Annex to declaration of accreditation (scope of accreditation)
Normative document: EN ISO/IEC 17025:2005
Registration number: **K 048**

of **Minerva Meettechniek B.V.**

This annex is valid from: **20-09-2017** to **01-01-2021** Replaces annex dated: **29-09-2016**

Location(s) where activities are performed under accreditation

Head Office

Chrysantstraat 1
3812 WX
Amersfoort
Nederland

Location	Abbreviation/ location code
Chrysantstraat 1 3812 WX Amersfoort Nederland	AM

HCS code	Measured quantity, Instrument, Measure	Range	CMC[1]	Remarks	Location
MW 1 0	Mass	100 mg - 11 kg	$1{,}0 \cdot 10^{-5} \cdot m_c + 0{,}05$ mg	Mass piece density $\geq$ 6400 kg/m^3	AM
	True Mass	100 mg - 11 kg	$1{,}1 \cdot 10^{-5} \cdot m + 0{,}05$ mg		
PV 1 1	Absolute pressure	0 kPa - 15 kPa	$2{,}9 \cdot 10^{-5} \cdot p + 0{,}008$ Pa	Nitrogen determination of effective area by means of cross-floating calibration of secondary standards and pressure devices	AM
		5 kPa - 190 kPa	$1{,}8 \cdot 10^{-5} \cdot p + 0{,}5$ Pa		
		25 kPa - 2,5 MPa	$2{,}8 \cdot 10^{-5} \cdot p + 0{,}5$ Pa		
		50 kPa - 5 MPa	$3{,}0 \cdot 10^{-5} \cdot p + 0{,}5$ Pa		

This annex has been approved by the Board of the Dutch Accreditation Council, on its behalf,

J.A.W.M. de Haas
Director of Operations

[1] Calibration and Measurement Capability (CMC): Demonstrated measurement uncertainty, with coverage probability of 95%, in a given measurement point or measurement range. Measurement uncertainty, *U*, is calculated according to EA-4/02 "*Evaluation* of the Uncertainty of Measurement in Calibration".

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HCS code	Measured quantity, Instrument, Measure	Range	CMC[1]	Remarks	Location
		300 kPa - 20 MPa	$3{,}1 \cdot 10^{-5} \cdot (p - p_{amb}) + 5{,}5$ Pa		
		1 MPa - 70 MPa	$4{,}0 \cdot 10^{-5} \cdot (p - p_{amb}) + 19$ Pa		
PV 1 2	Gauge pressure	0 kPa - 15 kPa	$3{,}0 \cdot 10^{-5} \cdot p_e + 0{,}005$ Pa	Nitrogen determination of effective area by means of cross-floating calibration of secondary standards and pressure devices	AM
		5 kPa - 190 kPa	$1{,}8 \cdot 10^{-5} \cdot p_e + 0{,}12$ Pa		
		25 kPa - 2,5 MPa	$2{,}8 \cdot 10^{-5} \cdot p_e + 0{,}06$ Pa		
		50 kPa - 5 MPa	$3{,}0 \cdot 10^{-5} \cdot p_e + 0{,}12$ Pa		
		200 kPa - 20 MPa	$3{,}1 \cdot 10^{-5} \cdot p_e + 3{,}8$ Pa		
		1 MPa - 70 MPa	$4{,}0 \cdot 10^{-5} \cdot p_e + 19$ Pa		
PV 2 1	Absolute pressure	600 kPa - 50 MPa	$3{,}1 \cdot 10^{-5} \cdot (p - p_{amb}) + 31$ Pa	Oil determination of effective area by means of cross-floating calibration of secondary standards and pressure devices	AM
		2 MPa - 200 MPa	$4{,}2 \cdot 10^{-5} \cdot (p - p_{amb}) + 50$ Pa		
		5 MPa - 500 MPa	$5{,}8 \cdot 10^{-5} \cdot (p - p_{amb}) + 0{,}1$ kPa		
PV 2 2	Gauge pressure	500 kPa - 50 MPa	$3{,}1 \cdot 10^{-5} \cdot p_e + 30$ Pa	Oil determination of effective area by means of cross-floating calibration of secondary standards and pressure devices	AM
		2 MPa - 200 MPa	$4{,}2 \cdot 10^{-5} \cdot p_e + 50$ Pa		
		5 MPa - 500 MPa	$5{,}8 \cdot 10^{-5} \cdot p_e + 0{,}1$ kPa		

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HCS code	Measured quantity, Instrument, Measure	Range	CMC[1]	Remarks	Location
	Differential pressure on elevated line pressure	8 MPa (max. line pressure)	$1 \cdot 10^{-6} \cdot p_e + 5{,}6 \cdot 10^{-5} \cdot \Delta p$ + 13 Pa	Δp = Differential pressure	
PV 3 1	Under atmospheric pressure	-8 … -98 kPa	$2{,}8 \cdot 10^{-5} \cdot \lvert p_e \rvert$ + 0,12 Pa	Negative gauge pressure determination of effective area by means of cross-floating calibration of secondary standards and pressure devices	AM

Remarks:
- This annex is applicable to calibrations carried out in the own laboratory.
- The calibrations are carried out at an ambient temperature of 20 °C (nominal).
- $p_e = p - p_{amb}$; p_e is the gauge pressure, p_{amb} is the ambient pressure.
- The accreditation for mass measurements is restricted to calibrations of weights related to pressure balances.
- For a weight with a temperature of 20 °C, the conventional mass is the mass of a reference weight with a density of 8000 kg/m^3, which is in balance in air with a density of 1,2 kg/m^3 .

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HCS code	Measured quantity, Range	Frequency	CMC[2]	Remarks	Location
LF 1 1	DC Voltage				AM
	0 - 10 V		$2{,}4 \cdot 10^{-5} \cdot U + 50\ \mu V$		
LF 2 1	DC Current				AM
	0 - 100 mA		$5{,}0 \cdot 10^{-4} \cdot I + 5\ \mu A$		

Remarks:
- This annex is applicable to calibrations carried out in the own laboratory.
- The calibrations are carried out at an ambient temperature of 20 °C (nominal).

[2] Calibration and Measurement Capability (CMC): Demonstrated measurement uncertainty, with coverage probability of 95%, in a given measurement point or measurement range. Measurement uncertainty, *U*, is calculated according to EA-4/02 "*Evaluation* of the Uncertainty of Measurement in Calibration".