

FPT 70 – Automatic Freezing Point Tester FPT 20/SP – Automatic Solidification Point Tester

ASTM D 852 / D 1015 / D 1177 / D 1493 / D 6875

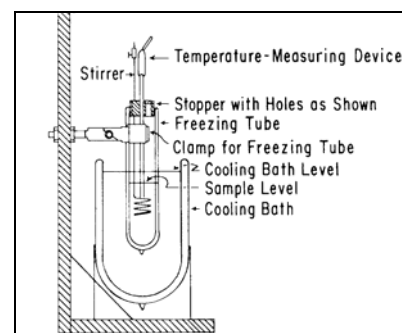


The Tester *FPT 70* and *FPT 20/SP* has been developed for the automated determination of the freezing point of aqueous engine coolant solutions, windscreen antifreeze liquids and de-icing fluids and the solidification point of Industrial Organic Chemicals

The method to measure the freezing point or the solidification point, involves the determination of the time-temperature curve prior to freezing (cooling) and the determination of the horizontal or flattened portion of the freezing curve.

The freezing point of coolant solutions is of greatest significance in order to protect water cooled engines from freeze damages.

Also of great significance is the freezing point of antifreeze liquids for de-icing for aircraft wings.



Schematic freezing point tester

The solidification point of Industrial Organic Chemicals will be used for process control during the manufacture of organic chemicals, for setting specifications, for development and research work and to determine if contamination was introduced during shipment.

The Testers enables operators the objective and automatic measurement of the freezing and solidification point in an easy and comfortable way.

Due to the automatic detection of the horizontal or flattened portion of the temperature cooling curve, the measurement will be performed with high accuracy and high repeatability.

The operating of the FPT 70 and the FPT 20/SP testers will be done with the installed 12.1" TFT Industrial Touch Screen PLC



Touch Screen PLC

The test procedure, the parameter settings, the measurement and the automatic data acquisition will be performed with the Freezing-Point Software.

The measured values and the actual freezing curve will be shown at the display of the Touch Screen.



Display actual measurement

After the test a screen shot of the actual display and the measured values of the freezing curve will be automatically stored on the external USB data storage. Later the stored data can be evaluated with a standard tabulation program (e.g. Excel®).

The Freezing Point Tester FPT 70 is equipped with a powerful Ultra-low cooling thermostat that enables the operator to conduct measurements up to -70°C.



FPT/70 Cooling Thermostat

Different to the FPT 70 Tester, the refrigerated Thermostat of the Solidification Point Tester FPT 20/SP has a high temperature range up to 200°C.



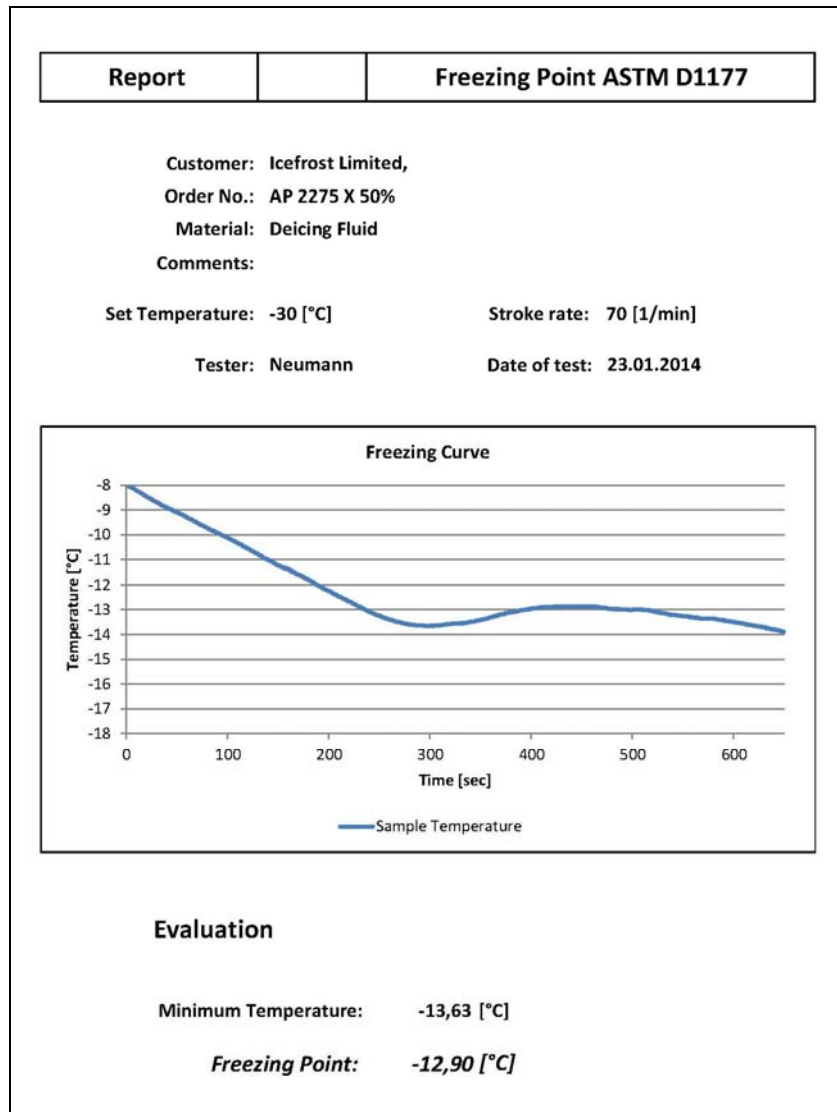
FPT 20/SP Cooling Thermostat

Due to the installed Microprocessor-Controller the cooling units can be used either as a standalone unit or Software controlled via the Freezing-Point Software.

The installed gear motor for the stroke movement is also Software controlled. The stroke rate is adjustable and can be set from the controller. During the measurement the motor will be automatically switched off after the temperature minimum has been detected.



Gear Motor Assembly with Linear Guiding



Exemplary Measurement Report

Technical data

Circulating Cooling Bath

	FPT 70	FPT 20/SP
Temperature range	-80 °C to Ambient	-30° to +200°C
Temperature display	Digital	Digital
Display accuracy	±0.1°C	±0.02°C
Temperature sensor	Pt 100	Pt 100
Cooling Power [°C / Watt]	0/450 -50/250 -80/125	20/500 0/320 -20/120
Compressor	Double stage, air cooled	Single stage, air cooled
Bath opening	240 x 170 mm	240 x 140 mm
Bath depth	160 mm	200 mm
Volume	app. 15 l	app. 16 l
Power supply	230 V ±10 % / 50 Hz	230 V ±10 % / 50 Hz
Power consumption	max. 2800 W	max. 2200 W
Dimensions W x D x H	460 x 810 x 770 mm	360 x 460 x 690 mm
Weightapp.	80 kg	44 kg
Order No.	01-200-104	01-200-105

Stirrer

Voltage supply	24 V via Controller
Stroke rate	60 to 80 min ⁻¹

Controller

Display	12.1" TFT Touch Screen
Temperature sensor	Pt 100
Temperature accuracy	±0.01°C
Power supply	230 V ±10 % / 50 Hz
Power consumption	max. 200 W
Dimensions W x D x H	400 x 340 x 320 mm