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# Testing Laboratory 測試實驗室

YOKE INDUSTRIAL CORP.

#10-1, 3rd Road, Taichung Industrial Park, Taichung 407, Taiwan, R.O.C

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Testing Laboratory  
3630

## TEST REPORT

**Test Report Number:** S22070403  
**Product Model:** N-9420-11  
**Batch No:** ---  
**Test Standard:** ANSI/ASSP Z359.14-2021  
**Date of receipt:** 2022/07/04  
**Type:** Class 1  
**Date(s) of Testing:** 2022/07/04 – 2022/07/08  
**Date of report:** 2022/07/08  
**Customer details:** Yoke Industrial Corp., Ltd.

<u>Tests completed</u>	<u>ANSI/ASSP Z359.14-2021 Clause</u>	<u>Pass/Fail</u>
Corrosion Protection	3.1.5	PASS
Static strength	3.2	PASS
Dynamic performance (ambient)	3.3.1	PASS
Dynamic performance (hot)	3.3.1 & 4.3.1.7	PASS
Dynamic performance (cold)	3.3.1 & 4.3.1.8	PASS
Dynamic performance (wet)	3.3.1 & 4.3.1.9	PASS
Energy Capacity	3.4	PASS
Retraction Tension	3.5	PASS

**Following the test standard to make the judgment.**

**Compliance Statement: Based on actual testing standard, measurement uncertainty is not considered.**

**Please see attached test data for details.**

**If there are any questions regarding this report please contact us.**

Reviewed by

*Yu Chun-Hsien*

Team Leader

\*\*\* Yoke laboratory is ISO/IEC 17025: 2017 accredited. Certificate is granted by Taiwan Accreditation Foundation (TAF) \*\*\*

Conditions of Issue:

The observations and test results in this report are relevant only to the sample tested.

Only the Client is authorized to permit copying or distribution of this report and then only in its entirety.

**TEST DATA SHEETS**

Test Report Number:	S22070403
Product Model:	N-9420-11
Client:	Yoke Industrial Corp., Ltd.

CLAUSE/TEST	REQUIREMENT	RESULT/COMMENT	PASS / FAIL																								
3.1.5 Corrosion Protection	Protection, at a minimum, shall allow the device to operate as intended and show no signs of corrosion which, left unchecked, could result in a corrosion related failure of the device after being salt spray tested for 96 hours. following the salt spray test the device shall pay out the line, retract and lock.	<p>Corrosion test in accordance with ASTM B 117 96 hours Neutral Salt Spray.</p> <p>Temperature: 35 °C                      Fall out rate: 1.35 ml/hr                      pH of test solution: 7.0                      Specific gravity of test solution: 1.030</p> <p>Retraction tension following corrosion test</p> <p align="center">Sample 1.</p> <table border="1"> <thead> <tr> <th>Length of line</th> <th>Force (N)</th> </tr> </thead> <tbody> <tr> <td>305mm</td> <td>8.2</td> </tr> <tr> <td>50%</td> <td>13.8</td> </tr> <tr> <td>100%</td> <td>22.9</td> </tr> </tbody> </table> <p align="center">Sample 2.</p> <table border="1"> <thead> <tr> <th>Length of line</th> <th>Force (N)</th> </tr> </thead> <tbody> <tr> <td>305mm</td> <td>7.9</td> </tr> <tr> <td>50%</td> <td>13.3</td> </tr> <tr> <td>100%</td> <td>19.6</td> </tr> </tbody> </table> <p align="center">Sample 3.</p> <table border="1"> <thead> <tr> <th>Length of line</th> <th>Force (N)</th> </tr> </thead> <tbody> <tr> <td>305mm</td> <td>8.1</td> </tr> <tr> <td>50%</td> <td>14.2</td> </tr> <tr> <td>100%</td> <td>21.5</td> </tr> </tbody> </table> <p>Compliance Statement: Based on actual testing standard, measurement uncertainty is not considered.</p>	Length of line	Force (N)	305mm	8.2	50%	13.8	100%	22.9	Length of line	Force (N)	305mm	7.9	50%	13.3	100%	19.6	Length of line	Force (N)	305mm	8.1	50%	14.2	100%	21.5	PASS
Length of line	Force (N)																										
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**TEST DATA SHEETS**

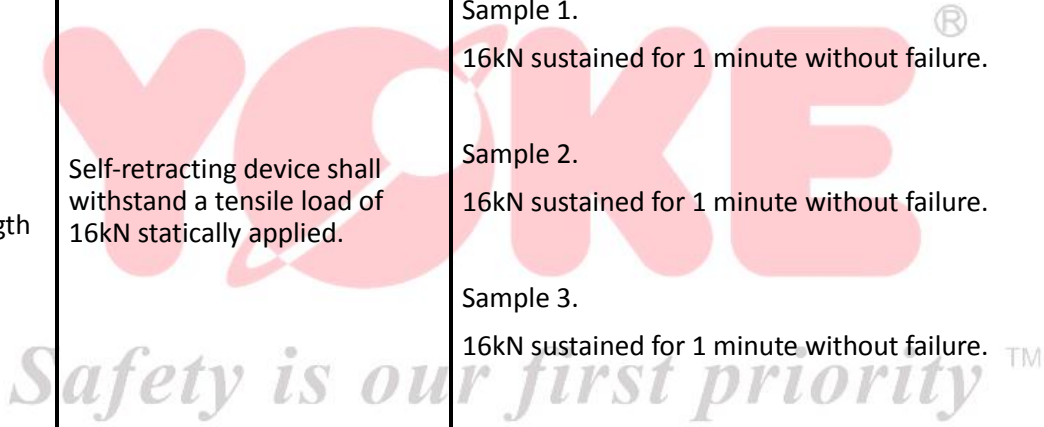
Test Report Number:	S22070403
Product Model:	N-9420-11
Client:	Yoke Industrial Corp., Ltd.

CLAUSE/TEST	REQUIREMENT	RESULT/COMMENT	PASS / FAIL								
3.5 Retraction Tension	<p>Retraction tension of the self-retracting device line, shall not be less than 5.55N or more than 111.1N at any point in the range of motion provided by the line constituent.</p> <p>Class 2 devices shall retract without stopping when tested in a horizontal orientation.</p> <p>For SRL's and SRL-R's, no more than 610mm of the line constituent may remain extended when the device is fully retracted.</p> <p>Class 2 devices no more than 1,219mm of the line constituent may remain extended when the device is fully retracted.</p>	Sample1.	PASS								
		<table border="1"> <thead> <tr> <th>Length of line</th> <th>Force (N)</th> </tr> </thead> <tbody> <tr> <td>305mm</td> <td>9.0</td> </tr> <tr> <td>50%</td> <td>15.1</td> </tr> <tr> <td>100%</td> <td>23.0</td> </tr> </tbody> </table>		Length of line	Force (N)	305mm	9.0	50%	15.1	100%	23.0
		Length of line		Force (N)							
		305mm		9.0							
		50%		15.1							
		100%		23.0							
		Sample2.									
		<table border="1"> <thead> <tr> <th>Length of line</th> <th>Force (N)</th> </tr> </thead> <tbody> <tr> <td>305mm</td> <td>8.9</td> </tr> <tr> <td>50%</td> <td>15.5</td> </tr> <tr> <td>100%</td> <td>20.6</td> </tr> </tbody> </table>		Length of line	Force (N)	305mm	8.9	50%	15.5	100%	20.6
		Length of line		Force (N)							
		305mm		8.9							
50%	15.5										
100%	20.6										
Sample3.											
<table border="1"> <thead> <tr> <th>Length of line</th> <th>Force (N)</th> </tr> </thead> <tbody> <tr> <td>305mm</td> <td>9.3</td> </tr> <tr> <td>50%</td> <td>17.3</td> </tr> <tr> <td>100%</td> <td>25.4</td> </tr> </tbody> </table>	Length of line	Force (N)	305mm	9.3	50%	17.3	100%	25.4			
Length of line	Force (N)										
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CLAUSE/TEST	REQUIREMENT	RESULT/COMMENT	PASS / FAIL
3.2 Static Strength	Self-retracting device shall withstand a tensile load of 16kN statically applied.	<p>Sample 1. 16kN sustained for 1 minute without failure.</p> <p>Sample 2. 16kN sustained for 1 minute without failure.</p> <p>Sample 3. 16kN sustained for 1 minute without failure.</p>	PASS



**TEST DATA SHEETS**

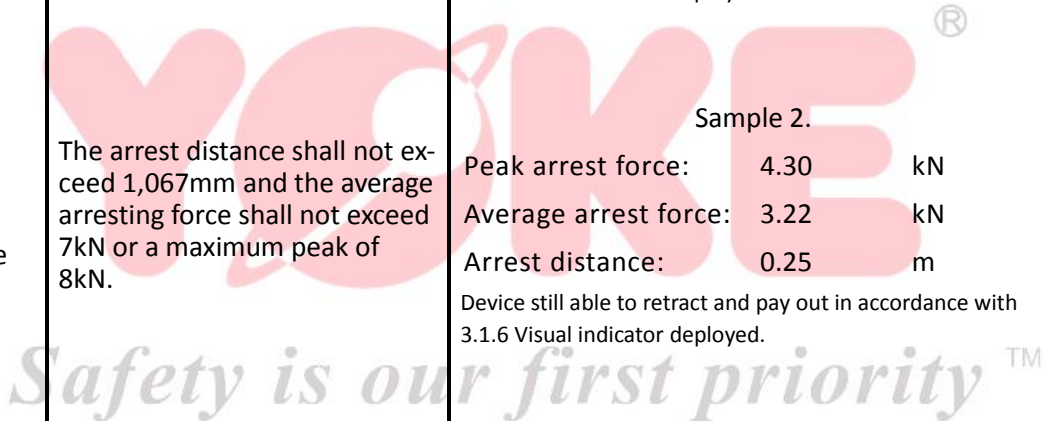
Test Report Number:	S22070403
Product Model:	N-9420-11
Client:	Yoke Industrial Corp., Ltd.

CLAUSE/TEST	REQUIREMENT	RESULT/COMMENT	PASS / FAIL
3.3.1 Dynamic Performance	The arrest distance shall not exceed 1,067mm and the average arresting force shall not exceed 6kN or a maximum peak of 8kN.	<p align="center">Sample 1.</p> <p>Peak arrest force: 4.44 kN                      Average arrest force: 3.27 kN                      Arrest distance: 0.20 m</p> <p>Device still able to retract and pay out in accordance with 3.1.6 Visual indicator deployed</p> <p align="center">Sample 2. <sup>®</sup></p> <p>Peak arrest force: 4.58 kN                      Average arrest force: 3.29 kN                      Arrest distance: 0.31 m</p> <p>Device still able to retract and pay out in accordance with 3.1.6 Visual indicator deployed</p> <p align="center">Sample 3. <sup>™</sup></p> <p>Peak arrest force: 4.40 kN                      Average arrest force: 3.18 kN                      Arrest distance: 0.27 m</p> <p>Device still able to retract and pay out in accordance with 3.1.6 Visual indicator deployed</p> <p>Compliance Statement: Based on actual testing standard, measurement uncertainty is not considered.</p>	PASS

**TEST DATA SHEETS**

Test Report Number:	S22070403
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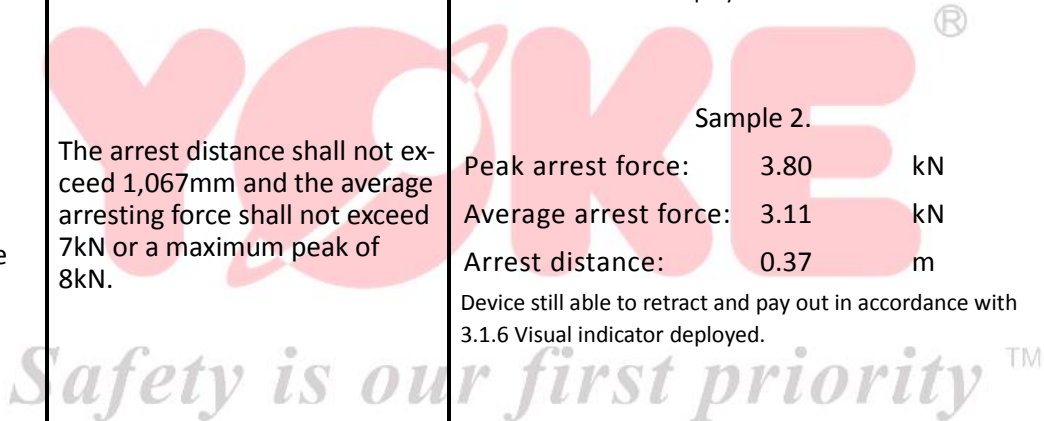
CLAUSE/TEST	REQUIREMENT	RESULT/COMMENT	PASS / FAIL
3.3.1 Dynamic Performance	The arrest distance shall not exceed 1,067mm and the average arresting force shall not exceed 7kN or a maximum peak of 8kN.	<p>Heat conditioning: sample placed in a heated chamber at 54°C &amp; 85% relative humidity for 2 hours. Test carried out within 90 seconds of removal.</p> <p align="center">Sample 1.</p> <p>Peak arrest force:     4.44        kN                      Average arrest force:  3.34        kN                      Arrest distance:        0.18        m</p> <p>Device still able to retract and pay out in accordance with 3.1.6 Visual indicator deployed.</p> <p align="center">Sample 2.</p> <p>Peak arrest force:     4.30        kN                      Average arrest force:  3.22        kN                      Arrest distance:        0.25        m</p> <p>Device still able to retract and pay out in accordance with 3.1.6 Visual indicator deployed.</p> <p align="center">Sample 3.</p> <p>Peak arrest force:     4.41        kN                      Average arrest force:  3.09        kN                      Arrest distance:        0.24        m</p> <p>Device still able to retract and pay out in accordance with 3.1.6 Visual indicator deployed.</p> <p>Compliance Statement: Based on actual testing standard, measurement uncertainty is not considered.</p>	PASS



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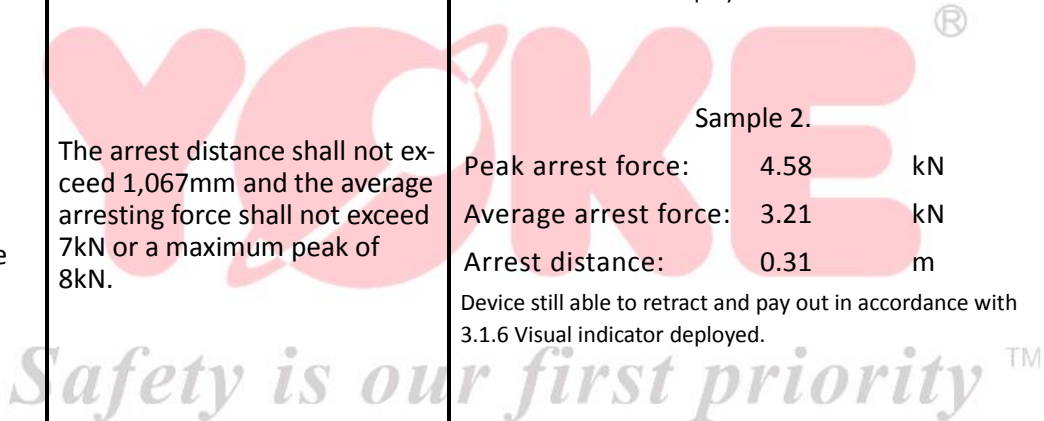
CLAUSE/TEST	REQUIREMENT	RESULT/COMMENT	PASS / FAIL
3.3.1 Dynamic Performance	The arrest distance shall not exceed 1,067mm and the average arresting force shall not exceed 7kN or a maximum peak of 8kN.	<p>Cold conditioning: sample placed in a freezer at -40°C for 2 hours. Test carried out within 90 seconds of removal.</p> <p align="center">Sample 1.</p> <p>Peak arrest force:     4.25     kN                      Average arrest force:  3.19     kN                      Arrest distance:       0.28     m</p> <p>Device still able to retract and pay out in accordance with 3.1.6 Visual indicator deployed.</p> <p align="center">Sample 2.</p> <p>Peak arrest force:     3.80     kN                      Average arrest force:  3.11     kN                      Arrest distance:       0.37     m</p> <p>Device still able to retract and pay out in accordance with 3.1.6 Visual indicator deployed.</p> <p align="center">Sample 3.</p> <p>Peak arrest force:     4.42     kN                      Average arrest force:  3.36     kN                      Arrest distance:       0.40     m</p> <p>Device still able to retract and pay out in accordance with 3.1.6 Visual indicator deployed.</p> <p>Compliance Statement: Based on actual testing standard, measurement uncertainty is not considered.</p>	PASS



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CLAUSE/TEST	REQUIREMENT	RESULT/COMMENT	PASS / FAIL
3.3.1 Dynamic Performance	The arrest distance shall not exceed 1,067mm and the average arresting force shall not exceed 7kN or a maximum peak of 8kN.	<p>Wet conditioning: sample submersed in water for a period of 3 hours. Test carried out within 90 seconds of removal.</p> <p align="center">Sample 1.</p> <p>Peak arrest force:     4.68        kN                      Average arrest force:  3.11        kN                      Arrest distance:        0.29        m</p> <p>Device still able to retract and pay out in accordance with 3.1.6 Visual indicator deployed.</p> <p align="center">Sample 2.</p> <p>Peak arrest force:     4.58        kN                      Average arrest force:  3.21        kN                      Arrest distance:        0.31        m</p> <p>Device still able to retract and pay out in accordance with 3.1.6 Visual indicator deployed.</p> <p align="center">Sample 3.</p> <p>Peak arrest force:     4.41        kN                      Average arrest force:  3.13        kN                      Arrest distance:        0.30        m</p> <p>Device still able to retract and pay out in accordance with 3.1.6 Visual indicator deployed.</p> <p>Compliance Statement: Based on actual testing standard, measurement uncertainty is not considered.</p>	PASS



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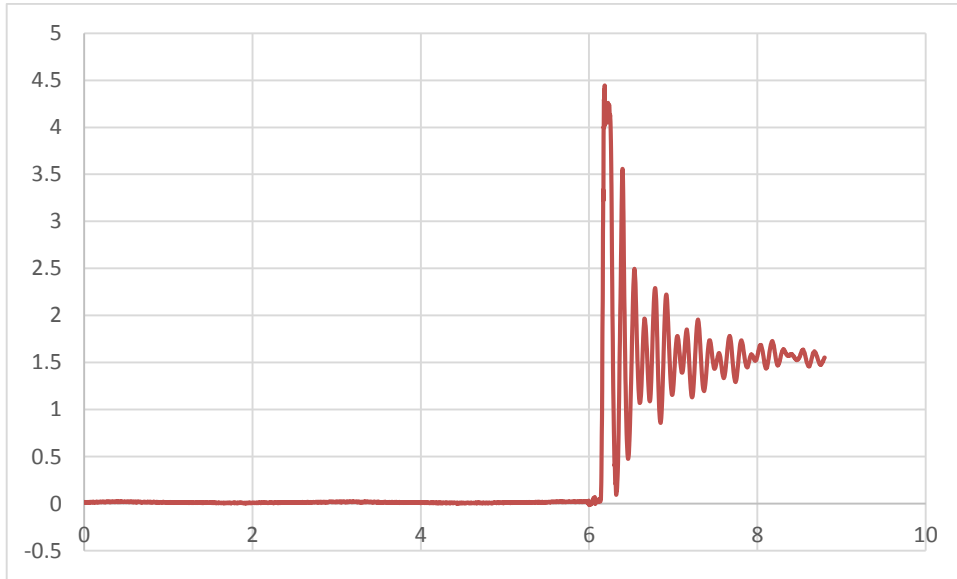
CLAUSE/TEST	REQUIREMENT	RESULT/COMMENT	PASS / FAIL
3.4 Energy Capacity	The maximum arrest force shall not exceed 8kN.	<p align="center">Sample 1.</p> <p>Peak arrest force:     4.49     kN Arrest distance:        Did not fall</p> <p align="center">Sample 2. <sup>®</sup></p> <p>Peak arrest force:     5.01     kN Arrest distance:        Did not fall</p> <p align="center">Sample 3.</p> <p>Peak arrest force:     4.65     kN Arrest distance:        Did not fall</p> <p>Compliance Statement: Based on actual testing standard, measurement uncertainty is not considered.</p>	PASS

TEST DATA SHEETS

Test Report Number:	S22070403
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Dynamic Performance (ambient)

Sample 1



Graph of force vs. time



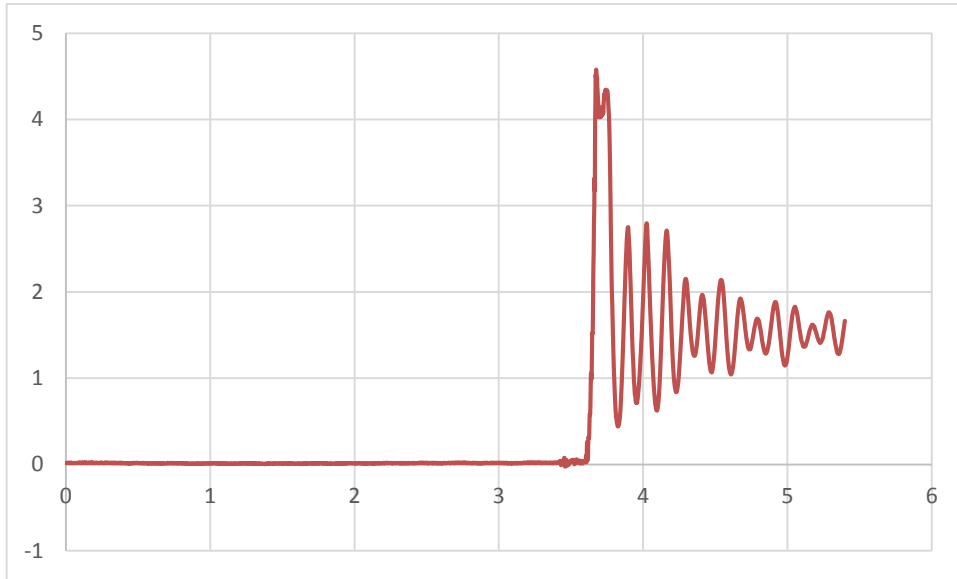
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TEST DATA SHEETS

Test Report Number:	S22070403
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Dynamic Performance (ambient)

Sample 2



Graph of force vs. time



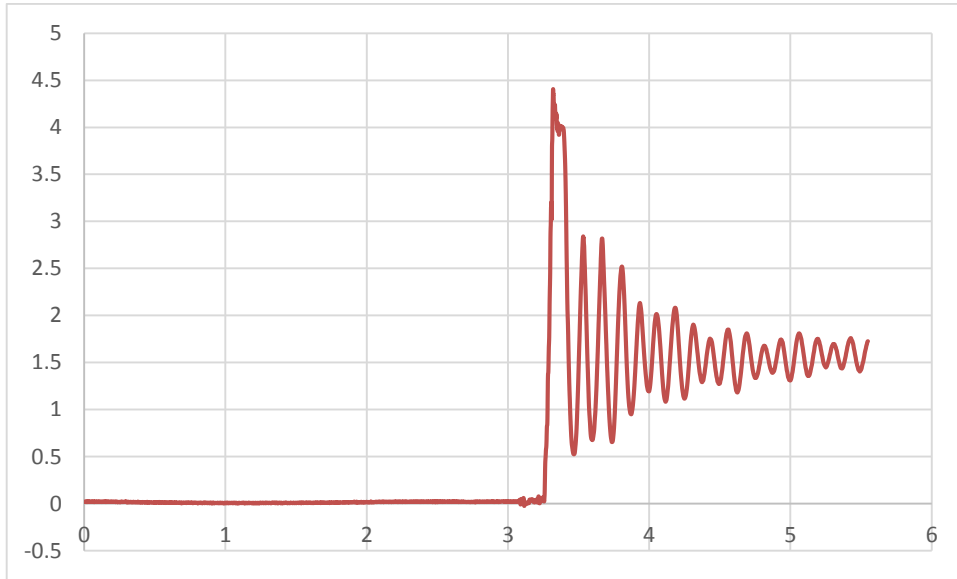
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TEST DATA SHEETS

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Product Model:	N-9420-11
Client:	Yoke Industrial Corp., Ltd.

Dynamic Performance (ambient)

Sample 3



Graph of force vs. time



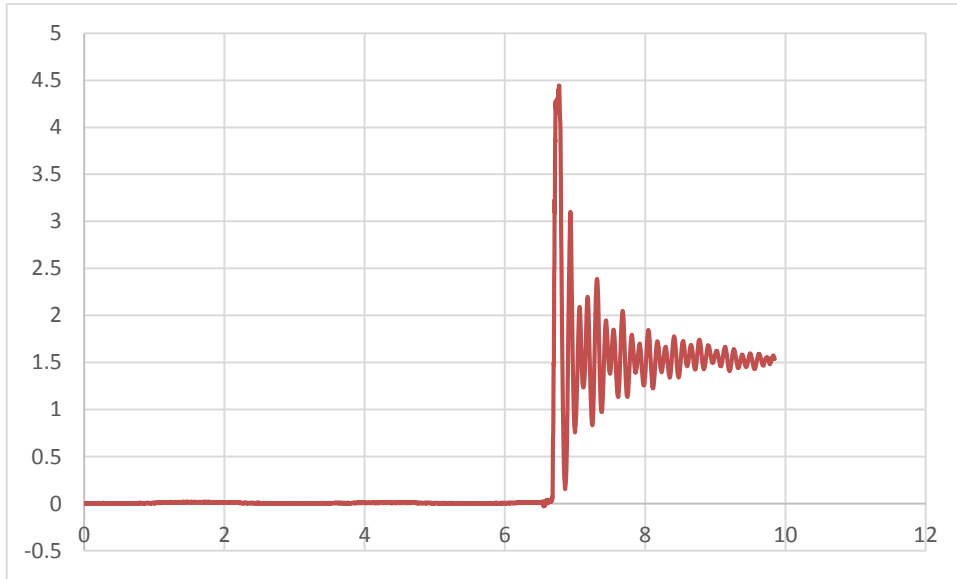
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Dynamic Performance (hot)

Sample 1



Graph of force vs. time



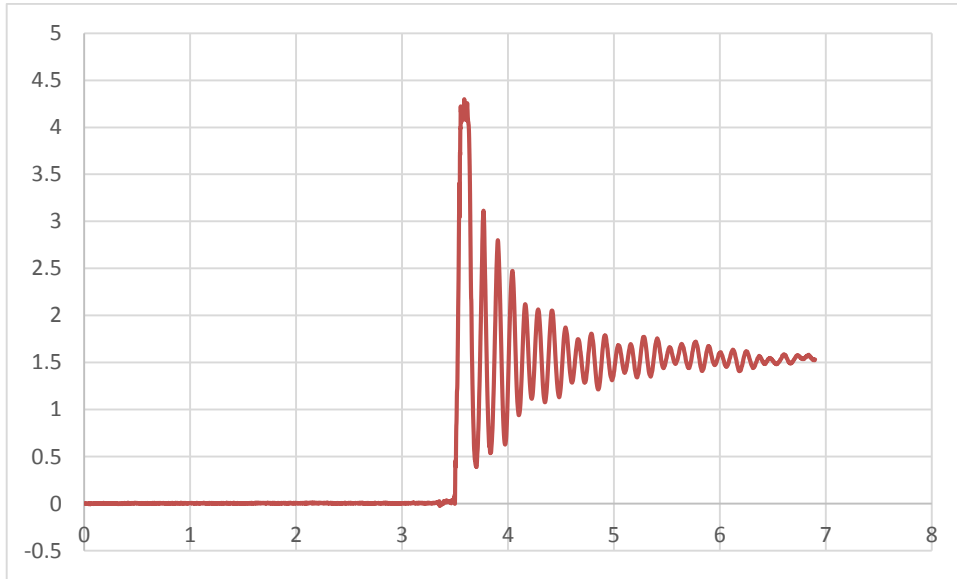
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TEST DATA SHEETS

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Dynamic Performance (hot)

Sample 2



Graph of force vs. time



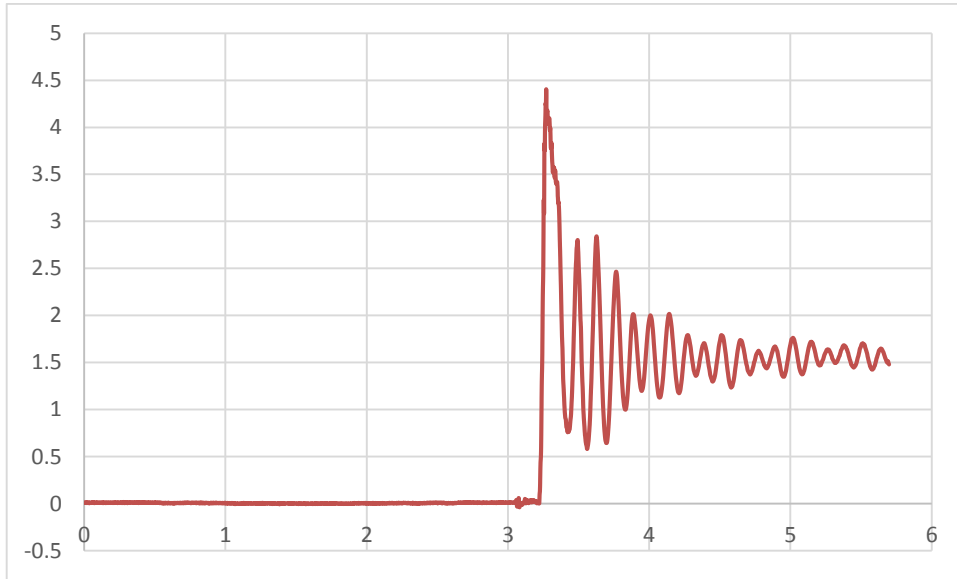
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Dynamic Performance (hot)

Sample 3



Graph of force vs. time



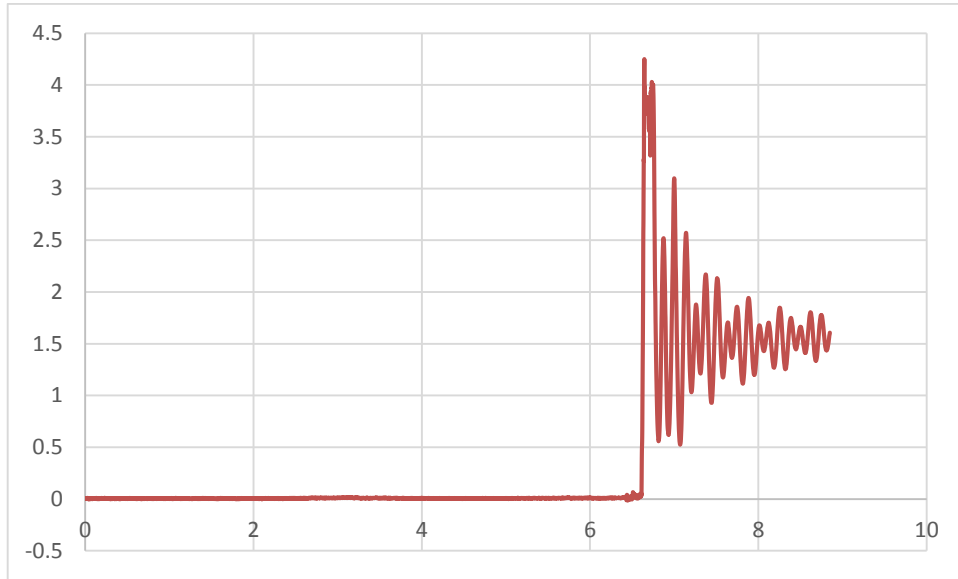
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Dynamic Performance (cold)

Sample 1



Graph of force vs. time



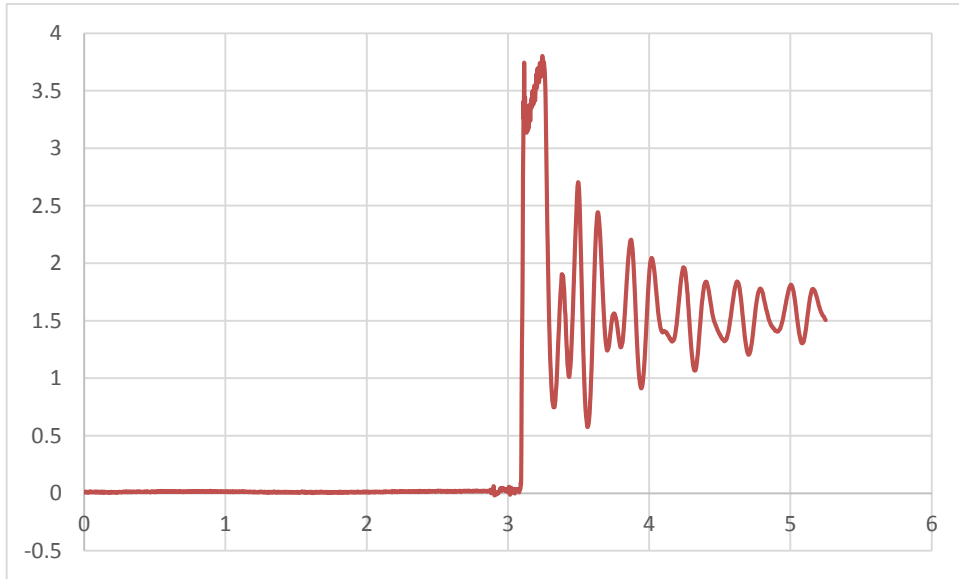
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TEST DATA SHEETS

Test Report Number:	S22070403
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Dynamic Performance (cold)

Sample 2



Graph of force vs. time



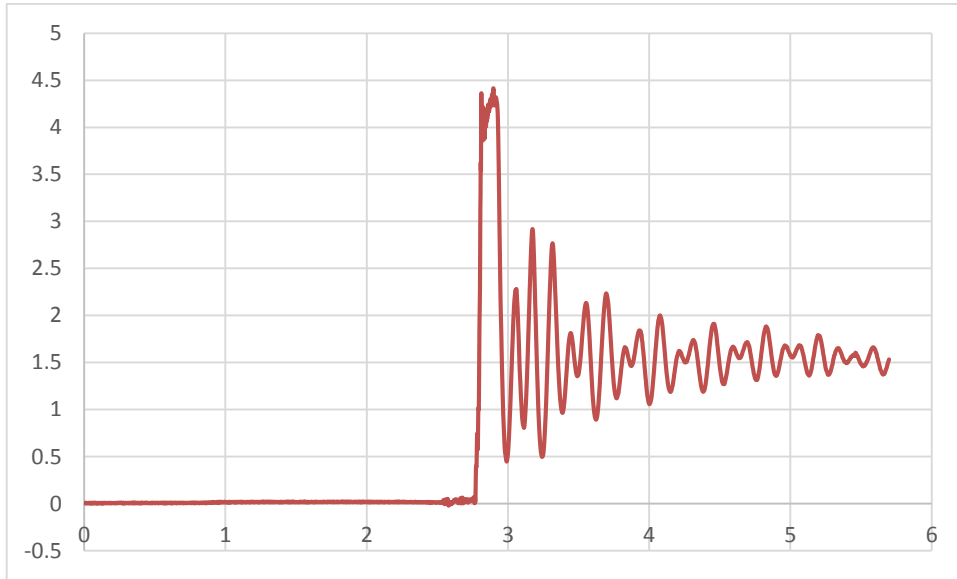
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TEST DATA SHEETS

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Dynamic Performance (cold)

Sample 3



Graph of force vs. time



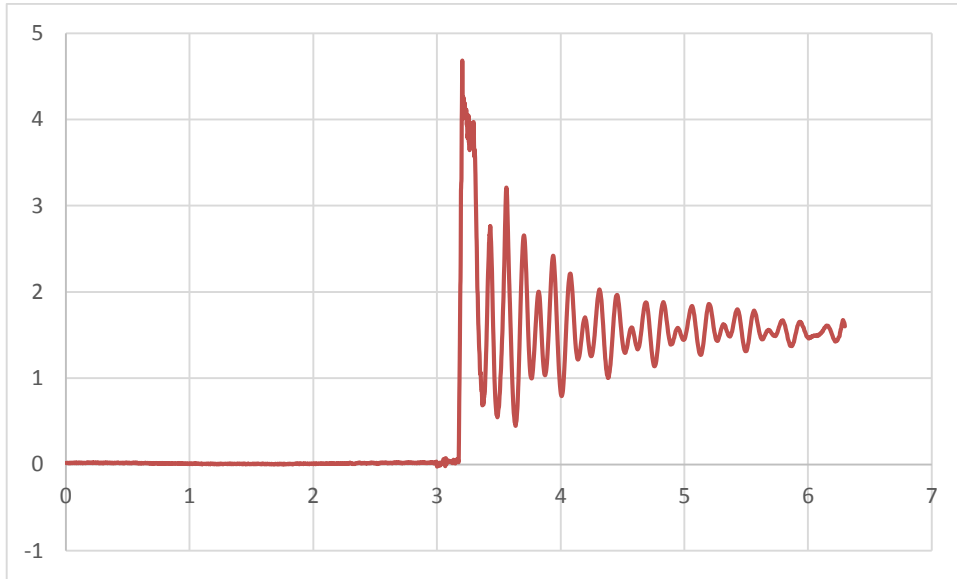
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TEST DATA SHEETS

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Dynamic Performance (wet)

Sample 1



Graph of force vs. time



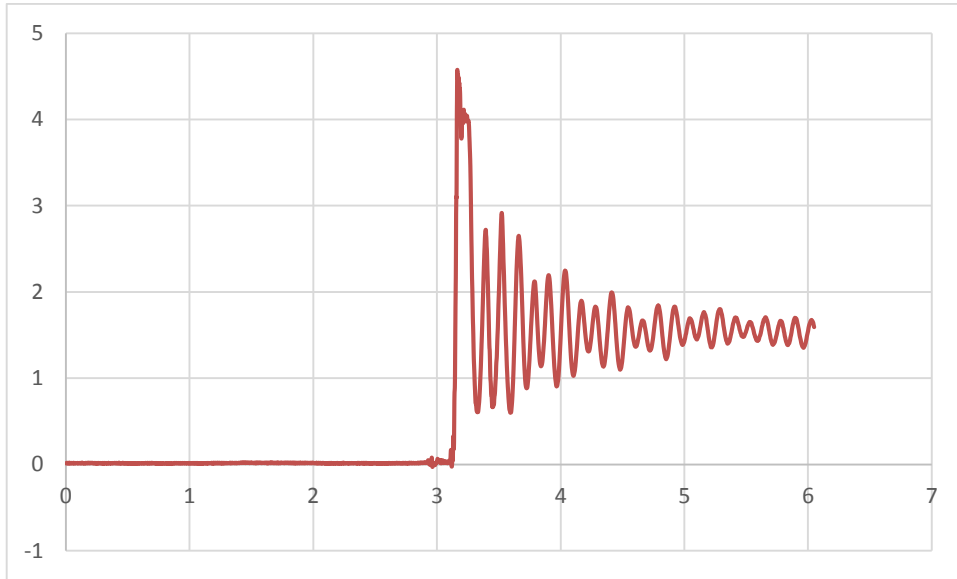
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TEST DATA SHEETS

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Dynamic Performance (wet)

Sample 2



Graph of force vs. time



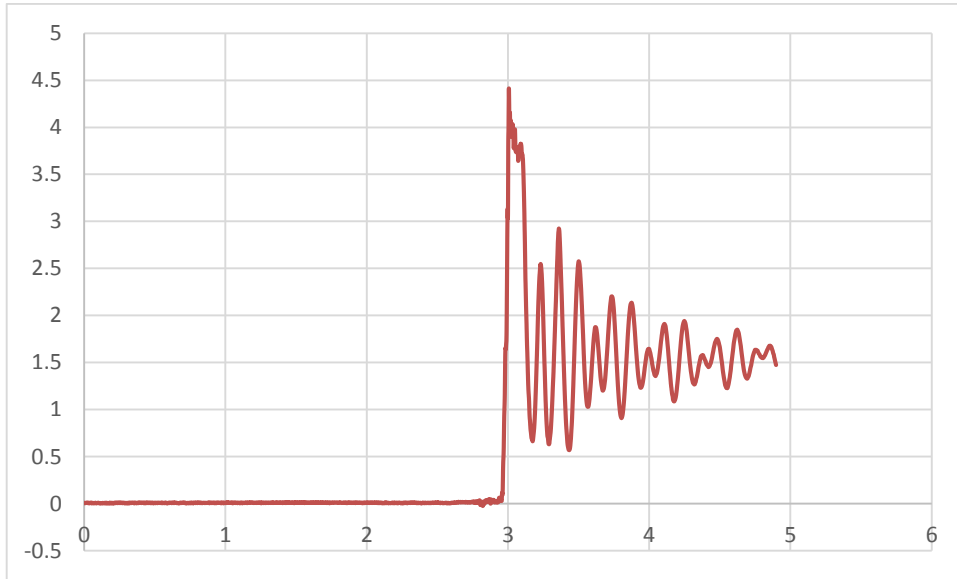
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Dynamic Performance (wet)

Sample 3



Graph of force vs. time



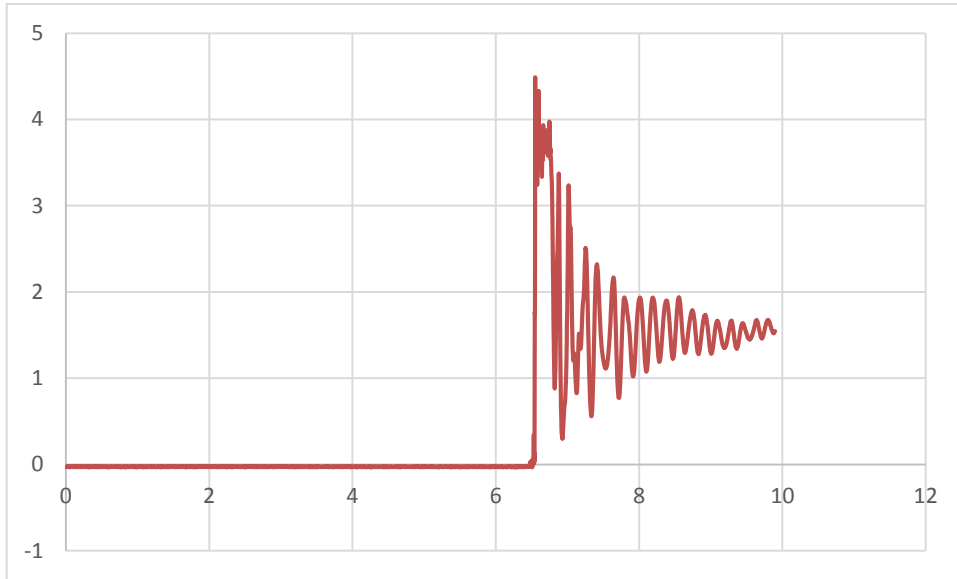
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TEST DATA SHEETS

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Energy Capacity

Sample 1



Graph of force vs. time



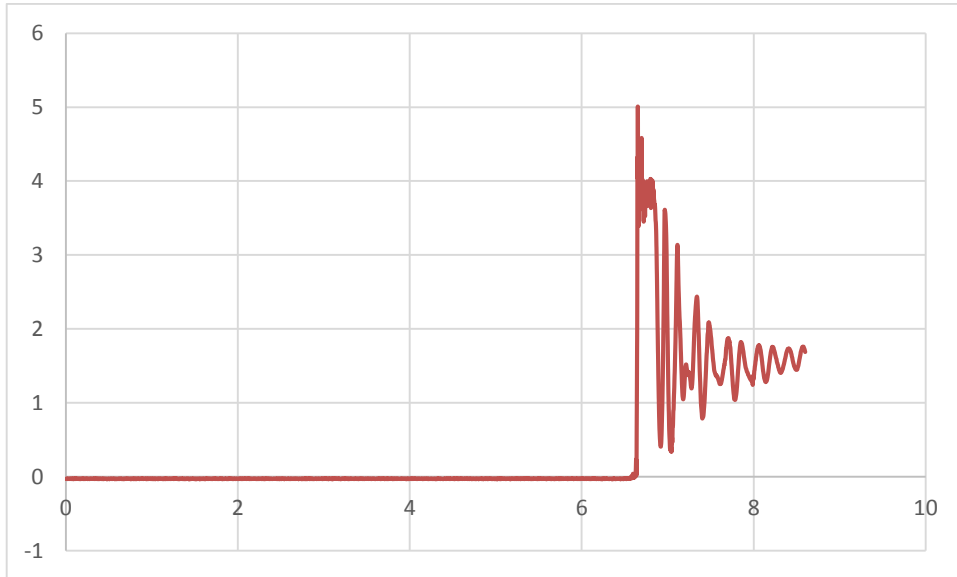
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Energy Capacity

Sample 2



Graph of force vs. time



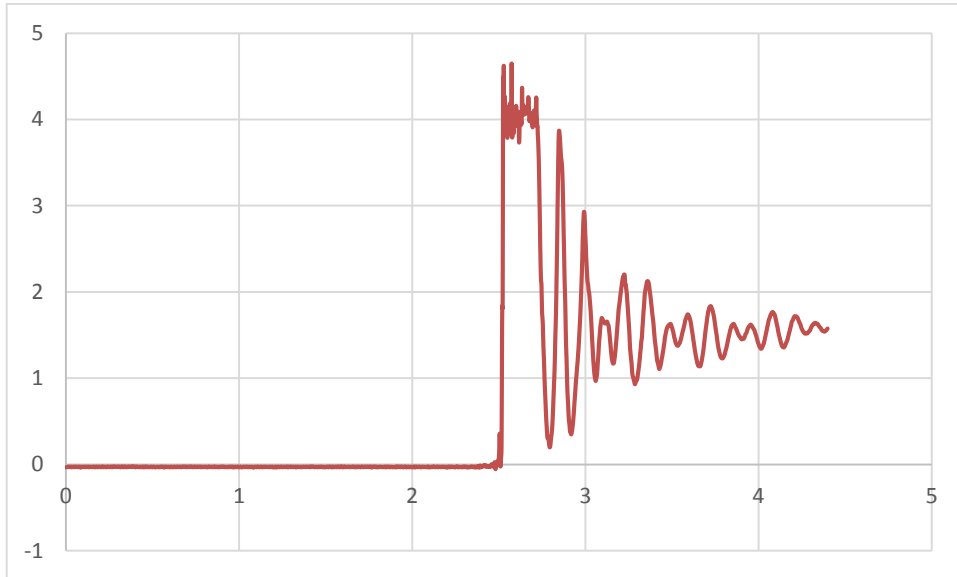
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Energy Capacity

Sample 3



Graph of force vs. time



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