

Mass, Chinese TAIPEI, CMS (Center for Measurement Standards)

Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty						
Class	Instrument or Artifact	Instrument Type or Method	Minimum value	Maximum value	Units	Parameter	Specifications	Value	Units	Coverage Factor	Level of Confidence	Is the expanded uncertainty a relative one?	NMI internal service identifier	Comments
Mass gas flowrate	Gas flow sensors	Critical nozzle, laminar flow element	0.04	200	mg/s	Fluid	non-corrosive, non-toxic gases (N ₂ , CO ₂ , air, Ar)	0.16	%	2	95%	Yes	F-09	Masse: higher or equal 2 g, time: higher or equal 60 s
						Pressure	< 500 kPa							
						Temperature	23 °C ± 3 °C							
						Test line	4 mm to 13 mm							
						Weighing tanks	6 dm ³ , 32 dm ³							
Mass gas flowrate	Gas flow sensors	Critical nozzle, thermal mass flowmeter	0.4	480	mg/s	Fluid	dry air, Nitrogen	0.12	%	2	95%	Yes	F-08	Time: higher or equal 60 s
						Pressure	< 500 kPa							
						Temperature	23 °C ± 3 °C							
						Test line	3 mm to 12.5 mm							
						Measuring volume	0.2 dm ³ to 12 dm ³							
Mass gas flowrate	Gas flow sensors	Critical nozzle, thermal mass flowmeter	0.1	12	g/s	Fluid	dry air	0.1	%	2	95%	Yes	F-06	Time: higher or equal 60 s
						Pressure	< 500 kPa							
						Temperature	23 °C ± 3 °C							
						Test line	6 mm to 50 mm							
						Measuring	20 dm ³ to 60							

Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty						NMI internal service identifier	Comments
Class	Instrument or Artifact	Instrument Type or Method	Minimum value	Maximum value	Units	Parameter	Specifications	Value	Units	Coverage Factor	Level of Confidence	Is the expanded uncertainty a relative one?			
Mass water flowrate	Mass flow sensors	Coriolis	3.3	133	kg/s	Fluid	water	0.07	%	2.2	95%	Yes	F-01	Time: higher or equal 60 s	
						Pressure	< 0.5 MPa								
						Temperature	as flow condition								
						Test line	50 mm to 250 mm								
Mass hydrocarbon flowrate	Hydrocarbon flow sensors	Coriolis	4	80	kg/s	Fluid	light oil	0.05	%	2	95%	Yes	F-03	Time: higher or equal 60 s, kinematic viscosity: 2.5E-06 m ² /s to 5.5E-06 m ² /s	
						Pressure	< 0.5 MPa								
						Temperature	10 °C to 45 °C								
						Test line	50 mm to 200 mm								
Mass hydrocarbon flowrate	Hydrocarbon flow sensors	Coriolis	4.3	71.7	kg/s	Fluid	spindle oil	0.05	%	2	95%	Yes	F-04	Time: higher or equal 60 s, kinematic viscosity: 35E-06 m ² /s to 150E-06 m ² /s	
						Pressure	< 0.5 MPa								
						Temperature	15 °C to 45 °C								
						Test line	50 mm to 200 mm								
						Weigh tank	6000 kg								

Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty							
Class	Instrument or Artifact	Instrument Type or Method	Minimum value	Maximum value	Units	Parameter	Specifications	Value	Units	Coverage Factor	Level of Confidence	Is the expanded uncertainty a relative one?	NMI internal service identifier	Comments	
Volume gas flowrate	Gas flow sensors	Thermal mass flowmeter, pulse producing, DP, nozzles, indicator type	0.0333	166.67	cm ³ /s	Fluid	non-corrosive, non-toxic gases (N ₂ , CO ₂ , air, Ar)	0.25	%	2	95%	Yes	F-09		
						Pressure	< 500 kPa								
						Temperature	23 °C ± 3 °C								
						Test line	4 mm to 13 mm								
Volume gas flowrate	Gas flow sensors	Thermal mass flowmeter, pulse producing, DP, nozzles, indicator type	0.333	400	cm ³ /s	Fluid	dry air, Nitrogen	0.13	%	2	95%	Yes	F-08	Time: higher or equal 30 s	
						Pressure	< 500 kPa								
						Temperature	23 °C ± 3 °C								
						Test line	3 mm to 12.5 mm								
Volume gas flowrate	Gas flow sensors	Thermal mass flowmeter, pulse producing, DP, nozzles, indicator type	0.1	10	dm ³ /s	Fluid	dry air	0.1	%	2	95%	Yes	F-06	Time: higher or equal 60 s	
						Pressure	< 500 kPa								
						Temperature	23 °C ± 3 °C								
						Test line	6 mm to 50 mm								
						Volume	20 dm ³ to 60 dm ³								

Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty							
Class	Instrument or Artifact	Instrument Type or Method	Minimum value	Maximum value	Units	Parameter	Specifications	Value	Units	Coverage Factor	Level of Confidence	Is the expanded uncertainty a relative one?	NMI internal service identifier	Comments	
Volume gas flowrate	Gas flow sensors	Thermal mass flowmeter, pulse producing, DP, nozzles, indicator type	0.1	10	dm ³ /s	Fluid	dry air	0.15	%	2	95%	Yes	F-07	Time: higher or equal 60 s	
						Pressure	< 500 kPa								
						Temperature	23 °C ± 3 °C								
						Test line	6 mm to 50 mm								
					Volume	200 dm ³ to 600 dm ³									
Volume gas flowrate	High pressure gas flow sensors	Positive displacement, turbine, venturi, critical nozzle, differential pressure, ultrasonic, vortex, V-cone	4.167	5000	dm ³ /s	Fluid	dry air	0.26	%	2	95%	Yes	F-05	Time: higher or equal 17 s	
						Pressure	0.1 MPa to 6 MPa								
						Temperature	as flow condition								
						Nozzles diameter	23 mm to 3.351 mm								
					Pipe size	50 mm to 150 mm									
Volume water flowrate	Volumetric flow sensors	Positive displacement, turbine, vortex meter, electromagnetic	0.667	9.167	dm ³ /s	Fluid	water	0.03 to 0.05	%	2	95%	Yes	F-01	Time: higher or equal 60 s, 16 m CHT 1.5 m ³	
						Pressure	smaller or equal 0.14 MPa								
						Temperature	10 °C to 45 °C								
						Test line	25 mm to 50 mm								
					Weigh tank	600 kg									

Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty							
Class	Instrument or Artifact	Instrument Type or Method	Minimum value	Maximum value	Units	Parameter	Specifications	Value	Units	Coverage Factor	Level of Confidence	Is the expanded uncertainty a relative one?	NMI internal service identifier	Comments	
Volume water flowrate	Volumetric flow sensors	Positive displacement, turbine, differential pressure, ultrasonic, vortex meter, electromagnetic	3.333	133.33	dm ³ /s	Fluid	water	0.07	%	2.2	95%	Yes	F-02	Time: higher or equal 60 s	
						Pressure	< 0.5 MPa								
						Temperature	as flow condition								
						Test line	50 mm to 250 mm								
Volume hydrocarbon flowrate	Hydrocarbon flow sensors	Positive displacement, turbine	5	100	dm ³ /s	Fluid	light oil	0.05	%	2	95%	Yes	F-03	Time: higher or equal 60 s, kinematic viscosity: 2.5E-06 m ² /s to 5.5E-06 m ² /s	
						Pressure	< 0.5 MPa								
						Temperature	10 °C to 45 °C								
						Test line	50 mm to 200 mm								
Volume hydrocarbon flowrate	Hydrocarbon flow sensors	Positive displacement, turbine	5	83.333	dm ³ /s	Fluid	spindle oil	0.05	%	2	95%	Yes	F-04	Time: higher or equal 60 s, kinematic viscosity: 35E-06 m ² /s to 150E-06 m ² /s	
						Pressure	< 0.5 MPa								
						Temperature	15 °C to 45 °C								
						Test line	50 mm to 200 mm								
						Weigh tank	6000 kg								

Calibration and Measurement Capabilities

Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty						NMI internal service identifier	Comments
Class	Instrument or Artifact	Instrument Type or Method	Minimum value	Maximum value	Units	Parameter	Specifications	Value	Units	Coverage Factor	Level of Confidence	Is the expanded uncertainty a relative one?			
Air speed	Anemometer	Ultrasonic, Pitot tube, thermal anemometer, fan	0.1	15	m/s	Temperature	ambient	0.6	%	2	95%	Yes	F14		
						Pressure	ambient								
						Wind tunnel test section	162 mm x 162 mm								