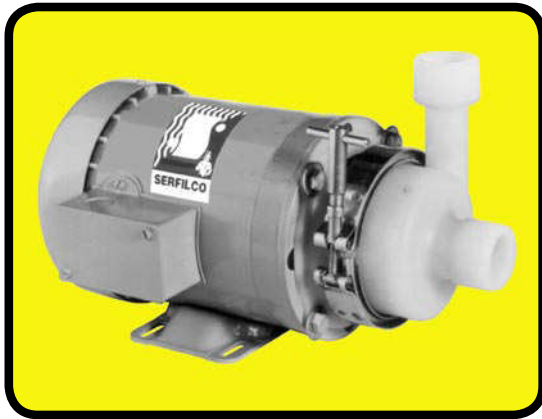




SERIES 'K' HORIZONTAL PUMPS

FOR PUMPING, TRANSFERRING, RECIRCULATING :

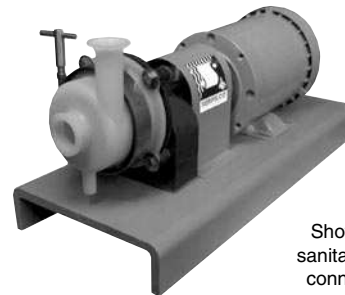


***D. I. Water / Ultra Pure Chemicals
Plating Solutions / Electronics
Dairy / Pharmaceutical***

- **Non-metallic solution contact**
100% natural color PVDF for temperatures to 280°F (138°C)
(See Chemical Resistance Chart)
- **1½" MNPT or sanitary connections**
- **Mounts to 56J motor**
- **Ideal for OEM applications**
- **Casing clamp for easy disassembly**
Provides choice of discharge direction
- **To 80 U.S. GPM or 51 FT.TDH @ 60 Hz**
(252 LPM or 10.8m @ 50 Hz)
- **Seal can be changed in 5 minutes**

Series 'K' centrifugal pumps are molded of high purity 100% natural color virgin PVDF. The resin is FDA approved and offers exceptionally high chemical resistance to strong acids and solvents. Semi-enclosed impeller provides efficient, trouble-free operation at all operating temperatures. Inlet and outlet connections are 1½" MNPT or sanitary flange.

Unique design of carbon/ceramic mechanical seal isolates stainless steel shaft from solution contact. The available (M3) seal component is silica-free ceramic which allows the pump to be used for solutions which contain fluorides. Seal elastomers and casing "O"-ring are Viton®. Casing clamp with "T" handle lock allows choice of discharge direction and ease of pump disassembly.

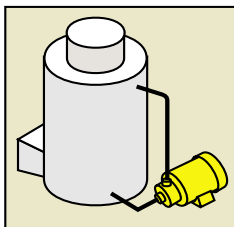


Shown with sanitary flange connections.

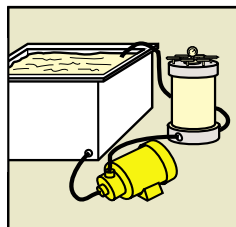
LONG-COUPLED PEDESTAL MOUNTED MODEL

Features a cast iron bearing pedestal with titanium shaft, fiberglass reinforced channel baseplate, flexible coupling and guard. Motor may be provided by factory or field installed. Order pump and long-coupled kit separately. See following page.

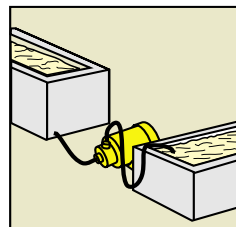
® Viton is a Registered Trademark of DuPont Dow Elastomers.



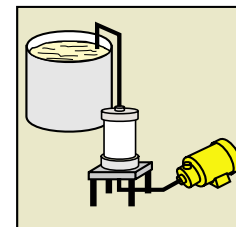
**PRESSURE
SPRAYING**



**FILTER
SYSTEM**



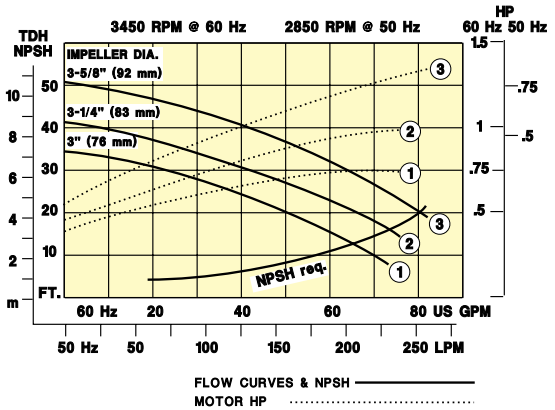
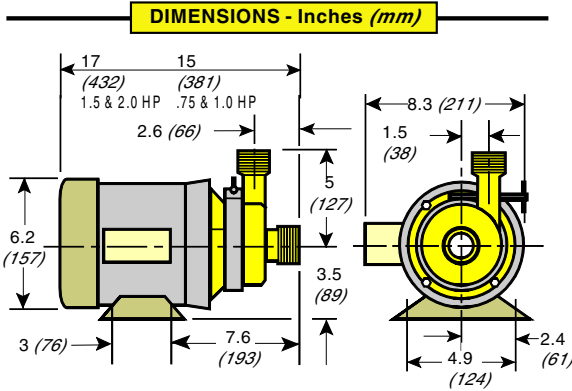
**WASTE
TREATMENT**



**SOLUTION
TRANSFER
w/PRIMING CHAMBER**



SERIES 'K' HORIZONTAL PUMPS (cont'd)



TO ORDER, use Price Code Number

TABLE I

Select pump/motor model from flow curve number providing the desired performance. Motor horsepower is non-overloading for 1.0 specific gravity and 60/50 Hz operation.

PUMP-MOTOR w/single mechanical seal

FLOW CURVE NO.	MODEL NUMBER	SHIPPING WEIGHT		PRICE CODE NO.
	THREADED CONNECTIONS 3 PHASE MOTOR	Lbs.	kg.	
1	1½ x 1½ K1V(M2)-D.75	25	11	47-2111D
2	1½ x 1½ K2V(M2)-D1.0	30	14	47-2121E
3	1½ x 1½ K3V(M2)-D1.5	35	16	47-2131F

TABLE II

To determine pump/motor model for a specified GPM, TDH, mechanical seal and/or specific gravity, select performance point on curve and size horsepower from corresponding numbered dotted line verti-

cally above or below performance point. Read required horsepower at right ordinate and multiply by specific gravity. Select pump model components and price code numbers.

EXAMPLE: Typical Model No. 1½ x 1½K 1 V(M2) -D.75 = 47-2111D Price Code No.

PUMP			IMPELLER		"O"-RING & MECHANICAL SEAL			MOTOR* (TEFC, 3450 RPM ²)						
CONNECTIONS	MODEL NUMBER	PRICE CODE NO.	FLOW CURVE NO.	ADD TO ... MODEL & PRICE CODE NO.	VITON, CARBON & CERAMIC IN SOLUTION CONTACT	ADD TO ...		HP	115-230V/1/60		230-380-460V/3/60		MOTOR ¹ WEIGHT	
						MODEL NO.	PRICE CODE NO.		MODEL NO.	PRICE CODE NO.	lbs.	kg.		
1½ x 1½ NPT	1½ x 1½K	47-21	1	1	Single seal	V(M2)	1	.75	-C.75	A	-D.75	D	22	10
1½ x 1½ SAN	1½ x 1½SK	47-25	2	2	Single seal w/silica-free ceramic	V(M3)	3	1	-C1.0	B	-D1.0	E	27	12
			3	3				1.5	-C1.5	C	-D1.5	F	32	14
								2	-	-	-D2.0	G	37	17

*To order pump without motor, delete motor Model Number and Price Code Number.

OPTIONAL

DESCRIPTION	PRICE CODE NO.
TITANIUM SHAFT ADAPTER	44-1930
LONG-COUPLED KIT	
LCK6	42-0216
LCK7	42-0217
MOTOR MOUNTING AND ALIGNMENT (for long coupling)	42-0204

¹ For shipping weight of Pump/Motor assembly ordered from Table II, add 3 lbs., (1.4 kg.) to motor weight.

² Consult Application Engineering Dept. for 50 Hz motors as well as elbows, pipe, gaskets, clamps, motor starters, BSP fittings or adapters

A **DRI-STOP Pump Protector** switch is available to prevent damage to pump due to dry operation. Consult Bulletin A-105.

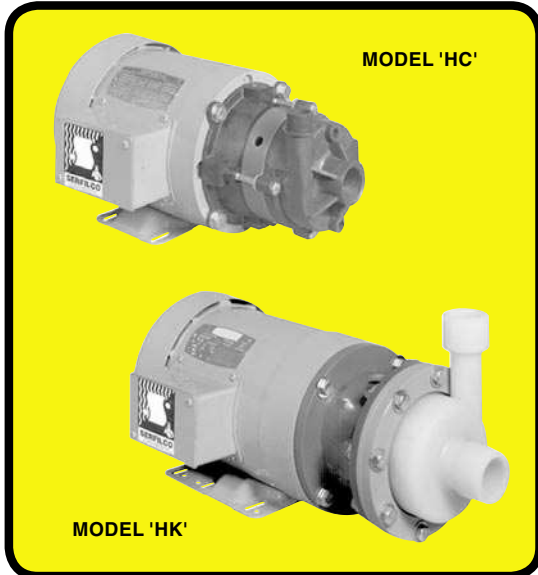




SERIES 'HC' & 'HK' HORIZONTAL PUMPS

167

P-203K



HIGH EFFICIENCY AND LOW ENERGY USAGE FOR:

**WASTES / ACIDS / PLATING
CHEMICALS / PHOTOGRAPHIC
ETCHING / SCRUBBING**

- Flows to 78 U.S. GPM or 53 FT. TDH @ 60 Hz (246 LPM or 11m @ 50 Hz)
- Non-metallic solution contact
- CPVC or 100% PVDF
(See a chemical resistance chart)
- Single or double mechanical seal
Carbon/ceramic or silicon carbide
EPDM or Viton® elastomers
- Centrifugal — quiet, vibration-free
- Standard models provide non-overloading full flow with liquids to 1.2 S.G.
- Chemical duty motor (1/3 - 1-1/2 HP)
Sealed oversized bearings, cast iron end bells
Corrosion resistant two-part epoxy enamel finish,
stainless steel name plate
1.15 service factor at 50 and 60 Hz

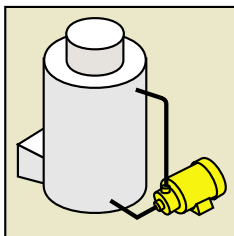
Series 'HC' & 'HK' Horizontal Pumps feature "total" chemical resistance with non-metallic construction of all wetted components. The molded, semi-enclosed impellers are designed to provide maximum pumping efficiency. These pumps feature external single seal or double water-flushed mechanical seal with choice of EPDM or Viton elastomer materials.

Available close-coupled to minimize size or long-coupled with bearing pedestal base plate and motor. All close-coupled pumps are driven by chemical duty motors suitable for continuous duty in corrosive environments.

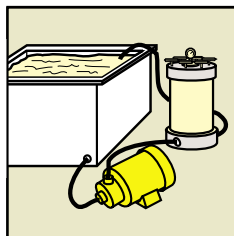
Pumps are ideal for transferring and recirculating industrial solutions, plating solutions, process chemicals and other fluid handling applications.



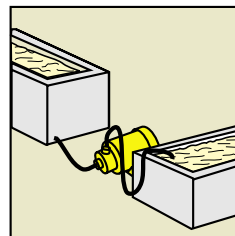
MODEL HC1 x 3/4
w/double mechanical water-flush seal and available DRI-STOP 2R



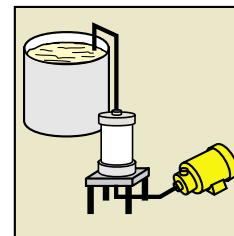
FUME SCRUBBING



CLEANING & DESCALING



WASTE TREATMENT

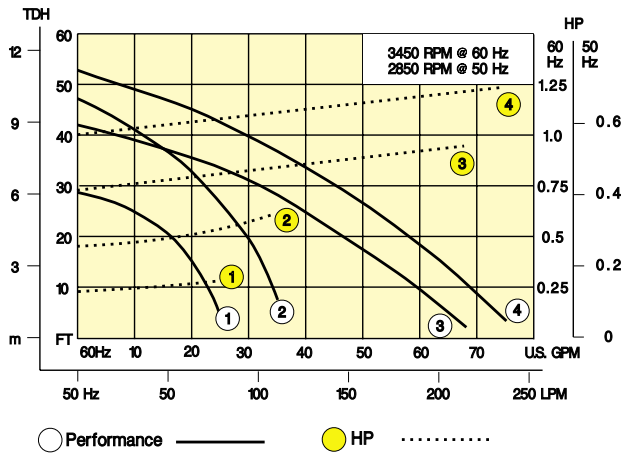


SOLUTION TRANSFER
w/PRIMING CHAMBER

10



SERIES 'HC' & 'HK' Flow curves & dimensions



Series 'HC' pumps have 1" FNPT suction x 3/4" MNPT discharge and are available in CPVC or 100% PVDF. Series 'HK' pumps have 1 1/2" MNPT suction x 1 1/2" MNPT discharge and are available in CPVC with PVDF suction casing or 100% PVDF. Standard elastomers are Viton, EPDM is available.

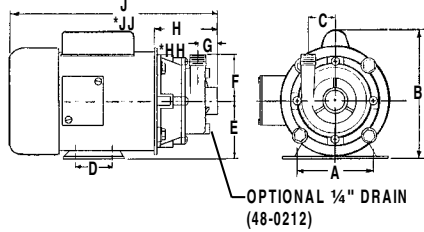
All models utilize a molded, semi-enclosed impeller. Mechanical seal is Type 21, externally mounted with stainless steel components not in solution contact. Double mechanical seal is designed for flushing the seal chamber with water and is recommended for applications where abrasives or salts are present, or for conditions where metal deposition will occur. In addition, double water flush sealed pumps will permit dry run operation.

Standard mechanical seal faces are silica-free ceramic/carbon (M1) and (M2). Silicon carbide seal faces (M8) are available and recommended for critical applications.

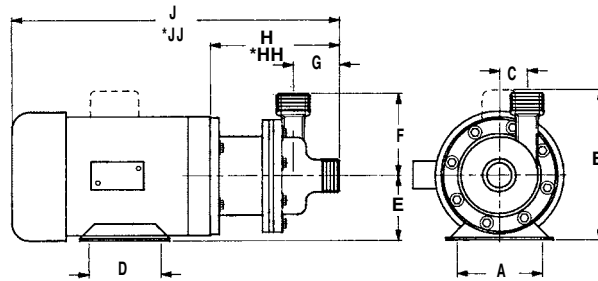
Motors are chemical duty with sealed oversize bearings, cast iron end bells, two-part epoxy finish, and stainless steel tag. Motors are rated with 1.15 service factor at 50 or 60 Hz.

DIMENSIONS

MODEL HC1 x 3/4



MODEL HK1-1/2 x 1-1/2

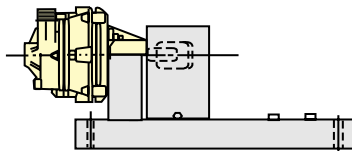


MODEL	DIMENSIONS										MAX.	MAX.	
		A	C		E	F	G	H	* HH	J	* JJ		
HC1 x 3/4	Inches (mm)	4-7/8 (124)	9 (229)	1-11/16 (43)	3 (76)	3-1/2 (89)	2-3/4 (70)	1-13/32 (36)	4-5/16 (110)	5-7/32 (133)	13-1/16 (332)	14 (356)	
HK1-1/2 x 1-1/2	Inches (mm)	5-1/2 (140)	9 (229)	1-1/2 (38)	4 (102)	3-1/2 (89)	5 (127)	2-9/16 (65)	7-1/4 (184)	7-1/4 (184)	18-1/4 (464)	18-1/4 (464)	

LONG-COUPLED KIT

Long-Coupled Kit includes bearing pedestal frame (plastic for HC and cast iron for HK), fiberglass reinforced channel (23.5" x 10" x 2.75"), flexible coupling and guard, and stainless steel fasteners. To order unit assembled with motor, add 42-0204.

* HH and JJ are double seal dimensions.



TO ORDER LONG COUPLED KIT	ADD TO MODEL NO.	PRICE CODE NO.
For 56 frame (HC1 x 3/4 pump) For 143T & 145T frame (HK1-1/2 x 1-1/2 pump)	- LCK-1	42-0210
	- LCK-2	42-0217A
Assembled with motor		42-0204

10



ORDERING INFORMATION

TABLE I

Select flow curve with desired performance. Select CPVC or PVDF. All models have carbon/SF¹ ceramic seal, Viton elastomers, and single phase motor. Motor HP is non-overloading for full flow at 1.2 S.G.

MAX. FLOW*	CURVE	CPVC SINGLE SEAL		CPVC DOUBLE SEAL	
		MODEL	PRICE CODE NO.	MODEL	PRICE CODE NO.
25	1	HC1 x ¾C1V(M2) C.3	47-0612 A	HC1 x ¾C1V(M2 x M1) C.3	47-0615 A
35	2	HC1 x ¾C2V(M2) C.75	47-0622 C	HC1 x ¾C2V(M2 X M1) C.75	47-0625 C
67	3	HK1½ x 1½CK3V(M2) C1.0	47-0832 E	HK1½ x 1½CK3V(M2 X M1) C1.0	47-0835 E
75	4	HK1½ x 1½CK4V(M2) C1.5	47-0842 G	HK1½ x 1½CK4V(M2 x M1) C1.5	47-0845 G
		PVDF SINGLE SEAL		PVDF DOUBLE SEAL	
25	1	HC1 x ¾K1V(M2) C.3	47-0712 A	HC1 x ¾K1V(M2 x M1) C.3	47-0715 A
35	2	HC1 x ¾K2V(M2) C.75	47-0722 C	HC1 x ¾K2V(M2 x M1) C.75	47-0725 C
67	3	HK1½ x 1½K3V(M2) C1.0	47-0932 E	HK1½ x 1½K3V(M2 x M1) C1.0	47-0935 E
75	4	HK1½ x 1½K4V(M2) C1.5	47-0942 G	HK1½ x 1½K4V(M2 x M1) C1.5	47-0945 G

* US GPM @ 60 Hz with 1.0 S.G. liquid.

TABLE II

To construct model/price code number for pump with EPDM elastomers, SiC seal, three phase motor or increased horsepower, see chart below. Use price code number to order.

PUMP			IMPELLER		"O"-RING & TYPE 21 MECHANICAL SEAL		
MATERIAL	MODEL	PRICE CODE NO.	FLOW CURVE	ADD TO MODEL & PCN	MATERIAL (SOLUTION CONTACT)	ADD TO...	
						MODEL	PCN
CPVC	HC1 x 3/4C	47-06	1	1	SINGLE SEAL		
100% PVDF	HC1 x 3/4K	47-07	2	2	EPDM, carbon SF ¹ ceramic	L(M1)	1
CPVC / PVDF	HK1-1/2 x 1-1/2CK	47-08	3	3	Viton, carbon SF ¹ ceramic	V(M2)	2
100% PVDF	HK1-1/2 x 1-1/2K	47-09	4	4	Viton, silicon carbide	V(M8)	7
					DOUBLE SEAL		
					EPDM, carbon SF ¹ ceramic	L(M1xM1)	4
					Viton, carbon SF ¹ ceramic	V(M2xM1)	5
					Viton, silicon carbide	V(M8xM1)	8

¹ SF= Silica-free ceramic.

MOTOR, TEFC, "C" FACE				PUMP & MOTOR SHIP. WT. (Lbs.)	
FLOW CURVE	VOLTAGE DESIGNATION	HP	ADD TO...		
			MODEL	PCN	
1	- C Single phase 115-190-230V/1/50-60	1/3	-C.3	A	25
			-D.3	B	25
2	- D Three phase 230-460V/3/50-60 or 380-415V/3/50	3/4	-C.75	C	30
			-D.75	D	25
3		1	-C1.0	E	40
			-D1.0	F	30
4		1-1/2	-C1.5	G	45
			-D1.5	H	35

EXAMPLE:

PUMP + IMPELLER + ELASTOMER & MECHANICAL SEAL + MOTOR = PRICE CODE NO.
 HK1½ x 1½K + 3 + V(M8 x M1) + D1.5 = 47-0938 H



SERIES 'HN' HORIZONTAL PUMPS

170

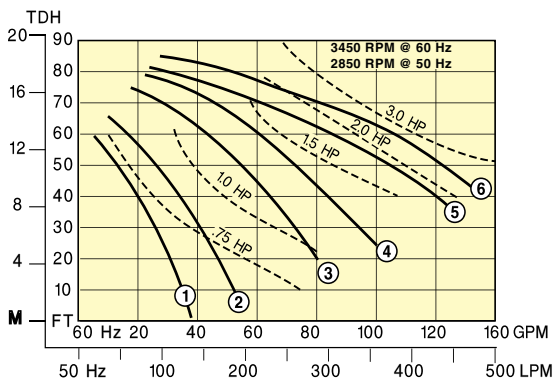
P-111A



RELIABLE CORROSION-RESISTANT PUMPS FOR:

**ACID / AQUEOUS / CAUSTIC /
PLATING / SCRUBBING
WASTES AND WASTE WATER**

- **Non-metallic solution contact**
30% glass-filled Noryl®
(Refer to a chemical resistance chart)
- **To 135 U.S. GPM or 88 ft. TDH @ 60 Hz**
(425 LPM or 19 M @ 50 Hz)
- **Single mechanical seal**
carbon / silica-free ceramic
EPDM or Viton® elastomers
- **Centrifugal - quiet, vibration-free**
- **Standard NEMA C face 56J TEFC motor**
- **1½" x 1½" FNPT connections**
- **Back pull-out design, easy assembly and maintenance**

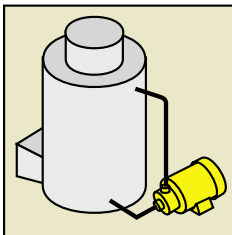


The Series 'HN' pump is capable of "total" chemical resistance, both internally and externally with its non-metallic construction of all wetted components. Engineering grade thermoplastics provide application compatibility with a variety of chemicals that would be corrosive to other materials of construction.

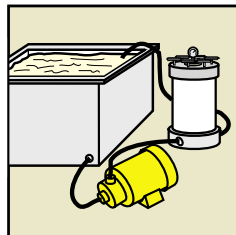
The totally enclosed impeller is molded to close tolerances which allow this pump to operate at peak horsepower efficiency across a broad range of operational flow/head requirements.

The unique mechanical seal eliminates any metal in contact with the solution pumped. All of these features allow this pump to properly handle many applications at a fraction of the cost of exotic alloys.

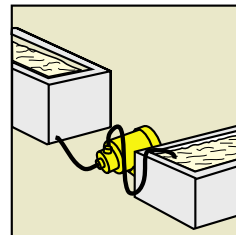
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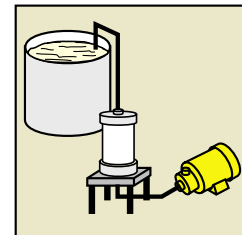
PRESSURE SPRAYING



FILTER SYSTEM



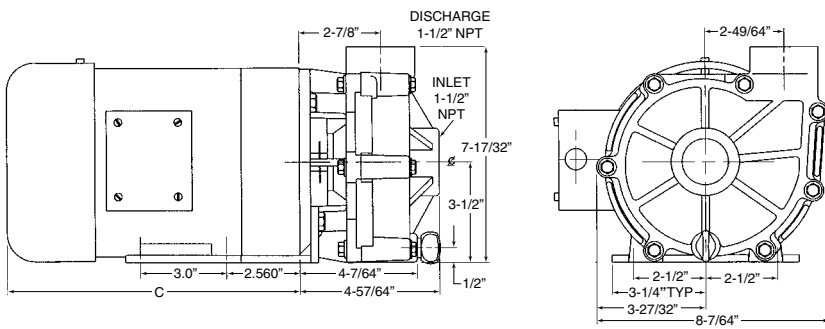
WASTE TREATMENT



SOLUTION TRANSFER w/PRIMING CHAMBER



DIMENSIONS



HP	Typical "C" dimensions of TEFC motor and wt. of pump / motor unit.	
	1 Phase	3 Phase
3/4	10.25" 35 lbs.	9.38" 30 lbs.
1	11.25" 44 lbs.	9.38" 33 lbs.
1.5	11.50" 49 lbs.	10.25" 35 lbs.
2	12.25" 55 lbs.	11.38" 44 lbs.
3	--	12.13" 54 lbs.

Motor dimensions may vary.

TO ORDER, use Price Code No.

TABLE I - Complete Noryl pump & motor

FLOW CURVE NO.	MAX. FLOW		MAX. TDH		EPDM - carbon / ceramic SEAL		VITON - carbon / ceramic SEAL	
	GPM @ 60 Hz	l/m @ 50 Hz	FT.	M	MODEL NO.	PRICE CODE NO.	MODEL NO.	PRICE CODE NO.
1	36	113	65	14	H1½ x 1½ NE1L(M1)-D.75	42-1011 F	H1½ x 1½ NE1V(M2)-D.75	42-1012 F
2	54	170	72	15	H1½ x 1½ NE2L(M1)-D1.0	42-1021 G	H1½ x 1½ NE2V(M2)-D1.0	42-1022 G
3	80	236	78	15	H1½ x 1½ NE3L(M1)-D1.5	42-1031 H	H1½ x 1½ NE3V(M2)-D1.5	42-1032 H
4	100	308	84	18	H1½ x 1½ NE4L(M1)-D1.5	42-1041 H	H1½ x 1½ NE4V(M2)-D1.5	42-1042 H
5	124	390	85	18	H1½ x 1½ NE5L(M1)-D2.0	42-1051 J	H1½ x 1½ NE5V(M2)-D2.0	42-1052 J
6	135	425	88	19	H1½ x 1½ NE6L(M1)-D3.0	42-1061 K	H1½ x 1½ NE6V(M2)-D3.0	42-1062 K

NOTE: Motors are 230-460V / 3 / 60 Hz. See Table II for 1 and / or other HP

TABLE II - Select pump components

EXAMPLE: Model H1½ x 1½ Material N Impeller E Curve 3 Seal V(M2) Motor = -C1.5 Price Code No. 42-1032 C

PUMP		MAT'L of CONSTRUCTION		IMPELLER TYPE		FLOW CURVE		SEAL		HP	MOTOR 115-230V / 1 / 60		MOTOR 230-460V / 3 / 60	
MODEL	PCN	MODEL	PCN	MODEL	PCN	MOD. & PCN	MODEL	PCN	MODEL TEFC		PRICE CODE	MODEL TEFC	PRICE CODE	
H1½ x 1½ Horizontal 1½ x 1½ FTPT connections	42-	N	1	E	0	1	L (M1)	1	.75	-C.75	A	-D.75	F	
						2	EPDM	1.0	-C1.0	B	-D1.0	G		
						3	Carb./ ceramic	1.5	-C1.5	C	-D1.5	H		
						4	V (M2)	2.0	-C2.0	D	-D2.0	J		
						5	Viton	3.0	-C3.0	E	-D3.0	K		
						6	Carb. / ceramic							

Consult Sales Dept. for 50 Hz or other motors.



SERIES 'HE' HORIZONTAL PUMP

172

P-201N

Energy saving centrifugal pumps for:



Series 'HE' shown with 'DRI-STOP' protection, to prevent damage from dry operation

Acid / Aqueous / Caustic Chemical / Etching / Photographic Plating / Scrubbing / Wastes

- **Flows to 175 U.S. GPM or 130 ft. TDH @ 60 Hz**
(552 LPM or 28 M @ 50 Hz)
- **Non-metallic solution contact**
PPP high temperature polypropylene, CPVC or PVDF
(Refer to a chemical resistance chart)
- **Single or double mechanical seal,**
carbon/ceramic, or silicon carbide with EPDM or Viton® elastomers
- **Centrifugal - quiet, vibration-free**
- **NPT or metric connections available**
- **Pump casing indexes to six directions of discharge**
- **Chemical duty motor (1.0 - 7.5 HP)**
Sealed oversized bearings, liquid/vapor seal and slinger, cast iron end bells, corrosion resistant two-part epoxy finish, stainless steel nameplate, 1.15 service factor at 50 or 60 Hz.

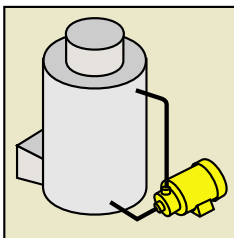
Here is a pump capable of "total" chemical resistance, both internally and externally with its non-metallic construction of all wetted components, choice of seal assembly and elastomer materials. Engineering grade plastics provide application compatibility with a variety of chemicals that would be corrosive to other materials of construction.

The totally enclosed impeller is molded to close tolerances which allow this pump to operate at peak horsepower efficiency across a broad range of operational flow/head requirements.

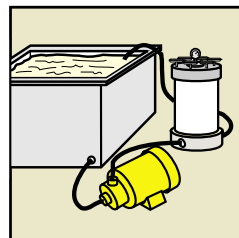
The external mechanical seal and impeller sleeve

assembly eliminate any metal in contact with the solution pumped. The unique design of the mechanical seal isolates metal components from solution contact. The double mechanical seal model requires water lubrication of the seal faces and allows the pump to be used for solutions containing abrasives, a high salt concentration and for electroless plating solutions. The standard (M8) seal assembly is silicon carbide and designed for slurries, abrasive solutions and for solutions which contain fluorides. The M8 seal is the most durable and longest lasting mechanical seal available. Viton or EPDM elastomers are available on the 'HE' pump.

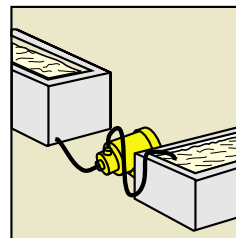
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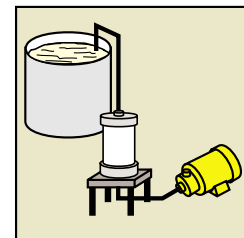
PRESSURE
SPRAYING



FILTER
SYSTEM



WASTE
TREATMENT



SOLUTION TRANSFER
w/PRIMING CHAMBER

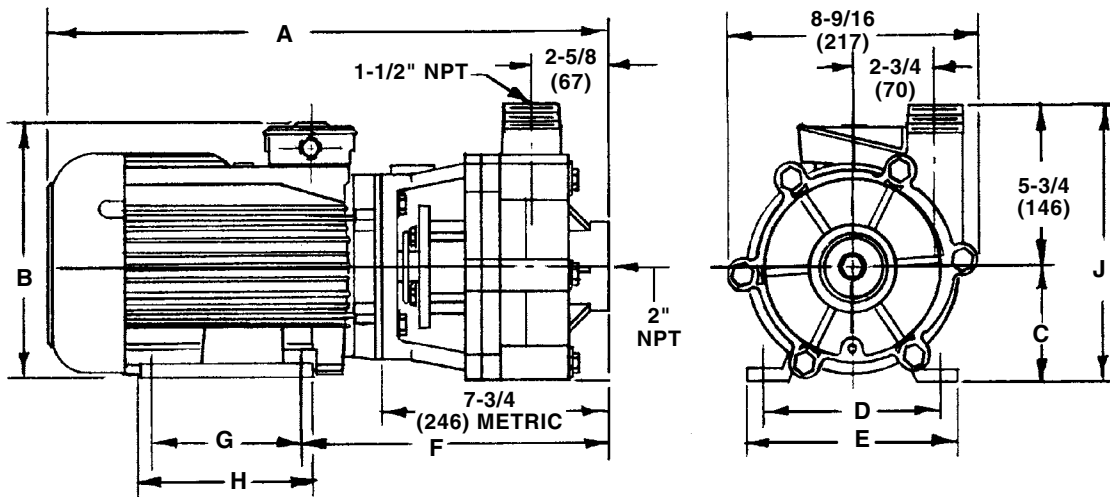


SERIES 'HE' Specifications

Standard models are constructed of CPVC, polypropylene or PVDF with threaded connections. The motor shaft is protected by the impeller sleeve assembly. Elastomers are EPDM or Viton. Impellers are enclosed. The mechanical seal is type 21, externally mounted with stainless steel components not in solution contact. A double mechanical seal is recommended for solutions

containing abrasives and for high temperature or other critical service. Close coupled motors are NEMA 'JM' or metric (IEC) standard. The motors designated NEMA can operate on 50 or 60 Hz at full rated horsepower. Consult Application Engineering Department for BSP fittings or adapters.

DIMENSIONS in inches (mm)



DIMENSIONS for NEMA motors are in inches and those for metric motors are in mm.

											MOTOR WT.*
											Lbs.
NEMA	MOTOR HP	A	B	C	D	E	F	G	H	J	
	1.5 (& 1 @ 1725 RPM)	16.94	8.63	3.5	5.5	6.75	10.5	4	4.75	9.25	43
	2 (& 1.5 @ 1725 RPM)	18	8.63	3.5	5.5	6.75	10.5	5	5.75	9.25	44
	3	19.63	9.63	4.5	7.5	9	11.25	4.5	5.5	10.25	50
	5	21	9.63	4.5	7.5	9	11.25	5.5	6.5	10.25	65
	7.5	21	9.63	4.5	7.5	9	11.25	5.5	6.5	10.25	110
METRIC	MOTOR KW	A	B	C	D	E	F	G	H	J	Kg.
	1.5 (90S frame)	496	212	90	140	170	307	100	125	236	23
	2.2 (90L frame)	521	212	90	140	170	307	125	150	236	25
	3.0 (100 frame)	549	236	100	160	197	314	140	172	246	30

*For shipping weight, add 15 lbs (6.8 Kg.) to motor weight.



SERIES 'HE' Flow Curves and Ordering Information

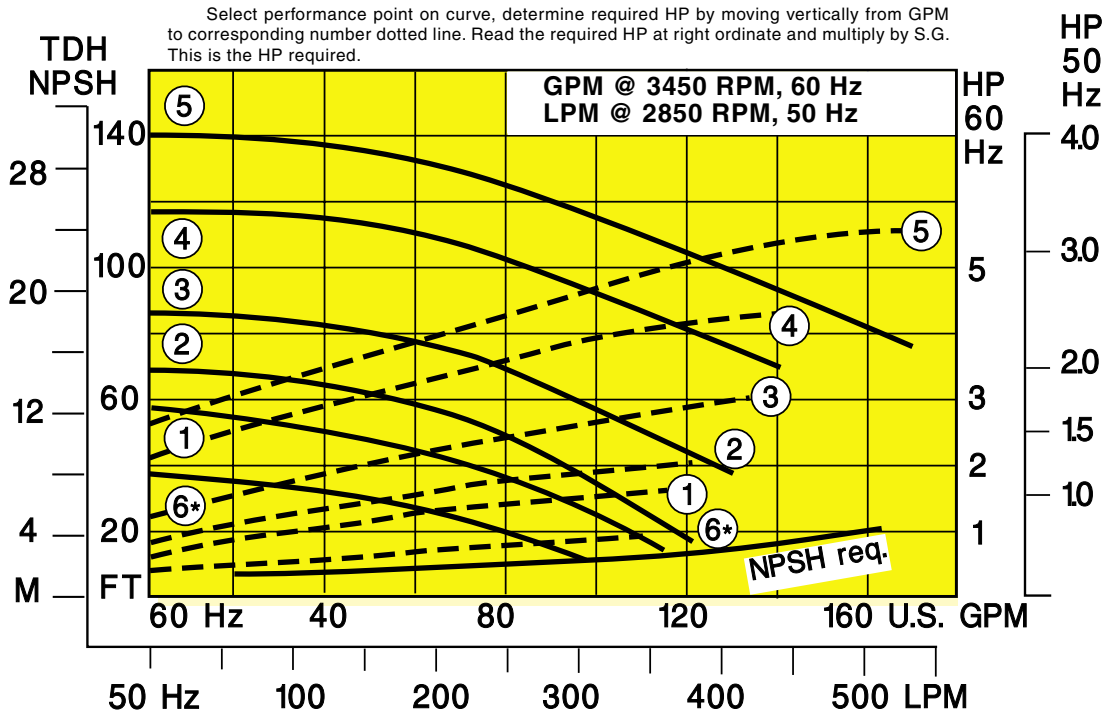


TABLE I - Standard models with SINGLE silicon carbide mechanical seal and Viton elastomers

FLOW CURVE NO.	CPVC	PRICE CODE NUMBER	PVDF	PRICE CODE NUMBER	POLYPROPYLENE**	PRICE CODE NUMBER
	MODEL NO.		MODEL NO.		MODEL NO.	
1	H2 x 1½ CE1V(M8) -D1.5	42-0118A	H2 x 1½ KE1V(M8) -D1.5	42-0318A	H2 x 1½ PE1V(M8) -D1.5	42-0418A
2	H2 x 1½ CE2V(M8) -D2.0	42-0128B	H2 x 1½ KE2V(M8) -D2.0	42-0328B	H2 x 1½ PE2V(M8) -D2.0	42-0428B
3	H2 x 1½ CE3V(M8) -D3.0	42-0138C	H2 x 1½ KE3V(M8) -D3.0	42-0338C	H2 x 1½ PE3V(M8) -D3.0	42-0438C
4	H2 x 1½ CE4V(M8) -D5.0	42-0148D	H2 x 1½ KE4V(M8) -D5.0	42-0348D	H2 x 1½ PE4V(M8) -D5.0	42-0448D
5	H2 x 1½ CE5V(M8) -D7.5	42-0158E	H2 x 1½ KE5V(M8) -D7.5	42-0358E	H2 x 1½ PE5V(M8) -D7.5	42-0458E
6	H2 x 1½ CE6V(M8) -H1.0	42-0168F	H2 x 1½ KE6V(M8) -H1.0	42-0368F	H2 x 1½ PE6V(M8) -H1.0	42-0468F

TABLE IA - Standard models with DOUBLE silicon carbide mechanical seal and Viton elastomers

FLOW CURVE NO.	CPVC	PRICE CODE NUMBER	PVDF	PRICE CODE NUMBER	POLYPROPYLENE**	PRICE CODE NUMBER
	MODEL NO.		MODEL NO.		MODEL NO.	
1	H2 x 1½ CE1V(M8 x M1) -D1.5	42-0119A	H2 x 1½ KE1V(M8 x M1) -D1.5	42-0319A	H2 x 1½ PE1V(M8 x M1) -D1.5	42-0419A
2	H2 x 1½ CE2V(M8 x M1) -D2.0	42-0129B	H2 x 1½ KE2V(M8 x M1) -D2.0	42-0329B	H2 x 1½ PE2V(M8 x M1) -D2.0	42-0429B
3	H2 x 1½ CE3V(M8 x M1) -D3.0	42-0139C	H2 x 1½ KE3V(M8 x M1) -D3.0	42-0339C	H2 x 1½ PE3V(M8 x M1) -D3.0	42-0439C
4	H2 x 1½ CE4V(M8 x M1) -D5.0	42-0149D	H2 x 1½ KE4V(M8 x M1) -D5.0	42-0349D	H2 x 1½ PE4V(M8 x M1) -D5.0	42-0449D
5	H2 x 1½ CE5V(M8 x M1) -D7.5	42-0159E	H2 x 1½ KE5V(M8 x M1) -D7.5	42-0359E	H2 x 1½ PE5V(M8 x M1) -D7.5	42-0459E
6	H2 x 1½ CE6V(M8 x M1) -H1.0	42-0169F	H2 x 1½ KE6V(M8 x M1) -H1.0	42-0369F	H2 x 1½ PE6V(M8 x M1) -H1.0	42-0469F

Notes: Motor HP shown is non-overloading for full flow with 1.1 specific gravity fluids.

See **Table II** on page 4 for additional selections.

* 1725 rpm @ 60 Hz, 1450 rpm @ 50 Hz

** Polypropylene models are glass reinforced

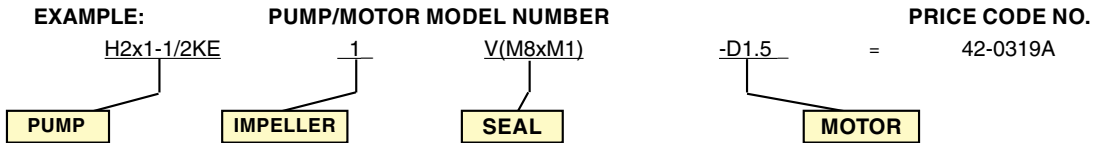
NOTE: S.G. = Specific gravity of liquid pumped.



TO ORDER FROM TABLE II

To determine pump-motor for a selected GPM, TDH and/or specific gravity, select flow/pressure point on curve. Required HP is determined by moving vertically to corresponding dotted line and then horizontally to HP scale. Multiply indicated HP by specific gravity. Select pump materials and mechanical seal(s) and construct Model and Price Code No.

TABLE II



PUMP	PRICE CODE NO.	FLOW CURVE NO.	ADD TO ...		'O'-RING & MECHANICAL SEAL MATERIAL (SOLUTION CONTRACT)	ADD TO ...		TEFC 208-230/460/3/60 or 190/380-415/3/50
			MODEL NO.	PRICE		MODEL NUMBER	PRICE CODE NO.	
CPVC H2 x 1-1/2CE	42-01	1	1	1	SINGLE MECHANICAL SEAL	L(M1)	1	RPM
PVDF H2 x 1-1/2KE	42-03	2	2	2		L(M8)	0	
POLYPROP. H2 x 1-1/2PE	42-04	3	3	3	V(M2)	2		
		4	4	4	V(M8)	8		
		5	5	5	DOUBLE MECHANICAL SEAL**		3450 or 2850	
		6	6	6	L(M1xM1)	5		D1.5
					L(M8xM1)	4	D2.0	A
					V(M2xM1)	6	D3.0	B
					V(M8xM1)	9	D5.0	C
							D7.5	D
								E
								F
								G

OPTIONAL

DESCRIPTION	PRICE CODE NUMBER
FLANGE CONNECTIONS	CPVC 42-0200
ANSI 150 Lbs. (ASA 150) 2"x1-1/2" (not installed)	PVDF 42-0211
	Polypropylene 42-0218
STAINLESS STEEL SHAFT	42-0358
METRIC PIPE ADAPTER SETS Consult Application Sales Dept.	

* Ceramic is silica free
 ** A DRI-STOP pressure switch is available to prevent damage to pump due to dry operation; consult Bulletin A-105.

LONG COUPLED KIT		
MODEL	FOR MOTOR FRAME	PRICE CODE NUMBER
LCK-1	182T & 184T	42-0201A
LCK-2	143T & 145T	42-0202A
LCK-3	56	42-0203A
LCK-4	182 & 184	42-0205A
MOTOR MOUNTING & ALIGNMENT		42-0204

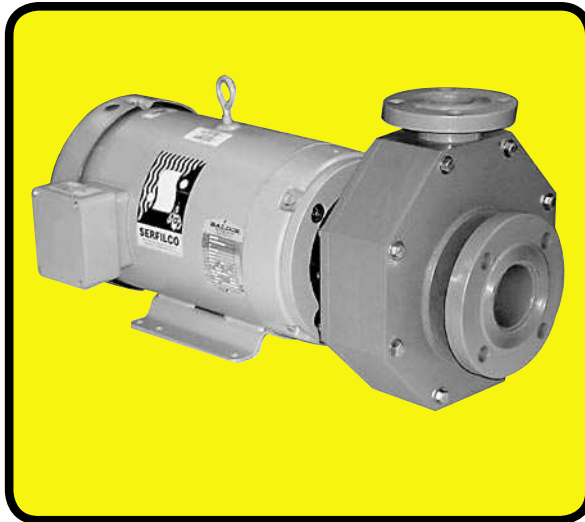
Long-coupled kit includes cast iron bearing pedestal frame, fiberglass reinforced channel (23-1/2" x 10" x 2-3/4"), flexible coupling and guard, and stainless steel shaft and fasteners. (Order pump separately)



SERIES 'HA' HORIZONTAL PUMP

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P-207A



ANSI DIMENSIONAL HEAVY DUTY CONSTRUCTION

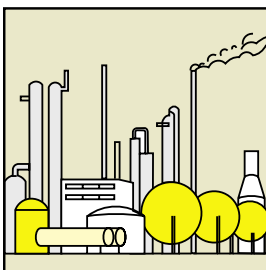
- **Flows to 1200 U.S. GPM or 155 ft.TDH**
@ 60 Hz (3800 l/min or 34 m @ 50 Hz)
- **Excellent chemical resistance**
Machined from solid CPVC (Corzan®)
(Refer to a chemical resistance chart)
- **Centrifugal – quiet, vibration free**
- **Single or double mechanical seal**
with EPDM or Viton® elastomers
- **Long or close-coupled**
- **Chemical duty motor – standard**
Sealed oversized bearings, cast iron end bells, corrosion resistant two-part epoxy finish, stainless steel nameplate
- **8x6x13 pump in development for flows to 2400 U.S. GPM**
Consult sales department for availability

The Series 'HA' is a heavy-duty, ANSI dimensional horizontal pump engineered for utmost reliability in severe chemical applications. The pump is machined from solid CPVC and utilizes an externally mounted mechanical seal. The 3x2x6 and 4x3x8 pumps have sleeved shafts for non-metallic solution contact while the 4x3x10 and 6x4x10 pumps utilize titanium or Hastelloy C shafts. This proven design provides excellent resistance to aggressive chemicals as well as economical and reliable operation for many years of service.

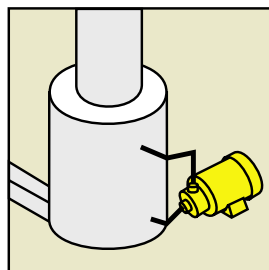
The Series 'HA' horizontal pump is available in four sizes with flow rates to 1200 U.S. GPM (3800 LPM), and is available with single or double mechanical seals and EPDM or Viton elastomers. Larger sized pumps designed to achieve 2400 U.S. GPM are in development. The standard configuration for these pumps is close coupled, however certain models are available long-coupled.

The Series 'HA' pump with its high flow rates, chemical resistance and durability makes it the perfect "workhorse" for chemical processing, transfer and filter pumping, fume scrubbers and cooling towers or for waste treatment applications.

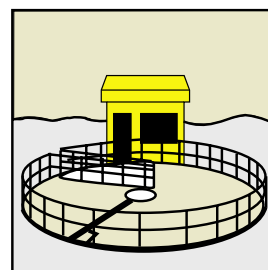
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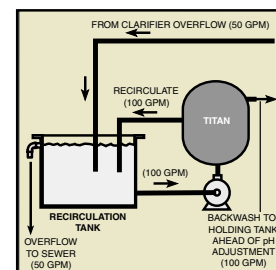
PETROCHEMICAL



FUME SCRUBBER
COOLING TOWER



WASTE TREATMENT



FILTER SYSTEM

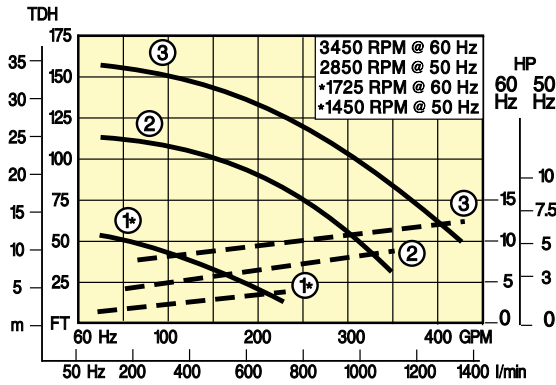


Pumps are machined from solid CPVC. 3x2x6 and 4x3x8 pumps have CPVC sleeved shafts while 4x3x10 and 6x4x10 pumps have titanium shafts standard with Hastelloy C shafts optional. Elastomers are Viton or EPDM. All models have an enclosed impeller, externally mounted Type 21 mechanical seal with silicon carbide seal faces and ANSI 150 lb. flange connections. External hardware not in solution contact is stainless steel. Motor is painted with two-part epoxy paint.

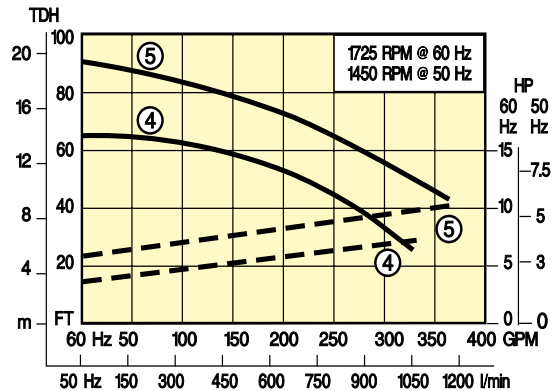
Single or double mechanical seals are available depending on the application. A double, water flushed mechanical seal is recommended for solutions containing abrasives, high temperatures or other critical service applications.

The standard configuration for Series 'HA' pumps is close coupled, however 3x2x6 and 4x3x8 pumps are also available long coupled. Pumps 20 HP and above are mounted on a 36"x15" steel baseplate.

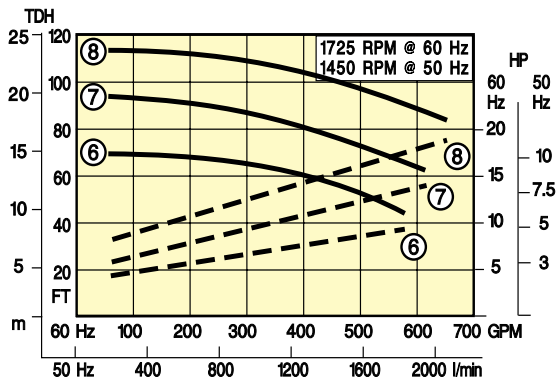
MODEL 3 x 2 x 6



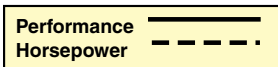
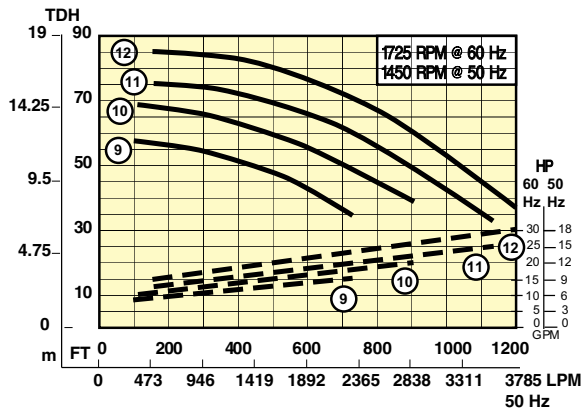
MODEL 4 x 3 x 8



MODEL 4 x 3 x 10

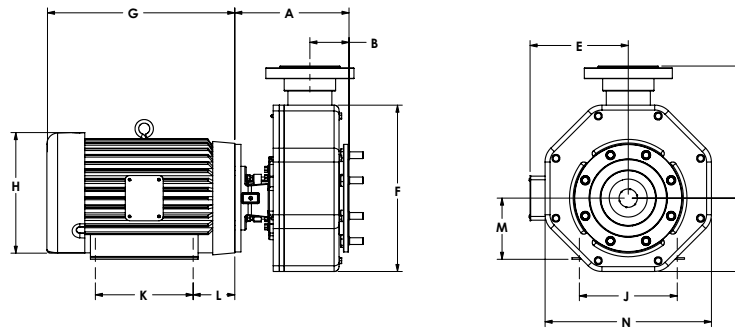


MODEL 6 x 4 x 10





DIMENSIONS



MODEL	MOTOR FRAME	HP	DIMENSIONS in. (mm)											
			A	B	C	D	E*	F&N	G*	H*	J	K	L	M
3 x 2 x 6	182TC	3.0	10 1/4(260)	4(102)	8 1/4(210)	8 1/4(210)	5.8(147)	12.0(305)	14.0(356)	8.7(221)	7.5(191)	4.5(114)	2.8(71)	4.5(114)
	184TC	5.0	10 1/4(260)	4(102)	8 1/4(210)	8 1/4(210)	5.8(147)	12.0(305)	14.0(356)	8.7(221)	7.5(191)	4.5(114)	2.8(71)	4.5(114)
	213TC	7.5	10 1/4(260)	4(102)	8 1/4(210)	8 1/4(210)	7.3(184)	12.0(305)	15.5(394)	10.3(262)	8.5(216)	5.5(140)	3.5(89)	5.3(135)
4 x 3 x 8	215TC	15.0	10 1/4(260)	4(102)	8 1/4(210)	8 1/4(210)	7.3(185)	12.0(305)	16.6(422)	10.3(262)	8.5(216)	7.0(178)	3.5(89)	5.3(135)
	213TC	7.5	11 1/4(294)	4(102)	8 1/4(210)	11(279)	7.3(185)	15.5(394)	15.5(394)	10.3(262)	8.5(216)	5.5(140)	3.5(89)	5.3(135)
	215TC	10.0	11 1/4(294)	4(102)	8 1/4(210)	11(279)	7.3(185)	15.5(394)	16.6(422)	10.3(262)	8.5(216)	7.0(178)	3.5(89)	5.3(135)
4 x 3 x 10	254TC	15.0	11 1/4(294)	4(102)	8 1/4(210)	11(279)	9.6(244)	15.5(394)	17.8(452)	12.0(305)	10.0(254)	8.3(211)	4.3(109)	6.3(160)
	215TC	10.0	11 1/4(294)	4(102)	8 1/4(210)	11(279)	7.3(185)	15.5(394)	16.6(422)	10.3(262)	8.5(216)	7.0(178)	3.5(89)	5.3(135)
	254TC	15.0	11 1/4(294)	4(102)	8 1/4(210)	11(279)	9.6(244)	15.5(394)	17.8(452)	12.0(305)	10.0(254)	8.3(211)	4.3(109)	6.3(160)
6 x 4 x 10	256TC	20.0	11 1/4(294)	4(102)	10(254)	13 1/2(343)	9.6(244)	17.0(432)	20.0(508)	12.0(305)	10.0(254)	10.0(254)	4.3(109)	6.3(160)
	284TC	25.0	11 1/4(294)	4(102)	10(254)	13 1/2(343)	9.6(244)	17.0(432)	21.6(549)	12.0(305)	10.0(254)	10.0(254)	4.3(109)	6.3(160)
	286TC	30.0	11 1/4(294)	4(102)	10(254)	13 1/2(343)	13.1(333)	17.0(432)	21.6(549)	14.0(356)	11.0(279)	11.0(279)	4.8(121)	7.0(178)

* Motor dimensions will vary with motor manufacturer

TO ORDER, use Price Code Number

TABLE I STANDARD MODEL

To order standard pump-motor combination select model from Table I. Standard models include CPVC sleeved or titanium shaft, single mechanical seal and Viton elastomers.

MODEL	FLOW CURVE	MODEL NUMBER	MAXIMUM FLOW (GPM)	MAXIMUM TDH (Ft.)	PRICE CODE NO. 60 Hz
3 x 2 x 6	1	HA 3 x 2F x 6 C1V(M8)-H5.0	240	50	47-4117 F
	2	HA 3 x 2F x 6 C2V(M8)-D10.0	350	125	47-4127 P
	3	HA 3 x 2F x 6 C3V(M8)-D15.0	425	155	47-4137 L
4 x 3 x 8	4	HA 4 x 3F x 8 C4V(M8)-H7.5	325	65	47-4247 G
	5	HA 4 x 3F x 8 C5V(M8)-H10.0	370	90	47-4257 H
4 x 3 x 10	6	HA 4 x 3F x 10 CT6V(M8)-H10.0	600	70	47-4367 H
	7	HA 4 x 3F x 10 CT7V(M8)-H15.0	630	95	47-4377 S
	8	HA 4 x 3F x 10 CT8V(M8)-H20.0	650	110	47-4387 V
6 x 4 x 10	9	HA 6 x 4F x 10 CT9V(M8)-H15.0	820	60	47-4497 S
	10	HA 6 x 4F x 10 CT10V(M8)-H20.0	1000	75	47-4407 V
	11	HA 6 x 4F x 10 CT11V(M8)-H25.0	1120	85	47-4417 W
	12	HA 6 x 4F x 10 CT12V(M8)-H30.0	1300	95	47-4427 X

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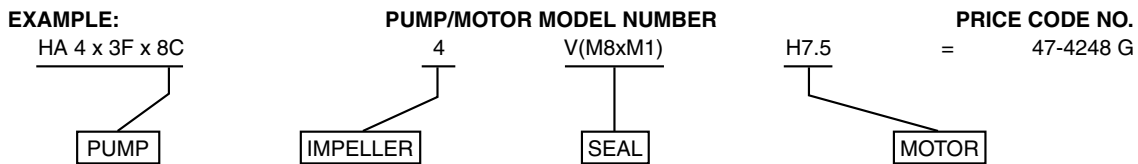


SERIES 'HA' Specifications and Ordering Information

P-207B

TABLE II OTHER MODELS

To determine pump model for a specified GPM, TDH, material and specific gravity, select performance point on curve. Determine required HP by moving vertically to corresponding number dotted line. Read the required HP at right ordinate and multiply by S.G. Select pump, "O"-ring and seal, and motor to complete Model Number. Add corresponding number designations together to create Price Code Number.



PUMP	PRICE CODE NO.
HA 3 x 2F x 6C	47-41
HA 4 x 3F x 8C	47-42
HA 4 x 3F x 10CT	47-43
HA 6 x 4F x 10CT	47-44

FLOW CURVE NO.	ADD TO ...	
	MODEL NO.	PRICE CODE NO.
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	0
11	11	1
12	12	2

'O'-RING & MECHANICAL SEAL MATERIAL (SOLUTION CONTACT)	ADD TO ...	
	MODEL NUMBER	PRICE CODE NO.
SINGLE MECHANICAL SEAL		
EPDM SILICON CARBIDE	L(M8)	1
VITON SILICON CARBIDE	V(M8)	7
DOUBLE MECHANICAL SEAL**		
EPDM SILICON CARBIDE	L(M8xM1)	4
VITON SILICON CARBIDE	V(M8xM1)	8

RPM	TEFC 208-230/460/3/60 or 190/380-415/3/50	
	NEMA MOTORS	
	ADD TO ...	
	HP MODEL NUMBER	PRICE CODE NUMBER
1725 or 1450	-H3.0	K
	-H5.0	F
	-H7.5	G
	-H10.0	H
	-H15.0	S
	-H20.0	V
3450 or 2850	-H25.0	W
	-H30.0	X
	-D5.0	J
	-D7.5	T
	-D10.0	P
	-D15.0	L
	-D20.0	M

OPTIONS

DESCRIPTION	PRICE CODE NO.
Trimmed impeller to meet specified flow	47-0084
Hastelloy C shaft -HC	-HC

LONG COUPLING KITS ²		
FOR MODELS	FOR MOTOR FRAME	PRICE CODE NO.
3 x 2 x 6 4 x 3 x 8	143/145T	42-0500
	182/184T	42-0501
	213/215T	42-0502
Motor mounting and alignment (For motors 10 H. P. and smaller)		42-0504

10