

HEAD SIZE & TYPE	NOTE	BF	CF	A	D	Z	DISCHARGE SIZE	BASE MOUNTING 4 HOLES			NEMA DRIVER MOUNTING				BELOW BASE CLEARANCE REQUIRED		AUXILLIARY CONNECTIONS SEE NOTE 2			
								M	Nsq	Wsq	BD	AK	AJ DRILLING 4 HOLES STRADDLE CENTERLINE		NOTE 3		E-NPS	F-NPT	G-NPT	R-2 Holes
													DIA	BOLT CIRCLE	CDIA	SD				
2-1/2x2-1/2x10S	1	3.81	5.00	9.25	0.75	1.56	2-1/2 NPT	0.56	12.5	9.25	10.0	8.25	0.44	9.12	5.00	1.00	1/4	1/4	3/4	3/4-10UNC
2-1/2x3x10S	1	3.81	5.00	9.25	0.75	1.56	2-1/2 NPT	0.56	12.5	9.25	10.0	8.25	0.44	9.12	5.00	1.00	1/4	1/4	3/4	3/4-10UNC

NOTES: 1: MAXIMUM WORKING PRESSURE 175 PSI @ 150 DEG F MAX TEMPERATURE

2: E - AIR LINE

F - STUFFING BOX DRAIN

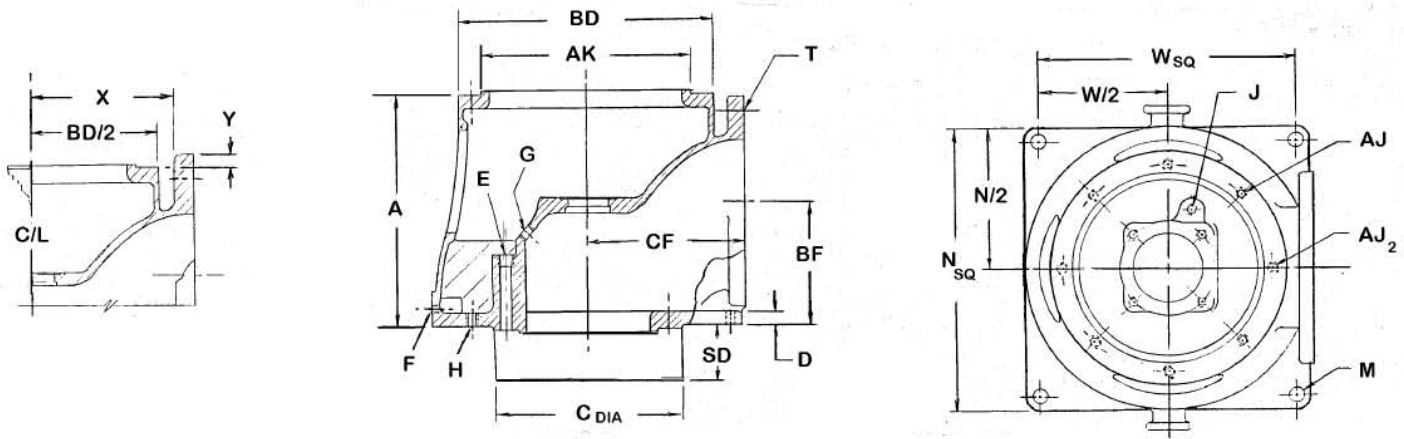
G - PRELUBE

R - HOLES FOR LIFTING EYE BOLTS

3: THIS IS THE CLEARANCE FOR COLUMN PIPE OTHER FACTORS MAY DICTATE THE MINIMUM FLOOR OPENING SIZE REQUIRED.

ALL DIMENSIONS ARE IN INCHES

Vertical Turbine Pumps
Cast Iron Surface Discharge Heads
S & SHP



HEAD SIZE & TYPE	NOTE	BF	CF	A	D	DISCHARGE FLANGE ANSI FLAT FACED				BASE MOUNTING 4 HOLES			NEMA DRIVER MOUNTING		BELOW BASE CLEARANCE REQUIRED		DISCHG FLANGE CLEARANCE		AUXILLIARY CONNECTIONS SEE NOTE 5						
						SIZE & ANSI	T HOLE DRILLING & TAPPING STRADDLE CENTERLINE			M	N _{SQ}	W _{SQ}	BD	AK	AJ DRILLING/TAPPING 4 HOLES STRADDLE CENTERLINE (AJ2 DRILLING 4 HOLES ON CENTERLINE WHERE SHOWN ONLY)		NOTE 6		E-NPS	F-NPT	G-NPT	H-NPS	J-NPT		
							RATING	NO.	THREAD						BOLT CIRCLE	THREAD								BOLT CIRCLE	C _{DIA}
6x6x12S	1	6.50	8.00	13.69	0.75	6-125 LB	8	3/4-10UNC	9.50	0.75	15	13.25	12.0	8.25	(AJ) 0.44 DIA (AJ2) 3/8-16UNC	9.12	9.94	3.38	-	-	3/4	1/2	3/4	N.A.	1/4
6x8x16.5S	1	7.75	10.25	14.75	1.25	6-125 LB	8	3/4-10UNC	9.50	1.00	20	18.00	16.5	13.50	5/8-11UNC	14.75	12.25	3.75	-	-	3/4	3/8	3/4	1/2	1/4
6x8x16.5SHP	2	7.75	10.78	14.75	1.25	6-250 LB	12	3/4-10UNC	10.62	1.00	20	18.00	16.5	13.50	5/8-11UNC	14.75	12.25	3.75	-	-	3/4	3/8	3/4	1/2	1/4
8x8x12S	1	7.00	9.00	14.75	0.88	8-125 LB	8	3/4-10UNC	11.75	0.88	17	15.00	12.0	8.25	(AJ) 0.44 DIA (AJ2) 3/8-16UNC	9.12	12.25	3.75	-	-	3/4	1/2	3/4	1/2	1/4
8x8x16.5S	1	7.75	10.25	14.75	1.25	8-125 LB	8	3/4-10UNC	11.75	1.00	20	18.00	16.5	13.50	5/8-11UNC	14.75	12.25	3.75	-	-	3/4	3/8	3/4	1/2	1/4
8x8x16.5SHP	2	7.75	10.88	14.75	1.25	8-250 LB	12	7/8-9UNC	13.00	1.00	20	18.00	16.5	13.50	5/8-11UNC	14.75	12.25	3.75	9.19	0.25	3/4	3/8	3/4	1/2	1/4
10x10x16.5S	1	9.00	10.25	18.00	1.50	10-125 LB	12	7/8-9UNC	14.25	1.00	20	18.00	16.5	13.50	5/8-11UNC	14.75	14.25	4.50	-	-	3/4	3/8	3/4	1/2	1/4
10x10x16.5SHP	2	9.00	11.12	18.00	1.50	10-250 LB	16	1-8UNC	15.25	1.00	20	18.00	16.5	13.50	5/8-11UNC	14.75	14.25	4.50	-	-	3/4	3/8	3/4	1/2	1/4
10x10x20S	1	9.00	10.25	18.00	1.50	10-125 LB	12	7/8-9UNC	14.25	1.00	20	18.00	20.0	13.50	5/8-11UNC & 5/8-11UNC	14.75 & 18.25	14.25	4.50	-	-	3/4	3/8	3/4	1/2	1/4
10x10x20SHP	2	9.00	11.12	18.00	1.50	10-250 LB	16	1-8UNC	15.25	1.00	20	18.00	20.0	13.50	5/8-11UNC & 5/8-11UNC	14.75 & 18.25	14.25	4.50	-	-	3/4	3/8	3/4	1/2	1/4
12x12x20S	1	10.50	12.25	21.00	1.75	12-125 LB	12	7/8-9UNC	17.00	1.00	23	21.00	20.0	13.50	5/8-11UNC	14.75	16.25	4.44	-	-	3/4	3/8	1	1/2	1/4
12x12x20SHP	2	10.50	13.12	21.00	1.75	12-250 LB	16	1-1/8-7UNC	17.75	1.00	23	21.00	20.0	13.50	5/8-11UNC	14.75	16.25	4.44	-	-	3/4	3/8	1	1/2	1/4
14x14x24.5S	3	11.50	14.75	22.25	1.75	14-125 LB	12	1-8UNC	18.75	1.00	28	25.00	24.5	13.50	5/8-11UNC	14.75	18.25	5.88	-	-	3/4	3/8	1	1/2	1/4
14x14x24.5SHP	4	11.50	15.62	22.25	1.75	14-250 LB	20	1-1/8-7UNC	20.25	1.00	28	25.00	24.5	13.50	5/8-11UNC	14.75	18.25	5.88	13.5	0.50	3/4	3/8	1	1/2	1/4

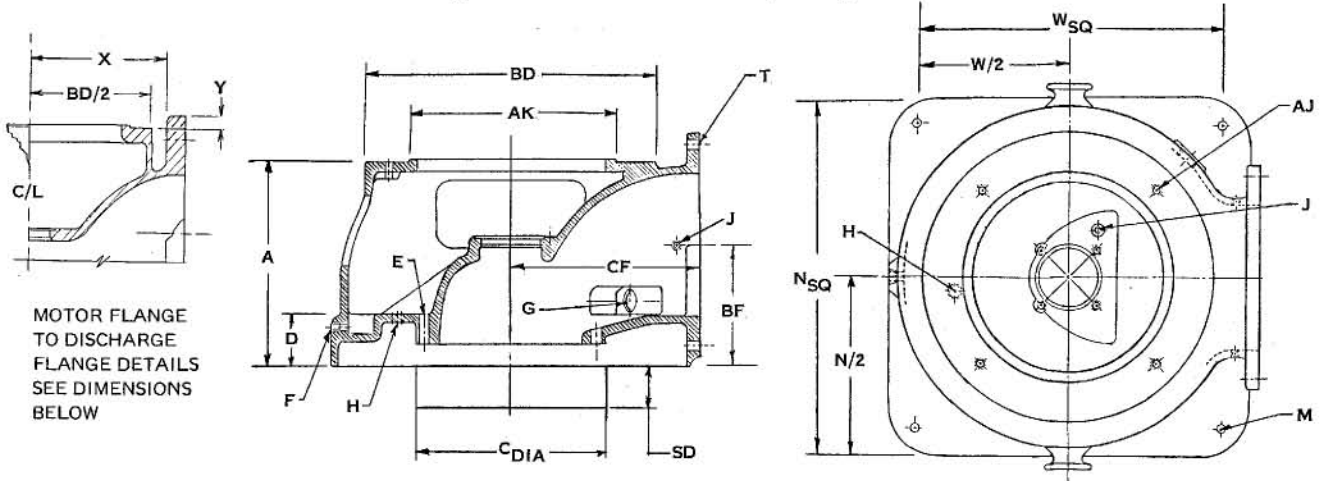
NOTES: 1 MAXIMUM WORKING PRESSURE 200 PSI @ 150 DEG F MAX TEMPERATURE
 2 MAXIMUM WORKING PRESSURE 400 PSI @ 150 DEG F MAX TEMPERATURE
 3 MAXIMUM WORKING PRESSURE 150 PSI @ 150 DEG F MAX TEMPERATURE
 4 MAXIMUM WORKING PRESSURE 300 PSI @ 150 DEG F MAX TEMPERATURE
 5 E - AIR LINE, F- STUFFING BOX DRAIN, G- PRELUBE OR PRESSURE TAP, H-DRAIN, J-PRESSURE TAP

NOTE: 6 THIS IS THE CLEARANCE FOR TOP COLUMN FLANGE. OTHER FACTORS MAY DICTATE THE MINIMUM FLOOR OPENING SIZE REQUIRED.

ALL DIMENSIONS ARE IN INCHES



VERTICAL TURBINE PUMP(S)
Cast Iron Surface Discharge Heads
16 x16 x30-1/2
Type S - 125 Lb ANSI Discharge Flange
Type SHP - 250Lb ANSI Discharge Flange



MOTOR FLANGE TO DISCHARGE FLANGE DETAILS SEE DIMENSIONS BELOW

HEAD SIZE & TYPE	NOTE	BF	CF	A	D	DISCHARGE FLANGE ANSI FLAT FACED				BASE MOUNTING 4 HOLES			NEMA DRIVER MOUNTING		BELOW BASE CLEARANCE REQUIRED			
						SIZE & ANSI		T HOLE DRILLING & TAPPING STRADDLE CENTERLINE		M	NSQ	WSQ	BD	AK	AJ DRILLING/TAPPING 4 HOLES STRADDLE CENTERLINE		NOTE 3	
						RATING	NO.	THREAD	BOLT CIRC LE						THREA D	BOLT CIRCLE	C DIA	SD
16 x 16 x 30-1/2S	1	12.75	20.00	21.50	3.50	16-125 LB	16	1-BUNC	21.25	1.00	38	32.00	30.5	22	3/4-10UNC	26.00	20.12	2.88
16 x 16 x 30-1/2SHP	1	12.75	20.00	21.50	3.50	16-125 LB	20	1-1/4-7UNC	22.50	1.00	38	32.00	30.5	22	3/4-10UNC	26.00	20.12	2.88

Available Clearance for Motor Base to Discharge Flange			AUXILLIARY CONNECTIONS SEE NOTE 2					
BD/2	X	Y	E Dia	F-NPT	G-NPT	H-NPS	J-NPT	
15.25	18.62	3.00	0.922	1/2	2	1	1/4	
15.25	18.62	4.00	0.922	3/8	2	1	1/4	

NOTES: 1: MAXIMUM WORKING PRESSURE 175 PSI @ 150 DEG F MAX TEMPERATURE
Type S Head 125 Lb ANSI Discharge Flange - 150 PSI
Type SHP Head 250 Lb ANSI Discharge Flange - 300 PSI

- 2: E - AIR LINE
- F - STUFFING BOX DRAIN
- G - PRELUBE
- R - HOLES FOR LIFTING EYE BOLTS

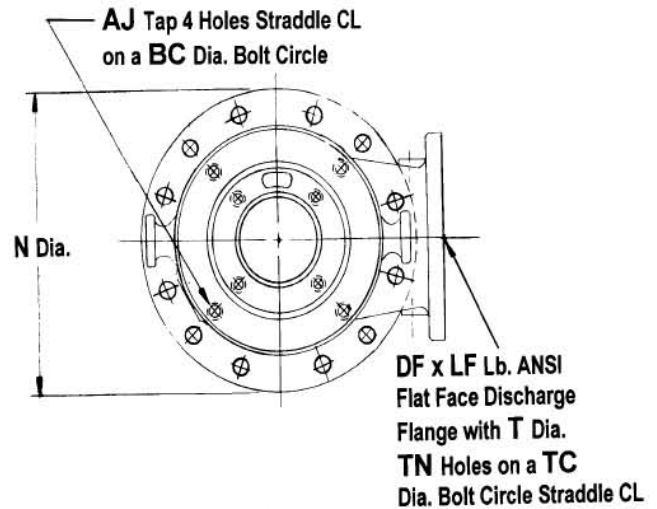
3: THIS IS THE CLEARANCE FOR COLUMN PIPE OTHER FACTORS MAY DICTATE THE MINIMUM FLOOR OPENING SIZE REQUIRED.
ALL DIMENSIONS ARE IN INCHES

VERTICAL TURBINE PUMPS
Type C and CHP Cast Iron Round Base
Discharge Heads

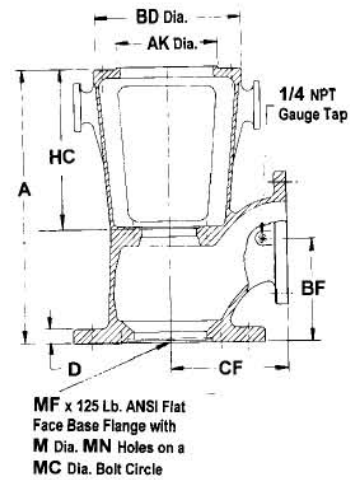


Peerless Pump Company
 Indianapolis, IN 46207-7026

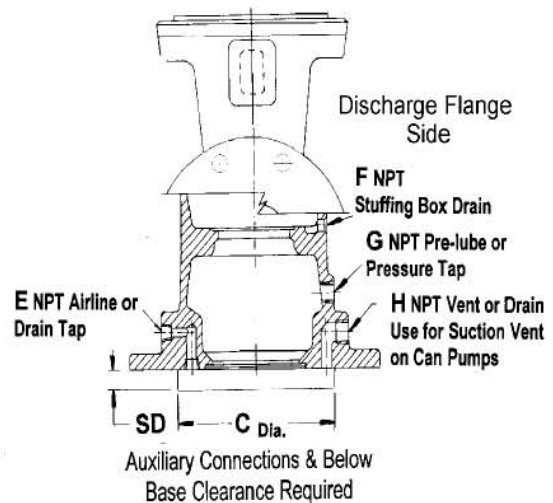
General Dimensions (all dimensions are in inches unless otherwise noted)								
✓	Head Size	DF x LF	A	AJ	AK	BC	BD	BF
	4x4x10C	4x125	16.38	3/8-16UNC	8.25	9.12	10.0	5.75
	4x4x10CHP	4x250	16.38	3/8-16UNC	8.25	9.12	10.0	5.75
	4x6x12C	4x125	21.88	3/8-16UNC	8.25	9.12	12.0	8.00
	4x6x12CHP	4x250	21.88	3/8-16UNC	8.25	9.12	12.0	8.00
	6x6x12C	6x125	22.75	3/8-16UNC	8.25	9.12	12.0	8.62
	6x8x16-1/2C	6x125	25.81	5/8-11UNC	13.50	14.75	16.5	9.00
	6x8x16-1/2CHP	6x250	25.81	5/8-11UNC	13.50	14.75	16.5	9.00
	8x8x12C	8x125	24.50	3/8-16UNC	8.25	9.12	12.0	10.00
	8x8x16-1/2C	8x125	26.81	5/8-11UNC	13.50	14.75	16.5	10.00
	8x8x16-1/2CHP	8x250	26.81	5/8-11UNC	13.50	14.75	16.5	10.00
	10x10x20C	10x125	30.12	5/8-11UNC	13.50	14.75	20.0	12.00
	12x12x20C	12x125	32.12	5/8-11UNC	13.50	14.75	20.0	13.00



✓	Head Size	C	CF	D	E	F	G	H	HC	M	MC
	4x4x10C	8.00	8.50	1.12	1/4	1/4	3/4	3/4	9.62	0.88	11.75
	4x4x10CHP	8.00	8.50	1.12	1/4	1/4	3/4	3/4	9.62	0.88	11.75
	4x6x12C	10.00	11.00	1.19	1/4	1/4	3/4	3/4	13.19	1.00	17.00
	4x6x12CHP	10.00	11.00	1.19	1/4	1/4	3/4	3/4	13.19	1.00	17.00
	6x6x12C	10.00	12.00	1.31	1/4	1/4	3/4	3/4	13.19	1.12	18.75
	6x8x16-1/2C	12.25	14.00	1.38	1/4	3/8	1	1	15.50	1.12	21.25
	6x8x16-1/2CHP	12.25	14.00	1.38	1/4	3/8	1	1	15.50	1.12	21.25
	8x8x12C	12.25	14.25	1.25	1/4	3/8	1	1	13.19	1.25	22.75
	8x8x16-1/2C	12.25	14.75	1.38	1/4	3/8	1	1	15.50	1.25	22.75
	8x8x16-1/2CHP	12.25	14.75	1.38	1/4	3/8	1	1	15.50	1.25	22.75
	10x10x20C	14.25	14.50	1.38	1/4	3/8	1	1	17.31	1.25	22.75
	12x12x20C	16.50	15.50	1.44	1/4	3/8	1	1	17.31	1.25	25.00



✓	Head Size	MF	MN	N	SD	T	TN	TC	Wt. Lb.
	4x4x10C	8	8	13.5	1.25	0.75	8	7.50	145
	4x4x10CHP	8	8	13.5	1.25	0.88	8	7.88	145
	4x6x12C	12	12	19.0	3.50	0.75	8	7.50	240
	4x6x12CHP	12	12	19.0	3.50	0.88	8	7.88	240
	6x6x12C	14	12	21.0	3.50	0.88	8	9.50	285
	6x8x16-1/2C	16	16	23.5	3.75	0.88	8	9.50	390
	6x8x16-1/2CHP	16	16	23.5	3.75	0.88	12	10.62	390
	8x8x12C	18	16	25.0	3.75	0.88	8	11.75	425
	8x8x16-1/2 C	18	16	25.0	3.75	0.88	8	11.75	445
	8x8x16-1/2CHP	18	16	25.0	3.75	1.00	12	13.00	445
	10x10x20C	18	16	25.0	4.50	1.00	12	14.25	600
	12x12x20C	20	20	27.5	4.69	1.00	12	17.00	720



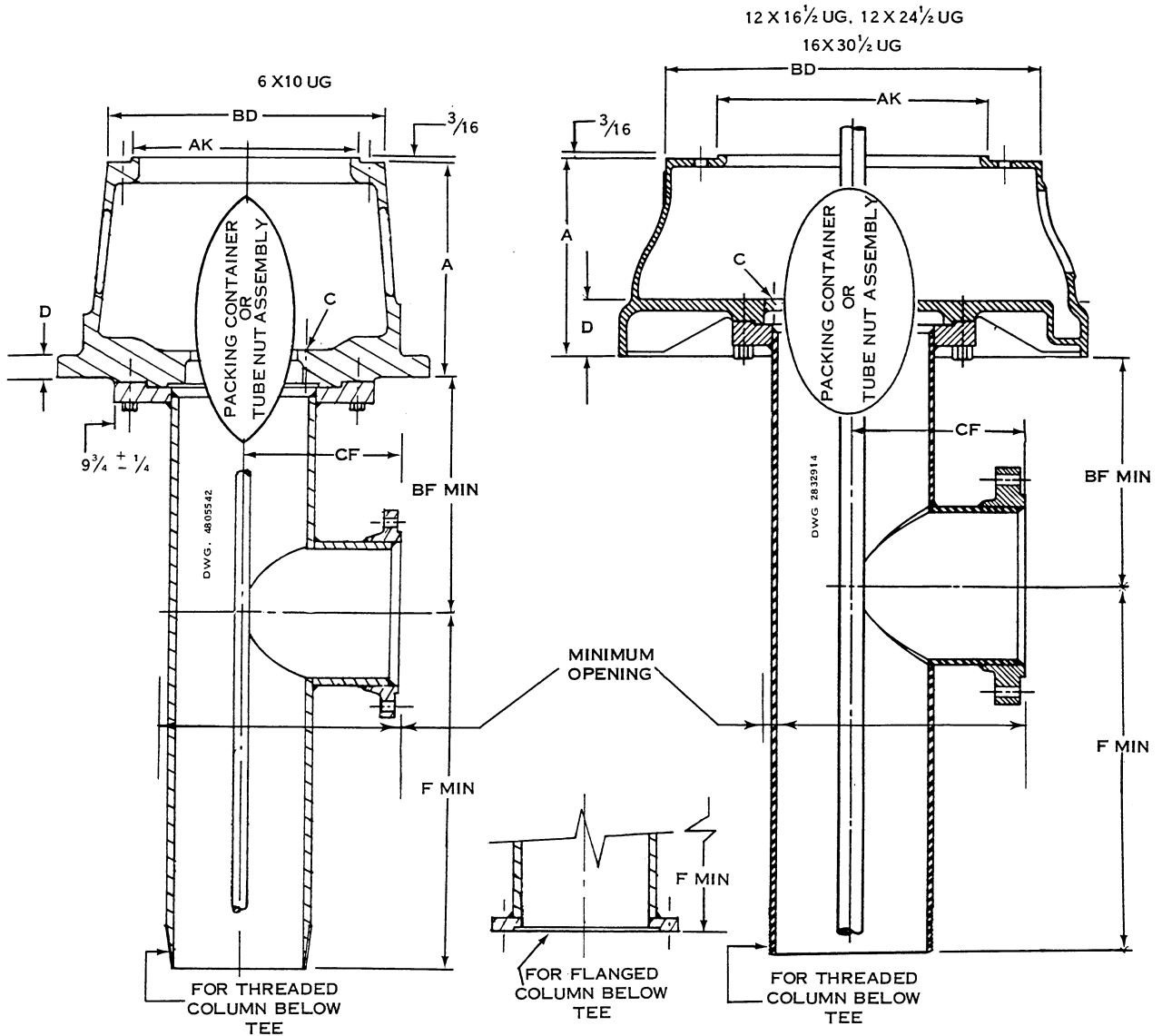
Notes: 1. The 4x4x10C and CHP heads are threaded for 4 inch column. All other sizes are machined for top column flanges.

2. Maximum operating pressures are:
 Type C 125 Lb. Discharge Flange - **200 psi**
 Type CHP 250 Lb. Discharge Flange - **400 psi**

3. Maximum suction pressure for ANSI flange mounted pump is **100 psi**

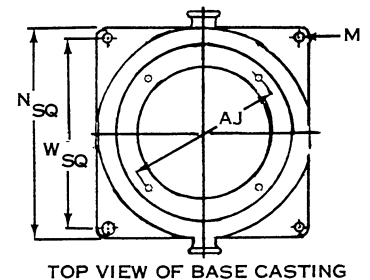
VERTICAL TURBINE PUMPS
Type UG
Cast Iron Underground Discharge Heads

STANDARD - 150# RF DISCHARGE FLANGE



GENERAL DIMENSIONS ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED

COLUMN PIPE SIZE	4"	5"	6"	8"	10"	12"	14"	16"
BF - MINIMUM	8 1/2	9 1/2	10	11	13	14	16	17
CF - DIMENSION	5 1/2	5 1/2	6	9	10	10 1/2	14	15
F MIN	FLANGED	8	9	10	11	14	14	15
	THREADED	12	15	18	24	30	30	31
MINIMUM OPENING	12 1/2	12 1/2	14	19	21	25	27 1/2	31



BASE SIZE	A	D	① C NPT	N	W	M	AK	AJ	BD	TOP SHAFT		COLUMN ②	
										MIN.	MAX.	MIN.	MAX.
6X10UG	7 15/16	3/4	1/2	13 1/2	10 1/2	1 1/16	8 1/4	9 1/8	10	3/4	1 3/16	4	6
12X16 1/2 UG	13 3/16	3 3/4	1"	23	19	7/8	13 1/2	14 3/4	18	1	1 1/2	4	12
12X24 1/2 UG	15 3/16	3 3/4	1"	31	26	1"	13 1/2	14 3/4	25	1 1/16	2 3/16	6	12
16X30 1/2 UG	17 1/16	4 1/2	1"	38	32	1"	22	26	30 1/4	1 15/16	2 7/16	10	16

- ① THIS PIPE TAP IS FOR CONNECTION OF AIR AND VACUUM VALVE TO VENT COLUMN OF AIR.
- ② COLUMN ABOVE TEE MUST BE FLANGED. COLUMN BELOW TEE CAN BE THREADED OR FLANGED.

Subject to change without notice

Top Column Flange Data
for Type S & SHP
Standard Cast Iron Head

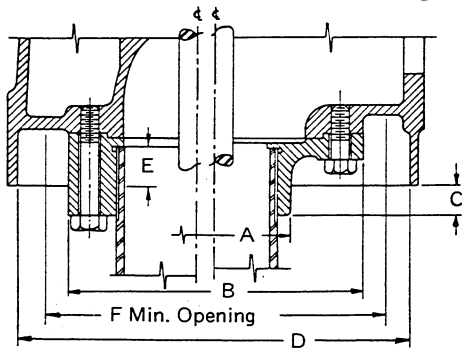


Fig. 1

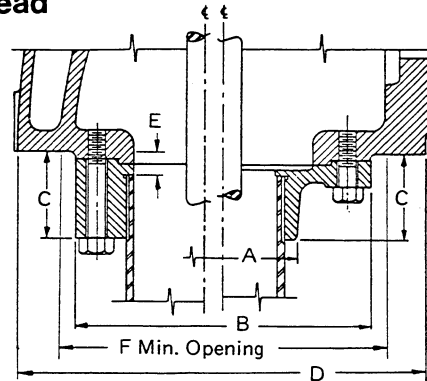


Fig. 2

DWG. NO. 2828122

Column	Fig.	A	B	C	D	E	F
6 x 6 x 12S							
3Std.	2	4-3/8	9-3/4	1-1/2	15Sq.		
4Std.	2	5-3/8	9-3/4	1-1/2	15Sq.	13/16	11
5Std.	2	①	9-3/4	3-1/4	15Sq.		
6Std.	2	①	9-3/4	3-1/4	15Sq.		
6 x 8 x 16½S							
4Std.	2	5-1/2	12	1-15/16	20Sq.		
5Std.	2	6-9/16	12	1-15/16	20Sq.	7/8	13-1/4
6Std.	2	7-5/8	12	1-15/16	20Sq.		
8Std.	2	①	12	3-5/8	20Sq.		
8 x 8 x 12S							
4Std.	2	5-1/2	12	1-15/16	17Sq.		
5Std.	2	6-9/16	12	1-15/16	17Sq.	7/8	13-1/4
6Std.	2	7-5/8	12	1-15/16	17Sq.		
8Std.	2	①	12	3-5/8	17Sq.		
8 x 8 x 16½S							
4Std.	2	5-1/2	12	1-15/16	20Sq.		
5Std.	2	6-9/16	12	1-15/16	20Sq.	15/16	13-1/4
6Std.	2	7-5/8	12	1-15/16	20Sq.		
8Std.	2	①	12	3-5/8	20Sq.		

Column	Fig.	A	B	C	D	E	F
10 x 10 x 16½S and 10 x 10 x 20S							
4Std.	2	5-1/2	14	1-15/16	20Sq.		
5Std.	2	6-9/16	14	1-15/16	20Sq.	15/16	15-1/4
6Std.	2	7-5/8	14	1-15/16	20Sq.		
8Std.	2	9-5/8	14	1-15/16	20Sq.		
10Std.	2	①	14	4-3/8	20Sq.		
12 x 12 x 20S							
5Std.	2	6-9/16	16-1/4	2-1/16	23Sq.		
6Std.	2	7-7/8	16-1/4	2-1/16	23Sq.		
8Std.	2	9-7/8	16-1/4	2-1/16	23Sq.	1	17-1/2
10Std.	2	12-1/4	16-1/4	2-1/16	23Sq.		
12Std.	2	16-1/4	16-1/4	4-5/16	23Sq.		
14 x 14 x 24½S							
10Std.	2	12-1/4	18	2	28Sq.		
12Std.	2	18	18	5-1/4	28Sq.	7/8	19-1/4
14Std.	2	18	18	5-3/4	28Sq.		
16 x 16 x 30½S							
10Std.	1	12-1/4	20	2	36¾Sq.		
12Std.	1	14-1/4	20	2	36¾Sq.	1-1/2	21-1/4
14O.D.	1	15-1/2	20	2	36¾Sq.		
16O.D.	1	①	20	2-3/4	36¾Sq.		

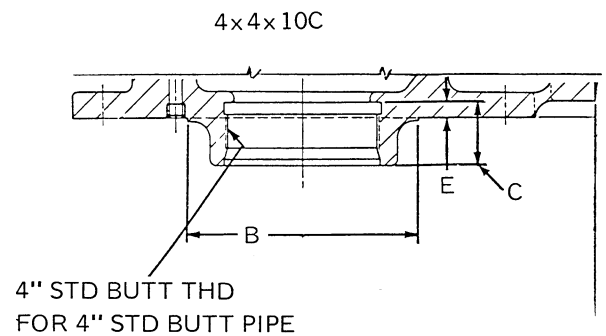
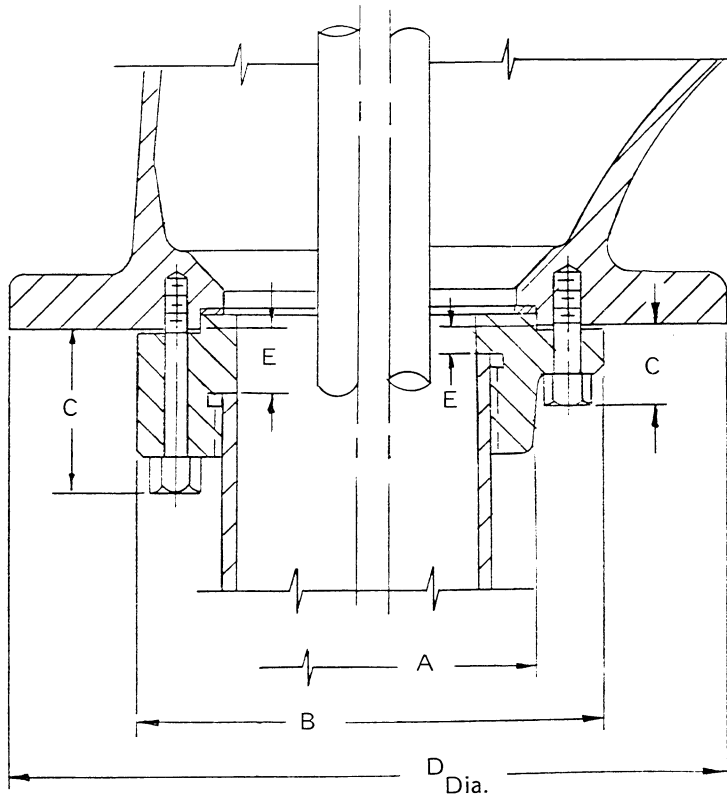
① Construction of top column flange is as shown on left half drawing. Use B dimension only.

② E dimension is the distance from end of column pipe to bottom of discharge head.

③ Dimensions A & B are "AS CAST"; 1/4" minimum allowance must be made for casting variation.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED

**Top Column Flange Data
for Type C and CHP
Round Base Cast Iron Discharge Heads**

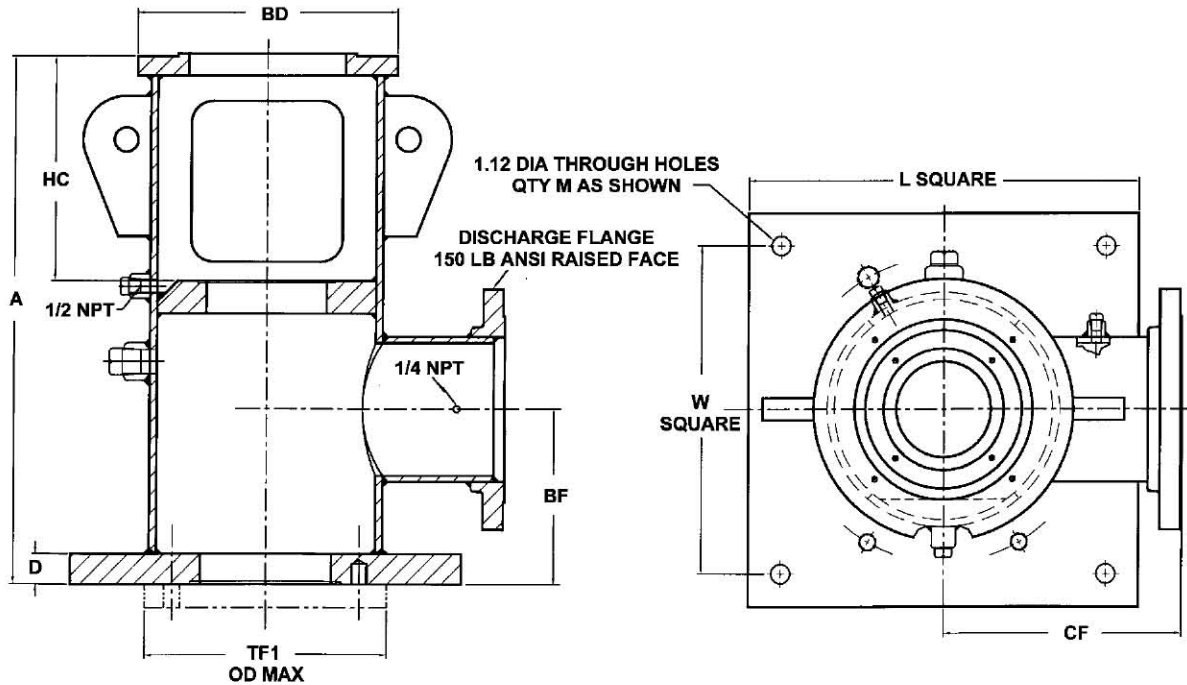


Head Size	Column Size	A ③	B ③	C	D Dia.	E ②
4x4x10C	3Std.	①	7 ³ / ₄	1-13/16	13.5	13/16
	4Std.		7 ³ / ₄	1-13/16	13.5	13/16
4x6x12C 6x6x12C	5Std.	①	9 ³ / ₄	3-1/4	16	5/8
	6Std.		9 ³ / ₄	3-1/4	16	5/8
6x8x16 ¹ / ₂ C 8x8x12C 8x8x16 ¹ / ₂ C	6Std.	7-5/8	12	1-7/8	25	5/8
	8Std.	①	12	3-5/8	25	1/2
10x10x20C	8Std.	9-5/8	14	1-3/4	25	7/8
	10Std.	①	14	4-1/4	27-1/2	3/4
12x12x20C	10Std.	12-1/4	16.25	1-3/4	27-1/2	7/8
	12Std.	①	16.25	4-5/16	27-1/2	13/16

- ① Construction of top column flange is as shown on left half drawing. Use B dimension only.
- ② E dimension is the distance from end of column pipe to bottom of discharge head.
- ③ Dimensions A & B are "AS CAST"; 1/4" minimum allowance must be made for casting variation.

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED

VERTICAL TURBINE PUMPS
Discharge Heads
Type FA Square Base



All dimensions are in inches

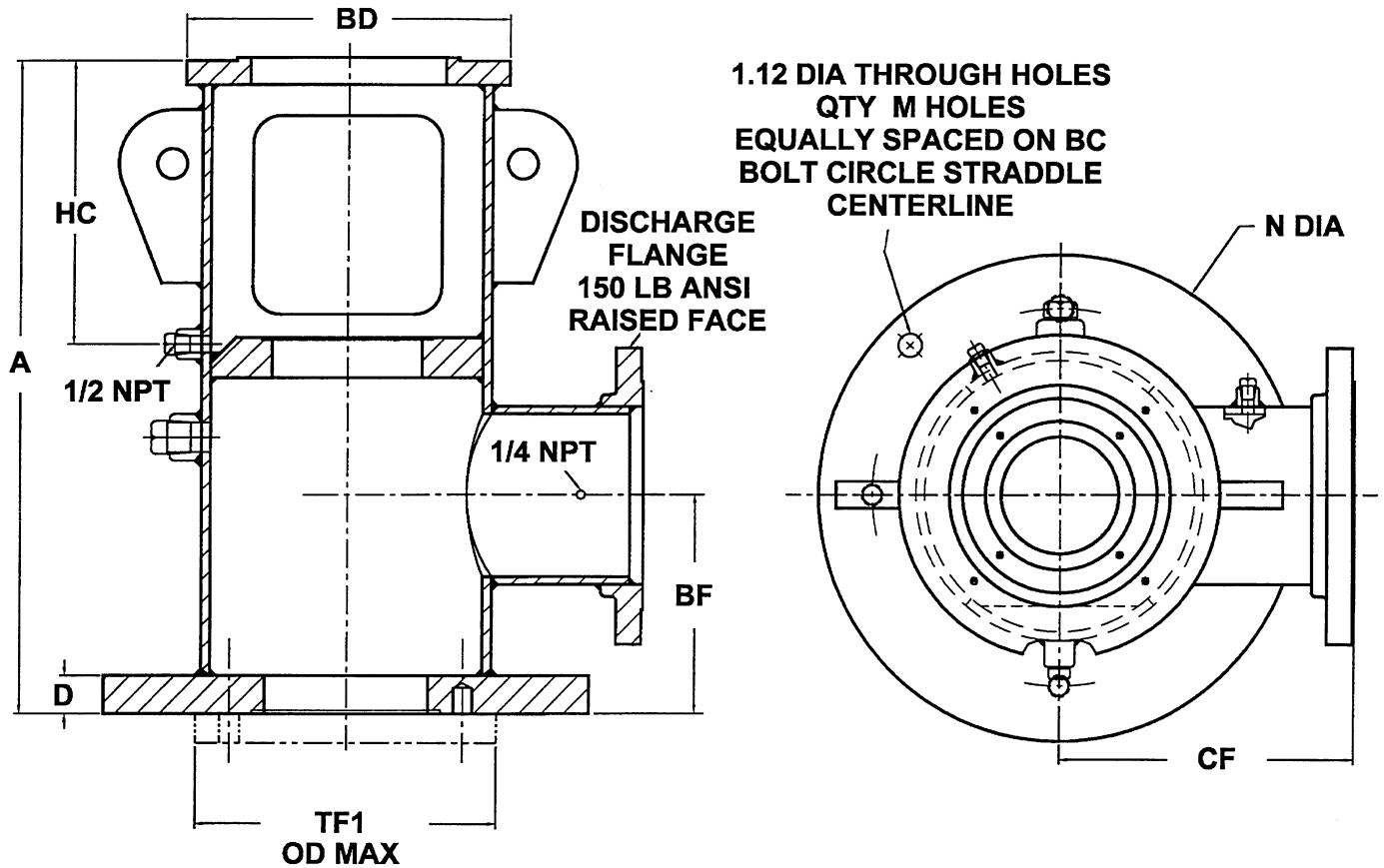
Type FA Fabricated Head Dimensional Data

Discharge Head Size	VHS Discharge Head				VSS Discharge Head				VHS And VSS Discharge Heads			VHS And VSS Base Plates				Nominal Column Size	Top Flange OD Max TF1
	VHS Head Part No.	Overall Height	Stand Height	VHS Wt Lb.	VSS Head Part Number	Overall Height	Stand Height	VSS Wt Lb.	Motor	Nozzle Height	Head Width	Base Square L	Bolt Hole Square W	Hole Qty M	Thick D		
		A	HC			A	HC										
6X6X12 FA	4604130H	27.12	14.19	281	4604130S	34.81	22.00	298	12.00	7.50	11.75	18.00	15.00	4	1.38	6.00	9.69
6X6X16.5 FA	4604131H	27.06	14.19	398	4604131S	36.25	23.50	430	16.50	7.50	11.75	20.00	17.00	4	1.38	6.00	9.69
8X8X12 FA	4604132H	30.12	14.25	397	4604132S	37.56	22.00	413	12.00	9.50	13.00	22.00	19.00	4	1.62	8.00	12.31
8X8X16.5 FA	4604133H	30.50	14.25	486	4604133S	39.00	23.50	516	16.50	9.50	13.00	22.00	19.00	4	1.62	8.00	12.31
10X10X16.5 FA	4604134H	35.44	17.00	758	4604134S	43.12	24.50	783	16.50	11.00	15.00	24.00	21.00	4	1.62	10.00	14.50
10X10X20 FA	4604135H	35.44	17.00	808	4604135S	44.94	26.50	833	20.00	11.00	15.00	24.00	21.00	4	1.62	10.00	14.50
12X12X16.5 FA	4604136H	37.94	17.00	613	4604136S	45.62	24.50	638	16.50	12.50	16.00	24.00	21.00	4	1.62	12.00	17.06
12X12X20 FA	4604137H	37.94	17.00	783	4604137S	47.44	26.50	809	20.00	12.50	16.00	28.00	25.00	4	1.62	12.00	17.06
14X14X20 FA	4604138H	39.19	17.00	891	4604138S	48.69	26.50	917	20.00	13.00	18.50	30.00	27.00	4	1.62	14.00	18.31
14X14X24.5 FA	4604139H	39.19	17.00	1111	4604139S	53.81	31.00	1147	24.50	13.00	18.50	30.00	27.00	4	1.62	14.00	18.31
16X16X20 FA	4604140H	42.56	17.00	936	4604140S	52.06	26.50	962	20.00	15.00	18.50	30.00	27.00	4	1.62	16.00	20.31
16X16X24.5 FA	4604141H	42.81	17.00	1156	4604141S	56.81	31.00	1192	24.50	15.00	18.50	30.00	27.00	4	1.62	16.00	20.31
16X16X30.5 FA	4604142H	43.19	17.50	1654	4604142S	57.69	32.00	1700	30.50	15.00	21.00	36.00	33.00	4	1.62	16.00	20.31
18X18X24.5 FA	4604143H	44.31	17.50	1416	4604143S	58.81	32.00	1449	24.50	15.00	22.00	36.00	33.00	8	1.62	18.00	23.31
18X18X30.5 FA	4604144H	45.19	17.50	1722	4604144S	58.69	32.00	1768	30.50	15.00	22.00	36.00	33.00	8	1.62	18.00	23.31
20X20X24.5 FA	4604145H	47.31	17.50	1653	4604145S	61.81	32.00	1687	24.50	17.00	23.00	36.00	33.00	8	2.25	20.00	25.31
20X20X30.5 FA	4604146H	47.19	17.50	1960	4604146S	61.69	32.00	2006	30.50	17.00	23.00	36.00	33.00	8	2.25	20.00	25.31
24X24X24.5 FA	4604147H	51.19	17.50	2058	4604147S	65.89	32.00	2092	24.50	19.00	25.00	42.00	39.00	8	2.25	24.00	29.69

Subject to change without notice

Drawing No. 4853842

Rev 6-99



All dimensions are in inches

FR Fabricated Discharge Head Dimensional Data ①

Discharge Head Size	VHS Discharge Head												
	Head Part No.	Nominal Column Size	VHS Weight Lb.	Overall Height	Stand Height	Motor	Nozzle Height	Head Width	Base Dia.	Hole Qty	Thick	Bolt Hole	Top Flange Max OD
	A	HC	BD	BF ②	CF ②	N	M	D	BC	TF1			
16X16X20 FR	4604170H	16	912	42.56	17.00	20.00	15.00	18.50	32.00	4	1.62	29.50	20.31
16X16X24.5 FR	4604171H	16	1151	42.81	17.00	24.50	15.00	18.50	32.00	4	1.62	29.50	20.31
16X16X30.5 FR	4604172H	16	1610	43.19	17.50	30.50	15.00	21.00	36.50	4	1.62	34.00	20.31
18X18X24.5 FR	4604173H	18	1321	44.31	17.50	24.50	15.00	22.00	36.50	8	1.62	34.00	23.31
18X18X30.5 FR	4604174H	18	1626	44.19	17.50	30.50	15.00	22.00	36.50	8	1.62	34.00	23.31
20X20X24.5 FR	4604175H	20	1531	47.31	17.50	24.50	17.00	23.00	36.50	8	2.25	34.00	25.31
20X20X30.5 FR	4604176H	20	1838	47.19	17.50	30.50	17.00	23.00	36.50	8	2.25	34.00	25.31
24X24X24.5 FR	4604177H	24	1562	50.31	17.50	24.50	19.00	25.00	36.50	8	2.25	34.00	29.69
24X24X30.5 FR	4604178H	24	1878	50.19	17.50	30.50	19.00	25.00	36.50	8	2.25	34.00	29.69

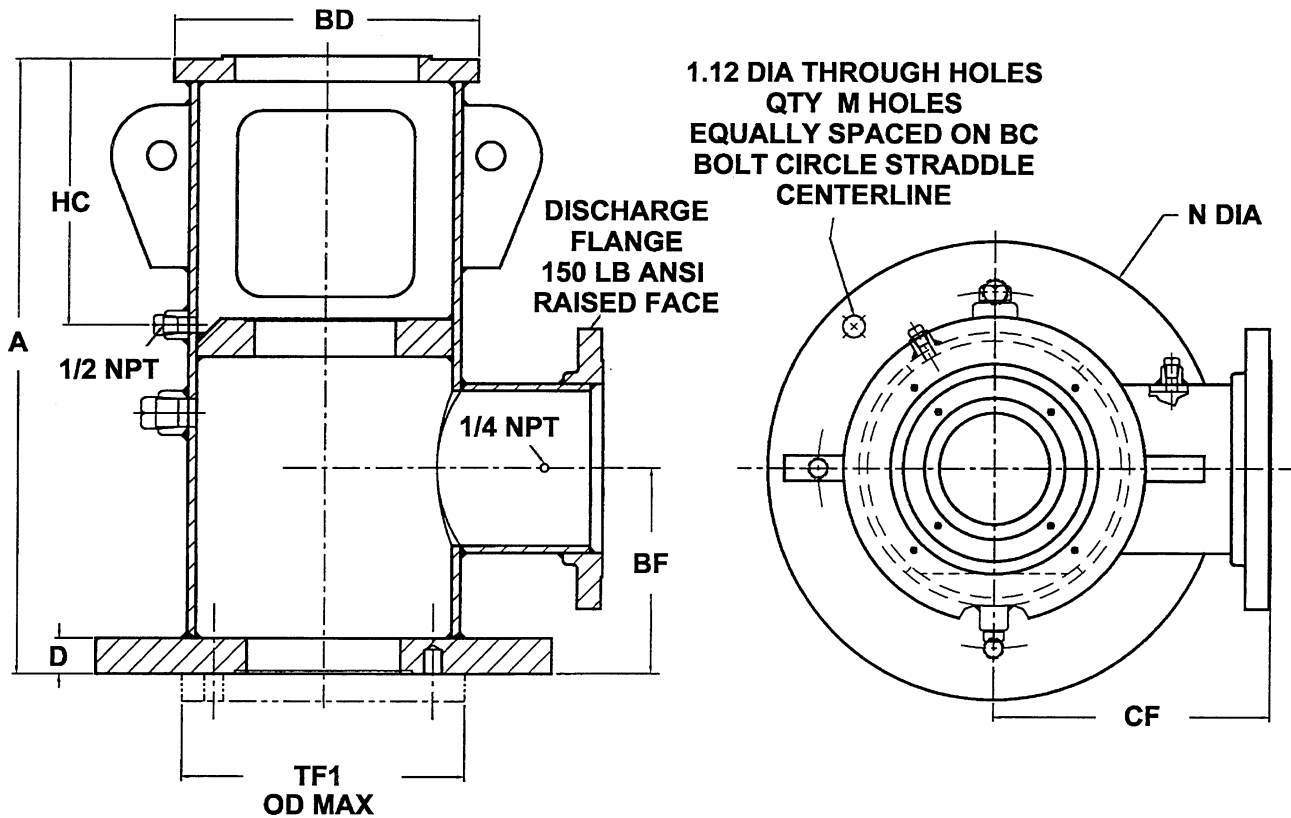
① FR heads do not have ANSI drilled base plates, for this option refer to factory for price addition.

② For 3 Piece segmented elbows refer to the factory for these dimensions

Subject to change without notice

Drawing No. 4853844

VERTICAL TURBINE PUMPS
VSS Discharge Heads
Type FR Round Base



All dimensions are in inches

FR Fabricated Discharge Head Dimensional Data ①

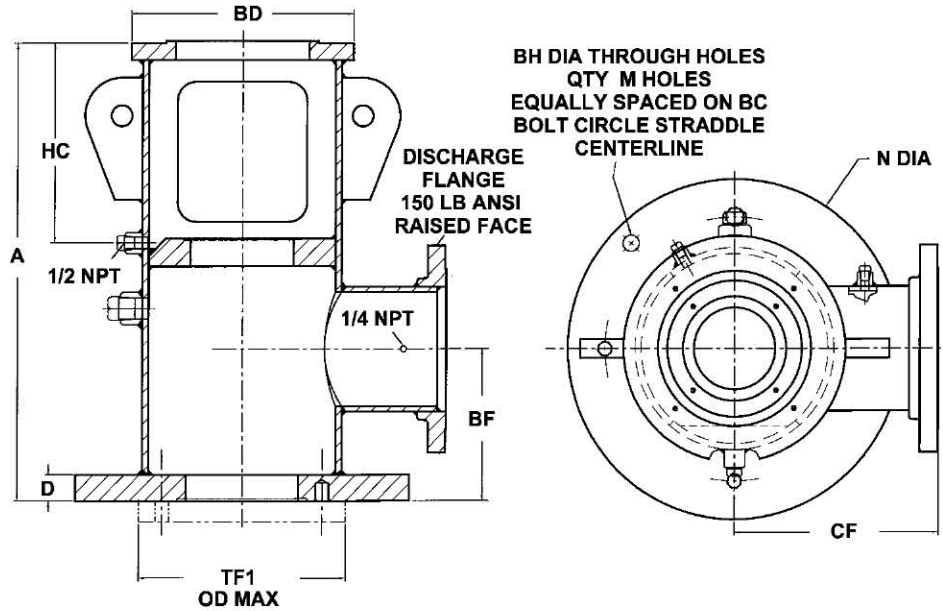
Discharge Head Size	VSS Discharge Head												
	Head Part No.	Nominal Column Size	VSS Weight Lb.	Overall Height	Stand Height	Motor	Nozzle Height	Head Width	Base Dia.	Hole Qty	Thick	Bolt Hole	Top Flange Max OD
	A	HC	BD	BF ②	CF ②	N	M	D	BC	TF1			
16X16X20 FR	4604170S	16	967	52.06	26.50	20.00	15.00	18.50	32.00	4	1.62	29.50	20.31
16X16X24.5 FR	4604171S	16	1260	56.81	31.00	24.50	15.00	18.50	32.00	4	1.62	29.50	20.31
16X16X30.5 FR	4604172S	16	1752	57.69	32.00	30.50	15.00	21.00	36.50	4	1.62	34.00	20.31
18X18X24.5 FR	4604173S	18	1434	58.81	32.00	24.50	15.00	22.00	36.50	8	1.62	34.00	23.31
18X18X30.5 FR	4604174S	18	1768	58.69	32.00	30.50	15.00	22.00	36.50	8	1.62	34.00	23.31
20X20X24.5 FR	4604175S	20	1644	61.81	32.00	24.50	17.00	23.00	36.50	8	2.25	34.00	25.31
20X20X30.5 FR	4604176S	20	1980	61.69	32.00	30.50	17.00	23.00	36.50	8	2.25	34.00	25.31
24X24X24.5 FR	4604177S	24	1683	65.81	32.00	24.50	19.00	25.00	36.50	8	2.25	34.00	29.69
24X24X30.5 FR	4604178S	24	2029	65.69	32.00	30.50	19.00	25.00	36.50	8	2.25	34.00	29.69

① FR heads do not have ANSI drilled base plates, for this option refer to factory for price addition.

② For 3 Piece segmented elbows refer to the factory for these dimensions



VERTICAL TURBINE PUMPS
VHS Discharge Heads
Type FRA ANSI Flange Base



All dimensions are in inches

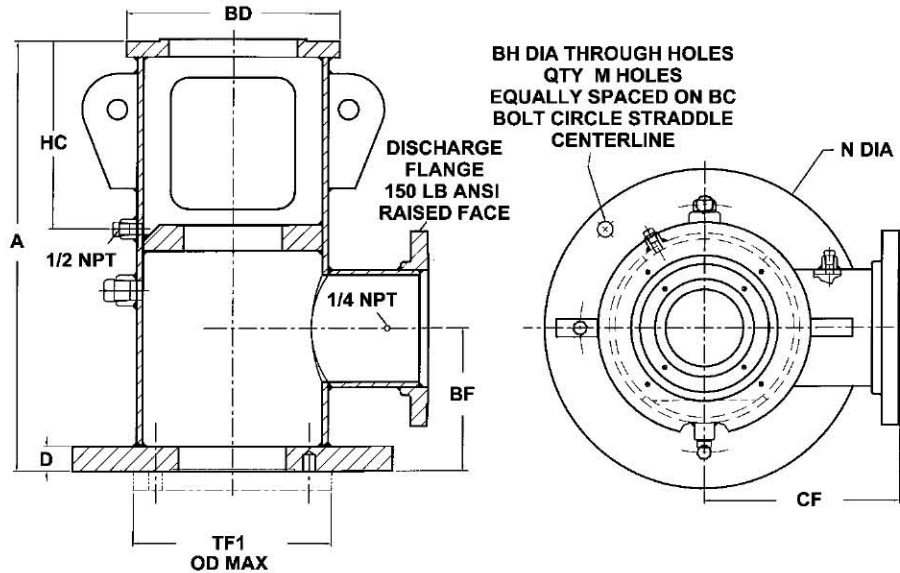
FRA Fabricated Discharge Head Dimensional Data

Discharge Head Size	VHS Discharge Head													
	Head Part No.	Nominal Column Size	VHS Wgt. Lb.	Overall Height A	Stand Height HC	Motor BD	Nozzle Height BF ①	Head Width CF ①	Base Dia. N	Hole Qty M	Thick D	Bolt Hole BC	Bolt Hole BH	Top Flange OD Max TF1
6X6X12 FRA12	4604149H	6	308	28.50	14.19	12.00	9.00	13.00	19.00	12	1.38	17.00	1.00	9.69
6X6X12 FRA14	4604150H	6	339	28.50	14.19	12.00	9.00	13.00	21.00	12	1.38	18.75	1.12	9.69
6X6X16.5 FRA14	4604151H	6	430	28.50	14.25	16.50	9.00	13.00	21.00	12	1.38	18.75	1.12	9.69
6X6X16.5 FRA16	4604152H	6	507	28.50	14.25	16.50	9.00	13.00	23.50	16	1.62	21.25	1.12	9.69
8X8X12 FRA16	4604153H	8	429	30.50	14.25	12.00	10.00	15.00	23.50	16	1.62	21.25	1.12	12.31
8X8X12 FRA18	4604154H	8	463	30.50	14.25	12.00	10.00	15.00	25.00	16	1.62	22.75	1.25	12.31
8X8X16.5 FRA16	4604155H	8	522	30.50	14.25	16.50	10.00	15.00	23.50	16	1.62	21.25	1.12	12.31
8X8X16.5 FRA18	4604156H	8	555	30.50	14.25	16.50	10.00	15.00	25.00	16	1.62	22.75	1.25	12.31
8X8X16.5 FRA20	4604157H	8	615	30.50	14.25	16.50	10.00	15.00	27.50	20	1.62	25.00	1.25	12.31
10X10X16.5 FRA18	4604158H	10	588	36.31	17.00	16.50	11.50	16.00	25.00	16	1.62	22.75	1.25	14.50
10X10X16.5 FRA20	4604159H	10	647	36.31	17.00	16.50	11.50	16.00	27.50	20	1.62	25.00	1.25	14.50
10X10X20 FRA18	4604160H	10	655	36.31	17.00	20.00	11.50	16.00	25.00	16	1.62	22.75	1.25	14.50
10X10X20 FRA20	4604161H	10	714	36.31	17.00	20.00	11.50	16.00	27.50	20	1.62	25.00	1.25	14.50
12X12X16.5 FRA18	4604162H	12	607	37.94	17.00	16.50	12.50	16.50	25.00	16	1.62	22.75	1.25	17.06
12X12X16.5 FRA20	4604163H	12	667	37.94	17.00	16.50	12.50	16.50	27.50	20	1.62	25.00	1.25	17.06
12X12X20 FRA20	4604164H	12	733	37.94	17.00	20.00	12.50	16.50	27.50	20	1.62	25.00	1.25	17.06
12X12X20 FRA24	4604165H	12	855	37.94	17.00	20.00	12.50	16.50	32.00	20	1.62	29.50	1.38	17.06
14X14X20 FRA20	4604166H	14	770	39.56	17.00	20.00	13.50	19.00	27.50	20	1.62	25.00	1.25	18.31
14X14X20 FRA24	4604167H	14	892	39.56	17.00	20.00	13.50	19.00	32.00	20	1.62	29.50	1.38	18.31
14X14X24.5 FRA20	4604168H	14	951	39.81	17.00	24.50	13.50	19.00	27.50	20	1.62	25.00	1.25	18.31
14X14X24.5 FRA24	4604169H	14	1129	39.81	17.00	24.50	13.50	19.00	32.00	20	1.62	29.50	1.38	18.31

① For 3 Piece segmented elbows refer to the factory for these dimensions

Subject to change without notice

VERTICAL TURBINE PUMPS
VSS Discharge Heads
Type FRA ANSI Flange Base



All dimensions are in inches

FRA Fabricated Discharge Head Dimensional Data

Discharge Head Size	VSS Discharge Head													
	Head Part No.	Nominal Column Size	VSS Wt. Lb.	Overall Height	Stand Height	Motor	Nozzle Height	Head Width	Base Dia.	Hole Qty	Thick	Bolt Hole	Bolt Hole	Top Flange OD Max.
	A	HC	BD	BF	CF	N	M	D	BC	BH	TF1			
6X6X12 FRA12	4604149S	6	334	36.50	22.00	12.00	9.00	13.00	19.00	12	1.38	17.00	1.00	9.69
6X6X12 FRA14	4604150S	6	365	36.50	22.00	12.00	9.00	13.00	21.00	12	1.38	18.75	1.12	9.69
6X6X16.5 FRA14	4604151S	6	478	38.00	23.50	16.50	9.00	13.00	21.00	12	1.38	18.75	1.12	9.69
6X6X16.5 FRA16	4604152S	6	555	38.00	23.50	16.50	9.00	13.00	23.50	16	1.62	21.25	1.12	9.69
8X8X12 FRA16	4604153S	8	456	38.50	22.00	12.00	10.00	15.00	23.50	16	1.62	21.25	1.12	12.31
8X8X12 FRA18	4604154S	8	490	38.50	22.00	12.00	10.00	15.00	25.00	16	1.62	22.75	1.25	12.31
8X8X16.5 FRA16	4604155S	8	571	40.00	23.50	16.50	10.00	15.00	23.50	16	1.62	21.25	1.12	12.31
8X8X16.5 FRA18	4604156S	8	604	40.00	23.50	16.50	10.00	15.00	25.00	16	1.62	22.75	1.25	12.31
8X8X16.5 FRA20	4604157S	8	664	40.00	23.50	16.50	10.00	15.00	27.50	20	1.62	25.00	1.25	12.31
10X10X16.5 FRA18	4604158S	10	627	44.00	24.50	16.50	11.50	16.00	25.00	16	1.62	22.75	1.25	14.50
10X10X16.5 FRA20	4604159S	10	687	44.00	24.50	16.50	11.50	16.00	27.50	20	1.62	25.00	1.25	14.50
10X10X20 FRA18	4604160S	10	710	45.81	26.50	20.00	11.50	16.00	25.00	16	1.62	22.75	1.25	14.50
10X10X20 FRA20	4604161S	10	769	45.81	26.50	20.00	11.50	16.00	27.50	20	1.62	25.00	1.25	14.50
12X12X16.5 FRA18	4604162S	12	647	45.62	24.50	16.50	12.50	16.50	25.00	16	1.62	22.75	1.25	17.06
12X12X16.5 FRA20	4604163S	12	706	45.62	24.50	16.50	12.50	16.50	27.50	20	1.62	25.00	1.25	17.06
12X12X20 FRA20	4604164S	12	788	47.44	26.50	20.00	12.50	16.50	27.50	20	1.62	25.00	1.25	17.06
12X12X20 FRA24	4604165S	12	910	47.44	26.50	20.00	12.50	16.50	32.00	20	1.62	29.50	1.38	17.06
14X14X20 FRA20	4604166S	14	826	49.06	26.50	20.00	13.50	19.00	27.50	20	1.62	25.00	1.25	18.31
14X14X20 FRA24	4604167S	14	947	49.06	26.50	20.00	13.50	19.00	32.00	20	1.62	29.50	1.38	18.31
14X14X24.5 FRA20	4604168S	14	1060	53.81	31.00	24.50	13.50	19.00	27.50	20	1.62	25.00	1.25	18.31
14X14X24.5 FRA24	4604169S	14	1238	53.81	31.00	24.50	13.50	19.00	32.00	20	1.62	29.50	1.38	18.31

① For 3 Piece segmented elbows refer to the factory for these dimensions

Subject to change without notice

Drawing No. 4853846

Rev 6-99

Type CL

Fabricated Steel Flange Mounted Discharge Assemblies

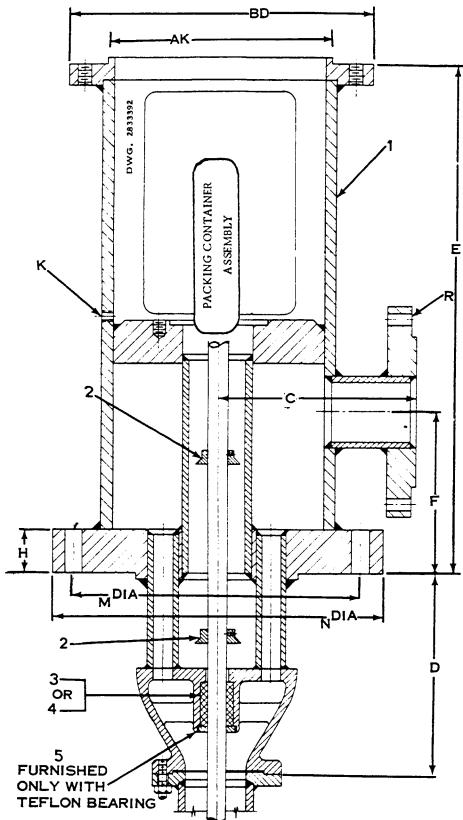
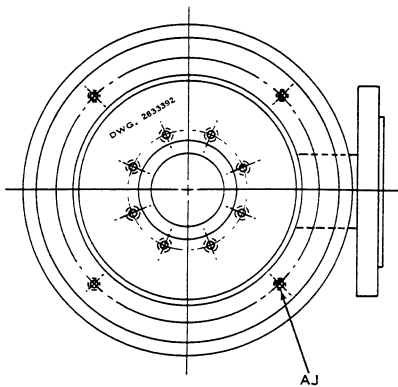
Open Lineshaft Construction and VSS Drivers

GENERAL DIMENSIONS ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED

ASSEMBLY SIZE	BD	AK	AJ			C	D	E	F	H	K NPT	M (1)			N	P NPT	R (1)		
			NC	HOLES	BC							DIA	HOLES	BC			DIA	HOLES	BC
4 X 4 X 12 CL	12	8 1/4	3/8-16	4	9 1/8	10	12 1/2	34 7/8	11	1 1/8	1/4	1	12	14 1/4	16	1/2	3/4	8	7 1/2
4 X 4 X 16 1/2 CL	16 1/2	13 1/2	3/8-11	4	14 3/4	10	12 1/2	34 7/8	11	1 1/4	1/4	1	12	17	19	1/2	3/4	8	7 1/2
6 X 6 X 16 1/2 CL	16 1/2	13 1/2	3/8-11	4	14 3/4	10	16	34 7/8	8 1/16	1 1/8	1/4	1 1/8	16	21 1/4	23 1/2	1/2	3/4	8	9 1/2

K=DRAIN HOLE
P=DRY AIR CONNECTION (REQ'D FOR PUMPING CHLORINE)

(1) HOLES ARE STRADDLE CENTERLINE



PARTS LIST (STANDARD CONSTRUCTION)

ITEM NO.	NAME	MATERIAL
1	HEAD, DISCHARGE	STEEL, FABRICATED
2	RING, TOP SHAFT SEAL (2 REQ'D)	STEEL
(OPTIONAL) BEARINGS FOR DISCHARGE HEAD (1 REQ'D)		
3	BEARING, SHAFT	CARBON, GRAPHITAR # 80
3	BEARING, SHAFT	TEFLON, 15% CARBON FILLED
4	BEARING, SLEEVE	SAE 660 BRONZE
BEARING RETAINING LOCK RING FOR TEFLON BEARING ONLY		
5	RING, BEARING RETAINING LOCK	MONEL

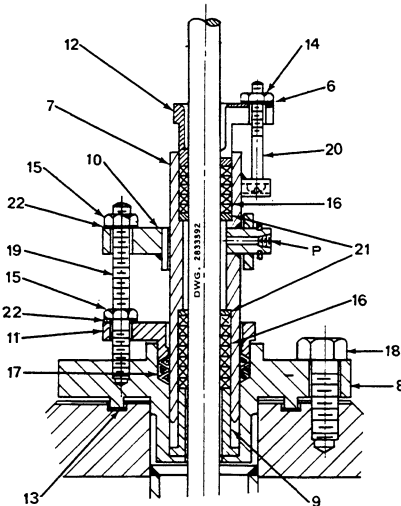
PACKING CONTAINER ASSEMBLY (DOUBLE TYPE)

6	CLAMP, PACKING GLAND	302 STAINLESS STEEL
7	CONTAINER, INNER PACKING	STEEL, FABRICATED (CAD PLATED)
8	CONTAINER, OUTER PACKING	STEEL, FABRICATED
9	FOLLOWER, PACKING	MONEL
10	GLAND, BOLTED TYPE PACKING	STEEL, FABRICATED (CAD PLATED)
11	GLAND, SOLID TYPE PACKING	STEEL, FABRICATED (CAD PLATED)
12	GLAND, SPLIT TYPE PACKING	CAST STEEL
13	GASKET, PACKING CONTAINER	TEFLON
14	NUT, HEXAGONAL	18-8 STAINLESS STEEL
15	NUT, HEXAGONAL	STEEL
16	PACKING	SYNTHETIC FIBER, TEFLON LUBRICATED
17	PACKING	TEFLON
18	SCREW, HEX HEAD CAP	STEEL
19	STUD, OUTER CONTAINER GLAND	STEEL
20	T-BOLT, PACKING GLAND	STEEL
21	WASHER, PACKING	MONEL
22	WASHER, PLAIN	STEEL

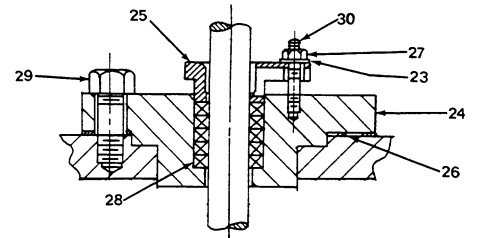
PACKING CONTAINER ASSEMBLY (SINGLE TYPE)

23	CLAMP, PACKING GLAND	302 STAINLESS STEEL
24	CONTAINER, PACKING	STEEL
25	GLAND, SPLIT TYPE PACKING	CLASS 30 CAST IRON CAD PLATED
26	GASKET, PACKING CONTAINER	VELLUMOID
27	NUT, HEXAGONAL	STEEL
28	PACKING	SYNTHETIC FIBER, TEFLON LUBRICATED
29	SCREW, HEX HEAD CAP	STEEL
30	STUD	STEEL

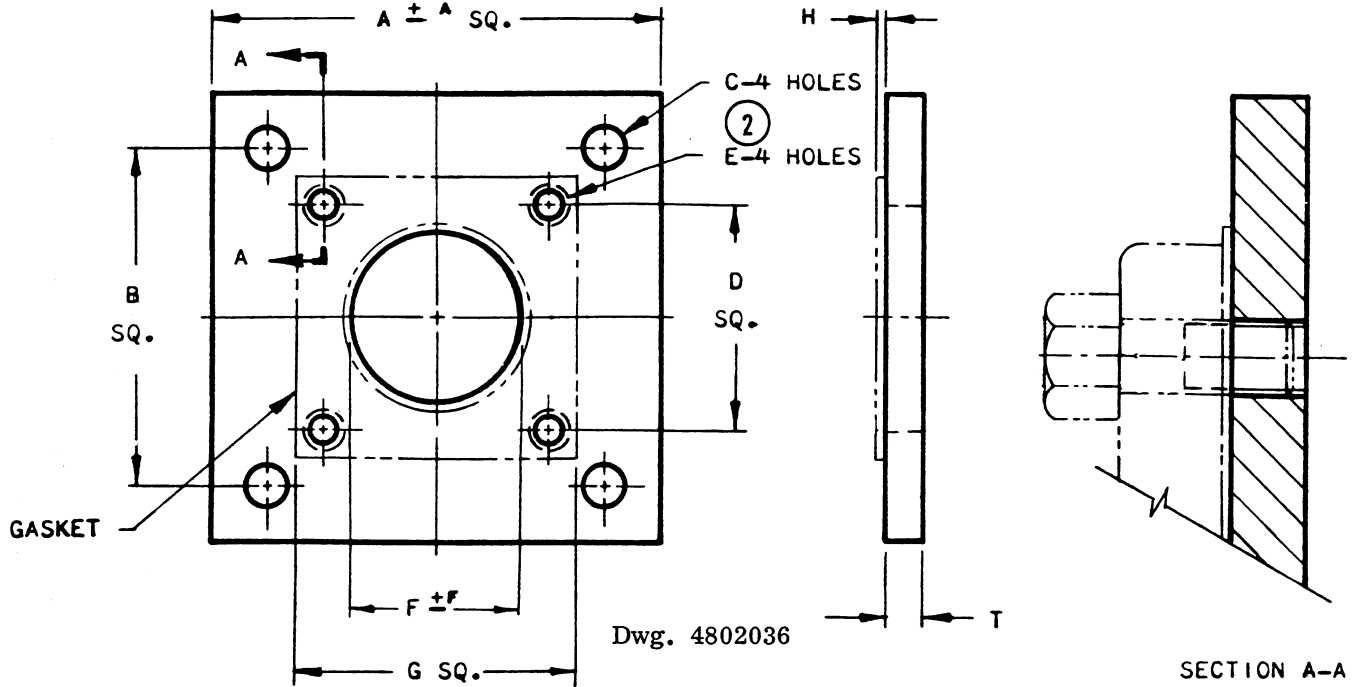
PACKING CONTAINER ASSEMBLY (DOUBLE TYPE)



PACKING CONTAINER ASSEMBLY (SINGLE TYPE)



Steel Sole Plates for Type S Cast Iron Heads



GENERAL DIMENSIONS ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED

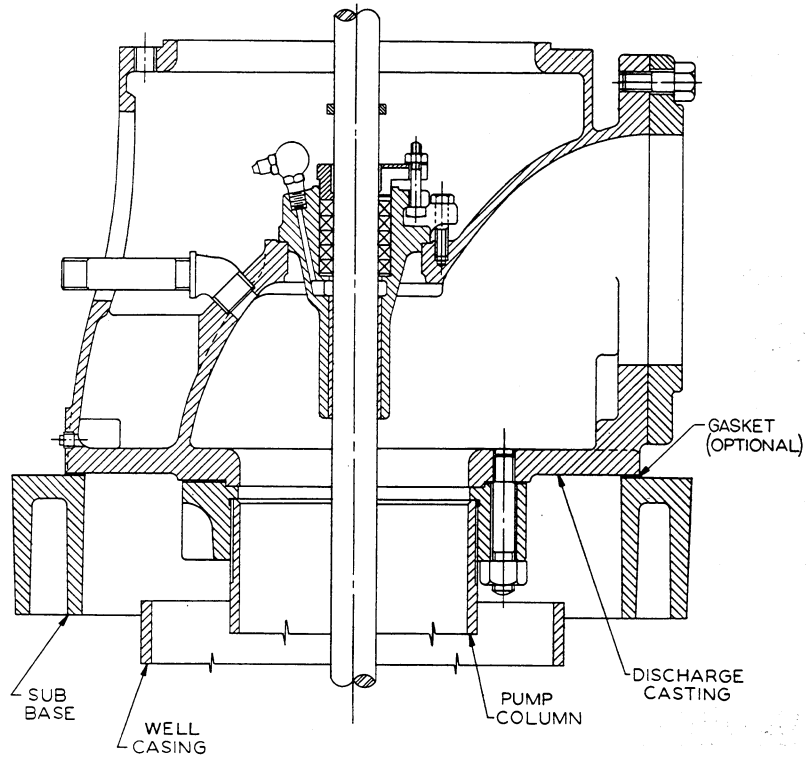
HEAD SIZE	A	B	C	D	E	F	G	H	T
2½ x 2½ x 10S	14½	13	¾	9-¼	3/8-16 UNC	9	13	1/16	1/2
2½ x 3 x 10S	14½	13	¾	9-¼	3/8-16 UNC	9	13	1/16	1/2
6 x 6 x 12S	21	18	7/8	13-¼	5/8-11 UNC	13	15-½	1/16	5/8
8 x 8 x 12S	24	21¼	7/8	15	5/8-11 UNC	14½	17-½	1/16	¾
6 x 8 x 16½S	26	23	1-1/8	18	¾-10 UNC	16½	20-½	1/16	7/8
8 x 8 x 16½S	26	23	1-1/8	18	¾-10 UNC	16½	20-½	1/16	7/8
10 x 10 x 16½S	28	25	1-1/8	18	¾-10 UNC	18	20-½	1/16	7/8
10 x 10 x 20S	28	25	1-1/8	18	¾-10 UNC	18	20-½	1/16	7/8
12 x 12 x 20S	32	29	1-¼	21	¾-10 UNC	20½	23-½	1/16	7/8
14 x 14 x 24½S	36	32	1-¼	25	¾-10 UNC	24½	28-¾	1/8	1
16 x 16 x 30½S	42	39	1-¼	32	¾-10 UNC	28	38-¾	1/8	1

NOTE: Standard soleplate is machined on one side.

Subject to change without notice

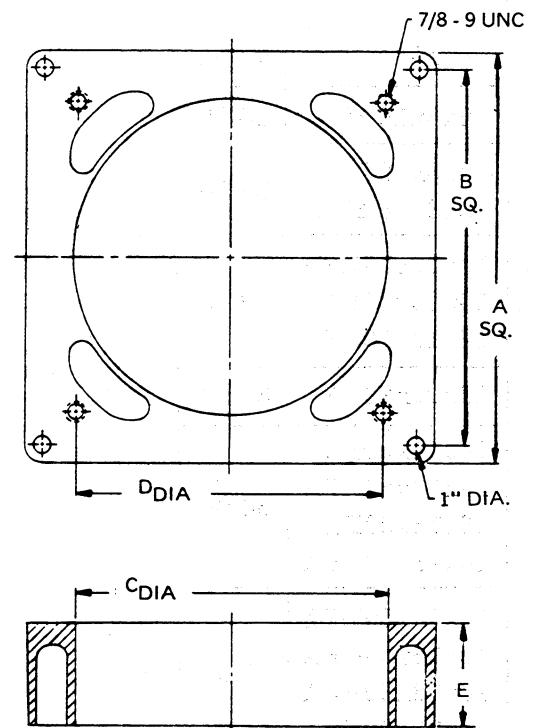


Cast Iron Sub-Base for Type S Cast Iron Heads



GENERAL DIMENSIONS ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED

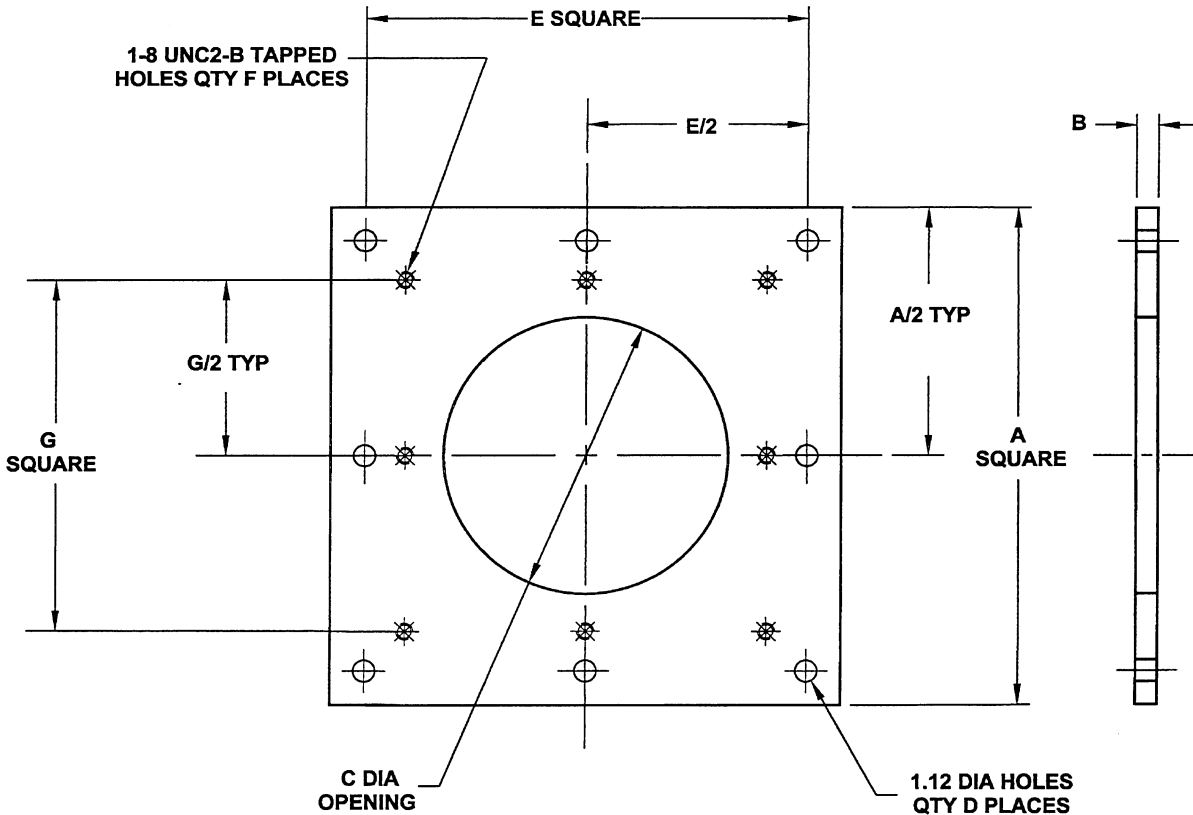
For Head Size	A	B	C	D	E	Sub Base Part No.
6x8x16½S	24	21¼	18½	18	¾	2622459
8x8x16½S	24	21¼	18½	18	¾	2622459
10x10x16½S	24	21¼	18½	18	¾	2622459
10x10x20S	24	21¼	18½	18	¾	2622459
12x12x20S	27	24	22	21	¾	2622456
14x14x24½S	32	29	26½	25	¾	2622452



Dwg. No. 2832533

Subject to change without notice

VERTICAL TURBINE PUMPS
Discharge Heads Type FA
Sole Plates



All Dimensions are in Inches

FA Sole Plates Dimensional Data

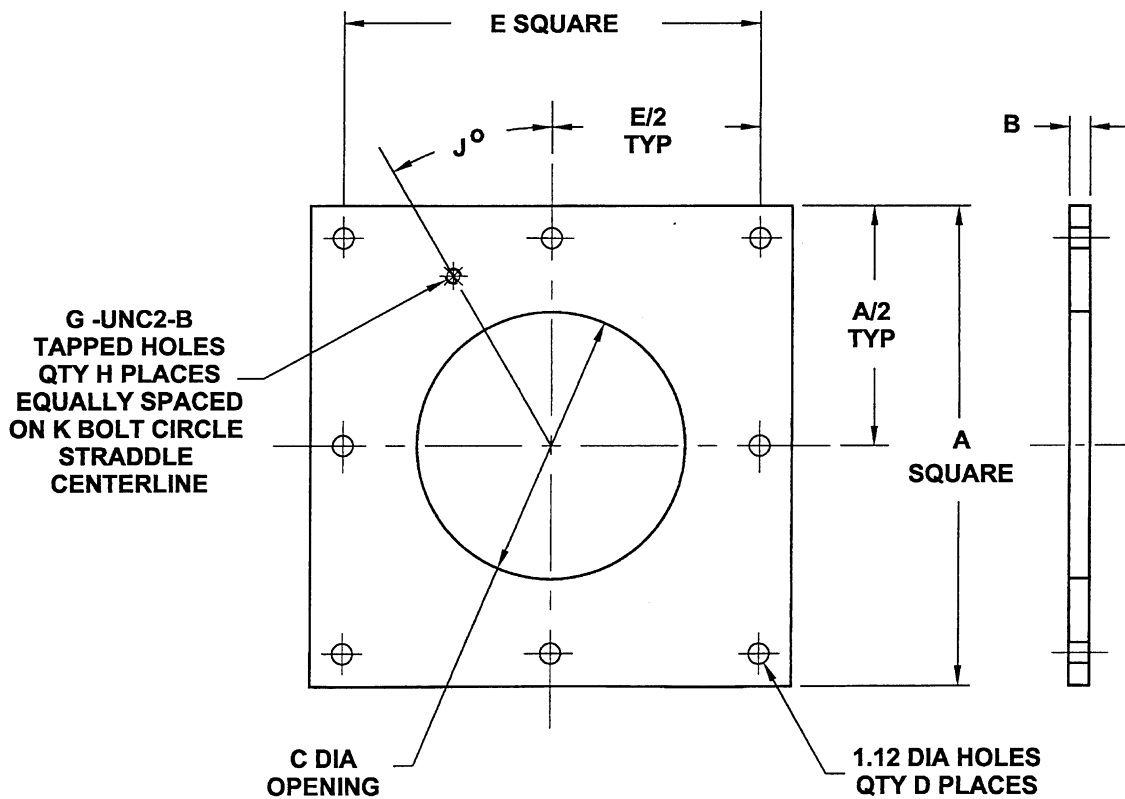
Discharge Head Size	Sole Plate Part Number	Sole Plate			Anchor Bolt		Base Plate Hole		Sole Plate Approximate Weight Lb.
		L x W	Thick	Id	Qty	Pattern	Qty	Dim	
		A	B	C	D	E	F	G	
6x6x12 FA	4601774	24.00	1.12	16.00	4	20.50	4	15.00	118
6x6x16.5 FA	4601776	26.00	1.12	19.00	4	22.50	4	17.00	141
8x8x12 FA	4601778	28.00	1.12	19.00	4	24.50	4	19.00	157
8x8x16.5 FA	4601778	28.00	1.12	19.00	4	24.50	4	19.00	157
10x10x16.5 FA	4601780	30.00	1.12	21.50	4	26.50	4	21.00	168
10x10x20 FA	4601780	30.00	1.12	21.50	4	26.50	4	21.00	168
12x12x16.5 FA	4601780	30.00	1.12	21.50	4	26.50	4	21.00	168
12x12x20 FA	4601782	34.00	1.12	24.00	4	30.50	4	25.00	221
14x14x20 FA	4601784	36.00	1.12	27.00	8	32.50	4	27.00	238
14x14x24.5 FA	4601784	36.00	1.12	27.00	8	32.50	4	27.00	238
16x16x20 FA	4601784	36.00	1.12	27.00	8	32.50	4	27.00	238
16x16x24.5 FA	4601784	36.00	1.12	27.00	8	32.50	4	27.00	238
16x16x30.5 FA	4604414	42.50	1.25	29.00	8	39.00	8	33.00	368
18x18x24.5 FA	4604414	42.50	1.25	29.00	8	39.00	8	33.00	368
18x18x30.5 FA	4604414	42.50	1.25	29.00	8	39.00	8	33.00	368
20x20x24.5 FA	4604414	42.50	1.25	29.00	8	39.00	8	33.00	368
20x20x30.5 FA	4604414	42.50	1.25	29.00	8	39.00	8	33.00	368
24x24x24.5 FA	4604415	48.50	1.25	35.00	8	45.00	8	39.00	487
24x24x30.5 FA	4604415	48.50	1.25	35.00	8	45.00	8	39.00	487

Subject to change without notice

Drawing No. 4853841



VERTICAL TURBINE PUMPS
Discharge Heads
Type FR Sole Plates



All dimensions are in inches

FR Sole Plates Dimensional Data

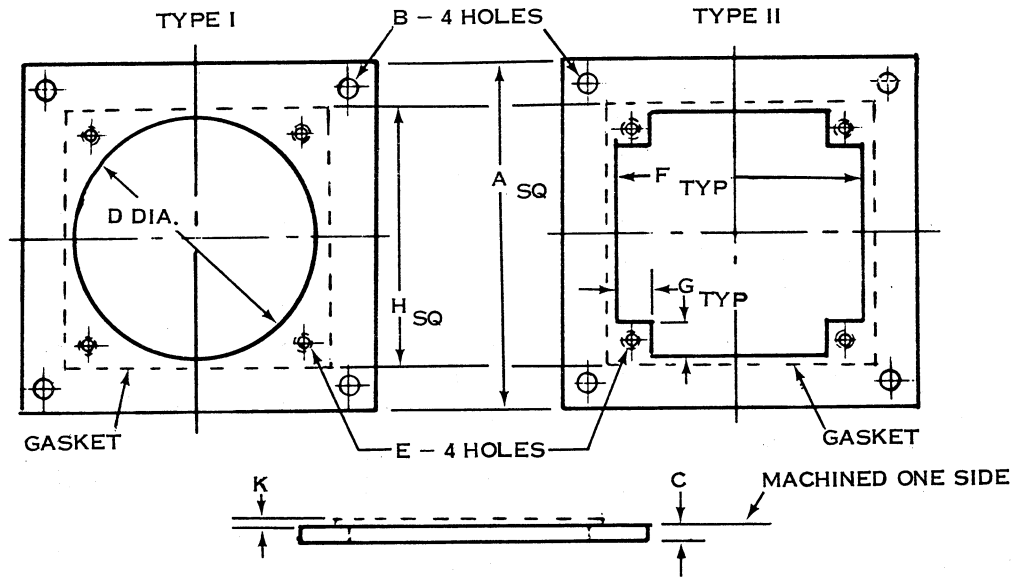
Discharge Head Size	Sole Plate Part No.	Sole Plate			Anchor Bolt		Base Plate Hole				Sole Plate Approx Wt Lb
		L x W	Thick	Id	Qty	Dim	Bolt Thd	Qty	Angle	BC	
		A	B	C	D	E	G	H	J	K	
16X16X20 FR	4604411	38.50	1.12	22.50	8	35.00	1.00	4	45.0	29.50	340
16X16X24.5 FR	4604411	38.50	1.12	22.50	8	35.00	1.00	4	45.0	29.50	340
16X16X30.5 FR	4604412	43.00	1.25	22.50	8	39.50	1.00	8	22.5	34.00	508
18X18X24.5 FR	4604413	43.00	1.25	31.00	8	39.50	1.00	8	22.5	34.00	383
18X18X30.5 FR	4604413	43.00	1.25	31.00	8	39.50	1.00	8	22.5	34.00	383
20X20X24.5 FR	4604413	43.00	1.25	31.00	8	39.50	1.00	8	22.5	34.00	383
20X20X30.5 FR	4604413	43.00	1.25	31.00	8	39.50	1.00	8	22.5	34.00	383
24X24X24.5 FR	4604413	43.00	1.25	31.00	8	39.50	1.00	8	22.5	34.00	383
24X24X30.5 FR	4604413	43.00	1.25	31.00	8	39.50	1.00	8	22.5	34.00	383

Subject to change without notice

Drawing No. 4853840

VERTICAL TURBINE PUMPS

Steel Sole Plates for Type UG Under grade Discharge Heads



GENERAL DIMENSIONS ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED

UG BASE SIZE	TEE SIZE	TYPE	A	B		C	D	E		F	G	H	K	FOUNDATION DIA OPENING ①		
				DIA	SQ			SIZE	SQ					MIN	NOM	MAX
6x10UG	4"	I	16½	¾	14½	1/2	12½	5/8-11 NC	10½	—	—	14	1/16	12½	13	13
	5"													14	14	14
12x16½UG	6	II	16½	¾	14½	1/2	—	5/8-11 NC	10½	12¼	1¾	14	1/16	14	14	14
	4"													12½	21	23
	5"	12½	21	23												
	I	6"	29	1-1/8	25½	7/8	21	3/4-10 NC	19	—	—	23¾	1/16	14	21	23
		8"	19	21	23											
		10"	21	21	23											
12x24½UG	12"	II	29	1-1/8	25½	7/8	—	3/4-10 NC	19	20½	2¼	23¾	1/16	25	25	25
	6"													14	25	31
	I	8"	37	1-1/4	33½	1"	25	7/8-9 NC	26	—	—	31¾	1/8	19	25	31
		10"	21	25	31											
16x30½UG	12"	I	46	1-1/4	41½	1"	31	7/8-9 NC	32	—	—	38¾	1/8	25	31	38
	10"													21	31	38
	14"													27½	31	38
	16"													31	31	38

The **MINIMUM** diameter allows the following to pass through: (A) The standard tee as shown on page 55, Section 115 including the distance from centerline to face of the discharge flange (dim E) and the flange OD. (B) The largest bowl unit the column (tee) will take as shown on pages 4 and 5, Section 125 and the std basket strainer for that size bowl unit.

The **NOMINAL** opening is the same diameter as the Type I sole plate (dim D) and in some cases allows extra clearance over the minimum diameter opening.

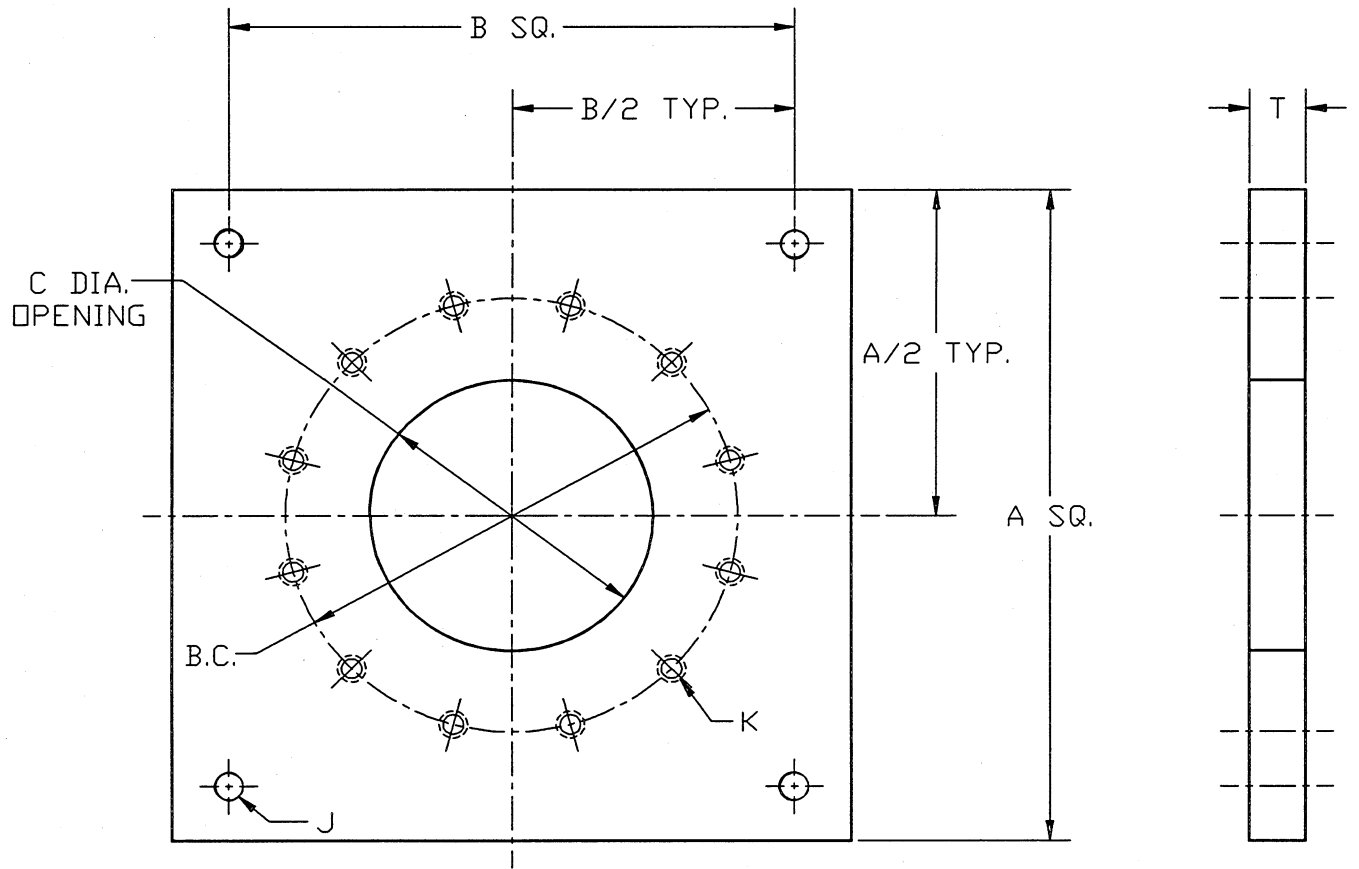
The **MAXIMUM** diameter opening provides adequate support for the pump and should not be exceeded.

Square foundation openings that have the same dimensions as D or F above when measured across the sides are acceptable.

NOTE: When the discharge flange location is close to the bottom of the base, check the foundation thickness for possible interference.

Subject to change without notice

Steel Sole Plates for Type C and CHP for Cast Iron Discharge Heads



GENERAL DIMENSIONS ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED

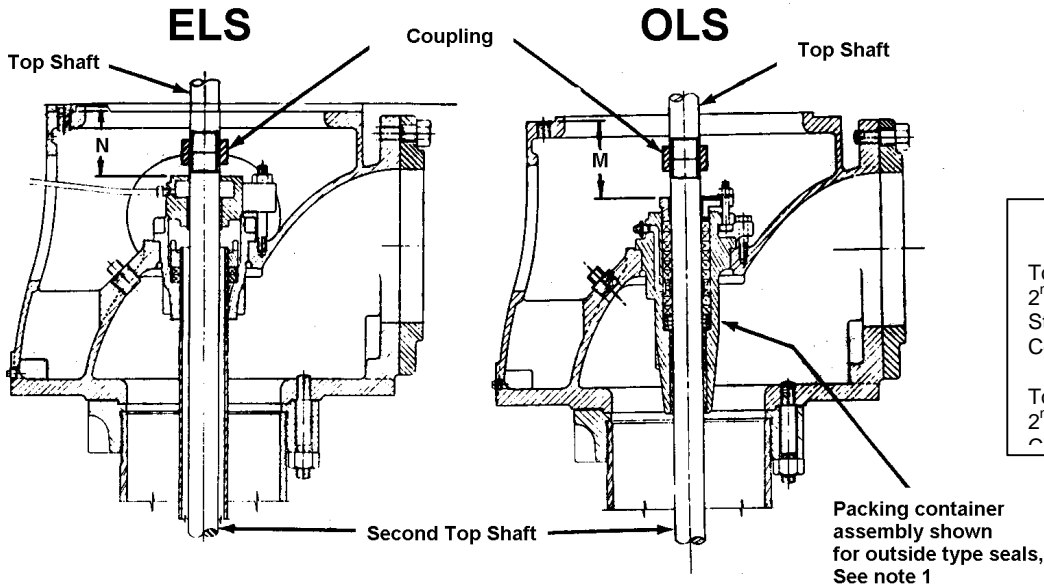
✓	BASIC HEAD SIZE	A	B	C DIA. OPENING	J		K STRADDLE CL.		BC	T	SOLE PLATE PART NO.	WT. LB.
					NO. OF HOLES	HOLE DIA.	NO. OF HOLES	TAP SIZE				
	4X4X10C & CHP	18.00	16.00	9.00	4	0.88	8	3/4"-10UNC	11.75	0.88	2634417	65
	4X6X12C & CHP	22.00	19.00	14.00	4	1.12	12	7/8"-9UNC	17.00	0.88	4603250	82
	6X6X12C	24.00	21.00	14.00	4	1.12	12	1"-8UNC	18.75	0.88	4602123	105
	6X8X16-1/2C & CHP	26.00	23.00	16.50	4	1.12	16	1"-8UNC	21.25	1.12	4602124	147
	8X8X12C	30.00	27.00	20.00	4	1.12	16	1-1/8"-7UNC	22.75	1.12	4602127	187
	8X8X16-1/2C & CHP	30.00	27.00	20.00	4	1.12	16	1-1/8"-7UNC	22.75	1.12	4602127	187
	10X10X20C	30.00	27.00	20.00	4	1.12	16	1-1/8"-7UNC	22.75	1.12	4602127	187
	12X12X20C	32.00	29.00	22.00	4	1.12	20	1-1/8"-7UNC	25.00	1.12	4602126	205

Subject to change without notice

DWG. NO. 4853647



Two- Piece Top Shaft
For Type S and SHP Discharge Assemblies
With Threaded Coupling and VHS Drivers



Standard Construction
OLS
Top Shaft – AISI 1045 Steel
2nd Top Shaft – AISI 416 Stainless Steel
Coupling – Carbon Steel
ELS
Top Shaft – AISI 1045 Steel
2nd Top Shaft – AISI 1045 Steel
Coupling – Carbon Steel

Head Size	Shaft Size	Space Available Note 2		Coupling to be used		
		ELS "N"	OLS "M"	Short Length	Coupling Part Number	Standard Length
2.5x2.5x10S 2.5x3x10S		Coupling cannot be used due to space limitations				
6x6x12S	0.75	3.32	3.94	1.75	2622695	-
	1.00	3.32	3.94	1.88	2622696	-
	1.19	3.32	3.69	2.25	2622697	-
6x8x16.5S 8x8x12S 8x8x16.5S	1.00	3.44	3.82	1.88	2622696	-
	1.19	3.44	3.82	2.25	2622697	-
	1.50	3.44	3.63	2.38	2622698	-
10x10x16.5S 10x10x20S	1.19	4.82	5.13	-	T92091	3.50
	1.50	4.82	5.00	-	T92092	3.50
	1.69	4.82	5.00	3.19	2622700	-
	1.94	4.82	5.00	3.75	2622701	-
12x12x20S	1.19	5.94	6.25	-	T92091	3.50
	1.50	5.94	6.13	-	T92092	3.50
	1.69	5.94	6.13	-	T92093	4.25
	1.94	5.94	6.13	3.75	2622701	-
	2.19	5.94	6.00	3.75	2622702	-
14x14x24.5S	1.19	6.69	7.00	-	T92091	3.50
	1.50	6.69	6.88	-	T92092	3.50
	1.69	6.69	6.88	-	T92093	4.25
	1.94	6.69	6.88	-	T92094	5.00
	2.19	6.69	6.75	-	T92095	5.50
16x16x30.5S		Coupling cannot be used				

LIMITATIONS

Maximum setting before customer machining of second top shaft in the field is required is 50 ft.
Coupling cannot be used when packed type tube nuts or shaft sleeves are used on the head.
Dimensions given do not allow any stick down of driver below flange face.
For a 2-piece top shaft with threaded coupling below a VHS motor, a steady bushing is required in the motor for:

- (1) All pumps with mechanical seal;
- (2) Pumps operating at 2900 rpm and faster.

Note 1:

Type RA and 8B2 outside type mechanical seals can be used with two-piece top shaft **with the following exceptions:**

- (1) 6x6x12 Head with 1.19 Shaft.
- (2) 10x10x16.5 and 10x10x20 Heads with 1.69 and 1.94 Shafts.
- (3) Seal container is required.
- (4) Short length coupling may be required when using outside type seals.

For inside type mechanical seals refer to factory.

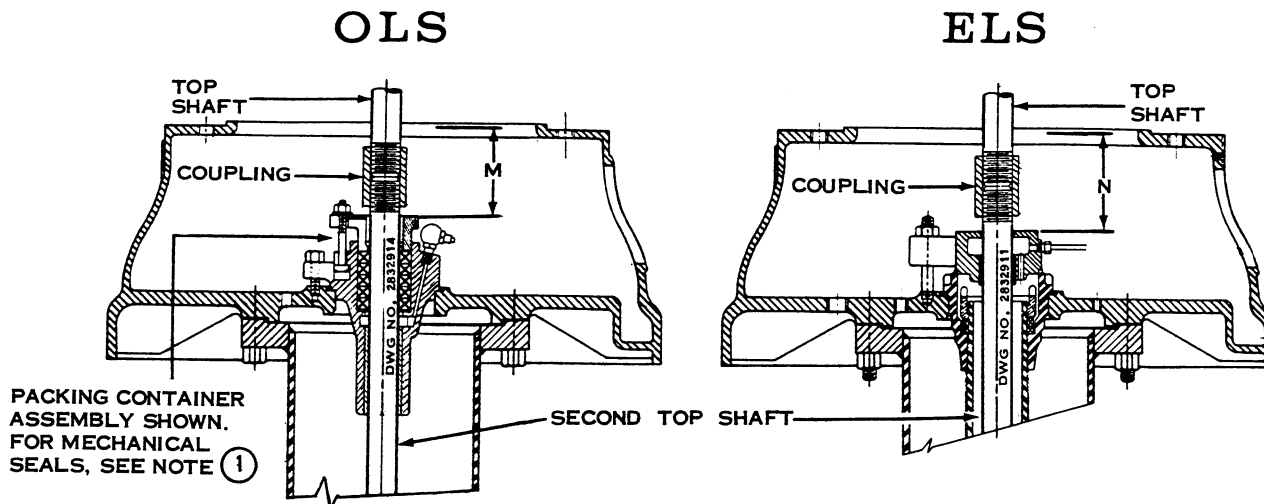
Note 2:

Use 1/2 of N or M dimensions for break between top and second top shaft.

Subject to change without notice

Two-Piece Top Shaft

FOR TYPE UG DISCHARGE ASSEMBLIES
 WITH THREADED COUPLINGS & VHS DRIVERS



LIMITATIONS

Maximum setting is 50 feet for 6x10UG without custom machining lineshaft in the field. The other bases may allow the 50 feet to be exceeded - refer to the factory for actual limitations, when required.

A coupling cannot be used in a 6x10UG when a packed type tube nut or shaft sleeve is used unless a yoke is furnished. Refer to factory for other size bases since they have more available space.

Dimensions given do not allow any steady bushing or other driver stickdown below flange face.

When a 2-piece top shaft with a threaded coupling below a VHS driver is used a steady bushing is required in the driver for:

- 1) all pumps with mechanical seals.
- 2) pumps operating at 2900 rpm or faster.

STD. CONSTRUCTION

— OLS —

Top Shaft - 1045 Steel
 Second Top Shaft - Stainless Steel

Coupling - Carbon Steel

— ELS —

Top Shaft - 1045 Steel
 Second Top Shaft - 1045 Steel
 Coupling - Carbon Steel

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED

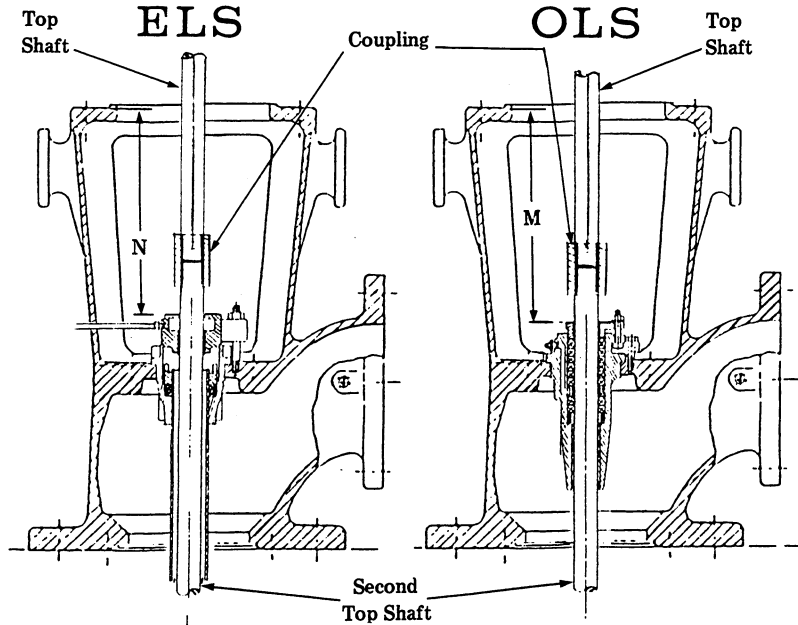
Base Size	Shaft Size	Space Available		Coupling To Be Used		
		ELS "N" ²	OLS "M"	Short Length	Coupling Part No	Standard Length
6x10UG	.75	3.32	3.94	1.75	2622695	—
	1.00	3.32	3.94	1.88	2622696	—
	1.19	3.32	3.69	2.25	2622697	—
12x16½UG	1.00	5.32	6.06	—	T90170	2.50
	1.19	5.32	6.00	2.25	2622697	—
	1.50	5.32	5.88	2.38	2622698	—
12x24½UG	1.19	7.69	8.00	—	T92091	3.50
	1.50	7.69	7.88	—	T92092	3.50
	1.69	7.69	7.88	3.19	2622700	—
	1.94	7.69	7.88	3.75	2622701	—
	2.19	7.69	7.75	3.75	2622702	—
16x30½UG	1.69	8.69	8.88	—	T92093	4.25
	1.94	8.69	8.88	—	T92094	5.00
	2.19	8.69	8.88	—	T92095	5.50
	2.44	8.69	8.50	—	T92096	6.00

1 Except for the 6x10UG with 1.19 diameter shaft, the base castings will accommodate most types of mechanical seals without the addition of a yoke; contact the factory for this application.

2 Use 1/2 of M or N dimension to place the coupling in the center of the available space for the construction shown.

Two-Piece Top Shaft

FOR TYPE C & CHP DISCHARGE ASSEMBLIES
WITH THREADED COUPLING AND VHS DRIVERS



ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED

LIMITATIONS

Dimensions given do not allow any stickdown of driver below flange face.

For a 2-piece topshaft, with threaded coupling below a VHS motor, a steady bushing is required in the motor for:

- 1) all pumps with mechanical seal;
- 2) pumps operating at 2900rpm and faster.

Refer to motor mfr for price.

CONSTRUCTION

— OLS —

Top Shaft - AISI 1045 Steel

Second Top Shaft - Stainless Steel

Coupling - Carbon Steel

— ELS —

Top Shaft - AISI 1045 Steel

Second Top Shaft - AISI 1045 Steel

Coupling - Carbon Steel

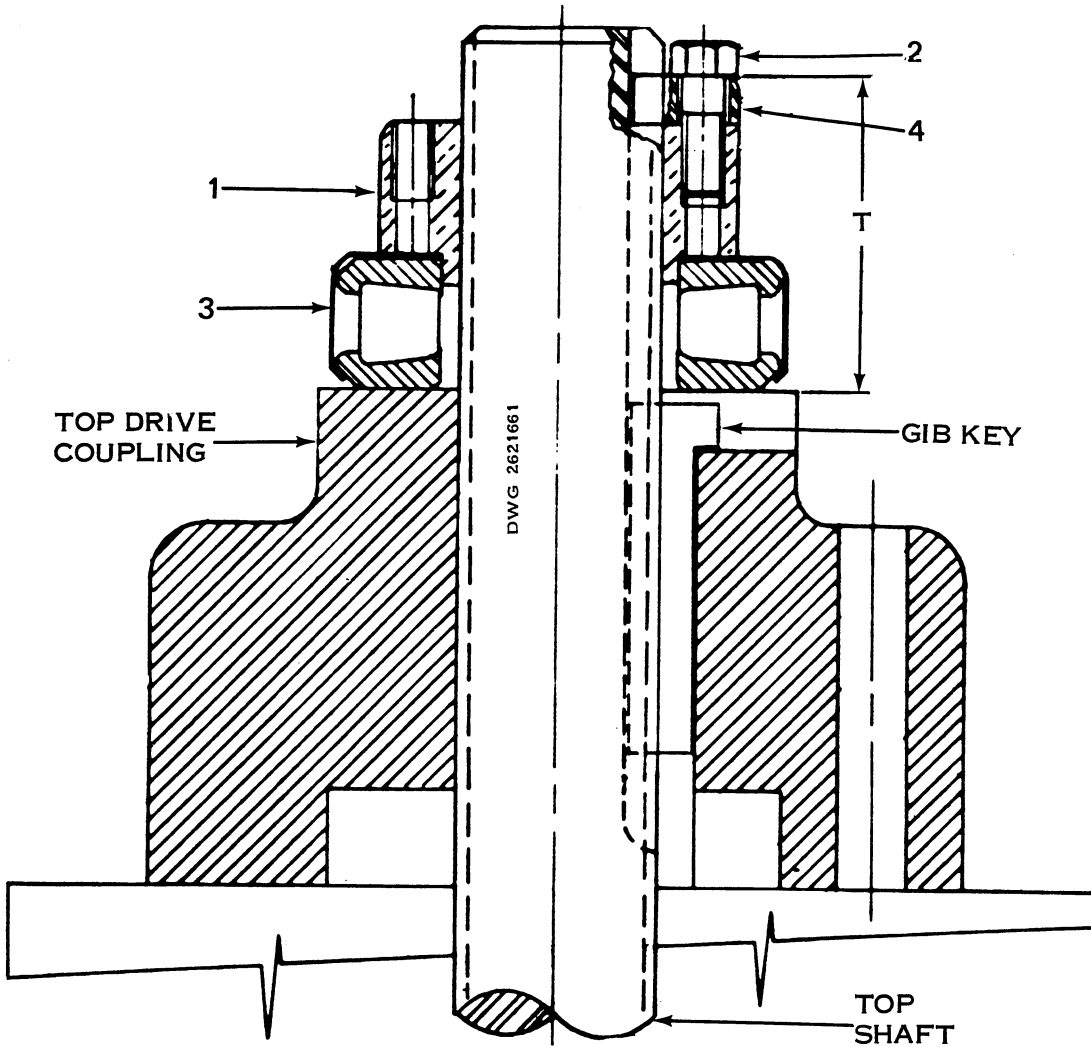
MECHANICAL SEALS

Inside and outside type seals fit these heads with two-piece top shaft construction and VHS motors.

Head Size	Shaft Size	Space Available		Coupling to Be Used	
		ELS "N" ¹	OLS "M"	Coupling Part No.	Standard Length
4x4x10C	.75	6.25	6.88	T-99111	2.25
	1.00	6.25	6.88	T-90170	2.50
	1.19	6.25	6.88	T-92091	3.50
	1.50	5.87	—	T-92092	3.50
4x6x12C 6x6x12C	.75	9.94	—	T-99111	2.25
	.88	9.94	—	T-90169	2.25
	1.00	9.44	9.63	T-90170	2.50
	1.19	9.44	9.63	T-92091	3.50
	1.50	9.44	9.63	T-92092	3.50
	1.69	9.56	—	T-92093	4.25
6x8x16½C	1.94	9.56	—	T-92094	5.00
	1.00	11.75	11.94	T-90170	2.50
	1.19	11.75	11.94	T-92091	3.50
	1.50	11.75	11.94	T-92092	3.50
	1.69	11.97	—	T-92093	4.25
8x8x12C	1.94	11.97	—	T-92094	5.00
	1.00	9.44	9.63	T-90170	2.50
	1.19	9.44	9.63	T-92091	3.50
	1.50	9.44	9.63	T-92092	3.50
	1.69	9.56	—	T-92093	4.25
8x8x16½C	1.94	9.56	—	T-92094	5.00
	1.19	11.75	11.94	T-92091	3.50
	1.50	11.75	11.94	T-92092	3.50
	1.69	11.87	11.94	T-92093	4.25
	1.94	11.87	11.94	T-92094	5.00
10x10x20C 12x12x20C	2.19	11.87	11.94	T-92095	5.50
	1.19	13.56	13.75	T-92091	3.50
	1.50	13.56	13.75	T-92092	3.50
	1.69	13.68	13.75	T-92093	4.25
	1.94	13.68	13.75	T-92094	5.00
	2.19	13.68	13.75	T-92095	5.50
2.44	13.18	13.75	T-92096	6.00	

¹ Use 1/2 of N or M dimensions for break between top and second top shaft.

TOP SHAFT NUT
 with
 Roller Thrust Bearing



"T" DIMENSIONS	
SHAFT SIZE	T
1 ¹¹ / ₁₆	3
1 ¹⁵ / ₁₆	3 ¹ / ₈
2 ³ / ₁₆	3 ³ / ₈
2 ⁷ / ₁₆	3 ³ / ₈

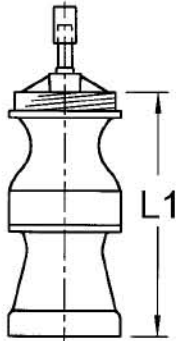
PARTS LIST (STANDARD CONSTRUCTION)		
ITEM NO.	NAME	MATERIAL
1	NUT, TOP SHAFT	SAE 40 BRONZE
2	SCREW, HEX HEAD CAP	STEEL
3	BEARING, ROLLER THRUST	STEEL
4	PIN, LOCKING	STEEL

Note: Primarily to be used on pumps with settings 600' or over.
 Not to be used on close coupled pumps or where momentary or continuous upthrust may occur.
 (Top shaft nut can not be locked down.)

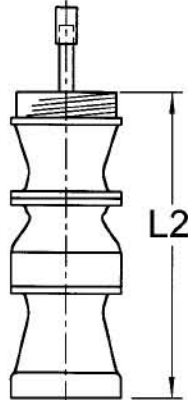


SUCTION CASE

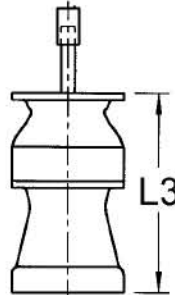
THREADED
DISCHARGE BOWL



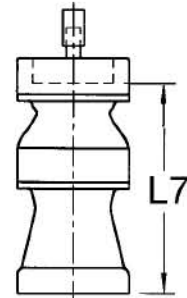
DISCHARGE CASE



FLANGED
DISCHARGE BOWL

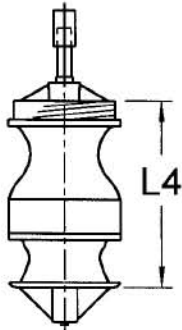


COLUMN ADAPTER

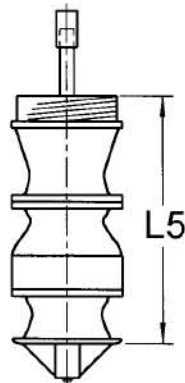


SUCTION BELL

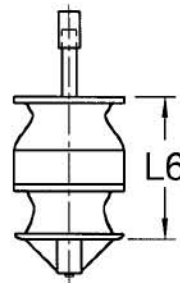
THREADED
DISCHARGE BOWL



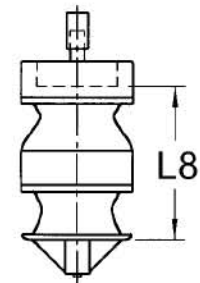
DISCHARGE CASE



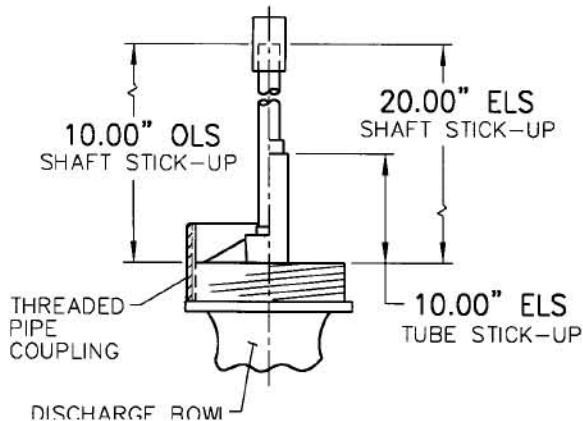
FLANGED
DISCHARGE BOWL



COLUMN ADAPTER



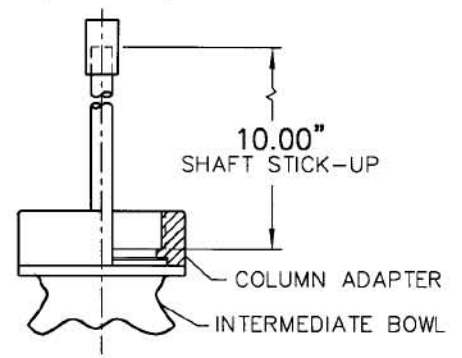
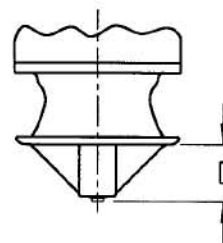
STANDARD
SHAFT & TUBE
STICK-UP



INTERMEDIATE BOWL WITH
COLUMN ADAPTER

STICK-UP
(OLS ONLY)

SUCTION BELL
HUB STICK-DOWN



4853667



Bowl Assemblies

APPLICATION DATA ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED

Bowl Unit Size/Type	Max. Size of column less than bowl dia.	Column Pipe (6)			Suction Pipe		Dia. of impeller Shaft (2)	Column Shaft Size		Nom. Size of Oil Tubing		Max. Head (psi) Class (3)		
		Min.	Nominal	Max.	Min.	Max.		Min.	Max.	Min.	Max.	30 C. I.	(A)	
4 LO/LE	3 STD. (4)	2 1/2 STD.	2 1/2 - 3" STD. (1)	3 STD.	2 1/2 STD.	2 1/2 STD.	3/4	3/4	1	-	-	368	-	
6	LB	4 STD.	3 STD.	4 STD.	5 STD.	4 STD.	4 STD.	3/4	3/4	1	1 1/4	1 1/2	627	714
	MA	4 STD.	4 STD.	4 STD.	5 STD.	4 STD.	4 STD.	3/4	3/4	1	1 1/4	1 1/2	606	708
	HXB	4 STD.	4 STD.	4 STD.	5 STD.	4 STD.	4 STD.	3/4	3/4	1	1 1/4	1 1/2	346	399
7	LB	5 STD.	4 STD.	5 STD.	6 STD.	5 STD.	5 STD.	1	3/4	1 1/8	1 1/4	2	410	478
	HXB	5 STD.	4 STD.	5 STD.	6 STD.	5 STD.	5 STD.	1	3/4	1 1/8	1 1/4	2	410	477
8	LB	6 STD.	4 STD.	5 STD.	6 STD.	5 STD.	5 STD.	1 1/16	3/4	1 1/2	1 1/4	2 1/2	390	622
	MA	6 STD.	5 STD.	6 STD.	8 STD.	6 STD.	6 STD.	1 1/16	3/4	1 1/2	1 1/4	2 1/2	627	766
	HXB	6 STD.	5 STD.	6 STD.	8 STD.	6 STD.	6 STD.	1 1/16	3/4	1 1/2	1 1/4	2 1/2	550	671
	HDX	6 STD.	5 STD.	6 STD.	8 STD.	6 STD.	6 STD.	1 1/2	1 1/16	1 11/16	2	2 1/2	750	(8)
	MFH	6 STD.	5 STD.	6 STD.	8 STD.	6 STD.	6 STD.	1 1/16	3/4	1 1/2	1 1/4	2 1/2	321	-
9	LA	6 STD.	5 STD.	6 STD.	8 STD.	6 STD.	6 STD.	1 1/16	3/4	1 1/2	1 1/4	2 1/2	390	471
10	LB	8 STD.	5 STD.	6 STD.	8 STD.	6 STD.	6 STD.	1 1/16	3/4	1 1/2	1 1/4	2 1/2	325	400
	MA	8 STD.	5 STD.	6 STD.	8 STD.	6 STD.	8 STD.	1 1/16	3/4	1 1/2	1 1/4	2 1/2	497	765
	HXB	8 STD.	8 STD.	8 STD.	10 STD.	8 STD.	10 STD.	1 1/2	1	1 15/16	1 1/2	3	368	452
	HH	8 STD.	8 STD.	8 STD.	10 STD.	8 STD.	8 STD.	1 1/2	1	1 15/16	1 1/2	3	346	446
	HHA	8 STD.	8 STD.	8 STD.	10 STD.	8 STD.	8 STD.	1 1/2	1	1 15/16	1 1/2	2 1/2	300	-
	MFH	8 STD.	8 STD.	8 STD.	10 STD.	8 STD.	8 STD.	1 1/2	1	1 15/16	1 1/2	3	241	-
11	MB	8 STD.	8 STD.	8 STD.	10 STD.	8 STD.	8 STD.	1 15/16	1 1/2	2 3/16	2 1/2	3 1/2	497	612
12	LD	10 STD.	6 STD.	8 STD.	10 STD.	8 STD.	8 STD.	1 1/2	1 3/16	1 11/16	2	3	385	498
	LDT	8 STD.	5 STD.	6 STD.	8 STD.	6 STD.	6 STD.	1 1/2	1 3/16	1 11/16	2	2 1/2	255	312
	MB	8 STD.	8 STD.	8 STD.	10 STD.	8 STD.	10 STD.	1 1/2	1	1 15/16	1 1/2	3	357	439
	HXB	10 STD. (4)	8 STD.	10 STD.	12 STD.	10 STD.	12 STD.	1 1/2	1	1 15/16	1 1/2	3	433	548
	HXH	10 STD.	8 STD.	10 STD.	12 STD.	10 STD.	10 STD.	1 15/16	1 1/2	2 1/16	2 1/2	3 1/2	355	433
	HD	10 STD.	8 STD.	10 STD.	12 STD.	10 STD.	10 STD.	1 15/16	1 1/2	2 1/16	2 1/2	3 1/2	540	650
14	LD	10 STD.	8 STD.	10 STD.	12 STD.	10 STD.	10 STD.	1 15/16	1 1/2	2 1/16	2 1/2	3 1/2	325	498
	MC	10 STD.	8 STD.	10 STD.	12 STD.	10 STD.	12 STD.	1 15/16	1 1/2	2 1/16	2 1/2	3 1/2	303	366
	MD	12 STD.	10 STD.	10 STD.	12 STD.	12 STD.	12 STD.	1 15/16	1 1/2	2 1/16	2 1/2	3 1/2	365	RTF
	HXB	10 STD.	10 STD.	10 STD.	12 STD.	10 STD.	12 STD.	1 15/16	1 1/2	2 1/16	2 1/2	3 1/2	295	378
	HH	12 STD.	10 STD.	12 STD.	14 O.D.	12 STD.	12 STD.	1 11/16	1 3/16	1 15/16	2	3	200	236
15	LC	12 STD.	8 STD.	10 STD.	12 STD.	10 STD. (5)	12 STD.	2 3/16	1 11/16	2 1/16	2 1/2	4	475	575
	MA	12 STD.	8 STD.	10 STD.	12 STD.	10 STD.	12 STD.	2 3/16	1 11/16	2 1/16	2 1/2	4	330	422
16	MC	12 STD.	10 STD.	12 STD.	14 O.D.	12 STD.	14 O.D.	1 15/16	1 1/2	2 1/16	2 1/2	3 1/2	325	389
	HXB	14 O.D.	12 STD.	14 O.D.	16 O.D.	14 O.D.	14 O.D.	1 15/16	1 1/2	2 1/16	2 1/2	3 1/2	303	366
	HH (7)	14 O.D.	12 STD.	14 O.D.	16 O.D.	14 O.D.	14 O.D.	1 15/16	1 1/2	2 1/16	2 1/2	3 1/2	271	319

NOTE: (A) HIGH STRENGTH IRON, CL50 OR DUCTILE AT FACTORY OPTION.

- (1) Maximum column length for 4LO is 150 feet, for 4LE 400 feet.
- (2) Standard impeller shaft sizes are shown in this column. Refer to the factory for availability of other sizes.
- (3) a. Pressure ratings are for bowls in CL30 C.I. (Groups A thru E) or High Strength Iron Construction. THESE ARE MAXIMUM PRESSURES INCLUDING SHUT OFF CONDITIONS. For other materials and/or groups of construction consult the factory for limitations.
b. Pressure ratings are based on 0° to 150° operating temperature range and bowl wear rings (if used) with standard length and diameter.
c. To change these ratings to HEAD IN FEET multiply by 2.31.
d. Impeller shaft HP carrying capacity must be checked when using upper pressure limits. If not adequate refer to factory for special material or larger diameter shaft.
e. For well applications at the deeper settings check bowl lateral requirements.
- (4) Straight steel column and/or suction pipe couplings exceeds bowl diameter. Couplings can be turned to a smaller diameter. When required refer to factory for actual diameter and cost.
- (5) All suction threads are for butt pipe threads EXCEPT 15MA, 15LC, 140D and 160D which have 3/4 taper threads.
- (6) All top bowls and discharge manifolds have butt threads.
- (7) 16HH available for threaded column: OLS 12" and 14"; ELS 12", 14" and 16".
- (8) Standard bowl material is ductile iron.

Subject to change without notice



Impeller Data and Best Lateral Settings off bottom for Maximum Efficiency Bowls - 6 thru 10 Inch

1. Net impeller eye area - square inches.
2. Maximum sphere size that will pass impellers - inches.
3. WR₂ in Lbs.- IN₂ - (Multiply by number of stages for WR₂ of bowl assembly - Divide by 144 for Lb - FT₂)

GENERAL DIMENSIONS All dimensions are in inches unless otherwise noted

Pump Size	Impeller Number	Net Eye Area IN ₂	Sphere Size	WR ₂ in Lbs - In	Best Lateral	Impeller Lateral Setting	
						Standard	Maximum ^①
6LB	2616324	3.375	1/4	5.85	1/8	.281	.656
	2618292	3.375	1/8	5.85	1/8	.281	.656
	2616318	3.375	1/8	5.80	1/8	.281	.656
6MA	V850B	5.072	5/16	5.09	1/16	.250	.625
6HXB	2607800	6.891	3/8	7.00	1/8	.281	.656
7LB	2626207	4.890	9/32	12.10	1/8	.500	.875
	2626208	4.890	1/4	12.80	1/8	.375	.750
7HXB	2607926	8.496	7/16	16.70	1/8	.313	.688
	2607921	8.496	1/2	16.70	1/8	.313	.688
8LB	2616464	6.920	1/4	22.30	1/4	.281	.656
	2616465	6.920	3/16	25.80	1/8	.281	.656
8MA	T84229	8.513	1/2	19.30	3/16	.406	.781
	T84234	8.513	7/16	19.30	1/8	.406	.781
8HXB	2616348	10.592	9/16	29.20	1/16	.281	.656
8HDX	4602048	19.380	15/16	55.40	1/16	.875	1.125 ^②
8MFH	2606032	REFER TO FACTORY					
9LA	T84391	9.032	7/16	47.60	1/8	.594	.968
	T84323	9.032	7/16	47.60	1/8	.406	.781
10LB	2625032	9.572	3/8	76.80	1/8	.313	.688
	2625033	9.572	3/8	76.80	1/8	.313	.688
10MA	T84363	12.256	5/8	64.20	1/8	.406	.781
	2624288	12.256	11/16	64.20	1/8	.344	.718
10HXB	T82337	15.954	1/2	82.50	3/16	.313	.688
	T82366	15.954	5/8	82.50	3/16	.313	.688
10HH	2622864	26.121	1/2	60.90	1/16	.469	.843
	2626818	26.121	15/16	63.20	1/16	.500	.875
10HHA	4601873	28.224		100.10		.468	
10MFH	2602101	REFER TO FACTORY					

① Maximum lateral with extra lateral machining.

② Without lateral seal ring.



Impeller Data and Best Lateral Settings off bottom for Maximum Bowls - 11 thru 16 Inch

- 1.) Net impeller eye area --- In².
- 2.) Maximum sphere size that will pass impellers ---- inches.
- 3.) WR² in Lb.- In²----(Multiply by number of stages for WR² of bowl assembly----Divide by 144 for Lb-Ft²)

GENERAL DIMENSIONS All dimensions are in inches unless otherwise noted

Pump Size	Impeller Number	Net Eye Area In ²	Sphere Size	WR ² in Lbs-In ²	Best Lateral	Impeller Lateral Setting		Group A without Lateral Seal Ring- No Extra Machining
						Standard	Maximum Note 1	
11MB	2622504	16.687	13/16	118	3/16	.844	1.50	-
12LD	2634820	18.025	7/8	166	1/16	.687	1.25	1.00
	2649365	18.025	7/8	187	1/16	.687	1.25	1.00
12LDT	4602394	15.00	3/4	164	1/8	.75	1.00	1.00
12MB	2624331	17.868	7/8	188	3/16	.406	.844	-
	2626936	17.868	1/2	188	3/16	.625	1.073	-
	2624332	17.868	13/16	188	3/16	.469	.916	-
12HXB	2608100	27.401	7/8	219	1/16	.469	.916	-
	2608379	26.214	5/8	214	1/8	.313	.761	-
	2608368	26.214	3/4	275	1/16	.344	.791	-
12HXH	2629933	32.837	1-1/2	185	1/16	.375	.813	-
12HD	4601450	32.837	29/32	266	1/16	1.500	1.750	1.75
14LD	2634704	22.142	15/16	303	1/16	.938	1.250	-
	2634705	22.142	7/8	303	1/16	.938	1.250	-
14MC	2626082	25.326	1	340	1/16	.625	1.063	-
	2626083	26.053	1	340	1/16	.500	.938	-
14MD	4602279	38.155	1-5/16	504	1/8	.562	.938	-
	4602280	38.155	1-5/16	598	1/8	.562	.938	-
14HXB	V4399C	35.152	13/16	305	1/8	.594	1.031	-
	V4400C	35.152	13/16	305	1/8	.594	1.031	-
14HH	2621973	48.029	11/16	450	1/16	.375	.813	-
	2621959	56.190	11/16	472	1/16	.281	.719	-
15LC	2625920	24.049	1-3/16	545	1/8	.906	1.062	-
15MA	2617049	28.161	1	334	1/8	.938	1.062	-
	2617046	28.161	1-1/16	334	1/8	.844	.906	-
16MC	2626756	34.514	1-3/16	741	1/16	.563	1.062	-
	2626757	35.537	1-5/16	684	1/16	.438	.937	-
16HXB	2617216	52.140	3/4	958	1/8	0.72	1.22	1.03
	2617215	52.140	3/4	958	1/8	0.44	0.94	-
	4601399	52.140	1-1/8	641	1/8	0.5	1	-
16HH	2621593	74.9	3/4	900	1/32	.438	.937	-
	2620735	74.9	3/4	1250	1/16	.438	.937	-

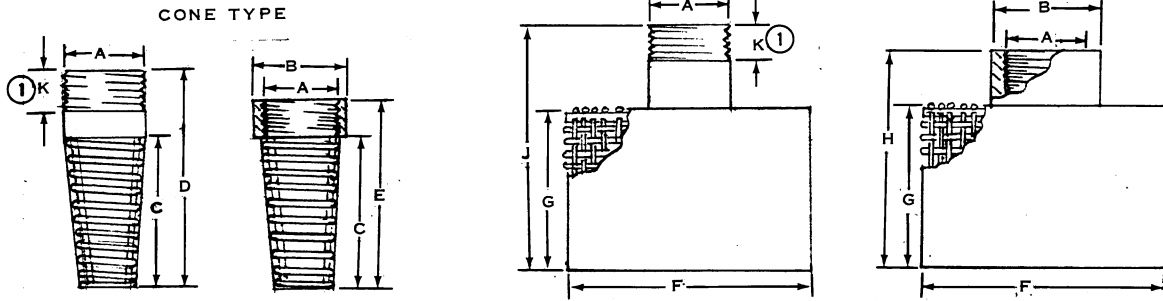
Notes: (1) Maximum lateral with extra lateral machining.

Subject to change without notice

STRAINERS

CONE AND BASKET TYPE FOR THREADED SUCTION MANIFOLDS

BASKET TYPE



① THREAD ENGAGEMENT INTO SUCTION MANIFOLD.

DIMENSIONS														
SIZE	A	B	C	D	E	F		G		H		J		K
	THREAD DATA	CPLG OD				STL OR STN STL	BRZ OR BRASS	STL OR STN STL	BRZ OR BRASS	STL OR STN STL	BRZ OR BRASS	STL OR STN STL	BRZ OR BRASS	
2½"	2½" - 8 THD, BUTT	¾	9¼	12¾	11¼	6	6	3	5	4½	6½	6	8	1"
3"	3" - 8 THD, BUTT	4	9¾	12¾	11¼	6	6	3	5	4½	6½	6	8	1⅝
4"	4" - 8 THD, BUTT	5	9¾	12¾	11¾	8	8	4	5	6	7	7	8	1⅞
5"	5" - 8 THD, BUTT	6¼	10¾	13¾	12¾	10	9	5	5	7	7	8	8	2⅛
6"	6" - 8 THD, BUTT	7¼	13¾	16¾	15¾	10	9	6	7½	8	9½	9	10½	2¼
8"	8" - 8 THD, BUTT	9¼	20	23	22	12	12	8	10	10	12	11	13	2⅝
10"	10" - 8 THD, BUTT	11½	27½	31½	30	18	18	10	10	12½	12½	14	14	3⅛
12"	12" - 8 THD, BUTT	13½	29½	33½	32	18	18	12	12½	14½	15	16	16½	3⅛
14"	14" - 8 THD, ¼ TAPER	14⅝	38½	42½	41½	20	20	12	12½	15	15½	16	16½	1⅞
16"	16" - 8 THD, ¼ TAPER	16⅝	42½	46½	45½	24	25	12	12½	15	15½	16	16½	2⅞

MESH SIZE FOR BASKET STRAINERS	
2½" THRU 5" = ¼	10" THRU 14" = ½
6" THRU 8" = ⅝	16" = ¾

SLOT WIDTH FOR CONE STRAINERS	
STEEL - ALL SIZES = ⅞	
BRONZE - ALL SIZES = ¼	

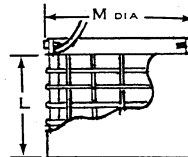
NOTE: ALL STRAINERS HAVE A NET WATER PASSAGE AREA OF AT LEAST FOUR TIMES PIPE SIZE.

STRAINERS

CLIP ON TYPE FOR BELL TYPE SUCTION MANIFOLDS ③

Bowls 6 thru 16 Inch

DIMENSIONS (ALL MATERIALS)							
BOWL SIZE	L	M ②	MESH SIZE	BOWL SIZE	L	M ②	MESH SIZE
6 LB	4¾	6¾	¼	12LD	9¾	12⅞	½
6 MA	4¾	6¾	¼	12LDT	9⅞	12⅞	½
7 LB	5½	7¾	¼	12MB	9¾	12⅞	⅝
8 LB	6	8½	¼	12HXB	9¾	12⅞	½
8 MA	6	8½	¼	12HXX	11⅝	15⅞	½
				14LD	11	14¾	½
				14MC	11	14¾	½
				14MD	15⅝	15½	½
10 LB	8	10⅞	¼	14HXB	11	14¾	½
10 MA	8½	11⅞	½	14HH	12⅞	16⅞	½
10HXB	8	10⅞	¼	15MA	12⅞	16⅞	½
10HH	9	12	⅝	16MC	11⅝	15⅞	½
10HHA	9	12	⅝	16HXB	12¾	16½	½
10MFH	8	10⅞	¼	16HH	15	19⅞	½



② M DIM IS DIA OF STRAINER INCLUDING CLIPS AND/OR SCREWS FOR FASTENING TO SUCTION MANIFOLD. WIRE MESH WILL BE APPROXIMATELY 1/2" TO 1" SMALLER IN DIA.

③ THE FOLLOWING PUMPS ARE NOT AVAILABLE WITH BELL SUCTION: 6HXB, 7HXB, 8HXB, 8HDX, 8MFH, 11MB, 12HD, 15LC. IF BASKET STRAINER REQUIRED USE THREADED BASKET STRAINER.

Subject to change without notice

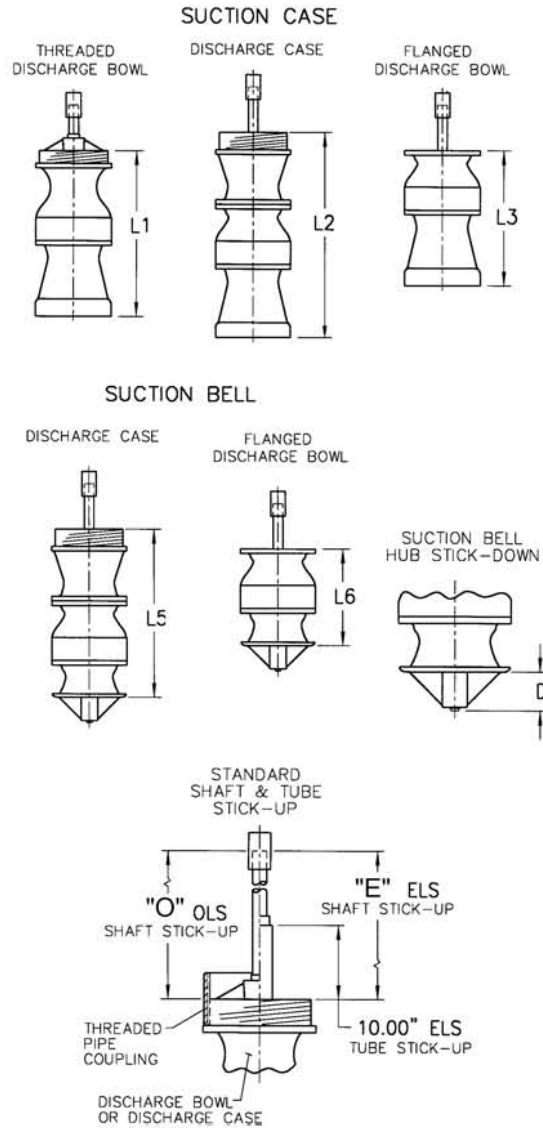
VERTICAL TURBINE PUMPS
Bowl Assemblies



Peerless Pump Company
Indianapolis, IN 46207-7026

General Dimensions All Dimensions Are In Inches Unless Otherwise Noted

Bowl Model	Length Each Add'l Stage	O OLS Stick-Up	E ELS Stick-Up	Bowl O.D.		Suction Bell		Length of One Stage Bowl Unit						
				1	2	Bell O.D.	"D" Hub Stick Down (Includes Plug)	L6	L1	L2	L3	L5		
				Nominal as Cast										
18MA	13.50	10.00	20.00	17.50					35.62		38.75			
18HXB	13.25	10.00	20.00	16.88	16.50	4.00	21.69			36.50	24.62	33.56		
18HH	18.62	10.00	20.00	18.12	18.75	7.81	27.12							
20MA-OLS	15.00	10.00	20.00	19.50	18.00	6.94	23.50							
20MA-ELS	15.00	10.00	20.00	19.50	18.00	6.94				40.12		33.62		
20HXB	15.00	10.00	20.00	19.50	17.50	4.62	23.75				31.00			
20HXB -Low NPSH Suction Casing	15.00	10.00	20.00	19.50	17.50	4.62	21.62				31.00			
20HH	20.00	10.00	20.00	20.12	20.25	5.56	28.69							
24MA	18.75	10.00	20.00	24.00	18.75	6.56	25.88							
24HXB	16.75	10.00	20.00	22.00	21.00	8.25	25.69							
24HXC	16.75	10.00	20.00	22.00	21.00	8.25	25.69							
24HH	22.00	10.00	20.00	22.62	24.25	6.06	31.31							
24HH-OH	22.75	10.00	20.00	22.62	24.25	6.06	32.06							
26HXB	19.75	10.00	20.00	25.50	24.62	7.56	29.25							
26HH	25.50	10.00	20.00	26.38	28.00	3.19	36.25							
26HH-OH	26.50	10.00	20.00	26.38	28.00	3.19	37.25							
27MA	21.38	10.00	20.00	26.38	27.00	4.44	32.38							
28HXB	22.00	10.00	20.00	27.25	26.00	6.81	32.00							
30LA-OLS	23.75	10.00	20.00	29.75	29.00	0.44	39.00							
30LA-ELS	53.00	10.00	20.00	29.75	29.00	0.44	53.00							
30HH	31.12	10.00	20.00	31.62	34.62	1.44	45.88							
30HH-OH	32.12	10.00	20.00	31.62	34.62	1.44	46.88							
32HXB	26.62	10.00	20.00	31.25	30.00	0.00	38.62							
36MA	27.00	10.00	20.00	36.00	32.00	0.00	40.62							
36HXB	29.31	10.00	20.00	36.00	34.62	0.00	43.31							
36HH	37.00	10.00	20.00	36.19	38.00	0.00	48.06							
36HH-OH	38.25	15.00	25.00	36.19	38.00	0.00	49.31							
42HXB	33.62	10.00	20.00	41.50	40.00	0.00	48.62							
42HH	RF	10.00	20.00	RF	RF	RF	RF							
48HXB	36.00	10.00	20.00	48.12	48.12	0.00	53.44							
48HH	46.50	10.00	20.00	47.00	50.00	1.06	59.00							
48HH-OH	46.50	10.00	20.00	47.00	50.00	1.06	59.00							
56HH	58.00	10.00	20.00	57.88	60.00	0.00	75.00							
56HH-OH	58.00	10.00	20.00	57.88	60.00	0.00	75.00							
66HH	RF	10.00	20.00	RF	RF	RF	RF							



1 These bowl O.D. dimensions do not include bell of bell type suction casing which in some cases are larger
2 Except for 18MA column increase coupling may exceed bowl unit diameter O.D.

Subject to change without notice



Application Data All Dimensions Are In Inches Unless Otherwise Noted

Bowl Unit Size/Type	Maximum Size of Column less than bowl dia. O.D.	Column Pipe Size ①			Suction Pipe Size		Diameter of Impeller Shaft ②	Column Shaft Size Diameter		Nominal Size of Oil Tubing		Maximum Head Psi ③	
		Min.	Nominal	Max	Min	Max.		Min (OLS)	Max.	Min	Max.	Cl. 30 Cast Iron	High Strength Ductile Iron
18 MA	14	10 STD	12 STD	14 OD	10 STD	12 STD	1.94	1.19	2.31	2.0	3.5	295	390
18 HXB	14	12 STD	14 OD	16 OD	14 OD	14 OD	1.94	1.50	2.31	2.5	3.5	334	440
18 HH	14	14 OD	16 OD	18 OD			2.19	1.50	2.44	2.5	4.0	314	415
20 MA	14	12 STD	14 OD	16 OD	12 STD	14 OD	2.19	1.50	2.31	2.5	3.5	195	258
20 HXB	14	14 OD	16 OD	16 OD	16 OD	16 OD	2.19	1.50	2.31	2.5	3.5	217	286
20 HH	18	14 OD	16 OD	18 OD			2.19	1.50	2.44	2.5	4.0	200	264
24 MA	18	16 OD	18 OD	18 OD			2.44	1.94	2.44	3.0	4.0	250	330
24 HXB	16	14 OD	18 OD	18 OD			2.19	1.50	2.31	2.5	3.5	195	258
24 HXC	16	14 OD	18 OD	18 OD			2.19	1.50	2.31	2.5	3.5	195	258
24 HH	16	16 OD	18 OD	20 OD			2.44	1.69	2.44	3.0	4.0	195	258
24 HH-OH	16	16 OD	18 OD	20 OD			2.44	1.69	2.44	3.0	4.0	195	258
26 HXB	20	16 OD	20 OD	24 OD			2.94	2.19	2.94	3.5	5.0	152	200
26 HH	20	18 OD	20 OD	20 OD			2.94	2.69	2.94	5.0	5.0	152	200
26 HH-OH	20	18 OD	20 OD	20 OD			2.94	2.69	2.94	5.0	5.0	152	200
27 MA	20	16 OD	20 OD	24 OD			2.94	2.19	2.94	3.5	5.0	303	400
28 HXB	20	16 OD	20 OD	24 OD			2.94	2.19	2.94	5.0	5.0	130	172
30 LA	24	24 OD	20 OD	20 OD			2.69	2.19	2.94	3.5	5.0	195	258
30 HH	24	24 OD	24 OD	30 OD			2.94	2.19	2.94	3.5	5.0	130	172
30 HH-OH	24	24 OD	24 OD	30 OD			2.94	2.19	2.94	3.5	5.0	130	172
32 HXB	24	24 OD	24 OD	24 OD			3.69	2.69	2.94	5.0	6.0	195	258
36 MA	30	30 OD	24 OD	24 OD			3.69	2.69	3.69	5.0	6.0	173	230
36 HXB	30	30 OD	30 OD	30 OD			3.94	2.69	3.94	5.0	6.0	173	230
36 HH	30	30 OD	30 OD	30 OD			3.69	2.69	3.69	5.0	6.0	140	185
36 HH-OH	30	24 OD	30 OD	30 OD			3.69	2.69	3.69	5.0	6.0	140	185
42 HXB	36	24 OD	30 OD	30 OD			3.94	2.94	3.94	5.0	6.0	130	172
42 HH	RF	RF	RF	RF			RF	RF	RF	RF	RF	RF	RF
48 HXB	42	36 OD	42 OD	42 OD			3.94	3.44	3.94	6	6.0	130	172
48 HH	42	36 OD	42 OD	48 OD			3.94	3.44	3.94	5	6.0	173	230
48 HH-OH	42	36 OD	42 OD	48 OD			3.94	3.44	3.94	5	6.0	173	230
56 HH	RF	RF	54	RF	RF	RF	4.25	4.25	4.25	8.0	RF	173	230
56 HH-OH	RF	RF	54	RF	RF	RF	4.25	4.25	4.25	8.0	RF	173	230
66 HH	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF	RF

- ① 20 Inch and larger bowls are available with Flanged Column connection only.
- ② Standard impeller shaft sizes are shown in this column. Refer to factory for availability of other sizes.
- ③ a. Pressure ratings are for bowls in CL 30 C. I. (Groups A through E) or High Strength Iron Construction. **THESE ARE MAXIMUM PRESSURES INCLUDING SHUT OFF CONDITIONS.** For other materials and/or groups of construction and higher pressures consult the factory for limitations.
 b. Pressure ratings are based on 0° to 150° F. operating temperature ranges and bowl rings (if used) with standard length and diameter.
 c. To change these ratings to **HEAD IN FEET of water** multiply by 2.31.
 d. Impeller shaft HP carrying capacity must be checked when using upper pressure limits. If not adequate refer to factory for special material or larger diameter shaft.

**VERTICAL TURBINE PUMPS
Materials of Construction**



**Bowls-18 Through 27 Inch
Impeller Data and Best Lateral Settings off bottom for Maximum Efficiency**

1. Net impeller eye area - square inches.
2. Maximum sphere size that will pass impellers.- inches.
3. WR² in Lbs.- In² - (Multiply by number of stages for WR² of bowl assembly - Divide by 144 for Lb - Ft²)

General Dimensions in inches unless otherwise noted						
Bowl Size	Impeller Number	Net Eye Area In ²	Sphere Size	WR ² in Lbs-In ²	Best Lateral Setting	Standard Lateral Setting
18MA	T84489	41.231	1.2500	925	0.1250	0.406
18MA	2606879	41.231	1.2500	925	0.1250	0.406
18HXB	2617433	64.708	0.7500	1430	0.0625	0.625
18HXB	2618937	66.437	1.3875		0.0625	0.315
18HH	2621974	84.906	0.8750	1900	0.0625	0.594
18HH	2621975	97.862	0.8750	1900	0.0625	0.469
20MA	2605012	49.698	1.1250	2350	0.0625	0.281
20HXB	2607495	73.148	1.2500	2720	0.0625	0.406
20HXB	2607491	83.642	0.8750	2720	0.0625	0.906
20HXB	2607492	73.148	1.1250	2720	0.0625	0.406
20HH	4600652	124.000	1.0000	2700	0.0625	0.625
20HH	4600653	111.000	1.0000	2224	0.0625	0.625
24MA	2617890	79.100	1.1250	5460	0.0625	0.281
24MA	2603427	79.100	1.1250	5460	0.1250	0.281
24MA	2605615	79.100	1.1250	5460	0.0625	0.281
24HXB	2615491	103.532	0.9688	3060	0.0625	0.812
24HXB	2616866	104.912	1.0312	3060	0.1250	0.750
24HXC	4602026	107.310	1.8750	3650	0.1250	0.375
24HH	2621597	152.040	1.1250	5220	0.1250	0.475
24HH	2620986	152.040	1.1250	6750	0.0312	0.714
24HH-OH	2633415	152.040	1.1250	5075	0.0312	0.020
26HXB	2607148	143.820	1.8750	9050	0.0625	0.344
26HH	2621599	202.220	1.3125		0.1250	0.813
26HH	2620629	203.830	1.3438	13200	0.1250	0.563
26HH-OH	2629638	203.800	1.3438	9543	0.0312	0.022
27MA	2621402	179.280	1.4375	12305	0.0625	0.563
27MA	2621565	147.170	1.1875	12305	0.0625	0.563



Bowls-28 Through 66 Inch
Impeller Data and Best Lateral Settings off bottom for Maximum Efficiency

1. Net impeller eye area - square inches.
2. Maximum sphere size that will pass impellers.- inches.
3. WR^2 in Lbs.- In^2 - (Multiply by number of stages for WR^2 of bowl assembly - Divide by 144 for Lb - Ft^2)

General Dimensions in inches unless otherwise noted						
Bowl Size	Impeller Number	Net Eye Area In^2	Sphere Size	WR^2 in Lbs- In^2	Best Lateral Setting	Standard Lateral Setting
28HXB	2617403	168.220		14850	0.12500	0.719
28HXB	2617422	168.220		14850	0.03125	0.531
30LA	T84305	105.120		10400	0.06250	0.531
30LA	V655C	106.323				0.531
30HH	2621977	295.710	1.625	21000	0.12500	0.969
30HH	2621978	299.570	1.625	30000	0.12500	0.656
30HH-OH	2633416	299.600	1.625		0.03125	0.026
32HXB	2622117	222.340		21700	0.03125	1.156
32HXB	2618419	222.340	2.75	24700	0.12500	0.594
36MA	2606023	182.320	3.25	48000	0.12500	0.656
36MA	2604215	182.320		48000	0.12500	0.656
36HXB	2620664	296.060		50000	0.12500	1.563
36HXB	2618436	296.060	3.125	51500	0.25000	0.688
36HH	2621980	348.160	1.844	45000	0.12500	0.906
36HH	2621981	404.800	1.844	64000	0.12500	0.656
36HH-OH	2633417	404.800	1.844		0.03125	0.029
42HXB	2618460	399.840		95000	0.25000	0.969
42HXB	2621920	399.840		101000	0.12500	0.651
42HH	Refer To Factory					
48HXB	2608562	553.440	4.562	129000	0.12500	0.531
48HH	2621983	587.190		203052		0.781
48HH	2621984	682.940	2.250	289000		0.781
48HH-OH	2633418	682.900	2.250		0.04688	0.042
56HH	2621987	989.610	2.844	444000		0.406
56HH-OH	2633419	989.600			0.04688	0.052
66HH	Refer To Factory					

VERTICAL TURBINE PUMPS
Strainers



Clip on Type for Bell Type Suction Casings

Dimensions in inches All Materials											
Bowl Size	L	M ①	Mesh Size	Bowl Size	L	M ①	Mesh Size	Bowl Size	L	M ①	Mesh Size
18HXB	14.00	18.00	0.50	24HH-OH	20.25	26.50	1.00	32HXB	25.50	32.00	1.50
18HH	16.00	20.88	0.75	26HXB	21.00	27.00	1.00	36MA	27.00	34.38	1.50
20MA	15.25	19.50	1.00	26HH	23.62	30.38	1.00	36HXB	29.50	37.00	1.50
20HXB ②	14.75	19.00	0.75	26HH-OH	23.62	30.38	1.00	36HH	32.25	40.38	1.50
20HH	16.00	22.25	1.00	27MA	23.00	29.38	1.00	36HH-OH	32.25	40.38	1.50
24MA	16.00	21.00	1.00	28HXB	22.00	28.38	1.00	42HXB	34.00	42.75	1.50
24HXB	17.75	23.25	1.00	30LA	Refer to the factory			48HXB	40.75	50.88	1.50
24HXC	17.75	23.25	1.00	30HH	29.25	37.25	1.50	48HH	42.25	52.75	1.50
24HH	20.25	26.50	1.00	30HH-OH	29.25	37.25	1.50	48HH-OH	42.25	52.75	1.50
								56HH	Refer to the factory		

Notes:

- ① M dimension is the diameter of strainer including clips and /or screws for fastening to suction casing. Wire mesh with be approximately 0.5 to 1 inch smaller in diameter.
- ② The 20HXB with low NPSH first stage impeller is 16 x 21 inches with 1 inch mesh (same a 24MA).

