



## SCS Directory

Accreditation number: SCS 0066

International standard: ISO/IEC 17025:2017  
Swiss standard: SN EN ISO/IEC 17025:2018

mcs Laboratory AG  
Giessenstrasse 10  
6460 Altdorf

Head: Beat Gisler  
Responsible for MS: Werner Zraggen  
Telephone: +41 41 874 72 00  
E-Mail: <mailto:mail@mcs-laboratory.ch>  
Internet: <http://www.mcs-laboratory.ch>  
Initial accreditation: 19.10.1995  
Current accreditation: 25.02.2020 to 24.02.2025  
Scope of accreditation see: [www.sas.admin.ch](http://www.sas.admin.ch)  
(Accredited bodies)

### Scope of accreditation as of 25.02.2020

#### Calibration laboratory for temperature, humidity and pressure

##### Calibration and Measurement Capability (CMC)

Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Capability $\pm$ <sup>1)</sup>	Remarks
<b>TEMPERATURE</b>				
Contact thermometer	0,010 °C	Water triple point cell	0,003 °C	
Resistance thermometer	419.527 °C	Fixed point cell zinc (zn)	0,005 °C	
	660.323 °C	Fixed point cell Aluminium (al)	0,008 °C	
Direct contact thermometer <b>with</b> display	-196 °C	Liquid nitrogen	0,02 °C	
	0,00 °C	H <sub>2</sub> O	0,005 °C	
	-90 °C ... 200 °C	Calibration bath	0,02 °C	
	200 °C ... 550 °C	Calibration bath	0,03 °C	



**SCS Directory**

**Accreditation number: SCS 0066**

Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Capability $\pm$ <sup>1)</sup>	Remarks		
Resistance thermometer Pt25, Pt100, Pt1000 and transmitter	-40 °C ... 100 °C	Bloc calibrator	0,04 °C			
	50 °C ... 600 °C	Bloc calibrator	0,4 °C			
	100 °C ... 600 °C	Tube furnace	0,4 °C			
	300 °C ... 1100 °C	Tube furnace	0, °C			
	1100 °C ... 1500 °C	Tube furnace	1,7 °C			
Thermocouples <b>with</b> own ice point place <b>without</b> display	-196 °C	Liquid nitrogen	0,06 °C	Valid for thermocouples types <b>K, N, J, T, E</b>		
	0,00 °C	H <sub>2</sub> O	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			
	600 °C ... 1100 °C	Tube furnace	0,7 °C			
	1100 °C ... 1500 °C	Tube furnace	1,7 °C			
	-90 °C ... 550 °C	Calibration bath	0,1 °C		Valid for thermocouples types <b>R, S, B</b>	
	100 °C ... 600 °C	Tube furnace	0,4 °C			
	600 °C ... 1100 °C	Tube furnace	0,8 °C			
	1100 °C ... 1500 °C	Tube furnace	1,7 °C			
	Thermocouples <b>without</b> own ice point place <b>without</b> display	-196 °C	Liquid nitrogen		0,6 °C	Valid for thermocouples types <b>K, N, J, T, E</b>
		0,00 °C	H <sub>2</sub> O		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			



**SCS Directory**

**Accreditation number: SCS 0066**

Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Capability $\pm$ <sup>1)</sup>	Remarks
Surface thermometer <b>with</b> direct display	-90 °C ... 550 °C	Calibration bath	0,2 °C	Valid for thermocouples types <b>R, S, B</b>
	100 °C ... 600 °C	Tube furnace	0,5 °C	
	600 °C ... 1100 °C	Tube furnace	1,0 °C	
	1100 °C ... 1500 °C	Tube furnace	1,9 °C	
	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	$(0,25 + 0,0007 \cdot t)$ °C	Calibration on site with extended measurement uncertainty
	-90 °C ... 100 °C	With thermocouples	1,0 °C	
	100 °C ... 1000 °C		$(0,9 + 0,0007 \cdot t)$ °C	
	1000 °C ... 1300 °C		$(0,6 + 0,0015 \cdot t)$ °C t = temp. in °C	
Temperature systems	-40 °C ... 100 °C	Comparison with bloc calibrator	0,2 °C	Calibration on site with extended measurement uncertainty
	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	
	-200 °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 ... 1767 °C	Type R	0,20 °C	



**SCS Directory**

**Accreditation number: SCS 0066**

Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Capability $\pm$ <sup>1)</sup>	Remarks
Simulation of thermocouples	0 °C ... 1767 °C	Type S	0,20 °C	
	500 °C ... 1800 °C	Type B	0,35 °C	
	-200 °C ... 1300 °C	Type K	0,15 °C	
	-200 °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 ... 1767 °C	Type R	0,30 °C	
	0 °C ... 100 °C	Type S	0,35 °C	
	100 °C ... 1767 °C	Type S	0,30 °C	
Measuring of resistance thermometers	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 with extended measurement uncertainty
Simulation of resistance thermometers	-100 °C ... 500 °C	Pt100	0,35 °C	Calibration on site with extended measurement uncertainty
Measuring and simulation of thermocouples	-200 °C ... 1200 °C	Type K	0,4 °C	Calibration on site of thermal systems
	-200 °C ... -100°C	Type N	1,0 °C	
	-100 °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	
	1200 °C ... 1767 °C	Type R	0,6 °C	
0 °C ... 1200 °C	Type S	0,5 °C		



**SCS Directory**

**Accreditation number: SCS 0066**

Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Capability $\pm$ <sup>1)</sup>	Remarks
Measuring of re- sistance	1200 °C ... 1400 °C	Type S	0,6 °C	
	1400 °C ... 1767 °C	Type S	0,7 °C	
	500 °C ... 1820 °C	Type B	0,6 °C	
	0 Ohm ... 400 Ohm		0,0024 Ohm	
	400 Ohm ... 1 kOhm		0,008 Ohm	
	1 kOhm ... 10 kOhm		0,08 Ohm	
	10 kOhm ... 50 kOhm		0,6 Ohm	
Sending of re- sistance	50 kOhm ... 100kOhm		1,2 Ohm	
	-200 °C ... 1000 °C	Pt100	0,001 °C	
	-200 °C ... 1000 °C	Pt1000	0,05 °C	
	4 Ohm ... 400 Ohm		0,03 Ohm	
	400 Ohm ... 2 kOhm		0,006T 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 V ... 1 V		0,07 mV	
	1 V ... 3 V		0,3 mV	



**SCS Directory**

**Accreditation number: SCS 0066**

Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Capability $\pm$ <sup>1)</sup>	Remarks
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	
<b>HUMIDITY</b>				
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	60 °C ... 90 °C	(0,2+0,008•hr) %hr	
	10 %hr ... 90 %hr	10 °C ... 90 °C	(1,0 + 0,02•hr) % hr	Calibration on site with extended measurement uncertainty
	-30 °C ... 70 °C	Dew point temperature	0,1 °C	Comparison with chilled mirror
	10 %hr ... 90% hr	10 °C ... 90 °C	(0,5 + 0,02•hr) % hr	In climate chamber
	-40 °C ... 10 °C	Temperature in climate chamber	0,3 °C	
	10 °C ... 150 °C		0,2 °C	
	-10 °C ... 70 °C	Temperature in humidity chamber	0,1 °C	
<b>PRESSURE</b>				
Absolute pressure	0 mbar ...1000 mbar		0,1 mbar	
	1 bar ... 2 bar		0,2 mbar	
	2 bar ... 11 bar		1,1 mbar	
	0 bar ... 14 bar		0.01% fmv + 0.6 mbar	
	0 mbar ...1000 mbar		0.5 mbar	Calibration on site with extended measurement uncertainty



**SCS Directory**

**Accreditation number: SCS 0066**

Measured Quantity / Instrument or Gauge	Measurement Range	Measurement Conditions	Best Measurement Capability $\pm$ <sup>1)</sup>	Remarks
Excess pressure in fluids	1 bar ... 10bar		2,5 mbar	Calibration on site with extended measurement uncertainty
	-1 bar ... 0 bar		0,15 mbar	
	0 mbar ... 100 mbar		0,07 mbar	
	0,1 bar ... 1 bar		0,1 mbar	
	1 bar ... 2 bar		0,2 mbar	
	2 bar ... 10 bar		1,1 mbar	
Excess pressure in fluids	-1 bar ... 14 bar		0,01% fmv + 0,6 mbar	Calibration on site with extended measurement uncertainty
	0,1 bar ... 50 bar	Piston pressure gauge	0,010 % fmv, but not smaller than 0,5 mbar	
	50 bar ... 1000 bar	Piston pressure gauge	0,015 % fmv	
	-1 bar ... 0 bar		0,3 mbar	
	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	

\* / \* / \* / \* / \*