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manostat®

Pumps & Dispensers

Variable Flow

Variable Flow Dispensing

Compulab® 3

Multi-Channel Cassette

Economy



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Variable Flow Pumps



PRESTON®

VARIABLE FLOW PUMP SYSTEM WITH REMOTE

- Variable Flow from 2 ml/min to 5000 ml/min.
- All models have a separate precision digital speed and lighted on/off switch. The on/off switch lets you maintain your flow rate setting when pump is turned off.
- Each model is reversible for purging of transfer lines.
- The 1/10 hp reversible motor has soft start and back EMF for 3% speed control.
- Stackable painted steel housing is IP22.
- Removable 6 ft (1.8 m) line cord–US standard plug on 115 VAC models, IEC 320/CEE 22 socket on 230 VAC models.
- **All 115 VAC models meet UL 508, IEC 1010 and cUL; 230 VAC models meet CE regulations for safety and noise immunity.**
- All drives come complete with pump head and tubing link.
- Remote control capabilities via DB9 female connector on back of drive (models **72-372-000** & **72-372-230** only). Speed control requires 4-20 mA input (< 4 mA stops drive) or 2-10 VDC.
- DB9 male connector. Wire only the pins needed for remote control. Order catalog No. **7595-45**
- The chemically-resistant pumphead (molded of glass filled Noryl®) has three Delrin® rollers and a plexiglass safety cover.
- Start/stop operation by an open contact closure or open collector driver. Order foot switch model **73-750-000**. (Remote Models only)
- Operating temperature 0-40˚C.

Flow Rates in mL/Min @ 24-720 rpm speed range

Model	Tubing Sizes	13	14	16	25	17	18
Preston	ml/min	2-40	11-295	45-1200	80-2500	170-4200	245-5000
	Tube I.D. Size (")	1/32	1/16	1/8	3/16	1/4	5/16
Simon Vera	ml/min	1-35	5-200	25-750	60-1700	90-2650	135-3450
	Tube I.D. Size (")	1/32	1/16	1/8	3/16	1/4	5/16

Flow ranges are approximate–calculated under the following conditions: 0 psi at inlet, 0.5 psi at outlet: water circulating at 72 F˚ (22˚C). Actual performance varies depending on tubing formulation–values shown are for firm tubing.

Specification & Ordering Information

Standard Pump System

Model	Cat. No.	RPM	Speed Control	Motor Size	IP Rating	Dims LxWxH	Shpg. Wt.	Power 50/60 HZ
Preston	72-370-000	24-720	±3%	1/10 HP	IP22	11 1/2 x 10 x 6 1/4 29.2 x 25.4 x 15.9 cm	16 Lbs 7.3 Kg	100-130 VAC
	72-370-230							190-260 VAC
Simon Vera	72-310-000 72-315-000	24-720	±3%	1/10 HP	IP22	10 1/4 x 9 x 5 1/8 26 cm x 22.9 cm x 13 cm	12 Lbs 5.6 Kg	100-130 VAC
Simon Vera	72-310-230 72-315-230							190-260 VAC

Standard Pump System w/Remote Control

Model	Cat. No.	RPM	Speed Control	Motor Size	IP Rating	Dims LxWxH	Shpg. Wt.	Power 50/60 HZ
Preston	72-372-000	24-720	±3%	1/10 HP	IP22	11 1/2 x 10 x 6 1/4 29.2 x 25.4 x 15.9 cm	16 Lbs 7.3 Kg	100-130 VAC
	72-372-230							190-260 VAC
Simon Vera	72-312-000 72-317-000	24-720	±3%	1/10 HP	IP22	10 1/4 x 9 x 5 1/8 26 cm x 22.9 cm x 13 cm	12 Lbs 5.6 Kg	100-130 VAC
Simon Vera	72-312-230 72-317-230							190-260 VAC



SIMON®



VERA®

VARIABLE FLOW PUMP SYSTEM WITH REMOTE

- Variable Flow from 1ml/min to 3450 ml/min.
- The **SIMON** models have an analog single-turn speed control. The **VERA** models have a precision digital speed control.
- All models have a lighted on/off switch. The on/off switch lets you maintain your flow rate setting when pump is turned off.
- Each model is reversible for purging of transfer lines.
- The 1/10 hp reversible motor has soft start and back EMF for 3% speed control.
- Stackable painted steel housing is IP22.
- Removable 6-ft (1.8 m) line cord–US standard plug on 115 VAC models, IEC 320/CEE 22 socket on 230 VAC models.
- **All 115 VAC models meet UL 508, IEC 1010 and cUL; 230 VAC models meet CE regulations for safety and noise immunity.**
- All drives come complete with pump head and 4 ft silicone tubing (size 17).
- Remote control capabilities via DB9 female connector on back of drive (**VERA** models **72-317- 000** & **72-317-230** and **SIMON** models **72-312-000, 72-312-230**). Remote Speed control requires 4-20 mA input (< 4 mA stops drive) or 2-10 VDC.
- DB9 male connector. Wire only the pins needed for remote control. Order catalog No. **7595-45**
- The chemically-resistant pumphead (molded of glass filled Noryl®) has three stainless rollers and a plexiglass safety cover.
- Start/stop operation by an open contact closure or open collector driver. Order foot switch model **73-750-000**. (Remote models only)
- Operating temperature 0-40˚C.

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Variable Flow Dispenser Pumps



S P E N C E R®

VARIABLE FLOW DISPENSER SYSTEM

Four Modes of Operation:

Continuous Pump
Manual Dispense
Timed Dispense with auto stop
Continuous Dispense Cycle

- Dispense Volumes from 0.5 to 1700 ml/cycle.
- Dispense Time Control Knob lets you set dispense time from 0.2 to 20 seconds.
- Pause Time Control Knob lets you set delay interval from 1 to 10 seconds between dispensing cycles.
- Variable Flow from 2 ml/min to 5000 ml/min.
- Analog single-turn speed control.
- Lighted On/off switch. The On/off switch lets you maintain your flow rate setting when pump is turned on.
- Unit is reversible for purging of transfer lines.
- The 1/10 hp reversible motor has soft start and back EMF for 3% speed control.
- Stackable painted steel housing is IP22.
- Removable 6 ft. (1.8m) line cord -US standard plug on 115 VAC models, IEC 320/CEE 22 socket on 230 VAC models.
- All units are equipped with a Pump Status Jack that can be used to operate remote relays to start/stop other equipment being utilized with dispenser.
- All 115 VAC models meet UL508, IEC 1010 and cUL; 230 VAC models meet CE regulations for safety and noise immunity.
- All drives come complete with pump head, dispensing handle and tubing link.
- The chemically-resistant pump head (molded of glass filed Noryl®) has three Delrin® rollers and a plexiglass safety cover.
- Operating Temperature 0-40ºC.



K A T E®

VARIABLE FLOW DISPENSER SYSTEM

Three Modes of Operation:

Continuous Pump
Manual Dispense
Timed Dispense with auto stop

- Dispense Volumes from 0.5 to 1070 ml/cycle.
- Dispense time Control Knob lets you set dispense time from 0.2 to 20 seconds.
- Variable Flow from 1 ml/min to 3450 ml/min.
- Analog single-turn speed control.
- Lighted On/off switch. The On/off switch lets you maintain your flow rate setting when pump is turned on.
- The 1/10 hp motor has soft start and back EMF for 3% speed control.
- Stackable painted steel housing is IP22.
- Removable 6 ft. (1.8m) line cord -US standard plug on 115 VAC models, IEC 320/CEE 22 socket on 230 VAC models.
- All units are equipped with a Pump Status Jack that can be used to operate remote relays to start/stop other equipment being utilized with dispenser.
- All 115 VAC models meet UL508, IEC 1010 and cUL; 230 VAC models meet CE regulations for safety and noise immunity.
- All drives come complete with pump head, dispensing handle and 4 ft. Silicone tubing (size 17).
- The chemically-resistant pump head (molded of glass filled Noryl®) has three stainless steel rollers and a plexiglass safety cover.
- Operating temperature 0-40˚C.

Flow Rates in ml/min @ 24-720 rpm speed range

Model	Tubing Sizes	13	14	16	25	17	18
Spencer	ml/min	2-40	11-295	45-1200	80-2500	170-4200	245-5000
	Tube I.D. Size (")	1/32	1/16	1/8	3/16	1/4	5/16
Kate	ml/min	1-35	5-200	25-750	60-1700	90-2650	135-3450
	Tube I.D. Size (")	1/32	1/16	1/8	3/16	1/4	5/16

Dispensing Volume ml/cycle @ 24-720 rpm speed range

Model	Tubing Sizes	13	14	16	25	17	18
Spencer	ml/cycle	0.5-25	1-95	2.5-320	9-800	13-1250	20-1700
	Tube I.D. Size (")	1/32	1/16	1/8	3/16	1/4	5/16
Kate	ml/cycle	0.5-12	1-35	3.5-190	14-420	13-710	35-1070
	Tube I.D. Size (")	1/32	1/16	1/8	3/16	1/4	5/16

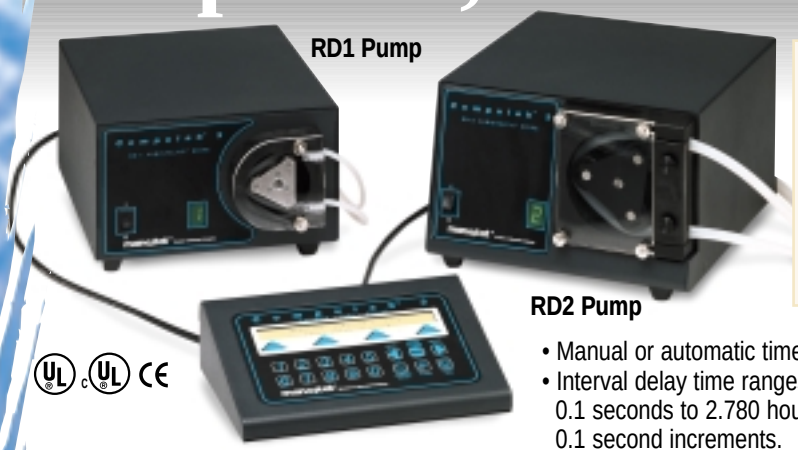
Ranges are approximate–calculated under the following conditions: 0 psi at inlet, 0.5 psi at outlet: water circulating at 72 F˚ (22˚C). Actual performance varies depending on tubing formulation–values shown are for firm tubing.

Specification & Ordering Information

Model	Cat. No.	RPM	Speed Control	Motor Size	IP Rating	Dims LxWxH	Shpg. Wt.	Power 50/60 HZ
SPENCER	72-640-000	24-720	3%	1/10 HP	IP22	11 1/2 x 10 x 6 1/4 29.2 x 25.4 x 15.9 cm	16 Lbs 7.3 Kg	100-130 VAC
	72-640-230							190-260 VAC
KATE	72-620-000	24-720	3%	1/10 HP	IP22	10 1/4 x 9 x 5 1/4 26 x 22.9 x 113 cm	12 Lbs 5.6 Kg	100-130 VAC
	72-620-230							190-260 VAC

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Dispenser, Transfer, Dilute



Connect 4 Pump Drives to a Single Compulab® Controller
Check the charts below for the pump drive (s) that best suit your application.

Order the controller and any combination of pump drives (up to four)



C O M P U L A B® 3

Microprocessor Controlled Dispenser / Dilutor / Pump

Standard Fluid Transfer:

- One bench top programmable controller capable of running up to four individual RD1 or RD2 pumps synchronized and independently. (Mix-or-match)
- Flow rate of RD-1 pump is .4-3450 ml/min. The RD-2 pumps .5-5000 ml/min.
- Easy connection of control and pump drives with supplied 3 1/2 ft RJ-12 (phone) cord. Maximum connection length of 15 ft.
- Up to 30 user programs can be stored in memory.
- Accuracy and Repeatability +/- 1%.
- 1 to 999 cycles or continuous operation in dispense and dilute modes.
- Manual or automatic timed delay cycling.
- Interval delay time ranges from as low as 0.1 seconds to 2.780 hours programmed in 0.1 second increments.
- User-friendly, menu-driven keypad with 80 character, backlit, alphanumeric, liquid-crystal display (2 x 40).
- Twenty-key keypad facilitates direct data entry. Keypad provides tactile feedback.
- No calibration necessary when changing volume with the same size tubing.
- Both pump models are dual voltage 115/230 VAC (switchable) and meet UL 508, IEC 1010, cUL and CE regulations. The controller power is supplied by the pump drives.
- Speed Control Feedback maintains accurate flow rate. 1/10 HP motor provides controlled responsive dispensing.
- Direct input of volumes, flow rates, and speed. Ranges determined by tubing size.
- Pump speed and dispense volume can be changed "on-the-fly" while pump is running.
- Direct connection and control from a PC-compatible DB9 serial port.
- The pump drives have an illuminated On/Off switch and seven-segment LED to indicate the pump address.
- RD1 and RD2 drives come complete with chemically resistant pump head (molded of glass filled Noryl®). The RD1 pump head has three stainless steel rollers. The RD2 pump head has three Delrin rollers.
- Operating temperature 0˚C to 40˚C.
- IP rating: 22

Dispensing/Diluting:

- Dispense delivery is set by volume, not limited to time, from 0.5 mL to 5000/L for RD-1 and 0.5 mL to 7000/L for RD-2 based on tubing size.
- Programmable anti-drip feature reverses pump for set rotations after each cycle. Ideal for more viscous solutions.
- Completed dispense cycles are confirmed with an audible prompt programmable for 0.0 to 60 seconds. Semi-automatic dispenses are individually prompted.
- Direct connection and control in conjunction with Ohaus and Sartorius balances.

Flow Rates in mL / min

	Tubing	Size 13	Size 14	Size 16	Size 25	Size 17	Size 18
RD2 Pump 72-666-100	ml/min	.5-50	3-300	12-1200	26-2600	42-4200	50-5000
RD1 Pump 72-777-100	ml/min	.4-40	2-200	7.5-750	17-1700	26.5-2650	34.5-3450

Dispensing Volumes mL / Cycle

	Tubing	Size 13	Size 14	Size 16	Size 25	Size 17	Size 18
RD2 Pump 72-666-100	minimum ml/cycle	3	15	55	120	200	250
RD1 Pump 72-777-100	minimum ml/cycle	2	10	40	85	135	175

Specification & Ordering Information

Compulab® 3 Controller (includes software)

Cat. No.	Dims. L x W x H	Shipping Weight	Power
72-767-000	8 3/4 x 6 1/8 x 3 1/4 front to 7 3/4 back	5 Lbs 2.7 Kg	Powered by Pump Drive

Compulab® 3 Pump Drives (includes dispensing wand)

Cat. No.	Pump Drives	RPM	Speed Control	Motor Size	IP Rating	Dims LxWxH (Pump Drive)	Shipping Weight	Power 50/60 Hz
72-666-100	RD2 Pump	12-720	± 0.3	1/10 HP	IP 22	9 1/2 x 10 1/2 x 6	14 Lbs 6.4 Kg	115/230 VAC 2A
72-777-100	RD1 Pump	12-720	± 0.3	1/10 HP	IP 22	8 3/4 x 10 x 5	10 Lbs 4.5 Kg	115/230 VAC 2A

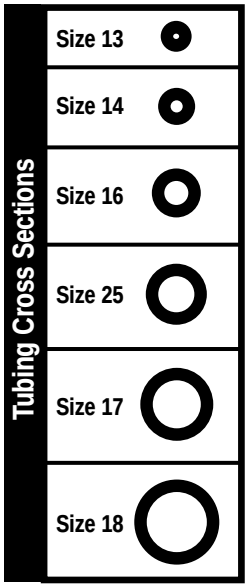
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Tubing Specifications

	Tubing Size	Size 13	Size 14	Size 16	Size 25	Size 17	Size 18
	Inside Dia	0.03	0.06	0.12	0.19	0.25	0.31
	Hose Barb	1/16	1/16	1/8	3/16	1/4	3/8
Pharmed® 25 ft/pkg	**Part No.**	**75-301-013**	**75-301-014**	**75-301-016**	**75-301-025**	**75-301-017**	**75-301-018**
	Max Pressure	15 PSI	25 PSI	25 PSI	25 PSI	15 PSI	10 PSI
	Max Vacuum	26" hg	26" hg	26" hg	26" hg	20" hg	20" hg.
Pharmed® Pumping Links	**Preston**	**75-301-135**	**75-301-145**	**75-301-165**	**75-301-255**	**75-301-175**	*
	Simon / Vera	**72-301-135**	**72-301-145**	**72-301-165**	**72-301-255**	**72-301-175**	*
	Spencer	**75-301-135**	**75-301-145**	**75-301-165**	**75-301-255**	**75-301-175**	*
	Kate	**72-301-135**	**72-301-145**	**72-301-165**	**72-301-255**	**72-301-175**	*
	Compulab RD1	**75-301-135**	**75-301-145**	**75-301-165**	**75-301-255**	**75-301-175**	*
	Compulab RD2	**72-301-135**	**72-301-145**	**72-301-165**	**72-301-255**	**72-301-175**	*
Norprene® Food 50 ft/pkg	**Part No.**	**75-305-013**	**75-305-014**	**75-305-016**	**75-305-025**	**75-305-017**	**75-305-018**
	Max Pressure	15 PSI	25 PSI	25 PSI	25 PSI	15 PSI	10 PSI
	Max Vacuum	26" hg	26" hg	26" hg	26" hg	20" hg	20" hg
Norprene® Pumping Links	**Preston**	**75-305-135**	**75-305-145**	**75-305-165**	**75-305-255**	**75-305-175**	*
	Simon / Vera	**72-305-135**	**72-305-145**	**72-305-165**	**72-305-255**	**72-305-175**	*
	Spencer	**75-305-135**	**75-305-145**	**75-305-165**	**75-305-255**	**75-305-175**	*
	Kate	**72-305-135**	**72-305-145**	**72-305-165**	**72-305-255**	**72-305-175**	*
	Compulab RD1	**75-305-135**	**75-305-145**	**75-305-165**	**75-305-255**	**75-305-175**	*
	Compulab RD2	**72-305-135**	**72-305-145**	**72-305-165**	**72-305-255**	**72-305-175**	*
Silicone Platinum Cured 25 ft/pkg	**Part No.**	**75-300-013**	**75-300-014**	**75-300-016**	**75-300-025**	**75-300-017**	**75-300-018**
	Max Pressure	10 PSI	10 PSI	10 PSI	10 PSI	10 PSI	10 PSI
	Max Vacuum	26" hg	26" hg	26" hg	26" hg	20" hg	20" hg
Silicone Pumping Links	**Preston**	**75-300-135**	**75-300-145**	**75-300-165**	**75-300-255**	**75-300-175**	*
	Simon / Vera	**72-300-135**	**72-300-145**	**72-300-165**	**72-300-255**	**72-300-175**	*
	Spencer	**75-300-135**	**75-300-145**	**75-300-165**	**75-300-255**	**75-300-175**	*
	Kate	**72-300-135**	**72-300-145**	**72-300-165**	**72-300-255**	**72-300-175**	*
	Compulab RD1	**75-300-135**	**75-300-145**	**75-300-165**	**75-300-255**	**75-300-175**	*
	Compulab RD2	**72-300-135**	**72-300-145**	**72-300-165**	**72-300-255**	**72-300-175**	*
Tygon® 50 ft/pkg	**Part No.**	**75-310-013**	**75-310-014**	**75-310-016**	**75-310-025**	**75-310-017**	**75-310-018**
	Max Pressure	15 PSI	25 PSI	25 PSI	25 PSI	15 PSI	10 PSI
	Max Vacuum	26" hg	26" hg	26" hg	26" hg	20" hg	20" hg
Tygon® Pumping Links	**Preston**	**75-310-135**	**75-310-145**	**75-310-165**	**75-310-255**	**75-310-175**	*
	Simon / Vera	**72-310-135**	**72-310-145**	**72-310-165**	**72-310-255**	**72-310-175**	*
	Spencer	**75-310-135**	**75-310-145**	**75-310-165**	**75-310-255**	**75-310-175**	*
	Kate	**72-310-135**	**72-310-145**	**72-310-165**	**72-310-255**	**72-310-175**	*
	Compulab RD1	**75-310-135**	**75-310-145**	**75-310-165**	**75-310-255**	**75-310-175**	*
	Compulab RD2	**72-310-135**	**72-310-145**	**72-310-165**	**72-310-255**	**72-310-175**	*

Tubing Formulation

	Physical Characteristics and Composition	Temperature Range	Meets Classifications
Pharmed®	Thermoplastic elastomer. Polypropylene-based material with USP mineral oil. Excellent tensile strength. Firm (stiff) material. Opaque, beige.	-75 to 275˚F (-59 to 135˚C)	USP Class VI FDA 21 CFR 177.2600
Norprene® Food	Thermoplastic elastomer. Polypropylene-based material with USP mineral oil. Excellent tensile strength. Firm (stiff) material. Opaque, beige.	-75 to 275˚F (-59 to 135˚C)	FDA 21 CFR 177.2600 NSF Listed (Standard 51)
Silicone Platinum Cured	Thermal set rubber Siloxane polymers and amorphous silica. Excellent compression strength. Soft material Translucent, clear to light amber.	-60 to 460˚F (-51 to 232˚C)	USP Class VI FDA 21 CFR 177.2600
Tygon® R-3603	Thermoplastic. PVC-based material with plasticizer. Firm (stiff) material. Transparent, clear.	-58 to 165˚F (-50 to 74˚C)	FDA 21 CFR 175.300



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* Pumping links not required for size 18.

Multi-Channel Precision Pumping



Drive Specifications

Horsepower	1/10 HP (75W)
RPM Range	3.5 to 200
Accuracy	0.25% (Full Speed)
Enclosure Rating	IP23
Control Type	PWM, with encoder feedback
Remote Inputs	0-20mA, 4-20mA or 0 to 10VDC
Remote Outputs	0-20mA, 4-20mA or 0 to 10VDC or TTL pulse
Other Remote Functions	Pumping direction, start, and stop, pump on/off
Power Requirements (50/60Hz)	115VAC or 230VAC
Dimensions	(11.5 x 7 x 7) (29.2 x 17.8 x 17.8 cm)
Shipping Weight	14.7 lbs. (6.7 kg)

Applications include:

- Infusion/perfusion
- Continuous cell culture
- Cell harvesting
- Bioassays
- Drug time release studies
- Electrophoresis (gel preparation and buffer circulation)
- Chromatography (liquid, ion exchange, gel, and column)
- pH control
- Fraction collection
- Process development
- Product formulation
- Pumping coatings and resins
- Industrial waste studies
- Simulated soil columns and many more.

The Manostat Carter pump family provides multichannel pumping with the accuracy of flow control and broad flow range to service most pumping requirements.

- Three modes of operation - Flow, Timed Flow and Programmable Cycle Dispensing
- Flowranges from 3 microliters per minute to 760 ml/min.
- Digital display of pump speed or percent of maximum speed or number of dispense cycles.
- Membrane keypad provides easy operation of pump and seals controls from fluid entry.
- Remote control of speed (4-20 mA, 0-20 mA, 0-10VDC), pumping direction, start/ stop/purge.
- Tachometer output: 0-20 mA, 4-20 mA, 0-10VDC, or TTL pulse.
- Reversible for purging.
- Each unit is supplied complete with pumphead and a full set of cassettes. Order extra cassettes separately.
- Units carry certification from UL, cUL and CE (230 volts only).
- Each pump system is supplied with a full set of cassettes.

Models/Product Numbers

(Each pump system is complete with pumphead, drive, full set of cassettes,power cord and operators manual.)

Catalog Number	Description
74-046-12131	CARTER 4/6 cassette pump system, 115VAC
74-046-12132	CARTER 4/6 cassette pump system, 230VAC
74-048-12131	CARTER 4/8 cassette pump system, 115VAC
74-048-12132	CARTER 4/8 cassette pump system, 230VAC
74-083-12131	CARTER 8/3 cassette pump system, 115VAC
74-083-12132	CARTER 8/3 cassette pump system, 230VAC
74-084-12131	CARTER 8/4 cassette pump system, 115VAC
74-084-12132	CARTER 8/4 cassette pump system, 230VAC
74-126-12131	CARTER 12/6 cassette pump system, 115VAC
74-126-12132	CARTER 12/6 cassette pump system, 230VAC
74-128-12131	CARTER 12/8 cassette pump system, 115VAC
74-128-12132	CARTER 12/8 cassette pump system, 230VAC
72-560-000	Small cassette for CARTER 4/6, 4/8 12/6 and 12/8 pumps
72-560-100	Large cassette for CARTER 4/6, and 12/6 pumps
72-557-000	Small cassette for CARTER 8/3 and 8/4 pumps
72-557-100	Large cassette for CARTER 8/3, and 8/4 pumps



	Carter 4/6	Carter 4/8	Carter 8/3	Carter 8/4	Carter 12/6	Carter 12/8
No. of Channels	4	4	8	8	12	12
No. of Rollers	6	8	3	4	6	8
Flow Range	0.0064 to 360 ml/min	0.006 to 68 ml/min	0.007 to 760 ml/min	0.007 to 600 ml/min	0.0012 to 74 ml/min	0.0012 to 14 ml/min
Accommodates "X" Cassettes	4 small or 2 large	4 small, No large	8 small or 4 large	8 small or 4 large	12 small or 6 large	12 small, No large
Gear Ratio	1:1	1:1	1:1	1:1	5:1	5:1
Occlusion	Offset, tangential, adjustable	Offset, tangential, adjustable	Offset, tangential, adjustable	Offset, tangential, adjustable	Offset, tangential, adjustable	Offset, tangential, adjustable
Materials of Construction	Stainless steel rotor, Rulon rollers, Polysulfone ends	Stainless steel rotor, Rulon rollers, Polysulfone ends	Stainless steel rotor and rollers, Polysulfone ends	Stainless steel rotor and rollers, Polysulfone ends	Stainless steel rotor, Rulon rollers, Polysulfone ends	Stainless steel rotor, Rulon rollers, Polysulfone ends
Shipping Weight	2.5 lbs. (1.2 kg)	2.5 lbs. (1.2 kg)	3.3 lbs. (1.5 kg)	3.3 lbs. (1.5 kg)	4.5 lbs. (2.1 kg)	4.5 lbs. (2.1 kg)

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Flowrates in ml/min with Microbore Tubing (Use with Small Cartridges)

Model Number	Number of Rollers	Microbore 2-stop tubing links					
		0.19 mm id	0.25 mm id	0.89 mm id	1.42 mm id	2.06 mm id	2.79 mm id
Carter 4/6	6	0.0064 to 0.64	0.011 to 1.1	0.13 to 12	0.28 to 28	0.58 to 58	0.90 to 90
Carter 4/8	8	0.006 to 0.6	0.010 to 1.0	0.10 to 10	0.24 to 24	0.44 to 44	0.68 to 68
Carter 8/3	3	0.0070 to 0.70	0.012 to 0.12	0.14 to 14	0.36 to 36	0.74 to 74	1.3 to 126
Carter 8/4	4	0.0070 to 0.70	0.012 to 0.12	0.14 to 14	0.36 to 36	0.74 to 74	1.3 to 126
Carter 12/6	6	0.0012 to 0.12	0.0022 to 0.22	0.026 to 2.6	0.056 to 5.6	0.12 to 12	0.18 to 18
Carter 12/8	8	0.0012 to 0.12	0.002 to 0.2	0.02 to 2	0.046 to 4.6	0.08 to 8.6	0.14 to 14

Flowrates in ml/min with Manostat Precision Tubing (Use with Large Cartridges)

Model Number	Number of Rollers	Manostat precision tubing links					
		-013	-014	-016	-025	-017	-018
Carter 4/6	6	0.1 to 10	0.3 to 30	1.1 to 108	2 to 200	2.8 to 280	3.6 to 360
Carter 4/8	8	0.08 to 8	0.28 to 28	Not recommended			
Carter 8/3	3	0.12 to 12	0.42 to 42	0.16 to 160	3.4 to 340	5.6 to 580	7.6 to 760
Carter 8/4	4	0.1 to 10	0.38 to 38	1.4 to 136	2.8 to 280	4.6 to 460	6 to 600
Carter 12/6	6	0.019 to 1.9	0.066 to 6.6	0.2 to 20	0.4 to 40	0.58 to 56	0.74 to 74
Carter 12/8	8	0.016 to 1.6	0.058 to 5.8	Not recommended			

Microbore Tubing Links and Transfer Tubing Ordering Information

Tubing ID (mm) Links	PVC 12/pk	Silicone 6/pk	Santoprene 12/pk	Viton 12/pk
0.19	72-450-019	–	–	–
0.25	72-450-025	–	72-470-025	–
0.89	72-450-089	72-460-089	72-470-089	72-480-089
1.42	72-450-142	72-460-142	72-470-142	72-480-142
2.06	72-450-206	72-460-206	72-470-206	72-480-206
2.79	72-450-279	72-460-279	72-470-279	72-480-279
Tubing	100 ft	50 ft	100 ft	50 ft
0.19	72-451-019	–	–	–
0.25	72-451-025	72-461-025	72-471-025	–
0.89	72-451-089	72-461-089	72-471-089	72-481-089
1.42	72-451-142	72-461-142	72-471-142	72-481-142
2.06	72-451-206	72-461-206	72-471-206	72-481-206
2.79	72-451-279	72-451-279	72-471-279	72-481-279

Manostat Precision Pump Tubing Links and Transfer Tubing Ordering Information

Tubing Size Links	Inside Dia.	Hose Barb	Tygon 12/pk	Silicone 6/pk	Pharmed 12/pk
13	0.03	1/16	72-580-135	72-570-135	72-571-135
14	0.06	1/16	72-580-145	72-570-145	72-571-145
16	0.12	1/8	72-580-165	72-570-165	72-571-165
25	0.19	3/16	72-580-255	72-570-255	72-571-255
17	0.25	1/4	72-580-175	72-570-175	72-571-175
18	0.31	3/8	–	72-570-185	–
Tubing			50 ft/pk	25 ft/pk	25 ft/pk
13	0.03	1/16	75-310-013	75-300-013	75-301-013
14	0.06	1/16	75-310-014	75-300-014	75-301-014
15	0.12	1/8	75-310-016	75-300-016	75-301-016
16	0.19	3/16	75-310-250	75-300-250	75-301-250
17	0.25	1/4	75-310-017	75-300-017	–
18	0.31	3/8	–	75-300-018	–

Tubing Formulation

	Physical Characteristics and Composition	Temperature Range	Meets Classification
Pharmed® Santoprene	Thermoplastic elastomer. Polypropylene-based material with USP mineral oil. Excellent tensile strength. Firm stiff material. Opaque, beige.	-75 to 275F (-59 to 135C)	USP Class VI FDA 21 CFR 177.2600 NSF Listed (Standard 51)
Silicone® Platinum Cured	Thermal set rubber Siloxanes polymers and amorphous silica. Excellent compression strength. Soft material Translucent, clear to light amber.	-60 to 460F (-51 to 232C)	USP Class VI FDA 21 CFR 177.2600
Tygon® R-3603 PVC	Thermoplastic PVC based material with plasticizer. Firm stiff material. Transparent, clear	-58 to 165F (-50 to 74C)	FDA 21 CFR 175.300
Viton® Fluoroelastomer	Thermal set rubber. Viton B (67% Fluorine) Firm stiff material Opaque, black	-25 to 400F (-32 to 205C)	None



Cartridge Information

	No. of	Max. No. of Cartridges		Cartridges	
	Rollers	Small	Large	Small	Large
Carter 4/6	6	4	2	72-560-000	72-560-100
Carter 4/8	8	4	Do Not Use		
Carter 8/3	3	8	4	72-557-000	72-557-100
Carter 8/4	4	8	4		
Carter 12/6	6	12	6	72-560-000	72-560-100
Carter 12/8	8	12	Do Not Use		

Each pump is supplied with a full load of cartridges.

Tygon, **Silicone**, and **Pharmed** are trademarks of Saint-Gobain Performance Plastics Corporation. **Masterflex** is a registered trademark of Barnant Co.
Viton is a registered trademark of E.I. duPont de Nemours & Co.

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Accessories

Footswitch-For Dispensing
Initiates dispense cycles. (In lieu of Wand)
• For both 115V & 230V Models (DB9) . . .**73-750-000**

Remote On/off control
• 3.5 mm Stereo Jack **B-3968**

Dispensing Wand
• Dispensing Wand w/(DB9) connector . . .**73-055-590**

Autoclavable Dispensing Tips
For output end of tubing, gives better control while pumping; minimizes splashing.
• Glass Dispensing Tip with Luer Lock for 3/16" and 1/4" I.D. tubing **72-648-000**
• Polypropylnene Dispensing Tip with Luer Lock for 1/16" & 1/8" I.D. tubing **72-648-020**

Autoclavable Stainless Steel Cannulae
for use with Luer Lock Dispensing Tip.
• Cannula 16 Gauge **91-015-210**
• Cannula 13 Gauge **91-015-220**

SINKERS

Teflon® sinkers keep tubing at the bottom of any container, eliminating the possibility of it adhering to the reservoir wall. Ideal for use with pumps and dispensers, these sinkers have hose barb ends or simple insertion into flexible tubing. Teflon® composition offers solvent resistance, and can be autoclaved.

Sets of two:
small (for use with 1/16" to 1/8" i.d. tubing) and large (for use with 3/16" to 5/16" i.d. tubing).

Sinkers set/2 (one each size): **75-250-100**

Sinkers 1/16" - 1/8" ea.: **75-250-102**

Sinkers 3/16" - 1/4" ea.: **75-250-104**

Economy Pumps

E-SERIES PUMP



Economical and compact peristaltic pumps provide a constant flow of liquids or gases at a fixed rate.

Four factory-pre-set RPM pumps are available and four different tubing i.d.'s* can be used in each pump to obtain different flowrates. The self-priming pump head is made of molded polypropylene and has two rollers.

Unit will work against back pressure up to 25 PSI continuous and 40 PSI intermittent, making it ideal for filtration applications and for work with viscous fluids. *Silicone tubing material only.

UTILITY PUMP



A portable peristaltic pump especially designed for use in the field and in situations where electrical power is not available. An accessory crank attachment permits hand-powered operation and an accessory clamp allows the attachment of the pump to a table or other suitable fixture. The pump can also be attached to the chuck of a power drill or stirrer motor for operation.

The pump head is made of molded Noryl® with Delrin® rollers.

Utility Pump: **72-200-000**

Clamp and Hand Crank: **72-200-010**

AVAILABLE THROUGH...

E-SERIES PUMP

Electrical Requirements: 115 VAC, 60 Hz or 220 VAC, 50 Hz.
Dimensions: 5"L x 6 9/16"D x 5 5/16"H. **Shipping Weight:** 5 lbs.
Pressures: 25 PSI Continuous; 40 PSI Intermittent

E-SERIES Flowrates (ml/min)*

	Tube Size (i.d.)			
RPM	**1/16 x 3/32**	**1/8 x 3/32**	**3/16 x 3/32**	**3/4 x 3/32**
14	3	12	27	45
28	6.5	25	55	90
49	11	44	100	150
108	26	104	228	375

*Flowrate at STP and zero head with Manosil tube. Flowrate accuracy is ± 8%.

E-SERIES Ordering Information

RPM*	115 V / 60 Hz Catalog #	RPM*	230 V / 50 Hz Catalog #
14	72-410-014	**12**	72-415-014
28	72-410-028	**23**	72-415-028
49	72-410-049	**40**	72-415-049
108	72-410-108	**90**	72-415-108

* ± 10%.

Manosil® Tubing Links for E-Series Pump
Pre-cut silicone tubing links are used for accuracy and for easy insertion and removal (no tools are necessary).

Catalog #	Tubing Link Size (i.d.)
72-420-250	1/16 x 3/32
72-420-350	1/8 x 3/32
72-420-450	3/16 x 3/32
72-420-550	1/4 x 3/32
72-420-100	Shim

UTILITY PUMP

General Specifications: Pump head accepts flexible tubing (durometer 55 (±5) Shore A) with i.d.'s from 1/8" to 5/16".
Dimensions: 5"L x 6 9/16"D x 5 5/16"H. **Shipping Weight:** 5 lbs.

The information contained on this data sheet(s) is not intended for specific application purposes. Barnant reserves the right to make changes to products and specifications at any time without prior notice.

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