

## High-pressure autoclave, low height, with pneumatic lifting device; table-top model, 100–1000 ml

Our «pinto» high-pressure autoclave combines the technology and know-how from the professional hpm-p model, but it features a fundamentally different frame. A 4-edge tubular frame, made of chromium-plated steel, has been designed to offer maximum floor clearance for the discharge valve or the collecting vessel. Connections for gas or cooling water are fitted on the chassis to enable direct access.

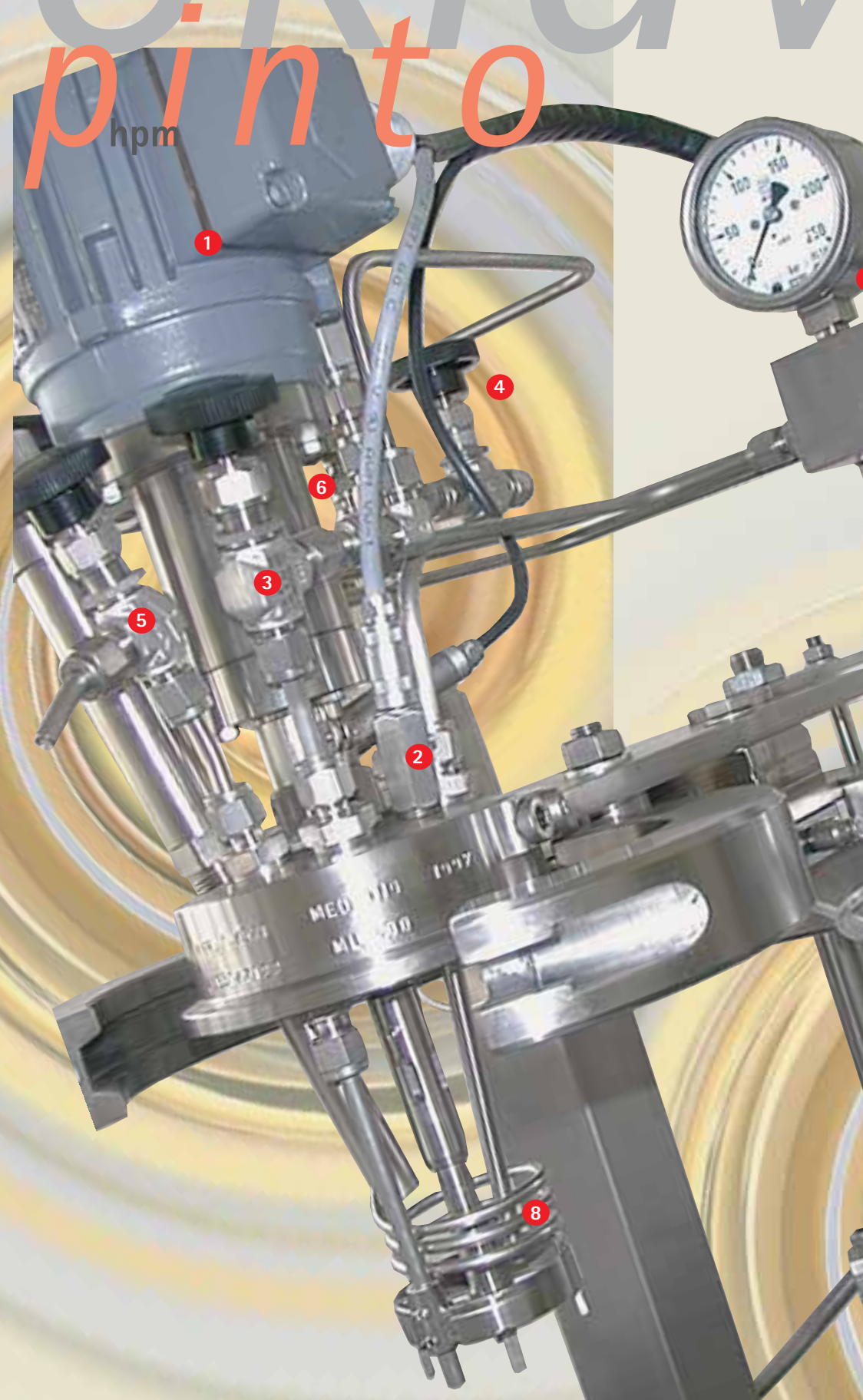
Of course, this model also benefits from our lengthy experience with the pneumatic lifting device. A cylinder raises and lowers the reactor vessel towards the cover. The advantage of this design is that fixed pipework can be installed for the fittings on the reactor cover.

Although the reactor cover and its fittings occupy a fixed position on the frame, the reaction vessel can be removed from the heating/cooling unit. Customers will find that the possibilities for add-on components are virtually limitless. Possible options include a pH sensor, an IR sensor, a level sensor for continuous reactions and a rotating catalyst cage.

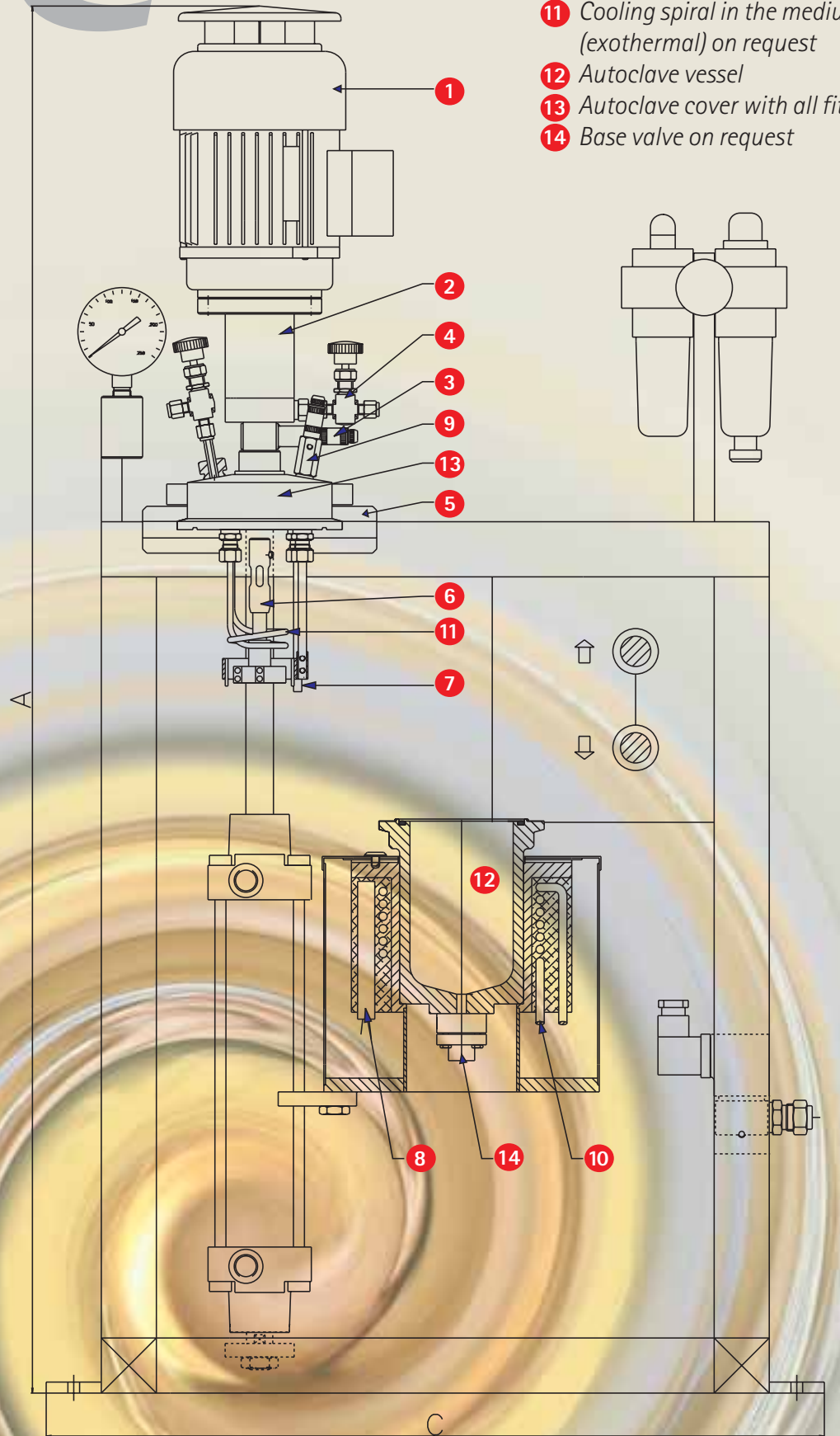
The tubular frame structure is ideal to accommodate the popular jaw lock (fast closure system) for pressures up to 200 bar. For pressure stages in excess of this level, high tensile bolts and nuts are used.

### Bore holes on the reactor cover

- 1 Magnetic stirrer drive
- 2 Submerged tube with temperature sensor, type Pt100, type K or type N for measuring temperatures in the medium (there are 2 more sensors in the heating / cooling shell to control and monitor the heating).
- 3 Gas supply valve
- 4 Pressure release valve
- 5 Valve with submerged tube as far as the reactor base, for sampling
- 6 Product supply valve
- 7 Manometer (pressure gauge) and pressure transducer
- 8 Cooling spiral in the medium, to counter exothermal reactions (on request)



- 1 Electrical motor
- 2 Magnetic coupling
- 3 Speed reading point
- 4 Gas supply on magnetic stirrer drive
- 5 high tensile bolts and nuts or jaw lock (fast closure system)
- 6 Stirrer
- 7 Submerged tube (sampling)
- 8 Electrical heating elements in heating shell or double shell design
- 9 Temperature sensor in the medium
- 10 Cooling spiral cast into the aluminium block, for electrical heating
- 11 Cooling spiral in the medium (exothermal) on request
- 12 Autoclave vessel
- 13 Autoclave cover with all fittings
- 14 Base valve on request



### External dimensions

Reactor frame with pneumatic system, floor standing model

A = height 950 mm  
B = depth 450 mm  
C = width 560 mm

### Basic information

Nominal volume 100 ml, 250 ml, 380 ml, 500 ml, 1000 ml  
Excess operating pressure 100 bar, 200 bar, 325 bar  
Operating temperature up to 300°C max.  
Speed up to 3'000 rpm max.  
Material Mat. no. 1.4435 (AISI 316L)  
Mat. no. 1.4571 (AISI 316Ti)  
Mat. no. 1.4980 (AISI 660)  
Hastelloy C276, C22, B3  
Titanium Gr. 2

### Flange lock

Using high tensile bolts (CrMoV57) and nuts (CrMo5), up to 325 bar, or yaw lock up to 200 bar.

### Sealing

O-rings of various materials, conical metal-to-metal seal, or pure silver flat seal.

### Heating

Electrical heating elements, 1'200-3000 Watt thermal output, inserted in copper / aluminium block, or double shell for heat transfer oil.

### Cooling

Cooling spiral cast into aluminium block, or double shell cooling.

### Temperature sensors

One Pt100 temperature sensor, type K or type N in the submerged tube, to measure the medium temperature; and two more sensors in the heating / cooling shell.

### Drive

Electrical motor with nominal power of 120 Watt, 3x240/400 V, 4-pole, 1'400 rpm, controlled with a frequency converter. The speed is adjusted with a potentiometer, from 200-3'000 rpm (maximum limit).

### Magnetic stirrer design

The magnetic stirrer drive features a streamlined design and it is available in torques from 1 Nm-7 Nm.

### Bearings

The driven shaft is mounted on ball bearings made of stainless steel or sliding bearings made of PTFE/carbon.

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