Precision Thermometers for Material Testing

ACCU-SAFE
Präzision & Sicherheit
Accuracy & Safety

Precision thermometers acc. to
ASTM, IP, BS, DIN, ISO, ANSI, AFNOR, S.T.P.T.C.

For standardized material testing procedures
such as mineral oil testing

Catalogue 6

Ludwig Schneider

High-precision measuring instruments for temperature and density

DAkkS calibration laboratory for temperature and density

Ludwig Schneider is one of the world's leading manufacturers of precision measuring instruments for temperature and density. Based on these experiences its subsidiary company Ludwig Schneider Messtechnik GmbH (LSM) has been offering calibration services for temperature measurements for more than 20 years.

Since 2005 LSM has been the first private-sector company in Germany with accreditation for density measurements of hydrometers.

International customers of the chemical, pharmaceutical, mineral oil/refinery, food processing industries and oceanography are using the LSM calibration services

DAkkS accreditation

Ludwig Schneider Messtechnik is accredited under registration number D-K-15223-01-00 by the Accreditation Body „Deutsche Akkreditierungsstelle" and fully complies with the requirements of DIN EN ISO/IEC 17025.

United under the International Laboratory Accreditation Cooperation (ILAC), 52 nations at present have contractually agreed to mutually accept the calibration results of the signatories' accredited calibration laboratories according to DIN EN ISO/IEC 17025.

ISO ASTM BS DIN

Our range of services

- Comparative measurements of resistance thermometers, thermocouples, liquid-in-glass thermometers, temperature indicators, temperature block calibrators
- Adjustment of digital/analog measured data acquisition systems
- Calculation of specific constants on the basis of ITS-90 deviation functions, Van Dusen equations, polynomial functions
- Documentation of calibration results: DKD/DAkkS calibration certificates, manufacturers' test certificates, conformity statements, compliance with QM codes and standards (DIN, ASTM, BS, IEC, etc.)

ilac-MRA

DAkkS Deutsche Akkreditierungsstelle D-K-15223-01-00

LSM

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Ludwig Schneider

ASTM like thermometers

Blue filling

New!

Type ASTM	Description	Measuring range	Scale °C/°F	Aux. scale °C/°F	Fill-ing	Immer-sion L_2 mm	Total length L_1 mm	Ref.No.
S 13C	Loss on Heat	+155+170	0,5 °C		blau	total	175	1202013 S
S 23C	Engler Viscosity	+18+28	0,2 °C		blau	90	235	1202023 S
S 24C	Engler Viscosity	+39+54	0,2 °C		blau	90	255	1202024 S
S 25C	Engler Viscosity	+95+105	0,2 °C		blau	90	235	1202025 S
S 26C	Stability Test of Soluble Nitrocellulose	+130+140	0,1 °C		blau	total	480	1202026 S
S 27C	Turpentine Distillation	+147+182	0,5 °C		blau	76	320	1202027 S
S 28C	Kinematic Viscosity	+36,6+39,4	0,05 °C	0°C	blau	total	320	1202028 S
S 28F	Kinematic Viscosity	+97,5+102,5	0,1 °F	32°F	blau	total	320	1205028 S
S 29C	Kinematic Viscosity	+52,6+55,4	0,05 °C	0°C	blau	total	320	1202029 S
S 29F	Kinematic Viscosity	+127,5+132,5	0,1 °F	32°F	blau	total	320	1205029 S
S 30F	Kinematic Viscosity	+207,5+212,5	0,1 °F	32°F	blau	total	320	1205030 S
S 35C	High Aniline Point	+90+170	0,2 °C		blau	50	435	1202035 S
S 35F	High Aniline Point	+194+338	0,5 °F		blau	50	435	1205035 S
S 41C	Solvents Distillation	+98+152	0,2 °C		blau	100	410	1202041 S
S 44C	Kinematic Viscosity	+18,6+21,4	0,05 °C	0°C	blau	total	320	1202044 S
S 44F	Kinematic Viscosity	+66,5+71,5	0,1 °F	32°F	blau	total	320	1205044 S
S 45C	Kinematic Viscosity	+23,6+26,4	0,05 °C	0°C	blau	total	320	1202045 S
S 45F	Kinematic Viscosity	+74,5+79,5	0,1 °F	32°F	blau	total	320	1205045 S
S 46C	Kinematic Viscosity	+48,6+51,4	0,05 °C	0°C	blau	total	320	1202046 S
S 46F	Kinematic Viscosity	+119,5+124,5	0,1 °F	32°F	blau	total	320	1202046 S
S 47C	Kinematic Viscosity	+58,6+61,4	0,05 °C	0°C	blau	total	320	1202047 S
S 47F	Kinematic Viscosity	+137,5+142,5	0,1 °F	32°F	blau	total	320	1205047 S
S 48C	Kinematic Viscosity	+80,6+83,4	0,05 °C	0°C	blau	total	320	1202048 S
S 48F	Kinematic Viscosity	+177,5+182,5	0,1 °F	32°F	blau	total	320	1205048 S
S 50F	Gas Calorimeter Inlet	+54+101	0,1 °F		blau	total	485	1205050 S
S 51F	Gas Calorimeter Inlet	+69+116	0,1 °F		blau	total	485	1205051 S
S 71C	Oil in Wax	-37+21	0,5 °C		blau	76	370	1202071 S
S 71F	Oil in Wax	-35+70	1 °F		blau	76	370	1205071 S
S 72C	Kinematic Viscosity	-19,4-16,6	0,05 °C	0°C	blau	total	320	1202072 S
S 72F	Kinematic Viscosity	-2,5+2,5	0,1 °F	32°F	blau	total	320	1205072 S
S 73C	Kinematic Viscosity	-41,4-38,6	0,05 °C	0°C	blau	total	320	1202073 S
S 73F	Kinematic Viscosity	-42,5-37,5	0,1 °F	32°F	blau	total	320	1205073 S
S 75F	Coolant (Antifreeze) Freezing Point	-35+35	0,5 °F		blau	100	425	1205075 S
S 77F	Saybolt Viscosity	+245+265	0,5 °F		blau	total	290	1205077 S
S 78F	Saybolt Viscosity	+295+315	0,5 °F		blau	total	290	1205078 S
S 79F	Saybolt Viscosity	+345+365	0,5 °F [*]		blau	total	290	1205079 S
S 92C	Solidification Point	+40+70	0,1 °C		blau	76	390	1202092 S
S 93C	Solidification Point	+60+90	0,1 °C		blau	76	390	1202093 S
S 94C	Solidification Point	+80+110	0,1 °C		blau	76	390	1202094 S

[*] The accuracy acc. to ASTM Standard by these types cannot be maintained over 180 °C / 356 °F. Accuracy. Genauigkeit ≙ ±1°C

Additional Order No.

…/03 with works calibration certificate

…/04 with DAkkS calibration certificate

Ludwig Schneider

ASTM like thermometers

Blue filling

New!

Type ASTM	Description	Measuring range	Scale °C/°F	Aux. scale °C/°F	Fill-ing	Immer-sion L_2 mm	Total length L_1 mm	Ref.No.
S 95C	Solidification Point	+100+130	0,1 °C		blau	76	390	1202095 S
S 96C	Solidification Point	+120+150	0,1 °C		blau	76	390	1202096 S
S 102C	Solvents Distillation	+123+177	0,2 °C		blau	100	410	1202102 S
S 103C	Solvents Distillation	+148+202	0,2 °C [*]		blau	100	410	1202103 S
S 108F	Saybolt Viscosity	+270+290	0,5 °F		blau	total	290	1205108 S
S 109F	Saybolt Viscosity	+320+340	0,5 °F		blau	total	290	1205109 S
S 110C	Kinematic Viscosity	+133,6+136,4	0,05 °C	0°C	blau	total	320	1202110 S
S 110F	Kinematic Viscosity	+272,5+277,5	0,1 °F	32°F	blau	total	320	1205110 S
S 112C	Benzene Solidification Point	+4+6	0,02 °C	0°C	blau	total	230	1202112 S
S 118C	Kinematic Viscosity	+28,6+31,4	0,05 °C	0°C	blau	total	320	1202118 S
S 118F	Kinematic Viscosity	+83,5+88,5	0,1 °F	32°F	blau	total	320	1205118 S
S 119C	Coolant (Antifreeze) Freezing Point	-38,3-30	0,1 °C	0°C	blau	100	435	1202119 S
S 119F	Coolant (Antifreeze) Freezing Point	-37-22	0,2°F	32°F	blau	100	435	1205119 S
S 121C	Kinematic Viscosity	+98,6+101,4	0,05 °C	0°C	blau	total	320	1202121 S
S 122C	Brookfield Viscosity	-45-35	0,1°C		blau	total	320	1202122 S
S 123C	Brookfield Viscosity	-35-25	0,1 °C		blau	total	320	1202123 S
S 124C	Brookfield Viscosity	-25-15	0,1 °C		blau	total	320	1202124 S
S 125C	Brookfield Viscosity	-15-5	0,1 °C		blau	total	320	1202125 S
S 126C	Kinematic Viscosity	-27,4-24,6	0,05 °C	0°C	blau	total	320	1202126 S
S 126F	Kinematic Viscosity	-17,5-12,5	0,1 °C	32°F	blau	total	320	1205126 S
S 127C	Kinematic Viscosity	-21,4-18,6	0,05 °C	0°C	blau	total	320	1202127 S
S 128C	Kinematic Viscosity	-1,4+1,4	0,05 °C	0°C	blau	total	320	1202128 S
S 128F	Kinematic Viscosity	+29,5+34,5	0,1 °F	32°F	blau	total	320	1205128 S
S 129C	Kinematic Viscosity	+91,6+94,4	0,05 °C	0°C	blau	total	320	1202129 S
S 129F	Kinematic Viscosity	+197,5+202,5	0,1 °F	32°F	blau	total	320	1205129 S
S 132C	Kinematic Viscosity	+148,6+151,4	0,05 °C	0°C	blau	total	320	1202132 S
S 133C	Precision	-38+2	0,1 °C		blau	76	395	1202133 S
S 134C	Sludge	+144+156	0,2 °C		blau	100	280	1202134 S
S 135C	Fuel Rating Air-High	+38+93	1 °C		blau	40	190	1202135 S
S 135F	Fuel Rating Air-High	+100+200	1 °F		blau	40	190	1205135 S
S 136C	Aviation Fuel Density	-20+60	0,2 °C		blau	total	305	1202136 S
S 136F	Aviation Fuel Density	-5+140	0,5 °F		blau	total	305	1205136 S
S 137C	Oxidation Cell Test	+80+100	0,1 °C		blau	76	270	1202137 S

[*] The accuracy acc. to ASTM Standard by these types cannot be maintained over 180 °C / 356 °F. Accuracy. Genauigkeit ≙ ±1°C

Additional Order No.

…/03 with works calibration certificate

…/04 with DAkkS calibration certificate

Contents

High-precise digital measuring device PHYSICS 1000

The digital measuring device PHYSICS 1000 from Ludwig Schneider provides highest resolution, precision and linearity for mains independent temperature measurements. With a resolution of 0.001 K it facilitates reliable and reproducible mobile temperature measuring results in quality assurance, process monitoring and production control of the chemical, pharmaceutical and food industries as well as in research and development.

Technical data PHYSICS 1000	
Measuring inputs:	2 input channels for Pt100 temperature probes
Galvanic insulation:	Semiconductor relais (50 V)
Measuring range:	-200 °C up to +400 °C
Resolution:	0.001 K / 0.01 K
Self calibration:	Zero point, measuring current
Accuracy:	0.01 % of value ±3 digits
Temperature drift:	0.003 %/°C
Output:	1 plug for USB, V24, Ethernet, Bluetooth
Display graphic:	128 x 64 pixel, 8 lines
Display illumination:	2 LEDs, white
Keyboard:	7 silicone keys (4 soft keys)
Internal RAM memory:	100 values
Output socket:	Memory plug for 25,000 values
Batteries:	3 Mignon Alkaline
Current consumption:	20 mA, with illumination 40 mA
Mains adapter:	230 V (AC) to 12 V (DC), 200 mA
Casing:	ABS (max. 70 °C), light grey
Degree of protection:	IP 54
Dimensions and weight:	L 127 x W 83 x H 42 mm, 290 g
Ref.-No.:	**57089**

Additional order no.:

...../04 with DAkkS calibration certificate

Technical features

- Simple handling via 4 softkeys and cursor block
- Measuring menu: 2 values and difference indication
- Max. 4 measuring channels
- Multi-point adjusting for highest accuracy in connector
- Sensor programming: dimension, resolution, attenuation, comment
- Language selection: German, English, French
- DAkkS calibration certificate available

Available accessories	**Ref.-No.**
Mains adapter 230 V, 200 mA	**57090**
Mains adapter 115 V, 300 mA (US)	**58802**
USB cable (galvanically isolated, max. 115.2 kB))	**57091**
V24 cable (galvanically isolated, max. 115.2 kB)	**55855**
Ethernet cable (galvanically isolated, max. 115.2 kB)	**57512**
Bluetooth adapter plug, class 2	**58321**
Memory plug for 25,000 values	**57733**
Software PHYSICS view	**58306**

Case for digital mesuring device and accessories

Stable hard protective case with foam inserts

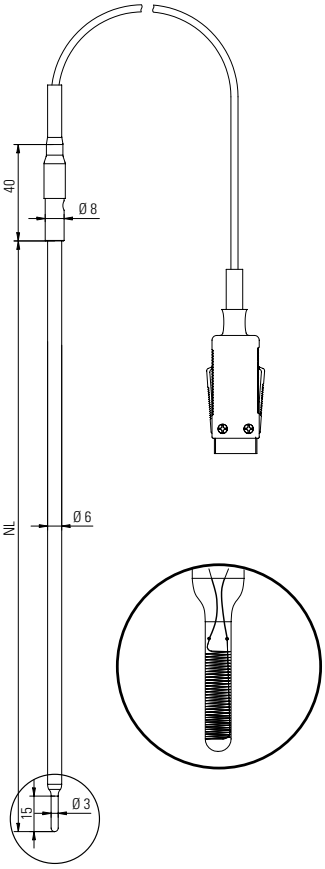
Ref.-No.: 57844

Holster for digital mesuring device

Stable protective cover (grey) with combi-bracket for standing/hanging

Ref.-No.: 58804

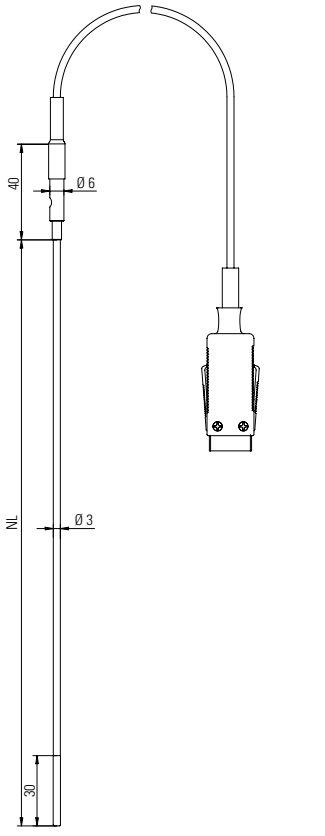
Temperature sensors for material testing with digital measuring devices



Laboratory resistance thermometer Type WT-GL-303-3/6 (glass version)

The sensor is suitable for temperature measurements in liquid media with low immersions. The depths of immersion are qualified by circular marks on the shaft of the sensor acc. to ASTM indications. The sensor is calibrated with the high-precision measuring device PHYSICS 1000 for the indicated measuring range and complies with the accuracy requirements acc. to ASTM. This will be confirmed by works certificate.

Sensor:	Pt100 acc. to DIN EN 60751 class A, 4-wire connection
Nominal length (NL):	250 mm
Shaft:	glass, diameter 6 mm, recessed
Connection cable:	4 x 0.22 mm² (Teflon), silicone insulation
Cable length:	2.000 mm
Connection:	PHYSICS 1000 plug
Resolution::	0.001 °C
Temperature range:	-50 °C up to +310 °C
Response time (t_{90}):	2.5 sec
Ref.-No.:	**59270**

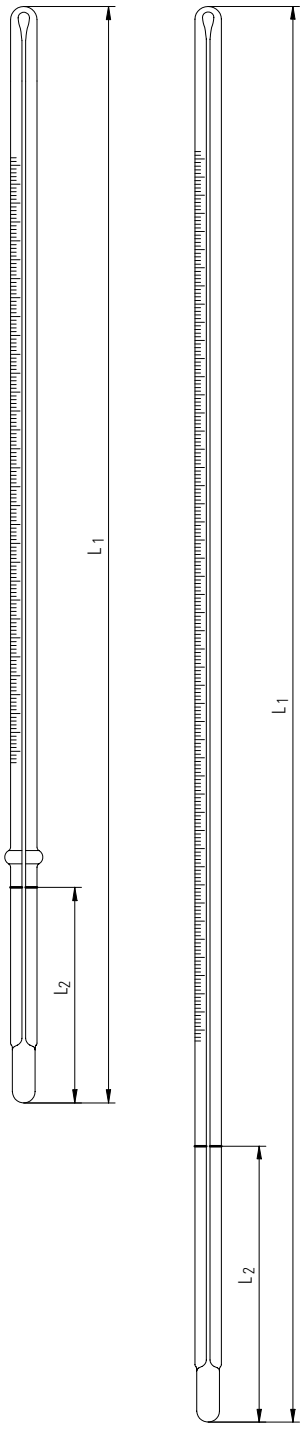


Laboratory resistance thermometer Type WT-MI-303-D-30E (metal version)

The sensor is suitable for temperature measurements in liquid media with immersion depths from 100 mm up to 250 mm. The depths of immersion are qualified by circular marks on the shaft of the sensor acc. to ASTM indications. The sensor is calibrated with the high-precision measuring device PHYSICS 1000 for the indicated measuring range and complies with the accuracy requirements acc. to ASTM. This will be confirmed by works certificate.

Sensor:	Pt100 acc. to DIN EN 60751 class A, 4-wire connection
Nominal length (NL):	400 mm
Shaft:	metal, Ø 3 mm, continuous
Connection cable:	4 x 0.22 mm² (Teflon), silicone insulation
Cable length:	2.000 mm
Connection:	PHYSICS 1000 plug
Resolution::	0.001 °C
Temperature range:	-90 °C up to +410 °C
Response time (t_{90}):	5 sec
Ref.-No.:	**59265**

ASTM precision thermometers



Precision thermometers acc. to ASTM, for mineral oil and fuel testing,
stem type, capillary form: yellow back round, suitable for official certification,
suitable metal ferrules see page 12

Type ASTM	Type IP	Description	Measuring range	Scale °C/°F	Filling	Immersion L_2 mm	Total length L_1 mm	Ref. No.	Sensor Pt100[2]
1 C	—	Partial Immersion	-20 +150	1 °C	Hg	76	317	1202001[1]	59270
1 F	—	Partial Immersion	0 +302	2 °F	Hg	76	317	1205001[1]	59270
2 C	62 C	Partial Immersion	-5 +300	1 °C	Hg	76	385	1202002	59270
2 F	62 F	Partial Immersion	+20 +580	2 °F	Hg	76	385	1205002	59270
3 C	73 C	Partial Immersion	-5 +400	1 °C	Hg	76	410	1202003	—
3 F	73 F	Partial Immersion	+20 +760	2 °F	Hg	76	410	1205003	—
5 C	1 C	Cloud and Pour	-38 +50	1 °C	Hg	108	225	1202005[1]	59265
5 F	1 F	Cloud and Pour	-36 +120	2 °F	Hg	108	225	1205005[1]	59265
6 C	2 C	Low Cloud and Pour	-80 +20	1 °C	Toluene	76	225	1202006[1]	—
6 F	2 F	Low Cloud and Pour	-112 +70	2 °F	Toluene	76	225	1205006[1]	—
7 C	5 C	Low Distillation	-2 +300	1 °C	Hg	total	380	1202007	59265
7 F	—	Low Distillation	+30 +580	2 °F	Hg	total	380	1205007	59265
8 C	6 C	High Distillation	-2 +400	1 °C	Hg	total	380	1202008	59265
8 F	—	High Distillation	+30 +760	2 °F	Hg	total	380	1205008	59265
9 C	15 C	Low-Pensky-Martens	-5 +110	0.5 °C	Hg	57	285	1202009	59270
9 F	15 F	Low-Pensky-Martens	+20 +230	1 °F	Hg	57	285	1205009	59270
10 C	16 C	High-Pensky-Martens	+90 +370	2 °C	Hg	57	285	1202010	—
10 F	16 F	High-Pensky-Martens	+200 +700	5 °F	Hg	57	285	1205010	—
11 C	28 C	Cleveland Open Flash	-6 +400	2 °C	Hg	25	305	1202011	—
11 F	28 F	Cleveland Open Flash	+20 +760	5 °F	Hg	25	305	1205011	—
12 C	64 C	Density-Wide Range	-20 +102	0.2 °C	Hg	total	415	1202012[1]	59265
12 F	64 F	Density-Wide Range	-5 +215	0.5 °F	Hg	total	415	1205012[1]	59265
13 C	47 C	Loss on Heat	+155 +170	0.5 °C	Hg	total	150	1202013[1]	59265
14 C	17 C	Wax Melting Point	+38 +82	0.1 °C	Hg	79	370	1202014[1]	59270
14 F	17 F	Wax Melting Point	+100 +180	0.2 °F	Hg	79	370	1205014[1]	59270
15 C	60 C	Low Softening Point	-2 +80	0.2 °C	Hg	total	390	1202015[1]	59265
15 F	—	Low Softening Point	+30 +180	0.5 °F	Hg	total	390	1205015[1]	59265
16 C	61 C	High Softening Point	+30 +200	0.5 °C	Hg	total	390	1202016[1]	59265
16 F	—	High Softening Point	+85 +392	1 °F	Hg	total	390	1205016[1]	59265
17 C	—	Saybolt Viscosity	+19 +27	0.1 °C	Hg	total	270	1202017	59265
17 F	—	Saybolt Viscosity	+66 +80	0.2 °F	Hg	total	270	1205017	59265
18 C	23 C	Reid Vapor Pressure	+34 +42	0.1 °C	Hg	total	270	1202018	59265
18 F	23 F	Reid Vapor Pressure	+94 +108	0.2 °F	Hg	total	270	1205018	59265
19 C	—	Saybolt Viscosity	+49 +57	0.1 °C	Hg	total	270	1202019	59265
19 F	—	Saybolt Viscosity	+120 +134	0.2 °F	Hg	total	270	1205019	59265
20 C	—	Saybolt Viscosity	+57 +65	0.1 °C	Hg	total	270	1202020	59265
20 F	—	Saybolt Viscosity	+134 +148	0.2 °F	Hg	total	270	1205020	59265
21 C	—	Saybolt Viscosity	+79 +87	0.1 °C	Hg	total	270	1202021	59265
21 F	—	Saybolt Viscosity	+174 +188	0.2 °F	Hg	total	270	1205021	59265
22 C	24 C	Oxidation Stability	+95 +103	0.1 °C	Hg	total	270	1202022	59265
22 F	24 F	Oxidation Stability	+204 +218	0.2 °F	Hg	total	270	1205022	59265

[2] Optional mercury-free measuring: digital measuring devices and suitable precise temperature sensors see pages 4/5

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.
...../80 Safety coating
(PTFE coated up to 200 °C/400 °F)

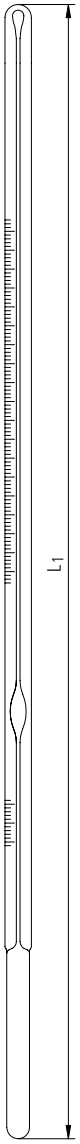
ASTM precision thermometers

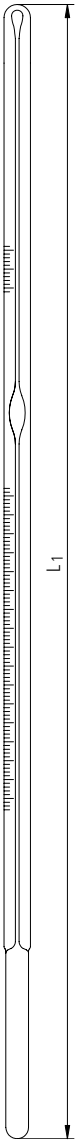
Precision thermometers acc. to ASTM, for mineral oil and fuel testing,
stem type, capillary form: yellow back round, suitable for official certification

Type ASTM	Type IP	Description	Measuring range	Scale °C/°F	Aux. scale °C/°F	Filling	Immersion L_2 mm	Total length L_1 mm	Ref. No.	Sensor Pt100[2]
23 C	—	Engler Viscosity	+18 +28	0.2 °C	—	Hg	90	207	1202023[1]	59270
24 C	—	Engler Viscosity	+39 +54	0.2 °C	—	Hg	90	232	1202024[1]	59270
25 C	—	Engler Viscosity	+95 +105	0.2 °C	—	Hg	90	207	1202025[1]	59270
26 C	—	Stability Test of Soluble Nitrocellulose	+130 +140	0.1 °C	—	Hg	total	458	1202026[1]	59265
27 C	—	Turpentine Distillation	+147 +182	0.5 °C	—	Hg	76	296	1202027[1]	59270
28 C	31 C	Kinematic Viscosity	+36.6 +39.4	0.05 °C	0 °C	Hg	total	300	1202028[1]	59265
28 F	31 F	Kinematic Viscosity	+97.5 +102.5	0.1 °F	32 °F	Hg	total	300	1205028[1]	59265
29 C	34 C	Kinematic Viscosity	+52.6 +55.4	0.05 °C	0 °C	Hg	total	300	1202029[1]	59265
29 F	34 F	Kinematic Viscosity	+127.5 +132.5	0.1 °F	32 °F	Hg	total	300	1205029[1]	59265
30 F	32 F	Kinematic Viscosity	+207.5 +212.5	0.1 °F	32 °F	Hg	total	300	1205030[1]	59265
33 C	20 C	Low Aniline Point	-38 +42	0.2 °C	—	Hg	50	415	1202033[1]	59270
33 F	—	Low Aniline Point	-36.5 +107.5	0.5 °F	—	Hg	50	415	1205033[1]	59270
34 C	21 C	Medium Aniline Point	+25 +105	0.2 °C	—	Hg	50	415	1202034[1]	59270
34 F	—	Medium Aniline Point	+77 +221	0.5 °F	—	Hg	50	415	1205034[1]	59270
35 C	59 C	High Aniline Point	+90 +170	0.2 °C	—	Hg	50	415	1202035[1]	59270
35 F	—	High Aniline Point	+194 +338	0.5 °F	—	Hg	50	415	1205035[1]	59270
36 C	—	Titer Test	-2 +68	0.2 °C	—	Hg	45	400	1202036[1]	59270
37 C	77 C	Solvents Distillation	-2 +52	0.2 °C	—	Hg	100	390	1202037[1]	59265
38 C	78 C	Solvents Distillation	+24 +78	0.2 °C	—	Hg	100	390	1202038[1]	59265
39 C	79 C	Solvents Distillation	+48 +102	0.2 °C	—	Hg	100	390	1202039[1]	59265
40 C	80 C	Solvents Distillation	+72 +126	0.2 °C	—	Hg	100	390	1202040[1]	59265
41 C	81 C	Solvents Distillation	+98 +152	0.2 °C	—	Hg	100	390	1202041[1]	59265
42 C	82 C	Solvents Distillation	+95 +255	0.5 °C	—	Hg	100	390	1202042	59265
43 C	65 C	Kinematic Viscosity	-51.6 -34	0.1 °C	0 °C	Hg	total	410	1202043[1]	59265
43 F	65 F	Kinematic Viscosity	-61 -29	0.2 °F	32 °F	Hg-TL	total	410	1205043[1]	59265
44 C	29 C	Kinematic Viscosity	+18.6 +21.4	0.05 °C	0 °C	Hg	total	300	1202044[1]	59265
44 F	29 F	Kinematic Viscosity	+66.5 +71.5	0.1 °F	32 °F	Hg	total	300	1205044[1]	59265
45 C	30 C	Kinematic Viscosity	+23.6 +26.4	0.05 °C	0 °C	Hg	total	300	1202045[1]	59265
45 F	30 F	Kinematic Viscosity	+74.5 +79.5	0.1 °F	32 °F	Hg	total	300	1205045[1]	59265
46 C	66 C	Kinematic Viscosity	+48.6 +51.4	0.05 °C	0 °C	Hg	total	300	1202046[1]	59265
46 F	66 F	Kinematic Viscosity	+119.5 +124.5	0.1 °F	32 °F	Hg	total	300	1205046[1]	59265
47 C	35 C	Kinematic Viscosity	+58.6 +61.4	0.05 °C	0 °C	Hg	total	300	1202047[1]	59265
47 F	35 F	Kinematic Viscosity	+137.5 +142.5	0.1 °F	32 °F	Hg	total	410	1205047[1]	59265
48 C	90 C	Kinematic Viscosity	+80.6 +83.4	0.05 °C	0 °C	Hg	total	300	1202048[1]	59265
48 F	90 F	Kinematic Viscosity	+177.5 +182.5	0.1 °F	32 °F	Hg	total	300	1205048[1]	59265
49 C	—	Stormer Viscosity	+20 +70	0.2 °C	—	Hg	65	300	1202049[1]	59270
50 C	—	Gas Calorimeter Inlet	+12.2 +38.3	0.05 °C	—	Hg	total	463	1202050[1]	59265
50 F	—	Gas Calorimeter Inlet	+54 +101	0.1 °F	—	Hg	total	463	1205050[1]	59265
51 F	—	Gas Calorimeter Outlet	+69 +116	0.1 °F	—	Hg	total	463	1205051[1]	59265
52 C	—	Butadiene Boiling Point Range	-10 +5	0.1 °C	—	Hg	total	157	1202052[1]	59265
53 C	—	Benzene Freezing Point	-0.6 +10.4	0.1 °C	—	Hg	total	189	1202053[1]	59265

[2] Optional mercury-free measuring: digital measuring devices and suitable precise temperature sensors see pages 4/5

ASTM precision thermometers





Precision thermometers acc. to ASTM, for mineral oil and fuel testing,
stem type, capillary form: yellow back round, ([3] yellow back prismatic), suitable for official certification, suitable scoop sampler see page 12

Type ASTM	Type IP	Description	Measuring range	Scale °C/°F	Aux. scale °C/°F	Filling	Immersion L_2 mm	Total length L_1 mm	Ref. No.	Sensor Pt100[2]
54 C	18 C	Congealing Point	+20 +100.6	0.2 °C	—	Hg	total	305	1202054[1]	59265
54 F	18 F	Congealing Point	+68 +213	0.5 °F	—	Hg	total	305	1205054[1]	59265
56 C	—	Bomb Calorimeter	+19 +35	0.02 °C	—	Hg	total	570	1202056[1]	59265
56 F	—	Bomb Calorimeter	+66 +95	0.05 °F	—	Hg	total	570	1205056[1]	59265
57 C	—	Tag Closed Tester, Low Range	-20 +50	0.5 °C	—	Hg	57	282	1202057[1]	59270
57 F	—	Tag Closed Tester, Low Range	-4 +122	1 °F	—	Hg	57	282	1205057[1]	59270
58 C	—	Tank	-34 +49	0.5 °C	—	Hg	total	300	1202058[3]	59265
58 F	—	Tank	-30 +120	1 °F	—	Hg	total	300	1205058[3]	59265
59 C	—	Tank	-18 +82	0.5 °C	—	Hg	total	300	1202059[3]	59265
59 F	—	Tank	0 +180	1 °F	—	Hg	total	300	1205059[3]	59265
60 C	—	Tank	+77 +260	1 °C	—	Hg	total	300	1202060[3]	59265
60 F	—	Tank	+170 +500	2 °F	—	Hg	total	300	1205060[3]	59265
61 C	63 C	Petrolatum Melting Point	+32 +127	0.2 °C	—	Hg	79	375	1202061[1]	59270
61 F	—	Petrolatum Melting Point	+90 +260	0.5 °F	—	Hg	79	375	1205061[1]	59270
62 C	—	Precision	-38 +2	0.1 °C	—	Hg	total	374	1202062[1]	59265
62 F	—	Precision	-36 +35	0.2 °F	—	Hg	total	374	1205062[1]	59265
63 C	—	Precision	-8 +32	0.1 °C	—	Hg	total	374	1202063[1]	59265
63 F	—	Precision	+18 +89	0.2 °F	—	Hg	total	374	1205063[1]	59265
64 C	—	Precision	+25 +55	0.1 °C	0 °C	Hg	total	374	1202064[1]	59265
64 F	—	Precision	+77+131	0.2 °F	32 °F	Hg	total	374	1205064[1]	59265
65 C	—	Precision	+50 +80	0.1 °C	0 °C	Hg	total	374	1202065[1]	59265
65 F	—	Precision	+122 +176	0.2 °F	32 °F	Hg	total	374	1205065[1]	59265
66 C	—	Precision	+75 +105	0.1 °C	0 °C	Hg	total	374	1202066[1]	59265
66 F	—	Precision	+167 +221	0.2 °F	32 °F	Hg	total	374	1205066[1]	59265
67 C	—	Precision	+95 +155	0.2 °C	0 °C	Hg	total	374	1202067[1]	59265
67 F	—	Precision	+203 +311	0.5 °F	32 °F	Hg	total	374	1205067[1]	59265
68 C	—	Precision	+145 +205	0.2 °C	0 °C	Hg	total	374	1202068	59265
68 F	—	Precision	+293 +401	0.5 °F	32 °F	Hg	total	374	1205068	59265
69 C	—	Precision	+195 +305	0.5 °C	0 °C	Hg	total	374	1202069	59265
69 F	—	Precision	+383 +581	1 °F	32 °F	Hg	total	374	1205069	59265
70 C	—	Precision	+295 +405	0.5 °C	0 °C	Hg	total	374	1202070	59265
70 F	—	Precision	+563 +761	1 °F	32 °F	Hg	total	374	1205070	59265
71 C	72 C	Oil in Wax	-37 +21	0.5 °C	—	Hg	76	350	1202071[1]	59270
71 F	72 F	Oil in Wax	-35 +70	1 °F	—	Hg	76	350	1205071[1]	59270
72 C	67 C	Kinematic Viscosity	-19.4 -16.6	0.05 °C	0 °C	Hg	total	300	1202072[1]	59265
72 F	67 F	Kinematic Viscosity	-2.5 +2.5	0.1 °F	32 °F	Hg	total	300	1205072[1]	59265
73 C	68 C	Kinematic Viscosity	-41.4 -38.6	0.05 °C	0 °C	Hg-Tl	total	300	1202073[1]	59265
73 F	68 F	Kinematic Viscosity	-42.5 -37.5	0.1 °F	32 °F	Hg-Tl	total	300	1205073[1]	59265
74 C	69 C	Kinematic Viscosity	-55.4 -52.6	0.05 °C	0 °C	Hg	total	300	1202074[1]	59265
74 F	69 F	Kinematic Viscosity	-67.5 -62.5	0.1 °F	32 °F	Hg-Tl	total	300	1205074[1]	59265

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.
...../80 Safety coating
(PTFE coated up to 200 °C/400 °F)

[2] Optional mercury-free measuring: digital measuring devices and suitable precise temperature sensors see pages 4/5

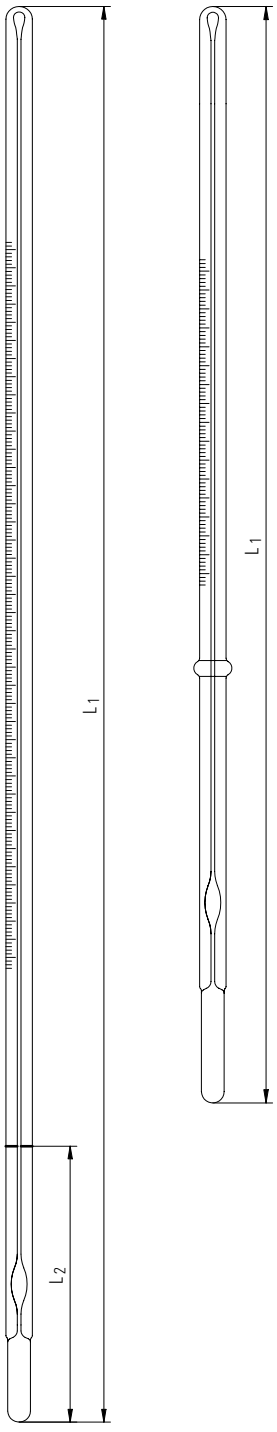
ASTM precision thermometers

Precision thermometers acc. to ASTM, for mineral oil and fuel testing,
stem type, capillary form: yellow back round, ([3] yellow back prismatic), suitable for official certification,

Type ASTM	IP	Description	Measuring range	Scale °C/°F	Auxilliary scale °C/°F	Filling	Immersion L_2 mm	Total length L_1 mm	Ref. No.	Sensor Pt100[2]
75 F	—	Coolant (Antifreeze) Freezing Point	-35 +35	0.5 °F	—	Hg	100	403	1205075[1]	59265
76 F	—	Coolant (Antifreeze) Freezing Point	-65 +5	0.5 °F	—	Hg	100	403	1205076[1]	59265
77 F	—	Saybolt Viscosity	+245 +265	0.5 °F	—	Hg	total	270	1205077	59265
78 F	—	Saybolt Viscosity	+295 +315	0.5 °F	—	Hg	total	270	1205078	59265
79 F	—	Saybolt Viscosity	+345 +365	0.5 °F	—	Hg	total	270	1205079	59265
80 F	—	Saybolt Viscosity	+395 +415	0.5 °F	—	Hg	total	270	1205080	59265
81 F	—	Saybolt Viscosity	+445 +465	0.5 °F	—	Hg	total	270	1205081	59265
82 C	—	Fuel Rating Engine	-15 +105	1 °C	—	Hg	30	159	1202082[1]	59270
82 F	—	Fuel Rating Engine	0 +220	2 °F	—	Hg	30	159	1205082[1]	59270
83 C	—	Fuel Rating Air-Low	+15 +70	1 °C	—	Hg	40	168	1202083[1]	59270
83 F	—	Fuel Rating Air-Low	+60 +160	1 °F	—	Hg	40	168	1205083[1]	59270
84 C	—	Fuel Rating, Orifice Tank	+25 +80	1 °C	—	Hg	249	378	1202084[1]	59265
84 F	—	Fuel Rating, Orifice Tank	+75 +175	1 °F	—	Hg	249	378	1205084[1]	59265
85 C	—	Fuel Rating, Surge	+40 +150	1 °C	—	Hg	181	305	1202085[1]	59265
85 F	—	Fuel Rating, Surge	+100 +300	2 °F	—	Hg	181	305	1205085[1]	59265
86 C	—	Fuel Rating, Mix.	+95 +175	1 °C	—	Hg	35	164	1202086	59270
86 F	—	Fuel Rating, Mix.	+200 +350	2 °F	—	Hg	35	164	1205086	59270
87 C	—	Fuel Rating Coolant	+150 +205	1 °C	—	Hg	40	169	1202087	59270
87 F	—	Fuel Rating Coolant	+300 +400	1 °F	—	Hg	40	169	1205087	59270
88 C	—	Vegetable Oil Flash	+10 +200	1 °C	—	Hg	57	282	1202088	59270
88 F	—	Vegetable Oil Flash	+50 +392	2 °F	—	Hg	57	282	1205088	59270
89 C	—	Solidification Point	-20 +10	0.1 °C	—	Hg	76	365	1202089[1]	59270
90 C	—	Solidification Point	0 +30	0.1 °C	—	Hg	76	365	1202090[1]	59270
91 C	—	Solidification Point	+20 +50	0.1 °C	—	Hg	76	365	1202091[1]	59270
92 C	—	Solidification Point	+40 +70	0.1 °C	—	Hg	76	365	1202092[1]	59270
93 C	—	Solidification Point	+60 +90	0.1 °C	—	Hg	76	365	1202093[1]	59270
94 C	—	Solidification Point	+80 +110	0.1 °C	—	Hg	76	365	1202094[1]	59270
95 C	—	Solidification Point	+100 +130	0.1 °C	—	Hg	76	365	1202095[1]	59270
96 C	—	Solidification Point	+120 +150	0.1 °C	—	Hg	76	365	1202096[1]	59270
97 C	—	Tank	-18 +49	0.5 °C	—	Hg	total	300	1202097[3]	59265
97 F	—	Tank	0 +120	1 °F	—	Hg	total	300	1205097[3]	59265
98 C	—	Tank	+16 +82	0.5 °C	—	Hg	total	300	1202098[3]	59265
98 F	—	Tank	+60 +180	1 °F	—	Hg	total	300	1205098[3]	59265
99 C	—	Weathering Test	-50 +5	0.2 °C	—	Hg-Tl	35	300	1202099[1]	59270
99 F	—	Weathering Test	-58 +41	0.5 °F	—	Hg-Tl	35	299	1205099[1]	59270
100 C	—	Solidification Point	+145 +205	0.2 °C	—	Hg	76	365	1202100	59270
101 C	—	Solidification Point	+195 +305	0.5 °C	—	Hg	76	365	1202101	59270
102 C	83 C	Solvents Distillation	+123 +177	0.2 °C	—	Hg	100	390	1202102[1]	59265
103 C	84 C	Solvents Distillation	+148 +202	0.2 °C	—	Hg	100	390	1202103[1]	59265
104 C	85 C	Solvents Distillation	+173 +227	0.2 °C	—	Hg	100	390	1202104[1]	59265

[2] Optional mercury-free measuring: digital measuring devices and suitable precise temperature sensors see pages 4/5

ASTM precision thermometers



Precision thermometers acc. to ASTM, for mineral oil and fuel testing,
stem type, capillary form: yellow back round, ([3] yellow back prismatic), suitable for official certification, suitable scoop sampler see page 12

Type ASTM	Type IP	Description	Measuring range	Scale °C/°F	Aux. scale °C/°F	Filling	Immersion L_2 mm	Total length L_1 mm	Ref. No.	Sensor Pt100[2]
105C	86C	Solvents Distillation	+198 +252	0.2 °C	—	Hg	100	390	1202105	59265
106C	87C	Solvents Distillation	+223 +277	0.2 °C	—	Hg	100	390	1202106	59265
107C	88C	Solvents Distillation	+248 +302	0.2 °C	—	Hg	100	390	1202107	59265
108F	—	Saybolt Viscosity	+270 +290	0.5 °F	—	Hg	total	270	1205108	59265
109F	—	Saybolt Viscosity	+320 +340	0.5 °F	—	Hg	total	270	1205109	59265
110C	93C	Kinematic Viscosity	+133.6 +136.4	0.05 °C	0 °C	Hg	total	300	1202110[1]	59265
110F	—	Kinematic Viscosity	+272.5 +277.5	0.1 °F	32 °F	Hg	total	300	1205110[1]	59265
111C	—	Tar Acids Distillation	+170 +250	0.2 °C	—	Hg	100	390	1202111	59265
112C	—	Benzene Solidification Point	+4 +6	0.02 °C	0 °C	Hg	total	210	1202112[1]	59265
113C	89C	Softening Point (Bitumen) Wide Range	-1 +175	0.5 °C	—	Hg	total	400	1202113[1]	59265
113F	89F		+30 +350	1 °F	—	Hg	total	400	1205113[1]	59265
114C	14C	Aviation Fuel Freezing Point	-80 +20	0.5 °C	—	Toluene	total	295	1202114[1]	59265
116C	—	Bomb Calorimeter	+18.9 +25.1	0.01 °C	—	Hg	total	604	1202116[1]	59265
117C	—	Bomb Calorimeter	+23.9 +30.1	0.01 °C	—	Hg	total	604	1202117[1]	59265
118C	—	Kinematic Viscosity	+28.6 +31.4	0.05 °C	0 °C	Hg	total	300	1202118[1]	59265
118F	—	Kinematic Viscosity	+83.5 +88.5	0.1 °F	32 °F	Hg	total	300	1205118[1]	59265
119C	—	Coolant (Antifreeze) Freezing Point	-38.3 -30	0.1 °C	0 °C	Hg	100	415	1202119[1]	59265
119F	—		-37 -22	0.2 °F	32 °F	Hg	100	415	1205119[1]	59265
120C	92C	Kinematic Viscosity	+38.6 +41.4	0.05 °C	0 °C	Hg	total	300	1202120[1]	59265
121C	32C	Kinematic Viscosity	+98.6 +101.4	0.05 °C	0 °C	Hg	total	300	1202121[1]	59265
122C	94C	Brookfield Viscosity	-45 -35	0.1 °C	—	Hg-Tl	total	295	1202122[1]	59265
123C	95C	Brookfield Viscosity	-35 -25	0.1 °C	—	Hg	total	295	1202123[1]	59265
124C	96C	Brookfield Viscosity	-25 -15	0.1 °C	—	Hg	total	295	1202124[1]	59265
125C	97C	Brookfield Viscosity	-15 -5	0.1 °C	—	Hg	total	295	1202125[1]	59265
126C	71C	Kinematic Viscosity	-27.4 -24.6	0.05 °C	0 °C	Hg	total	300	1202126[1]	59265
126F	71F	Kinematic Viscosity	-17.5 -12.5	0.1 °F	32 °F	Hg	total	300	1205126[1]	59265
127C	99C	Kinematic Viscosity	-21.4 -18.6	0.05 °C	0 °C	Hg	total	300	1202127[1]	59265
128C	33C	Kinematic Viscosity	-1.4 +1.4	0.05 °C	—	Hg	total	300	1202128[1]	59265
128F	33F	Kinematic Viscosity	+29.5 +34.5	0.1 °F	—	Hg	total	300	1205128[1]	59265
129C	36C	Kinematic Viscosity	+91.6 +94.4	0.05 °C	0 °C	Hg	total	300	1202129[1]	59265
129F	36F	Kinematic Viscosity	+197.5 +202.5	0.1 °F	32 °F	Hg	total	300	1205129[1]	59265
130C	—	Tank	-7 +105	0.5 °C	—	Hg	total	300	1202130[3]	59265
130F	—	Tank	+20 +220	1 °F	—	Hg	total	300	1205130[3]	59265
132C	102C	Kinematic Viscosity	+148.6 +151.4	0.05 °C	0 °C	Hg	total	300	1202132[1]	59265
133C	—	Precision	-38 +2	0.1 °C	—	Hg	76	374	1202133[1]	59270
134C	37C	Sludge	+144 +156	0.2 °C	—	Hg	100	260	1212037[1]	59265
135C	—	Fuel Rating Air-High	+38 +93	1 °C	—	Hg	40	168	1202135[1]	59270
135F	—	Fuel Rating Air-High	+100 +200	1 °F	—	Hg	40	168	1205135[1]	59270
136C	—	Aviation Fuel Density	-20 +60	0.2 °C	—	Hg	total	285	1202136[1]	59265
136F	—	Aviation Fuel Density	-5 +140	0.5 °F	—	Hg	total	285	1205136[1]	59265
137C	—	Oxidation Cell Test	+80 +100	0.1 °C	—	Hg	76	250	1202137[1]	59270

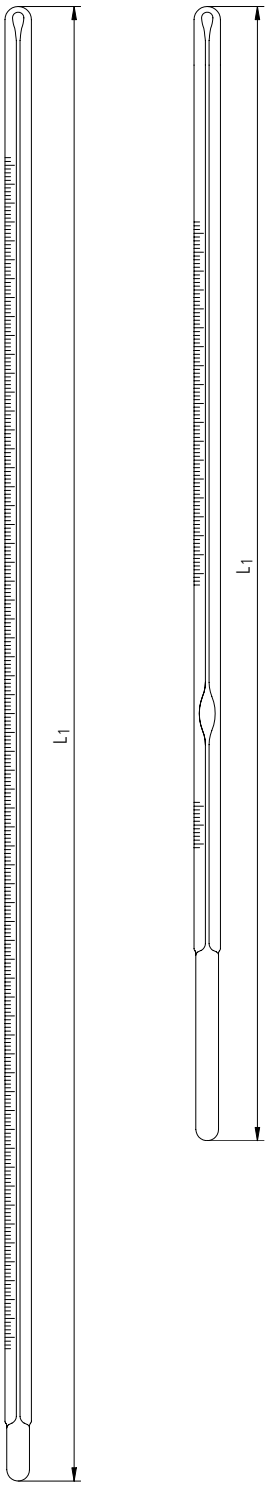
[2] Optional mercury-free measuring: digital measuring devices and suitable precise temperature sensors see pages 4/5

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.
...../80 Safety coating
(PTFE coated up to 200 °C/400 °F)

ASTM precision thermometers

Blue filling



Precision thermometers acc. to ASTM, for mineral oil and fuel testing,
stem type, capillary form: white back round

Type ASTM	**Description**	**Measuring range**	**Scale** °C/°F	**Aux. scale** °C/°F	**Fill-ing**	**Immer-sion L_2** mm	**Total length L_1** mm	**Ref. No.**
S5C	Cloud and Pour	-38 +50	1 °C	—	blue	108	260	1202005S
S5F	Cloud and Pour	-36 +120	2 °F	—	blue	108	260	1205005S
S12C	Density-Wide Range	-20 +102	0.2 °C	—	blue	total	435	1202012S
S12F	Density-Wide Range	-5 +215	0.5 °F	—	blue	total	435	1205012S
S15C	Low Softening Point	-2 +80	0.2 °C	—	blue	total	400	1202015S
S15F	Low Softening Point	+30 +180	0.5 °F	—	blue	total	400	1205015S
S18C	Reid Vapor Point	+34 +42	0.1 °C	—	blue	total	300	1202018S
S18F	Reid Vapor Point	+94 +108	0.2 °F	—	blue	total	300	1205018S
S22C	Oxidation Stability	+95 +103	0.1 °C	—	blue	total	300	1202022S
S22F	Oxidation Stability	+204 +218	0.2 °F	—	blue	total	300	1205022S
S56C	Bomb Calorimeter	+19 +35	0.02 °C	—	blue	total	610	1202056S
S56F	Bomb Calorimeter	+66 +95	0.05 °F	—	blue	total	610	1205056S
S58C	Tank	-34 +49	0.5 °C	—	blue	total	300	1202058S
S58F	Tank	-30 +120	1 °F	—	blue	total	300	1205058S
S59C	Tank	-18 +82	0.5 °C	—	blue	total	300	1202059S
S59F	Tank	0 +180	1 °F	—	blue	total	300	1205059S
S62C	Precision	-38 +2	0.1 °C	—	blue	total	401	1202062S
S62F	Precision	-36 +35	0.2 °F	—	blue	total	401	1205062S
S63C	Precision	-8 +32	0.1 °C	—	blue	total	401	1202063S
S63F	Precision	+18 +89	0.2 °F	—	blue	total	401	1205063S
S64C	Precision	+25 +55	0.1 °C	0 °C	blue	total	401	1202064S
S64F	Precision	+77+131	0.2 °F	32 °F	blue	total	401	1205064S
S65C	Precision	+50 +80	0,1 °C	0 °C	blue	total	401	1202065S
S65F	Precision	+122 +176	0.2 °F	32 °F	blue	total	401	1205065S
S66C	Precision	+75 +105	0.1 °C	0 °C	blue	total	401	1202066S
S66F	Precision	+167 +221	0.2 °F	32 °F	blue	total	401	1205066S
S67C	Precision	+95 +155	0.2 °C	0 °C	blue	total	401	1202067S
S67F	Precision	+203 +311	0.5 °F	32 °F	blue	total	401	1205067S
S91C	Solidifaction Point	+20 +50	0.1 °C	—	blue	76	390	1202091S
S116C	Bomb Calorimeter	+18.9 +25.1	0.01 °C	—	blue	total	615	1202116S
S117C	Bomb Calorimeter	+23.9 +30.1	0.01 °C	—	blue	total	615	1202117S
S120C	Kinematic Viscosity	+38.6 +41.4	0.05 °C	0 °C	blue	total	300	1202120S
S130C	Tank	-7 +105	0.5 °C	—	blue	total	300	1202130S
S130F	Tank	+20 +220	1 °F	—	blue	total	300	1205130S

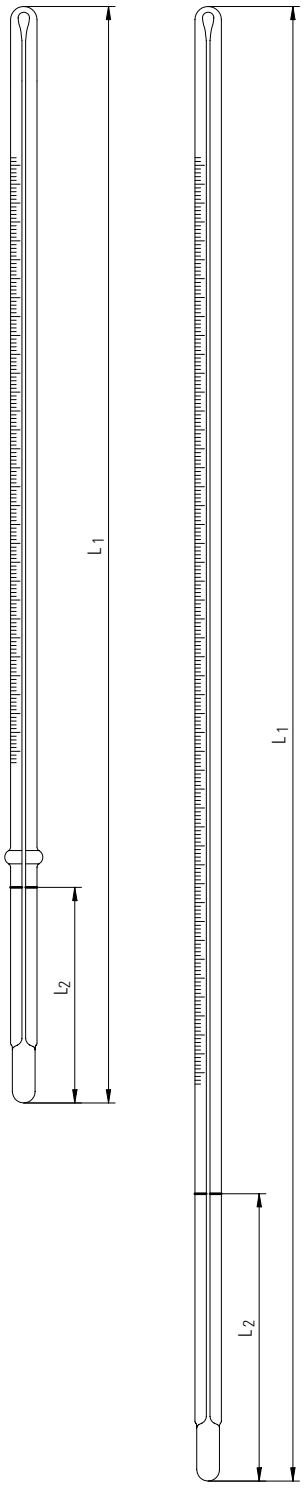
Additional Order No.

...../03 With works certificate

...../04 With DAkkS calibration cert.

ASTM-like thermometers

Blue filling



Precision thermometers acc. to ASTM, for mineral oil and fuel testing,
stem type, capillary form: white back round

Type ASTM	**Description**	**Measuring range**	**Scale** °C/°F	**Filling**	**Immersion L_2** mm	**Total length L_1** mm	**Ref. No.**
S1C	Partial Immersion	-20 +150	1 °C	blue	76	335	1202001S
S1F	Partial Immersion	0 +302	2 °F	blue	76	335	1202501S
S9C	Low -Pensky-Martens	-5 +110	0.5 °C	blue	57	305	1202009S
S9F	Low -Pensky-Martens	+20 +230	1 °F	blue	57	305	1205009S
S14C	Wax Melting Point	+38 +82	0.1 °C	blue	79	390	1202014S
S14F	Wax Melting Point	+100 +180	0.2 °F	blue	79	390	1205014S
S16C	High Softening Point	+30 +200	0.5 °C	blue	total	415	1202016S
S16F	High Softening Point	+85 +392	1 °F	blue	total	415	1205016S
S17C	Saybolt Viscosity	+19 +27	0.1 °C	blue	total	300	1202017S
S17F	Saybolt Viscosity	+66 +80	0.2 °F	blue	total	300	1205017S
S19C	Saybolt Viscosity	+49 +57	0.1 °C	blue	total	300	1202019S
S19F	Saybolt Viscosity	+120 +134	0.2 °F	blue	total	300	1205019S
S20C	Saybolt Viscosity	+57 +65	0.1 °C	blue	total	300	1202020S
S20F	Saybolt Viscosity	+134 +148	0.2 °F	blue	total	300	1205020S
S21C	Saybolt Viscosity	+79 +87	0.1 °C	blue	total	300	1202021S
S21F	Saybolt Viscosity	+174 +188	0.2 °F	blue	total	300	1205021S
S33C	Low Aniline Point	-38 +42	0.2 °C	blue	50	435	1202033S
S33F	Low Aniline Point	-36.5 +107.5	0.5 °F	blue	50	435	1205033S
S34C	Medium Aniline Point	+25 +105	0.2 °C	blue	50	435	1202034S
S34F	Medium Aniline Point	+77 +221	0.5 °F	blue	50	435	1205034S
S36C	Titer Test	-2 +68	0.2 °C	blue	45	420	1202036S
S37C	Solvents Distillation	-2 +52	0.2 °C	blue	100	410	1202037S
S38C	Solvents Distillation	+24 +78	0.2 °C	blue	100	410	1202038S
S39C	Solvents Distillation	+48 +102	0.2 °C	blue	100	410	1202039S
S40C	Solvents Distillation	+72 +126	0.2 °C	blue	100	410	1202040S
S42C	Solvents Distillation	+95 +255	0.5 °C	blue	100	410	1202042S
S49C	Stormer Viscosity	+20 +70	0.2 °C	blue	65	320	1202049S
S52C	Butadiene Boiling Point Range	-10 +5	0.1 °C	blue	total	180	1202052S

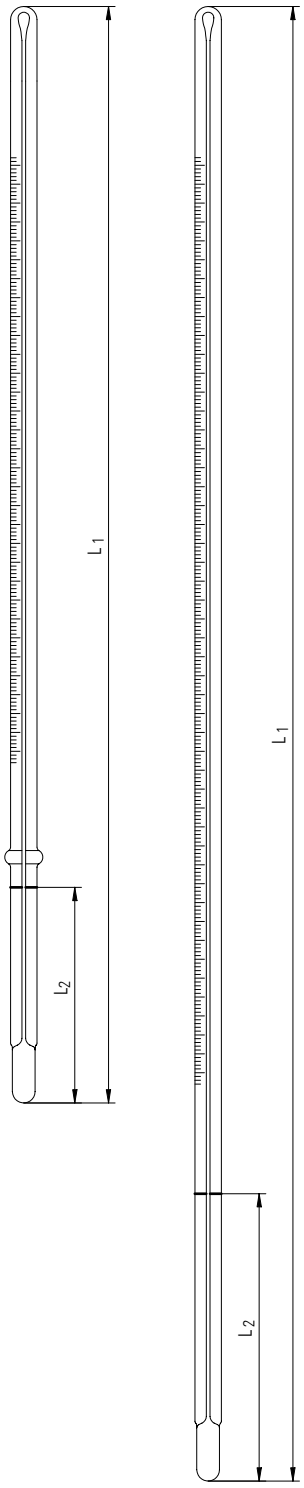
Additional Order No.

...../03 With works certificate

...../04 With DAkkS calibration cert.

ASTM-like thermometers

Blue filling



Precision thermometers acc. to ASTM, for mineral oil and fuel testing,
stem type, capillary form: white back round

Type ASTM	Description	Measuring range	Scale °C/°F	Filling	Immersion L_2 mm	Total length L_1 mm	Ref. No.
S54C	Congealing Point	+20 +100.6	0.2 °C	blue	total	325	1202054S
S54F	Congealing Point	+68 +213	0.5 °F	blue	total	325	1205054S
S57C	Tag Closed Tester, Low Range	-20 +50	0.5 °C	blue	57	305	1202057S
S57F	Tag Closed Tester, Low Range	-4 +122	1°F	blue	57	305	1205057S
S61C	Pertrolatum Melting Point	+32 +127	0.2 °C	blue	79	400	1202061S
S61F	Pertrolatum Melting Point	+90 +260	0.5 °F	blue	79	400	1205061S
S82C	Fuel Rating, Engine	-15 +105	1 °C	blue	30	180	1202082S
S82F	Fuel Rating, Engine	0 +220	2 °F	blue	30	180	1205082S
S83C	Fuel Rating, Air-Low	+15 +70	1 °C	blue	40	190	1202083S
S83F	Fuel Rating, Air-Low	+60 +160	1 °F	blue	40	190	1205083S
S84C	Fuel Rating, Orifice Tank	+25 +80	1 °C	blue	249	400	1202084S
S84F	Fuel Rating, Orifice Tank	+75 +175	1 °F	blue	249	400	1205084S
S85C	Fuel Rating, Surge	+40 +150	1 °C	blue	181	325	1202085S
S85F	Fuel Rating, Surge	+100 +300	2 °F	blue	181	325	1205085S
S86C	Fuel Rating, Mix	+95 +175	1 °C	blue	35	190	1202086S
S86F	Fuel Rating, Mix	+200 +350	2 °F	blue	35	190	1205086S
S88C	Vegetable Oil Flash	+10 +200	1 °C	blue	57	305	1202088S
S88F	Vegetable Oil Flash	+50 +392	2 °F	blue	57	305	1205088S
S89C	Solidification Point	-20 +10	0.1 °C	blue	76	390	1202089S
S90C	Solidification Point	0 +30	0.1 °C	blue	76	390	1202090S
S97C	Tank	-18 +49	0.5 °C	blue	total	320	1202097S
S97F	Tank	0 +120	1 °F	blue	total	320	1205097S
S98C	Tank	+16 +82	0.5 °C	blue	total	300	1202098S
S98F	Tank	+60 +180	1 °F	blue	total	300	1205098S
S99C	Weathering Test	-50 +5	0.2 °C	blue	35	320	1202099S
S99F	Weathering Test	-58 +41	0.5 °F	blue	35	320	1205099S
S113C	Softening Point (Bitumen) Wide Range	-1 +175	0.5 °C	blue	total	420	1202113S
S113F	Softening Point (Bitumen) Wide Range	+30 +350	1°F	blue	total	420	1205113S

Additional Order No.

...../03 With works certificate

...../04 With DAkkS calibration cert.

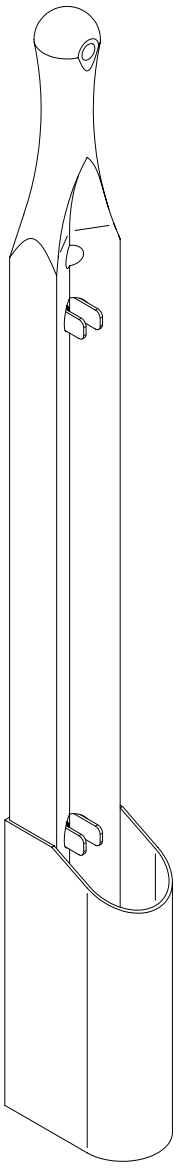
Accessories for ASTM precision thermometers

Metal ferrule

Metal ferrule acc. to DIN 51801 part 1, material: brass,
for the dropping-point determination acc. to ASTM D566

Type	Ref. No.
Suitable for ASTM thermometers of types 2 C/F	204501

Type	Ref. No.
Suitable for ASTM thermometers of types 9 and 10 C/F	200201

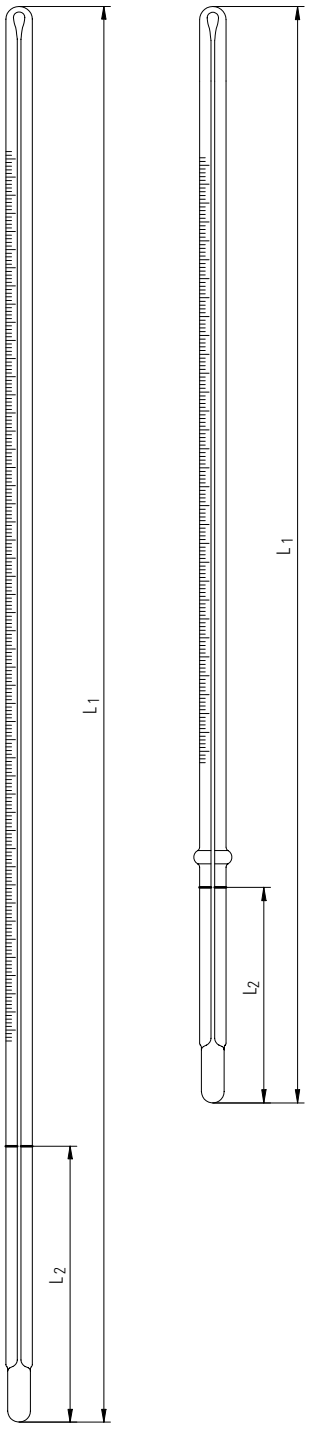


Scoop sampler

Sampler (wood) with scoop made of brass,
Total length: 405 mm

Type	Ref. No.
Suitable for ASTM thermometers of types 58, 59, 60 and 130 C/F	800272

IP precision thermometers



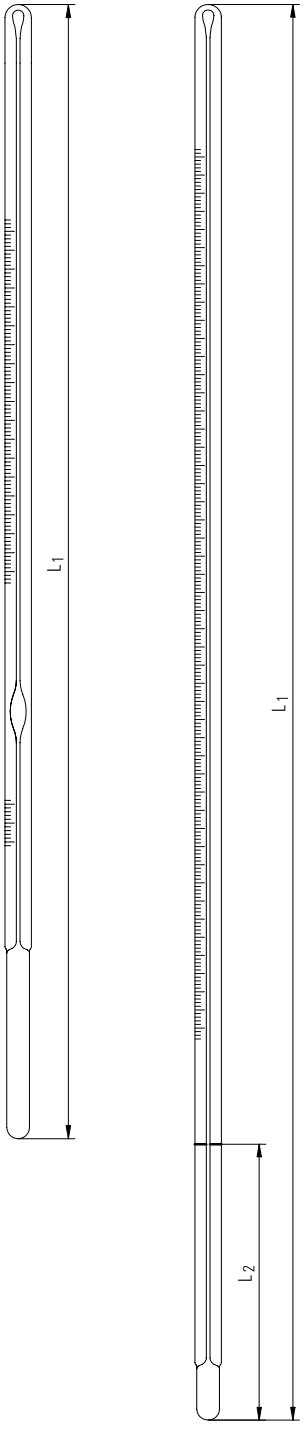
Precision thermometers acc. to IP, for mineral oil and fuel testing,
stem type, capillary form: yellow back round,
suitable for official certification

Type		Description	Measuring range	Scale	Aux. scale	Filling	Immersion L_2	Total length L_1	Ref. No.
IP	ASTM			°C/°F	°C/°F		mm	mm	
1C	5C	Cloud and Pour	-38 +50	1 °C	—	Hg	108	225	1202005[1]
1F	5F	Cloud and Pour	-36 +120	2 °F	—	Hg	108	225	1205005[1]
2C	6C	Low Cloud and Pour	-80 +20	1 °C	—	Toluene	76	225	1202006[1]
2F	6F	Low Cloud and Pour	-112 +70	2 °F	—	Toluene	76	225	1205006[1]
3C	—	Demulsification	-1 +105	0.5 °C	—	Hg	total	280	1212003[1]
3F	—	Demulsification	+30 +220	1 °F	—	Hg	total	280	1215003[1]
4C	—	Crude Oil Distillation	-4 +360	2 °C	—	Hg	total	300	1212004
5C	7C	Low Distillation	-2 +300	1 °C	—	Hg	total	380	1202007
6C	8C	High Distillation	-2 +400	1 °C	—	Hg	total	380	1202008
8C	—	Flushing Case Low	0 +45	0.2 °C	—	Hg	65	330	1212008[1]
8F	—	Flushing Case Low	+30 +110	0.5 °F	—	Hg	65	330	1215008[1]
9C	—	Flushing Case Medium	+40 +85	0.2 °C	—	Hg	65	330	1212009[1]
9F	—	Redwood Medium	+100 +180	0.5 °F	—	Hg	65	330	1215009[1]
10C	—	Redwood High	+76 +122	0.2 °C	—	Hg	65	330	1212010[1]
10F	—	Redwood High	+170 +250	0.5 °F	—	Hg	65	330	1215010[1]
14C	114C	Aviation Fuel Freezing Point	-80 +20	0.5 °C	—	Toluene	total	295	1202114[1]
15C	9C	Low-Pensky-Martens	-5 +110	0.5 °C	—	Hg	57	285	1202009
15F	9F	Low-Pensky-Martens	+20 +230	1 °F	—	Hg	57	285	1205009
16C	10C	High-Pensky-Martens	+90 +370	2 °C	—	Hg	57	285	1202010
16F	10F	High-Pensky-Martens	+200 +700	5 °C	—	Hg	57	285	1205010
17C	14C	Wax Melting Point	+38 +82	0.1 °C	—	Hg	79	370	1202014[1]
17F	14F	Wax Melting Point	+100 +180	0.2 °F	—	Hg	79	370	1205014[1]
18C	54C	Congealing Point	+20 +100.6	0.2 °C	—	Hg	total	305	1202054[1]
18F	54F	Congealing Point	+68 +213	0.5 °F	—	Hg	total	305	1205054[1]
20C	33C	Low Aniline Point	-38 +42	0.2 °C	—	Hg	50	415	1202033[1]
21C	34C	Medium Aniline Point	+25 +105	0.2 °C	—	Hg	50	415	1202034[1]
22C	—	Oxidation	+195 +205	0.1 °C	—	Hg	100	290	1212022
23C	18C	Reid Vapor Pressure	+34 +42	0.1 °C	—	Hg	total	270	1202018
23F	18F	Reid Vapor Pressure	+94 +108	0.2 °F	—	Hg	total	270	1205018
24C	22C	Oxidation Stability	+95 +103	0.1 °C	—	Hg	total	270	1202022
24F	22F	Oxidation Stability	+204 +218	0.2 °F	—	Hg	total	270	1205022
—	—	Abel Water-Bath Celsius	+32 +88	0.5 °C	—	Hg	89	228	1212025
—	—	Abel Oil Cup Fahrenheit	+50 +150	1 °F	—	Hg	61	228	1215025
—	—	Abel Oil Cup Celsius	+10 +65	0.5 °C	—	Hg	61	228	1212026
—	—	Abel Water-Bath Fahrenheit	+90 +190	1 °F	—	Hg	89	228	1215027
28C	11C	Cleveland Open Flash	-6 +400	2 °C	—	Hg	25	305	1202011
28F	11F	Cleveland Open Flash	+20 +760	5 °F	—	Hg	25	305	1205011
29C	44C	Kinematic Viscosity	+18.6 +21.4	0.05 °C	0 °C	Hg	total	300	1202044[1]
29F	44F	Kinematic Viscosity	+66.5 +71.5	0.1 °F	32 °F	Hg	total	300	1205044[1]
30C	45C	Kinematic Viscosity	+23.6 +26.4	0.05 °C	0 °C	Hg	total	300	1202045[1]
30F	45F	Kinematic Viscosity	+74.5 +79.5	0.1 °F	32 °F	Hg	total	300	1205045[1]

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.
...../80 Safety coating
(PTFE coated up to 200 °C/400 °F)

IP precision thermometers



Precision thermometers acc. to IP, for mineral oil and fuel testing,
stem type, capillary form: yellow back round,
suitable for official certification

Type		Description	Measuring range	Scale	Aux. scale	Filling	Immersion L_2	Total length L_1	Ref. No.
IP	ASTM			°C/°F	°C/°F		mm	mm	
31C	28C	Kinematic Viscosity	+36.6 +39.4	0.05 °C	0 °C	Hg	total	300	1202028[1]
31F	28F	Kinematic Viscosity	+97.5 +102.5	0.1 °F	32 °F	Hg	total	300	1205028[1]
32C	121C	Kinematic Viscosity	+98 .6 +101.4	0.05 °C	0 °C	Hg	total	300	1202121[1]
32F	30F	Kinematic Viscosity	+207.5 +212.5	0.1 °F	32 °F	Hg	total	300	1205030[1]
33C	128C	Kinematic Viscosity	-1.4 +1.4	0.05 °C	—	Hg	total	300	1202128[1]
33F	128F	Kinematic Viscosity	+29.5 +34.5	0.1 °F	—	Hg	total	300	1205128[1]
34C	29C	Kinematic Viscosity	+52.6 +55.4	0.05 °F	0 °C	Hg	total	300	1202029[1]
34F	29F	Kinematic Viscosity	+127.5 +132.5	0.1 °F	32 °F	Hg	total	300	1205029[1]
35C	47C	Kinematic Viscosity	+58.6 +61.4	0.05 °C	0 °C	Hg	total	300	1202047[1]
35F	47F	Kinematic Viscosity	+137.5 +142.5	0.1 °F	32 °F	Hg	total	300	1205047[1]
36C	129C	Kinematic Viscosity	+91.6 +94.4	0.05 °C	0 °C	Hg	total	300	1202129[1]
36F	129F	Kinematic Viscosity	+197.5 +202.5	0.1 °F	32 °F	Hg	total	300	1205129[1]
37C	134C	Sludge	+144 +156	0.2 °C	—	Hg	100	260	1212037[1]
38C	—	Pen	+23 +27	0.1 °C	—	Hg	total	250	1212038[1]
39C	—	Density	-1 +38	0.1 °C	—	Hg	total	430	1212039[1]
39F	—	Density	+30 +100	0.2 °F	—	Hg	total	430	1215039[1]
40C	—	Drop Point Low	+20 +120	1 °C	—	Hg	100	240	1212040[1]
41C	—	Drop Point High	+100 +230	1 °C	—	Hg	100	240	1212041
42C	—	Breaking Point	-38 +30	0.5 °C	—	Hg	250	360	1212042
43C	—	FP Cut-back (Int)	+10 +110	0.5 °C	—	Hg	61	300	1212043[1]
43F	—	FP Cut-back (Int)	+50 +230	1 °F	—	Hg	61	300	1215043[1]
44C	—	FP Cut-back (Ext)	+15 +121	0.5 °C	—	Hg	89	300	1212044[1]
44F	—	FP Cut-back (Ext)	+60 +250	1 °F	—	Hg	89	300	1215044[1]
45C	—	Refractometer	+15 +30	0.2 °C	—	Hg	22	150	1212045[1]
46C	—	Westphal Balance	+14.5 +21	0.1 °C	—	Hg	total	150	1212046[1]
46F	—	Westphal Balance	+58 +70	0.2 °F	—	Hg	total	150	1215046[1]
47C	13C	Loss on Heating	+155 +170	0.5 °C	—	Hg	total	150	1202013[1]
48C	—	Tank Low	-38 +30	0.5 °C	—	Hg	total	305	1212048[1]
49C	—	Tank Medium	-15 +40	0.5 °C	—	Hg	total	305	1212049[1]
50C	—	Tank High	+10 +65	0.5 °C	—	Hg	total	305	1212050[1]
51C	—	Tank Heated Fuel	+35 +120	0.5 °C	—	Hg	total	305	1212051[1]
52C	—	Tank Bitumen	+90 +260	1 °C	—	Hg	total	305	1212052
53C	—	Tank Cargo	0 +80	0.5 °C	—	Hg	total	305	1212053[1]
59C	35C	High Aniline Point	+90 +170	0.2 °C	—	Hg	50	415	1202035[1]
60C	15C	Low Softening Point	-2 +80	0.2 °C	—	Hg	total	390	1202015[1]
61C	16C	High Softening Point	+30 +200	0.5 °C	—	Hg	total	390	1202016[1]
62C	2C	Partial Immersion	-5 +300	1 °C	—	Hg	76	385	1202002
62F	2F	Partial Immersion	+20 +580	2 °F	—	Hg	76	385	1205002

Additional Order No.

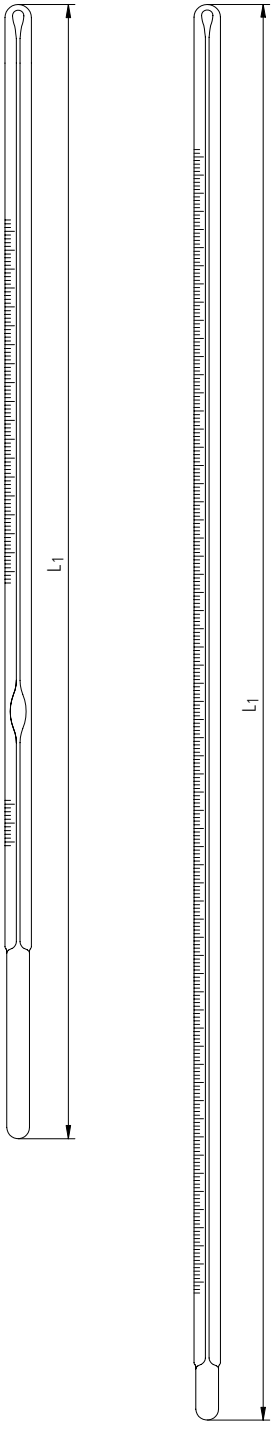
...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.
...../80 Safety coating
(PTFE coated up to 200 °C/400 °F)

IP precision thermometers

Precision thermometers acc. to IP, for mineral oil and fuel testing,
stem type, capillary form: yellow back round,
suitable for official certification

Type		Description	Measuring range	Scale	Auxilliary scale	Filling	Immersion L_2	Total length L_1	Ref. No.
IP	ASTM			°C/°F	°C/°F		mm	mm	
63C	61C	Petrolatum Melting Point	+32 +127	0.2 °C	—	Hg	79	375	1202061[1]
64C	12C	Density-Wide Range	-20 +102	0.2 °C	—	Hg	total	415	1202012[1]
64F	12F	Density-Wide Range	-5 +215	0.5 °F	—	Hg	total	415	1205012[1]
65C	43C	Kinematic Viscosity	-51.6 -34	0.1 °C	0 °C	Hg-Tl	total	410	1202043[1]
65F	43F	Kinematic Viscosity	-61 -29	0.2 °F	32 °F	Hg-Tl	total	410	1205043[1]
66C	46C	Kinematic Viscosity	+48.6 +51.4	0.05 °C	0 °C	Hg	total	300	1202046[1]
66F	46F	Kinematic Viscosity	+119.5 +124.5	0.1 °F	32 °F	Hg	total	300	1205046[1]
67C	72C	Kinematic Viscosity	-19.4 -16.6	0.05 °C	0 °C	Hg	total	300	1202072[1]
67F	72F	Kinematic Viscosity	-2.5 + 2.5	0.1 °F	32 °F	Hg	total	300	1205072[1]
68C	73C	Kinematic Viscosity	-41.4 -38.6	0.05 °C	0 °C	Hg-Tl	total	300	1202073[1]
68F	73F	Kinematic Viscosity	-42.5 -37.5	0.1 °F	32 °F	Hg-Tl	total	300	1205073[1]
69 C	74 C	Kinematic Viscosity	-55.4 -52.6	0.05 °C	0 °C	Hg-Tl	total	300	1202074[1]
69 F	74 F	Kinematic Viscosity	-67.5 -62.5	0.1 °F	32 °F	Hg-Tl	total	300	1205074[1]
71 C	126 C	Kinematic Viscosity	-27 -24.6	0.05 °C	0 °C	Hg	total	300	1202126[1]
71 F	126 F	Kinematic Viscosity	-17.5 -12.5	0.1 °F	32 °F	Hg	total	300	1205126[1]
72 C	71 C	Oil in Wax	-37 +21	0.5 °C	—	Hg	76	350	1202071[1]
72 F	71 F	Oil in Wax	-35 +70	1 °F	—	Hg	76	350	1205071[1]
73 C	3 C	Partial Immersion	-5 +400	1 °C	—	Hg	76	410	1202003
73 F	3 F	Partial Immersion	+20 +760	2 °F	—	Hg	76	410	1205003
74 C	—	Abel Oil Cup, Wide Range	-35 +70	0.5 °C	—	Hg	61	300	1212074
74 F	—	Abel Oil Cup, Wide Range	-35 +160	1 °F	—	Hg	61	300	1215074
75 C	—	Abel Water Bath, Wide Range	-30 +80	0.5 °C	—	Hg	89	300	1212075
75 F	—	Abel Water Bath, Wide Range	-25 +180	1 °F	—	Hg	89	300	1215075
76 C	—	Engler Viscosity	+10 +55	0.5 °C	—	Hg	93	230	1212076
77 C	37 C	Solvents Distillation	-2 +52	0.2 °C	—	Hg	100	390	1202037[1]
78 C	38 C	Solvents Distillation	+24 +78	0.2 °C	—	Hg	100	390	1202038[1]
79 C	39 C	Solvents Distillation	+48 +102	0.2 °C	—	Hg	100	390	1202039[1]
80 C	40 C	Solvents Distillation	+72 +126	0.2 °C	—	Hg	100	390	1202040[1]
81 C	41 C	Solvents Distillation	+98 +152	0.2 °C	—	Hg	100	390	1202041[1]
82 C	42 C	Solvents Distillation	+95 +255	0.5 °C	—	Hg	100	390	1202042
83 C	102 C	Solvents Distillation	+123 +177	0.2 °C	—	Hg	100	390	1202102[1]
84 C	103 C	Solvents Distillation	+148 +202	0.2 °C	—	Hg	100	390	1202103
85 C	104 C	Solvents Distillation	+173 +227	0.2 °C	—	Hg	100	390	1202104
86 C	105 C	Solvents Distillation	+198 +252	0.2 °C	—	Hg	100	390	1202105
87 C	106 C	Solvents Distillation	+223 +277	0.2 °C	—	Hg	100	390	1202106
88 C	107 C	Solvents Distillation	+248 +302	0.2 °C	—	Hg	100	390	1202107
89 C	113 C	Softening Point (Bitumen) Wide Range	-1 +175	0.5 °C	—	Hg	total	400	1202113[1]
89 F	113 F	Softening Point (Bitumen) Wide Range	+30 +350	1 °F	—	Hg	total	400	1205113[1]

IP precision thermometers



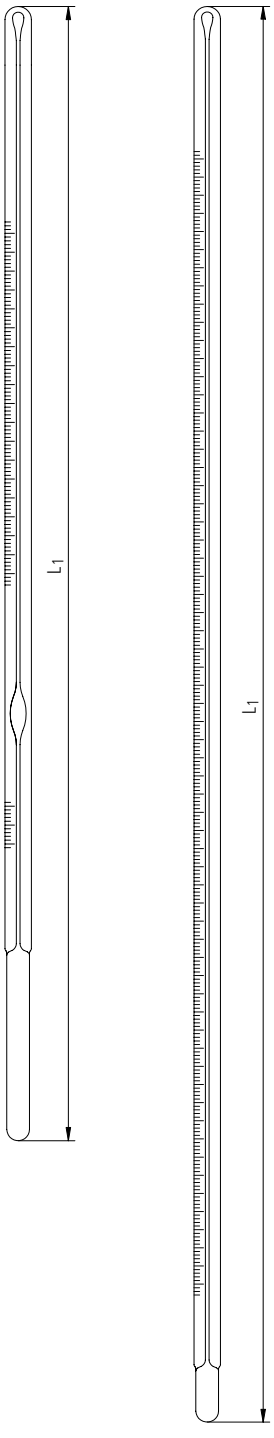
Precision thermometers acc. to IP, for mineral oil and fuel testing,
stem type, capillary form: yellow back round,
suitable for official certification

Type IP	Type ASTM	Description	Measuring range	Scale °C/°F	Aux. scale °C/°F	Filling	Immersion L_2 mm	Total length L_1 mm	Ref. No.
90 C	48 C	Kinematic Viscosity	+80.6 +83.4	0.05 °C	0 °C	Hg	total	300	1202048[1]
90 F	48 F	Kinematic Viscosity	+177.5 +182.5	0.1 °F	32 °F	Hg	total	300	1205048[1]
91 C	—	Rapid Flash	0 +110	1 °C	—	Hg	44	195	1212091[1]
92 C	120 C	Kinematic Viscosity	+38.6 +41.4	0.05 °C	0 °C	Hg	total	300	1202120[1]
93 C	110 C	Kinematic Viscosity	+133.6 +136.4	0.05 °C	0 °C	Hg	total	300	1202110[1]
94 C	122 C	Brookfield Viscosity	-45 -35	0.1 °C	—	Hg-Tl	total	295	1202122[1]
95 C	123 C	Brookfield Viscosity	-35 -25	0.1 °C	—	Hg	total	295	1202123[1]
96 C	124 C	Brookfield Viscosity	-25 -15	0.1 °C	—	Hg	total	295	1202124[1]
97 C	125 C	Brookfield Viscosity	-15 -5	0.1 °C	—	Hg	total	295	1202125[1]
98 C	—	Rapid Flash	+100 +300	2 °C	—	Hg	44	195	1212098
99 C	127 C	Kinematic Viscosity	-21.4 -18.6	0.05 °C	0 °C	Hg	total	300	1202127[1]
100 C	—	KIN VISC 80 °C	+78.6 +81.4	0.05 °C	0 °C	Hg	total	300	1212100[1]
101 C	—	Medium Pensky-Martens	+20 +150	1 °C	—	Hg	57	285	2212101
102 C	132 C	Kinematic Viscositiy	+148.6 +151.4	0.05 °C	0 °C	Hg	total	300	1202132[1]

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.
...../80 Safety coating
(PTFE coated up to 200 °C/400 °F)

Precision thermometers
acc. to British Standard BS 1900, Celsius



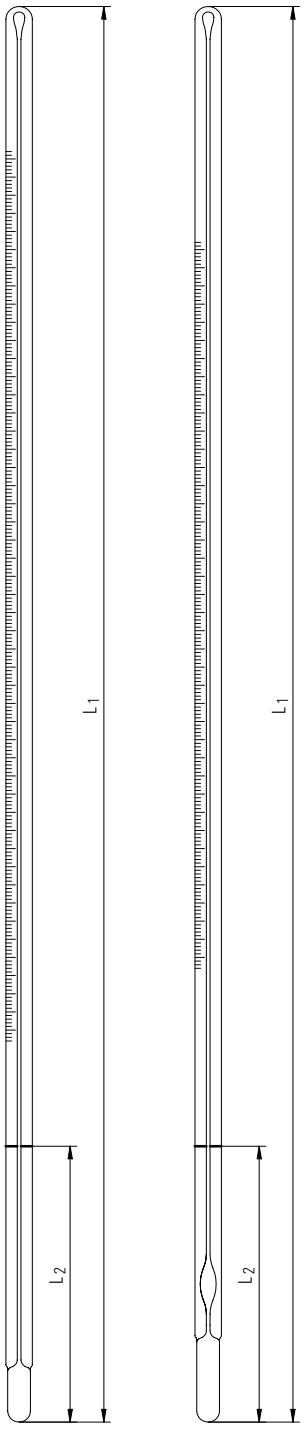
Präzisionsthermometer nach BS 1900,
stem type, capillary form: yellow back round,
immersion: total, suitable for official certification

Type	Measuring range °C	Scale °C	Auxilliary scale °C	Filling	Total length L_1 mm	Ref. No.
SR 1/30C	-80 +30	0.5	—	Toluene	400	1222901
SR 2/2C	-40 +2	0.1	—	Hg-Tl	450	1222902
SR 3/20C	-20 +20	0.1	—	Hg	400	1222903
SR 4/1C	-11 +1	0.02	—	Hg	480	1222904
SR 4/11C	-1 +11	0.02	—	Hg	480	1222905
SR 5/20C	+9.5 +20.5	0.02	0	Hg	480	1222906
SR 5/30C	+19.5 +30.5	0.02	0	Hg	480	1222907
SR 5/40C	+29.5 +40.5	0.02	0	Hg	480	1222908
SR 5/50C	+39.5 +50.5	0.02	0	Hg	480	1222909
SR 5/60C	+49.5 +60.5	0.02	0	Hg	480	1222910
SR 5/70C	+59.5 +70.5	0.02	0	Hg	480	1222911
SR 5/80C	+69.5 +80.5	0.02	0	Hg	480	1222912
SR 5/90C	+79.5 +90.5	0.02	0	Hg	480	1222913
SR 5/100C	+89.5 +100.5	0.02	0	Hg	480	1222914
SR 6/18C	-1 +18	0.05	—	Hg	480	1222915
SR 6/34C	+16 +34	0.05	0	Hg	480	1222916
SR 6/51C	+33 +51	0.05	0	Hg	480	1222917
SR 6/68C	+50 +68	0.05	0	Hg	480	1222918
SR 6/85C	+67 +85	0.05	0	Hg	480	1222919
SR 6/102C	+84 +102	0.05	0	Hg	480	1222920
SR 7/51C	-1 +51	0.1	100	Hg	500	1222921
SR 7/101C	+49 +101	0.1	0	Hg	500	1222922
SR 8/151C	+99 +151	0.1	0	Hg	535	1222923
SR 8/201C	+149 +201	0.1	0	Hg	535	1222924
SR 8/251C	+199 +251	0.1	0	Hg	535	1222925
SR 9/202C	+98 +202	0.2	0	Hg	535	1222926
SR 10/302C	+198 +302	0.2	100	Hg	535	1222927
SR 11/452C	+198 +452	0.5	100	Hg	580	1222928
SR 12/505C	+95 +505	1	—	Hg	580	1222929

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.
...../80 Safety coating (PTFE coated up to 200 °C)

Precision thermometers
acc. to British Standard BS 593, Celsius



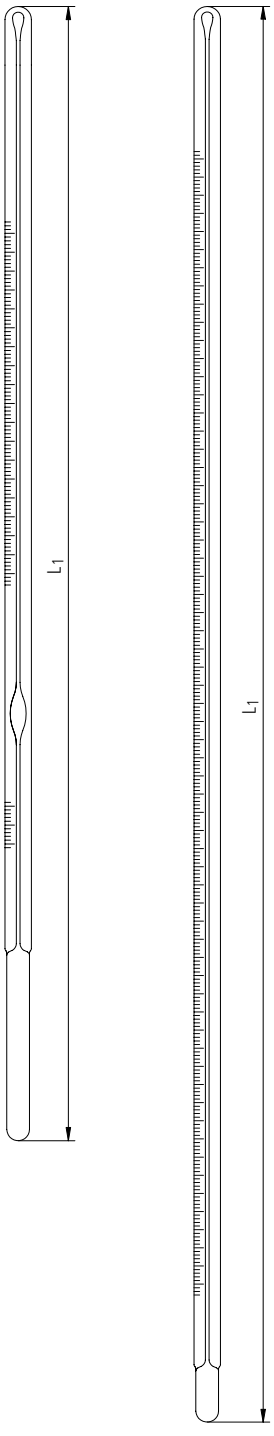
Precision thermometers acc. to BS 593, for mineral oil and fuel testing,
stem type, capillary form: yellow back round,
suitable for official certification

Type	Measuring range °C	Scale °C	Auxilliary scale °C	Filling	Immersion L_2 mm	Total length L_1 mm	Ref. No.
A 10C/100	-30 +10	0.1	—	Hg	100	405	1222001
A 20C/100	-20 +20	0.1	—	Hg	100	405	1222002
A 40C/100	0 +40	0.1	—	Hg	100	405	1222003
A 70C/100	+40 +70	0.1	0	Hg	100	405	1222004
A 100C/100	+70 +100	0.1	0	Hg	100	405	1222005
A 130C/100	+100 +130	0.1	0	Hg	100	405	1222006
A 160C/100	+130 +160	0.1	0	Hg	100	405	1222007
B 60C/100	-20 +60	0.2	—	Hg	100	405	1222008
B 110C/100	+50 +110	0.2	0	Hg	100	405	1222009
B 160C/100	+99 +160	0.2	0	Hg	100	405	1222010
B 210C/100	+150 +210	0.2	0	Hg	100	405	1222011
B 260C/100	+200 +260	0.2	0	Hg	100	405	1222012
C 105C/100	-5 +105	1	—	Hg	100	255	1222013
C 205C/100	+95 +205	1	—	Hg	100	255	1222014
C 305C/100	+195 +305	1	—	Hg	100	255	1222015
C 400C/100	+295 +400	1	—	Hg	100	255	1222016
C 105C/50	-5 +105	1	—	Hg	50	205	1222017
C 205C/50	+95 +205	1	—	Hg	50	205	1222018
C 305C/50	+195 +305	1	—	Hg	50	205	1222019
C 400C/50	+295 +400	1	—	Hg	50	205	1222020
F 50C/100	-2 +52	0.2	—	Hg	100	390	1202037
F 75C/100	+24 +78	0.2	—	Hg	100	390	1202038
F 100C/100	+48 +102	0.2	—	Hg	100	390	1202039
F 125C/100	+72 +126	0.2	—	Hg	100	390	1202040
F 150C/100	+98 +152	0.2	—	Hg	100	390	1202041
F 175C/100	+123 +177	0.2	—	Hg	100	390	1202102
F 200C/100	+148 +202	0.2	—	Hg	100	390	1202103
F 225C/100	+173 +227	0.2	—	Hg	100	390	1202104
F 250C/100	+198 +252	0.2	—	Hg	100	390	1202105
F 255C/100	+95 +255	0.5	—	Hg	100	390	1202042
F 275C/100	+223 +277	0.2	—	Hg	100	390	1202106
F 300C/100	+248 +302	0.2	—	Hg	100	390	1202107
F 150C/76	-20 +150	1	—	Hg	76	317	1202001
F 300C/76	-5 +300	1	—	Hg	76	385	1202002
F 400C/76	-5 +400	1	—	Hg	76	410	1202003
F 185C/76	+125 +185	0.2	—	Hg	76	325	1222031

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.
...../80 Safety coating (PTFE coated up to 200 °C)

Precision thermometers
acc. to British Standard BS 593, Celsius



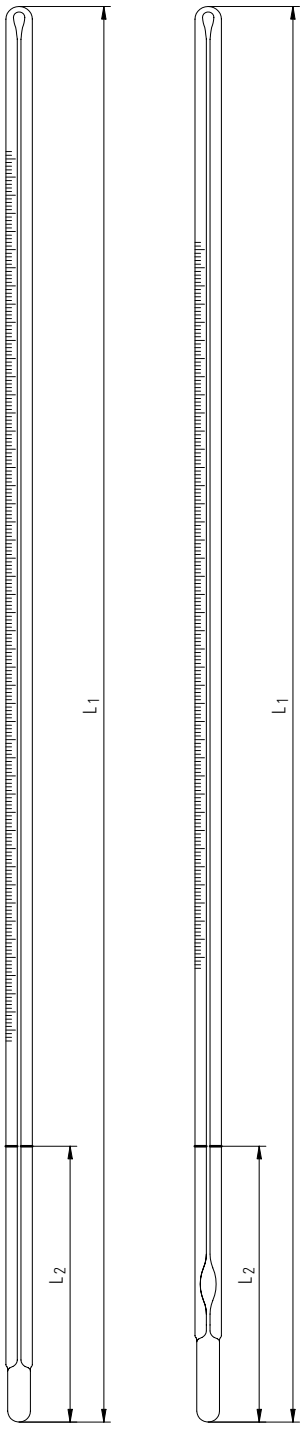
Precision thermometers acc. to BS 593, for mineral oil and fuel testing,
stem type, capillary form: yellow back round,
suitable for official certification

Type	Measuring range °C	Scale °C	Auxilliary scale °C	Filling	Immersion L_2	Total length L_1 mm	Ref. No.
A 10C/Total	-30 +10	0.1	—	Hg	total	405	1222100
A 20C/Total	-20 +20	0.1	—	Hg	total	405	1222101
A 40C/Total	0 +40	0.1	—	Hg	total	405	1222102
A 70C/Total	+40 +70	0.1	0	Hg	total	405	1222103
A 100C/Total	+70 +100	0.1	0	Hg	total	405	1222104
A 130C/Total	+100 +130	0.1	0	Hg	total	405	1222105
A 160C/Total	+130 +160	0.1	0	Hg	total	405	1222106
B 60C/Total	-20 +60	0.2	—	Hg	total	405	1222107
B 110C/Total	+50 +110	0.2	0	Hg	total	405	1222108
B 160C/Total	+100 +160	0.2	0	Hg	total	405	1222109
B 210C/Total	+150 +210	0.2	0	Hg	total	405	1222110
B 260C/Total	+200 +260	0.2	0	Hg	total	405	1222111
C 105C/Total	-5 +105	1	—	Hg	total	205	1222112
C 205C/Total	+95 +205	1	—	Hg	total	205	1222113
C 305C/Total	+195 +305	1	—	Hg	total	205	1222114
C 400C/Total	+295 +400	1	—	Hg	total	205	1222115

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.
...../80 Safety coating (PTFE coated up to 200 °C)

Precision thermometers
acc. to British Standard BS 593, Fahrenheit



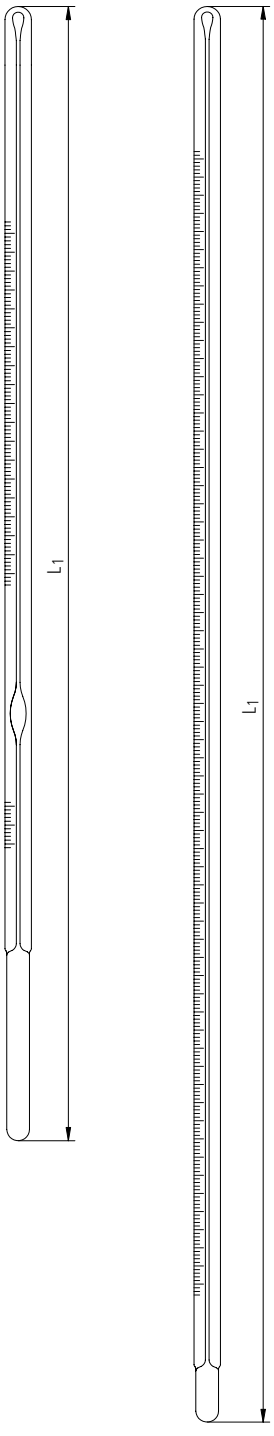
Precision thermometers acc. to BS 593, for mineral oil and fuel testing,
stem type, capillary form: yellow back round,
suitable for official certification

Type	Measuring range °F	Scale °F	Auxilliary scale °F	Filling	Immersion L_2 mm	Total length L_1 mm	Ref. No.
A 50F/100	-23 +50	0.2	—	Hg	100	405	1222200
A 70F/100	-5 +70	0.2	—	Hg	100	405	1222201
A 105F/100	+30 +106	0.2	—	Hg	100	405	1222202
A 160F/100	+104 +161	0.2	+32	Hg	100	405	1222203
A 212F/100	+159 +213	0.2	+32	Hg	100	405	1222204
A 265F/100	+211 +267	0.2	+32	Hg	100	405	1222205
A 320F/100	+265 +321	0.2	+32	Hg	100	405	1222206
B 140F/100	-5 +140	0.5	—	Hg	100	405	1222207
B 230F/100	+120 +230	0.5	+32	Hg	100	405	1222208
B 320F/100	+210 +320	0.5	+32	Hg	100	405	1222209
B 410F/100	+300 +410	0.5	+32	Hg	100	405	1222210
B 500F/100	+390 +500	0.5	+32	Hg	100	405	1222211
C 220F/100	+20 +220	2	—	Hg	100	255	1222212
C 400F/100	+200 +400	2	—	Hg	100	255	1222213
C 580F/100	+380 +580	2	—	Hg	100	255	1222214
C 750F/100	+560 +750	2	—	Hg	100	255	1222215
C 220F/50	+20 +220	2	—	Hg	50	205	1222216
C 400F/50	+200 +400	2	—	Hg	50	205	1222217
C 580F/50	+380 +580	2	—	Hg	50	205	1222218
C 750F/50	+560 +750	2	—	Hg	50	205	1222219
F 125F/100	+28.5 +125.5	0.5	—	Hg	100	385	1222220
F 170F/100	+75.5 +172.5	0.5	—	Hg	100	385	1222221
F 215F/100	+118.5 +215.5	0.5	—	Hg	100	385	1222222
F 255F/100	+161.5 +258.5	0.5	—	Hg	100	385	1222223
F 305F/100	+208.5 +305.5	0.5	—	Hg	100	385	1222224
F 490F/100	+203 +491	1	—	Hg	100	385	1222225
F 300F/76	0 +302	2	—	Hg	76	317	1205001
F 570F/76	+20 +580	2	—	Hg	76	385	1205002
F 750F/76	+20 +760	2	—	Hg	76	410	1205003
F 365F/76	+257 +365	0.5	—	Hg	76	325	1222229

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.
...../80 Safety coating (PTFE coated up to 400 °F)

Precision thermometers
acc. to British Standard BS 593, Fahrenheit



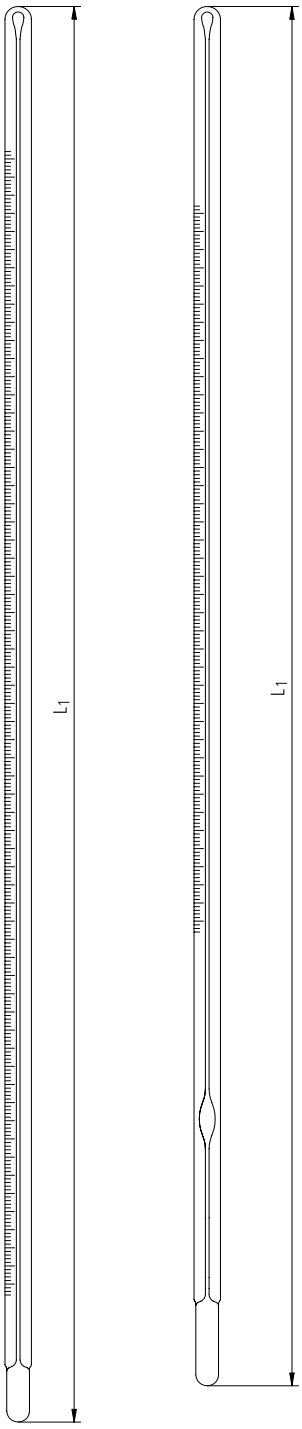
Precision thermometers acc. to BS 593, for mineral oil and fuel testing,
stem type, capillary form: yellow back round,
suitable for official certification

Type	Measuring range °F	Scale °F	Auxilliary scale °F	Filling	Immersion L_2	Total length L_1 mm	Ref. No.
A 70F/Total	-5 +70	0.2	—	Hg	total	405	1222301
A 105F/Total	+30 +106	0.2	—	Hg	total	405	1222302
A 160F/Total	+104 +161	0.2	+32	Hg	total	405	1222303
A 212F/Total	+159 +213	0.2	+32	Hg	total	405	1222304
A 265F/Total	+211 +267	0.2	+32	Hg	total	405	1222305
A 320F/Total	+265 +321	0.2	+32	Hg	total	405	1222306
B 140F/Total	-5 +140	0.5	—	Hg	total	405	1222307
B 230F/Total	+120 +230	0.5	+32	Hg	total	405	1222308
B 320F/Total	+210 +320	0.5	+32	Hg	total	405	1222309
B 410F/Total	+300 +410	0.5	+32	Hg	total	405	1222310
B 500F/Total	+390 +500	0.5	+32	Hg	total	405	1222311
C 220F/Total	+20 +220	2	—	Hg	total	205	1222312
C 400F/Total	+200 +400	2	—	Hg	total	205	1222313
C 580F/Total	+380 +580	2	—	Hg	total	205	1222314
C 750F/Total	+560 +750	2	—	Hg	total	205	1222315

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.
...../80 Safety coating (PTFE coated up to 400 °F)

Precision thermometers
acc. to British Standard BS 1365, Celsius



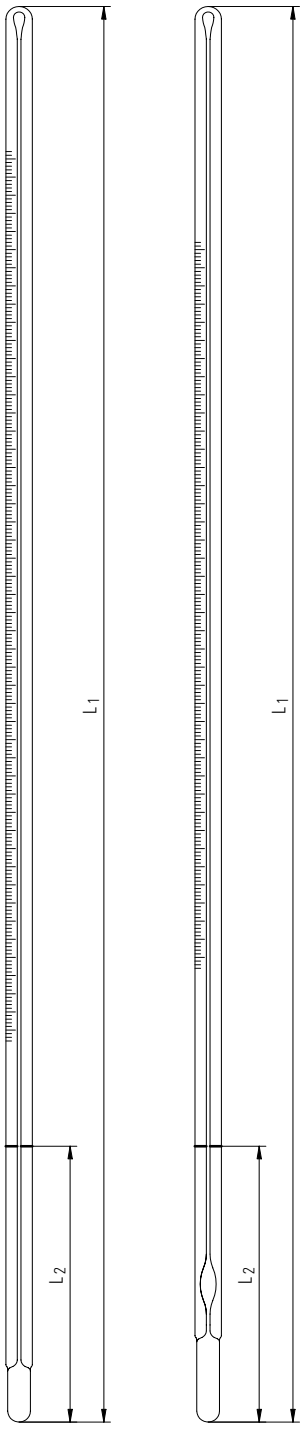
Precision thermometers acc. to BS 1365, for mineral oil and fuel testing,
stem type, capillary form: yellow back round, immersion: total,
suitable for official certification

Type	Measuring range °C	Scale °C	Filling	Immersion L_2	Total length L_1 mm	Ref. No.
SB 1C/Total	-10 +1	0.1	Hg	total	240	1222501
SB 5C/Total	-5 +5	0.1	Hg	total	240	1222502
SB 15C/Total	+5 +15	0.1	Hg	total	240	1222503
SB 25C/Total	+15 +25	0.1	Hg	total	240	1222504
SB 35C/Total	+25 +35	0.1	Hg	total	240	1222505
SB 45C/Total	+35 +45	0.1	Hg	total	240	1222506
SB 55C/Total	+45 +55	0.1	Hg	total	240	1222507
SB 65C/Total	+55 +65	0.1	Hg	total	240	1222508
SB 75C/Total	+65 +75	0.1	Hg	total	240	1222509
SB 85C/Total	+75 +85	0.1	Hg	total	240	1222510
SB 95C/Total	+85 +95	0.1	Hg	total	240	1222511
SB 105C/Total	+95 +105	0.1	Hg	total	240	1222512
SB 115C/Total	+105 +115	0.1	Hg	total	240	1222513
SB 125C/Total	+115 +125	0.1	Hg	total	240	1222514
SB 135C/Total	+125 +135	0.1	Hg	total	240	1222515
SB 145C/Total	+135 +145	0.1	Hg	total	240	1222516
SB 155C/Total	+145 +155	0.1	Hg	total	240	1222517
SB 165C/Total	+155 +165	0.1	Hg	total	240	1222518
SB 175C/Total	+165 +175	0.1	Hg	total	240	1222519
SB 185C/Total	+175 +185	0.1	Hg	total	240	1222520
SB 195C/Total	+185 +195	0.1	Hg	total	240	1222521
SB 205C/Total	+195 +205	0.1	Hg	total	240	1222522
SB 215C/Total	+205 +215	0.1	Hg	total	240	1222523
SB 220C/Total	+210 +220	0.1	Hg	total	240	1222524
SA 55C/Total	-10 +55	0.5	Hg	total	220	1222601
SA 105C/Total	+45 +105	0.5	Hg	total	220	1222602
SA 155C/Total	+95 +155	0.5	Hg	total	220	1222603
SA 205C/Total	+145 +205	0.5	Hg	total	220	1222604
SA 255C/Total	+195 +255	0.5	Hg	total	220	1222605
SA 305C/Total	+245 +305	0.5	Hg	total	220	1222606
SA 360C/Total	+295 +360	0.5	Hg	total	220	1222607

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.
...../80 Safety coating (PTFE coated up to 200 °C)

Precision thermometers
acc. to British Standard BS 1365, Celsius



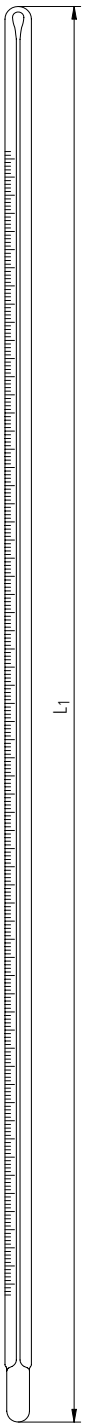
Precision thermometers acc. to BS 1365, for mineral oil and fuel testing,
stem type, capillary form: yellow back round,
suitable for official certification

Type	Measuring range °C	Scale °C	Filling	Immersion L_2 mm	Total length L_1 mm	Ref. No.
SB 1C/70	-10 +1	0.1	Hg	70	240	1222701
SB 5C/70	-5 +5	0.1	Hg	70	240	1222702
SB 15C/70	+5 +15	0.1	Hg	70	240	1222703
SB 25C/70	+15 +25	0.1	Hg	70	240	1222704
SB 35C/70	+25 +35	0.1	Hg	70	240	1222705
SB 45C/70	+35 +45	0.1	Hg	70	240	1222706
SB 55C/70	+45 +55	0.1	Hg	70	240	1222707
SB 65C/70	+55 +65	0.1	Hg	70	240	1222708
SB 75C/70	+65 +75	0.1	Hg	70	240	1222709
SB 85C/70	+75 +85	0.1	Hg	70	240	1222710
SB 95C/70	+85 +95	0.1	Hg	70	240	1222711
SB 105C/70	+95 +105	0.1	Hg	70	240	1222712
SB 115C/70	+105 +115	0.1	Hg	70	240	1222713
SB 125C/70	+115 +125	0.1	Hg	70	240	1222714
SB 135C/70	+125 +135	0.1	Hg	70	240	1222715
SB 145C/70	+135 +145	0.1	Hg	70	240	1222716
SB 155C/70	+145 +155	0.1	Hg	70	240	1222717
SB 165C/70	+155 +165	0.1	Hg	70	240	1222718
SB 175C/70	+165 +175	0.1	Hg	70	240	1222719
SB 185C/70	+175 +185	0.1	Hg	70	240	1222720
SB 195C/70	+185 +195	0.1	Hg	70	240	1222721
SB 205C/70	+195 +205	0.1	Hg	70	240	1222722
SB 215C/70	+205 +215	0.1	Hg	70	240	1222723
SB 220C/70	+210 +220	0.1	Hg	70	240	1222724
SA 55C/80	-10 +55	0.5	Hg	80	220	1222608
SA 105C/80	+45 +105	0.5	Hg	80	220	1222609
SA 155C/80	+95 +155	0.5	Hg	80	220	1222610
SA 205C/80	+145 +205	0.5	Hg	80	220	1222611
SA 255C/80	+195 +255	0.5	Hg	80	220	1222612
SA 305C/80	+245 +305	0.5	Hg	80	220	1222613
SA 360C/80	+295 +360	0.5	Hg	80	220	1222614

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.
...../80 Safety coating (PTFE coated up to 200 °C)

Precision thermometers
acc. to British Standard BS 1704



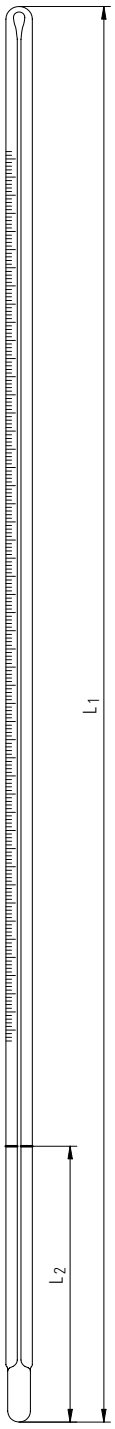
Precision thermometers acc. to BS 1704,
stem type, capillary form: yellow back round,
immersion: total, suitable for official certification

Type	**Measuring range** °C/°F	**Scale** °C/°F	**Filling**	**Immersion L_2**	**Total length L_1** mm	**Ref. No.**
GP 35 C/Total	-120 +35 °C	1 °C	Pentane	Total	350	1222801
GP 50 C/Total	-35 +50 °C	0.5 °C	Hg	Total	300	1222802
GP 105 C/1.0/Total	-5 +105 °C	1 °C	Hg	Total	300	1222803
GP 105 C/0.5/Total	-5 +105 °C	0.5 °C	Hg	Total	300	1222804
GP 150 C/Total	-5 +150 °C	1 °C	Hg	Total	300	1222805
GP 250 C/Total	-5 +250 °C	1 °C	Hg	Total	300	1222806
GP 360 C/Total	-5 +360 °C	1 °C	Hg	Total	350	1222807
GP 400 C/Total	-10 +400 °C	2 °C	Hg	Total	300	1222808
GP 510 C/Total	-10 +510 °C	2 °C	Hg	Total	375	1222809
GP 96 F/Total	-180 +96 °F	2 °F	Pentane	Total	350	1222810
GP 120 F/Total	-35 +120 °F	1 °F	Hg	Total	300	1222811
GP 220 F/Total	+30 +220 °F	1 °F	Hg	Total	300	1222812
GP 300 F/Total	+30 +300 °F	1 °F	Hg	Total	300	1222813
GP 500 F/Total	+28 +500 °F	2 °F	Hg	Total	300	1222814
GP 650 F/Total	+26 +650 °F	2 °F	Hg	Total	350	1222815
GP 750 F/Total	+20 +750 °F	5 °F	Hg	Total	300	1222816
GP 950 F/Total	+20 +950 °F	5 °F	Hg	Total	375	1222817

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.
...../80 Safety coating
(PTFE coated up to 200 °C/400 °F)

Precision thermometers
acc. to British Standard BS 1704



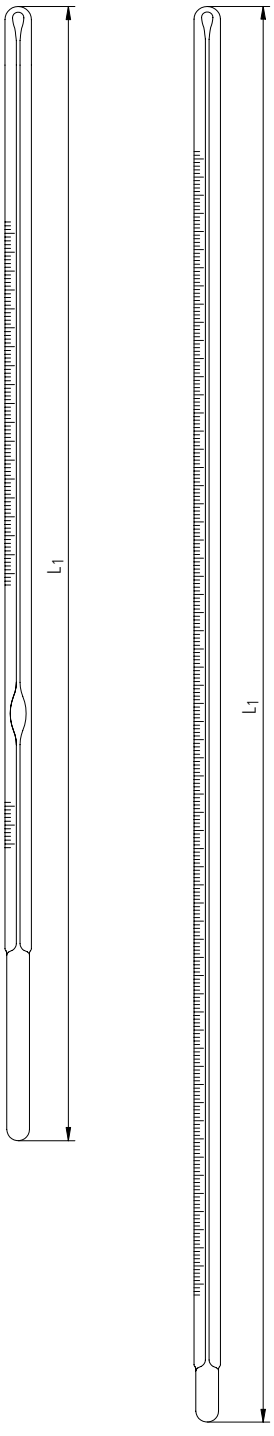
Precision thermometers acc. to BS 1704,
stem type, capillary form: yellow back round,
immersion: 100 mm, suitable for official certification

Type	Measuring range °C/°F	Scale °C/°F	Filling	Immersion L_2 mm	Total length L_1 mm	Ref. No.
GP 50 C/100	-35 +50 °C	0.5 °C	Hg	100	300	1222819
GP 105 C/1.0/100	-5 +105 °C	1 °C	Hg	100	300	1222820
GP 105 C/0.5/100	-5 +105 °C	0.5 °C	Hg	100	300	1222821
GP 150 C/100	-5 +150 °C	1 °C	Hg	100	300	1222822
GP 250 C/100	-5 +250 °C	1 °C	Hg	100	300	1222823
GP 360 C/100	-5 +360 °C	1 °C	Hg	100	350	1222824
GP 400 C/100	-10 +400 °C	2 °C	Hg	100	300	1222825
GP 510 C/100	-10 +510 °C	2 °C	Hg	100	375	1222826
GP 120 F/100	-35 +120 °F	1 °F	Hg	100	300	1222828
GP 220 F/100	+30 +220 °F	1 °F	Hg	100	300	1222829
GP 300 F/100	+30 +300 °F	1 °F	Hg	100	300	1222830
GP 500 F/100	+28 +500 °F	2 °F	Hg	100	300	1222831
GP 650 F/100	+26 +650 °F	2 °F	Hg	100	350	1222832
GP 750 F/100	+20 +750 °F	5 °F	Hg	100	300	1222833
GP 950 F/100	+20 +950 °F	5 °F	Hg	100	375	1222834

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.
...../80 Safety coating
(PTFE coated up to 200 °C/400 °F)

Precision thermometers
acc. to ISO 653



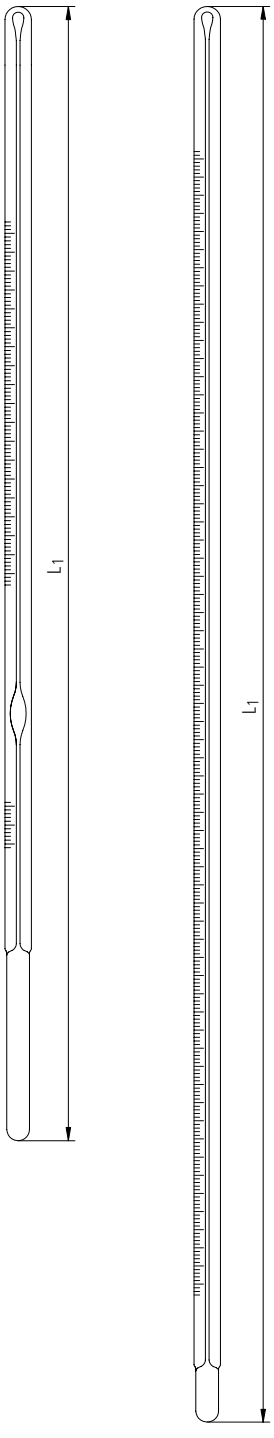
Precision thermometers acc. to ISO 653,
stem type, capillary form: yellow back round,
immersion: total, suitable for official certification

Type	Description	Measuring range °C	Scale °C	Auxilliary scale °C	Filling	Total length L_1 mm	Ref. No.
A	STL/0.1/-25/+5	-25 +5	0.1	—	Hg	375	1232101
A	STL/0.1/-5/+25	-5 +25	0.1	—	Hg	375	1232102
B	STL/0.1/20/45	+20 +45	0.1	-0.5 +0.5	Hg	375	1232103
B	STL/0.1/40/65	+40 +65	0.1	-0.5 +0.5	Hg	375	1232104
B	STL/0.1/60/85	+60 +85	0.1	-0.5 +0.5	Hg	375	1232105
B	STL/0.1/80/105	+80 +105	0.1	-0.5 +0.5	Hg	375	1232106
A	STL/0.2/-55/+5	-55 +5	0.2	—	red	375	1232107
A	STL/0.2/-35/+25	-35 +25	0.2	—	Hg	375	1232108
A	STL/0.2/-15/+45	-15 +45	0.2	—	Hg	375	1232109
B	STL/0.2/35/85	+35+85	0.2	-1 +1	Hg	375	1232110
B	STL/0.2/75/125	+75 +125	0.2	-1 +1	Hg	375	1232111
B	STL/0.2/155/165	+115 +165	0.2	-1 +1	Hg	375	1232112
B	STL/0.2/155/205	+155 +205	0.2	-1 +1	Hg	375	1232113
A	STL/0.5/-35/+115	-35 +115	0.5	—	Hg	375	1232114
B	STL/0.5/90/210	+90 +210	0.5	-3 +3	Hg	375	1232115
B	STL/0.5/190/310	+190 +310	0.5	-3 +3	Hg	375	1232116
A	STL/1/-30/+270	-30 +270	1	—	Hg	375	1232117
B	STL/1/180/240	+180 +420	1	-5 +5	Hg	375	1232118
A	STL/2/0/600	0 +600	2	—	Hg	375	1232119

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.
...../80 Safety coating (PTFE coated up to 200 °C)

Precision thermometers
acc. to ISO 654



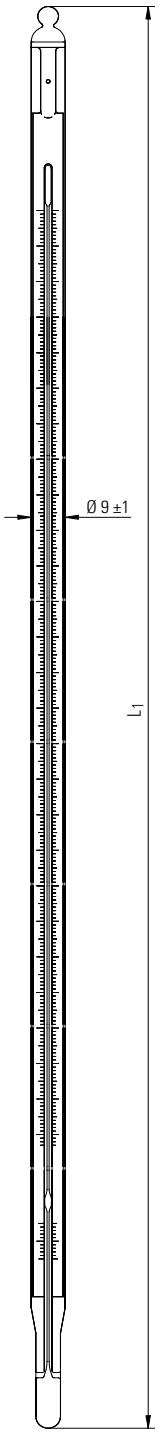
Precision thermometers acc. to ISO 654,
stem type, capillary form: yellow back round,
immersion: total, suitable for official certification

Type	Description	Measuring range °C	Scale °C	Auxilliary scale °C	Filling	Total length L_1 mm	Ref. No.
C	STC/0.1/-21/-9	-21 -9	0.1	-0.5 +0.5	Hg	250	1232201
A	STC/0.1/-11/+1	-11 +1	0.1	—	Hg	250	1232202
A	STC/0.1/-1/+11	-1 +11	0.1	—	Hg	250	1232203
B	STC/0.1/9/21	+9 +21	0.1	-0.5 +0.5	Hg	250	1232204
B	STC/0.1/19/31	+19 +31	0.1	-0.5 +0.5	Hg	250	1232205
B	STC/0.1/29/41	+29 +41	0.1	-0.5 +0.5	Hg	250	1232206
B	STC/0.1/39/51	+39 +51	0.1	-0.5 +0.5	Hg	250	1232207
B	STC/0.1/49/61	+49 +61	0.1	-0.5 +0.5	Hg	250	1232208
B	STC/0.1/59/71	+59 +71	0.1	-0.5 +0.5	Hg	250	1232209
B	STC/0.1/69/81	+69 +81	0.1	-0.5 +0.5	Hg	250	1232210
B	STC/0.1/79/91	+79 +91	0.1	-0.5 +0.5	Hg	250	1232211
B	STC/0.1/89/101	+89 +101	0.1	-0.5 +0.5	Hg	250	1232212
C	STC/0.2/-38/-18	-38 -18	0.2	-1 +1	Hg	250	1232213
A	STC/0.2/-22/+2	-22 +2	0.2	—	Hg	250	1232214
A	STC/0.2/-8/+22	-8 +22	0.2	—	Hg	250	1232215
B	STC/0.2/18/42	+18 +42	0.2	-1 +1	Hg	250	1232216
B	STC/0.2/38/62	+38+ 62	0.2	-1 +1	Hg	250	1232217
B	STC/0.2/58/82	+58 +82	0.2	-1 +1	Hg	250	1232218
B	STC/0.2/78/102	+78 +102	0.2	-1 +1	Hg	250	1232219
B	STC/0.2/98/122	+98 +122	0.2	-1 +1	Hg	250	1232220
B	STC/0.2/118/142	+118 +142	0.2	-1 +1	Hg	250	1232221
B	STC/0.2/138/162	+138 +162	0.2	-1 +1	Hg	250	1232222
B	STC/0.2/158/182	+158 +182	0.2	-1 +1	Hg	250	1232223
B	STC/0.2/178/202	+178 +202	0.2	-1 +1	Hg	250	1232224
A	STC/0.5/-55/+2	-55 +2	0.5	—	red	250	1232225
A	STC/0.5/-38/+35	-38 +35	0.5	—	Hg	250	1232226
A	STC/0.5/-5/+70	-5 +70	0.5	—	Hg	250	1232227
B	STC/0.5/45/105	+45 +105	0.5	-3 +3	Hg	250	1232228
B	STC/0.5/95/155	+95 +155	0.5	-3 +3	Hg	250	1232229
B	STC/0.5/145/205	+145 +205	0.5	-3 +3	Hg	250	1232230
B	STC/0.5/195/255	+195 +255	0.5	-3 +3	Hg	250	1232231
B	STC/0.5/245/305	+245 +305	0.5	-3 +3	Hg	250	1232232
A	STC/1/-30/+120	-30 +120	1	—	Hg	250	1232233
B	STC/1/90/210	+90 +210	1	-5 +5	Hg	250	1232234
B	STC/1/190/310	+190 +310	1	-5 +5	Hg	250	1232235
B	STC/1/290/410	+290 +410	1	-5 +5	Hg	250	1232236

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.
...../80 Safety coating (PTFE coated up to 200 °C)

Precision thermometers
acc. to ISO 655



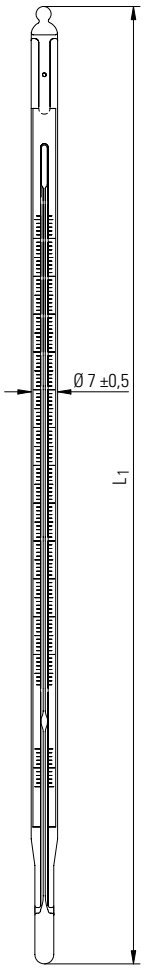
Precision thermometers acc. to ISO 655,
enclosed type, capillary form: colourless prismatic,
immersion: total, suitable for official certification

Type	Description	Measuring range °C	Scale °C	Auxilliary scale °C	Filling	Total length L_1 mm	Ref. No.
A	EL/0.1/-25/+5	-25 +5	0.1	—	Hg	375	1232301
A	EL/0.1/-5/+25	-5 +25	0.1	—	Hg	375	1232302
B	EL/0.1/20/45	+20 +45	0.1	-0.5 +0.5	Hg	375	1232303
B	EL/0.1/40/65	+40 +65	0.1	-0.5 +0.5	Hg	375	1232304
B	EL/0.1/60/85	+60 +85	0.1	-0.5 +0.5	Hg	375	1232305
B	EL/0.1/80/105	+80 +105	0.1	-0.5 +0.5	Hg	375	1232306
A	EL/0.2/-55/+5	-55 +5	0.2	—	red	375	1232307
A	EL/0.2/-35/+25	-35 +25	0.2	—	Hg	375	1232308
A	EL/0.2/-15/+45	-15 +45	0.2	—	Hg	375	1232309
B	EL/0.2/35/85	+35+85	0.2	-1 +1	Hg	375	1232310
B	EL/0.2/75/125	+75 +125	0.2	-1 +1	Hg	375	1232311
B	EL/0.2/115/165	+115 +165	0.2	-1 +1	Hg	375	1232312
B	EL/0.2/155/205	+155 +205	0.2	-1 +1	Hg	375	1232313
A	EL/0.5/35/+115	-35 +115	0.5	—	Hg	375	1232314
B	EL/0.5/90/210	+90 +210	0.5	-3 +3	Hg	375	1232315
B	EL/0.5/190/310	+190 +310	0.5	-3 +3	Hg	375	1232316
A	EL/1/-30/+270	-30 +270	1	—	Hg	375	1232317
B	EL/1/180/420	+180 +420	1	-5 +5	Hg	375	1232318
A	EL/2/0/600	0 +600	2	—	Hg	375	1232319

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.
...../80 Safety coating (PTFE coated up to 200 °C)

Precision thermometers
acc. to ISO 656



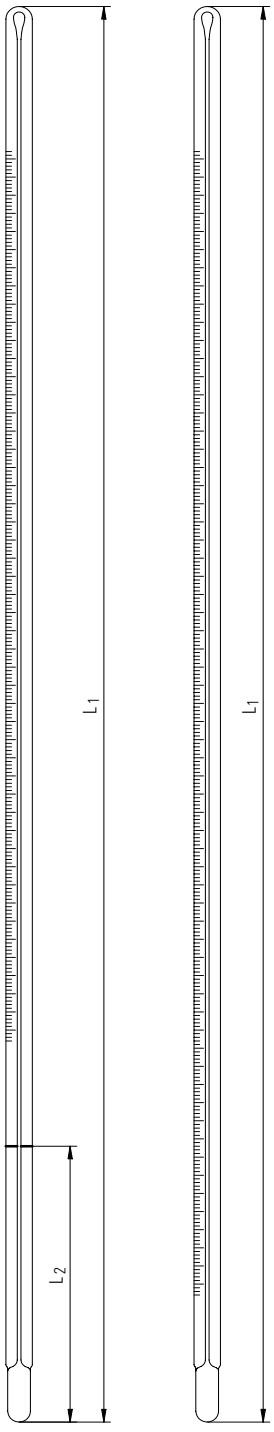
Precision thermometers acc. to ISO 656,
enclosed type, capillary form: colourless prismatic,
immersion: total, suitable for official certification

Type	Description	Measuring range °C	Scale °C	Auxilliary scale °C	Filling	Total length L_1 mm	Ref. No.
C	EC/0.1/-21/-9	-21 -9	0.1	-0.5 +0.5	Hg	250	1232401
A	EC/0.1/-11/+1	-11 +1	0.1	—	Hg	250	1232402
A	EC/0.1/-1/+11	-1 +11	0.1	—	Hg	250	1232403
B	EC/0.1/9/21	+9 +21	0.1	-0.5 +0.5	Hg	250	1232404
B	EC/0.1/19/31	+19 +31	0.1	-0.5 +0.5	Hg	250	1232405
B	EC/0.1/29/41	+29 +41	0.1	-0.5 +0.5	Hg	250	1232406
B	EC/0.1/39/51	+39 +51	0.1	-0.5 +0.5	Hg	250	1232407
B	EC/0.1/49/61	+49 +61	0.1	-0.5 +0.5	Hg	250	1232408
B	EC/0.1/59/71	+59 +71	0.1	-0.5 +0.5	Hg	250	1232409
B	EC/0.1/69/81	+69 +81	0.1	-0.5 +0.5	Hg	250	1232410
B	EC/0.1/79/91	+79 +91	0.1	-0.5 +0.5	Hg	250	1232411
B	EC/0.1/89/101	+89 +101	0.1	-0.5 +0.5	Hg	250	1232412
C	EC/0.2/-38/-18	-38 -18	0.2	-1 +1	Hg	250	1232413
A	EC/0.2/-22/+2	-22 +2	0.2	—	Hg	250	1232414
A	EC/0.2/-8/+22	-8 +22	0.2	—	Hg	250	1232415
B	EC/0.2/18/42	+18 +42	0.2	-1 +1	Hg	250	1232416
B	EC/0.2/38/62	+38+ 62	0.2	-1 +1	Hg	250	1232417
B	EC/0.2/58/82	+58 +82	0.2	-1 +1	Hg	250	1232418
B	EC/0.2/78/102	+78 +102	0.2	-1 +1	Hg	250	1232419
B	EC/0.2/98/122	+98 +122	0.2	-1 +1	Hg	250	1232420
B	EC/0.2/118/142	+118 +142	0.2	-1 +1	Hg	250	1232421
B	EC/0.2/138/162	+138 +162	0.2	-1 +1	Hg	250	1232422
B	EC/0.2/158/182	+158 +182	0.2	-1 +1	Hg	250	1232423
B	EC/0.2/178/202	+178 +202	0.2	-1 +1	Hg	250	1232424
A	EC/0.5/-55/+2	-55 +2	0.5	—	red	250	1232425
A	EC/0.5/-38/+35	-38 +35	0.5	—	Hg	250	1232426
A	EC/0.5/-5/+70	-5 +70	0.5	—	Hg	250	1232427
B	EC/0.5/45/105	+45 +105	0.5	-3 +3	Hg	250	1232428
B	EC/0.5/95/155	+95 +155	0.5	-3 +3	Hg	250	1232429
B	EC/0.5/145/205	+145 +205	0.5	-3 +3	Hg	250	1232430
B	EC/0.5/195/255	+195 +255	0.5	-3 +3	Hg	250	1232431
B	EC/0.5/245/305	+245 +305	0.5	-3 +3	Hg	250	1232432
A	EC/1/-30/+120	-30 +120	1	—	Hg	250	1232433
B	EC/1/90/210	+90 +210	1	-5 +5	Hg	250	1232434
B	EC/1/190/310	+190 +310	1	-5 +5	Hg	250	1232435
B	EC/1/290/410	+290 +410	1	-5 +5	Hg	250	1232436

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.
...../80 Safety coating (PTFE coated up to 200 °C)

Precision thermometers
acc. to ISO 1770/BS 1704/ANSI



Precision thermometers acc. to ISO 1770, BS 1704 and ANSI,
stem type, capillary form: yellow back round, **immersion: 75 mm,** suitable for official certification

Type ISO	Type ANSI	Measuring range °C	Scale °C	Filling	Immersion L_2 mm	Total length L_1 mm	Ref. No.
B/75	—	-35 +30	0.5	Hg	75	305	1232602
C/75	—	0 +60	0.5	Hg	75	305	1232603
D/75	—	0 +100	1	Hg	75	305	1232604
E/75	—	0 +160	1	Hg	75	305	1232605
F/75	—	0 +250	1	Hg	75	305	1232606
G/75	—	0 +360	2	Hg	75	305	1232607
H/75	—	0 +500	5	Hg	75	350	1232608
L/75	CP 40	-1 +51	0.1	Hg	75	460	1232611
M/75	CP 45	-1 +101	0.1	Hg	75	610	1232612
N/75	CP 50	-1 +201	0.2	Hg	75	610	1232613
P/75	CP 10	-35 +50	1	Hg	75	305	1232614
R/75	CP 15	-20 +110	1	Hg	75	305	1232615
S/75	CP 20	-20 +150	1	Hg	75	305	1232616
T/75	CP 25	-10 +260	1	Hg	75	405	1232617
V/75	CP 30	-10 +400	2	Hg	75	405	1232618
W/75	CP 35	-10 +500	2	Hg	75	405	1232619

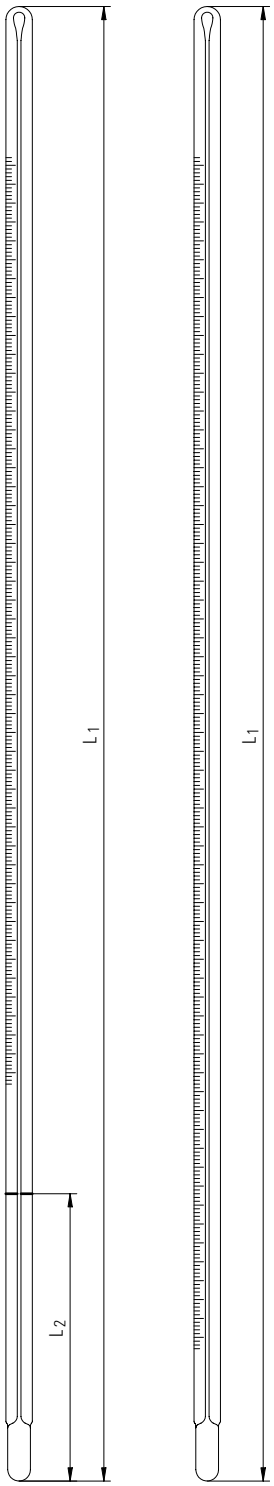
Precision thermometers acc. to ISO 1770, BS 1704 and ANSI,
stem type, capillary form: yellow back round, **immersion: total,** suitable for official certification

Type ISO	Type ANSI	Measuring range °C	Scale °C	Filling	Immersion L_2	Total length L_1 mm	Ref. No.
A/total	—	-100 +30	1	Alcohol	total	305	1232501
B/total	—	-35 +30	0.5	Hg	total	305	1232502
C/total	—	0 + 60	0.5	Hg	total	305	1232503
D/total	—	0 +100	1	Hg	total	305	1232504
E/total	—	0 +160	1	Hg	total	305	1232505
F/total	—	0 +250	1	Hg	total	305	1232506
G/total	—	0 +360	2	Hg	total	305	1232507
H/total	—	0 +500	5	Hg	total	350	1232508
J/total	—	-100 +50	1	Alcohol	total	305	1232509
K/total	—	-50 +50	1	red	total	305	1232510
L/total	CT 40	-1 +51	0.1	Hg	total	460	1232511
M/total	CT 45	-1 +101	0.1	Hg	total	610	1232512
N/total	CT 50	-1 +201	0.2	Hg	total	610	1232513
P/total	CT 10	-35 +50	1	Hg	total	305	1232514
R/total	CT 15	-20 +110	1	Hg	total	305	1232515
S/total	CT 20	-20 +150	1	Hg	total	305	1232516
T/total	CT 25	-10 +260	1	Hg	total	405	1232517
V/total	CT 30	-10 +400	2	Hg	total	405	1232518
W/total	CT 35	-10 +500	2	Hg	total	405	1232519

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.
...../80 Safety coating (PTFE coated up to 200 °C)

Precision thermometers like
ISO 1770/BS 1704/ANSI



Precision thermometers similar to ISO 1770, BS 1704 and ANSI,
stem type, capillary form: yellow back round, **immersion: 75 mm,** suitable for official certification

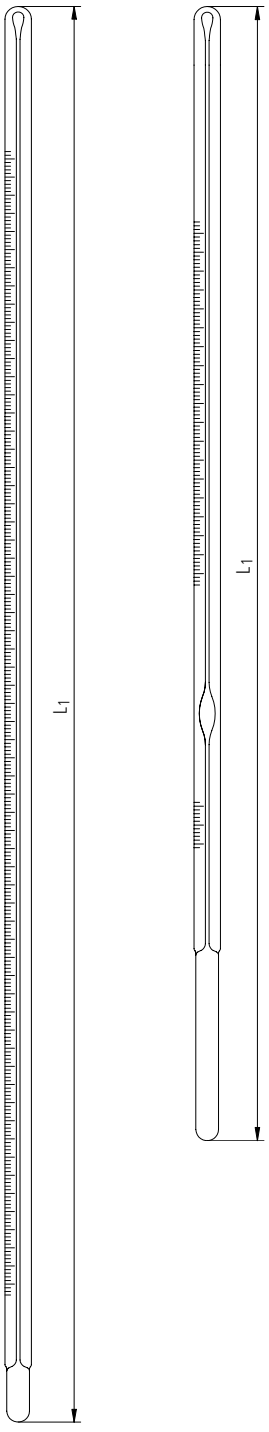
Type ISO	ANSI	**Measuring range** °C	**Scale** °C	**Filling**	**Immersion L_2** mm	**Total length L_1** mm	**Ref. No.**
L/75	CP 40	-1 +51	0.1	red	75	460	1232611S
M/75	CP 45	-1 +101	0.1	red	75	610	1232612S
P/75	CP 10	-35 +50	1	red	75	305	1232614S
R/75	CP 15	-20 +110	1	red	75	305	1232615S
S/75	CP 20	-20 +150	1	red	75	305	1232616S
T/75	CP 25	-10 +260	1	red	75	405	1232617S

Precision thermometers similar to ISO 1770, BS 1704 and ANSI,
stem type, capillary form: yellow back round, **immersion: total,** suitable for official certification

Type ISO	ANSI	**Measuring range** °C	**Scale** °C	**Filling**	**Immersion L_2** mm	**Total length L_1** mm	**Ref. No.**
L/total	CT 40	-1 +51	0.1	red	total	460	1232511S
M/total	CT 45	-1 +101	0.1	red	total	610	1042383
P/total	CT 10	-35 +50	1	red	total	305	1232514S
R/total	CT 15	-20 +110	1	red	total	305	1232515S
S/total	CT 20	-20 +150	1	red	total	305	1232516S
T/total	CT 25	-10 +260	1	red	total	405	1232517S

Additional Order No.
...../03 With works certificate
...../04 With DAkkS calibration cert.

Precision thermometers
acc. to AFNOR



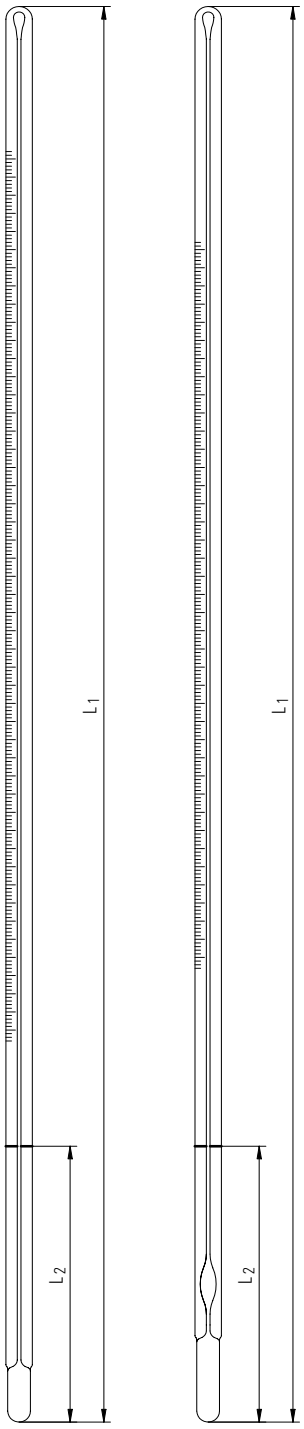
Precision thermometers acc. to AFNOR, ASTM and IP,
stem type, capillary form: yellow back round, suitable for official certification

Type			**Measuring range**	**Scale**	**Filling**	**Immersion L_2**	**Total length L_1**	**Ref. No.**
AFNOR	ASTM	IP	°C	°C		mm	mm	
M07-002	7C	5C	-2 +300	1	Hg	total	380	1202007
M07-002	8C	6C	-2 +400	1	Hg	total	380	1202008
M41-003	—	—	-10 +30	0.5	Hg	75 mm	305	1482003
T60-100	44C	29C	+18.6 +21.4	0.05	Hg	total	300	1202044
T60-100	28C	31C	+36.6 +39.4	0.05	Hg	total	300	1202028
T60-100	—	—	+49.5 +55.0	0.05	Hg	total	280	1482006
T60-100	121C	32C	+98.6 +101.4	0.05	Hg	total	300	1202121
T60-102	2C	62C	-5 +300	1	Hg	76 mm	385	1202002
T60-103	—	—	-20 +420	1	Hg	total	410	1482009
T60-103	—	—	0 +120	1	Hg	total	170	1482010
T60-105	6C	2C	-80 +20	1	Tol	76 mm	225	1202006
T60-105	5C	1C	-38 +50	1	Hg	108 mm	225	1202005
T60-122	—	—	-80 +30	1	Tol	100 mm	338	1482013
T60-114	14C	17C	+38 +82	0.1	Hg	79 mm	370	1202014
T66-005	—	8C	0 +45	0.2	Hg	65 mm	330	1212008
T66-001	15C	60C	-2 +80	0.2	Hg	total	390	1202015
T66-001	16C	61C	+30 +200	0.5	Hg	total	390	1202016
T67-001	—	—	-2 +160	1	Hg	100 mm	300	1482018

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.
...../80 Safety coating (PTFE coated up to 200 °C)

Precision thermometers
acc. to S.T.P.T.C.



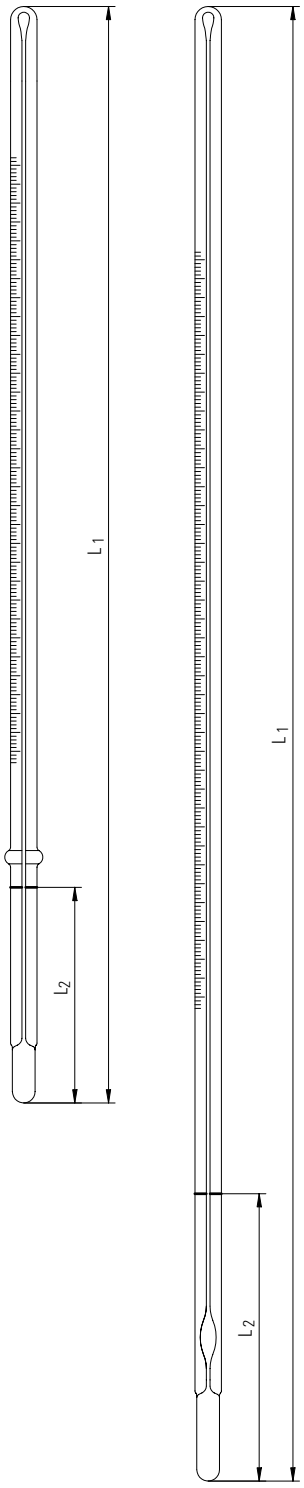
Precision thermometers acc. to S.T.P.T.C.,
stem type, capillary form: yellow back round,
immersion: 100 mm, suitable for official certification

Type	Measuring range °C	Scale °C	Filling	Immersion L_2 mm	Total length L_1 mm	Ref. No.
T 1d	-10 +20	0.1	Hg	100	410	1232001
T 3d	0 +120	0.5	Hg	100	430	1232002
T 4d	-2 +400	1	Hg	100	430	1232003
T 5d	+15 +45	0.1	Hg	100	430	1232004
T 7d	+65 +90	0.1	Hg	100	400	1232005
T 8d	+70 +130	0.2	Hg	100	380	1232006
T 9d	+50 +210	0.5	Hg	100	430	1232007
T 12d	+130 +160	0.1	Hg	100	420	1232009
T 17d	+39.5 +70.5	0.1	Hg	100	400	1232010
T 20d	+175 +275	0.5	Hg	100	430	1232011
T 21d	+180 +215	0.1	Hg	100	430	1232012
T 22d	+205 +235	0.1	Hg	100	430	1232013
T 23d	+105 +135	0.1	Hg	100	420	1232014
T 24d	+72 +82	0.05	Hg	100	400	1232015
T 25d	-55 -25	0.1	Hg-Tl	100	400	1232016
T 26d	-30 +0	0.1	Hg	100	400	1232017

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.
...../80 Safety coating (PTFE coated up to 200 °C)

Precision thermometers acc. to DIN 12785
for special applications



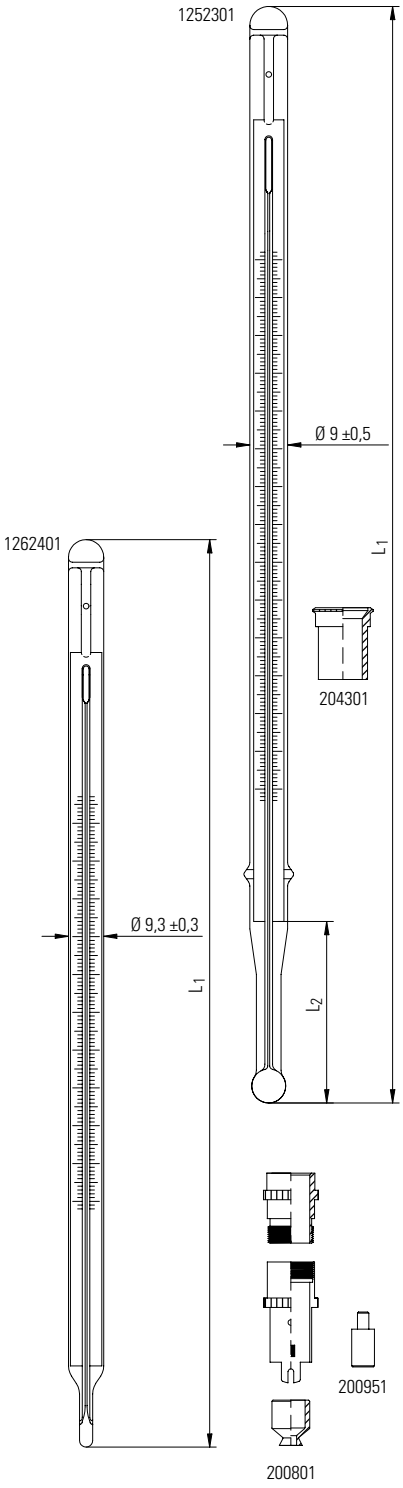
Precision thermometers acc. to DIN 12785, ASTM and IP, for special material testing procedures, **stem type,** capillary form: yellow back round, suitable for official certification,
suitable metal ferrules see page 12

Type/description	Type			Measuring range	Scale	Filling	Immersion L_2	Total length L_1	Ref. No.
	DIN	ASTM	IP	°C	°C		mm	mm	
Anilin point	BST 0.2/-38/42	33 C	20 C	-38 +42	0.2	Hg	50	415	1202033
Anilin point	BST 0.2/25/105	34 C	21 C	+25 +105	0.2	Hg	50	415	1202034
Anilin point	BST 0.2/90/170	35 C	59 C	+90 +170	0.2	Hg	50	415	1202035
Aviation fuel freezing point	BST 0.5/-80/20	114 C	—	-80 +20	0.5	Toluene	total	295	1202114
Breaking point	BST 0.5/-38/30	—	42 C	-38 +30	0.5	Hg	250	360	1212042
Cloud and pour	BST 1/-38/50	5 C	1 C	-38 +50	1	Hg	108	225	1202005
Cloud and pour. low	BST 1/-80/20	6 C	2 C	-80 +20	1	Toluene	76	225	1202006
Congealing point	BST 0.1/38/82	14 C	17 C	+ 38 +82	0.1	Hg	79	370	1202014
Congealing point	BST 0.5/0/100	—	—	0 +100	0.5	Hg	total	300	1242901
Congealing point	BST 0.5/50/150	—	—	+50 +150	0.5	Hg	total	300	1242902
Flash point quick test	BST 1/0/110	—	—	0 +110	1	Hg	44	200	1252601
FP cut back (Ext.)	BST 0.5/15/121	—	44 C	+15 +121	0.5	Hg	89	300	1212044
FP cut back (Int.)	BST 0.5/10/110	—	43 C	+10 +110	0.5	Hg	61	300	1212043
Crystallization point	BST 0.01/4/6	—	—	+4 +6	0.01	Hg	total	240	1252801
Oil in wax	BST 0.5/-37/21	71 C	72 C	-37 +21	0.5	Hg	76	350	1202071
Open flash	BST 2/-6/400	11 C	28 C	-6 +400	2	Hg	25	305	1202011
Oxidation	BST 0.1/195/205	—	22 C	+195 +205	0.1	Hg	100	300	1212022
Partial immersion	BST 1/-5/300	2 C	62 C	-5 +300	1	Hg	76	385	1202002
Partial immersion	BST 1/-5/400	3 C	73 C	-5 +400	1	Hg	76	410	1202003
Penksy-Martens closed cup	BST 0.5/-7/110	9 C	15 C	-5 +110	0.5	Hg	57	285	1202009
Penksy-Martens closed cup	BST 2/90/370	10 C	16 C	+90 +370	2	Hg	57	285	1202010
Saybolt viscosity	BST 0.1/95/103	22 C	24 C	+95 +103	0.1	Hg	total	270	1202022
Distillation range	BST 1/-2/300	7 C	5 C	-2 +300	1	Hg	total	380	1202007
Distillation range	BST 1/-2/400	8 C	6 C	-2 +400	1	Hg	total	380	1202008
Softening point, high	BST 0.5/30/200	16 C	61 C	+30 +200	0.5	Hg	total	395	1202016
Softening point, low	BST 0.2/-2/80	15 C	60 C	-2 +80	0.2	Hg	total	395	1202015
Solvents distillation	BST 0.2/-2/52	37 C	77 C	-2 +52	0.2	Hg	100	390	1202037
Solvents distillation	BST 0.2/24/78	38 C	78 C	+24 +78	0.2	Hg	100	390	1202038
Solvents distillation	BST 0.2/48/102	39 C	79 C	+48 +102	0.2	Hg	100	390	1202039
Solvents distillation	BST 0.2/72/126	40 C	80 C	+72 +126	0.2	Hg	100	390	1202040
Solvents distillation	BST 0.2/98/152	41 C	81 C	+98 +152	0.2	Hg	100	390	1202041
Solvents distillation	BST 0.2/123/177	102 C	83 C	+123 +177	0.2	Hg	100	390	1202102
Solvents distillation	BST 0.2/148/202	103 C	84 C	+148 +202	0.2	Hg	100	390	1202103
Solvents distillation	BST 0.2/173/227	104 C	85 C	+173 +227	0.2	Hg	100	390	1202104
Solvents distillation	BST 0.2/198/252	105 C	86 C	+198 +252	0.2	Hg	100	390	1202105
Solvents distillation	BST 0.2/223/277	106 C	87 C	+223 +277	0.2	Hg	100	390	1202106
Solvents distillation	BST 0.2/248/302	107 C	88 C	+248 +302	0.2	Hg	100	390	1202107
Solvents distillation	BST 0.5/95/255	42 C	82 C	+95 +255	0.5	Hg	100	390	1202042
Dropping point ASTM D566	BST 1/-5/300	2 C	62 C	-5 +300	1	Hg	76	385	1202002

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.

Precision thermometers acc. to DIN 12785 for special applications



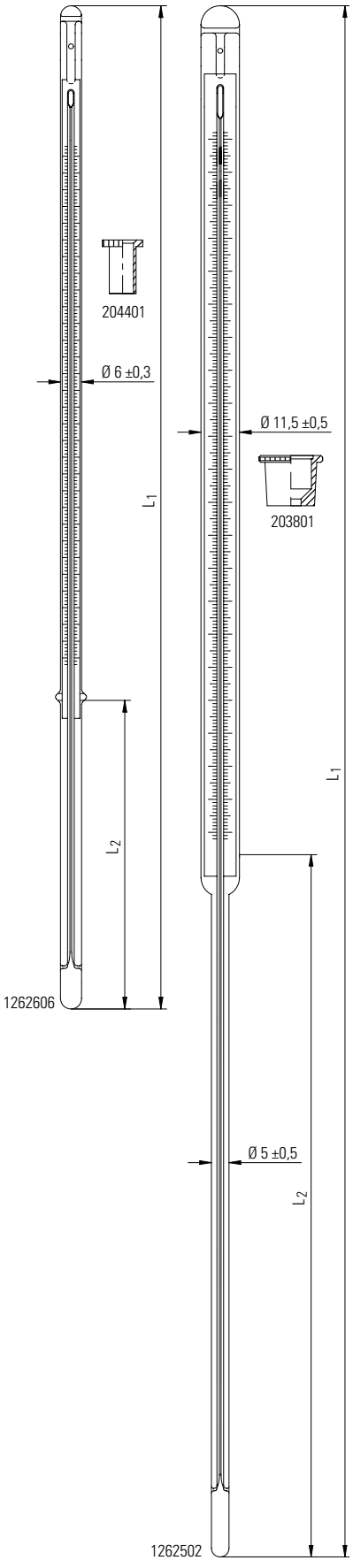
Precision thermometers acc. to DIN 12785, for special material testing procedures, **enclosed type,** capillary form: colourless prismatic, suitable for official certification

Type/description	Standard term DIN 12785	Measuring range °C	Scale °C	Filling	Immersion L_2 mm	Total length L_1 mm	Ref. No.
Softening point thermometer							
For resin	BE 1/10/200	+10 +200	1	Hg	90	290	1252001
Suitable metal ferrules acc. to DIN 12787 B8							204401
Suitable protection sleeve (glass with cork) acc. to DIN 51556							204801
Flash-point thermometers							
acc. to Abel-Pensky	BE 0.5/0/70	0 +70	0.5	Hg	57	275	1252209
acc. to Abel-Pensky	BE 1/35/100	+35 +100	1	Hg	75	280	1252204
acc. to Penksy-Martens	BE 1/20/200	+20 +200	1	Hg	57	275	1252301
acc. to Marcusson	BE 1/40/260	+40 +260	1	Hg	48	290	1252501
acc. to Marcusson	BE 1/190/410	+190 +410	1	Hg	48	290	1252502
Suitable metal ferrules acc. to DIN 12787 A12 for No. 1252209 and 1252301							204301
Suitable metal ferrules acc. to DIN 12787 A13 or No. 1252204							204201
Milk freezing point thermometer							
Milk freezingpoint thermometer	BE 0.01/-1.2/0.5	-1.2 +0.5	0.01	Hg	75	485	1252901
Distillation range thermometers							
acc. to Kraemer-Spilker	BE 0.05/75/125	+75 +115	0.05	Hg	90	495	1262001
acc. to Kraemer-Spilker	BE 0.2/60/210	+60 +210	0.2	Hg	90	475	1262002
Setting point thermometers							
Turbidity and setting point	BE 1/-70/50	-70 +50	1	Tol	165	360	1262301
Turbidity and setting point	BE 1/-38/50	-38 +50	1	Hg	165	360	1262303
Test glasses acc. to DIN 51583							200701
Dropping point thermometers							
acc. to Ubbelohde	BE 1/0/110	0 +110	1	Hg	total	235	1262401
Metal ferrules DIN 51801/part 2 (3 pieces)							200801
Test tubes 40 DIN 12 395 with cork stopper							200901
Centring gauge acc. to DIN 51 801 (metal) for verifying							200951
Anti-friction bearing lubricant thermometer							
Anti-friction bearing lubricant testing	BE 1/0/200	0 +200	1	Hg	170	395	1272101

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.

Precision thermometers acc. to DIN 12785 for viscosimeters



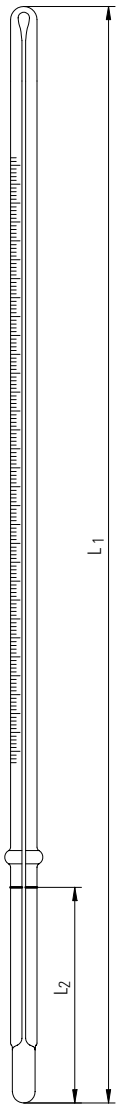
Precision viscosimeter thermometers acc. to DIN 12785,
enclosed type, capillary form: colourless prismatic, suitable for official certification

Type/description **Viscosimeter thermometers**	**Standard term** DIN 12785	**Measuring range** °C	**Scale** °C	**Filling**	**Immersion L_2** mm	**Total length L_1** mm	**Ref. No.**
Efflux time acc. to Engler	BE 0.2/0/55	0 +55	0.2	Hg	90	290	1262606
Efflux time acc. to Engler	BE 0.5/0/105	0 +105	0.5	Hg	90	290	1262605
Suitable metal ferrules acc. to DIN 12 787 B8							204401
acc. to Vogel-Ossag	BE 0.1/0/35	0 +35	0.1	Hg	208	465	1262502
acc. to Vogel-Ossag	BE 0.1/35/70	+35 +70	0.1	Hg	208	465	1262503
acc. to Vogel-Ossag	BE 0.1/70/105	+70 +105	0.1	Hg	208	465	1262504
acc. to Vogel-Ossag	BE 0.2/90/150	+90 +150	0.2	Hg	208	465	1262505
Suitable metal ferrules acc. to DIN 12787 C15.5							203801
Pulling/falling ball viscosimeters	BE 0.02/19/21	+19 +21	0.02	Hg	total	150	1272012
Pulling/falling ball viscosimeters	BE 0.1/-1/26	-1 +26	0.1	Hg	total	175	1262901
Pulling/falling ball viscosimeters	BE 0.1/24/51	+24 +51	0.1	Hg	total	175	1262902
Pulling/falling ball viscosimeters	BE 0.1/49/76	+49 +76	0.1	Hg	total	175	1262903
Pulling/falling ball viscosimeters	BE 0.1/74/101	+74 +101	0.1	Hg	total	175	1262904
Pulling/falling ball viscosimeters	BE 0.1/99/126	+99 +126	0.1	Hg	total	175	1262905
Pulling/falling ball viscosimeters	BE 0.1/124/151	+124 +151	0.1	Hg	total	175	1262906
Pulling ball viscosimeters	BE 0.5/-35/20	-35 +20	0.5	Hg	total	150	1272001
Pulling ball viscosimeters	BE 0.5/-1/55	-1 +55	0.5	Hg	total	150	1272002
Pulling ball viscosimeters	BE 0.5/50/100	+50 +100	0.5	Hg	total	150	1272003
Pulling ball viscosimeters	BE 0.5/100/150	+100+150	0.5	Hg	total	150	1272004
Pulling ball viscosimeters	BE 0.2/-60/30	-60 -30	0.2	Tol, red	total	175	1272005
Pulling ball viscosimeters	BE 0.2/-35/1	-35 +1	0.2	Hg	total	175	1272006
Pulling ball viscosimeters	BE 0.1/-1/51	-1 +51	0.1	Hg	140	450	1272007
Pulling ball viscosimeters	BE 0.1/49/101	+49 +101	0.1	Hg	140	450	1272008
Pulling ball viscosimeters	BE 0.1/99/151	+99 +151	0.1	Hg	140	450	1272009
Pulling ball viscosimeters	BE 0.1/149/201	+149 +201	0.1	Hg	140	450	1272010
Pulling ball viscosimeters	BE 0.1/199/251	+199 +251	0.1	Hg	140	450	1272011
Suitable metal caps, thread M 11 x 1							204101

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.

Precision thermometers
for Ebullioscopy



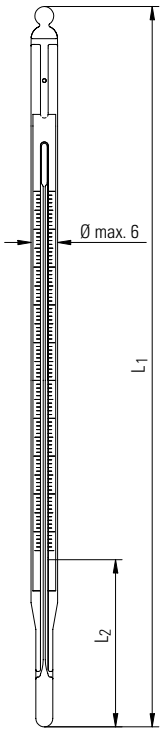
Precision thermometer for the determination of molar mass (Ebullioscopy),
stem type, capillary form: yellow back round,
immersion: 80 mm, suitable for official certification

Measuring range °C	**Scale** °C	**Filling**	**Stem length L_3** mm	**Immersion L_2** mm	**Total length L_1** mm	**Ref. No.**
+87 +101	0.1	Hg	103	80	325	1232801

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.

Precision thermometers
Melting-point thermometers



Precision melting-point thermometer,
enclosed type,
capillary form: colourless prismatic

Measuring range °C	**Scale** °C	**Filling**	**Immersion L_2** mm	**Total length L_1** mm	**Ref. No.**
-38 +100	0.5	Hg	30	250	1262201
+100 +250	0.5	Hg	30	250	1262202

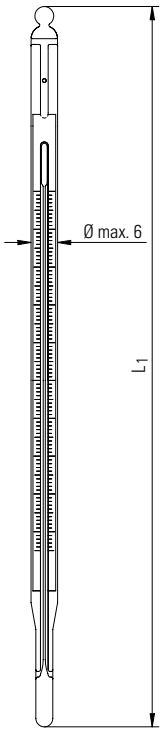
Precision melting-point thermometer acc. to Lindström,
enclosed type, diameter 5-6 mm
capillary form: blue refelcting prismatic, suitable for official certification

Measuring range °C	**Scale** °C	**Filling**	**Immersion L_2** mm	**Total length L_1** mm	**Ref. No.**
0 +360	1	Hg	50	340	1262205

Additional Order No.
...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.

Precision thermometers acc. to DIN 12779

Distillation thermometers



Präzisions-Destillationsthermometer nach DIN 12779,
enclosed type, diameter 5-6 mm (stem type on request),
capillary form: colourless prismatic, suitable for official certification

Measuring range °C	**Scale** °C	**Filling**	**Immersion** L_2	**Total length** L_1 mm	**Ref. No.**
0 +50	0.5	Hg	total	220	1242201
0 +100	0.5	Hg	total	260	1242202
0 +100	1	Hg	total	220	1242203
0 +150	1	Hg	total	260	1242204
0 +250	1	Hg	total	260	1242205
+100 +250	1	Hg	total	220	1242206
0 +360	1	Hg	total	375	1242207
+200 +360	1	Hg	total	220	1242208
0 +360	2	Hg	total	260	1242209

Additional Order No.

...../01 Officially calibrated without certificate
...../02 Officially calibr. with cert.
...../03 With works certificate
...../04 With DAkkS calibration cert.

Filling liquids

Thermometers with wetting liquid
Instructions for thermometers with separated indicator liquid

For many types of thermometer, the use of wetting thermometric liquids is essential. Different liquids are used according to the properties of the thermometer and their purpose (see technical data on thermometric liquids).

The following instructions only apply to procedures for thermometers filled with wetting liquids.

1. Before using these thermometers with wetting liquid, check whether any indicator liquid has separated off into the top of the capillary. Unlike the coloured indicator liquid, the separated liquid is generally colourless and can easily be overlooked.

2. All types of thermometer which are filled with wetting liquid have an expansion chamber at the top end of the capillary. By heating the temperature probe carefully, the indicator liquid can be coaxed up into this expansion chamber and combined again with the separated liquid. If necessary, it can be assisted in this by using a powerful centrifuge with the temperature probe pointing downwards.

3. If there is still a small amount of liquid remaining at the end of the expansion chamber, this has to be flame-heated carefully at this point (cigarette lighter, Bunsen burner or spirit burner) in order to combine it with the separated liquid by repeatedly heating the temperature probe while holding the thermometer upright.

The possible evaporation of the indicator liquid in the capillary is a physically induced phenomenon which cannot always be avoided in the event of poor storage or if conditions are unfavourable. It is definitely not a manufacturing defect, however, and provided that it is handled properly it will also not affect the guaranteed precision of the thermometer type used.

Instructions on reuniting separated indicator columns
Handling after shipping damage (separated indicator columns)

Rough or incorrect handling in transport may cause the thermometric indicator liquid in the capillary opening to separate. The same effect can be caused by similar circumstances or by incorrect storage and improper use. **A production fault is therefore not involved. This is purely a physically induced phenomenon.**

In most cases, columns can be reunited by the users themselves. If the following advice is not successful, the problem can only be rectified by the manufacturer. A separated and reunited indicator column does not affect the guaranteed precision of the thermometer types used.

1. Most thermometers have an expansion chamber at the top. If the thermometer's measurement range does not exceed 300 °C, the separated indicator column can be reunited by simply coaxing the mercury up by warming it with a flame. After the indicator column has been reunited, the instrument is left to cool down and it is ensured that the entire indicator liquid returns from the expansion chamber into the capillary opening. If the first attempt has been unsuccessful, we recommend repeating the procedure several times.

2. In the case of very wide capillary openings, separated indicator columns can also be reunited by powerful centrifuging as with a clinical thermometer, whereby the temperature probe must point downwards.

3. As another alternative method, we recommend undercooling the temperature probe using a salt-ice mixture or dry ice (CO_2) if available. The temperature probe is cooled down until all separated parts reunite in the indicator capillary and all entrained gases are above the indicator liquid. Particular attention must be paid to ensure that, when the thermometer warms up and the temperature increases, it is held upright in order to allow the indicator liquid to go up into the indicator capillary without any entrained gases. Particular care must be taken when checking whether there are any entrained gases remaining in the probe. If this is the case, however, the process must be repeated.

Filling liquids

Thermometer filling liquids
Technical data of thermometric fillings

Thermometric fillings are divided into two groups, **wetting and non-wetting** liquids.

The excellent thermometric properties of mercury (including the fact that there is no ageing and no wetting of the glass surface as well as good expansion linearity over a wide temperature range) make mercury essential as an indicator liquid for precision thermometers and define the outstanding serviceability through precision and durability.

The table below gives an overview of the main filling liquids used together with their operating limits and their most common abbreviations. The upper and lower limits are defined by physical properties such as melting point and boiling point.

Technical data of thermometric fillings

Filling liquids	Abbreviation	Lower limit °C	Upper limit °C	Characteristics
Mercury	Hg	-38.5	+800	non-wetting
Mercury thallium alloy	Hg-Tl	-58	approx. +150	non-wetting
Gallium alloy	Ga	0	approx. +1200	non-wetting
Technical pentane	C_5H_{12}	-200	approx. +35	wetting
Ethanol	C_2H_6O	-110	approx. +100	wetting
Pentanol	$C_5H_{12}O$	-115	approx. +135	wetting
Toluene	C_7H_8	-90	approx. +100	wetting
Creosote	—	approx. -40	approx. +210	wetting
Petroleum	C_5H_{12}	approx. -45	approx. +160	wetting
i-amyl benzoate	$C_{12}H_{16}O_2$	approx. -40	approx. +220	wetting

Technical information

Deviation limits

Standardized tolerances acc. to EO 14-1

According the German standard "Eichordnung EO 14-1" the following deviation limits for the most usual thermometers are specified:

Deviation limits for thermometers with **wetting** thermometric fillings (immersion: total):

Calibration tolerance at scale unit				
Temperature range	**0.5 °C**	**1 °C**	**2 °C**	**5 °C**
from -200 °C up to -110 °C	—	±3 °C	±4 °C	±5 °C
above -110 °C up to -10 °C	±1 °C	±2 °C	±4 °C	±5 °C
above -10 °C up to +110 °C	±1 °C	±2 °C	±3 °C	±5 °C
above +110 °C up to +210 °C	—	±3 °C	±4 °C	±5 °C

Deviation limits for thermometers with **non-wetting** thermometric fillings (immersion: total):

Calibration tolerance at scale unit							
Temperature range	**0.05 °C**	**0.1 °C**	**0.2 °C**	**0.5 °C**	**1 °C**	**2 °C**	**5 °C**
from -58 °C up to -10 °C	—	±0.3 °C	±0.4 °C	±0.5 °C	±1 °C	±2 °C	±5 °C
above -10 °C up to +110 °C	±0.1 °C	±0.2 °C	±0.3 °C	±0.5 °C	±1 °C	±2 °C	±5 °C
above +110 °C up to +210 °C	—	—	±0.4 °C	±0.5 °C	±1 °C	±2 °C	±5 °C
above +210 °C up to +410 °C	—	—	—	±1 °C	±2 °C	±2 °C	±5 °C
above +410 °C up to +610 °C	—	—	—	—	±3 °C	±4 °C	±5 °C
above +610 °C	—	—	—	—	—	±10 °C	±10 °C

Product summary

- Catalogue **Engine Thermometers**
- Catalogue **General Purpose and Special Thermometers, Contact Thermometers**
- Catalogue **Precision Laboratory Thermometers & Sets, Ground Joint Thermometers**
- Catalogue **Meteorological Thermometers and Digital Measuring Devices**
- Catalogue **Precision Thermometers for Material Testing**
- Catalogue **Precision Hydrometers and Refractometers**
- Catalogue **Digital Measuring Devices**
- Catalogue **Resistance Thermometers and Thermocouples**

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