

Heating and Cooling Unit

TT-510 X

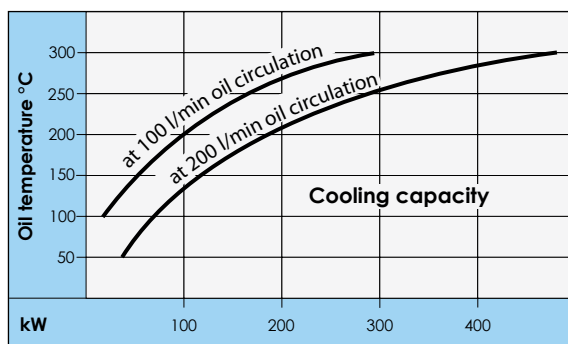
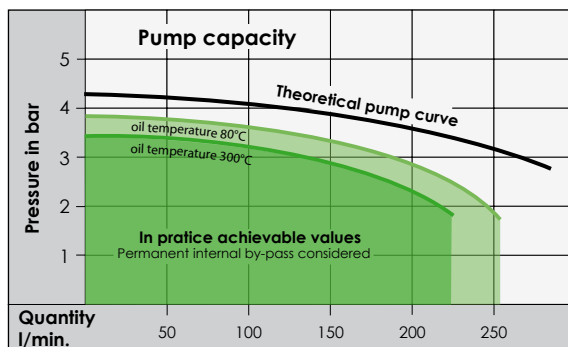
For temperatures from 80°C up to 300°C
Heating capacity 96 kW

Operational use:
rollers, plates, double walled vessels and other heavy duty use



Features included

- Self-optimizing temperature controller with digital display of the set and actual temperature. With high precision regulation in $1/10^\circ$ range; can be adjusted to read °C or °F.
- Automatic temperature control - difference between set and actual temperature activates an alarm.
- Digital flow indication with control of the minimum flow.
- Indication of the pump pressure.
- Lime scale free heat exchanger.
- Leak free high temperature pump with axial face seal.
- Hot oil circuit with by-pass, which ensures internal circulation if valves are closed.
- Large expansion tank with a drip pan.
- No oil cracking because of special construction of the heating elements.
- Heating with automatic cascade connection.
- Safety devices:
 - Level control for dry run protection.
 - Electronic temperature limiter in the controller and separate mechanical safety thermostat.
 - Main switch, transformer and motor protection switch.
 - Horn in case of failure.
- All failures are visually indicated.



Operating principle

Closed hot oil circuit with overlaying cold oil receiver in a large expansion tank. Long life expectancy of the oil with no cracking, due to low watt density heating elements and a high flow rate. A drip pan under the expansion tank prevents the unit from getting dirty if it is filled incorrectly. This model is designed for highest temperatures and optimum safety.



TOOL-TEMP

Technical data

Temperature range	up to 300°C with heat transfer oil TOOL-THERM SH-3
Temperature control	self-optimizing, electronic microprocessor controller MP-888 with digital display of the set and actual value. Automatic temperature monitoring.
Flow control	electronically, with digital display and automatic control of the minimum flow.
Heating capacity <i>Switchable in stages</i>	96 kW 16/16/16/16/16/16 automatic shut down of the heating capacity which is not required.
Cooling capacity	max. 480 kW - see diagram
Cooling water consumption	110 l/min (minimum 40 l/min, but leads to strong reduction of cooling capacity)
Pump capacity <i>Pressure mode</i>	motor 4 kW max. 4 bar / max. 260 l/min
Expansion tank capacity	130 litres
Filling amount	125 litres
Expansion volume	75 litres
Connections <i>Oil circuit</i>	Flange connection DN 32 flange-outside Ø 140 mm, with 4 holes Ø 18 mm on a screw hole circle of 100 mm recommended sealing: 80 x 42 x 2 mm
<i>Cooling water circuit</i>	1½" BSP female thread (required water pressure 1.5 - 4 bar)
Dimensions (L×W×H)	2'150 × 1'300 × 1'950 mm
Weight	approx. 845 kg empty
Colour	silver grey RAL 7001

All possible voltages are available from 3 x 200 V to 3 x 600 V and 50/60 Hz. The units are available conform to UL/CSA specifications. For the USA market the units are equipped with NPT-thread connections and the controller is adjusted to indicate °F.

Electronic temperature controllers

The electronic controllers MP-888 and MP-988 can be operated to read °C or °F. The analog interfaces 0-5 V, 0-10 V and 4-20 mA are standard included in the controllers - **without additional costs**.

The self-optimizing feature on these controllers allows a very high regulating accuracy even at high temperatures and adheres to the set temperatures independently of the consumer size.

Flow control:

The indication of the flow rate is possible in litres or gallons per minute. As soon as the flow falls below a minimum, the alarm is activated.

Standard controller MP-888



Set temperature
(required temperature)

Actual temperature
(effective temperature)

Indication of the flow

Analog interfaces

- 0 - 5 V, 0 - 10 V, 4 - 20 mA

Digital interface controller MP-988 (Optional)



Digital interface

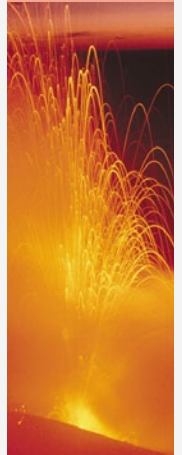
- RS-485, RS-232, Current Loop 20 mA, CAN-bus, Profibus
- Incl. all existing machine protocols

Temperature difference monitoring

Indication of up to three temperatures

Analog interfaces

- 0 - 5 V, 0 - 10 V, 4 - 20 mA



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