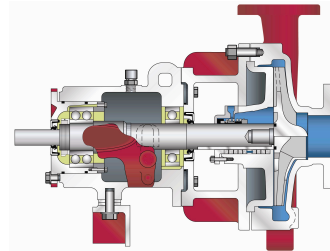


PRODUCT BULLETIN MODEL OSD ANSI PROCESS

The advanced design and precision manufacture of the rugged, heavy-duty OSD petrochemical service pump significantly enhance bearing and seal life. American-Marsh Pumps is committed to helping users maximize mean time between planned maintenance (MTBPM). American-Marsh Pumps' unique features and enhancements provide significant performance benefits for pump users. Some features of the OSD resulted from the suggestions of working engineers in the field, and were combined with others derived from the broad experience of American-Marsh engineers. Thus practical features, backed by over 130 years of quality pump manufacturing, assure you of excellent pump performance and full satisfaction.



Material Specifications

PART	CONSTRUCTION				
	CAST STEEL CAST STEEL	CAST STEEL 316 SS	ALL 316 SS	ALL CD4MCU	ALL ALLOY 20
Casing	CAST STEEL	CAST STEEL	316 SS	CD4MCU	ALLOY 20
Impeller	CAST STEEL	316 SS	316 SS	CD4MCU	ALLOY 20
Shaft	STEEL	316 SS	316 SS	ZC20	ZC20
Seal Chamber	CAST STEEL	CAST STEEL	316 SS	CD4MCU	ALLOY 20
Seal Gland	316 SS	316 SS	316 SS	ALLOY 20	ALLOY 20
Power Frame	CAST IRON	CAST IRON	CAST IRON	CAST IRON	CAST IRON

Model OSD Specifications

Casing: The casing is constructed of high tensile cast steel or other specified material. It is of the volute type, carefully and accurately proportioned to permit smooth flow and to convert high velocity energy of the fluid as it leaves the impeller into pressure. Suction and discharge nozzles are flanged and are cast integral with the volute. The casing has cast integral feet standard and the discharge port is of the vertical centerline type. The casing assembly fully meets ANSI B73.1 dimensional requirements. Necessary vent and drain openings can be provided upon request.

Impeller: The impeller is of the reverse vane, end suction type, casted in one piece of cast steel or other specified material. Running clearances need to only be adjusted between the back of the impeller and the casing adapter. This design allows for repeatable factory tolerances, all of which can be adjusted on the bench, not just in the field. All impellers are hydraulically and dynamically balanced prior to assembly. Front semi-open impellers can be supplied upon request. All model meets the stringent performance requirements of ANSI B73.1. AMP also offers 4 Low-Flow models to meet difficult low-flow/high-head process applications.

Shaft: The shaft is of high strength steel or other specified material, ground to accurate dimensions and polished to a smooth surface. It is designed for extra stiffness to avoid all critical speeds in operation. OSD pumps lead the industry in low L^3/D^4 ratio's minimizing shaft deflection at the stuffing box. All OSD models guarantee less than 0.002" shaft deflection at the seal face location, while in operation. As an option, the shaft can be protected by a shaft sleeve of ample thickness to ensure long life. The shaft sleeve can be supplied in various materials.

Seal Chamber: The seal chamber is available in five (5) different configurations depending on the jobsite requirement. OSD pumps feature the Flow Modified (FM) seal chamber that keeps solid matter from collecting in the seal chamber causing premature seal failure. The FM bores are available in a small bore (FMS), a large bore (FML) and a small bore with cast

integral gland (FMI), all designed to meet the process requirements of the seal industry. OSD models can also be supplied in a standard Cylindrical Bore (CB) arrangement. The CB bores are available in a small bore (CBS) and large bore (CBL) both designed to meet the process requirements of the seal industry. Seal chambers have provisions for various flush plan arrangements customizing the seal chamber to meet the requirements of the end user. For abrasive applications, packing with a lantern ring can also be supplied. A wide variety of component and cartridge mechanical seals can be used with OSD standard components.

Power Frame: The power frame is constructed of high tensile ductile iron and provides support for the inboard and outboard bearings. The outboard bearing is of the double row, angular contact type and the inboard bearing is of the single row, deep groove type for excellent axial and radial load support. For axial adjustment of the impeller, the power frame employs a micrometer adjustment which allows the user to dial back factory tolerances between the impeller and the seal chamber. This re-adjustment of tolerances can be done on the bench, compensating for proper seal setting and eliminating the need to have the casing near for final adjustment. Double lip seals ensure that contaminants are kept out of the power frame. Upgraded bearing isolators can be supplied upon request. For extremely crucial applications, magnetic bearing isolators with a poppet breather can be specified, hermetically sealing the power frame. The power frame has an oversized, integral oil sump that provides oil for lubrication to each bearing. A large one inch oil level eye is provided standard on the power frame to visually indicate the oil level. The bearings and shafts are so designed to last up to 61% longer than the competition. With shaft deflection indices surpassing nearly all of the competition, 43-252% greater stiffness is achieved resulting in longer Mean Time Between Planned Maintenance (MTBPM).

INDUSTRIAL

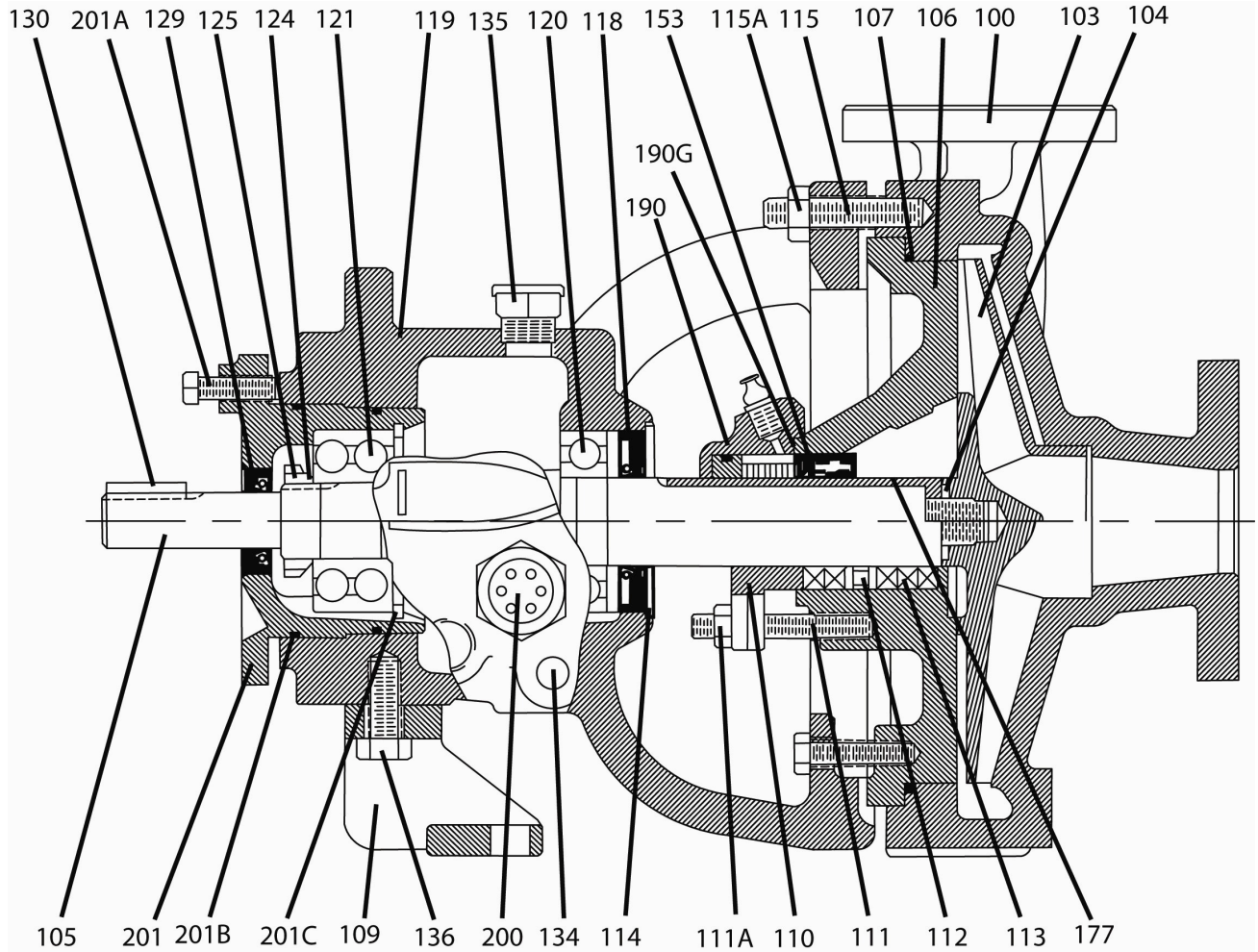
Propane, Butane, Crude Oil, Acids, Gasoline, Naphtha, Organic, Petrochemical, Black Liquor, Ammonia, Organic Fluids, Cargo Transfer

COMMERCIAL

Boiler Feed, Transfer, Condensate Return

**PRODUCT BULLETIN
MODEL OSD ANSI PROCESS**

Group 1 Sectional Drawing

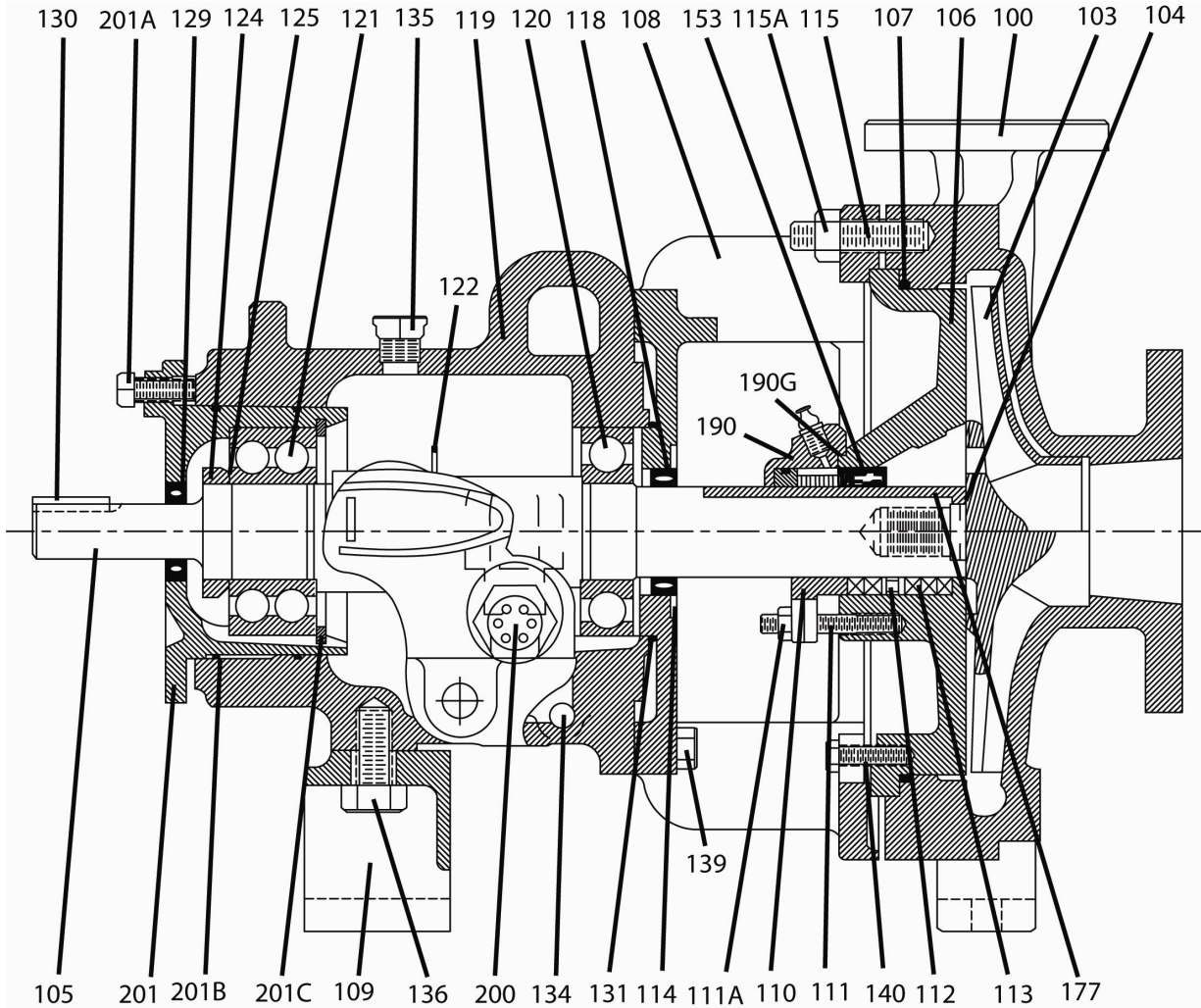


Item Number	Item Description	
100	Casing	
103	Impeller	
104	Impeller Gasket	
105	Shaft	
106	Rear Cover Plate	
107	Rear Cover Gasket	
108	Bearing Housing Adapter	N/A
109	Bearing Housing Foot	
109A	Shim	
110	Gland – Packing	OPT.
111	Stud – Gland	
111A	Hex Nut – Gland	
112	Lantern Ring Halves	OPT.
113	Packing	OPT.
114	Inboard Deflector	OPT.
115	Stud – Casing	
115A	Hex Nut – Casing	
118	Inboard Oil Lip Seal	
119	Bearing Housing	
120	Inboard Bearing	
121	Outboard Bearing	
122	Oil Slinger	OPT.

Item Number	Item Description	
124	Bearing Locknut	
125	Bearing Lockwasher	
129	Outboard Oil Lip Seal	
131	Adapter O-Ring	N/A
133	Trico Oiler	
134	Bearing Housing Drain Plug	
135	Bearing Housing Vent Plug	
136	Capscrew – Foot	
139	Capscrew – Bearing Housing	N/A
140	Capscrew – Cover/Adapter	
153	Mechanical Seal	
177	Hook Sleeve	OPT.
190	Gland – Mechanical Seal	
190G	Gland Gasket	
200	Oil Sight Gage	
201	Bearing Carrier	
201A	Set Screw – Bearing Carrier	
201B	O-Ring – Bearing Carrier	
201C	Bearing Carrier Retainer	
201D	Clap Ring Bearing Housing	OPT.
201E	Socket Head Capscrew Clamp	OPT.

Recommended spare parts are in **BOLD**.

Group 2 Sectional Drawing

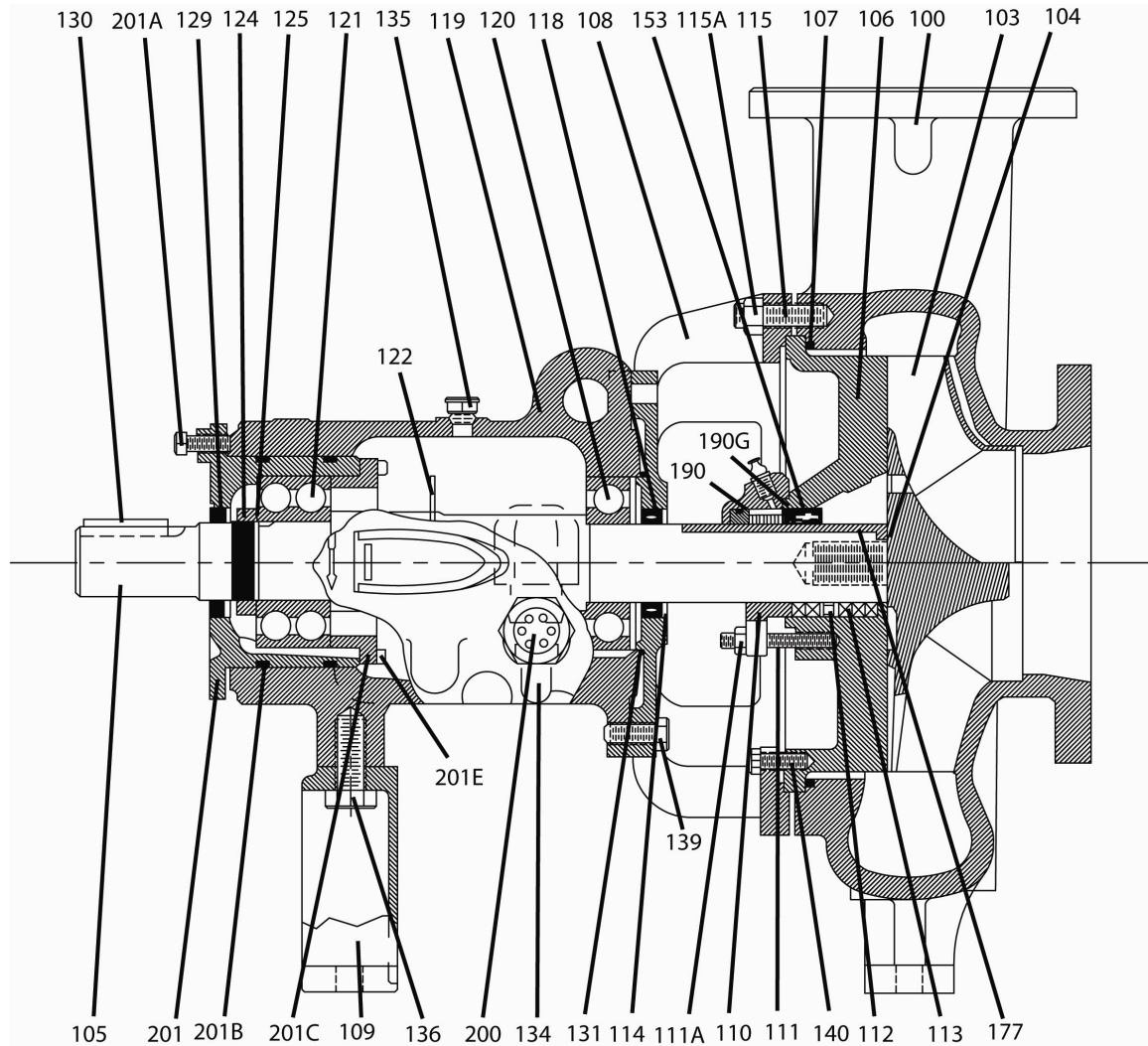


Item Number	Item Description	
100	Casing	
103	Impeller	
104	Impeller Gasket	
105	Shaft	
106	Rear Cover Plate	
107	Rear Cover Gasket	
108	Bearing Housing Adapter	
109	Bearing Housing Foot	
109A	Shim	
110	Gland – Packing	OPT.
111	Stud – Gland	
111A	Hex Nut – Gland	
112	Lantern Ring Halves	OPT.
113	Packing	OPT.
114	Inboard Deflector	OPT.
115	Stud – Casing	
115A	Hex Nut – Casing	
118	Inboard Oil Lip Seal	
119	Bearing Housing	
120	Inboard Bearing	
121	Outboard Bearing	
122	Oil Slinger	OPT.

Item Number	Item Description	
124	Bearing Locknut	
125	Bearing Lockwasher	
129	Outboard Oil Lip Seal	
131	Adapter O-Ring	
133	Trico Oiler	
134	Bearing Housing Drain Plug	
135	Bearing Housing Vent Plug	
136	Capscrew – Foot	
139	Capscrew – Bearing Housing	N/A
140	Capscrew – Cover/Adapter	
153	Mechanical Seal	
177	Hook Sleeve	OPT.
190	Gland – Mechanical Seal	
190G	Gland Gasket	
200	Oil Sight Gage	
201	Bearing Carrier	
201A	Set Screw – Bearing Carrier	
201B	O-Ring – Bearing Carrier	
201C	Bearing Carrier Retainer	
201D	Clap Ring Bearing Housing	OPT.
201E	Socket Head Capscrew Clamp	OPT.

Recommended spare parts are in BOLD.

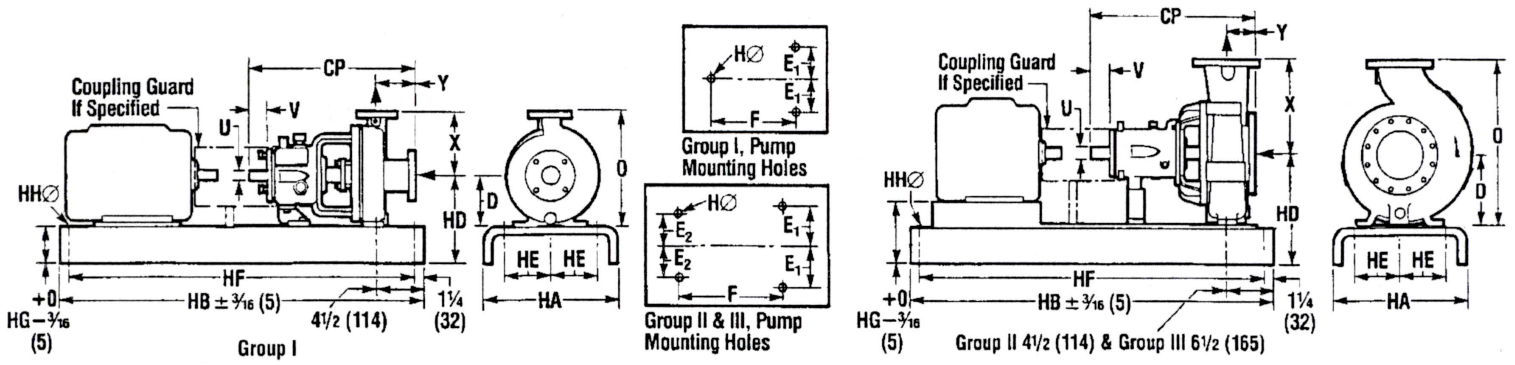
Group 3 Sectional Drawing



Item Number	Item Description	
100	Casing	
103	Impeller	
104	Impeller Gasket	
105	Shaft	
106	Rear Cover Plate	
107	Rear Cover Gasket	
108	Bearing Housing Adapter	
109	Bearing Housing Foot	
109A	Shim	
110	Gland – Packing	OPT.
111	Stud – Gland	
111A	Hex Nut – Gland	
112	Lantern Ring Halves	OPT.
113	Packing	OPT.
114	Inboard Deflector	OPT.
115	Stud – Casing	
115A	Hex Nut – Casing	
118	Inboard Oil Lip Seal	
119	Bearing Housing	
120	Inboard Bearing	
121	Outboard Bearing	
122	Oil Slinger	OPT.

Item Number	Item Description	
124	Bearing Locknut	
125	Bearing Lockwasher	
129	Outboard Oil Lip Seal	
131	Adapter O-Ring	
133	Trico Oiler	
134	Bearing Housing Drain Plug	
135	Bearing Housing Vent Plug	
136	Capscrew – Foot	
139	Capscrew – Bearing Housing	N/A
140	Capscrew – Cover/Adapter	
153	Mechanical Seal	
177	Hook Sleeve	OPT.
190	Gland – Mechanical Seal	
190G	Gland Gasket	
200	Oil Sight Gage	
201	Bearing Carrier	
201A	Set Screw – Bearing Carrier	
201B	O-Ring – Bearing Carrier	
201C	Bearing Carrier Retainer	
201D	Clap Ring Bearing Housing	
201E	Socket Head Capscrew Clamp	

Recommended spare parts are in BOLD.



Approximate General Dimensions

(Do not use for construction purposes unless certified)

Pump Group	ANSI Desig.	Model	Pump Weight lb (kg)	X in (mm)	O in (mm)	D in (mm)	E ₁ in (mm)	E ₂ in (mm)	CP in (mm)	F in (mm)	H in (mm)	U		V Min. in (mm)	Y in (mm)
												Dia. in (mm)	Keyway in (mm)		
GP I 1L		1J1x1½LF-4	103 (47)	6½ (165)	11¼ (298)	5¼ (133)	3 (76)	0	17½ (445)	7¼ (184)	¾ (16)	¾ (22.23)	¾ x ¾ (4.76 x 2.38)	2 7/16 (56)	4 (102)
	AA	1L1x1½-6	97 (44)											2 (51)	
	AB	1L1½x3-6	112 (51)											2 3/16 (56)	
	A10	1L2x3-6	116 (53)											2 (51)	
	AA	1L1x1½-8	103 (47)												
GP II 2L	A60	2L2x3-8	200 (90)	7½ (190.5)	14½ (368)	7 (177.8)	4¾ (124)	3¾ (92)	23½ (597)	12½ (318)	¾ (16)	1¾ (28.58)	¾ x ¾ (6.35x3.18)	2¾ (67)	4 (102)
	A70	2L3x4-8	227 (103)	11 (280)	19¼ (490)									2¾ (70)	
		2L1x2LF-10	210 (95)	8½ (216)	16¾ (425)										
	A05	2L1x2-10A	210 (95)	8½ (216)	16¾ (425)										
	A50	2L1½x3-10A	220 (100)	8½ (216)	16¾ (425)										
	A60	2L2x3-10A	226 (103)	9½ (242)	17¼ (450)										
	A70	2L3x4-10	225 (101)	11 (280)	19¼ (490)										
	A70	2L3x4-10H	249 (112)	12½ (318)	22½ (572)										
	A80	2L4x6-10	290 (130)	13¾ (343)	23¾ (597)										
	A80	2L4x6-10H	328 (149)	13¾ (343)	23¾ (597)										
		2L1½x3LF-13	250 (112)	10¾ (266)	20½ (520)										
	A20	2L1½x3-13	250 (112)	10¾ (266)	20½ (520)										
	A30	2L2x3-13	258 (116)	11¼ (292)	21½ (546)										
	A40	2L3x4-13	281 (126)	12¾ (318)	22½ (572)										
	A40	2L3x4-13HH	281 (126)	12¾ (318)	22½ (572)										
A80	2L4x6-13A	324 (145)	13¾ (343)	23¾ (597)											
GP III 3L	A90	3L6x8-14	680 (306)	16 (406)	30¾ (775)	14½ (368)	8 (203.2)	4¾ (114.3)	33¾ (860)	18¼ (476)	¾ (22.23)	2¾ (60.33)	5/8 x 5/16 (15.88x7.94)	4 (102)	6 (152)
	A100	3L8x10-14	899 (408)	18 (457)	32¾ (826)										
		3L4x6-16	641 (291)	16 (406)	30¾ (775)										
	A110	3L6x8-16A	832 (377)	18 (457)	32¾ (826)										
	A120	3L8x10-16	917 (416)	19 (483)	33¾ (851)										
	A120	3L8x10-16H	992 (450)	19 (483)	33¾ (851)										
		3L8x10-17	835 (379)	20 (508)	34¾ (876)										

Pump Group	Baseplate	Max. Motor Frame	Weight lb (kg)	Baseplate Mounting Dimensions										HH in (mm)		
				HA in (mm)		HB in (mm)	*HD ₁ in (mm)		*HD ₂ in (mm)		HE in (mm)	HF in (mm)	**HG in (mm)			
				Metal	Poly.		Metal	Poly.	Metal	Poly.			Metal		Poly.	
GP I 1L	139	184T	111 (50)	15 (381)	13 (330)	39 (991)	9 (229)	8¾ (226)	10¾ (273)	10¾ (269)	4½ (114)	36½ (927)	3¾ (95)	3¾ (92)	¾ (19)	
	148	215T	163 (74)	18 (457)	16 (406)	48 (1219)	9½ (241)	9¾ (238)	11½ (283)	11 (280)	6 (152)	45½ (1156)	4¾ (105)	4 (102)		
		256T					10½ (267)	10¾ (264)								
	153	286T	212 (96)	21 (533)	19 (483)	53 (1346)	11½ (302)	11½ (283)	11½ (302)	11½ (283)	7½ (191)	50½ (1283)	4¾ (121)	4 (102)		
326TS		12¾ (327)					12¾ (308)	12¾ (327)	12¾ (308)							
GP II 2L	245	184T	129 (59)	15 (381)	13 (330)	45 (1143)	12 (305)	11¾ (302)	13¾ (349)	13¾ (346)	4½ (114)	42½ (1080)	3¾ (95)	3¾ (92)	4 (102)	
	252	215T	177 (80)	18 (457)	16 (406)	52 (1321)	12¾ (319)	12 ¼ (312)	14¾ (359)	14 (355)	6 (152)	49½ (1257)	4¾ (105)			
	258	286T	234 (106)	21 (533)	19 (483)	58 (1473)	13 (330)	12 ¼ (312)	14¾ (375)	14 (355)	7½ (191)	55½ (1410)	4¾ (121)			
	264	326T	328 (149)	22 (559)	22 (559)	64 (1626)	13 (330)	12 ¼ (312)	14¾ (375)	14 (355)			61½ (1562)			
		365T					13¾ (352)	13¾ (334)								
	268	405TS	409 (186)	26 (660)	26 (660)	68 (1727)	14¾ (378)	14¾ (365)	14¾ (378)	14¾ (365)	9½ (241)	65½ (1664)	12¾ (308)	4¾ (108)		1 (25)
	280	449TS	481 (218)			80 (2032)	15¾ (403)	15¾ (365)	15¾ (403)	15¾ (365)			77½ (1969)	9¾ (232)		
368	286T	470 (213)	68 (1727)										65½ (1664)	12¾ (308)		
GP III 3L	380	405T	601 (273)	26 (660)	26 (660)	80 (2032)	19¼ (489)	19 (483)				77½ (1969)	9¾ (232)			
	398	449T	746 (338)			98 (2489)							95½ (2426)	8¾ (206)		

*GP I - HD₂ applies to 1½x3-8 only.

GP II - HD₁ applies to 2x3-8, 3x4-8, 1x2-10A, 1½x3-10A, 2x3-10A and 3x4-10.

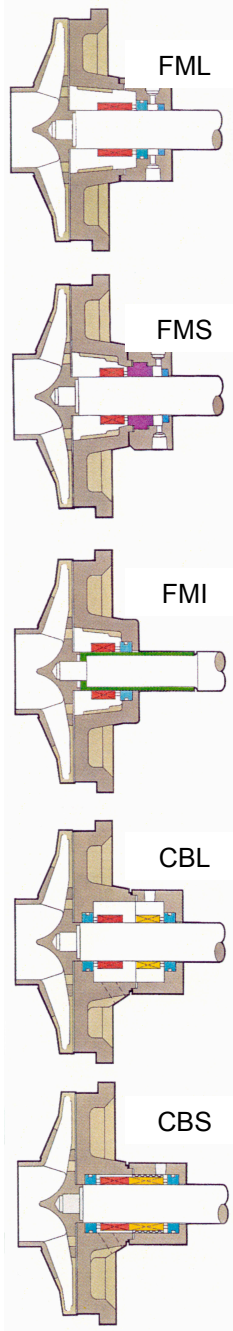
- HD₂ applies to 3x4-10H, 4x6-10, 4x6-10H, 1½x3-13, 2x3-13, 3x4-13, 3x4-13HH and 4x6-13A.

GP III - HD₁ applies to all GP III sizes.

▲ Includes spacer under pump, as necessary

** "HG" dimension applied to the lower pad height. With some bases this will occur at pump end and with others at motor end.

Seal Chambers For Every Application



<p>FML Oversized, tapered bore with 8 specially shaped and evenly spaced cast-in flow modifiers. Designed for seals with large gland bolt and gasket circles.</p>	<ul style="list-style-type: none"> • Single internal cartridge seals. • Dual internal/external cartridge seals. • Single internal component seals with flexibly mounted seats.* • Dual internal “true” tandem cartridge seals. <p>Note: <i>Bypass flush to internal seal normally not required. Barrier fluid or external flush may apply to dual seals (Plans 52, 53, etc.).</i></p>
<p>FMS Same chamber design as FML but accommodates seals with small gland bolt and gasket circles.</p>	<p>Same seal and flush plan recommendations as for FML. Single seals with all types of seat mounting configurations can be installed. FMS design is provided for the convenience of customers with seal standards that include small glands. This design is American-Marsh’s secondary recommendation to the FML.*</p>
<p>FMI Same chamber design as FMS, but includes a cast-in integral gland.</p>	<ul style="list-style-type: none"> • Single internal, flexibly mounted seals. Uses sleeve for seal setting and fast installation. • “Sanitary-type” applications. Less prone to bacteria build up. <p>Note: <i>Bypass flush is normally not required.</i></p>
<p>CBL Oversized, cylindrical step bore design for seals with large gland bolt and gasket circles.</p>	<ul style="list-style-type: none"> • Dual internal component seals. Isolates the seal chamber from the process. Allows less expensive seal materials. Recommended in tough slurry applications. • Single internal component or cartridge seals when applied with a throat bushing. Usually selected to increase stuffing box pressure above the vapor pressure to avoid cavitation, etc. <p>Note: <i>Applied with Plan 11, etc.</i></p>
<p>CBS Cylindrical bore design for packing arrangements and conventional seals with small gland bolt and gasket circles.</p>	<ul style="list-style-type: none"> • Dual internal component seals. Isolates the seal chamber from the process. Allows less expensive seal materials. Recommended in tough slurry applications. Allows for thermal convection type flush plans; however, pumping ring devices are recommended. • Single internal component or cartridge seals when applied with a throat bushing. Usually selected to increase stuffing box pressure above the vapor pressure to avoid cavitation, etc. • Usually preferred over the CBL when jacketing is selected for increased effectiveness in cooling or heating. <p>Note: <i>Applied with Plan 11, etc.</i></p>

*All seal selections perform best when the faces are located directly within the flush path, particularly if solids, liquors, or slurries are present. Component seals with clamped seat gland designs locate the seal faces reasonably well. Flexibly mounted seat glands should include the vent and drain option to better locate the seal faces. The FML is always the first-choice chamber for maximum self-flush path benefits.

- Your Local Authorized Distributor -



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