Schweizerische Eidgenossenschaft
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Swiss Confederation

Federal Department of Economic Affairs,
Education and Research EAER

State Secretariat for Economic Affairs SECO
Swiss Accreditation Service SAS

SCS Directory

Accreditation number: SCS 0066

International standard:	ISO/IEC 17025:2005
Swiss standard:	SN EN ISO/IEC 17025:2005

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Internet:	http://www.mcs-laboratory.ch
Initial accreditation:	19.10.1995
Current accreditation:	25.02.2015 to 24.02.2020
Scope of accreditation see:	www.sas.admin.ch (Accredited bodies)

Scope of accreditation as of 25.02.2015

Calibration laboratory for temperature, humidity and pressure

Calibration and Measurement Capability (CMC)

Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Capability ± [1)]	Remarks
Temperature				
Contact thermometer Resistance thermometer	0,010 °C	Water triple point cell	0,001 °C	
Direct contact thermometer **with** display	-196 °C	Liquid nitrogen	0,02 °C	
	0,00 °C	H_2O	0,005 °C	
	-90 °C … 200 °C	Calibration bath	0,02 °C	
	200 °C … 550 °C	Calibration bath	0,03 °C	

The given extended measurement uncertainty is the standard uncertainty of the measurement multiplied by an extension factor k = 2, which corresponds to a confidence level of about 95% for a normal distribution.

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Measured Quantity / Instrument or Gauge	**Measurement Range**	**Measurement Conditions**	**Best Measurement Capability ± [1)]**	**Remarks**
Resistance thermometer Pt25, Pt100, Pt1000 and transmitter	-40 °C … 100 °C	Bloc calibrator	0,04 °C	
	50 °C … 600 °C	Bloc calibrator	(0,02 + 0,0008*t) °C	
	100 °C … 600 °C	Tube furnace	0,4 °C	
	300 °C … 1100 °C	Tube furnace	0.7 °C	
	1100 °C … 1500 °C	Tube furnace	1,7 °C	
			t = temp. in °C	
Thermocouples **with** own ice point place **without** display	-196 °C	Liquid nitrogen	0,06 °C	Valid for thermocouples types **K, N, J, T, E**
	0,00 °C	H_2O	0,07 °C	
	-90 °C … 550 °C	Calibration bath	0,1 °C	
	-40 °C … 100 °C	Bloc calibrator	0,1 °C	
	50 °C … 600 °C	Bloc calibrator	0,4 °C	
	100 °C … 600 °C	Tube furnace	0,3 °C	
	300 °C … 1100 °C	Tube furnace	0,7 °C	
	1100 °C … 1500 °C	Tube furnace	1.7 °C	
	100 °C … 600 °C	Tube furnace	0,4 °C	Valid for thermocouples types **R, S, B**
	300 °C … 1100 °C	Tube furnace	0,8 °C	
	1100 °C … 1500 °C	Tube furnace	1.7 °C	
Thermocouples **without** own ice point place **without** display	-196 °C	Liquid nitrogen	0,6 °C	Valid for thermocouples types **K, N, J, T, E**
	0,00 °C	H_2O	0,1 °C	
	-90 °C … 550 °C	Calibration bath	0,2 °C	
	-40 °C … 100 °C	Bloc calibrator	0,2 °C	
	50 °C … 600 °C	Bloc calibrator	0,5 °C	
	100 °C … 600 °C	Tube furnace	0,3 °C	
	600 °C … 1100 °C	Tube furnace	0,9 °C	
	1100 °C … 1500 °C	Tube furnace	1.8 °C	

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Measured Quantity / Instrument or Gauge	**Measurement Range**	**Measurement Conditions**	**Best Measurement Capability ± [1)]**	**Remarks**
	100 °C … 600 °C	Tube furnace	0,5 °C	Valid for thermocouples types **R, S, B**
	300 °C … 1100 °C	Tube furnace	1,0 °C	
	1100 °C … 1500 °C	Tube furnace	1.9 °C	
Surface thermometer **with** direct display	20 °C … 200 °C	Heating plate	0,7 °C	
	200 °C … 300 °C		1,2 °C	
	300 °C … 400 °C		1,5 °C	
Calibration baths and bloc calibrators	-196 °C ... 660°C	Comparison with Pt25	0,03 °C	
Thermal systems	-90 °C … 150 °C	With Pt100	(0,25 + 0,0007*t) °C	Calibration on site
	-90 °C … 100 °C	With thermocouples	1,0 °C	
	100 °C … 1000 °C		(0,9 + 0,0007*t) °C	
	1000 °C … 1300 °C		(0,6 + 0,0015*t) °C	
			t = temp. in °C	
Temperature systems	-40 °C … 100 °C	Comparison with bloc calibrator	0,2 °C	Calibration on site
	50 °C … 600 °C		0,4 °C	
	-30°C … 200 °C	Comparison with calibration bath	0,3 °C	
Measuring of thermocouples	-200 °C … 1300 °C	Type K	0,15 °C	
	-100 °C … 1300 °C	Type N	0,15 °C	
	-210 °C … 1200 °C	Type J	0,20 °C	
	-100 °C … 400 °C	Type T	0,20 °C	
	-200 °C … 1000 °C	Type E	0,20 °C	
	0 °C … 1700 °C	Type R	0,20 °C	
	0 °C … 1500 °C	Type S	0,20 °C	
	500 °C … 1800 °C	Type B	0,35 °C	

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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Capability ± [1)]	Remarks
Simulation of thermocouples	-200 °C … 1300 °C	Type K	0,15 °C	
	-100 °C … 200 °C	Type N	0,35 °C	
	200 °C … 1300 °C	Type N	0,25 °C	
	-210 °C … 1200 °C	Type J	0,30 °C	
	-100 °C … 400 °C	Type T	0,30 °C	
	-200 °C … 1000 °C	Type E	0,30 °C	
	0 °C … 250 °C	Type R	0,35 °C	
	250 °C … 1700 °C	Type R	0,30 °C	
	0 °C … 100 °C	Type S	0,35 °C	
	100 °C … 1500 °C	Type S	0,30 °C	
	500 °C … 1800 °C	Type B	0,40 °C	
Measuring of resistance thermometers	-200 °C … 800 °C	Pt100	(0,27 + 0,00085*t) °C	Calibration on site
Simulation of resistance thermometers	-100 °C … 500 °C	Pt100	0,35 °C	Calibration on site
Measuring and simulation of thermocouples	-100 °C … 1200 °C	Type K	0,4 °C	Calibration on site of thermal systems
	0 °C … 1100 °C	Type N	0,4 °C	
	1100 °C … 1300 °C	Type N	0,5 °C	
	-210 °C … 1200 °C	Type J	0,4 °C	
	-100 °C … 400 °C	Type T	0,3 °C	
	-200 °C … 1000 °C	Type E	0,3 °C	
	0 °C … 100 °C	Type R	0,6 °C	
	100 °C … 1200 °C	Type R	0,5 °C	
	0 °C … 1200 °C	Type S	0,5 °C	
	1200 °C … 1400 °C	Type S	0,6 °C	
	500 °C … 1800 °C	Type B	0,6 °C	
Measuring of resistance	0 Ohm … 400 Ohm		0,0024 Ohm	
	400 Ohm ... 1 kOhm		0,008 Ohm	

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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Capability ± [1)]	Remarks
	1 kOhm …10 kOhm		0,08 Ohm	
	10 kOhm ... 50 kOhm		0,6 Ohm	
	50 kOhm ...100kOhm		1.2 Ohm	
	-200 °C ... 1000 °C	Pt100	0,001 °C	
	-200 °C ... 1000 °C	Pt1000	0,05 °C	
Sending of re-sistance	4 Ohm ... 400 Ohm		0,03 Ohm	
	400 Ohm ... 2 kOhm		0.006% vMw	
	2 kOhm ... 10 kOhm		0.017% vMw	
	-200 °C … 200 °C	Pt100	0,03 °C	
	200 °C … 500 °C		0,04 °C	
	500 °C … 850 °C		0,05 °C	
	-200 °C … 0 °C	PT1000	0,04 °C	
	0 °C ... 500 °C		0,20 °C	
	500 °C ... 850 °C		0,25 °C	
Sending of direct current	0 mA … 20 mA		0,001 mA	
Sending of direct voltage	0 mV … 100 mV		0,01 mV	
	100 mV … 300 mV		0,03 mV	
	0.3 mV … 1 V		0,07 mV	
	1 V … 3 V		0,3 mV	
Measuring of direct current	0 mA … 20 mA		0,005 mA	
Measuring of direct voltage	0 mV … 200 mV		0,005 mV	
	0.2 V … 2 V		0,02 mV	
	2 V … 10 V		0,08 mV	
Humidity				
Humidity relative	10 % hr … 95 % hr	-10 °C … 0 °C	(0,3 + 0,01*hr) % hr	
	10 % hr … 95 % hr	0 °C … 10 °C	(0,2+0,008*hr) % hr	
	10 % hr … 95 % hr	10 °C … 60 °C	(0,1+0,008*hr) % hr	
	10 % hr … 90 % hr	10 °C … 50 °C	(1,0 + 0,02*hr) % hr	Calibration on site

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Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Capability ± [1)]	Remarks
	-30 °C … 70 °C	Dew point temperature	0,1 °C	Comparison with chilled mirror
	10 % hr … 90 % hr	In climate chamber	(0,5 + 0,02*hr) % hr	
	10 °C … 50 °C			
	-40 °C … 80 °C	Temperature in climate chamber	0,4 °C	
	-10 °C … 70 °C	Temperature in humidity chamber	0,1 °C	
Pressure				
Absolute pressure	0 mbar ...1100 mbar		0,16 mbar	
	0 bar … 14 bar		0.01% vMw + 0.6 mbar	
	0 mbar ...1000 mbar		0.5 mbar	Calibration on site
	1 bar … 10bar		2.5 mbar	
Excess pressure in fluids	-1 bar ... 0 bar		0,15 mbar	
	0 mbar … 100 mbar		0.07 mbar	
	-1 bar … 14 bar		0.01% vMw + 0.6 mbar	
	0,1 bar ... 50 bar	Piston pressure gauge	0,010 %, but not smaler than 0,5 mbar	Of the measured value
	50 bar … 1000 bar		0,015 %	
Excess pressure in fluids	-1 bar ... 0 bar		0,3 mbar	Calibration on site
	0 bar ... 250 mbar		0.125 mbar	
	0 bar ... 1bar		0.25 mbar	
	0 bar ... 10 bar		2,5 mbar	
	0 bar ... 40 bar		10 mbar	
	0 bar ... 160 bar		40 mbar	
	0 bar ... 1000 bar		0,3 bar	

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