Mass and Related Quantities, South Africa, CSIR-NML (Council for Scientific and Industrial Research - National Metrology Laboratory)

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
Mass	Mass standard	Comparison in air	0.001	0.005	g			0.002	mg	2	95%	No	MV-1 1.1-1
Mass	Mass standard	Comparison in air	0.01	0.1	g			0.005	mg	2	95%	No	MV-1 1.1-2
Mass	Mass standard	Comparison in air	0.2	0.2	g			0.007	mg	2	95%	No	MV-1 1.1-3
Mass	Mass standard	Comparison in air	0.3	0.3	g			0.007	mg	2	95%	No	MV-1 1.1-4
Mass	Mass standard	Comparison in air	0.5	0.5	g			0.008	mg	2	95%	No	MV-1 1.1-5
Mass	Mass standard	Comparison in air	1	1	g			0.01	mg	2	95%	No	MV-1 1.1-6
Mass	Mass standard	Comparison in air	2	2	g			0.013	mg	2	95%	No	MV-1 1.1-7
Mass	Mass standard	Comparison in air	3	3	g			0.015	mg	2	95%	No	MV-1 1.1-8
Mass	Mass standard	Comparison in air	5	5	g			0.017	mg	2	95%	No	MV-1 1.1-9
Mass	Mass standard	Comparison in air	10	10	g			0.02	mg	2	95%	No	MV-1 1.1-10
Mass	Mass standard	Comparison in air	20	20	g			0.027	mg	2	95%	No	MV-1 1.1-11
Mass	Mass standard	Comparison in air	30	30	g			0.03	mg	2	95%	No	MV-1 1.1-12
Mass	Mass standard	Comparison in air	50	50	g			0.033	mg	2	95%	No	MV-1 1.1-13
Mass	Mass standard	Comparison in air	100	100	g			0.05	mg	2	95%	No	MV-1 1.1-14
Mass	Mass standard	Comparison in air	200	200	g			0.1	mg	2	95%	No	MV-1 1.1-15
Mass	Mass standard	Comparison in air	300	300	g			0.17	mg	2	95%	No	MV-1 1.1-16
Mass	Mass standard	Comparison in air	500	500	g			0.25	mg	2	95%	No	MV-1 1.1-17
Mass	Mass standard	Comparison in air	1 000	1 000	g			0.5	mg	2	95%	No	MV-1 1.1-18

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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?	NMI internal service identifier
Mass	Mass standard	Comparison in air	2 000	2 000	g			1	mg	2	95%	No	MV-1 1.1-19
Mass	Mass standard	Comparison in air	3 000	3 000	g			1.7	mg	2	95%	No	MV-1 1.1-20
Mass	Mass standard	Comparison in air	5 000	5 000	g			2.5	mg	2	95%	No	MV-1 1.1-21
Mass	Mass standard	Comparison in air	10 000	10 000	g			5	mg	2	95%	No	MV-1 1.1-22
Mass	Mass standard	Comparison in air	20 000	20 000	g			10	mg	2	95%	No	MV-1 1.1-23
Mass	Mass standard	Comparison in air	30 000	30 000	g			17	mg	2	95%	No	MV-1 1.1-24
Force: tension and compression	Force transducers	Deadweight	1	1000	N			0.03	%	2	95%	Yes	FO-4.3-1
Force: tension and compression	Force transducers	Deadweight	2	20	kN			0.06	%	2	95%	Yes	FO-4.3-2
Force: tension and compression	Force transducers	Deadweight	5	50	kN			0.06	%	2	95%	Yes	FO-4.3-3
Force: tension and compression	Force transducers	Direct comparison	2	20	kN			0.06	%	2	95%	Yes	FO-4.3-2
Force: tension and compression	Force transducers	Direct comparison	5	50	kN			0.06	%	2	95%	Yes	FO-4.3-3
Force: tension and compression	Force transducers	Direct comparison	10	100	kN			0.06	%	2	95%	Yes	FO-4.3-4
Force: tension and compression	Force transducers	Direct comparison	20	200	kN			0.1	%	2	95%	Yes	FO-4.3-5
Force: compression	Force transducers	Direct comparison	50	500	kN			0.09	%	2	95%	Yes	FO-4.2-1

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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**
Force: compression	Force transducers	Direct comparison	100	1000	kN			0.15	%	2	95%	Yes	FO-4.2-2
Force: compression	Force transducers	Direct comparison	500	5000	kN			0.2	%	2	95%	Yes	FO-4.2-3
Absolute pressure, gas medium	Vacuum gauges	Direct comparison	0.04	120	Pa			(1.1E-03 + 4.1E-03p - 2.6E-06p^2), p pressure in Pa	Pa	2	95%	No	PS-3.1.1-1
Absolute pressure, gas medium	Vacuum gauges	Direct comparison	120	1400	Pa			(0.5 + 4.7E-04p + 2.3E-10p^2), p pressure in Pa	Pa	2	95%	No	PS-3.1.1-2
Absolute pressure, gas medium	Vacuum gauges, barometers	Direct comparison	1.4	180	kPa			(1 + 2.5E-05p), p pressure in Pa	Pa	2	95%	No	PS-3.1.1-3
Absolute pressure, gas medium	Gauges, transducers	Direct comparison	180	700	kPa			(1 + 2.8E-05p), p pressure in Pa	Pa	2	95%	No	PS-3.1.1-4
Absolute pressure, gas medium	Gauges, transducers	Direct comparison	0.7	7	MPa			(1 + 5E-05p), p pressure in Pa	Pa	2	95%	No	PS-3.1.1-5
Gauge pressure, gas medium	Manometers	Direct comparison	1	1400	Pa			(0.5 + 2.3E-04p + 1.7E-08p^2), p pressure in Pa	Pa	2	95%	No	PS-3.2.1-1
Gauge pressure, gas medium	Piston / cylinder units, transducers	Crossfloat, direct comparison	1.4	180	kPa			(0.1 + 2.5E-05p), p pressure in Pa	Pa	2	95%	No	PS-3.2.1-2
Gauge pressure, gas medium	Piston / cylinder units, transducers	Crossfloat, direct comparison	180	700	kPa			0.0029	%	2	95%	Yes	PS-3.2.1-3
Gauge pressure, gas medium	Piston / cylinder units, transducers	Crossfloat, direct comparison	700	1000	kPa			0.0049	%	2	95%	Yes	PS-3.2.1-4

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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?**	**NMI internal service identifier**
Gauge pressure, gas medium	Piston / cylinder units, transducers	Crossfloat, direct comparison	1	20	MPa			0.0045	%	2	95%	Yes	PS-3.2.1-5
Gauge pressure, liquid medium	Piston / cylinder units, transducers	Crossfloat, direct comparison	0.1	1	MPa			(3.2E-05 + 2.1E-06p + 1.2E-05p^2), p pressure in MPa	MPa	2	95%	No	PS-3.2.2-1
Gauge pressure, liquid medium	Piston / cylinder units, transducers	Crossfloat, direct comparison	1	120	MPa			(1.7E-05 + 2.8E-05p + 1.0E-07p^2), p pressure in MPa	MPa	2	95%	No	PS-3.2.2-2
Gauge pressure, liquid medium	Piston / cylinder units, transducers	Crossfloat, direct comparison	120	500	MPa			(2.3E-03 - 3.8E-07p + 5E-07p^2), p pressure in MPa	MPa	2	95%	No	PS-3.2.2-3