

PUMPS



Selection Guide

HOW TO SELECT YOUR MANOSTAT TUBING PUMP

1. Define your application requirements
 - a. What flow rate do I need?
 - b. What chemical am I pumping?
 - c. Do conditions such as fluid viscosity or back pressure play an important role in my application?
2. Select a pump series based on your flow rate.
3. Select a pump head, tubing and drive.

HOW A PUMP WORKS

1. A pump head consists of only two parts: the rotor and the housing. The tubing is placed in the tubing bed – between the rotor and housing, where it is occluded (squeezed).
2. The rollers on the rotor move across the tubing, pushing the fluid. The tubing behind the rollers recovers its shape, creates a vacuum, and draws fluid in behind it.
3. A “pillow” of fluid is formed between the rollers. This is specific to the ID of the tubing and the geometry of the rotor. Flow rate is determined by multiplying speed by the size of the pillow. This pillow stays fairly constant except with very viscous fluids.

Accessories

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” ID Tubing) and
- large (for use with 3/16” to 5/16” ID Tubing)

See chart below for ordering information.

ACCESSORIES

Cat. No.	Description	Additional Information
73-750-000	Footswitch for Dispensing	Initiates dispense cycles. (In lieu of wand) For both 115V and 230V models (DB9)
B-3968	Remote On/Off Control	3.5 mm stereo jack
73-055-590	Dispensing Wand	Dispensing wand w/(DB9) connector
72-648-000	Autoclavable Glass Dispensing Tip with Luer Lock For 3/16” and 1/4” I.D. tubing	For output end of tubing, gives better control while pumping; minimizes splashing
72-648-020	Autoclavable Polypropylene Dispensing Tip with Luer Lock For 1/16” and 1/8” I.D. tubing	For output end of tubing, gives better control while pumping; minimizes splashing
91-015-210	16 Gauge Autoclavable Stainless Steel Cannula	For use with Luer Lock Dispensing Tip
91-015-220	13 Gauge Autoclavable Stainless Steel Cannula	For use with Luer Lock Dispensing Tip
75-250-100	Sinkers Set/2 (one each size)	
75-250-102	Sinkers 1/16” - 1/8” each	
75-250-104	Sinkers 3/16” - 1/4” each	
7594-45	Remote Connector	DB9 remote connector only (no interconnect wiring included)

Variable Flow Pumps

General Purpose Pumps

- Transfer fluids
- Meter fluid at a precise flow rate
- Media touches only the tubing materials
- Suction lift up to 26 feet

Preston Models offer:

- Automatically control pumps with process signals (remote models)
- Use dispensing wand to convert to an economical dispenser (order separately, see page 237)

- 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, Preston models 72-372-000 & 72-372-230 only). 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 (Preston models - 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

Tubing Sizes	Flow Rates@ 24-270 rpm Tube I.D. Size (")	Simon & Vera ml/min	Preston ml/min
13	1/32	1-35	2-40
14	1/16	5-200	11-295
16	1/8	25-750	45-1200
25	3/16	60-1700	80-2500
17	1/4	90-2650	170-4200
18	5/16	135-3450	245-5000

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.



Simon Variable Flow Pump



Preston Variable Flow Pump System with Remote



Vera Variable Flow Pump System with Remote

Product Description

- Simon and Vera Models Variable Flow from 1 ml/min to 3450 ml/min.
- Preston Models Variable Flow from 2 ml/min to 5000 ml/min.
- The SIMON models have an analog single-turn speed control. The VERA models have a precision digital speed control.
- Preston 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.
- 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 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).
- See page 233 and 236 for tubing sizes and formulations.
- See Accessories on page 237.

PRODUCT SPECIFICATIONS AND ORDERING INFORMATION

Standard Pump System

Catalog No.	RPM	Speed Control	Motor Size	IP Rating	L	Dimensions			Shipping Weight	Power 50/60 Hz
						W	H			
Simon - 72-310-000	24-720	±3%	1/10 hp	IP22	10-1/4" (26 cm)	9" (23 cm)	5-1/8" (13 cm)	12 lb (5.6 kg)	100-130VAC	
Vera - 72-315-000	24-720	±3%	1/10 hp	IP22	10-1/4" (26 cm)	9" (23 cm)	5-1/8" (13 cm)	12 lb (5.6 kg)	100-130VAC	
Simon - 72-312-230	24-720	±3%	1/10 hp	IP22	10-1/4" (26 cm)	9" (23 cm)	5-1/8" (13 cm)	12 lb (5.6 kg)	190-260VAC	
Vera - 72-315-230	24-720	±3%	1/10 hp	IP22	10-1/4" (26 cm)	9" (23 cm)	5-1/8" (13 cm)	12 lb (5.6 kg)	190-260VAC	
Preston - 72-370-000	24-720	±3%	1/10 hp	IP22	11-1/2" (29 cm)	10" (25 cm)	6-1/4" (16 cm)	16 lb (7.3 kg)	100-130VAC	
Preston - 72-370-230	24-720	±3%	1/10 hp	IP22	10-1/4" (26 cm)	9" (23 cm)	5-1/8" (13 cm)	12 lb (5.6 kg)	190-260VAC	

Standard Pump System with Remote Control

Simon - 72-312-000	24-720	±3%	1/10 hp	IP22	10-1/4" (26 cm)	9" (23 cm)	5-1/8" (13 cm)	12 lb (5.6 kg)	100-130VAC
Vera - 72-317-000	24-720	±3%	1/10 hp	IP22	10-1/4" (26 cm)	9" (23 cm)	5-1/8" (13 cm)	12 lb (5.6 kg)	100-130VAC
Simon - 72-312-230	24-720	±3%	1/10 hp	IP22	10-1/4" (26 cm)	9" (23 cm)	5-1/8" (13 cm)	12 lb (5.6 kg)	190-260VAC
Vera - 72-317-230	24-720	±3%	1/10 hp	IP22	10-1/4" (26 cm)	9" (23 cm)	5-1/8" (13 cm)	12 lb (5.6 kg)	190-260VAC
Preston - 72-372-000	24-720	±3%	1/10 hp	IP22	11-1/2" (29 cm)	10" (25 cm)	6-1/4" (16 cm)	16 lb (7.3 kg)	100-130VAC
Preston - 72-372-230	24-720	±3%	1/10 hp	IP22	10-1/4" (26 cm)	9" (23 cm)	5-1/8" (13 cm)	12 lb (5.6 kg)	190-260VAC

Tubing and Tubing Links for Pumps and Compulab

TUBING SPECIFICATIONS

Tubing Size	Size 13	Size 14	Size 16	Size 25	Size 17	Size 18
Inside Diameter	0.03	0.06	0.12	0.19	.025	0.31
Hose Barb	1/16	1/16	1/8	2/16	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	75-301-135	75-301-145	75-301-165	75-301-255	75-301-175	*
Compulab RD1	75-301-135	75-301-145	75-301-165	75-301-255	75-301-175	*
Compulab RD2	75-301-135	75-301-145	75-301-165	75-301-255	75-301-175	*

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	75-305-135	75-305-145	75-305-165	75-305-255	75-305-175	*
Compulab RD1	75-305-135	75-305-145	75-305-165	75-305-255	75-305-175	*
Compulab RD2	75-305-135	75-305-145	75-305-165	75-305-255	75-305-175	*

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	75-300-135	75-300-145	75-300-165	75-300-255	75-300-175	*
Compulab RD1	75-300-135	75-300-145	75-300-165	75-300-255	75-300-175	*
Compulab RD2	75-300-135	75-300-145	75-300-165	75-300-255	75-300-175	*

Tygon® 25 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	75-310-135	75-310-145	75-310-165	75-310-255	75-310-175	*
Compulab RD1	75-310-135	75-310-145	75-310-165	75-310-255	75-310-175	*
Compulab RD2	75-310-135	75-310-145	75-310-165	75-310-255	75-310-175	*

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

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Compulab® 3 Dilutor/Pump System



Pump/Dilutor/Dispenser All in One!

- Programmable to automate your fluid handling processes
- Operate up to four pumps independently from one keypad or your PC

Product Description

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 $\pm 1\%$.
- 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

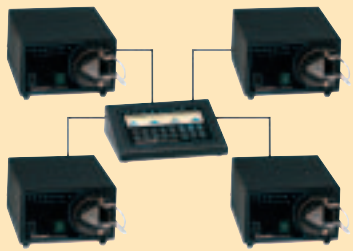
Dispensing/Diluting:

- 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.

Compulab® 3 Dilutor/Pump System

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)



FLOW RATES IN ML/MIN

Cat. No.	Description	Tubing	Size 13	Size 14	Size 16	Size 25	Size 17	Size 18
72-666-100	RD2 Pump	ml/min	.5-50	3-300	12-1200	26-2600	42-4200	50-5000
72-777-100	RD1 Pump	ml/min	.4-40	2-200	7.5-750	17-1700	26.5-2650	34.5-3450

DISPENSING VOLUMES ML/CYCLE

Cat. No.	Description	Tubing	Size 13	Size 14	Size 16	Size 25	Size 17	Size 18
72-666-100	RD2 Pump	minimum ml/cycle	3	15	55	120	200	250
72-777-100	RD1 Pump	minimum ml/cycle	2	10	40	85	135	175

SPECIFICATIONS AND ORDERING INFORMATION

Compulab® 3 Controller (includes software)

Cat. No.	Dimensions (L x W x H)	Shipping Wt.	Power
72-767-100	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	Dimensions L x W x H (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

TUBING CROSS SECTIONS



* Pumping links not required for size 18.

Multi-Channel Precision Pumping



Carter® Multi-Channel Pumps

- Up to 12 channels
- Digital display
- Your choice of tubing materials for chemical capability
- Supplied as a complete system with pump drive, cassettes and tubing links

Product Description

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.

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

Applications

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

PRODUCT SPECIFICATIONS

Catalog No.	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

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	115VAC or 230VAC (50/60Hz)
Dimensions	11.5" x 7" x 7" (29.2 x 17.8 x 17.8 cm)
Shipping Weight	14.7 lbs. (6.7 kg)

Multi-Channel Precision Pumping



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

Model No.	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 No.	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			

Manostat Precision Pump Tubing Links and Transfer Tubing Ordering Information

Tubing ID (mm) 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	-

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	72-461-279	72-471-279	72-481-279

Cartridge Information

	No. of Rollers	Max. No. of Cartridges		Cartridges	
		Small	Large	Small	Large
Carter 4/6	6	4	2	72-560-000	72-560-100
Carter 4/8	8	4	Do Not Use	72-560-000	72-560-100
Carter 8/3	3	8	4	72-557-000	75-557-100
Carter 8/4	4	8	4	72-557-000	75-557-100
Carter 12/6	6	12	6	72-560-000	72-560-100
Carter 12/8	8	12	Do Not Use	72-560-000	72-560-100



Air Cadet® Vacuum/Pressure Pumps



Dual-Head Pump



Vacuum/Pressure Station

- Compact size makes pumps ideal for portable applications.
- All-plastic, convoluted diaphragm design handles many vacuum/pressure applications and reduces stress, wear and heat build up.
- Unique cavity configuration minimizes dead space and air entrapment.
- Choose from single-head, dual-head, vacuum/pressure station, or hazardous-duty, 115 VAC motor. Standard AC motors are service-free, brushless type with sealed ball bearings and thermal overload protection.



Air Cadet

Vacuum/Pressure Station

- Vacuum/pressure station features a built-in bronze and brass vacuum/pressure gauge and stainless steel (SS) regulator. Use the auxiliary port to evacuate or pressurize two systems simultaneously. Station includes a 9" piece of vinyl tubing to connect pump to the regulator.
- Included is thread tape of Teflon® PTFE resin, two polyethylene (PE) 3/8" NPT(M) x 3/8" hose barb adapters, one PE 1/4" NPT(M) x 3/8" hose barb adapter (for auxiliary port), and a 6-ft, three-wire cord. The 115 VAC model includes a plug. Note: Do not use metal fittings with any Air Cadet pump.

Accessories

- 7395-20 Vacuum/pressure gauge connector kit, brass. Contains two PE adapters and one each of bushing, pipe tee, and adapter for pipe mount.
- 7395-40 Vacuum/pressure gauge connector kit, 316 stainless steel. Same contents as 7395-20 above.
- 7396-00 Filter kit. Includes brass hex bushing, elbow, nipple and PE adapters.
- 7397-00 Flowmeter kit, 0.08 to 0.83 cfm range. Acrylic body with SS float and built-in valve, brass fittings, Buna N O-ring and PE adapters.
- 6601-02 Reinforced PVC tubing, 3/8" ID x 9/16" OD. Pack of 25-ft.
- Service Kits contain a fluorel or nitrile diaphragm, Noryl pump head with two valves or Teflon® PTFE resin and two Noryl retainers. Use kit with Fluorel diaphragm for better chemical resistance; choose kit with nitrile diaphragm for long diaphragm life.
- 7530-04 Service kit with Fluorel diaphragm.
- 401-0050 Service kit with nitrile diaphragm.

Product Description

Single-Head Pump

- Single-head pump is economically priced and can handle many tough vacuum/pressure applications. Choose from tow models to accommodate your electrical requirements.
- Included is thread tape made of Teflon® PTFE resin, two polyethylene 3/8" NPT(M) x 3/8" hose barb adapters, and a 6-ft, three-wire cord. The 115 VAC model includes a plug. Note: Do not use metal fittings with an Air Cadet pump.

Dual-Head Pump

- Dual-head pump offers you increased capacity over the single-head Air Cadet pump. Use the two pump heads independently or connect them in series with 3/8" ID Tygon® vacuum tubing for up to 23" Hg vacuum.
- Included is thread tape made of Teflon® PTFE resin, four polyethylene 3/8" NPT(M) x 3/8" hose barb adapters, and a 6-ft, three-wire cord with plug. Note: Do not use metal fittings with any Air Cadet pump.

Air Cadet® Vacuum/Pressure Pumps

PRODUCT SPECIFICATIONS AND ORDERING INFORMATION

- Wetted Parts:
 - Models 400-1901, 400-1902, 400-2901, 7530-65: Noryl® pump head, nitrile diaphragm, valves of Teflon® PTFE diaphragms; motors resin, and polyethylene (PE) adapters.
 - Models 400-3901, 400-3902: Noryl® pump head, nitrile diaphragm, valves of Teflon® PTFE resin, vinyl tubing, stainless steel regulator, bronze/brass gauge and PE adapters.
 - Models 400-3900: Noryl® pump head, Flourel® diaphragm, valves of Teflon® PTFE resin and PE adapters.
- Port Size: 3/8" Hose barb
- Max Temperature: 95°F (35°C)
- Duty Cycle: 6-hour cycle for diaphragms; motors are continuous duty.

Model #	Free-air Capacity	Max Vacuum	Max Pressure	Motor Type	Power	Amps	Noise Rating	Dimensions (L x W x H)	Shipping Wt lbs (kg)
Single-Head Pump									
400-1901	0.6 cfm (17.0 L/min) 0.5 cfm (14.1 L/min) ²	20" Hg	18 psi	1/45 hp, TEFC	115 VAC, 60 Hz 230 VAC, 50 Hz	1.2	72 dB(A)	7.25 x 4 x 5.5	7 (3.2)
400-1902	0.6 cfm (17.0 L/min) 0.5 cfm (14.1 L/min) ²	20" Hg	18 psi	1/45 hp, TEFC	115 VAC, 60 Hz 230 VAC, 50 Hz	0.8	72 dB(A)	7.25 x 4 x 5.5	7 (3.2)
Dual-Head Pump									
400-2901	0.9 cfm (25.5 L/min) ¹ 0.5 cfm (14.1 L/min) ¹	20" Hg	18 psi	1/45 hp, TEFC	115 VAC, 60 Hz 230 VAC, 50 Hz	1.7	76 dB(A)	10.5 x 4 x 5.5	8 (3.7)
7530-65	0.9 cfm (25.5 L/min) ¹ 0.8 cfm (22.6 L/min) ¹	20" Hg	18 psi	1/45 hp, TEFC	115 VAC, 60 Hz 230 VAC, 50 Hz	6.0	76 dB(A)	10.5 x 4 x 5.5	8 (3.7)
Vacuum/Pressure Station									
400-3901	0.5 cfm (14.1 L/min) 0.4 cfm (11.3 L/min) ²	20" Hg	18 psi	1/45 hp, TEFC	115 VAC, 60 Hz 230 VAC, 50 Hz	1.5	73 dB(A)	7.5 z 8 x 8.75	12 (5.5)
400-3902	0.5 cfm (14.1 L/min) 0.4 cfm (11.3 L/min) ²	20" Hg	18 psi	1/45 hp, TEFC	115 VAC, 60 Hz 230 VAC, 50 Hz	0.75	73 dB(A)	7.5 z 8 x 8.75	12 (5.5)

¹ Total free-air capacity. Single-channel capacity is half this value.

² The 230VAC, 50 Hz models have 5/6 the flow of the 115 VAC, 60 Hz models

Flourel—Reg TM Minnesota Mining and Mfg Co., Air Cadet—Reg TM Cole-Parmer Instrument Co., Noryl—Reg TM General Electric Co., Tygon—Reg TM Norton Co., Tellon—Reg TM E.I. DuPont de Nemours & Co.



This pump is designed for portability and versatility with a tough, lightweight plastic housing and integral carrying handle. The long-wearing motor delivers performance characteristics usable for a wide range of applications.

- Vacuum to 21.3" Hg, no vacuum oil required
- Pressure to 35 psi intermittent; 10 psi continuous
- Free-air capacity 0.39 cfm
- Quiet operation
- Portable with molded carrying handle
- On/off switch
- Low-friction piston service-free motor*
- Supplied with a 6-ft power cord.
- Convenient power cord compartment
- Private label available

* Service life of motor 2000 - 3000 hours

Applications

- Air/gas sampling
- Precious metal recovery
- Suction units
- Film making
- Aerating equipment
- Pressure/vacuum filtration
- Process control
- Analysis instrumentation
- Environmental safety monitoring
- Pneumatic controls

PRODUCT SPECIFICATIONS AND ORDERING INFORMATION

- Wetted Parts:
 - Glass-filled polyester piston cup retainer and head, Ryton® cylinder sleeve, Viton valves, PTFE piston cup, silicone tubing and Delrin® fittings.
- Port Size: 1/4" Hose barb
- Motor: 1/25 hp, shaded-pole
- Dimensions: 7-5/8" L x 4-1/2" W x 7-1/2" H

Model #	Free-Air Capacity	Max Vacuum	Max Pressure	Max Temperature	Power VAC, Hz	Amps	Shipping Wt lbs (kg)
400-3910	0.39 cfm (11 L/min)	21.3" Hg	35psi	104°F (40°C)	115, 60	1.6	5 (2.3)
400-3912	0.32 cfm (9.2 L/min) ¹	21.3" Hg	35psi	104°F (40°C)	230, 50	0.8	5 (2.3)

¹ The 230 VAC, 50 Hz model has 5/6 the flow of the 115 VAC, 60 Hz model