



Application fields

Aquarium
 Metal finishing and etching
 Chemical process
 Fertilizer
 Biodiesel
 Desalination
 Water treatment
 Electrochlorination
 Reverse osmosis
 Electric utility
 Printed circuit fabrication
 Nuclear
 Wastewater treatment
 Scrubbers
 Steel
 Fish-farm
 Pharmaceutical
 Mining

Semiconductor fabrication
 Refinery
 Pulp and paper
 Food processing
 Chemical transfer



821 Sivert Drive
 Wood Dale, IL 60191

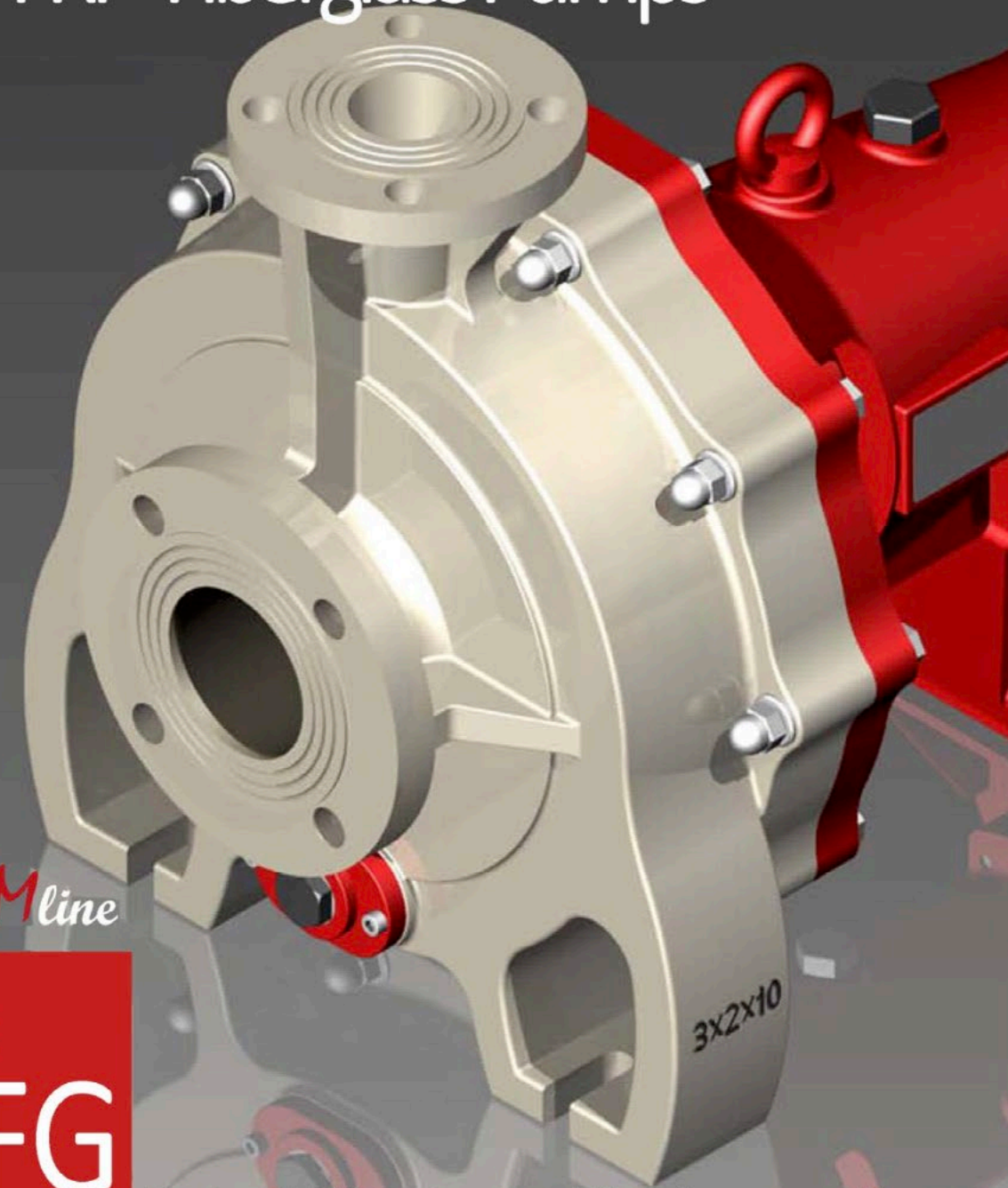
Phone: 847-247-8677 FAX: 847-247-8680

web site: www.warrender.com email: sales@warrender.com

Authorized distributor



FRP- Fiberglass Pumps



series
WCFG

Horizontal fiberglass centrifugal pumps with mechanical seal

ANSI / ASME B73.1

The Vitrum line was developed for mildly to severely corrosive liquids and able to withstand arduous working condition. All wetted parts are reinforced fiberglass material, in order to resist abrasion and severe temperatures between -50°F (-45°C) and 250°F (120°C).

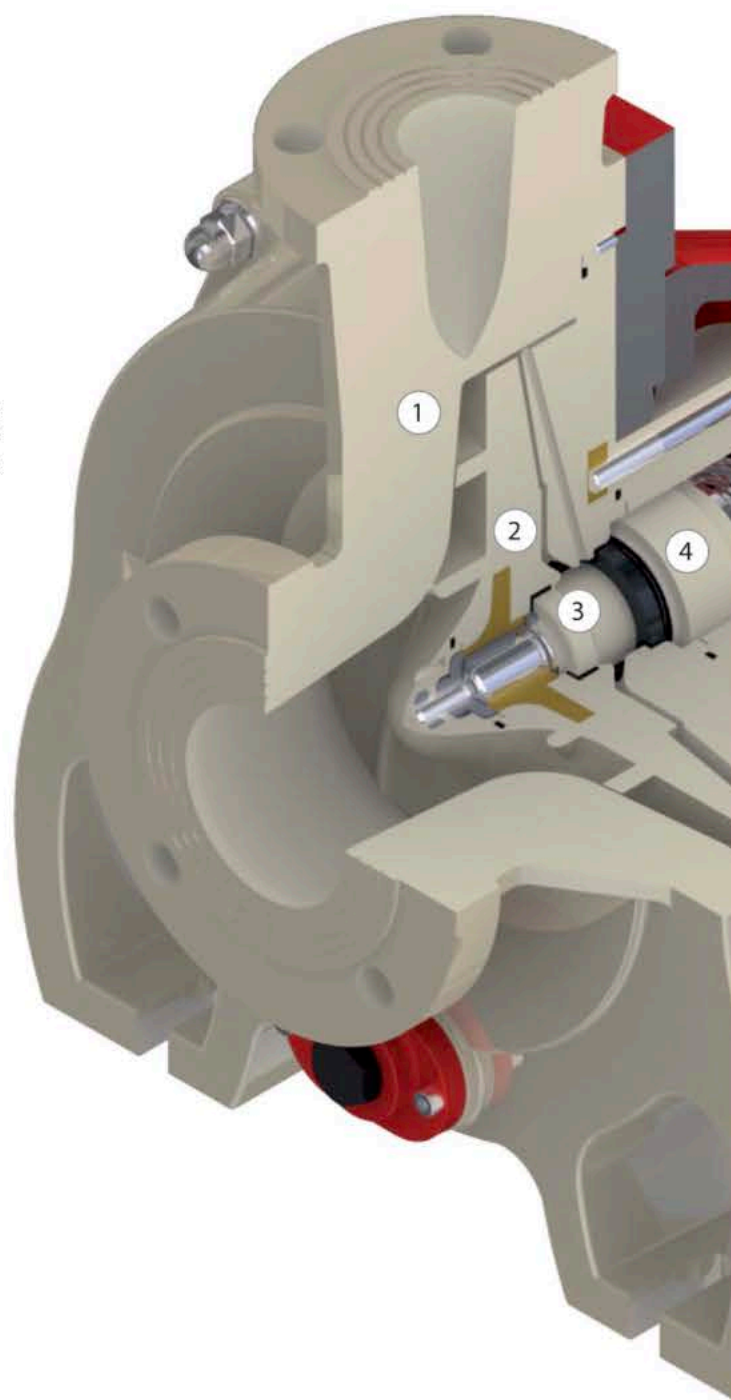
The Series WCFG horizontal centrifugal coupling pumps are designed according to ANSI / ASME B73.1, representing new features and innovations to be more competitive.

Material of Construction

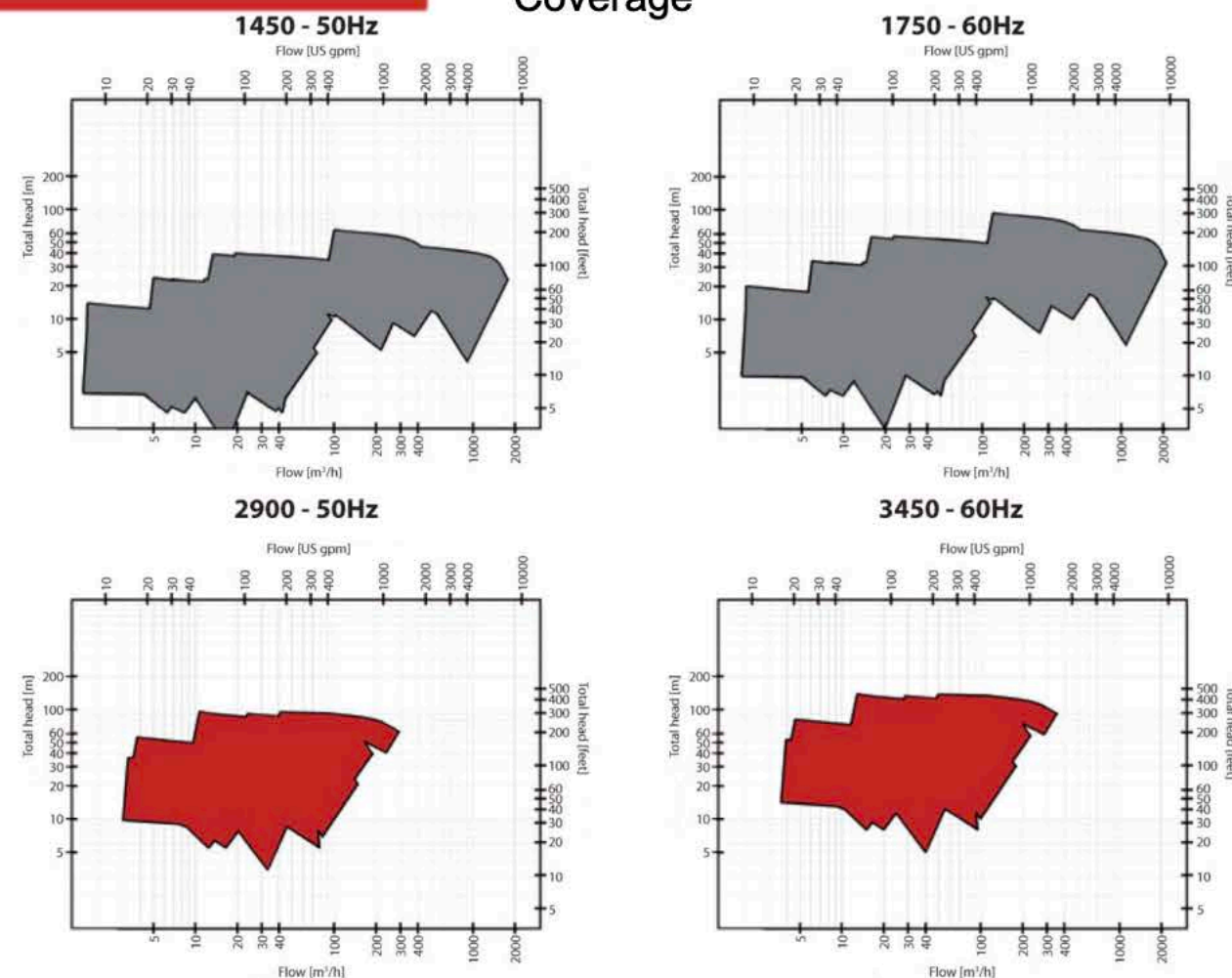
Materials of construction are available for a wide corrosive liquids range and a long history of application experience. The flexibility through a wide range of materials selections for corrosive and abrasive liquids is a distinction of Affetti Pumps.

FIBERGLASS RESIN	APPLICATIONS
FRP-VES vinyl ester resin	Standard
FRP-VEA vinyl ester resin	Abrasive liquids
FRP-VEC vinyl ester resin	Bleaches
FRP-VEF vinyl ester resin	Fluorides
FRP-EPX epoxy resin	Strong chemical and solvents

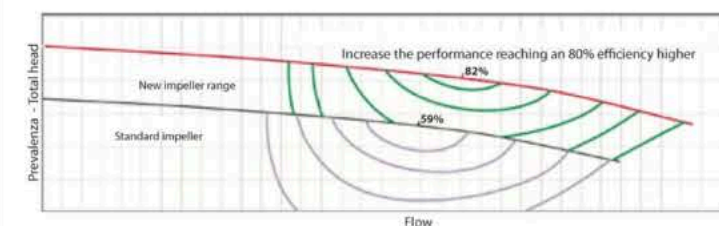
ACCESSORIES
Draining hole
Residual fluid collection tank
Pressurised tank for mechanical flushing
Self-priming tank
Dry-run protector



Coverage

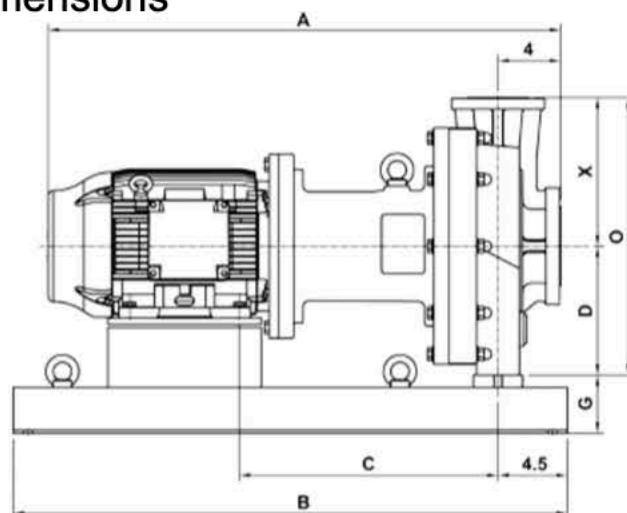
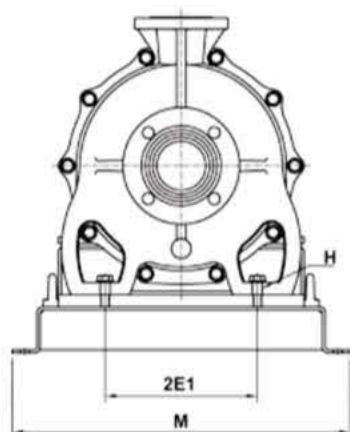


With the new Vitrum line starts a new high efficiency impeller line. The double curvature vane impeller permits a reduction of maximum diameter and absorbs values with a considerable costs and energy consumption savings.



WCFM

Overall dimensions

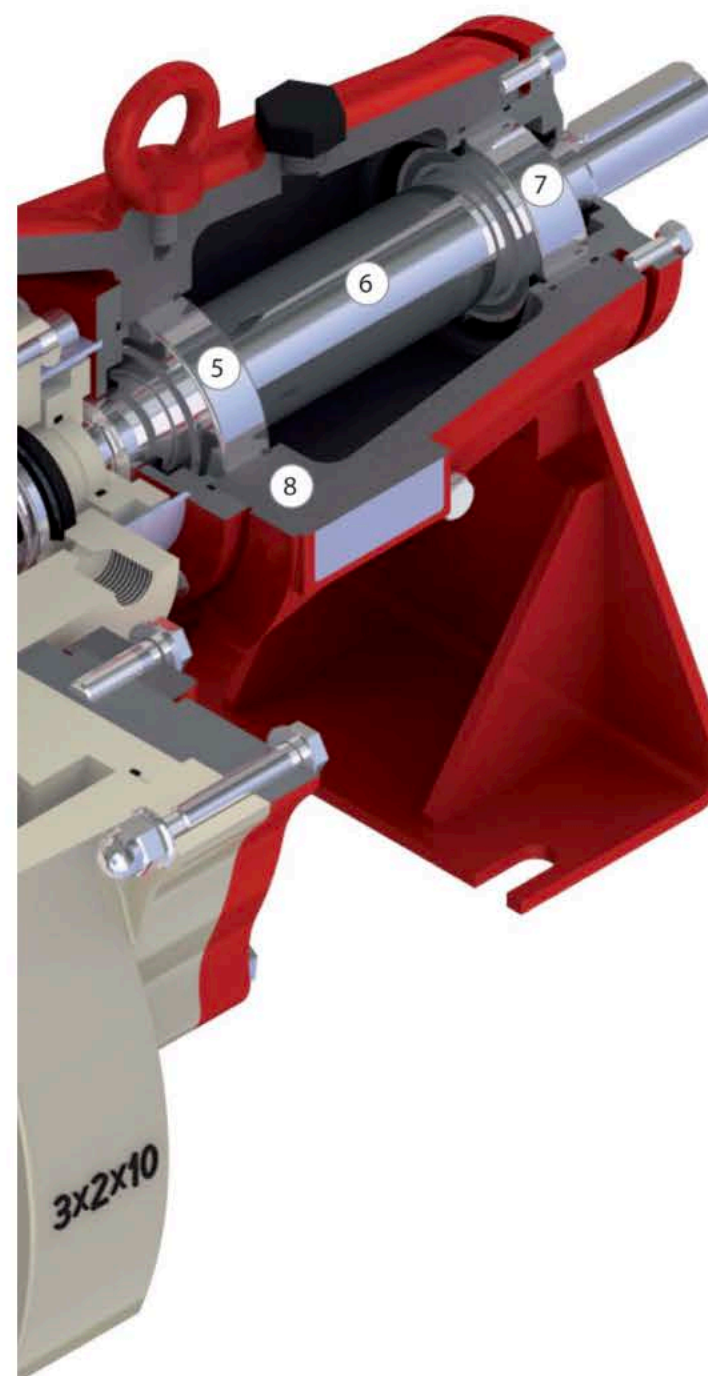


	IEC frame	NEMA frame	A ⁽¹⁾	B	2E1	G	I ⁽¹⁾	M
GROUP 1	90L	145	25.67 (652)	27 (686)	6 (152)	2.625 (66.7)	12.44 (316)	17 (432)
	100L 112M	- 184	28.42 (722)	30 (762)	6 (152)	2.625 (66.7)	13.78 (350)	19 (483)
	132S 132M	213 215	31.97 (812)	37 (940)	6 (152)	2.875 (73)	14.58 (369)	22 (559)
	160M 160L	254 256	37.28 (947)	40 (1016)	6 (152)	4.75 (121)	15.47 (393)	25 (635)
	200L	326	41.22 (1047)	43 (1092)	6 (152)	5.5 (140)	16.46 (418)	29 (737)
GROUP 2	90L	145	29.01 (737)	30 (762)	9.75 (248)	4 (102)	15.79 (401)	21 (533)
	100L 112M	- 184	30.31 (770)	32 (813)	9.75 (248)	4 (102)	15.69 (398)	21 (533)
	132S 132M	213 215	34.84 (885)	40 (1016)	9.75 (248)	4 (102)	17.44 (443)	22 (559)
	160M 160L	254 256	39.96 (1015)	43 (1092)	9.75 (248)	4 (102)	18.15 (461)	25 (635)
	200L 225M	326 365	44.88 (1140)	47 (1194)	9.75 (248)	4 (102)	19.96 (507)	29 (737)
	280S 280M	444 445	53.35 (1355)	60 (1524)	9.75 (248)	6 (152)	21.57 (548)	34 (864)
	315S	449	63.58 (1615)	65 (1651)	9.75 (248)	6.5 (165)	22.36 (568)	38 (965)

Model	Group	D	H	O	X
1.5x1x6 (40x25x150)	1	5.25 (133)	0.625 (16)	11.75 (298)	6.5 (165)
3x1.5x6 (80x40x150)	1	5.25 (133)	0.625 (16)	11.75 (298)	6.5 (165)
1.5x1x8 (40x25x200)	1	5.25 (133)	0.625 (16)	11.75 (298)	6.5 (165)
3x1.5x8 (80x40x200)	1	5.25 (133)	0.625 (16)	11.75 (298)	6.5 (165)
3x2x6 (80x50x150)	2	8.25 (210)	0.625 (16)	16.5 (420)	8.25 (210)
3x2x8 (80x50x200)	2	8.25 (210)	0.625 (16)	17.75 (450)	9.5 (242)
4x3x8 (100x80x200)	2	8.25 (210)	0.625 (16)	19.25 (490)	11 (280)
3x1.5x10 (80x40x250)	2	8.25 (210)	0.625 (16)	16.75 (425)	8.5 (216)
3x2x10 (80x50x250)	2	8.25 (210)	0.625 (16)	17.75 (450)	9.5 (242)
4x3x10 (100x80x250)	2	8.25 (210)	0.625 (16)	19.25 (490)	11 (280)
6x4x10 (150x100x250)	3	10 (254)	0.625 (16)	23.5 (597)	13.5 (343)

GENERAL NOTES:
(a) Dimensions in parentheses are approximate equivalents in millimeters.
(b) all other dimensions are in inches.
NOTES:
(1) Values for IEC motors.

VITRUMline

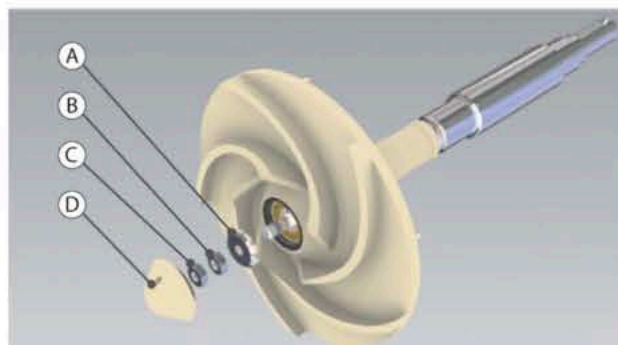


Main Components:

- 1 Pump casing made in solid FRP with high thickness to ensure optimal mechanical strength and chemical resistance - without the need for metallic armoring.
- 2 Semi-open centrifugal impeller with rear back-vanes for axial self-balancing; with encapsulated metallic insert.
- 3 Shaft sleeve in FRP. Fully covering the part of steel shaft in contact with the process liquid and manufactured as a one-piece component. It rotates integrally with the impeller but is independent from it.
- 4 Standardized mechanical seal, selected according to plant requirements and process requirements.
- 5 Single row radial bearing.
- 6 Balanced shaft made of 42CrMo4 Carbon (with special alloy on demand), oversized to support torsional and radial forces. Precision machined from solid bar stock and protected by FRP shaft sleeve.
- 7 Rear double row, angular contact ball bearing, designed to withstand axial and radial hydraulic forces.
- 8 Bearing support made in corrosion resistant cast iron

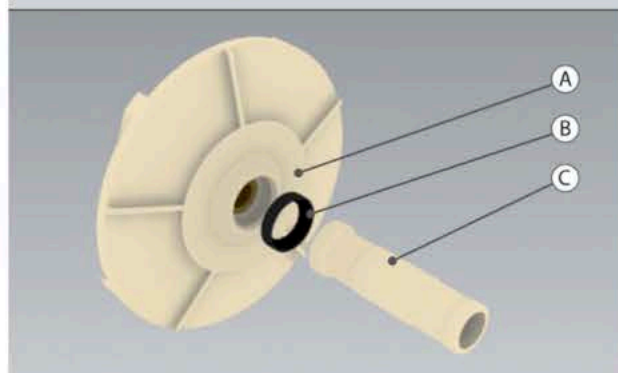
NO-SCREWING IMPELLER

A docking system composed by an internal impeller nose (D) with a nut drowned (C), a counter-nut (B) and a washer (A), avoid the impeller screwing from the shaft in case of reversal sense of rotation during the start.



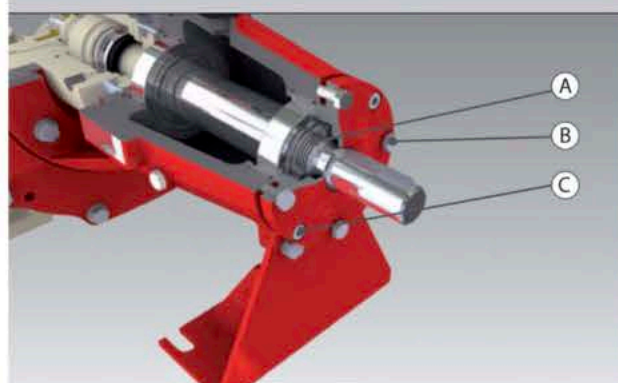
SEPARATED SHAFT SLEEVE FROM THE IMPELLER

The shaft sleeve separation from the impeller allows its replacement in case of damage, without removing the impeller, for save cost on spares parts. The elastomer cap (B) improves the drag of rotating parts.



SHAFT ADJUSTMENT SYSTEM

WCFG pumps provide an axial shaft adjustment system, in order to permit the impeller approaching to the casing in case of partial blades consumption and to restore the initial pump performance without changing the internal parts. The system is composed by a threaded ring nut (A), fixing screws (B) and adjustment screws (C).



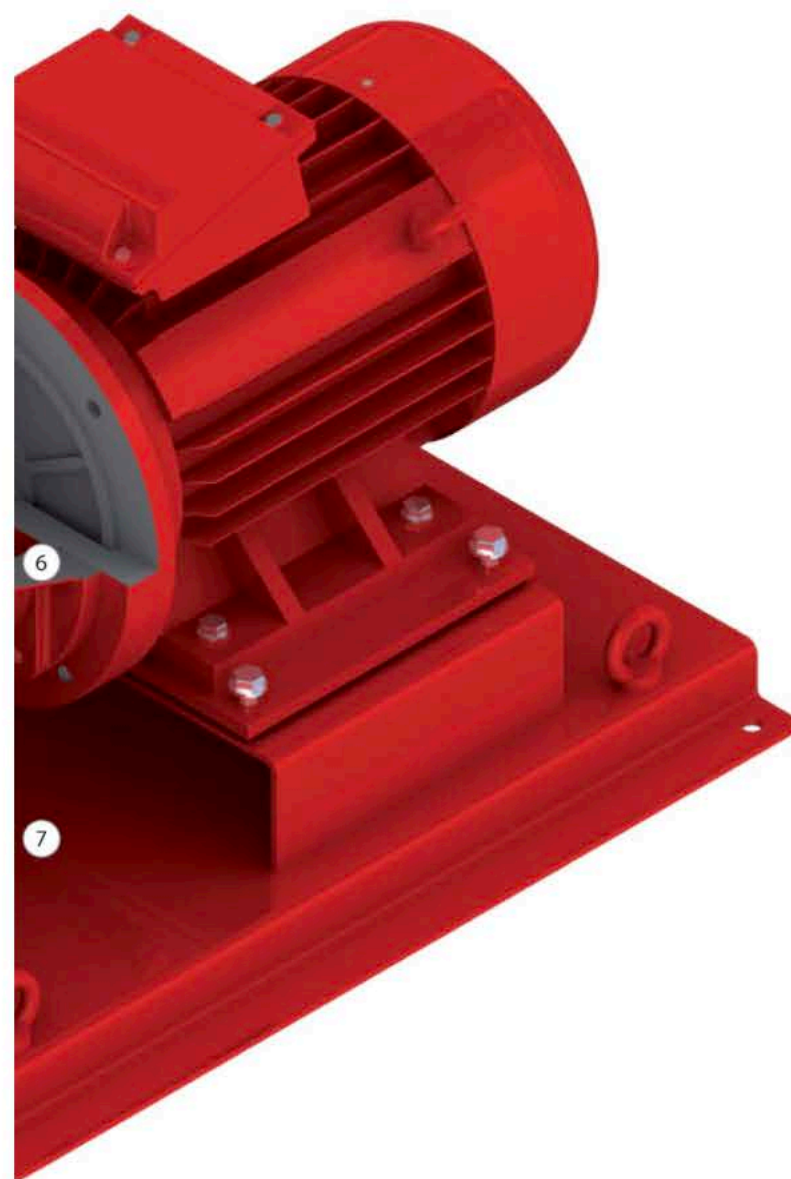
BASE ADJUSTMENT SYSTEM

WCFG pumps base provide a system for pump-motor regulation without using additional thicknesses. The system is composed by a support plate (A), adjustment nut (B) and two counter-nuts (C).



Main Components:

- 1 Pump casing made in solid FRP with high thickness to ensure optimal mechanical strength and chemical resistance - without the need for metallic armoring.
- 2 Semi-open centrifugal impeller with rear back-vanes for axial self-balancing; with encapsulated metallic insert.
- 3 Shaft sleeve in FRP. Fully covering the part of steel shaft in contact with the process liquid and manufactured as a one-piece component. It rotates integrally with the impeller but is independent from it.
- 4 Standardized mechanical seal, selected according to plant requirements and process requirements.
- 5 Balanced shaft made of 42CrMo4 Carbon (with special alloy on demand), oversized to support torsional and radial forces. Precision machined from solid bar stock and protected by FRP shaft sleeve.
- 6 Cast iron intermediate adaptor. A unique piece designed to space electric motor from head pump.
- 7 Base plate in electro-welded S235JR-EN1025 carbon steel coated in a layer of epoxy primer and polyurethane primer. System equipment for pump-motor axis regula-



ACCESSORIES

Draining hole
Residual fluid collection tank
Pressurised tank for mechanical flushing
Self-priming tank
Dry-run protector

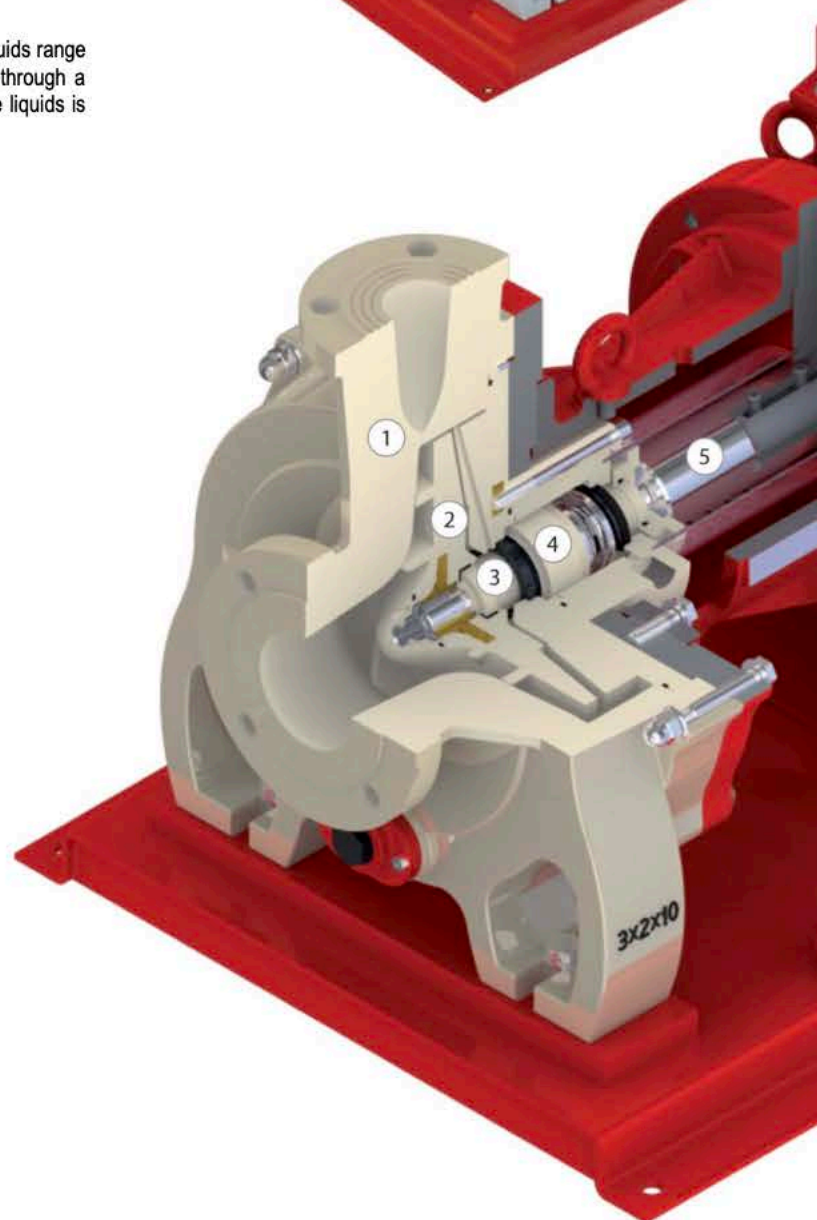
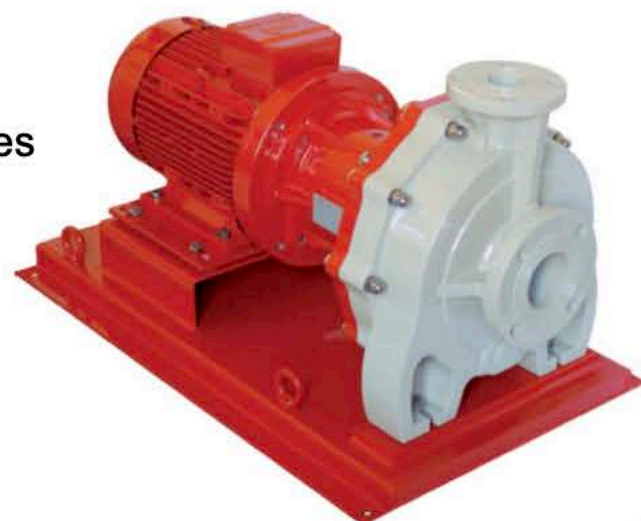
WCFM

Main Features

WCFM close coupled horizontal centrifugal pumps with ANSI/ASME B73.1 suction and discharge outlets, presents strong and resistant construction.

Material of Construction

Materials of construction are available for a wide corrosive liquids range and a long history of application experience. The flexibility through a wide range of materials selections for corrosive and abrasive liquids is a distinction of Affetti Pumps.



FIBERGLASS RESIN	APPLICATIONS
FRP-VES vinyl ester resin	Standard
FRP-VEA vinyl ester resin	Abrasive liquids
FRP-VEC vinyl ester resin	Bleaches
FRP-VEF vinyl ester resin	Fluorides
FRP-EPX epoxy resin	Strong chemical and solvents

VITRUM^{line}

Mechanical seals

ELASTOMERIC BELLOWS SEAL

Mechanical seal for moderately corrosive, clean and not excessively hot liquids. Static and rotating rings in SiC, spring and armor in SS316 not in contact with the process liquid, elastomeric bellows in EPDM or FPM. Available in the external (B6E), internal (B6I) and double-flushed (B6EDF) types.



PTFE BELLOWS SEAL

Mechanical seal for highly corrosive fluids and high temperatures. Static and rotating rings in three different combinations (SiC-SiC, SiC- Al2O3, Al2O3-PTFE-C), PTFE bellows, spring and armor in SS316 not in contact with the pumped liquid. Available in the external (JRV - JTP - JRA) and double-flushed (JR2V - JT2P - JR2A) types.



SEAL WITH METALLIC ARMOR

Mechanical seal for moderately corrosive, clean and not excessively hot liquids. Static ring in Al2O3 and rotating ring, in Carbon-graphite, spring and armor in SS316, O-rings in EPDM or FPM and gaskets in PTFE. Available in the external (B8E) and double-flushed (B8EDF) types.



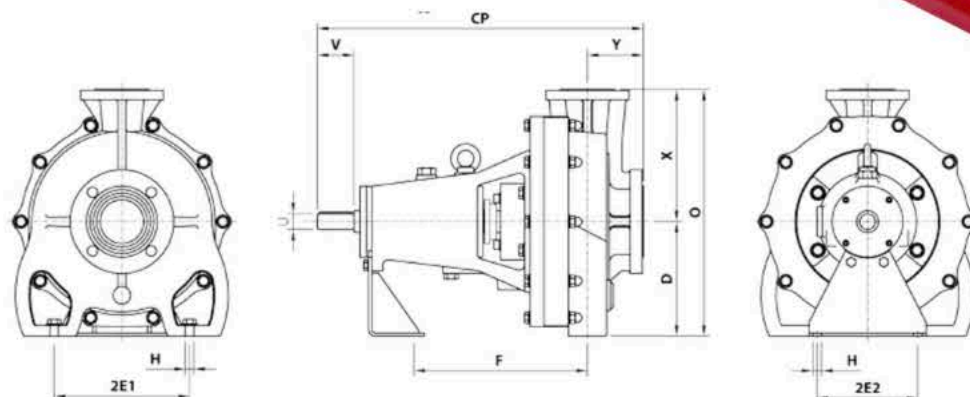
SEAL WITH ELASTOMERIC O-RING

Mechanical seal for moderately corrosive, clean and not excessively hot liquids. Static and rotating rings in two different combinations (SiC-SiC, Carbon-Graphite-SiC), spring and armor in Hastelloy C276, O-ring in EPDM or FPM. Available in the internal (UMG - UMS) and double-flushed (UM2G - UM2S) types.



WCFG

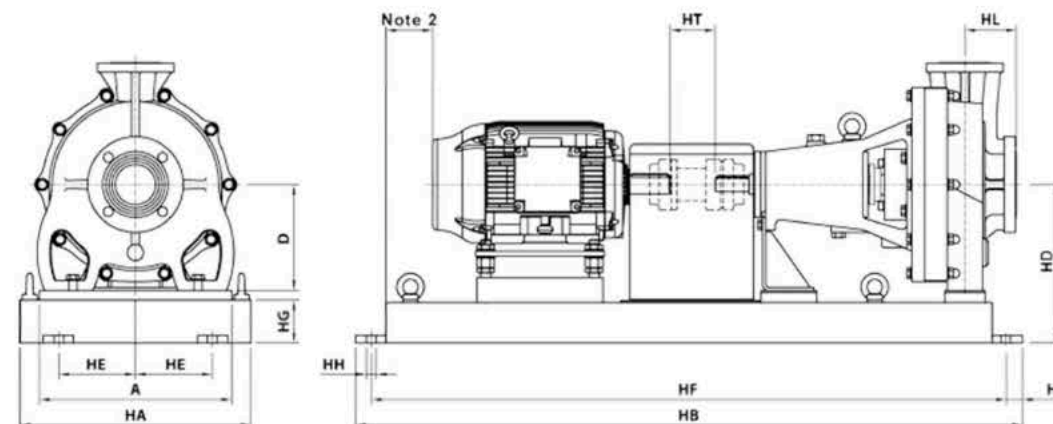
Overall dimensions



ANSI Desig.	Model	CP	D	2E1	2E2	F	H	O	U (Note 1)		V min	X	Y
									Diameter	Keyway			
AA	1.5x1x6 (40x25x150)	17.5 (445)	5.25 (133)	6 (152)	0	7.25 (184)	0.625 (16)	11.75 (298)	0.875 (22.23)	0.188x0.094 (4.76x2.38)	2 (51)	6.5 (165)	4 (102)
AB	3x1.5x6 (80x40x150)	17.5 (445)	5.25 (133)	6 (152)	0	7.25 (184)	0.625 (16)	11.75 (298)	0.875 (22.23)	0.188x0.094 (4.76x2.38)	2 (51)	6.5 (165)	4 (102)
AA	1.5x1x8 (40x25x200)	17.5 (445)	5.25 (133)	6 (152)	0	7.25 (184)	0.625 (16)	11.75 (298)	0.875 (22.23)	0.188x0.094 (4.76x2.38)	2 (51)	6.5 (165)	4 (102)
AB	3x1.5x8 (80x40x200)	17.5 (445)	5.25 (133)	6 (152)	0	7.25 (184)	0.625 (16)	11.75 (298)	0.875 (22.23)	0.188x0.094 (4.76x2.38)	2 (51)	6.5 (165)	4 (102)
A10	3x2x6 (80x50x150)	23.5 (597)	8.25 (210)	9.75 (248)	7.25 (184)	12.5 (318)	0.625 (16)	16.5 (420)	1.125 (28.58)	0.25x0.125 (6.35x3.18)	2.625 (67)	8.25 (210)	4 (102)
A60	3x2x8 (80x50x200)	23.5 (597)	8.25 (210)	9.75 (248)	7.25 (184)	12.5 (318)	0.625 (16)	17.75 (450)	1.125 (28.58)	0.25x0.125 (6.35x3.18)	2.625 (67)	9.5 (242)	4 (102)
A70	4x3x8 (100x80x200)	23.5 (597)	8.25 (210)	9.75 (248)	7.25 (184)	12.5 (318)	0.625 (16)	19.25 (490)	1.125 (28.58)	0.25x0.125 (6.35x3.18)	2.625 (67)	11 (280)	4 (102)
A50	3x1.5x10 (80x40x250)	23.5 (597)	8.25 (210)	9.75 (248)	7.25 (184)	12.5 (318)	0.625 (16)	16.75 (425)	1.125 (28.58)	0.25x0.125 (6.35x3.18)	2.625 (67)	8.5 (216)	4 (102)
A60	3x2x10 (80x50x250)	23.5 (597)	8.25 (210)	9.75 (248)	7.25 (184)	12.5 (318)	0.625 (16)	17.75 (450)	1.125 (28.58)	0.25x0.125 (6.35x3.18)	2.625 (67)	9.5 (242)	4 (102)
A70	4x3x10 (100x80x250)	23.5 (597)	8.25 (210)	9.75 (248)	7.25 (184)	12.5 (318)	0.625 (16)	19.25 (490)	1.125 (28.58)	0.25x0.125 (6.35x3.18)	2.625 (67)	11 (280)	4 (102)
A80	6x4x10 (150x100x250)	23.5 (597)	10 (254)	9.75 (248)	7.25 (184)	12.5 (318)	0.625 (16)	23.5 (597)	1.125 (28.58)	0.25x0.125 (6.35x3.18)	2.625 (67)	13.5 (343)	4 (102)
A30	3x2x13 (80x50x330)	23.5 (597)	10 (254)	9.75 (248)	7.25 (184)	12.5 (318)	0.625 (16)	21.5 (546)	1.125 (28.58)	0.25x0.125 (6.35x3.18)	2.625 (67)	11.5 (292)	4 (102)
A40	4x3x13 (100x80x330)	23.5 (597)	10 (254)	9.75 (248)	7.25 (184)	12.5 (318)	0.625 (16)	22.5 (572)	1.125 (28.58)	0.25x0.125 (6.35x3.18)	2.625 (67)	12.5 (318)	4 (102)
A80	6x4x13 (150x100x330)	23.5 (597)	10 (254)	9.75 (248)	7.25 (184)	12.5 (318)	0.625 (16)	23.5 (597)	1.125 (28.58)	0.25x0.125 (6.35x3.18)	2.625 (67)	13.5 (343)	4 (102)
A90	8x6x13 (200x150x330)	33.875 (860)	14.5 (368)	16 (406)	9 (229)	18.75 (476)	0.875 (22)	30.5 (775)	2.375 (60.33)	0.625x0.313 (15.88x7.94)	4 (102)	16 (406)	6 (152)
A100	10x8x13 (250x200x330)	33.875 (860)	14.5 (368)	16 (406)	9 (229)	18.75 (476)	0.875 (22)	32.5 (826)	2.375 (60.33)	0.625x0.313 (15.88x7.94)	4 (102)	18 (457)	6 (152)
A110	8x6x15 (200x150x380)	33.875 (860)	14.5 (368)	16 (406)	9 (229)	18.75 (476)	0.875 (22)	32.5 (826)	2.375 (60.33)	0.625x0.313 (15.88x7.94)	4 (102)	18 (457)	6 (152)
A120	10x8x15 (250x200x380)	33.875 (860)	14.5 (368)	16 (406)	9 (229)	18.75 (476)	0.875 (22)	32.5 (826)	2.375 (60.33)	0.625x0.313 (15.88x7.94)	4 (102)	19 (483)	6 (152)
-	12x10x16 (300x250x400)	35.125 (892.175)	18 (457.2)	22 (558.8)	14 (355.6)	-	1 (25.4)	44 (1117.6)	2.375 (60.33)	0.625x0.313 (15.88x7.94)	-	26 (660.4)	7 (177.8)

WCFG

Overall dimensions



Max. IEC frame	Max. NEMA frame	Base- plate No. (Note 3)	A Min.	HA Max.	HB	HT	HD Max. (Note 4)				HE	HF	HG Max.	HH	HL	HP
							D=5.25 (133)	D=8.25 (210)	D=10 (254)	D=14.5 (368)						
112M	184T	139	12 (305)	15 (381)	39 (991)	3.5 (89)	9 (229)	...	...	...	4.5 (114)	36.5 (927)	3.75 (95)	0.75 (19)	4.5 (114)	1.25 (32)
160L	256T	148	15 (381)	18 (457)	48 (1219)	3.5 (89)	10.5 (267)	...	...	...	6 (152)	45.5 (1156)	4.13 (105)	0.75 (19)	4.5 (114)	1.25 (32)
200L	326TS	153	18 (457)	21 (533)	53 (1346)	3.5 (89)	12.88 (327)	...	...	...	7.5 (191)	50.5 (1283)	4.75 (121)	0.75 (19)	4.5 (114)	1.25 (32)
112M	184T	245	12 (305)	15 (381)	45 (1143)	3.5 (89)	...	12 (305)	13.75 (349)	...	4.5 (114)	42.5 (1080)	3.75 (95)	0.75 (19)	4.5 (114)	1.25 (32)
132M	215T	252	15 (381)	18 (457)	52 (1321)	3.5 (89)	...	12.38 (314)	14.13 (359)	...	6 (152)	49.5 (1257)	4.13 (105)	0.75 (19)	4.5 (114)	1.25 (32)
180L	286T	258	18 (457)	21 (533)	58 (1473)	3.5 (89)	...	13 (330)	14.75 (375)	...	7.5 (191)	55.5 (1410)	4.75 (121)	1 (25)	4.5 (114)	1.25 (32)
225M	365T	264	18 (457)	21 (533)	64 (1626)	3.5 (89)	...	13.88 (353)	14.75 (375)	...	7.5 (191)	61.5 (1562)	4.75 (121)	1 (25)	4.5 (114)	1.25 (32)
250M	405TS	268	22 (559)	26 (660)	68 (1727)	3.5 (89)	...	14.88 (378)	14.88 (378)	...	9.5 (241)	65.5 (1664)	4.75 (121)	1 (25)	4.5 (114)	1.25 (32)
315M	449TS	280	22 (559)	26 (660)	80 (2032)	3.5 (89)	...	15.88 (403)	15.88 (403)	...	9.5 (241)	77.5 (1969)	4.75 (121)	1 (25)	4.5 (114)	1.25 (32)
180L	286T	368	22 (559)	26 (660)	68 (1727)	5 (127)	...	...	...	19.25 (489)	9.5 (241)	65.5 (1664)	4.75 (121)	1 (25)	6.5 (165)	1.25 (32)
250M	405T	380	22 (559)	26 (660)	80 (2032)	5 (127)	...	...	...	19.25 (489)	9.5 (241)	77.5 (1969)	4.75 (121)	1 (25)	6.5 (165)	1.25 (32)
315M	449T	398	22 (559)	26 (660)	98 (2489)	5 (127)	...	...	...	19.25 (489)	9.5 (241)	95.5 (2426)	4.75 (121)	1 (25)	6.5 (165)	1.25 (32)

GENERAL NOTES:

(a) Dimensions in parentheses are approximate equivalents in millimeters.

(b) all other dimensions are in inches.

NOTES:

(1) "U" diameter may be 1.625 in. (41.28 mm) in A10 through A80 sizes to accommodate high torque values

(2) Motor should not extend beyond end of baseplate.

(3) Baseplate number denotes pump frame 1, 2, or 3 and baseplate HB in inches.

(4) Includes 0.13 in. (3 mm) shimming allowance where motor height controls.