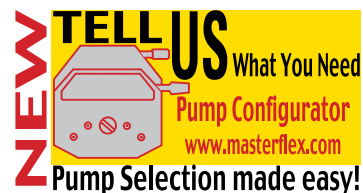





Selection Guide for Masterflex® I/P® Pump Heads

Masterflex I/P pump heads offer several configurations and options to allow you to customize a pump for your specific application. Whether you need rugged durability, minimal maintenance, accurate dispensing, or dual-channel operation, we have a pump head that's right for you. See our selection guide below for a complete list of choices.



	Flow rates	Multi-channel/stackable	Materials of construction*	Special features	Accepts multiple tubing sizes	Page number
Standard 	0.01 to 13 LPM (0.002 to 3.5 GPM)	Yes, stack up to two pump heads	PC/CRS, PC/SS, or PPS/SS	Low cost, high precision and accuracy. Best choice for dispensing applications.	No	1278
Easy-Load® 	0.01 to 13 LPM (0.002 to 3.5 GPM)	Yes, stack up to two pump heads	PSF/CRS, PSF/SS, or PPS/SS	Quick tubing changes. Change tubing without dismantling pump head from drive. Automatic tubing retention.	Yes	1279
High-Performance 	0.01 to 17 LPM (0.002 to 4.5 GPM)	No, single head only	SS housing rotors and rollers. Polyester occlusion bed.	Accepts High-Performance precision tubing sizes. Offers highest flow rate, pressure and suction capabilities of any I/P® pump head. Tubing enters and exits same side of pump head.	Yes	1280

*PC = Polycarbonate PPS = Polyphenylene sulfide PSF = Polysulfone CRS = Cold-rolled steel SS = Stainless steel

GO to page(s) 1281 to 1283

For a complete selection of Masterflex® I/P® pump tubing, go to pages 1281 to 1283.

GO to page(s) 1284 to 1298

For a wide range of Masterflex® I/P® drives to fit nearly any industrial process application, go to pages 1284 to 1298.

Pump Tubing Options for I/P® Pump Heads

Pump head	Page number	Precision Pump Tubing			High-Performance Precision Pump Tubing		
		I/P® 26	I/P® 73	I/P® 82	I/P® 70	I/P® 88	I/P® 89
Standard	1278		✓	✓			
Easy-Load®	1279	✓	✓	✓			
High-Performance	1280				✓	✓	✓

I/P® Standard Pump Heads

Best accuracy and repeatability of any I/P® pump head—ideal for dispensing and metering

- Each model is optimized for a single tube size to maximize performance and tubing life
- Cost effective pump head is an excellent choice for dedicated applications
- Stack two pump heads to double flow rate

The Standard pump head's classic design ensures the most accurate and repeatable performance—important in dispensing applications. A 360° precision molded occlusion body ensures optimum accuracy and long tubing life.

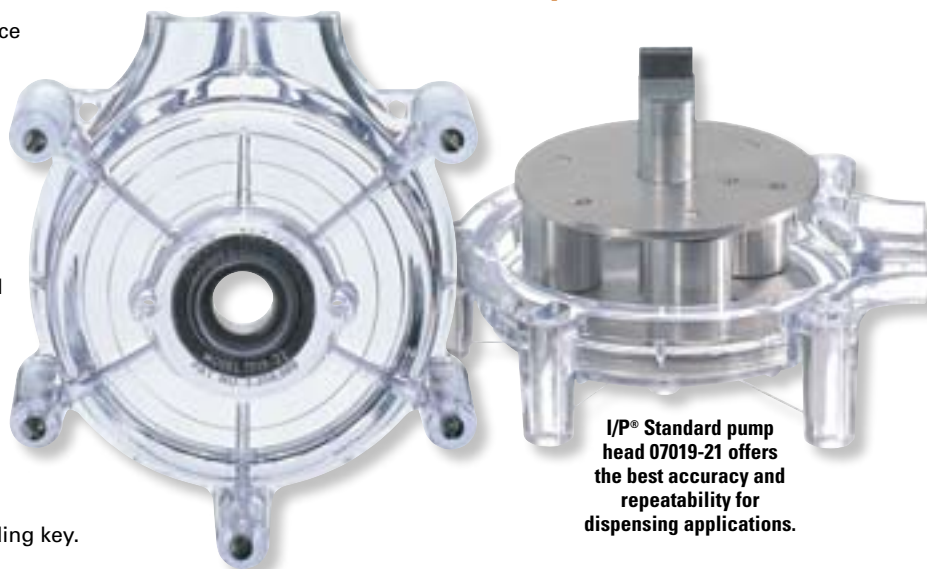
Select from PC housing with CRS or SS rotor, or PPS housing with SS rotor. PC is economical and transparent, while PPS offers enhanced chemical resistance. SS rotors feature PTFE-sealed bearings for long life and reduced maintenance; CRS rotors have Buna N shielded bearings.

To mount two pump heads on a single drive, order dual-channel mounting hardware below.

What's included: single-channel mounting hardware, replaceable tang boot for quiet operation and long service life, and tubing loading key.



Precise Repeatable Fluid Transfer

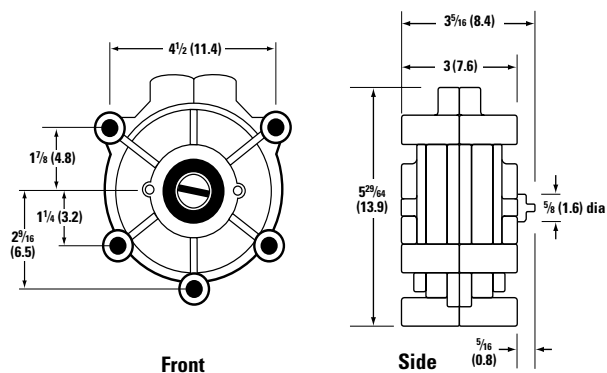


I/P® Standard pump head 07019-21 offers the best accuracy and repeatability for dispensing applications.

GO to page(s) 1281 to 1283

for our complete selection of Masterflex® I/P® pump tubing

I/P® Standard Pump Dimensions—dimensions in inches (cm)



Special Features



Tang boot means quieter operation, less maintenance!



Stack two heads with dual-channel mounting hardware 07019-96 listed below.



To load pump tubing, first disassemble pump head. Load pump tubing using the tubing loading key (included).

Specifications & Ordering Information

ISO9001:2000
CERTIFIED SUPPLIER

2 year
warranty

Pump tubing size	mL per rev	Flow rates in LPM (GPM) at indicated rpm			Maximum system pressure psi (bar)	Pump heads*		
		100	540	1 to 650		PC housing		PPS housing
						CRS rotor	SS rotor	SS rotor
I/P® 73	12.3	1.2 (0.3)	6.6 (1.7)	0.01 to 8 (0.002 to 2.1)	Continuous: 25 (1.7) Intermittent: 40 (2.7)	KH-07019-20	KH-07019-21	KH-07019-43
I/P® 82	20.0	2.0 (0.5)	10.8 (2.9)	0.02 to 13 (0.005 to 3.5)	Continuous: 10 (0.7) Intermittent: 20 (1.4)	KH-07019-32	KH-07019-31	KH-07019-53

*PC = polycarbonate PPS = polyphenylene sulfide CRS = cold-rolled steel SS = stainless steel

Accessories

[KH-07019-95](#) Replacement mounting hardware for one pump head, stainless steel

[KH-07019-96](#) Dual-channel mounting hardware for two pump heads, stainless steel

[KH-77600-03](#) Replacement tang boots. Pack of ten

I/P® Easy-Load® Heads

Quick, simple tubing changes—replace your tubing in seconds

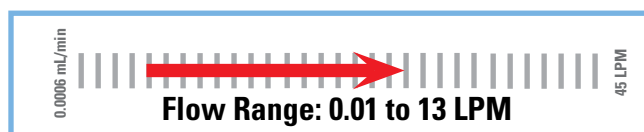
- Accept multiple tubing sizes for maximum flexibility
- Automatic tubing retention eliminates user adjustments and makes set-up easy
- Fast tubing changes minimize downtime

The Easy-Load pump head combines an over-center cam with automatic tubing retention in a rugged, chemical-resistant housing. This patented design allows fast, easy tubing changes without removing the pump head from the drive. Built-in tubing guide ensures correct positioning of tubing to maximize performance and pump tubing life. Spring-loaded tubing retainers ensure tubing is secured automatically to promote long tubing life and optimize performance of each tubing size. Adjustable occlusion maximizes pressure capabilities and tubing life by adjusting the amount of “squeeze” on the tubing.

Select from PSF housing with CRS or SS rotor, or PPS housing with SS rotor. PSF is economical, while PPS offers enhanced chemical resistance. SS rotors feature PTFE-sealed bearings for long life and reduced maintenance; CRS rotors have Buna N shielded bearings.

Dual-channel hardware allows two pump heads to operate on a single drive—order separately below.

What's included: single-channel mounting hardware and replaceable tang boot for quiet operation and long service life.



Easy Tubing Changes!

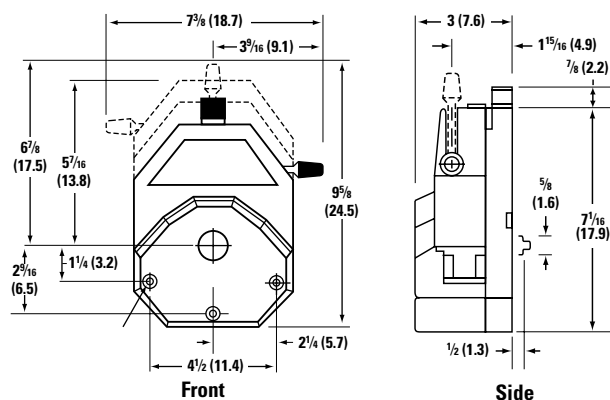


I/P® Easy-Load® pump head 77601-00 allows fast tubing changes and minimizes downtime.

GO to page(s) 1281 to 1283

for our complete selection of Masterflex® I/P® pump tubing

I/P® Easy-Load Pump Dimensions—dimensions in inches (cm)



Special Features



Tubing retention is automatic!



Move lever to left and load tubing, then move to the right to close.



Stack two heads with dual-channel mounting hardware 77601-96 listed below.



Tighten knob for higher pressures, loosen for longer life.

Specifications & Ordering Information

ISO9001:2000
CERTIFIED SUPPLIER

2 year
warranty

Pump tubing size	mL per rev	Flow rates in LPM (GPM) at indicated rpm			Maximum system pressure psi (bar)	Pump heads*		
		100	540	1 to 650		PSF housing		PPS housing
					CRS rotor	SS rotor	SS rotor	
I/P® 26	6.2	0.6 (0.2)	3.3 (0.9)	0.01 to 4.0 (0.002 to 1.1)	Continuous: 25 (1.7) Intermittent: 40 (2.7)	KH-77601-00	KH-77601-10	KH-77601-60
I/P® 73	12.3	1.2 (0.3)	6.6 (1.7)	0.01 to 8.0 (0.002 to 2.1)				
I/P® 82	20.0	2.0 (0.5)	10.8 (2.9)	0.02 to 13.0 (0.005 to 3.5)	Continuous: 10 (0.7) Intermittent: 20 (1.4)			

*PSF = polysulfone PPS = polyphenylene sulfide CRS = cold-rolled steel SS = stainless steel

Accessories

KH-77601-95 Replacement mounting hardware for one pump head, stainless steel

KH-77601-96 Dual-channel mounting hardware for two pump heads, stainless steel

KH-77600-03 Replacement tang boots. Pack of ten

I/P® High-Performance Pump Head

Highest flow rates, best pressure and suction performance of any I/P® pump head

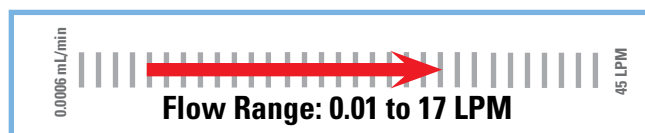
- Stainless steel and polyester construction withstands tough process environments
- Versatile mounting configurations—mount with tubing exiting to the top or side for flexible set-up
- C-shaped design allows tubing to enter and exit the same side of the pump head

Ideal for industrial process and production applications requiring a single pump head, this heavy-duty three-roller pump head produces flow rates up to 17 LPM—the highest of any I/P® pump head. Simple to load, it accepts Masterflex® I/P® high-performance precision pump tubing for greater pressure generation and suction lift, enhanced ability to pump viscous fluids, and longer tubing life. Adjustable tubing retention holds tubing securely in place and prevents movement while in the head.

The I/P® High-Performance pump head is compatible with I/P® drives that accept two or more pump heads. Drives that accept two heads have enough torque to run pump head even under difficult conditions such as high back pressure.

Note: Pump head is not stackable.

What's included: single-channel mounting hardware and replaceable tang boot for quiet operation and long service life.



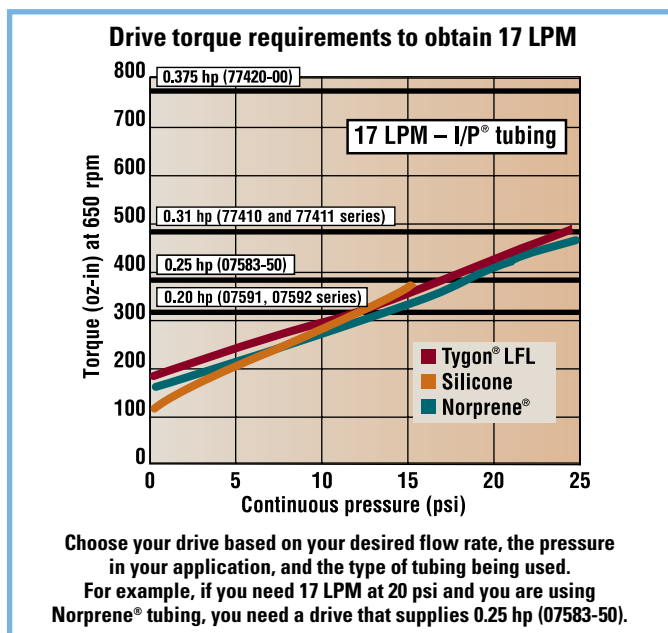
Highest Flow Rate



I/P® High-Performance pump head 77600-62 has a C-shaped design, allowing tubing to enter and exit on the same side.

GO to page(s) 1281 to 1283

for our complete selection of Masterflex® I/P® pump tubing



Special Features

Rotate tubing retainer knob counterclockwise to release retainer, then open cover. Lift latch to open occlusion bed.



Insert tubing into bed with both ends of the tubing extending through notches.



Press occlusion bed against the tubing, snap the latch closed. Pull tubing around the rotor, close cover, and rotate retainer knob clockwise until tube no longer moves.



Specifications & Ordering Information

ISO 9001:2000
CERTIFIED SUPPLIER

2 year
warranty

Pump tubing size	mL per rev	Flow rates in LPM (GPM) at indicated rpm			Maximum system pressure psi (bar)	High-Performance pump head Polyester and SS housing, SS rotor
		100	540	1 to 650		
I/P® 70	12.3	1.2 (0.3)	6.6 (1.7)	0.01 to 8.0 (0.002 to 2.1)	Continuous: 25 (1.7); intermittent: 40 (2.7)	KH-77600-62
I/P® 88	20.0	2.0 (0.5)	10.8 (2.9)	0.02 to 13.0 (0.005 to 3.5)	Continuous: 20 (1.4); intermittent: 35 (2.4)	
I/P® 89	26.2	2.6 (0.7)	14.0 (3.7)	0.03 to 17.0 (0.007 to 4.5)	Continuous: 15 (1.0); intermittent: 20 (1.4)	

Accessories

[KH-77600-01](#) Replacement mounting hardware for one pump head, stainless steel

[KH-77600-03](#) Replacement tang boots. Pack of ten

MASTERFLEX® I/P® Precision and High-Performance Precision Pump Tubing

- Ensure optimal Masterflex® pump performance
- Custom extruded to fit Masterflex® pumps
- Engineered for long life in peristaltic pumps
- Lot-to-lot consistency provides superior accuracy and repeatability

Masterflex® I/P® pump tubing is manufactured to extremely close tolerances that match our I/P® pump heads, ensuring accurate, repeatable flow and long tubing life. Our tubing is factory-tested and optically inspected to provide the best performance from your peristaltic pump.

GO to ColeParmer.com
ColeParmer.com/MasterflexTubing
 For help selecting the right Masterflex® pump tubing formulation for your application, visit our Web site at www.coleparmer.com/MasterflexTubing

I/P® Pump Tubing Specifications

Pump tubing cross sections	I/P® Precision pump tubing			I/P® High-performance precision pump tubing		
	I/P® 26	I/P® 73	I/P® 82	I/P® 70	I/P® 88	I/P® 89
Inside diameter (nominal)	0.25" (6.4 mm)	0.37" (9.5 mm)	0.5" (12.7 mm)	0.37" (9.5 mm)	0.5" (12.7 mm)	0.62" (15.88 mm)
Hose barb size (nominal)	¼" (6.4 mm)	⅜" (9.5 mm)	½" (12.7 mm)	⅜" (9.5 mm)	½" (12.7 mm)	⅝" (15.88 mm)
Flow range (approximate)* with 1 to 650 rpm drive	0.01 to 4 LPM (0.002 to 1.1 GPM)	0.01 to 8 LPM (0.002 to 2.1 GPM)	0.02 to 13 LPM (0.005 to 3.5 GPM)	0.01 to 8 LPM (0.002 to 2.1 GPM)	0.02 to 13 LPM (0.005 to 3.5 GPM)	0.03 to 17 LPM (0.007 to 4.5 GPM)
Maximum pressure [†] , continuous	25 psi (1.7 bar)	25 psi (1.7 bar)	15 psi (1.0 bar)	25 psi (1.7 bar)	25 psi (1.7 bar)	15 psi (1.0 bar)
Maximum pressure [†] , intermittent	40 psi (2.7 bar)	40 psi (2.7 bar)	20 psi (1.4 bar)	40 psi (2.7 bar)	35 psi (2.4 bar)	20 psi (1.4 bar)
Maximum vacuum [†]	26" Hg (660 mm Hg)	26" Hg (660 mm Hg)	20" Hg (510 mm Hg)	26" Hg (660 mm Hg)	26" Hg (660 mm Hg)	24" Hg (610 mm Hg)
Suction lift [†]	29 ft H ₂ O (8.8 m H ₂ O)	29 ft H ₂ O (8.8 m H ₂ O)	23 ft H ₂ O (7.0 m H ₂ O)	29 ft H ₂ O (8.8 m H ₂ O)	29 ft H ₂ O (8.8 m H ₂ O)	27 ft H ₂ O (8.2 m H ₂ O)

*Determined under the following conditions: 0 psi at inlet, 0.5 psi at outlet; water temperature at 72°F (22°C). [†]Actual performance varies depending on tubing formulation—values shown are for firm tubing. Values for STA-PURE®/CHEM-SURE® pump tubing are 60 psi (4.1 bar) continuous, 100 psi (6.9 bar) intermittent.

I/P® Pump Tubing Ordering Information

Pump tubing formulation		Precision pump tubing			High-performance precision pump tubing		
		I/P® 26	I/P® 73	I/P® 82	I/P® 70	I/P® 88	I/P® 89
Silicone (platinum cured)	25 ft (7.6 m) per pack	KH-96410-26	KH-96410-73	KH-96410-82	KH-96510-70 10-ft pk	KH-96510-88 10-ft pk	KH-96510-89 10-ft pk
Silicone (peroxide cured)	25 ft (7.6 m) per pack	KH-96400-26	KH-96400-73	KH-96400-82	KH-96400-70 10-ft pk	KH-96400-88 10-ft pk	KH-96400-89 10-ft pk
BioPharm silicone (platinum)	25 ft (7.6 m) per pack	KH-96420-26	KH-96420-73	KH-96420-82	KH-96421-70 10-ft pk	KH-96421-88 10-ft pk	KH-96421-89 10-ft pk
BioPharm Plus silicone (platinum)	25 ft (7.6 m) per pack	KH-96440-26	KH-96440-73	KH-96440-82	KH-96441-70 10-ft pk	KH-96441-88 10-ft pk	KH-96441-89 10-ft pk
C-FLEX® (50 A)	25 ft (7.6 m) per pack	KH-06424-26	KH-06424-73	KH-06424-82	KH-06424-70 10-ft pk	KH-06424-88 10-ft pk	KH-06424-89 10-ft pk
PharMed® BPT	25 ft (7.6 m) per pack	KH-06508-26	KH-06508-73	KH-06508-82	KH-06508-70	KH-06508-88	KH-06508-89
PharmaPure® ^{††}	25 ft (7.6 m) per pack	KH-06435-26	KH-06435-73	KH-06435-82	—	—	—
STA-PURE®	24" (61 cm) per pack	KH-96200-26	KH-96200-73	KH-96200-82	—	—	—
CHEM-SURE®	24" (61 cm) per pack	KH-96210-26	KH-96210-73	KH-96210-82	—	—	—
Tygon® LFL	25 ft (7.6 m) per pack	KH-06429-26	KH-06429-73	KH-06429-82	KH-06429-70	KH-06429-88	KH-06429-89
Tygon® Food (B-44-4X)	50 ft (15.2 m) per pack	KH-06419-26	KH-06419-73	KH-06419-82	—	—	—
Tygon® lab (R-3603)	50 ft (15.2 m) per pack	KH-06409-26	KH-06408-73	KH-06408-82	KH-06409-70	KH-06409-88	KH-06409-89
Tygon® fuel & lubricant (F-4040-A)	50 ft (15.2 m) per pack	KH-06401-26	KH-06401-73	KH-06401-82	—	—	—
Tygon® chemical (2001) [†]	50 ft (15.2 m) per pack	KH-06475-26	KH-06475-73	KH-06475-82	—	—	—
Norprene® (A 60 G)	50 ft (15.2 m) per pack	KH-06404-26	KH-06404-73	KH-06404-82	KH-06404-70 25-ft pk	KH-06404-88 25-ft pk	KH-06404-89 25-ft pk
Norprene® Food (A 60 F)	50 ft (15.2 m) per pack	KH-06402-26	KH-06402-73	KH-06402-82	KH-06402-70 25-ft pk	KH-06402-88 25-ft pk	KH-06402-89 25-ft pk
Chem-Durance™	50 ft (15.2 m) per pack	New —	KH-06432-73	KH-06432-82	KH-06432-70 ^{††}	KH-06432-88 25-ft pk	KH-06432-89 25-ft pk
Viton®	25 ft (7.6 m) per pack	KH-06412-26	KH-06412-73				
FDA Viton®	25 ft (7.6 m) per pack	KH-96412-26	KH-96412-73				

[†]Recommended for use with Easy-Load® pump head only. ^{††}Recommended for use with Easy-Load or High-Performance pump heads only.

MASTERflex® I/P® Spooled Pump Tubing

Continuous lengths of tubing are convenient and cost-effective

- Spools contain up to 400 ft of continuous pump tubing, depending on size
- Eliminate waste by cutting to the exact length needed for your application
- Save space and shipping costs by buying in bulk

Spooled pump tubing provides continuous lengths of pump tubing on convenient, manageable spools that are easy to transport and require less storage space than the equivalent amount of individual tubing coils. They are a good choice for applications requiring long, continuous runs of tubing, or which use odd-size lengths that generate leftover scrap when using standard 25- or 50-ft coils.

Save money by buying in bulk, and take advantage of lower shipping charges compared to shipping several individual coils. Spooled pump tubing also requires less packaging, reducing waste disposal costs.

Nearly any Masterflex® pump tubing formulation can be spooled. If the formulation you need is not listed below, call our Application Specialists for a quote or to place a special order.



Platinum-cured silicone spooled pump tubing 96403-26 is convenient and cost-effective.



Most Masterflex® pump tubing formulations can be bulk-packed—call our Application Specialists to request a quote or place an order.
847-549-7600

Specifications & Ordering Information

Pump tubing size	Peroxide-cured silicone (96400-series)			Platinum-cured silicone (96410-series)			PharMed® BPT (06508-series)			BioPharm Silicone (96420-series)			C-FLEX® (06424-series)			Norprene® Food (06402-series)		
	Ft	Catalog number	Price	Ft	Catalog number	Price	Ft	Catalog number	Price	Ft	Catalog number	Price	Ft	Catalog number	Price	Ft	Catalog number	Price
I/P® 26	350	KH-96402-26		200	KH-96403-26		200	KH-95687-26		400	KH-96423-26		400	KH-06427-26		—	—	—
I/P® 73	150	KH-96402-73		150	KH-96403-73		150	KH-95687-73		100	KH-96423-73		100	KH-06427-73		150	KH-06415-73	
I/P® 82	100	KH-96402-82		100	KH-96403-82		100	KH-95687-82		100	KH-96423-82		100	KH-06427-82		100	KH-06415-82	
I/P® 70	—	—	—	—	—	—	100	KH-95687-70		100	KH-96423-70		—	—	—	—	—	—
I/P® 88	—	—	—	—	—	—	100	KH-95687-88		100	KH-96423-88		—	—	—	—	—	—
I/P® 89	—	—	—	—	—	—	100	KH-95687-89		100	KH-96423-89		—	—	—	—	—	—

MASTERflex® I/P® Bulk-Packed Pump Tubing

Save money and always have enough tubing on hand

- Tubing coils are individually bagged and sealed to prevent contamination
- Use as many or as few as you need, and store the rest
- Save money by buying and shipping in bulk

Ideal for large-volume pump tubing users, bulk packs contain ten individually bagged, sealed 25-ft coils of tubing, all from a single manufacturing lot. Because bulk packs use less packaging, they require less storage space for the same amount of tubing, and are the best choice for storerooms or other areas where space is at a premium.

Most Masterflex® pump tubing formulations can be bulk-packed. If the formulation you need is not listed below, call our Application Specialists for a quote or to place a special order.



Pump tubing bulk packs offer individually sealed bags of tubing at a lower price per pack than individual packs.

Specifications & Ordering Information

Pump tubing size	Number of 25-ft bags per box	Platinum-cured silicone (96410-series)		PharMed® BPT (06508-series)		C-FLEX® (06424-series)	
		Catalog number	Price/bx	Catalog number	Price/bx	Catalog number	Price/bx
I/P® 26	10	KH-96404-26		KH-95691-26		KH-06436-26	
I/P® 73	10	KH-96404-73		KH-95691-73		KH-06436-73	
I/P® 82	10	KH-96404-82		KH-95691-82		KH-06436-82	

MASTERFLEX® I/P® Sanitary Pump Tubing Assemblies

Crevice-free connections protect fluid sterility

- Molded ends promote a smooth fluid pathway and prevent particulate entrapment
- Eliminate crevices and dead zones that promote microbial growth
- Made from Masterflex® pump tubing to provide optimal pump performance

Molded pump tubing assemblies are ideal for sanitary fluid handling applications, including pharmaceutical, biotech, food, beverage, and dairy processing. Smooth molded components ensure a smooth flow pathway, preventing crevices that could trap particles and promote bacterial and fungal growth. Less thermally conductive than metallic tubing or pipe, molded pump tubing assemblies are not subject to galvanic action, RFI, or EMI.

Pump tubing with sanitary ends is available in five- or ten-foot lengths of platinum-cured silicone (96410-series) or PharMed® BPT (06508-series), or in two-foot lengths of STA-PURE® tubing; all with premolded ½" mini connections. Order gaskets, push/pull clamps, and the adapters of your choice below.



96100-26

Required System Components

- 1 Select a molded pump tubing assembly in your choice of pump tubing formulations and lengths.
- 2 Choose platinum-cured silicone or Viton® gaskets and PVDF push/pull clamp.
- 3 Order sanitary adapters below, as needed.

Specifications & Ordering Information

Pump tubing size	Platinum-cured silicone (96410-series) 5-ft (1.5-m) length		Platinum-cured silicone (96410-series) 10-ft (3-m) length		PharMed® BPT (06508-series) 5-ft (1.5-m) length		PharMed® BPT (06508-series) 10-ft (3-m) length		Gore™ STA-PURE® (96200-series) 2-ft (0.6-m) length	
	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price	Cat. no.	Price
Precision tubing										
I/P® 26	KH-96100-26		KH-96101-26		KH-96112-26		KH-96113-26		KH-96202-26	
I/P® 73	KH-96100-73		KH-96101-73		KH-96112-73		KH-96113-73		—	—
I/P® 82	KH-96100-82		KH-96101-82		KH-96112-82		KH-96113-82		—	—
High-performance precision tubing										
I/P® 70	—	—	—	—	KH-96112-70		KH-96113-70		—	—
I/P® 88	—	—	—	—	KH-96112-88		KH-96113-88		—	—
I/P® 89	—	—	—	—	KH-96112-89		KH-96113-89		—	—

Accessories for ½" Mini Connections

KH-31201-88 Push/pull clamp, PVDF; for quick joining of two ½" mini connections



31201-88

Gaskets. Order gaskets to join ½" mini connection without molded-in gasket to another ½" mini connection without molded-in gasket or to an adapter (sold separately below).

KH-31807-00 Silicone gasket for use with sanitary silicone (platinum-cured) tubing

KH-31807-08 Viton® gasket for use with sanitary PharMed® BPT tubing

Sanitary Adapters

Adapter connections	Polypropylene		Kynar®	
	Cat. no.	Price	Cat. no.	Price
½" mini to ¼" NPT(M)	KH-31200-01		KH-31201-01	
½" mini to ¼" NPT(F)	KH-31200-11		KH-31201-11	
½" mini to ¼" hose barb	KH-31805-25		KH-31201-21	
½" mini to ⅜" NPT(M)	KH-31200-02		KH-31201-02	
½" mini to ⅜" NPT(F)	KH-31200-12		KH-31201-12	
½" mini to ⅜" hose barb	KH-31805-26		KH-31201-22	
½" mini to ½" NPT(F)	KH-31200-13		KH-31201-13	
½" mini to 1" ladish	KH-31805-05		KH-31201-40	
½" mini to female Luer lock	KH-31200-50		KH-31201-50	



Discover How
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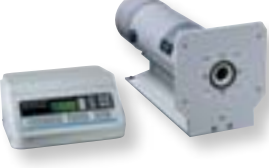





ColeParmer.com now supports eProcurement systems!

Masterflex.com



Enter your specific application parameters into our **Interactive Pump Configurator** and in seconds it will select a pump system that will meet your needs.

Selection Guide for I/P® Drives

Description	Max flow rate	Fixed speed	Variable speed	Reversible	Remote control capabilities	Special features	Page number
Analog							
 <p>Fixed-Speed and Multi-Channel</p>	Up to 14 LPM (3.7 GPM) with one pump head; up to 22 LPM (6.0 GPM) with four Easy-Load® pump heads	✓		✓		Economical and simple to operate up to four channels	1286–1287
 <p>Modular</p>	Up to 17 LPM (4.5 GPM) with one pump head; up to 26 LPM (6.9 GPM) with two Standard or Easy-Load pump heads (silicone or C-FLEX® tubing only)		✓	✓	✓ (some models)	Separate motor and controller for convenient set-up; models available with wall-mount controllers and IP55 protection	1288–1289
 <p>Brushless</p>	Up to 17 LPM (4.5 GPM) with one pump head; up to 26 LPM (6.9 GPM) with two Standard or Easy-Load pump heads with any tubing formulation		✓	✓	✓ (some models)	Compact and powerful; maintenance-free brushless motor; IP55 rated	1290–1291
Digital							
 <p>Modular</p>	Up to 17 LPM (4.5 GPM) with one pump head; up to 26 LPM (6.9 GPM) with two Standard or Easy-Load pump heads (silicone or C-FLEX tubing only)		✓	✓	✓	Digital dispensing with calibration; separate motor and controller for convenient set-up; models available with wall-mount controllers and IP56 protection	1292–1293
 <p>Brushless</p>	Up to 17 LPM (4.5 GPM) with one pump head; up to 26 LPM (6.9 GPM) with two Standard or Easy-Load pump heads with any tubing formulation		✓	✓	✓	Digital dispensing with calibration; 316 stainless steel enclosure; NEMA 4X and IP66-rated; maintenance-free brushless motor	1294–1295
Specialty							
 <p>Hazardous-Duty</p>	Up to 11.5 LPM (3.0 GPM) with one pump head; up to 17 LPM (4.5 GPM) with two Standard or Easy-Load pump heads (silicone or C-FLEX tubing only)		✓			Agency certified for use in hazardous locations	1296–1297
 <p>Air-Powered</p>	Up to 17 LPM (4.5 GPM) with one pump head; up to 26 LPM (6.9 GPM) with two Standard or Easy-Load pump heads (silicone or C-FLEX tubing only)		✓			Use where electricity is unsafe or impractical	1296–1297
 <p>Customized Skid Systems</p>	Up to 14 LPM (3.7 GPM) with one pump head		✓		✓	Able to be customized to your application needs	1298
 <p>Pump Head Adapters</p>	Flow rates and features depend on motor selection					Allows you to use 56C motors with Masterflex pump heads	1285

I/P® Pump Head Adapters

Mount any Masterflex® I/P pump head to a 56C frame motor

- Cast aluminum adapters feature built-in gear box for easy set-up
- Compatible with all I/P pump heads—achieve up to 17 LPM (4.5 GPM) using the High-Performance pump head, or stack up to two Standard or Easy-Load® heads for up to 26 LPM (6.9 GPM)
- Use with your own 56C frame motor, or choose one from the table below

These I/P pump head adapters work with any 56C frame motor, allowing you to customize a pump for your application. Add a motor controller for variable-speed and/or remote control operation. See pages 1007–1010 for motors and controllers. Adapters are compatible with all I/P pump heads.

What's included: adapter with built-in gear box, hardware.

More info **ATEX**

For L/S® and I/P® pump heads approved to ATEX Zone 2, see pages 1.21–1.24 in our "Late-Breaking Additions" section in the front of this catalog.



Adapters include hardware!

Pump head adapter 77490-00 connects any I/P pump head to a 56C frame motor.

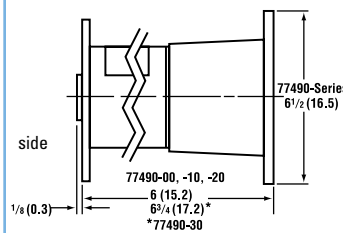
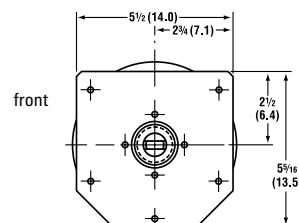
Technical info

Use the following formula to calculate flow rate based on your motor's max rpm and gear ratio to keep pump head rpm from exceeding 650 rpm:
 Flow rate = (Motor rpm/adapter gear ratio) x flow per revolution

Flow Rates in LPM (GPM) Per Channel

Adapter gear ratio	Recommended max motor rpm	Pump head rpm	Precision pump tubing			High-performance precision pump tubing		
			I/P 26	I/P 73	I/P 82	I/P 70	I/P 88	I/P 89
		1	0.006 (0.002)	0.012 (0.003)	0.02 (0.005)	0.012 (0.003)	0.02 (0.005)	0.026 (0.007)
		Flow per revolution						
3.1:1	62 to 2015	20 to 650	0.12 to 4 (0.04 to 1.3)	0.24 to 8 (0.06 to 2.0)	0.4 to 13 (0.1 to 3.3)	0.24 to 8 (0.06 to 2.0)	0.4 to 13 (0.1 to 3.3)	0.5 to 17 (0.14 to 4.5)
4.8:1	96 to 3120	20 to 650	0.12 to 4 (0.04 to 1.3)	0.24 to 8 (0.06 to 2.0)	0.4 to 13 (0.1 to 3.3)	0.24 to 8 (0.06 to 2.0)	0.4 to 13 (0.1 to 3.3)	0.5 to 17 (0.14 to 4.5)
9.7:1	194 to 3450	20 to 356	0.12 to 2.2 (0.04 to 0.7)	0.24 to 4.4 (0.06 to 1.1)	0.4 to 7.0 (0.1 to 1.8)	0.24 to 4.4 (0.06 to 1.1)	0.4 to 7.0 (0.1 to 1.8)	0.5 to 9.3 (0.14 to 2.5)
17.8:1	365 to 3450	20 to 194	0.12 to 1.2 (0.04 to 0.4)	0.24 to 2.4 (0.06 to 0.6)	0.4 to 4.0 (0.1 to 1.0)	0.24 to 2.4 (0.06 to 0.6)	0.4 to 4.0 (0.1 to 1.0)	0.5 to 5.0 (0.14 to 1.3)

I/P Pump Head Adapters dimensions in inches (cm)



Specifications & Ordering Information for Adapters

Catalog number	Adapter gear ratio	Motor size required*	Mounting type	Dimensions	Price
KH-77490-00	3.1:1	1/10 hp to	NEMA 56C Direct-coupled	6 3/4" L x 5 1/2" W x 6 1/2" H (17.2 x 14 x 16.5 cm)	
KH-77490-10	4.8:1	1/2 hp 650 rpm			
KH-77490-20	9.7:1	max pump			
KH-77490-30	17.8:1	head speed			

*Check power requirement for your application prior to selecting a motor.

Specifications & Ordering Information for 56C Frame Motors

Catalog number	Motor size hp (kW)	Motor speed (rpm)	Type**	Voltage	Frequency	Phase	IP rating	Overall dimensions (L x W x H)	Price
DC Motors									
KH-02631-02	1/2 (0.37)	1800	TENV	90 VDC	—	—	IP44	11 1/8" x 6 1/2" x 6 3/4" (28.3 x 16.5 x 17.1 cm)	
KH-02631-12				180 VDC					
KH-02631-06	1/2 (0.37)	1800	WDN	90 VDC	—	—	IP55	13 3/8" x 6 1/2" x 6 3/4" (31.5 x 16.5 x 17.1 cm)	
KH-02631-52				90 VDC					
AC Motors									
KH-07129-20	1/2 (0.37)	1725	TEFC	115/230 VAC	60 Hz	1	IP44	10 3/8" x 8 1/2" x 9 5/8" (26.2 x 21.7 x 23.2 cm)	
KH-07129-90		1425		110/220 VAC	50 Hz				
KH-07129-49	3/4 (0.56)	1725	TENV	230/460 VAC†	60 Hz†	3	IP44	10 3/8" x 8 1/2" x 6 3/4" (26.2 x 21.7 x 17.5 cm)	
KH-07129-89									

†Can also be run at 380-415 VAC/50 Hz/3 phase †UL-listed for Divisions 1 and 2, Class I, Groups C & D; Class II, Groups F & G; Class III.

**TENV—Totally enclosed, non-ventilating TEFC—Totally enclosed, fan-cooled WDN—Wash down XPRF—Explosion proof

I/P®

MASTERFLEX®



I/P fixed-speed drive 07588-60 cleans up with ease

GO to page(s) 1277 to 1283

Don't forget to order pump heads and tubing. Go to pages 1277 to 1280 for pump heads and 1281 to 1283 for tubing.

Pump selection made easy!

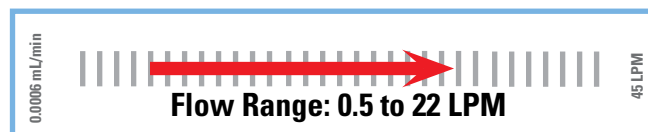
Masterflex.com



Enter your specific application parameters into our **Interactive Pump Configurator** and in seconds it will select a pump system that will meet your needs.

More info

I/P® fixed-speed drives can be washed down after use for fast, easy cleaning. Cole-Parmer offers a variety of pressure washers to suit any need—compact, portable, high-temperature, and more. See page 1428 for product specifications and ordering information.



Multichannel Capabilities!

I/P® Fixed-Speed Drives

Economical and simple to operate

- IP55-rated housing is easy to clean—simply hose down after use
- Use up to four pump heads with multi-channel pump systems
- Combination on/off/reverse switch—purge before or after pumping; pump fluid in either direction

Fixed-Speed Drives offer easy operation—simply plug in and flip the three-position switch to choose clockwise or counterclockwise pumping direction. Drives are IP55-rated for protection from dust and water.

Drives accept I/P Standard, Easy-Load®, or High-Performance pump heads for maximum flexibility. Stack up to two Standard or Easy-Load® pump heads to double flow, or select a three- or four-channel pump system for even greater output.

Three- and Four-Channel Fixed-Speed Pump Systems include pump heads, tubing, and drive, and offer convenient multichannel pumping. Use multiple channels to increase your flow rate, or pump different fluids simultaneously with a single drive. Multichannel pump systems accept any Masterflex® pump tubing formulation, so they can be configured for a broad range of applications, including pumping multiple lines of inks, chemicals, and pharmaceuticals. The fluid never contacts the pump, so clean up is quick and easy—simply throw away the tubing, and install a new piece in seconds.

What's included: Drives include 6-ft (1.8-m) line cord—115 VAC models: U.S. standard plug; 220 VAC models: European plug. Pump systems include pump heads, tubing, and drive—see details and ordering information on facing page.

Technical info

The I/P® 4-channel fixed-speed pump system 07588-90 handles viscous materials well because there are no valves to clog. The system is ideal for industrial applications such as an ink pump for printing shown below.



Flow rates in LPM (GPM) per channel

Speed (rpm)	Precision pump tubing			High-performance precision pump tubing		
	I/P® 26	I/P 73	I/P 82	I/P 70	I/P 88	I/P 89
Fixed-speed wash down drives						
83	0.5 (0.1)	1.0 (0.26)	1.7 (0.4)	1.0 (0.26)	1.7 (0.4)	2.2 (0.6)
100	0.6 (0.2)	1.2 (0.3)	2.0 (0.5)	1.2 (0.3)	2.0 (0.5)	2.6 (0.7)
150	0.9 (0.25)	1.8 (0.5)	3.0 (0.8)	1.8 (0.5)	3.0 (0.8)	3.9 (1.0)
180	1.1 (0.3)	2.2 (0.6)	3.6 (1.0)	2.2 (0.6)	3.6 (1.0)	4.7 (1.2)
450	2.8 (0.8)	5.5 (1.5)	9.0 (2.4)	5.5 (1.5)	9.0 (2.4)	11.8 (3.1)
540	3.3 (0.9)	6.6 (1.7)	11.0 (2.9)	6.6 (1.7)	11.0 (2.9)	14.1 (3.7)

Specifications & Ordering Information for Wash Down Multichannel Drives

Catalog number	Motor size	Motor speed (rpm)	IP rating	Pump heads accepted	Dimensions (L x W x H)	Power VAC (Hz)	Price
KH-07588-60	½ hp (0.37 kW)	100	IP55	4	17" x 11" x 10¼" (43.1 cm x 26.7 cm x 26.1 cm)	90 to 130 (60)	
KH-07588-65		83				190 to 260 (50)	
KH-07588-30		540		90 to 130 (60)			
KH-07588-35		450		190 to 260 (50)			

Complete I/P® Multichannel Pump Systems

Complete System 1 includes:

Pump Head

+

Tubing

+

Drive

Three I/P® Easy-Load® pump heads 77601-10 (page 1279)

Tygon® LFL I/P 73 tubing 06429-73
10-ft (3 m)
(page 1281)

Fixed-speed drive 07588-60
180 rpm¹ (115 VAC)
150 rpm¹ (230 VAC)
(above)

Flow Range
115 VAC: 2.2 LPM (0.6 GPM) per channel
230 VAC: 1.8 LPM (0.5 GPM) per channel

Ordering Information for Complete Pump System 1

Catalog number	Description	Power	Price
KH-07588-80	Three-Channel I/P fixed-speed pump	115 VAC, 60 Hz	
KH-07588-87		230 VAC, 50 Hz	

¹Speed modified via NEMA adapter.



07588-80

Complete System 2 includes:

Pump Head

+

Tubing

+

Drive

Four I/P® Easy-Load® pump heads 77601-10 (pages 1279)

Tygon® LFL I/P 73 tubing 06429-73
10-ft (3 m)
(page 1281)

Fixed-speed drive 07588-60
180 rpm¹ (115 VAC)
150 rpm¹ (230 VAC)
(above)

Flow Range
115 VAC: 2.2 LPM (0.6 GPM) per channel
230 VAC: 1.8 LPM (0.5 GPM) per channel

Ordering Information for Complete Pump System 2

Catalog number	Description	Power	Price
KH-07588-90	Four-Channel I/P fixed-speed pump	115 VAC, 60 Hz	
KH-07588-97		230 VAC, 50 Hz	

¹Speed modified via NEMA adapter.



07588-90

I/P® Variable-Speed Modular Drives

Separate motor and controller up to 24 feet for convenient set-up

- Reversible ½-hp motor allows flow in either direction—purge tubing before or after pumping
- Separate single-turn potentiometer and forward/off/reverse switch maintain speed setting while turning drive on/off/reverse
- Compatible with all I/P pump heads—achieve up to 17 LPM (4.5 GPM) using the High-Performance pump head, or stack up to two Standard or Easy-Load® heads (using silicone or C-Flex tubing) for up to 26 LPM (6.9 GPM)

GO to page(s) 1277 to 1283

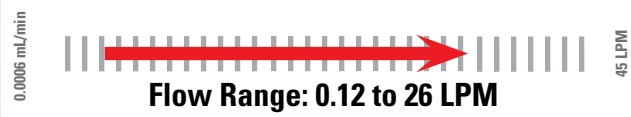
Don't forget to order pump heads and tubing. Go to pages 1277 to 1280 for pump heads and 1281 to 1283 for tubing.

Pump selection made easy!

Masterflex.com



Enter your specific application parameters into our **Interactive Pump Configurator** and in seconds it will select a pump system that will meet your needs.



Separate Motor and Controller!



B

Modular drive with wall-mount controller 07591-10 is IP34- and IP55-rated for protection from dust and water and for easy clean-up.



CE

A

Modular drive with benchtop controller 07591-00 allows convenient placement of components.

A Modular Drive with Benchtop Controller

- Motor is IP34 rated and benchtop controller is IP22 rated
- 6-ft (1.8-m) cable connects motor and controller—position components where they are most convenient
- Accepts one High-Performance pump head, or up to two Standard or Easy-Load pump heads

What's included: 6-ft (1.8-m) line cord. 115 VAC model: U.S. standard plug; 230 VAC model: IEC 320/CEE22 socket—specify final destination country to receive the correct plug/cord set.

B Modular Drive with Wall-Mount Controller

- Remote speed control via front terminal strip: 4 to 20 mA input with $\pm 1\%$ linearity (<4 mA signal stops drive)
- Motor is IP34 rated and controller is IP55 rated when closed and latched
- 24-ft (7.3-m) weather-resistant cable connects motor and controller for easy set-up
- Accepts one High-Performance pump head, or up to two Standard or Easy-Load pump heads

What's included: 6-ft (1.8-m) line cord. 115 VAC model: U.S. standard plug; 230 VAC model: European plug

The Quick & Easy way to select your Masterflex® pump system

Go to Masterflex.com and click on the Masterflex® Applications Solutions icon, choose a fluid handling application, and find the Masterflex® tubing pump systems that are meeting those challenges.

MASTERFLEX®
Application Solutions
Masterflex.com

Flow rates in LPM (GPM) per channel for Drives **A** and **B**

Speed (rpm)	Precision pump tubing			High-performance precision pump tubing		
	I/P 26	I/P 73	I/P 82	I/P 70	I/P 88	I/P 89
20 to 650	0.12 to 4.0 (0.03 to 1.0)	0.2 to 8.0 (0.06 to 2.1)	0.4 to 13.0 (0.1 to 3.5)	0.2 to 8.0 (0.06 to 2.1)	0.4 to 13.0 (0.1 to 3.5)	0.5 to 17.0 (0.14 to 4.5)

Specifications & Ordering Information for Variable-Speed Modular Drives

2 year warranty

Catalog number	Speed control	Motor size	Motor speed (rpm)	Pump heads accepted	IP rating	Dimensions (L x W x H)	Power VAC (Hz)	Price
A Modular drives with benchtop controller								
KH-07591-00	±3%	1/5 hp (0.15 kW)	20 to 650	2*	Controller: IP22 Motor: IP34	Controller: 7 7/8" x 6 1/2" x 3 1/2" (19.4 x 16.5 x 8.9 cm) Motor: 14 1/8" x 5 5/16" x 6" (35.9 x 14.1 x 15.2 cm)	90 to 130 (50/60) 190 to 260 (50/60)	
KH-07591-07								
B Modular drives with wall-mount controller								
KH-07591-10	±3%	1/5 hp (0.15 kW)	20 to 650	2*	Controller: IP55 Motor: IP34	Controller: 7" x 9 1/16" x 9 3/4" (17.8 x 24.6 x 24.8 cm) Motor: 14 1/8" x 5 5/16" x 6" (35.9 x 14.1 x 15.2 cm)	90 to 130 (60) 190 to 260 (50)	
KH-07591-15								

*Drive accepts two pump heads when loaded with silicone or C-FLEX® tubing.

Complete I/P® Variable-Speed Modular Pump Systems

Complete System 1 includes:

Pump Head + **Tubing** + **Drive**

I/P® Easy-Load®
pump head 77601-10
(page 1279)

Tygon® LFL I/P 73
tubing 06429-73
10 ft (3 m)
(page 1281)

Modular drive
07591-00 or -07
20 to 650 rpm
(above)

Flow Range: 0.2 to 8 LPM



Ordering Information for Complete Pump System 1

Catalog number	Description	Power	Price
KH-77962-00	I/P modular pump system with benchtop controller	115 VAC, 50/60 Hz	
KH-77962-07		230 VAC, 50/60 Hz	

Complete System 2 includes:

Pump Head + **Tubing** + **Drive**

I/P® Easy-Load®
pump head 77601-10
(page 1279)

Tygon® LFL I/P 73
tubing 06429-73
10 ft (3 m)
(page 1281)

Modular drive
07591-10 or -15
20 to 650 rpm
(above)

Flow Range: 0.2 to 8 LPM



Ordering Information for Complete Pump System 2

Catalog number	Description	Power	Price
KH-77962-10	I/P modular pump system with wall-mount controller	115 VAC, 60 Hz	
KH-77962-15		230 VAC, 50 Hz	

**A**

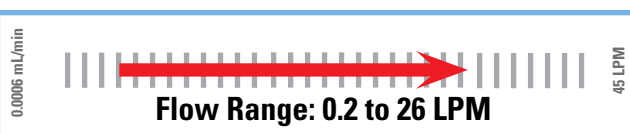
Variable-speed brushless process drive 77410-10 is powerful, compact, and portable.

Powerful, Cost-Effective, and Low-Maintenance!

Double the flow rate by stacking two I/P® Standard or Easy-Load® pump heads using any I/P tubing formulation.

**B**

Variable-speed brushless process drive with remote input/output 77411-00 is easy to integrate into your process via the watertight remote connector.



I/P® Brushless Process Drives

Powerful, low-maintenance drives are versatile and cost effective

- 1/3-hp brushless motors handle challenging applications with minimal maintenance
- Non-chip epoxy-coated, IP55-rated steel enclosure protects against moisture, chemicals, and dust
- Compact drives are light enough to carry with one hand, but powerful enough to drive two pump heads

I/P® brushless process drives offer heavy-duty performance for your demanding process applications. Both models feature robust 1/3-hp brushless motors that drive up to two pump heads with most tubing formulations, while eliminating the cost and inconvenience of brush replacement. Adjust the drive speed quickly using the speed control knob—speed is displayed on an easy-to-read LED display from 5 to 100% of full speed, with 1% resolution.

The IP55-rated epoxy-coated, steel enclosure provides excellent protection against chemicals, water, and dust. With a compact footprint and built-in carrying handle, these lightweight drives conserve space and allow easy portability.

A Variable-Speed Brushless Process Drive

- Speed control via three-turn potentiometer for quick, easy adjustments
- Start/stop/reverse via sealed keypad
- Digital display shows motor speed, from 5 to 100%

What's included: 6-ft (1.8-m) line cord with IEC320/CEE 22 connector coupler. Please specify final destination country to receive the correct plug/cord set.

B Variable-Speed Brushless Process Drive with Remote Input/Output

All of the features of "A" above, plus:

- Remote inputs: 4 to 20 mA, 0 to 10 V, start/stop, and reverse (requires 77300-32 remote cable kit, sold separately on the following page)
- Remote outputs: "pump ready" signal and 4 to 20 mA outputs (requires 77300-32 remote cable kit, sold separately on the following page)
- Start/stop, change pump direction, or switch between local and remote control using the sealed keypad with separate on/off switch and three-turn speed control potentiometer

What's included: 6-ft (1.8-m) line cord with IEC320/CEE 22 connector coupler; 15-pin circular watertight remote connection. Please specify final destination country to receive the correct plug/cord set.

Pump selection made easy!

Masterflex.com



Enter your specific application parameters into our **Interactive Pump Configurator** and in seconds it will select a pump system that will meet your needs.

GO to page(s) 1277 to 1283

Don't forget to order pump heads and pump tubing. Go to pages 1277 to 1280 for pump heads and 1281 to 1283 for pump tubing.

Flow Rates per Channel in LPM (GPM)

Speed (rpm)	Precision pump tubing			High-performance precision pump tubing		
	I/P® 26	I/P 73	I/P 82	I/P 70	I/P 88	I/P 89
33 to 650	0.20 to 4.0 (0.05 to 1.0)	0.41 to 8.0 (0.11 to 2.1)	0.66 to 13.0 (0.18 to 3.5)	0.41 to 8.0 (0.11 to 2.1)	0.66 to 13.0 (0.18 to 3.5)	0.86 to 17.0 (0.23 to 4.5)

Specifications & Ordering Information for Variable-Speed Brushless Drives



Catalog number	Motor size	Motor speed (rpm)	Speed control (repeatability)	Pump heads accepted	IP rating	Dimensions (L x W x H)	Power (50/60 Hz)		Price
							VAC	Amps	
Variable-speed brushless process drive									
KH-77410-10	1/2 hp (0.25 kW)	33 to 650	±0.25% (2% of max rpm)	2	IP55	14" x 10" x 9 1/2" (34.2 x 25.2 x 23 cm)	90 to 260	4.5 A at 115 VAC 2.6 A at 230 VAC	
Variable-speed brushless process drive with remote I/O									
KH-77411-00	1/2 hp (0.25 kW)	33 to 650	±0.25% (2% of max rpm)	2	IP55	14" x 10" x 9 1/2" (34.2 x 25.2 x 23 cm)	90 to 260	2.6 A at 230 VAC 4.5 A at 115 VAC	

Accessories (for 77411-00 only)

KH-07595-43 Washdown footswitch

KH-77300-32 Remote cable kit

Complete I/P® Brushless Process Pump Systems

Complete Systems 1 and 2 include:

Pump Head	+	Tubing	+	Drive
1 I/P® Easy-Load® pump head 77601-10 (page 1279)		Tygon® LFL I/P 73 tubing 06429-73 10 ft (3 m) (page 1281)		I/P Brushless process drive 77410-10 33 to 650 rpm (above)
2 I/P High-Performance pump head 77600-62 (page 1280)		Tygon LFL I/P 88 tubing 06429-88 3 ft (1 m) (page 1281)		I/P Brushless process drive 77410-10 33 to 650 rpm (above)

Ordering Information for Complete Pump Systems 1 and 2

Catalog number	Description	Power	Price
1 KH-77963-10	I/P brushless process system with Easy-Load pump head	90 to 260 VAC, 50/60 Hz	
2 KH-77963-20	I/P brushless process system with High-Performance pump head		

Note: Order accessories separately above.

Flow Range:
0.41 to 8.0 LPM

1
77963-10



2
77963-20

Flow Range:
0.66 to 13.0 LPM

Complete Systems 3 and 4 include:

Pump Head	+	Tubing	+	Drive
3 I/P® Easy-Load® pump head 77601-10 (page 1279)		Tygon® LFL I/P 73 tubing 06429-73 10 ft (3 m) (page 1281)		I/P Brushless process drive 77411-00 33 to 650 rpm (above)
4 I/P High-Performance pump head 77600-62 (page 1280)		Tygon LFL I/P 88 tubing 06429-88 3 ft (1 m) (page 1281)		I/P Brushless process drive 77411-00 33 to 650 rpm (above)

Ordering Information for Complete Pump Systems 3 and 4

Catalog number	Description	Power	Price
3 KH-77965-00	I/P brushless process system with remote I/O and Easy-Load pump head	90 to 260 VAC, 50/60 Hz	
4 KH-77965-10	I/P brushless process system with remote I/O and High-Performance pump head		

Note: Order accessories separately above.

Flow Range:
0.41 to 8.0 LPM

3
77965-00



4
77965-10

Flow Range:
0.66 to 13.0 LPM

I/P® Variable-Speed Modular Digital Dispensing Drives

Modular design enables you to place the system components where they are most convenient

- Designed for accurate dispensing or general fluid transfer
- Large, easy-to-read digital display shows dispensing parameters as well as specified flow rate
- Remote control capabilities allow easy integration into your process

Modular digital dispensing drives combine accurate dispensing with the convenience of a separate motor and controller. The controller can be placed up to 25 feet (7.6 m) away from the motor for flexible set up. Reversible 1/5-hp motor allows pumping in either direction and makes it easy to purge the tubing before or after pumping.

Four-digit LED display shows four different parameters: flow rate (0.01, 1, 10 L/min resolution, autoranging with tubing size); dispense volume (0.1 to 999 liters) or dispense interval (1 to 999 sec); copy (1 to 99 repetitions, 1.5 mL to over 1000 liters each); and motor speed (1 rpm resolution). Sealed membrane keypad lets you start, stop, prime, reverse, calibrate, and dispense/copy with the touch of a button. Calibrate manually to compensate for tubing variations or use the nominal calibrations stored in the nonvolatile memory. Drive stores one user-defined calibration value per tubing size. Keypad lock/unlock feature prevents accidents or tampering.

Achieve up to 26 LPM (6.9 GPM) using two I/P® Standard or Easy-Load® pump heads with silicone or C-FLEX® tubing—or up to 17 LPM (4.5 GPM) using the High-Performance pump head.

A Modular Digital Dispensing Drive with Benchtop Controller

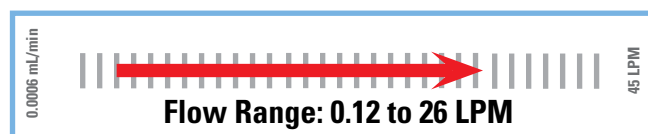
- Motor and controller are connected by a 25-ft (7.6-m) cable
- Motor is IP34 rated, controller is IP22 rated; controller is protected from gentle spray from above; motor is protected from water sprayed from all directions
- Remote control capabilities via DB15 female connection on controller—speed control input: 0 to 20 mA, 4 to 20 mA, or 0 to 10 V; pumping direction/start/stop: open collector or contact closure; tachometer output: 0 to 20 mA, 4 to 20 mA, 0 to 10 V, or TTL pulse

What's included: 6-ft (1.8-m) line cord with plug—115 VAC: U.S. standard plug; 230 VAC: IEC320/CEE22 connector. 230 VAC model is shipped with country-specific plug/cord set, please specify destination when ordering.

B Modular Digital Drives/Dispensers with Wash-Down Wall-Mount Controller

- Motor and controller are connected by a 25-ft (7.6-m) weatherproof cable
- Motor is IP34 rated; controller is IP56 rated for protection from dust and strong jets of water; motor is protected from water sprayed from all directions
- Remote control capabilities via weather-resistant connection on controller (must purchase remote control cable 77300-32, sold separately on facing page)—speed control input: 0 to 20 mA, 4 to 20 mA, or 0 to 10 V; pumping direction/start/stop: open collector or contact closure; tachometer output: 0 to 20 mA, 4 to 20 mA, 0 to 10 V, 2 to 10 V, or TTL pulse

What's included: 6-ft (1.8-m) line cord with plug—115 VAC: U.S. standard plug; 230 VAC: European plug.



Separate Motor and Controller!

A Modular digital dispensing drive with benchtop controller 07592-20 has a separate controller for easy set up.



GO to page(s) 1277 to 1283

Don't forget to order pump heads and tubing. Go to pages 1277 to 1280 for pump heads and 1281 to 1283 for tubing.



B Modular digital dispensing drive with wall-mount controller 07592-30 is protected against moisture and dust.

Pump selection made easy!

Masterflex.com



Enter your specific application parameters into our **Interactive Pump Configurator** and in seconds it will select a pump system that will meet your needs.

Flow Rates per Channel in LPM (GPM)

rpm	Precision pump tubing			High-performance precision pump tubing		
	I/P® 26	I/P 73	I/P 82	I/P 70	I/P 88	I/P 89
Modular digital drives/dispensers						
20 to 650	0.12 to 4.0 (0.03 to 1.0)	0.2 to 8.0 (0.06 to 2.1)	0.4 to 13.0 (0.1 to 3.5)	0.2 to 8.0 (0.06 to 2.1)	0.4 to 13.0 (0.1 to 3.5)	0.5 to 17.0 (0.14 to 4.5)
Modular digital drives/dispensers with wall mount controller						
20 to 650	0.12 to 4.0 (0.03 to 1.0)	0.2 to 8.0 (0.06 to 2.1)	0.4 to 13.0 (0.1 to 3.5)	0.2 to 8.0 (0.06 to 2.1)	0.4 to 13.0 (0.1 to 3.5)	0.5 to 17.0 (0.14 to 4.5)

Dispensing Precision

Dispensing mode	Precision pump tubing			High-performance precision pump tubing		
	I/P 26	I/P 73	I/P 82	I/P 70	I/P 88	I/P 89
Minimum dose†	400 mL	840 mL	1360 mL	840 mL	1360 mL	1750 mL
Precision	±2.0 mL	±4.2 mL	±6.8 mL	±4.2 mL	±6.8 mL	±8.8 mL

†For up to ±0.5% precision

Specifications & Ordering Information for Variable-Speed Drives

ISO9001:2000
SUPPLIER CERTIFIED

UL US

CE

2 year warranty

Catalog number	Motor size	Motor speed (rpm)	Speed control	Pump heads accepted	IP rating	Dimensions (L x W x H)	Power VAC		Price
							VAC (Hz)	Amps	
Modular digital drives/dispensers									
KH-07592-20	½ hp (150 W)	20 to 650	±0.3%	2*	Controller: IP22 Motor: IP34	Controller: 9⅞" x 9⅞" x 5⅞" (25.8 x 23.3 x 12.9 cm) Motor: 14⅞" x 5⅞" x 6" (35.9 x 14.1 x 15.2 cm)	90 to 130 (60)	4.4	
KH-07592-27							190 to 260 (50)	2.2	
Wash-down modular digital drives/dispensers with wall-mount controller									
KH-07592-30	½ hp (150 W)	20 to 650	±0.3%	2*	Controller: IP56 Motor: IP34	Controller: 10¼" x 11" x 4½" (26.0 x 27.9 x 11.4 cm) Motor: 14⅞" x 5⅞" x 6" (35.9 x 14.1 x 15.2 cm)	90 to 130 (60)	4.4	
KH-07592-35							190 to 260 (50)	2.2	

*Accepts two pump heads when used with silicone or C-FLEX tubing.

Complete I/P® Variable-Speed Modular Digital Dispensing Pump Systems

Complete System 1 includes:

Pump Head + **Tubing** + **Drive**

I/P Easy-Load®
pump head 77601-10
(page 1279)

Tygon® LFL I/P 73
tubing 06429-73
10 ft (3 m)
(page 1281)

Digital dispensing drive
07592-20 or -27
20 to 650 rpm
(above)

Flow Range: 0.2 to 8 LPM



Ordering Information for Complete Pump System 1

Catalog number	Description	Power	Price
KH-77970-20	I/P digital dispensing pump	115 VAC, 60 Hz	
KH-77970-27		230 VAC, 50 Hz	

KH-07595-42 Footswitch, momentary start/stop; 6-ft (1.8-m) cable
KH-07595-52 DB15 male connector. Use to create your own cable

Complete System 2 includes:

Pump Head + **Tubing** + **Drive**

I/P® Easy-Load®
pump head 77601-10
(page 1279)

Tygon® LFL I/P 73
tubing 06429-73
10 ft (3 m)
(page 1281)

Modular digital drive
07592-30 or -35
20 to 650 rpm
(above)

Flow Range:
0.2 to 8 LPM



Ordering Information for Complete Pump System 2

Catalog number	Description	Power	Price
KH-77970-30	I/P wall-mount digital dispensing pump	115 VAC, 60 Hz	
KH-77970-37		230 VAC, 50 Hz	

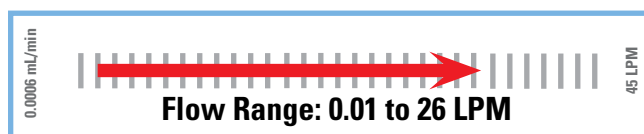
KH-07592-83 Handheld remote
KH-07595-43 Wash-down footswitch
KH-77300-32 Remote cable kit

I/P®

MASTERFLEX®

Maintenance-Free, Easy to Clean!

I/P® digital console drive 77420-00 shown with I/P high-performance pump head 77600-62 and I/P 88 silicone tubing 96510-88



I/P® Digital Brushless Process Drive

Accurate dispensing plus excellent cleanability

- Dispense by volume or time, or pump continuously
- Completely sealed 316 stainless steel enclosure is IP66 and NEMA 4X rated for protection from tough process environments
- Brushless motor virtually eliminates maintenance—no motor brushes to replace

The Masterflex® I/P digital console process drive offers precise dispensing with full-featured remote control capabilities. It features a reversible, maintenance-free brushless motor, with precise PWM (pulse-width modulated) control via a digital signal processor (DSP). The smooth, 316 stainless steel housing is easy to clean and provides excellent chemical resistance. The drive is completely sealed against liquids, enabling it to be washed down with a hose after use.

Six-character, seven segment LED display shows flow rate, motor speed, dispense volume, or cumulative volume dispensed in English and metric units. LEDs indicate tubing size, flow direction, dispense mode, remote input, and whether there is a user-defined calibration value for the tubing size in use. Convenient keyboard lockout feature prevents tampering and inadvertent setting changes. Operation lockout disables drive and provides error display in case of hardware, software, or power circuit failures.

Dispense by volume (10 mL to 26,520 L, with 1 mL resolution), time (1 to 999,999 seconds), or copy a user-defined dose from 1 to 999,999 times for easy repetitive dispensing. Calibrate system to ensure maximum accuracy—drive stores one user-specified calibration value per tubing size even when power is turned off.

Remote control capabilities interface with your process via a watertight connection. Speed control input (scaleable): 0 to 20 mA, 4 to 20 mA or 0 to 10 V signals. Contact closure or open collector: pumping direction/start/stop/prime. Tachometer output: 4 to 20 mA, 0 to 10 V.

Achieve up to 26 LPM (6.9 GPM) using two stacked I/P Standard or Easy-Load® pump heads, or up to 17 LPM (4.5 GPM) using the High-Performance pump head.

What's included: 6-ft (1.8-m) line cord with IEC320/CEE 22 connector coupler; watertight cord connection. Please specify final destination country to receive the correct plug/cord set.

Pump selection made easy!

Masterflex.com



Enter your specific application parameters into our **Interactive Pump Configurator** and in seconds it will select a pump system that will meet your needs.

The Masterflex® I/P® digital console process drive accepts a single I/P High-Performance pump head or up to two I/P Standard pump heads (below, left) or two I/P Easy-Load® pump heads (below, right) with any I/P tubing formulation.



Technical info

Our **FREE Tubing Test Kit** is a simple way to test your chemicals against different tubing formulations. Kit contains samples of 17 different pump tubing formulations, formulation descriptions, a selection guide, instructions on how to test your tubing, and complete ordering information. Call today!



Flow Rates in LPM (GPM) per channel

rpm	Precision pump tubing			High-performance precision pump tubing		
	I/P® 26	I/P 73	I/P 82	I/P 70	I/P 88	I/P 89
1 to 650	0.01 to 4.0 (0.002 to 1.0)	0.01 to 8.0 (0.003 to 2.1)	0.02 to 13.0 (0.005 to 3.5)	0.01 to 8.0 (0.003 to 2.1)	0.02 to 13.0 (0.005 to 3.5)	0.03 to 17.0 (0.007 to 4.5)

Dispensing Precision

Dispensing mode	Precision pump tubing			High-performance precision pump tubing		
	I/P 26	I/P 73	I/P 82	I/P 70	I/P 88	I/P 89
Minimum dose†	400 mL	840 mL	1360 mL	840 mL	1360 mL	1750 mL
Precision	±2.0 mL	±4.2 mL	±6.8 mL	±4.2 mL	±6.8 mL	±8.8 mL

† For up to ±0.5% precision

Specifications & Ordering Information for Variable-Speed Brushless Drives

ISO9001:2000
SUPPLIER CERTIFIED



2 year
warranty

Catalog number	Motor size (kW)	Motor speed (rpm)	Speed control	Pump heads accepted	IP rating	Dimensions (L x W x H)	Power (50/60 Hz)		Price
							VAC	Amps	
KH-77420-00	¾ (0.28)	1 to 650	±0.25% (±1rpm)	2*	IP66	18½" x 11" x 17" (48 x 28 x 43 cm)	90 to 260	4.5 A at 115 VAC, 2.6 A at 230 VAC	

*Accepts up to two I/P Standard or Easy-Load® pump heads or one High-Performance pump head.

Accessories

[KH-07592-83](#) Handheld remote

[KH-07595-43](#) Wash down footswitch, momentary start/stop; 1.8-m (6-ft) cable

[KH-77420-01](#) Caster kit for easy movement of the drive

[KH-77300-32](#) Remote cable kit



Caster kit 77420-01 makes movement easy (order at left).

GO to page(s) 1277 to 1283

Don't forget to order pump heads and tubing. Go to pages 1277 to 1280 for pump heads and 1281 to 1283 for tubing.

Complete I/P® Digital Console Process Pump Systems

Complete System 1 includes:

Pump Head + **Tubing** + **Drive**

I/P® Easy-Load® pump head 77601-10 (page 1279)

Tygon® LFL I/P 73 tubing 06429-73
10 ft (3 m)
(page 1281)

I/P Digital process drive 77420-00
1 to 650 rpm
(above)

Ordering Information for Complete Pump System 1

Catalog number	Description	Power	Price
KH-77964-00	I/P digital process pump system	90 to 260 VAC, 50/60 Hz	

Note: Order accessories separately above.



Complete System 2 includes:

Pump Head + **Tubing** + **Drive**

I/P® High-Performance pump head 77600-62 (page 1280)

Tygon® LFL I/P 88 tubing 06429-88
3 ft (1 m)
(page 1281)

I/P Digital process drive 77420-00
1 to 650 rpm
(above)

Ordering Information for Complete Pump System 2

Catalog number	Description	Power	Price
KH-77964-10	I/P high performance digital process pump system	90 to 260 VAC, 50/60 Hz	

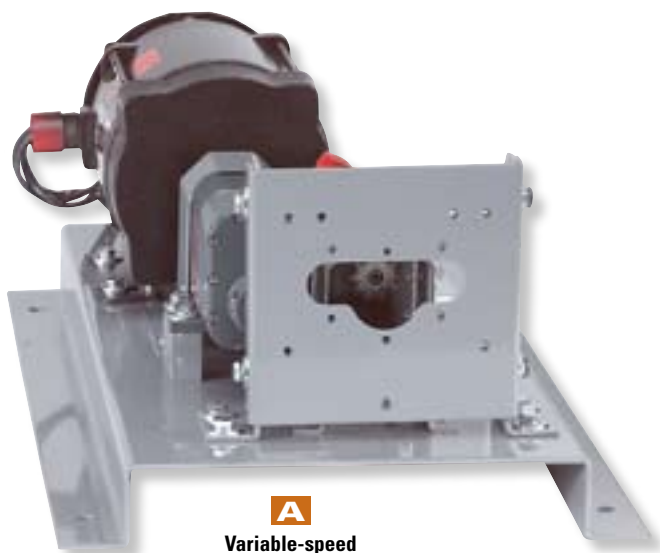
Note: Order accessories separately above.



I/P® Hazardous-Duty and Air-Powered Drives

Specially-designed pumps for hazardous-duty applications

- Use where special electrical precautions are necessary to ensure safe operation
- Variable-speed drives provide a wide flow range for maximum flexibility
- Compatible with all I/P® pump heads



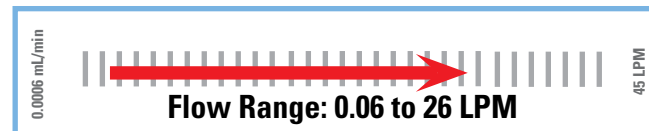
A
Variable-speed
hazardous-duty
drive 07583-50

A Variable-Speed Hazardous-Duty Drives

- Safer, fully mechanical speed control—adjust with lever, then lock setting
- 115 VAC motor is UL-listed for Class 1, Group D, Division 1 hazardous locations
- Achieve up to 11.2 LPM (3 GPM) using the High-Performance pump head, or stack up to two Standard or Easy-Load® heads (using silicone or C-FLEX® tubing) for up to 17 LPM (4.5 GPM); also compatible with L/S® pump heads—see pages 1228 to 1244.
- Power switch and line cord not included—connect power using protected connections

More info **ATEX**

For L/S® and I/P® pump heads approved to ATEX Zone 2, see pages 1.21–1.24 in our "Late-Breaking Additions" section in the front of this catalog.



Ideal for hazardous or process applications



B
Variable-speed
air-powered drive
07589-30

B Variable-Speed Air-Powered Drive

- Use when electrical power may be unsafe or impractical—for safe operation, carefully ground to protect from static electricity
 - Vary motor speed by using a regulator (included) to adjust air pressure—¾-hp air motor starts smooth, generates less heat than an electric motor, and requires little maintenance
 - Achieve up to 17 LPM (4.5 GPM) using the High-Performance pump head, or stack up to two Standard or Easy-Load® heads (using silicone or C-FLEX® tubing) for up to 26 LPM (6.9 GPM)
- What's included:** regulator with 5-mm air filter and ¼" NPT(F) connection, automatic lubricator, 0 to 30 psi pressure gauge, and muffler.

FREE Technical Applications Assistance

Challenge: An agricultural company needed to pump ethanol at approximately 7 LPM to a stripping column. They needed a pump drive that would withstand the flammability of ethanol and tubing that provided excellent chemical compatibility.

Our solution: Application specialists recommended the I/P® hazardous-duty pump drive (07583-50), and Viton® tubing (06412-73). The I/P hazardous-duty drive is UL-listed for Class 1, Group D, Division 1 hazardous locations. The Easy-Load® pump head provides greater flow rate flexibility if the customer needs to use other sizes of tubing. With respect to the tubing, Viton has an excellent chemical compatibility rating with ethanol.

For answers, call our
Technical Applications Specialists
at **847-549-7600**
We are here to help

 Cole-Parmer®

Flow rates in LPM (GPM) per channel

rpm	Precision pump tubing			High-performance precision pump tubing		
	I/P® 26	I/P 73	I/P 82	I/P 70	I/P 88	I/P 89
▲ Variable-speed hazardous-duty drives						
10 to 430	0.06 to 2.6 (0.02 to 0.7)	0.12 to 5.3 (0.03 to 1.4)	0.2 to 8.6 (0.05 to 2.3)	0.12 to 5.3 (0.03 to 1.4)	0.2 to 8.6 (0.05 to 2.3)	0.26 to 11.2 (0.07 to 3.0)
■ Variable-speed air-powered drive						
100 to 650	0.6 to 4.0 (0.2 to 1.0)	1.2 to 8.0 (0.3 to 2.1)	2.0 to 13.0 (0.5 to 3.5)	1.2 to 8.0 (0.3 to 2.1)	2.0 to 13.0 (0.5 to 3.5)	2.6 to 17.0 (0.7 to 4.5)

Specifications & Ordering Information for Hazardous-Duty/Air-Powered Drives



Catalog number	Motor size	Motor speed (rpm)	Speed control	Pump heads accepted	IP rating	Dimensions (L x W x H)	Power	Price
▲ Variable-speed hazardous-duty drive								
KH-07583-50	¼ hp (190 W)	10 to 430	±10%	2*	IP21	22½" x 13½" x 8¾" (56 x 34.6 x 22.3 cm)	115 VAC, 60 Hz	
■ Variable-speed air-powered drive								
KH-07589-30	¾ hp (560 W)	100 to 650	±10%	2*	IP34	11½" x 8½" x 9" (28.2 x 21.6 x 22.9 cm)	3 to 25 cfm (0.08 to 0.7 m³/min) at 20 to 100 psi (1.4 to 6.9 bar)	

*Drive accepts two pump heads when loaded with silicone or C-FLEX® tubing.

Complete I/P® Hazardous-Duty and Air-Powered Pump Systems

Complete System 1 includes:

Pump Head + Tubing + Drive

I/P® Easy-Load®
pump head 77601-10
(page 1279)

Tygon® LFL I/P 73
tubing 06429-73
10 ft (3 m)
(page 1281)

I/P hazardous-duty drive
07583-50
10 to 430 rpm (115 VAC)
(above)

Flow Range:
0.12 to 5.3 LPM



77981-10

Ordering Information for Complete Pump System 1

Catalog number	Description	Power	Price
KH-77981-10	I/P variable-speed hazardous-duty pump system	115 VAC, 60 Hz	

Complete System 2 includes:

Pump Head + Tubing + Drive

I/P® Easy-Load®
pump head 77601-10
(page 1279)

Tygon® LFL I/P 73
tubing 06429-73
10 ft (3 m)
(page 1281)

I/P air-powered drive
07589-30
100 to 650 rpm
(above)

Flow Range: 1.2 to 8 LPM



77980-00

Ordering Information for Complete Pump System 2

Catalog number	Description	Power	Price
KH-77980-00	I/P air-powered pump system	3 to 25 cfm (0.08 to 0.7 m³/min) at 20 to 100 psi (1.4 to 6.9 bar)	

MASTERFLEX® Customized Systems

Customized pump systems for Class 1, Division 2 hazardous locations using Masterflex® I/P® pump heads

- Fully assembled—simply load tubing
- Local or remote (4 to 20 mA) operations
- System secured on a structural steel skid

Create a pump system for hazardous locations using Masterflex pump heads and tubing as well as other components and features you require. Our standard model 70788-00 with Easy-Load® pump head 77601-00 offers variable-speed flow rates up to 10.8 LPM. To complete your system, order Masterflex I/P tubing on pages 1281–1283.

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, single or dual channels, and flow rates up to 14 LPM with the I/P High-Performance pump head.

Note: Tubing is not included in system, please order tubing separately on pages 1281–1283.



Masterflex customized pump skid 70788-00



Call our Application Specialists to customize a system suited to your needs.
847-549-7600

GO to page(s) 1281 to 1283

To order Masterflex® I/P® tubing to achieve your desired flow rate.

Specifications & Ordering Information

Dimensions: 12"L x 31"W x 24"H

Catalog number	Pump head	Max flow* (LPM)	Max diff (psig)	Power			Price
				VAC	Hz	Phase	
KH-70788-00	I/P Easy-Load 77601-00	10.8	35	120	60	1	

*Dependent upon size of tubing selected

Ordering Information for I/P® Standard Pump Heads

Pump tubing size	mL per rev	Flow rates in LPM (GPM) at indicated rpm		Maximum system pressure psi (bar)	Standard pump heads					
		100 rpm	540 rpm		PC housing		PPS Housing			
					CRS rotor		SS rotor		SS rotor	
		Cat. no.	Price		Cat. no.	Price	Cat. no.	Price		
I/P® 73	12.3	1.2 (0.3)	6.6 (1.7)	Continuous: 25 (1.7) Intermittent: 40 (2.7)	KH-07019-20		KH-07019-21		KH-07019-43	
I/P® 82	20.0	2.0 (0.5)	10.8 (2.9)	Continuous: 15 (1.1) Intermittent: 20 (1.4)	KH-07019-32		KH-07019-31		KH-07019-53	

Ordering Information for I/P® Easy-Load® Pump Heads

Pump tubing size	mL per rev	Flow rates in LPM (GPM) at indicated rpm		Maximum system pressure psi (bar)	Easy-Load® pump heads					
		100 rpm	540 rpm		PC housing		PPS Housing			
					CRS rotor		SS rotor		SS rotor	
		Cat. no.	Price		Cat. no.	Price	Cat. no.	Price		
I/P® 26	6.2	0.6 (0.2)	3.3 (0.8)	Continuous: 25 (1.7) Intermittent: 40 (2.7)	KH-77601-00		KH-77601-10		KH-77601-60	
I/P® 73	12.3	1.2 (0.3)	6.6 (1.7)	Continuous: 25 (1.7) Intermittent: 40 (2.7)						
I/P® 82	20.0	2.0 (0.5)	10.8 (2.9)	Continuous: 15 (1.1) Intermittent: 20 (1.4)						

Ordering Information for I/P® High-Performance Pump Heads

Pump tubing size	mL per rev	Flow rates in LPM (GPM) at indicated rpm		Maximum system pressure psi (bar)	High-performance pump head	
		100 rpm	540 rpm		Polyester and SS housing, SS rotor	
					Catalog number	Price
I/P® 70	12.3	1.2 (0.3)	6.6 (1.7)	Continuous: 25 (1.7) Intermittent: 40 (2.7)	KH-77600-62	
I/P® 88	20.0	2.0 (0.5)	10.8 (2.9)	Continuous: 20 (1.4) Intermittent: 35 (2.4)		
I/P® 89	26.2	2.6 (0.7)	14.1 (3.7)	Continuous: 15 (1.0) Intermittent: 20 (1.4)		

B/T® Pump Selection Guide

New

Select one of the new and improved Masterflex® B/T® pumps from the selection guide below. Choose B/T pumps when your application requires high flow rates and rugged dependability. Every B/T pump offers a powerful motor ideal for transfer of viscous or shear-sensitive materials. Since fluid only contacts the tubing, cleanup is easy. Plus, the improved Rapid-Load® pump head makes tubing changes simple.

Improvements include:

- A new Rapid-Load® occlusion mechanism that slides the tubing occlusion bed out of the way for easy tube loading and improved occlusion of the tubing when closed.
- New cast-aluminum housing provides quieter, more rugged operation—along with a new epoxy-powder coating to prevent chemical corrosion and improve cleanup.
- New tubing sizes (B/T 87 and B/T 91) provide better performance in higher-pressure applications.
- Easy-opening cover swings away to allow for CIP or SIP protocols.
- New PerfectPosition™ tubing retention marks indicate the exact length of tubing needed to give the best tubing performance and life.
- Improved safety features such as an integrated pump interlock that shuts the pump down when the head is opened.
- New easy-clasp closure provides one-handed opening and closing without the use of tools.

GO to ColeParmer.com

New and improved Rapid-Load® pump head makes loading tubing simple! Click for directions on how to load this tubing.

Click Here

GO to page(s) 1304–1305

Go to pages 1304–1305 to order B/T® pump tubing.

Description	Flow range	Fixed speed	Variable speed	Reversible	Remote control capabilities	Special features	Page number
Analog							
 Fixed-Speed 77110-00	115 VAC: 17.7 or 37 LPM; (4.7 or 9.8 GPM) 230 VAC: 14.7 or 30.7 LPM; (3.9 or 8.1 GPM)	✓		✓		Economical; simple operation; easy setup	1300
 Variable-Speed 77110-60	0.67 to 37 LPM (0.17 to 9.8 GPM)		✓	✓		Detachable controller for flexible setup; broad flow range	1301
Digital							
 Modular Dispensing 77110-40	0.67 to 37 LPM (0.17 to 9.8 GPM)		✓	✓	✓	Digital dispensing with calibration; separate motor and controller for convenient setup	1302
Specialty							
 Hazardous-Duty 77110-20	115 VAC: 17.7 or 37 LPM; (4.7 or 9.8 GPM) 230 VAC: 14.7 or 30.7 LPM; (3.9 or 8.1 GPM)	✓				Motor is agency certified for use in hazardous locations	1300
 Air-Powered 77110-80	4.0 to 37 LPM (0.5 to 9.8 GPM)		✓			Use where electricity is unsafe or impractical	1301
 Pump Head Adapters 77110-50, -55	Flow rates and features depend on motor selection					Allows you to use 56C and IEC72/ISO 71 motors with Masterflex® pump heads	1303

B/T®**MASTERFLEX®**

B/T® Pumps

Achieve the highest flow rates of any Masterflex® pump—up to 37 LPM (9.8 GPM)

- Accept new B/T PerfectPosition™ pump tubing sizes B/T 87 and B/T 91
- Washdown pumps handle the toughest process and production applications, then clean up with ease
- Gentle peristaltic action is ideal for pumping shear-sensitive or viscous fluids (up to 10,000 cps)
- **New improved** rotor and occlusion bed design allow easier tube loading and prevent “tubing roll” during operation

Masterflex® B/T® pumps are the best choice for high-flow bulk-transfer applications. Their durable construction ensures long service life with minimal maintenance. The sturdy materials of construction include stainless steel/carbon steel, a cast aluminum housing with an epoxy-powder coating, and Nylatron® rollers for rugged dependability. Choose from a variety of models suitable for nearly any application, from fixed speed pumps to digital dispensers, to hazardous-duty and air-driven pumps.

All B/T pumps include a **new** and **improved** Rapid-Load® pump head for fast and easy tubing changes. The redesigned occlusion mechanism slides the tubing bed out of the way for easy tube loading and improved occlusion of the tubing when the pump head closes.

The improved tubing retention mechanism holds the tubing firmly in place to allow for a simple loading process. New tubing sizes provide better performance in higher-pressure applications and provide longer tubing life.

What's included: a new Rapid-Load® pump head and 3 ft (1 m) of Tygon® LFL B/T 91 tubing 06430-91. (Order additional tubing separately on page 1304.)

A Fixed-Speed Pump

Economical and easy to operate

- Reversible motor: purge before or after pumping, pump fluid in either direction
- IP55-rated motor—wash off dirt or debris without harming pump
- Includes 6-ft line cord—115 VAC: U.S. standard plug; 230 VAC: European plug

B Hazardous-Duty Pump

Use in locations where motor sparking could be a hazard

- IP55-rated motor protects against dust and low-pressure jets of water
- Does not include power switch or line cord—safely connect power using your own protected connections

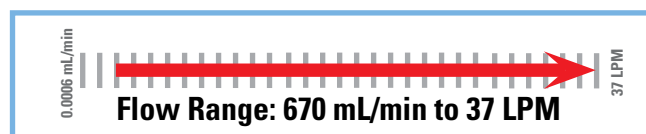
Flow Rates in LPM (GPM)

rpm	PerfectPosition™ pump tubing	
	B/T 87	B/T 91
321	17.7 (4.7)	37 (9.8)
266	14.7 (3.9)	30.7 (8.1)

Specifications & Ordering Information

Key letter	Catalog number	Motor type	Motor size	rpm	IP rating	Mounting type	Dimensions (L x W x H)	Power		Price
								VAC (Hz)	Amps	
A	KH-77110-00	Fixed-speed	½ hp (0.37 kW)	321	IP55	Direct-drive	26" x 15½" x 12½" (66 x 40 x 31.8 cm)	115 (60)	8	
	266			220 (50)				4		
B	KH-77110-20	Fixed-speed, hazardous-duty†	½ hp (0.37 kW)	321	IP55	Direct-drive	26" x 15½" x 12½" (66 x 40 x 31.8 cm)	115 (60)	8	
	266			220 (50)				4		

†Class 1, Groups C and D.



Ideal for Viscous Materials!



A
Fixed-speed pump 77110-00 is simple to set up and operate.



B
Hazardous-duty pump 77110-20 (shown with B/T® 91 silicone pump tubing 96400-91) operates in areas where sparking could be a hazard.

ISO9001:2000
CERTIFIED SUPPLIER

UL SF
77110-20, -27
only



2 year
warranty

C Variable-Speed Pump

Place detachable washdown controller wherever it's convenient

- Detachable controller with 10-ft (3-m) cord mounts on pump or wall
- IP56-rated motor protects against dust and strong jets of water
- Reversible motor: purge before or after pumping, pump fluid in either direction
- Includes 6-ft line cord—115 VAC: U.S. standard plug; 230 VAC: European plug

D Air-Powered Pump

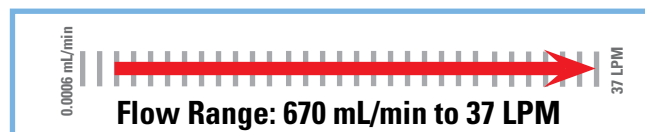
Use in locations where electricity is unsafe or impractical

- Includes pressure regulator—control your compressor air to match pump requirements
- 12 cfm (0.34 m³), 40 psi (2.7 bar) minimum air required, supply your own compressor to power pump
- IP56-rated motor protects against dust and strong jets of water



New

D
Air-powered pump 77110-80 (shown with B/T® 91 silicone pump tubing 96400-91) operates where electricity is unsafe or not available.



C
Variable-speed pump 77110-60 is convenient and versatile.



Close-up of the detachable wall-mount controller for variable-speed pumps 77110-60 and -67.



New

Low-Cost Plastic Service Cart

Perfect for transporting your B/T® pump around the process area. Shown with optional middle shelf 09348-13 (order separately below). Transport up to 400 lb. Comes with 5" rubber casters (two swivel), seamless shelves and supports, radius corners, and molded handle.



EK-09348-10 Plastic service cart, 40 1/2"L x 25 3/4"W x 32 3/4"H
EK-09348-13 Middle shelf

GO to page(s) 1304

All Masterflex® B/T® pumps come with 3 ft (1 m) of Tygon® LFL B/T 91 pump tubing. To order additional sizes or formulations of pump tubing, see page 1304.

Flow Rates in LPM (GPM)

Key letter	rpm	PerfectPosition™ pump tubing	
		B/T® 87	B/T® 91
C	12 to 321	0.67 to 17.7 (0.17 to 4.7)	1.4 to 37 (0.4 to 9.8)
D	35 to 321	1.9 to 17.7 (0.5 to 4.7)	4.0 to 37 (1.06 to 9.8)

Specifications & Ordering Information

Key letter	Catalog number	Motor type	Motor size	rpm	IP rating	Mounting type	Dimensions (L x W x H)	Power		Price
								VAC (Hz)	Amps	
C	KH-77110-60	Variable-speed	1/2 hp (0.37 kW)	12 to 321	IP56	Direct-drive	26" x 15 1/2" x 12 1/2" (66 cm x 40 cm x 31.8 cm)	115 (50/60)	5	
	KH-77110-67							230 (50/60)	2.5	
D	KH-77110-80	Variable-speed, air powered	3/4 hp (0.56 kW)	35 to 321	IP56	Direct-drive	16 1/2" x 20 1/2" x 12 1/2" (42 x 52 x 31.8 cm)	Requires 12 cfm (0.34 m ³) 40 psi (2.7 bar) minimum		

ISO 9001:2000
CERTIFIED SUPPLIER

UL US
77110-60, -67
only



2 year
warranty

B/T®**MASTERFLEX®**

B/T® Modular Digital Pump

High-volume, high-accuracy dispensing

- Accept **new** B/T PerfectPosition™ pump tubing sizes B/T 87 and B/T 91
- Dispense by volume or time, or pump continuously
- Separate motor and controller by up to 25 feet for convenient operation
- IP56-rated controller and motor protect against dust and water

This durable, variable-speed digital pump is ideal for bulk fluid transfer and dispensing applications. With flow rates up to 37 LPM (9.8 GPM), it can handle large batches quickly and efficiently. Keypad lock/unlock feature helps lock in your settings and prevents accidental or unauthorized changes.

A full-featured dispenser, the B/T modular digital pump offers a powerful, reversible ½-hp motor with simple intuitive controls. Start, stop, prime, reverse, calibrate, and dispense using the sealed keypad. Four-digit LED display shows flow rate (0.1, 1, or 10 LPM resolution autoranging with tubing size), dispense volume (0.1 to 999 L in 0.1 L increments), motor rpm, and copy number (1 to 99 repetitions, 100 mL to over 1000 liters each) for automated repetitive dispensing.

To easily integrate with your process, the pump features extensive remote control capabilities via weatherproof remote cable 77300-32, sold separately below. Remote features include 0 to 20 mA, 4 to 20 mA, and 0 to 10 V speed control input; 0 to 20 mA, 4 to 20 mA, 0 to 10 V, and TTL pulse tachometer output; and pump direction, start/stop, and prime via open collector, contact closure, or handheld remote controller 07592-83 (sold separately below).

Pump stores one user-defined calibration value for maximum accuracy and repeatability. Calibrate manually to compensate or use the nominal calibrations stored in the nonvolatile memory.

What's included: a new Rapid-Load® pump head, 6-ft (1.8-m) power cord (115 VAC: US standard plug; 230 VAC: European plug), and 3 ft (1 m) of Tygon® LFL B/T 91 tubing 06430-91.

Order additional tubing separately on page 1304.

GO to page(s) 1304

All Masterflex® B/T® pumps come with 3 ft (1 m) of Tygon® LFL B/T 91 pump tubing. To order additional sizes or formulations of pump tubing, see page 1304.

Dispensing Precision

Tubing size	Minimum dose (for ±0.5% precision)	Precision (±)
B/T 87	5 L	15 mL
B/T 91	10 L	33 mL

Flow Rates in LPM (GPM)

rpm	PerfectPosition™ pump tubing	
	B/T 87	B/T 91
12 to 321	0.67 to 17.7 (0.17 to 4.7)	1.4 to 37 (0.4 to 9.8)

Specifications & Ordering Information

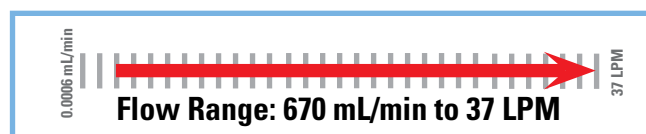
Catalog number	Motor type	Speed control	Motor size	rpm	IP rating	Mounting type	Dimensions (L x W x H)	Power (50/60 Hz)		Price
								VAC	Amps	
KH-77110-40	Variable-speed	±0.3%	½ hp (0.37 kW)	12 to 321	Controller: IP56 Drive: IP56	Direct-drive	Controller: 9" x 11" x 4½" (22.9 x 27.9 x 11.4 cm) Drive: 22" x 15½" x 12½" (56 x 40 x 31.8 cm)	90 to 130	5.0	
KH-77110-47								190 to 260	2.5	

Accessories

[KH-77300-32](#) Remote cable;

required for remote control operation, 25 ft (7.6-m)

[KH-07592-83](#) Handheld remote controller; 25 ft (7.6-m) cable

**New**

B/T modular digital pump with IP56-rated controller 77110-40



ISO9001:2000
SUPPLIER CERTIFIED

cULus

CE

2 year warranty



07592-83

Improved B/T® Rapid-Load® Pump Heads

Convert your existing motor into a high-capacity Masterflex® B/T pump

New

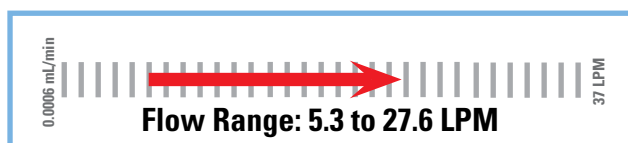
- Accept **new** B/T PerfectPosition™ pump tubing sizes B/T 87 and B/T 91
- Compatible with standard 56C frame or IEC 72/ISO 71 motors with B5 motor flange
- Pump heads require a minimum ½-hp motor with a maximum of 1800 rpm
- Supply your own motor or choose one from the table below

Enjoy all of the advantages of peristaltic tubing pumps using your existing motor. Gentle pumping action is ideal for viscous or shear-sensitive fluids, including live cells and cell products, slurries, and suspensions. Easy clean-up and change-over between batches—simply throw the tubing away and install a new piece in seconds. Because the tubing is the only wetted part, chemical compatibility is greatly simplified, while maintenance is quick and easy.

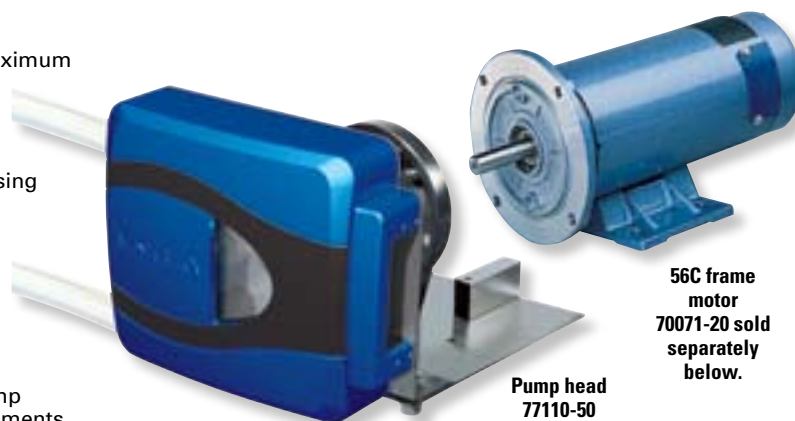
These **new** and **improved** Masterflex B/T Rapid-Load pump heads ensure fast and easy tubing changes. The improvements include an improved occlusion mechanism that slides the tubing occlusion bed out of the way for easy tube loading and improved occlusion of the tubing when closed; a **new** epoxy-powder coating which prevents chemical corrosion and improves cleanup; **new** tubing sizes (B/T 87 and B/T 91) perform better in higher-pressure applications; an easy-opening cover that swings away to allow for CIP or SIP protocols; new PerfectPosition™ tubing retention marks indicate the exact length of tubing needed to give the best tubing performance and life; **improved** safety features such as an integrated pump interlock that shuts the pump down when the head is opened; and a **new** easy-clasp closure provides one-handed opening and closing without the use of tools.

Sturdy materials of construction include stainless steel/powder-coated carbon steel/cast-aluminum pump head, and Nylatron® rollers for rugged dependability. IP56-rated housing protects against dust and water. Mounting hardware is included. Attach motor using four bolts to the base and four bolts to the pump head.

What's included: mounting hardware and 3 ft (1 m) of Tygon® LFL B/T 91 tubing 06430-91. (Order additional tubing separately on page 1304.)



Customize Your Pump System!



56C frame motor
70071-20 sold separately below.

Pump head
77110-50
and hardware
(included)



GO to page(s) 1007-1010

For motor controllers that allow you to vary the speed of your motor, see pages 1007-1010.

Flow Rates in LPM (GPM)

Motor rpm	Pump head gear ratio	Pump head rpm	PerfectPosition™ tubing	
			B/T 87	B/T 91
1425	5.6:1	254	5.3 (1.3)	21.8 (5.8)
1725	5.6:1	308	6.5 (1.5)	26.5 (7.1)
1750	5.6:1	313	6.6 (1.56)	26.9 (7.2)
1800	5.6:1	321	6.7 (1.61)	27.6 (7.4)
Liters (gal.) per pump head revolution			0.021 (0.005)	0.086 (0.023)

Specifications & Ordering Information for Pump Heads

Catalog number	Motor mount	Motor size	rpm	IP rating	Mounting type	Dimensions (L x W x H)	Power	Price
KH-77110-50	NEMA Type 56C	Motor size, rpm, and IP rating (up to IP56) depend on specifications of motor selected			Direct-coupled	20" x 15½" x 12½" (51 x 40 x 31.8 cm)	Power specifications depend on the type of motor selected	
KH-77110-55	IEC 72/ISO 71 with B5 flange				Direct-coupled	20" x 15½" x 12½" (51 x 40 x 31.8 cm)		

Specifications & Ordering Information for 56C Frame Motors

Catalog number	hp	rpm	Type*	Voltage	Frequency	Phase	Wattage	Motor length	Price
DC Motors									
EK-70071-20	½	1750	TEFC	90 VDC	—	—	450	12" (30.48 cm)	
EK-70071-30				180 VDC					
EK-70074-10	½	1750	WDN	90 VDC	—	—	423	14.50" (36.83 cm)	
EK-70073-10									
AC Motors									
EK-71004-25	½	1800	TEFC/ODP	115/208-230 VAC	50/60 Hz	1	1012	11.19" (28.42 cm)	
EK-71006-05			XPRF	115/208-230 VAC		1	966	13.94" (35.4 cm)	
EK-71008-25			WDN	208-230/460 VAC		3	416	10.43" (26.49 cm)	

*ODP—Open drip-proof TENV—Totally enclosed, non-ventilating TEFC—Totally enclosed, fan-cooled XPRF—Explosion proof WDN—Washdown

B/T®**MASTERFLEX®**

B/T® PerfectPosition™ Pump Tubing

for New and Improved Rapid-Load® Pump Heads

Ensure optimal performance from your Masterflex® pump

- PerfectPosition™ tubing retention marks indicate the exact placement of tubing in the pump head to provide the best performance and life of the tubing
- Custom extruded to fit 77110-series Masterflex B/T pumps and pump heads
- Engineered for long life in peristaltic pump applications

New

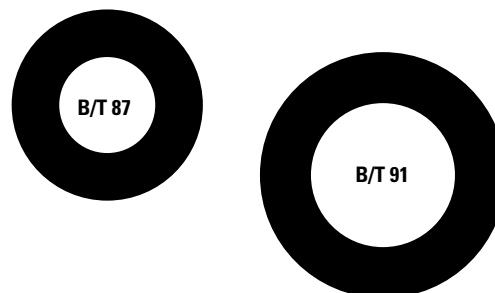
These **new** Masterflex® B/T® tubing sizes 87 and 91 are optimized to provide better performance in higher-pressure applications. Each tubing size is manufactured to extremely close tolerances that match our B/T pump heads. These tight tolerances ensure accurate, repeatable flow, and long tubing life. Plus, the PerfectPosition tubing retention marks (found on most of the tubing formulations), indicate the best placement of the tubing within the pump head.

Choose from a variety of tubing formulations below to allow for optimal performance in the most challenging applications.



B/T pumphead
77110-20

Cross Sections



Specifications

Pump tubing size	PerfectPosition™ pump tubing	
	B/T 87	B/T 91
Inside diameter (nominal)	0.5" (12.7 mm)	0.75" (19.0 mm)
Hose barb size	½" (12.7 mm)	¾" (19.0 mm)
Flow range (approximate)*	0.67 to 17.7 LPM (0.17 to 4.7 GPM)	1.4 to 37 LPM (0.4 to 9.8 GPM)
Maximum pressure [†] , continuous	25 psi (1.7 bar)	20 psi (1.4 bar)
Maximum pressure [†] , intermittent	40 psi (2.7 bar)	35 psi (2.4 bar)
Maximum vacuum [‡]	26" Hg (660 mm Hg)	
Suction lift [‡]	29 ft H ₂ O (8.8 m H ₂ O)	

*Determined under the following conditions: 0 psi at inlet, 0.5 psi at outlet; water temperature at 72°F (22°C). [†]Actual performance varies depending on tubing formulation—values shown are for firm tubing.

More info FREE TUBING TEST KIT!

Find out which tubing formulations work best with chemicals you are using

Includes 17 FREE pump tubing samples, formulation descriptions, testing and ordering instructions.

Call
847-549-7600
to request a tubing test
kit today!



B/T® PerfectPosition™ Pump Tubing Ordering Information

Pump tubing formulation		PerfectPosition™ pump tubing	
		B/T 87	B/T 91
Silicone (platinum-cured)	10 ft (3.0 m) per pack	KH-96510-87	KH-96510-91
Silicone (peroxide-cured)	10 ft (3.0 m) per pack	KH-96400-87	KH-96400-91
BioPharm silicone (platinum-cured)	25 ft (7.6 m) per pack	KH-96422-87	KH-96422-91
BioPharm Plus silicone (platinum-cured)	25 ft (7.6 m) per pack	KH-96442-87	KH-96442-91
C-FLEX® (50 A)	10 ft (3.0 m) per pack	KH-06424-87	KH-06424-91
PharMed® BPT	25 ft (7.6 m) per pack	KH-06508-87	KH-06508-91
	3 ft (0.9 m) per pack	KH-95668-87	KH-95668-91
PharmaPure®	25 ft (7.6 m) per pack	KH-06435-87	KH-06435-91
Norprene® food (A 60 F)	25 ft (7.6 m) per pack	KH-06402-87	KH-06402-91
	3 ft (0.9 m) per pack	KH-06403-87	KH-06403-91
Tygon® LFL	25 ft (7.6 m) per pack	KH-06429-87	KH-06429-91
	3 ft (0.9 m) per pack	KH-06430-87	KH-06430-91

B/T® Precision Pump Tubing for Existing Rapid-Load® Pump Heads

Use these existing four sizes of B/T tubing for use in previously purchased B/T pumps and pump heads

- Custom extruded to fit existing Masterflex® pumps: 07584-60, -65, -70, -75, -80; 07585-30, -35, -40, -45; and pump heads 07585-50 and -55
- Lot-to-lot consistency provides superior accuracy and repeatability

The following B/T tubing formulations are used with our previous versions of Masterflex B/T pumps with Rapid-Load® pump heads. We realize that many of our customers are still utilizing our existing B/T pumps and therefore we have maintained the following precision tubing for use with your current B/T pumps.

Note: B/T Precision pump tubing sizes B/T 88, B/T 92, B/T 86, and B/T 90 are not for use with 77110-series B/T pumps.



07584-70

Cross Sections

Pump tubing size	Precision pump tubing		High-performance precision pump tubing	
	B/T 88	B/T 92	B/T 86	B/T 90
Inside diameter (nominal)	0.5" (12.7 mm)	1" (25.4 mm)	0.37" (9.5 mm)	0.75" (19.0 mm)
Hose barb size	½" (12.7 mm)	1" (25.4 mm)	⅜" (9.5 mm)	¾" (19.0 mm)
Flow range (approximate)* with 12 to 350 rpm drive	0.5 to 15 LPM (0.13 to 4 GPM)	1.5 to 45 LPM (0.4 to 12 GPM)	0.3 to 7.4 LPM (0.07 to 2 GPM)	1 to 30 LPM (0.3 to 8 GPM)
Maximum pressure†, continuous	20 psi (1.4 bar)	5 psi (0.4 bar)	25 psi (1.7 bar)	20 psi (1.4 bar)
Maximum pressure†, intermittent	35 psi (2.4 bar)	10 psi (0.7 bar)	40 psi (2.7 bar)	35 psi (2.4 bar)
Maximum vacuum†	26" Hg (660 mm Hg)			
Suction lift†	29 ft H ₂ O (8.8 m H ₂ O)			

*Determined under the following conditions: 0 psi at inlet, 0.5 psi at outlet; water temperature at 72°F (22°C).
 †Actual performance varies depending on tubing formulation—values shown are for firm tubing.

Technical info

A Certificate of Tubing Resin Compliance is available for all of the tubing listed on this page. Request when ordering.

For detailed technical information on Masterflex® pump tubing, go to pages 1215–1225.



GO to ColeParmer.com

For help selecting the right Masterflex® pump tubing formulation for your application, go to ColeParmer.com/MasterflexTubing

B/T® Precision Pump Tubing Ordering Information

Pump tubing formulation		Precision pump tubing		High-performance precision pump tubing	
		B/T 88	B/T 92	B/T 86	B/T 90
Silicone (platinum-cured)	10 ft (3.0 m) per pack	KH-96510-88	KH-96510-92	KH-96510-86	KH-96510-90
Silicone (peroxide-cured)	10 ft (3.0 m) per pack	KH-96400-88	KH-96400-92	KH-96400-86	KH-96400-90
BioPharm silicone (platinum-cured)	10 ft (3.0 m) per pack	KH-96421-88	KH-96421-92	KH-96421-86	KH-96421-90
	100 ft (30.4 m) per pack	KH-96423-88	KH-96423-92	KH-96423-86	KH-96423-90
BioPharm Plus silicone (platinum-cured)	10 ft (3.0 m) per pack	KH-96441-88	KH-96441-92	KH-96441-86	KH-96441-90
C-FLEX® (50 A)	10 ft (3.0 m) per pack	KH-06424-88	—	KH-06424-86	KH-06424-90
PharMed® BPT	25 ft (7.6 m) per pack	KH-06508-88	KH-06508-92	KH-06508-86	KH-06508-90
	3 ft (0.9 m) per pack	KH-95668-88	KH-95668-92	KH-95668-86	KH-95668-90
	100 ft (30.4 m) per pack	KH-95687-88	KH-95687-92	—	KH-95687-90
PharmaPure®	25 ft (7.6 m) per pack	—	KH-06435-92	KH-06435-86	KH-06435-90
Norprene® food (A 60 F)	25 ft (7.6 m) per pack	KH-06402-88	KH-06402-92	KH-06402-86	KH-06402-90
	3 ft (0.9 m) per pack	KH-06403-88	KH-06403-92	KH-06403-86	KH-06403-90
Tygon® LFL	25 ft (7.6 m) per pack	KH-06429-88	KH-06429-92	KH-06429-86	KH-06429-90
	3 ft (0.9 m) per pack	KH-06430-88	KH-06430-92	KH-06430-86	KH-06430-90

Liqui-Sense® Emergency Cut-Off System

Monitor pumps and fluid systems for leaks, fluid level, and flow—24 hours a day

- Shuts down process automatically—eliminating downtime, system damage, and fluid loss
- Customize to your specific application needs using dual input and output channels
- Visible and audible alarms alert you to an alarm condition

The Liqui-Sense® fluid monitoring system guards your process in a number of different situations: when a collection vessel becomes full, when a source vessel becomes empty, when tubing ruptures, or when a leak starts in the process. The system consists of two parts: the Liqui-Sense® controller and one or more sensors.

1 Liqui-Sense® Controller



77096-00

Customize your monitoring system by using the Liqui-Sense® controller with up to two sensors and two pumps. The controller turns the process pump off and the backup pump on when triggered by an alarm condition. Connect the third relay (30 VDC, 1 A) to an external alarm. Manual reset prevents accidental restart.

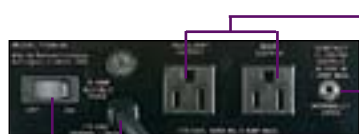
Set up controller in minutes: plug sensor into one of two RJ12 jacks and then plug pumps into receptacles on the back of the controller. Adjust the sensitivity of each sensor independently.

What's included: a 6-ft (1.8-m) line cord with a U.S. standard plug (77096-00) or a IEC320/CEE22 socket (77096-05; specify country when ordering to receive correct cord set).



Cat. no.	Power	Relay	Socket	Price
KH-77096-00	90 to 115 VAC, 50/60 Hz	10.0 A	U.S. Standard	
KH-77096-05	180 to 230 VAC, 50/60 Hz	6.3 A	IEC 320F	

Back of 115 VAC controller 77096-00



Power switch

6 ft (1.8 m) line cord

Connection for a remote alarm or for a monitor.

When alarm is tripped, power moves from the main output to the auxiliary output.
When alarm is reset, power returns to main output.

Back of 230 VAC controller 77096-05



Use up to two sensors and two pumps with the Liqui-Sense controller to customize your system.

Required System Components

- 1 Controller 77096-00 or -05
- 2 Sensors



Add these options

- 3 24-Hour Application Monitor 08330-20 (see "Accessories" below)

2 Sensors

Choose from three sensors to detect fluid process problems: the float switch detects critical levels of fluid in a vessel, the liquid detector pad senses fluid leakage, and the out-of-fluid sensor detects when no fluid is running through the tubing.

Float-Switch Liquid Level Detector for unattended level monitoring and empty-tank pump cut-off. Float switch has ½" NPT(M) threaded mount. Requires connecting cable 77095-02. See "Accessories" below for extension cables.



07187-28

Cat. no.	Description	Price
KH-07187-28	Polypropylene float switch	
KH-07187-30	Nylon float switch	

[KH-77095-02](#) Connecting cable, 3½ ft (1 m) long

Liquid Detector Pad eliminates loss of costly fluid or damage from hazardous chemicals. Monitors pumps, seals, valves, and tubing for leaks. Less than 1 mL of fluid trips sensor. Small, flat pad fits any system and works with all fluid types. Includes 3½-ft (1-m) connecting cable with RJ-12 connectors. See "Accessories" for extension cables.



Cat. no.	Description	Price
KH-77095-00	Liquid detector pad	

[KH-77095-02](#) Replacement connecting cable

Out-of-Fluid Sensor monitors flow to provide "dry-run" protection for pumps and heaters. Noninvasive infrared sensor detects air in translucent fluids and translucent tubing. Max tubing ID is ½" (1.3 cm). Includes 3-ft (0.9-m) cable to connect sensor to interface box and 3½-ft (1-m) cable to connect interface box to Liqui-Sense® controller. See "Accessories" for extension cables.

Cat. no.	Description	Price
KH-77095-50	Out-of-liquid sensor; includes interface box and cable with RJ12 connections	

3 Accessories

[KH-08330-20](#) 24-hour application monitor; automatically dials phone or pager under alarm condition. Requires cable 23000-70

[KH-23000-70](#) Interface cable for monitor 08330-20

[KH-77096-55](#) Pump interface cord. Connects Liqui-Sense® controller to 230 VAC pump with European plug

[KH-77095-03](#) Optional extension cable, 10 ft (3.0 m) with RJ12 connections for all sensors

[KH-77095-04](#) Optional extension cable, 15 ft (4.5 m) with RJ12 connections for all sensors

MASTERFLEX®

Masterflex® Pump Accessories

A Pulse Dampener

Virtually eliminates pulsation in output flow. Five pairs of fittings and PTFE-pipe thread tape are included. Accepted tubing: all L/S® sizes, I/P® 26, nominal from 1/16" to 3/8" ID (1.6 to 9.5 mm ID). Fittings included (tubing ID x NPT(M) thread): 1/16" x 1/8", 1/8" x 1/8", 3/16" x 1/8", 1/4" x 1/8", and 3/8" x 1/8". Dampener connections: 1/8" NPT(F). Dead volume: 190 mL. Max pressure: 60 psi (4.3 bar). Polyethylene body.



Cat. no.	Description	Price
KH-07596-20	Pulse dampener	

B On/Off Footswitch

Use for hands-free operation of drives. Models 08670-02, -03 and 04368-55 work with all drives with compatible voltage requirements. All units have a 6-ft (1.8-m) cord.



Catalog number	VAC*	Plug type	Price
Momentary contact			
KH-08670-02	115	U.S. Standard	
KH-04368-55	240	U.S. (NEMA)	
KH-07595-35	—	1/4" phone jack	
KH-07595-40	—	DB9 male	
Maintained contact			
KH-08670-03	115	U.S. Standard	

*All units rated for a maximum of 7 amps.

C DB9 Cable Assembly

Use these 9-pin interface cable assemblies with Masterflex L/S drives (07550-30 and -50, 77521-40, -47, -50, and -57). Cable measures 6 ft (1.8 m) long.



Cat. no.	Description	Price
KH-22050-54	Interface cable with DB9 (M/F)	

D USB to DB9 (M) RS-232 Serial Adapter Cable

Use this cable to connect the Masterflex Computer Compatible drives 07550-30, and -50 to a PC with USB port. Will also connect other peripheral devices equipped with RS-232 serial interface including balances, printers, scanners, and PDA's. Includes 2-ft cable and driver software. Supports data transfer speeds up to 500 Kbps; compatible with Windows® 98SE, ME, 2000, and XP.



Catalog number	Description	Price
KH-22050-58	USB to DB9 (M) RS-232 Serial Adapter Cable	

E Tubing Loading Keys (replacement)

L/S® and I/P® Standard pump heads include tubing loading keys. A key is required to ensure proper tubing alignment and tension. Order a free key to replace a lost key based on your pump head series, L/S or I/P.



07013-90

07019-90

Cat. no.	Description	Price
KH-07013-90	L/S tubing loading key	No charge
KH-07019-90	I/P tubing loading key	No charge

F Remote Control Connectors

Combine these connectors with 20-22 gauge shielded wire to create your own interface cable. Maximum cable length is 1000 ft (300 m).



07595-45

Cat. no.	Description	Price
KH-07595-45	DB9 male connector. Wire only the pins needed for remote control of your Masterflex drive	
KH-07595-52	DB15 male connector. Wire only the pins needed for remote control of your Masterflex drive	

G Tubing Weights

Flow-through weights of PTFE keep tubing in place in receiving vessel during dispense cycles. Fit Masterflex L/S tubing sizes noted.



Cat. no.	Description	Price
KH-78226-81	Weight for L/S 16, 15, and 25	
KH-78226-82	Weight for L/S 17, 18, 24, 35, 36	
KH-77310-03	Set of two; one each of 78226-81 and 78226-82	

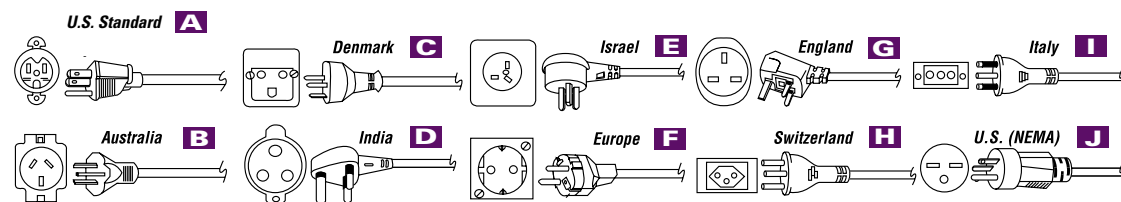
Technical info

For detailed technical information and the most complete listings of Masterflex® parts and accessories, please see our Masterflex Encyclopedia, Vol. 3



Request your copy at masterflex.com

Power Cord/Plug Set Reference Guide for Masterflex® Drives



A detachable cord/plug set will automatically be included with most 230 VAC drives and will be selected based on the country of destination. At right is a reference table of the available cord/plug sets. Cord/plug sets feature a country-specific male plug on one end and an IEC 320 female plug on the other end. Order a cord/plug set to replace a lost or damaged set or to use your 230 VAC drive in another country. Most 230 VAC drives use the country-specific cord/plug sets; see the specific Masterflex® drive page in this catalog to determine if your drive uses these cord/plug sets.

Specs & Ordering Information—Replacement Cord/Plug Sets

Key	Catalog number	Description	Price/ea	Key	Catalog number	Description	Price/ea
A	KH-50001-68	U.S. Standard		F	KH-50001-70	Europe	
B	KH-50001-60	Australia		G	KH-50001-72	England	
C	KH-50001-62	Denmark		H	KH-50001-74	Switzerland	
D	KH-50001-64	India		I	KH-50001-76	Italy	
E	KH-50001-67	Israel		J	KH-50001-78	U.S. (NEMA)	

MASTERFLEX® Barbed Fittings



A
Straight barb

B
Tee connector

C
"Y" connector

D
Barb x NPT(M) adapter

E
Reducer barb

Size	Use with Masterflex® tubing sizes			HDPE		Nylon		Polypropylene		Kynar® PVDF	
	L/S*	I/P*	B/T*	Catalog number	Price/pk of 10	Catalog number	Price/pk of 10	Catalog number	Price/pk of 10	Catalog number	Price/pk of 10
A Straight barbs											
1/16"	13, 14	—	—	KH-30612-01		KH-30612-02		KH-30612-03		KH-30612-04	
1/8"	16	—	—	KH-30612-05		KH-30612-06		KH-30612-07		KH-30612-08	
3/16"	15, 25	—	—	KH-30612-09		KH-30612-10		KH-30612-11		KH-30612-12	
1/4"	17, 24	26	—	KH-30612-13		KH-30612-14		KH-30612-15		KH-30612-16	
3/8"	18, 35, 36	70, 73	86	KH-30612-17		KH-30612-18		KH-30612-19		KH-30612-20	
1/2"	—	82, 88	88	KH-30612-21		KH-30612-22		KH-30612-23		KH-30612-24	
5/8"	—	89	—	KH-30612-25		KH-30612-26		KH-30612-27		KH-30612-28	
3/4"	—	—	90	KH-30612-29		KH-30612-30		KH-30612-31		KH-30612-32	
1"	—	—	92	KH-30612-33		KH-30612-34		KH-30612-35		KH-30612-36	
B Tee connectors (equal leg)											
1/16"	13, 14	—	—	KH-30613-01		KH-30613-02		KH-30613-03		KH-30613-04	
1/8"	16	—	—	KH-30613-05		KH-30613-06		KH-30613-07		KH-30613-08	
3/16"	15, 25	—	—	KH-30613-09		KH-30613-10		KH-30613-11		KH-30613-12	
1/4"	17, 24	26	—	KH-30613-13		KH-30613-14		KH-30613-15		KH-30613-16	
3/8"	18, 35, 36	70, 73	86	KH-30613-17		KH-30613-18		KH-30613-19		KH-30613-20	
1/2"	—	82, 88	88	KH-30613-21		KH-30613-22		KH-30613-23		KH-30613-24	
5/8"	—	89	—	KH-30613-25		KH-30613-26		KH-30613-27		KH-30613-28	
3/4"	—	—	90	KH-30613-29		KH-30613-30		KH-30613-31		KH-30613-32	
1"	—	—	92	KH-30613-33		KH-30613-34		KH-30613-35		KH-30613-36	
C Y-connectors (equal leg)											
1/16"	13, 14	—	—	KH-30614-01		KH-30614-02		KH-30614-03		KH-30614-04	
1/8"	16	—	—	KH-30614-05		KH-30614-06		KH-30614-07		KH-30614-08	
3/16"	15, 25	—	—	KH-30614-09		KH-30614-10		KH-30614-11		KH-30614-12	
1/4"	17, 24	26	—	KH-30614-13		KH-30614-14		KH-30614-15		KH-30614-16	
3/8"	18, 35, 36	70, 73	86	KH-30614-17		KH-30614-18		KH-30614-19		KH-30614-20	
1/2"	—	82, 88	88	KH-30614-21		KH-30614-22		KH-30614-23		KH-30614-24	
D Barb x NPT(M) adapters											
1/8" x 1/8"	16	—	—	KH-30615-05		KH-30615-06		KH-30615-07		KH-30615-08	
3/16" x 1/8"	15, 25	—	—	KH-30615-09		KH-30615-10		KH-30615-11		KH-30615-12	
1/4" x 1/4"	17, 24	26	—	KH-30615-13		KH-30615-14		KH-30615-15		KH-30615-16	
3/8" x 1/4"	18, 35, 36	70, 73	86	KH-30615-17		KH-30615-18		KH-30615-19		KH-30615-20	
1/2" x 1/2"	—	82, 88	88	KH-30615-21		KH-30615-22		KH-30615-23		KH-30615-24	
5/8" x 1/2"	—	89	—	KH-30615-25		KH-30615-26		KH-30615-27		KH-30615-28	
3/4" x 1/2"	—	—	90	KH-30615-29		KH-30615-30		KH-30615-31		KH-30615-32	
E Reducer barbs											
1/16" x 1/8"	13, 14	—	—	KH-30616-01		KH-30616-02		KH-30616-03		KH-30616-04	
1/8" x 3/32"	16	—	—	KH-30616-05		KH-30616-06		KH-30616-07		KH-30616-08	
3/16" x 1/8"	15, 25	—	—	KH-30616-09		KH-30616-10		KH-30616-11		KH-30616-12	
1/4" x 1/8"	17, 24	26	—	KH-30616-13		KH-30616-14		KH-30616-15		KH-30616-16	
3/8" x 1/4"	18, 35, 36	70, 73	86	KH-30616-17		KH-30616-18		KH-30616-19		KH-30616-20	
1/2" x 3/8"	—	82, 88	88	KH-30616-21		KH-30616-22		KH-30616-23		KH-30616-24	
5/8" x 1/2"	—	89	—	KH-30616-25		KH-30616-26		KH-30616-27		KH-30616-28	
3/4" x 1/2"	—	—	90	KH-30616-29		KH-30616-30		KH-30616-31		KH-30616-32	
1" x 1/2"	—	—	92	KH-30616-33		KH-30616-34		KH-30616-35		KH-30616-36	

Handheld Tubing Cutter

Steel blade coated with PTFE resin produces clean, straight cuts through tubing up to 1 1/4" OD (cuts polyethylene tubing up to 1 1/2" OD).



06438-90

Benchtop Tubing Cutter

Steel blade makes right-angle cuts in plastic tubing 1/16" to 5/8" OD.



06438-10

Ordering Information

Catalog number	Description	Price
EK-06438-90	Handheld tubing cutter	

[EK-06438-81](#) Optional tubing cutter pouch

[EK-06438-92](#) Replacement blade for 06438-90

Ordering Information

Catalog number	Description	Price
EK-06438-10	Benchtop cutter	

[EK-06438-11](#) Replacement blade for 06438-10

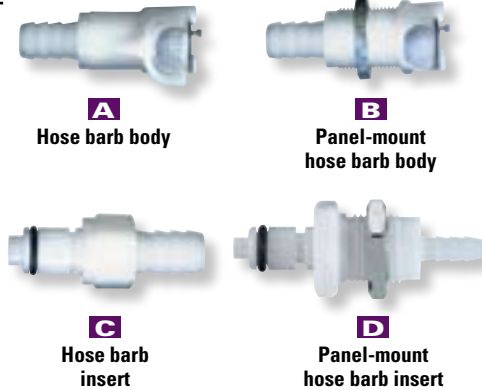
MASTERFLEX®

Quick-Disconnect Couplings

Available in acetal or polypropylene (PP) construction

For each complete quick-disconnect fitting, order one body and one insert with the same flow size. Plug insert into body to connect fitting—fitting halves lock in place immediately.

To disconnect fitting halves, simply press the lever on the coupling body; a spring-operated valve in each fitting half seals the flow path. ("Straight-through" fittings without shutoff valves are also available.) All fitting bodies have 316 stainless steel springs and latches.



Specifications

Body material	Acetal	Polypropylene
Seal material	Buna N	EPR
Max pressure at 21°C (70°F)	8.3 bar (120 psi)	6.9 bar (100 psi)
Max vacuum	718 mm Hg (28" Hg)	718 mm Hg (28" Hg)
Max temp	82°C (180°F)	71°C (160°F)
Sterilization	Autoclave or ETO	Gamma or ETO

A Hose Barb Bodies

Use with Masterflex® sizes			Catalog number	Flow size	Length	Resin	Price
L/S®	I/P®	B/T®					
Valved fittings							
13, 14			EK-06360-19	1/8"	1.41"	Acetal	
16			EK-06360-20	1/8"	1.65"	Acetal	
15, 25			EK-06360-22	1/8"	1.85"	Acetal	
17, 24	26		EK-06360-25	1/8"	1.85"	Acetal	
17, 24	26		EK-06360-65	1/4"	1.95"	Acetal	
18, 35, 36	70, 73	86	EK-06360-70	1/4"	1.95"	Acetal	
13, 14			EK-06364-19	1/8"	1.41"	PP	
16			EK-06364-20	1/8"	1.67"	PP	
17, 24	26		EK-06364-25	1/8"	1.87"	PP	
17, 24	26		EK-06364-65	1/4"	1.97"	PP	
18, 35, 36	70, 73	86	EK-06364-70	1/4"	1.97"	PP	
Straight-through fittings							
13, 14			EK-06361-09	1/8"	1.41"	Acetal	
16			EK-06361-11	1/8"	1.65"	Acetal	
15, 25			EK-06361-12	1/8"	1.85"	Acetal	
17, 24	26		EK-06361-13	1/8"	1.85"	Acetal	
17, 24	26		EK-06361-51	1/4"	1.95"	Acetal	
18, 35, 36	70, 73	86	EK-06361-53	1/4"	1.95"	Acetal	

B Panel-Mount Hose Barb Bodies

Use with Masterflex® sizes			Catalog number	Flow size	Thread	Resin	Price
L/S®	I/P®	B/T®					
Valved fittings							
13, 14			EK-06360-09	1/8"	1/2" - 24	Acetal	
16			EK-06360-10	1/8"	1/2" - 24	Acetal	
15, 25			EK-06360-12	1/8"	1/2" - 24	Acetal	
17, 24	26		EK-06360-15	1/8"	1/2" - 24	Acetal	
17, 24	26		EK-06360-55	1/4"	1 1/16" - 24	Acetal	
18, 35, 36	70, 73	86	EK-06360-60	1/4"	1 1/16" - 24	Acetal	
13, 14			EK-06364-09	1/8"	1/2" - 24	PP	
16			EK-06364-10	1/8"	1/2" - 24	PP	
17, 24	26		EK-06364-15	1/8"	1/2" - 24	PP	
17, 24	26		EK-06364-55	1/4"	1 1/16" - 24	PP	
18, 35, 36	70, 73	86	EK-06364-60	1/4"	1 1/16" - 24	PP	
Straight-through fittings							
13, 14			EK-06361-03	1/8"	1/2" - 24	Acetal	
16			EK-06361-04	1/8"	1/2" - 24	Acetal	
15, 25			EK-06361-05	1/8"	1/2" - 24	Acetal	
17, 24	26		EK-06361-06	1/8"	1/2" - 24	Acetal	
17, 24	26		EK-06361-46	1/4"	1 1/16" - 24	Acetal	
18, 35, 36	70, 73	86	EK-06361-48	1/4"	1 1/16" - 24	Acetal	

GO to page(s) 1310

BarbLock™ tubing retainers create a uniform, 360° leak-free seal with barbed fittings. Please see page 1310 for complete ordering information.

BarbLock retainer tool 30603-12



C Hose Barb Inserts

Use with Masterflex® sizes			Catalog number	Flow size	Length	Resin	Price
L/S®	I/P®	B/T®					
Valved fittings							
13, 14			EK-06360-36	1/8"	1.35"	Acetal	
16			EK-06360-40	1/8"	1.55"	Acetal	
15, 25			EK-06360-43	1/8"	1.75"	Acetal	
17, 24	26		EK-06360-45	1/8"	1.58"	Acetal	
17, 24	26		EK-06360-80	1/4"	1.86"	Acetal	
18, 35, 36	70, 73	86	EK-06360-85	1/4"	1.68"	Acetal	
13, 14			EK-06364-38	1/8"	1.35"	PP	
16			EK-06364-40	1/8"	1.55"	PP	
17, 24	26		EK-06364-45	1/8"	1.58"	PP	
17, 24	26		EK-06364-80	1/4"	1.86"	PP	
18, 35, 36	70, 73	86	EK-06364-85	1/4"	1.67"	PP	
Straight-through fittings							
13, 14			EK-06360-38	1/8"	0.80"	Acetal	
16			EK-06360-42	1/8"	1.05"	Acetal	
15, 25			EK-06360-44	1/8"	1.25"	Acetal	
17, 24	26		EK-06360-47	1/8"	1.35"	Acetal	
17, 24	26		EK-06360-82	1/4"	1.35"	Acetal	
18, 35, 36	70, 73	86	EK-06360-87	1/4"	1.35"	Acetal	
13, 14			EK-06364-39	1/8"	0.80"	PP	
16			EK-06364-42	1/8"	1.05"	PP	
17, 24	26		EK-06364-47	1/8"	1.25"	PP	
17, 24	26		EK-06364-82	1/4"	1.35"	PP	
18, 35, 36	70, 73	86	EK-06364-87	1/4"	1.35"	PP	

D Panel-Mount Hose Barb Inserts

Use with Masterflex® sizes			Catalog number	Flow size	Length	Resin	Price
L/S®	I/P®	B/T®					
Valved fittings							
13, 14			EK-06361-33	1/8"	1.38"	Acetal	
16			EK-06361-34	1/8"	1.63"	Acetal	
15, 25			EK-06361-35	1/8"	1.83"	Acetal	
17, 24	26		EK-06361-36	1/8"	1.83"	Acetal	
17, 24	26		EK-06361-71	1/4"	1.91"	Acetal	
18, 35, 36	70, 73	86	EK-06361-73	1/4"	1.91"	Acetal	
17, 24	26		EK-06361-92	1/4"	1.91"	PP	
18, 35, 36	70, 73	86	EK-06361-93	1/4"	1.91"	PP	
Straight-through fittings							
13, 14			EK-06361-21	1/8"	1.38"	Acetal	
16			EK-06361-22	1/8"	1.63"	Acetal	
15, 25			EK-06361-23	1/8"	1.83"	Acetal	
17, 24	26		EK-06361-24	1/8"	1.83"	Acetal	
17, 24	26		EK-06361-58	1/4"	1.91"	Acetal	
18, 35, 36	70, 73	86	EK-06361-61	1/4"	1.91"	Acetal	
17, 24	26		EK-06361-82	1/4"	1.91"	PP	
18, 35, 36	70, 73	86	EK-06361-83	1/4"	1.91"	PP	

BarbLock™ Ultra-Secure Tubing Retainers

Uniform 360° compression for leak-free connection to barbed fittings

- Easy to install—ensures that tubing and fitting will not disengage
- Provides seven times the pull resistance of cable ties without crimps or distortion
- Compatible with single- or multi-tiered barbed fittings

BarbLock assemblies provide uniform 360° mechanical compression for a leak-free, durable seal, unlike cable ties or clamps. Fitting will not leak or blow off. Ideal for filtration, since retainer holds tight even with increasing back pressure as filter clogs.

To install the fitting, slide the sleeve and collet onto the tubing and then insert the barbed fitting into the tubing. Slide the sleeve and collet to the edge of the barbed fitting and lock with the BarbLock assembly tool. Once assembled, the BarbLock assembly can only be unlocked with the universal removal tool (order at right).

BarbLock assemblies meet USP Class VI standards. Sterilize by radiation, steam, or ethylene oxide (ETO) gas. Pack of 10 retainers.



BarbLock retainer
96435-73



BarbLock retainer tool 30603-12

Platinum-cured silicone tubing 96410-73 shown with BarbLock retainer 96435-73 and quick-disconnect fitting 06360-91

Ordering Information for Tubing Retainers

Catalog number	Use with Masterflex® pump tubing size	Use with fitting type	Price/pk of 10
KH-96435-16	L/S® 16	Any barbed fitting	
KH-96435-17	L/S 17 and L/S 15		
KH-96435-24	L/S 24		
KH-96435-73	I/P® 73		
KH-96435-82	I/P 82 and I/P 70		
KH-96436-82	I/P 82 and I/P 70	Colder fittings only	

Ordering Information for Retainer Tools

Catalog number	BarbLock assembly tool for use with	Price
KH-30603-18	L/S 16 tubing	
KH-30603-10	L/S 15, L/S 17, and L/S 24 tubing	
KH-30603-12	I/P 73 tubing	
KH-30603-14	I/P 82 tubing	
KH-30603-16	Universal BarbLock removal tool	

Solenoid Two-Way Pinch Valves

Specifically designed to work with Masterflex® pump tubing

- Use with tubing that has durometer rating of 50 or less such as C-FLEX® or silicone—7.25 psi max
- Excellent for clean processes—fluid stays contained within tubing
- Use for on/off flow control applications



98306-16

98306-02

Specifications & Ordering Information

Tube size	Response time	Watts	12 VDC valves	24 VDC valves	Price
			Cat. no.	Cat. no.	
Normally closed					
L/S 14	30 to 50 msec	10	KH-98306-00	KH-98306-02	
L/S 16			KH-98306-08	KH-98306-10	
L/S 25			KH-98306-16	KH-98306-18	
L/S 17			KH-98306-24	KH-98306-26	
Normally open					
L/S 14	30 to 50 msec	10	KH-98306-04	KH-98306-06	
L/S 16			KH-98306-12	KH-98306-14	
L/S 25			KH-98306-20	KH-98306-22	
L/S 17			KH-98306-28	KH-98306-30	

Economical Liquid Alarm

Inexpensive monitor for unattended filling and fluid transfer applications



43301-15

- Alarm sounds and LED flashes when liquid contacts the sensor
 - Place sensor near overflow tube, in tank, or drum to guard against overfilling; place near pump or on floor to detect leaks and spills
 - Measures a compact 1 3/16" x 3" x 3/4"; weighs just 2 1/2 ounces
- What's included:** sensor with 10-ft (3 m) cable, suction cup for mounting sensor, and one AA battery.

Ordering Information

Catalog number	Description	Price
KH-43301-15	Economical liquid alarm	

[KH-09376-01](#) Replacement batteries; 1.5 V, AA. Pack of 4

MASTERFLEX®

MASTERFLEX® Pump Replacement Parts

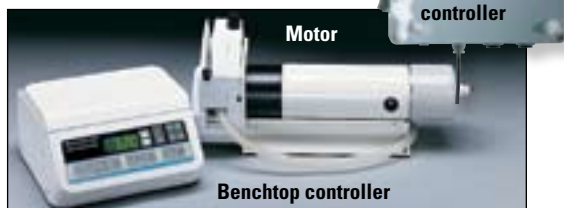
L/S® Controllers and Motors



Controllers 07553-71/-76 were redesigned for speed regulation and torque limiting. Model 07553-76 has an IEC 320 power cord connector; see page 1307 for different cord/plug options.

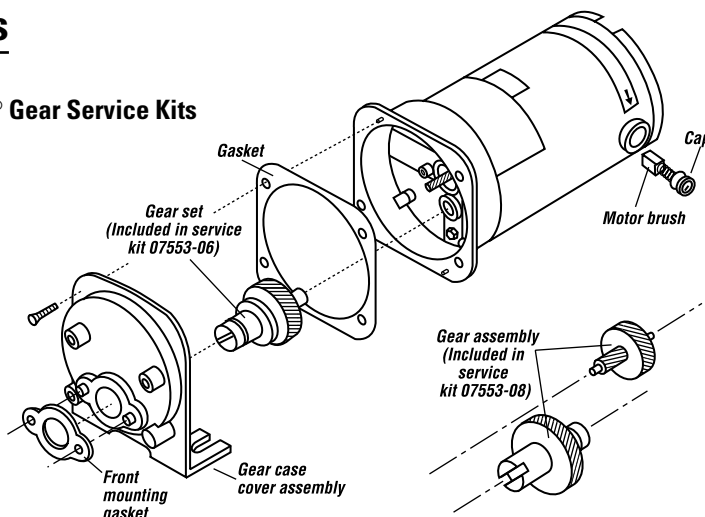
For system(s)	Controller	Motor	
07553-20, -70	KH-07553-71 (90 to 130 VAC)	KH-07553-02 (600 rpm)	
07558-15, -30, -35		KH-07553-12 (100 rpm)	
07558-35, -50, -70			KH-07553-04 (600 rpm)
07553-10, -30, -80			
07567-50, -70, -80	KH-07552-02 (600 rpm)		
07558-80		KH-07552-04 (600 rpm)	
07553-75			KH-07552-71 (100 to 130 VAC)
07558-25, -45			
07558-55, -75	KH-07553-78 (200 to 260 VAC)		
07553-85		KH-07553-79 (600 rpm)	
07567-95, 07558-85			KH-07553-89 (100 rpm)
07552-70			
07552-75	KH-07553-78 (200 to 260 VAC)		
07553-77		KH-07553-78 (200 to 260 VAC)	
07553-87			

L/S® and I/P® Modular Drive and Digital Drive/Dispensing Systems



For system	Controller		Motor	
	Cat. no.	Price	Cat. no.	Price
L/S® digital drive/dispensing systems				
77301-20	KH-77301-22		KH-77301-21	
77301-30	KH-77301-23		KH-77301-21	
I/P® modular drive systems				
07591-00	KH-07591-60		KH-07591-50	
07591-07	—	—	KH-07591-55	
07591-10	KH-07591-70		KH-07591-50	
07591-15	KH-07591-75		KH-07591-55	
I/P® digital drive/dispensing systems				
07592-20	KH-07592-82		KH-07592-40	
07592-27	KH-07592-85		KH-07592-45	
07592-30	KH-07592-90		KH-07592-40	
07592-35	KH-07592-95		KH-07592-45	

L/S® Gear Service Kits



KH-07553-06 Service kit for 6 to 600 rpm drives listed below. Contains gear assembly (nylon gear/shaft), gear case cover gasket, replacement fuse, and instructions

KH-07553-09 Gear only (nylon gear)

Masterflex® L/S® drives, 6 to 600 rpm		
07520-00, -20, -25, -40, -45	07526-00, -05	07553-00, -02, -04, -20, -70, -75, -77
07520-47, -60, -65, -67	07527-00, -20, -30, -32, -34, -36	07554-00, -02, -20, -90, -95
07521-00, -25, -40, -45, -47	07528-00, -05	07558-15, -25, -35, -40, -45, -50
07522-10, -15	07531-00	07558-55, -70, -75
07523-00, -02, -20, -25, -27	07532-00, -02	07562-00
07523-40, -47, -60	07533-30, -40, -60, -80	07569-00
07524-40, -45	07550-10, -17, -30	77521-40, -47
07525-34, -36	07552-02, -04, -70, -75	

KH-07553-08 Service kit for 1 to 100 rpm drives listed below. Contains two gear assemblies (large and small), two gear case cover gaskets, one vial of high-temperature silicone grease, and instructions

Masterflex® L/S® drives, 1 to 100 rpm		
07520-10, -30, -35, -50, -55, -57	07525-30, -32	07553-87, -89
07521-10, -30, -35, -50, -55, -57	07531-10	07554-12, -30
07522-00, -05	07532-10, -12	07558-80, -85
07523-10, -12, -30, -35,	07533-10, -20, -50, -70	07562-10
07523-37, -50, -57, -70	07550-20, -22, -50	07567-70, -80, -90, -95
07524-50, -55	07553-12, -14, -30, -80, -85	77521-50, -57

Brush Caps and Brushes

A Brush Caps work with all 1/20 hp (37 W), 1/10 hp (75 W), and 1/5 hp (150 W) drive series listed below.

Catalog number	Description	Price/pk of 2
KH-07520-03	Brush caps	

B Brushes work with all 1/20 hp (37 W), 1/10 hp (75 W), and 1/5 hp (150 W) drive series listed below.

Catalog number	Fit drive series/model				Price/pk of 2
KH-07520-04	07520	07526	07554*	75210	
	07521	07550†	07591	75211	
	07523	07552	07592	77300	
	07524‡	07553**	07593	77521	
KH-07520-06	07554-80, -85, -90, -95				

*Except 07554-52, -60, -80, -85, -90, -95

†Except 07550-60, -62, -67, -90, -92

‡Except 07524-00, -05, -10, -15

**Except 07553-50, -60

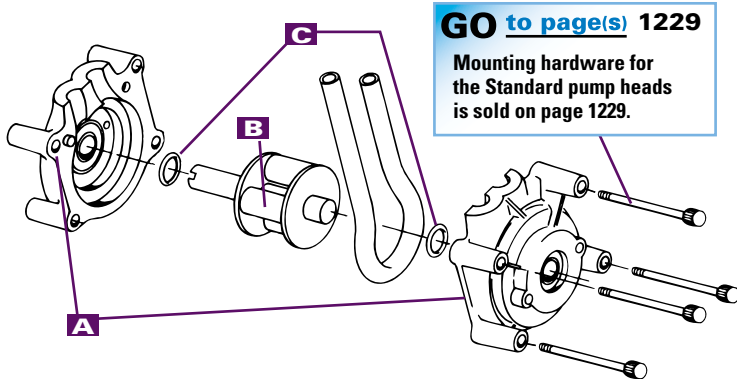


More info

Additional parts and accessories are listed in our Encyclopedia Masterflex® Vol 3. Request your copy at Masterflex.com.

Replacement Parts for L/S® and I/P® Pump Heads

L/S® Standard Pump Head Parts



GO to page(s) 1229
Mounting hardware for the Standard pump heads is sold on page 1229.

A End Bell Assemblies. Two required for a complete head assembly.

For pump heads with CRS rollers			For pump heads with SS rollers		
For pump heads	Catalog number	Price	For pump heads	Catalog number	Price
07013-20	KH-07013-81		07013-21	KH-07013-91	
07014-20	KH-07014-81		07014-21	KH-07014-91	
07015-20	KH-07015-81		07015-21	KH-07015-91	
07016-20	KH-07016-81		07016-21	KH-07016-91	
07017-20	KH-07017-81		07017-21	KH-07017-91	
07018-20	KH-07018-81		07018-21	KH-07018-91	
07024-20	KH-07024-81		07024-21	KH-07024-91	
07035-20	KH-07035-81		07035-21	KH-07035-91	

B Rotor Assemblies. Cold-rolled steel (CRS) or stainless steel (SS).

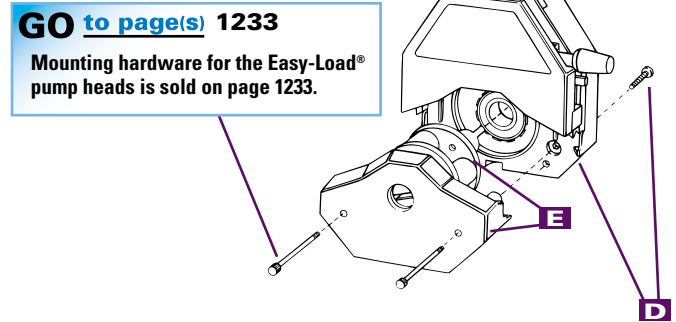
For pump heads with CRS rollers			For pump heads with SS rollers		
For models	Catalog number	Price	For models	Catalog number	Price
07013-20, -42	KH-07013-80		07013-21, -52	KH-07013-95	
07014-20, -42			07014-21, -52		
07016-20, -42			07016-21, -52		
07017-20, -42			07017-21, -52		
07018-20, -42			07018-21, -52		
07015-20, -42	KH-07015-80		07015-21, -52	KH-07015-90	
07024-20, -42			07024-21, -52		
07035-20			07035-21		

C Thrust Washers

Key	Catalog number	Description	Price/pk of 10
C	KH-07021-04	Thrust washers	

[KH-07019-90](#) L/S tubing loading key for Standard pump heads

L/S® Easy-Load® Pump Head Parts



GO to page(s) 1233
Mounting hardware for the Easy-Load® pump heads is sold on page 1233.

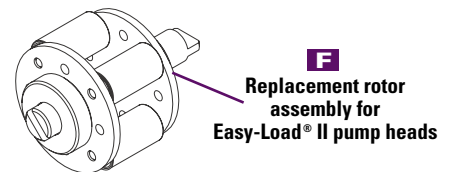
D-E Main Body and Rotor/Bearing Assemblies

For pump heads	Body/bearing material*	Catalog number	Price
07518-00, -02, -20, -22	PSF/CRS	KH-07518-07	
07518-10, -12, -30, -32	PSF/SS	KH-07518-17	
07518-60, -62, -80, -82	PPS/SS	KH-07518-67	

E Rotor/bearing support assemblies

07518-00	PSF/CRS	KH-07518-08	
07518-10	PSF/SS	KH-07518-18	
07518-02, -12	PSF/SS	KH-07518-19	
07518-60	PPS/SS	KH-07518-68	
07518-62	PPS/SS	KH-07518-69	

L/S® Easy-Load® II Pump Head Parts



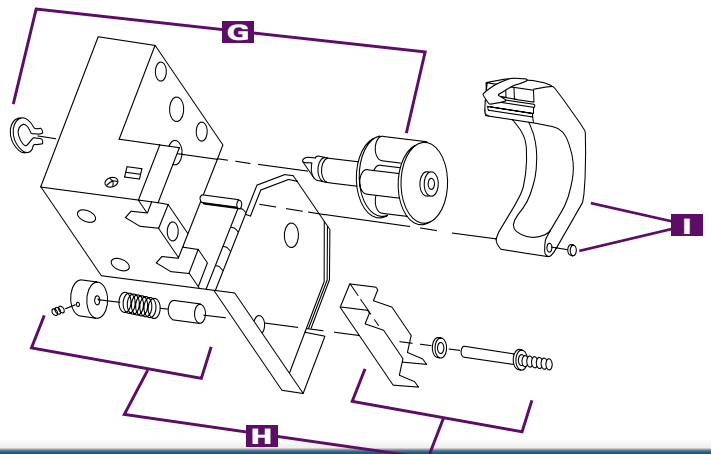
F Rotor Assemblies

For pump head	Body/rotor material*	Catalog number	Price
77200-50, 77200-52	PPS/CRS	KH-77200-58 KH-77200-59	
77200-60, 77201-60, 77200-62, 77201-62	PPS/SS	KH-77200-68 KH-77200-69	

*PPS—Polyphenylene sulfide PSF—Polysulfone
PC—Polycarbonate CRS—Cold-rolled steel SS—Stainless steel

L/S® High-Performance 77250-62 Pump Head Parts

- K** [KH-77250-69](#) Rotor assembly with clip
- H** [KH-77250-66](#) Tubing retainer kit
- I** [KH-77250-67](#) Occlusion bed assembly with clip
- [KH-77250-01](#) Mounting screws (not shown)



I/P® Standard 07019-Series Pump Head Parts

J End Bell Assemblies. Two required for a complete head assembly.

For pump heads	Housing material*	Catalog number	Price
07019-00, -20	PC/CRS	KH-07019-78	
07019-01, -21	PC/SS	KH-07019-79	
07019-25, -32	PC/CRS	KH-07019-74	
07019-26, -31	PC/SS	KH-07019-75	
07019-35, -36, -51, -53	PPS/SS	KH-07019-77	

K Rotor Assemblies

For pump heads	Housing material*	Catalog number	Price
07019-20, -32, -36, -40	CRS	KH-07019-82	
07019-21, -31, -43, -53	SS	KH-07019-85	

I/P® Easy-Load® 77601-Series Pump Head Parts

O Main Body/Occlusion Bed Assemblies with rear bearing

For pump heads	Housing material*	Catalog number	Price
77601-00, -02	PSF/CRS	KH-77601-07	
77601-10, -12	PSF/SS	KH-77601-17	
77601-60, -62	PPS/SS	KH-77601-67	

P Rotor/Bearing Support Assemblies for short shaft pump heads

For pump head	Housing material*	Catalog number	Price
77601-00	PSF/CRS	KH-77601-08	
77601-10	PSF/SS	KH-77601-18	
77601-60	PPS/SS	KH-77601-68	

Q Tubing Retainer Kit. Includes two retainer assemblies, back plate and screws.

Pump head material	Catalog number	Price
Polysulfone (PSF)	KH-77601-06	

R Mounting hardware (Stainless steel) for I/P Easy-Load 77601-series pump heads. Includes five #10-24 mounting screws.

Number of heads to be mounted	Catalog number	Price
One	KH-77601-95	
Two	KH-77601-96	

*PPS—Polyphenylene sulfide PSF—Polysulfone
PC—Polycarbonate CRS—Cold-rolled steel SS—Stainless steel

I/P® High-Performance 77600-62 Pump Head Parts

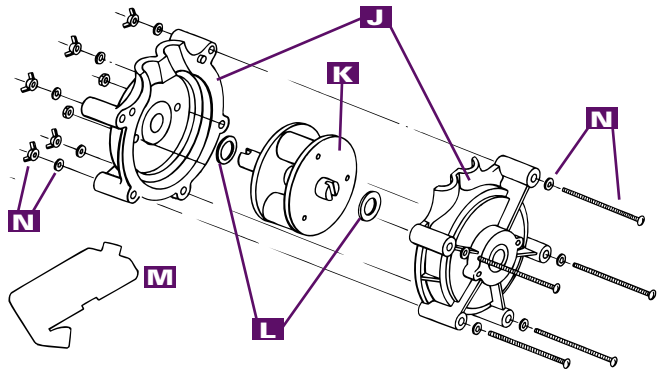
S KH-77600-69 Rotor/Body kit (includes rotor/body assembly with tang boot)

T KH-77600-66 Tubing retainer kit (includes retainer, adjusting screw, spacer, spring, washers, and knob)

U KH-77600-67 Occlusion bed assembly kit (includes occlusion bed assembly, washers, and retaining clip)

V KH-77600-03 Replacement tang boot. Pack of 10.

KH-77600-01 Mounting screws (not shown). Set of four #10-24 screws



L KH-07019-92 Thrust washers. Pack of 10

M KH-07019-90 Tubing loading key. Use to properly install tubing in pump head

N Mounting hardware (Stainless steel) for all I/P Standard pump heads. Includes five #10-24 mounting screws with #10 washers and wing nuts

KH-07019-95 For mounting one head

KH-07019-96 For mounting two heads

KH-77600-03 Replacement tang boots (not shown). pack of 10

