

A303 Amesbury to Berwick Down

**Applicant's provision of technical reports supporting the
Environmental Information Review**

Ground Investigation - Phase 6 & 7 Factual Report
Appendix F

Document reference: Redetermination 2.12

Planning Act 2008

The Infrastructure Planning (Examination Procedure) Rules 2010

February 2022



APPENDIX F - CALIBRATION CERTIFICATES

- (i) SPT Calibration Records
- (ii) Packer Test Flow Meter and Transducer Calibration Certificates
- (iii) Vibrating Wire Piezometer Calibration Certificates

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3

ARCHWAY ENGINEERING
AINLEYS INDUSTRIAL ESTATE
ELLAND
WEST YORKSHIRE
HX5 9JP

SPT Hammer Ref: ADP06
Test Date: 04/01/2018
Report Date: 04/01/2018
File Name: ADP06.spt
Test Operator: SH

Instrumented Rod Data

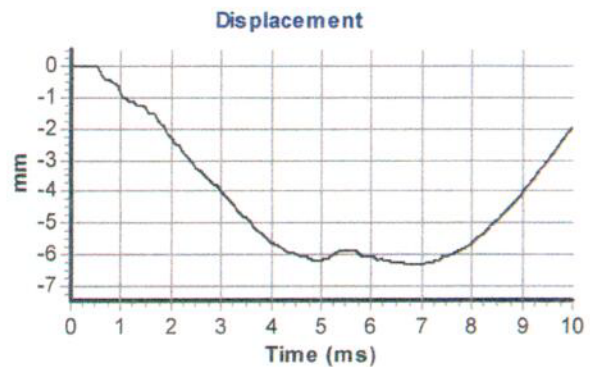
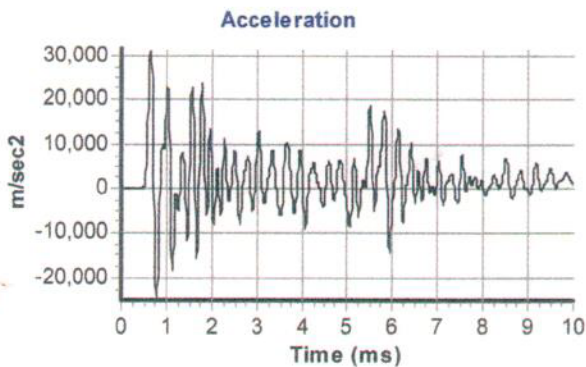
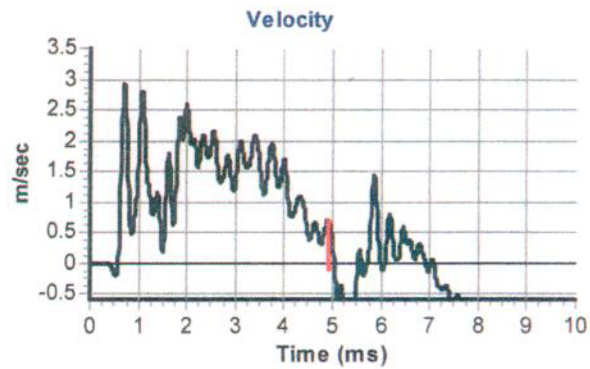
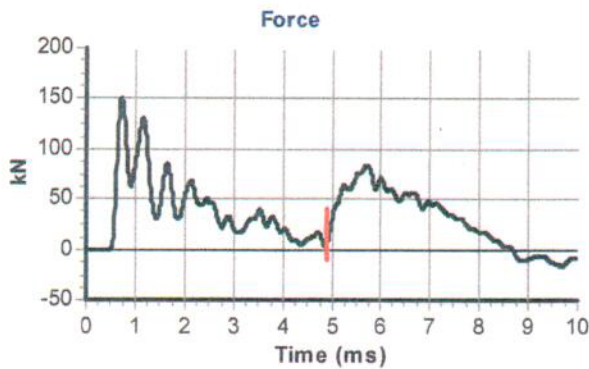
Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.0
Assumed Modulus E_a (GPa): 200
Accelerometer No.1: 7080
Accelerometer No.2: 11609

SPT Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
SPT String Length L (m): 10.0

Comments / Location

CALIBRATION



Calculations

Area of Rod A (mm^2): 905
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 350

Energy Ratio E_r (%): 74

Signed: R.MATTIMORE

Title: FITTER

The recommended calibration interval is 12 months



Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Dynamic sampling uk ltd
5-8 victory parkway
victory road
Derby
DE24 8ZF

Hammer Ref: JT01
Test Date: 20/05/2018
Report Date: 20/05/2018
File Name: JT01.spt
Test Operator: A.PARKER.

Instrumented Rod Data

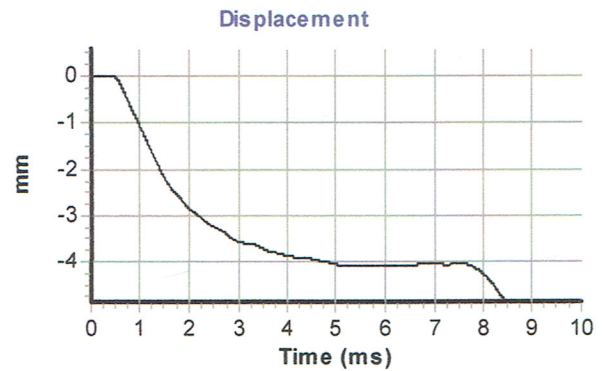
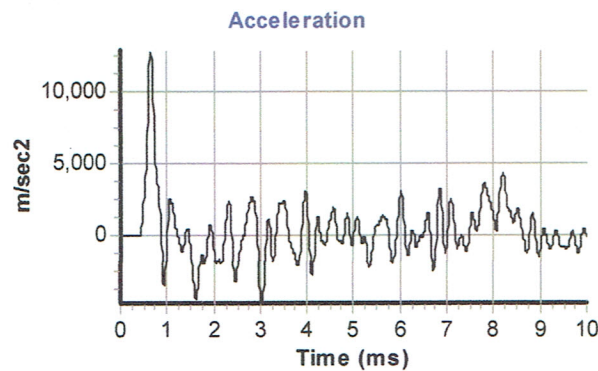
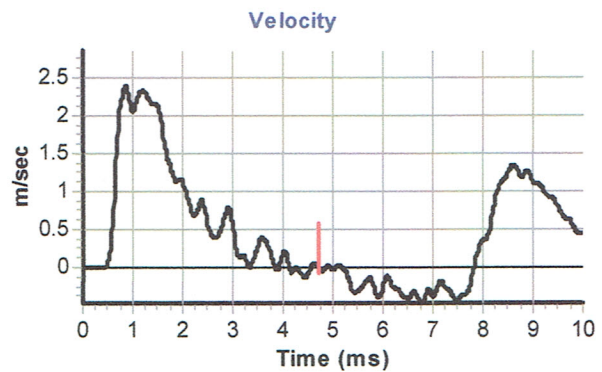
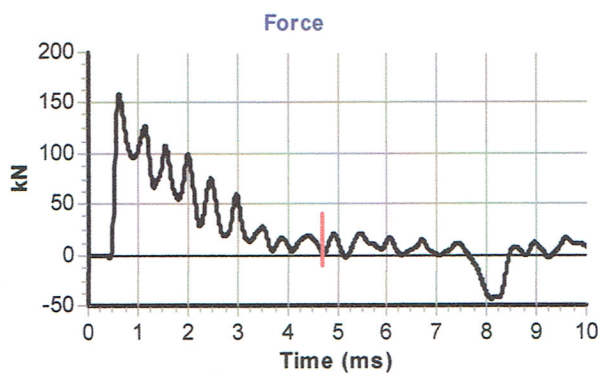
Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.9
Assumed Modulus E_a (GPa): 208
Accelerometer No.1: 6455
Accelerometer No.2: 6457

Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
String Length L (m): 15.0

Comments / Location

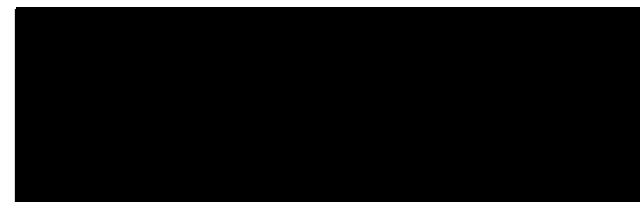
Hammer tested at Dynamic samplings yard.



Calculations

Area of Rod A (mm²): 1021
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 305

Energy Ratio E_r (%): 64



Signed: A.parker.
Title: Associate Director.

The recommended calibration interval is 12 months



Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Dynamic sampling uk ltd
6-8 victory parkway
victory road
Derby
DE24 8ZF

Hammer Ref: SC.01
Test Date: 20/05/2017
Report Date: 26/05/2017
File Name: SC.01.spt
Test Operator: TP

Instrumented Rod Data

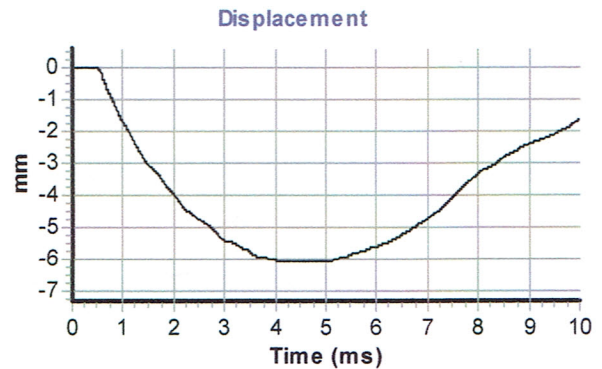
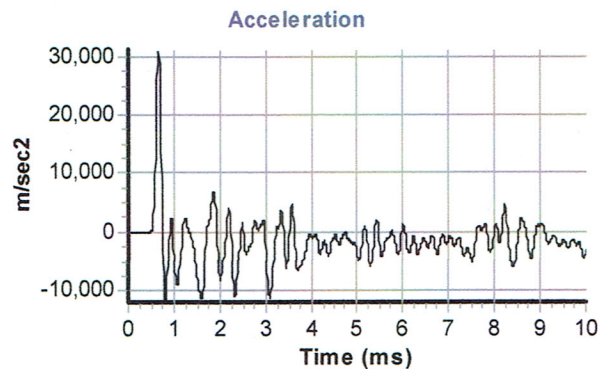
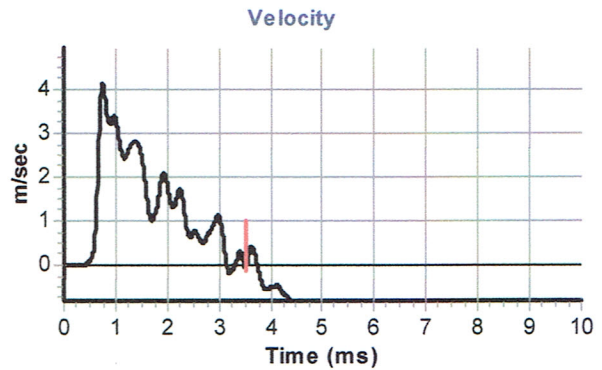
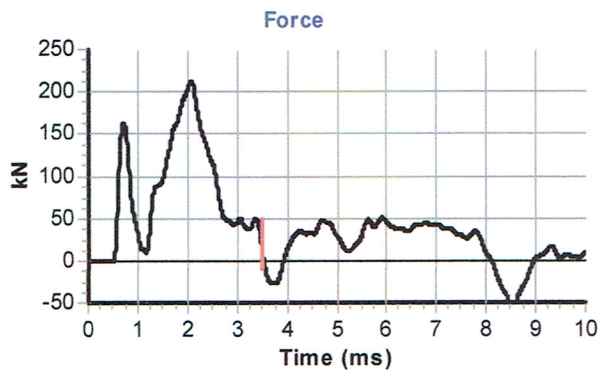
Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.9
Assumed Modulus E_a (GPa): 208
Accelerometer No.1: 6455
Accelerometer No.2: 6457

Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
String Length L (m): 15.0

Comments / Location

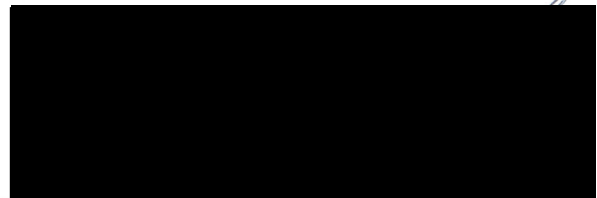
Hammer tested at Dynamic samplings yard.



Calculations

Area of Rod A (mm^2): 1021
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 372

Energy Ratio E_r (%): 79



Signed: A.parker.
Title: Associate Director.

The recommended calibration interval is 12 months



Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Dynamic sampling uk ltd
5-8 victory parkway
victory road
Derby
DE24 8ZF

Hammer Ref: SC.01
Test Date: 20/05/2018
Report Date: 22/05/2018
File Name: SC.01.spt
Test Operator: A.PARKER.

Instrumented Rod Data

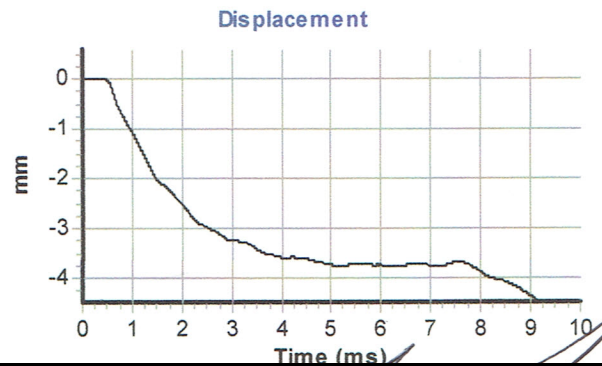
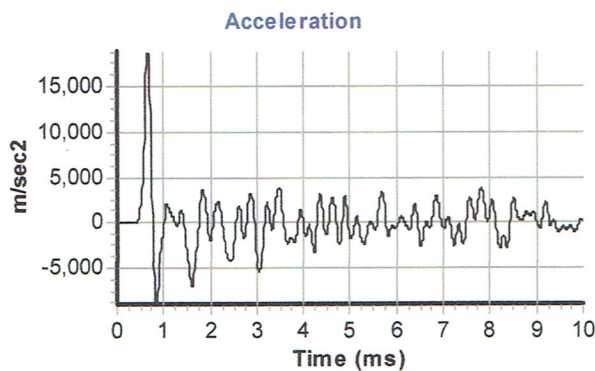
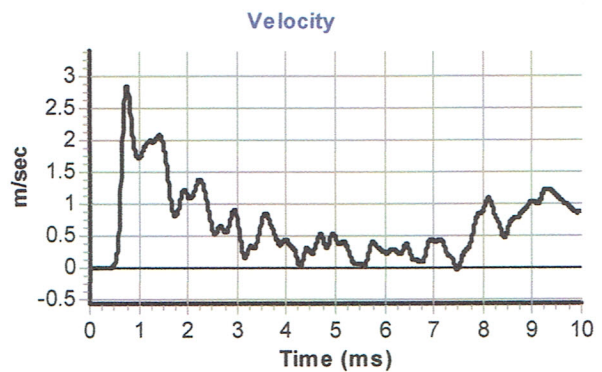
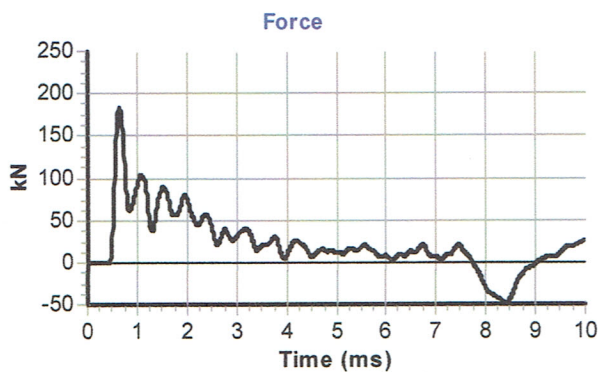
Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.9
Assumed Modulus E_a (GPa): 208
Accelerometer No.1:
Accelerometer No.2:

Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
String Length L (m): 15.0

Comments / Location

Rotary hammer tested at Dynamic samplings yard.



Calculations

Area of Rod A (mm²): 1021
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 279

Energy Ratio E_r (%): 59

Signed: A.parker.

Title: Associate Director.

The recommended calibration interval is 12 months



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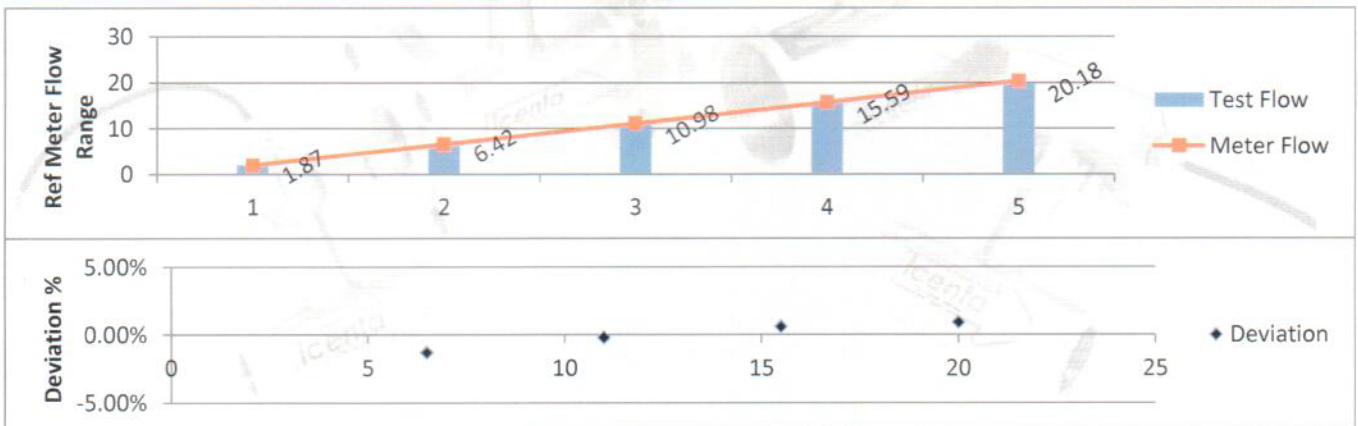
FLOWMETER SYSTEM CALIBRATION AND TEST METER RECORD

ICENTA Controls Ltd
 Unit 3 The Woodford Centre
 Lysander Way, Old Sarum Park
 Salisbury, SP4 6BU, UK

Tel: +44 (0)1722 439880 or Lo-Call: 0844 543 0844
 Fax: +44 (0)1722 326818 or Lo-Call: 0844 543 0845

Customer:	Structural Soils Ltd Compound	Calibration Date:	Thursday, 05 April 2018
Sales Order Ref:	SO25772	Meter Type:	Paddle Wheel
Customer PO No.:	P0570321	Meter Code:	IC-LPM-015C-A-S-0-D-R-TC
Output Type:	Coil Only	Meter Serial No.:	2054
Display - Serial No.:		Application / Vessel:	

Flow Range	2-20 l/min	Av KFactor	931.762	
FLOW METER CALIBRATION DATA				
Cal Point	REF FLOW	TEST FREQ	TEST K Factor	TEST M Factor
1	2.0	29	870.000	0.934
2	6.5	99.6	919.385	0.987
3	11.0	170.5	930.000	0.998
4	15.5	242.1	937.161	1.006
5	20.0	313.5	940.500	1.009
6				
7				
8				
9				
10				
CALIBRATION TEST RIG ICF-2				
Calibration	Viscosity	Temperature	Pressure	
Criteria	1 Cst	15 °C	1-3 BarG	



FLOW CALIBRATION METHOD Calibration data is obtained by using the master meter method and is tabulated above. Calibration flow medium is filtered water at ambient temperature and 1-3 BarG pressure.

Results are obtained by pulse total comparison at each test frequency measured from the meter under test. Two repeats carried out at each test point. The data is adjusted to reflect the process viscosity/SG. We confirm that the validity of our calibration certificates is 1 year from first use to a max. 2 years if flow meter is not in use in the first year

PRESSURE TEST RECORD: If applicable - Applied Pressure Level: 100 bar Leak test - Applied Duration: 5 Minutes

Signed... [REDACTED] Date... 5/4/2018 Icenta- 2054

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance UKAS requirements



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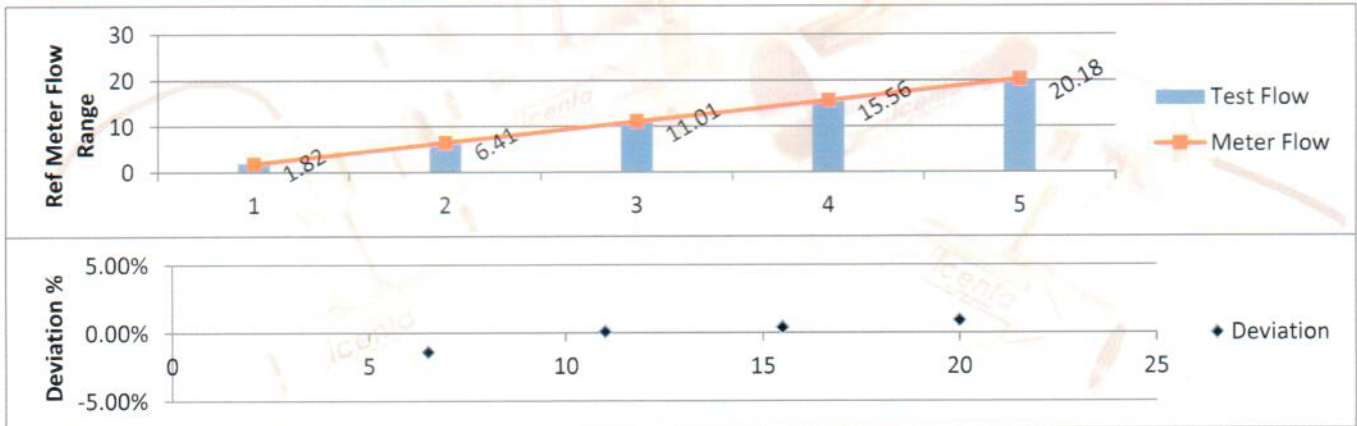
FLOWMETER SYSTEM CALIBRATION AND TEST METER RECORD

ICENTA Controls Ltd
 Unit 3 The Woodford Centre
 Lysander Way, Old Sarum Park
 Salisbury, SP4 6BU, UK

Tel: +44 (0)1722 439880 or Lo-Call: 0844 543 0844
 Fax: +44 (0)1722 326818 or Lo-Call: 0844 543 0845

Customer:	Structural Soils Ltd Compound	Calibration Date:	Thursday, 05 April 2018
Sales Order Ref:	SO25772	Meter Type:	Paddle Wheel
Customer PO No.:	P0570321	Meter Code:	IC-LPM-015C-A-S-0-D-R-TC
Output Type:	Coil to Display	Meter Serial No.:	2903
Display - Serial No.:		Application / Vessel:	

Flow Range	2-20 l/min	Av KFactor	973.354	
FLOW METER CALIBRATION DATA				
Cal Point	REF FLOW	TEST FREQ	TEST K Factor	TEST M Factor
1	2.0	29.5	885.000	0.909
2	6.5	104.0	960.000	0.986
3	11.0	178.6	974.182	1.001
4	15.5	252.4	977.032	1.004
5	20.0	327.4	982.200	1.009
6				
7				
8				
9				
10				
CALIBRATION TEST RIG ICF-2				
Calibration	Viscosity	Temperature	Pressure	
Criteria	1 Cst	15 °C	1-3 BarG	



FLOW CALIBRATION METHOD Calibration data is obtained by using the master meter method and is tabulated above. Calibration flow medium is filtered water at ambient temperature and 1-3 BarG pressure.

Results are obtained by pulse total comparison at each test frequency measured from the meter under test. Two repeats carried out at each test point. The data is adjusted to reflect the process viscosity/SG. We confirm that the validity of our calibration certificates is 1 year from first use to a max. 2 years if flow meter is not in use in the first year

PRESSURE TEST RECORD: If applicable - Applied Pressure Level: 100 bar Leak test - Applied Duration: 5 Minutes

Signed... [REDACTED] Date... 5/4/2018 Icenta- 2903

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance UKAS requirements



FLOWMETER SYSTEM CALIBRATION AND TEST METER RECORD

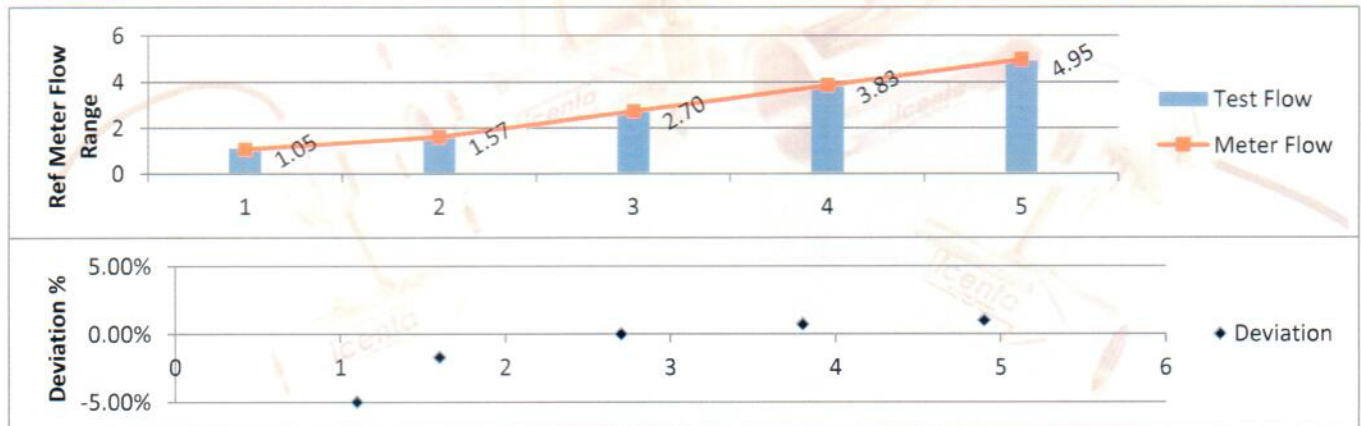
ICENTA Controls Ltd
 Unit 3 The Woodford Centre
 Lysander Way, Old Sarum Park
 Salisbury, SP4 6BU, UK

An ICENTA Group Company

Tel: +44 (0)1722 439880 or Lo-Call: 0844 543 0844
 Fax: +44 (0)1722 326818 or Lo-Call: 0844 543 0845

Customer:	Structural Soils Ltd Compound	Calibration Date:	Thursday, 05 April 2018
Sales Order Ref:	SO25772	Meter Type:	Paddle Wheel
Customer PO No.:	P0570321	Meter Code:	IC-LPM-015A-A-S-0-D-R-TC
Output Type:	Coil to Display	Meter Serial No.:	3067
Display - Serial No.:		Application / Vessel:	

Flow Range	0.5-5 l/min	Av KFactor	4540.211	
FLOW METER CALIBRATION DATA				
Cal Point	REF FLOW	TEST FREQ	TEST K Factor	TEST M Factor
1	1.1	79.1	4314.545	0.950
2	1.6	119.0	4462.500	0.983
3	2.7	204.3	4540.000	1.000
4	3.8	289.6	4572.632	1.007
5	4.9	374.5	4585.714	1.010
6				
7				
8				
9				
10				
CALIBRATION TEST RIG ICF-3				
Calibration	Viscosity	Temperature	Pressure	
Criteria	1 Cst	15 °C	1-3 BarG	



FLOW CALIBRATION METHOD Calibration data is obtained by using the master meter method and is tabulated above. Calibration flow medium is filtered water at ambient temperature and 1-3 BarG pressure.

Results are obtained by pulse total comparison at each test frequency measured from the meter under test. Two repeats carried out at each test point. The data is adjusted to reflect the process viscosity/SG. We confirm that the validity of our calibration certificates is 1 year from first use to a max. 2 years if flow meter is not in use in the first year

PRESSURE TEST RECORD: If applicable - Applied Pressure Level: **100 bar** Leak test - Applied Duration: **5 Minutes**

Signed...  Date... 5/4/2018 Icenta- 3067

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance UKAS requirements



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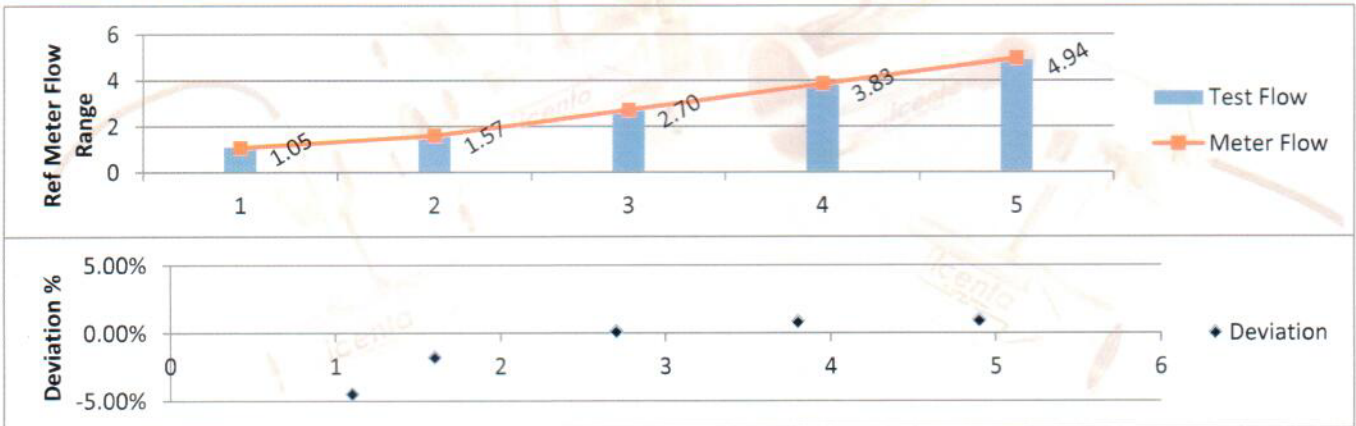
FLOWMETER SYSTEM CALIBRATION AND TEST METER RECORD

ICENTA Controls Ltd
 Unit 3 The Woodford Centre
 Lysander Way, Old Sarum Park
 Salisbury, SP4 6BU, UK

Tel: +44 (0)1722 439880 or Lo-Call: 0844 543 0844
 Fax: +44 (0)1722 326818 or Lo-Call: 0844 543 0845

Customer:	Structural Soils Ltd Compound	Calibration Date:	Thursday, 05 April 2018
Sales Order Ref:	SO25772	Meter Type:	Paddle Wheel
Customer PO No.:	P0570321	Meter Code:	IC-LPM-015A-A-S-0-D-R-TC
Output Type:	Coil to Display	Meter Serial No.:	2915
Display - Serial No.:		Application / Vessel:	

Flow Range	0.5-5 l/min	Av KFactor	3899.515	
FLOW METER CALIBRATION DATA				
Cal Point	REF FLOW	TEST FREQ	TEST K Factor	TEST M Factor
1	1.1	68.3	3725.455	0.955
2	1.6	102.1	3828.750	0.982
3	2.7	175.6	3902.222	1.001
4	3.8	249.0	3931.579	1.008
5	4.9	321.4	3935.510	1.009
6				
7				
8				
9				
10				
CALIBRATION TEST RIG ICF-1				
Calibration	Viscosity	Temperature	Pressure	
Criteria	1 Cst	15 °C	1-3 BarG	



FLOW CALIBRATION METHOD Calibration data is obtained by using the master meter method and is tabulated above. Calibration flow medium is filtered water at ambient temperature and 1-3 BarG pressure.

Results are obtained by pulse total comparison at each test frequency measured from the meter under test. Two repeats carried out at each test point. The data is adjusted to reflect the process viscosity/SG. We confirm that the validity of our calibration certificates is 1 year from first use to a max. 2 years if flow meter is not in use in the first year

PRESSURE TEST RECORD: If applicable - Applied Pressure Level: 100 bar Leak test - Applied Duration: 5 Minutes

Signed...  Date... 5/4/2018 Icenta- 2915

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance UKAS requirements



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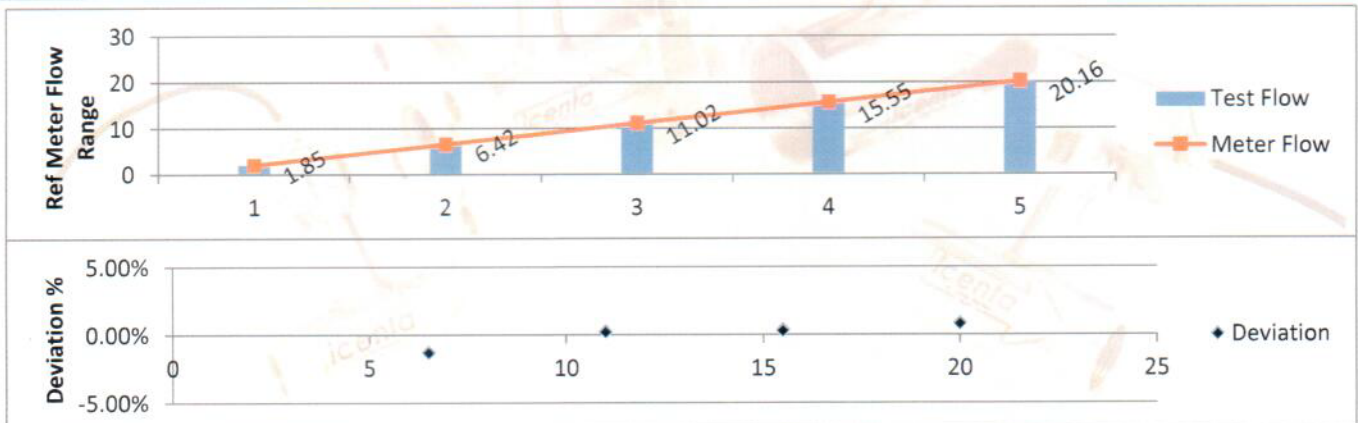
FLOWMETER SYSTEM CALIBRATION AND TEST METER RECORD

ICENTA Controls Ltd
 Unit 3 The Woodford Centre
 Lysander Way, Old Sarum Park
 Salisbury, SP4 6BU, UK

Tel: +44 (0)1722 439880 or Lo-Call: 0844 543 0844
 Fax: +44 (0)1722 326818 or Lo-Call: 0844 543 0845

Customer:	Structural Soils Ltd Compound	Calibration Date:	Thursday, 05 April 2018
Sales Order Ref:	SO25772	Meter Type:	Paddle Wheel
Customer PO No.:	P0570321	Meter Code:	IC-LPM-015C-A-S-0-D-R-TC
Output Type:	Coil to Display	Meter Serial No.:	2904
Display - Serial No.:		Application / Vessel:	

Flow Range	2-20 l/min	Av KFactor	946.276	
FLOW METER CALIBRATION DATA				
Cal Point	REF FLOW	TEST FREQ	TEST K Factor	TEST M Factor
1	2.0	29.2	876.000	0.926
2	6.5	101.2	934.154	0.987
3	11.0	173.8	948.000	1.002
4	15.5	245.3	949.548	1.003
5	20.0	317.8	953.400	1.008
6				
7				
8				
9				
10				
CALIBRATION TEST RIG ICF-2				
Calibration	Viscosity	Temperature	Pressure	
Criteria	1 Cst	15 °C	1-3 BarG	



FLOW CALIBRATION METHOD Calibration data is obtained by using the master meter method and is tabulated above. Calibration flow medium is filtered water at ambient temperature and 1-3 BarG pressure.

Results are obtained by pulse total comparison at each test frequency measured from the meter under test. Two repeats carried out at each test point. The data is adjusted to reflect the process viscosity/SG. We confirm that the validity of our calibration certificates is 1 year from first use to a max. 2 years if flow meter is not in use in the first year

PRESSURE TEST RECORD: If applicable - Applied Pressure Level: 100 bar Leak test - Applied Duration: 5 Minutes

Signed...  Date... 5/4/2018 Icenta- 2904

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance UKAS requirements



An ICENTA Group Company

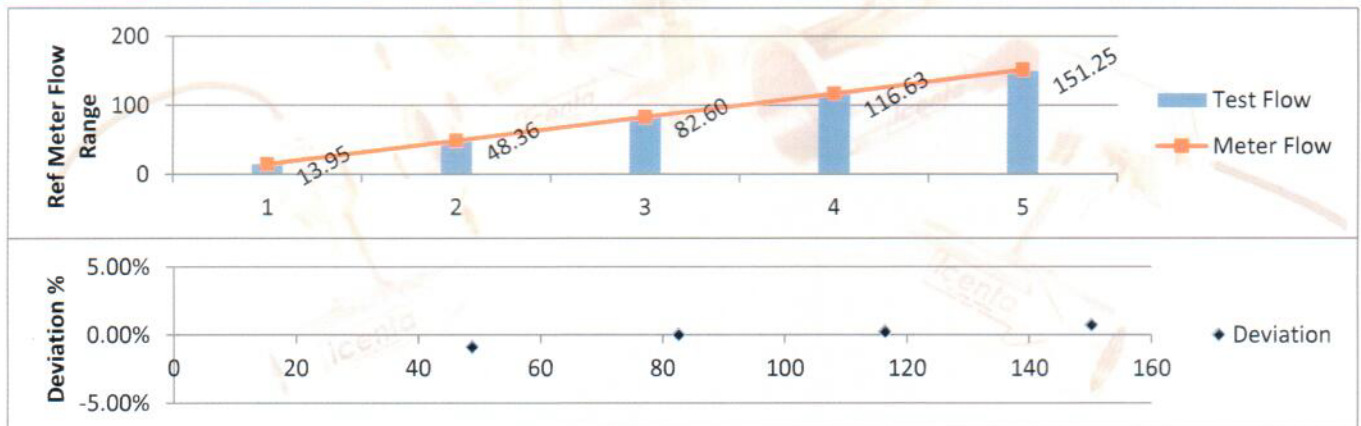
FLOWMETER SYSTEM CALIBRATION AND TEST METER RECORD

ICENTA Controls Ltd
 Unit 3 The Woodford Centre
 Lysander Way, Old Sarum Park
 Salisbury, SP4 6BU, UK

Tel: +44 (0)1722 439880 or Lo-Call: 0844 543 0844
 Fax: +44 (0)1722 326818 or Lo-Call: 0844 543 0845

Customer:	Structural Soils Ltd Compound	Calibration Date:	Wednesday, 04 April 2018
Sales Order Ref:	SO25772	Meter Type:	Paddle Wheel
Customer PO No.:	P0570321	Meter Code:	IC-LPM-025A-A-S-0-D-R-TC
Output Type:	Coil to Display	Meter Serial No.:	2908
Display - Serial No.:		Application / Vessel:	

Flow Range	15-150 l/min		Av KFactor	200.396
FLOW METER CALIBRATION DATA				
Cal Point	REF FLOW	TEST FREQ	TEST K Factor	TEST M Factor
1	15.0	46.6	186.400	0.930
2	48.8	161.5	198.566	0.991
3	82.6	275.9	200.412	1.000
4	116.4	389.7	200.876	1.002
5	150.2	505.0	201.731	1.007
6				
7				
8				
9				
10				
CALIBRATION TEST RIG ICF-2				
Calibration	Viscosity	Temperature	Pressure	
Criteria	1 Cst	15 °C	1-3 BarG	



FLOW CALIBRATION METHOD Calibration data is obtained by using the master meter method and is tabulated above. Calibration flow medium is filtered water at ambient temperature and 1-3 BarG pressure.

Results are obtained by pulse total comparison at each test frequency measured from the meter under test. Two repeats carried out at each test point. The data is adjusted to reflect the process viscosity/SG. We confirm that the validity of our calibration certificates is 1 year from first use to a max. 2 years if flow meter is not in use in the first year

PRESSURE TEST RECORD: If applicable - Applied Pressure Level: 100 bar Leak test - Applied Duration: 5 Minutes

Signed... [Redacted] Date.... 4/4/2018 Icenta- 2908

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance UKAS requirements



An ICENTA Group Company

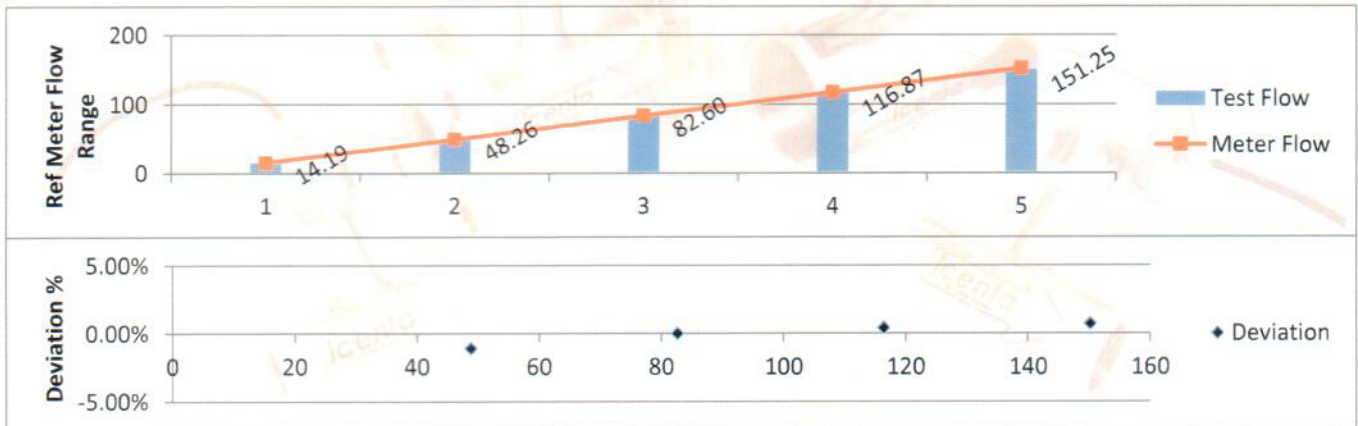
FLOWMETER SYSTEM CALIBRATION AND TEST METER RECORD

ICENTA Controls Ltd
 Unit 3 The Woodford Centre
 Lysander Way, Old Sarum Park
 Salisbury, SP4 6BU, UK

Tel: +44 (0)1722 439880 or Lo-Call: 0844 543 0844
 Fax: +44 (0)1722 326818 or Lo-Call: 0844 543 0845

Customer:	Structural Soils Ltd Compound	Calibration Date:	Wednesday, 04 April 2018
Sales Order Ref:	SO25772	Meter Type:	Paddle Wheel
Customer PO No.:	P0570321	Meter Code:	IC-LPM-025A-A-S-O-D-R-TC
Output Type:	Coil to Display	Meter Serial No.:	2907
Display - Serial No.:		Application / Vessel:	

Flow Range	15-150 l/min	Av KFactor	204.190	
FLOW METER CALIBRATION DATA				
Cal Point	REF FLOW	TEST FREQ	TEST K Factor	TEST M Factor
1	15.0	48.3	193.200	0.946
2	48.8	164.3	202.008	0.989
3	82.6	281.0	204.116	1.000
4	116.4	397.6	204.948	1.004
5	150.2	514.9	205.686	1.007
6				
7				
8				
9				
10				
CALIBRATION TEST RIG ICF-3				
Calibration	Viscosity	Temperature	Pressure	
Criteria	1 Cst	15 °C	1-3 BarG	



FLOW CALIBRATION METHOD Calibration data is obtained by using the master meter method and is tabulated above. Calibration flow medium is filtered water at ambient temperature and 1-3 BarG pressure.

Results are obtained by pulse total comparison at each test frequency measured from the meter under test. Two repeats carried out at each test point. The data is adjusted to reflect the process viscosity/SG. We confirm that the validity of our calibration certificates is 1 year from first use to a max. 2 years if flow meter is not in use in the first year

PRESSURE TEST RECORD: If applicable - Applied Pressure Level: 100 bar Leak test - Applied Duration: 5 Minutes

Signed... [Redacted] Date.... 4/4/2018 Icenta- 2907

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance UKAS requirements



An ICENTA Group Company

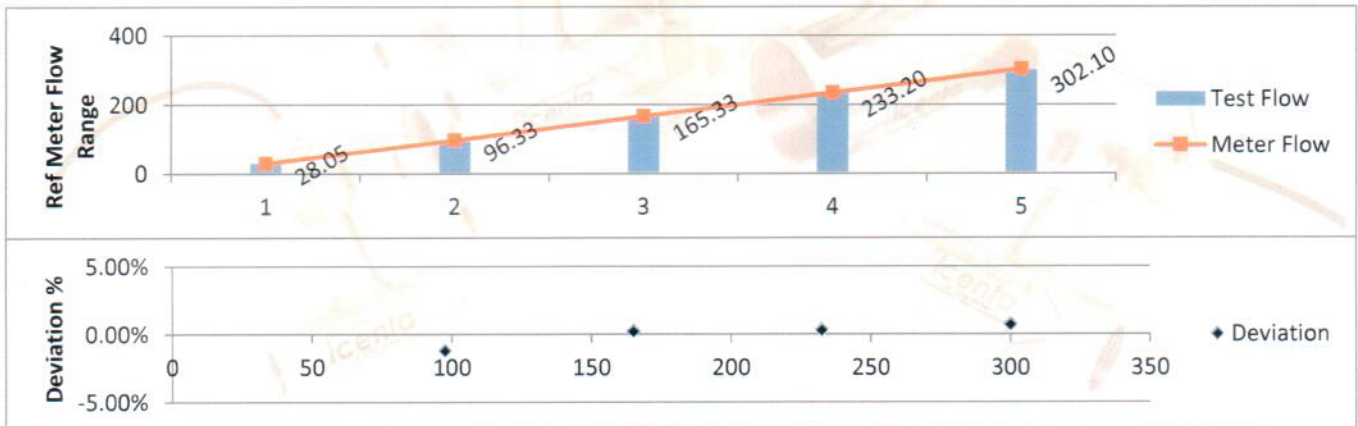
FLOWMETER SYSTEM CALIBRATION AND TEST METER RECORD

ICENTA Controls Ltd
 Unit 3 The Woodford Centre
 Lysander Way, Old Sarum Park
 Salisbury, SP4 6BU, UK

Tel: +44 (0)1722 439880 or Lo-Call: 0844 543 0844
 Fax: +44 (0)1722 326818 or Lo-Call: 0844 543 0845

Customer:	Structural Soils Ltd Compound	Calibration Date:	Wednesday, 04 April 2018
Sales Order Ref:	SO25772	Meter Type:	Paddle Wheel
Customer PO No.:	P0570321	Meter Code:	IC-LPM-025B-A-S-0-D-R-TC
Output Type:	Coil to Display	Meter Serial No.:	2906
Display - Serial No.:		Application / Vessel:	

Flow Range	30-300 l/min	Av KFactor	135.127	
FLOW METER CALIBRATION DATA				
Cal Point	REF FLOW	TEST FREQ	TEST K Factor	TEST M Factor
1	30.0	63.2	126.400	0.935
2	97.5	216.9	133.477	0.988
3	165.0	372.3	135.382	1.002
4	232.5	525.4	135.587	1.003
5	300.0	680.3	136.060	1.007
6				
7				
8				
9				
10				
CALIBRATION TEST RIG ICF-2				
Calibration	Viscosity	Temperature	Pressure	
Criteria	1 Cst	15 °C	1-3 BarG	



FLOW CALIBRATION METHOD Calibration data is obtained by using the master meter method and is tabulated above. Calibration flow medium is filtered water at ambient temperature and 1-3 BarG pressure.

Results are obtained by pulse total comparison at each test frequency measured from the meter under test. Two repeats carried out at each test point. The data is adjusted to reflect the process viscosity/SG. We confirm that the validity of our calibration certificates is 1 year from first use to a max. 2 years if flow meter is not in use in the first year

PRESSURE TEST RECORD: If applicable - Applied Pressure Level: **100 bar** Leak test - Applied Duration: **5 Minutes**

Signed... [REDACTED] Date... 4/4/2018 Icenta- 2906

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance UKAS requirements



An ICENTA Group Company

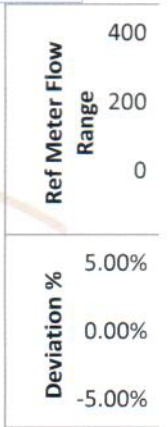
FLOWMETER SYSTEM CALIBRATION AND TEST METER RECORD

ICENTA Controls Ltd
 Unit 3 The Woodford Centre
 Lysander Way, Old Sarum Park
 Salisbury, SP4 6BU, UK

Tel: +44 (0)1722 439880 or Lo-Call: 0844 543 0844
 Fax: +44 (0)1722 326818 or Lo-Call: 0844 543 0845

Customer:	Structural Soils Ltd Compound	Calibration Date:	Wednesday, 04 April 2018
Sales Order Ref:	SO25772	Meter Type:	Paddle Wheel
Customer PO No.:	P0570321	Meter Code:	IC-LPM-025B-A-S-0-D-R-TC
Output Type:	Coil to Display	Meter Serial No.:	2616
Display - Serial No.:		Application / Vessel:	

Flow Range	30-300 l/min	Av KFactor	133.768	
FLOW METER CALIBRATION DATA				
Cal Point	REF FLOW	TEST FREQ	TEST K Factor	TEST M Factor
1	30.0	62.5	125.000	0.934
2	97.5	214.8	132.185	0.988
3	165.0	368.4	133.964	1.001
4	232.5	519.5	134.065	1.002
5	300.0	674.3	134.860	1.008
6				
7				
8				
9				
10				
CALIBRATION TEST RIG ICF-2				
Calibration	Viscosity	Temperature	Pressure	
Criteria	1 Cst	15 °C	1-3 BarG	



FLOW CALIBRATION METHOD Calibration data is obtained by using the master meter method and is tabulated above. Calibration flow medium is filtered water at ambient temperature and 1-3 BarG pressure.

Results are obtained by pulse total comparison at each test frequency measured from the meter under test. Two repeats carried out at each test point. The data is adjusted to reflect the process viscosity/SG. We confirm that the validity of our calibration certificates is 1 year from first use to a max. 2 years if flow meter is not in use in the first year

PRESSURE TEST RECORD: If applicable - Applied Pressure Level: 100 bar Leak test - Applied Duration: 5 Minutes

Signed... [REDACTED] Date... 4/4/2018 Icenta- 2616

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance UKAS requirements



An ICENTA Group Company

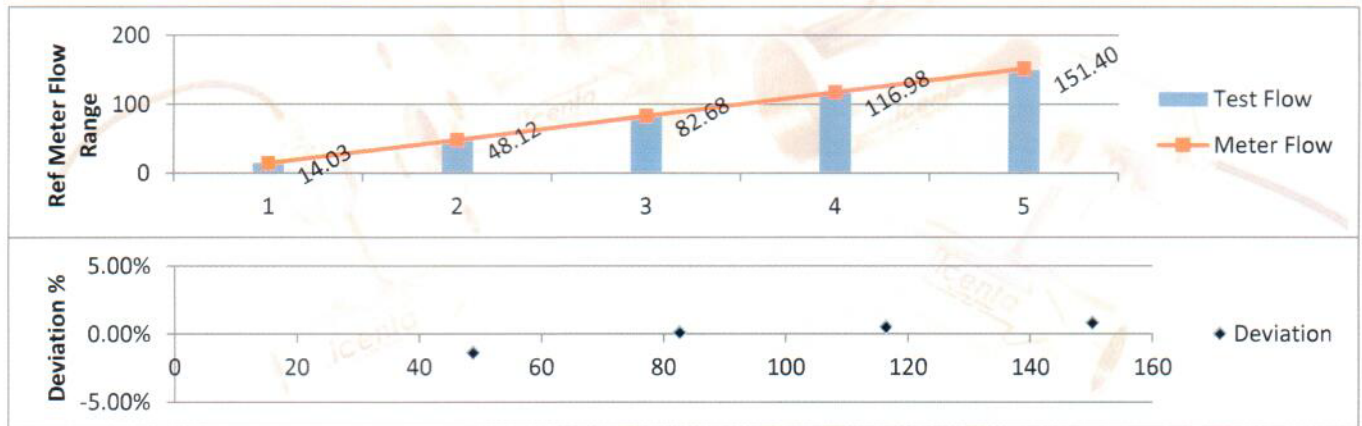
FLOWMETER SYSTEM CALIBRATION AND TEST METER RECORD

ICENTA Controls Ltd
 Unit 3 The Woodford Centre
 Lysander Way, Old Sarum Park
 Salisbury, SP4 6BU, UK

Tel: +44 (0)1722 439880 or Lo-Call: 0844 543 0844
 Fax: +44 (0)1722 326818 or Lo-Call: 0844 543 0845

Customer:	Structural Soils Ltd Compound	Calibration Date:	Wednesday, 04 April 2018
Sales Order Ref:	SO25772	Meter Type:	Paddle Wheel
Customer PO No.:	P0570321	Meter Code:	IC-LPM-025A-A-S-0-D-R-TC
Output Type:	Coil to Display	Meter Serial No.:	2055
Display - Serial No.:		Application / Vessel:	

Flow Range	15-150 l/min	Av KFactor	203.210	
FLOW METER CALIBRATION DATA				
Cal Point	REF FLOW	TEST FREQ	TEST K Factor	TEST M Factor
1	15.0	47.5	190.000	0.935
2	48.8	163.0	200.410	0.986
3	82.6	279.9	203.317	1.001
4	116.4	396.2	204.227	1.005
5	150.2	512.9	204.887	1.008
6				
7				
8				
9				
10				
CALIBRATION TEST RIG ICF-2				
Calibration Criteria	Viscosity	Temperature	Pressure	
	1 Cst	15 °C	1-3 BarG	



FLOW CALIBRATION METHOD Calibration data is obtained by using the master meter method and is tabulated above. Calibration flow medium is filtered water at ambient temperature and 1-3 BarG pressure.

Results are obtained by pulse total comparison at each test frequency measured from the meter under test. Two repeats carried out at each test point. The data is adjusted to reflect the process viscosity/SG. We confirm that the validity of our calibration certificates is 1 year from first use to a max. 2 years if flow meter is not in use in the first year

PRESSURE TEST RECORD: If applicable - Applied Pressure Level: 100 bar Leak test - Applied Duration: 5 Minutes

Signed... [REDACTED] Date.... 4/4/2018 Icenta- 2055

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance UKAS requirements

Factory Calibration Certificate / Werkskalibrierungszertifikat / Certificat d'étalonnage usine

Topic / Thema / Sujet: SITRANS F Flowmeter / Durchflussmessgerät / Débitmètre

Object / Betreff / Objet:

Flowmeter type / Durchflussmessgerätyp / Type de débitmètre	: Sitrans FM MAG5100 W
Nominal sensor diameter / Messaufnehmer-Nennweite / Diamètre nominal de capteur	: DN 100 (4")
Product order No. / Produktbestellnummer / N° de référence d'appareil	: 7ME65203TC122AA1
System serial No. / System Seriennummer / N° de série du système	: 254702H048

Technical data / Technische Daten / Données techniques:

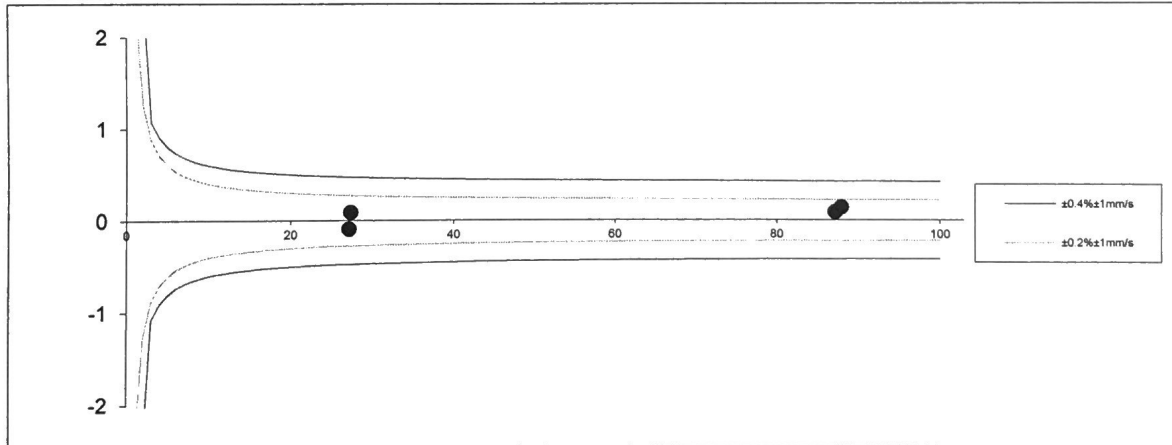
Calibration factor / Kalibrierungsfaktor / Facteur d'étalonnage	: 5.896703251
Calibration medium / Kalibriermedium / Moyen de calibration	: Water / Wasser / Eau
Calibrated full scale flow / Kalibrierter Messbereichsendwert / Fin de plage de mesure étalonnée	: 140 m ³ /h / 616.403 US gpm
Calibration rig / Kalibrierstand / Plate-forme d'étalonnage	: LTR HNU

Standards / Normen / Normes:

Reference meter method (reference meter calibrated according to ISO 4185-1980) / Referenzmessgerätmethode (Referenzgerät kalibriert laut ISO 4185-1980) / Méthode avec compteur de référence (étalonné suivant ISO 4185-1980)

Results / Ergebnisse / Résultats:

Point # Messpunkt nr Point mesure n°	Flowrate Durchfluss Débit [%]	Fluid temperature Flüssigkeitstemperatur Température du fluide		Reference flow value Referenz Durchflusswert Débit de référence		Flowmeter output / Durchflussmessgerätausgang / Sortie de débitmètre		
		[°C]	[°F]	[m ³ /h]	[US gpm]	Flowrate Durchflussmenge / Débit		Error Fehler / Erreur [%]
						[m ³ /h]	[US gpm]	
1	87	18.5	65.3	122.0778	537.4924	122.1815	537.9489	0.09
2	27	18.5	65.3	37.9796	167.2193	37.9472	167.0767	-0.09
3	27	18.6	65.5	38.2788	168.5365	38.3126	168.6855	0.09
4	88	18.6	65.5	123.1081	542.0287	123.2788	542.7801	0.14

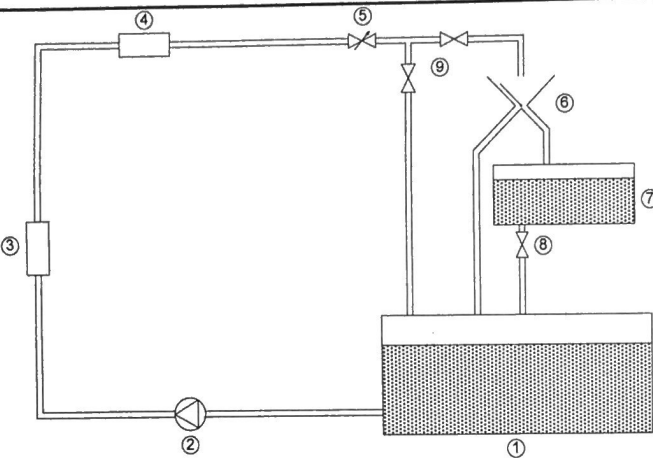


Summary of the results / Zusammenfassung der Ergebnisse: / Sommaire des résultats obtenus :

- The measured values are within the specified limits / Die gemessenen Werte liegen innerhalb der Toleranzen / Les résultats de mesure se trouvent dans les tolérances définies

Siemens SAS Etablissement de Haguenau	issued by / Erstellt von / émis par Weber	Date / Datum / Date 2018/01/31
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Factory Calibration Certificate / Werkskalibrierungszertifikat / Certificat d'étalonnage usine

Test rig characteristics Prüfstand Merkmale / Caractéristiques de la plate-forme de test		
 <p>1) Reservoir / Tank / Réservoir 2) Pump / Pumpe / Pompe 3) One or more reference meters / Ein oder mehrere Referenz Messgeräte / un ou plusieurs débitmètres de référence 4) Meter under test / Messgerät unter Prüfung / Débitmètre en test 5) Control valve / Kontrollventil / Vanne de régulation 6) Diverter / Kippschaltung / Bascule 7) Weighing tank / Gewichtsmessungstank / Cuve de mesure 8) Drain valve / Abflussventil / Vanne de vidange 9) Valve to switch between reference meter method and static/dynamic weighing method / Ventile zum switchen zwischen Referenz Methode und statische/dynamische Gewichtsmessung Methode / Vanne de basculement entre méthode avec débitmètres de référence et méthode par pesée statique or dynamique</p>	Test rig ID / Prüfstand ID / ID de la plate-forme de test	LTR HNU
	Fluid / Flüssigkeit / Fluide	Water / Wasser / Eau
	Fluid temperature / Flüssigkeit Temp. / Temp. du fluide	15-30 °C / 59-86 °F
	Test rig capacity / Prüfstand Kapazität / Capacité de la plate-forme	DN 50...200 / 2"...8"
	Max. Flowrate / Max. Durchfluss / Débit max.	340 m³/h / 1497 US gpm
	Min. Flowrate / Min. Durchfluss. / Débit min	2.2 m³/h / 9.69 US gpm
	Max. Mass / Max.Masse / Masse max.	6000 kg / 13228 lb
	Uncertainty / Ungenauigkeit / Incertitude	+/- 0.1%

Traceability / Rückverfolgbarkeit / Traçabilité

The Siemens flowmeter calibration process is ISO9001-certified, ensuring the entire calibration procedure is controlled to the highest quality standards.

All primary measuring instrumentation used by the Siemens Flow Laboratory during the performance of its calibrations, has been calibrated with international standards traceability referring directly to the physical unit of measurement according to the International System of Units (SI). Therefore the calibration certificate ensures recognition of the test results worldwide, including the US (NIST traceability).

Der Siemens Kalibrierungsprozess für Durchflussmessgeräte ist ISO9001 zertifiziert, sicherstellend, dass das ganze Kalibrierungsverfahren nach den höchsten Qualitätsstandards kontrolliert ist.

Alle Hauptmessinstrumente, die zur Durchführung der Kalibrierungen vom Siemens Durchfluss Laboratorium genutzt werden, sind kalibriert, um eine Rückverfolgbarkeit auf internationale Normen sicherzustellen. Dies bezieht sich direkt auf die Maßeinheit gemäß dem Internationalen Einheitensystem (SI). Das Kalibrierungszertifikat gewährleistet daher die Anerkennung der Prüfergebnisse weltweit, einschließlich in den USA (NIST-Rückverfolgbarkeit).

Le processus d'étalonnage des débitmètres Siemens est certifiée ISO9001 et est contrôlé périodiquement selon les normes qualités en vigueur les plus élevées.

Tous les instruments de mesure primaires utilisés dans les laboratoires Siemens Flow durant les opérations d'étalonnage ont été étalonnés en conformité avec les normes internationales relatives à l'unité de mesure physique, conformément au système international d'unités (SI). Le certificat d'étalonnage garantit ainsi que les résultats obtenus lors des essais sont conformes aux normes internationales, y compris NIST (USA).

Quality inspection certificate / Certificat d'inspection qualité

N° de série / Serial number 254702 H048

VERIFICATION DE L'ASPECT DU SENSOR / Sensor visual aspect check	Resultat / result
Vérifier le collage du rebord du liner / Check the sticking of the edge of the liner Vérifier l'absence de patch sur les électrodes / Check	OK
Vérifier l'aspect intérieur du liner + montage des électrodes + absence de patch de protection des électrodes ==> Voir catalogue d'erreurs FCC / Check the internal appearance of the liner, assembly of electrodes and lack of electrodes patches	OK
Vérifier l'aspect extérieur de la peinture (peinture écaillée, rayures, peau d'orange, excès de peinture, impuretés, problèmes d'apparences, nuances de couleur) ==> Voir catalogue d'erreurs FCC / Check the external appearance of the painting	OK
MAG8000 Afficheur LCD. Vérifier l'aspect (propreté, absence de chocs -coins-, film de protection enlevé) / MAG8000 LCD display. Check of cosmetic errors (cleanliness, no damage, protective film removed)	NA
Vérifier la présence de l'étiquette verte + étoile et contrôler si collées distinctement / Verify the presence and the good sticking of the green label + Star label	OK
Si potting demandé (cockpit) vérifier s'il est réalisé (MAG8000, option Y41, spéciaux) / If MAG8000 check if potting is needed (cockpit) and if it's realized (MAG8000, Y41 option, specials)	NA

La signature certifie la conformité des opérations ci-dessus / The signature certifies the conformity of the above operations

Nom et visa de l'opérateur / Name and visa controller
Date

ANTOINE Guillaume

30 JAN. 2018

VERIFICATION DE L'EMBALLAGE	Resultat / result
Si MAG8000 Remote avec potting dans l'électronique - Vérifier concordance des N° de série sur les étiquettes de l'électronique, du couvercle et du sensor / Compare the serial numbers on the labels between PCBA, the lid and the sensor	NA
Vérification de l'état de l'emballage (aspect du carton, présence mousse de protection) ==> Voir catalogue d'erreurs FCC / Verify the condition of the packaging (appearance of the box, foam presence)	OK
Si batterie au lithium : Contrôler la présence de l'étiquette "produit dangereux" sur carton / If lithium-ion battery : check the presence of the label "Dangerous product" on the box	NA

DIVERS - AUTRES OPTIONS	Resultat / result
Certificat de calibration / Product labels / Etiquette emballage / OF : vérifier la concordance du n° de série système et de la désignation entre les différents supports / Calibration certificate - Compare the serial number of the system and designation with the OF	OK
Product label - vérifier le Calfactor par rapport au certificat de calibration / Check the Calfactor with the calibration certificate	OK

La signature certifie la conformité des opérations ci-dessus / The signature certifies the conformity of the above operations

Nom et visa de l'opérateur / Name and visa controller
Date

ANTOINE Guillaume

30 JAN. 2018

Factory Calibration Certificate / Werkskalibrierungszertifikat / Certificat d'étalonnage usine

Topic / Thema / Sujet: SITRANS F Flowmeter / Durchflussmessgerät / Débitmètre

Object / Betreff / Objet:

Flowmeter type / Durchflussmessgerätyp / Type de débitmètre	: Sitrans FM MAG5100 W
Nominal sensor diameter / Messaufnehmer-Nennweite / Diamètre nominal de capteur	: DN 100 (4")
Product order No. / Produktbestellnummer / N° de référence d'appareil	: 7ME65203TC122AA1
System serial No. / System Seriennummer / N° de série du système	: 311402H058

Technical data / Technische Daten / Données techniques:

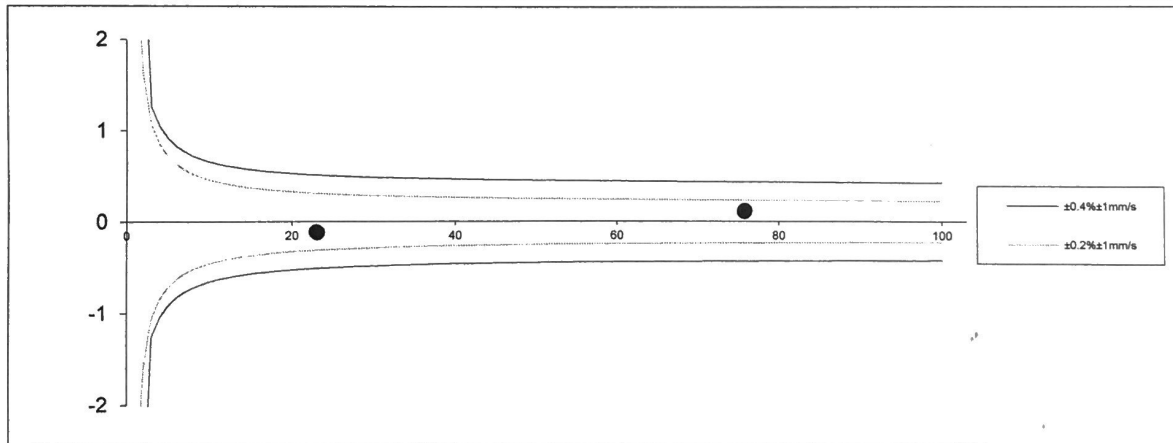
Calibration factor / Kalibrierungsfaktor / Facteur d'étalonnage	: 5.798195839
Calibration medium / Kalibriermedium / Moyen de calibration	: Water / Wasser / Eau
Calibrated full scale flow / Kalibrierter Messbereichsendwert / Fin de plage de mesure étalonnée	: 110 m ³ /h / 484.322 US gpm
Calibration rig / Kalibrierstand / Plate-forme d'étalonnage	: LTR HNU

Standards / Normen / Normes:

Reference meter method (reference meter calibrated according to ISO 4185-1980) / Referenzmessgerätmethode (Referenzgerät kalibriert laut ISO 4185-1980) / Méthode avec compteur de référence (étalonné suivant ISO 4185-1980)

Results / Ergebnisse / Résultats:

Point # Messpunkt nr Point mesure n°	Flowrate Durchfluss Débit [%]	Fluid temperature Flüssigkeitstemperatur Température du fluide		Reference flow value Referenz Durchflusswert Débit de référence		Flowmeter output / Durchflussmessgerätausgang / Sortie de débitmètre		
		[°C]	[°F]	[m ³ /h]	[US gpm]	Flowrate Durchflussmenge / Débit		Error Fehler / Erreur [%]
						[m ³ /h]	[US gpm]	
1	23	21.9	71.4	25.2911	111.3533	25.2626	111.2281	-0.11
2	23	21.9	71.4	25.4009	111.8367	25.3703	111.7020	-0.12
3	76	22.0	71.6	83.3551	367.0016	83.4487	367.4137	0.11
4	76	21.9	71.4	83.4120	367.2520	83.5128	367.6958	0.12



Summary of the results / Zusammenfassung der Ergebnisse: / Sommaire des résultats obtenus :

- The measured values are within the specified limits / Die gemessenen Werte liegen innerhalb der Toleranzen / Les résultats de mesure se trouvent dans les tolérances définies

Siemens SAS Etablissement de Haguenau	Issued by / Erstellt von / émis par Hot	Date / Datum / Date 2018/02/01
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Factory Calibration Certificate / Werkskalibrierungszertifikat / Certificat d'étalonnage usine

Test rig characteristics Prüfstand Merkmale / Caractéristiques de la plate-forme de test		
<p>1) Reservoir / Tank / Réservoir 2) Pump / Pumpe / Pompe 3) One or more reference meters / Ein oder mehrere Referenz Messgeräte / un ou plusieurs débitmètres de référence 4) Meter under test / Messgerät unter Prüfung / Débitmètre en test 5) Control valve / Kontrollventil / Vanne de régulation 6) Diverter / Kippschaltung / Bascule 7) Weighing tank / Gewichtsmessungstank / Cuve de mesure 8) Drain valve / Abflussventil / Vanne de vidange 9) Valve to switch between reference meter method and static/dynamic weighing method / Ventile zum switchen zwischen Referenz Methode und statische/dynamische Gewichtsmessung Methode / Vanne de basculement entre méthode avec débitmètres de référence et méthode par pesée statique or dynamique</p>	Test rig ID / Prüfstand ID / ID de la plate-forme de test	LTR HNU
	Fluid / Flüssigkeit / Fluide	Water / Wasser / Eau
	Fluid temperature / Flüssigkeit Temp. / Temp. du fluide	15-30 °C / 59-86 °F
	Test rig capacity / Prüfstand Kapazität / Capacité de la plate-forme	DN 50...200 / 2"...8"
	Max. Flowrate / Max. Durchfluss / Débit max.	340 m ³ /h / 1497 US gpm
	Min. Flowrate / Min. Durchfluss. / Débit min	2.2 m ³ /h / 9.69 US gpm
	Max. Mass / Max.Masse / Masse max.	6000 kg / 13228 lb
	Uncertainty / Ungenauigkeit / Incertitude	+/- 0.1%

Traceability / Rückverfolgbarkeit / Traçabilité

The Siemens flowmeter calibration process is ISO9001-certified, ensuring the entire calibration procedure is controlled to the highest quality standards.

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Alle Hauptmessinstrumente, die zur Durchführung der Kalibrierungen vom Siemens Durchfluss Laboratorium genutzt werden, sind kalibriert, um eine Rückverfolgbarkeit auf internationale Normen sicherzustellen. Dies bezieht sich direkt auf die Maßeinheit gemäß dem Internationalen Einheitensystem (SI). Das Kalibrierungszertifikat gewährleistet daher die Anerkennung der Prüfergebnisse weltweit, einschließlich in den USA (NIST-Rückverfolgbarkeit).

Le processus d'étalonnage des débitmètres Siemens est certifiée ISO9001 et est contrôlé périodiquement selon les normes qualités en vigueur les plus élevées.

Tous les instruments de mesure primaires utilisés dans les laboratoires Siemens Flow durant les opérations d'étalonnage ont été étalonnés en conformité avec les normes internationales relatives à l'unité de mesure physique, conformément au système international d'unités (SI). Le certificat d'étalonnage garantit ainsi que les résultats obtenus lors des essais sont conformes aux normes internationales, y compris NIST (USA).

Quality inspection certificate / Certificat d'inspection qualité

N° de serie / Serial number **344 402 H 038**

VERIFICATION DE L'ASPECT DU SENSOR / Sensor visual aspect check	Resultat / result
Vérifier le collage du rebord du liner / Check the sticking of the edge of the liner Vérifier l'absence de patch sur les électrodes / Check	OK
Vérifier l'aspect intérieur du liner + montage des électrodes + absence de patch de protection des électrodes ==> Voir catalogue d'erreurs FCC / Check the internal appearance of the liner, assembly of electrodes and lack of electrodes patches	OK
Vérifier l'aspect extérieur de la peinture (peinture écaillée, rayures, peau d'orange, excès de peinture, impuretés, problèmes d'apparences, nuances de couleur) ==> Voir catalogue d'erreurs FCC / Check the external appearance of the painting	OK
MAG8000 Afficheur LCD. Vérifier l'aspect (propreté, absence de chocs -coins-, film de protection enlevé) / MAG8000 LCD display. Check of cosmetic errors (cleanliness, no damage, protective film removed)	NA
Vérifier la présence de l'étiquette verte + étoile et contrôler si collées distinctement / Verify the presence and the good sticking of the green label + Star label	OK
Si potting demandé (cockpit) vérifier s'il est réalisé (MAG8000, option Y41, spéciaux) / If MAG8000 check if potting is needed (cockpit) and if it's realized (MAG8000, Y41 option, specials)	NA

La signature certifie la conformité des opérations ci-dessus / The signature certify the conformity of the above operations
Nom et visa de l'opérateur / Name and visa controller
Date

ANTOINE Guillaume
01 FEV. 2018

VERIFICATION DE L'EMBALLAGE	Resultat / result
Si MAG8000 Remote avec potting dans l'électronique - Vérifier concordance des N° de série sur les étiquettes de l'électronique, du couvercle et du sensor / Compare the serial numbers on the labels between PCBA, the lid and the sensor	NA
Vérification de l'état de l'emballage (aspect du carton, présence mousse de protection) => Voir catalogue d'erreurs FCC / Verify the condition of the packaging (appearance of the box, foam presence)	OK
Si batterie au lithium : Contrôler la présence de l'étiquette "produit dangereux" sur carton / If lithium-ion battery : check the presence of the label "Dangerous product" on the box	NA

DIVERS - AUTRES OPTIONS	Resultat / result
Certificat de calibration / Product labels / Etiquette emballage / OF : vérifier la concordance du n° de série système et de la désignation entre les différents supports / Calibration certificate - Compare the serial number of the system and designation with the OF	OK
Product label - vérifier le Calfactor par rapport au certificat de calibration / Check the Calfactor with the calibration certificate	OK

La signature certifie la conformité des opérations ci-dessus / The signature certify the conformity of the above operations
Nom et visa de l'opérateur / Name and visa controller
Date

ANTOINE Guillaume
01 FEV. 2018

GEOSENSE QUALITY FORM
 FORM No G/QF/149
 ISS. 7
 DATE : Jan-16
 SIG. GC

STANDARD VW PIEZOMETER LAE CALIBRATION

Model	VWP-3000	Cal date	11/04/2018	SN.	8233
Serial	330484	Baro	999.0	Readout No.	VR0602
Works ID	71 4 3	Temp °C	20	R/O Cal. date	11/08/2017

Applied pressure		Readings [digit]			Calculated Pressure		Error % fso	
psi	kPa	1 up	1 down	avg.[digit]	lin.[kPa]	polyn.[kPa]	linear	polynomial
0.000	0.000	8858.2	8856.1	8857.2	2.81	-0.37	0.19%	-0.02%
43.510	300.000	8060.2	8063.1	8061.7	300.05	300.67	0.00%	0.04%
87.020	600.000	7264.5	7266.7	7265.6	597.49	600.04	-0.17%	0.00%
130.529	900.000	6463.0	6465.5	6464.3	896.91	899.50	-0.21%	-0.03%
174.039	1200.000	5654.4	5655.4	5654.9	1199.33	1200.02	-0.04%	0.00%
217.549	1500.000	4841.4	4841.3	4841.4	1503.31	1500.13	0.22%	0.01%

Calibration of Fluke Pressure Controller PPC4EX S/N: 8233 valid from 23rd March 2018. Certificate of Calibration No 47934, Chamois Metrology UKAS No 0822

CALIBRATION FACTORS

Linear factor (k)

kPa per digit
-0.373649171

psi per digit
-0.054191

mH ₂ O per digit
-0.038102

Polynomial factors

A
B
C

kPa
-1.48459E-06
-0.353312402

psi
-2.15314E-07
-0.051242

mH ₂ O
-1.5139E-07
-0.036028

Thermal factor (T)

kPa per °C
0.375436476

psi per °C
0.05445054

mH ₂ O per °C
0.038284

Note: Digits are Hz² x 10⁻³ units.

(please consult the User Manuals for conversion of alternative reading units)

Polynomial calculation [kPa] = A * (Reading)² + B * (Reading) + C + T * (Current Temp - Site Zero Temp)

C = -A*(Site Zero Reading²) - B*(Site Zero Reading)

Linear calc = k (kPa) * (Current Reading - Site Zero Reading) + T * (Current Temp - Site Zero Temp)

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 t +44 (0)1359 270457 f +44 (0)1359 272860 e info@geosense.co.uk



GEOSENSE QUALITY FORM
 FORM No G/QF/149
 ISS. 7
 DATE : Jan-16
 SIG. GC

STANDARD VW PIEZOMETER LAE CALIBRATION

Model	VWP-3000	Cal date	11/04/2018	SN.	8233
Serial	330541	Baro	999.0	Readout No.	VR0602
Works ID	71 4 60	Temp °C	20	R/O Cal. date	11/08/2017

Applied pressure		Readings [digit]			Calculated Pressure		Error % fso	
psi	kPa	1 up	1 down	avg. [digit]	lin. [kPa]	polyn. [kPa]	linear	polynomial
0.000	0.000	8695.2	8695.0	8695.1	-4.02	-0.49	-0.27%	-0.03%
43.510	300.000	7896.8	7897.3	7897.1	300.61	299.89	0.04%	-0.01%
87.020	600.000	7099.1	7100.3	7099.7	604.98	602.18	0.33%	0.15%
130.529	900.000	6320.7	6323.0	6321.9	901.90	899.15	0.13%	-0.06%
174.039	1200.000	5543.2	5545.2	5544.2	1198.75	1198.10	-0.08%	-0.13%
217.549	1500.000	4760.6	4761.8	4761.2	1497.64	1501.18	-0.16%	0.08%

Calibration of Fluke Pressure Controller PPC4EX S/N: 8233 valid from 23rd March 2018. Certificate of Calibration No 47934, Chamois Metrology UKAS No 0822

CALIBRATION FACTORS

Linear factor (k)

kPa per digit
-0.381723655

psi per digit
-0.055362

mH ₂ O per digit
-0.038925

Polynomial factors

A
B
C

kPa
1.6984E-06
-0.40457963

psi
2.46323E-07
-0.058677

mH ₂ O
1.7319E-07
-0.041256

Thermal factor (T)

kPa per °C
0.347449649

psi per °C
0.050391537

mH ₂ O per °C
0.035430

Note: Digits are Hz² x 10⁻³ units.

(please consult the User Manuals for conversion of alternative reading units)

Polynomial calculation [kPa] = A * (Reading)² + B * (Reading) + C + T * (Current Temp - Site Zero Temp)

C = -A*(Site Zero Reading²) - B*(Site Zero Reading)

Linear calc = k (kPa) * (Current Reading - Site Zero Reading) + T * (Current Temp - Site Zero Temp)

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STANDARD VW PIEZOMETER LAE CALIBRATION

Model	VWP-3000	Cal date	11/04/2018	SN.	8233
Serial	330519	Baro	999.0	Readout No.	VR0602
Works ID	71 4 38	Temp °C	20	R/O Cal. date	11/08/2017

Applied pressure		Readings [digit]			Calculated Pressure		Error % fso	
psi	kPa	1 up	1 down	avg.[digit]	lin.[kPa]	polyn.[kPa]	linear	polynomial
0.000	0.000	8585.9	8584.1	8585.0	-2.78	-0.52	-0.19%	-0.03%
43.510	300.000	7840.0	7844.4	7842.2	301.59	301.12	0.11%	0.07%
87.020	600.000	7108.7	7112.3	7110.5	601.41	599.61	0.09%	-0.03%
130.529	900.000	6376.6	6380.0	6378.3	901.43	899.65	0.10%	-0.02%
174.039	1200.000	5647.7	5649.7	5648.7	1200.39	1199.97	0.03%	0.00%
217.549	1500.000	4921.6	4923.6	4922.6	1497.91	1500.16	-0.14%	0.01%

Calibration of Fluke Pressure Controller PPC4EX S/N: 8233 valid from 23rd March 2018. Certificate of Calibration No 47934, Chamois Metrology UKAS No 0822

CALIBRATION FACTORS

Linear factor (k)

kPa per digit
-0.40975601

psi per digit
-0.059428

mH ₂ O per digit
-0.041783

Polynomial factors

A
B
C

kPa
1.25533E-06
-0.426710868

psi
1.82064E-07
-0.061887

mH ₂ O
1.2801E-07
-0.043512

Thermal factor (T)

kPa per °C
0.21610065

psi per °C
0.031341646

mH ₂ O per °C
0.022036

Note: Digits are Hz² x 10⁻³ units.

(please consult the User Manuals for conversion of alternative reading units)

Polynomial calculation [kPa] = A * (Reading)² + B * (Reading) + C + T * (Current Temp - Site Zero Temp)

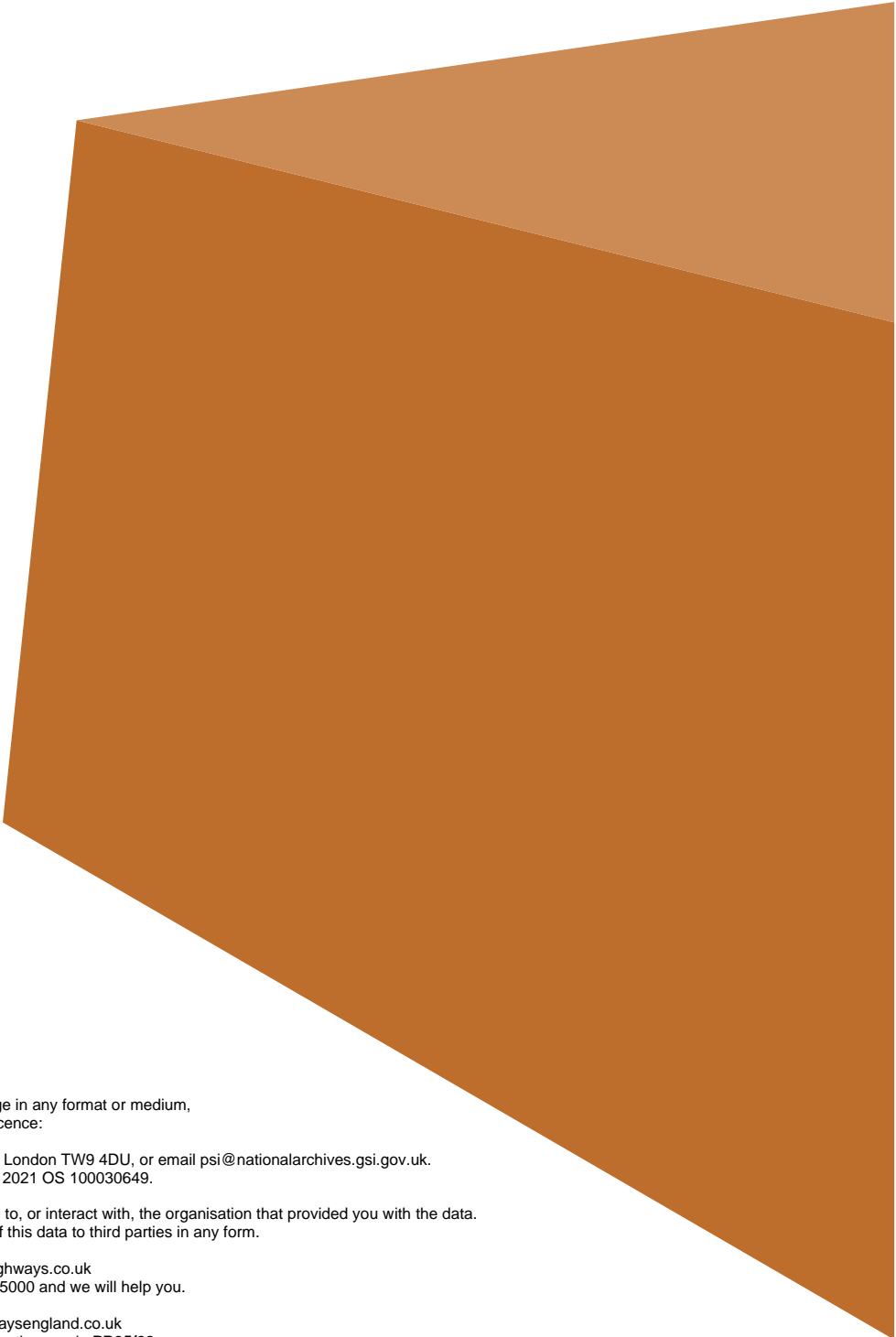
C = -A*(Site Zero Reading²) - B*(Site Zero Reading)

Linear calc = k (kPa) * (Current Reading - Site Zero Reading) + T * (Current Temp - Site Zero Temp)

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 t +44 (0)1359 270457 f +44 (0)1359 272860 e info@geosense.co.uk



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