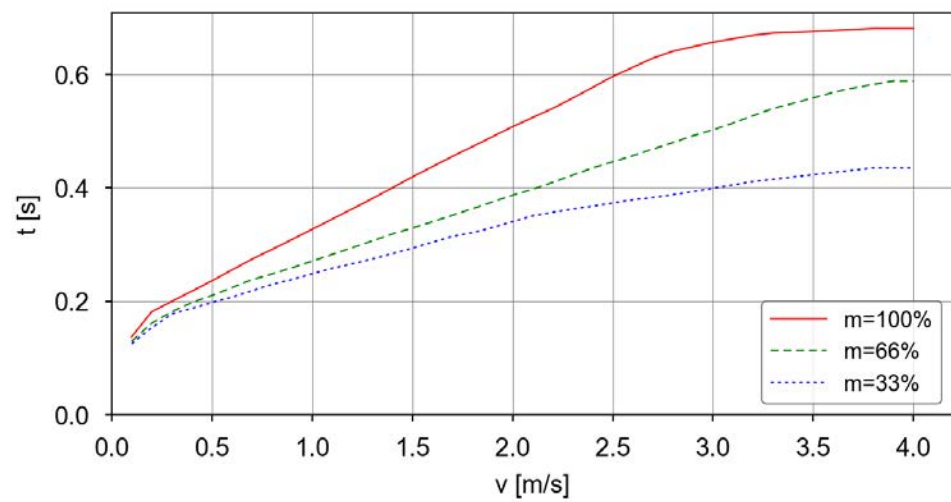
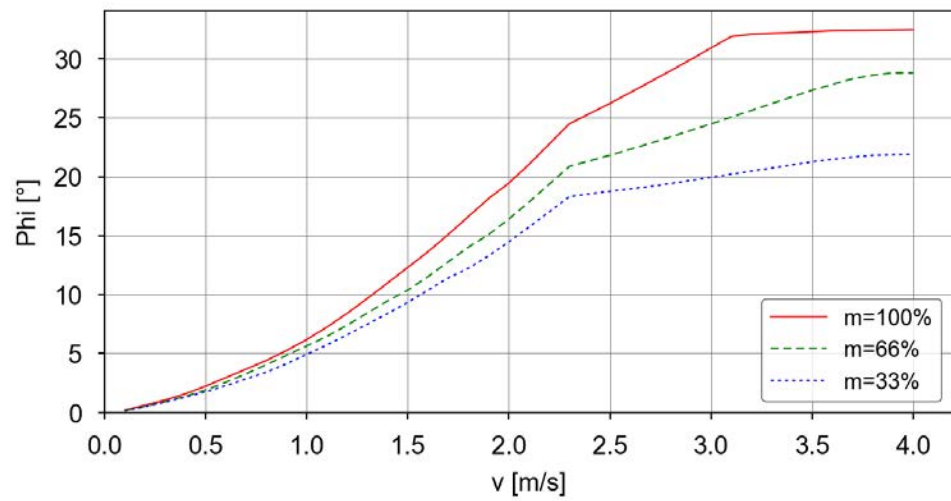
Continued

## Extension zone 1, stopping distance and stopping time



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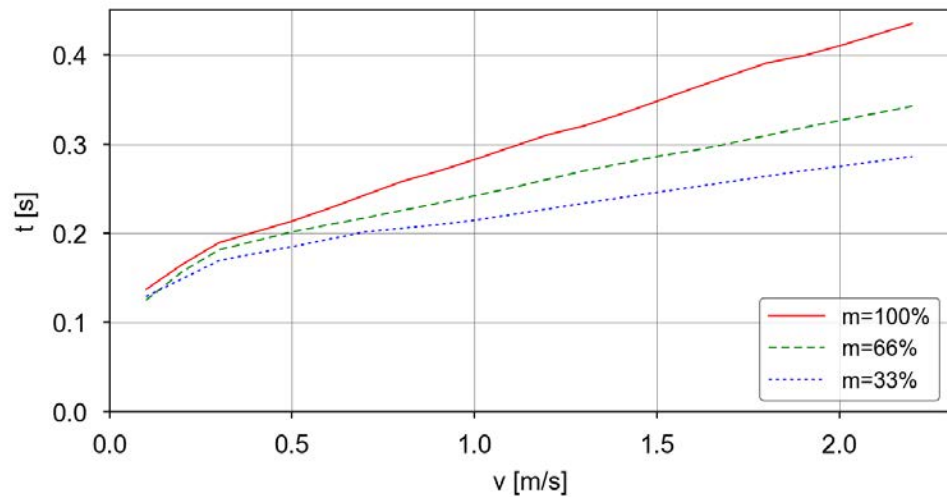
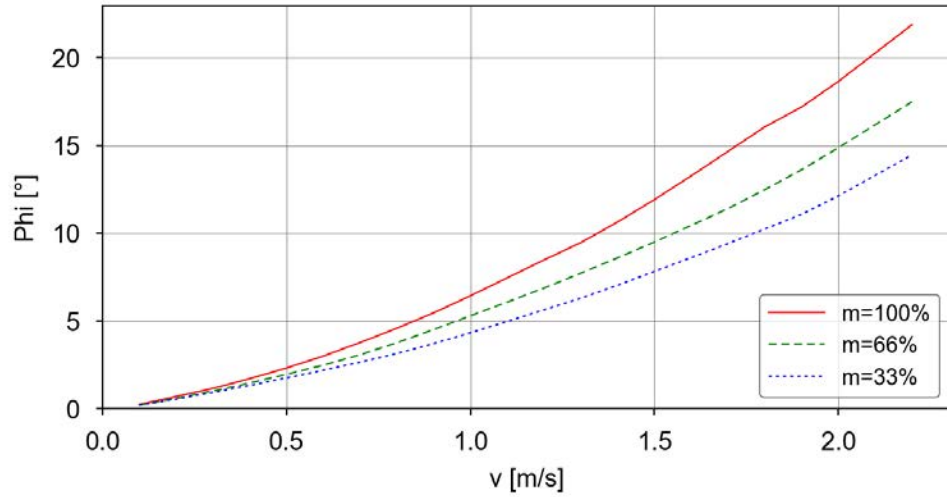
Extension zone 2, stopping distance and stopping time



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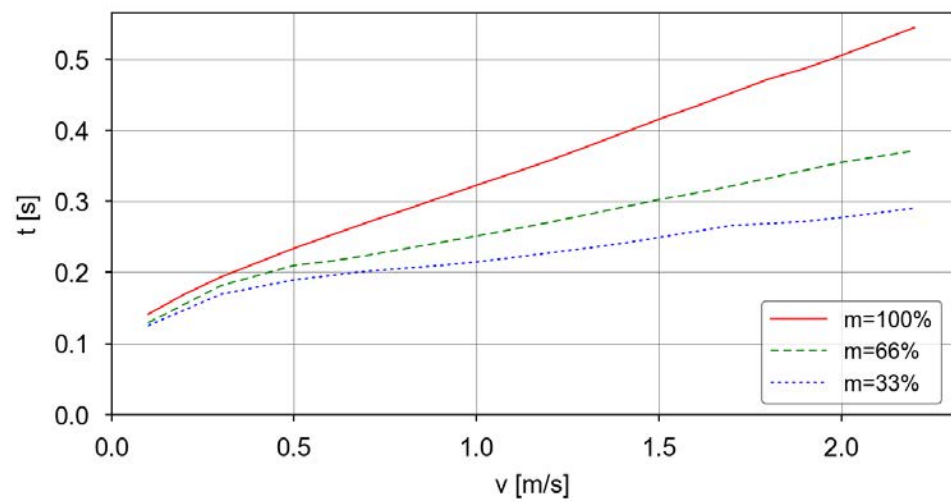
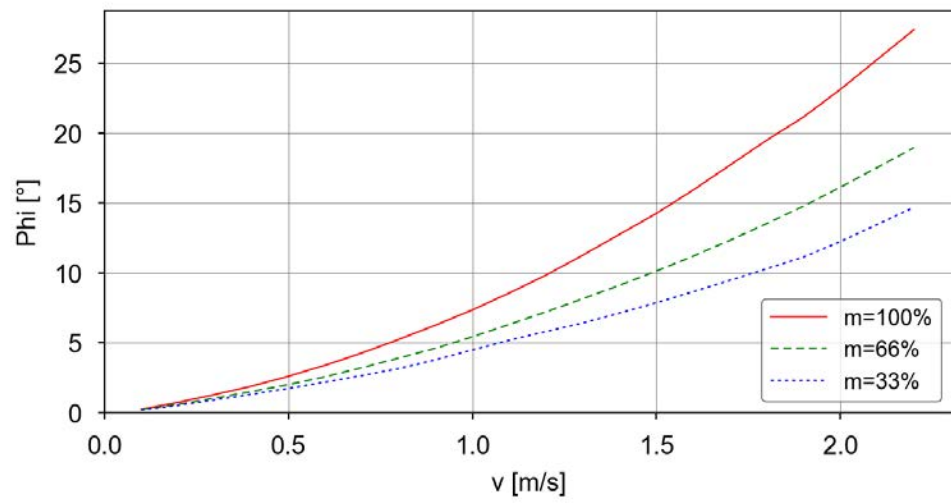
Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



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Extension zone 1, stopping distance and stopping time



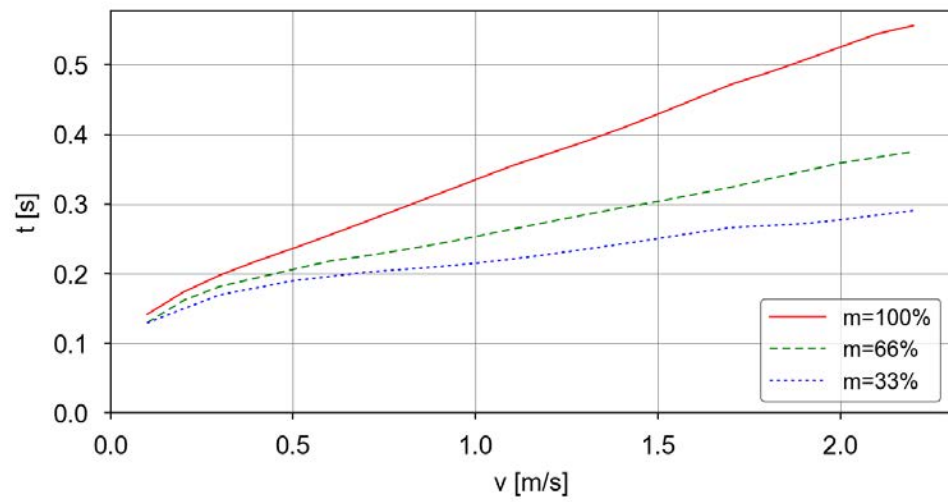
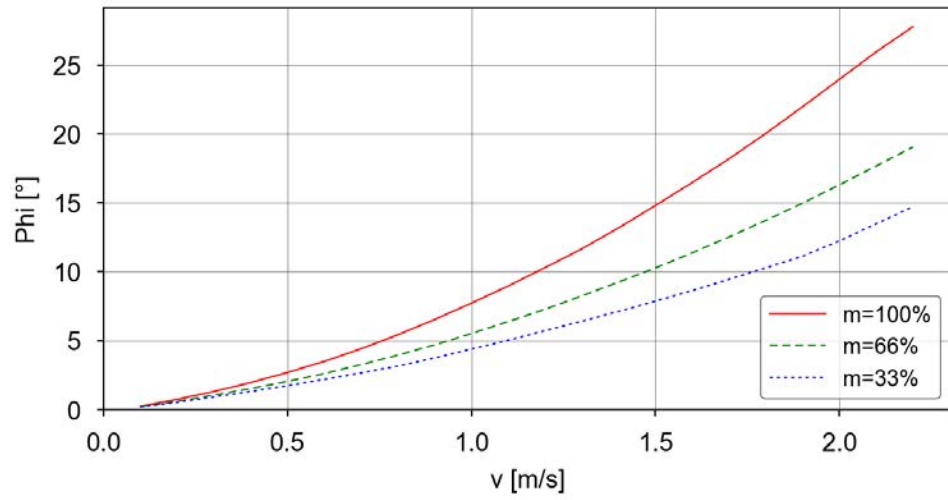
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# 18 IRB 6700

18.2 IRB 6700 2.65 m 235 kg

Continued

Extension zone 2, stopping distance and stopping time





## 18.3 IRB 6700 2.70 m 300 kg

### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	37.4	0.66
2	21.6	0.39
3	17.5	0.27

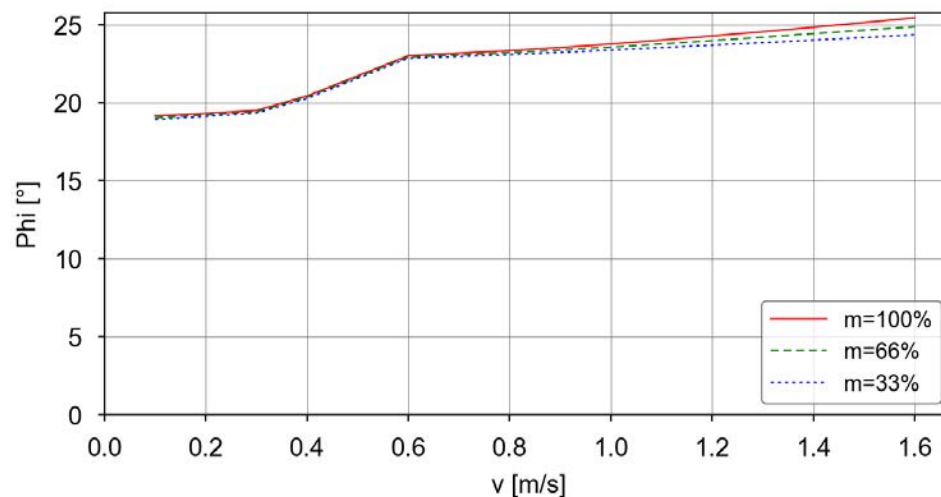
### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.907
1	0.907	1.813
2	1.813	max reach

### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

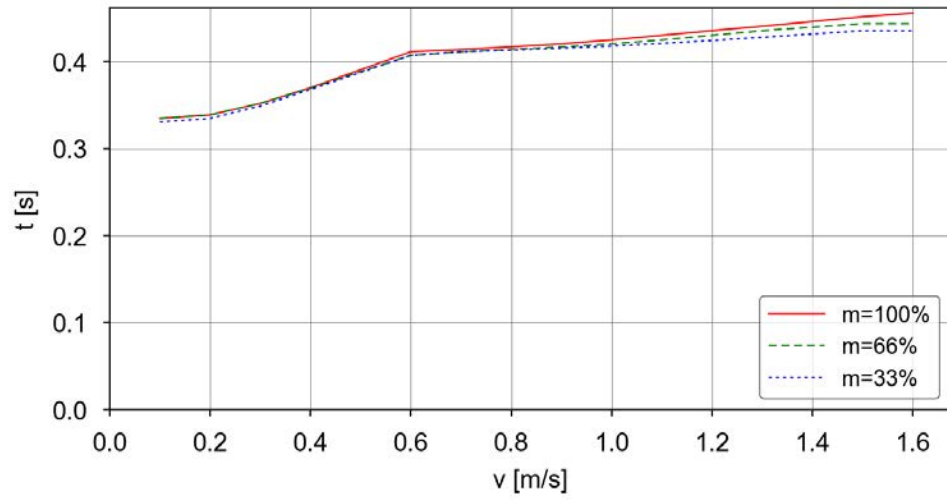


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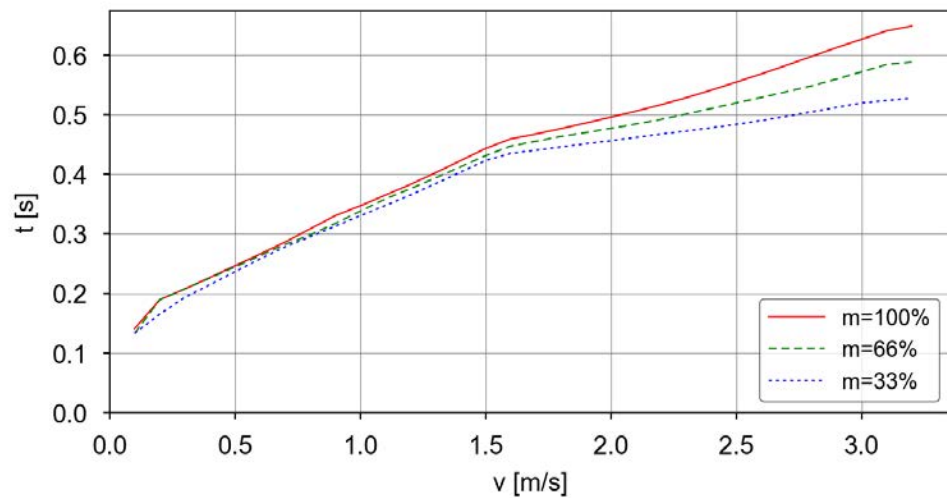
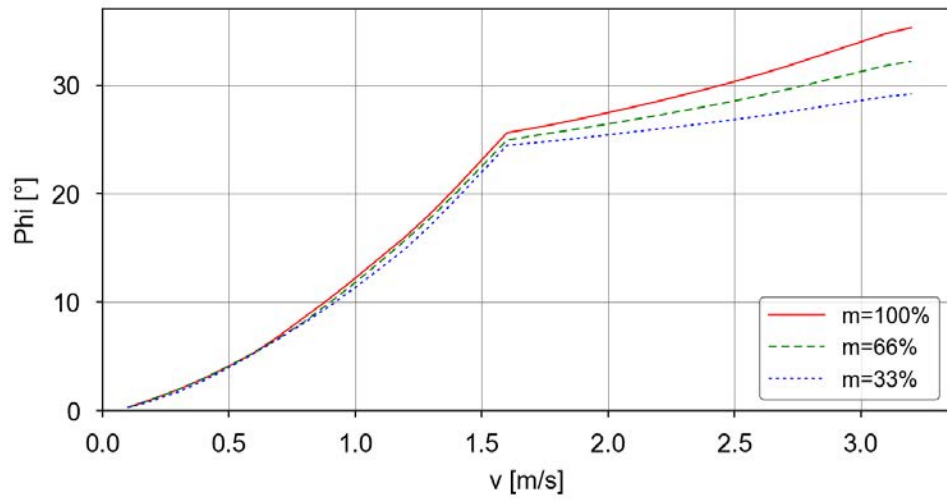
# 18 IRB 6700

18.3 IRB 6700 2.70 m 300 kg

Continued

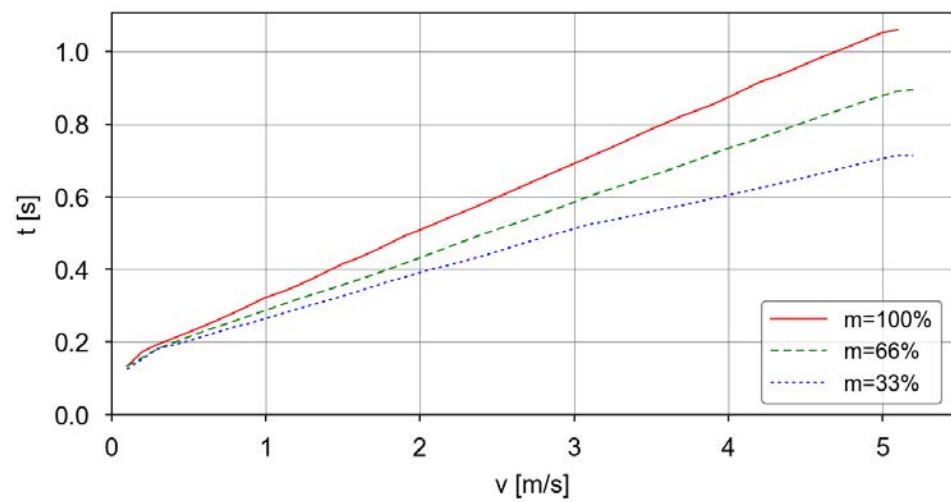
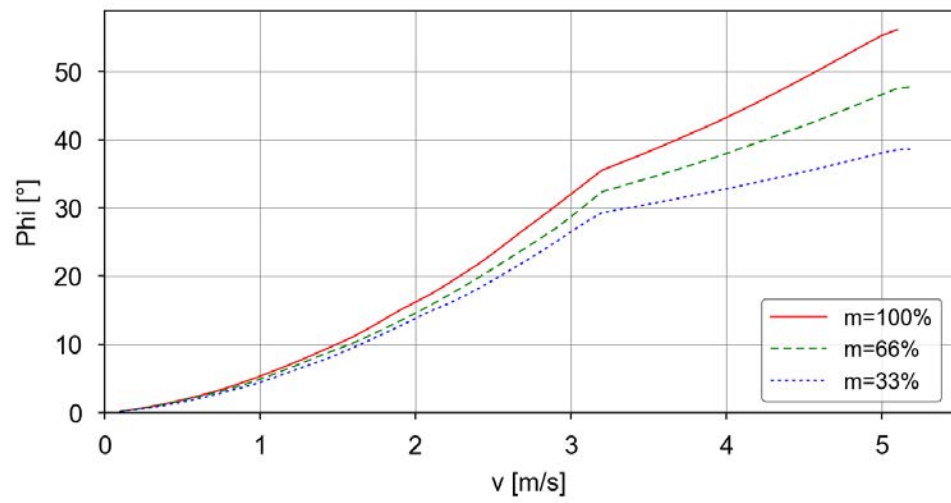


Extension zone 1, stopping distance and stopping time



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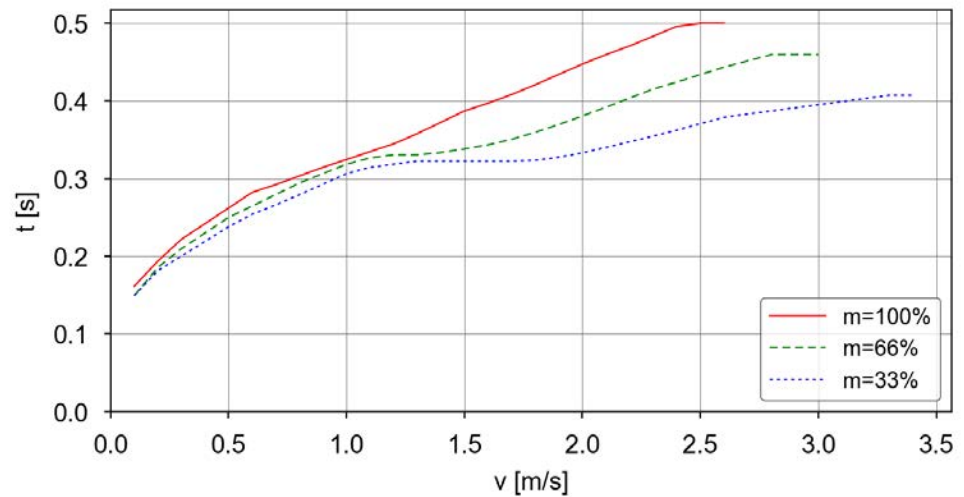
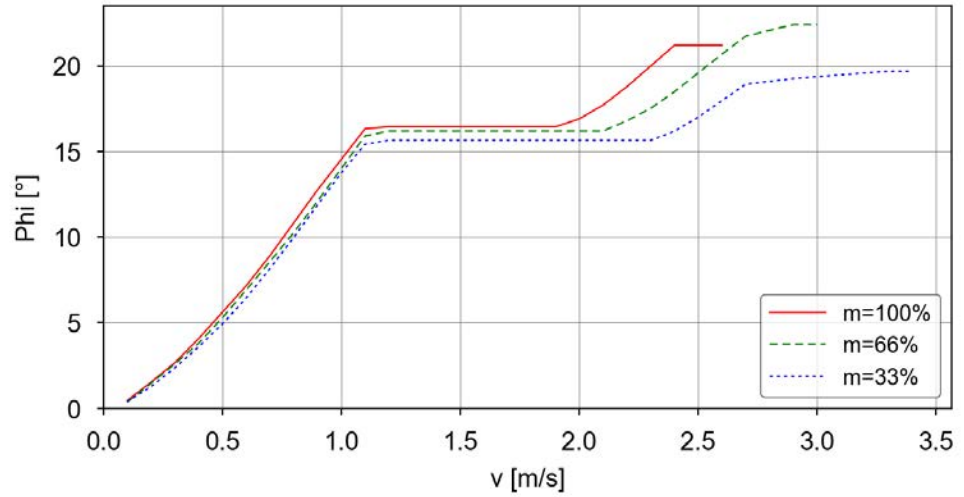
Extension zone 2, stopping distance and stopping time



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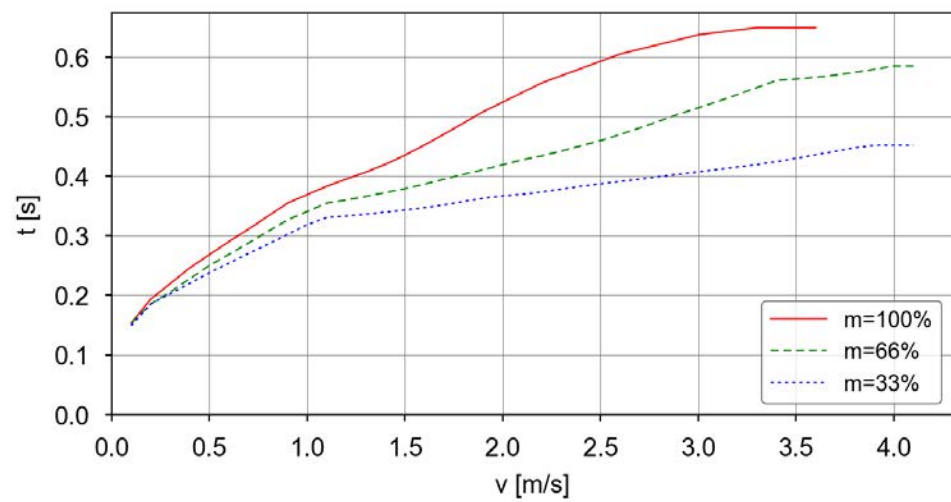
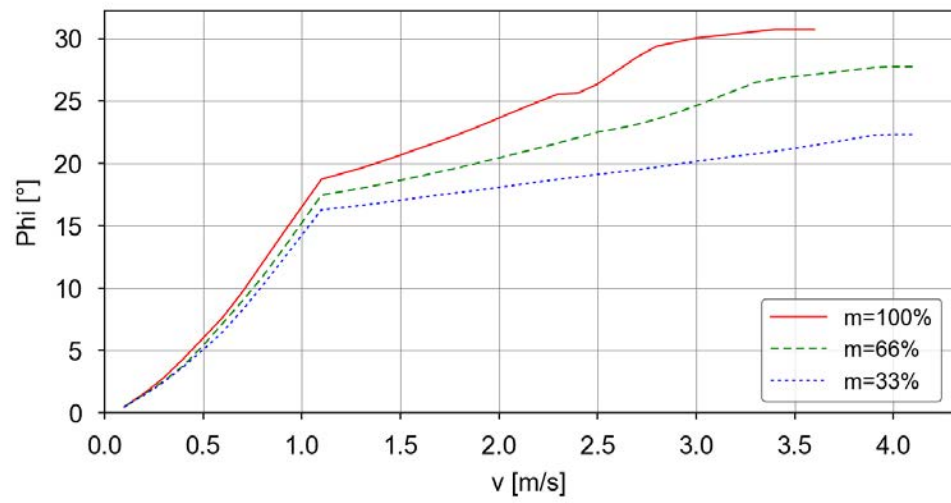
Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



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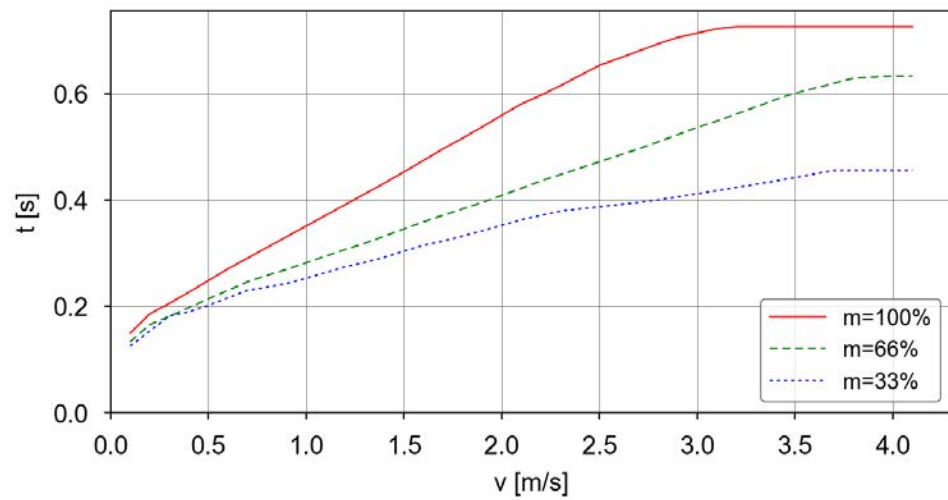
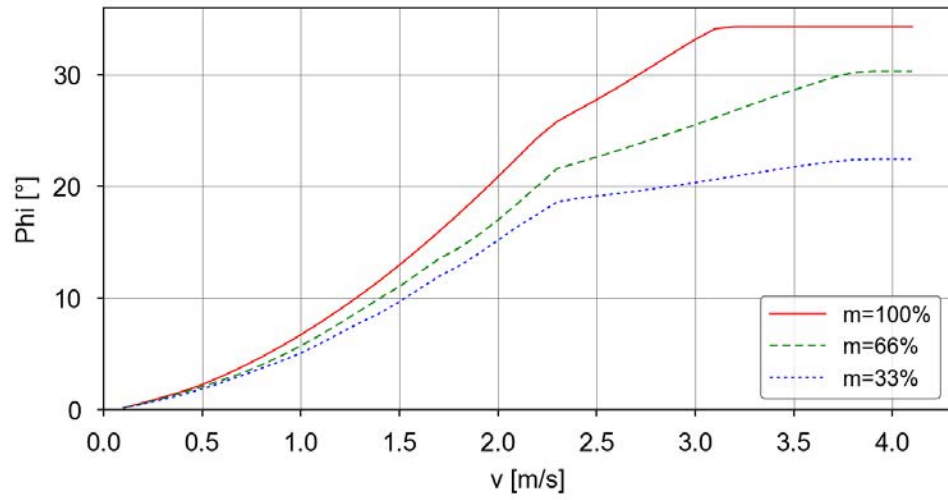
Extension zone 1, stopping distance and stopping time



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Continued

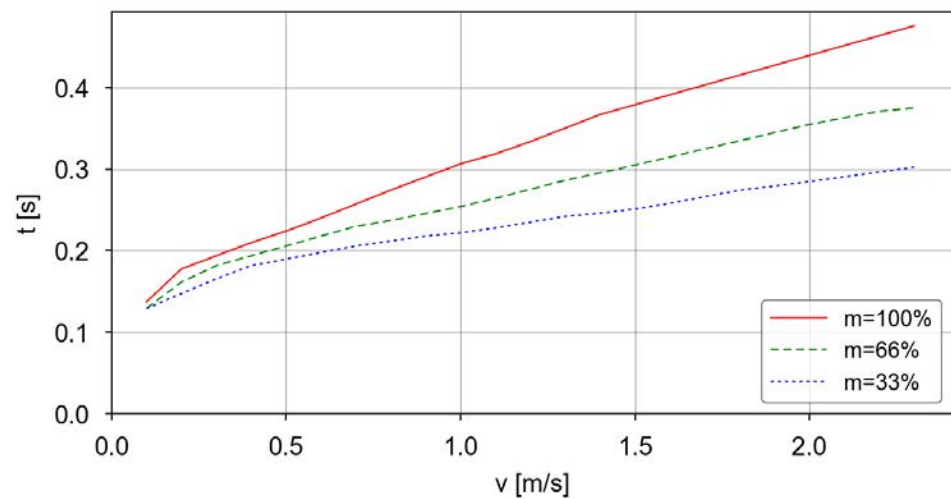
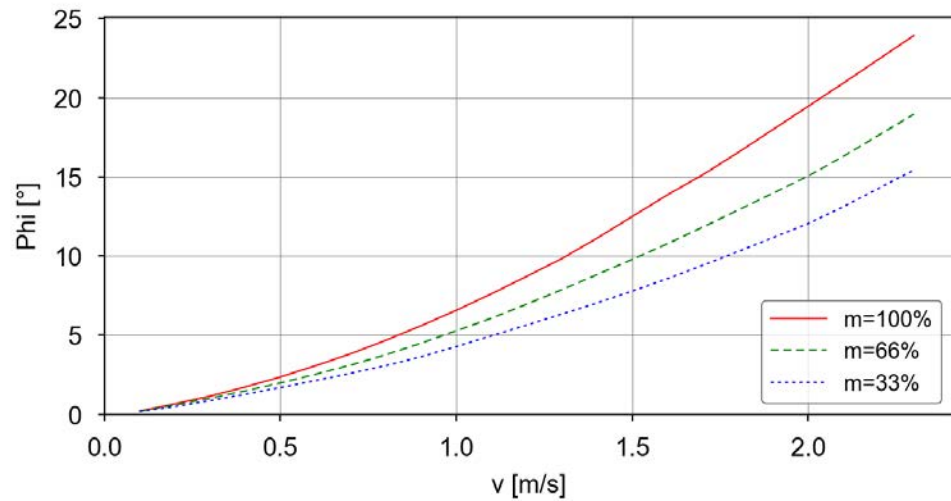
Extension zone 2, stopping distance and stopping time



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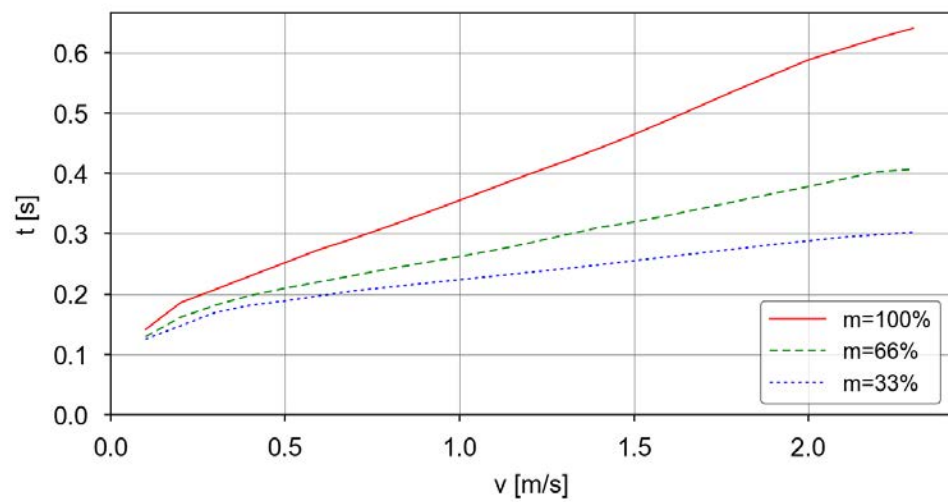
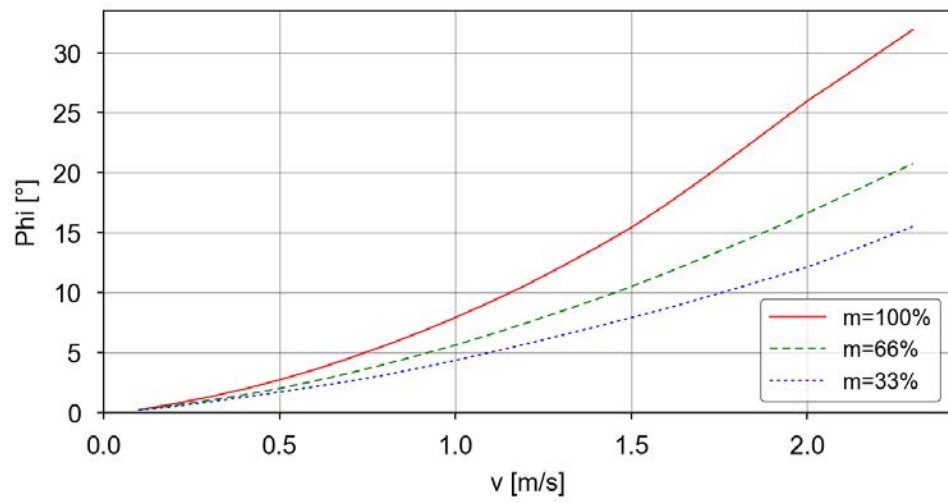
## Category 1, Axis 3

## Extension zone 0, stopping distance and stopping time



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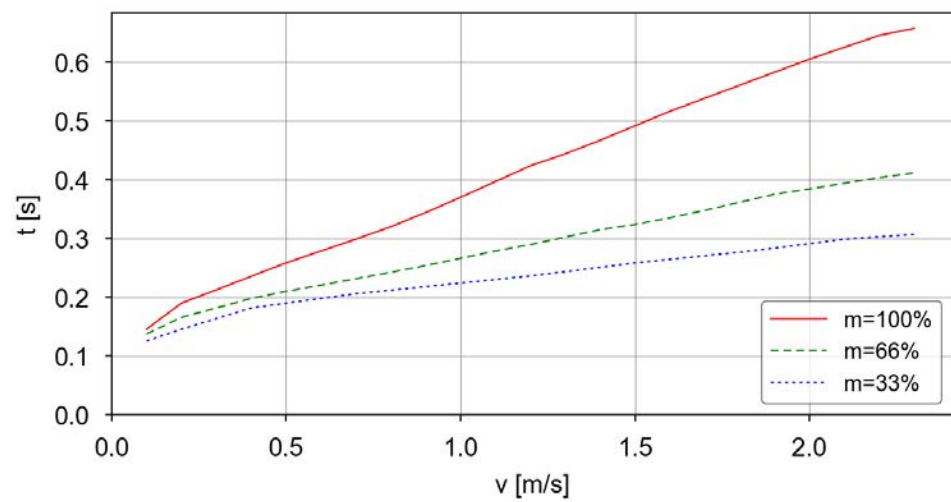
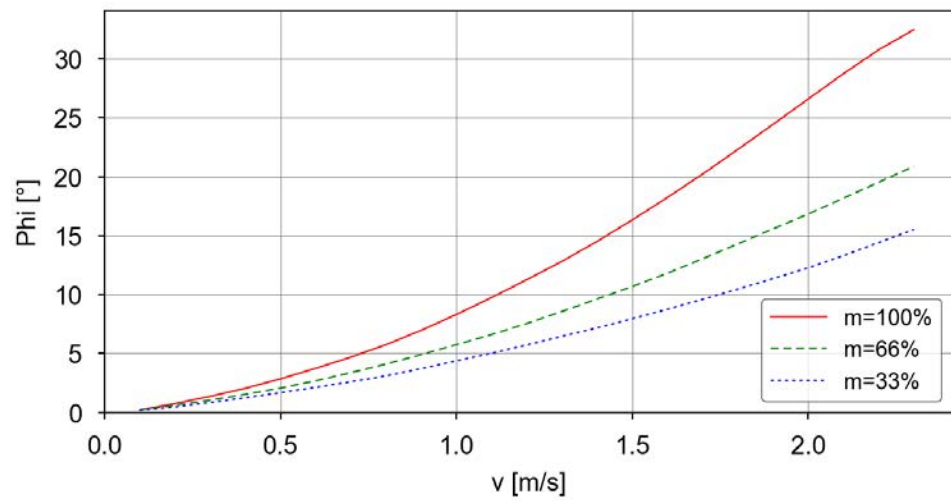
Extension zone 1, stopping distance and stopping time



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## Extension zone 2, stopping distance and stopping time



18.4 IRB 6700 2.80 m 205 kg

Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	40.0	0.71
2	20.6	0.37
3	14.1	0.22

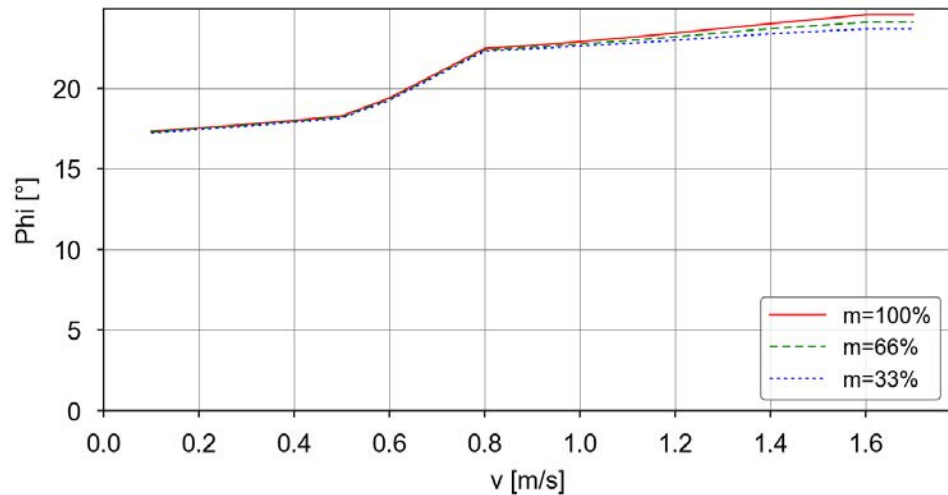
Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

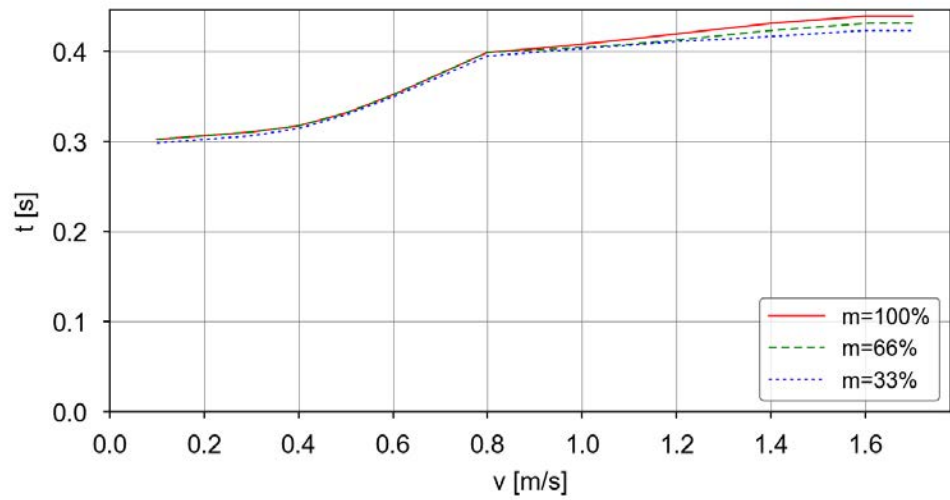
Zone	wcp min (m)	wcp max (m)
0	0	0.931
1	0.931	1.863
2	1.863	max reach

Category 1, Axis 1

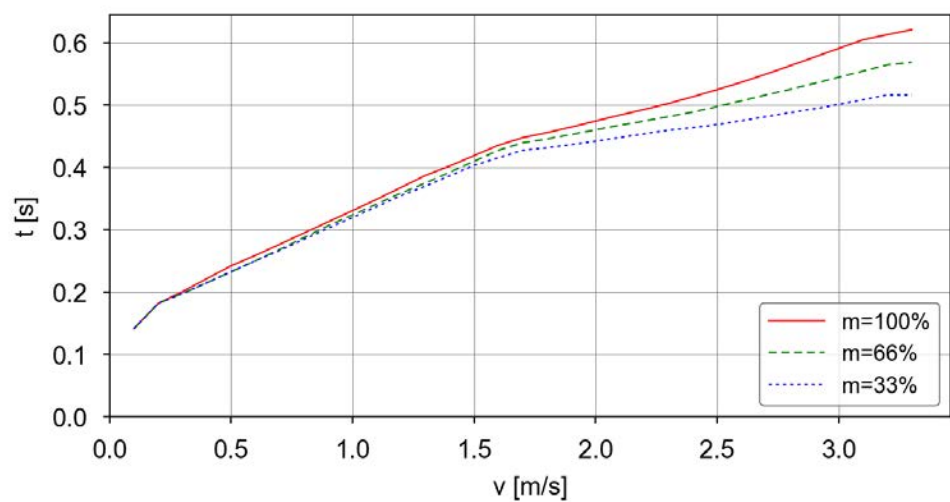
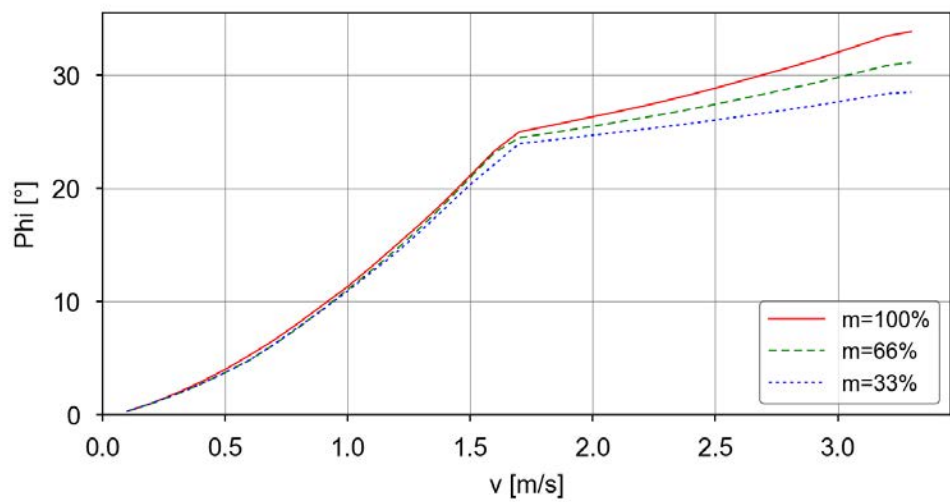
Extension zone 0, stopping distance and stopping time



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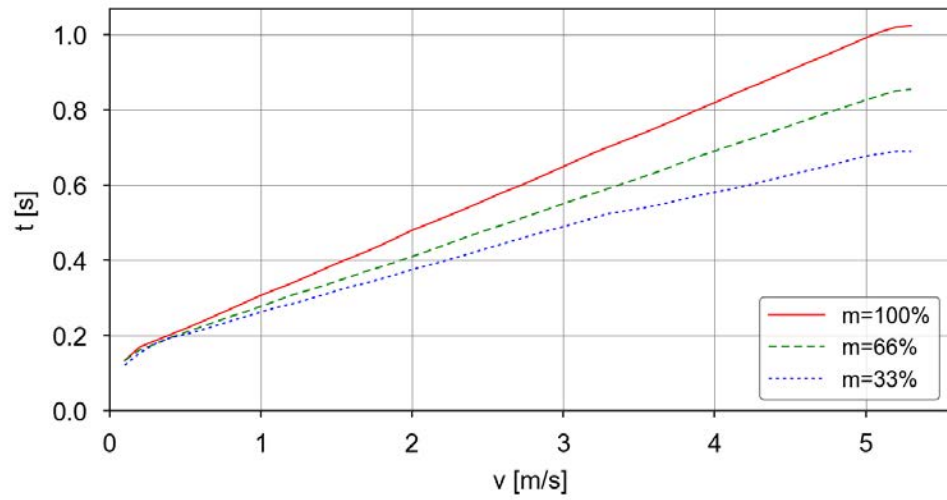
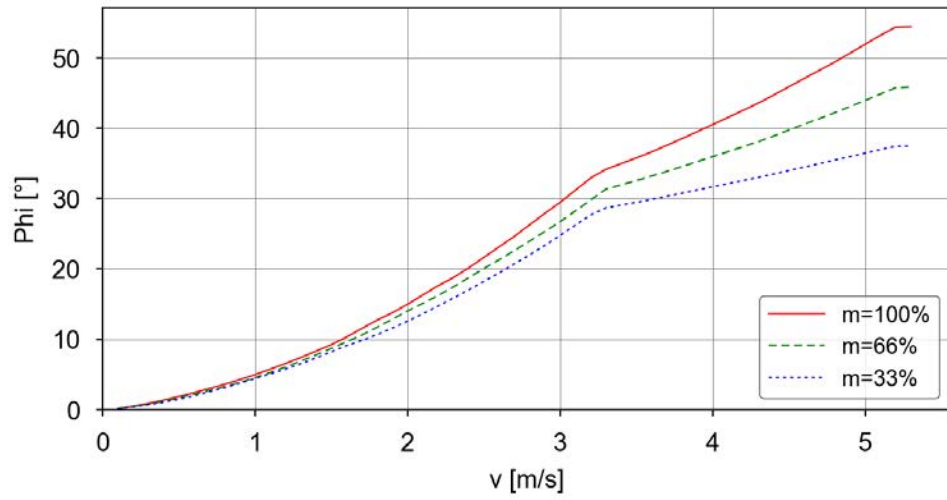


Extension zone 1, stopping distance and stopping time



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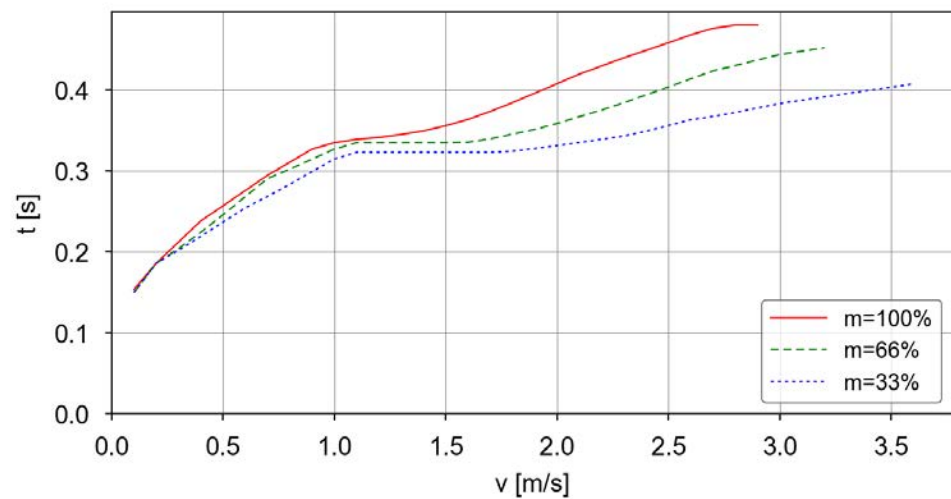
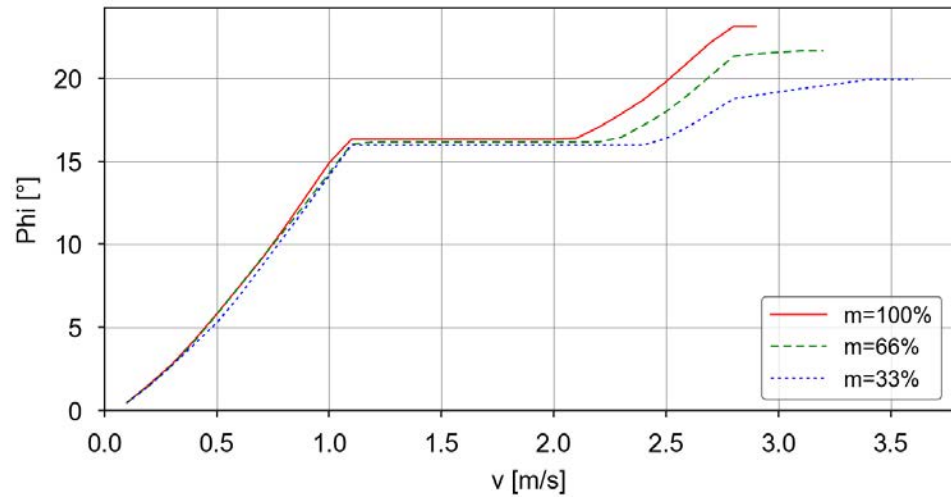
Extension zone 2, stopping distance and stopping time



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## Category 1, Axis 2

## Extension zone 0, stopping distance and stopping time



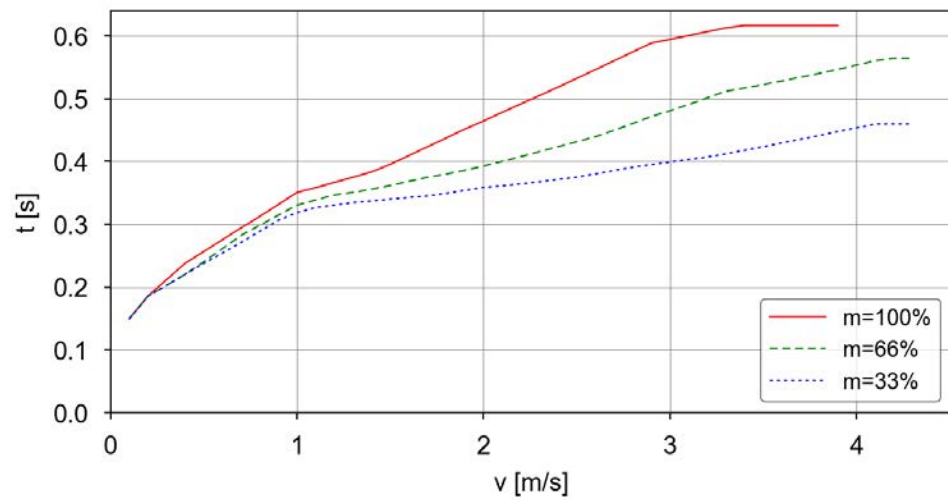
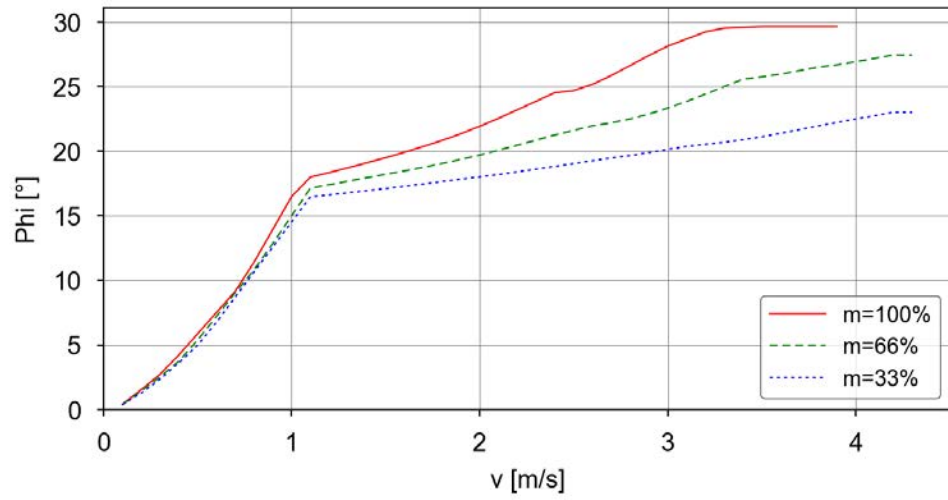
Continues on next page

# 18 IRB 6700

18.4 IRB 6700 2.80 m 205 kg

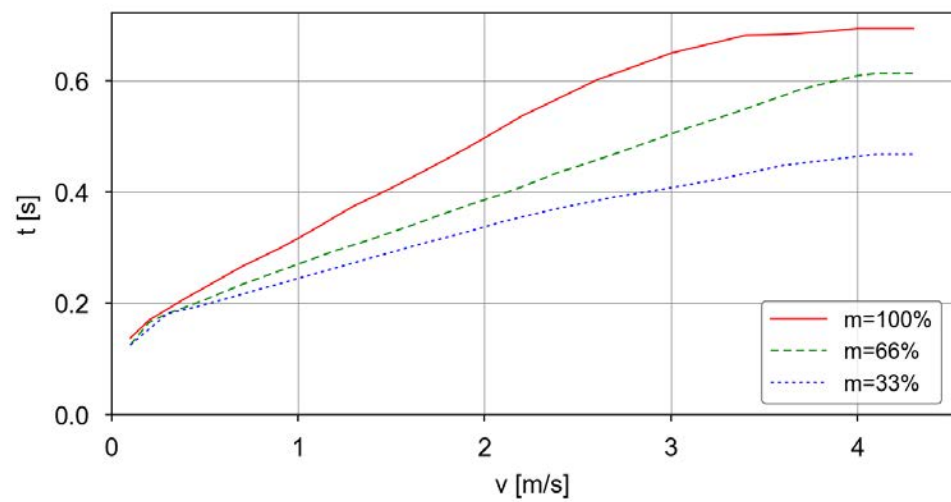
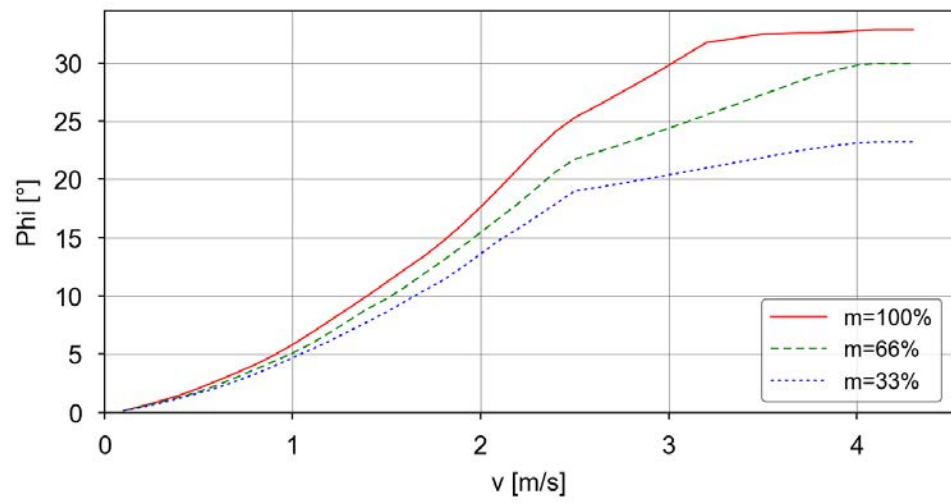
Continued

## Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time



Continues on next page

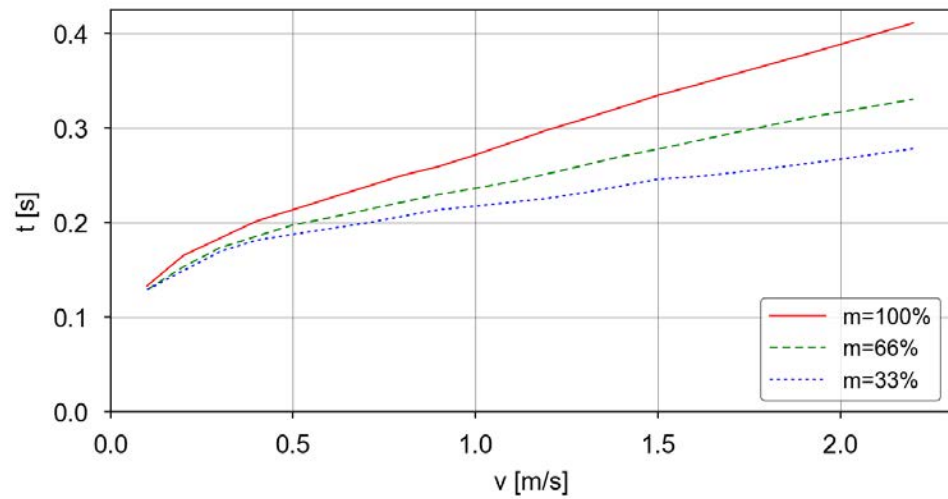
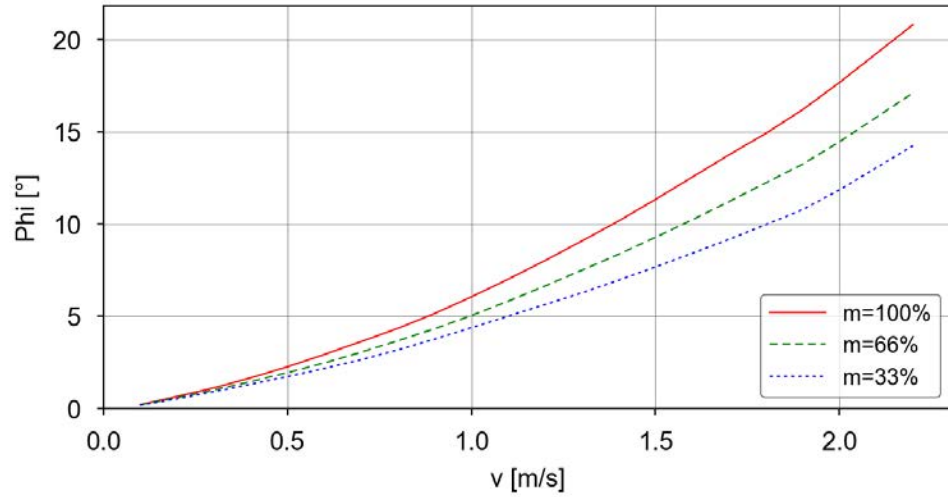
## 18 IRB 6700

18.4 IRB 6700 2.80 m 205 kg

Continued

### Category 1, Axis 3

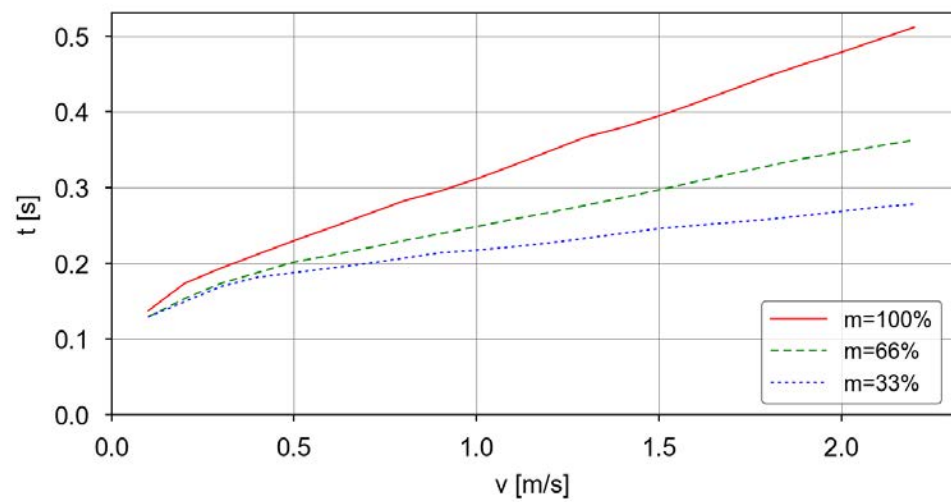
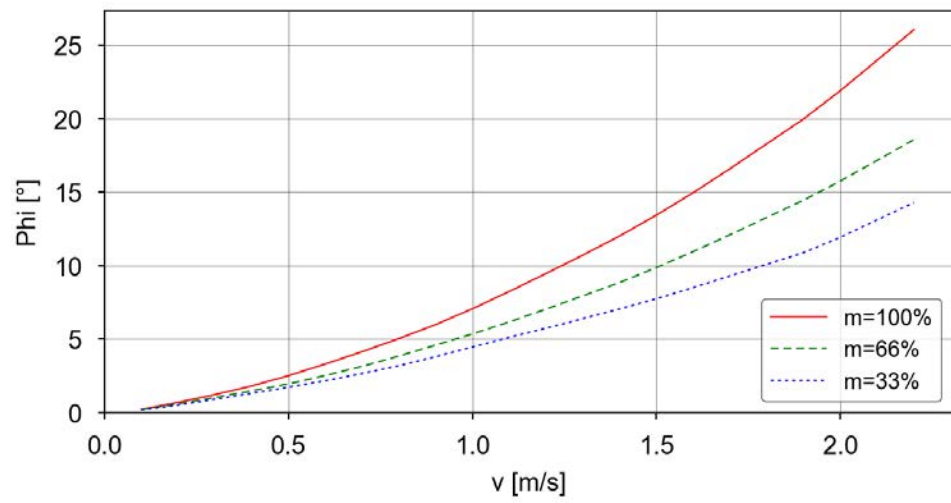
Extension zone 0, stopping distance and stopping time



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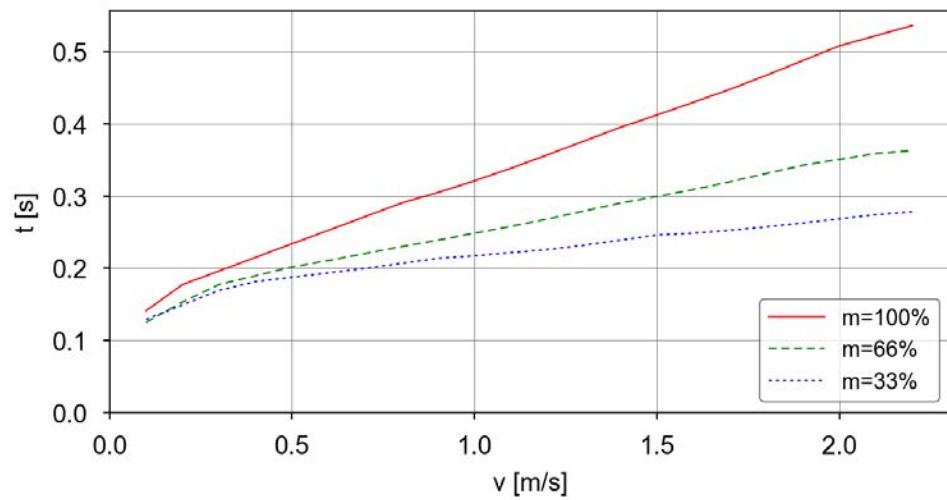
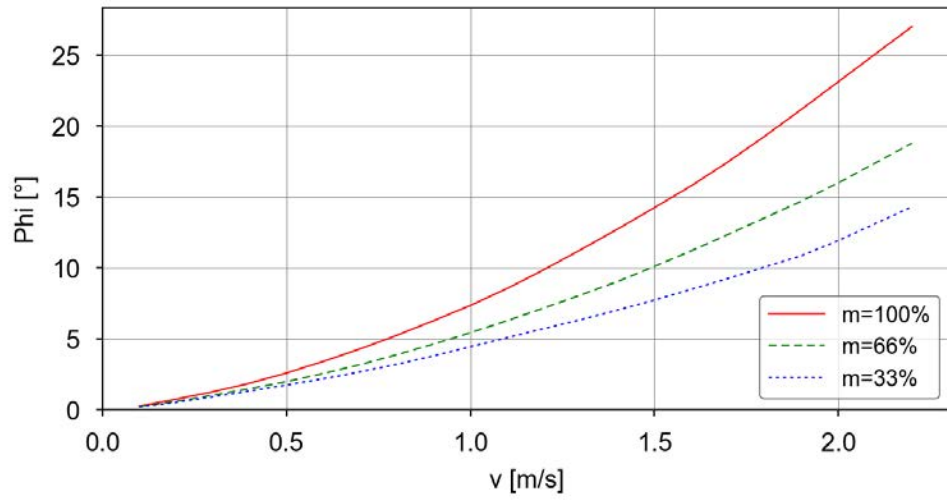


Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



## 18.5 IRB 6700 2.85 m 155 kg

### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	40.9	0.66
2	25.1	0.37
3	19.3	0.25

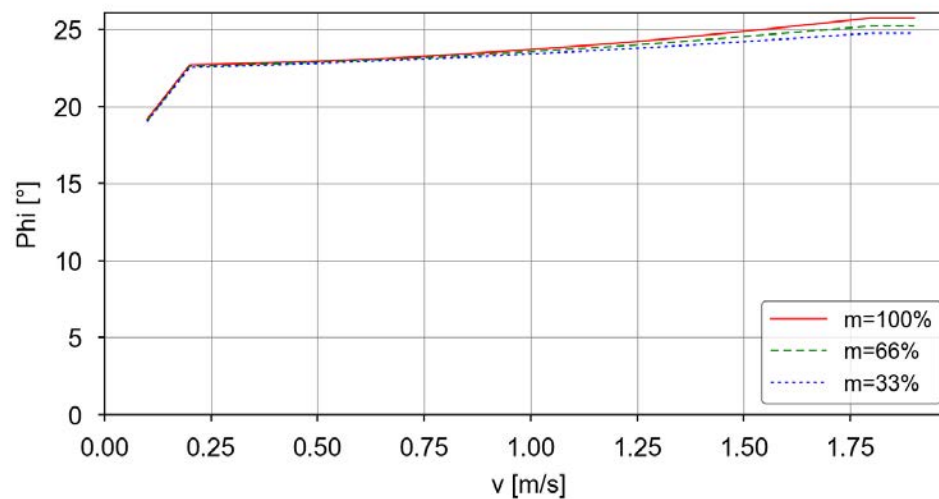
### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.949
1	0.949	1.898
2	1.898	max reach

### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

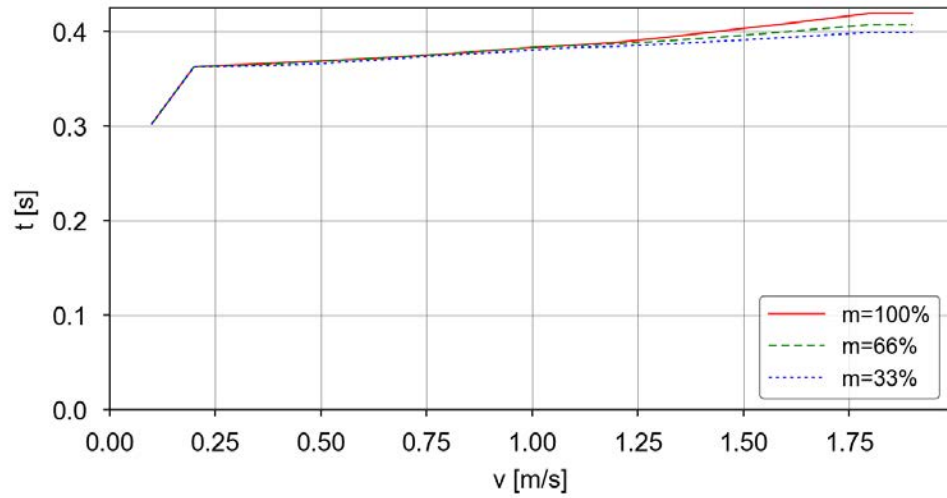


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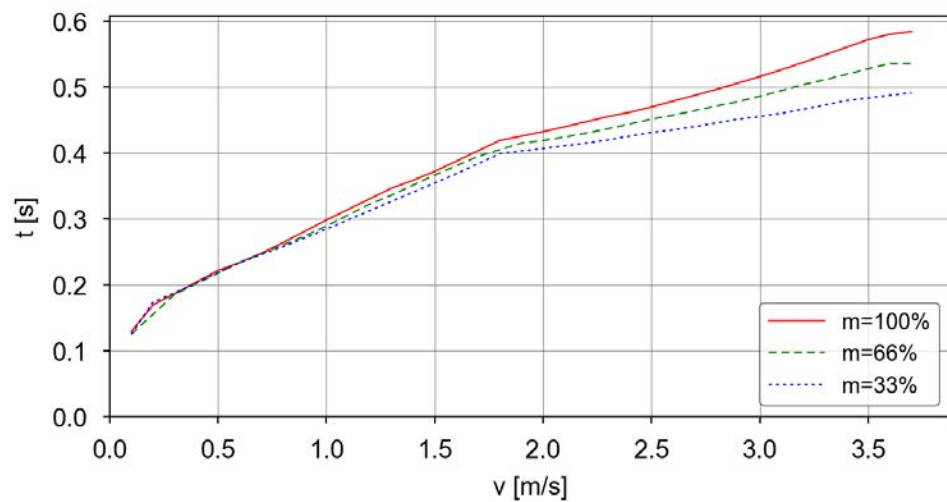
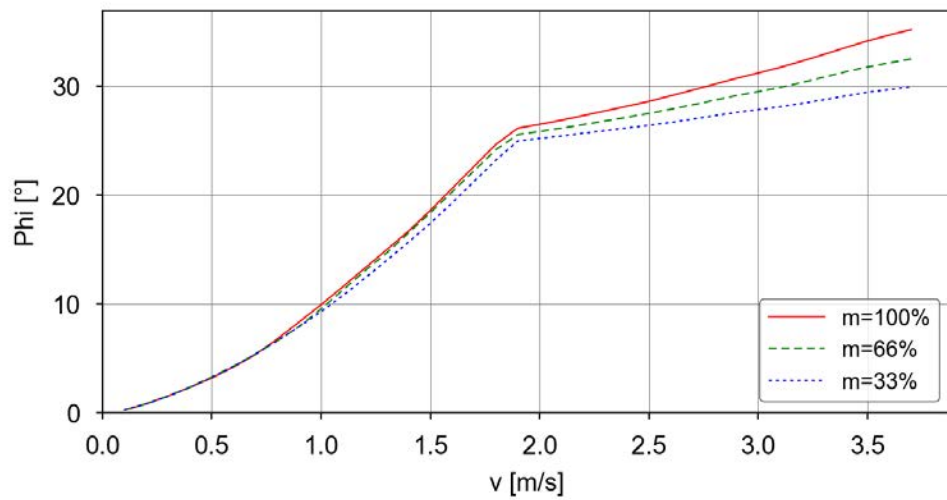
# 18 IRB 6700

18.5 IRB 6700 2.85 m 155 kg

Continued

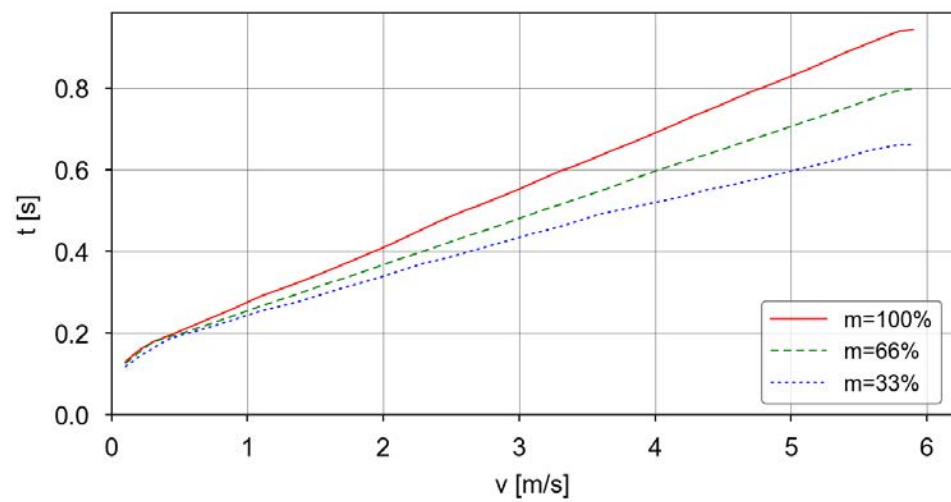
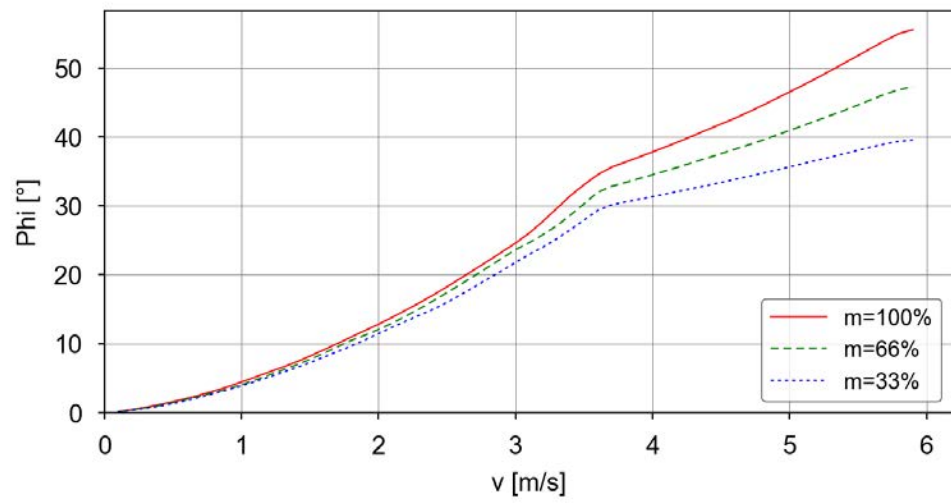


## Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time



Continues on next page

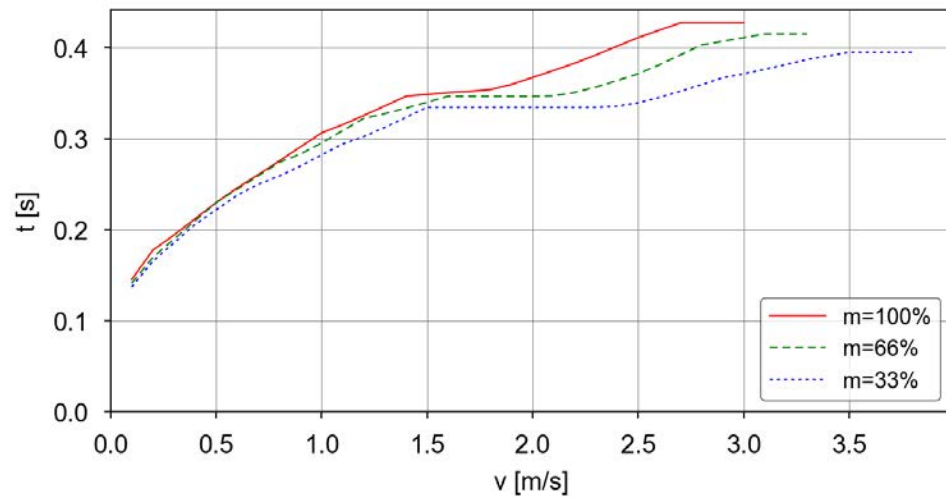
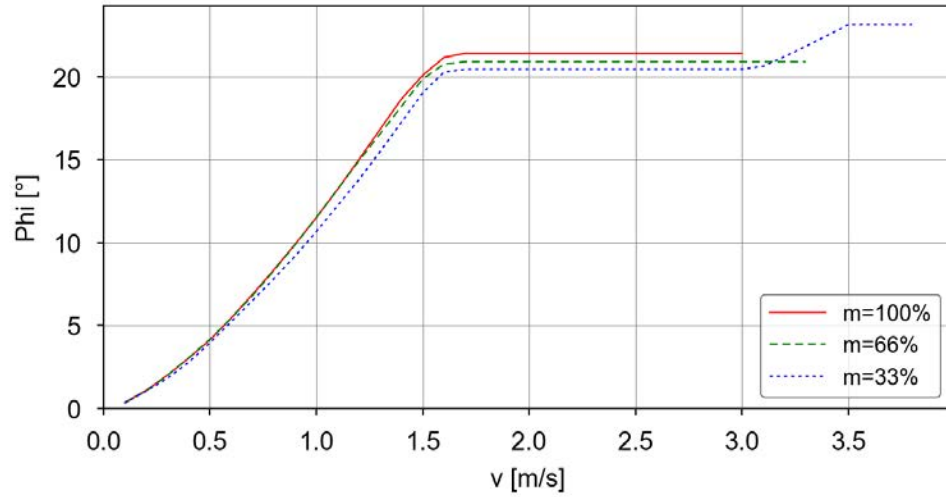
## 18 IRB 6700

18.5 IRB 6700 2.85 m 155 kg

Continued

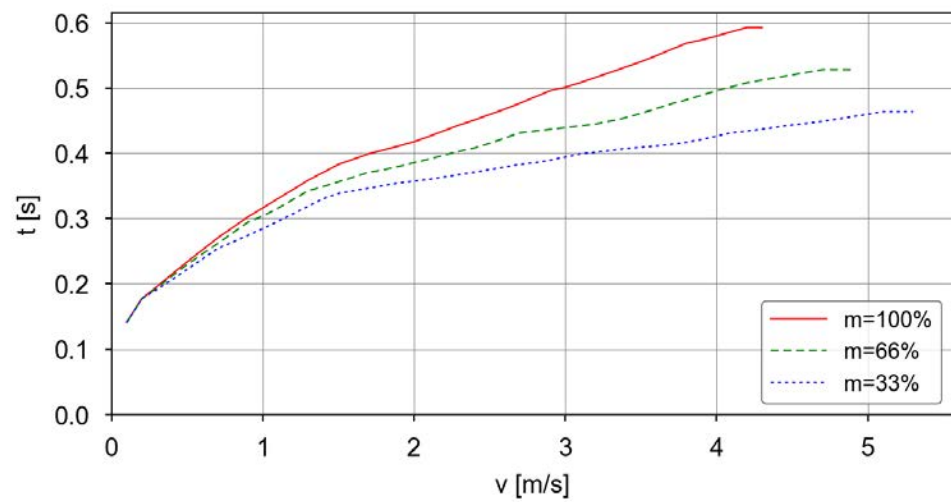
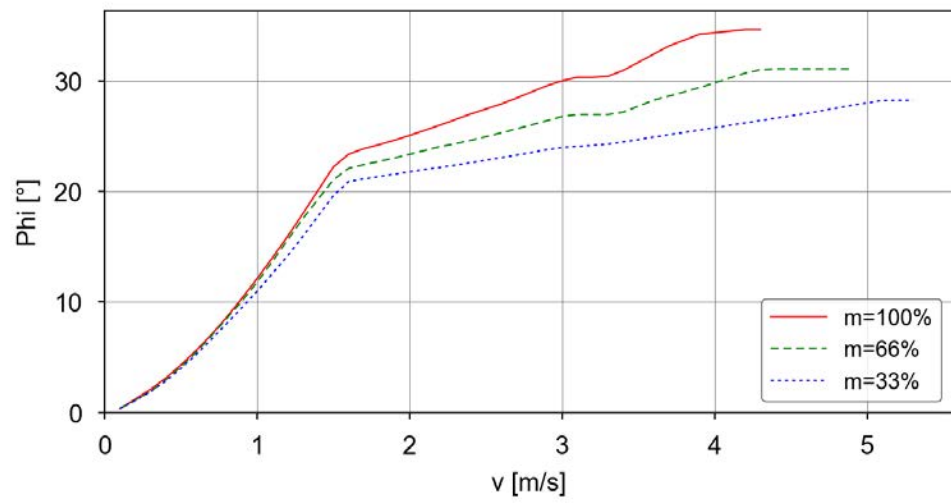
### Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



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Extension zone 1, stopping distance and stopping time



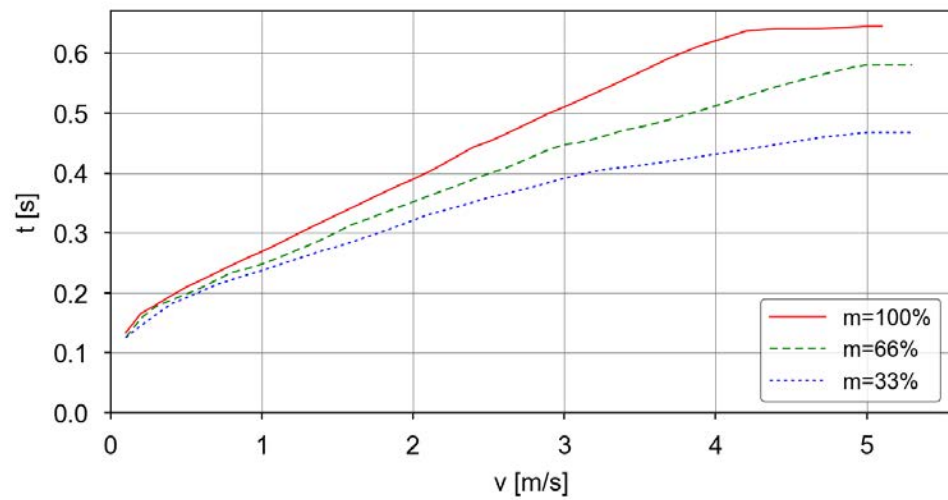
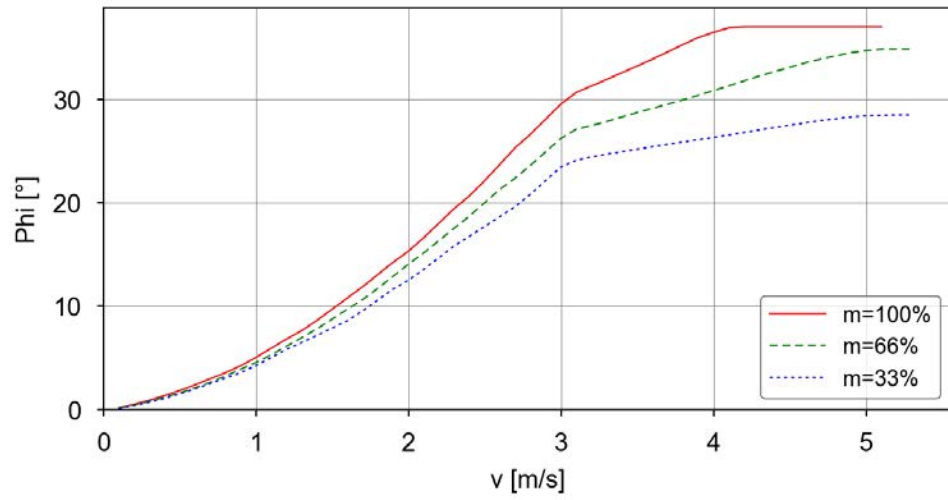
Continues on next page

# 18 IRB 6700

18.5 IRB 6700 2.85 m 155 kg

Continued

## Extension zone 2, stopping distance and stopping time

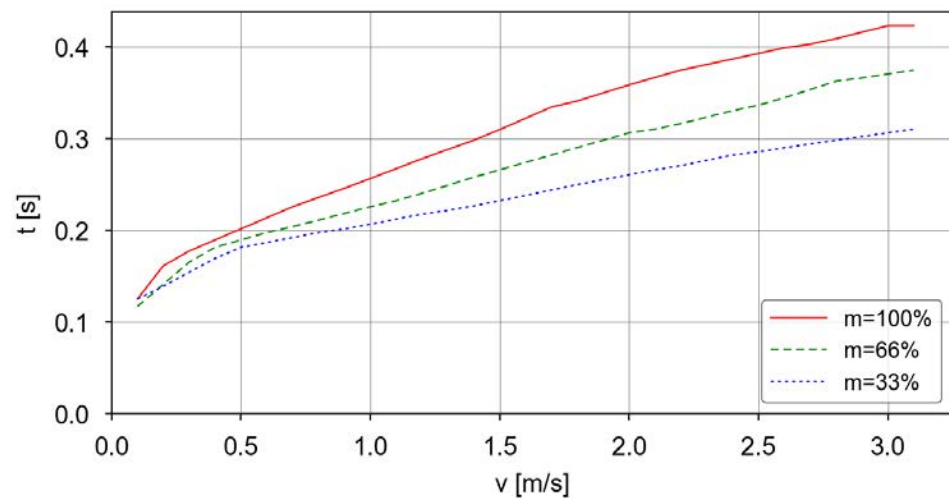
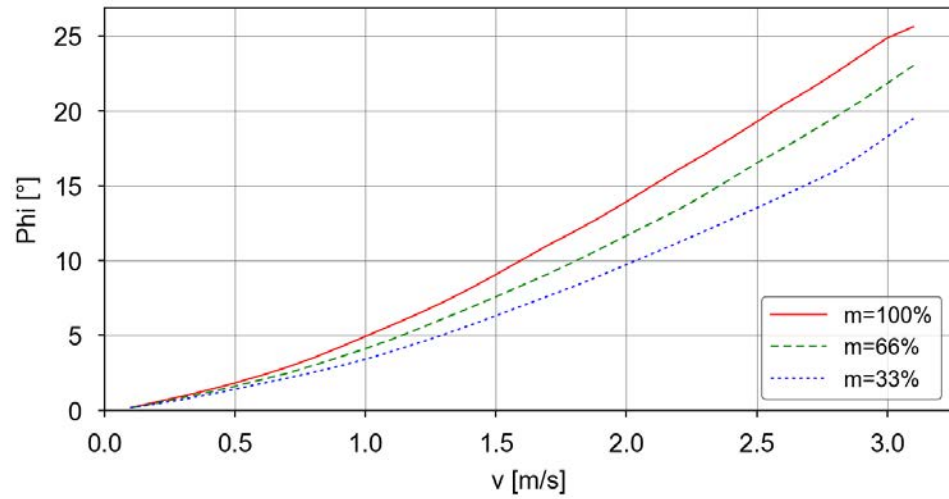


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Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



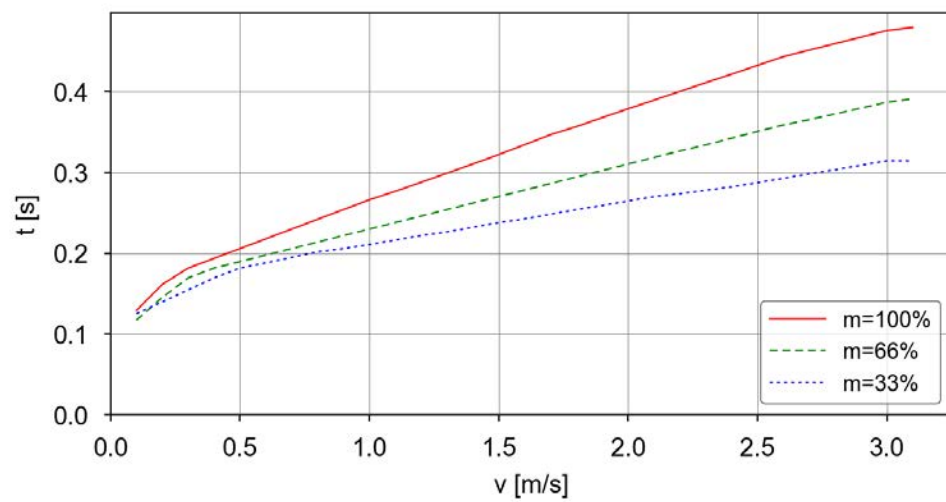
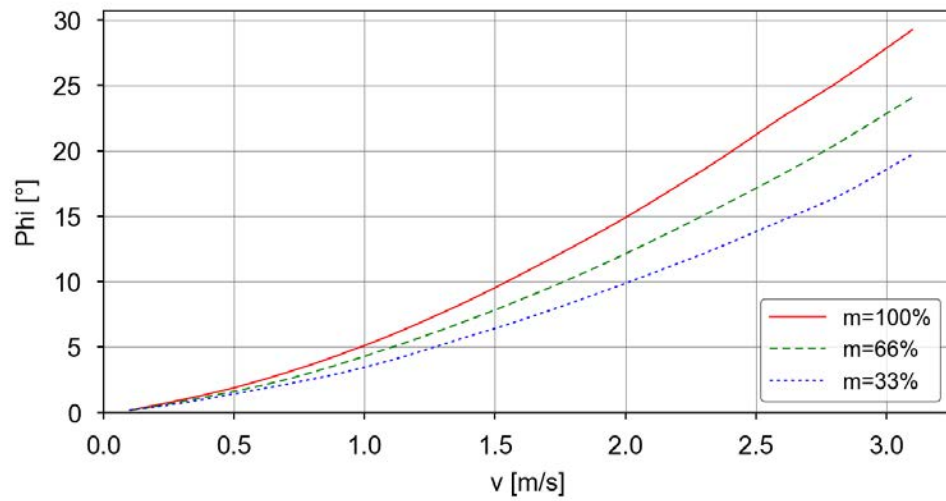
Continues on next page

## 18 IRB 6700

18.5 IRB 6700 2.85 m 155 kg

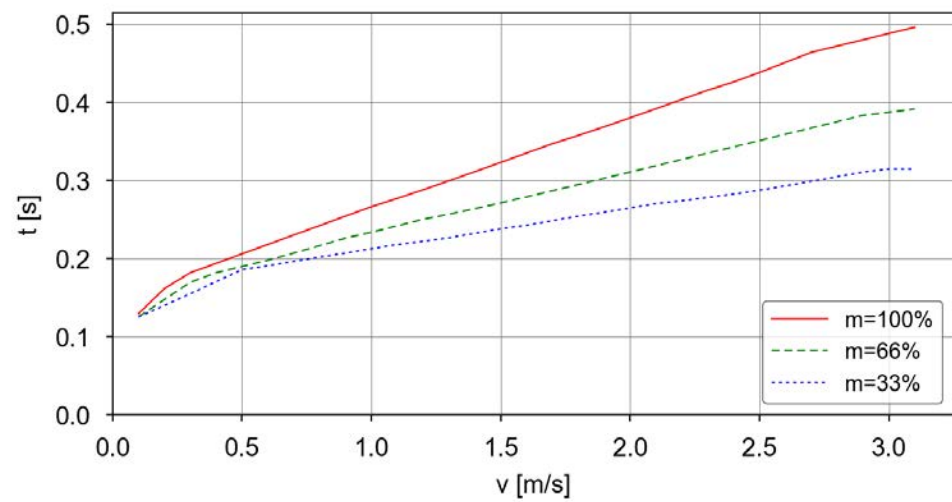
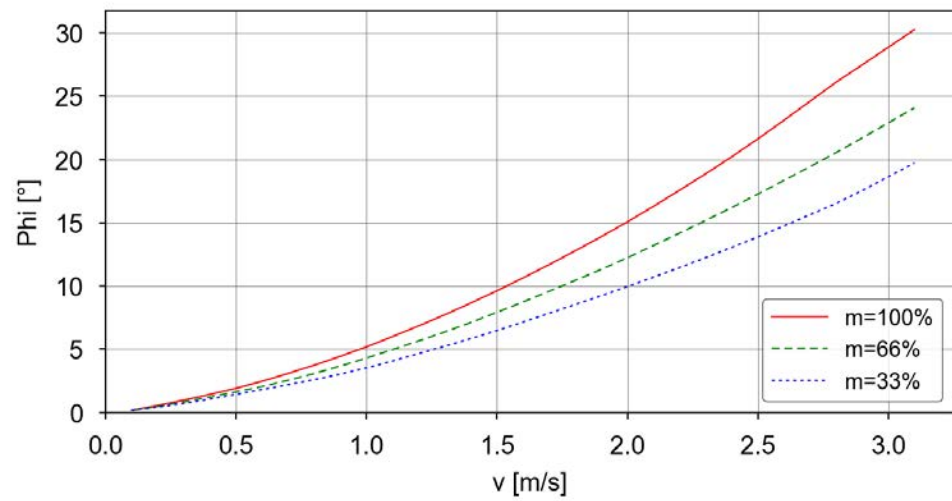
Continued

Extension zone 1, stopping distance and stopping time



Continues on next page

## Extension zone 2, stopping distance and stopping time



18.6 IRB 6700 3.00 m 245 kg

Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	38.8	0.68
2	21.7	0.39
3	17.9	0.29

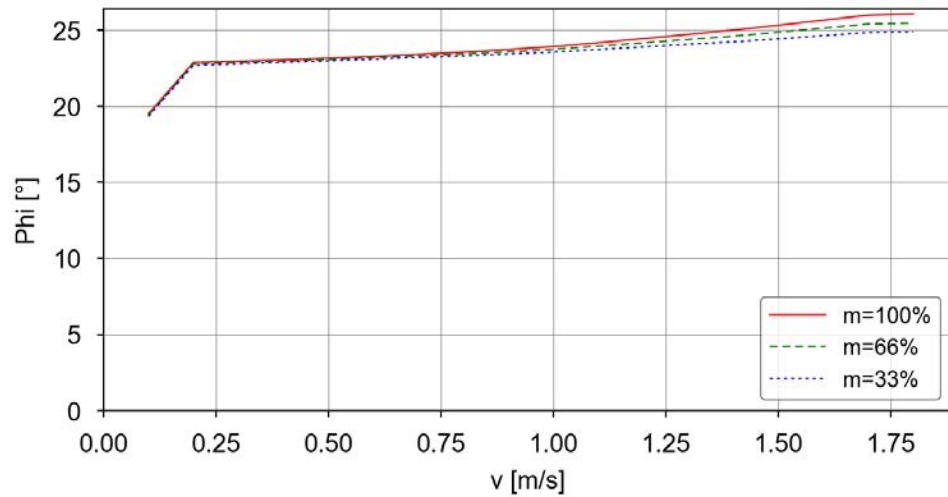
Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

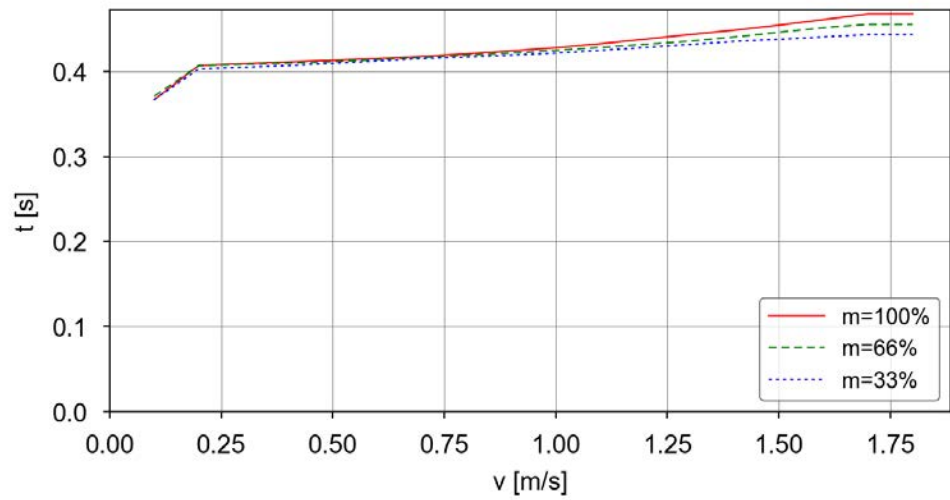
Zone	wcp min (m)	wcp max (m)
0	0	0.989
1	0.989	1.978
2	1.978	max reach

Category 1, Axis 1

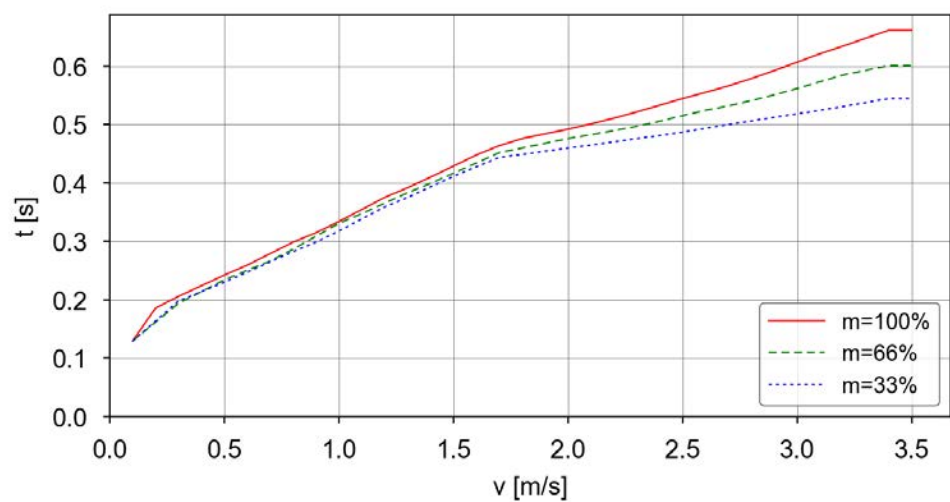
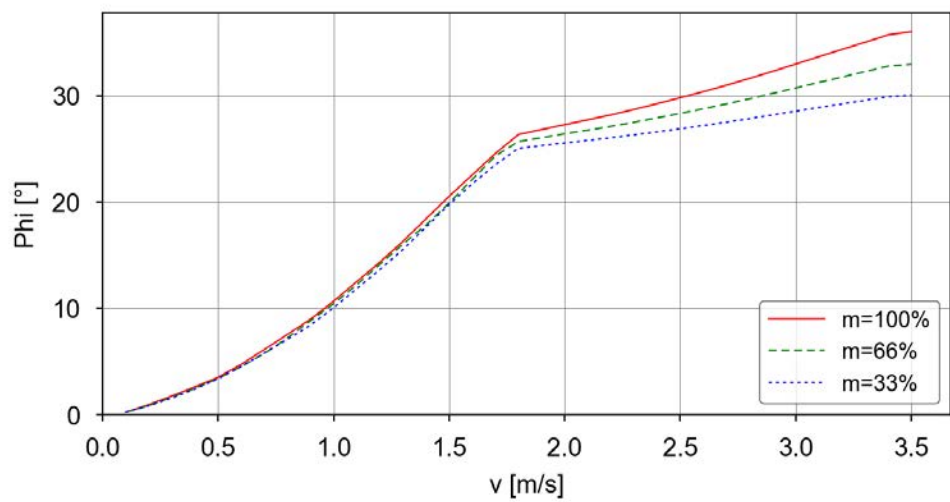
Extension zone 0, stopping distance and stopping time



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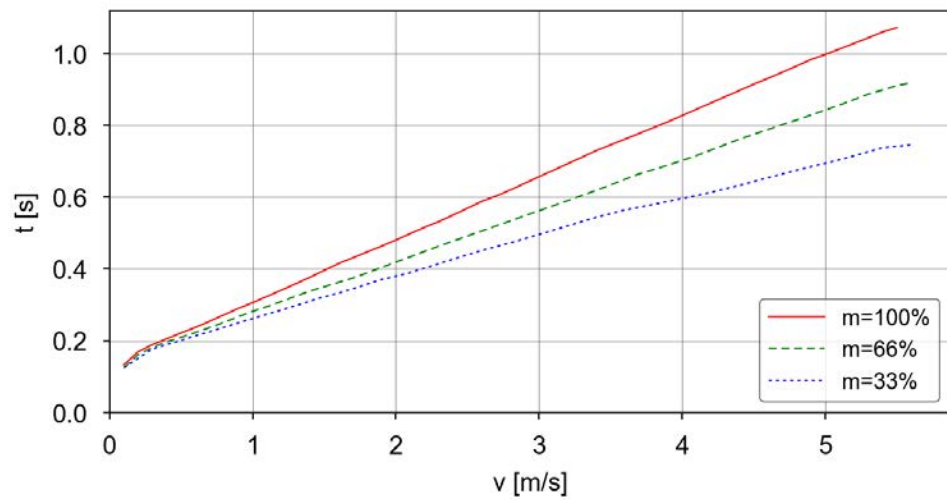
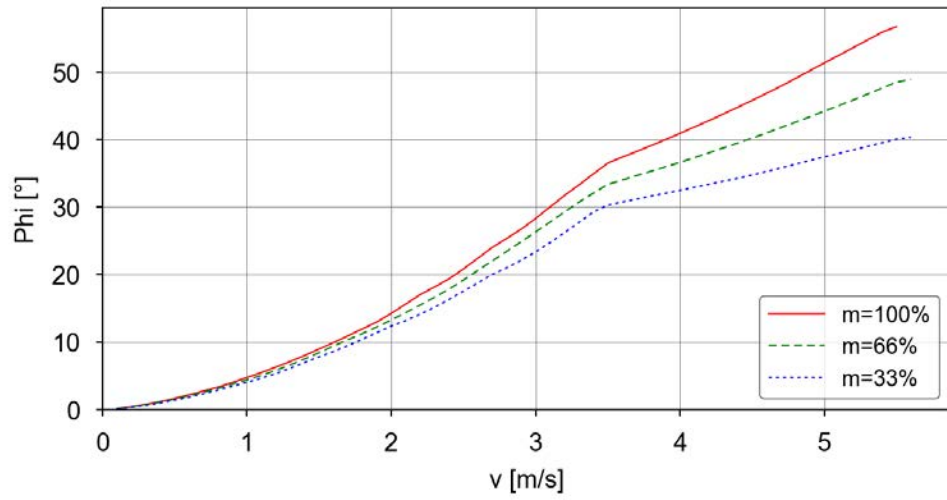


Extension zone 1, stopping distance and stopping time



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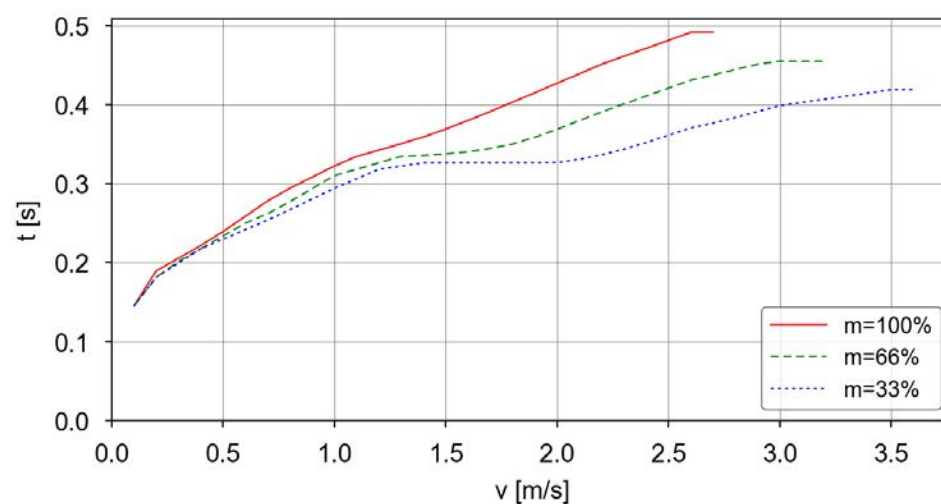
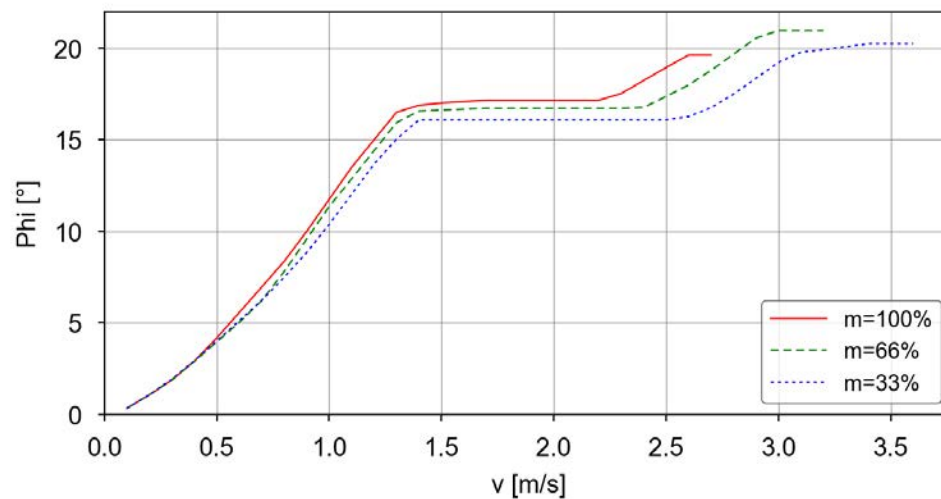
Extension zone 2, stopping distance and stopping time



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## Category 1, Axis 2

## Extension zone 0, stopping distance and stopping time



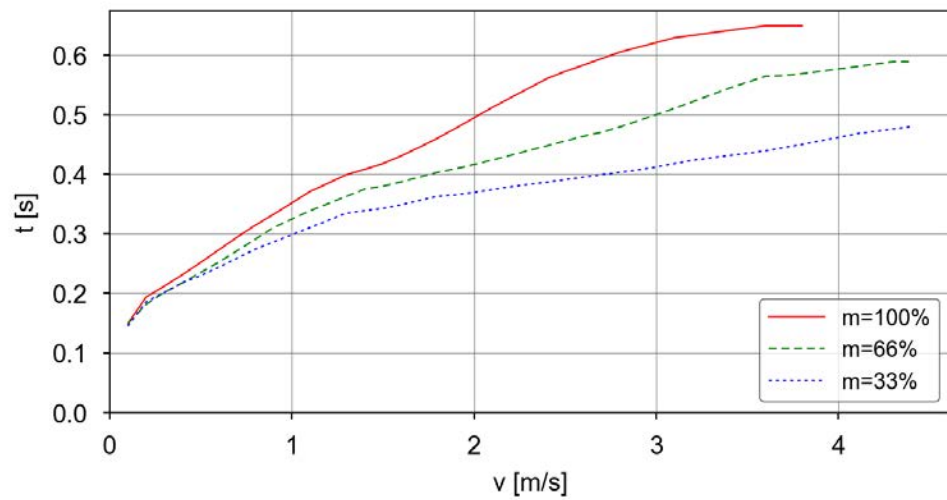
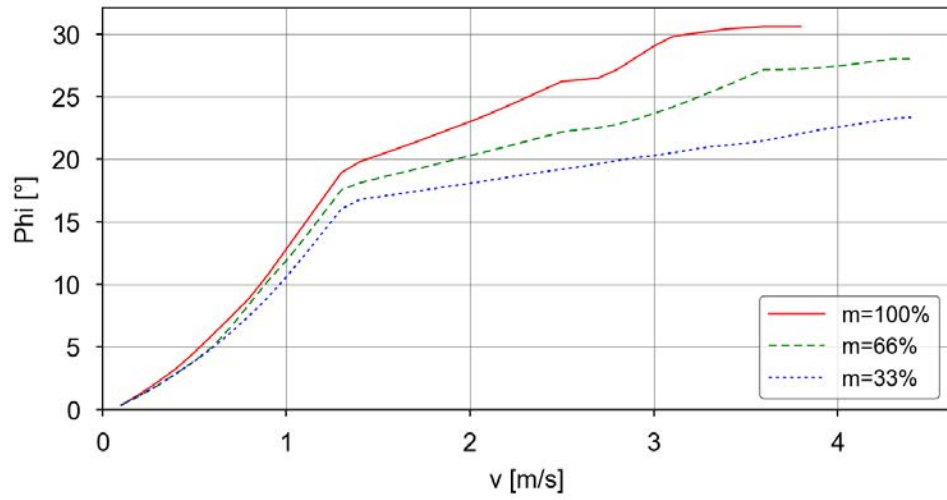
Continues on next page

# 18 IRB 6700

18.6 IRB 6700 3.00 m 245 kg

Continued

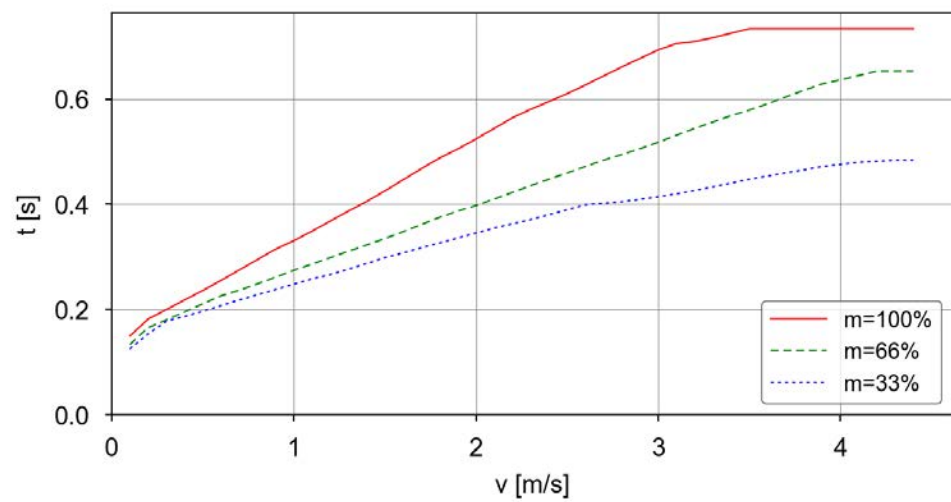
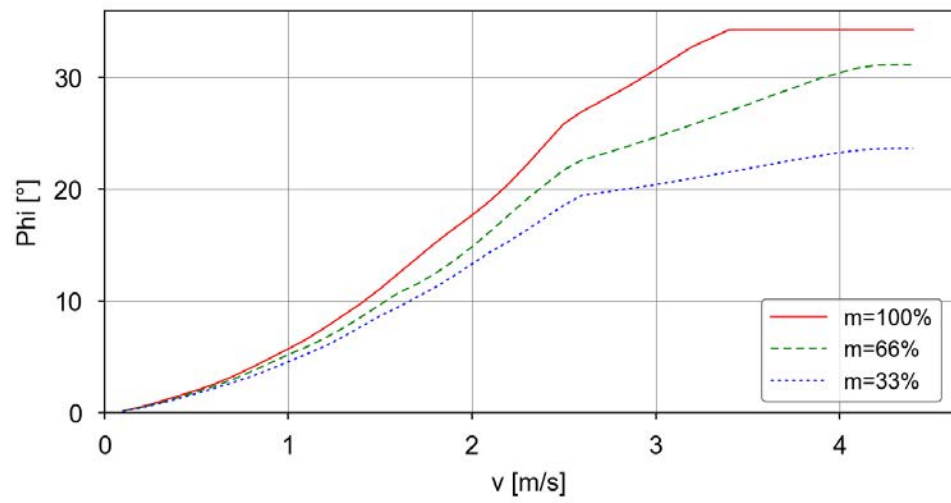
## Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time



Continues on next page

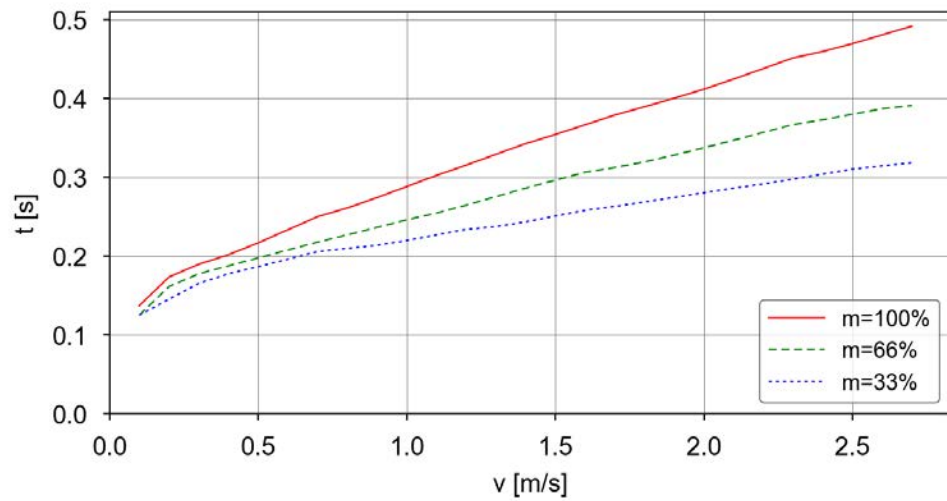
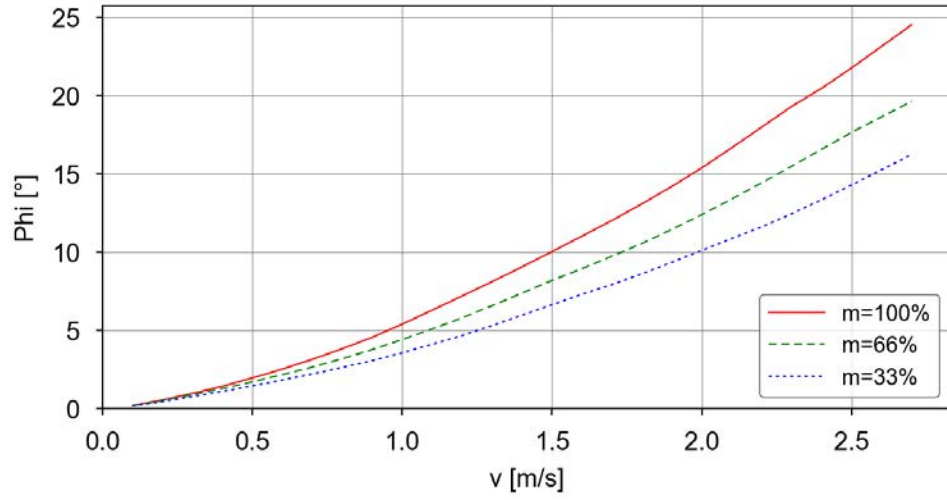
# 18 IRB 6700

18.6 IRB 6700 3.00 m 245 kg

Continued

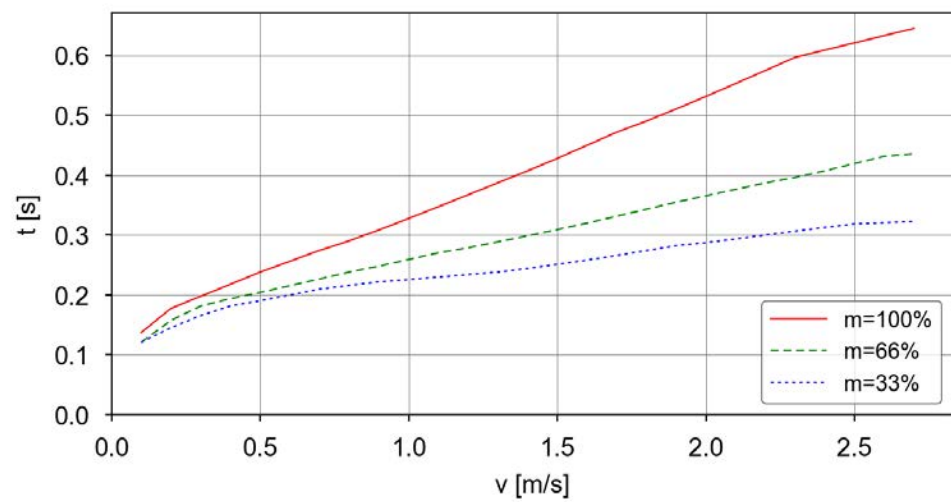
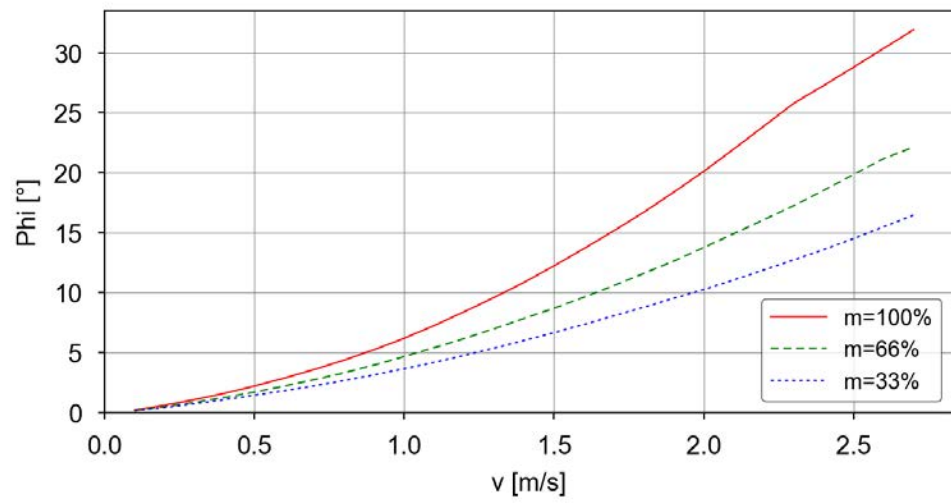
## Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



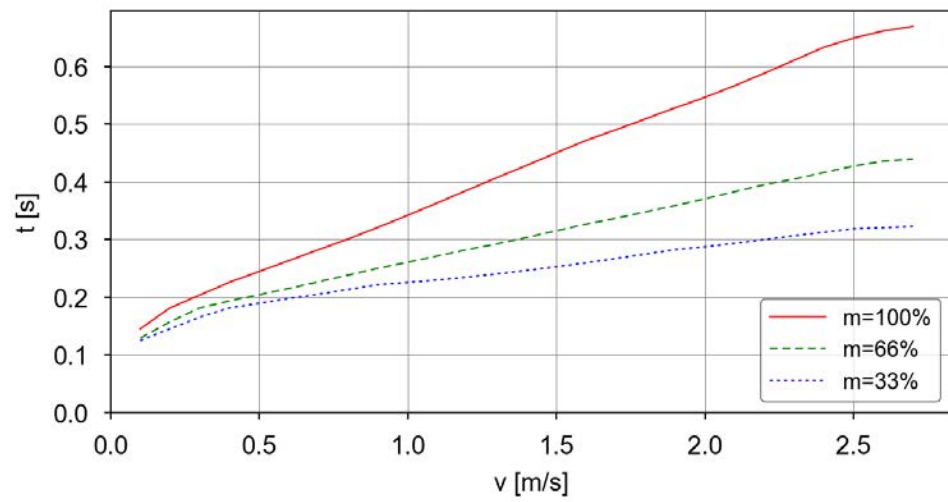
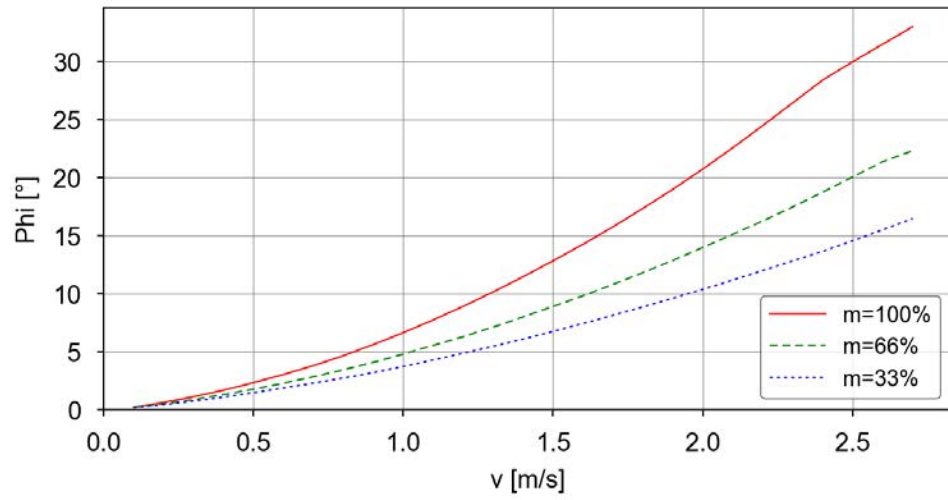
Continues on next page

Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



## 18.7 IRB 6700 3.05 m 175 kg

### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	40.9	0.73
2	21.1	0.37
3	15.6	0.25

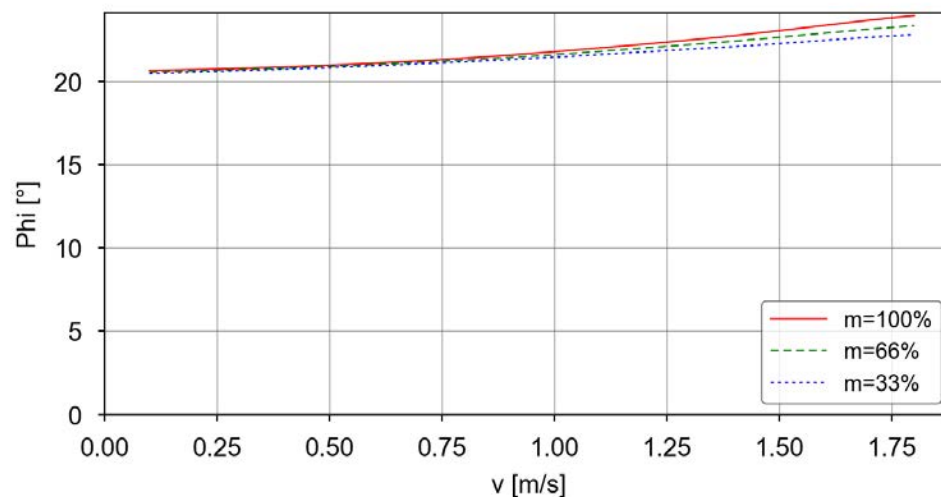
### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	1.019
1	1.019	2.037
2	2.037	max reach

### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

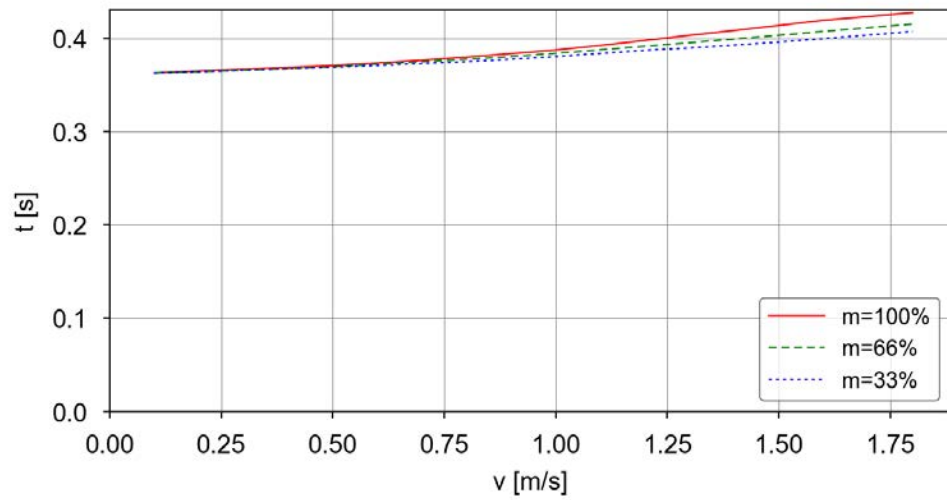


*Continues on next page*

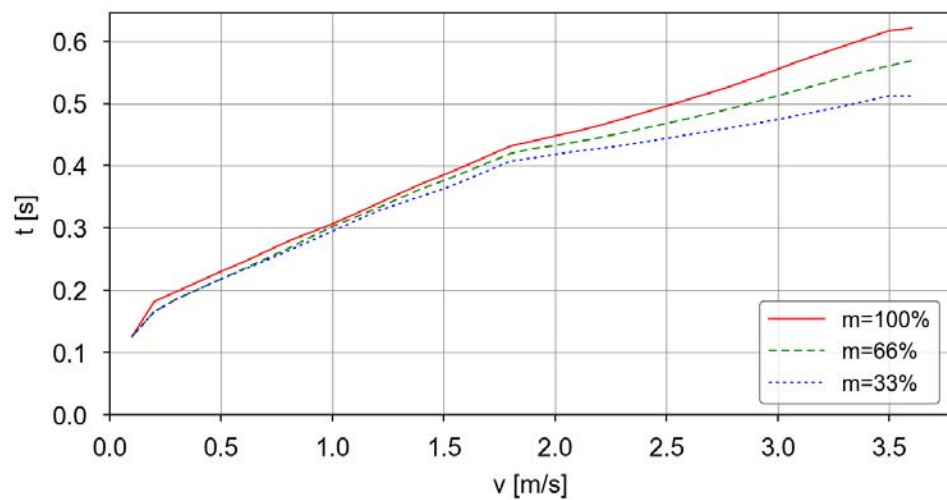
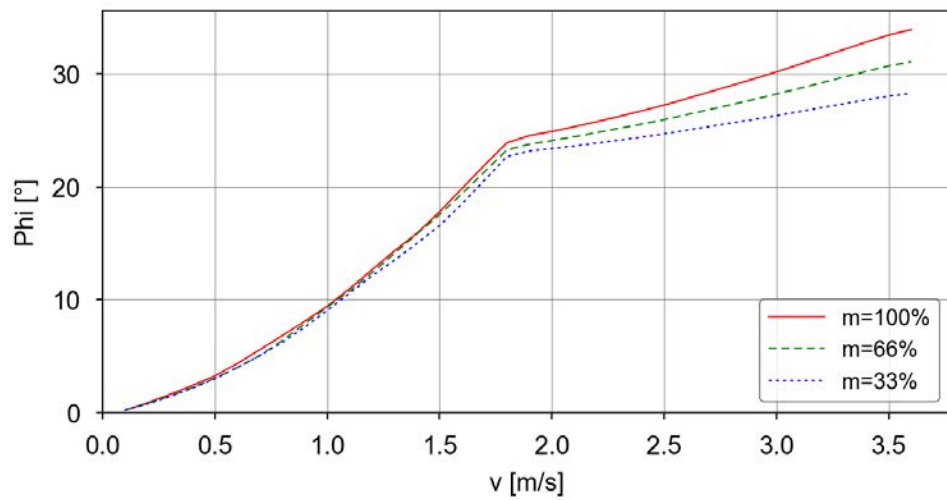
# 18 IRB 6700

18.7 IRB 6700 3.05 m 175 kg

Continued

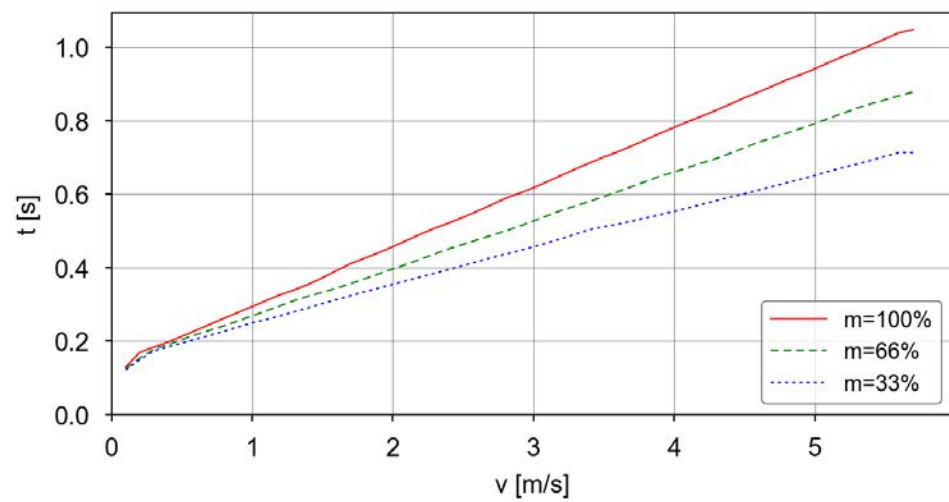
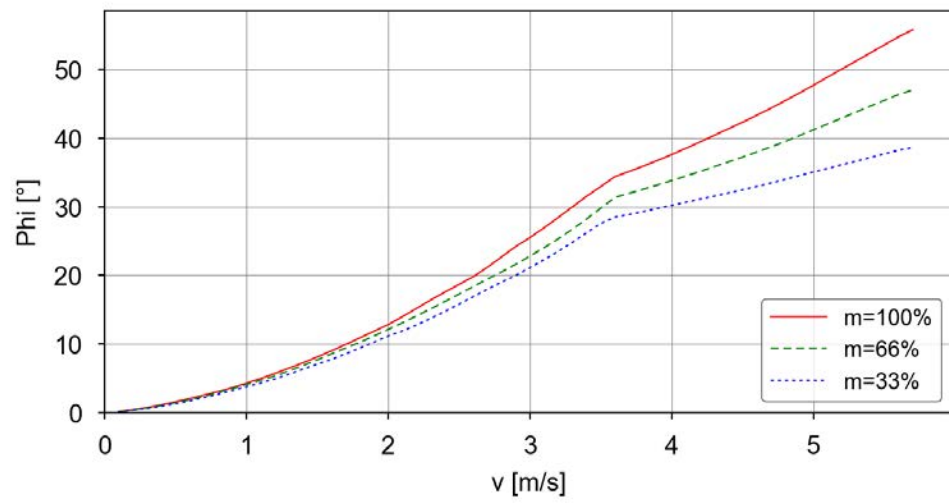


## Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

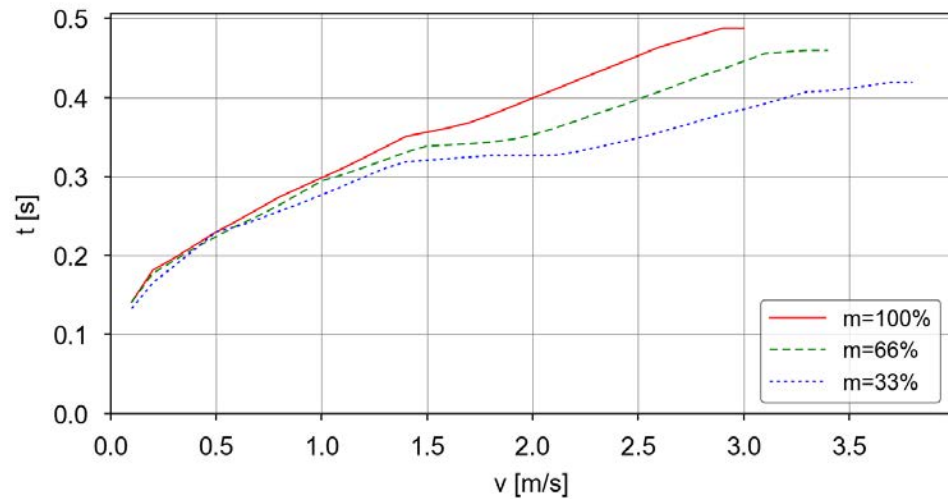
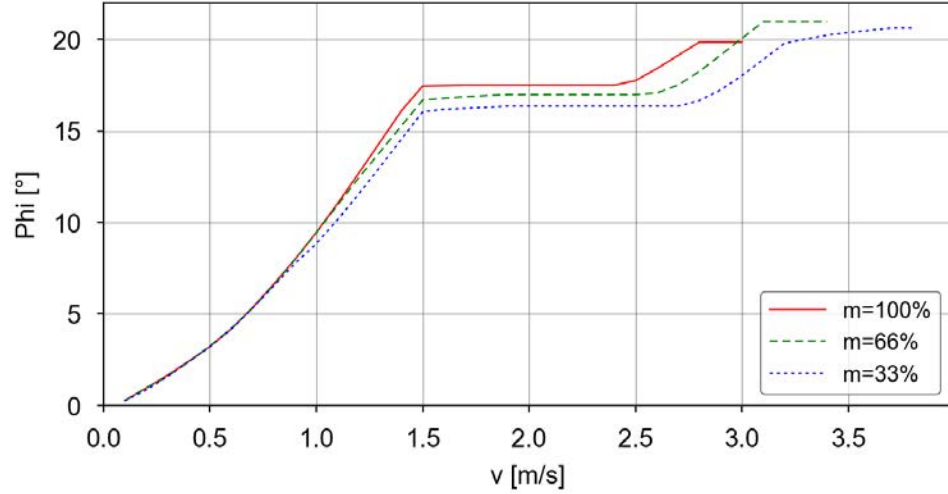
# 18 IRB 6700

18.7 IRB 6700 3.05 m 175 kg

Continued

## Category 1, Axis 2

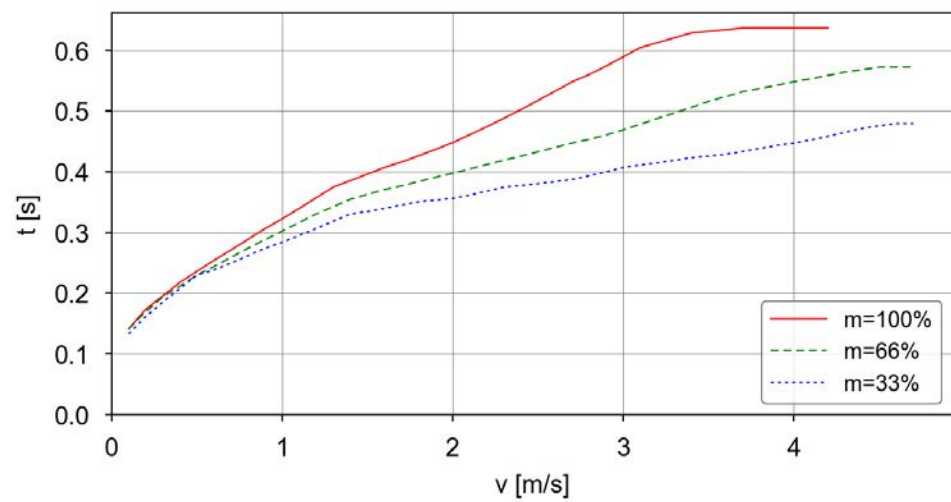
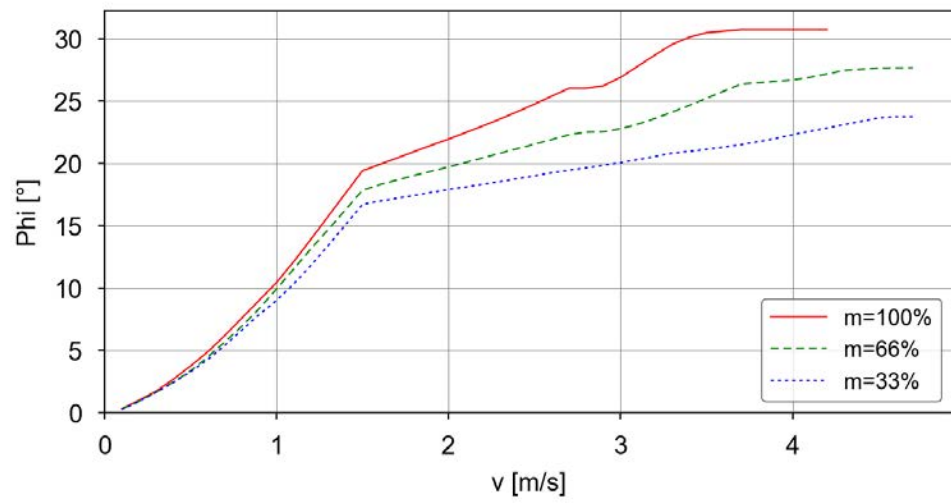
Extension zone 0, stopping distance and stopping time



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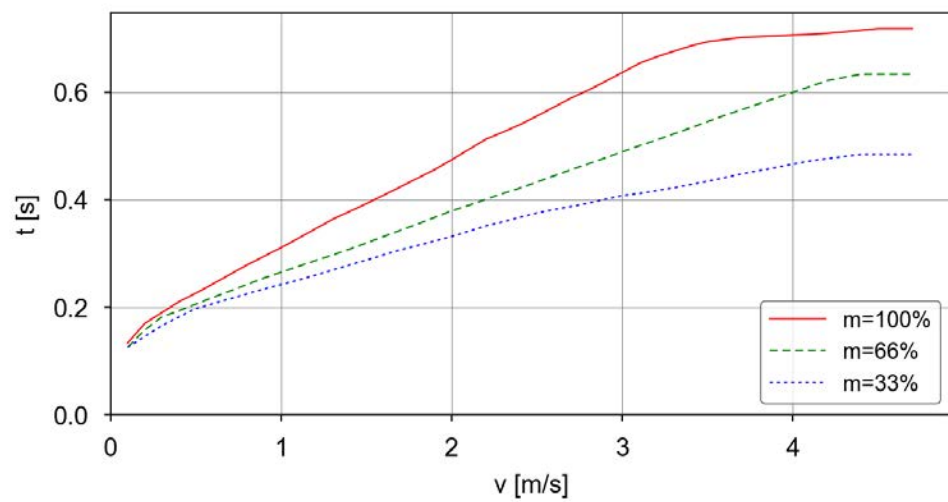
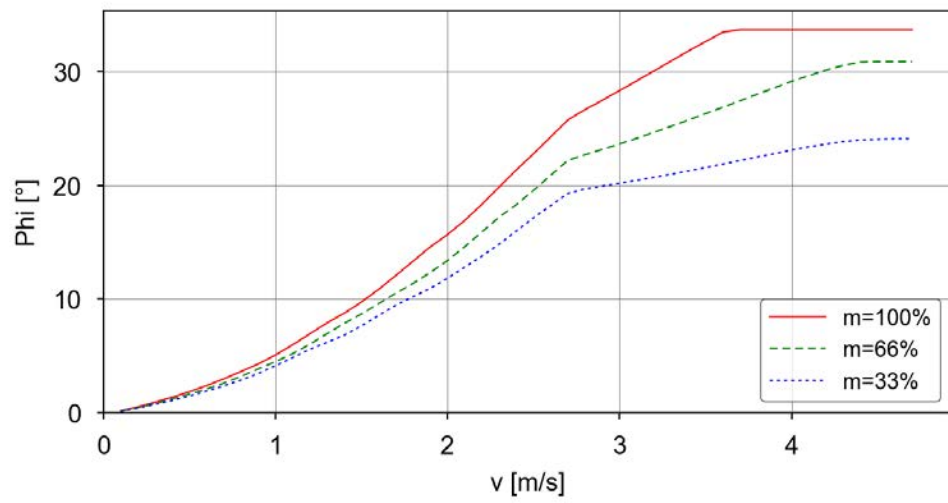


Extension zone 1, stopping distance and stopping time



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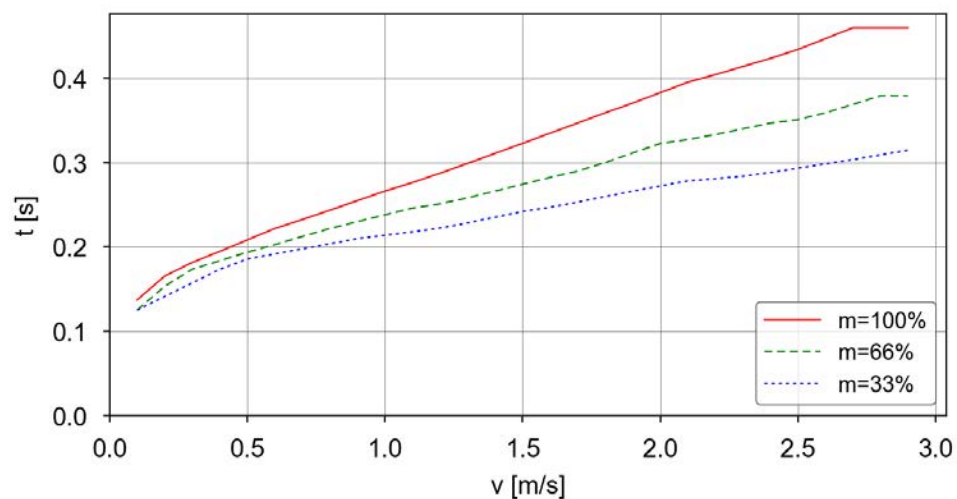
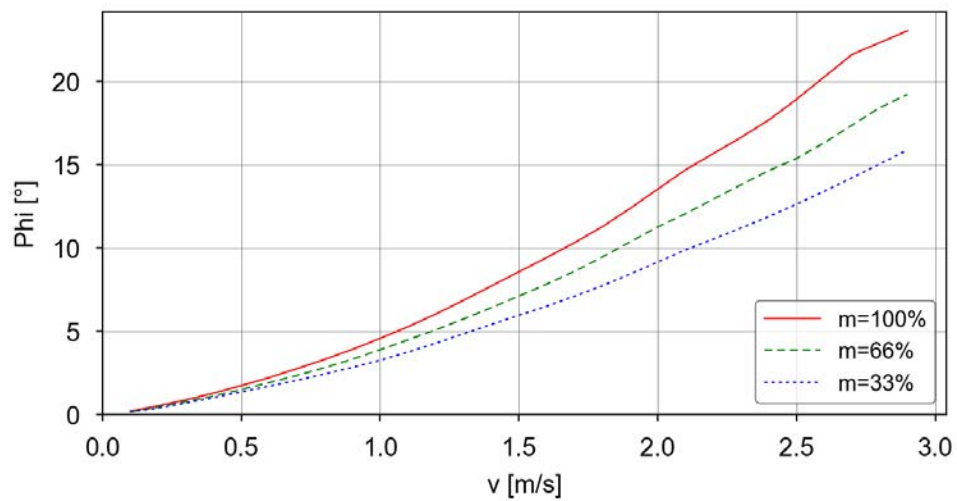
Extension zone 2, stopping distance and stopping time



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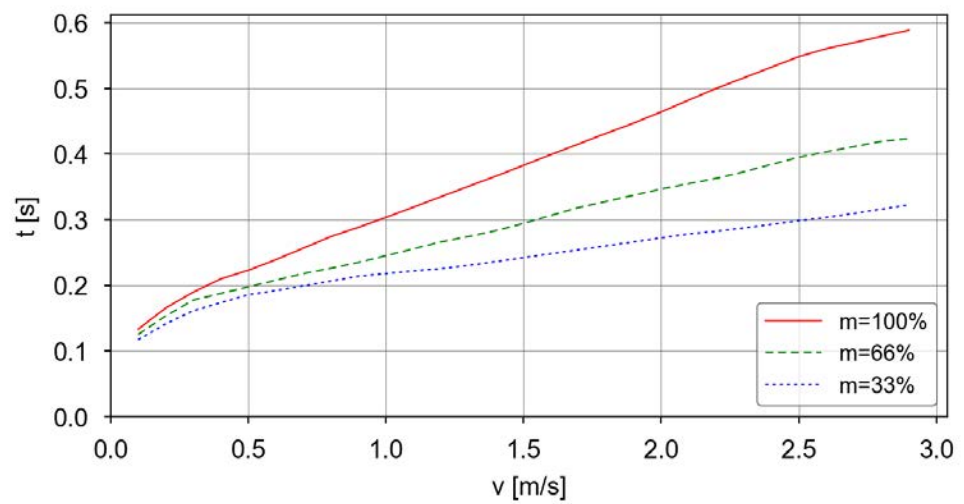
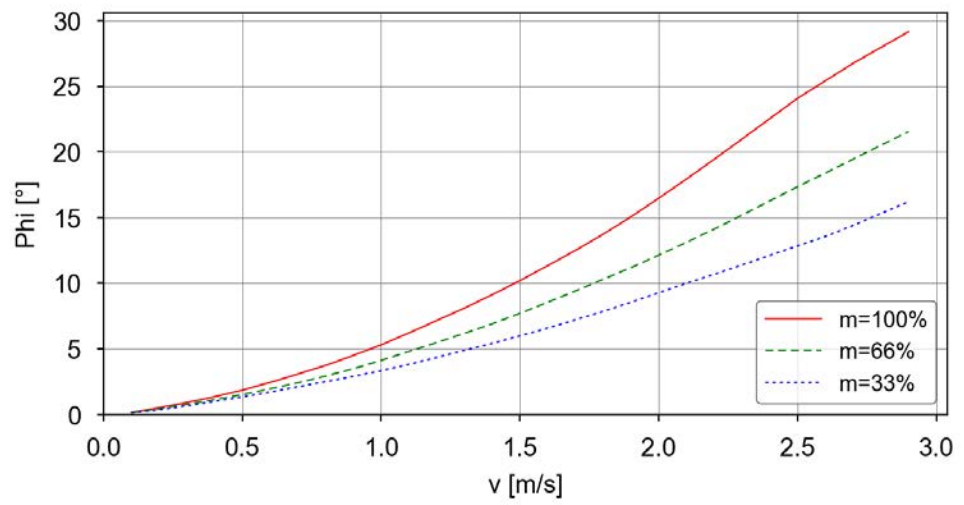
Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



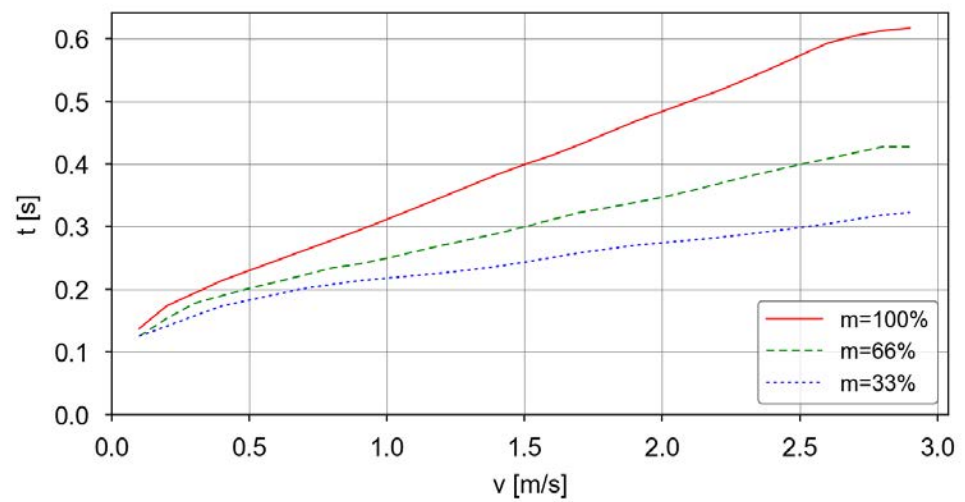
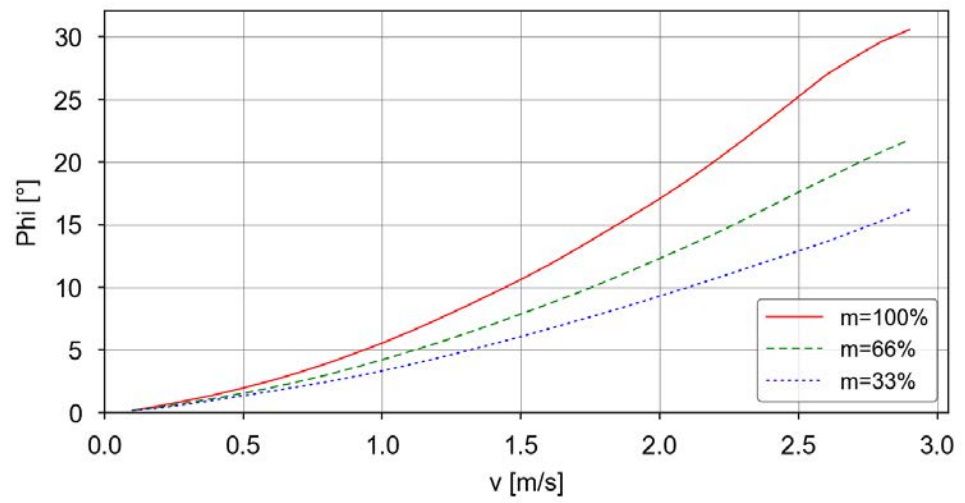
Continues on next page

Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time



18.8 IRB 6700 3.20 m 150 kg

Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	41.7	0.75
2	21.3	0.39
3	15.7	0.25

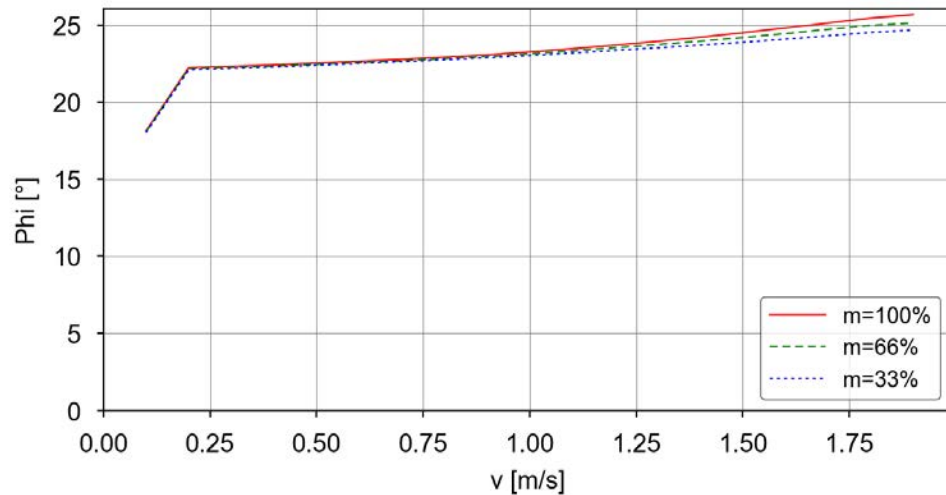
Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

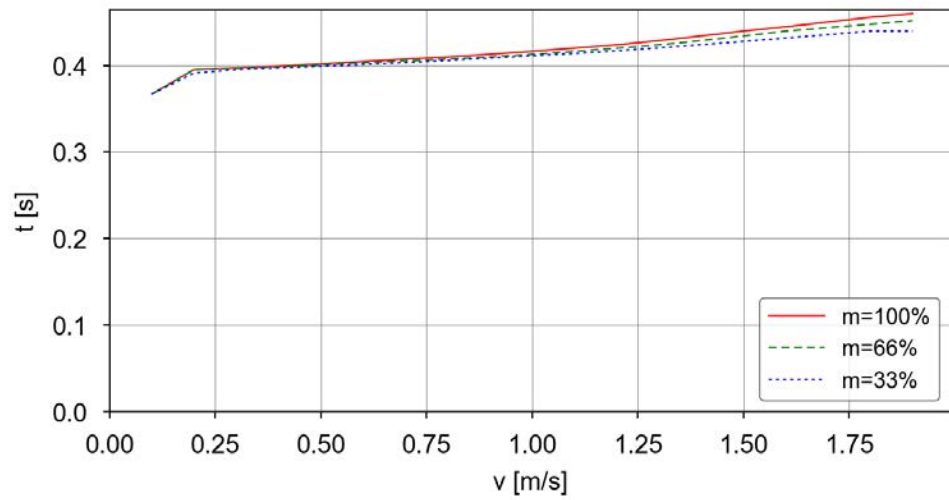
Zone	wcp min (m)	wcp max (m)
0	0	1.067
1	1.067	2.133
2	2.133	max reach

Category 1, Axis 1

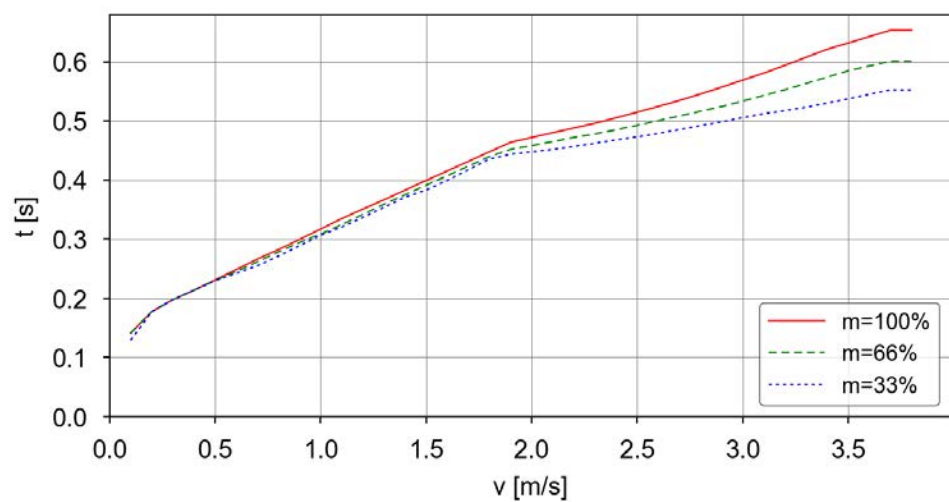
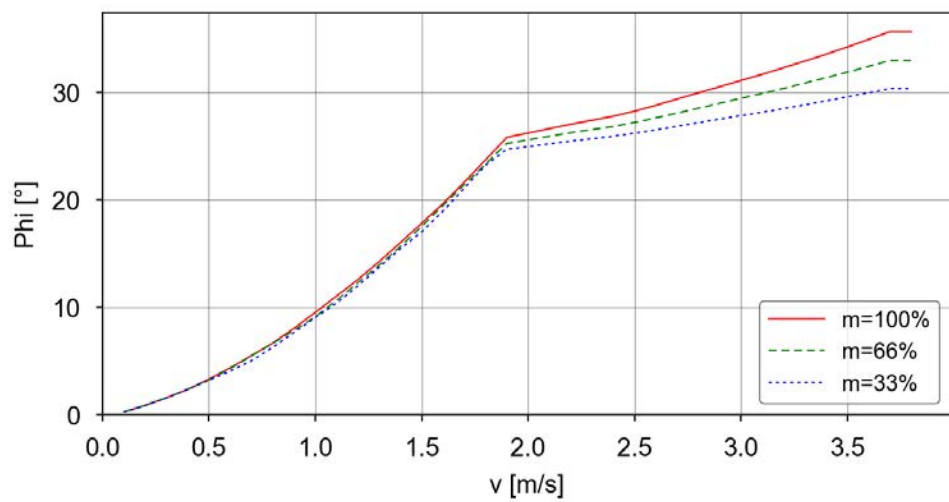
Extension zone 0, stopping distance and stopping time



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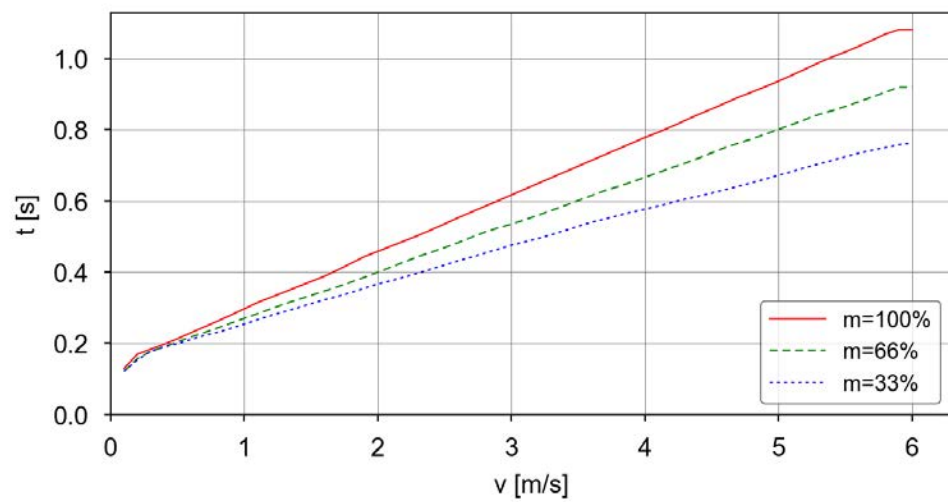
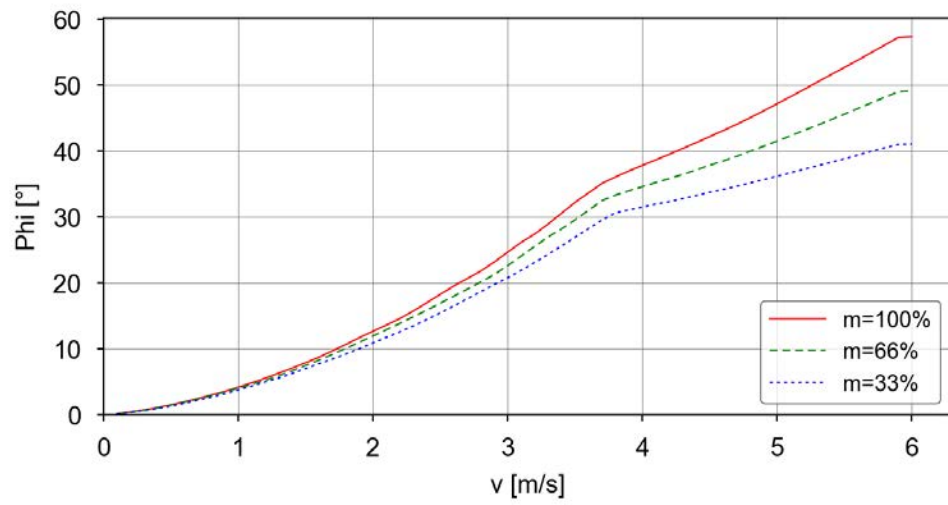


Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time

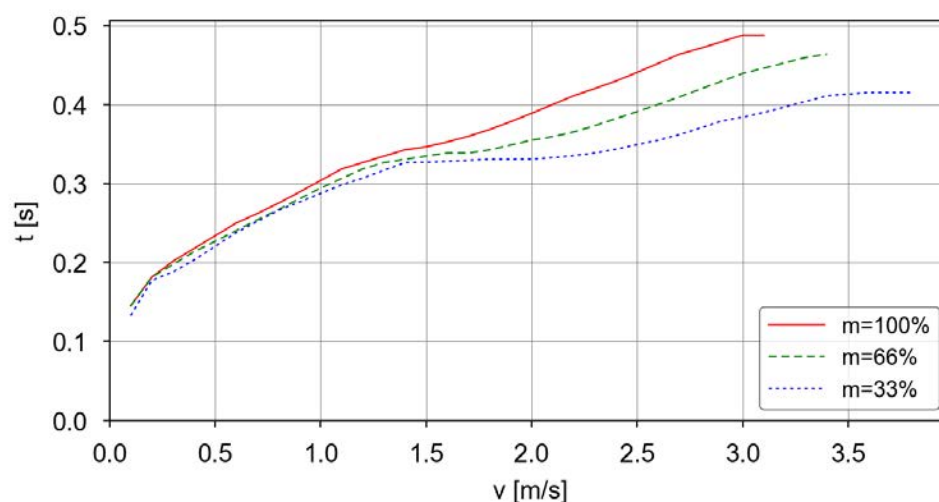
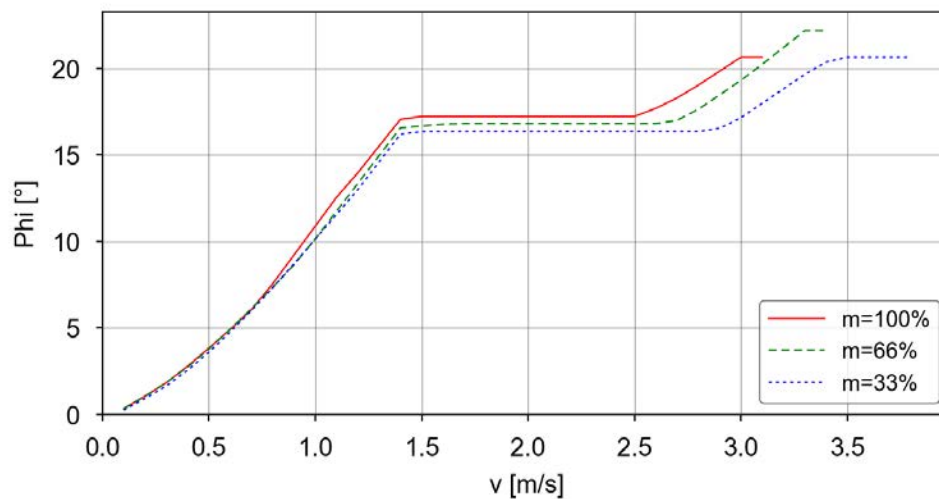


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Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



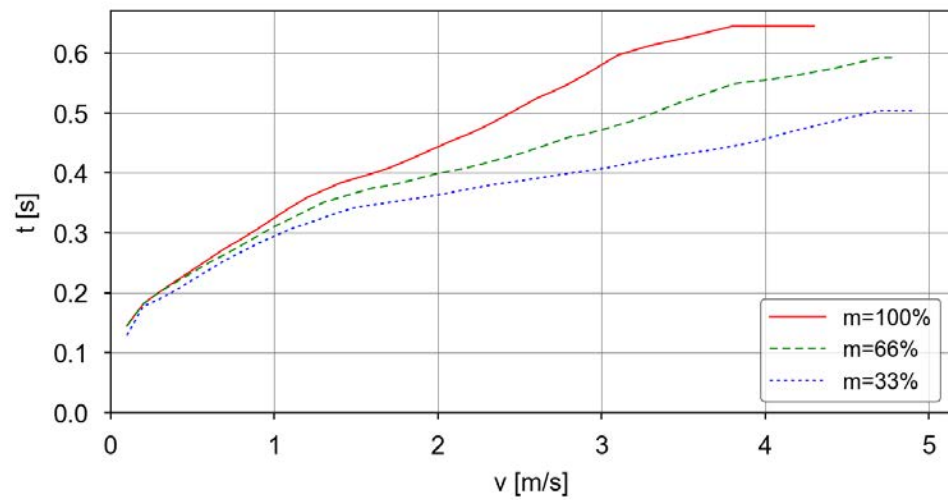
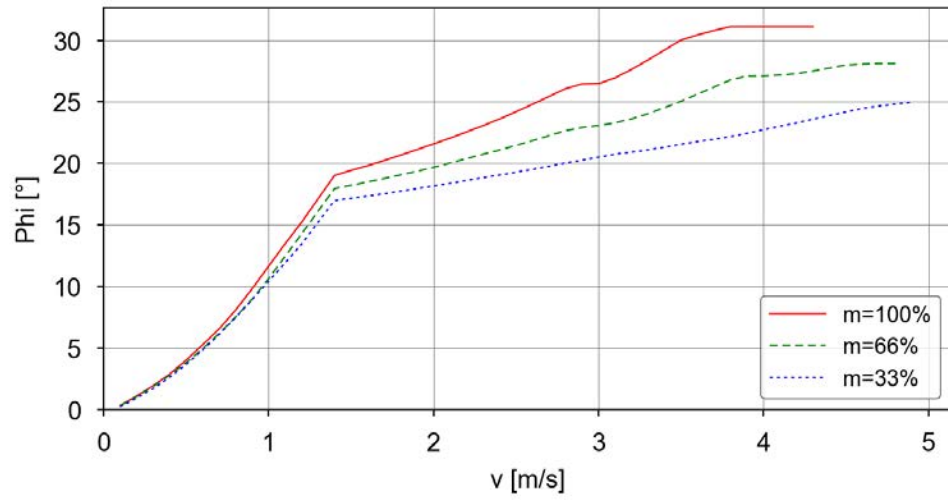
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# 18 IRB 6700

18.8 IRB 6700 3.20 m 150 kg

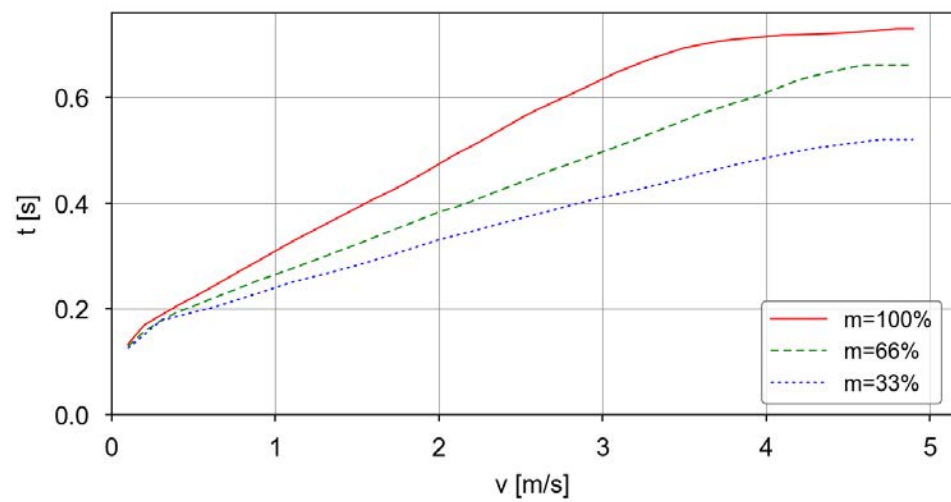
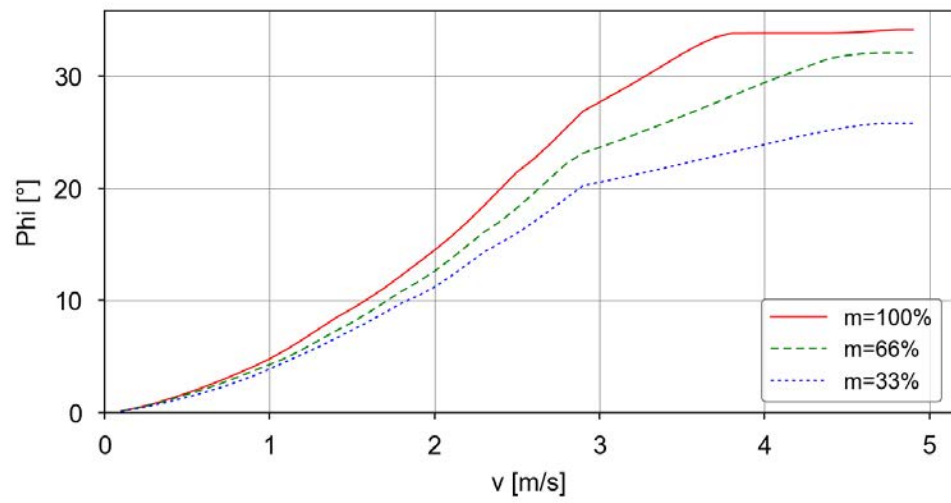
Continued

## Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

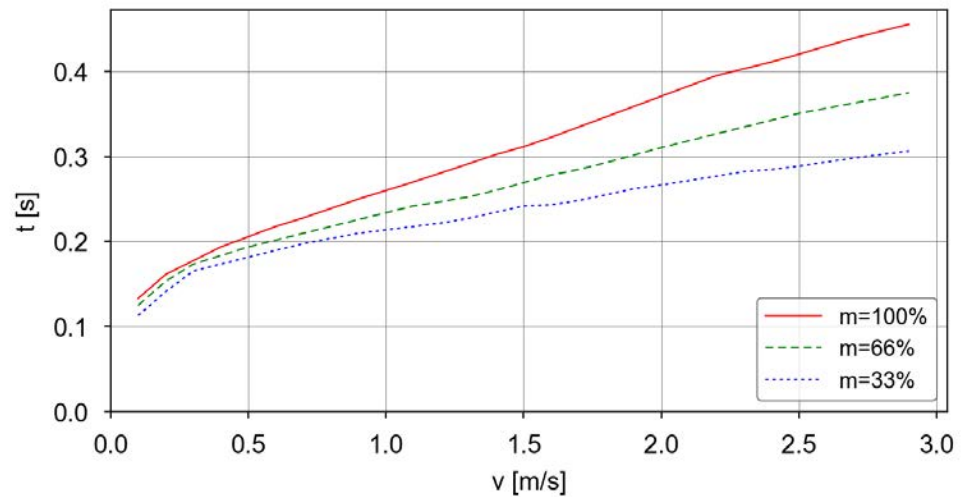
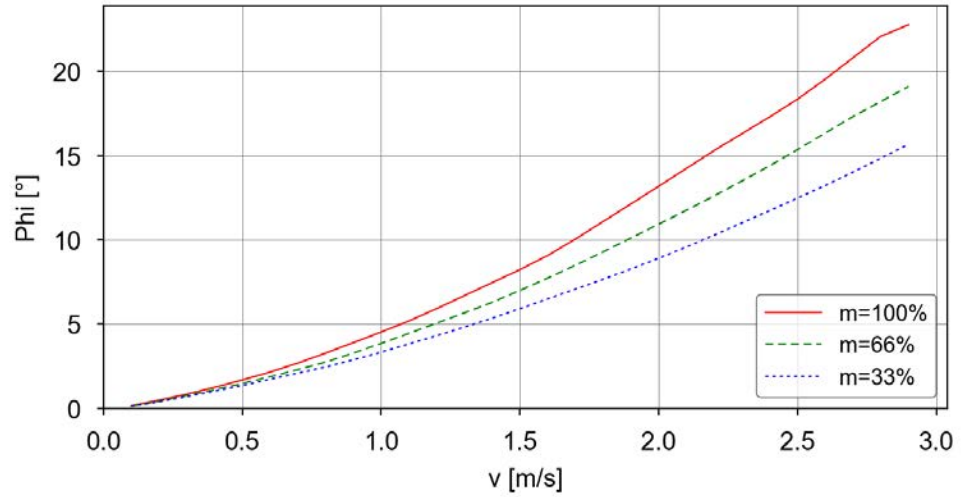
## 18 IRB 6700

18.8 IRB 6700 3.20 m 150 kg

Continued

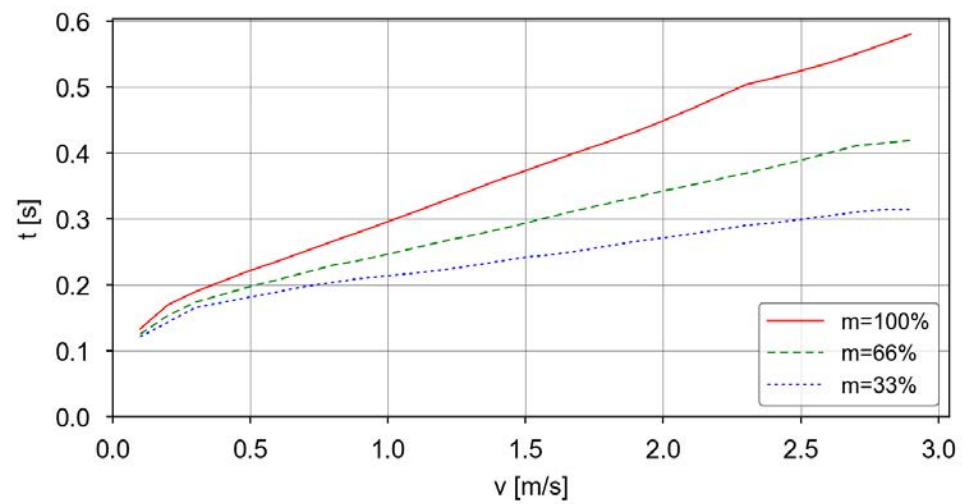
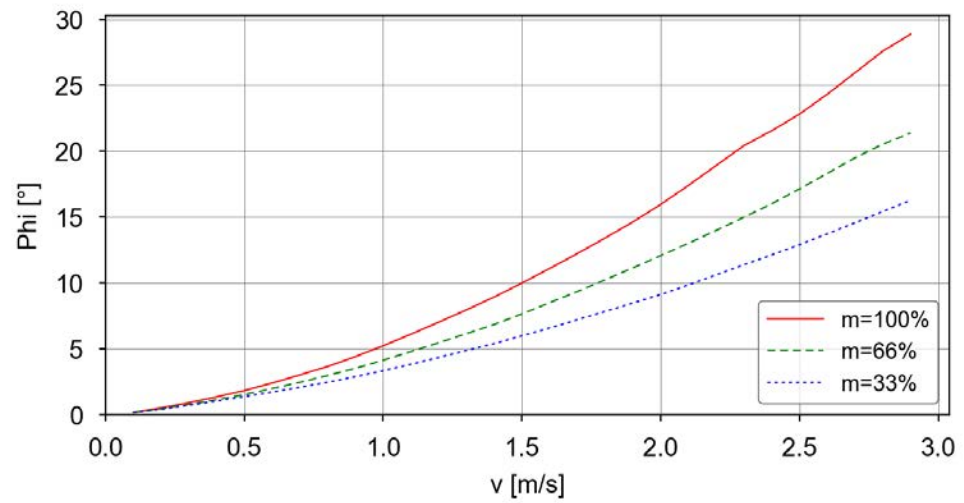
### Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



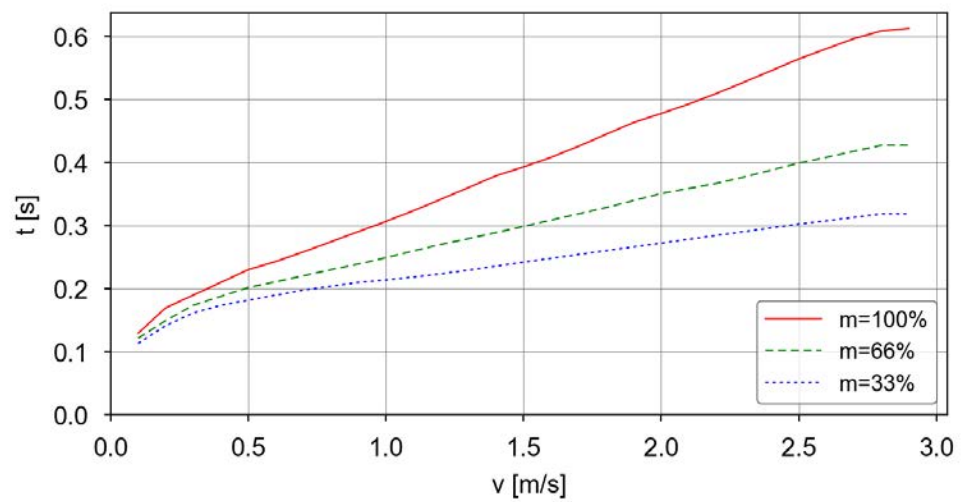
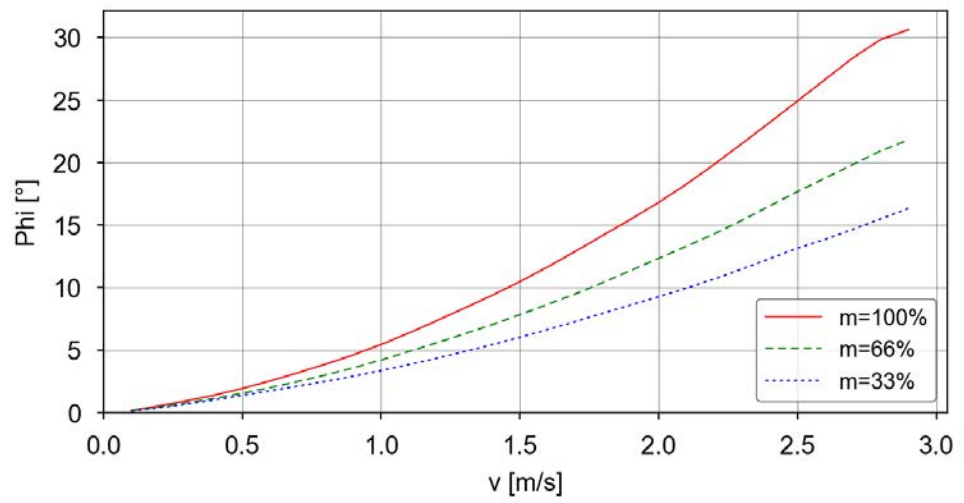
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## Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



## 18.9 IRB 6700Inv LeanID m 2.60 kg

### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	33.1	0.58
2	21.0	0.37
3	14.7	0.22

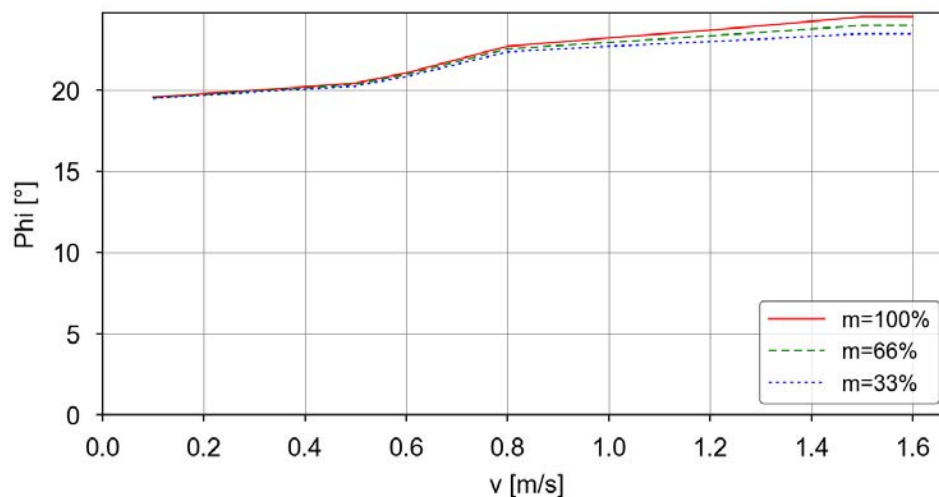
### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.872
1	0.872	1.744
2	1.744	max reach

### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

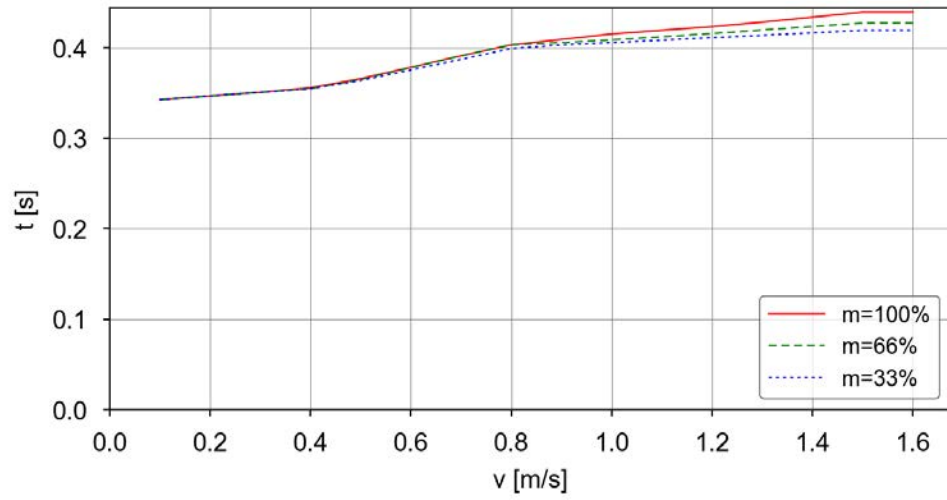


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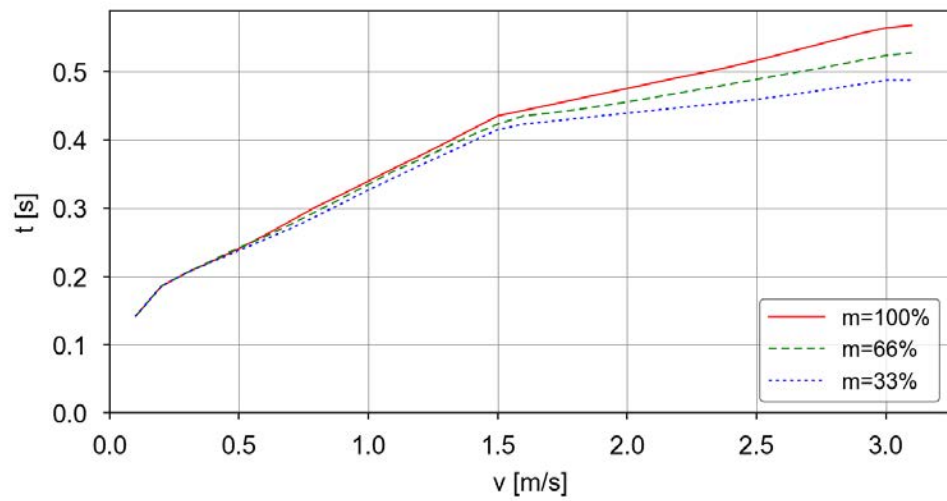
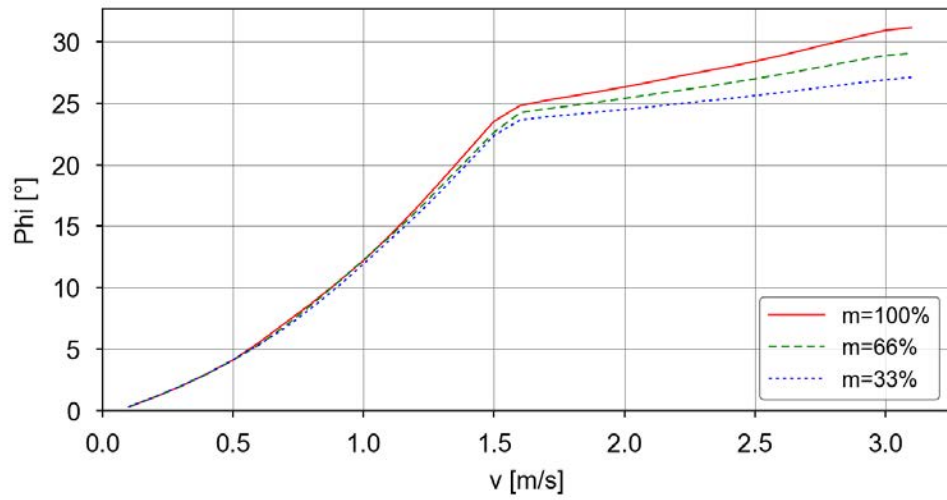
# 18 IRB 6700

18.9 IRB 6700Inv LeanID m 2.60 kg

Continued



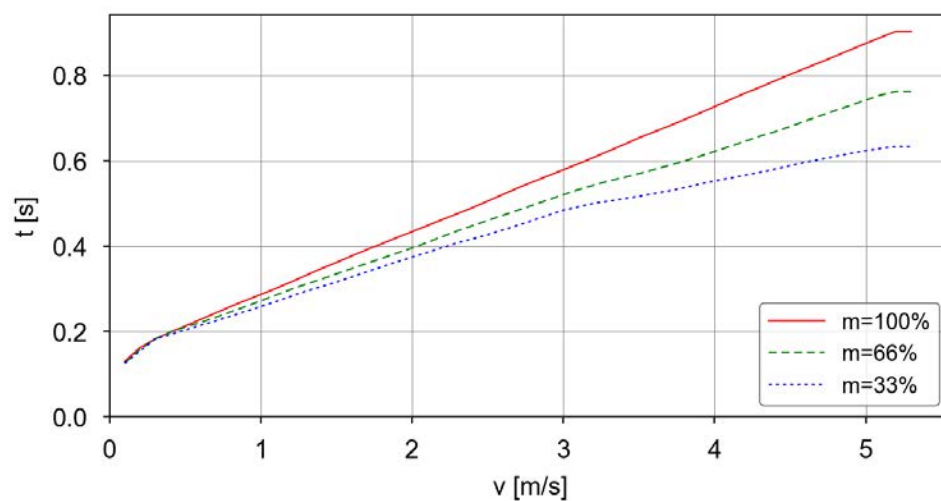
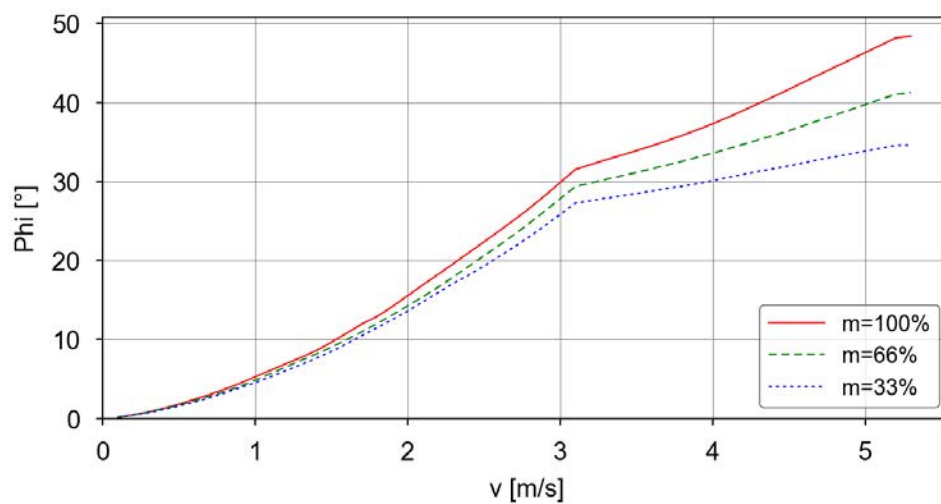
## Extension zone 1, stopping distance and stopping time



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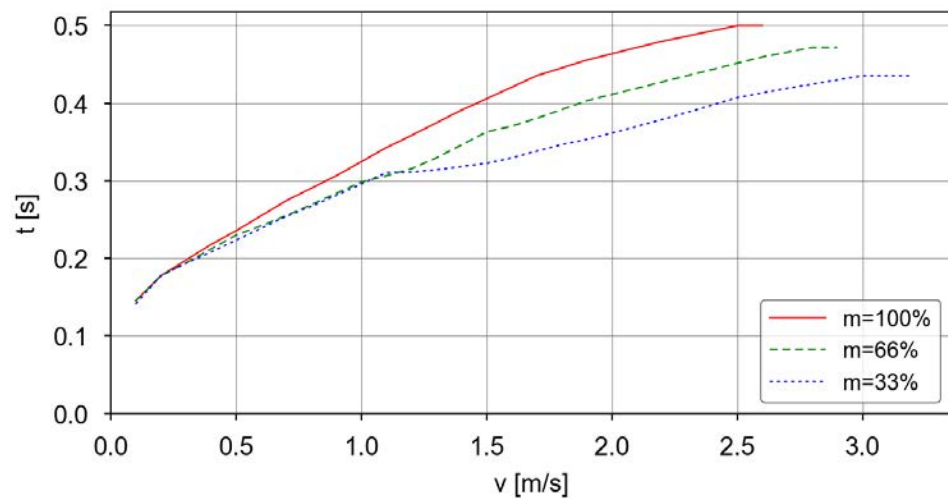
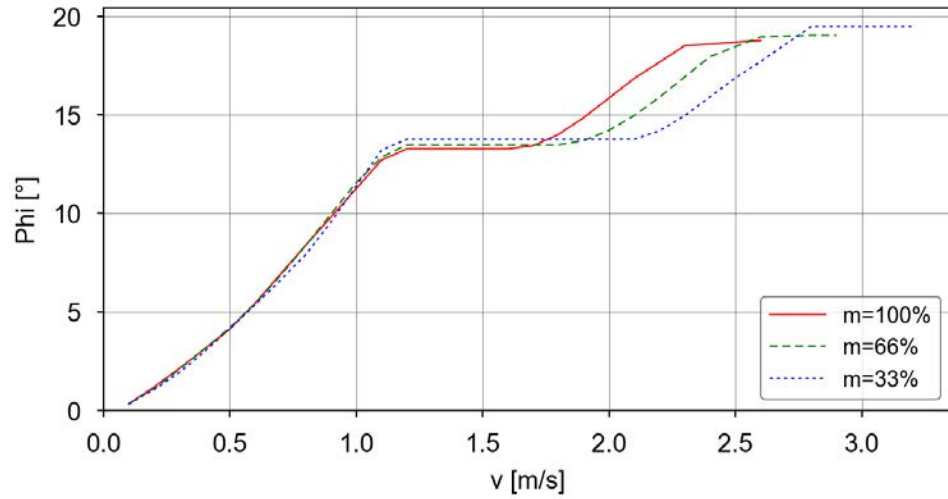
Extension zone 2, stopping distance and stopping time



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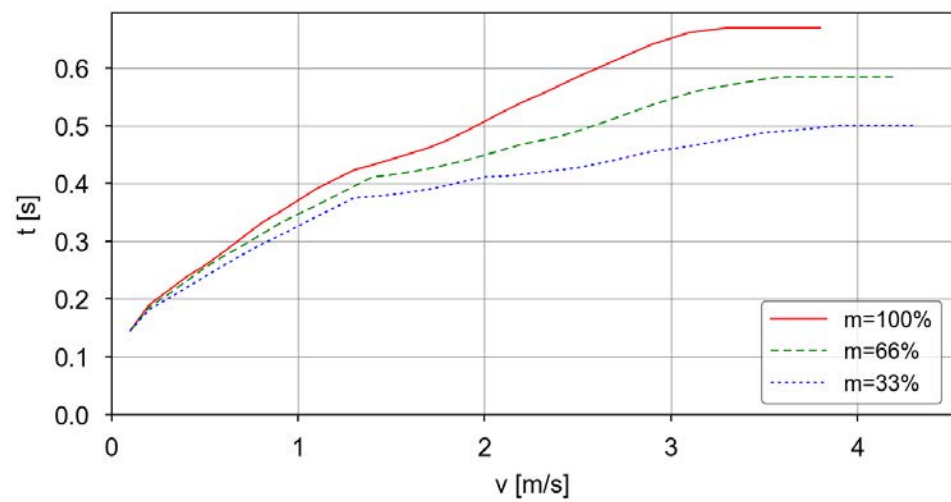
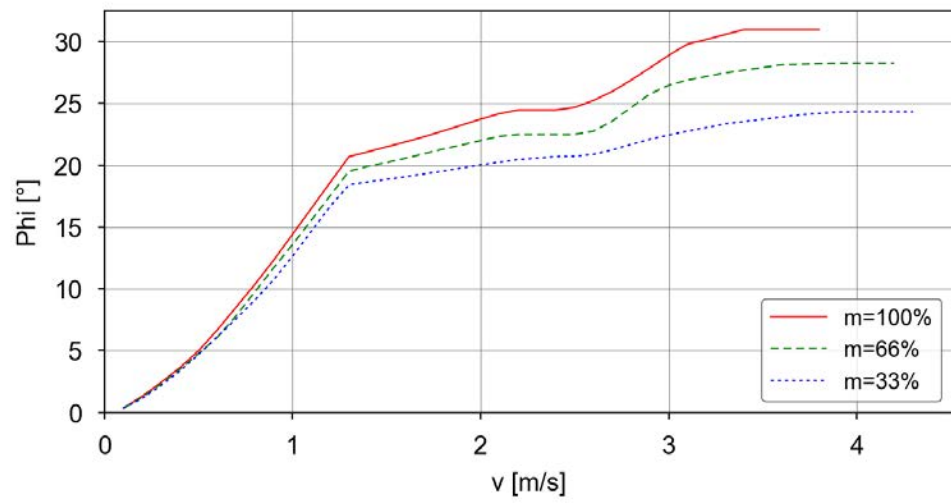
Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



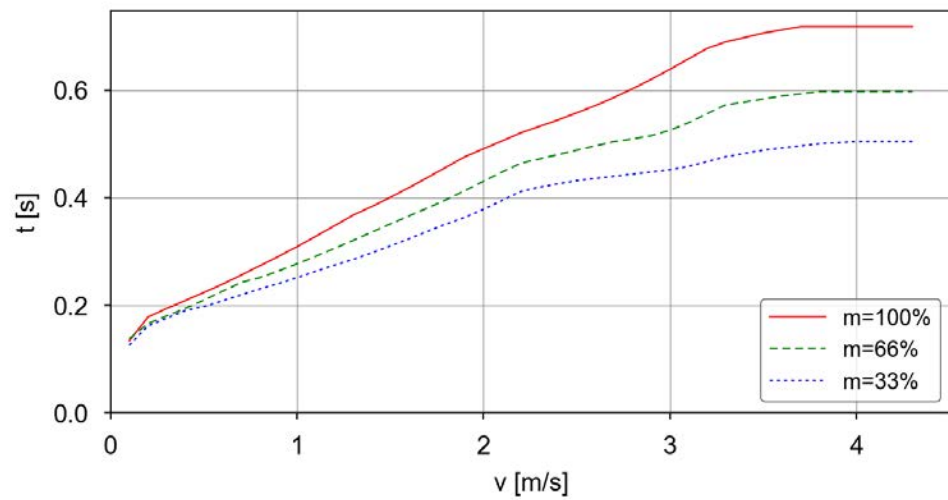
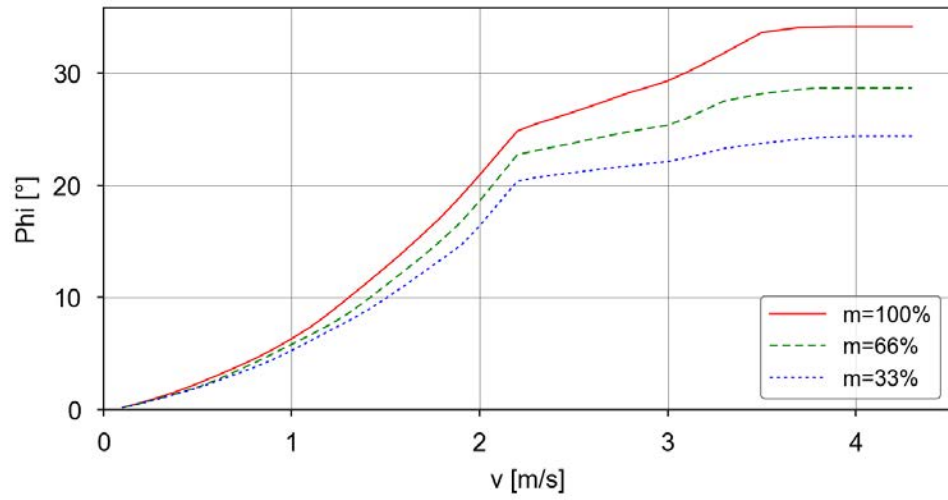
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Extension zone 1, stopping distance and stopping time



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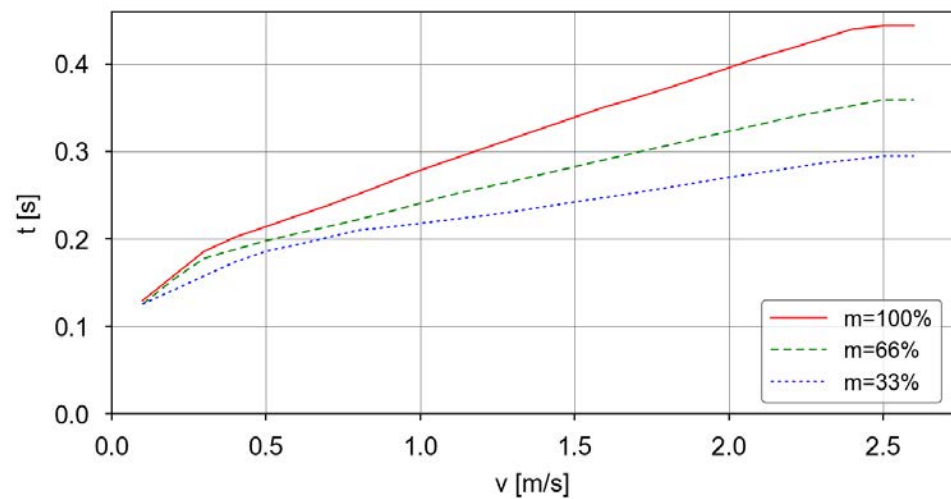
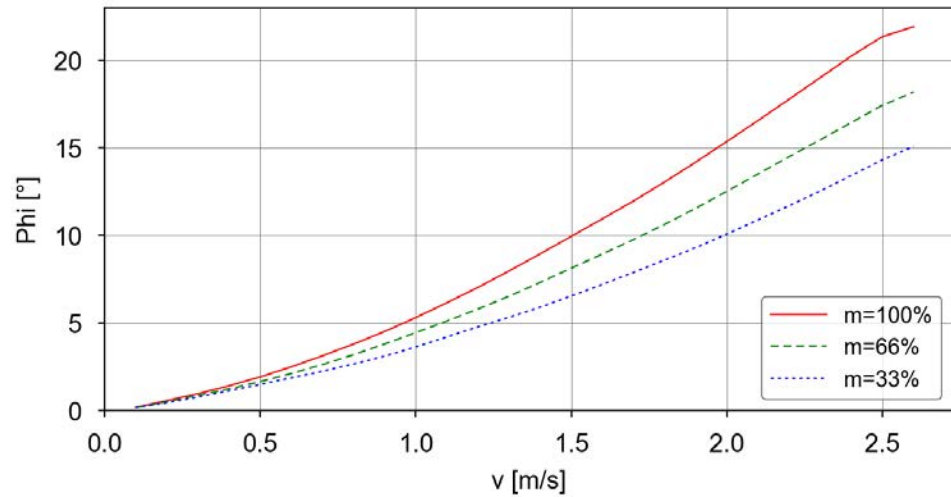
Extension zone 2, stopping distance and stopping time



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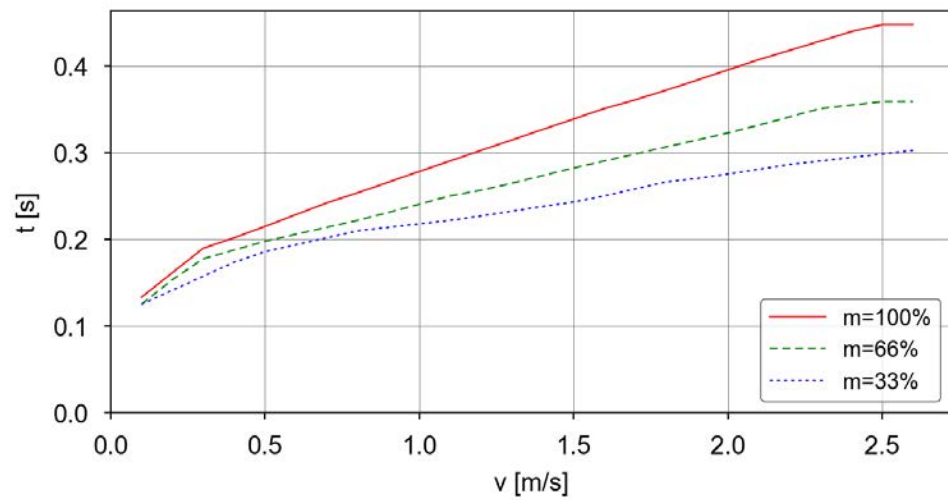
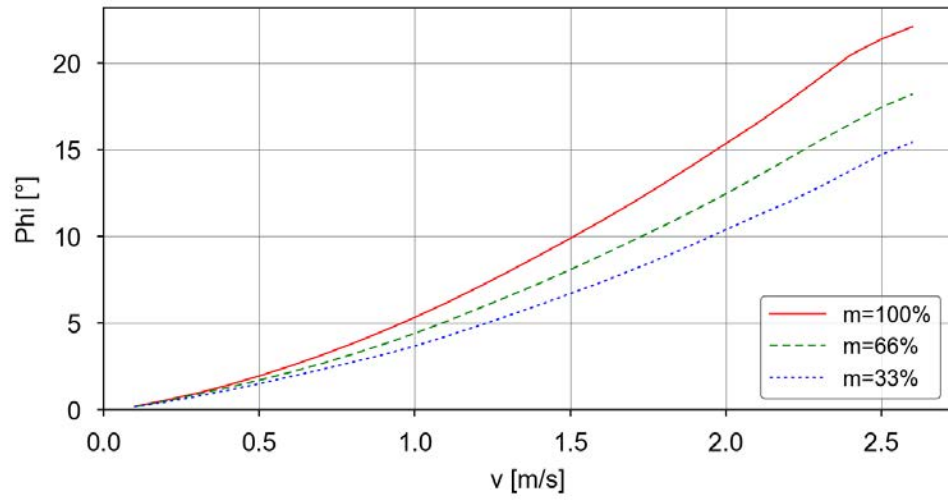
## Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



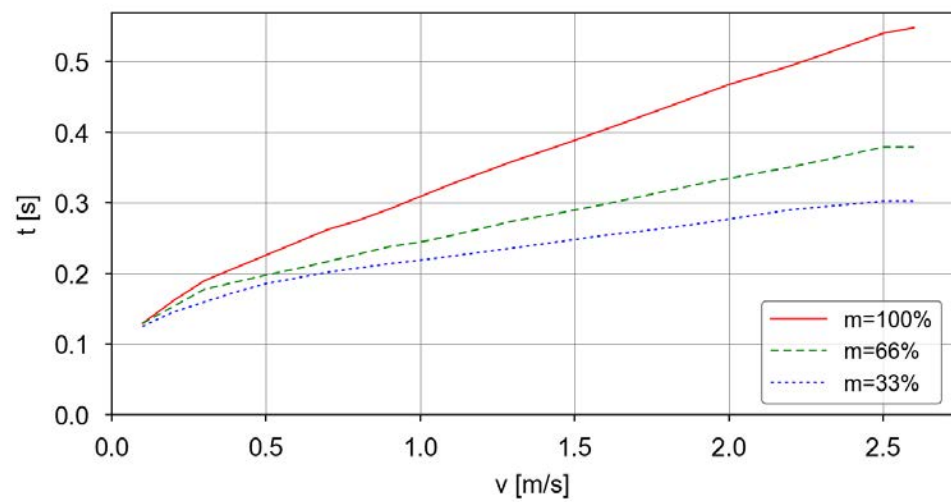
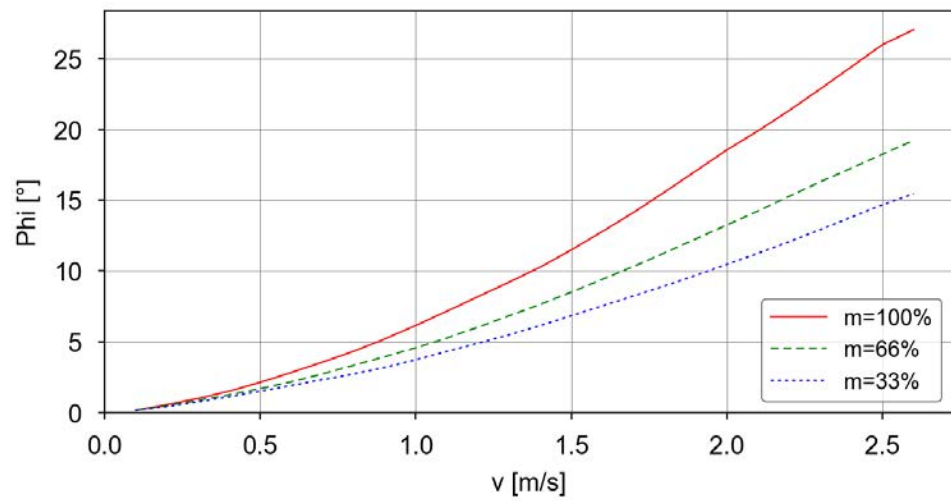
Continues on next page

Extension zone 1, stopping distance and stopping time



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## Extension zone 2, stopping distance and stopping time



18.10 IRB 6700Inv LeanID m 2.90 kg

Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	33.1	0.56
2	21.1	0.37
3	14.6	0.22

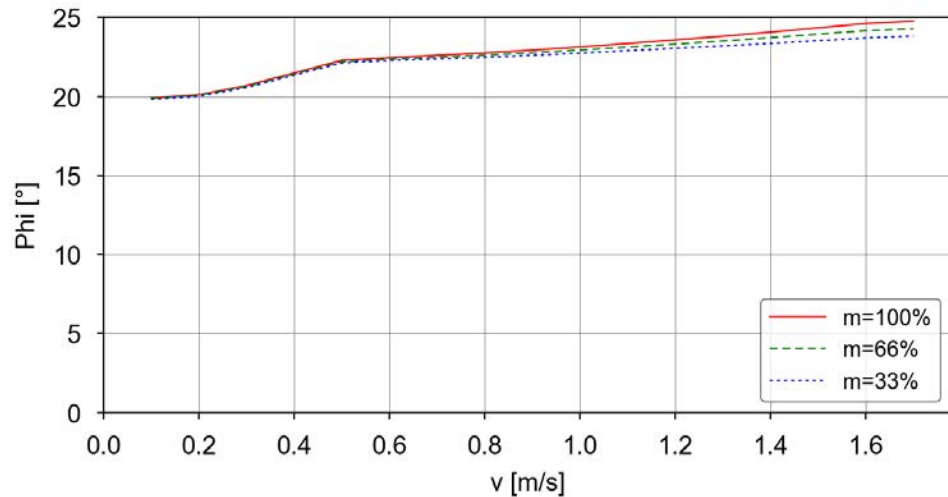
Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.955
1	0.955	1.909
2	1.909	max reach

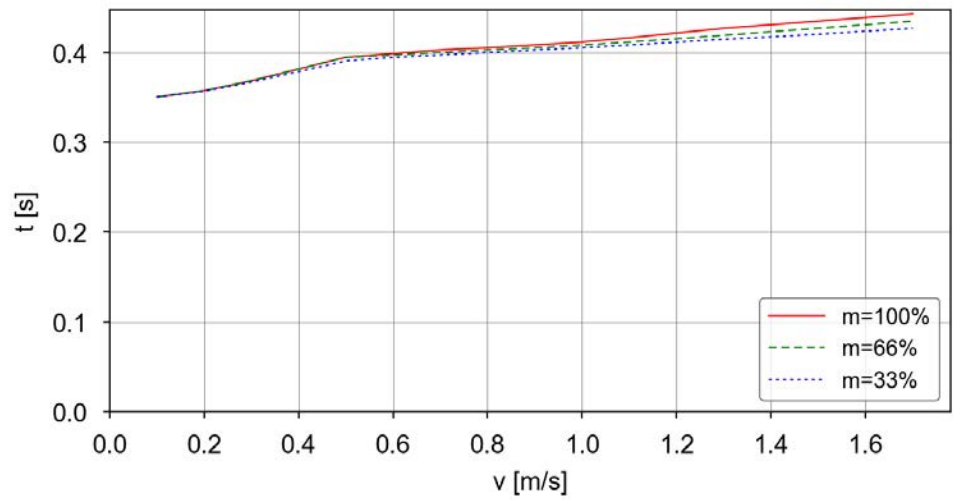
Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

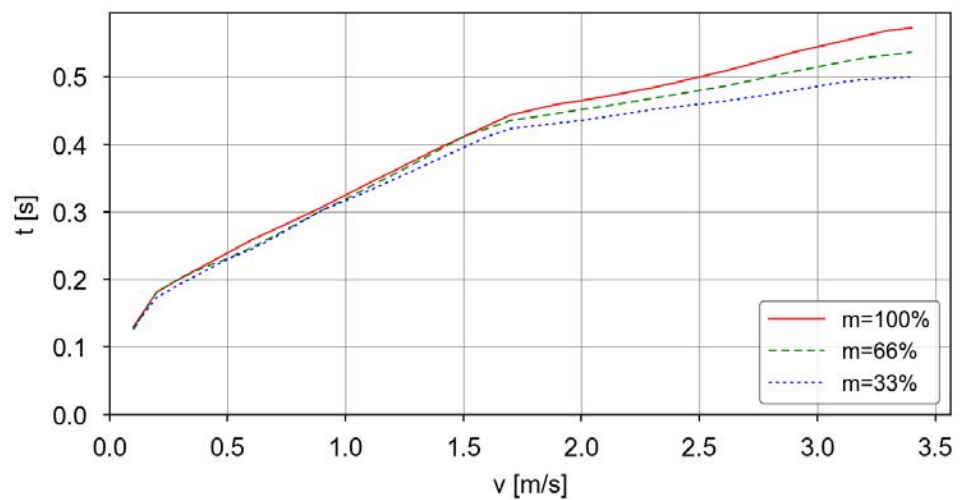
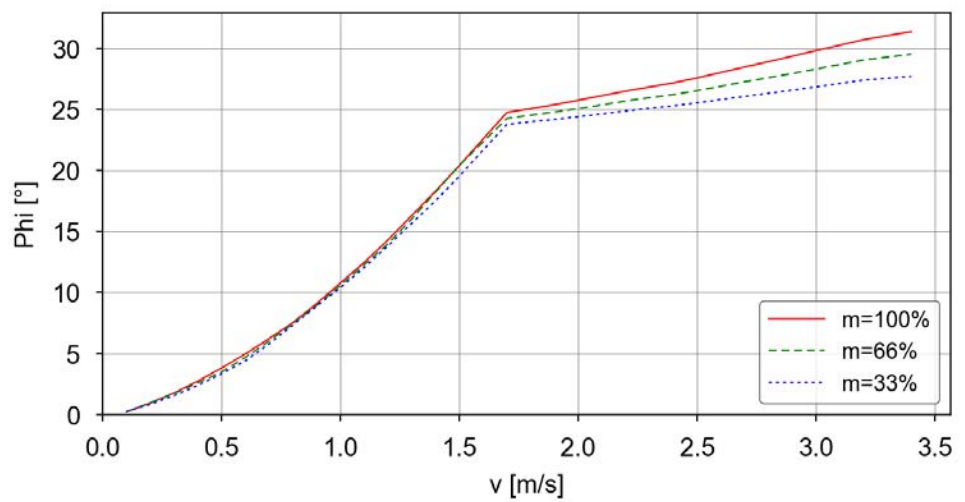


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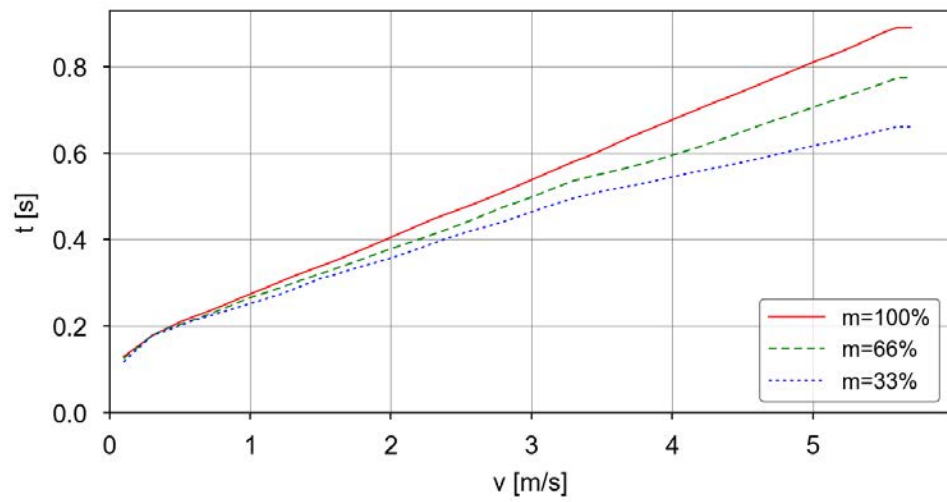
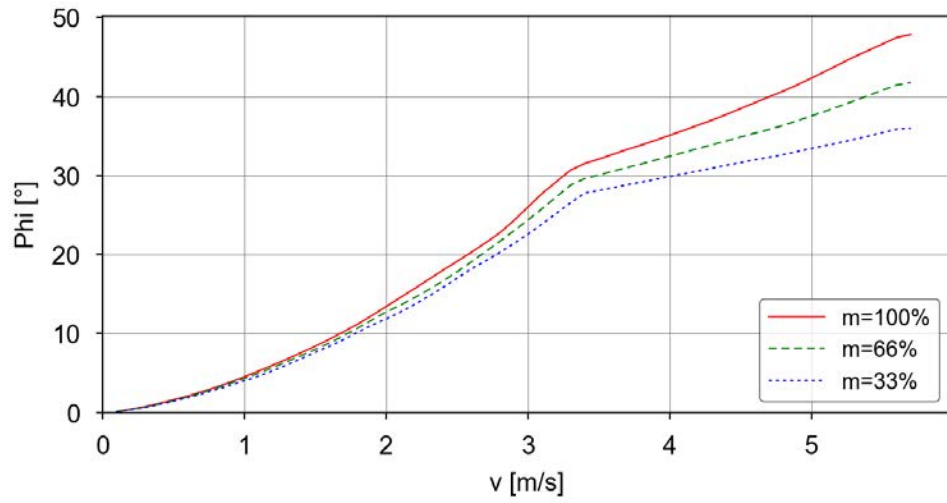


Extension zone 1, stopping distance and stopping time



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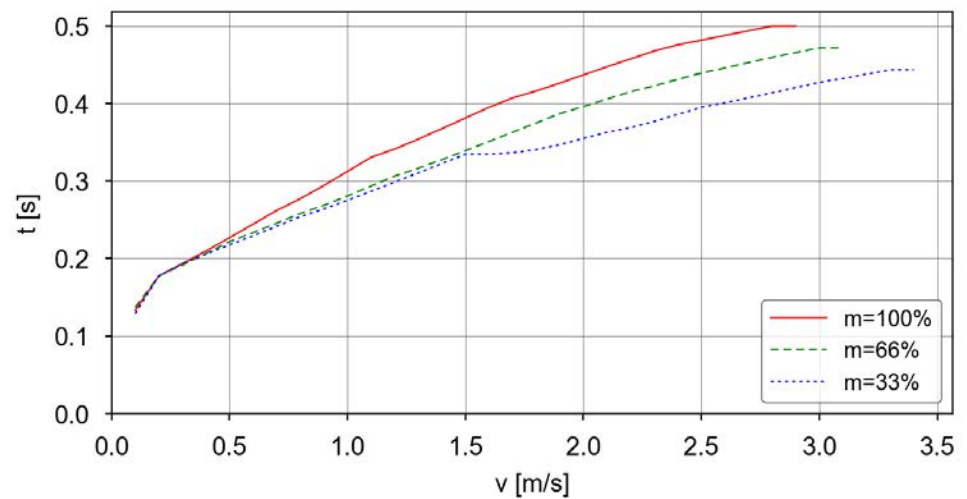
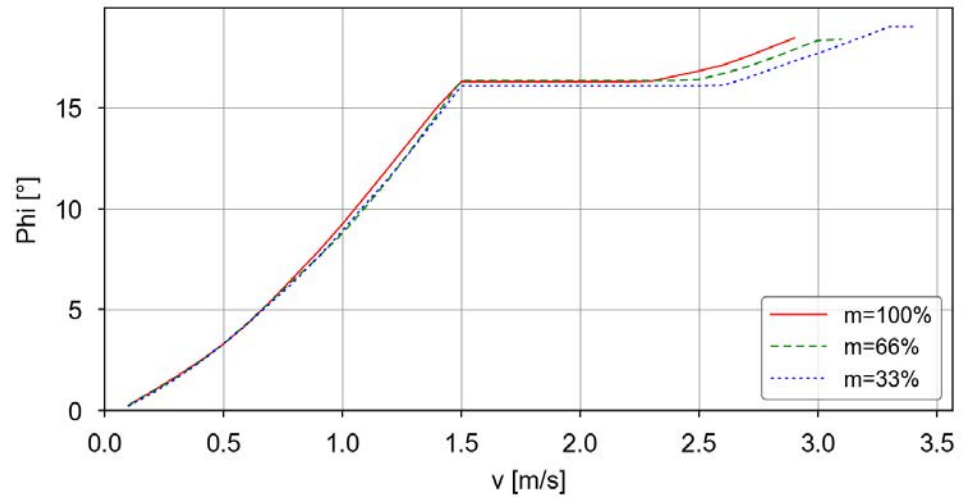
Extension zone 2, stopping distance and stopping time



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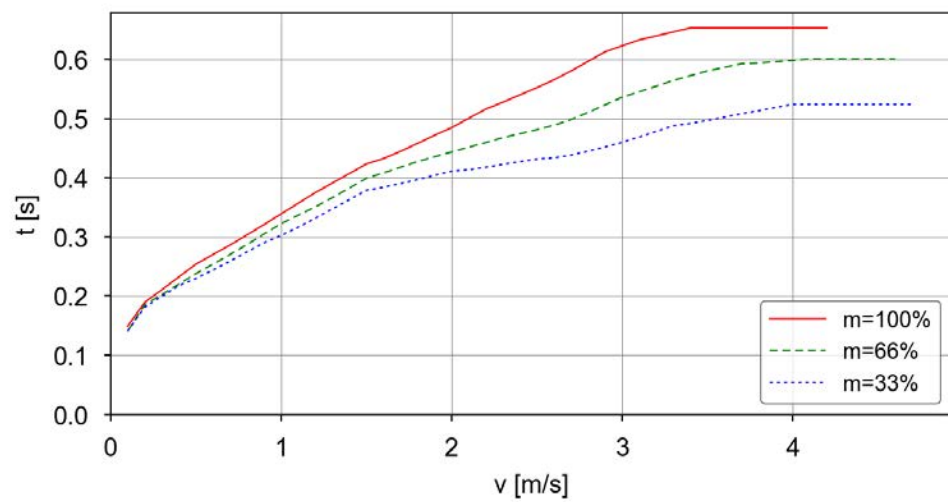
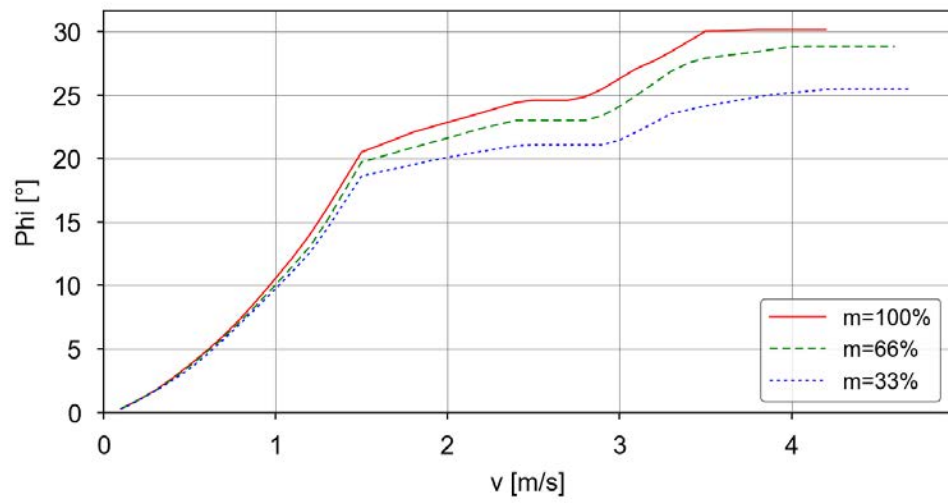
## Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



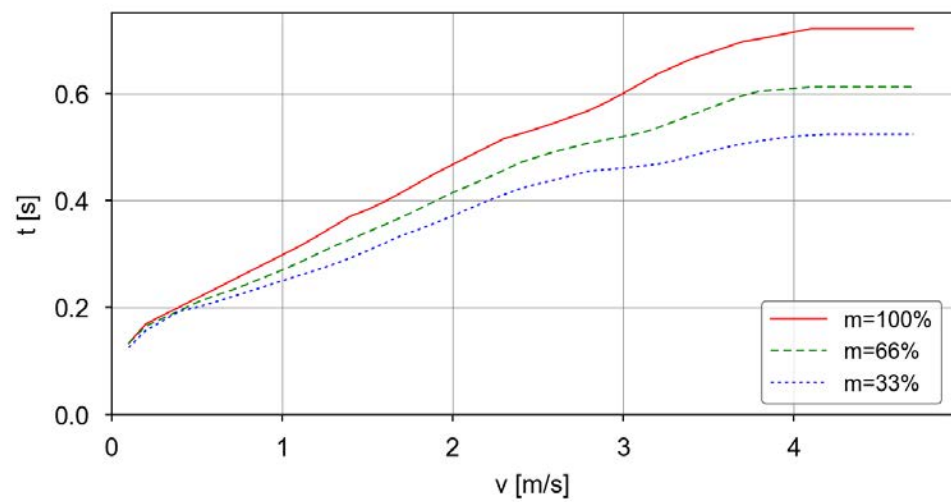
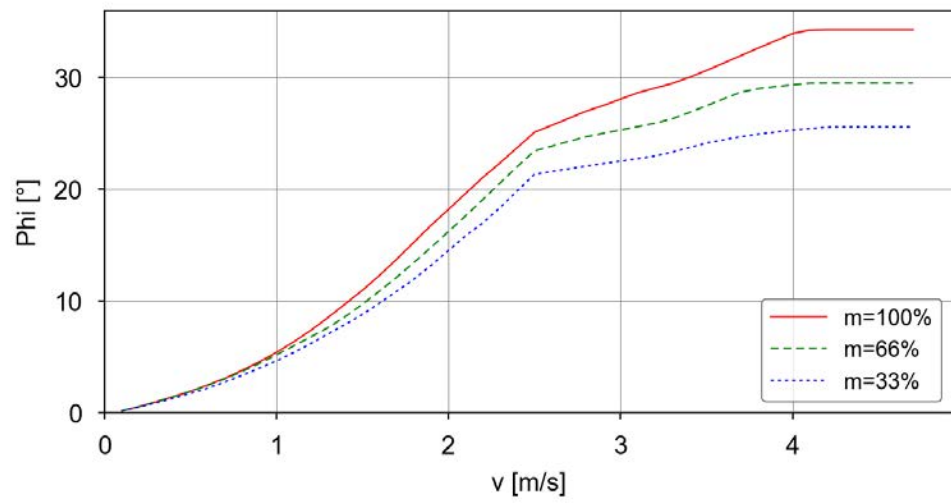
Continues on next page

Extension zone 1, stopping distance and stopping time



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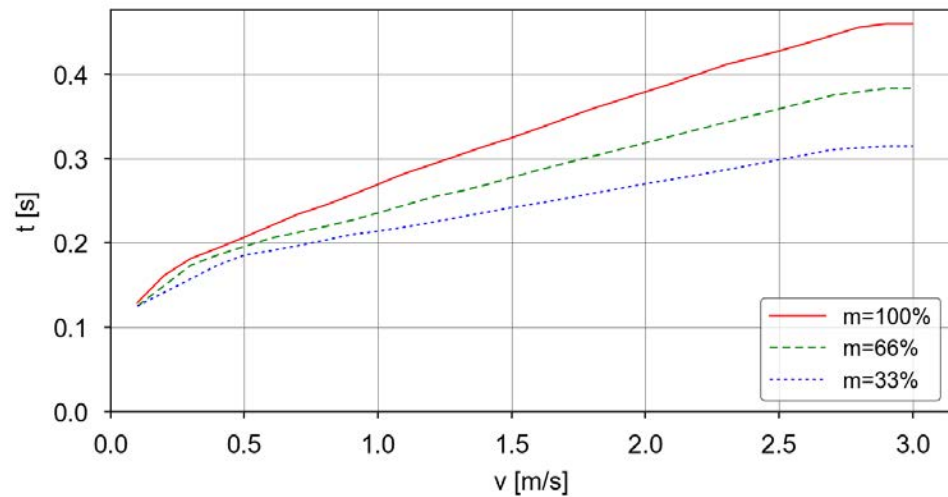
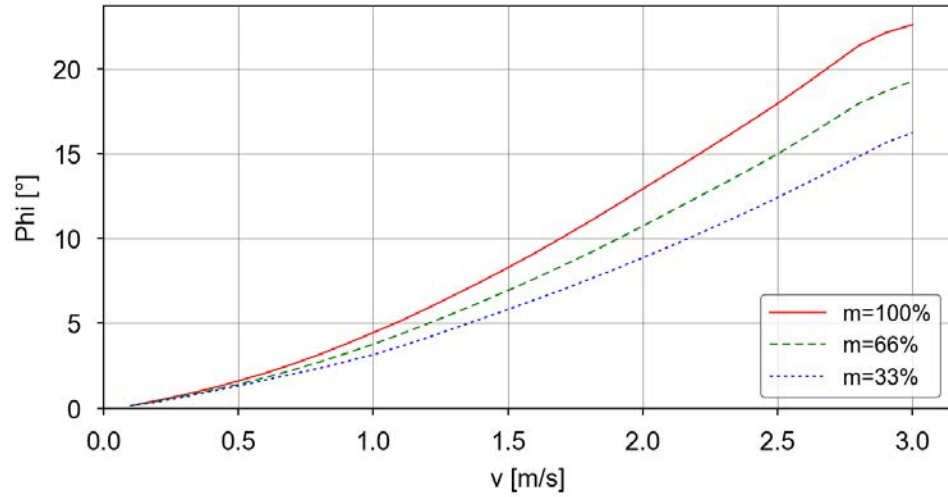
Extension zone 2, stopping distance and stopping time



Continues on next page

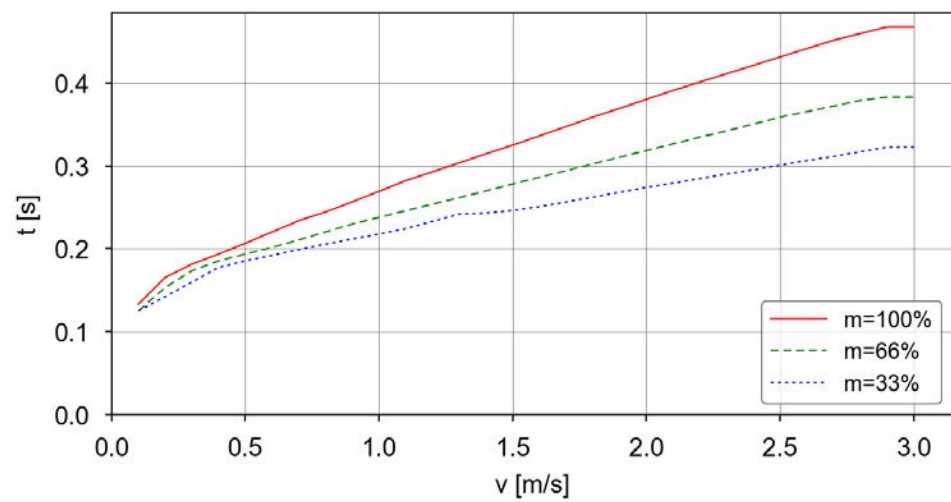
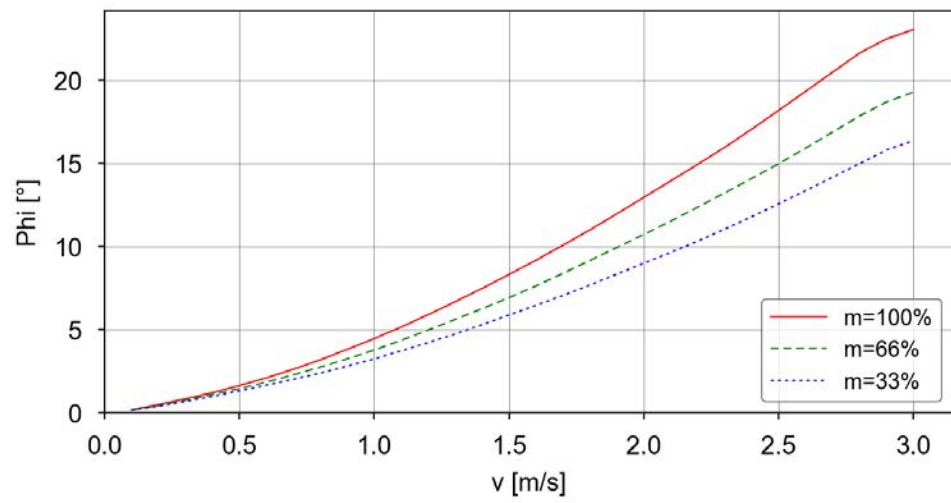
Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



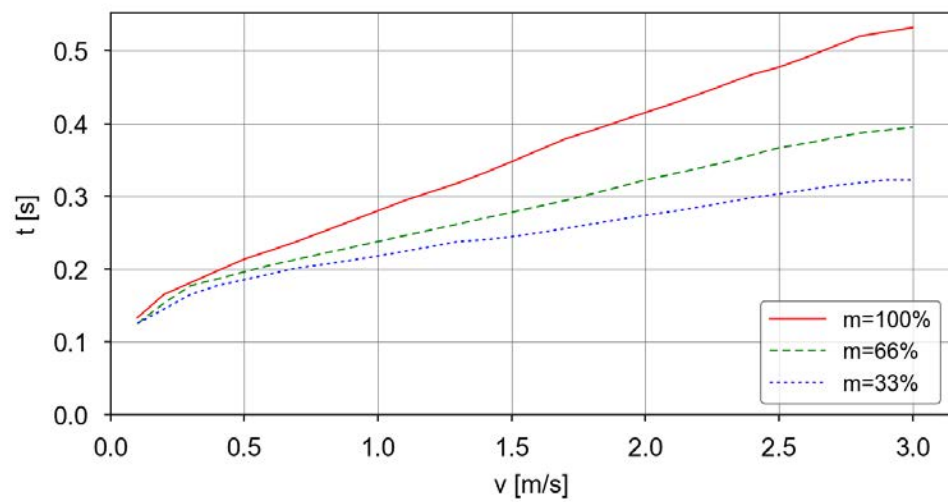
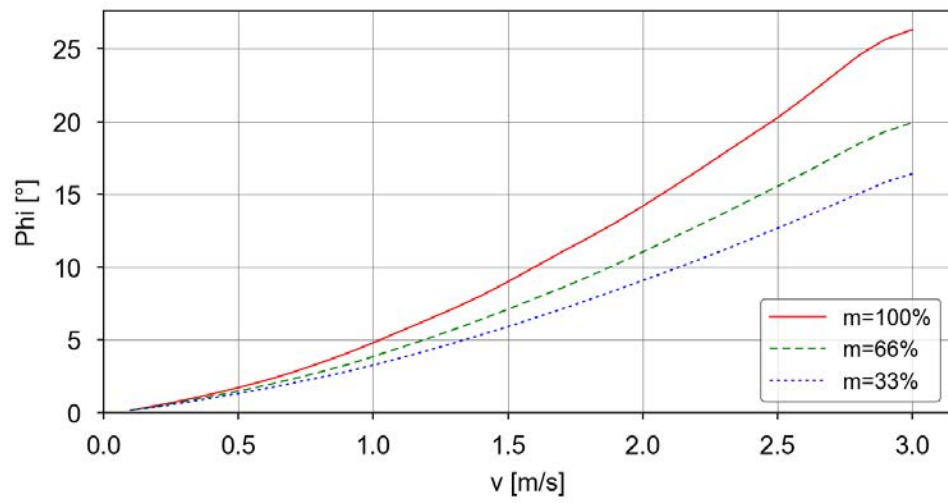
Continues on next page

Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time





## 18.11 IRB 6700Inv 2.60 m 300 kg

### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	32.5	0.56
2	20.3	0.34
3	13.8	0.2

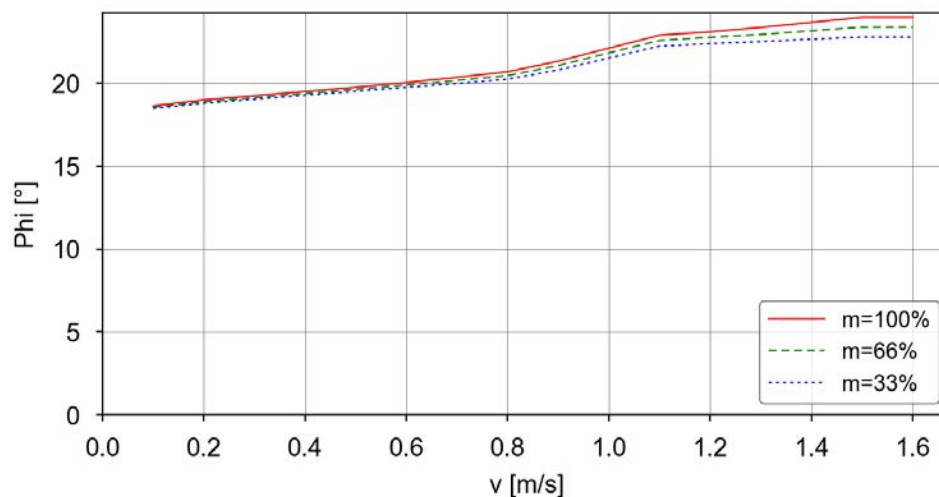
### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

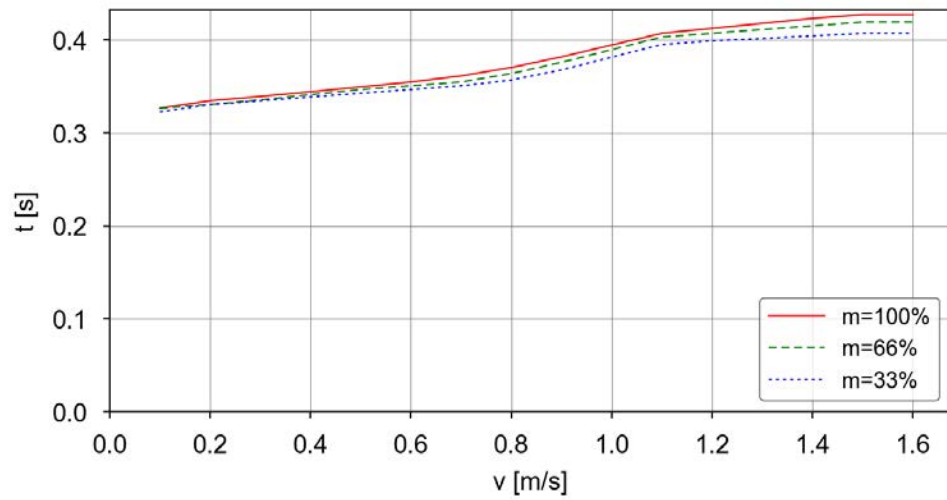
Zone	wcp min (m)	wcp max (m)
0	0	0.872
1	0.872	1.744
2	1.744	max reach

### Category 1, Axis 1

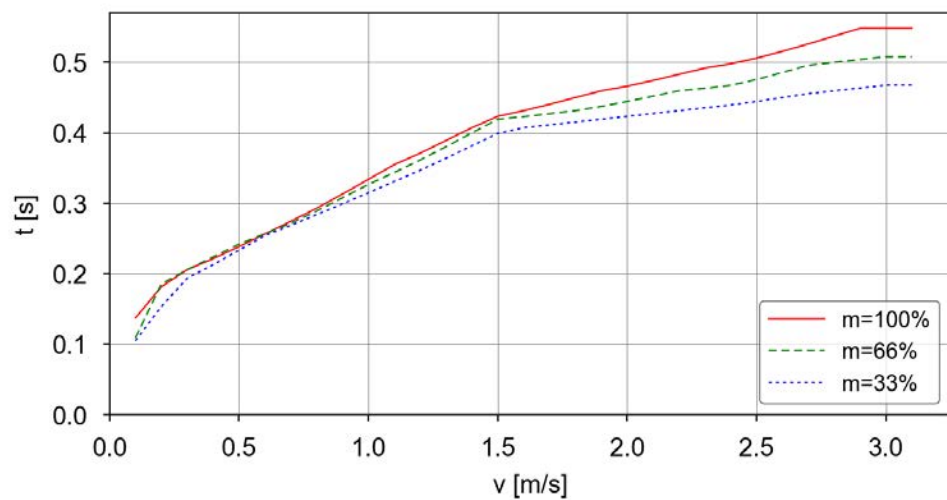
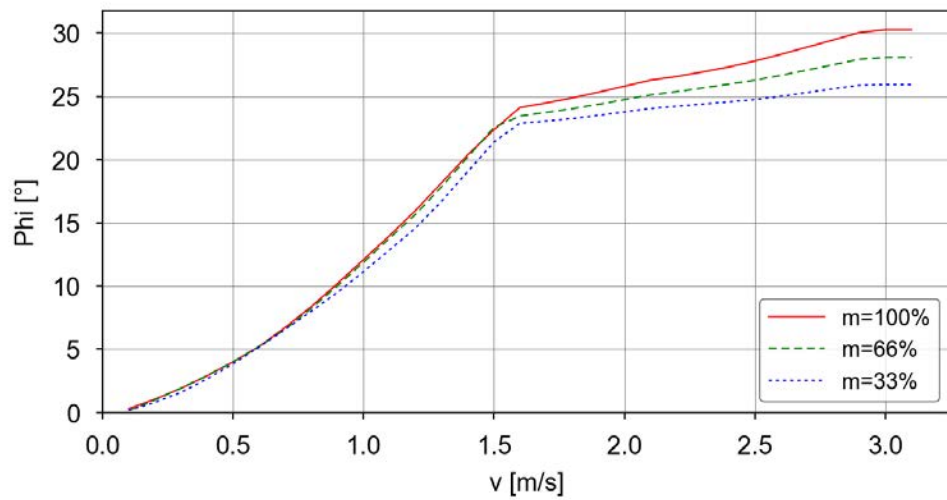
Extension zone 0, stopping distance and stopping time



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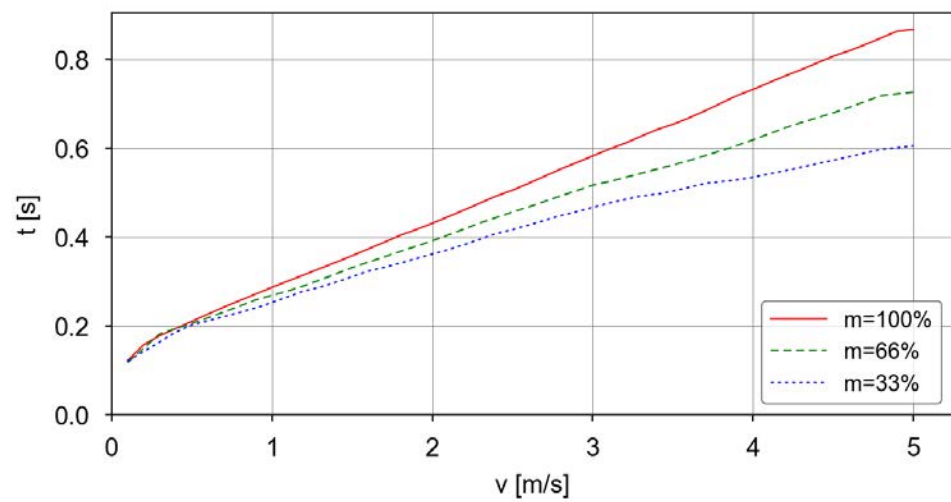
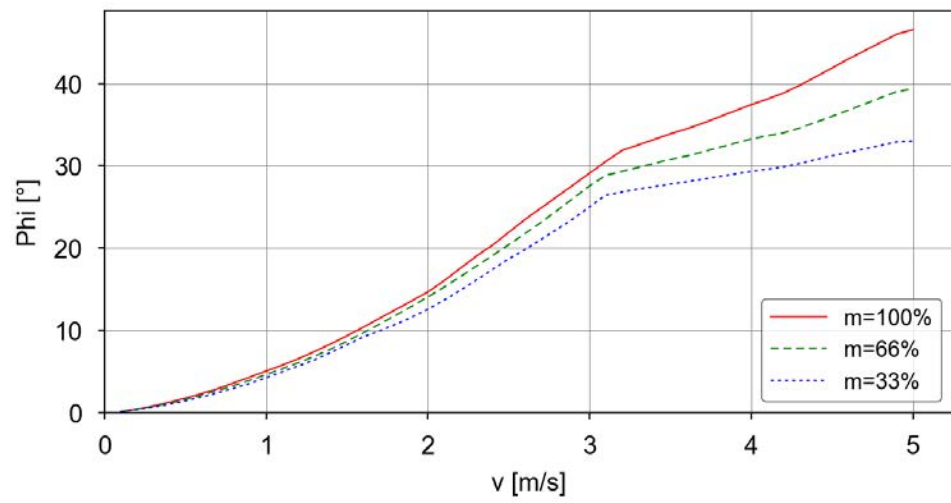


Extension zone 1, stopping distance and stopping time



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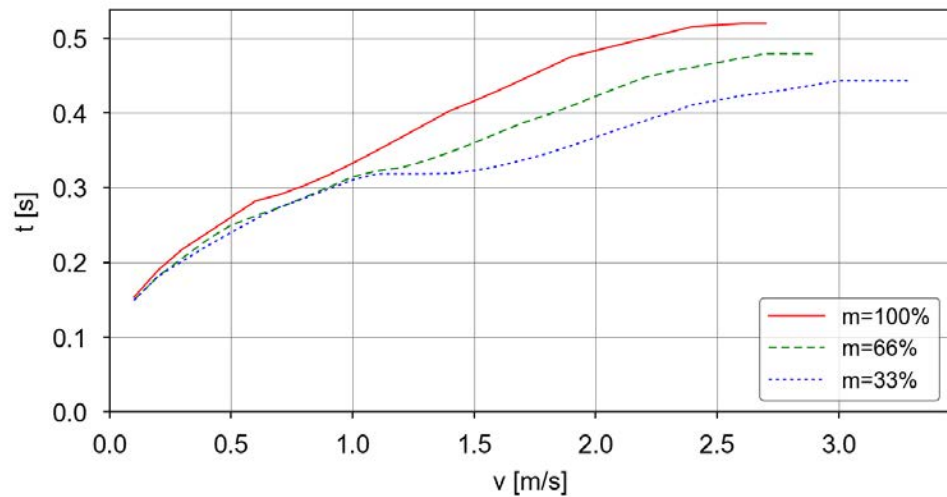
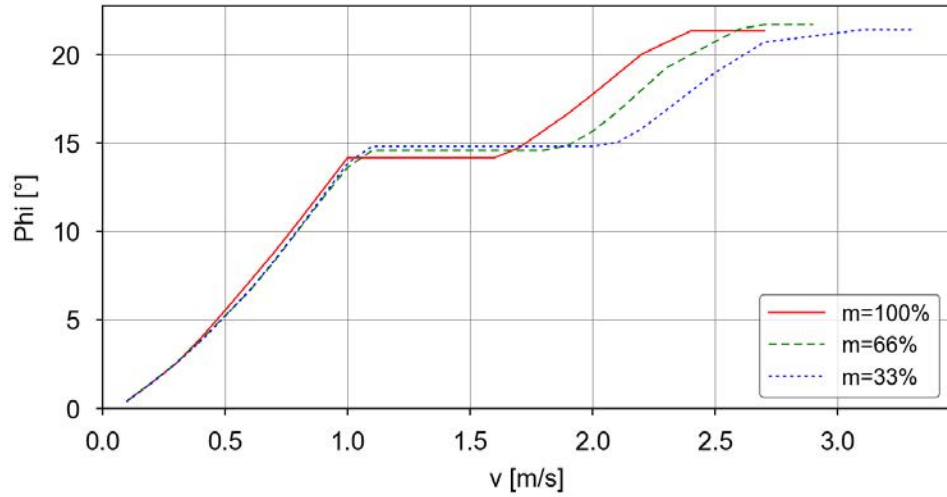
Extension zone 2, stopping distance and stopping time



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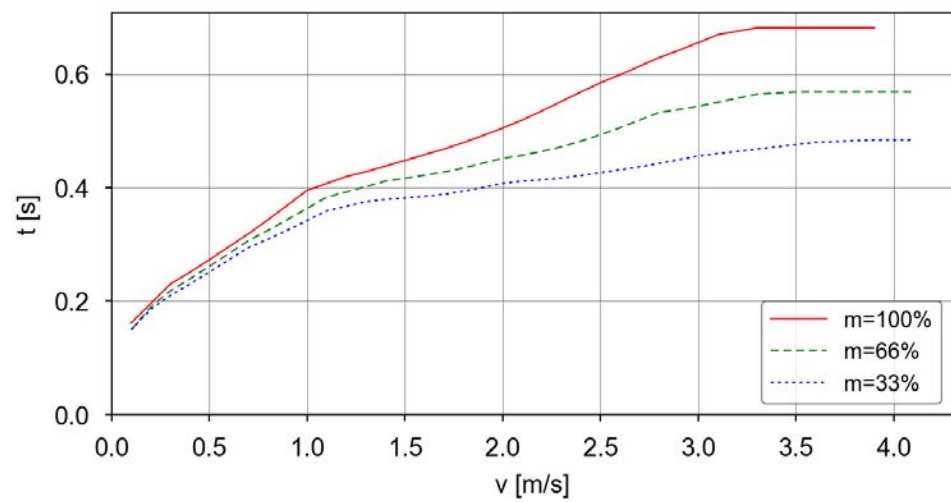
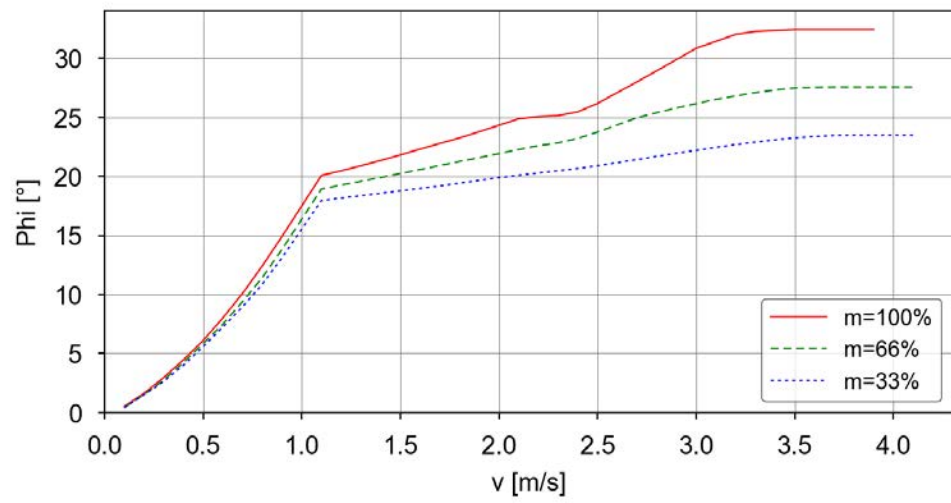
Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



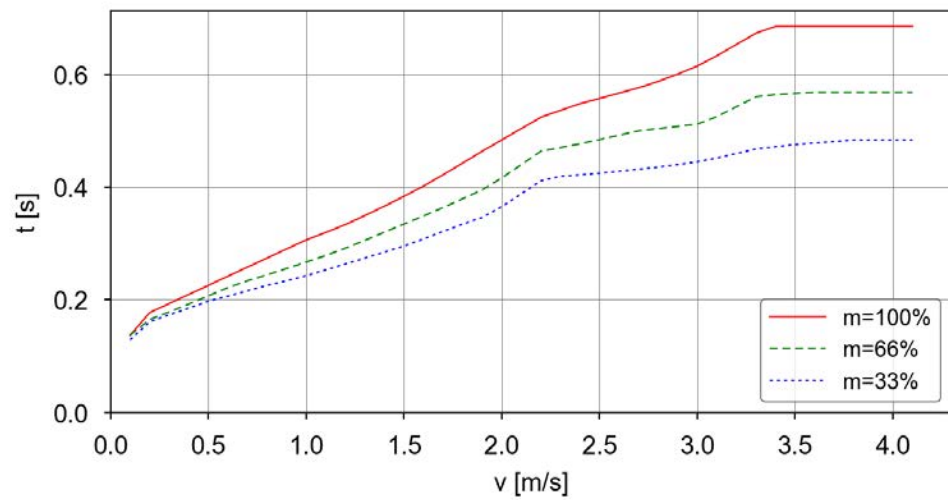
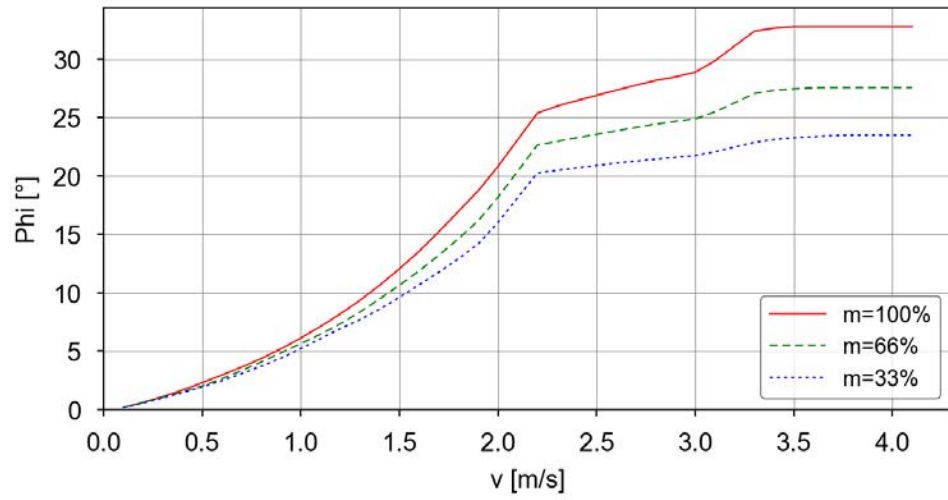
Continues on next page

Extension zone 1, stopping distance and stopping time



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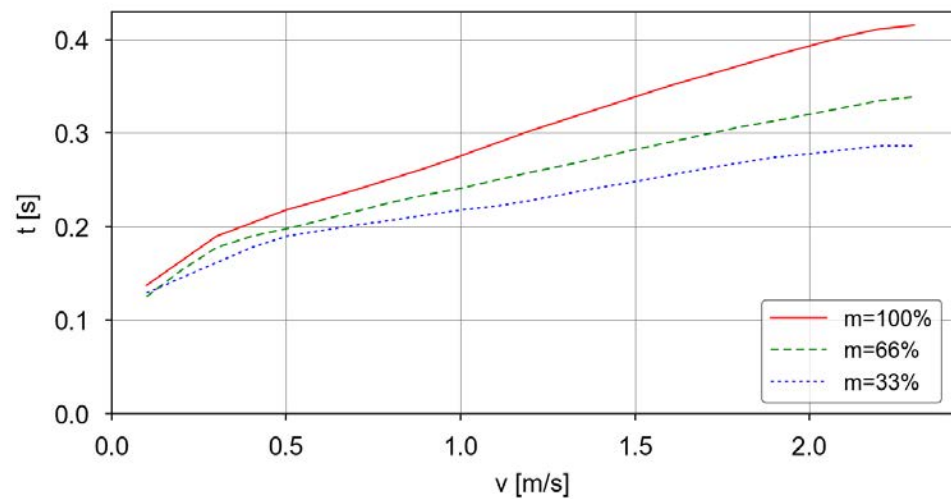
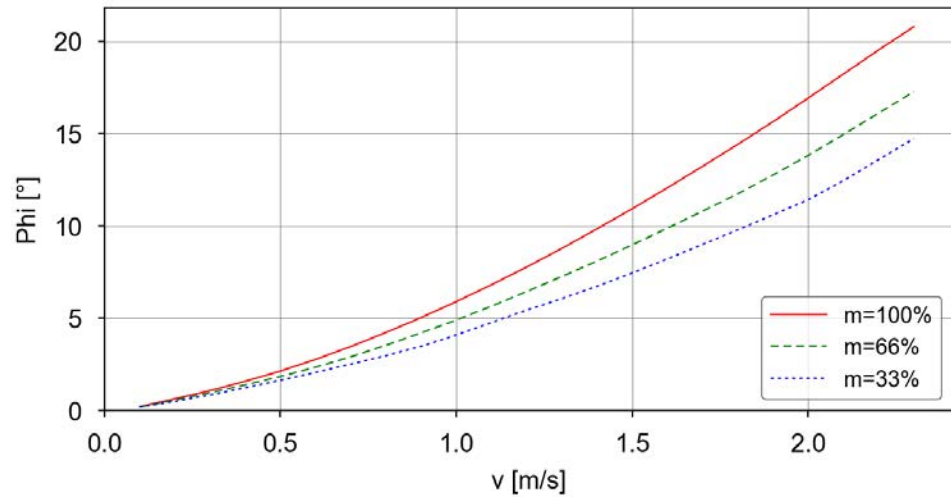
Extension zone 2, stopping distance and stopping time



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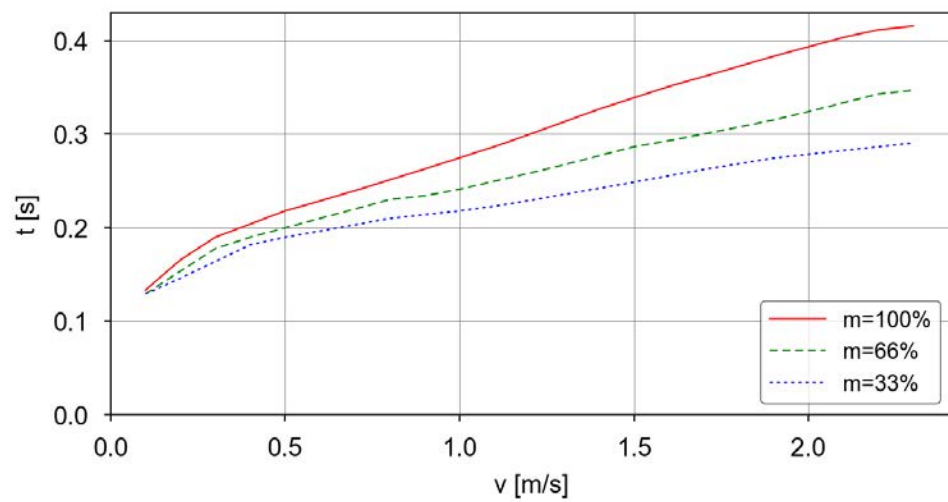
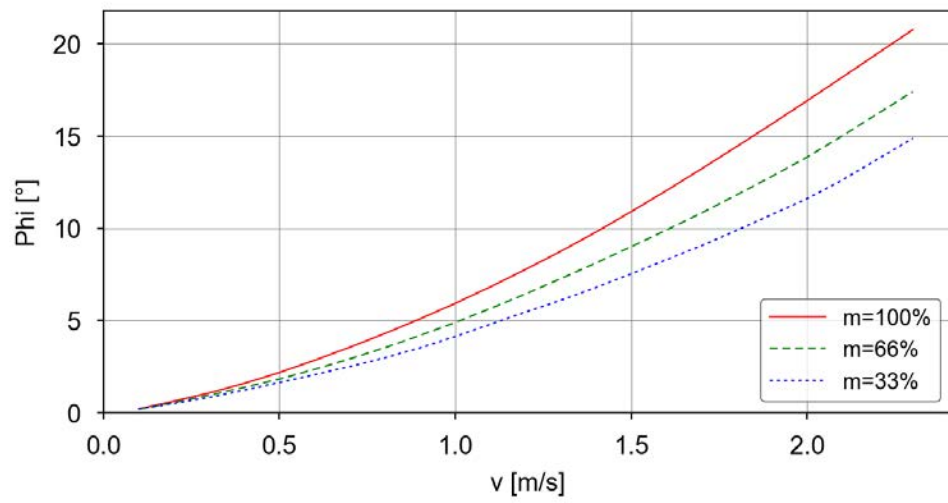
## Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



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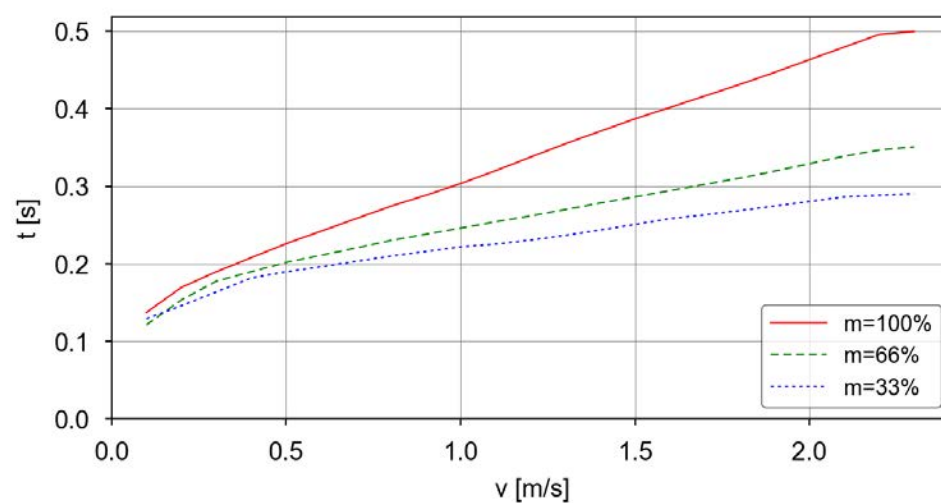
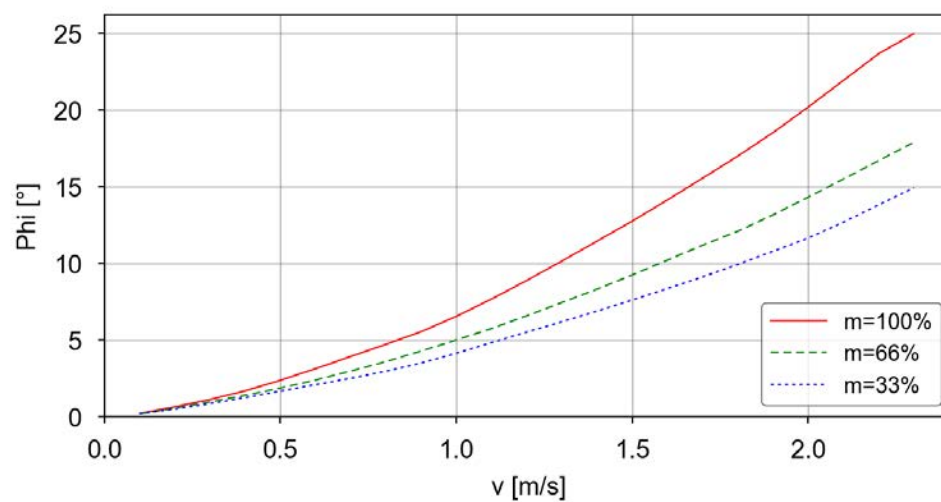
Extension zone 1, stopping distance and stopping time



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## Extension zone 2, stopping distance and stopping time



18.12 IRB 6700Inv 2.90 m 245 kg

Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	31.4	0.54
2	20.0	0.34
3	13.2	0.2

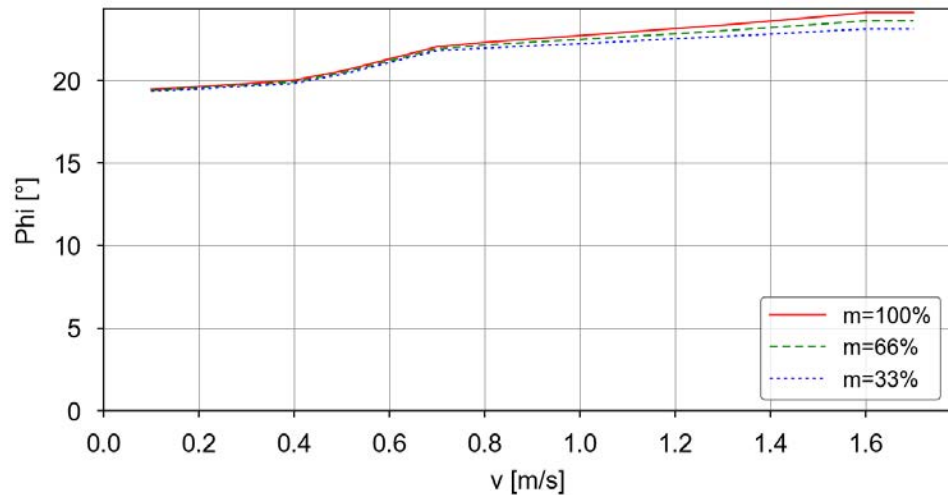
Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

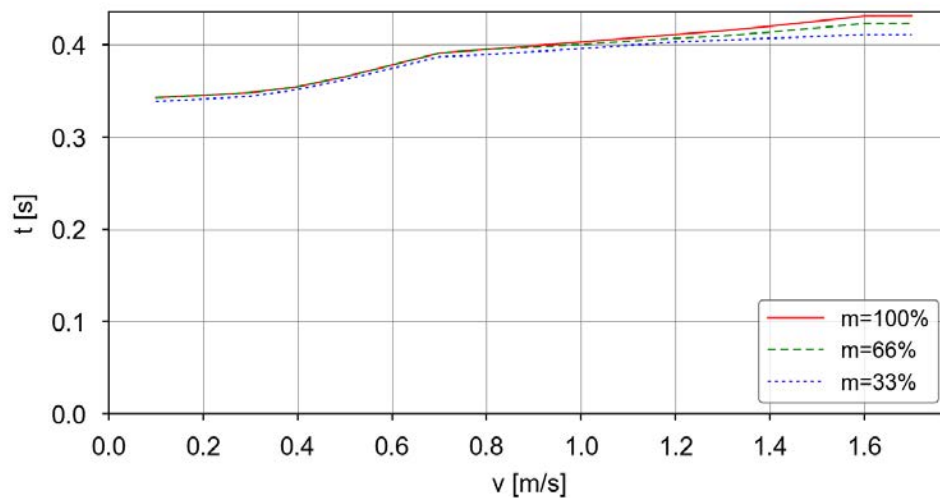
Zone	wcp min (m)	wcp max (m)
0	0	0.955
1	0.955	1.909
2	1.909	max reach

Category 1, Axis 1

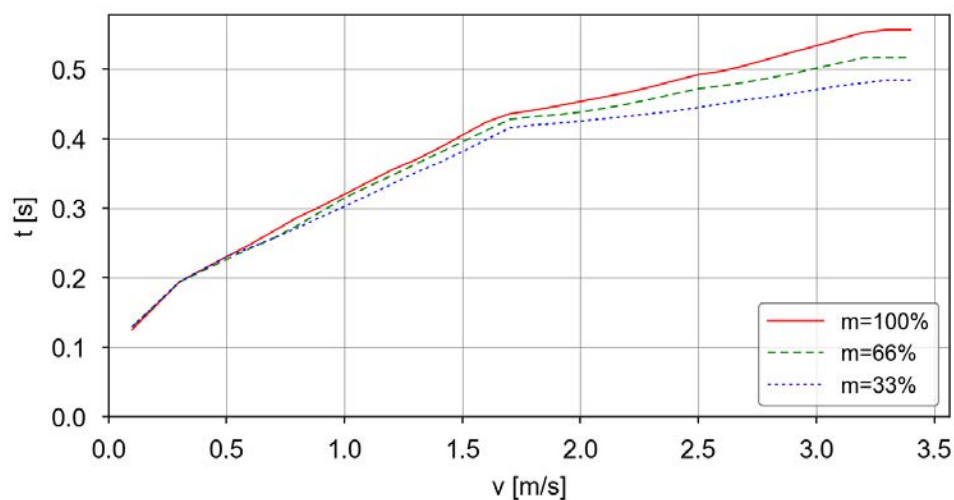
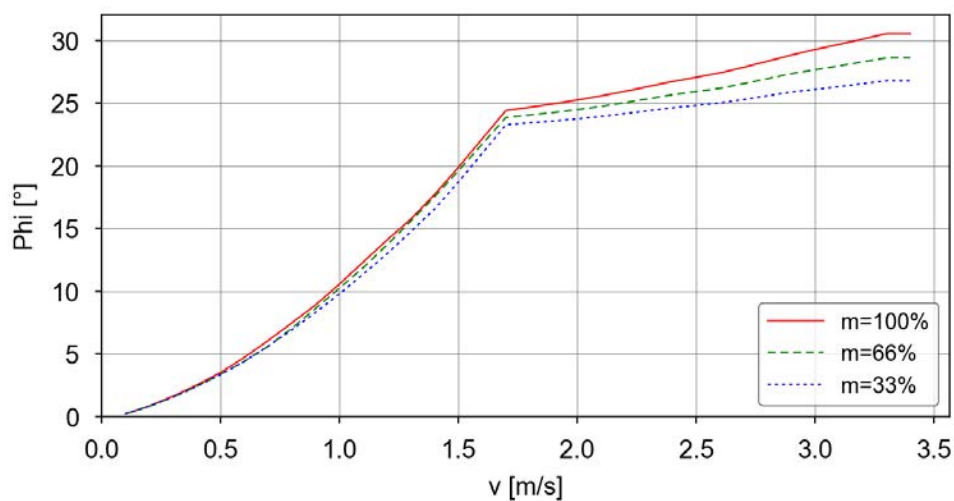
Extension zone 0, stopping distance and stopping time



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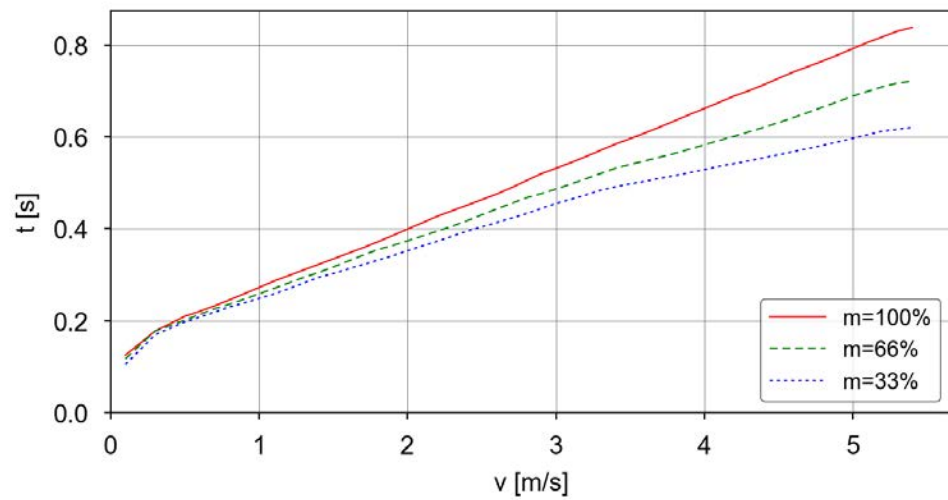
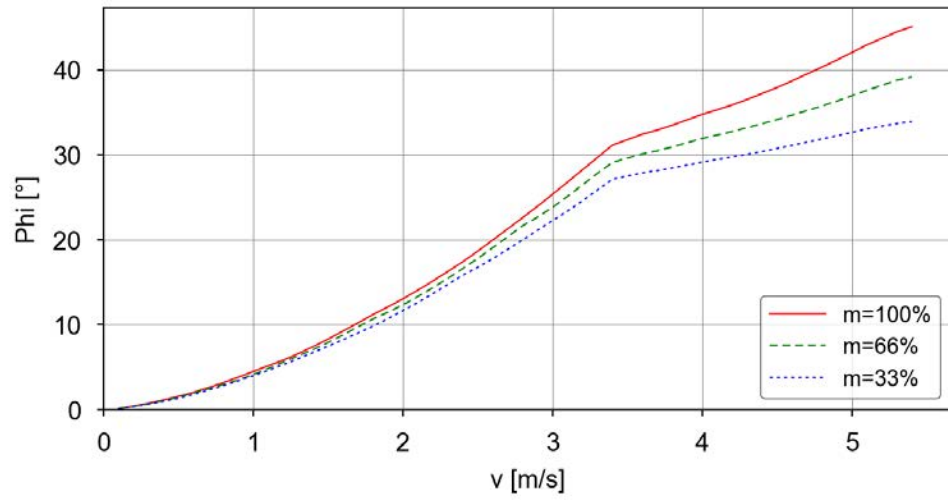


Extension zone 1, stopping distance and stopping time



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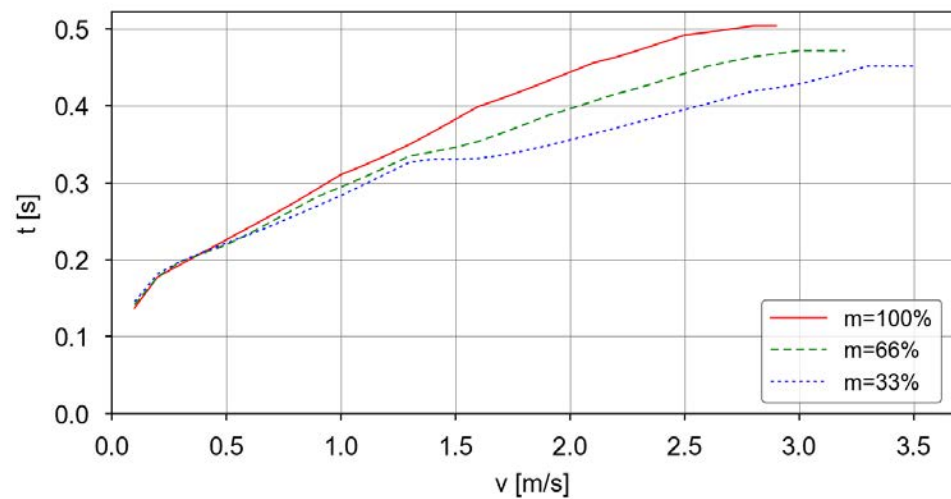
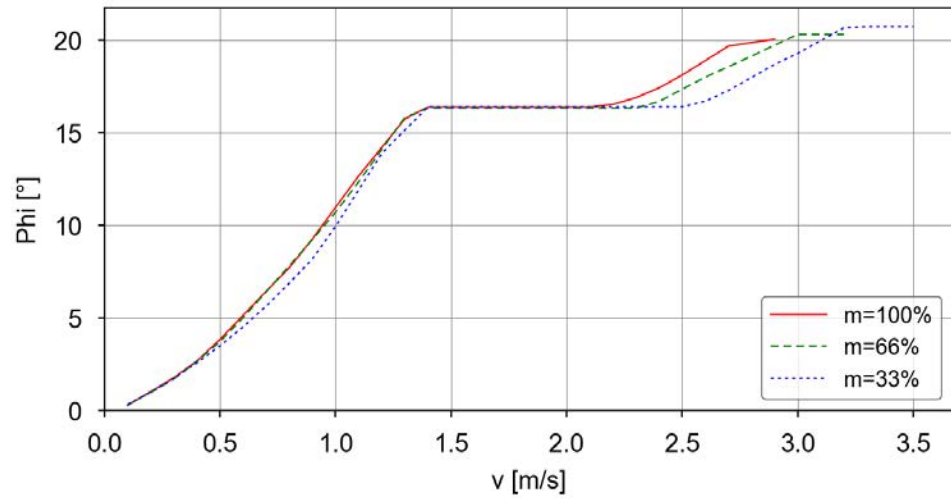
Extension zone 2, stopping distance and stopping time



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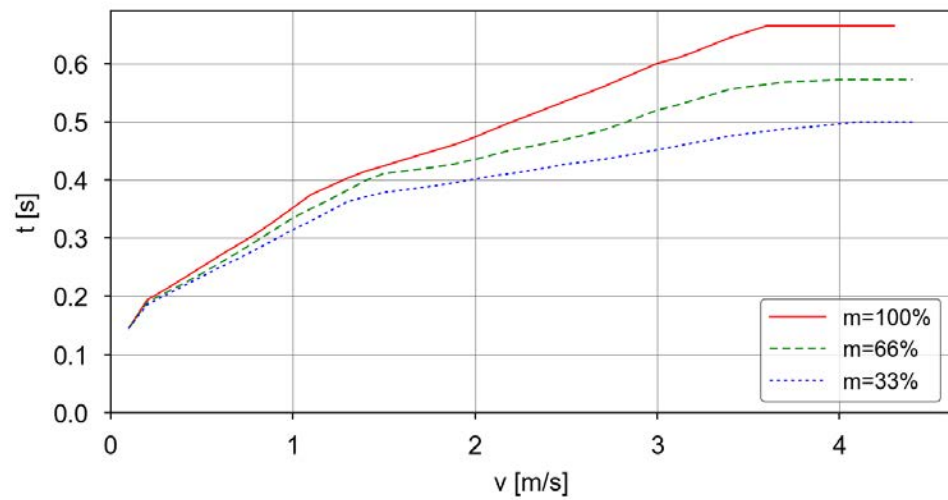
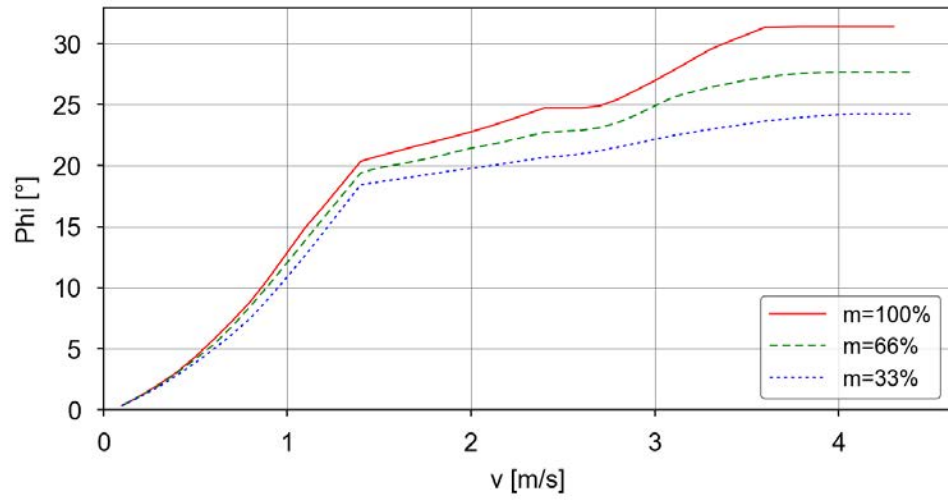
Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



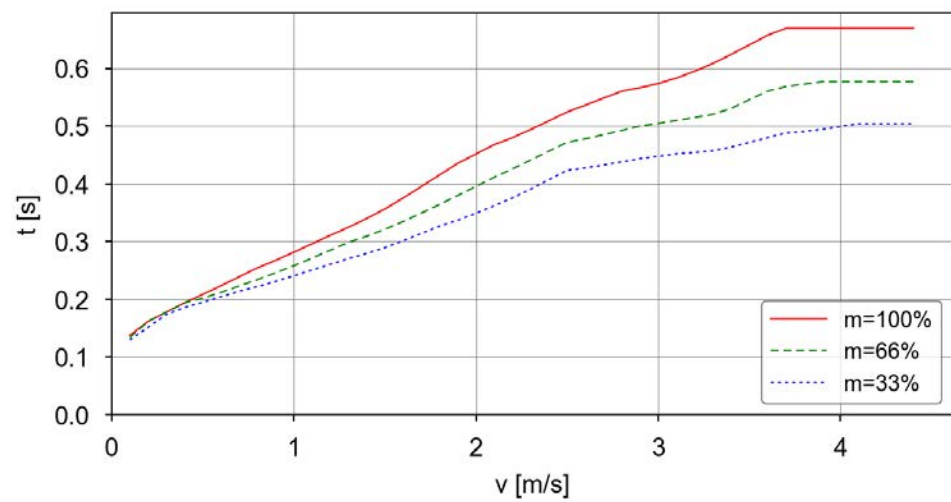
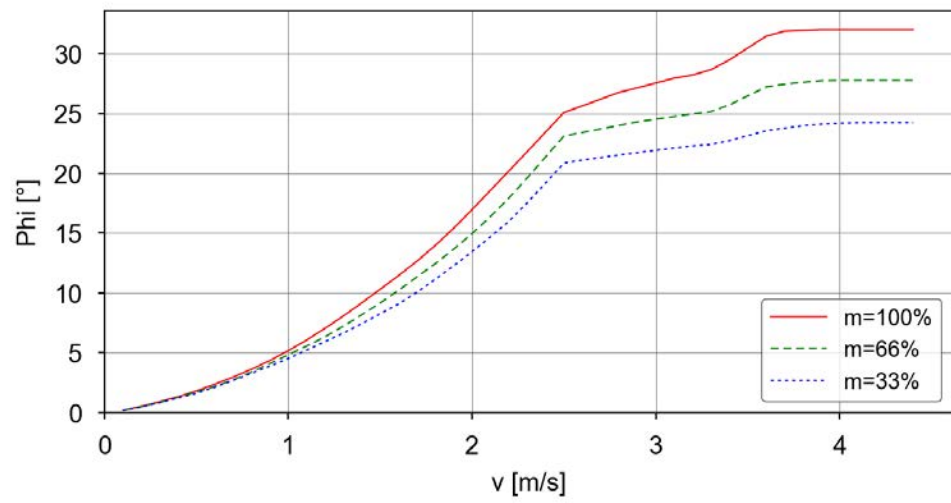
Continues on next page

Extension zone 1, stopping distance and stopping time



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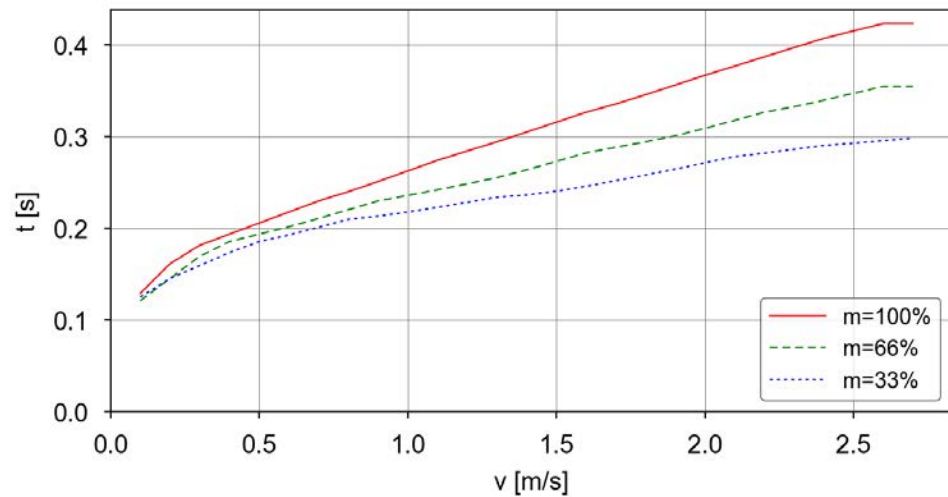
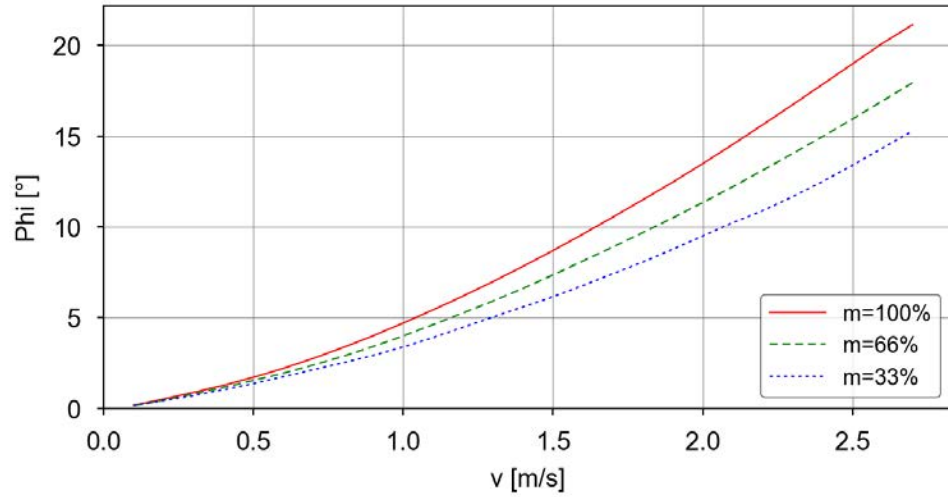
Extension zone 2, stopping distance and stopping time



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Category 1, Axis 3

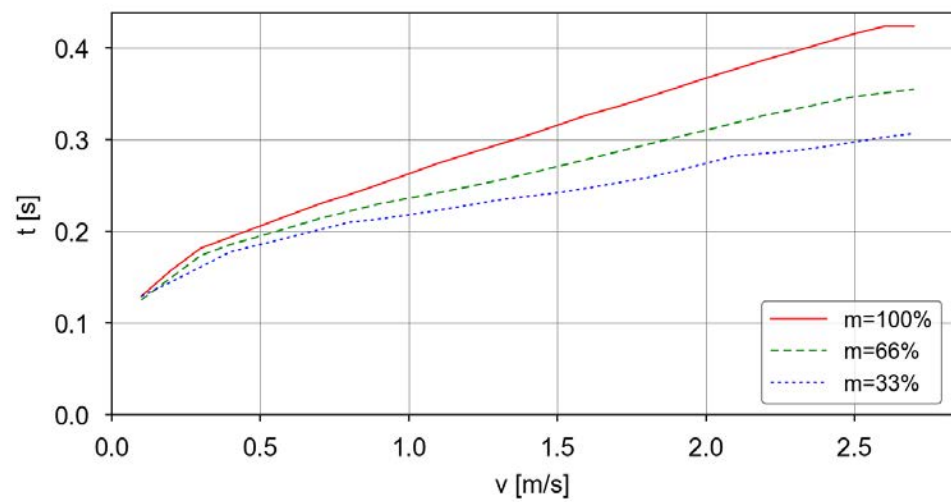
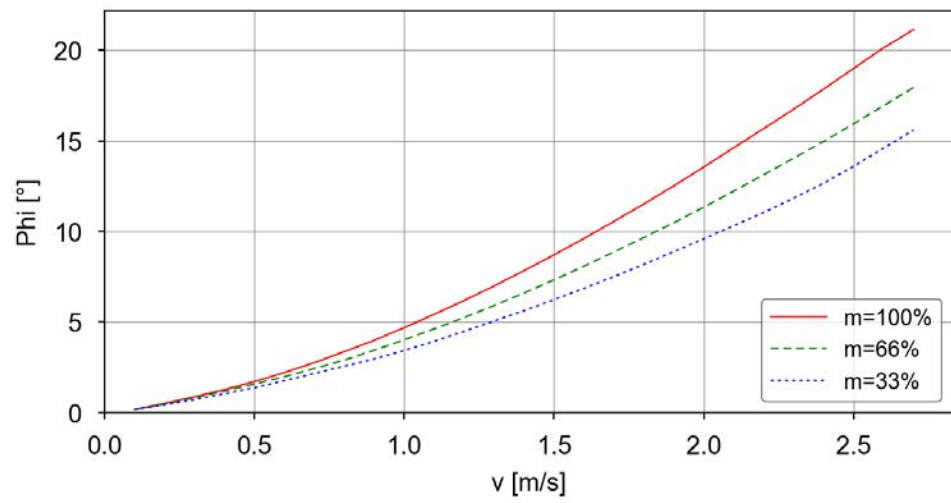
Extension zone 0, stopping distance and stopping time



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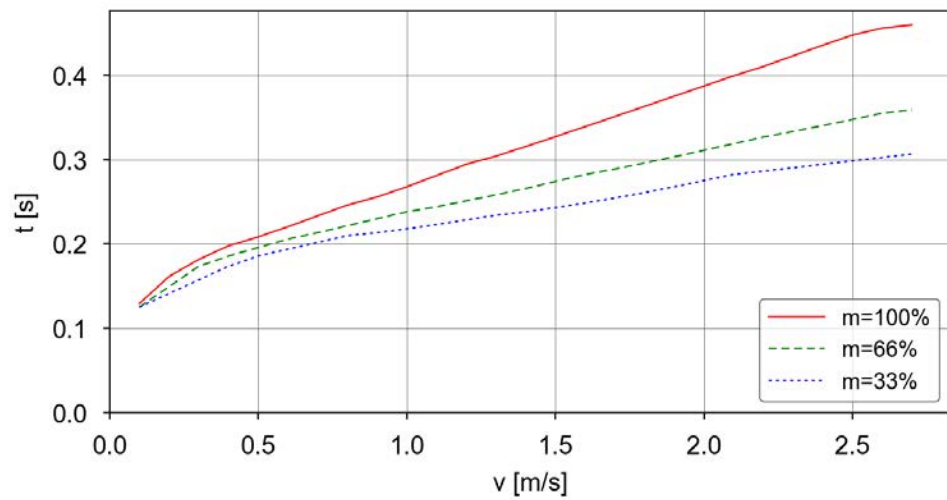
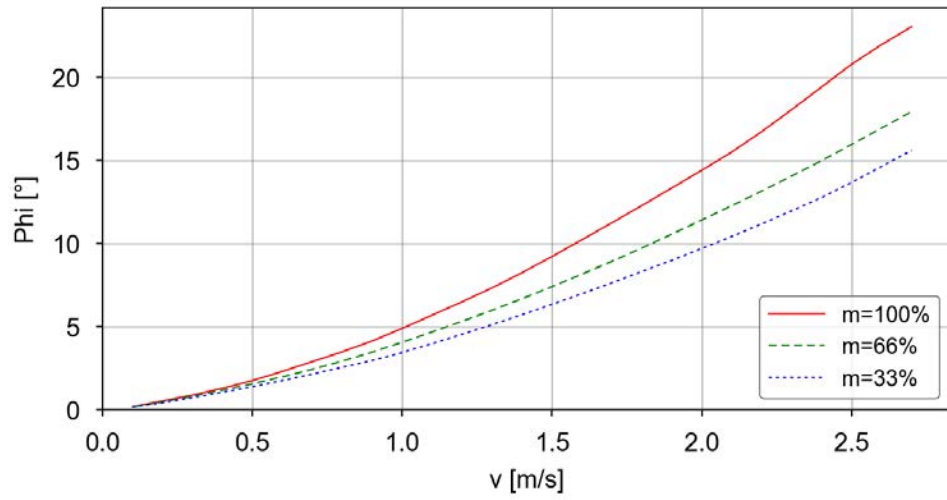


Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



## 18.13 IRB 6700LeanID 2.60 m 175 kg

### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	36.6	0.58
2	24.4	0.34
3	15.7	0.2

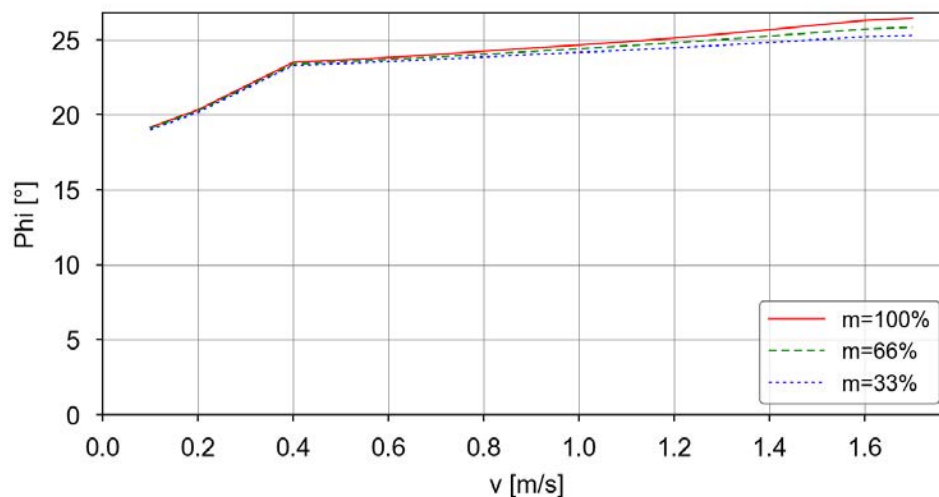
### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.867
1	0.867	1.734
2	1.734	max reach

### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

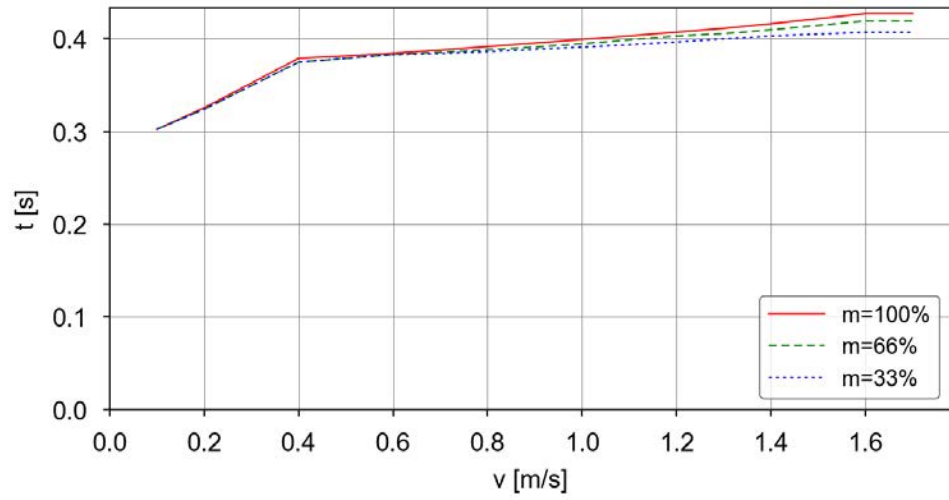


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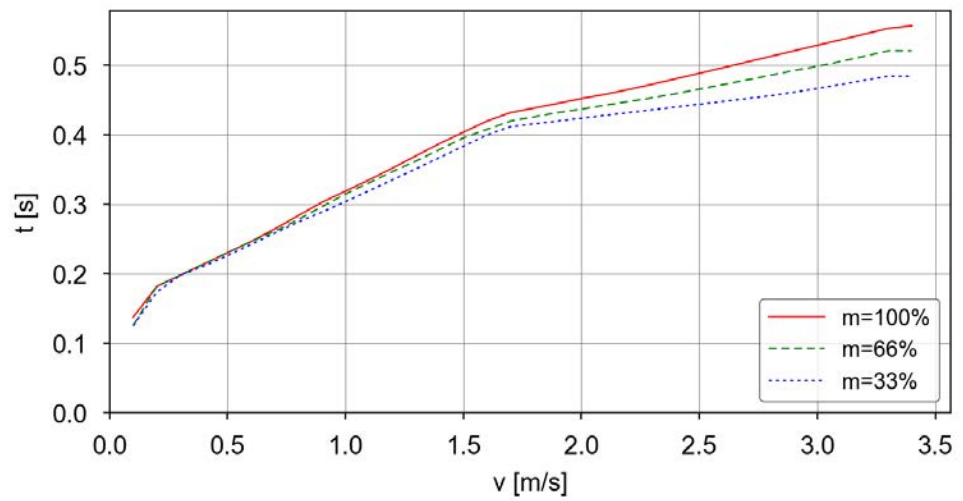
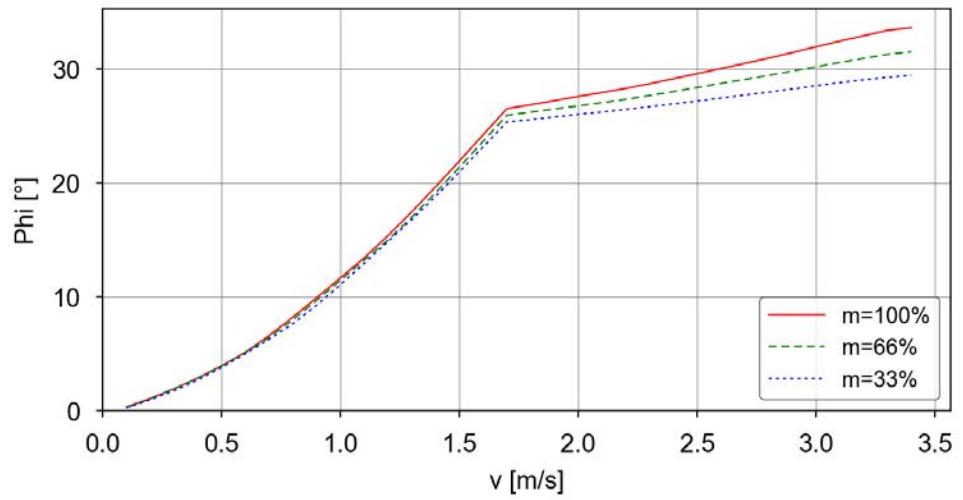
# 18 IRB 6700

18.13 IRB 6700LeanID 2.60 m 175 kg

Continued

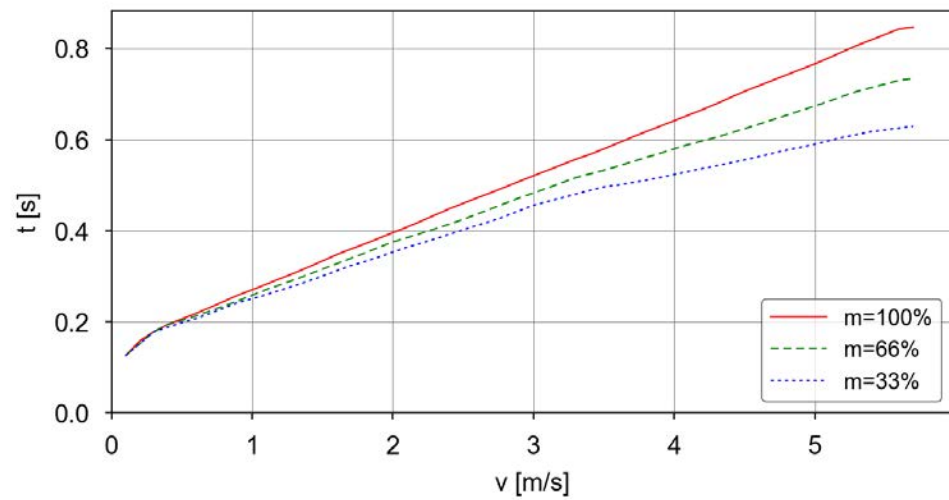
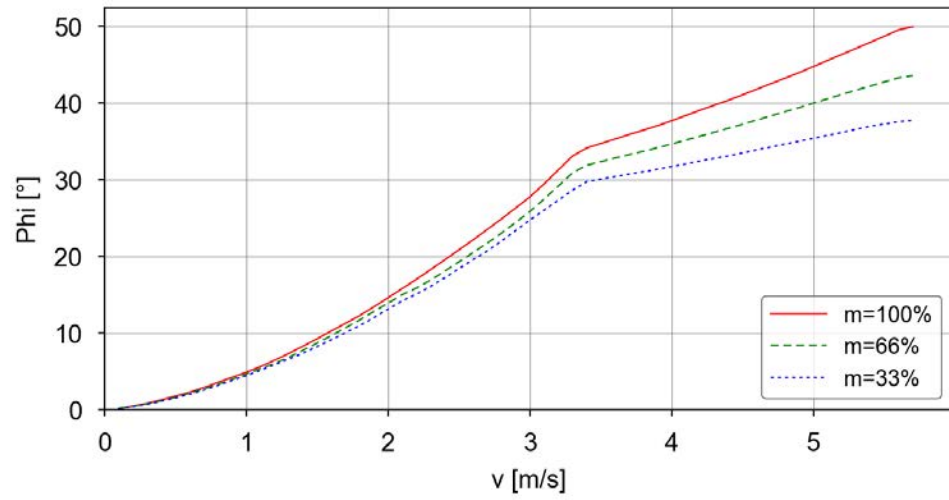


## Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time



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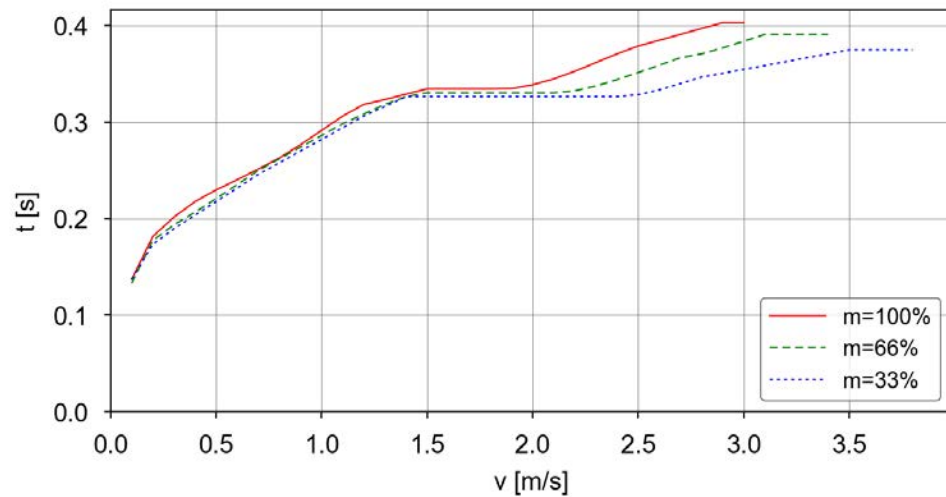
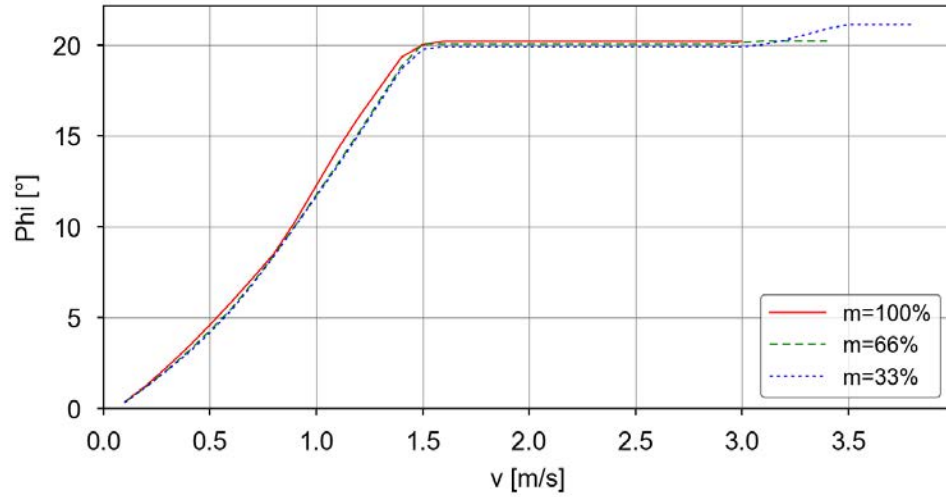
## 18 IRB 6700

18.13 IRB 6700LeanID 2.60 m 175 kg

Continued

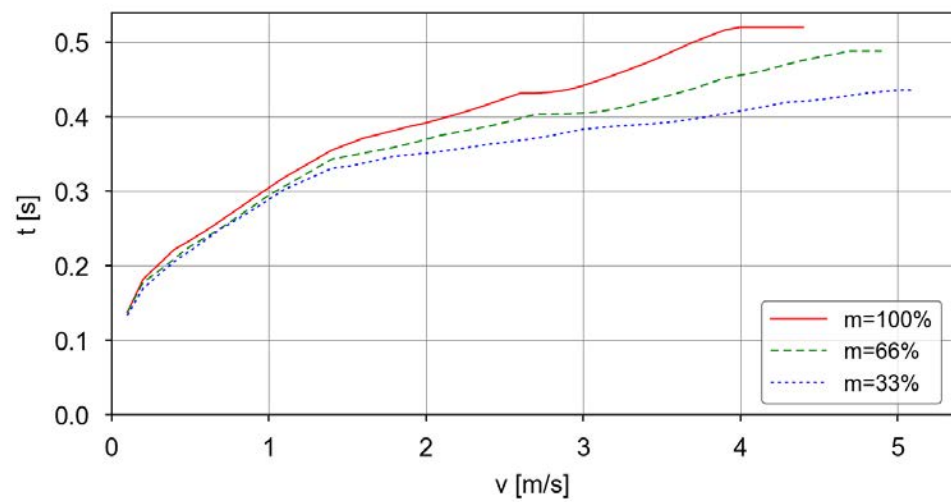
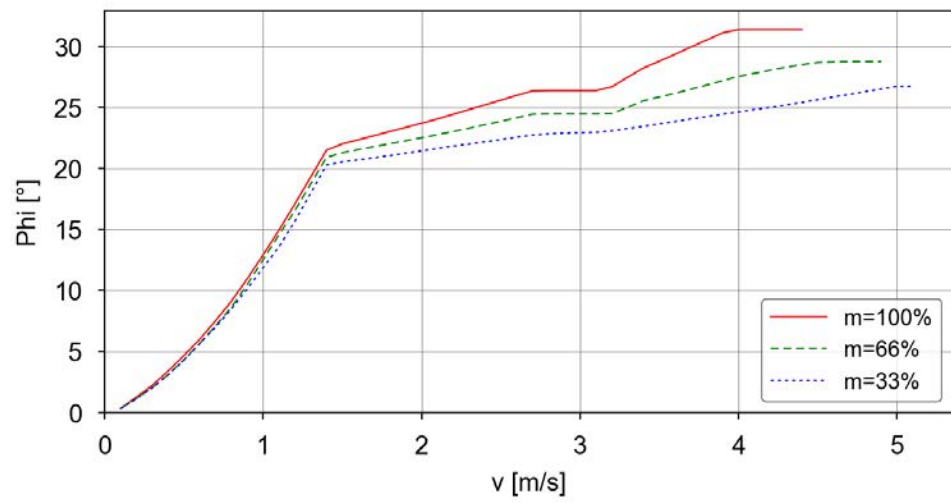
### Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



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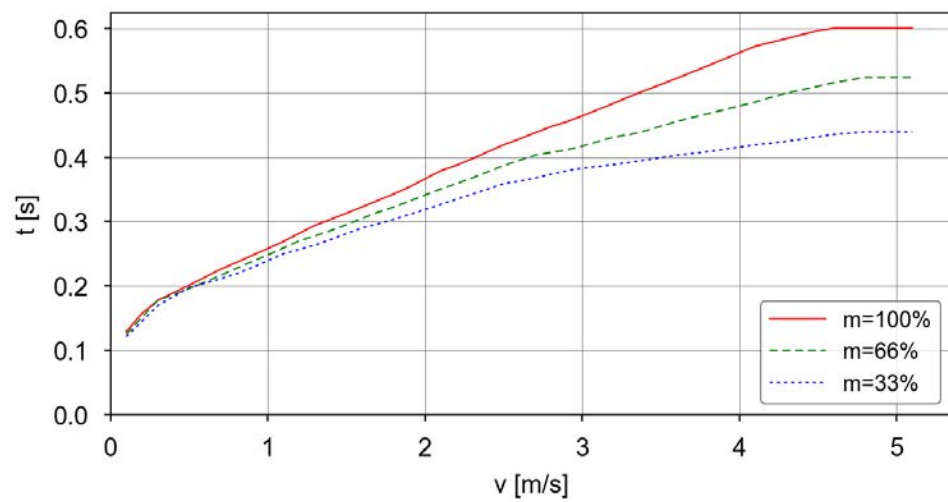
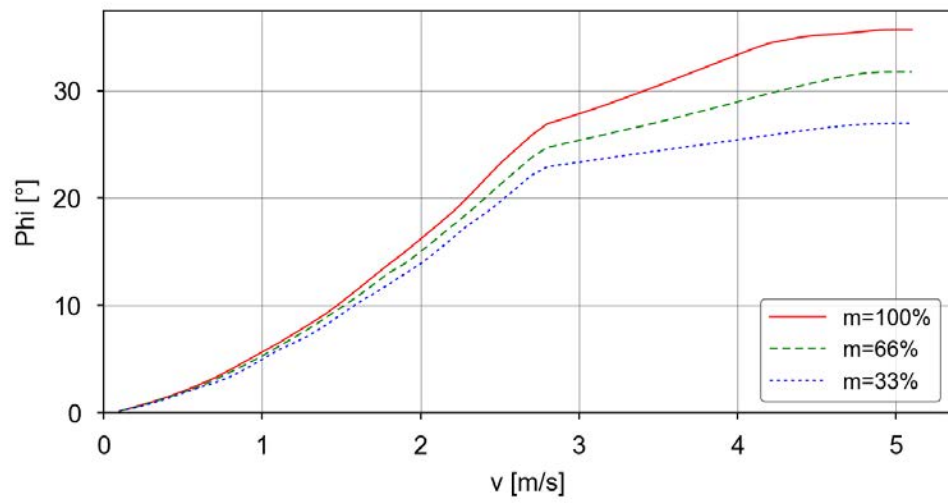
Extension zone 1, stopping distance and stopping time



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Continued

Extension zone 2, stopping distance and stopping time

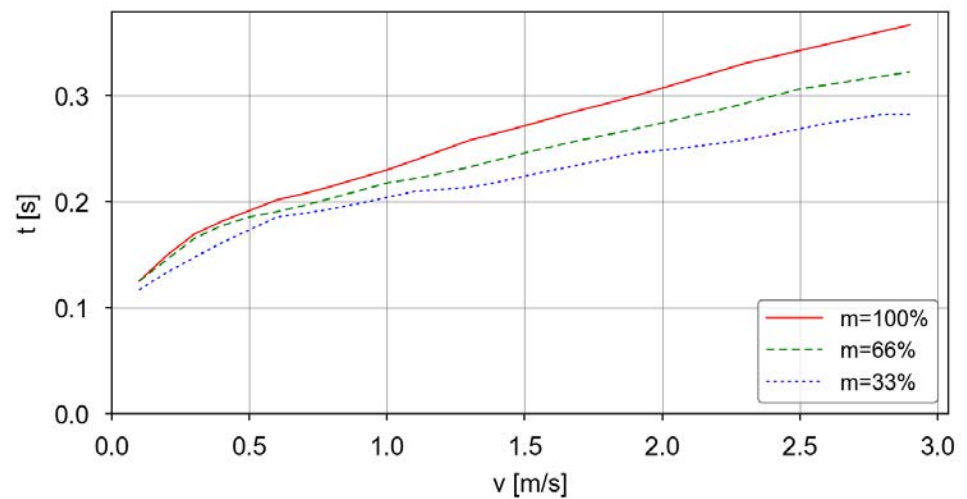
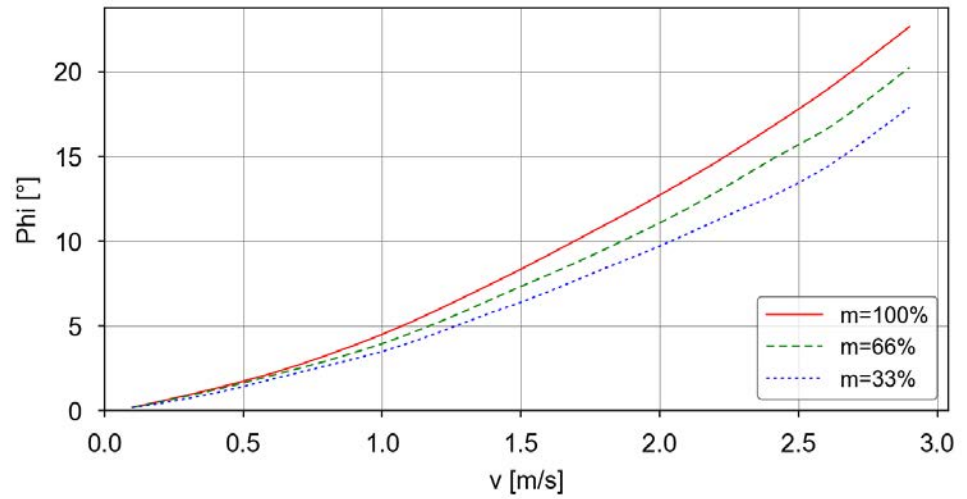


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## Category 1, Axis 3

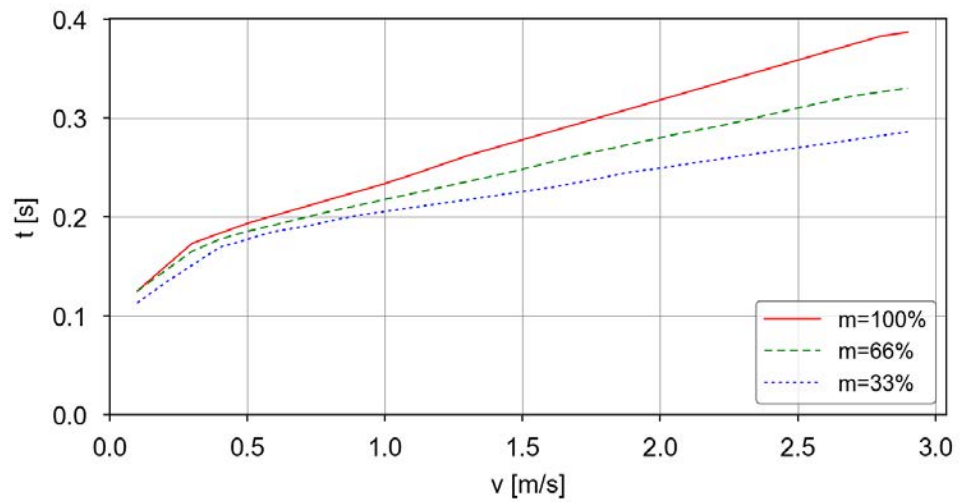
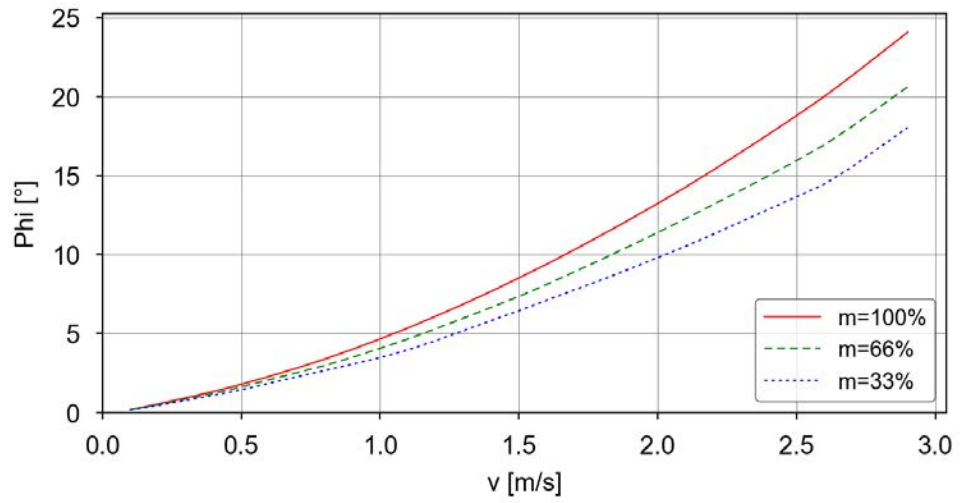
Extension zone 0, stopping distance and stopping time



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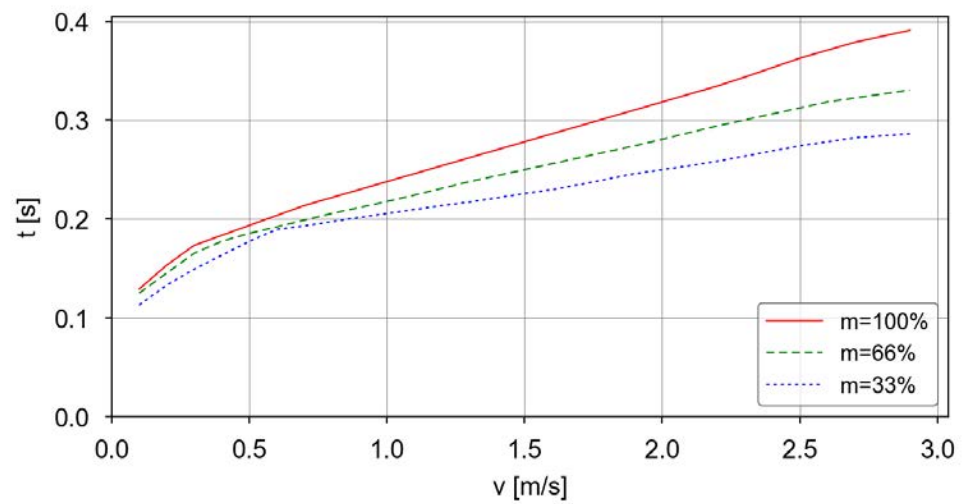
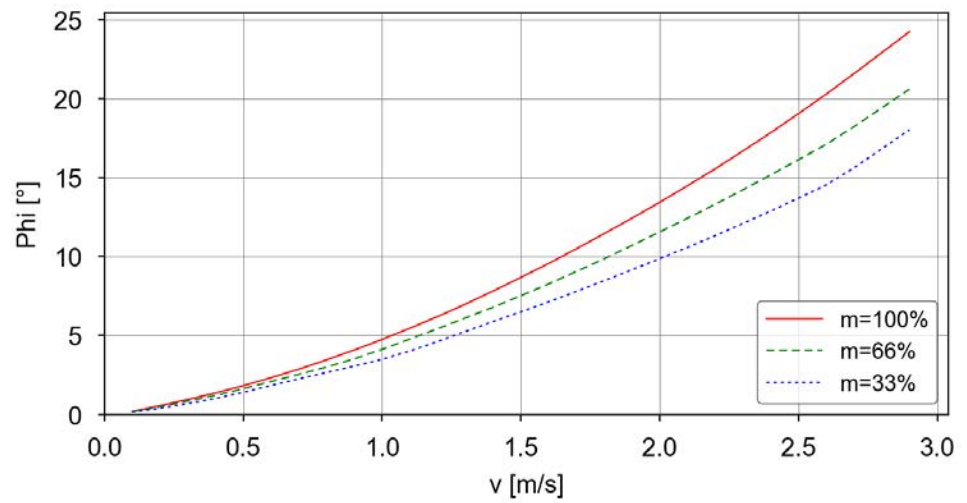
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Extension zone 1, stopping distance and stopping time



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## Extension zone 2, stopping distance and stopping time



18.14 IRB 6700LeanID 2.65 m 220 kg

Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	35.8	0.63
2	19.5	0.34
3	12.3	0.17

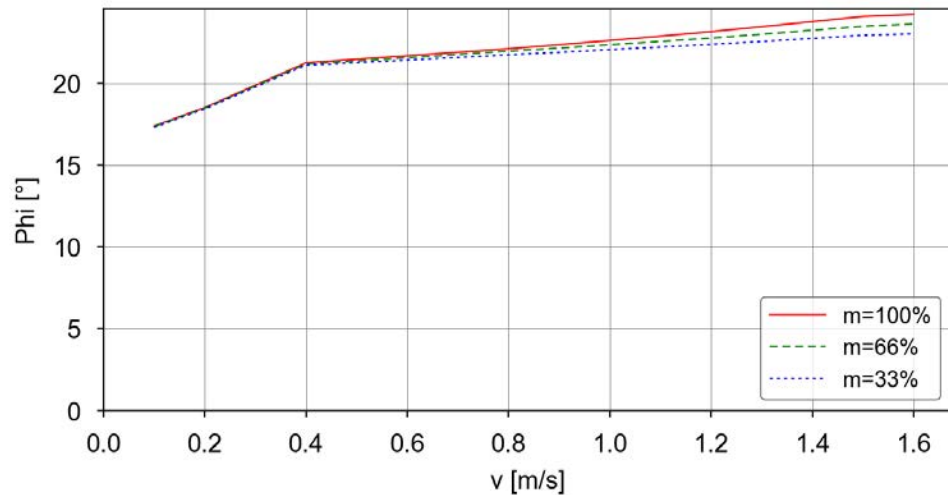
Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

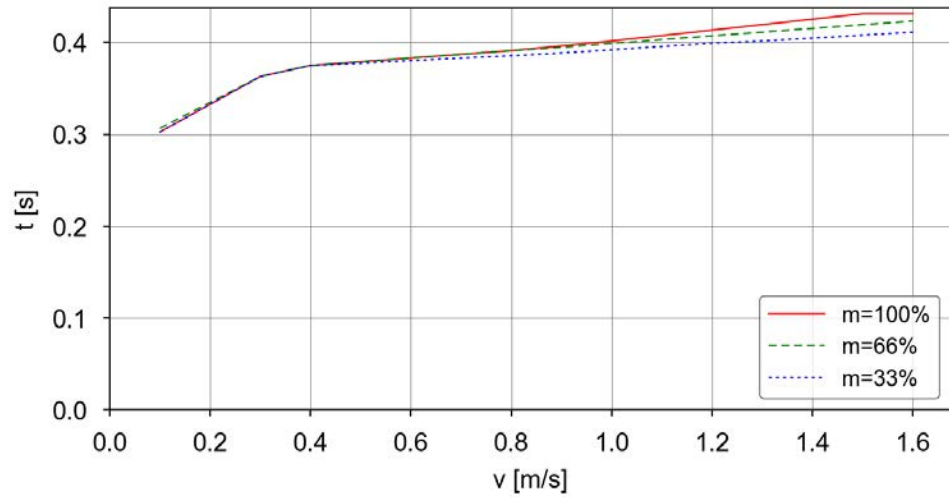
Zone	wcp min (m)	wcp max (m)
0	0	0.883
1	0.883	1.767
2	1.767	max reach

Category 1, Axis 1

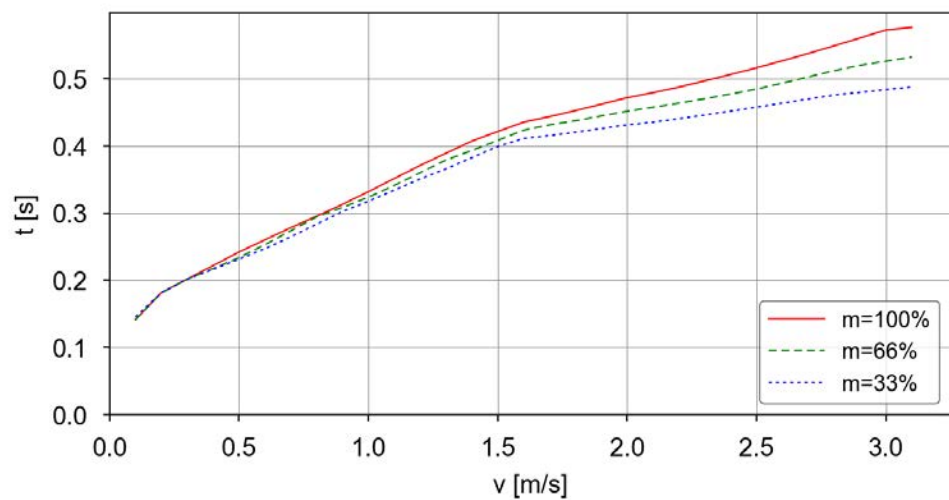
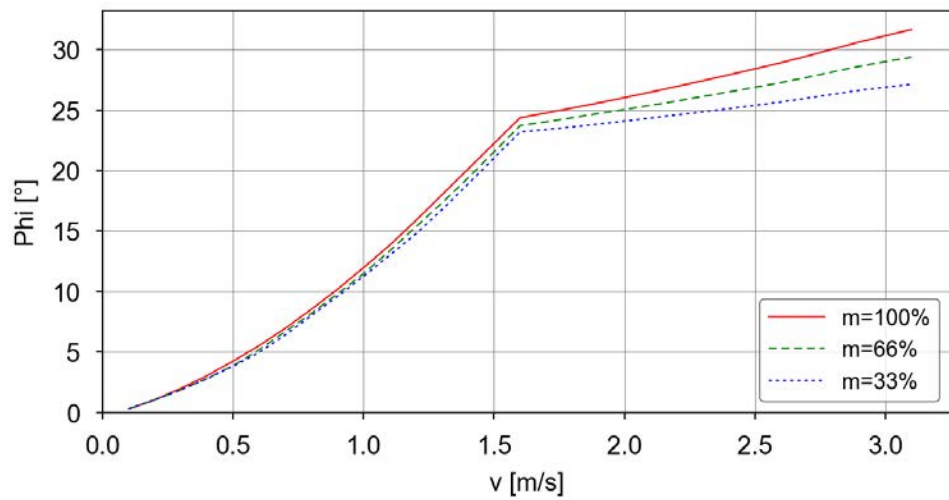
Extension zone 0, stopping distance and stopping time



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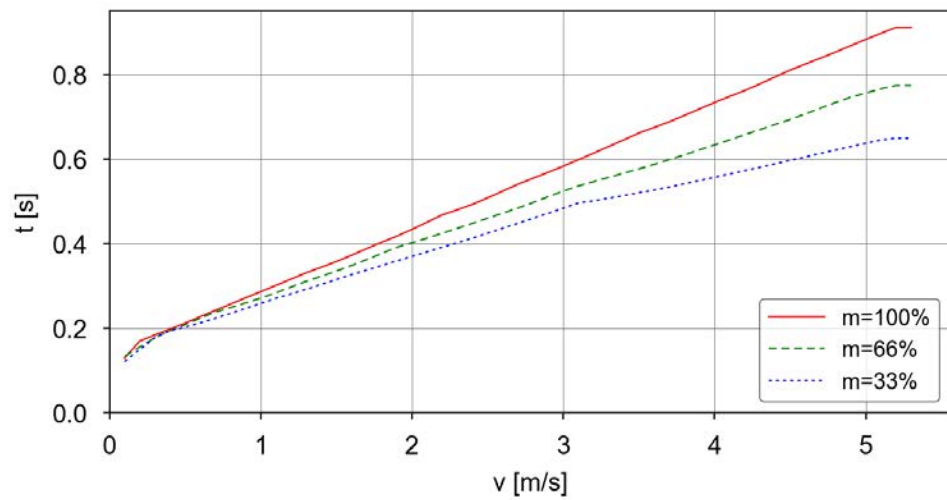
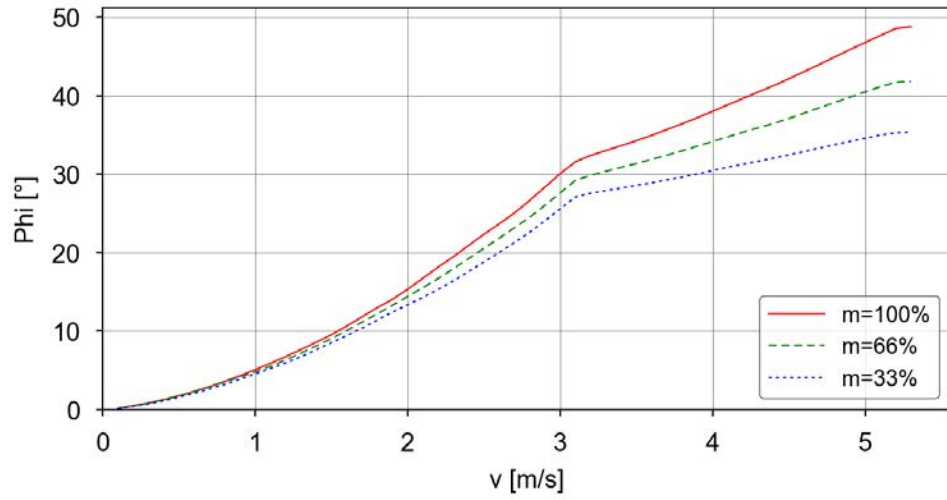


Extension zone 1, stopping distance and stopping time



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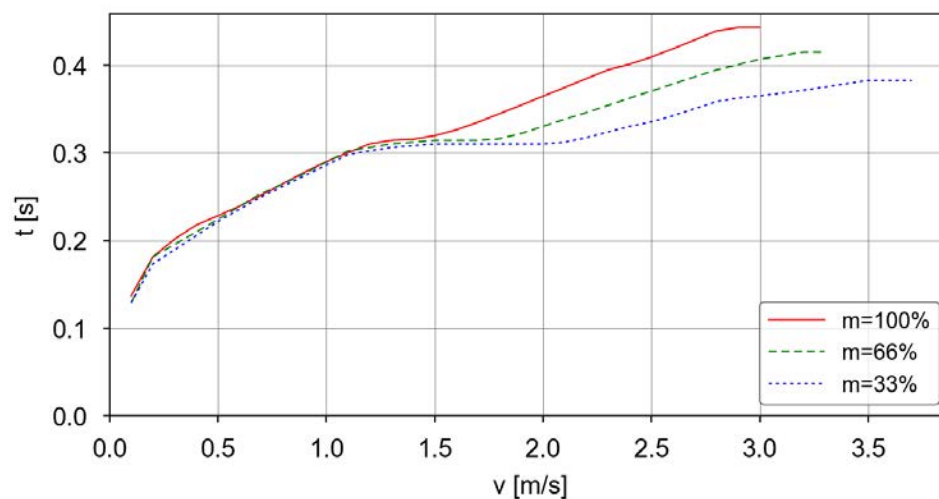
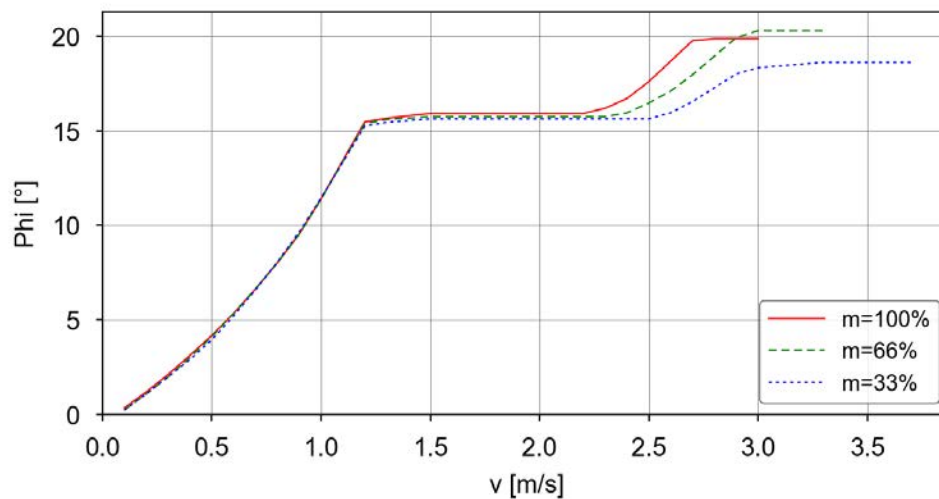
Extension zone 2, stopping distance and stopping time



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Category 1, Axis 2

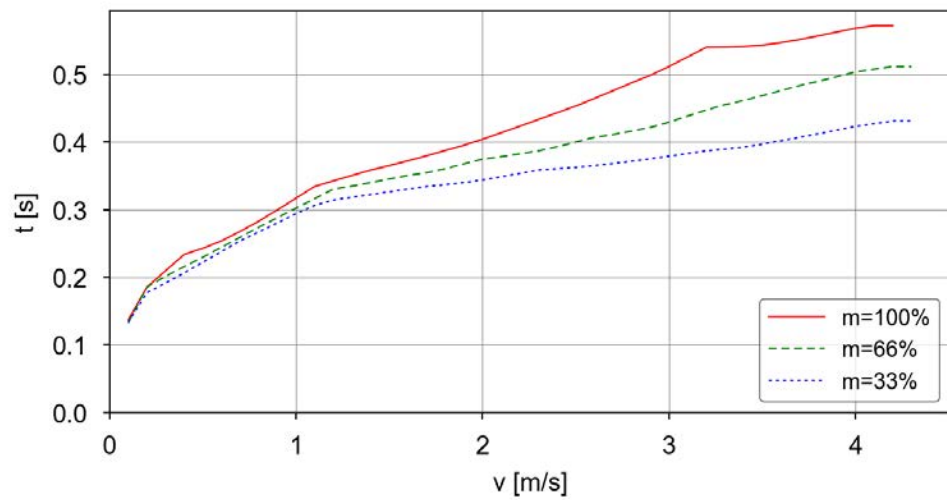
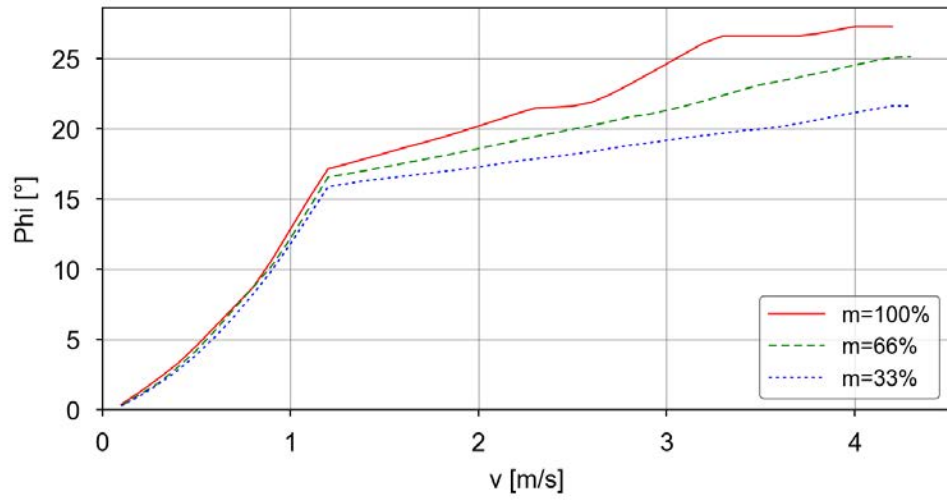
Extension zone 0, stopping distance and stopping time



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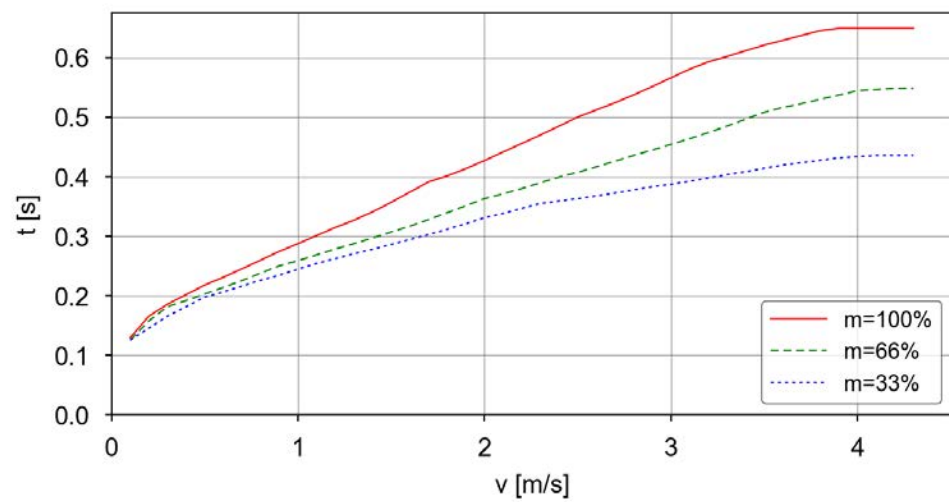
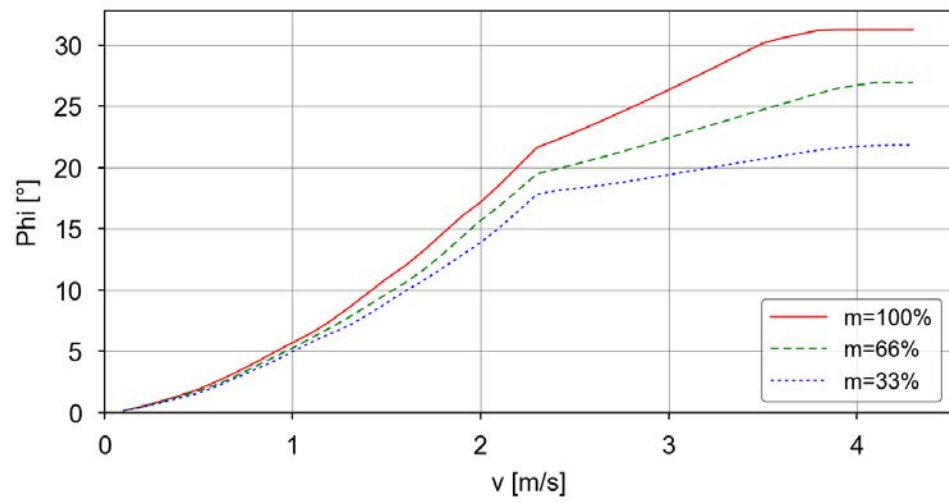
Extension zone 1, stopping distance and stopping time



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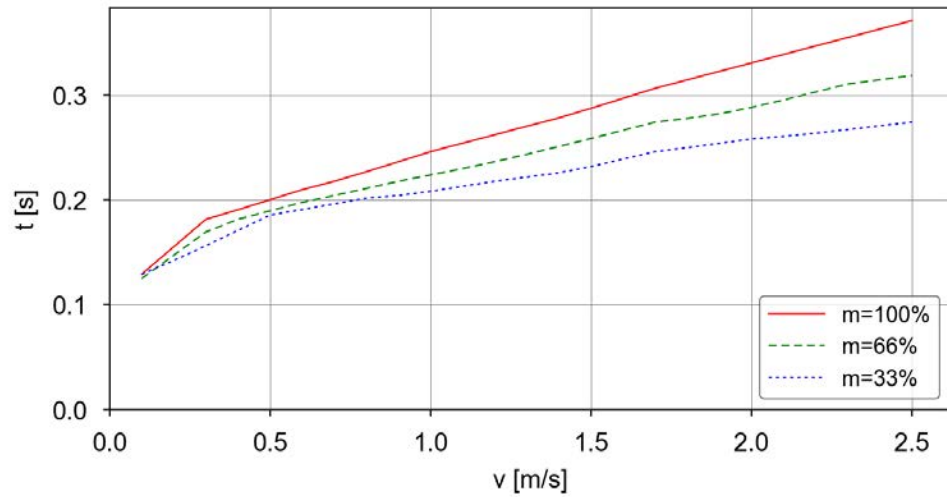
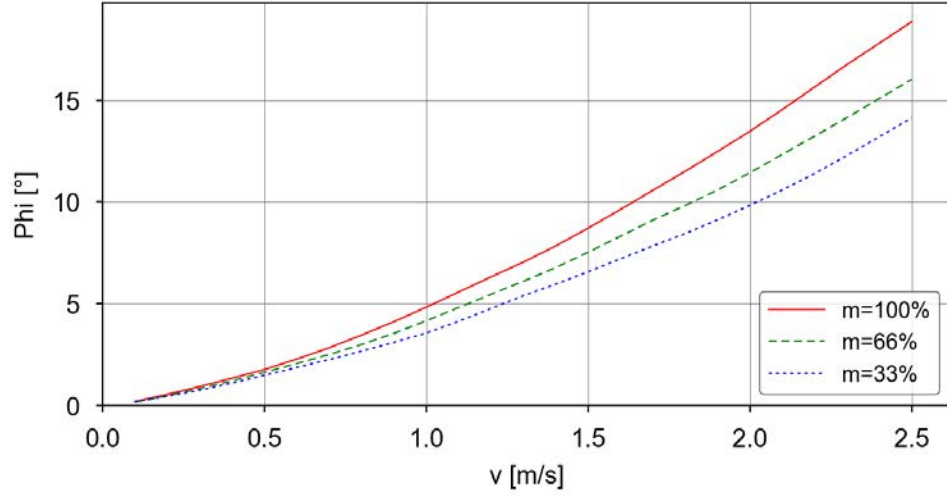
Extension zone 2, stopping distance and stopping time



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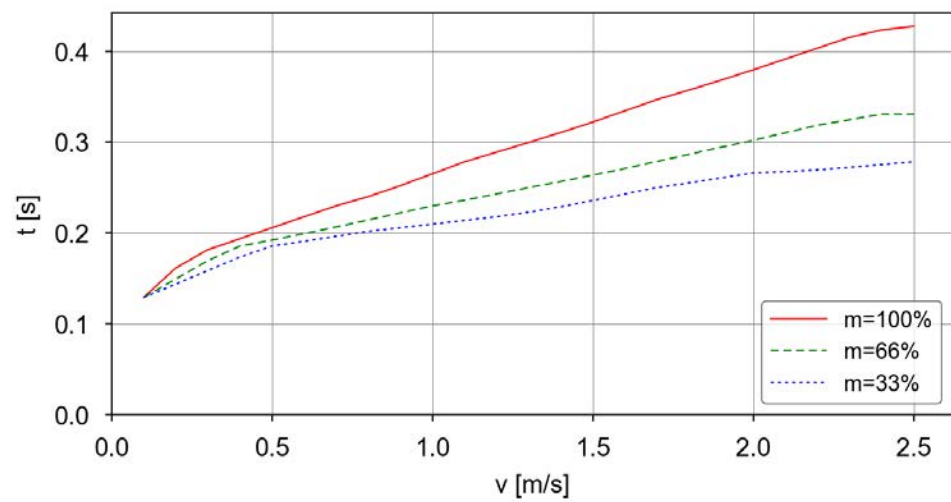
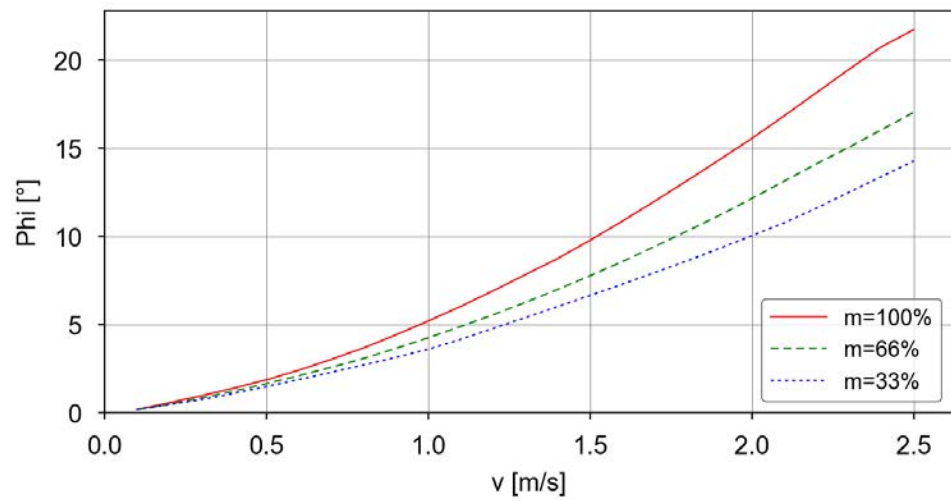
Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



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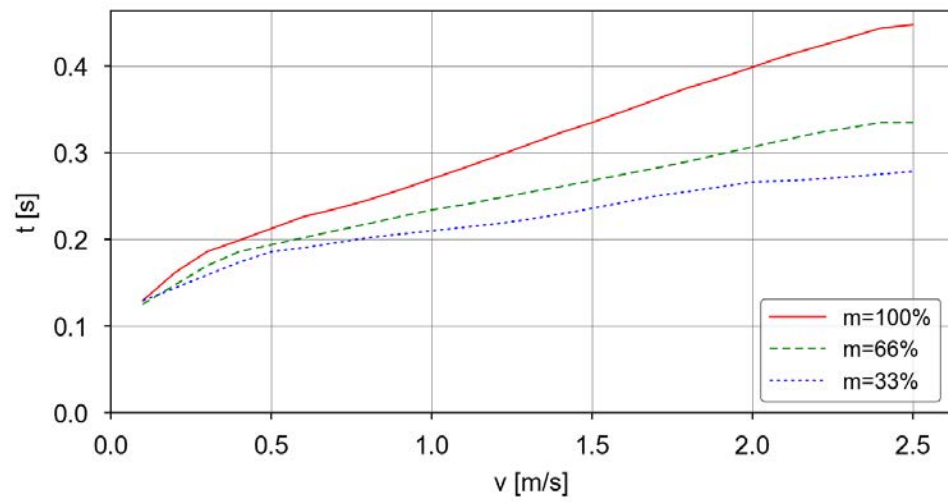
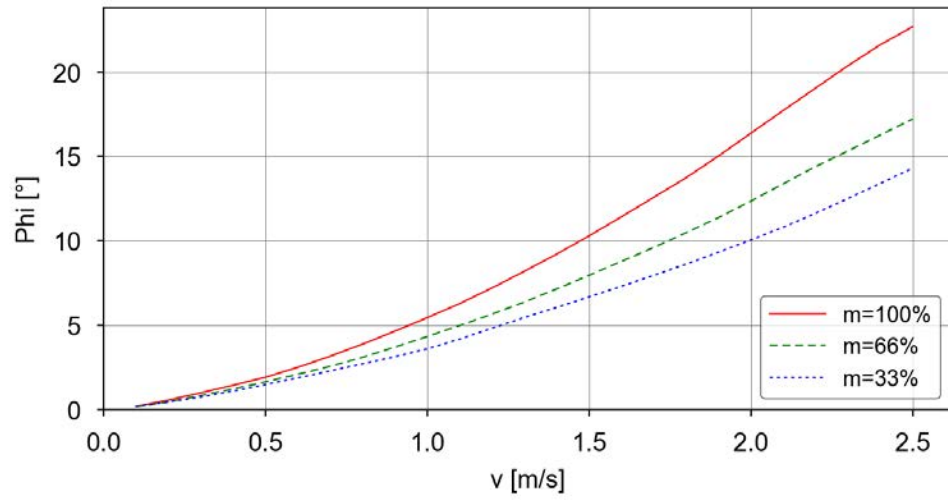
## Extension zone 1, stopping distance and stopping time



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Continued

Extension zone 2, stopping distance and stopping time



## 18.15 IRB 6700LeanID 2.70 m 270 kg

### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	35.2	0.61
2	20.8	0.37
3	14.9	0.22

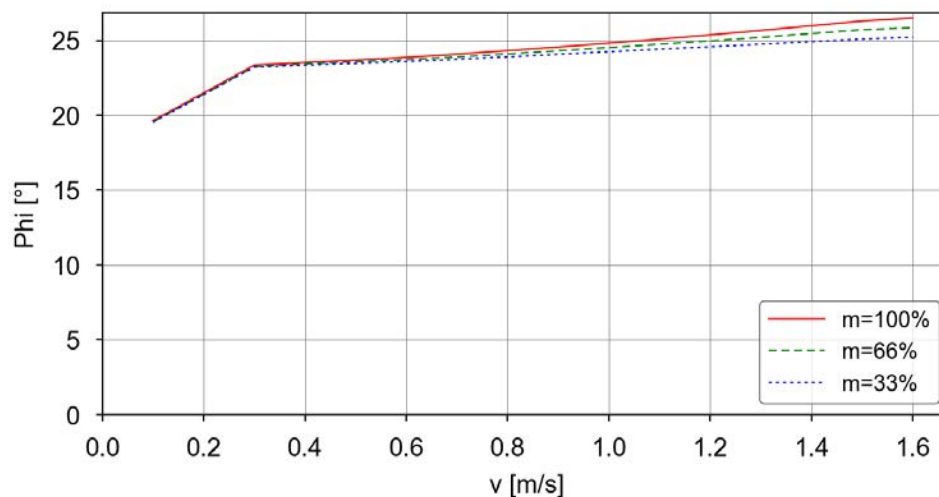
### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.907
1	0.907	1.813
2	1.813	max reach

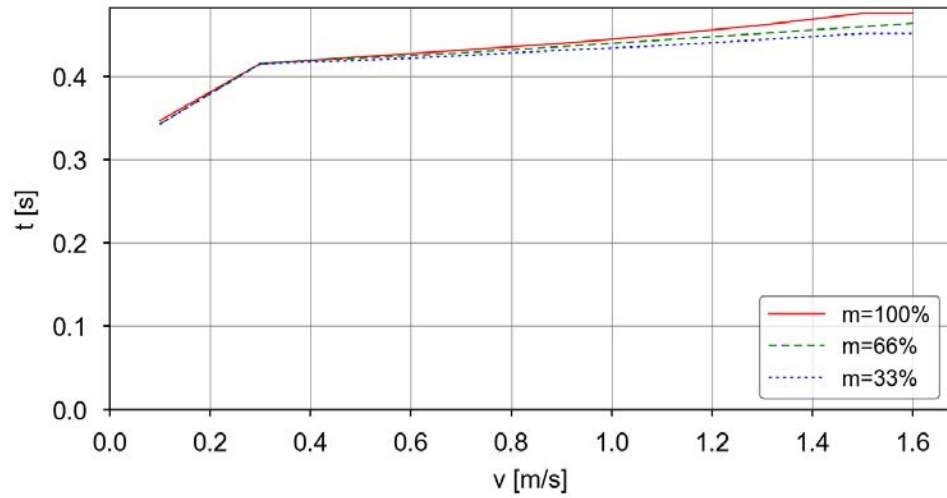
### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

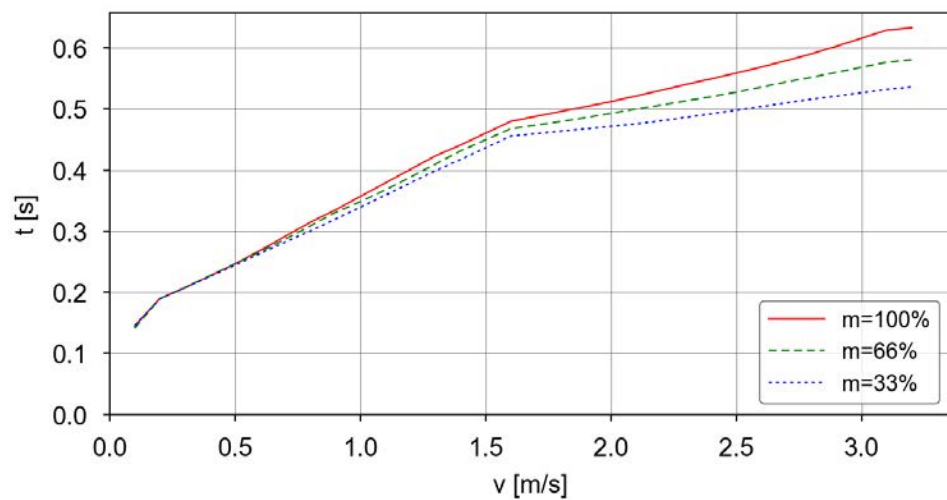
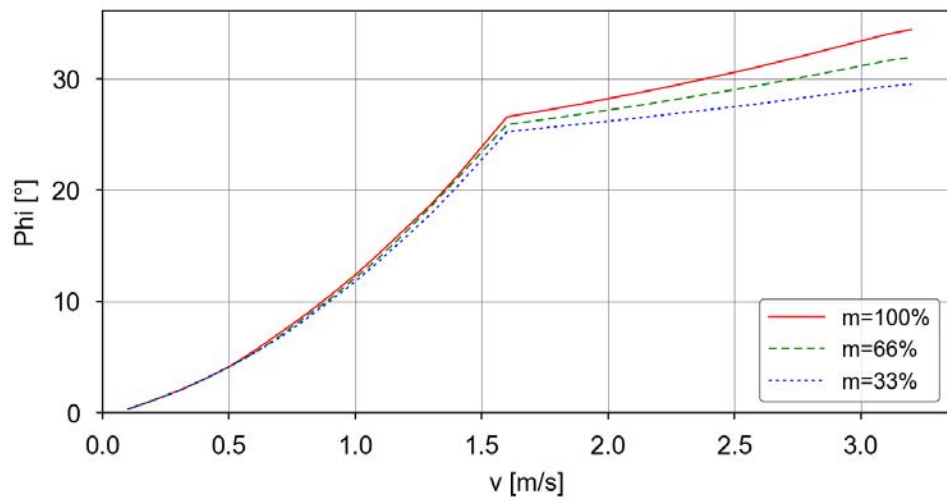


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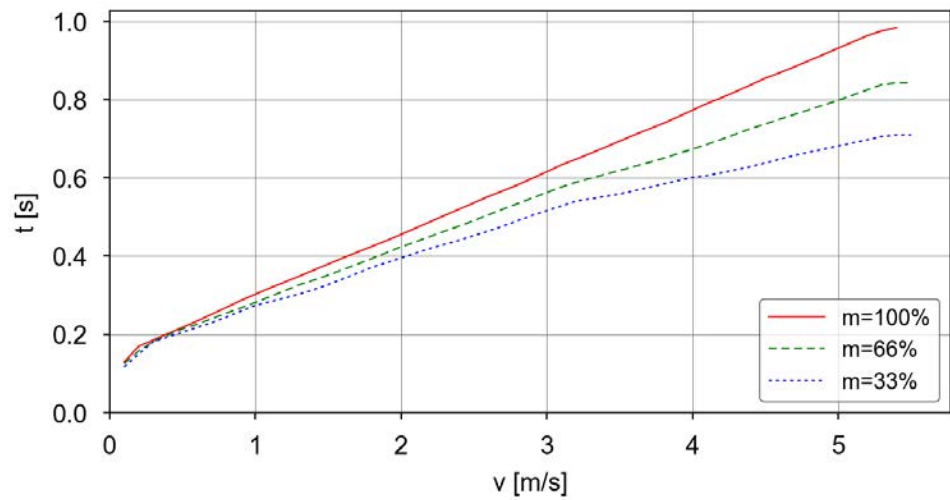
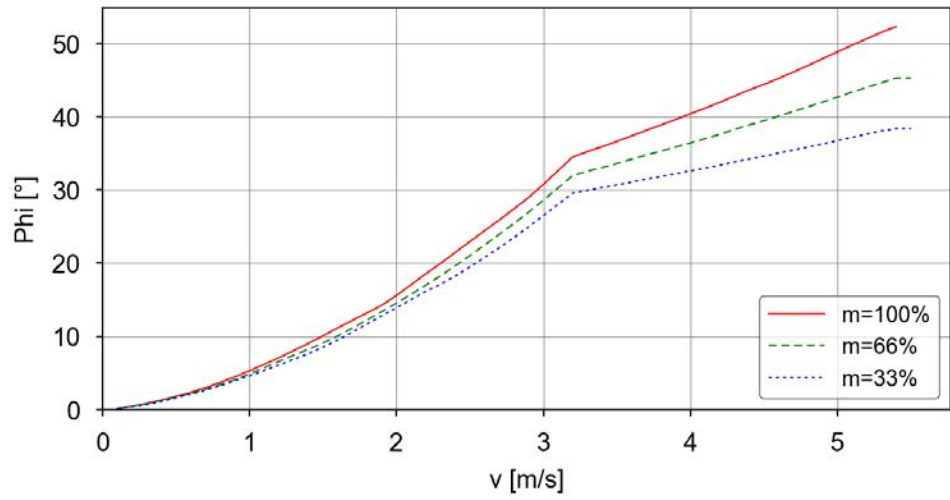


Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

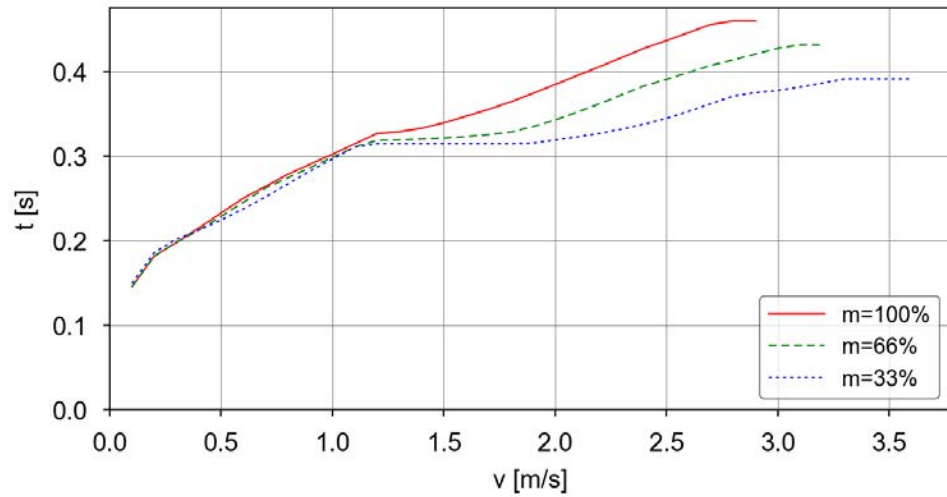
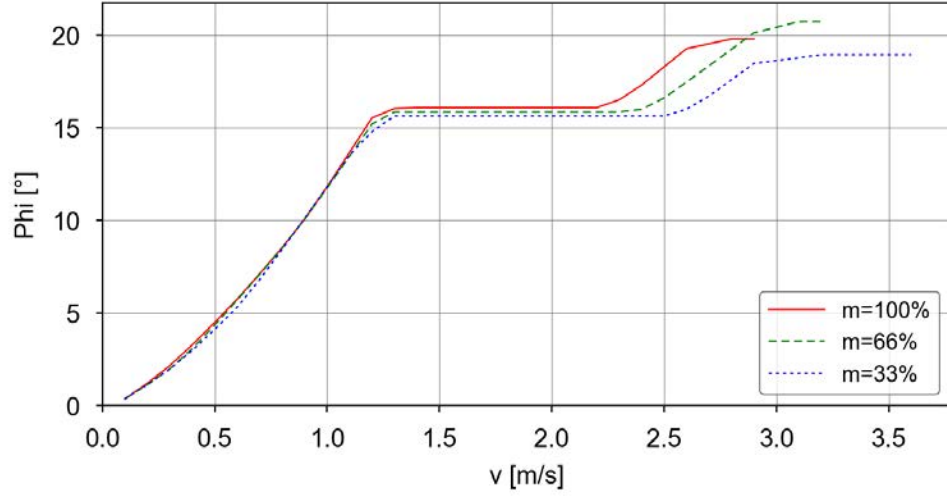
# 18 IRB 6700

18.15 IRB 6700LeanID 2.70 m 270 kg

Continued

## Category 1, Axis 2

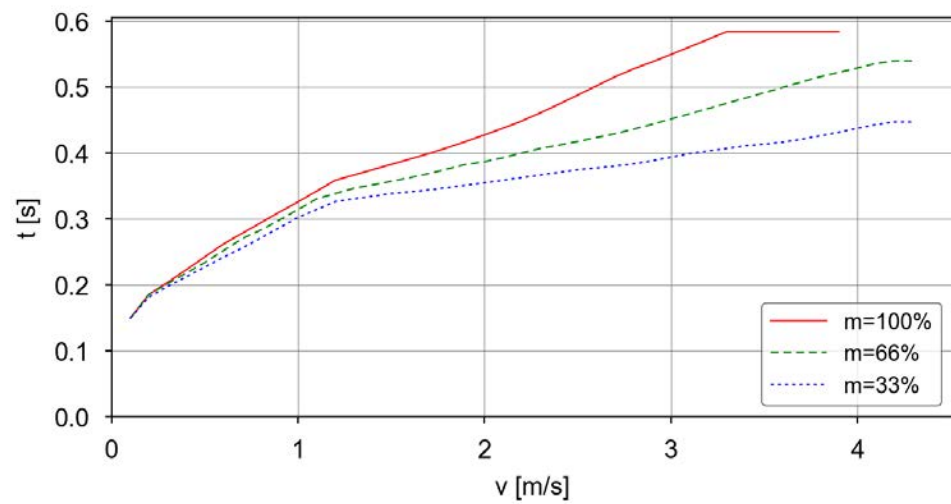
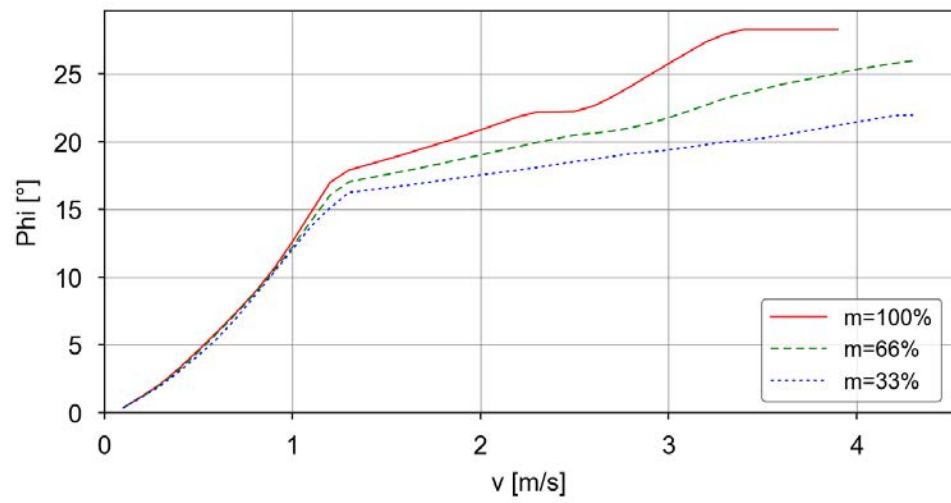
Extension zone 0, stopping distance and stopping time



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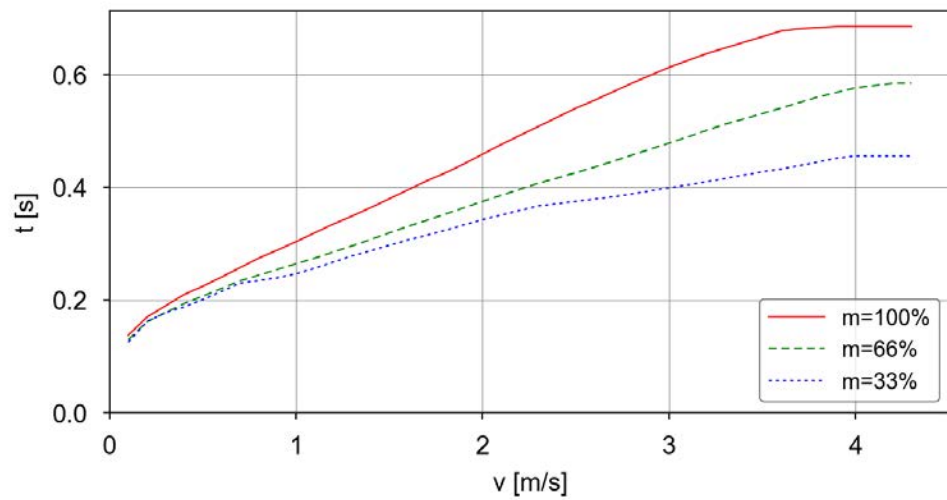
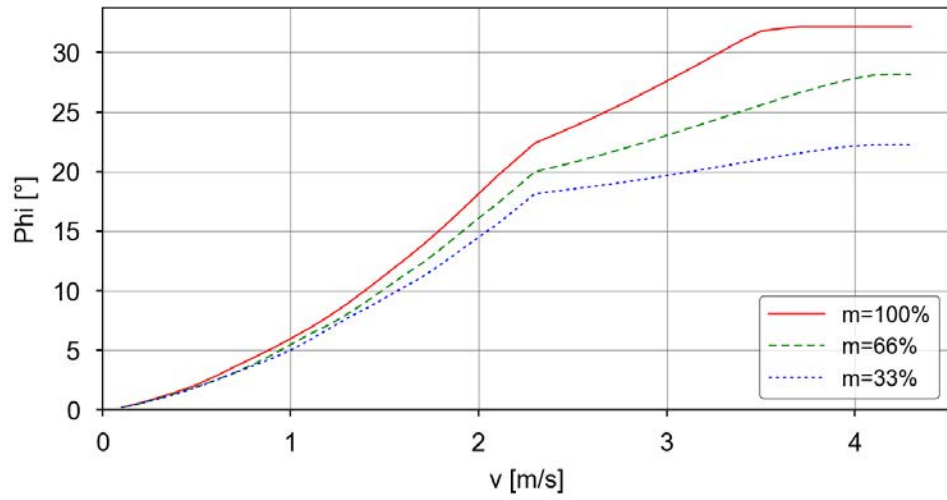


Extension zone 1, stopping distance and stopping time



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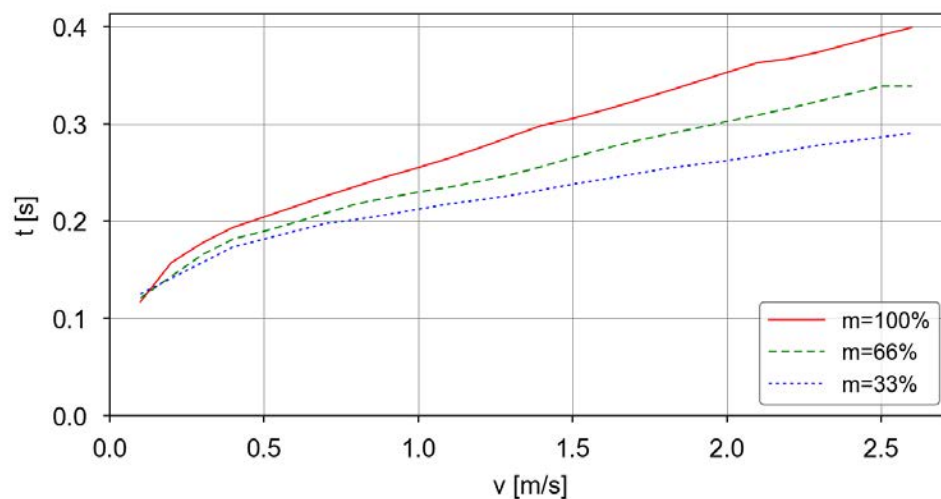
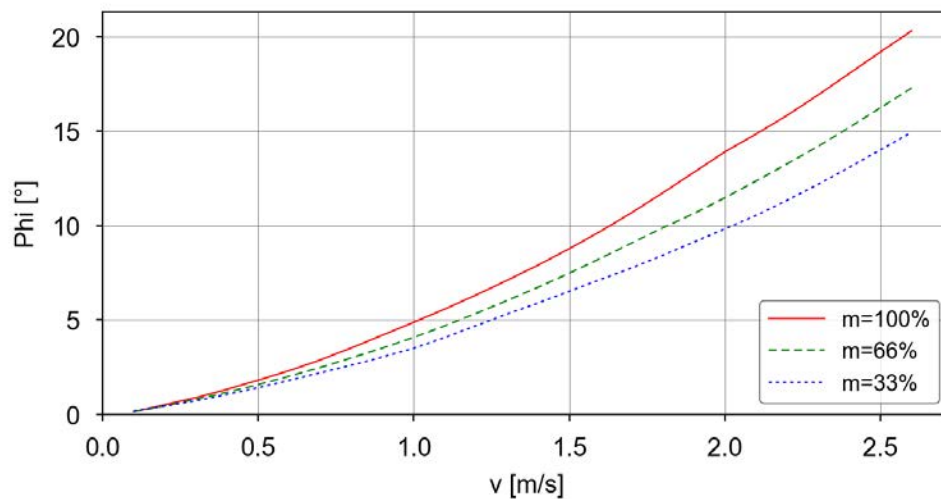
Extension zone 2, stopping distance and stopping time



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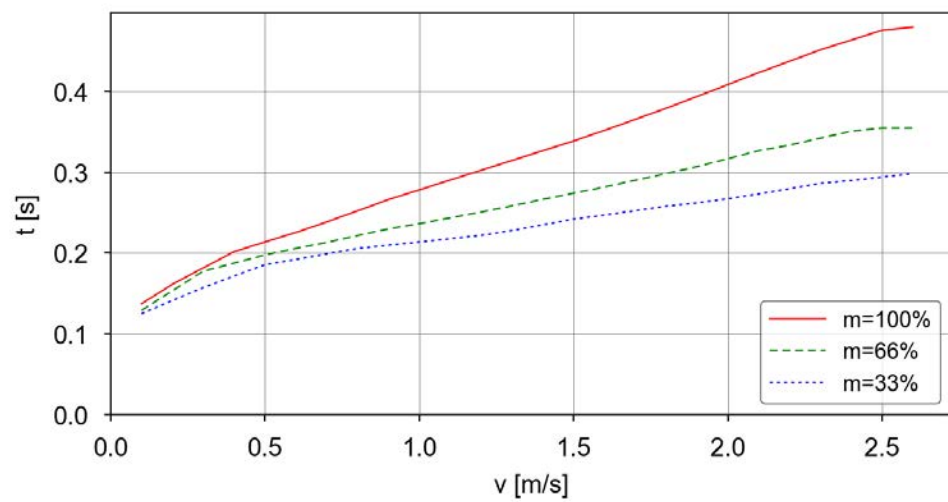
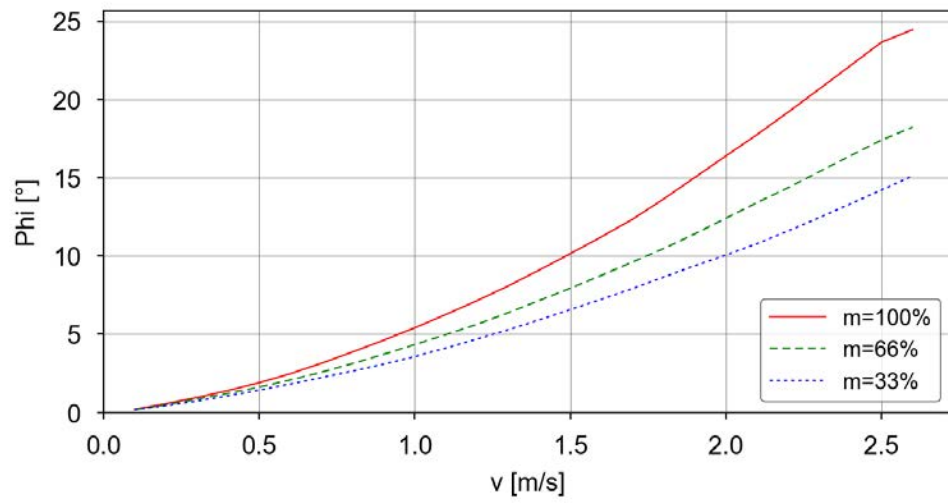
Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



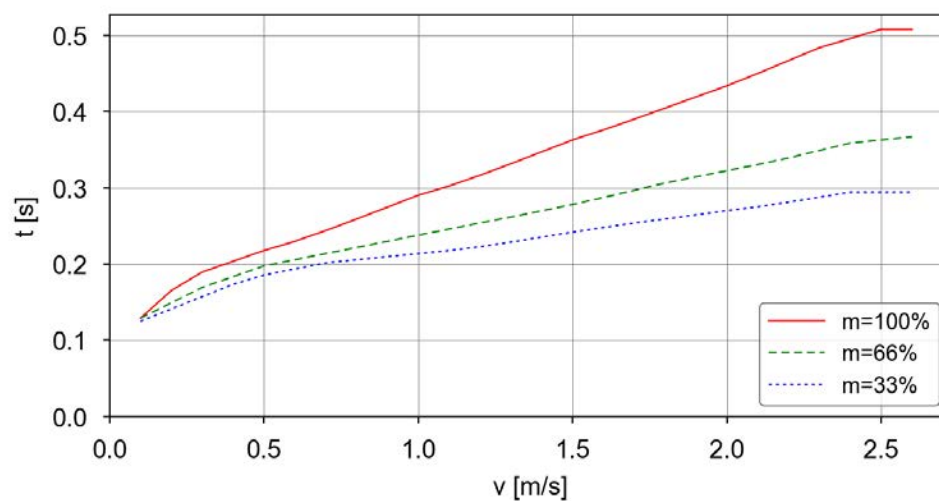
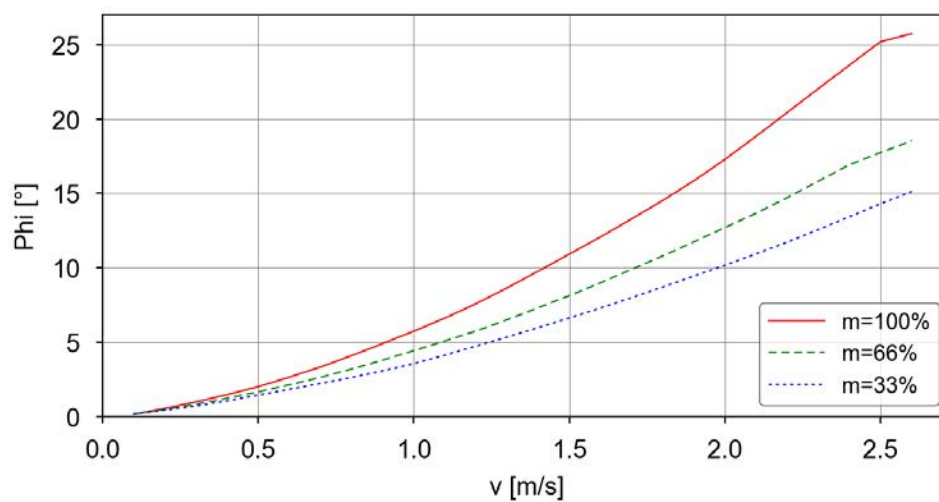
Continues on next page

Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



18.16 IRB 6700LeanID 2.80 m 200 kg

Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	39.0	0.68
2	20.3	0.37
3	13.2	0.2

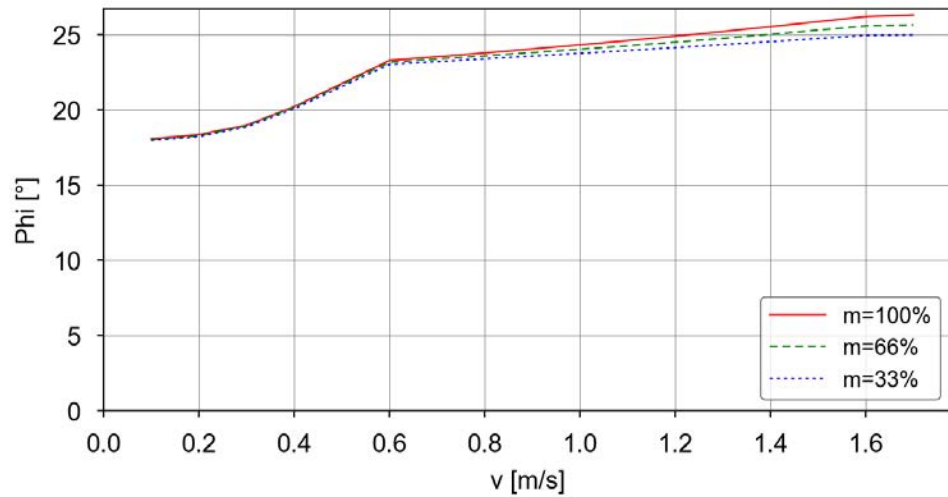
Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

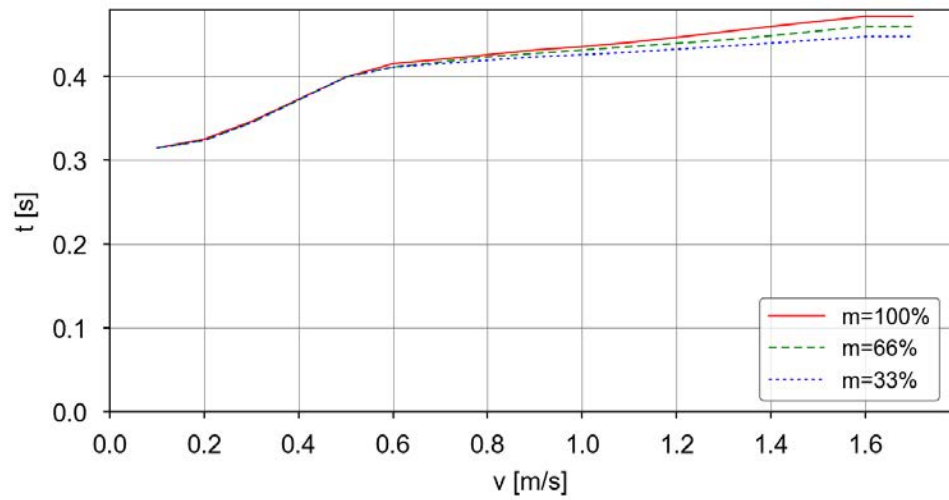
Zone	wcp min (m)	wcp max (m)
0	0	0.931
1	0.931	1.863
2	1.863	max reach

Category 1, Axis 1

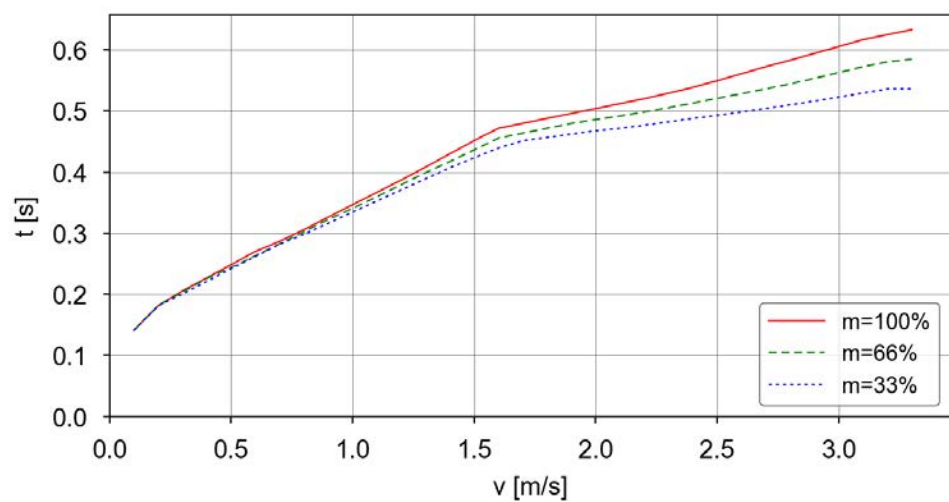
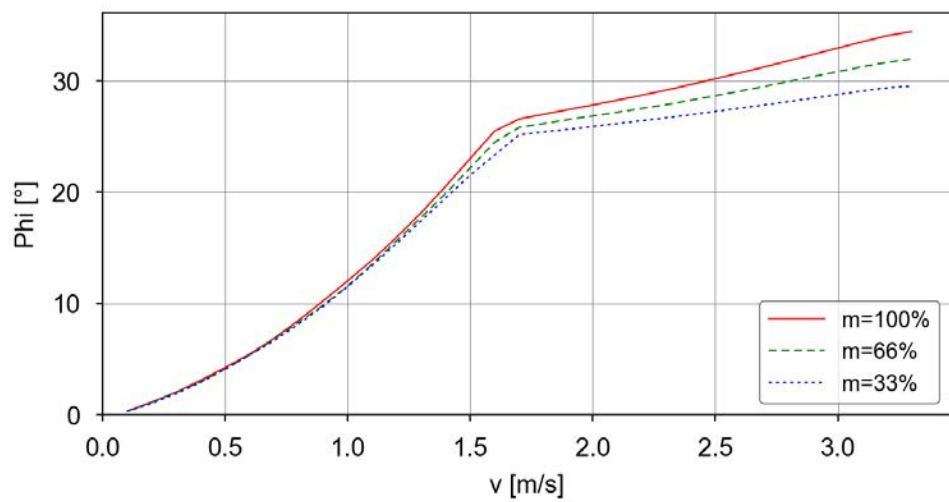
Extension zone 0, stopping distance and stopping time



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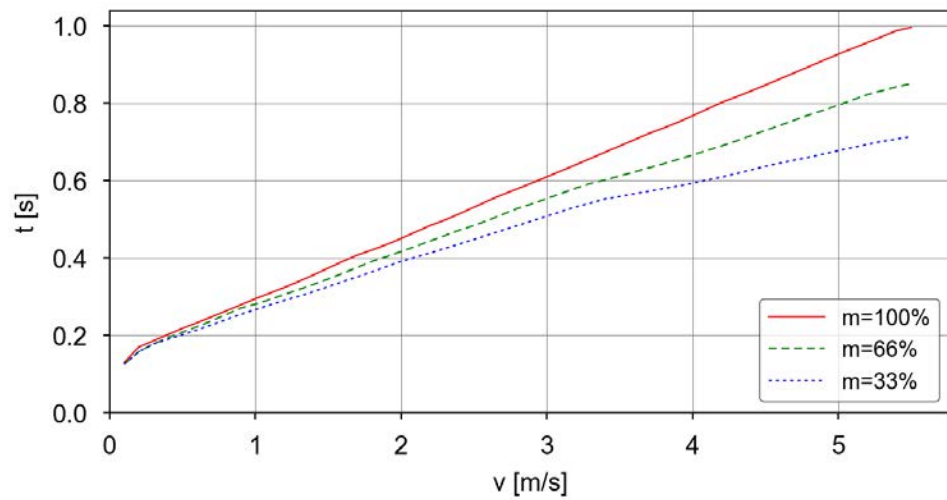
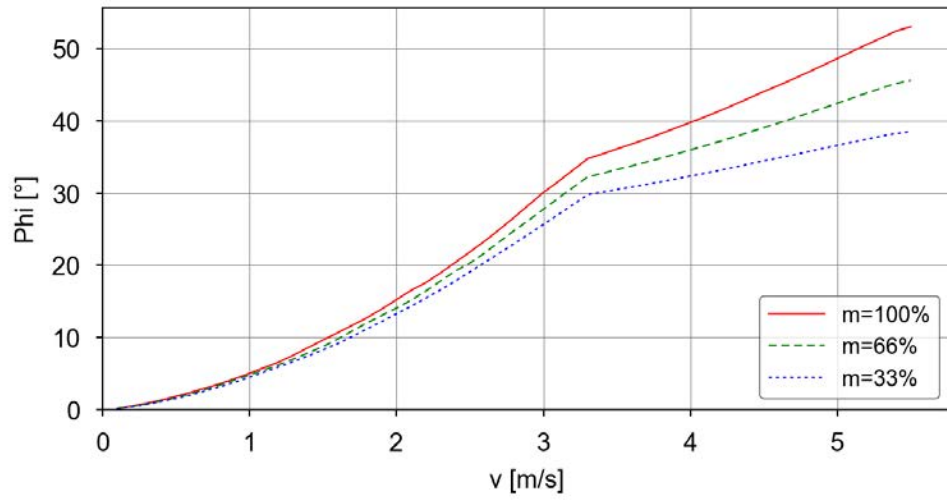
Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time

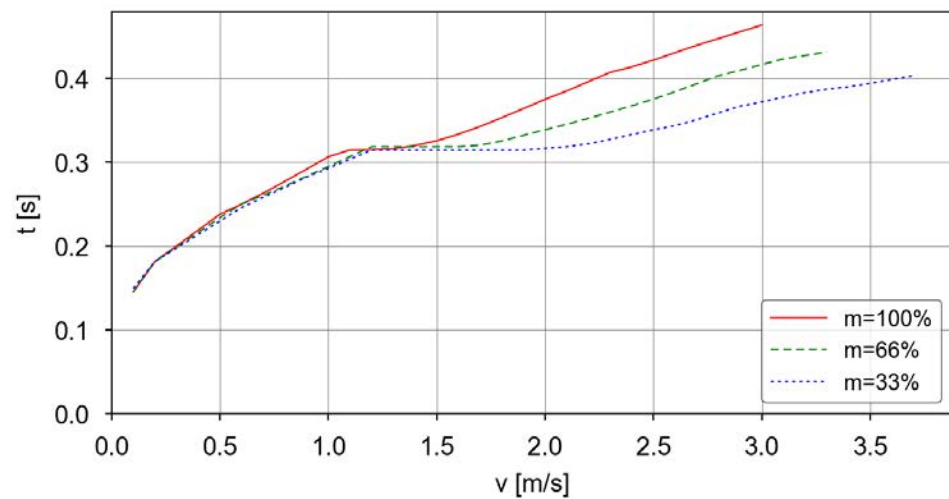
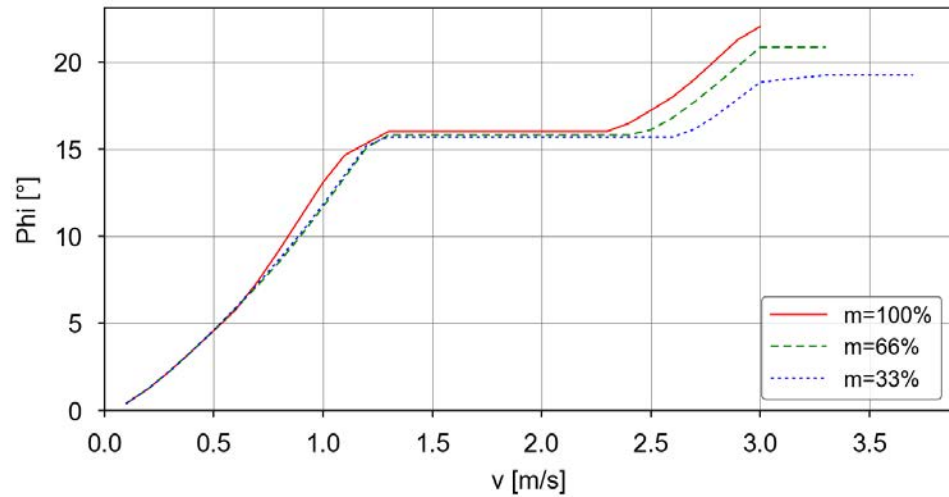


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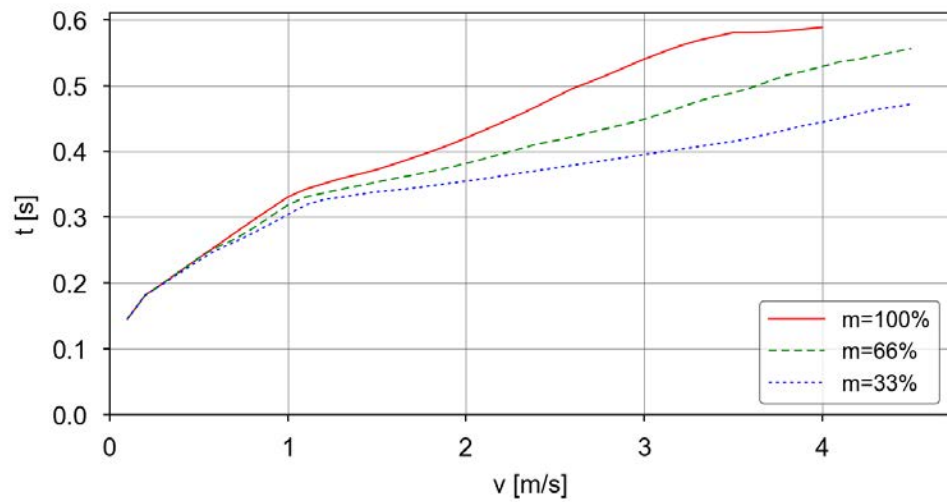
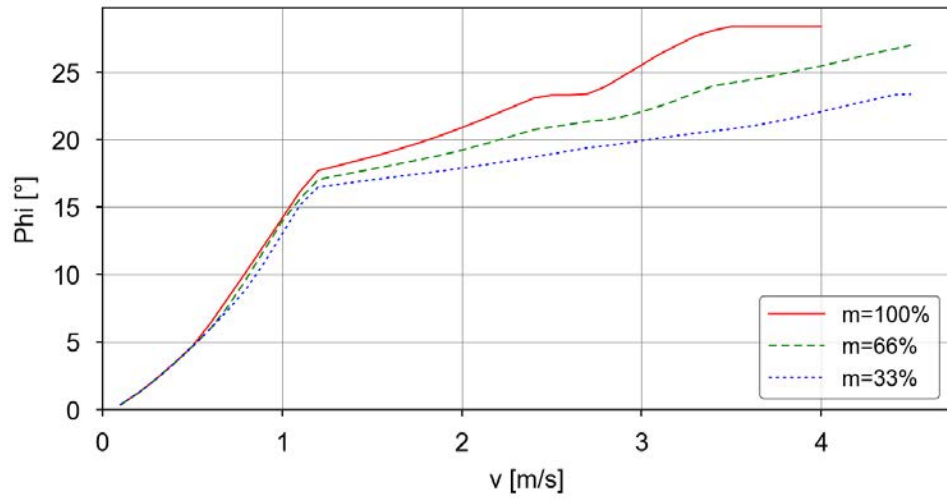
## Category 1, Axis 2

## Extension zone 0, stopping distance and stopping time



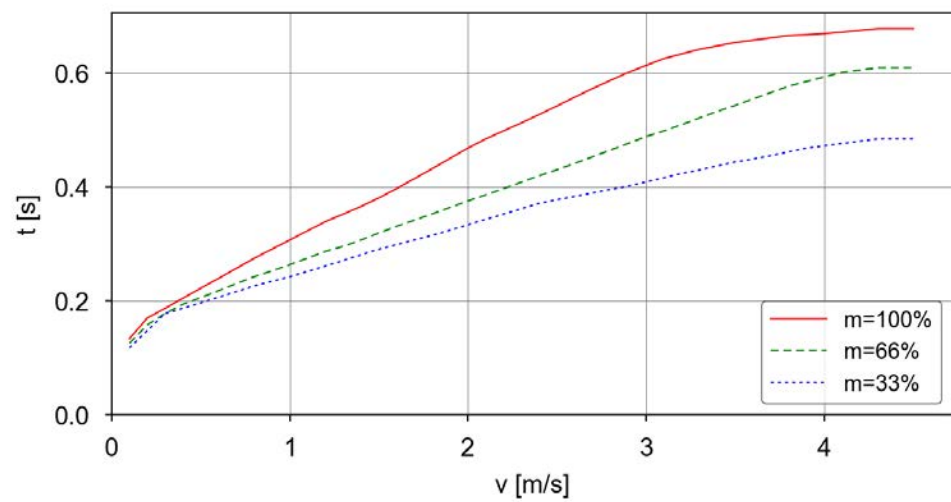
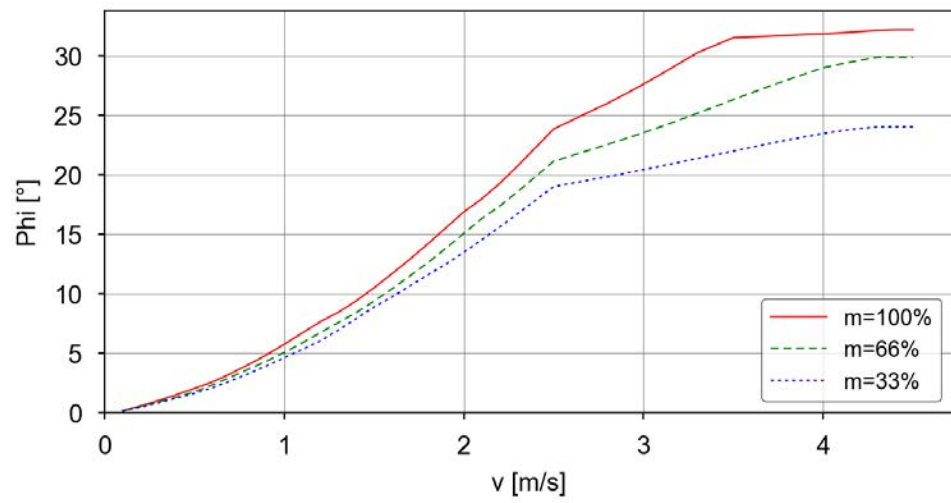
Continues on next page

Extension zone 1, stopping distance and stopping time



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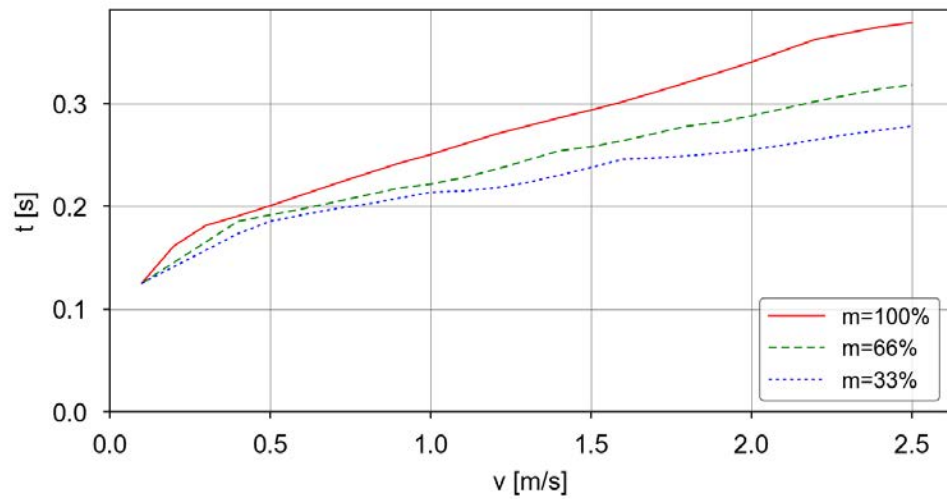
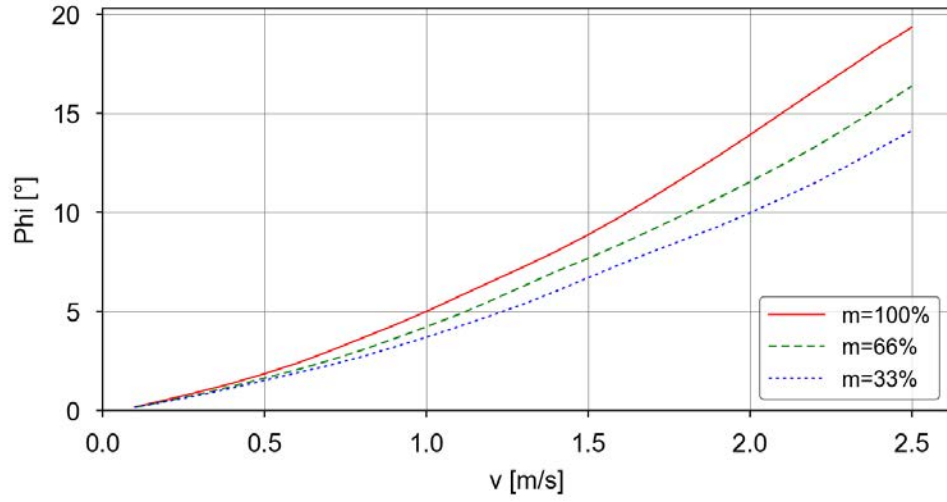
Extension zone 2, stopping distance and stopping time



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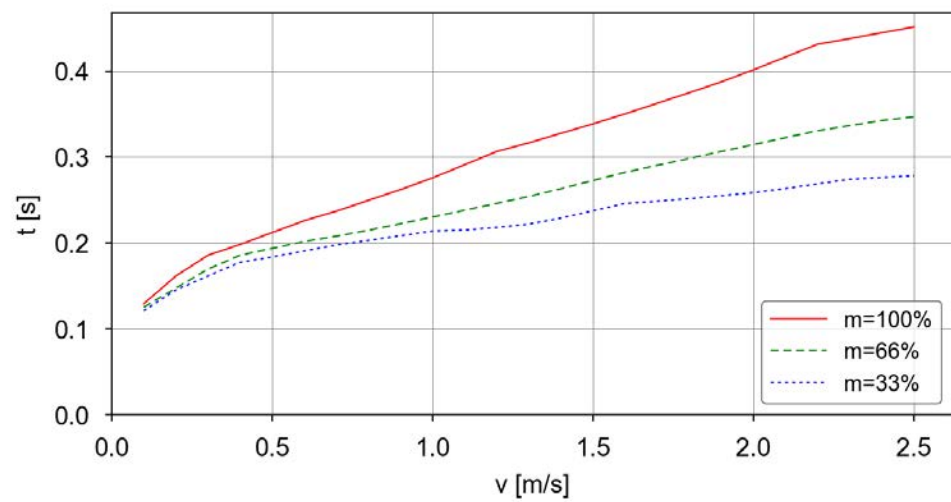
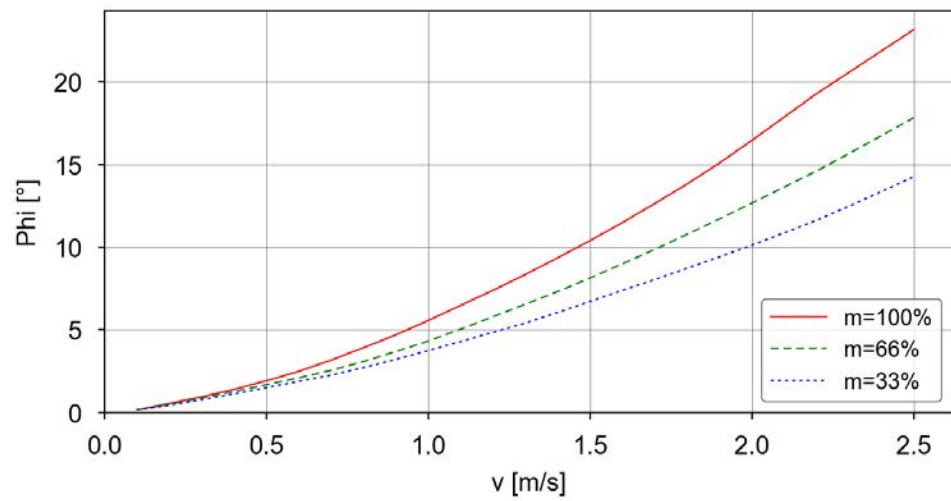
Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



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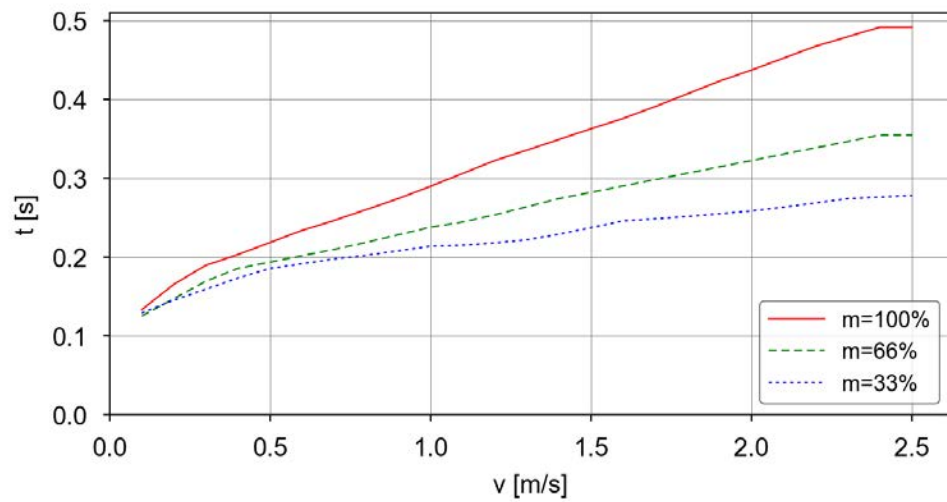
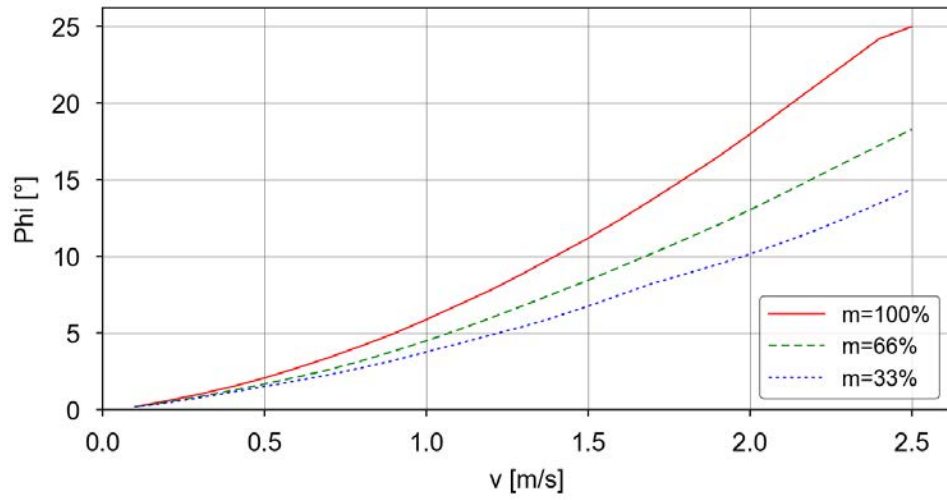
## Extension zone 1, stopping distance and stopping time



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Continued

Extension zone 2, stopping distance and stopping time



## 18.17 IRB 6700LeanID 2.85 m 140 kg

### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	38.9	0.61
2	25.0	0.37
3	17.7	0.22

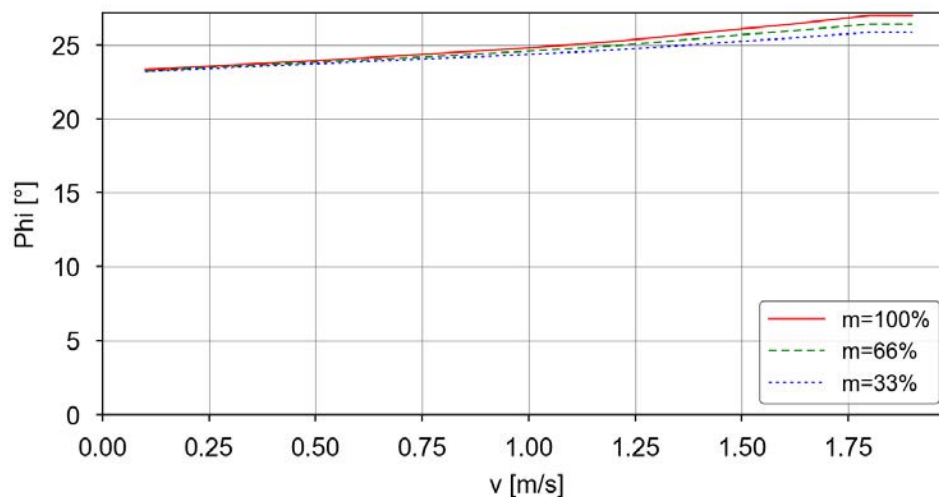
### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.949
1	0.949	1.898
2	1.898	max reach

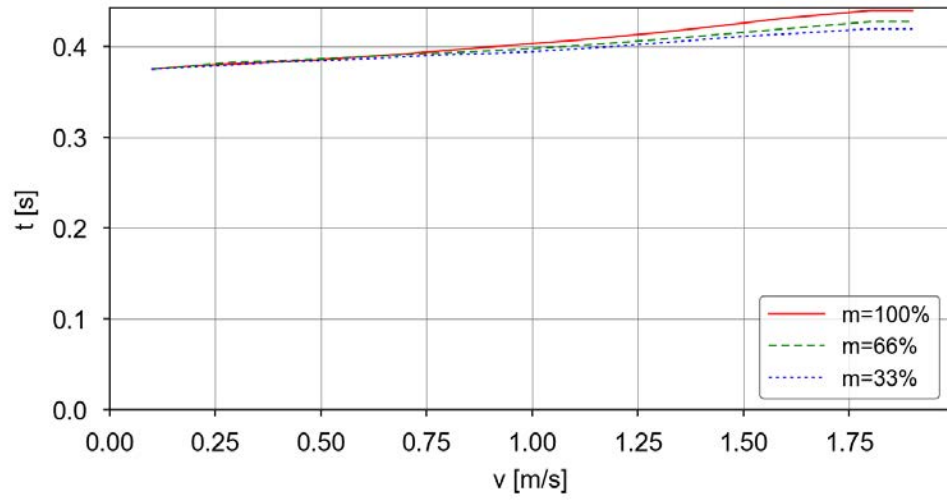
### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

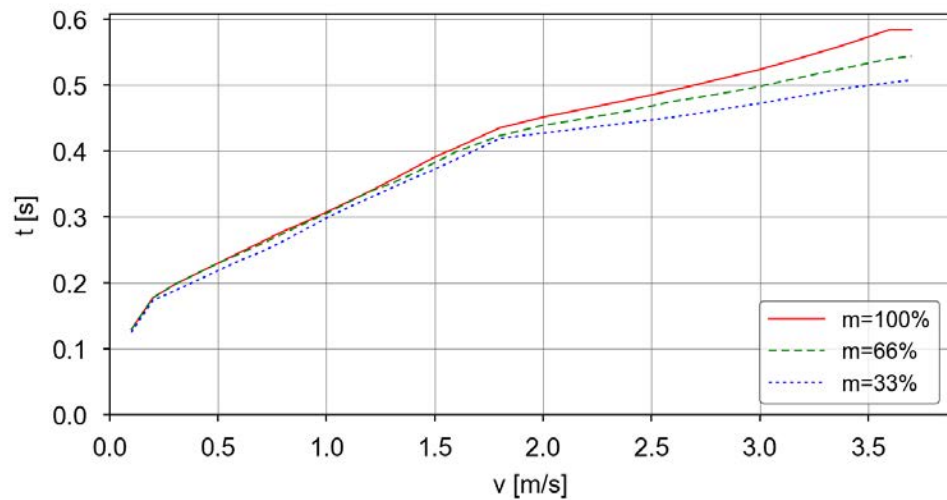
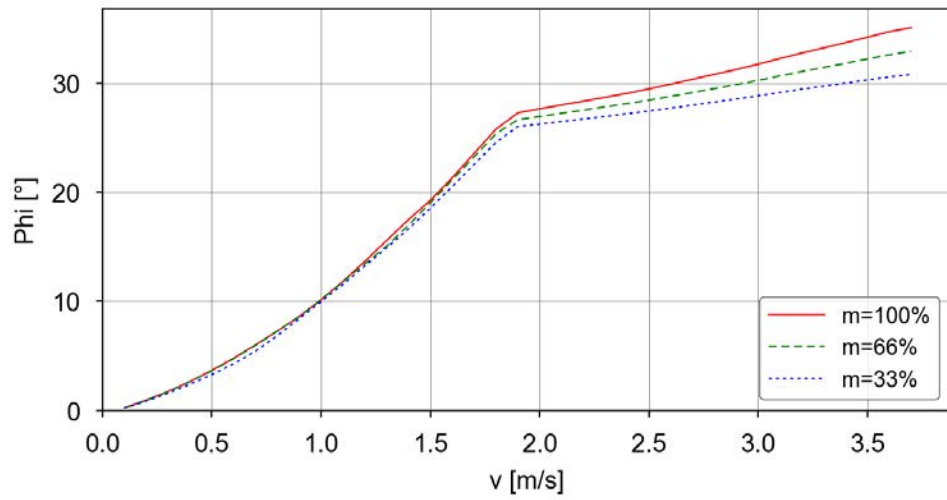


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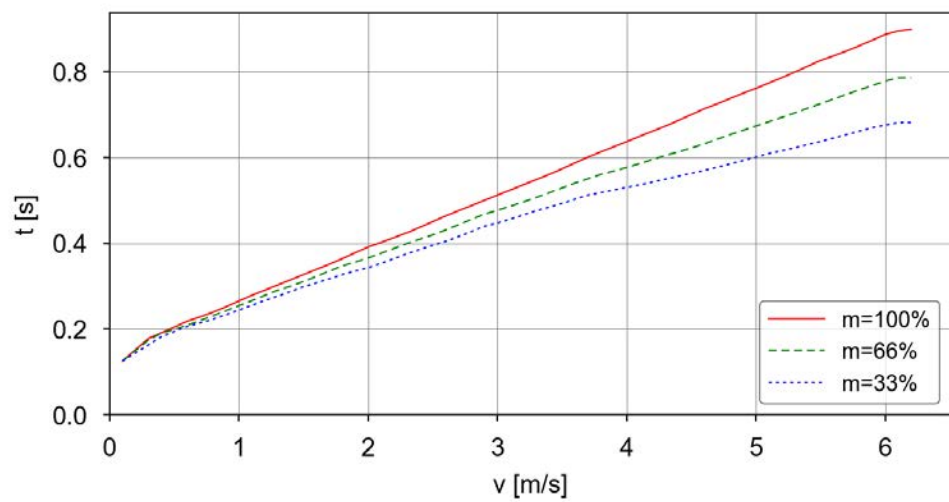
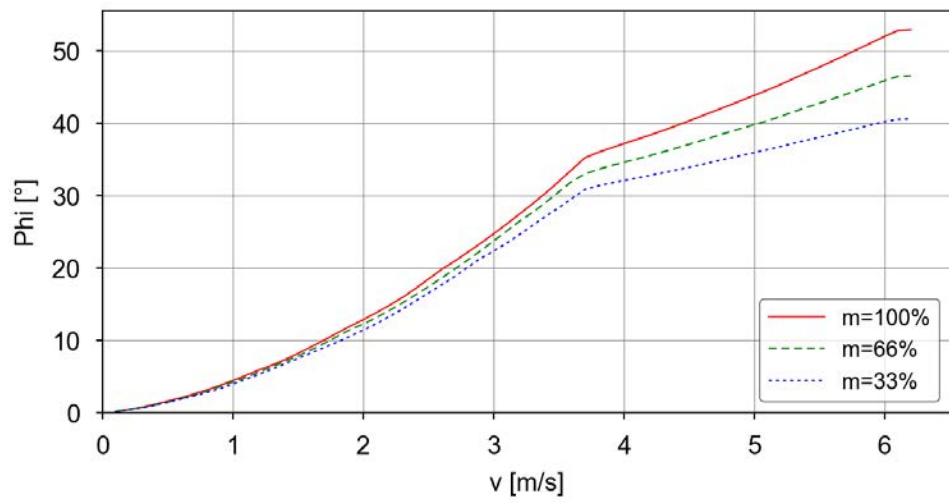
Extension zone 1, stopping distance and stopping time



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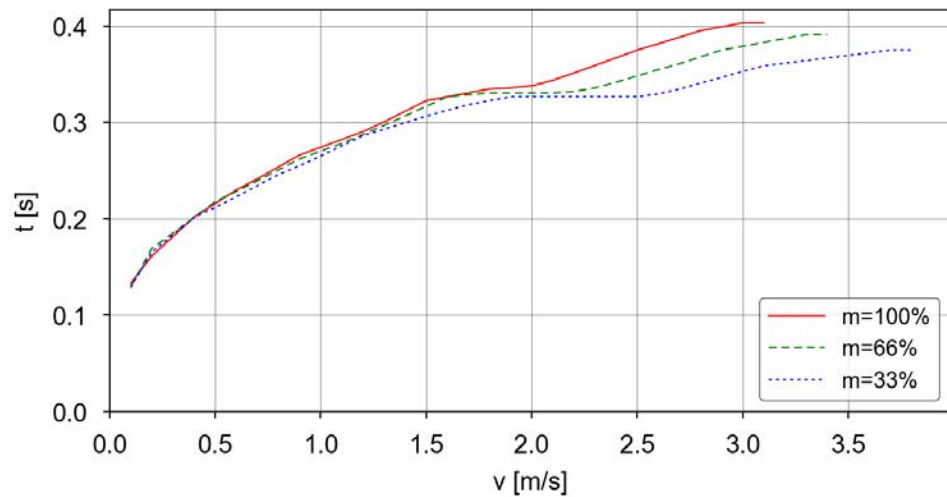
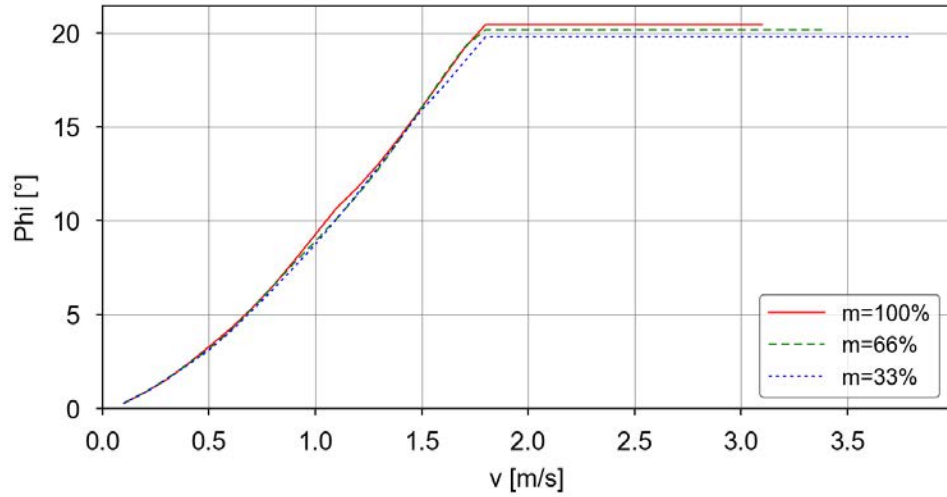
Extension zone 2, stopping distance and stopping time



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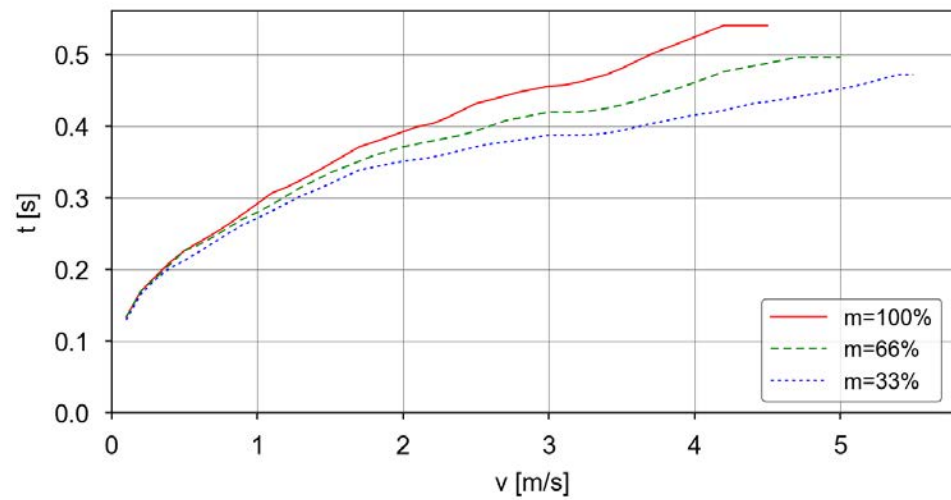
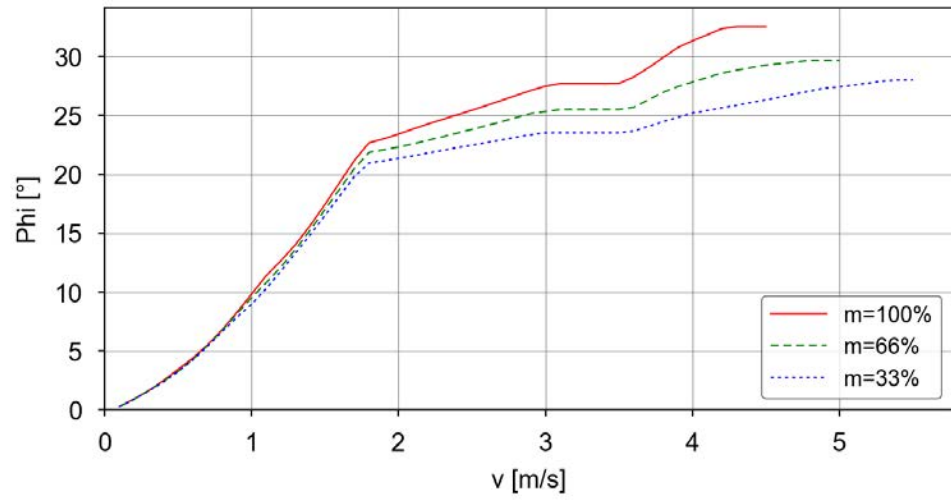
Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



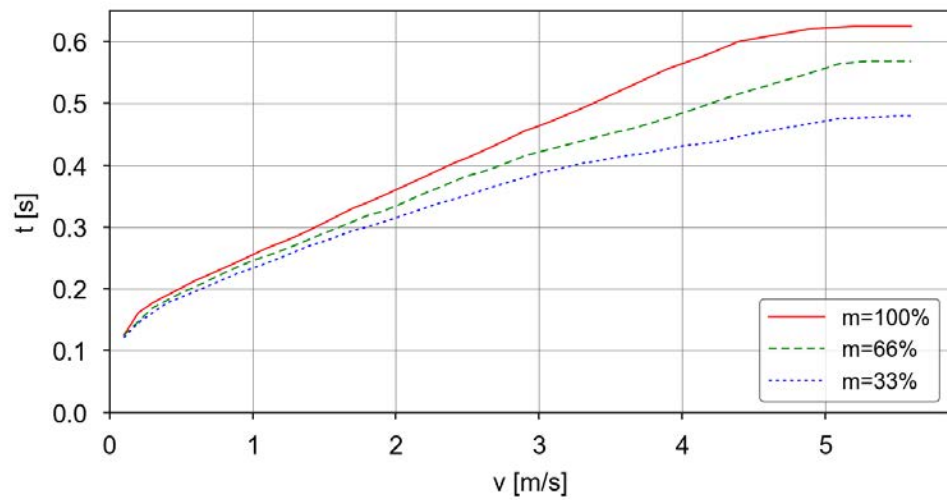
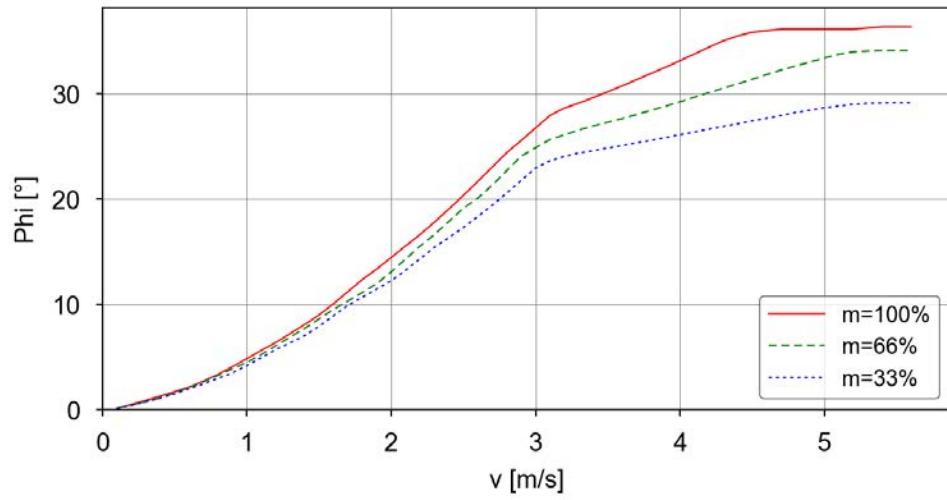
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Extension zone 1, stopping distance and stopping time



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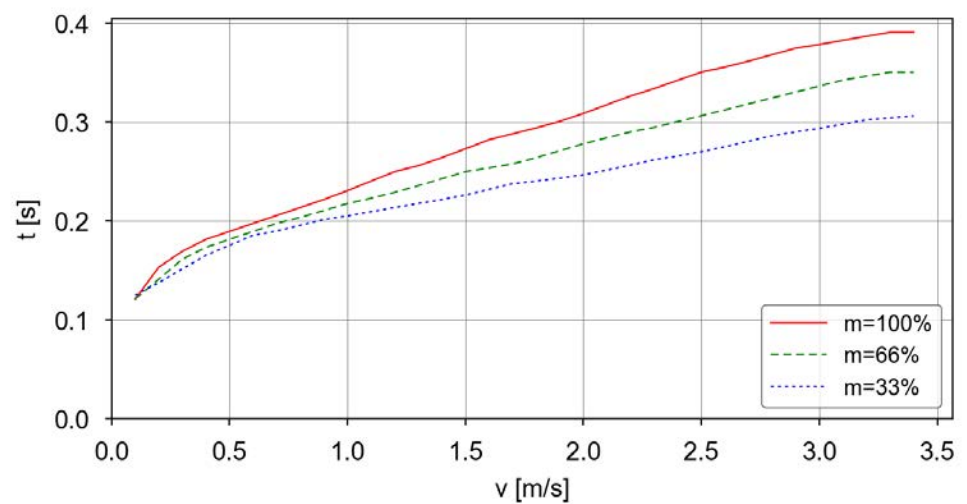
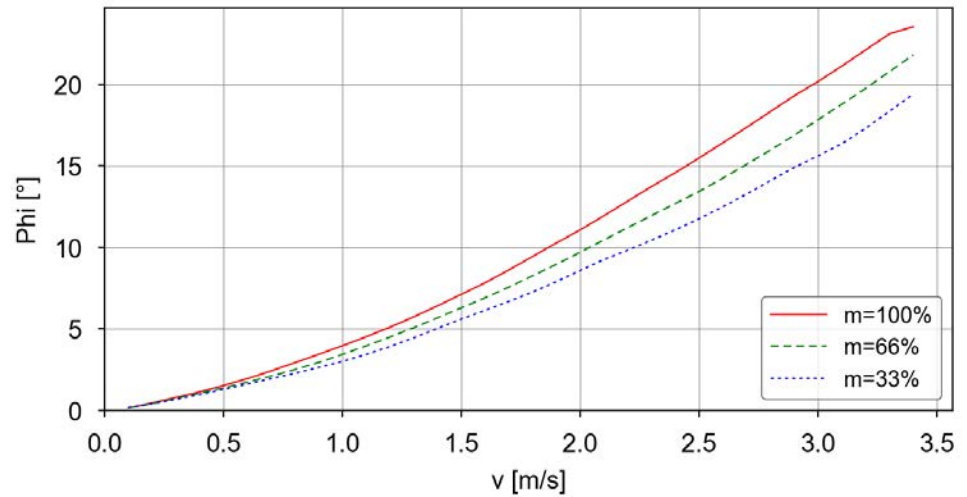
Extension zone 2, stopping distance and stopping time



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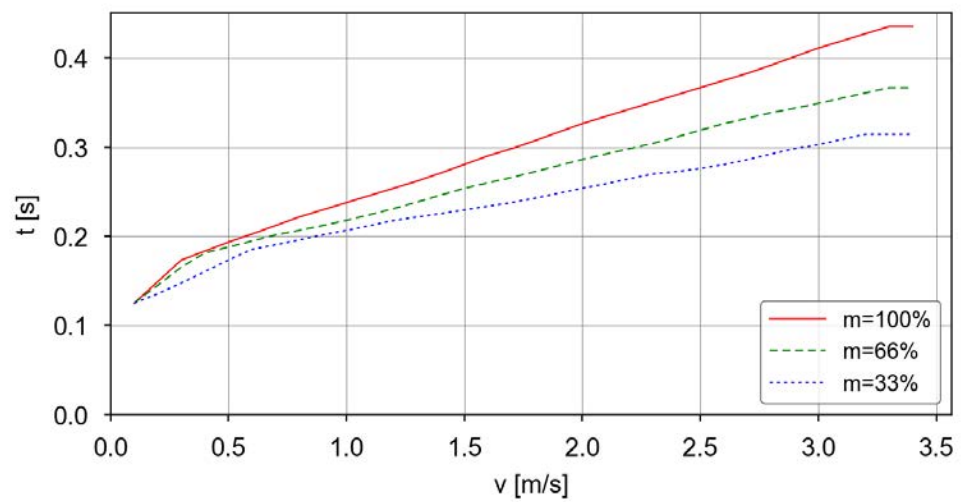
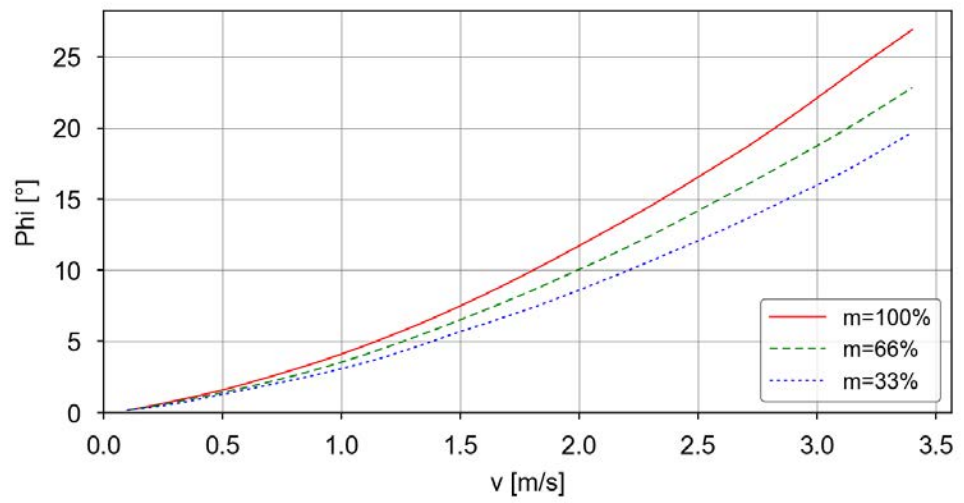
## Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



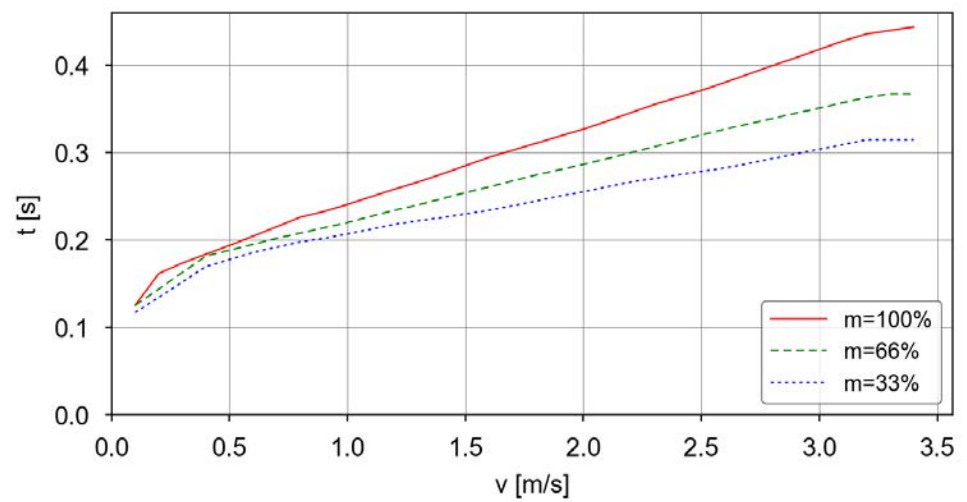
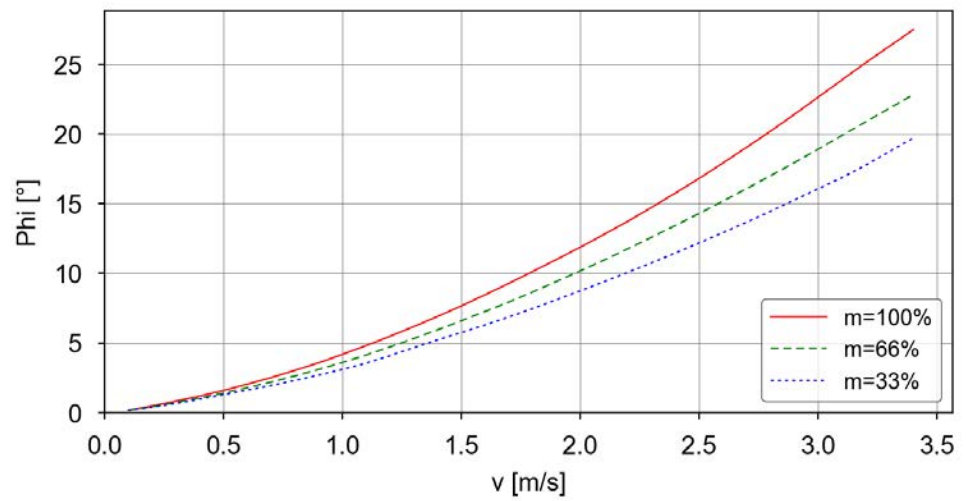
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Extension zone 1, stopping distance and stopping time



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## Extension zone 2, stopping distance and stopping time



18.18 IRB 6700LeanID 3.00 m 220 kg

Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	36.6	0.63
2	20.9	0.37
3	16.1	0.25

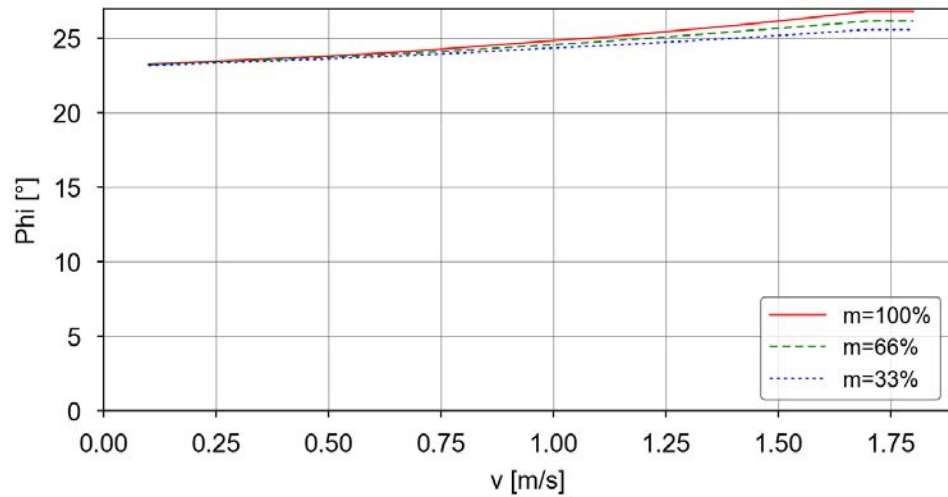
Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.989
1	0.989	1.978
2	1.978	max reach

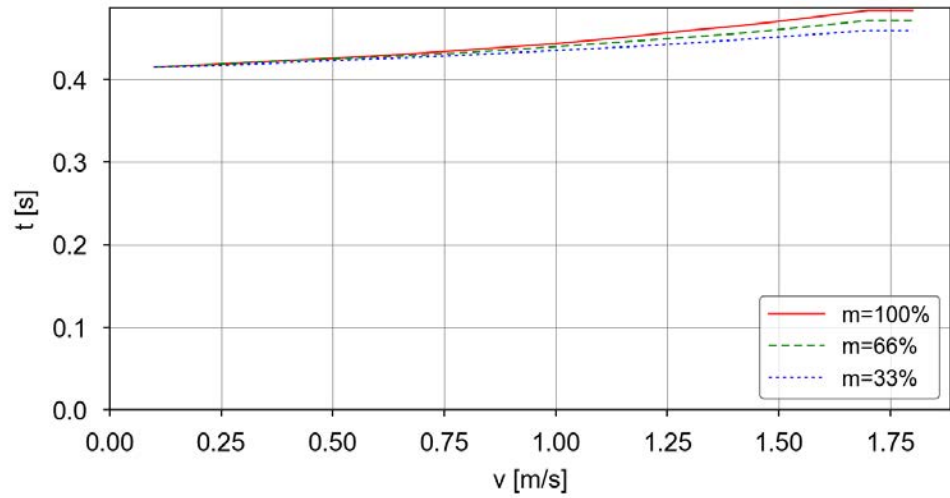
Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

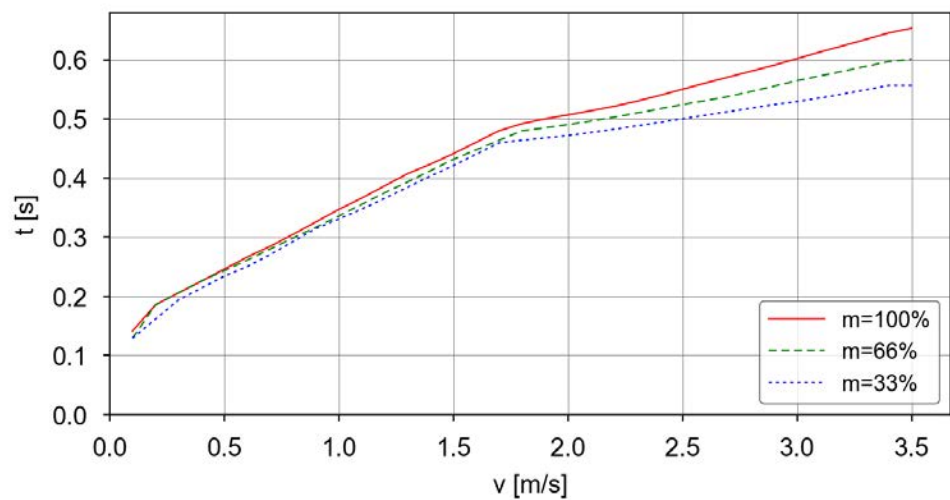
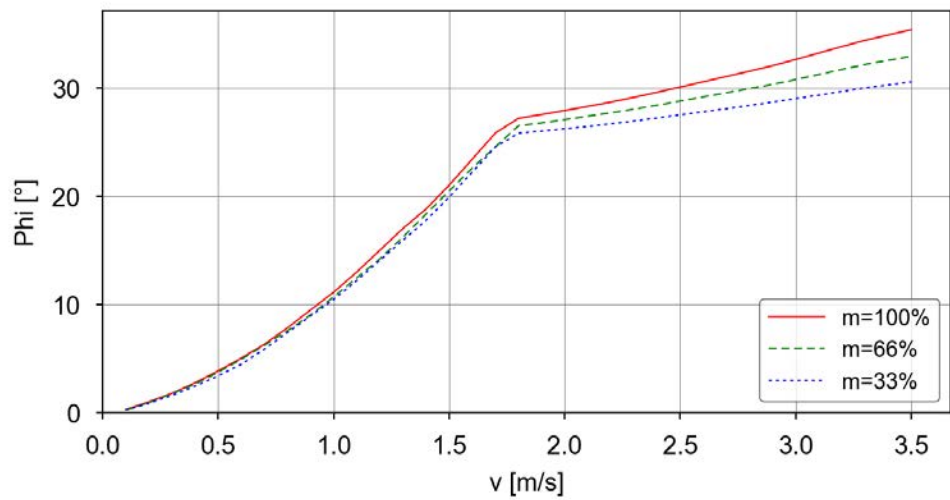


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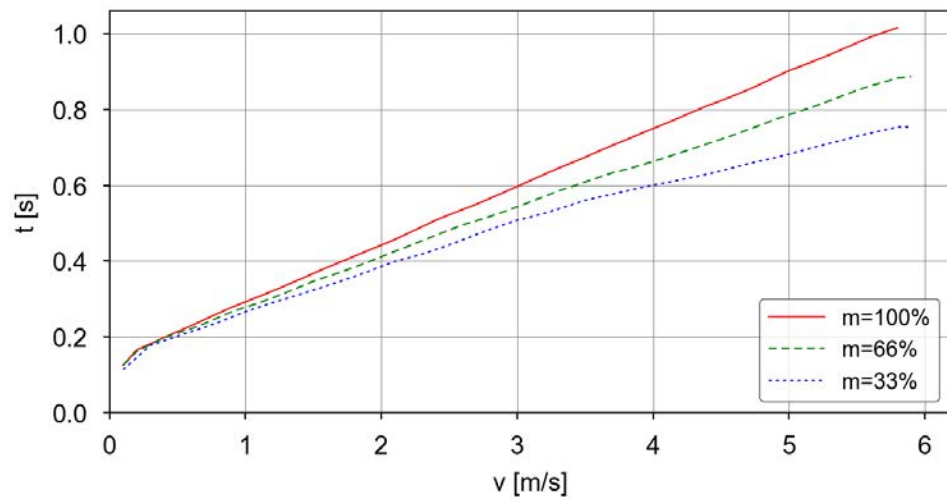
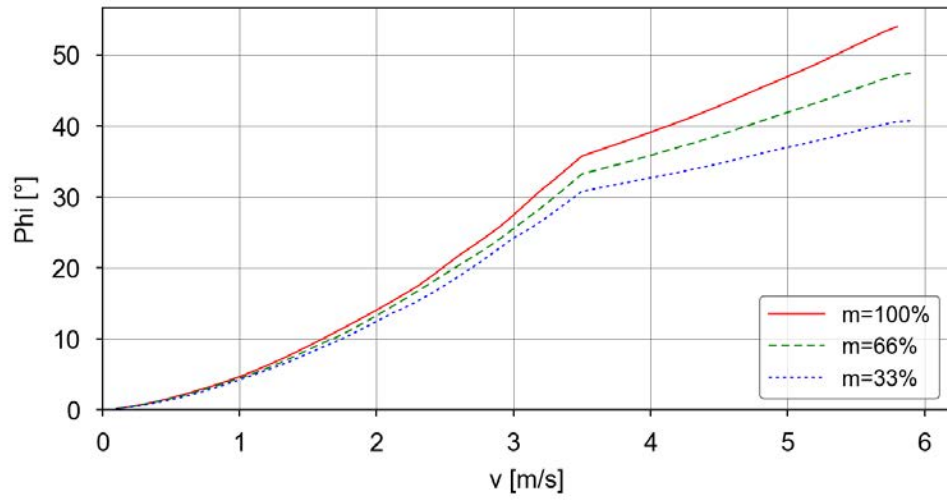
Extension zone 1, stopping distance and stopping time



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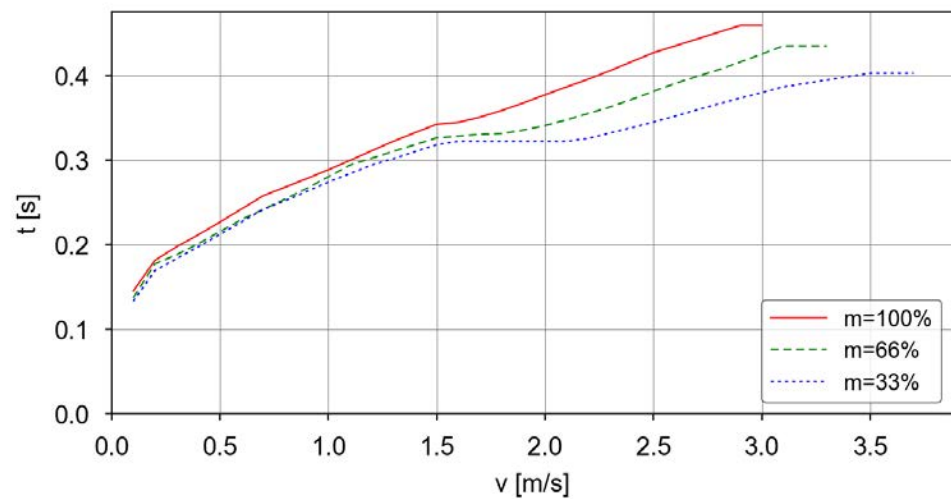
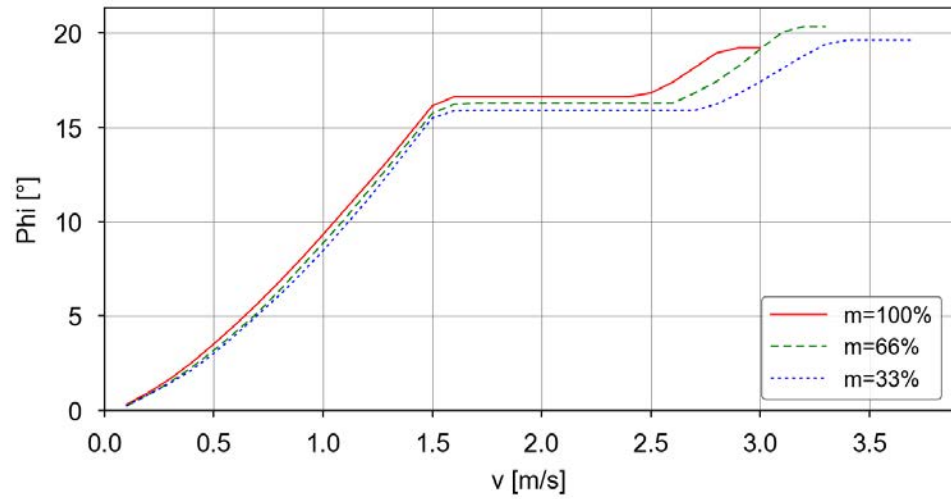
Extension zone 2, stopping distance and stopping time



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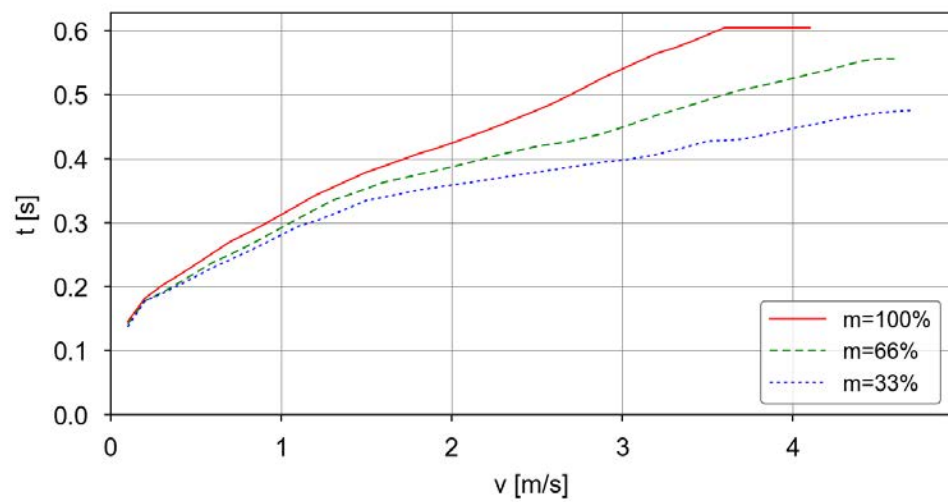
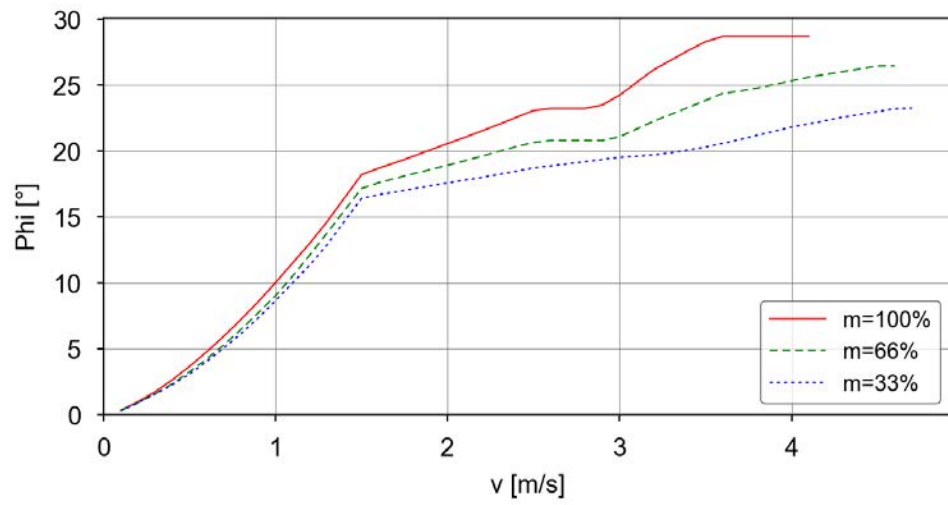
Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



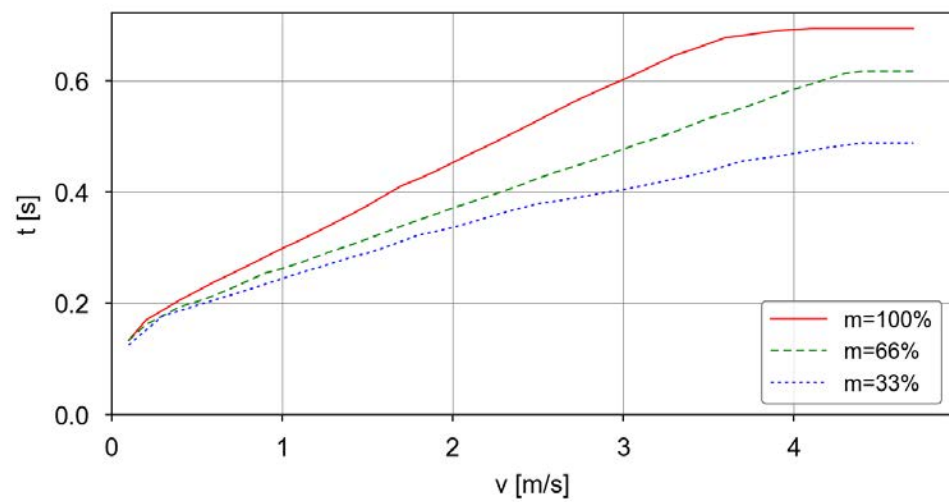
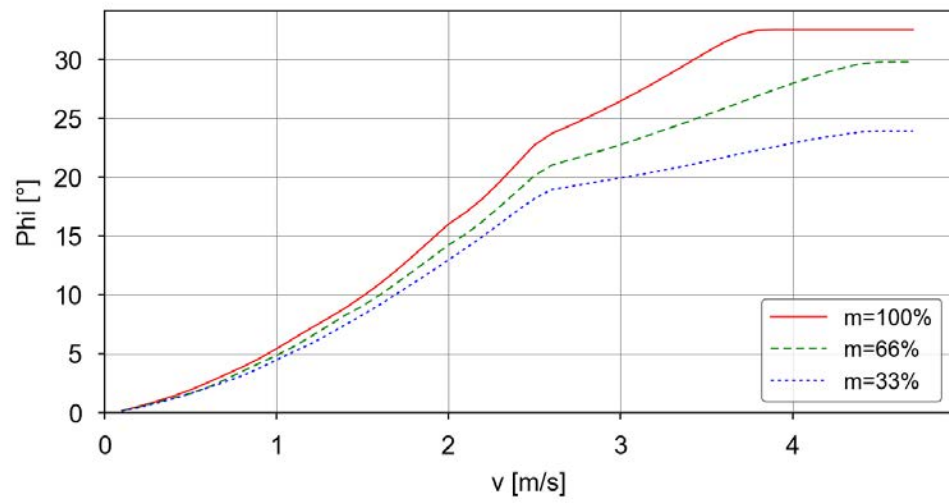
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Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time



Continues on next page

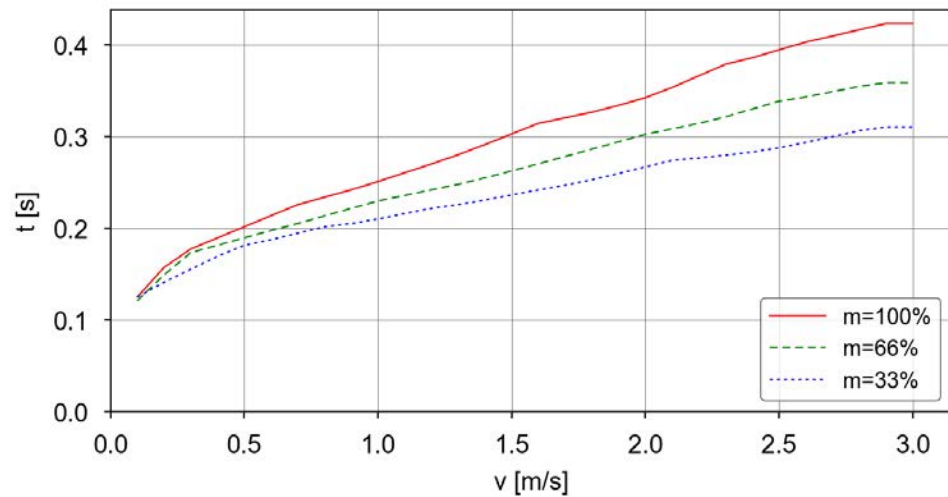
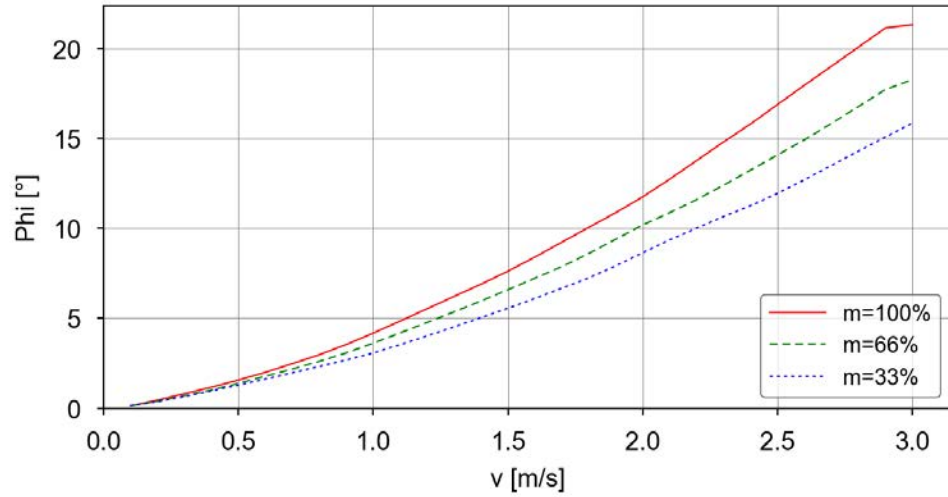
# 18 IRB 6700

18.18 IRB 6700LeanID 3.00 m 220 kg

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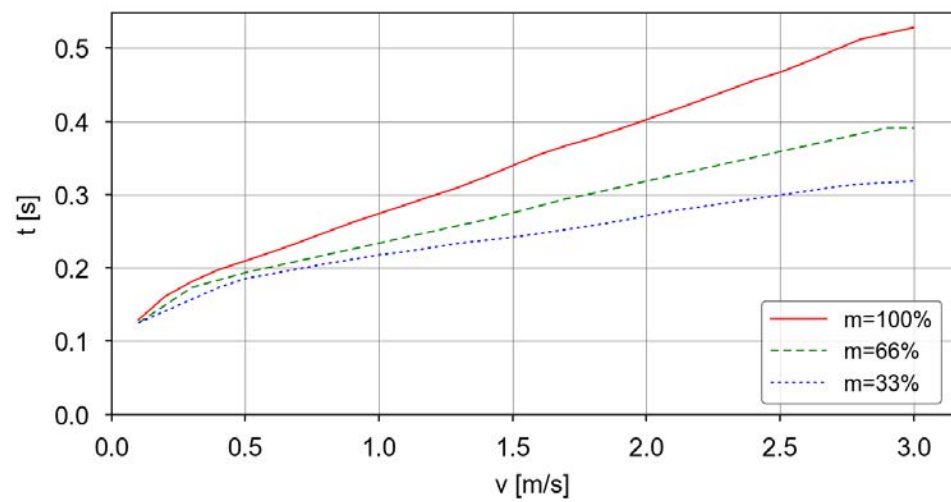
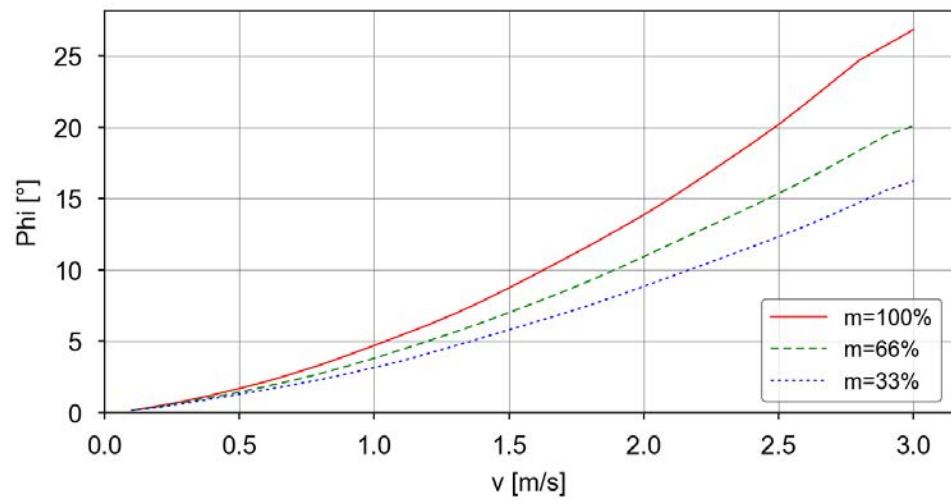
## Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



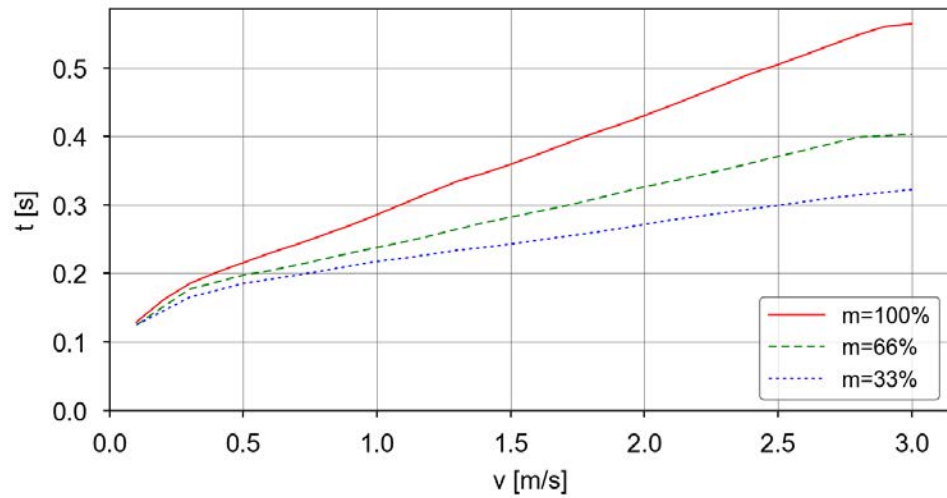
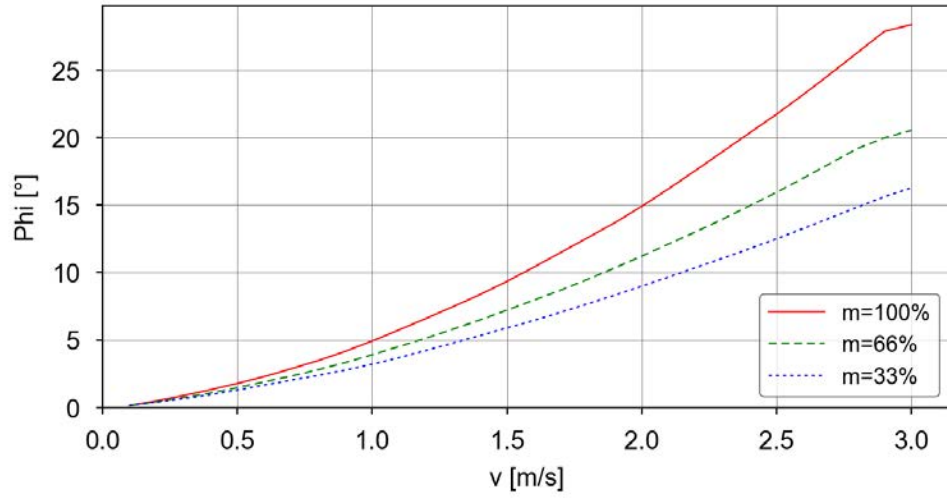
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## Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time





## 18.19 IRB 6700LeanID 3.05 m 155 kg

### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	38.4	0.68
2	20.2	0.37
3	14.2	0.22

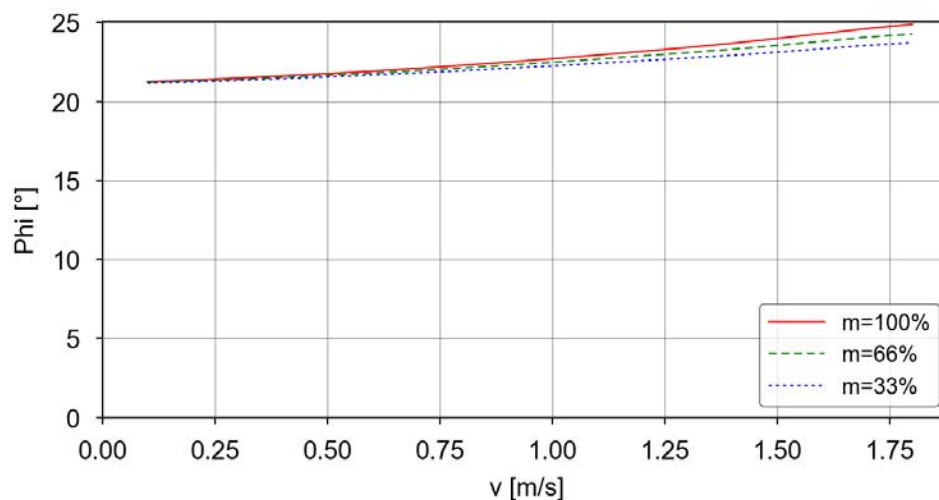
### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

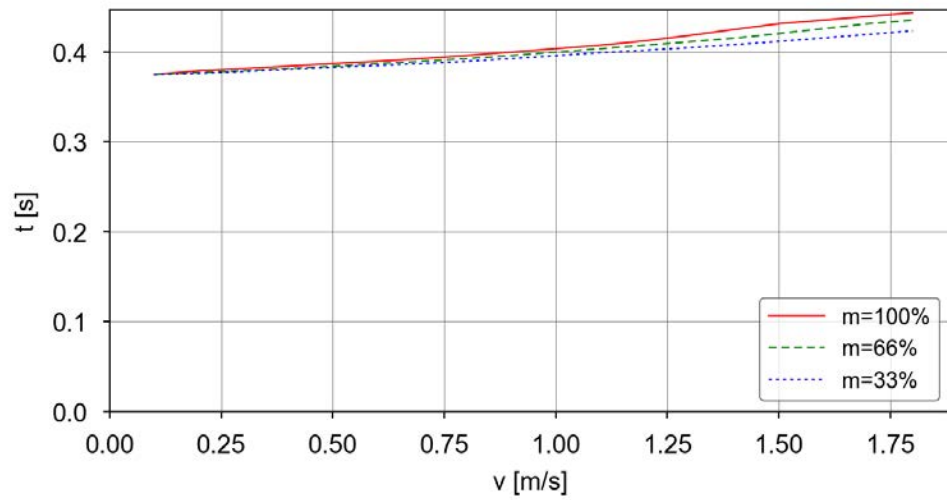
Zone	wcp min (m)	wcp max (m)
0	0	1.019
1	1.019	2.037
2	2.037	max reach

### Category 1, Axis 1

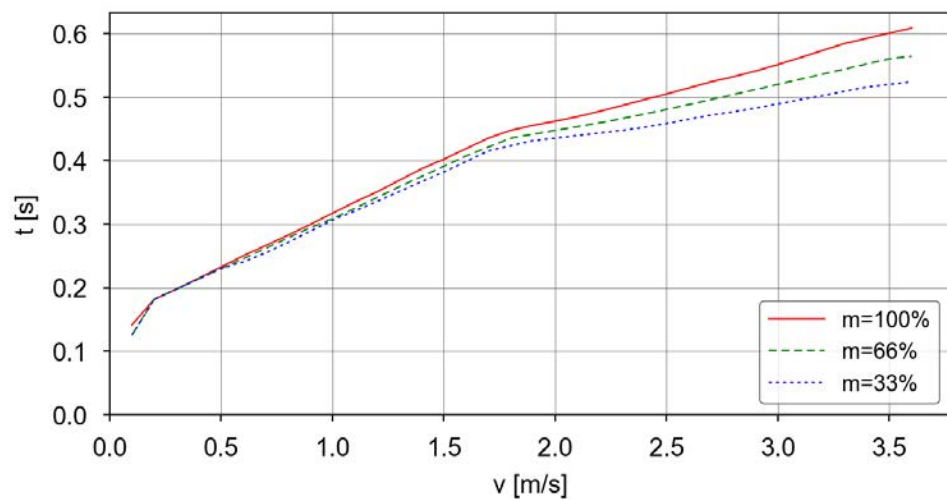
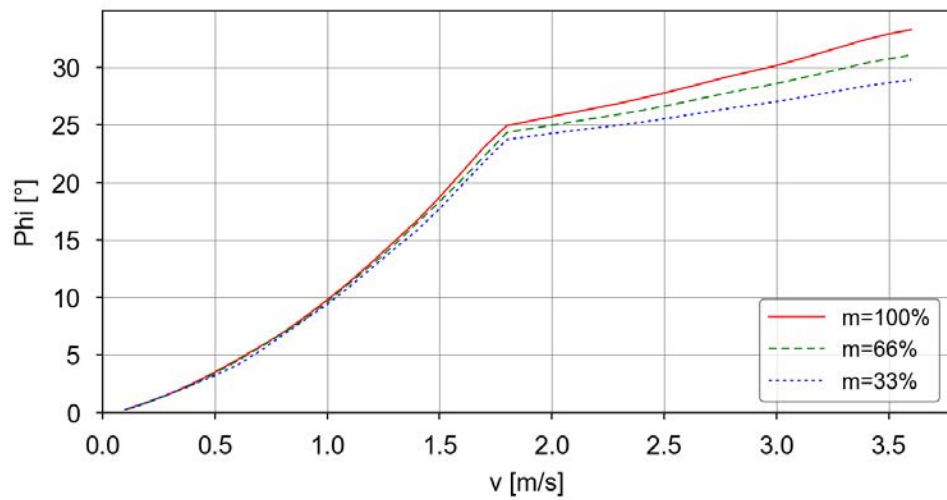
Extension zone 0, stopping distance and stopping time



Continues on next page

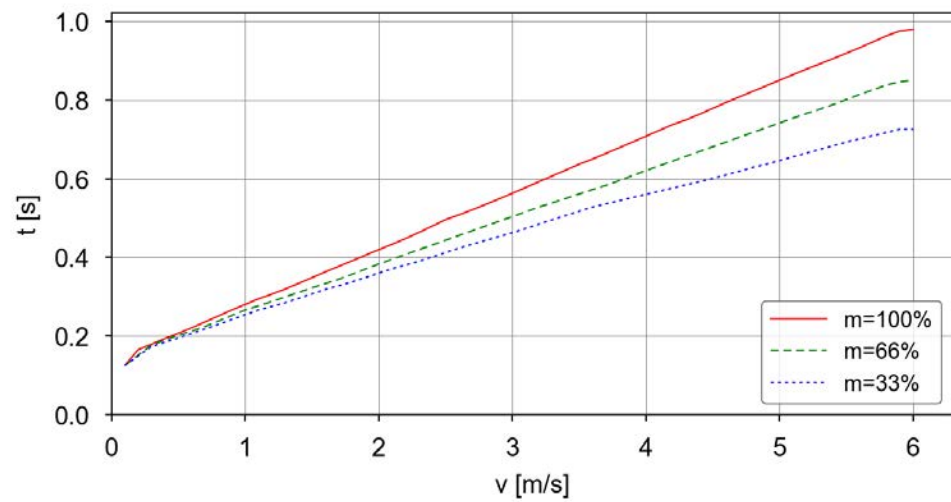
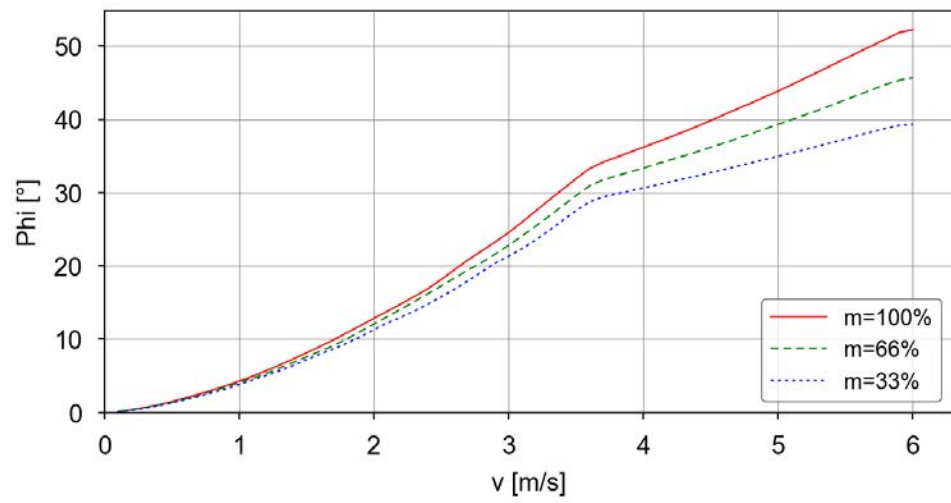


Extension zone 1, stopping distance and stopping time



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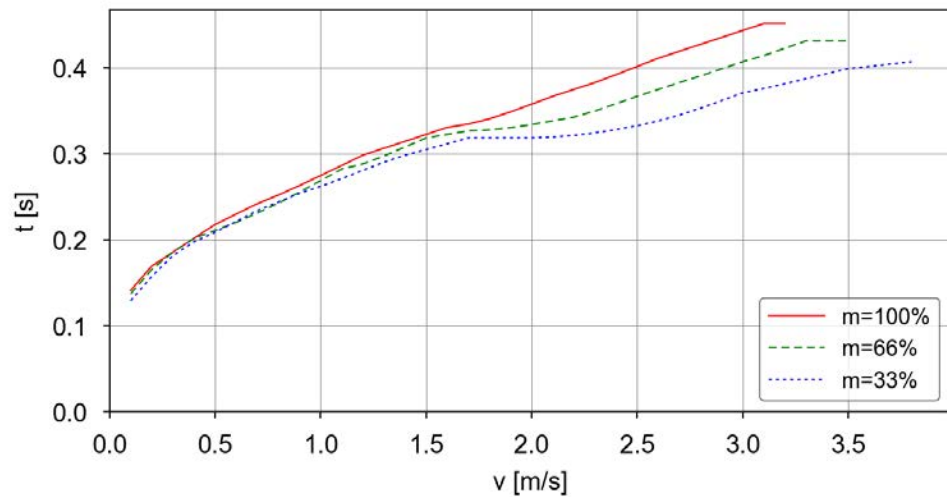
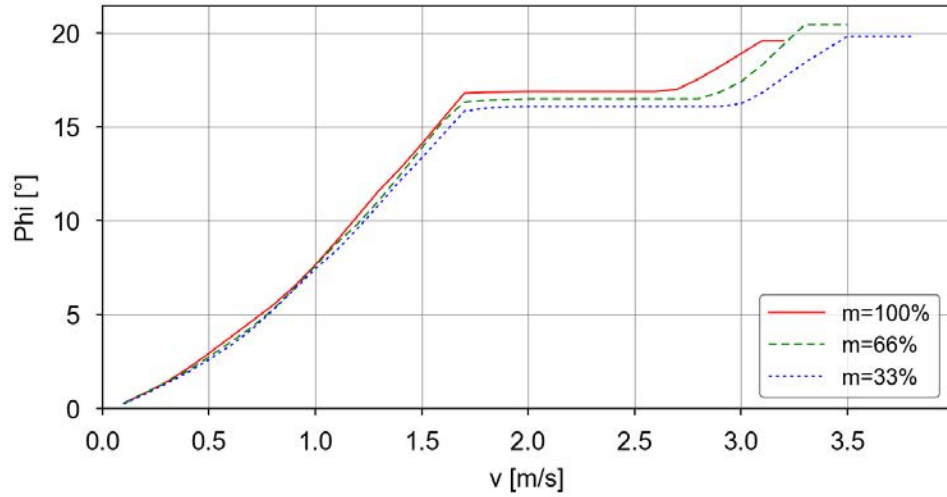
Extension zone 2, stopping distance and stopping time



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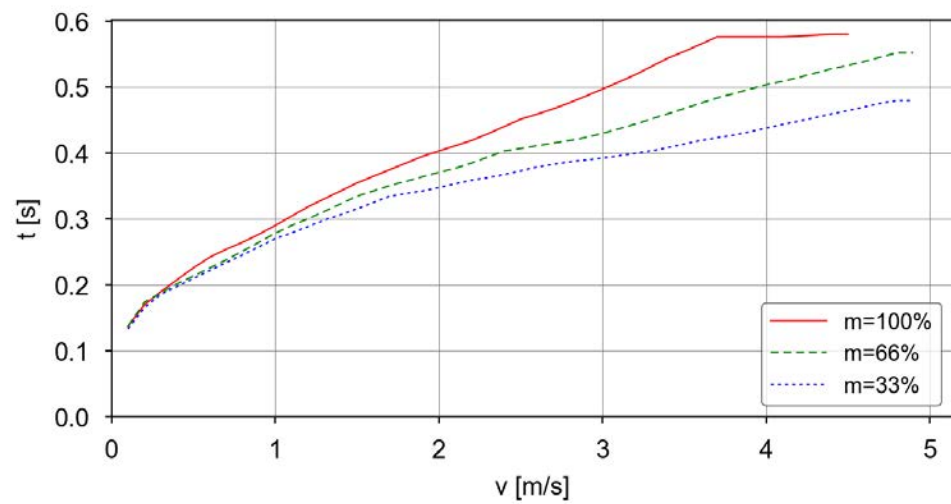
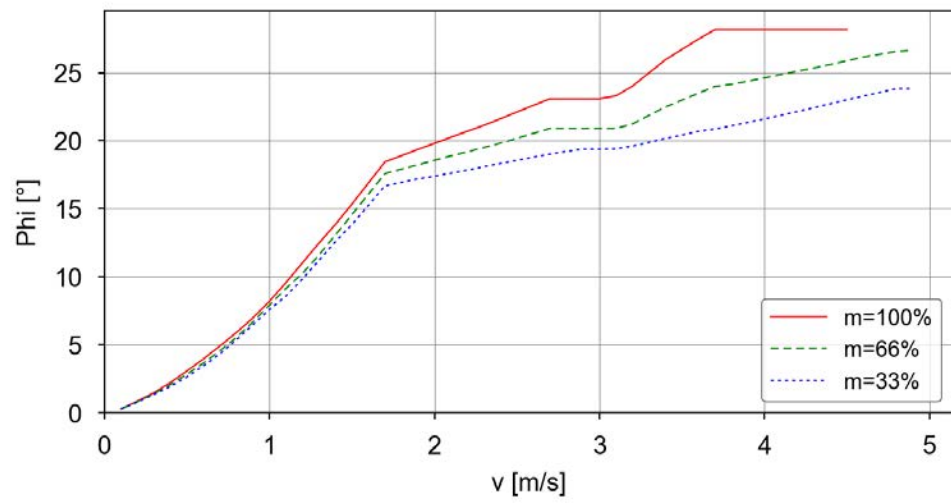
Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



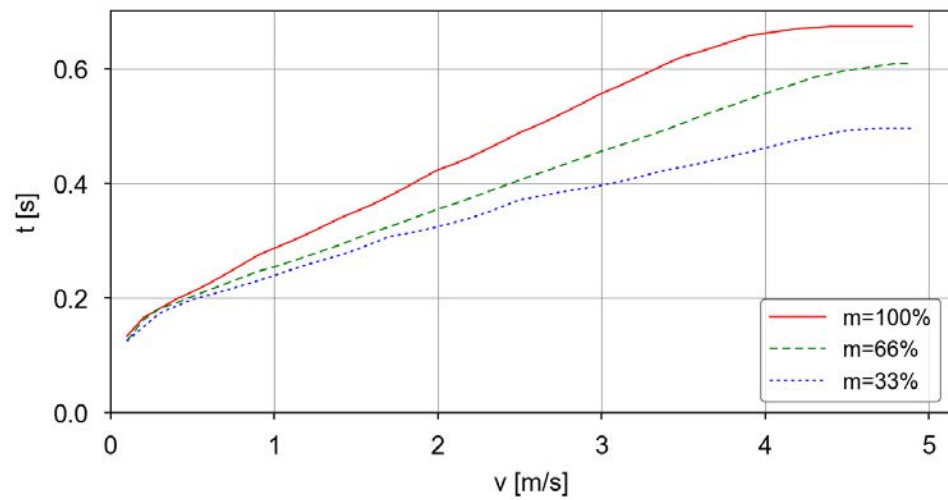
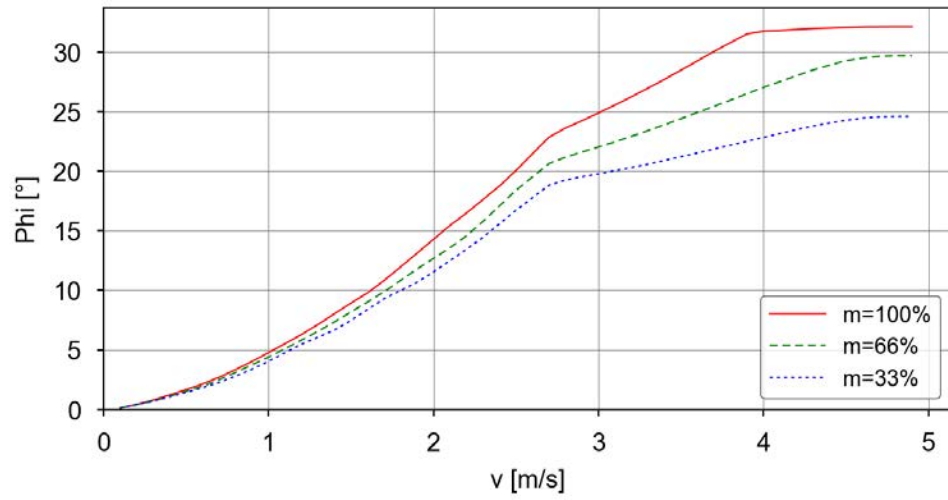
Continues on next page

Extension zone 1, stopping distance and stopping time



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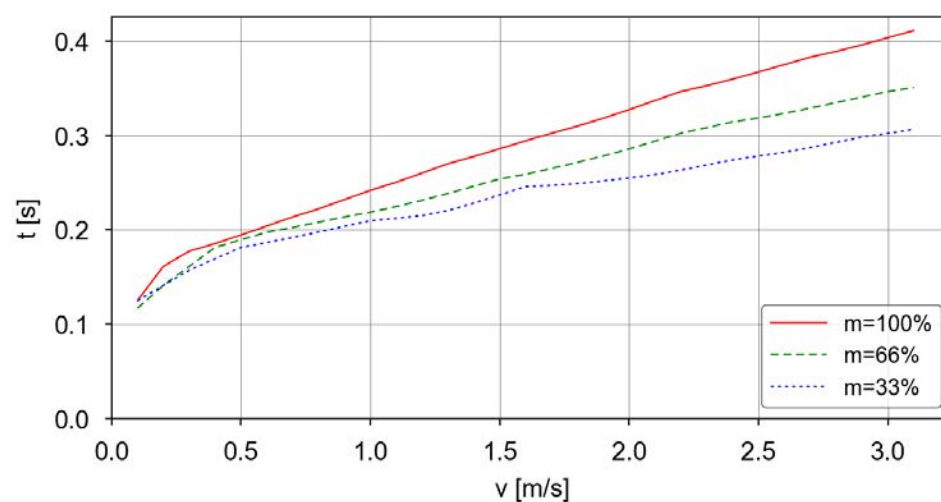
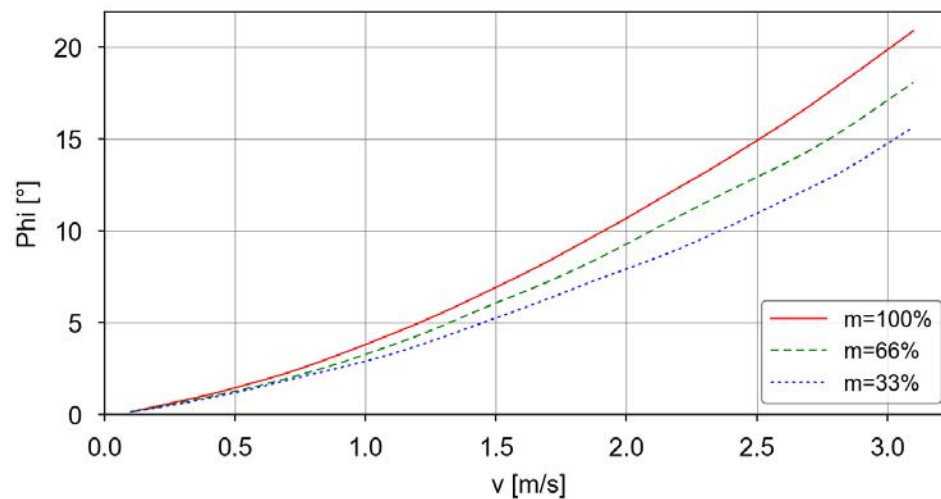
Extension zone 2, stopping distance and stopping time



Continues on next page

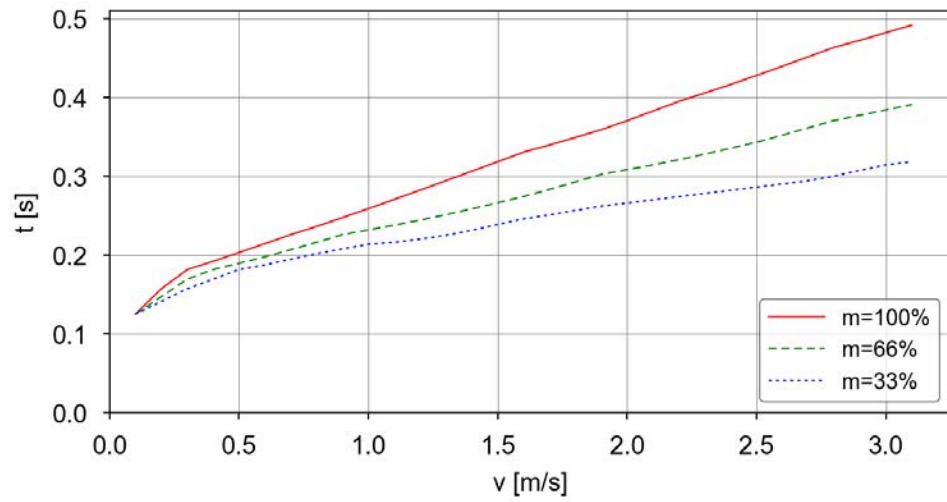
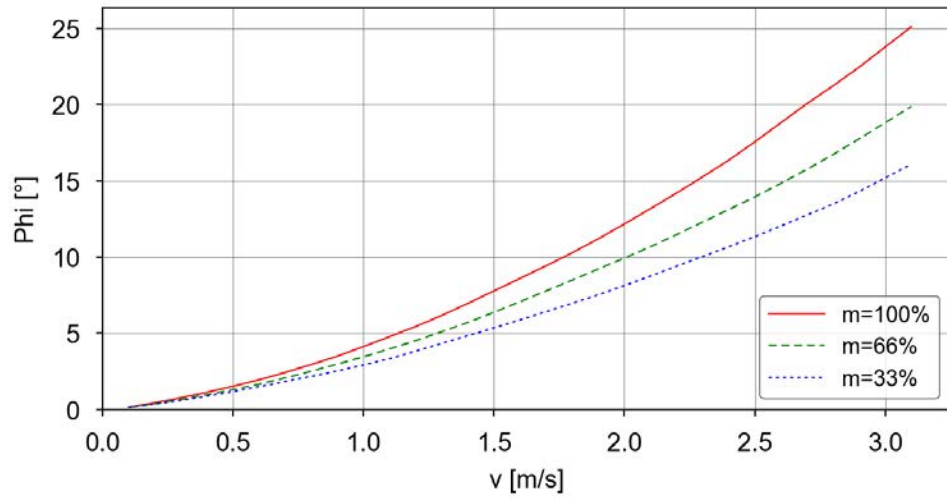
## Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



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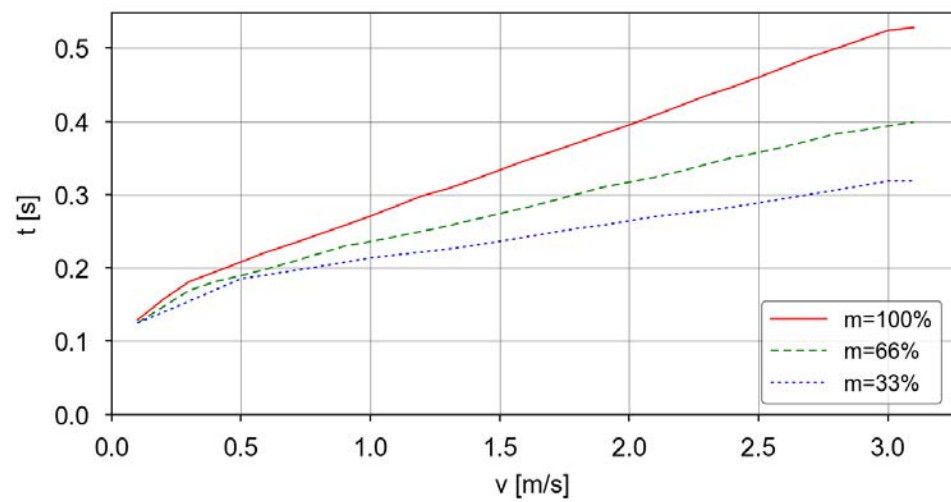
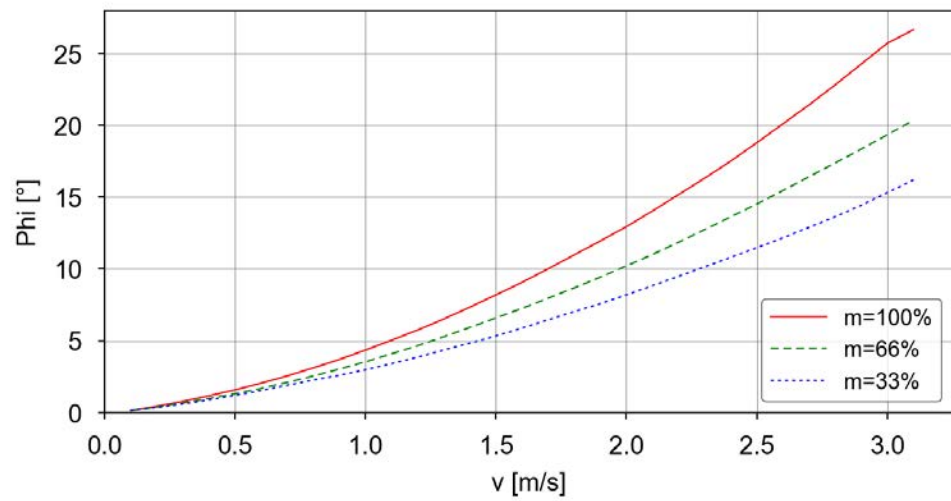
Extension zone 1, stopping distance and stopping time



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## Extension zone 2, stopping distance and stopping time



18.20 IRB 6700LeanID 3.20 m 145 kg

Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	40.6	0.73
2	20.9	0.37
3	14.7	0.22

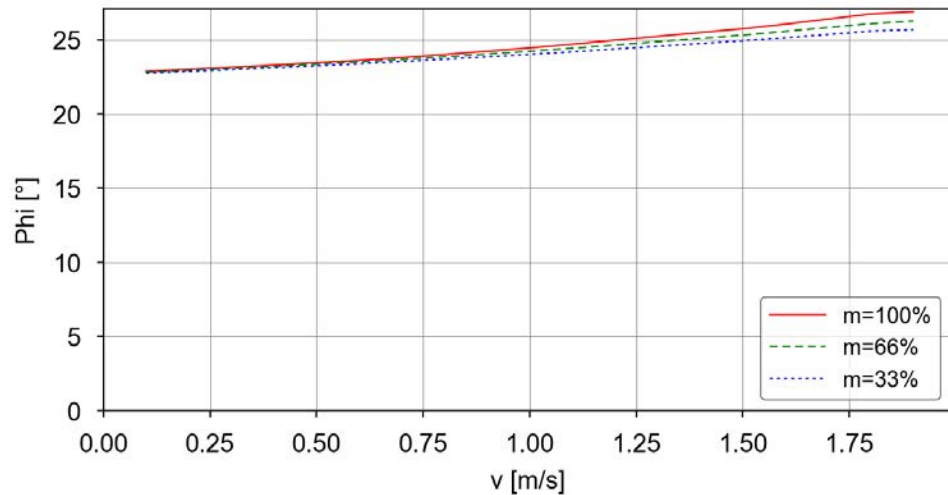
Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

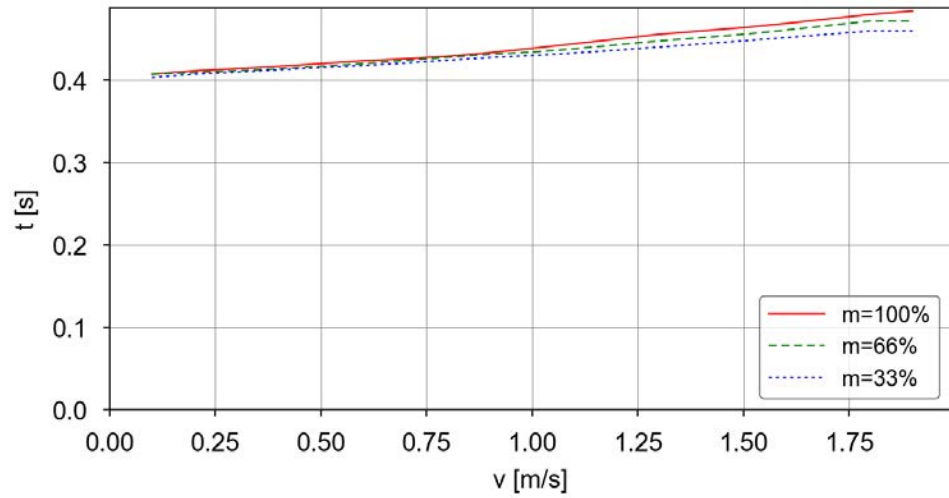
Zone	wcp min (m)	wcp max (m)
0	0	1.067
1	1.067	2.133
2	2.133	max reach

Category 1, Axis 1

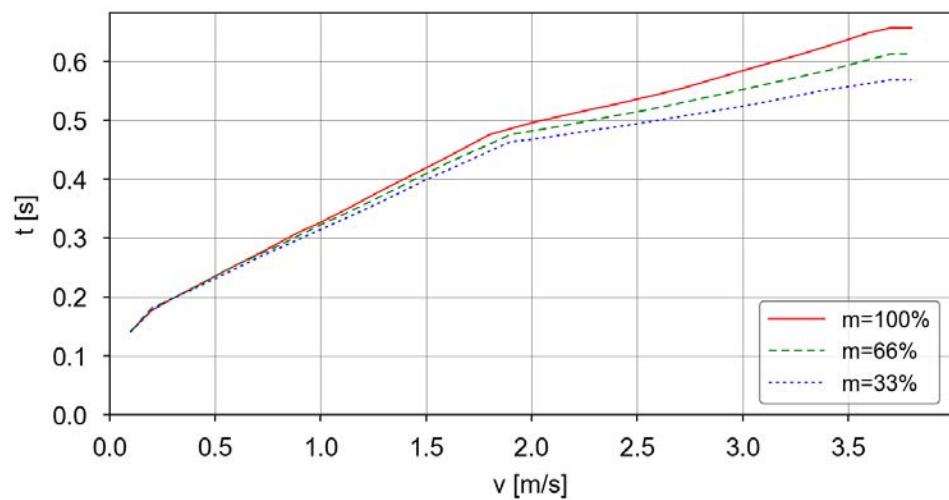
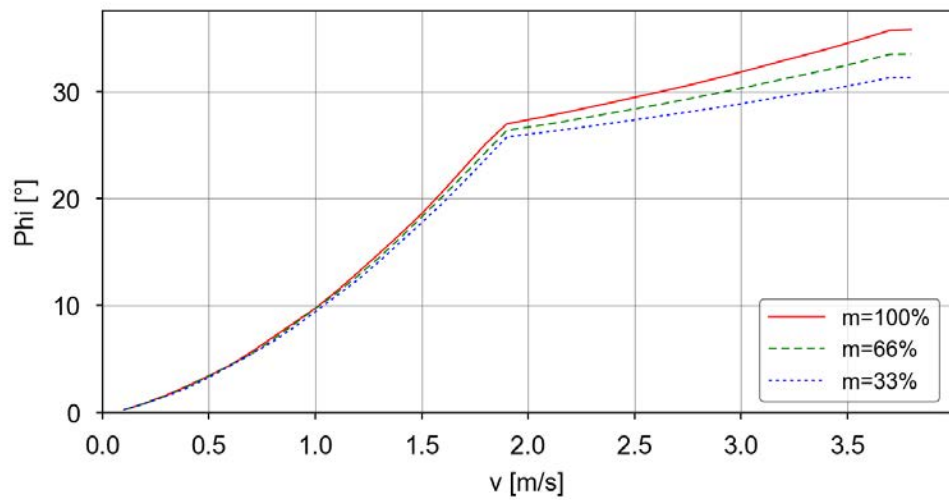
Extension zone 0, stopping distance and stopping time



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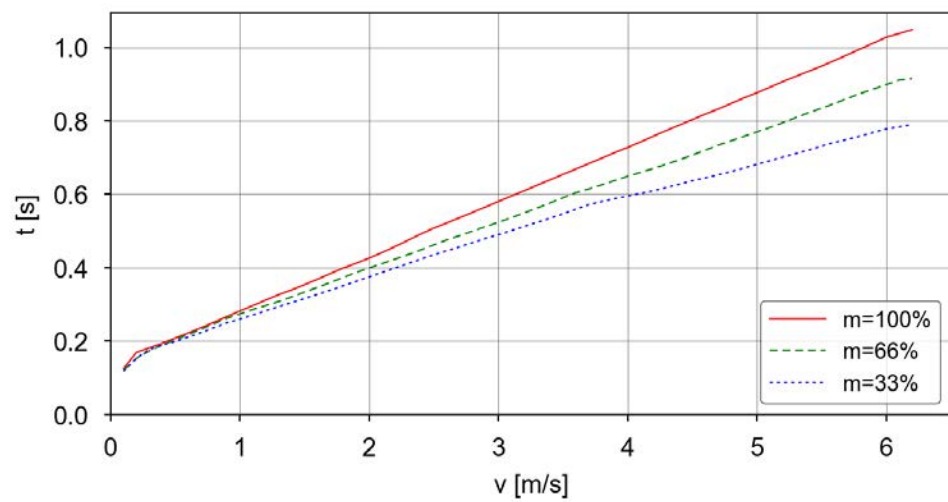
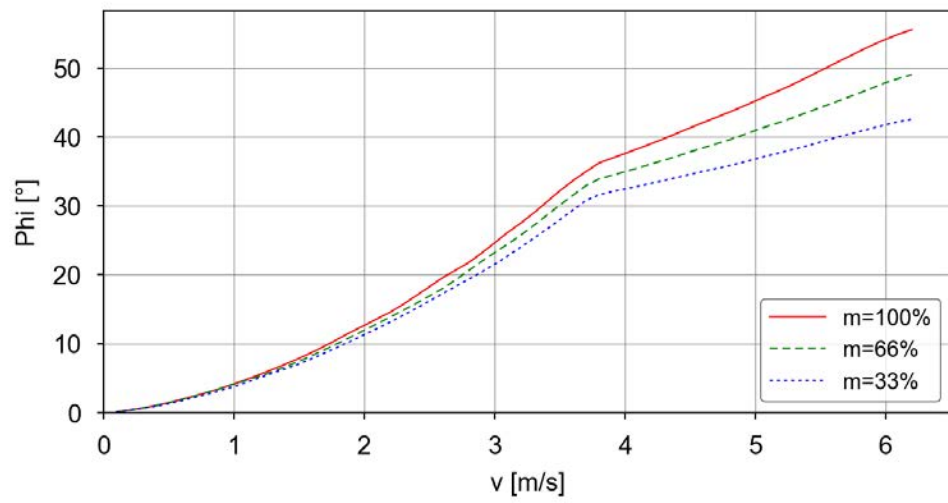


Extension zone 1, stopping distance and stopping time



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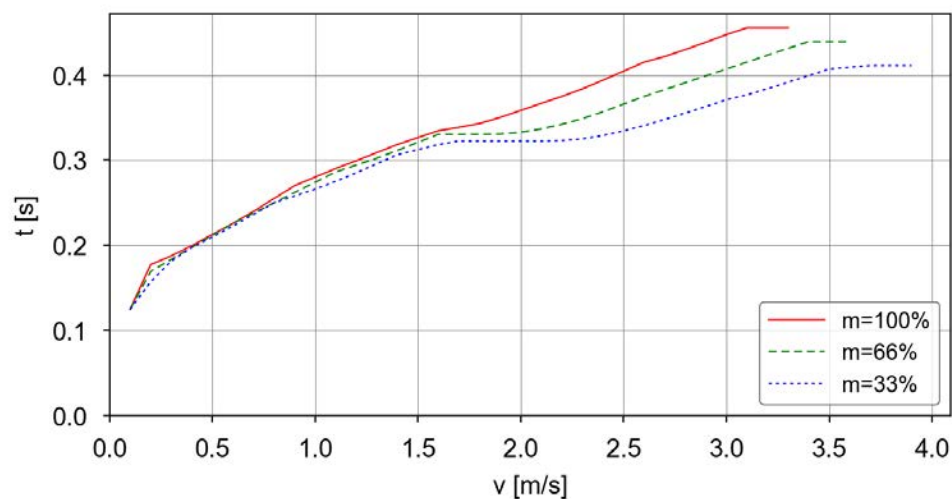
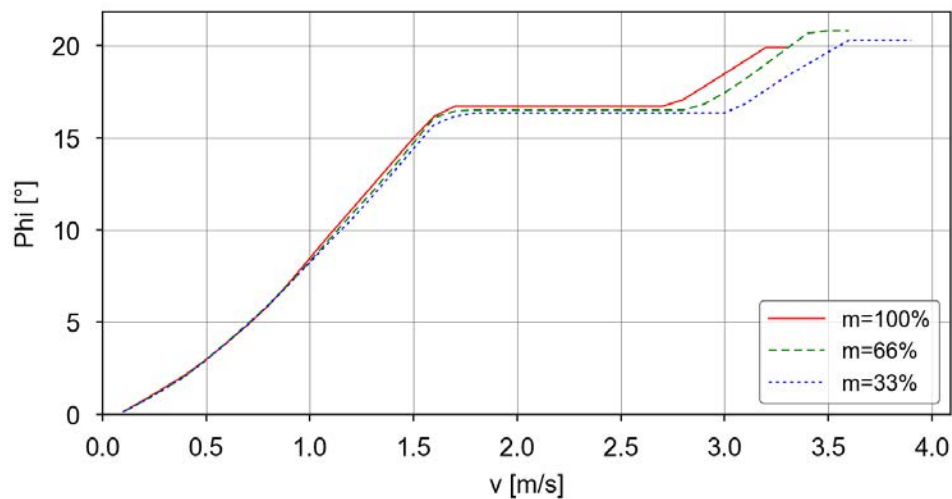
Extension zone 2, stopping distance and stopping time



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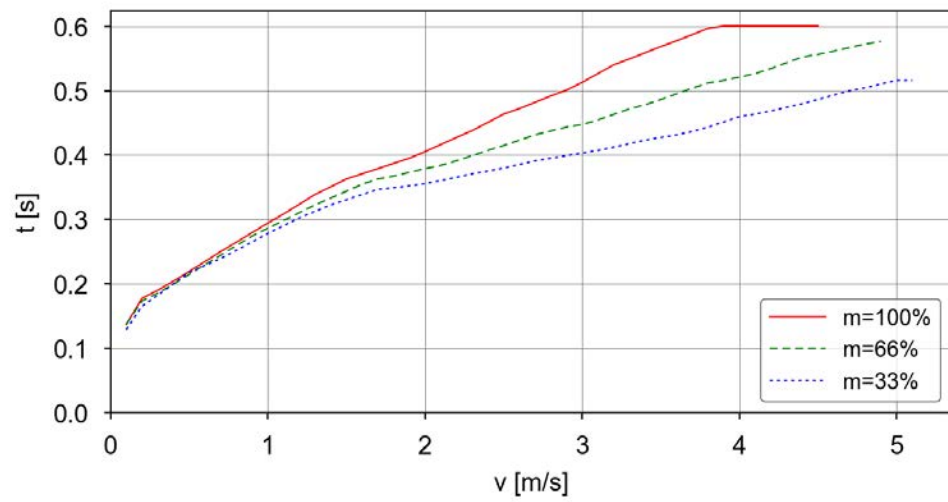
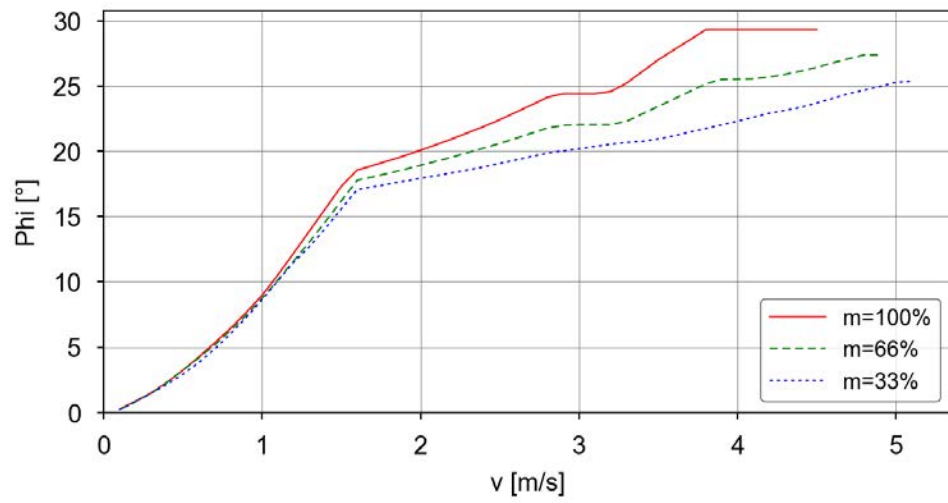
Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



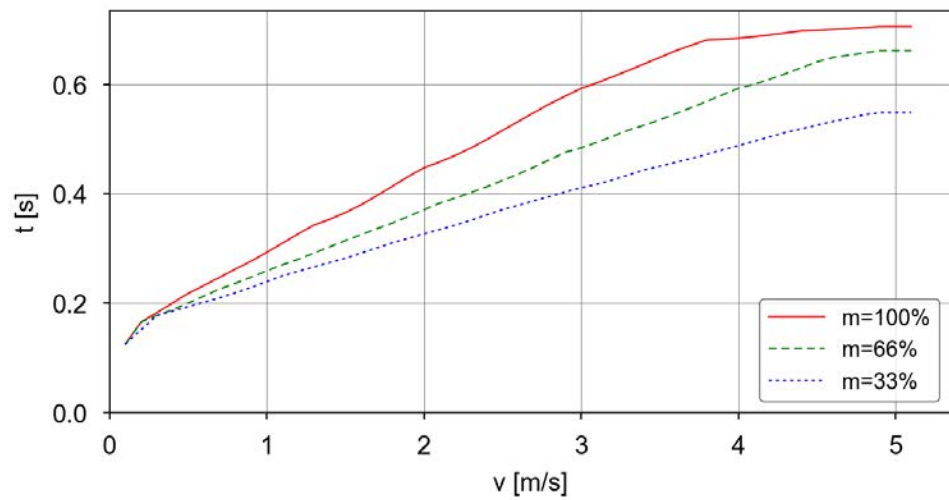
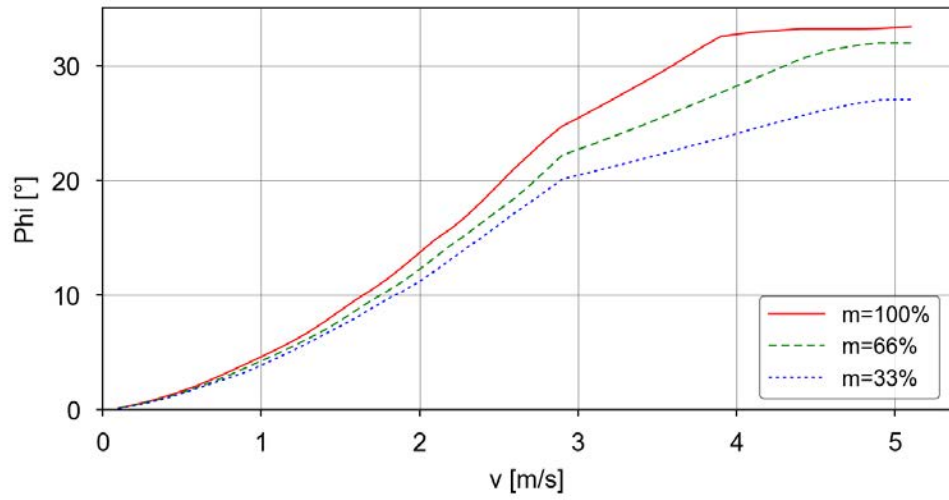
Continues on next page

Extension zone 1, stopping distance and stopping time



Continues on next page

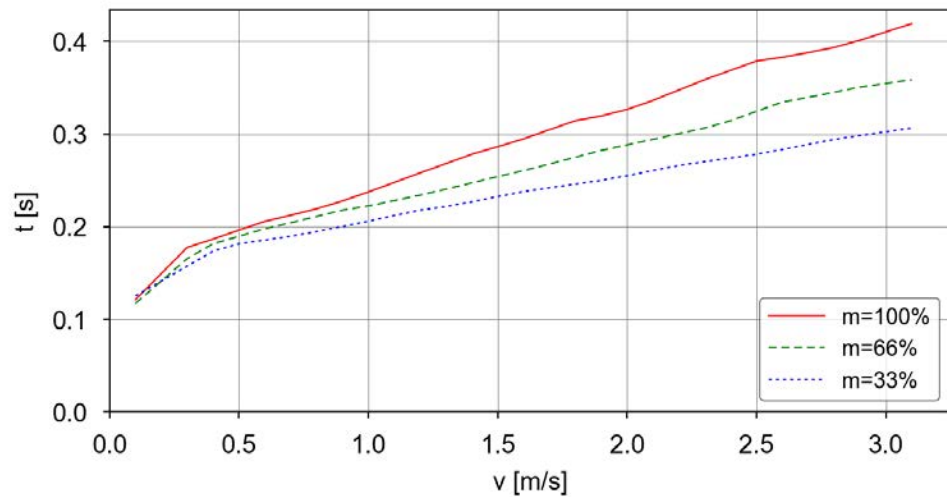
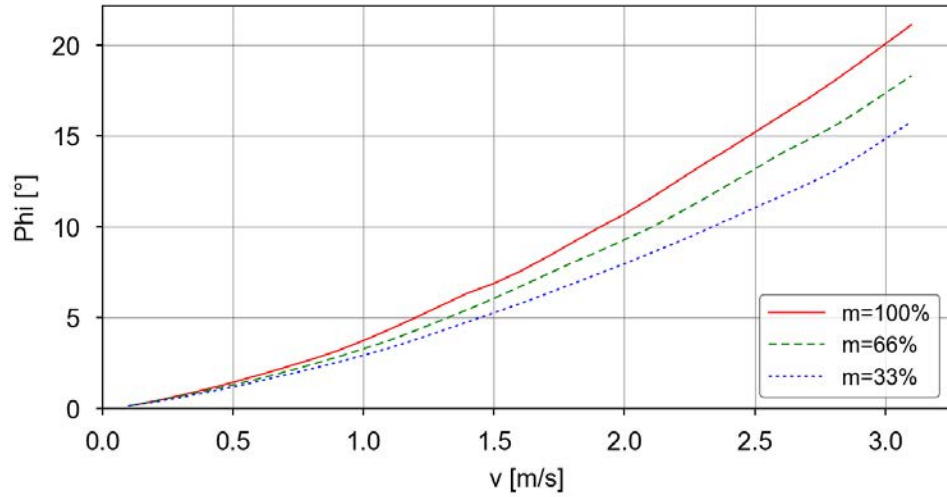
Extension zone 2, stopping distance and stopping time



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Category 1, Axis 3

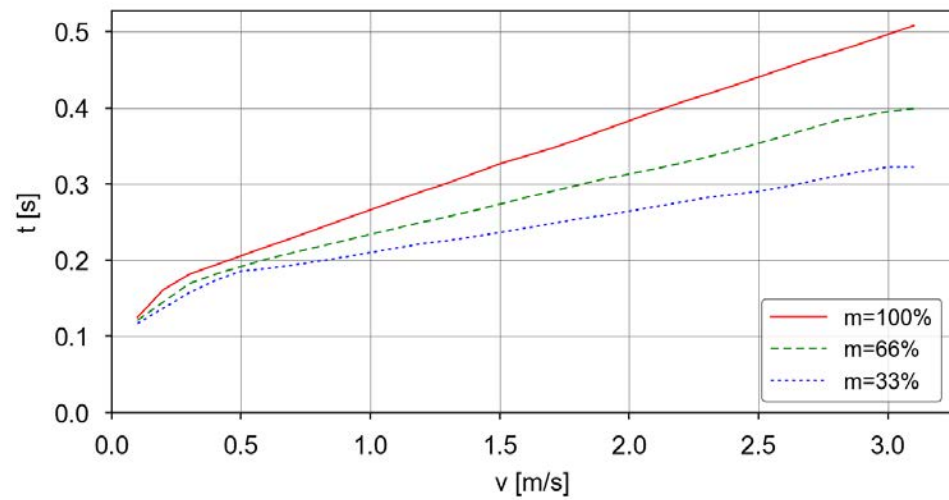
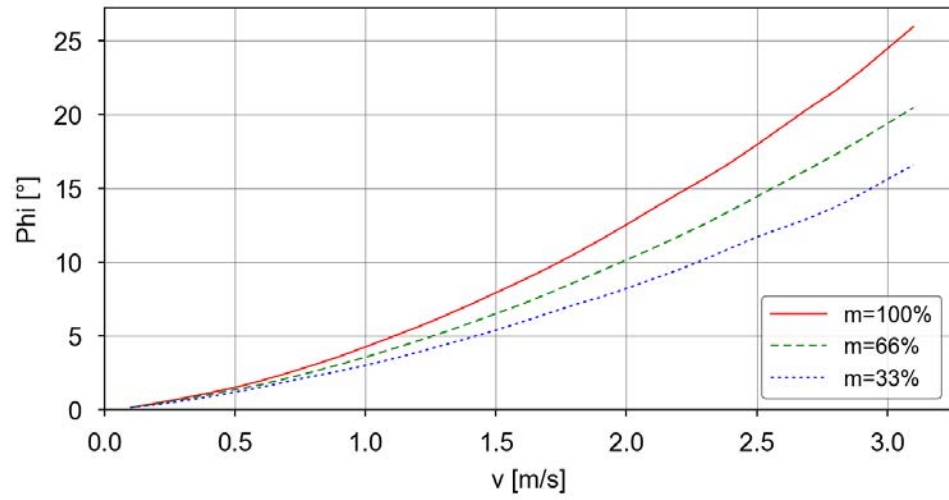
Extension zone 0, stopping distance and stopping time



Continues on next page

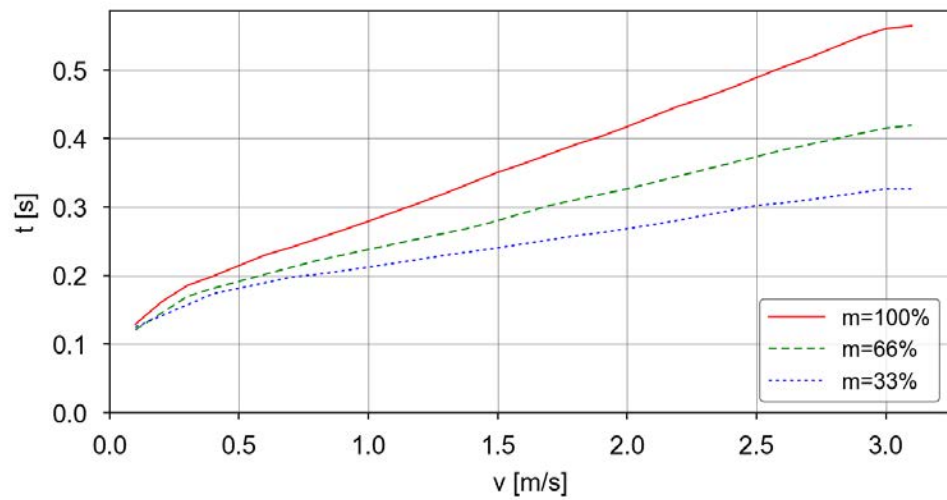
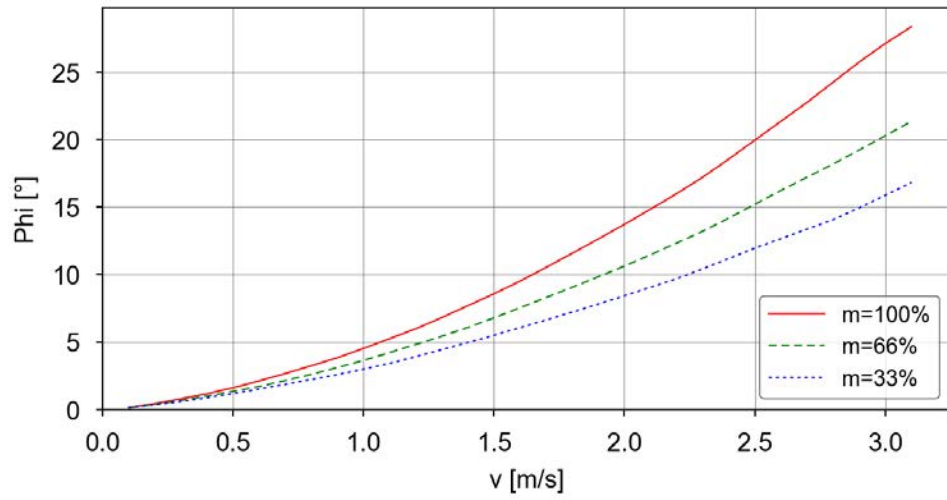


Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



## 19 IRB 6790

### 19.1 IRB 6790 2.65 m 235 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	38.2	0.68
2	20.3	0.37
3	14.4	0.22

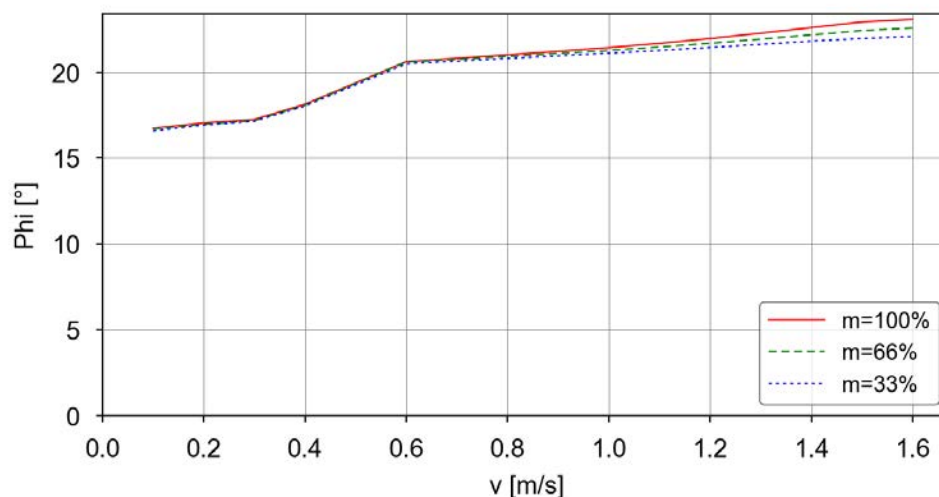
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.883
1	0.883	1.767
2	1.767	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

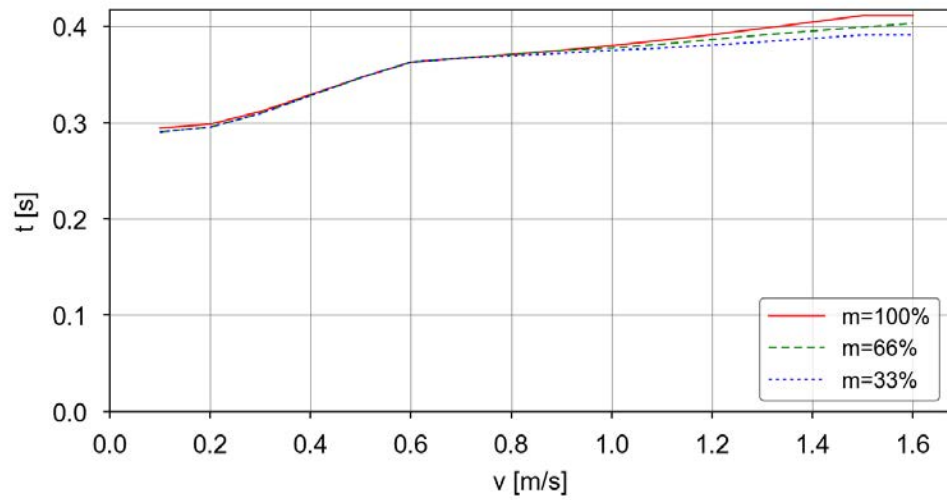


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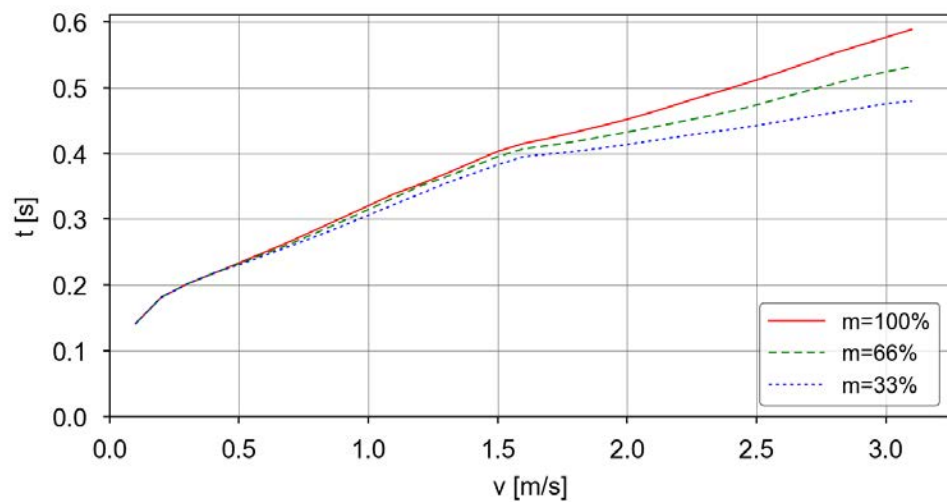
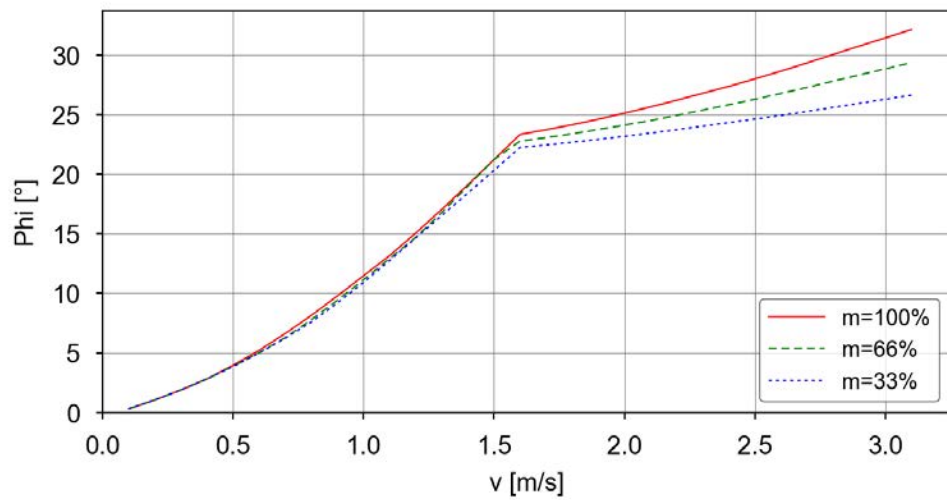
# 19 IRB 6790

19.1 IRB 6790 2.65 m 235 kg

Continued

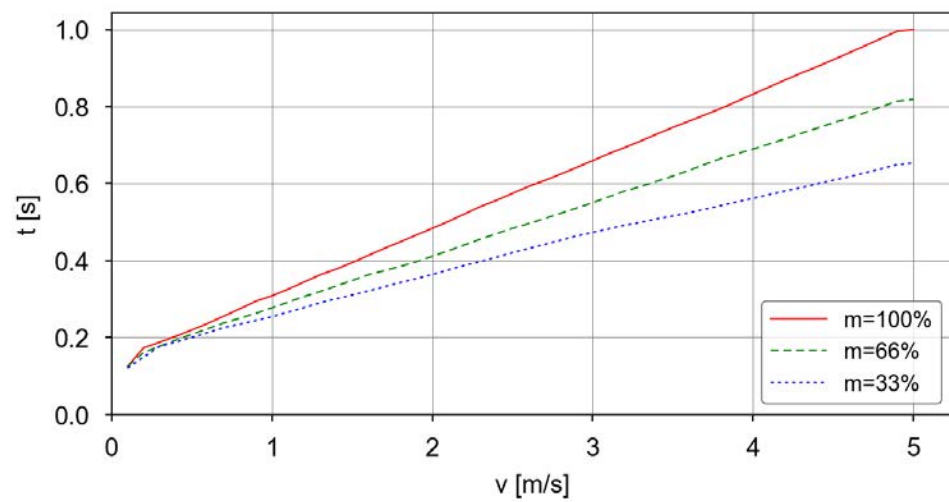
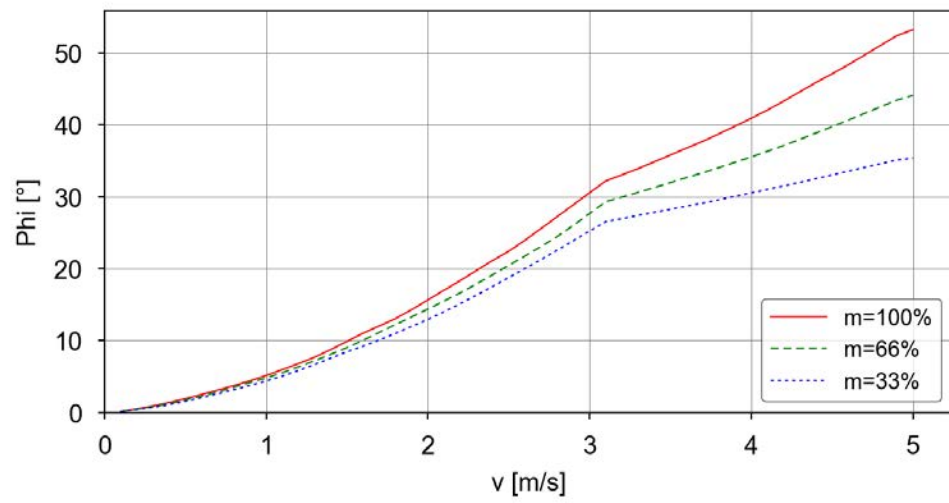


Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

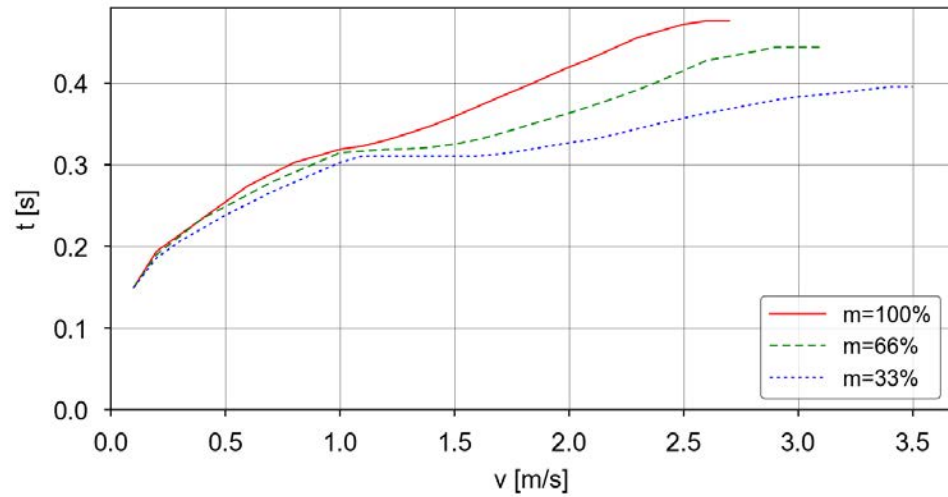
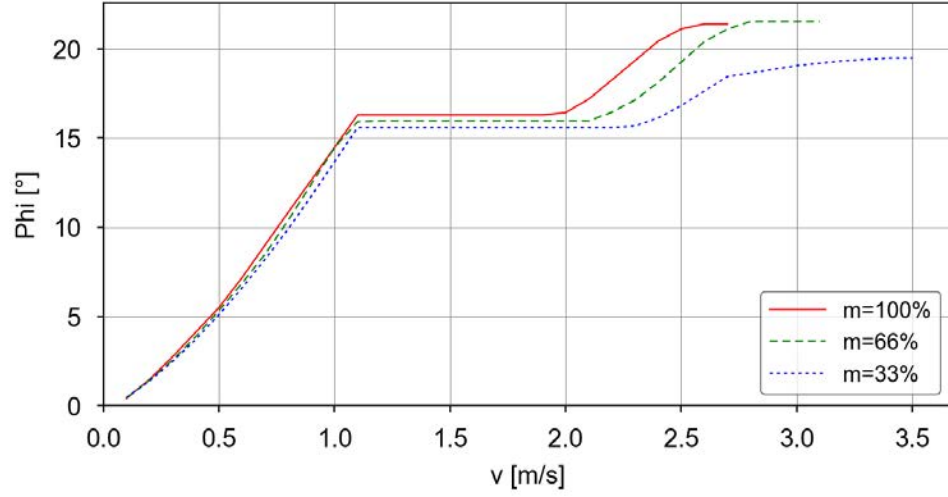
# 19 IRB 6790

19.1 IRB 6790 2.65 m 235 kg

Continued

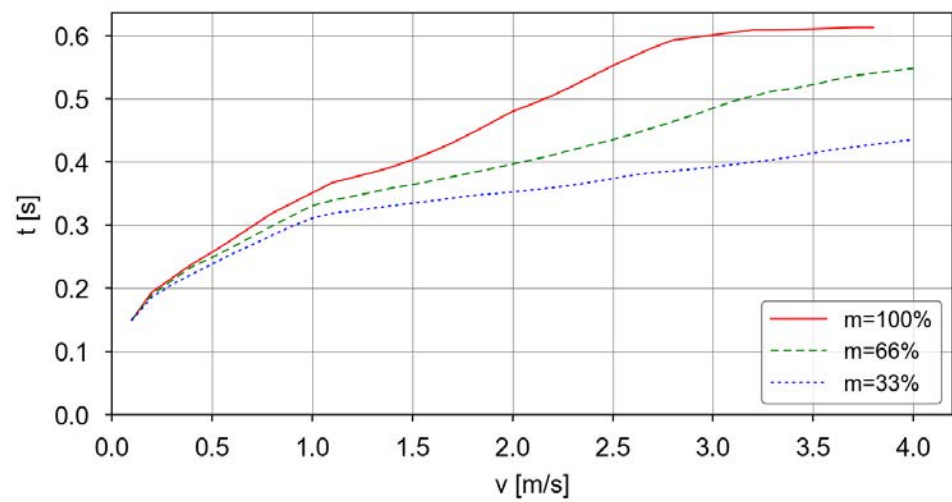
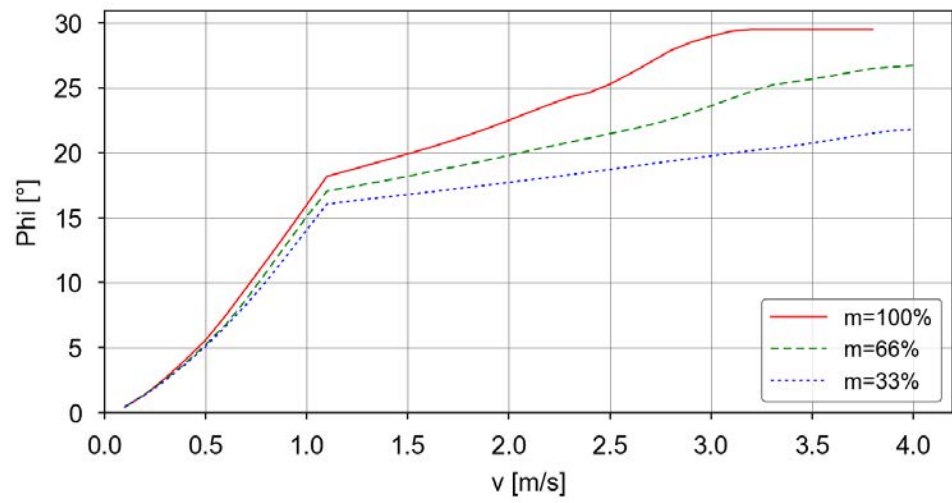
## Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



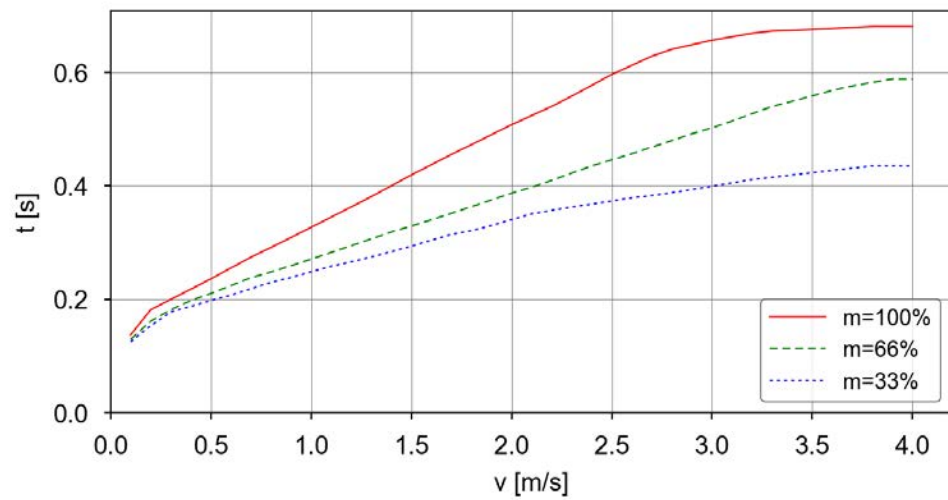
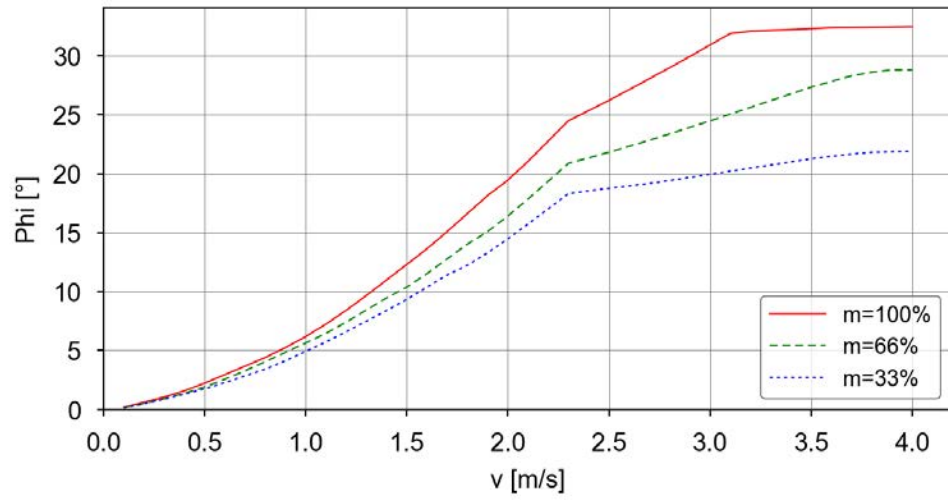
Continues on next page

Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time

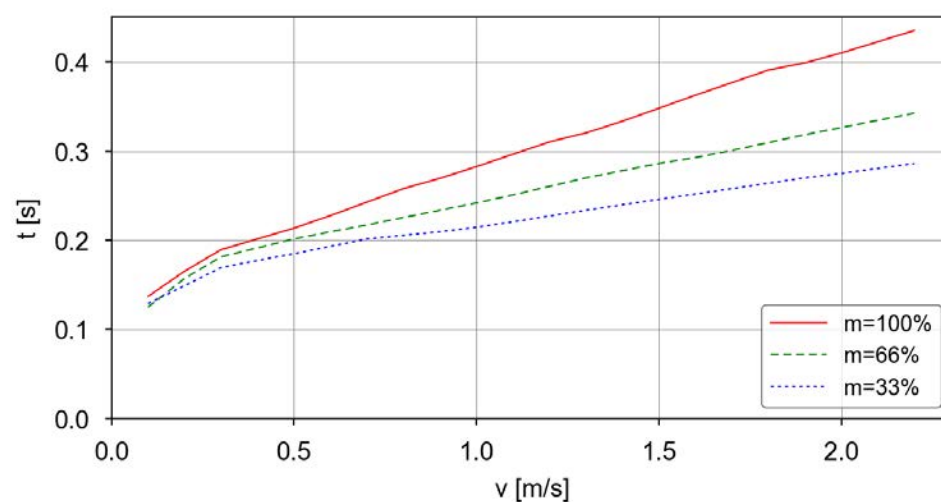
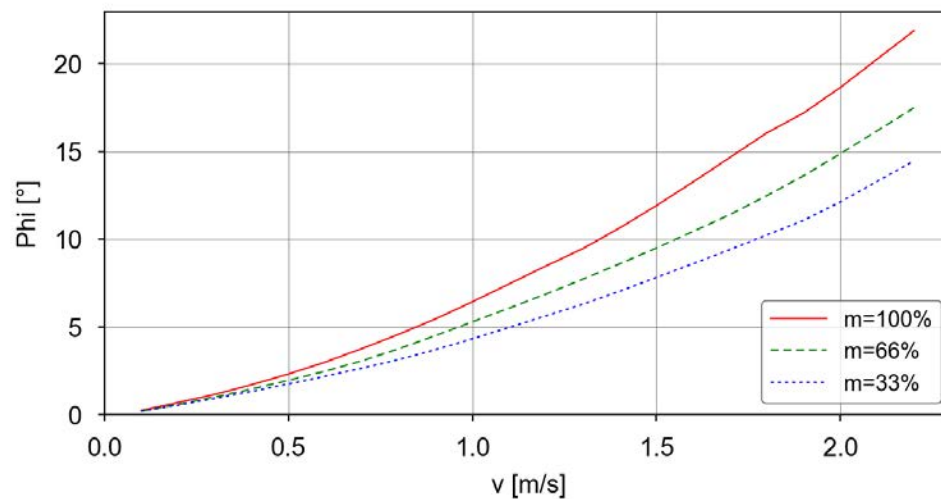


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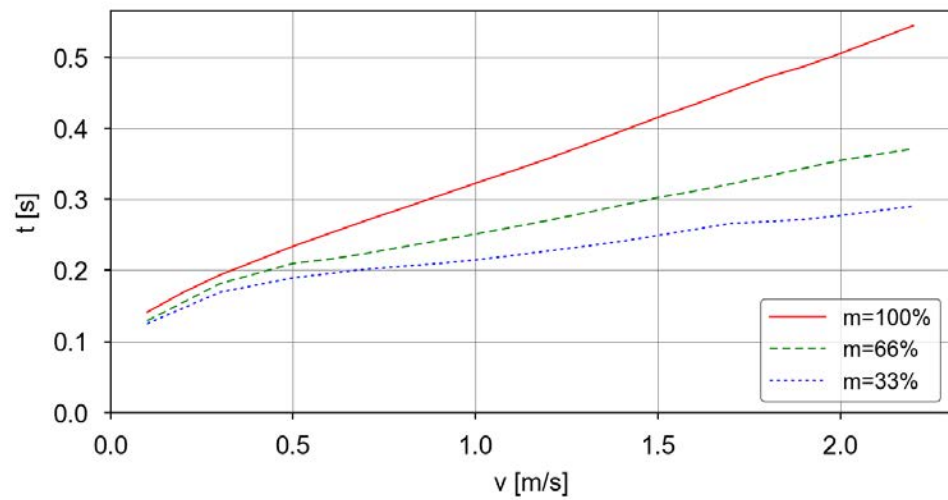
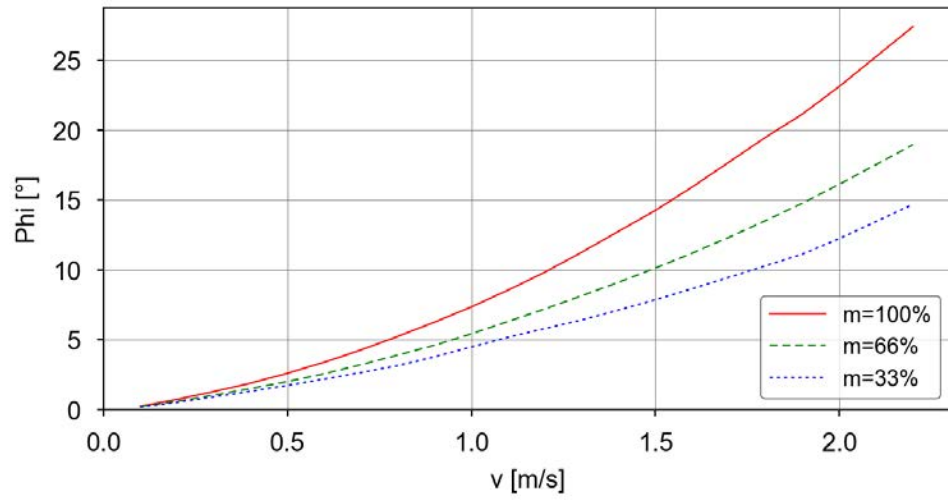
## Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



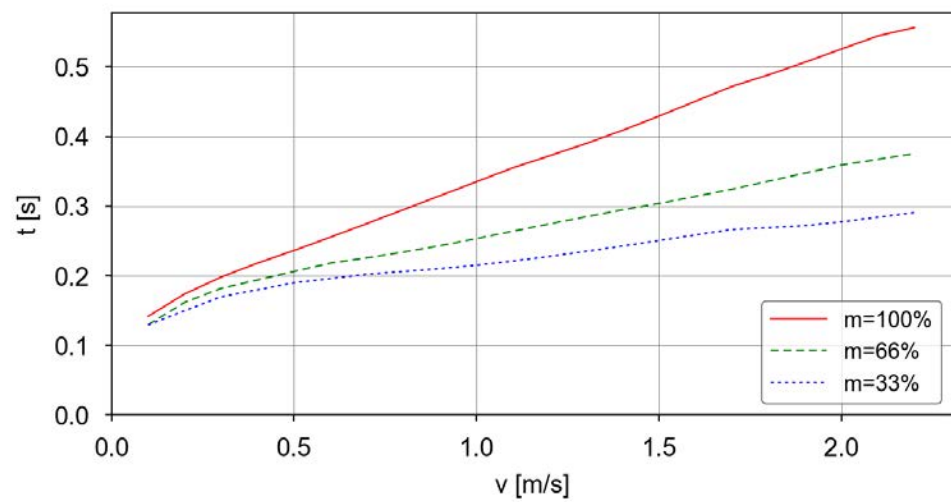
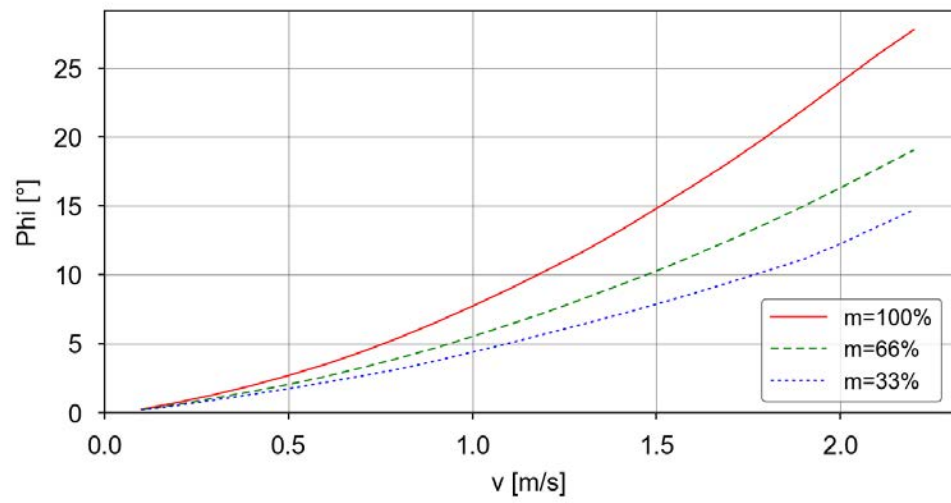
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Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time



19.2 IRB 6790 2.80 m 205 kg

Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	40.0	0.71
2	20.6	0.37
3	14.1	0.22

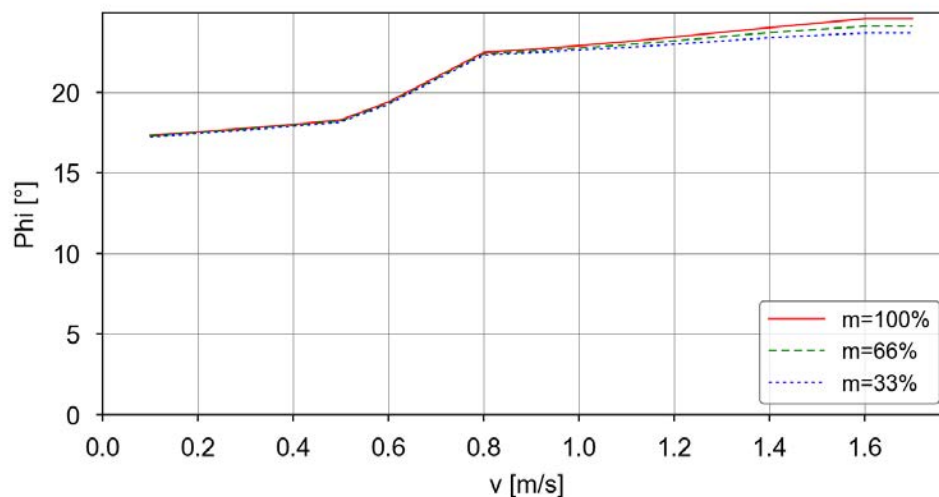
Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

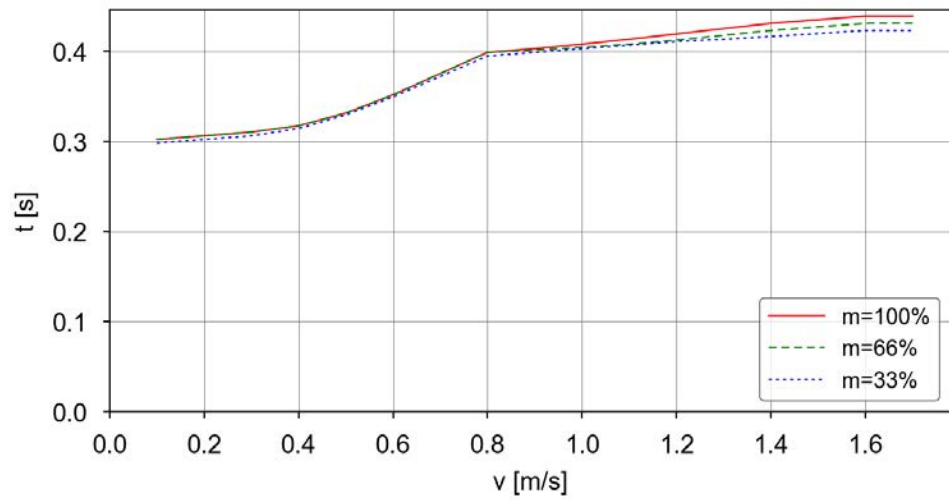
Zone	wcp min (m)	wcp max (m)
0	0	0.931
1	0.931	1.863
2	1.863	max reach

Category 1, Axis 1

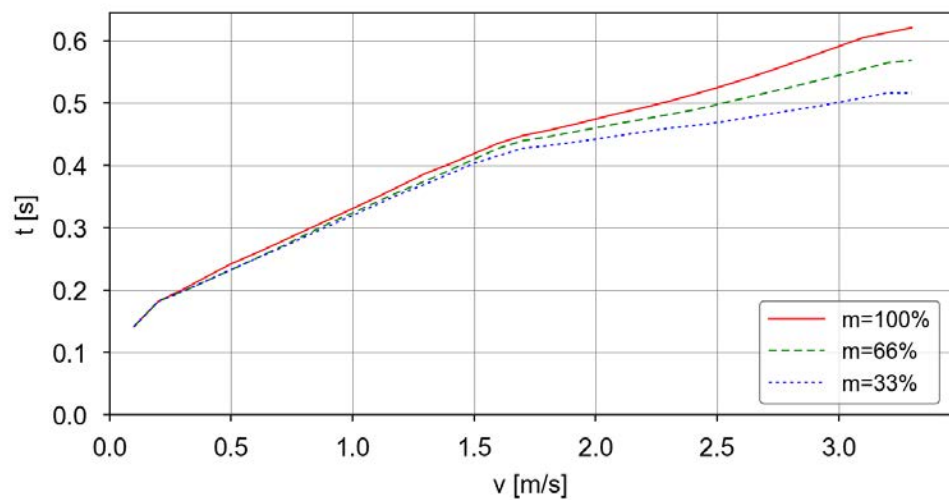
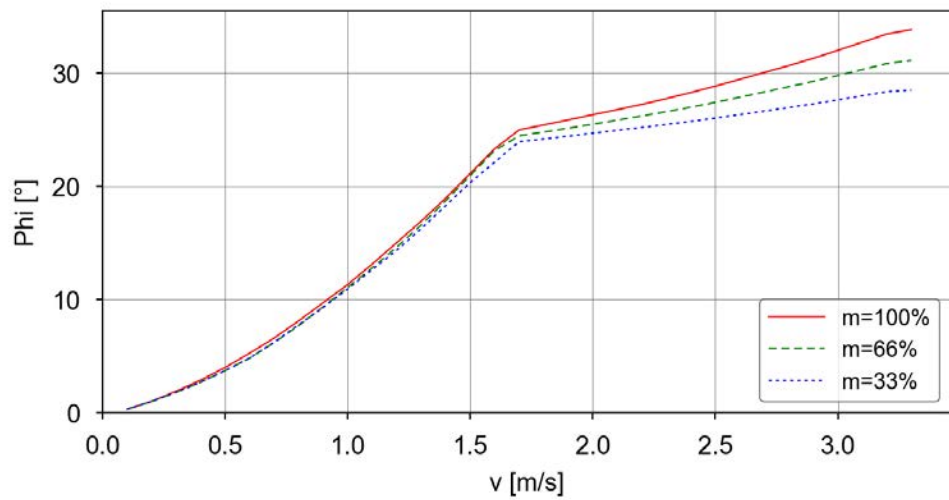
Extension zone 0, stopping distance and stopping time



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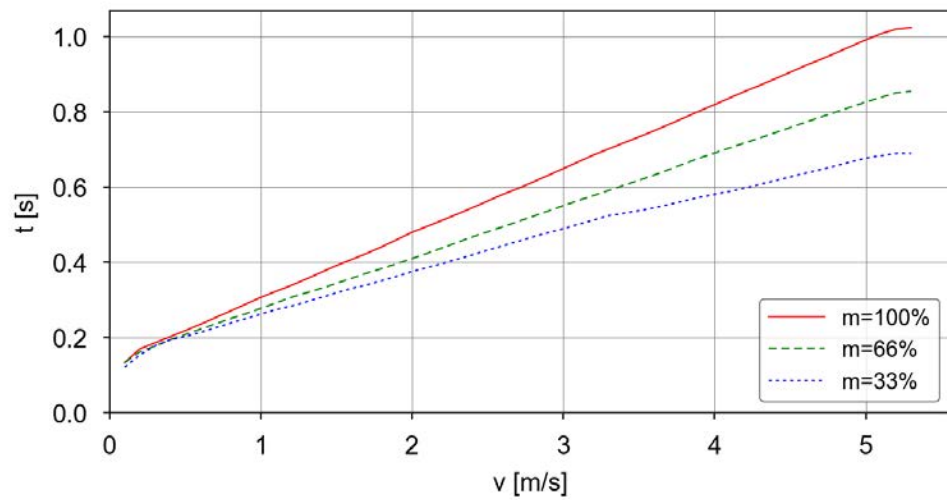
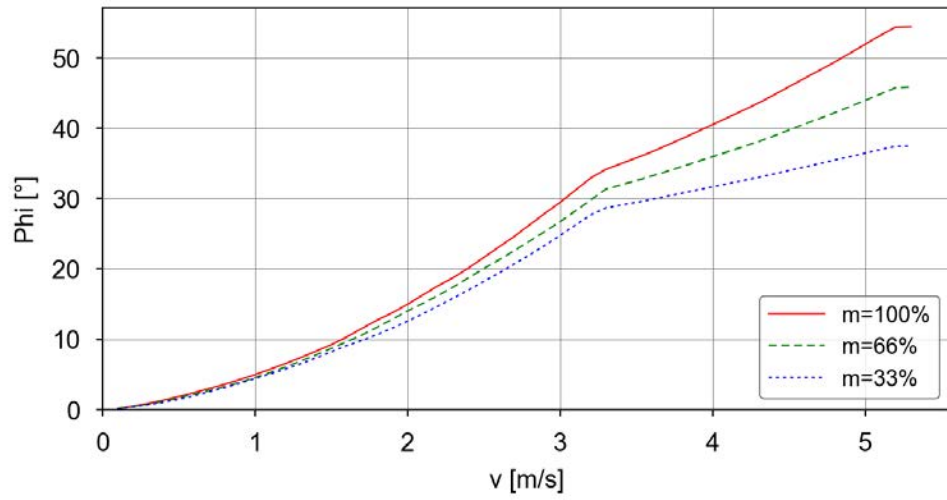


Extension zone 1, stopping distance and stopping time



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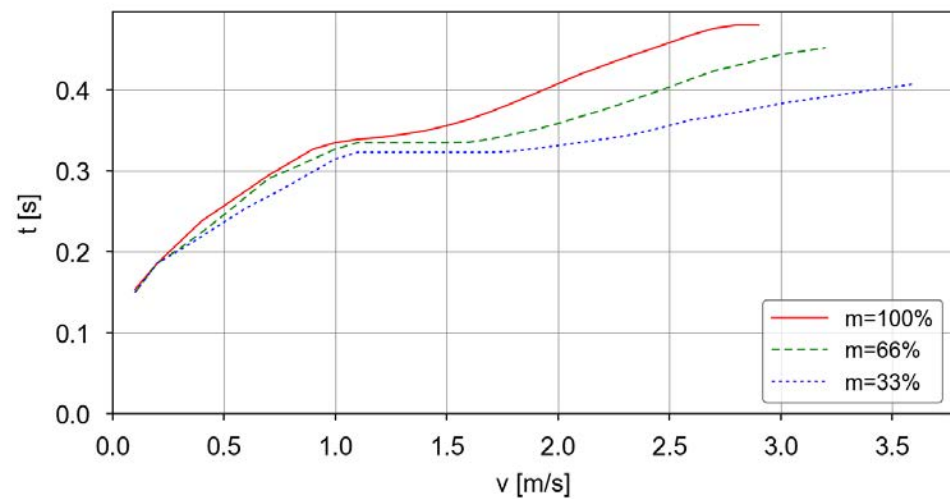
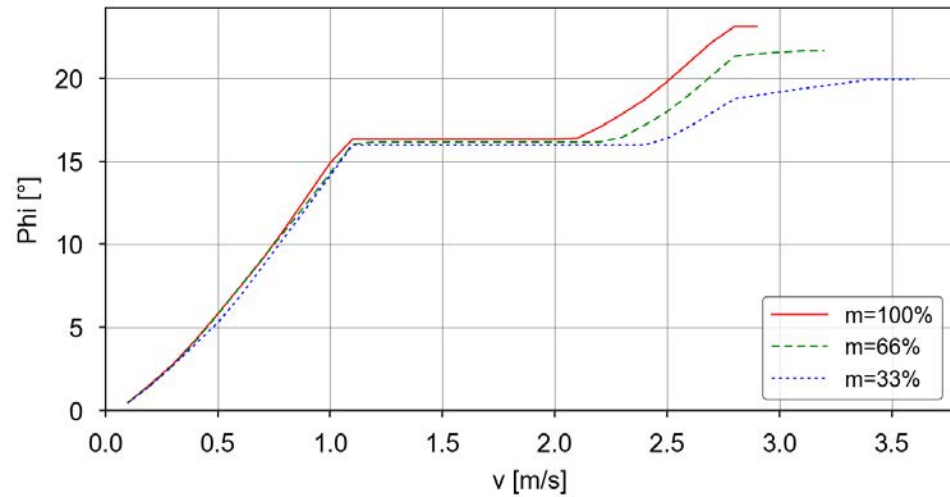
Extension zone 2, stopping distance and stopping time



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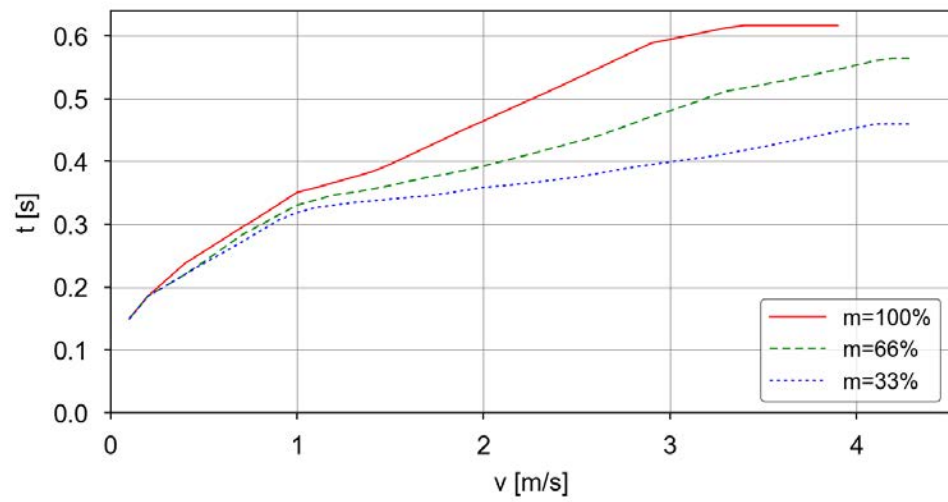
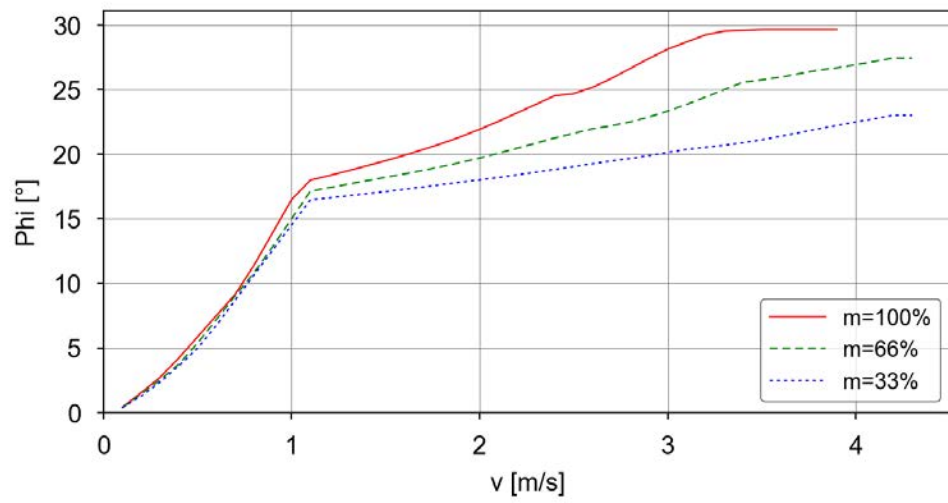
## Category 1, Axis 2

## Extension zone 0, stopping distance and stopping time



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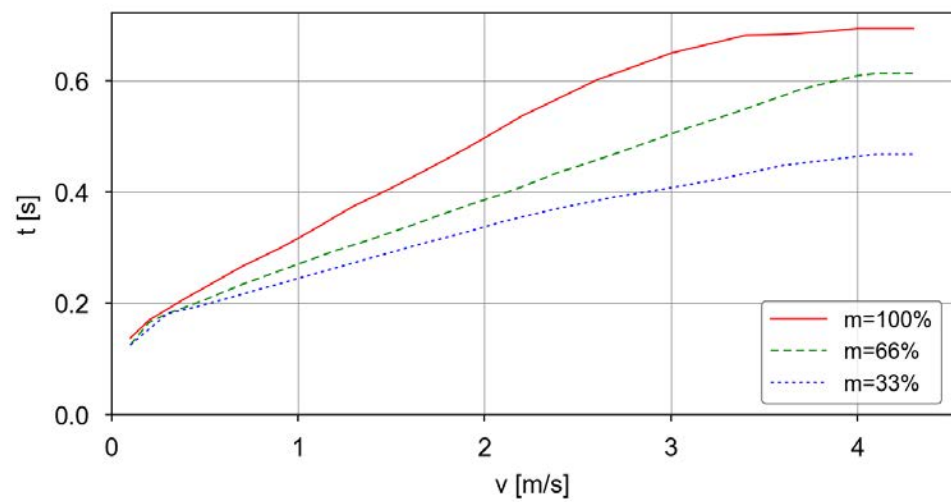
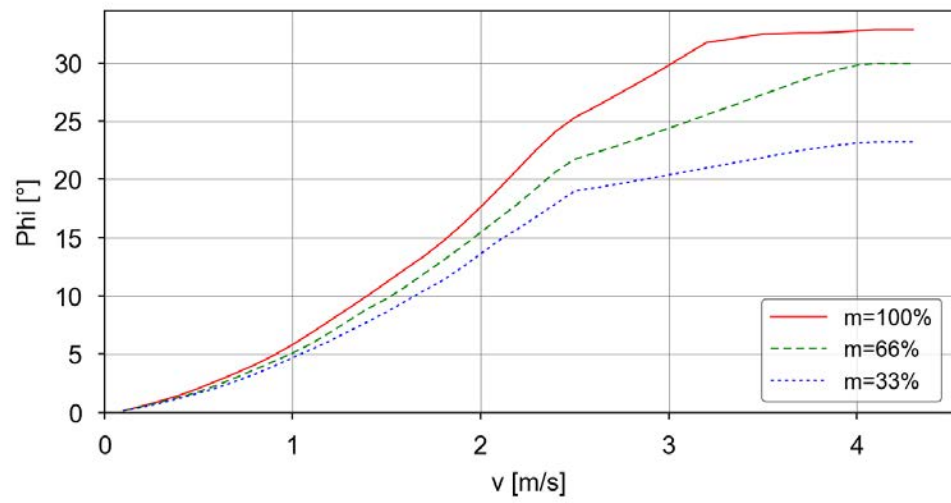
Extension zone 1, stopping distance and stopping time



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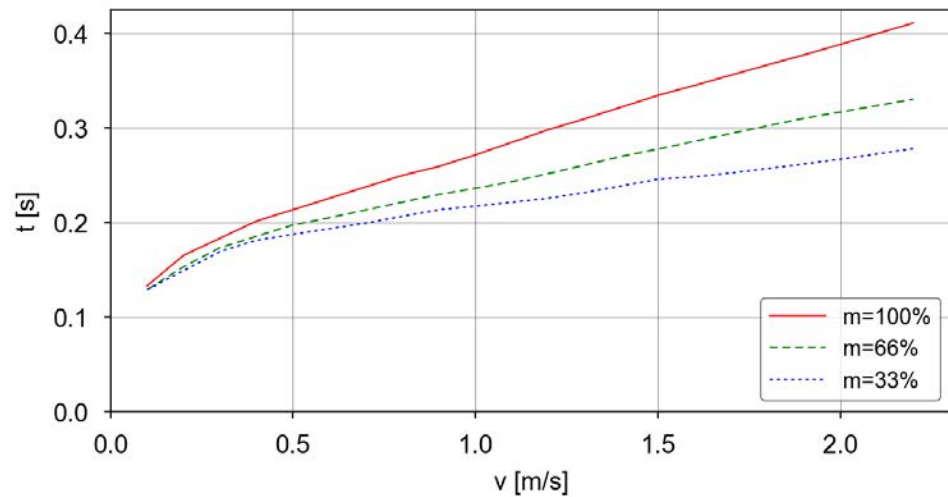
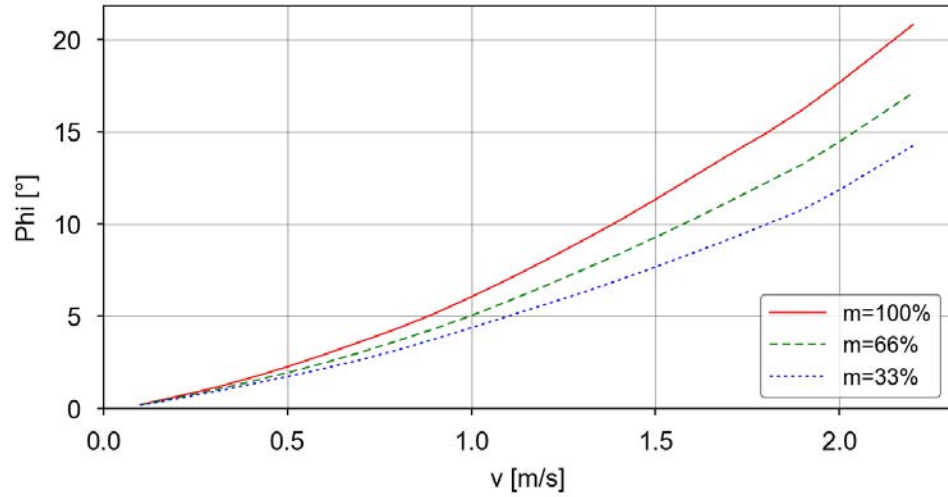
Extension zone 2, stopping distance and stopping time



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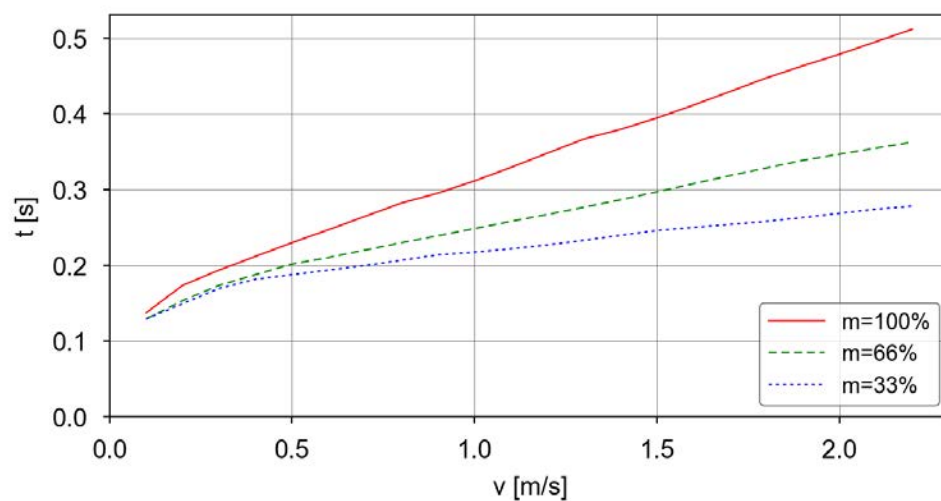
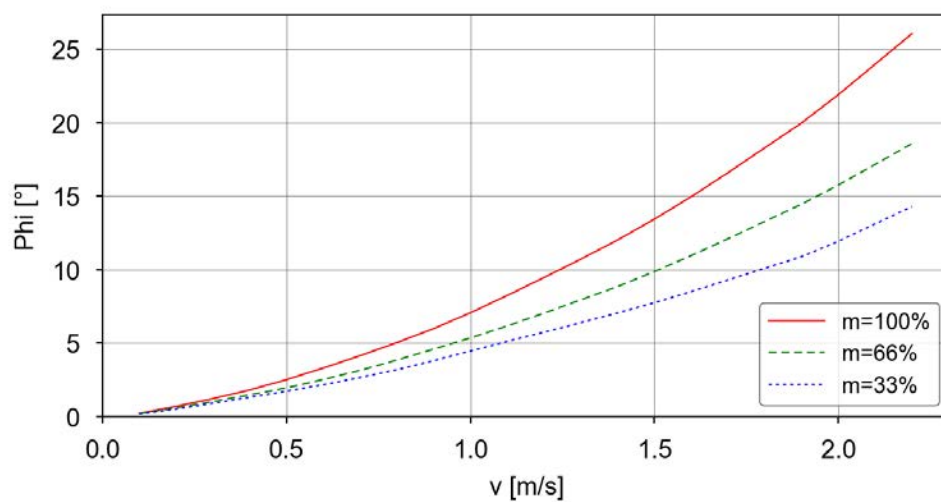
Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



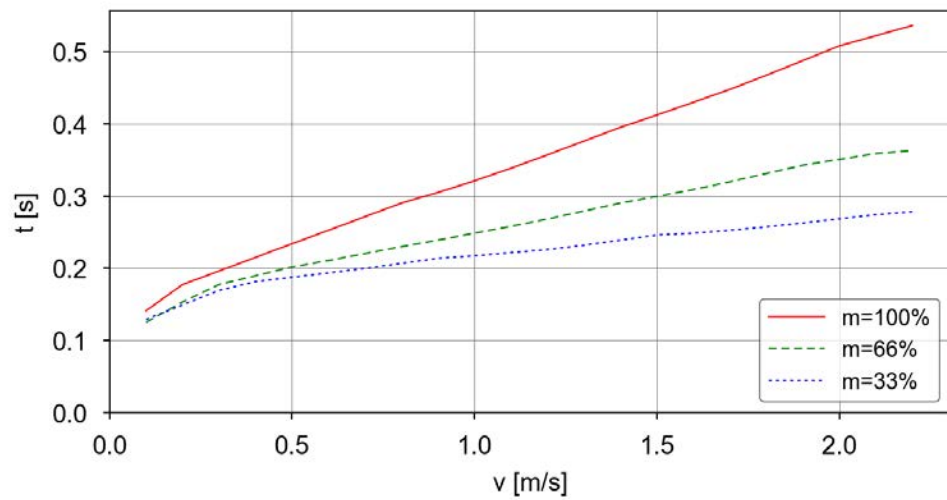
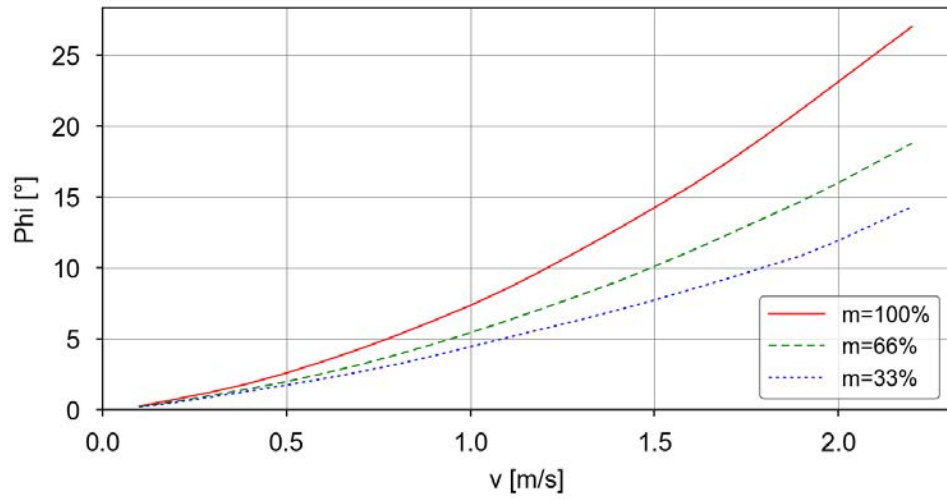
Continues on next page

Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time



## 20 IRB 7600

### 20.1 IRB 7600 2.55 m 400 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	31.6	0.73
2	13.1	0.37
3	9.0	0.22

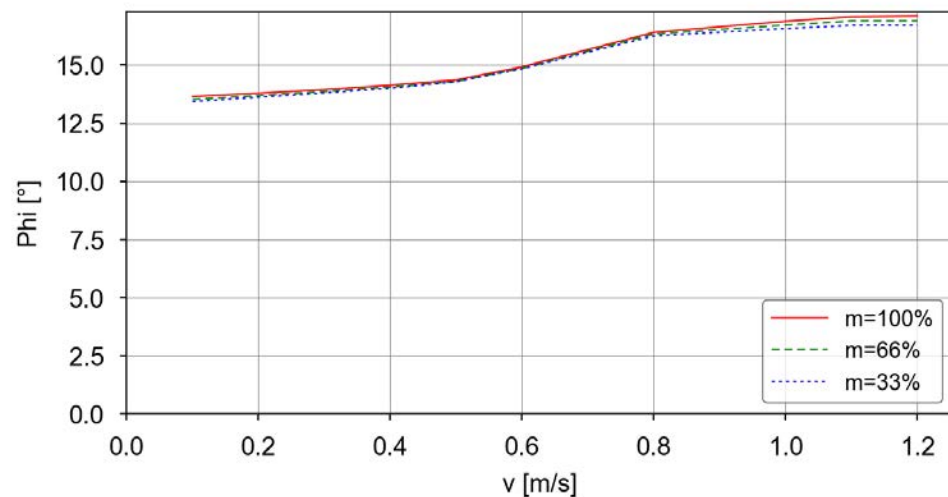
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.85
1	0.85	1.7
2	1.7	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

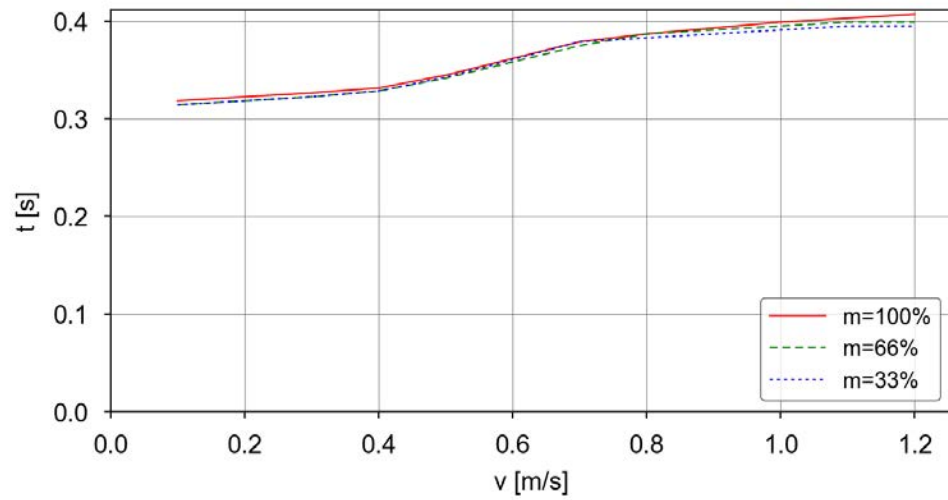


*Continues on next page*

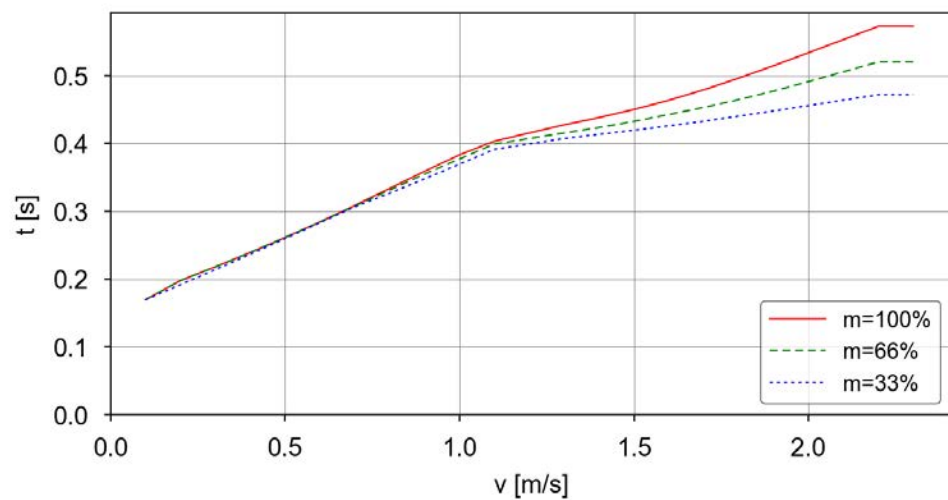
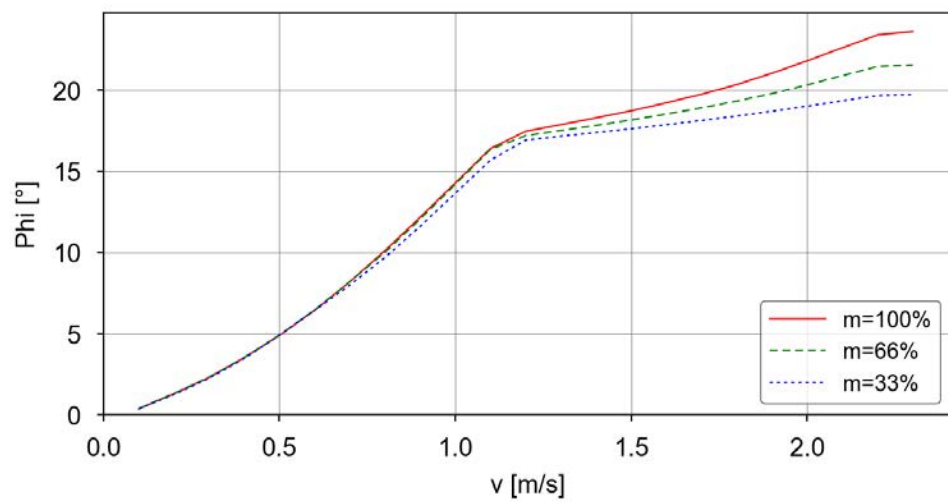
## 20 IRB 7600

20.1 IRB 7600 2.55 m 400 kg

Continued

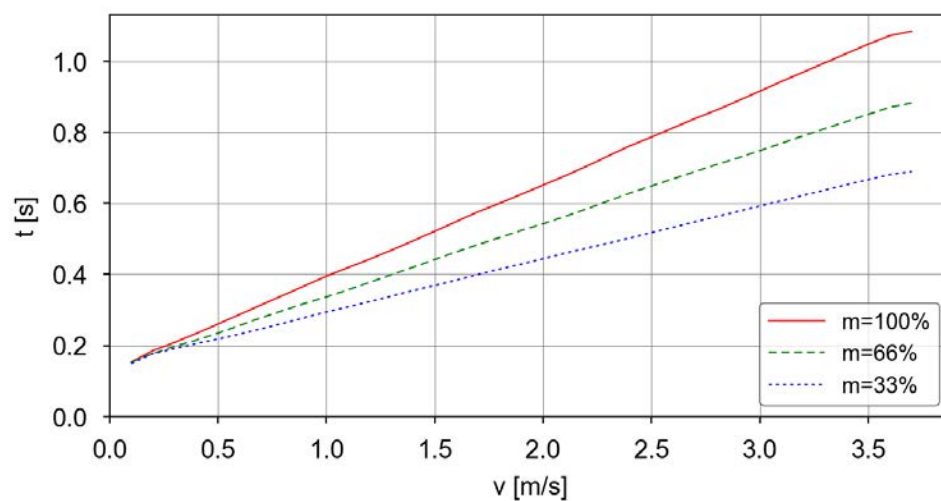
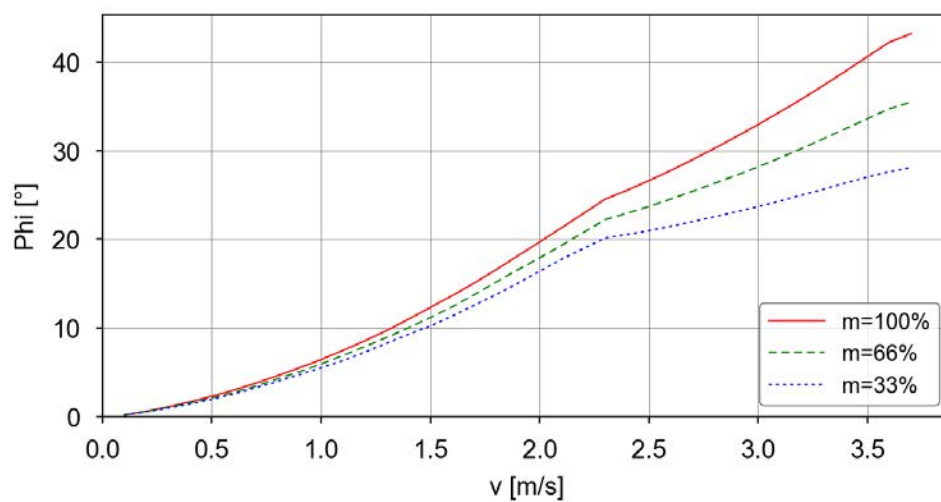


Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

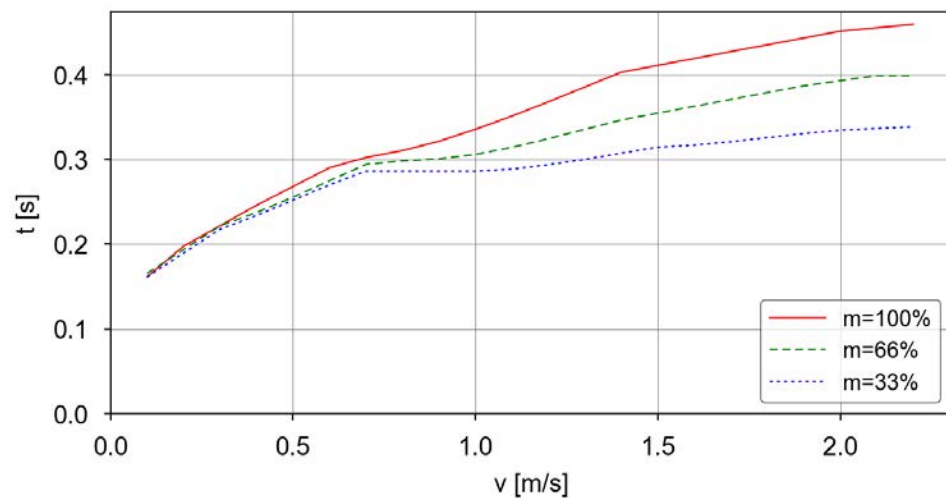
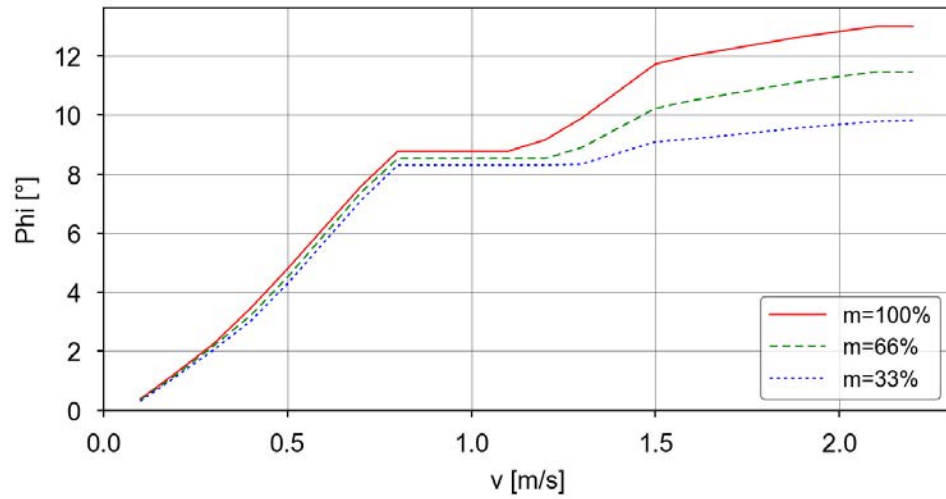
## 20 IRB 7600

20.1 IRB 7600 2.55 m 400 kg

Continued

### Category 1, Axis 2

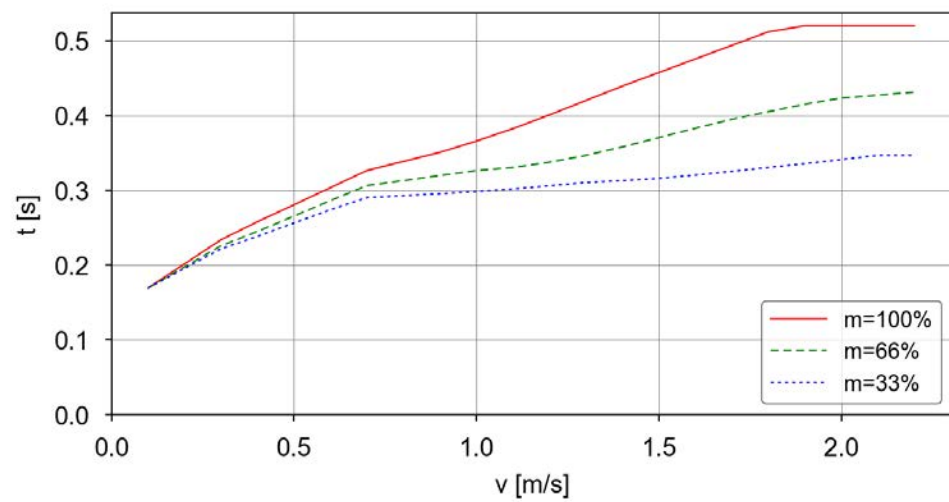
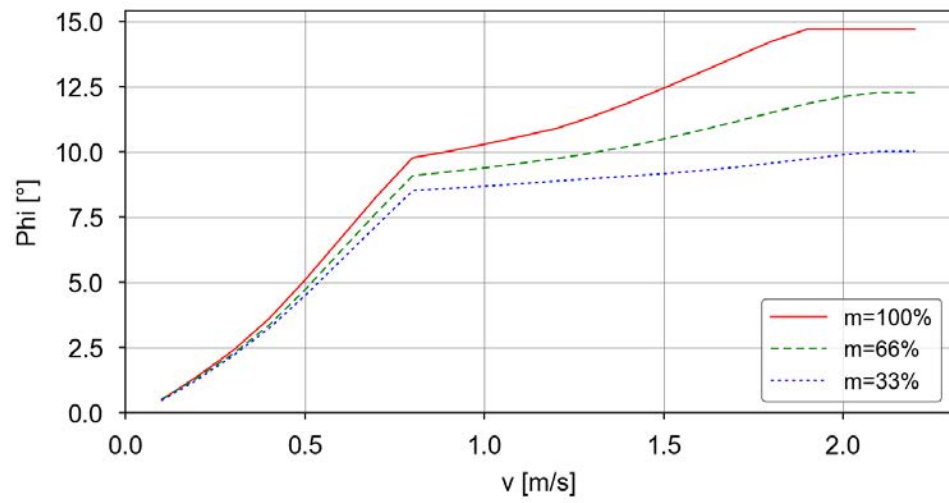
Extension zone 0, stopping distance and stopping time



Continues on next page



Extension zone 1, stopping distance and stopping time



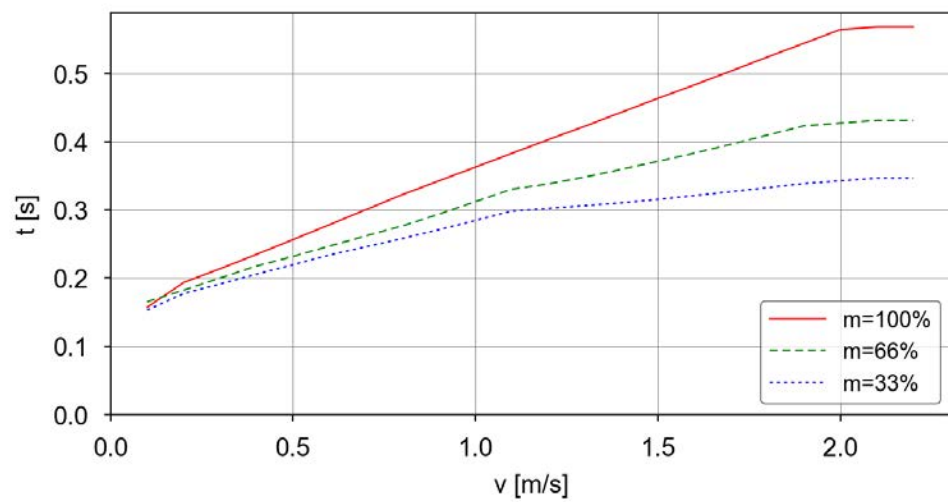
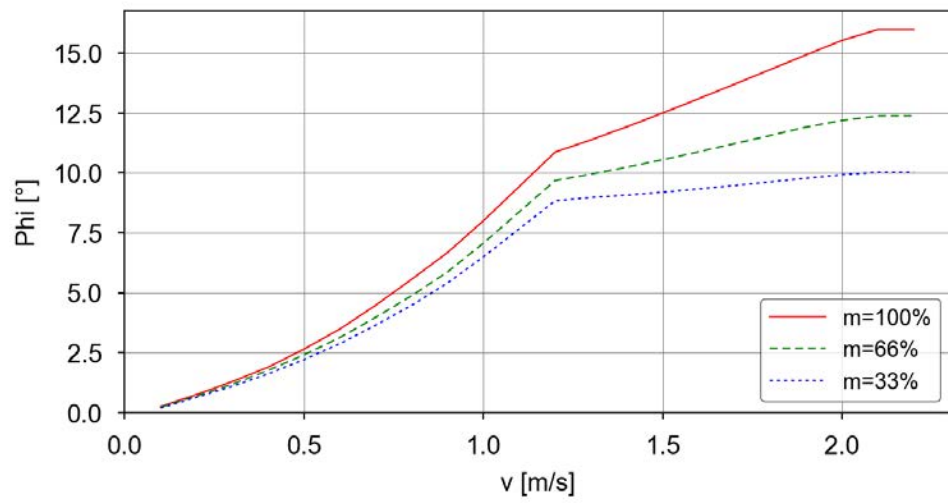
Continues on next page

## 20 IRB 7600

20.1 IRB 7600 2.55 m 400 kg

Continued

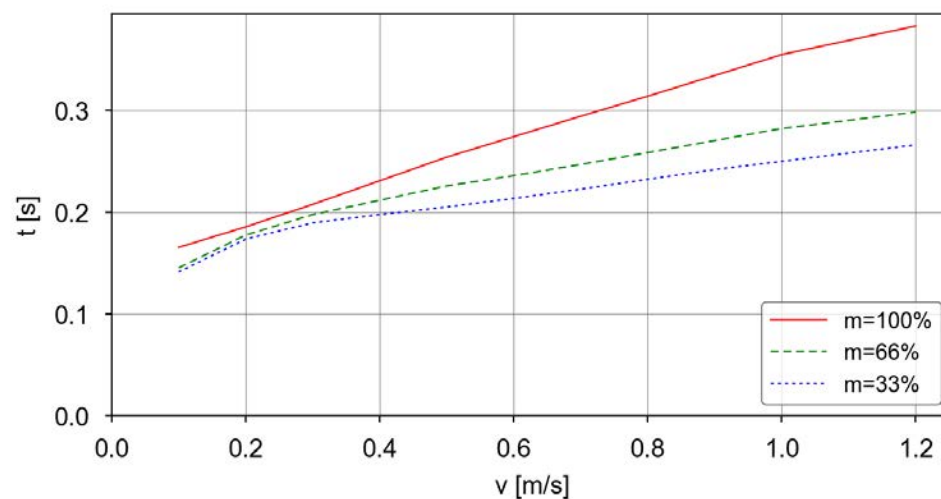
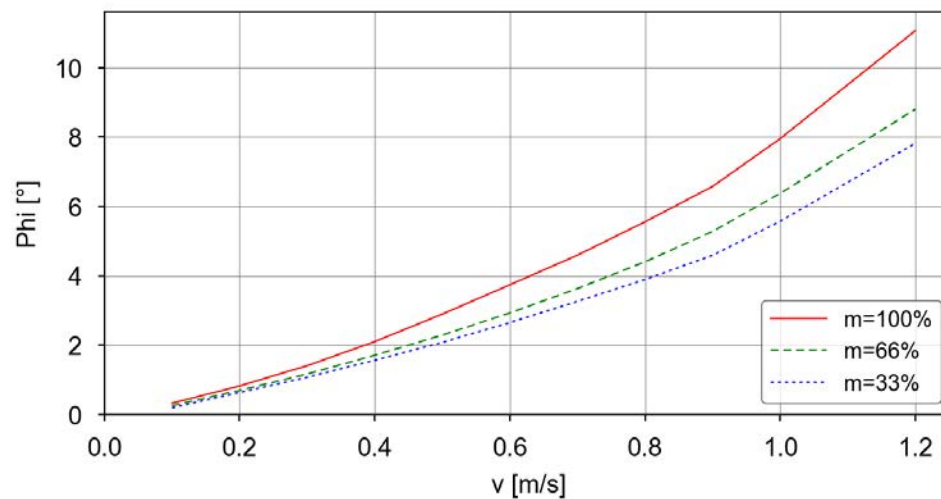
Extension zone 2, stopping distance and stopping time



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## Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



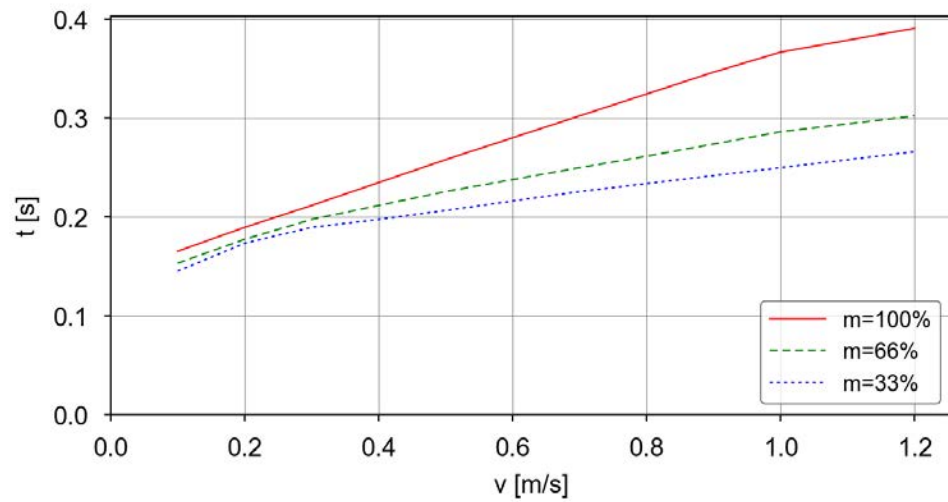
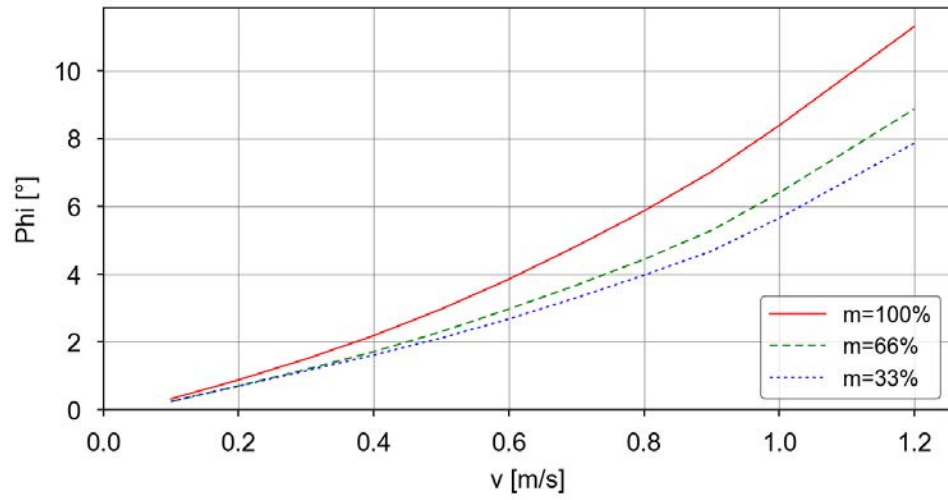
Continues on next page

## 20 IRB 7600

20.1 IRB 7600 2.55 m 400 kg

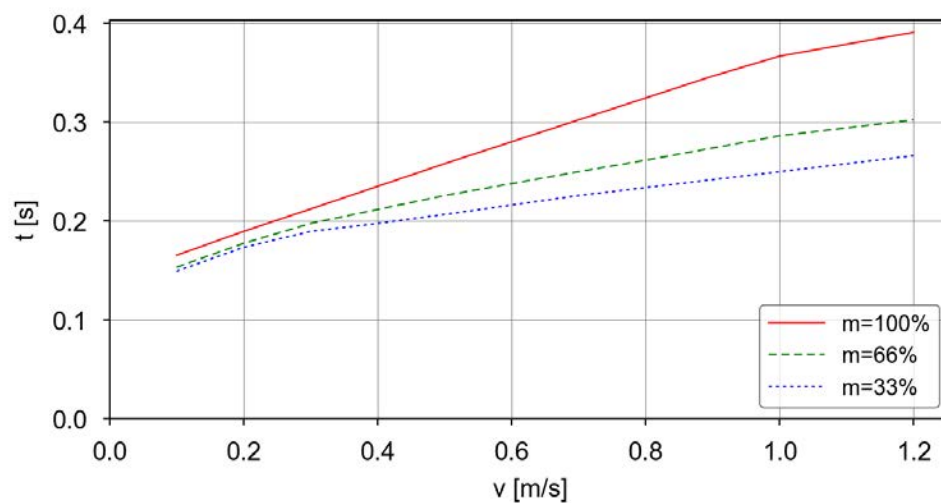
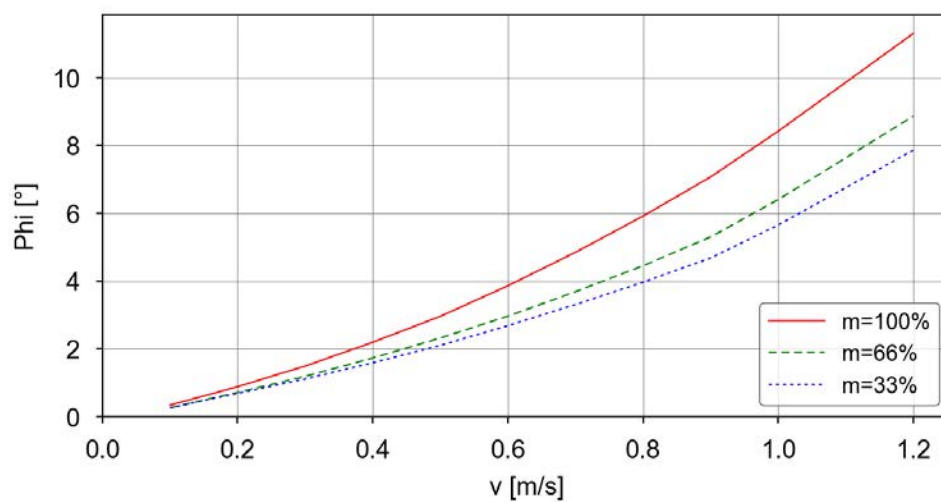
Continued

Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



## 20 IRB 7600

### 20.2 IRB 7600 2.55 m 500 kg

### 20.2 IRB 7600 2.55 m 500 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	32.6	0.75
2	9.0	0.29
3	7.6	0.2

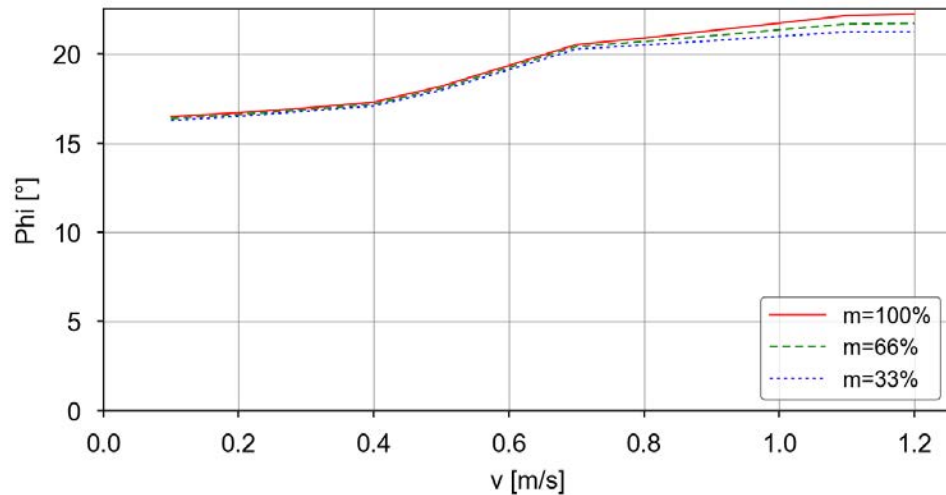
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

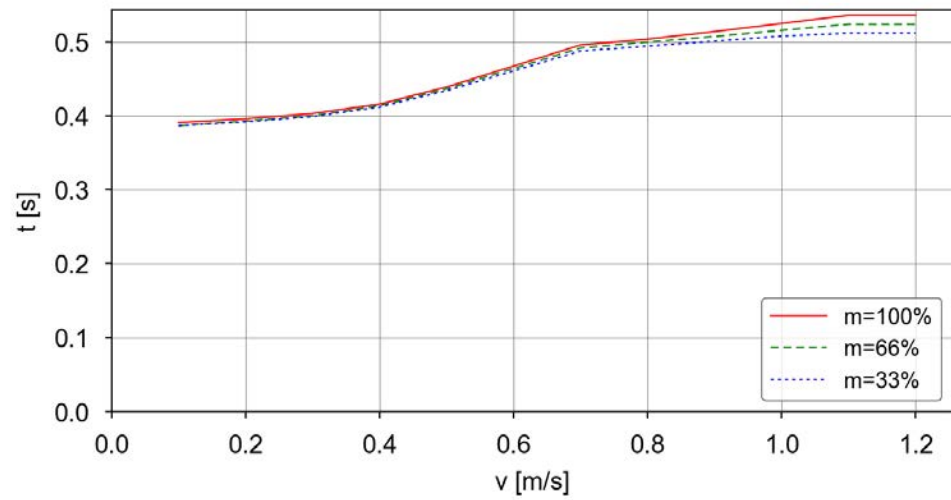
Zone	wcp min (m)	wcp max (m)
0	0	0.85
1	0.85	1.7
2	1.7	max reach

#### Category 1, Axis 1

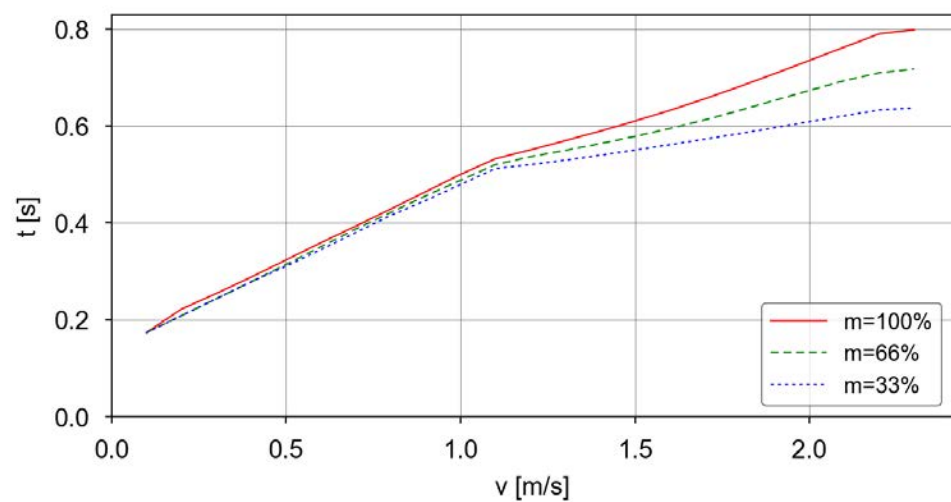
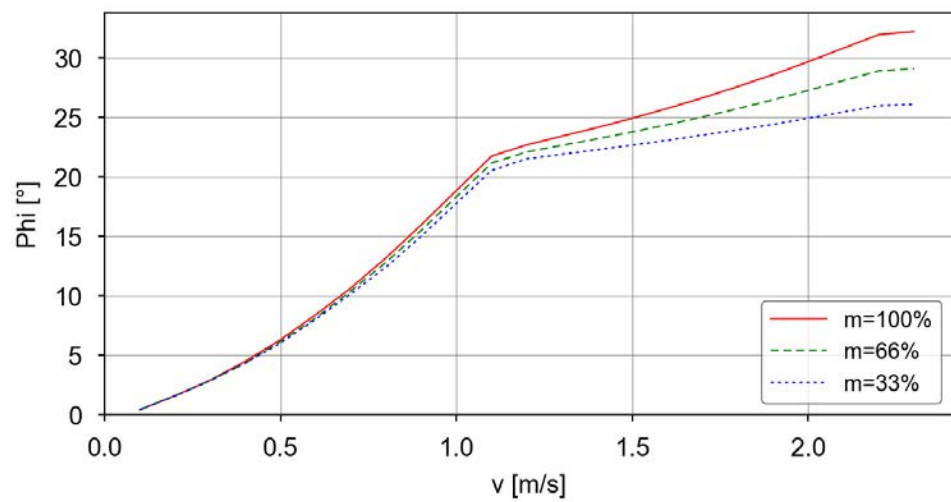
Extension zone 0, stopping distance and stopping time



Continues on next page



Extension zone 1, stopping distance and stopping time



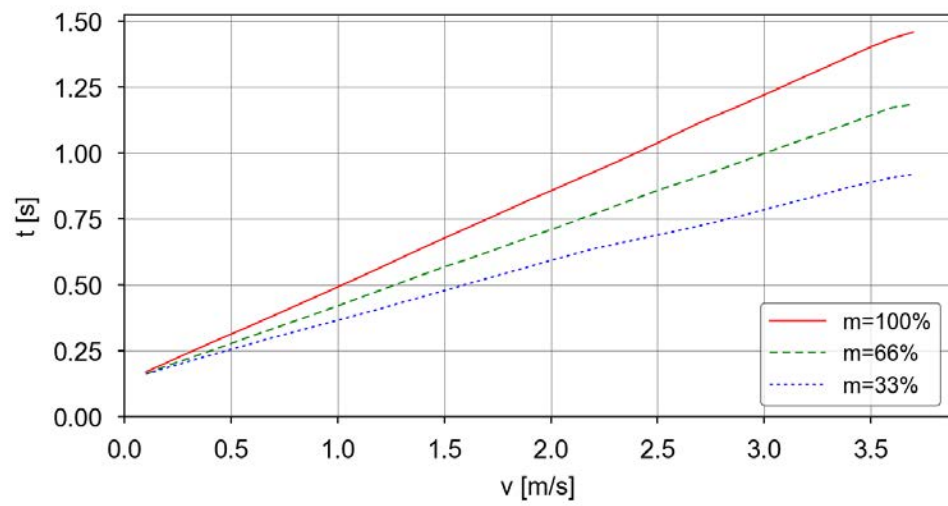
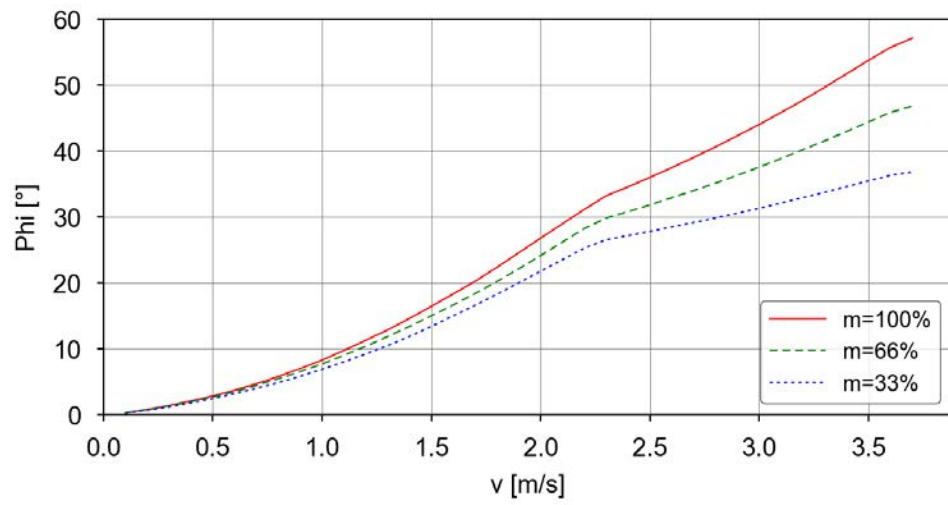
Continues on next page

## 20 IRB 7600

20.2 IRB 7600 2.55 m 500 kg

Continued

Extension zone 2, stopping distance and stopping time

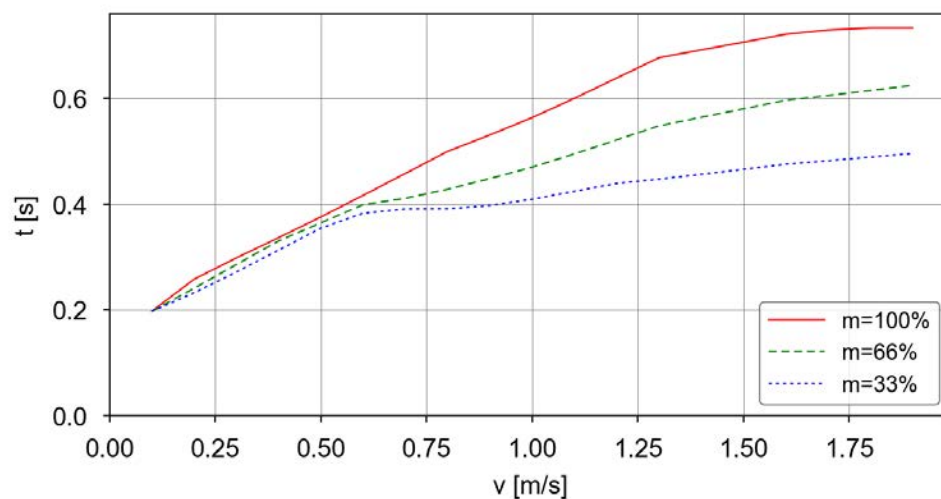
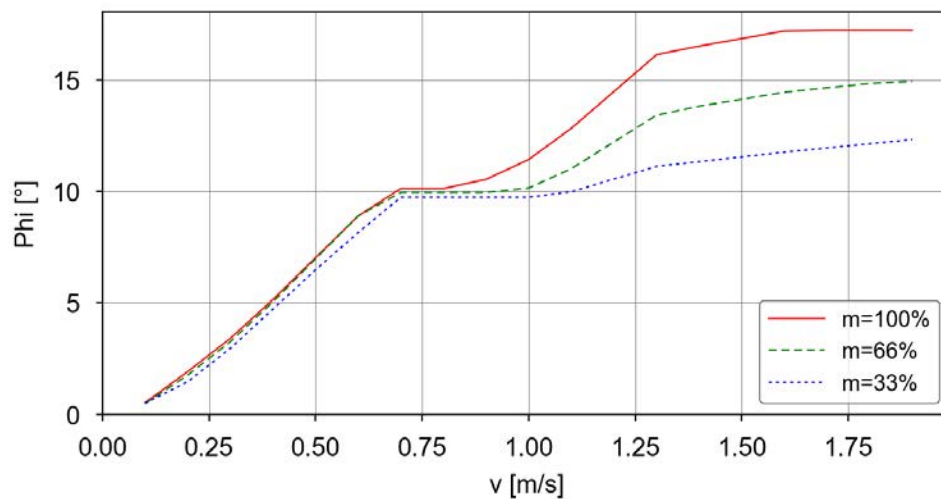


Continues on next page



Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



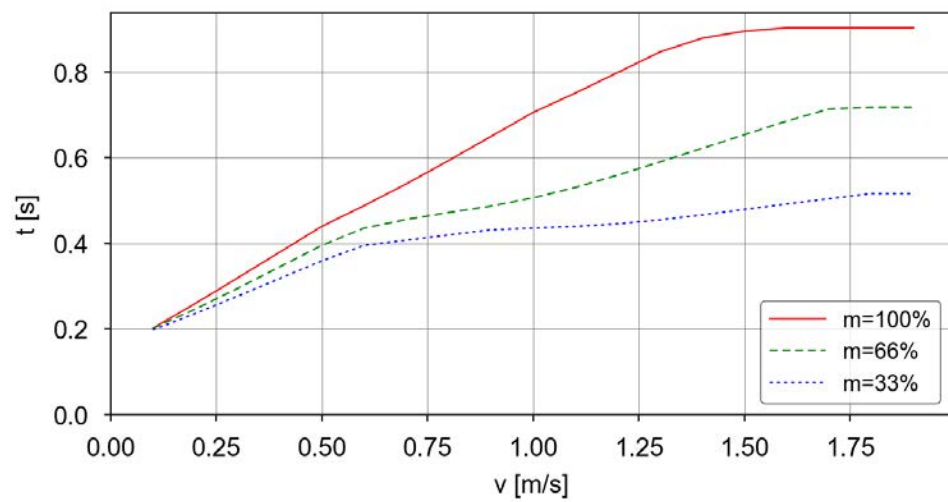
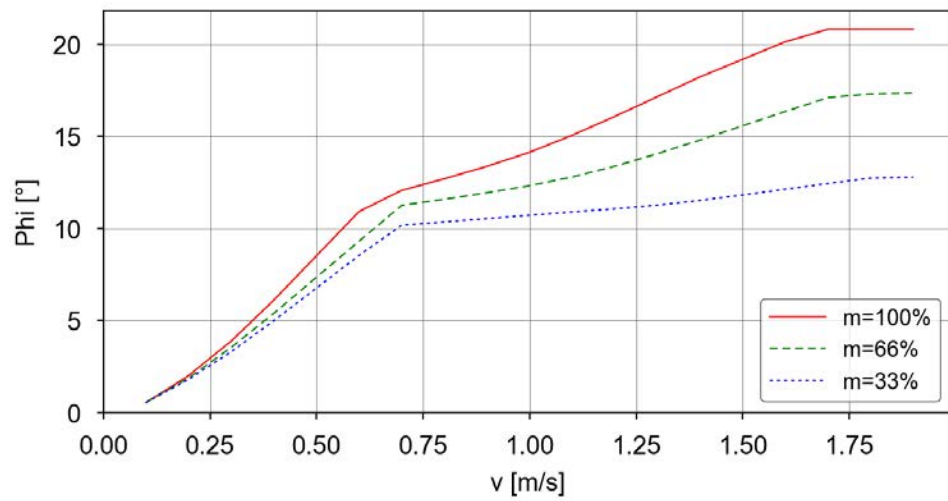
Continues on next page

## 20 IRB 7600

20.2 IRB 7600 2.55 m 500 kg

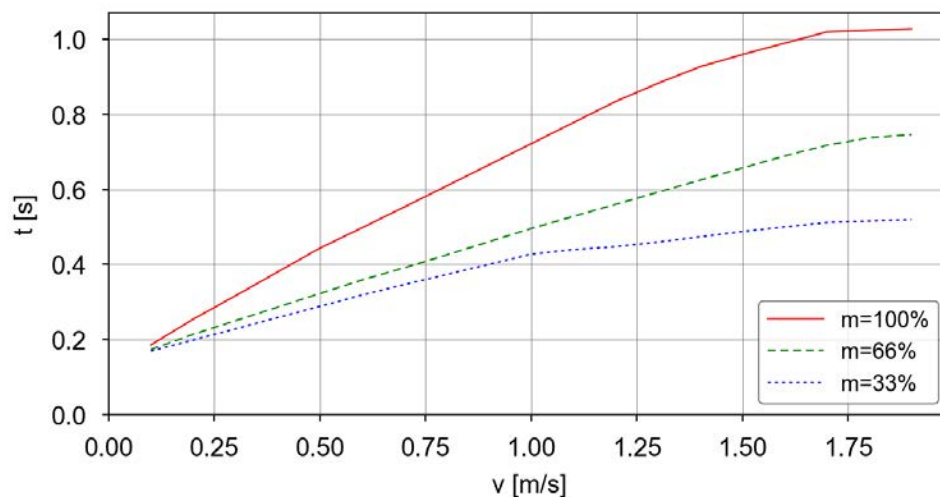
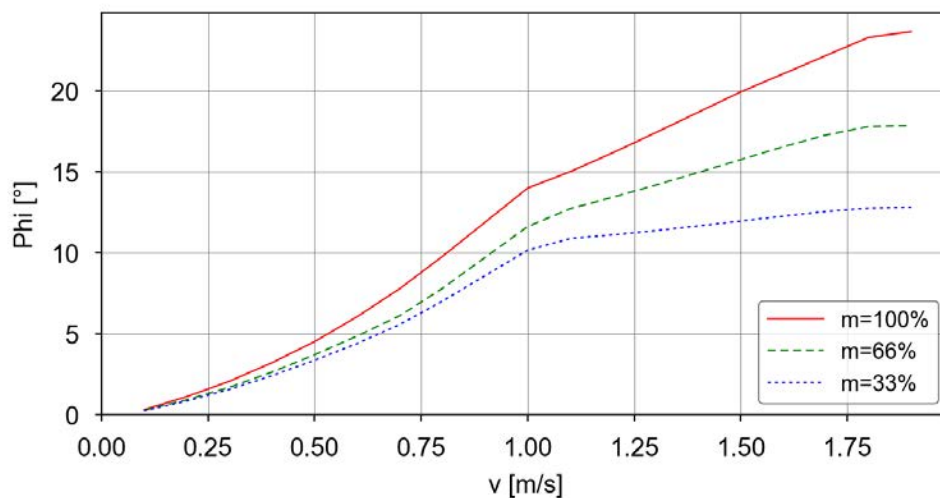
Continued

Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

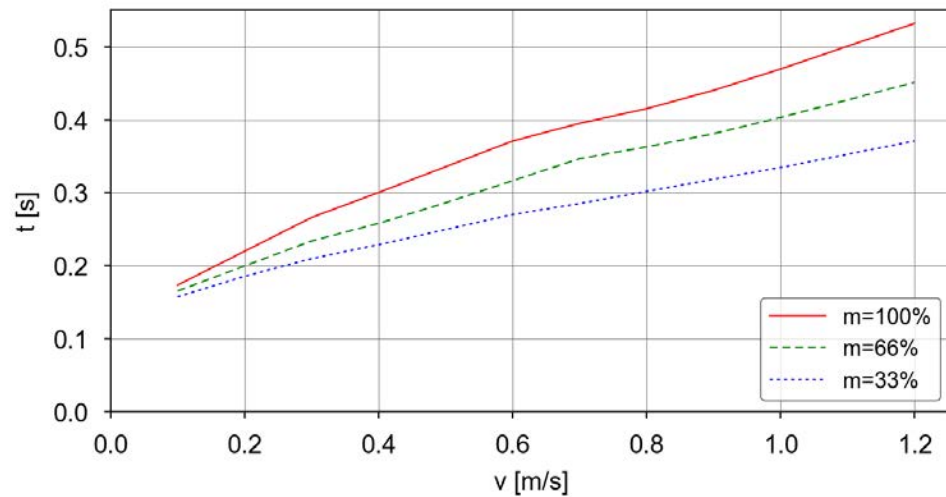
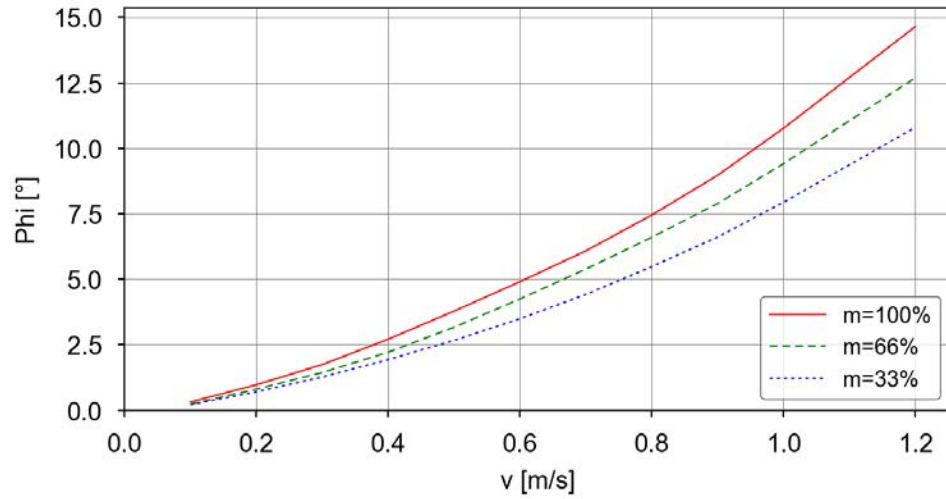
## 20 IRB 7600

20.2 IRB 7600 2.55 m 500 kg

Continued

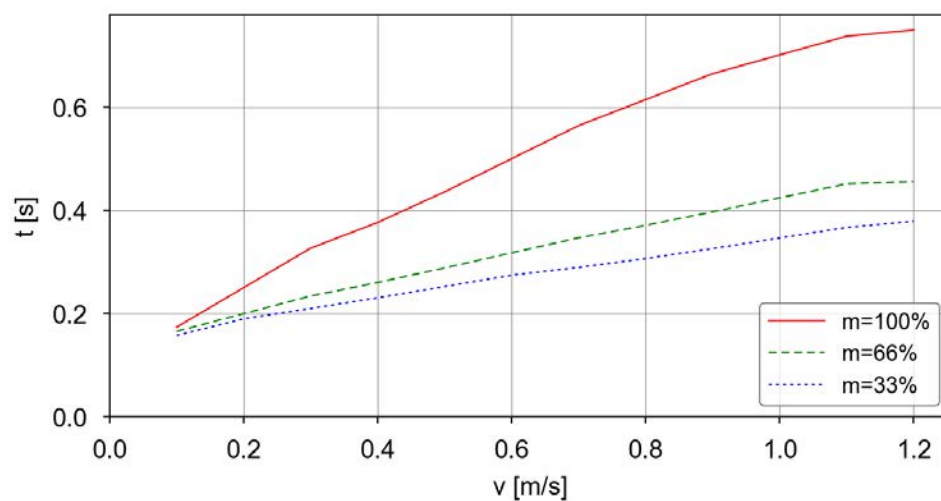
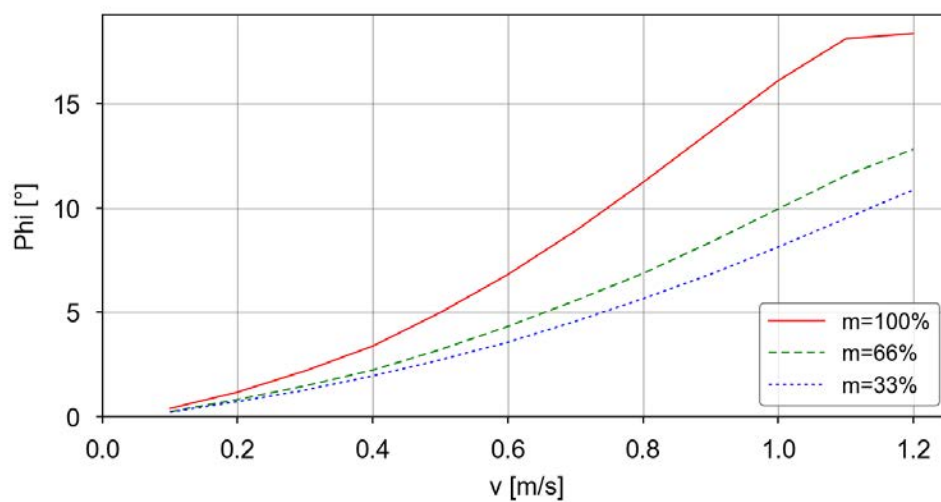
### Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



Continues on next page

Extension zone 1, stopping distance and stopping time



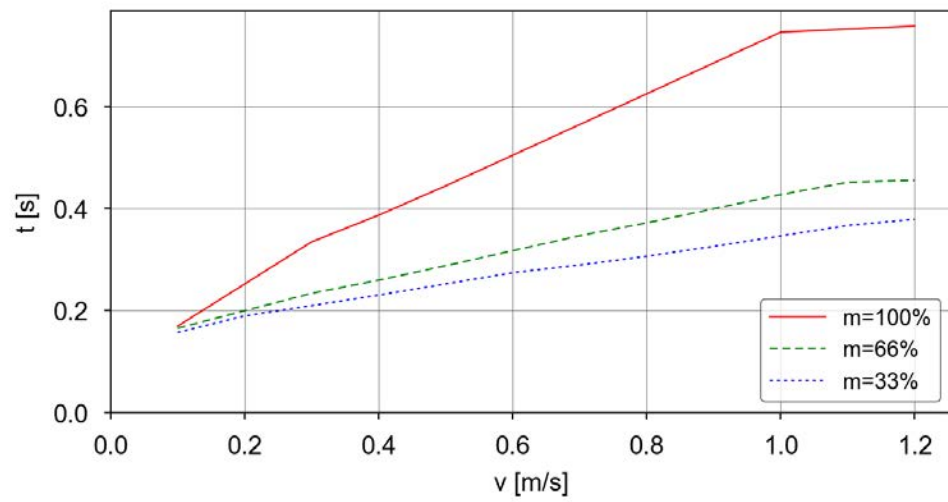
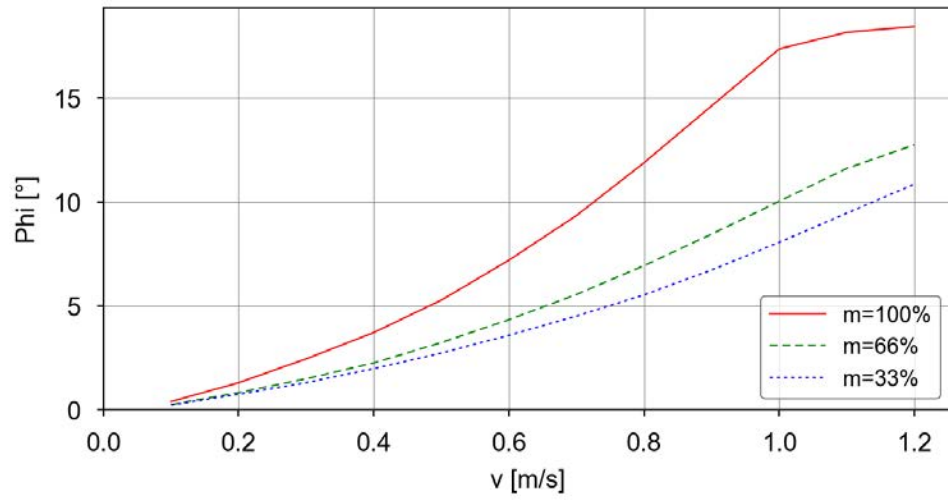
Continues on next page

## 20 IRB 7600

20.2 IRB 7600 2.55 m 500 kg

Continued

Extension zone 2, stopping distance and stopping time



## 20.3 IRB 7600 2.80 m 340 kg

### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	31.1	0.71
2	12.9	0.37
3	9.0	0.22

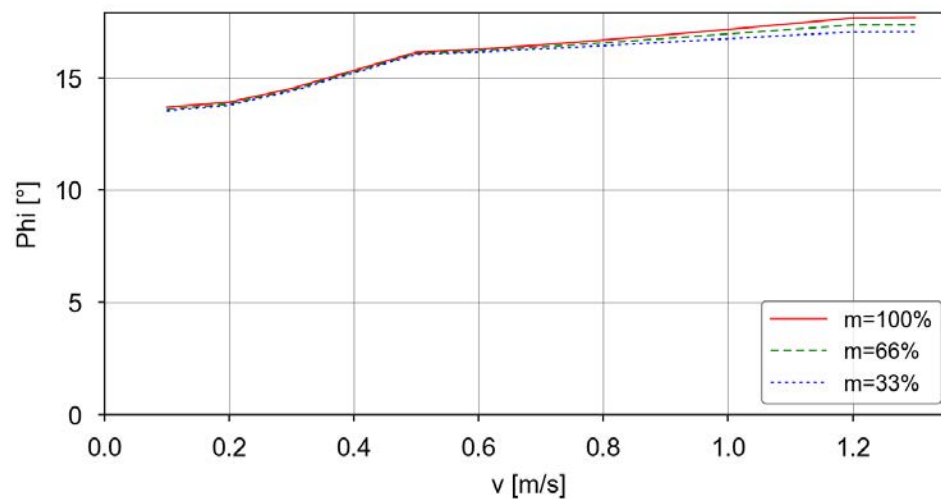
### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.932
1	0.932	1.865
2	1.865	max reach

### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

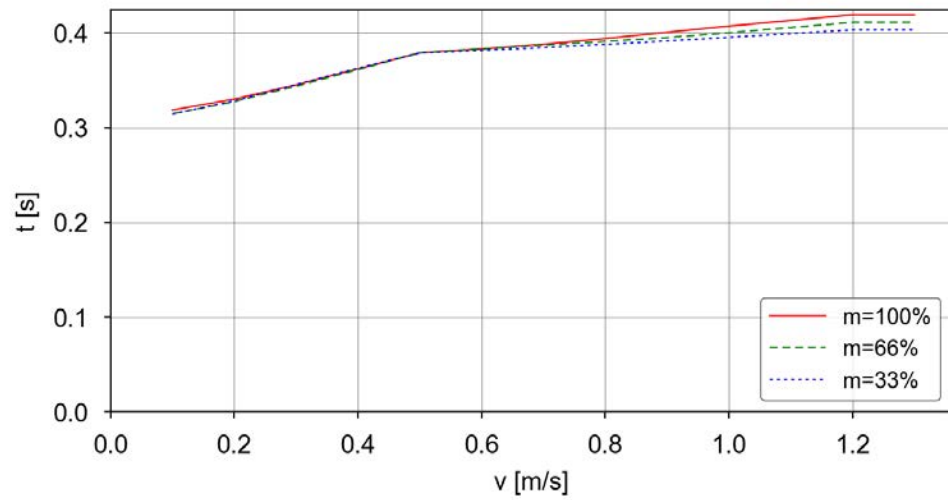


*Continues on next page*

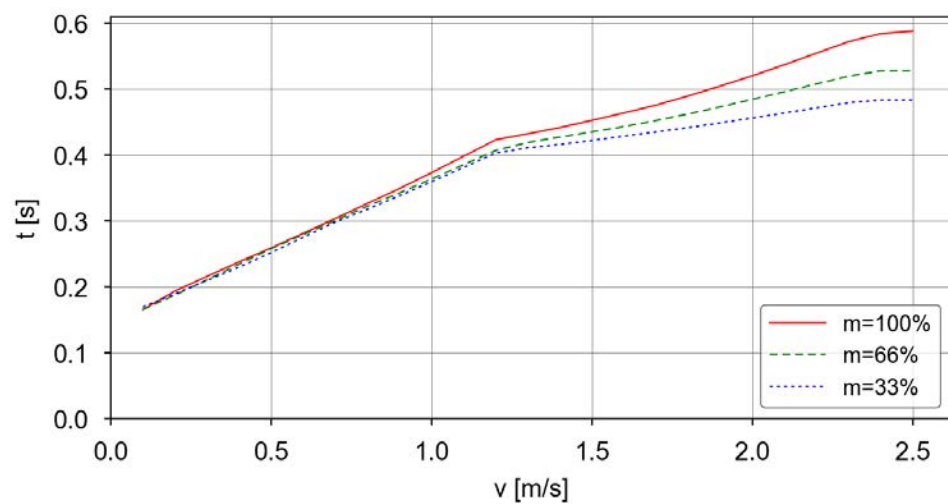
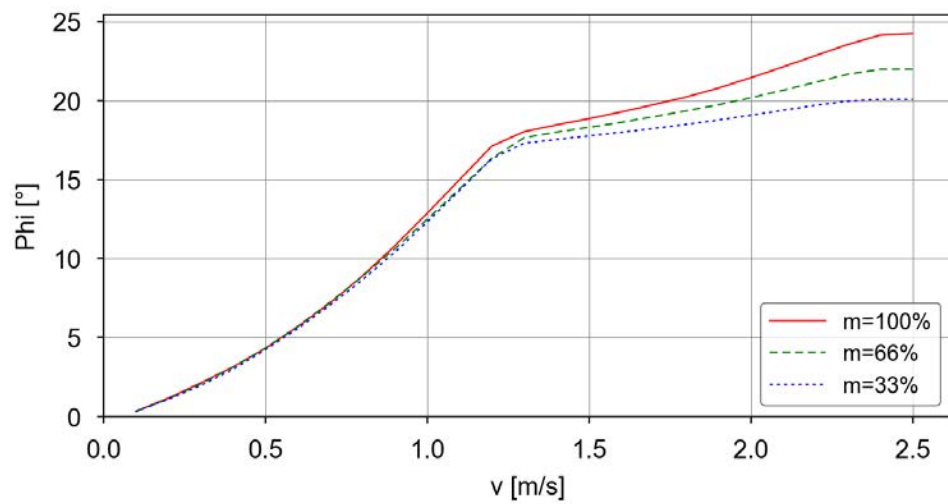
## 20 IRB 7600

20.3 IRB 7600 2.80 m 340 kg

Continued



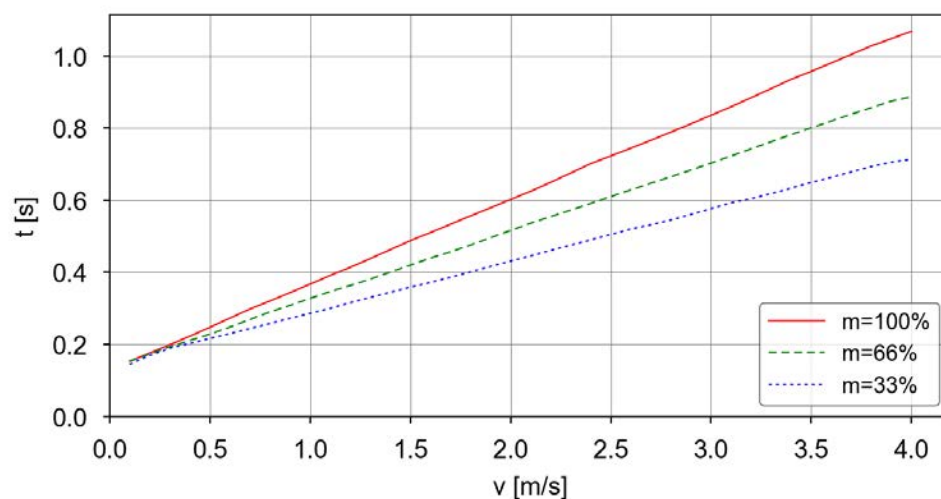
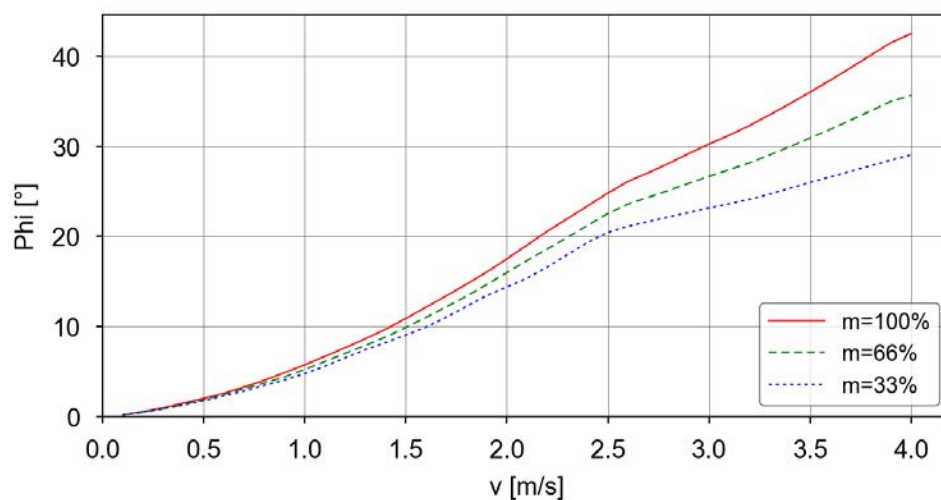
Extension zone 1, stopping distance and stopping time



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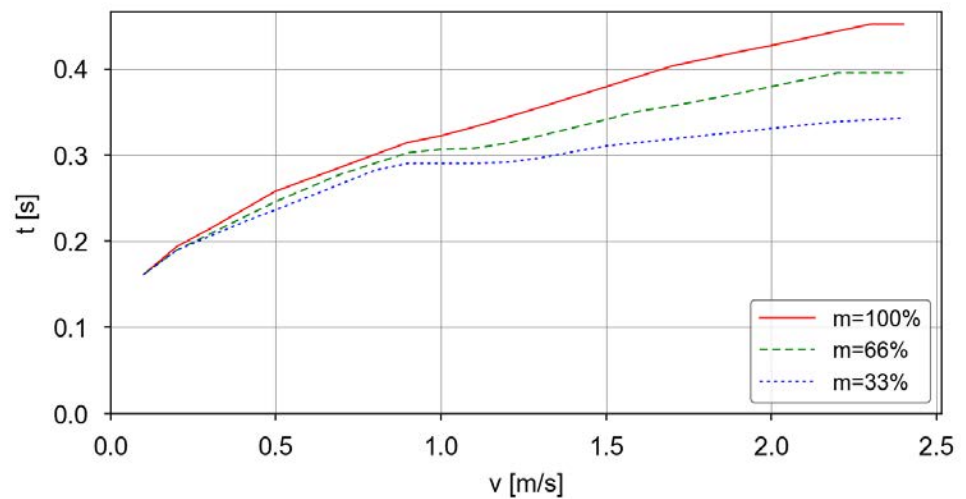
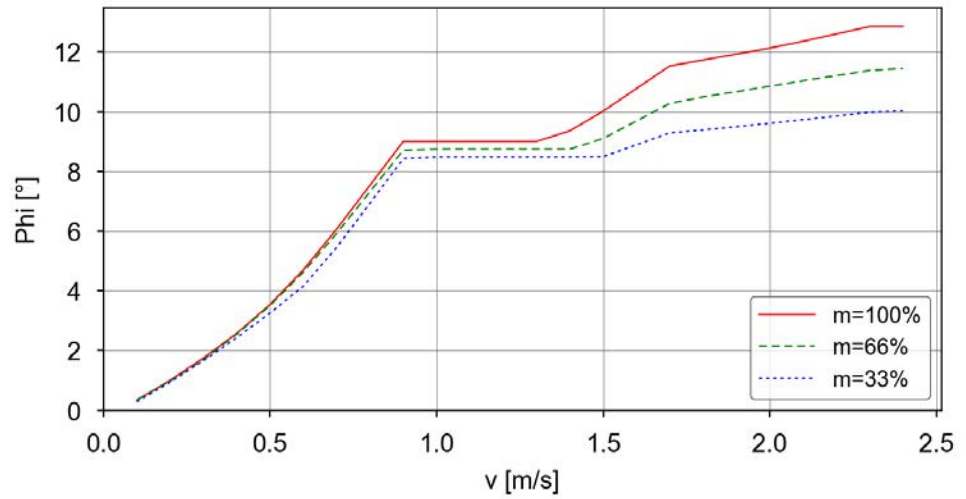
Extension zone 2, stopping distance and stopping time



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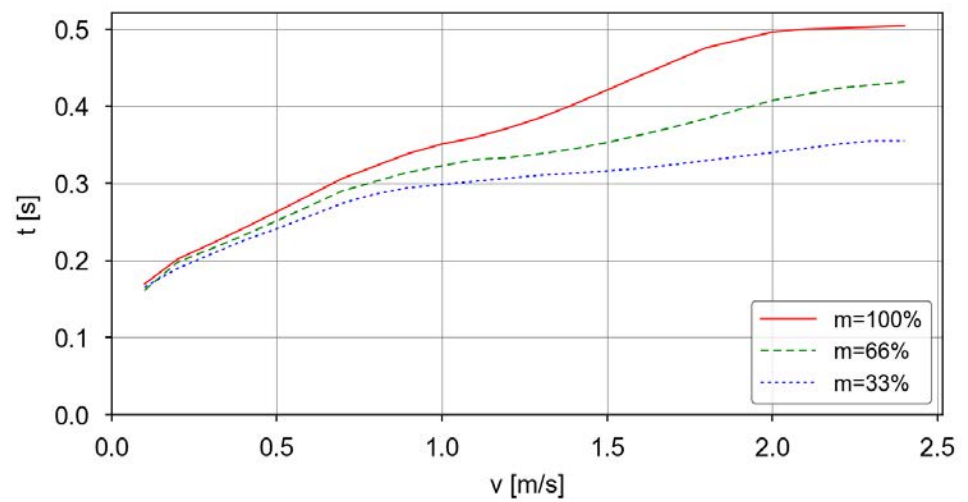
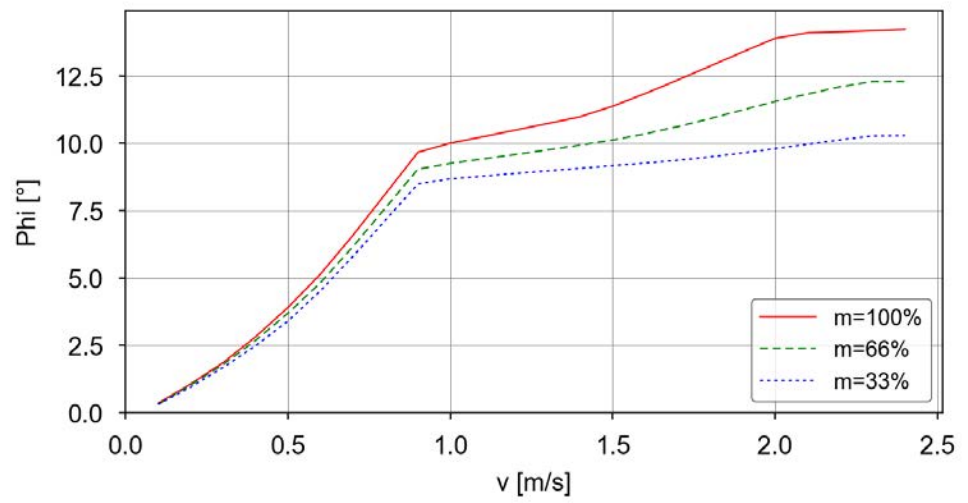
Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



Continues on next page

Extension zone 1, stopping distance and stopping time



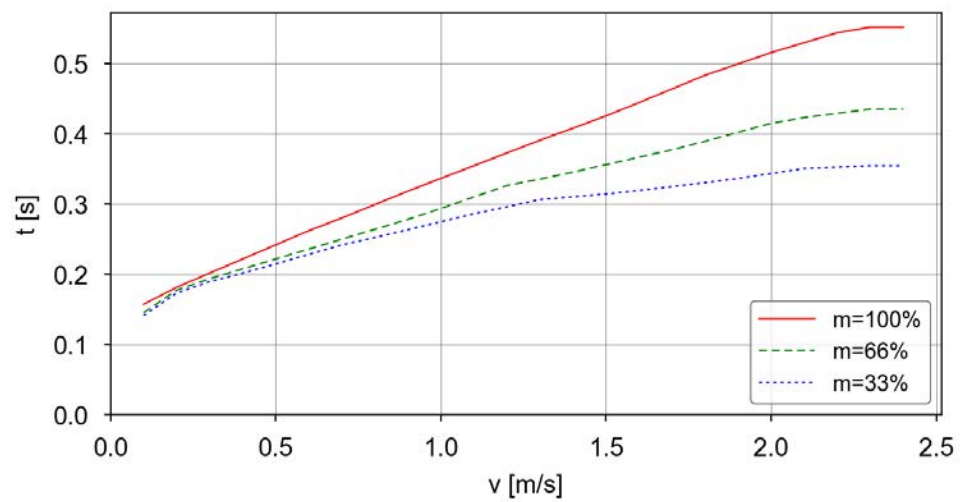
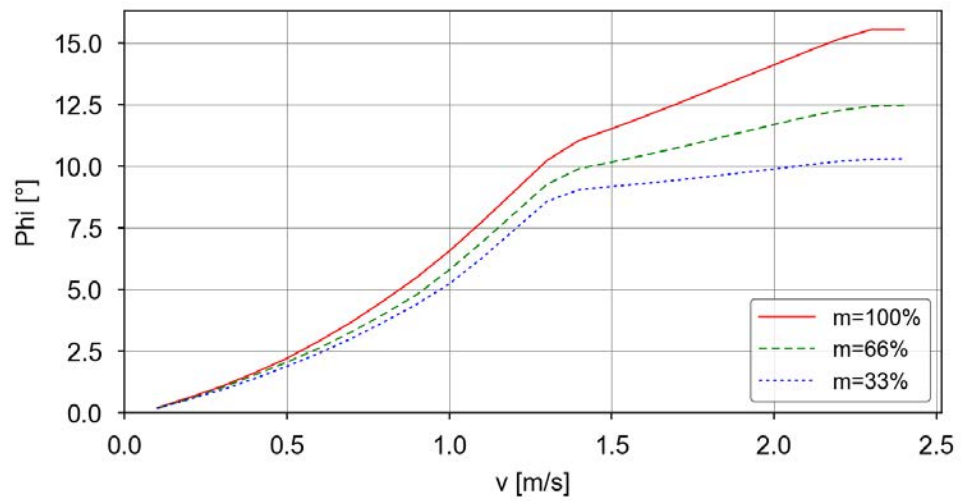
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## 20 IRB 7600

20.3 IRB 7600 2.80 m 340 kg

Continued

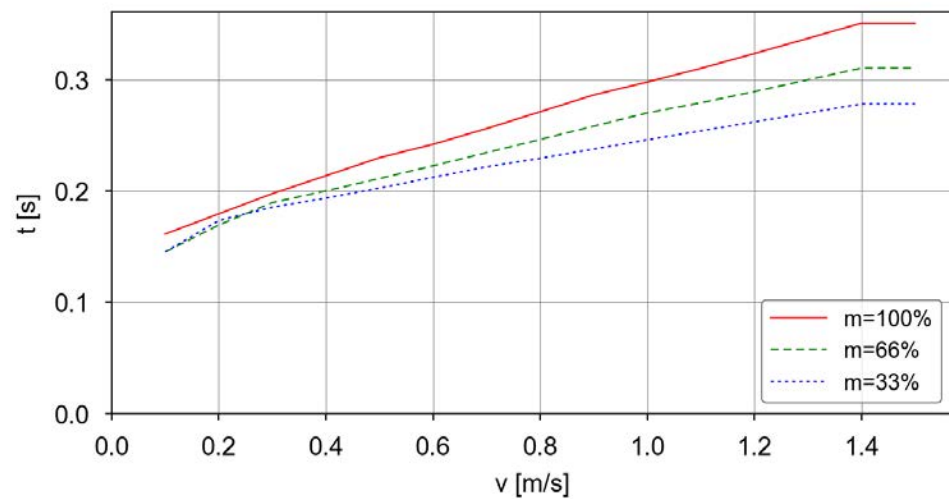
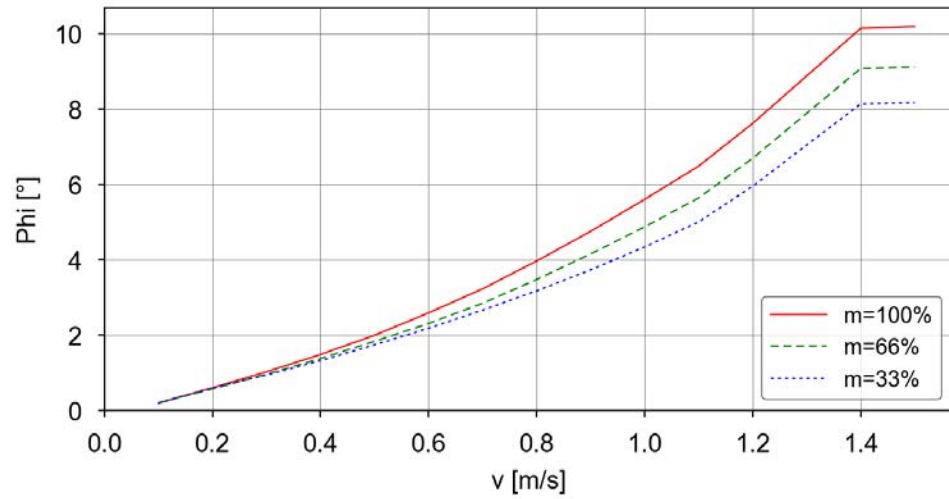
Extension zone 2, stopping distance and stopping time



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## Category 1, Axis 3

## Extension zone 0, stopping distance and stopping time



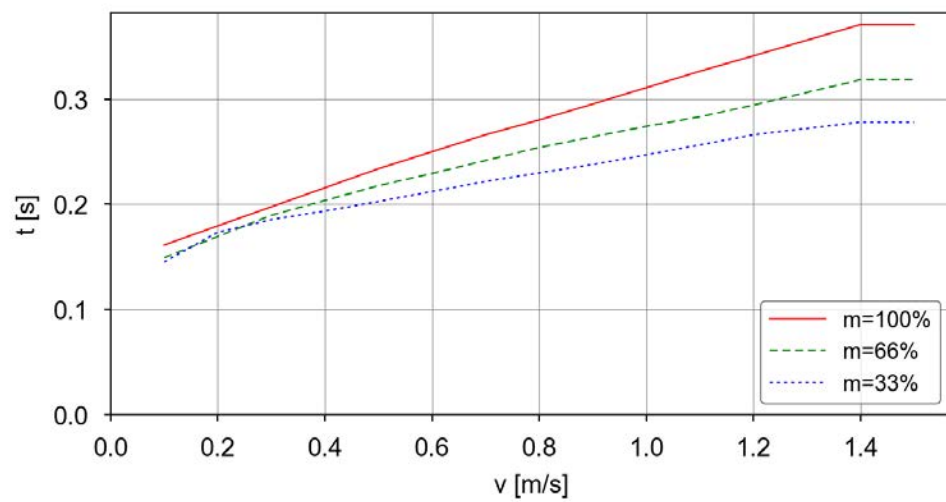
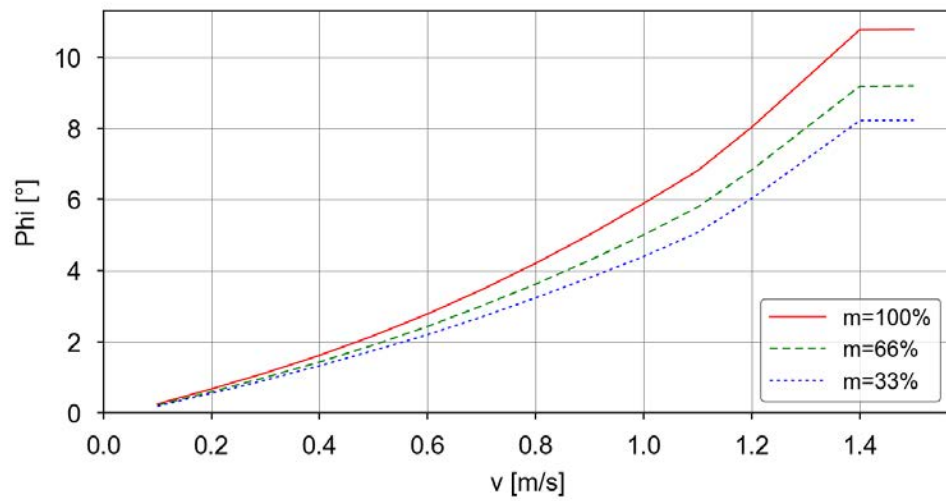
Continues on next page

## 20 IRB 7600

20.3 IRB 7600 2.80 m 340 kg

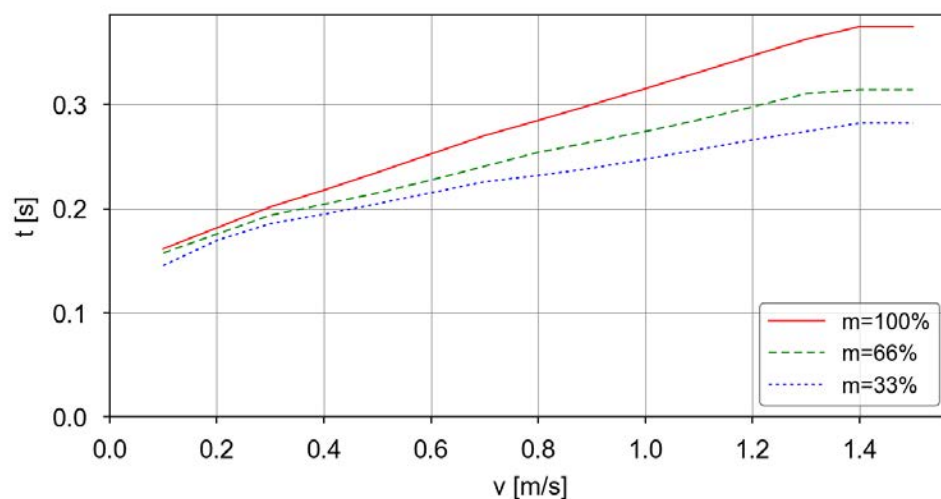
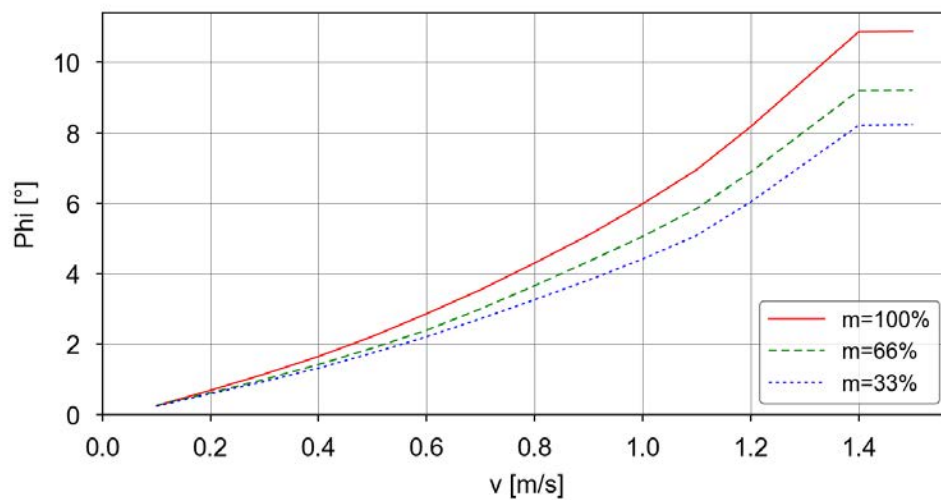
Continued

Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



## 20 IRB 7600

20.4 IRB 7600 3.05 m 325 kg

### 20.4 IRB 7600 3.05 m 325 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	33.0	0.78
2	9.0	0.29
3	8.4	0.22

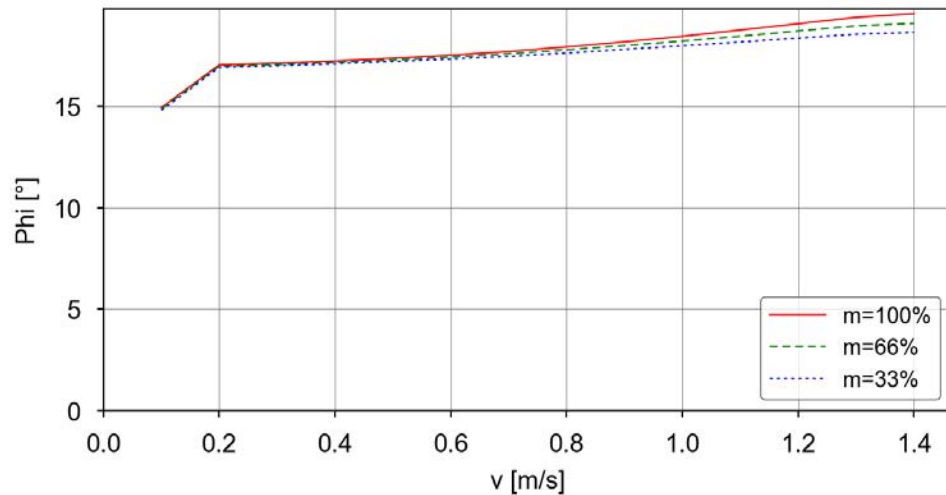
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	1.015
1	1.015	2.03
2	2.03	max reach

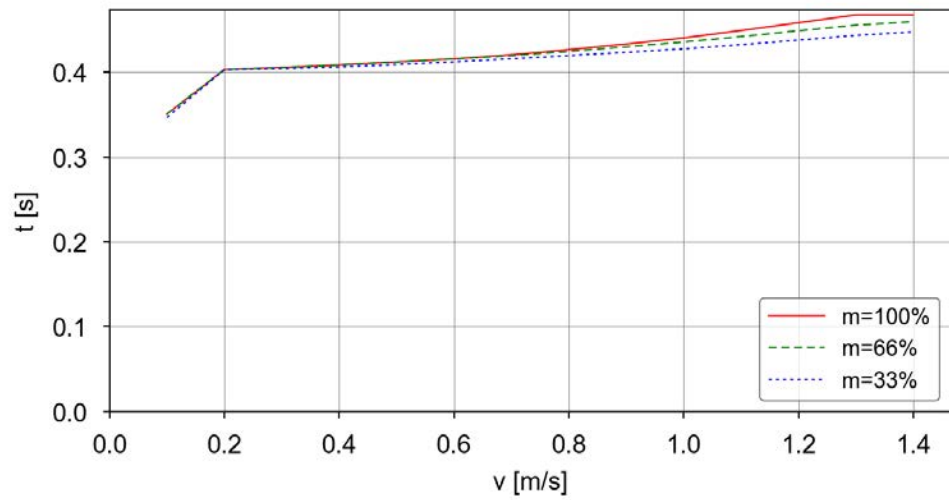
#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

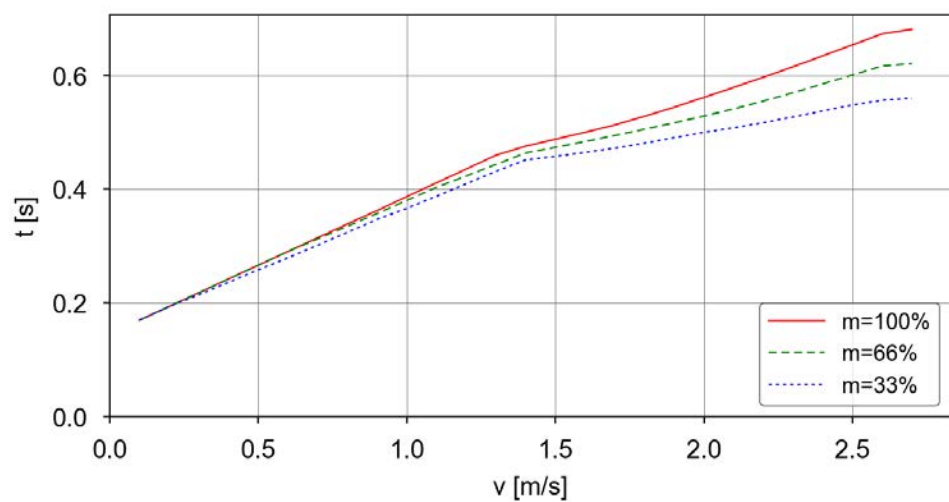
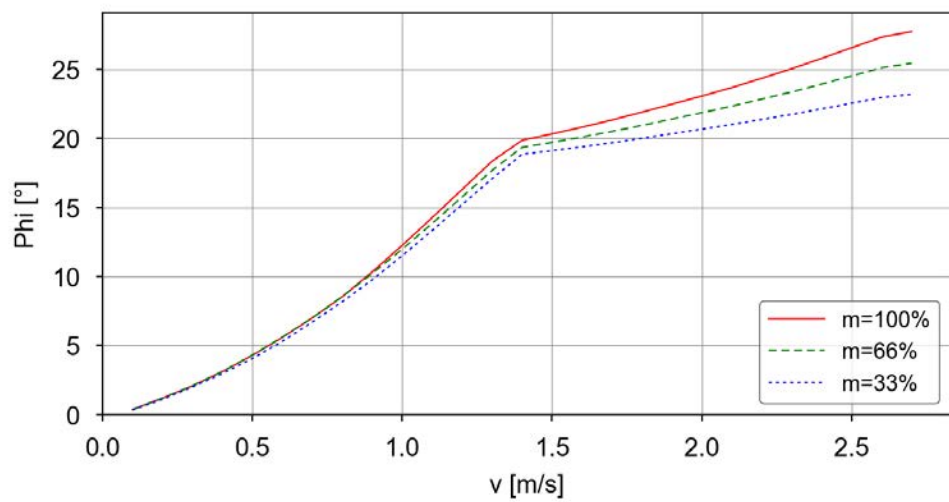


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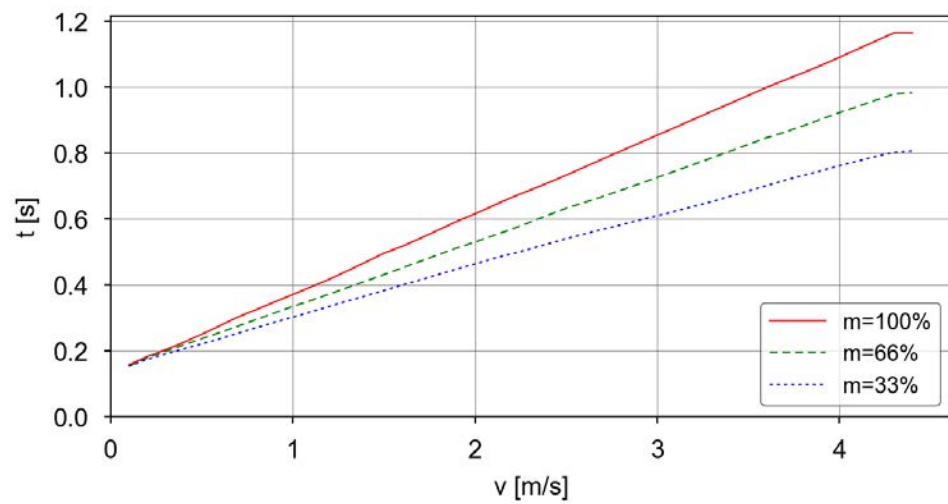
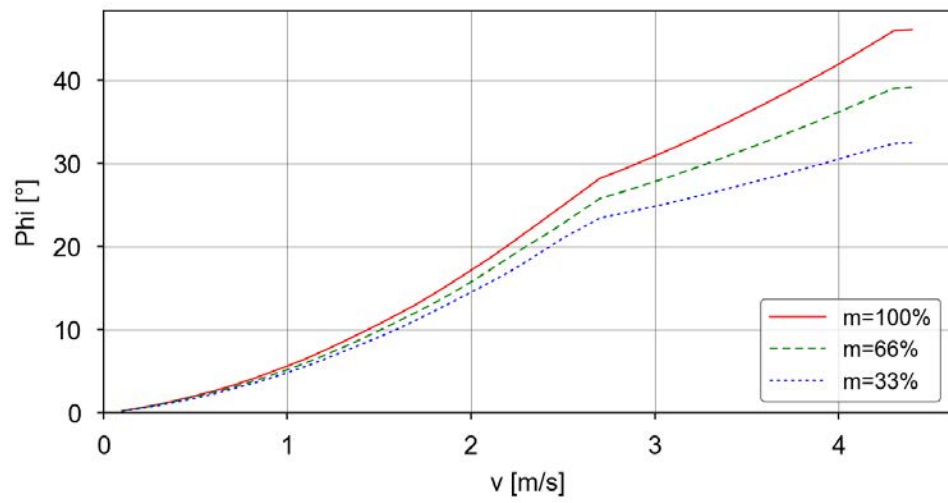


Extension zone 1, stopping distance and stopping time



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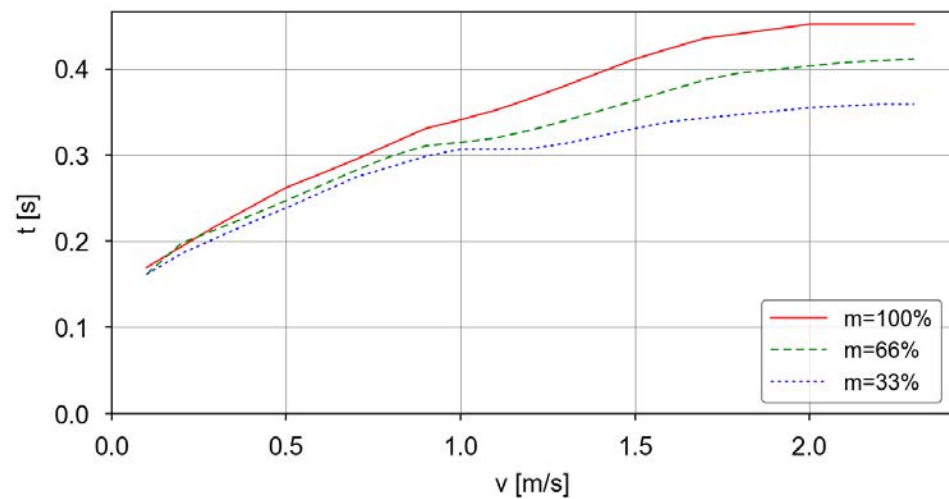
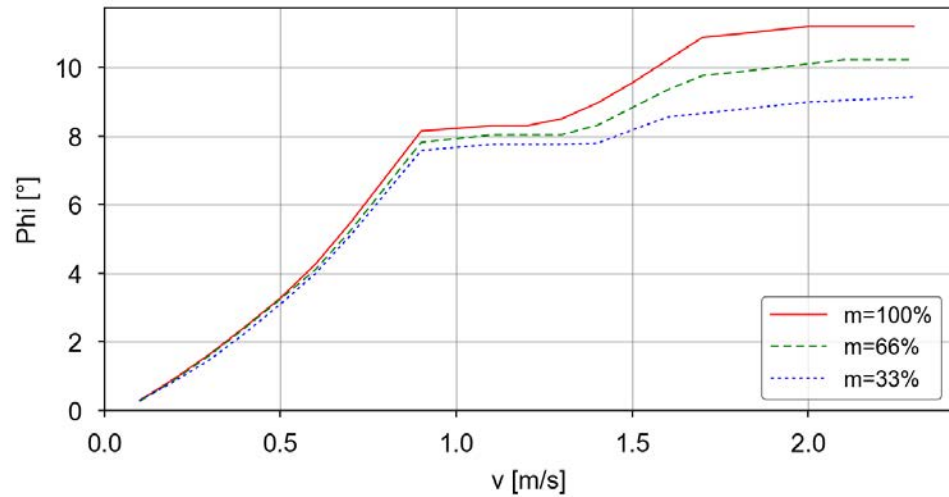
Extension zone 2, stopping distance and stopping time



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## Category 1, Axis 2

## Extension zone 0, stopping distance and stopping time



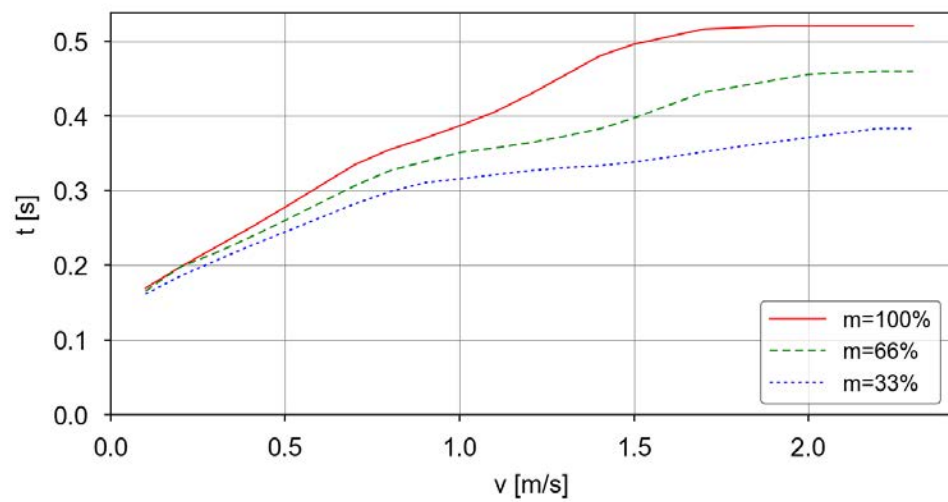
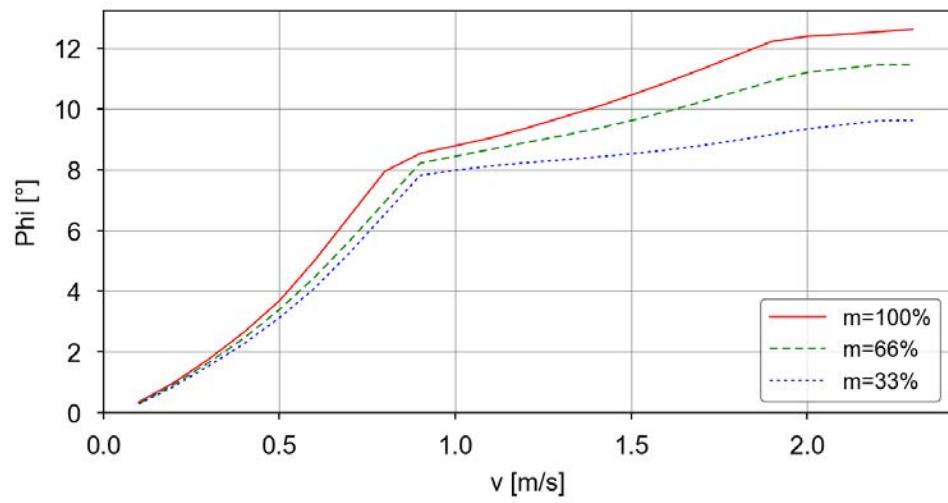
Continues on next page

## 20 IRB 7600

20.4 IRB 7600 3.05 m 325 kg

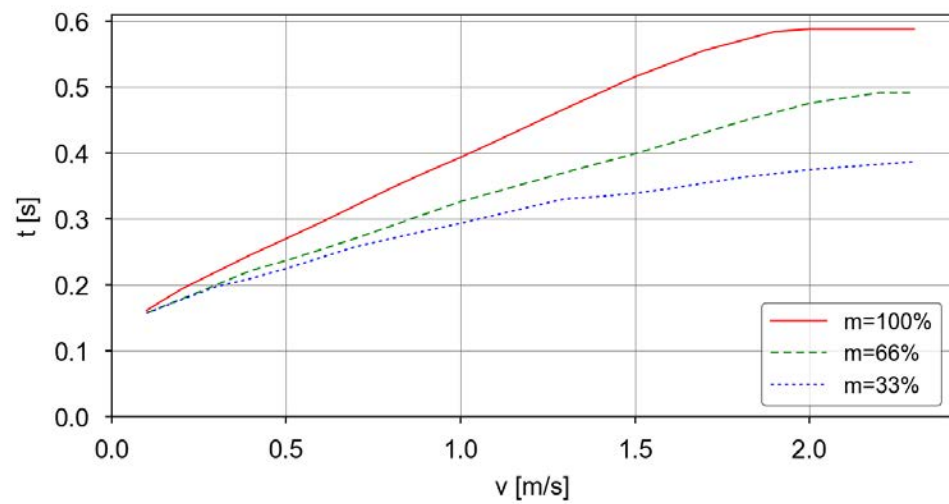
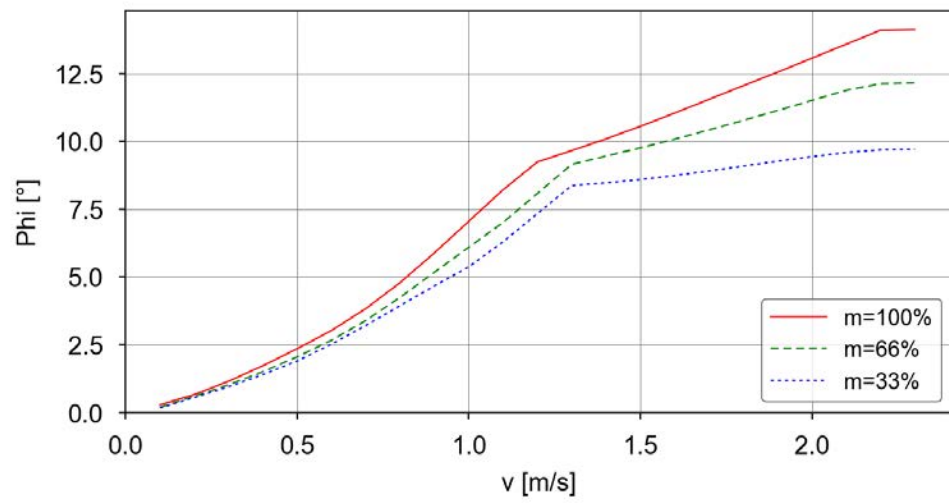
Continued

Extension zone 1, stopping distance and stopping time



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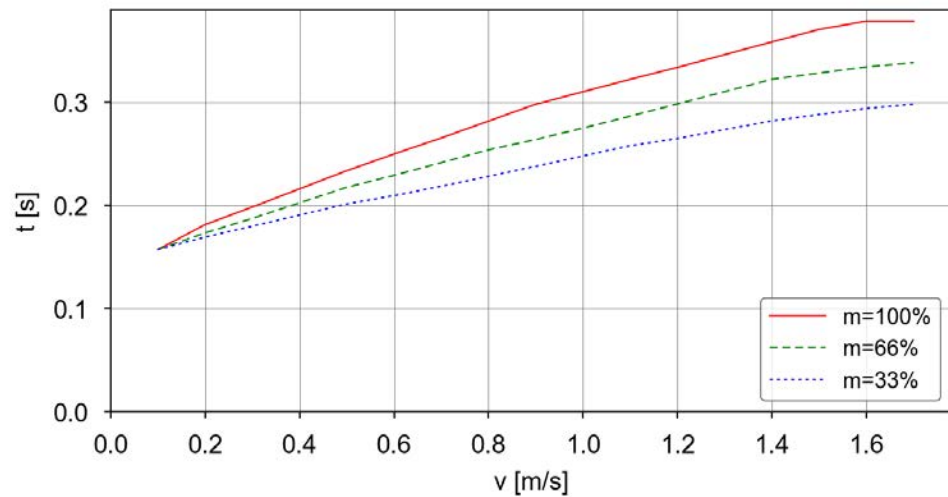
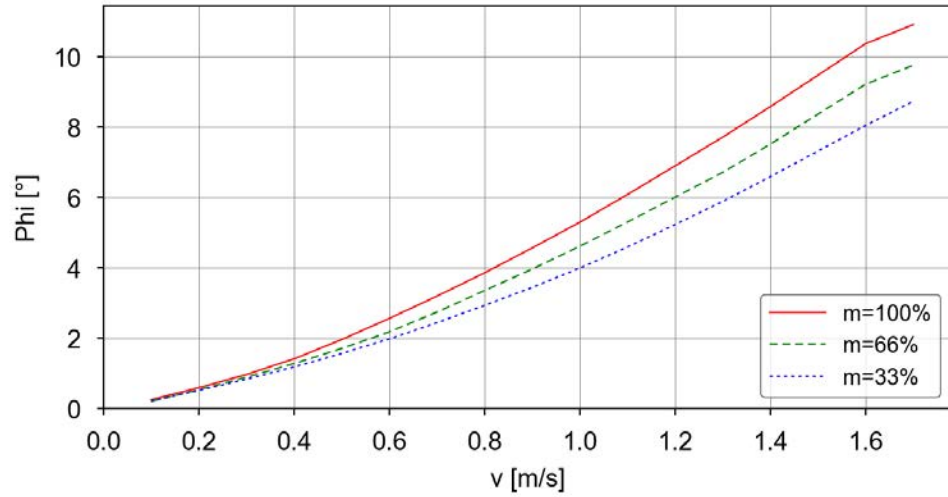
Extension zone 2, stopping distance and stopping time



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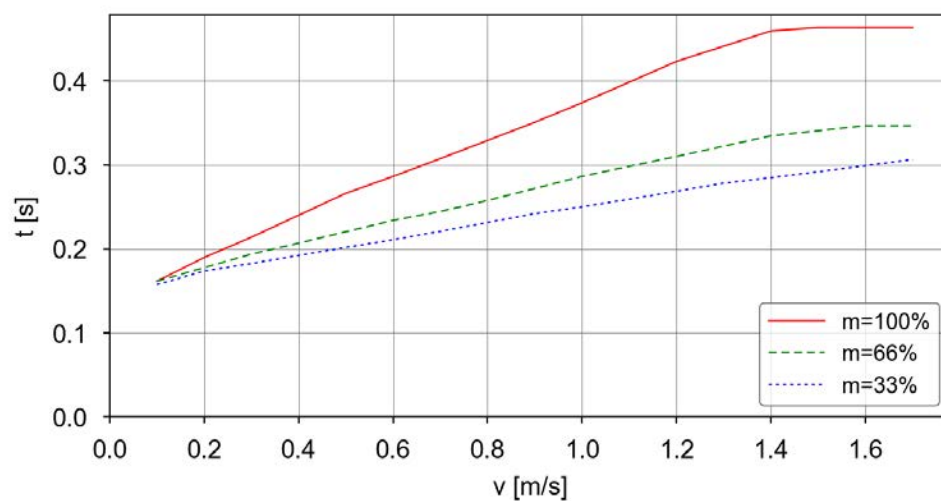
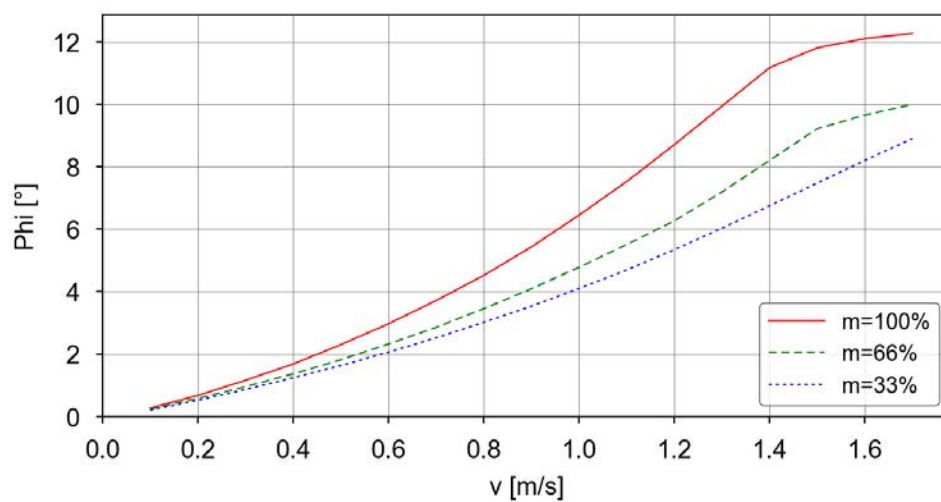
Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



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Extension zone 1, stopping distance and stopping time



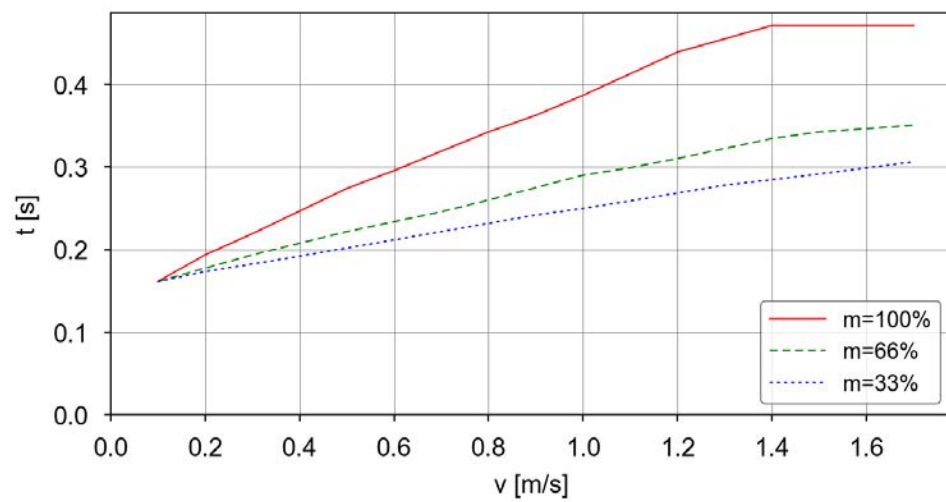
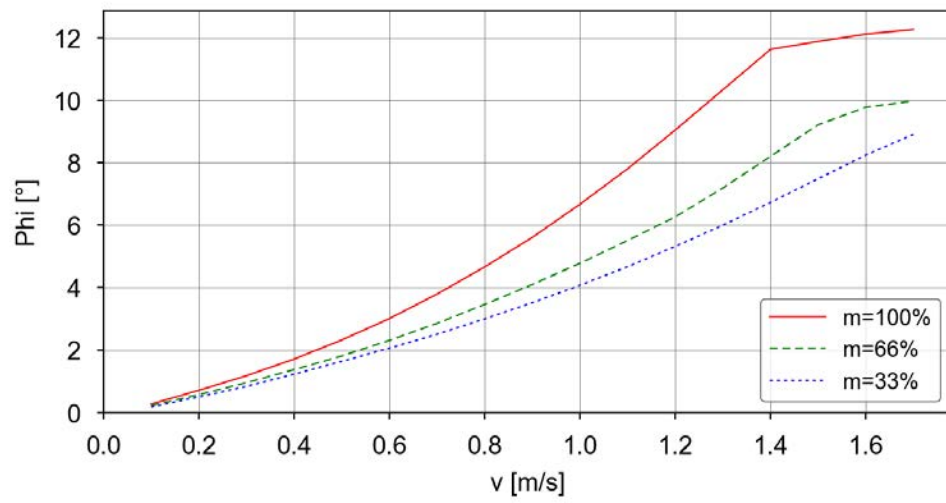
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## 20 IRB 7600

20.4 IRB 7600 3.05 m 325 kg

Continued

Extension zone 2, stopping distance and stopping time





## 20.5 IRB 7600 3.50 m 150 kg

### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	47.1	0.85
2	11.5	0.32
3	8.8	0.22

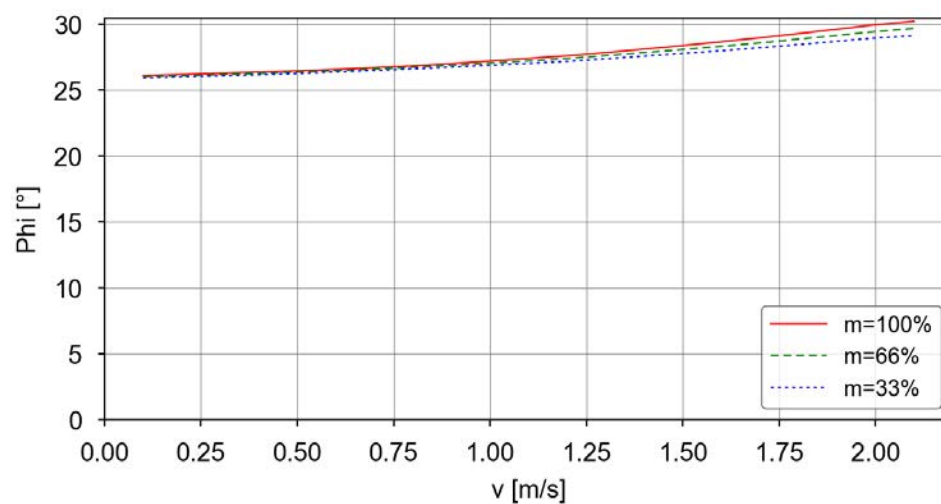
### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	1.167
1	1.167	2.333
2	2.333	max reach

### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

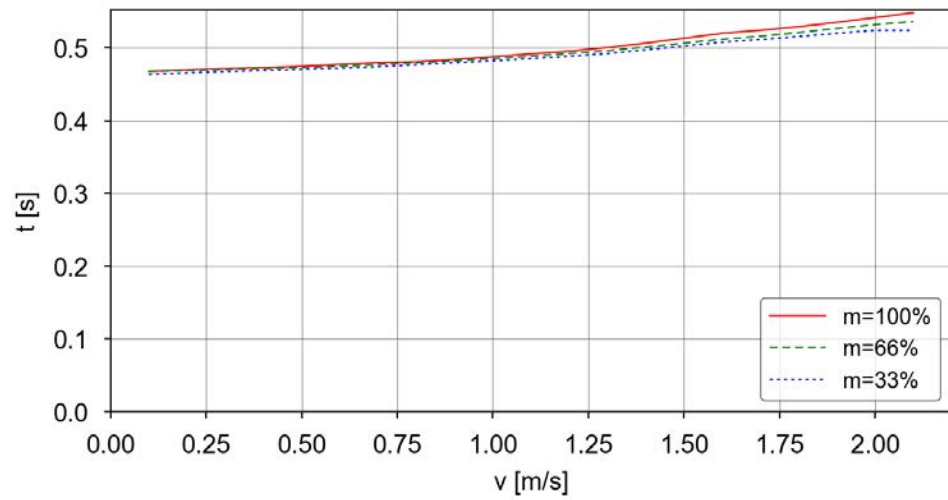


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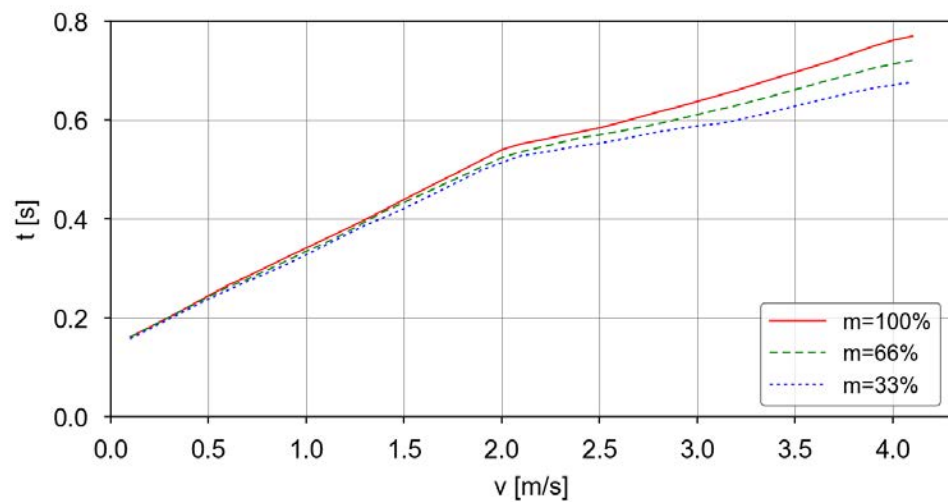
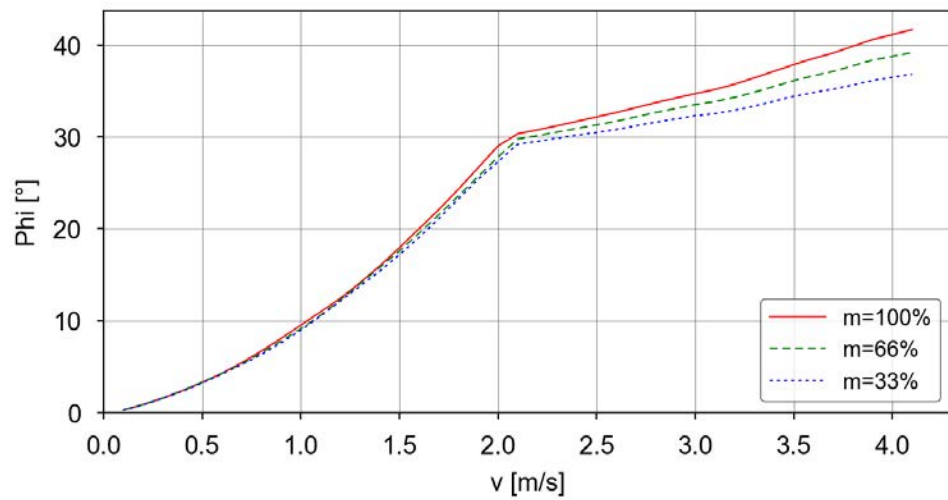
## 20 IRB 7600

20.5 IRB 7600 3.50 m 150 kg

Continued

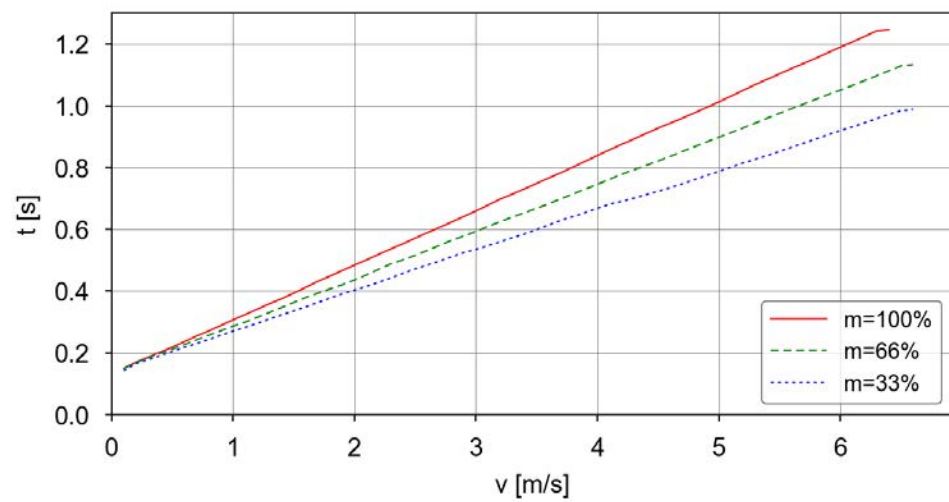
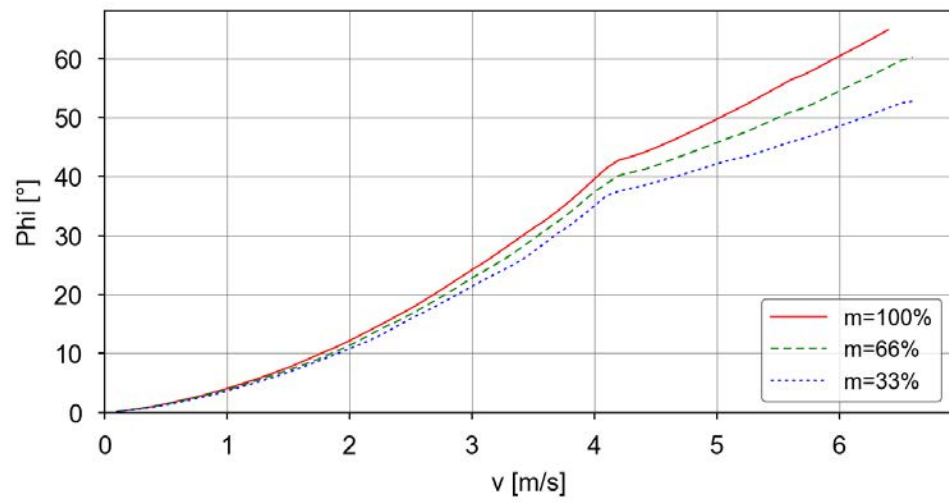


### Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

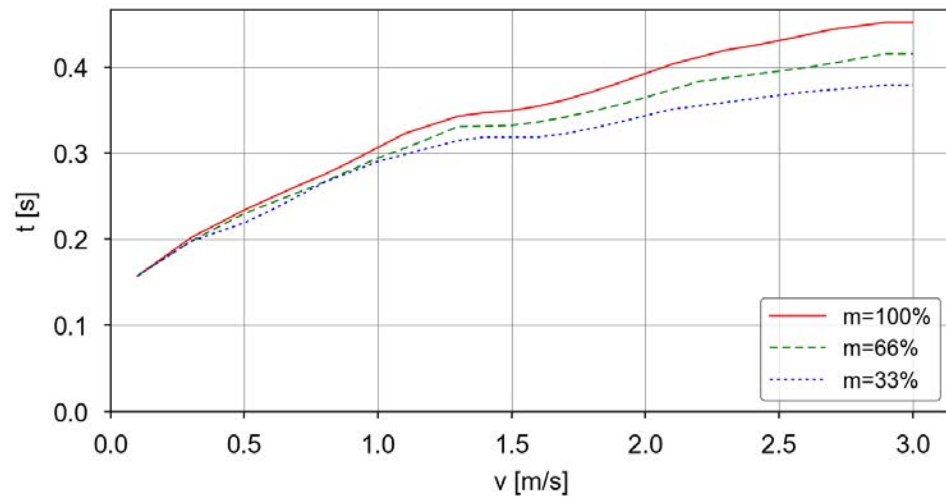
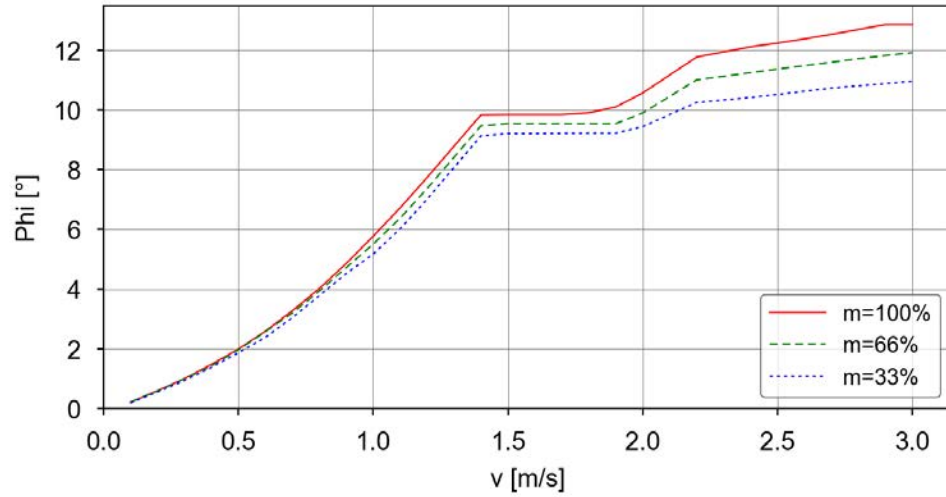
## 20 IRB 7600

20.5 IRB 7600 3.50 m 150 kg

Continued

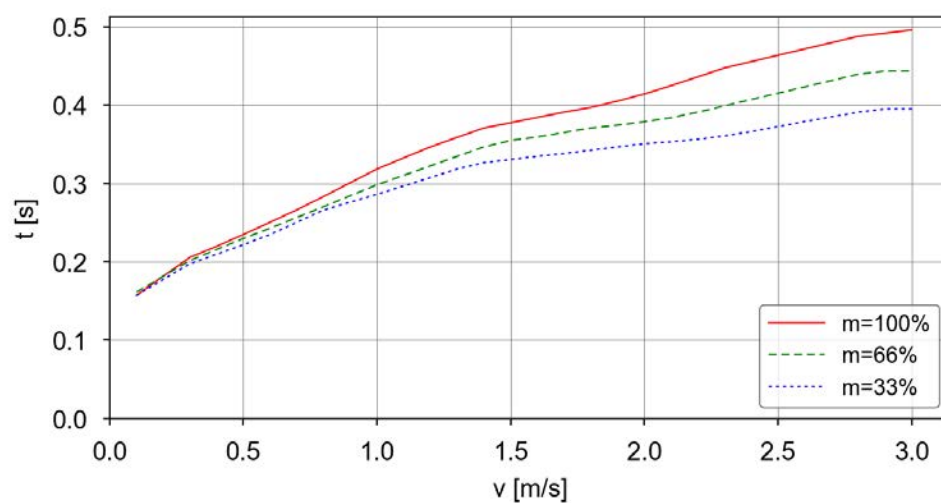
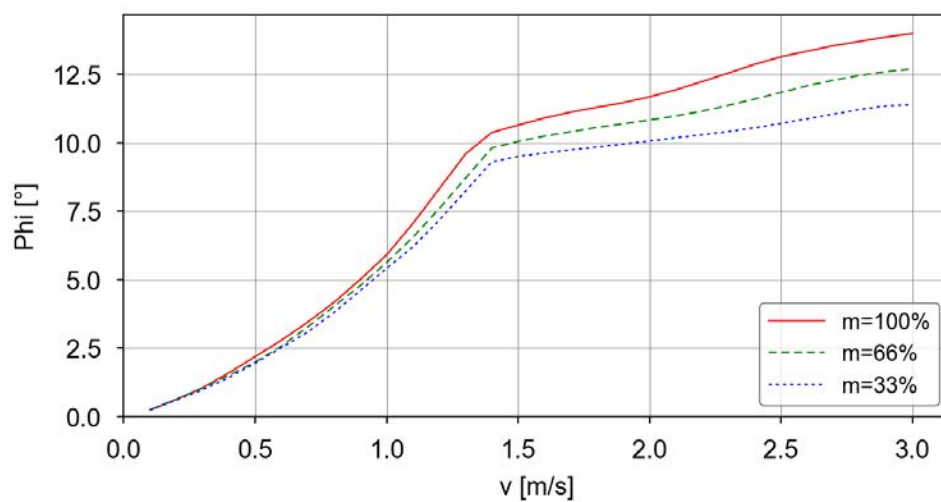
### Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



Continues on next page

Extension zone 1, stopping distance and stopping time



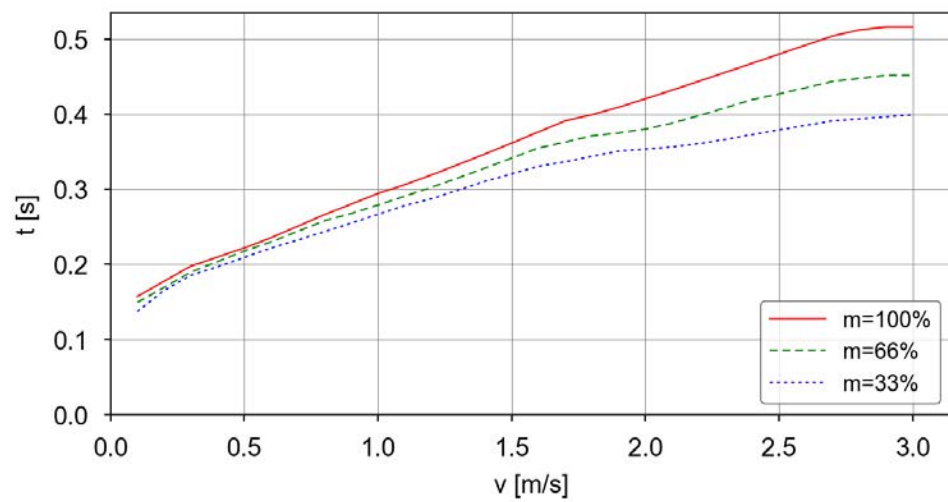
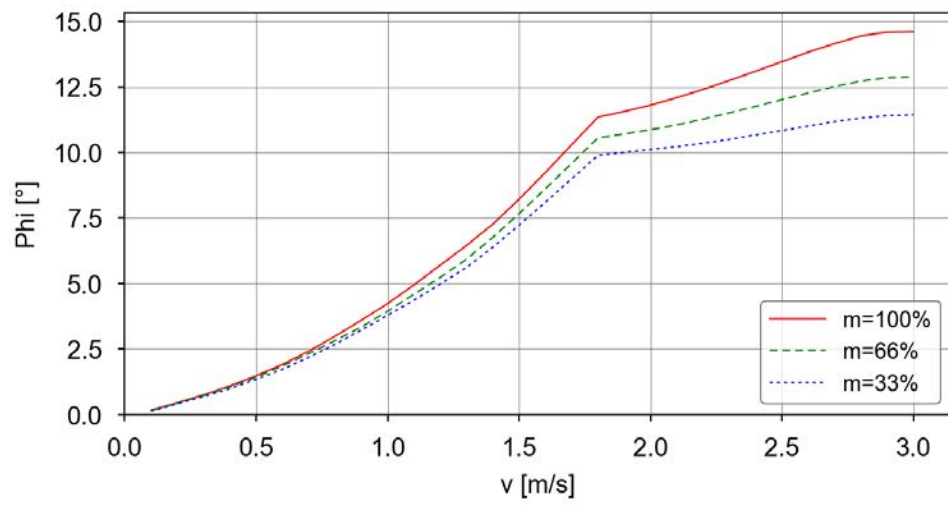
Continues on next page

## 20 IRB 7600

20.5 IRB 7600 3.50 m 150 kg

Continued

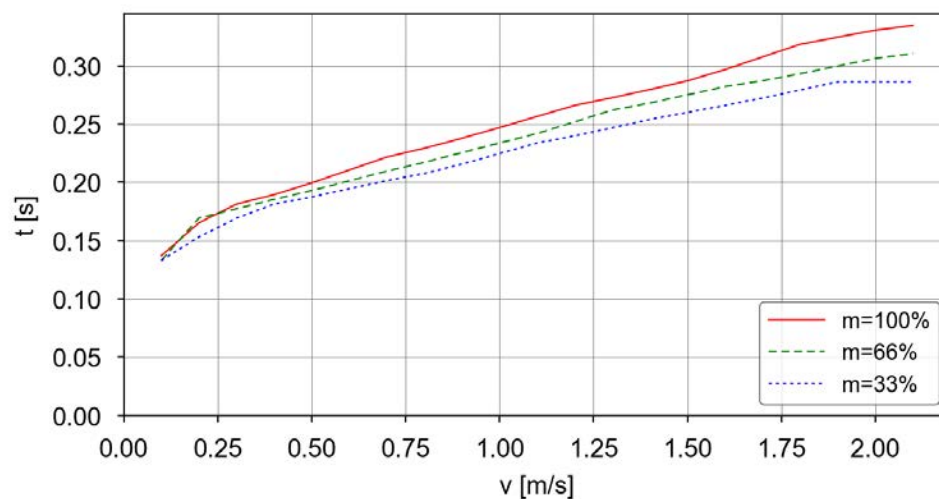
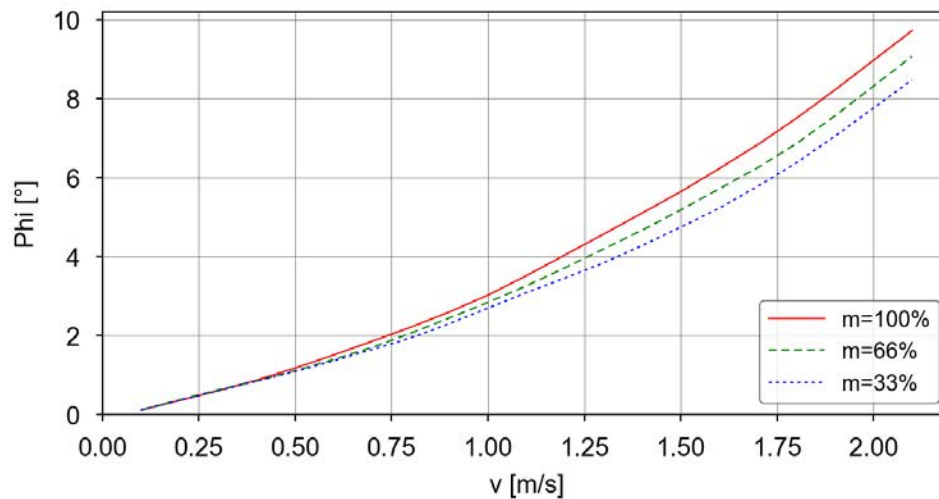
Extension zone 2, stopping distance and stopping time



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Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



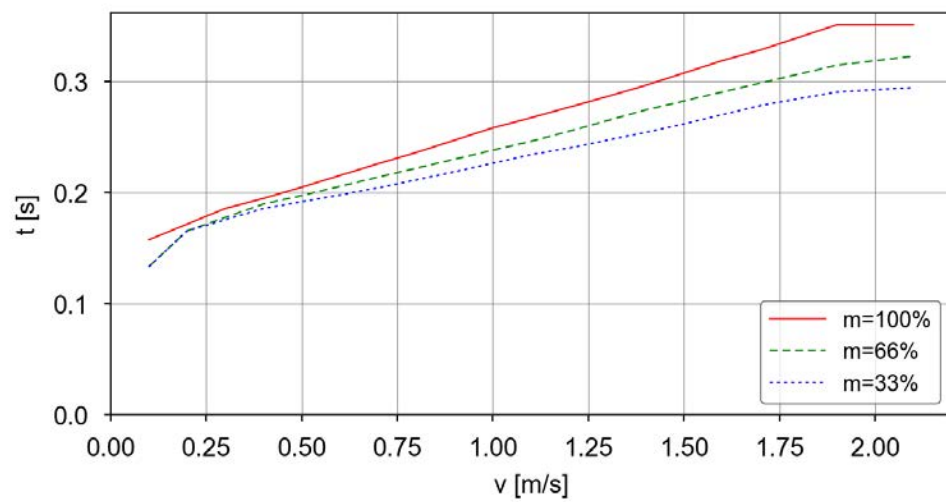
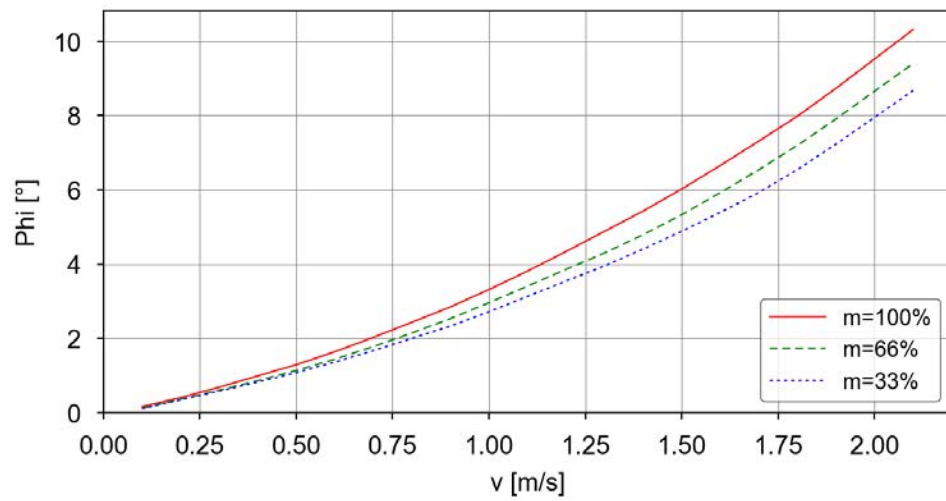
Continues on next page

## 20 IRB 7600

20.5 IRB 7600 3.50 m 150 kg

Continued

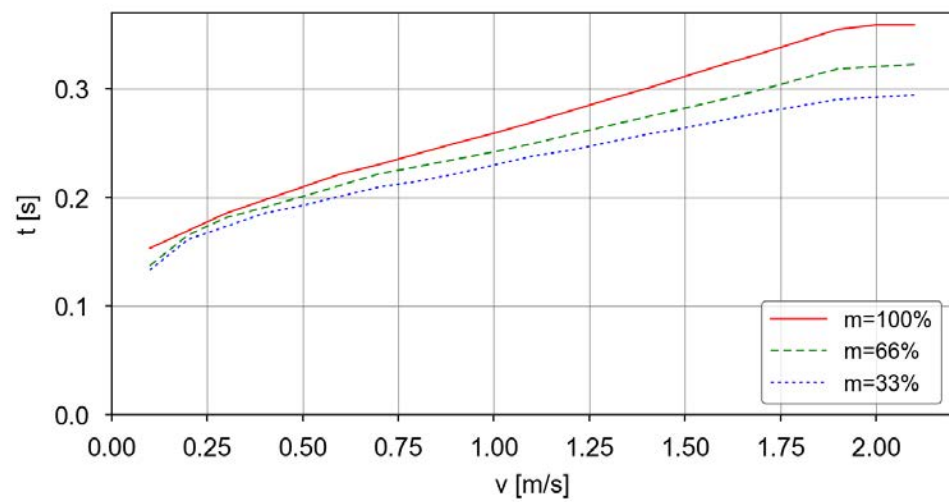
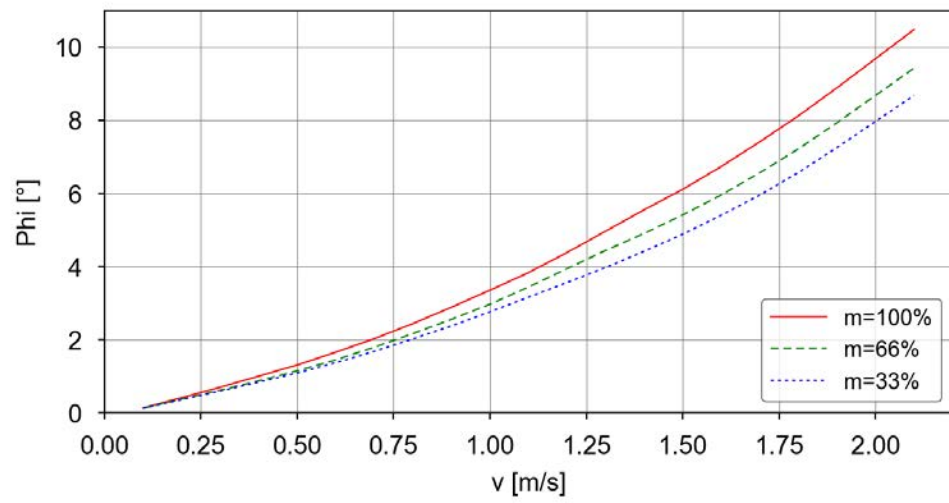
Extension zone 1, stopping distance and stopping time



Continues on next page



Extension zone 2, stopping distance and stopping time



20.6 IRB 7600LeanID 2.55 m 390 kg

Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	27.5	0.63
2	10.3	0.29
3	6.8	0.17

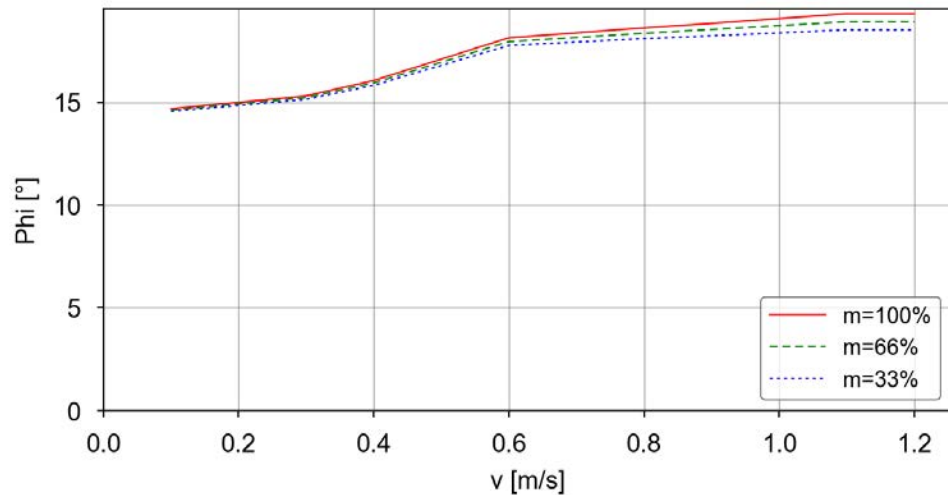
Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

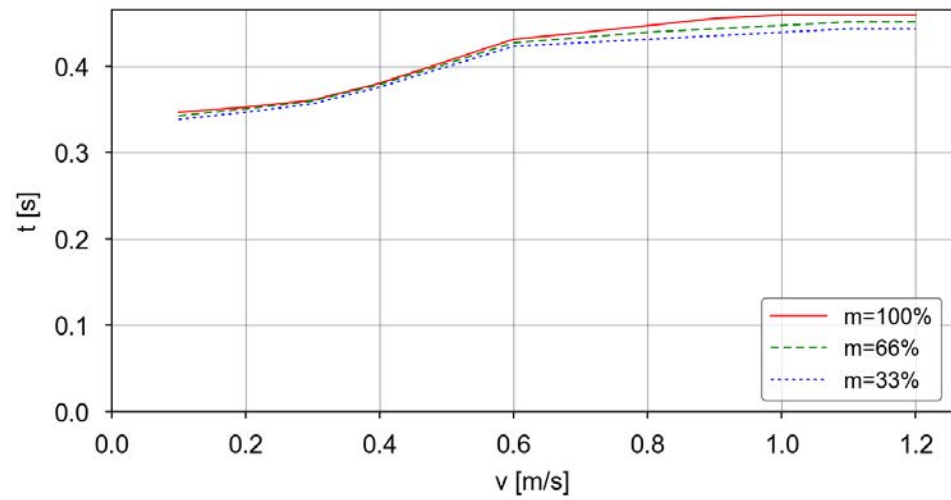
Zone	wcp min (m)	wcp max (m)
0	0	0.85
1	0.85	1.7
2	1.7	max reach

Category 1, Axis 1

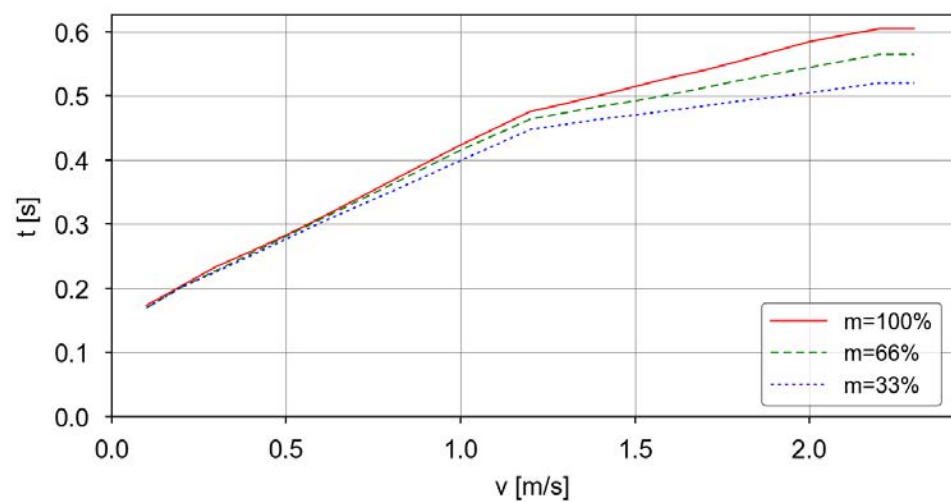
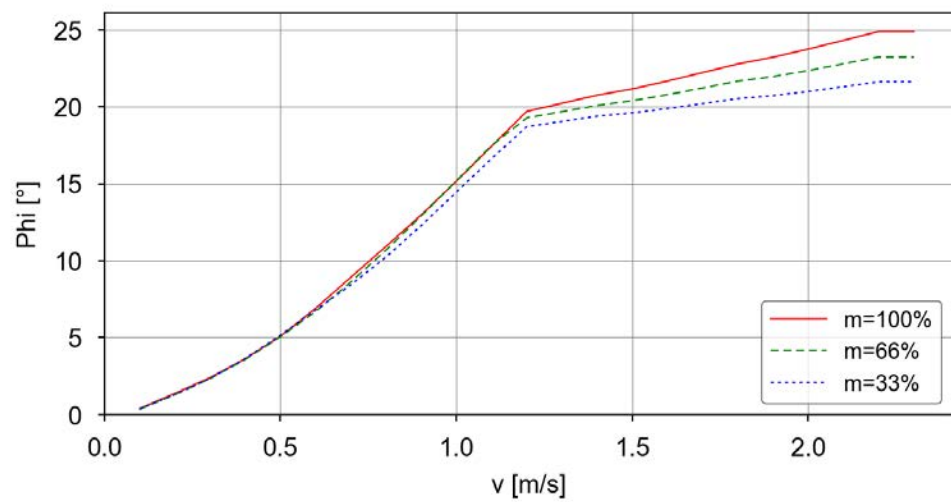
Extension zone 0, stopping distance and stopping time



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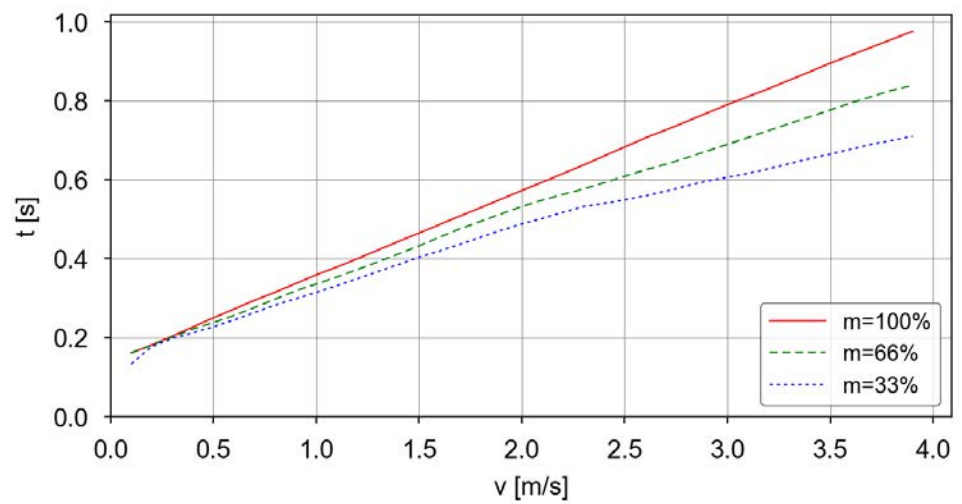
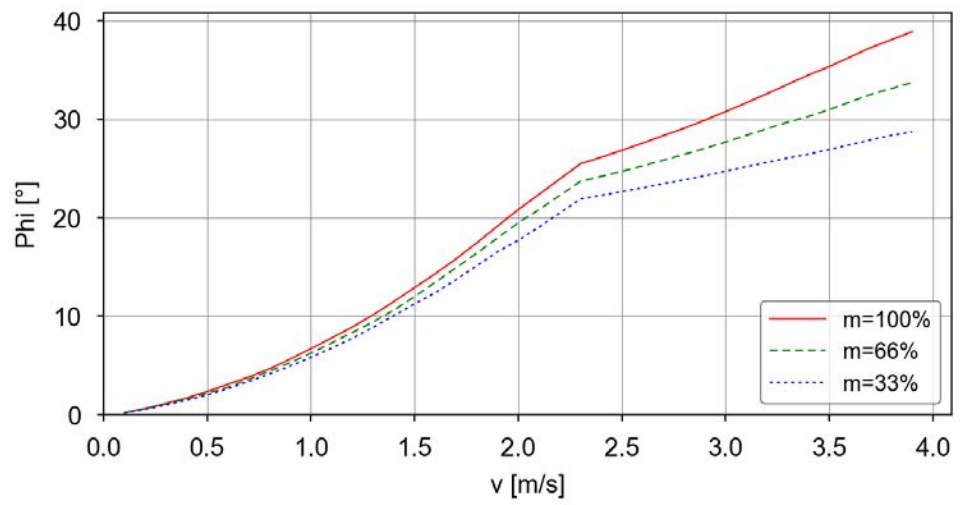


Extension zone 1, stopping distance and stopping time



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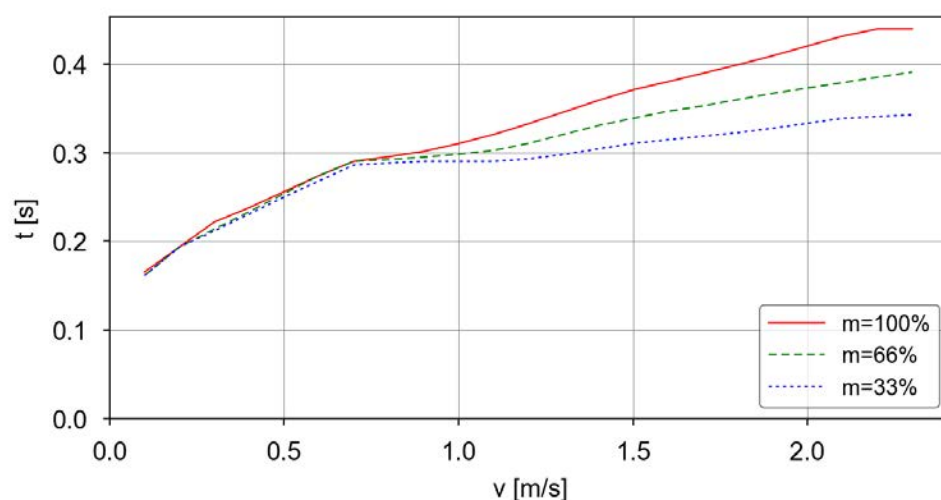
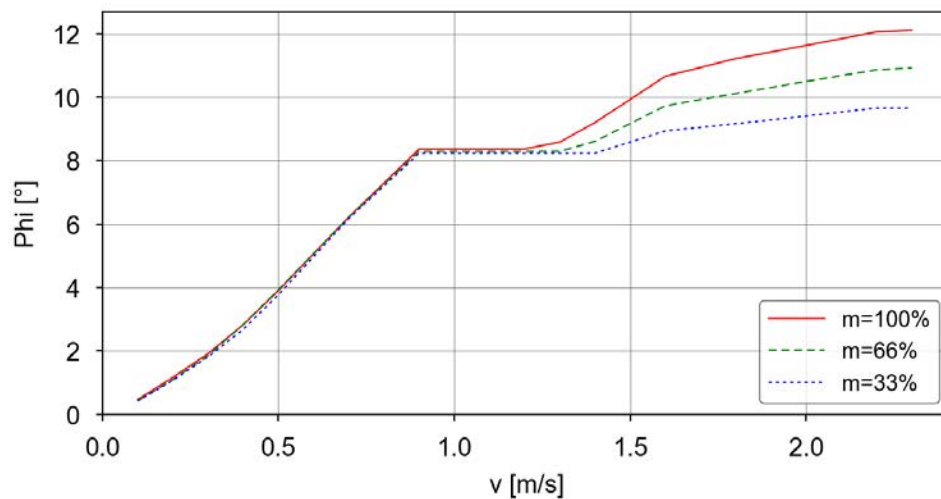
Extension zone 2, stopping distance and stopping time



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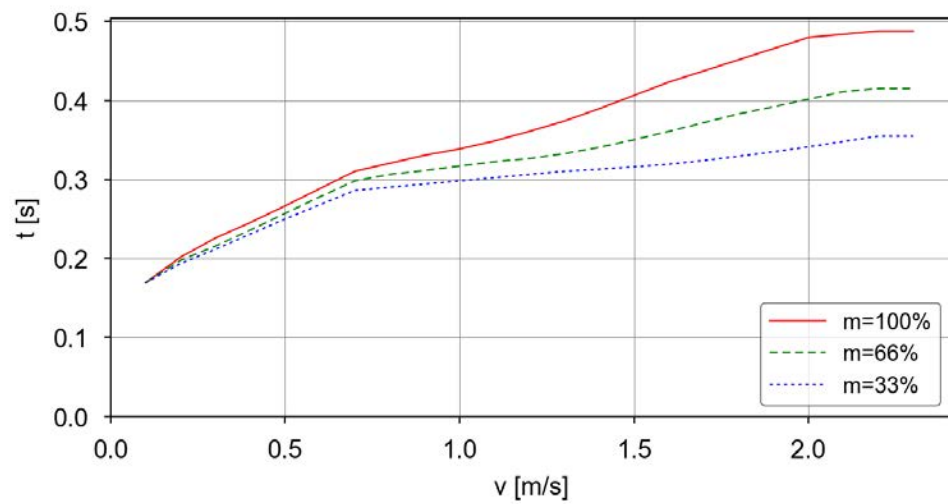
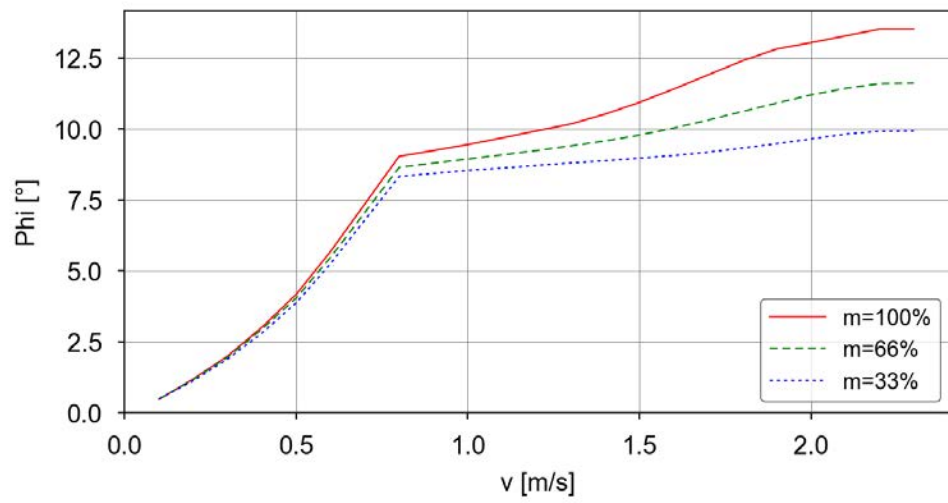
Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



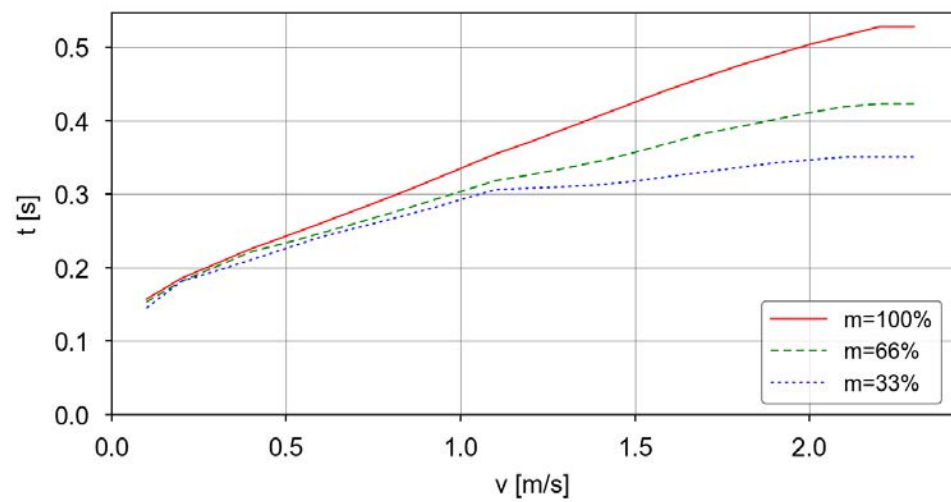
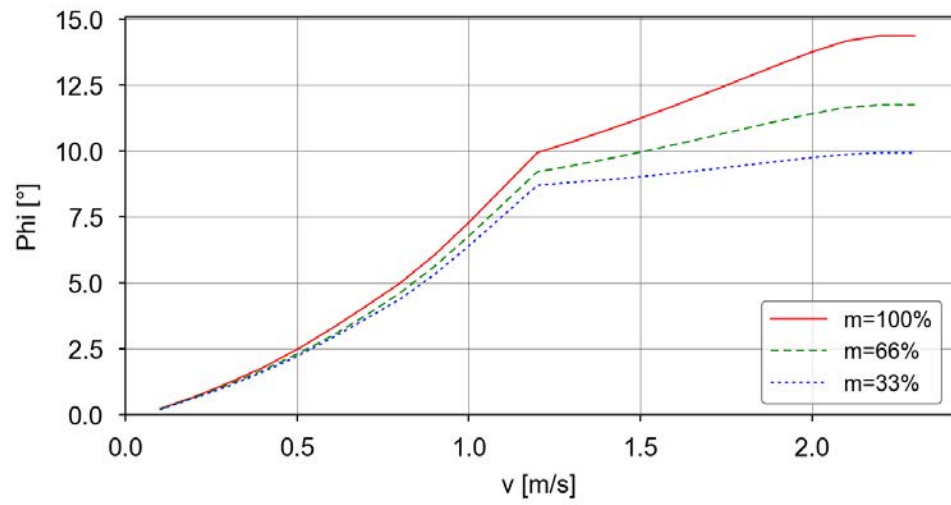
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Extension zone 1, stopping distance and stopping time



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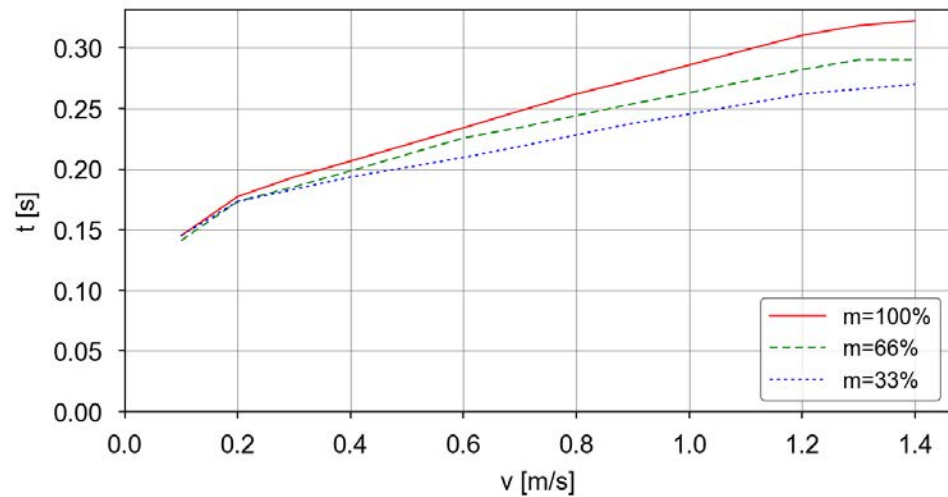
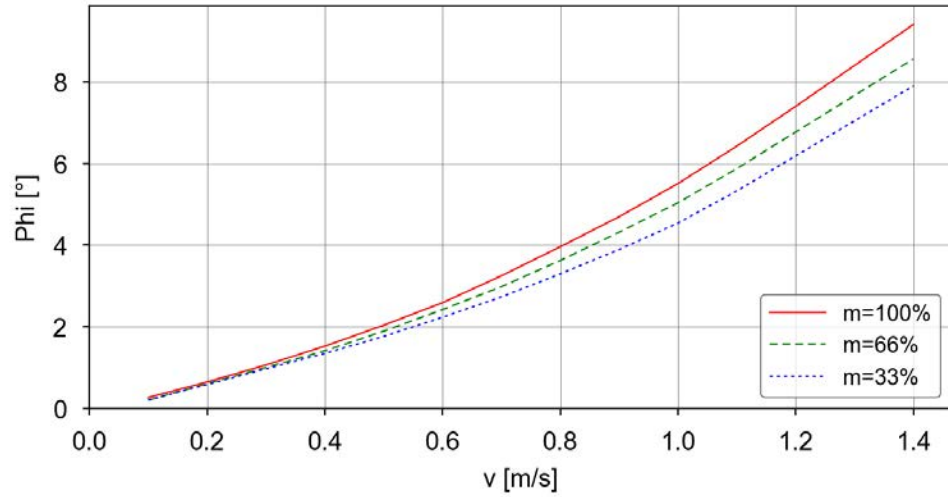
Extension zone 2, stopping distance and stopping time



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Category 1, Axis 3

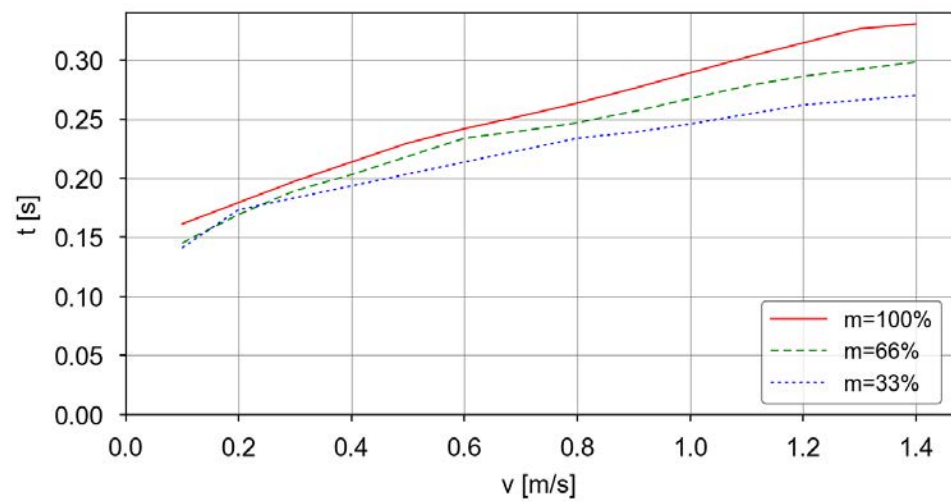
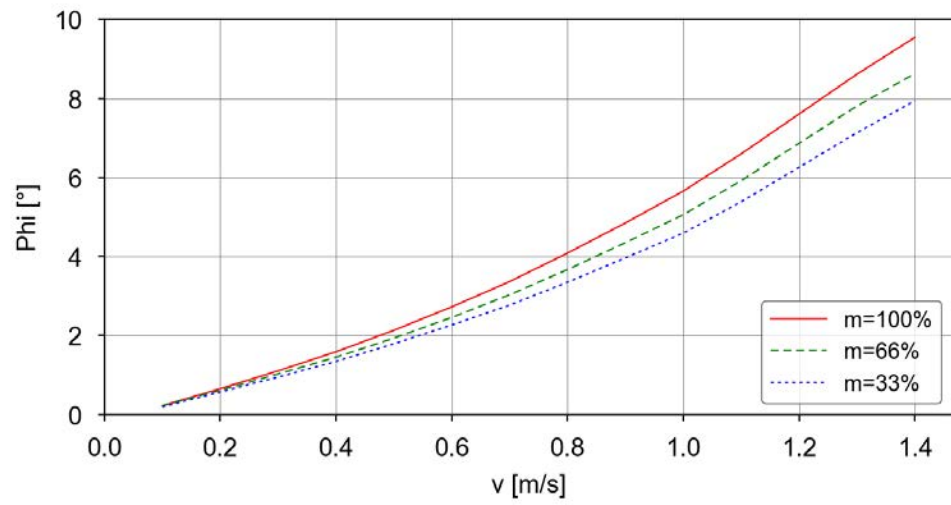
Extension zone 0, stopping distance and stopping time



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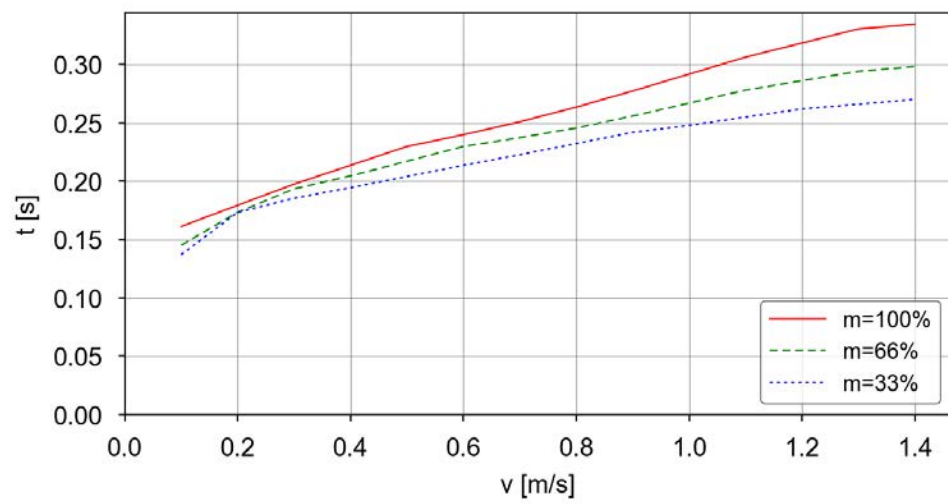
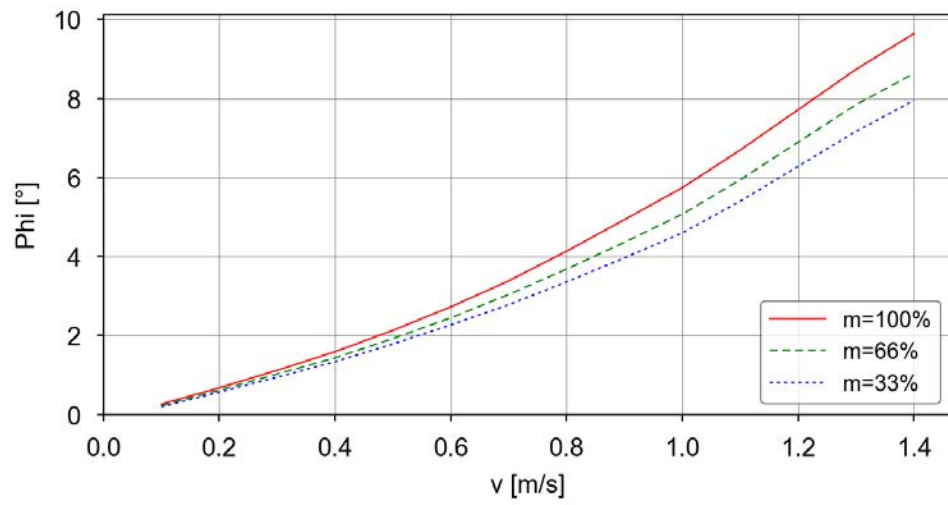


Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time



## 20.7 IRB 7600LeanID 2.8 m 320 kg

### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	28.3	0.66
2	10.7	0.32
3	7.2	0.17

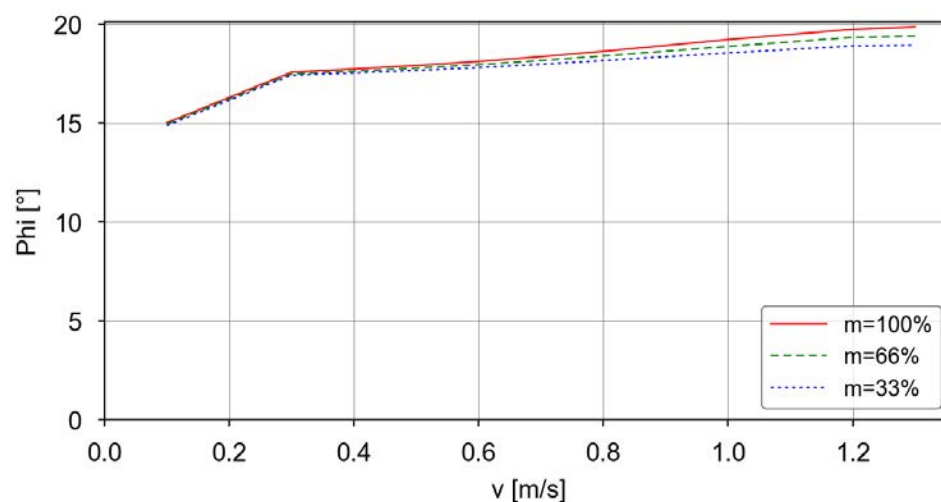
### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.932
1	0.932	1.865
2	1.865	max reach

### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

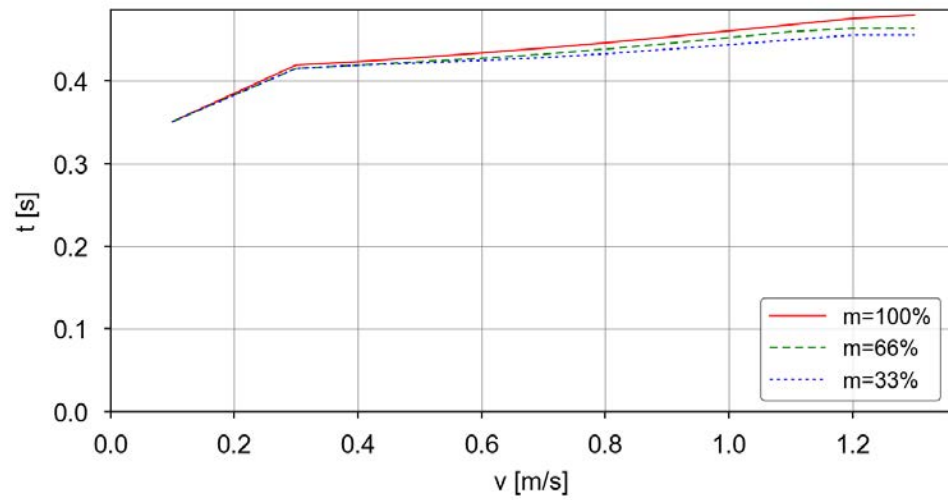


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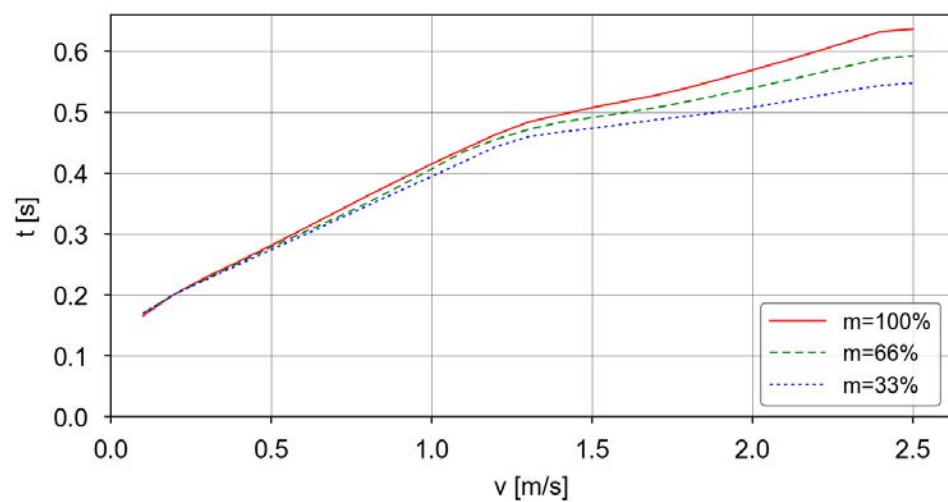
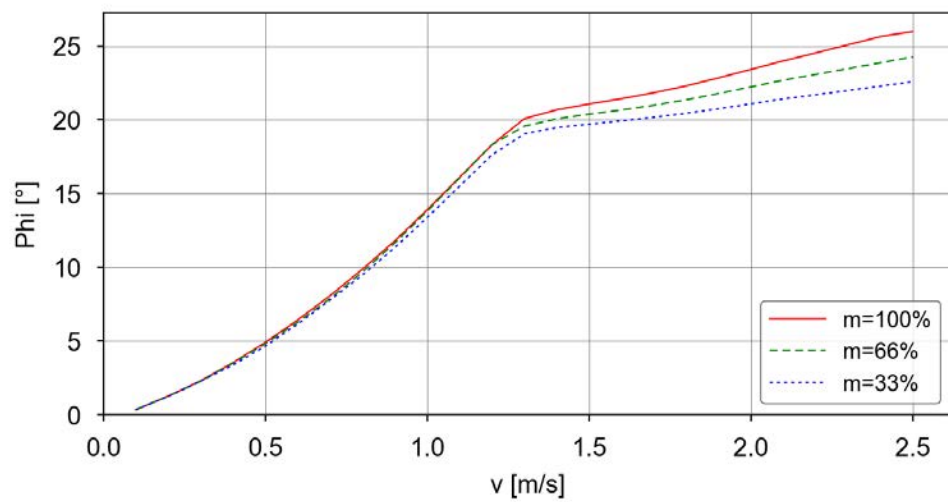
## 20 IRB 7600

20.7 IRB 7600LeanID 2.8 m 320 kg

Continued

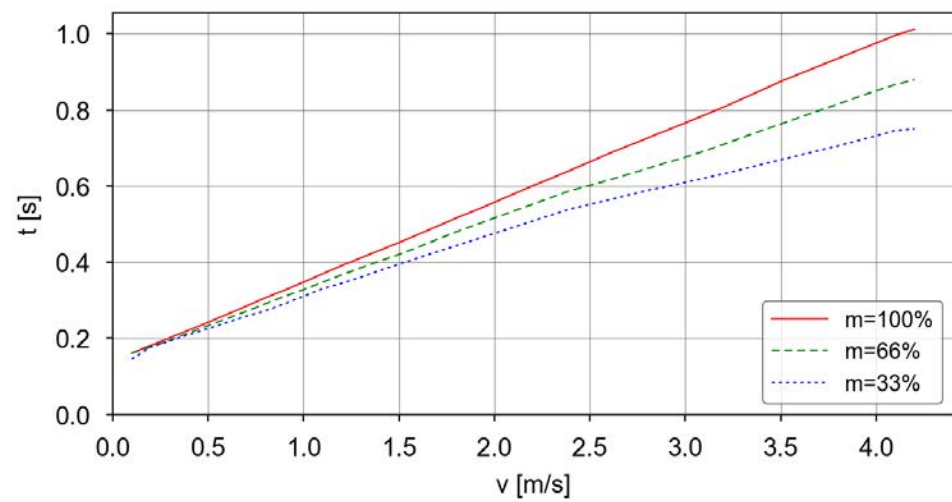
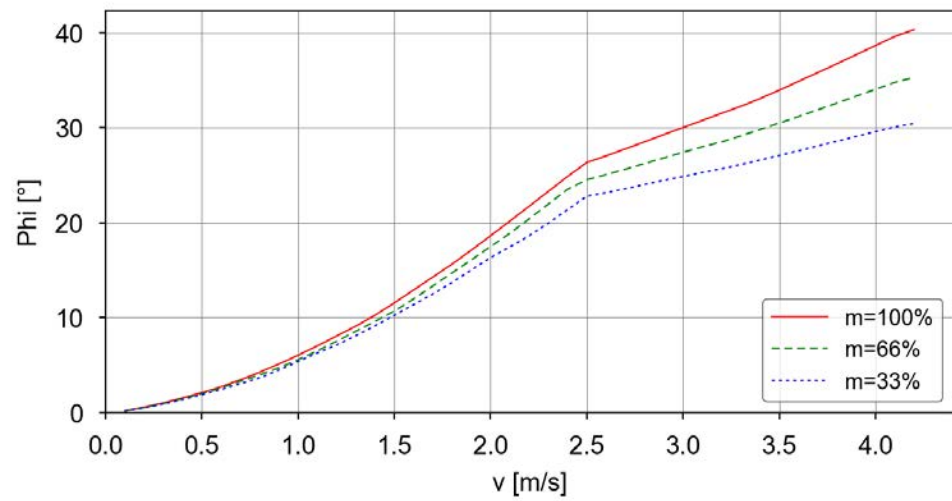


Extension zone 1, stopping distance and stopping time



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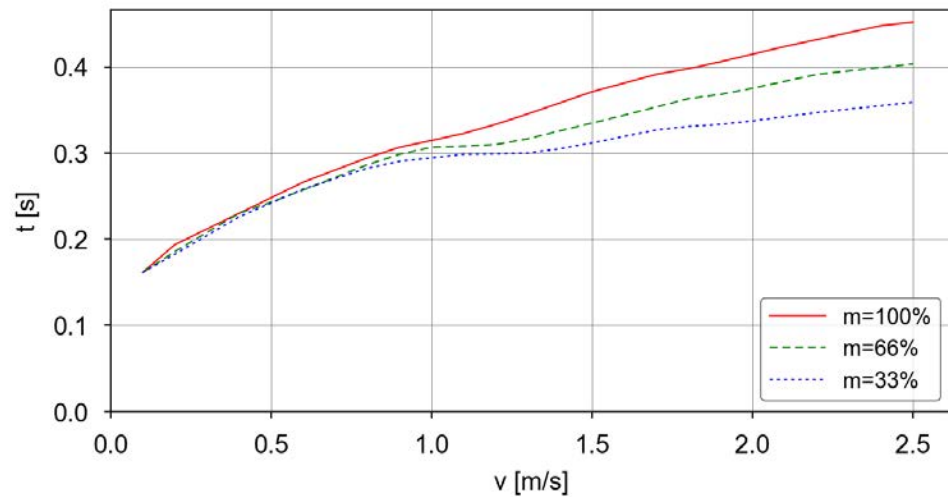
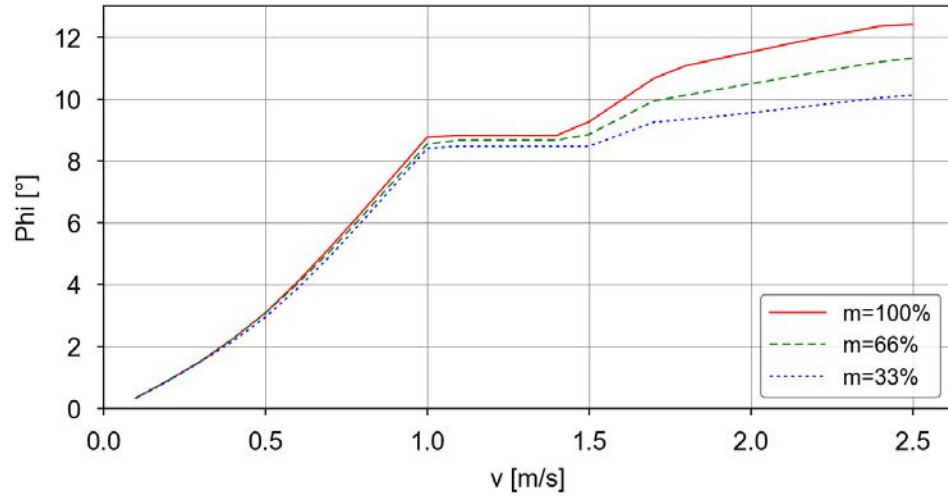
## Extension zone 2, stopping distance and stopping time



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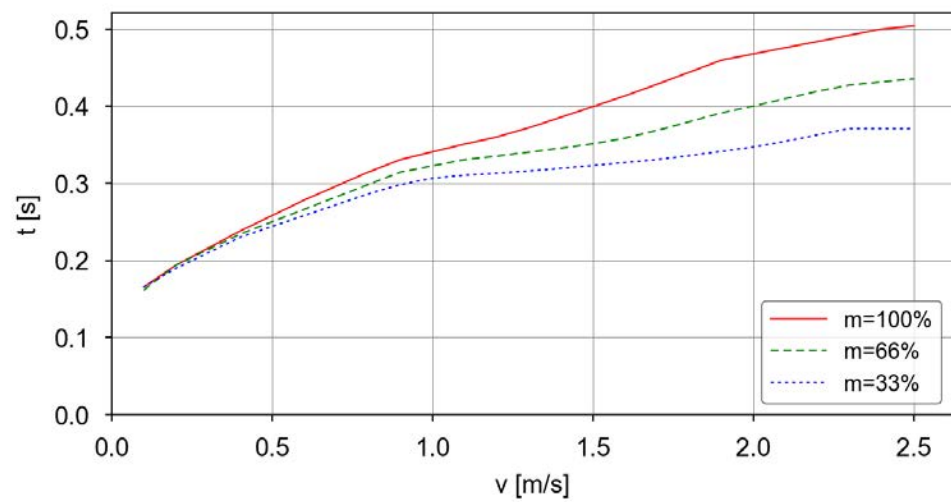
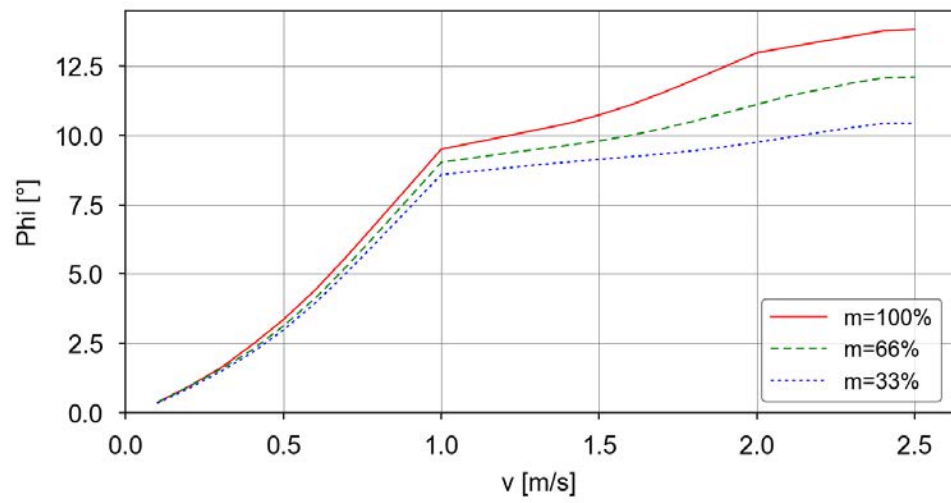
Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



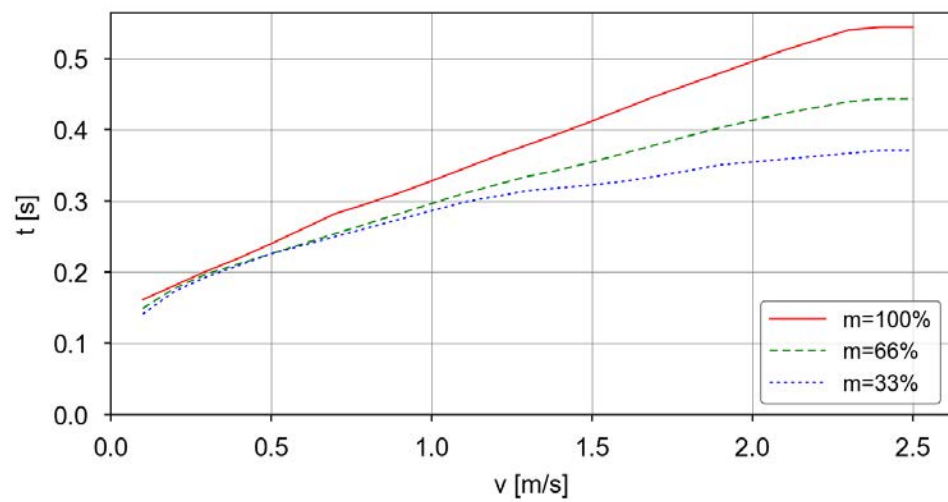
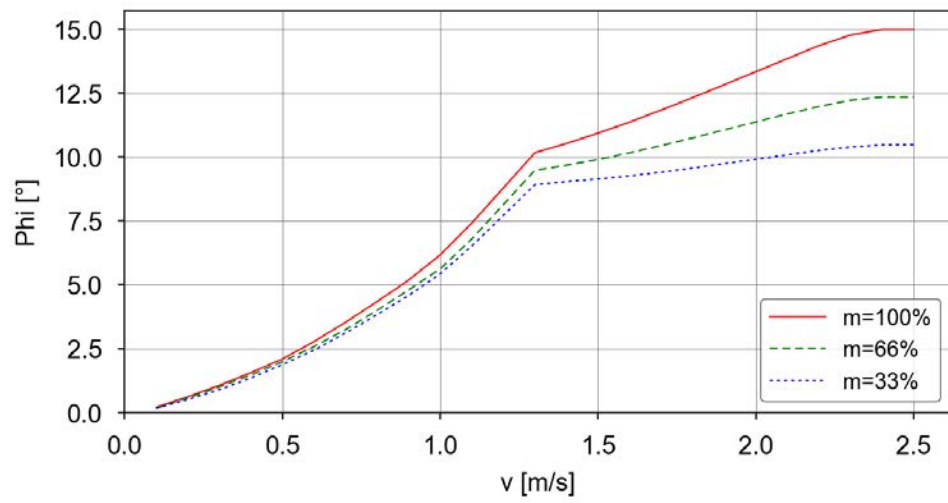
Continues on next page

Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time

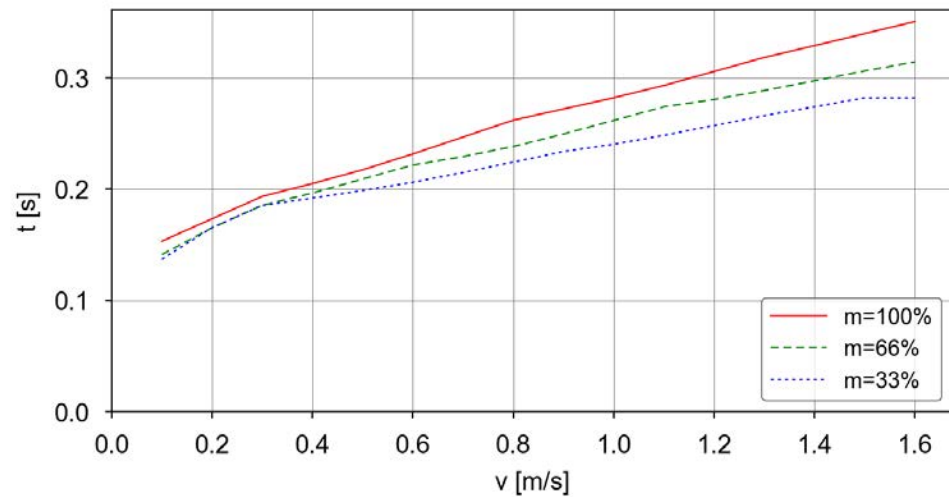
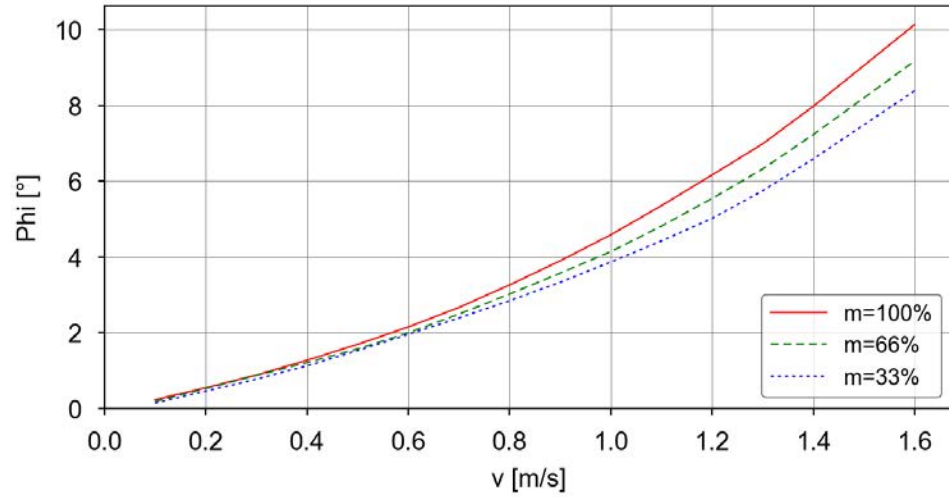


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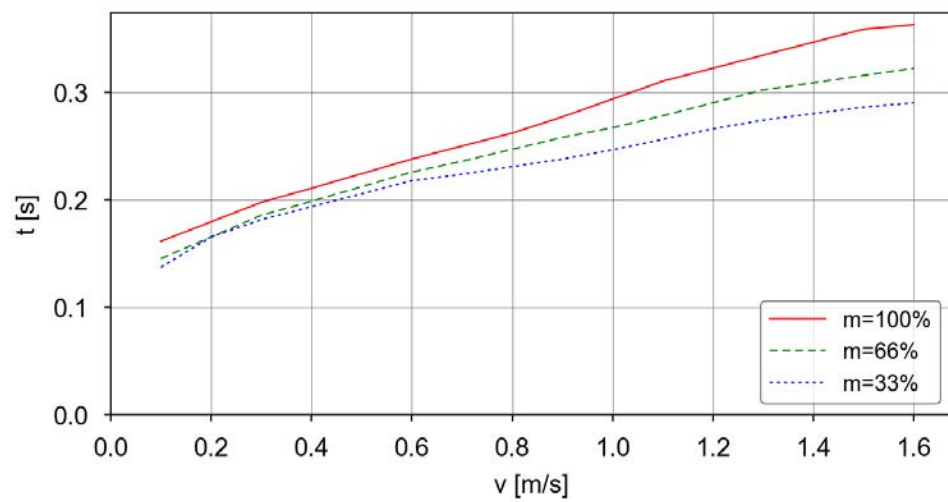
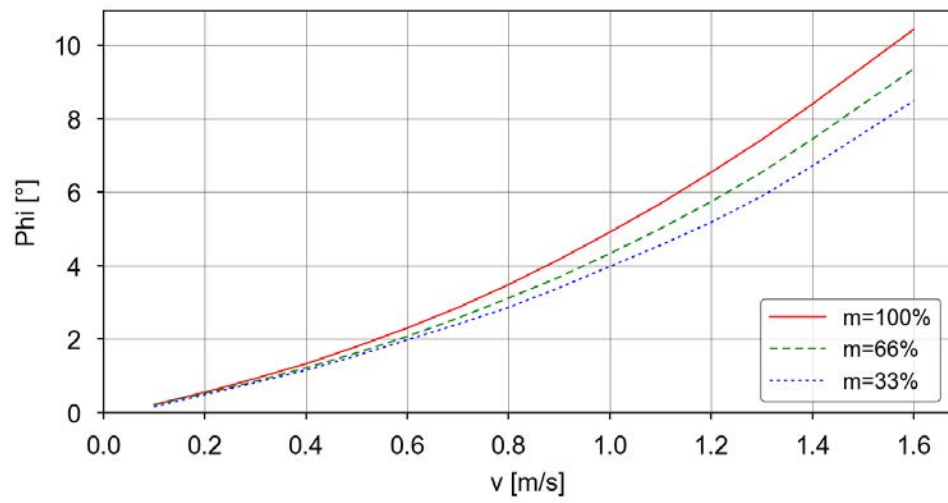
Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



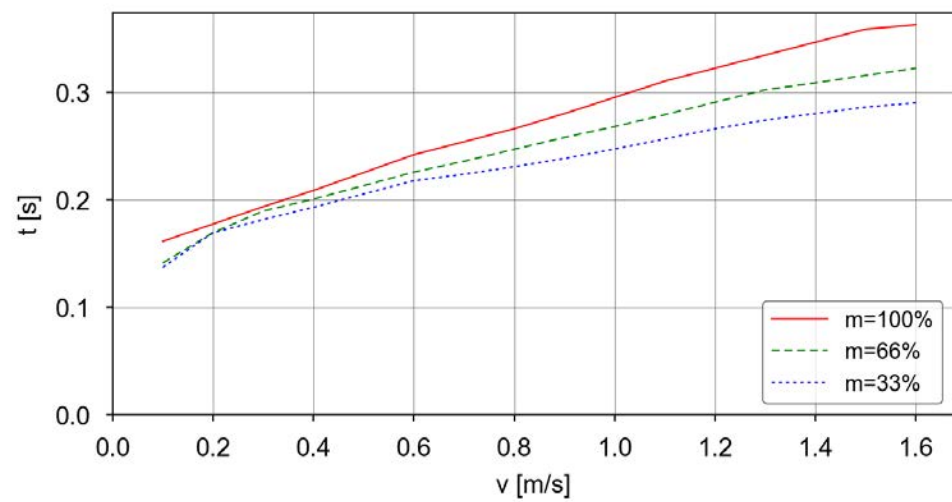
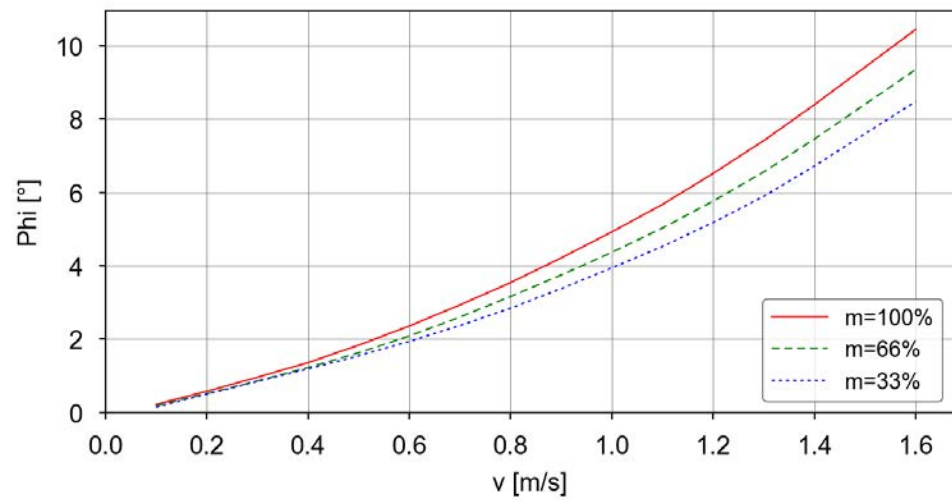
Continues on next page

Extension zone 1, stopping distance and stopping time



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## Extension zone 2, stopping distance and stopping time



20.8 IRB 7600LeanID 3.1 m 290 kg

Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	30.1	0.71
2	8.4	0.27
3	6.7	0.17

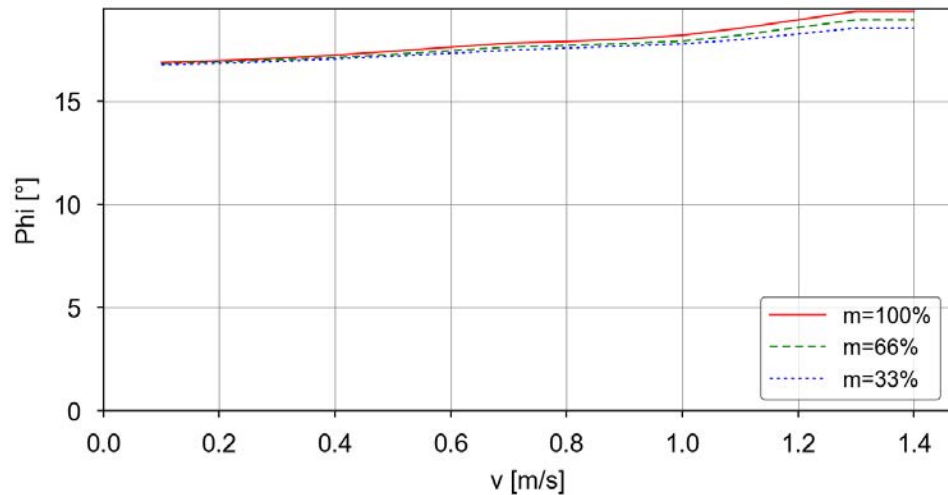
Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

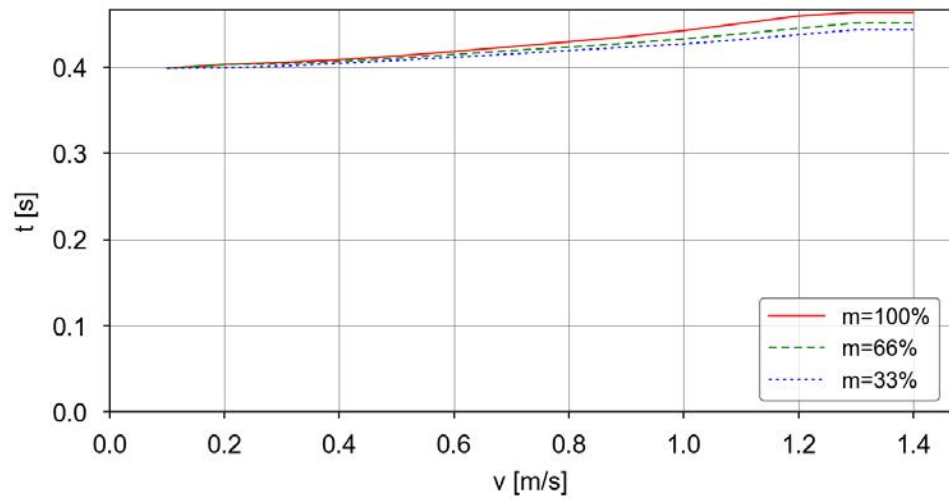
Zone	wcp min (m)	wcp max (m)
0	0	1.015
1	1.015	2.03
2	2.03	max reach

Category 1, Axis 1

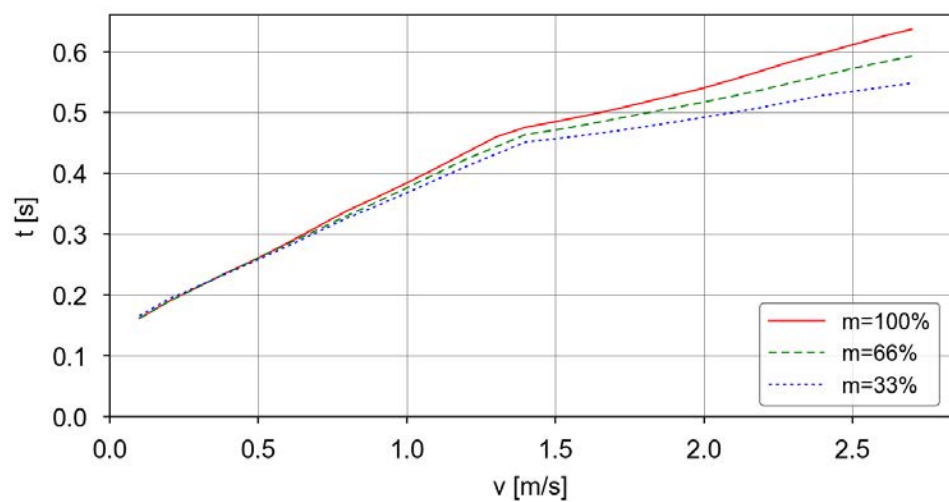
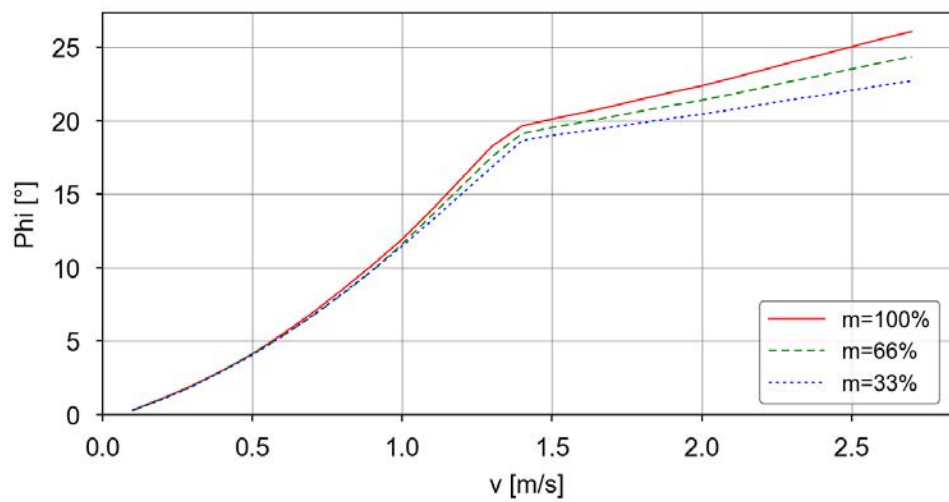
Extension zone 0, stopping distance and stopping time



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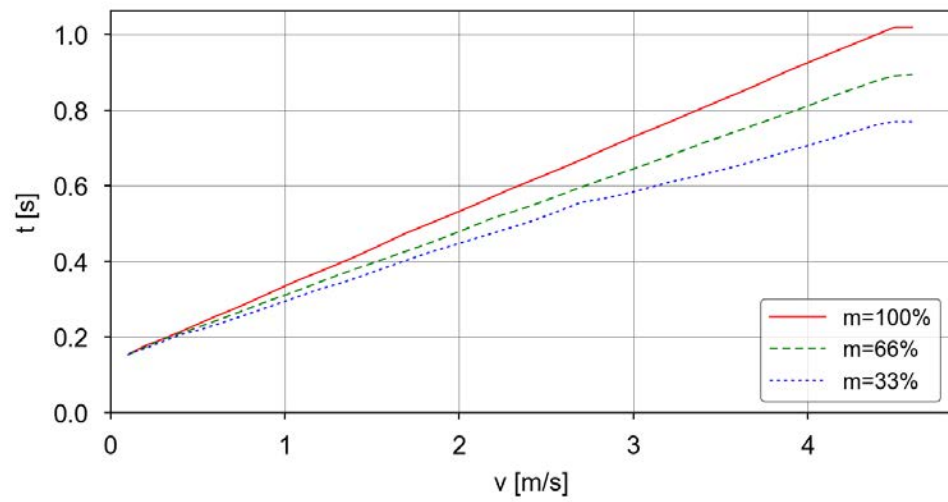
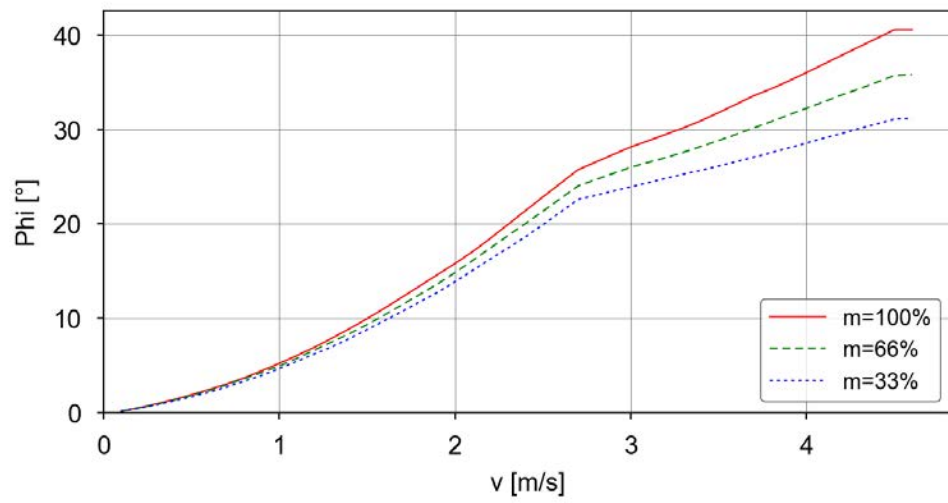


Extension zone 1, stopping distance and stopping time



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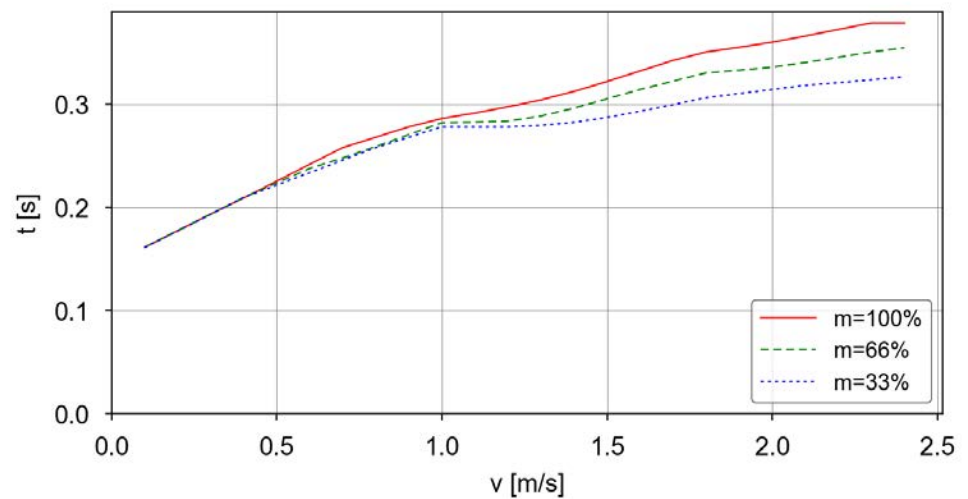
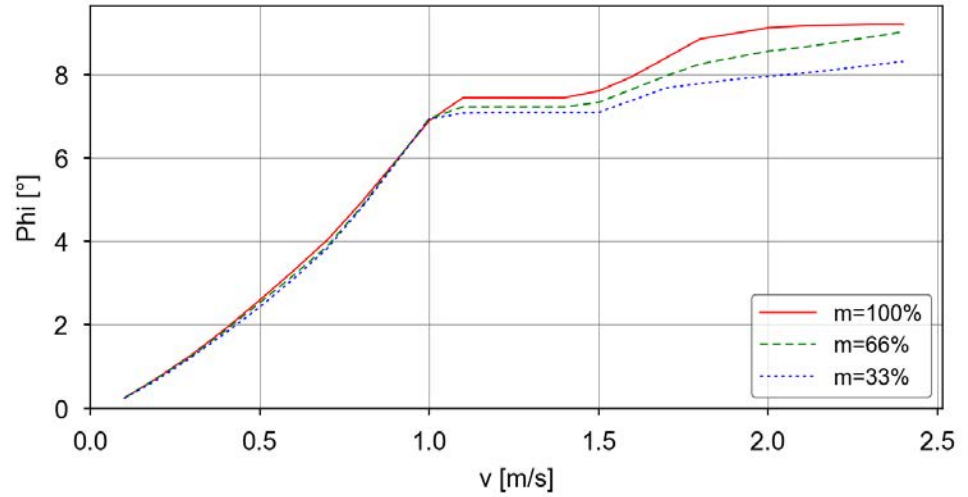
Extension zone 2, stopping distance and stopping time



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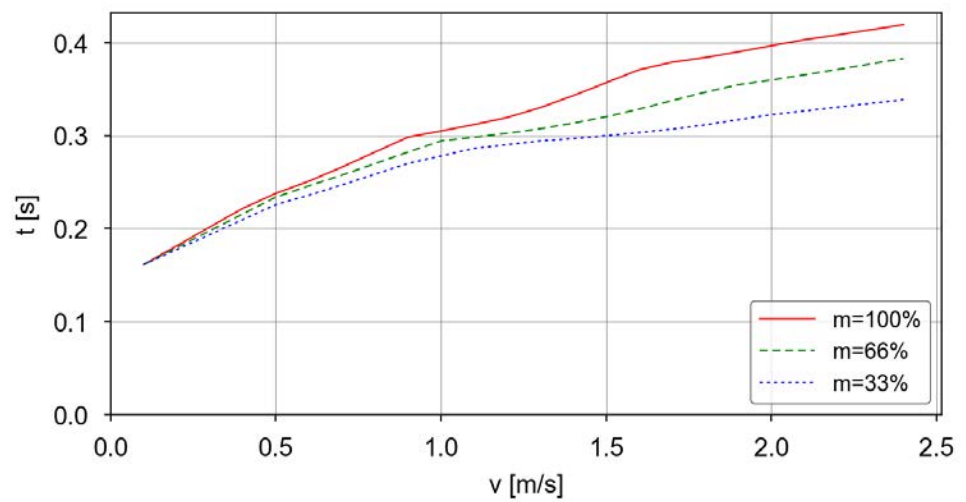
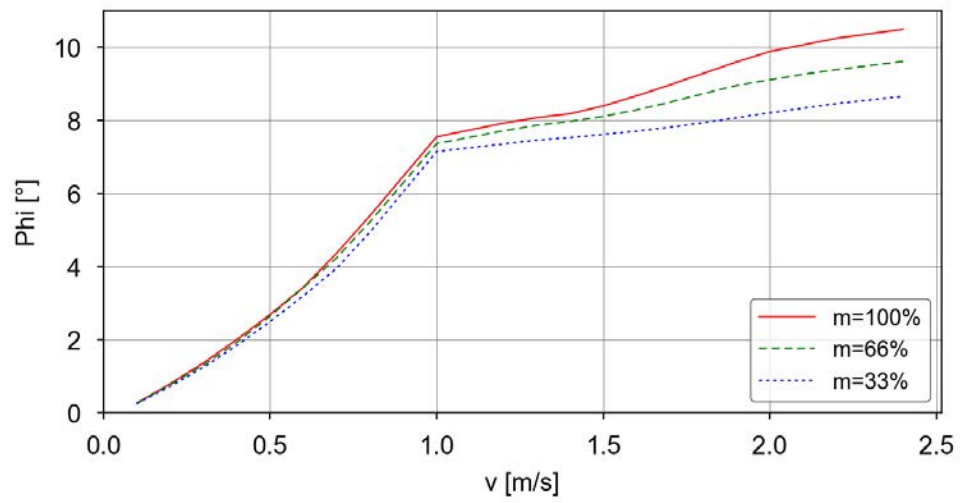
Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



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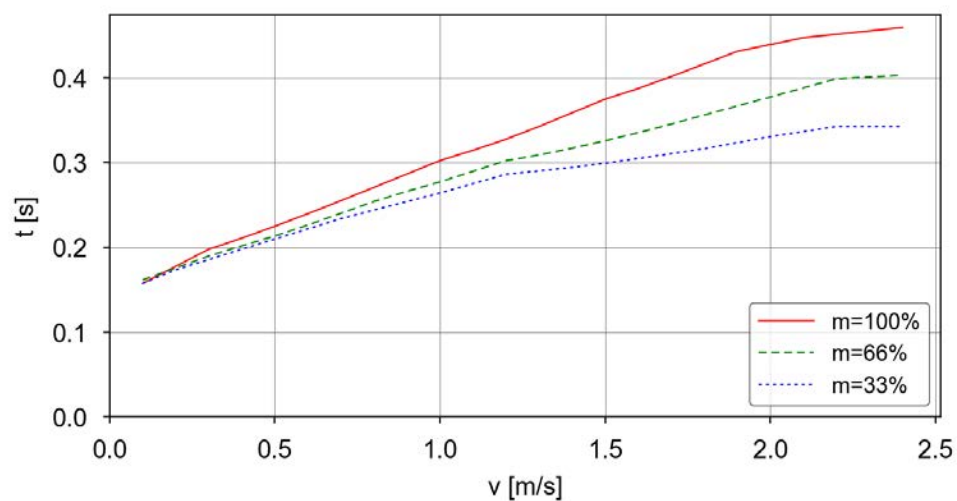
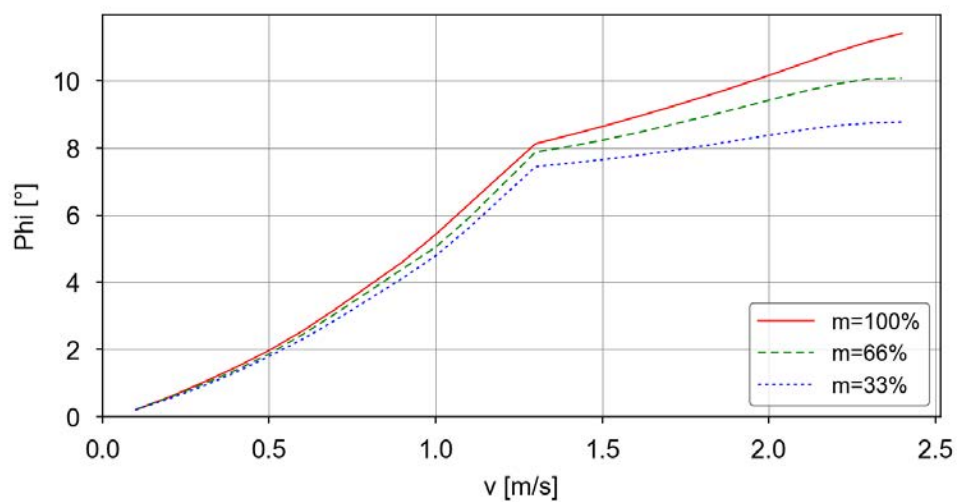
Extension zone 1, stopping distance and stopping time



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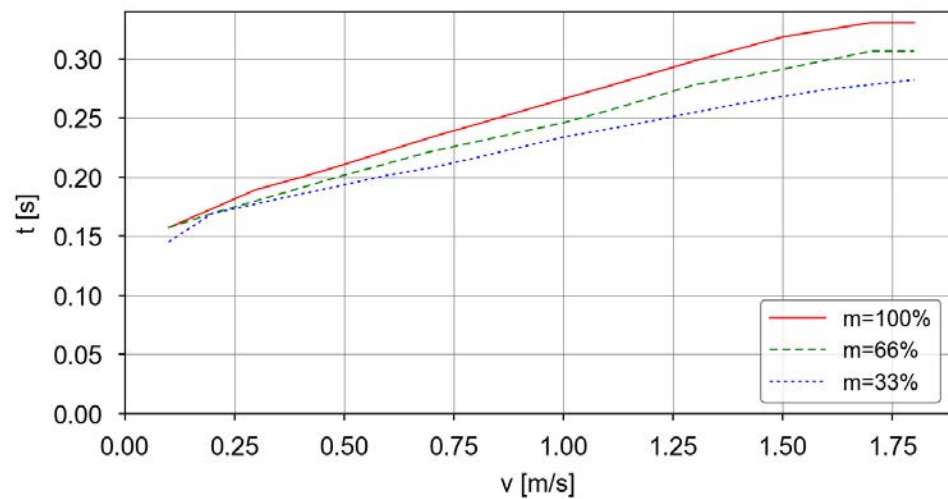
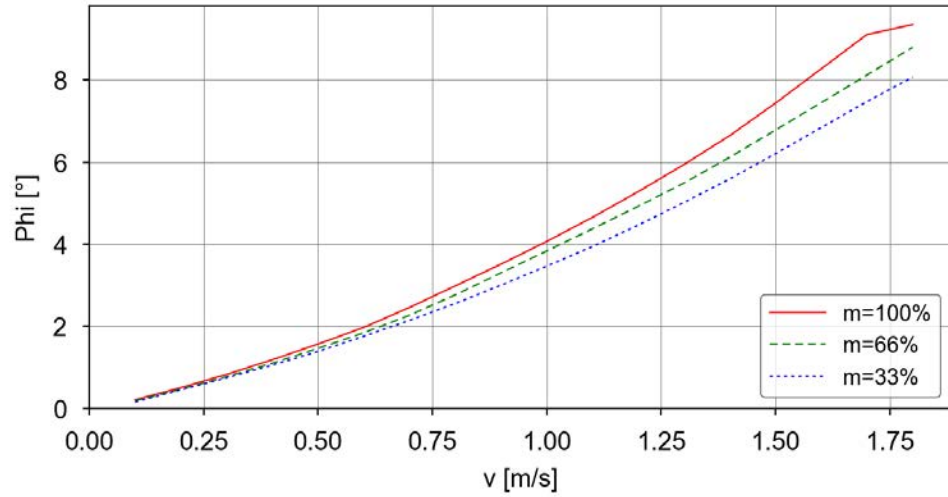
Extension zone 2, stopping distance and stopping time



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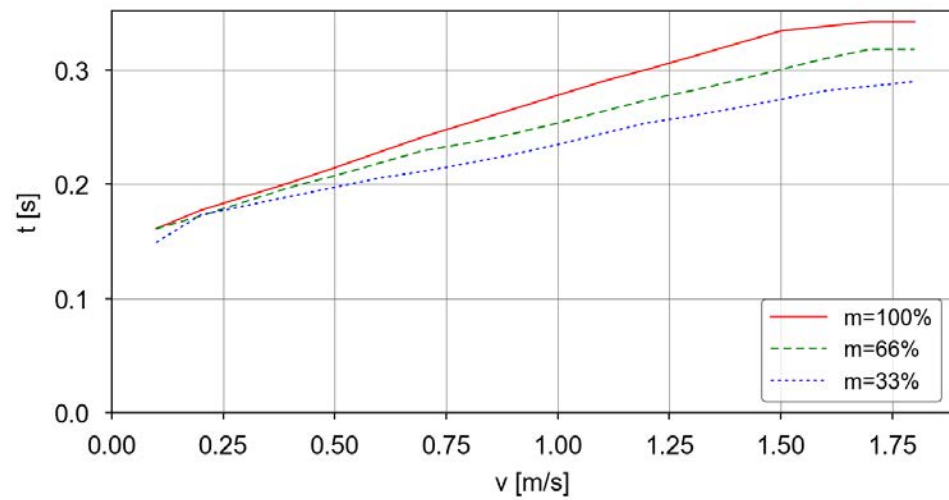
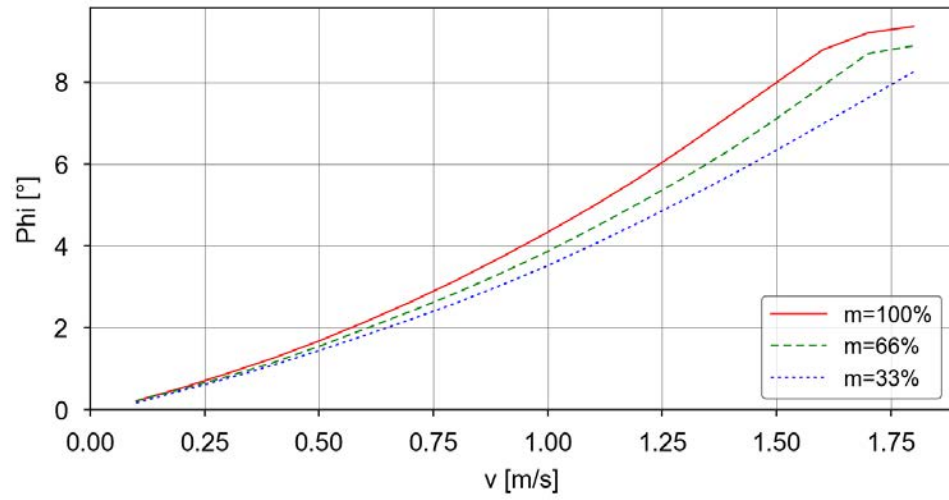
Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



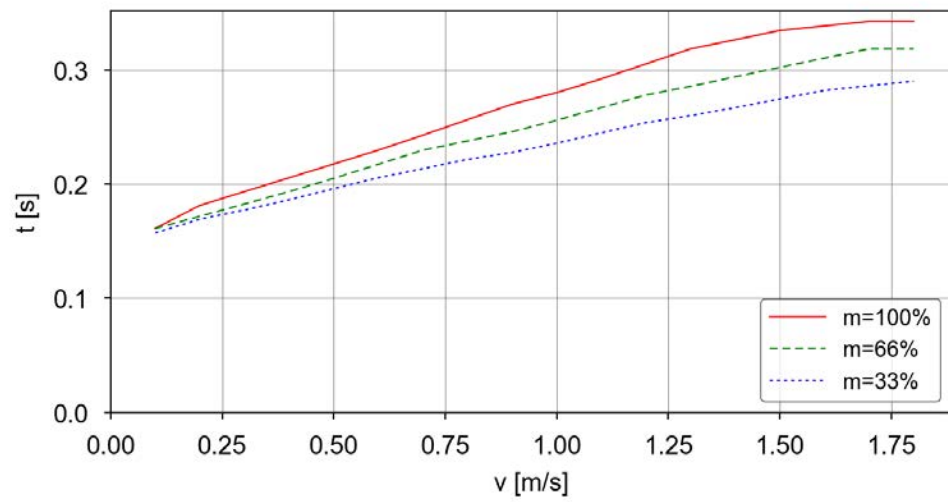
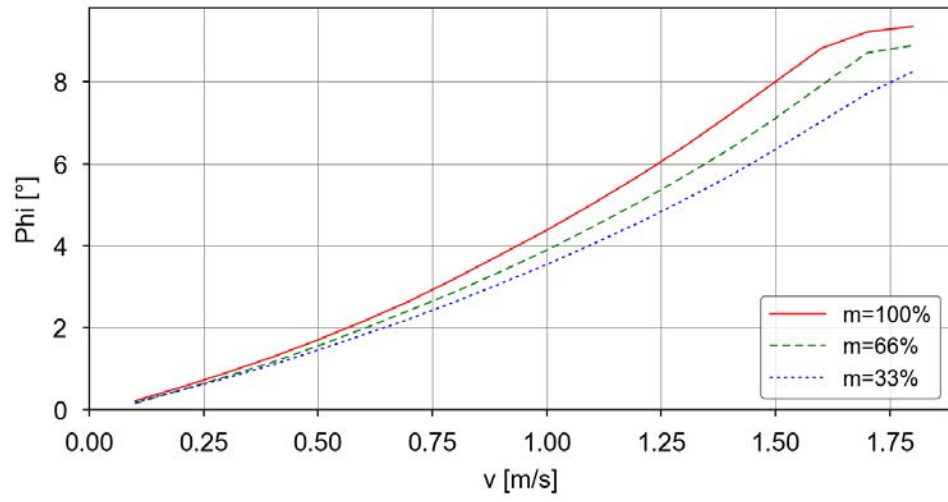
Continues on next page

Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time



## 21 IRB 8700

### 21.1 IRB 8700 3.50 m 800 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	44.4	1.31
2	11.4	0.32
3	13.0	0.37

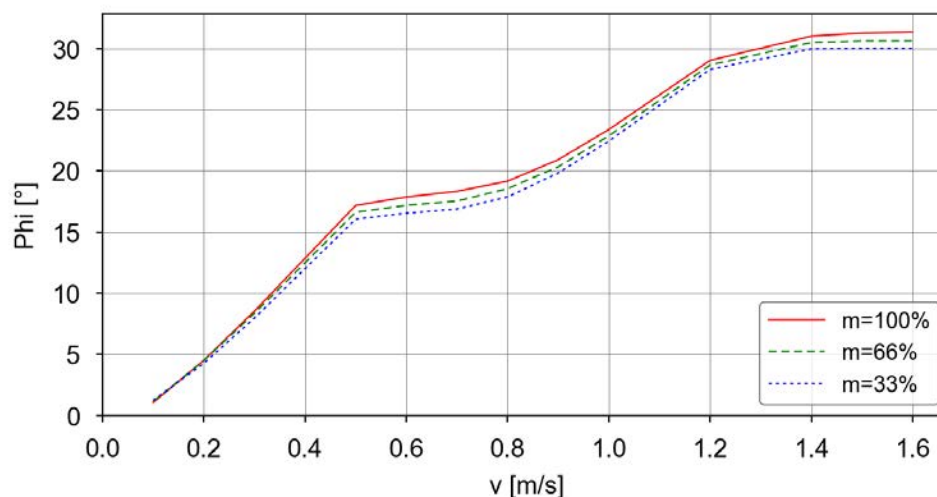
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	1.169
1	1.169	2.338
2	2.338	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

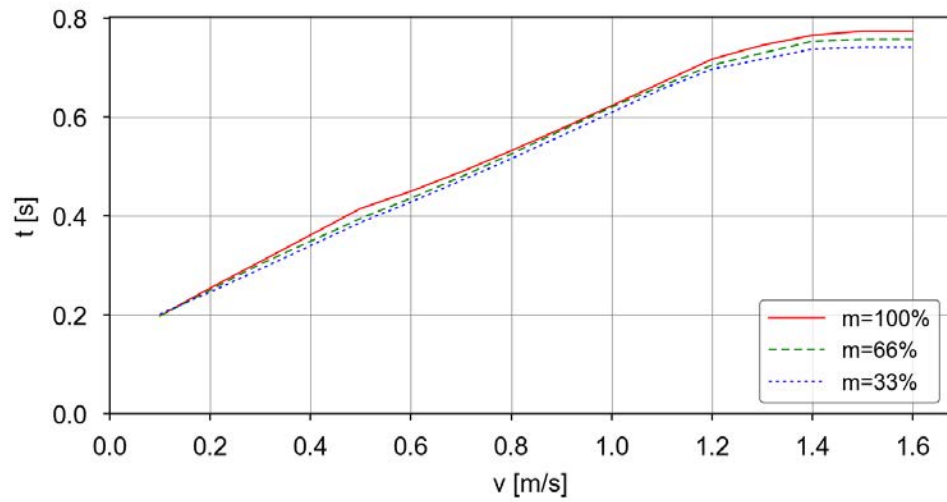


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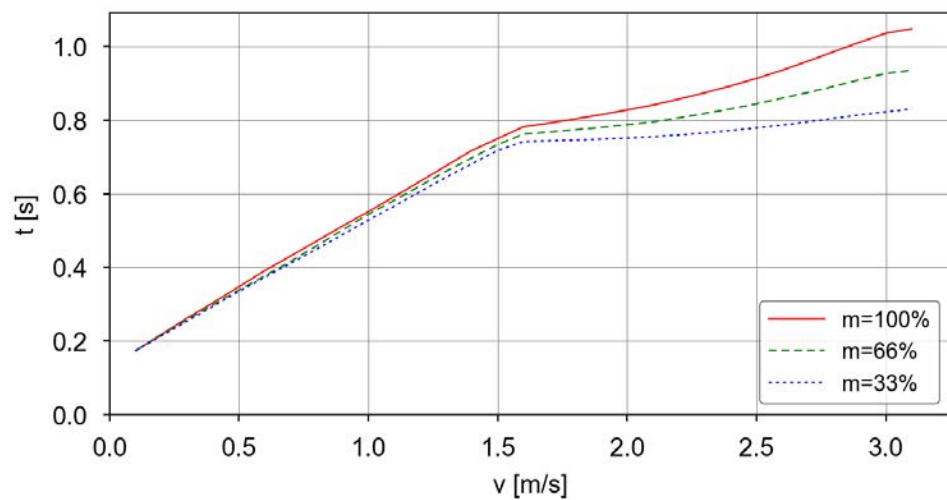
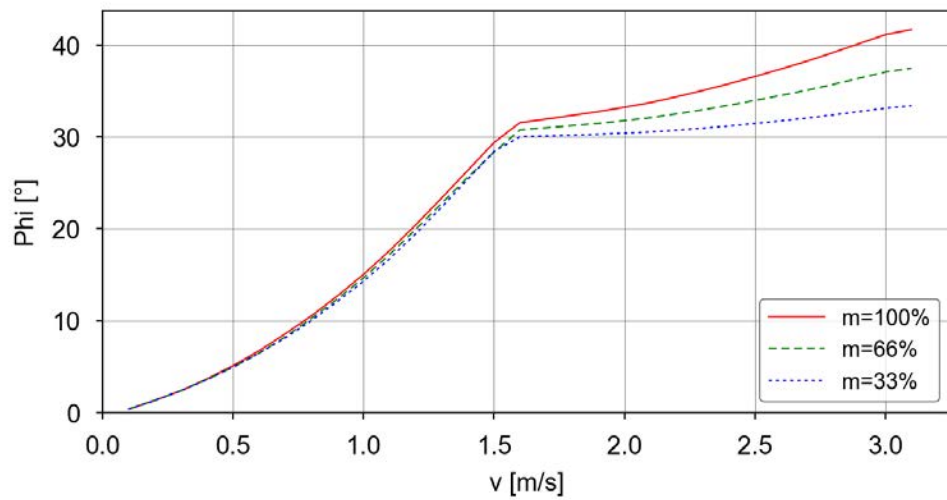
## 21 IRB 8700

### 21.1 IRB 8700 3.50 m 800 kg

Continued

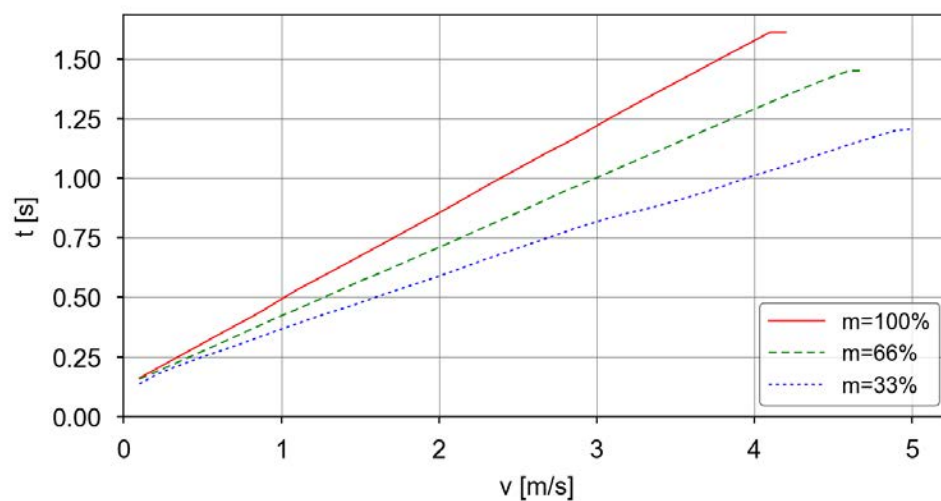
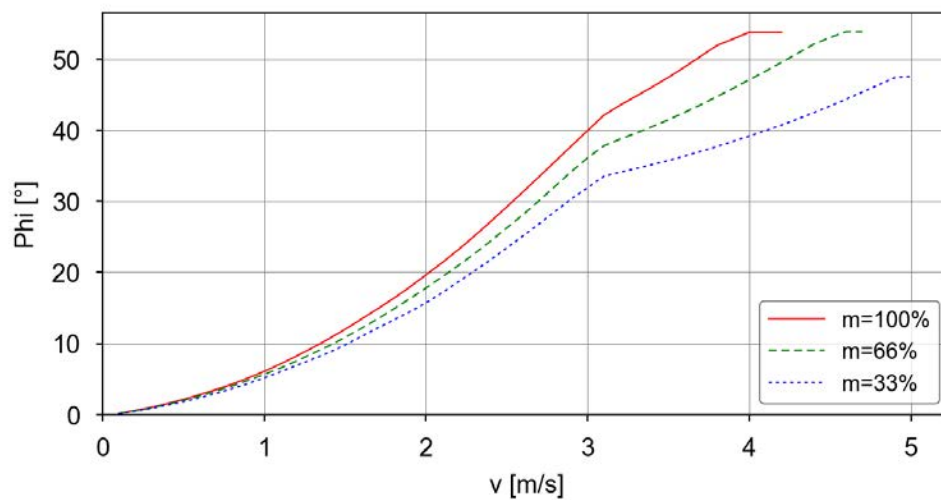


### Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

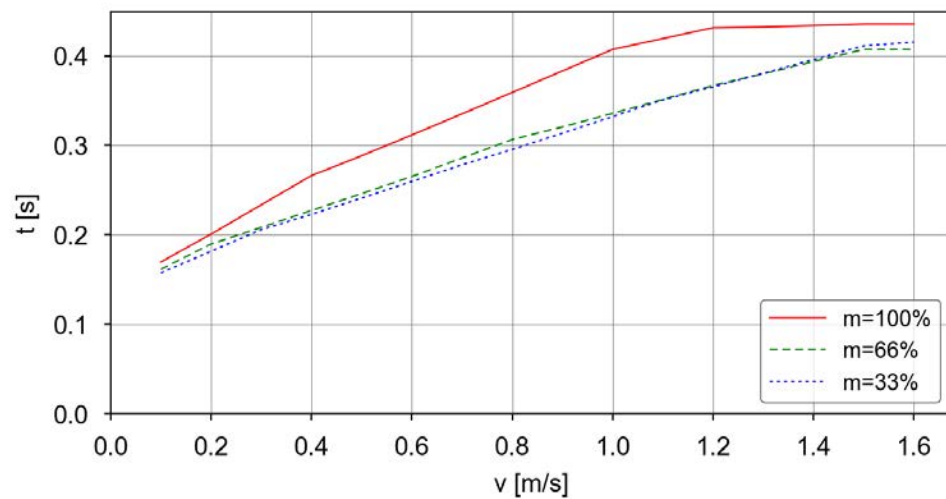
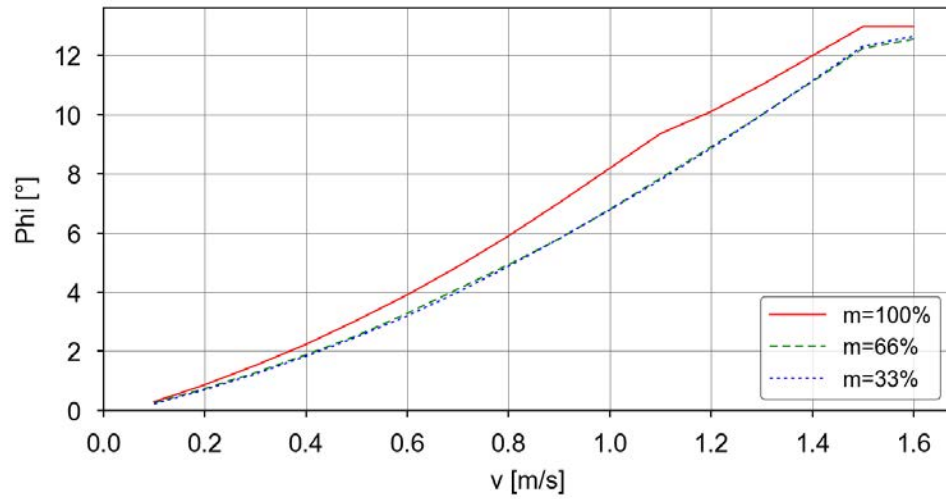
## 21 IRB 8700

21.1 IRB 8700 3.50 m 800 kg

Continued

### Category 1, Axis 2

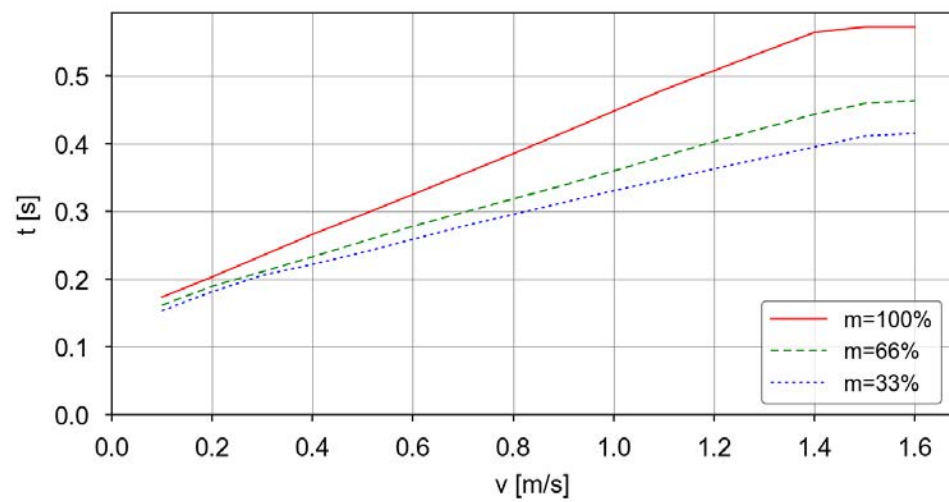
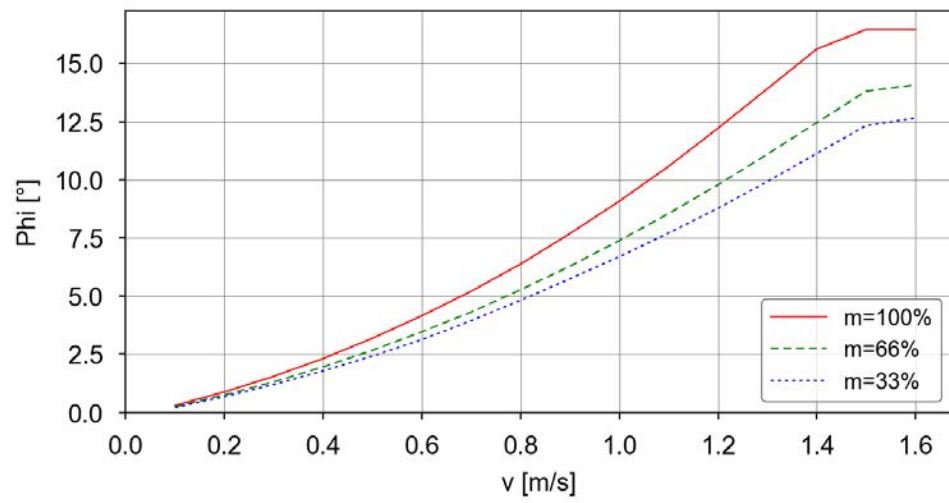
Extension zone 0, stopping distance and stopping time



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Extension zone 1, stopping distance and stopping time



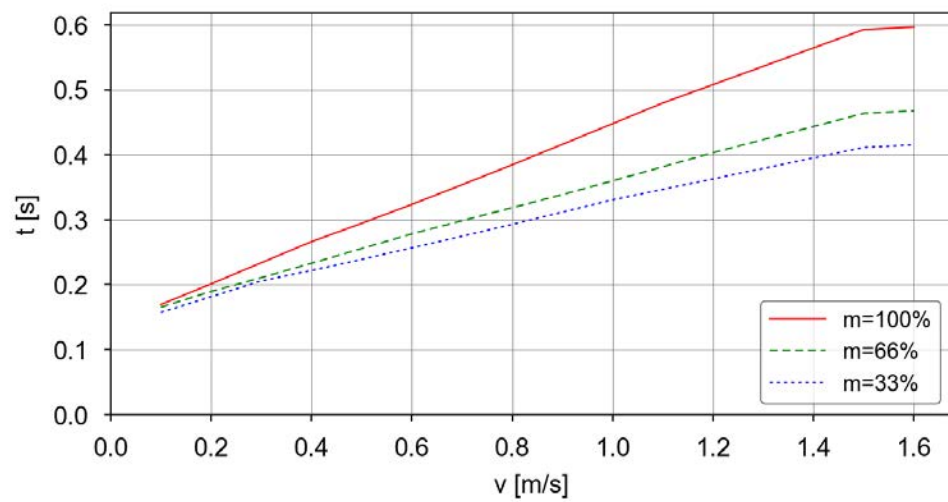
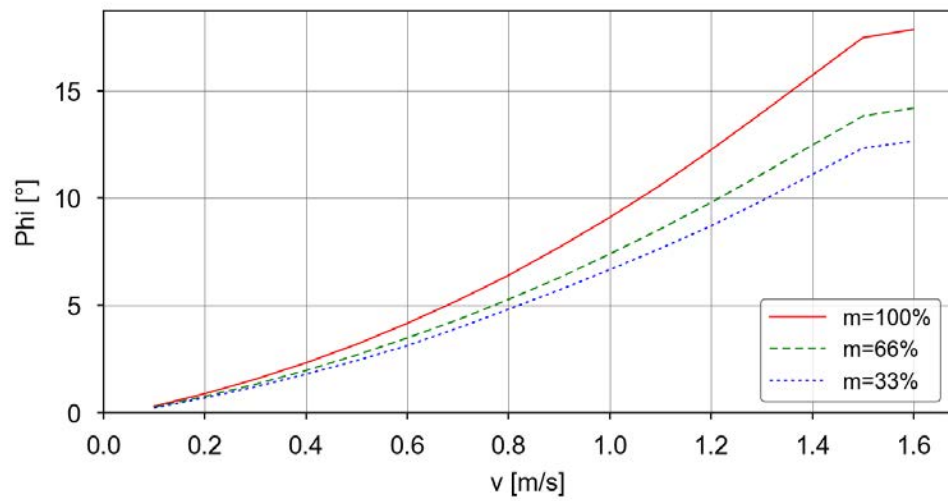
Continues on next page

## 21 IRB 8700

### 21.1 IRB 8700 3.50 m 800 kg

Continued

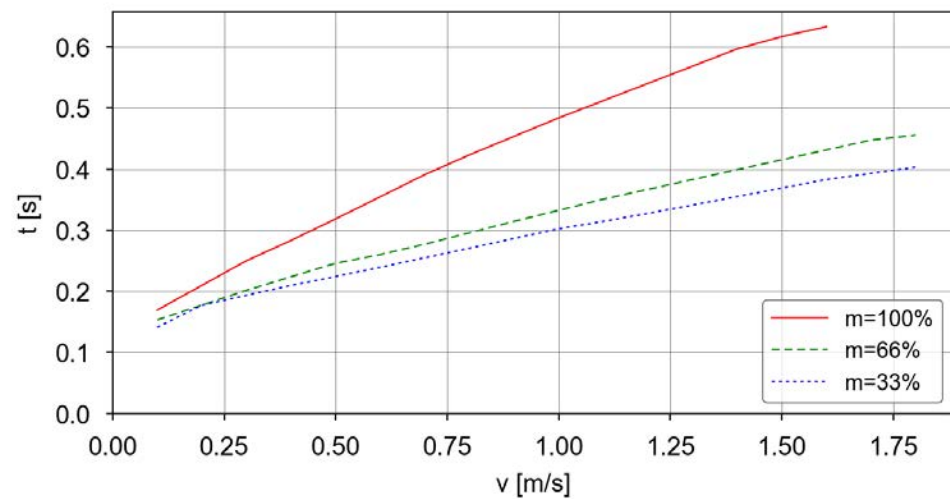
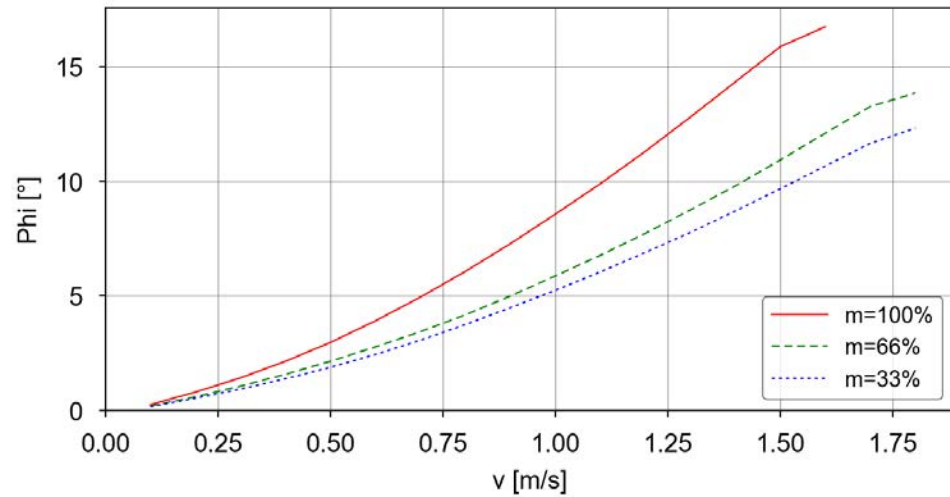
#### Extension zone 2, stopping distance and stopping time



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## Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



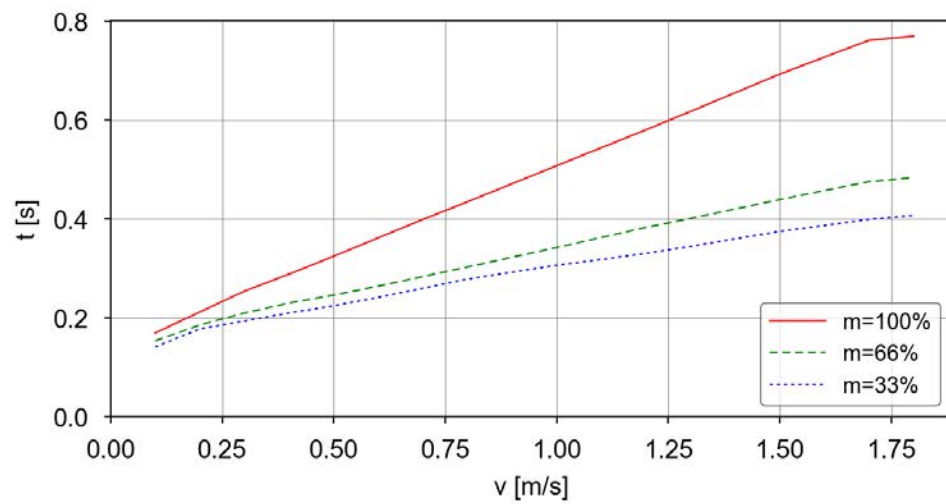
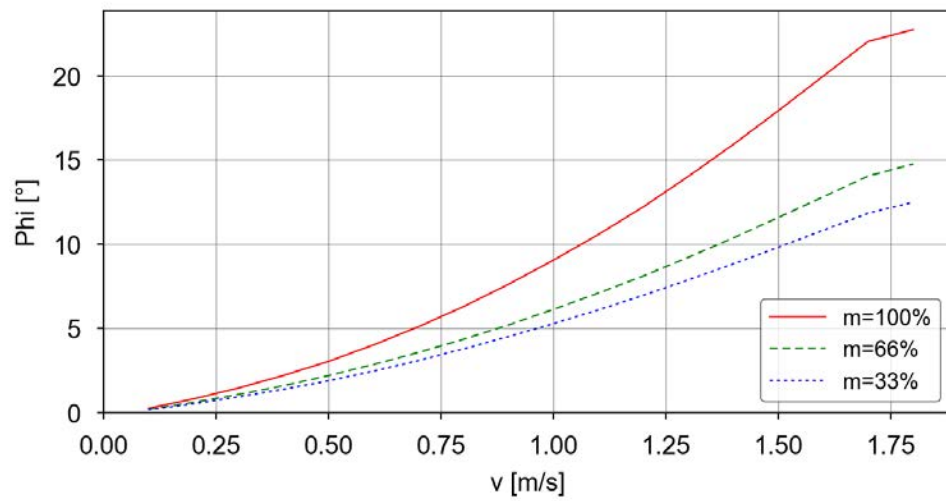
Continues on next page

## 21 IRB 8700

21.1 IRB 8700 3.50 m 800 kg

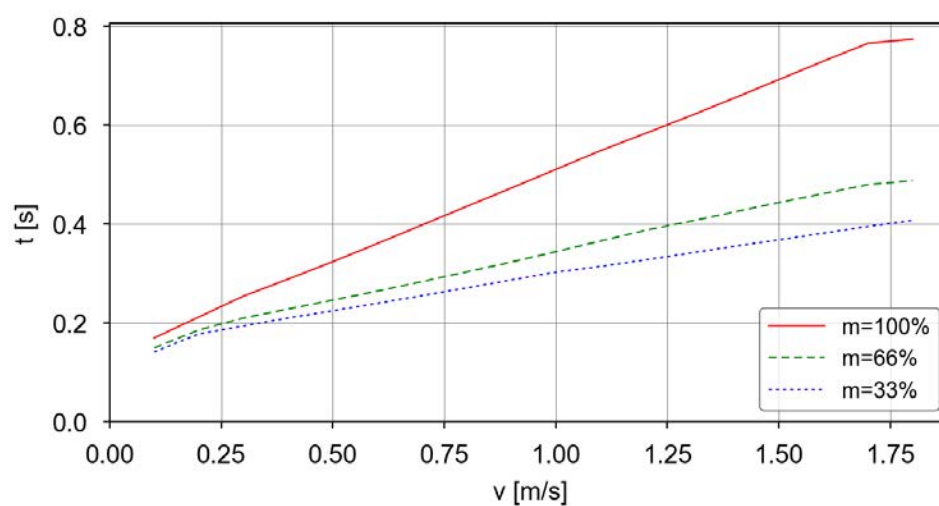
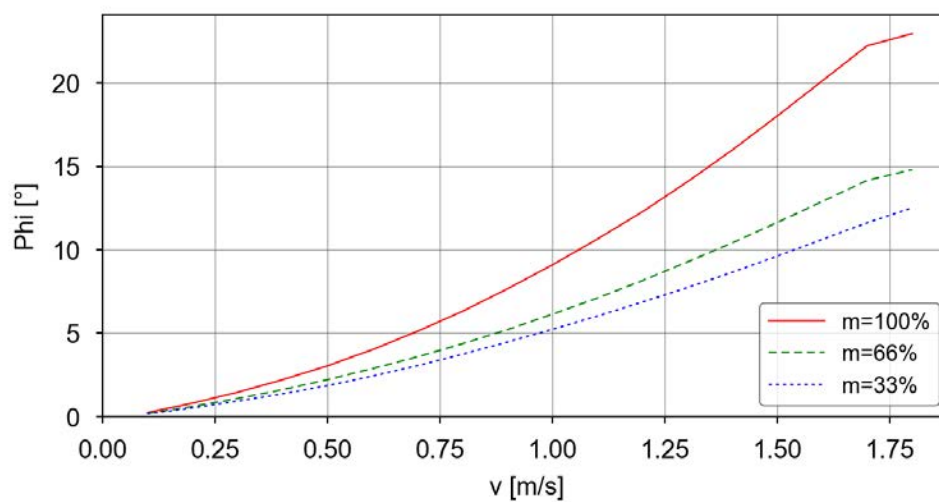
Continued

Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



## 21 IRB 8700

21.2 IRB 8700 4.20 m 550 kg

### 21.2 IRB 8700 4.20 m 550 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	44.4	1.33
2	10.0	0.27
3	14.4	0.44

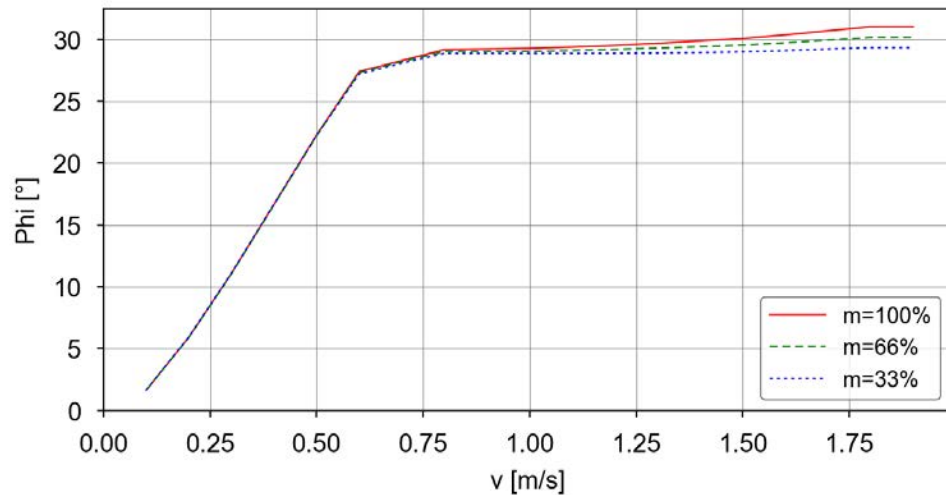
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

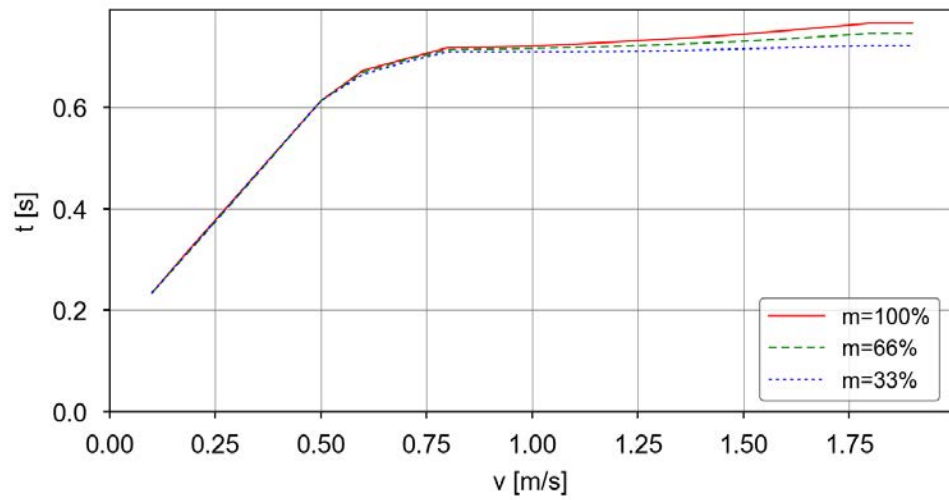
Zone	wcp min (m)	wcp max (m)
0	0	1.399
1	1.399	2.798
2	2.798	max reach

#### Category 1, Axis 1

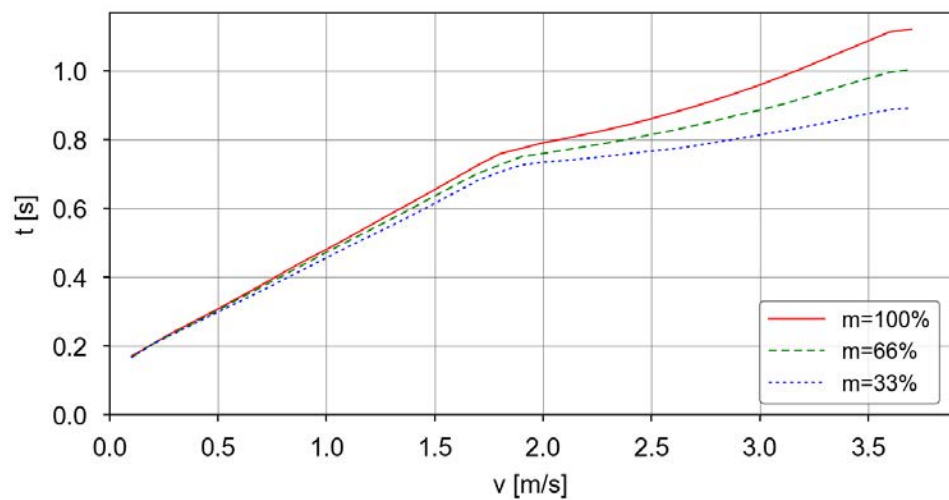
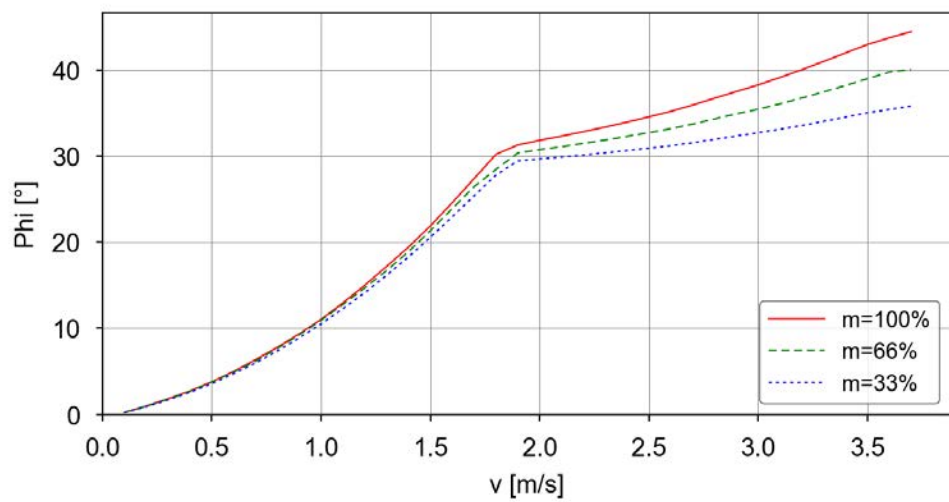
Extension zone 0, stopping distance and stopping time



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Extension zone 1, stopping distance and stopping time



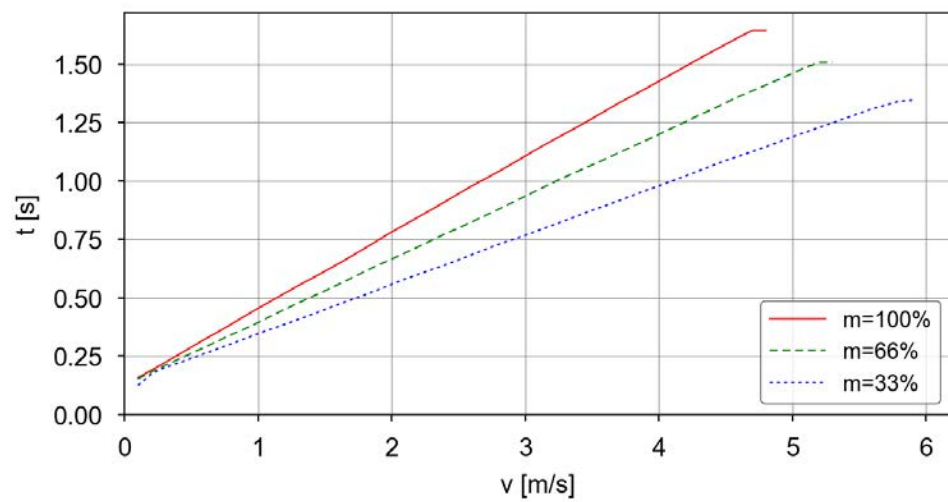
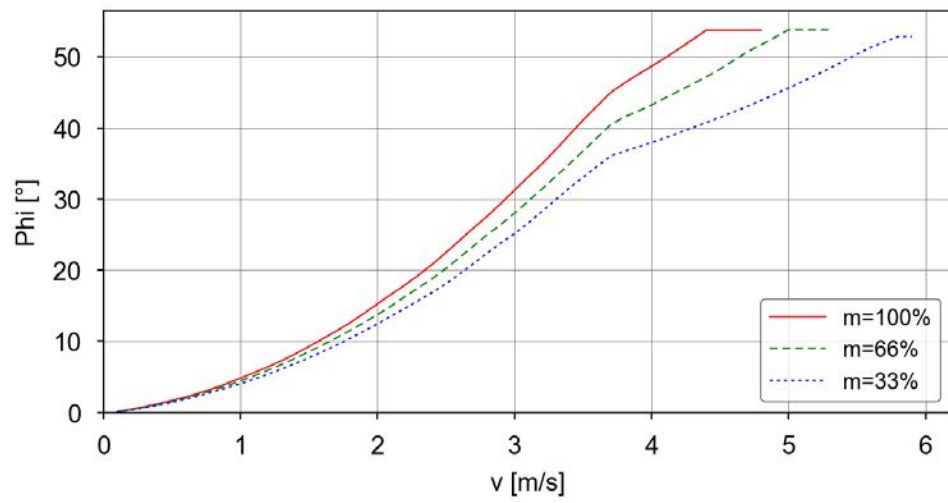
Continues on next page

## 21 IRB 8700

21.2 IRB 8700 4.20 m 550 kg

Continued

Extension zone 2, stopping distance and stopping time

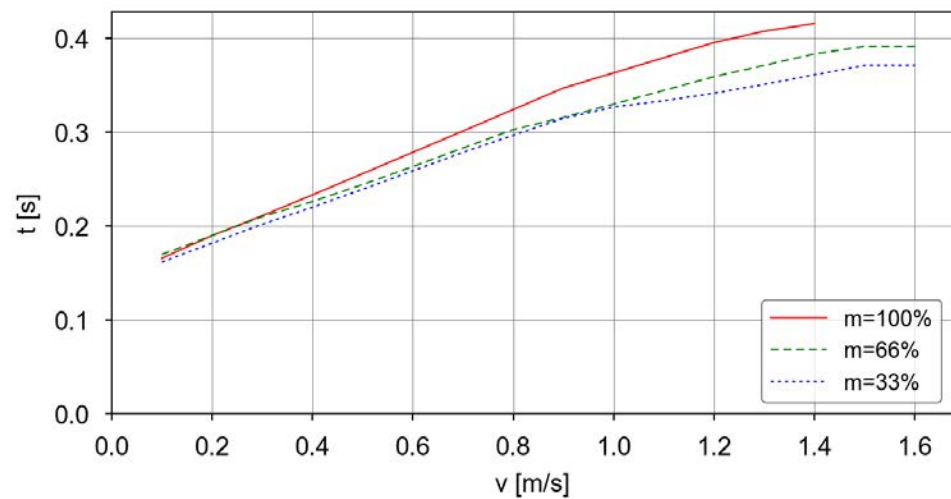
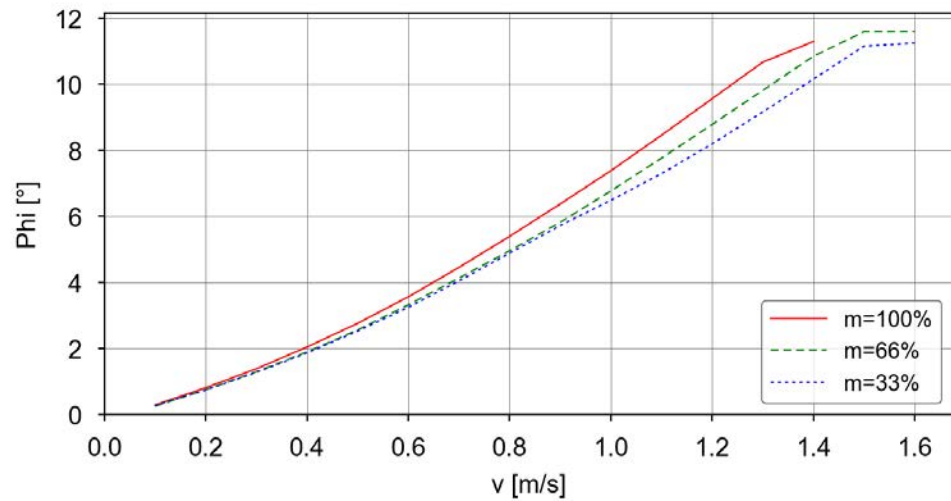


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## Category 1, Axis 2

## Extension zone 0, stopping distance and stopping time



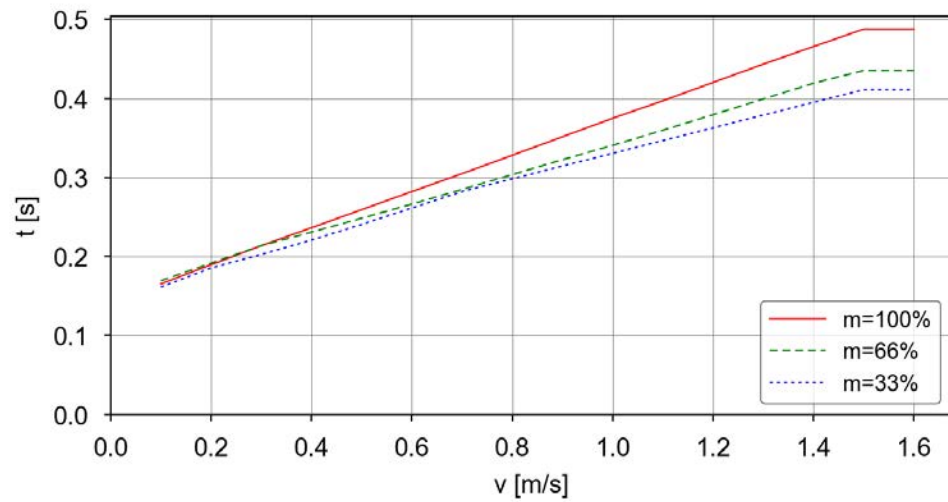
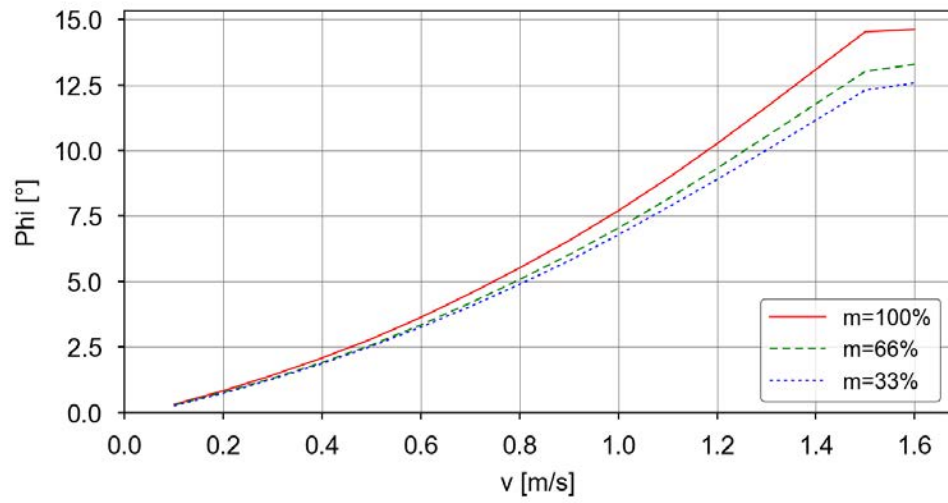
Continues on next page

## 21 IRB 8700

21.2 IRB 8700 4.20 m 550 kg

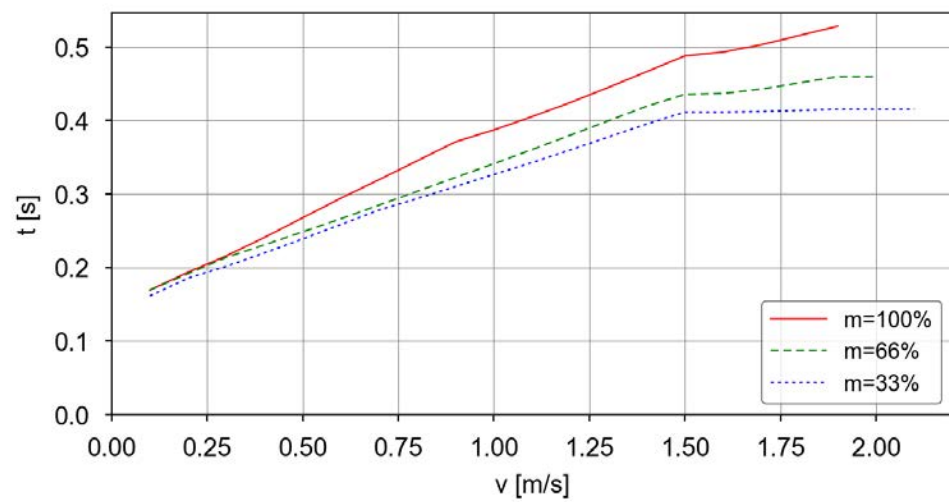
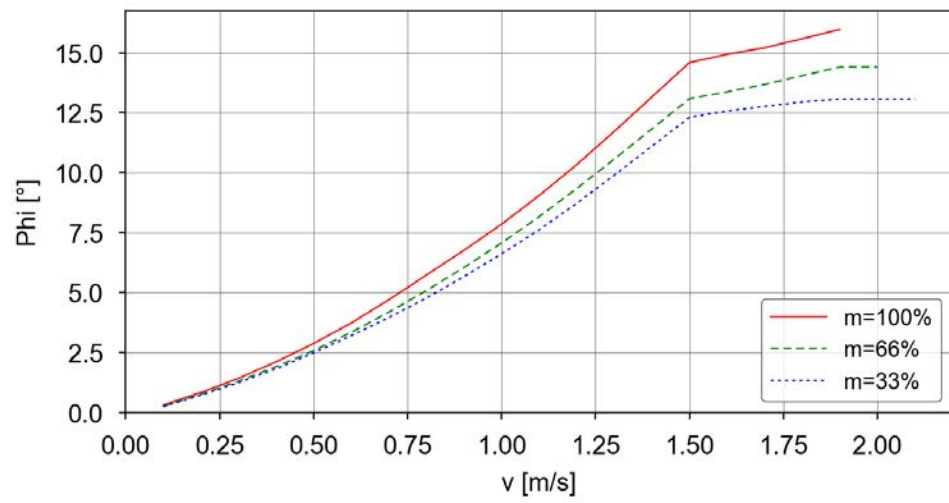
Continued

Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

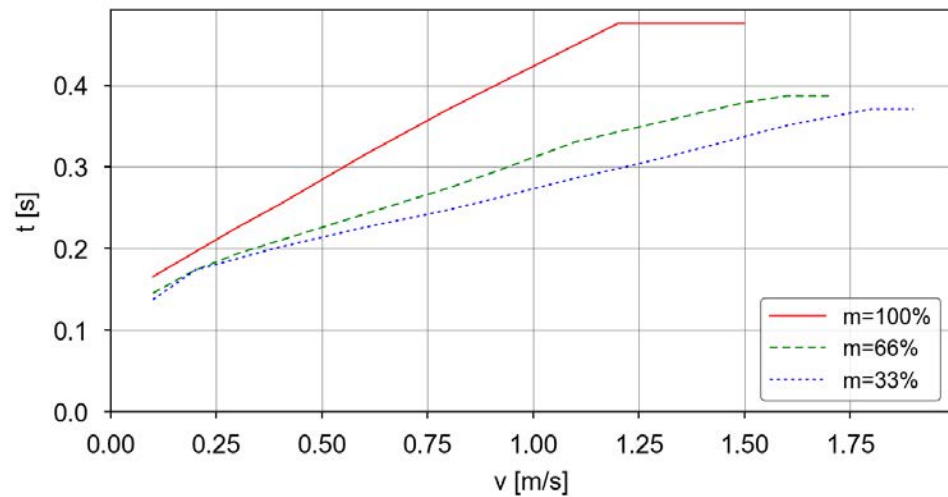
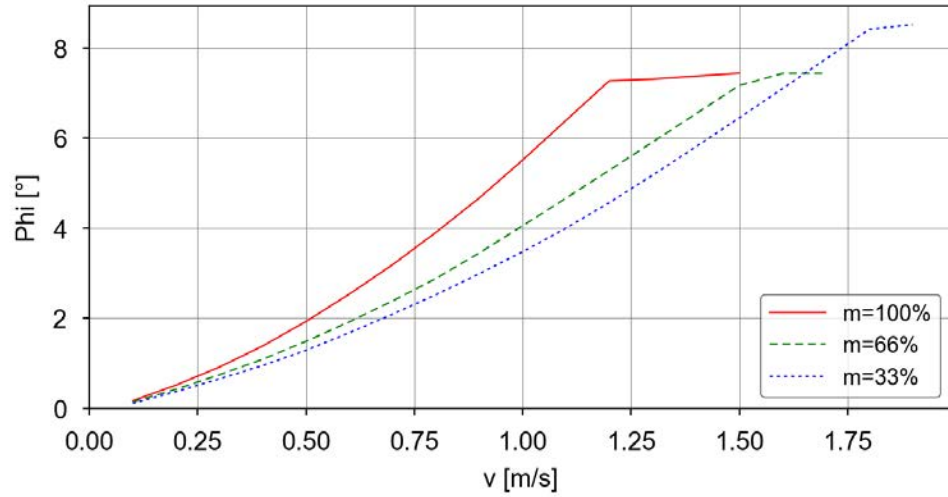
## 21 IRB 8700

21.2 IRB 8700 4.20 m 550 kg

Continued

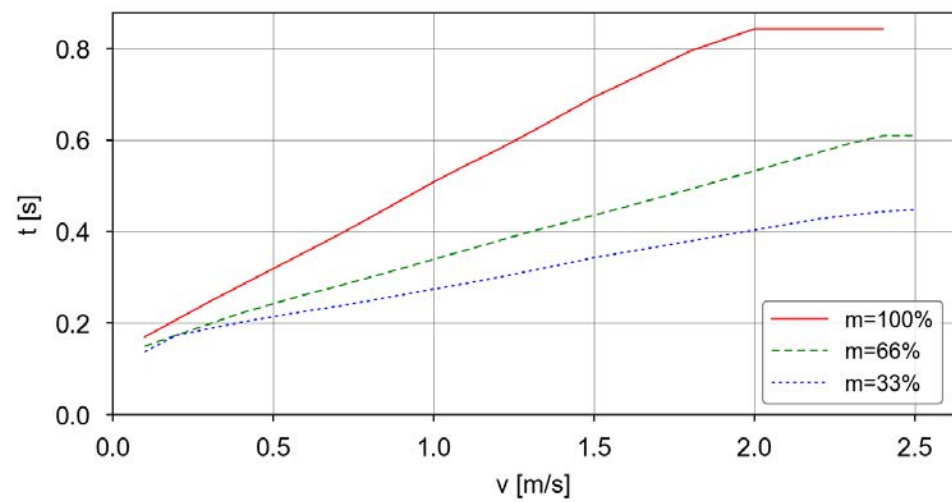
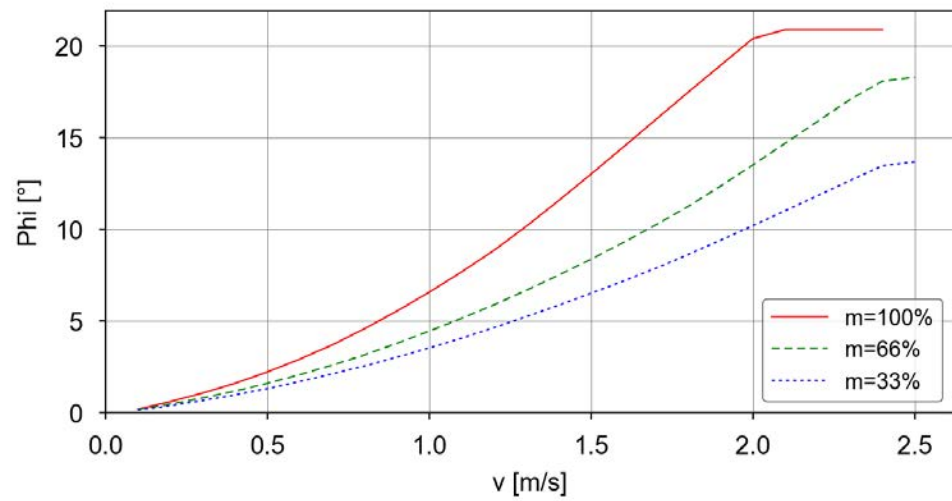
### Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



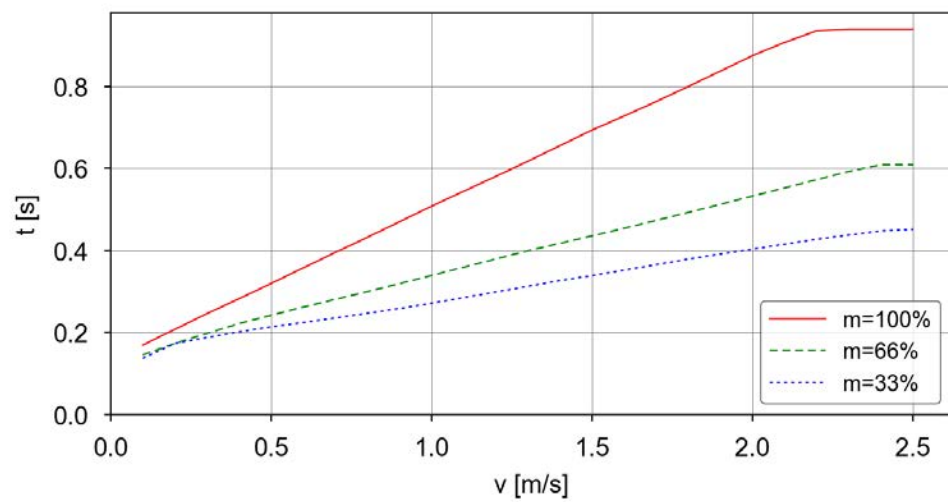
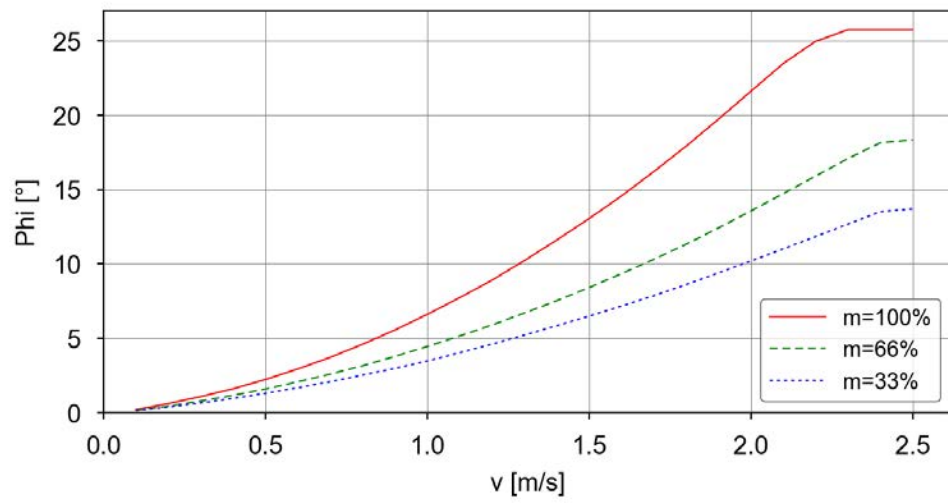
Continues on next page

## Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



## 21.3 IRB 8700LeanID 3.50 m 630 kg

### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	44.4	1.19
2	10.1	0.27
3	9.6	0.25

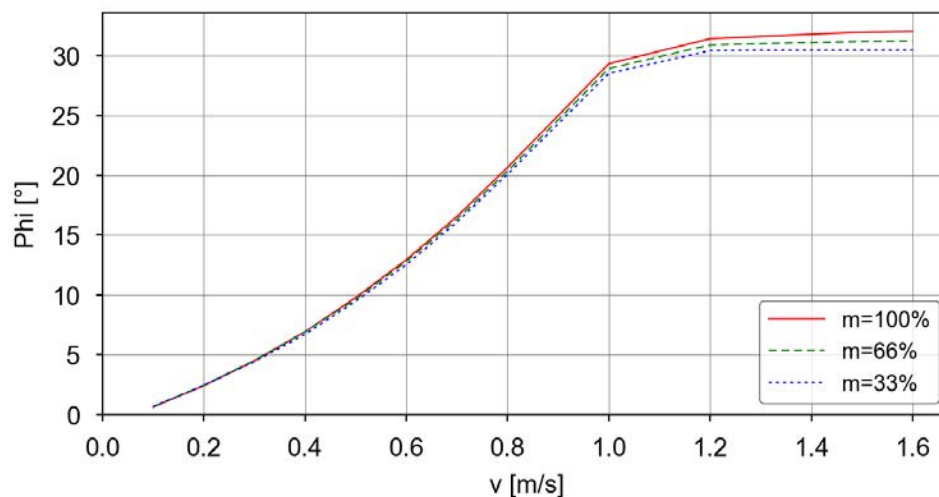
### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	1.169
1	1.169	2.338
2	2.338	max reach

### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

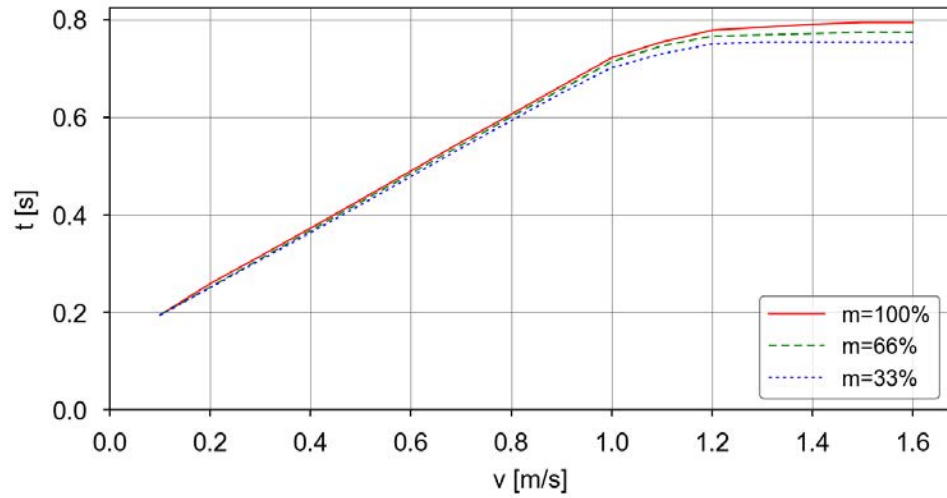


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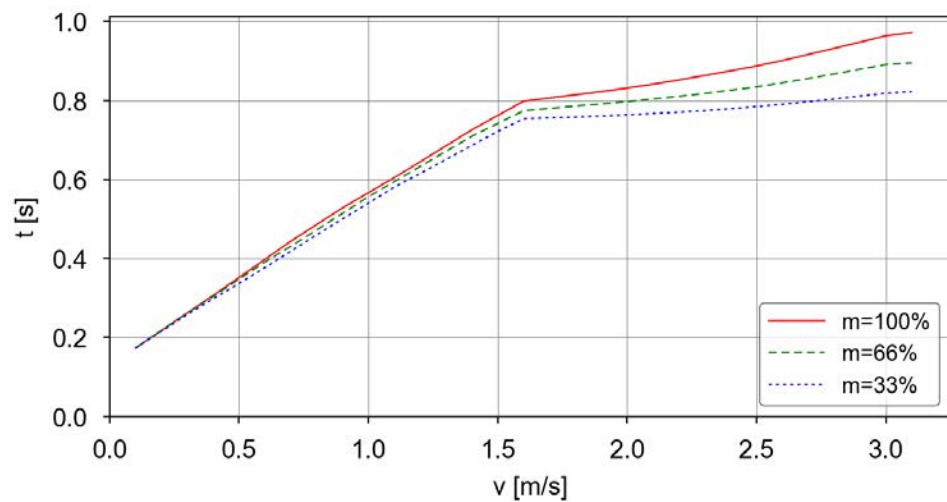
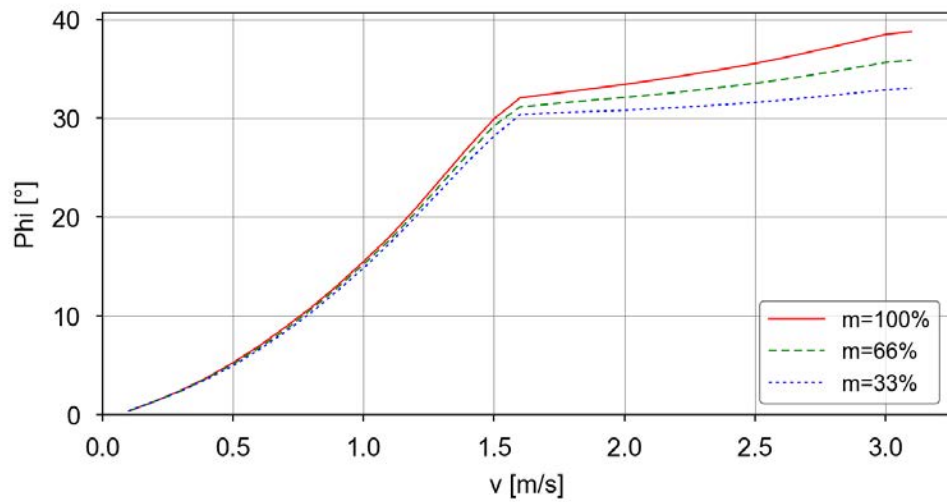
## 21 IRB 8700

21.3 IRB 8700LeanID 3.50 m 630 kg

Continued



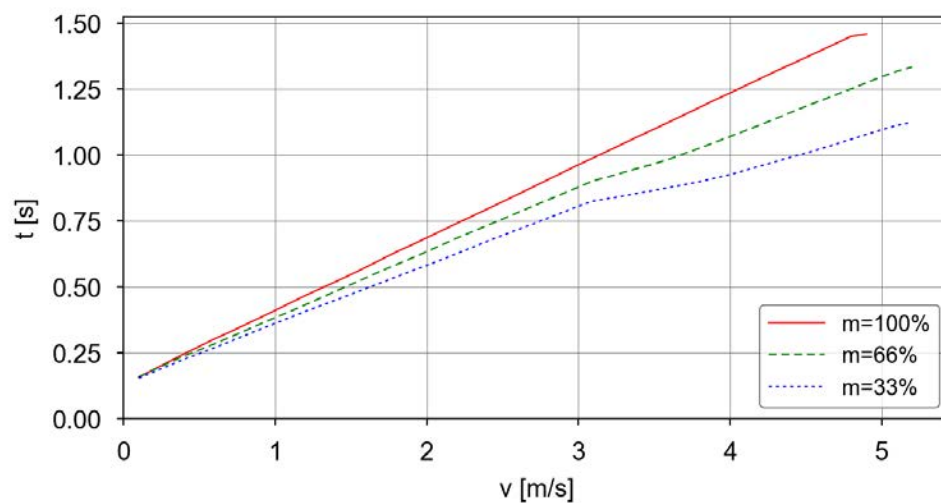
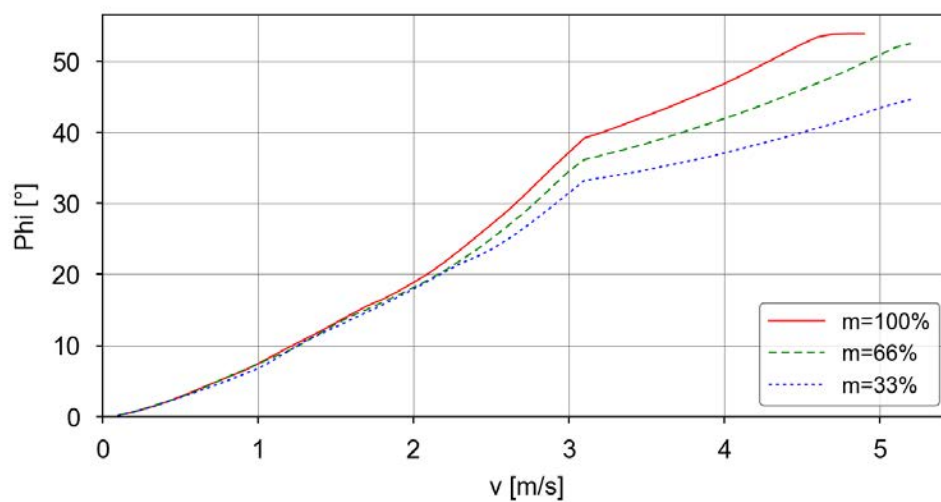
Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time



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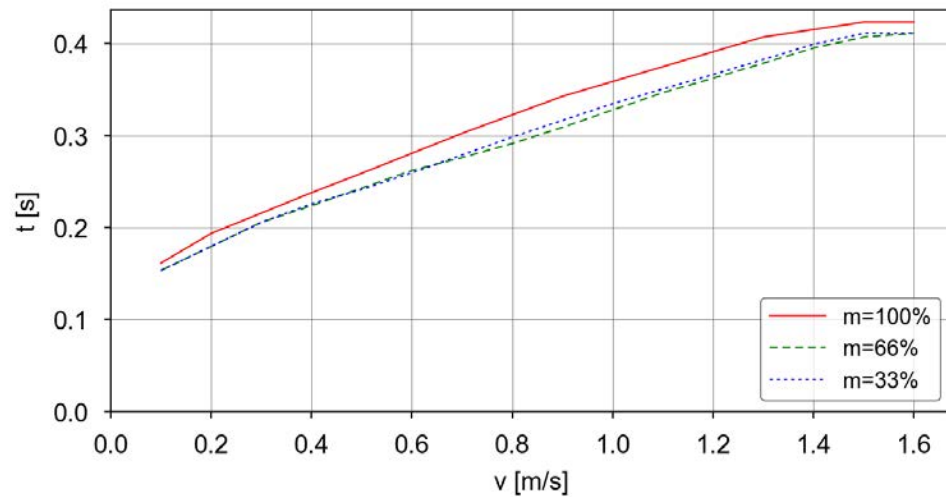
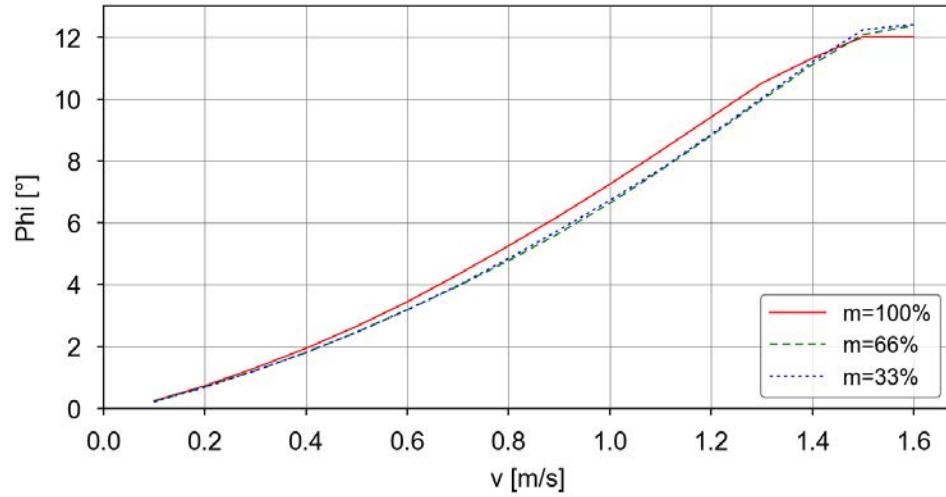
## 21 IRB 8700

21.3 IRB 8700LeanID 3.50 m 630 kg

Continued

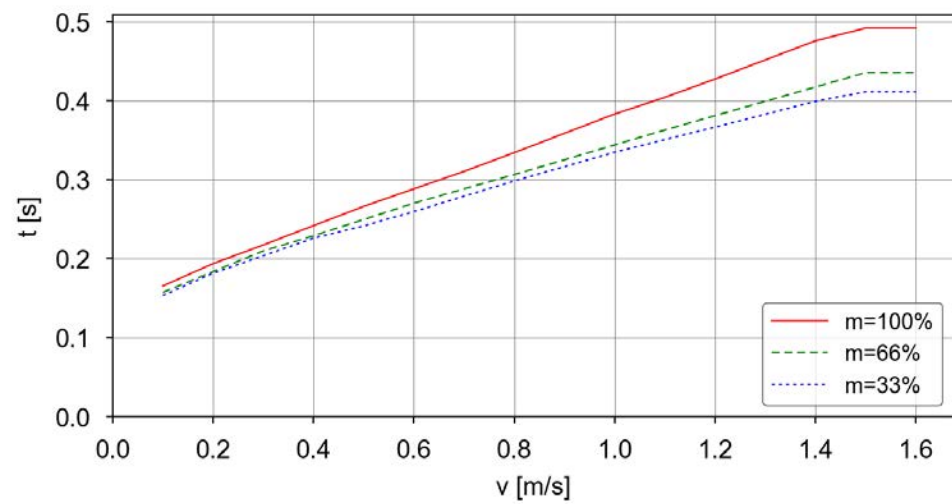
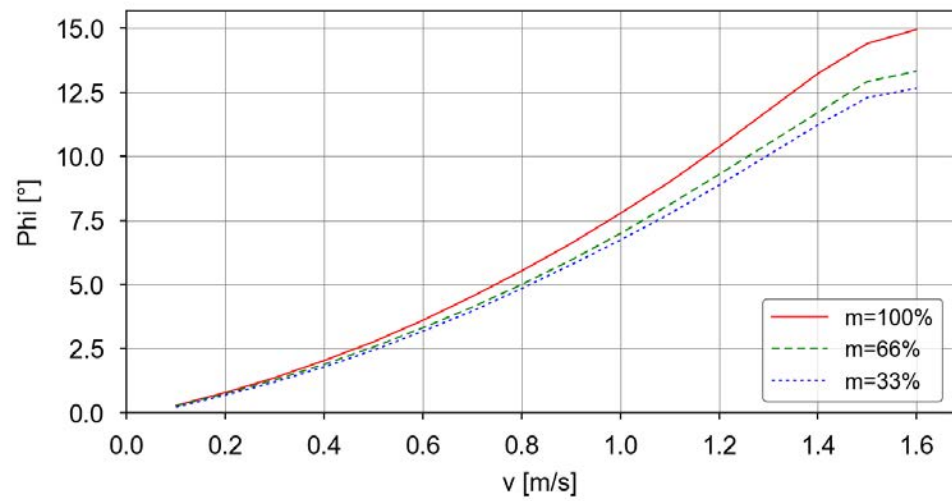
### Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



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## Extension zone 1, stopping distance and stopping time



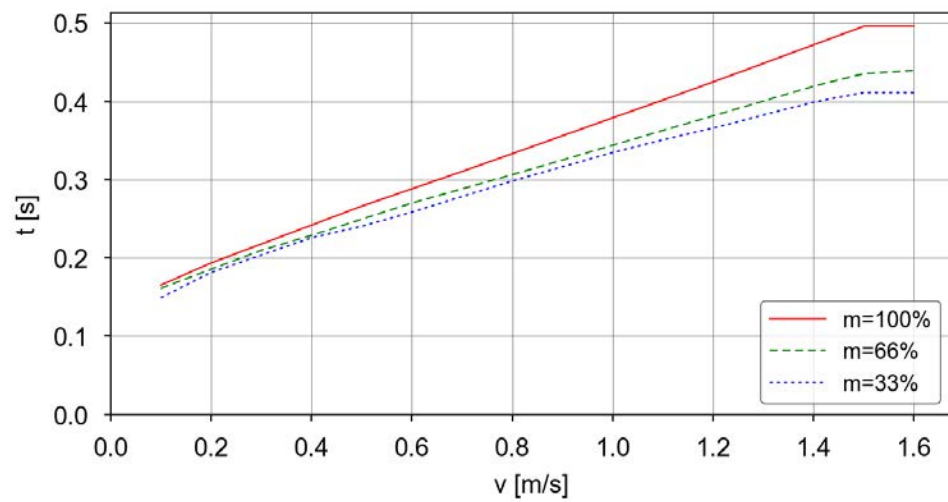
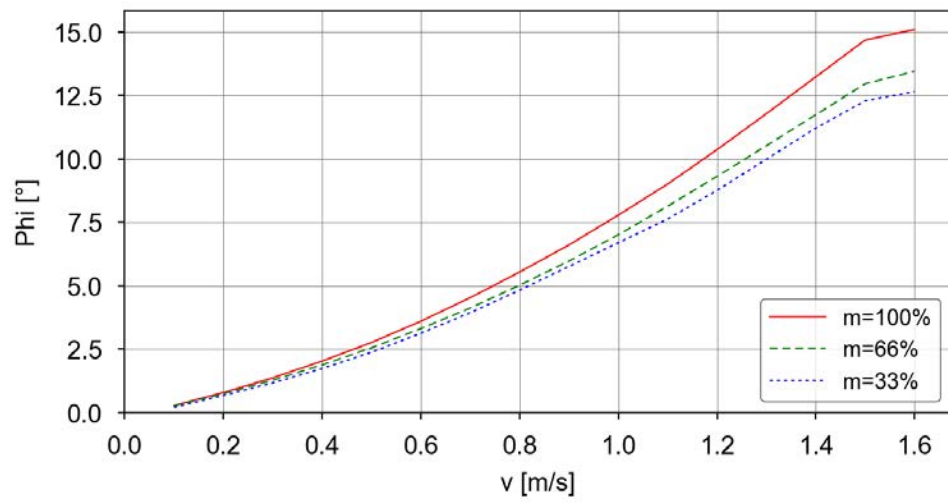
Continues on next page

## 21 IRB 8700

21.3 IRB 8700LeanID 3.50 m 630 kg

Continued

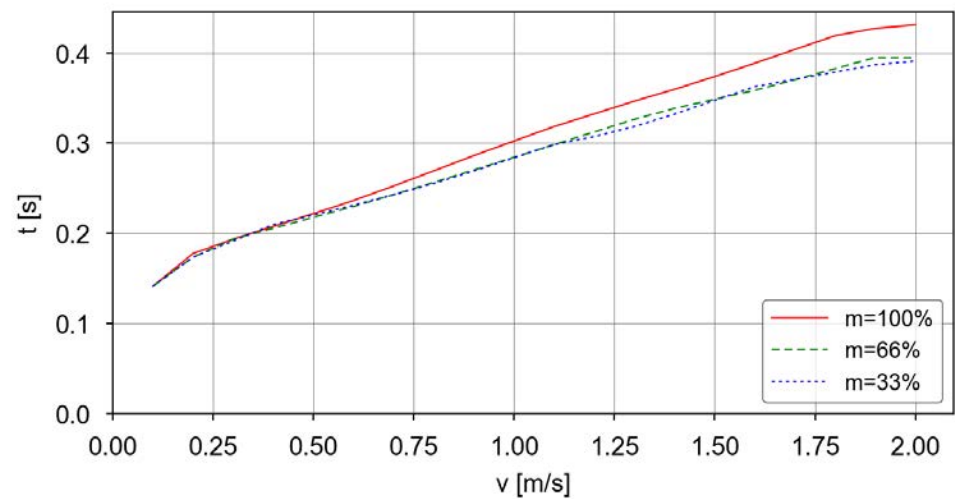
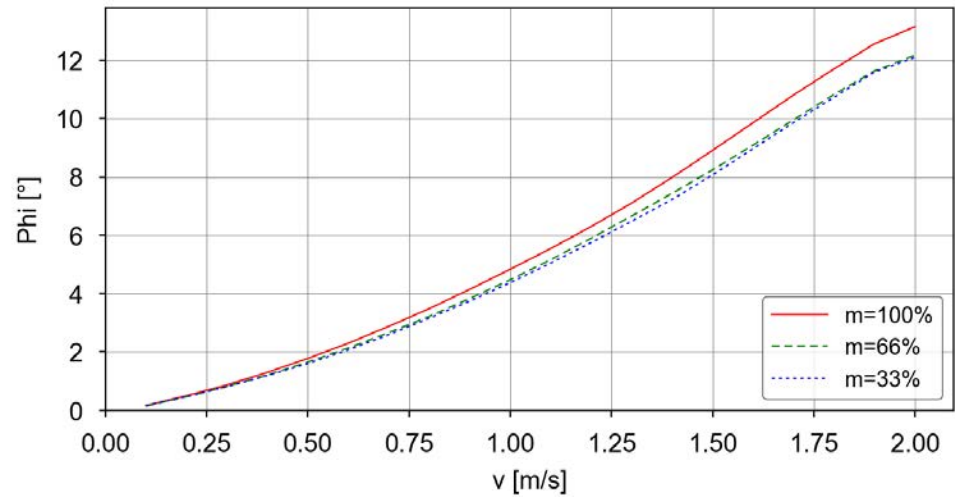
Extension zone 2, stopping distance and stopping time



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## Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



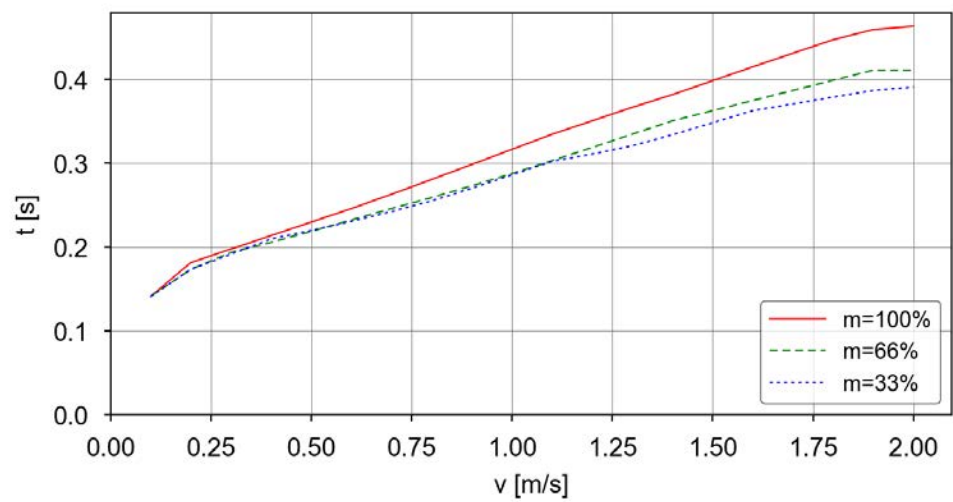
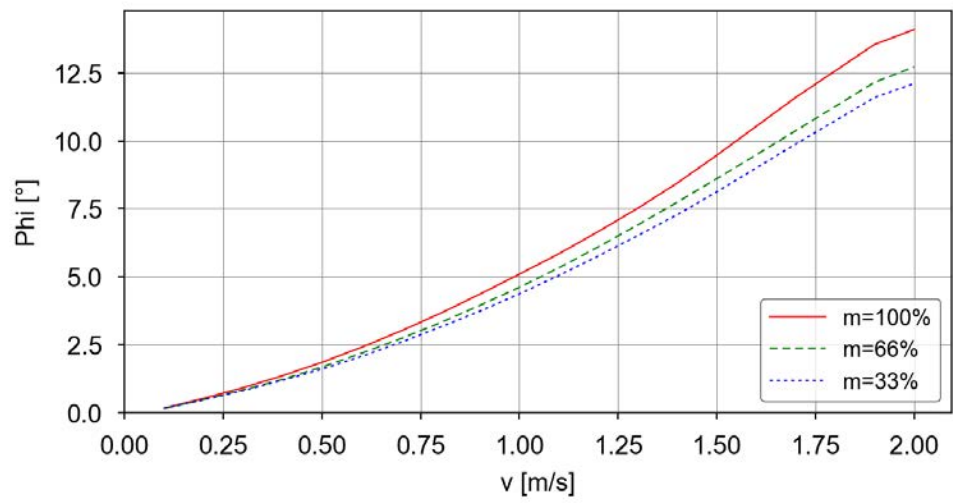
Continues on next page

## 21 IRB 8700

21.3 IRB 8700LeanID 3.50 m 630 kg

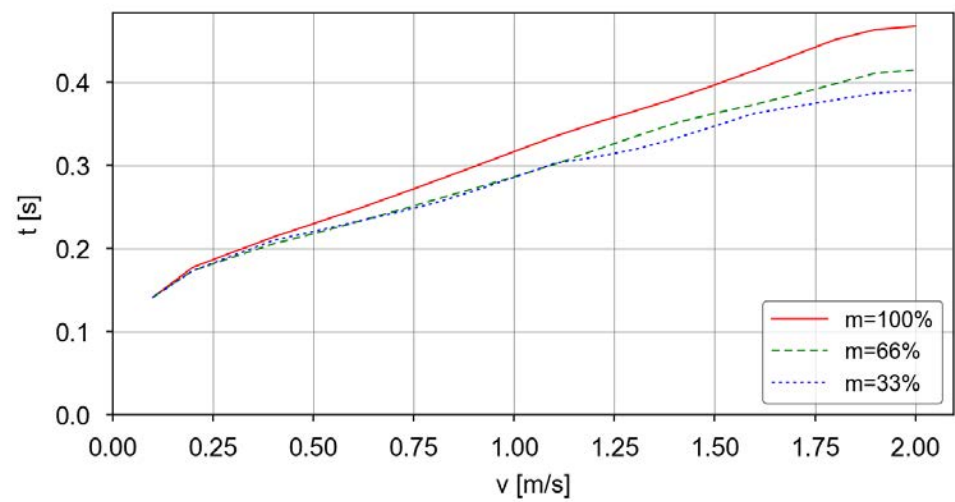
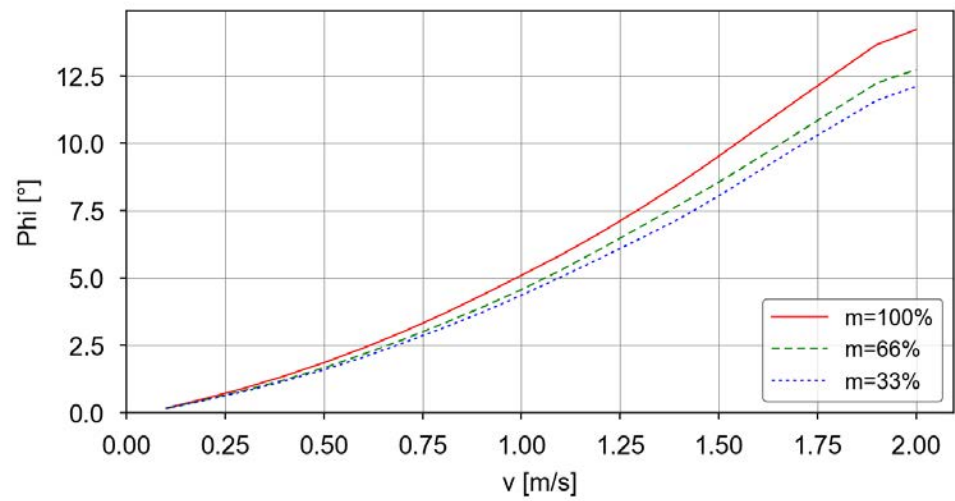
Continued

Extension zone 1, stopping distance and stopping time



Continues on next page

## Extension zone 2, stopping distance and stopping time



21.4 IRB 8700LeanID 4.20 m 475 kg

Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	44.4	1.26
2	9.5	0.25
3	12.0	0.34

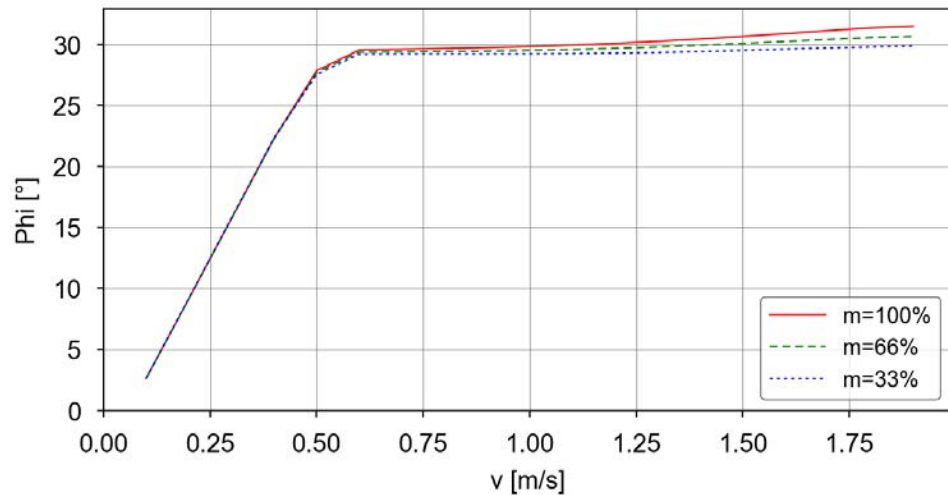
Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	1.399
1	1.399	2.798
2	2.798	max reach

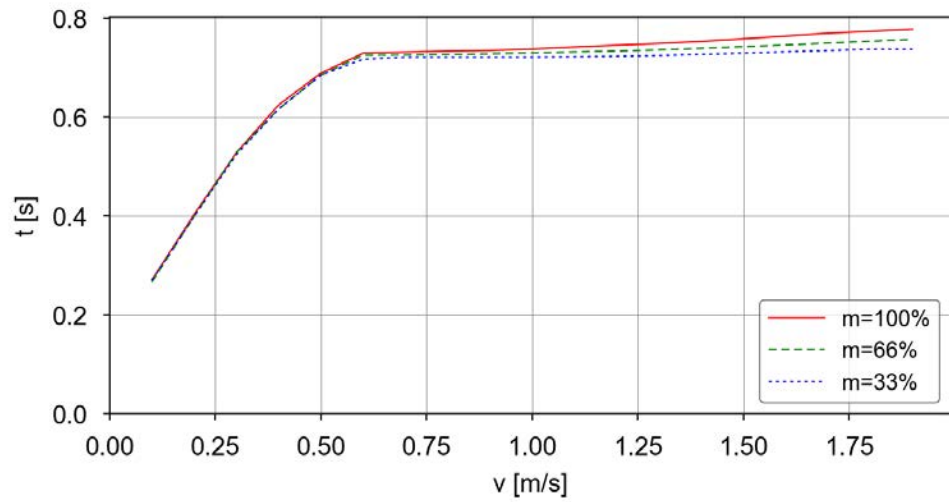
Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

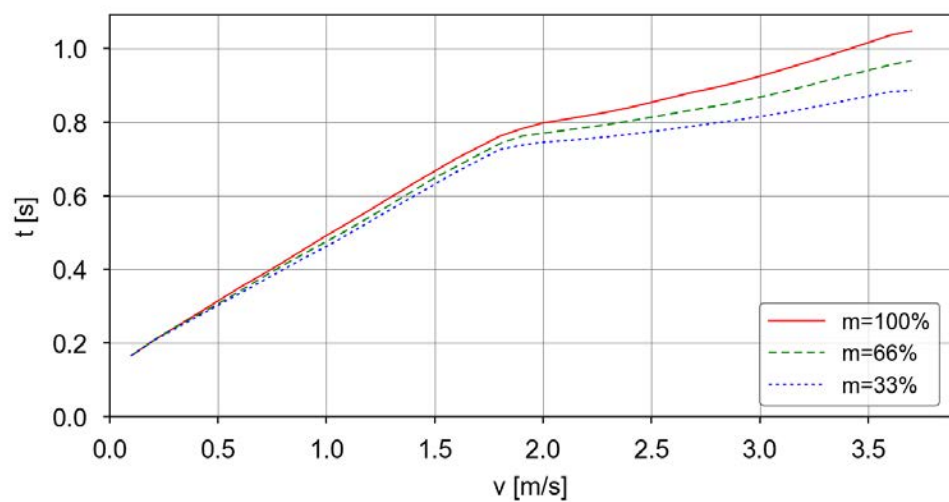
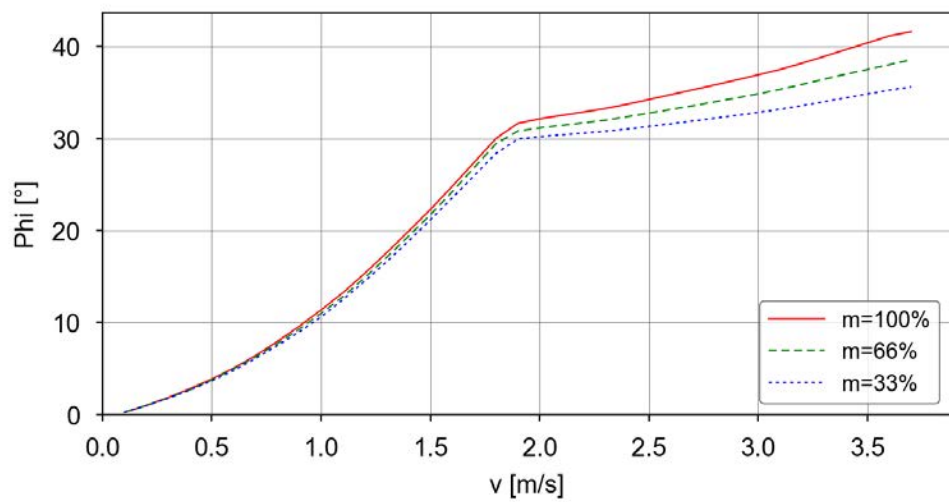


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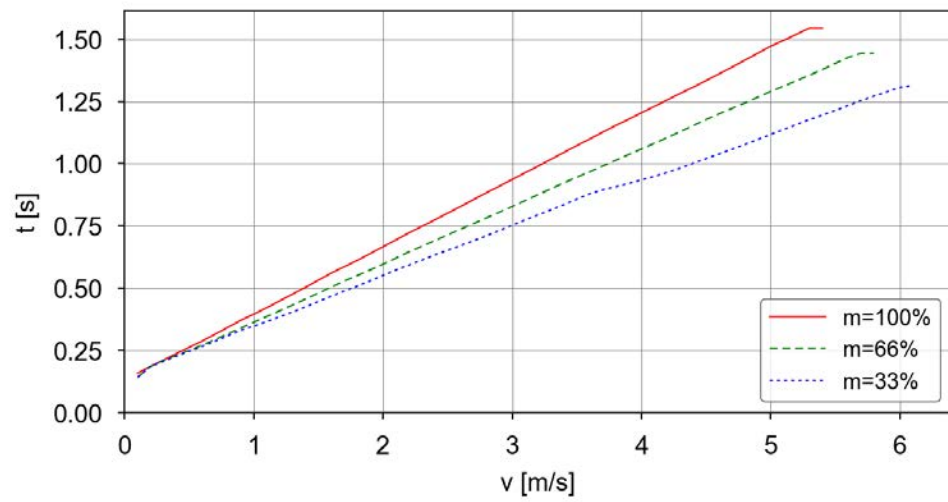
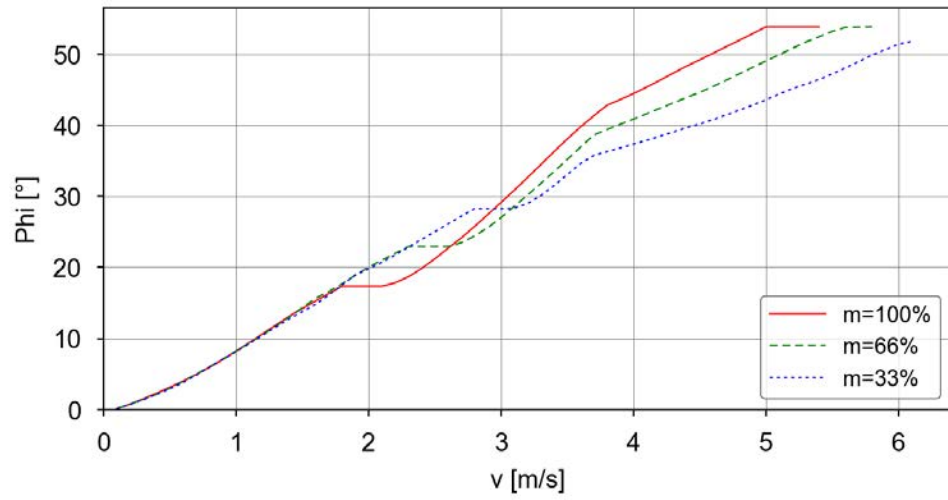


Extension zone 1, stopping distance and stopping time



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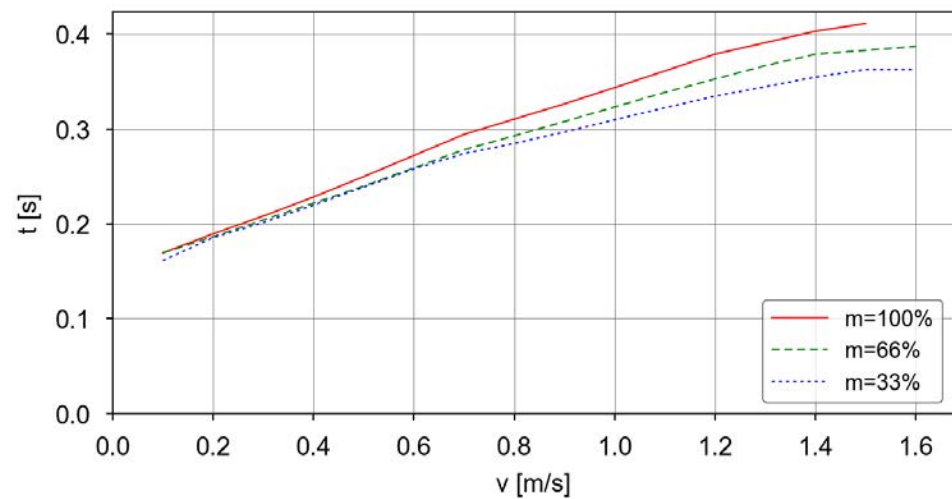
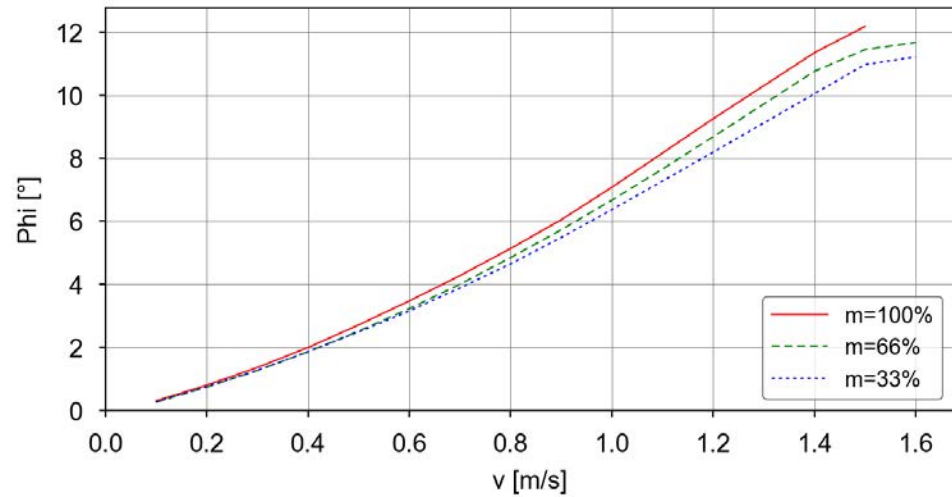
Extension zone 2, stopping distance and stopping time



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## Category 1, Axis 2

## Extension zone 0, stopping distance and stopping time



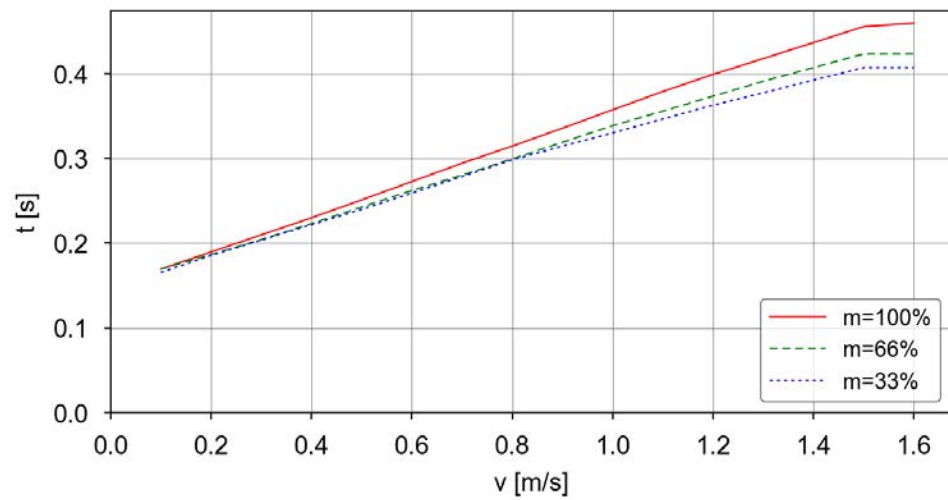
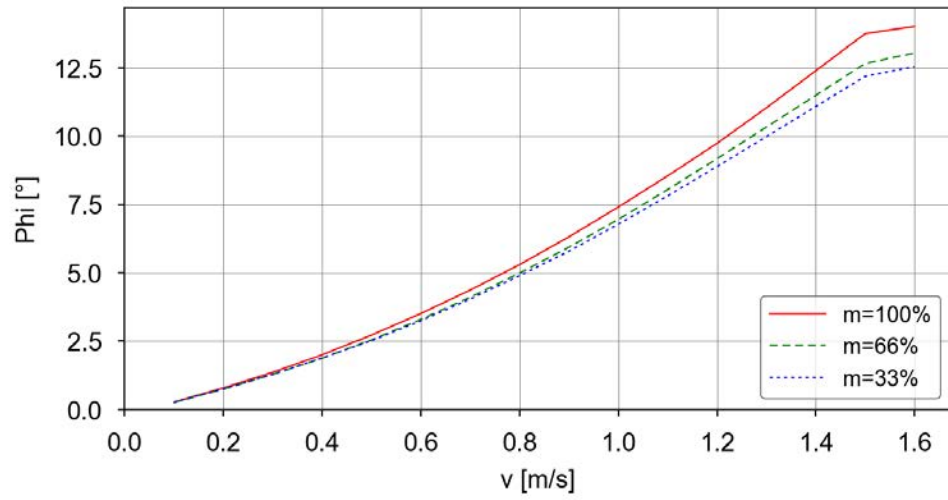
Continues on next page

## 21 IRB 8700

21.4 IRB 8700LeanID 4.20 m 475 kg

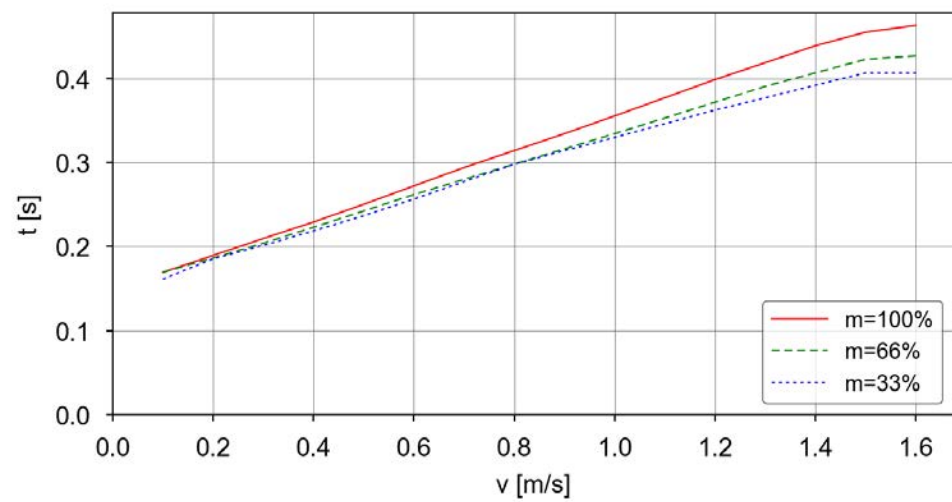
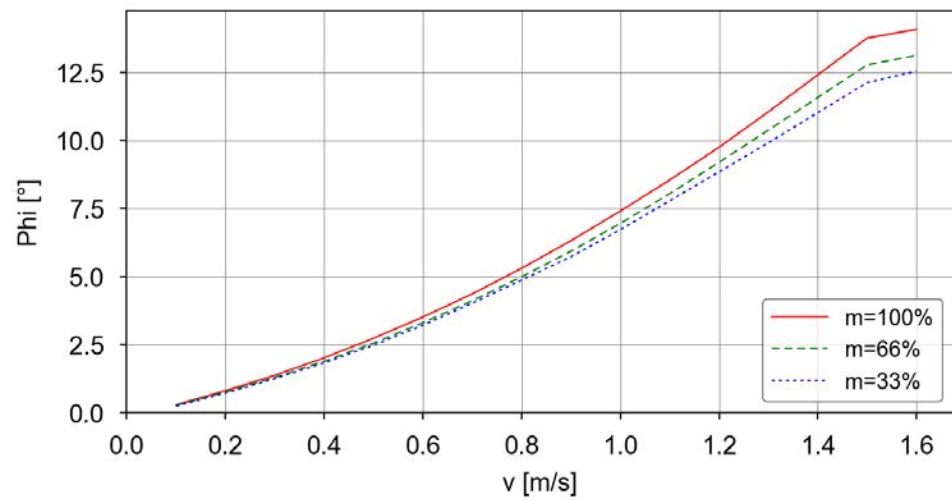
Continued

Extension zone 1, stopping distance and stopping time



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## Extension zone 2, stopping distance and stopping time



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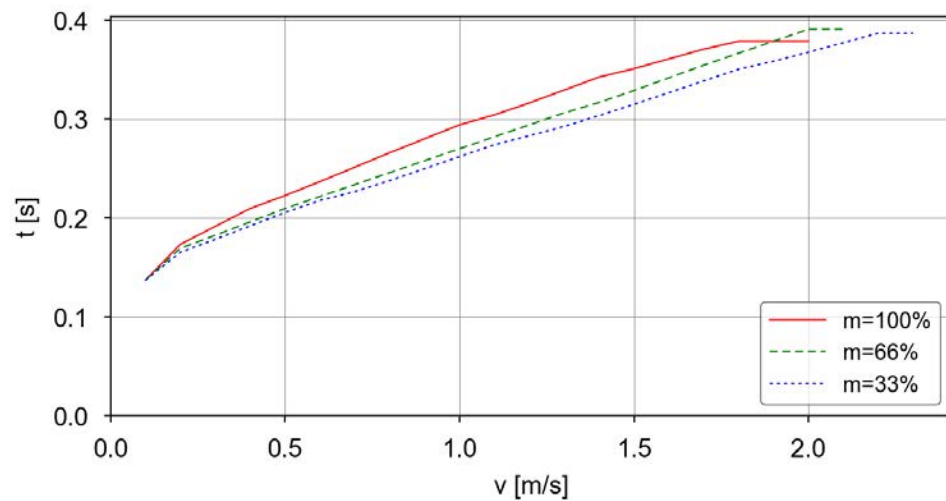
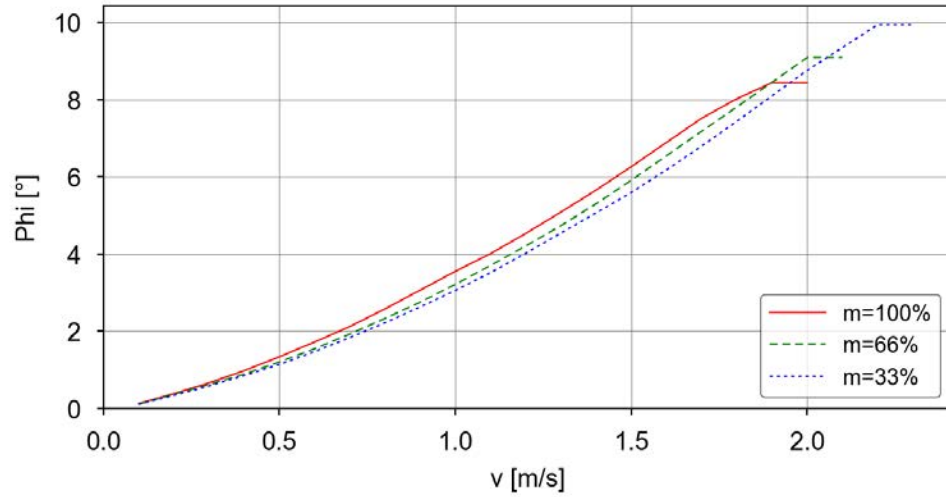
## 21 IRB 8700

21.4 IRB 8700LeanID 4.20 m 475 kg

Continued

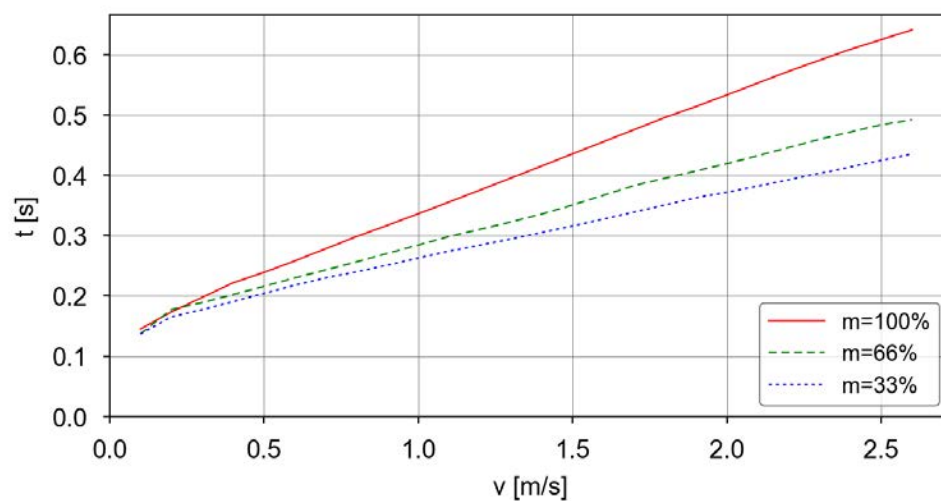
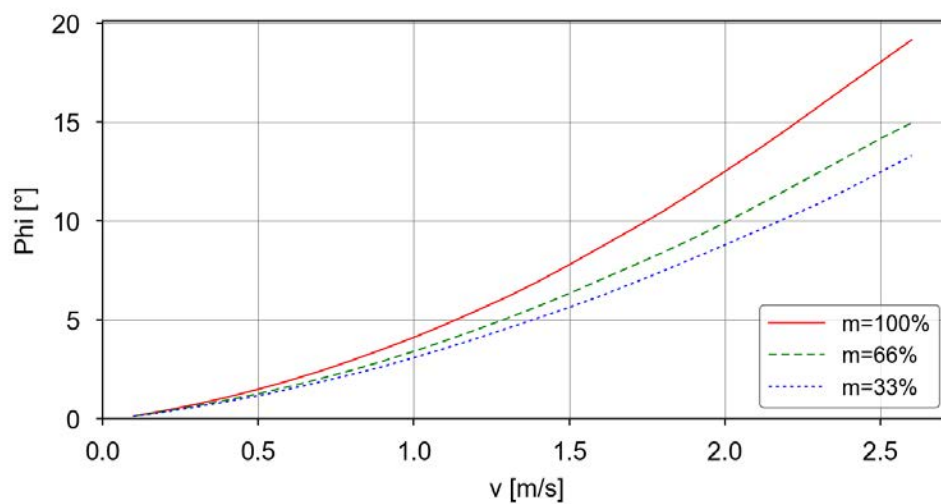
### Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



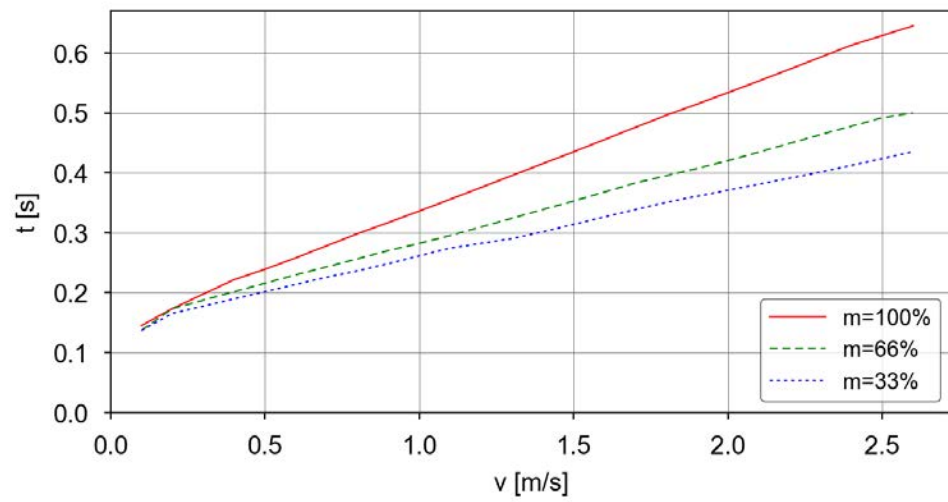
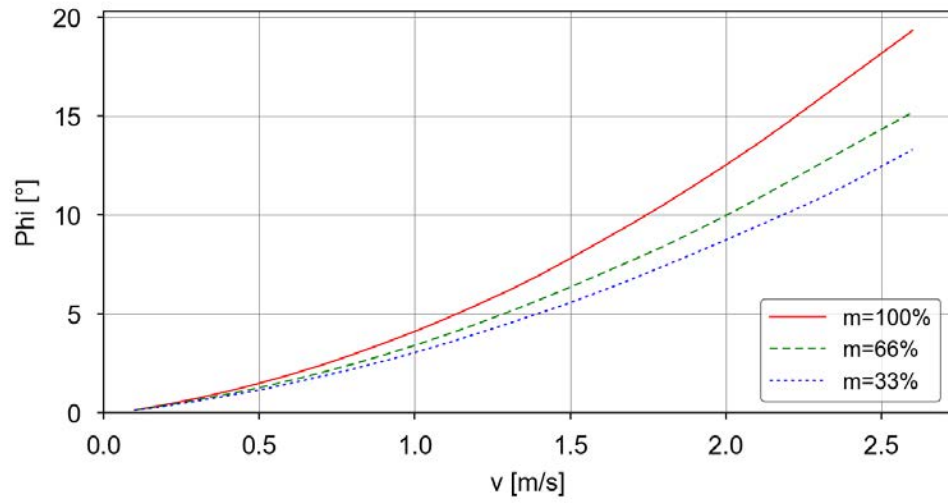
Continues on next page

Extension zone 1, stopping distance and stopping time



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Extension zone 2, stopping distance and stopping time





## 22 IRB 460

### 22.1 IRB 460 2.4 m 110 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	41.5	0.49
2	14.6	0.17
3	13.6	0.15

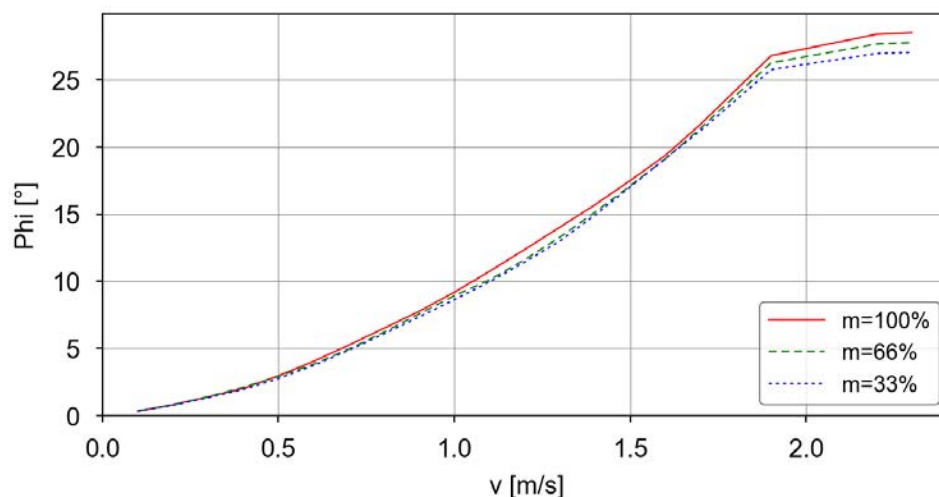
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	0.889
1	0.889	1.778
2	1.778	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

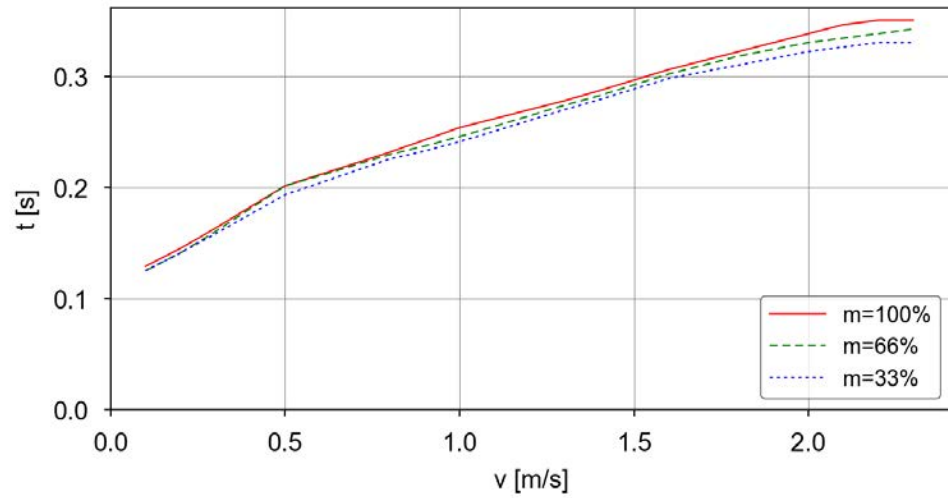


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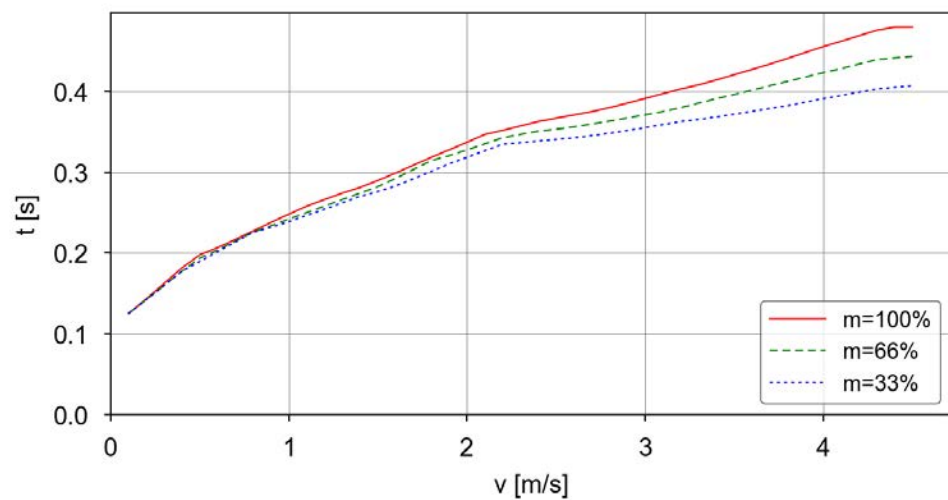
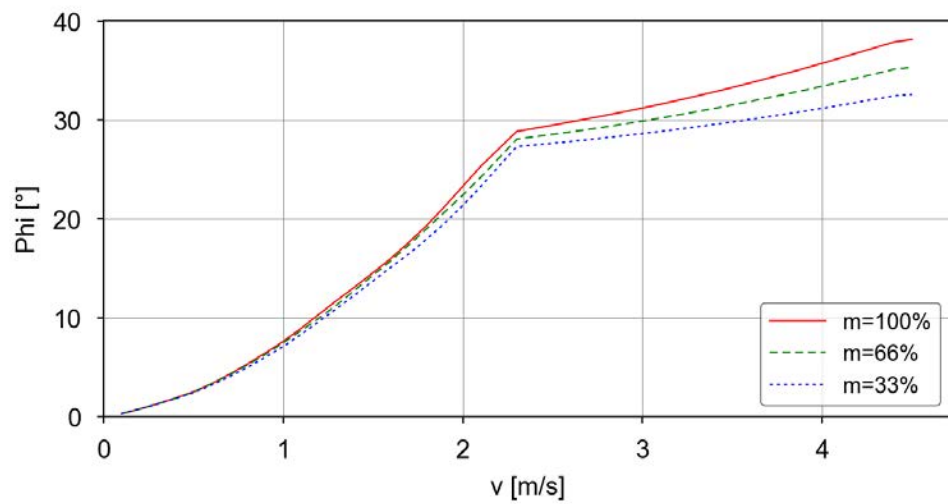
## 22 IRB 460

### 22.1 IRB 460 2.4 m 110 kg

Continued

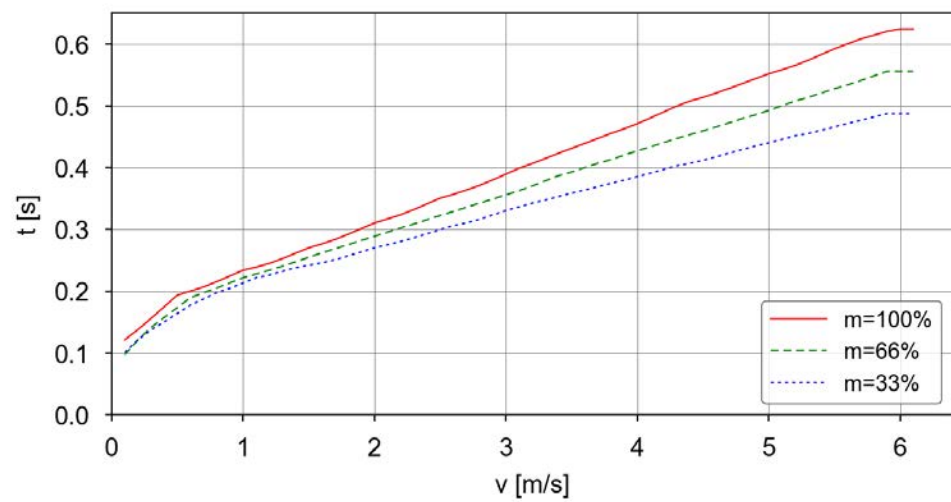
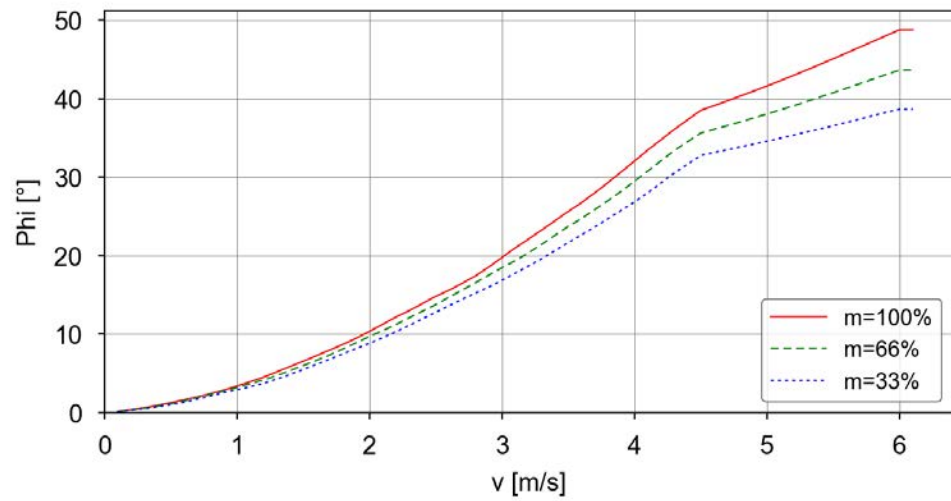


### Extension zone 1, stopping distance and stopping time



Continues on next page

## Extension zone 2, stopping distance and stopping time



Continues on next page

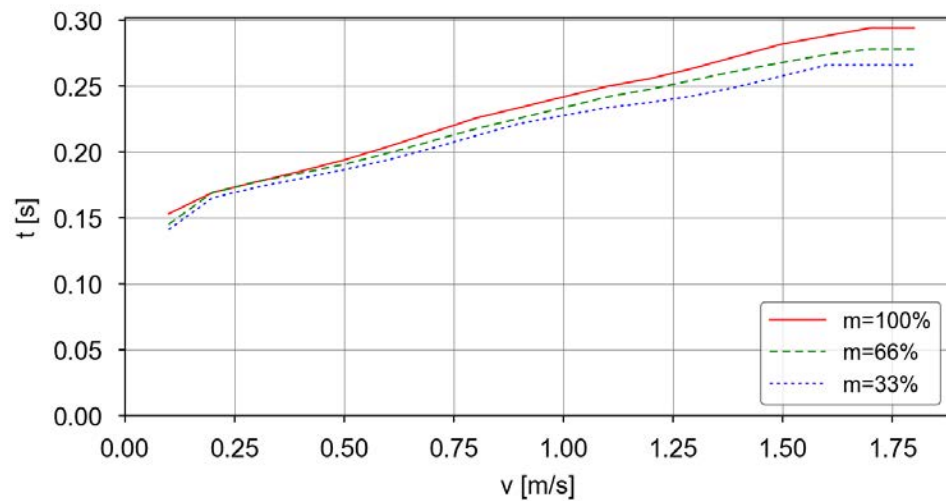
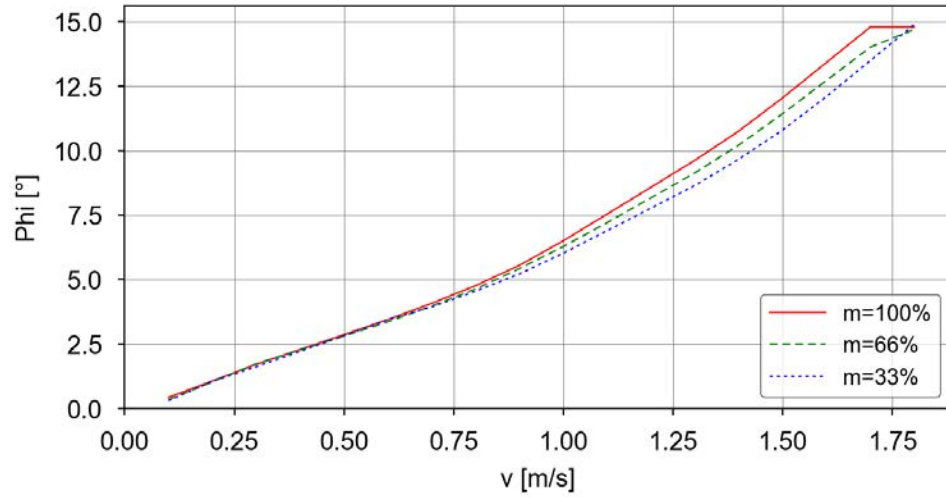
## 22 IRB 460

22.1 IRB 460 2.4 m 110 kg

Continued

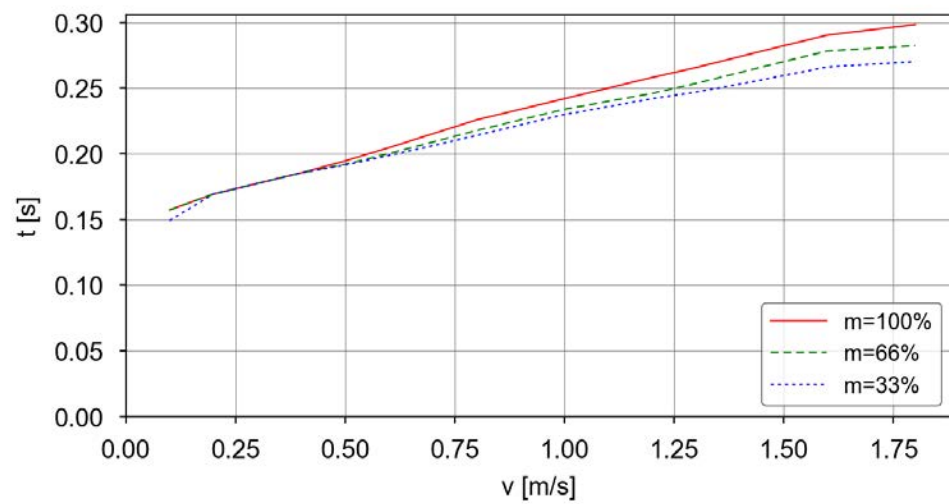
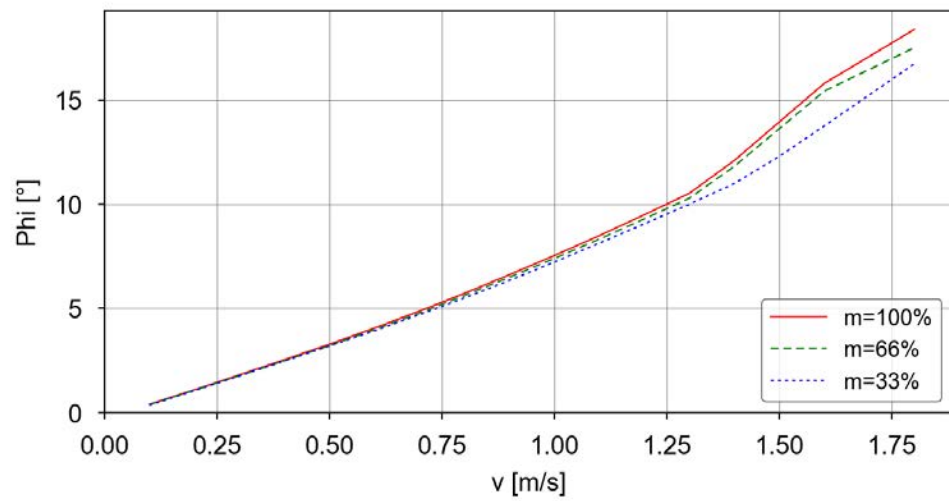
### Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



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## Extension zone 1, stopping distance and stopping time



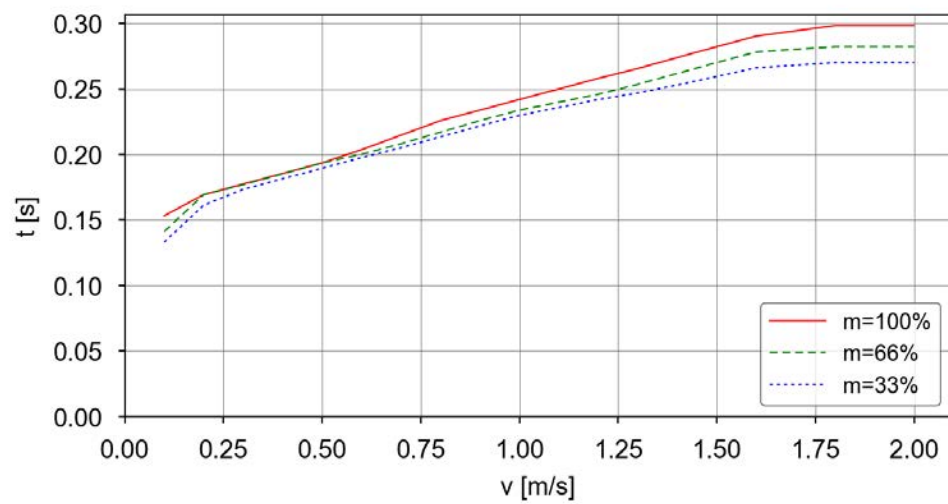
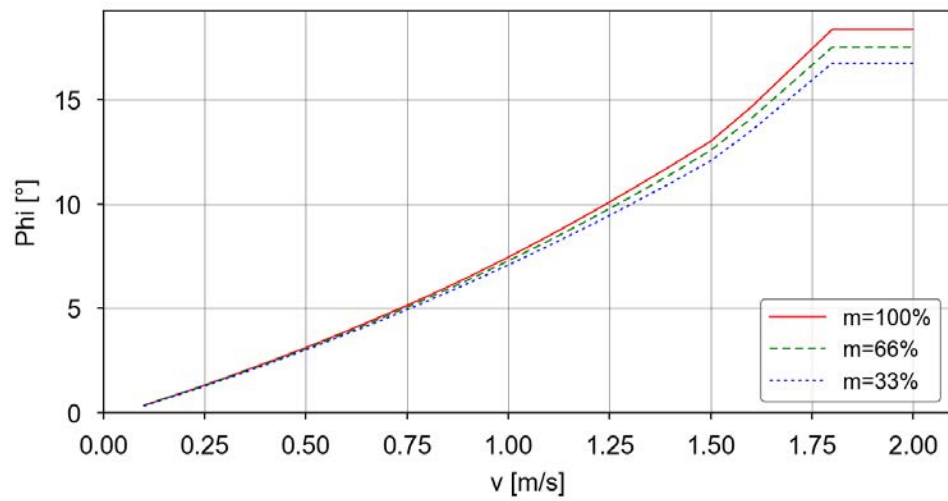
Continues on next page

## 22 IRB 460

### 22.1 IRB 460 2.4 m 110 kg

Continued

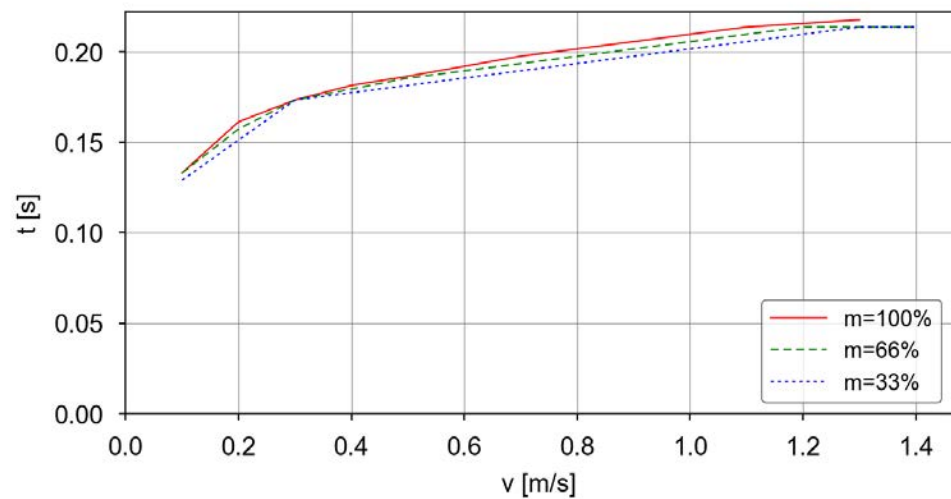
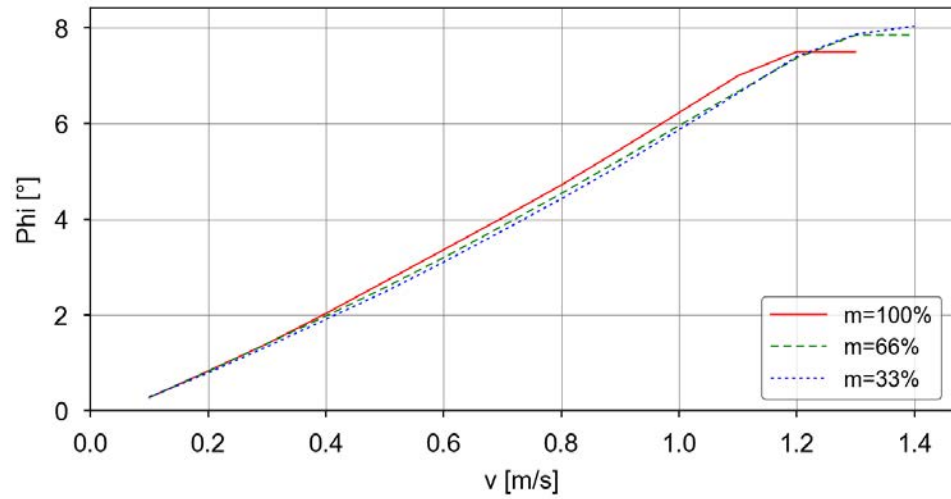
Extension zone 2, stopping distance and stopping time



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## Category 1, Axis 3

## Extension zone 0, stopping distance and stopping time



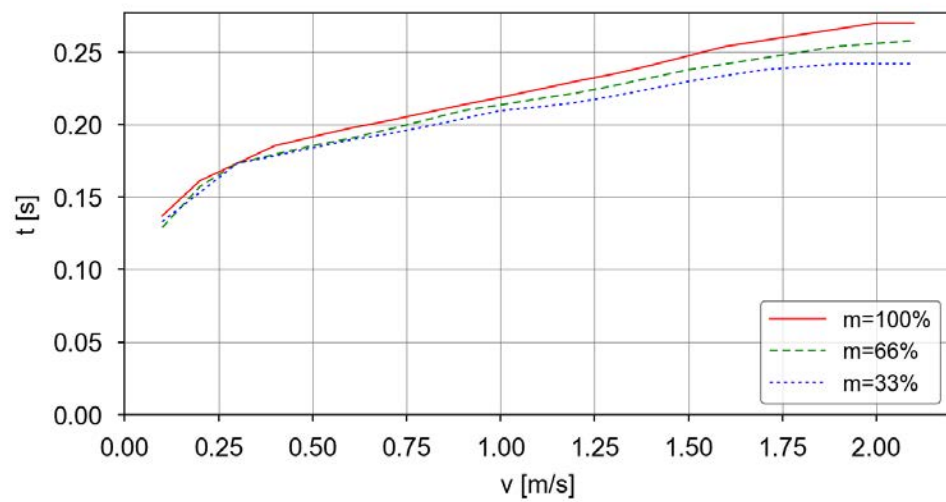
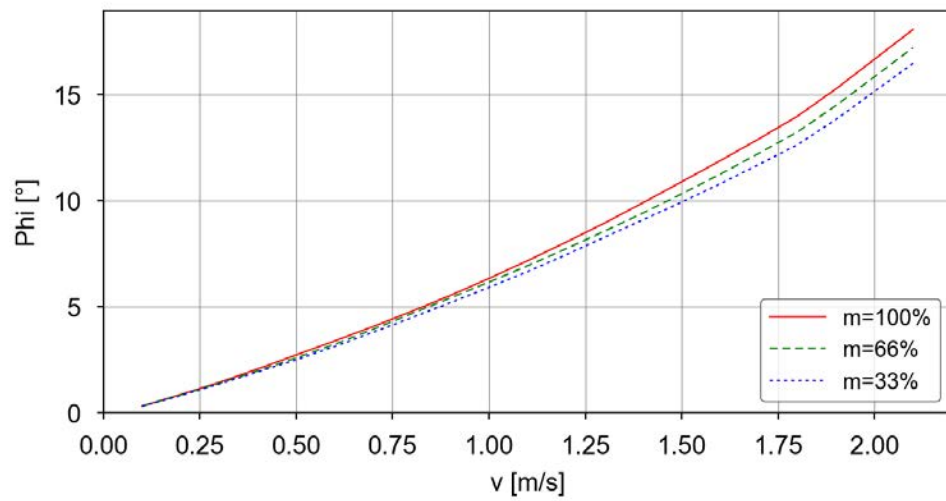
Continues on next page

## 22 IRB 460

### 22.1 IRB 460 2.4 m 110 kg

Continued

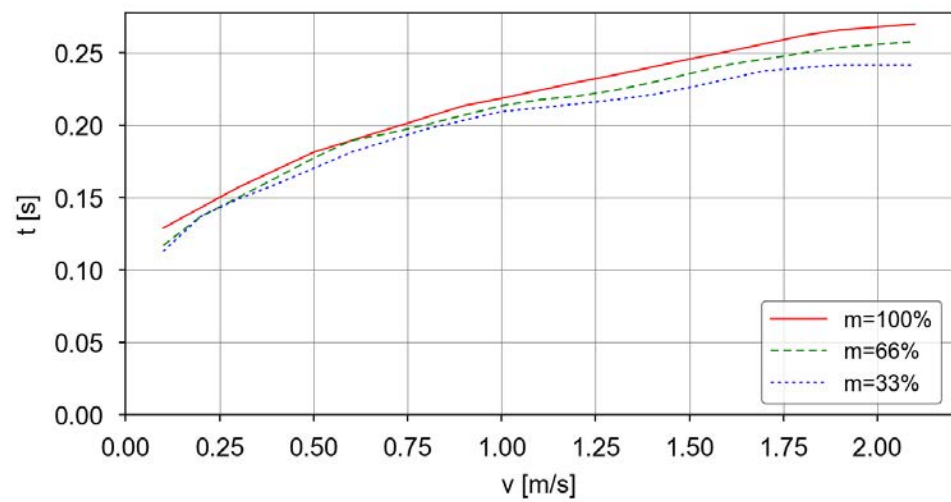
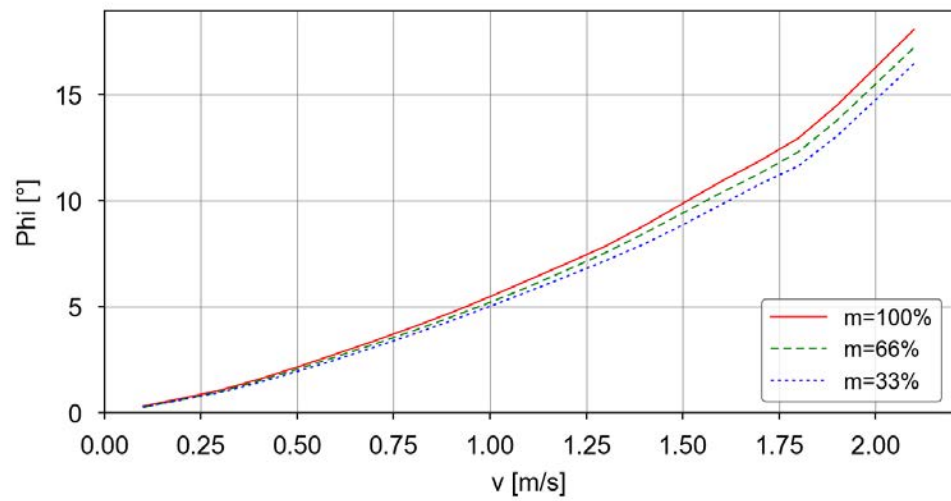
#### Extension zone 1, stopping distance and stopping time



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## Extension zone 2, stopping distance and stopping time



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## 23 IRB 660

### 23.1 IRB 660 3.15 m 180 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	64.4	0.9
2	32.6	0.39
3	27.0	0.29

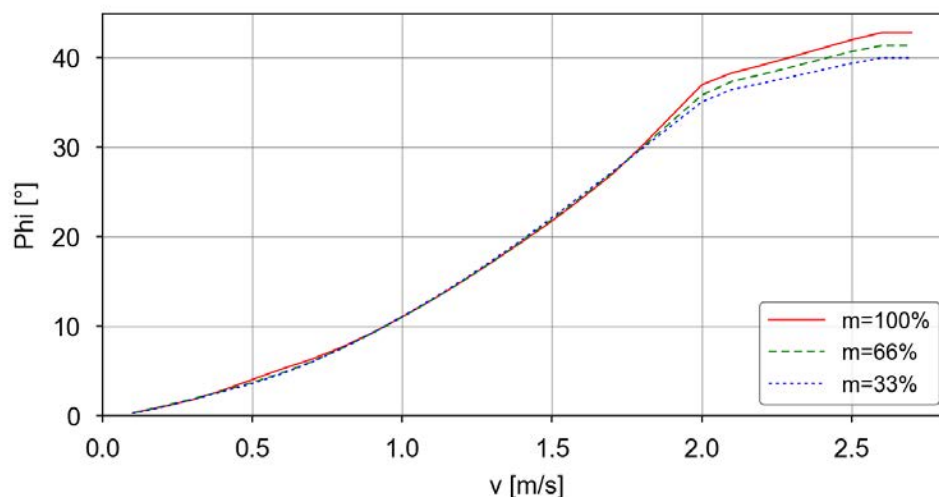
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	1.148
1	1.148	2.297
2	2.297	max reach

#### Category 1, Axis 1

Extension zone 0, stopping distance and stopping time

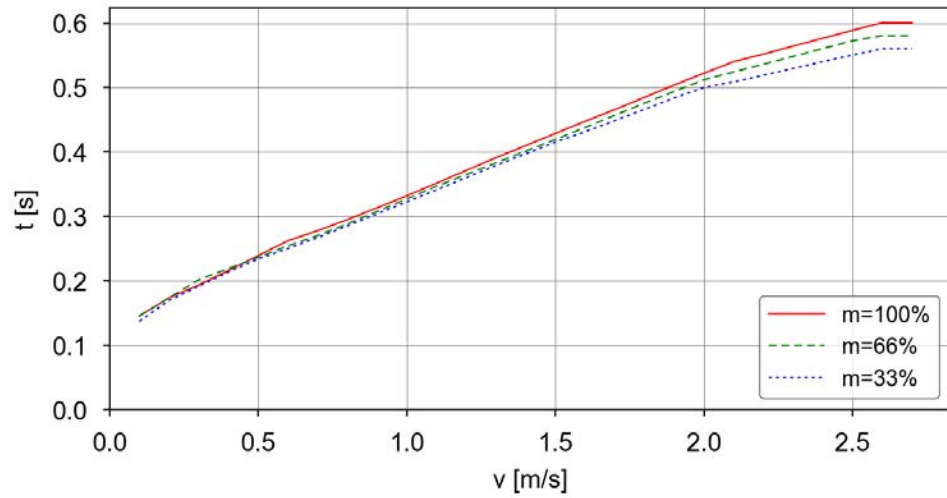


Continues on next page

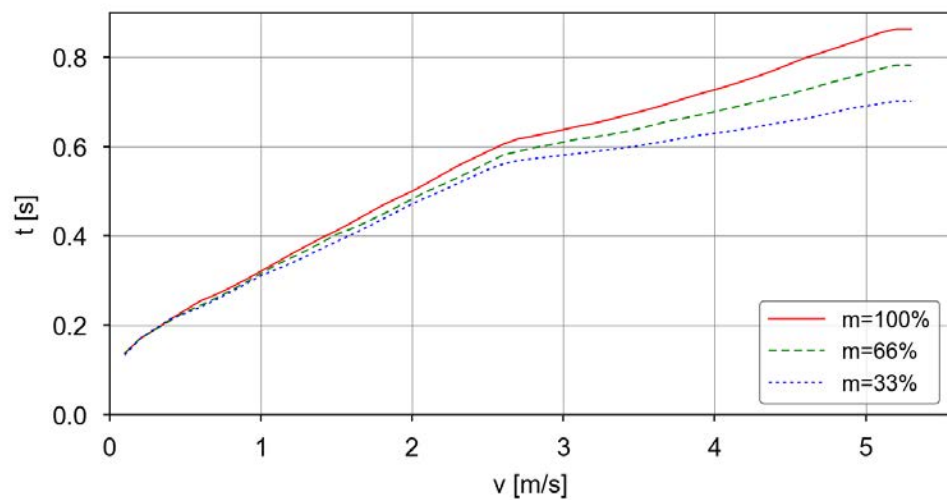
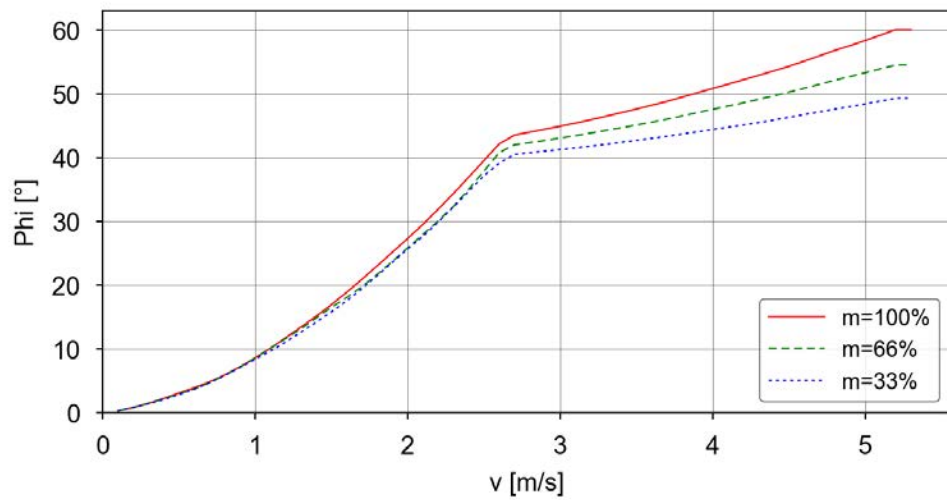
## 23 IRB 660

23.1 IRB 660 3.15 m 180 kg

Continued

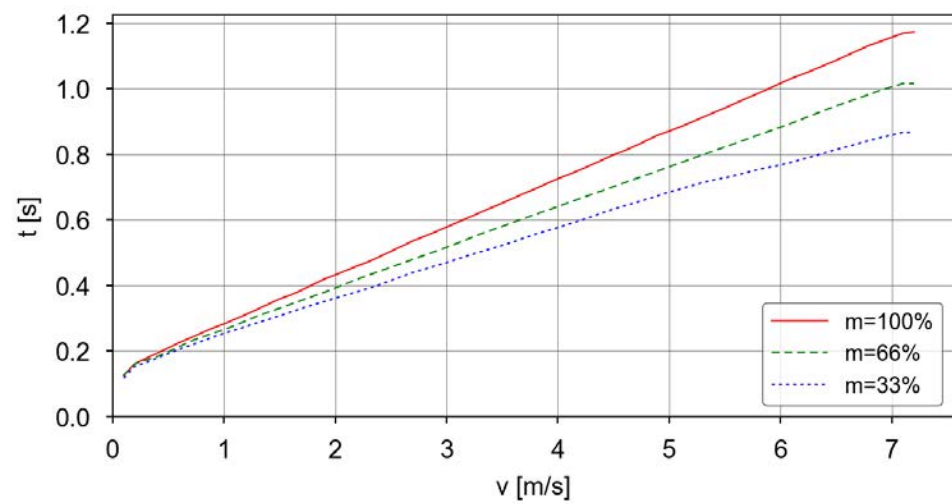
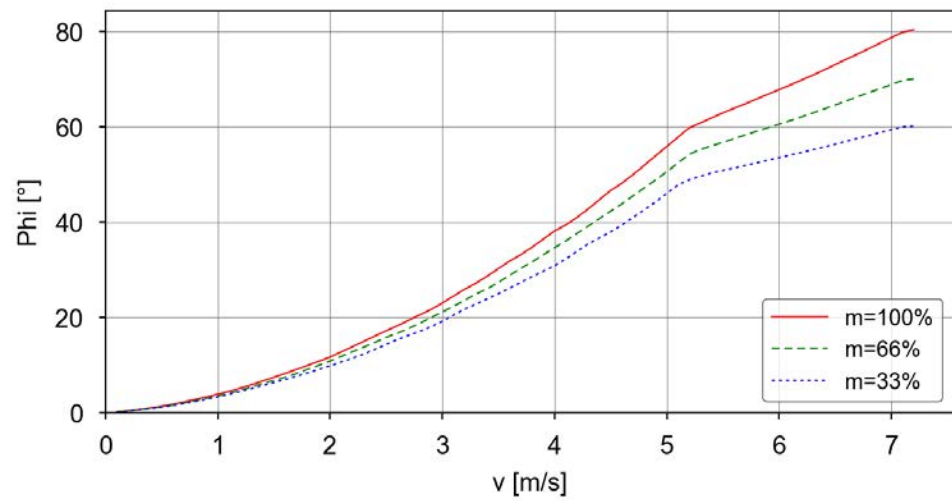


Extension zone 1, stopping distance and stopping time



Continues on next page

## Extension zone 2, stopping distance and stopping time



Continues on next page

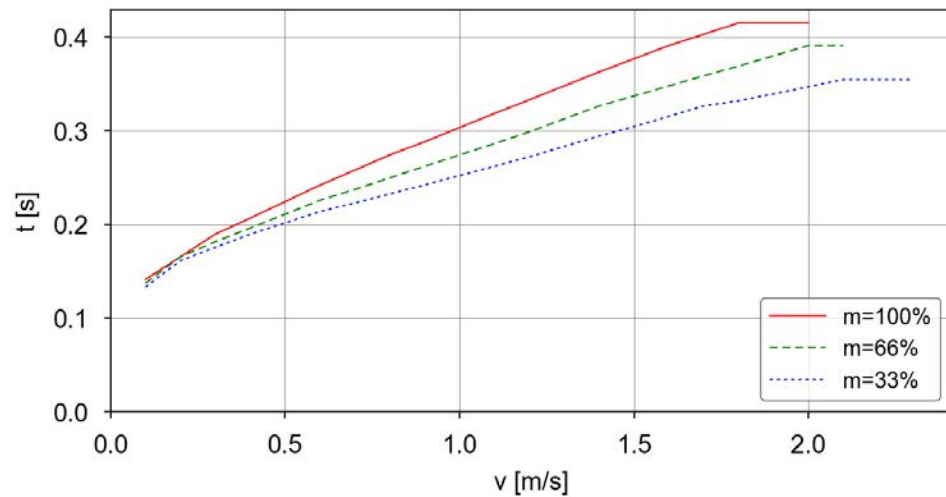
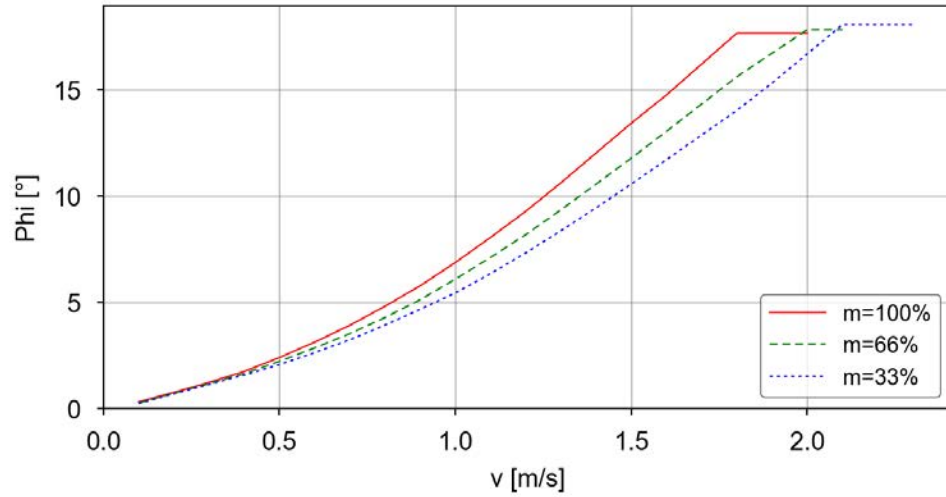
## 23 IRB 660

23.1 IRB 660 3.15 m 180 kg

Continued

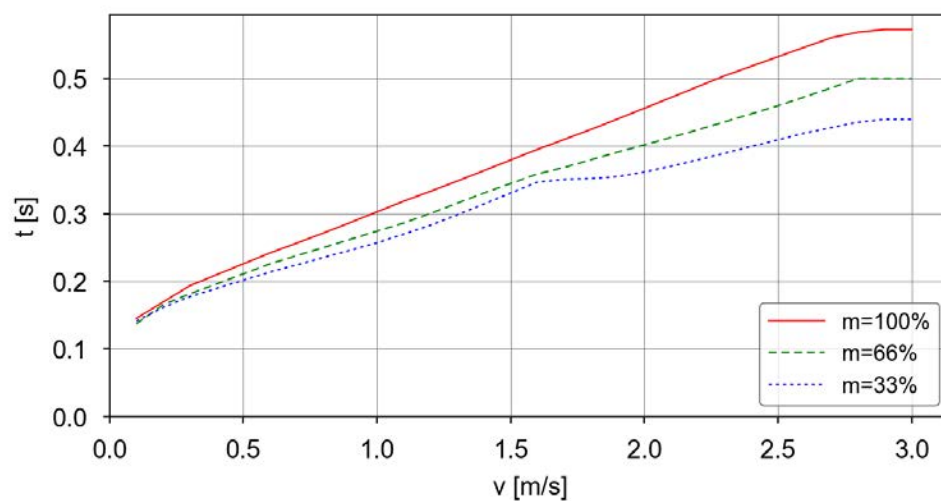
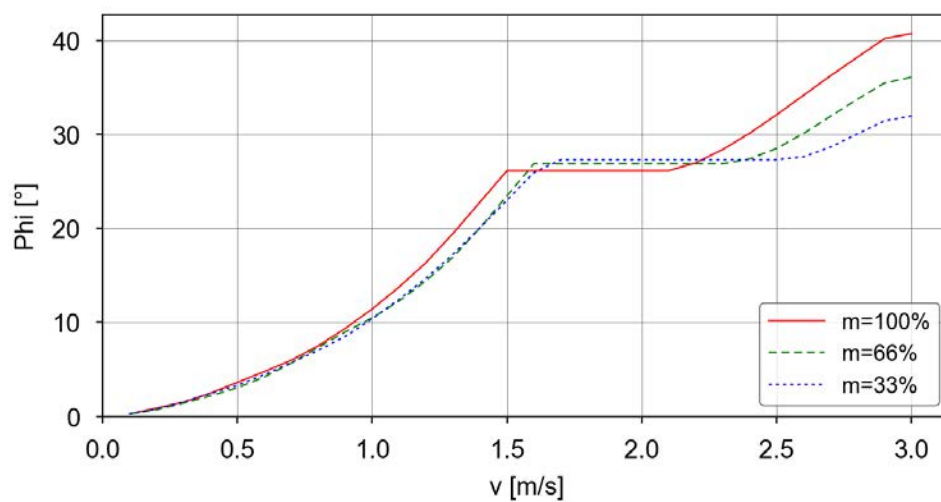
### Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



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Extension zone 1, stopping distance and stopping time



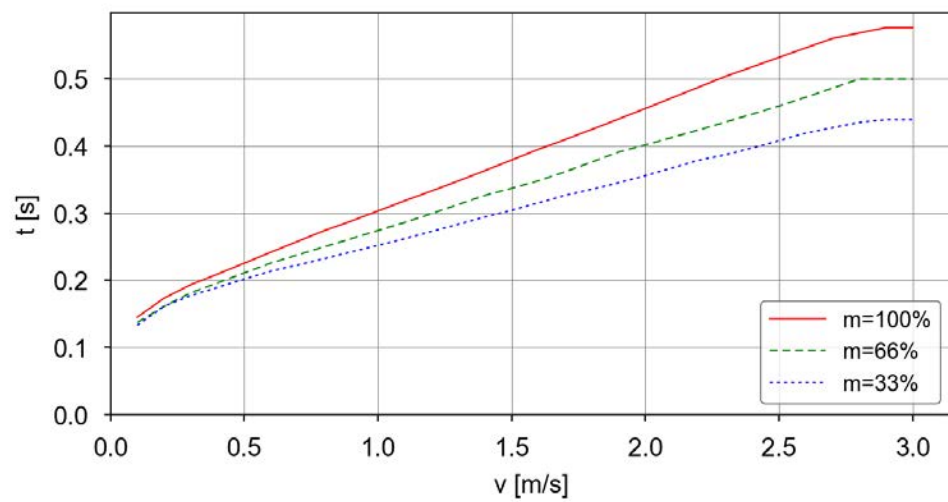
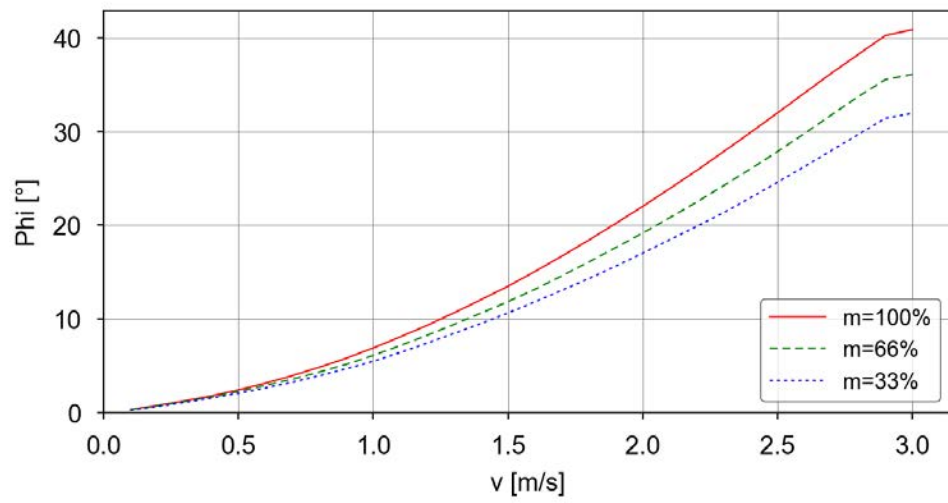
Continues on next page

## 23 IRB 660

23.1 IRB 660 3.15 m 180 kg

Continued

Extension zone 2, stopping distance and stopping time

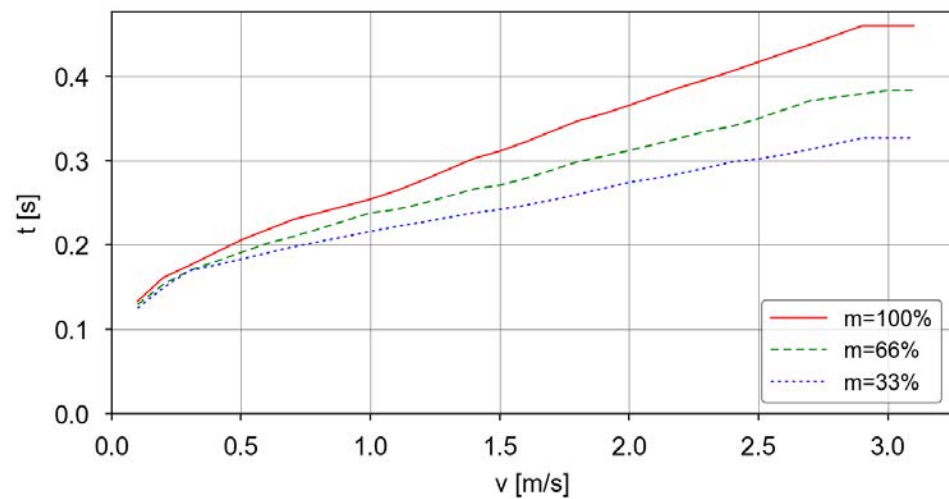
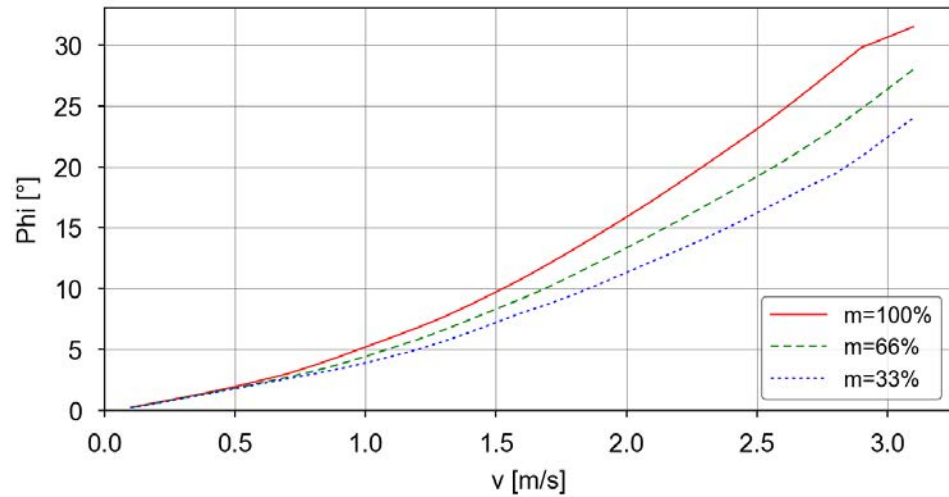


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## Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



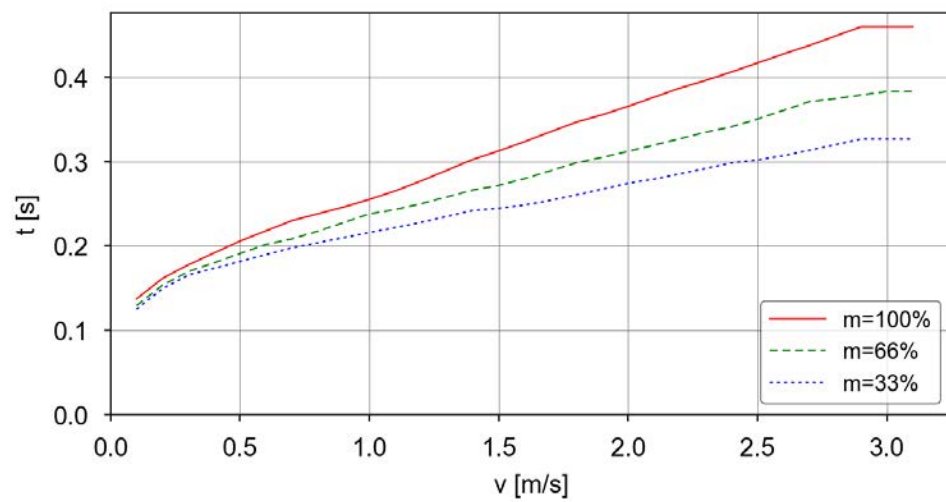
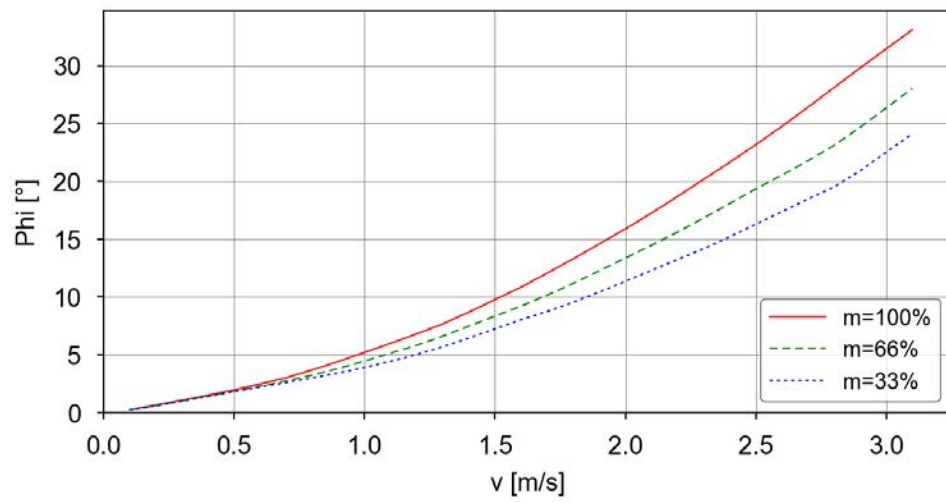
Continues on next page

## 23 IRB 660

23.1 IRB 660 3.15 m 180 kg

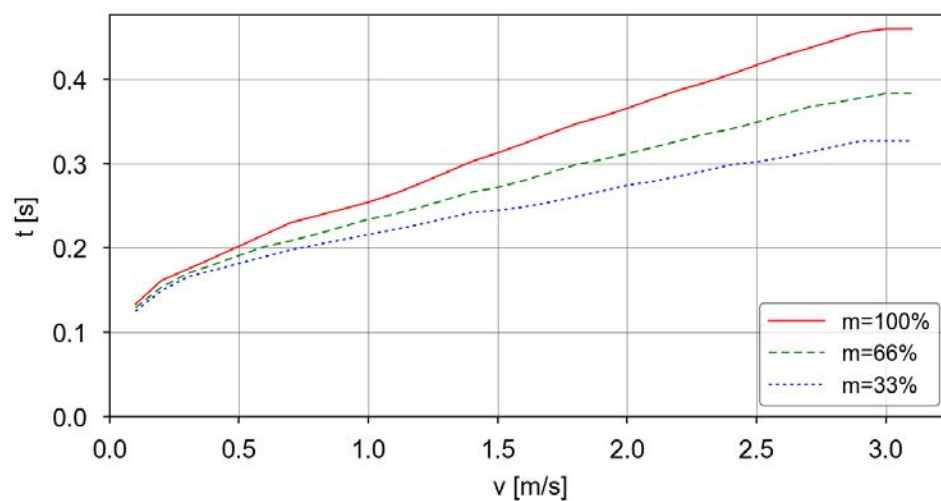
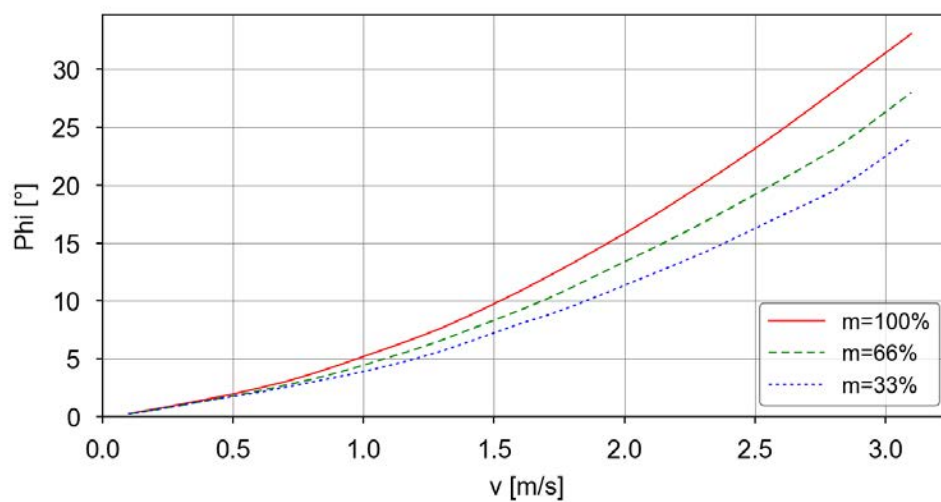
Continued

Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



23.2 IRB 660 3.15 m 250 kg

Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	43.1	0.78
2	23.2	0.37
3	21.6	0.32

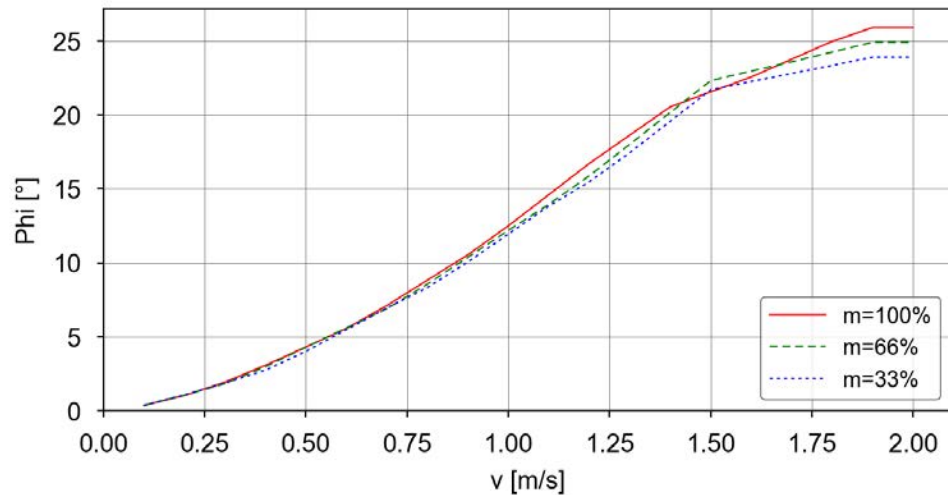
Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

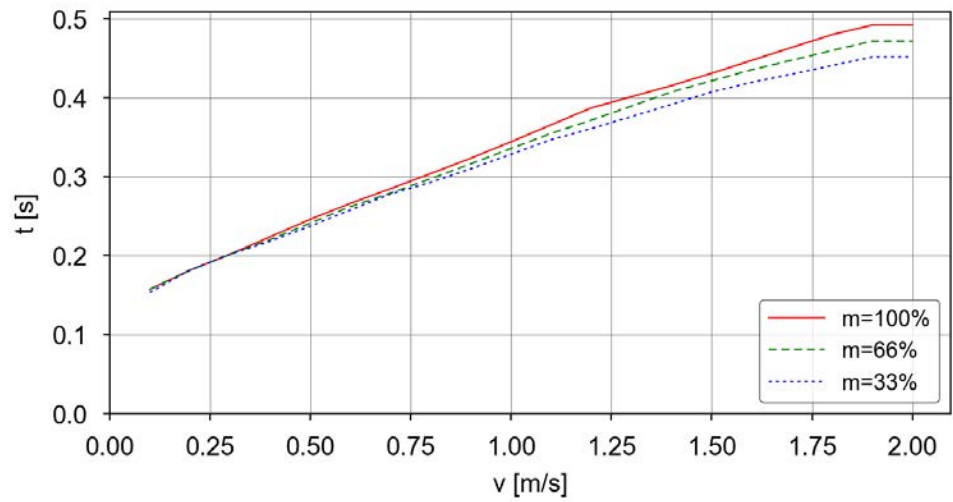
Zone	wcp min (m)	wcp max (m)
0	0	1.148
1	1.148	2.297
2	2.297	max reach

Category 1, Axis 1

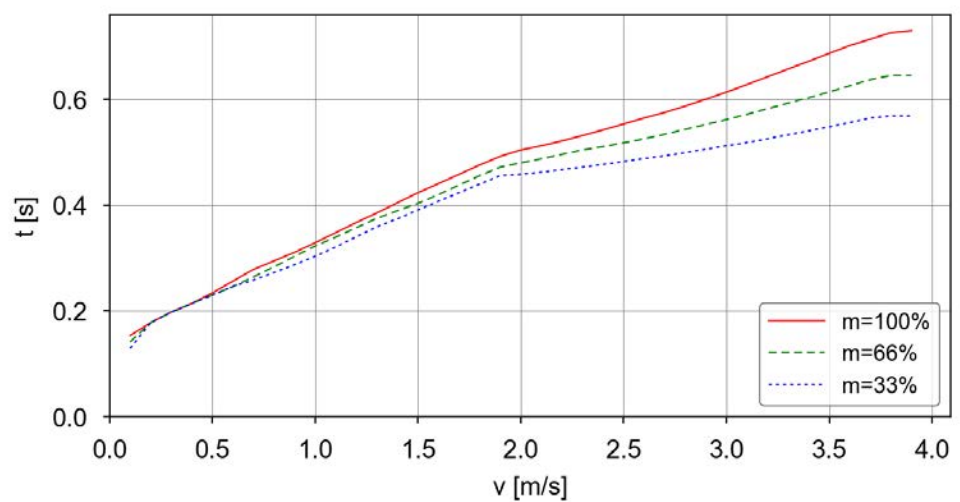
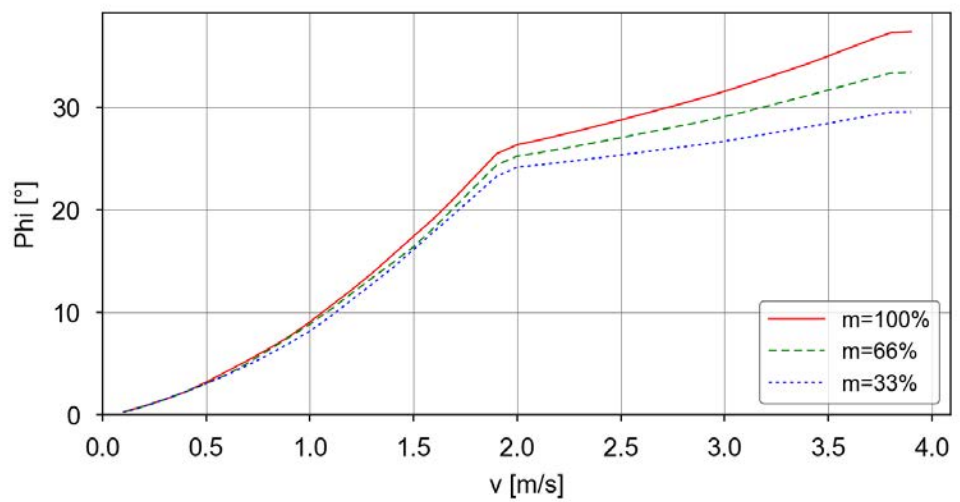
Extension zone 0, stopping distance and stopping time



Continues on next page

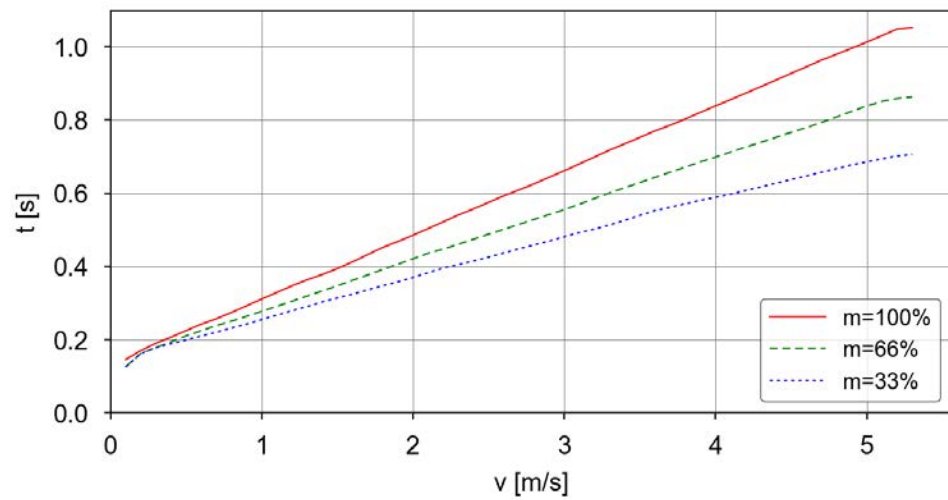
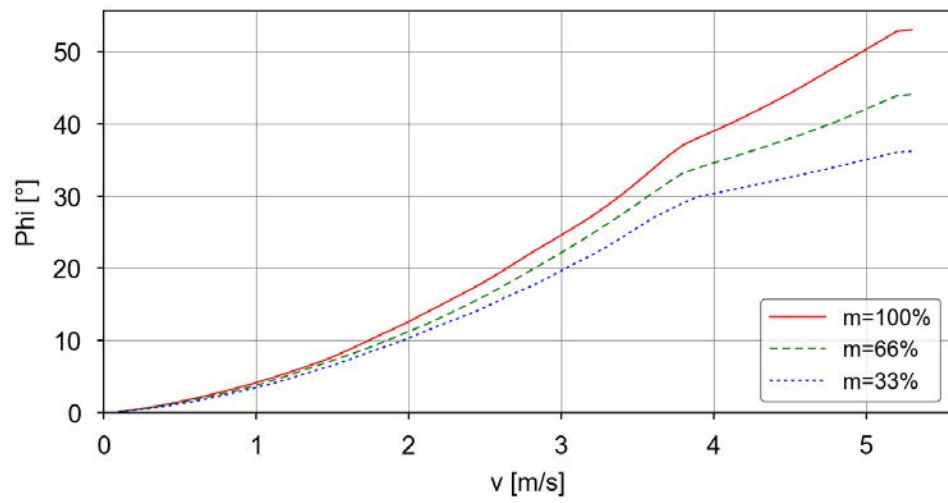


Extension zone 1, stopping distance and stopping time



Continues on next page

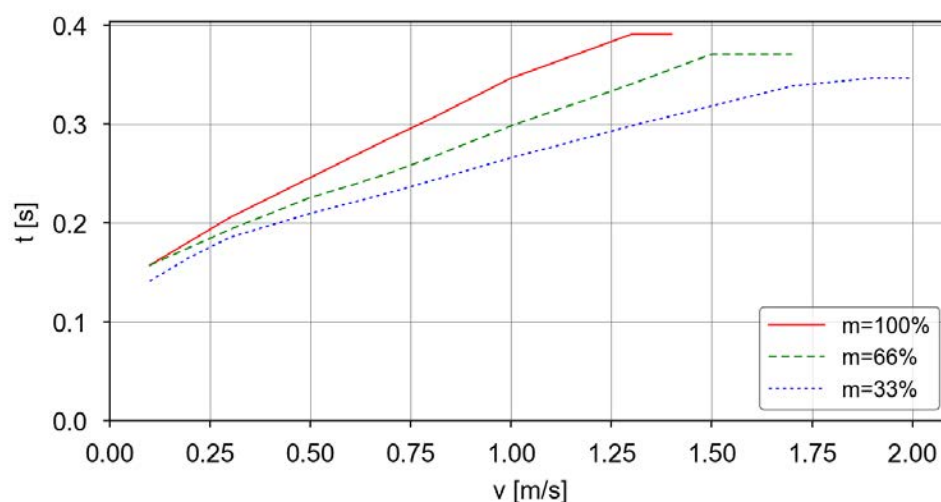
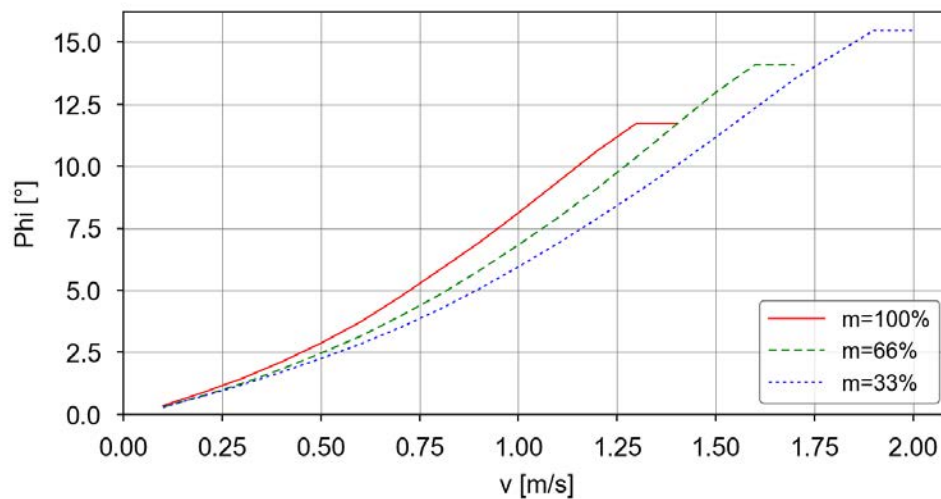
Extension zone 2, stopping distance and stopping time



Continues on next page

Category 1, Axis 2

Extension zone 0, stopping distance and stopping time



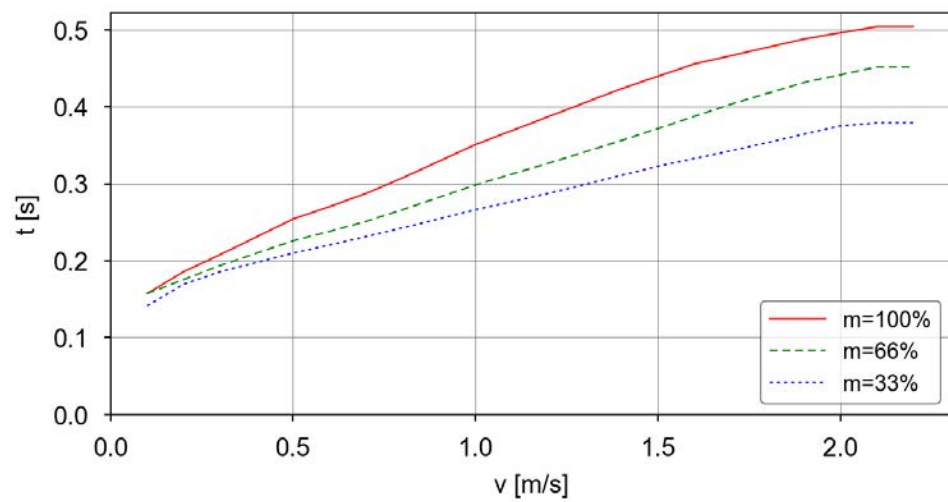
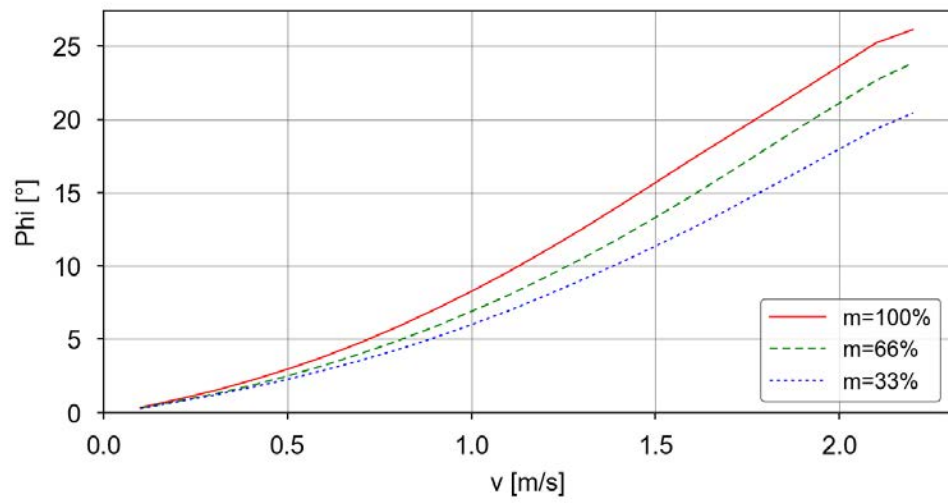
Continues on next page

## 23 IRB 660

23.2 IRB 660 3.15 m 250 kg

Continued

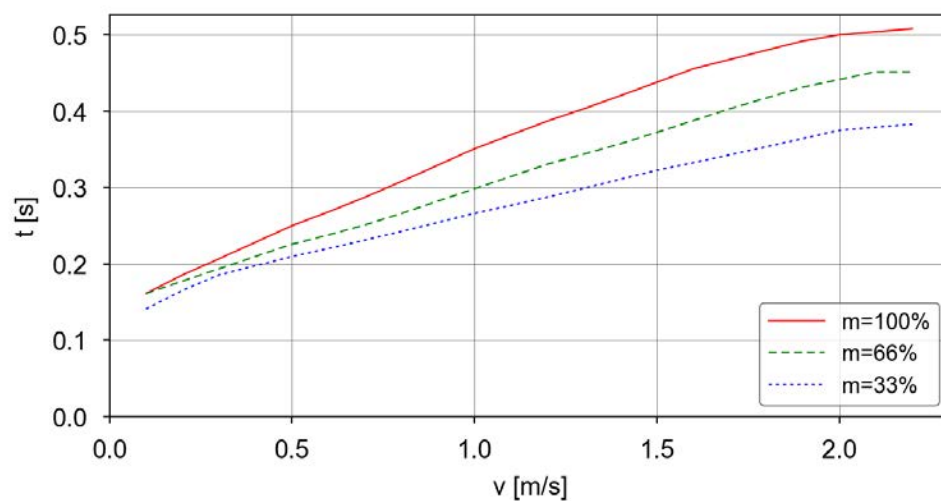
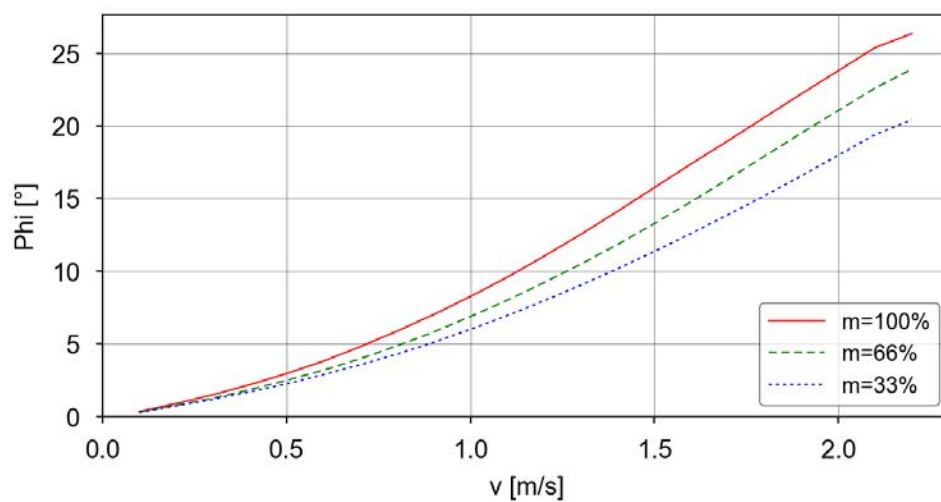
Extension zone 1, stopping distance and stopping time



Continues on next page



Extension zone 2, stopping distance and stopping time



Continues on next page

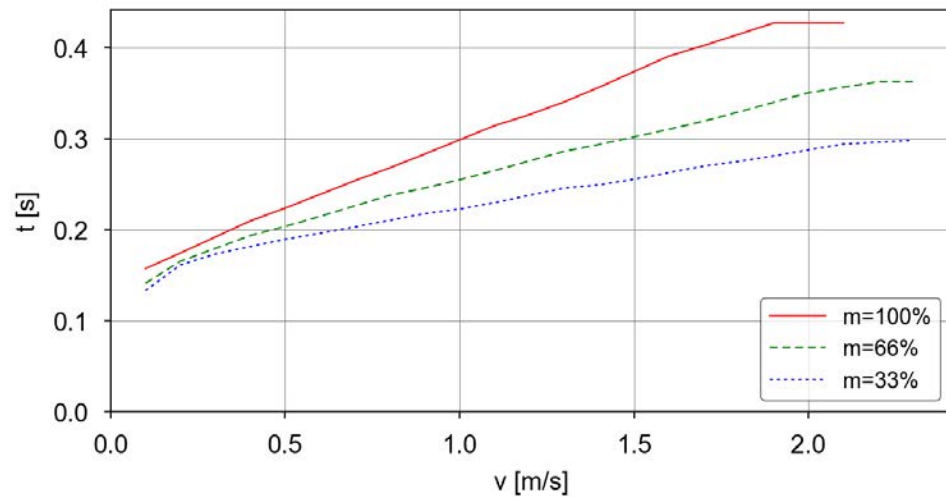
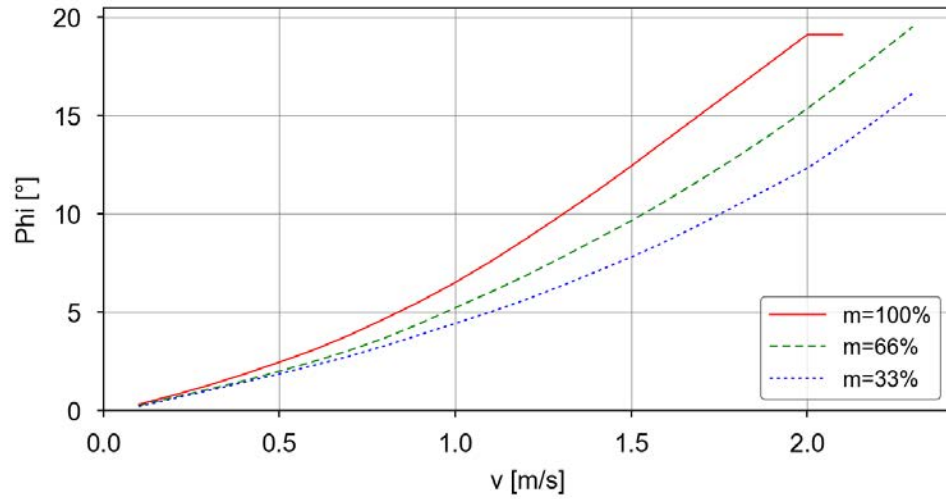
## 23 IRB 660

23.2 IRB 660 3.15 m 250 kg

Continued

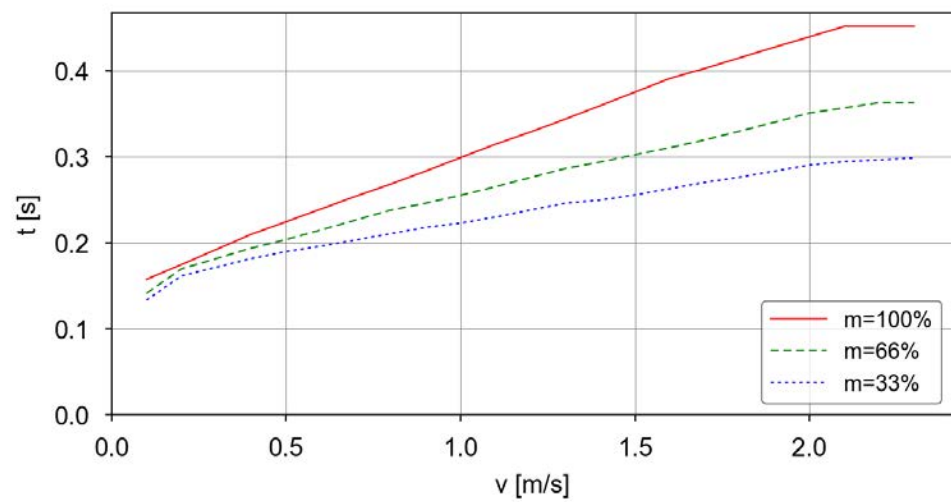
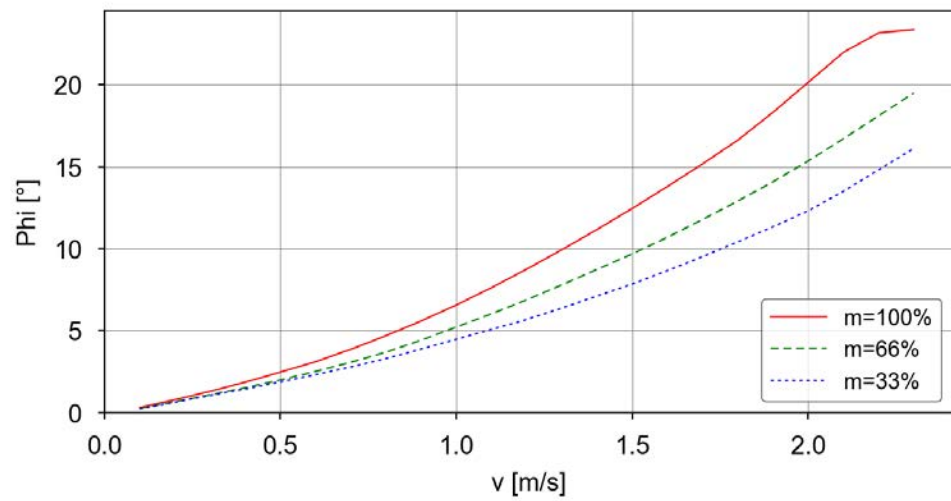
### Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



Continues on next page

## Extension zone 1, stopping distance and stopping time



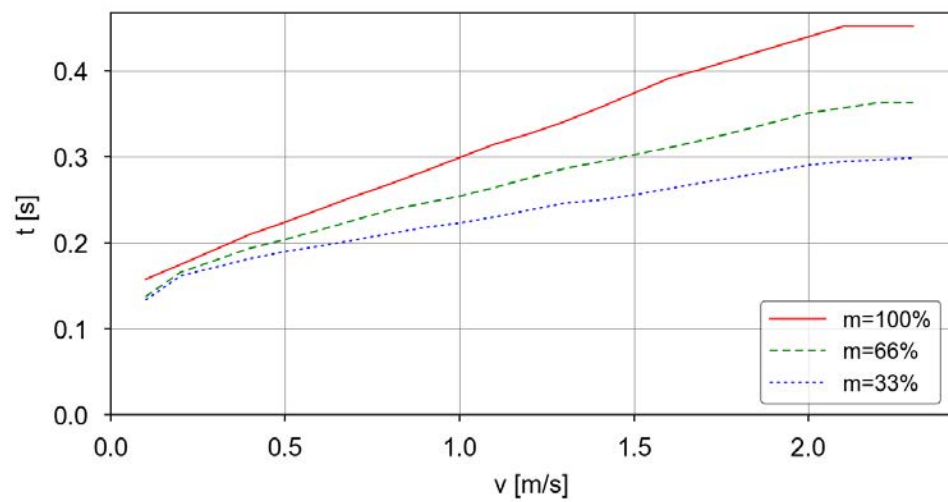
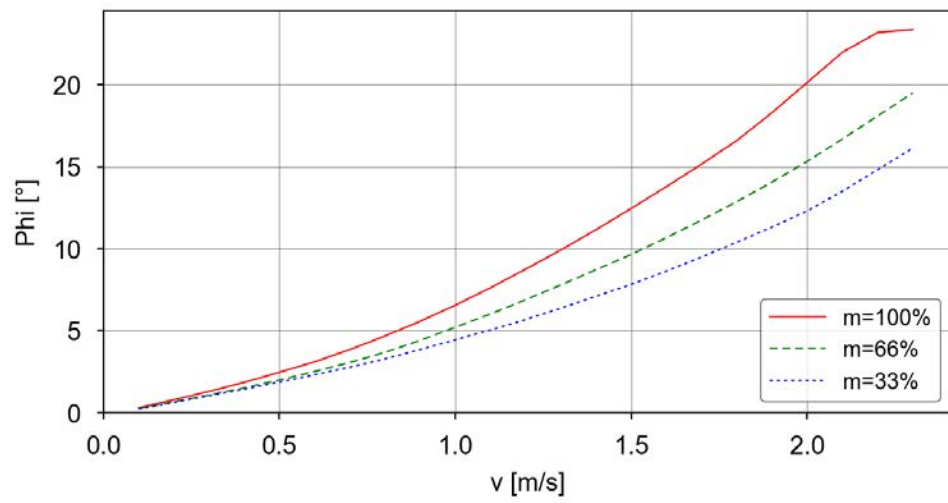
Continues on next page

## 23 IRB 660

23.2 IRB 660 3.15 m 250 kg

Continued

Extension zone 2, stopping distance and stopping time



## 24 IRB 760

### 24.1 IRB 760 3.2 m 445 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	40.7	0.89
2	24.4	0.54
3	26.9	0.56

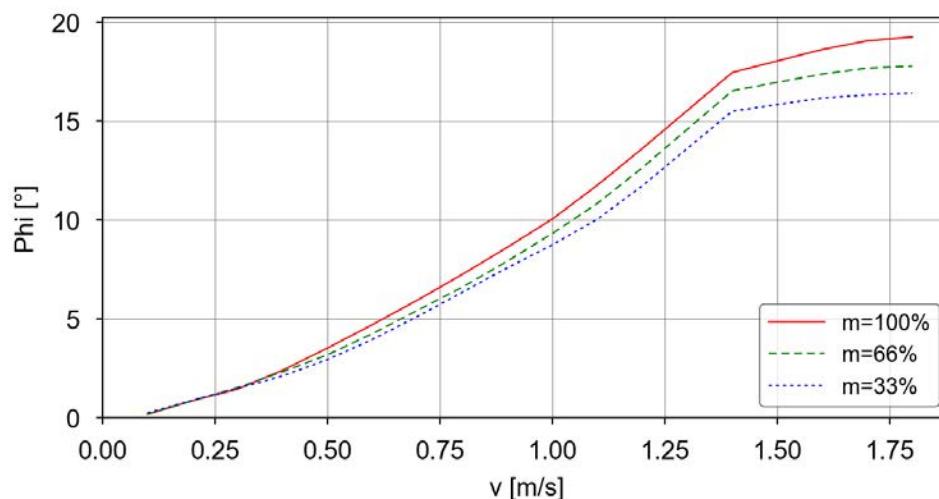
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

Zone	wcp min (m)	wcp max (m)
0	0	1.17
1	1.17	2.34
2	2.34	max reach

#### Category 1, Axis A1

Extension zone 0, stopping distance and stopping time

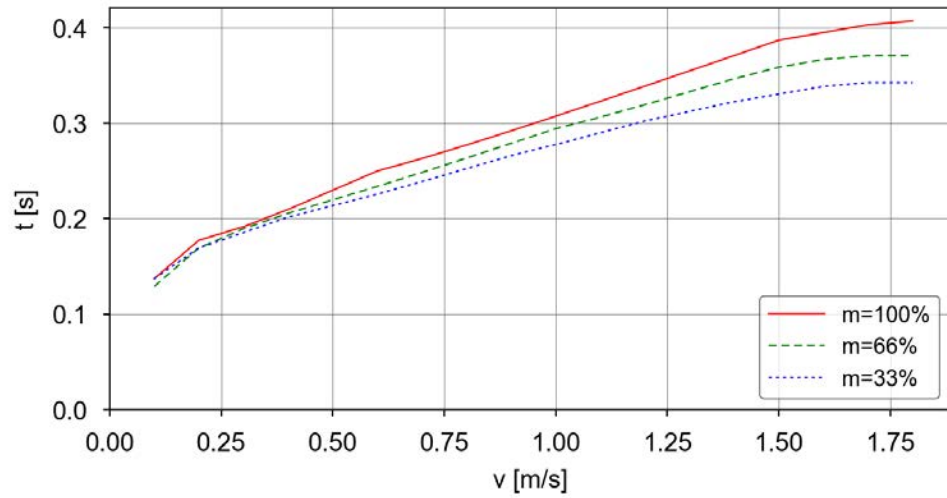


*Continues on next page*

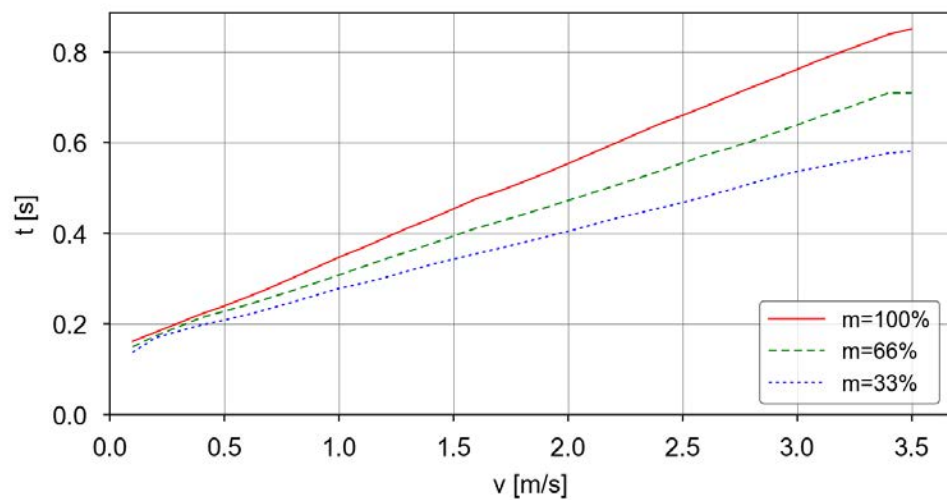
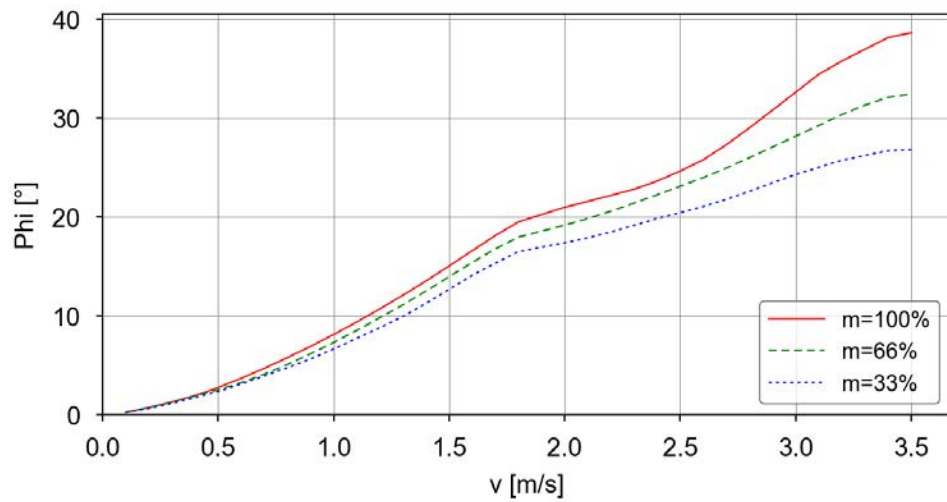
## 24 IRB 760

### 24.1 IRB 760 3.2 m 445 kg

Continued

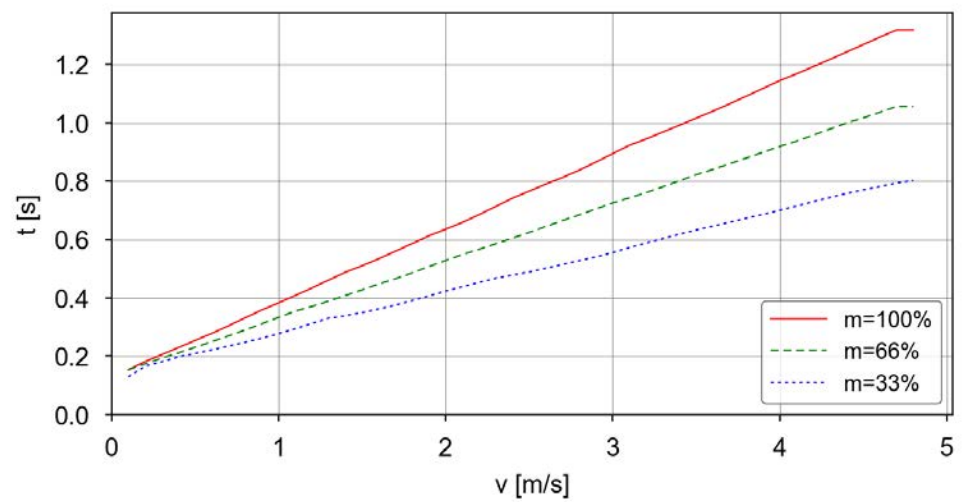
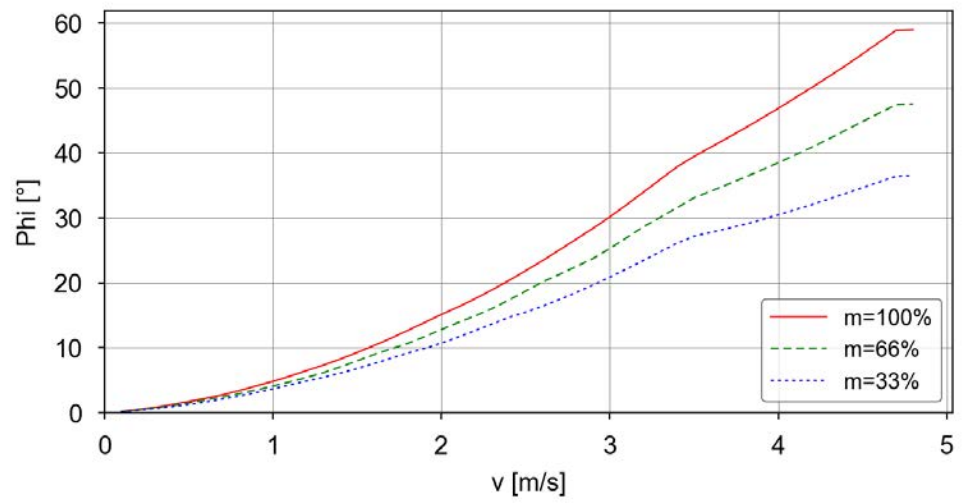


### Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

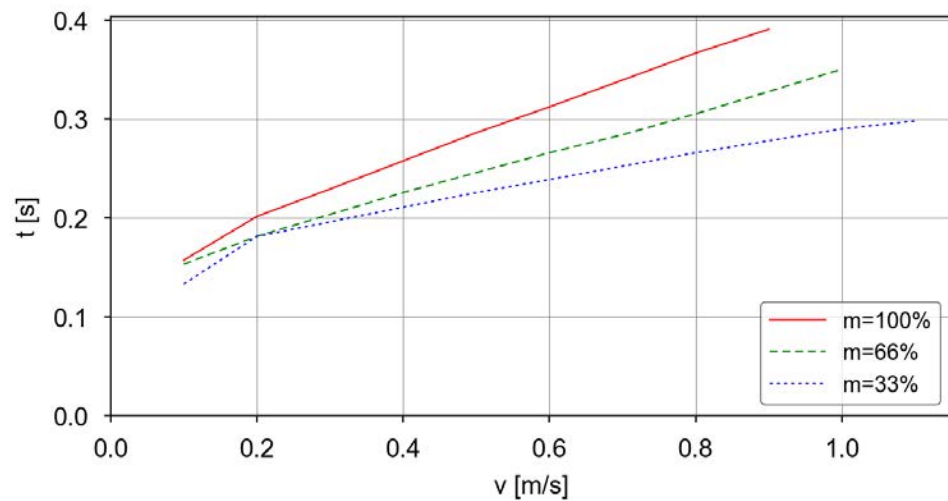
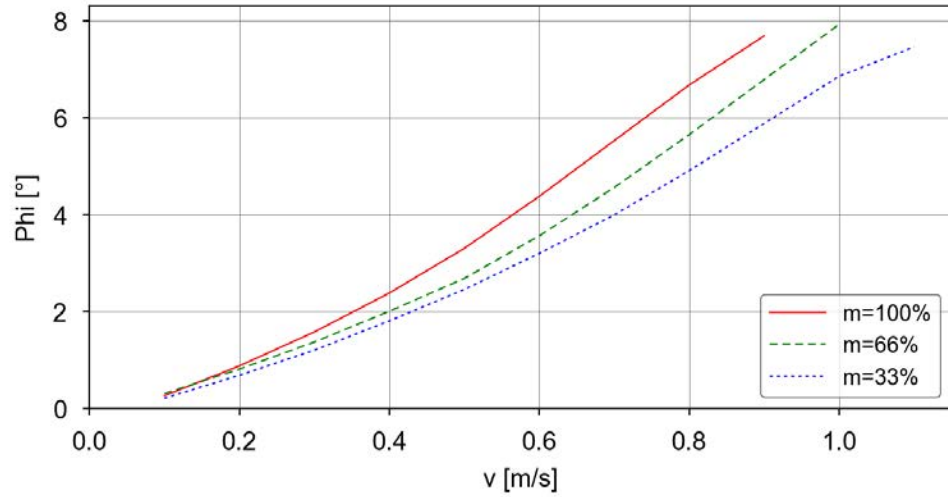
## 24 IRB 760

24.1 IRB 760 3.2 m 445 kg

Continued

### Category 1, Axis A2

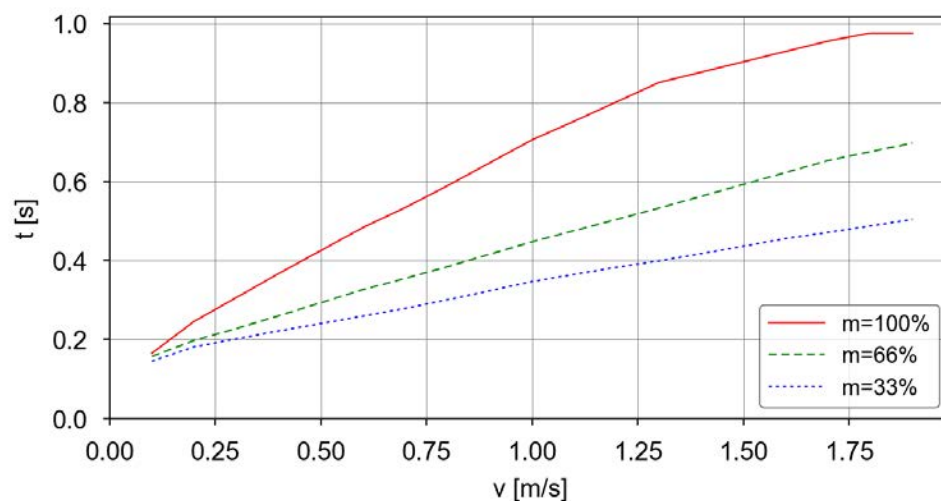
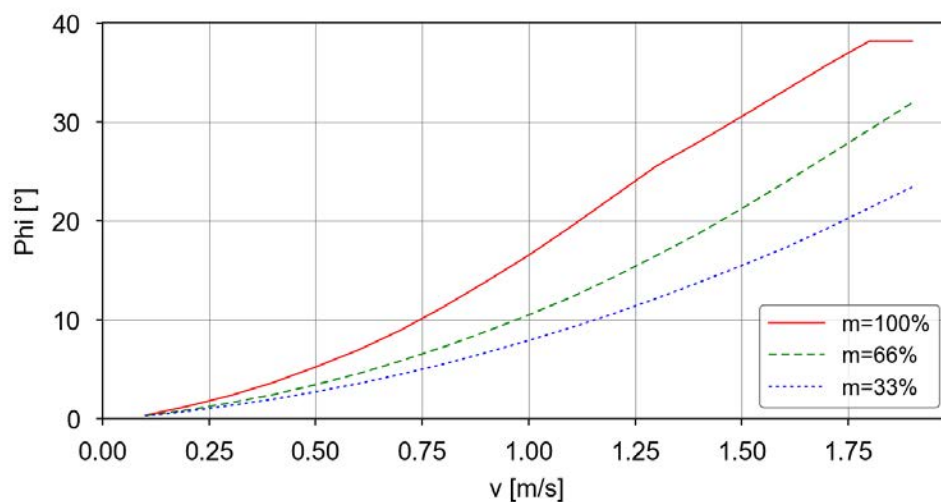
Extension zone 0, stopping distance and stopping time



Continues on next page



Extension zone 1, stopping distance and stopping time



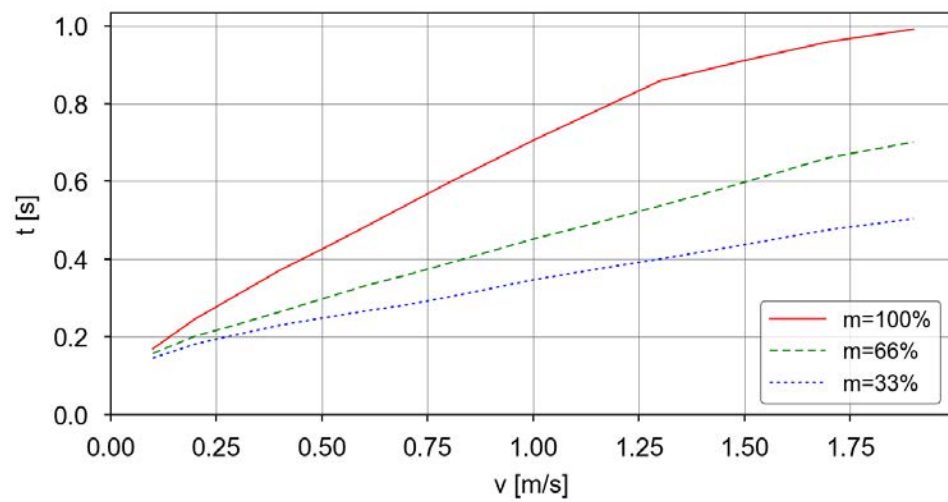
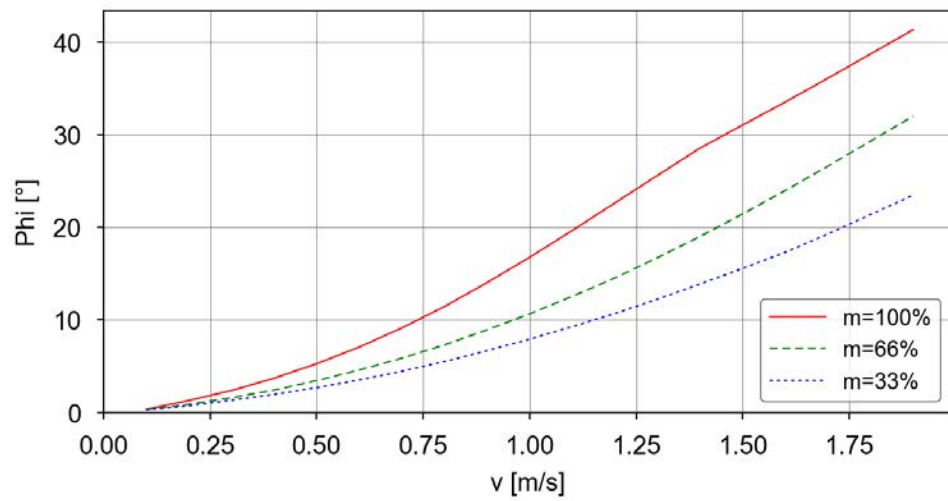
Continues on next page

## 24 IRB 760

24.1 IRB 760 3.2 m 445 kg

Continued

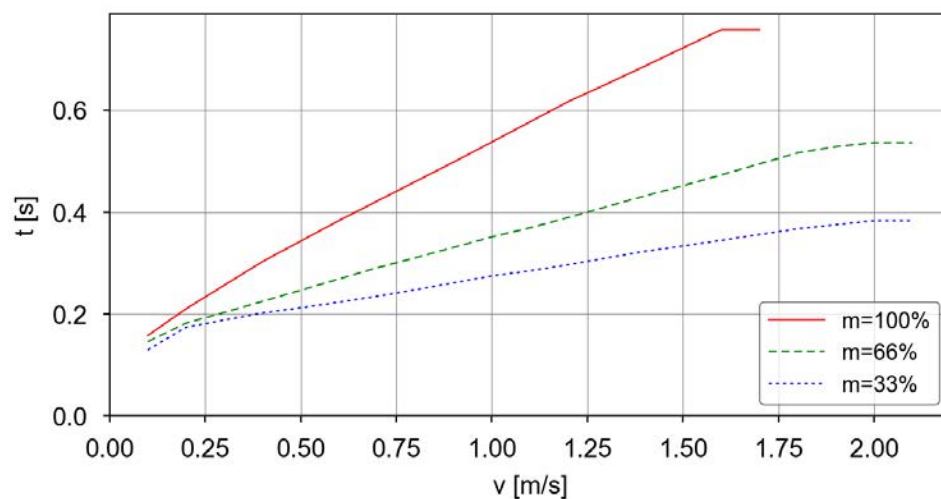
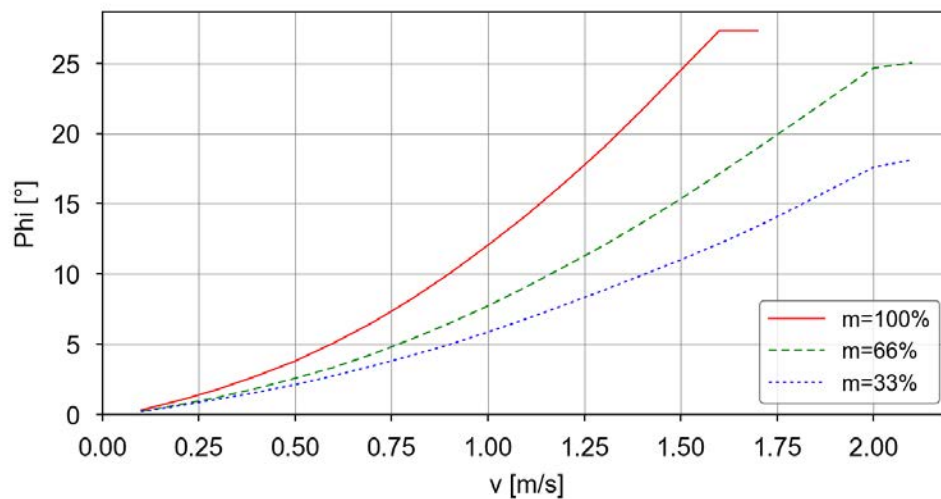
Extension zone 2, stopping distance and stopping time



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Category 1, Axis A3

Extension zone 0, stopping distance and stopping time



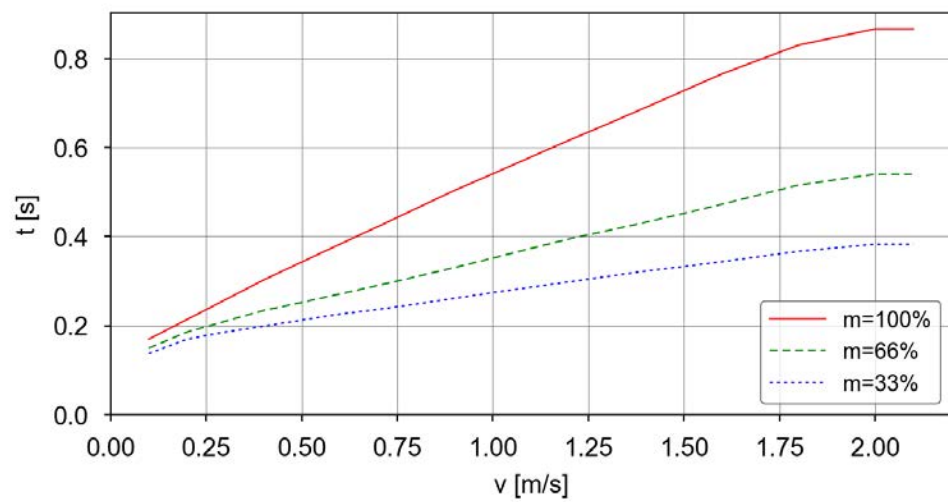
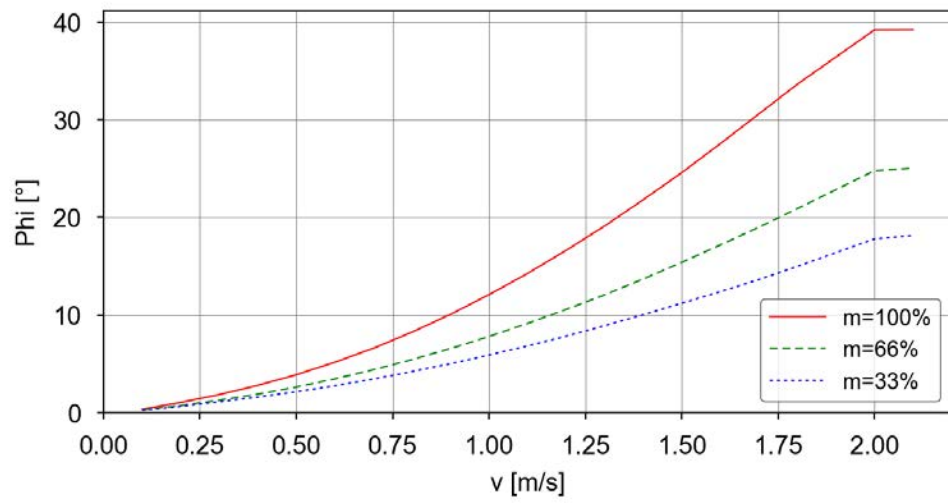
Continues on next page

## 24 IRB 760

24.1 IRB 760 3.2 m 445 kg

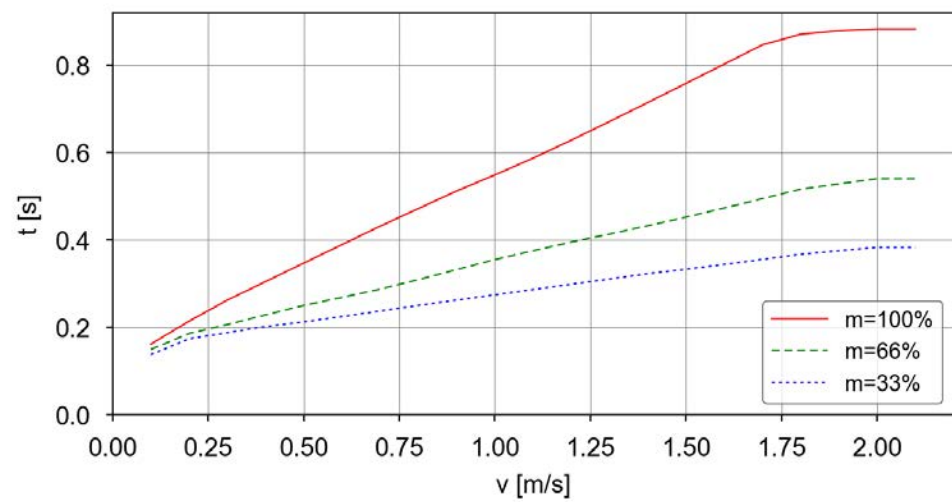
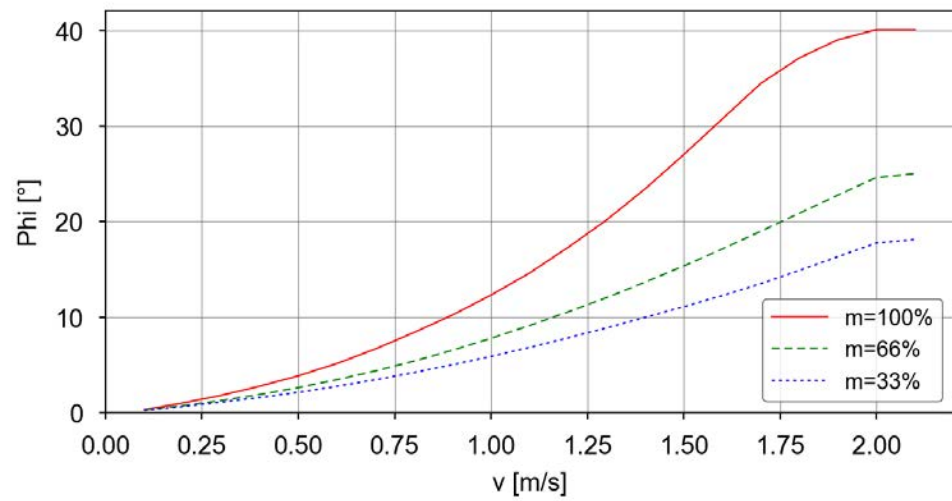
Continued

Extension zone 1, stopping distance and stopping time



Continues on next page

## Extension zone 2, stopping distance and stopping time



## 24 IRB 760

### 24.2 IRB 760 3.2 m 450 kg

### 24.2 IRB 760 3.2 m 450 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load. All results are from tests on one moving axis.

Axis	Distance (degrees)	Stop time (s)
1	40.2	0.83
2	0.0	0.0
3	26.4	0.49

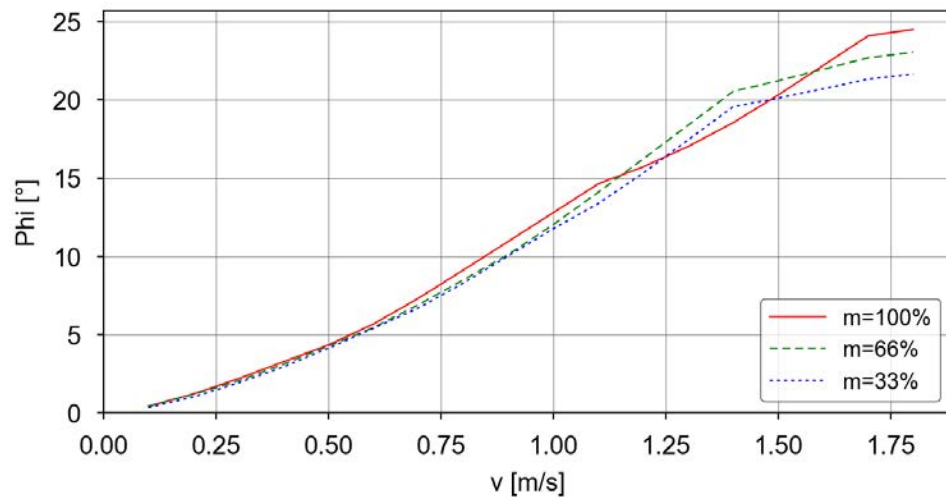
#### Category 1, extension zones

For definitions of the zones, see [Extension zones for articulated robots on page 14](#).

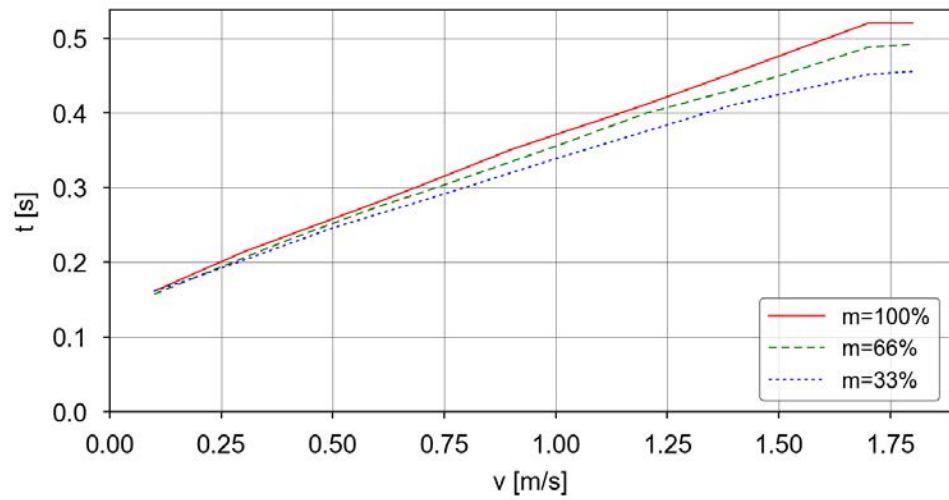
Zone	wcp min (m)	wcp max (m)
0	0	1.168
1	1.168	2.337
2	2.337	max reach

#### Category 1, Axis 1

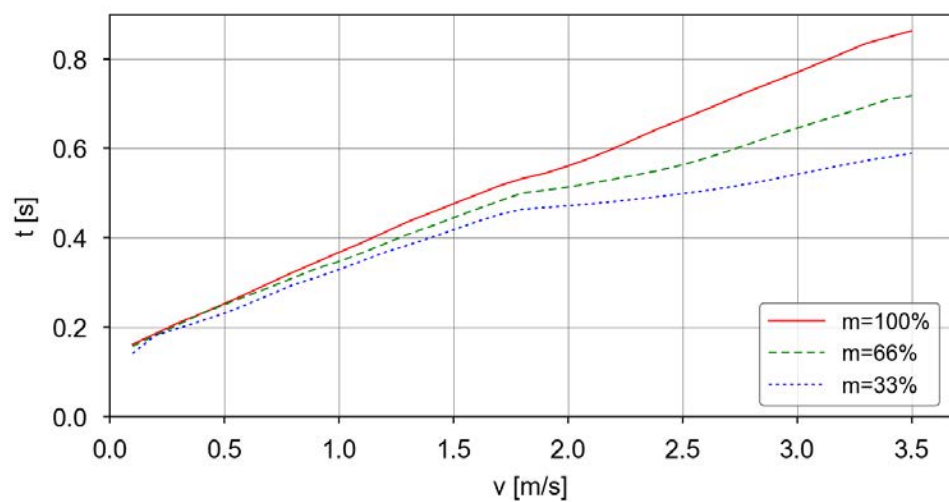
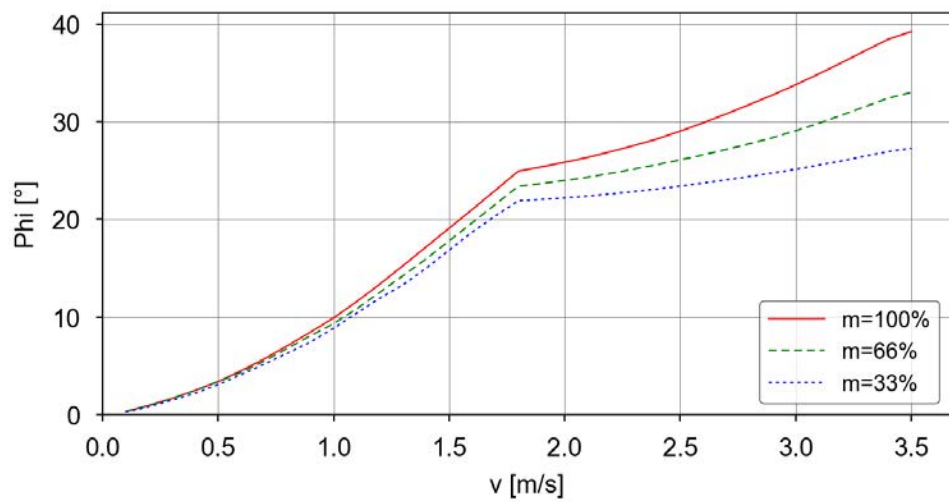
Extension zone 0, stopping distance and stopping time



Continues on next page



Extension zone 1, stopping distance and stopping time



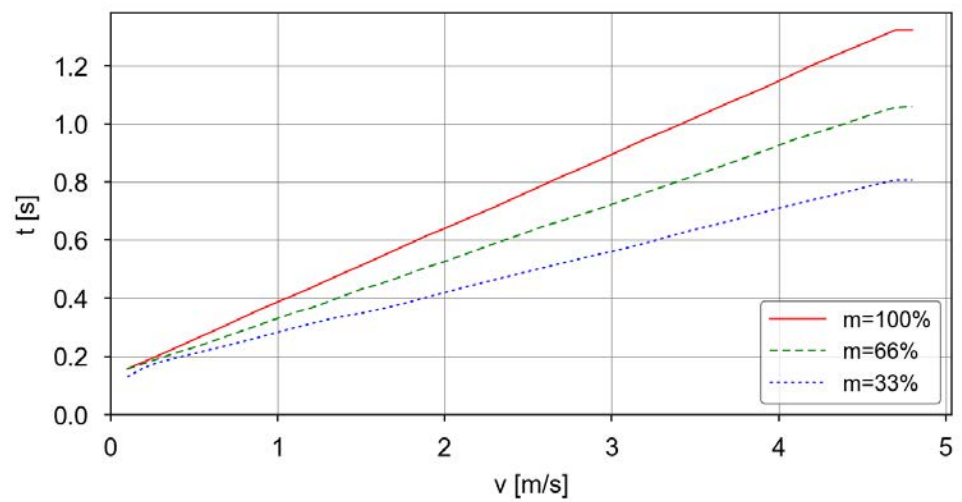
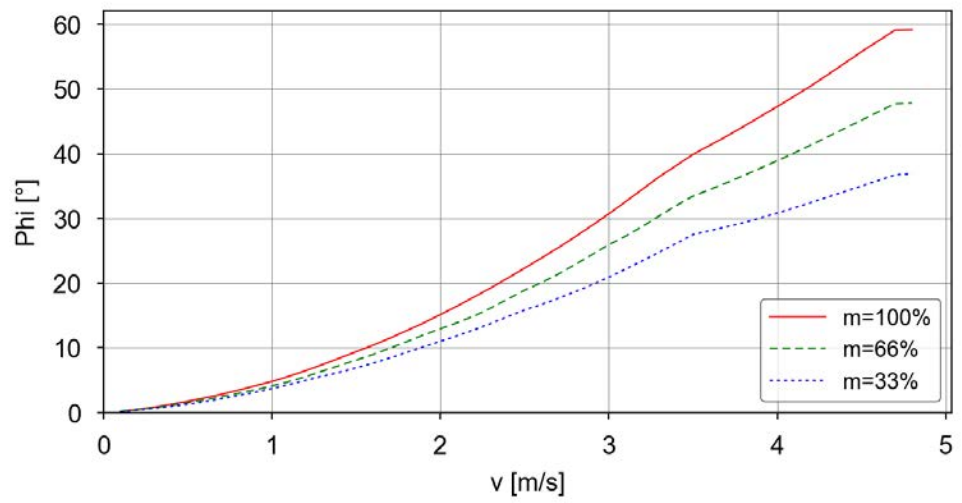
Continues on next page

## 24 IRB 760

24.2 IRB 760 3.2 m 450 kg

Continued

Extension zone 2, stopping distance and stopping time

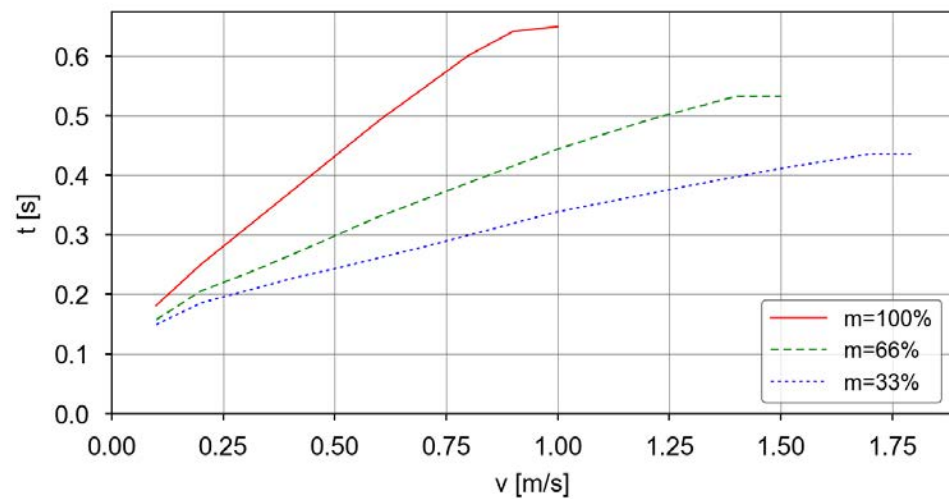
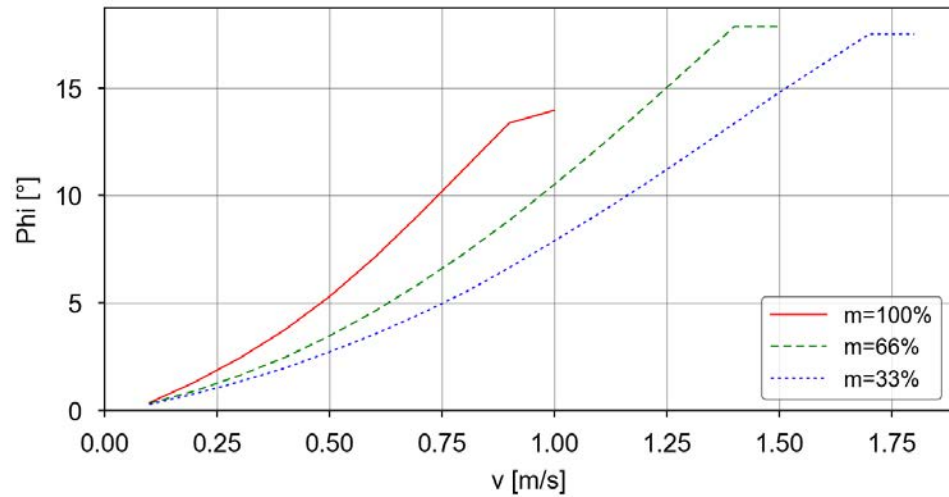


Continues on next page



## Category 1, Axis 2

## Extension zone 0, stopping distance and stopping time



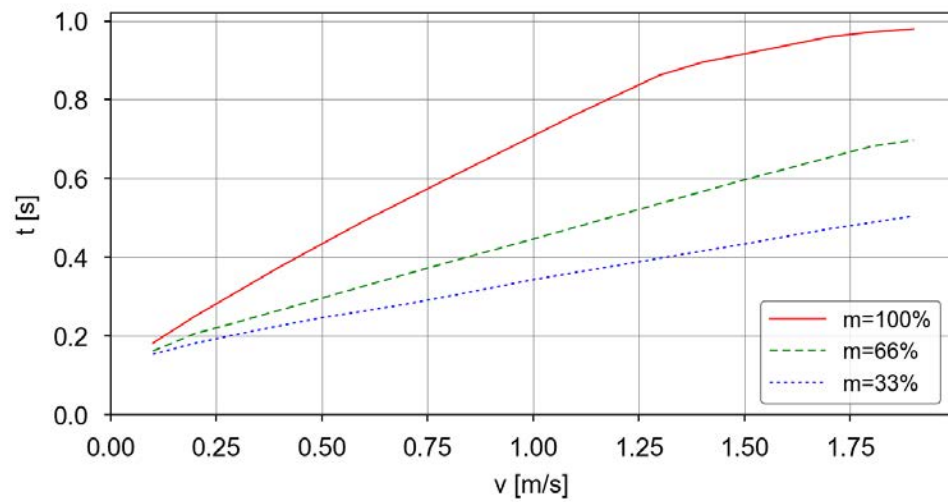
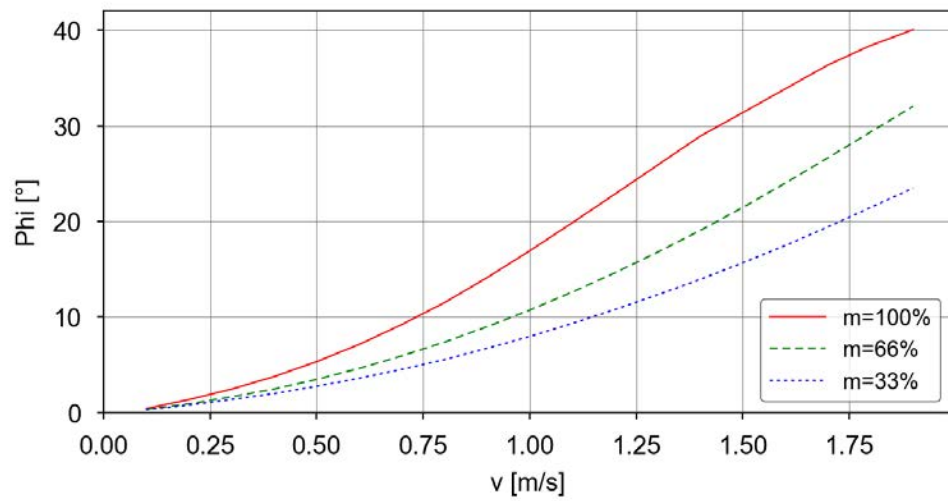
Continues on next page

## 24 IRB 760

24.2 IRB 760 3.2 m 450 kg

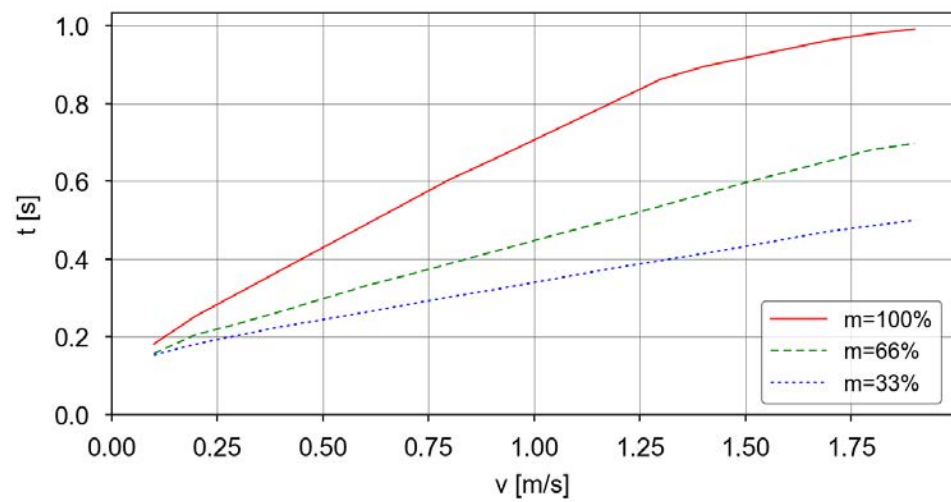
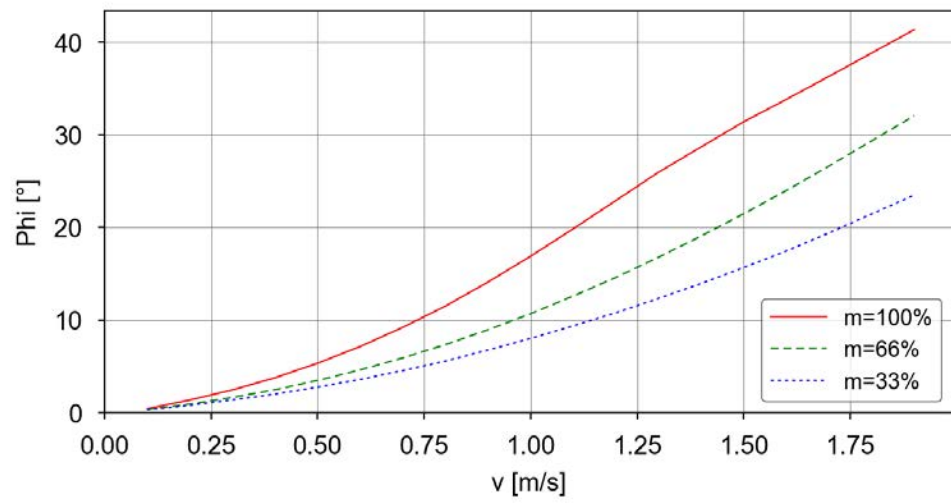
Continued

Extension zone 1, stopping distance and stopping time



Continues on next page

Extension zone 2, stopping distance and stopping time



Continues on next page

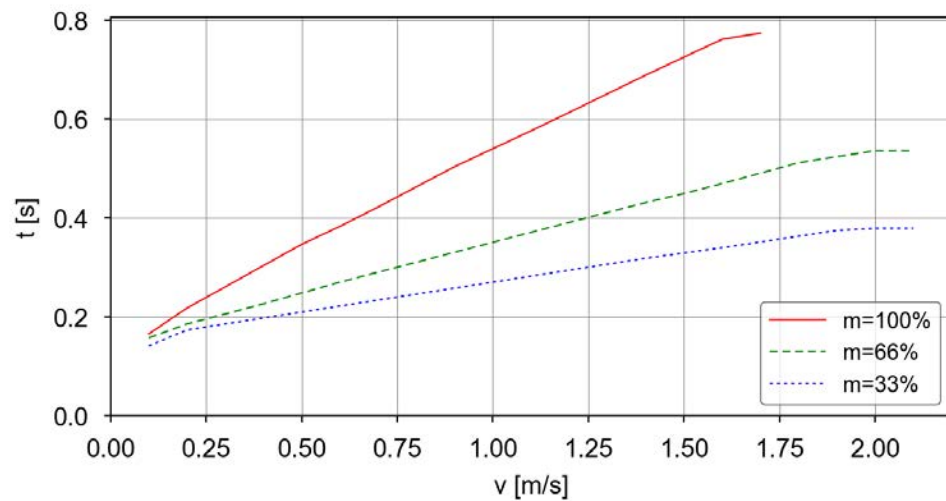
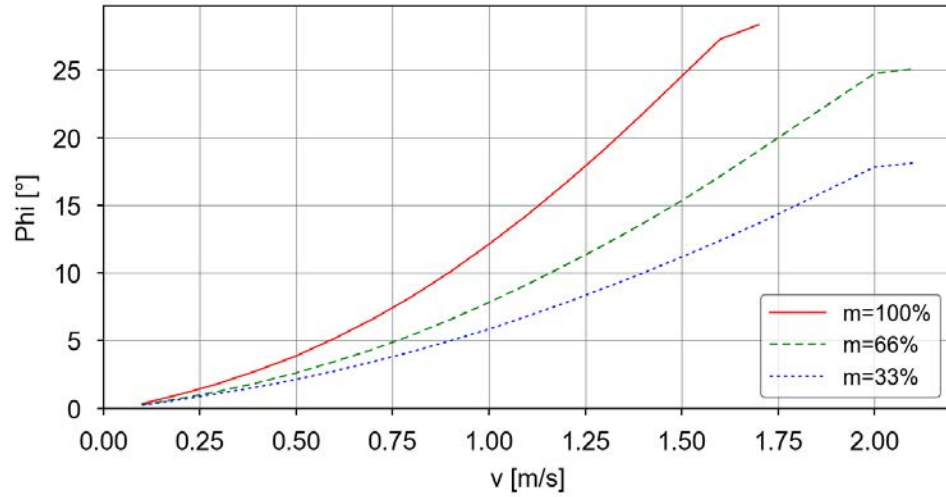
## 24 IRB 760

24.2 IRB 760 3.2 m 450 kg

Continued

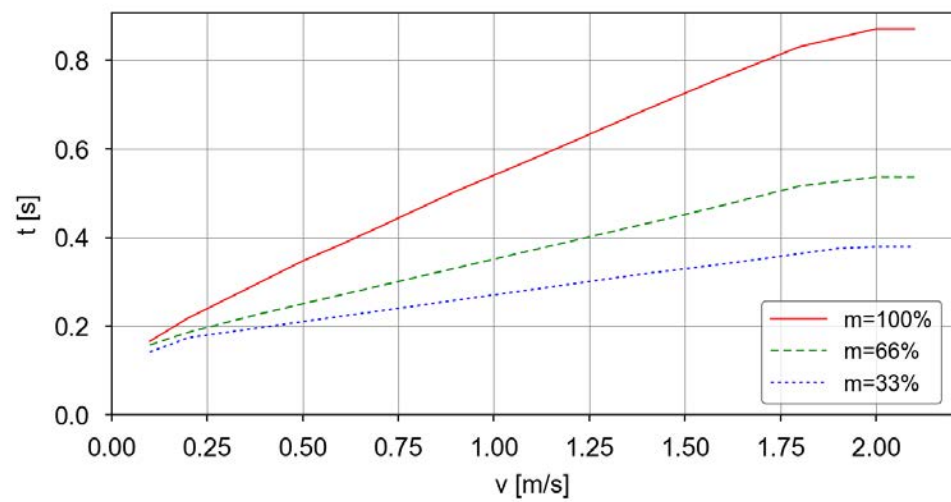
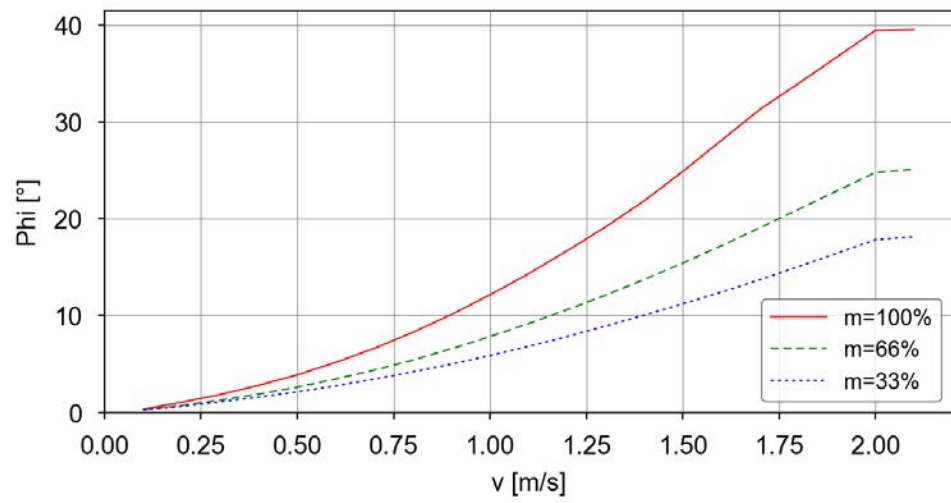
### Category 1, Axis 3

Extension zone 0, stopping distance and stopping time



Continues on next page

Extension zone 1, stopping distance and stopping time



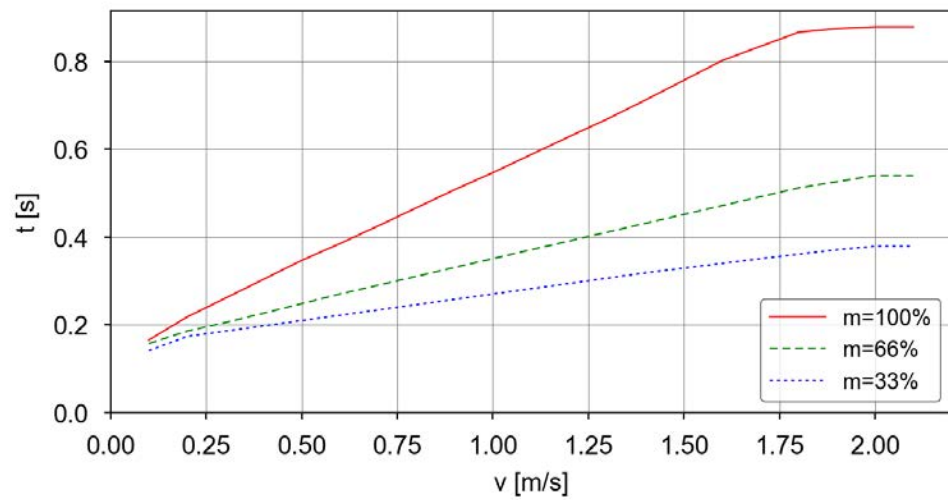
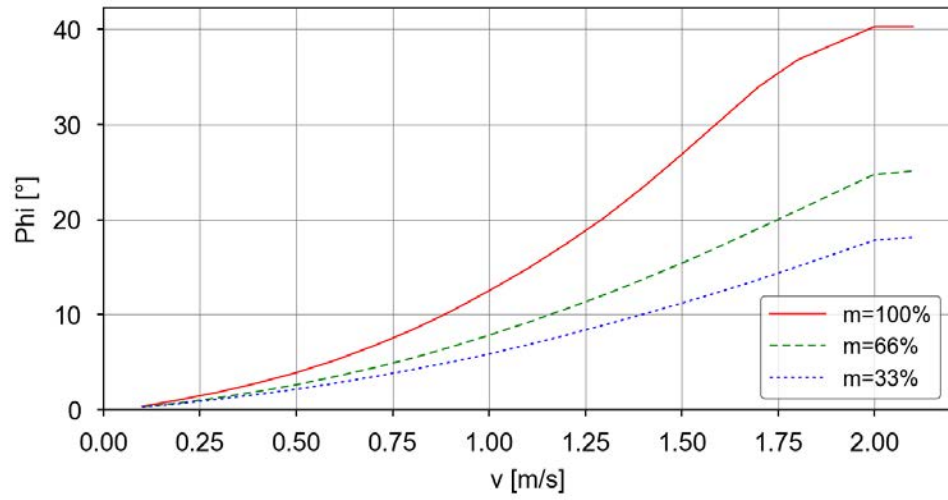
Continues on next page

## 24 IRB 760

24.2 IRB 760 3.2 m 450 kg

Continued

Extension zone 2, stopping distance and stopping time



## 25 IRB 360

### 25.1 IRB 360 0.8 m 1 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load.

Protection type/variant	Distance (meters)	Stop time (s)
Standard	0.57	0.18
Wash down	0.56	0.18
3AXES	0.57	0.17

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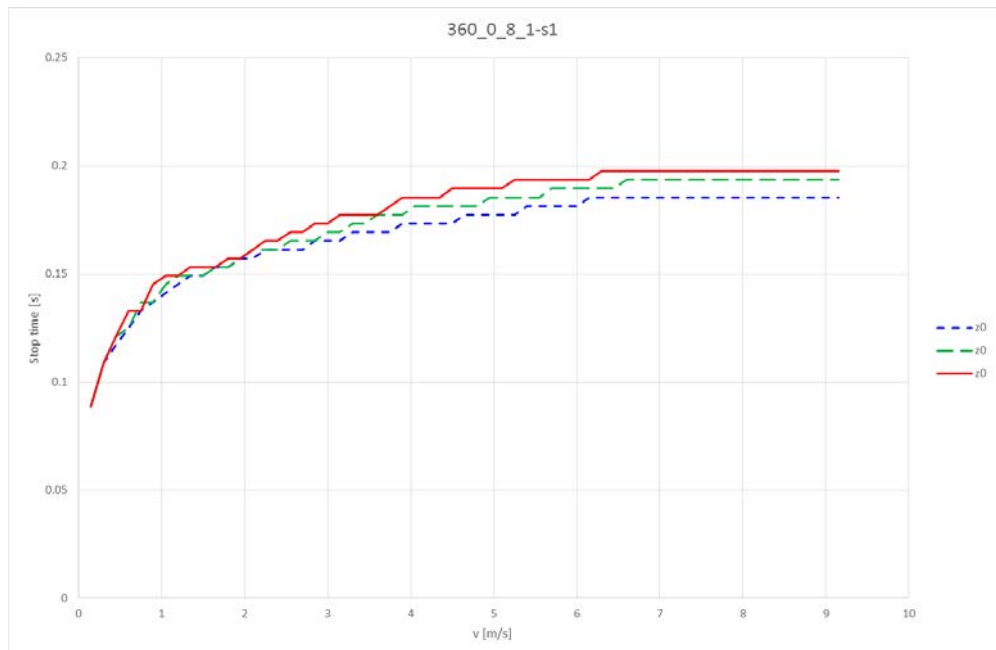
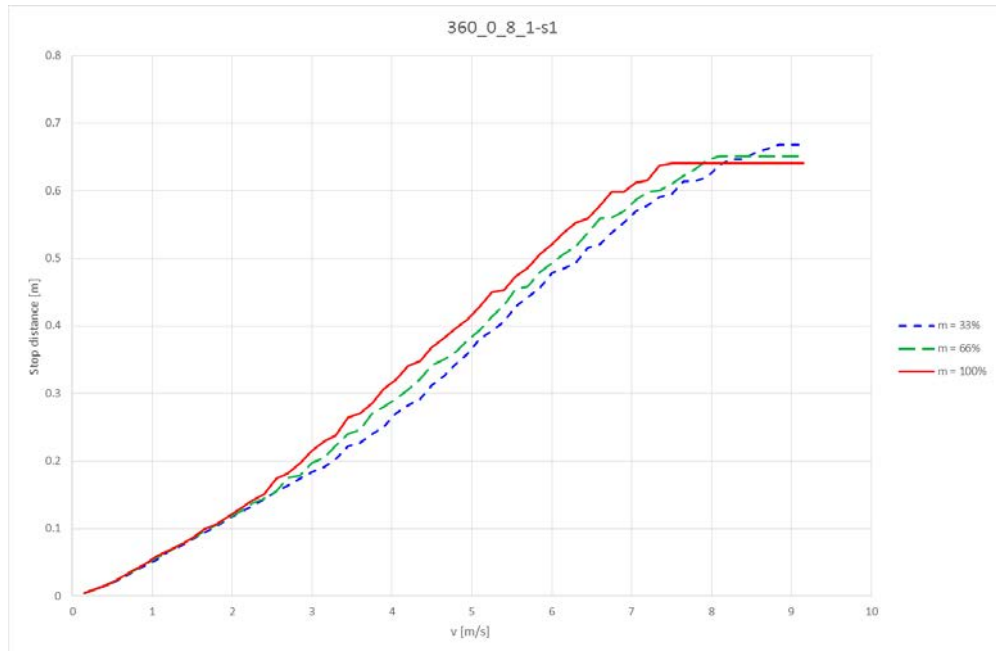
# 25 IRB 360

## 25.1 IRB 360 0.8 m 1 kg

Continued

### Category 1, Standard

#### Stopping distance and stopping time

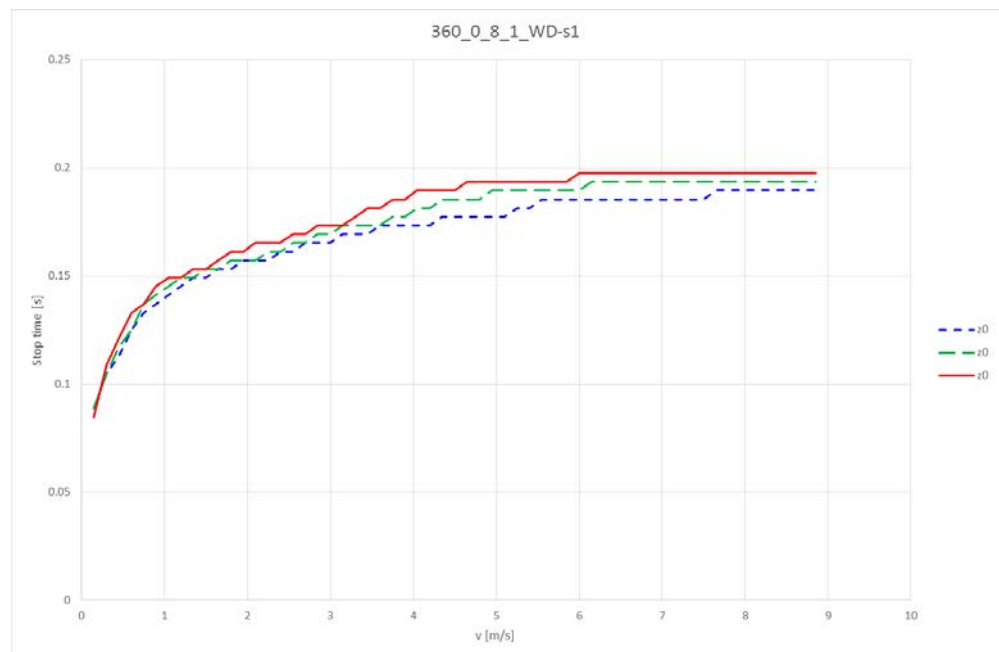
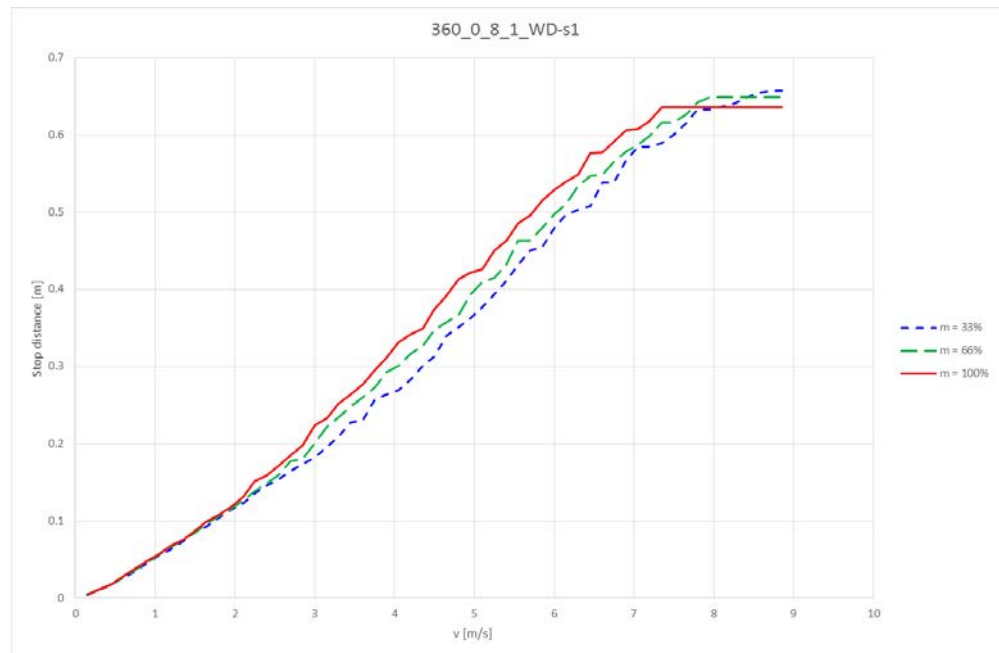


Continues on next page



Category 1, Wash Down

Stopping distance and stopping time



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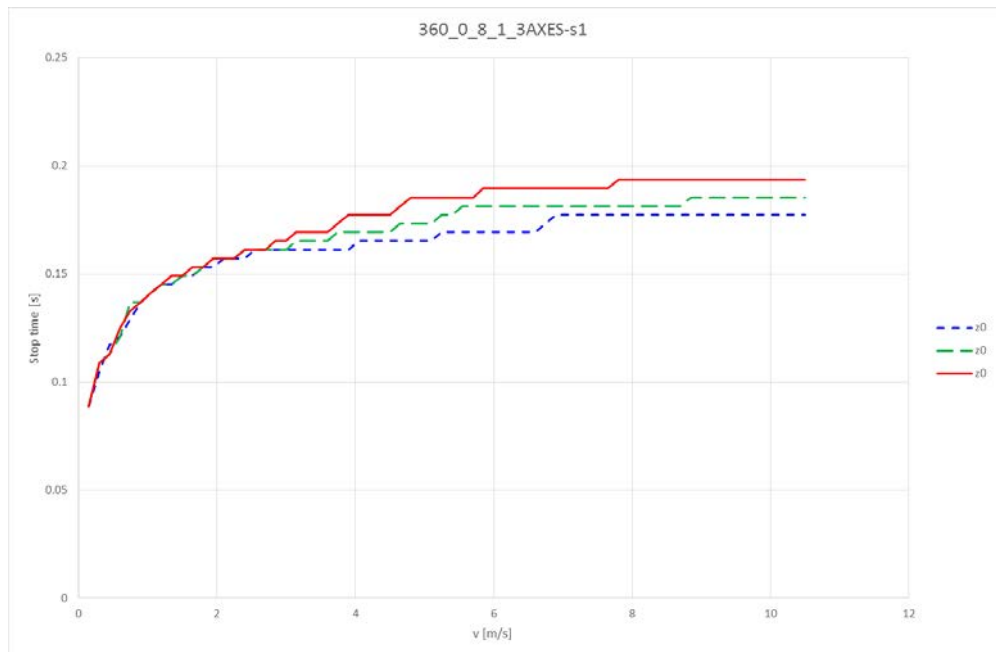
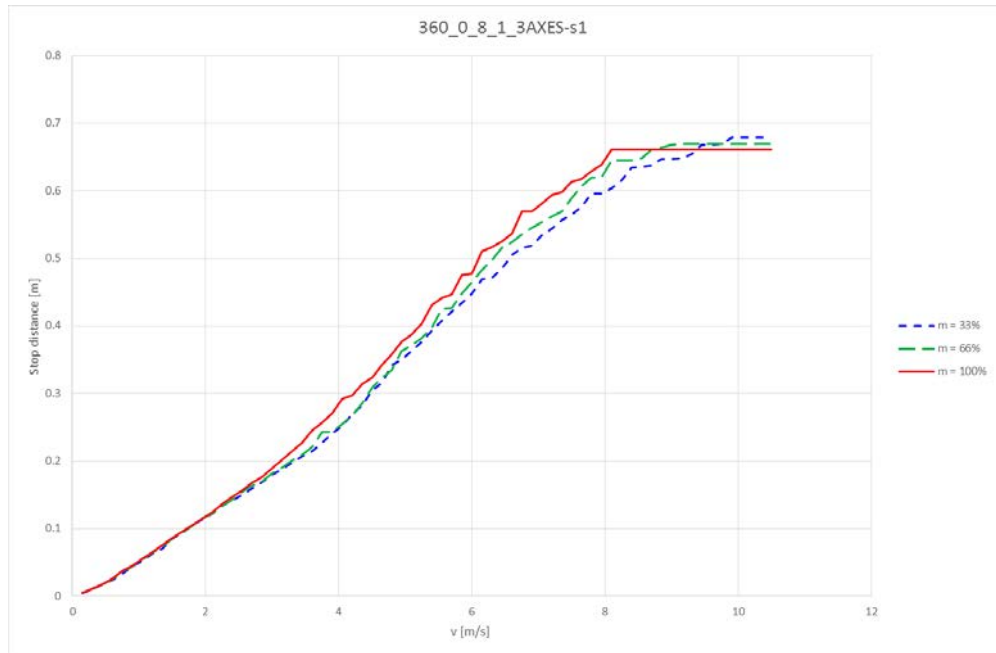
# 25 IRB 360

## 25.1 IRB 360 0.8 m 1 kg

Continued

### Category 1, 3AXES

#### Stopping distance and stopping time



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## 25.2 IRB 360 1.13 m 1 kg

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### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load.

Protection type/variant	Distance (meters)	Stop time (s)
Standard	0.69	0.19
Wash down	0.69	0.19
3AXES	0.73	0.18
Stainless	0.67	0.19

*Continues on next page*

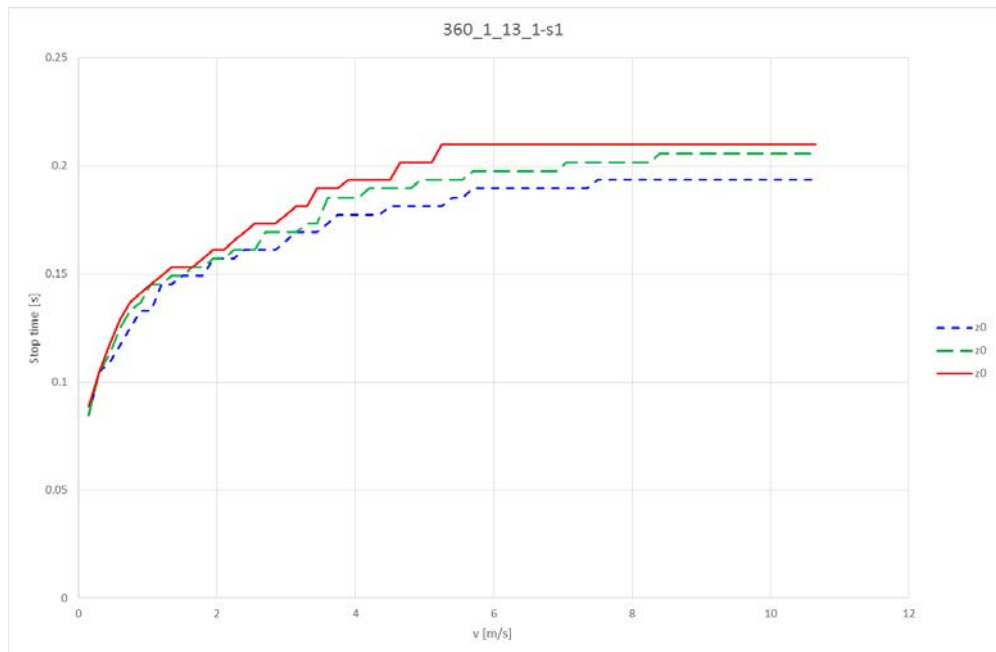
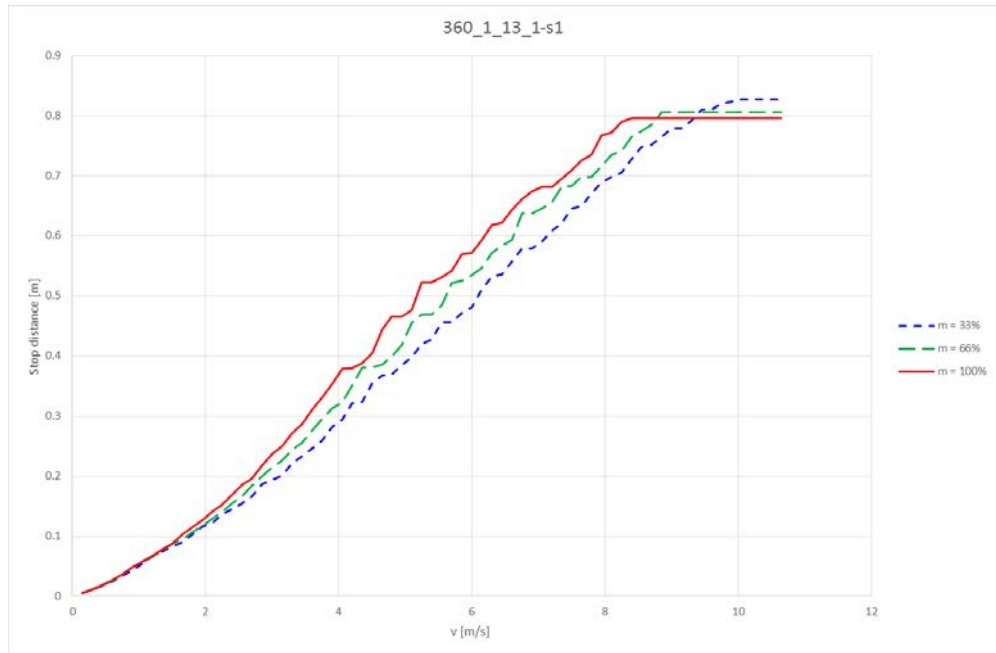
# 25 IRB 360

## 25.2 IRB 360 1.13 m 1 kg

Continued

### Category 1, Standard

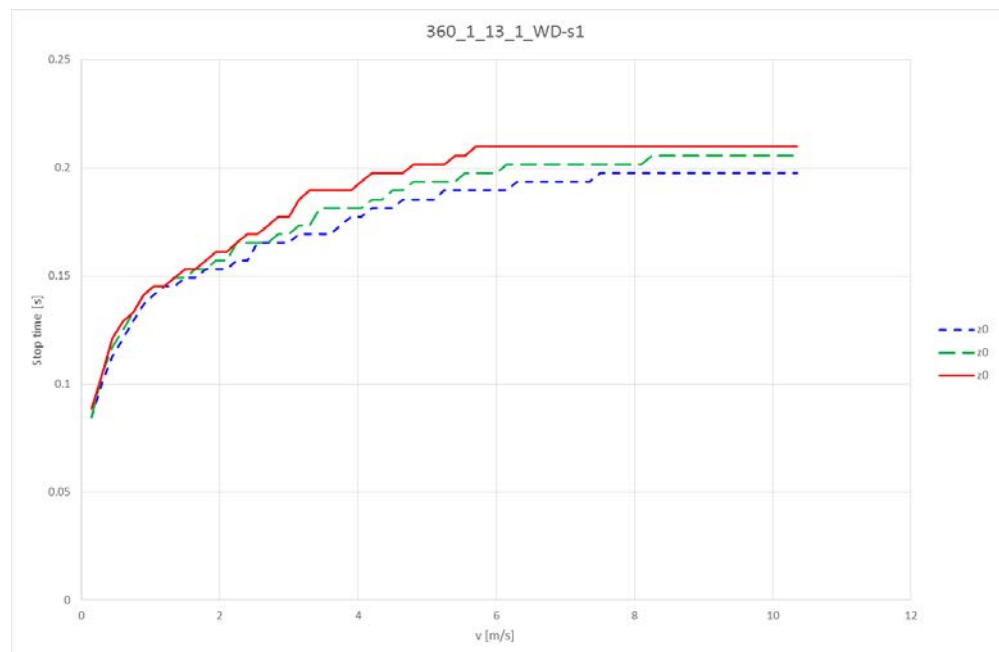
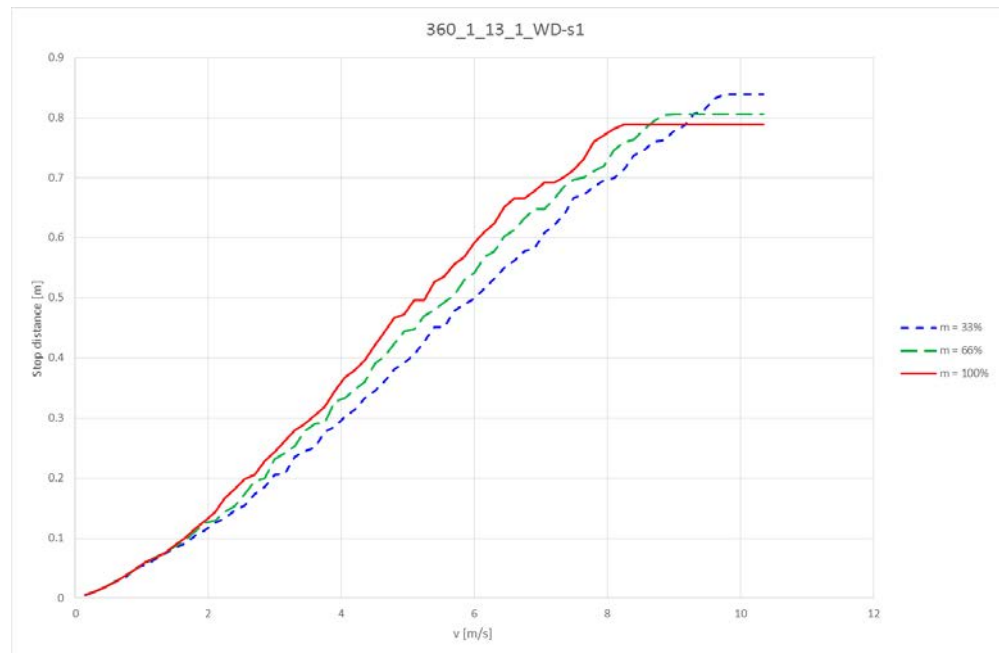
#### Stopping distance and stopping time



Continues on next page

Category 1, Wash Down

Stopping distance and stopping time



Continues on next page

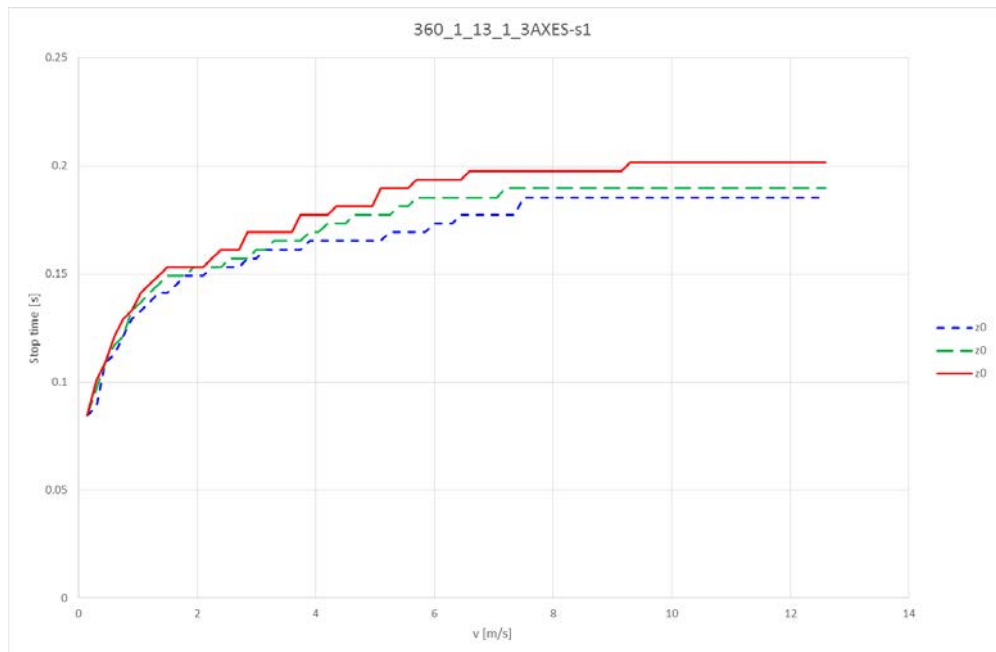
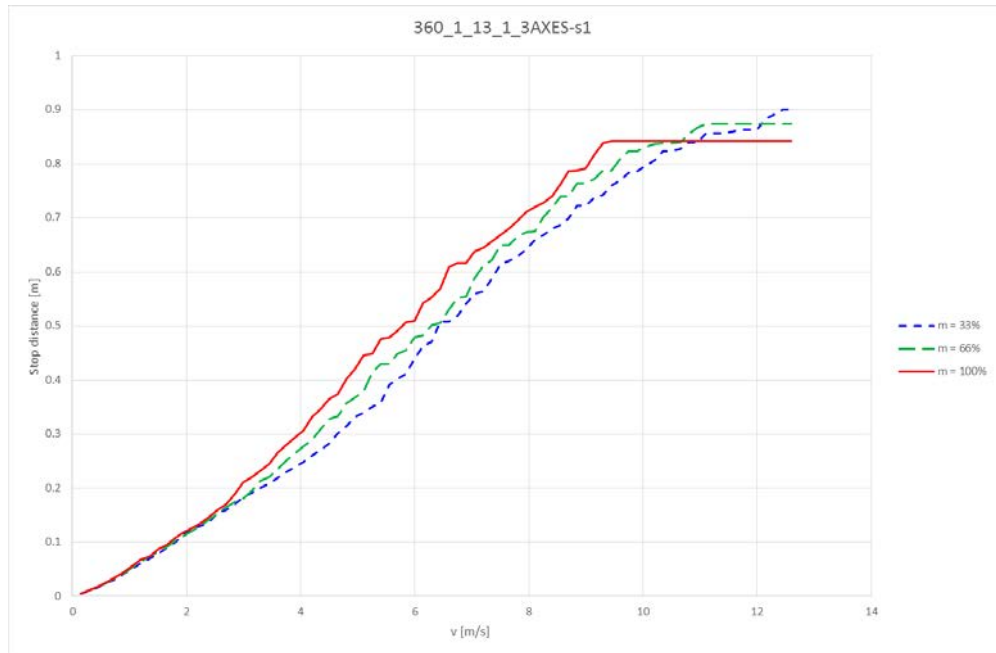
# 25 IRB 360

## 25.2 IRB 360 1.13 m 1 kg

Continued

### Category 1, 3AXES

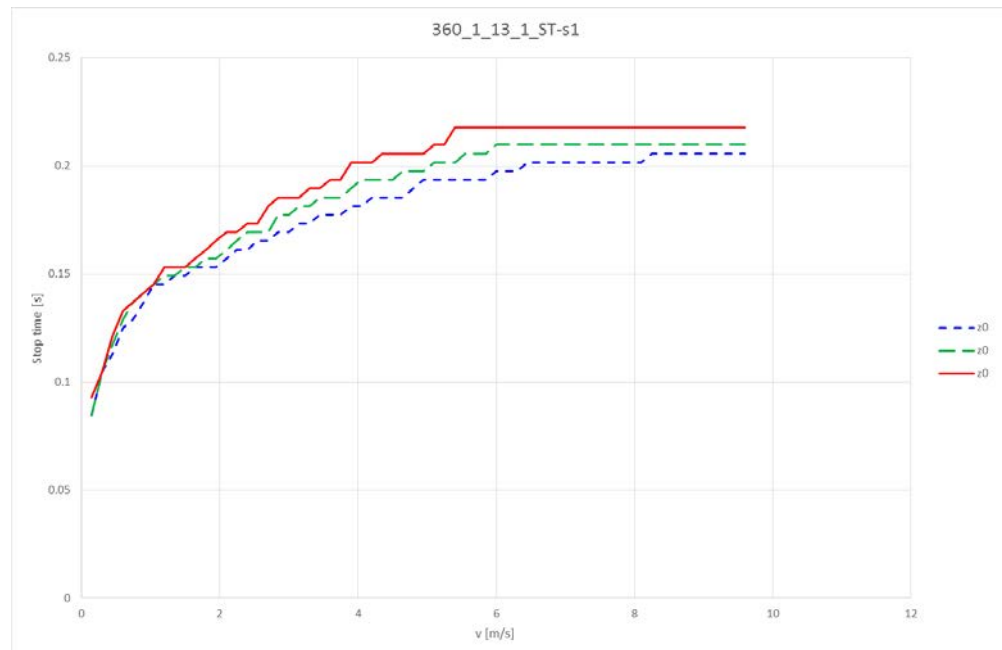
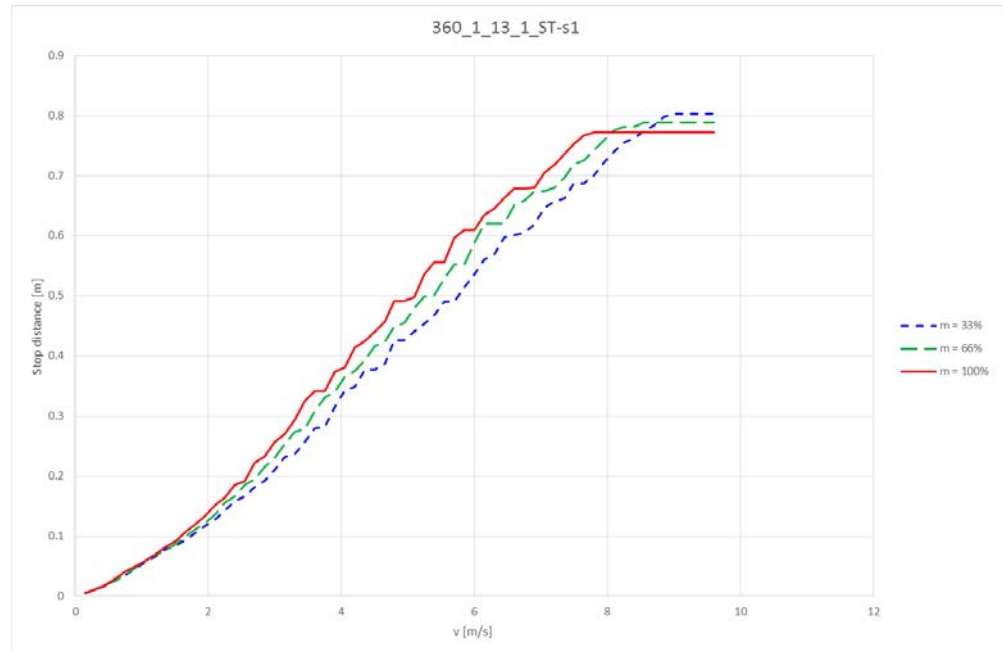
#### Stopping distance and stopping time



Continues on next page

Category 1, Stainless

Stopping distance and stopping time



## 25 IRB 360

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25.3 IRB 360 1.13 m 3 kg

### 25.3 IRB 360 1.13 m 3 kg

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#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load.

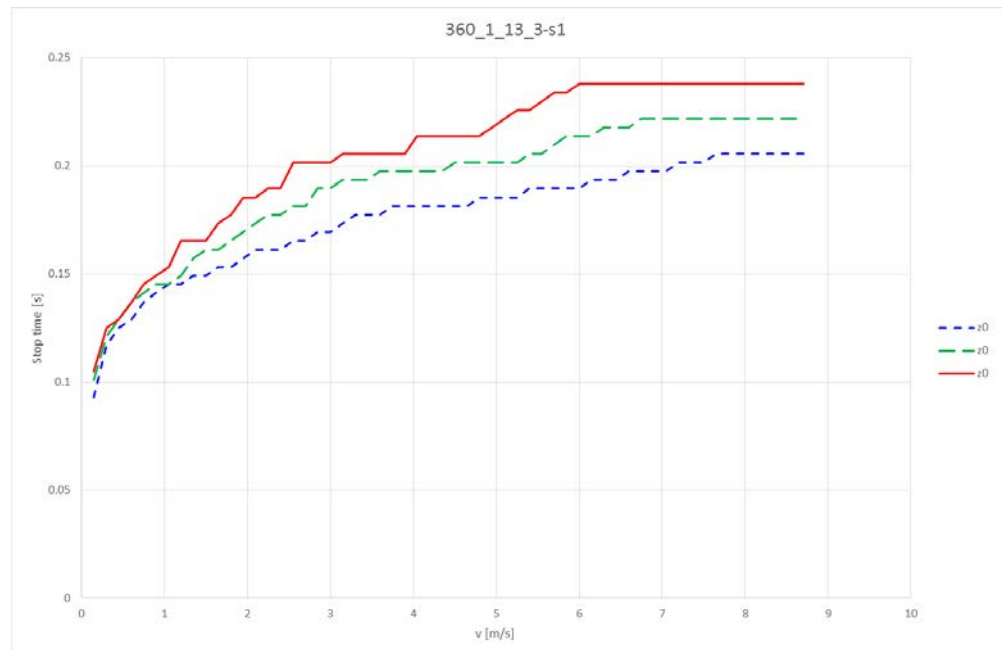
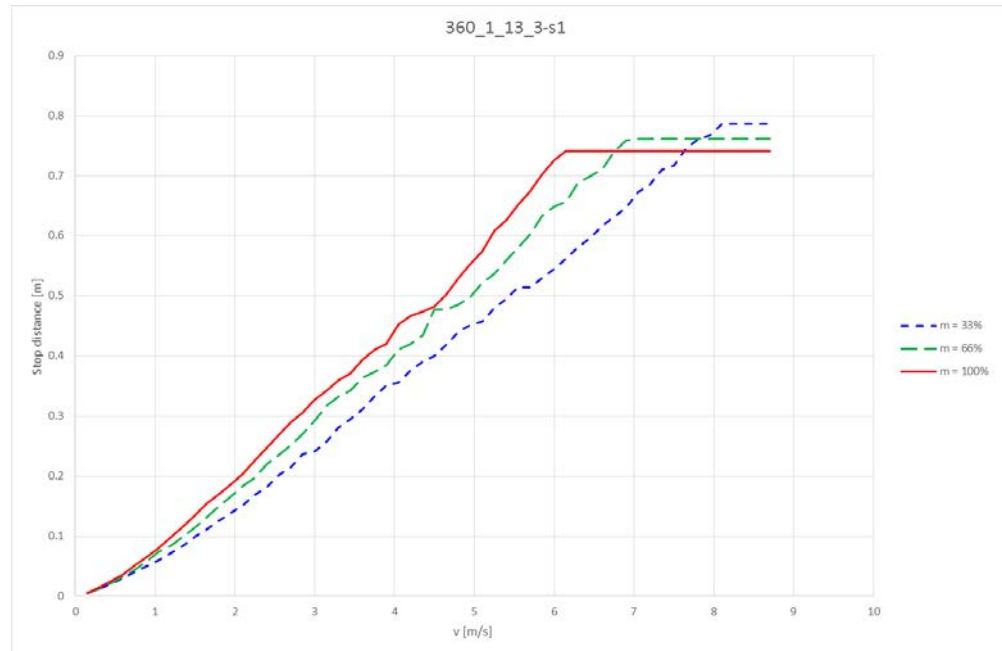
Protection type/variant	Distance (meters)	Stop time (s)
Standard	0.65	0.21
Wash down	0.65	0.21
3AXES	0.62	0.20
Stainless	0.64	0.22

*Continues on next page*



Category 1, Standard

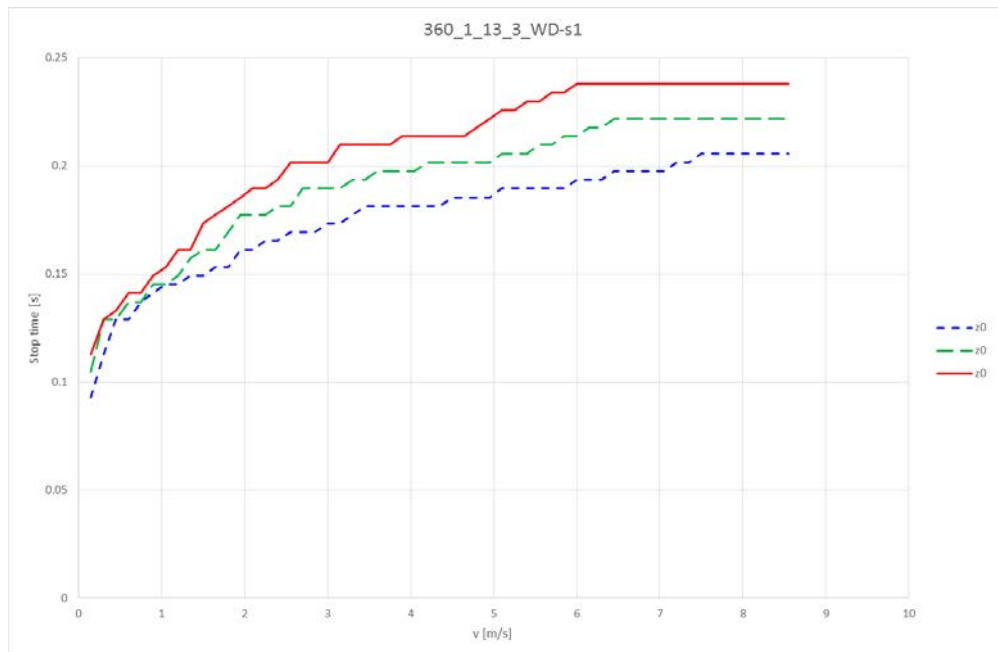
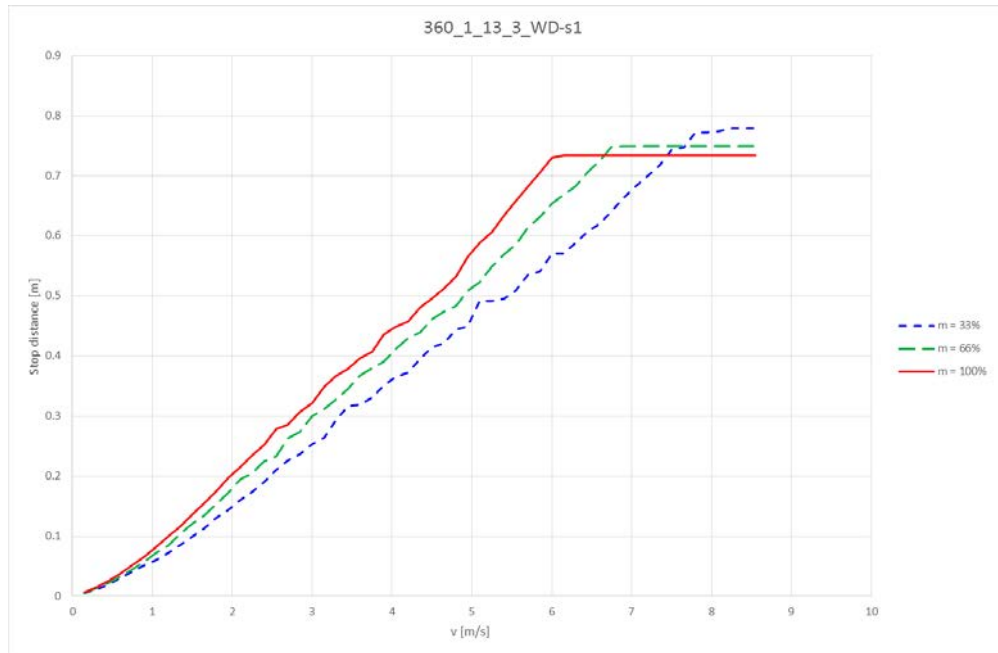
Stopping distance and stopping time



Continues on next page

Category 1, Wash Down

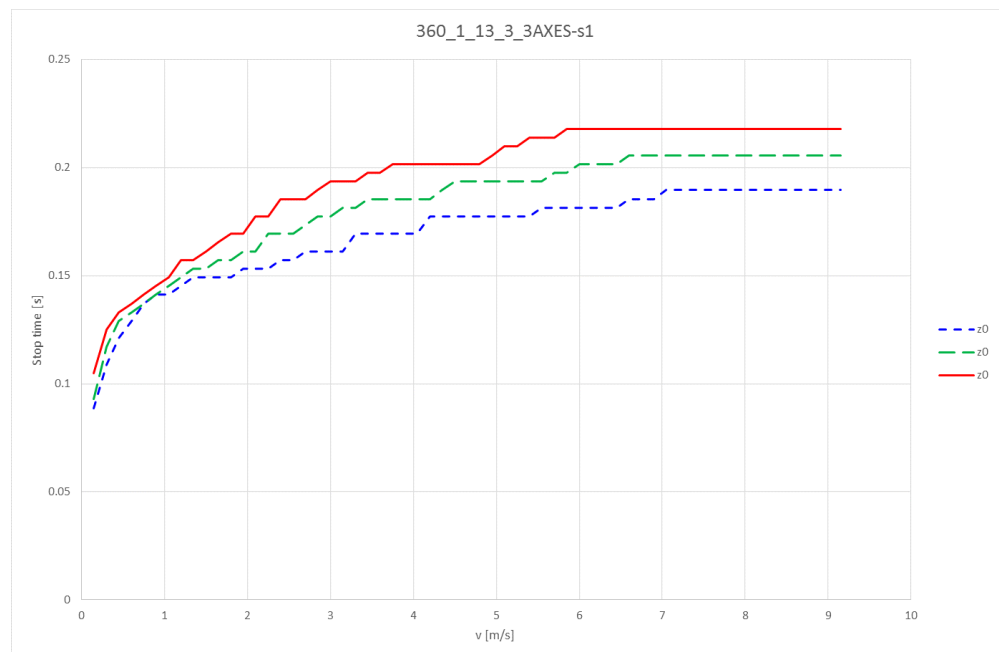
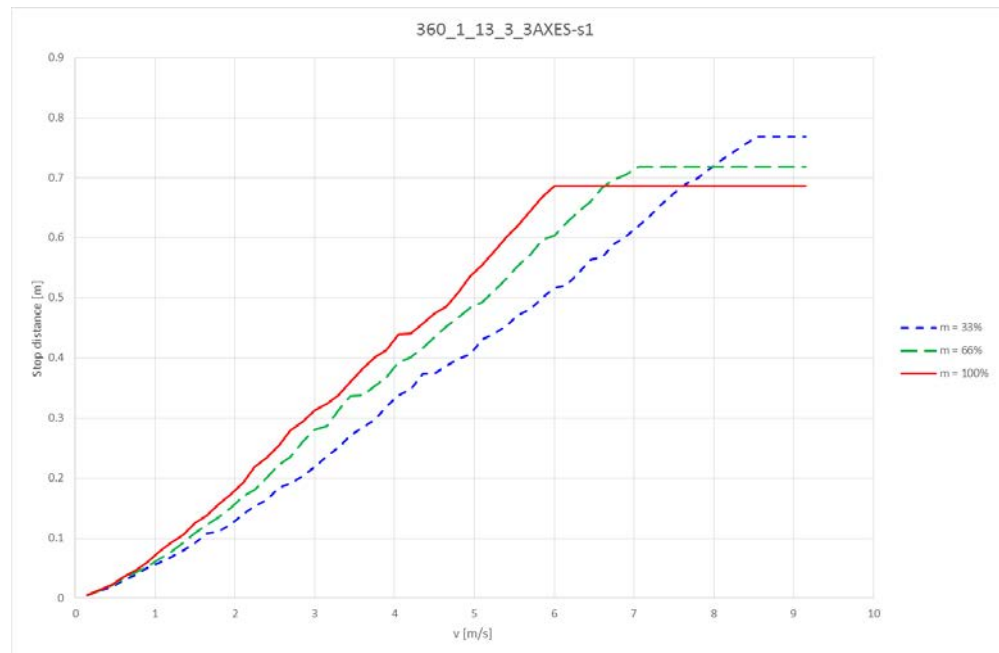
Stopping distance and stopping time



Continues on next page

Category 1, 3AXES

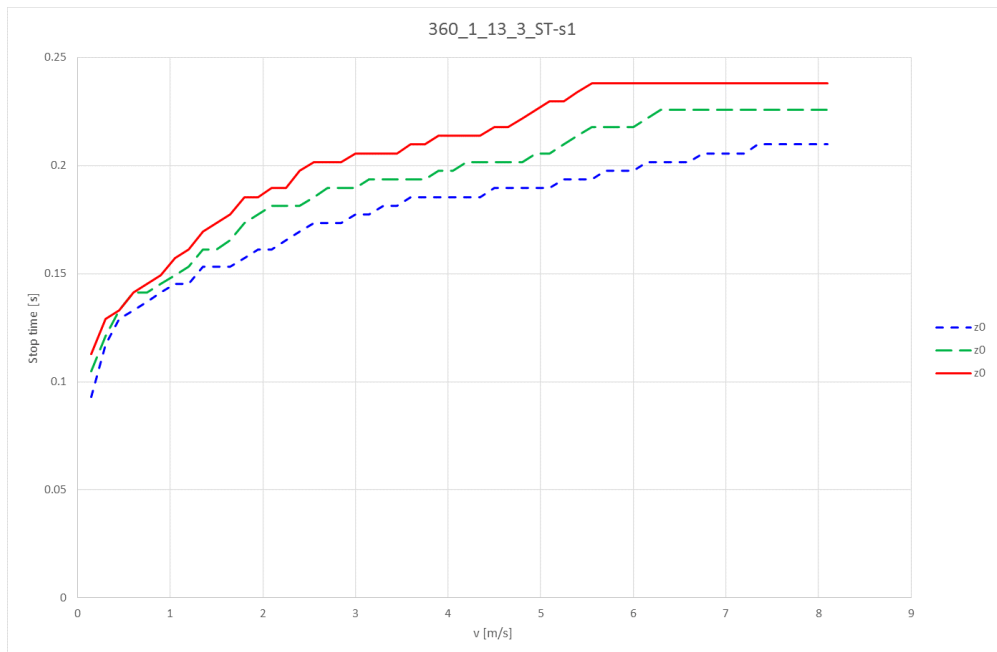
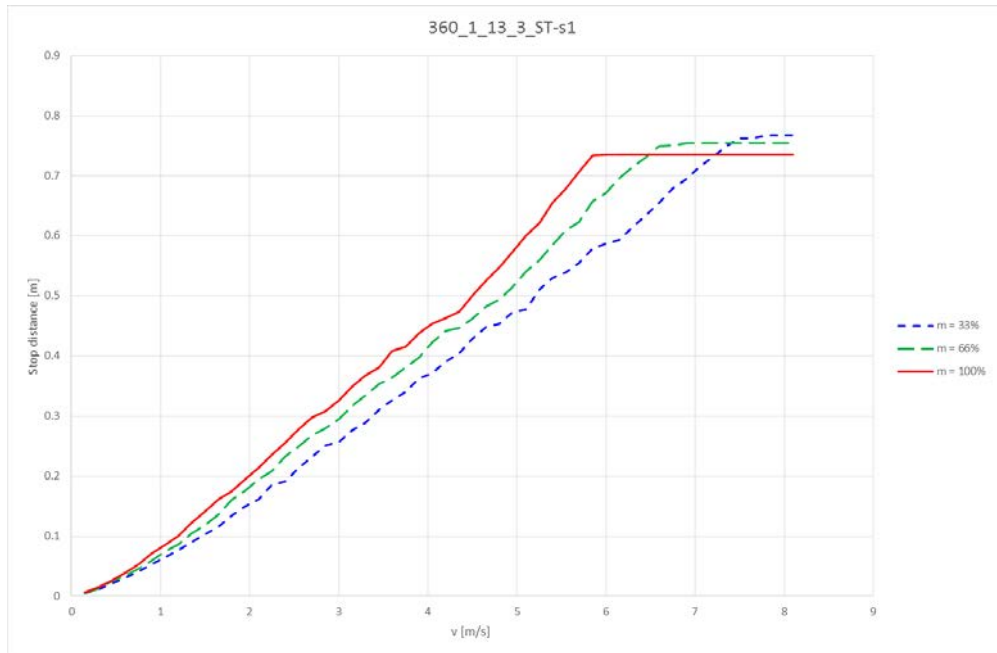
Stopping distance and stopping time



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Category 1, Stainless

Stopping distance and stopping time



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## 25.4 IRB 360 1.13 m 8 kg

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### Category 0

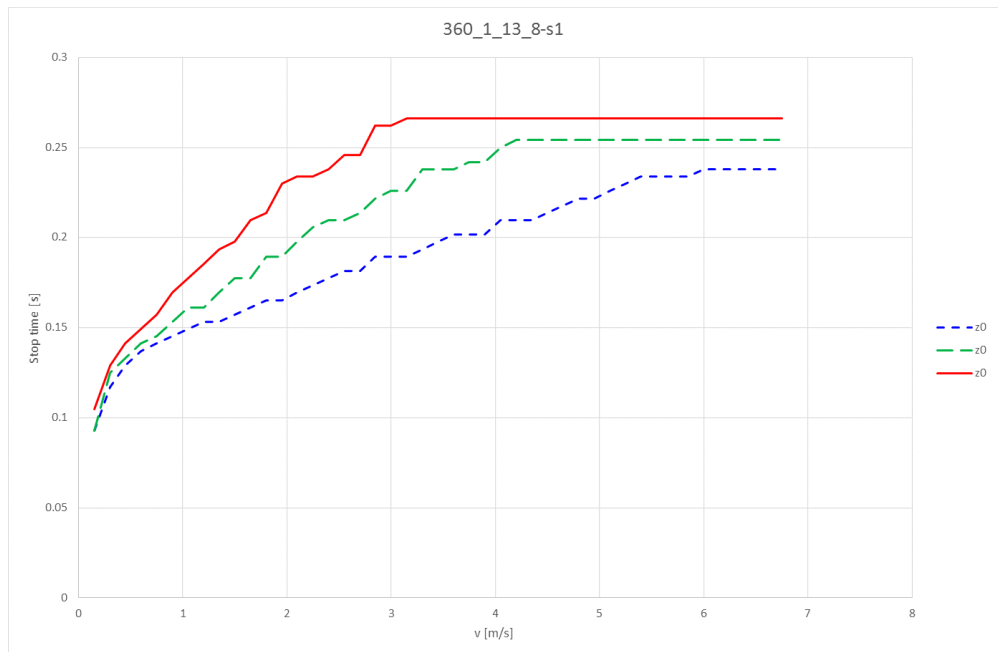
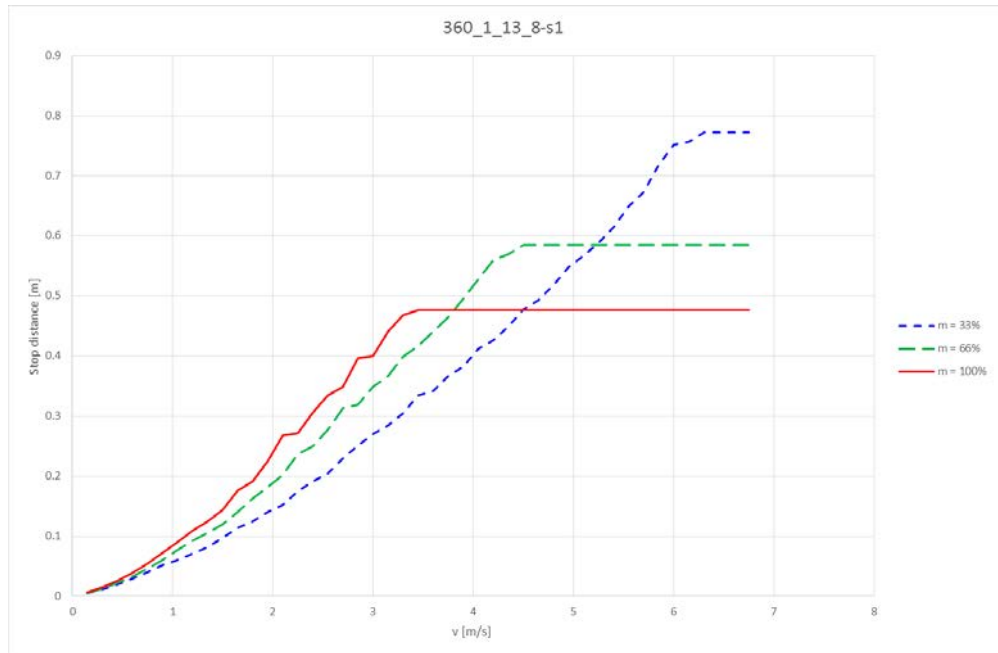
The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load.

Protection type/variant	Distance (meters)	Stop time (s)
Standard	0.65	0.33

*Continues on next page*

Category 1, Standard

Stopping distance and stopping time



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**25.5 IRB 360 1.6 m 1 kg**

---

**Category 0**

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load.

Protection type/variant	Distance (meters)	Stop time (s)
Standard	0.90	0.22

*Continues on next page*

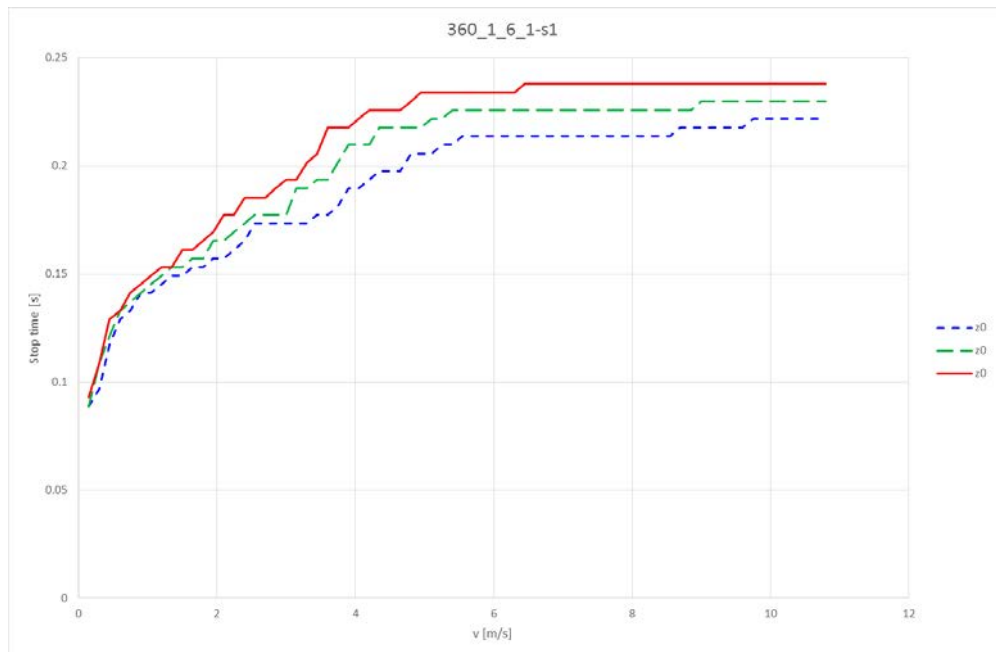
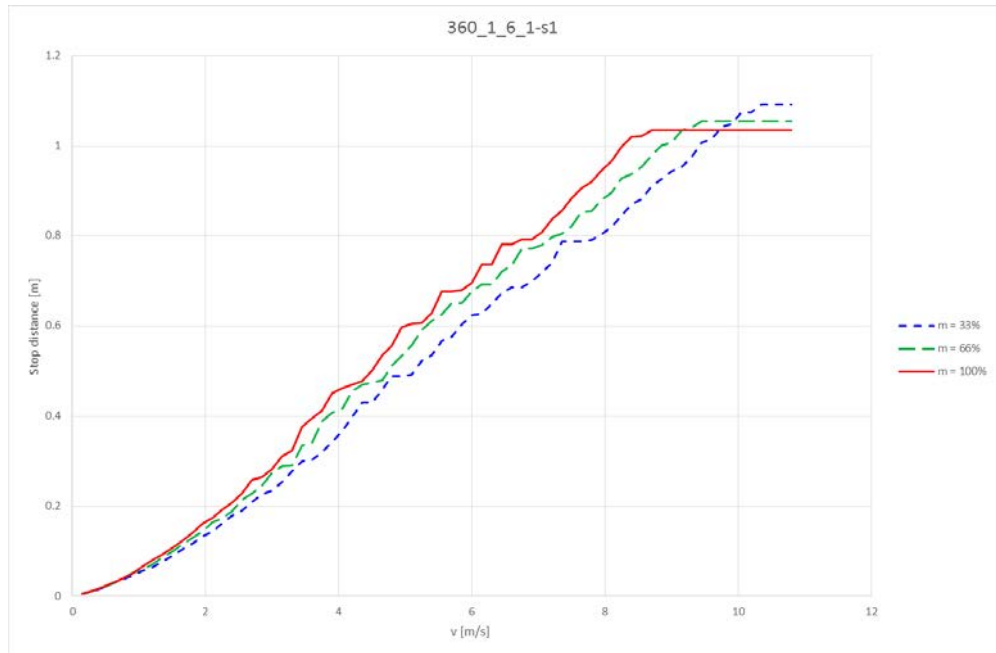
# 25 IRB 360

25.5 IRB 360 1.6 m 1 kg

Continued

## Category 1, Standard

### Stopping distance and stopping time





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## 25.6 IRB 360 1.6 m 6 kg

---

### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load.

Protection type/variant	Distance (meters)	Stop time (s)
Standard	0.93	0.36

*Continues on next page*

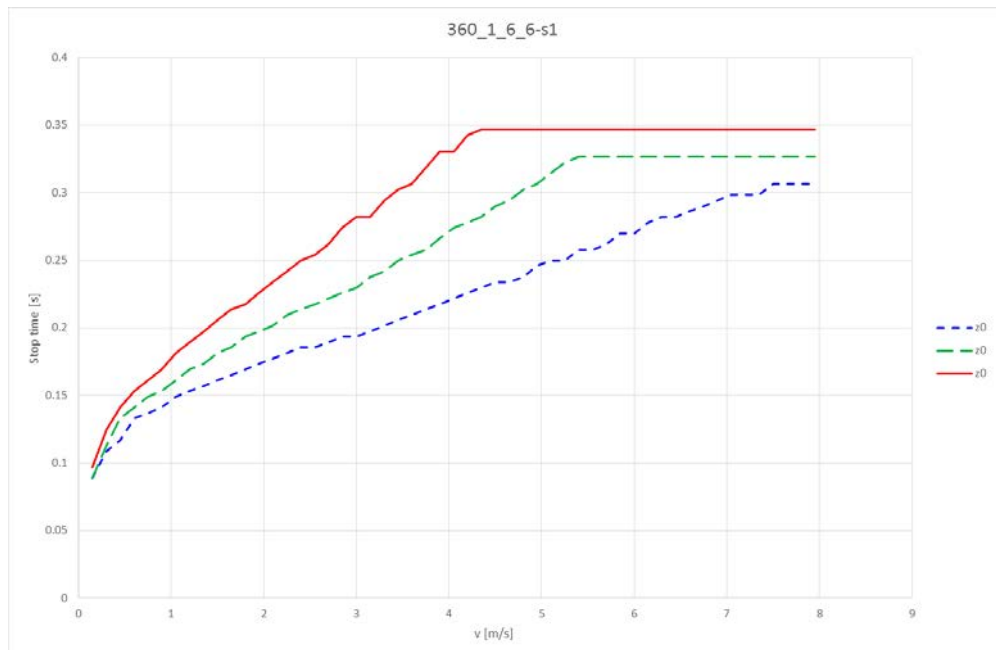
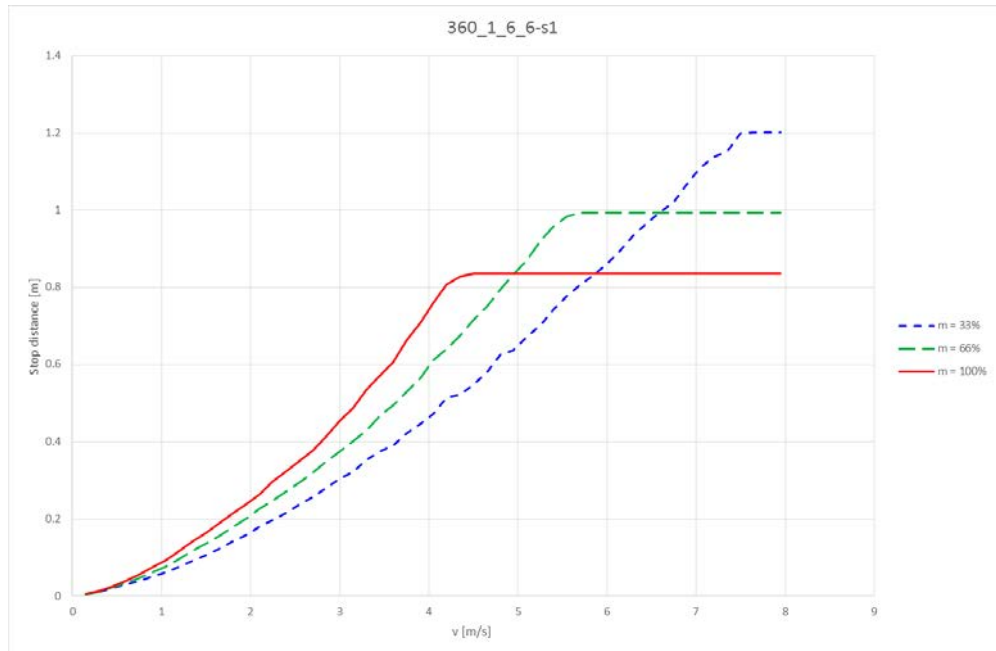
## 25 IRB 360

### 25.6 IRB 360 1.6 m 6 kg

Continued

#### Category 1, Standard

#### Stopping distance and stopping time



## 26 IRB 365

### 26.1 IRB 365 0.8 m 1.5 kg

#### Category 0

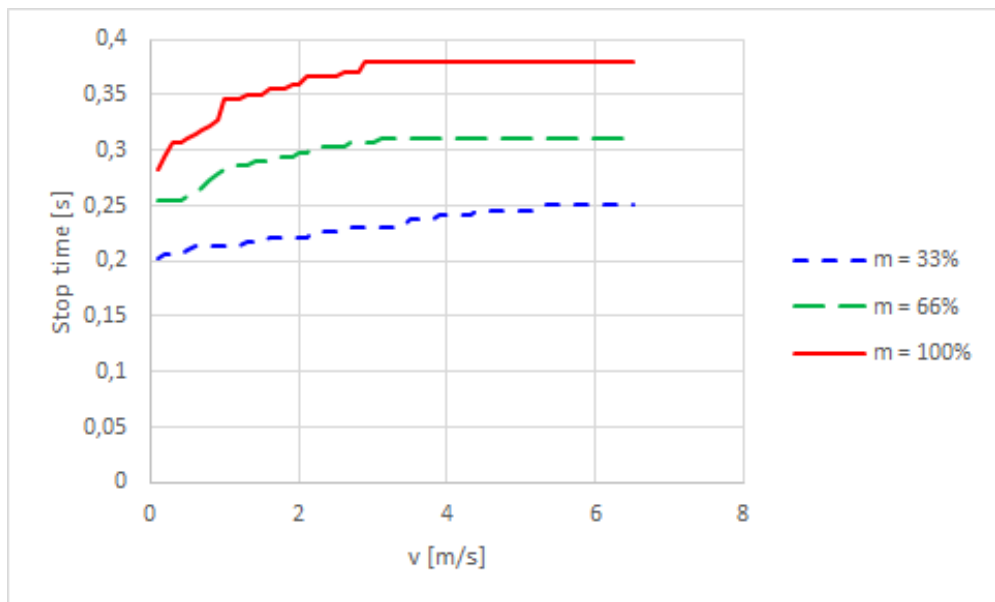
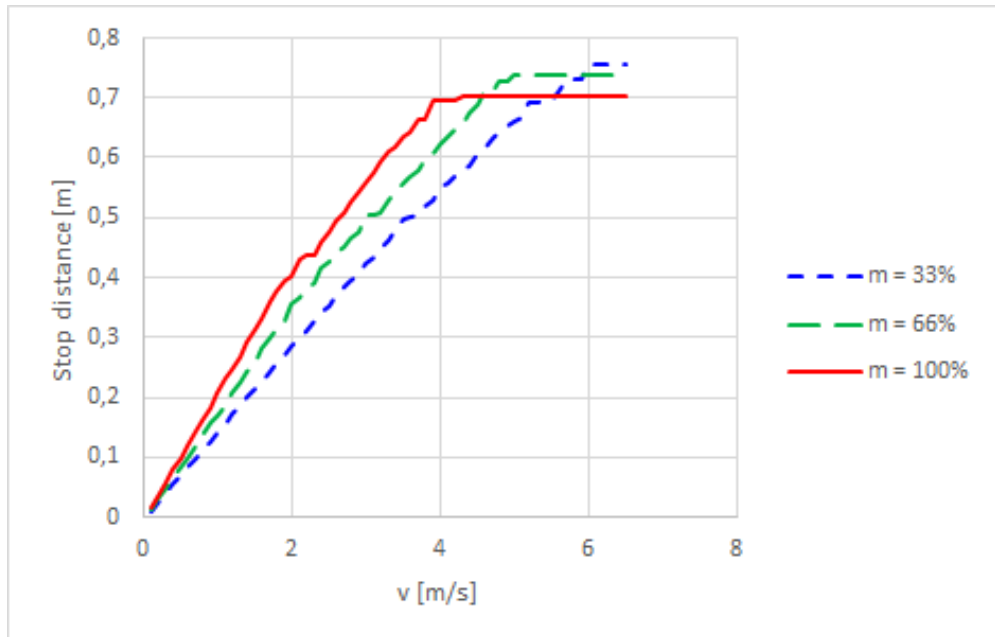
The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load.

Protection type/variant	Distance (meters)	Stop time (s)
Standard	0.55	0.25

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Category 1, Standard

Stopping distance and stopping time



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## 26.2 IRB 365 1.1 m 1.5 kg

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### Category 0

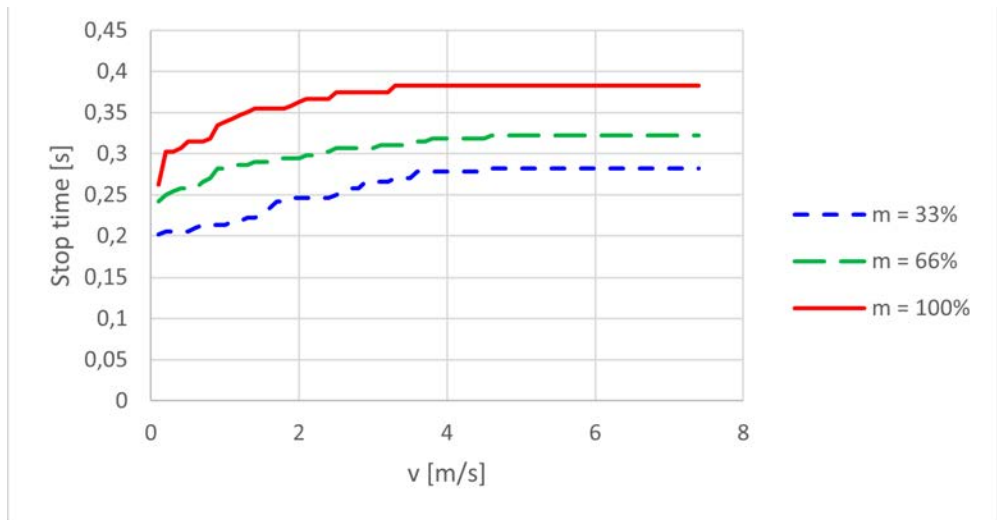
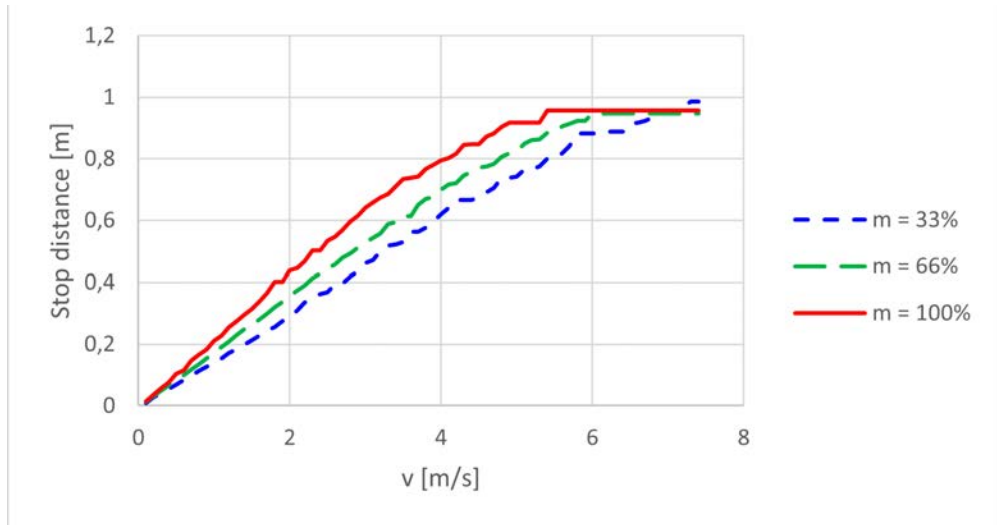
The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load.

Protection type/variant	Distance (meters)	Stop time (s)
Standard	0.41	0.29

*Continues on next page*

Category 1, Standard

Stopping distance and stopping time



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**26.3 IRB 365 1.3 m 1.5 kg**

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**Category 0**

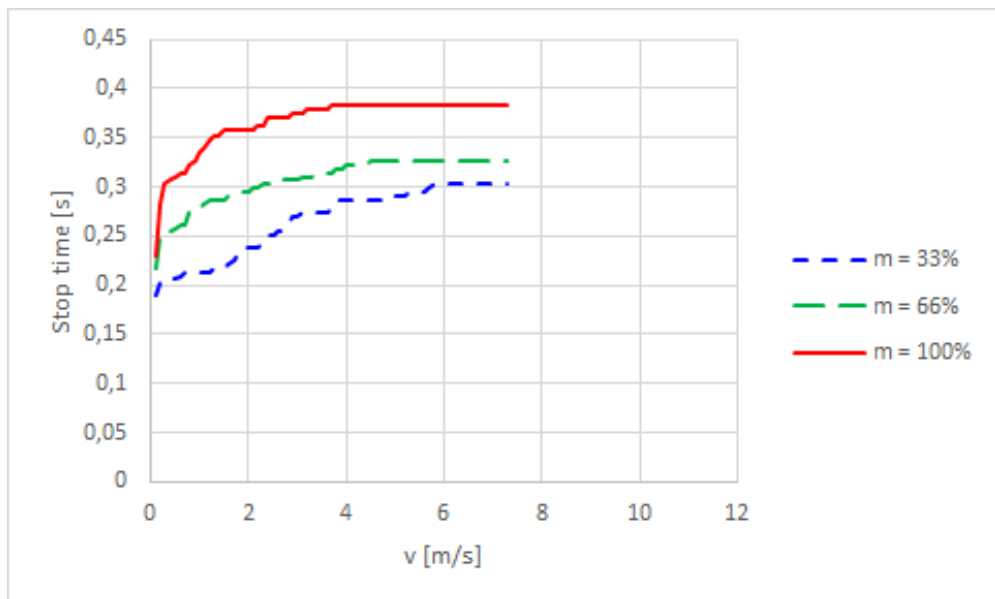
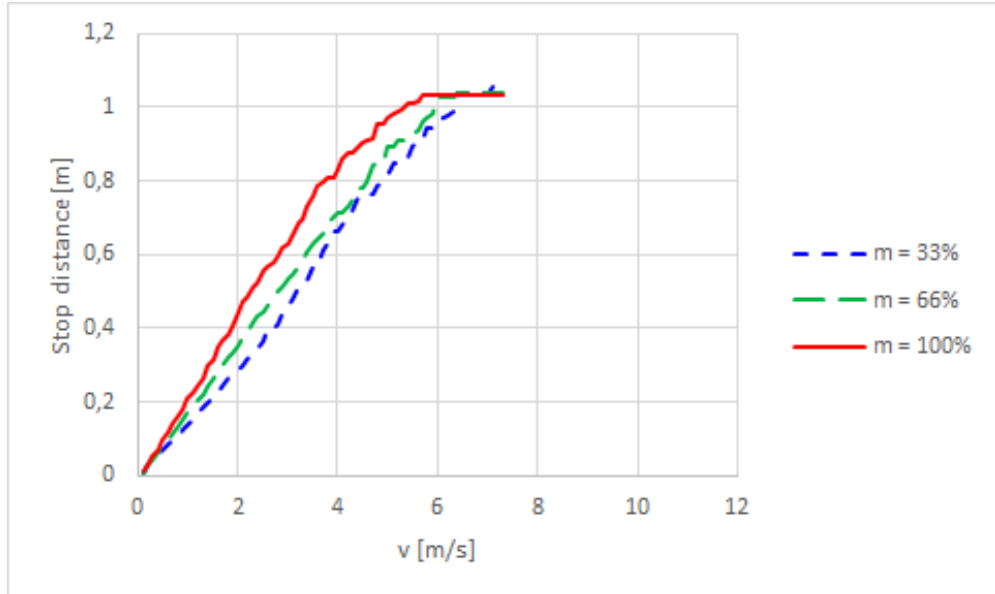
The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load.

Protection type/variant	Distance (meters)	Stop time (s)
Standard	0.73	0.26

*Continues on next page*

Category 1, Standard

Stopping distance and stopping time





## 27 IRB 390

### 27.1 IRB 390 1.3 m 10 kg

#### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load.

Protection type/variant	Distance (meters)	Stop time (s)
Standard	0.71	0.29

*Continues on next page*

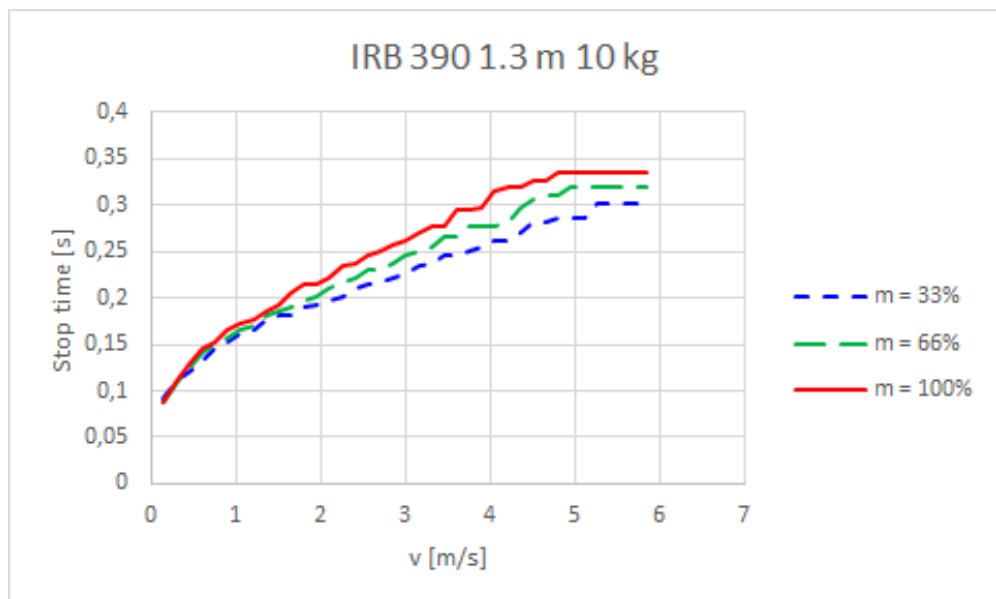
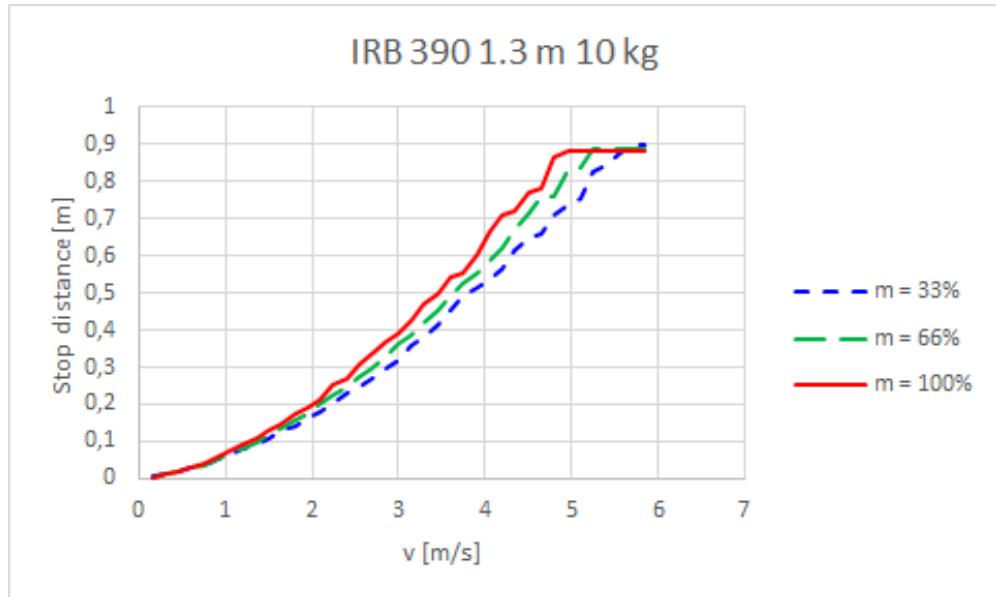
## 27 IRB 390

### 27.1 IRB 390 1.3 m 10 kg

Continued

#### Category 1, Standard

#### Stopping distance and stopping time



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## 27.2 IRB 390 1.3 m 15 kg

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### Category 0

The following table describes the stopping distance and time for category 0 emergency stop at max speed, with the arm stretched out to the maximum with maximum load.

Protection type/variant	Distance (meters)	Stop time (s)
Standard	0.72	0.28

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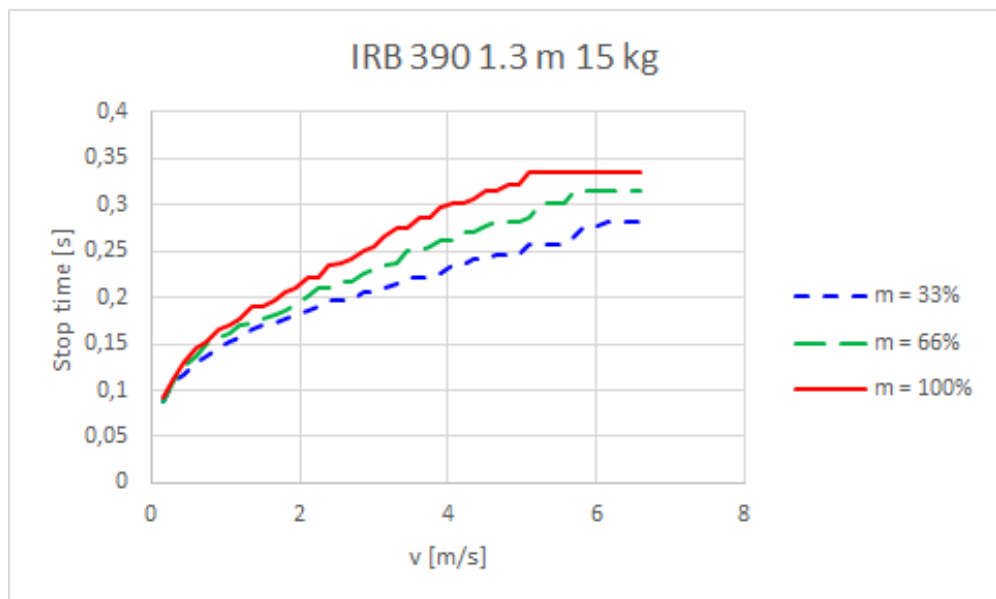
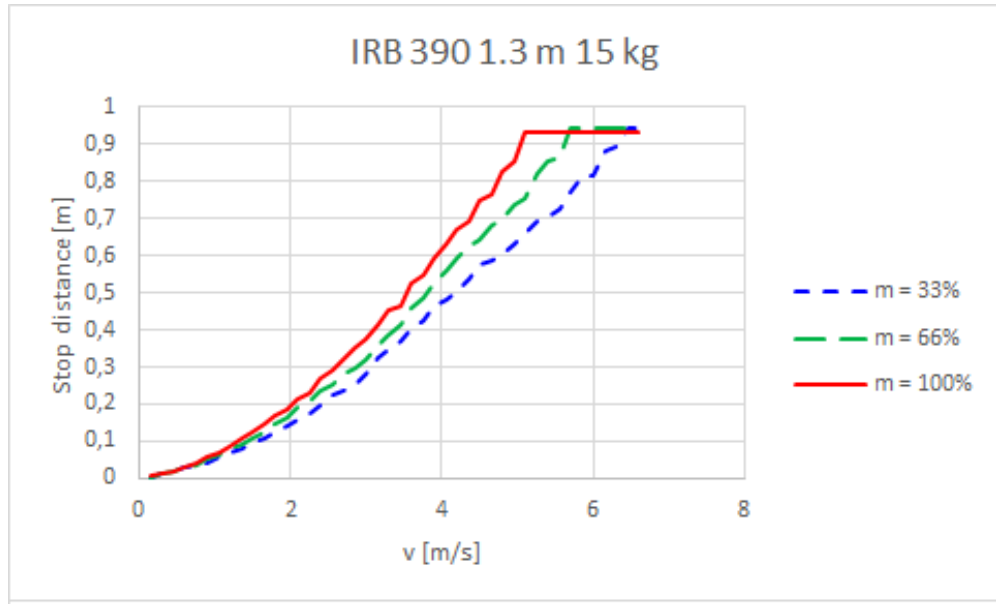
## 27 IRB 390

### 27.2 IRB 390 1.3 m 15 kg

Continued

#### Category 1, Standard

#### Stopping distance and stopping time

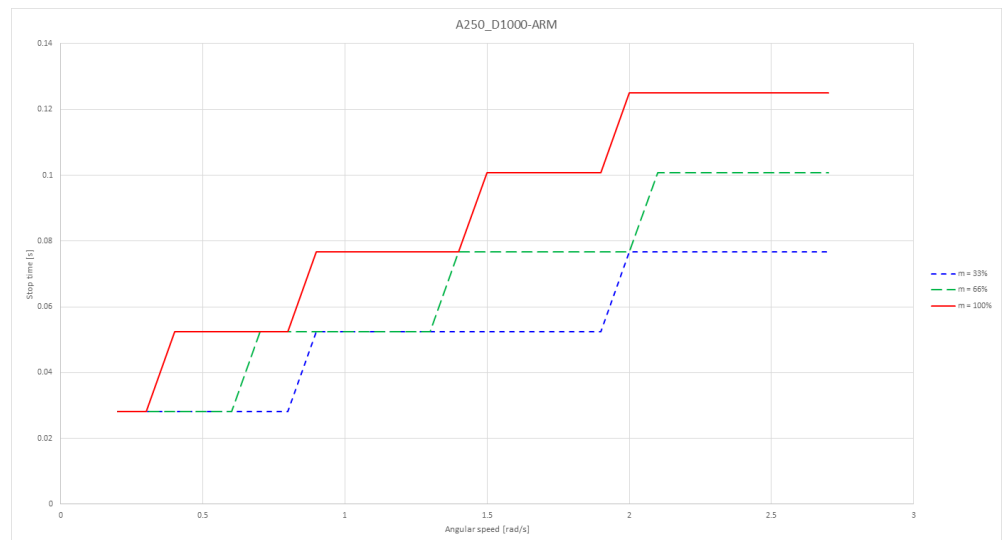
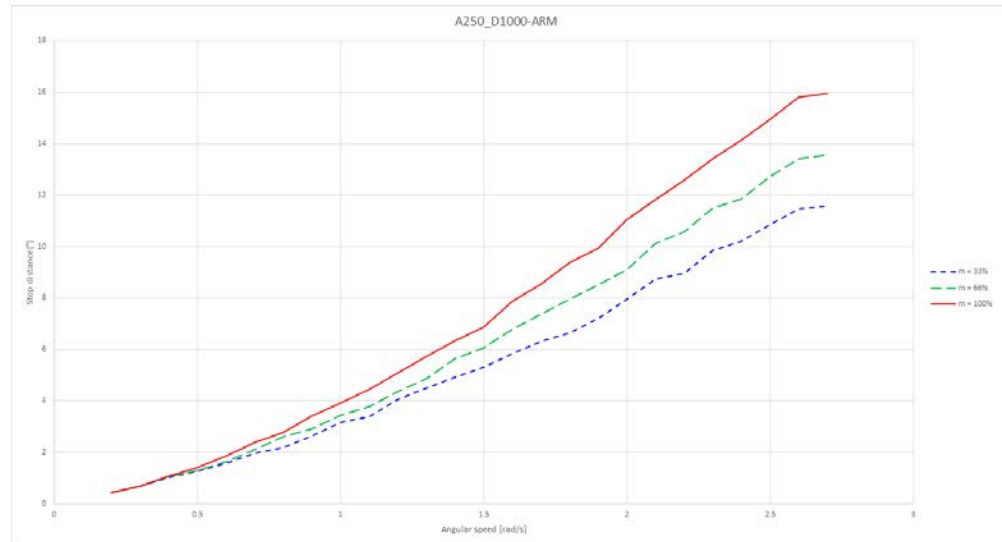


# 28 IRBP A

## 28.1 A250\_D1000

### Category 0, ARM

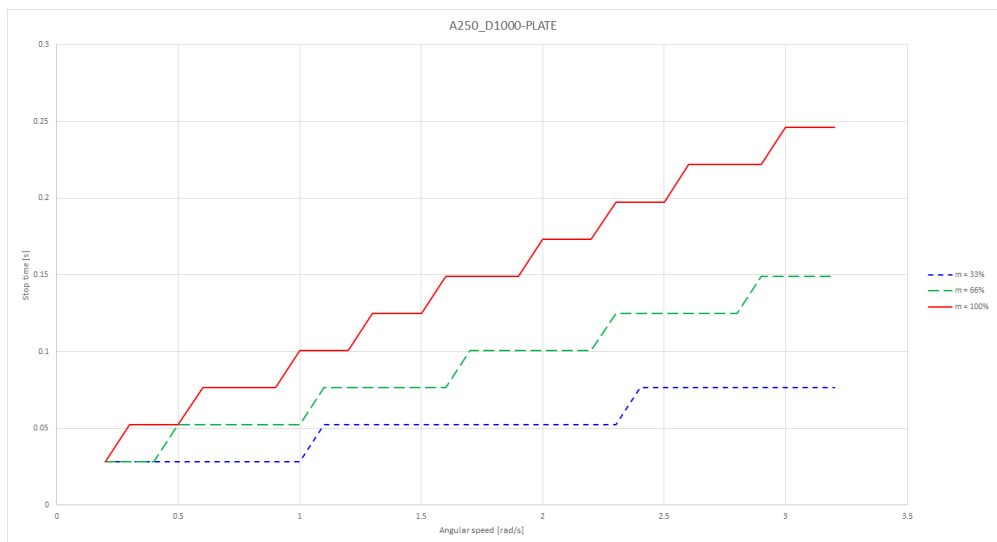
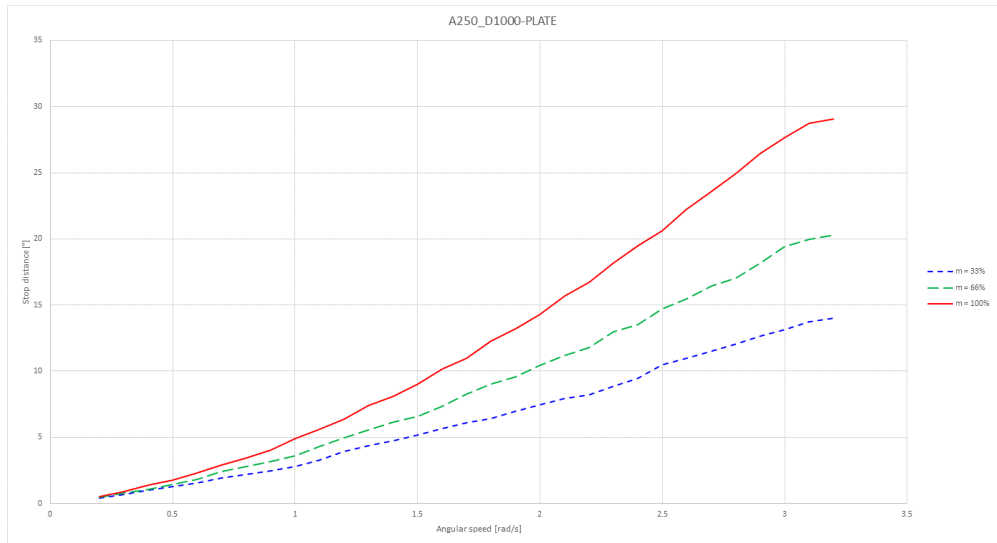
#### Stopping distance and stopping time



Continues on next page

Category 0, PLATE

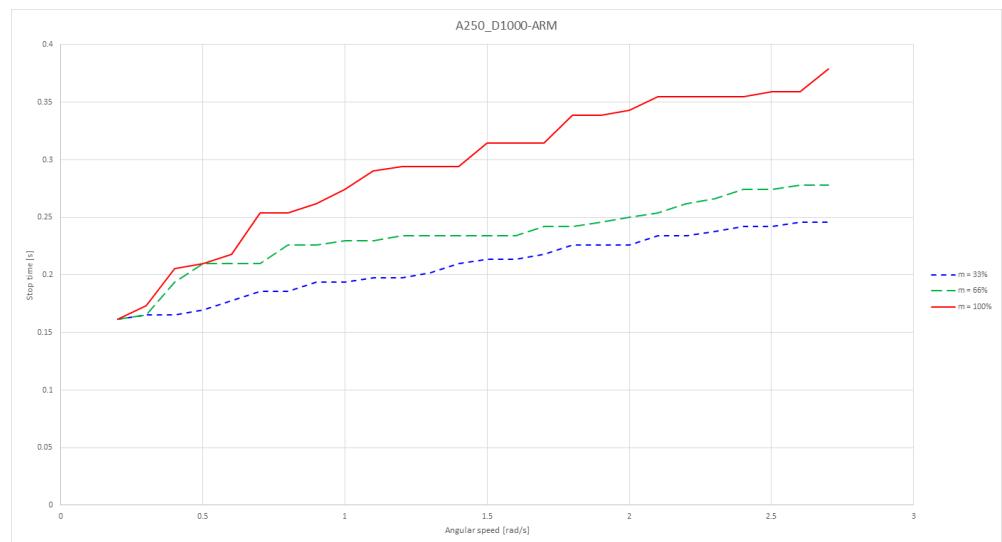
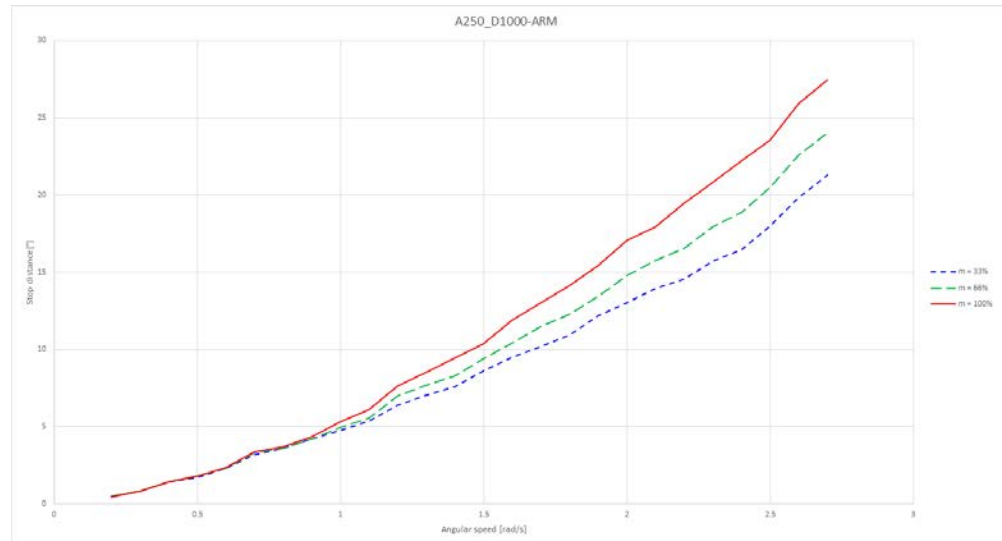
Stopping distance and stopping time



Continues on next page

Category 1, ARM

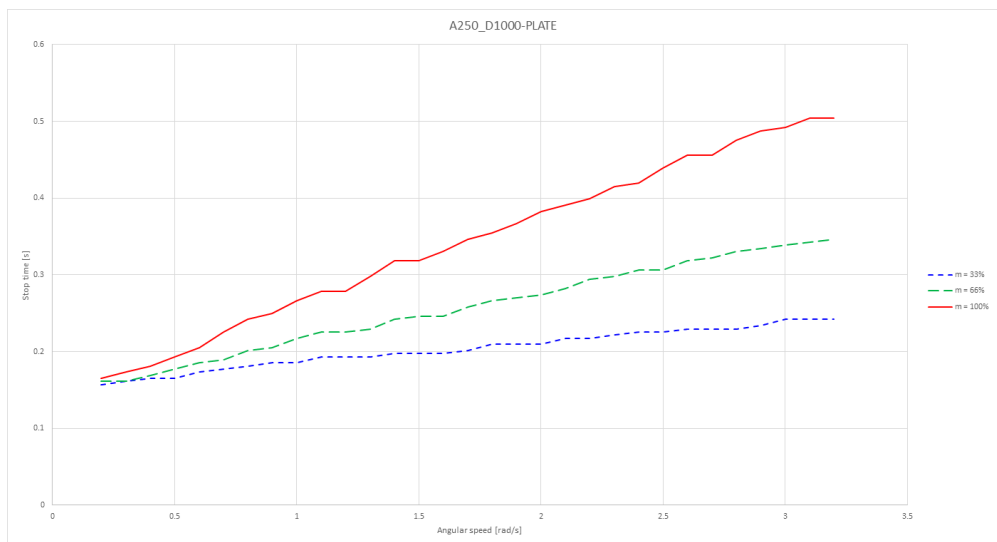
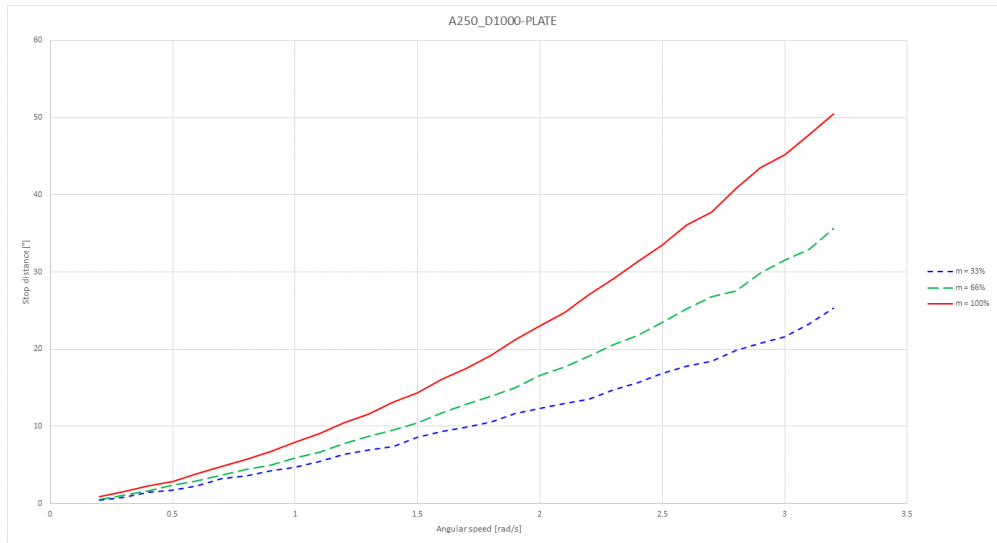
Stopping distance and stopping time



Continues on next page

Category 1, PLATE

Stopping distance and stopping time

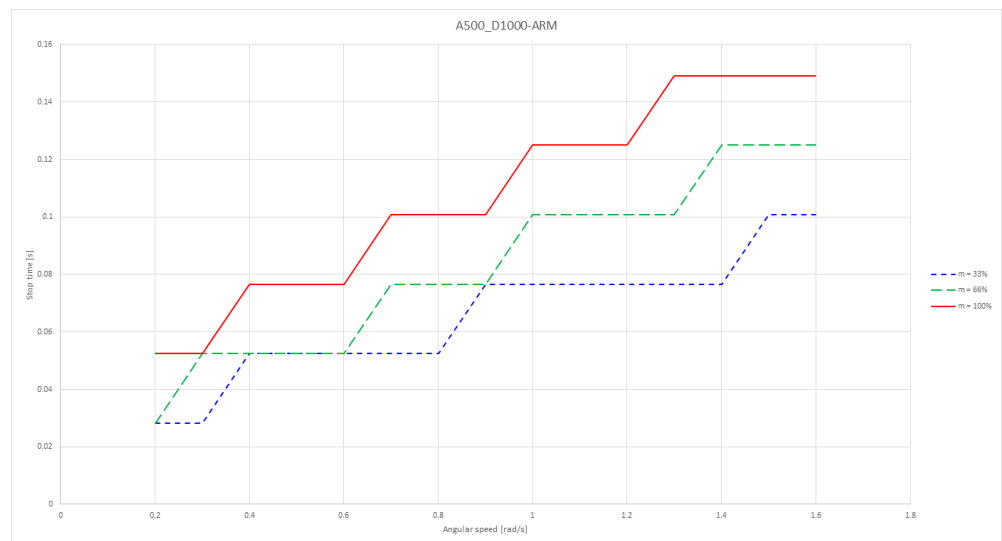
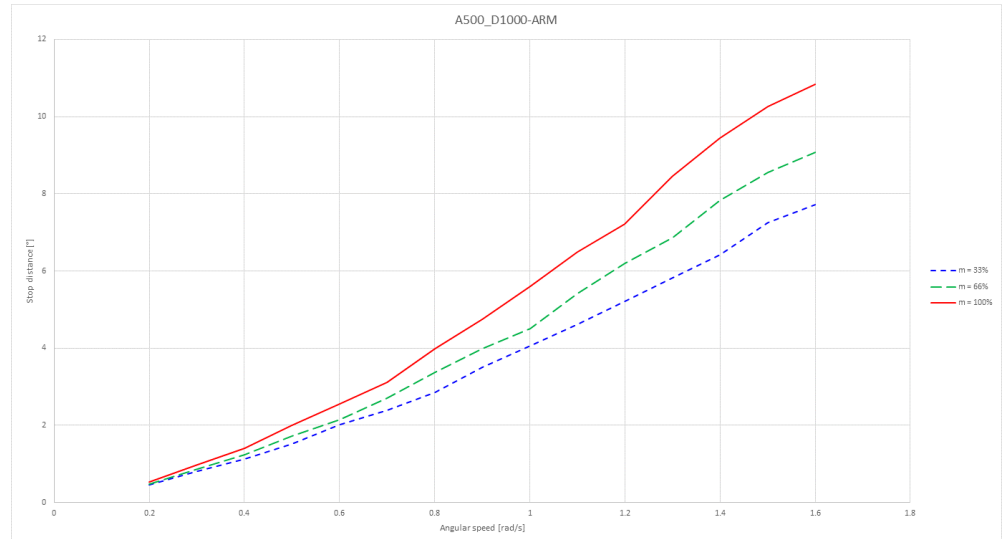




28.2 A500\_D1000

Category 0, ARM

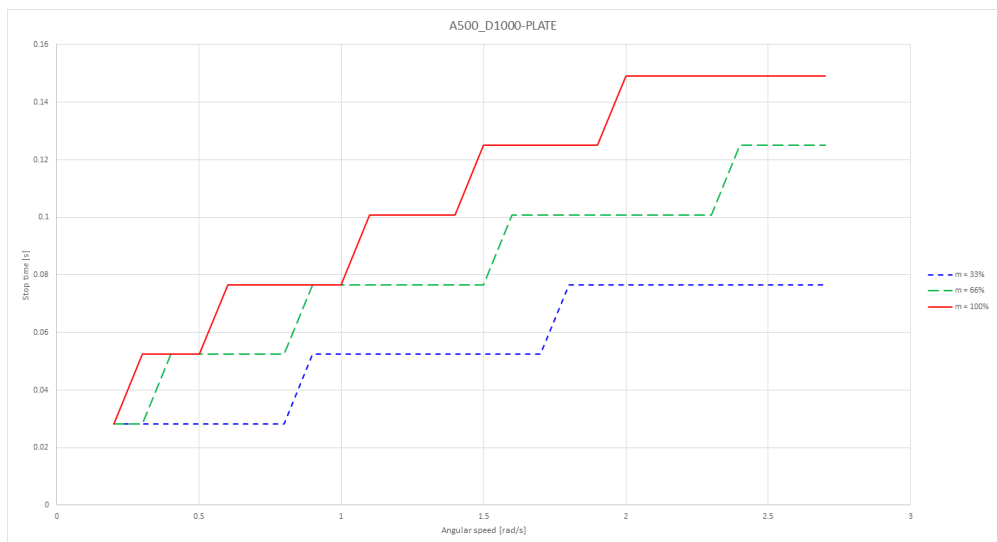
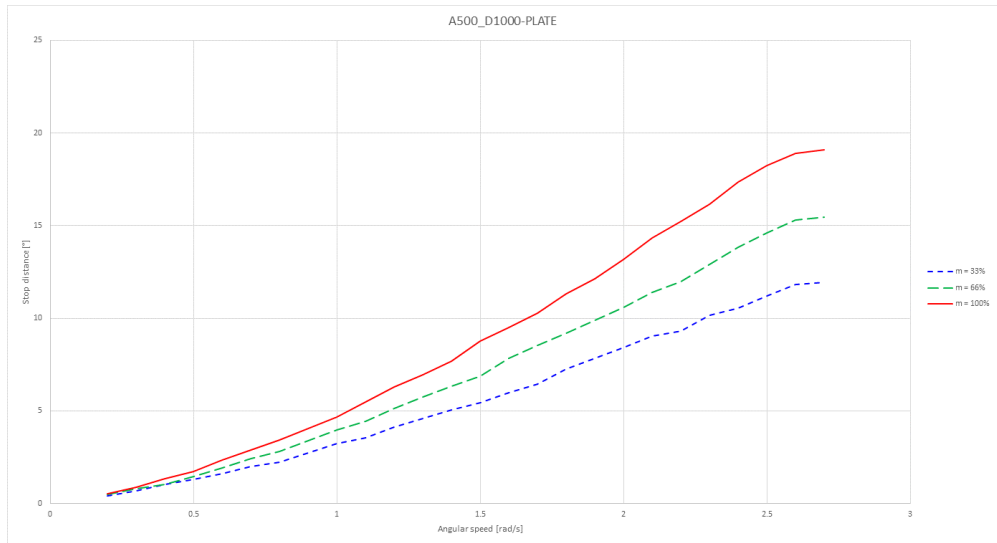
Stopping distance and stopping time



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Category 0, PLATE

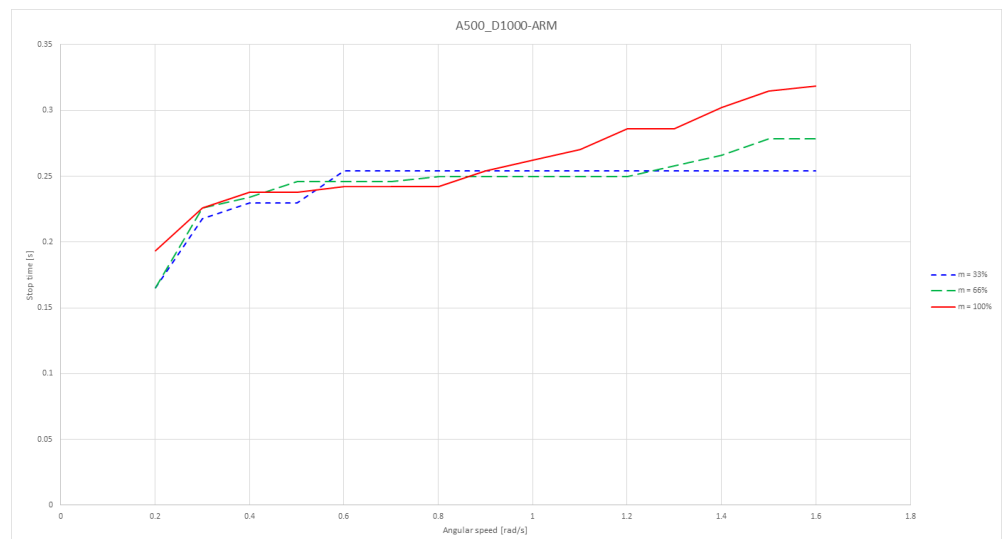
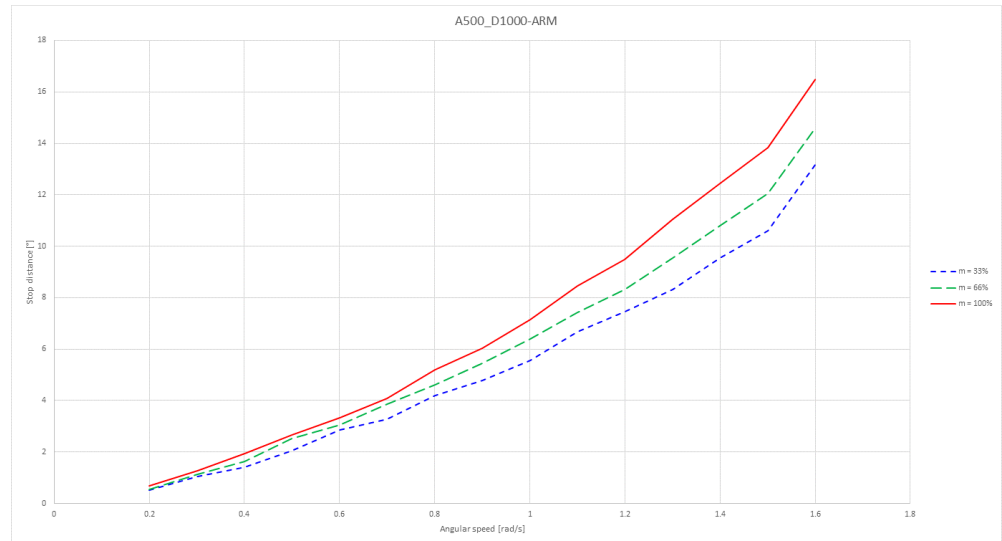
Stopping distance and stopping time



Continues on next page

Category 1, ARM

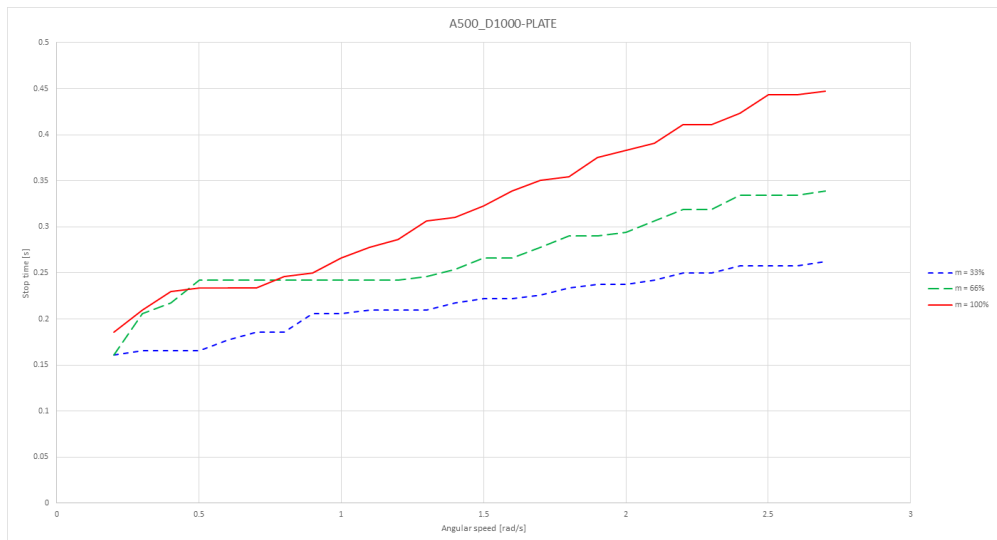
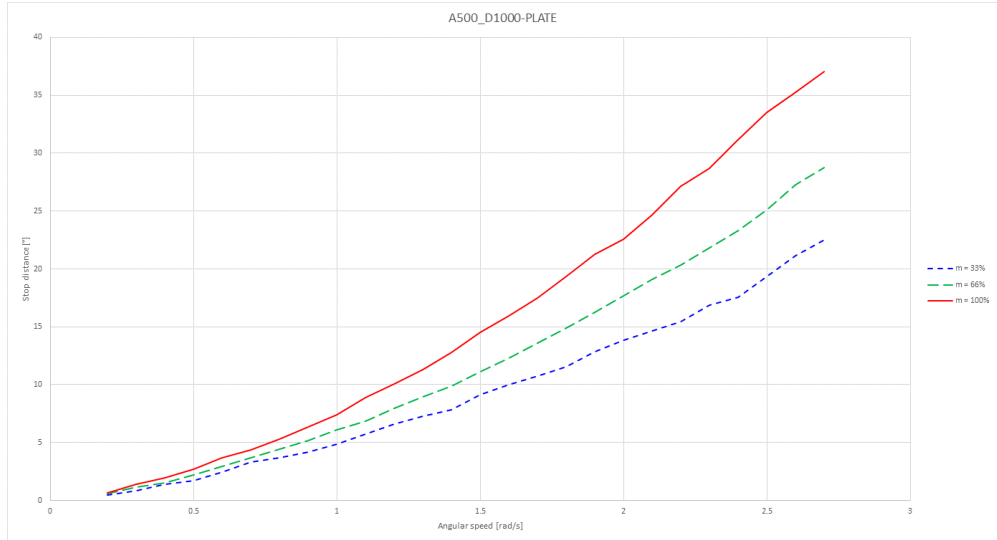
Stopping distance and stopping time



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Category 1, PLATE

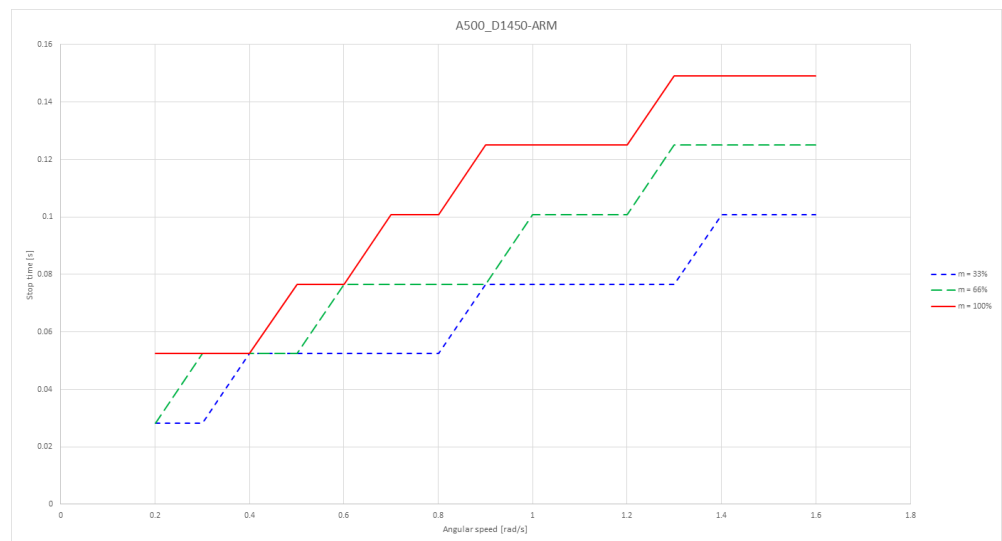
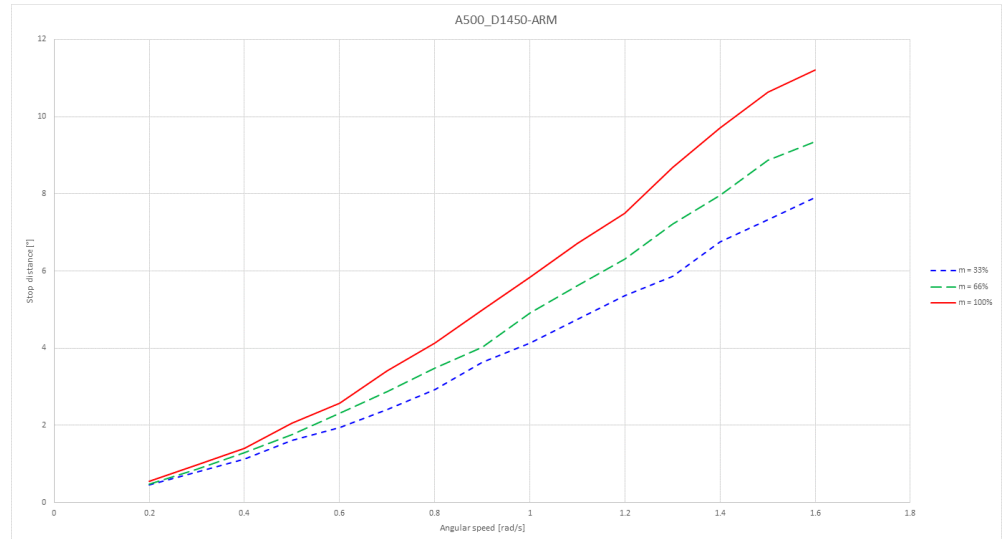
Stopping distance and stopping time



28.3 A500\_D1450

Category 0, ARM

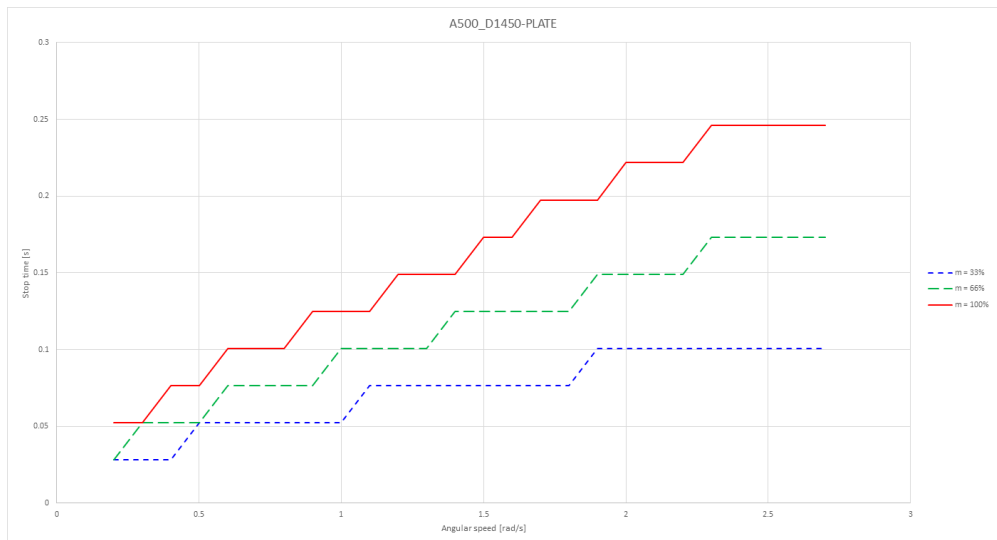
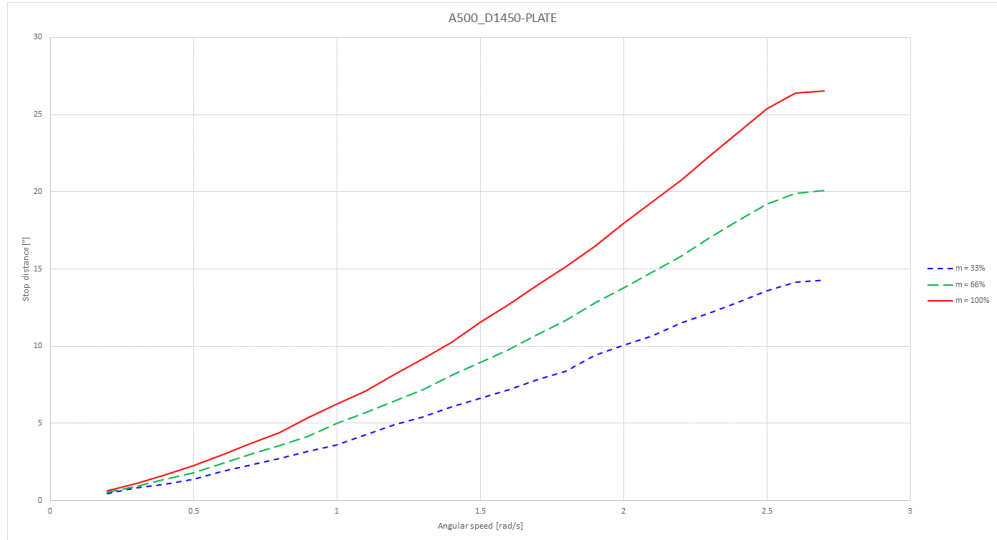
Stopping distance and stopping time



Continues on next page

Category 0, PLATE

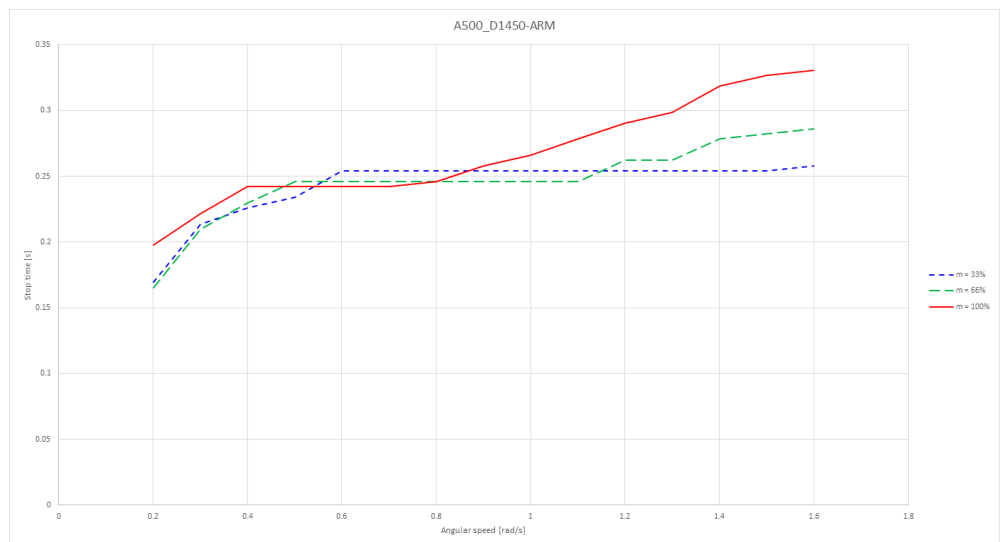
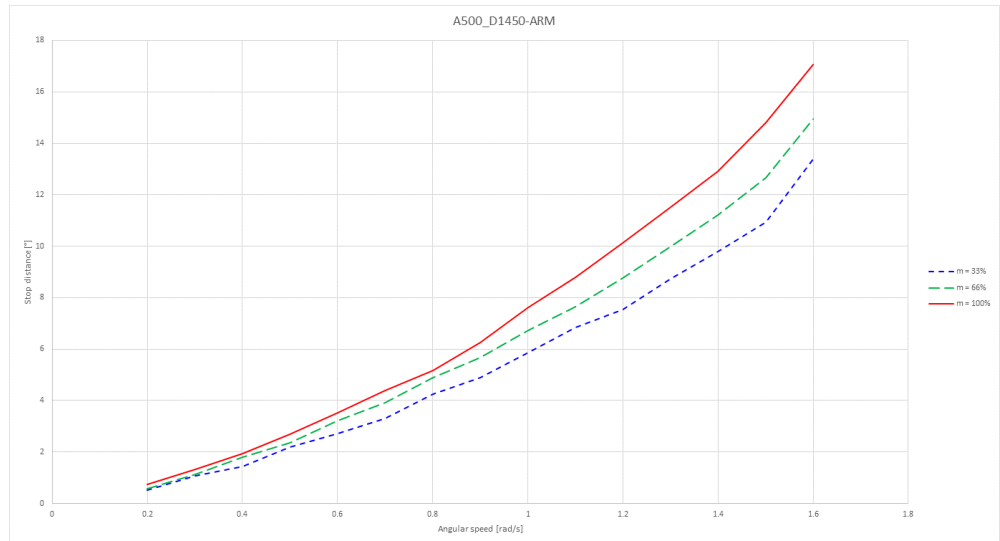
Stopping distance and stopping time



Continues on next page

Category 1, ARM

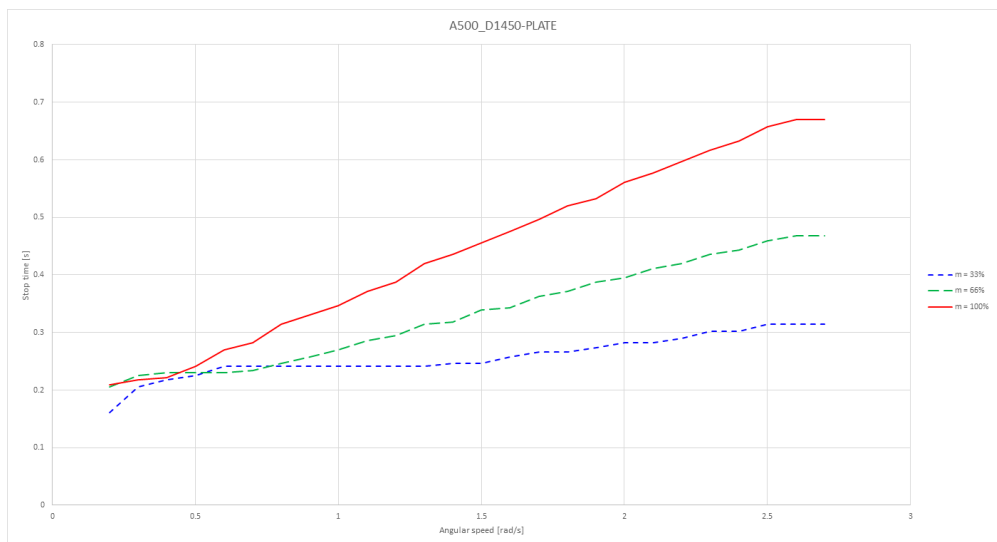
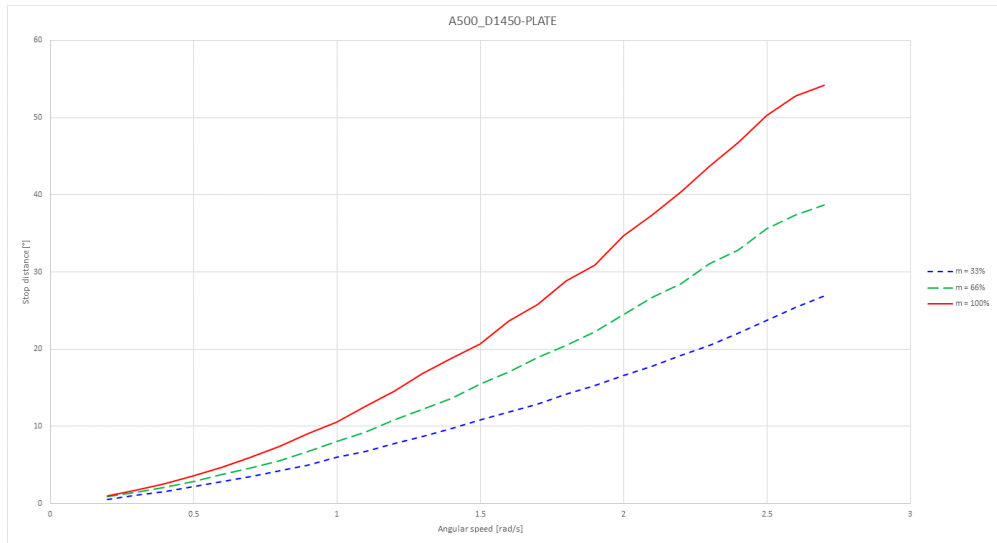
Stopping distance and stopping time



Continues on next page

Category 1, PLATE

Stopping distance and stopping time

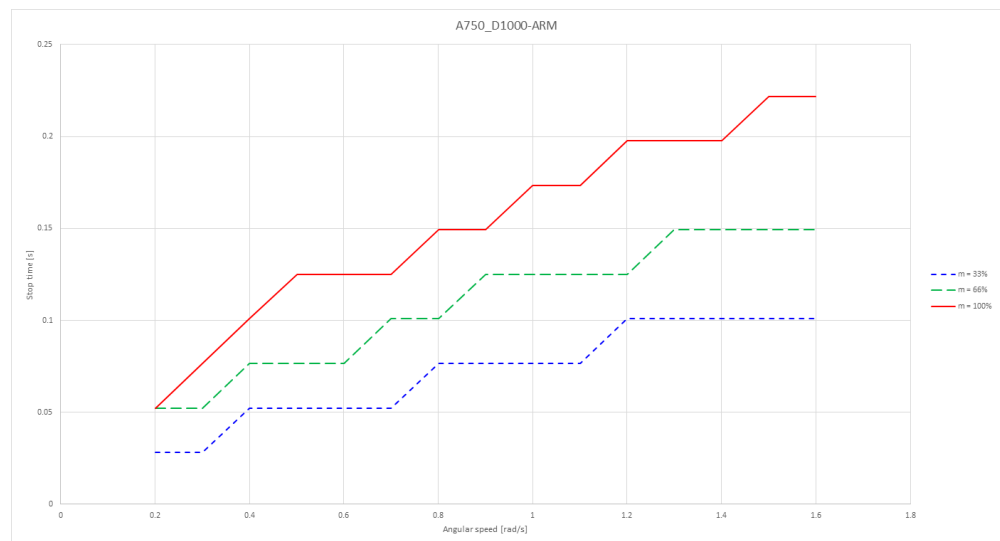
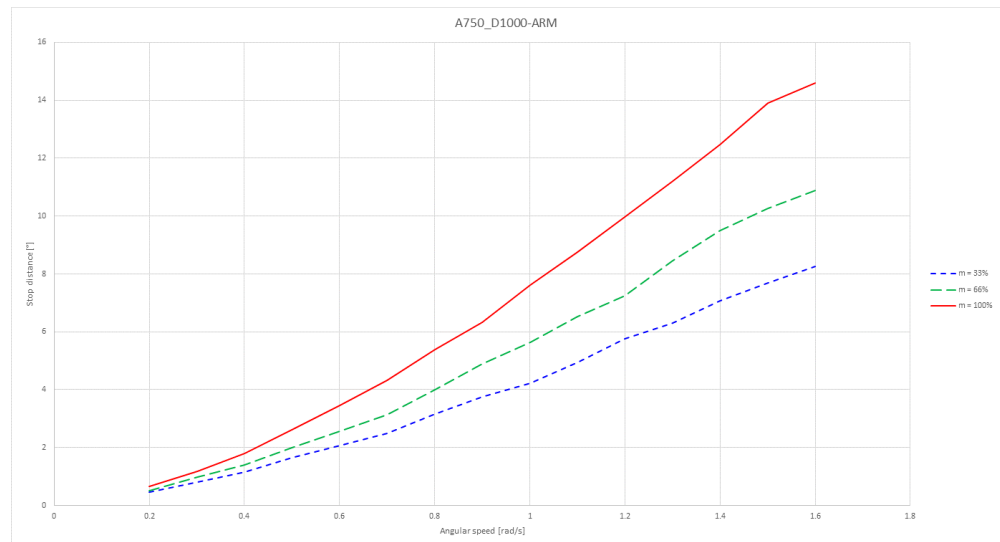




## 28.4 A750\_D1000

## Category 0, ARM

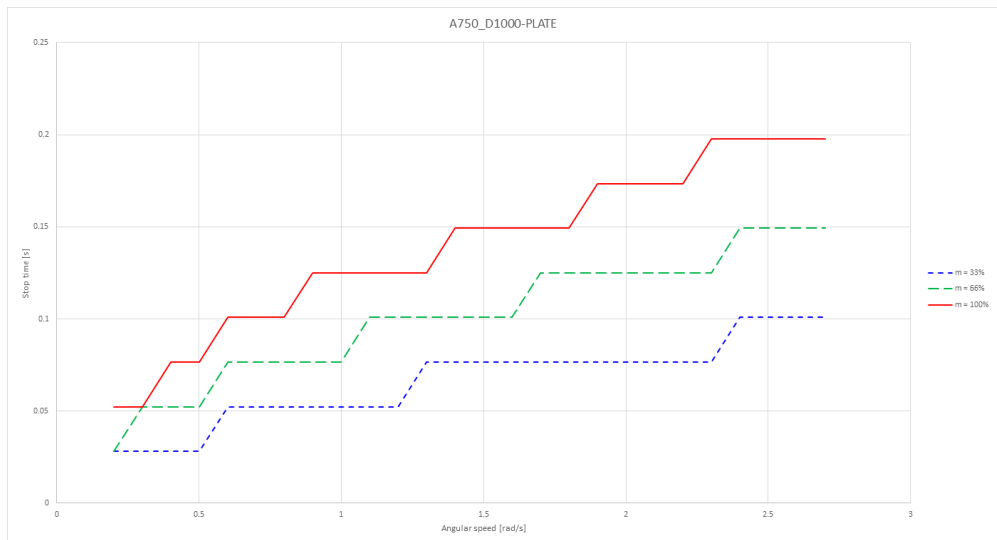
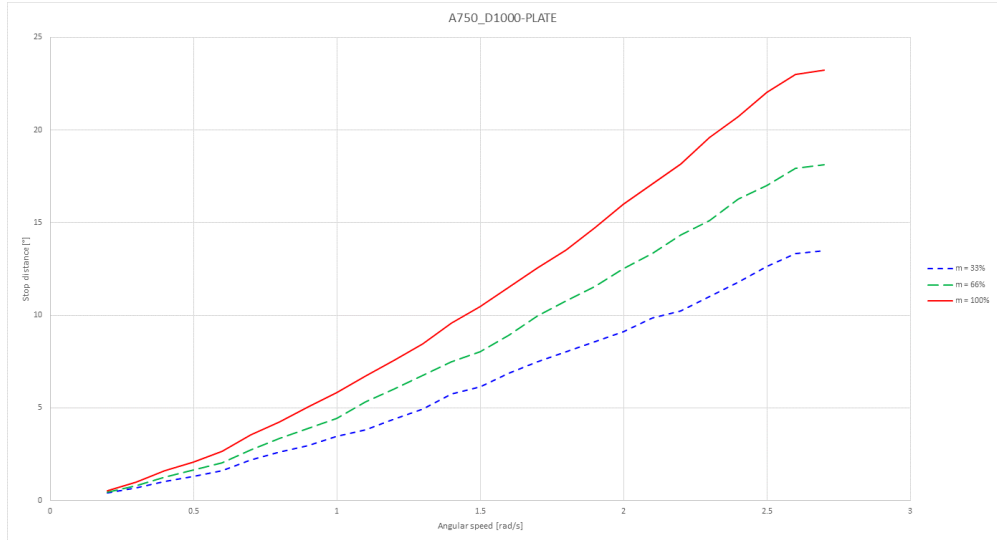
## Stopping distance and stopping time



Continues on next page

Category 0, PLATE

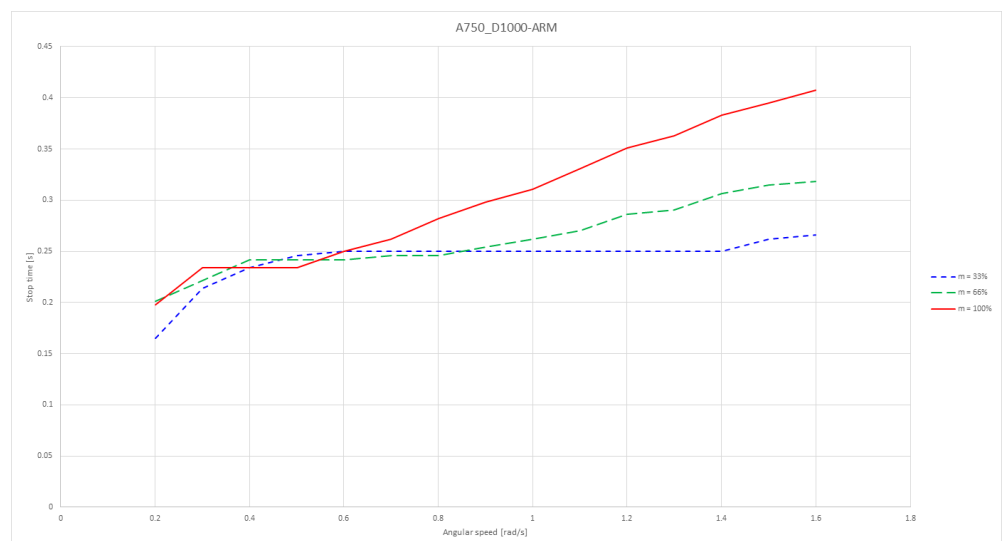
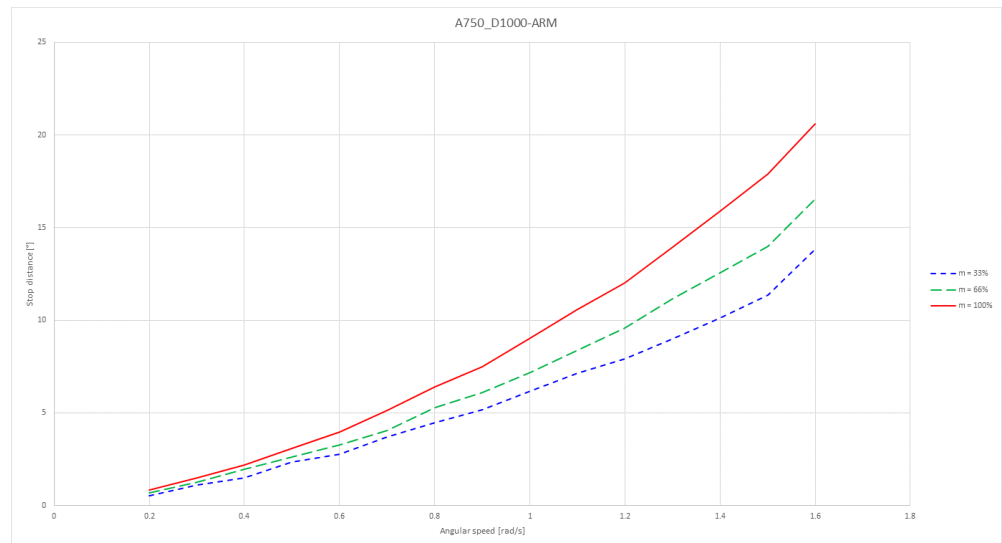
Stopping distance and stopping time



Continues on next page

Category 1, ARM

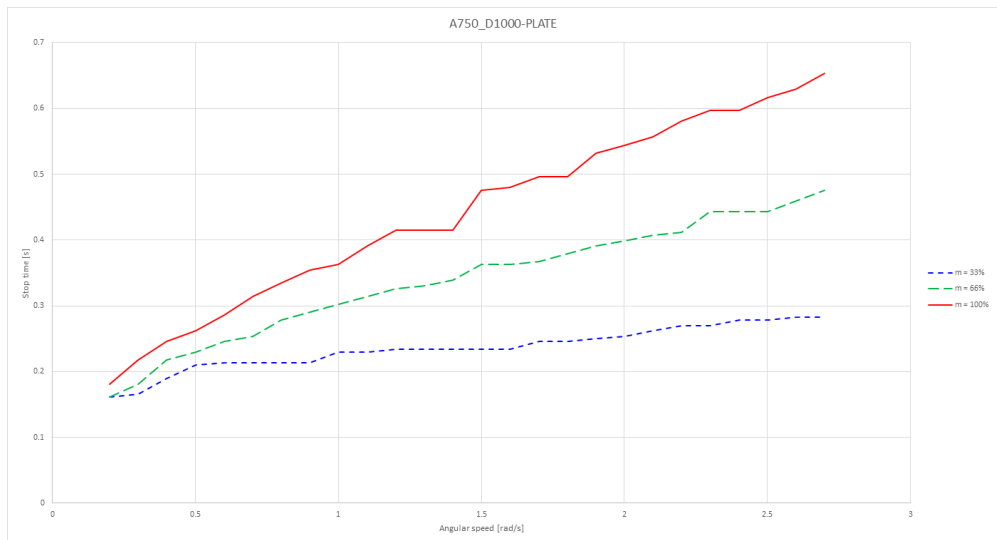
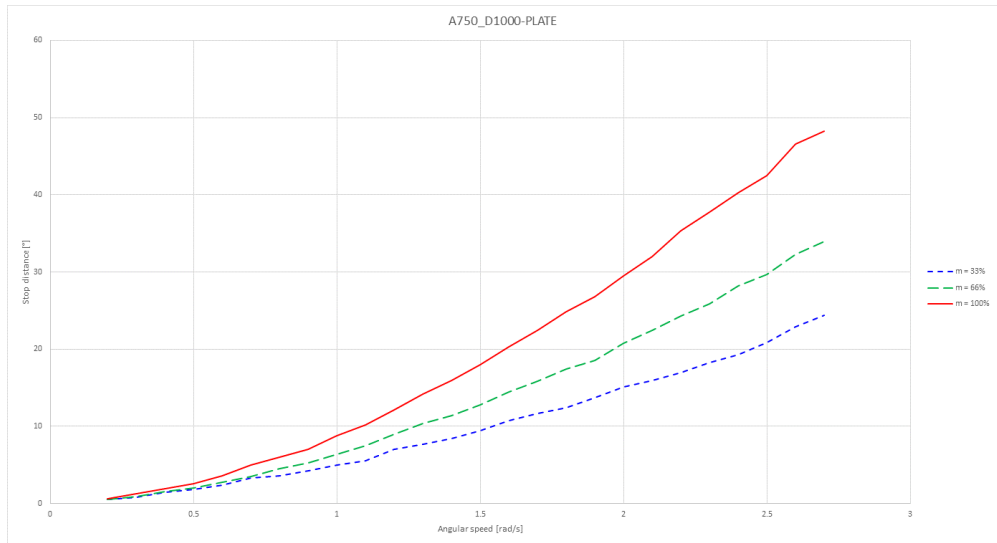
Stopping distance and stopping time



Continues on next page

Category 1, PLATE

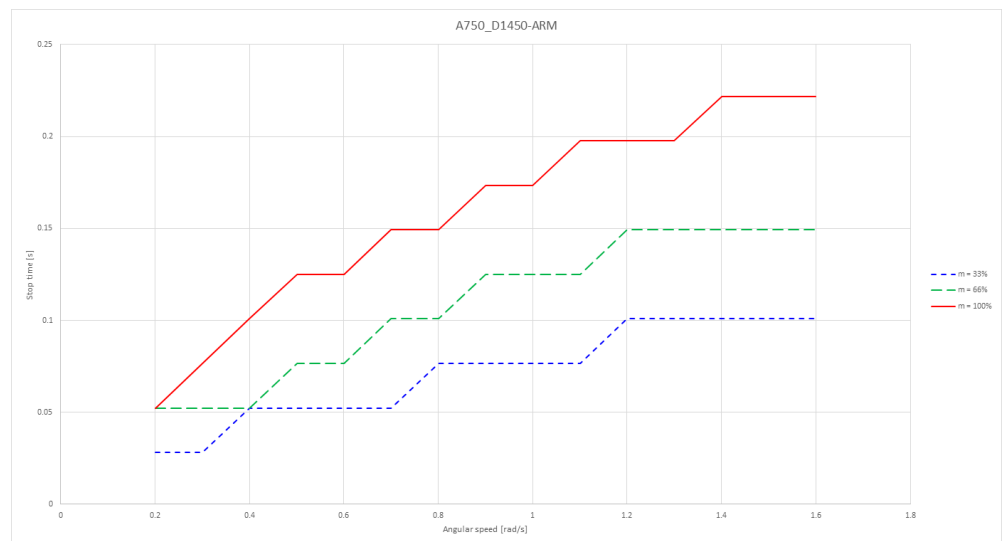
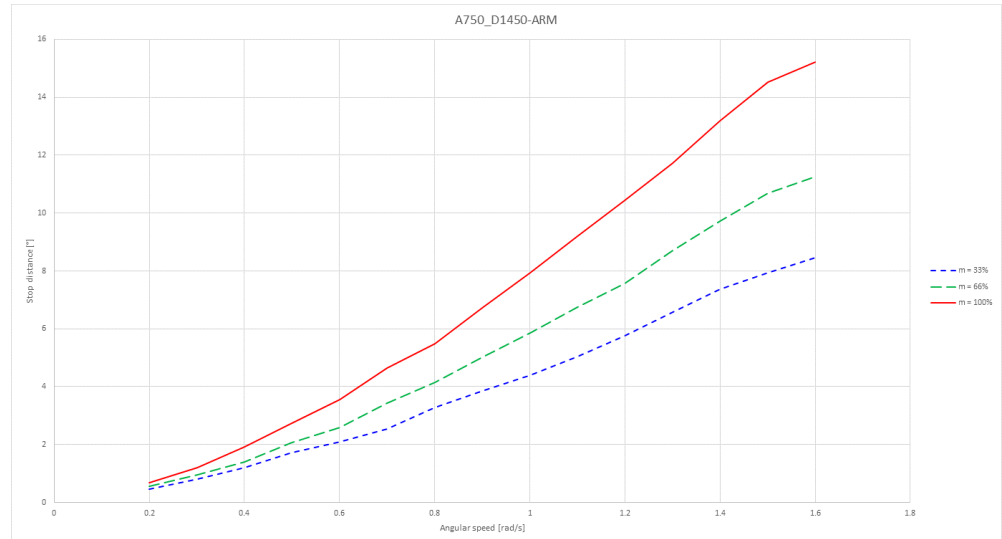
Stopping distance and stopping time



28.5 A750\_D1450

Category 0, ARM

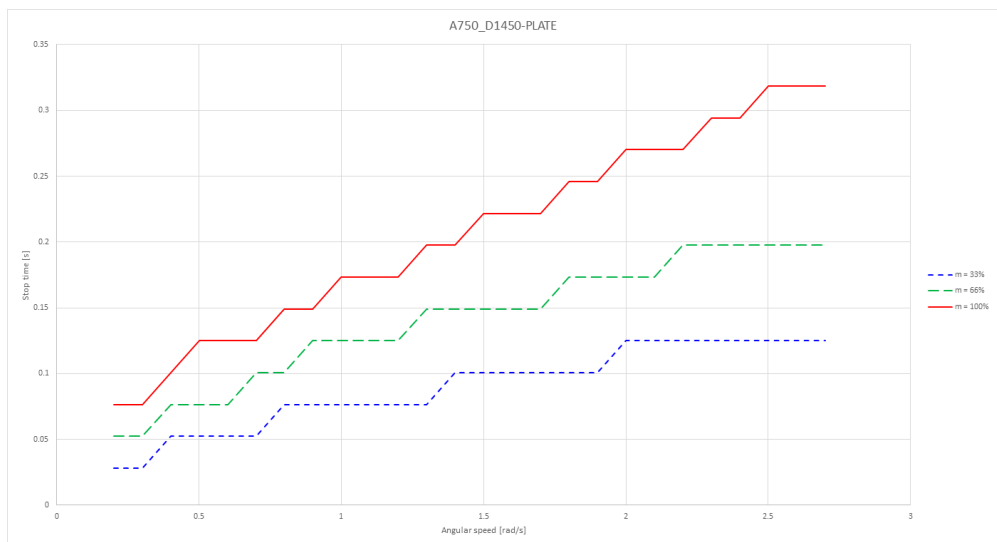
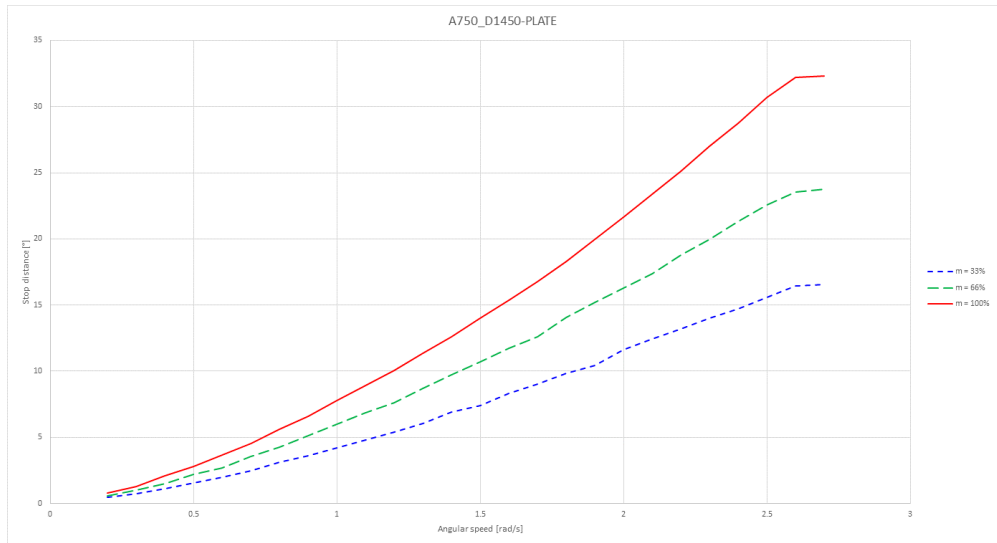
Stopping distance and stopping time



Continues on next page

Category 0, PLATE

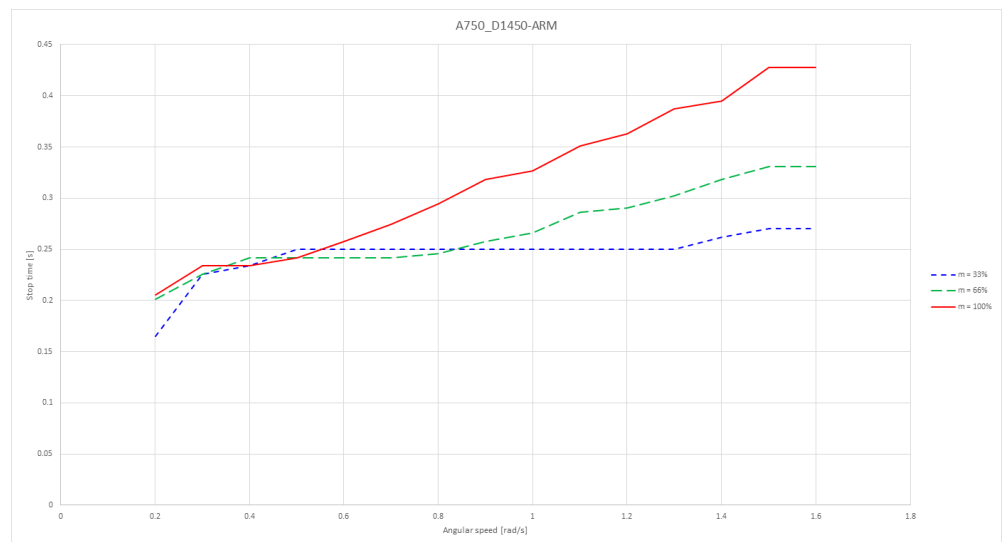
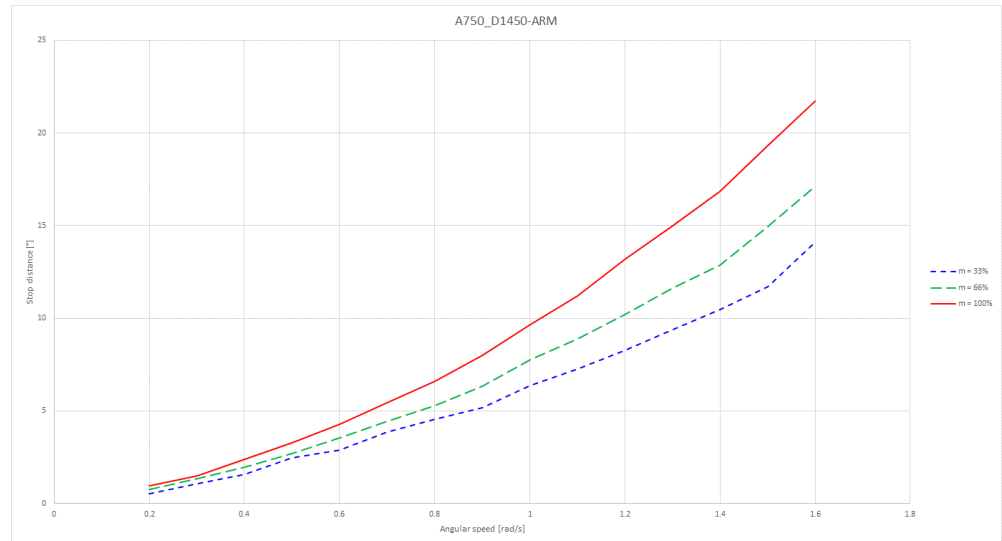
Stopping distance and stopping time



Continues on next page

Category 1, ARM

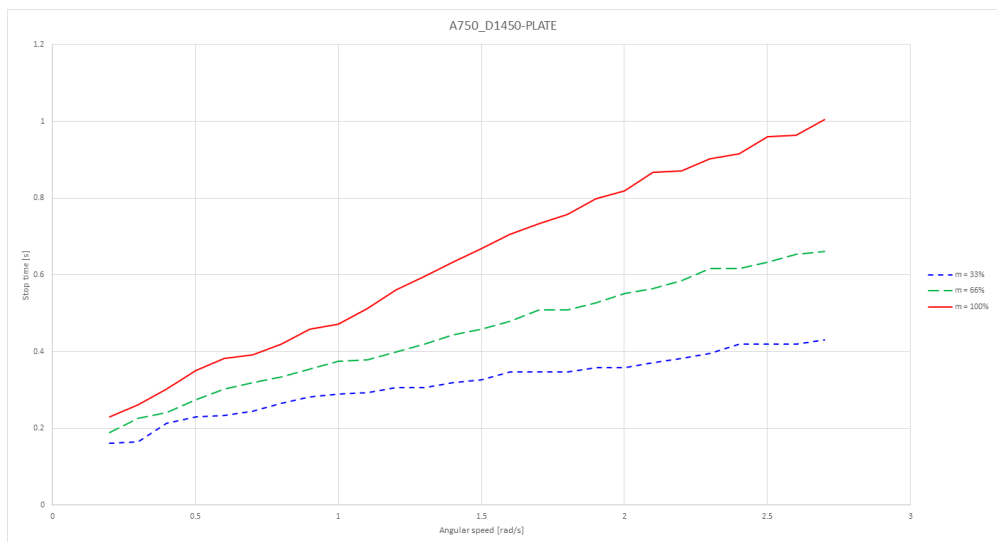
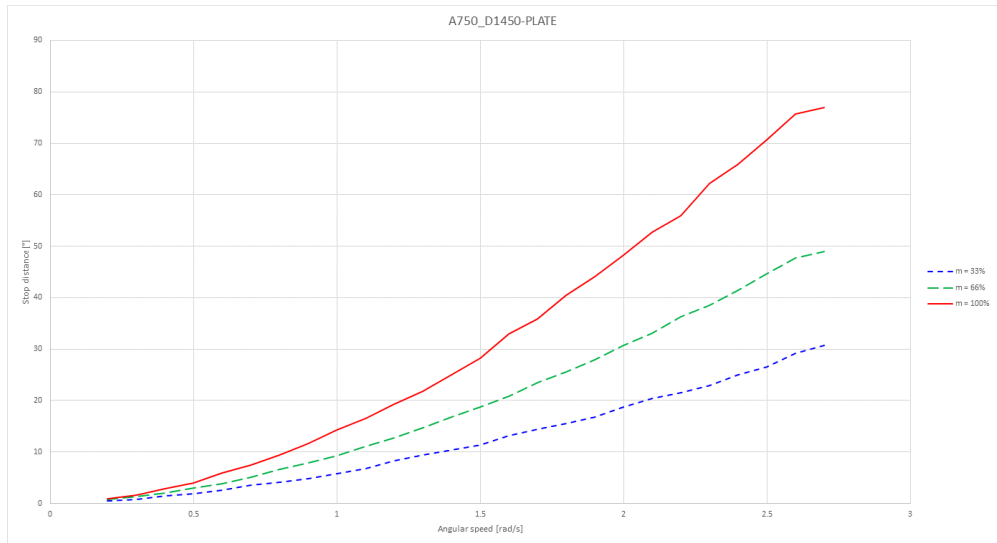
Stopping distance and stopping time



Continues on next page

Category 1, PLATE

Stopping distance and stopping time



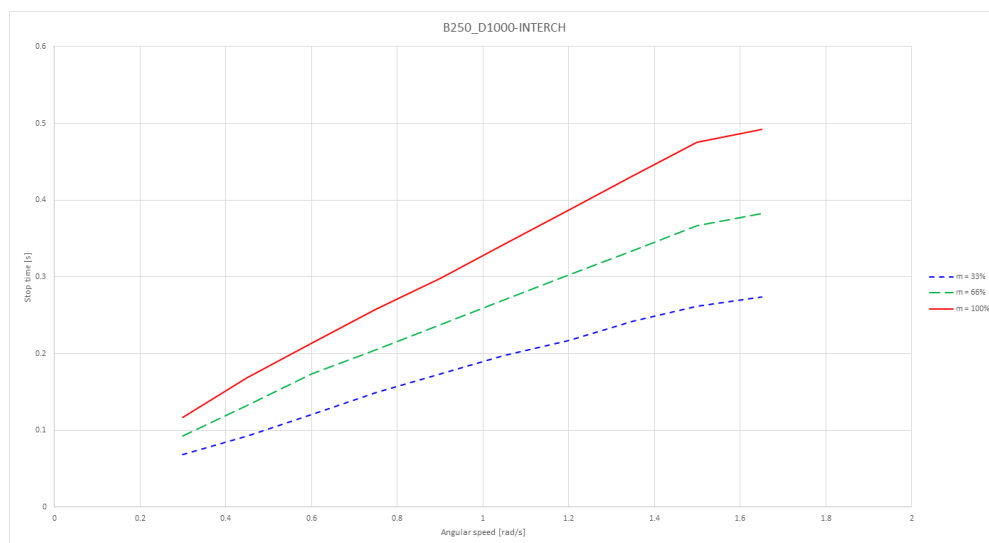
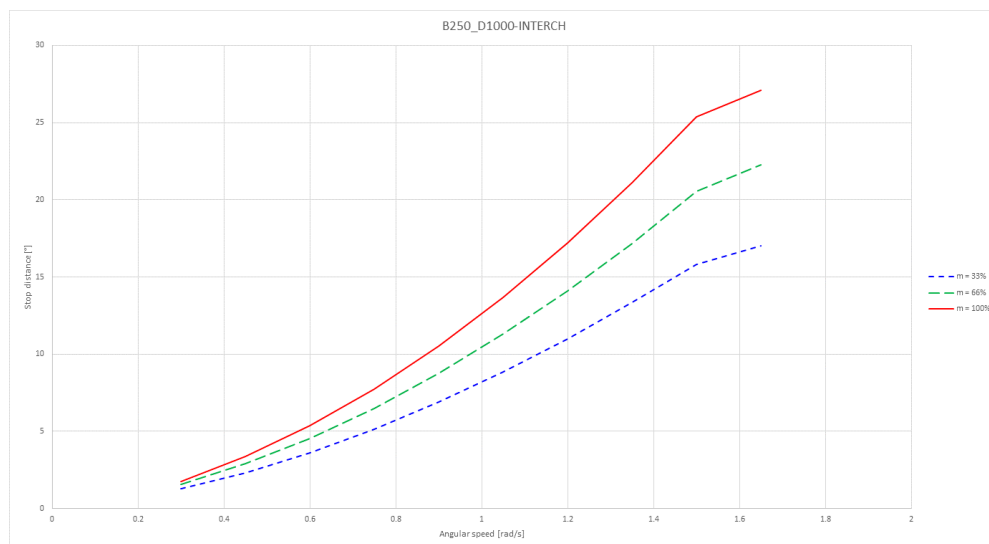


# 29 IRBP B

## 29.1 B250\_D1000

### Category 0, INTERCH

#### Stopping distance and stopping time



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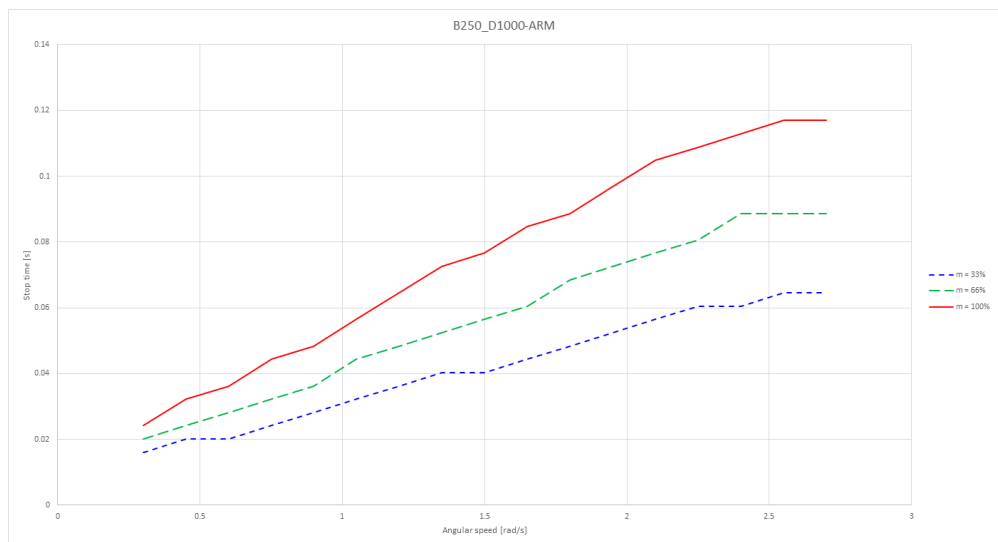
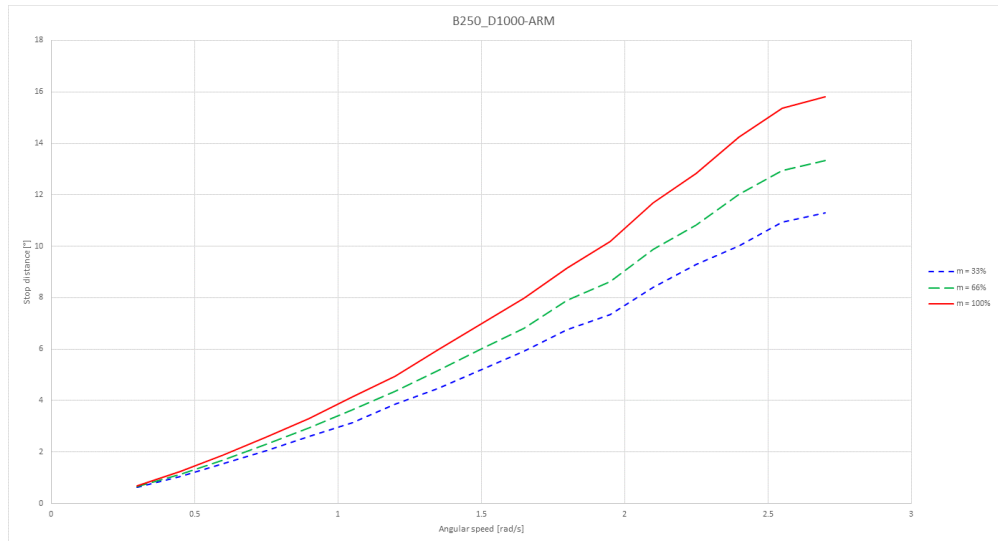
# 29 IRBP B

## 29.1 B250\_D1000

Continued

### Category 0, ARM

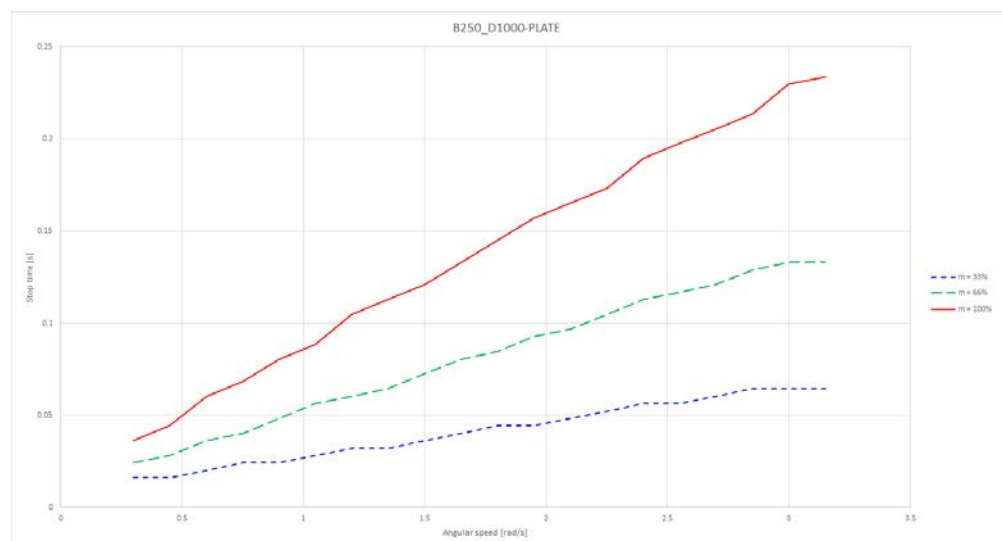
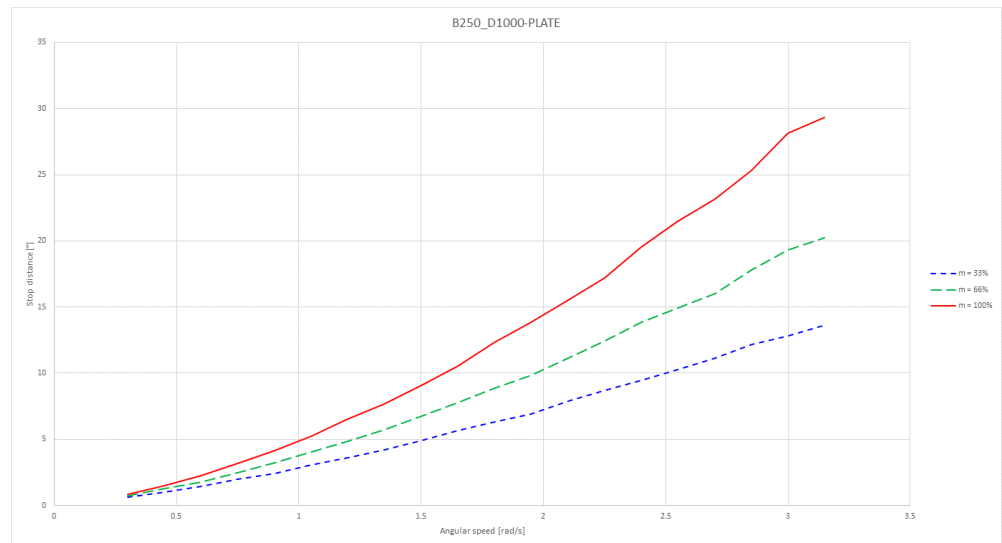
#### Stopping distance and stopping time



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Category 0, PLATE

Stopping distance and stopping time



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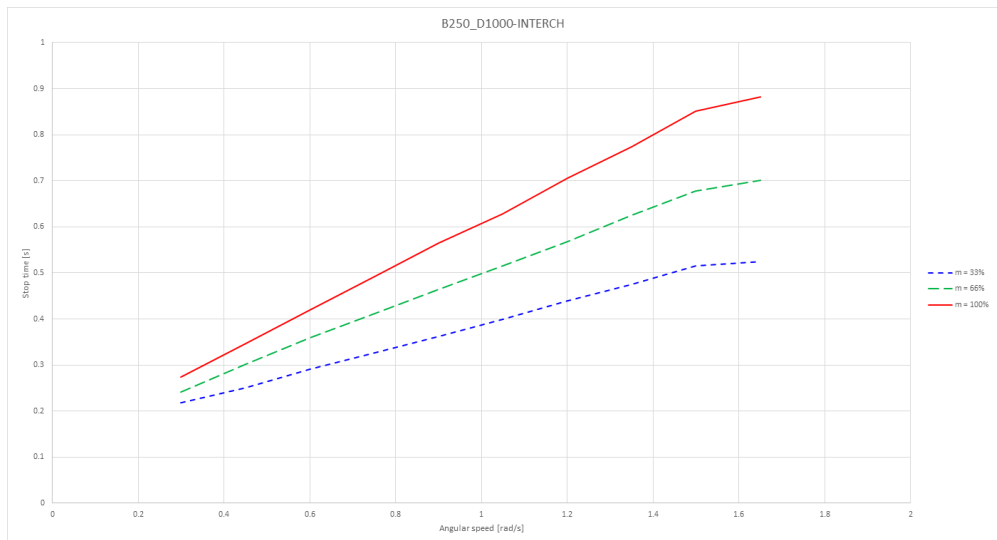
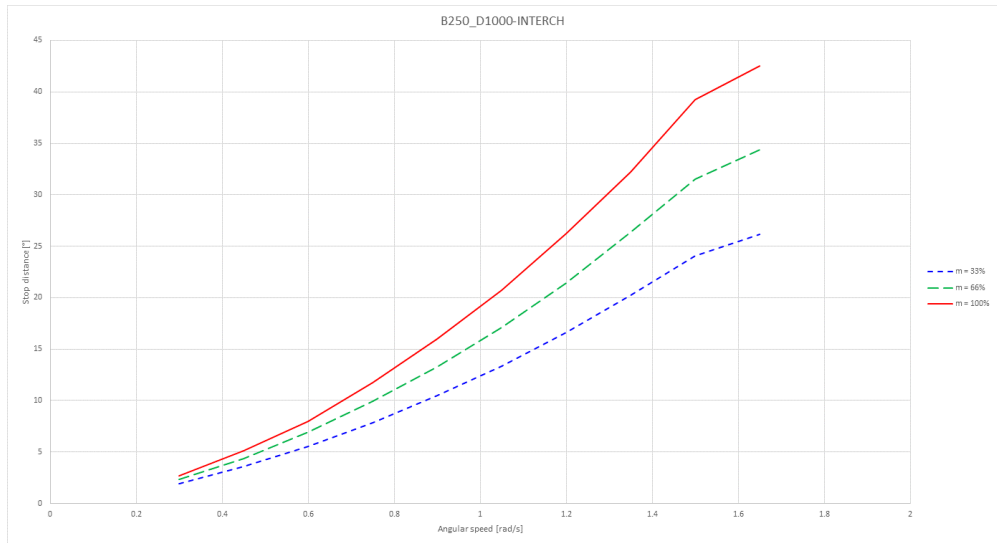
# 29 IRBP B

## 29.1 B250\_D1000

Continued

### Category 1, INTERCH

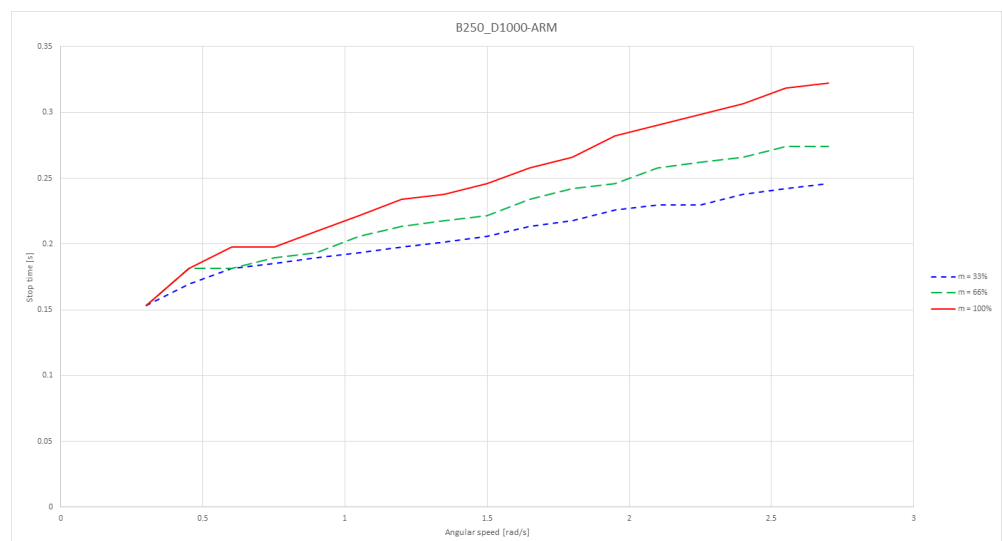
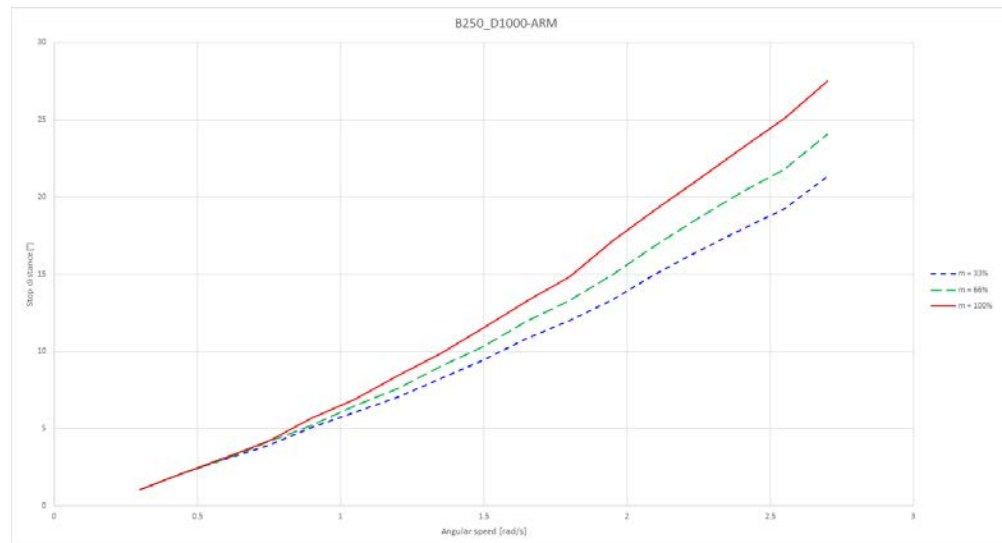
#### Stopping distance and stopping time



Continues on next page

Category 1, ARM

Stopping distance and stopping time



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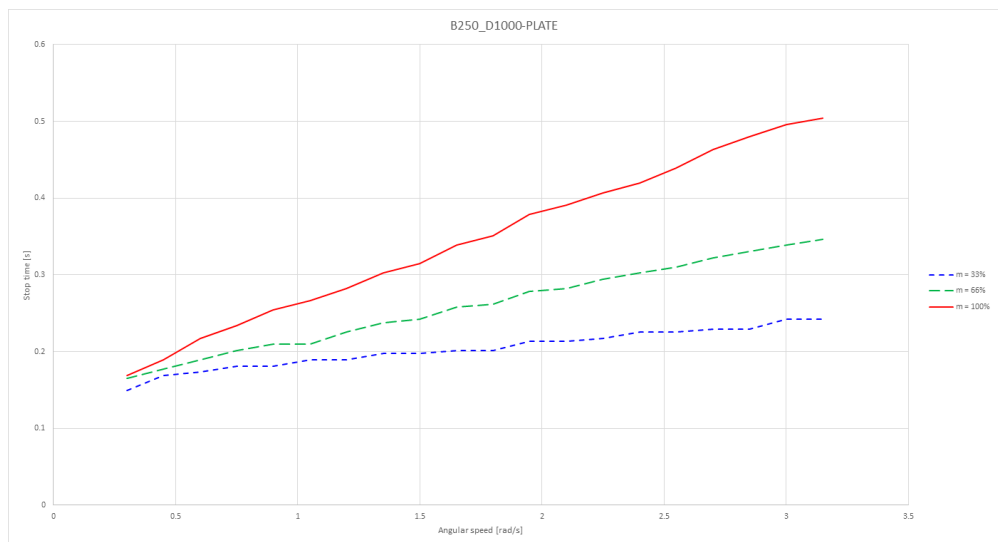
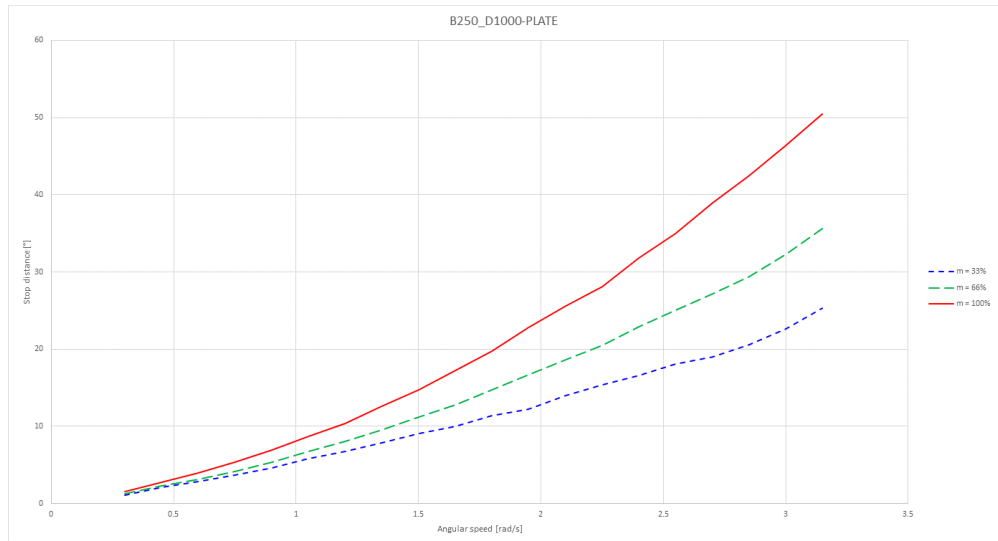
# 29 IRBP B

## 29.1 B250\_D1000

Continued

### Category 1, PLATE

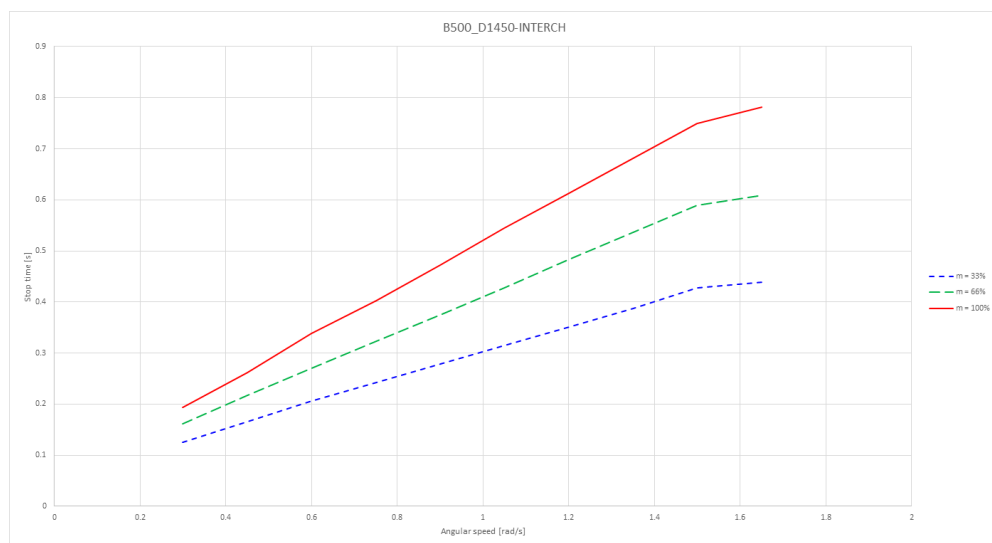
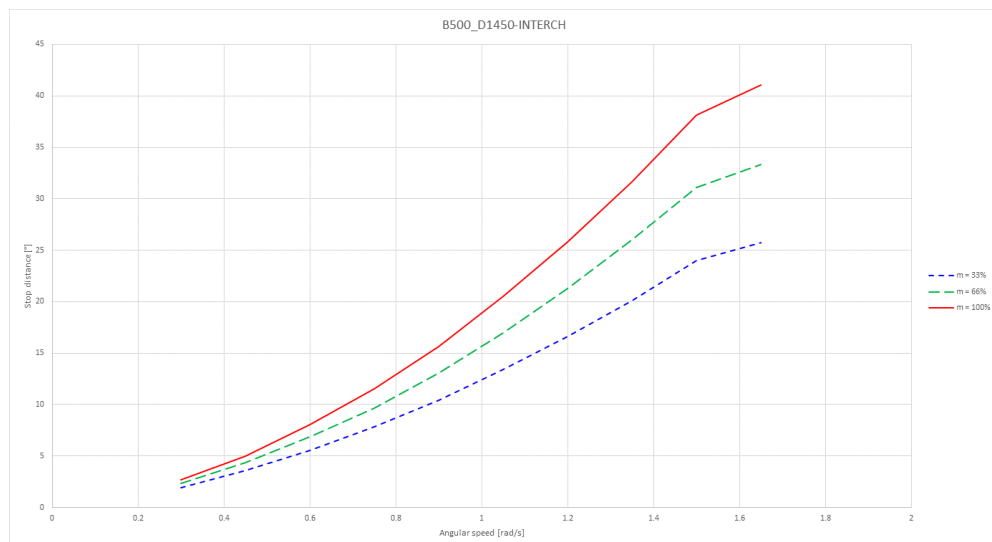
#### Stopping distance and stopping time



29.2 B500\_D1450

Category 0, INTERCH

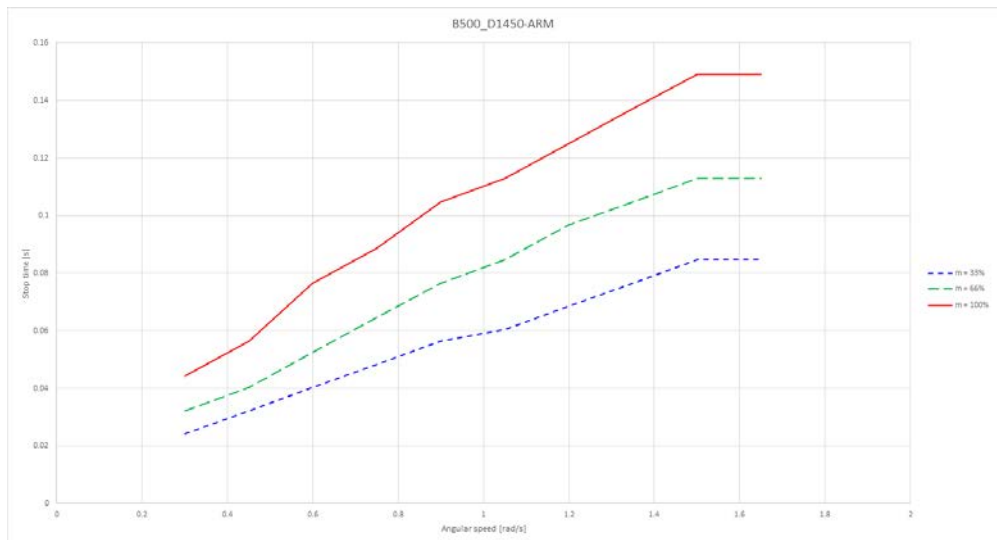
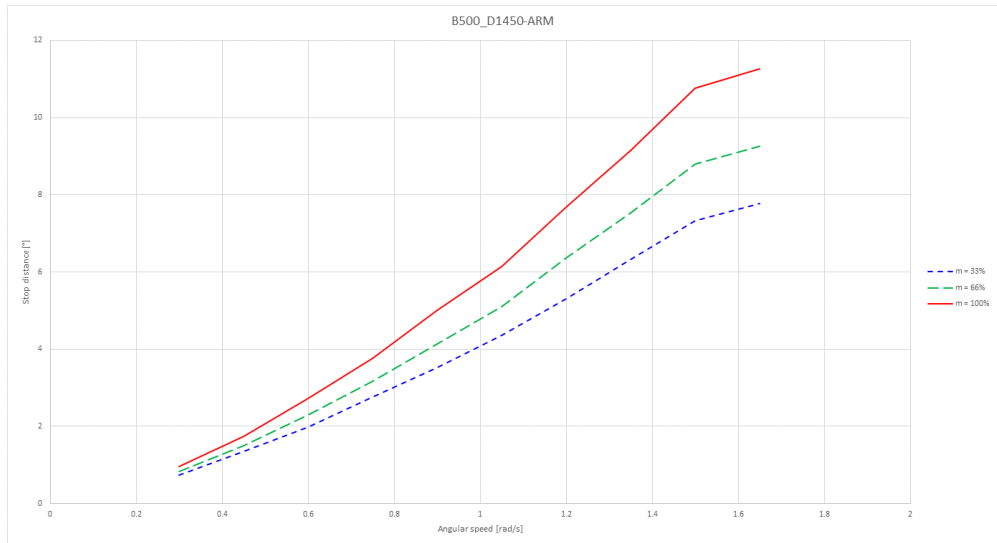
Stopping distance and stopping time



Continues on next page

Category 0, ARM

Stopping distance and stopping time

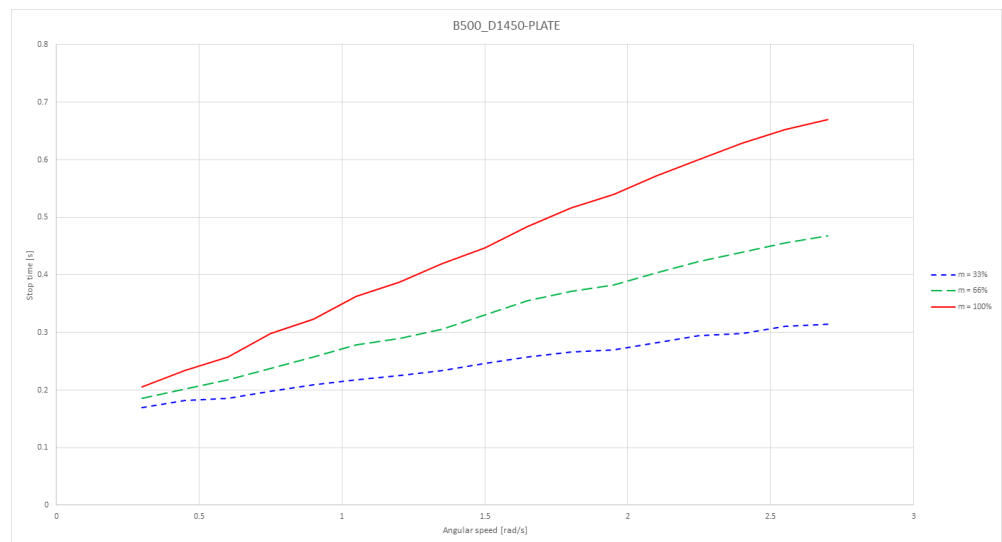
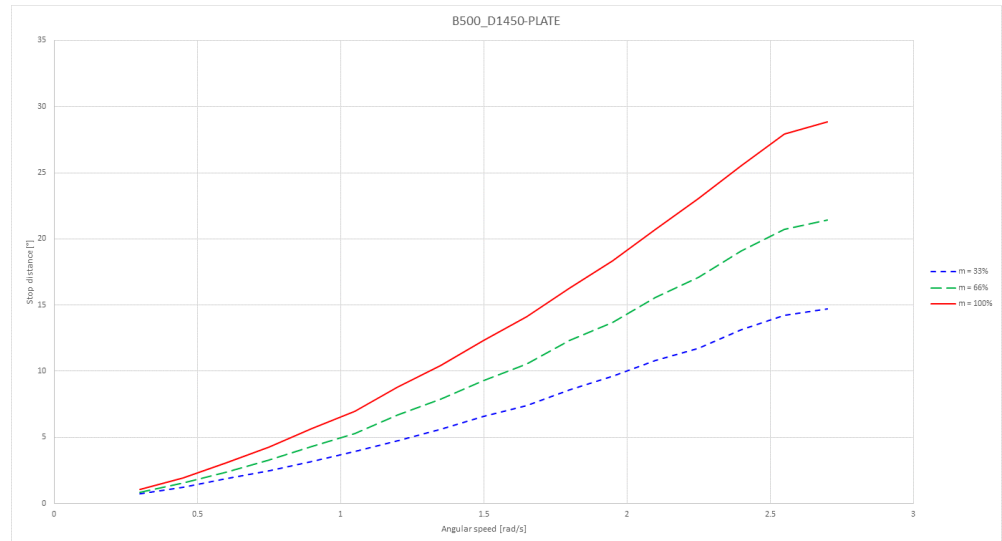


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Category 0, PLATE

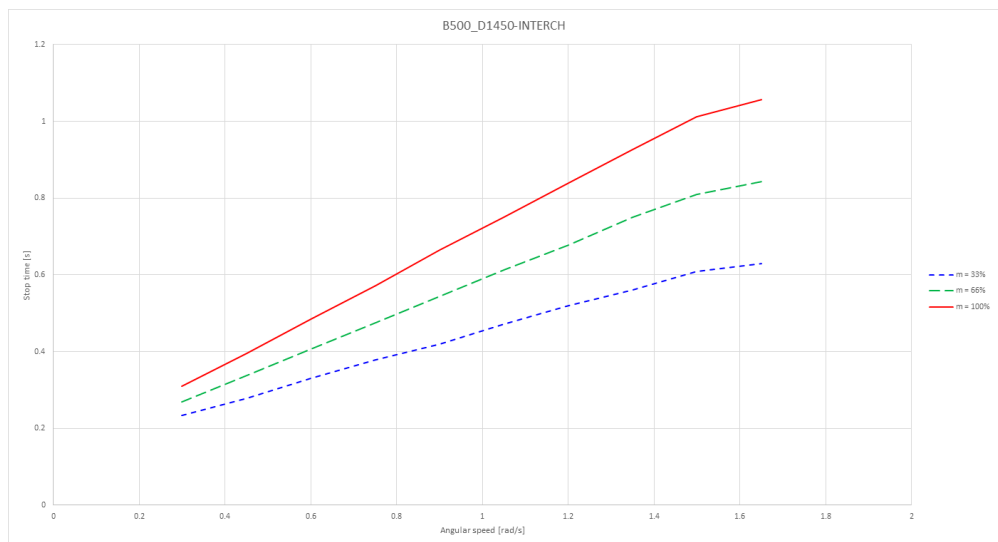
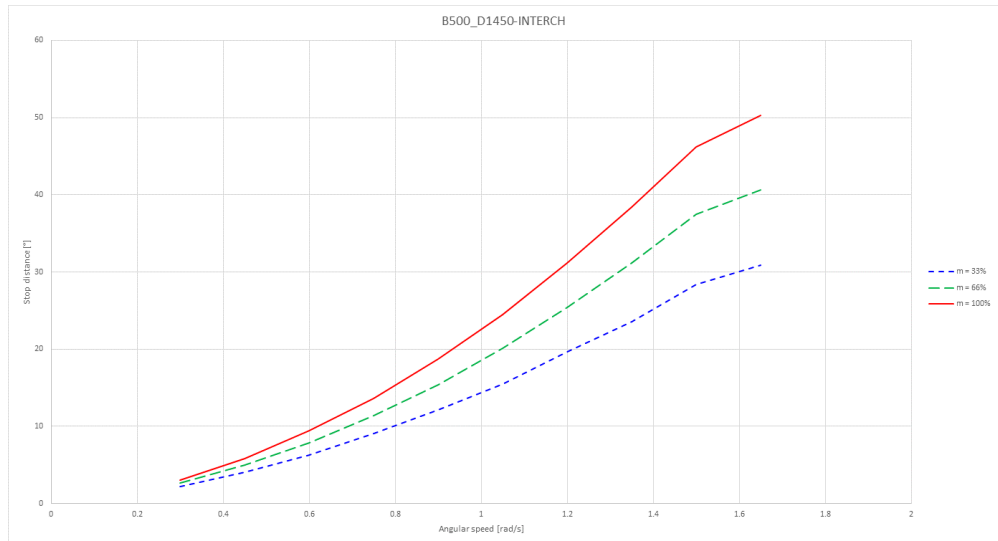
Stopping distance and stopping time



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Category 1, INTERCH

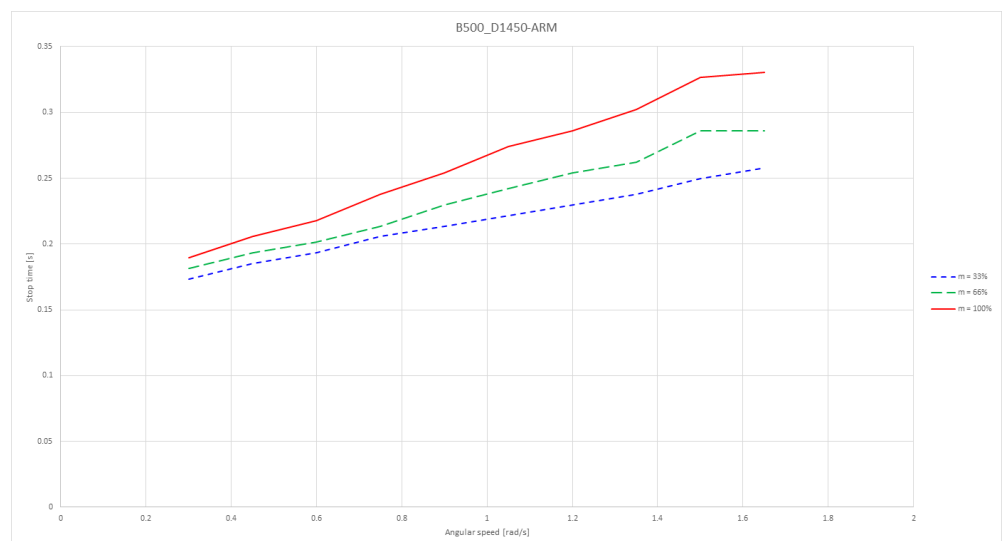
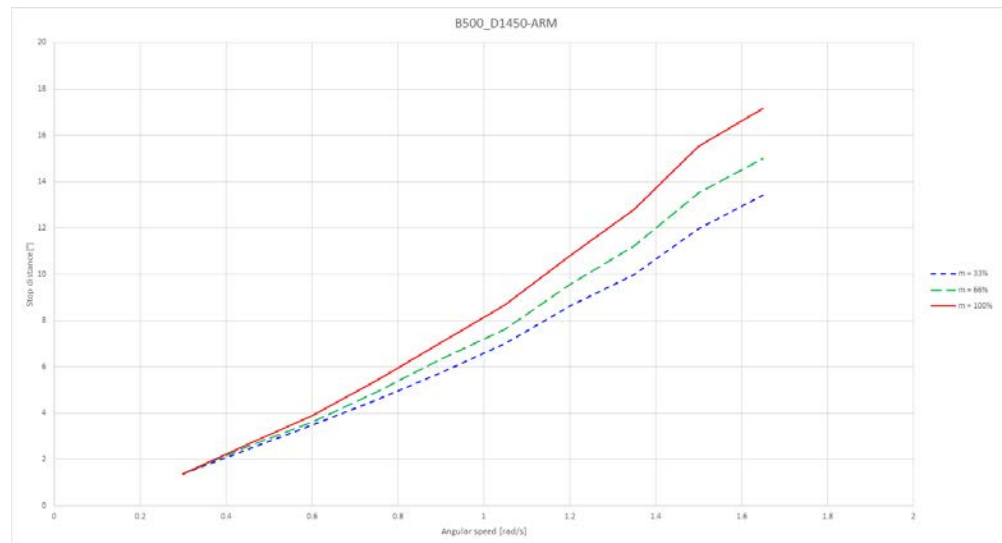
Stopping distance and stopping time



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Category 1, ARM

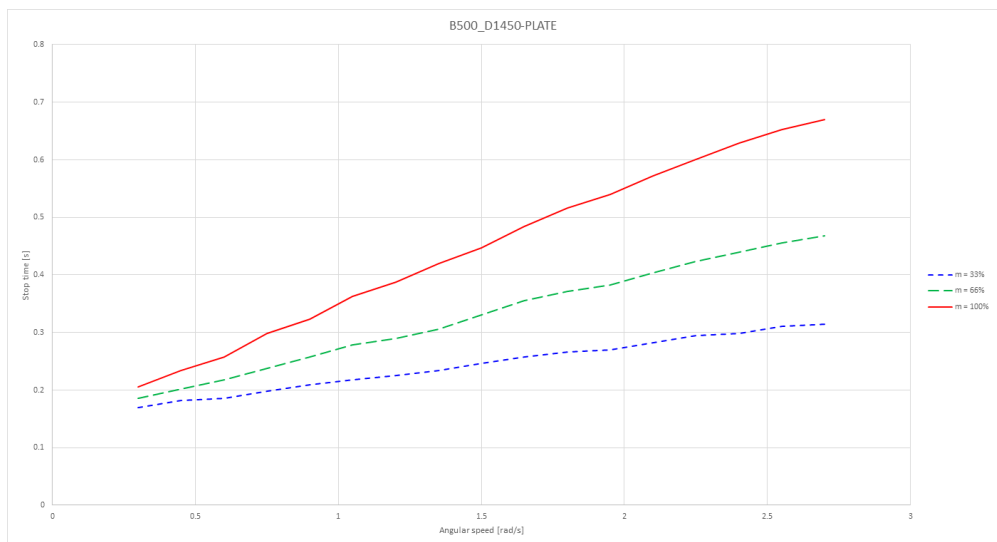
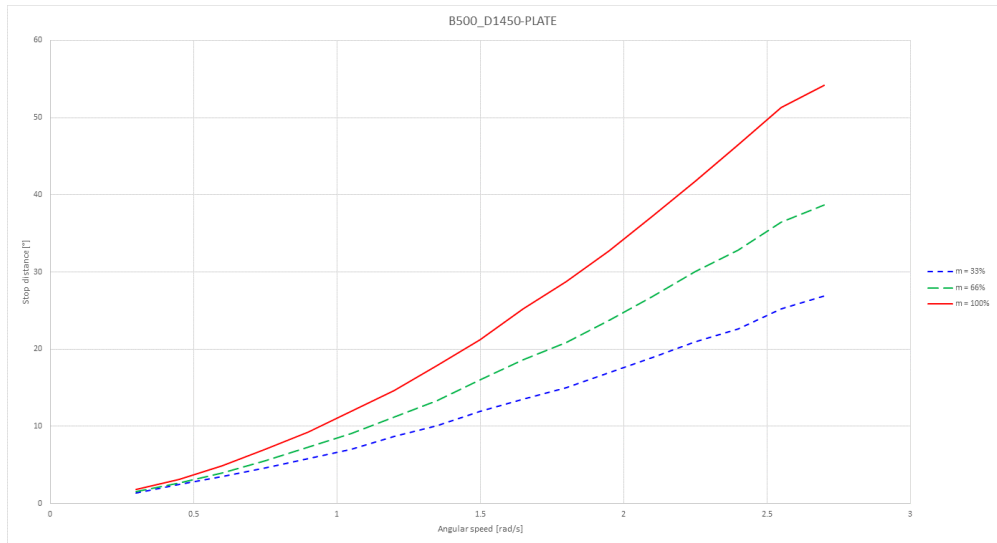
Stopping distance and stopping time



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Category 1, PLATE

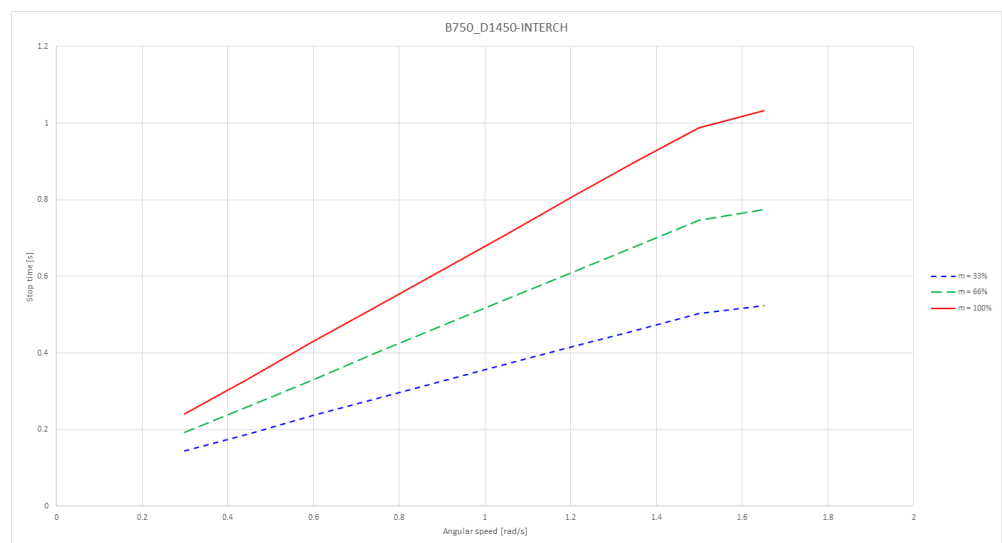
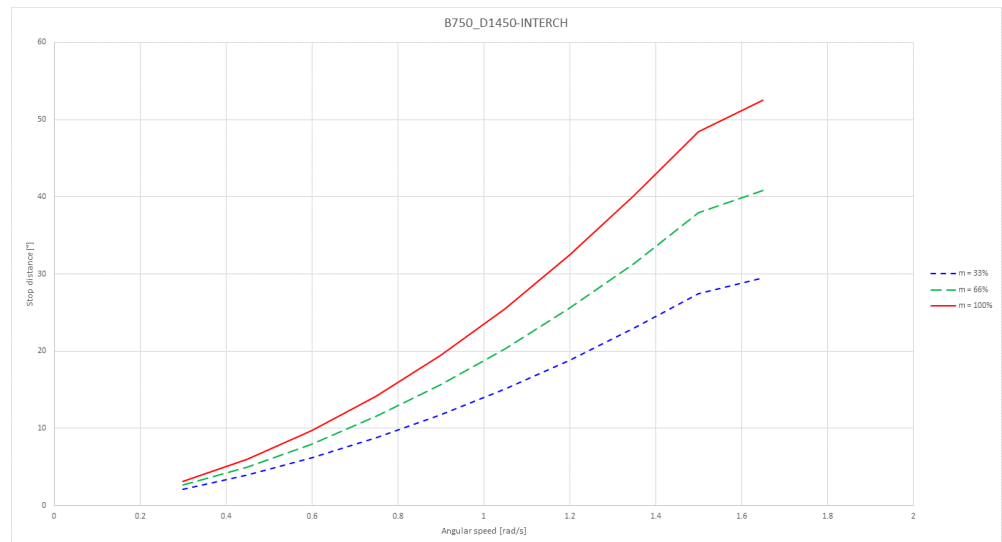
Stopping distance and stopping time



29.3 B750\_D1450

Category 0, INTERCH

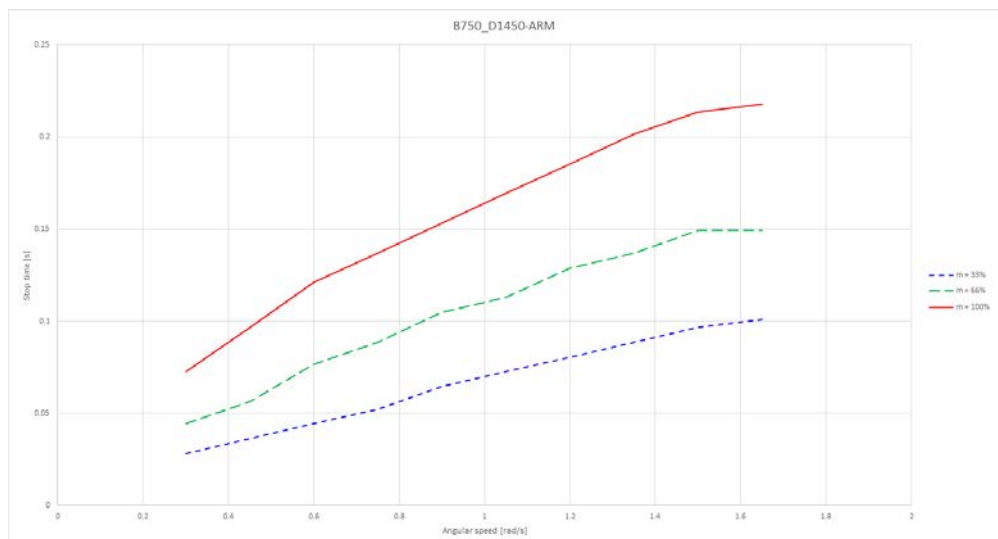
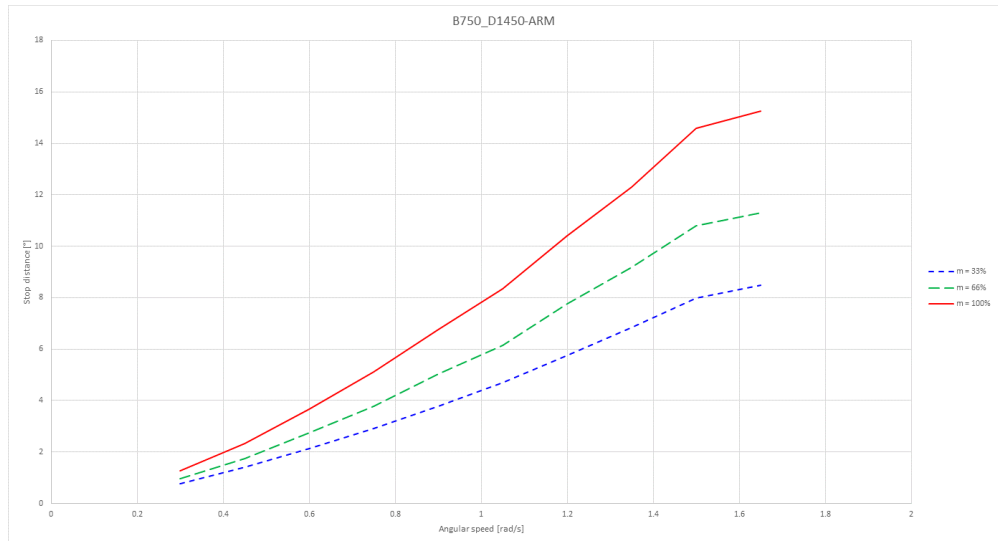
Stopping distance and stopping time



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Category 0, ARM

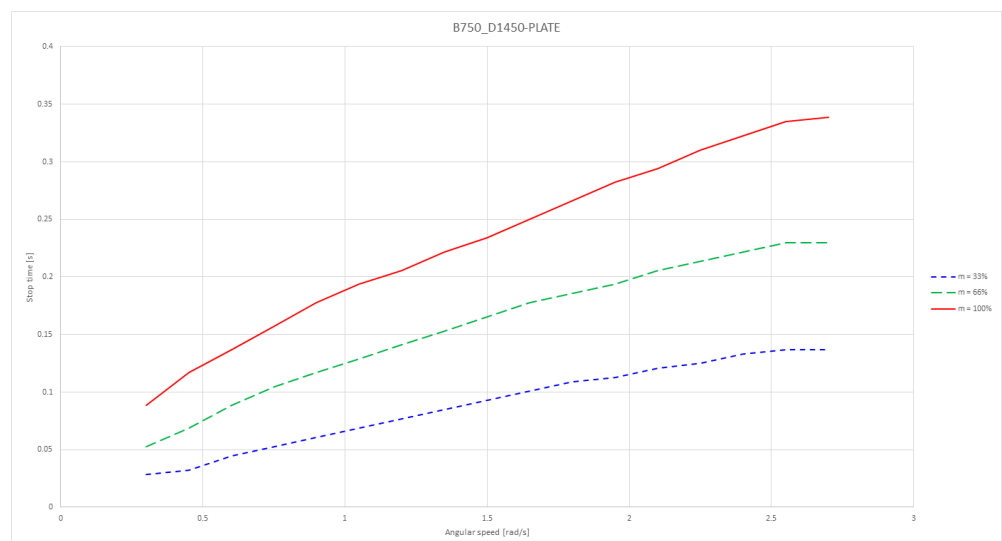
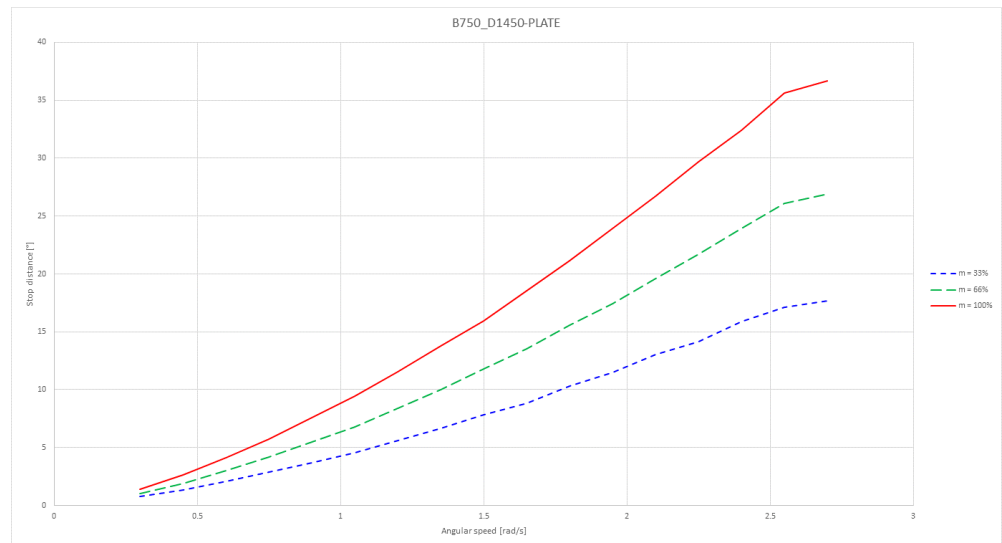
Stopping distance and stopping time



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Category 0, PLATE

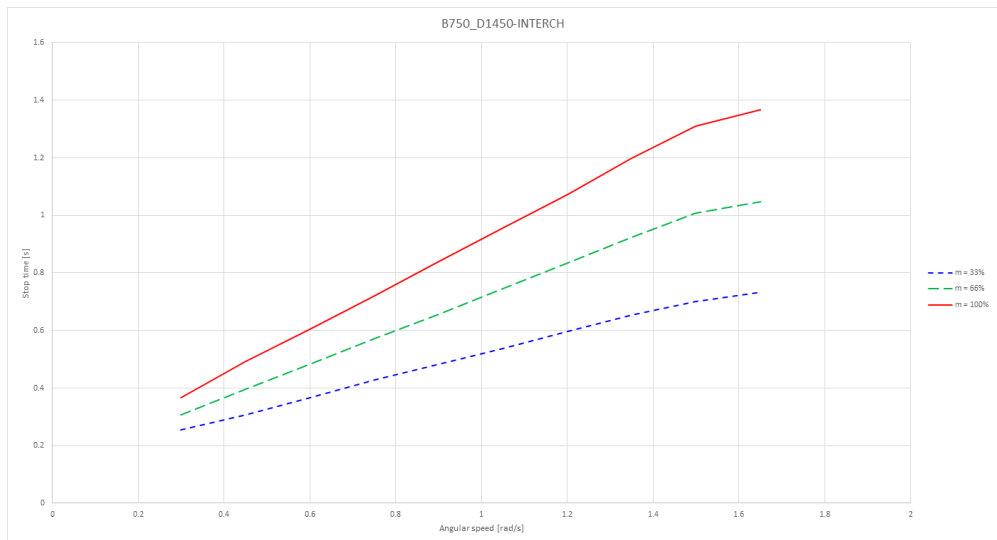
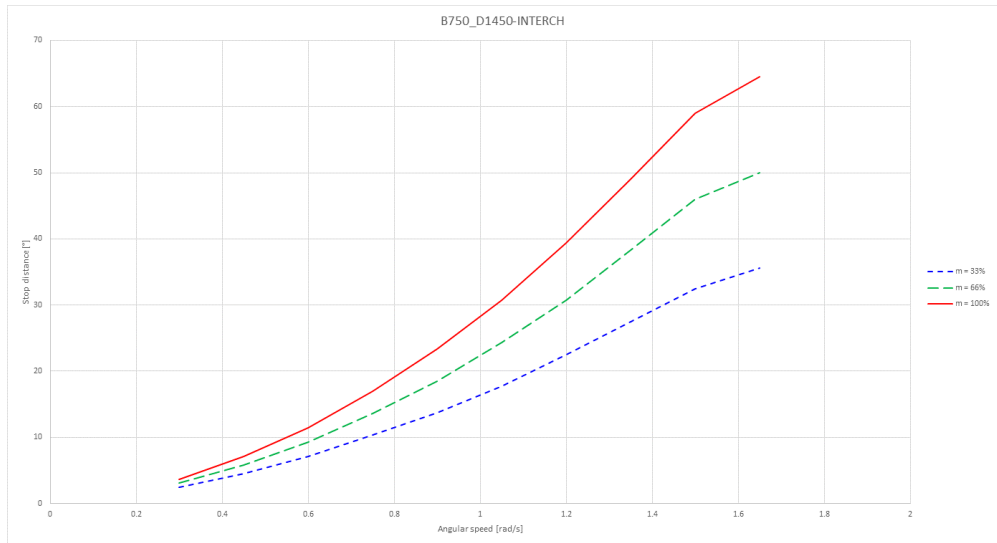
Stopping distance and stopping time



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Category 1, INTERCH

Stopping distance and stopping time

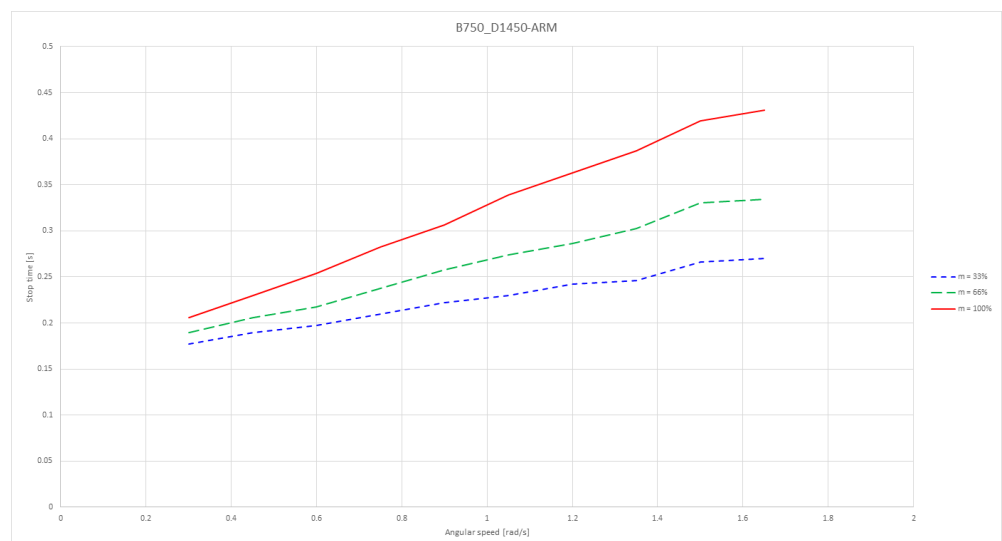
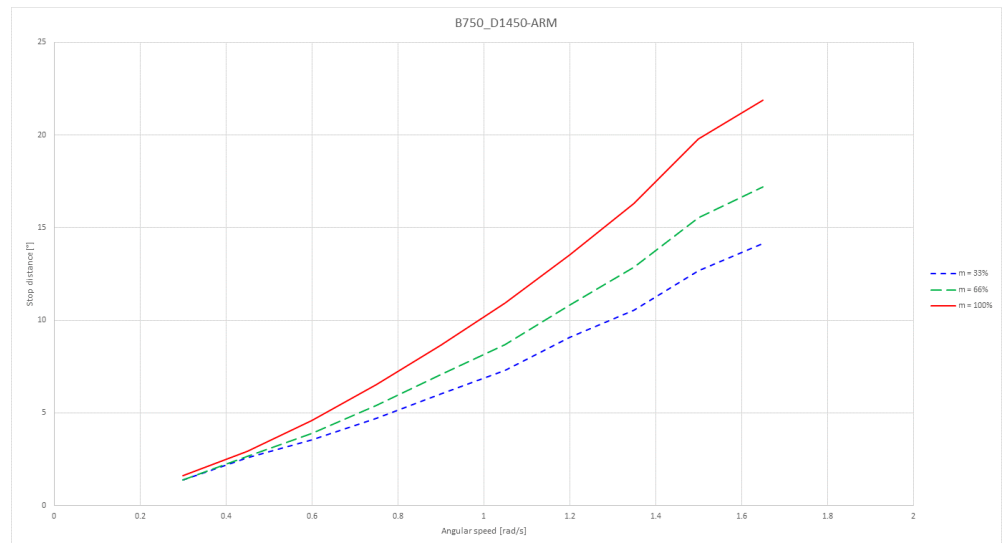


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Category 1, ARM

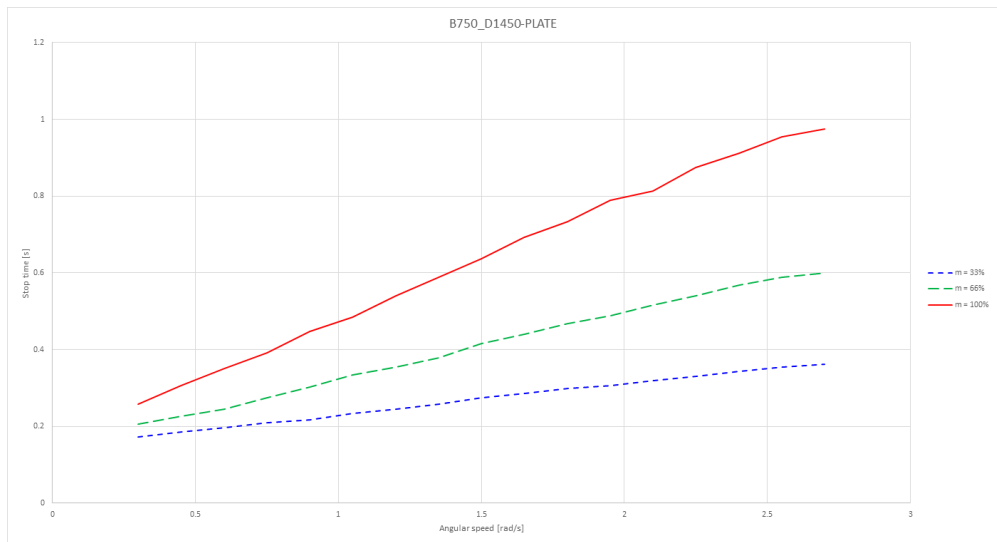
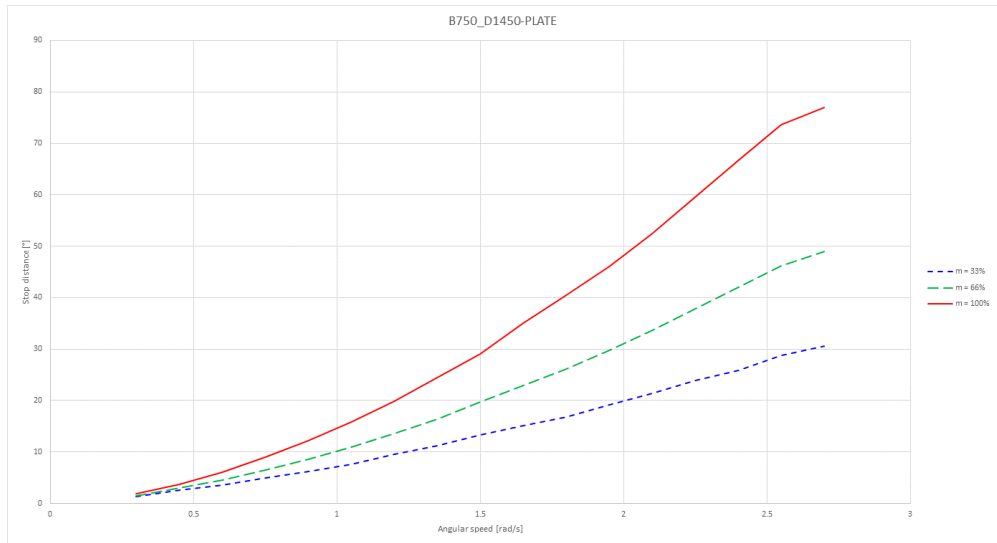
Stopping distance and stopping time



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Category 1, PLATE

Stopping distance and stopping time

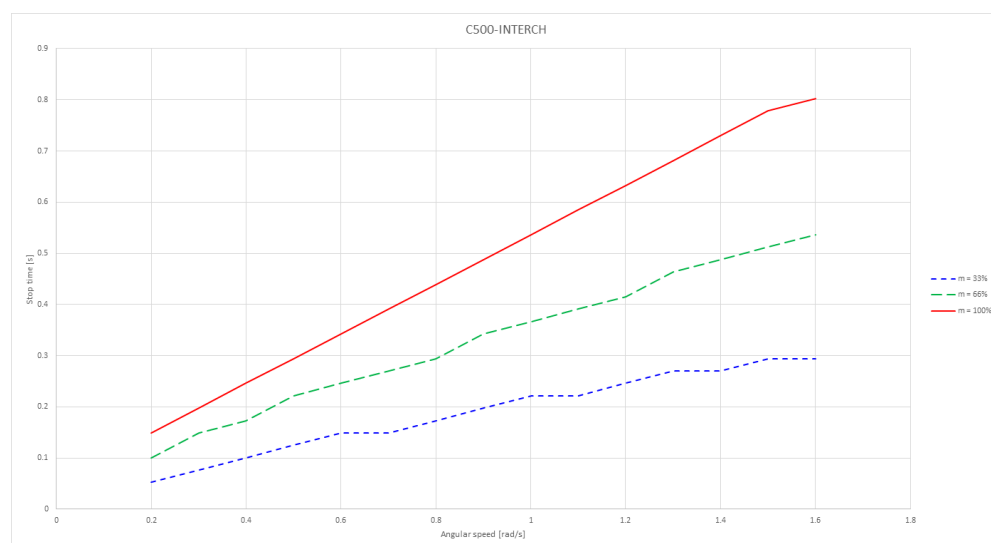
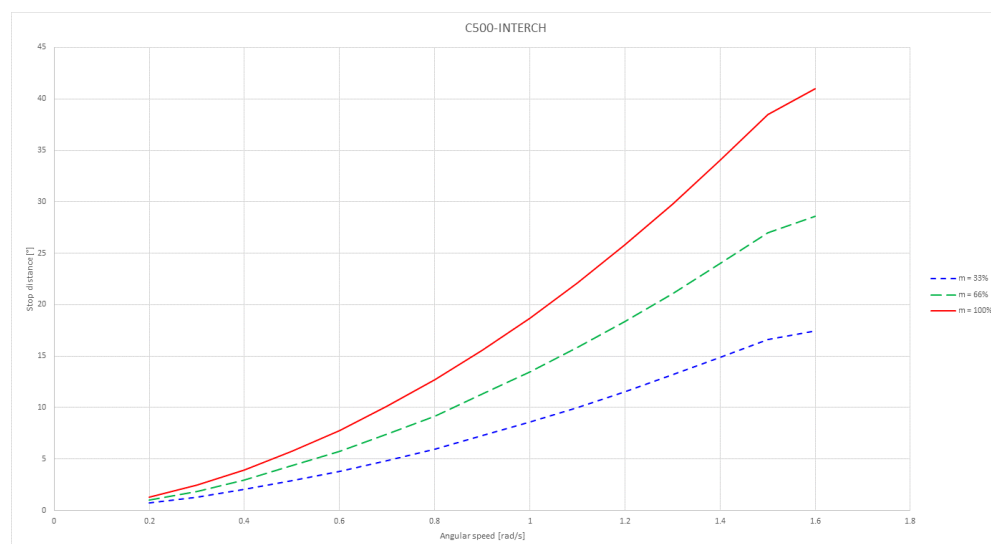


# 30 IRBP C

## 30.1 C500

### Category 0, INTERCH

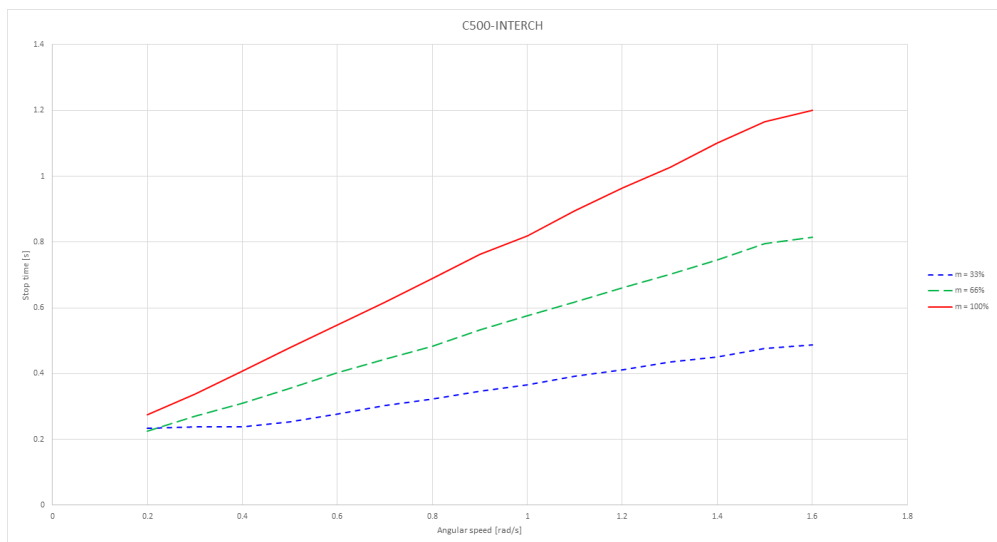
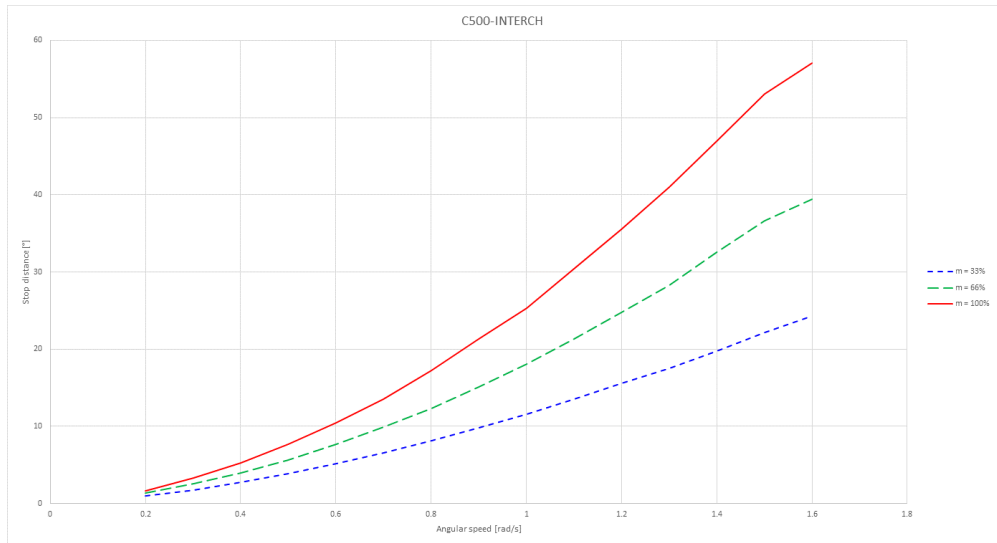
#### Stopping distance and stopping time



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Category 1, INTERCH

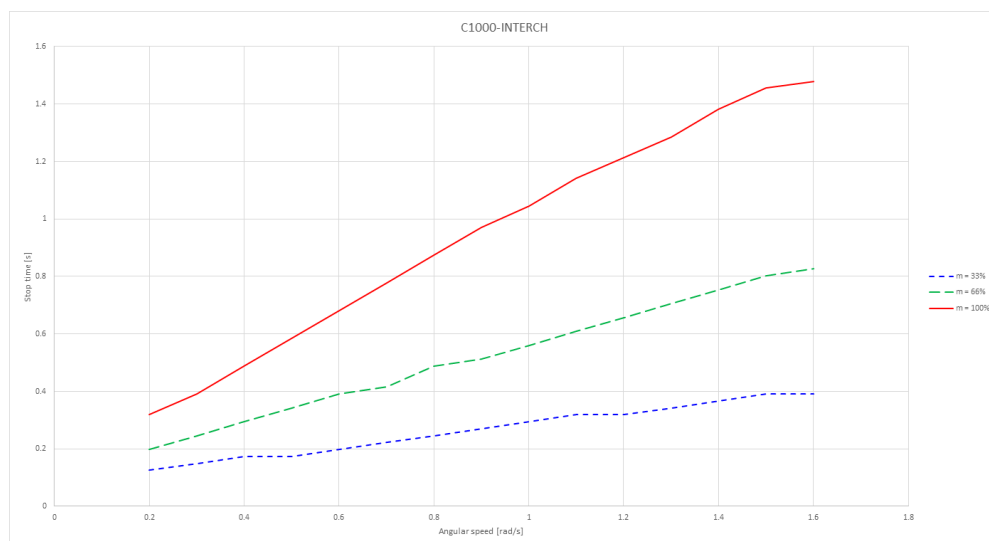
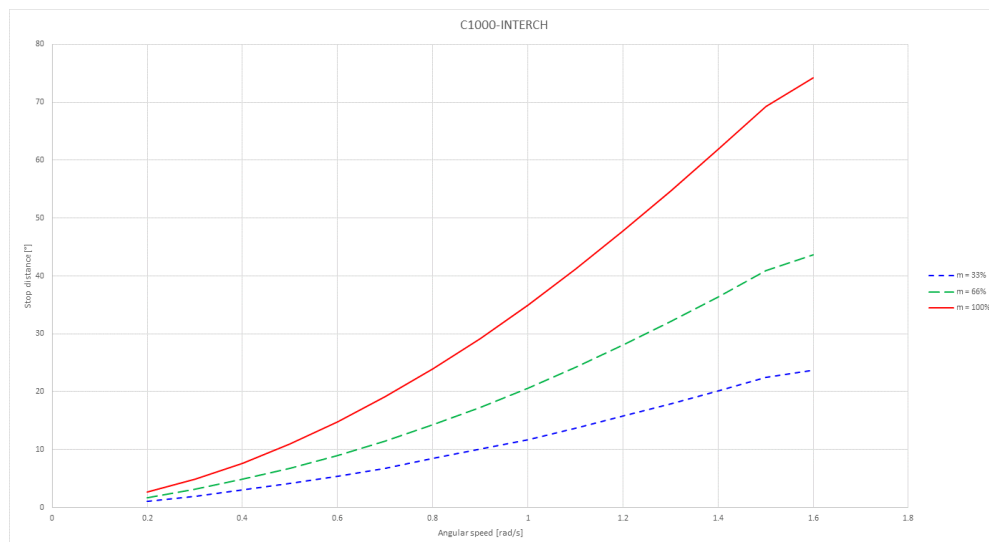
Stopping distance and stopping time



## 30.2 C1000

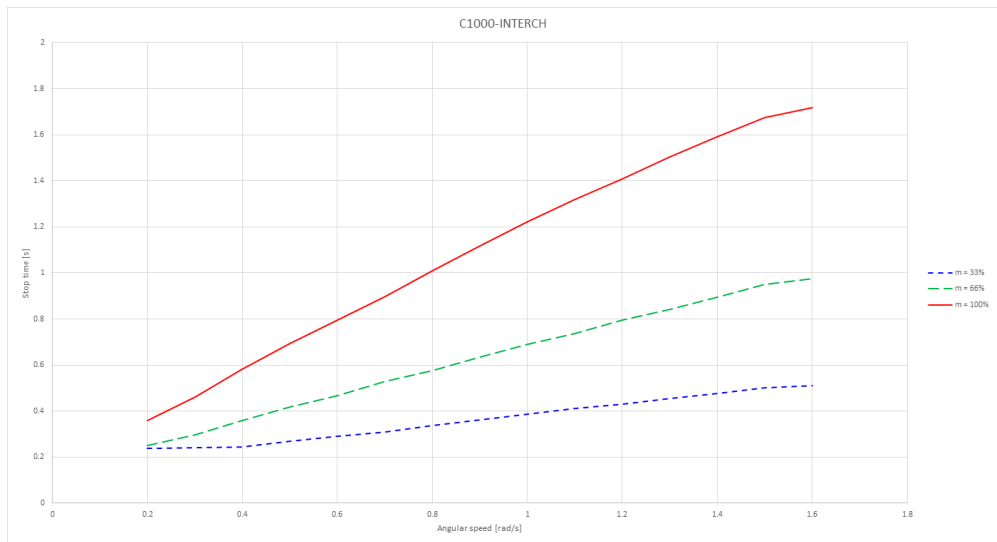
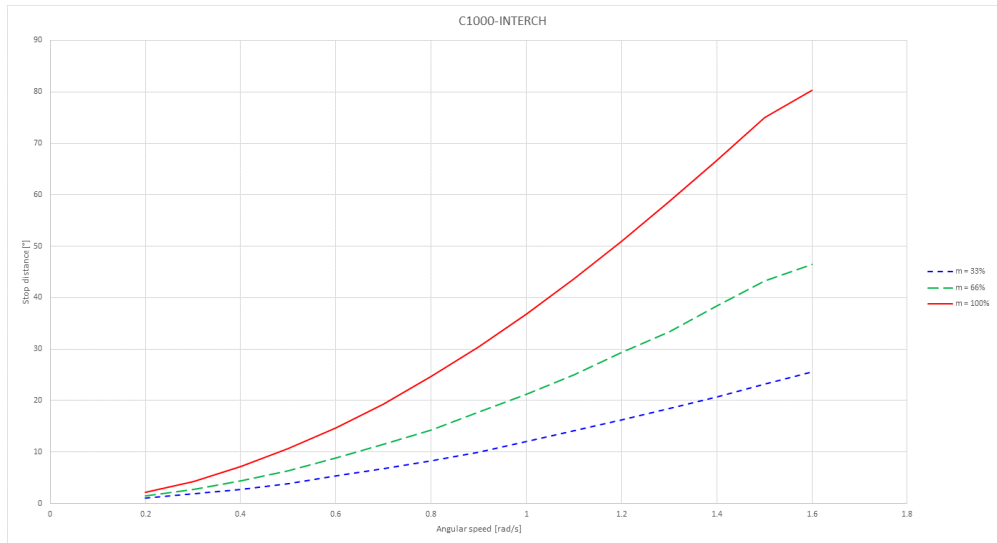
## Category 0, INTERCH

## Stopping distance and stopping time

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Category 1, INTERCH

Stopping distance and stopping time

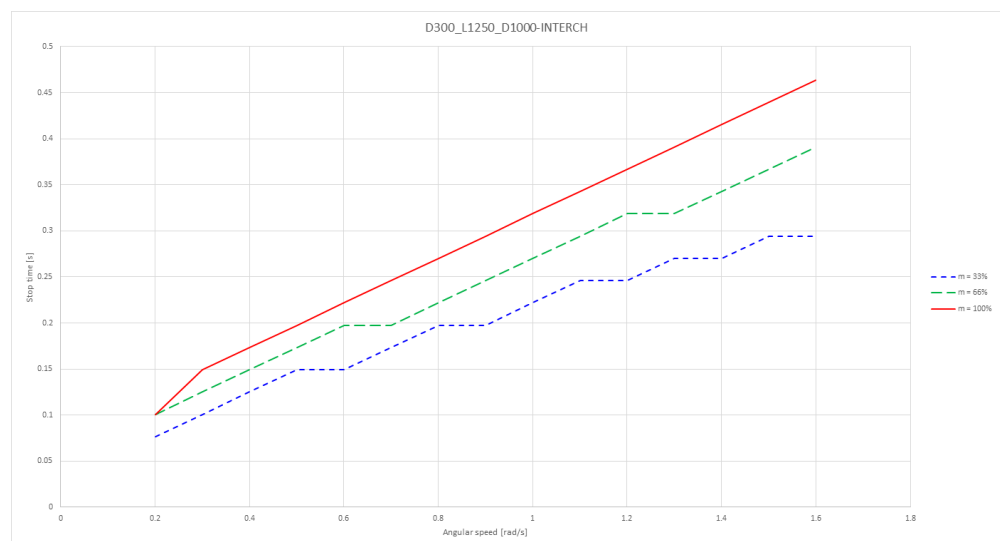
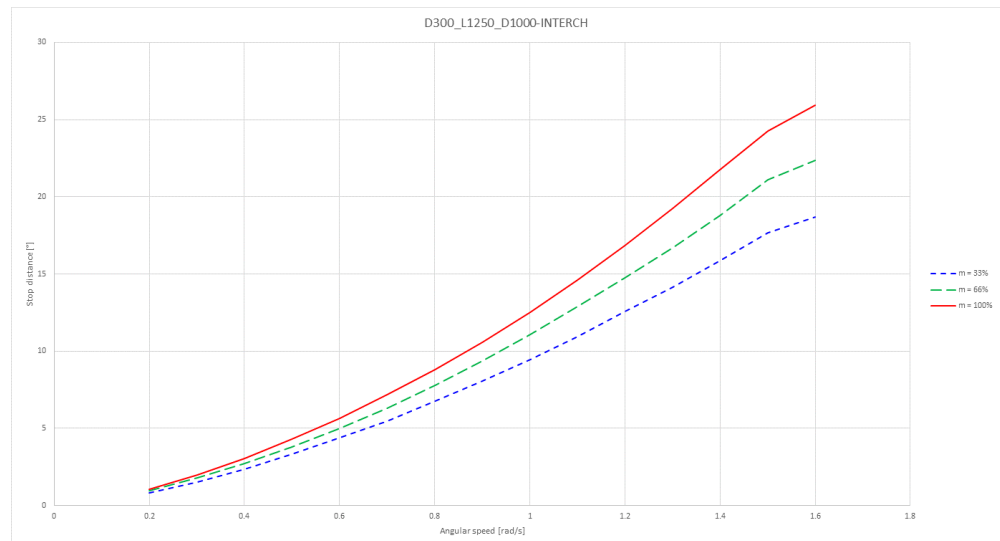


# 31 IRBP D

## 31.1 D300\_L1250\_D1000

### Category 0, INTERCH

#### Stopping distance and stopping time



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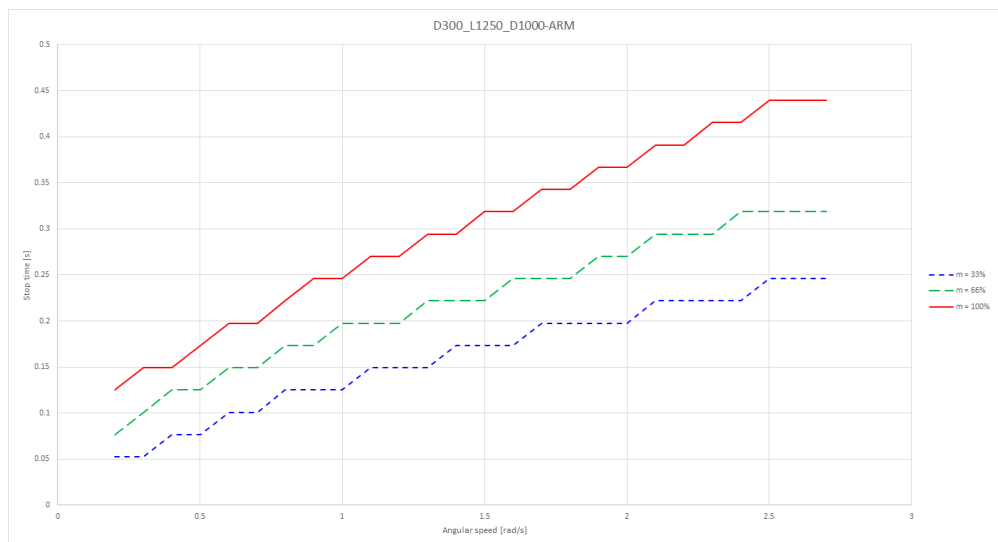
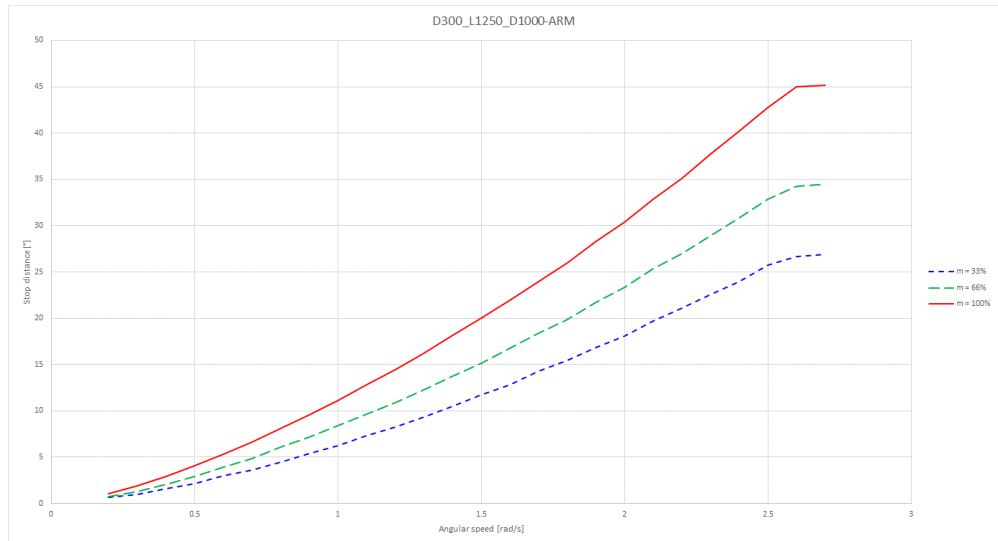
# 31 IRBP D

## 31.1 D300\_L1250\_D1000

Continued

### Category 0, ARM

#### Stopping distance and stopping time

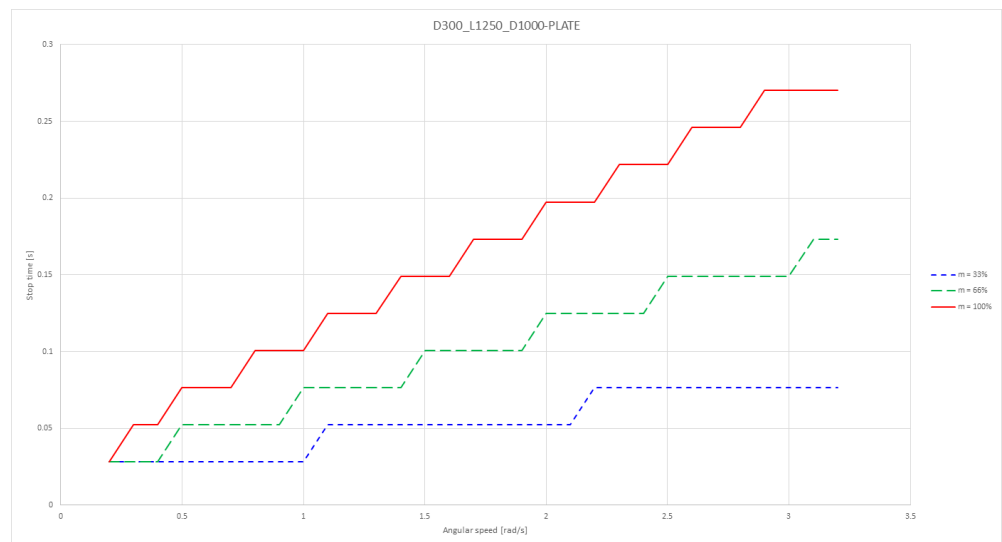
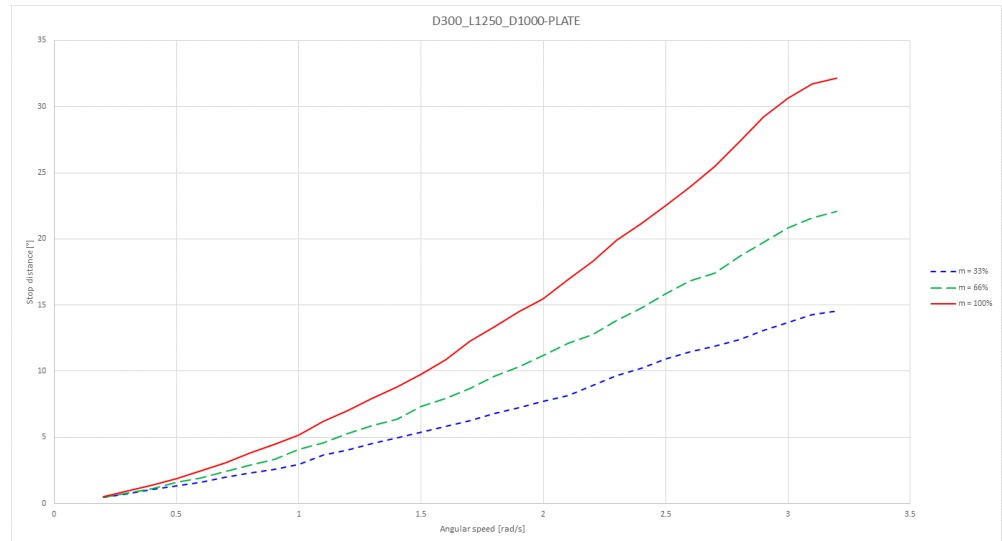


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Category 0, PLATE

Stopping distance and stopping time



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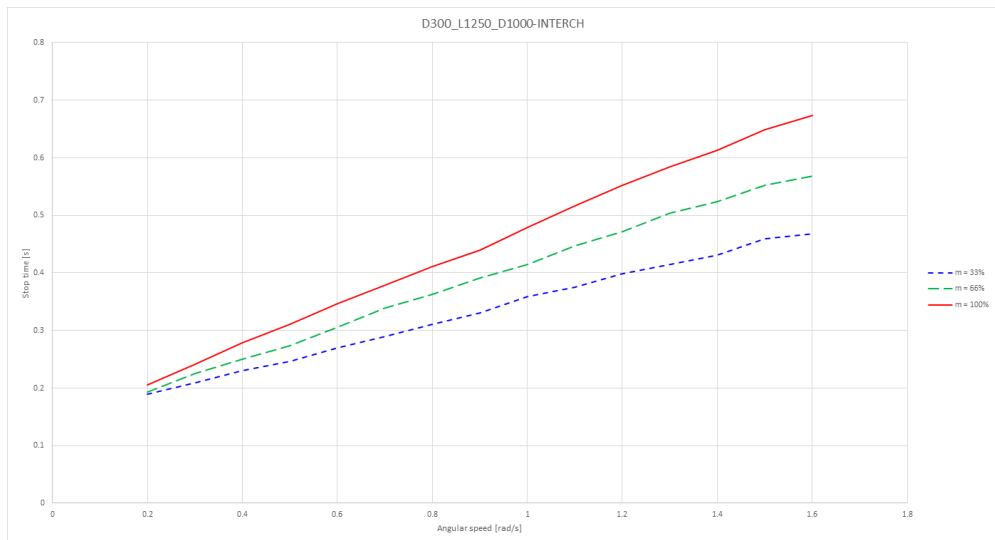
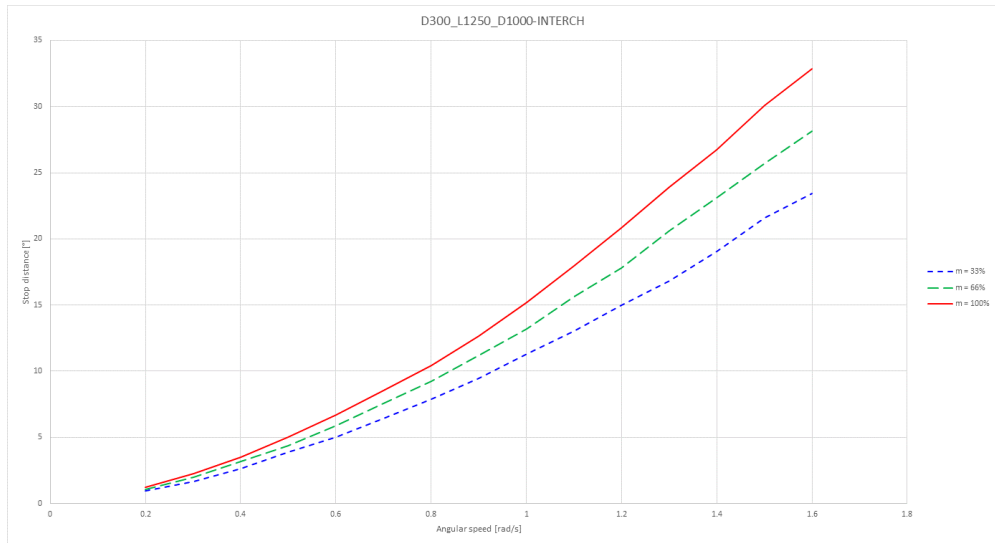
# 31 IRBP D

## 31.1 D300\_L1250\_D1000

Continued

### Category 1, INTERCH

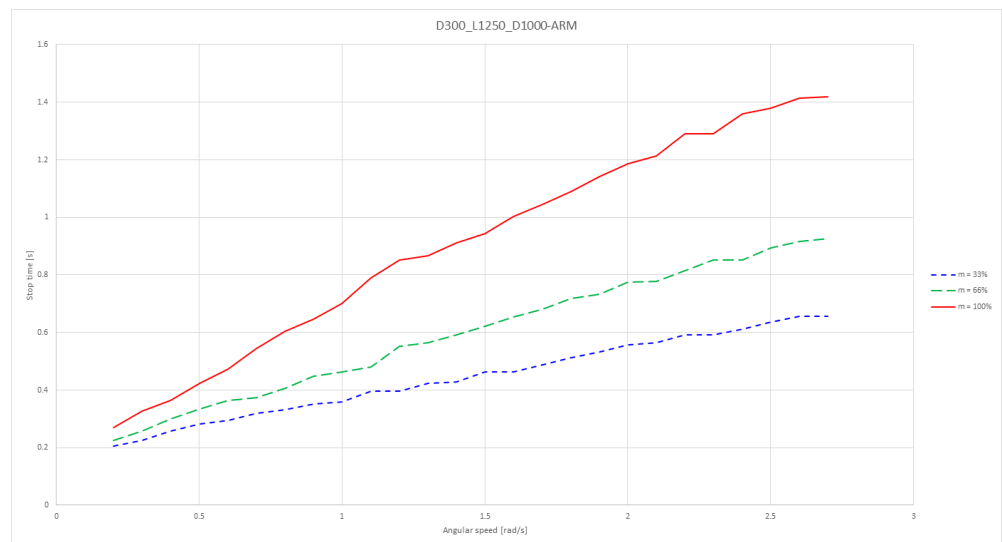
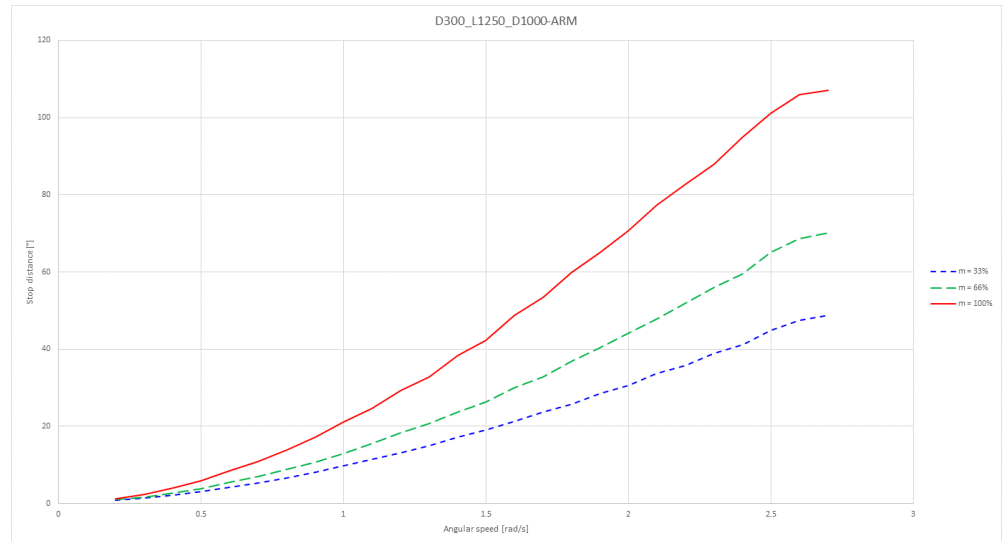
#### Stopping distance and stopping time



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Category 1, ARM

Stopping distance and stopping time



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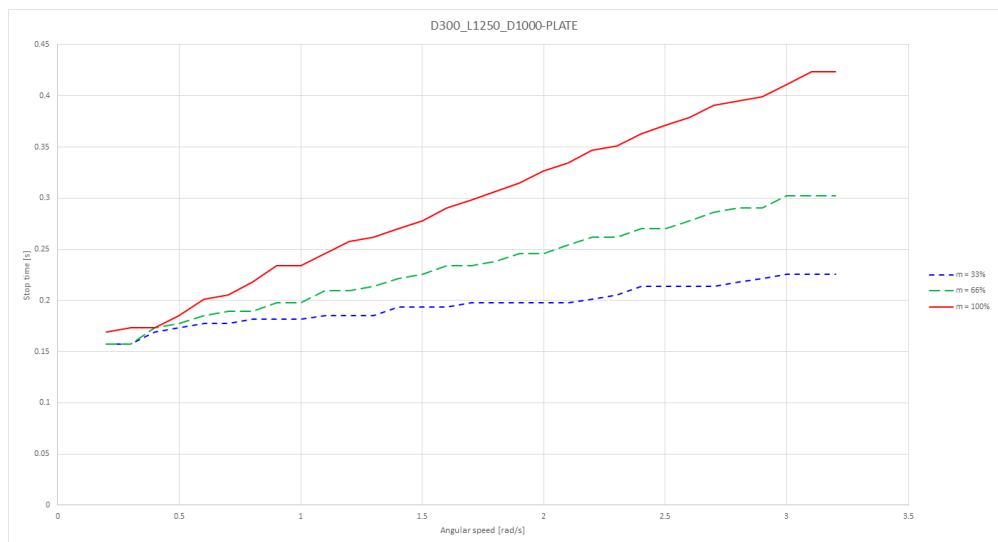
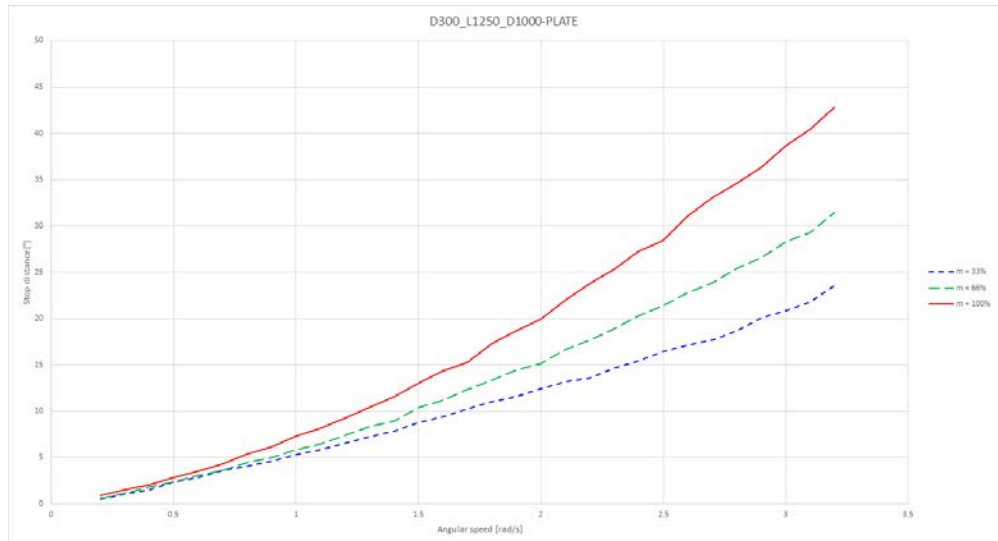
# 31 IRBP D

## 31.1 D300\_L1250\_D1000

Continued

### Category 1, PLATE

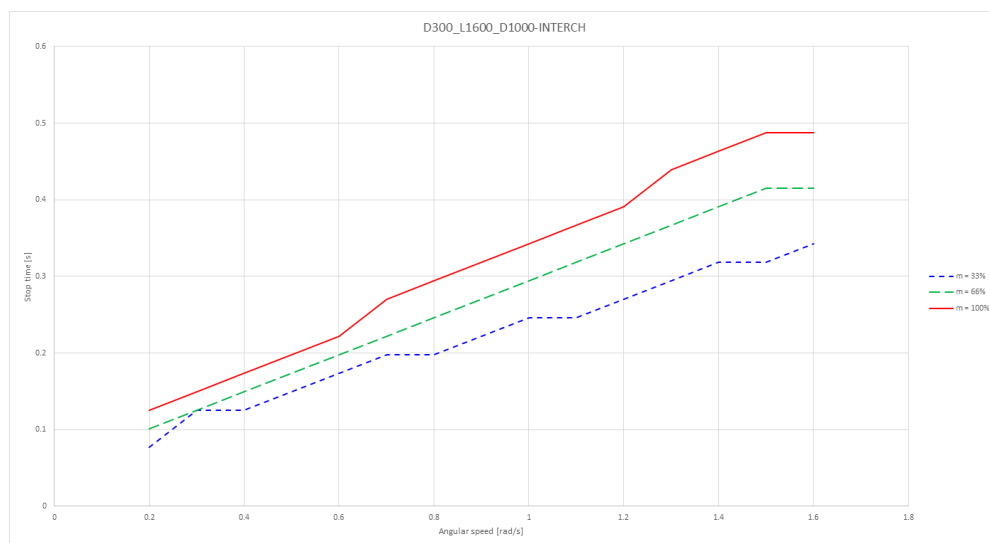
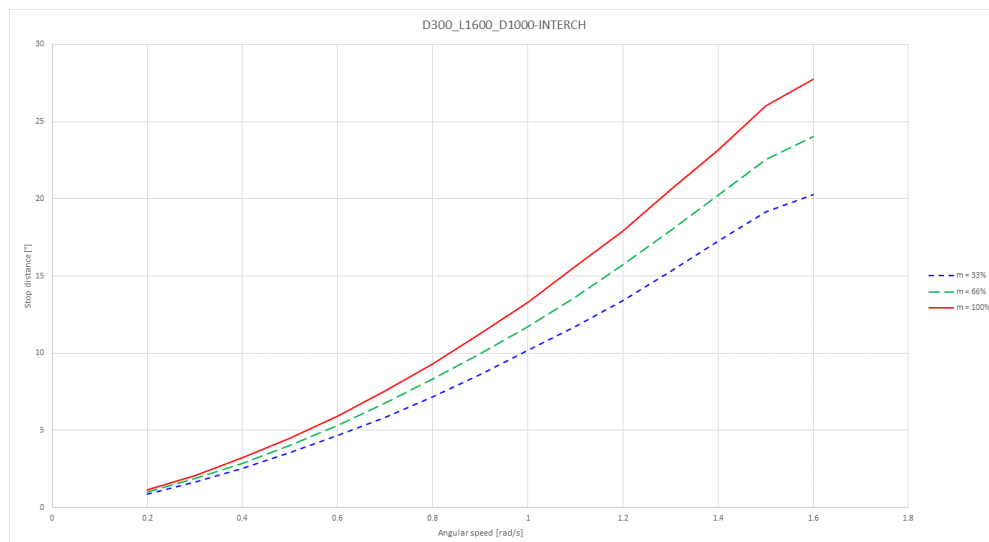
#### Stopping distance and stopping time



## 31.2 D300\_L1600\_D1000

## Category 0, INTERCH

## Stopping distance and stopping time

*Continues on next page*

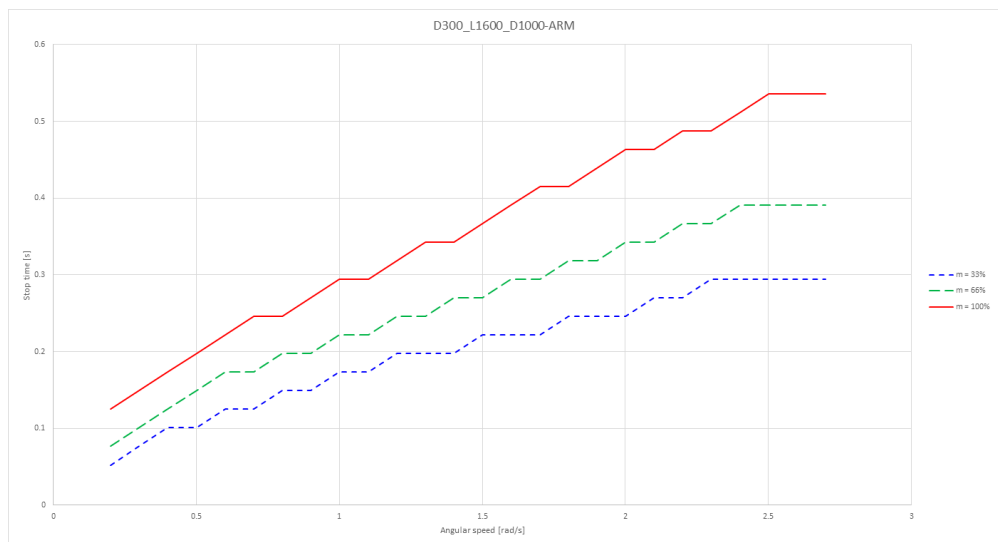
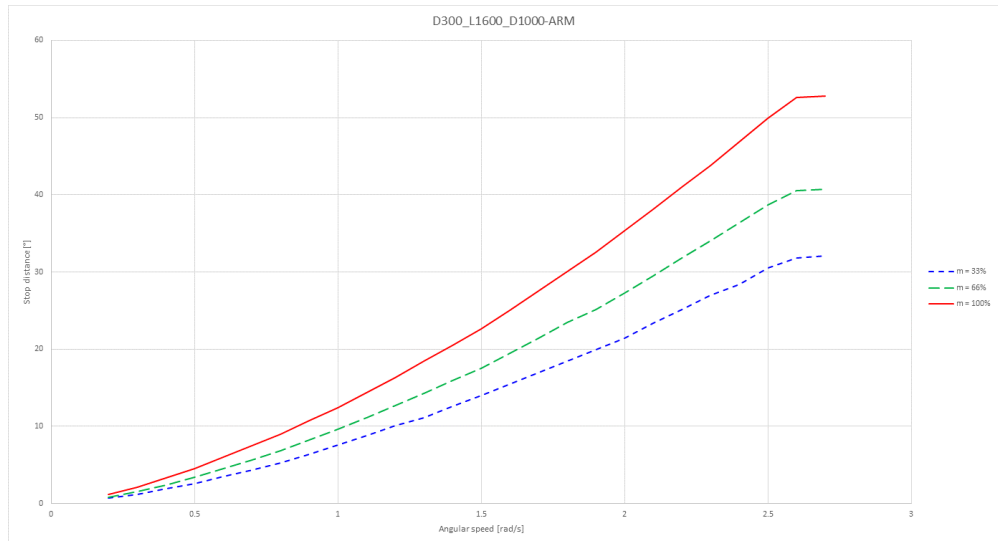
# 31 IRBP D

## 31.2 D300\_L1600\_D1000

Continued

### Category 0, ARM

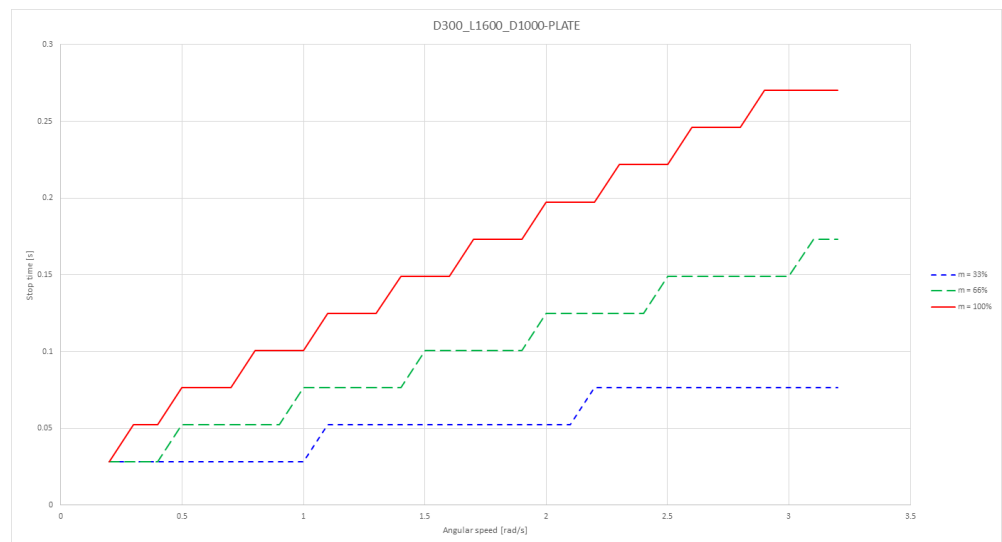
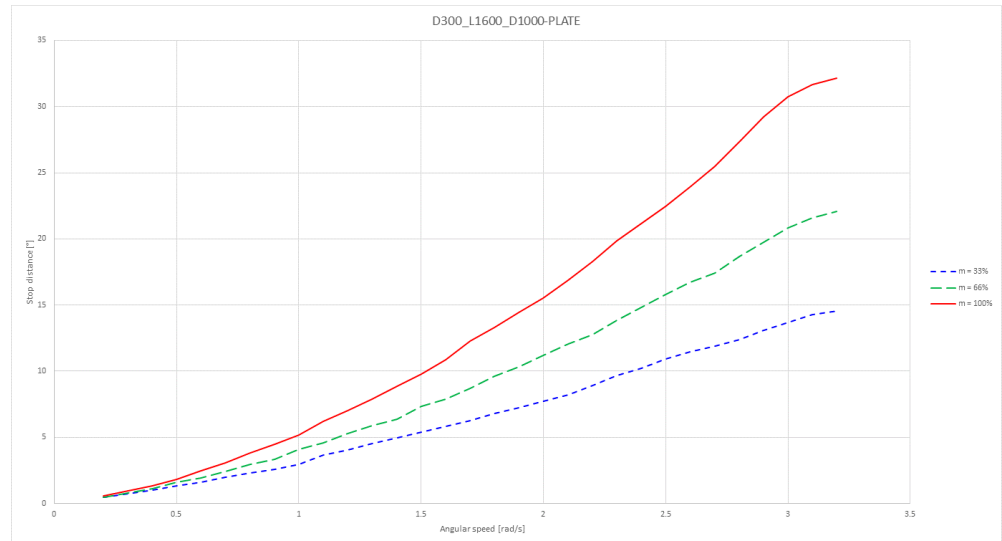
#### Stopping distance and stopping time



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Category 0, PLATE

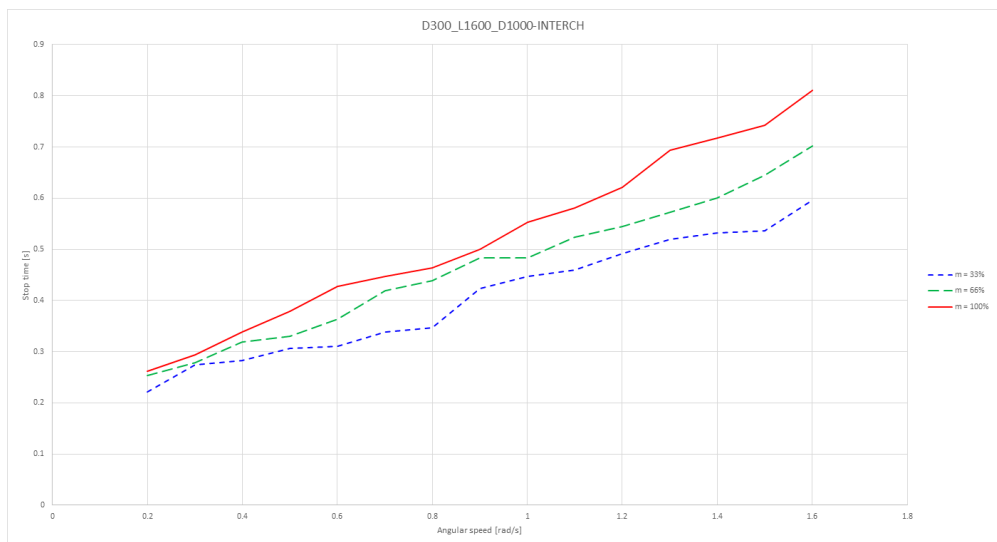
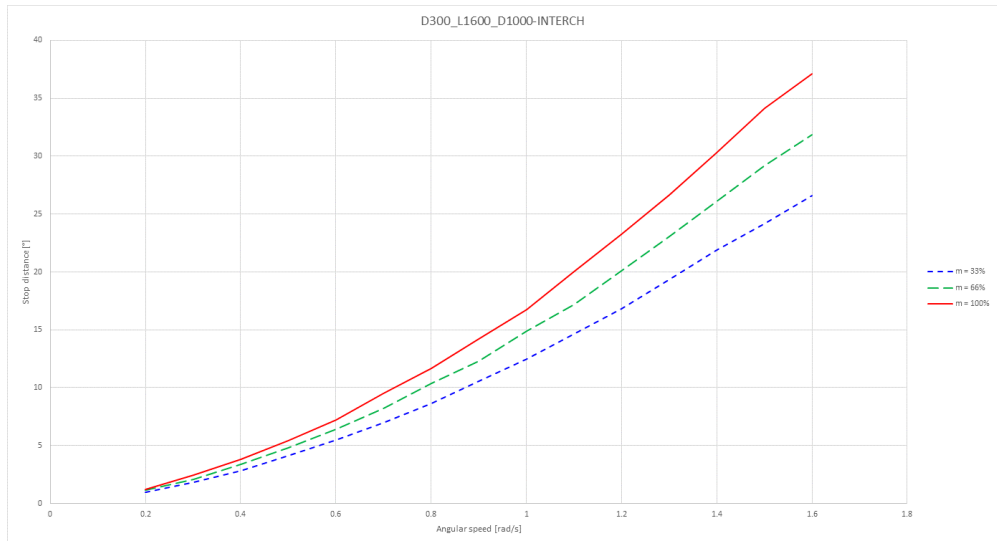
Stopping distance and stopping time



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Category 1, INTERCH

Stopping distance and stopping time

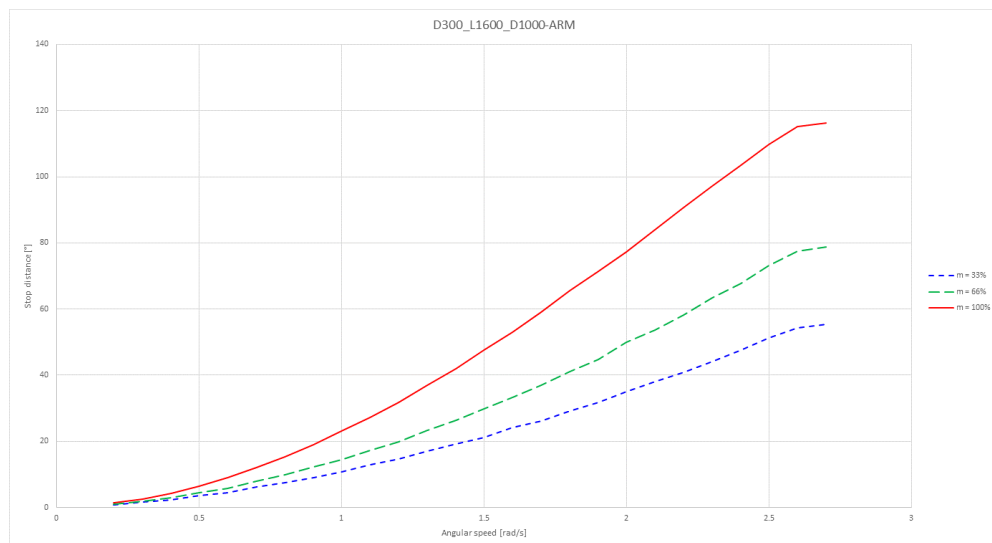


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Category 1, ARM

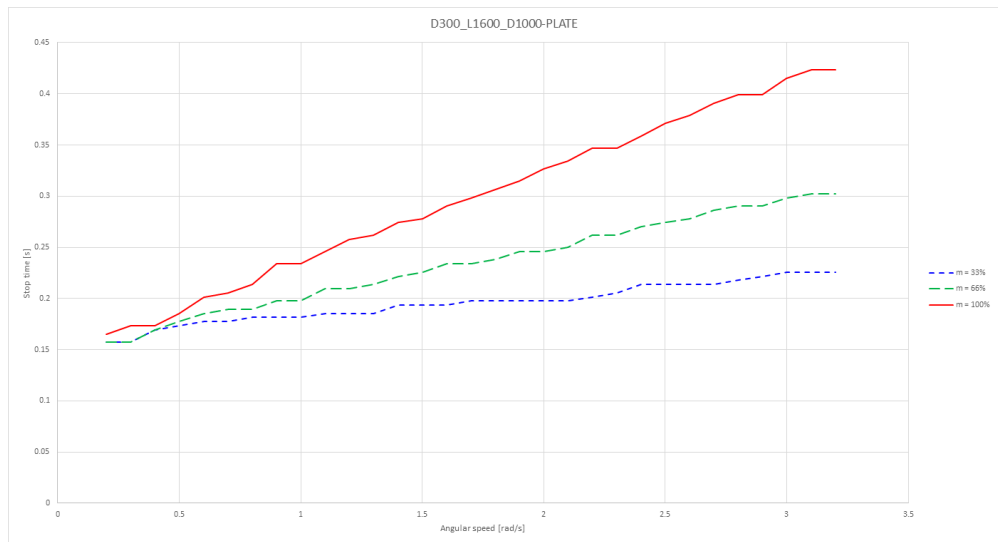
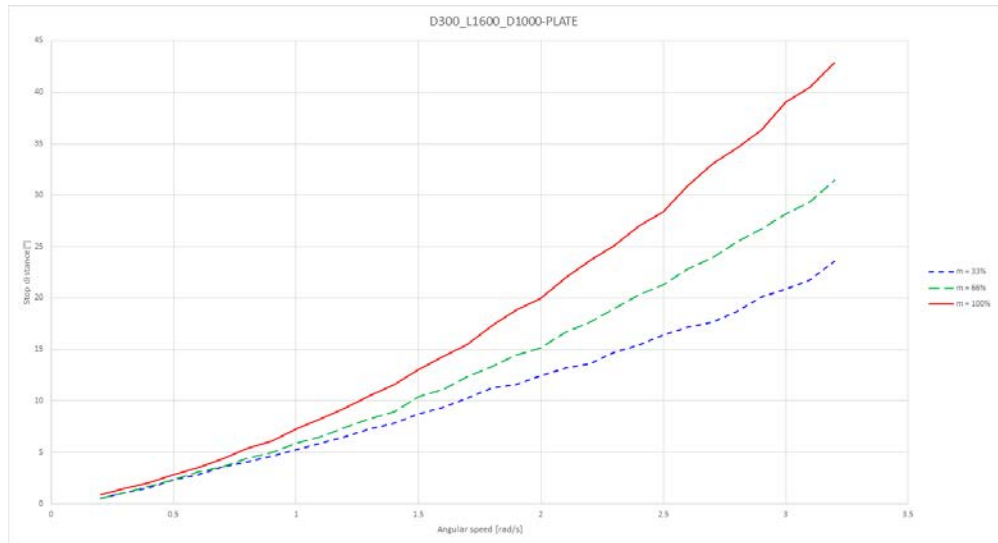
Stopping distance and stopping time



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Category 1, PLATE

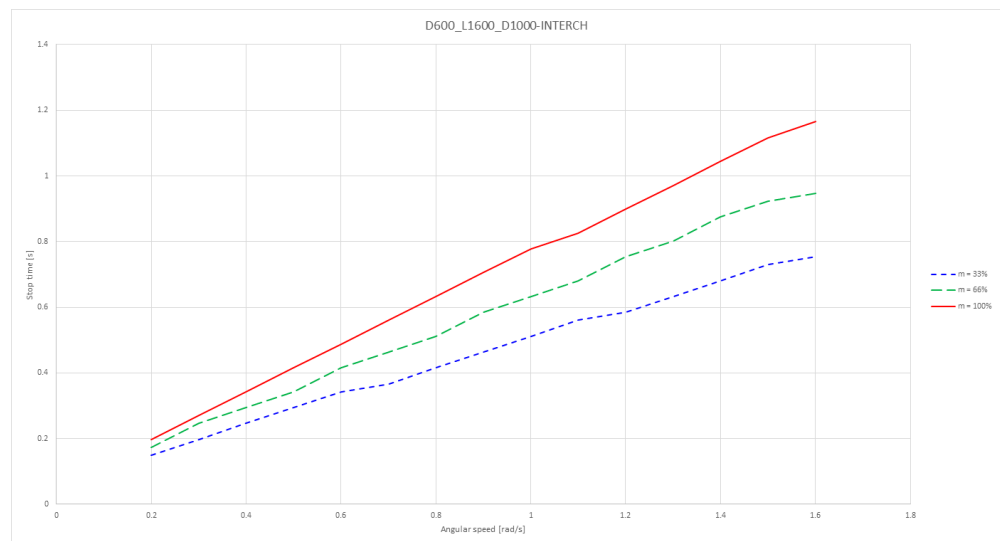
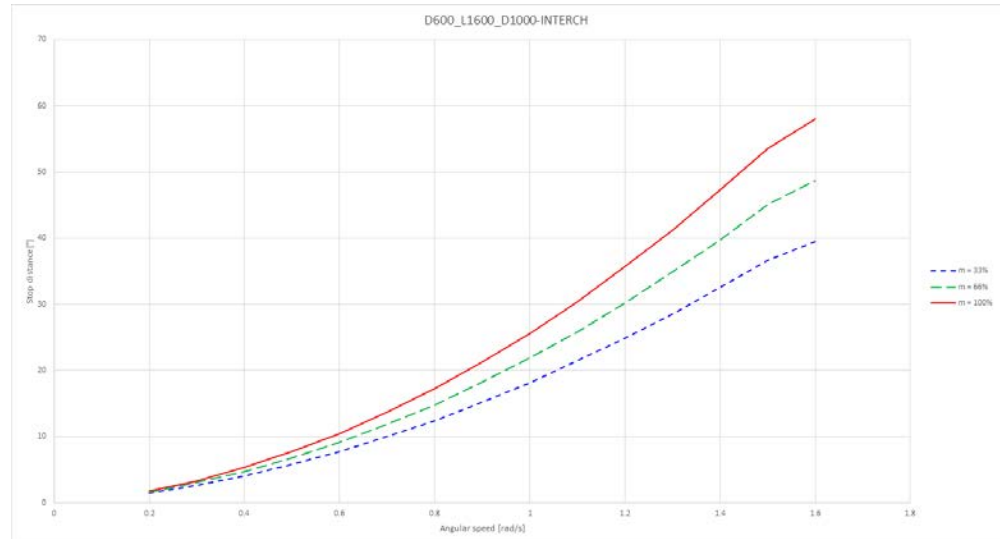
Stopping distance and stopping time



## 31.3 D600\_L1600\_D1000

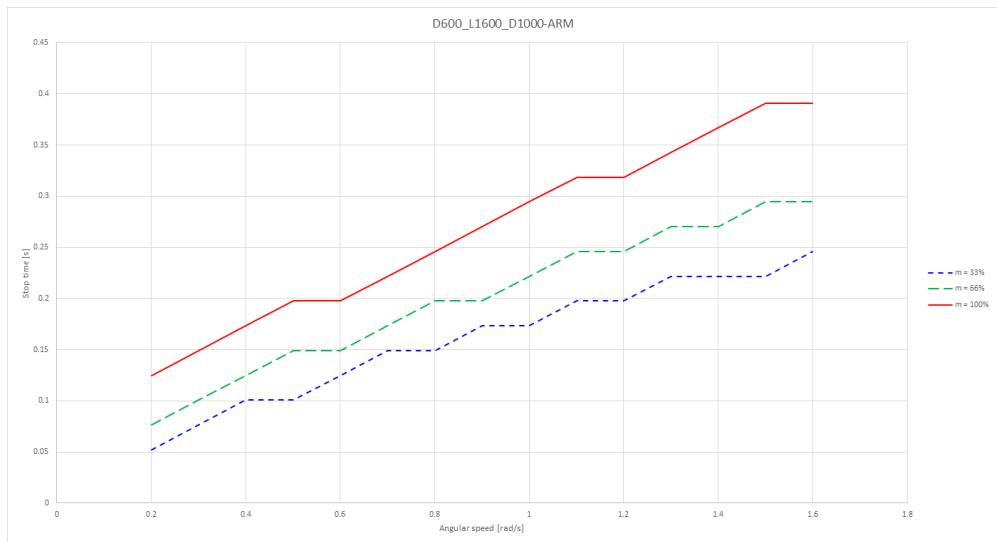
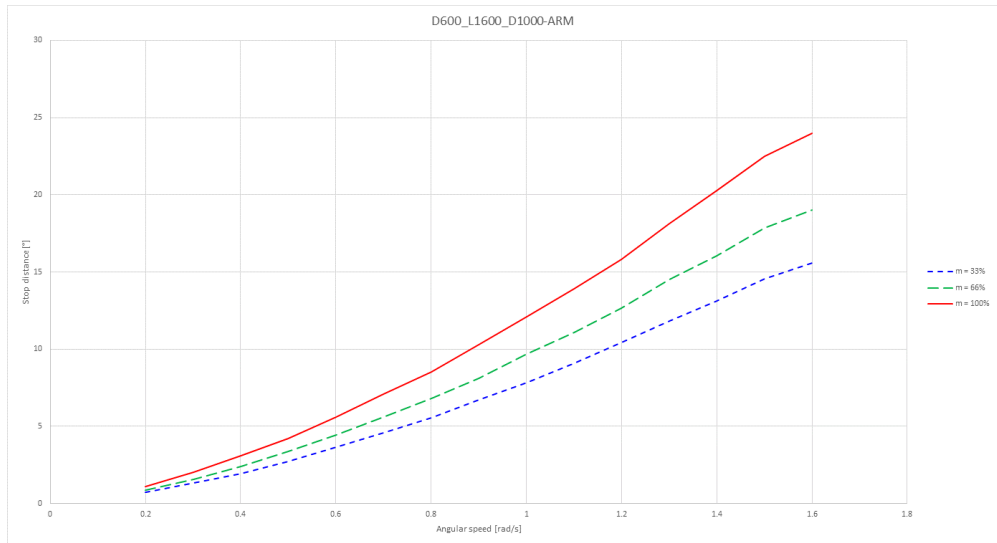
## Category 0, INTERCH

## Stopping distance and stopping time

*Continues on next page*

Category 0, ARM

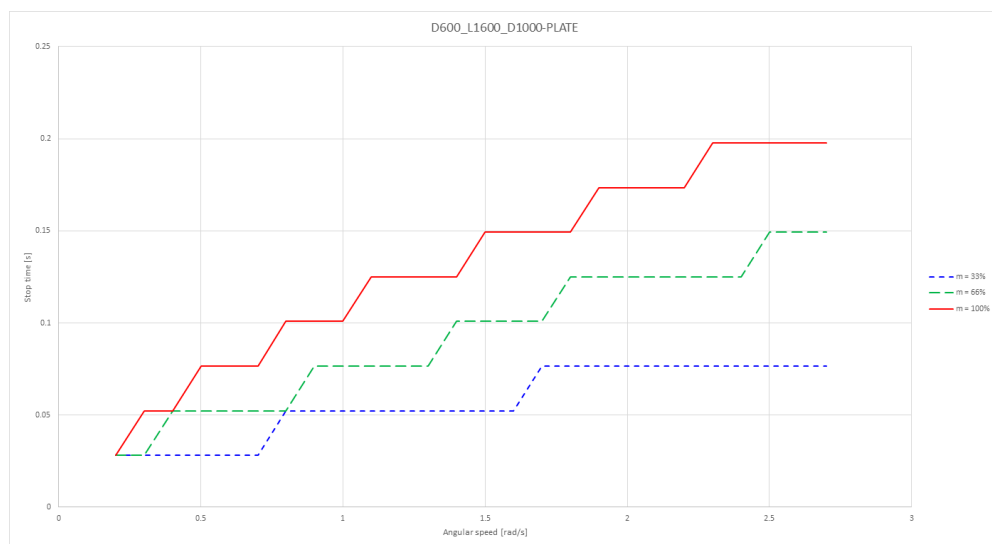
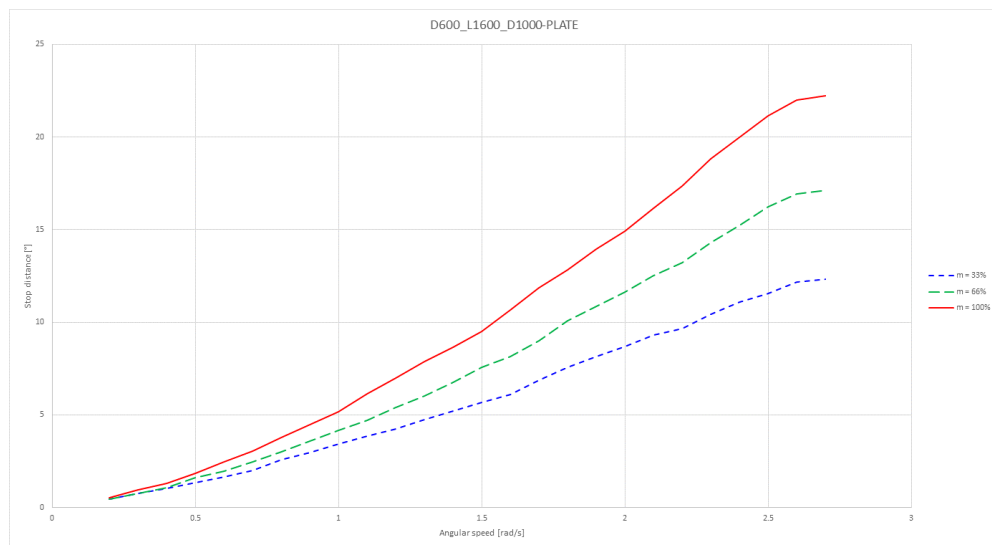
Stopping distance and stopping time



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Category 0, PLATE

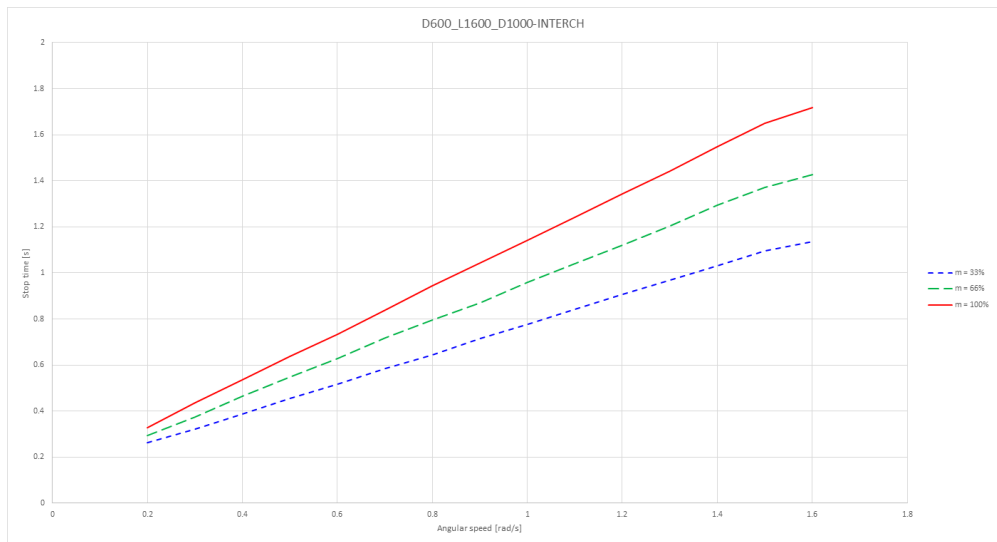
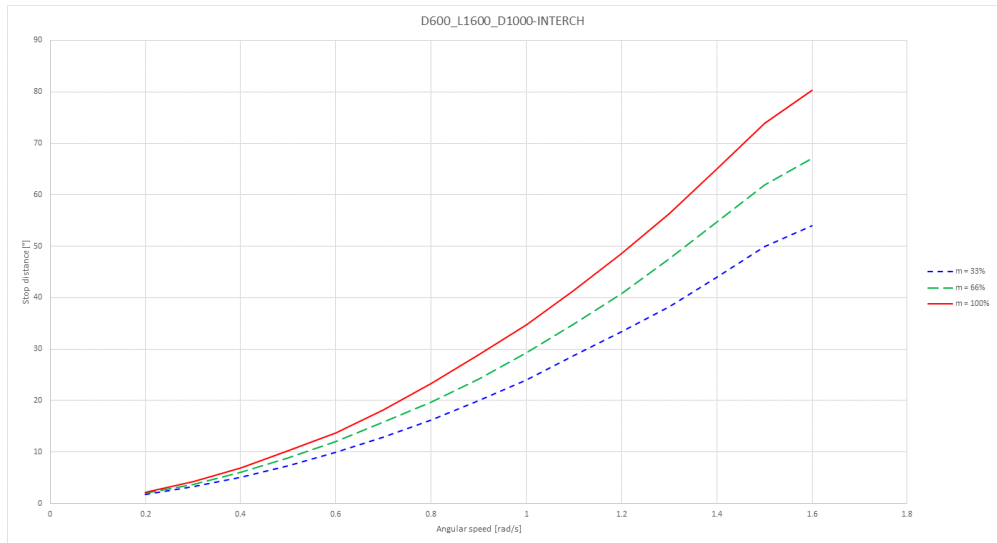
Stopping distance and stopping time



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Category 1, INTERCH

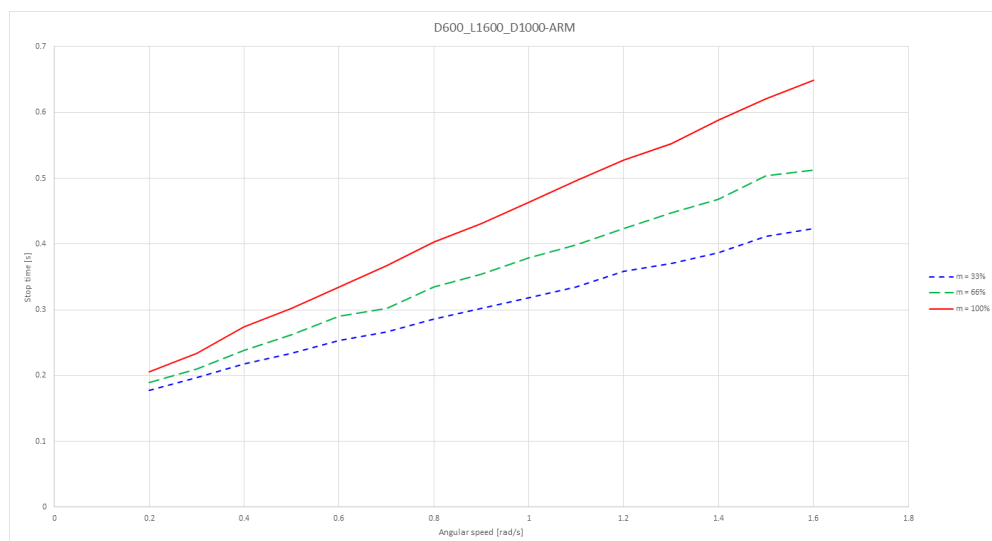
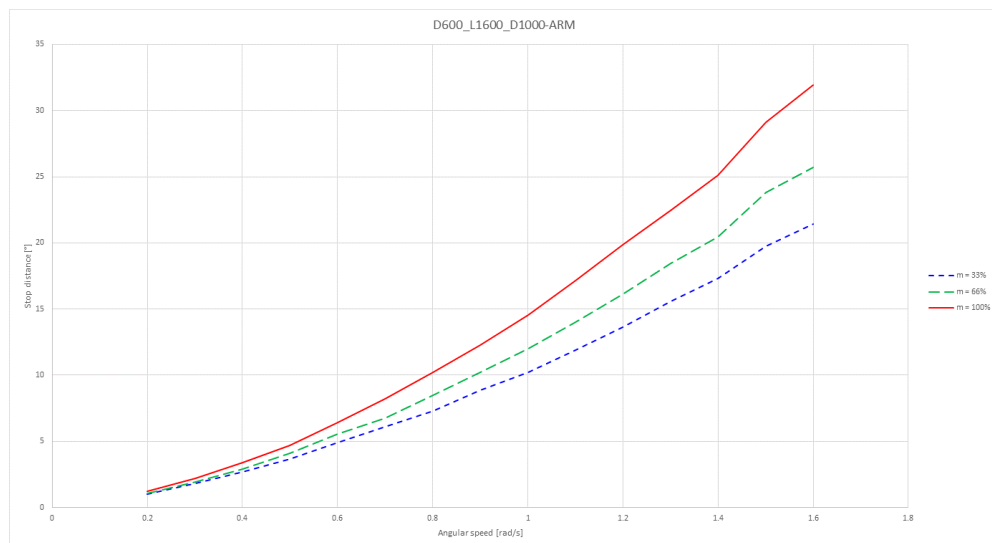
Stopping distance and stopping time



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Category 1, ARM

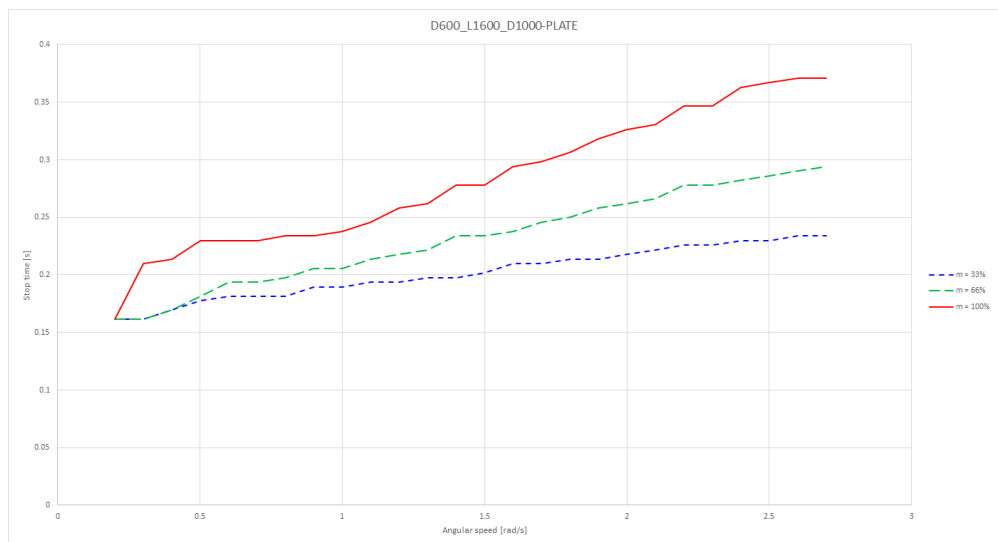
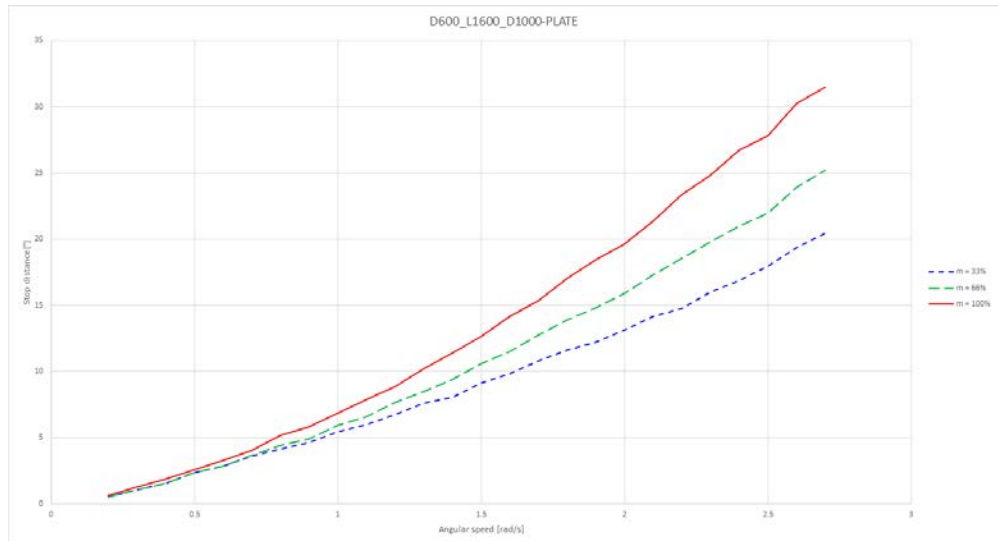
Stopping distance and stopping time



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Category 1, PLATE

Stopping distance and stopping time

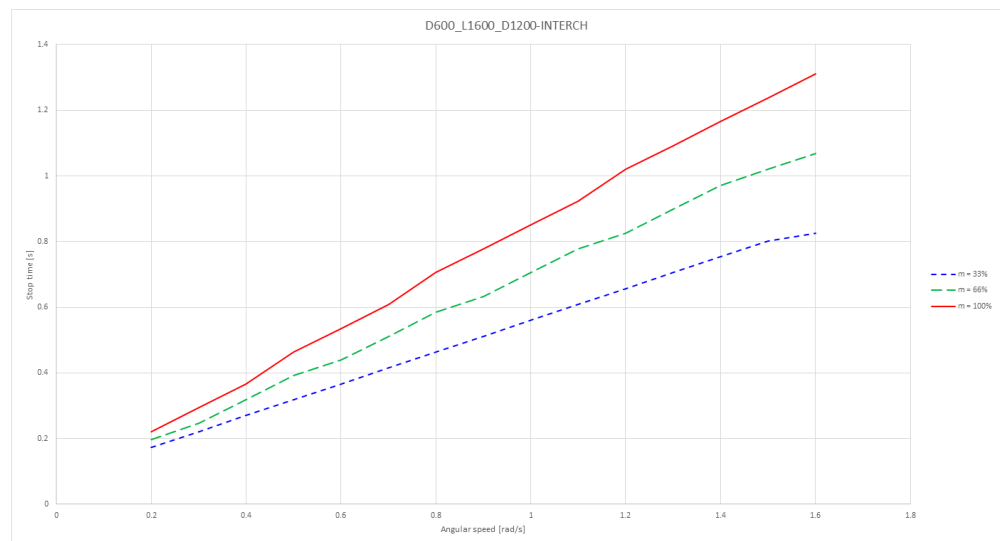
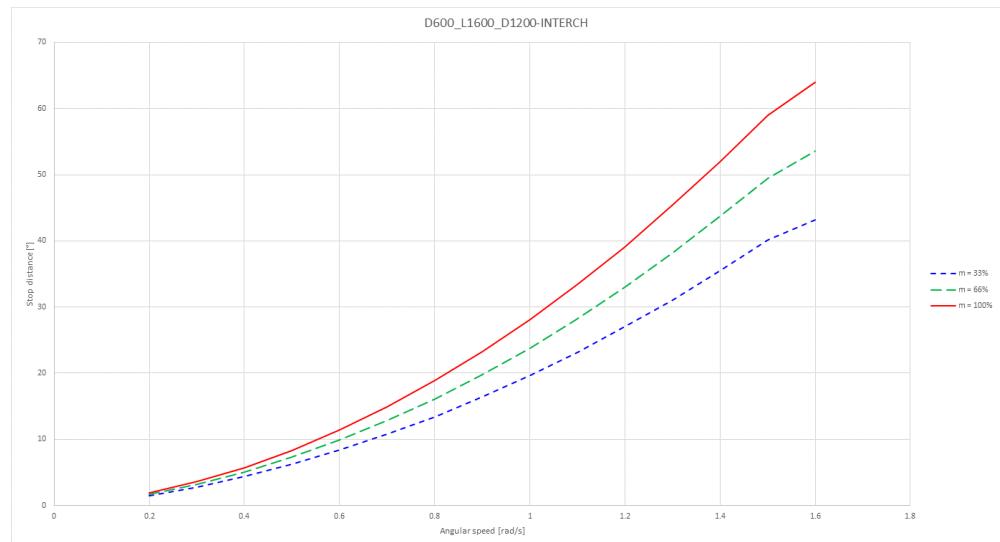




## 31.4 D600\_L1600\_D1200

## Category 0, INTERCH

## Stopping distance and stopping time

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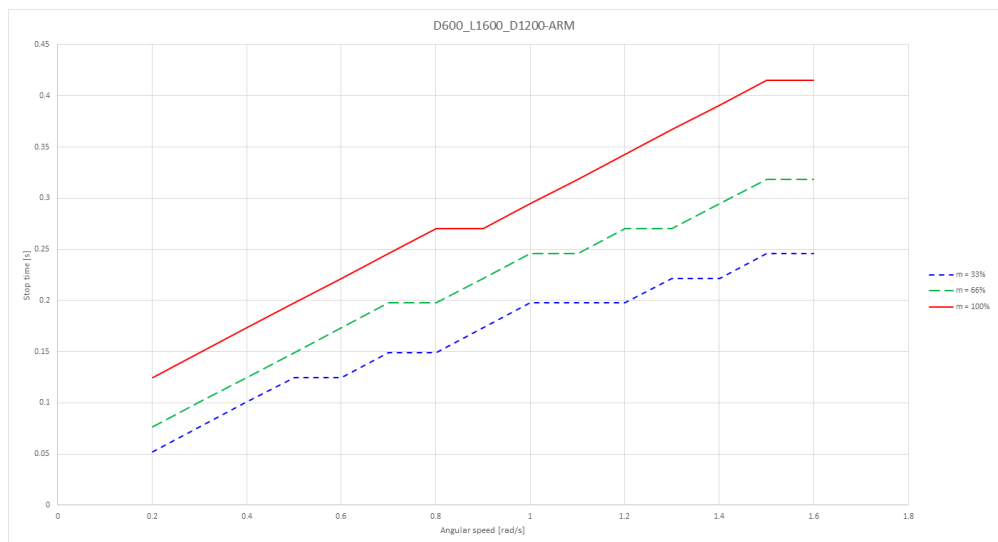
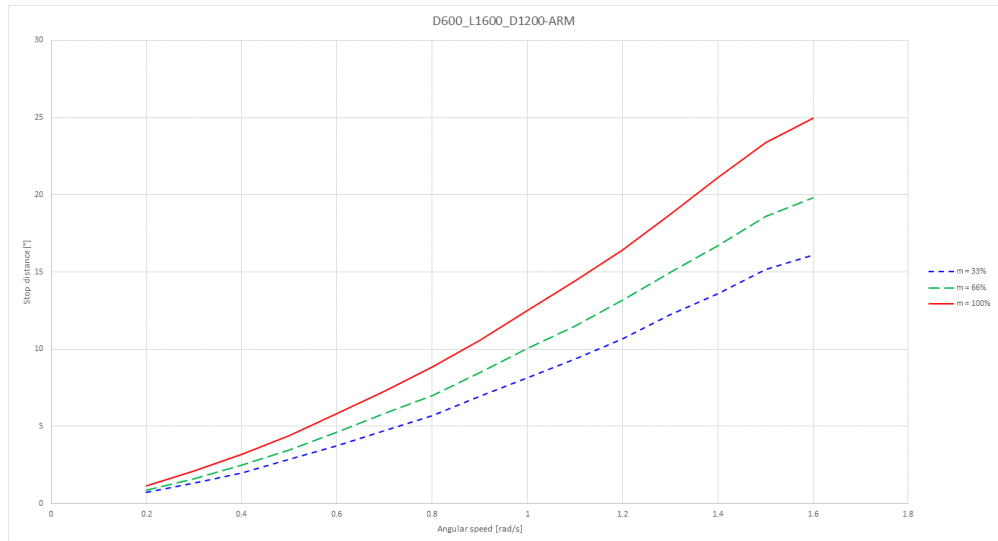
# 31 IRBP D

## 31.4 D600\_L1600\_D1200

Continued

### Category 0, ARM

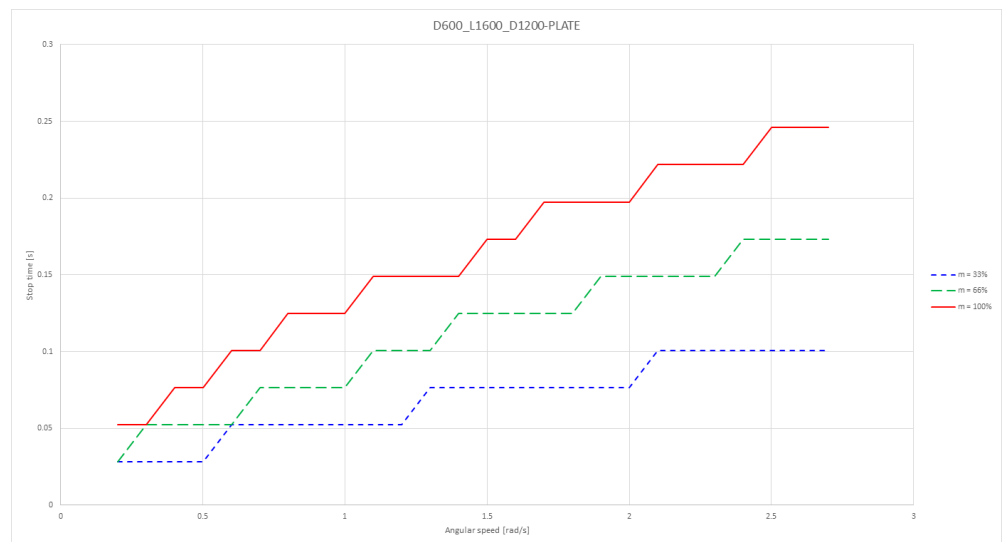
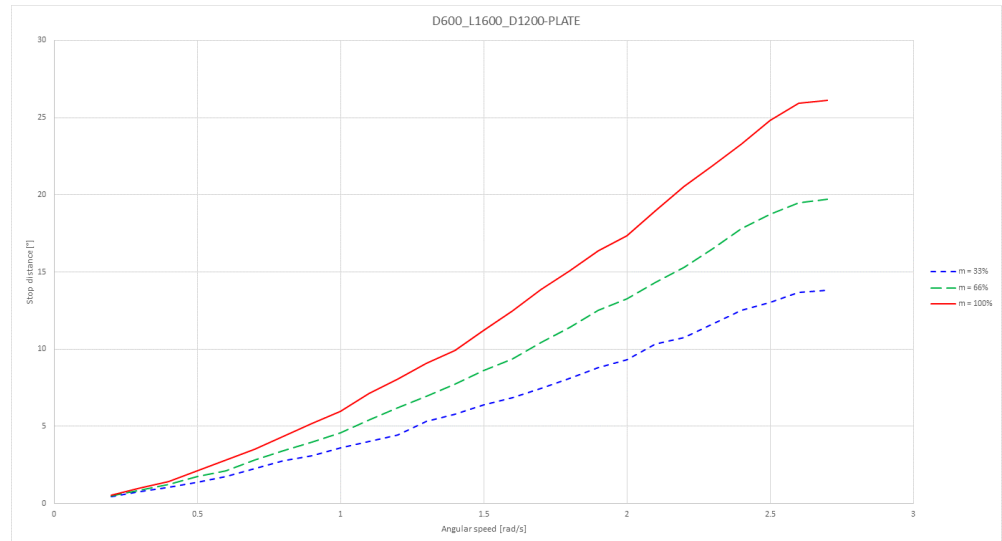
#### Stopping distance and stopping time



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Category 0, PLATE

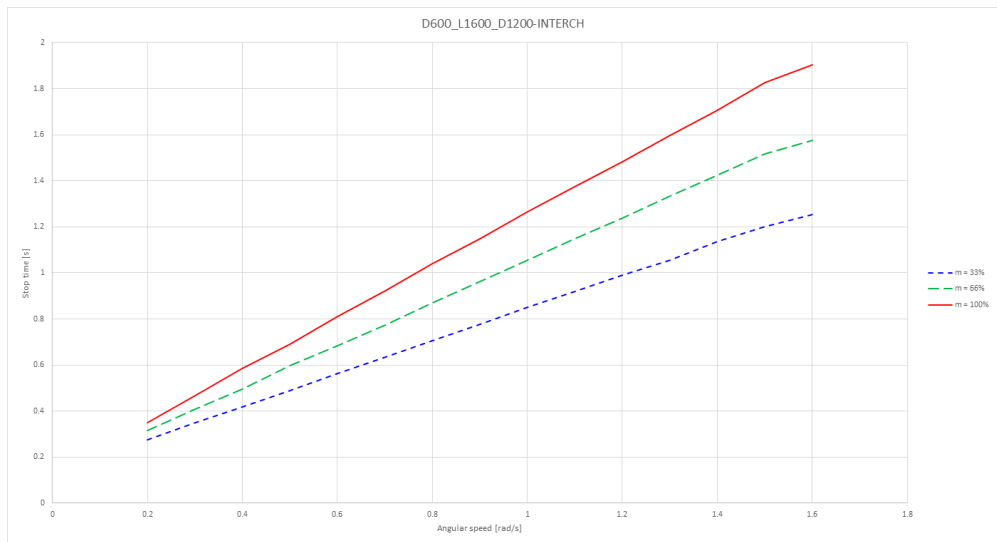
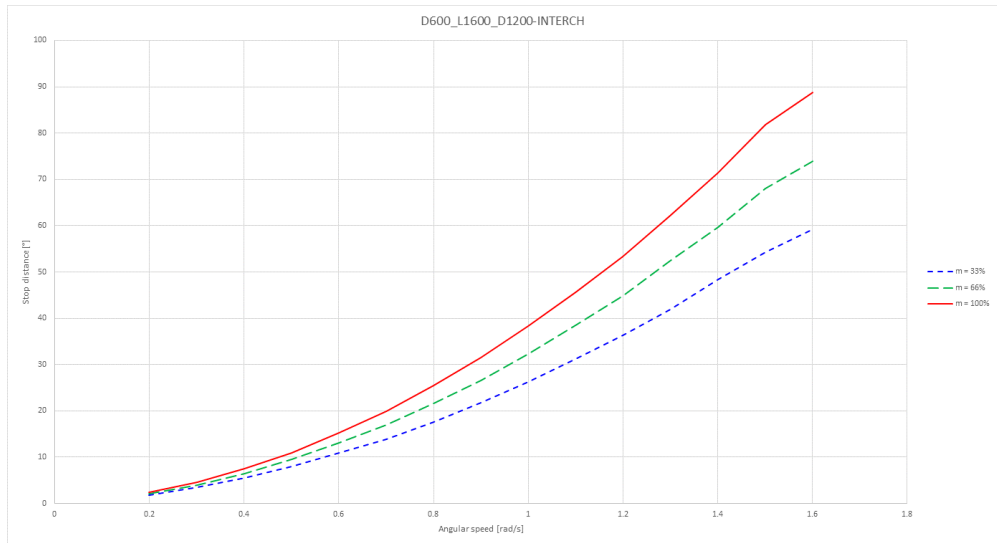
Stopping distance and stopping time



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Category 1, INTERCH

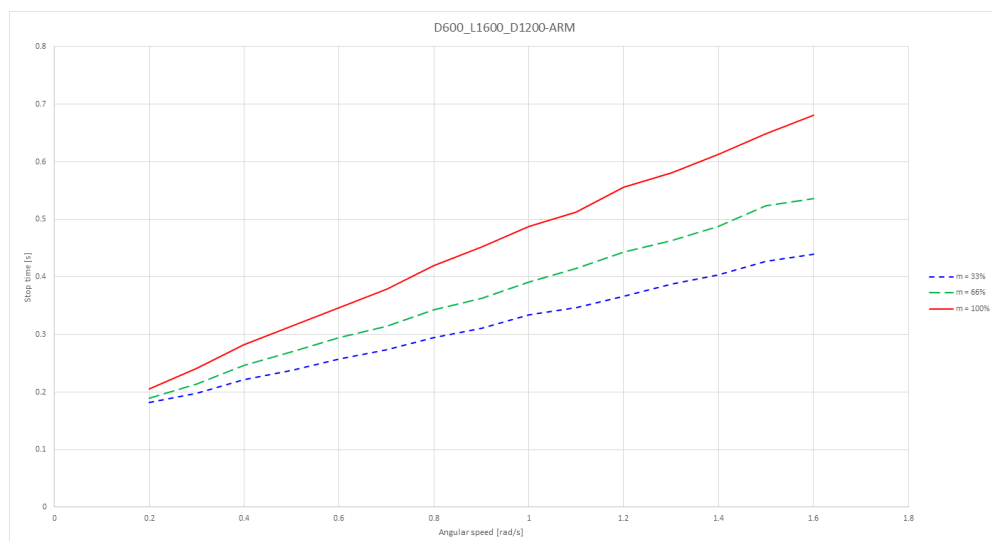
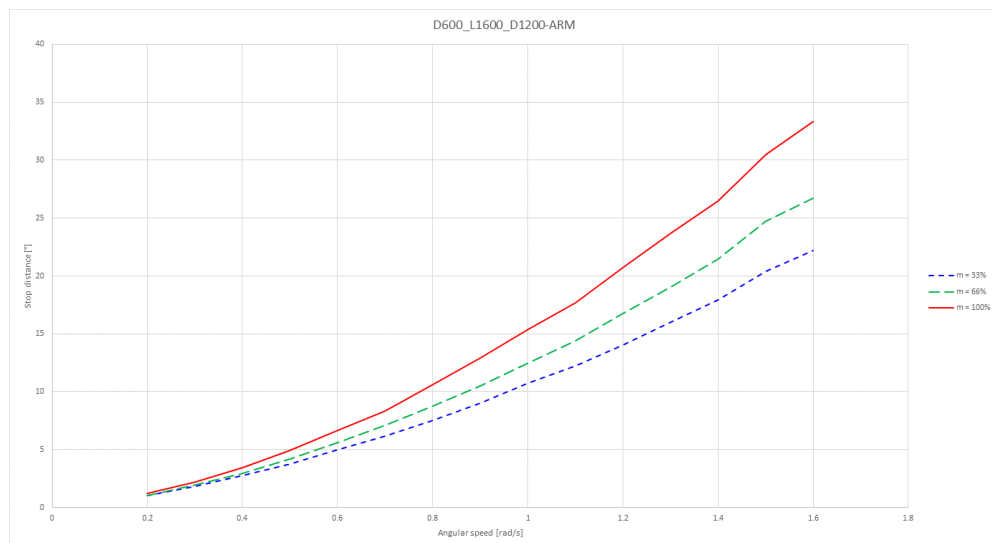
Stopping distance and stopping time



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Category 1, ARM

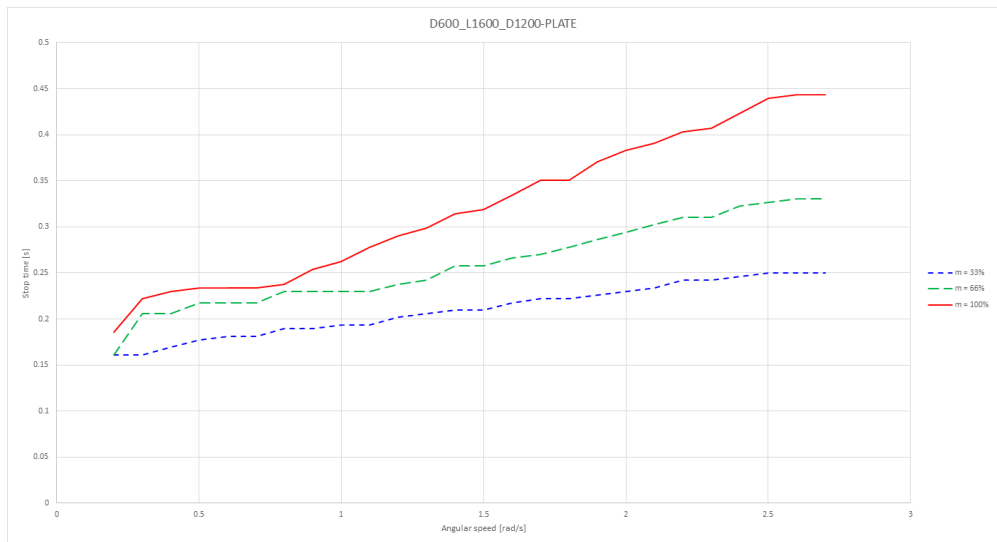
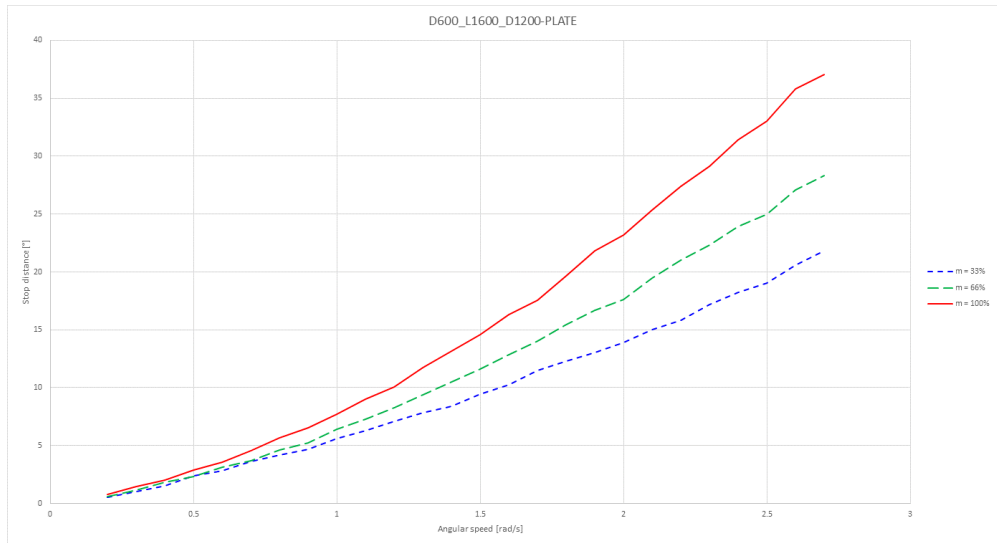
Stopping distance and stopping time



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Category 1, PLATE

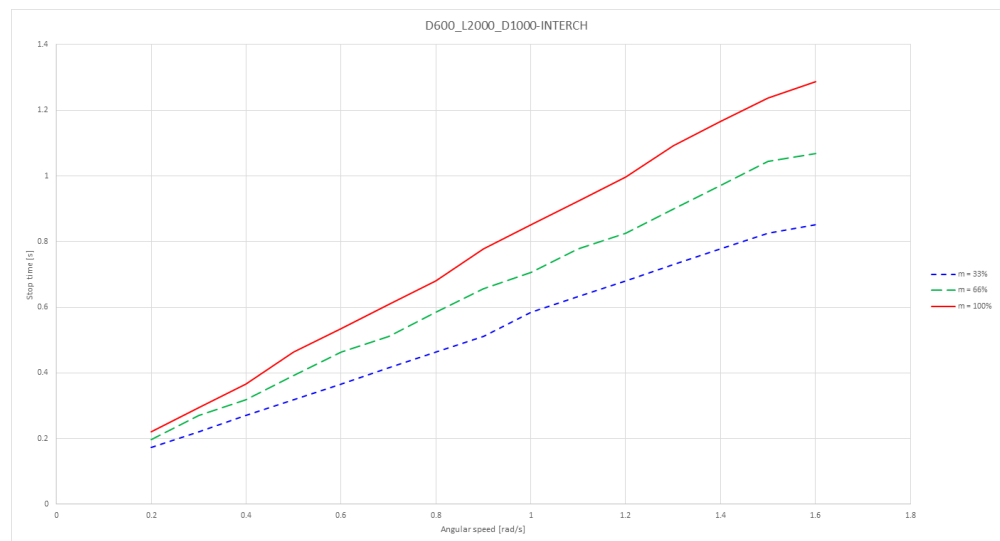
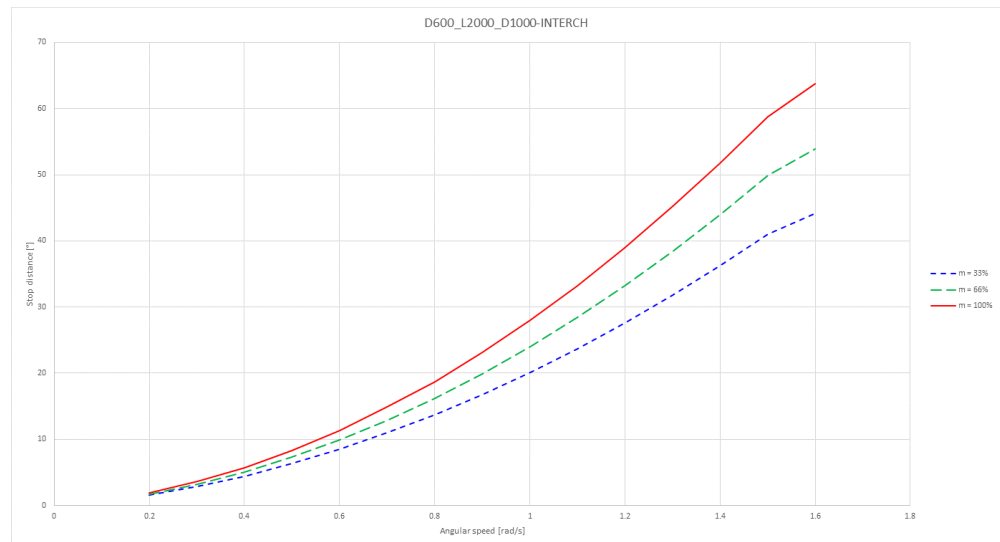
Stopping distance and stopping time



## 31.5 D600\_L2000\_D1000

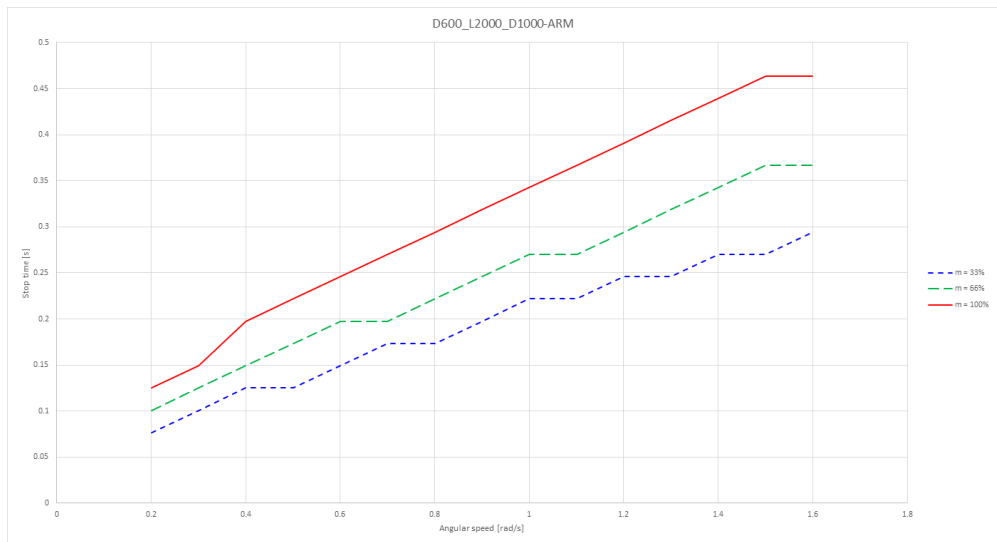
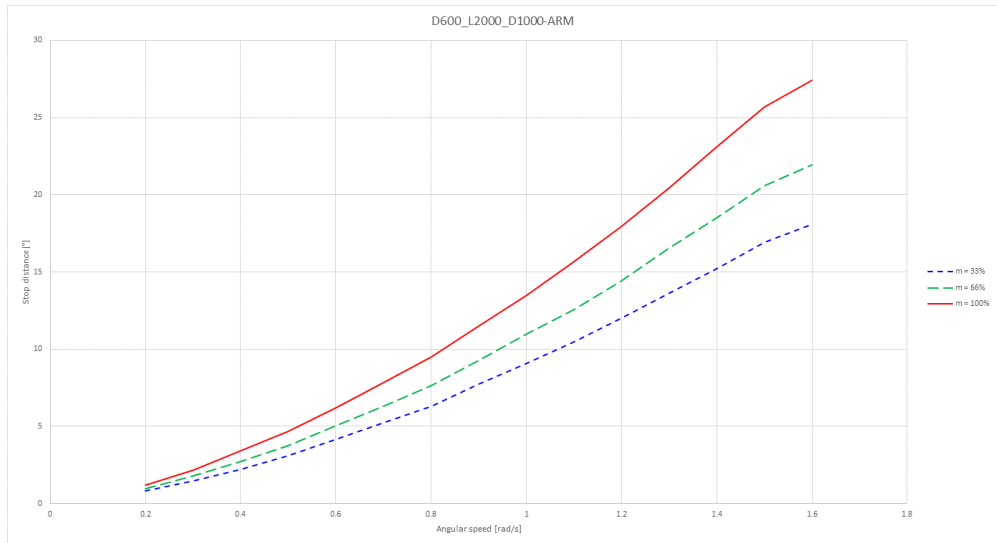
## Category 0, INTERCH

## Stopping distance and stopping time

*Continues on next page*

Category 0, ARM

Stopping distance and stopping time

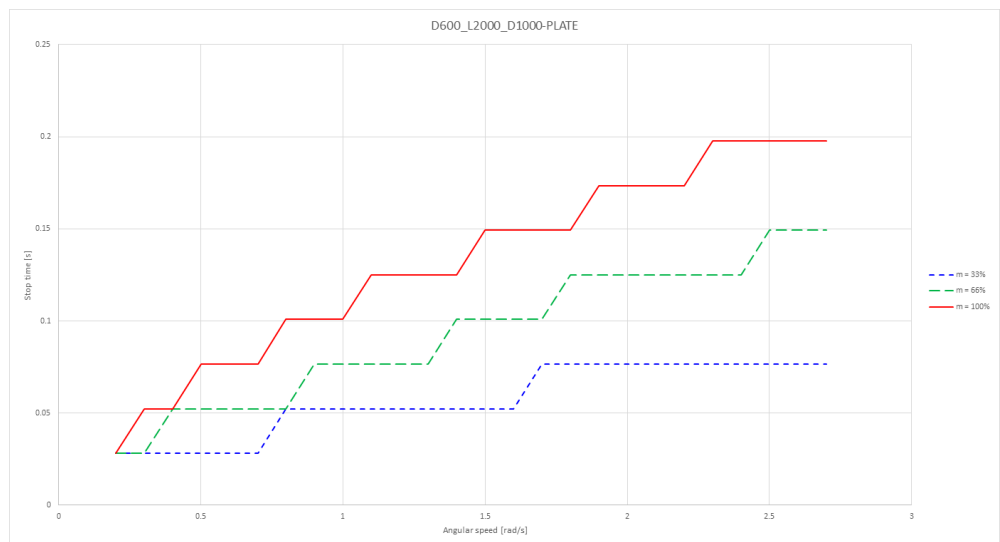
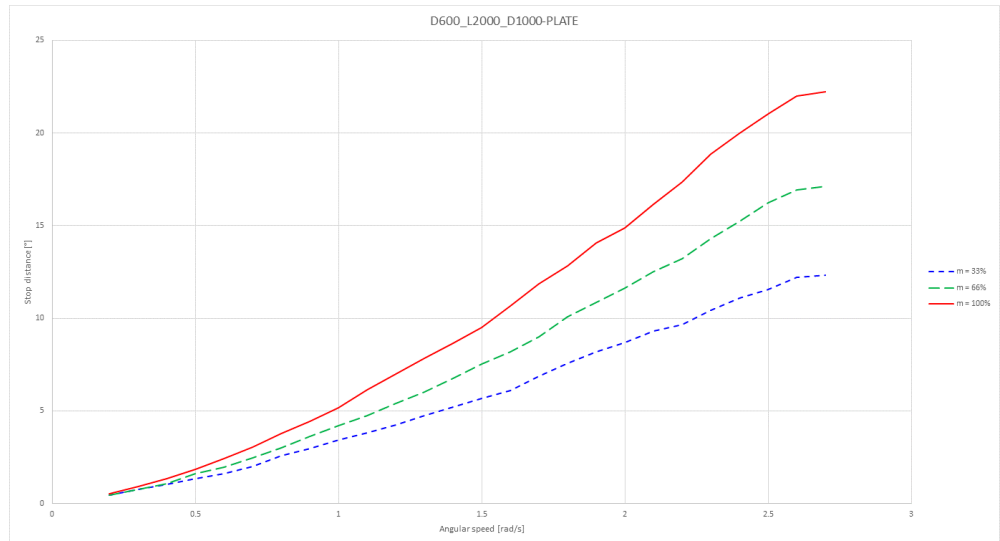


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Category 0, PLATE

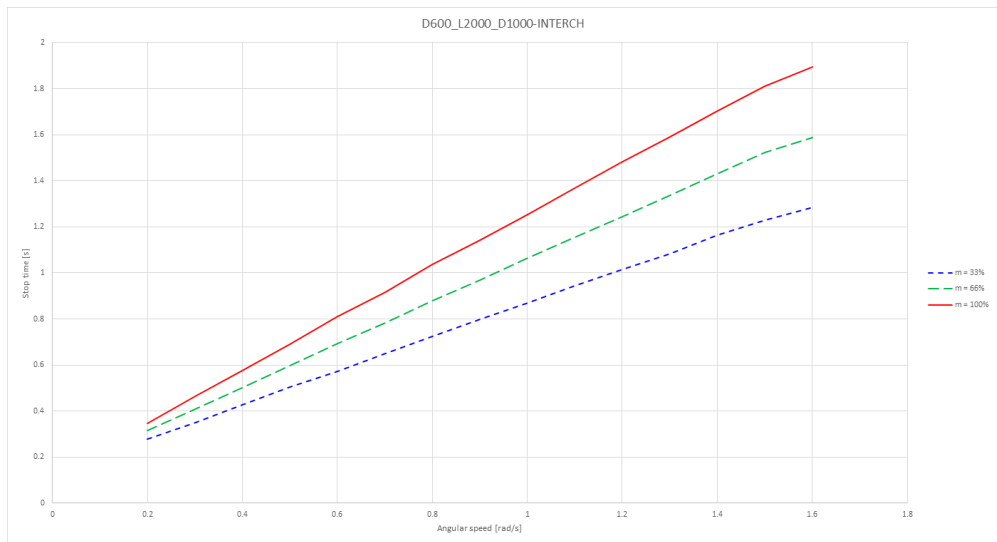
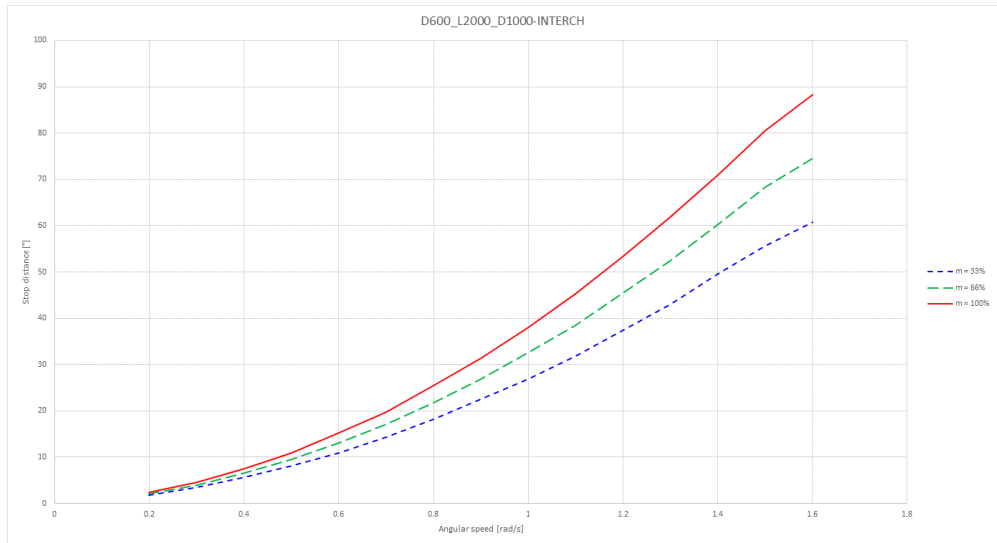
Stopping distance and stopping time



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Category 1, INTERCH

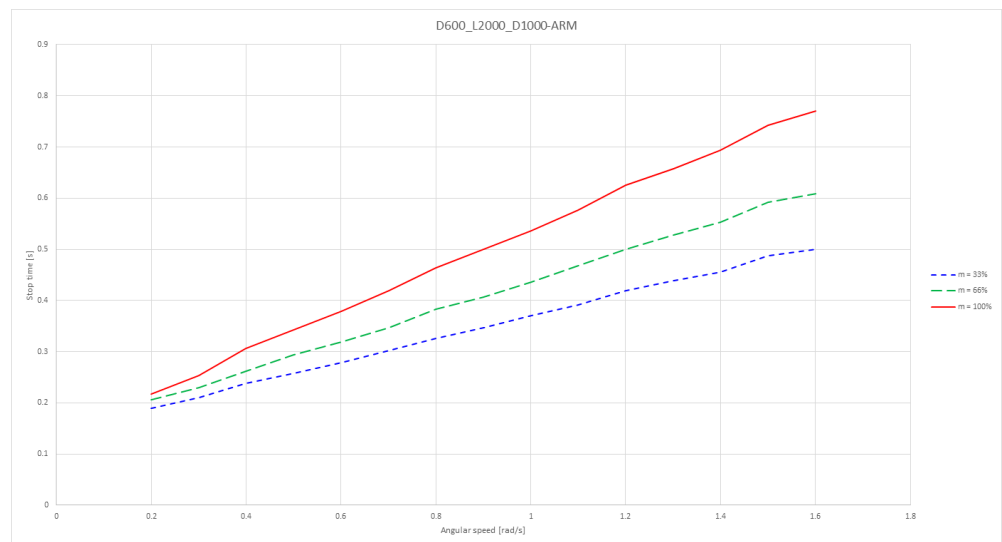
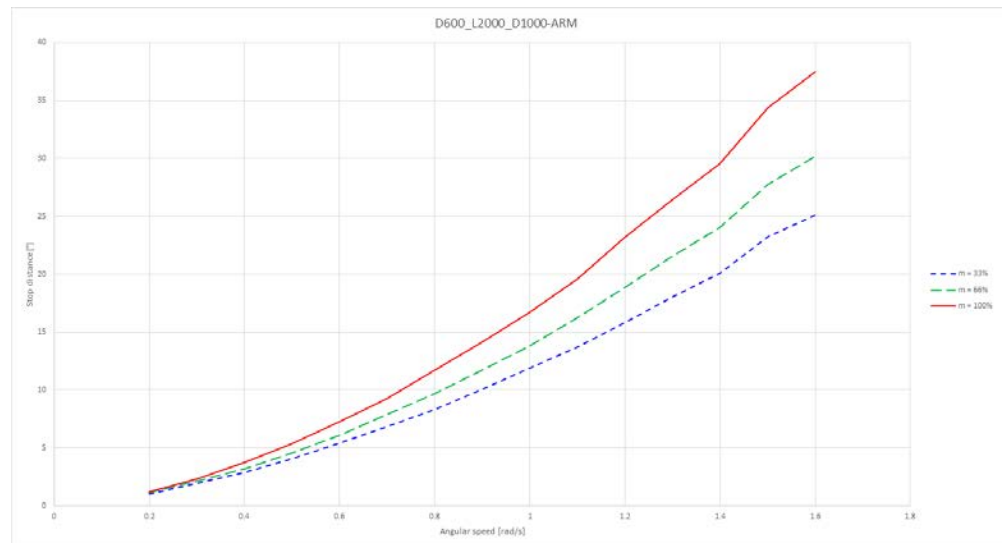
Stopping distance and stopping time



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Category 1, ARM

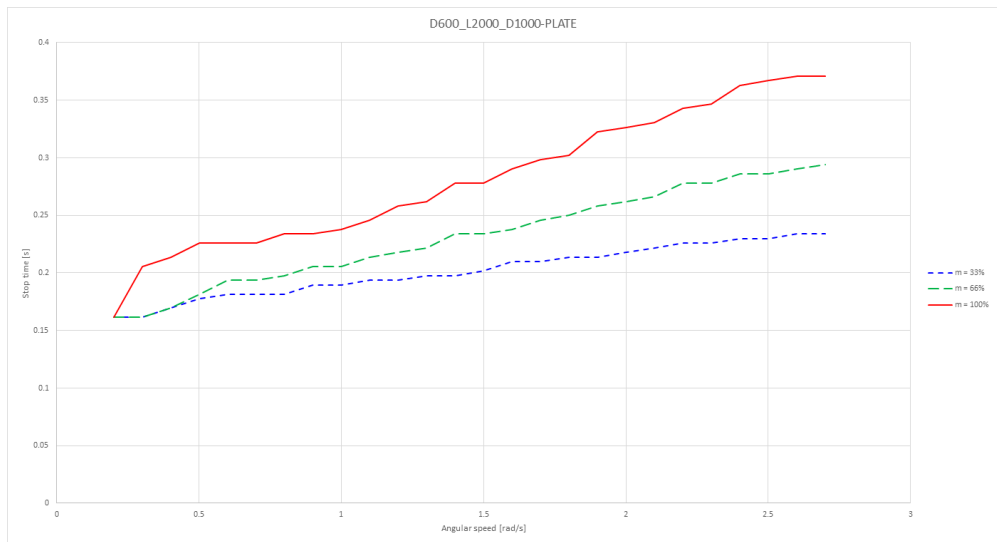
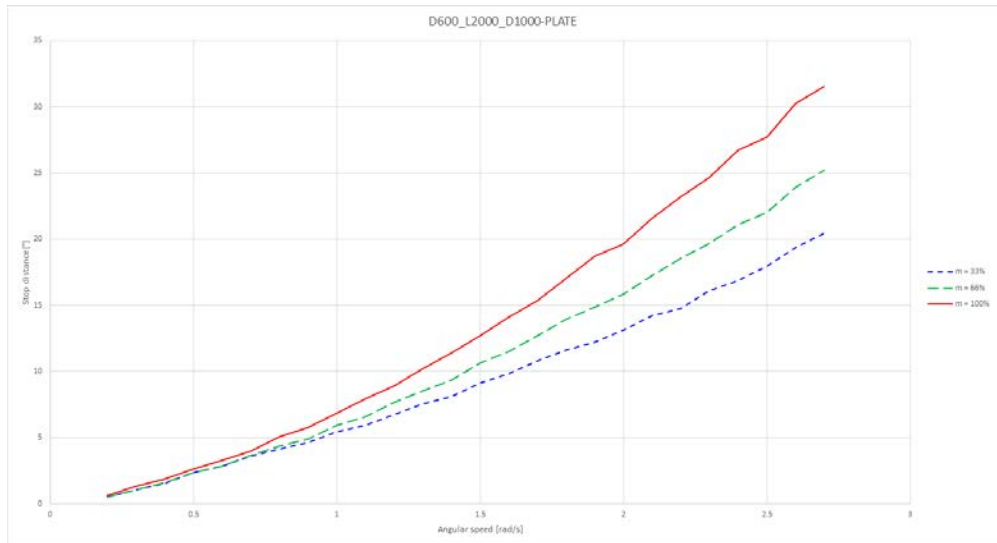
Stopping distance and stopping time



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Category 1, PLATE

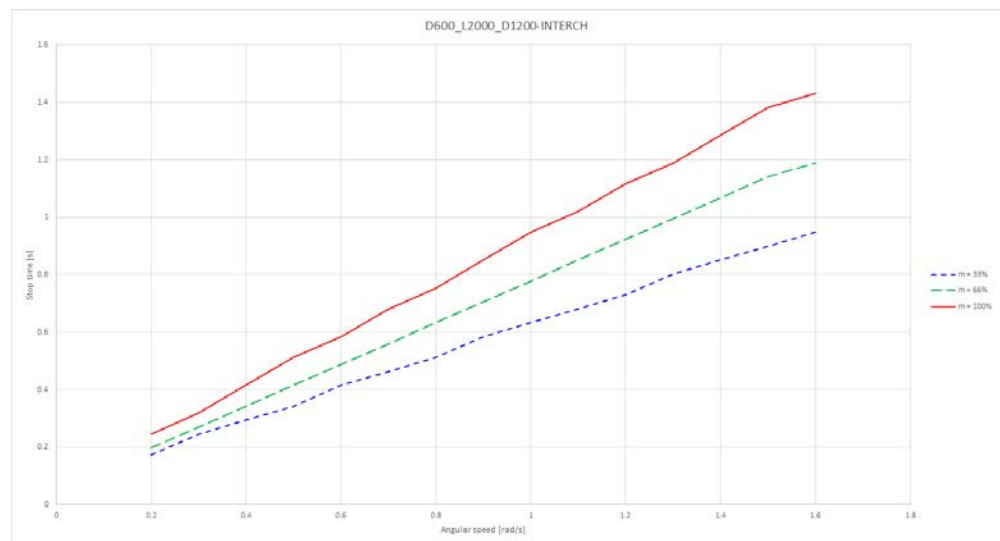
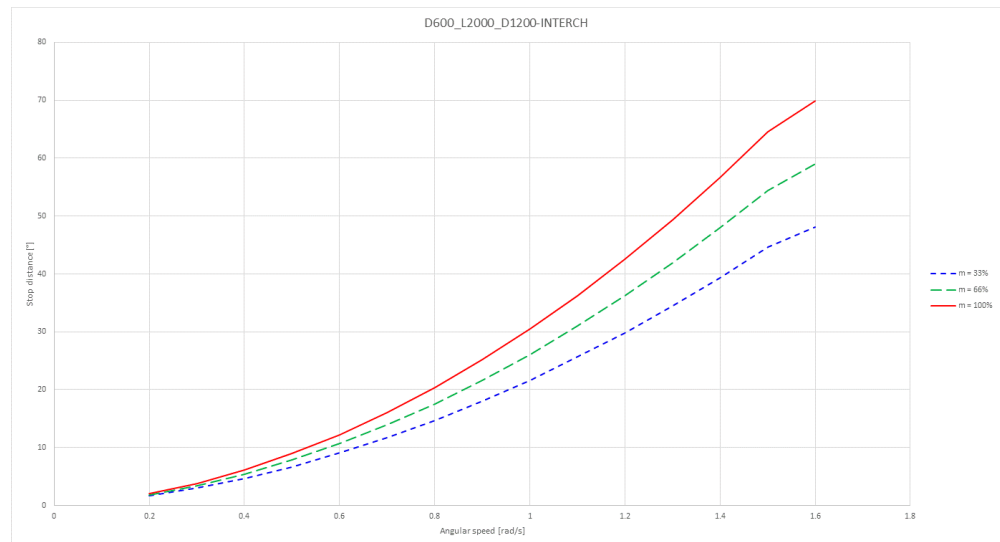
Stopping distance and stopping time



## 31.6 D600\_L2000\_D1200

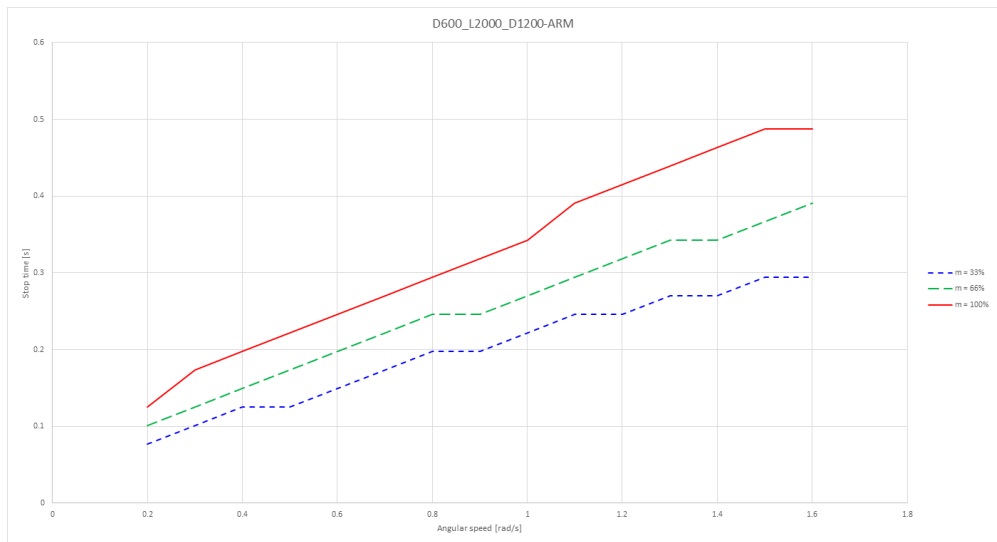
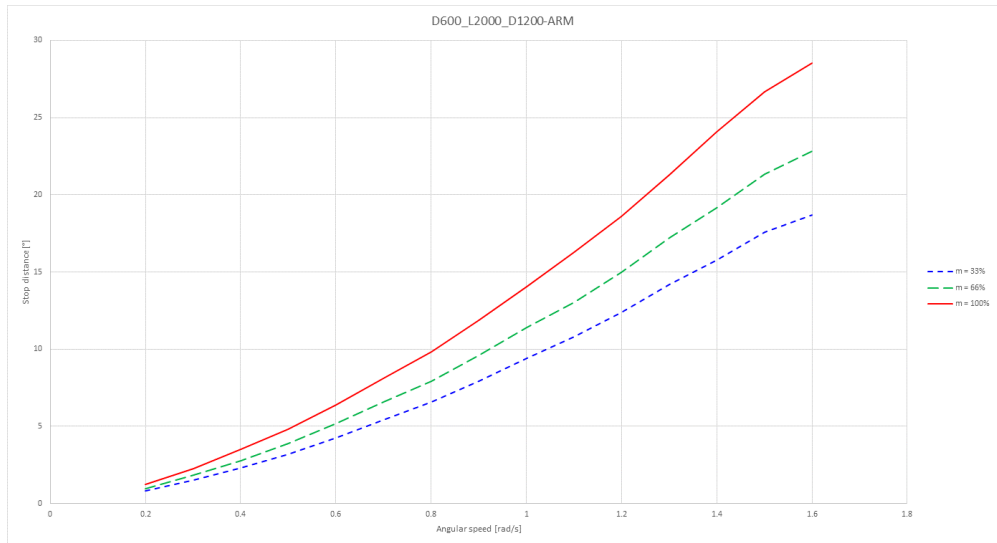
## Category 0, INTERCH

## Stopping distance and stopping time

*Continues on next page*

Category 0, ARM

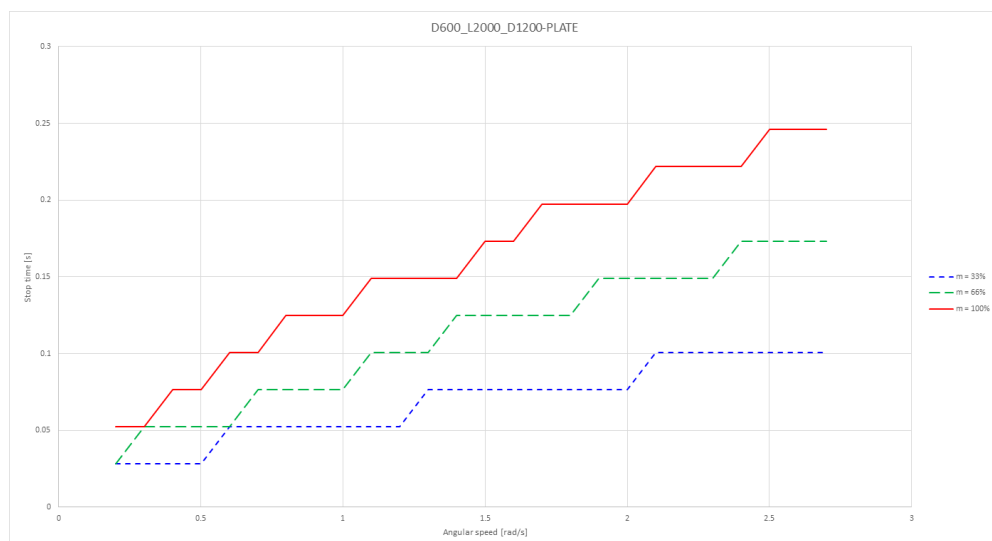
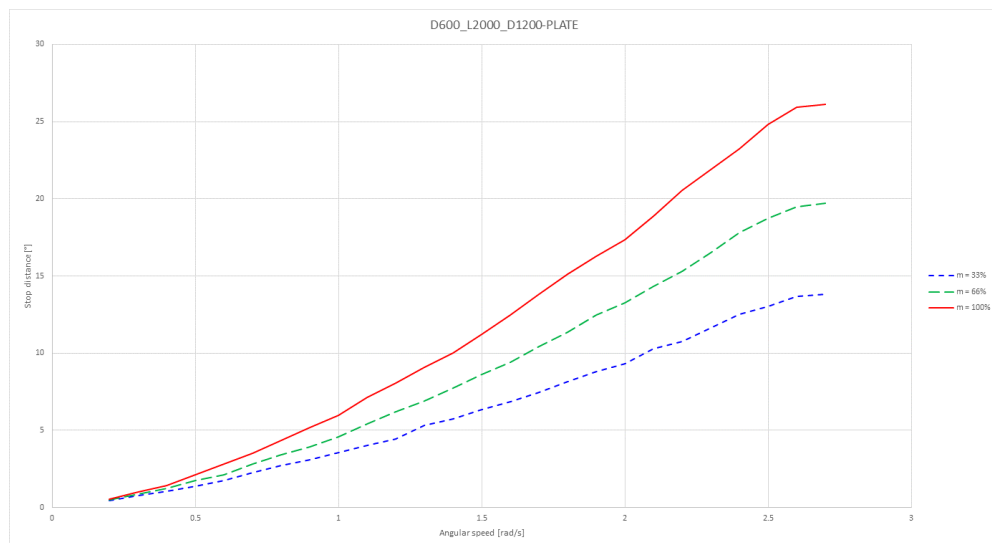
Stopping distance and stopping time



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Category 0, PLATE

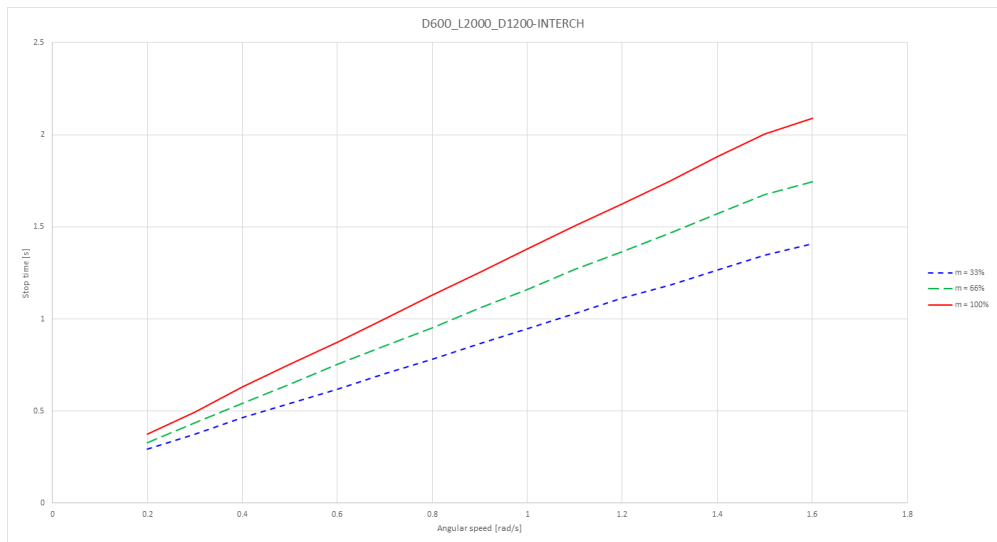
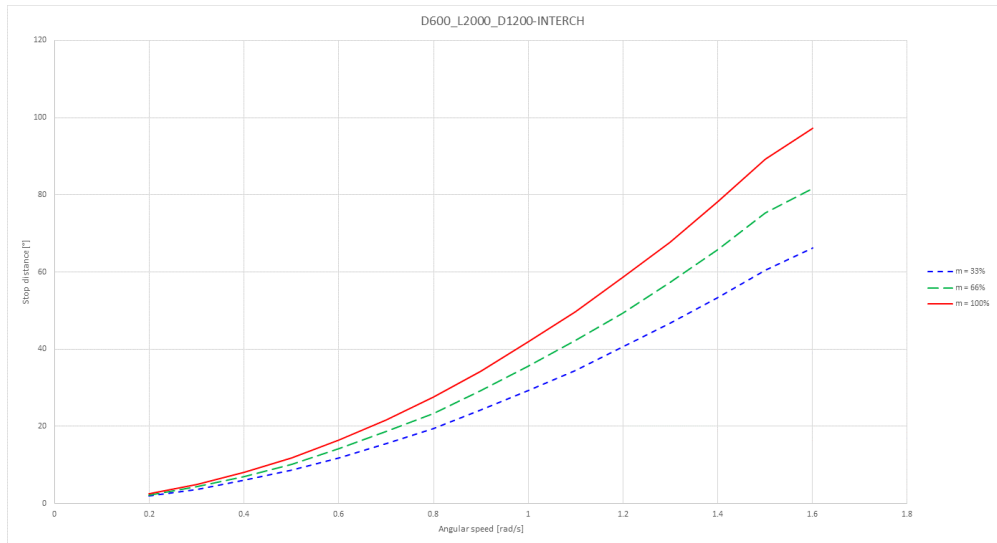
Stopping distance and stopping time



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Category 1, INTERCH

Stopping distance and stopping time

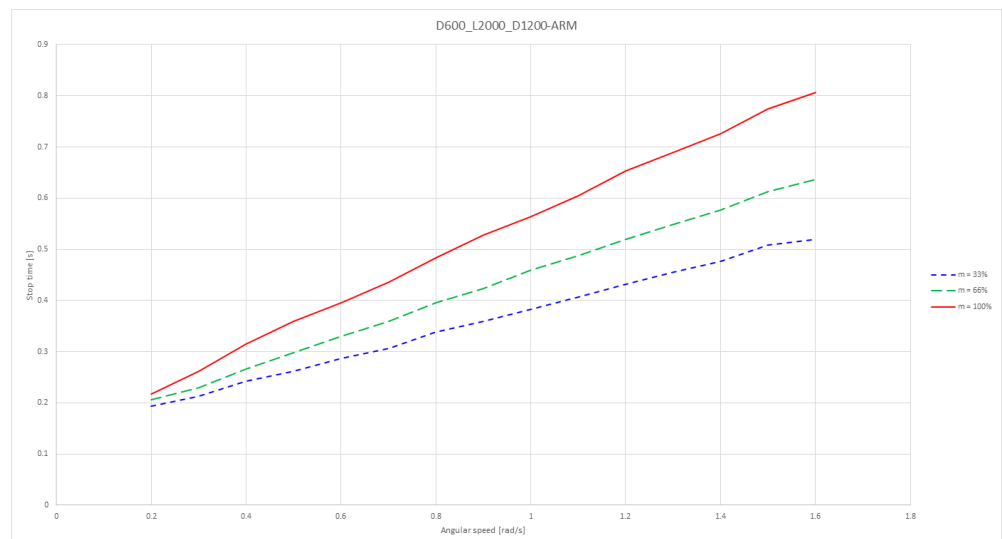
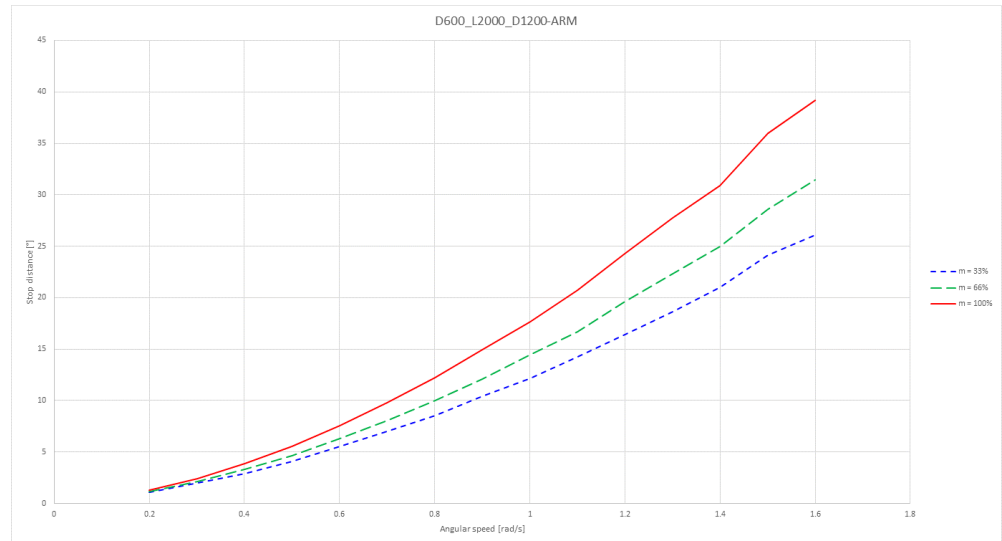


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Category 1, ARM

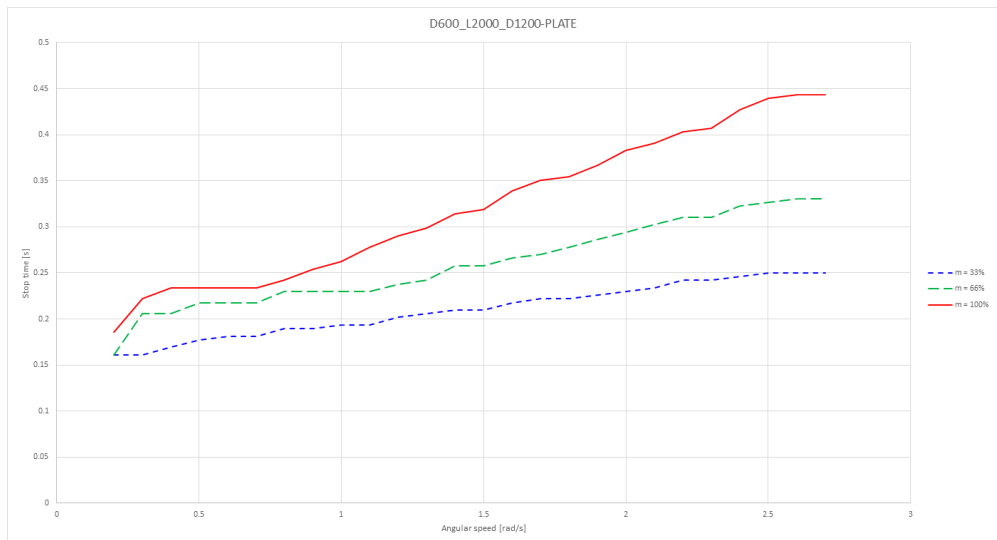
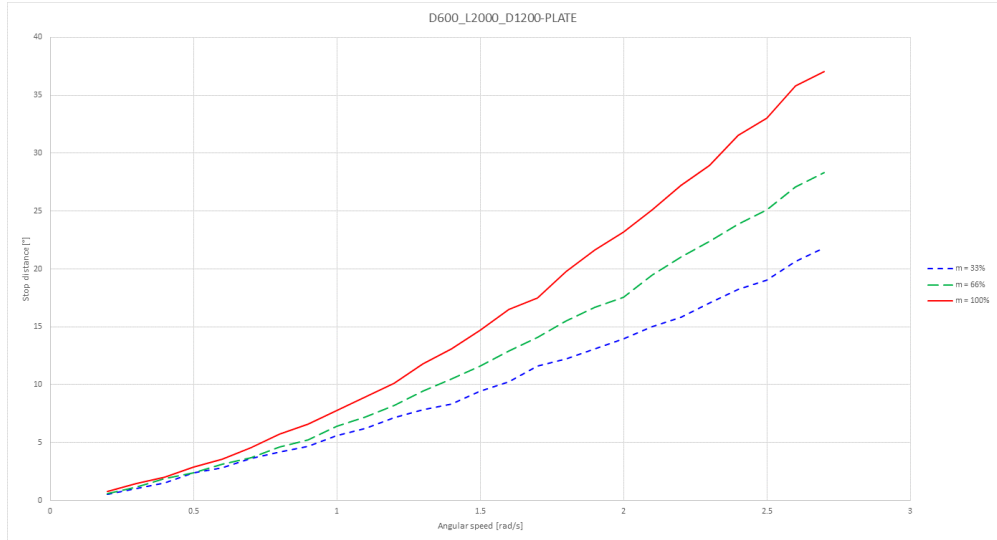
Stopping distance and stopping time



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Category 1, PLATE

Stopping distance and stopping time

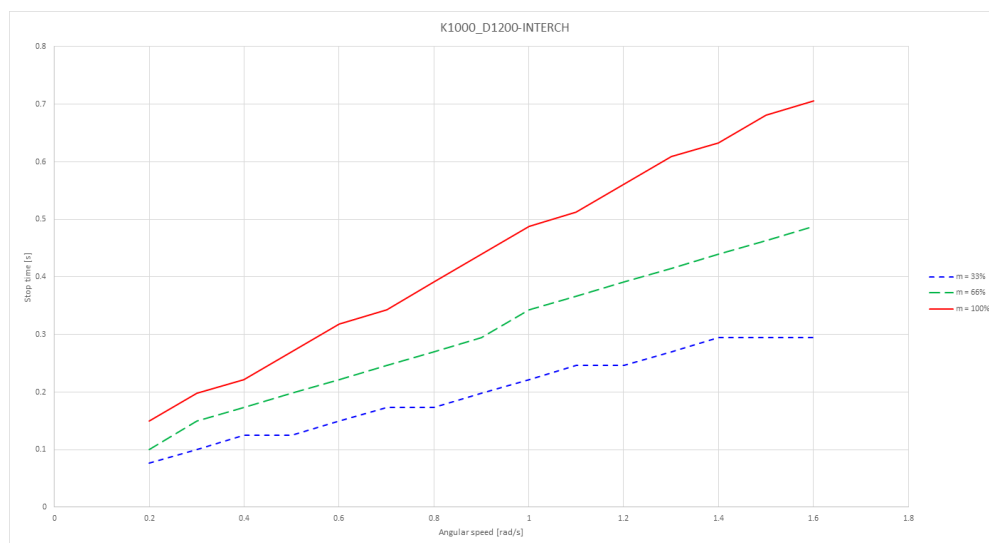
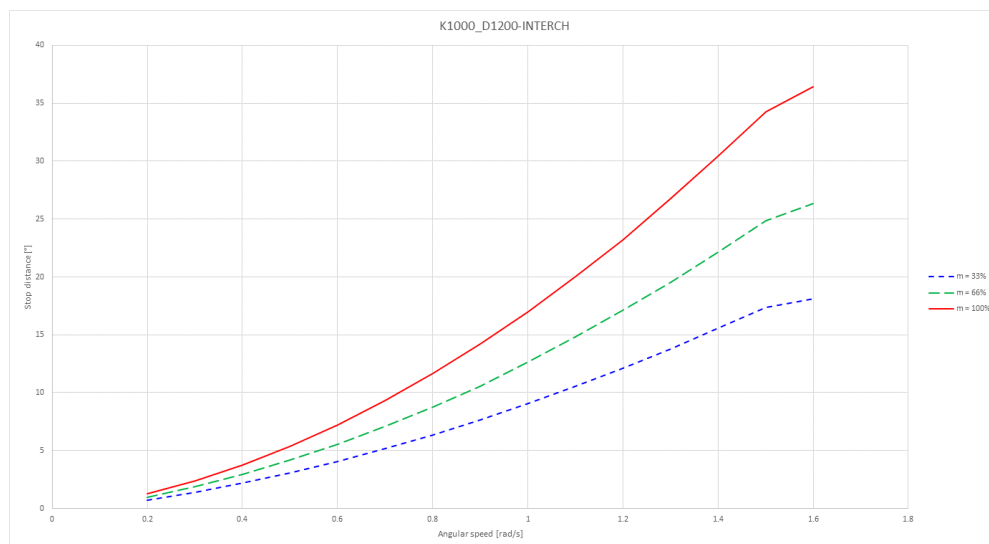


# 32 IRBP K

## 32.1 K1000\_D1200

### Category 0, INTERCH

#### Stopping distance and stopping time



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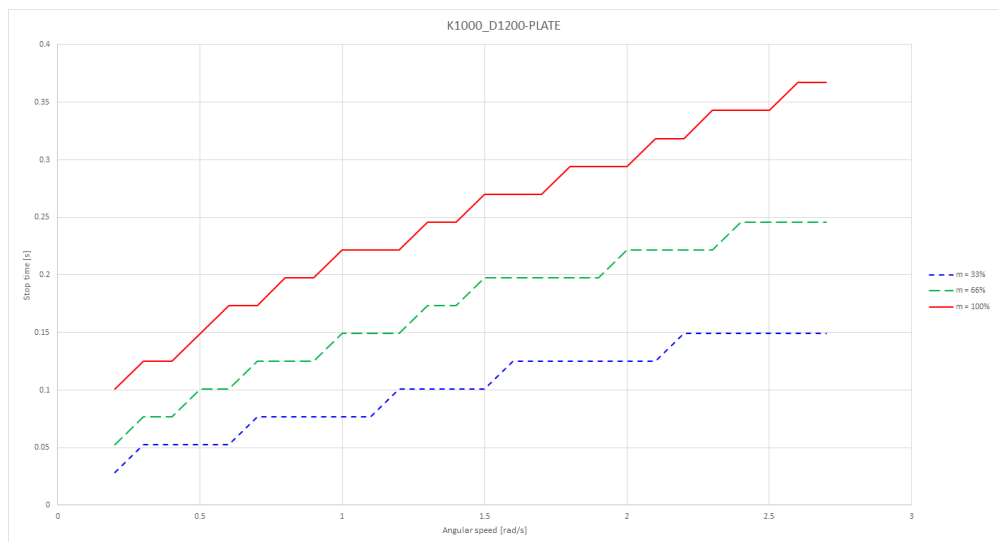
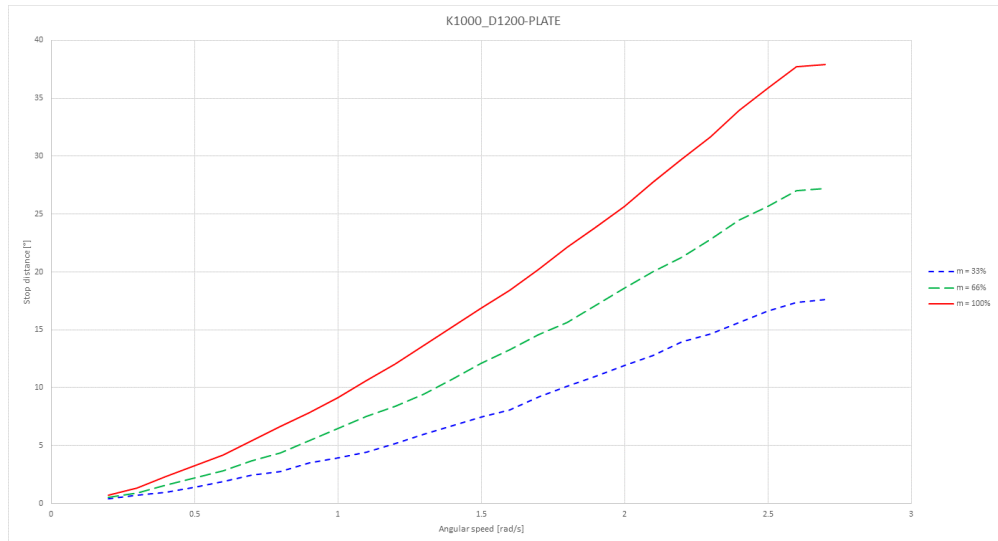
## 32 IRBP K

### 32.1 K1000\_D1200

Continued

#### Category 0, PLATE

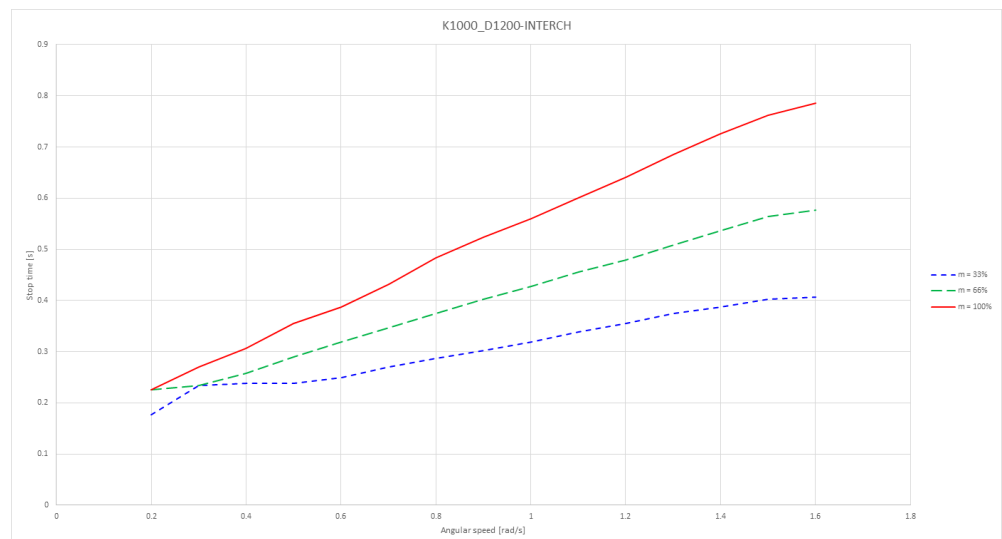
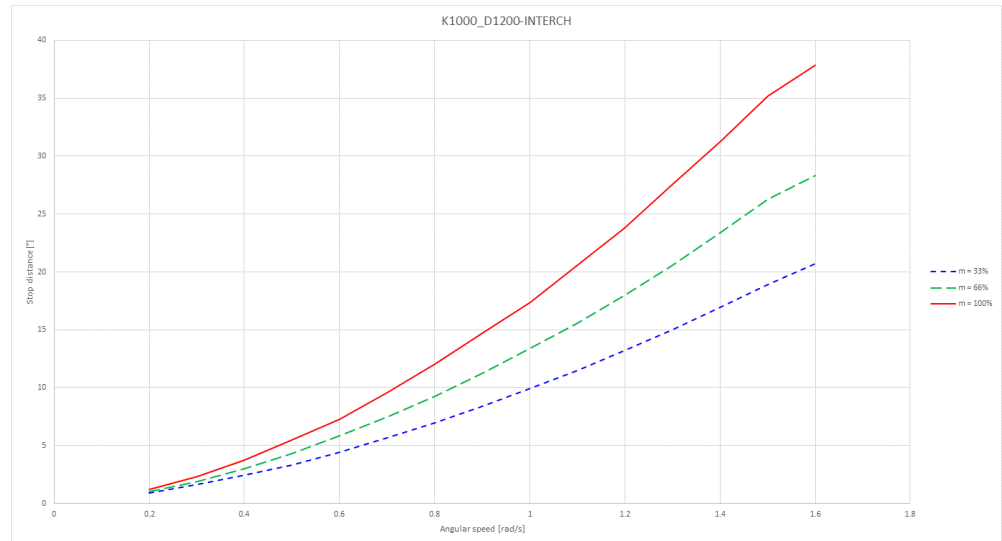
#### Stopping distance and stopping time



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Category 1, INTERCH

Stopping distance and stopping time



Continues on next page

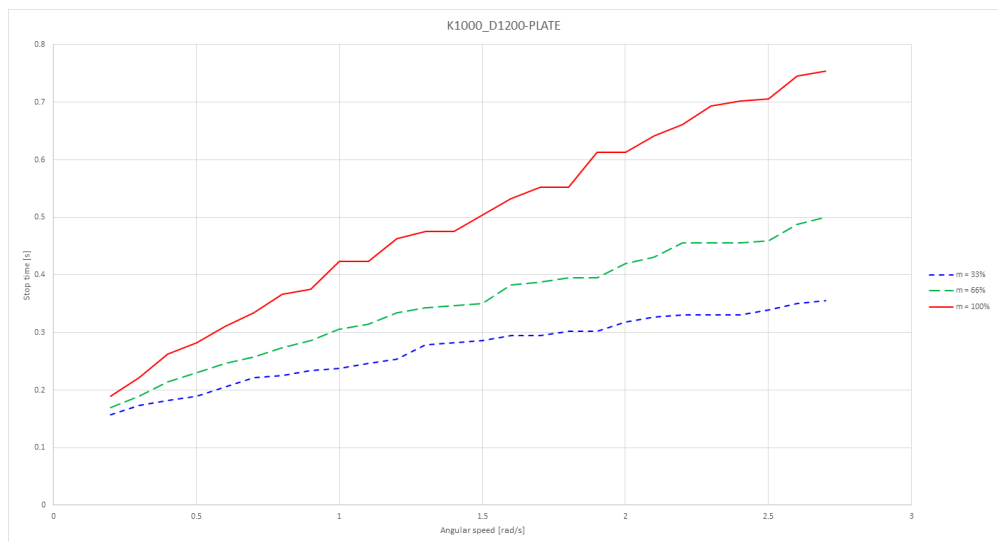
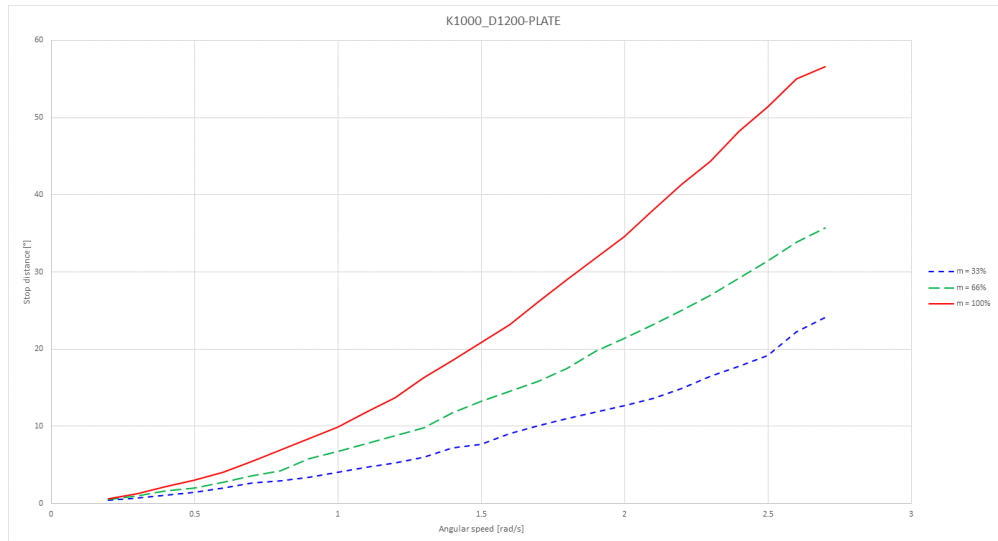
## 32 IRBP K

### 32.1 K1000\_D1200

Continued

#### Category 1, PLATE

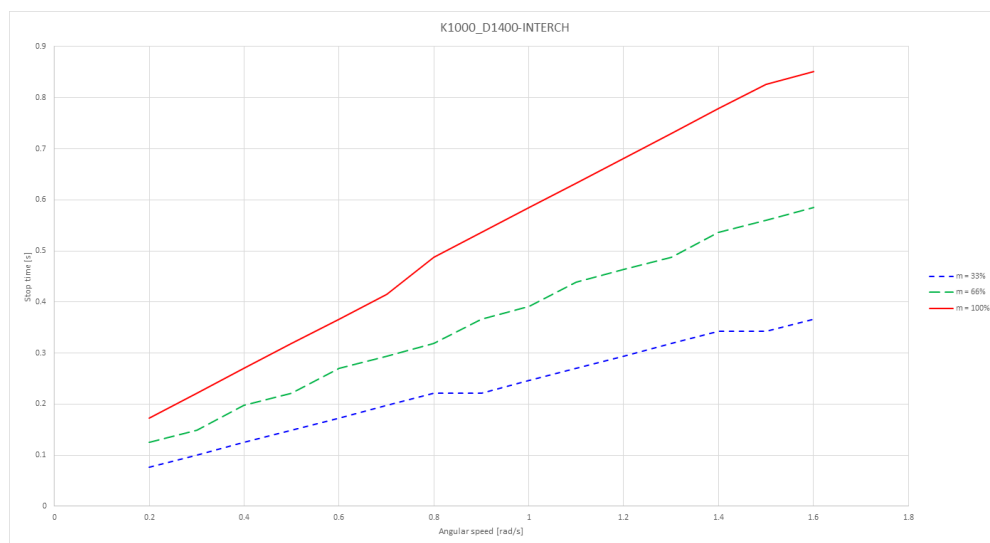
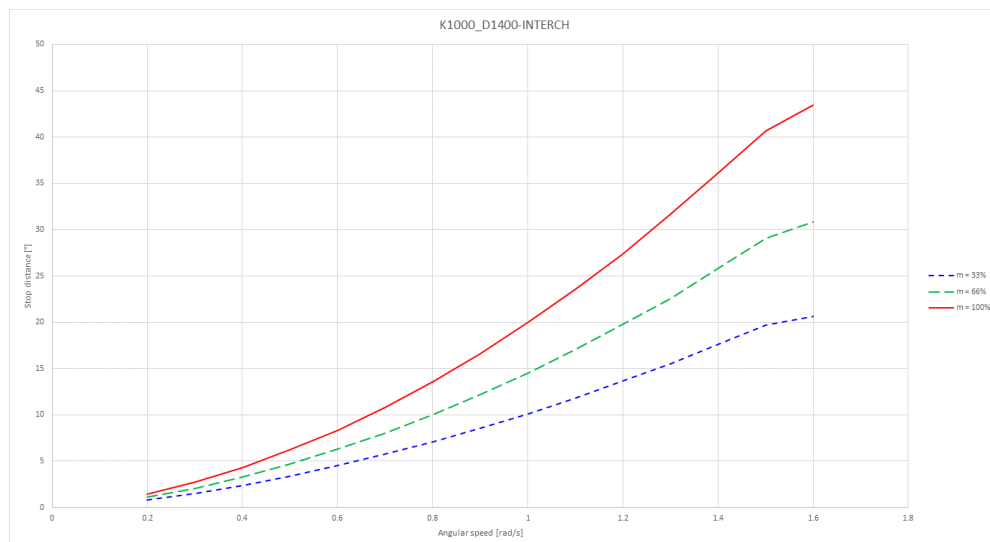
#### Stopping distance and stopping time



32.2 K1000\_D1400

Category 0, INTERCH

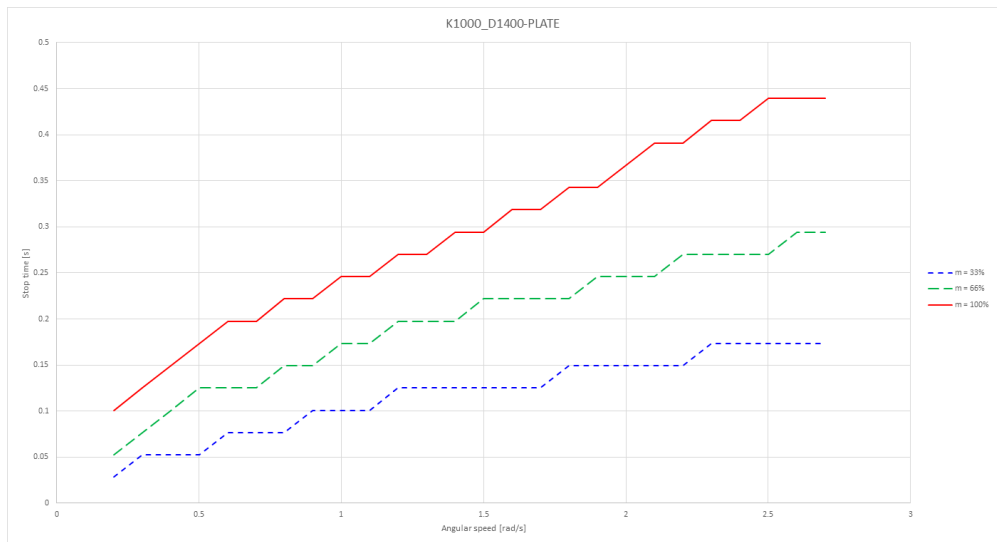
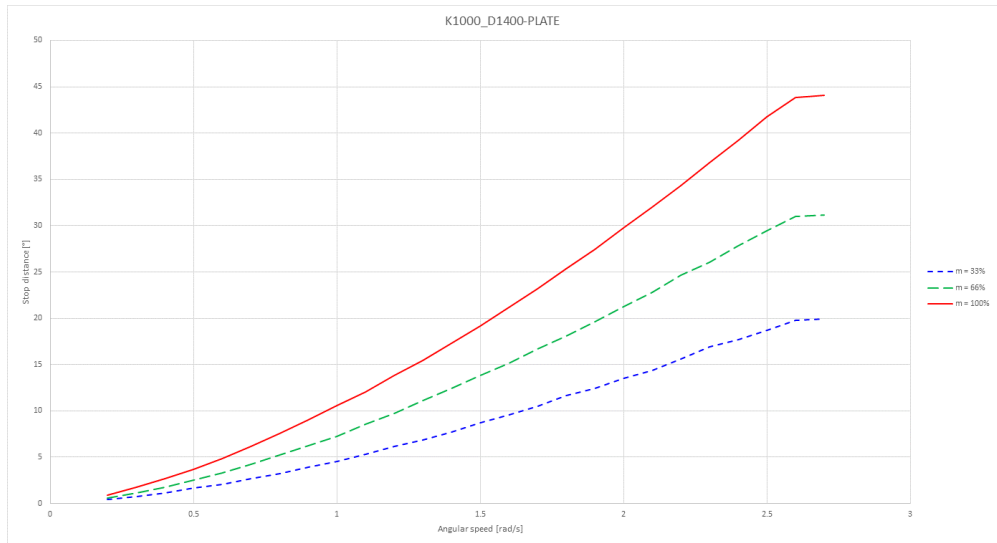
Stopping distance and stopping time



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Category 0, PLATE

Stopping distance and stopping time

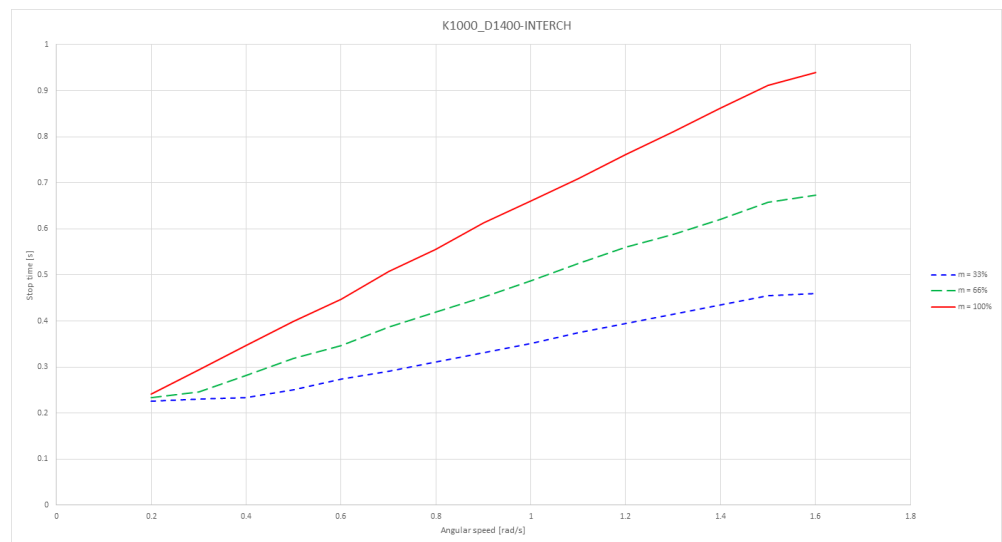
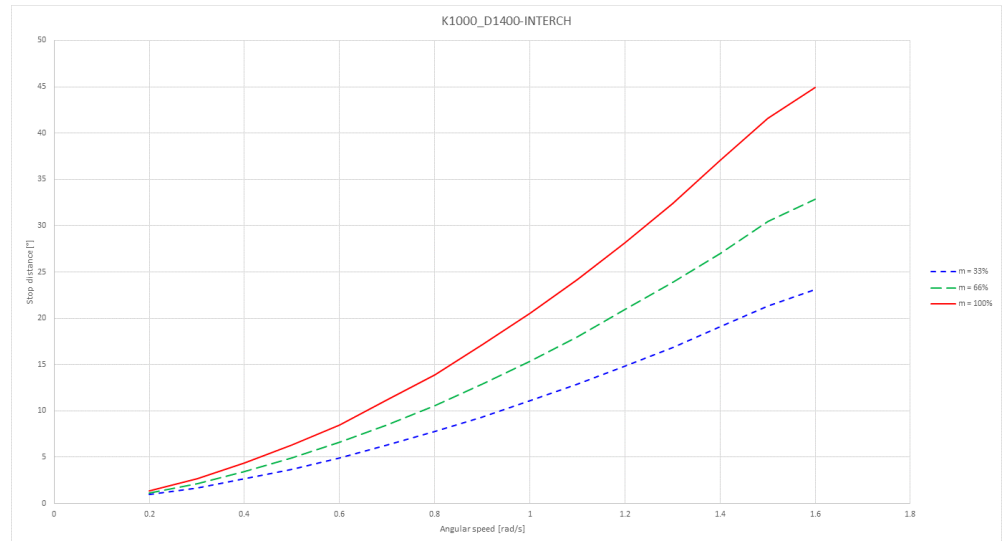


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Category 1, INTERCH

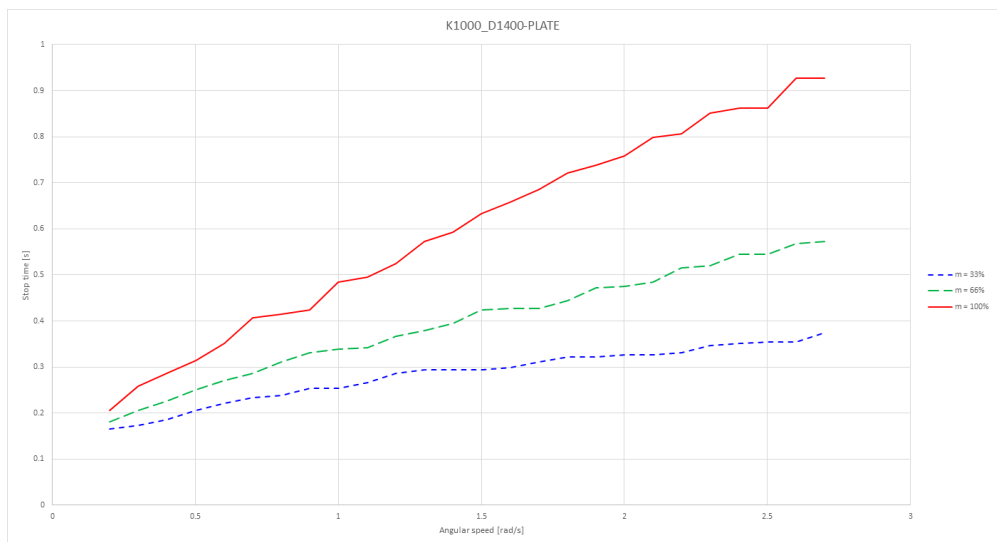
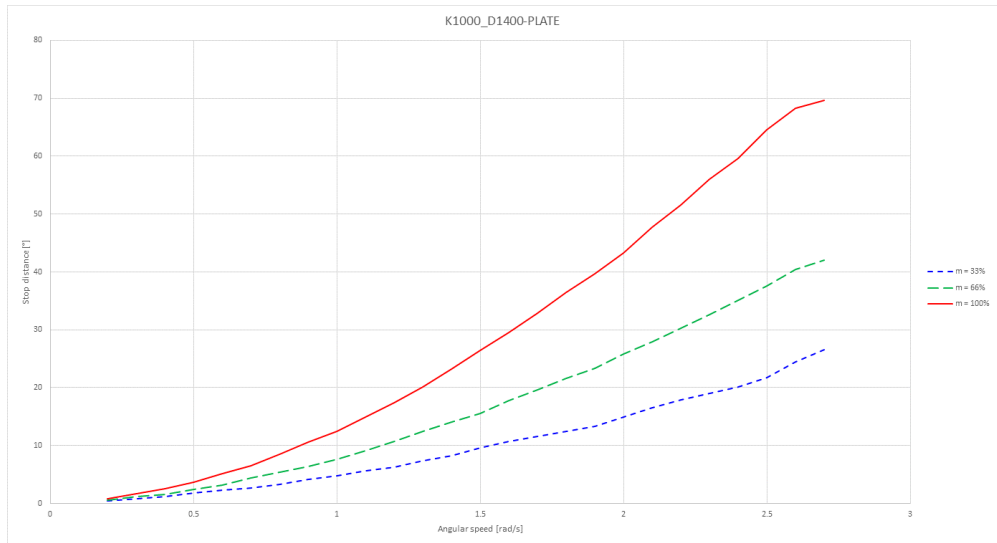
Stopping distance and stopping time



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Category 1, PLATE

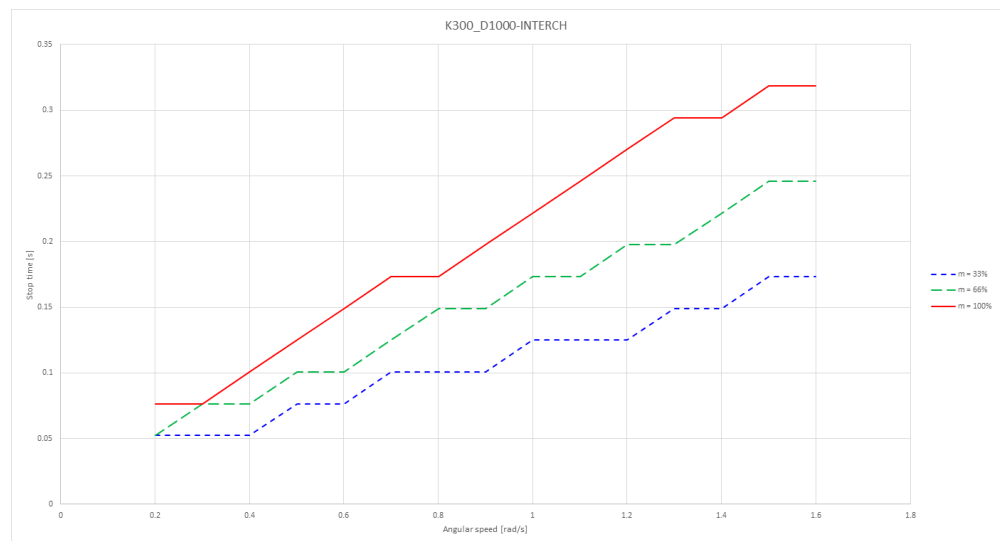
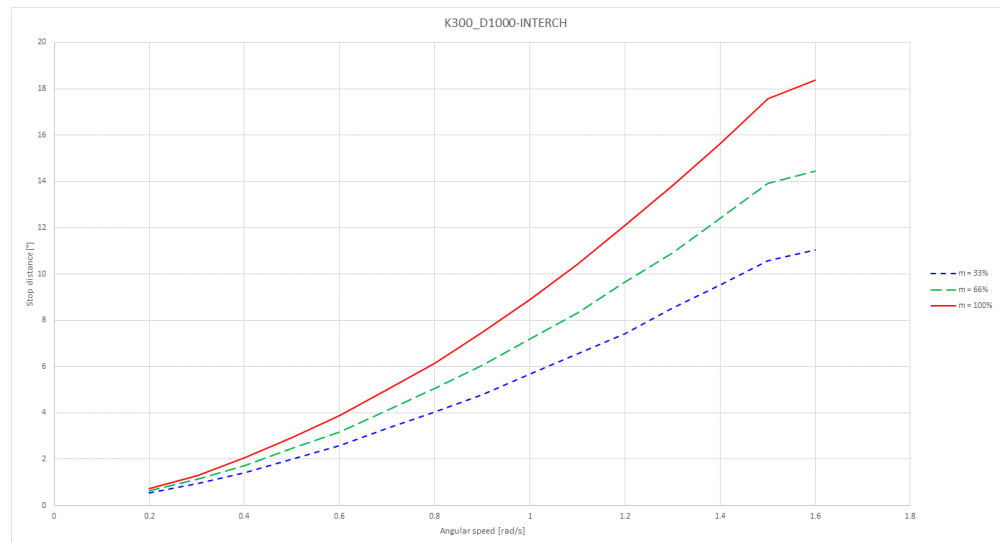
Stopping distance and stopping time



## 32.3 K300\_D1000

## Category 0, INTERCH

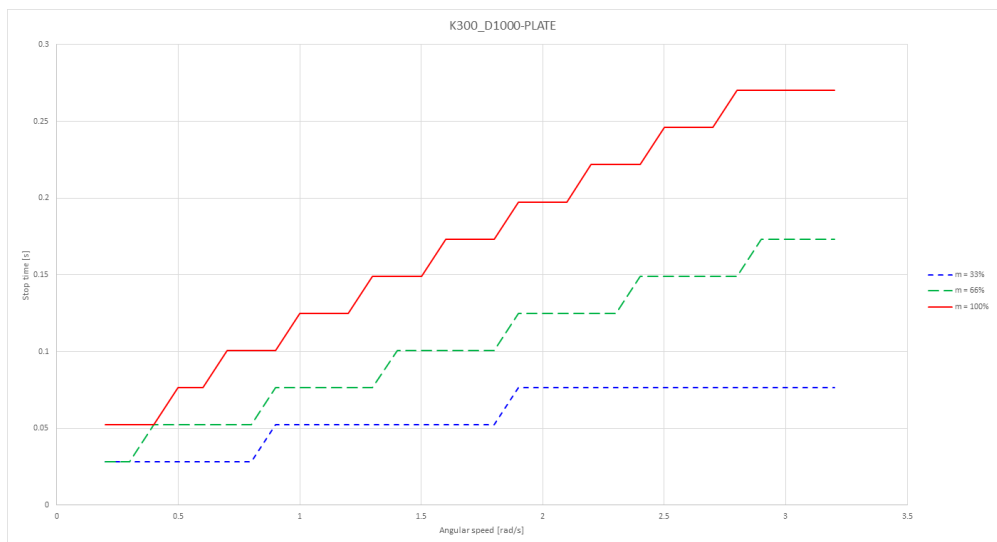
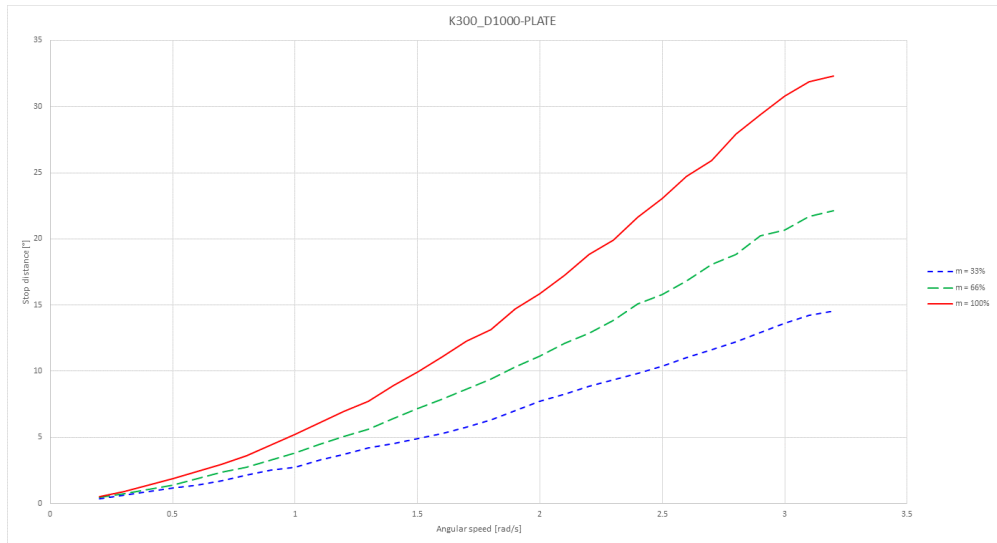
## Stopping distance and stopping time



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Category 0, PLATE

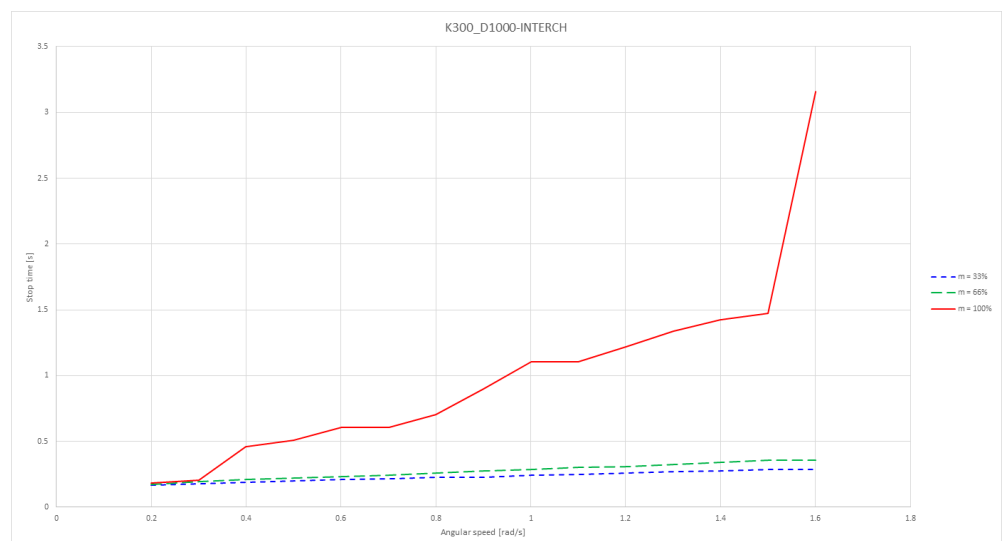
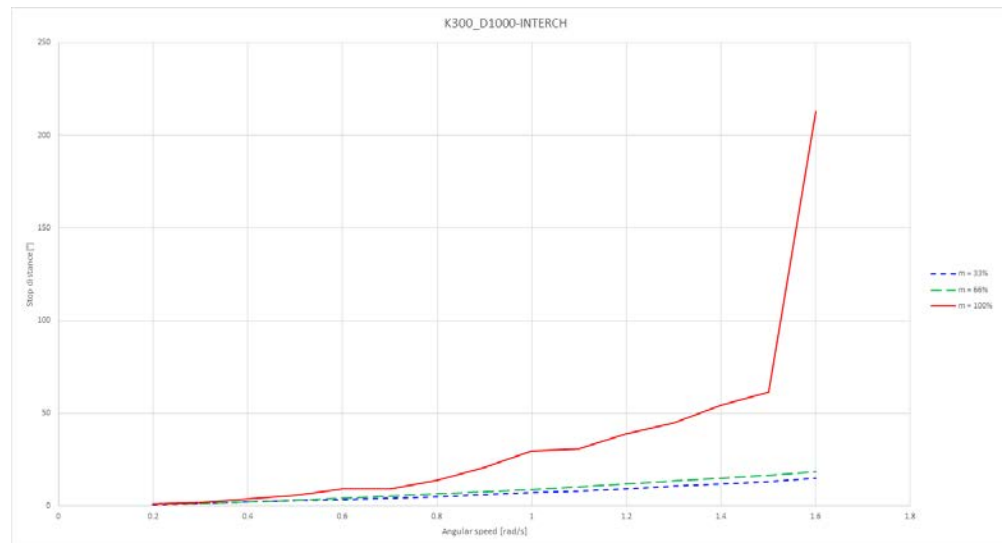
Stopping distance and stopping time



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Category 1, INTERCH

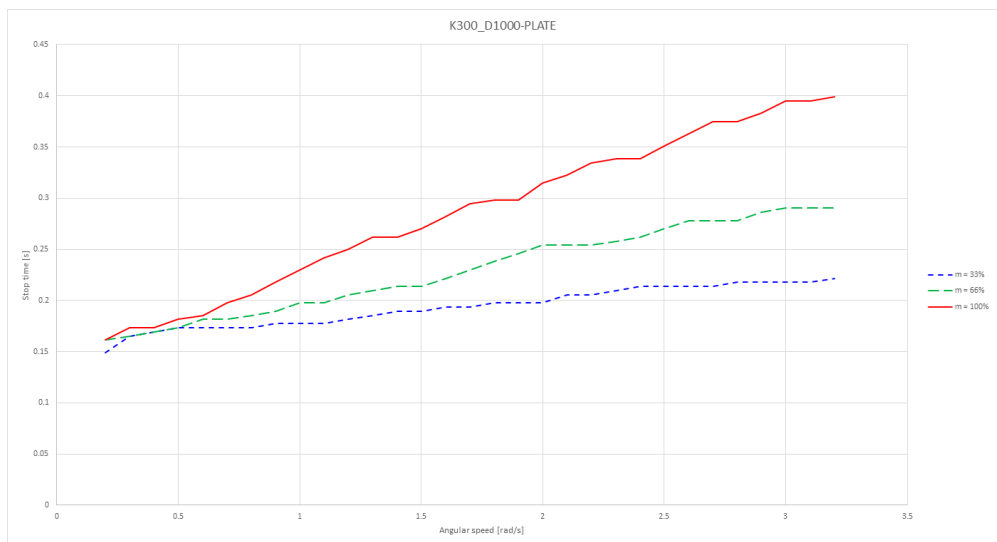
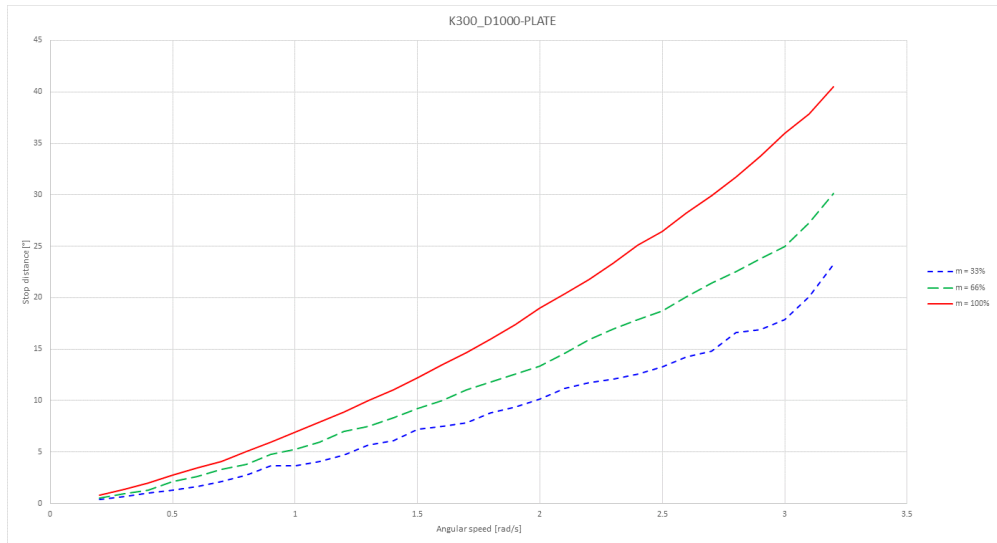
Stopping distance and stopping time



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Category 1, PLATE

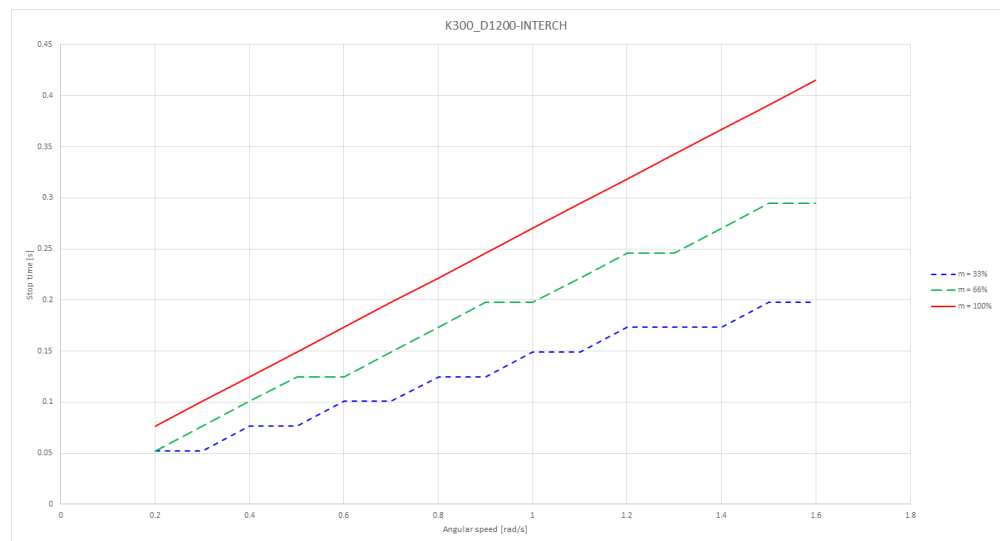
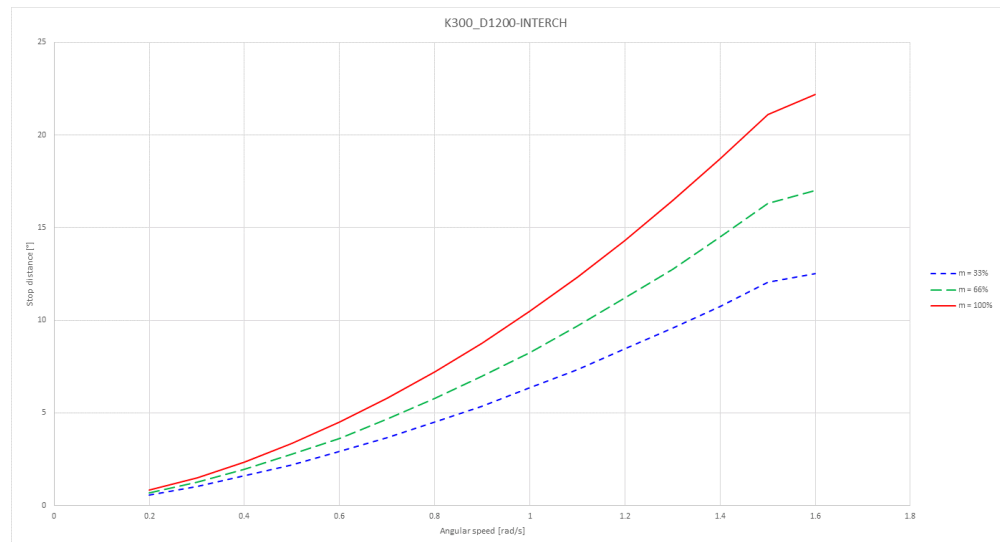
Stopping distance and stopping time



## 32.4 K300\_D1200

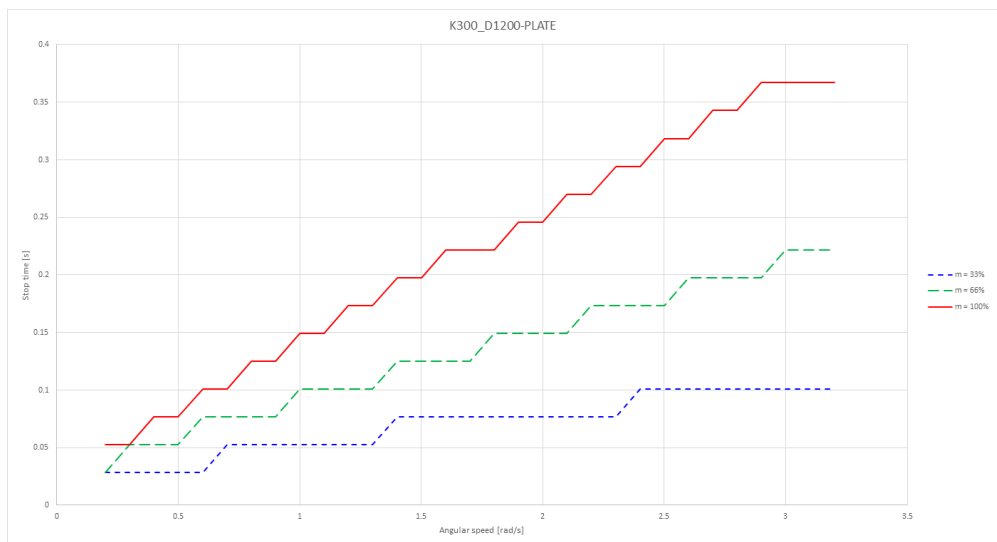
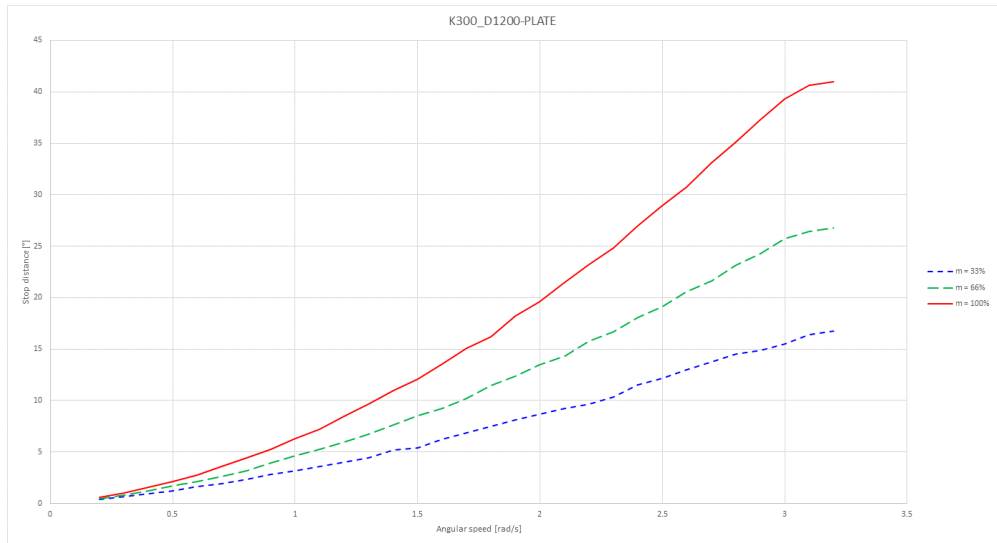
## Category 0, INTERCH

## Stopping distance and stopping time

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Category 0, PLATE

Stopping distance and stopping time

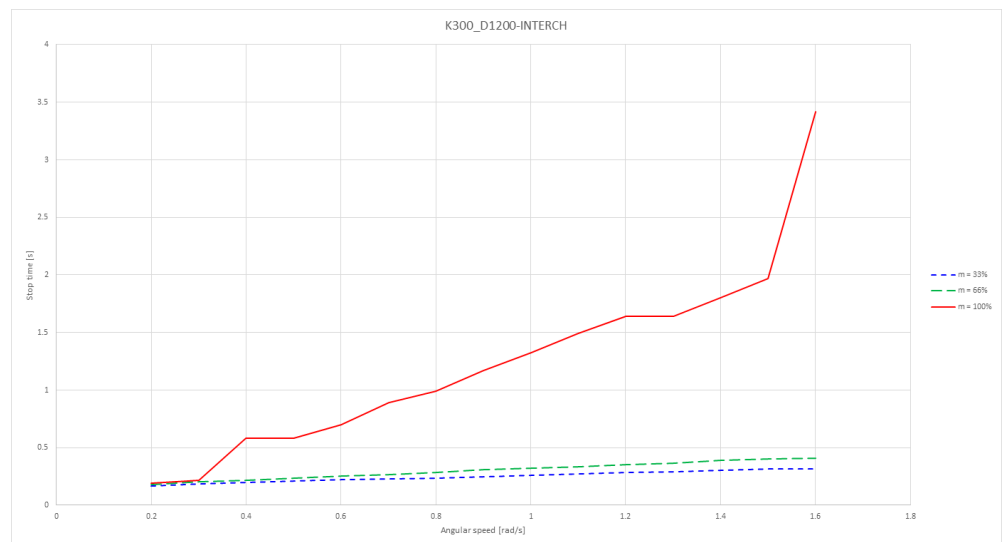
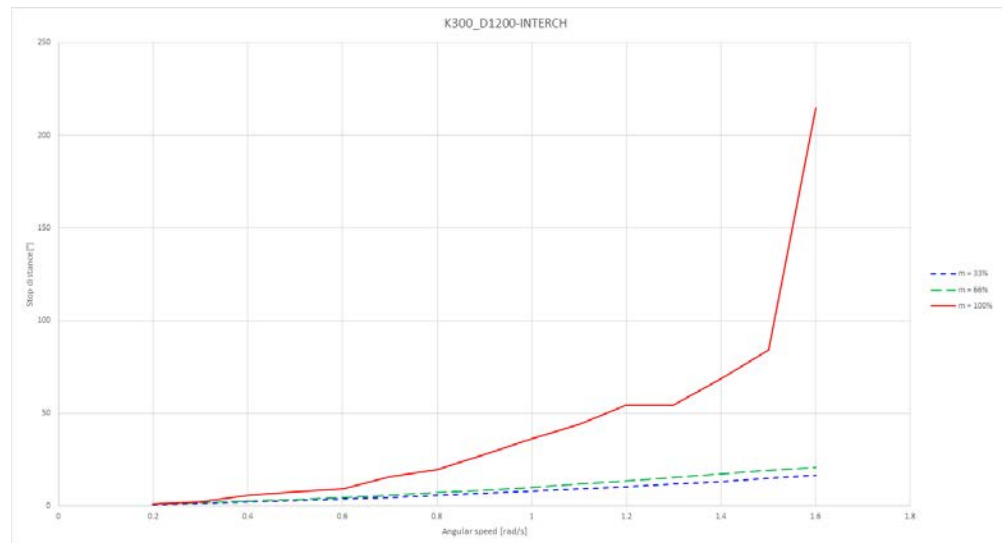


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Category 1, INTERCH

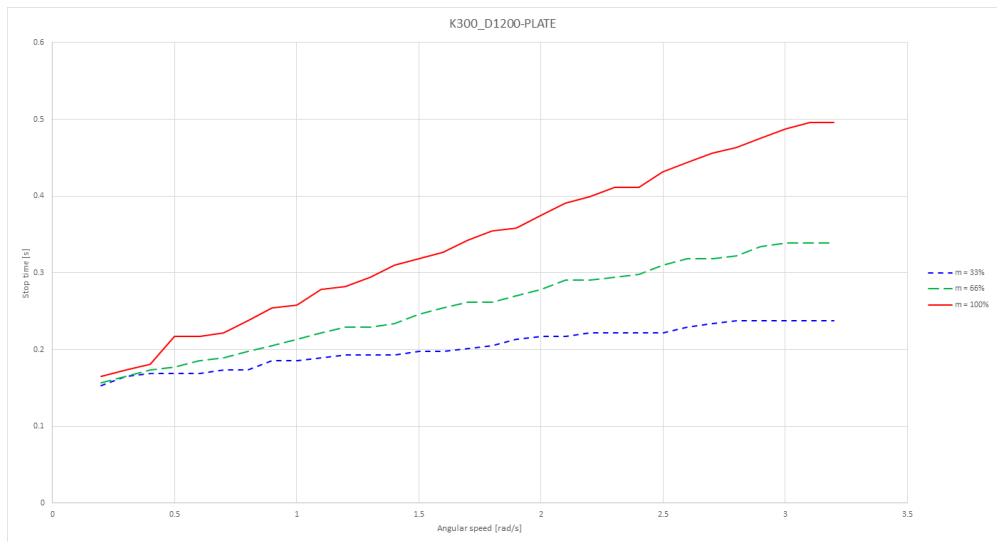
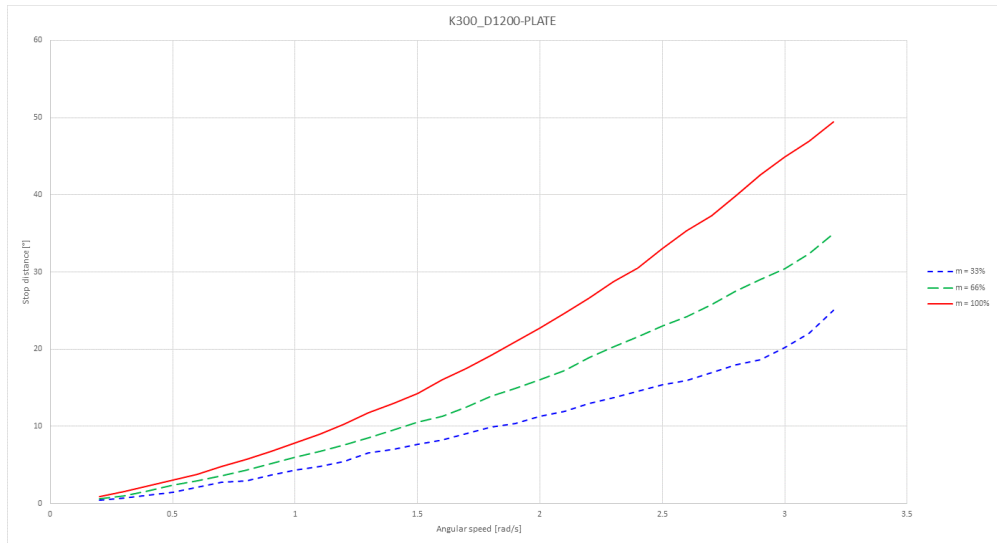
Stopping distance and stopping time



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Category 1, PLATE

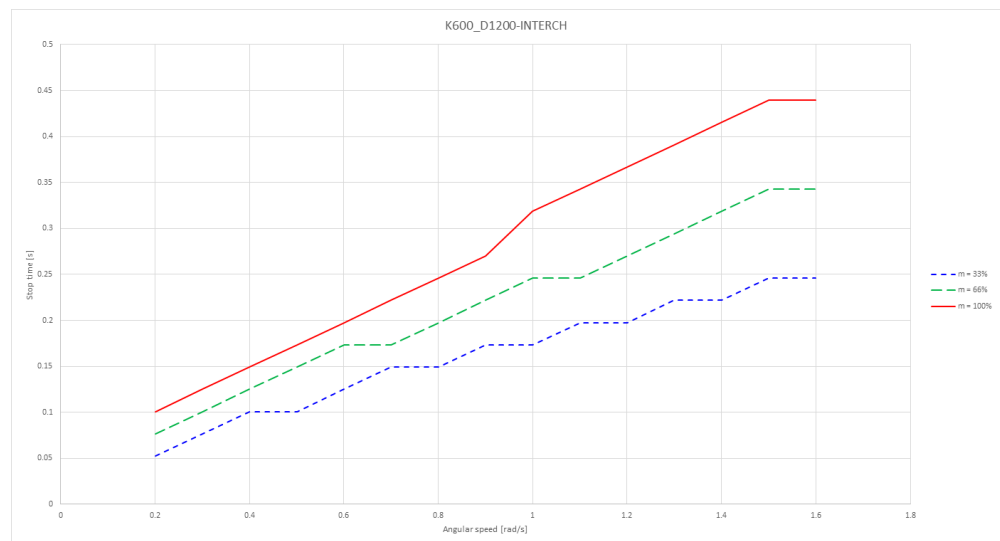
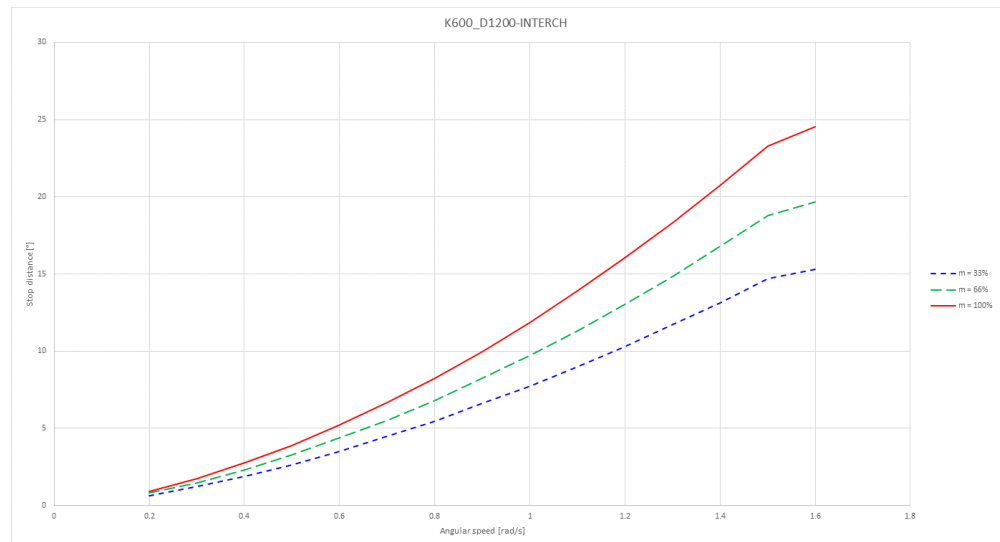
Stopping distance and stopping time



## 32.5 K600\_D1200

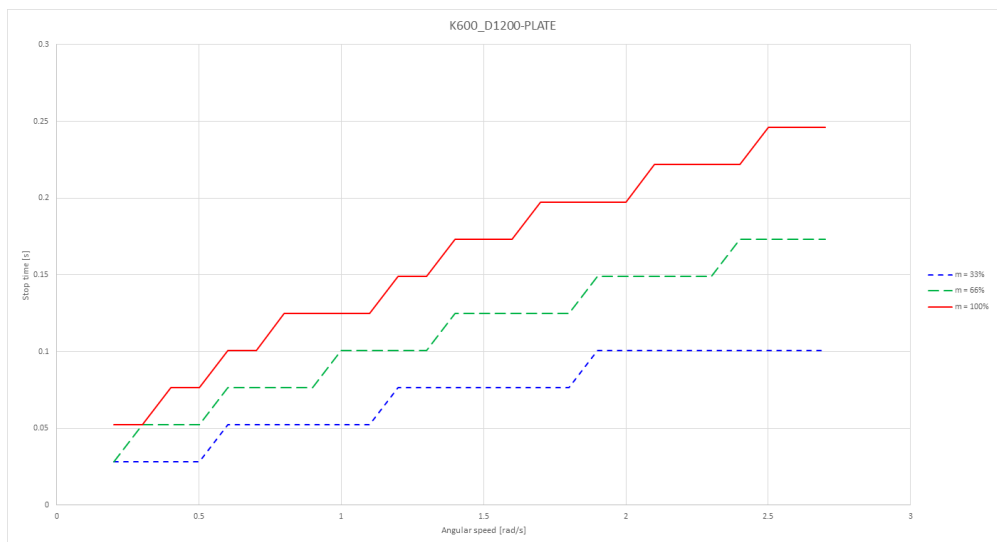
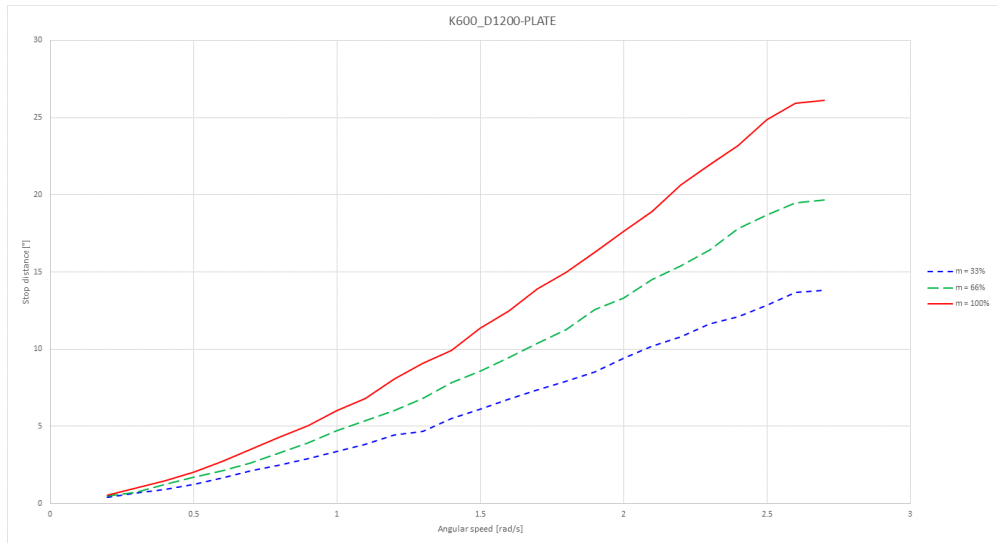
## Category 0, INTERCH

## Stopping distance and stopping time

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Category 0, PLATE

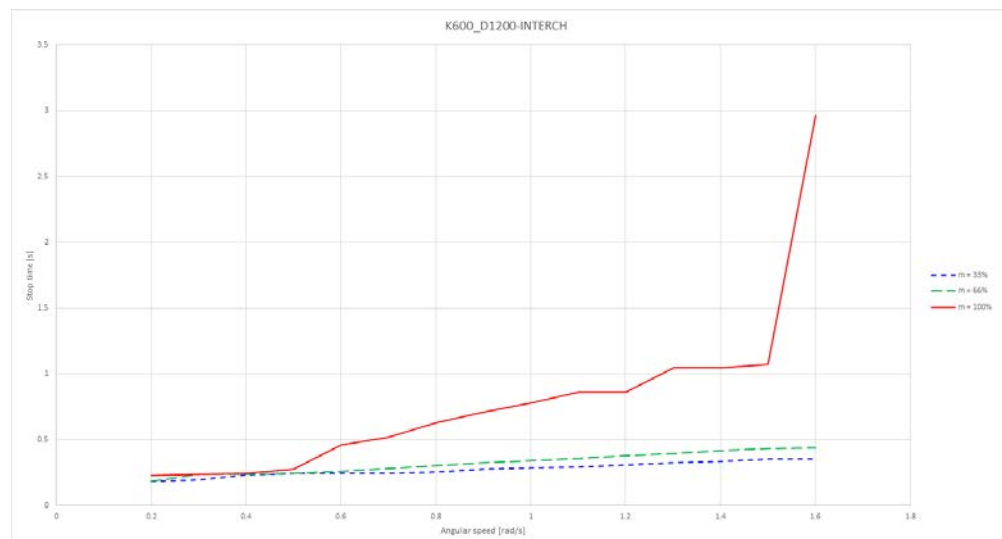
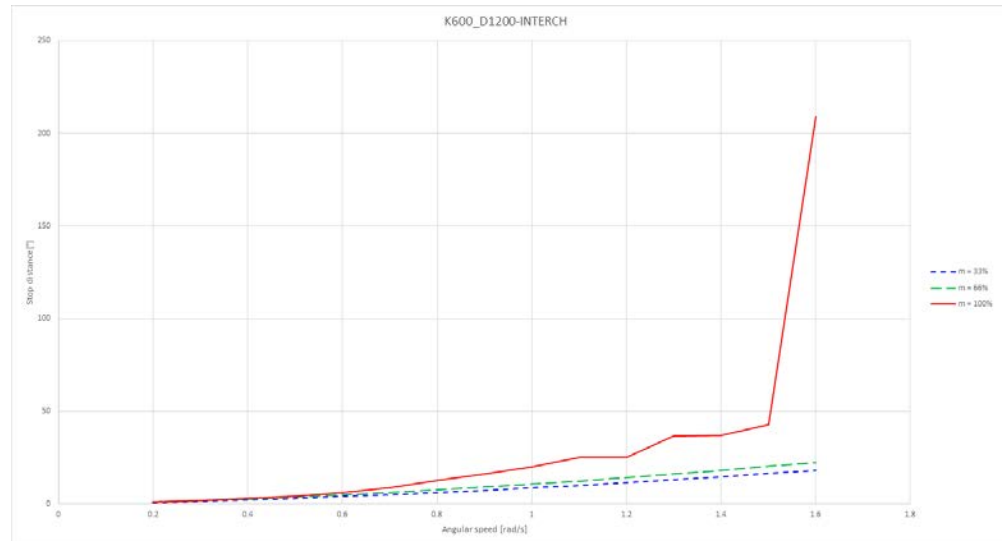
Stopping distance and stopping time



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Category 1, INTERCH

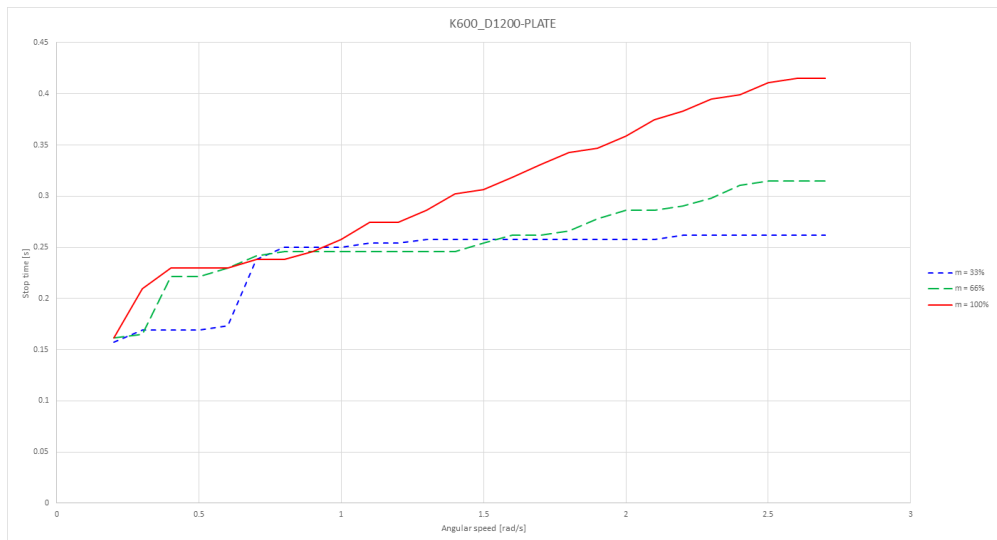
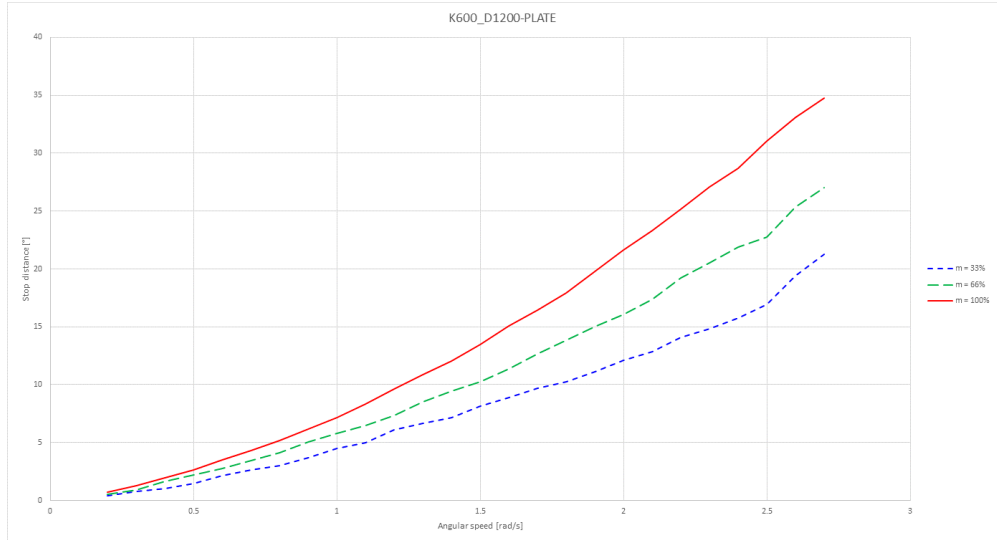
Stopping distance and stopping time



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Category 1, PLATE

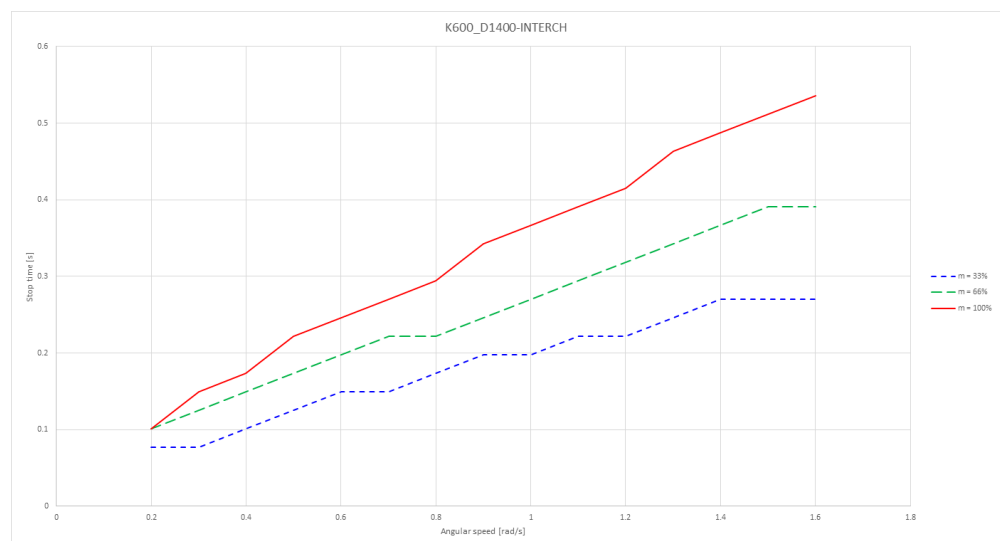
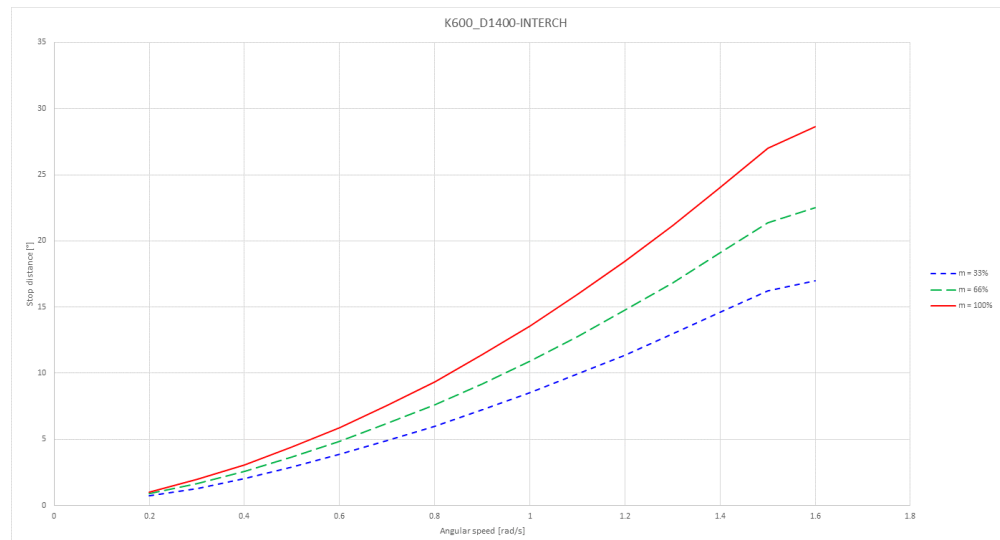
Stopping distance and stopping time



## 32.6 K600\_D1400

## Category 0, INTERCH

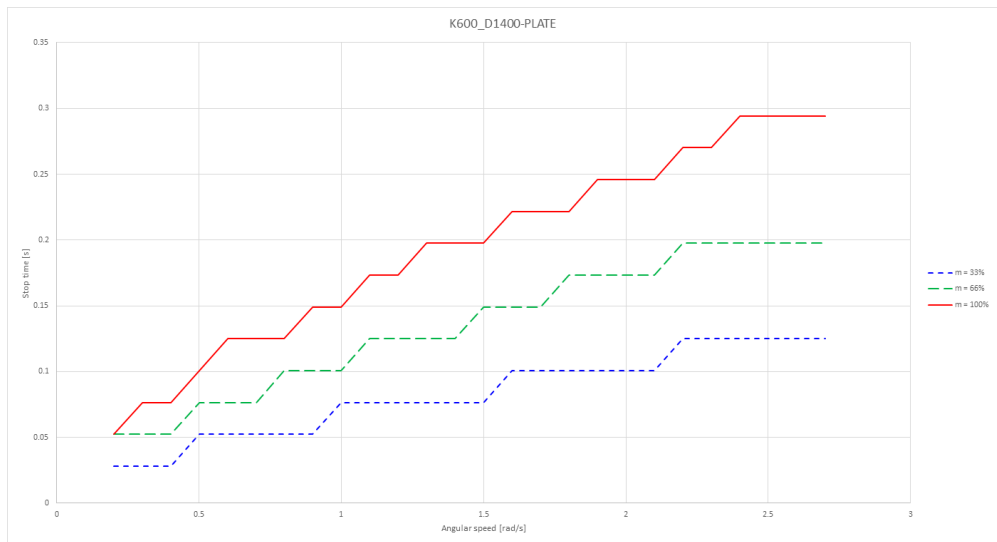
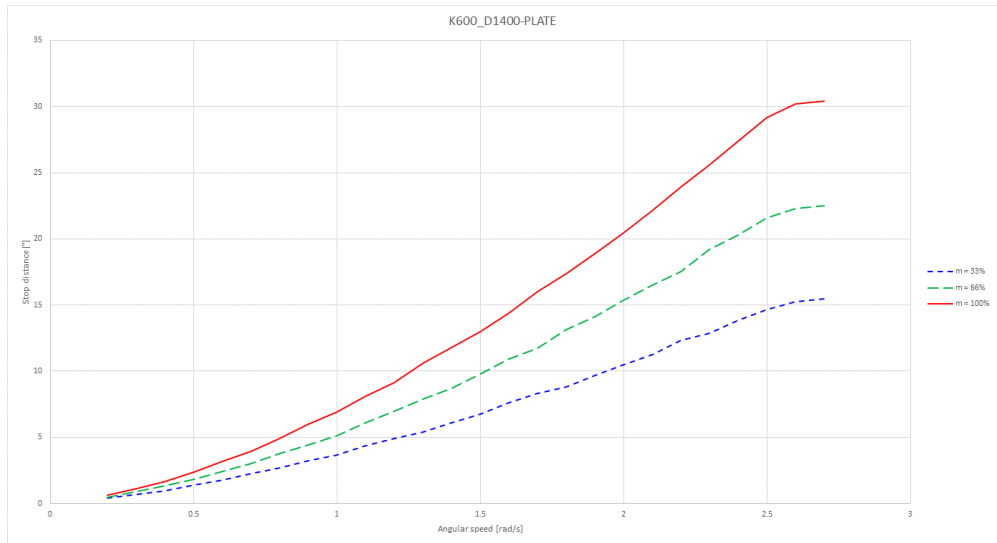
## Stopping distance and stopping time



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Category 0, PLATE

Stopping distance and stopping time

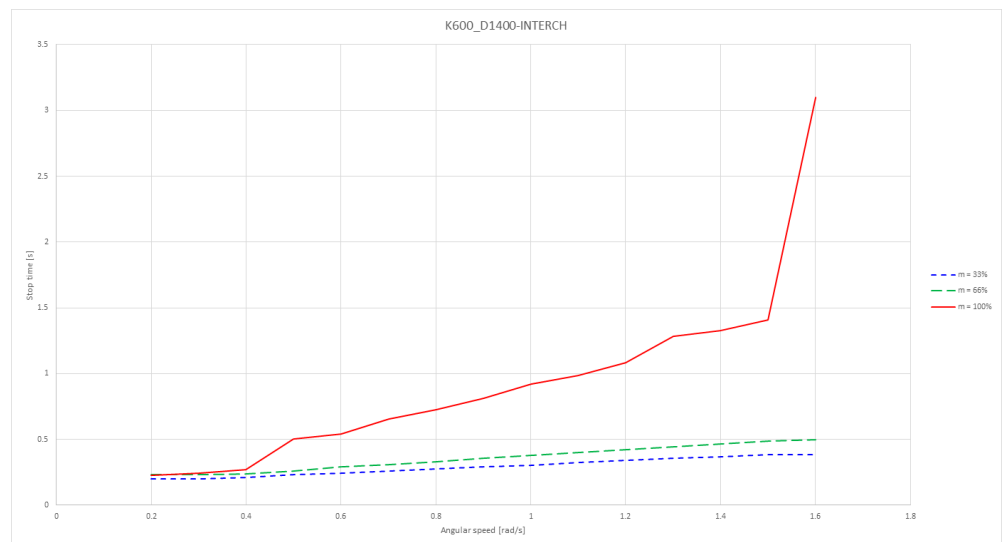
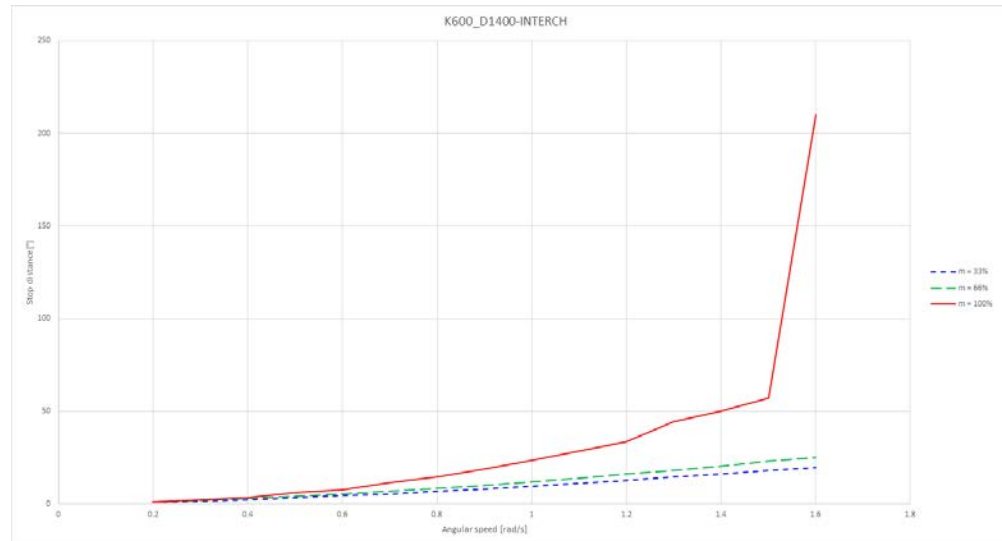


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Category 1, INTERCH

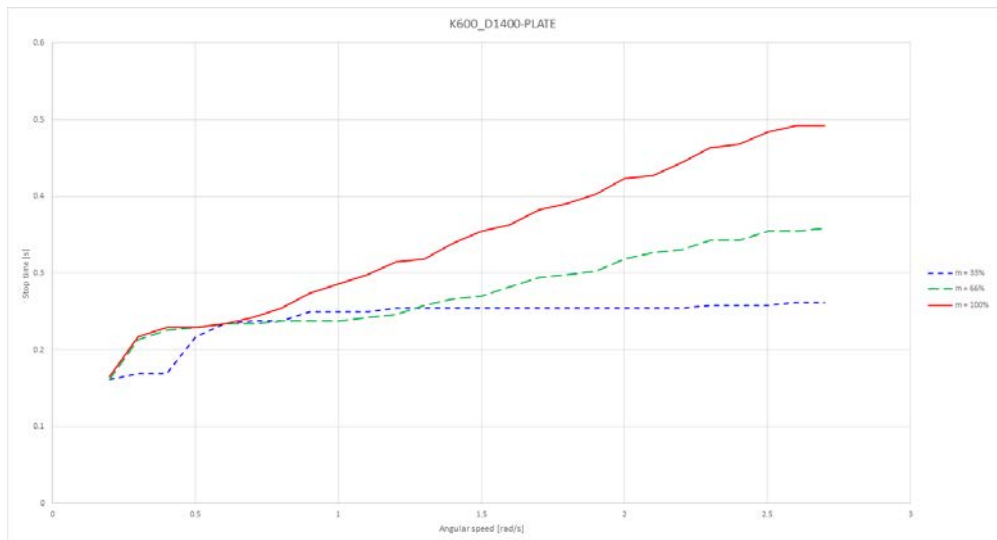
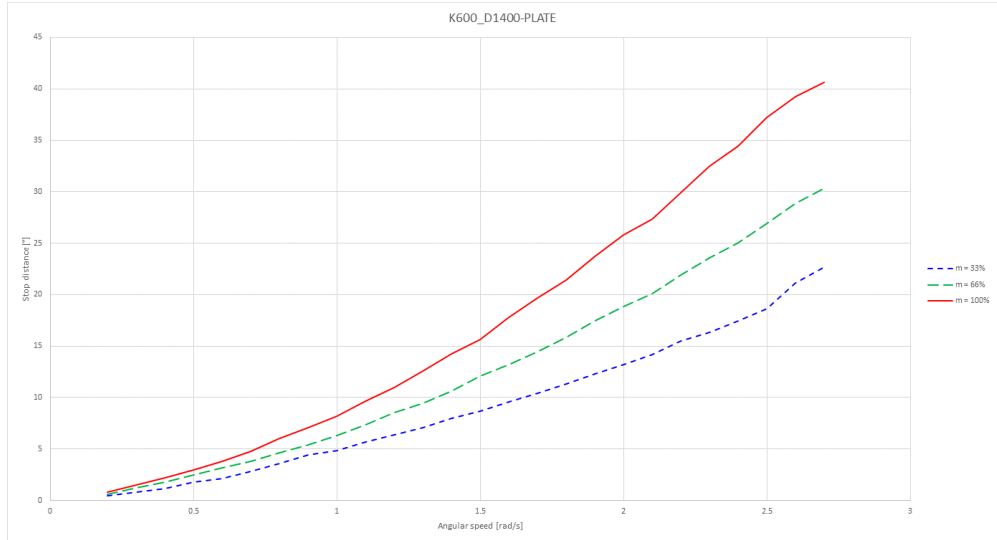
Stopping distance and stopping time



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Category 1, PLATE

Stopping distance and stopping time

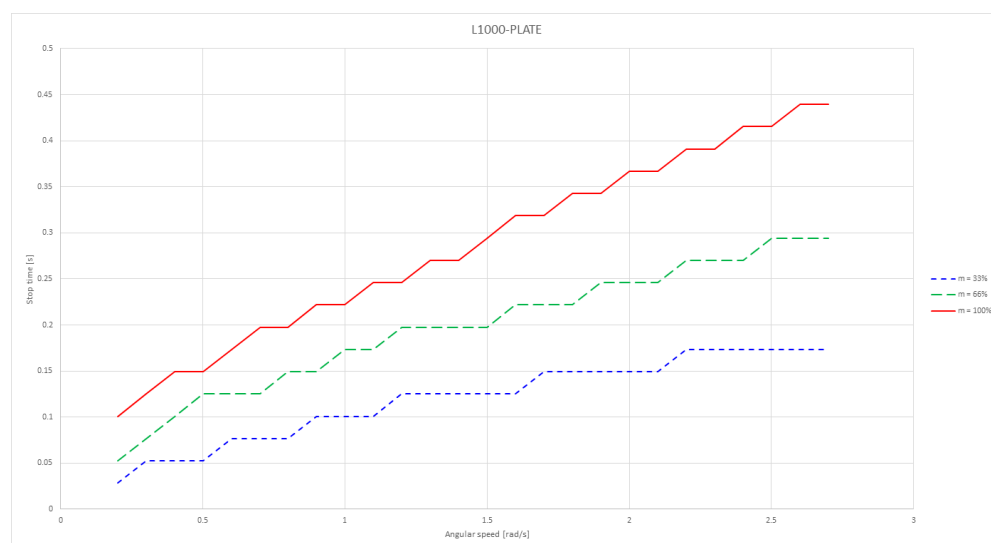
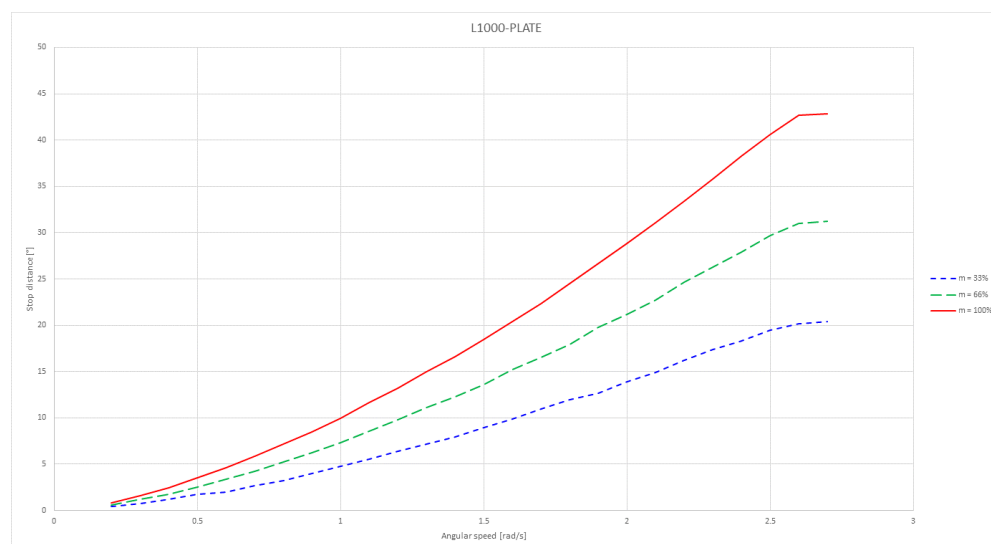


# 33 IRBP L

## 33.1 L1000

### Category 0, PLATE

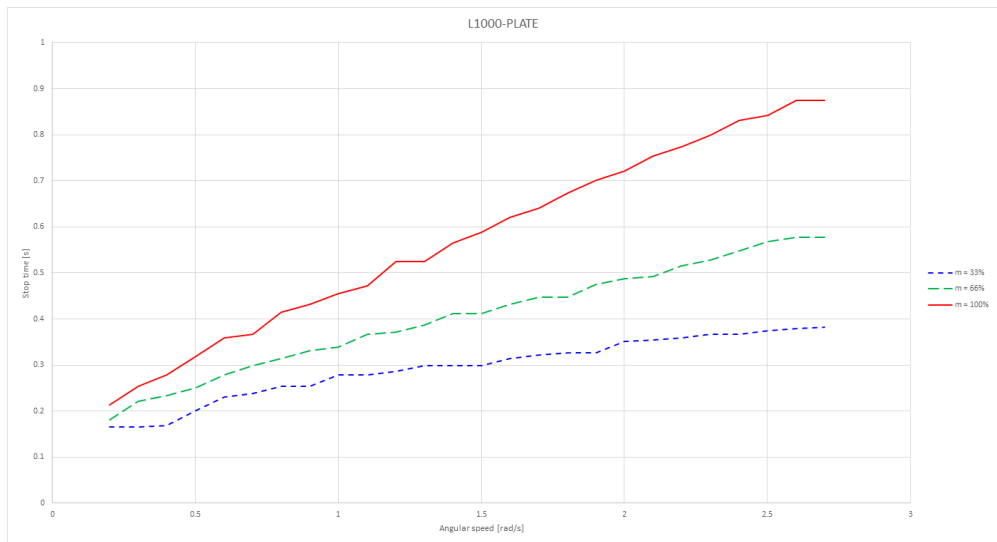
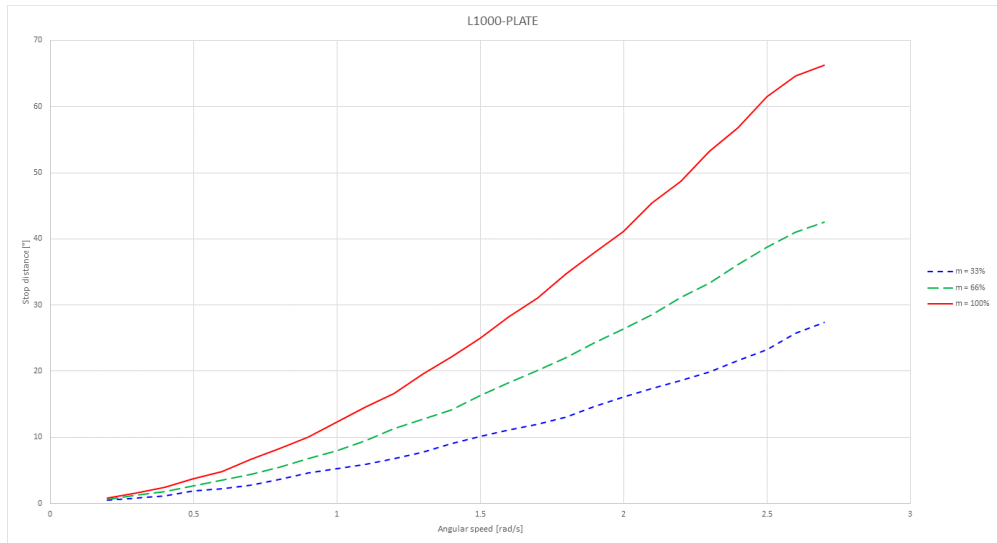
#### Stopping distance and stopping time



*Continues on next page*

Category 1, PLATE

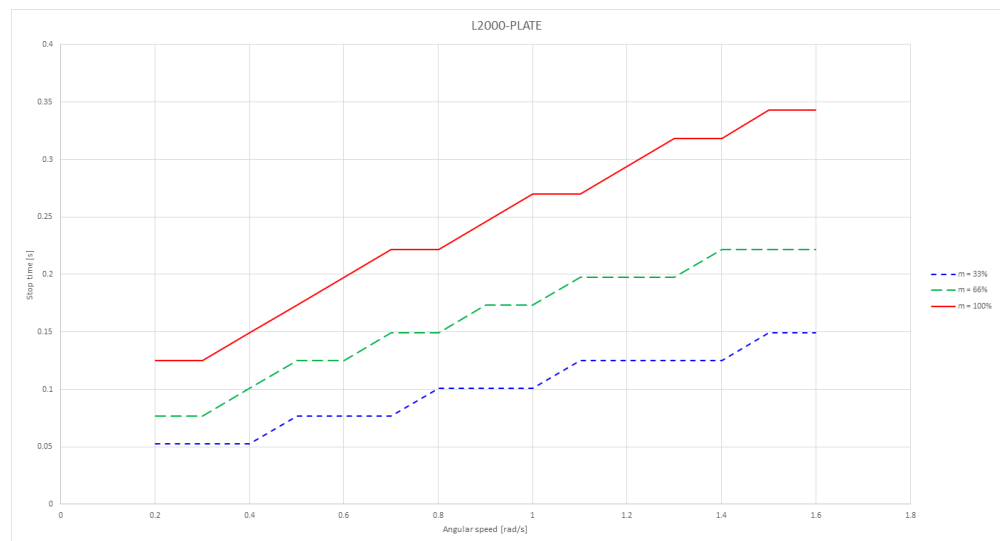
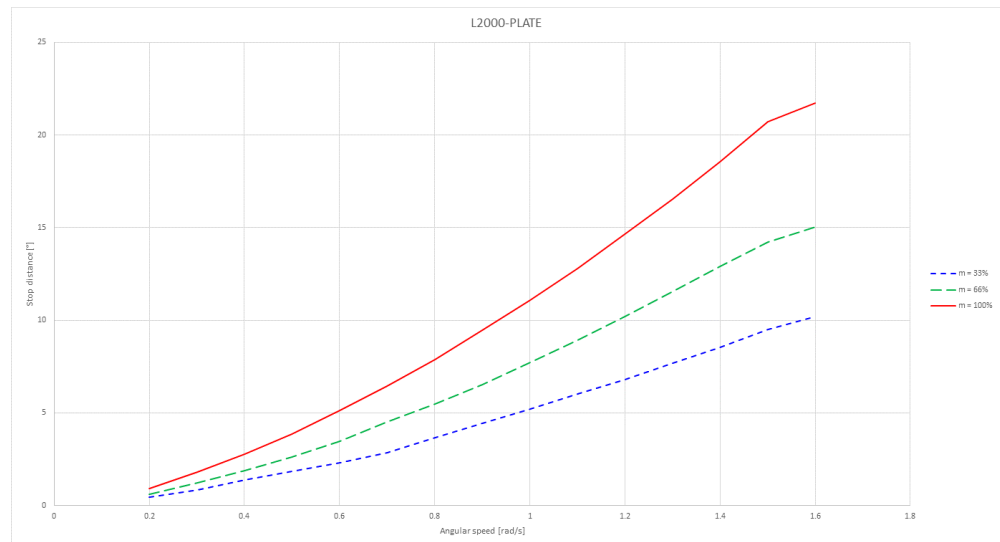
Stopping distance and stopping time



## 33.2 L2000

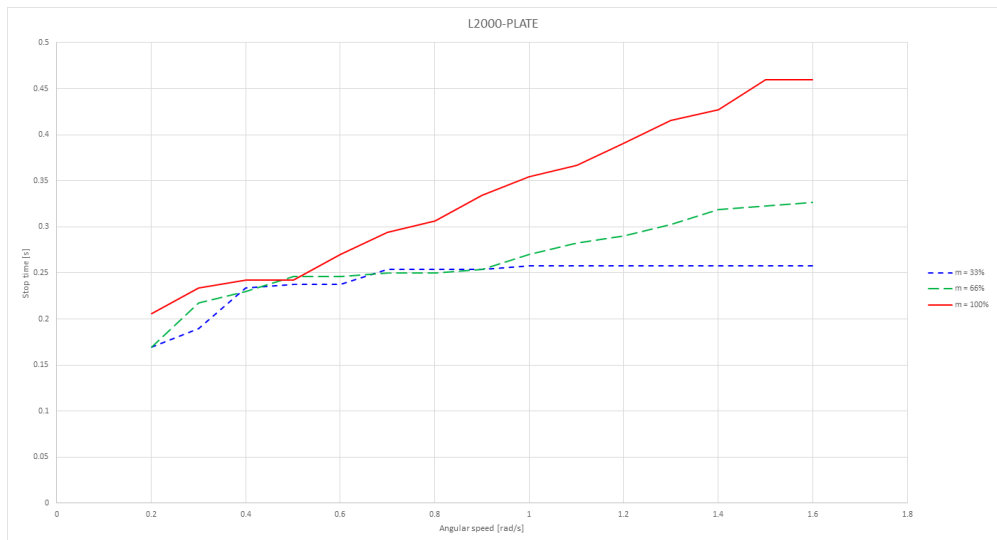
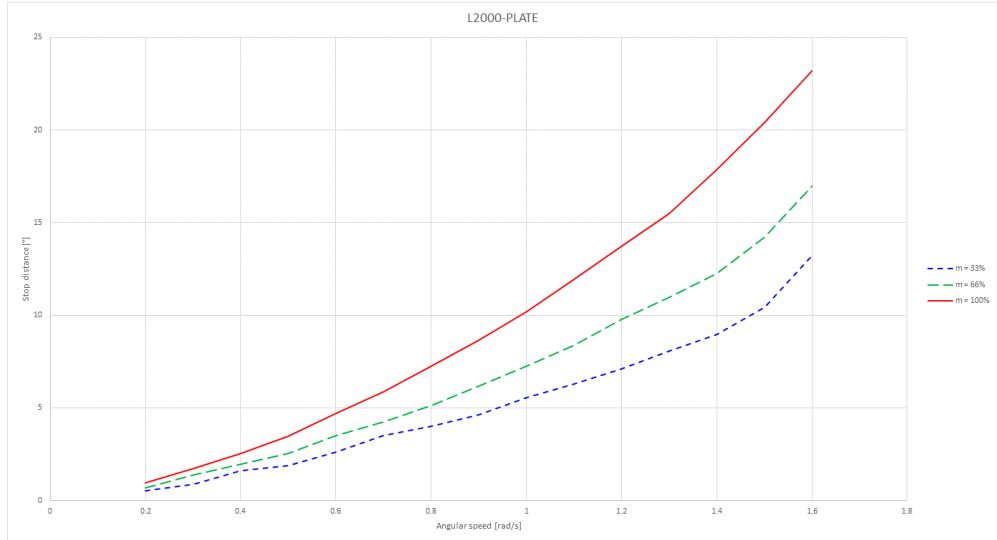
## Category 0, PLATE

## Stopping distance and stopping time

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Category 1, PLATE

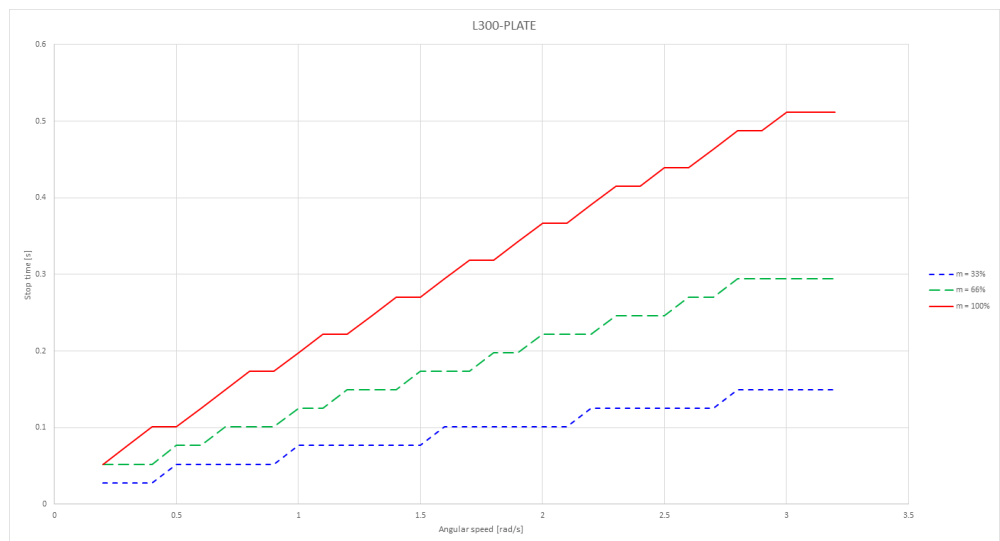
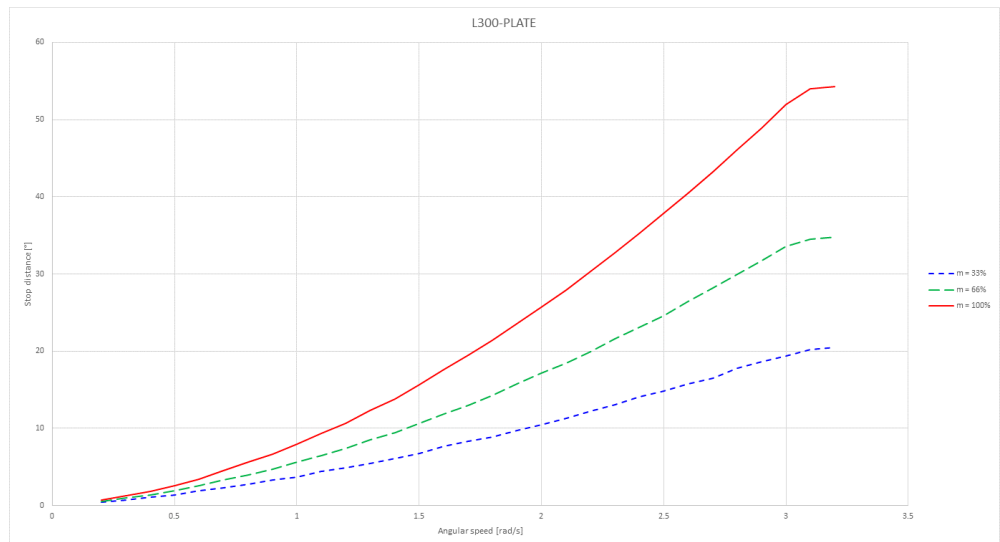
Stopping distance and stopping time



33.3 L300

Category 0, PLATE

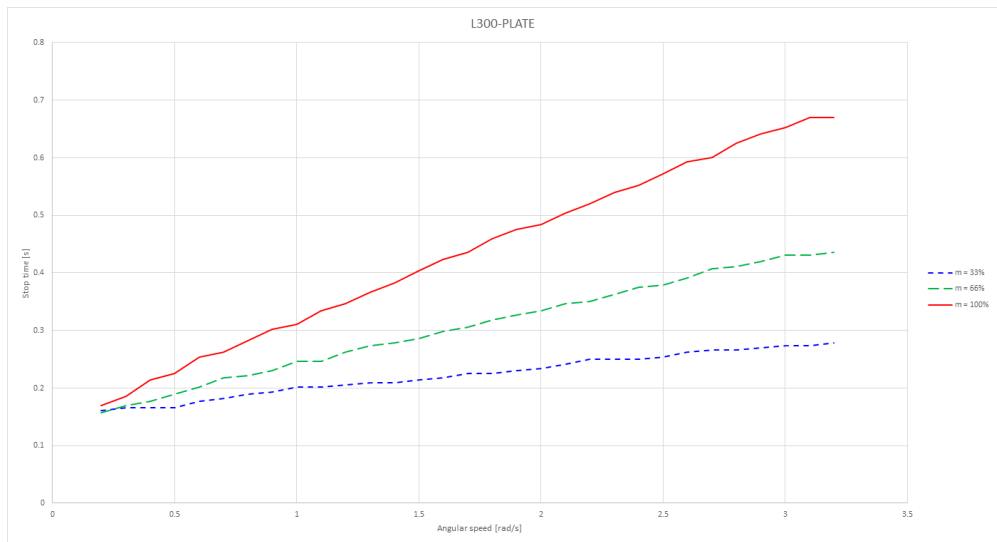
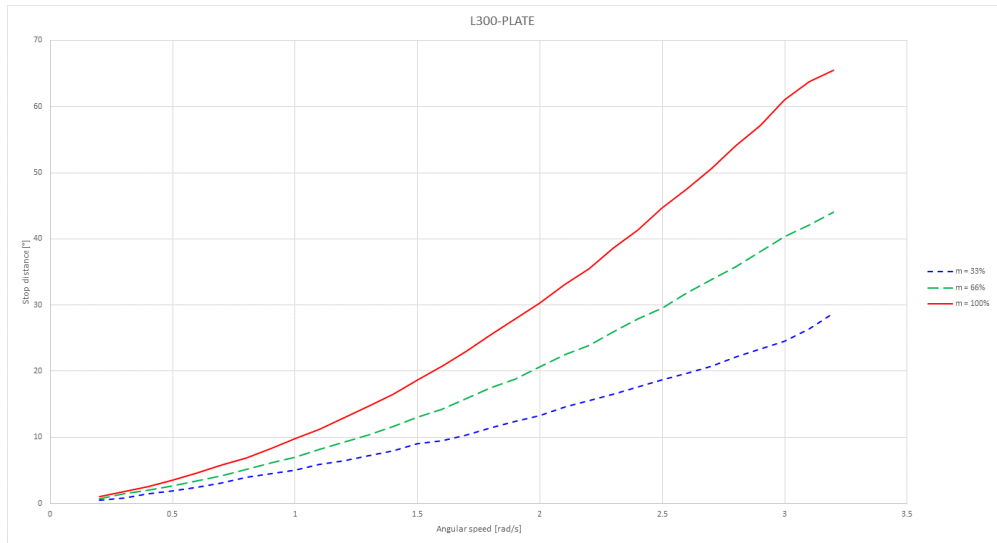
Stopping distance and stopping time



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Category 1, PLATE

Stopping distance and stopping time

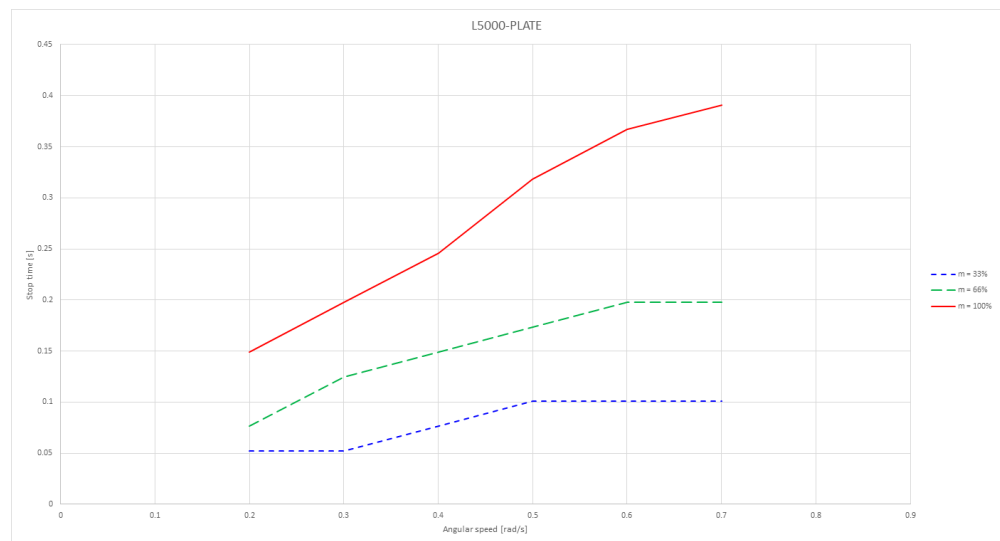
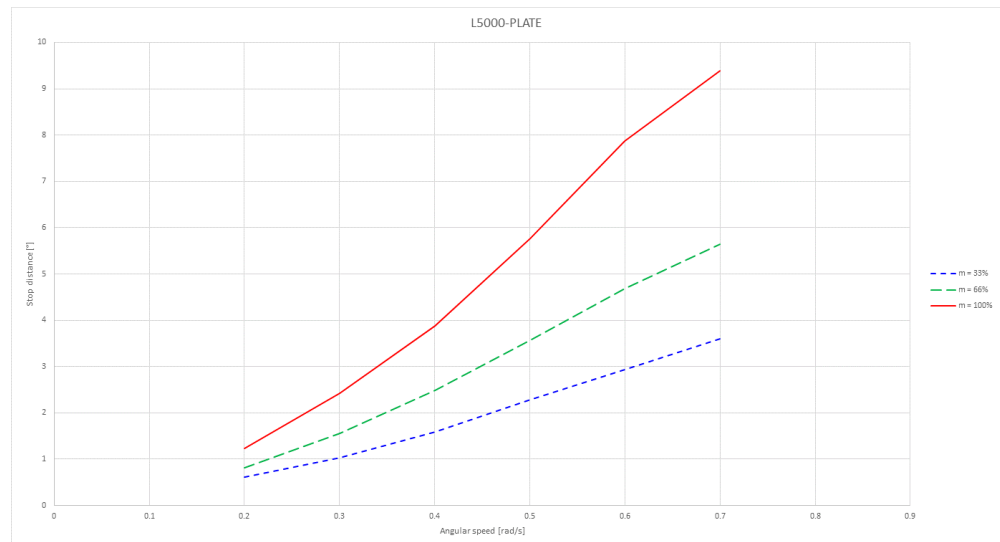




## 33.4 L5000

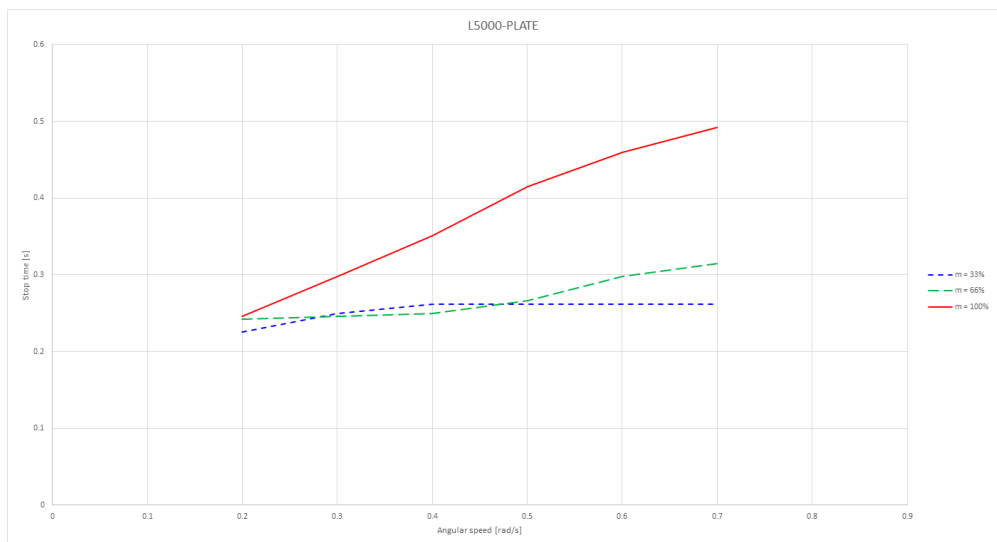
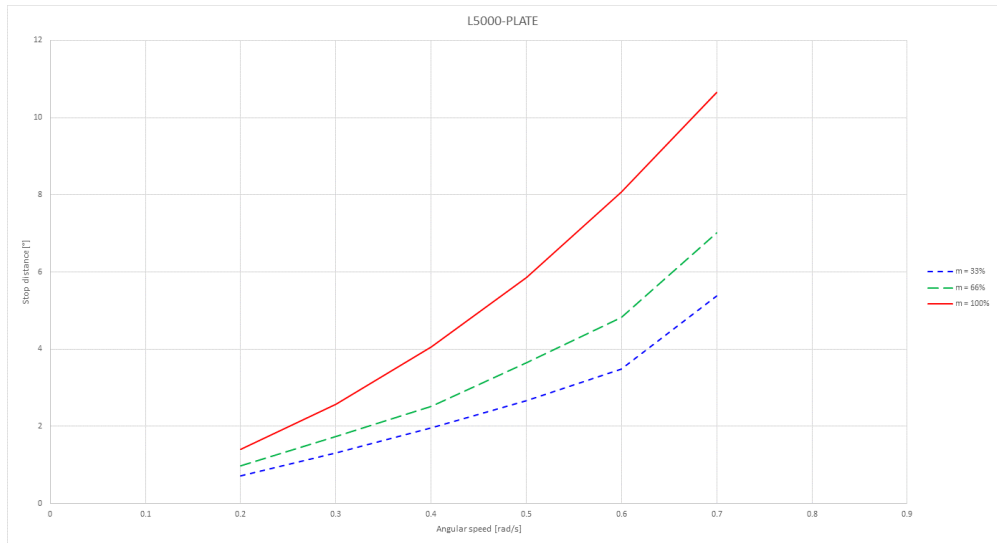
## Category 0, PLATE

## Stopping distance and stopping time

*Continues on next page*

Category 1, PLATE

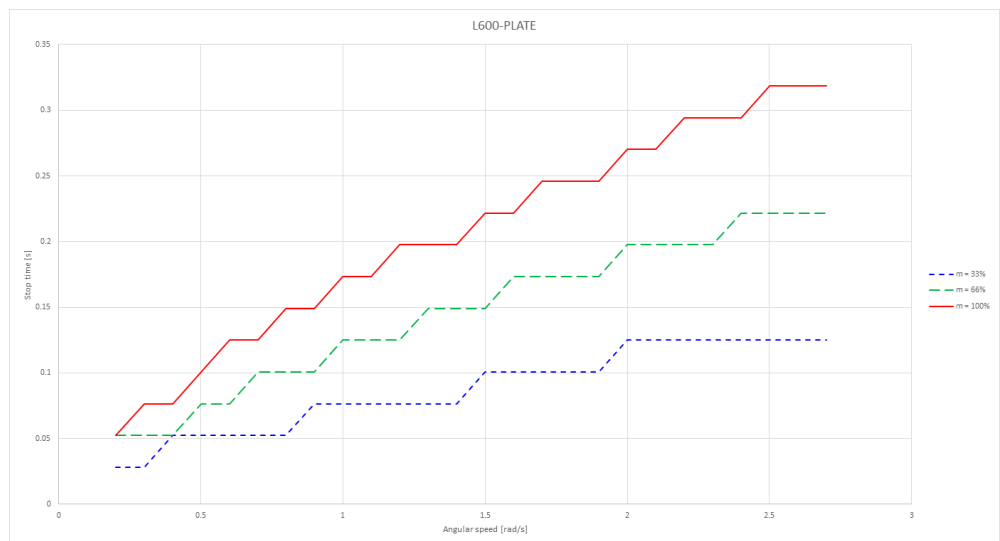
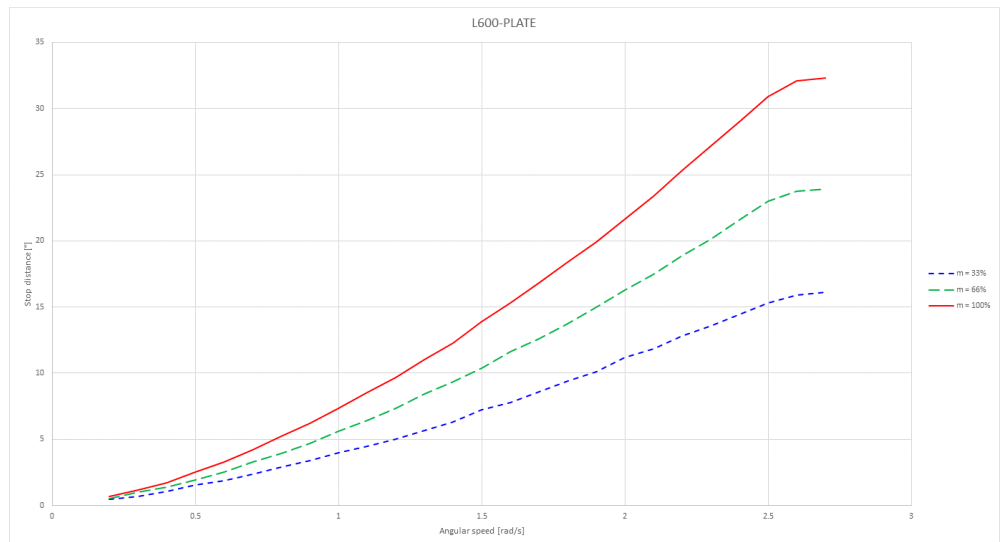
Stopping distance and stopping time



33.5 L600

Category 0, PLATE

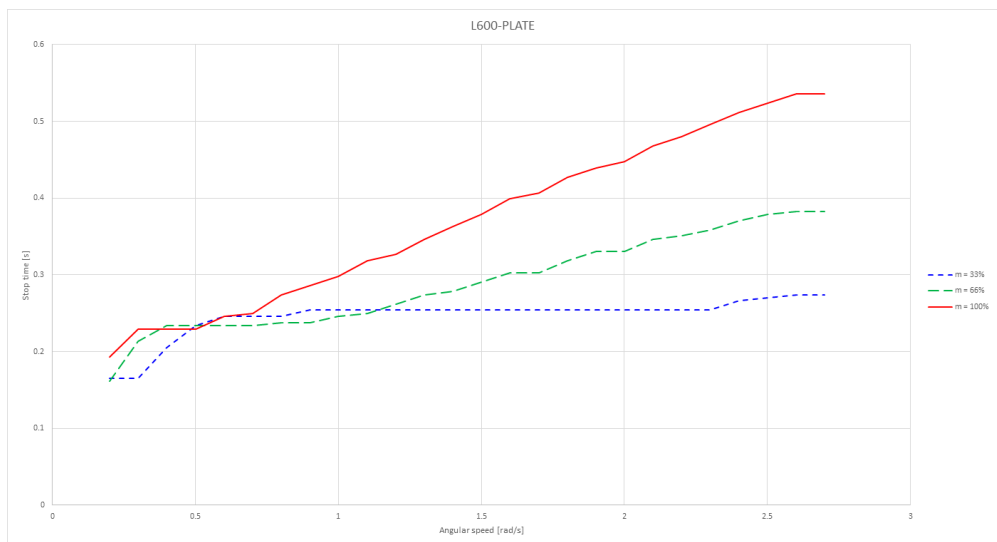
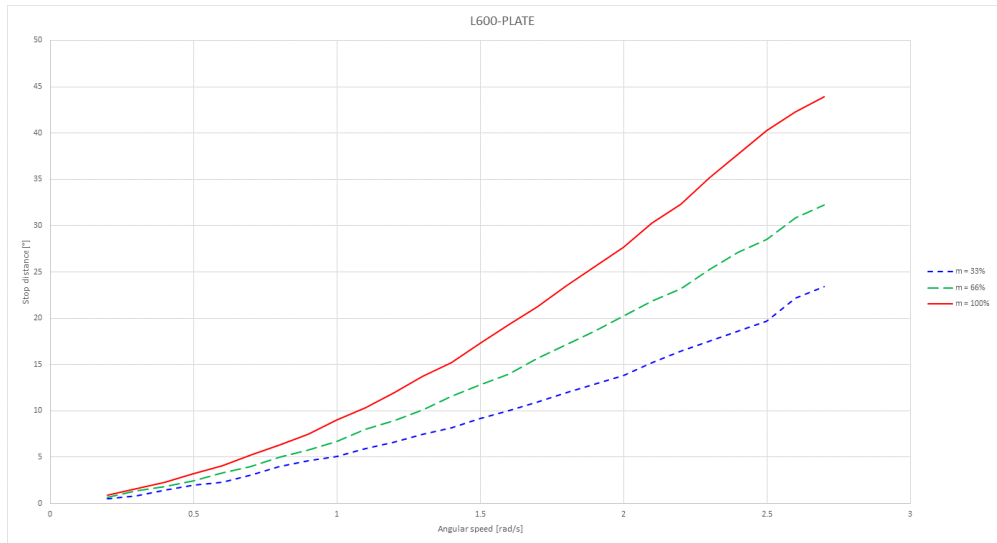
Stopping distance and stopping time



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Category 1, PLATE

Stopping distance and stopping time

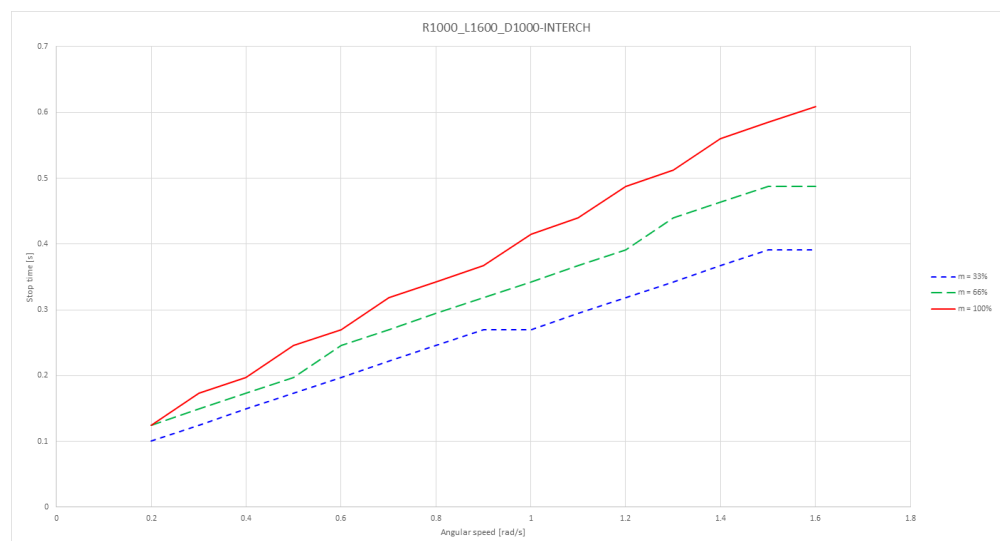
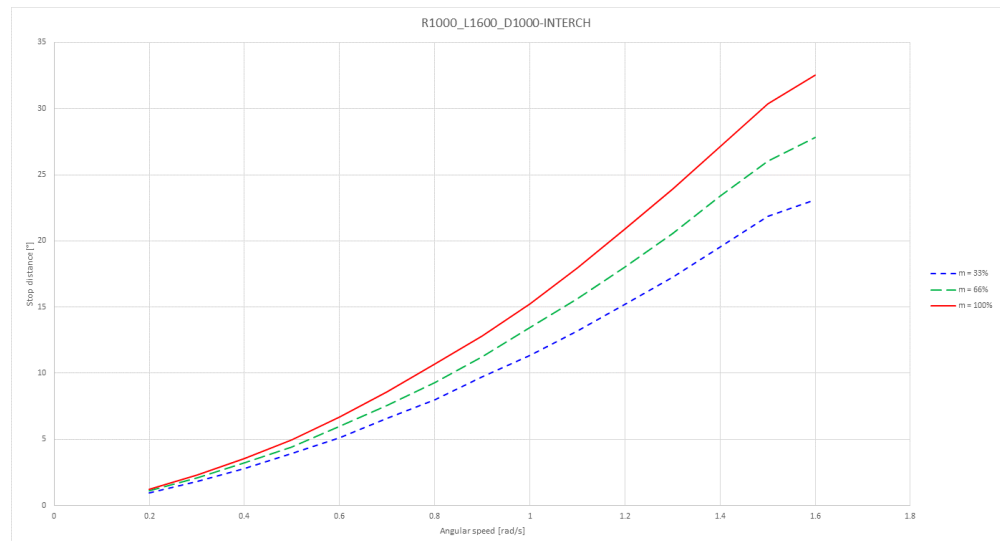


## 34 IRBP R

### 34.1 R1000\_L1600\_D1000

#### Category 0, INTERCH

#### Stopping distance and stopping time



*Continues on next page*

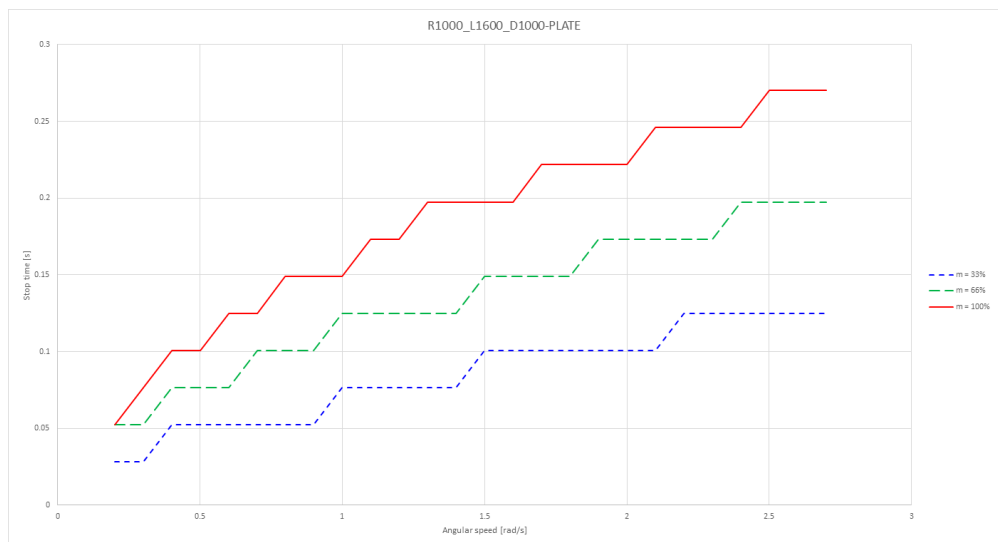
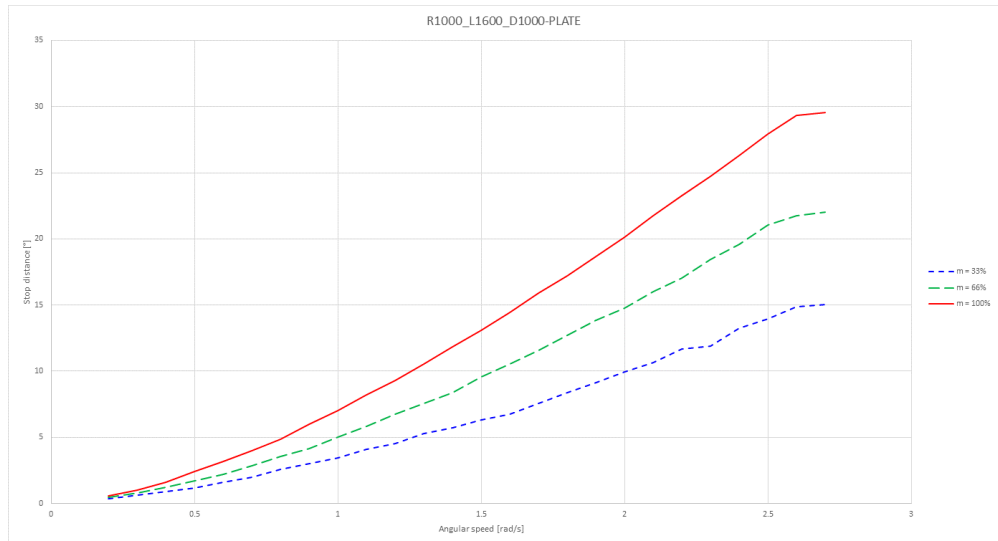
# 34 IRBP R

## 34.1 R1000\_L1600\_D1000

Continued

### Category 0, PLATE

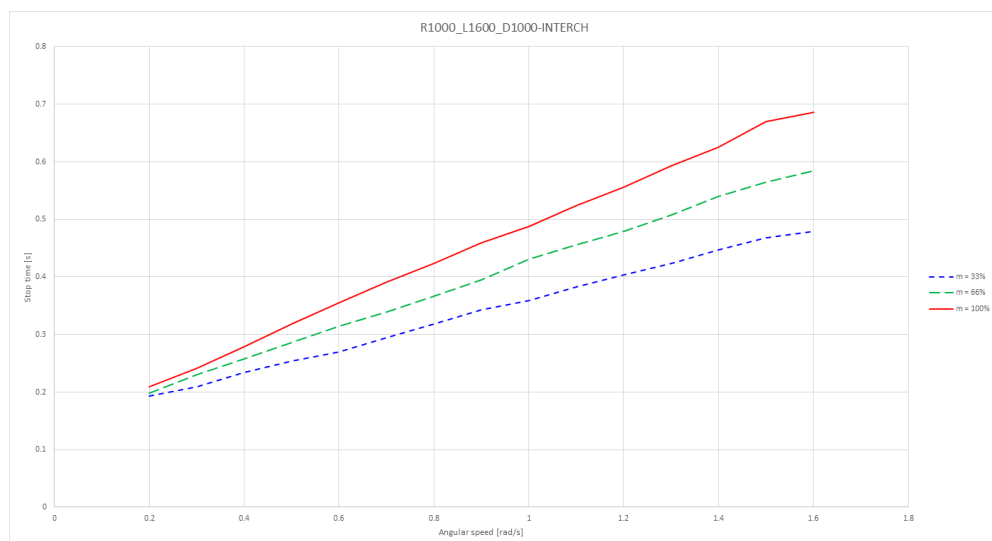
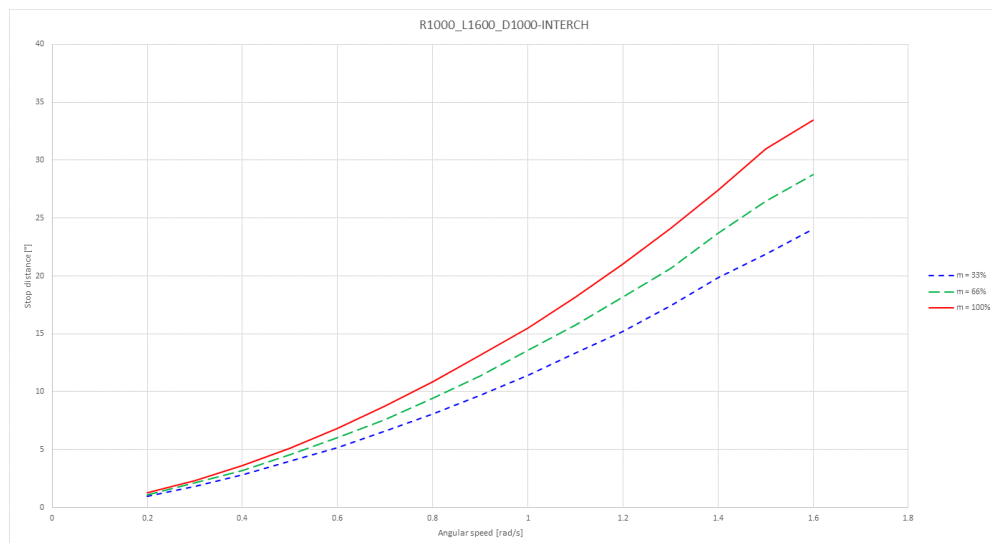
#### Stopping distance and stopping time



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Category 1, INTERCH

Stopping distance and stopping time



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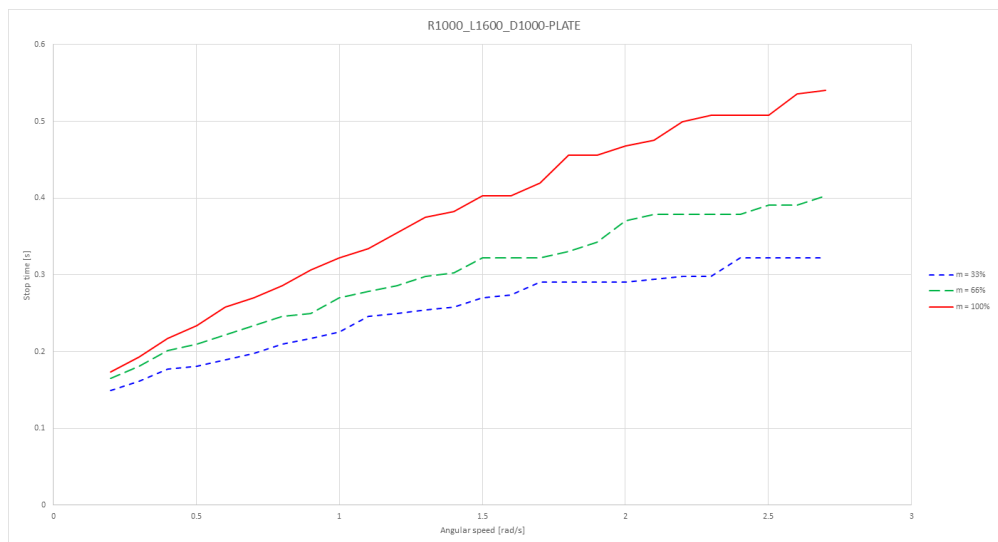
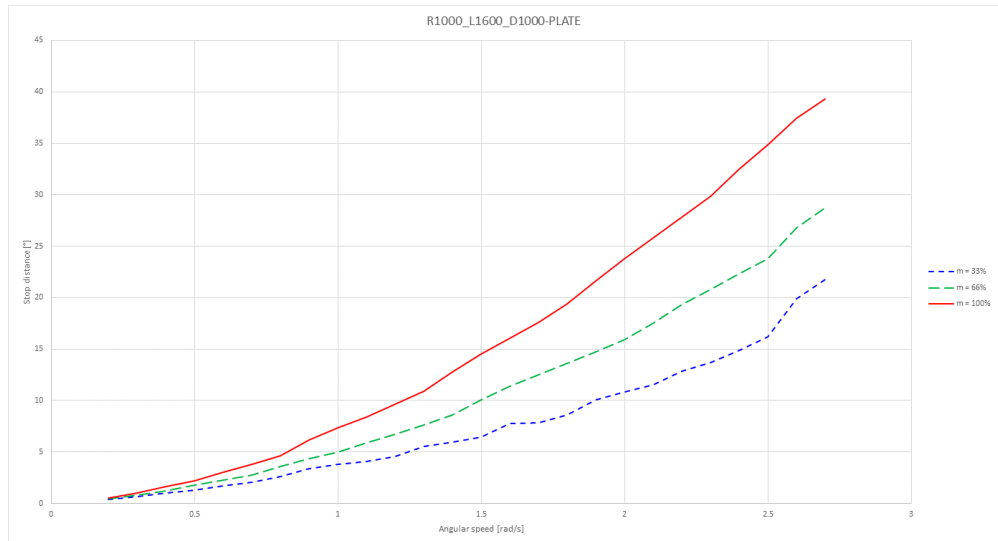
# 34 IRBP R

## 34.1 R1000\_L1600\_D1000

Continued

### Category 1, PLATE

#### Stopping distance and stopping time

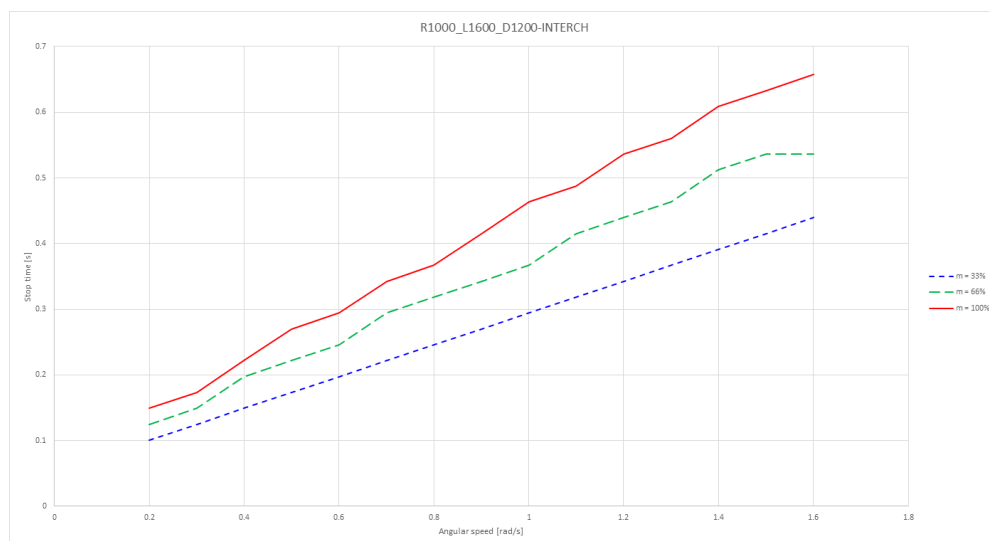
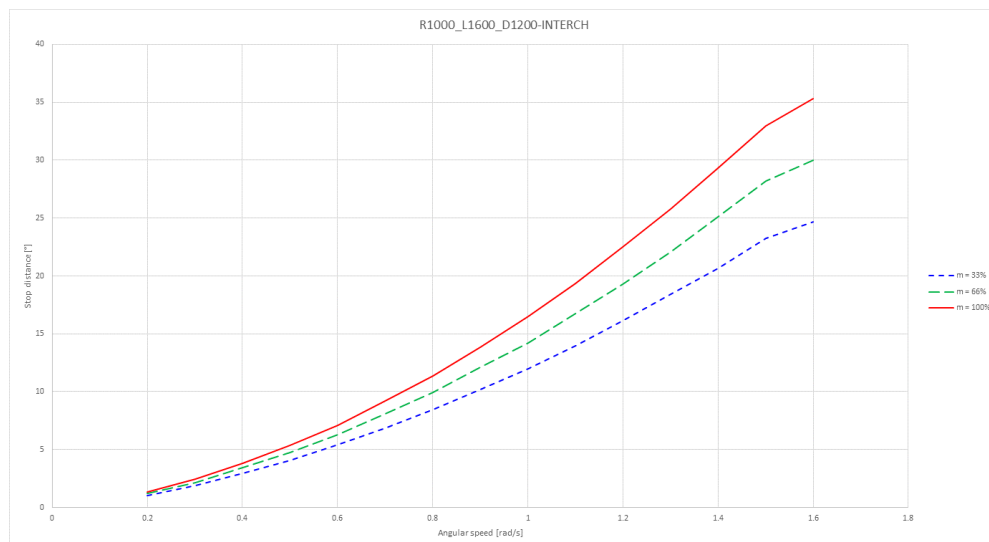




## 34.2 R1000\_L1600\_D1200

## Category 0, INTERCH

## Stopping distance and stopping time

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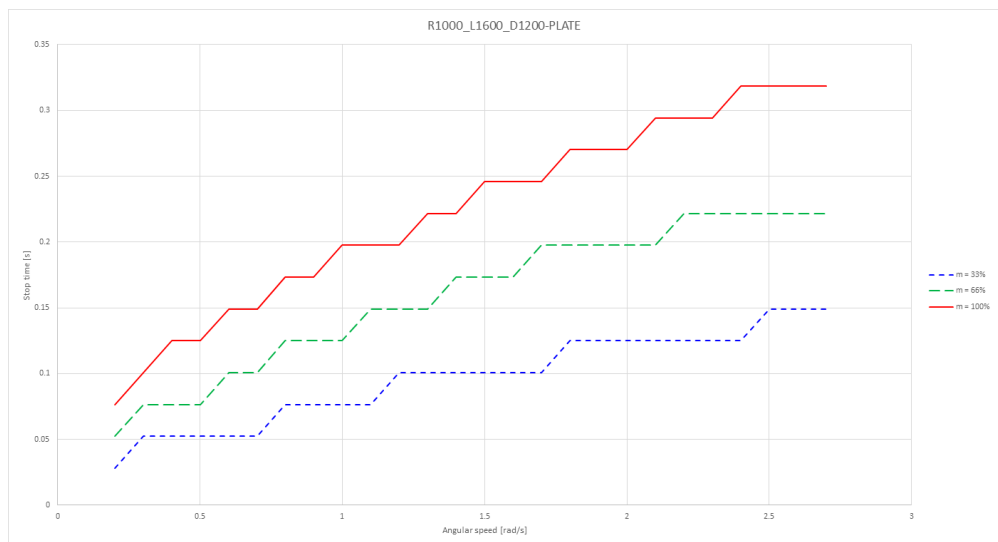
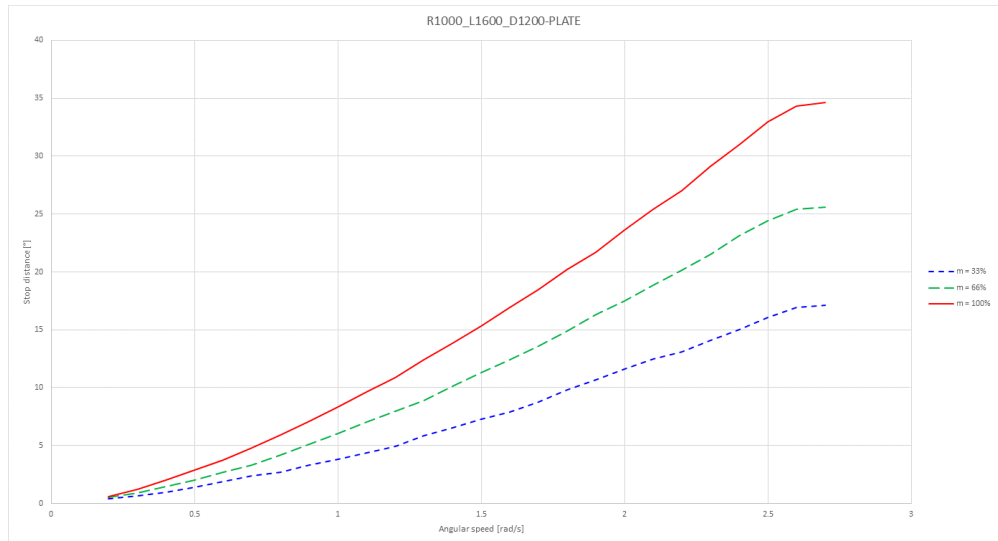
# 34 IRBP R

## 34.2 R1000\_L1600\_D1200

Continued

### Category 0, PLATE

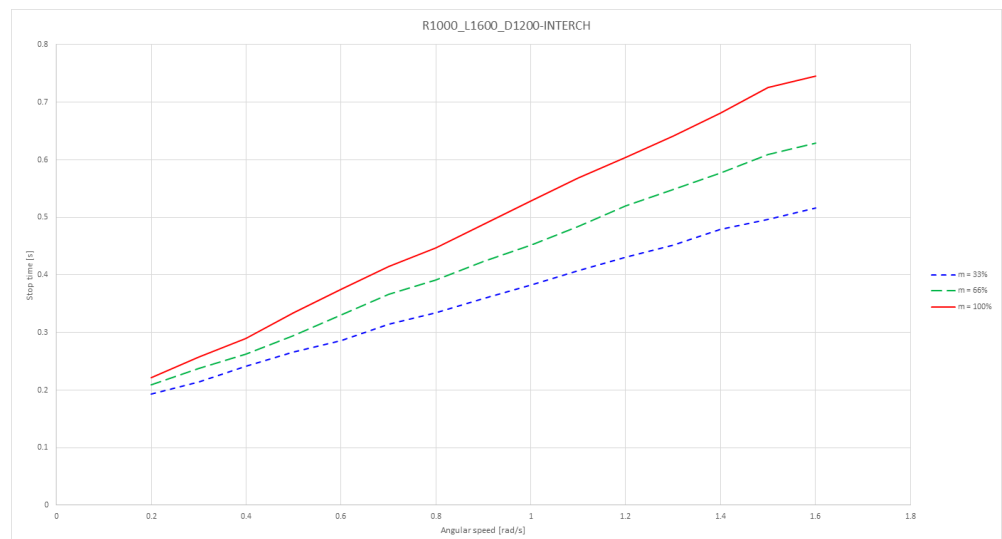
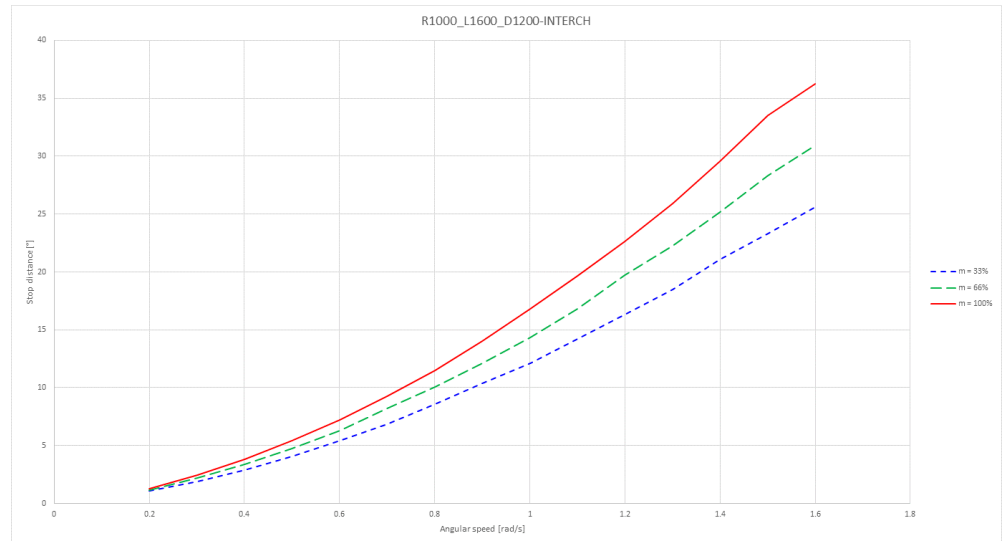
#### Stopping distance and stopping time



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Category 1, INTERCH

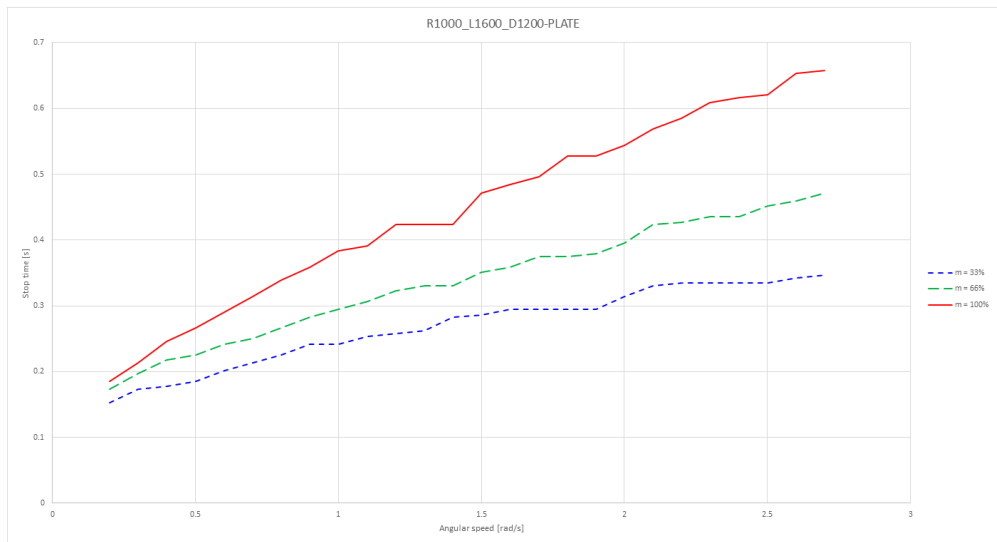
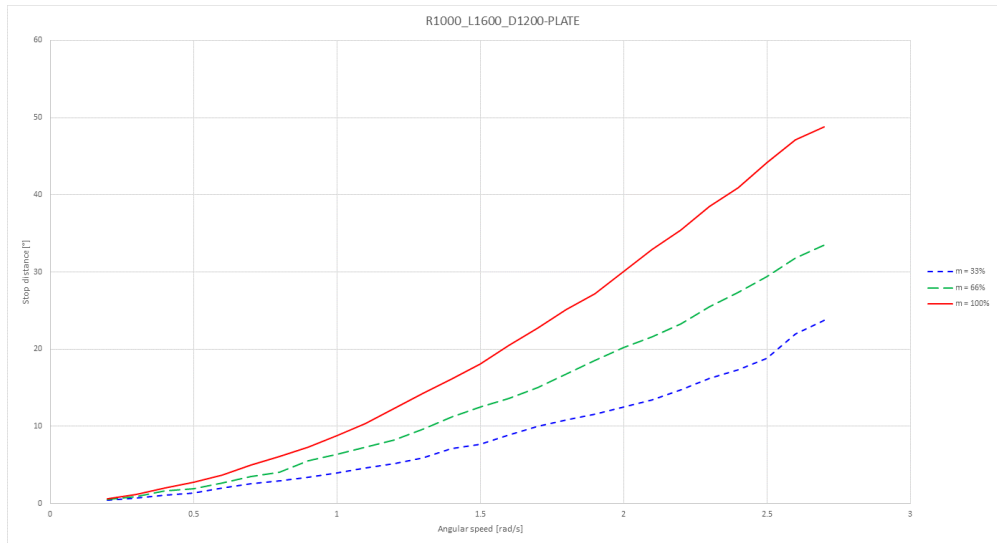
Stopping distance and stopping time



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Category 1, PLATE

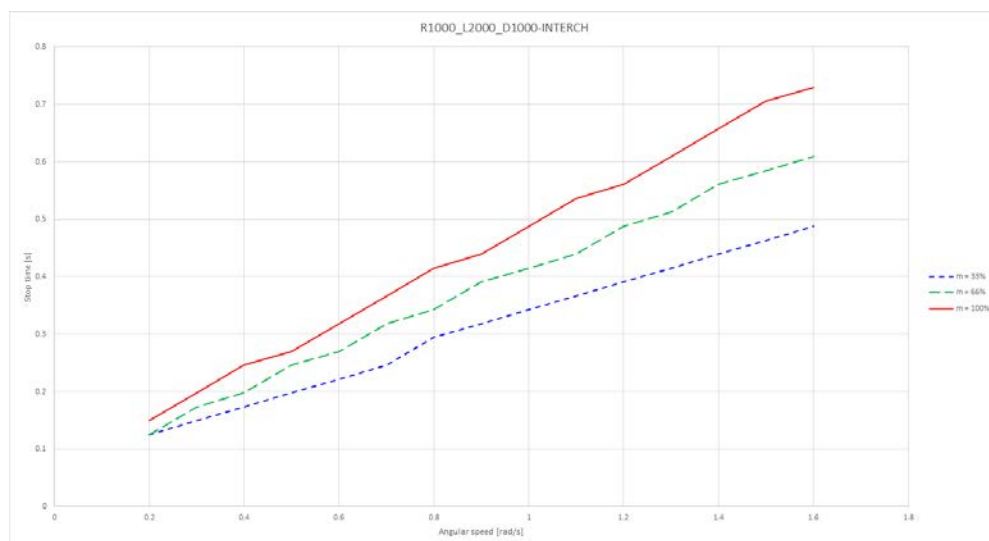
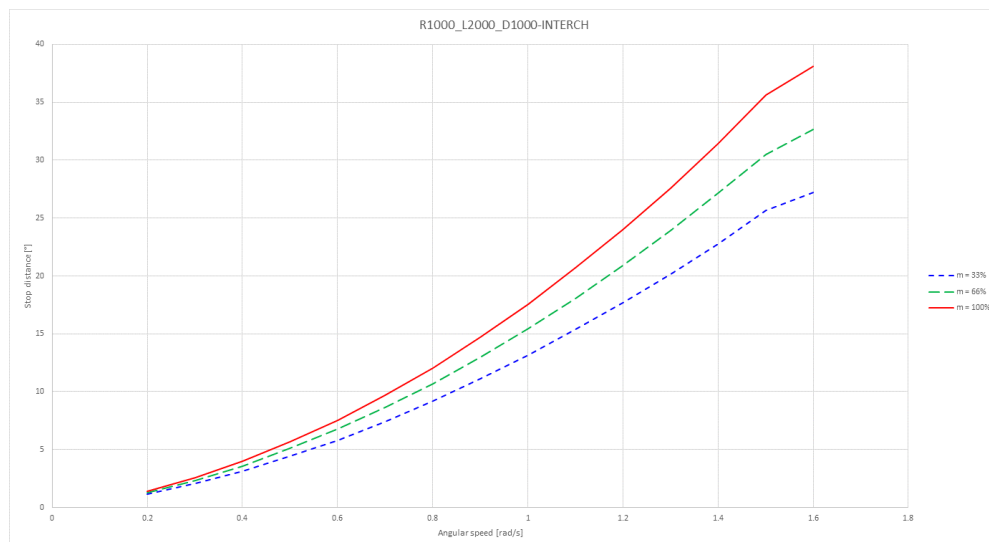
Stopping distance and stopping time



## 34.3 R1000\_L2000\_D1000

## Category 0, INTERCH

## Stopping distance and stopping time



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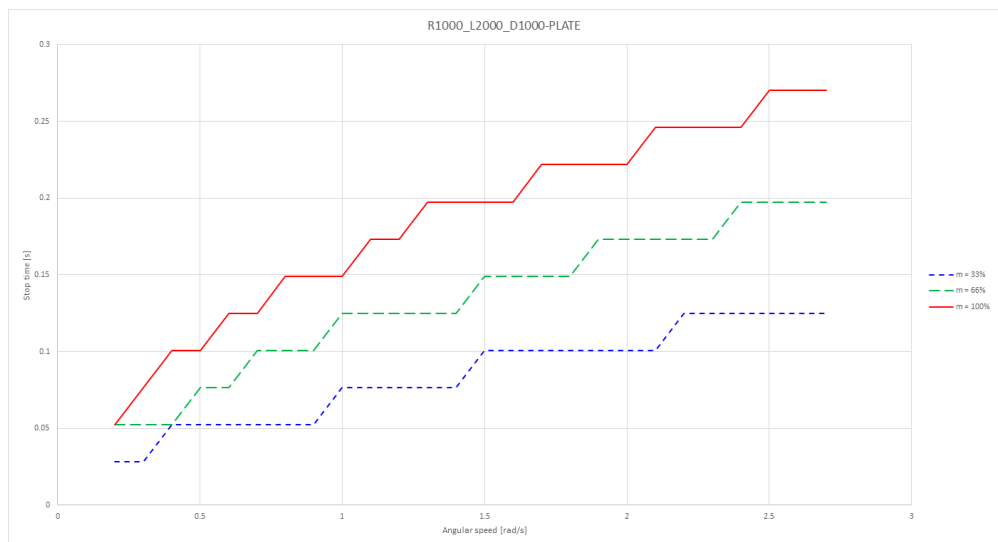
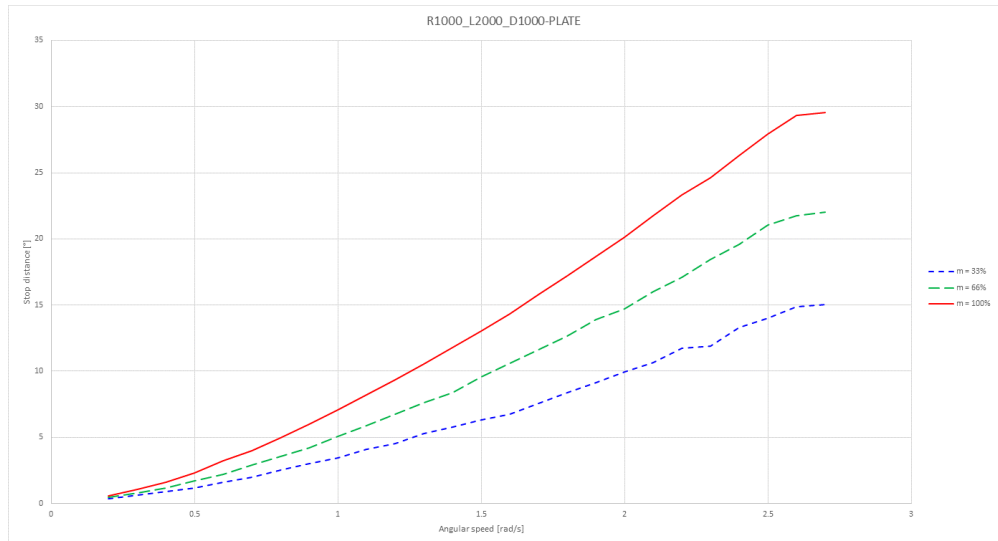
# 34 IRBP R

## 34.3 R1000\_L2000\_D1000

Continued

### Category 0, PLATE

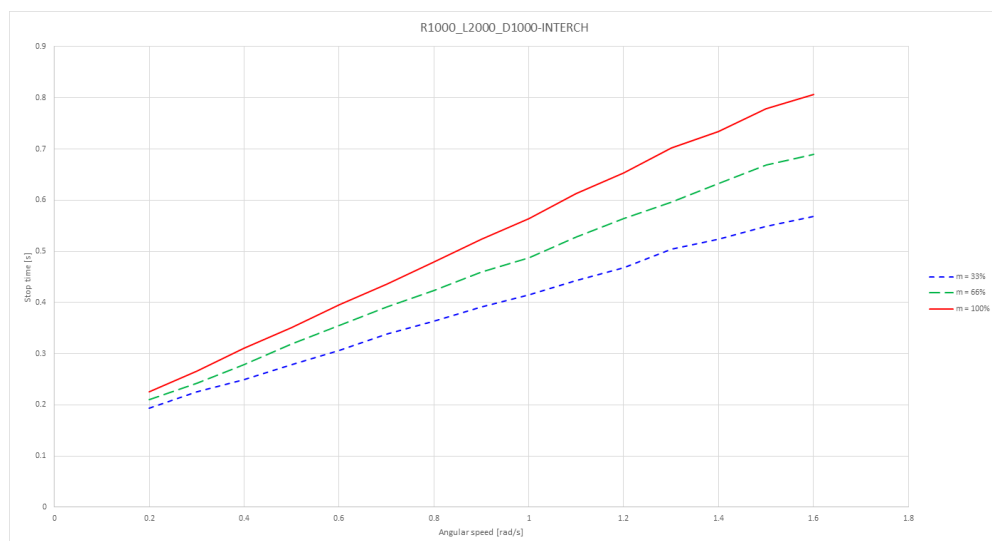
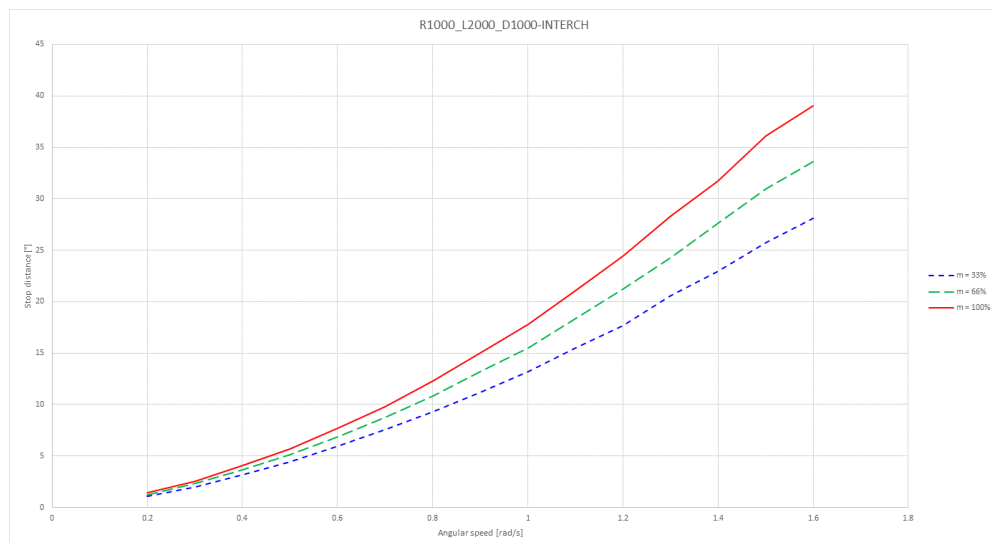
#### Stopping distance and stopping time



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Category 1, INTERCH

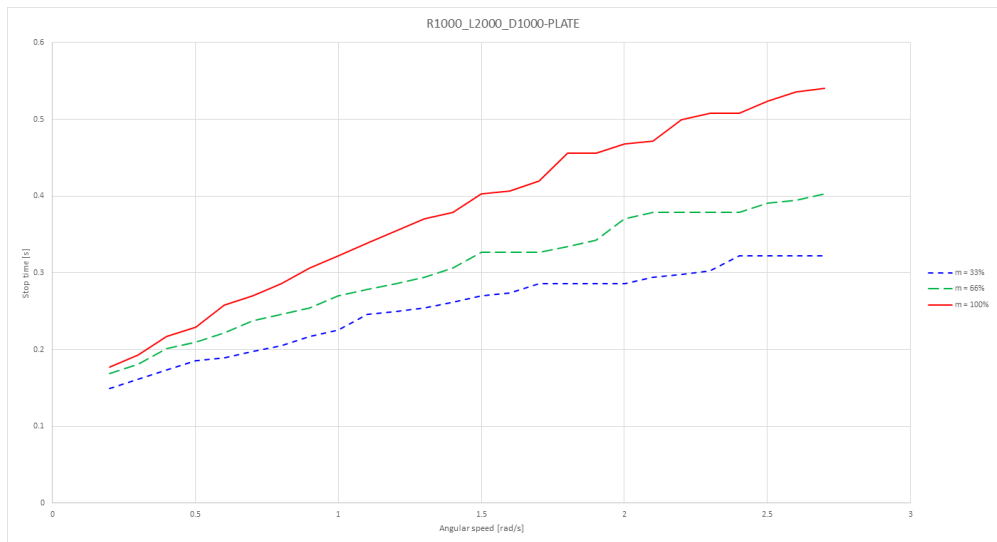
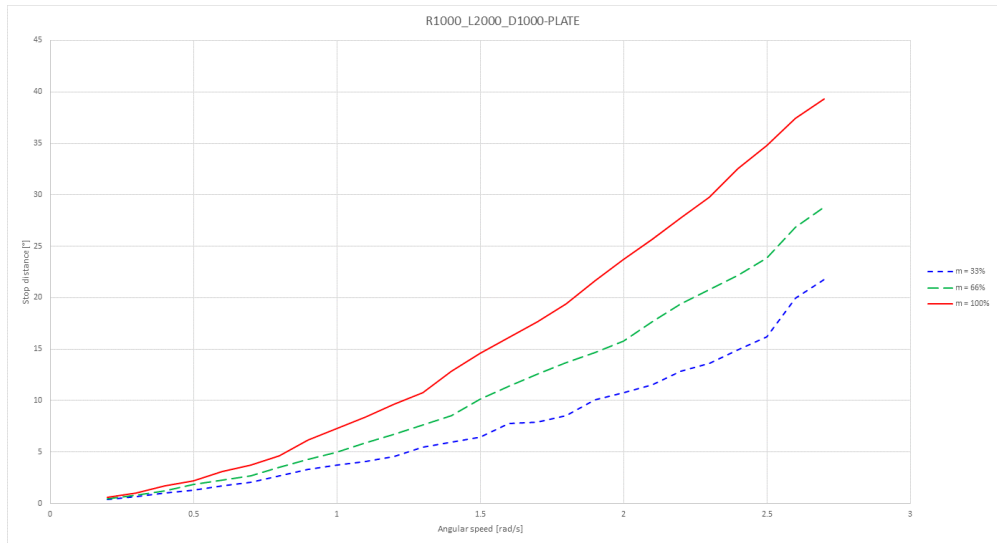
Stopping distance and stopping time



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Category 1, PLATE

Stopping distance and stopping time

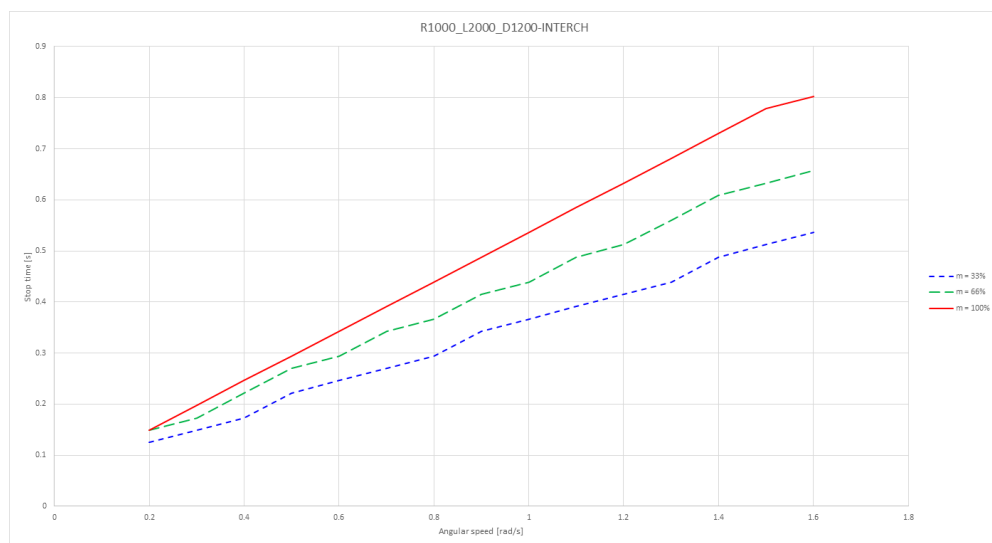
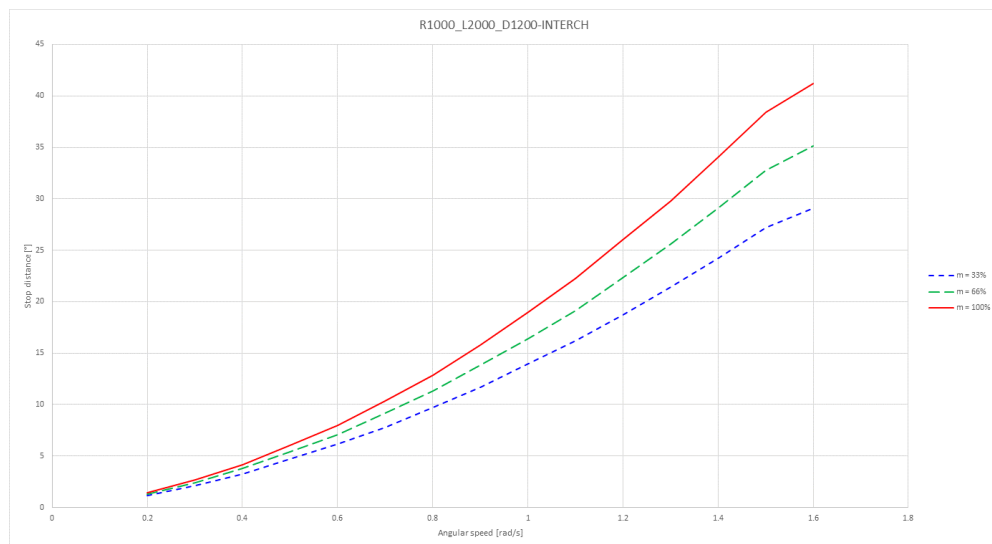




34.4 R1000\_L2000\_D1200

Category 0, INTERCH

Stopping distance and stopping time



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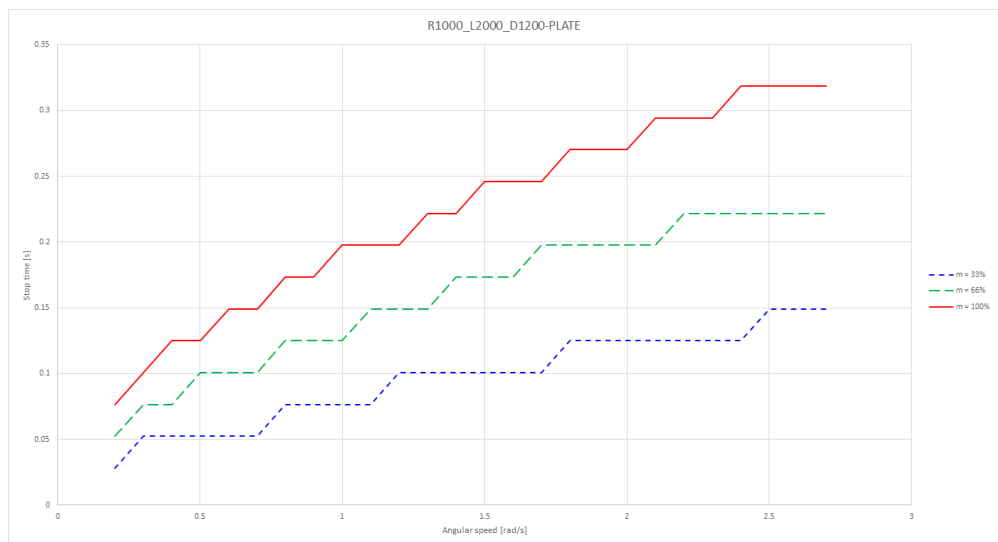
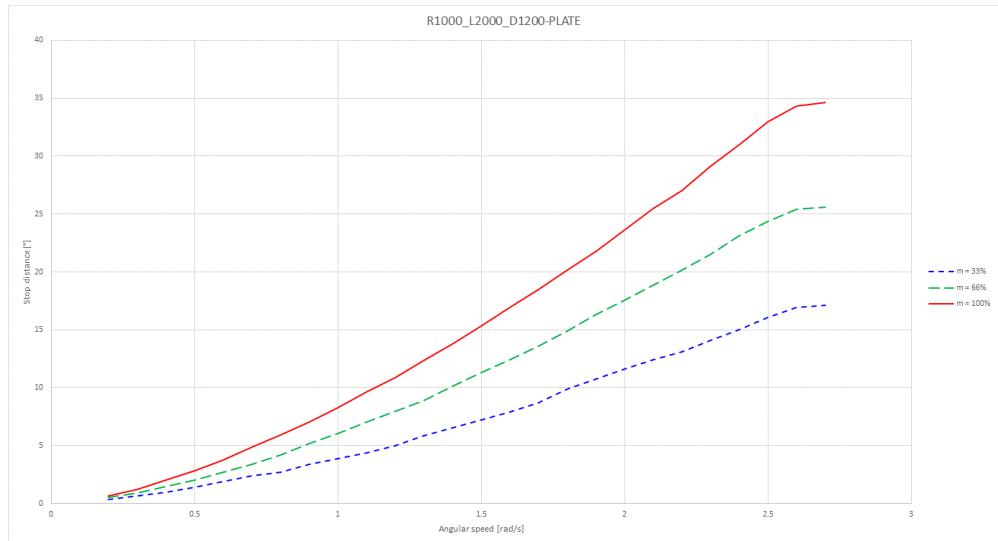
# 34 IRBP R

## 34.4 R1000\_L2000\_D1200

Continued

### Category 0, PLATE

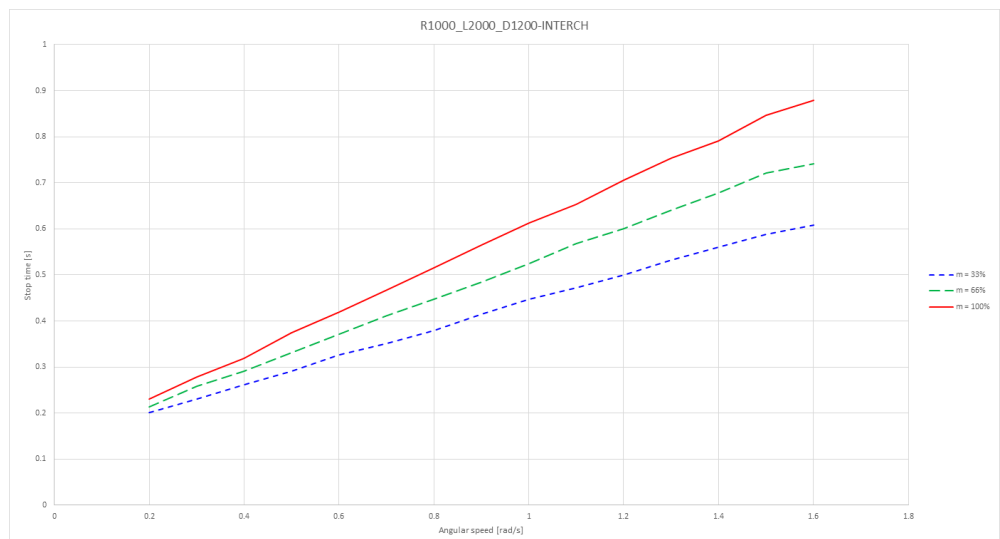
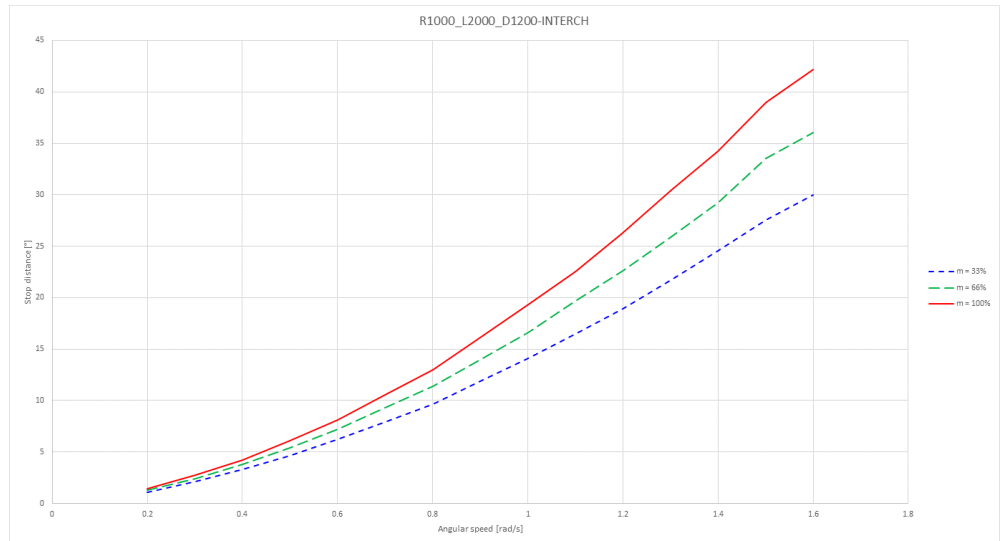
#### Stopping distance and stopping time



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Category 1, INTERCH

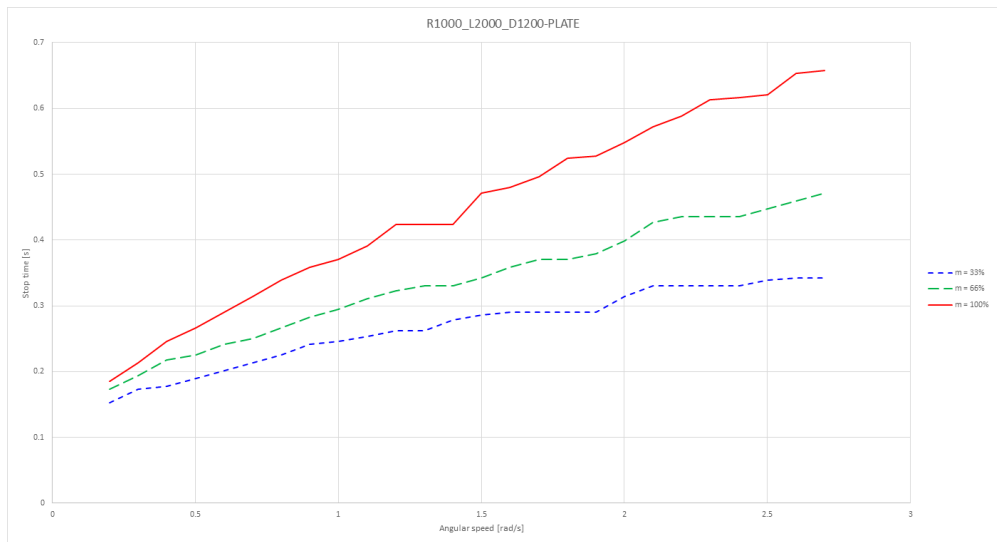
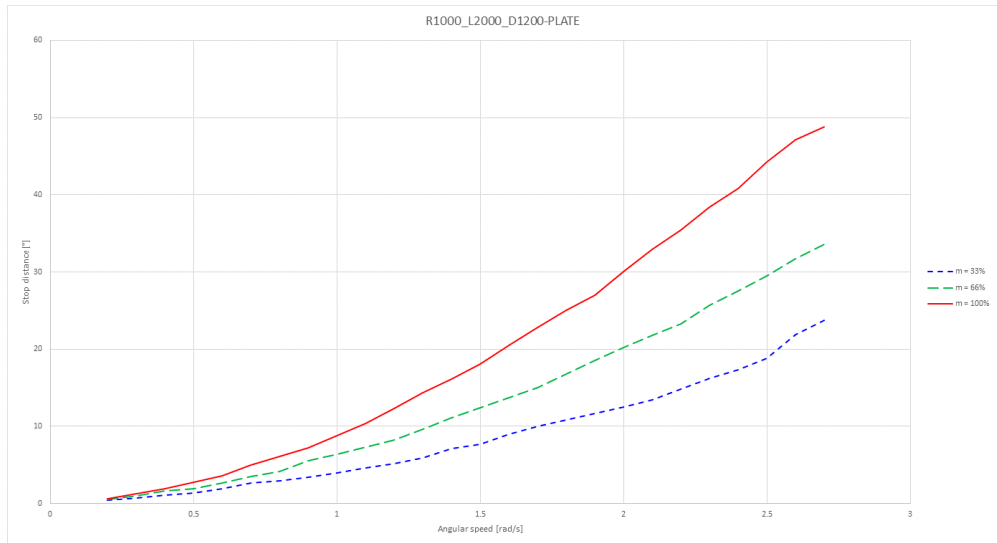
Stopping distance and stopping time



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Category 1, PLATE

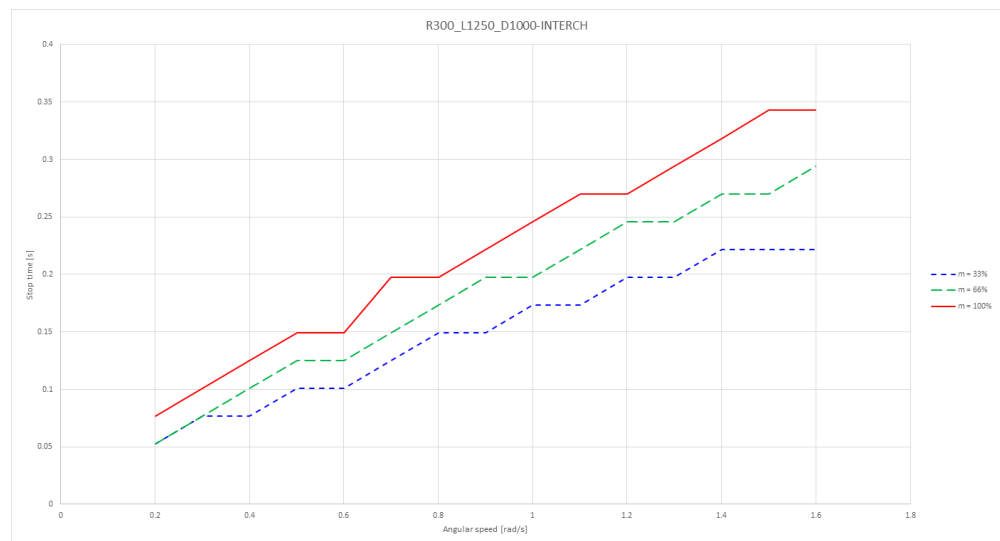
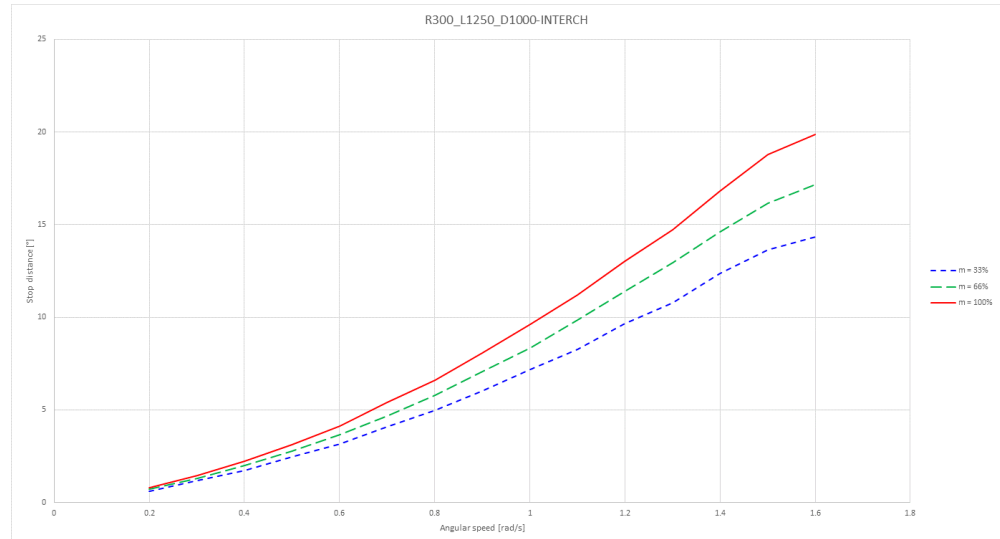
Stopping distance and stopping time



## 34.5 R300\_L1250\_D1000

## Category 0, INTERCH

## Stopping distance and stopping time

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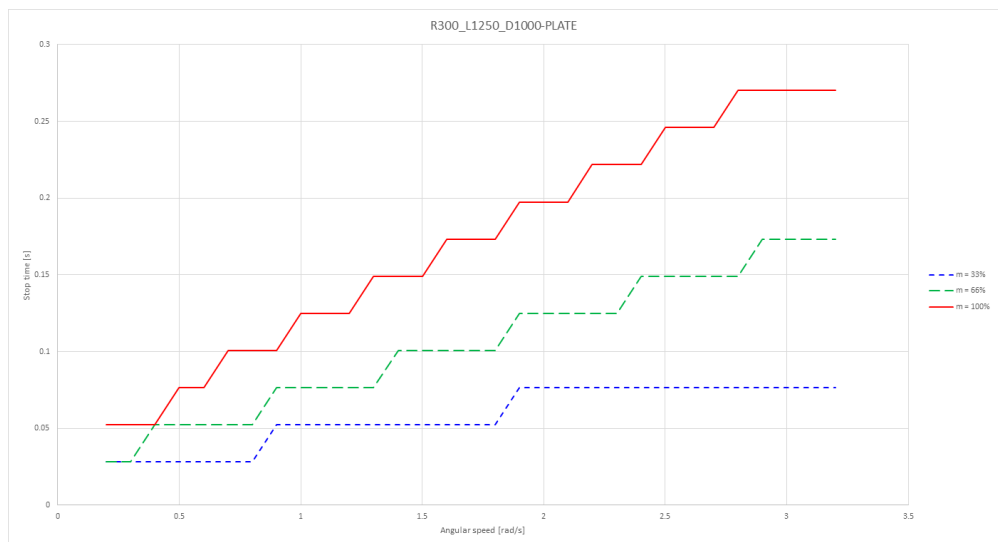
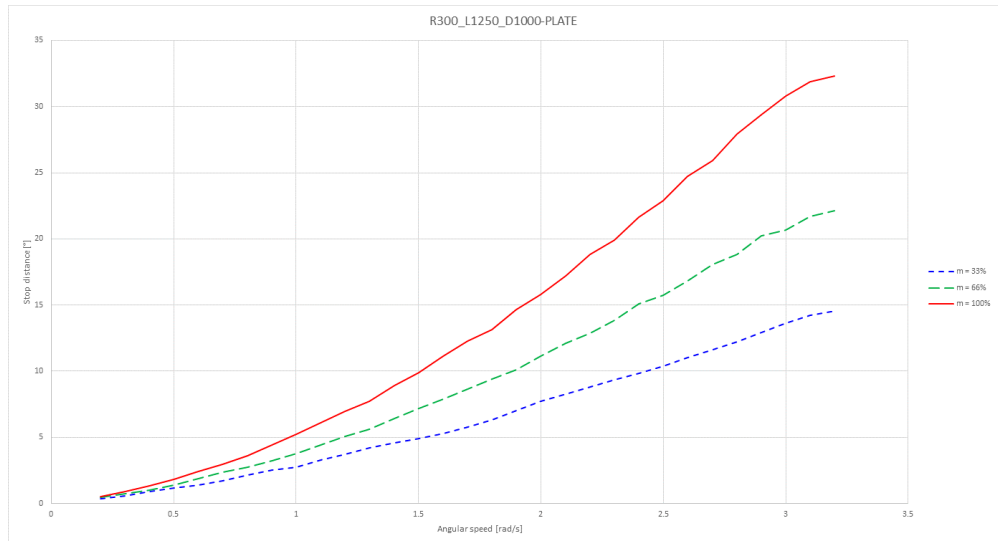
# 34 IRBP R

## 34.5 R300\_L1250\_D1000

Continued

### Category 0, PLATE

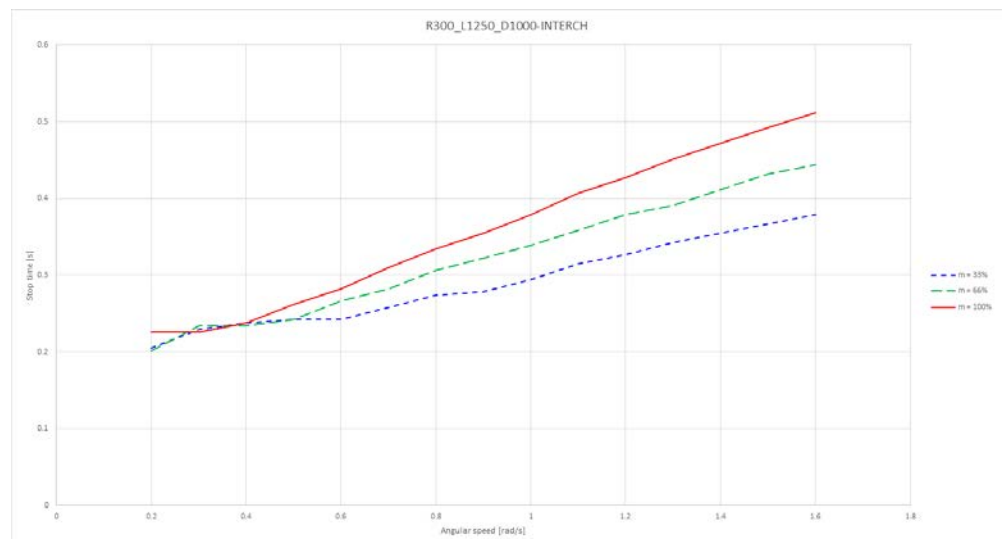
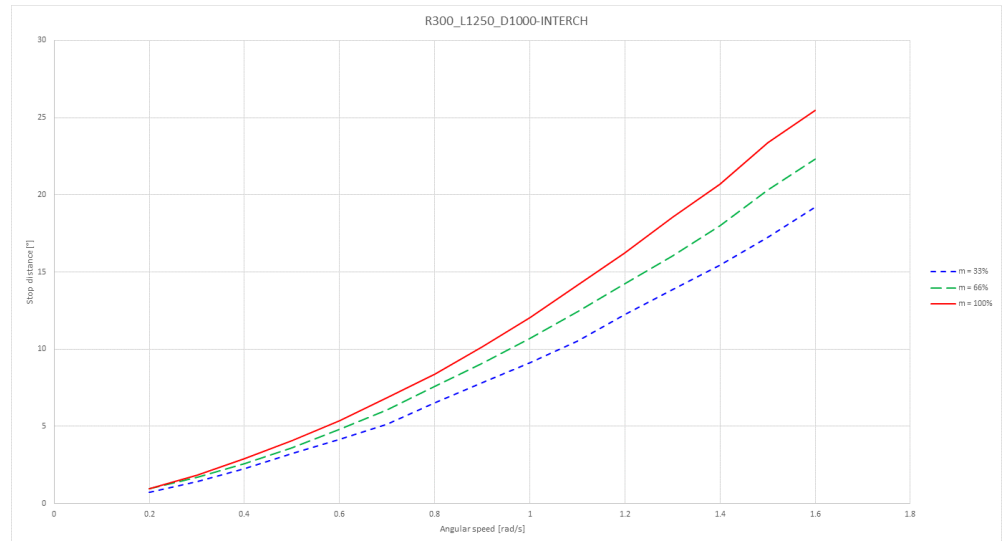
#### Stopping distance and stopping time



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Category 1, INTERCH

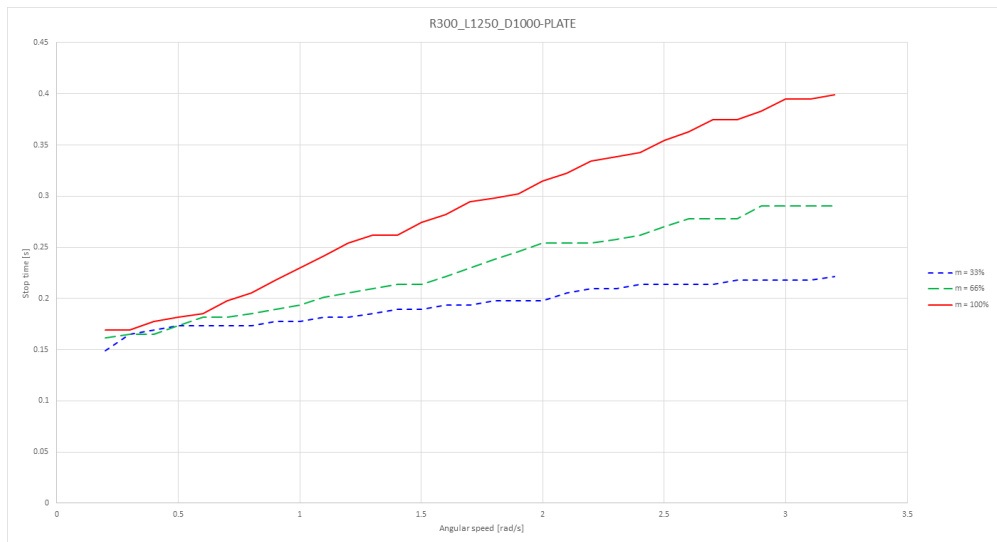
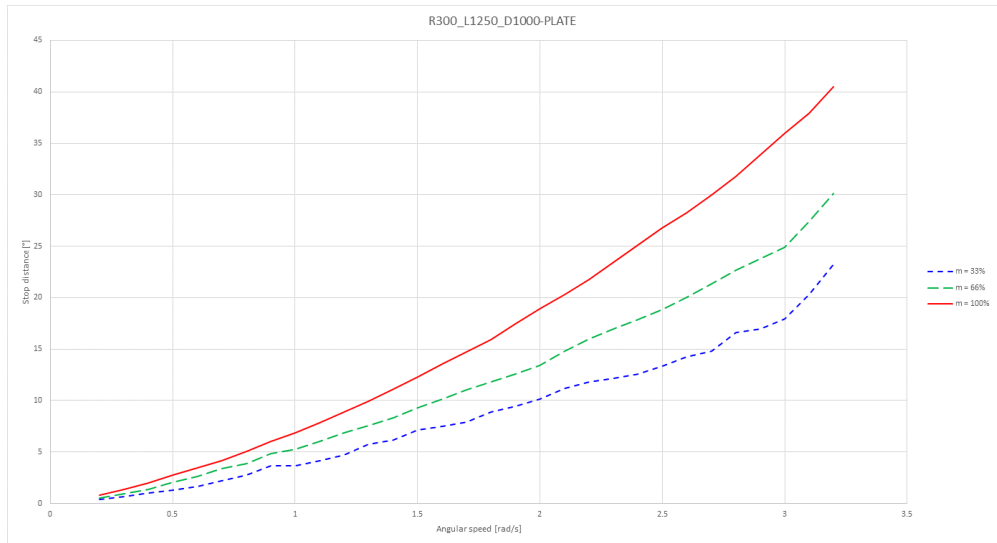
Stopping distance and stopping time



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Category 1, PLATE

Stopping distance and stopping time

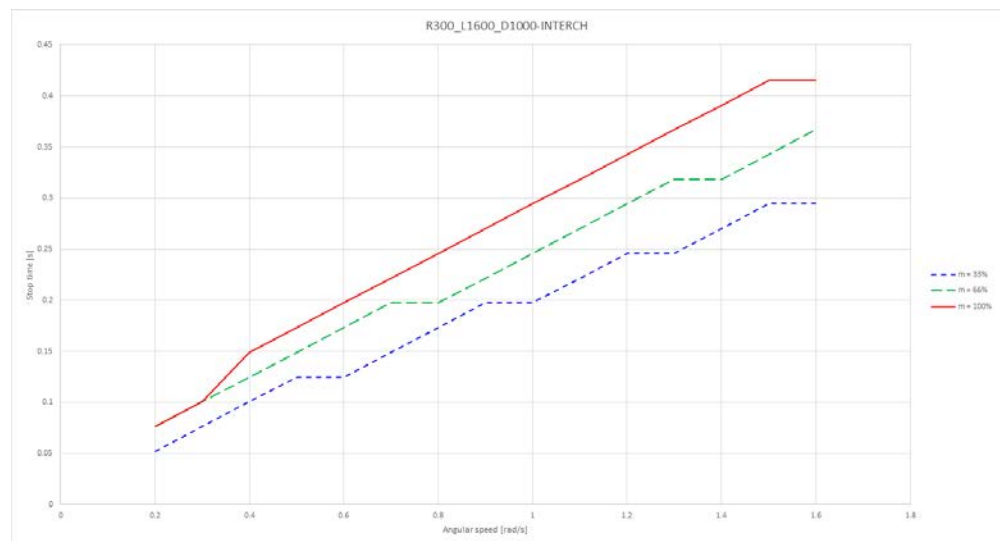
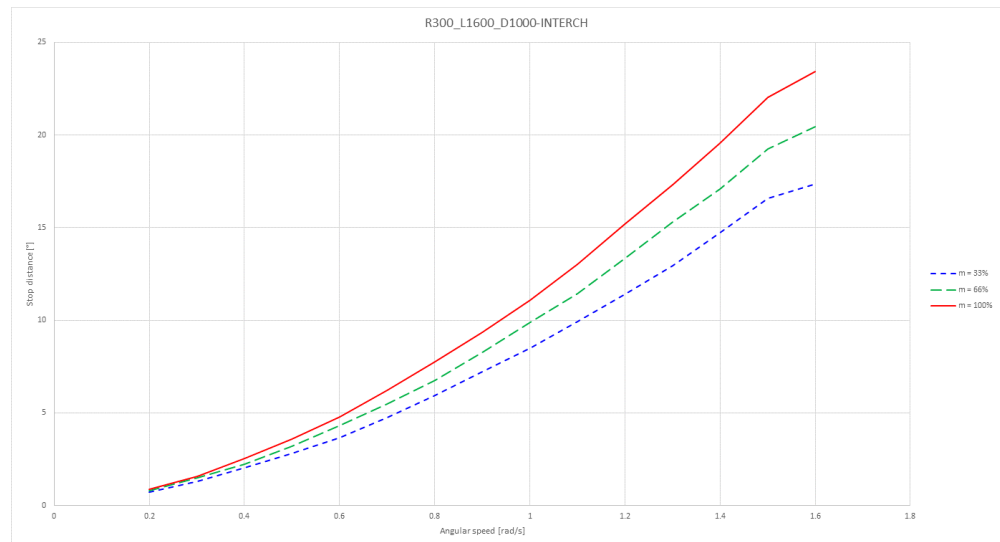




## 34.6 R300\_L1600\_D1000

## Category 0, INTERCH

## Stopping distance and stopping time

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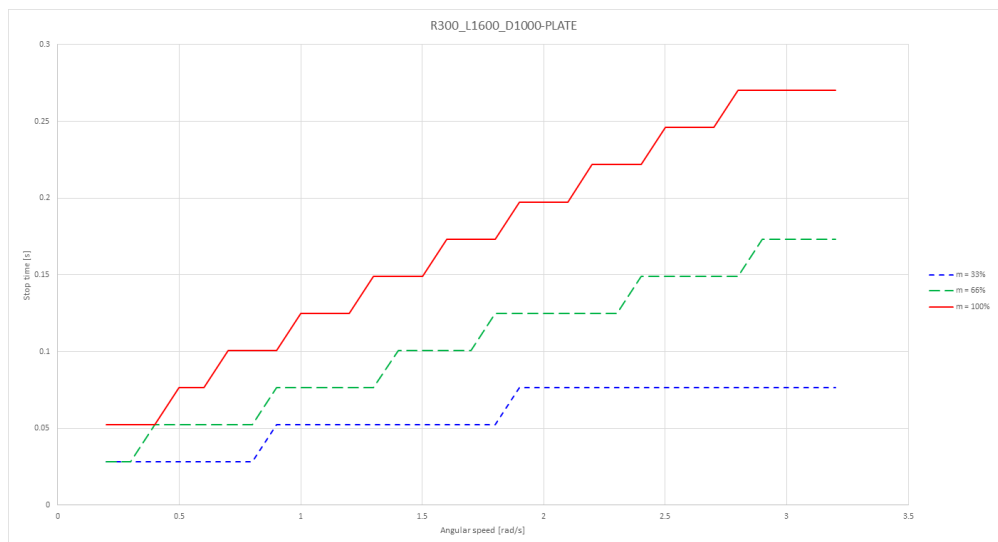
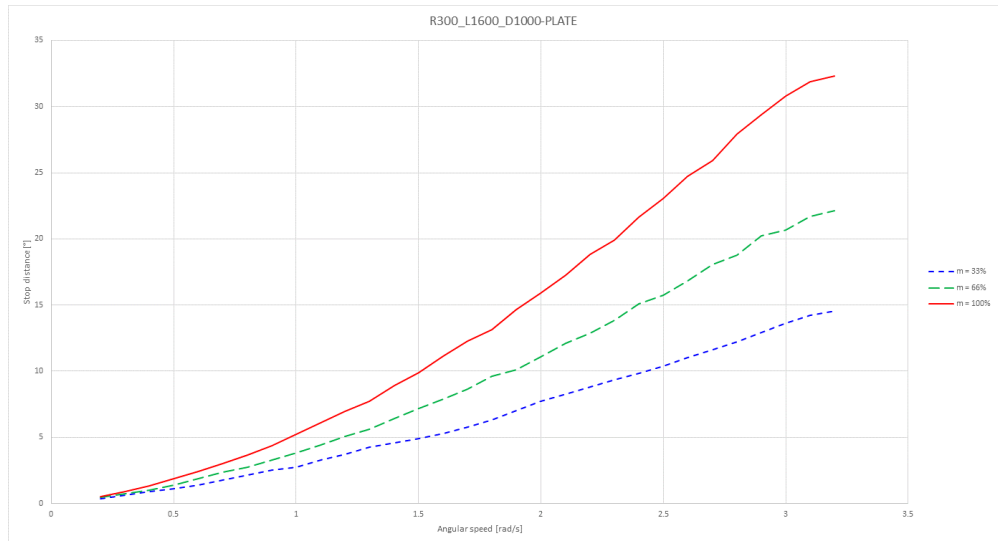
# 34 IRBP R

## 34.6 R300\_L1600\_D1000

Continued

### Category 0, PLATE

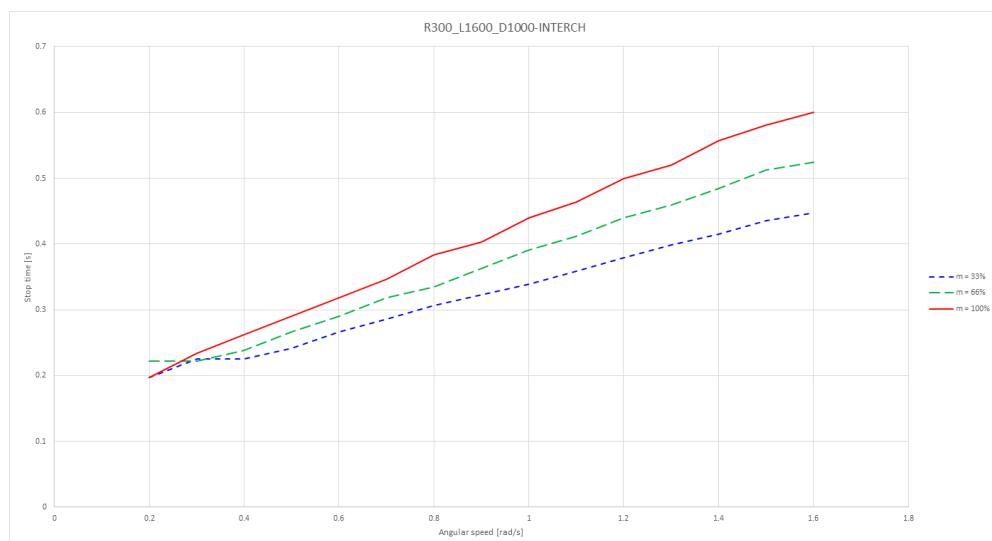
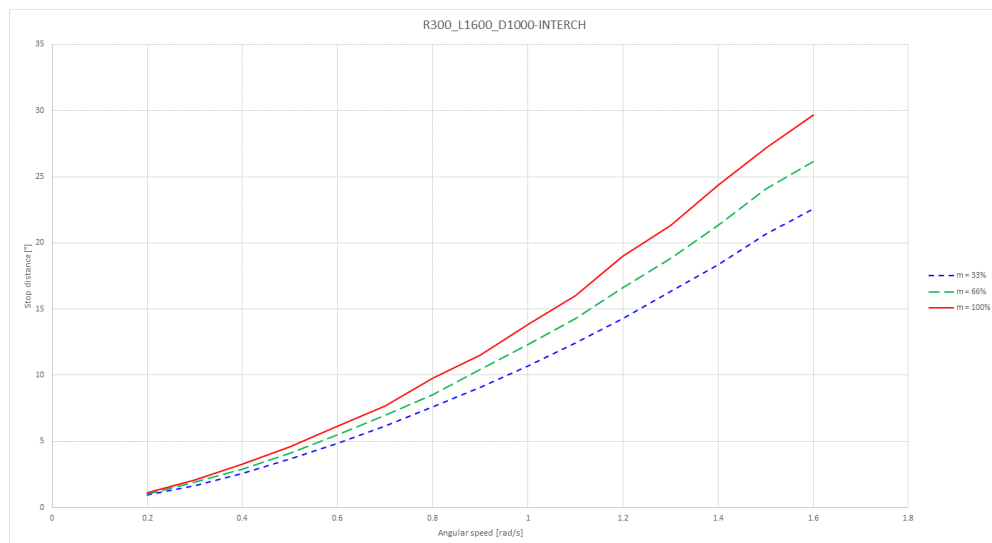
#### Stopping distance and stopping time



Continues on next page

Category 1, INTERCH

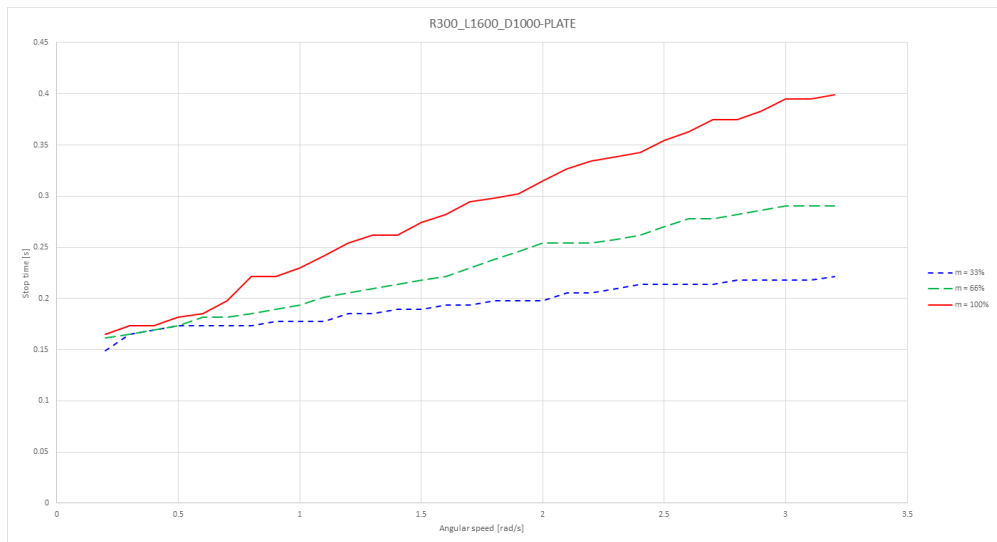
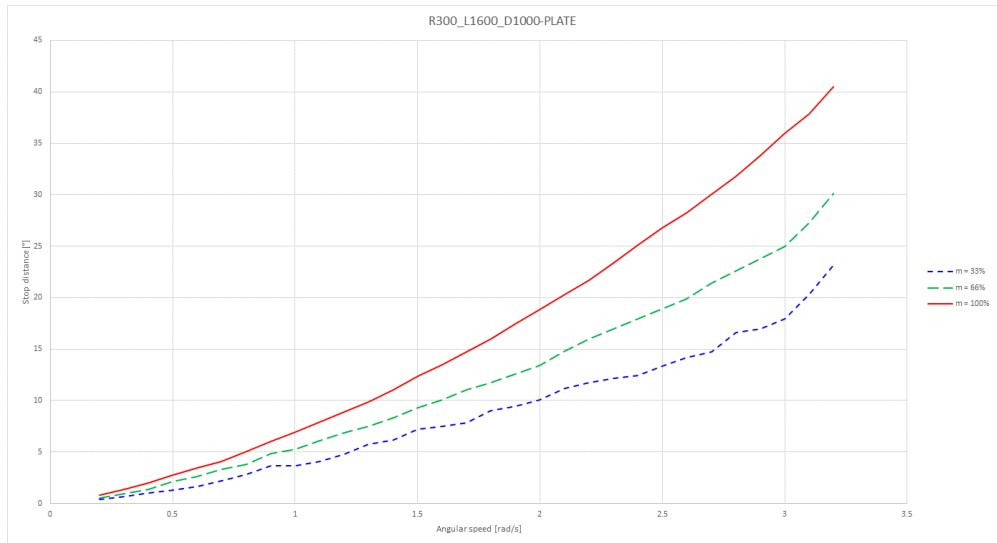
Stopping distance and stopping time



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Category 1, PLATE

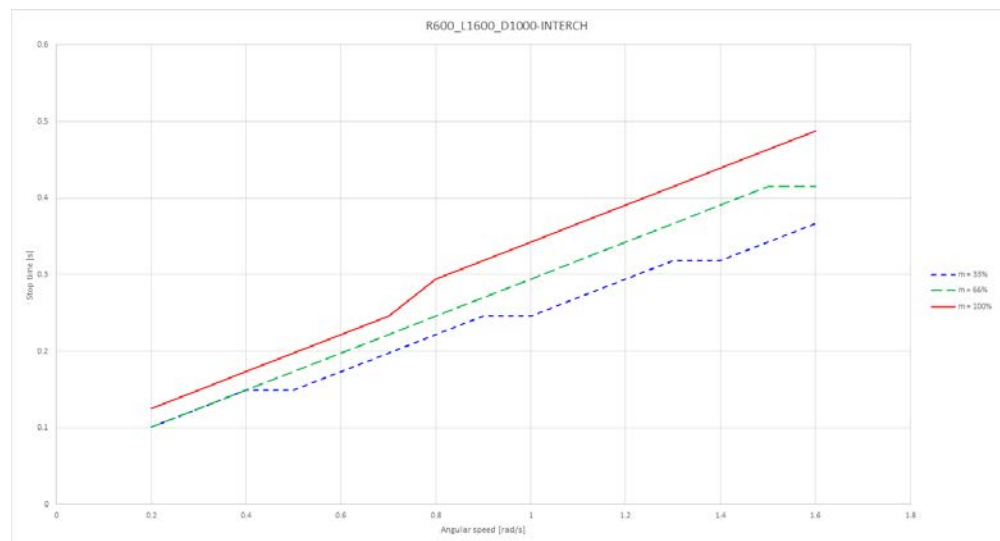
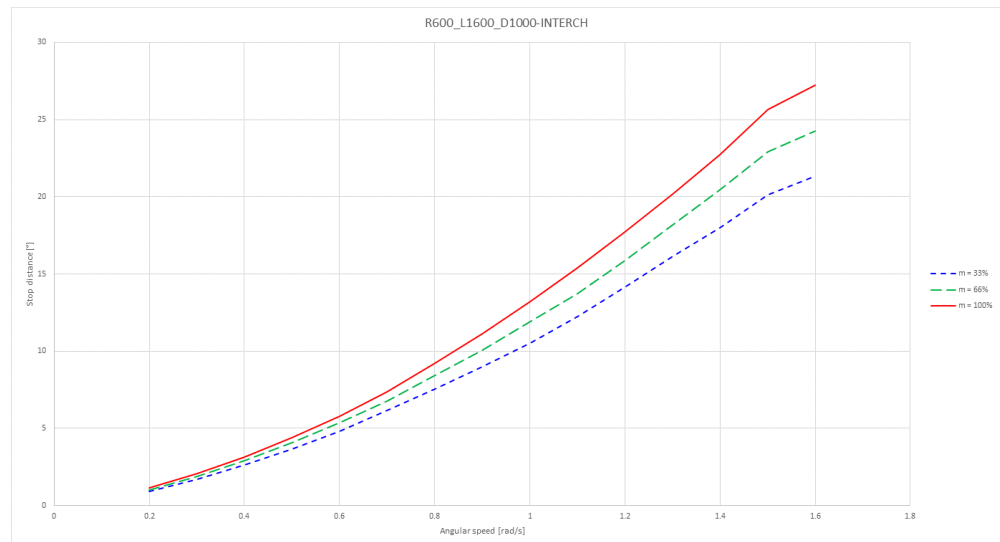
Stopping distance and stopping time



## 34.7 R600\_L1600\_D1000

## Category 0, INTERCH

## Stopping distance and stopping time

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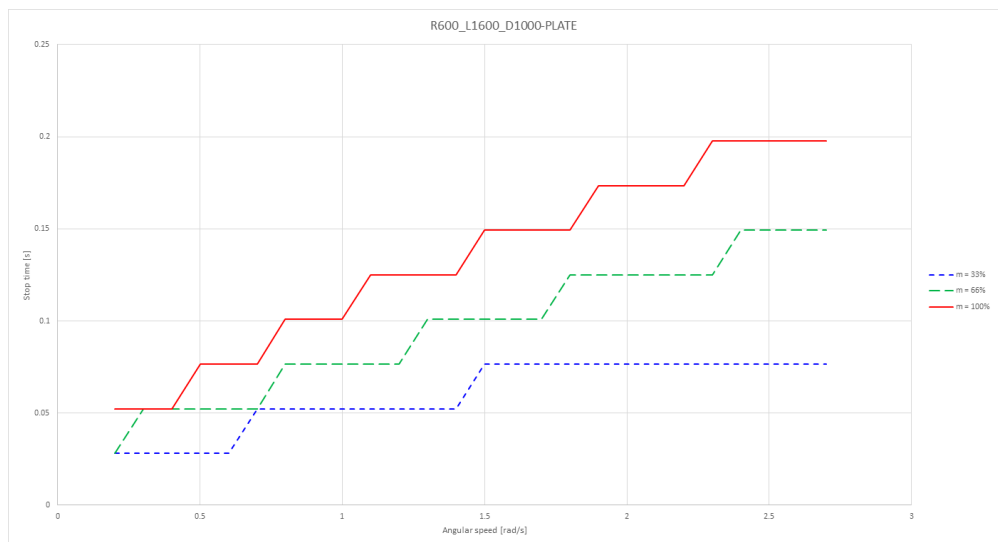
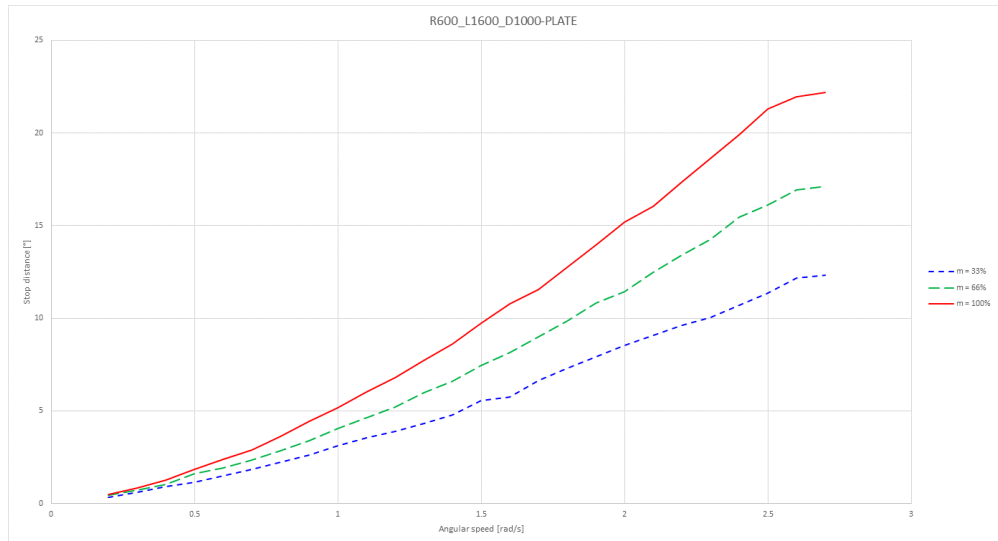
# 34 IRBP R

## 34.7 R600\_L1600\_D1000

Continued

### Category 0, PLATE

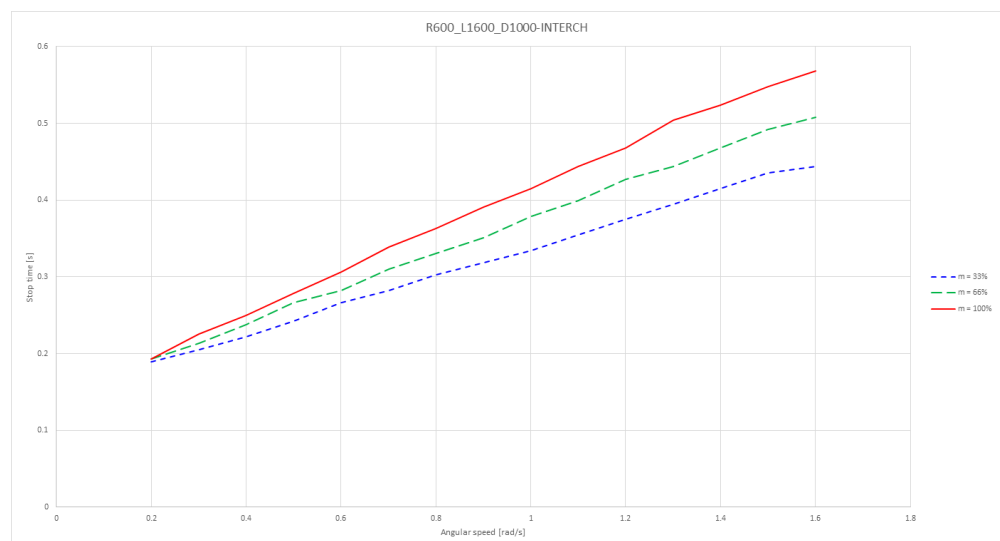
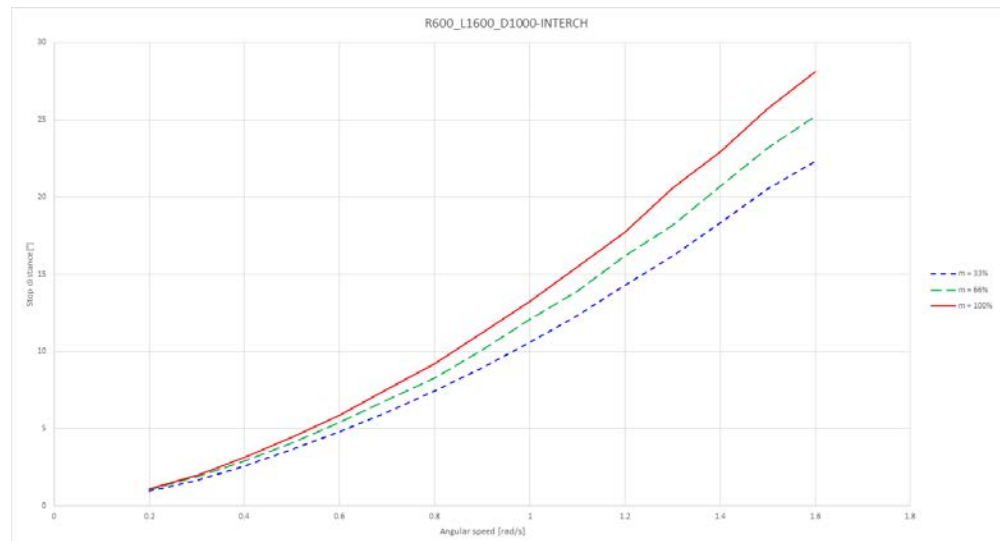
#### Stopping distance and stopping time



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## Category 1, INTERCH

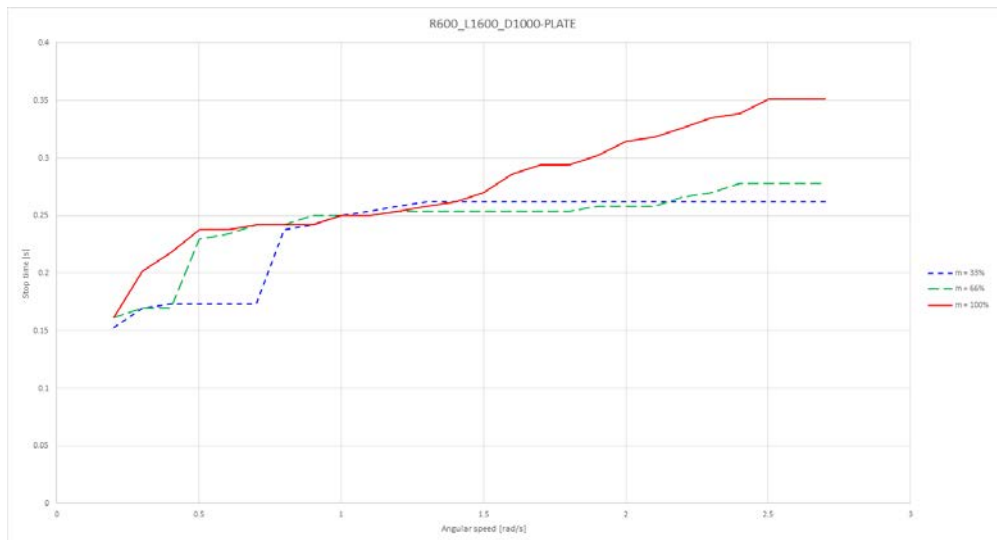
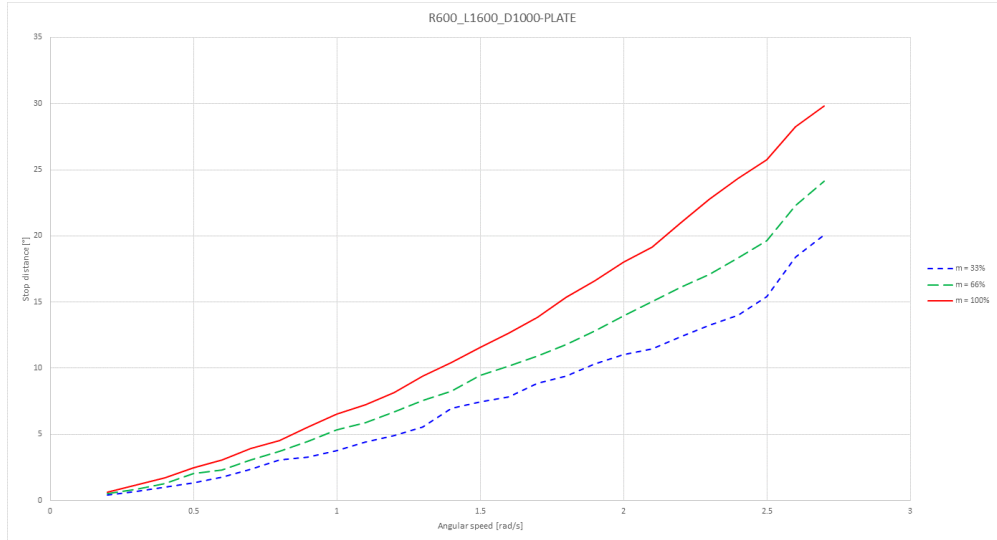
## Stopping distance and stopping time



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Category 1, PLATE

Stopping distance and stopping time

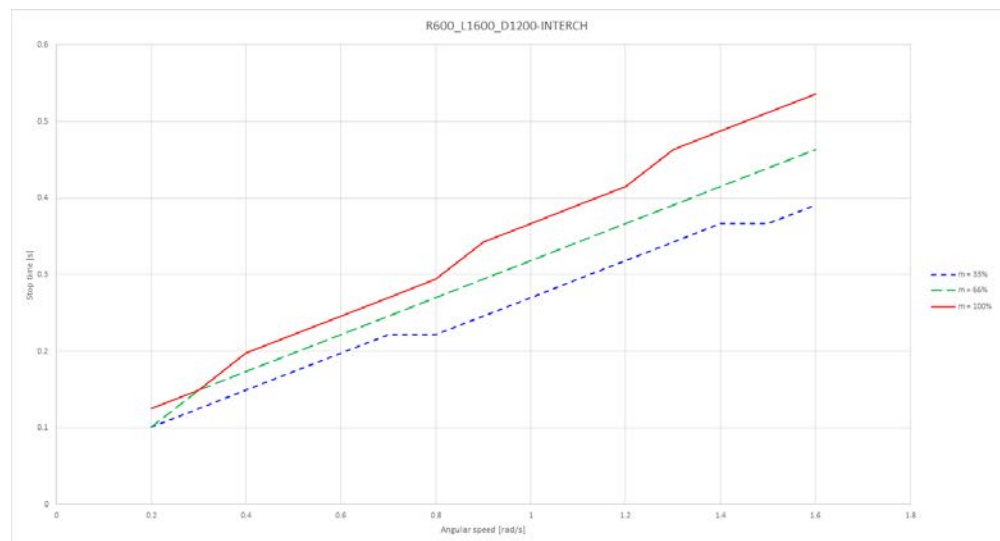
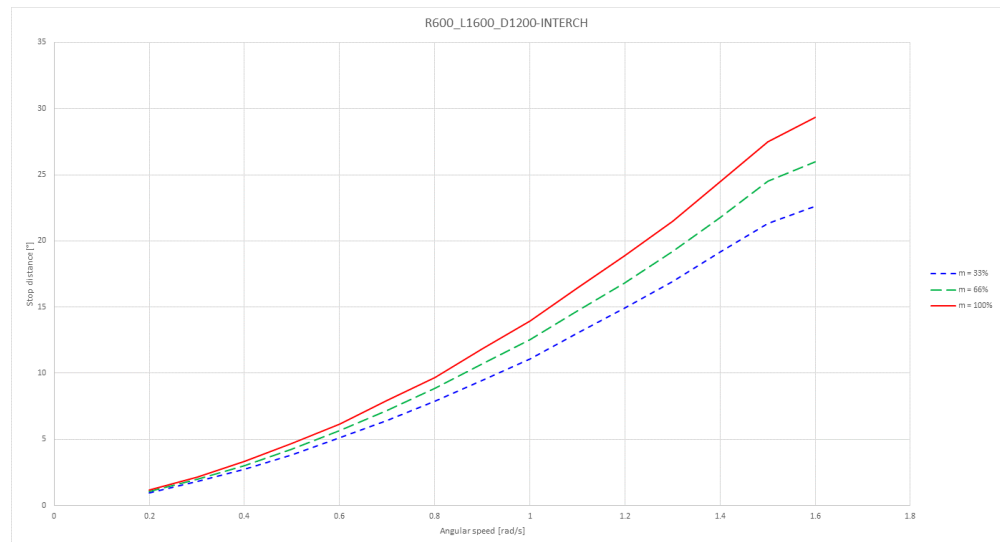




## 34.8 R600\_L1600\_D1200

## Category 0, INTERCH

## Stopping distance and stopping time

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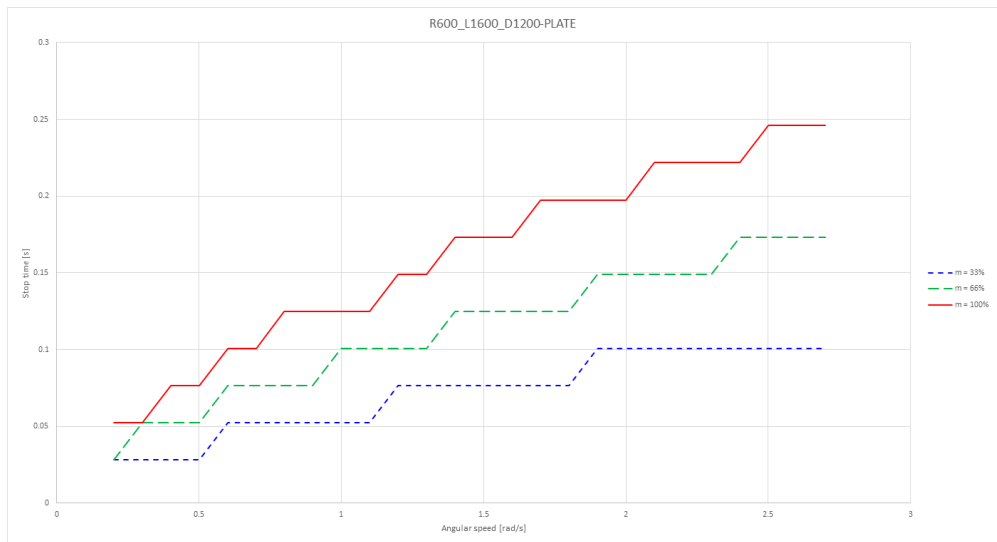
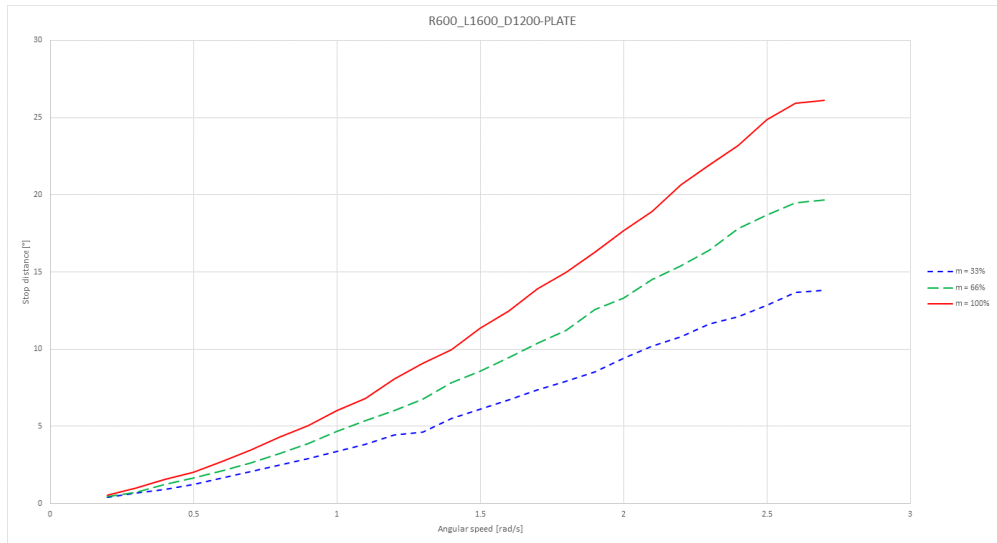
# 34 IRBP R

## 34.8 R600\_L1600\_D1200

Continued

### Category 0, PLATE

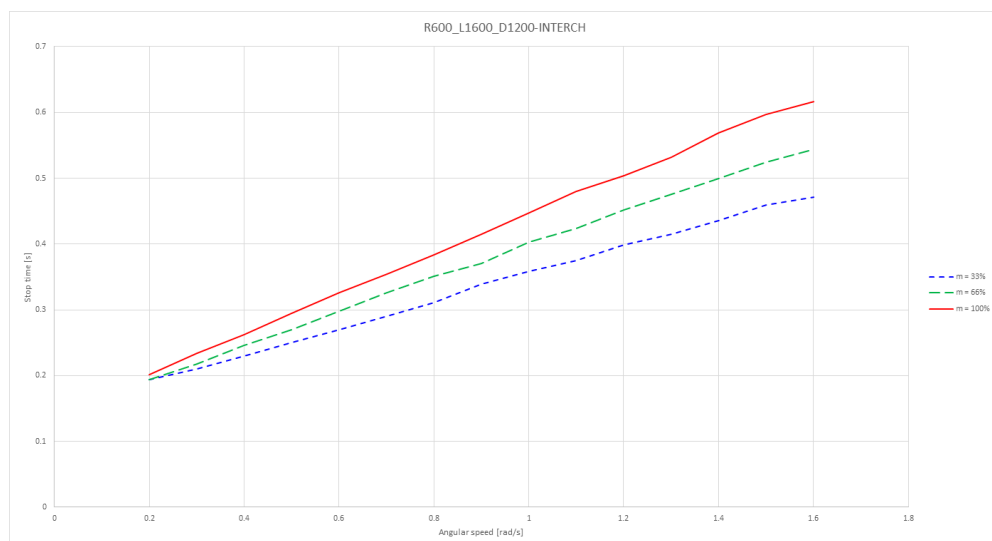
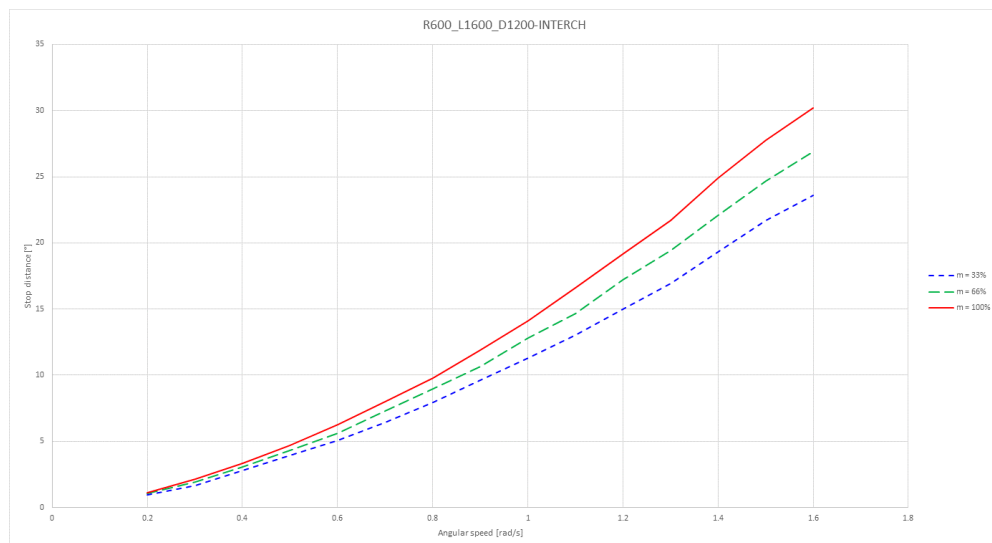
#### Stopping distance and stopping time



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Category 1, INTERCH

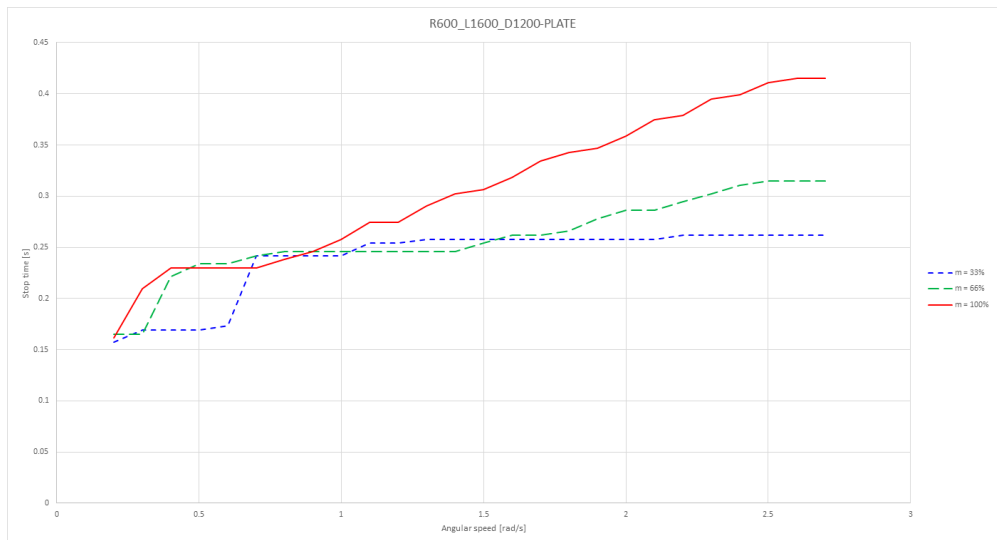
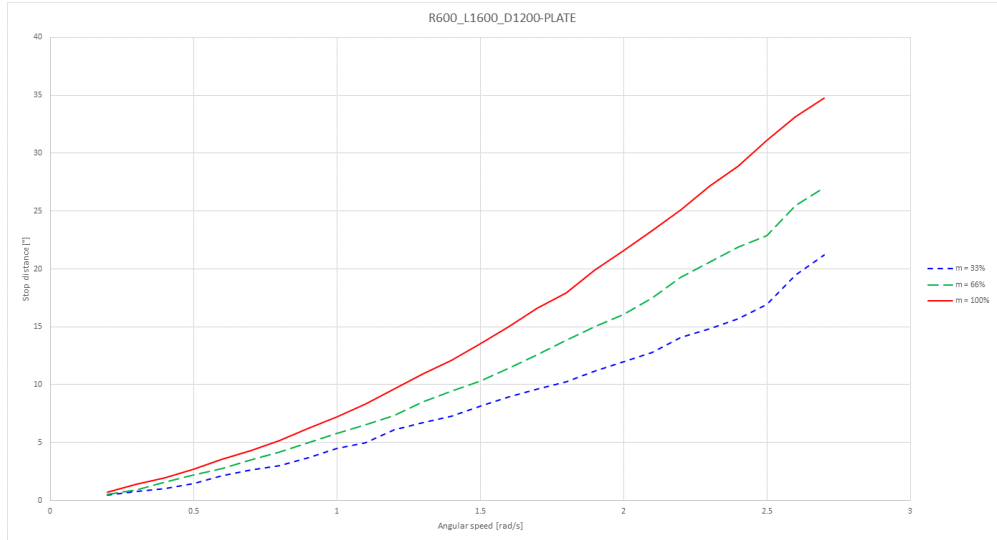
Stopping distance and stopping time



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Category 1, PLATE

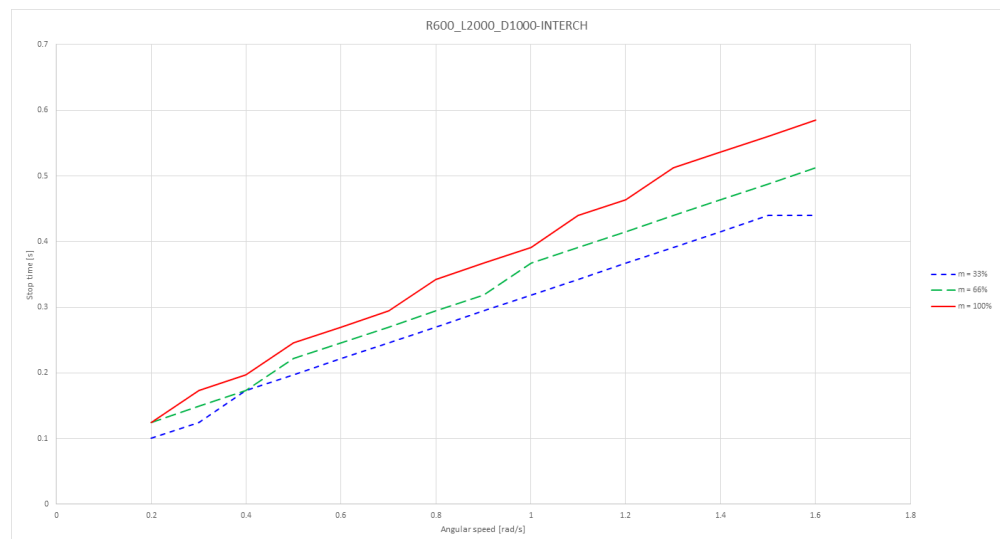
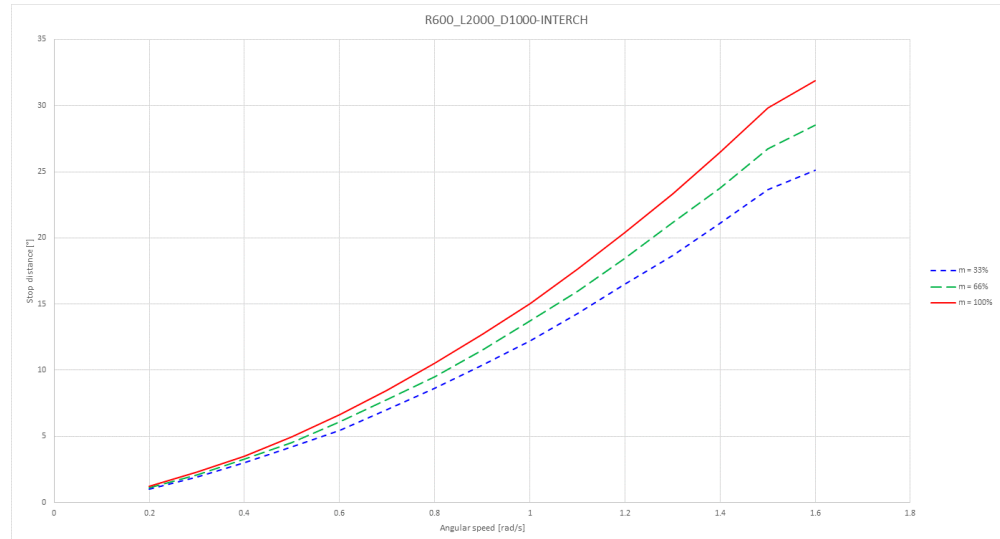
Stopping distance and stopping time



## 34.9 R600\_L2000\_D1000

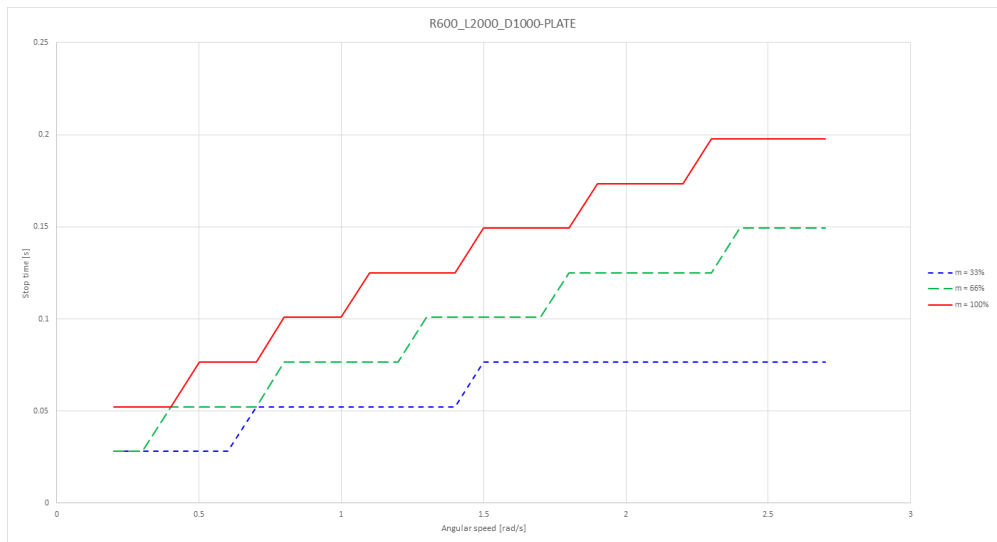
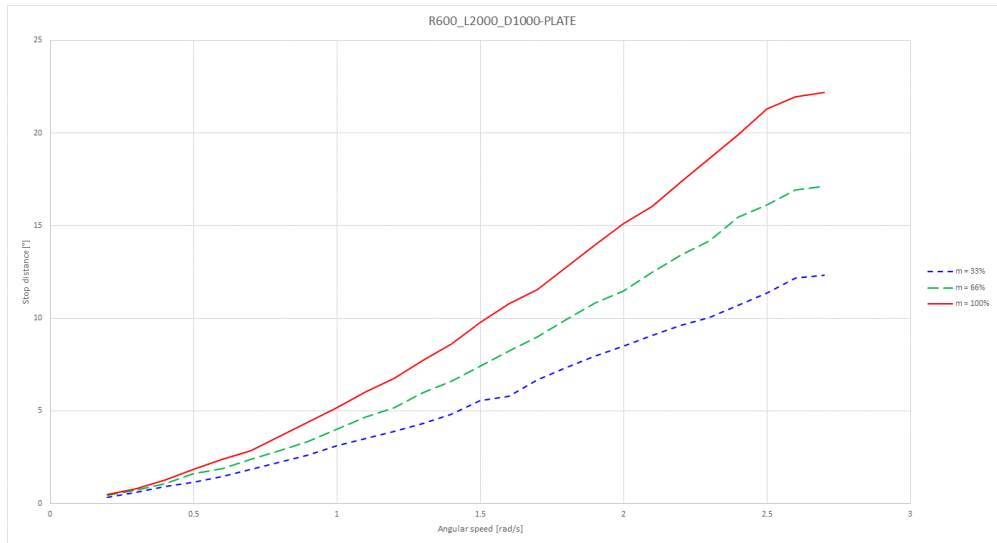
## Category 0, INTERCH

## Stopping distance and stopping time

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Category 0, PLATE

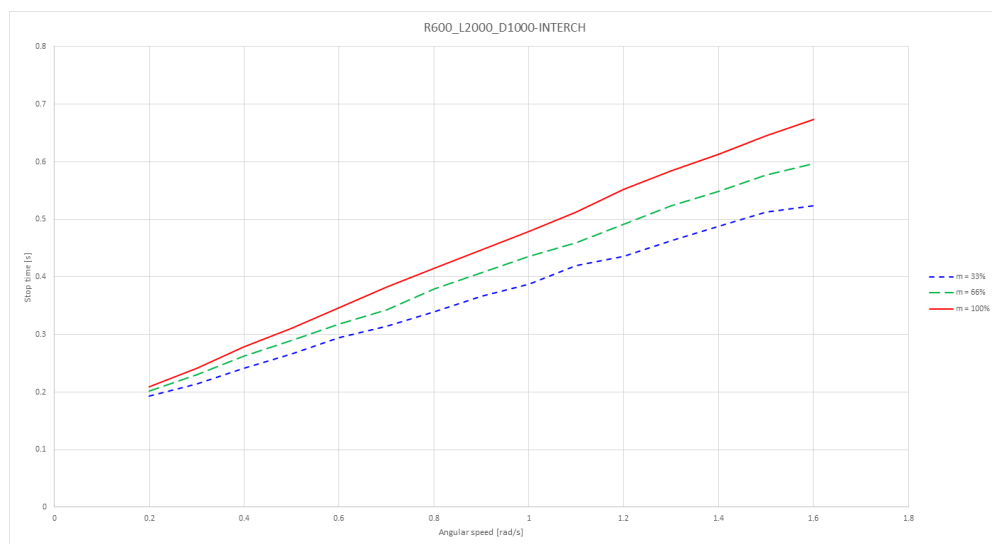
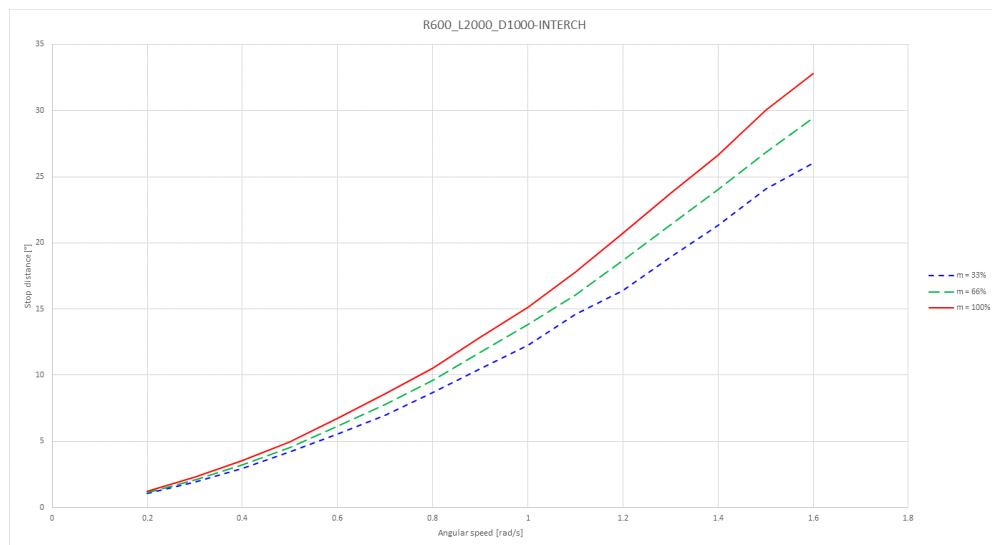
Stopping distance and stopping time



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Category 1, INTERCH

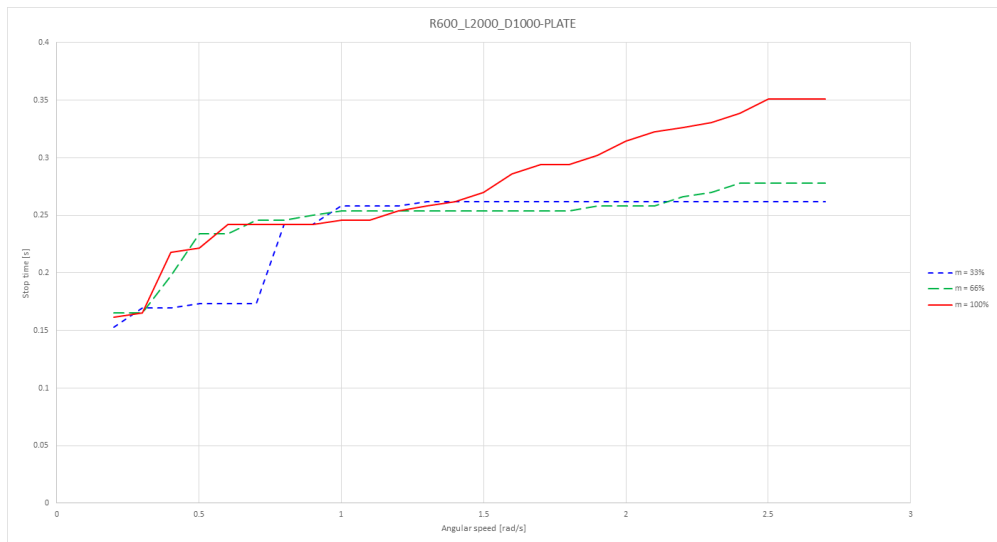
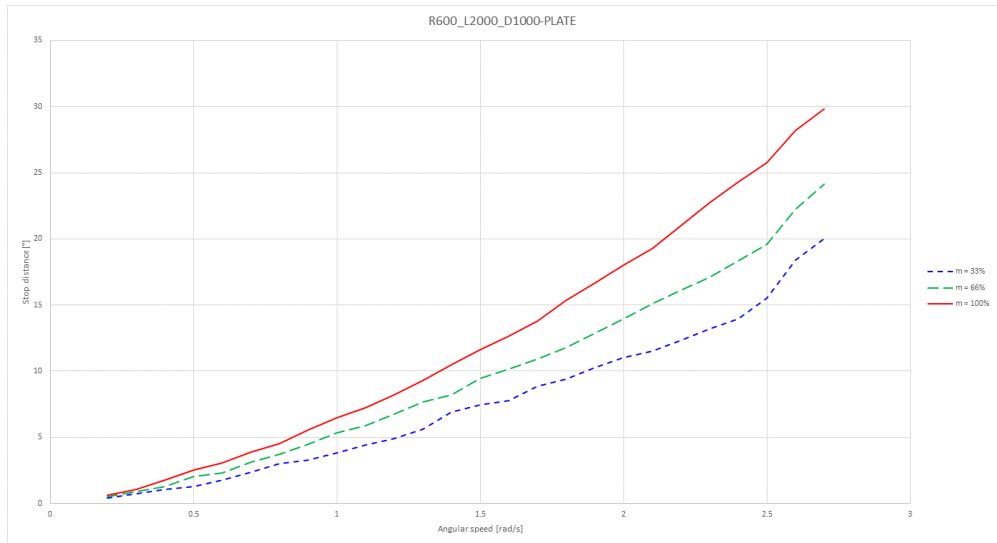
Stopping distance and stopping time



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Category 1, PLATE

Stopping distance and stopping time

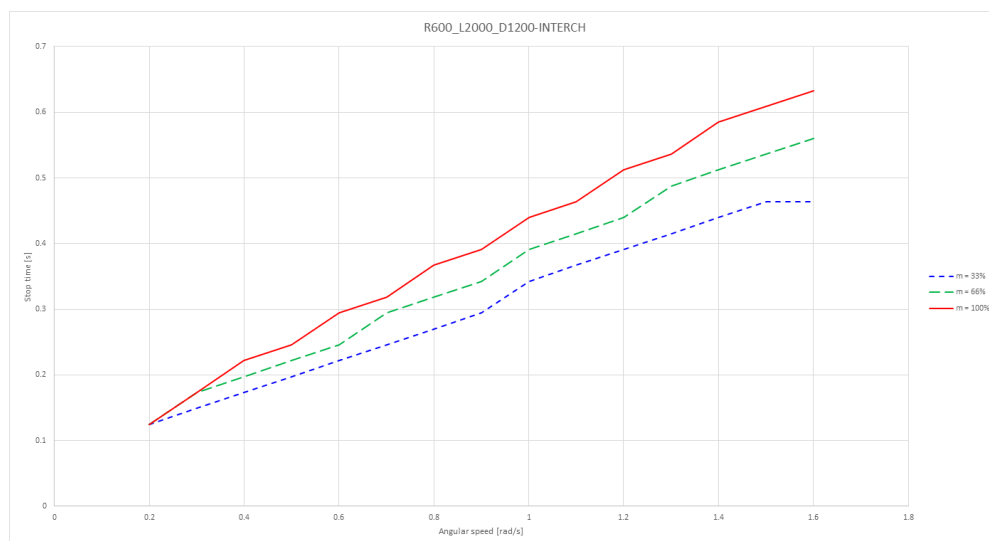
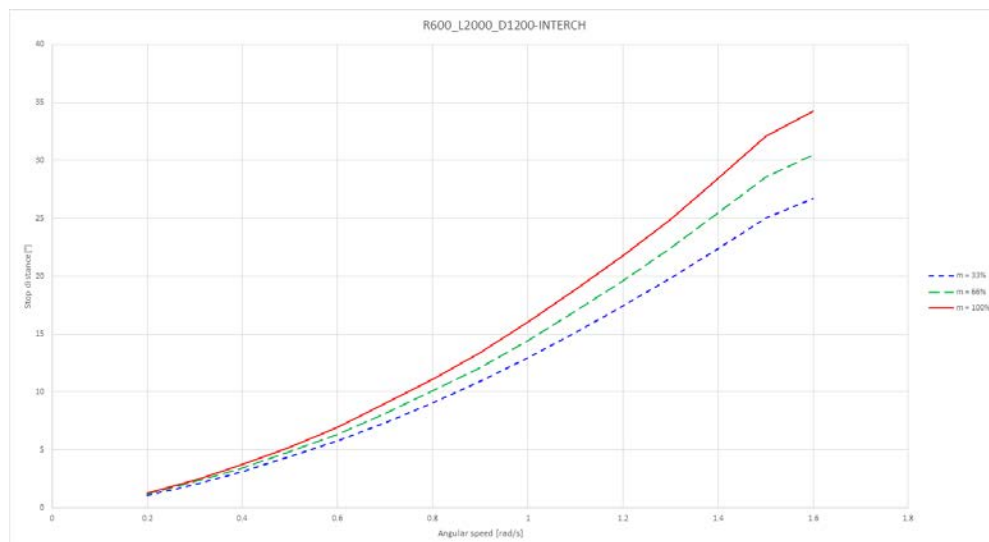




## 34.10 R600\_L2000\_D1200

## Category 0, INTERCH

## Stopping distance and stopping time

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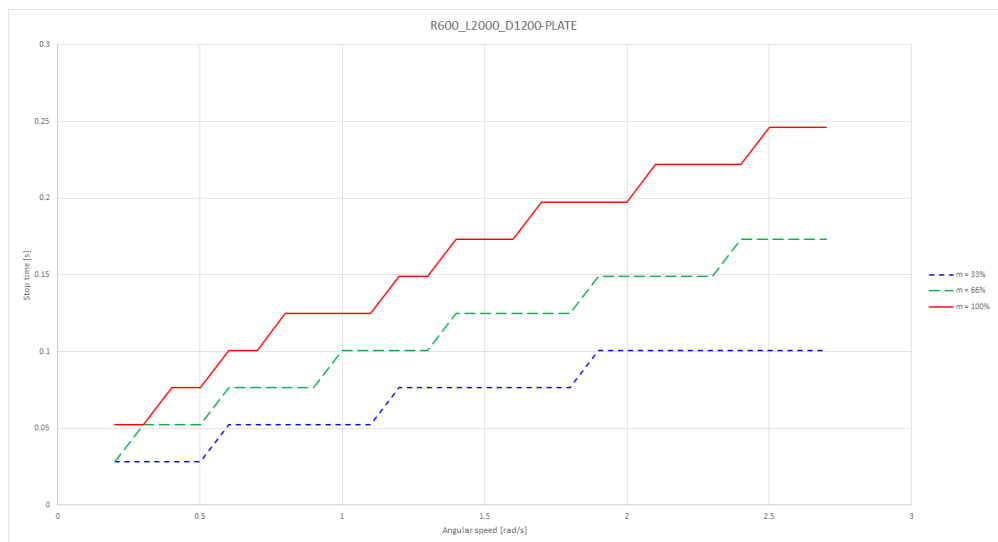
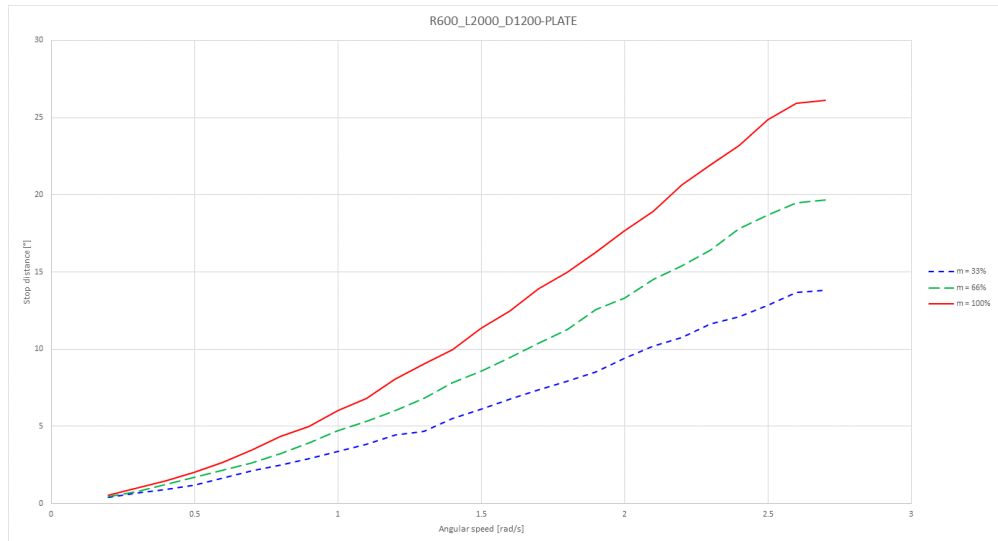
# 34 IRBP R

## 34.10 R600\_L2000\_D1200

Continued

### Category 0, PLATE

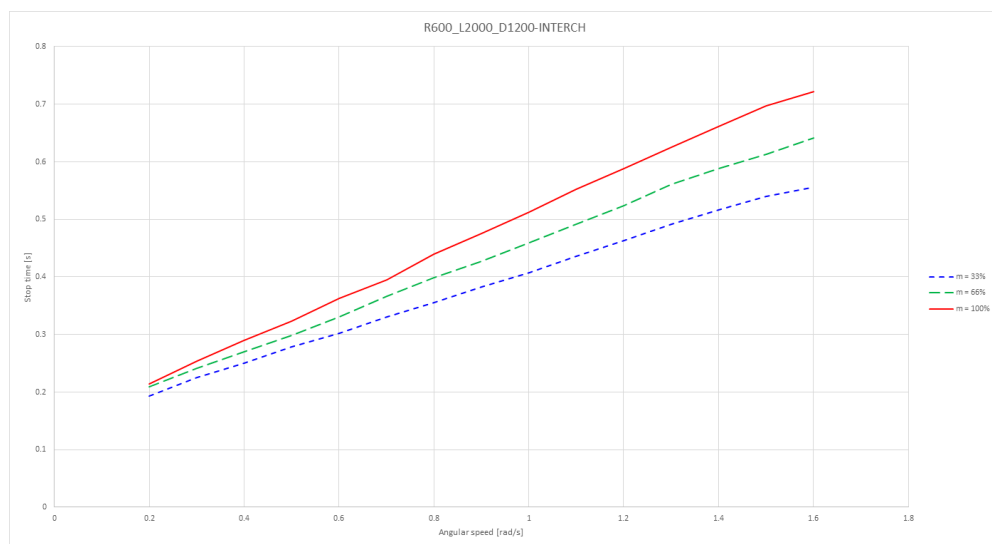
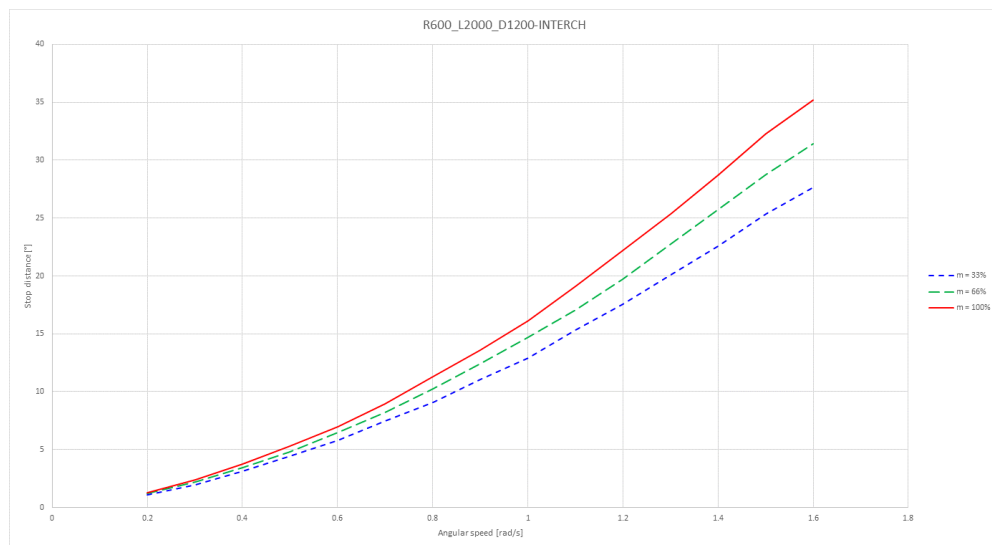
#### Stopping distance and stopping time



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Category 1, INTERCH

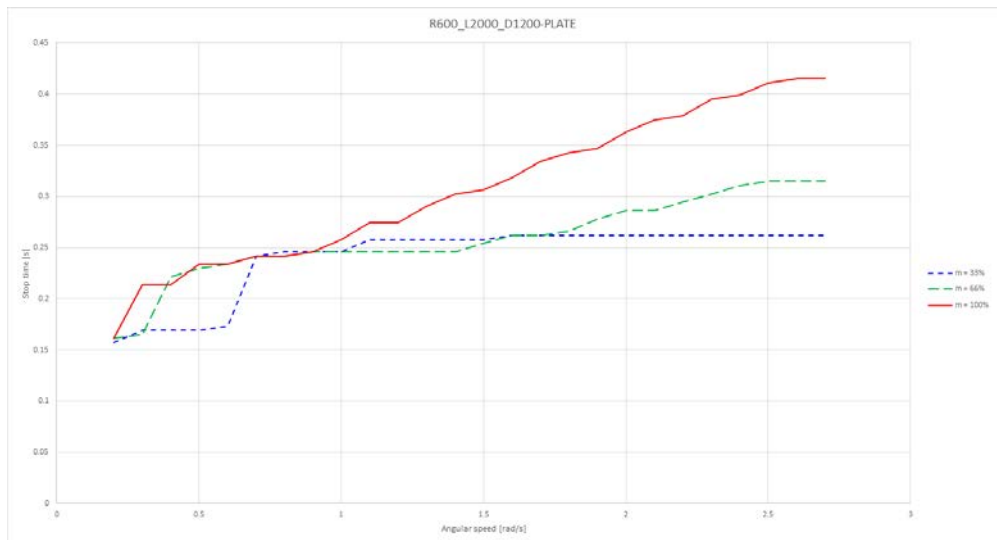
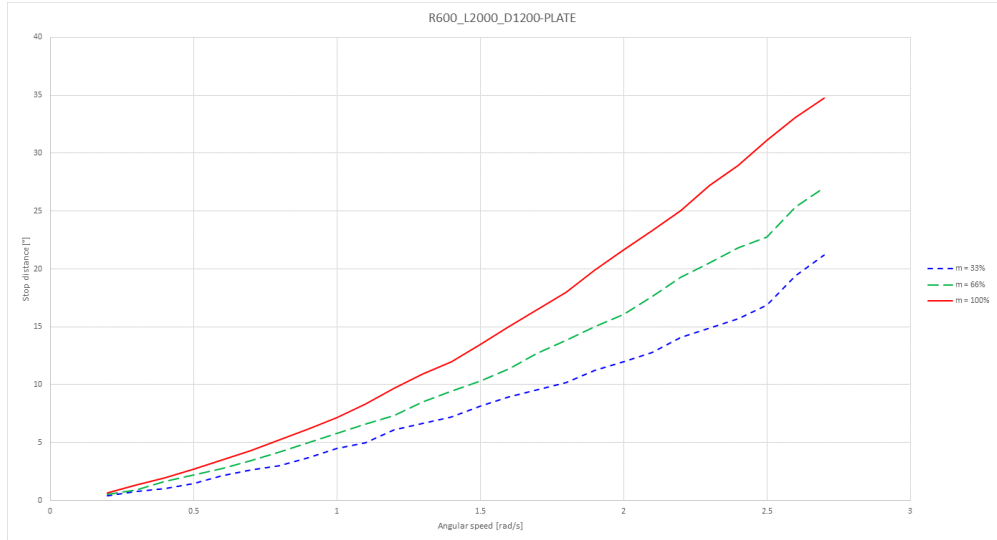
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