

## Miniature Gear Pumps

### Complete mini gear pump systems for low-flow applications

- Maximum flow rates up to 0.67 GPM
- Choose from non-enclosed OEM, lab, and fully enclosed lab versions
- 115 VAC, 230 VAC, and 12 VDC models

**What's included:** models 07012-00, -02 have 12" leads with no plug; models 07012-30, -32 have an aluminum enclosure and a 7-ft cord with grounded plug and in-line switch; model 07012-20 has an 8-inch cord with no plug.



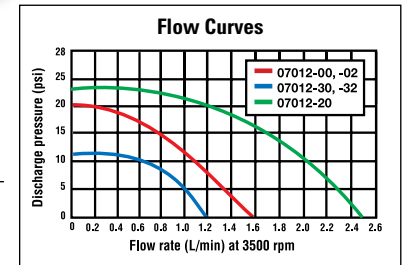
OEM pump  
07012-00



Fully enclosed  
pump 07012-30



Pump 07012-20 fits in the palm of your hand and weighs only 10 oz!



### Specifications & Ordering Information

**Max viscosity:** 200 cp, max  
**Particulates:** no  
**Suction lift:** 10 ft wet, 4" dry

**Duty cycle:** continuous  
**Run dry:** no  
**Relief valve:** no

**Dimensions:**  
Non-enclosed OEM models: 3<sup>7</sup>/<sub>16</sub>"L x 3<sup>3</sup>/<sub>16</sub>"W x 3<sup>5</sup>/<sub>8</sub>"H  
Fully enclosed lab models: 5<sup>5</sup>/<sub>8</sub>"L x 2<sup>5</sup>/<sub>8</sub>"W x 3<sup>3</sup>/<sub>4</sub>"H  
12 VDC lab model: 4"L x 1<sup>3</sup>/<sub>4</sub>"W x 2<sup>5</sup>/<sub>8</sub>"H

Catalog number	Flow rates		Max pressure	Port size hose barb	Wetted parts					Max temperature	Power	Amps	Price
	GPM	L/min			Body	Gears	Seals	Diaphragm	Shafting				
Non-enclosed OEM pumps													
KH-07012-00	0.43	1.6	10 psi	3/16"	Delrin®	Delrin	Buna N	PTFE	304 SS	200°F (93°C)	115 VAC, 60 Hz 230 VAC, 50/60 Hz	0.8	
KH-07012-02	0.358	1.33										0.4	
Fully enclosed lab pumps													
KH-07012-30	0.32	1.2	10 psi	3/16"	Delrin	Delrin	Buna N	PTFE	304 SS	200°F (93°C)	115 VAC, 60 Hz 230 VAC, 50/60 Hz	0.8	
KH-07012-32	0.267	1.0										0.4	
12 VDC lab pump													
KH-07012-20	0.67	2.52	21 psi	3/16"	Delrin	Delrin	Buna N	PTFE	304 SS	200°F (93°C)	12 VDC	2.0	

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For A-mount pump heads to use with these drives.

## Economical Drives

### A variety of low-cost drives for various applications

- Magnetic coupling minimizes friction—all horsepower is transmitted directly to the gears.
- Hundreds of hours of dependable leakproof service
- Choose either an explosion-proof or air-powered model for safe pumping in hazardous areas



Air-powered  
drive 07144-97  
(pump head  
not included)



Explosion-proof  
drive 07144-95  
(pump head  
not included)

### Specifications & Ordering Information

**Duty cycle:** continuous  
**Remote control (input):** none  
**Output:** none  
**Max system temperature:** 104°F (40°C)

Catalog number	Motor				Power requirements	Dimensions (L x W x H)	Termination	Price
	rpm	hp	Type	Frame				
AC motor drives								
<a href="#">KH-07002-58</a>	1550	0.05	Shaded pole	TEFC	115/230 VAC, 1.5 A	5¼" x 4" x 4¼"	12" leads	
<a href="#">KH-07144-93</a>	3000	0.05	Shaded pole	TEFC	115 VAC, 1.9 A	5¼" x 4" x 4¼"	6-ft cord/plug	
<a href="#">KH-07144-94</a>	3000	0.10	PSC	TEFC	115/230 VAC, 1.4 A	6" x 5¼" x 5"	19" leads	
DC motor drives								
<a href="#">KH-07144-91</a>	150 to 4000	0.12	PM brush	TENV	0 to 12 VDC, 4 A	4" x 3" x 3"	13" wire leads	
<a href="#">KH-07003-90</a>					0 to 24 VDC, 3 A			
Explosion-proof drive; rated for NEMA Class 1, Groups C and D locations								
<a href="#">KH-07144-95</a>	3150	0.17	PSC	NEMA 42	115/230 VAC, 1.8 A	11" x 6" x 5¼"	6" wire leads	
Air-powered drive*								
<a href="#">KH-07144-97</a>	500 to 8000	0.13 to 0.29	Vane	TENV	5 to 11 scfm, 5 to 80 psi*	3¾" x 3" x 5¼"	⅝" NPT(F)	

\*Requires the use of an air lubricator and air filter/regulator—order separately below.

### Accessories for air-powered drive 07144-97

**KH-07042-70** Air lubricator, 1/4" NPT(F)

**KH-75300-92** Air filter/regulator, 1/4" NPT(F); 20 µm

# Pu Pumps

Gear, Systems

## I-Drive™ Pump Systems

### Complete pumps include head, motor, and integrated drive

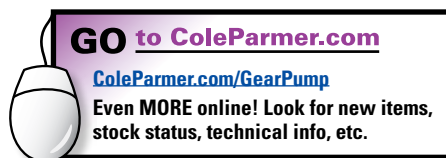
- Variable-speed electronic controller delivers smooth, pulseless flow
- Static seals eliminate leaking

Electromagnetically driven, precision-gear pumps provide smooth, accurate, pulseless flow. Torque improvements and compact size are achieved with NdFeB magnets. Variable-speed operation is accomplished by using a 0 to 5 VDC input signal, a 4 to 20 mA current loop, or manual control. Drives feature thermal and overload protection.

Choose a system with a suction shoe pump head to self compensate for wear, temperature, and pressure, and to maintain high volumetric efficiency. Cavity-style pump heads deliver higher lift capability and moderate pressure capability; an internal bypass is an integral safety feature of the cavity-style pump heads.

**What's included:** 2-ft power cord and screwdriver.

**Service kits include:** gears, shaft, bushings, grease, and gasket material.



**GO to ColeParmer.com**

[ColeParmer.com/GearPump](http://ColeParmer.com/GearPump)

Even MORE online! Look for new items, stock status, technical info, etc.

**New**



74215-00

74445-00



Cutaway showing integrated drive on 74215-series and 74445-series pumps.

### Specifications & Ordering Info



**Viscosity:** 0.2 to 1500 cps

**Suction lift:** 24" of H<sub>2</sub>O (at 1750 rpm)

**Duty cycle:** continuous

**DC voltage:** 20 to 30 V

#### Power

Suction shoe pumps: 40 W (1.8 A max)

Cavity-style pumps: 70 W (3 A max)

#### Reversible

Suction shoe pump heads: no

Cavity-style pump heads: yes

#### Internal bypass

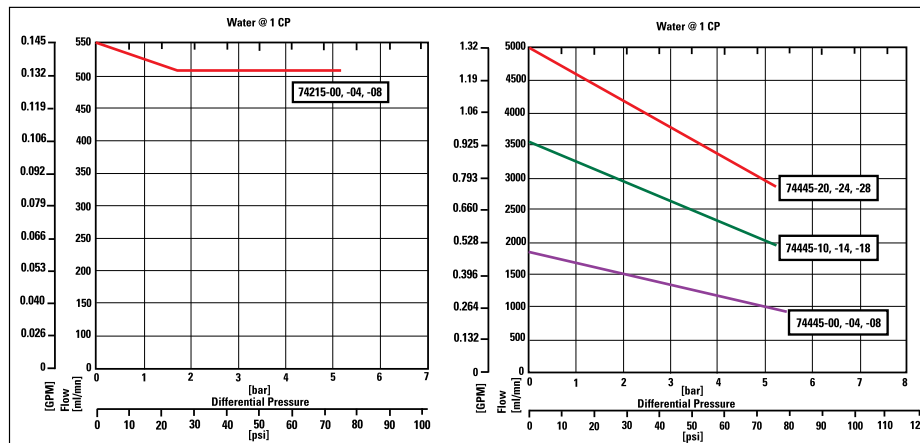
Suction shoe pump heads: no

Cavity-style pump heads: yes

#### Dimensions

Suction shoe pumps: 2.7"W x 3.5"H x 2.9"D

Cavity-style pumps: 3.5"W x 4.5"H x 3.9"D



Catalog number	Flow rates (mL/min)			Max pressure (psi)		Port size NPT(F)	Wetted parts			Max temperature	Max speed (rpm)	Speed control	Price	Service kits	
	mL/rev	at 50 rpm	at 5000 rpm	Diff	System		Body	Gears	Seals					Cat. no.	Price
Systems with suction shoe pump heads															
<a href="#">KH-74215-00</a> <a href="#">KH-74215-04</a> <a href="#">KH-74215-08</a>	0.092	4.6	460	75	300	⅛"	316 SS	PPS	PTFE	350°F (177°C)	6000	Manual 4 to 20 mA 0 to 5 VDC		<a href="#">KH-74215-90</a>	
Systems with cavity-style pump heads															
<a href="#">KH-74445-00</a> <a href="#">KH-74445-04</a> <a href="#">KH-74445-08</a>	0.32	16	1600	80	300	⅛"	316 SS	PPS	PTFE	250°F (121°C)	5500	Manual 4 to 20 mA 0 to 5 VDC		<a href="#">KH-74445-90</a>	
<a href="#">KH-74445-10</a> <a href="#">KH-74445-14</a> <a href="#">KH-74445-18</a>	0.64	32	3200	80	300	⅛"	316 SS	PPS	PTFE	250°F (121°C)	5500	Manual 4 to 20 mA 0 to 5 VDC		<a href="#">KH-74445-92</a>	
<a href="#">KH-74445-20</a> <a href="#">KH-74445-24</a> <a href="#">KH-74445-28</a>	0.91	45.5	4550	80	300	⅛"	316 SS	PPS	PTFE	250°F (121°C)	5500	Manual 4 to 20 mA 0 to 5 VDC		<a href="#">KH-74445-94</a>	

## Cole-Parmer Gear Pump Systems

Order the complete system—drive and pump head—with a single catalog number

### Benchtop Analog Drive

Analog drives provide continuous-duty operation with Micropump® A-mount pump heads. Gradual, one-second acceleration offers smooth control of drive speed and flow rate.

The permanent-magnet, direct-current (PMDC) drive is built to last—excellent for long-term applications.

**What's included:** The 115 VAC models include a 6-ft modular line cord with U.S. standard plug; the 220 VAC models include a 6-ft modular line cord with IEC 320/CEE 22 connector—specify country to obtain correct line cord.



Benchtop analog drive 74013-40

### Benchtop Digital Drive

Calibrate, copy, and dispense features produce precise, pulseless batching and dispensing. Displacement and flow values for all Micropump A-mount pump heads are stored in memory—simply enter the pump head size (gear code) to retrieve the displacement per revolution. IP23-rated enclosure protects the internal components.

Controller has a DB15F connection to the optional foot switch for hands-free on/off control (order foot switch separately below).

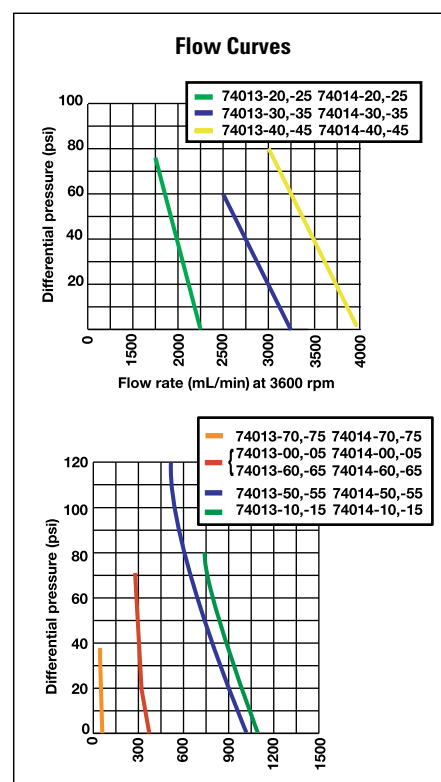
**What's included:** the 115 VAC models have a 6-ft modular line cord with U.S. standard plug; the 220 VAC models have a 6-ft modular line cord with IEC 320/CEE 22 connector—specify country to obtain correct line cord.



Benchtop digital drive 74014-30

**New**

Low flow 0.017 mL/rev models



Call our Application Specialists for assistance in selecting the gear pump best suited for your application.

**847-549-7600**

## Specifications & Ordering Information

**Viscosity:** 0.2 to 1500 cp

**Suction lift:** 24" of H<sub>2</sub>O (at 1750 rpm)

**Duty cycle:** continuous

### Remote control

74013-00 to -65: none  
74014-00 to -65: (input) on/off by contact closure 0 to 10 VDC, 0 to 20 mA, 4 to 20 mA, and remote output

**Max system temperature:** 104°F (60°C)

### Speed

Analog drives: 50 to 5000 rpm  
Digital drives: 60 to 3600 rpm

### Dimensions

Analog drives:  
8½" L x 6¾" W x 5½" H  
Digital drives:  
7¾" L x 11½" W x 7¼" H

Flow rates (mL/min)*			Max pressure		Port size NPT(F)	Wetted parts			Temperature range	Power (VAC)	Benchtop analog drives		Benchtop digital drives		Service kits	
mL/rev	at 50 rpm	at 3600 rpm	Diff (psi)	System (psi)		Body	Gears	Seals			Catalog number	Price	Catalog number	Price	Catalog number	Price
0.017	0.85	85	20	300	½"	316 SS	Graphite	PTFE	-50 to 350°F (-46 to 177°C)	115 220	<a href="#">KH-74013-70</a> <a href="#">KH-74013-75</a>		<a href="#">KH-74014-70</a> <a href="#">KH-74014-75</a>		<a href="#">KH-07144-42</a>	
0.092	4.60	331.2	75	300	½"	316 SS	PPS	PTFE	-50 to 350°F (-46 to 177°C)	115 220	<a href="#">KH-74013-00</a> <a href="#">KH-74013-05</a>		<a href="#">KH-74014-00</a> <a href="#">KH-74014-05</a>		<a href="#">KH-74012-02</a>	
0.092	4.60	331.2	75	300	½"	316 SS	PPS	PPS	-50 to 350°F (-46 to 177°C)	115 220	<a href="#">KH-74013-60</a> <a href="#">KH-74013-65</a>		<a href="#">KH-74014-60</a> <a href="#">KH-74014-65</a>			
0.261	13.05	939.6	125	300	½"	316 SS	PEEK	Viton	-50 to 350°F (-46 to 177°C)	115 220	<a href="#">KH-74013-50</a> <a href="#">KH-74013-55</a>		<a href="#">KH-74014-50</a> <a href="#">KH-74014-55</a>		<a href="#">KH-74012-52</a>	
0.316	15.8	1137.6	75	300	½"	316 SS	PPS	PTFE	-50 to 130°F (-46 to 54°C)	115 220	<a href="#">KH-74013-10</a> <a href="#">KH-74013-15</a>		<a href="#">KH-74014-10</a> <a href="#">KH-74014-15</a>		<a href="#">KH-74012-12</a>	
0.64	32.0	2304	75	300	½"	316 SS	PPS	PTFE	-50 to 130°F (-46 to 54°C)	115 220	<a href="#">KH-74013-20</a> <a href="#">KH-74013-25</a>		<a href="#">KH-74014-20</a> <a href="#">KH-74014-25</a>		<a href="#">KH-74012-22</a>	
0.91	45.5	3276	75	300	½"	316 SS	PPS	PTFE	-50 to 130°F (-46 to 54°C)	115 220	<a href="#">KH-74013-30</a> <a href="#">KH-74013-35</a>		<a href="#">KH-74014-30</a> <a href="#">KH-74014-35</a>		<a href="#">KH-74012-32</a>	
1.17	58.5	4212	60	300	½"	316 SS	PPS	Viton®	-50 to 350°F (-46 to 177°C)	115 220	<a href="#">KH-74013-40</a> <a href="#">KH-74013-45</a>		<a href="#">KH-74014-40</a> <a href="#">KH-74014-45</a>		<a href="#">KH-74012-42</a>	

\*Flow rates in mL/min are based on water at room temperature and no back pressure.

**KH-06385-10 Male pipe adapter (straight);**

¼" OD x ⅛" NPT(M), PP

**KH-30621-31 Barbed fittings,** NPT male pipe adapter, HDPE, ⅛" NPT (M) x ¼" ID. Pack of 10

**KH-07595-42 Footswitch,** momentary start/stop, 6-ft cable.

**KH-30610-36 Barbed fittings,** NPT male pipe adapter, natural PP, ⅛" NPT x ¼" ID. Pack of 10

# Pumps

Gear, Pump Heads

## A-Mount Gear Pump Heads

Smooth pulseless flow provides precise, leak-free delivery of fluids

Magnetically driven, precision-gear pump heads provide smooth, accurate, pulseless fluid delivery. The magnetic drive and a single seal keep fluids securely inside and potential contaminants out. Chemical resistant materials handle a wide range of materials (due to wetted parts). Pump heads are compact and easy to service. Modular design offers flexibility—configure to your specific needs.



73011-00

### A Cavity-Style Pump Heads

Cavity-style pump heads are designed to handle higher inlet pressures.

### Specifications & Ordering Information

Max viscosity: 0.2 to 1500 cp\*

Suction lift: 24" of H<sub>2</sub>O (at 1750 rpm)

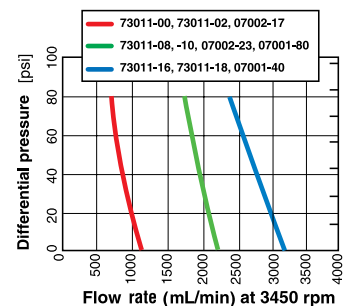
Duty cycle: continuous

Reversible: yes, on models without internal bypass

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For compatible drives to use with these pump heads.

#### A Flow Curves



Catalog number	Flow rates (mL/min)†			Max pressure (psi)		Port size NPT(F)	Wetted parts			Temperature range	Internal bypass	Max speed (rpm)	Price	Service kits	
	mL/rev	at 50 rpm	at 5000 rpm	Diff	System		Body	Gears	Seals					Cat. no.	Price
KH-73011-00 KH-73011-02 KH-07002-17	0.32	16	1600	80 80 50	300	1/8"	316 SS	PEEK PEEK PTFE	PTFE	-45 to 130°F -45 to 130°F -50 to 170°F	No Yes Yes	10,000		KH-73011-80 KH-73011-80 KH-07144-38	
KH-07002-23 KH-07001-80	0.64	32	3200	50 75	300	1/8"	316 SS	PTFE PPS	PTFE	-50 to 130°F	Yes	10,000		KH-07002-08 KH-07001-89	
KH-73011-08 KH-73011-10	0.64	32	3200	80	300	1/8"	316 SS	PEEK	PTFE	-45 to 130°F	No Yes	10,000		KH-73011-84 KH-73011-84	
KH-73011-16 KH-73011-18 KH-07001-40	0.91	45.5	4550	80 80 50	300	1/8"	316 SS	PEEK PEEK PTFE	PTFE	-45 to 130°F -45 to 130°F -50 to 210°F	No Yes Yes	10,000		KH-73011-88 KH-73011-88 KH-07001-41	

\*Viscosity for model 07002-23 is 100 cp. †Flow rates based on water at room temperature and no back pressure.

### B Suction Shoe Pump Heads

Suction shoe design provides higher delivery pressures and superior priming performance.



73004-00

### Specifications & Ordering Information

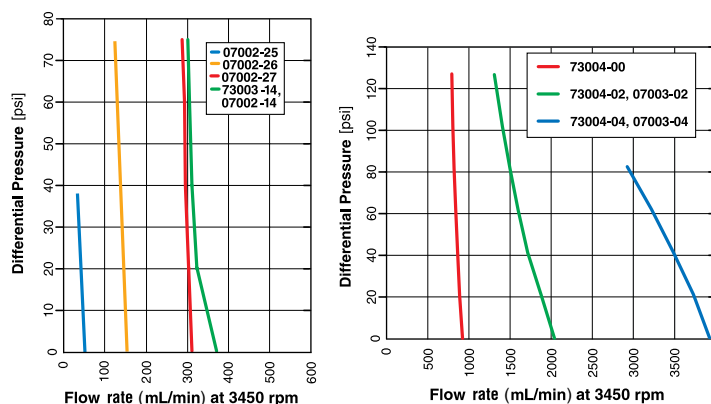
Max viscosity: 0.2 to 1500 cp†

Suction lift: 24" of H<sub>2</sub>O (at 1750 rpm)

Duty cycle: continuous

Reversible: no

#### B Flow Curves



Catalog number	Flow rates (mL/min)**			Max pressure (psi)		Port size NPT(F)	Wetted parts			Temperature range	Internal bypass	Max speed (rpm)	Price	Service kits	
	mL/rev	at 50 rpm	at 5000 rpm	Diff	System		Body	Gears	Seals					Cat. no.	Price
KH-07002-25 KH-07002-26 KH-07002-27	0.017 0.042 0.084	0.85 2.10 4.20	85 210 420	20 40 40	300 300 300	1/8"	316 SS	Graphite Graphite Graphite	PTFE PTFE PTFE	-50 to 350°F -50 to 350°F -50 to 350°F	No No No	8000		KH-07144-42 KH-07144-44 KH-07144-47	
KH-73003-14 KH-07002-14	0.092	4.60	460	75	300	1/8"	316 SS	PEEK PPS	PTFE	-50 to 350°F	No	8000		KH-73003-94 KH-07144-34	
KH-73004-00 KH-73004-02	0.261	13.05	1305	125 125	300	1/8"	316 SS	PEEK PEEK	Viton	-50 to 350°F	Yes	10,000		KH-73004-80 KH-73004-82	
KH-07003-02 KH-73004-04	0.58	29.00	2900	75	300	1/8"	316 SS	PPS PEEK PPS	Viton	-50 to 350°F	Yes	10,000		KH-07003-12 KH-73004-84 KH-07003-14	
†	1.17	58.50	5850	60	300	1/8"	316 SS	PEEK PPS	Viton	-50 to 350°F	Yes	10,000			

†Viscosity for models 07002-27 and 07003-04 is 100 cp.

\*\*Flow rates based on water at room temperature and no back pressure.

## Cole-Parmer Console Drive

**Permanent-magnet, direct-current (PMDC) motor is built for long-term applications**

- Maximum continuous-duty flow rates possible with A-mount pump heads on page 1374
- Gradual, one-second acceleration for smooth flow rate changes

**What's included:** a 6-ft modular line power cord; the 115 VAC model has a U.S. standard plug and the 230 VAC model has an IEC 320/CEE 22 connector (specify country to obtain correct plug).

### Specifications & Ordering Information

ISO9001:2000  
SUPPLIER CERTIFIED

cULus

CE 2 year warranty

**Duty cycle:** continuous

**Remote control (input):** none

**Remote control (output):** none

**Max system temperature:** 104°F (40°C)



75211-10

Catalog number	Motor			Power			Dimensions (L x W x H)	Price
	rpm	hp	Type	VAC	Hz	Amps		
KH-75211-10	50 to 5000	0.07	PMDC	115	50/60	2.0	8½" x 6¾" x 5½" (21.6 x 16.2 x 13.2 cm)	
KH-75211-15				230	50/60	1.0		

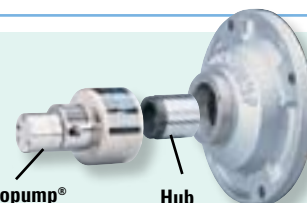
### Pump Head Adapter Kits

Use these adapter kits to attach Micropump® A-Mount pump heads to your own motor or Masterflex® L/S® pump drives.

Cat. no.	Adapter kit for drive type	Price
EK-07003-99	NEMA 56 C-face; 5000 rpm max, std magnets	
EK-07003-96	NEMA 56 C-face; 5000 rpm max, high torque magnets	
EK-07002-15	Masterflex® L/S®; 600 rpm max, std magnets	

Adapter kit 07003-99 couples a A-mount pump head to your NEMA 56 C-face motor.

Micropump® A-mount pump head      Hub assembly



## Cole-Parmer Modular Gear Pump Drive

**Modular format enables efficient use of available space**

- "Soft-start" feature allows gradual, one-second acceleration for smooth flow rate changes
- Continuous-duty drive features ±2% line/load regulation
- Controller features IP23-rated housing and single-turn potentiometer for speed control
- IP21-rated motor features a welded base for mounting or for free-standing use. Compatible with all A-mount pump heads on pages 1374.

**What's included:** a 6-ft cable for controller-to-motor connection and a 6-ft modular line power cord; the 115 VAC model has a U.S. standard plug and the 230 VAC model has an IEC 320/CEE 22 connector (specify country to obtain correct plug).



75211-20

**GO to page(s) 1374**

For A-mount pump heads to use with this drive.

### Specifications & Ordering Information

**Duty cycle:** continuous

**Remote control (output):** none

**Remote control (input):** none

**Max system temperature:** 104°F (40°C)

ISO9001:2000  
SUPPLIER CERTIFIED

cULus

CE 2 year warranty

Catalog number	Motor			Power			Dimensions		Price	Replacement controller		Replacement motor	
	rpm	hp	Type	VAC	Hz	Amps	Controller	Drive		Cat. no.	Price	Cat. no.	Price
KH-75211-20	40 to 3600	¼	PMDC	115	50/60	2.3	7"W x 3¼"H x 5¼"D (17.8 x 8.3 x 13.3 cm)	6½"L x 4½"W x 3½"H (17.1 x 12 x 9.2 cm)		KH-75211-21		KH-75211-22	
KH-75211-25				230	50/60	1.2				KH-75211-26		KH-75211-27	

# Pu Pumps

Gear, Console Drives / Digital Drives



## Console Drive with Remote Control

**Remotely control flow rate with an external 4 to 20 mA or 2 to 10 VDC signal**

- Local/remote switch lets you control pump via the front control panel or rear 9-pin connector
- 10-turn potentiometer enables precise manual control of flow rate
- Compact size and stackable housing maximize valuable bench space

Pump features chemical-resistant ABS plastic case, irridite-coated aluminum chassis, and zinc-plated screws. Rear-mounted 9-pin connector allows quick and easy hookup for your external equipment. Compatible with all Micropump® A-mount pump heads on page 1374.

**What's included:** a 6-ft modular line power cord; the 115 VAC model has a U.S. standard plug and the 230 VAC model has an IEC 320/CEE 22 connector (specify country to obtain correct plug.)



75211-50

ISO9001:2000  
SUPPLIER CERTIFIED



3 year warranty

### Specifications & Ordering Information

**Duty cycle:** continuous

**Remote control (input):**  
4 to 20 mA or 2 to 10 VDC,  
on/off by contact closure

**Remote control (output):** none  
**Max system temperature:**  
104°F (40°C)

Catalog number	Motor			Power			Dimensions (L x W x H)	Price
	rpm	hp	Type	VAC	Hz	Amps		
KH-75211-50	72 to 3600	1/10	PMDC	115	50/60	3.0	11 1/2" x 8" x 7 1/4"	
KH-75211-55				230		1.5		

**KH-77595-35** Optional foot switch for remote start/stop control



## Digital Dispensing Drives with Remote Control

**Microprocessor-based drive—ideal for metering/batch applications**

- Calibrate, copy, and dispense features help you produce precise, pulseless batching and dispensing
- IP-rated motor and enclosure—choose either a console or wall-mount
- Displacement and flow values for all Micropump® A-mount pump heads are stored in memory—simply enter the pump head size (gear code) to retrieve the displacement per revolution

### A Console Drive

Easily operate this console drive from the front panel or use the optional foot switch (sold separately) for hands-free on/off control. The IP23-rated enclosure protects internal components from damage. Digital optical encoder feedback signal keeps speed control to  $\pm 0.3\%$ .

**What's included:** the 115 VAC model has a 6-ft modular line cord with U.S. standard plug. The 230 VAC model has a 6-ft modular line cord with IEC 320/CEE 22 connector—please specify country to obtain correct plug when ordering.

### B NEMA 4X, Wall-Mount Drive

This washdown drive is great for your industrial or dirty locations. Internal components are protected by a NEMA 4X (IP56-rated) enclosure; the motor is IP34 rated.

Quickly access all controls from the front panel without having to open the enclosure. Controller can also be wall mounted in your lab or plant to save bench space; operate remotely using optional handheld remote controller (sold separately at right). Digital optical encoder feedback signal keeps speed control to  $\pm 0.3\%$ .

**What's included:** a 25-ft cable to connect controller and motor. The 115 VAC model has a 6-ft power cord with U.S. standard plug; the 230 VAC model has a 6-ft power cord with European plug.



**B**  
Wall-mount drive 75211-40



**A**  
Console drive 75211-30



**GO to page(s) 1374**

For A-mount pump heads to use with this drive.

### Specifications & Ordering Information

**Duty cycle:** continuous

**Remote control (input):** on/off by contact closure,  
0 to 10 VDC, 0 to 20 mA, 4 to 20 mA, and remote output

**Max system temperature:** 104°F (40°C)

Catalog number	Motor			Power			Dimensions	Price
	rpm	hp	Type	VAC	Hz	Amps		
A Console digital dispensing drive								
KH-75211-30	180 to 3600	1/10	PMDC	115	50/60	3	Console: 7¾"W x 7¼"H x 11½"D	
KH-75211-35				230		1.5		
B NEMA 4X, wall-mount digital dispensing drive								
KH-75211-40	60 to 3600	1/10	PMDC	115	50/60	3	Controller: 11"W x 9"H x 4½"D Drive: 8"L x 4"W x 4½"H	
KH-75211-45				230		1.5		

**KH-07595-42** Foot switch for remote start/stop control of console drives 75211-30 and -35

**KH-07592-83** Handheld remote controller for use with wall-mount drives 75211-40 and -45. Features start/stop, reverse, and momentary on (prime) functions

ISO9001:2000  
SUPPLIER CERTIFIED



2 year warranty



Integrated drive 78008-00 with pump head 07002-14



Modular drive and controller 78008-50 with pump head 07001-80

### GO to page(s) 1374

For A-mount pump heads to use with any of the Ismatec® drives on this page.



Programmable, digital drive 78008-10 with pump head 07002-14



LED Display of 78008-10



## ISMATEC® Compact Drives with Remote Control

### Two-digit potentiometer provides 100:1 turndown

- Four analog signal ranges for proportional speed adjustment plus relay contact permit remote control from a variety of instruments
- Two-digit push-button potentiometer lets you precisely adjust speed in 1% increments
- $\pm 1\%$  accuracy from 50 to 5000 rpm

IP44-rated housing protects internal components from damage. Compatible with all A-mount pump heads on page 1374. For additional Ismatec® drives, pump heads, a driving magnet, and accessories, see pages 1314–1315.

**What's included:** an adapter plate for mounting A-mount pump heads, a driving magnet, and a 6-ft power cord with U.S. standard plug. Modular drives also include a 6-ft cable for connecting the drive and controller.



### Specifications & Ordering Information

**Duty cycle:** continuous from 50 to 5000 rpm

**Remote control (input)**

Speed control: 0 to 5 or 0 to 10 V; 0 to 20 or 4 to 20 mA (DB15F)

On/off control: TTL contact (DB15F)

**Remote control (output):**

0 to 10 kHz

**Max temperature:**

104°F (40°C)

Catalog number	Motor		Power		Dimensions	Price
	rpm	Type	VAC	Hz		
Compact integrated drive						
KH-78008-00	50 to 5000	12 VDC	115	50/60	Controller: 3¼"W x 5½"H x 6⅞"D	
KH-78008-05			230	50/60		
Compact modular drive and controller						
KH-78008-50	50 to 5000	12 VDC	115	50/60	Controller: 3⅞"W x 5½"H x 6⅞"D Drive: 2½"W x 3⅜"H x 6⅝"D	
KH-78008-55			230	50/60		

**KH-07617-90 Replacement adapter plate** for mounting A-mount pump heads (except models 73004-00, -02, -04 and 07003-02, -04) on compact drives



## ISMATEC® Compact Programmable Digital Drive

### Program pump for dispensing fluids by flow rate, volume, time or number of dispensing cycles

- Drip-free dispensing: program pump to draw back fluid
- RS-232 interfaces: for pump control via a PC
- Calibration of flow rate and dispensing volume

IP44-rated housing protects internal components from damage. Multiple operating modes allow for continuous pumping by drive speed, flow rate, volume, time, volume within a pre-set time or interval dispensing by volume with a pause or time with a pause. The number of dispensing cycles may also be into the pump. Pump is capable of reversible rotation (only with cavity style pump heads that indicate reversible operation on page 1374). Both dispensing and pause time settings are from 0.1 seconds up to 999 hours.

**What's included:** an adapter plate for mounting A pump heads (except 07003-02, 07003-04, 73004-00, 73004-02, and 73004-04), a driving magnet and a 6-ft power cord with U.S. standard plugs.



### Specifications & Ordering Information

**Duty cycle:** continuous from 50 to 5000 rpm

**Remote control (input):** RS-232 (DB9F) for pump

control via PC. 9600 baud, 8 bit, 1 stopbit, no parity On/off control: TTL contact (for footswitch) 0 to 10 kHz for speed monitoring

**Remote control (output):** RS-232 (DB9M) for cascading of up to 8 pumps

**Max temperature:** 104°F (40°C)

Catalog number	Motor rpm	Power				Drive dimensions (L x W x H)	Price
		VAC	Hz	Amps	Watts		
KH-78008-10	50 to 5000	90 to 264	47 to 63	0.66 to 0.22	6.0	7 1/2" x 4" x 5 1/8"	

**KH-07617-90 Replacement adapter plate;** for mounting A-mount pump heads (except models 07003-02, 07003-04, 73004-00, 73004-02, 73004-04)

**KH-78008-12 Footswitch,** for on/off control

# Pu Pumps

Gear, Console Drives



## ISMATEC® Analog Drive with Remote Control

Three-digit, push-button potentiometer allows you to set 1000:1 turndown ratio

- Four analog signal ranges and on/off control allow peripheral instruments to adjust speed and actuate drive (remote cable required)
- Press the MAX button for extra rpm and quick pump priming
- Electronic feedback system compensates for changes in load to maintain  $\pm 1\%$  speed accuracy

**What's included:** an adapter plate for mounting standard pump heads, a driving magnet, and a 6-ft power cord with U.S. standard plug.

### Specifications & Ordering Information

**Duty cycle:** continuous from 1200 to 5000

**Remote control (input):**

Speed control: 0 to 5 or 0 to 10 VDC; 0 to 20 or 4 to 20 mA (DB15F) On/off control: TTL contact (DB15F)

**Remote control (output):** 0 to 10 VDC or 0 to 12 kHz (for speed monitoring)

**Max temperature:** 104°F (40°C)

CE 2 year warranty

Catalog number	Motor			Power		Dimensions (L x W x H)	Price
	rpm	hp	Type	VAC	Hz		
KH-78004-12	6 to 6000	5/32	TENV, PMDC	115/230	50/60	9 1/2" x 6 1/8" x 10 1/4"	



78004-12



## ISMATEC® Programmable Digital Drive with RS-232

Digital interface allows for remotely controlled dispensing and metering

- Features time, volume, and intermittent dispensing modes
- Control up to eight drives through one computer—requires software 16550-13 and RS-232 interface 78098-22
- Serial, analog, and valve-control interfaces simplify connections to peripheral devices

Easily set all operating parameters (calibration, speed, dispense and pause times, and fluid direction) using the front-panel keypad. The LED display indicates flow rate or drive speed.

**What's included:** an adapter plate for pump heads, a driving magnet, and a 5-ft power cord with U.S. standard plug.

### Specifications & Ordering Information

**Duty cycle:** continuous

**Remote control (input)**

Speed control: 0 to 5 or 0 to 10 VDC; 0 to 20 or 4 to 20 mA (DB15F)  
On/off control: TTL contact (DB15F) RS-232: 9600 or 1200 baud, 8 bit, 1 stopbit, no parity (DB9F)

**Remote control (output):** two valve control outputs (DB15F), additional RS-232 output for cascading (DB9F)

**Max temperature:** 104°F (40°C)

CE 2 year warranty

Catalog number	Motor			Power		Dimensions (L x W x H)	Price
	rpm	hp	Type	VAC	Hz		
KH-78004-02	60 to 6000	1/8	24 VDC, PMDC	115/230	50/60	6" x 10 1/4" x 9 1/2"	



78004-02

**KH-78002-92 RS-232 interface cable** for connecting drive to computer, DB9 female to DB9 male

**KH-16550-13 Software** lets you automate up to eight drives; requires RS-232 interface below. For use with 286 computers or better running DOS 3.3 or later

**KH-78098-22 RS-232 interface**, eight port. Use with software above

### Technical info

#### Pumping Viscous Liquids with Gear Pumps

Gear pumps are well suited for pumping viscous liquids if the following rules are observed:

- Pump speed (rpm) must be reduced if viscosity is above 100 cp. When pumping viscosities above 100 cp call our Application Specialists to determine optimal rpm and other operating parameters.
- Suction and discharge lines must be increased by at least one, or better, two pipe sizes over the size of the pump ports.
- Horsepower of the motor must be increased over the power required for pumping water under the same pressure and flow.



#### Viscosities for Typical Liquids

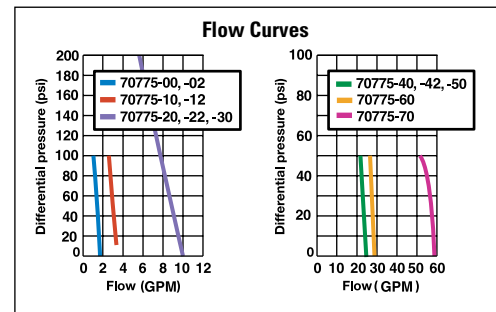
Typical liquid	Centipoise (cp)	Centistokes (cSt)	Saybolt Second Universal (SSU)
Water	1	1	31
Milk	3	4	40
No. 4 fuel oil	12.6	15.7	80
Cream	20	20.6	100
Vegetable oil	40	43.2	200
SAE 10 oil	88	110	500
Tomato juice	180	220	1,000
SAE 30 oil	352	440	2,000
Glycerine	800	1,100	5,000
Honey	1,500	2,200	10,000
Glue	3,000	4,500	20,000
Mayonnaise	5,000	6,250	28,000
Molasses B	8,640	10,800	50,000
Sour cream	15,000	19,000	86,000

## Industrial Gear Pumps

### Bidirectional pumps let you easily change flow direction

- Field-replaceable wear plate prevents gears from contacting pump housing and extends pump life—wearplates available in glass-filled tetrafluoroethylene (TFE) or carbon.
- Pump fluids with viscosities up to 100 centipoise (cp).
- Evacuate air from suction tubing

**What's included:** conduit box for hard-wiring; optional service kits include drive and idler gears, seals, shaft and bearing, and wear plate.



### Specifications & Ordering Information

**Max viscosity:** 100 cp

**Particulates:** no

**Duty cycle:** continuous

**Reversible:** yes

**Run dry:** no

#### Dimensions

Models 70775-00 to -50: 7½" L x 2⅞" W x 2⅞" H

Model 70775-60: 15½" L x 5" W x 7½" H

Model 70775-70: 17½" L x 10½" W x 8¾" H

#### Wetted parts

Models	Body	Drive gear	Idler gear	Seals	Shaft and bearing	Wear plate
70775-00, -02, -10, -12, -20, -22	316 SS	Alloy 20	TFE (GF)	Viton®	TFE (GF)	TFE (GF)
70775-30	316 SS	Alloy C	PEEK	TFE	Carbon	Carbon
70775-40, -42	316 SS	Alloy 20	TFE (GF)	Viton	TFE (GF)	TFE (GF)
70775-50	316 SS	Alloy C	PEEK	TFE	TFE (GF)	TFE (GF)
70775-60	316 SS	Alloy C	TFE (GF)	TFE	Carbon	Carbon
70775-70	316 SS	Alloy C	TFE (GF)	TFE	TFE (GF)	TFE (GF)

TFE (GF)—Tetrafluoroethylene (glass-filled)

PEEK—polyetheretherketone

TFE—Tetrafluoroethylene

ISO 9001:2000  
SUPPLIER CERTIFIED



Catalog number	Max flow (GPM)	Max diff (psig)	Port size	Suction lift (H <sub>2</sub> O)	Shaft dia	Max temperature	Motor		Power		Price	Service kits	
							Speed (rpm)	hp	VAC	Hz		Cat. no.	Price
KH-70775-00 KH-70775-02	1.5	100	¼" NPT(F)	4"	⅜"	100°F (38°C)	1725	½	115/230 230/460	50/60 50/60		KH-70775-08	
KH-70775-10 KH-70775-12	3	100	½" NPT(F)	6"	⅜"	100°F (38°C)	1725	½	115/230 230/460	50/60 50/60		KH-70775-18	
KH-70775-20 KH-70775-22	10	100	¾" NPT(F)	1 ft	½"	100°F (38°C)	1725	1½	115/230 230/460	50/60 50/60		KH-70775-28	
KH-70775-30 KH-70775-40	10	100	¾" NPT(F)	2 ft	¾"	100°F (38°C)	1725	3	230/460	50/60		KH-70775-38	
KH-70775-40 KH-70775-42	22	50	1" NPT(F)	4 ft	½"	100°F (38°C)	1725	1½	115/230 230/460	50/60 50/60		KH-70775-48	
KH-70775-50 KH-70775-52	22	100	1" NPT (F)	4 ft	¾"	100°F (38°C)	1725	3	230/460	50/60		KH-70775-58	
KH-70775-60 KH-70775-70	28	100	1½" NPT(F)	5 ft	1"	100°F (38°C)	1150	3	230/460	50/60		KH-70775-68	
	60	100	2" 150# ANSI flange	6 ft	1"	100°F (38°C)	1150	7½	230/460	50/60		KH-70775-78	

### AC Controllers with NEMA 4X Housing

#### Password protection prevents accidental changing of programmed parameters.

Set up and program the controller in one of four ways—use the buttons on the front panel, the remote key pad, the EPM programmer, or via PC with the included Techlink software. These NEMA 4X housed controllers have line voltage calibration that automatically optimizes current and voltage protection. Anti-stall frequency holds back current limit to 120% for one minute. PID set-point control may be remotely enabled/disabled and is direct or reverse acting. Set point control features transducer calibration and high/low level alarms.

### Specifications & Ordering Information

**Display:** 16-character, one-line backlit LCD

**Signal:** 0 to 10 VDC, 2 to 10 VDC (2 to 10 VDC is convertible to 4 to 20 mA)

Catalog number	hp rating	Output		Input		Dimensions (W x H x D)	Price
		Voltage	Phase	Voltage	Phase		
EK-70022-02 EK-70022-12	1½	0 to 230 VAC	3	120 to 240 VAC 208 to 240 VAC	1 3	7⅞" x 7⅞" x 4⅝"	



Controller 70022-12

# Pu Pumps

Gear, Industrial

## CHEMSTEEL® Gear Pumps

Self-priming and bidirectional capabilities offer excellent dosing, metering, and transfer of polymers and corrosive chemicals

- Wear-resistant helical gears offer reduced noise levels of 10 dB
- Heavy-duty three-piece design combines bearings and wear plates to easily service pump in the field
- Ryton® or investment cast 316 SS provide excellent compatibility for applications involving corrosive chemicals

**Ryton Gear Pumps** provide a cost-effective option for pumping a variety of fluids.

**Investment Cast 316 SS Sealless Magnetic Drive Pumps** provide superior performance in continuous-duty applications. Sealless design is engineered to handle hazardous, toxic or highly corrosive chemicals.

All pumps are close-coupled to standard C-face motors. Motor type is TEFC, totally enclosed, fan-cooled.

**Service kits include:** drive and idler gears mounted to the shafts, keys, bearings, O-rings, and seal assemblies.



Call our Application Specialists to choose a pump that will handle your desired maximum viscosity.

**847-549-7600**



Ryton gear pump  
70736-00



Stainless steel  
sealless magnetic drive  
70737-00

### Specifications and Ordering Information

#### Wetted materials

Ryton gear pumps: Ryton body and idler gear, chemical grade carbon bearings, 316 SS shaft and drive gear, Viton® mechanical seal, and PTFE encapsulating silicone O-rings.

Investment cast 316 SS sealless magnetic drive pumps: 316 SS body, shafts, drive gear and containment can; PTFE idler gear, bearings and PTFE encapsulating silicone O-rings.

**Max viscosity:** 500 cp at 1725 rpm\*

**Suction lift:** 18" Hg

**Duty cycle:** continuous

**Reversible:** yes

**Run dry:** no

Catalog number	Max flow (GPM)	Max diff (psig)	Port size	Max temperature	Motor		Power¹		Dimensions (L x W x H)	Price	Service kits	
					Speed (rpm)	hp	VAC	Hz			Cat. no.	Price
Ryton gear pumps												
KH-70736-00	1.5	100	½" NPT (F)	200°F (93°C)	1725	⅓	115/230	60	17" x 6¾" x 6⅞"		KH-70736-01	
KH-70736-05	2.0					½			17" x 6¾" x 6⅞"		KH-70736-06	
KH-70736-10	2.8					½			18" x 6¾" x 6⅞"		KH-70736-11	
KH-70736-15	4.0					¾			18" x 6¾" x 6⅞"		KH-70736-16	
KH-70736-20	5.6	100	½" NPT (F)	200°F (93°C)	1725	1	115/230	60	17" x 6¾" x 6⅞"		KH-70736-21	
KH-70736-25	8.0		½" NPT (F)			1½			17" x 6¾" x 6⅞"		KH-70736-26	
KH-70736-30	10		1" NPT (F)			1½			19" x 6¾" x 6⅞"		KH-70736-31	
KH-70736-35	15	100	1½" NPT (F)	200°F (93°C)	1725	2	230/460	60	24" x 7⅞" x 8¾"		KH-70736-36	
KH-70736-40	20					3					KH-70736-41	
KH-70736-45	23					3					KH-70736-46	
KH-70736-50	30					5					KH-70736-51	
Investment cast 316 SS seal-less magnetic drives												
KH-70737-00	1.5	110	¼" NPT (F)	450°F (232°C)	1725	⅓	115/230	60	16⅓" x 6¾" x 6⅞"		KH-70737-01	
KH-70737-05	2.0		½" NPT (F)			½					KH-70737-06	
KH-70737-10	3.0		½" NPT (F)			½					KH-70737-11	
KH-70737-15	4.0	110	½" NPT (F)	450°F (232°C)	1725	¾	115/230	60	17" x 6¾" x 6⅞"		KH-70737-16	
KH-70737-20	5.6		½" NPT (F)			1			17" x 6¾" x 6⅞"		KH-70737-21	
KH-70737-25	8.0		½" NPT (F)			1½			17" x 6¾" x 6⅞"		KH-70737-26	
KH-70737-30	10		¾" NPT (F)			1½			18⅞" x 6¾" x 6⅞"		KH-70737-31	
KH-70737-35	15	110	1½" NPT (F)	450°F (232°C)	1725	3	230/460	60	24" x 7⅞" x 8¾"		KH-70737-36	
KH-70737-40	20					3					KH-70737-41	
KH-70737-45	23					5					KH-70737-46	
KH-70737-50	30					5					KH-70737-51	

\*Call our Applications Specialist if your maximum viscosity requirements are higher.

†115/230 VAC models are single phase. Three phase motors for variable-speed use with controllers, are available. Call our Application Specialists to order.

## Gear Pump Heads for NEMA 56C Motors

**GO to page(s)** 1007-1010

For 56 C-face motors to use with these pump heads.

### Smooth pulseless flow provides precise, leak-free delivery of fluids

- Compact size and easy to service

Magnetically driven, precision-geared cavity pump heads provide smooth, accurate, pulseless fluid delivery. The magnetic drive and a single seal keep fluids securely inside and potential contaminants out. Chemical resistant materials handle a wide range of fluids.

### A Cavity-Style Pump Heads

Cavity-style heads are designed to handle higher inlet pressures.

### Specifications & Ordering Information

**Max viscosity:** 0.2 to 2500 cp\*

**Duty cycle:** continuous

**Suction lift:** 24" of H<sub>2</sub>O (at 1750 rpm)

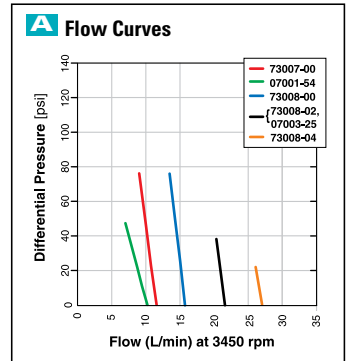
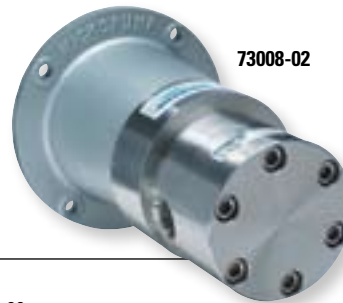
**Reversible:** yes, except model 73007-00

Catalog number	Flow rates (mL/min) <sup>†</sup>			Max pressure (psi)		Port size NPT(F)	Wetted parts			Temperature range	Internal bypass	Max speed (rpm)	Price	Service kits	
	mL/rev	at 50 rpm	at 5000 rpm	Diff	System		Body	Gears	Seals					Cat. no.	Price
KH-07001-54	2.86	143	5005	50	1500	3/8"	316 SS	PTFE	PTFE	-50 to 130°F	No	3450		KH-07001-55	
KH-73007-00	3.48	174	6090	65	1500	3/8"	316 SS	PEEK	TEV <sup>‡</sup>	-50 to 250°F	No	4000		KH-73007-80	
KH-73008-00	4.6	230	8050	65	300	3/4"	316 SS	PEEK	PTFE	-50 to 250°F	No	3450		KH-73008-80	
KH-07003-25	6.2	310	10,850	35	300	3/4"	316 SS	PTFE	PTFE	-50 to 130°F	No	4000		KH-07003-26	
KH-73008-02				35										KH-73008-82	
KH-73008-04	7.7	385	13,475	20	300	3/4"	316 SS	PEEK	PTFE	-50 to 250°F	No	3450		KH-73008-84	

\*Viscosity for model 73007-00 is 0.2 to 1500 cp.

<sup>†</sup>Flow rates based on water at room temperature and no back pressure.

<sup>‡</sup>PTFE Encapsulated Viton



### B Suction Shoe Pump Heads

Suction shoe design gives higher delivery pressures and superior priming performance.

### Specifications & Ordering Information

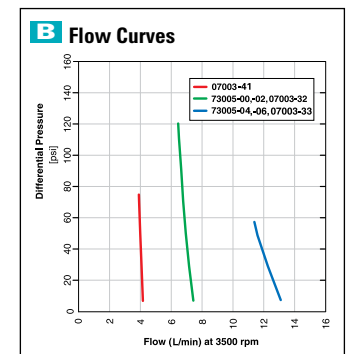
**Max viscosity:** 0.2 to 1500 cp\*\*

**Suction lift:** 24" of H<sub>2</sub>O (at 1750 rpm)

**Duty cycle:** continuous

**Reversible:** no

73005-00



Catalog number	Flow rates (mL/min) <sup>††</sup>			Max pressure (psi)		Port size NPT(F)	Wetted parts			Temperature range	Internal bypass	Max speed (rpm)	Price	Service kits	
	mL/rev	at 50 rpm	at 5000 rpm	Diff	System		Body	Gears	Seals					Cat. no.	Price
KH-07003-41	0.81	40.5	4050	75	1500	3/8"	316 SS	PPS	Viton <sup>‡</sup>	-50 to 350°F	No	6000		KH-07003-09	
KH-73005-00	1.82	91	9100	120	1500	3/8"	316 SS	PPS	TEV <sup>‡</sup>	-50 to 350°F	No	4000		KH-73005-80	
KH-73005-02								PEEK	TEV <sup>‡</sup>					KH-73005-82	
KH-07003-32								PPS	Viton					KH-07003-38	
KH-73005-04	3.48	174	17400	50	1500	3/8"	316 SS	PPS	TEV <sup>‡</sup>	-50 to 350°F	No	4000		KH-73005-84	
KH-07003-33								PPS	Viton					KH-07003-39	
KH-73005-06								PEEK	TEV <sup>‡</sup>					KH-73005-84	

\*\*Maximum viscosity for models 07003-32 and -33 is 100 cp.

<sup>††</sup>Flow rates based on water at room temperature and no back pressure.

<sup>‡</sup>PTFE Encapsulated Viton

## Build a complete pump system...

Combine a gear pump head with a 56C face motor and controller for a precise, pulseless pump system. The magnetically-driven pump heads provide a secure pump fluid system. The three-phase AC motors combined with a controller allow speed to be varied to deliver the exact fluid amount.

When building your pump system: be sure that your building supplies the correct voltage, confirm that the AC controller's output matches your motor, and verify that the hp rating of the controller meets or exceeds the hp rating of your motor.

### Required System Components

1 Phase or 3 Phase Electrical

Power from Building (see ordering info)

AC Controller

3 Phase Inverter Duty Motor

- 56C face motor ..... 1007-1010
- AC controller with NEMA 4X housing ..... 1379
- Coupling hardware.....online at [www.coleparmer.com](http://www.coleparmer.com)

- Micropump® gear pump heads for NEMA 56C motors ..... 1381
- A-mount gear pump heads .. 1374
- Gear pump head adapter kit (for A-mount pump heads only)... 1375

### Metering Pumps

Metering pumps move precise volumes of liquid in a specified time period to provide accurate flow rates. This class of pumps moves liquids in two stages: the suction stroke and the discharge stroke. During the suction stroke, liquid is pulled into the pump cavity past the inlet check valve. During the discharge stroke, the inlet valve closes; the outlet valve opens, and the liquid is pushed out. Vary the flow either by changing the stroke length or by adjusting the cycle frequency.

Described are a few types of metering pumps listed in this catalog—bellows, cylinder, diaphragm, peristaltic, piston, and syringe.

**Bellows Pumps** move a bellows back and forth to displace liquid. These pumps do not require seals. Special nonclogging valves are available for abrasive or particulate applications. Bellows pumps produce a maximum pressure of 50 psi.

**Cylinder Pumps** use a travelling cylinder pump design. It maintains the accuracy found in the syringe pumps but also has the durable construction of a piston pump. These pumps are excellent for applications requiring dispensing or continuous metering modes.

**Diaphragm Pumps** pulse a flexible membrane to displace liquid with each stroke. These pumps require no seals, so you can pump abrasives and slurries if the valves are kept clean. Diaphragm pumps produce pressures to 5000 psi.

**Peristaltic Pumps** are designed so that the only material in contact with the fluid being pumped is the tubing. This allows the fluid to not contaminate the pump and the pump not to contaminate the fluid. These pumps provide flexibility through the wide variety of tubing materials available.

**Piston Pumps** use a reciprocating plunger to move liquid through the pump. These pumps require a seal to prevent leaks and are not recommended for use with abrasive fluids. Piston pumps produce pressures to 5000 psi.

**Syringe Pumps** either draw in or push out liquid through a syringe to obtain a known volume as determined by the size of the syringe. Up to ten syringes may be used on one pump. With the programmable pumps, up to eight commands may be programmed to perform a variety of functions. Syringe pumps are great for low flow, low pressure applications.

#### Guide to Metering Pumps

Use the following guide to help you select the best type of metering pump for your application. The information given is intended as a general guideline and will not hold true for all pumps within a classification; check individual pump specifications for complete details. Pumps that have all PTFE/PFA wetted parts are recommended for applications involving aggressive liquids.

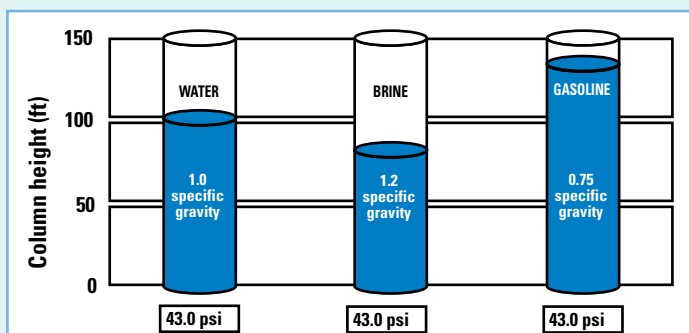
**GO to ColeParmer.com**  
[ColeParmer.com/MeteringPump](http://ColeParmer.com/MeteringPump)  
 For the newest products, stock status, complete technical data, and more!

Pump type	Page(s)	Flow rating	Maximum pressure	Self-priming	Pulseless flow	Viscous fluids	Particulate matter	Run dry	Advantages
<b>Bellows</b>	1398	6 to 2475 mL/min	50 psi	Good	Poor	Fair	Yes	No	Can pump liquids or gases.
<b>Diaphragm</b>	1398–1409	0.08 to 4167 mL/min	5000 psi	Good	Poor	Good	No	Yes	Ideal for high-accuracy applications, such as pH/ORP control.
<b>Peristaltic (tubing)</b>	1395–1397	0.9 to 3400 mL/min	125 psi	Excellent	Good at high rpm	Good	Yes	Yes	Noncontaminating; tubing is available in a wide variety of materials.
<b>Piston</b>	1388–1394	0.02 to 2901 mL/min	5000 psi	Good	Poor	Fair	No	No	Highest pressure and accuracy; ideal for HPLC applications.
<b>Syringe</b>	1383–1387	0.001 $\mu$ L /min to 147 mL/min	40 psi	N/A	Excellent	Poor	No	Yes	Handle very low flow rates.

#### Effects of Specific Gravity

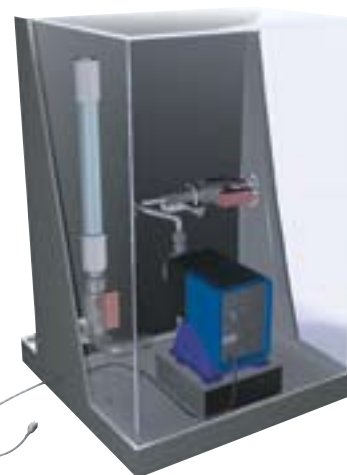
Specific gravity is an important factor to consider when sizing a pump. The specific gravity of your liquid can affect the output pressure of a pump—a heavier liquid requires greater force than water (or a lighter liquid) to be lifted an identical vertical height.

The graph below compares the column heights needed to exert an equal pressure for liquids having different specific gravities. A 100-ft column of water (specific gravity of 1.0) exerts a pressure of 43.0 psi, while an 83-ft column of brine (a heavier liquid) and a 133-ft column of gasoline (a lighter liquid) are needed to exert the same pressure.



#### GO to

Go to our Pump Systems section on pages 1429-1434 to select a complete and pre-assembled skid system—all you have to do is provide power and fluid connections. Select from a variety of standard systems or call our Application Specialists to configure a system to meet your exact needs. Systems can include any type of pump as well as any other components needed.



## Cole-Parmer Syringe Pumps

Ideal for low-flow, low-pressure applications where precision is needed

- Backlit alphanumeric LCD guides you through setup and operating procedures
- Nonvolatile memory retains settings even after your pump is turned off
- Accurate to  $\pm 0.5\%$

**What's included:** a 6-ft cord with grounded plug (U.S. standard plug on 115 VAC models, European plug on 230 VAC models). Order syringes separately on pages 1385, 1641–1646.



Call our Application Specialists to order RS-232 cables for pumps with RS-232 interface.

**847-549-7600**

**A Single-Syringe Infusion Pump:** Pump features microprocessor motor control and precision gearing. Microprocessor automatically selects display units based on syringe used. Obtain precise flow rates down to  $0.2 \mu\text{L/hr}$ . A wide dynamic range (6000:1) provides excellent flexibility. All commands can be programmed via the front-panel keypad. Settings can be changed while the pump is running.

### Specifications & Ordering Information

**Accuracy:**  $\pm 0.5\%$  **Syringe travel rate:**  $9.5 \times 10^{-6} \text{ mm/min}$   
**Reproducibility:**  $\pm 0.2\%$  **Linear force:** 20 lb  
**Syringe sizes accepted:**  $10 \mu\text{L}$  to 60 mL

Cat. no.	Flow rate	Dimensions	Power (VAC, Hz)	Price
<b>A Single-syringe pump</b>				
KH-74900-00	$0.2 \mu\text{L/hr}$	9"W x 4"H x 6"D	115, 50/60	
KH-74900-05	to 500 mL/hr	(23 x 10.2 x 15.2 cm)	230, 50/60	

**B Multi-Syringe Pumps** achieve flow rates down to  $0.001 \mu\text{L/hr}$ . A wide dynamic range (100,000:1) allows flow rates to vary from a slow trickle to a steady stream.

Program infusion/withdrawal pumps to sequence operations: either withdrawal followed by infusion or infusion followed by withdrawal. Simple keypad allows you to easily setup and sequence operation of the pump.

Pumps can be controlled from a computer with RS-232 interface. Pumps feature two TTL inputs and two TTL outputs. The TTL inputs allow for a foot switch or a process timer to control pump operation. Use TTL outputs for 5 V signal and run indicator.

### Specifications & Ordering Information

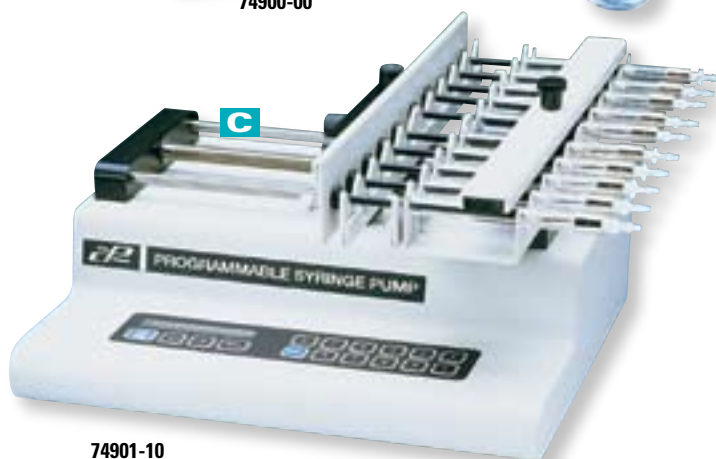
**Accuracy:**  $\pm 0.5\%$  **Syringe travel rate:**  $9.5 \times 10^{-6} \text{ mm/min}$   
**Reproducibility:**  $\pm 0.2\%$  **Linear force:** 40 lb  
**Syringe sizes accepted:**  $10 \mu\text{L}$  to 140 mL **Output:** RS-232

Catalog number	Description	Flow rate per syringe	Power (VAC, Hz)	Price
<b>B Dual-syringe pumps</b> measure 11"W x 5"H x 9 1/4"D (28 x 12.7 x 23.5 cm)				
<a href="#">KH-74900-10</a>	Infusion	0.001 µL/hr to 147 mL/min	115, 50/60	
<a href="#">KH-74900-15</a>			230, 50/60	
<a href="#">KH-74900-20</a>	Infusion/withdrawal	0.001 µL/hr to 147 mL/min	115, 50/60	
<a href="#">KH-74900-25</a>			230, 50/60	
<b>B Ten-syringe pumps</b> measure 11"W x 6"H x 12"D (28 x 15.2 x 30.5 cm)				
<a href="#">KH-74900-30</a>	Infusion	0.001 µL/hr to 147 mL/min	115, 50/60	
<a href="#">KH-74900-35</a>			230, 50/60	
<a href="#">KH-74900-40</a>	Infusion/withdrawal	0.001 µL/hr to 147 mL/min	115, 50/60	
<a href="#">KH-74900-45</a>			230, 50/60	

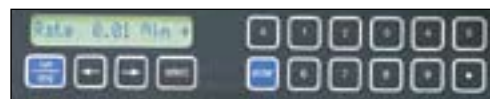
Pump continuously and automatically delivers exact quantities of liquid.



74900-00



74901-10



Easily program 74901-series pumps through keypad; LCD provides readout for setup and operation.

**C Programmable Multi-Syringe Pumps** also have a wide dynamic range (100,000:1) which allows flow rates to vary from a slow trickle to a steady stream. A built-in program allows you to enter up to eight commands—you can even repeat commands up to ten times. Pumps allow you to program flow rate hold, pause, and change of direction; each program can be run up to 12 hours. Pumps can also sequence operations: either withdrawal followed by infusion or infusion followed by withdrawal. Select from dual-syringe or ten-syringe models—ideal for pumping exact proportions.

An RS-232 interface allows you to operate your pump from a computer—great for daisy-chaining pumps! Pumps also feature two TTL inputs and two TTL outputs. The TTL inputs allow for a footswitch or a process timer to control pump operation. Use TTL outputs for 5 V signal and run indicator.

### Specifications & Ordering Information

**Accuracy:**  $\pm 0.5\%$  **Baud rate:** four settings up to 9600  
**Reproducibility:**  $\pm 0.2\%$  **Syringe travel rate:**  $9.5 \times 10^{-6} \text{ mm/min}$   
**Syringe sizes accepted:**  $10 \mu\text{L}$  to 140 mL **Linear force:** 40 lb  
**Output:** RS-232

Catalog number	Description	Flow rate per syringe	Power (VAC, Hz)	Price
<b>C Programmable dual-syringe pump</b> measures 11"W x 5"H x 9 1/4"D (28 x 12.7 x 23.5 cm)				
KH-74901-00	Infusion/	0.001 µL/hr to	115, 50/60	
KH-74901-05	withdrawal	147 mL/min	230, 50/60	
<b>C Programmable ten-syringe pump</b> measures 11"W x 5"H x 12"D (28 x 12.7 x 30.5 cm)				
KH-74901-10	Infusion/	0.001 µL/hr to	115, 50/60	
KH-74901-15	withdrawal	147 mL/min	230, 50/60	

# Pu Pumps

Metering, Syringe

## Cole-Parmer Nano Syringe Pump

New

Accurate, pulse-free flow from 1 nL/min to 363.7  $\mu$ L/hr

- Accepts syringes from 0.5  $\mu$ L to 250  $\mu$ L
- Preset rate and volume control
- Remote injector and rugged mounting arm

Pump features a microprocessor-based controller with a bright display and membrane keypad. Set flow rate, dispense volume, and syringe diameter with ease using the menu-prompt system. Dispense volume is displayed and pump automatically shuts off once the preset volume is dispensed.

Use pump in either the dispense/infuse mode or the withdraw mode. A syringe can be easily loaded using the fast forward or reverse mode. Remote injector pump can be placed up to six feet away from the controller.

**What's included:** a 6-ft cord with grounded plug (U.S. standard plug on 115 VAC model and European plug on 230 VAC models).

### Specifications & Ordering Information

<b>Accuracy:</b> $\pm 1\%$	<b>Linear force:</b> 2 lb
<b>Reproducibility:</b> $\pm 0.1\%$	<b>Output:</b> none
<b>Syringe size accepted:</b> 0.5 $\mu$ L up to 250 $\mu$ L	<b>Dimensions</b>
<b>Syringe travel rate:</b> 7.638 mm/min	Remote pump: 7"W x 1 $\frac{1}{4}$ "H x 2"D (17.8 x 4.4 x 5 cm)
	Controller: 9"W x 3"H x 6"D (23 x 7.6 x 15.2 cm)

Catalog number	Description	Flow rate per syringe	Power (VAC, Hz)	Price
<a href="#">KH-74902-00</a>	Nano syringe pump, infusion/withdrawal	1 nL/min to 363.7 $\mu$ L/hr	115, 50/60	
<a href="#">KH-74902-05</a>			230, 50/60	
<a href="#">KH-74902-06*</a>			230, 50/60	

\*CE-marked.

CE  
Model 74902-06



74902-00

**GO to page(s)** 1385, 1641-1646

See pages 1385 and 1641-1646 for a complete listing of our syringes.

## Modular Multi-Channel Syringe Pumps

Create a system that controls up to four syringe pumps independently

- Operates in either infuse or withdraw mode
- Ideal for intracellular injection, micro delivery of biochemical agents or dyes, cell separation, and in vitro fertilization
- Mount directly onto stereotaxic frame or micromanipulator—accepts microsyringes (sold separately on page 1604) from 0.5  $\mu$ L to 1 mL

Use the 4-channel microprocessor controller (sold separately below) to set operating parameters that control up to four pumps independently. Store user parameters in non-volatile memory for instant recall.

Controller features RS-232 port for hands-free, start/stop foot switch operation (foot switch sold separately under Accessories). Use RS-232 port to also connect to a computer for TTL triggering.

**What's included:** controller comes with 12 VDC auto-switchable power supply (100 to 240 VAC input) and power cable; syringe pump comes with output cable and mounting bar.

### Specifications & Ordering Information

<b>Total number of steps (end to end):</b> 19,000	<b>Max step rate:</b> 700/sec (depending upon syringe selection)
<b>Dispensing volume:</b> 0.0526 nL/step	<b>Syringe pump dimensions:</b> 7 $\frac{1}{2}$ " L x 1 $\frac{1}{16}$ " dia
<b>Linear motion:</b> 3.2 $\mu$ m/step	<b>Controller dimensions:</b> 6"W x 3 $\frac{1}{2}$ "H x 5"D
<b>Linear displacement per half step:</b> 3.175 $\mu$ m	

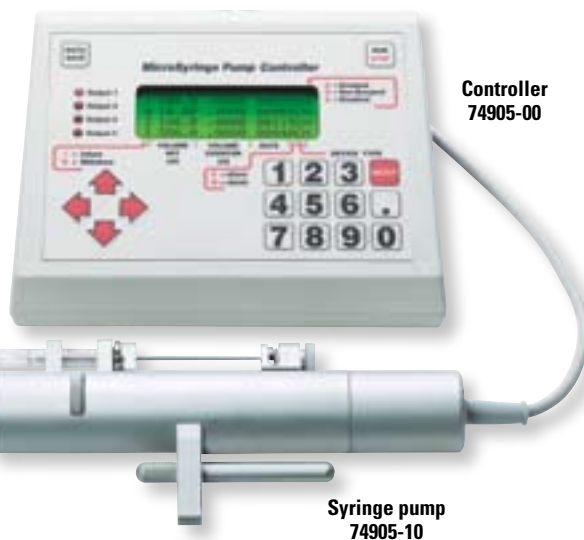
Catalog number	Description	Power	Price
<a href="#">KH-74905-10</a>	Modular syringe pump	12 VDC, 2 A (provided by controller)*	
<a href="#">KH-74905-00</a>	Controller	115/230 VAC, 50/60 Hz	

\*Adapter included.

### Accessories

[KH-74905-90](#) Foot switch for controller 74905-00

[KH-74905-92](#) RS-232 cable for controller 74905-00



Controller  
74905-00

Syringe pump  
74905-10

CE

### Required System Components

- 1 Syringe pump
- 2 Controller
- 3 Syringes (pages 1385, 1641-1646)

### Add these options

- 4 Foot switch
- 5 RS-232 cable

## Cole-Parmer® High-Pressure Syringe Pumps

New

Ideal for low-flow, higher pressure applications where precision is critical

- Greater than 100 lbs of linear force
- Higher pressure syringe clamps
- RS-232 connectivity for interface to a remote computer

These Cole-Parmer syringe pumps more than double the linear force available on other versions. This extra force makes the pump ideal for fluid delivery to reactors in chemical applications or for working with viscous fluids. The robust design of the syringe holder ensures the syringe is kept level during delivery of the fluid. It features two different types of clamping mechanisms to accommodate both smaller and larger syringes. The pumps will work with all types of syringes, however due to the higher force on the syringe we recommend the stainless steel syringes listed below.

Both the standard and programmable pumps can operate in either an infusion or withdrawal mode. The programmable model can be set to a specific sequence of operations. The simple keypad interface allows for quick setup of the syringe pump.

**What's included:** 6-ft cord (115 VAC models have U.S. standard plug; 230 VAC models have European plug).



Models 74903-06, -16

### Specifications & Ordering Information

**Accuracy:**  $\pm 0.5\%$

**Reproducibility:**  $\pm 0.2\%$

**Syringe sizes accepted:** 10  $\mu\text{L}$  to 140 mL

**Syringe travel rate:**  $9.5 \times 10^{-6}$  mm/min

**Linear force:** >100 lb

**Output:** RS-232

**Dimensions:** 11"W x 6"H x 9 1/2"D (28 x 15.2 x 24 cm)

Catalog number	Description	Flow rate per syringe	Power (VAC, Hz)	Price
Non-programmable syringe pump				
<a href="#">KH-74903-00</a> <a href="#">KH-74903-05</a> <a href="#">KH-74903-06*</a>	Infusion/withdrawal	0.001 µL/hr to 145.5 mL/min	115, 50/60 230, 50/60 230, 50/60*	
Programmable syringe pump				
<a href="#">KH-74903-10</a> <a href="#">KH-74903-15</a> <a href="#">KH-74903-16*</a>	Infusion/withdrawal	0.001 µL/hr to 145.5 mL/min	115, 50/60 230, 50/60 230, 50/60*	

\*CE marked.



74903-00

**GO to page(s)** 1641–1646

See pages 1641-1646 for a complete listing of our syringes.



Call us now to place your order!

**847-549-7600**

## Cole-Parmer® Stainless Steel Syringes

Ideal for use in Cole-Parmer® syringe pumps

- Syringes fit most syringe pumps
- Made from top quality 316 stainless steel—provides superior chemical resistance
- Designed to handle demanding applications with pressures

Stainless steel offers good resistance to most aggressive liquids. Wetted parts are 316 stainless steel and Viton®. Genuine Swagelok® and luer lock end fittings are available. All tips are interchangeable with all syringes (20 to 200 mL) in the series.



### Specifications & Ordering Information

Capacity	Syringes with 1/16" Swagelok tip		Syringes with 1/8" Swagelok tip		Syringes with 1/4" Swagelok tip		Syringes with luer lock tip	
	Catalog number	Price	Catalog number	Price	Catalog number	Price	Catalog number	Price
2.5 mL	<a href="#">KH-74044-00</a>		—	—	—	—	—	—
8 mL	<a href="#">KH-74044-10</a>		<a href="#">KH-74044-12</a>		—	—	—	—
20 mL	<a href="#">KH-74044-20</a>		<a href="#">KH-74044-22</a>		<a href="#">KH-74044-24</a>		<a href="#">KH-74044-26</a>	
50 mL	<a href="#">KH-74044-30</a>		<a href="#">KH-74044-32</a>		<a href="#">KH-74044-34</a>		<a href="#">KH-74044-36</a>	
100 mL	<a href="#">KH-74044-40</a>		<a href="#">KH-74044-42</a>		<a href="#">KH-74044-44</a>		<a href="#">KH-74044-46</a>	
200 mL	<a href="#">KH-74044-50</a>		<a href="#">KH-74044-52</a>		<a href="#">KH-74044-54</a>		<a href="#">KH-74044-56</a>	

# Pu Pumps

Metering, Syringe



## Continuous-Cycle Four-Syringe Pump

**Continuously cycle up to four syringes in a push-pull action**

Hold up to four syringes to cycle continuously back and forth in a push-pull action. As two syringes are infusing, two syringes are withdrawing at the same rate. At the end of the set volume the direction is automatically reversed and the next cycle begins. With the use of three-way valves (sold separately in starter kit below), the pump can empty and refill syringes for a continuous dispense.

**What's included:** a 6-ft cord with grounded plug (U.S. standard plug on 115 VAC model, European plug on 230 VAC model).

### Specifications & Ordering Information



**Accuracy:**  $\pm 1\%$

**Linear force:** 40 lb

**Reproducibility:**  $\pm 0.1\%$

**Output:** RS-232

**Syringe sizes accepted:** 10  $\mu\text{L}$  to 60 mL

**Dimensions:** 11"L x 9"W x 5½"H  
(30 x 22.9 x 14 cm)

**Syringe travel rate:** 1 step/100 sec to 1600 step/sec

Catalog number	Description	Flow rate per syringe	Power (VAC, Hz)	Price
<a href="#">KH-74901-50</a>	Simultaneous, continuous infusion/withdrawal	0.001 $\mu\text{L/hr}$ (for a 10- $\mu\text{L}$ syringe)	115, 60	
<a href="#">KH-74901-55</a>		to 86 mL/min (for a 30-mL syringe)	230, 60	

**KH-74901-90 Continuous flow starter kit** includes two check valves, two 10-mL plastic syringes, and a short length of tubing

**GO to page(s) 1385 and 1641-1646**

For our complete selection of glass, stainless steel, and plastic syringes.



## Emulsifier Syringe Pump

**Mix two fluids simply, without manual interference, to get the highest level of consistency and quality**

Easily emulsify your viscous fluids with this syringe pump. The emulsification process occurs when the fluid is forced back and forth through a micro-sized emulsifying needle. Simply enter the syringe diameter, the flow rate, and a volume to dispense into the pump's memory. The pump automatically infuses and withdraws the preset volumes. Choose between five operating modes: emulsion, infuse, withdraw, infuse/withdraw, and withdraw/infuse. Pump has simple control features—including volume setting and automatic cycling—and can detect when a stall has occurred. Use with two 10-mL glass syringes and an emulsion needle (order emulsion needle 25701-99 separately below table).

**What's included:** a 6-ft cord with grounded plug (U.S. standard plug on 115 VAC model, European plug on 230 VAC model).

### Specifications & Ordering Information



**Accuracy:**  $\pm 1\%$

**Syringe sizes accepted:** two 10-mL syringes with emulsion needles

**Display rate:** 15.0 mL/m

**Reproducibility:**  $\pm 0.1\%$

**Linear force:** 40 lb min

**Dimensions:** 23"L x 7½"W x 5½"H (58.4 x 19 x 14 cm)

Catalog number	Description	Flow rate per 10-mL syringe	Power (VAC, Hz)	Price
<a href="#">KH-74902-50</a>	Infusion/withdrawal	0.001 $\mu\text{L/hr}$ to 21 mL/min	115, 60	
<a href="#">KH-74902-55</a>			230, 60	

**KH-25701-60 Glass syringe, 10mL, w/lock tip**

**KH-25701-99 Emulsion needle** for 25701-60



## Programmable Compact Single-Syringe Pump

### Economical OEM-style pump

- Programmable via computer by downloading the sequence of operation
- Accessories allow networking of up to 100 pumps

Pre-program the pump with a dispensing program, then operate the pump via an attached foot switch (sold separately below), button on the pump, or I/O controller (not included). Dispensing software allows you to infuse and withdraw in  $\mu\text{L/hr}$ ,  $\mu\text{L/min}$ ,  $\text{mL/hr}$ , and  $\text{mL/min}$ . Design a program to change direction while pumping, dispense a pre-specified volume, purge and refill, or trigger an alarm under pre-specified conditions. Pump holds one syringe up to 60 mL. Store programs on a computer and download to pump for operation.

**What's included:** 120 V power supply, pump-to-PC RS-232 network cable.

### Specifications & Ordering Information



**Accuracy:**  $\pm 1\%$

**Reproducibility:**  $\pm 1\%$

**Syringe sizes accepted:** up to 60 mL

**Syringe travel time:** 5.1 cm/hr max

**Linear force:** 30-lb total at minimum speed

**Dimensions:** 9½"L x 4½"W x 4¼"H  
(24 x 11.4 x 10.8 cm)

**New**



75900-00

Catalog number	Description	Flow rate per syringe	Power (VAC, Hz)	Price
<a href="#">KH-75900-00</a>	Infusion/withdrawal	0.73 $\mu\text{L/hr}$ to 2100 $\text{mL/hr}$	120, 60	
<a href="#">KH-75900-05</a>			240, 50	

### Accessories

[KH-75900-90](#) Foot switch

[KH-75900-91](#) Pump-to-PC RS-232 cable, 7-ft L

[KH-75900-92](#) Pump-to-PC RS-232 cable, 25-ft L

## Cole-Parmer Six-Channel Syringe Pump

### Six-channel pump can both withdraw and infuse

- Capable of holding 41 commands, do unlimited repetitions with unlimited run time
- Optional lockout prevents accidental or unauthorized changes to programmed settings

Programming commands allow dispensing of a specified amount, automatic rates changes, direction changes, programmed pauses, external or user input, and sending or receiving signals from other equipment. Nonvolatile memory restores all setup parameters and pumping program when pump is turned on. Syringe purge mode will infuse or refill syringe at top speed to purge air from the line or to fill the syringe. Versatile pumping features allow infusion or withdrawal in  $\mu\text{L/hr}$ ,  $\mu\text{L/min}$ ,  $\text{mL/hr}$ , and  $\text{mL/min}$ . An audible buzzer can be programmed to alert you when an alarm condition occurs or the pumping program completes.

Easily network up to 100 pumps from a single communications port on your computer. Network communication protocols allow the ability to send a network burst transmission simultaneously to 10 pumps in the network with no lag, resulting in consistent laboratory setups.

Optional communications protocol utilizes error checking to ensure completely reliable signal transmissions by eliminating errors caused by disconnections or electromagnetic interference.

**What's included:** 120 V power supply.

### Specifications & Ordering Information

**Accuracy:**  $\pm 1\%$

**Reproducibility:**  $\pm 1\%$

**Syringe sizes accepted:** up to 60 mL

**Syringe travel rate:** 3.49 cm/min

**Linear force:** 100-lb total at minimum speed

**Dimensions:** 15¼"L x 10½"W x 4¾"H  
(38.7 x 26.7 x 12 cm)

**New**



75900-50

Catalog number	Description	Flow rate per syringe	Power (VAC, Hz)	Price
<a href="#">KH-75900-50</a>	Infusion/withdrawal	Up to 1337 $\text{mL/hr}$ for a 60-mL syringe	120, 60	
<a href="#">KH-75900-55</a>			240, 50	

### Accessories

[KH-75900-90](#) Foot switch

[KH-75900-91](#) Pump-to-PC RS-232 cable, 7-ft L

[KH-75900-92](#) Pump-to-PC RS-232 cable, 25-ft L

# Pumps

Metering, Piston

## High-Pressure Programmable Piston Pumps

Get high pressures, accurate dispensing, and great repeatability—all with one pump

- Drives feature six dispensing modes—volume within a preset time, volume in steps, time, intermittent in time or volume, drip-free, or valve operation
- Control speed, start/stop flow, or change fluid direction manually or remotely via an analog input signal or RS-232 interface
- Series Q piston pump heads (included) have no valves to clog or wear out

Up to four sets of operating parameters can be stored in the pump (for pumps with Series Q pump heads only). RS-232 interface allows for control of pump via a PC or for cascading up to eight pumps. Housing is IP65 rated for Series Q pumps and IP30 rated for Series R pumps.

**Pumps include:** a Series Q or Series R piston pump head with mounting hardware and a 6-ft power cord with three-prong U.S. plug. 230 VAC models include an IEC 320/CEE 22 European plug. These models are shipped with country specific plug/cord; please specify ultimate destination when ordering.



Series Q Kynar pump head included with high-pressure piston pump 78021-20



**A** High-pressure piston pump 78021-12 with Series Q 316 SS pump head

**B** High-pressure piston pump 78021-50 with Series R pump head

**GO to page(s) 1410**

See page 1410 for a pulse dampener and other pump head accessories.



### Specifications & Ordering Information

**Accuracy:** ±0.1%      **Suction lift:** 15 ft H<sub>2</sub>O

#### Connections

Series Q pump heads with 316 SS cylinder bodies: 1/4" NPT(F) ports with 3/8" hose barb fittings (model 78021-00 includes 1/4" hose barb fittings)  
Series Q pump heads with Kynar® cylinder bodies: 1/4" OD compression fittings  
Series R pump heads: 1/4" OD compression fittings

**Remote control inputs:** 0 to 5 VDC, 0 to 10 VDC, 0 to 20 mA, or 4 to 20 mA via DB15 female port; RS-232 via DB9 female port; start/stop and reverse direction via contact closure; footswitch via three-pin DIN port

**Power:** 115/230 VAC, 50/60 Hz

**Viscosity:** 500 cp

Catalog number	Flow range (mL/min)	Piston dia	Max psi	Max temp °F (°C)	Pump head materials of construction			Autoclavable pump head	Dimensions (W x H x D)	Price
					Piston	Cylinder body	Cylinder liner			
A High-pressure piston pumps with Series Q pump heads										
KH-78021-00 KH-78021-02	0.04 to 144	1/8"	100 60	140 (60)	316 SS	316 SS Kynar	Carbon	Yes No	6 1/16" x 10 1/4" x 8 3/8" (15.5 x 26 x 22 cm)	
KH-78021-04 KH-78021-06 KH-78021-08			0.13 to 576	1/4"	60 100 60	140 (60) 140 (60) 212 (100)	316 SS 316 SS Ceramic	Kynar 316 SS Kynar	Carbon Carbon Ceramic	No Yes No
KH-78021-10 KH-78021-12 KH-78021-14	0.13 to 576	1/4"			60 100 100	212 (100) 350 (177) 350 (177)	Ceramic	Kynar 316 SS 316 SS	Carbon Ceramic Carbon	No Yes Yes
KH-78021-16 KH-78021-18 KH-78021-20			0.29 to 1300	3/8"	60 100 60	140 (60) 140 (60) 212 (100)		316 SS 316 SS Ceramic	Kynar 316 SS Kynar	Carbon Carbon Ceramic
KH-78021-22 KH-78021-24 KH-78021-26	0.29 to 1300	3/8"			60 100 100	212 (100) 350 (177) 350 (177)	Ceramic	Kynar 316 SS 316 SS	Carbon Ceramic Carbon	No Yes Yes
A High-pressure piston pumps with Series Q pump heads, meet 3A Sanitary Standard 02-08A1 for use with foods										
KH-78021-28 KH-78021-30	0.04 to 144 0.13 to 576	1/4" 3/8"	100	350 (177)	Ceramic	316 SS	Ceramic	Yes	6 1/16" x 10 1/4" x 8 3/8" (15.5 x 26 x 22 cm)	
B High-pressure piston pumps with Series R pump heads										
KH-78021-50 KH-78021-52	0.2 to 90 0.4 to 180	3/16" 1/4"	100	212 (100)	Ceramic	Kynar	Ceramic	No	4" x 5 3/4" x 9 3/4" (10.2 x 14.6 x 24.8 cm)	

## High-Precision, High-Pressure Piston Pumps

### Deliver precise volumes at pressures up to 6000 psi

- Ideal for use in HPLC applications
- Pulse dampener significantly reduces pulsation with low dead volume

#### A Economical Digital Pumps

Digital pumps provide precise, reproducible flow in an economical package. Single-piston pump significantly reduces pulsation through the use of an advanced electronic rapid-refill design. Microprocessor-controlled pump provides control signals to the motor drive circuits, interfaces with the keypad and digital LED display, receives signals to refill based on flow rate, and provides RS-232 communication. Other features include run/stop inputs, dual-voltage capabilities, self-flushing pump heads, and a motor stall detector. Both include a 6-ft power cord with plug.

#### B Constant-Flow HPLC Pump

Use this dual head pump for analytical to small-scale chromatography applications. Constant-flow pump can be used with columns from 2 to 22 mm ID. Drive features a linear cam and pressure compensation to provide accurate gradients in high- or low-pressure modes. Chemical-resistant keypad and digital LED display allow flow adjustments in 0.01-mL increments. Other features include RS-232 serial communication port, run/stop inputs, remote frequency and voltage controls, dual voltage capabilities, and real-time pressure monitoring. Includes a 6-ft power cord with plug.

#### C Isocratic Dispensing Pump

Use this single-head pump for isocratic, metering, research and development and quality assurance applications. The patented low dead volume pulse damper and rapid refill in the pump make the flow virtually pulse-free. Easy solvent changes are accomplished via the one-button purging/priming feature.

Linear cam and pressure compensation provide accurate gradients in high- or low-pressure modes. Chemical-resistant keypad and digital LED display allow flow adjustments in 0.01-mL increments. Other features include RS-232 serial communication port, run/stop inputs, remote frequency and voltage controls, dual-voltage capabilities, and real-time pressure monitoring.

#### D Preparative High-Flow Pump

Preparative digital pump provides high flow rates and high pressure capabilities with consistent performance. Dual ball and seat check valves in each head reduce pulsation.

Microprocessor controls motor drive circuits, interfaces with the chemical-resistant keypad and digital LED display, receives signals to refill based on flow rate, and provides RS-232 communication. Pressure control feature provides real-time pressure monitoring with upper and lower pressure limits. Other features include prime/purge valves for easy solvent change and priming capabilities, auto-flush piston wash, run/stop inputs, and dual-voltage capabilities. Includes a 6-ft power cord with plug.



74930-00



74930-10



74930-15



74930-20

**GO to page(s) 227 to 248**

See our Chromatography sections on pages 227-248 for suitable fittings and valves.

### Specifications & Ordering Information

Maximum temperature (fluid): 212°F (100°C)

Operating ambient: 32 to 176°F (0 to 80°C) with max 98% humidity

Duty cycle: continuous

Self-priming: no

Accuracy: ±2%

Power: 110 to 220 VAC, 50/60 Hz

Key	Catalog number	Flow range (mL/min)	Max psi	Pump head	Repeatability	Wetted parts	Dimensions (W x H x D)	Price
A	KH-74930-00	0.01 to 10	3000	PEEK	±0.5%	PEEK check valve body and outlet tubing; synthetic ruby and sapphire check valve internals; sapphire piston; PTFE inlet tubing and pulse dampener diaphragm.	7 3/4" x 6 1/4" x 12 3/4" (19.7 x 15.9 x 32.4)	
A	KH-74930-05	0.01 to 10	3000	316 stainless steel	±0.5%	316 SS check valve body and tubing; synthetic ruby and sapphire check valve internals and piston; fluorocarbon pulse dampener diaphragm.	7 3/4" x 6 1/4" x 12 3/4" (19.7 x 15.9 x 32.4)	
B	KH-74930-10	0.01 to 12	6000		±0.2%		11" x 6" x 18" (27.9 x 15.2 x 45.7 cm)	
C	KH-74930-15	0.1 to 10	6000		±0.2%		5 1/2" x 10 3/8" x 17 1/2" (14 x 26.4 x 45.7 cm)	
D	KH-74930-20	0.1 to 100	4000		±0.5%		11" x 6" x 18" (27.9 x 15.2 x 45.7 cm)	

SP CE 3 year warranty

# Pu Pumps

Metering, Piston

## Series Q Valveless Piston Pump Systems

### No valves to clog or wear out

- Build your own pump systems using interchangeable heads, drives, and accessories
- Pump fluids with viscosities up to 500 cp
- Low dead volume

### A Series Q Pump Heads

Choose stainless steel (SS) materials for added thermal and physical strength characteristics; choose ceramic materials for use with common abrasives. Sanitary high-flow models are ideal for pumping food products. Pump heads with ceramic piston and carbon cylinder liner are great for gas and liquid transfer.

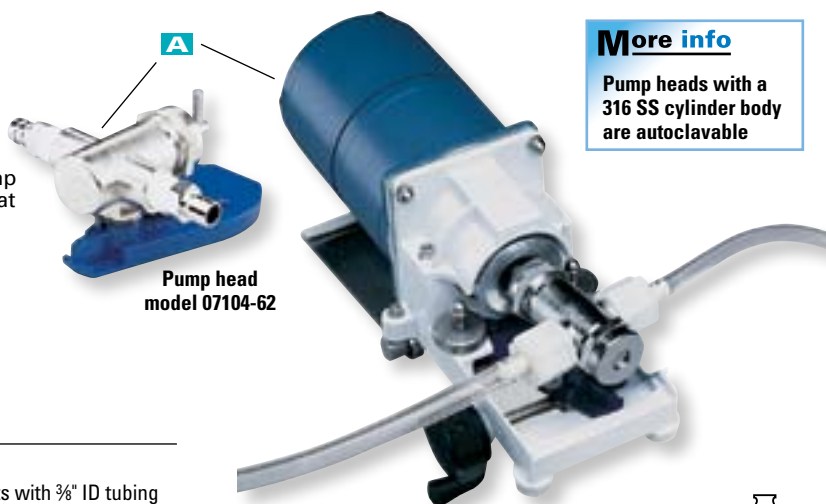
To order a complete pump assembly, first select a pump head with your desired flow rate and piston diameter. Next, select a drive that meets your flow rate and power requirements. For smaller or alternate tubing sizes, order a tubing adapter under "Accessories" below.

### Required System Components

- A Series Q pump head  
 B Series Q drive ..... 1391  
 C Pump head adapters (required for use with Masterflex® L/S® Drives or NEMA Type 56-C face motors)..... 1391

### More info

Pump heads with a 316 SS cylinder body are autoclavable



Pump head model 07104-62

Pump head 07104-50 with AC drive 07104-02 (order separately on page 1391)



### Specifications & Ordering Information

Accuracy: ±1%

Suction lift: 15 ft H<sub>2</sub>O

Max viscosity: 500 cp

#### Connections

316 SS cylinder body models: ¼" NPT(F) ports with ¾" ID tubing hose barb fittings (model 07104-50 accepts ¼" ID tubing)  
 Kynar® cylinder body models: ¼" OD tubing compression fittings  
 Sanitary models: ¼" hose barb

Catalog number	Volume/rev	Flow range (mL/min)	Piston dia	Max psi	Max temperature	Wetted parts			Price
						Piston	Cylinder body	Cylinder liner	
Standard high-flow pump heads									
KH-07104-50	0.08 mL	0 to 144	1/8"	100	140°F (60°C)	316 SS	316 SS	Carbon	
KH-07104-52				60			Kynar		
KH-07117-26	0.32 mL	0 to 576	1/4"	60	140°F (60°C)	316 SS	Kynar	Carbon	
KH-07104-62				100			316 SS		
KH-07104-54	0.32 mL	0 to 576	1/4"	60	212°F (100°C)	Ceramic	Kynar	Ceramic	
KH-07104-58								Carbon	
KH-07104-56	0.32 mL	0 to 576	1/4"	100	350°F (177°C)	Ceramic	316 SS	Ceramic	
KH-07104-60								Carbon	
KH-07117-28	0.72 mL	0 to 1296	3/8"	60	140°F (60°C)	316 SS	Kynar	Carbon	
KH-07104-72				100			316 SS		
KH-07104-64	0.72 mL	0 to 1296	3/8"	60	212°F (100°C)	Ceramic	Kynar	Ceramic	
KH-07104-68								Carbon	
KH-07104-66	0.72 mL	0 to 1296	3/8"	100	350°F (177°C)	Ceramic	316 SS	Ceramic	
KH-07104-70								Carbon	
Sanitary high-flow pump heads, meet 3A Sanitary Standard 02-08A1 for use with foods									
KH-07117-20	0.32 mL	0 to 576	1/4"	100	350°F (177°C)	Ceramic	316 SS	Ceramic	
KH-07117-22	0.72 mL	0 to 1296	3/8"						

### Accessories for All Valveless Piston Metering Pumps on Pages 1390–1391

**KH-07042-70 Air lubricator:** ¼" NPT(F) for 07104-42 and 07104-44 air drives

**KH-07115-50 Pulse dampener.** Use to suppress 90% of pulse magnitude. Use with either low-flow adapter kit 07117-87 or ¼-28(M) fittings 01939-32 and -42 (sold separately below) to attach dampener directly to your pump head. Max flow rate is 50 mL/min. Max pressure is 65 psi. Has ¼-28(F) ports and PTFE and 316 SS wetted parts. Dead volume is 2 mL

**KH-07104-96 High-flow in-line pulse dampener** reduces tubing vibrations and cavitation problems. For flow rates greater than 50 mL/min. Max pressure is 65 psi

**KH-07104-98 Dial indicator kit.** For continuous readings of flow rate settings

**KH-07117-87 Low-flow adapter kit** decreases dead volume and fluid transit time. Includes four ferrules, two ¼" NPT(M) x ¼-28 adapters, and assembly tool **KH-01939-32 Fittings**, ferrule ⅛" x ¼-28. Order with model 01939-42 below to attach dampener 07115-50 to your pump head. Made of ETFE. Pack of 10

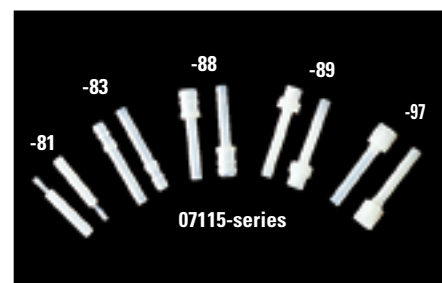
**KH-01939-42 Fittings**, male nut; ⅛" x ¼-28. Order with model 01939-32 above to attach dampener 07115-50 to your pump head. Made of ETFE. Pack of 10



07115-50

### Kynar® Tubing Adapters

for ¼" OD Compression Fittings



Cat. no.	Description	Price/pk of 2
KH-07115-81	For ⅛" ID tubing	
KH-07115-83	For ¼" ID tubing	
KH-07115-88	For ⅜" ID tubing	
KH-07115-89	For ¼-28 thread	
KH-07115-97	For ⅛" OD tubing	



### B Series Q Drives

Series Q drives are interchangeable with all pump heads on facing page. Set flow anywhere from 0 to 100% of maximum flow rate—drives offer better than  $\pm 1\%$  accuracy. For additional speed control, choose drives that have a separate speed controller for precise and repeatable setting of stroke rates from 0.1 to 99.9%.

Controllers accept 4 to 20 mA input for remote control or a digital potentiometer for manual control. Pedestal drive model 07104-40 is for chain-, belt-, or shaft-coupling to rotating machine elements or to your motor. Drives with explosion proof motors are designed for applications in Class I, Group D, Division 1 hazardous areas.

### C Pump Head Adapters

Operate the Series Q pump heads (sold on the opposite page) with Masterflex® L/S® drives (sold on pages 1250–1276) and NEMA Type 56-C face motors (sold on pages 1007–1010) using these adapter kits.

**KH-07104-48 Masterflex® adapter kit.** Includes all necessary screws and fittings

**KH-07117-85 NEMA Type 56 C-face adapter kit.** Includes all necessary screws and fittings

### Specifications & Ordering Information

Temperature: 39 to 104°F (4 to 40°C)

Accuracy:  $\pm 1\%$

Continuous duty: yes



Catalog number	Rev per minute	Motor specifications					Max psi for given piston dia			Connections	Dimensions (L x W x H)	Price
		hp	Type*	Voltage	Hz	Amps	1/8"	1/4"	3/8"			
B Single head, gear-reduced fixed-speed AC drives												
KH-07108-00	6	1/25	TEFC	110 VAC	60	1	20	75	50	Cord and plug	10 3/4" x 4 7/8" x 5 3/4"	
KH-07108-09	6			240 VAC	50/60			75	50			
KH-07108-13	20			110 VAC	60			50	40			
KH-07108-15	20			240 VAC	50/60			50	40			
KH-07108-22	50	1/25	TEFC	110 VAC	60	1	100	100	100	Cord and plug	10 3/4" x 4 7/8" x 5 3/4"	
KH-07108-25	50			240 VAC	50/60							
KH-07108-30	150			110 VAC	60							
KH-07108-35	150			240 VAC	50/60							
KH-07108-40	400	1/25	TEFC	110 VAC	60	1	100	100	40	Cord and plug	10 3/4" x 4 7/8" x 5 3/4"	
KH-07108-45				240 VAC	50/60							
B Single head, fixed-speed AC drives												
KH-07104-02	72	1/25	TENV	110 VAC	60	0.4	100	100	100	Cord and plug	10 1/2" x 5 3/8" x 4 3/4"	
KH-07104-04			TENV	240 VAC	50/60	0.4				Cord and plug	10 1/2" x 5 3/8" x 4 3/4"	
KH-07104-06			XPRF	110 VAC	60	0.6				Pigtail leads	10 1/4" x 6" x 6 3/4"	
KH-07104-08			XPRF	240 VAC	50/60	0.6				Pigtail leads	10 1/4" x 6" x 6 3/4"	
KH-07104-10	1725	1/25	TEFC	110 VAC	60	1.25	100	100	50	Cord and plug	9 13/16" x 5 1/2" x 4 13/16"	
KH-07104-15	1725	1/25	TEFC	220 VAC	50/60	1.25				Cord only	9 13/16" x 5 1/2" x 4 13/16"	
KH-07104-40	1800	N/A†	Pedestal	—	—	—				—	6 1/2" x 5 1/16" x 4 5/12"	
B Single head, air and DC drives*												
KH-07104-42	400	N/A	Air	—	—	—	100	100	100	—	11 1/2" x 5 1/8" x 6 5/8"	
KH-07104-44	1800	N/A	Air	—	—	—		70	30	—	8 3/4" x 5 1/8" x 6 5/8"	
KH-07104-20	1800	1/10	Enclosed	12 VDC	—	4		70	30	Pigtail leads	10 1/2" x 4 1/2" x 5"	
KH-07104-25	1800	1/10	Enclosed	24 VDC	—	3.3		70	30	Pigtail leads	10 1/2" x 4 1/2" x 5"	
B Single head, variable-speed AC drives with separate speed controller												
KH-07104-31	1800	1/27	TENV with 4 to 20 mA or stepless control from 0.1 to 99.9%	110 VAC	50/60	0.75	100	100	50	Cord and plug	Motor: 10" x 4 7/8" x 4 5/8" Controller: 7 1/2" x 4 3/4" x 2 1/4"	
B Dual head, DC drives*												
KH-07104-92	1800	1/27	TENV	12 VDC	—	4	100	70	30	Pigtail leads	15" x 5 1/8" x 4 7/8"	
KH-07104-94				24 VDC	—	3.3						
B Dual head, variable-speed AC drives with separate speed controller												
KH-07104-91	1800	1/27	TENV with 4 to 20 mA or stepless control from 0.1 to 99.9%	110 VAC	50/60	0.75	100	100	50	Cord and plug	Motor: 15" x 5 1/8" x 4 7/8" Controller: 7 1/2" x 4 3/4" x 2 1/4"	

\*TEFC = totally enclosed, fan-cooled; TENV = totally enclosed, nonventilated; XPRF = explosion proof.

†Requires motor with 20 oz-in of torque. Shaft extension measures 1 3/16" L x 5/16" dia x 2 3/4" center line.

†Control speed on DC drives with a variable DC power supply (order from pages 386-400); control speed on air drives with an air filter/regulator (order online at [www.coleparmer.com](http://www.coleparmer.com)). Air drives require an air lubricator 07042-70, order under accessories on page 1390.

# Pu Pumps

Metering, Piston

## Economical High-Pressure Piston Pumps

**Feature micrometer flow adjustment—deliver exact quantities of liquid with minimal pulsation**

- Withstand up to 5000 psi outlet pressure
- Dual-piston models have independent piston control—pump a single liquid, or pump two different liquids at a proportional rate
- Brushless synchronous motors

Inlet accepts 1/8" OD tubing; outlet accepts 1/16" OD high-pressure SS tubing (order below). Decrease pulsation with pulse dampener model 07115-55. Motor is TENV.

**What's included:** All models come with a sturdy aluminum housing and a 7-ft, three-wire cord (115 VAC models have a plug; 230 VAC models have a European plug).

**CE**  
Models  
07143-73, -78, -93 only

### Specifications & Ordering Information

**Wetted parts:** Fluoropolymer G® (PE) standard piston seal, sapphire pistons and seats, ruby ball checks, PCTFE valve seals, gold-plated stainless steel springs, and 316 stainless steel compression-type fittings

**Repeatability:** ±0.3% full-scale  
**Maximum temperature:** 248°F (120°C)  
**Duty cycle:** continuous

Catalog number	Pump type	Max volume per stroke	Motor speed	Flow rates (mL/min)		Max psi	Power*			Dimensions (L x W x H)	Price
				Minimum	Maximum		VAC	Hz	Amps		
<a href="#">KH-07143-96</a> <a href="#">KH-07143-97</a>	Single-piston	0.05 mL	30 rpm	0.05	1.5	5000	115 230	60 50	0.125	7 3/4" x 4 1/2" x 4 3/4"	
<a href="#">KH-07143-70</a> <a href="#">KH-07143-73</a>	Single-piston	0.05 mL	60 rpm	0.1	3.0	2500	115 230	60 50	0.125	7 3/4" x 4 1/2" x 4 3/4"	
<a href="#">KH-07143-75</a> <a href="#">KH-07143-78</a>	Single-piston	0.08 mL	100 rpm	0.2	8.0	5000	115 230	60 50	1	7 3/4" x 7 1/2" x 6"	
<a href="#">KH-07143-86</a> <a href="#">KH-07143-88</a>	Single-piston	0.05 mL	120 rpm	0.5	6.0	1000	115 220	60 50	0.125	7 3/4" x 4 1/2" x 4 3/4"	
<a href="#">KH-07143-90</a> <a href="#">KH-07143-93</a>	Dual-piston	0.10 mL	100 rpm	0.2	10.0	5000	115 230	60 50	1	7" x 10 1/2" x 6 1/4"	

\*Motor is TENV (Totally Enclosed, Non-Ventilated)

**KH-07115-55 Pulse dampener**, high-pressure; 316 SS, 3" dia eliminates flow pulsations in diaphragm or piston pumps to a maximum pressure of 3000 psi. Less than 5 mL internal volume. Accepts 1/4" OD fittings

**KH-03300-02 Tubing**, high-pressure; 316 SS, 1/16" OD. Pack contains two 3-ft sections; 6 ft total

Pumps feature micrometer flow adjustment for precise metering



07143-70

Pulse dampener  
07115-55



## Remote Control, High-Pressure Piston Pumps

**Remote control capabilities—control pumps via external current or voltage signal**

- Metering precision of ±0.3% full-scale lets you consistently deliver precise amounts of fluid
- Adjust motor speed with a full turn of the control knob (60:1 turndown ratio)
- Decrease pulsation with pulse dampener model 07115-55 (order separately below)

**What's included:** 1/4-28 thread x 1/8" OD inlet adapter, 10-32 tube nut x 1/16" OD outlet adapter, and 7-ft power cord with U.S. plug.

### Specifications & Ordering Information

**Wetted parts:** 316 stainless steel pump head and compression-type fittings, Fluoropolymer G® (PE) standard piston seal, sapphire pistons and seats, ruby ball checks, PCTFE valve seals, gold-plated stainless steel springs

**Maximum temperature:** 248°F (120°C)

**Repeatability:** ±0.3% full-scale

**Duty cycle:** continuous

**Input control:** 1 to 5 or 4 to 20 mA;  
0 to 5, 0 to 10, 0 to 12, or 0 to 24 VDC

**Power:** 115/230 VAC, 50/60 Hz, 0.4 A

**Dimensions**

Pump: 5 1/2" L x 4 1/2" W x 6" H

Controller: 8 3/4" L x 8 3/4" W x 4 1/4" H

**Viscosity:** 500 cp

Catalog number	Max volume per stroke	Maximum motor speed	Flow rates (mL/min)		Max psi	Port size inlet x outlet	Price
			Min	Max			
<a href="#">KH-74450-00</a>	0.05 mL	30 rpm	0.025	1.5	5000	1/8" OD x 1/16" OD	
<a href="#">KH-74450-10</a>	0.05 mL	120 rpm	0.1	6.0	1250		
<a href="#">KH-74450-20</a>	0.32 mL	125 rpm	0.8	40.0	1250		

**KH-07115-55 Pulse dampener**, high-pressure; 316 SS, 3" dia eliminates flow pulsations in diaphragm or piston pumps to a maximum pressure of 3000 psi.

Less than 5 mL internal volume. Accepts 1/4" OD fittings

**KH-03300-02 Tubing**, high-pressure; 316 SS, 1/16" OD.

Pack contains two 3-ft sections; 6 ft total



74450-00

Control pumps remotely with an external current or voltage signal



Call our Application Specialists for models of the pumps on this page with wetted parts of different materials.

**847-549-7600**

## Low-Flow Compact Pumps and Microdispensers

### Complete microdispensing system with synchronous, reversible three-speed drive

- No valves to clog or wear out
- Low dead volume
- Rotating pistons prevent clogging—ideal for pumping viscous liquids up to 500 cp

**What's included:** a pump head; microdispensers also include hand/foot actuator for continuous or intermittent dispensing.

### Specifications

**Wetted parts:** Kynar® compression fittings and ceramic (alumina) piston and cylinder liner

**Maximum temperature:** 212°F (100°C)

**Accuracy:** ±1%

**Suction lift:** 15 ft H<sub>2</sub>O

**Maximum viscosity:** 500 cp

**Connections:** ¼" OD compression fittings

**Repeatability:** better than ±0.5%



07117-90

Catalog number	Volume/ revolution	mL/min at indicated spm			Max psi	Dimensions (W x H x D)	Power			Price
		150	300	600			VAC	Hz	Amps	
Compact metering pumps										
<a href="#">KH-07115-10</a>	0 to 0.05 mL	7.5	15	30	20	5" x 4" x 5"	115	60	0.08	
<a href="#">KH-07115-12</a>	0 to 0.05 mL						230	50/60	0.04	
<a href="#">KH-07115-25</a>	0 to 0.1 mL	15	30	60			115	60	0.08	
<a href="#">KH-07115-27</a>	0 to 0.1 mL						230	50/60	0.04	

### Microdispensers, supplied with sealed hand/foot actuator

KH-07117-90	0 to 0.05 mL	7.5	15	30	20	5" x 4" x 5"	110	60	0.08	
KH-07117-92	0 to 0.1 mL	15	30	60						

## Series R Valveless Piston Pump Systems

### Compatible with Masterflex® L/S® or Series Q drive

- No valves to clog or wear out
- Kynar® pump body withstands harsh chemicals
- Series R pump heads come equipped with rotating pistons to prevent clogging—ideal for pumping viscous liquids to 500 cp

### Specifications & Ordering Information

**Suction lift:** 15 ft H<sub>2</sub>O

**Maximum viscosity:** 500 cp

**Wetted parts:** Kynar body and compression fittings and ceramic (alumina) piston and cylinder liner

**Connections:** ¼" OD compression fittings

### 1 Series R Pump Heads

Catalog number	Volume/rev	Flow range* (mL/min)	Piston dia	Accuracy	Max pressure	Max temperature	Dimensions (L x dia)	Price
KH-07117-66	0.05 mL	0 to 90	3/16"	±1%	100 psi	212°F (100°C)	Overall: 3½" x 2¼" Drive shaft: ¾" x 5/16"	
KH-07117-68	0.10 mL	0 to 180	¼"					

\*Flow characteristics may vary with different fluids.

### 2 Series Q Drives (require 07117-99 adapter)

Catalog number	Rev per minute	Motor specifications					Max psi for given piston dia			Connections	Dimensions (L x W x H)	Price
		hp	Type†	Voltage	Hz	Amps	1⁄8"	1⁄4"	3⁄8"			
Single head, variable-speed AC drive with separate speed controller												
<a href="#">KH-07104-31</a>	1800	1⁄27	TENV with 4 to 20 mA or stepless control from 0.1 to 99.9%	110 VAC	50/60	0.75	100	100	50	Cord and plug	Motor: 10" x 4 1⁄2" x 4 5⁄8" Controller: 7 1⁄2" x 4 3⁄4" x 2 1⁄4"	
Dual head, variable-speed AC drive with separate speed controller												
<a href="#">KH-07104-91</a>	1800	1⁄27	TENV with 4 to 20 mA or stepless control from 0.1 to 99.9%	110 VAC	50/60	0.75	100	100	50	Cord and plug	Motor: 15" x 5 1⁄2" x 4 7⁄8" Controller: 7 1⁄2" x 4 3⁄4" x 2 1⁄4"	

<sup>†</sup>TENV = Totally enclosed, nonvented

### 3 Adapter Kits

**KH-07115-99** Series R pump head adapter kit attaches models 07117-66 and -68 to any Masterflex® L/S® drive

**KH-07117-99** Series R pump head adapter kit attaches models 07117-66 and -68 to any Series Q drive on page 1391



Adapter kit  
07117-99

# Pu Pumps

Metering, Piston

## Dual Solenoid Liquid and Gas Piston Pumps

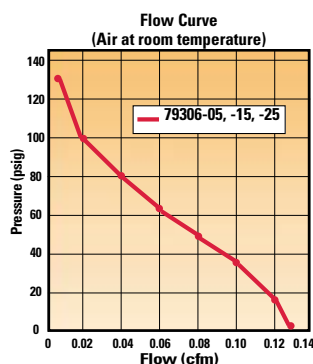
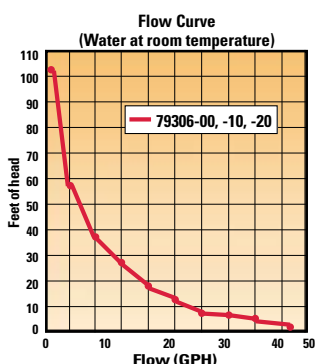
**Ideal for liquid and vapor refrigerant recovery, water sampling/treatment, and volatile chemicals**

- Oil-free and leakproof
- Only one moving part and two check valves
- Compact and quiet (<60 dB for liquids)

With the variable speed rate controller, pumps feature multiple control options for adjusting the flow of your fluid or gas. Control options include: manual on/off switch, dry contacts (for remote on/off), 4-20 mA (with 79306-75), and PC or PLC interface. Custom control options are available, call our Application Specialists for availability.

Pumps also include integral overload protection, run-dry capability, self-priming up to 22-ft, an integral solid state circuit board (for control of pump cycle rates) and submersible connections.

Alternately energized and de-energized coils located at either end of the pump change the magnetic field surrounding the piston. This results in movement of the piston back and forth within the piston cylinder and hence movement of the fluid. The check valves located in the piston and pump outlet prevent any reverse flow from occurring.



Variable-speed rate controller 79306-70



Hazardous-duty rated liquid pump 79306-00

### Required System Components

- Variable-speed rate controller (with or without 4-20 mA input)
- Signal power cord (select desired length)
- Power cord (select desired length; order below)

### Add these options

- SS strainer
- Portable frame with mounting kit
- SS pipe stand assembly
- SS mounting kit

### Specifications & Ordering Information

**Max system pressure:** 1400 psi  
**Max temperature:** 140°F (60°C)

**Suction lift**  
79306-00, -10, -20: 12 ft H<sub>2</sub>O  
79306-05, -15, -25: 22 ft H<sub>2</sub>O

**Viscosity\*:** 20,000 cp  
**Particle size:** 1/32"

**Duty cycle:** continuous

**Runs dry:** yes  
**Noise level:** 68 dB (air)



Catalog number	Description	Max flow rate		Cycle rate (cycles/second)	Max psi	Wetted materials				Port size	Dimensions (W x H x D)	Power			Price
		GPH	cfm			Housing	Piston cylinder	Elastomers	Piston			VAC	Hz	Phase	
Variable-speed liquid piston pumps															
<a href="#">KH-79306-00</a>	Standard	46	—	0 to 30	45	316 SS	316 SS	EPDM	Coated 416 SS	3/8" NPT(F)	3 1/8" x 5" x 3 3/8"	115	60	Single	
<a href="#">KH-79306-10</a>	Class 1, Division 2 rated for hazardous duty locations														
<a href="#">KH-79306-20</a>	Class 1, Division 1 rated for hazardous duty locations										3 3/8" x 5" x 4"				
Variable-speed gas piston pumps															
<a href="#">KH-79306-05</a>	Standard	—	0.14	0 to 30	130	316 SS	316 SS	EPDM	Coated 416 SS	3/8" NPT(F)	3 1/8" x 5" x 3 3/8"	115	60	Single	
<a href="#">KH-79306-15</a>	Class 1, Division 2 rated for hazardous duty locations														
<a href="#">KH-79306-25</a>	Class 1, Division 1 rated for hazardous duty locations										3 3/8" x 5" x 4"				

Catalog number	Description	Dimensions (W x H x D)	Power†		Price
			VAC	Hz	
<a href="#">KH-79306-70</a>	Standard	4 3/8" x 3 1/4" x 1 1/16"	115	60	
<a href="#">KH-79306-75</a>	Standard with 4-20 mA input				

\*79306-05, -15, -25 are rated for saturated vapors and water-like viscosity. †9 VDC adapter is included.

[KH-79306-80](#) Mounting kit; stainless steel

[KH-79306-81](#) Stainless steel strainer;  
60 mesh, 22 1/2"L, 1" diameter, 1/2" NPT(F)

[KH-79306-82](#) Stainless steel strainer;  
60 mesh, 12"L, 5/8" diameter, 1/4" NPT(F)

[KH-79306-83](#) Stainless steel stand pipe assembly;  
for 30- or 50-gallon drums

[KH-79306-84](#) Portable frame; with SS pump mounting kit

[KH-79306-90](#) Signal power cord; PVC yellow, 6 1/2 ft (2 m)

[KH-79306-91](#) Power cord;  
PVC yellow, 120 VAC grounded plug, 6 1/2 ft (2 m)

[KH-79306-92](#) Signal power cord; PVC yellow, 16 ft (5 m)

[KH-79306-93](#) Power cord;  
PVC yellow, 120 VAC grounded plug, 16 ft (5 m)



Call our Application Specialists  
for longer signal and power  
cord lengths.

**847-549-7600**

## Cole-Parmer® Pro-Spense® Programmable Digital Pump/Controllers

Store up to 10 control programs—interface with computer, balance, or printer for process control and documentation

- Peristaltic head models accept Masterflex® L/S® Standard, Easy-Load®, Easy-Load II, and High-Performance pump heads
- Magnetic gear head models accept Micropump® A-mount heads

**Pro-Spense** for metering and control applications

This pump can automate your fluid metering, level control, and pH/ion control applications. Control all functions of the pump/controller, relays, and other devices from your PC.

**Pro-Spense 2** for rapid automated dispensing and filling

Dispense liquids by volume, weight, or weight ratio. There are interface cables available for many popular toploader balances. Pumps can display volume of each dispense as well as the cumulative volume. Time delay may be set between dispense cycles. Automate the rapid filling of tubes, vials, and bottles. The pump controller slows as it approaches dispense volume to ensure accuracy. Available with optional custom performance validation—order at right.

**What's included:** 115 VAC models include 6-ft power cord with plug, 230 VAC models do not include cord/plug.

### Specifications & Ordering Information



**Motor:** optically encoded, servo-controlled, reversible 24 VDC

**Accuracy** (speed control): ±0.5%

**Max operating temp:** 104°F (40°C)

**Display:** two-line backlit LCD; 20 characters/line

**Duty cycle:** continuous

**Dimensions:** 5¼"W x 8½"H x 11"D

Accepts pump head type	Drive speed	115 VAC, 60 Hz		230 VAC, 50 Hz	
		Cat. no.	Price	Cat. no.	Price
Pro-Spense controllers for peristaltic and gear pump heads					
Peristaltic	1 to 600 rpm	KH-78201-00		KH-78201-05	
Gear	1 to 3400 rpm	KH-78201-10		KH-78201-15	
Pro-Spense 2 controllers for peristaltic and gear pump heads					
Peristaltic	1 to 600 rpm	KH-78201-20		KH-78201-25	
Gear	1 to 3400 rpm	KH-78201-30		KH-78201-35	

### Masterflex® L/S® Peristaltic Pump Heads Ordering Information

Catalog number	Materials	Masterflex tubing sizes	Flow range*	Price
Masterflex L/S Easy-Load pump heads				
<a href="#">KH-07518-10</a>	Polysulfone (PSF) body, stainless steel (SS) rotors/rollers	L/S® 13, 14, 16, 25, 17, 18	0.06 to 2300 mL/min	
<a href="#">KH-07518-12</a>		L/S® 15, 24	1.7 to 1700 mL/min	
Masterflex L/S High-Performance pump head				
<a href="#">KH-77250-62</a>	Polyphenylene sulfide (PPS) occlusion bed, stainless steel (SS) rotors	L/S® 15, 24, 35, 36,	1.8 to 3400 mL/min	

\*Flow range depends on tubing size used; range shown is for tubing sizes listed.

### Micropump® A-Mount Gear Pump Heads Ordering Information

Catalog number	Materials	mL/rev	Flow range	Port size NPT (F)	Price
<a href="#">KH-07002-17</a>	316 SS body, PTFE gears and seals	0.32	10.9 to 1088 mL/min	¼"	
<a href="#">KH-07002-23</a>		0.64	21.8 to 2176 mL/min		
<a href="#">KH-07001-40</a>		0.91	31.0 to 3094 mL/min		
<a href="#">KH-07003-04</a>	316 SS body, PPS gears, Viton® seals	1.17	39.8 to 3978 mL/min		

### GO to

Go to 1228–1242 for additional Masterflex pump heads.

Go to 1371–1381 for additional Micropump A-mount pump heads.



Pro-Spense 2 controller 78201-30 shown with gear pump head 07002-17

Pro-Spense 2 controller 78201-20 shown with Masterflex® L/S® High-Performance pump head 77250-62

### Custom Performance Validation for Pro-Spense 2 Pump/Controllers



Custom validation!

Custom performance validation includes calibration and testing of up to four dispense aliquot volumes and optimization of delivery speed and precision. Printed validation certificate includes test parameters and results. Validation is available for all pump heads listed on this page only. You must specify the model of pump head you will be using and tubing size (if applicable) when ordering.

**KH-78201-70 Custom validation** for Pro-Spense 2 models 78201-20 through -35 only. Must be ordered with pump/controller at time of purchase

### Accessories

**Pro-Spense models 78201-00 to -15 only:**

**KH-78201-50 Foot switch** for hands-free on/off control

**KH-78201-52 RS-232 interface cable** to connect pump to computer

**KH-78201-54 I/O adapter module**, expands and simplifies connection to external devices. Use to program and control up to four contact closures via pump/controller

**Pro-Spense 2 models 78201-20 to -35 only:**

**KH-78201-50 Foot switch** for hands-free on/off control

**KH-78201-58 Printer kit**; for continuous process documentation. Includes thermal printer, cable, and 6 rolls of paper

**KH-78201-60 Replacement printer paper**. Pack of 6 rolls

**KH-78201-62 Balance interface cable** for Ohaus® Explorer® and Voyager® toploader balances

**KH-78201-64 Balance interface cable** for Mettler® PGS or Professional toploader balances

**KH-78201-66 Balance interface cable** for Sartorius® Master toploader balances

# Pu Pumps

Metering, Peristaltic



**A**  
74206-00 Single head adjustable mechanical feed rate peristaltic pump



**B**  
74207-00 Double head adjustable mechanical feed rate peristaltic pump



**C**  
74208-00 Digital variable-speed peristaltic pump

## Mechanical and Digital Peristaltic Pumps

**Exceptional reliability and ease of service reduce maintenance and cost**

- Polycarbonate corrosion-resistant housing
- 24/7 continuous duty cycle
- Mount pumps vertically or horizontally

**A Single Head, Adjustable Mechanical Feed Rate Pumps** run reliably and consistently against 100 psi of pressure. These adjustable models feature a 20:1 turndown ratio with an adjustable rate in 2.5% increments from 5 to 100%.

**B Double Head, Adjustable Mechanical Feed Rate Pumps** increase the flow rate for your application by using a double head with flow outputs up to 170 GPD. Double head pumps contain all of the same features as the single head pumps, only with dual pump heads.

**C Digital Variable-Speed Peristaltic Pumps With and Without 4 to 20 mA** feature a four button keypad with LED display for easy operation. Turndown ratios are 20:1 and are adjustable from 5 to 100% in 1% increments. Operate either manually or via automatic control with a 4 to 20 mA input.

**What's included:** 20 ft of suction/discharge tubing, two Santoprene® tube assemblies (one is already loaded), ceramic weight, injection check valve (on 100 psi models), connecting nuts, ferrules, and mounting bracket.



Call our Application Specialists for help selecting the proper peristaltic pump.

**847-549-7600**

### Specifications

**Wetted parts:** Santoprene peristaltic tubing/duckbill check, PVC fittings, LDPE suction/discharge tubing and ferrules

**Max temperature:** 125°F (52°C)

**Max viscosity:** 1500 cp

**Suction lift:** up to 25 ft

**Duty cycle:** continuous

**Turndown ratio:** 20:1

**Input signal:** 4 to 20 mA (on digital variable-speed with 4 to 20 mA models only)



For "A" and "B" pumps only

### Ordering Information

Flow range		Max psi	Inlet/outlet* tubing OD	Dimensions (L x W x H)	115 VAC, 60 Hz			230 VAC, 50 Hz*			Repl. tubing assemblies	
GPD	L/hr				Cat. no.	Amps	Price	Cat. no.	Amps	Price	Cat. no.	Price
A Single head, adjustable mechanical feed rate peristaltic pumps												
5	0.78	100	1/4"	10½" x 5½" x 6"	<a href="#">KH-74206-00</a>	1.7		<a href="#">KH-74206-05</a>	0.9		<a href="#">KH-74203-80</a>	
17	2.68	100			<a href="#">KH-74206-10</a>			<a href="#">KH-74206-15</a>			<a href="#">KH-74203-81</a>	
40	6.31	100			<a href="#">KH-74206-20</a>			<a href="#">KH-74206-25</a>			<a href="#">KH-74203-83</a>	
50	7.89	25			<a href="#">KH-74206-30</a>			<a href="#">KH-74206-35</a>			<a href="#">KH-74203-82</a>	
85	13.41	25			<a href="#">KH-74206-40</a>			<a href="#">KH-74206-45</a>			<a href="#">KH-74203-82</a>	
B Double head, adjustable mechanical feed rate peristaltic pumps												
170	26.81	25	1/4"	12¾" x 5½" x 6"	<a href="#">KH-74207-00</a>	1.7		<a href="#">KH-74207-05</a>	0.9		<a href="#">KH-74203-82</a>	
C Digital variable-speed peristaltic pumps												
5	0.78	100	1/4"	10¼" x 7" x 6¼"	<a href="#">KH-74208-00</a>	1.5		<a href="#">KH-74208-05</a>	0.75		<a href="#">KH-74203-80</a>	
17	2.68	100			<a href="#">KH-74208-10</a>			<a href="#">KH-74208-15</a>			<a href="#">KH-74203-81</a>	
40	6.31	100			<a href="#">KH-74208-20</a>			<a href="#">KH-74208-25</a>			<a href="#">KH-74203-83</a>	
50	7.89	25			<a href="#">KH-74208-30</a>			<a href="#">KH-74208-35</a>			<a href="#">KH-74203-82</a>	
85	13.41	25										
C Digital variable-speed with 4 to 20 mA peristaltic pumps												
5	0.78	100	1/4"	10¼" x 7" x 6¼"	<a href="#">KH-74208-40</a>	1.5		<a href="#">KH-74208-45</a>	0.75		<a href="#">KH-74203-80</a>	
17	2.68	100			<a href="#">KH-74208-50</a>			<a href="#">KH-74208-55</a>			<a href="#">KH-74203-81</a>	
40	6.31	100			<a href="#">KH-74208-60</a>			<a href="#">KH-74208-65</a>			<a href="#">KH-74203-83</a>	
50	7.89	25			<a href="#">KH-74208-70</a>			<a href="#">KH-74208-75</a>			<a href="#">KH-74203-82</a>	
85	13.41	25										

\*230 VAC models come with 6-mm OD suction/discharge tubing.

## Cole-Parmer Peristaltic Metering/Injector Pumps

### A cost-effective pump for pressure injection and chemical feed applications

- High-pressure pumps are self-priming
- Built-in indicator alerts you to change tubing
- Variable-speed models let you control flow via a remote signal

With no internal check valves, these peristaltic pumps are not prone to clogging or fouling—ideal in applications with tough-to-handle solutions. Pump tubing assemblies last up to 1000 hours and take only minutes to change. Pumps also feature a rugged, chemical-resistant Valox® housing and tamper-resistant control cover.

Variable-speed models ensure uninterrupted metered output with no ON/OFF cycle and no injector downtime. Adjust settings from keypad, or use a remote signal for true proportional flow control.



74201-40

**What's included:** two Norprene® tubing assemblies, suction and discharge tubing, intake strainer with weight, and injector fitting with check valve.



### Specifications & Ordering Information

**Wetted parts:** Norprene pump tubing and PVDF fittings

**Max fluid viscosity:** 5000 cp

**Input signal:** (variable-speed models)

4 to 20 mA, 0 to 10 VDC, pulsed signal

**Max fluid temp:** 130°F (54°C)

**Duty cycle:** continuous

**Dimensions:** 10 1/8" W x 6 1/8" H x 9" D

**Suction lift:** 30 ft (water at 0 psig)

**Turndown ratio:** 20:1

Max flow		Max psi	Pump tubing OD	Inlet/outlet tubing OD	Fixed-speed		Variable-speed with 4 to 20 mA		Repl. tubing assemblies		Repl. roller assemblies	
GPD	LPH				Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price
Peristaltic metering/injector pumps; 115 VAC, 60 Hz												
2.3	0.36	100	¼"	⅜"	<a href="#">KH-74200-00</a>		<a href="#">KH-74201-00</a>		<a href="#">KH-74200-80</a>		<a href="#">KH-74200-84</a>	
9.5	1.5	75	¼"		<a href="#">KH-74200-10</a>		<a href="#">KH-74201-10</a>		<a href="#">KH-74200-80</a>		<a href="#">KH-74200-84</a>	
24.0	3.78	100	⅜"		<a href="#">KH-74200-20</a>		<a href="#">KH-74201-20</a>		<a href="#">KH-74200-82</a>		<a href="#">KH-74200-84</a>	
52.5	8.28	50	⅞"		<a href="#">KH-74200-30</a>		<a href="#">KH-74201-30</a>		<a href="#">KH-74200-83</a>		<a href="#">KH-74200-86</a>	
95.1	15.0	50	⅞"		<a href="#">KH-74200-40</a>		<a href="#">KH-74201-40</a>		<a href="#">KH-74200-83</a>		<a href="#">KH-74200-86</a>	
Peristaltic metering/injector pumps; 220 VAC, 50 Hz												
1.8	0.29	100	¼"	⅜"	<a href="#">KH-74200-05</a>		<a href="#">KH-74201-05</a>		<a href="#">KH-74200-80</a>		<a href="#">KH-74200-84</a>	
7.6	1.2	75	¼"		<a href="#">KH-74200-15</a>		<a href="#">KH-74201-15</a>		<a href="#">KH-74200-80</a>		<a href="#">KH-74200-84</a>	
19.2	3.0	100	⅜"		<a href="#">KH-74200-25</a>		<a href="#">KH-74201-25</a>		<a href="#">KH-74200-82</a>		<a href="#">KH-74200-84</a>	
42.0	6.6	50	⅞"		<a href="#">KH-74200-35</a>		<a href="#">KH-74201-35</a>		<a href="#">KH-74200-83</a>		<a href="#">KH-74200-86</a>	
76.1	12.0	50	⅞"		<a href="#">KH-74200-45</a>		<a href="#">KH-74201-45</a>		<a href="#">KH-74200-83</a>		<a href="#">KH-74200-86</a>	

## High-Pressure Peristaltic Metering Pumps

### Easy maintenance—tubing is the only wetted part

- Automatic degassing allows trouble free metering of hypochlorite, peroxide, and other gas producing solutions
- High-strength peristaltic tubing ensures high purity, great repeatability, and extended life
- Rugged, chemical-resistant ABS housing

Pumps can self-prime against pressures up to 125 psi. Simply prime the pump with a push of the button. Adjust the feed rate from 10 to 100% in 1% increments, up to 60 GPD.

**Pumps include:** a pump head, two tubing assemblies, and a 6-ft power cord with U.S. plug.

**Service kits include:** a pump head, tubing assembly, and mounting hardware.

**Replacement tubing assemblies include:** Norprene® tubing and two PVC compression fittings for 1/4" OD tubing.

### Chemical Feed Tank

Create an integral chemical feed system. Simply secure your pump on the built-in tank mounting plate. Tank is constructed of UV-resistant polyethylene. Includes low-level indicator and 1/4" compression bulkhead fittings. Capacity of 15 gallons.

[KH-74113-98 Tank.](#)



74130-00

### Specifications & Ordering Information

**Wetted parts:** Norprene tubing, PVC connectors, and customer supplied 1/4" OD rigid tubing

**Max temperature:** 104°F (40°C)

**Max viscosity:** 20,000 cp

**Accuracy:** ±2%



Flow range*		Max psi	Dimensions (W x H x D)	Power			Peristaltic metering pumps		Service kits		Replacement tubing assemblies	
GPD	L/hr			VAC	Hz	A	Catalog number	Price	Catalog number	Price	Catalog number	Price
0.7 to 7.0	0.11 to 1.1	125	7 3/4" x 8 1/4" x 9 5/8"	115	60	0.2	<a href="#">KH-74130-00</a>		<a href="#">KH-74114-50</a>		<a href="#">KH-74114-51</a>	
1.6 to 16	0.25 to 2.5	110					<a href="#">KH-74130-10</a>		<a href="#">KH-74130-50</a>		<a href="#">KH-74130-51</a>	
2.6 to 26	0.41 to 4.1	100					<a href="#">KH-74130-20</a>		<a href="#">KH-74114-52</a>		<a href="#">KH-74114-53</a>	
6.0 to 60	0.94 to 9.4	80					<a href="#">KH-74130-30</a>		<a href="#">KH-74114-54</a>		<a href="#">KH-74114-55</a>	

\*230 VAC models operate at % of the indicated flow rate.

# Pu Pumps

Metering, Bellows / Diaphragm

## Bellows Metering Pumps

**Excellent chemical resistance—great for use with corrosive fluids**

- Adjust flow rate by modifying stroke length—even while pump is operating
- Self-priming to 7 feet dry and 20 feet wet; can run dry without damage
- Open shaded-pole motors are thermally protected in a 304 stainless steel housing

**Pumps include:** poppet valves to prevent backflow and a 6-ft, three-wire cord (115 VAC models have a plug; 230 VAC models have stripped ends). Order service kits and connector kits below.

### Specifications & Ordering Information

**Wetted parts:** polypropylene, Viton® fluoroelastomer, or Hypalon®  
**Maximum temperature:** 140°F (60°C)  
**Accuracy:** ±0.5% full-scale  
**Suction lift:** 7 ft dry; 20 ft H<sub>2</sub>O  
**Duty cycle:** intermittent

07192-10



Pumps handle  
fine slurries  
to 800 cp.

Flow mL/min	Valve, O-ring	Max psi	Output per rpm	Connections	Dimensions (L x W x H)	115 VAC, 50/60 Hz models			230 VAC, 50/60 Hz models		
						Cat. no.	Amps	Price	Cat. no.	Amps	Price
6 to 30	Viton	50	0.5 mL	1/4" compression	8" x 4" x 7 1/4"	<a href="#">KH-07192-10</a>	1.2				
30 to 300		40	5.0 mL	3/8" barbed elbow	8 1/4" x 4" x 7 3/4"	<a href="#">KH-07192-30</a>	1.3		<a href="#">KH-07192-35</a>	0.7	
63 to 630		20	10.5 mL	3/8" barbed elbow	8 1/4" x 4" x 7 3/4"	<a href="#">KH-07192-50</a>	1.3		<a href="#">KH-07192-55</a>	0.7	
173 to 1730	Viton	10	10.5 mL	3/8" barbed elbow	8 1/4" x 4" x 7 3/4"	<a href="#">KH-07192-70</a>	2.7		<a href="#">KH-07192-75</a>	1.4	
173 to 1730	Hypalon	10	10.5 mL	3/8" barbed elbow	8 1/4" x 4" x 7 3/4"	<a href="#">KH-07192-80</a>			<a href="#">KH-07192-85</a>		
247 to 2475	Viton	5	55.0 mL	1/2" barbed elbow	8 1/4" x 4" x 8 1/16"	<a href="#">KH-07192-90</a>			<a href="#">KH-07192-95</a>		

### Service Kits

**Bellows Module Service Kits** include connecting rod and bellows module assemblies, O-ring, displacement cup, and two screws.

**Valve Service Kits** include two valve assemblies and two O-rings.

**Replacement Tubing Connector Kits** include two connectors.

For pump models	Bellows module service kits		Valve service kits		Replacement tubing connector kits	
	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price
07192-10	<a href="#">KH-07192-11</a>		<a href="#">KH-07192-12</a>		<a href="#">KH-07192-13</a>	
07192-30, -35	<a href="#">KH-07192-31</a>		<a href="#">KH-07192-32</a>		<a href="#">KH-07192-33</a>	
07192-50, -55	<a href="#">KH-07192-51</a>		<a href="#">KH-07192-52</a>		<a href="#">KH-07192-53</a>	
07192-70, -75	<a href="#">KH-07192-71</a>		<a href="#">KH-07192-72</a>		<a href="#">KH-07192-73</a>	
07192-80, -85	<a href="#">KH-07192-81</a>		<a href="#">KH-07192-82</a>		<a href="#">KH-07192-83</a>	
07192-90, -95	<a href="#">KH-07192-91</a>		<a href="#">KH-07192-92</a>		<a href="#">KH-07192-97</a>	

**[KH-07192-96](#) Adapter kit**, 1/8" NPT(F). For all pumps except model 07192-10. Kit includes two adapters

## Cole-Parmer Mechanical PTFE-Diaphragm Pump Heads

**Compatible with most Masterflex® L/S® drives**

- PTFE and glass wetted parts help maintain fluid purity
- Ideal for pumping through filters or into pressurized systems
- Check valve on inlet side of pump holds prime for up to two hours when pump is off
- All moving parts are enclosed in a rugged cast aluminum housing

**Pump heads include:** mounting tools and coupling hardware.

**Service kits include:** one diaphragm, two check valve assemblies, two drive-tang boots, an installation wrench, and instructions. Order external PTFE foot valves separately below to maintain prime.

### Specifications & Ordering Information

ISO9001:2000  
CERTIFIED SUPPLIER

Model number	07090-42	07090-62
Max suction lift	24" dry, 16 ft wet	10" dry, 10 ft wet
Max dead volume	16 mL	2 mL

**Repeatability:** ±2%

**Max fluid temperature:** 149°F (65°C)

**Metering pressure range:** 3 to 50 psig

**Max drive speed:** 600 rpm\*

**Viscosity range:** 1 to 500 cp (6 to 2900 SSU)

**Dimensions:** 7"L x 3"W x 6"H (without drive)

Catalog number	Flow range†		Max psi	Intermittent duty psi†	Connections	Wetted materials				Price	Service kits		Foot valves	
	GPH	mL/min				Body	Diaphragm	Valve seat	Check ball		Cat. no.	Price	Cat. no.	Price
<a href="#">KH-07090-62</a>	0.16 to 1.6	10 to 100	75	100	1/8" NPT(M)	PTFE	PTFE	PTFE	Glass		<a href="#">KH-07090-63</a>		<a href="#">KH-07090-65</a>	
<a href="#">KH-07090-42</a>	1.3 to 12.7	80 to 800	50	75	1/4" NPT(M)	PTFE	PTFE	PTFE	PTFE		<a href="#">KH-07090-43</a>		<a href="#">KH-07090-45</a>	

\*Operation above 400 rpm will increase flow but may decrease pump head accuracy and life.

†Use a pressure relief valve to prevent higher pressures.

†Rated at 40 to 400 rpm motor speed.

Foot valve  
07090-45

Service kit  
07090-43

Foot valves increase metering  
accuracy while maintaining pump  
prime—just turn on pump and go!

Pump heads maintain  
consistent flow performance  
even with varying system  
pressures and liquid viscosities.

### Required System Components

- 1 Pump head
- 2 Masterflex® L/S® drive..... 1250-1276



## Feed Verification Diaphragm Pumps

**Flow delivery rate is constant at any voltage from 94 to 264 VAC—  
not affected by voltage fluctuations**

- High strokes per minute ensure a more uniform distribution of fluid at low flow rates
- Excellent for outdoor use—water and UV resistant
- Verify flow rates with optional flow checker

**A Manual Control Pumps** feature an analog speed control adjustable from 15 to 300 strokes per minute. Simple design allows for basic flow injection of chemicals into boiler and cooling tower, drinking water disinfection, and landscape irrigation applications.

**B Automatic Control Pumps** feature digital speed control that is adjustable from 1 to 300 strokes per minute as well as 50 to 100% manual stroke length adjustment. The LCD displays either speed of the pump or operational status. Select either an analog signal input (4 to 20 mA) or a pulse signal input to control the pump speed.

The optional flow checker can be mounted directly onto the discharge end of either the manual or automatic control pumps. The checker is a simple oval gear meter that measures the pump output and then transmits one pulse for every one mL of flow. Connect the checker to a controller or PLC to increase or decrease the flow when using an automatic model or to turn the pump on or off when using a manual control model.

Wetted materials of construction include a Ryton body, a ceramic ball check, a PVC ball guide/joint, and an EPDM valve seat/O-ring. The flow checker requires 4.5 to 25 VDC at a 20 mA maximum.

**What's included:** foot valve strainer, back pressure/check valve injector with quill, suction/discharge and air release tubing, power cord with three-prong plug, signal cable with multi-pin connectors (73804-series only).

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**A**  
PVC manual  
control pump  
73803-00



**B**  
PVDF automatic  
control pump  
73804-30

**1**  
year  
warranty

### Specifications & Ordering Information

**Max temperature:** 104°F (40°C)

**Duty cycle:** continuous

**Max viscosity:** 50 cp

**Inputs\*:** pulse contact, 4 to 20 mA

Catalog number	Max flow rate		Max psi	Strokes/ min	Wetted materials <sup>†</sup>					Connections		Dimensions (W x H x D)	Power		Price
	GPD	L/hr			Pump head	Diaphragm	Valve seat	Check ball	Foot valve/ strainer	Suction	Discharge		VAC	Hz	
A Manual control pumps															
<a href="#">KH-73803-00</a>	11.4	1.80	140	15 to 300	PVC	PVC	Viton®	Ceramic	PVC	¾" OD PVC tubing	¾" OD PE tubing	4½" x 8½" x 7¼"	94 to 264	50/60	
<a href="#">KH-73803-10</a>	22.8	3.60	115		PVC	PVC	Viton		PVC	¾" OD PVC tubing		4½" x 8½" x 7¼"			
<a href="#">KH-73803-20</a>	38.0	6.00	60		PVC	PVC	Viton		PVC	¾" OD PVC tubing		4½" x 8½" x 7¼"			
<a href="#">KH-73803-30</a>	10.5	1.66	220		PVDF	PVDF	EPDM		PVDF	¼" OD PE <sup>†</sup> tubing		4½" x 9" x 6"			
<a href="#">KH-73803-40</a>	11.4	1.80	140		PVDF	PVDF	Viton		PVDF	¾" OD PE tubing		4½" x 9" x 6"			
<a href="#">KH-73803-50</a>	22.8	3.60	115		PVDF	PVDF	Viton		PVDF	¾" OD PE tubing		4½" x 9" x 6"			
<a href="#">KH-73803-60</a>	38.0	6.00	60		PVDF	PVDF	Viton		PVDF	¾" OD PE tubing		4½" x 9" x 6"			
B Automatic control pumps															
<a href="#">KH-73804-00</a>	11.4	1.80	140	1 to 300	PVC	PVC	Viton	Ceramic	PVC	¾" OD PVC tubing	¾" OD PE tubing	4½" x 8½" x 7¼"	94 to 264	50/60	
<a href="#">KH-73804-10</a>	22.8	3.60	115		PVC	PVC	Viton		PVC	¾" OD PVC tubing		4½" x 8½" x 7¼"			
<a href="#">KH-73804-20</a>	38.0	6.00	60		PVC	PVC	Viton		PVC	¾" OD PVC tubing		4½" x 8½" x 7¼"			
<a href="#">KH-73804-30</a>	10.5	1.66	220		PVDF	PVDF	EPDM		PVDF	¼" OD PE tubing		4½" x 9" x 6"			
<a href="#">KH-73804-40</a>	11.4	1.80	140		PVDF	PVDF	Viton		PVDF	¾" OD PE tubing		4½" x 9" x 6"			
<a href="#">KH-73804-50</a>	22.8	3.60	115		PVDF	PVDF	Viton		PVDF	¾" OD PE tubing		4½" x 9" x 6"			
<a href="#">KH-73804-60</a>	38.0	6.00	60		PVDF	PVDF	Viton		PVDF	¾" OD PE tubing		4½" x 9" x 6"			

\*On 73804-models only <sup>†</sup>PE = Polyethylene EPDM = Ethylene propylene terpolymer PVC = Polyvinyl chloride PVDF = Kynar

### Accessories

[KH-73805-00](#) **Flow checker;** for models 73803-00, -30, -40; 73804-00, -30, -40

[KH-73805-10](#) **Flow checker;** for models 73803-10, -20, -50, -60; 73804-10, -20, -50, -60

# Pu Pumps

Metering, Solenoid Diaphragm

## Cole-Parmer Chemical-Feed Diaphragm Pumps

### Economical, chemically-compatible diaphragm metering pumps

- Overload-protected, fan-cooled, shaded-pole gear motor ( $1/35$  hp) is permanently lubricated

Sealed housing makes these pumps weather resistant.

76302-00



Handle two liquids independently or one at twice the flow.



Top view

76302-60



High-volume transfer at low pressure



07135-50

### A Single-Head Pumps

These pumps easily prime over long distances. Low strokes/minute rate increases diaphragm life. Sealed Valox® housing resists harsh weather conditions.

**What's included:** foot valve/strainer, polypropylene injection valve, vinyl inlet and polyethylene outlet tubing, and mounting hardware. The 115 VAC models include a 6-ft, three-wire cord and plug.

### B Dual-Head Pumps

Pumps feature two separate head assemblies—obtain proportional flow rates for two different materials or twice the maximum flow rate when you are pumping just one material. Change flow rates independently even while unit is operating.

**What's included:** foot valve/strainer, polypropylene injection valve, vinyl inlet and polyethylene outlet tubing, and mounting hardware. The 115 VAC models include a 6-ft, three-wire cord and plug.

### C High-Volume, Single-Head Pumps

Greater flow rates are pumped at lower pressures. Feature an easily operated cam-type adjustment with an infinite number of settings between zero and 100% of maximum pump capacity.

**What's included:** foot valve/strainer, polypropylene injection valve, vinyl inlet and outlet tubing, and mounting hardware. The 115 VAC models include a 6-ft, three-wire cord and plug.

### Specifications



**Wetted parts:** polypropylene pump head, PVDF cartridge fittings, ceramic ball valves, Hastelloy C® springs, Viton® O-rings, and an ethylene propylene (EP) diaphragm coated with TFE

**Maximum temperature:** 140°F (60°C)

**Suction lift:** 5 ft H<sub>2</sub>O

**Duty cycle:** intermittent

### Specifications



**Wetted parts:** polypropylene pump head, ceramic balls with Viton O-rings, and an EP diaphragm coated with TFE—also available in silicone or Hypalon; call our Application Specialists for details

**Maximum temperature:** 140°F (60°C)

**Suction lift:** 5 ft H<sub>2</sub>O

**Duty cycle:** intermittent

### Specifications



**Wetted parts:** nonvented polypropylene pump head, poppet valves and Viton O-rings, and a Viton diaphragm

**Maximum temperature:** 140°F (60°C)

**Suction lift:** 5 ft H<sub>2</sub>O

**Duty cycle:** intermittent

Max flow		Max psi	Strokes/min	Tubing OD	Diaphragm material	Dimensions (W x H x D)	115 VAC, 60 Hz			220 VAC, 50 Hz		
GPH	mL/min						Cat. no.	Amps	Price	Cat. no.	Amps	Price
A Single-head pumps												
0.35	22	125	14	3/8"	Ethylene propylene (EP) coated with TFE	5" x 9" x 6" (12.7 x 22.9 x 15.2 cm)	<a href="#">KH-76302-00</a>	0.25		<a href="#">KH-76302-05</a>	0.13*	
0.75	46		30				<a href="#">KH-76302-10</a>			<a href="#">KH-76302-15</a>		
1.46	92	125	60	3/8"			<a href="#">KH-76302-20</a>	0.25		<a href="#">KH-76302-25</a>	0.13*	
2.85	180	125	125				<a href="#">KH-76302-30</a>			<a href="#">KH-76302-35</a>		
10.5	662	10	125				<a href="#">KH-76302-40</a>			<a href="#">KH-76302-45</a>		
B Dual-head pumps (maximum flow rate is for two heads; divide in half for one pump head)												
0.6	37.9	120	14	1/4"	EP coated with TFE	7 1/2" x 9 1/2" x 4" (19 x 24.1 x 10.2 cm)	<a href="#">KH-76302-51</a>	0.25		<a href="#">KH-76302-55</a>	0.13*	
2.7	170	100	30	3/8"			<a href="#">KH-76302-60</a>			<a href="#">KH-76302-65</a>		
5.4	340	50	60	3/8"			<a href="#">KH-76302-70</a>	0.25		<a href="#">KH-76302-75</a>	0.13*	
10.6	669	20	125				<a href="#">KH-76302-80</a>			<a href="#">KH-76302-85</a>		
C High-volume, single-head pumps												
16.5	1047	10	125	5/8"	Viton	7" x 8" x 6 1/2" (17.8 x 20.3 x 16.5 cm)	<a href="#">KH-07135-50</a>	0.25		<a href="#">KH-07135-52</a>	0.13*	
32.5	2081	5	250				<a href="#">KH-07135-55</a>			<a href="#">KH-07135-57</a>		

\*50 Hz models have a 20% decrease in flow.

### Accessories

Service kits 07135-38 and -48 include PP inlet and outlet fittings, an EP diaphragm coated with TFE, and two U-pins. Service kit 07135-58 includes an EP diaphragm coated with TFE, poppet valve, Hastelloy C® spring, and Viton O-rings.

[KH-07135-38](#) Service kit for models with 1/4" tubing OD

[KH-07135-48](#) Service kit for models with 3/8" tubing OD

[KH-07135-58](#) Service kit for models 07135-50 through -57

[KH-07135-39](#) Foot valve, PP and Viton seal. For models with 1/4" tubing OD

[KH-07135-49](#) Foot valve, PP and Viton seal. For models with 3/8" tubing OD

[KH-07135-91](#) Injection valve, PP and Viton seal. For models with 1/4" tubing OD. Breaking pressure is 10 psi

[KH-07135-92](#) Injection valve, PP and Viton seal. For models with 3/8" tubing OD. Breaking pressure is 10 psi

## Cole-Parmer Digital Metering Pumps with Analog Input

### Superior quality pumps at affordable prices

- Combine engineering excellence with quality materials of construction
- Dual output adjustment, stroke length, and cycle time
- Feature double-ball inlet and outlet cartridge-type check valves and heavy-duty, precision molded polypropylene pump head

Fixed-speed models feature stroke length, electronic user-programmable time interval, and external input signal control; accept pulse inputs. Variable-speed models feature stroke length, manual digital percentage and external input signal speed control; accept inputs from 1 to 999 Hz, and 4 to 20 mA or 1 to 10 VDC analog input signals.

**What's included:** vinyl suction tubing (5 ft), polyethylene discharge tubing (5 ft), and mounting hardware.

**New**



76304-02



### Specifications & Ordering Information

Max flow		Max psi	Tubing OD	Dimensions (W x H x D)	Fixed-speed pumps; stroke, pulse, and 4–20 mA analog input		Variable-speed pumps; stroke, pulse, and 4–20 mA analog input	
GPD	L/hr				Cat. no.	Price	Cat. no.	Price
Digital metering pumps; 115 VAC, 60 Hz								
38	6	150	3/8"	10" x 6 1/4" x 9 1/4"	KH-76304-50		KH-76304-02	
73	11.5	150			KH-76304-60		KH-76304-12	
155.9	24.6	150	3/8"		KH-76304-70		KH-76304-22	
305.7	48.2	80			KH-76304-80		KH-76304-32	
360	56.8	25			KH-76304-90		KH-76304-42	
Digital metering pumps; 220 VAC, 50 Hz								
30	4.8	150	3/8"	10" x 6 1/4" x 9 1/4"	KH-76304-55		KH-76304-07	
58	9.2	150			KH-76304-65		KH-76304-17	
125	30	150	3/8"		KH-76304-75		KH-76304-27	
245	38.56	80			KH-76304-85		KH-76304-37	
288	45.44	25			KH-76304-95		KH-76304-47	

#### Turndown ratio

Fixed-speed models: 4000:1

Variable-speed models: 400:1

**Wetted parts:** polypropylene pump head and injection check valve, PVDF suction valve, ceramic ball valves, PTFE-coated ethylene propylene diaphragm, Viton® fluoroelastomer O-rings, removable polypropylene filter screen

**Maximum fluid temperature:** 130°F (54°C)

**Suction lift:** 10 ft

**Maximum fluid viscosity:** 1000 cp

**Duty cycle:** continuous

## Cole-Parmer Metering Pump and Tank Systems

### Complete, self-contained system for metering precise amounts of fluid

- Durable polyethylene tank has extra heavy wall thickness for enhanced strength—available in 15- and 30-gallon capacities
- Pump draws from rectangular holding tank—unit fits easily in any out-of-the-way corner
- Top-mounted, multi-position tank opening—leave open, closed or vented
- Metering injector features heavy-duty, double ball valve pump head—enhanced priming capabilities make it exceptional for purging air and gas

### Specifications & Ordering Information

**Wetted parts:** polypropylene pump head, PVDF cartridge fittings, ceramic ball valves, Hastelloy C® springs, O-rings of Viton® fluoroelastomer, and an ethylene propylene (EP) diaphragm coated with TFE fluoropolymer

**Duty cycle:** continuous

**Maximum temperature:** 130°F (54°C)

**Maximum fluid viscosity:** 1000 cp

#### Dimensions

15-gallon tank system: 15 1/2"W x 22"H x 19 1/2"D

30-gallon tank system: 20"W x 27"H x 24"D

Max flow		Strokes/ min	Max psi	Tubing OD	15-gallon tank system		30-gallon tank system	
GPH	mL/min				Catalog number	Price	Catalog number	Price
Metering pump system; 115 VAC, 60 Hz								
0.2	18	14	125	3/8"	EK-76303-00		—	—
0.6	43	30			EK-76303-10		—	—
1.3	82	60	125	3/8"	—	—	EK-76303-20	
2.8	180	125	125		—	—	EK-76303-30	
9.5	600	125	10		—	—	EK-76303-40	
Metering pump system; 220 VAC, 50 Hz								
0.16	14.4	14	125	3/8"	EK-76303-05		—	—
0.48	34.4	30			EK-76303-15		—	—
1.04	65.6	60	125	3/8"	—	—	EK-76303-25	
2.24	144	125	125		—	—	EK-76303-35	
7.6	480	125	10		—	—	EK-76303-45	



76303-00

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# Pu Pumps

Metering, Solenoid Diaphragm

## Solenoid Metering Pumps

**Reliable metering performance—guided dual check valves provide precise seating and excellent priming and suction lift**

- PVC and PTFE construction with external control
- Ideal for water treatment and chemical feed applications
- Water resistant for outdoor installation

**What's included:** injection/back pressure valve assembly, foot valve/strainer assembly, three-function valve, 4-ft clear PVC tubing, and 8-ft rigid polyethylene discharge tubing. All 115 VAC pumps include a 6-ft power cord with U.S. plug; 230 VAC pumps include a 6-ft power cord (plug not included). **Service kits** (sold separately and listed in each table) include valve cartridges with O-rings, head, diaphragm, secondary O-ring, head screws, and washers.

### Manual Control Pumps

Manual control pumps feature adjustable stroke rate and length, reliable timing circuits, and circuit protection from voltage and current upsets. Leak-free bleed valves provide safe and easy priming. Pumps are water resistant and can be installed outdoors.

### Specifications & Ordering Information

**Wetted materials:** PVC/PTFE/ceramic  
**Repeatability:** ±2%

**Suction lift:** 4 ft, priming wet  
**Max viscosity:** 1000 cp

**Duty cycle:** continuous

**78118-00**

Max flow rate		Max psi	Strokes/min	Tubing OD	Dimensions (W x H x D)	115 VAC, 50/60 Hz, 1.0 A		230 VAC, 50/60 Hz, 0.5 A		Service kits	
GPD	L/hr					Catalog number	Price	Catalog number	Price	Catalog number	Price
6	0.95	80	125	3/8"	5" x 9 1/2" x 9 1/2"	<a href="#">KH-78118-00</a>		<a href="#">KH-78118-05</a>		<a href="#">KH-78118-80</a>	
12	1.89				5" x 10" x 9 1/2"	<a href="#">KH-78118-10</a>		<a href="#">KH-78118-15</a>		<a href="#">KH-78118-81</a>	
22	3.47				5" x 10" x 9 1/2"	<a href="#">KH-78118-20</a>		<a href="#">KH-78118-25</a>		<a href="#">KH-78118-82</a>	
30	4.73				5" x 10" x 9 1/2"	<a href="#">KH-78118-30</a>		<a href="#">KH-78118-35</a>		<a href="#">KH-78118-82</a>	
44	6.94	100	125	3/8"	5 1/2" x 10 1/2" x 11"	<a href="#">KH-74142-00</a>		<a href="#">KH-74142-05</a>		<a href="#">KH-78118-82</a>	
94	14.82	100		1/2"	5 1/2" x 10 1/2" x 11"	<a href="#">KH-74142-10</a>		<a href="#">KH-74142-15</a>		<a href="#">KH-78118-83</a>	
240	37.85	35		1/2"	6" x 11" x 11"	<a href="#">KH-74142-20</a>		<a href="#">KH-74142-25</a>		<a href="#">KH-78118-84</a>	
500	78.85	20		3/4"	6" x 11" x 11"	<a href="#">KH-74142-30</a>		<a href="#">KH-74142-35</a>		<a href="#">KH-78118-85</a>	

### External Pace Pumps

These digital pumps feature easy set-up with scrolling menus, 16-digit backlit LCD, four-button touchpad control, guided ball check valve system to reduce backflow and enhance priming, and

leak-free bleed valve assembly. Pumps now accept HALL effect flow sensors. Install pumps indoors or outdoors.

### Specifications & Ordering Information

**Wetted materials:** PVC/PTFE/ceramic  
**Repeatability:** ±3%

**Suction lift:** 4 ft, priming wet  
**Max viscosity:** 1000 cp

**Duty cycle:** continuous

Max flow rate		Max psi	Strokes/min	Tubing OD	Dimensions (W x H x D)	115 VAC, 50/60 Hz, 1.0 A		230 VAC, 50/60 Hz, 0.5 A		Service kits	
GPD	L/hr					Catalog number	Price	Catalog number	Price	Catalog number	Price
6	0.95	150	125	3/8"	5" x 9 1/2" x 9 1/2"	<a href="#">KH-74143-00</a>		<a href="#">KH-74143-05</a>		<a href="#">KH-78118-80</a>	
12	1.89	150				<a href="#">KH-74143-10</a>		<a href="#">KH-74143-15</a>		<a href="#">KH-78118-81</a>	
22	3.47	100				<a href="#">KH-74143-20</a>		<a href="#">KH-74143-25</a>		<a href="#">KH-78118-82</a>	
48	7.57	50				<a href="#">KH-74143-30</a>		<a href="#">KH-74143-35</a>		<a href="#">KH-78118-82</a>	

### 4-to-20 mA Pace Pumps for High-Viscosity Applications

High-viscosity 4 to 20 mA pumps handle viscous fluids up to 20,000 cp. Pumps feature automatic control with 4 to 20 mA DC direct or external pacing, reliable timing circuits, stop function, and manually adjustable stroke rate and length. Operate pump in automatic or manual mode by selecting the proper setting on the "Auto-Off-Manual" switch. Circuit protection guards against voltage and current upsets. Install pumps indoors or outdoors.

### Specifications & Ordering Information

**Wetted materials:** PVC/PTFE/316 SS  
**Repeatability:** ±2%

**Suction lift:** 4 ft, priming wet  
**Max viscosity:** 20,000 cp

**Duty cycle:** continuous

Max flow rate		Max psi	Strokes/min	Connections		Dimensions (W x H x D)	115 VAC, 50/60 Hz, 1.0 A		230 VAC, 50/60 Hz, 0.5 A		Service kits	
GPD	L/hr			Suction	Discharge		Catalog number	Price	Catalog number	Price	Catalog number	Price
12	1.89	150	125	3/4" OD	1/2" OD	5 1/2" x 9 1/8" x 9 1/2"	<a href="#">KH-74147-00</a>		<a href="#">KH-74147-05</a>		<a href="#">KH-74147-80</a>	
24	3.76	150			1/2" OD	5 1/2" x 10 7/8" x 7 1/2"	<a href="#">KH-74147-10</a>		<a href="#">KH-74147-15</a>		<a href="#">KH-74147-81</a>	
48	7.57	110			3/4" OD	5 1/2" x 10 7/8" x 7 1/2"	<a href="#">KH-74147-20</a>		<a href="#">KH-74147-25</a>		<a href="#">KH-74147-82</a>	
96	15.14	110			3/4" OD	5 1/2" x 10 7/8" x 7 1/2"	<a href="#">KH-74147-30</a>		<a href="#">KH-74147-35</a>		<a href="#">KH-74147-83</a>	
240	37.85	80			3/4" OD	6 1/4" x 11 1/2" x 8 1/4"	<a href="#">KH-74147-40</a>		<a href="#">KH-74147-45</a>		<a href="#">KH-74147-84</a>	

## Solenoid Metering Pumps (continued)

### 4-to-20 mA Pace Pumps

The 4-to-20 mA pumps feature automatic control with 4-to-20 mA DC direct pacing, reliable timing circuits, stop function, and manually adjustable stroke rate and length. Operate pump in automatic or manual mode by selecting the proper setting on the "Auto-Off-Manual" switch. Circuit protection guards against voltage and current upsets. Install pumps indoors or outdoors.

### Specifications & Ordering Information

**Wetted materials:** PVC/PTFE/ceramic

**Suction lift:** 4 ft, priming wet

**Duty cycle:** continuous

**Repeatability:** 2%

**Max viscosity:** 1000 cp

Max flow rate		Max psi	Strokes/min	Tubing OD	Dimensions (W x H x D)	115 VAC, 50/60 Hz, 1.0 A		230 VAC, 50/60 Hz, 0.5 A		Service kits	
GPD	L/hr					Catalog number	Price	Catalog number	Price	Catalog number	Price
6	0.95	150	125	3/8"	5 1/2" x 10 1/4" x 10 3/4"	<a href="#">KH-74141-00</a>		<a href="#">KH-74141-05</a>		<a href="#">KH-78118-80</a>	
12	1.89				5 1/2" x 10 1/2" x 11 3/4"	<a href="#">KH-74141-10</a>		<a href="#">KH-74141-15</a>		<a href="#">KH-78118-81</a>	
21	3.31				5 1/2" x 10 1/2" x 11 3/4"	<a href="#">KH-74141-20</a>		<a href="#">KH-74141-25</a>		<a href="#">KH-78118-82</a>	
42	6.62				5 1/2" x 10 1/2" x 11 3/4"	<a href="#">KH-74141-30</a>		<a href="#">KH-74141-35</a>		<a href="#">KH-78118-82</a>	
94	14.82	100	125	1/2"	5 1/2" x 11" x 11 3/4"	<a href="#">KH-74141-40</a>		<a href="#">KH-74141-45</a>		<a href="#">KH-78118-83</a>	
240	37.85	35		1/2"	6" x 11 3/4" x 11 1/4"	<a href="#">KH-74141-50</a>		<a href="#">KH-74141-55</a>		<a href="#">KH-78118-84</a>	
500	78.85	20		3/4"	6" x 11" x 10 1/2"	<a href="#">KH-74141-60</a>		<a href="#">KH-74141-65</a>		<a href="#">KH-78118-85</a>	

### Seven-Day Timer Pumps

Seven-day timer pumps provide a simple and cost effective metering system for timed applications. Pumps offer eight on/eight off programs per week for maximum adjustability. These pumps

feed chemical products on a timed schedule and are commonly used in biocide feed applications. Feed cycle is initiated and controlled by programmable timer.

### Specifications & Ordering Information

**Wetted materials:** PVC/PTFE/ceramic

**Suction lift:** 4 ft, priming wet

**Duty cycle:** continuous

**Repeatability:** 3%

**Max viscosity:** 1000 cp

Max flow rate		Max psi	Strokes/min	Tubing OD	Dimensions (W x H x D)	115 VAC, 50/60 Hz, 1.0 A		230 VAC, 50/60 Hz, 0.5 A		Service kits	
GPD	L/hr					Catalog number	Price	Catalog number	Price	Catalog number	Price
12	1.89	100	125	3/8"	5" x 10" x 9 1/2"	<a href="#">KH-74145-00</a>		<a href="#">KH-74145-05</a>		<a href="#">KH-78118-81</a>	
22	3.47					<a href="#">KH-74145-10</a>		<a href="#">KH-74145-15</a>		<a href="#">KH-78118-82</a>	
30	4.73					<a href="#">KH-74145-20</a>		<a href="#">KH-74145-25</a>		<a href="#">KH-78118-82</a>	
44	6.94					<a href="#">KH-74145-30</a>		<a href="#">KH-74145-35</a>		<a href="#">KH-78118-82</a>	

### Accessories

**KH-74114-90 Pump mounting shelf.** Weight limit 22 lb

**KH-74114-91 Pump mounting shelf.** Weight limit 50 lb

**KH-74113-93 Tank;** PE, 15 gallons. Includes 1/2" PVC bulkhead fitting. Use with 1/2" tubing connection OD pumps

**KH-74113-95 Tank;** PE, 15 gallons. Includes 3/8" PVC bulkhead fitting. Use with 3/8" tubing connection OD pumps

**KH-74113-85 Valve;** five function, compression fitting. PVDF, max 250 psi, 3/8" tubing connectors

**KH-74113-86 Valve;** five function, compression fitting. PVDF, max 150 psi, 3/8" tubing connectors

**KH-74113-88 Valve;** five function, compression fitting. PVDF, max 100 psi, 1/2" tubing connectors

**KH-74113-89 Valve;** five function degassing, compression fitting. PVDF, max 250 psi, 3/8" tubing connectors

**KH-74113-91 Valve;** five function degassing, compression fitting. PVDF, max 250 psi, 1/2" tubing connectors

## Pump Feed Verification Controllers

### Control and verify the feed rate of the actual fluid dispensed

- Features a 4 to 20 mA flow verification output for remote display or data logging
- NEMA 4X enclosure
- Mounted on a PVC back plate for easy installation and operation

This pump feed verification controller provides accurate and reliable dosing when used with pulse metering pumps. As the pump output changes, the controller compensates by providing a proportional feedback signal to change the stroke rate of the pump. In addition, a 4 to 20 mA input signal can be used to change the mL/min setpoint. A 4-to-20 mA output signal can be used for remote display or datalogging. An alarm contact output including a visual LED notifies you of any problems.

**What's included:** 6-ft power cord and plug.

### Specifications & Ordering Information

**Max temperature:** 100°F (38°C)

**Repeatability:** ±1%

**Accuracy:** ±5% full-scale

**Output:** 4 to 20 mA, alarm contact output

Catalog number	Max flow GPH	Enclosure rating	Power		Dimensions (W x H x D)	Price
			VAC	Hz		
<a href="#">KH-74522-00</a>	1.6	NEMA 4X	115	60	14" x 24" x 6"	
<a href="#">KH-74522-10</a>	16					
<a href="#">KH-74522-20</a>	32					
<a href="#">KH-74522-30</a>	63					



74522-00

**GO to page(s) 1399-1409**

To view our offering of metering pumps for use with this controller.

# Pu Pumps

Metering, Solenoid Diaphragm

## Solenoid Diaphragm Metering Pumps

Manually adjustable stroke length and stroke frequency provide precise control of flow rates

- Clear face cover protects pump controls on low flow models (1 GPH and lower)
- Chemical-resistant housing provides protection in harsh environments

### A Manual Control Pumps

These pumps include a four-function valve—an anti-siphon, back pressure, priming, and pressure relief valve all in one.

### B Remote Control Pumps

An external pulse trigger can be accepted for remote stroke frequency control. Low-flow pump models (1 GPH and lower) include easy access to 4-pin connections.

### C Digital Remote Control Pumps

Microprocessor control and an LCD display provides precise accuracy. Programmable controller features three external control modes—pulse multiply, pulse divide, or 4-to-20 mA response. Pumps allow you to multiply or divide incoming pulse signal by 1 to 999.

**What's included:** a four-function valve (except high-flow remote control pumps, models 74514-50 and -55), 16-ft polyethylene tubing, foot valve/strainer, and 8-ft power cord with molded plug.

**Service kits include:** a replacement diaphragm, seal, four pump head screws, and check valves.



Front view of manual control pump

Front view of remote control pump

Front view of digital remote control pump

## Specifications & Ordering Information

### Wetted parts

Models 74514-50 and -55: PVC head and fittings, ceramic balls, Fluorofilm® diaphragm, PTFE seal ring  
All other models: PVC head and fittings, ceramic balls, Fluorofilm diaphragm, PVDF/Polyprel seal ring

### External trigger

(remote control and digital remote control pumps only): contact closure, transistor, or opto-isolator rated for 15 VDC, 2 mA

**Input signal** (digital remote control pumps only): 4 to 20 mA, 0 to 20 mA

**Maximum temperature:** 250°F (121°C)

**Repeatability:** ±2% full-scale

**Suction lift:** 5 ft (dry)

ISO 9001:2000  
CERTIFIED SUPPLIER



available  
on request



2 year  
warranty

Flow range		Max psi	Port size	Dimensions (L x W x H)	115 VAC, 50/60 Hz			230 VAC, 50 Hz			Service kits	
GPH	mL/min				Cat. no.	Amps	Price	Cat. no.	Amps	Price	Cat. no.	Price
A Manual control pumps												
0.006 to 0.42	0.4 to 26.7	140	1/4" OD	10 1/2" x 4 1/8" x 9 3/8"	KH-74517-00	1.4		KH-74517-05	0.7		KH-74513-08	
0.01 to 1.0	0.63 to 63.3	110	3/8" OD		KH-74517-10			KH-74517-15			KH-74513-18	
0.013 to 2.5	0.79 to 158.3	100	3/8" OD	13 7/8" x 5 3/4" x 10 7/8"	KH-74513-20	3.5		KH-74513-25	1.75		KH-74513-18	
0.02 to 4.0	1.26 to 251.7	100		14 1/4" x 5 3/4" x 10 7/8"	KH-74513-30			KH-74513-35			KH-74513-38	
0.45 to 8.0	2.52 to 500.0	60		14 1/4" x 5 3/4" x 10 7/8"	KH-74513-40			KH-74513-45			KH-74513-48	
B Remote control pumps												
0.006 to 0.42	0.4 to 26.7	140	1/4" OD	10 1/2" x 4 1/8" x 9 3/8"	KH-74519-00	1.4		KH-74519-05	0.7		KH-74513-08	
0.01 to 1.0	0.63 to 63.3	110	3/8" OD		KH-74519-10			KH-74519-15			KH-74513-18	
0.013 to 2.5	0.79 to 158.3	100	3/8" OD	13 7/8" x 5 3/4" x 10 7/8"	KH-74514-20	3.5		KH-74514-25	1.75		KH-74513-18	
0.02 to 4.0	1.26 to 251.7	100		14 1/4" x 5 3/4" x 10 7/8"	KH-74514-30			KH-74514-35			KH-74513-38	
0.45 to 8.0	2.52 to 500.0	60		14 1/4" x 5 3/4" x 10 7/8"	KH-74514-40			KH-74514-45			KH-74513-48	
0.1 to 20.0	6.33 to 1262.0	25	1/2" OD	14 1/4" x 5 3/4" x 10 7/8"	KH-74514-50			KH-74514-55			KH-74514-58	
C Digital remote control pumps												
0.006 to 0.42	0.4 to 26.7	140	1/4" OD	10 1/2" x 4 1/8" x 9 3/8"	KH-74521-00	1.4		KH-74521-05	0.7		KH-74513-08	
0.01 to 1.0	0.63 to 63.3	110	3/8" OD		KH-74521-10			KH-74521-15			KH-74513-18	
0.013 to 2.5	0.79 to 158.3	100	3/8" OD	13 7/8" x 5 3/4" x 10 7/8"	KH-74516-20	3.5		KH-74516-25	1.75		KH-74513-18	
0.02 to 4.0	1.26 to 251.7	100		14 1/4" x 5 3/4" x 10 7/8"	KH-74516-30			KH-74516-35			KH-74513-38	
0.45 to 8.0	2.52 to 500.0	60		14 1/4" x 5 3/4" x 10 7/8"	KH-74516-40			KH-74516-45			KH-74513-48	

## DIGITAL DOSING™ Metering Pumps

**New drive principle provides an accuracy of  $\pm 1\%$  repeatable throughout the full range**

- Digital display reads in either GPH or L/hr
- Five models cover 0 to 12.6 GPH range with pressures up to 261 psi
- Alarm relay available

These pumps achieve repeatable, high accuracy by controlling the action of the diaphragm during both the suction and discharge phase. Constant contact with the diaphragm ensures the maximum amount of metered fluid is discharged, preventing buildup of gas. Control over speed, acceleration and position of the diaphragm minimizes pressure peaks, virtually eliminates vibration, and discharges the fluid more evenly.

The easy-to-use microprocessor control system translates the operator instructions into the correct pump output. This allows the pump to provide the exact programmed amount. The display allows for 14 different languages to become an integral component for products aimed at worldwide manufacturing.

**A The 71110-Series Pumps** are available with either manual control only or with manual, analog (0/4 to 20 mA) signal, and external pulse control. Turndown ratio is 1:100.

**B The 73110-Series Pumps** offer five methods of control—manual, analog (0/4 to 20 mA) signal, external pulse, timer-based batch, and pulse-based batch—available with or without an alarm relay. Turndown ratio is 1:1000.

Order service and installation kits separately from table; installation kits include foot and injection valves, and tubing.

Pumps with fieldbus communication are also available; please contact an Application Specialist for assistance with this as well as other wetted material constructions.

**What's included:** 6-ft cord with U.S. standard plug.



**A**  
71110-00

**New**



**B**  
73110-00

### Specifications & Ordering Information for all models



**Repeatability:**  $\pm 1\%$  full range

**Max viscosity:** 500 cps

**Max liquid temperature:** 122°F (50°C)

**Max ambient temperature:** 113°F (45°C)

**Suction lift:** 19.7 ft

**Duty cycle:** continuous

**Power**

71110-series pumps: single phase, 115 VAC, 60 Hz

73110-series pumps: single phase, 115 to 240 VAC, 50/60 Hz

**GO to ColeParmer.com**

[ColeParmer.com/MeteringPump](http://ColeParmer.com/MeteringPump)

Even MORE online!

Look for new items, stock status, technical info, etc.

### A 71110-Series Pumps

Max flow rate		Max psi	Port size	Dimensions (L x W x H)	Manual control		Automatic control		Service kits		Installation kits	
GPH	L/hr				Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price
0.66	2.5	160	1/4" OD or 3/8" OD	4 3/8" x 9 7/16" x 6 5/8"	<a href="#">KH-71110-00</a>		<a href="#">KH-71110-02</a>		<a href="#">KH-73115-02</a>		<a href="#">KH-73115-60</a>	
1.05	4	101.5			<a href="#">KH-71110-20</a>		<a href="#">KH-71110-22</a>		<a href="#">KH-73115-06</a>			
1.98	7.5	78.3			<a href="#">KH-71110-40</a>		<a href="#">KH-71110-42</a>		<a href="#">KH-73115-08</a>			

### Pumps with polypropylene head, PTFE-coated diaphragm, EPDM gaskets, and ceramic ball valves

0.66	2.5	160	1/4" OD or 3/8" OD	4 3/8" x 9 7/16" x 6 5/8"	<a href="#">KH-71110-10</a>		<a href="#">KH-71110-12</a>		<a href="#">KH-73115-03</a>		<a href="#">KH-73115-62</a>	
1.05	4	101.5			<a href="#">KH-71110-30</a>		<a href="#">KH-71110-32</a>		<a href="#">KH-73115-07</a>			
1.98	7.5	78.3			<a href="#">KH-71110-50</a>		<a href="#">KH-71110-52</a>		<a href="#">KH-73115-09</a>			

### B 73110-Series Pumps

Max flow rate		Max psi	Port size	Dimensions (L x W x H)	Without alarm relay		With alarm relay		Service kits		Installation kits	
GPH	L/hr				Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price
0.66	2.5	261	1/4" OD or 3/8" OD	4 3/8" x 9 7/16" x 6 5/8"	<a href="#">KH-73110-00</a>		<a href="#">KH-73110-02</a>		<a href="#">KH-73115-02</a>		<a href="#">KH-73115-60</a>	
1.98	7.5	145			<a href="#">KH-73110-20</a>		<a href="#">KH-73110-22</a>		<a href="#">KH-73115-08</a>			
3.17	12	87			<a href="#">KH-73110-40</a>		<a href="#">KH-73110-42</a>		<a href="#">KH-73115-12</a>			
4.88	18.5	89.9	3/8" OD or 1/2" OD	4 3/8" x 11 5/8" x 7 7/16"	<a href="#">KH-73110-60</a>		<a href="#">KH-73110-62</a>		<a href="#">KH-73115-19</a>		<a href="#">KH-73115-65</a>	
12.68	48	37.7			<a href="#">KH-73110-80</a>		<a href="#">KH-73110-82</a>		<a href="#">KH-73115-48</a>			

### Pumps with PVDF head, PTFE-coated diaphragm, FKM gaskets, and ceramic ball valves

0.66	2.5	261	1/4" OD or 3/8" OD	4 3/8" x 9 7/16" x 6 5/8"	<a href="#">KH-73110-10</a>		<a href="#">KH-73110-12</a>		<a href="#">KH-73115-03</a>		<a href="#">KH-73115-62</a>	
1.98	7.5	145			<a href="#">KH-73110-30</a>		<a href="#">KH-73110-32</a>		<a href="#">KH-73115-09</a>			
3.17	12	87			<a href="#">KH-73110-50</a>		<a href="#">KH-73110-52</a>		<a href="#">KH-73115-13</a>			
4.88	18.5	89.9	3/8" OD or 1/2" OD	4 3/8" x 11 5/8" x 7 7/16"	<a href="#">KH-73110-70</a>		<a href="#">KH-73110-72</a>		<a href="#">KH-73115-20</a>		<a href="#">KH-73115-67</a>	
12.68	48	37.7			<a href="#">KH-73110-90</a>		<a href="#">KH-73110-92</a>		<a href="#">KH-73115-49</a>			

# Pu Pumps

Metering, Solenoid Diaphragm

## High Stroke-Frequency Diaphragm Metering Pumps

Small pump cavity, two check valves, and high stroke frequency combine for superb self-priming and degassing properties

- Pumps provide up to 360 strokes per minute for smooth, efficient operation
- Pumps prime within seconds of being turned on; prime is maintained by two check valves (one on each side)
- Pump housing is IP65 rated

### A Manual Control Pumps

These low-cost metering pumps are ideal for general applications. They feature manual adjustment of stroke frequency and fixed stroke length via a digital keypad (360:1 turndown). For easy access, control modules are detachable.

### B Remote Control Pumps

Pumps feature digitally adjustable speed control and manual adjustable stroke length (1800:1 turndown). Input and output signals include external pulse input control, stop and pre-stop inputs, and stop and pulse outputs.

### C Programmable Remote Control Pumps

These programmable pumps allow you to program the pump speed and input settings using the alphanumeric display and four-button keypad. Control modules are detachable for easy access and remote capabilities. Pumps have digitally adjustable speed control and manual adjustable stroke length (1800:1 turndown). External input control is offered via a pulse input or analog signal. The analog signal is fully programmable. The digital mode allows you to multiply or divide external pulse by a factor of 1 to 999.

**What's included:** 20-ft of tubing and a 6-ft power cord (115 VAC models include a three-prong plug).

**Service kits include:** diaphragm and retainer, valve guides, valve seats, valve balls, valve gaskets, O-rings, and instructions.



Call our Application Specialists to order these pumps with multi-function valves and auto air vent valves (for sodium hypochlorite applications). Multi-function valves are available on most models. Auto air vent valves are available for the manual control and remote control pumps only.

**847-549-7600**



**A**  
74126-00  
Manual control pump



**B**  
74127-00  
Remote control pump



**C**  
74125-00  
Programmable remote control pump

ISO9001:2000  
CERTIFIED SUPPLIER

cULus

SP

2 year warranty

## Specifications & Ordering Information

### Wetted parts

Pump head and fittings: polyvinyl chloride (PVC) or glass fiber reinforced polypropylene (GFRPP)  
Diaphragm: PTFE bonded to EPDM  
Ball check valves: alumina ceramic  
Seals: fluoroelastomer  
O-rings: PTFE

**Max temperature:** 122°F (50°C)

**Repeatability:** ±1% full-scale

**Suction lift (dry):** 5 ft

**Max viscosity:** 100 cp

### Input signal

74126-series: no input signal accepted  
74127-series: contact closure input  
74125-series: contact closure input, 4 to 20 mA or 0 to 20 mA

Flow range		Max psi	Port size	Dimensions (L x W x H)	115 VAC, 50/60 Hz			220 VAC, 50 Hz			Service kits	
GPH	mL/min				Cat. no.	Amps	Price	Cat. no.	Amps	Price	Cat. no.	Price
A Manual control pumps (stroke frequency adjustment—GFRPP head)												
0.002 to 0.6	0.30 to 38	150	3/8" OD	7 1/2" x 4" x 7 1/4"	KH-74126-00	0.9		KH-74126-05	0.3		KH-74126-08	
0.003 to 1	0.52 to 65	105	3/8" OD	7 1/2" x 4" x 7 1/4"	KH-74126-10			KH-74126-15			KH-74126-18	
0.005 to 1.5	0.76 to 95	60	3/8" OD	7 1/2" x 4" x 7 1/4"	KH-74126-20			KH-74126-25			KH-74126-28	
0.01 to 3.2	1.6 to 200	30	1/2" OD	7" x 4" x 8"	KH-74126-30			KH-74126-35			KH-74126-38	
B Remote control pumps (manual control of stroke length and internal/external adjustment of stroke frequency—GFRPP head)												
0.005 to 0.6	0.30 to 38	150	3/8" OD	7 3/8" x 4" x 7 1/4"	KH-74127-00	0.9		KH-74127-05	0.3		KH-74126-08	
0.01 to 1.3	0.64 to 80	150	3/8" OD	10 1/4" x 5 3/4" x 10 1/2"	KH-74127-10	1.4		KH-74127-15	0.5		KH-74126-18	
0.16 to 2.3	1.04 to 30	105	3/8" OD	10 1/4" x 5 3/4" x 10 1/2"	KH-74127-20	1.4		KH-74127-25	0.5		KH-74126-28	
0.35 to 4.3	2.16 to 270	50	1/2" OD	10 1/4" x 5 3/4" x 10 1/2"	KH-74127-30	1.4		KH-74127-35	0.5		KH-74126-38	
B Remote control pumps (manual control of stroke length and internal/external adjustment of stroke frequency—PVC head)												
0.005 to 0.6	0.30 to 38	150	3/8" OD	7 3/8" x 4" x 7 1/4"	KH-74127-02	0.9		KH-74127-07	0.3		KH-74126-08	
0.01 to 1.3	0.64 to 80	150	3/8" OD	10 1/4" x 5 3/4" x 10 1/2"	KH-74127-12	1.4		KH-74127-17	0.5		KH-74126-18	
0.16 to 2.3	1.04 to 30	105	3/8" OD	10 1/4" x 5 3/4" x 10 1/2"	KH-74127-22	1.4		KH-74127-27	0.5		KH-74126-28	
0.35 to 4.3	2.16 to 270	50	1/2" OD	10 1/4" x 5 3/4" x 10 1/2"	KH-74127-32	1.4		KH-74127-37	0.5		KH-74126-38	
C Programmable remote control pumps (manual control of stroke length and internal/external adjustment of stroke adjustment—GFRPP head)												
0.003 to 5.5	0.19 to 340	150	1/2" OD	10 1/4" x 5 3/4" x 10 1/2"	KH-74125-00	1.8		KH-74125-05	0.8		KH-74125-08	
0.004 to 8.5	0.29 to 520	105			KH-74125-10			KH-74125-15			KH-74125-18	
0.006 to 12	0.42 to 750	60			KH-74125-20			KH-74125-25			KH-74125-28	
0.01 to 20	0.70 to 1250	30			KH-74125-30			KH-74125-35			KH-74125-38	

## Solenoid Diaphragm Metering Pumps

### Precise metering of chemicals with the ability to handle back pressures up to 253 psi

- Microprocessor-based control
- Stroke length (0 to 100%) and frequency (10 to 100%) adjustment
- Auto-degassing pumps are excellent for bleach and hydrogen peroxide applications

Manual control pumps use the stroke length and rate to determine the feed rate. The stroke length control knob can vary the displacement of chemicals from 0 to 100%. Speed control stroke rate is adjustable from 10 to 100% in 10% increments. Use the multifunction switch to select the on/off external pulse contact, pump stop or test (for the priming feature).

The pump housing has a NEMA 4X enclosure to protect against corrosion, dust and water. The diaphragm is made of a fabric-reinforced EPDM elastomer with a plastic core and a PTFE-facing. Should the diaphragm rupture, the pump head has a weep hole located on the bottom of the backplate allowing the chemical to flow out of the pump and away from the solenoid.

Auto-degassing pumps off-gas from the top of the pump head to prevent any air build-up in the chamber. The fluid discharge is at the center of the pump head, rather than at the top as in the standard manual control pumps.

Fault indicator lights indicate operational status. A green light indicates normal operation, a yellow light warns of low chemical and a red light indicates a lack of chemical or an operational error. Order optional universal control cables below for remote pause control operation via a voltage-free contact.

**What's included:** 15-ft of tubing, foot valve, bleed valve (except on auto-degassing pumps), injection valve, and 6-ft power cord with three prong plug (power cord is detachable).

**Service kits for non-auto-degassing pumps include:** diaphragm, suction valve, discharge valve, adapter set, two valve balls and one set of seals.

**Service kits for auto-degassing pumps include:** diaphragm, suction valve, discharge valve, adapter set, two valve balls, one set of seals and one vent valve, complete.

### Specifications & Ordering Information



#### Wetted parts

Pump head: acrylic  
Suction/discharge valves:  
PVC (non auto-degassing pumps)  
Hastelloy C valve spring and PVDF valve seat  
(auto-degassing pumps)  
Seals: EPDM  
Valve balls: ceramic

**Max temperature:** 113°F (45°C)

**Repeatability:** ±2% full-scale

**Max viscosity:** 200 cp for non auto-degassing pumps;  
50 cp for auto-degassing pumps

**Duty cycle:** continuous

**Outputs:** contact closure (universal control cable is required for this feature)



Manual control pump 74700-00



Back view of manual control pump

Flow range		Max psi	Port size OD	Suction lift (ft)	Dimensions (L x W x H)	115 VAC, 50/60 Hz		230 VAC, 50/60 Hz		Service kits	
GPH	mL/min					Catalog number	Price	Catalog number	Price	Catalog number	Price
Manual control pumps											
0.19	11.9	145	1/4"	19.6	10" x 3 3/8" x 7 1/2"	<a href="#">KH-74700-00</a>		<a href="#">KH-74700-05</a>		<a href="#">KH-74700-08</a>	
0.29	18.3	253	1/4"	19.6		<a href="#">KH-74700-10</a>		<a href="#">KH-74700-15</a>		<a href="#">KH-74700-18</a>	
0.55	34.7	253	1/4"	19.6		<a href="#">KH-74700-20</a>		<a href="#">KH-74700-25</a>		<a href="#">KH-74700-28</a>	
1.1	69.4	145	1/2"	19.6		<a href="#">KH-74700-30</a>		<a href="#">KH-74700-35</a>		<a href="#">KH-74700-38</a>	
1.9	119.9	101	1/2"	19.6		<a href="#">KH-74700-40</a>		<a href="#">KH-74700-45</a>		<a href="#">KH-74700-48</a>	
3.2	201.9	58	1/2"	9.8		<a href="#">KH-74700-50</a>		<a href="#">KH-74700-55</a>		<a href="#">KH-74700-58</a>	
5	315.4	29	1/2"	6.5		<a href="#">KH-74700-60</a>		<a href="#">KH-74700-65</a>		<a href="#">KH-74700-68</a>	
High-flow, high-pressure manual control pumps											
1.1	69.4	253	1/2"	19.6	10 3/8" x 4" x 8 1/2"	<a href="#">KH-74701-00</a>		<a href="#">KH-74701-05</a>		<a href="#">KH-74700-38</a>	
1.8	113.6	145		19.6		<a href="#">KH-74701-10</a>		<a href="#">KH-74701-15</a>		<a href="#">KH-74700-48</a>	
2.9	182.9	101		13.1		<a href="#">KH-74701-20</a>		<a href="#">KH-74701-25</a>		<a href="#">KH-74700-58</a>	
4.5	283.9	58		9.8		<a href="#">KH-74701-30</a>		<a href="#">KH-74701-35</a>		<a href="#">KH-74700-68</a>	
8.4	529.9	29		6.5		<a href="#">KH-74701-40</a>		<a href="#">KH-74701-45</a>		<a href="#">KH-74700-78</a>	
Manual control pumps with auto-degassing pump heads											
0.16	10.1	253	1/4"	5.9	10 1/2" x 3 3/8" x 7 1/4"	<a href="#">KH-74702-00</a>		<a href="#">KH-74702-05</a>		<a href="#">KH-74700-18</a>	
0.37	23.3	253	1/4"	6.9		<a href="#">KH-74702-10</a>		<a href="#">KH-74702-15</a>		<a href="#">KH-74700-28</a>	
0.95	59.9	145	1/2"	8.8		<a href="#">KH-74702-20</a>		<a href="#">KH-74702-25</a>		<a href="#">KH-74700-38</a>	
1.74	109.8	101	1/2"	6.5		<a href="#">KH-74702-30</a>		<a href="#">KH-74702-35</a>		<a href="#">KH-74700-48</a>	
2.8	176.6	58	1/2"	6.5		<a href="#">KH-74702-40</a>		<a href="#">KH-74702-45</a>		<a href="#">KH-74700-58</a>	
4.3	271.3	29	1/2"	6.5		<a href="#">KH-74702-50</a>		<a href="#">KH-74702-55</a>		<a href="#">KH-74700-68</a>	
High-flow, high-pressure manual control pumps with auto-degassing pump heads											
0.87	54.9	253	1/2"	9.8	11" x 4" x 7 1/2"	<a href="#">KH-74703-00</a>		<a href="#">KH-74703-05</a>		<a href="#">KH-74700-38</a>	
1.66	104.7	145		9.8		<a href="#">KH-74703-10</a>		<a href="#">KH-74703-15</a>		<a href="#">KH-74700-48</a>	
2.77	174.7	101		8.2		<a href="#">KH-74703-20</a>		<a href="#">KH-74703-25</a>		<a href="#">KH-74700-58</a>	
4.12	259.9	58		8.2		<a href="#">KH-74703-30</a>		<a href="#">KH-74703-35</a>		<a href="#">KH-74700-68</a>	

[KH-74700-90](#) Universal control cable; 6-ft.

[KH-74700-91](#) Universal control cable; 15-ft.

[KH-74700-92](#) Universal control cable; 30-ft.

# Pu Pumps

Metering, Diaphragm

## Reduced Pulsation Diaphragm Metering Pumps

Stepper motor modifies pump stroke to minimize pulsing normally associated with diaphragm pumps



78166-30

- Quiet, reliable, accurate, and virtually pulse-free
- Pumps can run dry continuously without damage
- Built-in overpressure protection prevents damage to pump

**Manual Control Pumps** feature two program modes: choose run mode for continuous pumping, or timer mode to set the number of strokes, time per stroke, or pause duration. Red LED indicates % flow, % rpm, operating mode, system status, and fault condition.

**Remote Control Pumps** include the same programs as manual control pump, plus analog input speed control and RS-232/RS-485 control, two impulse programs, level sensor monitoring, flow sensor monitoring, and alarm output. Provides power to sensor. Fault condition activates LED indicator and alarm output.

**What's included:** 6-ft power cord with three-prong U.S. plug; remote control models include RS-232/RS-485 interface cable and software (Windows® 95 required, 3½" disk).

### Specifications & Ordering Information

**Wetted parts:** PP or PVDF head, FPM valves and gaskets, PTFE-coated diaphragm

**Maximum temperature:** 176°F (80°C)

**Suction lift:** 13 ft H<sub>2</sub>O

**Port size:** ¼-28 UNF(F)

#### Timer modes

Number of strokes: 1 to 30,000

Time/stroke: 0.34 sec to 5 min, 43 sec

Pause duration: 1 sec to 100 min

**Run dry:** yes

#### Remote Control Functions

**Analog input:** 0 to 20 mA, 4 to 20 mA, 0 to 10 VDC

**Interface:** RS-232, RS-485

**Sensor inputs:** (two) open contact, 5 VDC

**Alarm output:** NO or NC relay, 250 VAC or 24 VDC

Flow range		Max psi	Stroke/min	Port size	Power			Dimensions (W x H x D)	PP head		PVDF head	
GPH	mL/min				VAC	Hz	Amps		Catalog number	Price	Catalog number	Price
Manual control pumps												
0.0013 to 1.28	0.08 to 80	30	0.175 to 175	¼-28 UNF(F)	100 to 230	50/60	0.14 to 0.06	7" x 5" x 3"	<a href="#">KH-78166-00</a>		<a href="#">KH-78166-10</a>	
Remote control pumps												
0.0013 to 1.28	0.08 to 80	30	0.175 to 175	¼-28 UNF(F)	100 to 230	50/60	0.14 to 0.06	7" x 5" x 3"	<a href="#">KH-78166-20</a>		<a href="#">KH-78166-30</a>	

## Hazardous-Duty Solenoid Diaphragm Pumps

Meets NEMA specifications for use in Class I Groups C and D; Class II Groups E, F, and G, and Class III Division I hazardous locations

- Ideal for metering or chemical feed of hazardous materials, or in hazardous locations
- Adjustable stroke length and stroke frequency allow precise control of pump flow rates
- Remote control capabilities—pump accepts an external contact closure for flow rate adjustment (closure must withstand 15 VDC at 2 mA)

Epoxy-coated cast iron housing protects internal components of the pump. Mechanically-simple solenoid pumps have one moving part—won't stall. Order service kits from the table below.

**What's included:** Conduit connections ½" NPT(F). Cord and plug not included.

See "Accessories" below for check valve assembly and replacement diaphragm.



Hazardous-duty pump  
74510-00

### Specifications & Ordering Information

**Wetted parts:** 316 stainless steel pump head, Fluorofilm® (PTFE/PFA blend) diaphragm, and O-rings of PTFE

**Maximum temperature:** 122°F (50°C)

**Repeatability:** ±2% full-scale\*

**Suction lift (dry):** 5 ft

**Viscosity:** up to 200 cp

Max flow rate		Max psi	Strokes/min (adjustable)	Minimum stroke length†	Port size	Power (50/60 Hz)	Dimensions (L x W x D)	Catalog number	Price
GPH	mL/min								
1.3	81.75	300	5 to 100	10%	¼" NPT(M)	120 VAC, 1 A 240 VAC, 0.5 A	9 7/8" x 8" x 9 3/32"	<a href="#">KH-74510-00</a>	
								<a href="#">KH-74510-05</a>	
4	252	100	5 to 100	10%	¼" NPT(M)	120 VAC, 1 A 240 VAC, 0.5 A	9 7/8" x 8" x 9 3/32"	<a href="#">KH-74510-10</a>	
								<a href="#">KH-74510-15</a>	

\*Outside recommended stroke length, accuracy will vary.

†Recommended minimum values—stroke length is adjustable from 0 to 100%.

### Accessories

[KH-74500-55](#) Check valve assembly, 316 SS. Two required

[KH-74500-56](#) Replacement diaphragm for pumps 74510-00, -05

[KH-74500-58](#) Replacement diaphragm for pumps 74510-10, -15

### More info

We recommend an electrician install pumps in hazardous locations to ensure safety and compliance with local electrical codes.

## Mechanical Diaphragm Pumps

### Heavy duty—get up to 150 psi with maximum flow rates up to 140 GPH

- Mechanical diaphragm design eliminates leakage and contamination of fluid
- Stroke lock maintains  $\pm 2\%$  accuracy of the stroke setting
- Lubricated for life—sealed cast-iron housing reduces wear and is rated NEMA 4, IP55

Manual control and automatic control both utilize a 1/2-hp, TEFC motor which provides for a quiet and cool operation. This lightweight metering pump allows a 1000:1 turn down capability by using the MPC automatic controller. The MPC controls the pump speed and flow through a digital display. The MPC uses digital (4 to 20 mA) inputs and outputs to monitor and control elements of the process.

PVC and 316 stainless steel (SS) wetted materials offer chemical resistance to a wide range of water treatment chemicals, dilute acids, dilute alkalis, oils and greases, hydrocarbons, and alcohols.

**What's included:** conduit box for hardwiring. Optional service kits (order separately in table) include a diaphragm assembly, suction valve cartridge, and discharge valve cartridge.

### Specifications & Ordering Information



**Repeatability:**  $\pm 2\%$  full-scale

**Max temperature**

PVC models: 104°F (40°C)

SS models: 158°F (70°C)

**Duty cycle:** continuous

**Motor:** 1/2 hp, single phase

**Power:** 115/230 VAC, 50/60 Hz

Pump 74148-05 with MPC controller



**New**

Max flow rate		Max psi	Port size	Manual control			Automatic MPC controller			Service kits	
GPH	L/hr			Cat. no.	Dimensions (L x W x H)	Price	Cat. no.	Dimensions (L x W x H)	Price	Cat. no.	Price
Pumps with PVC liquid end; PTFE diaphragm and O-rings											
14	53	150	1/4" NPT(F)	<a href="#">KH-74148-00</a>	6 7/8" x 13 1/8" x 14 5/8"		<a href="#">KH-74148-05</a>	8 1/2" x 13 3/8" x 21 1/8"		<a href="#">KH-74148-90</a>	
30	113.5	75	1/2" NPT(F)	<a href="#">KH-74148-10</a>	6 7/8" x 13 3/8" x 14 5/8"		<a href="#">KH-74148-15</a>	8 1/2" x 14 3/4" x 21 1/8"		<a href="#">KH-74148-92</a>	
65	246	150	1/2" NPT(F)	<a href="#">KH-74148-20</a>	7 5/8" x 15" x 14 7/8"		<a href="#">KH-74148-25</a>	9 1/8" x 15" x 21 7/16"		<a href="#">KH-74148-92</a>	
108	408.8	100	1" NPT(F)	<a href="#">KH-74148-30</a>	7 5/8" x 15 3/8" x 14 7/8"		<a href="#">KH-74148-35</a>	9 1/8" x 15 3/8" x 21 7/16"		<a href="#">KH-74148-94</a>	
Pumps with 316 SS liquid end; PTFE diaphragm and O-rings											
14	53	150	1/4" NPT(F)	<a href="#">KH-74148-50</a>	6 7/8" x 13 1/8" x 14 5/8"		<a href="#">KH-74148-55</a>	8 1/2" x 13 3/8" x 21 1/8"		<a href="#">KH-74148-91</a>	
30	113.5	75	1/2" NPT(F)	<a href="#">KH-74148-60</a>	6 7/8" x 13 3/8" x 14 5/8"		<a href="#">KH-74148-65</a>	8 1/2" x 14 3/4" x 21 1/8"		<a href="#">KH-74148-93</a>	
65	246	150	1/2" NPT(F)	<a href="#">KH-74148-70</a>	7 5/8" x 15" x 14 7/8"		<a href="#">KH-74148-75</a>	9 1/8" x 15" x 21 7/16"		<a href="#">KH-74148-93</a>	
108	408.8	100	1" NPT(F)	<a href="#">KH-74148-80</a>	7 5/8" x 15 3/8" x 14 7/8"		<a href="#">KH-74148-85</a>	9 1/8" x 15 3/8" x 21 7/16"		<a href="#">KH-74148-95</a>	

## Hydraulically Actuated Diaphragm Pumps

### Rugged, compact design handles pressures up to 1200 psig

- Operate successfully as low as 3 psia suction pressure
- Automatic hydraulic bypass
- Operate dry indefinitely without damage

The pump drive components are fully enclosed and operate in an oil bath to minimize friction and wear, and to provide protection from harsh environments. Pump delivers metering accuracy of  $\pm 1\%$  of maximum capacity. A micrometer knob enables capacity adjustment between 0 to 100% whether the pump is operating or stopped, with a resolution of  $\pm 0.5\%$ .

**What's included:** conduit box for hardwiring.

### Specifications & Ordering Information



**Repeatability:**  $\pm 1\%$  of maximum capacity

**Max temperature**

PVC models: 150°F (65°C)

SS models: 180°F (82°C)

**Duty cycle:** continuous

**Motor:** 1/4 hp, single phase

**Power:** 110/220, 50 Hz or 115/230 VAC, 60 Hz



74160-00

Max flow rate		Max psi	Strokes/ min	Plunger diameter	Port size	Dimensions (L x W x H)	Pulsafeeder pump		Service kit	
GPH	L/hr						Cat. no.	Price	Cat. no.	Price
Pumps with PVC liquid end; Viton® diaphragm and O-rings										
6.9	26.12	150	58	1"	1/2" NPT(F)	11" x 15" x 17"	<a href="#">KH-74160-00</a>		<a href="#">KH-74160-90</a>	
15	56.78	150	116	1"	1/2" NPT(F)		<a href="#">KH-74160-10</a>		<a href="#">KH-74160-92</a>	
26	98.41	150	116	1.187"	1/2" NPT(F)		<a href="#">KH-74160-20</a>		<a href="#">KH-74160-94</a>	
Pumps with 316 SS liquid end; Viton diaphragm and O-rings										
1.85	7	1200	58	0.779"	1/4" NPT(F)	11" x 15" x 17"	<a href="#">KH-74160-30</a>		<a href="#">KH-74160-91</a>	
6.3	23.85	800	116	0.834"	1/2" NPT(F)		<a href="#">KH-74160-40</a>		<a href="#">KH-74160-93</a>	
15	56.78	410	116	1"	1/2" NPT(F)		<a href="#">KH-74160-50</a>		<a href="#">KH-74160-95</a>	
26	98.41	230	116	1.187"	1" NPT(F)		<a href="#">KH-74160-60</a>		<a href="#">KH-74160-97</a>	

# Pu Pumps

Metering, Accessories

## Cole-Parmer Injection Quill

**Inject chemicals safely and easily into center of pipe**

This chemical-injection quill injects corrosive chemicals into your pipeline without damaging the port or pipe. Injection quill ensures even distribution of chemical in the center of the pipe—prevents damage to the pipe wall.

Flow direction is indicated on the body to ensure proper positioning. Standard 3/4" quill length fits most pipes, but can be shortened for small diameter pipes; call our Application Specialists for details.

### Specifications & Ordering Information

#### Wetted parts

Body and quill: Hastelloy C®  
Ball check valve: ceramic

#### Connections

Inlet: 1/2" NPT(F)  
Pipe: 1/2" NPT(M)

**Overall dimensions:** 5 3/8" L x 1 3/8" dia

Catalog number	Description	Price
<a href="#">KH-74601-00</a>	Injection quill	



74601-00

## Air-Operated Pulse Dampeners

**Create a pulse-free flow out of your positive displacement pump**

Dampeners work by prefilling the chamber with compressed air or other gas. As fluid pressure increases, it compresses the air/gas in the chamber. When the air/gas pressure exceeds the fluid pressure, the fluid is forced back out of the dampener in between pulse cycles, resulting in a near pulseless flow. Air connections are all 1/4" NPT(F).

Catalog number	Fluid connections	Price
<b>Polypropylene pulse dampeners with Santoprene® diaphragm</b>		
<a href="#">KH-74021-04</a>	3/8" NPT (F)	
<a href="#">KH-74021-14</a>	1" NPT (F)	
<a href="#">KH-74021-34</a>	1 1/2" NPT (F)	
<a href="#">KH-74021-44</a>	2" NPT (F)	
<b>PTFE pulse dampeners with PTFE diaphragm</b>		
<a href="#">KH-74021-00</a>	3/8" NPT (F)	
<a href="#">KH-74021-10</a>	3/4" NPT (F)	
<a href="#">KH-74021-20</a>	1" NPT (F)	

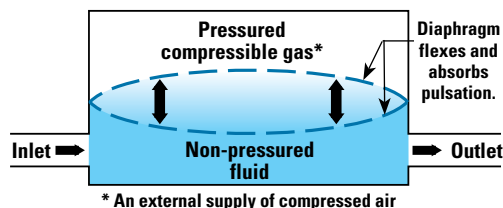


Polypropylene pulse dampener 74021-04



PTFE pulse dampener 74021-00

### How it works



## Cole-Parmer Calibration Columns

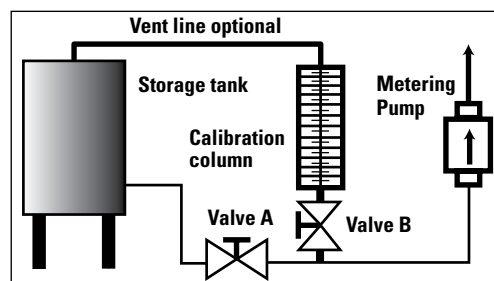
**Calibration columns provide a simple, economical method for checking pump flow rates.**

Columns are graduated in both mL/min and GPH to help improve system accuracy. For maximum convenience and accuracy, choose small capacity columns to check low flow rates; select larger capacity columns for higher flow rates.

To check your flow rate, install column on the suction end of your pump, as shown in the diagram. Turn the pump on, and fill the column to zero (at the top). Using a ball valve, shut off supply from the storage tank and monitor time as fluid is pulled out of the column. At one minute, the fluid level in the column indicates the pump flow rate in mL/min and GPH!

Columns are made of schedule 40 PVC with a double Mylar® polyester-film lamination to protect the scale from chemical attack. Permanently attached cap features a threaded vent opening (same size as the inlet port) for venting fluid back into the supply tank.

Catalog number	Max flow rate mL/min (GPH)	Port size NPT(F)	Column length	Price
<a href="#">KH-74600-01</a>	100 (1.5)	1/2"	12 1/2"	
<a href="#">KH-74600-00</a>	250 (4.0)	1/2"	16 1/4"	
<a href="#">KH-74600-02</a>	500 (8.0)	3/4"	16"	
<a href="#">KH-74600-04</a>	1000 (16.0)	3/4"	25"	
<a href="#">KH-74600-05</a>	2000 (32.0)	1"	24"	
<a href="#">KH-74600-06</a>	4000 (64.0)	1"	34"	



**74600-00**  
These graduated columns improve system accuracy and make frequent calibration a snap!



## Suction Line Strainers

**New**

**Protect pump from sediments and debris**

- Easily remove for cleaning or replacing
- PVC (polyvinyl chloride) and 304 Stainless Steel construction



74604-10

Catalog number	Port size	Mesh size*	Price
<a href="#">KH-74604-00</a>	1/4" NPT(F)	20	
<a href="#">KH-74604-02</a>		40	
<a href="#">KH-74604-04</a>		60	
<a href="#">KH-74604-10</a>	3/8" NPT(F)	20	
<a href="#">KH-74604-12</a>		40	
<a href="#">KH-74604-14</a>		60	
<a href="#">KH-74604-20</a>	1/2" NPT(F)	20	
<a href="#">KH-74604-22</a>		40	
<a href="#">KH-74604-23</a>		50	
<a href="#">KH-74604-24</a>	3/4" NPT(F)	20	
<a href="#">KH-74604-30</a>		40	
<a href="#">KH-74604-32</a>		50	
<a href="#">KH-74604-33</a>	1" NPT(F)	20	
<a href="#">KH-74604-34</a>		40	
<a href="#">KH-74604-40</a>		50	
<a href="#">KH-74604-42</a>	1 1/2" NPT(F)	20	
<a href="#">KH-74604-43</a>		40	
<a href="#">KH-74604-44</a>		50	
<a href="#">KH-74604-50</a>	1 1/2" NPT(F)	20	
<a href="#">KH-74604-52</a>		40	
<a href="#">KH-74604-53</a>		50	
<a href="#">KH-74604-54</a>		60	

## Positive Displacement, Air-Powered

Cole-Parmer offers the widest selection of pumps and fluid handling instruments in the industry. Plus we can special order virtually any pump your application may require!

## Table of Contents

**Air-Powered Pumps** contain no heat-generating electrical components, allowing safe, explosion-proof operation in hazardous areas. Pumps require input from a compressed-air source; available in bellows and diaphragm models..... **1411-1419**

**Bellows Pumps** move fluid or gases through the cavity created by reciprocating bellows coupled to a driving rod ..... **1417**

**Diaphragm Pumps** pulse one or two flexible diaphragms to gently displace liquid; check valves control direction of fluid flow ..... **1411-1420, 1422**

**Flexible Impeller Pumps** contain an elastomeric impeller that traps fluid between blades and sweeps it through the pump housing. These low-cost utility pumps are ideal for general transfer..... **1421**

**Flexible Liner Pumps** gently push fluid between the outer surface of a flexible liner and the inner surface of a rotating body block; can pump 20% soft solids..... **1421**

**Pressure Washers/Plunger Pumps** combine a high pressure pump with spray accessories to provide a self-contained high-pressure washing system..... **1426-1427**

**Progressing Cavity Pumps** (rotary screw pumps) force high-viscosity (up to 20,000 cp) and particulate-laden fluids through the cavity between the screw-style rotor and stator ..... **1424-1425**

**Roller Pumps** have spinning rollers that create a vacuum to draw in liquid to carry to the outlet port. They provide no metal to metal contact; fluid contacts only the rollers or pump housing ..... **1428**

**Rotary Lobe Pumps** are excellent for CIP/SIP applications where cleanliness of the machine needs to be maintained. They also are ideal for flows at higher pressures..... **1423**

**Rotary Vane Pumps** are similar to flexible impeller pumps, except that they have a rigid impeller made of carbon/graphite. Pumps provide high-pressure, low-shear pumping ..... **1428**

## GO to ColeParmer.com

[ColeParmer.com/PositiveDispPumps](http://ColeParmer.com/PositiveDispPumps)

Go to our online parametric search to help you find the best positive displacement pump for your application.

## Specifications &amp; Overview

Pump type	Max flow rate range (GPM)	Max pressure	Pulseless flow	Viscosity	Particulates	Self-priming
Bellows	2.6 to 26.4	73 psi	Poor	Low to med.	Yes	Yes
Diaphragm	0.42 to 150	125 psi	Fair	Low to high	Yes	Yes
Flex. impeller	7.4 to 100	30 psi	Good	Low	No	Yes
Flexible liner	1 to 10	50 psi	Good	Medium	Yes	Yes
Pressure washers	2 to 4	3000 psi	Fair	Low	No	No
Prog. cavity	0.09 to 13	100 psi	Excellent	High	Yes	No
Roller	3.8 to 10	50 psi	Fair	Medium	Yes	Yes
Rotary lobe	13 to 58	225 psi	Good	High	Yes	No
Rotary vane	0.75 to 4.30	240 psi	Good	Low	No	No

## Double-Diaphragm Engineering Handbook

Edited by D. Hollen.

This book presents charts, tables, curves, and other data important to anyone who works with air-operated diaphragm pumps. Topics include: hydraulic data, friction loss, viscous fluids and slurries, materials of construction, corrosion-resistance guide, air data, principles of operation and installation, and troubleshooting.

**KH-74023-99 Air-Operated Double-Diaphragm Engineering Handbook**

**KH-74023-98 Air-Operated Double-Diaphragm Engineering CD ROM**

## Air-Powered Compact Diaphragm Pumps

## Pump up to 3 L/min with a single air-operated diaphragm

- Simple operation gives long service life
- Choose the 80 to 100 psi pumps for high inlet and outlet pressure
- Pumps with 15 psi ratings give you the same flow rate, but a lower discharge pressure

These pumps are a compact and economical solution to pumping your aggressive or sensitive liquids. Ideal for either OEM or end-use applications. Pumps move liquid via an oscillating single diaphragm and two check valves. Diaphragms oscillate by a uniquely designed venturi chamber behind the diaphragm, which allows for limited wear and long pump life. Pumps have fixed stroke lengths; to vary the flow rate, vary the pressure. Choose from three body materials and two seal materials to suit a variety of applications.

## Specifications &amp; Ordering Information

**Suction lift:** 6 ft max

**Viscosity:** <100 cp

**Air consumption:** 0.5 cfm (approx)

**Maximum media pressure:** 87 psig

**Duty cycle:** continuous

**Run dry:** yes

Catalog number	Max GPM	Pump body	Diaphragm materials	Seals	Valve balls	Valve housing	Connections		Supply pressure	Dimensions (L x W x H) (13.3 x 7.9 x 5.6 cm)	Price
							Air inlet	Air outlet			
<a href="#">KH-07032-00</a> <a href="#">KH-07032-02</a> <a href="#">KH-07032-04</a>	0.80	Polypropylene 316 SS PTFE	PFA	FPM* FPM* Chemraz®	PTFE 316 SS PTFE	PTFE	1/8" BSP	1/2" hose barb 1/4" BSP	80 to 100 psig		
<a href="#">KH-07032-10</a> <a href="#">KH-07032-12</a> <a href="#">KH-07032-14</a>		Polypropylene 316 SS PTFE						1/2" hose barb 1/4" BSP 1/2" hose barb	15 psig		

\*Fluoropolymer material



07032-00

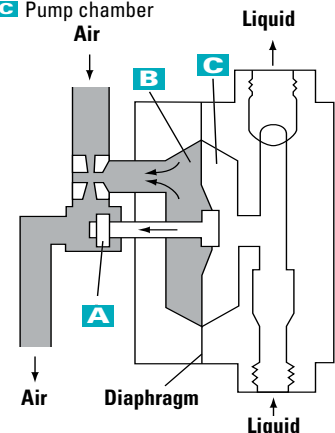


07032-02

## Technical info

## How It Works

- A** Poppet valve
- B** Pneumatic pressure/vacuum chamber
- C** Pump chamber



# PU Pumps

Positive Displacement, Air-Powered

## Air-Powered Double-Diaphragm Pumps

Capable of pumping high-viscosity fluids—even sludge and sewage!

- High flow rates—up to 106 GPM!
- Air-powered motor eliminates sparking concerns associated with electrical pumps
- Bolted pump design allows easy access to pump head for maintenance and maintains seal after repeated servicing

Safely handles abrasive fluids and slurries—ideal for high-viscosity and shear-sensitive materials. Encapsulated muffler provides excellent sound dampening.

**GO to ColeParmer.com**

For flow curve information for pumps on this page, click on the Catalog Number and go to the "More Info" sidebar.



**Polypropylene pump 74000-13.**  
In-line serviceable  
air valve requires  
no lubrication.

ISO9001:2000  
CERTIFIED SUPPLIER

CE 5 year  
warranty

### More info

These pumps can move high-viscosity fluids such as paint, sludge, and sewage. However, flow rate and pressure depends on the application. If you have questions about the compatibility of your high-viscosity fluid, call our Application Specialists for more information.

### Specifications & Ordering Information

**Suction lift:** 10 ft, H<sub>2</sub>O

**Viscosity:** up to 11,000 cp

**Max discharge pressure:** 100 psi

**Duty cycle:** continuous

**Run dry:** yes

### Polypropylene Pumps

Catalog number	Max GPM	Max psi	Port size	Max particle size	Max temp	Diaphragm material	Air inlet requirements			Dimensions (L x W x H)	Shpg wt lb (kg)	Price
							Connection	Max psi	scfm			
<a href="#">KH-74000-70</a> <a href="#">KH-74000-72</a>	4	100	¼" NPT(F)	½"	150°F (66°C)	Santoprene® PTFE	¼" NPT(F)	100	1 to 6	7" x 5½" x 7⅜"	4 (1.9)	
<a href="#">KH-74000-00</a> <a href="#">KH-74000-42</a>	14	100	½" NPT(F)	⅝"		Santoprene PTFE	¼" NPT(F)		2 to 16	10⅞" x 7⅞" x 1⅝"	16 (7.3)	
<a href="#">KH-74000-11</a> <a href="#">KH-74000-13</a>	23	100	¾" NPT(F)	⅞"		Santoprene PTFE	¼" NPT(F)		4 to 25	11⅜" x 7⅞" x 13⅜"	17 (7.8)	
<a href="#">KH-74000-02</a> <a href="#">KH-74000-12</a>	45	100	1" Flange	¼"		Santoprene PTFE	½" NPT(F)		5 to 45	17⅞" x 10¼" x 20⅞"	53 (24.1)	

### PVDF Pumps

Catalog number	Max GPM	Max psi	Port size	Max particle size	Max temp	Diaphragm material	Air inlet requirements			Dimensions (L x W x H)	Shpg wt lb (kg)	Price
							Connection	Max psi	scfm			
<a href="#">KH-74000-80</a> <a href="#">KH-74000-82</a>	4	100	¼" NPT(F)	½"	200°F (93°C)	Santoprene PTFE	¼" NPT(F)	100	1 to 6	7" x 5½" x 7⅜"	5 (2.3)	
<a href="#">KH-74000-44</a> <a href="#">KH-74000-46</a>	14	100	½" NPT(F)	⅝"		Santoprene PTFE	¼" NPT(F)		2 to 16	10⅞" x 7⅞" x 1⅝"	18 (8.2)	
<a href="#">KH-74000-21</a> <a href="#">KH-74000-23</a>	23	100	¾" NPT(F)	⅞"		Santoprene PTFE	¼" NPT(F)		4 to 25	11⅜" x 7⅞" x 14⅞"	21 (9.6)	
<a href="#">KH-74000-22</a> <a href="#">KH-74000-32</a>	45	100	1" Flange	¼"		Santoprene PTFE	½" NPT(F)		5 to 45	17⅞" x 10¼" x 20⅞"	65 (29.5)	

### Stainless Steel Pumps

Catalog number	Max GPM	Max psi	Port size	Max particle size	Max temp	Diaphragm material	Air inlet requirements			Dimensions (L x W x H)	Shpg wt lb (kg)	Price
							Connection	Max psi	scfm			
<a href="#">KH-74007-00</a> <a href="#">KH-74007-20</a>	4.4	125	¼" NPT(F)	⅞"	212°F (100°C)	PTFE	¼" NPT(F)	125	1 to 8	6¾" x 4⅞" x 5⅜"	9 (4.1)	
<a href="#">KH-74007-22</a>	42	125	1" NPT(F)	¼"		Santoprene PTFE	½" NPT(F)	125	10 to 50	11¼" x 13⅜" x 14⅞"	45 (20.5)	

## Positive Displacement, Air-Powered

**Accessories** for pumps on page 1412

**Cole-Parmer® Filter Regulators** help keep your pump system clean. Each is a one-stage filter regulator with 5 µm filter.

**KH-79160-00** Filter regulator, ¼" NPT(F)

**KH-79160-40** Filter regulator, ½" NPT(F)

**Surge Suppressors/Dampeners** eliminate almost all pulsation, vibration, and noise. Each surge suppressor has a PTFE diaphragm; choose the housing material and size below.

Catalog number	Port size	Housing	Price
<b>KH-75008-00</b> <b>KH-75008-02</b>	½" NPT(F)	Polypropylene PVDF	
<b>KH-75008-10</b> <b>KH-75008-12</b>	¾" NPT(F)	Polypropylene PVDF	
<b>KH-75008-30</b> <b>KH-75008-32</b>	1" flange	Aluminum Stainless steel	

**Drum Transfer Kit** converts ¼" and ½" pumps for 55-gallon drum transfer applications. Includes PVC plastic pipe assembly, pump support legs, and required hardware.

**KH-74008-60** Drum Transfer Kit

### Add these options

- Fittings..... 487-546
- Tubing..... 1845-1882
- Valves..... 1937-1963



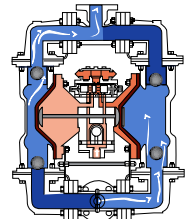
Call our Application Specialists for assistance in selecting a positive displacement pump best suited for your application.

**847-549-7600**

### Technical info

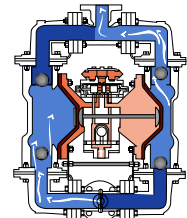
#### Double-Diaphragm Pump

**Discharge stroke:** Pressurized air is directed to the left diaphragm, pushing it outward. Liquid is forced from the left outer chamber, through the chamber, an open discharge check valve, and exits the pump at the discharge manifold.



Discharge stroke

**Suction stroke:** As the left diaphragm is pushed out, a connecting rod pulls the right diaphragm inward, filling the right chamber with fluid. Liquid enters the pump at the suction manifold, moves through an open suction check valve, and fills the chamber.



Suction stroke



#### Surge Suppressor

Liquid pressure pushes the diaphragm upward, and a balancing air cushion keeps the diaphragm centered at midstroke. The diaphragm flexes within the mid-range position, absorbing and equalizing discharge pulsation.

## ATEX-Approved Stainless Steel Double-Diaphragm Pumps

### Stainless steel double-diaphragm pumps that comply to ATEX directives

- Prevents electro-static discharge that could ignite in a gaseous explosive environment
- Fully conductive and 100% groundable
- Excellent for mining operations, chemical and pharmaceutical plants, and areas where solvents are present

ATEX is one of the directives for the European Community (EC) that relates to potentially explosive environments. Equipment complying to the ATEX 100a directive allows manufacturers to sell anywhere within the EC.

These ATEX approved pumps contain a conductive elastomeric and PTFE gasket to maintain continuity as well as conductive materials in the main air valve and mid-sections.

**What's included:** grounding strap.



Call our Application Specialists for other sizes of stainless steel double diaphragm pumps that are ATEX approved.

**847-549-7600**



74016-20

### Specifications & Ordering Information

**Suction lift:** 10 ft H<sub>2</sub>O

**Viscosity:** up to 11,000 cp

**Max discharge pressure:**

100 psi

**Duty cycle:** continuous

**Run dry:** yes

Catalog number	Max GPM	Max psi	Port size	Max particle size	Max temp	Diaphragm material	Air inlet requirements			Dimensions (L x W x H)	Shpg wt lb (kg)	Price
							Connection	Max psi	scfm			
<b>KH-74016-20</b> <b>KH-74016-22</b>	42	125	1" NPT(F)	¼"	212°F (100°C)	Santoprene® PTFE	½" NPT(F)	125	10 to 50	11¼" x 13¾" x 14⅞"	45 (20.5)	
<b>KH-74016-31</b> <b>KH-74016-32</b>	106		1½" NPT(F)	¼"		Santoprene PTFE			10 to 60	16⅝" x 12⅝" x 21⅞"	93 (42.2)	

ISO9001:2000  
CERTIFIED SUPPLIER

ATEX

5 year  
warranty

# Pu Pumps

Positive Displacement, Air-Powered

## USDA-Certified Air-Operated Double Diaphragm Pumps

USDA certified for clean-in-place sanitary installations

- Handle abrasive and shear-sensitive materials
- Self-priming up to 24 ft of water
- Deadhead against closed discharge without damage

Air distribution system can be serviced external to the pump allowing for true in-line maintenance. The air valve is guaranteed not to stall.

Wetted materials are electropolished 316 and 302/304 stainless steel.

Nonwetted materials are electroless nickel-plated aluminum and polypropylene. All pumps are fitted with white food-grade nitrile elastomers and sanitary Tri-Clamp® fittings.

**New**



74440-00

### Specifications & Ordering Information

Suction lift: 24 ft, H<sub>2</sub>O

Max discharge pressure:

Duty cycle: continuous

Viscosity: up to 11,000 cp

100 psi

Run dry: yes

Catalog number	Max GPM	Max psi	Port size	Max particle size	Max temp	Min temp	Diaphragm material	Air inlet requirements			Dimensions (L x W x H)	Shpg wt lb (kg)	Price
								Connection	Max psi	scfm			
<a href="#">KH-74440-00</a>	54	230	1½"	¼"	190°F (88°C)	-10°F (-23°C)	Food-grade nitrile	¾" NPT(F)	100	10 to 65	15½" x 10½" x 17½"	60 (27.2)	
<a href="#">KH-74440-05</a>			Tri-Clamp		212°F (100°C)	-10°F (-23°C)	Food-grade EPDM						
<a href="#">KH-74440-10</a>	125	230	2"	¼"	190°F (88°C)	-10°F (-23°C)	Food-grade nitrile	¾" NPT(F)	100	20 to 105	18½" x 12½" x 21"	120 (54.4)	
<a href="#">KH-74440-15</a>			Tri-Clamp		212°F (100°C)	-10°F (-23°C)	Food-grade EPDM						



74440-60

74440-50

## FDA-Compliant Air-Operated Double Diaphragm Pumps

**New**

Comply with FDA Standards for food processing, pharmaceutical, and cosmetic applications

- Handle abrasive and shear-sensitive materials
- Self-priming up to 24 ft of water
- Deadhead against closed discharge without damage to pump

These special-duty pumps are constructed of FDA-material-compliant components of stainless steel (wetted castings) and a selection of FDA Santoprene®; FDA nitrile; and PTFE diaphragms, check valves, and valves seats. Standard nonwetted components are white epoxy-coated aluminium with stainless steel hardware. Offered with sanitary Tri-Clamp® fittings.

### Specifications & Ordering Information

Suction lift: 24 ft, H<sub>2</sub>O

Max discharge pressure:

Duty cycle: continuous

Viscosity: up to 11,000 cp

100 psi

Run dry: yes

Catalog number	Max GPM	Max psi	Port size	Max particle size	Max temperature	Min temperature	Diaphragm material	Air inlet requirements			Dimensions (L x W x H)	Shpg wt lb (kg)	Price
								Connection	Max psi	scfm			
<a href="#">KH-74440-50</a>	45	100	1½"	¼"	190°F (88°C)	-10°F (-23°C)	Food-grade Santoprene	¾" NPT(F)	100	5 to 45	10¼" x 10¾" x 13"	60 (27.2)	
<a href="#">KH-74440-55</a>			Tri-Clamp				PTFE, food-grade nitrile						
<a href="#">KH-74440-60</a>	106	100	2"	¼"	190°F (88°C)	-10°F (-23°C)	Food-grade Santoprene	¾" NPT(F)	100	10 to 55	16¼" x 12¾" x 21½"	120 (54.4)	
<a href="#">KH-74440-65</a>			Tri-Clamp				PTFE, food-grade nitrile						

### Tri-Flow® Food-Grade Grease

- USDA H-1 rated for incidental contact—waterproof formula withstands daily washdown

Long-lasting pure synthetic grease has a temperature range of -10 to 400°F (-23 to 204°C). Use on gaskets, O-rings, bearings, bushings, chains, slides, and valves—safe on most plastics and rubber.



08809-25

### Specifications & Ordering Information

Catalog number	Description	USDA/NSF rating	Packaging	Price
<a href="#">EK-08809-25</a>	Food-grade grease	H-1	3-oz tube	

## Positive Displacement, Air-Powered

## UL-Listed Air-Operated Double Diaphragm Pumps

### Designed to meet UL79 Standards for handling flammable liquids

- Fully groundable to prevent static discharge
- Handle abrasive and shear-sensitive materials
- Self-priming up to 24 ft of water
- Deadhead against closed discharge without damage to the pump

All aluminum construction with approved Buna N or virgin PTFE. UL elastomers provide a fully groundable pump to prevent static discharge.



### Specifications & Ordering Information



Suction lift: 24 ft, H<sub>2</sub>O

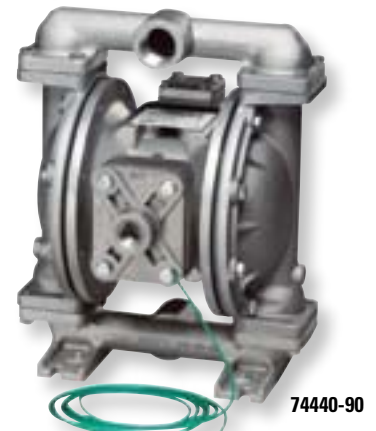
Max discharge pressure:

Duty cycle: continuous

Viscosity: up to 11,000 cp

100 psi

Run dry: yes



74440-90

Catalog number	Max GPM	Max psi	Port size	Max particle size	Max temp	Min temp	Diaphragm material	Air inlet requirements			Dimensions (L x W x H)	Shpg wt lb (kg)	Price
								Connection	Max psi	scfm			
KH-74440-90 KH-74440-95	45	125	1" NPT(F)	¼"	190°F (88°C) 212°F (100°C)	-10°F (-23°C) 32°F (0°C)	Buna N PTFE	½" NPT(F)	100	5 to 45	10¼" x 9" x 11½"	53 (24.0)	

## Special-Duty Air-Operated Double Diaphragm Pumps

### Natural gas operated and mining pumps

- Natural gas operated pump is CSA and NACE compliant
- Natural gas pumps are fully groundable
- Mining pump has Santoprene® elastomers, providing higher abrasion resistance
- Mining pump handles up to nearly 2" solids easily
- Heavy-duty pilot valve simplifies maintenance repairs due to "dirty" air
- Stall proof—stops automatically when discharged valve is closed



### Specifications & Ordering Information

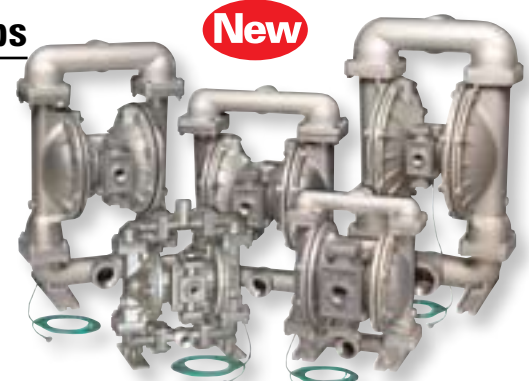
Suction lift: 24 ft, H<sub>2</sub>O

Max media pressure: 125 psig

Run dry: yes

Viscosity: up to 11,000 cp

Duty cycle: continuous



74440 series natural gas pumps

Catalog number	Max GPM	Max psi	Port size	Max particle size	Max temp	Diaphragm material	Air inlet requirements			Dimensions (L x W x H)	Shpg wt lb (kg)	Price		
							Connection	Max psi	scfm					
A Natural gas powered pumps (instead of air)														
KH-74440-30	15	100	½" MNPT	0.125"	190° (88°C)	Buna N	¼" NPT(F)	100	24	11½" x 10¼" x 7½"	15 (6.8)			
KH-74440-32	45		1" NPT(F)				½" NPT(F)		45	12¾" x 10¼" x 10½"	28 (12.7)			
KH-74440-34	105		1½" NPT(F)	0.25"			¾" NPT(F)		60	21½" x 16⅝" x 12⅜"	59 (26.8)			
KH-74440-36	150		2" NPT(F)						110	26⅝" x 16⅝" x 12⅜"	69 (31.3)			
B Mining pump														
KH-74440-30	155	100	2" NPT(F)	1.9"	150° (66°C)	Santoprene	¾" NPT (F)	100	150	27" x 24½" x 26"	130 (59.0)			

## Surge Suppressors/Dampeners

### Minimize pulsation of positive displacement pumps

- Less vibration and noise
- Simple installation
- Variety of materials of construction to meet the system conditions



### Specifications & Ordering Information

Catalog number	Max PSI	Port size	Materials of construction		Price
			Housing	Diaphragm	
KH-75008-00 KH-75008-02	100	½" NPT(F)	Polypropylene PVDF	PTFE	
KH-75008-10 KH-75008-12	100	¾" NPT(F)	Polypropylene PVDF	PTFE	
KH-75008-20 KH-75008-22	100	1" flange	Polypropylene PVDF	PTFE	
KH-75008-30 KH-75008-32	100	1" flange	Aluminum Stainless steel	PTFE, neoprene	
KH-75008-40 KH-75008-42	100	1½" flange	Aluminum Stainless steel	PTFE, neoprene	



# Pu Pumps

Positive Displacement, Air-Powered

## Ultra-High Purity PTFE Air-Operated Double-Diaphragm Pumps

Achieve accurate speed and flow rate at any given delivery pressure with microprocessor control

- PTFE wetted construction and single piece PTFE diaphragm
- Variable-speed controller allows you to vary the speed of the pump
- Eight internal check valves in the pump provide flow accuracy

Safely transfer and dispense fluids in high-purity applications with variable-speed pump and controller. Controller features a large readout liquid crystal display, monitoring of cycle and volume totals, three modes of operation (timed, single feedback and dual input), alarm output and NEMA 4 sealability standards. Position controller next to pump or mount in a remote position. Pumps are Class 1000 clean-room manufactured and feature a compact design with dual suction and dual discharge ports. Pumps may be mounted in multiple directions.

**What's included:** conduit box for hard-wiring (on controller).



PTFE pump 74025-00 and variable-speed controller



2 year warranty

### Specifications & Ordering Information

**Self-priming:** yes

**Air consumption:** 1.5 scfm

**Duty cycle:** continuous

**Viscosity:** 1000 cps max

**Max discharge pressure:** 100 psi

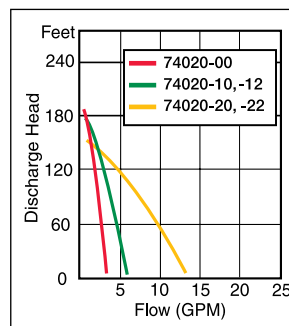
**Run dry:** yes

Catalog number	Max GPM	Max psi	Port size	Max temp	Wetted parts	Air inlet requirements		Power (controller)	Dimensions (L x W x H)	Price
						Connection	Max psi			
<a href="#">KH-74025-00</a>	0.05	44	1/8" NPT(F)	176°F (80°C) fluid	PTFE	1/8" NPT(F)	73	11 to 26 VDC	4" x 6" x 4 1/4" (pump), 6 3/4" x 2 3/4" x 4 3/4" (controller)	
<a href="#">KH-74025-10</a>								100 to 130 VAC, 12 VDC output		
<a href="#">KH-74025-20</a>								100 to 130 VAC, 24 VDC output		

## High-Purity Air-Operated Double-Diaphragm Pumps

Unique air valve ensures a positive shift every time—pump will not stall

- All diaphragms, liquid chambers, and manifolds are constructed of 100% virgin PTFE for long life and high purity
- Patented valve requires no lubrication or prepacking
- Easily access air valve without disassembling the pump
- Pumps are manufactured under class 1000 clean room conditions to guarantee purity.



Flow curves at 80 psi of air pressure



74020-10

### Specifications & Ordering Information

**Manifold material:** PTFE

**Check valve type:** flat

**Air supply pressure:** 20 to 100 psi

Catalog number	Discharge volume/cycle	Max GPM	Max temp	Connections			Dimensions (W x H x D)	Price	Service kits	
				Inlet/discharge	Air inlet	Air exhaust			Catalog number	Price
<a href="#">KH-74020-00</a>	0.005 gal.	3.25	176°F (80°C)	¼" NPT(F)	¼" NPT(F)	⅜" NPT(F)	7½" x 7⅞" x 6⅛"		<a href="#">KH-74020-09</a>	
<a href="#">KH-74020-10</a>	0.017 gal.	6.0	176°F (80°C)	⅜" NPT (F)	¼" NPT(F)	⅜" NPT(F)	9⅝" x 10½" x 9 ¼"		<a href="#">KH-74020-19</a>	
<a href="#">KH-74020-12</a>			½" ANSI Flange 150							
<a href="#">KH-74020-20</a>	0.04 gal.	15.0	176°F (80°C)	¾" NPT (F)	¼" NPT(F)	⅜" NPT(F)	11¾" x 13" x 9¼"		<a href="#">KH-74020-29</a>	
<a href="#">KH-74020-22</a>			¾" ANSI Flange 150							

### Accessories

**[KH-30610-91](#) Air connector nipple;** polypropylene, 1/4" NPT(M) x 1/4" NPT(M). Pack of 10

**[KH-30610-92](#) Air connector nipple;** polypropylene, 3/8" NPT(M) x 3/8" NPT(M). Pack of 10

**[KH-30610-93](#) Air connector nipple;** polypropylene, 1/2" NPT(M) x 1/2" NPT(M). Pack of 10

**[KH-30610-94](#) Air connector nipple;** polypropylene, 3/4" NPT(M) x 3/4" NPT(M). Pack of 5

**[KH-06483-04](#) Air connector nipple;** PFA, 1/4" NPT(M) x 1/4" NPT(M)

**[KH-06483-08](#) Air connector nipple;** PFA, 3/8" NPT(M) x 3/8" NPT(M)

**[KH-06483-14](#) Air connector nipple;** PFA, 1/2" NPT(M) x 1/2" NPT(M)

**[KH-06483-18](#) Air connector nipple;** PFA, 3/4" NPT(M) x 3/4" NPT(M)

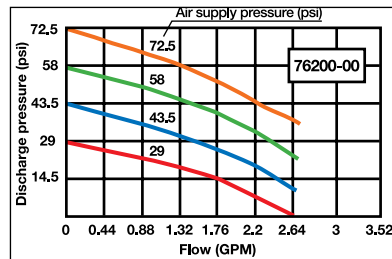
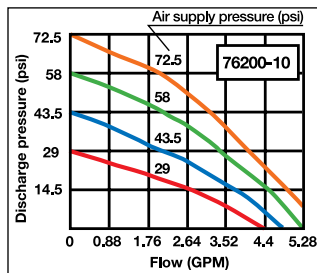
## Positive Displacement, Air-Powered

## Asti All-PFA Double Bellows Pumps

**Gentle, low-shear transfer ideal for highly viscous or particulate-laden fluids**

- Solid PFA pumps ensure the highest purity and chemical resistance possible—transfer even ultrapure or highly concentrated acids and solvents
- No internal or external metal parts—eliminates ionic contamination
- Suitable for cleanroom applications

An in-line air filter/regulator is recommended—order separately below.



76200-10



### Specifications & Ordering Information

**Self-priming:** up to 10 ft

**Suction lift:** 22 ft

**Viscosity:** 1000 cp (max)

**Max particle size:** 0.5 mm

**Run dry:** yes

Catalog number	Max GPM	Max psi	Port size	Max temp	Wetted parts	Air inlet requirements			Dimensions (L x W x H)	Price
						Connection	psi	cfm		
KH-76200-00	2.6	73	1/2" NPT(M)	32 to 212°F (0 to 100°C)	PFA	1/4" NPT(F)	29 to 72	6 max	11 1/2" x 4" x 6 3/4"	
KH-76200-10	5.3		1" NPT(F)					8 max	12" x 6" x 9 1/2"	

### Accessories

**Cole-Parmer® filter regulators** help keep your pump system clean. Each is a one-stage filter regulator with 5 µm filter.

**KH-79160-00** Filter regulator, 1/4" NPT(F)

**KH-79160-40** Filter regulator, 1/2" NPT(F)

## Hygienic Air-Operated Double-Diaphragm Pumps

**EHEDG accredited for CIP food and beverage industry applications**

- Food grade elastomers made of EPDM
- Self-priming for emptying containers
- Accredited to EHEDG (European Hygienic Equipment Design Group) standards

Mount pumps on either the wall or surface. Fluids come into contact with only 316 SS polished body and EPDM food grade diaphragms, balls and seats. Pumps can handle viscosities of fluids that are flowable or pourable.

**What's included:** exhaust air silencer.

### Specifications & Ordering Information

**Suction lift:**

74009-00: 20 ft

74009-10, -20: 15 ft

**Air consumption:**

88 scfm

**Max media pressure:**

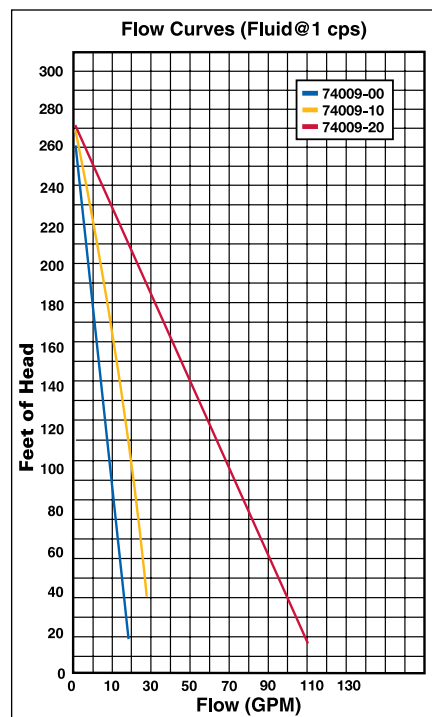
125 psi

**Viscosity:**

up to 11,000 cp

**Duty cycle:** continuous

**Run dry:** yes



74009-00



Catalog number	Max GPM	Max psi	Port size	Max particle size	Max temp	Wetted parts	Air inlet requirements		Dimensions (L x W x H)	Shpg wt lb (kg)	Price
							Connection	psi			
KH-74009-00	16	125	1" RJT*	0.07"	212°F (100°C)	316 SS, EPDM	1/4" BPS(F)	29 to 72	11 3/8" x 6 1/8" x 13 1/2"	27 (12.2)	
KH-74009-10	35		1" RJT*	0.20"			3/8" BSP(F)		16 1/4" x 8 3/4" x 17"	50 (22.5)	
KH-74009-20	125		2" RJT*	0.25"			3/4" BSP(F)		21" x 9" x 28"	168 (76)	

\*RJT= Ring Joint Type

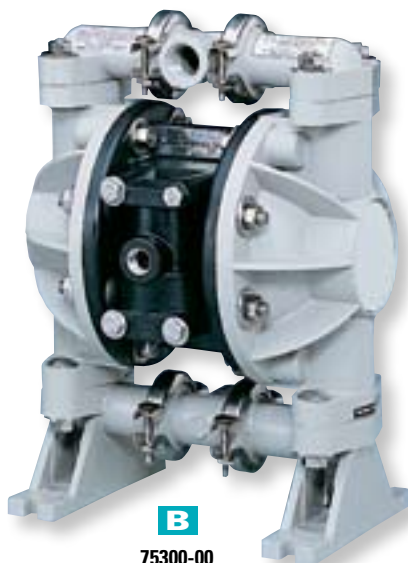
# Pu Pumps

Positive Displacement, Air-Powered



**A**

75320-60



**B**

75300-00

## Air-Powered Double Diaphragm Pumps

**Chemical-resistant pumps handle acids, lubricants, and viscous or abrasive liquids**

- Manifold design with dual, rotating inlet and outlet ports allows up to four inlet/outlet configurations—pump to two dispensing points or mix equal parts of two fluids
- Two-stage air valve—operation at low air flow rates and pressures
- Optional pulse dampener minimizes pulsation and pressure drops

### A Low-Flow Double Diaphragm Pumps

Transfer volatile or flammable fluids with acetal/stainless steel model 75320-80 and grounding strap model 75320-50. Order grounding strap 75320-50 under "Accessories" on facing page. An air filter/regulator is recommended for all low-flow pump models—order model 75300-92 below.

Optional service kits include replacement diaphragms, check balls, and O-rings of the diaphragm material.

### B High-Flow Double Diaphragm Pumps

Acetal/SS model 75300-40 includes a 25-ft grounding cable for safe transfer of volatile or flammable fluids. An air filter/regulator is recommended for all high-flow pumps—order model 75300-92 for 13-GPM pumps and model 75300-94 for 44- and 150-GPM pumps (below). See facing page to order pulse dampeners and other accessories.

Optional service kits include replacement diaphragms, check balls, and O-rings of the diaphragm material—order in table below.

### Air Filters/Regulators

Combination air filter/regulators feature polypropylene filter, 0 to 160 psi gauge, and a polycarbonate bowl. Temperature range is 0 to 125°F (–18 to 51°C).

**KH-75300-92 Air filter/regulator with 20-μm filter,**  
1/4" NPT(F) ports; 5 to 125 psi at 12 cfm

**KH-75300-94 Air filter/regulator with 40-μm filter,**  
3/8" NPT(F) ports; 5 to 125 psi at 13.5 cfm

**CE** **5** year warranty

## Specifications & Ordering Information

### Self-priming

Low-flow models: 20 ft  
High-flow models: 10 ft

Viscosity: 10,000 cp, maximum

Max discharge pressure: 100 psi

Duty cycle: continuous

Run dry: no

Catalog number	Max GPM	Max psi	Port size	Max particulates	Max temp	Wetted parts	Air inlet requirements			Dimensions (L x W x H)	Price	Service kits						
							Connection	psi	cfm			Cat. no.	Price					
A Low-flow double diaphragm pumps																		
KH-75320-60	5	100	¾" NPT(F)	0.8 mm	35 to 150°F (2 to 66°C)	PP/Santoprene®*	¼" NPT(F)	20 to 100	1 to 8	7⅝" x 5⅞" 5⅝"		KH-75320-62						
KH-75320-70				0.8 mm	PP/PTFE	KH-75320-72												
KH-75320-80				0.8 mm	10 to 180°F (−12 to 82°C)	Acetal/SS/PTFE						KH-75320-82						
B High-flow double diaphragm pumps																		
KH-75300-20	13	100	½" NPT(F)	2.4 mm	10 to 200°F (−12 to 93°C)	Kynar® PVDF/Neoprene	¼" NPT(F)	20 to 100	20 max	8" x 7½" 11¼"		KH-75300-50						
KH-75300-30					Kynar/PTFE									KH-75300-51				
KH-75300-00	13	100	½" NPT(F)	2.4 mm	10 to 150°F (−12 to 65°C)	PP/Neoprene	¼" NPT(F)	20 to 100	20 max	8" x 7½" x 11¼"		KH-75300-50						
KH-75300-02	44	120	1" flange	3.1 mm								PP/PTFE	½" NPT(F)	20 to 120	40 max	8" x 12½" x 15¾"		KH-75300-52
KH-75300-04	150	120	2" flange	0.8 mm		Acetal/SS/PTFE	½" NPT(F)	20 to 100	150 max	11½" x 19½" x 24⅝"								KH-75300-54
KH-75300-10	13	100	½" NPT(F)	2.4 mm								¼" NPT(F)	20 to 100	20 max	8" x 7½" x 11¼"		KH-75300-51	
KH-75300-12	44	120	1" flange	3.1 mm													½" NPT(F)	20 to 120
KH-75300-14	150	120	2" flange	6.4 mm								½" NPT(F)	20 to 100	150 max	11½" x 19½" x 24⅝"			
KH-75300-40	13	100	½" NPT(F)	2.4 mm	¼" NPT(F)	20 to 100	20 max	8" x 7½" x 11¼"		KH-75300-56								

\*Model 75320-60 has PTFE valves and Fluoraz® plastic O-rings.

## Positive Displacement, Air-Powered

## Flow curves for Air-Powered Double Diaphragm Pumps

Accessories for **A** Low-Flow Double Diaphragm Pumps**KH-75320-50** Grounding strap, 10 gauge; 25-ft long. Includes wire end attachments. For model 75320-80 only**KH-75320-52** Five-gallon drum cover, 304 SS with 1¼" OD opening. Includes mounting hardware**KH-75320-54** Fifty-five gallon drum adapter kit. Includes 2" NPT(M) bung adapter and mounting hardwareAccessories for **B** High-Flow Double Diaphragm Pumps**KH-75300-63** Air tamer kit for automatic air pressure adjustment. Steel with Buna N seals. Use with pulse dampeners**KH-75300-90** Fifty-five gallon drum adapter kit for 13- and 44-GPM models. Includes 2" NPT(M) bung adapter and mounting hardware

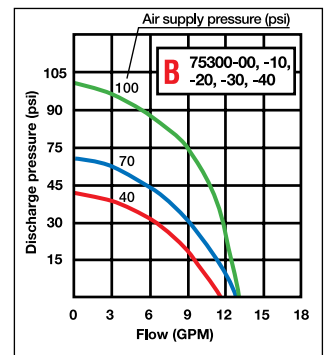
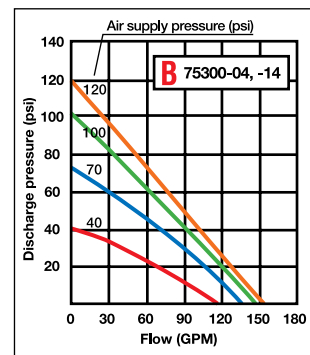
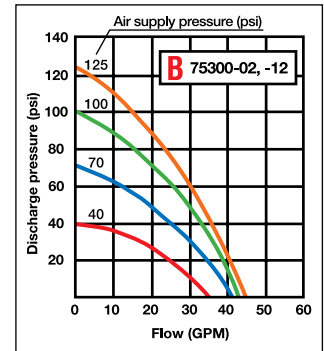
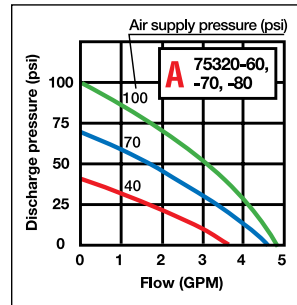
## Pulse Dampeners

Pulse dampeners minimize pulsation and pressure drops. Includes air pressure gauge, manual fill valve, pressure relief valve, and mounting bracket.

Catalog number	For pump model number	Description (body/diaphragm)	Price
<a href="#">KH-75300-62</a>	75300-20, -30	Kynar®/PTFE	
<a href="#">KH-75300-60</a>	75300-00, -02, -04	PP/Santoprene®	
<a href="#">KH-75300-61</a>	75300-10, -12, -14	PP/PTFE	
<a href="#">KH-75300-64</a>	75300-40	Acetal/SS	

## Flange Fittings and Gaskets

Polypropylene flange fittings			Neoprene gaskets		Viton® gaskets	
Cat. no.	NPT(F)	Price	Cat. no.	Price	Cat. no.	Price
<a href="#">KH-75310-00</a>	1"		<a href="#">KH-75310-10</a>		<a href="#">KH-75310-20</a>	
<a href="#">KH-75310-02</a>	2"		<a href="#">KH-75310-12</a>		<a href="#">KH-75310-22</a>	



## Air-Operated Powder Pumps

Transfer fine-grained (100 µm or finer), low bulk density dry powders in a dust-free environment

- Aluminum or 316 SS housings
- Patented non-lubricated, non-stalling air valve technology
- Compressed air induction system fluidizes all four check valves

Eliminate the need for unsafe and labor intensive augers and conveyors for moving bulk powders. These powder pumps are heavy duty and a more cost-effective method to move bulk solids effectively through your process. Pump particles that are 150 mesh (106 micron) or smaller. Pumps handle bulk densities up to 50 lb/ft³. Pumps can be located up to a maximum of 15 feet above the powder source.

**Note:** Pumps will convey at different distances depending upon the micron size and bulk density of the powder. Contact our Application Specialists for more information about conveying distances for specific materials.**What's included:** conduit box for hard-wiring.

74026-10



## Specifications &amp; Ordering Information

Suction lift: 15 ft (dry)			Duty cycle: continuous		Run dry: yes			Dimensions (L x W x H)	Shpg wt lb (kg)	Price
Catalog number	Max GPM	Port size*	Max particle size	Wetted parts	Air inlet requirements					
					Connection	Max psi	cfm			
Aluminum powder pumps										
<a href="#">KH-74026-00</a> <a href="#">KH-74026-05</a>	18	1½" flange/NPT(F)	⅜"	Aluminum, Santoprene®, EPDM Aluminum, PTFE	½" NPT(F)	70	90	16¼" x 12" x 27½"	84 (38.1)	
<a href="#">KH-74026-20</a> <a href="#">KH-74026-25</a>	26	2" flange/NPT(F)	⅝"	Aluminum, Santoprene, EPDM Aluminum, PTFE	¾" NPT(F)		105	18" x 13½" x 31"	111 (50.3)	
316 SS powder pumps										
<a href="#">KH-74026-10</a> <a href="#">KH-74026-15</a>	18	1½" flange	⅜"	316 SS, Santoprene, EPDM 316 SS, PTFE	½" NPT(F)	70	90	16¼" x 12" x 27½"	84 (38.1)	
<a href="#">KH-74026-30</a> <a href="#">KH-74026-35</a>	26	2" flange/NPT(F)	⅝"	316 SS, Santoprene, EPDM 316 SS, PTFE	¾" NPT(F)		105	18" x 13½" x 31"	111 (50.3)	

\*Port sizes that have both flange and NPT(F) sizes, an internal NPT(F) thread is on the flange fitting

# Pu Pumps

Positive Displacement, Diaphragm

## Dual- and Quad-Head Diaphragm Pumps

### 6, 12, or 24 VDC driven diaphragm pumps for liquid or gas applications

- Run pump heads as separate components or in series/parallel configurations
- Oil-free pumps—contamination free
- Entry port plate can be rotated in four different positions to accommodate any application

These compact multiple-head diaphragm pumps are an ideal option in locations where low current and high reliability are needed. Fluids do not come into contact with any metals—only silicone diaphragms and valves and polypropylene heads. Unique construction allows models 78182-40 and 78182-45 to be configured for simultaneous delivery of gas in two of its heads, and liquid in the other two heads.

**What's included:** 6" cable with stripped ends.



Dual-head  
fluid pump  
78182-00



Quad-head fluid pump  
78182-10

### Specifications & Ordering Information

**Self-priming:** yes    **Particulates:** no    **Duty cycle:** continuous    **Run dry:** yes    **Motor type:** brushless DC

Catalog number	Max flow (LPM)	Type	Max fluid psi	Port size	Max fluid temp	Wetted parts	Suction lift	Power	Dimensions (L x W x H)	Price
Dual-head diaphragm pumps										
<a href="#">KH-78182-00</a>	2.5 (in parallel) 1.6 (in series)	Fluid	7.1	¼" hose barb	176°F (80°C)	Silicone, polypropylene	16 ft (parallel) 9½ ft (series)	6 VDC	4⅝" x 4¼" x 1¾" (11 x 10.8 x 4.4 cm)	
<a href="#">KH-78182-05</a>	2.5 (in parallel) 1.6 (in series)	Fluid						12 VDC		
<a href="#">KH-78182-20</a>	15	Gas	11.6 (parallel) 29 (series)	¼" hose barb	176°F (80°C)	Silicone, polypropylene	15" Hg (parallel)	12 VDC		
<a href="#">KH-78182-25</a>	15	Gas					21" Hg (series)	24 VDC		
Quad-head diaphragm pumps										
<a href="#">KH-78182-10</a>	5 (in parallel)	Fluid	7.1	¼" hose barb	176°F (80°C)	Silicone, polypropylene	16 ft (parallel) 9½ ft (series)	6 VDC	5¾" x 4¼" x 1¾" (14.6 x 10.8 x 4.4 cm)	
<a href="#">KH-78182-15</a>	5 (in parallel) 3.2 (in series)	Fluid						12 VDC		
<a href="#">KH-78182-30</a>	30	Gas	11.6 (parallel) 29 (series)	¼" hose barb	176°F (80°C)	Silicone, polypropylene	15" Hg (parallel) 21" Hg (series)	12 VDC		
<a href="#">KH-78182-35</a>	30	Gas						24 VDC		
<a href="#">KH-78182-40</a>	Fluid: 2.5 (in parallel) 1.6 (in series) Gas: 7	Gas and fluid	Fluid: 7.1 Gas: 11.6 (parallel) 29 (series)	¼" hose barb	176°F (80°C)	Silicone, polypropylene	Gas: 15" Hg (parallel), 21" Hg (series) Liquid: 16 ft (parallel) 9½ ft (series)	6 VDC		
<a href="#">KH-78182-45</a>	Fluid: 2.5 (in parallel) 1.6 (in series) Gas: 7	Gas and fluid						12 VDC		

**GO to ColeParmer.com**

For flow curve information for pumps on this page, click on the Catalog Number and go to the "More Info" sidebar.

## Automatic-Demand Diaphragm Pumps

### Built-in pressure demand switch shuts pump off at maximum pressure

- Three-chamber design provides smooth, pulse-free flow
- Flexible diaphragm design allows pump to run dry without damage
- Compact—mount in any position

Model 75420-20 has an 80 psi internal bypass.

**What's included:** 115 VAC models include a 6-ft power cord; 12 VDC models have leads.



75420-10

### Specifications & Ordering Information

**Self-priming:** 75420-17, -10, -20: 8 ft; 75420-30, -37: 12 ft    **Particulates:** no    **Duty cycle:** intermittent    **Run dry:** yes    **CE** for 75420-17 and -37

Catalog number	Max flow (GPM)	Max psi	Port size	Max temp	Wetted parts			Power	Amps	Dimensions (L x W x H)	Price
					Body	Diaphragm	Valves				
<a href="#">KH-75420-10</a>	1.4	60	¾" NPT(F)	140°F (60°C)	Polypropylene	Santoprene®	Viton®	115 VAC, 60 Hz	0.70	8⅝" x 3⅜" x 4⅜"	
<a href="#">KH-75420-17</a>	1.8	60	¾" NPT(F)		Polypropylene			12 VDC	7.2	8⅝" x 3⅜" x 4⅜"	
<a href="#">KH-75420-20</a>	1.4	100	¾" NPT(F)		Nylon			115 VAC, 60 Hz	0.78	8⅝" x 3⅜" x 4⅜"	
<a href="#">KH-75420-30</a>	3.0	45	½" NPT(M)		Polypropylene			115 VAC, 60 Hz	0.70	8⅝" x 5" x 4½"	
<a href="#">KH-75420-37</a>	3.0	45	½" NPT(M)		Polypropylene			12 VDC	9.8	7⅞" x 5" x 4½"	

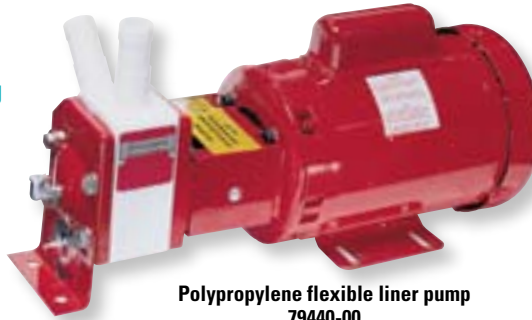
## Positive Displacement, Flexible Liner / Flexible Impeller

## Flexible Liner Pumps

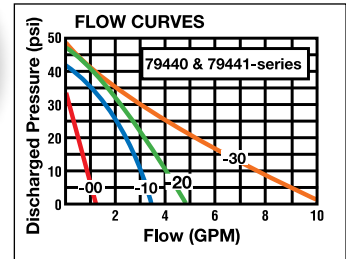
**Unique sealless design permits gentle pumping action that provides little churning or foaming**

- Transfer liquids containing up to 20% soft solids
- Sealless design with secondary containment system prevents potentially hazardous leakage
- Fixed-speed pumps are self-priming, reversible, and can run dry without damage

Polypropylene pumps have a Nordel® rubber liner; PTFE pumps have a Hypalon® rubber liner.



**Polypropylene flexible liner pump  
79440-00**



## Specifications &amp; Ordering Information

**Self-priming:** yes

**Suction lift:** 6 ft dry

**Viscosity:** medium

**Particulates:** yes

**Duty cycle:** continuous

**Run dry:** yes

Max GPM	Max psi	Hose barb	Motor specifications			Dimensions (L x W x H)	Polypropylene pumps			PTFE pumps		
			hp	Power	Amps		Cat. no.	Max temp	Price	Cat. no.	Max temp	Price
1	25	3/4"	1/4	115/230 VAC, 60 Hz	3.5	14 9/16" x 6 13/16" x 8 1/8"	<a href="#">KH-79440-00</a>	185°F (85°C)		<a href="#">KH-79441-00</a>	210°F (99°C)	
3	40	3/4"	1/4		3.5	14 9/16" x 6 13/16" x 8 1/8"	<a href="#">KH-79440-10</a>			<a href="#">KH-79441-10</a>		
5	45	1"	1/4		3.5	14 9/16" x 6 13/16" x 8 1/8"	<a href="#">KH-79440-20</a>			<a href="#">KH-79441-20</a>		
10	50	1 1/4"	1/2		7.0	14 5/32" x 7 3/16" x 8 1/8"	<a href="#">KH-79440-30</a>			<a href="#">KH-79441-30</a>		

\*1 1/4" suction, 1" discharge

[KH-79440-90](#) Silicone oil for periodic lubrication, one pint

## Sanitary Flexible Impeller Pumps

**Self-priming flexible impeller pumps provide sanitary conditions for pumping fluids in the food, cosmetic or pharmaceutical industries**

- 316 SS body, cover and shaft
- Low-shear for delicate products
- Pumps conform to FDA and USDA standards

Transfer, sample, fill, empty and mix liquids in production and processes for foods, sauces, milk, cheeses, shampoos, toothpaste, creams, lotions, soft drinks and syrups. Pumps are self-priming up to 20 feet at 1 cp rating. Other impeller material options are available, please call our Application Specialists to order.

**What's included:** conduit box for hard-wiring.



**75202-00**

**New**



## Specifications &amp; Ordering Information

**Self-priming:** yes    **Viscosity:** 15,000 cp    **Particulates:** yes    **Duty cycle:** continuous    **Run dry:** no

Catalog number	Max GPM	Max psi	Port size	Max temp	Wetted parts	Motor specifications (60 Hz)					Dimensions (L x W x H)	Shpg wt lb (kg)	Price
						hp	Type <sup>1</sup>	Power	Amps	Phase	Speed		
<a href="#">KH-75202-00</a>	10	30	1" Tri-Clamp®	194°F (90°C)	316 SS, carbon vs. ceramic with food-grade Nitrile elastomers	1	WSDN	115/230 VAC	8.5/4.25	1	1750 rpm	16" x 9" x 9"	41 (18.6)
<a href="#">KH-75202-10</a>	10		1" Tri-Clamp			1		230/460 VAC	2.8/1.4	3		16" x 9" x 9"	40 (18.1)
<a href="#">KH-75202-30</a>	50		1 1/2" Tri-Clamp			5		230/460 VAC	13/6.5	3		22" x 11" x 9"	98 (44.5)
<a href="#">KH-75202-40</a>	100		2" Tri-Clamp			5		230/460 VAC	13/6.5	3		36" x 12" x 11"	122 (55.3)

<sup>1</sup>WSDN = Washdown

## Low-Flow Flexible Impeller Pumps

**Ideal for gas-laden fluid transfer applications**

- Thermal overload protection prevents motor damage
- Model 75421-03 has built-in reverse switch that allows pump to empty or fill tanks without disconnecting hoses
- The 12 VDC models are ideal for battery-operation and portable applications

**What's included:** Model 75421-00 includes a 6-ft power cord; model 75421-03 includes 8-ft battery cables; model 75421-06 includes 6" leads.

## Specifications &amp; Ordering Information

**Self-priming:** 7 1/2 ft    **Particulates:** no    **Duty cycle:** intermittent    **Run dry:** no

Catalog number	Max flow (GPM)	Max psi	Port size	Max temp	Wetted parts			Motor			Dimensions (L x W x H)	Price
					Body	Impeller	Lip seal	hp	Power	Amps		
<a href="#">KH-75421-00</a>	3.8	10	¾" NPT(F); ¾" GHT(M) <sup>†</sup>	185°F (85°C)	30% glass-filled polyester	Buna N	Buna N	1/20	120 VAC, 60 Hz	0.77	6" x 4½" x 4¼"	
<a href="#">KH-75421-03</a>									12 VDC	5.3		
<a href="#">KH-75421-06</a>									12 VDC	7.4		

<sup>†</sup>Pumps include a 3/4" GHT (garden hose thread) outside of the 3/8" NPT(F) on both the inlet and outlet ports.



**75421-00**

# Pu Pumps

Positive Displacement, Diaphragm / Flexible Impeller

## All-Plastic Double-Diaphragm Pumps

No metal wetted parts permit use with corrosive liquids

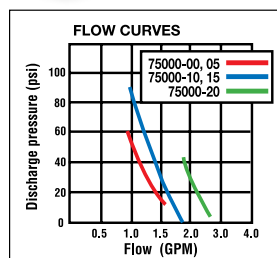
- Factory-set pressure limits protect pumps from damage

### Multiposition Pumps

Pump head rotates and mounts in 90° increments—position ports in one of four orientations to simplify installation. Model 75000-20 has a four-chamber design for higher flow rates and smoother flow. Order optional inlet filter below to filter particulates. 115 VAC models have a 6-ft power cord with three-prong plug.



75000-00



### Specifications

Suction lift: 6 ft

Viscosity: light

Particulates: 50 µm max

Valve material

Models 75000-00, -05: Santoprene®

Models 75000-10, -15, -20: EPDM

Duty cycle: intermittent

Run dry: yes

### Continuous-Duty Pump

Multi-chambered pump offers efficient transfer of mild acids, bases, and light oils. Thermal overload protected, permanent-magnet motor.

**What's included:** 6-ft power cord with three-prong plug.



75102-00

### Specifications

Suction lift: 10 ft dry

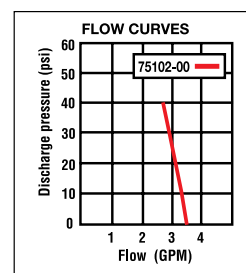
Viscosity: 250 cp max

Particulates: 1 mm max

Valve material: nitrile

Duty cycle: continuous

Run dry: yes



Catalog number	Max flow (GPM)	psi limits*		Port size	Max temp	Wetted materials		Motor (50/60 Hz)			Dimensions (L x W x H)	Price
		Max	Min			Body	Diaphragm	Type¹	Power	Amps		
Multiposition pumps												
KH-75000-00	1.85	60	40	¾" NPT(F)	160°F (71°C)	PP	Santoprene®	TENV	115 VAC	0.55	7¼" x 4" x 3¾"	
KH-75000-05									230 VAC	0.25		
KH-75000-10	1.87	95	70	¼" NPT(F)	200°F (93°C)	Nylon	EPDM	TEFC	115 VAC	1.20	8⅞" x 4" x 3½"	
KH-75000-15									230 VAC	0.75		
KH-75000-20	3.50	45	30	½" hose barb	150°F (65°C)	PP	Santoprene	TEFC	115 VAC	1.50	10" x 6" x 3¾"	
Continuous-duty pump												
KH-75102-00	3.50	40	20	½" hose barb	175°F (79°C)	PP	Santoprene	TEFC	115 VAC	1.8	11⅛" x 5⅞" x 5⅝"	

\*Factory pressure switch settings. TENV = totally enclosed, nonventilated TEFC = totally enclosed, fan cooled

**KH-75000-51 Inlet filter/strainer,** 1/2" hose barb connections; 20 to 30 mesh. FDA-approved polypropylene body/polyester bowl for multiposition pumps

**KH-75102-52 Repl. diaphragm** for continuous-duty pump

**KH-75102-53 Repl. valve kit** for continuous-duty pump

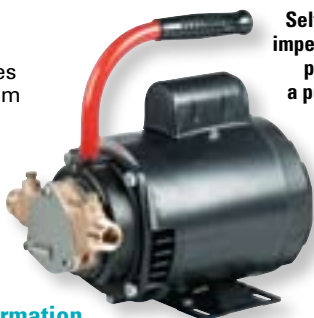
## Closed-Coupled Flexible Impeller Pumps

Ideal for gas-laden fluids, mild abrasives, and shear-sensitive or viscous fluids

### Bronze Pumps

Counter-balanced handle provides easy portability. Transfer petroleum based oils, silicone greases, and hydraulic fluids. Use as a sump pump, to recycle coolants or to empty barrels.

70610-00



Self-priming impeller pumps produce a pulse-free flow.

### 316 Stainless Steel (SS) Pumps

Low-profile PTFE-coated wear plates extend pump life. The concave 316 SS manifold protects pump from damage due to intermittent dry running. This pump is ideal for transferring mild acids, cosmetics, and for nonsanitary applications.

70609-00



### Specifications & Ordering Information

Suction lift: 7 ft (dry); 15 ft (wet)			Viscosity: 500 cp		Duty cycle: continuous		Run dry: no					
Catalog number	Max flow (GPM)	Max psi	Port size	Max temp	Wetted parts	Motor specifications					Dimensions (L x W x H)	Price
						hp	Type*	Power	Amps	Speed		
Bronze flexible impeller pumps												
KH-70610-00	7.4	25	½" NPT(M)	120°F (49°C)	Nitrile impeller, seal and O-ring, and SS shaft, cover, and wear plates	⅓	ODP	115/230 VAC, 60 Hz	7.2/3.6	1725 rpm	10½" x 6¾" x 11"	
KH-70610-10	11.6		¾" NPT(M)			½				1725 rpm	10¾" x 6⅝" x 11"	
KH-70610-20	19.4		¾" NPT(M)			¾				3450 rpm	10¾" x 6⅝" x 11"	
KH-70610-30	21.2		1" NPT(M)			¾				1725 rpm	11⅝" x 5⅞" x 11"	
316 stainless steel flexible impeller pumps												
KH-70609-00	7.4	25	¾" NPT(F)	120°F (49°C)	Nitrile impeller, Viton® seal and O-ring, and PTFE-coated SS wear plates	¾	TEFC	115/230 VAC, 60 Hz	11.0/5.5	1725 rpm	13½" x 7½" x 9"	
KH-70609-10	11.6		1" NPT(F)			1				1725 rpm	13¾" x 7½" x 9"	
KH-70609-20	21.2		1¼" NPT(F)			1½				1725 rpm	14⅝" x 7½" x 9"	

## Sanitary Wash-Down Rotary Lobe Pumps

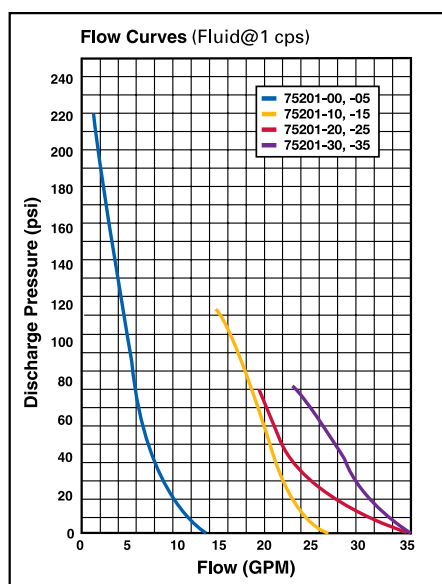
### Low maintenance rotary lobe pumps conform to 3A Sanitary Standards

- Front mounted shaft seals are fully accessible from the front of the pump for easy replacement without disturbing piping in the process line
- Bi-wing rotors require no timing adjustments and provide a high volumetric efficiency
- Rugged design incorporates heavy-duty shafts for high-pressure capability

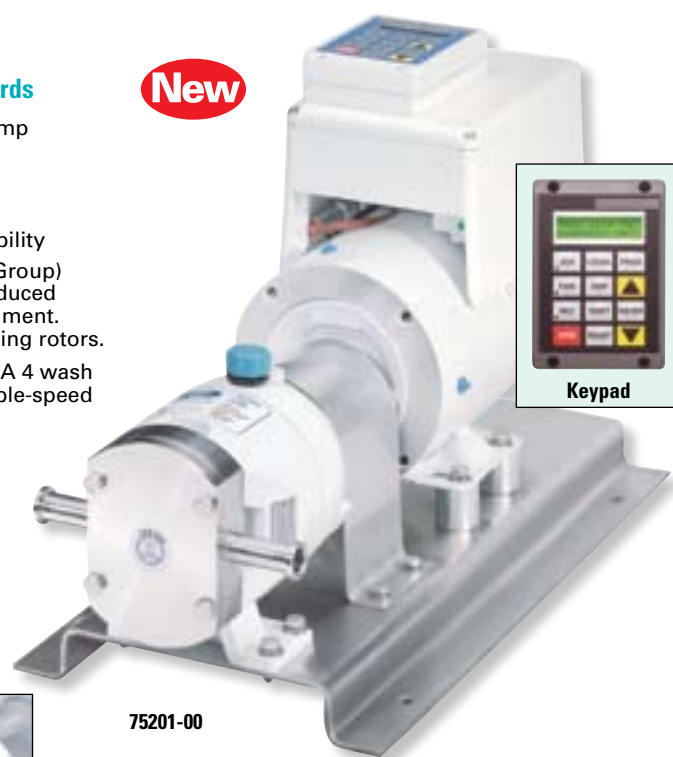
Pumps are approved to EHEDG (European Hygienic Equipment Design Group) and CIP/SIP standards. Remove pump casing for quick maintenance. Reduced noise and cavitation provide for a safe and comfortable working environment. Risk of particles being shed into fluid stream is reduced with noncontacting rotors.

Mount pump heads either vertically or horizontally. Pumps include NEMA 4 wash down motors and NEMA 4 wash down variable-speed controllers. Variable-speed operation is digital and via a keypad mounted to the motor.

**What's included:** hard-wired conduit box



Displacement chamber is easily accessed for inspection and maintenance.



75201-00



Call our Application Specialists to request rotary lobe pumps with different port sizes, viscosity ranges, and wetted materials.

**847-549-7600**

### Specifications & Ordering Information



**Viscosity:** up to 10,000 cp<sup>†</sup>

**Run dry:** no

**Duty cycle:** continuous

Catalog number	Max GPM	Max psi	Port size (Tri-Clamp®)	Max temp	Wetted parts*	Motor						Dimensions (L x W x H)	Shpg wt lb (kg)	Price
						hp	Type	Power	Amps	Phase	Speed			
KH-75201-00 KH-75201-02 KH-75201-05 KH-75201-07	13	220	3/4"	284°F (140°C)	316 SS, carbon vs. 316SS with food-grade Nitrile elastomers	1	WSDN <sup>†</sup>	115 VAC 230 VAC	8.5 4.25	1 3	1750 rpm	23" x 11" x 16"	63 (28.6)	
								230 VAC 460 VAC	2.8 1.4					
						2		115 VAC 230 VAC	17.6 8.8	1 3				
								230 VAC 460 VAC	5.4 2.7					
KH-75201-10 KH-75201-12 KH-75201-15 KH-75201-17 KH-75201-20 KH-75201-22	26	115	1"			2		115 VAC 230 VAC	17.6 8.8	1 3		26" x 11" x 17"	72 (32.7)	
								230 VAC 460 VAC	5.4 2.7					
						2		115 VAC 230 VAC	17.6 8.8	1 3				
								230 VAC 460 VAC	5.4 2.7					
KH-75201-25 KH-75201-27 KH-75201-30 KH-75201-32 KH-75201-35 KH-75201-37	36	225	1"			2		115 VAC 230 VAC	23.6 11.8	1 3		26" x 11" x 17"	94 (42.6)	
								230 VAC 460 VAC	8.2 4.1					
						3		115 VAC 230 VAC	23.6 11.8	1 3				
								230 VAC 460 VAC	8.2 4.1					

\*Other wetted materials available, please call our Application Specialists for selections.

<sup>†</sup>For pumps with higher viscosity ratings, please call our Application Specialists.

<sup>†</sup>WSDN = Washdown

# Pu Pumps

Positive Displacement, Progressing Cavity

## Moyno® Progressing Cavity Pumps and Pump Heads

Large pump cavity is ideal for use with high-viscosity and particulate-laden fluids

- Deliver repeatable, pulseless flow with no variation in fluid volume or velocity
- No valves, pistons or gears to wear out

Service kits include a replacement stator and shaft seal of the same material as the pump stator. For added versatility and chemical compatibility, replace the nitrile stator and shaft seal with a fluoropolymer (FPM) stator and shaft seal included in the optional retrofit kits—see ordering information tables below.



Motorized pump 75400-06 includes phenolic pump head.

**GO to ColeParmer.com**

For flow curve information for pumps on this page, click on the Catalog Number and go to the "More Info" sidebar.

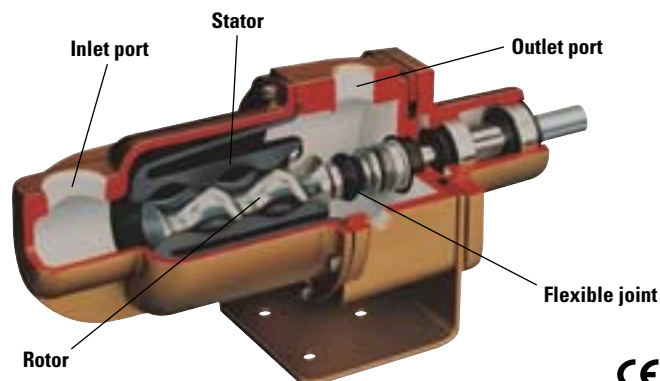
### Technical info

The flow rates in the ordering tables below specify the flow of water (GPM) at 1750 rpm. To determine the flow rate for more viscous or abrasive fluids, enter this value and the maximum recommended speed (max rpm) for your fluid in the following equation.

$$\text{Flow rate your fluid} = \frac{\text{GPM water at 1750 rpm (see the flow range in ordering table)} \times \text{max rpm your fluid (see viscosity table directly below)}}{1750 \text{ rpm}}$$

Viscosity (cp)	Max rpm	Abrasion
100 to 300	1400	Light (contaminated or dirty water)
300 to 500	1200	
500 to 1000	950	Medium (clay and gypsum slurries)
1000 to 2000	700	
2000 to 5000	350	
5000 to 10,000	180	Heavy (heavy slurries, emery dust, and lapping compound)
10,000 to 20,000	100	

**Note:** For fluids with low viscosity but heavy abrasion, use the lowest rpm.



### Specifications & Ordering Information

Self-priming: no

Suction lift: 25 ft, wet

Viscosity: 20,000 cp max

Max particle size: 1/8"

Max temperature:

Nitrile stator: 160°F (71°C)

FPM stator: 240°F (116°C)

Duty cycle: continuous

Run dry: no

**Motorized Moyno Pumps** include a 1/8-hp ODP motor (1750 rpm) and an 8-ft cord with grounded plug.

Catalog number	Max* GPM	Max psi	Port size <sup>†</sup>		Wetted parts <sup>†</sup>				Price	Service kits		Retrofit kits	
			Inlet	Outlet	Housing	Rotor	Seal	Stator		Cat. no.	Price	Cat. no.	Price
115 VAC, 50/60 Hz, 2.3 A													
<a href="#">KH-75400-06</a>	0.5 to 0.75	40	5/8"	5/8"	Phenolic	Phenolic	Ceramic	Nitrile		<a href="#">KH-75400-61</a>		<a href="#">KH-75400-71</a>	
<a href="#">KH-75400-08</a>			3/8"	1/4"	316 SS	316 SS				<a href="#">KH-75400-61</a>		<a href="#">KH-75400-71</a>	
<a href="#">KH-75400-16</a>	0.96 to 1.5	40	5/8"	5/8"	Phenolic	Phenolic	Ceramic	Nitrile		<a href="#">KH-75400-63</a>		<a href="#">KH-75400-73</a>	
<a href="#">KH-75400-18</a>			3/8"	1/4"	316 SS	316 SS				<a href="#">KH-75400-63</a>		<a href="#">KH-75400-73</a>	
230 VAC, 50/60 Hz, 1.2 A													
<a href="#">KH-75400-07</a>	0.5 to 0.75	40	5/8"	5/8"	Phenolic	Phenolic	Ceramic	Nitrile		<a href="#">KH-75400-61</a>		<a href="#">KH-75400-71</a>	
<a href="#">KH-75400-09</a>			3/8"	1/4"	316 SS	316 SS				<a href="#">KH-75400-61</a>		<a href="#">KH-75400-71</a>	
<a href="#">KH-75400-17</a>	0.96 to 1.5	40	5/8"	5/8"	Phenolic	Phenolic	Ceramic	Nitrile		<a href="#">KH-75400-63</a>		<a href="#">KH-75400-73</a>	
<a href="#">KH-75400-19</a>			3/8"	1/4"	316 SS	316 SS				<a href="#">KH-75400-63</a>		<a href="#">KH-75400-73</a>	

**Moyno Pump Heads** require a 56 C motor (1750 rpm max)—order motors and coupling hardware separately from pages 1007–1010.

Catalog number	Max* GPM	Max psi	Port size <sup>†</sup>		Wetted parts <sup>†</sup>				Req'd hp	Shaft dimensions		Price	Service kits		Retrofit kits	
			Inlet	Outlet	Housing	Rotor	Seal	Stator		Dia	Centerline		Cat. no.	Price	Cat. no.	Price
<a href="#">KH-75400-00</a>	0.5 to 0.75	40	3/8"	3/8"	316 SS	316 SS	Ceramic	Nitrile	0.08	1/2"	2"		<a href="#">KH-75400-60</a>		<a href="#">KH-75400-70</a>	
<a href="#">KH-75400-10</a>													<a href="#">KH-75400-62</a>		<a href="#">KH-75400-72</a>	
<a href="#">KH-75400-20</a>	2.2 to 4.7	100	3/4"	3/4"	316 SS	316 SS/CP	Ceramic	Nitrile	0.5	5/8"	2 3/4"		<a href="#">KH-75400-64</a>		<a href="#">KH-75400-74</a>	
<a href="#">KH-75400-22</a>													<a href="#">KH-75400-64</a>		<a href="#">KH-75400-74</a>	
<a href="#">KH-75400-30</a>	3.2 to 5.1	40	3/8"	3/8"	316 SS	316 SS/CP	Ceramic	Nitrile	0.3	1/2"	2"		<a href="#">KH-75400-65</a>		<a href="#">KH-75400-75</a>	
<a href="#">KH-75400-34</a>													<a href="#">KH-75400-65</a>		<a href="#">KH-75400-75</a>	
<a href="#">KH-75400-40</a>	4.4 to 9.4	50	3/4"	3/4"	316 SS	316 SS/CP	Ceramic	Nitrile	0.5	5/8"	2 3/4"		<a href="#">KH-75400-66</a>		<a href="#">KH-75400-76</a>	
<a href="#">KH-75400-42</a>													<a href="#">KH-75400-66</a>		<a href="#">KH-75400-76</a>	
<a href="#">KH-75400-56</a>	9.2 to 13.0	25	1"	1"	Phenolic	Phenolic	Ceramic	FPM	0.5	5/8"	3 1/2"		<a href="#">KH-75400-80</a>		—	—
<a href="#">KH-75400-57</a>													<a href="#">KH-75400-81</a>		—	—

\*Max GPM listed is for water at 1750 rpm. To compute flow rates of more viscous liquids, see viscosity data under "Technical Info" above.

<sup>†</sup>Phenolic pumps have hose barb ports; all other pumps have NPT(F) ports.

<sup>†</sup>SS = stainless steel; SS/CP = chrome-plated stainless steel; FPM = fluoropolymer

## Seepex® Variable-Speed Progressing Cavity Pump Heads and Pumps

**New**

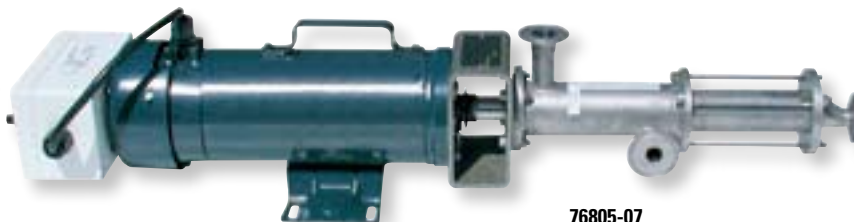
### Excellent chemical resistance, pulseless flow, and low shear

- Gentle low-shear fluid transfer capable of pumping small particles without damaging product
- Pumps can handle a variety of polymers and chemicals—ideal for pharmaceutical and water treatment applications
- Sanitary models approved for 3A sanitary applications and can be cleaned in place

**A** Pump heads can be mounted on a NEMA 56C frame motor. Pump heads can also be directly connected to or belt driven by an AC or DC motor, gasoline engine (minimum 2 hp), or air motor. Order motors separately from pages 1007–1010.

**B** Pumps are close-coupled to a DC motor with an integral SCR controller. The SCR controller features a “hands-off-auto” switch, providing speeds from 30 to 600 rpm.

**C** Pumps feature a ½-hp motor with 230/460 VAC input power. This configuration has a mechanical variable-speed drive that adjusts from 0 to 1000 rpm.



76805-07  
Sanitary model with controller



76805-02  
Industrial model with controller



Call our Application Specialists for information on additional elastomers available.  
**847-549-7600**

### Specifications & Ordering Information

**Max viscosity:** 40,000 cp

**Suction lift:** 9 ft of H<sub>2</sub>O

**Max temperature:** 200°F (93°C)

#### Wetted parts

Industrial pumps: 316 stainless steel with Buna N, nitrile elastomers

Sanitary pumps: 316 stainless steel with Therban®, hydrogenated Buna N elastomers

#### Port sizes

Industrial pumps: 1" NPT inlet, ½" NPT discharge

Sanitary pumps: 1" Tri-Clamp® inlet, ¾" Tri-Clamp discharge

ISO 9001:2000  
SUPPLIER CERTIFIED

CIP  
Clean In Place

A3  
Sanitary models

Flow (GPH)	Max psi	Industrial models		Sanitary models	
		Catalog number	Price	Catalog number	Price
A Pump heads for NEMA 56C frame motor, 30 to 1800 rpm					
0.05 to 7	360	<a href="#">KH-76805-00</a>		<a href="#">KH-76805-05</a>	
0.18 to 17	360	<a href="#">KH-76805-10</a>		<a href="#">KH-76805-15</a>	
0.34 to 37	180	<a href="#">KH-76805-20</a>		<a href="#">KH-76805-25</a>	
0.7 to 78	180	<a href="#">KH-76805-30</a>		<a href="#">KH-76805-35</a>	
1.23 to 156	180	<a href="#">KH-76805-40</a>		<a href="#">KH-76805-45</a>	
2.5 to 451	90	<a href="#">KH-76805-50</a>		<a href="#">KH-76805-55</a>	
2.5 to 451	180	<a href="#">KH-76805-60</a>		<a href="#">KH-76805-65</a>	
3.7 to 831	90	<a href="#">KH-76805-70</a>		<a href="#">KH-76805-75</a>	
B Pumps with DC motor and integral SCR controller, 30 to 600 rpm					
0.05 to 3.4	360	<a href="#">KH-76805-02</a>		<a href="#">KH-76805-07</a>	
0.18 to 8.5	360	<a href="#">KH-76805-12</a>		<a href="#">KH-76805-17</a>	
0.34 to 8.5	180	<a href="#">KH-76805-22</a>		<a href="#">KH-76805-27</a>	
0.7 to 39	180	<a href="#">KH-76805-32</a>		<a href="#">KH-76805-37</a>	
1.23 to 78	180	<a href="#">KH-76805-42</a>		<a href="#">KH-76805-47</a>	
2.5 to 226	90	<a href="#">KH-76805-52</a>		<a href="#">KH-76805-57</a>	
2.5 to 226	180	<a href="#">KH-76805-62</a>		<a href="#">KH-76805-67</a>	
3.7 to 416	90	<a href="#">KH-76805-72</a>		<a href="#">KH-76805-77</a>	
C Pumps with ½-hp AC motor, 0 to 1000 rpm					
0 to 5.6	360	<a href="#">KH-76805-04</a>		<a href="#">KH-76805-09</a>	
0 to 14	360	<a href="#">KH-76805-14</a>		<a href="#">KH-76805-19</a>	
0 to 31	180	<a href="#">KH-76805-24</a>		<a href="#">KH-76805-29</a>	
0 to 65	180	<a href="#">KH-76805-34</a>		<a href="#">KH-76805-39</a>	
0 to 130	180	<a href="#">KH-76805-44</a>		<a href="#">KH-76805-49</a>	
0 to 376	90	<a href="#">KH-76805-54</a>		<a href="#">KH-76805-59</a>	
0 to 376	180	<a href="#">KH-76805-64</a>		<a href="#">KH-76805-69</a>	
0 to 693	90	<a href="#">KH-76805-74</a>		<a href="#">KH-76805-79</a>	

\*ODP = Open drip-proof; TEFC = Totally enclosed, fan-cooled.

# PU Pumps

Positive Displacement, Plunger

## High-Pressure Triplex Plunger Pump Heads



75432-00

### Generate discharge pressures up to 2000 psi

- Forged brass manifold with an exclusive lifetime warranty
- Excellent for cleaning, reverse osmosis, and misting applications
- Dual inlet and outlet ports for maximum flexibility

These low-flow plunger pump heads are able to couple directly to any 56 C-face motor (see pages 1007–1010 for motors). Solid ceramic plungers with continuously lubricated packings are included. Enhance cleaning capabilities with a stainless steel spray gun, stainless steel lance, and various spray nozzles; order under "Accessories" below.

We also offer low- and moderate-flow belt-driven plunger pump heads to operate with a 9- to 13-hp gas engine. They feature discharge pressures up to 3600 psi, long-life seals, and a thermal shock-resistant plunger design. For complete details and ordering information, go to our Web site at [www.coleparmer.com](http://www.coleparmer.com).

**LIFETIME WARRANTY**

### Specifications & Ordering Information

Catalog number	Max GPM	Max pressure psi (bar)	Port size		Max temp	Wetted parts	Motor specifications*				Dimensions (L x W x H)	Price
			Inlet	Outlet			hp	Type	Power	Speed		
<a href="#">KH-75432-00</a>	0.5	1500 (102)	3/8" BSP(F)	1/4" BSP(F)	165°F (74°C)	Brass	1/2	56 C-face	115/230 VAC	1750 rpm	7" x 7 1/4" x 5 1/2"	
<a href="#">KH-75432-10</a>	2.1	2000 (136)					3			3400 rpm		
<a href="#">KH-75432-20</a>	2.11	1500 (102)					2			1750 rpm		
<a href="#">KH-75432-30</a>	2.11	1500 (102)					2			3400 rpm		
<a href="#">KH-75432-40</a>	2.8	2000 (136)					4			3400 rpm		
<a href="#">KH-75432-50</a>	2.8	1500 (102)					3			3400 rpm		
<a href="#">KH-75432-60</a>	3.0	1500 (102)					3			1750 rpm		

\*These are motor specifications required for motor or engine to be used. Motors and engines are not included.

### Accessories

#### [KH-98515-15](#) SS spray gun;

10.5 GPM, 4050 psi, 3/8" NPT(F) inlet, 1/4" NPT(F) outlet

#### [KH-98515-50](#) SS lance; for spray gun 98515-15,

1/4" NPT(M) inlet and outlet, 40" L

#### [KH-98515-64](#) SS coupler; connects lance and spray nozzle

#### [KH-98515-52](#) SS spray nozzle; 0 degree, 035 orifice<sup>†</sup>

#### [KH-98515-54](#) SS spray nozzle; 15 degrees, 035 orifice<sup>†</sup>

#### [KH-98515-56](#) SS spray nozzle; 40 degrees, 035 orifice<sup>†</sup>

#### [KH-98515-58](#) SS spray nozzle; 0 degree, 045 orifice<sup>†</sup>

#### [KH-98515-60](#) SS spray nozzle; 15 degrees, 045 orifice<sup>†</sup>

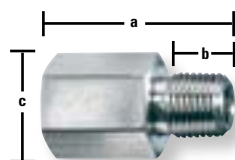
#### [KH-98515-62](#) SS spray nozzle; 40 degrees, 045 orifice<sup>†</sup>

<sup>†</sup>Use 035 orifice for pressures <2000 psi and 3 GPM; 045 for >2000 psi and 3 GPM.

## British Standard Pipe (BSP) Adapters

### To convert NPT-threaded systems to BSP threads

Use BSP taper (BSPT) fittings for connections where pressure-tight joints are made on the thread, or BSP parallel (BSPP) fittings where pressure-tight joints are not made on the thread (as in connections with peripheral seals). Both stainless steel (SS) and brass fittings are available.



31830-01



31830-11

**New**

### Specifications & Ordering Information

Catalog number	Thread size	Material	Working pressure psi (bar)	Dimensions			Price
				a	b	c	
A NPT(F) x BSPT(M) adapters							
<a href="#">EK-31830-01</a> <a href="#">EK-31834-01</a>	1/4"	SS Brass	6200 (422)	1 3/8"	9/16"	3/4"	
<a href="#">EK-31830-02</a> <a href="#">EK-31834-02</a>	3/8"	SS Brass	5000 (340)	1 1/2"	9/16"	7/8"	
<a href="#">EK-31830-03</a> <a href="#">EK-31834-03</a>	1/2"	SS Brass	4600 (313)	1 15/16"	3/4"	1 1/16"	
<a href="#">EK-31830-04</a> <a href="#">EK-31834-04</a>	3/4"	SS Brass	4300 (293)	2"	3/4"	1 5/16"	
B NPT(F) x BSPP(M) adapters							
<a href="#">EK-31830-11</a> <a href="#">EK-31834-11</a>	1/4"	SS Brass	6200 (422)	1 15/16"	7/16"	3/4"	
<a href="#">EK-31830-12</a> <a href="#">EK-31834-12</a>	3/8"	SS Brass	5000 (340)	1 7/16"	7/16"	7/8"	
<a href="#">EK-31830-13</a> <a href="#">EK-31834-13</a>	1/2"	SS Brass	4600 (313)	1 3/4"	9/16"	1 1/16"	
<a href="#">EK-31830-14</a> <a href="#">EK-31834-14</a>	3/4"	SS Brass	4300 (293)	2"	5/8"	1 5/16"	

## Industrial Pressure Washers

**Simply supply tap water, and high-pressure water is immediately available!**

- Feature adjustable pressure and variable spray patterns
- Ideal anywhere high-flow, high-pressure cleaning and sanitizing is needed

All models feature chemical injection and either mechanical or electrical thermal relief. The pumps are designed with ceramic plungers with replaceable stainless steel valves, forged crankshafts, and roller bearings in an oil bath lubrication.

**A Compact Pressure Washer** features a carrying handle that makes pump portable and ideal for field use. Pump features downstream chemical injection through chemical feed hose and easy-to-clean mesh inlet water filter to protect pump from damage. The insulated wand has a 0 to 60° spray pattern with high-low adjustments. Motor is protected by a ground fault circuit interrupter for operator safety.

**What's included:** an insulated wand with trigger gun, 26-ft pressure hose with twist-fast couplers and standard garden hose connections, and a 15-ft power cord.

**B High-Temperature Wall-Mount Pressure Washers** are convenient where hot tap water is available, eliminating the need for large, expensive hot water pressure washers with burners. Washers handle water temperature up to 180°F (82°C). The insulated wand uses five interchangeable tips including 0°, 15°, 25°, 40° pressure nozzles, and a 40° soap nozzle. Pressure washers feature downstream chemical injection through chemical feed hose, heavy-duty powder-coated steel tube frame that won't rust or fade, and easy-to-clean mesh inlet water filter to protect pump from damage. Motor is protected by a ground fault circuit interrupter for operator safety.

**What's included:** insulated wand with trigger gun, five interchangeable tips, 40-ft pressure hose with swivel to prevent tangling, and a 35-ft power cord.

**C Gasoline-Powered, Cart-Style Pressure Washers** allows for better mobility. All models have a built-in 2½-gallon chemical tank. The insulated wand has a 0 to 60° spray pattern with high-low adjustments. Engines feature a low tone muffler for quiet operation and a dual element air cleaner for engine durability. An oil sight glass is included for easy checking of oil level. Pressure washers also feature a heavy-duty powder-coated steel tube frame that won't rust or fade and an easy-to-clean mesh inlet water filter to protect pump from damage.

**What's included:** insulated wand with trigger gun, pressure gauge, 40-ft, ¾" rubber hose with swivel to prevent tangling.



**A**  
79900-00



**B**  
79900-80



**C**  
79901-20



Models 79901-15,  
and -25 only

### Specifications & Ordering Information

Catalog number	Max flow rate		Max pressure psi (bar)	Thermal relief type	Motor		Power	Dimensions (L x W x H)	Shpg wt lb (kg)	Price
	GPM	LPM			hp	type				
A Compact pressure washer										
<a href="#">KH-79900-00</a>	2.0	7.6	1450 (99)	Mechanical	2	Electric	120 VAC, 60 Hz, 20 amps	18" x 12" x 11"	68 (30.8)	
B High-temperature wall-mount pressure washers										
<a href="#">KH-79900-80</a>	2.2	8.3	1000 (68)	Electrical	1½	Electric	120 VAC, 60 Hz, 15 amps	28" x 22" x 30"	115 (52.2)	
<a href="#">KH-79900-90</a>	3.0	11.4	1500 (102)	Mechanical	3		230 VAC, 60 Hz, 20 amps	28" x 22" x 30"	125 (52.2)	
C Gasoline-powered cart-style pressure washers										
<a href="#">KH-79901-00</a>	3.0	12	1500 (102)	Mechanical	5	Briggs & Stratton®	Unleaded gasoline	33" x 20½" x 28"	95 (43.1)	
<a href="#">KH-79901-10</a>	3.0	12	1800 (122)	Mechanical	5½	Honda®	Unleaded gasoline	33" x 20½" x 28"	95 (43.1)	
<a href="#">KH-79901-15</a>	3.0		2000 (136)		5½				69 (31.3)	
<a href="#">KH-79901-20</a>	3.0		2500 (170)		6½				108 (49.0)	
<a href="#">KH-79901-25</a>	4		3000 (204)		11				147 (66.7)	

# Pu Pumps

Positive Displacement, Roller / Rotary Vane

## Roller Pumps

**Ideal for high temperature applications where some particulates are present**

- NSF-approved models are ideal for food applications
- No metal to metal contact means less wear and a longer service life
- Pumps are self-priming—pumps instantly with a dry suction lift of up to 10 feet

Economical yet highly versatile pumps are ideal for fluid spraying and transfer applications. NSF models feature mechanical seals for long life. Pumps are specifically designed to prevent clogging. Ideal for pumping hot oils and low shear oils. Pumps do not require foot valves.

Ni-resist is an alloy that contains 13% nickel for added corrosion resistance. Order a metallic pump below for this feature.

### Specifications & Ordering Information

**Viscosity:** up to 500 SSU

**Temperature range:** 40 to 400°F  
(4 to 204°C)

**Duty cycle**

NSF models: continuous

Metallic models: intermittent

Catalog number	Max flow (GPM)	Max pressure (psi)	Port size (NPT)	Materials of construction			Motor specifications					Price
				Pump body	Roller	Seal	hp	Max speed	Power	Motor type	Motor phase	
NSF-approved pumps												
<a href="#">KH-70608-00</a>	3.8	50	½"	Cast iron	PTFE	Viton®	⅜	1725	115 VAC	ODP*	Single	
<a href="#">KH-70608-10</a>	5.8		½"				115/230 VAC					
<a href="#">KH-70608-20</a>	8.0		¾"				115 VAC					
Metallic pumps												
<a href="#">KH-70608-50</a>	7.5	50	¾"	Ni-resist	PTFE	Viton	⅜	1900	12 VDC	—	—	
<a href="#">KH-70608-60</a>	10.4	30										

\*Open dripproof.

**GO to ColeParmer.com**  
[ColeParmer.com/chemchart](http://ColeParmer.com/chemchart)  
 Search our interactive chemical compatibility guide.

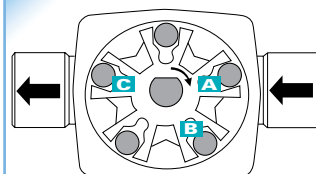


70608-00



For 70608-00,  
-10, -20

### Technical info



- A** Upon leaving the offset cam, the rollers move outward creating a vacuum for instant priming.
- B** As the rotor rotates, each successive roller draws in liquid and carries it from intake to outlet port.
- C** As rollers contact the offset cam they move inward to force the liquid out through the discharge port.

### Add these options

- Fittings..... 487–546
- Tubing..... 1845–1882
- Valves..... 1937–1963

## Direct-Coupled Rotary Vane Pumps

**Ideal for high pressure applications—up to 240 psi**

- Pulseless flow at pressures up to 240 psi
- Built-in bypass relief valve protects your pump from damage
- Select from economical brass or corrosion-resistant 303 stainless steel bodied pumps

Power cord not included.



303 SS rotary vane pump 79411-10

### Specifications & Ordering Information

**Self-priming:** no

**Suction lift:** 6 ft wet

**Viscosity:** light

**Max pressure:** 240 psi

**Port size:** 3/8" NPT(F)

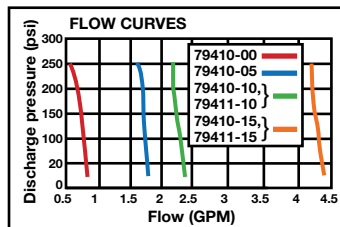
**Particulates:** no

**Max temp:** 170°F (77°C)

**Wetted parts:** brass or 303 stainless steel (SS) body, 303 SS rotor, carbon graphite liner and vanes

**Duty cycle:** continuous (up to 150 psi)

**Run dry:** no



Catalog number	Max GPM	Built-in filter	Motor specifications				Dimensions (L x W x H)	Price
			hp	Type*	Power	Amps		
Brass-bodied rotary vane pumps								
<a href="#">KH-79410-00</a>	0.75	Yes	¼	ODP		5.0/2.5	6⅝" x 16 x 6⅝"	
<a href="#">KH-79410-05</a>	1.75	Yes	⅓	ODP	115/230	5.6/2.8		
<a href="#">KH-79410-10</a>	2.3	Yes	½	ODP	60 Hz	7.2/3.6		
<a href="#">KH-79410-15</a>	4.3	No	¾	TEFC		11.0/5.5		
303 stainless steel rotary vane pumps								
<a href="#">KH-79411-10</a>	2.3	No	½	TEFC	115/230	8.0/4.0	6⅝" x 16 x 6⅝"	
<a href="#">KH-79411-15</a>	4.3		¾		60 Hz	11.0/5.5		

\*ODP = Open dripproof; TEFC = Totally enclosed, fan-cooled.

### Vacuum Switches

Use a vacuum switch to protect your pump from damage caused by accidental dry running. The switches cut power to your pump when liquid is depleted or the vacuum is no longer detected. Install switch in line via the 1/4" NPT(F) ports. Connect pump motor to the switch using the screw terminals inside the switch housing.

**What's included:** models 70610-90 and -92 include the switch only. Model 70610-91 kit includes the switch, wire, close brass nipple, and forked terminals.



### Ordering Information 70610-90

Catalog number	Materials of construction	Price
<b>Switches requiring 2.5" Hg (2.8 ft H<sub>2</sub>O)</b>		
<a href="#">KH-70610-90</a>	Neoprene/plated steel	
<a href="#">KH-70610-91</a>	Neoprene/plated steel with kit	
<b>Switch requiring 1.5" Hg (1.7 ft H<sub>2</sub>O)</b>		
<a href="#">KH-70610-92</a>	Buna-N/300 series stainless steel	

## Table of Contents

**Tank Systems** feature a polyethylene tank and are some of the simplest systems that we offer..... 1429

**Chemical Feed Systems** are available in either single- or dual-pump configurations. Choose from a variety of configurations for chemical feed injection based on pH, flow, or time ..... 1430-1431

**Configurable Pump Skids** feature gear pumps mounted to a stainless steel skid. Select a system with a calibration column, relief valve, or post dilute with static mixer ..... 1432

**Masterflex® Systems** feature our Masterflex® pump drives and pump heads in a variety of configured systems including systems with motors suitable for Class 1, Division 2 applications ..... 1433

**Cooling Tower Control Systems** include all of the components needed for a variety of cooling tower applications, all mounted on a PVC back plane..... 1434

## Add these Options:

See the following products to add to your system:

Filtration .....	445-486
Fittings.....	487-546
Flowmeters .....	556-635
Level Control.....	808-812
Mixers .....	972-1002
Motors .....	1007-1010
Masterflex® Pumps.....	1210-1313
General Pumps .....	1314-1434
Tubing .....	1845-1882
Valves .....	1937-1963



Within our pump systems section we offer several standard systems to help meet the needs of your application, however if there is any system that does not meet your needs exactly, please call our Application Specialists. They will help you customize a system to meet the needs of your application.



**GO to ColeParmer.com**

[ColeParmer.com/PumpSystem](http://ColeParmer.com/PumpSystem)

for our latest selection of pump systems for your application needs.

## Cole-Parmer Metering Pump and Tank Systems

### Complete, self-contained system for metering precise amounts of fluid

- Durable polyethylene tank has extra heavy wall thickness for enhanced strength—available in 15- and 30-gallon capacities
- Pump draws from rectangular holding tank—unit fits easily in any out-of-the-way corner
- Top-mounted, multi-position tank opening—leave open, closed, or vented

Metering injector features heavy-duty, double ball valve pump head—enhanced priming capabilities make it exceptional for purging air and gas.

### Specifications & Ordering Information

**Wetted parts:** polypropylene pump head, PVDF cartridge fittings, ceramic ball valves, Hastelloy C® springs, O-rings of Viton® fluoroelastomer, and an ethylene propylene (EP) diaphragm coated with PTFE

**Maximum temperature:** 130°F (54°C)

**Maximum fluid viscosity:** 1000 cp

#### Dimensions

15-gallon tank system: 15½"W x 22"H x 19½"D

30-gallon tank system: 20"W x 27"H x 24"D

**Duty cycle:** continuous

Max flow		Strokes/ min	Max psi	Tubing OD	15-gallon tank systems		30-gallon tank systems	
GPH	mL/min				Cat. no.	Price	Cat. no.	Price
Metering pump systems; 115 VAC, 60 Hz								
0.2	18	14	125	3/8"	KH-76303-00	—	—	
0.6	43	30	125	3/8"	KH-76303-10	—	—	
1.3	82	60	125	3/8"	—	—	KH-76303-20	
2.8	180	125	125	3/8"	—	—	KH-76303-30	
9.5	600	125	10	3/8"	—	—	KH-76303-40	
Metering pump systems; 220 VAC, 50 Hz								
0.16	14.4	14	125	3/8"	KH-76303-05	—	—	
0.48	34.4	30	125	3/8"	KH-76303-15	—	—	
1.04	65.6	60	125	3/8"	—	—	KH-76303-25	
2.24	144	125	125	3/8"	—	—	KH-76303-35	
7.6	480	125	10	3/8"	—	—	KH-76303-45	



76303-00

# Pu Pumps

## Systems



Acid/base system  
70790-40



## Cole-Parmer Chemical Feed Pump Systems

### A complete and preassembled chemical feed package!

- Shipped complete—installation is as simple as providing power and fluid connections
- All systems are mounted on a PVC base and are shipped with an injection quill and one pump service kit
- Calibration columns allow you to self-calibrate your flow rate

Each system pump service kit contains valve cartridges with O-rings, head, diaphragm, secondary O-ring, head screws, and washers. Injection quill injects corrosive chemicals in the center of the pipe—preventing damage to the pipe wall.

**A Acid/Base Systems:** These systems include a Eutech® pH 2000 controller, Pulsafeeder® metering pump, plumbing connections, submersible pH probe, PVC injection quill, calibration column, and one pump service kit. Controller has two programmable relay outputs and separate alarm relay. Large, dual LCD shows pH (or mV) and temperature simultaneously. Continuous-duty pump features an adjustable stroke rate and length, reliable timing circuits, and leak-free bleed valves for safe and easy priming. The pH probe is a self-cleaning, double-junction electrode that prevents suspended solids build-up.

**B Biocide or Scale Inhibition Feed Systems:** These systems include a time-programmed continuous-duty Pulsafeeder metering pump with clear plastic cover, plumbing connections, PVC injection quill, calibration column, and one pump service kit. Program up to eight time-based feed programs without the need for an additional controller.

**C Flow-Based Feed Systems:** These systems include a water jet meter, Pulsafeeder metering pump, and one pump service kit. Pump feeds chemical proportionally to the water flow rate instead of a pH or ORP controller.



Use your Cole-Parmer Chemical Feed Systems  
in a variety of applications.



On pages 1429-1434 you will find standard systems that we offer — fully assembled for your convenience. Please call our Application Specialists to configure a system for your application if these standard systems will not suffice.

**847-549-7600**

### ATEX Approved Systems

For systems that require conformity to ATEX directives, please contact our International Department. They will help you select a system that meets your needs.

**847-549-7600**

### Specifications & Ordering Information

Wetted parts: PVC, PTFE, ceramic      Tubing OD (pump): 3/8"      Dimensions: 17"L x 17"W x 24"H

Max flow (GPH)	Water jet meter flow range	Max psi	115 VAC, 50/60 Hz		230 VAC, 50/60 Hz	
			Catalog number	Price	Catalog number	Price
🔗 Acid/Base Systems						
0.25	—	150	<a href="#">KH-70790-40</a>		<a href="#">KH-70790-45</a>	
0.5			<a href="#">KH-70790-50</a>		<a href="#">KH-70790-55</a>	
0.92	—	100	<a href="#">KH-70790-60</a>		<a href="#">KH-70790-65</a>	
2.0			<a href="#">KH-70790-70</a>		<a href="#">KH-70790-75</a>	
🔗 Biocide or Scale Inhibition Feed Systems						
0.5	—	100	<a href="#">KH-70791-40</a>		<a href="#">KH-70791-45</a>	
0.92			<a href="#">KH-70791-50</a>		<a href="#">KH-70791-55</a>	
1.25	—	100	<a href="#">KH-70791-60</a>		<a href="#">KH-70791-65</a>	
1.83			<a href="#">KH-70791-70</a>		<a href="#">KH-70791-75</a>	
🔗 Flow-Based Feed Systems						
0.25	1 to 20 GPM	150	<a href="#">KH-70793-00</a>		<a href="#">KH-70793-05</a>	
0.5			<a href="#">KH-70793-10</a>		<a href="#">KH-70793-15</a>	
0.5	3 to 50 GPM	150	<a href="#">KH-70793-40</a>		<a href="#">KH-70793-45</a>	
0.88			<a href="#">KH-70793-50</a>		<a href="#">KH-70793-55</a>	
0.88	5 to 90 GPM	150	<a href="#">KH-70793-60</a>		<a href="#">KH-70793-65</a>	
1.75			<a href="#">KH-70793-70</a>		<a href="#">KH-70793-75</a>	
0.88	8 to 130 GPM	150	<a href="#">KH-70793-80</a>		<a href="#">KH-70793-85</a>	
1.75			<a href="#">KH-70793-90</a>		<a href="#">KH-70793-95</a>	

## Cole-Parmer Duplex Chemical Feed Pump Systems

### For applications where 24/7 continuous use is required

- Two metering pumps mounted on one skid—multiple configurations
- Mounted on a rigid PVC base
- Easy installation—connect fluid connections and plug into power outlet

**A Manual Control Duplex Pump Systems with Duty Standby Pump:** Duty standby systems are excellent in locations where a back-up pump is needed if the primary pump fails. Reduce downtime by simply closing the ball valves to the primary pump and opening the ball valves to the standby pump to maintain the flow of the system. Systems may also be used to double the flow rate using both pumps simultaneously. Adjust the stroke rate on the pump manually via controls on the front of the pump.

**B Duplex pH Pump Systems with Duty Standby Pump:** Select these systems for continuous acid/base control applications to maintain a programmed pH level. Use primary pump to inject either an acid or a base into your system. Standby pump is used when primary pump fails and minimal downtime is needed.

**C Duplex pH Pump Systems with Separate Pumps:** These systems are ideal for applications where a pH set-point needs to be maintained in an environment with a fluctuating pH. Use the first pump to inject acid when the system pH begins to rise and use the second pump to inject base when the system pH begins to fall.

**What's included:** **A:** two metering pumps\*, injection quill, control panel, ball valves, pressure relief valve, back pressure valve, calibration column, and one pump service kit. Service kit includes valve cartridges with O-rings, head, diaphragm, secondary O-ring, head screws, and washers.

**B and C:** two metering pumps\*, Eutech® pH controller, double-junction pH electrode, injection quill, control panel, ball valves, pressure relief valve, back pressure valve, calibration column, and one pump service kit. Service kit includes valve cartridges with O-rings, head, diaphragm, secondary O-ring, head screws, and washers.



\*Systems come standard with Pulsafeeder® metering pumps. For other metering pumps, please call our Application Specialists.

**847-549-7600**

### Specifications & Ordering Information

**3** year  
warranty

**Wetted materials:** PVC, PTFE, ceramic

**Duty cycle:** continuous

**Motor phase:** single

**Suction lift:** 4 ft., priming wet

**Tubing OD (pump):** 3/8"

**Maximum viscosity:** 1000 cp

**Dimensions:** 36"L x 24"W x 30"H

**Shipping weight:** 150 lb (68 kg)

Max flow*	Max psi	115 VAC, 50/60 Hz		230 VAC, 50/60 Hz	
		Catalog number	Price	Catalog number	Price
A Manual control duplex pump systems with duty standby pump					
12 GPD	80	<a href="#">KH-70796-00</a>		<a href="#">KH-70796-50</a>	
22 GPD	80	<a href="#">KH-70796-10</a>		<a href="#">KH-70796-60</a>	
30 GPD	80	<a href="#">KH-70796-20</a>		<a href="#">KH-70796-70</a>	
44 GPD	80	<a href="#">KH-70796-30</a>		<a href="#">KH-70796-80</a>	
94 GPD	100	<a href="#">KH-70796-40</a>		<a href="#">KH-70796-90</a>	
B Duplex pH pump systems with duty standby pump					
6 GPD	150	<a href="#">KH-70798-00</a>		<a href="#">KH-70798-40</a>	
12 GPD	150	<a href="#">KH-70798-10</a>		<a href="#">KH-70798-50</a>	
22 GPD	100	<a href="#">KH-70798-20</a>		<a href="#">KH-70799-60</a>	
48 GPD	50	<a href="#">KH-70798-30</a>		<a href="#">KH-70798-70</a>	
C Duplex pH pump systems with separate pumps					
6 GPD	150	<a href="#">KH-70799-00</a>		<a href="#">KH-70799-40</a>	
12 GPD	150	<a href="#">KH-70799-10</a>		<a href="#">KH-70799-50</a>	
22 GPD	100	<a href="#">KH-70799-20</a>		<a href="#">KH-70799-60</a>	
48 GPD	50	<a href="#">KH-70799-30</a>		<a href="#">KH-70799-70</a>	

\*Systems come standard with Pulsafeeder metering pumps. For other metering pumps, please call our Application Specialists.



Manual control duplex pump system with duty standby pump 70796-00



Duplex pump systems can be used to feed chemicals into many applications.



Use duplex skid 70799-00 to control the pH level of your application.

# Pu Pumps

## Systems

### Fully Configurable Pump Skids

#### Choose the pump system configured best for your needs

- Pump systems are fully assembled and mounted on a steel base—entire assembly is warranted for one year

These pulseless flow pump systems can be configured in a variety of ways to accommodate flow rates from 0.0009 to 50.0 GPM. Select from Micropump® gear pump or standard gear pump systems.

Choose from systems with optional calibration column, relief valve, or post dilute with static mixer to meet your application. **Calibration Column** ensures clear and precise confirmation of pump flow in your system. **Relief Valve** protects your system from excessive pressure. **Post Dilute with Static Mixer** has no moving parts. It allows water or another fluid to be mixed with the chemical being pumped at desired percentages—ideal for polymers and fluids with different density and viscosity parameters.



Additional flow ranges and options are available; call our Application Specialists for more information.

**847-549-7600**

ISO 9001:2000  
CERTIFIED SUPPLIER

**1** year  
warranty

#### Technical info

##### Applications include:

- Chemical Processing
- Pulp & Paper
- Semiconductors
- Food & Beverage
- Pharmaceuticals



Gear pump skid 70787-24 includes standard gear pump, calibration column, relief valve, and post dilution with static mixer.

#### Specifications & Ordering Information for Micropump Gear Pump Systems (0.0009 to 0.30 GPM)

**Temperature range:** -50 to 350°F (-46 to 177°C)

**Wetted parts:** 316 stainless steel (SS) housing; PTFE seals, carbon graphite gears (except models 70780-09 and 70784-15 which have PPS gears, and 70784-12 which has PTFE gears)

**Max. viscosity:** 1500 cp at 1750 rpm

**System pressure:** 300 psi

**Suction lift:** 24" H<sub>2</sub>O (wet)

**Power:** 115 VAC, 50/60 Hz, single phase

**Dimensions:** 12"L x 31"W x 24"H (for skids with flows larger than 3 GPM, dimensions will change)

Catalog number	Flow range		Accessories	Max diff psi	Pump port size	Price
	GPM	L/min				
KH-70780-00	0.0009 to 0.0081	0.0034 to 0.0307	None	20	1/8" NPT(F)	
KH-70780-06	0.0044 to 0.0398	0.0167 to 0.1506		40		
KH-70780-09*	0.0048 to 0.0436	0.0183 to 0.1649		75		
KH-70784-12*	0.0167 to 0.15	0.0632 to 0.5678	Calibration column and relief valve	50	1/8" NPT(F)	
KH-70784-15*	0.033 to 0.30	0.1249 to 1.355				

#### Specifications & Ordering Information for Standard Gear Pump Systems (0.1000 to 50.000 GPM)

**Temperature range:** -40 to 600°F (-40 to 316°C)

**Wetted parts:** single carbon/ceramic mechanical seal; 316 SS housing, main gear, and shafts; PTFE idler; PTFE wear plates and bearings

**Maximum differential pressure:** 100 psi

**Power:** 115 VAC, 50/60 Hz, single phase

(except models 70780-36 and -39: 220/440 VAC, 50/60 Hz, 3 phase)

**Dimensions:** 12"L x 31"W x 24"H (for skids with flows larger than 3 GPM, dimensions will change)

Catalog number	Flow range		Accessories	Suction lift	Max viscosity (at 1750 rpm)	Pump port size	Price
	GPM	L/min					
KH-70780-18	0.1000 to 0.5000	0.3785 to 1.8925	None	0.5 ft (dry)	8000 cp	1/4" NPT(F)	
KH-70780-24	1.000 to 3.000	3.7850 to 11.3550		4 ft (dry)	5500 cp	1/2" NPT(F)	
KH-70780-27	3.000 to 7.000	11.355 to 26.495		6 ft (dry)	2500 cp	3/4" NPT(F)	
KH-70780-30	4.000 to 10.000	15.140 to 37.850	None	7 ft (dry)	2500 cp	3/4" NPT(F)	
KH-70780-36*	10.000 to 28.000	37.850 to 105.980		17 ft (dry)	8000 cp	1 1/2" flanged	
KH-70780-39*	15.000 to 50.000	56.775 to 189.250		20 ft (dry)	5000 cp	2 1/2" flanged	
KH-70784-18	0.1000 to 0.5000	0.3785 to 1.8925	Calibration column, relief valve	0.5 ft (dry)	8000 cp	1/4" NPT(F)	
KH-70784-24	1.000 to 3.000	3.7850 to 11.3550		4 ft (dry)	5500 cp	1/2" NPT(F)	
KH-70784-30	4.000 to 10.000	15.140 to 37.850		7 ft (dry)	2500 cp	3/4" NPT(F)	
KH-70787-18	0.1000 to 0.5000	0.3785 to 1.8925	Cal. column, relief valve, post dilute w/static mixer	0.5 ft (dry)	8000 cp	1/4" NPT(F)	
KH-70787-24	1.000 to 3.000	3.7850 to 11.3550		4 ft (dry)	5500 cp	1/2" NPT(F)	
KH-70787-27	3.000 to 7.000	11.355 to 26.495		6 ft (dry)	2500 cp	3/4" NPT(F)	
KH-70787-30	4.000 to 10.000	15.140 to 37.850		7 ft (dry)	2500 cp	3/4" NPT(F)	

\*Includes PPS gears.

†Includes PTFE gears

‡Operates on 220/440 VAC, 50/60 Hz, 3 phase.



Pump fluids using configurable skids in numerous environments.

## MASTERFLEX® Pump Systems

### Customize or select standard Masterflex® pump systems

- Fully assembled—simply load tubing
- Mount multiple pumps on one system to maximize limited space
- Systems for hazardous locations available

Create a Masterflex® pump system with the exact components you need for your applications. Order a standard system below or call our Application Specialists to customize a system—available options include 208/240 VAC single-phase or 208/440 VAC, three-phase motors; remote control; fixed or variable speed; and single or dual channels.

### A I/P® Custom System with Hazardous-Duty Motor

#### Specifications & Ordering Information



Dimensions: 12"L x 31"W x 24"H

Catalog number	Pump head	Max flow*	Max diff (psig)	Power**			Price
				VAC	Hz	Phase	
<a href="#">KH-70788-00†</a>	I/P® Easy-Load® 77601-00	10.8 LPM	35	120	60	1	

\*Dependent upon size of tubing selected.

†Tubing is not included in system, please order tubing separately on pages 1281-1283.

\*\*Motor rated for Class 1, Division 2 hazardous locations.

### GO to page(s) 1210-1313

For more information on Masterflex® pumps.



Call our Application Specialists to customize a system suited to your needs.

847-549-7600

**A**

Flow Range:  
0.6 to 10.8 LPM

Masterflex® custom system 70788-00



### B L/S® Variable-Speed Brushless Digital Drive Pump System

Pump Head	+	Tubing	+	Drive
L/S® Easy-Load® II pump head 77200-62		Tygon® LFL L/S® 24 tubing 06429-24 10 ft (3 m)		Standard digital drive 07523-60 10 to 600 rpm

#### Ordering Information

Catalog number	Description	Power	Price
<a href="#">EK-77921-40</a>	L/S® variable-speed brushless digital drive pump system	90 to 260 VAC, 50/60 Hz	

**B**

Flow Range:  
28 to 1700 mL/min  
77921-40



### C L/S® Digital Process Pump System

Pump Head	+	Tubing	+	Drive
L/S® High-Performance pump head 77250-62		Tygon® LFL L/S® 24 tubing 06429-24 10 ft (3 m)		Digital console process drive 07575-00 1 to 600 rpm

#### Ordering Information

Catalog number	Description	Power	Price
<a href="#">EK-77975-10</a>	L/S® digital process pump system with High-Performance pump head	90 to 260 VAC, 50/60 Hz	

**C**

Flow Range:  
3.0 to 1800 mL/min  
77975-10



### D I/P® Brushless Process Pump System with Remote I/O

Pump Head	+	Tubing	+	Drive
I/P® Easy-Load® pump head 77601-10		Tygon® LFL I/P® 73 tubing 06429-73 10 ft (3 m)		I/P® Brushless process drive 77411-00 50 to 650 rpm

#### Ordering Information

Catalog number	Description	Power	Price
<a href="#">EK-77965-00</a>	I/P® brushless process system with remote I/O and Easy-Load® pump head	90 to 260 VAC, 50/60 Hz	

**D**

Flow Range:  
0.6 to 8.0 LPM  
77965-00



# Pu Pumps

## Systems

### Cooling Tower Control Systems

**Complete, preassembled cooling tower systems for your water treatment needs**

- Select a standard system below or customize your own!
- Mount in almost any location—attach with 4 bolts
- Easy installation—connect inlet/outlet and chemical connections and plug into power outlet

Preassembled systems are a simple option for meeting cooling tower water treatment needs. They eliminate the need to order individual parts, assemble the components, and install and test the system. Simply select one of our standard systems below or call our Application Specialists to customize a complete system that meets your specific needs. Each system comes with a CAD drawing, electrical schematic, spare parts list and a one-page laminated start-up guide. Systems are mounted onto a PVC back plane. All systems are pressure tested to 100 psi.

**What's included:** controller, pH and/or ORP probes, pumps, water solenoid valve, PVC piping, ball valves, and gauges.



Basic conductivity cooling tower system 70789-00

#### Add these options

- Corrosion coupon racks
- Flowmeters
- Datalogging capabilities
- Tanks



Call our Application Specialists to customize a system suited to your needs.

**847-549-7600**

### Specifications & Ordering Information

**3** year warranty

**Suction lift:** 5 ft (dry)

**Wetted parts:** PVC pump head and fittings, ceramic balls, Fluorofilm diaphragm, and PVDF/Polyprel® seal ring

**Dimensions:** 45"L x 12"W x 30"H

Catalog number	Controller*	Number of pumps†			Max flow	Power		Price					
		Acid/base	Biocide	Inhibitor		VAC	Hz						
<a href="#">KH-70789-00</a>	Conductivity only	None	2	1	1.0 GPH	120	60						
<a href="#">KH-70789-10</a>	ORP and conductivity												
<a href="#">KH-70789-20</a>	pH and conductivity	1											
<a href="#">KH-70789-30</a>	pH, ORP, and conductivity												

\*Includes graphite pH, ORP, and/or conductivity probe and flow switch. Systems come with Iwaki Walchem® controllers. For other controllers, please call our Application Specialists.

<sup>1</sup>Systems come standard with LMI® metering pumps. For other metering pumps, please call our Application Specialists.



Cooling tower systems are easy to install in any application.