

CENTRIFUGAL PUMPS

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CENTRIFUGAL PUMPS

Forum is one of the energy industry’s leading providers of production and drilling products and value-added services. From valves and seats to pistons and pumps, Forum products are known for world-class quality.

Our centrifugal pump, the MUD HOG®, delivers improved performance, better longevity, and cost savings compared to other centrifugal pumps. The MUD HOG’s high quality bearing configuration contributes to greater life expectancy through improved stability and lower vibration. The MUD HOG’s parts are completely interchangeable with other pumps currently on the market. And Forum’s unique attention to the details that improve performance and extend pump life sets the MUD HOG apart from the competition.

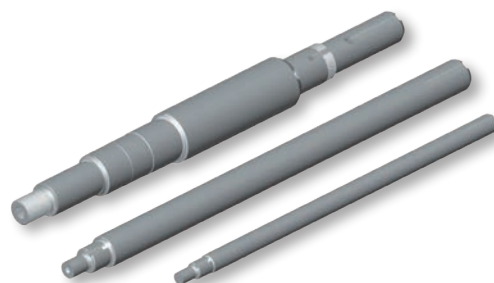
The following pages detail the components and specifications of the MUD HOG. To learn more about Forum’s centrifugal pumps, contact a Forum representative today.

Pump Shafts

Forum assures the performance of its pump shafts by specifying the highest quality, fatigue resistant steels, machined to demanding tolerances. The shafts are designed to transmit the required horsepower even in the most challenging applications.

The pump shafts for the 2-1/2 MUD HOG come with an option of Reverse Rotation Prevention (RRP) system, which protects against accidentally damaging the fluid end components, if the motor were to be inadvertently wired wrong. This shaft is made of 4140 low alloy steel.

The pump shafts for the 1-7/8 and 1-1/8 MUD HOG pumps on the other hand, are offered in stainless steel materials because of their similar “thru-the-impeller” design and the intrinsic requirement for corrosion resistance.



Impellers

Except for the 3 x 2 x 13 and the 4 x 3 x 13, all the impellers for the 2-1/2, 1-7/8, and 1-1/8 MUD HOG pumps have the semi-open design. This ensures an efficient increase in the kinetic energy of the fluid as it passes through the front vanes.

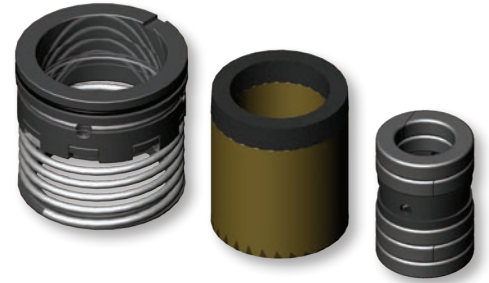
All the impellers have similar and strategically designed back vanes that not only reduce the wear on the stuffing box cover but also boost the mechanical seal’s life by limiting the flow of contaminants into the sealing area.



Packing and Mechanical Seals

The 2-1/2 MUD HOG™ uses an industry leading, heavy-duty mechanical seal as a standard. These rugged mechanical seals have proven themselves time and again in the field and continue to be one of the best features of our superior 2-1/2 MUD HOG. These mechanical seals can be offered in tungsten carbide or silicon carbide sealing faces, depending on the type of application. Dual mechanical seal are also available.

Forum also offers more economical options, for all three of its pump sizes, in the form of regular packing rings, king packing, and the innovative injectable sealants, to address the leakage concerns on centrifugal pumps.



Shaft Sleeves

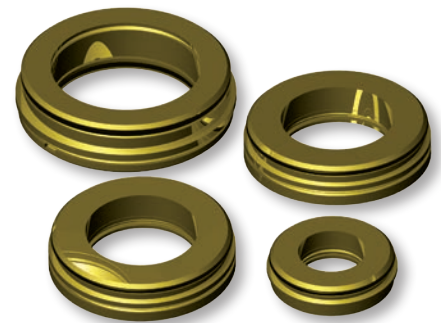
The 2-1/2 MUD HOG carries a stainless steel shaft sleeve to protect its low alloy steel shaft from abrasion and corrosion. Forum also offers ceramic coated and 17-4 PH shaft sleeves on its pumps, for use with the alternative packing options. The 1-1/8 centrifugal pump is only offered with a standard, non-sleeved, stainless steel shaft.

Labyrinth Seals

Forum offers premium quality Labyrinth seals as a standard on all three pump sizes. Apart from effectively keeping the contaminants away from the bearings, the Labyrinth seals have the added advantage of not causing wear on the shafts.

Wear Pads

The 2-1/2 MUD HOG casings are offered with wear pads on every size, except the 3 x 2 x 13 in. The wear pads can be easily changed by ordering replacement wear pad repair kits, which come with a wear pad, studs, nuts, and a gasket. The 1-7/8 and the 1-1/8 MUD HOG pumps have wear surfaces integrated into their casing designs.



Bearings

Forum specifies bearings of the highest quality from the premier bearing manufacturers for its three pump models. All the bearings are interchangeable with other similar and popular centrifugal pumps.

For the 2-1/2 MUD HOG, the inboard bearing is a double row angular contact bearing, for enhanced stability of the shaft. The outboard side sports two angular contact bearings installed “back-to-back” for maximum thrust handling capability.

Both the 1-7/8 and the 1-1/8 MUD HOG pumps carry the simplistic, field-proven, eccentric locking design bearings.



Fluid End Components

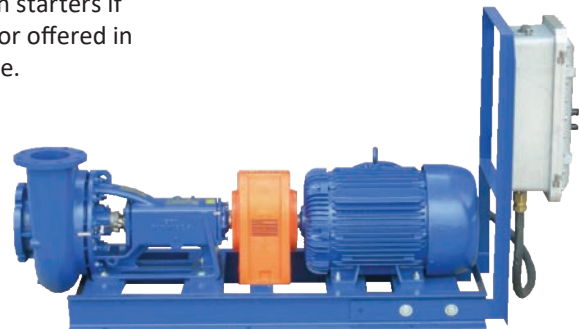
Forum offers the impellers, stuffing box covers, and wear pads on the 2-1/2 centrifugal pump in hard iron, for increased wear life. On the 3 x 2 x 13 size for the 2-1/2 centrifugal pump, which does not have a wear pad, even the casing is cast out of hard iron. The same holds true for all fluid end wear components on the 1-7/8 and the 1-1/8 pumps.

Anticipating the high expectations of our customers from our champion workhorse, the 2-1/2 centrifugal pump, Forum also offers an option of extra hard iron fluid end components for the most demanding of applications which necessitate the longest possible wear life.



Skid Packages

For the convenience of our valued customers, Forum offers its pumps mounted on skid packages, coupled with the customer specified motors and wired with starters if desired. The skids themselves can be painted to customer's specifications or offered in a galvanized condition. Over/under and vertical skid packages also available.



Performance Testing

Forum now has the capability to perform in-house performance testing on centrifugal pumps at our state-of-the-art test lab. We also offer third party certified/witness testing to meet the requirements of our customers.

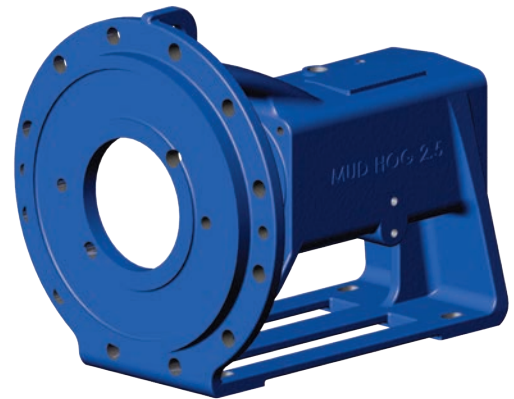


GENERAL APPLICATIONS FOR MUD HOG® CENTRIFUGAL PUMPS

- Fresh water
- Sea water
- Drilling mud

Features

- Stainless steel casing and wear pad nuts allow easy access
- Labyrinth seals reduce bearing contamination and shaft wear
- All of our bearings, Labyrinth seals, and mechanical seals are provided by world renown suppliers who are industry leaders in their respective fields
- Dual mechanical seals also available



Our redesigned 2.5 centrifugal pump frame is more than 50 lbs lighter and has better stress characteristics than the corresponding frame from our major competitors.

2-1/2 MUD HOG Sizes	1-7/8 MUD HOG Sizes	1-1/8 MUD HOG Sizes
3 x 2 x 13 in.	2 x 3R x 13 in.	1 x 1-1/2C11
4 x 3 x 13 in.	3 x 4R x 13 in.	1-1/2 x 2R11
5 x 4 x 14 in.	4 x 5R x 12 in.	2 x 3R11
6 x 5 x 11 in.	5 x 6R x 12 in.	–
8 x 6 x 11 in.	6 x 8R x 13 in.	–
8 x 6 x 14 in.	–	–

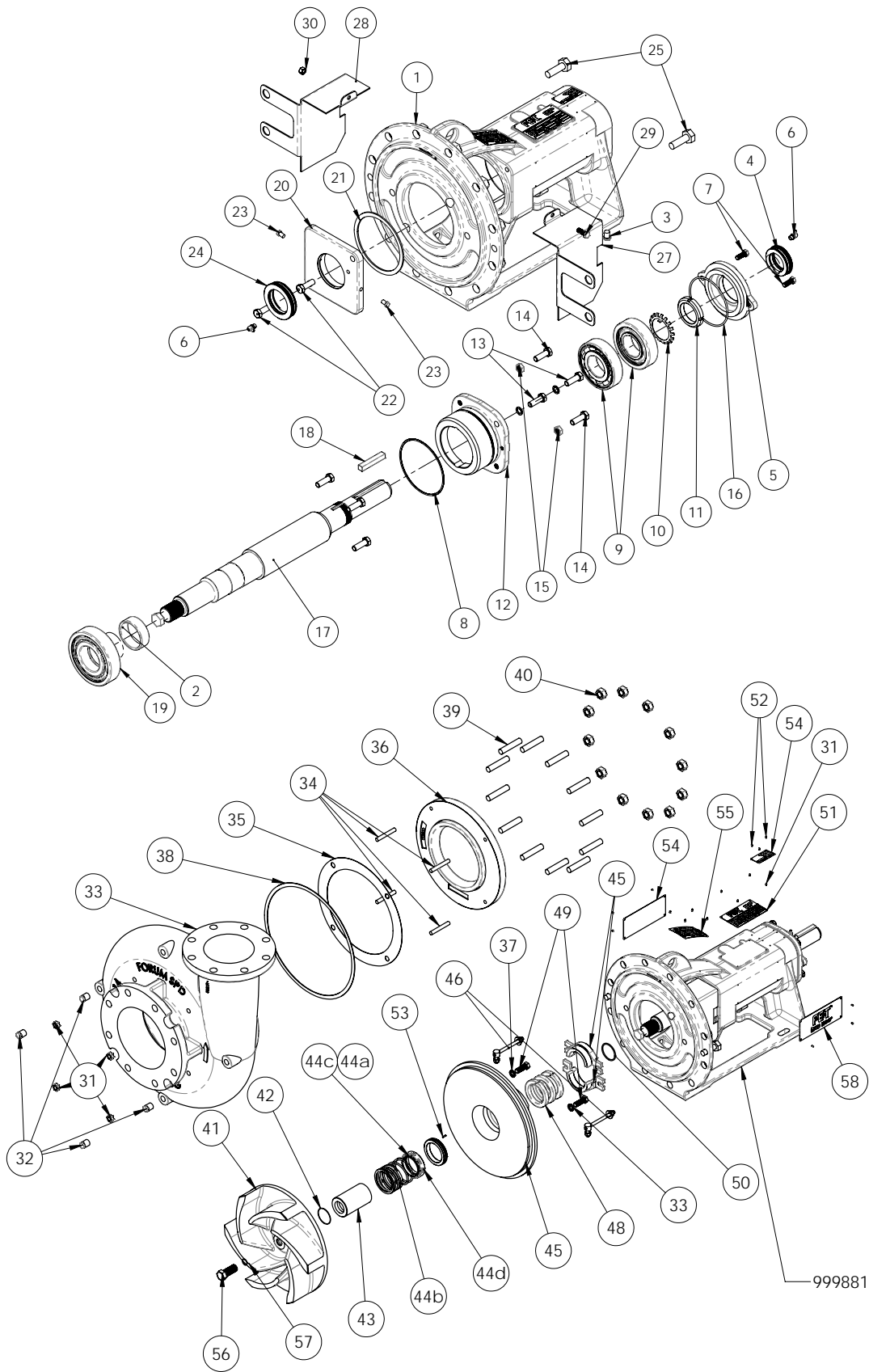
Standard Specifications, Alternate Materials, and Special Options

- All 2-1/2 and 1-7/8 MUD HOG™ centrifugal pumps are now ATEX certified (ATEX certificate available at no charge—please contact factory for details)
- All MUD HOG pumps are hydrostatically tested at no charge
- All standard MUD HOG pumps are painted with 3 to 6 mils DFT of Alkyd paint—offshore coating available at an additional charge (Primer: Zinc, Second Coat: Epoxy base, Top Coat: high build Polyurethane)
- Material certification for MUG HOG centrifugal pump available upon request at an additional charge (consult factory)
- Performance test available at an additional charge (consult factory)
- Please consult factory for alternate materials and coating options

Skid Packages

- Galvanized skid available at an additional charge (consult factory)
- All standard skid packages are painted with 3 to 6 mils DFT of Alkyd paint—offshore coating available at an additional charge (Primer: Zinc, Second Coat: Epoxy base, Top Coat: high build Polyurethane)
- Delivery is subject to motor availability at time of order
- Please consult factory for alternate skid options

Exploded Views of 2-1/2 in. MUD HOG™ Pump



999881

2-1/2 in. Centrifugal Pump Crossover List

No.	Description	Qty. Req.	Part Number	Mission® Stock No.	Mission® Part No.	Halco®
1	Frame	1	1138934	644302499	20618-12-1	H17444
~	Frame-Oil Lubricated	1	1126105	N/A	N/A	N/A
2	Bearing Spacer	1	1138879	N/A	N/A	N/A
3	Drain Plug	1	WWWX00012	601474737	8505-1	H8505-1
~	Outboard Oil Seal	1	WWW003004	648408359	20619-02	N/A
~	Inboard oil seal	1	WWW003002	648408300	20619-01	H20619-01
~	Inboard exclusion seal	1	WWW003001	648408409	20620-01	H20620-01
~	Deflector	1	WWW003003	641116108	22210-1A	N/A
~	Breather	1	WWW00C002	601473689	H8267-1	
~	Oil Level Dipstick	1	WWW00C003	662014131	662014131	H2539-3
4	Outboard Bearing Labyrinth Seal	1	WVIN00262	N/A	N/A	H2564-3
5	Outboard Bearing Cover	1	052136910	20617AH	20617	H20617-01-01
6	Outboard/Inboard Bearing Grease Fitting	2	WWW00C003	N/A	N/A	N/A
7	Outboard Bearing Cover Bolt	2	WWG31D107	3861-139-4	3861-139	H3861-139
8	Outboard Bearing Housing Seal	1	WWB254H30	648402295	7496-253	H7496-253
9	Outboard Bearing	2	WVESK7311	648408201S	20616-1	H20616-1
10	Bearing Lock Washer	1	WV00W1100	648402105	6124-4	H6124-4
11	Bearing Locknut	1	WV00N1100	648402055	6123-1	H6123-4
12	Outboard Bearing Housing	1	052136810	20624H	20624-01-01	H20624-01-01
13	Outboard Bearing Housing Bolt	2	WWG31H187	N/A	N/A	N/A
14	Outboard Bearing Housing Adjusting Bolt	2	WWG31H1H7	3861-138	3861-138	H3861-138
15	Outboard Bearing Housing Adjusting Nut	2	WWJ31H800	658404702	3932-62	H3932-62
16	Outboard Bearing Cover Seal	1	WWB248P41	72200017	7496-26	H7496-26
17	Shaft	1	052133900	646490557	20612-02-33	H20612-02-33
18	Coupling End Key	1	WWW00A004	601212392	903022	H4372-5-21
19	Inboard Bearing	1	848701008792	2564-3H	20615-1	H20615-1
20	Inboard Bearing Cover	1	052136710	17950AH	20626	H17950
21	Inboard Bearing Cover Gasket	1	052137400	648408706	20625	H20625
22	Inboard Bearing Cover Bolt	2	WWG31H1H 7	3861-1H	3861-1	H3861-1
23	Inboard Bearing Cover Grease Plug	2	WWWX00011	N/A	N/A	N/A
24	Inboard Bearing Labyrinth Seal	1	WVINM0026	2564-4H	N/A	H2564-4
25	Jack Bolt	2	WWG31S28F	2538-1H	2538	H2538
26	Nord-Lock Washer, NL 1/ 2 DP	2	1055464	N/A	N/A	N/A
27	Guard, Packing Gland-LEFT	1	1175457	N/A	N/A	N/A
28	Guard, Packing Gland-Right	1	1175462	N/A	N/A	N/A
29	Packing Guard Bolt	1	WWG31D107	N/A	N/A	N/A
30	Packing Guard Nut	1	WWJ11D40Z	N/A	N/A	N/A
31	Wear Pad Nut	4	WWJ51H800	N/A	N/A	N/A
32	Casing Drain Plug	4	WWWX00015	N/A	N/A	N/A
32,33,38,39,40	Casing 3 x 2 x 13 repair kit	1	052134000	19203AH	19203-01-30A	H19203-01-30A
32,33,34,35,36,38,39,40	Casing 4 x 3 x 13 repair kit	1	052134100	19205AH	19205-01-30A	H19205-01-30A
32,33,34,35,36,38,39,40	Casing 5 x 4 x 14 repair kit	1	052134200	19222AH	19222-01-30A	H19222-01-30A
32,33,34,35,36,38,39,40	Casing 6 x 5 x 11 repair kit	1	052134300	19122AH	19122-01-30A	H19122-01-30A
32,33,34,35,36,38,39,40	Casing 6 x 5 x 14 repair kit	1	052134400	19123AH	19123-01-30A	H19123-01-30A
32,33,34,35,36,38,39,40	Casing 8 x 6 x 11 repair kit	1	052134500	19763AH	19763-01-30A	H19763-01-30A
32,33,34,35,36,38,39,40	Casing 8 x 6 x 14 repair kit	1	052134600	19117AH	19117-01-30A	H19117-01-30A
34,35,36	Wear pad 4 x 3 x 13 repair kit	1	052134700	2501-37AH	N/A	H2501-01-30A
34,35,36	Wear pad 5 x 4 x 14 repair kit	1	052134800	2502-37AH	N/A	H2502-01-30A
34,35,36	Wear pad 6 x 5 x 11 repair kit	1	052134900	2503-37AH	N/A	H2503-01-30A
34,35,36	Wear pad 6 x 5 x 14 repair kit	1	052135000	2504-37AH	N/A	H2504-01-30A
34,35,36	Wear pad 8 x 6 x 11 repair kit	1	052135100	2505-37AH	N/A	H2505-01-30A
34,35,36	Wear pad 8 x 6 x 14 repair kit	1	052135200	2506-37AH	N/A	H2506-01-30A
37	Stuffing Box Cover Bolt Washer	2	WWK11H100	N/A	N/A	N/A
38	Casing Gasket	1	052137100	648403012	10399-46-1	H10399-46-1
39	Casing Stud	12	WWHS1S3HB	648401115	3862-76	H2507-3
40	Casing Stud Nut	12	WWJ11S800	3932-61H	3932-61	H3932-61

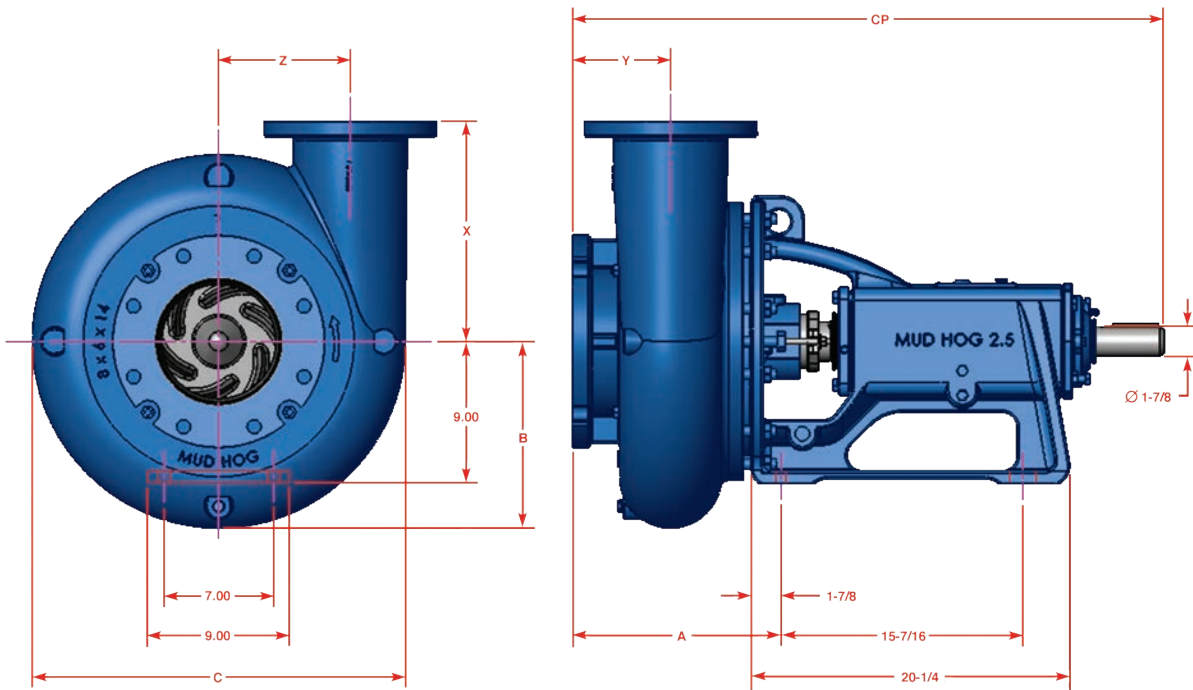
2-1/2 in. Centrifugal Pump Crossover List (continued)

No.	Description	Qty. Req.	Part Number	Mission® Stock No.	Mission® Part No.	Halco®
41	Impeller	-	-	-		
*	Impeller, 3 x 2 x 13, 2-1/2 centrifugal pump	1	05213571xS	N/A	19204-90-30	H2521-90-30
*	Impeller, 4 x 3 x 13, 2-1/2 centrifugal pump	1	05213581xS	N/A	19206-90-30	H2522-90-30
*	Impeller, 5 x 4 x 14, 2-1/2 centrifugal pump	1	05213591xS	N/A	19224-AO-30	H2523-AO-30
*	Impeller, 6 x 5/8 x 6 x 11, 2-1/2 centrifugal pump	1	05213601xS	N/A	19121-70-30	H2524-70-30
*	Impeller, 6 x 5 x 14, 2-1/2 centrifugal pump	1	05213621xS	N/A	19121-AO-30	H2524-AO-30
*	Impeller, 8 x 6 x 14, 2-1/2 centrifugal pump	1	05213631xS	N/A	19116-AO-30	H2525-AO-30
42	Impeller Seal	1	WWB032V35	648405082	19110-72	H19110-72
43	Shaft Sleeve Kit	1	052137000	641102182	20943-04A	H20613-21A
-	Ceramic coated shaft sleeve kit	1	052144200	641102181	20613-21G-7A	H20613-21G-7A
-	17-4Ph shaft sleeve kit for injectable packing	1	052137001	N/A	N/A	N/A
44	Mechanical Seal Kit Tungsten/Tungsten	1	WVBUF9000	648414308	22451-1	H22451-1A
44a	Pressed Ring	1	-	N/A	N/A	N/A
44b	Spring	1	-	N/A	N/A	N/A
44c	Rotating Element	1	-	N/A	N/A	N/A
44d	Stationary Element	1	-	N/A	N/A	N/A
-	Mechanical seal kit silicon/tungsten	1	WVBUF5000	648414357	22451-3	N/A
-	King packing	1	052153400	661007008	25015-04M-BA	
-	TEFLON 5 Ring Pack	1	052153502	N/A	N/A	N/A
-	5 ring packing with lantern ring	1	052153500	661007005	25014-04M-B	H8264-24-9A
-	Injectable packing starter kit 2.5 in.	1	WVUT060074	N/A	N/A	N/A
45	Stuffing Box Cover For Mechanical Seal	1	052136410	22223AH	22223-01-30A	H22223-01-30A
-	Stuffing box cover for mechanical seal aluminum bronze	1	052136430	22223-13H	22223-03-13A	H22223-01-13A
-	Stuffing box cover for packed	1	052144910	20614H	20614-01-30	H20614-01-30A
46	Gland Assembly Bolt	2	052137280	601102494	B3701A	H3701A
47	Stuffing Box Cover Bolt	2	WWG31H1H7	3861-138	3861-138	H3861-138
48	Packing, 3 Rings for Mechanical Seal	1	052141500	648402600	N/A	H2537-24A
-	Packing TEFLON 3 Ring Pack	1	1153473	N/A	N/A	N/A
49	Gland Set	1	052136500	20622AH	20622A	H20622A
50	Shaft Sleeve Seal	1	WWB225V40	648415156	7496-033	H746-236
51	Nameplate	1	052141400	N/A	N/A	N/A
52	Drive Screws	24	WWGT06060	N/A	N/A	N/A
53	Rollpin	1	WWL1040HS	N/A	N/A	N/A
54	Warning Label	1	052151700	N/A	N/A	N/A
55	ATEX Nameplate	1	052170700	N/A	N/A	N/A
56	Impeller Bolt	1	WWGL1S203	7415648	N/A	N/A
57	Impeller Bolt O-Ring	1	WWB018V35	N/A	N/A	N/A
58	Nameplate, Forum	2	052216900	N/A	N/A	N/A
-	Fluid end gasket kit	1	052145400	641101076	10399-46-1A	10399-46-1A
-	Power end gasket kit	1	052145500	641103353	20625A	H20625A
-	Labyrinth seal replacement kit	1	052145600	N/A	N/A	N/A
-	Lock nut replacement kit	1	052145700	641100409	6123-4A	H6123-4A
-	Oil seal kit	1	052149000	641103312	20619A	H20619A
-	Deflector	1	WWW003003	641116108	22210-1A	H22210-1
-	Hydraulic gun for injectable packing	1	WVGRG1050	N/A	N/A	N/A
-	1-1/2 in. x 8 in. injectable packing sticks	1	WVUT680033	N/A	N/A	N/A
-	Rebuild Kit	1	999881000	N/A	N/A	N/A

~ For Oil Lubricated Pumps Only

* See page 16 for impeller size code;

Dimensional Data For 2-1/2 in. Centrifugal Pump



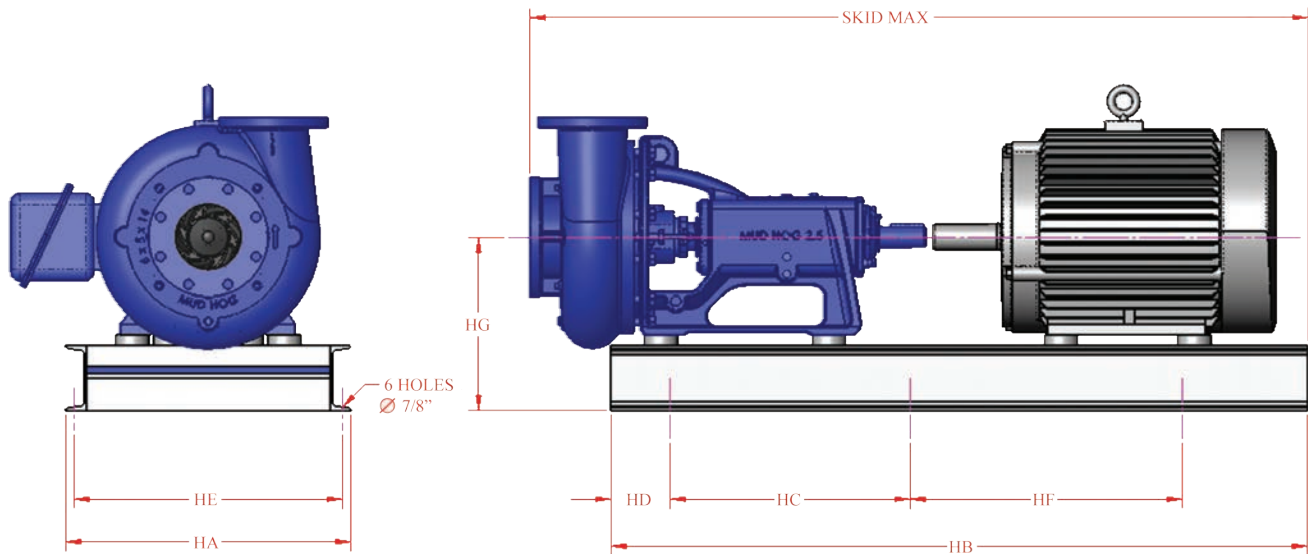
Pump Size	A	B	C	X	Y	Z	CP
3 x 2 x 13	8-3/4	9	17-7/8	10-1/4	3-3/4	7	33-1/8
4 x 3 x 13	9-3/8	9	17-7/8	10-1/4	4-1/4	6-3/4	33-7/8
5 x 4 x 14	10-3/4	9-11/16	19	11	5	6-1/8	35-1/8
6 x 5 x 11	12-1/16	9	17-7/8	11	5-3/4	6	36-7/16
6 x 5 x 14	12-1/16	10-3/8	21	11	5-3/4	6	36-7/16
8 x 6 x 11	13-1/4	10	20	14	6-1/4	8-3/8	37-7/8
8 x 6 x 14	13-1/4	12	23-9/16	14	6-1/4	8-3/8	37-7/8

Refer to the illustration above.

Assemblies And Weights For 2-1/2 in. Centrifugal Pump

Pump Size	Packed Pump	Mechanical Seal	Weight (lb)
3 x 2 x 13	999881AA4	999881BA4	460
4 x 3 x 13	999881AB4	999881BB4	485
5 x 4 x 14	999881AC0	999881BC0	545
6 x 5 x 11	999881ADC	999881BBC	520
6 x 5 x 14	999881AE0	999881BE0	570
8 x 6 x 11	999881AFC	999881BFC	630
8 x 6 x 14	999881AG0	999881BG0	690

Dimensional Data for 2-1/2 in. Centrifugal Pump



Flange Dimensions

Flange Size	ID	OD	BC	Thickness	Number of Holes	Size of Holes
2	2	6	4-3/4	3/4	4	3/4
3	3	7-1/2	6	15/16	4	3/4
4	4	9	7-1/2	15/16	8	3/4
5	5	10	8-1/2	15/16	8	7/8
6	6	11	9-1/2	1	8	7/8
8	8	13-1/2	11-3/4	1-1/8	8	7/8

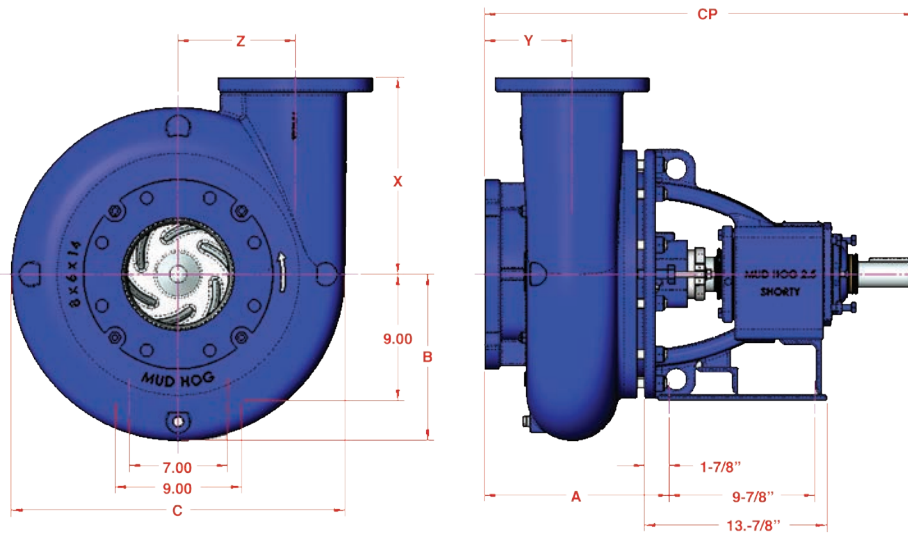
ASME/ANSI Class 150 Flat Face Flanges.
Refer to the illustration above

Skid Dimensions

Motor Frames	HP	Base	Skid Max	HA	HB	HC	HD	HE	HF	HG
182T-215T	3-10	WS-5	48-9/16	12	41-5/8	NA	29/32	NA	NA	13
254T-286T	15-30	WS-2	65-1/2	20-1/2	56	20	2	18-15/16	19	15
324T-326T	40-50	WS-2	65-1/2	20-1/2	56	20	2	18-15/16	19	15
364T-365T	60-75	WS-3	74-1/2	26-1/4	64	22	5	24-5/8	25	17
404T-405T	100	WS-3	74-1/2	26-1/4	64	22	5	24-5/8	25	17
444T-447T	125-250	WS-4	79-1/2	29	70	24	4-1/8	27-3/8	30	17-1/2

Not to be used for construction. Dimensions are for reference only and subject to change.
Also applicable for 1-7/8" Centrifugal Pump Skid Packages.
HP range for 1750 RPM motors.

Dimensional Data For 2-1/2 in. Shorty Centrifugal Pump



Pump Size	A	B	C	X	Y	Z	CP
3 x 2 x 13	8-3/4	9	17-7/8	10-1/4	3-3/4	7	26-1/8
4 x 3 x 13	9-3/8	9	17-7/8	10-1/4	4-1/4	6-3/4	26-7/8
5 x 4 x 14	10-3/4	9-11/16	19	11	5	6-1/8	28-1/8
6 x 5 x 11	12-1/16	9	17-7/8	11	5-3/4	6	29-7/16
6 x 5 x 14	12-1/16	10-3/8	21	11	5-3/4	6	29-7/16
8 x 6 x 11	13-1/4	10	20	14	6-1/4	8-3/8	30-7/8
8 x 6 x 14	13-1/4	12	23-9/16	14	6-1/4	8-3/8	30-7/8

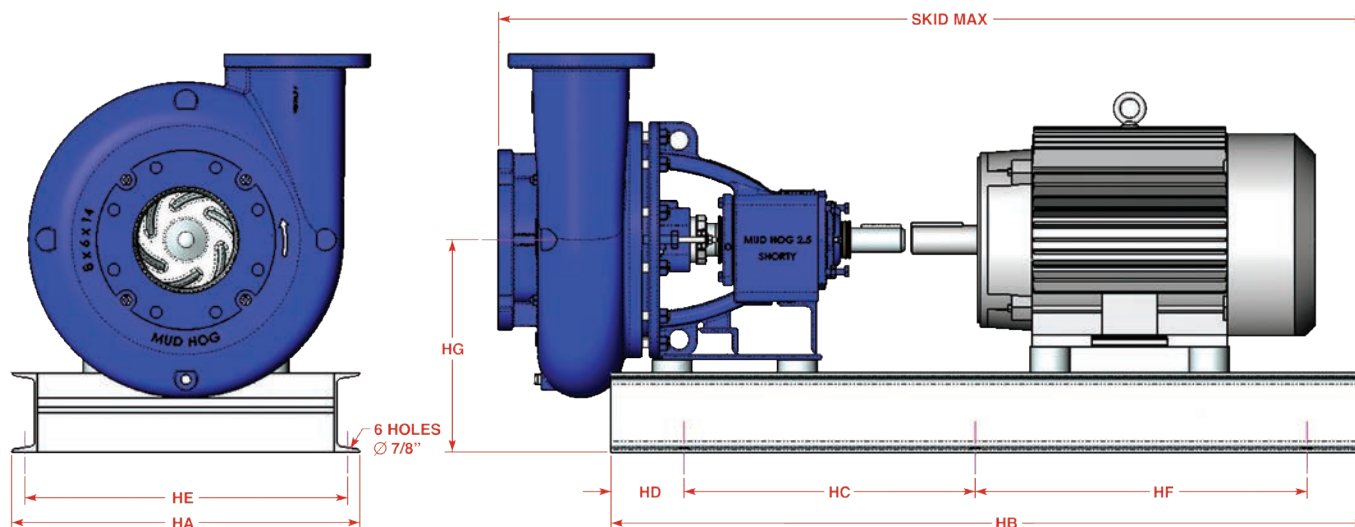
Refer to the illustration above.

Features

- Designed to operate with Motors up to 200HP
- Shorter span between bearings enhances pump life
- Fluid end parts interchangeable with industry standard pumps
- Can be used with a standard motor or coupled to a hydraulic motor
- Proprietary New Pump Frame - 7 inches shorter than any standard pump
- Maintenance Free Sealed Bearings, suitable for operation upto 3600 RPM
- Matches Industry Standard Piping Centerline Dimensions for Suction & Discharge Flanges
- Available with industry standard mounting pattern base plate or a more compact footprint base plate
- For item refer to illustration and table on page 6 & 7.

Pump Size	Packed Pump	Mechanical Seal	Weight (lb)
3 x 2 x 13	999883AA4	999883BA4	413
4 x 3 x 13	999883AB4	999883BB4	438
5 x 4 x 14	999883AC0	999883BC0	498
6 x 5 x 11	999883ADC	999883BBC	473
6 x 5 x 14	999883AE0	999883BE0	523
8 x 6 x 11	999883AFC	999883BFC	583
8 x 6 x 14	999883AG0	999883BG0	643

Dimensional Data For 2-1/2 in. Shorty Centrifugal Pump



Flange Dimensions

Flange Size	ID	OD	BC	Thickness	Number of Holes	Size of Holes
2	2	6	4-3/4	3/4	4	3/4
3	3	7-1/2	6	15/16	4	3/4
4	4	9	7-1/2	15/16	8	3/4
5	5	10	8-1/2	15/16	8	7/8
6	6	11	9-1/2	1	8	7/8
8	8	13-1/2	11-3/4	1-1/8	8	7/8

ASME/ANSI Class 150 Flat Face Flanges.
Refer to the illustration above

Skid Dimensions

Motor Frames	HP	Base	Skid Max	HA	HB	HC	HD	HE	HF	HG
182T-215T	3-10	WSS-5	41-9/16	12	34-5/8	NA	NA	NA	NA	10-12
254T-286T	15-30	WSS-2	58-1/2	20-1/2	49	20	2	18-15/16	19	15
324T-326T	40-50	WSS-2	58-1/2	20-1/2	49	20	2	18-15/16	19	15
364T-365T	60-75	WSS-3	67-1/2	26-1/4	57	22	5	24-5/8	25	17
404T-405T	100	WSS-3	67-1/2	26-1/4	57	22	5	24-5/8	25	17
444T-445T	125-250	WSS-4	72-1/2	29	63	24	4-1/8	27-3/8	30	17-1/2

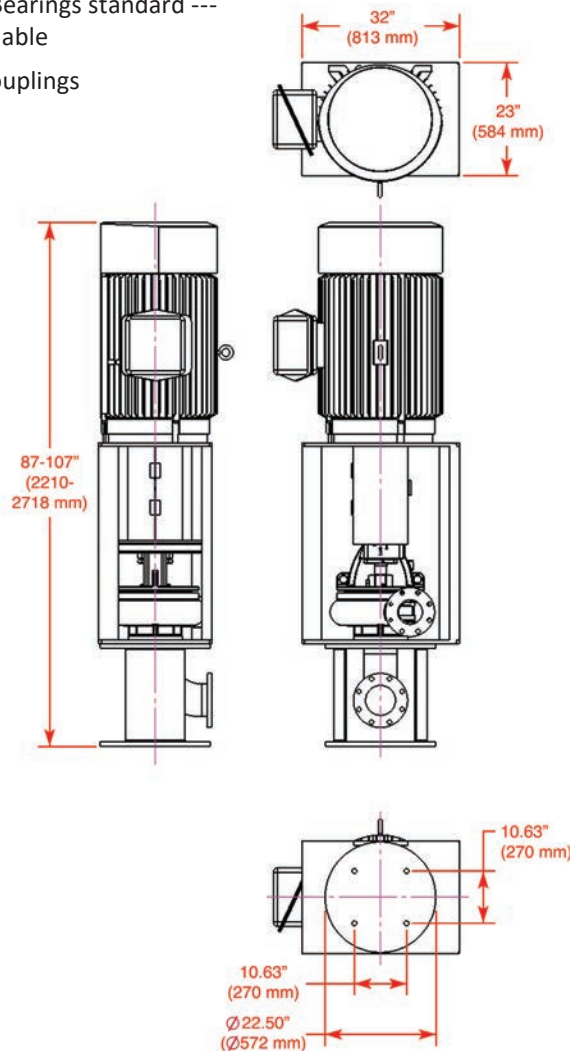
Not to be used for construction. Dimensions are for reference only and subject to change.
HP range for 1750 RPM motors.

The 2-1/2 in. Vertical Mud Hog™ Centrifugal Pump

Our Vertical Centrifugal Pump is built with the customer in mind and Forum's unique design allows for low cost and ease of maintenance. Utilizing standard off the shelf motors. Repairs can be made on the pump itself without removing the complete assembly. In addition, the Vertical Centrifugal Pump can accommodate motors up to 200 horse power.

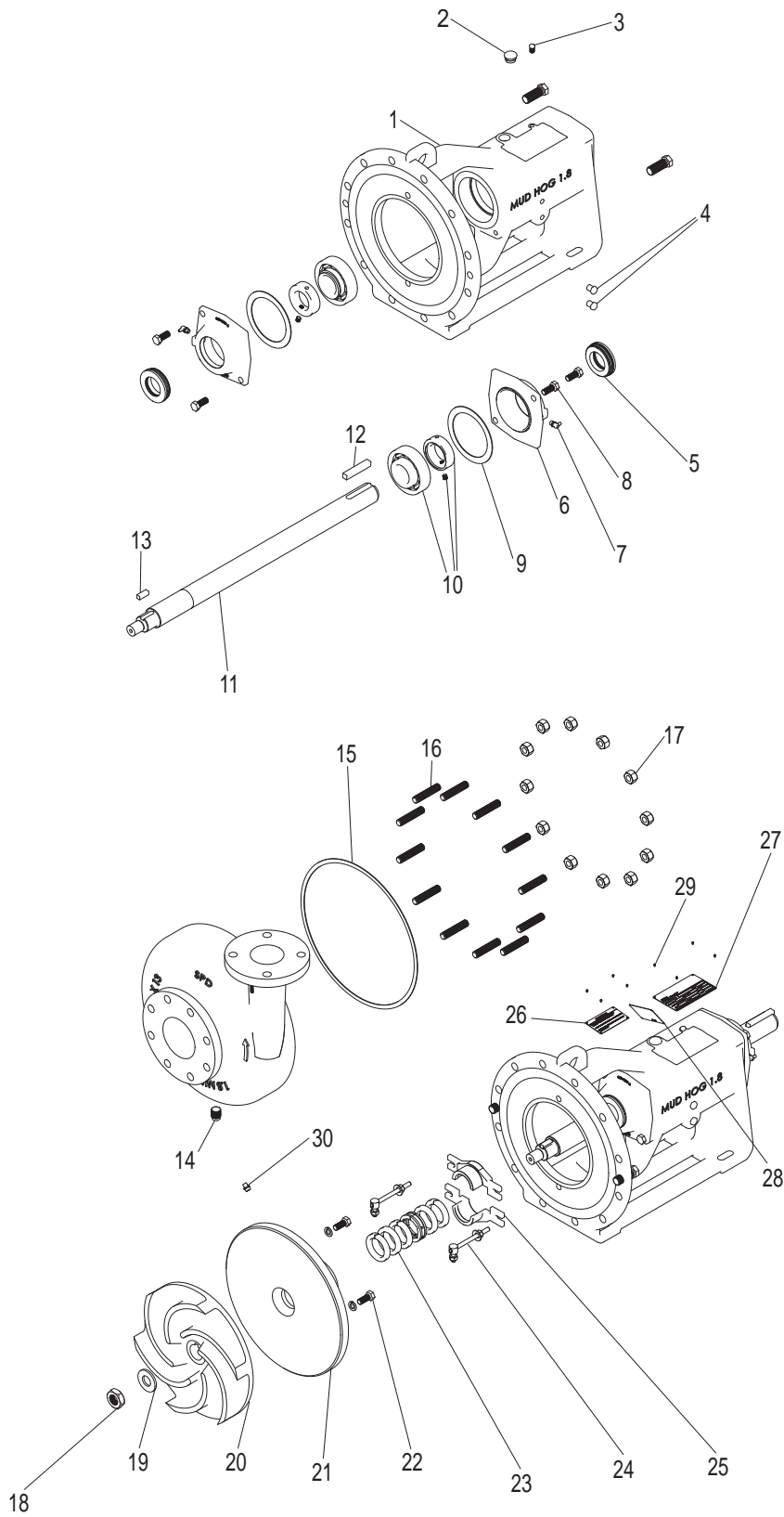
FEATURES & BENEFITS

- Easy Pump Removal Makes Pump Maintenance Convenient and More Economical
- Motor can be removed independently of the pump
- Matches Industry Standard Piping Centerline Dimensions for Suction and Discharge Flanges
- Full Range of Motors up to 200 HP
- Silicon Carbide Mechanical Seal as Standard
- Standard Fluid End Components
- Proprietary New Pump Frame – 7 inches shorter than a standard pump
- Shorter span between bearings enhances pump life
- Maintenance Free Sealed Bearings standard --- 3600 RPM application available
- Standard or Spider Type Couplings
- Standard, C-Face Motors



Patent Pending

Exploded View of 1-7/8 in. MUD HOG™ Pump



1-7/8 in. Centrifugal Pump Crossover List

No.	Description	Qty. Req.	Part Number	Mission® Stock No.	Mission® Part No.
1	Frame	1	052146810	601206873	L3785
2	Plastic plug	1	WVCCCF118	N/A	N/A
3	Plug for breather port	1	WWWX00011	N/A	601473689
4	Oil plug	2	WWWX00012	N/A	8505-2
5	Labyrinth seal	2	WVIN00498	N/A	N/A
6	Bearing cover	2	052146610	601196702	3790A
7	Bearing grease fitting	2	WWW00C004	N/A	N/A
8	Bearing cover bolt	4	WWG31H167	601407505	3861-1
9	Bearing cover gasket	2	052146500	601478191	10399-23-1
10	Bearing	2	WWESH0P06	601410293	3944-03
11	Shaft 416SS no coating (2 x 3R, 3 x 4R, 4 x 5R, 5 x 6R)	1	052145280	601118409	4932-21A
11	Shaft 416SS with chrome oxide coating (2 x 3R, 3 x 4R, 4 x 5R, 5 x 6R)	1	052151180	601120108	17238-21G7A
11	Shaft 416SS with 17-4PH fitted sleeve (2 x 3R, 3 x 4R, 4 x 5R, 5 x 6R)	1	052155580	N/A	N/A
11	Shaft 416SS no coating (6 x 8R)	1	052156680	601190135	14928-21A
11	Shaft 416SS with chrome oxide coating (6 x 8R)	1	052156580	601195001	24927-21G7A
11	Shaft 416SS with 17-4PH fitted sleeve (6 x 8R)	1	052153880	N/A	N/A
12	Coupling end key	1	WWW00A004	601212392	4372-5-21
13	Impeller key	1	WWW00A005	601212327	4372-3-21
-	Casing 2 x 3R repair kit hard iron	1	052149200	601115207	G4676-30A
-	Casing 2 x 3R repair kit aluminum bronze	1	052149201	601114994	G4676-13A
-	Casing 3 x 4R repair kit hard iron	1	052148900	601113871	F4644-30A
-	Casing 3 x 4R repair kit aluminum bronze	1	052148901	601113665	F4644-13A
-	Casing 4 x 5R repair kit hard iron	1	052149900	601115975	F4732-30A
-	Casing 5 x 6R repair kit hard iron	1	052145300	601116536	F4742-30A
-	Casing 6 x 8R repair kit hard iron	1	052149600	601117161	F5144-30A
14	Casing drain plug	1	WWWX00015	N/A	N/A
15	Casing gasket	1	052150500	601477987	10399-20-1
16	Casing studs	12	WWHS1M30A	601408305	11907-83
17	Casing nuts	12	WW11M800	601408552	3932-1
18	Impeller nut 304SS	1	WWJ510800	601429905	6209-8-25
19	Impeller washer	1	WWK410000	601408834	3936-16-4
20	*Impeller, 2 x 3R x 13, 1-7/8 centrifugal pump hard iron	1	05214911x	602232589	4610-90-30
20	*Impeller, 3 x 4R x 13, 1-7/8 centrifugal pump hard iron	1	05214931x	602227092	4605-90-30
20	*Impeller, 4 x 5R x 12, 1-7/8 centrifugal pump hard iron	1	05214941x	602235731	4705-80-30
20	*Impeller, 5 x 6R x 12, 1-7/8 centrifugal pump hard iron	1	05214511x	602239154	4710-80-30
20	*Impeller, 6 x 8R x 13, 1-7/8 centrifugal pump hard iron	1	05214951x	602240863	5142-90-30

1-7/8 in. Centrifugal Pump Crossover List (continued)

No.	Description	Qty. Req.	Part Number	Mission® Stock No.	Mission® Part No.
21	Stuffing box packed	1	052151310	N/A	N/A
–	Stuffing box mechanical seal	1	052146910	2571H	N/A
22	Stuffing box cover bolt	2	WWG31H167	N/A	N/A
23	Packing 5 ring with lantern ring graphite acrylic	1	052151200	661007001	25014-02W-D
–	King packing	1	052167500	661007009	25015-02W-BA
24	Gland assembly bolt	2	052137280	601102494	B3701A
25	Packing gland set	1	052146700	601367204	7406-13A
26	Warning label	1	052151700	N/A	N/A
27	Name plate	1	052141400	N/A	N/A
28	ATEX name plate	1	052170700	N/A	N/A
29	Drive screws	12	WWGT06060	N/A	N/A
30	Fitting, grease 1/4-18 NPT	1	WWW00C004	N/A	N/A
–	Mechanical seal tungsten repair kit	1	WVBUP0118	2558-3AH	N/A
–	Deflector/water slinger	1	052147180	601499882	22707A
–	Dipstick (oil lubricated pumps only)	0	WWW003005	N/A	N/A
–	Wear plate	1	052151810	601205677	3779-30
–	Grease seal	2	WWW003005	N/A	3943-14
–	1-7/8 in. Injectable packing starter kit 1.8	1	WVUT060109	N/A	N/A

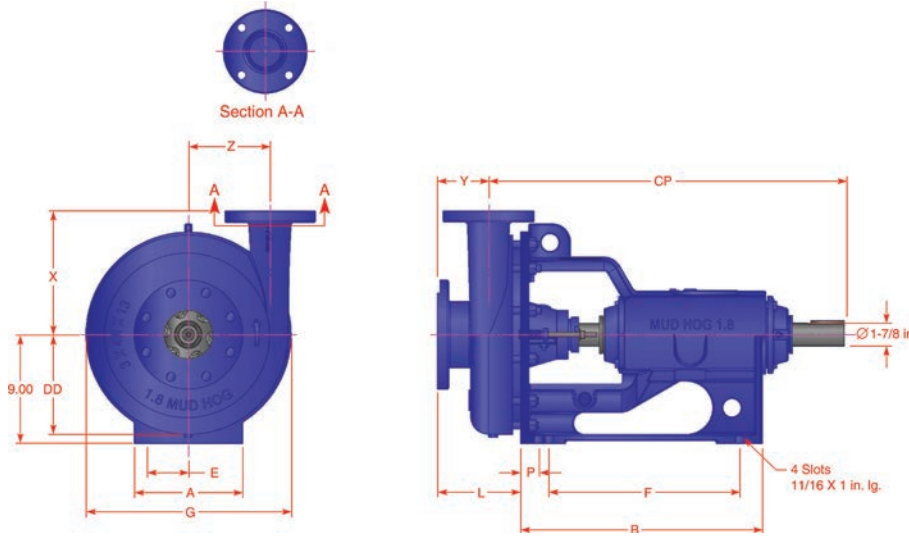
*2-1/2 in. and 1-7/8 in. Impeller Size Code

x	Diameter
0	Ø14 in.
1	Ø13-3/4 in.
2	Ø13-1/2 in.
3	Ø13-1/4 in.
4	Ø13 in.
5	Ø12-3/4 in.
6	Ø12-1/2 in.
7	Ø12-1/4 in.
8	Ø12 in.
9	Ø11-3/4 in.

x	Diameter
A	Ø11-1/2 in.
B	Ø11-1/4 in.
C	Ø11 in.
D	Ø10-3/4 in.
E	Ø10-1/2 in.
F	Ø10-1/4 in.
G	Ø10 in.
H	Ø9-3/4 in.
J	Ø9-1/2 in.
K	Ø9-1/4 in.
L	Ø9 in.
M	Ø8-3/4 in.

x	Diameter
N	Ø8-1/2 in.
P	Ø8-1/4 in.
R	Ø8 in.
S	Ø7-3/4 in.
T	Ø7-1/2 in.
U	Ø7-1/4 in.
V	Ø7 in.
W	Ø6-3/4 in.
X	Ø6-1/2 in.
Y	Ø6-1/4 in.
Z	Ø6 in.

Dimensional Data for 1-7/8 in. Centrifugal Pump



Flange Dimensions

Pump Size	A	B	E	F	G	L	P	X	Y	Z	CP	DD
2 x 3R x 13	9	20.44	3.50	15.44	17.00	6.15	1.47	10.25	3.75	7.00	29.45	8.75
3 x 4R x 13	9	20.44	3.50	15.44	17.00	6.90	1.47	10.25	4.25	6.75	29.70	8.25
4 x 5R x 12	9	20.44	3.50	15.44	17.00	8.15	1.47	11.00	5.00	6.13	30.20	8.75
5 x 6R x 12	9	20.44	3.50	15.44	17.00	9.34	1.47	11.00	5.69	6.00	30.67	8.25
6 x 8R x 13	9	20.44	3.50	15.44	23.25	10.96	1.47	14.00	6.25	8.38	31.63	11.63

Refer to page 12 for illustration

Size	ID	OD	BC	Thickness	No. of Holes	Size of Holes
2	2	6	4-3/4	5/8	4	3/4
3	3	7-1/2	6	3/4	4	3/4
4	4	9	7-1/2	15/16	8	3/4
5	5	10	8-1/2	15/16	8	7/8
6	6	11	9-1/2	1	8	7/8
8	8	13-1/2	11-3/4	1-1/8	8	7/8

The above drilling is standard 125#. ANSI 150# Flat Face Flanges. Refer to page 12 for illustration.

Assemblies and Weights for 1-7/8 in. Centrifugal Pump

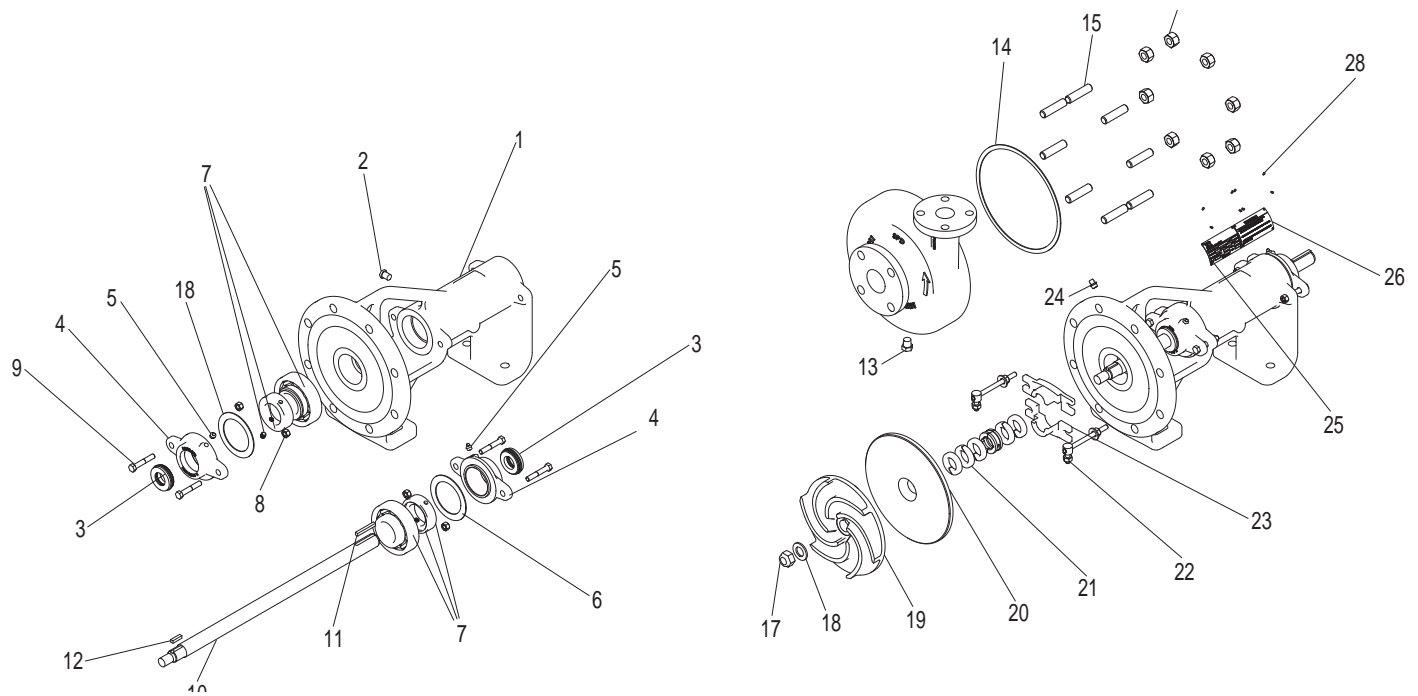
Pump Size	Packed Pump	Mechanical Seal	Weight (lb)
2 x 3R x 13	99988AAA4	99988ABA4	374
3 x 3R x 13	99988AAB4	99988ABB4	398
4 x 3R x 12	99988AAC8	99988ABC8	439
5 x 3R x 12	99988AAD8	99988ABD8	439
6 x 3R x 13	99988AAE4	99988ABE4	671

1-1/8 in. Centrifugal Pump Crossover List

No.	Description	Qty. Req.	Part Number	Mission [®] Stock No.	Mission [®] Part No.
1	Frame, 1-1/8 (pedestal)	1	052170210	601203995	E3768
2	Plug, standard 1/4-18 NPT	1	WWWX00012	601471964	8262-2
3	Isolator	2	WVIN02802	N/A	N/A
4	Cover, bearing 1-1/8	2	052148010	601196504	3773A
5	Fitting, grease 1/8-27 NPT 45 degrees	2	WWW00C005	N/A	N/A
6	Gasket, bearing cover	2	052170800	601478050	10399-21-1
7	Bearing, ball	2	WWESH0618	601410152	3944.01
8	Nut, hex, bearing cover	4	WWJ11D800	601408560	3932.2
9	Cap screw, bearing cover	4	WWG31D287	601407505	3861-1
10	Shaft 1-1/8	1	052149780	601118300	3769-21A
11	Key, coupling	1	WWW00A007	601212251	4372-2-21
12	Key, impeller	1	WWW00A008	601212186	4372-1-21
–	Casing 1 x 1-1/2C x 11 repair kit	1	052151900	601103518	G3766-1A
–	Casing, 1-1/2 x 2R x11 repair kit	1	052150100	601112618	G4576-1A
–	Casing, 2 x 3R x 11 repair kit	1	052148400	601113947	F4672-1A
13	Plug, standard 3/8-18 NPT	1	WWWX00013	N/A	N/A
14	Gasket, casing	1	052172600	601477912	10399-19-1
15	Stud, casing	8	WWHS1M2HA	601408479	11907-82
16	Nut, casing	8	WWJ11M800	601408552	3932-1
17	Nut, impeller	1	WWJ51M800	N/A	N/A
18	Washer, impeller	1	WWK41U100	601408842	3936-2-4
19	*Impeller, 1 x 1-1/2C x 8.5	1	*05215031x	602208647	4170-44-1
19	*Impeller, 1-1/2 x 2R x 8.5	1	*05215021x	602213688	4571-44-1
19	*Impeller, 2 x 3R11 x 8.5	1	*05214881x	602218729	4574-44-1
20	**Cover, stuffing box 1-1/8	1	052147910	N/A	N/A
21	Packing, 5 ring with lantern	1	052172800	661007002	25014-01S-B
21	Mech. Seal, Silicone CARB.		WVBEM51185LIANORG		
22	Bolt, gland assembly 1-1/8	2	052137280	601102494	B3701A
23	Gland set 1-1/8	1	052150800	601373004	8204-13A
24	Fitting, grease 1/8-27 NPT 65 degrees	1	WWW00C004	N/A	N/A
25	Warning label	1	052151700	N/A	N/A
26	Name plate	1	052172500	N/A	N/A

**Stuffing box cover (wear plate) only available in ductile cast iron

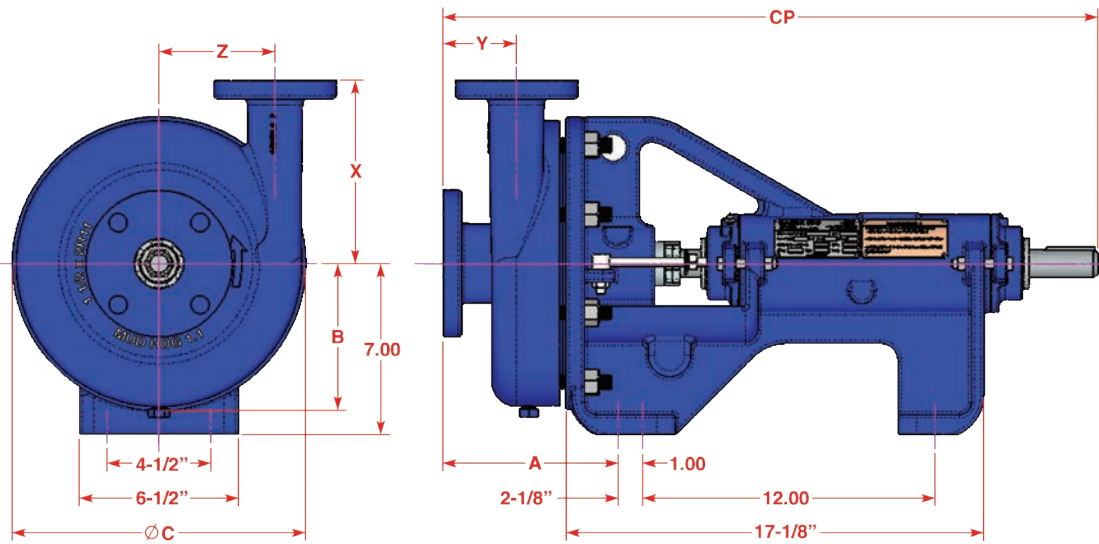
Exploded Views of 1-1/8 in. MUD HOG™ Pump



*1-1/8 in. Impeller Size Code

x	Diameter	x	Diameter
0	8-1/2 in.	D	6-7/8 in.
1	8-3/8 in.	E	6-3/4 in.
2	8-1/4 in.	F	6-5/8 in.
3	8-1/8 in.	G	6-1/2 in.
4	8 in.	H	6-3/8 in.
5	7-7/8 in.	J	6-1/4 in.
6	7-3/4 in.	K	6-1/8 in.
7	7-5/8 in.	L	6 in.
8	7-1/2 in.	M	5-7/8 in.
9	7-3/8 in.	N	5-3/4 in.
A	7-1/4 in.	P	5-5/8 in.
B	7-1/8 in.	R	5-1/2 in.
C	7 in.	-	-

Dimensional Date for 1-1/8 in. Centrifugal Pump



Pump Size	A	B	C	X	Y	Z	CP
1 x 1-1/2C11	6-3/4	5-7/8	11-3/4	7-5/8	2-13/16	4-7/8	26-3/8
1-1/2 x 2R11	7	5-13/16	11-11/16	7-1/2	3	4-3/4	26-7/8
2 x 3R11	7-5/8	5-3/4	11-7/16	7-1/2	3-1/2	4-1/2	27-5/16

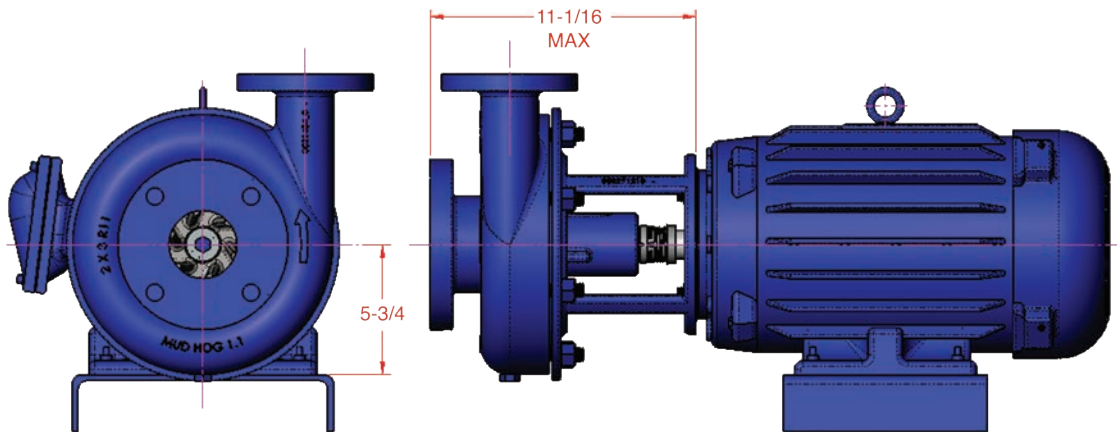
Flange Dimensions

Flange Size	ID	OD	BC	Thickness	Number of Holes	Size of Holes
1	1	4-1/4	3-1/8	9/16	4	5/8
1-1/2	1-1/2	5	3-7/8	11/16	4	5/8
2	2	6	4-3/4	3/4	4	3/4
3	3	7-1/2	16	15/16	4	3/4

Skid Dimensions

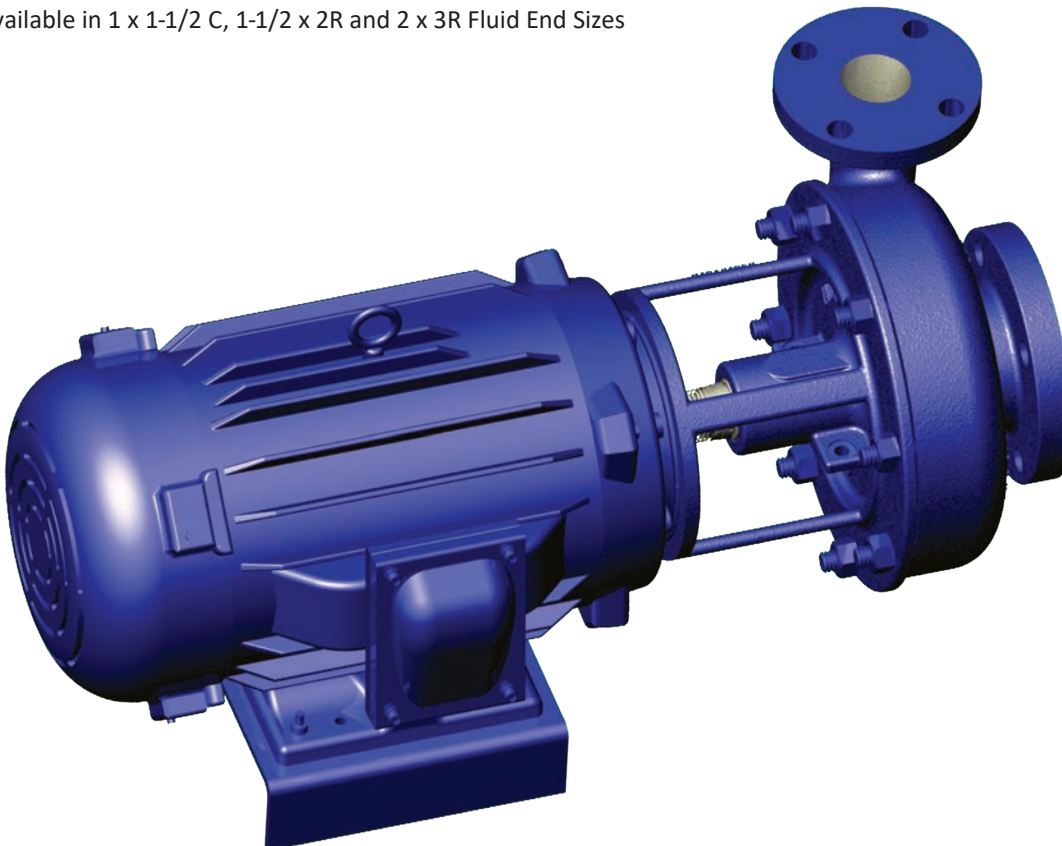
Pump Size	Packed Pump	Mechanical Seal	Weight (lb)
1 x 1-1/2C11	99988PAA0	99988PLA0	150
1-1/2 x 2R11	99988PAB0	99988PLB0	154
2 x 3R11	99988PAD0	99988PLD0	156

Forum Mud Hog™ 1-1/8 in. Close Coupled Centrifugal Pump



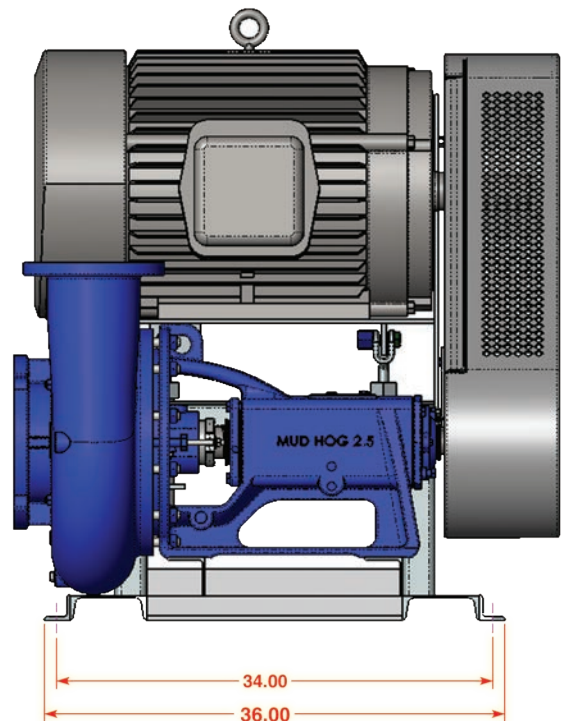
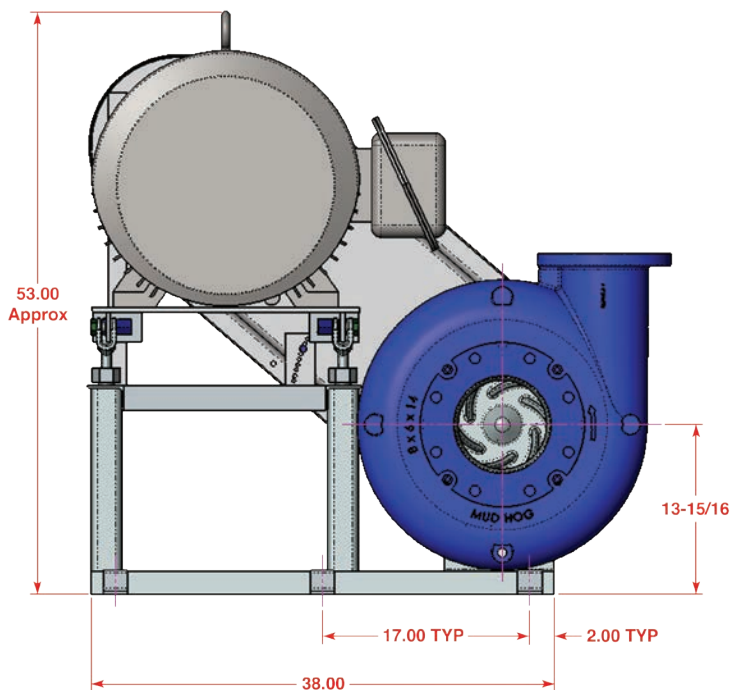
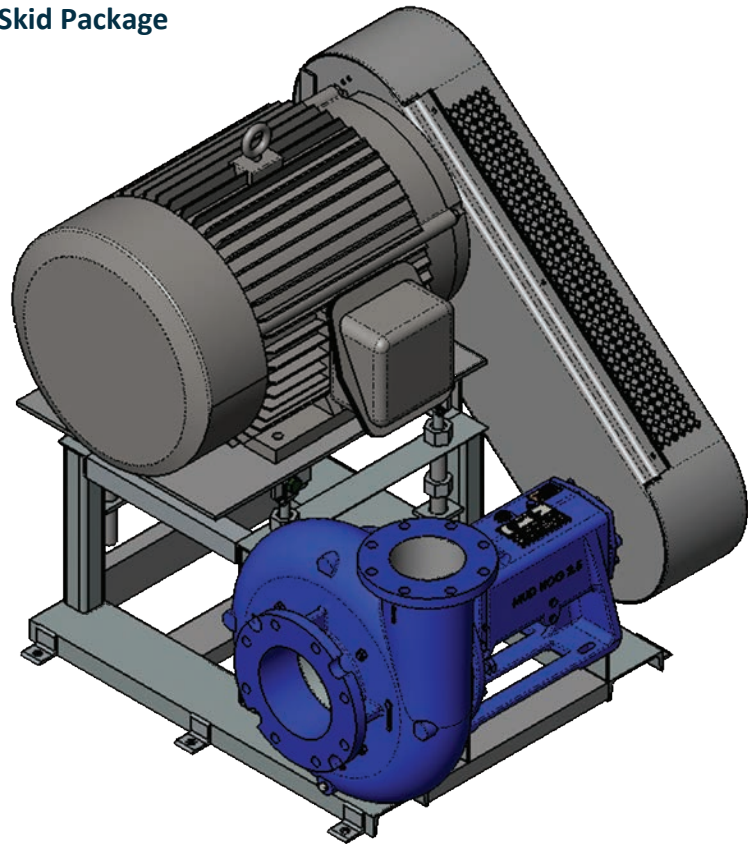
Proprietary New Design - Incorporates a mechanical seal or packing rings

- Light weight and maintenance
- Matches Industry Standard Piping Centerline Dimensions for Suction and Discharge Flanges
- Casing and impellers interchangeable with industry standard pumps
- Available in 1 x 1-1/2 C, 1-1/2 x 2R and 2 x 3R Fluid End Sizes



Over and Under Belt Driven Skid Package

Overall Dimensions for an Over & Under Skid Package



OUR CORE VALUES

No One Gets Hurt

The safety of our employees and customers is our first priority coupled with a healthy respect for the environment.

Integrity

In everything we do, in every interaction, both internally and externally, we strive to operate with the utmost integrity and mutual respect.


Customer Focused


Our products enhance our customer's performance and we listen to their needs and work with them to solve their challenges.

Good Place To Work

We are committed to creating a workplace that fosters innovation, teamwork and pride. Every team member is integral to our success and is treated equally and fairly.

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