

Capillary Viscosity - Tempering Bath - High Temperature

ASTM D 445, ASTM D 446, ASTM D 2170, ISO 3104, ISO 3105, DIN 51561 (obs.), DIN 51569 (obs.), EN 12595, FTM 791-0305, IP 71-1, IP 71-2, IP 319, JIS K2207, JIS K2283

Product group(s): Viscosity

User group(s): Bitumen, Engine Oil, Fuel, Gasoline, Gear Oil, Insulating Oil, Jet Fuel, Lube Oil, Petroleum, Power Plant, Solvent, Turbine Oil

Scope: Determination of the kinematic viscosity of liquid petroleum products, both transparent and opaque, or bitumens by measuring the time for a volume of liquid to flow under gravity through a calibrated glass capillary viscometer.

The dynamic viscosity, can be obtained by multiplying the kinematic viscosity by the density of the liquid.



Capillary Viscosity - High Temperature Test Equipment

to be composed of:

- High Temperature Liquid Bath
- Circulator

Technical Data

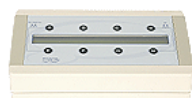
<u>Working range:</u>	+5 °C above ambient or cooling water up to +150 °C
<u>Constant:</u>	0.02 K
<u>Calibration:</u>	0.1 °C increasement
<u>Stability:</u>	±0.01° C and better (with water at 55 °C)
<u>Capacity:</u>	40 liters
<u>Bath opening:</u>	260 x 240 mm
<u>Bath depth:</u>	300 mm
<u>Bench space:</u>	280 x 430 mm

Main Unit

20-0150	High Temperature Liquid Bath <u>Consisting of:</u> digital temperature read-out, 7 test places (Ø 50 mm) and front window (270 x 285 mm). Power supply: 230 V, 50/60 Hz, 1500 W
20-0151	High Temperature Liquid Bath <u>Like 20-0150 but:</u> Power supply: 115 V, 50/60 Hz, 1500 W

Options & Accessories

21-0695	Stop Watch, 8-Channel, battery operated Containing 8 individual stop watches. Each operated by a single button to run, stop or reset. Auto-Power-Off when no stop watches are running. After Power-Off individual values are kept in memory. All values can be reset together or per channel. 9V-Battery-block included. Expected life time approx. 6 months. The stop watch can be supplied with a calibration certificate. <u>Outer dimensions</u> (L x W x H): 195 x 112 x 46 mm
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20-0154

Circulator (external & internal heating & cooling)

For heating & cooling of instruments without circulation pump and / or for tempering applications directly in the bath.



Consisting of:

Cooler with stainless steel bath. Thermostat with digital display, splash-proof keypad, integrated heater, pump, over-temperature & low-level protection.

Supplied with: 1 bath cover

Note: Insulated hose-set (25-0228) is recommended.

Technical Data:

Working range: -10 to +100 °C
 Display / Resolution: LED / 0.1 °C
 Control: PID
 Heater capacity: 1000 W
 Cooling capacity: 240 W at +20 °C
 Pump-Pressure capacity: 7 l/min, 300 mbar
 Bath opening: 15 x 10 x 15 cm (WxDxH)
 Volume: 5.5 l
 Dimensions / Weight: 22 x 36 x 47 cm (WxDxH), 18 kg
 Power supply: 230 V, 50 Hz, 1050 W, EU-plug

20-0155

Circulator (external & internal heating & cooling)

Like 20-0154 but:

Power supply: 115 V, 60 Hz

20-0030

Luminous Background

Large field lamp for convenient glare-free observation of the viscometers immersed in the thermostatic bath.



Power supply: 220/250 V, 50/60 Hz, 22 W

20-0040

Luminous Background

Like 20-0030 but:

Power supply: 115 V, 50/60 Hz

21-0697

Digital Stop Watch

Features:

- quartz-controlled
- water resistant
- memory function
- calendar



Consisting of:

7-digit LC display, max. 10 hours countdown with 1/100 sec. precision

Note: battery lifetime 1 year, Lithium battery operated

22-0164

Stopper, NBR-rubber (18/20, bored Ø 6 mm)

Spare Parts

50-9161

Bath Fluid Silicon Oil based

5 liters
 Temperature Range: approx. +10 ... +200 °C,
 Color: Water Clear

50-9162

Bath Fluid Silicon Oil based

10 liters
 Temperature Range: approx. +10 ... +200 °C
 Color: Water Clear

90-0315

Thermometer ASTM 132C / IP 102C

Range: +148.6 to +151.4 : 0.05 °C
 Length: 305 mm, Immersion: total, Ø 7 mm

90-1315

Thermometer ASTM 132C / IP 102C

Range: +148.6 to +151.4 : 0.05 °C (officially certified)

90-0196

Thermometer ASTM 110C / IP 93C

Range: +133.6 to +136.4 : 0.05 °C
 Length: 305 mm, Immersion: total, Ø 7 mm

90-1196	Thermometer ASTM 110C / IP 93C Range: +133.6 to +136.4 : 0.05 °C (officially certified)
90-0137	Thermometer ASTM 121C / IP 32C Range: +98.6 to +101.4 : 0.05 °C Length: 305 mm, Immersion: total, Ø 7 mm
90-0254	Thermometer ASTM 121C / IP 32C Range: +98.6 to +101.4 : 0.05 °C (officially certified)
90-0217	Thermometer ASTM 129C / IP 36C Range: +91.6 to +94.4 : 0.05 °C Length: 305 mm, Immersion: total, Ø 7 mm
90-1217	Thermometer ASTM 129C / IP 36C Range: +91.6 to +94.4 : 0.05 °C (officially certified)
90-0240	Thermometer ASTM 48C / IP 90C Range: +80.6 to +83.4 : 0.05 °C Length: 305 mm, Immersion: total, Ø 7 mm
90-1240	Thermometer ASTM 48C / IP 90C Range: +80.6 to +83.4 : 0.05 °C (officially certified)
90-0311	Thermometer IP 100C Range: + 78.6 to + 81.4 : 0.05 °C Length: 280 mm, Immersion: total, Ø 6.5 mm
90-1311	Thermometer IP 100C Range: + 78.6 to + 81.4 : 0.05 °C (officially certified)
90-0149	Thermometer ASTM 47C / IP 35C Range: +58.6 to +61.4 : 0.05 °C Length: 305 mm, Immersion: total, Ø 7 mm
90-1149	Thermometer ASTM 47C / IP 35C Range: +58.6 to +61.4 : 0.05 °C (officially certified)
90-0281	Thermometer ASTM 29C / IP 34C Range: +52.6 to +55.4 : 0.05 °C Length: 305 mm, Immersion: total, Ø 7 mm
90-1281	Thermometer ASTM 29C / IP 34C Range: +52.6 to +55.4 : 0.05 °C (officially certified)
90-0102	Thermometer ASTM 46C / IP 66C Range: +48.6 to +51.4 : 0.05 °C Length: 305 mm, Immersion: total, Ø 7 mm
90-0251	Thermometer ASTM 46C / IP 66C Range: +48.6 to +51.4 : 0.05 °C (officially certified)
90-0136	Thermometer ASTM 120C / IP 92C Range: +38.6 to +41.4 : 0.05 °C Length: 305 mm, Immersion: total, Ø 7 mm
90-0253	Thermometer ASTM 120C / IP 92C Range: +38.6 to +41.4 : 0.05 °C (officially certified)
90-0241	Thermometer ASTM 28C / IP 31C Range: +36.6 to +39.4 : 0.05 °C Length: 305 mm, Immersion: total, Ø 7 mm
90-1241	Thermometer ASTM 28C / IP 31C Range: +36.6 ... +39.4 : 0.05 °C (officially certified)
90-0204	Thermometer ASTM 118C Range: +28.6 to +31,4 : 0.05 °C Length: 305 mm, Immersion: total, Ø 7 mm

90-1204	Thermometer ASTM 118C Range: +28.6 to +31.4 : 0.05 °C (officially certified)
90-0101	Thermometer ASTM 45C / IP 30C Range: +23.6 to +26.4 : 0.05 °C Length: 305 mm, Immersion: total, Ø 7 mm
90-1101	Thermometer ASTM 45C / IP 30C Range: +23.6 to +26.4 : 0.05 °C (officially certified)
90-0100	Thermometer ASTM 44C / IP 29C Range: -80 to +20 : 1 °C Length: 305 mm, Immersion: total, Ø 7 mm
90-0250	Thermometer ASTM 44C / IP 29C Range: +18.6 to +21.4 : 0.05 °C (officially certified)
90-0215	Thermometer ASTM 128C / IP 33C Range: -1.4 to +1.4 : 0.05 °C Length: 305 mm, Immersion: total, Ø 7 mm
90-1215	Thermometer ASTM 128C / IP 33C Range: -1.4 to +1.4 : 0.05 °C (officially certified)
90-0284	Thermometer ASTM 72C / IP 67C Range: -19.4 to -16.6 : 0.05 °C Length: 305 mm, Immersion: total, Ø 7 mm
90-1284	Thermometer ASTM 72C / IP 67C Range: -19.4 to -16.6 : 0.05 °C (officially certified)
90-0214	Thermometer ASTM 127C / IP 99C Range: -21.4 to -18.6 : 0.05 °C Length: 305 mm, Immersion: total, Ø 7 mm
90-1214	Thermometer ASTM 127C / IP 99C Range: -21.4 to -18.6 : 0.05 °C (officially certified)
90-0212	Thermometer ASTM 126C / IP 71C Range: -27.4 ... -24.6 : 0.05 °C Length: 305 mm, Immersion: total, Ø 7 mm
90-1212	Thermometer ASTM 126C / IP 71C Range: -27.4 to -24.6 : 0.05 °C (officially certified)
90-0173	Thermometer ASTM 73C / IP 68C Range: -41.4 to -38.6 : 0.05 °C Length: 305 mm, Immersion: total, Ø 7 mm
90-0252	Thermometer ASTM 73C / IP 68C Range: -41.4 to -38.6 : 0.05 °C (officially certified)
90-0285	Thermometer ASTM 74C / IP 69C Range: -55.6 to -53.9 : 0.05 °C Length: 305 mm, Immersion: total, Ø 7 mm
90-1285	Thermometer ASTM 74C / IP 69C Range: -55.6 to -53.9 : 0.05 °C (officially certified)
22-0157	Thermometer DIN 12 771 (High-Precision) Range: +18 to +24 : 0.01 °C (officially certified)
22-0158	Thermometer DIN 12 771 (High-Precision) Range: +18 to +24 : 0.01 °C
22-0159	Thermometer DIN 12 771 (High-Precision) Range: +36 to +42 : 0.01 °C (officially certified)
22-0160	Thermometer DIN 12 771 (High-Precision)

Range: +36 to +42 : 0.01 °C

22-0161 **Thermometer DIN 12 771 (High-Precision)**
 Range: +50 to +60 : 0.01 °C (officially certified)

22-0162 **Thermometer DIN 12 771 (High-Precision)**
 Range: +50 to +60 : 0.01 °C

22-0163 **Protective Sleeve for thermometers (High-Precision)**

Order Guideline

Minimum equipment: 1x 20-0150, 1x 20-0154
 Spares (approx. 1 year): Bath Fluid, Thermometer
 Additional requirements: