

Mass and Related Quantities, Slovakia, SMU (Slovensky Metrologicky Ustav)

Calibration or Measurement Service			Measurand Level or Range			Measurement Conditions/Independent Variable		Expanded Uncertainty					Comments	NMI Service Identifier
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	Mass standards	Comparison in air	1	100	mg			1 to 2	µg	2	95%	No	Uncertainty scales with measurand level. The volume of the mass standards is known.	
Mass	Mass standards	Comparison in air	0.1	1	g			2 to 4	µg	2	95%	No	Uncertainty scales with measurand level. The volume of the mass standards is known.	
Mass	Mass standards	Comparison in air	1	10	g			4 to 7	µg	2	95%	No	Uncertainty scales with measurand level. The volume of the mass standards is known.	
Mass	Mass standards	Comparison in air	10	100	g			7 to 20	µg	2	95%	No	Uncertainty scales with measurand level. The volume of the mass standards is known.	
Mass	Mass standards	Comparison in air	0.1	1	kg			20 to 80	µg	2	95%	No	Uncertainty scales with measurand level. The volume of the mass standards is known.	
Mass	Mass standards	Comparison in air	1	10	kg			0.08 to 2	mg	2	95%	No	Uncertainty scales with measurand level. The volume of the mass standards is known.	

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Mass	Mass standards	Comparison in air	10	50	kg			2 to 10	mg	2	95%	No	Uncertainty scales with measurand level. The volume of the mass standards is known.	
Absolute pressure	Pressure balances	Gas medium	3.00E+03	3.00E+06	Pa			2.8E-05p, p pressure in Pa	Pa	2	95%	No	Uncertainty values range from 8.4E-02 Pa to 8.4E+01 Pa	
Gauge pressure	Pressure balances	Gas medium	3.00E+03	7.00E+06	Pa			2.8E-05p, p pressure in Pa	Pa	2	95%	No	Uncertainty values range from 8.4E-02 Pa to 2.0E+02 Pa	
Gauge pressure	Pressure balances	Oil medium	2.5E+05	6.0E+06	Pa			2.2E-05p to 3.2E-05p, p pressure in Pa	Pa	2	95%	No	Uncertainty values range from 5.5 Pa to 1.9E+02 Pa	
Gauge pressure	Pressure balances	Oil medium	6.0E+06	2.0E+07	Pa			3.2E-05p, p pressure in Pa	Pa	2	95%	No	Uncertainty values range from 1.9E+02 Pa to 6.4E+02 Pa	
Gauge pressure	Pressure balances	Oil medium	2.0E+07	1.0E+08	Pa			4.8E-05p, p pressure in Pa	Pa	2	95%	No	Uncertainty values range from 9.6E+02 Pa to 4.8E+03 Pa	
Kinematic viscosity	Newtonian liquids	Capillary viscometer	0.001	0.01	mm ² /s ²	Temperature	20 °C	0.1	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	
Kinematic viscosity	Newtonian liquids	Capillary viscometer	0.01	0.03	mm ² /s ²	Temperature	20 °C	0.13	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	

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Kinematic viscosity	Newtonian liquids	Capillary viscometer	0.03	3	mm ² /s ²	Temperature	20 °C	0.25	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	
Kinematic viscosity	Newtonian liquids	Capillary viscometer	3	10	mm ² /s ²	Temperature	20 °C	0.35	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	
Kinematic viscosity	Newtonian liquids	Capillary viscometer	10	100	mm ² /s ²	Temperature	20 °C	0.45	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	
Kinematic viscosity	Newtonian liquids	Reference liquid	0.5	40	mm ² /s	Temperature	20 °C	0.2	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	
Kinematic viscosity	Newtonian liquids	Reference liquid	80	300	mm ² /s	Temperature	20 °C	0.25	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	
Kinematic viscosity	Newtonian liquids	Reference liquid	500	2000	mm ² /s	Temperature	20 °C	0.3	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	
Kinematic viscosity	Newtonian liquids	Reference liquid	4000	15000	mm ² /s	Temperature	20 °C	0.4	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	

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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?		
Kinematic viscosity	Newtonian liquids	Reference liquid	20000	70000	mm ² /s	Temperature	20 °C	0.5	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	
Dynamic viscosity	Newtonian liquids	Reference liquid	0.5	40	mPa s	Temperature	20 °C	0.2	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	
Dynamic viscosity	Newtonian liquids	Reference liquid	80	300	mPa s	Temperature	20 °C	0.25	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	
Dynamic viscosity	Newtonian liquids	Reference liquid	500	2000	mPa s	Temperature	20 °C	0.3	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	
Dynamic viscosity	Newtonian liquids	Reference liquid	4000	15000	mPa s	Temperature	20 °C	0.4	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	
Dynamic viscosity	Newtonian liquids	Reference liquid	20000	70000	mPa s	Temperature	20 °C	0.5	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	
Kinematic viscosity	Newtonian liquids	Viscosity measurement	1	10	mm ² /s	Temperature	20 °C to 40 °C	$100(0.0012^2 + (0.012U_v)^2)^{1/2}$, U_v viscosity temperature coefficient in 1/K	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	

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Kinematic viscosity	Newtonian liquids	Viscosity measurement	10	100	mm ² /s	Temperature	20 °C to 40 °C	$100(0.0015^2 + (0.012U_v)^2)^{1/2}, U_v$ viscosity temperature coefficient in 1/K	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	
Kinematic viscosity	Newtonian liquids	Viscosity measurement	100	1000	mm ² /s	Temperature	20 °C to 40 °C	$100(0.0018^2 + (0.012U_v)^2)^{1/2}, U_v$ viscosity temperature coefficient in 1/K	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	
Kinematic viscosity	Newtonian liquids	Viscosity measurement	1000	10000	mm ² /s	Temperature T	20 °C to 40 °C	$100(0.0023^2 + (0.012U_v)^2)^{1/2}, U_v$ viscosity temperature coefficient in 1/K	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	
Kinematic viscosity	Newtonian liquids	Viscosity measurement	10000	400000	mm ² /s	Temperature	20 °C to 40 °C	$100(0.0035^2 + (0.012U_v)^2)^{1/2}, U_v$ viscosity temperature coefficient in 1/K	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	
Dynamic viscosity	Newtonian liquids	Viscosity measurement	1	10	mPa s	Temperature	20 °C to 40 °C	$100(0.0012^2 + (0.012U_v)^2)^{1/2}, U_v$ viscosity temperature coefficient in 1/K	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	

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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?		
Dynamic viscosity	Newtonian liquids	Viscosity measurement	10	100	mPa s	Temperature	20 °C to 40 °C	$100(0.0015^2 + (0.012U_v)^2)^{1/2}, U_v$ viscosity temperature coefficient in 1/K	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	
Dynamic viscosity	Newtonian liquids	Viscosity measurement	100	1000	mPa s	Temperature	20 °C to 40 °C	$100(0.0018^2 + (0.012U_v)^2)^{1/2}, U_v$ viscosity temperature coefficient in 1/K	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	
Dynamic viscosity	Newtonian liquids	Viscosity measurement	1000	10000	mPa s	Temperature	20 °C to 40 °C	$100(0.0023^2 + (0.012U_v)^2)^{1/2}, U_v$ viscosity temperature coefficient in 1/K	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	
Dynamic viscosity	Newtonian liquids	Viscosity measurement	10000	400000	mPa s	Temperature	20 °C to 40 °C	$100(0.0035^2 + (0.012U_v)^2)^{1/2}, U_v$ viscosity temperature coefficient in 1/K	%	2	95%	Yes	The uncertainty of the viscosity of water (ISO/TR 3666 (1998), 0.17%) is not taken into account	
Liquid flowing quantity: volume and mass	Any flow measurement instrument or flow device	Pulsed, electrical, digital and optical outputs, various methods	0.02	270	m ³ /h	Fluid	water	0.12	%	2	95%	Yes	Approved on 19 December 2012	SK1
						Temperature	10 °C to 85 °C							
						Pressure	550 kPa							
						Pipe size	DN15 to DN150							

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Liquid flowing quantity: volume and mass	Any flow measurement instrument or flow device, including water test facilities	e.g. water test rigs with flying/standing start and stop	0.006	3	m ³ /h	Fluid	water	0.12	%	2	95%	Yes	Approved on 19 December 2012	SK5
						Temperature	10 °C to 30 °C							
						Pressure	100 kPa to 550 kPa							
						Pipe size	DN 15							
Liquid flowing quantity: volume and mass	Any flow measurement instrument or flow device, including water test facilities	e.g. water test rigs with flying/standing start and stop	3	270	m ³ /h	Fluid	water	0.12	%	2	95%	Yes	Approved on 19 December 2012	SK6
						Temperature	10 °C to 30 °C							
						Pressure	100 kPa to 550 kPa							
						Pipe size	DN32 to DN80							
Volume	Prooving tanks	e. g. cylindrical, with optical level reading	2	100	L	Fluid	distilled water	0.04	%	2	95%	Yes	Approved on 19 December 2012	SK7
						Temperature	20 °C							
Flowrate volume/mass (low pressure gas)	Flowmeters, gasmeters	Floating meters, soap film devices, wet gas meters	0.001	0.02	m ³ /h	Gas	air	0.22	%	2	95%	Yes	Approved on 19 December 2012	SK11
						Temperature	18 °C to 25 °C							
						Pressure	ambient							
						Pipe size	< DN15							

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Flowrate volume/mass (low pressure gas)	Flowmeters, gasmeters	Critical nozzles, wet gas meters	0.01	3	m ³ /h	Gas	air	0.13	%	2	95%	Yes	Approved on 19 December 2012	SK12
						Temperature	18 °C to 25 °C							
						Pressure	90 kPa to 110 kPa							
						Pipe size	DN15, DN30							
Flowrate volume (low pressure gas)	Flowmeters, gasmeters	Critical nozzles, wet gas meters	1	65	m ³ /h	Gas	air	0.12	%	2	95%	Yes	Approved on 19 December 2012	SK13
						Temperature	18 °C to 25 °C							
						Pressure	ambient							
						Pipe size	DN15 to DN100							
Flowrate volume (low pressure gas)	Flowmeters, gasmeters	Wet gas meters, rotary meters	0.02	20	m ³ /h	Gas	air	0.2	%	2	95%	Yes	Approved on 19 December 2012	SK14
						Temperature	18 °C to 25 °C							
						Pressure	ambient							
						Pipe size	DN15 to DN50							
Flowrate volume (low pressure gas)	Gasmeters	Any type of gasmeters	8	160	m ³ /h	Gas	air	0.16	%	2	95%	Yes	Approved on 19 December 2012	SK15
						Temperature	18 °C to 25 °C							
						Pressure	ambient							
						Pipe size	DN15 to DN100							



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Flowrate volume (low pressure gas)	Flowmeters, gasmeters	Critical nozzles, wet gas meters, rotary meters	0.01	400	m ³ /h	Gas	air	0.2	%	2	95%	Yes	Approved on 19 December 2012	SK16
						Temperature	18 °C to 25 °C							
						Pressure	ambient							
						Pipe size	DN15 to DN80							