LABORATORY PUMPS

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Return of Materials

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Direct from our Global Distribution Network

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Return of Materials

Product purchased through a Distributor must be returned directly to that Distributor. Please contact them for Return Material Authorization procedures.

The products in this catalog are intended for use with analytical, biotechnology and diagnostic equipment and accessories. THE MANUFACTURERS OF THE PRODUCTS IN THIS CATALOG SHALL HAVE NO LIABILITY WHATSOEVER DUE TO ANY MISUSE OF THEIR PRODUCTS. Of course, the safe use of our products depends on our customers, since it is you who select and control the protective gear and safety procedures used, as well as the pressures, temperatures, solvents, samples, ventilation, and other variables. Product and material performance ratings are provided as guides only. Individual field tests should be performed by customers to determine safe operating parameters given your particular procedures and use.

IDEX Health & Science facilities are certified ISO 9001. Some facilities are also certified ISO 13485:2003.

Visit us online!

www.idex-hs.com

IDEX Health & Science's Ismatec® pump drives are available with three pump types — peristaltic, gear, and piston — to make a complete pumping system. The chart below will help you choose the right pump technology. Once you find the desired pumping technology, proceed to the section pages listed and choose the pump/drive combination best suited for your application.

SELECTION CRITERIA		PERISTALTIC PUMPS	GEAR PUMPS	ROTARY PISTON PUMPS
Pages		**92**	**110**	**116**
Flow Rate Min. to Max.		< 0.001 mL/min to 13 L/min	1 mL/min to 7 L/min	0.025 mL/min–2.3 L/min
Number of Channels		1–24	1	1
Differential Pressure		Max. 2.5 bar (36 psi)	Max. 5.6 bar (81 psi)	Max. 6.9 bar (100 psi)
Suction Lift (water)		7–8 m	< 1 m	~5 m
Dead Volume		Practically None	5–45 mL	Very Small
Chemical Resistance		Depends on Tubing Material	High	Very High
Accuracy and Repeatability		High	High [1]	Very High
Self-Priming		Yes	Possible [4]	Possible
Sensitive to Dry-Running		No	Yes	Yes
Syphoning Effect		No	Yes	No
Pumping	Gently = Low Shearing Forces	Yes	No	No
	Under Sterile Conditions	Yes	No	No
	In Both Directions	Yes	Yes [4]	Yes
	Pulse-Free	[2]	Yes	[2]
	Contamination-Free	Yes	No	No
Media	Containing Particles	Very Good	No	Max. 0.8 mm Ø
	Viscous	Very Good	Possible	Good
	Containing Living Cells	Very Good	No	No
	Foaming	Very Good	No	No
	Corrosive/Aggressive	[3]	Good	Very Good
	Gas	[3]	No	[4]

[1] Requires non-return valve.
[2] Pumping with low pulsation possible; depends on the pump head.
[3] Depends on the tubing material.
[4] Depends on the pump head.

Reglo ICC Independent-Channel Control Peristaltic Pump

- Continuous pumping or precision dispensing
- Flexibility of bi-directional flow in each channel
- Easy-to-use tubing cassettes allow quick changeovers
- Independent channel calibration minimizes the tube to tube differences resulting in the best calibration accuracy possible in a multichannel peristaltic pump
- New easy-to-use USB interface makes connections quickly
- Windows® software is included. Control up to eight Reglo ICC pumps. Time based routines allow for complex experiment development.

Expand the power of your peristaltic pumping application! By providing individually addressable control of each fluidic channel, the new Ismatec® Reglo ICC eliminates the clutter of multiple pumps on the bench top as well as allowing you, the scientist, to solve your application complexity in a single pump.

Long hailed in Europe as the gold standard of Swiss precision, Ismatec drives will now power up to four channels — flowing, dispensing, starting, stopping, reversing, aspirating, and calibrating — all working independently at the command of your PC or keypad. Plus the precision and accuracy of Ismatec's traditional peristaltic pumps for low-volume applications. For the first time, you'll be able to perform multiple precision fluidic tasks — at multiple flow rates — all from a single space-saving pump.

NEW!

ISM4408
Reglo ICC
4-Channel Pump

NEW!

ISM4308
Reglo ICC
3-Channel Pump

SPECIFICATIONS & DETAILS

Reglo ICC

Motor Type	Stepper Motor (1/channel)
Speed Range	0.1–100 rpm
Speed Setting	rpm (Resolution = 0.01 rpm)
Flow Rate Range	0.0002–35 mL/min/channel (tubing dependent)
Number of Channels	2-4
Number of Rollers	8 Ertalyte® rollers standard; 6 and 12-roller options also available
Cassettes	MS/CA Click'n'Go (POM-C; alternatives available)
Dimensions (HxWxD)	6.7" (170 mm) x 5" (125 mm) x 8.1" (205 mm)* (*=for 3-channel model)
Weight	6 lbs. (2.7 kg)
Power Consumption	30 W (Max.) Main Voltage: 100–264 V AC/50/60 Hz (Requires use of included power supply, cables)
Protection Rating	IP 30
Differential Pressure	1.0 bar/14.5 psi (Max.)

FLOW RATES & TUBING

Tubing ID (mm)	Flow Rate (mL/min per channel)	
	0.1 rpm	**100 rpm**
	Min.	**Max.**
0.13	0.0002	0.11
0.25	0.0005	0.41
0.51	0.0017	1.7
0.76	0.0036	3.6
1.02	0.0063	6.3
1.22	0.0088	8.8
1.52	0.013	13
1.85	0.017	17
2.54	0.027	27
3.17	0.035	35

Part No.	Description	Flow rates mL/min	Channels	Rollers	Speed rpm
REGLO ICC					
ISM4308	Reglo ICC	0.0002–35	3	8	100
ISM4408	Reglo ICC	0.0002–35	4	8	100

Peristaltic Pumps & Tubing

The pumps presented on pages 94–108 require peristaltic tubing to operate. Flow rate of a given fluid through a peristaltic tubing pump depends on two variables:

1. The speed of the pump, measured in revolutions per minute (rpm)

2. The volume held within the internal diameter (ID) of the selected tubing

Variable Speed Pump Flow Rates

For a variable speed pump, such as the products on pages 93–103, 112–115, and 117–118, the flow rate of a channel can be changed by varying the pump rpm, or by using tubing with different IDs, or a combination of both.

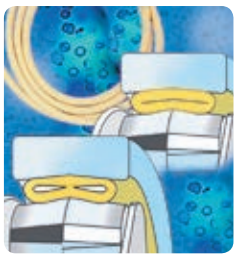
Fixed Speed Pump Flow Rates

Single-channel and multichannel peristaltic tubing pumps are available in this catalog. The number of channels refers to how many pieces of tubing that can be used simultaneously. Tubing with different IDs can be used in each channel to deliver varying flow rates at any given pump speed.

Convex Rollers and Concave Tube-Bed

- Treat the liquid gently (e.g. living cells)
- Improve the delivery stability
- Increase the repeatability
- Guarantee optimum tube centering

The tube is progressively closed, starting from the center outwards.



CELL SENSITIVE PUMPING

Pump heads with this sign are ideal for cell and media sensitive pumping.

RELATED PRODUCTS

Accessories	Page 109
Tubing	Pages 75–89

NOTE

All microprocessor controlled drives are LabVIEW™ compatible and can easily be integrated into process control systems. The LabVIEW drivers can be downloaded from the website: www.idex-hs.com/ismatec

PUMP SERIES		CHANNELS	FLOW RANGE	DRIVE OPTIONS	INTERFACE	PAGE
REGLO		1–4	0.001–230 mL/min	Variable	Digital = RS-232 only interface Analog = Analog only	**95**
FLOWMASTER®		Single channel only	37–13,000 mL/min	Variable	Analog	**98**
ECOLINE		1–8	0.005–5,400 mL/min	Variable	Analog	**99**
IP / IPC		4–24	0.001–44 mL/min	Variable	RS-232, Analog	**101**
BVP/MCP		1–24	0.001–3,700 mL/min	Variable	RS-232, Analog	**103**

Reglo Analog/Digital

The Smallest Dispensing Pump with Calibration Features

Reglo Analog
without dispensing functions
0.002–68 mL/min (per channel)
Variable speed drive

DISPENSING & CALIBRATING

Reglo Digital
with dispensing functions
0.001–68 mL/min (per channel)
Microprocessor controlled

SPECIFICATIONS & DETAILS

Reglo Analog

Motor Type	DC motor	
Speed	2-channel	3.2–160 rpm
	4-channel	2.0–100 rpm
Speed Setting	2–99%, resolution 1% 2-digit potentiometer	
Power Consumption	20 W	
Mains Connection	230 V AC/50 Hz,115 V AC/60 Hz, selectable	
Protection Rating	IP 30	
Depth/Width/Height	2-channel 178 x 100 x 143 mm 4-channel 190 x 100 x 143 mm	
Weight	2-channel 2.0 kg 4-channel 2.1 kg	

Reglo Digital

Motor Type	DC motor	
Speed	2-channel	1.6–160 rpm
	4-channel	1.0–100 rpm
Speed Setting	rpm, resolution 0.1 rpm	
Flow Rate Setting	µL/min or mL/min	
Power Consumption	75 W	
Mains Connection	100–230 V AC/50–60 Hz, selectable	
Protection Rating	IP 30	
Depth/Width/Height	2-channel 178 x 100 x 135 mm 4-channel 190 x 100 x 135 mm	
Weight	2-channel 2.0 kg 4-channel 2.1 kg	

Interfaces

RPM ANALOG

Reglo Analog

- Speed control (0–5 or 0–10 V, 0–20 or 4–20 mA)
- Speed output 2-channel: 0–8 kHz 4-channel: 0–5 kHz
- Start/Stop
- Rotation direction

Reglo Analog
2-digit potentiometer
2–99%, resolution 1% (for speed setting)

RS232

RPM ANALOG

Reglo Digital

- PC-controllable
- Digital is RS-232 only

Reglo Digital
6-button membrane key-pad, LED-display
Flow rate setting in µL/min and mL/min

FLOW RATES & TUBING

Model		Reglo Analog+Digital		Reglo Analog+Digital		Reglo Analog+Digital		Reglo Analog+Digital		Reglo Analog+Digital		Reglo Analog+Digital	
Channels		2		2		2		4		4		4	
Rollers		6		8		12		6		8		12	
Speed rpm		1.61	160	1.61	160	1.61	160	1.0[1]	100	1.0[1]	100	1.0[1]	100
Tygon® ST R-3603/R-3607 Part No.	Tubing ID mm	mL/min per channel		mL/min per channel		mL/min per channel		mL/min per channel		mL/min per channel		mL/min per channel	
		min.[1]	max.[2]	min.[1]	max.[2]	min.[1]	max.[2]	min.[1]	max.[2]	min.[1]	max.[2]	min.[1]	max.[2]
SC0189	0.13	0.003	0.22	0.002	0.17	0.002	0.15	0.002	0.14	0.002	0.11	0.001	0.093
SC0050	0.25	0.008	0.76	0.007	0.65	0.007	0.61	0.005	0.48	0.005	0.41	0.004	0.38
SC0053	0.51	0.031	3.1	0.027	2.7	0.025	2.5	0.019	1.9	0.017	1.7	0.016	1.6
SC0056	0.76	0.067	6.7	0.058	5.8	0.053	5.3	0.042	4.2	0.036	3.6	0.033	3.3
SC0059	1.02	0.12	12	0.10	10	0.090	9.0	0.073	7.3	0.063	6.3	0.056	5.6
SC0062	1.22	0.16	16	0.14	14	0.12	12	0.10	10	0.088	8.8	0.075	7.5
SC0065	1.52	0.24	24	0.20	20	0.17	17	0.15	15	0.13	13	0.10	10
SC0068	1.85	0.34	34	0.28	28	0.21	21	0.21	21	0.17	17	0.13	13
SC0071	2.54	0.53	53	0.44	44	0.31	31	0.33	33	0.27	27	0.19	19
SC0224	3.17	0.68	68	0.57	57	0.38	38	0.43	43	0.35	35	0.24	24

Approx. values: determined with water, at 22 °C, no differential pressure, Tygon tubing.
[1] Min. flow rates shown are for the Reglo Digital. Min. flow rate for Reglo Analog =2% of max. flow rate.
[2] Max. flow rates shown are for both the Reglo Analog and Digital pumps.

APPLICATION NOTE

- Addition of a reagent to a reactor and simultaneous removal of the reaction product from the upper fraction. Ramp control combined with a thermostat to maintain the ΔT during the reaction.
- Simultaneous addition of both components of a 2-component adhesive in ratio 1:10 with two different tubing sizes.

Part No.	Model	Flow rates mL/min per channel	Channels	Rollers	Speed rpm
REGLO ANALOG					
ISM830	MS-2/06	0.005–68	2	6	1.6–160
ISM829	MS-2/08	0.004–57	2	8	1.6–160
ISM795	MS-2/12	0.003–38	2	12	1.6–160
ISM828	MS-4/06	0.003–43	4	6	1.0–100
ISM827	MS-4/08	0.003–35	4	8	1.0–100
ISM796	MS-4/12	0.002–24	4	12	1.0–100
REGLO DIGITAL					
ISM831	MS-2/06	0.003–68	2	6	3.2–160
ISM832	MS-2/08	0.002–57	2	8	3.2–160
ISM596	MS-2/12	0.002–38	2	12	3.2–160
ISM833	MS-4/06	0.002–43	4	6	2.0–100
ISM834	MS-4/08	0.002–35	4	8	2.0–100
ISM597	MS-4/12	0.001–24	4	12	2.0–100

ACCESSORIES	
Part No.	**Description**
ISM891	Reglo Analog Foot switch, see page 109
ISM894	Reglo Digital Foot switch, see page 109

LabVIEW™ driver for Reglo Digital download for free: www.idex-hs.com/ismatec

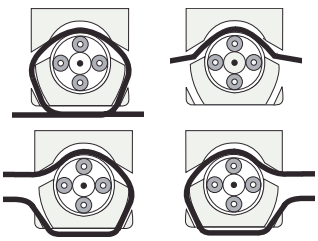
RELATED PRODUCTS

Accessories	Page 109
Tubing	Pages 75–89

Reglo Quick™

Very Fast Tubing Change-Over

Reglo *Quick*
2.1–230 mL/min
Easily accessible tube-bed thanks to wide opening angle.



TIP Flexible layout for tubing appropriate to your application

APPLICATION NOTE

Single-channel delivery processes with variable flow rates where frequent tubing change-over is required e.g.:

- Addition of dye stuffs with tubing exchange after each dispensing process.
- Flushing cylinder heads of HPLC pumps.

SPECIFICATIONS & DETAILS

Reglo *Quick*

Motor Type	DC motor
Speed	3.2–160 rpm
Speed Setting	1–99 %, resolution 1% 2-digit potentiometer
Power Consumption	30 W
Mains Connection	230 V AC /50 Hz,115 V AC /60 Hz, selectable
Protection Rating	IP 30
Depth/Width/Height	178 x 100 x 143 mm (pump head closed)
Weight	2.2 kg

Interfaces

RPM ANALOG

- Speed control (0–5 or 0–10 V, 0–20 or 4–20 mA)
- Speed output (0–8 kHz)
- Start/stop
- Rotation direction

Reglo *Quick*
2-digit potentiometer
1–99%, resolution 1% (for speed setting)

FLOW RATES & TUBING

		Model/Type	Reglo *Quick*	
		Channels	1	
		Rollers	4	
		Speed rpm	3.2	160
Tygon® ST R-3603/R-3607 Part No.	**Wall (mm)**	**Tubing ID (mm)**	**mL/min minimum**	**mL/min maximum**
MF0030	1.6	3.2	2.1	103
SC0379	1.6	4.8	4.6	230

Approx. values: determined with water, at 22°C, no differential pressure, Tygon tubing.

Part No.	Flow rates mL/min per channel	Channels max.	Rollers	Speed rpm
REGLO QUICK				
ISM897	2.1–230	1	4	3.2–160

Flowmaster®

Ideal for Heavy-Duty Processes

- Ideal for dispensing and filling applications in a dusty, humid or corrosive environment and in clean room areas
- Protection rating of IP 65

Optimized for Increased Hygienic Requirements

- Stainless steel housing
- Tube-loading under sterile conditions without aspirating air
- Easy disassembly of the pump head
- Thorough cleaning thanks to easy disassembly and reassembly of the pump head

Safety

- Pump Stops When Opening the Tube-Bed
- Multiple Overload Protection

Flowmaster FMT300

37 mL/min–13 L/min

- 1 channel
- 3 convex stainless steel rollers
- Automatic tube retention
- Standard tubing 6.4–15.9 mm ID, wall thickness 3.2 mm, differential pressure max. 2 bar (30 psi) — depends on tubing material used

TIP TUBE EXCHANGE IN 5 SECONDS!!

- Insert the Tube (Easily and Fast)
- Press Down the Lever (Automatically Correct Pressure Setting of the Tube)
- Start the Pump!

SPECIFICATIONS & DETAILS

Motor type	DC motor
Speed	5 to 500 rpm
Speed setting	Resolution 0.1 rpm membrane key-pad, LED display
Power consumption	500 W
Mains connection	230 V AC/50 Hz,115 V AC/60 Hz, selectable
Protection rating	IP 65
Depth/Width/Height	500 x 220 x 262 mm
Weight	26 kg

Interfaces

PLC compatible interface with status information for process control systems (the level of the inputs can be configured: 5, 12, or 24 V).

RPM ANALOG

- Speed control (0–5 or 0–10 V, 0–20 or 4–20 mA)
- Start/stop, rotation direction
- Autostart
- Speed output
- Digital output (potential free) (error, okay, busy)

Settings menu

- Configuration of analog interface
- Entry of basic settings, e.g. rpm, time, etc.
- Foot switch control
- Rotation speed (% or rpm)
- Service life of tubing
- Timer function, etc.

RELATED PRODUCTS

Accessories	Page 109
Tubing	Pages 75–89

Part No.	Description	Flow rates mL/min	Channels	Rollers	Speed rpm
FLOWMASTER					
ISM1020A	Flowmaster FMT300 230 V 50 Hz	37–13,000	1	3	5–500
ISM1022A	Flowmaster FMT300 115 V 60 Hz	37–13,000	1	3	5–500
ACCESSORIES					
IS10279	Foot switch, see page 109				

FLOW RATES & TUBING

Tubing Information				Flow Rates in L/min							
Tygon® E-LFL Part No.	PharMed® Part No.	Wall (mm)	Tubing ID (mm)	rpm 5	rpm 10	rpm 50	rpm 100	rpm 200	rpm 300	rpm 400	rpm 500
SCE0393	MF0015	3.2	6.4	0.037	0.074	0.37	0.74	1.5	2.2	3.1	3.7
SCE0395	MF0016	3.2	9.5	0.08	0.16	0.80	1.6	3.2	4.8	6.4	8.0
SCE0396	MF0034	3.2	12.7	0.10	0.20	1.0	2.0	4.0	6.0	8.0	10.0
	SC0696	3.2	15.9	0.13	0.26	1.3	2.6	5.2	7.8	10.4	13.0

Approx. values: determined with water, at 22 °C, no differential pressure, PharMed tubing.

Ecoline VC-MS/CA8-6

0.005–150 mL/min

- 8 channels
- 6 rollers
- 3-stop tubing
- Differential pressure 1.0 bar[1] (15 psi)

Ecoline VC-MS/CA4–12

0.003–83 mL/min

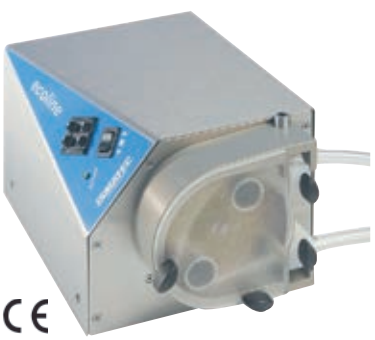
- 4 channels
- 12 rollers (low pulsation)
- Click'n'Go cassettes with automatic pressure setting
- 3-stop tubing
- Differential pressure 1.0 bar[1] (15 psi)

[1] Possible with appropriate tubing material; tubing with small ID's and/or cassettes with the pressure lever (see page 109) may enable higher pressures.

Ecoline VC-280 (1.7–5,400 mL/min) and Ecoline VC-380 (1.6–5,000 mL/min)

- 1 channel
- 2 or 3 convex rollers treat the liquid and tubing gently
- With exchangeable rotor e.g. for lower pulsation, higher flow rates, or elevated differential pressures
- Standard tubing 1.6 mm wall thickness (WT)
- Differential pressure 1.5 bar[1] (22 psi)

[1] Differential pressure depends on tubing material; tubing with small ID's may enable higher pressures.



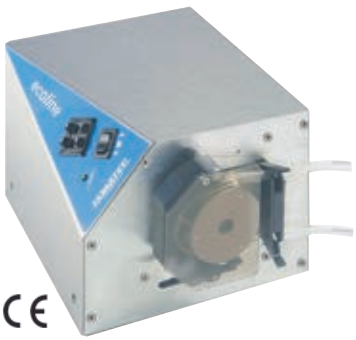
CELL SENSITIVE PUMPING

Ecoline VC-360

0.25–1,300 mL/min

- 1 channel
- 3 convex rollers treat the liquid and tubing gently
- Hinged tube-bed for easy and rapid tube change-over
- Standard tubing 1.6 mm WT
- Differential pressure 1.5 bar[1] (22 psi)

[1] Differential pressure depends on tubing material; tubing with small ID's may enable higher pressures.



CELL SENSITIVE PUMPING

APPLICATION NOTE

- **Ecoline VC-280**
  To apply protective lacquer to cartons
- **Ecoline VC-380**
  As recirculating pump for coolant in thermostat bath
- **Ecoline VC-360**
  Externally controlled spectrophotometer cuvette filling
- **Ecoline VC-MS/CA8-6**
  8-channel flushing of the tubing system of a digital fabric printing machine

SPECIFICATIONS & DETAILS

Motor Type	DC motor
Speed	3.5–350 rpm
Speed Setting	1–99%, resolution 1% 2-digit potentiometer
Power Consumption	100 W
Mains Connection	230 V AC/50 Hz,115 V AC/60 Hz, selectable
Protection Rating	IP 30

Size and Weight

Model	Depth x Width x Height	Weight
Ecoline VC-280	256 x 169 x 138 mm	5.2 kg
Ecoline VC-380	256 x 169 x 138 mm	5.3 kg
Ecoline VC-360	238 x 169 x 138 mm	4.9 kg
Ecoline VC-Easy-Load™	285 x 169 x 138 mm	5.2 kg
Ecoline VC-MS/CA8-6	313 x 169 x 138 mm	5.5 kg
Ecoline VC-MS/CA4-12	281 x 169 x 138 mm	5.4 kg

Interfaces

RPM ANALOG

- Speed control (0–5 or 0–10 V, 0–20 or 4–20 mA)
- Start/stop, rotation direction

FLOW RATES & TUBING

3-Stop Tubing

	Model Type	Ecoline VC-MS / CA8-6		Ecoline VC-MS / CA4-12	
	Channels	8		4	
	Rollers	6		12	
	Speed rpm	3.5	350	3.5	350
Tygon® ST R-3603/R-3607 Part No.	**Tubing ID (mm)**	**mL/min per channel**		**mL/min per channel**	
		min.	**max.**	**min.**	**max.**
SC0189	0.13	0.005	0.49	0.003	0.32
SC0050	0.25	0.017	1.7	0.013	1.3
SC0053	0.51	0.067	6.7	0.055	5.5
SC0056	0.76	0.15	15	0.12	12
SC0059	1.02	0.26	26	0.20	20
SC0062	1.22	0.36	36	0.26	26
SC0065	1.52	0.53	53	0.36	36
SC0068	1.85	0.73	73	0.47	47
SC0071	2.54	1.2	120	0.68	68
SC0224	3.17	1.5	150	0.83	83

Approx. values: determined with water at 22 °C, no differential pressure, Tygon ST tubing.

Standard Tubing

	Model Type	Ecoline VC-280		Ecoline VC-380		Ecoline VC-260	
	Channels	1		1		1	
	Rollers	2		3		3	
	Speed rpm	3.5	350	3.5	350	3.5	350
Tygon ST R-3603/R-3607 Part No.	**WT (mm)**	**Tubing ID (mm)**	**mL/min per channel**		**mL/min per channel**		**mL/min per channel**	
			min.	**max.**	**min.**	**max.**	**min.**	**max.**
MF0001	1.6	0.8					0.25	25
MF0028	1.6	1.6	1.7	170	1.6	160	0.9	90
MF0030	1.6	3.2	6.6	660	5.9	590	3.5	350
SC0379	1.6	4.8	5.1	1,500	13	1,300	7.7	770
MF0031	1.6	6.4	25	2,500	23	2,300	13	1,300
MF0032	1.6	8.0	37	3,700	34	3,400		
SC0383	1.6	9.5	48	4,800	44	4,400		
SC0384	1.6	11.1	54	5,400	50	5,000		

Approx. values: determined with water at 22 °C, no differential pressure, Tygon ST tubing.

Part No.	Model	Flow rates mL/min per channel	Channels max.	Rollers
COMPLETE ECOLINE PUMPS				
ISM1063	Ecoline VC-MS/CA8-6	0.005-150	8	6
ISM1076A	Ecoline VC-360	0.25–1,300	1	3
ISM1078B	Ecoline VC-280 WT 1.6	1.7–5,400	1	2
ISM1079B	Ecoline VC-380 WT 1.6	1.6–5,000	1	3
ISM1090	Ecoline VC-MS/CA4-12	0.003–82	4	12
ISM1091	Ecoline EasyLoad I	0.23–1,600	1	3
ISM1091B	Ecoline EasyLoad II	0.24–1,000	1	4

**For standard tubing 2.4 mm wall thickness 4.8–9.5 mm (3/16–3/8") inner diameter.*

RELATED PRODUCTS

Accessories	Page 109
Tubing	Pages 75–89

IPC/IP & IPC-N/IP-N

IPC (and IP)

- 0.002–44 mL/min (Per Channel)

IPC-N (and IP-N)

- 0.4 µL/min–11 mL/min (Per Channel)

DISPENSING & CALIBRATING

SPECIFICATIONS & DETAILS

Specifications IPC and IPC-N

Motor Type	DC motor
Speed	IPC 0.4–44 rpm IPC-N 0.11–11.25 rpm
Speed Setting	1–100 %, resolution 0.1%
Flow Rate Setting	µL/min or mL/min
Power Consumption	30 W
Mains Connection	230 V AC/50 Hz,115 V AC/60 Hz, selectable
Protection Rating	IP 30

Specifications IP and IP-N

Motor Type	DC motor
Speed	IP 0.4–44 rpm IP-N 0.11–11.25 rpm
Speed Setting	1–100 %, resolution 0.1% IP rpm, resolution 0.1 rpm IP-N rpm, resolution 0.03 rpm
Power Consumption	30 W
Mains Connection	230 V AC/50 Hz,115 V AC/60 Hz, selectable
Protection Rating	IP 30

Dimensions/Weight

4 Channels	
Depth/Width/Height	180 x 175 x 130 mm
Weight	4.6 kg
8 Channels	
Depth/Width/Height	220 x 175 x 130 mm
Weight	5.1 kg
12 Channels	
Depth/Width/Height	260 x 175 x 130 mm
Weight	5.8 kg
16 Channels	
Depth/Width/Height	300 x 175 x 130 mm
Weight	6.5 kg
24 Channels	
Depth/Width/Height	380 x 175 x 130 mm
Weight	7.9 kg

Interfaces

RS232

RPM ANALOG

IPC, IPC-N

- PC-controllable
- Analog: same as IP, IP-N

RPM ANALOG

IP, IP-N

- Speed control (0–5 or 0–10 V, 0–20 or 4–20 mA)
- Speed output (0–10 V or 0–11 kHz)
- Start/stop
- Rotation direction
- Autostart

Standard Speed (IPC)

FLOW RATES & TUBING

	Model	IPC / IP		IPC-N / IP-N	
	Channels	4 / 8 / 12 / 16 / 24		4 / 8 / 12 / 16 / 24	
	Rollers	8		8	
	Speed rpm	0.4	44.0	0.11	11.25
Tygon® ST R-3603/R-3607 Part No.	**Tubing ID (mm)**	**mL/min per channel min.**	**mL/min per channel max.**	**mL/min per channel min.**	**mL/min per channel max.**
SC0188	0.13	0.002	0.15	0.0004	0.039
SC0002	0.25	0.005	0.41	0.001	0.10
SC0005	0.51	0.015	1.5	0.004	0.38
SC0008	0.76	0.032	3.2	0.009	0.81
SC0011	1.02	0.057	5.7	0.041	1.4
SC0014	1.22	0.079	7.9	0.020	2.0
SC0017	1.52	0.12	12	0.030	3.0
SC0020	1.85	0.17	17	0.043	4.3
SC0023	2.54	0.30	30	0.075	7.5
SC0222	3.17	0.44	44	0.11	11

Approx. values: determined with water, at 22 °C, no differential pressure, Tygon tubing.

4 channels | 8 channels | 12 channels | 16 channels | 24 channels

Planetary Drive System

With the planetary drive system each roller is directly driven by the sun wheel. This prevents axial push-pull friction on the tubing.

Result: increased service-life of the tubing, lower pulsation, high repeatability.

APPLICATION NOTE

- Toxicological in-vitro use.
- Perfusion of animal tissue samples.
- Sampling from tablet dissolution systems.
- Environmental applications.

Part No.	Model	Flow rates mL/min per channel	Channels	Speed rpm
IPC AND IPC-N				
ISM930	IPC 4	0.002–44	4	0.4–45
ISM931	IPC 8	0.002–44	8	0.4–45
ISM932	IPC 12	0.002–44	12	0.4–45
ISM933	IPC 16	0.002–44	16	0.4–45
ISM934	IPC 24	0.002–44	24	0.4–45
ISM935	IPC-N 4	0.0004–11	4	0.11–11.25
ISM936	IPC-N 8	0.0004–11	8	0.11–11.25
ISM937	IPC-N 12	0.0004–11	12	0.11–11.25
ISM938	IPC-N 16	0.0004–11	16	0.11–11.25
ISM939	IPC-N 24	0.0004–11	24	0.11–11.25
IP AND IP-N				
ISM940	IP 4	0.002–44	4	0.4–45
ISM941	IP 8	0.002–44	8	0.4–45
ISM942	IP 12	0.002–44	12	0.4–45
ISM943	IP 16	0.002–44	16	0.4–45
ISM944	IP 24	0.002–44	24	0.4–45
ISM945	IP-N 4	0.0004–11	4	0.11–11.25
ISM946	IP-N 8	0.0004–11	8	0.11–11.25
ISM947	IP-N 12	0.0004–11	12	0.11–11.25
ISM948	IP-N 16	0.0004–11	16	0.11–11.25
ISM949	IP-N 24	0.0004–11	24	0.11–11.25

LabVIEW™ driver, download for free www.idex-hs.com/ismatec

RELATED PRODUCTS

Accessories	Page 109
Tubing	Pages 75–89

BVP *Standard*

Economical

- Robust, powerful drive
- Variable speed

Without Dispensing Functions

- 3-digit potentiometer for speed setting
- 20 pump head configurations available
- Bayonet coupling system enables a system change without tools
- Flow rates, channels, rollers and differential pressure depend on the mounted pump head (see pages 105 to 108)

BVP *Standard* Drive
(pump heads on pages 105 to 108)

BVP *Process*

Washdown

- Protection rating of IP 65
- Extremely robust drive
- Microprocessor controlled
- Ideal for applications in a dusty, humid or corrosive environment and in clean room areas (IP 65, dust-tight and protected against water jets)

Without Dispensing Functions

Flow rates, channels, rollers and differential pressure depend on the mounted pump head (see pages 105 to 108)

- Membrane key-pad for speed setting, LED display
- Stainless steel housing
- More than 20 pump heads available
- Bayonet coupling system enables a system change without tools

BVP *Process* drive
(pump heads on pages 105 to 108)

SPECIFICATIONS & DETAILS

	BVP *Standard*	BVP *Process*
Motor Type	DC motor	DC motor
Speed	2.4–240 rpm	1–240 rpm
Speed Setting	1–99.9%, resolution 0.1% 3-digit potentiometer	rpm, resolution 0.1 rpm
Power Consumption	100 W	120 W
Mains Connection	230 V AC/50 Hz,115 V AC/60 Hz, selectable	230 V AC/50 Hz,115 V AC/60 Hz, selectable
Protection Rating	IP 30	IP 65
Depth/Width/Height	220 x 155 x 260 mm (without pump head)	220 x 155 x 260 mm (without pump head)
Weight	5.7 kg (without pump head)	6.9 kg (without pump head)

Interfaces

RPM ANALOG

BVP *Standard*

- Speed control (0–5 or 0–10 V, 0–20 or 4–20 mA)
- Speed output (0–10 V DC or 0–12 kHz)
- Start/stop, rotation direction

RPM ANALOG

BVP *Process*

- Speed control (0–5 or 0–10 V, 0–20 or 4–20 mA)
- Speed output (0–10 V DC or 0–7.2 kHz)
- Start/stop, rotation direction, autostart

RELATED PRODUCTS

Accessories	Page 109
Tubing	Pages 75–89

Part No.	Includes
THE COMPLETE PUMP SYSTEM BVP *PROCESS* CONSISTS OF:	
ISM920A	Drive, page 103
Order the Following to Complete the BVP *Process* Pump System	
	Pump head, pages 105–108
	Tubing, pages 61–89
	Accessories, page 109
IS10039	Foot switch, page 109
THE COMPLETE PUMP SYSTEM BVP *STANDARD* CONSISTS OF:	
ISM444B	Drive, page 103
Order the Following to Complete the BVP *Standard* Pump System	
	Pump head, pages 105–108
	Tubing, pages 61–89
	Accessories, page 109
IS10039	Foot switch, page 109

MCP *Standard*

Multi-Purpose

- Saves individual application parameters
- Robust, powerful drive
- Ideal for dispensing and filling
- Pre-programmed tube sizes and pump heads allow you to work with flow rates
- Membrane key-pad, LED display
- 4 program memories for saving individual application parameters
- More than 20 pump heads available
- Bayonet coupling system enables a system change without tools
- Flow rates, channels, rollers and differential pressure depend on the pump head mounted (see pages 105 to 108)

MCP *Standard* Drive
(pump heads on pages 104–107)

DISPENSING & CALIBRATING

MCP *Process*

Programmable

- Programs can be carried out on the spot independently of a PC
- Protection rating of IP 65
- Extremely robust drive, suitable for industries
- Ideal for dispensing and filling applications in a dusty, humid or corrosive environment, and in clean room areas
- Pre-programmed tube sizes and pump heads allow you to work with flow rates
- Stainless steel housing, membrane key-pad, LED display
- 4 program memories for saving individual application parameters or PC programmed command sequences
- More than 20 pump heads available
- Bayonet coupling system enables a system change without tools
- Flow rates, channels, rollers and differential pressure depend on the pump head mounted (see pages 105 to 108)

MCP *Process* Drive
(pump heads on pages 105 to 108)

DISPENSING & CALIBRATING

SPECIFICATIONS & DETAILS

	MCP *Process*	MCP *Standard*
Motor Type	DC motor	DC motor
Speed	1–240 rpm	1–240 rpm
Speed Setting	rpm, resolution 0.1 rpm	rpm, resolution 0.1 rpm
Flow Rate Settings	µL/min, mL/min, L/min	µL/min, mL/min, L/min
Power Consumption	100 W	100 W
Mains Connection	100–230 V AC/50–60 Hz, selectable	230 V AC/50 Hz, 115 V AC/60 Hz, selectable
Protection Rating	IP 65	IP 30
Depth/Width/Height	220 x 155 x 260 mm (without pump head)	220 x 155 x 260 mm (without pump head)
Weight	6.9 kg (without pump head)	6.4 kg (without pump head)

Interfaces

RS232
RPM
ANALOG

MCP *Standard*

- PC controllable
- RS-232
- Speed control (0–5 or 0–10 V, 0–20 or 4–20 mA)
- Speed output (0–10 V DC or 0–12 kHz)
- Start/stop, rotation direction, autostart

MCP *Process*

- PC controllable
- RS-232
- Speed control (0–5 or 0–10 V, 0–20 or 4–20 mA)
- Speed output (0–10 V DC or 0–7.2 kHz)
- Start/stop, rotation direction, autostart
- 2 universal inputs
- 2 universal outputs

Part No.	Includes
THE COMPLETE PUMP SYSTEM MCP ***PROCESS*** CONSISTS OF:	
ISM915A	Drive, page 104
Order the Following to Complete the MCP *Process* Pump System	
	Pump head, pages 105 to 108
	Tubing, pages 61–89
	Accessories, page 109
IS10039	Foot switch, page 109
THE COMPLETE PUMP SYSTEM MCP ***STANDARD*** CONSISTS OF:	
ISM404B	Drive, page 104
Order the Following to Complete the MCP *Standard* Pump System	
	Pump head, pages 105 to 108
	Tubing, pages 62–89
	Accessories, page 109
IS10039	Foot switch, page 109

LabVIEW™ driver download for free: www.idex-hs.com/ismatec

Drive (MCP or BVP) + Pump Head + Tubing = Complete Pump System

BVP/MCP — an Investment for the Future

Instantly Interchangeable Pump Systems

BVP *Standard*
ISM444

MCP *Standard*
ISM404B

BVP *Process*
ISM920A
IP 65

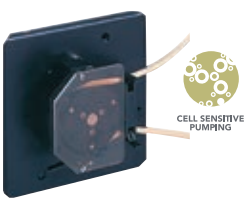
MCP *Process*
ISM915A
IP 65

Easy Interchangeable Pump Heads

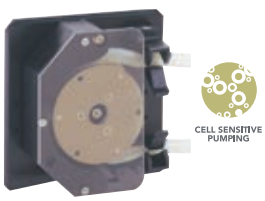
- Mount the pump head without using a tool

The MCP and BVP drives enable the user to choose individually from a large variety of different pump heads. These heads are interchangeable and can be mounted or exchanged within seconds.

Single-Channel



ISM719A
0.072–530 mL/min
Type 360



ISM718A
0.44–2,800 mL/min
Type 380

ISM785A
0.49–3,700 mL/min
Type Pro-280
For 1.6 mm Wall Thickness

ISM793A
3.6–3,100 mL/min
Type Pro-281
For 2.4 mm Wall Thickness

ISM791A
0.45–3,400 mL/min
Type Pro-380
For 1.6 mm Wall Thickness

ISM797A
3.3–2,900 mL/min
Type Pro-381
For 2.4 mm Wall Thickness

MF0313
0.07–1,100 mL/min
Type MF Easy-Load®

MF0446
0.24–1,000 mL/min
Type MF Easy-Load II
(with adjustable pressure setting)

Multi-Channel

SB 2V (2 channel)
ISM734B + ISM010A
1.1–1,100 mL/min

SB 3V (3 channel)
ISM734B + ISM011A
0.09–530 mL/min

ISM721A (4 channel)
ISM732B (8 channel)
ISM733A (12 channel)
0.002–230 mL/min
4–12 channels
Type CA 4, CA 8, and CA 12

ISM735A (4 channel)
(ISM737A 4 channel extension block)
0.001–57 mL/min
Type MS/CA 4–12
(Combine up to 3 extension blocks of 4 channels each)

ISM724B (8 channel)
(ISM185A 8 channel extension block)
0.002–100 mL/min
Type MS/CA 8-6
(Combine up to 2 extension blocks of 8 channels each)

Single-Channel for Corrosive Media

Rigid PTFE Tubing Pump Head

MF0330
0.07–15 mL/min
PTFE tubing 2 mm ID

0.19–45 mL/min
PTFE tubing 4 mm ID

BVP/MCP Pump Heads

Pro-280

ISM785A

CELL SENSITIVE PUMPING

0.49–3,700 mL/min

- Coated aluminum pump head
- Can be dismantled for cleaning
- Self-centering tube-track thanks to concave tube-bed and convex rollers, which lengthens the tube-life
- 2 stainless steel rollers (higher max. flow rate but more pulsation than with 3 rollers)
- For tubing with 1.6 mm wall thickness
- 1.5 bar (22 psi) differential pressure[1]

Pro-281

ISM793A

3.6–3,100 mL/min

Same pump head as Pro-280, but

- For tubing with 2.4 mm wall thickness
- 2.5 bar (36 psi) differential pressure[1]

Pro-380

ISM791A

CELL SENSITIVE PUMPING

0.45–3,400 mL/min

Same pump head as Pro-280, but

- 3 stainless steel rollers (less pulsation but lower max. flow rate than with 2 rollers)

Pro-381

ISM797A

3.3–2,900 mL/min

Same pump head design as Pro-280, but

- 3 stainless steel rollers (less pulsation but lower max. flow rate than with 2 rollers)
- For tubing with 2.4 mm wall thickness
- 2.5 bar (36 psi) differential pressure[1]

[1] Differential pressure depends on tubing material; tubing with small ID's enable higher pressures.

The flow rates are based on a drive speed of 1 (or 2.4) to 240 rpm. For the BVP Standard drive the indicated min. flow rates must be multiplied by factor 2.4.

Approx. values: determined with water, at 22 °C, no differential pressure, Tygon tubing.

APPLICATION NOTE

- Chemical, biotechnological, and pharmaceutical applications.
- Food industry.
- Elevated differential pressures (Pro-281 and Pro-381).
- Viscous fluids.
- Fluids containing a high content of sensitive solids.
- Applications requiring hygienic conditions, durability, and reliability.
- Comparisons to gear, piston and centrifugal pumps proved that peristaltic pumps are the only suitable and sterilizable pump system for gently pumping media containing living cells.

RELATED PRODUCTS

Accessories	Page 109
Tubing	Pages 75–89

FLOW RATES & TUBING

Tygon® ST R-3603/R-3607 Part No.	Wall (mm)	Tubing ID (mm)	mL/min min.	mL/min max.
MODEL PRO-280				
MF0028	1.6	1.6	0.49	120
MF0030	1.6	3.2	1.9	450
SC0379	1.6	4.8	4.2	1,000
MF0031	1.6	6.4	7.2	1,700
MF0032	1.6	8.0	11	2,600
SC0383	1.6	9.5	14	3,300
SC0384	1.6	11.1	16	3,700
MODEL PRO-281				
MF0029	2.4	4.8	3.6	870
MF0033	2.4	6.4	6.5	1,600
SC0502	2.4	8.0	9.9	2,400
SC0503	2.4	9.5	13	3,100
MODEL PRO-380				
MF0028	1.6	1.6	0.45	110
MF0030	1.6	3.2	1.7	400
SC0379	1.6	4.8	3.7	890
MF0031	1.6	6.4	6.5	1,600
MF0032	1.6	8.0	9.7	2,300
SC0383	1.6	9.5	13	3,000
SC0384	1.6	11.1	14	3,400
MODEL PRO-381				
MF0029	2.4	4.8	3.3	800
MF0033	2.4	6.4	5.8	1,400
SC0502	2.4	8.0	8.8	2,100
SC0503	2.4	9.5	12	2,900

BVP/MCP Pump Heads

360[1]

0.072–530 mL/min

- Easily accessible flip-up tube-bed guarantees easy and rapid tube change-over
- Transparent protection cover allows monitoring the tube and the revolving rotor
- Self-centering tube-track design thanks to the concave tube-bed and convex rollers (lengthens tube-life)
- Rotor accepts tubing ID from 0.8 to 6.4 mm with 1.6 mm wall thickness
- 3 stainless steel rollers
- 1.5 bar (22 psi) differential pressure[2]

ISM719A

380[1]

0.44–2,800 mL/min

Same design as pump head 360, but larger size

- For tubing ID from 1.6 to 9.5 mm with 1.6 mm wall thickness
- 1.5 bar (22 psi) differential pressure[2]
- Ideal for sterile media

ISM791A

[1] An OEM version of this pump head is also available. Ask for the detailed data sheet.

[2] Differential pressure depends on tubing material; tubing with small ID's may enable higher pressures.

NOTE

The flow rates are based on a drive speed of 1 (or 2.4) to 240 rpm. For the BVP Standard drive the indicated min. flow rates must be multiplied by factor 2.4. Approx. values: determined with water, at 22 °C, no differential pressure, and Tygon® tubing.

BVP/MCP Pump Heads

Easy-Load®[1]

MF0313

0.07–1,100 mL/min

- Easily accessible pump head
- Allows rapid tube change-over
- PSF housing (polysulfone)
- Rotor designed for tubing with 1.6 mm wall thickness
- Rotor with 3 stainless steel rollers
- 0.7 bar (10 psi) differential pressure[2]

Easy-Load II[1]

MF0446

0.24–1,000 mL/min

Same specifications as Easy-Load, but

- Adjustable pressure setting
- Improved, automatic tubing retention
- PPS housing (polyphenylene sulfide)
- Rotor with 4 stainless steel rollers
- 0.7 bar (10 psi) differential pressure[2]

[1] Two pump heads can be mounted on one drive. (Special mounting sets must be ordered separately).

[2] Differential pressure depends on tubing material; tubing with small ID's may enable higher pressures.

FLOW RATES & TUBING

Tygon® ST R-3603/R-3607 Part No.	Wall (mm)	Tubing ID (mm)	mL/min min.	mL/min max.
MODEL 360				
MF0001	1.6	0.8	0.072	17
MF0028	1.6	1.6	0.26	62
MF0030	1.6	3.2	1.0	240
SC0379	1.6	4.8	2.0	530
MODEL 380				
MF0028	1.6	1.6	0.44	100
MF0030	1.6	3.2	1.7	400
SC0379	1.6	4.8	3.6	860
MF0031	1.6	6.4	6.0	1,400
MF0032	1.6	8.0	8.8	2,100
SC0383	1.6	9.5	12	2,800
MODEL 380AD				
MF0028	1.6	1.6	0.4	99
MF0030	1.6	3.2	1.5	370
SC0379	1.6	4.8	3.4	830
MF0031	1.6	6.4	6.2	1,500
MF0032	1.6	8.0	9.5	2,300
SC0383	1.6	9.5	13.0	3,000
SC0384	1.6	11.1	15.0	3,600
MF0029	2.4	4.8	3.4	830
MF0033	2.4	6.4	6.2	1,500
MODEL EASY-LOAD				
MF0001	1.6	0.8	0.066	16
MF0028	1.6	1.6	0.25	59
MF0030	1.6	3.2	0.91	220
SC0379	1.6	4.8	1.9	450
MF0031	1.6	6.4	3.1	730
MF0032	1.6	8.0	4.7	1,100
MODEL EASY-LOAD II				
MF0028	1.6	1.6	0.24	58
MF0030	1.6	3.2	0.92	220
SC0379	1.6	4.8	1.9	460
MF0031	1.6	6.4	3.0	730
MF0032	1.6	8.0	4.2	1,000

RELATED PRODUCTS

Accessories	Page 109
Tubing	Pages 75–89

Tubing Cassettes

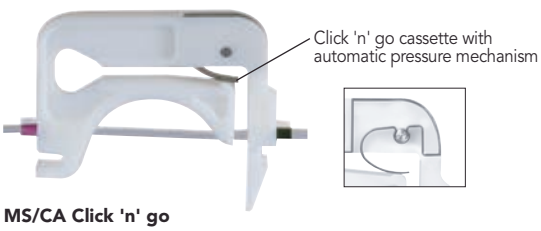
- Developed and consistently improved by Ismatec®

Click 'n' go Cassettes (Standard)[1]

Advantages:

- Automatic tubing pressure; no readjustment necessary
- Ideal for non-monitored, long-time use

Please Note: Click 'n' go cassettes are not suitable for differential pressure greater than 1 bar (15 psi). For these conditions you should choose the pressure lever cassettes.

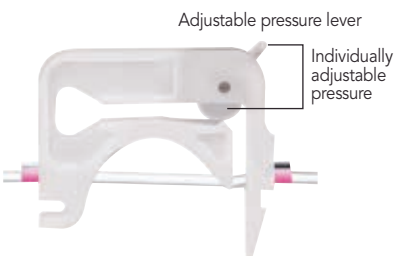


MS/CA Click 'n' go

CA Click 'n' go

Pressure Lever Cassettes (Optional)

The optional pressure lever allows you to set a different tubing pressure for each channel. Depending on the application, tubing material and diameter, an optimally adjusted tubing pressure can be set. To maintain constant flow rates it may be necessary to periodically adjust the tubing pressure.



MS/CA Pressure Lever (Optional)

CA Pressure Lever (Optional)

Foot Switch

The Ismatec foot switch for start/stop is very practical for use with pumps as dispensing systems, e.g. for filling tubes, bottles etc. A foot switch provides the start/stop signal required, allowing hands-free activation of the filling system. The switch's protection rating is IP21. A 6-foot (1.8 m) cable is included.

Part No.	Model	Material	Adapters Required?	Qty.
TUBING CASSETTES AND ADAPTERS				
Click 'n' go Spare Cassettes[1]				
IS3510A	MS/CA Click 'n' go	POM-C[4]	No	1
IS3710A	CA Click 'n' go	POM-C[4]	Yes[2]	1
Pressure Lever Optional Cassettes				
IS0649A	MS/CA Pressure Lever	POM-C[4]	No	1
IS3629A	MS/CA Pressure Lever	PVDF[3, 4]	No	1
IS0122A	CA Pressure Lever	POM-C[4]	Yes[2]	1
IS3820A	CA Pressure Lever	PVDF[3, 4]	Yes[2]	1
Replacement Adapters for CA Cassettes[2]				
IS0123A	Adapter for CA Cassettes	POM-C[4]		1
IS0123A-4	Insert Adapter Packs	POM-C[4]		4-pk
IS0123A-8	Insert Adapter Packs	POM-C[4]		8-pk
IS0123A-12	Insert Adapter Packs	POM-C[4]		12-pk
IS3861A	Adapter for CA Cassettes	PVDF[3, 4]		

FOOT SWITCH	
Part No.	**Foot switch suitable for pump models:**
ISM016	IPC and IPC-N (firmware version older than 4.00)
IS10039	IPC and IPC-N (from firmware version 4.00)
ISM891	Reglo Analog, Reglo *Quick*™
ISM894	Reglo Digital

[1] *One set is included with all Ismatec cassette-style pumps.*
[2] *When ordering replacement CA Cassettes, two Adapters per cassette must also be ordered.*
[3] *PVDF offers higher chemical resistance.*
[4] *POM-C = Polyoxymethylene Copolymer, PVDF = Polyvinylidene Fluoride*

Gear Pumps

Pulsefree Pumping

- Gear pumps allow differential pressures up to max. 5.6 bar (81 psi)

Low Operation Costs

- Interchangeable, magnetically coupled pump heads
- Maintenance-free drives
- Only few wearing parts (gears, seals)
- Service kits allow the user to exchange worn parts
- High quality and precision for an optimum performance even after many years of intensive use

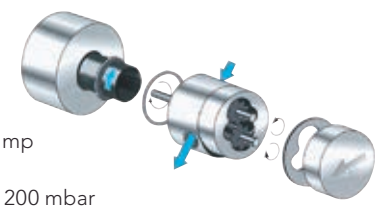
CLOCKWISE

Ismatec® gear pumps run only in the clockwise direction (Exception Reglo Z Digital).

CONTINUOUS DUTY

Cavity Style

Series GJ

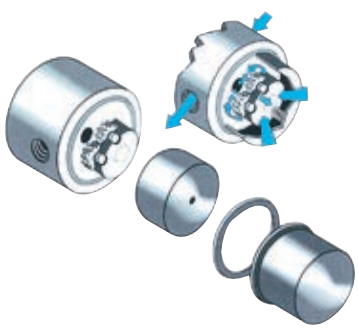


- Max. suction height with water and flooded pump head: 8 m, depending on pump head and tubing
- Pumping out of a vacuum of 200 mbar
- Based on the traditional gear pump technology
- For application with moderate differential pressure

In comparison to the Suction Shoe pump heads, the Cavity style pump heads can be used for viscous media and applications with a certain suction height.

Suction Shoe Style

Series GA and GB



- An exclusive Micropump® product featuring a patented technology
- Modified pump chamber compared to the conventional gear pump technique

This type of pump head design has a seal plate mounted with a deliberate play in the suction part of the pump chamber (hence the expression Suction Shoe). Discharge pressure keeps the Suction Shoe seated tightly on top of the gears which prevents flow from decreasing in high-pressure applications.

REVERSIBLE

With Cavity Style pump head, rotation direction is reversible

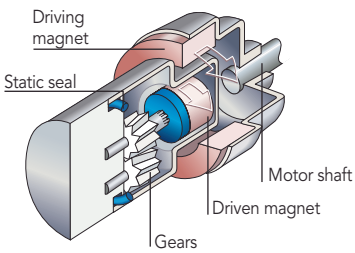
CLOCKWISE

With Suction shoe pump head, run only in the clockwise direction

NOTE

The Magnetically Coupled Drive Principle

Consists of two magnets, a driving magnet that attaches to the motor shaft and a driven magnet that is completely sealed within the pump head and is connected to the driving gear. The driven magnet is a non-wetted component and is totally encapsulated.



The two magnets couple automatically such that the driving magnet turns the driven magnet and gears without physical contact.

Decoupling occurs when the pump load exceeds the coupling torque between the two magnets. This feature can act as a safety device to prevent damage to the pump and motor as well as associated piping. The magnets can be recoupled by bringing the motor to a complete stop, eliminating the cause of the decoupling and restarting.

Application Range of Gear Pumps

Industries	Applications	Special Media
Biotechnological	Sampling	Biozides
Chemical	Refrigeration Technology	Dye Stuffs
Food	Water Treatment	Thixotropic Products
Mining	Liquid Chromatography	Liquid Waxes
Power	Surface Treatment	Hydrogen Peroxide
Pulp and Paper	Distillation Systems	Flux
Semiconductor		Not suited for media containing particulates
Textile		

Pump Head Material Options

Enhance the chemical compatibility and application potential		
Base material	Standard:	Stainless Steel 316
	Options:	e.g., Hastelloy® B2,Hastelloy C-276, Alloy 20, and Titanium
Gears	Standard:	PPS, Graphite, PTFE (depends on pump head)
	Options:	e.g., PEEK, PPSKV
Static seals	Standard:	Viton®, PTFE (depends on pump head)
	Options:	EP, Buna N, Kalrez®
Magnets	Standard:	Ferrite
	Options:	e.g., SmCo, NdFeB

Further pump head options
Integral Drive
High System Pressure
Deck Ports
1/4-18 NPT Ports
Tri-clamp Fittings

PTFE = Polytetrafluoroethylene, PPS = Polyphenylenesulphide, PEEK = Polyetheretherketone

PUMP SERIES		PUMP STYLE	FLOW RANGE*	GEAR MATERIALS	DRIVE OPTIONS	INTERFACE	PAGE
REGLO Z		Suction Shoe	1–466 mL/min	PEEK, PPS, Graphite	Digital and Analog	RS-232, Analog	**112**
		Cavity Style	33–3,290 mL/min	PEEK, PTFE, PPS			
REGLO ZS		Suction Shoe	1–466 mL/min	PEEK, PPS, Graphite	Digital and Analog	RS-232, Analog	**112**
		Cavity Style	33–3,290 mL/min	PEEK, PTFE, PPS			
BVP-Z		Suction Shoe	1–7,271 mL/min	PEEK, PPS, Graphite	Analog	Analog	**113**
		Cavity Style	40–5,480 mL/min	PEEK, PTFE, PPS			
MCP-Z STANDARD		Suction Shoe	1–7,271 mL/min	PEEK, PPS, Graphite	Digital and Analog	RS-232, Analog	**113**
		Cavity Style	40–5,480 mL/min	PEEK, PTFE, PPS			
MCP-Z PROCESS		Suction Shoe	1–7,271 mL/min	PEEK, PPS, Graphite	Digital and Analog	RS-232, Analog	**114**
		Cavity Style	40–5,480 mL/min	PEEK, PTFE, PPS			

**Depending on pump head.*

Reglo Z, Reglo ZS

Reglo Z Analog

1–3,290 mL/min

- Variable speed
- Differential pressure of pump drive max. 3.0 bar (43.5 psi)

ISM895E

Reglo ZS Analog

1–3,290 mL/min

- Drive and pump head are separated by a 2 m long cable

ISM896B

Reglo Z Digital

1–3,290 mL/min with dispensing functions

- Membrane key-pad
- LED display with setting menu
- Differential pressure of pump drive max. 3.0 bar (43.5 psi)

ISM901B

Reglo ZS Digital

1–3,290 mL/min with dispensing functions

- Drive and pump head are separated by a 2 m long cable

ISM1143A

SPECIFICATIONS & DETAILS

	Reglo Z/ZS Analog	Reglo Z/ZS Digital
Motor Type	DC motor	DC motor
Speed	50–5,000 rpm	50–5,000 rpm
Speed Setting	1–99%, resolution 1% 2-digit potentiometer	For flow setting (mL/min) For dispensing volume (mL)
Flow Rate Setting		mL/min, L/min
Power Consumption	50 W	75 W
Mains Connection	230 V AC/50 Hz,115 V AC/60 Hz, selectable	100–230 V AC/50–60 Hz
Protection Rating	IP 30	IP 30
Depth/Width/Height		
Drive Reglo Z	178 x 100 x 143 mm	178 x 100 x 135 mm
Drive Reglo ZS	175 x 65 x 80 mm	175 x 65 x 80 mm
External Control Unit	178 x 100 x 143 mm	178 x 100 x 135 mm
Weight		
Drive Reglo Z	2.1 kg (without pump head)	1.7 kg (without pump head)
Drive Reglo ZS	0.7 kg (without pump head)	0.7 kg (without pump head)
External Control Unit	1.7 kg	1.2 kg

REVERSIBLE

With Cavity Style pump head, rotation direction is reversible

CLOCKWISE

With Suction shoe pump head, run only in the clockwise direction

Interfaces

RPM ANALOG

Reglo Z/ZS Analog

- Speed control (0–5 or 0–10 V, 0–20 or 4–20 mA)
- Speed output 0–10 KHz, start/stop
- Rotation direction

RS232

RPM ANALOG

Reglo Z Digital

- RS-232 PC-controllable
- Speed output 0–12 KHz, start/stop and autostart

RELATED PRODUCTS

Accessories	Page 109
Tubing	Pages 75–89

Part No.	Description
REGLO Z AND REGLO ZS	
ISM895E	Reglo Z Analog
ISM896B	Reglo ZS Analog
ISM901B	Reglo Z Digital
ISM1143A	Reglo ZS Digital
ISM891	Footswitch
	Pump Head, page 115
	2 Nozzles, page 115

LabVIEW™ drivers for Reglo Z Digital download for free: www.idex-hs.com/ismatec
Never use a gear pump for media containing particulates.
Max. differential pressure limited by pump drive, pump head capable of max. 5.2 bar (75 psi).

BVP-Z *Standard*

BVP-Z *Standard* without Dispensing Functions

- 3-digit potentiometer (for speed setting)
- Over 20 interchangeable Micropump® pump heads
- Flow rates and differential pressure depend on the pump head mounted

BVP-Z *Standard*
with interchangeable gear pump heads (see page 115)
(material options, see page 110)

ISM446B

MCP-Z *Standard*

MCP-Z *Standard* with Dispensing Functions

- Membrane key-pad, LED display
- 4 program memories for saving individual application parameters
- Over 20 interchangeable Micropump pump heads (pre-programmed)
- Flow rates and differential pressure depend on the pump head mounted

MCP-Z *Standard*
with interchangeable gear pump head (see page 115)
(material options, see page 110)

DISPENSING & CALIBRATING

ISM405A

SPECIFICATIONS & DETAILS

	BVP-Z *Standard*	MCP-Z *Standard*
Motor Type	DC motor	DC motor
Speed	60–6,000 rpm	60–6,000 rpm
Speed Setting	1–99.9%, resolution 0.1% 3-digit potentiometer	rpm, resolution 1 rpm
Flow Rate Setting		µL/min, mL/min, L/min
Power Consumption	150 W	150 W
Mains Connection	230 V AC/50 Hz, 115 V AC/60 Hz selectable	230 V AC/50 Hz, 115 V AC/60 Hz selectable
Protection Rating	IP 30	IP 30
Depth/Width/Height	220 x 155 x 260 mm (without pump head)	220 x 155 x 260 mm (without pump head)
Weight	5.7 kg (without pump head)	6.4 kg (without pump head)

Interfaces

BVP-Z *Standard*

RPM ANALOG

- Speed control (0–5 or 0–10 V, 0–20 or 4–20 mA)
- Speed output (0–10 V DC or 0–12 kHZ)
- Start/stop

MCP-Z *Standard*

RS232

RPM ANALOG

- PC-controllable
- RS-232
- Speed control (0–5 or 0–10 V, 0–20 or 4–20 mA)
- Speed output (0–10 V DC or 0–12 kHZ)
- Start/stop
- Autostart

APPLICATION NOTE

BVP-Z *Standard*

- Single-channel delivery processes under pressure for particulate-free fluids, e.g.: addition of reagents/solvents in organic synthesis at laboratory scale.
- Pumping propylene oxide into a laboratory reactor with a dispensing precision of +/–1% and a differential pressure of up to max. 3 bar.

MCP-Z *Standard*

- Single-channel delivery and dispensing processes of particulate-free fluids under pressure.
- With pump heads GJ-N23 and GA-X21: Pulseless dispensing under pressure of different reagents with 2 pumps in different quantity ratios via a mixing valve into a reactor.

Part No.	Includes
THE COMPLETE PUMP SYSTEM BVP-Z *STANDARD* CONSISTS OF:	
ISM446B	Drive (magnet included), page 113
Order the Following to Complete the BVP-Z Standard Pump System	
	Pump head, page 115
	2 Nozzles, page 115
	Accessories, page 109
ISM891	Foot switch, page 109
THE COMPLETE PUMP SYSTEM MCP-Z *STANDARD* CONSISTS OF:	
ISM405A	Drive (magnet included), page 113
Order the Following to Complete the MCP-Z Standard Pump System	
	Pump head, page 115
	2 Nozzles, page 115
	Accessories, page 109
IS10039	Foot switch, page 109

MCP-Z Process

Programmable

- Programs can be entered on the spot independently of a PC
- Protection rating of IP 65
- Suitable for industries, extremely robust gear pump drive
- For pulseless pumping up to 5.2 bar (75 psi)
- Stainless steel housing
- Membrane key-pad with LED display
- 4 program memories for saving individual application parameters or PC programmed command sequences
- Pre-programmed pump heads
- Over 20 interchangeable Micropump® pump heads
- Flow rates and differential pressure depend on the pump head mounted

ISM918A
MCP-Z Process
with interchangeable gear pump heads
(material options, see page 110)

DISPENSING & CALIBRATING

APPLICATION NOTE

- Single-channel delivery and dispensing processes under pressure, for particulate-free solutions.
- Addition of various reagents in different quantity ratios via mixing valve into reactor.
- Ideal for dispensing and filling applications in a dusty, humid or corrosive environment, and in clean room areas (IP 65, dust-tight and protected against water jets).

SPECIFICATIONS & DETAILS

Motor Type	DC motor
Speed	60–6,000 rpm
Speed Setting	rpm, resolution 1 rpm
Flow Rate Setting	µL/min, mL/min, L/min
Power Consumption	200 W
Mains Connection	100–230 V AC/50–60 Hz, selectable
Protection Rating	IP 65
Depth/Width/Height	260 x 160 x 262 mm (without pump head)
Weight	6.9 kg (without pump head)

Interfaces

RS232
- PC-controllable
- Speed control (0–5 or 0–10 V, 0–20 or 4–20 mA)
- Speed output (0–10 V DC or 0–12 kHZ)

ANALOG
- Start/stop
- Autostart
- 2 universal inputs
- 2 universal outputs

RELATED PRODUCTS

Accessories	Page 109
Tubing	Pages 75–89

Part No.	Includes
THE COMPLETE PUMP SYSTEM MCP-Z *PROCESS* CONSISTS OF:	
ISM918A	MCP-Z Process Pump System
Order the Following to Complete the MCP-Z Process Pump System	
	Drive (magnet included), page 114
	Pump head, page 115
	2 Nozzles, page 115
	Accessories, page 109
IS10039	Foot Switch, page 109
LabVIEW™ driver download for free: www.idex-hs.com/ismatec	

Ordering Information Pump Heads for BVP-Z/ MCP-Z/Reglo Z/Reglo ZS

Suction Shoe Pump Heads

- Enhanced pumping performance at elevated differential pressures
- Suited for higher temperature ranges
- Not recommended for applications requiring suction lift

Ismatec® gear pumps run only in the clockwise direction
Never use a gear pump for media containing particulates

SUCTION SHOE	Part No.	Pump Head No.	Flow rate (mL/min) min.	Flow rate (mL/min) max.	Differential pressure max. bar	Gear material	Seals	Stainless steel housing	System pressure, max. (bar)	Temperature range °C	Internal Bypass
	MI0006	GA-X21.CFS.B	1	99	1.4 (20 psi)	Graphite	PTFE	SS316	21	-46–+177	–
	MI0007	GA-V21.CFS.B	3	252	2.8 (40 psi)	Graphite	PTFE	SS316	21	-46–+177	–
	MI0008	GA-V23.CFS.B	5	504	2.8 (40 psi)	Graphite	PTFE	SS316	21	-46–+177	–
	MI0131	GA-T23.PFS.B	6	560	5.2 (75 psi)	PPS	PTFE	SS316	21	-46–+177	–
	MI0280	GA-V23.JFS.B	6	560	5.2 (75 psi)	PEEK	PTFE	SS316	21	-46–+177	–
	MI0022	GB-P25.PVS.A.B	35	3,509	3.5 (51 psi)	PPS	Viton®	SS316	21	-29–+177	✓
	MI0306	GB-P25.JVS.A	35	3,480	3.5 (51 psi)	PEEK	Viton	SS316	21	-29–+177	–
	MI0023	GB-P35.PVS.A.B	70	7,020	3.5 (51 psi)	PPS	Viton	SS316	21	-29–+177	✓
Organic solvents	**MI0378**	GB-P35.JKS.B	73	7,241	3.5 (51 psi)	PEEK	Kalrez®	SS316	21	-29–+177	✓
For corrosive media	**MI0309**	GA-X21.CFC.B	1	99	1.4 (20 psi)	Graphite	PTFE	Hastelloy®-C276	21	-46–+177	–
	MI0310	GA-V23.CFC.B	5	504	2.8 (40 psi)	Graphite	PTFE	Hastelloy-C276	21	-46–+177	–

Ports (internal thread) 1/8"-27NPT.
Flow rates without differential pressure.
Operating temperature: with other seals up to 99 °C possible.

Cavity Style Pump Heads

- Excellent chemical resistance
- Smooth and precise flow
- Recommended for applications requiring a modest suction lift

CAVITY STYLE	Part No.	Pump Head No.	Flow rate (mL/min) min.	Flow rate (mL/min) max.	Differential pressure max. bar	Gear material	Seals	Stainless steel housing	System pressure, max. (bar)	Temperature range °C	Internal Bypass
	MI0013	GJ-N23.FFS.B.B1	40	3,950	3.5 (51 psi)	PTFE	PTFE	SS316	21	-46–+54	✓
	MI0016	GJ-N23.FFS.B	40	3,950	3.5 (51 psi)	PTFE	PTFE	SS316	21	-46–+54	–
	MI0313	GJ-N23.JFS.B	40	3,950	5.6 (81 psi)	PEEK	PTFE	SS316	21	-46–+54	–
	MI0018	GJ-N25.FFS.B	55	5,460	3.5 (51 psi)	PTFE	PTFE	SS316	21	-46–+54	–
	MI0019	GJ-N23.JFS.B.B1	40	3,950	5.2 (75 psi)	PPS	PTFE	SS316	21	-46–+54	✓
	MI0020	GJ-N23.JFS.B	40	3,950	5.2 (75 psi)	PPS	PTFE	SS316	22	-46–+54	–
For corrosive media	**MI0284**	GJ-N23.FFC.B	40	3,950	3.5 (51 psi)	PTFE	PTFE	Hastelloy-C276	21	-46–+54	–
	MI0311	GJ-N25.FFC.B	55	5,480	3.5 (51 psi)	PTFE	PTFE	Hastelloy-C276	21	-46–+54	–

Ports (internal thread) 1/8"-27NPT.
Flow rates without differential pressure.
Operating temperature: with other seals up to 99 °C possible.

Service Kits Available for all Micropump® Gear Pumps
Service Kits contain the wearing parts (brushings, seals, gears). For ordering information, contact your local distributor or IDEX Health & Science.

Part No.	External Thread	Tubing Adaptor	Tubing ID mm
TUBING ADAPTERS FOR GEAR PUMP HEADS			
Threaded stainless steel connectors			
AR0002	1/8" NPT	Tube nozzle	3
AR0004	3/8" NPT	Tube nozzle	12
AR0008	1/8" NPT	Tube nozzle	8
AR0009	1/8" NPT	Tube nozzle	9.5
AR0024	1/8" NPT	Pipe connection	6 (outside)
Threaded connectors in Hastelloy-C			
AR0001-HC	1/8" NPT	Tube nozzle	6

Rotary Piston Pumps Introduction

For Corrosive Media and Very Accurate Dispensing

The pump heads are available with ceramic pistons and ceramic cylinder liners, which makes these components very resistant even to highly aggressive chemicals.

Inexpensive to Maintain

- Interchangeable pump heads
- No valves
- Only one moving part — the piston
- High quality and precision guarantee an optimum performance even after many years of intensive use

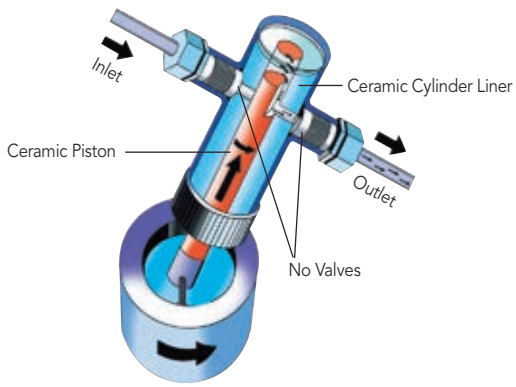
REVERSIBLE

CONTINUOUS DUTY

Valveless Pumping

The valveless pumping function is accomplished by the synchronous rotation and reciprocation of the ceramic piston in the precisely mated ceramic cylinder liner. One complete piston revolution is required for each suction/discharge cycle.

The piston always bottoms for maximum fluid and bubble clearing. Together with the drive speed the stroke volume, which can be pre-set by the adjustment of the pump head angle, determines the actual flow rate.



Only the Ismatec® Rotary Piston Pump MCP-CPF Process Features:

Carrying out programs independently of a PC

- Download the file data into the pump memory
- Disconnect the pump from the PC
- Carry out your application on the spot, using the pump as a stand-alone unit

APPLICATION NOTE

Application Range of Piston Pumps

Industries	Applications	Special Media
Biotechnology	Accurate dispensing e.g. into bioreactors	Biozides
Chemistry	Emulsion and slurry dosing	Dyes
Medical	Medical diagnostics production	Flux compound
Electronic	Milk and beverage enrichment	Hydrogen peroxide
Food and Diary	Plating bath replenishment	Liquid wax
Perfume/Cosmetics	Titration equipment	Thixotropic products
Rubber/Plastics		
Glass/Ceramic		Not suited for media containing particles larger than 0.8 mm
Pulp and Paper		

RELATED PRODUCTS

Accessories	Page 109
Tubing	Pages 75–89

NOTE

All microprocessor controlled drives are LabVIEW™ compatible and can easily be integrated into process control systems.

PUMP SERIES		FLOW RANGE	PISTON MATERIAL	DRIVE OPTIONS	INTERFACE	PAGE
RH 00		0.025–45 mL/min	316 SST, Ceramic	Analog or Digital	RS-232 or Analog	**118**
RH 00		0.045–45 mL/min	316 SST, Ceramic	Digital	RS-232 and Analog	**118**
RH 0		0.09–90 mL/min	Ceramic	Analog or Digital	RS-232 or Analog	**118**
RH 0		0.05–90 mL/min	Ceramic	Digital	RS-232 and Analog	**118**
RH 1		0.1–180 mL/min	Ceramic	Analog or Digital	RS-232 and Analog	**119**
RH 1 & Q-SERIES		0.18–180 mL/min	Ceramic	Digital	RS-232 or Analog	**120**
		0.4–144 mL/min	316 SST	Digital	RS-232 or Analog	**122**
		0.13–576 mL/min	316 SST, Ceramic	Digital	RS-232 or Analog	**121**
		0.29–1,300 mL/min	316 SST, Ceramic	Digital	RS-232 or Analog	**121**
		0.51–2,300 mL/min	Ceramic	Digital	RS-232 or Analog	**121**

RH Pump Heads

Pump Head RH 00

Stroke volumes 2.5–25 µL

Drives and flow rates:

- Reglo CPF Analog 0.045–45 mL/min
- Reglo CPF Digital 0.1–45 mL/min
- MCP-CPF *Process* 0.025–45 mL/min

Part No.	FMI009	FMI010A
TYPE	RH00.CKC-LF	RH00.SKY-LF
Piston	Ceramic	316 Stainless Steel
Cylinder Case	Kynar® (Fluorocarbon {PVDF})	Kynar (Fluorocarbon {PVDF})
Cylinder Liner	Ceramic	Carbon
Lip Seals	Rulon® AR	Rulon J
Gland Washers	PTFE	PTFE
Max. Temperature	100 °C	60 °C
Max. Differential Pressure	6.9 bar (100 psi)	6.9 bar (100 psi)
Flow Ports	Kynar UNF 1/4"–28 (female)	Kynar UNF 1/4"–28 (female)

PTFE TUBING FOR PUMP HEADS MENTIONED ABOVE (MUST BE ORDERED SEPARATELY)

1.6 mm ID, 3.2 mm OD with 2 fittings UNF 1/4"–28 male

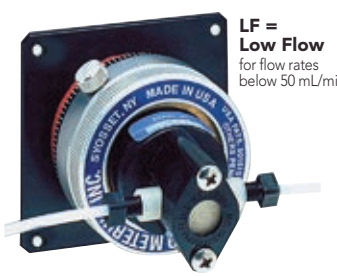
Part No.	Length	Part No.	Length
IC0053	0.25 m	IC0061	0.75 m

Pump Head RH 0

Stroke volumes 5–50 µL

Drives and flow rates:

- Reglo CPF Analog 0.09–90 mL/min
- Reglo CPF Digital 0.2–90 mL/min
- MCP-CPF *Process* 0.050–90 mL/min



LF = Low Flow
for flow rates below 50 mL/min

Part No.	FMI005A	FMI013
TYPE	RH0.CKC	RH0.CKC-LF
Piston	Ceramic	Ceramic
Cylinder Case	Kynar (Fluorocarbon {PVDF})	Kynar (Fluorocarbon {PVDF})
Cylinder Liner	Ceramic	Ceramic
Lip Seals	Rulon AR	Rulon AR
Gland Washers	PTFE	PTFE
Max. Temperature	100 °C	100 °C
Max. Differential Pressure	6.9 bar (100 psi)	6.9 bar (100 psi)
Flow Ports	2 fixed tube fittings for PTFE tubing 6 mm OD	Kynar UNF 1/4"–28 (female)

TUBING (MUST BE ORDERED SEPARATELY)

PTFE tubing 4 mm ID, 6 mm OD

Part No. MF0336
(For other tubing material; use tubing adapters, see page 123)

PTFE tubing 1.6 mm ID, 3.2 mm OD with 2 fittings UNF 1/4"–28 male

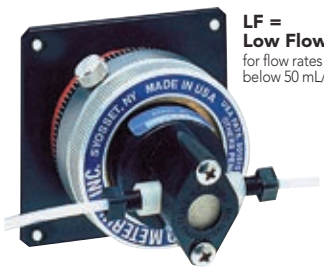
Part No.	Length
IC0053	0.25 m
IC0057	0.50 m
IC0061	0.75 m
IC0065A	1.00 m

Pump Head RH 1

Stroke volumes 10–100 µL

Drives and flow rates:

- Reglo CPF Analog 0.18–180 mL/min
- Reglo CPF Digital 0.4–180 mL/min
- MCP-CPF Process 0.1–180 mL/min



LF = Low Flow
for flow rates below 50 mL/min

Part No.	FMI007	FMI015	FMI008A
TYPE	**RH1.CKC**	**RH1.CKC-LF**	**RH1.CTC**
Piston	Ceramic	Ceramic	Ceramic
Cylinder Case	Kynar® (Fluorocarbon {PVDF})	Kynar (Fluorocarbon {PVDF})	ETFE
Cylinder Liner	Ceramic	Ceramic	Ceramic
Lip Seals	Rulon® AR	Rulon AR	Rulon AR
Gland Washers	PTFE	PTFE	PTFE
Max. Temperature	100 °C	100 °C	100 °C
Max. Differential Pressure	6.9 bar (100 psi)	6.9 bar (100 psi)	6.9 bar (100 psi)
Flow Ports	2 fixed tube fittings for PTFE tubing 6 mm OD	Kynar UNF 1/4"–28 (female)	2 fixed tube fittings for PTFE tubing 6 mm OD

TUBING (MUST BE ORDERED SEPARATELY)

PTFE tubing 4 mm ID, 6 mm OD	PTFE tubing 1.6 mm ID, 3.2 mm OD with 2 fittings UNF 1/4"–28 male		PTFE tubing 4 mm ID, 6 mm OD
Part No. SC1016B0	**Part No.**	**Length**	**Part No. SC1016B0**
(For other tubing material; use tubing adapters, see page 123)	**IC0053**	0.25 m	(For other tubing material; use tubing adapters, see page 123)
	IC0057	0.50 m	
	IC0061	0.75 m	
	IC0065A	1.00 m	

Reglo CPF Analog

REVERSIBLE

Reglo CPF Analog
without dispensing functions
0.045–180 mL/min
Variable speed

Reglo CPF Analog
ISM1014B
with piston pump head RH 00.CKC-LF

Overview of piston pump heads on pages 118 to 119

Reglo CPF Digital

REVERSIBLE

DISPENSING & CALIBRATING

Reglo CPF Digital
with dispensing functions
0.1–180 mL/min
Microprocessor controlled

Reglo CPF Digital
ISM321C
with piston pump head RH 00.CKC-LF

Dispensing Pumps — Ideal for Corrosive Media

- Easy to calibrate
- High repeatability
- Differential pressure up to 6.9 bar (100 psi)
- 10 cm wide, 13.5 cm high
- Wide selection of ceramic piston pumps

Reglo CPF Analog
2-digit potentiometer
1–99%, resolution 1% (for speed)

Reglo CPF Digital
6-button membrane key-pad, LED display
Flow rate setting in µL/min and mL/min

SPECIFICATIONS & DETAILS

	Reglo CPF Analog	Reglo CPF Digital
Motor Type	DC motor	DC motor
Speed	18–1,800 rpm	40–1,800 rpm
Speed Setting	1–99%, resolution 1% 2-digit potentiometer	rpm, resolution 0.1 rpm
Flow Rate Setting		µL/min and mL/min
Power Consumption	50 W	75 W
Mains Connection	230 V AC/50 Hz, 115 V AC/60 Hz, selectable	100–230 V AC/50–60 Hz, selectable
Protection Rating	IP 30	IP 30
Depth/Width/Height	250 x 100 x 143 mm	250 x 100 x 135 mm
Weight	2.5 kg	2.1 kg

Interfaces

RPM
ANALOG

Reglo CPF Analog

- Speed control (0–5 or 0–10 V, 0–20 or 4–20 mA)
- Speed output 0–9 kHz
- Start/stop
- Rotation direction

RS232

Reglo CPF Digital

- RS-232
- Speed output 0–9 kHz, Start/stop, autostart

APPLICATION NOTE

- Highly reproducible, single-channel dispensing processes of organic solvents or acids/bases.
- Dispensing of hydrogen fluoride and other highly corrosive acids with an X-Y-Z dispenser.
- Remotely controlling the pump in hazardous environments.

RELATED PRODUCTS

Accessories	Page 109
Tubing	Pages 75–89

Part No. (Drive Only)	Model (Drive Only)	Flow rates	Channels	Speed
REGLO CPF				
ISM1014B	Reglo CPF Analog	0.045–180	1	18–1,800
ISM321C	Reglo CPF Digital	0.1–180	1	40–1,800
FOOT SWITCH				
ISM891	Reglo CPF Analog, page 109			
ISM894	Reglo CPF Digital, page 109			
THE COMPLETE PUMP SYSTEM REGLO CPF CONSISTS OF:				
Select Drive, page 120				
Select Piston pump head, pages 118–119				

MCP-CPF *Process*

DISPENSING & CALIBRATING

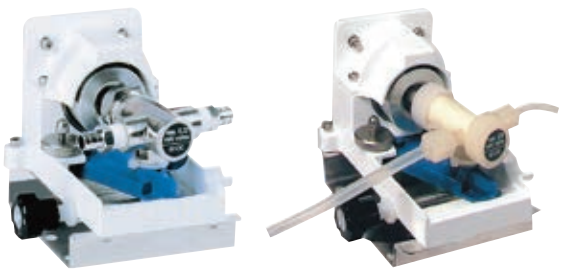
REVERSIBLE

Rotation direction reversible

MCP-CPF *Process*
ISM919A
with rotary piston pump head QP Q0.SSY-LF

'RH' pump heads (description see pages 118 to 119)

Type	Flow rates mL/min	Stroke volumes µL
RH 00	0.025–45	2.5–25
RH 0	0.050–90	5.0–50
RH 1	0.10–180	10.0–100



'Q' pump heads (description see pages 122 to 123)

Type	Flow rates mL/min	Stroke volumes µL
QP Q0	0.04–144	3.2–80
QP Q1	0.13–576	12.8–320
QP Q2	0.29–1,300	28.8–720
QP Q3	0.51–2,300	51.2–1,280

SPECIFICATIONS & DETAILS

Motor Type	DC motor
Speed	10.0–1,800 rpm
Speed Setting	rpm, resolution 0.1 rpm
Flow Rate Setting	µL/min, mL/min, L/min
Power Consumption	100 W
Mains Connection	100–230 V AC/50–60 Hz
Protection Rating	IP 65
Depth/Width/Height	220 x 155 x 260 mm (without pump head)
Weight	6.9 kg (without pump head)

Interfaces

RS232

- PC-controllable
- RS-232
- Speed control (0–5 or 0–10 V, 0–20 or 4–20 mA)

RPM ANALOG

- Speed output (0–10 V DC or 0–7.2 kHZ)
- Start/stop
- Rotation direction
- Autostart
- 2 universal inputs
- 2 universal outputs

APPLICATION NOTE

- Single-channel sterile delivery and dispensing processes under pressure for particulate-free solvents.
- Addition of various reagents in different volume ratios through mixing valve into reactor.

RELATED PRODUCTS

Accessories	Page 109
Tubing	Pages 75–89

Part No.	Description
THE COMPLETE PUMP SYSTEM MCP-CPF ***PROCESS*** CONSISTS OF:	
ISM919A	MCP-CPF Process Pump System
Order the Following to Complete the MCP-CPF Process Pump System	
	Drive, page 121
	Pump head and tubing, pages 122–123
IS10039	Foot switch, page 109
LabVIEW™ driver download for free: www.idex-hs.com/ismatec	

Q-Type Pump Heads

Pump Head Q0 and Q3

- Q0 = stroke vol. 3.2–80 µL
- Q3 = stroke vol. 51.2–1,280 µL
- Q0 = flow rate 0.04–144 mL/min
- Q3 = flow rate 0.51–2,300 mL/min

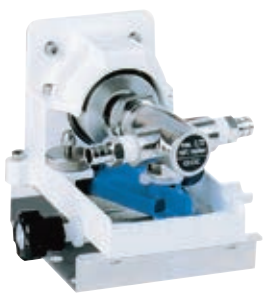
Part No.	FMI202	FMI217
TYPE QP	Q0.SSY	Q3.CKC
Piston	316 Stainless Steel	Ceramic
Cylinder Case	316 Stainless Steel	Kynar (Fluorocarbon {PVDF})
Cylinder Liner	Carbon	Ceramic
Lip Seals	Rulon® J	Rulon AR
Gland Washers	PTFE	PTFE
Cylinder Head Seal	PTFE	None
Max. Temperature	60 °C	100 °C
Max. Differential Pressure	6.9 bar	1.7 bar (to 1,600 rpm) 0.5 bar (from 1,600 rpm)
Flow Ports	1/4 NPT (female) Includes: 2 stainless steel adapters with thread 1/4 NPT (male) and fitting for tubing with 6.4 mm ID	For tubing up to 12.7 mm ID or PTFE tubing 6 mm OD Includes: 2 Kynar (PVDF) adapters for tubing with 6 mm OD

TUBING (MUST BE ORDERED SEPARATELY)

Part No.	Tubing ID	Part No.	Tubing ID
Tygon® ST R-3603		Tygon ST R-3603	
MF0031	6.4 mm	SC0382	12.7 mm
Accessories		PTFE Tubing	
FMI056A	Low Flow Kit R 479 (see below)	MF0336	4 mm/6 mm, 3.6 m long

Pump Heads Q1 and Q2

- Q1 = stroke vol. 12.8–320 µL
- Q2 = stroke vol. 28.8–720 µL
- Q1 = flow rates 0.13–576 mL/min
- Q2 = flow rates 0.29–1,300 mL/min



Part No.	FMI205	FMI212	FMI352
TYPE QP	Q1.CSC	Q2.CSC	Q1.CKC
Piston	Ceramic		Ceramic
Cylinder Case	316 Stainless Steel		Kynar®2
Cylinder Liner	Ceramic		Ceramic
Lip Seals	Rulon AR		Rulon AR
Gland Washers	PTFE		PTFE
Cylinder Head Seal	PTFE		none
Max. Temperature	177 °C		100 °C
Max. Differential Pressure	6.9 bar (100 psi)		4.1 bar (60 psi)
Main Flow Ports	1/4 NPT (female) Includes: 2 stainless steel adapters with thread 1/4 NPT (male) and fitting for tubing with 9.5 mm ID		For tubing up to 9.5 mm ID

TUBING (MUST BE ORDERED SEPARATELY)

Part No.	Tubing ID
Tygon ST R-3603	
SC0383A	9.5 mm
Accessories	
FMI056A	Low Flow Kit R 479

Other Materials for Wetted Parts for:

Pump Heads Q1 and Q2 (see table below)

- Q1 = stroke vol. 12.8–320 µL
- Q2 = stroke vol. 28.8–720 µL
- Q1 = flow rates 0.13–576 mL/min
- Q2 = flow rates 0.29–1,300 mL/min

Part No.	FMI355	FMI356	FMI357	FMI358	FMI353	FMI359	FMI360	FMI361	FMI362	FMI363	FMI364	FMI365	FMI366
QP TYPE PUMP HEADS	Q2.CKC	Q1.CKC-W	Q2.CKC-W	Q1.CKY	Q2.CKY	Q1.CSY	Q2.CSY	Q1.SKY	Q2.SKY	Q1.SSY	Q2.SSY	Q1.SAN[1]	Q2.SAN[1]
Piston	Ceramic	Ceramic		Ceramic		Ceramic		316 Stainless Steel		316 Stainless Steel		Ceramic	
Cylinder Case	Kynar®[2]	Kynar[2]		Kynar[2]		316 Stainless Steel		Kynar[2]		316 Stainless Steel		316 Stainless Steel	
Cylinder Liner	Ceramic	Ceramic		Carbon		Carbon		Carbon		Carbon		316 Stainless Steel	
Lip Seals	Rulon® AR	Rulon AR		Rulon AR		Rulon AR		Rulon J		Rulon J		PTFE	
Gland Washers	PTFE	PTFE		PTFE		PTFE		PTFE		PTFE		PTFE	
Cylinder Head Seal	None	None		None		PTFE		None		PTFE		PTFE	
Max. Temperature	100 °C	100 °C		100 °C		177 °C		60 °C		60 °C		177 °C	
Max. Diff. Pressure	4.1 bar (60 psi)	4.1 bar (60 psi)		4.1 bar (60 psi)		6.9 bar (100 psi)		4.1 bar (60 psi)		6.9 bar (100 psi)		6.9 bar (100 psi)	
Main Flow Ports	For tubing up to 9.5 mm ID	For tubing up to 9.5 mm ID With isolation gland Fittings for tubing with 3.2 mm ID		For tubing up to 9.5 mm ID		1/4 NPT (female)		For tubing up to 9.5 mm ID		1/4 NPT (female)		PTFE tubing adaptor	

[1] Designed for sanitary applications.
[2] Kynar = Fluorocarbon (PVDF).

Low Flow Kit R 479

Part No. FMI056

Suitable for the following pump heads:

- QP Q0.SSY
- QP Q1.SSY
- QP Q2.CSY
- QP Q1.CSC
- QP Q2.CSC
- QP Q2.SSY
- QP Q1.CSY

This Low Flow adaptor Kit enables the use of the above mentioned pump heads for flow rates below 50 mL/min or in case that a minimum dead volume or a maximum of chemical compatibility are required. The adaptor features a 1/4-28 inner thread. These threads are used with low flow tube fittings for small bore tubing of 3.2 mm OD or less. Hence, this Low Flow Kit is also very useful for chromatography applications.

Part No.	Length
PTFE TUBING FOR LOW FLOW KIT R 479	
1.6 mm ID/3.2 mm OD, with 2 fittings 1/4-28 (male)	
IC0053	0.25 m long
IC0057	0.50 m long
IC0061	0.75 m long
IC0065A	1.00 m long

Tubing Adapters for Pump Heads with a Kynar Cylinder Case:

- Q0.SKY
- Q1.CKC
- Q1.CKY
- Q1.SKY
- Q2.CKC
- Q2.CKY
- Q2.SKY
- Q3.CKC

In addition to the tubing mentioned above, these adapters enable the use of other tubing.

Part No.	Description	
TUBING ADAPTERS		
FMI050	R412-0K	For tubing with 3.2 mm ID
FMI051	R412-1K	For tubing with 6.4 mm ID
FMI052	R412-2K	For tubing with 9.5 mm ID
FMI053	R412-5K	For tubing with 1/4–28 ferrule fittings
FMI054	H476K	For tubing with 3.2 mm OD

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