SWEDAC
Styrelsen för ackreditering och teknisk kontroll
Swedish Board for Accreditation and Conformity Assessment

Appendix 1

Date: 2023-11-02

Reference: 2022/801

Scope of accreditation

Calibration according to SS-EN ISO/IEC 17025:2018

RISE Research Institutes of Sweden AB | Borås | Accreditation number | 1002

Mätteknik | *A002626-055*

Acoustics, ultrasound and vibration

Technology area	*Method*	*Parameter*	*Material*	*Measure*	*Best measuring ability (CMC) +/-*	*Technique*	*Flex*	*Type of flex*	*Field*	*Note*
Power	ISO 6926		Reference sound source	10 kHz	0,8 dB		Yes	2	No	
			Reference sound source	12,5 kHz	1,0 dB		Yes	2	No	
			Reference sound source	125 - 160 Hz	0,7 dB		Yes	2	No	
			Reference sound source	16 - 20 kHz	1,2 dB		Yes	2	No	
			Reference sound source	200 - 400 Hz	0,6 dB		Yes	2	No	
			Reference sound source	50 Hz	3 dB		Yes	2	No	
			Reference sound source	500 Hz - 5 kHz	0,5 dB		Yes	2	No	
			Reference sound source	6,3 kHz	0,6 dB		Yes	2	No	
			Reference sound source	63 Hz	2 dB		Yes	2	No	
			Reference sound source	8 kHz	0,7 dB		Yes	2	No	
			Reference sound source	80 - 100 Hz	0,9 dB		Yes	2	No	
			Reference sound source	A-vägt	0,4 dB		Yes	2	No	

Electricity and Magnetism

Technology area	*Method*	*Parameter*	*Material*	*Measure*	*Best measuring ability (CMC) +/-*	*Technique*	*Flex*	*Type of flex*	*Field*	*Note*
Electric charge	Inhouse method; SP 4854		Charge amplifier	0,5 pC	0,7 %		Yes	2	No	
			Charge amplifier	1 pC	0,4 %		Yes	2	No	
			Charge amplifier	2 pC	0,3 %		Yes	2	No	

Electricity and Magnetism

Technology area	*Method*	*Parameter*	*Material*	*Measure*	*Best measuring ability (CMC) +/-*	*Technique*	*Flex*	*Type of flex*	*Field*	*Note*
Electric charge	Inhouse method; SP 4854		Charge amplifier	5-5000 pC	0,2 %		Yes	2	No	

Length related quantities

Technology area	*Method*	*Parameter*	*Material*	*Measure*	*Best measuring ability (CMC) +/-*	*Technique*	*Flex*	*Type of flex*	*Field*	*Note*
Length	Inhouse method; SP 2339		Larger objects such as machines, fixtures, robots etc.	Dimension upp till 200 x 200 x 200 m	Down to 0,01 mm +2,5 ppm	Optical Portable Coordinate Measuring Machine (OPCMM)	Yes	2	Yes	
	ISO 10140-5		Tapping machine	29 - 31 mm	0,03 mm		Yes	2	No	Annex E
		Angle	Tapping machine	89 - 91°	0,1°		Yes	2	No	Annex E
		Radie	Tapping machine	300 - 700 mm	20 mm		Yes	2	No	Annex E
	ISO 16283-2		Tapping machine	29 - 31 mm	0,03 mm		Yes	2	No	Annex A
		Angle	Tapping machine	89 - 91°	0,1°		Yes	2	No	Annex A
		Radie	Tapping machine	300 - 700 mm	20 mm		Yes	2	No	Annex A
Speed	ISO 10140-5		Tapping machine	0,5 -1 m/s	0,0063 m/s		Yes	2	No	Annex E
	ISO 16283-2		Tapping machine	0,5 -1 m/s	0,0063 m/s		Yes	2	No	Annex A

Mass related quantities

Technology area	*Method*	*Parameter*	*Material*	*Measure*	*Best measuring ability (CMC) +/-*	*Technique*	*Flex*	*Type of flex*	*Field*	*Note*
Density	Inhouse method; SP 2319		Areometer	0,6-2 g/cm³	0,0001 g/cm³		Yes	2	No	
	Inhouse method; SP 2931		Density meter	675 – 1250 kg/m³	0,4 kg/m³		Yes	2	Yes	
Force	Inhouse method; SP 1301		Force measuring device	1 N - 250 N	0,01% of measured value		Yes	2	Yes	

Mass related quantities

Technology area	*Method*	*Parameter*	*Material*	*Measure*	*Best measuring ability (CMC) +/-*	*Technique*	*Flex*	*Type of flex*	*Field*	*Note*
Force	Inhouse method; SP 1301		Force measuring device	1 kN - 100 kN	0,005% of measured value		Yes	2	No	
			Force measuring device	1 kN - 100 kN	0,1% of measured value		Yes	2	Yes	
			Force measuring device	1 N - 250 N	0,01% of measured value		Yes	2	No	
			Force measuring device	100 kN - 1000 kN	0,01% of measured value		Yes	2	No	
			Force measuring device	100 kN - 1000 kN	0,1% of measured value		Yes	2	Yes	
			Force measuring device	1000 kN - 6000 kN	0,05% of measured value		Yes	2	No	Compression loading only
			Force measuring device	1000 kN - 6000 kN	0,1% of measured value		Yes	2	Yes	Compression loading only
			Force measuring device	250 N - 1000 N	0,005% of measured value		Yes	2	No	
			Force measuring device	250 N - 1000 N	0,01% of measured value		Yes	2	Yes	
	Inhouse method; SP 2843		Impact sensor	0,1-25 kN	0,1% of measured value		Yes	2	No	
	ISO 376		**Force measuring device**	**0,25 kN - 100 kN**	**0,005% of measured value**		**Yes**	**2**	**No**	
			Force measuring device	1 - 250 N	0,01% of measured value		Yes	2	No	
			Force measuring device	100 kN - 1000 kN	0,01% of measured value		Yes	2	No	
			Force measuring device	1000 kN - 6000 kN	0,05% of measured value		Yes	2	No	Compression loading only
Mass	ISO 10140-5		Tapping machine	490 - 510 g	1 g		Yes	2	No	Annex E

Mass related quantities

Technology area	*Method*	*Parameter*	*Material*	*Measure*	*Best measuring ability (CMC) +/-*	*Technique*	*Flex*	*Type of flex*	*Field*	*Note*
Mass	ISO 16283-2		Tapping machine	490 - 510 g	1 g		Yes	2	No	Annex A
Torque	Inhouse method; SP 1302		Torque measuring device	0,1 Nm - 1 Nm	0,0012 Nm		Yes	2	No	
			Torque measuring device	0,1 Nm - 1 Nm	0,002 Nm		Yes	2	Yes	
			Torque measuring device	1 Nm - 250 Nm	0,1 %		Yes	2	No	
			Torque measuring device	**1 Nm - 2500 Nm**	**0,2 %**		**Yes**	**2**	**Yes**	
			Torque measuring device	**250 Nm - 5000 Nm**	**0,15 %**		**Yes**	**2**	**No**	
Volume	Inhouse method; SP 2048		Vertical cylindrical storage tanks	10 - 200 000 m3	0,05% of area		Yes	2	Yes	
	Inhouse method; SP 2049		Tanks	10 - 200 000 m3	0,1% of total volume		Yes	2	Yes	Non cylindrical tanks

Photometer and radiometer

Technology area	*Method*	*Parameter*	*Material*	*Measure*	*Best measuring ability (CMC) +/-*	*Technique*	*Flex*	*Type of flex*	*Field*	*Note*
Optical Quantities	Inhouse method; SP 1810		OTDR length scale	1 ns - 1ms	0,7 ns	Fixed delay time	Yes	2	No	IEC 61746-1 SM, IEC 61746-2 MM
	Inhouse method; SP 1811		OTDR loss deviation	0-23 dB	1,5%(1300nm, 1550nm)		Yes	2	No	IEC 61746-1 SM
			OTDR loss deviation	0-23 dB	2%(850nm, 1300nm)		Yes	2	No	IEC61746-2 MM
	Inhouse method; SP 2535		Spectrum analyzers	600nm - 1600nm	0,5 nm	gascell 13C2H3	Yes	2	No	IEC 62129-1
			Wavelength meter	600nm - 1600nm	0,1 nm	gascell 13C2H2	Yes	2	No	IEC 62129-2

Time and Frequence

Technology area	*Method*	*Parameter*	*Material*	*Measure*	*Best measuring ability (CMC) +/-*	*Technique*	*Flex*	*Type of flex*	*Field*	*Note*
Time	ISO 10140-5		Tapping machine	50 - 1000 ms	0,3 ms		Yes	2	No	Annex E
	ISO 16283-2		Tapping machine	50 - 1000 ms	0,3 ms		Yes	2	No	Annex A

Calibration and measurement capability, CMC, is the smallest uncertainty the calibration laboratory can provide, expressed as the expanded uncertainty having a coverage probability of approximately 95%.

Changes in the scope of accreditation are in bold.

Type of flexible scope
1: - Introduce new version of standard method and make editorial changes to non-standard method
2: - Introduce new version of standard method and make editorial changes to non-standard method - Introduce new version and modifications of non-standard method. The procedure must be equivalent