

HIGH-PRESSURE SYRINGE PUMP

APPLICATIONS:

TOP INDUSTRIE high-pressure syringe pumps are particularly precise. They can operate at constant flow rates, from 0.03 mm³/mn to 60 cm³/mn, at constant pressure or given volume. Pressures can reach up to 7000 bar.

TOP INDUSTRIE syringe pumps are widely used in the fields of catalysis, rock mechanics and supercritical fluids. They are controlled by a touch-screen PLC or, on request, by a LabVIEW system with data acquisition. They are also unique in their ability to deliver constant, pulsation-free flow rates over large volumes.

CHARACTERISTICS:

Pilot pressure generator
 Operating volume: from 3 cm³ to 200 cm³ (ml)
 Operating pressure: vacuum to 7000 bar
 Flow rate: 0.03 mm³ to 60 cm³/mn
 Media: liquid, oil, water, corrosive media, supercritical CO₂, H₂S, various gases
 System includes Brushless servomotor (extreme precision)
 Motor power: 330 W / 230 V
 Speed: 1 to 4000 rpm . Reduction 216/1
 Materials in contact with fluid: Stainless steel, Hastelloy, Inconel ...
 Limit switch contacts
 External fast connection, RS 232 / 485, profibus...
 Limit switch display

OPTIONS:

Temperature measurement
 Double jacket for heating/cooling
 Continuous injection by coupling two pumps

CONTROL AND ACQUISITION:

Pressure, flow or displacement control
 Management of pressure and limit switches
 Data acquisition
 Measurement parameter management

MEDIUM PRESSURE:



MODELE	PHMP 200-200	PHMP 100-500	PHMP 50-500	PHMP 35-1000	PHMP 50-1000
PRESSION bar	200	500	500	1000	1000
Ø PISTON mm	46	34	24	20	24
COURSE mm	120	120	120	120	120
CYLINDREE ml	200	100	50	35	50
DEBIT MINI ml/mn	0,0015	0,00082	0,00041	0,00028	0,00041
DEBIT MAXI ml/mn	61.4	33.5	16.7	11.6	16.7
PRECISION DEBIT	+/- 0.05%FS	+/- 0.05%FS	+/- 0.05%FS	+/- 0.05%FS	+/- 0.05%FS
PRECISION PRESSION	+/- 0.1%FS	+/- 0.1%FS	+/- 0.1%FS	+/- 0.1%FS	+/- 0.1%FS

HIGH PRESSURE:

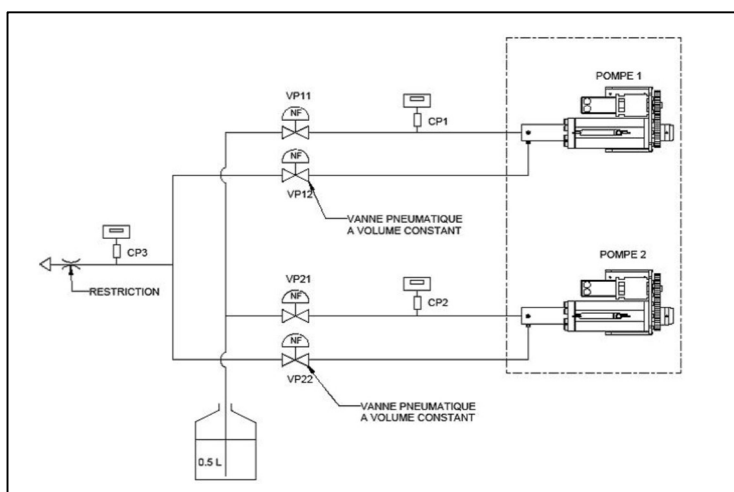
MODELE	PMHP 24-2000	PMHP 13-3000	PMHP 06-4000	PMHP 03-7000
PRESSION bar	2000	3000	4000	7000
Ø PISTON mm	16	12	8	6
COURSE mm	120	120	120	120
CYLINDREE ml	24	13	6	3
DEBIT MINI ml/mn	0,00018	0,00010	0,00007	0,00003
DEBIT MAXI ml/mn	7,4	4,8	2,9	1,4
PRECISION DEBIT	+/- 0.05%FS	+/- 0.05%FS	+/- 0.05%FS	+/- 0.05%FS
PRECISION PRESSION	+/- 0.25%FS	+/- 0.25%FS	+/- 0.25%FS	+/- 0.25%FS

HIGH VOLUMES:

MODELE	PMHP H900-400	PMHP H600-600	PMHP H350-1000	PMHP H250-1500
PRESSION bar	400	600	1000	1500
Ø PISTON mm	80	64	50	42
COURSE mm	185	185	185	185
CYLINDREE ml	900	600	350	250
DEBIT MINI ml/mn	0,005	0,0032	0,002	0,0014
DEBIT MAXI ml/mn	200	125	78	55
PRECISION DEBIT	+/- 0.05%FS	+/- 0.05%FS	+/- 0.05%FS	+/- 0.05%FS
PRECISION PRESSION	+/- 0.25%FS	+/- 0.25%FS	+/- 0.25%FS	+/- 0.25%FS

CONTINUOUS INJECTION:

PHMP pumps enable continuous, pulsation-free injection, thanks to a dual-pump system and constant-volume valves. Injection is transferred progressively and automatically from one pump to the other to maintain a constant flow rate.



The equipment defined in this documentation is subject to change without notice in the light of technical progress in our manufacturing processes.

Technical Requirements for Autoclave Applications

1. VESSEL BODY

- a) Working pressure?
- b) Working temperature?
- c) Volume of reactor to fill?
- d) List of all fluids that will be used in the Pump and viscosity of each.
- e) Do you have any suggestion as to what material should be used for the construction?

2. ADDITIONAL EQUIPMENT:

- f) Pressure sensor?
- g) Number and inlet/outlet ports?
- h) Heating or cooling system?
- i) Sampling line with internal tube with manual valve or automatic valve?
- j) Do you need to make injection under pressure?
- k) Where will vent valve effluent be directed (overpressure venting)?
- l) Outlet tube with manual or automatic valve?
- m) Sampling system desired?
 - 1) Two manual valves?
 - 2) Two pneumatics valves?
 - 3) Full sampling system?
 - 4) Micro Rolsi (see www.topindustrie.fr for details)?
- n) Magnetic stirrer?
- o) Should the vessel be enclosed in an oven to control the heating?
- p) Data to be displayed?
 - 1) Analog output?
 - 2) Recorded on USB key?
 - 3) Full computer control?
- q) Should there be a framework to support the reactor and components?

3. OPTIONS:

1. pressure regulator or back pressure regulator (could be automatic)
2. Pressure control valve
3. Flow indicator
4. Flow control
5. Filter
6. Additional pressure safety element
7. Drain (manual or automatic)
8. Pressure indicator
9. Pressure transmitter
10. Check valve
11. Complete automatic system
12. Electrical pump or pneumatic pump
13. Syringe pump for liquid injection and pressurization
14. HP Flow Pump
15. Remote control
16. ATEX (Ex) components
17. Safety assessment
18. Optical windows (could be equipped with camera and visual acquisition)
19. Any specific needs can be added