



Piovan

Customers. The core of our innovation

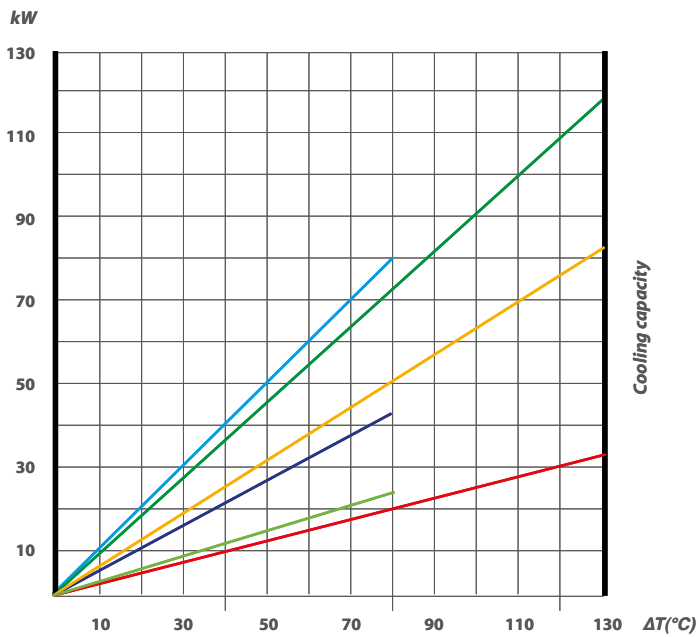
Feeding&Conveying
Drying
Dosing
Temperature Control
Refrigeration
Granulation

Temperature Control Technologies: Water and pressurized models

Water or pressurized water models are particularly suitable for processes requiring water as medium, for temperatures up to 90°C (water) or 160°C (pressurized).



Cooling capacity variation on ΔT with Piovan water and pressurized water units.



(a) ΔT (°C) = temperature difference between process and cooling fluids.
Cooling water capacity: 15 l/min

All Piovan temperature controllers (water, pressurized or oil units) are equipped with **high efficiency heat exchangers** which carry out an indirect thermal exchange with no heat losses in the ambient. The closed circuit between the temperature control unit and the utility always makes the same circuit circulating, thus avoiding deposits and possible reductions of the flow rate.

The range also includes **pressurised water models with direct cooling**, complying with high cooling requirements. In particular, these units are designed for processes with low working temperatures. To ensure a **higher cooling capacity**, the Piovan temperature controllers can be equipped with **wide surface plate exchangers**.

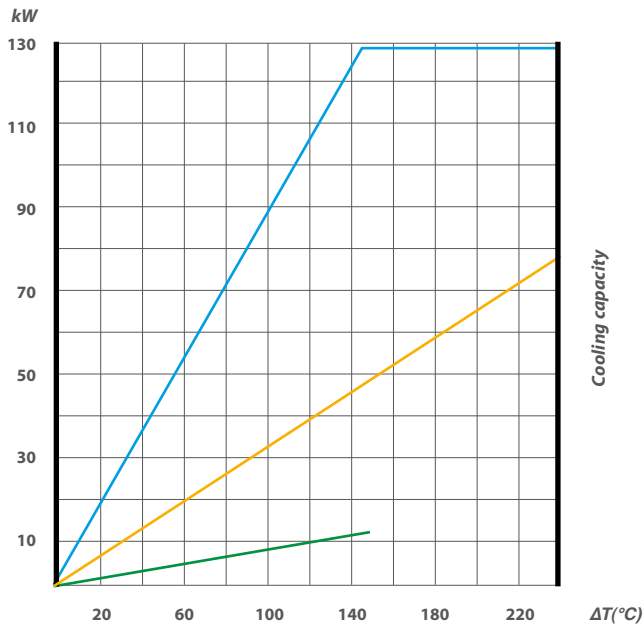


Temperature Control Technologies: Oil models



Specifically developed to work in extreme conditions, for processes requiring very high working temperatures. Piovan oil temperature controllers, suitable also for extrusion processes, can reach 250°C.

Cooling capacity variation on ΔT with Piovan oil units.



(a) ΔT (°C) = temperature difference between process and cooling fluids.

Cooling water capacity: 15 l/min

Benefits of Piovan Temperature controllers (Water, pressurized or oil units)

- **High and constant productivity:** the precise control system keeps the temperature within $\pm 0.4^\circ\text{C}$ fluctuation.
- **Reduced energy consumption:** working temperatures close to the set with no waste both during heating and cooling phase.
- **Constant, repeatable and high quality finished products:** precise thermal conditioning.
- **Reduced maintenance:** the Solid State Relays (SSR) assures continuous functioning with no need of periodic replacement.

- Pumps

The circulation of the fluid is carried with **peripheral pumps (1)**, which ensure high pressure also in the case of piping with reduced diameter. They can work in **reverse functioning:** the mould can work continuously with fluid under positive or negative pressure with the aim to complete the cycle also in the event of micro-leakage.

Some units are equipped with **immersion peripheral pumps (2)**, which reduce maintenance operations and avoid the necessity of replacing the pump's sealing. In the highest temperature versions, the oil temperature controllers are equipped with **magnetic-driven pumps (3)** not requiring maintenance and suited to work in

extreme conditions. For those system solutions requiring very high flow rate with minimal pressure drop, **centrifugal pumps** are also available.



(1)



(2)



(3)

Temperature Control Technologies: Multi-function control



Piovan temperature controllers are equipped with a microprocessor control with algorithm PID (Proportional, Integrative, Derivative) which automatically calculates the optimal working parameters at any moment.

The control can be equipped with serial port to interface the unit with a processing machine or with a supervisory system; it allows management of the temperature of more than one temperature controllers with a single serial cable connected with the control system of the IMM or of the extruder, or with a single control keyboard.

Main information displayed on the main page:

- functioning status;
- alarms;
- set temperature;
- real temperature of the process fluid and the flow.

Basic actions settable from the control:

- activate the rapid mould emptying device;
- set minimum flow level;
- select the heating capacity from the control board, hence minimizing the temperature fluctuations (**multi-power function**);
- choose, in a range of 10, the language of the messages.

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