

## Ismatec® Piston Pumps



### No valves to clog or wear out

- Get high pressure, accurate dispensing, and great repeatability—all with one pump
- Only one moving part—the piston
- Remotely control speed, start/stop flow, or change fluid direction
- Differential pressure up to 6.9 bar (100 psi)
- Applications include dispensing of organic solvents, acids/bases, and highly corrosive acids including HF
- Reglo-CPF drives are compatible with the full range of RH pump heads for flow rates up to 180 mL/min
- MCP-CPF Process drive is the ideal choice for higher overall flow rates to 2300 mL/min in a washdown environment; compatible with the full range of RH and Q series of pump heads
- Wide selection of pump heads handles most of your application needs

Drive + Pump Head + Tubing =  
**Complete Pump System**



### Reglo-CPF Analog Drive

- Two-digit potentiometer provides a 100:1 turndown
- Four analog signal plus relay contact permit remote control from a variety of instruments
- Use only with RH-series (standard and low flow) pump heads

### Reglo-CPF Digital Drive

- Program pump for dispensing fluids by flow rate, volume, time, or number of dispensing cycles
- Drip-free dispensing—program pump to draw back fluid
- RS-232 interface allows control via a PC
- Use only with RH-series (standard and low flow) pump heads



### MCP-CPF Process Drive

- IP65 rated, stainless steel housing—ideal for pumping in dusty, humid, or corrosive environment and in cleanroom areas
- Dispense by time, volume, flow rate, batches with variable pause time, stored programs, roller backsteps, or number of dispensing cycles
- Use the RS-232 interface to automate your lab or operate independently via the keypad
- Digital display shows speed, flow rate, dispensing volume, dispensing time, and pause time
- Store and recall up to four programs
- Use with RH- and Q-series pump heads

## Drives

Model	Reglo CPF Analog		Reglo CPF Digital		MCP-CPF Process	
	115 VAC, 60 Hz	230 VAC, 50 Hz	115 VAC, 60 Hz	230 VAC, 50 Hz	115 VAC, 60 Hz	230 VAC, 50 Hz
Power	115 VAC, 60 Hz	230 VAC, 50 Hz	115 VAC, 60 Hz	230 VAC, 50 Hz	115 VAC, 60 Hz	230 VAC, 50 Hz
Catalog number	ISM1014-115	ISM1014-230	ISM321-115	ISM321-230	ISM919-115	ISM919-230
Programmable	No		Yes		Yes	
Speed	18 to 1800 rpm (indicated as 1 to 99%)		40 to 1800 rpm		10.0 to 1800 rpm	
Resolution	1% via 2-step potentiometer		0.1 rpm		0.1 rpm	
Flow rate settings	—		µL/min, mL/min		µL/min, mL/min, L/min	
Remote control capabilities	Speed control: 0 to 5 VDC, 0 to 10 VDC, 0 to 20 mA, 4 to 20 mA Speed output: 0 to 9 kHz Start/stop, rotation direction		RS-232 Speed control: 0 to 5 VDC, 0 to 10 VDC, 0 to 20 mA, 4 to 20 mA Speed output: 0 to 9 kHz Start/stop, autostart, rotation direction		RS-232 (1 in, 1 out), 1 analog Speed control: 0 to 5 VDC, 0 to 10 VDC, 0 to 20 mA, 4 to 20 mA Speed output: 0 to 10 VDC or 0 to 12 kHz Start/stop, autostart, rotation direction	
Protection rating	IP30		IP30		IP65	
Motor type	DC motor		DC motor		DC motor	
Power consumption	50 W		140 W		100 W	
Size*	178 x 100 x 135 mm		178 x 100 x 135 mm		220 x 155 x 260 mm	
Weight*	2.5 kg		2.1 kg		6.9 kg	

\*without pump head

## RH-Series Piston Pump Heads

- Small displacement provides excellent precision
- Fully adjustable from zero to maximum



FMI015

## Flow Ranges (mL/min)

Drive	Pump head types		
	RH00	RH0	RH1
Reglo-CPF Analog	0.045 to 45	0.09 to 90	0.18 to 180
Reglo-CPF Digital	0.1 to 45	0.2 to 90	0.4 to 180
MCP-CPF Process	0.025 to 45	0.050 to 90	0.1 to 180

## RH00, RH0, and RH1 Pump Heads

Type	RH00		RH0		RH1		
	FMI009*	FMI010*	FMI013*	FMI005	FMI015*	FMI007	FMI008
Stroke volume	2.5 to 25 $\mu$ L	2.5 to 25 $\mu$ L	5 to 50 $\mu$ L	5 to 50 $\mu$ L	10 to 100 $\mu$ L	10 to 100 $\mu$ L	10 to 100 $\mu$ L
Piston	Ceramic	316 stainless steel	Ceramic	Ceramic	Ceramic	Ceramic	Ceramic
Cylinder case	PVDF	PVDF	PVDF	PVDF	PVDF	PVDF	ETFE
Cylinder liner	Ceramic	Carbon	Ceramic	Ceramic	Ceramic	Ceramic	Ceramic
Lip seals	Rulon® AR	Rulon J	Rulon AR	Rulon AR	Rulon AR	Rulon AR	Rulon AR
Gland washers	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE
Max temperature	212°F (100°C)	140°F (60°C)	212°F (100°C)	212°F (100°C)	212°F (100°C)	212°F (100°C)	212°F (100°C)
Max differential pressure	6.9 bar (100 psi)	6.9 bar (100 psi)	6.9 bar (100 psi)	6.9 bar (100 psi)	6.9 bar (100 psi)	6.9 bar (100 psi)	6.9 bar (100 psi)
Flow ports	¼" NPT(F)†	¼" NPT(F)†	¼" NPT(F)†	Two compression fittings for 6 to 6.4 mm OD tubing	¼" NPT(F)†	Two compression fittings for 6 to 6.4 mm OD tubing	Two compression fittings for 6 to 6.4 mm OD tubing

\*For low flow rates, ¼-28 (female) adapters are recommended. †Tubing adapters are sold below.

## Tubing Adapters

Model	Description	Catalog number
R412-0K	PVDF barbed adapter for tubing with 3.2 mm ID	FMI050
R412-1K	PVDF barbed adapter for tubing with 6.4 mm ID	FMI051
R412-2K	PVDF barbed adapter for tubing with 9.5 mm ID	FMI052
R412-5K	PVDF adapter for tubing with ¼-28 (female) fittings	FMI053‡
H476K	PVDF compression adapter for tubing with 3.2 mm OD	FMI054

‡Recommended for low-flow pump heads or order kit below.

**FMI056 Low-flow kit** contains two ¼-28 (female) fittings or order kit below. Use with tubing with 3.2 mm OD or less

## Tubing Ordering Information

Description	Length	Catalog number
PTFE tubing coil, 4 mm ID x 6 mm OD	7.5 m	MF0336
Lab tubing coil, 3.2 mm ID	15 m	SC0374T
Lab tubing coil, 6.4 mm ID	15 m	SC0375T
Lab tubing coil, 9.5 mm ID	15 m	SC0383T
Tubing assembly with PTFE tubing, 1.6 mm ID x 3.2 mm OD, and two UNF ¼-28 (male) fittings	0.25 m	IC0053
	0.50 m	IC0057
	0.75 m	IC0061
	1.00 m	IC0065

## Accessories for Drives

### For Reglo-CPF Drives

**ISM891 Foot switch** for Reglo-CPF Analog drive. On/off control, 6-ft (1.8 m) cable  
**ISM894 Foot switch** for Reglo-CPF Digital drive. On/off control, 6-ft (1.8 m) cable

### For MCP-CPF Process Drive

**IS10039 Foot switch** for start/stop operation, 6-ft (1.8 m) cable  
**SOF103 Labworldsoft® software**, requires Windows® 3.1 or higher, Windows 95  
**IM0015 Interface card** for controlling up to eight instruments, ISA  
**IM0030 Interface card** for controlling up to eight instruments, PCI  
**XC0009 Adapter** for IM0015, 25-pin (female) to 9-pin (male)  
**AG0013 Extension cable** for XC0009, 9-pin (female) to 9-pin (male)

## Q-Series Piston Pump Heads

- Larger capacity pump heads designed for use with MCP-CPF Process drive

### Q0 and Q3 Pump Heads

Type	Q0	Q3
Catalog number	FMI202	FMI217
Stroke volume	3.2 to 80 µL	51.2 to 1280 µL
Flow rate	0.04 to 144 mL/min	0.51 to 2300 mL/min
Piston	316 stainless steel (SS)	Ceramic
Cylinder case	316 SS	PVDF
Cylinder liner	Carbon	Ceramic
Lip seals	Rulon® J	Rulon AR
Gland washers	PTFE	PTFE
Cylinder head seal	PTFE	None
Max temperature	212°F (100°C)	212°F (100°C)
Max differential pressure	6.9 bar (100 psi)	1.7 bar (to 1600 rpm), 0.5 bar (from 1600 rpm)
Flow ports	¼" NPT(F)†	¼" NPT(F)†

†Tubing adapters are sold below.



FMI363

### Q1 Pump Heads

- Stroke volume: 12.8 to 320 µL
- Flow rate: 0.04 to 144 mL/min

Catalog number	FMI205	FMI359	FMI365*	FMI352	FMI356	FMI358	FMI361	FMI363
Piston	Ceramic	Ceramic	Ceramic	Ceramic	Ceramic	Ceramic	316 SS	316 SS
Cylinder case	316 stainless steel (SS)	316 SS	316 SS	PVDF	PVDF	PVDF	PVDF	316 SS
Cylinder liner	Ceramic	Carbon	316 SS	Ceramic	Ceramic	Carbon	Carbon	Carbon
Lip seals	Rulon® AR	Rulon AR	PTFE	Rulon AR	Rulon AR	Rulon AR	Rulon J	Rulon J
Gland washers	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE
Cylinder head seal	PTFE	PTFE	PTFE	None	None	None	None	PTFE
Max temperature	350°F (177°C)	350°F (177°C)	350°F (177°C)	212°F (100°C)	212°F (100°C)	212°F (100°C)	140°F (60°C)	140°F (60°C)
Max differential pressure	6.9 bar (100 psi)	6.9 bar (100 psi)	6.9 bar (100 psi)	4.1 bar (60 psi)	6.9 bar (100 psi)			
Flow ports	¼" NPT(F)†	¼" NPT(F)†	¼" NPT(F)†	¼" NPT(F)†	¼" NPT(F)†	¼" NPT(F)†	¼" NPT(F)†	¼" NPT(F)†

\*Designed for sanitary applications. †Tubing adapters are sold below.

### Q2 Pump Heads

- Stroke volume: 28.8 to 720 µL
- Flow rate: 0.29 to 1300 mL/min

Catalog number	FMI212	FMI360	FMI366*	FMI355	FMI357	FMI358	FMI362	FMI364
Piston	Ceramic	Ceramic	Ceramic	Ceramic	Ceramic	Ceramic	316 SS	316 SS
Cylinder case	316 stainless steel (SS)	316 SS	316 SS	PVDF	PVDF	PVDF	PVDF	316 SS
Cylinder liner	Ceramic	Carbon	316 SS	Ceramic	Ceramic	Carbon	Carbon	Carbon
Lip seals	Rulon® AR	Rulon AR	PTFE	Rulon AR	Rulon AR	Rulon AR	Rulon J	Rulon J
Gland washers	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE
Cylinder head seal	PTFE	PTFE	PTFE	None	None	None	None	PTFE
Max temperature	350°F (177°C)	350°F (177°C)	350°F (177°C)	212°F (100°C)	212°F (100°C)	212°F (100°C)	140°F (60°C)	140°F (60°C)
Max differential pressure	6.9 bar (100 psi)	6.9 bar (100 psi)	6.9 bar (100 psi)	4.1 bar (60 psi)	6.9 bar (100 psi)			
Flow ports	¼" NPT(F)†	¼" NPT(F)†	¼" NPT(F)†	¼" NPT(F)†	¼" NPT(F)†	¼" NPT(F)†	¼" NPT(F)†	¼" NPT(F)†

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H476K	PVDF compression adapter for tubing with 3.2 mm OD	FMI054

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	0.50 m	IC0057
	0.75 m	IC0061
	1.00 m	IC0065