Micro Motion, Inc.

Mass Flowmeter Calibration Certificate

15098259

Product Code	Serial ID	Order ID	Line	Item	Customer Tag
CNG050S290NCAAEZZZ	15098259	10392206	2.1	2	21011306A

Process

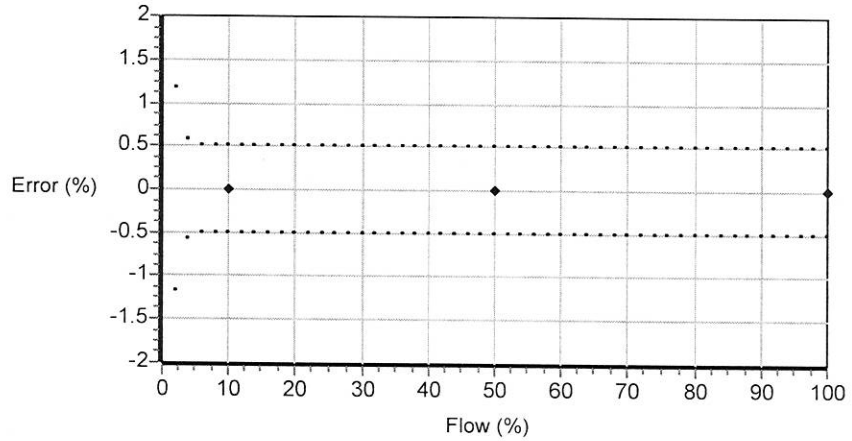
Process ID : 9.27640921
Process Time : 2020.11.16 12:46:49
Process Stand : SSF1E@SSCCL:1
Stand Uncertainty : +/-0.030%
Fluid : H20
100% Rate : 38.6 KG/MIN
Pickoff : 1
Max Rate P/T : 41.64 PSIG/23.6 C

Results

Status : PASS
D1 : 0
D2 : 1
K1 : 4032.522
K2 : 4198.846
DT : 4.25
FD : 0
DTG : 0
DFQ1 : 0
DFQ2 : 0
FlowCal : 142.284.50
FFQ : 0
FTG : 0
DensCal : 04033041994.25
FCF : 142.28
FT : 4.5

RAZVAN OCTAVIAN, COSMA
Technician
This certificate is produced by an electronic data system and is valid without signature.

Detail



Flow (%)	Flow Rate (kg/min)	Meter Total (kg)	Reference Total (kg)	Error (%)	Specification (±%)
100.0	38.6	38.33495	38.33684	-0.005	0.500
10.0	3.86	7.865007	7.865688	-0.009	0.500
50.0	19.3	19.75741	19.75655	0.004	0.500
100.0	38.6	38.26868	38.26874	0.000	0.500

Traceable to one or more of the following National Metrology Institutes: NIM-China, NIST-USA, and VSL-The Netherlands

Micro Motion, Inc.

Transmitter Configuration Report

3480832

Product Code	Serial ID	Order ID	Line	Item	Customer Tag
CNG050S290NCAAEZZZ	15098259	10392206	2.1	2	210T306A
2700I13ABAEZWZ	3480832	10392206	2.34	2	
PUCK700	26112740				

Process

Process ID : 1.36090861
Process Time : 2021.01.26 18:47:10
Process Stand : CONFIGURATION@SSCB

Sensor

D1 : 0
D2 : 1
DFQ1 : 0
DFQ2 : 0
DT : 4.25
DTG : 0
Dens PCF : 0
Density Meter Factor : 1
FCF : 142.28
FD : 0
FFQ : 0
FT : 4.5
FTG : 0
Flow PCP : 30
Flow PCF : 0
K1 : 4032.522
K2 : 4198.846
Mass Flow Meter Factor : 1
Volume Flow Meter Factor : 1

Units

Density Unit : G/CM3
GSV Flow Unit : SCFM
Mass Flow Unit : G/SEC
Pressure Unit : POUNDS/SQUARE INCH
Special GSV Base Time Unit : MIN
Special GSV Base Volume Unit : Standard cubic feet
Special GSV Conv Factor : 1
Special GSV Flow Unit Text : NONE
Special GSV Total Text : NONE
Special Mass Base Unit : G
Special Mass Conv Factor : 1
Special Mass Flow Text : NONE

Units

Special Mass Time Unit : SEC
Special Mass Total Text : NONE
Special Volume Base Unit : L
Special Volume Conv Factor : 1
Special Volume Flow Text : NONE
Special Volume Time Unit : SEC
Special Volume Total Text : NONE
Temperature Unit : C
Volume Flow Unit : L/MIN

MVD Channel Assignments

Channel B Power : Active (internally powered)

Assignments

Event 1 Variable : Density
Event 2 Variable : Density
Frequency1 Scaling Method : Frequency = Flow
Frequency Variable 1 : Mass Flow Rate
mA1 Variable : Mass Flow Rate

Ranges

Event 1 Setpoint : 0
Event 1 Type : Event Low (Event "OFF" if PV > SP)
Event 2 Setpoint : 0
Event 2 Type : Event Low (Event "OFF" if PV > SP)
Frequency1 Active State : Active High
Frequency1 Hertz : 1000
Frequency1 Output Mode : Single
Frequency1 Pulses/Unit : 1.554404
Frequency1 Rate : 643.3333
Frequency1 Units/Pulse : 0.6433333
mA1 LRV : 0
mA1 URV : 643.3333

Faults

Frequency1 Fault Behavior : Upscale

21011306A

Faults

Frequency1 Fault Value	15000
mA1 Fault Behavior	Downscale (Default)
mA1 Fault Value	2

Other

Calibration Process ID	9.27640921
Core Software Rev	35
Density Cutoff	0.2
Density Damping	1.6
Density High Limit	5
Density Low Limit	0
Direction	FORWARD
Fault Dwell Time	0
Feature Key	1
Flow Damping	0.8
HART Device ID	6120750
LD Type	0
Mass Flow Cutoff	1.836
Pressure Comp Line Pressure	0
Pressure Compensation State	OFF
RS485 Baud	1200 baud
RS485 Parity	Odd
RS485 Protocol	HART
Slug Duration	0
Tag	
Temperature Damping	4.8
Transmitter Software Rev	80
Volume Flow Cutoff	0.11016

Tulsa Gas Technologies, Inc.
4809 S. 101st East Ave Tulsa, OK 74146
PHONE: 918-665-2641 FAX: 918-665-2657

2/2/2021
Dispenser Serial Number 21011306
Side A

Micro Motion Transmitter Configuration

Required settings for correct operation of Micro Motion mass flow meter.

Transmitter Model Number:	2700
Sensor Model Number:	CNG095
Transmitter Serial Number:	3480832
Sensor Serial Number	15098259
Flow Calibration Factor:	142.284.50
Flow Units	lb/min

Communication on RS-485

Protocol	Modbus ASCII 7 Bit
Modbus Address	1
Baud Rate	9600
Parity	Even
Stop Bits	1

HART Communication

Superimposed on Primary mA (PV)

Analog Output (4-20 mA)

Analog Variable (PV)	Mass Flow
Lower Range Value	00000 lb/min
Upper Range Value	300.000 lb/min
mA Cutoff	0.0000 lb/min

Freq/Rate

Frequency variable (TV)	Mass Flow
Frequency Cutoff	0.2500 lb/min
Pulses per Unit	1000.00000 per lb

Temperature

Temp Units	deg F

Micro Motion, Inc.

Mass Flowmeter Calibration Certificate

15098182

Product Code	Serial ID	Order ID	Line	Item	Customer Tag
CNG050S290NCAAEZZZ	15098182	10392206	1.1	2	21011306B

Process

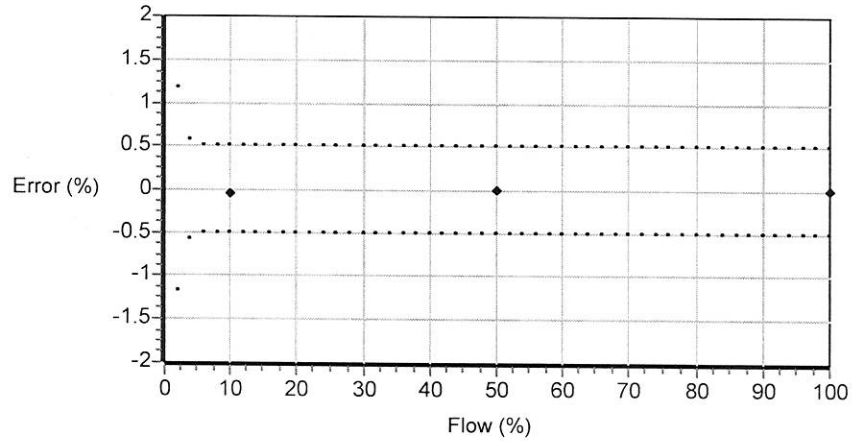
Process ID : 9.27628615
Process Time : 2020.11.13 9:31:09
Process Stand : SSF1E@SSCCL:1
Stand Uncertainty : +/-0.030%
Fluid : H20
100% Rate : 38.6 KG/MIN
Pickoff : 1
Max Rate P/T : 41.7 PSIG/22.8 C

Results

Status : PASS
D1 : 0
D2 : 1
K1 : 4040.784
K2 : 4205.171
DT : 4.25
FD : 0
DTG : 0
DFQ1 : 0
DFQ2 : 0
FlowCal : 143.074.50
FFQ : 0
FTG : 0
DensCal : 04041042054.25
FCF : 143.07
FT : 4.5

BUNGARDEAN, OVIDIU
Technician
This certificate is produced by an electronic data system and is valid without signature.

Detail



Flow (%)	Flow Rate (kg/min)	Meter Total (kg)	Reference Total (kg)	Error (%)	Specification (±%)
100.0	38.6	38.30342	38.30315	0.001	0.500
10.0	3.86	7.885723	7.888806	-0.039	0.500
50.0	19.3	19.73843	19.73775	0.003	0.500
100.0	38.6	38.30921	38.31018	-0.003	0.500

Micro Motion, Inc.

Transmitter Configuration Report

3481951

Product Code	Serial ID	Order ID	Line	Item	Customer Tag
CNG050S290NCAAEZZZ	15098182	10392206	1.1	2	21011306B
2700I13ABAEZWZ	3481951	10392206	1.34	2	
PUCK700	26119071				

Process

Process ID : 1.36090896
Process Time : 2021.01.26 19:20:55
Process Stand : CONFIGURATION@SSCB

Sensor

D1 : 0
D2 : 1
DFQ1 : 0
DFQ2 : 0
DT : 4.25
DTG : 0
Dens PCF : 0
Density Meter Factor : 1
FCF : 143.07
FD : 0
FFQ : 0
FT : 4.5
FTG : 0
Flow PCP : 30
Flow PCF : 0
K1 : 4040.784
K2 : 4205.171
Mass Flow Meter Factor : 1
Volume Flow Meter Factor : 1

Units

Density Unit : G/CM3
GSV Flow Unit : SCFM
Mass Flow Unit : G/SEC
Pressure Unit : POUNDS/SQUARE INCH
Special GSV Base Time Unit : MIN
Special GSV Base Volume Unit : Standard cubic feet
Special GSV Conv Factor : 1
Special GSV Flow Unit Text : NONE
Special GSV Total Text : NONE
Special Mass Base Unit : G
Special Mass Conv Factor : 1
Special Mass Flow Text : NONE

Units

Special Mass Time Unit : SEC
Special Mass Total Text : NONE
Special Volume Base Unit : L
Special Volume Conv Factor : 1
Special Volume Flow Text : NONE
Special Volume Time Unit : SEC
Special Volume Total Text : NONE
Temperature Unit : C
Volume Flow Unit : L/MIN

MVD Channel Assignments

Channel B Power : Active (internally powered)

Assignments

Event 1 Variable : Density
Event 2 Variable : Density
Frequency1 Scaling Method : Frequency = Flow
Frequency Variable 1 : Mass Flow Rate
mA1 Variable : Mass Flow Rate

Ranges

Event 1 Setpoint : 0
Event 1 Type : Event Low (Event "OFF" if PV > SP)
Event 2 Setpoint : 0
Event 2 Type : Event Low (Event "OFF" if PV > SP)
Frequency1 Active State : Active High
Frequency1 Hertz : 1000
Frequency1 Output Mode : Single
Frequency1 Pulses/Unit : 1.554404
Frequency1 Rate : 643.3333
Frequency1 Units/Pulse : 0.6433333
mA1 LRV : 0
mA1 URV : 643.3333

Faults

Frequency1 Fault Behavior : Upscale

21011306B

Faults

Frequency1 Fault Value	15000
mA1 Fault Behavior	Downscale (Default)
mA1 Fault Value	2

Other

Calibration Process ID	9.27628615
Core Software Rev	35
Density Cutoff	0.2
Density Damping	1.6
Density High Limit	5
Density Low Limit	0
Direction	FORWARD
Fault Dwell Time	0
Feature Key	1
Flow Damping	0.8
HART Device ID	6120754
LD Type	0
Mass Flow Cutoff	1.836
Pressure Comp Line Pressure	0
Pressure Compensation State	OFF
RS485 Baud	1200 baud
RS485 Parity	Odd
RS485 Protocol	HART
Slug Duration	0
Tag	
Temperature Damping	4.8
Transmitter Software Rev	80
Volume Flow Cutoff	0.11016

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2/2/2021
Dispenser Serial Number 21011306
Side B

Micro Motion Transmitter Configuration

Required settings for correct operation of Micro Motion mass flow meter.

Transmitter Model Number:	2700
Sensor Model Number:	CNG095
Transmitter Serial Number:	3481951
Sensor Serial Number	15098182
Flow Calibration Factor:	143.074.50
Flow Units	lb/min

Communication on RS-485

Protocol	Modbus ASCII 7 Bit
Modbus Address	1
Baud Rate	9600
Parity	Even
Stop Bits	1

HART Communication

Superimposed on Primary mA (PV)

Analog Output (4-20 mA)

Analog Variable (PV)	Mass Flow
Lower Range Value	00000 lb/min
Upper Range Value	300.000 lb/min
mA Cutoff	0.0000 lb/min

Freq/Rate

Frequency variable (TV)	Mass Flow
Frequency Cutoff	0.2500 lb/min
Pulses per Unit	1000.00000 per lb

Temperature

Temp Units	deg F