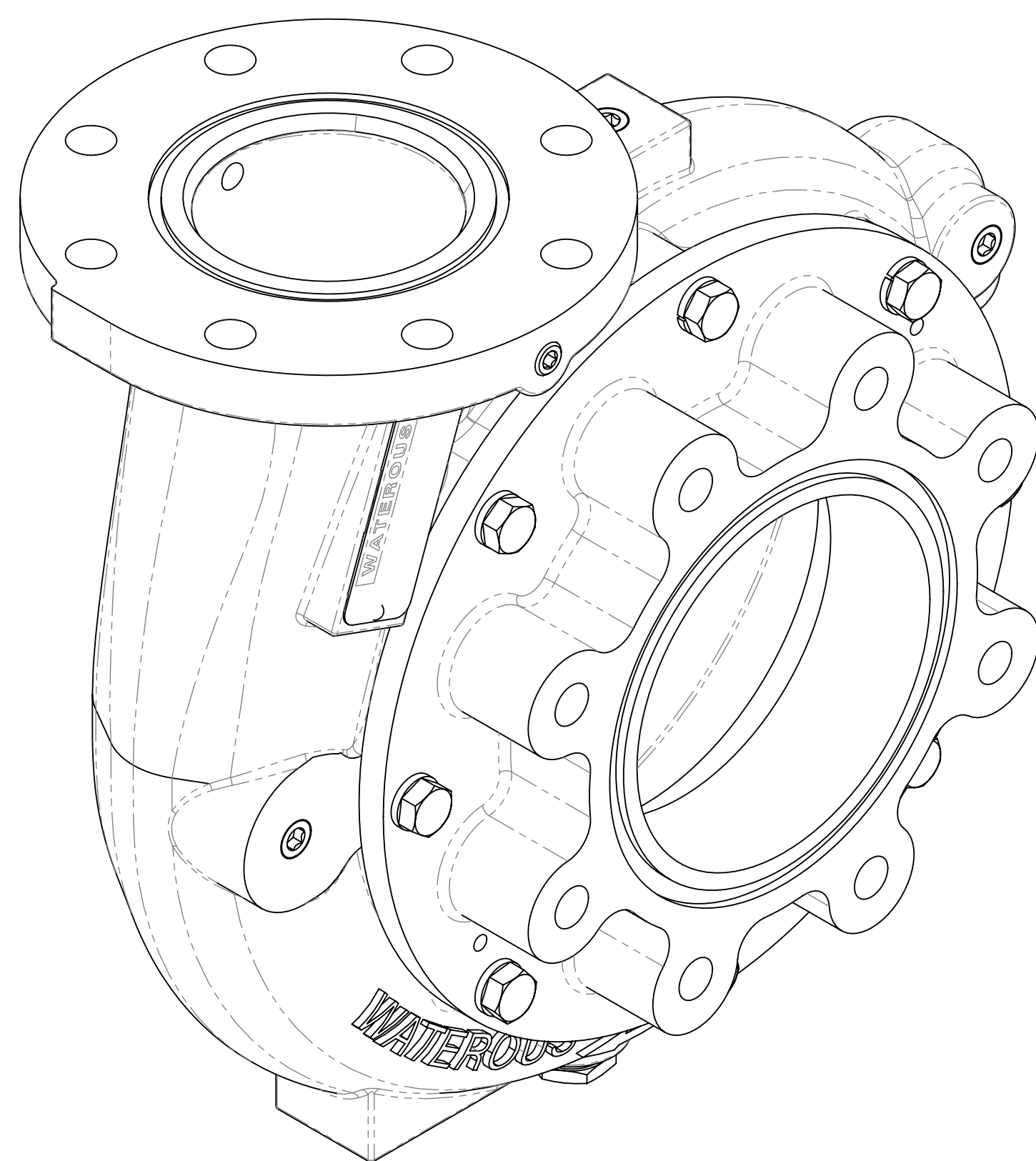


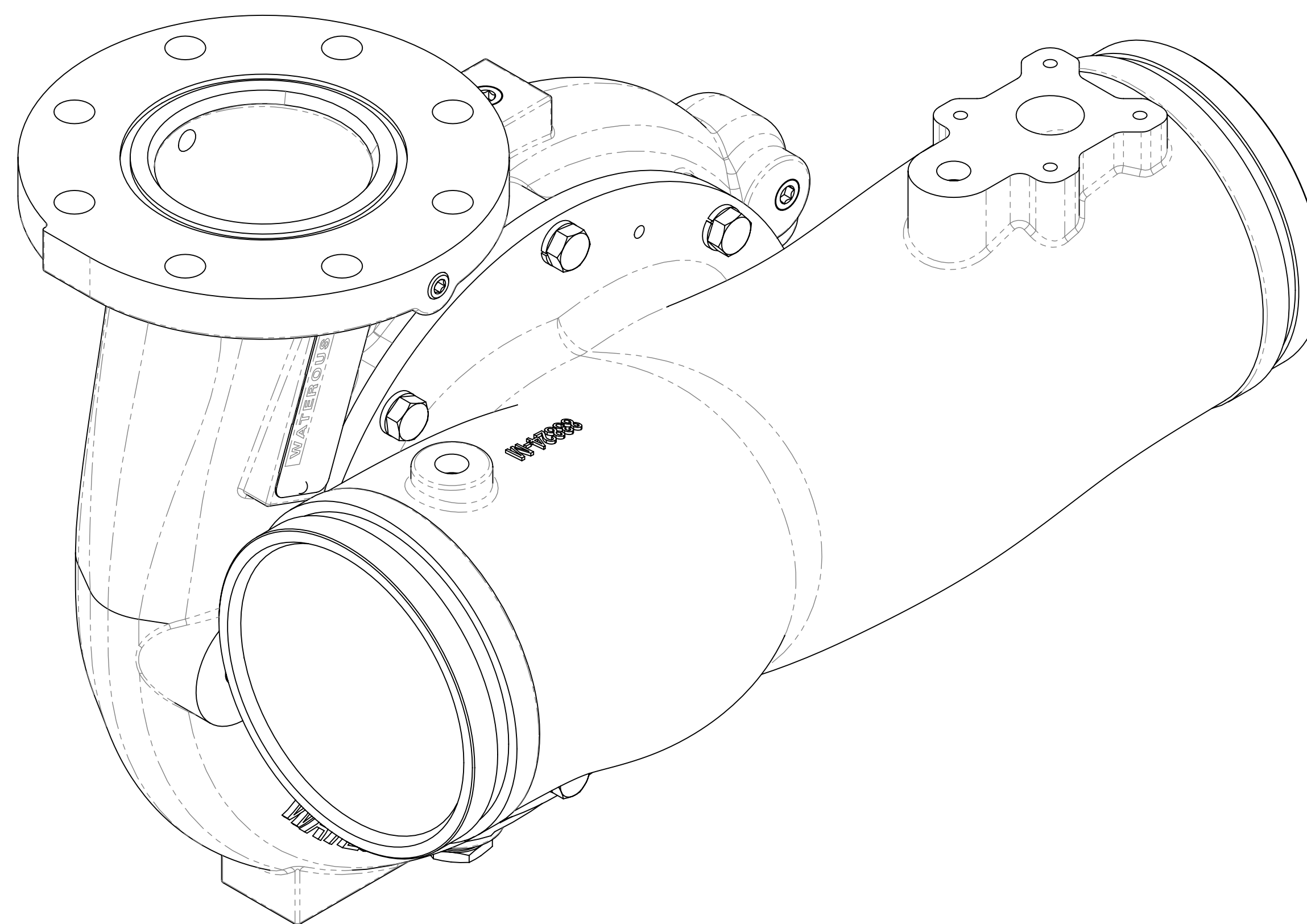
CX Series Fire Pump Dimensional Drawings

Pump Models: CXN, CXS, CXV

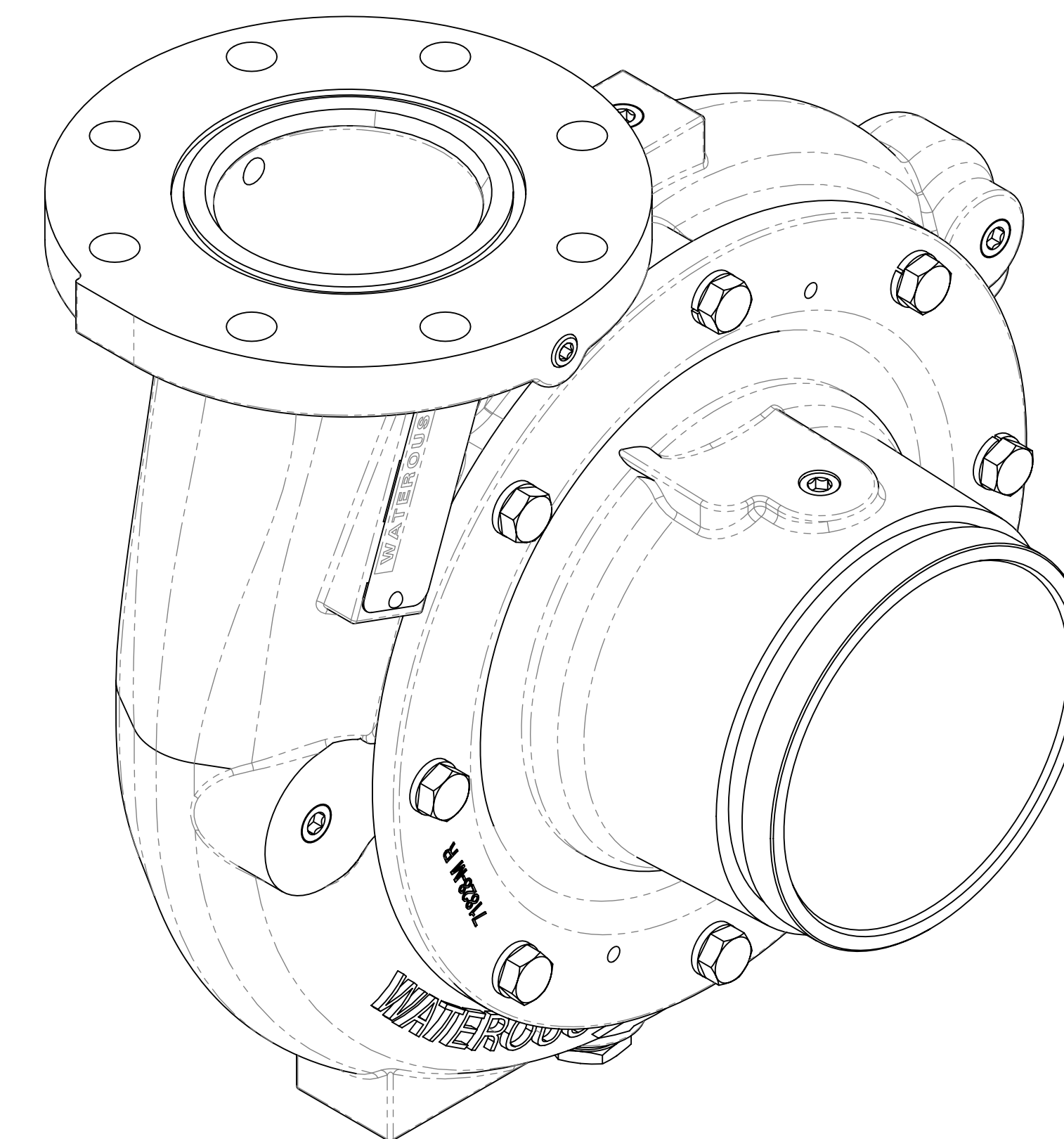
Feature			See Page		
			CXN	CXS	CXV
Basic Pump without Transmission	Body Dimensions		3-4	5-6	7-8
	Optional Discharge Arrangements	Blank (4 in. ANSI Flange)			
		Manifold	With 3-1/2 in. End Flanges		
			With 4 in. End Flanges		
Pump with Transmission			See Table on Page 2		
Optional End Yokes and Companion Flanges			See Table on Page 34		



CXN



CXS

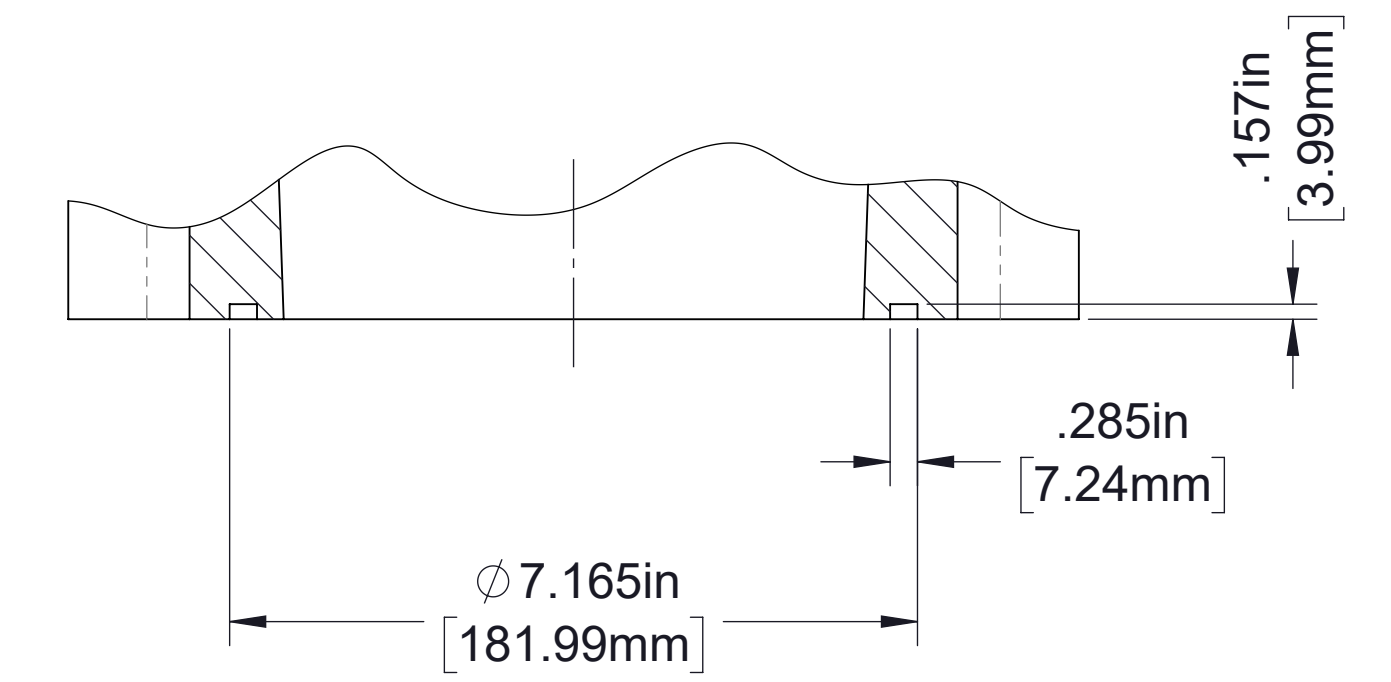
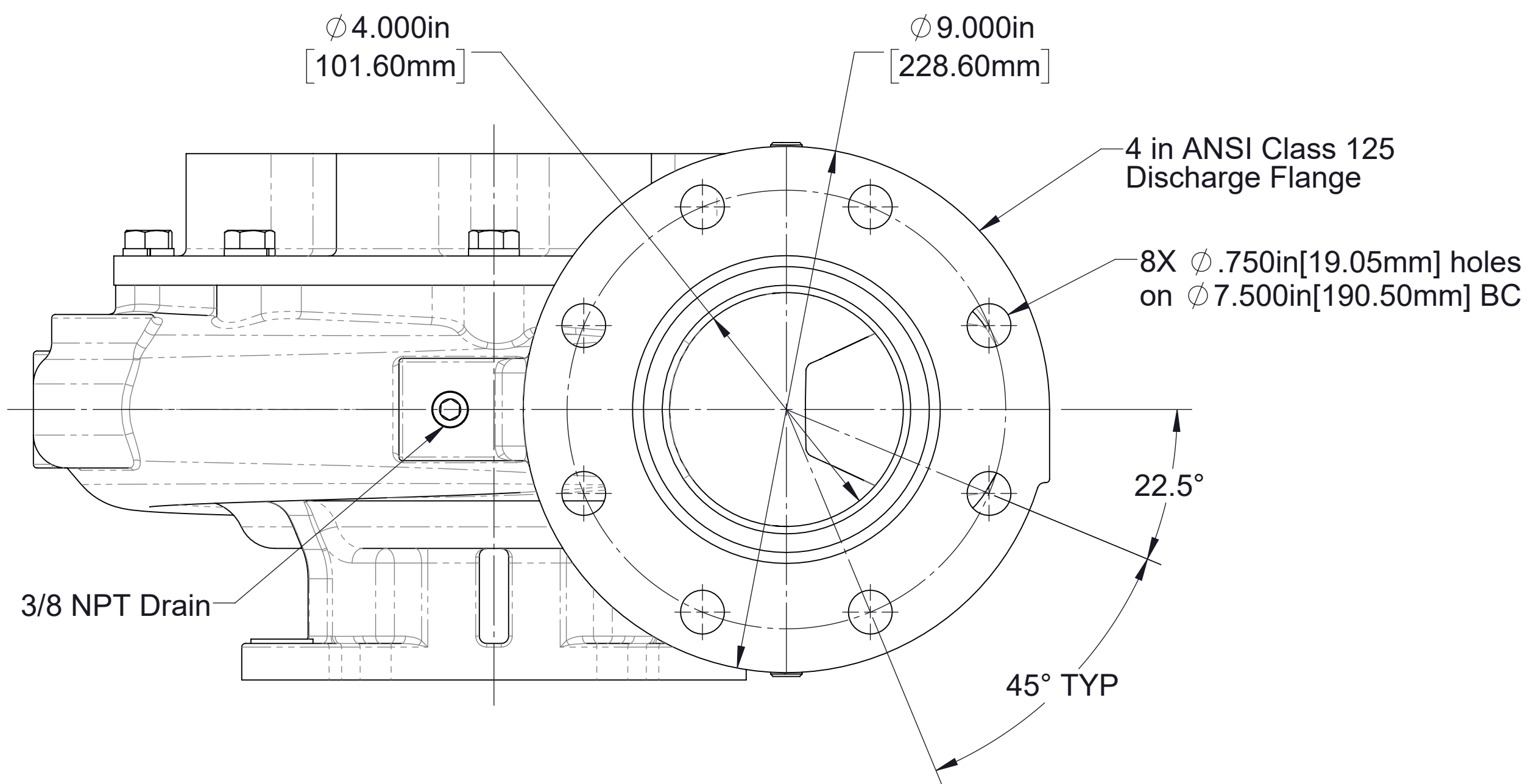


CXV

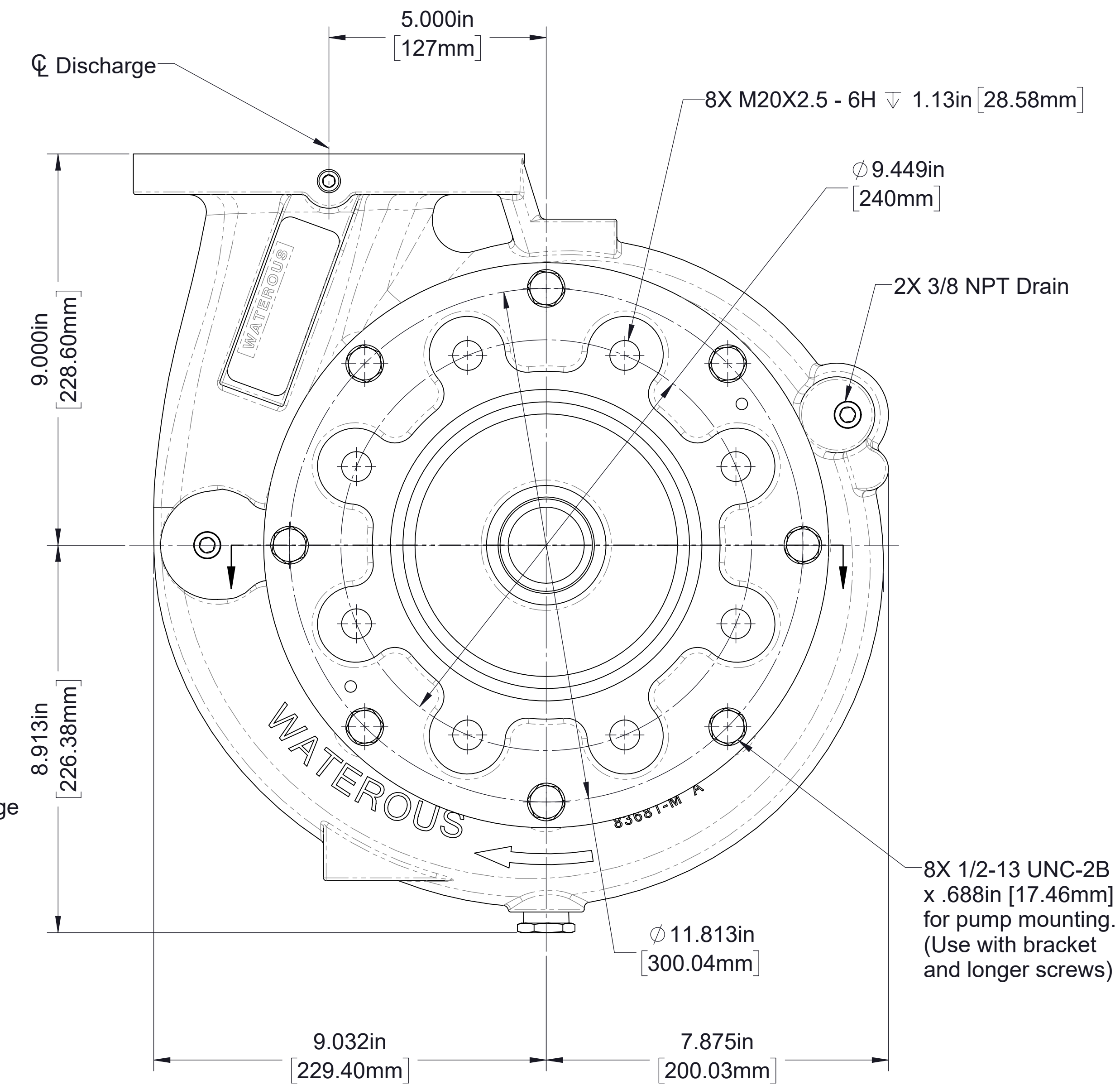
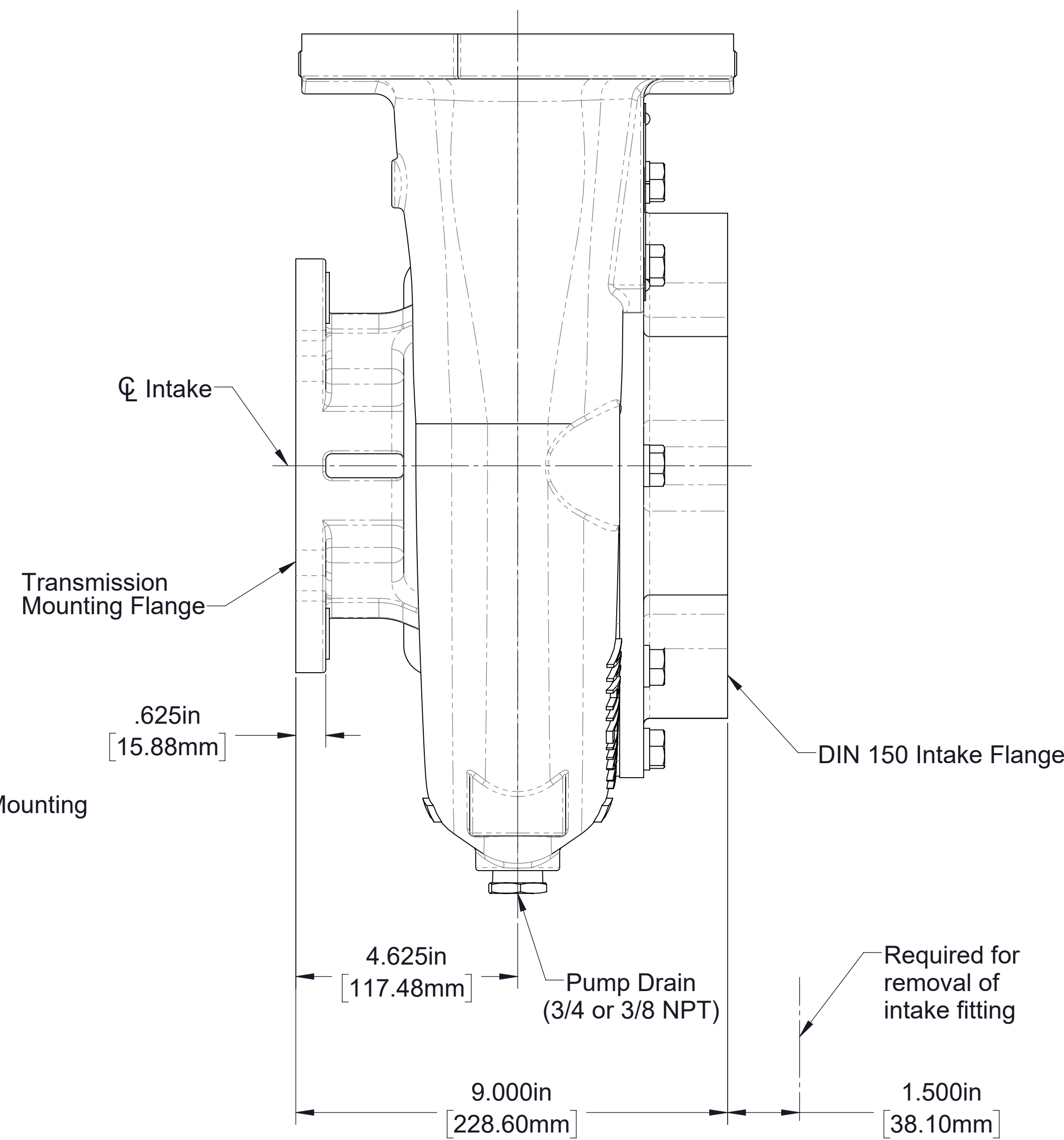
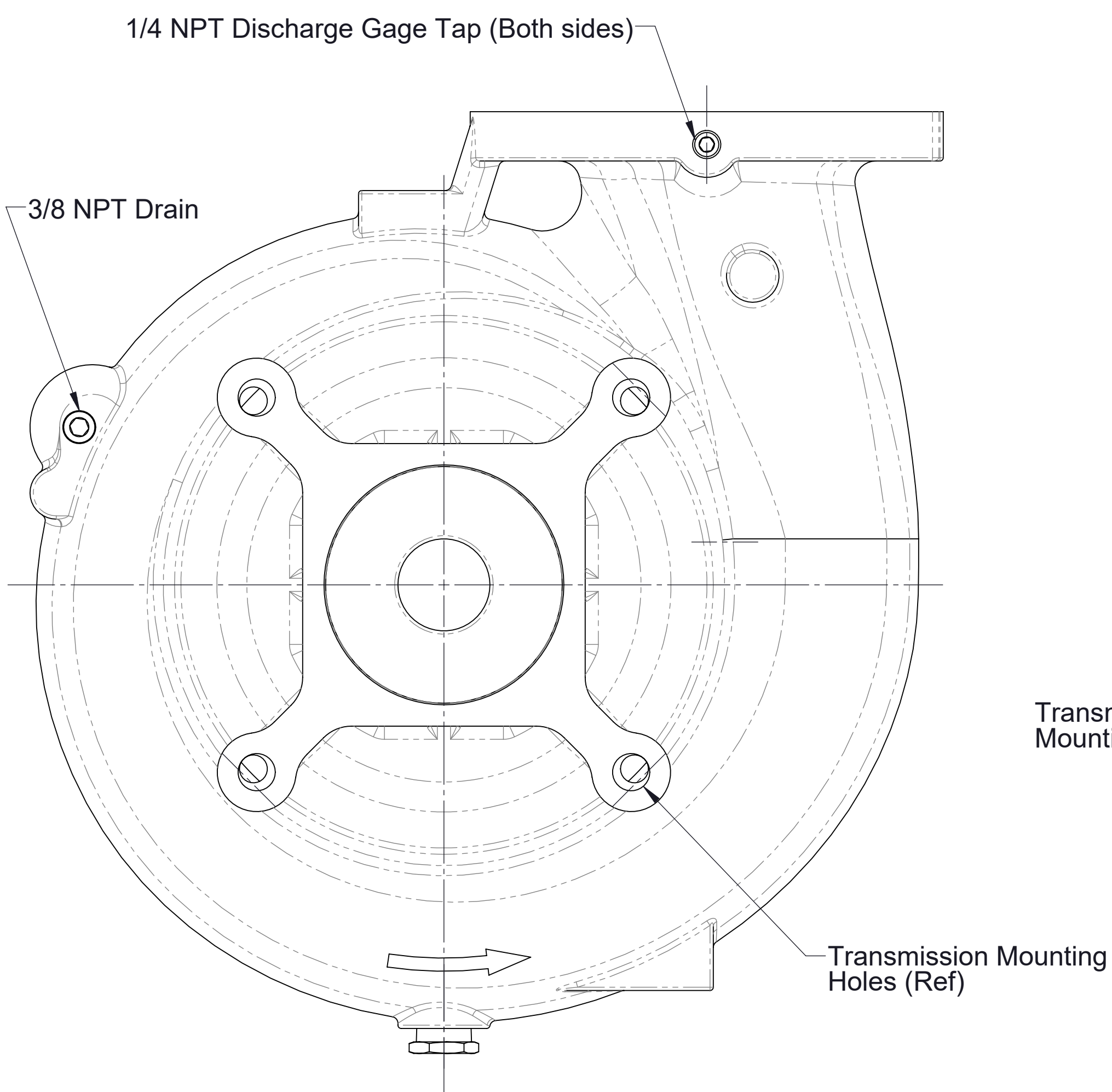
Note: Pump must be installed in accordance with Waterous Installation Instructions.

Transmission				Pump					See Page					
Type	Driveline	Pump Mounting on Transmission	Input Rotation (1)	Impeller Rotation (2)	Pump and Transmission Model			Hydraulic Pump Mounting Provision	Pump and Transmission			Optional Discharge Manifold Mounting on Pump		
					CXN	CXS	CXV		Dimensions	Available		3-1/2 in. End Flanges		4 in. End Flanges
										Pump Discharge Positions	Transmission Mounting Positions	Perpendicular to Intake	Perpendicular to Intake	Parallel to Intake
C22 Series Chain Drive, Split Shaft	Input and Output Shaft	Front (Input Shaft Side)	CW	CW	CXNC22C	CXSC22C	CXVC22C	No	11, 17	25	27	28	29	30
					CXNC22D	CXSC22D	CXVC22D	Yes	12, 17	25	27			
	Input Shaft Only	Front (Input Shaft Side)	CW	CW	CXNC22E	CXSC22E	CXVC22E	No	13, 17	25	27			
					CXNC22F	CXSC22F	CXVC22F	Yes	14, 17	25	27			
Input and Output Shaft	Rear (Output Shaft Side)	CW	CCW	CXNC22C	CXSC22C	CXVC22C	N/A	15, 17	25	27	31	32	33	
				CXNC22D	CXSC22D	CXVC22D								
Input Shaft Only	Rear (Output Shaft Side)	CW	CCW	CXNC22E	CXSC22E	CXVC22E	N/A	16, 17	25	27				
				CXNC22F	CXSC22F	CXVC22F								
K Series Two Gear, PTO Driven	Input Shaft Only	Opposite Input Shaft	CW	CW	CXNK	CXSK	CXVK	N/A	18	25	26	28	29	30
			CCW	CCW	CXNK	CXSK	CXVK	N/A	18	25	26	31	32	33
T Series Two Gear, Direct Engine Mount	Input Shaft Only	Opposite Input Shaft	CW	CW	CXNT	CXST	CXVT	N/A	19	25	26	28	29	30
			CCW	CCW	CXNT	CXST	CXVT	N/A	19	25	26	31	32	33
P Series Chain Drive, PTO Driven	Input Shaft Only	Input Shaft Side	CW	CW	CXNPA	CXSPA	CXVPA	No	20	25	27	28	29	30
								Yes	21					
QB Series Chain Drive, PTO Driven	Input Shaft Only	Front (Input Shaft Side)	CW	CW	N/A	N/A	CXVQB	Yes	22	25	27	N/A	N/A	N/A
		Rear (Opposite Input Shaft)	CW	CCW	N/A	N/A	CXVQB	Yes	23					
D Series Directly from a PTO	Input Shaft Only	Opposite Input Shaft	CW	CCW	CXND	CXSD	CXD	N/A	24	25	N/A	31	32	33
			CCW	CW	CXND	CXSD	CXD	N/A	24	25	N/A	28	29	30

- Notes:
1. Input rotation is viewed looking directly at the transmission input shaft.
2. Impeller rotation is viewed looking directly at the intake fitting (impeller eye).

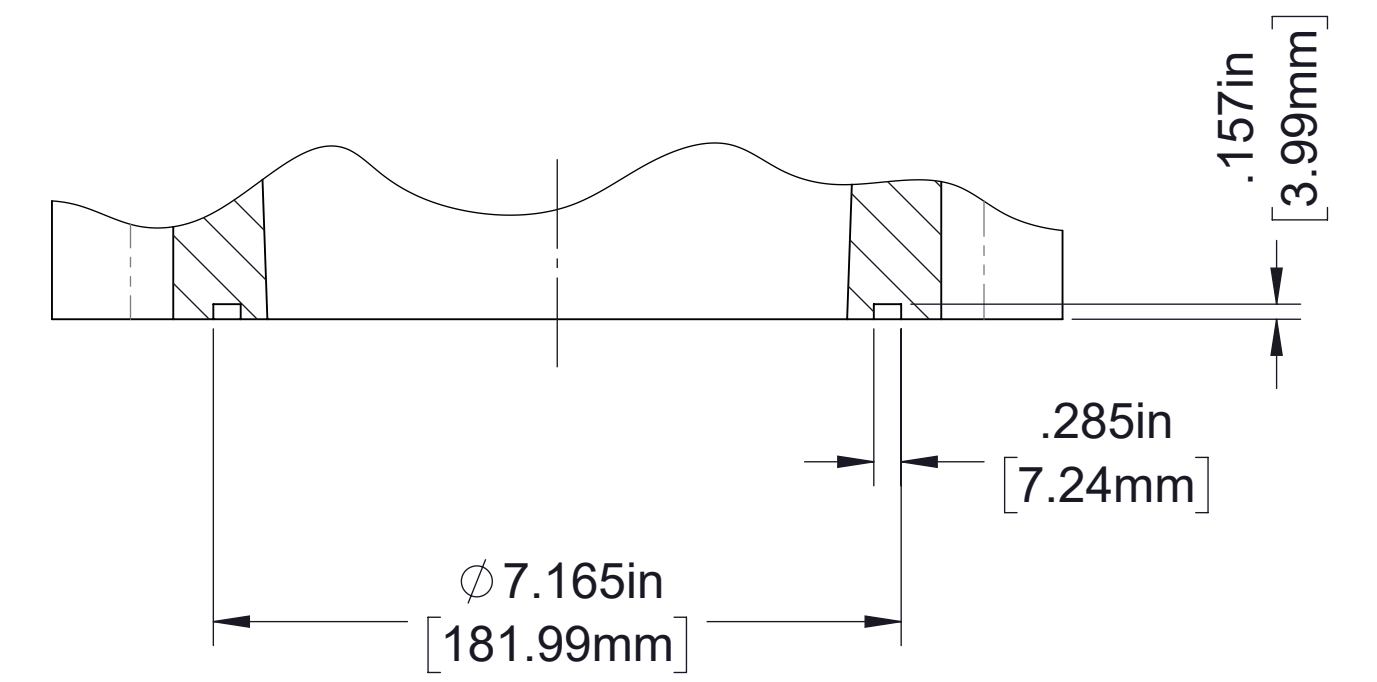
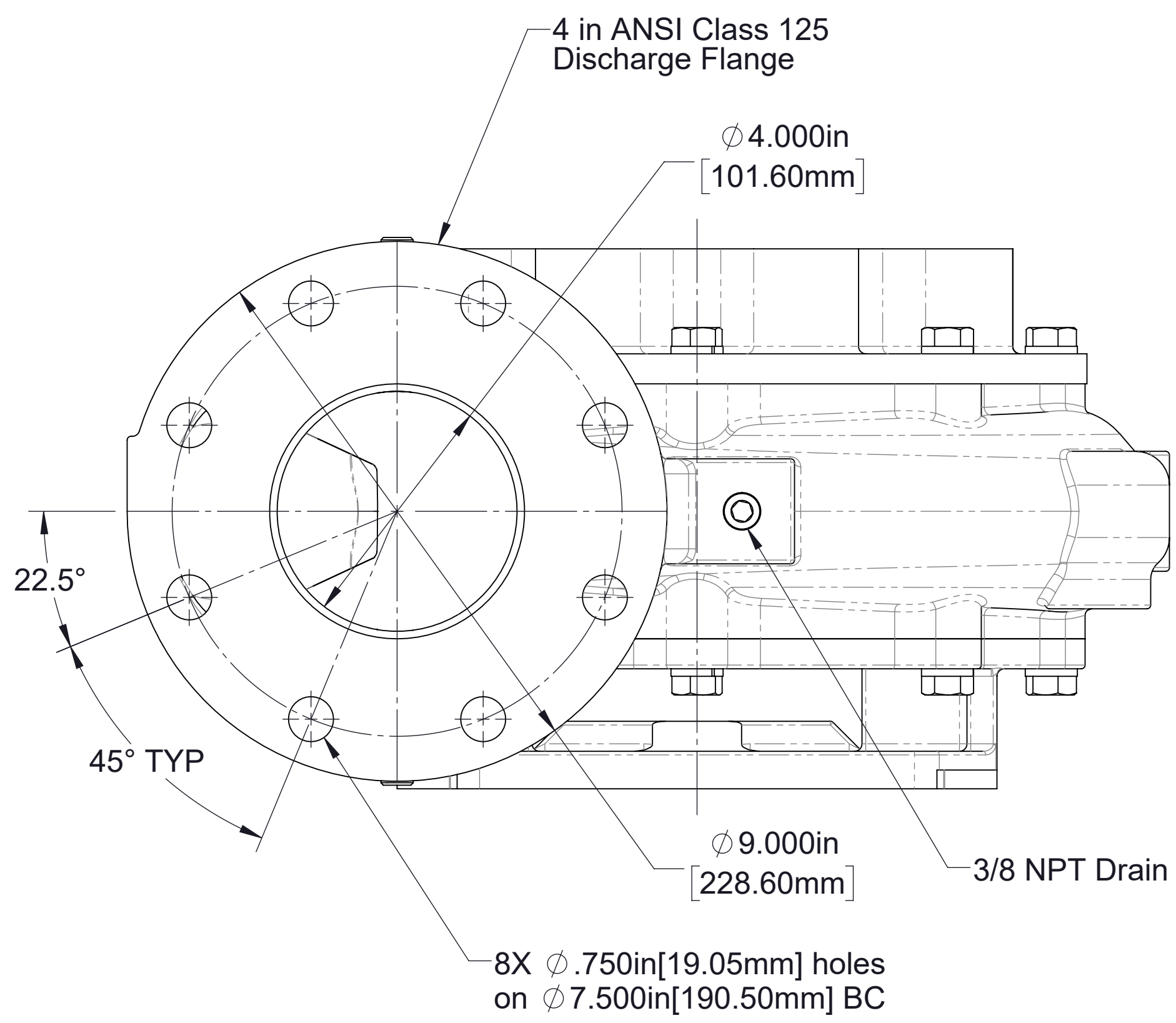


End Flange O-ring Dimensions
 Use 6.125in I.D. x .210 cross-section O-ring
 or order part No. W37108-6 from Waterous

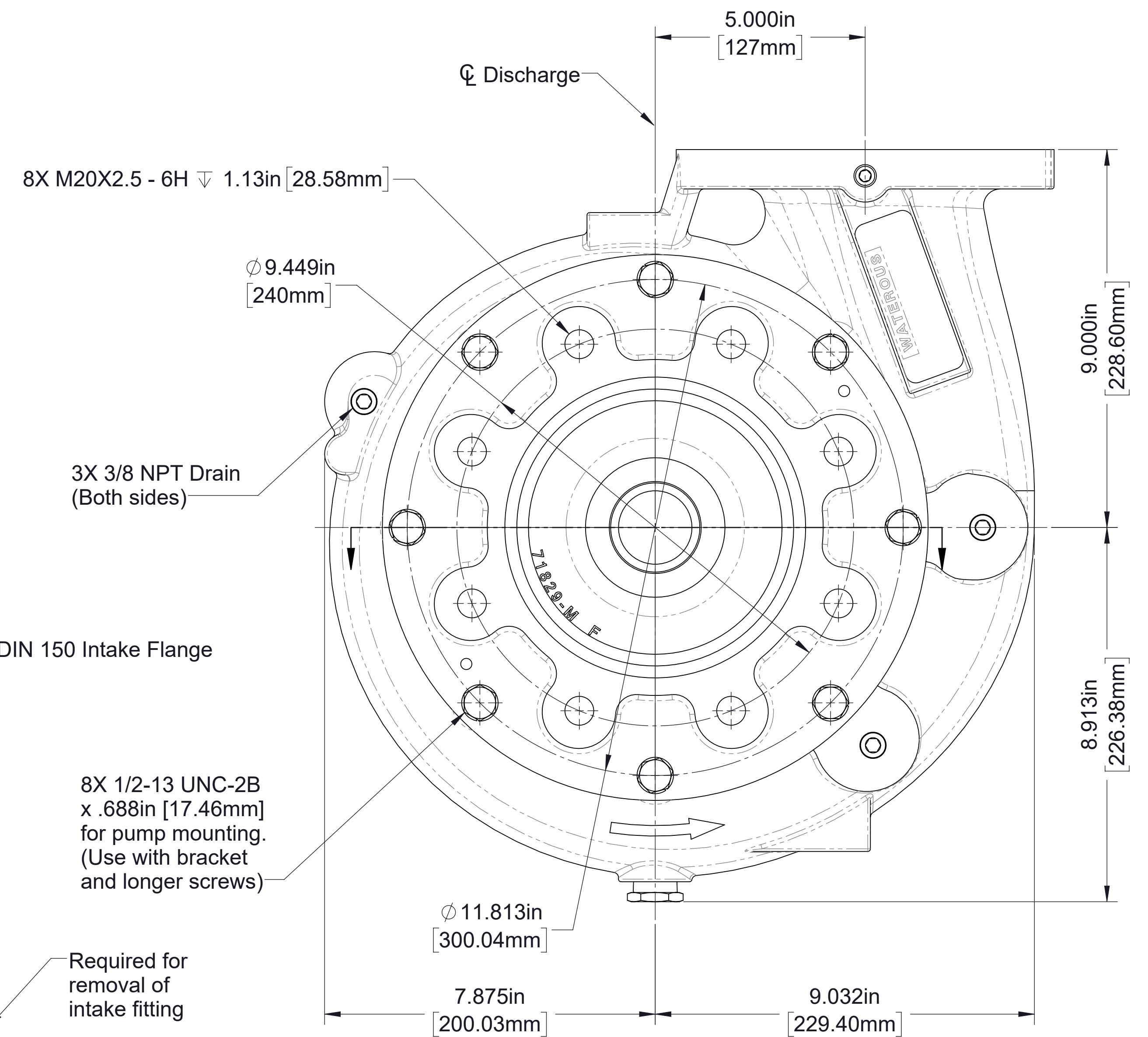
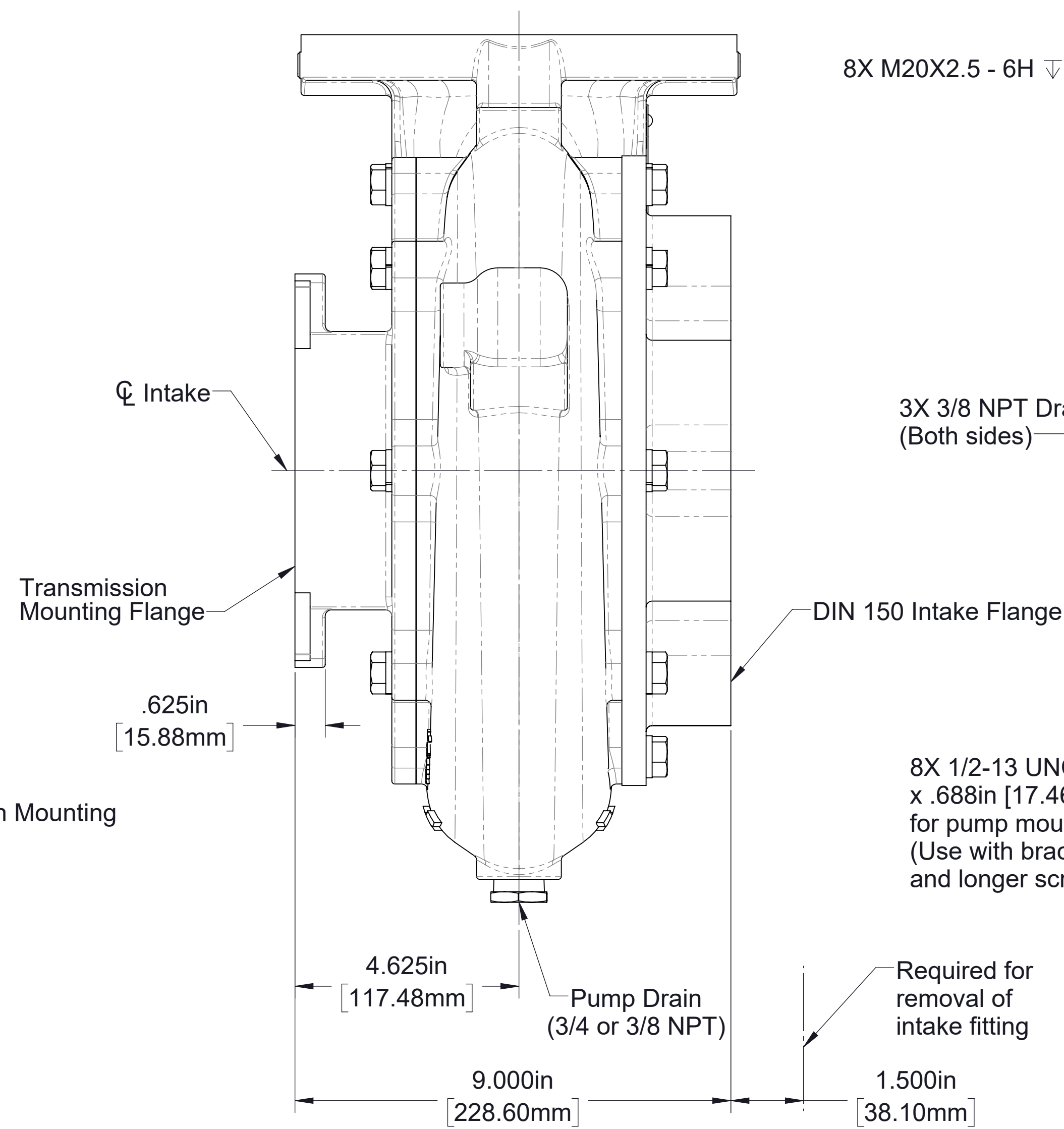
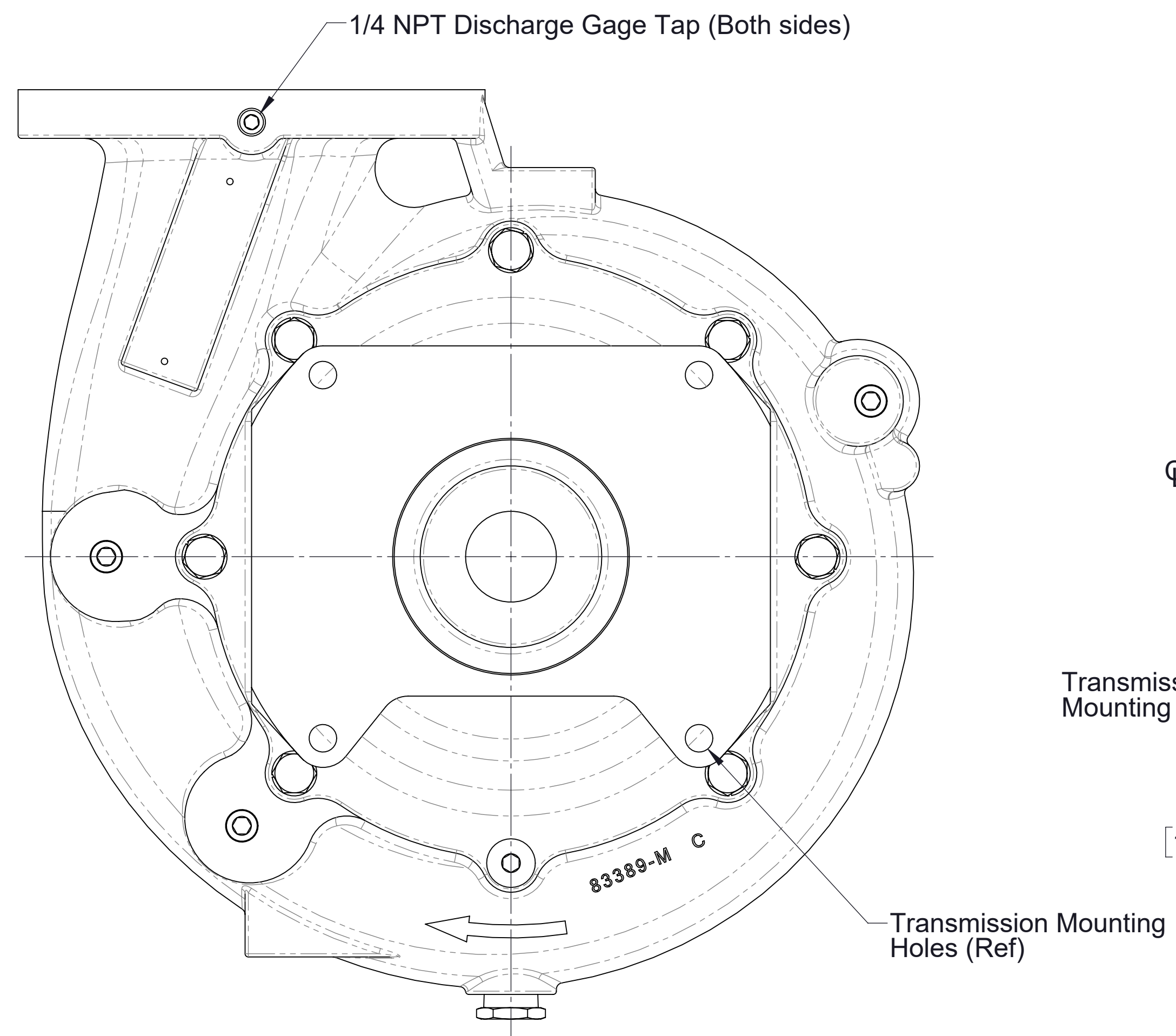


CXN Body Dimensions

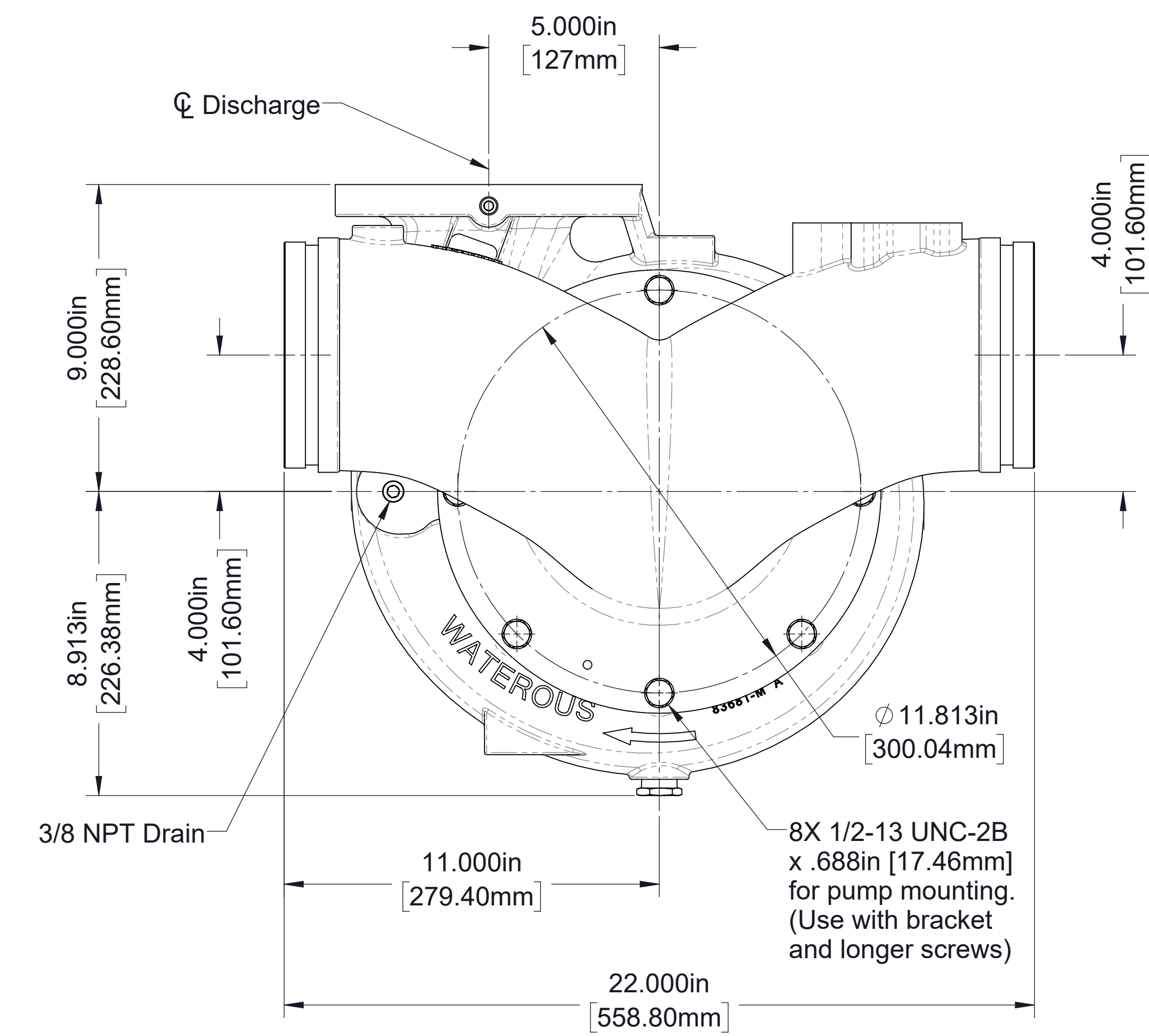
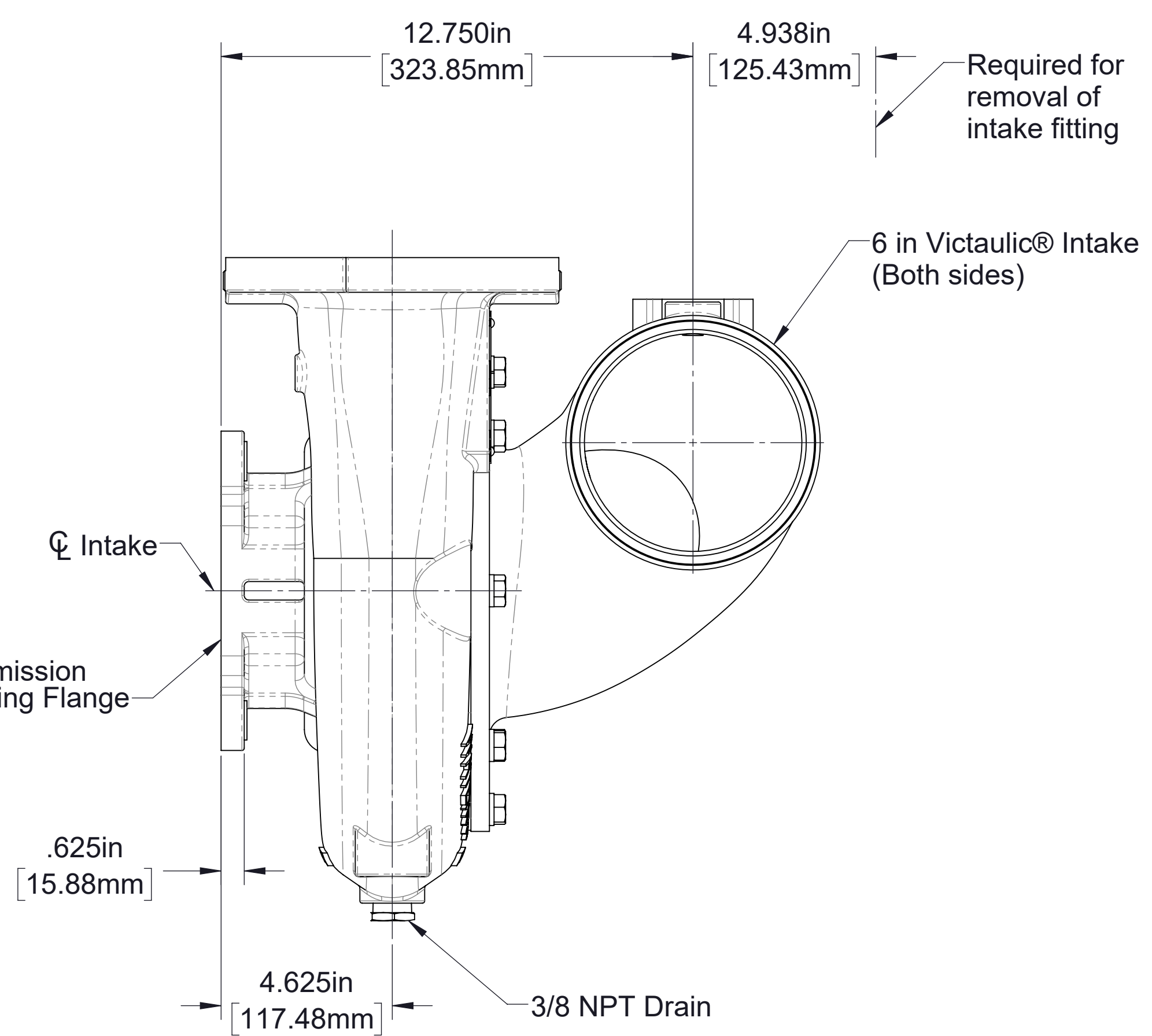
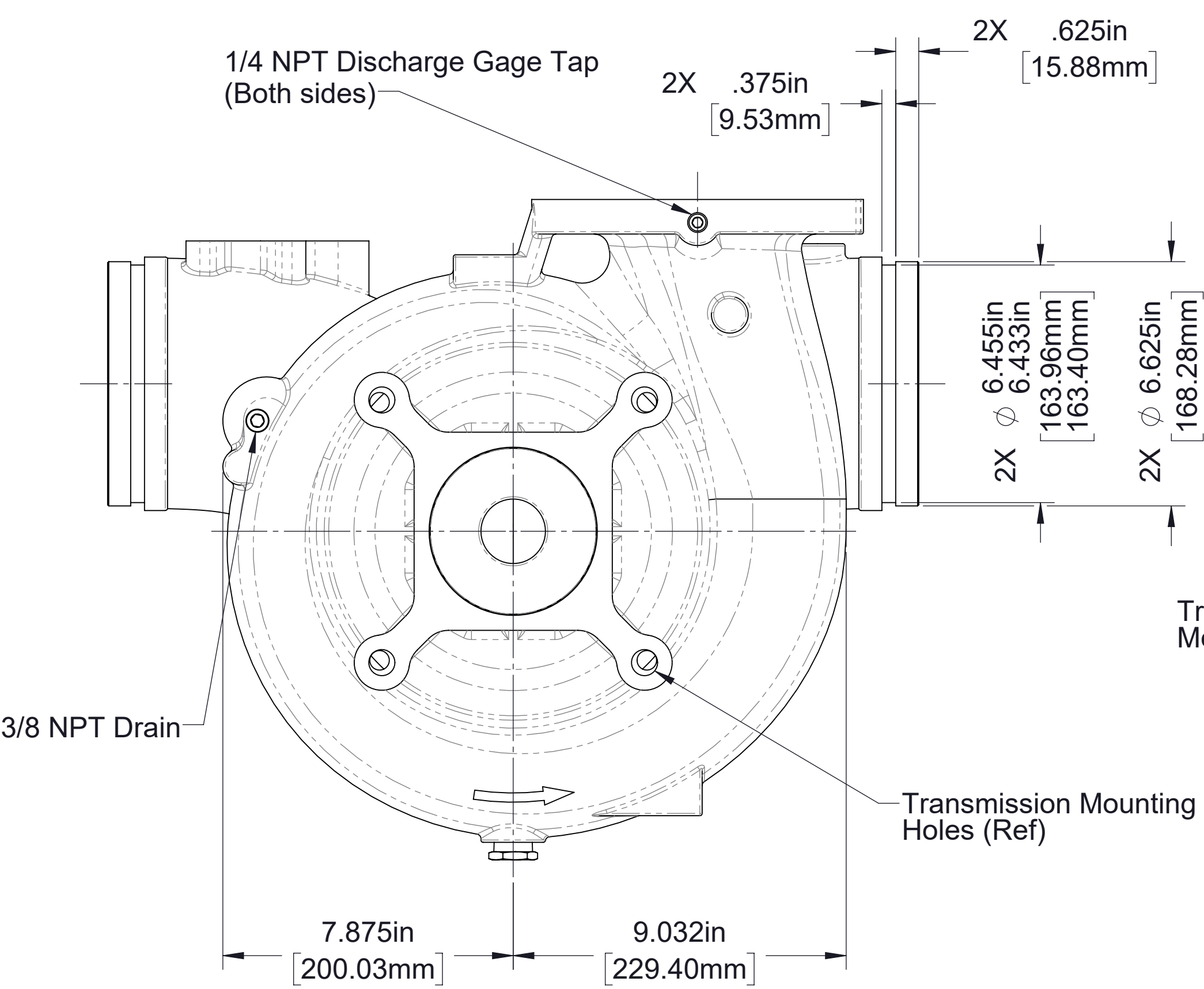
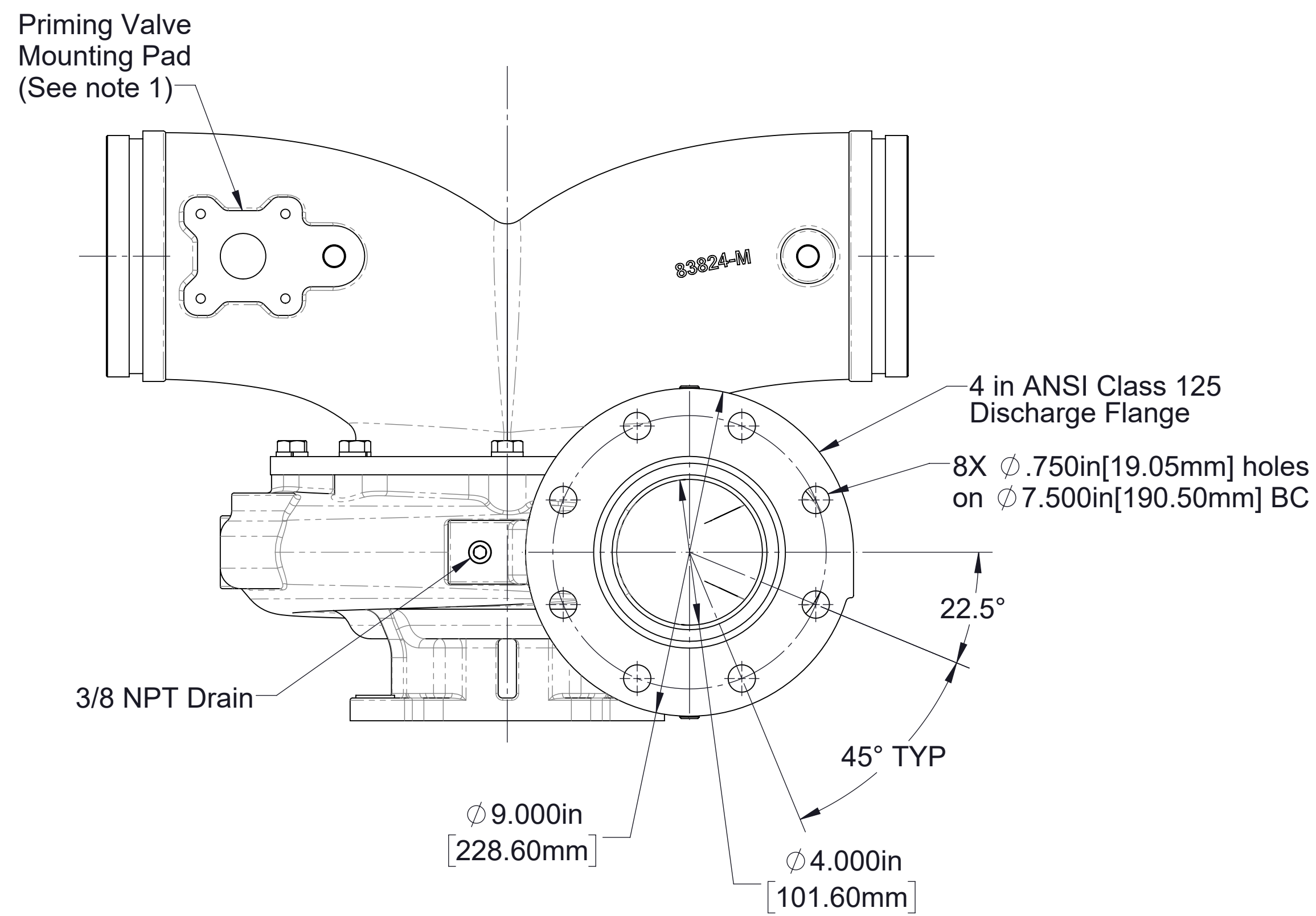
CW Impeller Rotation
 Shown with blank 4 in. ANSI flange discharge
 See pages 9 & 10 for optional discharge manifolds



End Flange O-ring Dimensions
 Use 6.125in I.D. x .210 cross-section O-ring
 or order part No. W37108-6 from Waterous

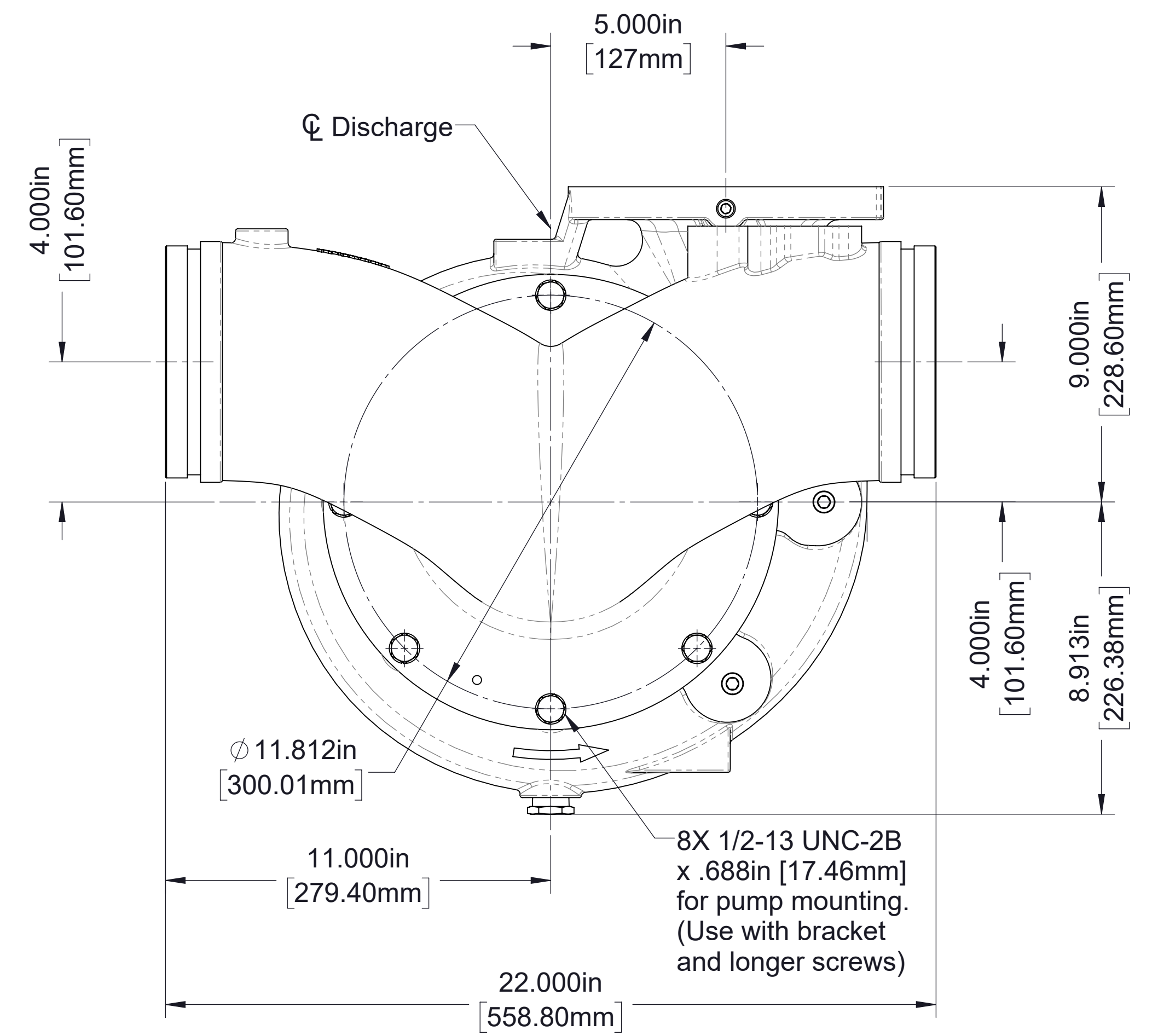
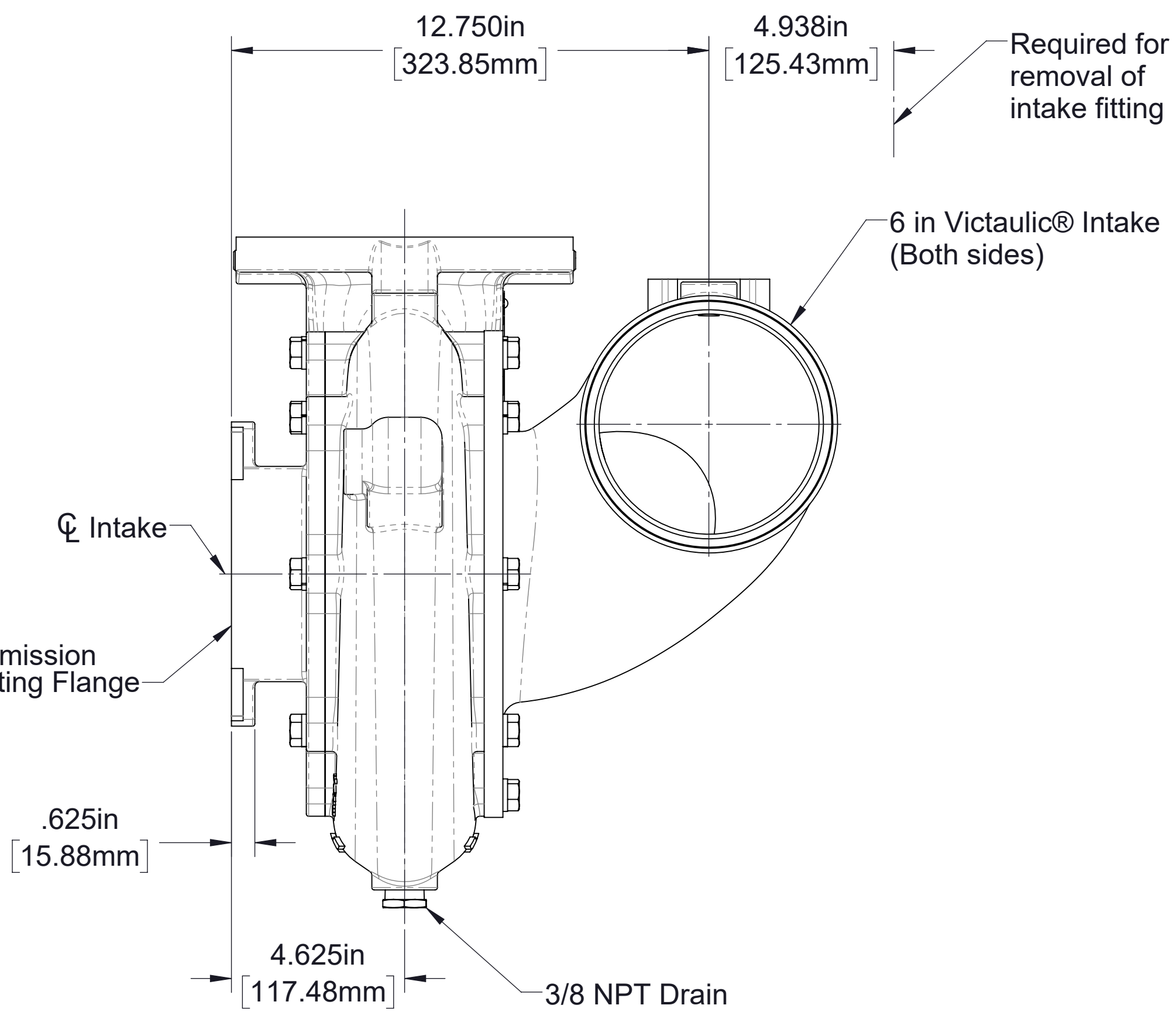
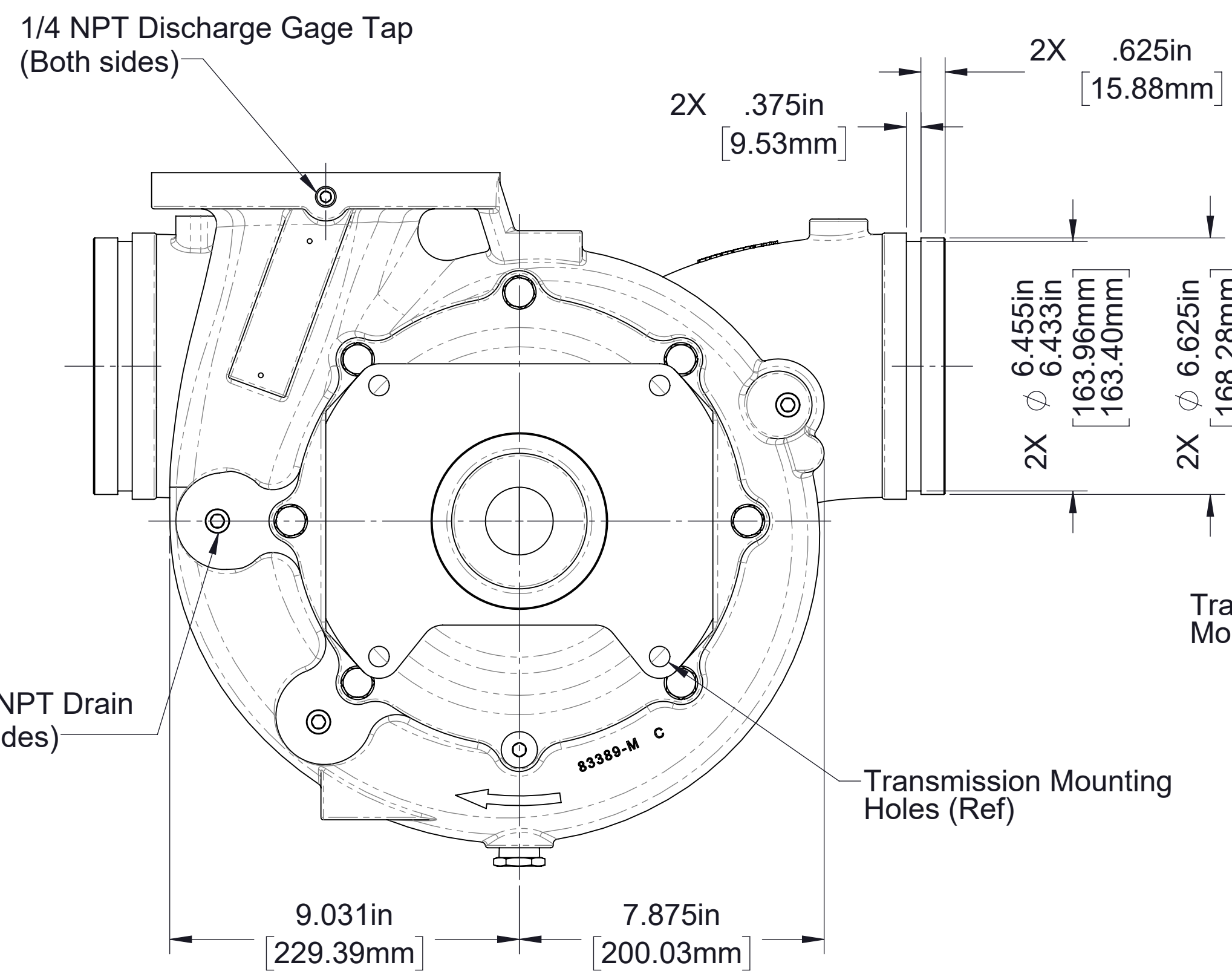
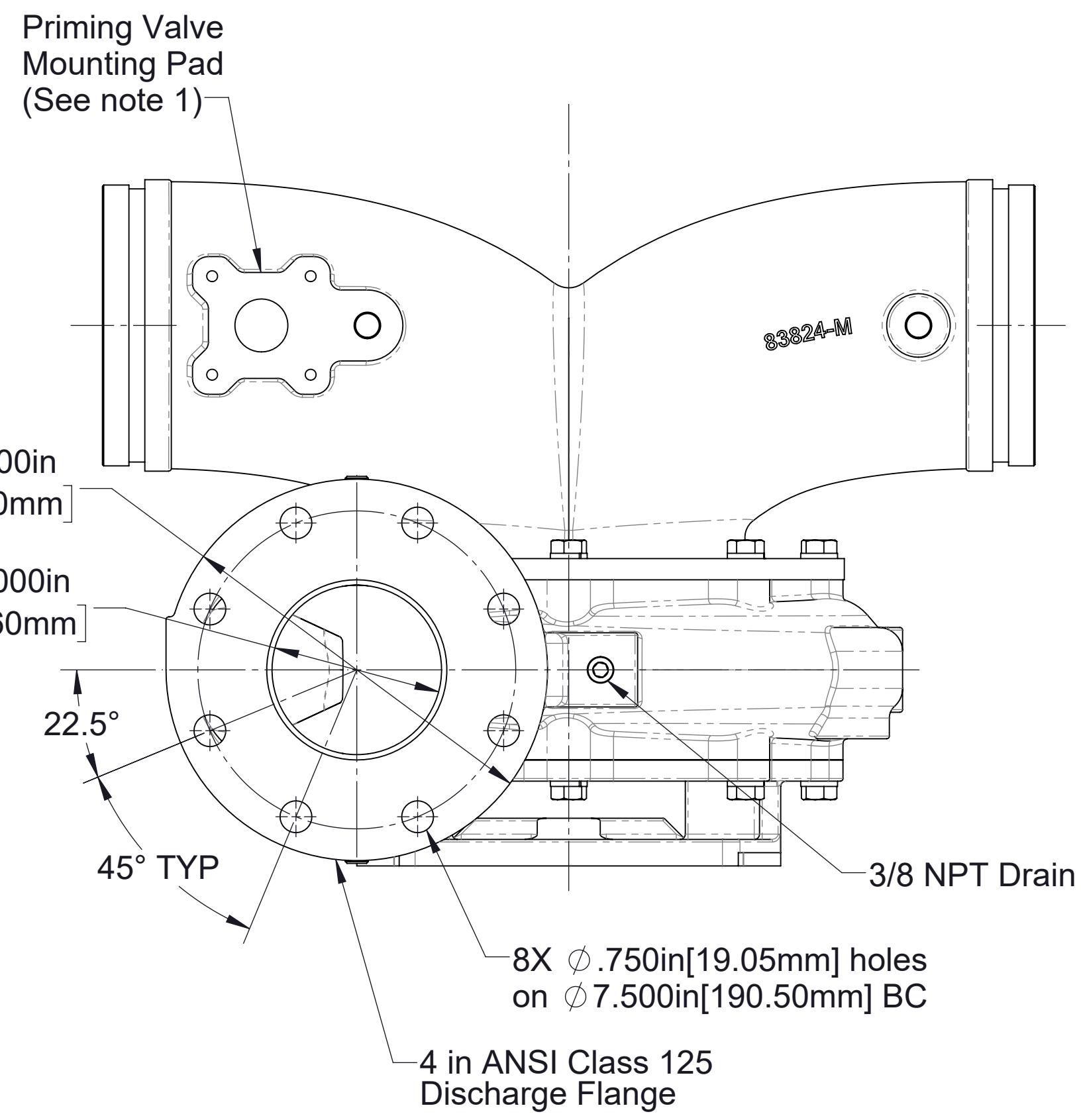


CXN Body Dimensions
 CCW Impeller Rotation
 Shown with blank 4 in. ANSI flange discharge
 See pages 9 & 10 for optional discharge manifolds



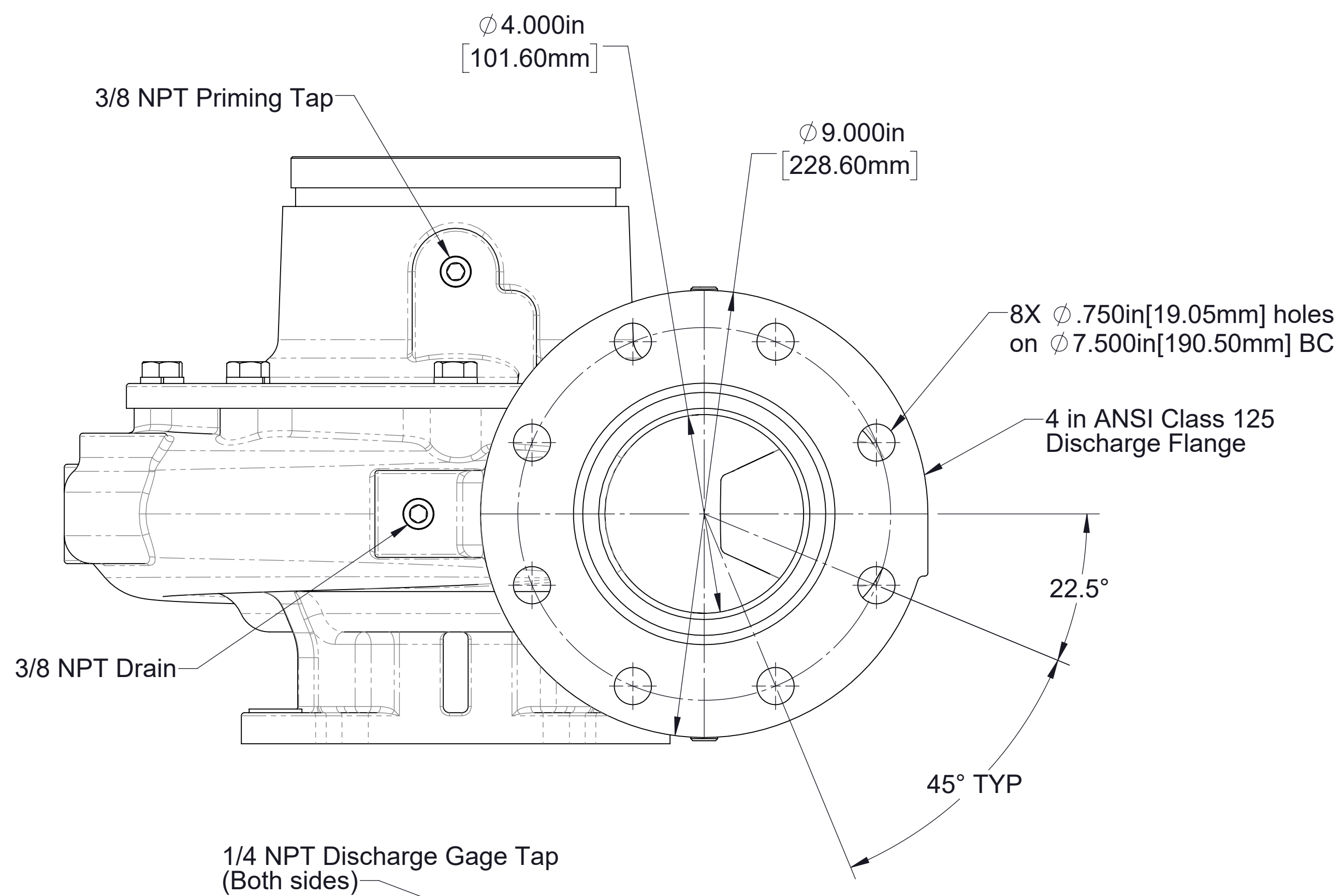
Note:
1. See drawing DPL82908 for priming valve details.

CXS Body Dimensions
CW Impeller Rotation
Shown with blank 4 in. ANSI flange discharge
See pages 9 & 10 for optional discharge manifolds

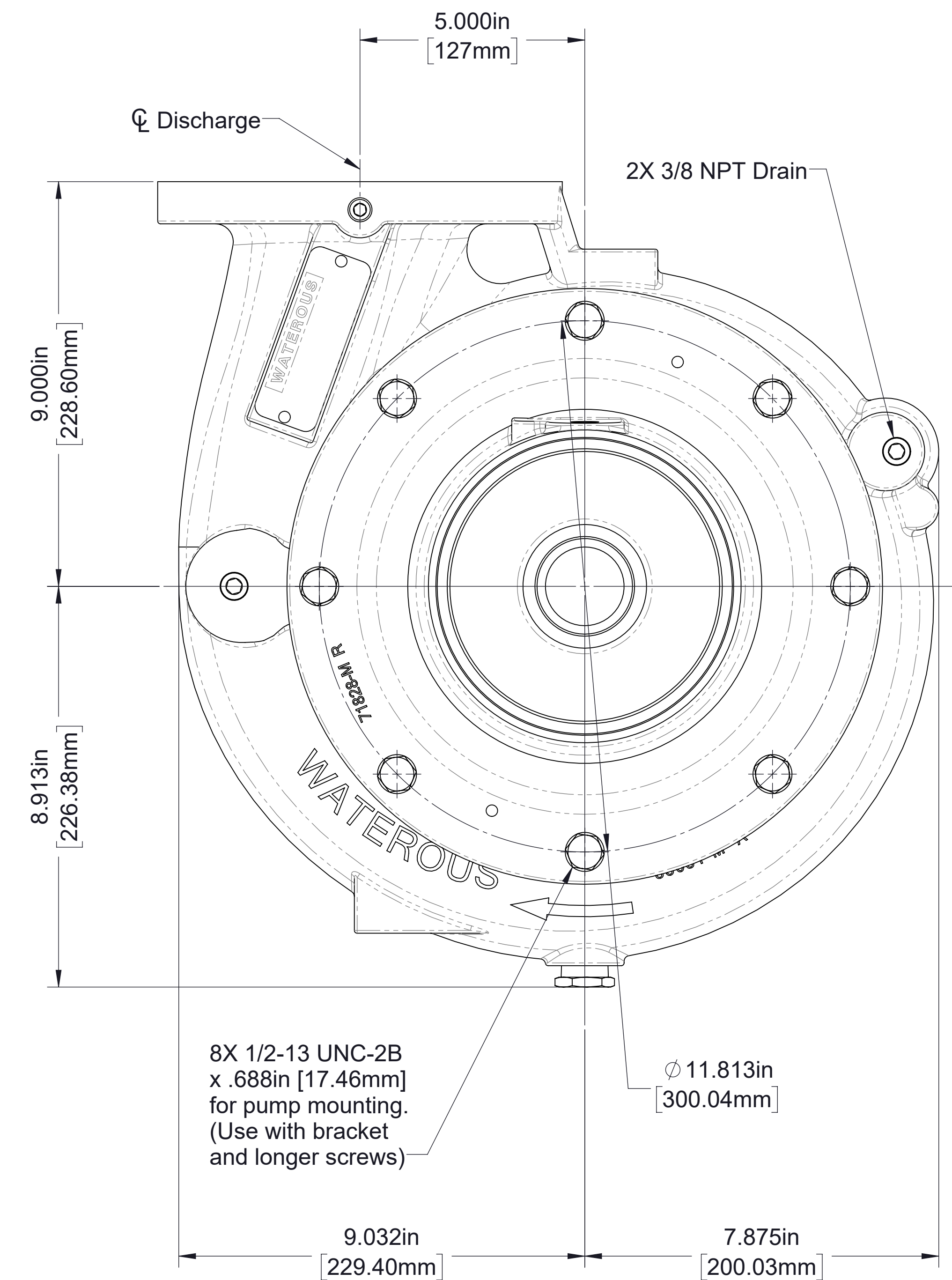
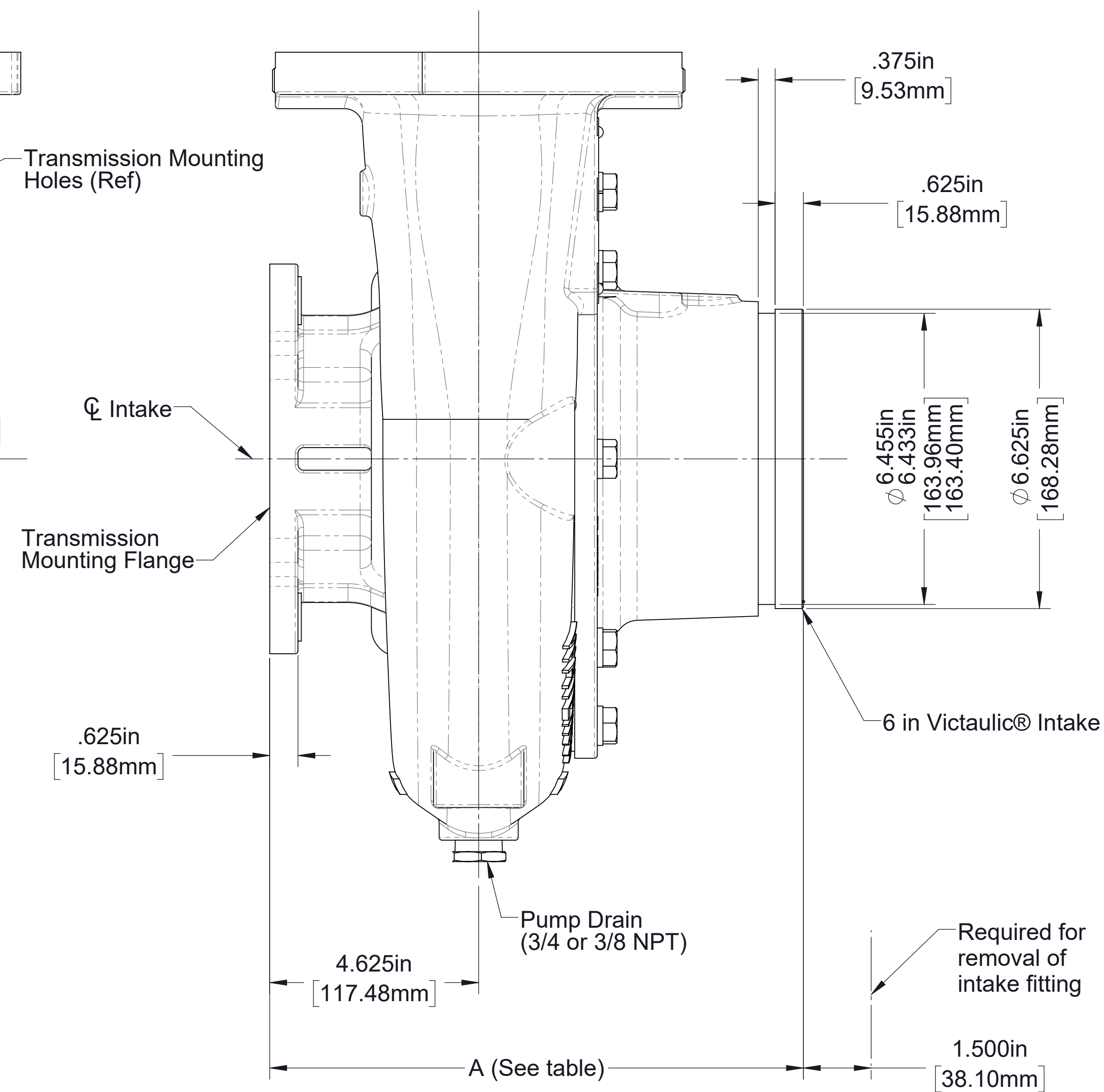
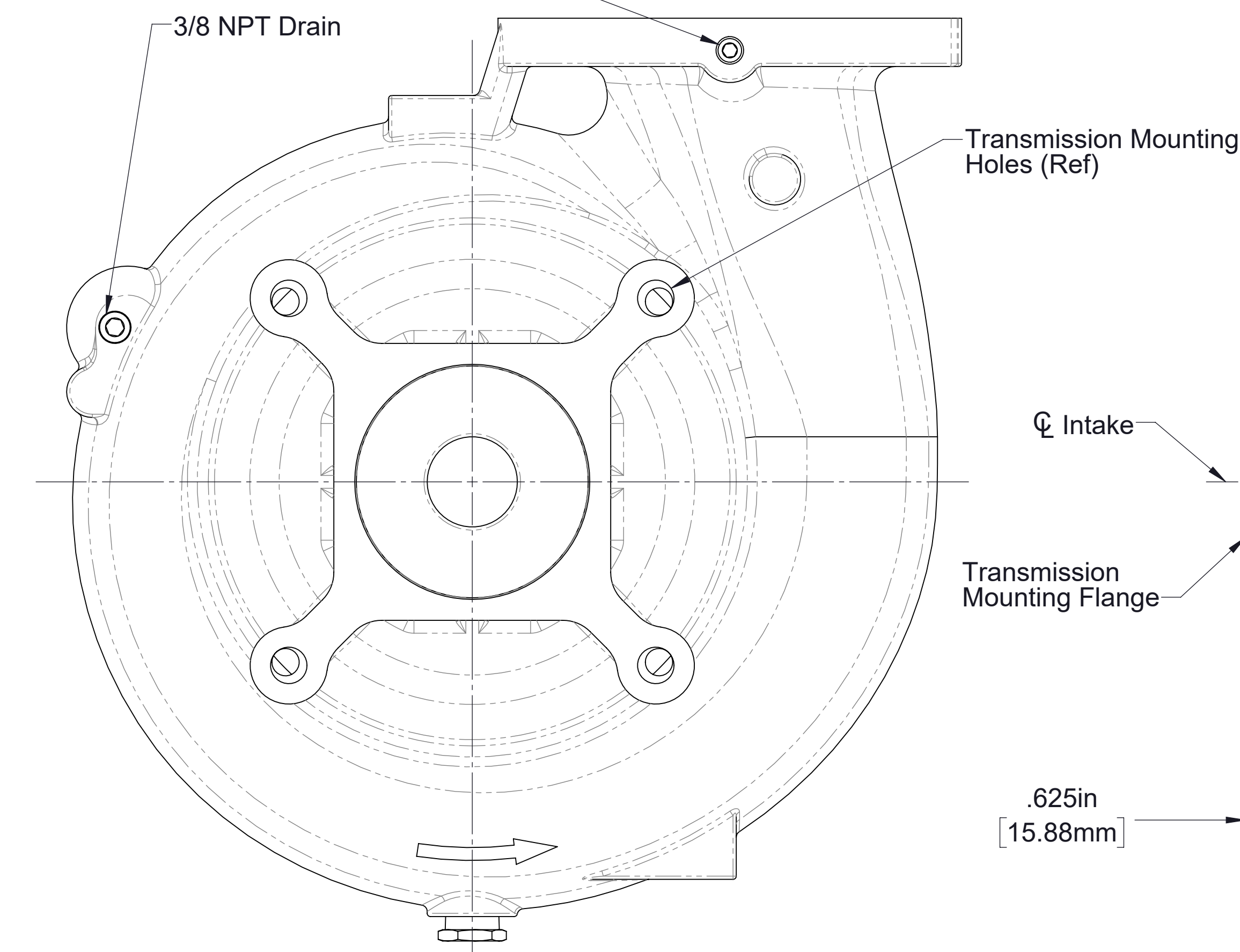


Note:
1. See drawing DPL82908 for priming valve details.

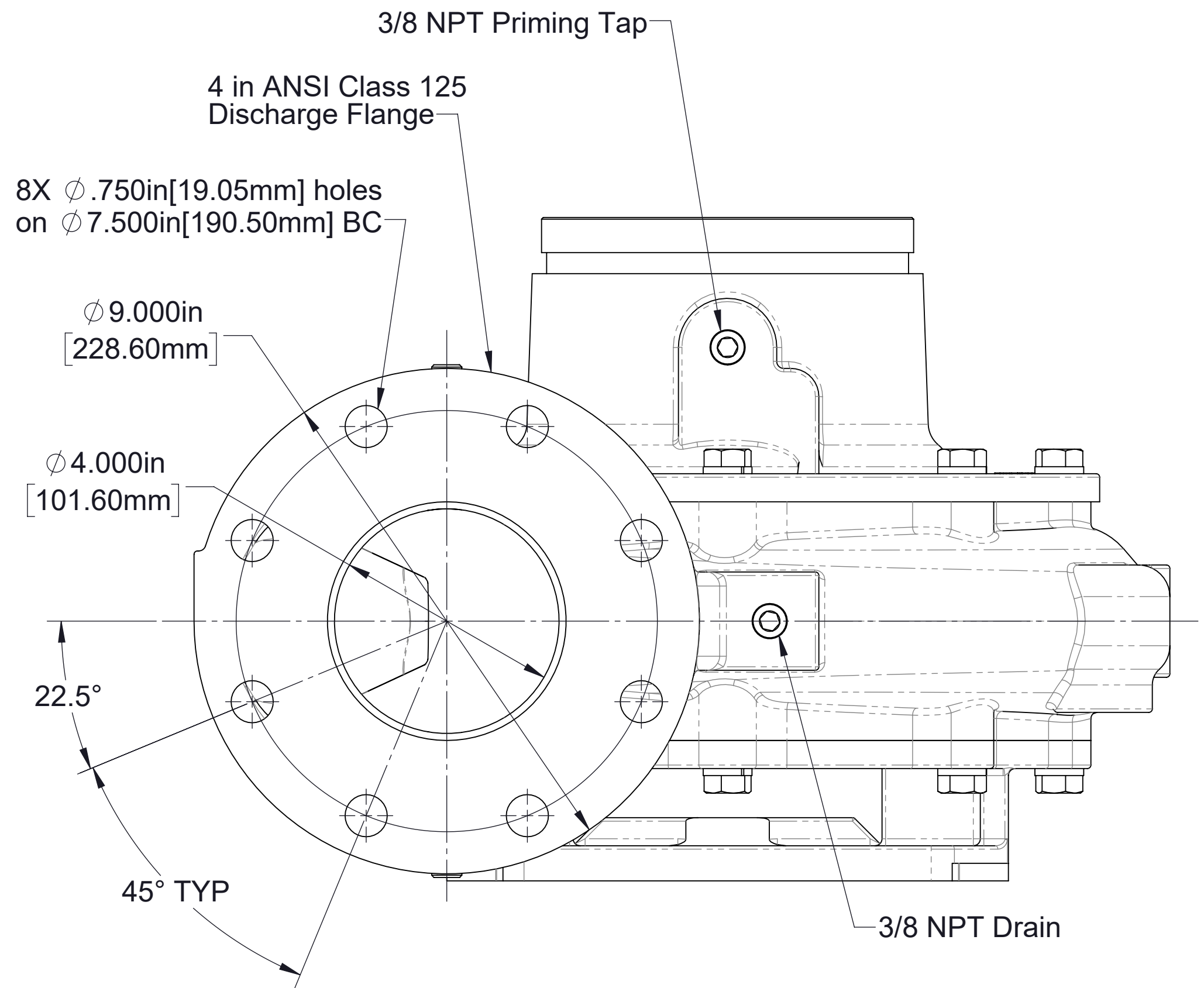
CXS Body Dimensions
CCW Impeller Rotation
Shown with blank 4 in. ANSI flange discharge
See pages 9 & 10 for optional discharge manifolds



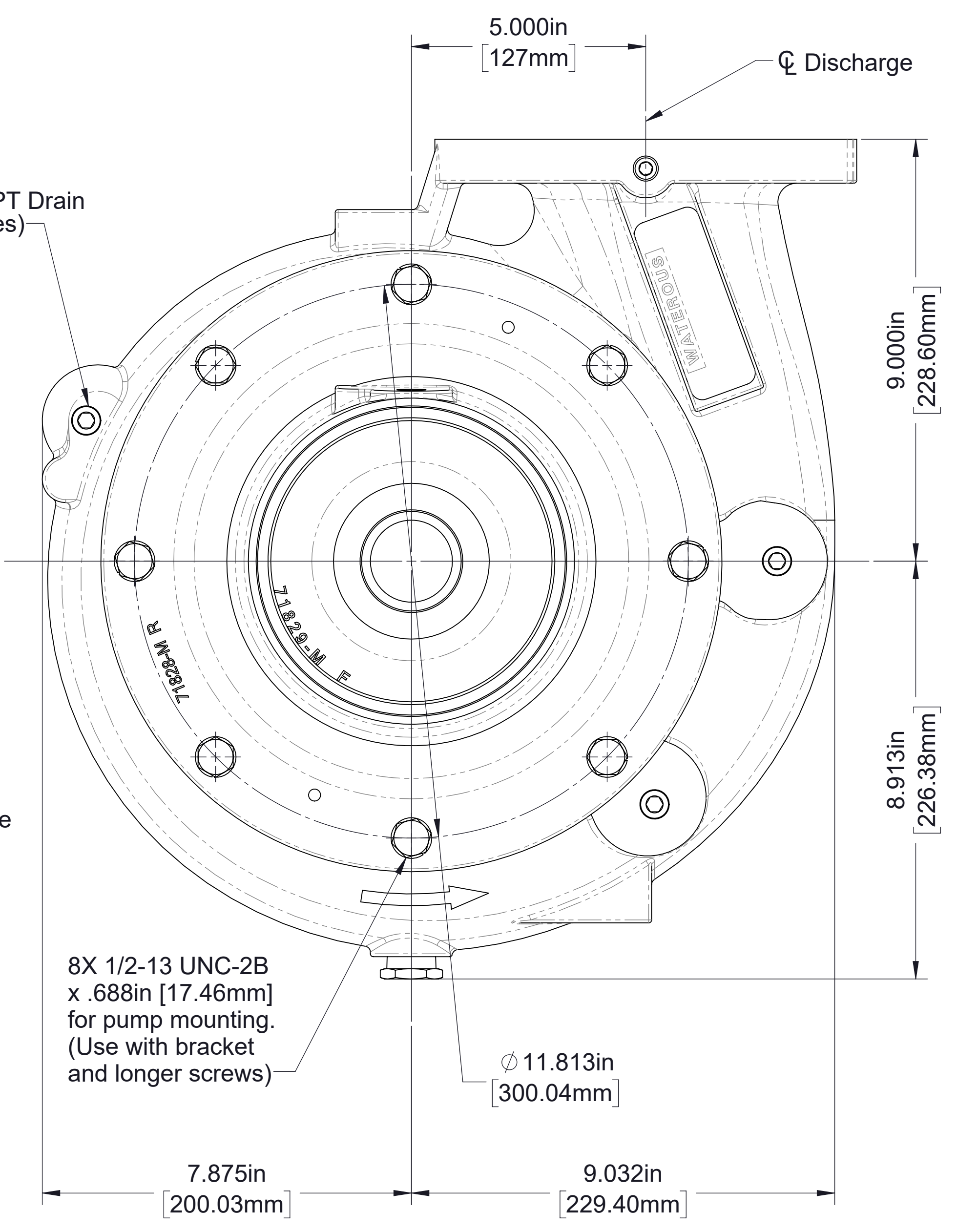
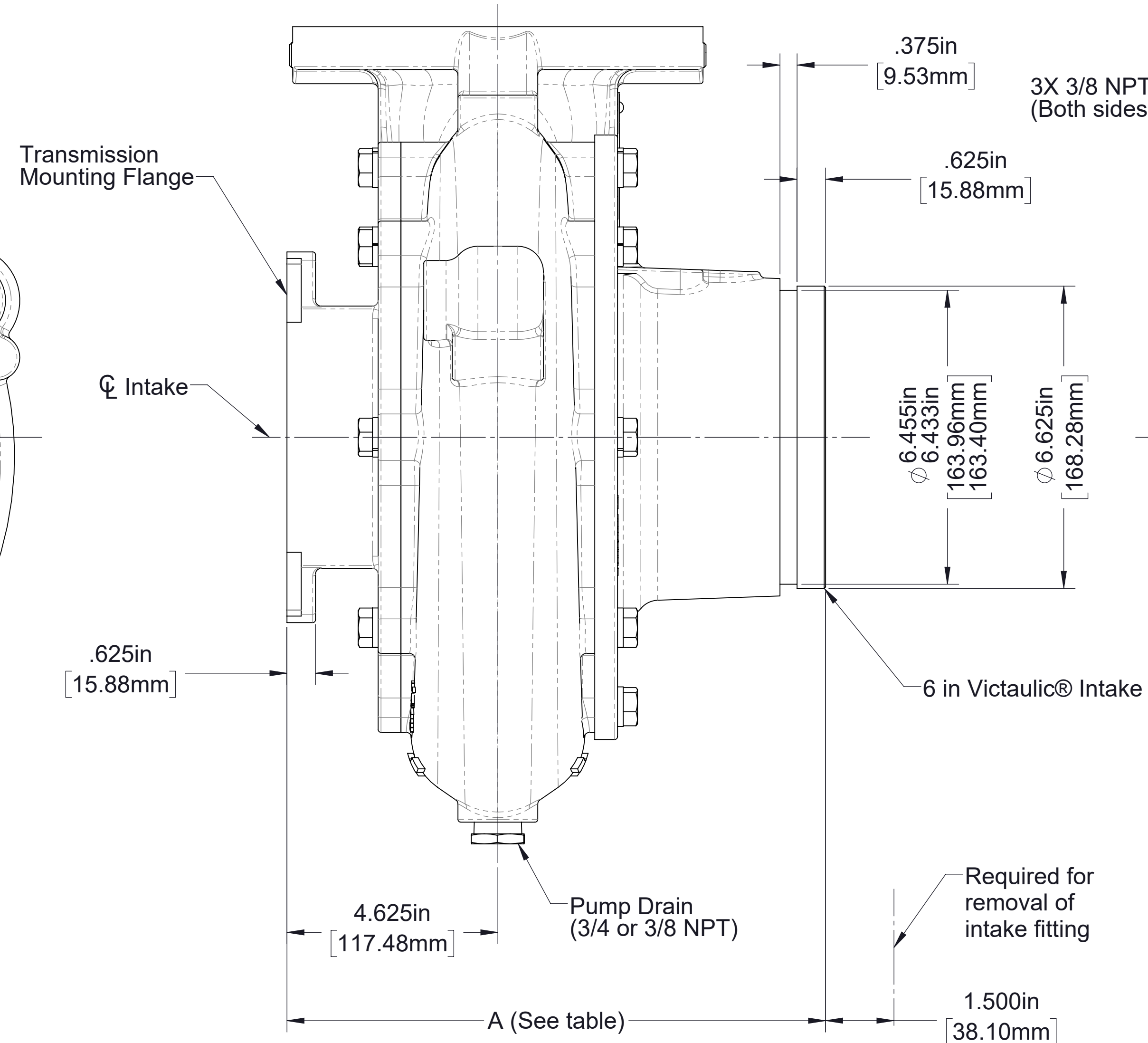
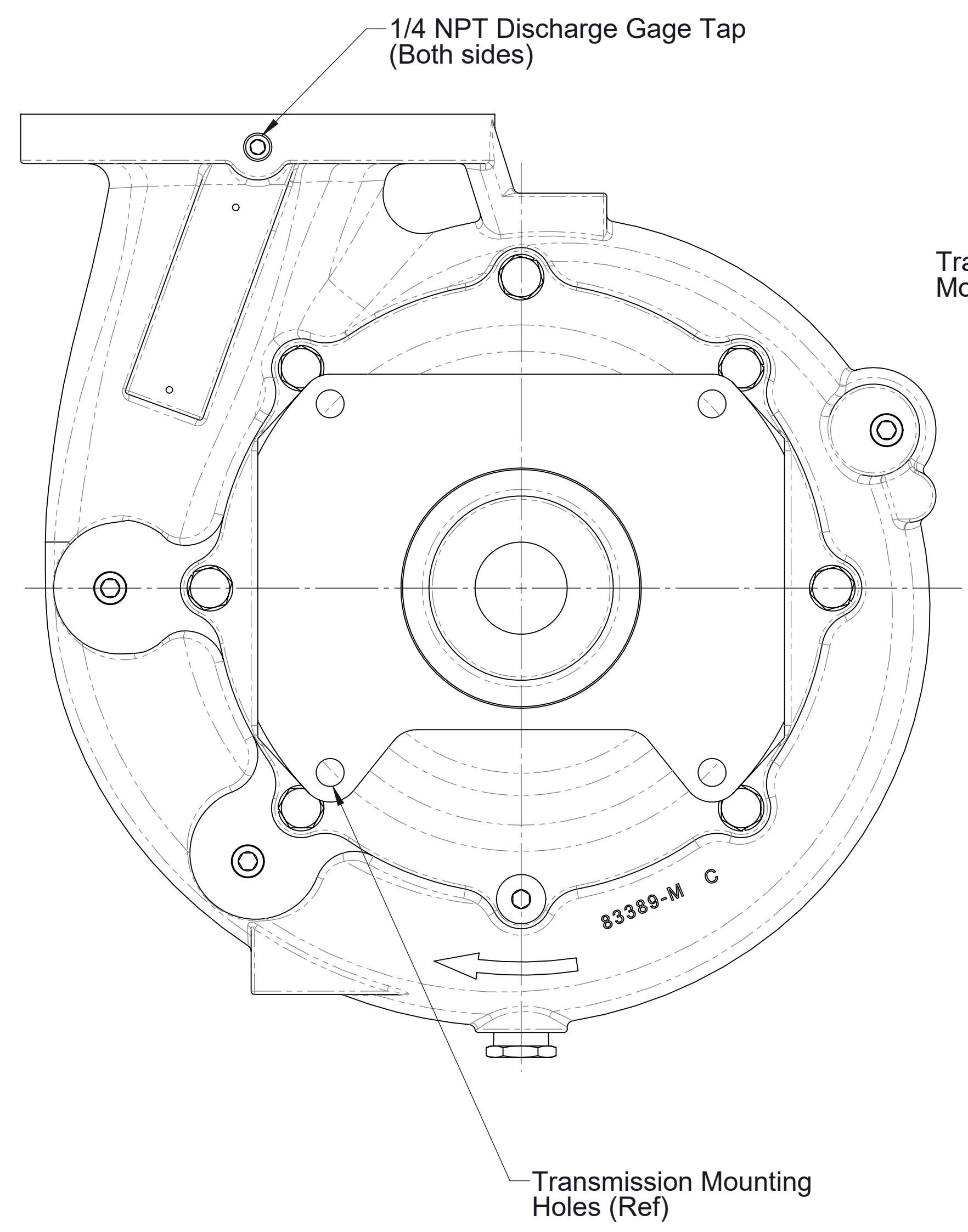
Intake Fitting Length	Dimension A
Long	11.813 in (300.09mm)
Short	8.813 in (223.85mm)



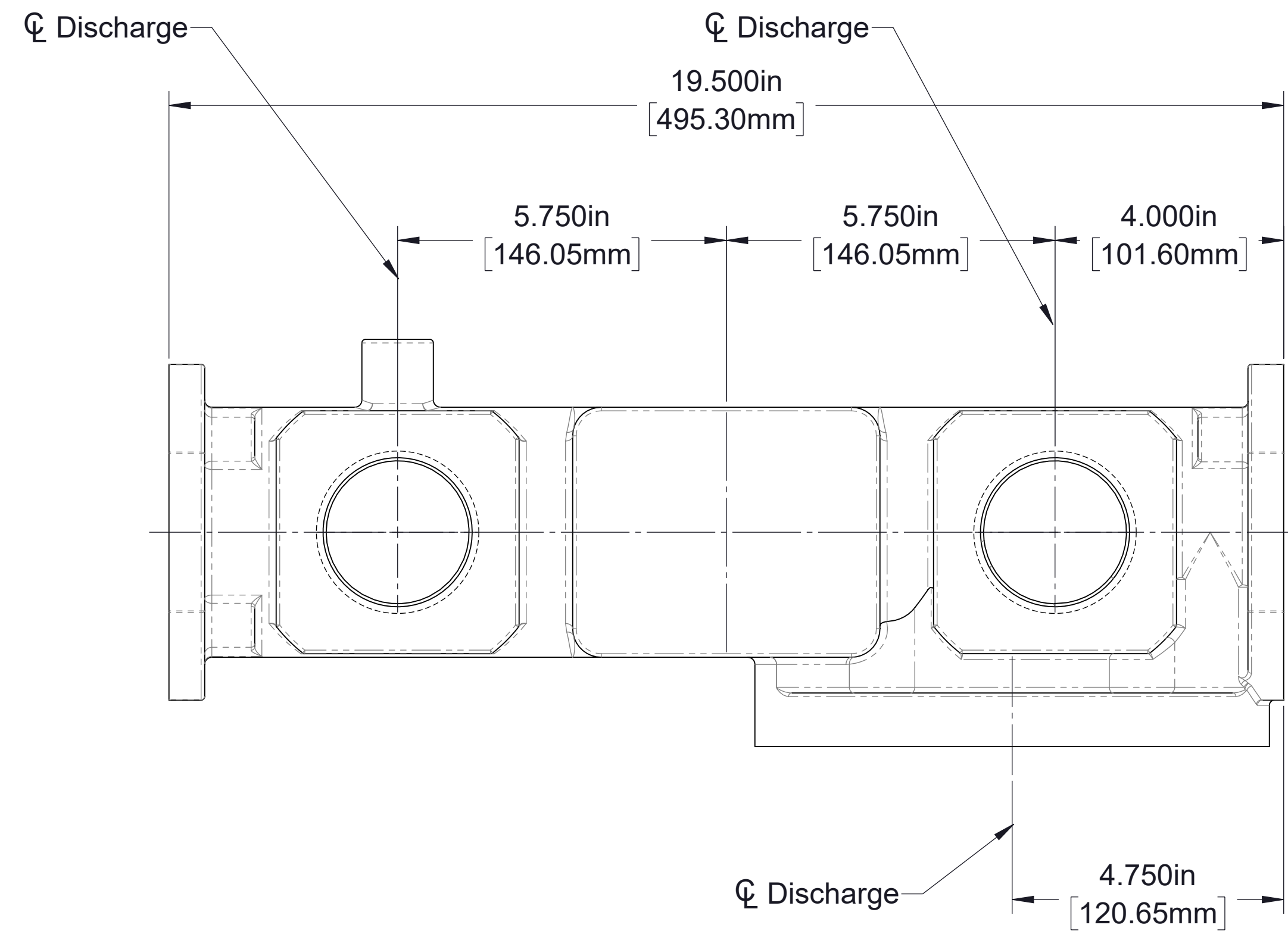
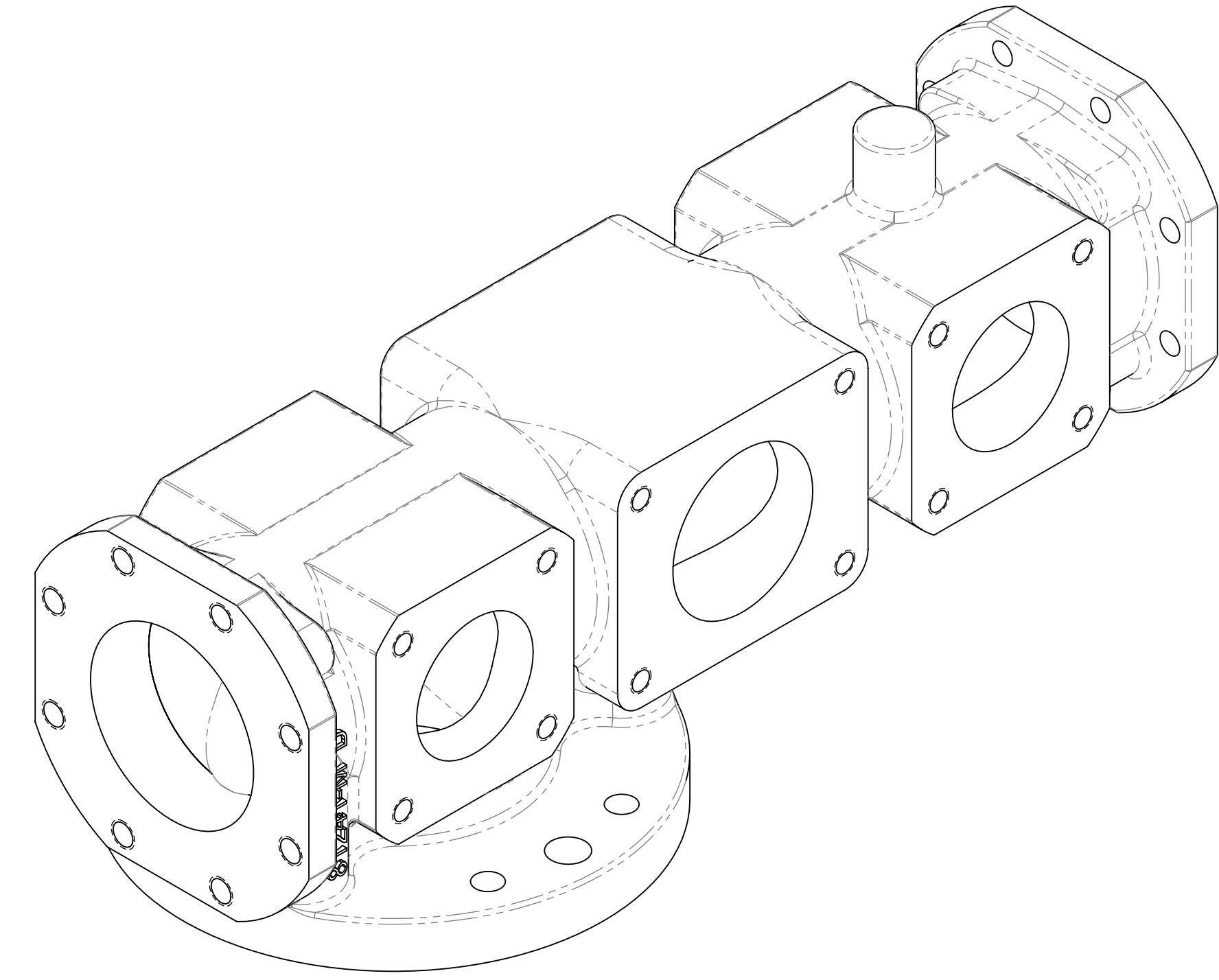
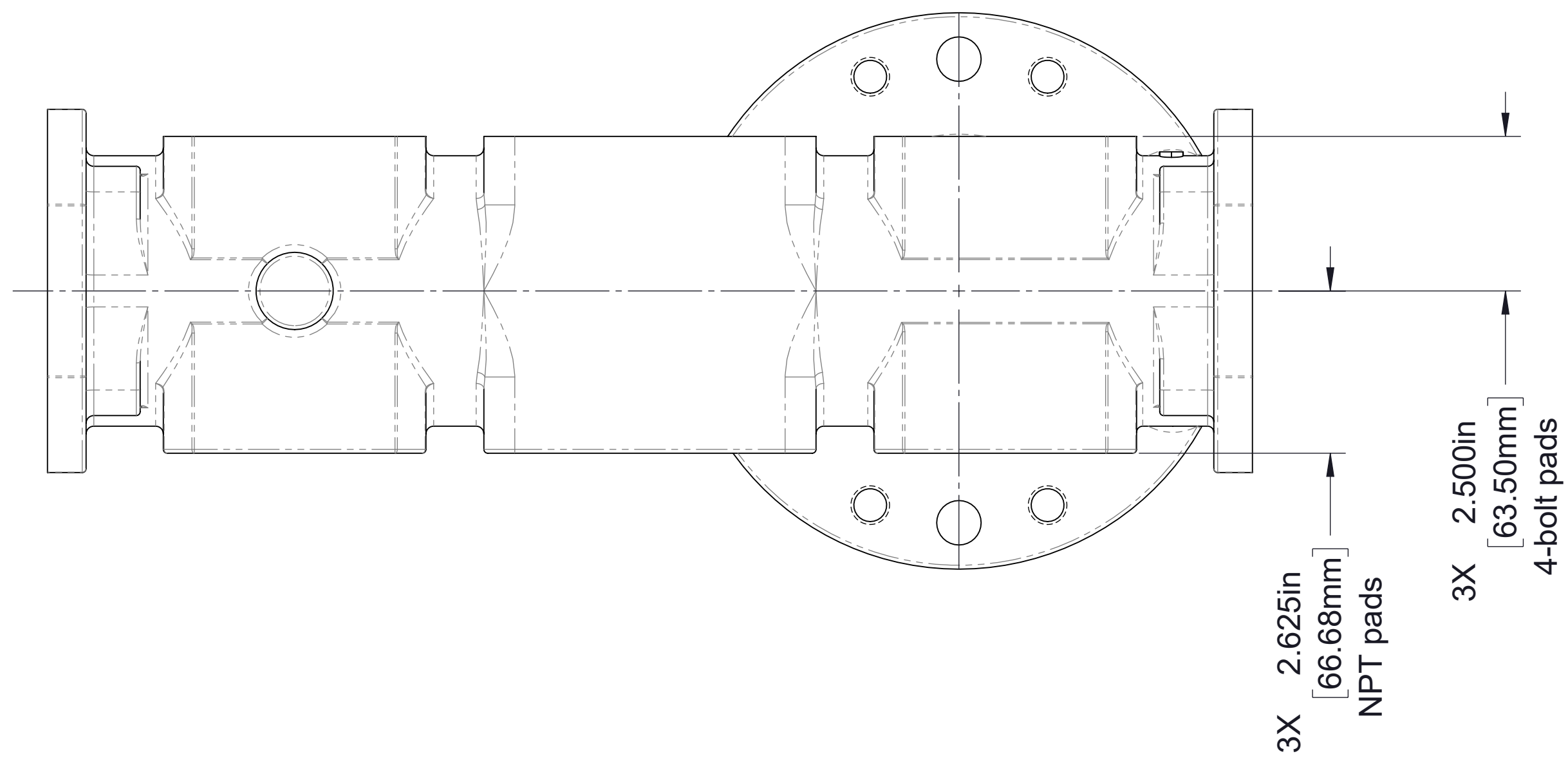
CXV Body Dimensions
 CW Impeller Rotation
 Shown with blank 4 in. ANSI flange discharge
 See pages 9 & 10 for optional discharge manifolds



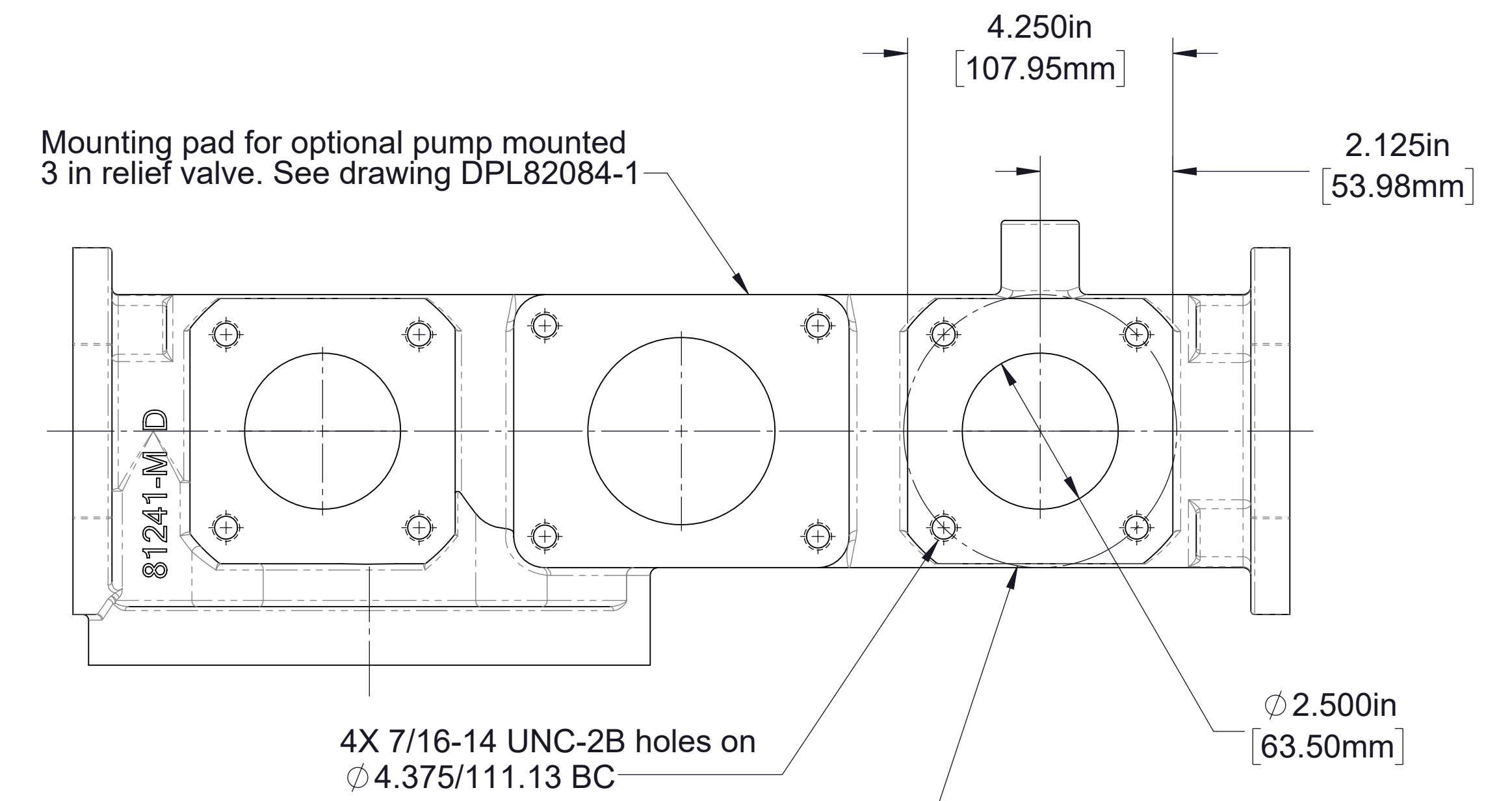
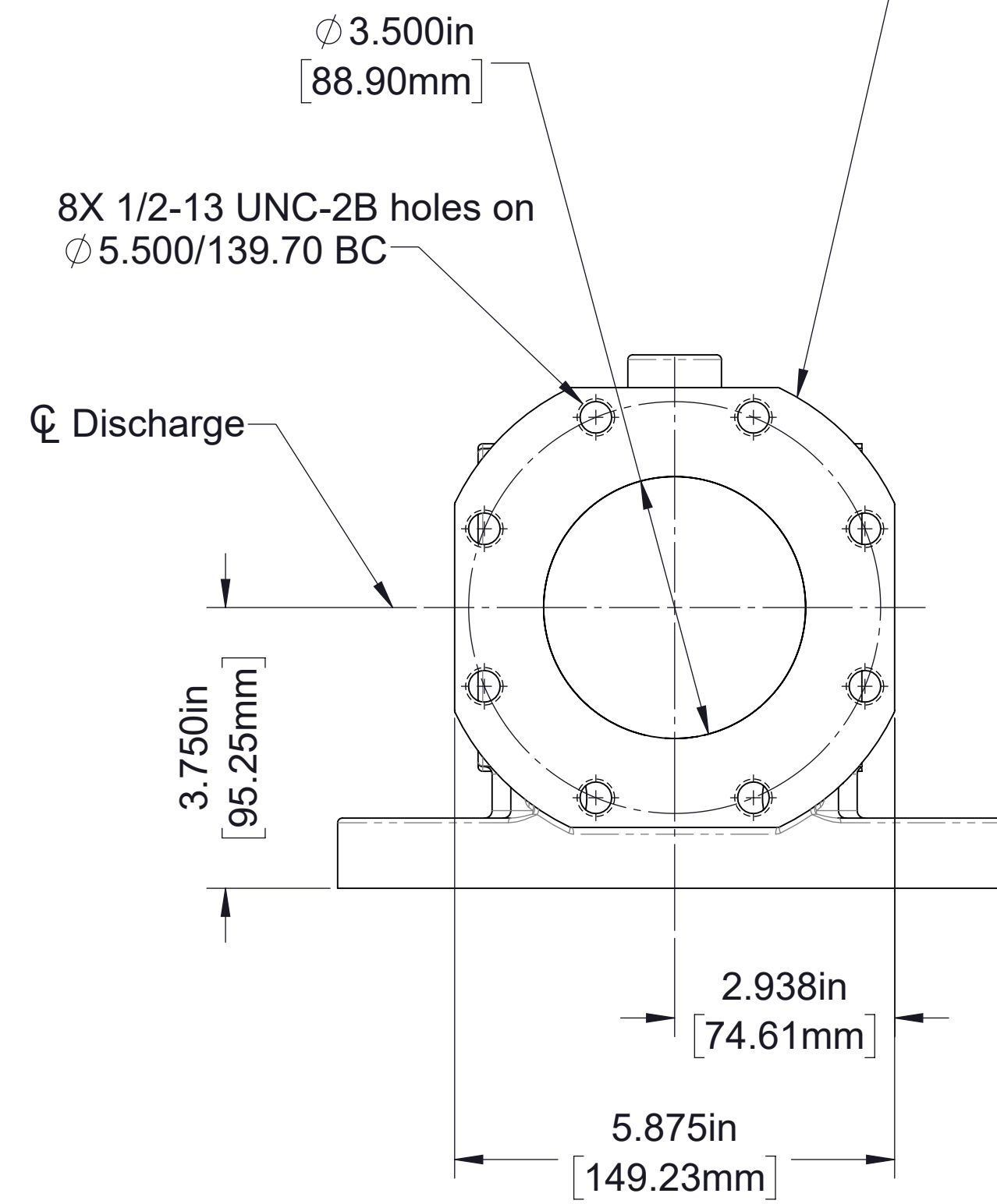
Intake Fitting Length	Dimension A
Long	11.813 in (300.09mm)
Short	8.813 in (223.85mm)



CXV Body Dimensions
 CCW Impeller Rotation
 Shown with blank 4 in. ANSI flange discharge
 See pages 9 & 10 for optional discharge manifolds

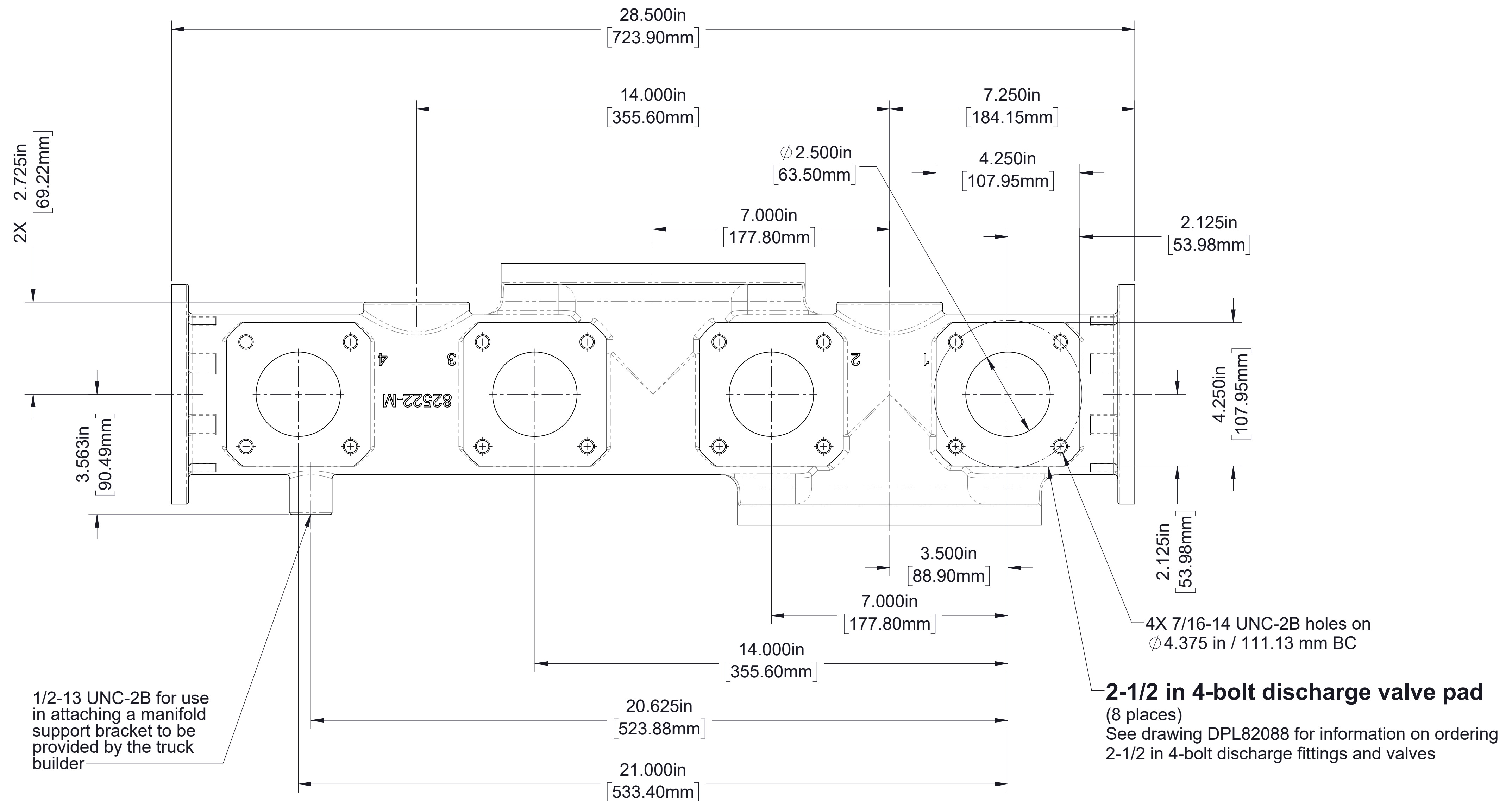
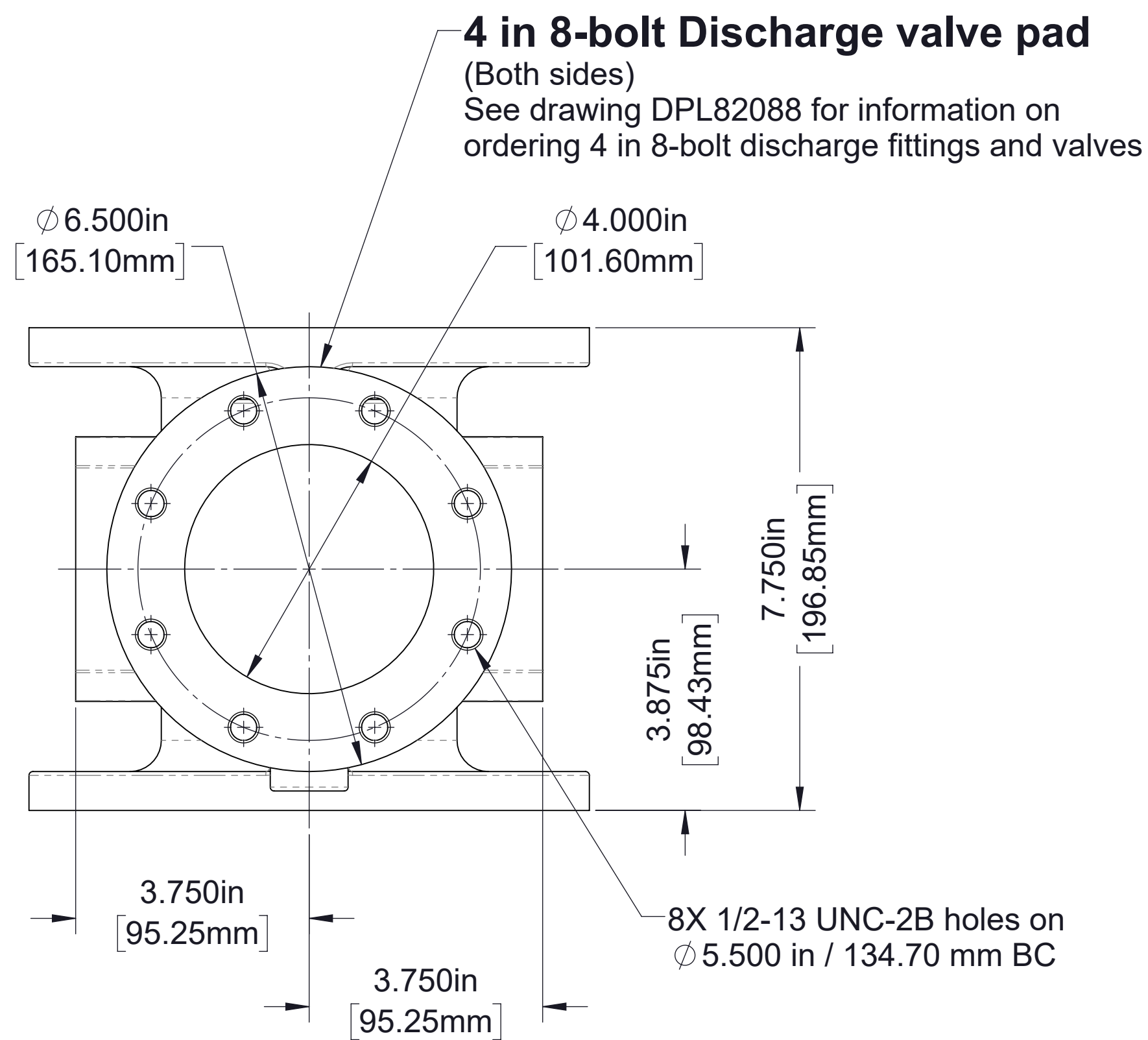
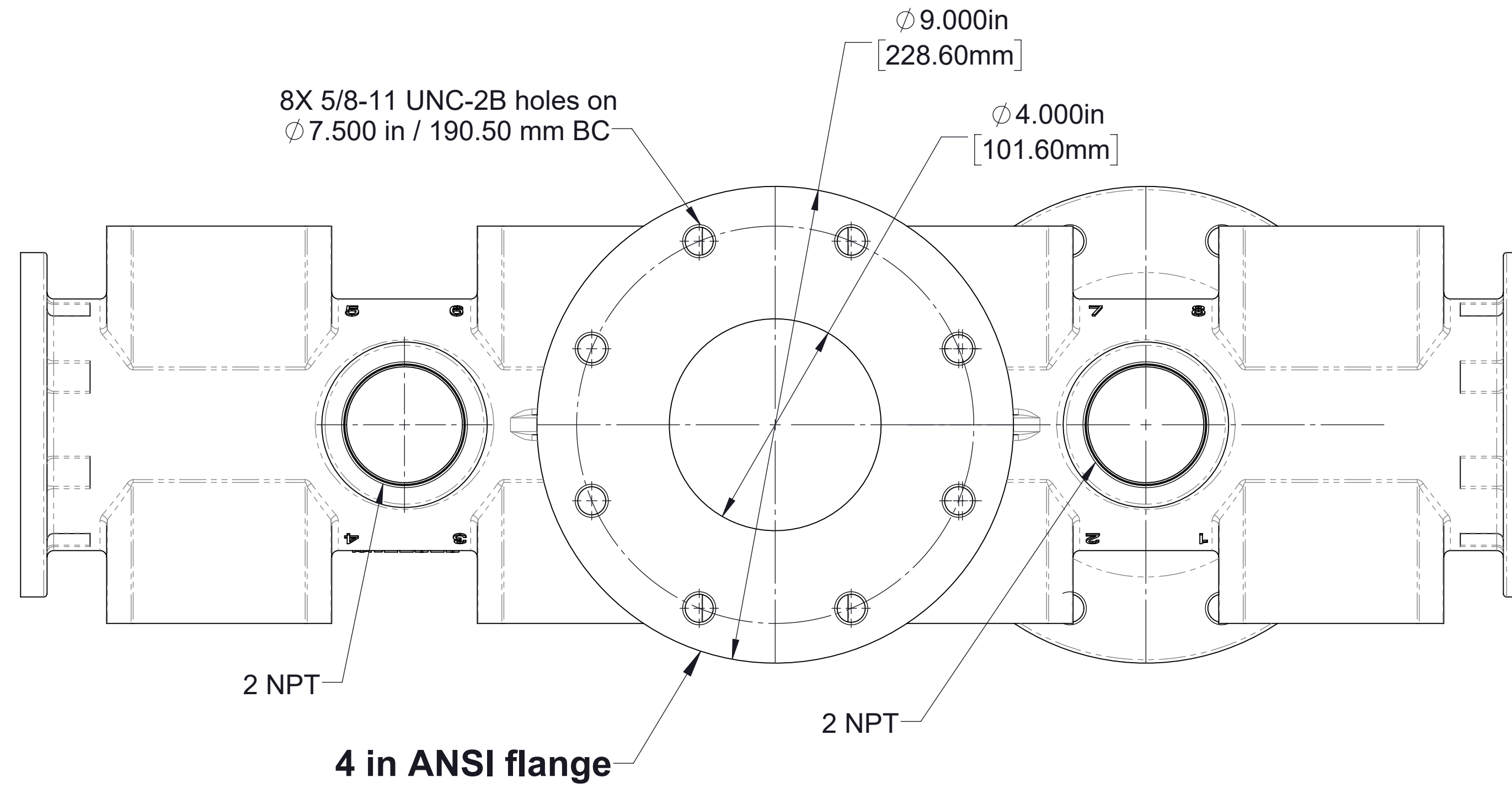
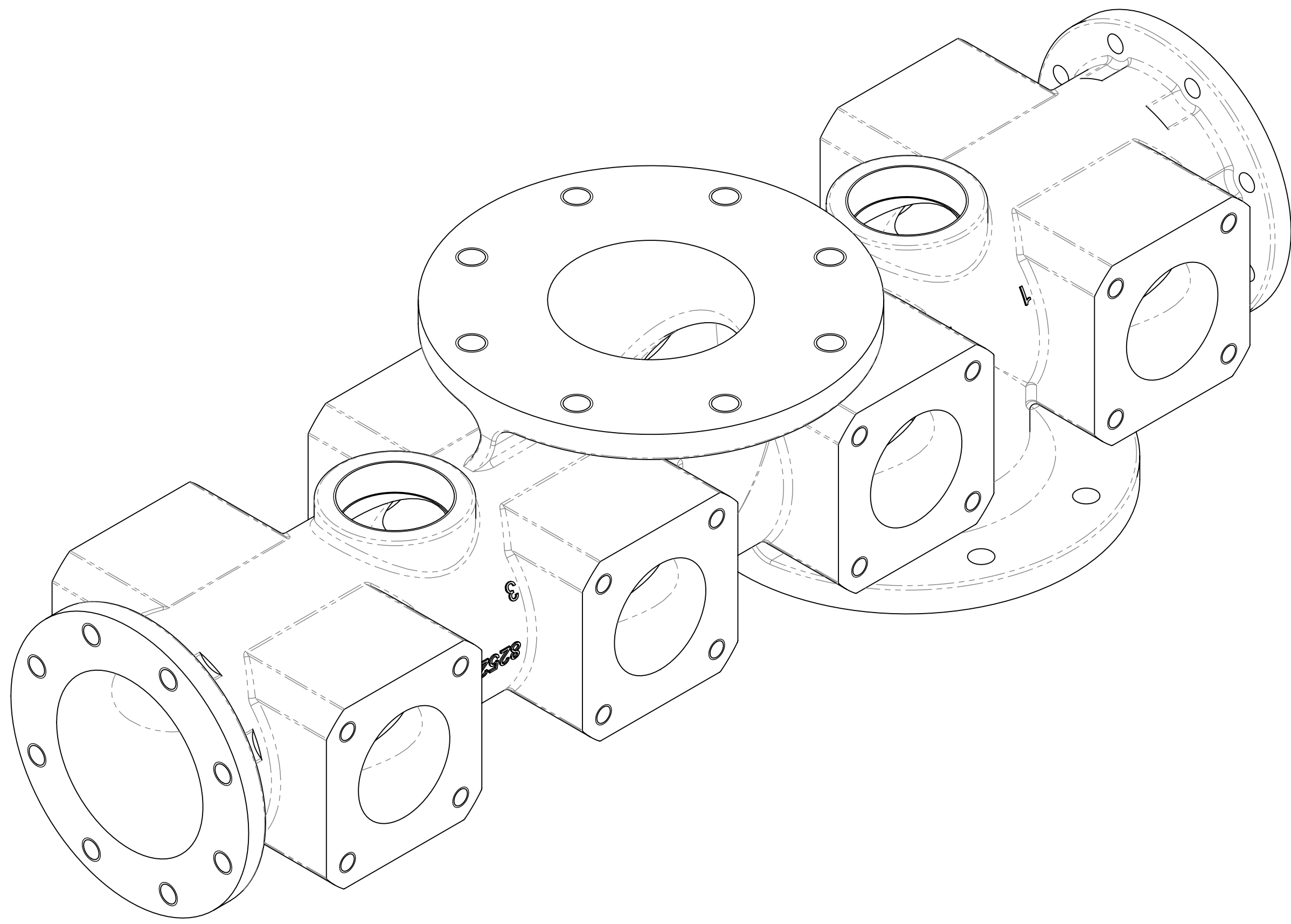


3-1/2 in 8-bolt discharge valve pad
 (Both sides)
 See drawing DPL82088 for information on ordering 3-1/2 in 8-bolt discharge fittings and valves

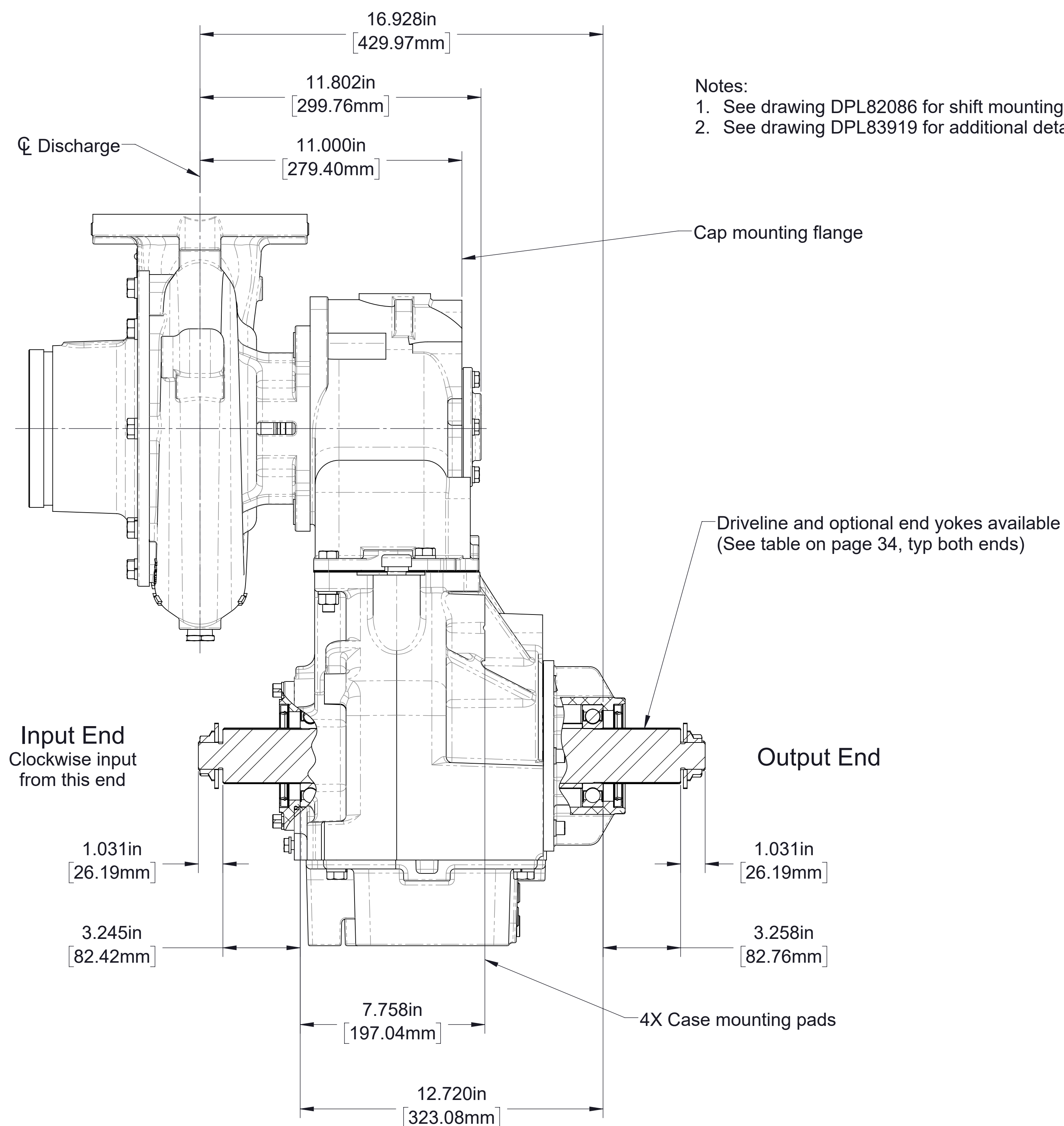
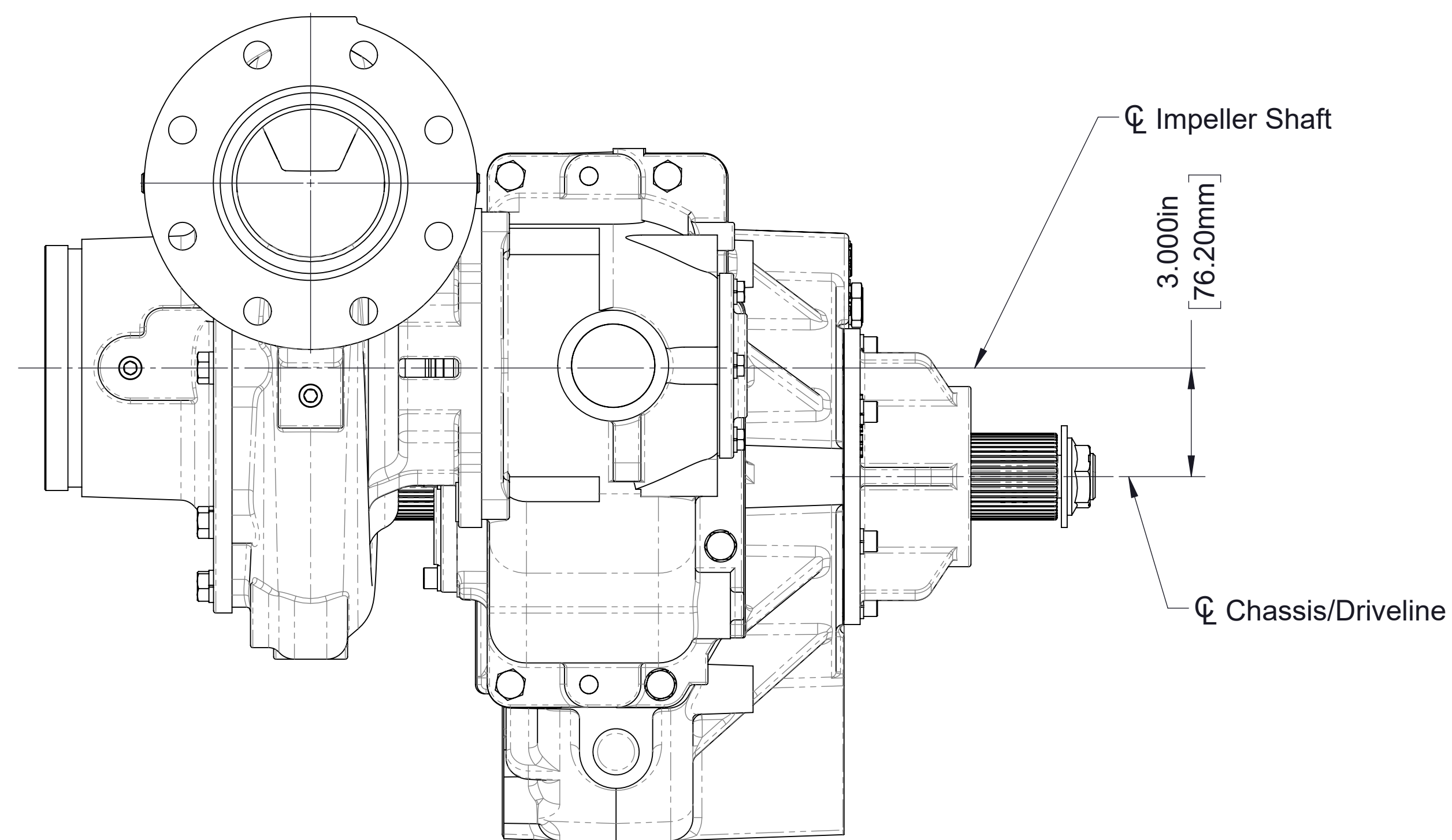


2-1/2 in 4-bolt discharge valve pad
 (Two places)
 See drawing DPL82088 for information on ordering 2-1/2 in 4-bolt discharge fittings and valves

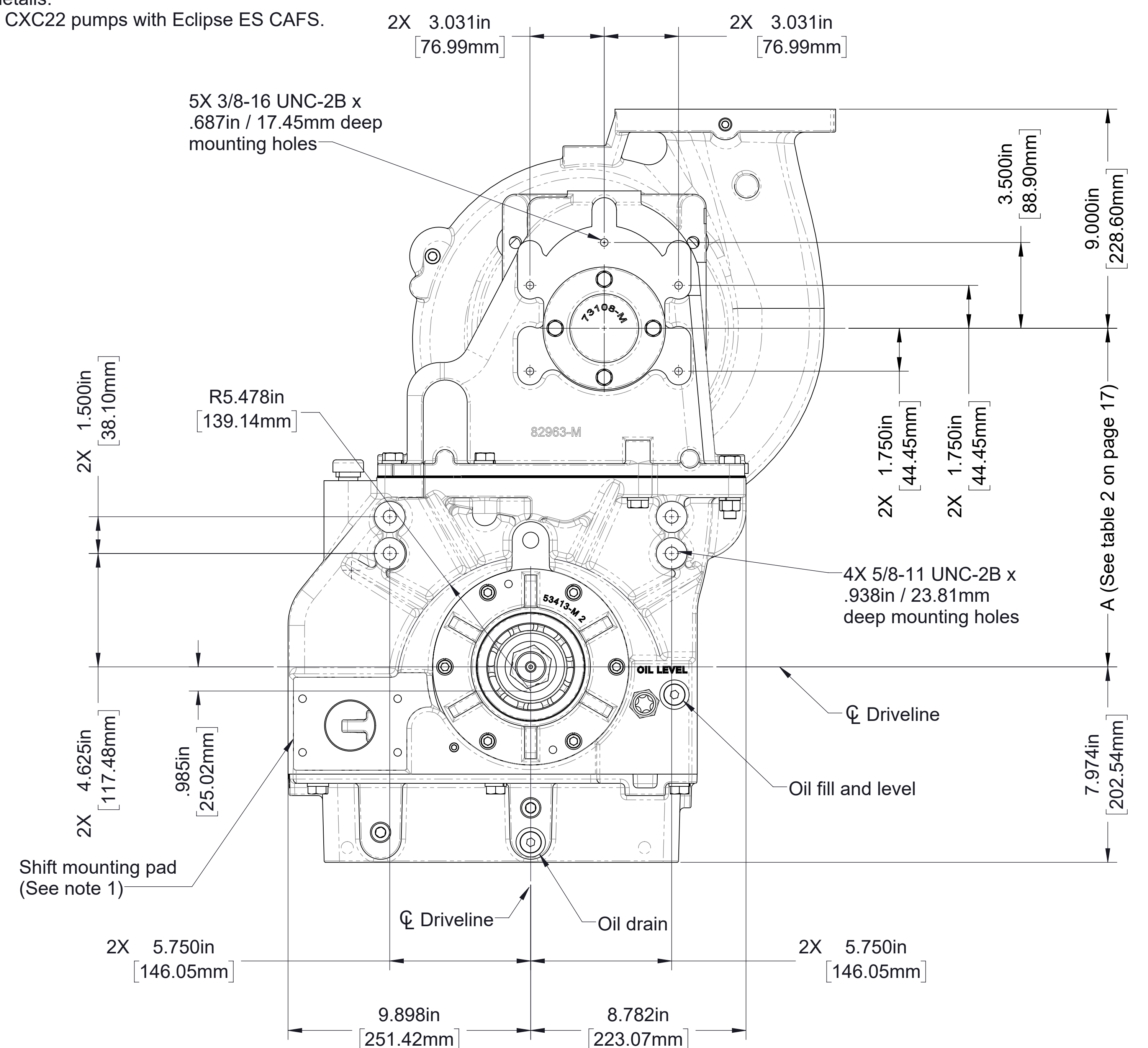
Optional Discharge Manifold w/ 3-1/2 in End Flanges
 See pages 28 and 31 for mounting details and pad designations



Optional Discharge Manifold w/ 4 in End Flanges
 See pages 29, 30, 32, and 33 for mounting details and pad designs

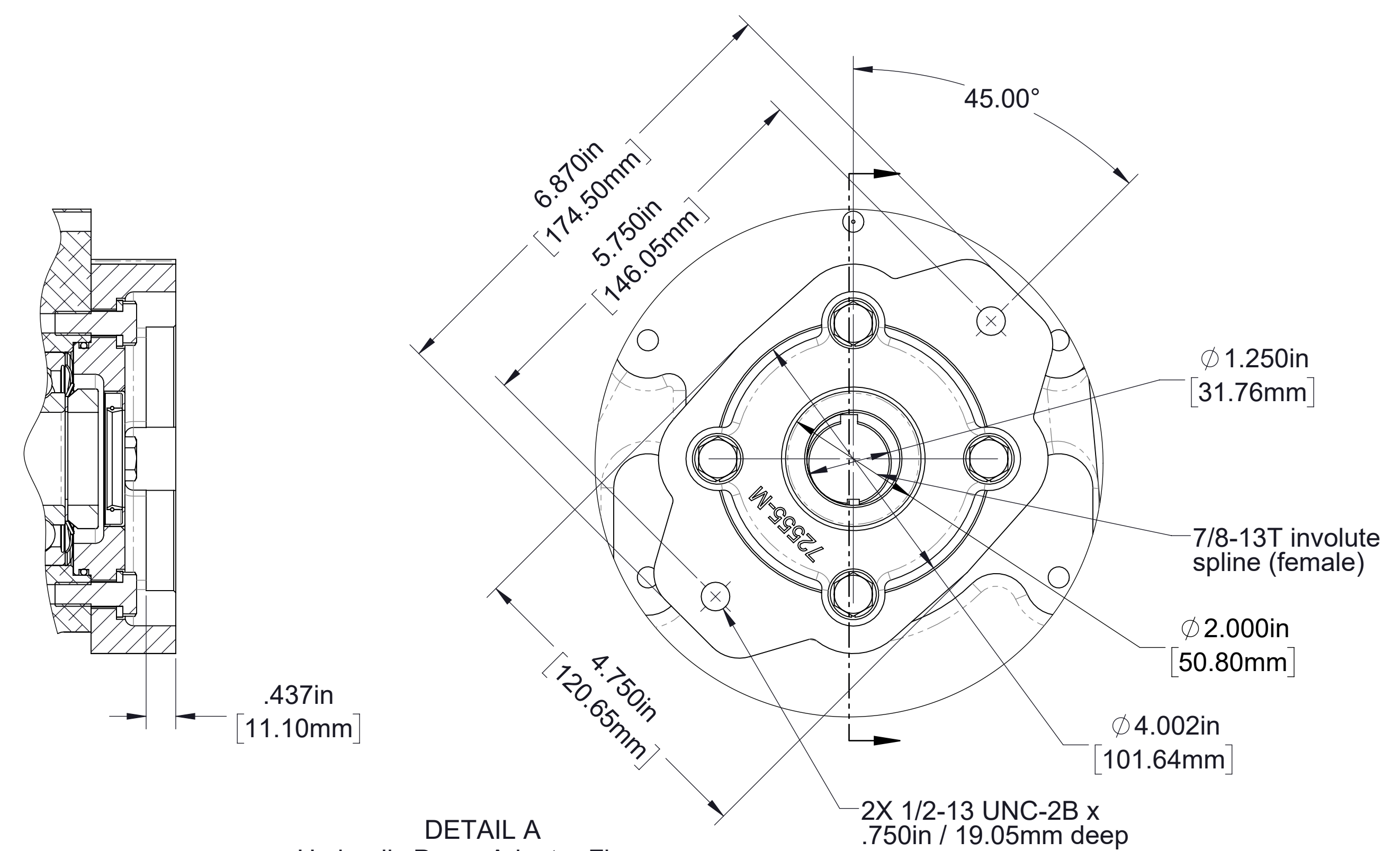
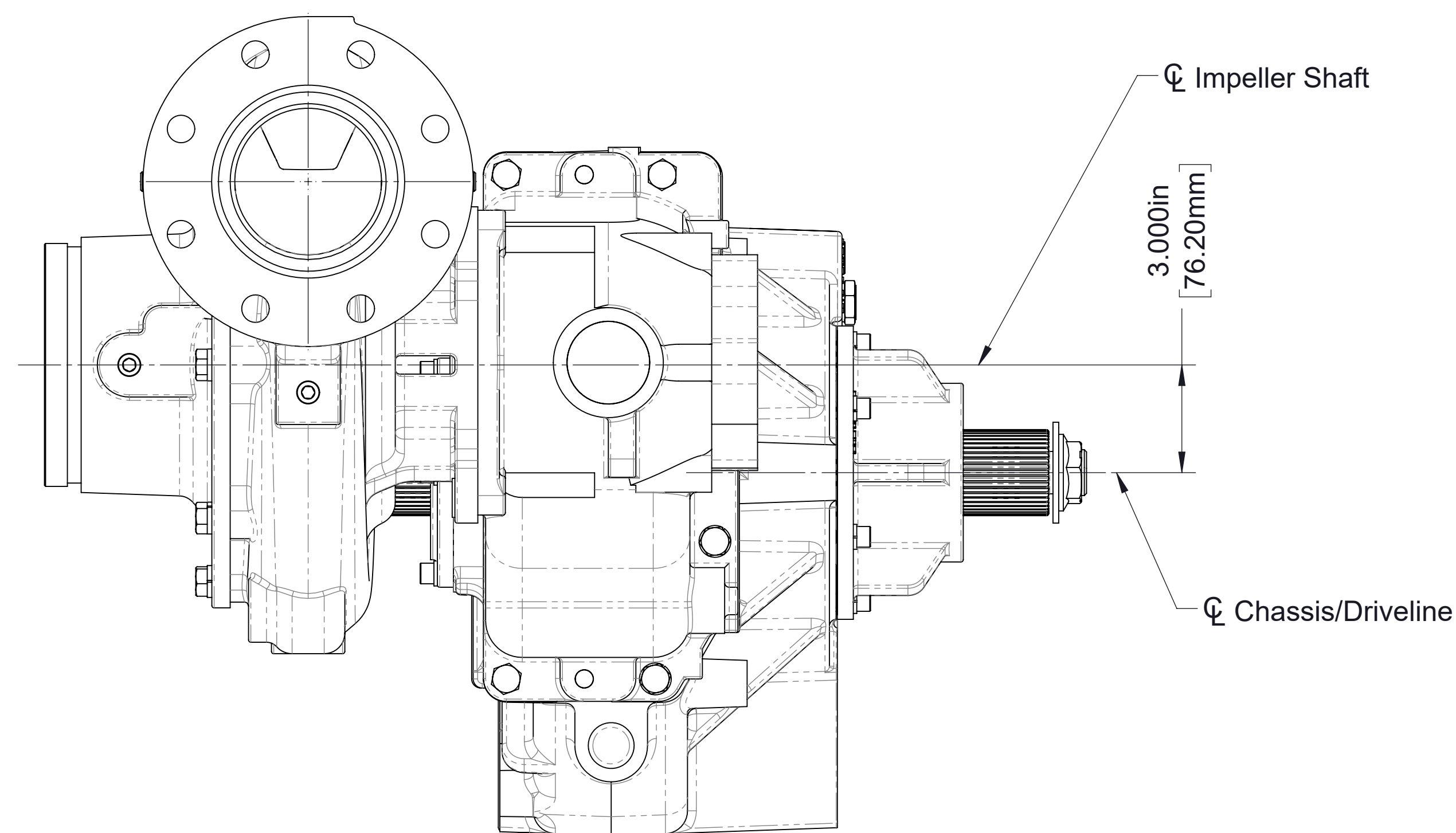


- Notes:
 1. See drawing DPL82086 for shift mounting pad details.
 2. See drawing DPL83919 for additional details on CXC22 pumps with Eclipse ES CAFS.

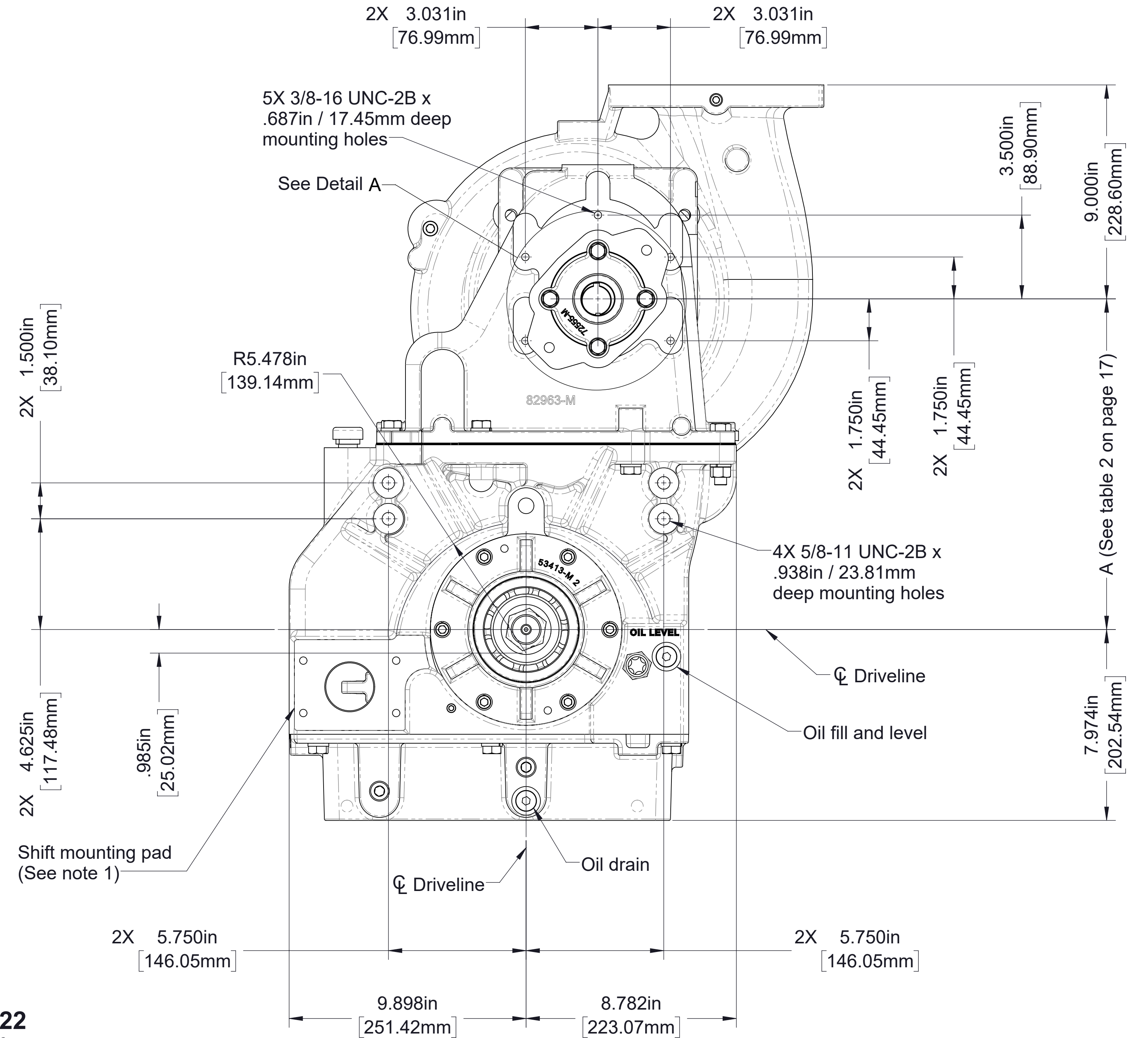
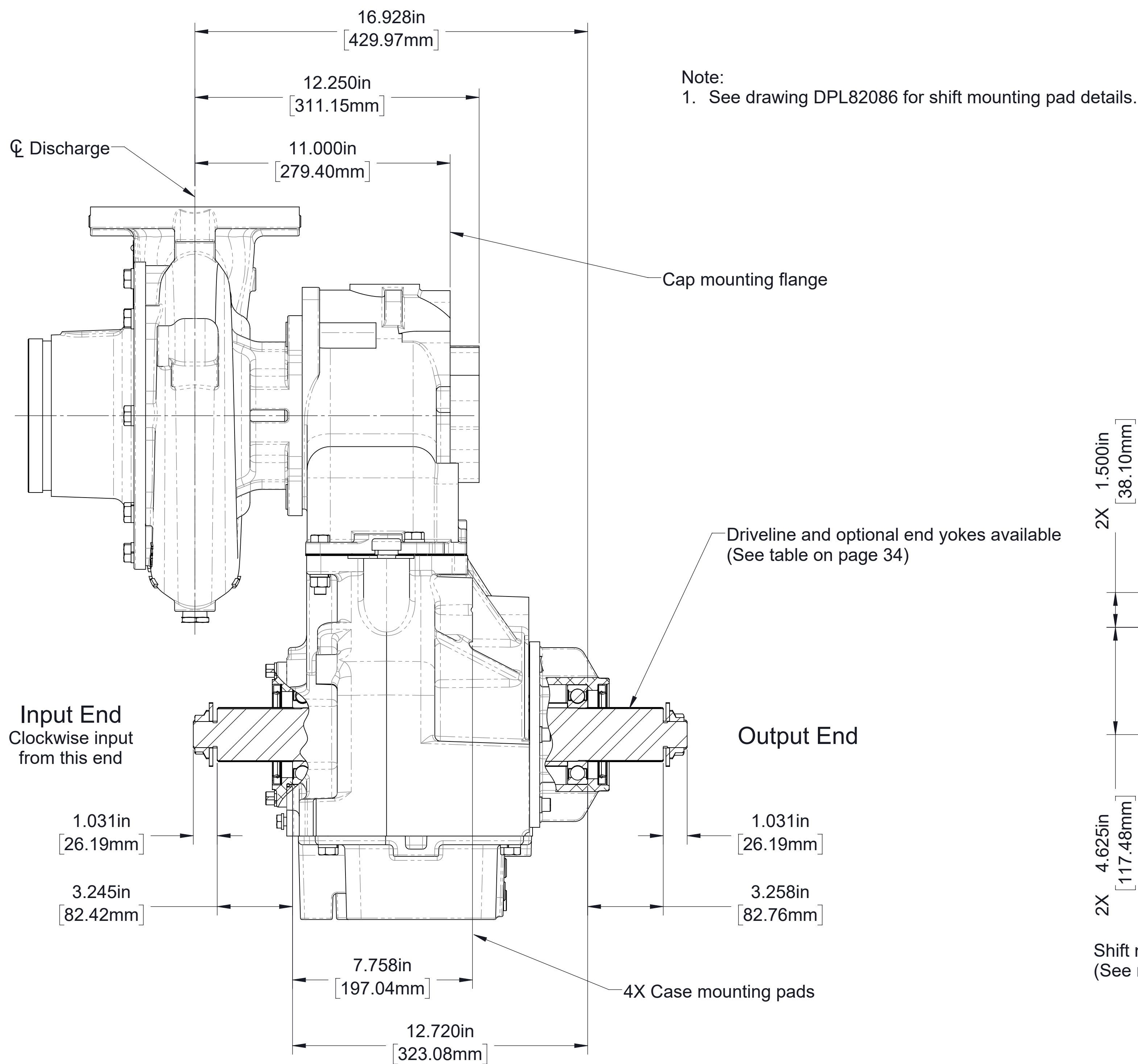


Model CX with C22

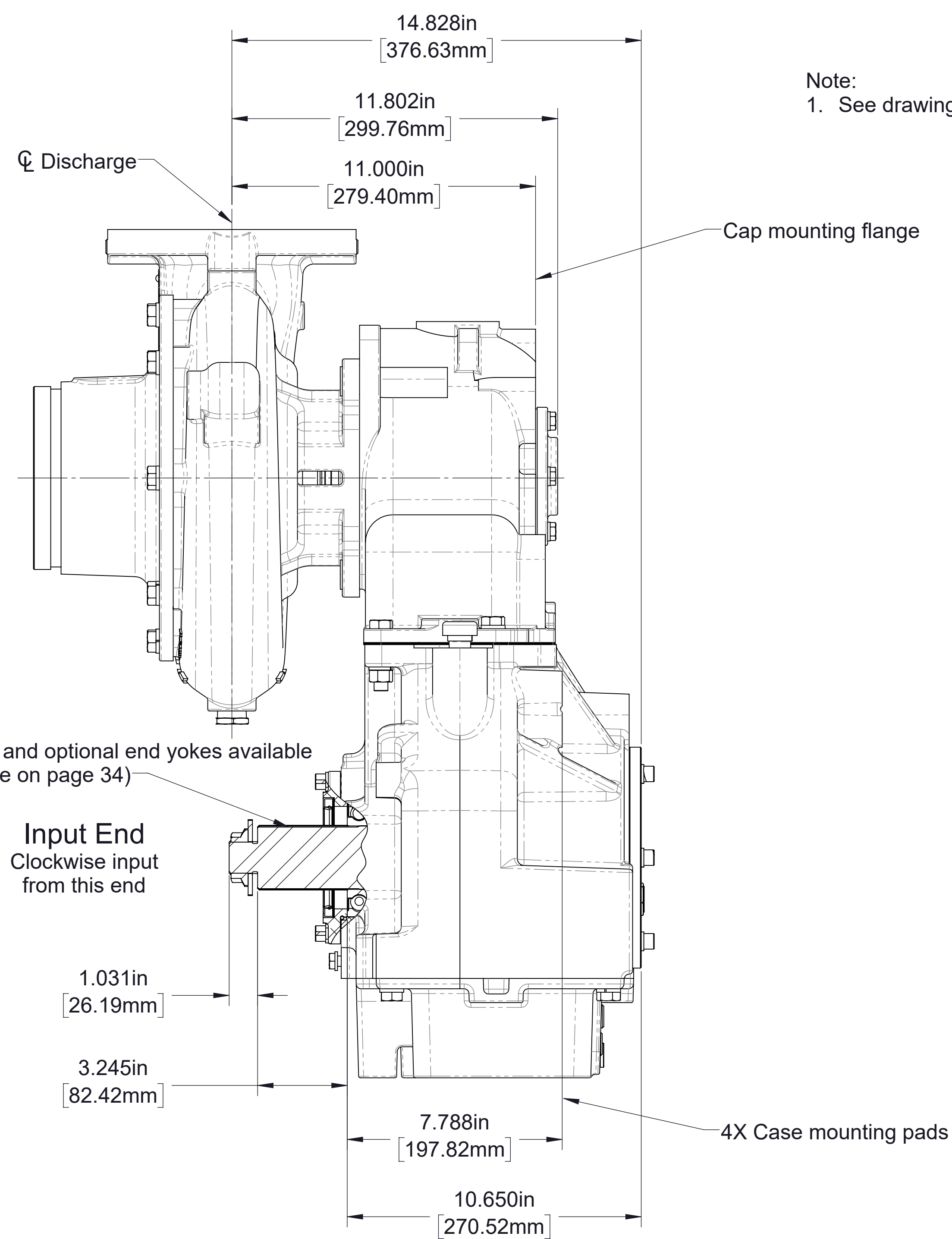
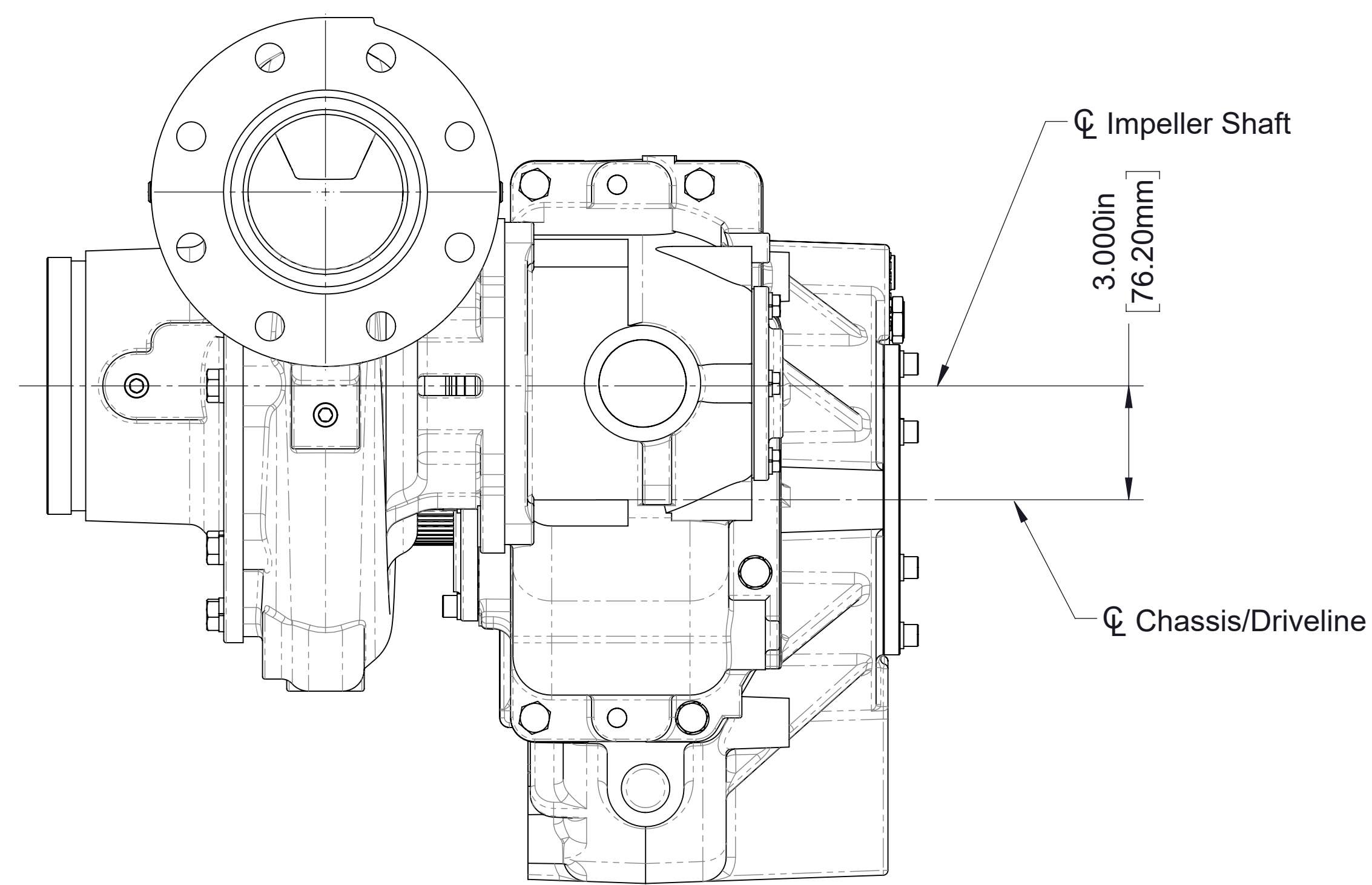
Input and Output Shaft
 Pump mounted on front (Input shaft side) of transmission
 Clockwise input, model CXVC22C, 2.27 ratio, blank discharge shown



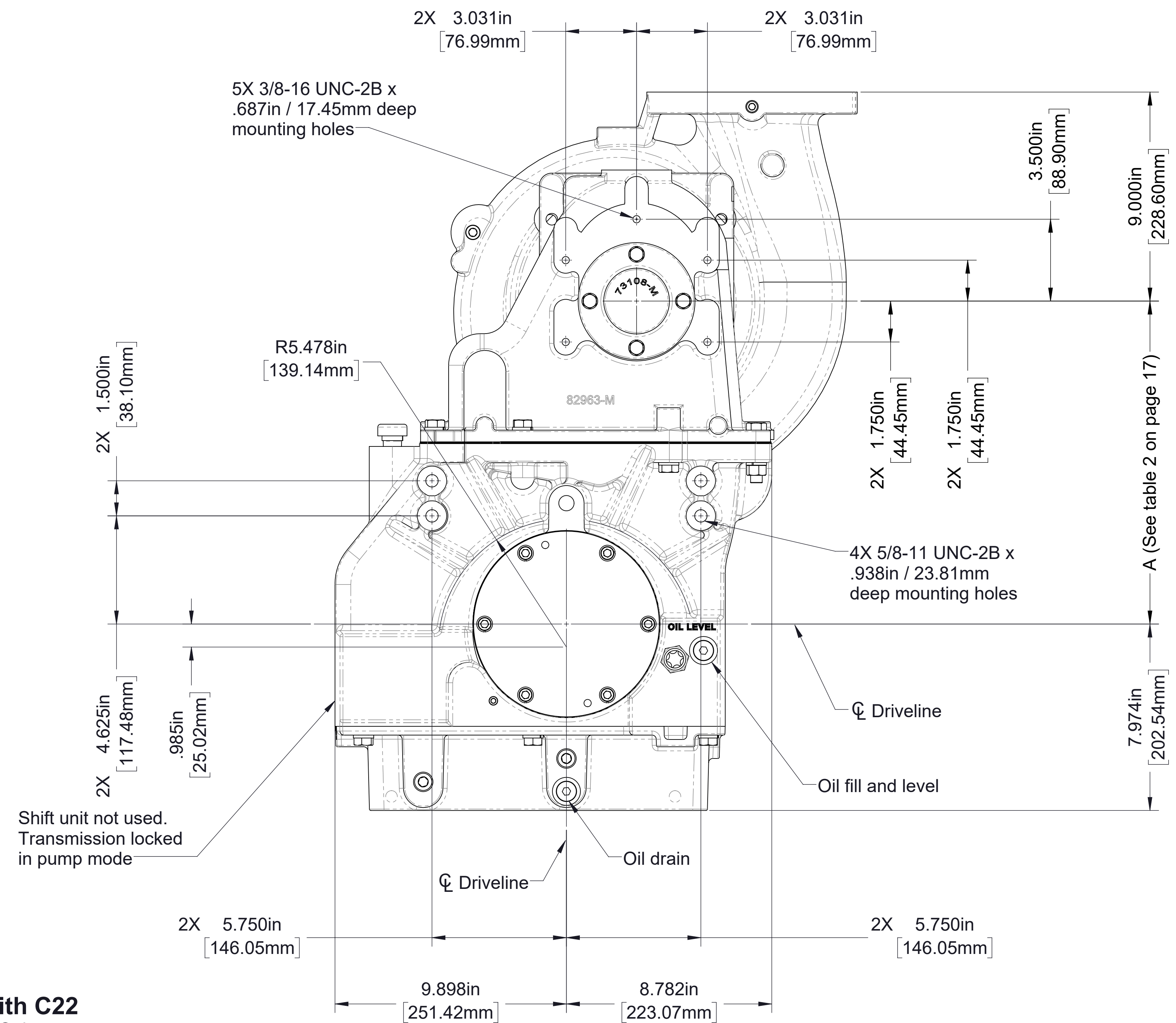
DETAIL A
 Hydraulic Pump Adapter Flange
 Used for SAE J744 class B 2-bolt hydraulic pump with male 7/8-13T 16/32 pitch involute spline



Model CX with C22
 Input and Output Shaft
 Pump mounted on front (Input shaft side) of transmission
 With optional hydraulic motor mount provision
 Clockwise input, model CXVC22C, 2.27 ratio, blank discharge shown



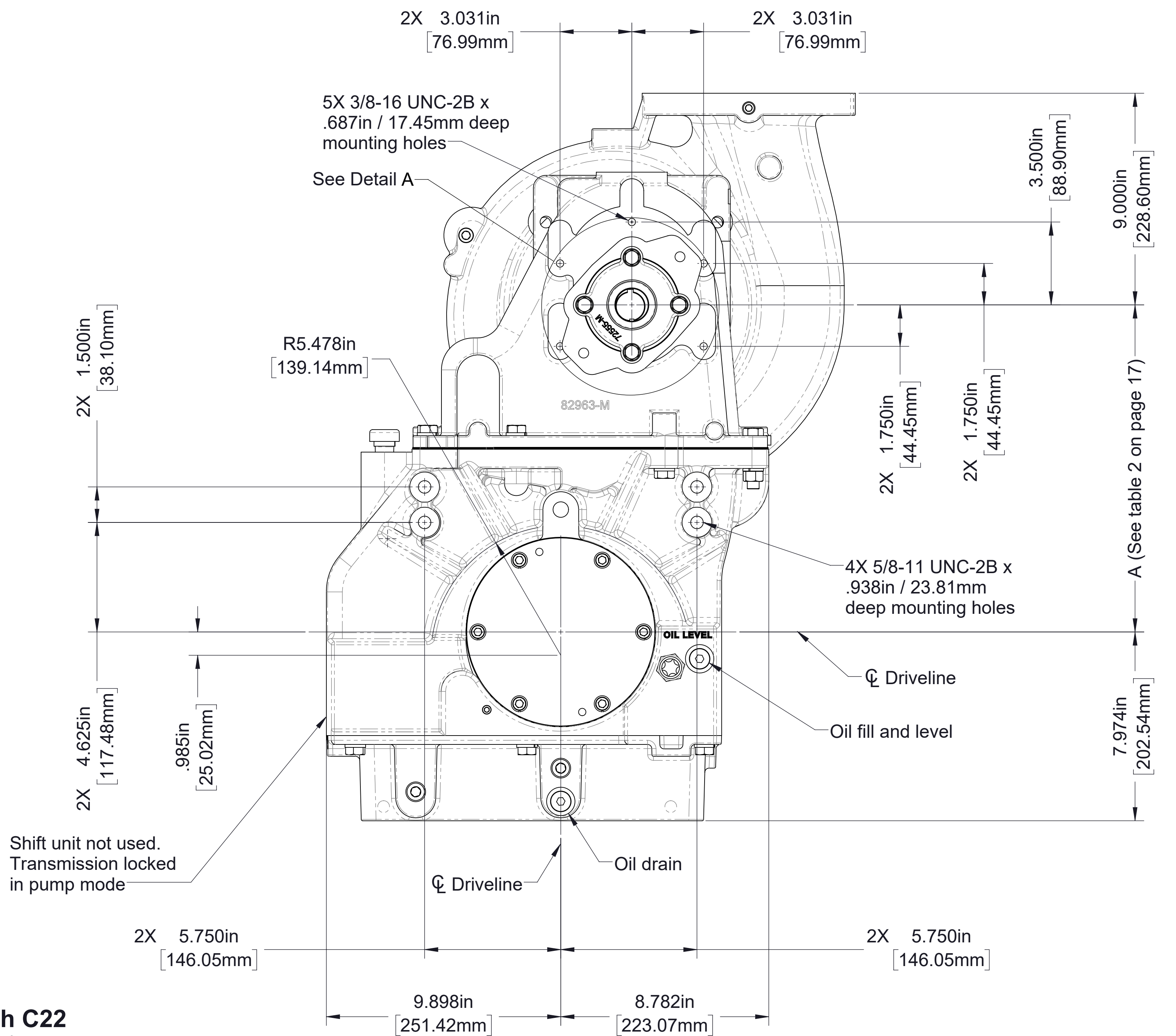
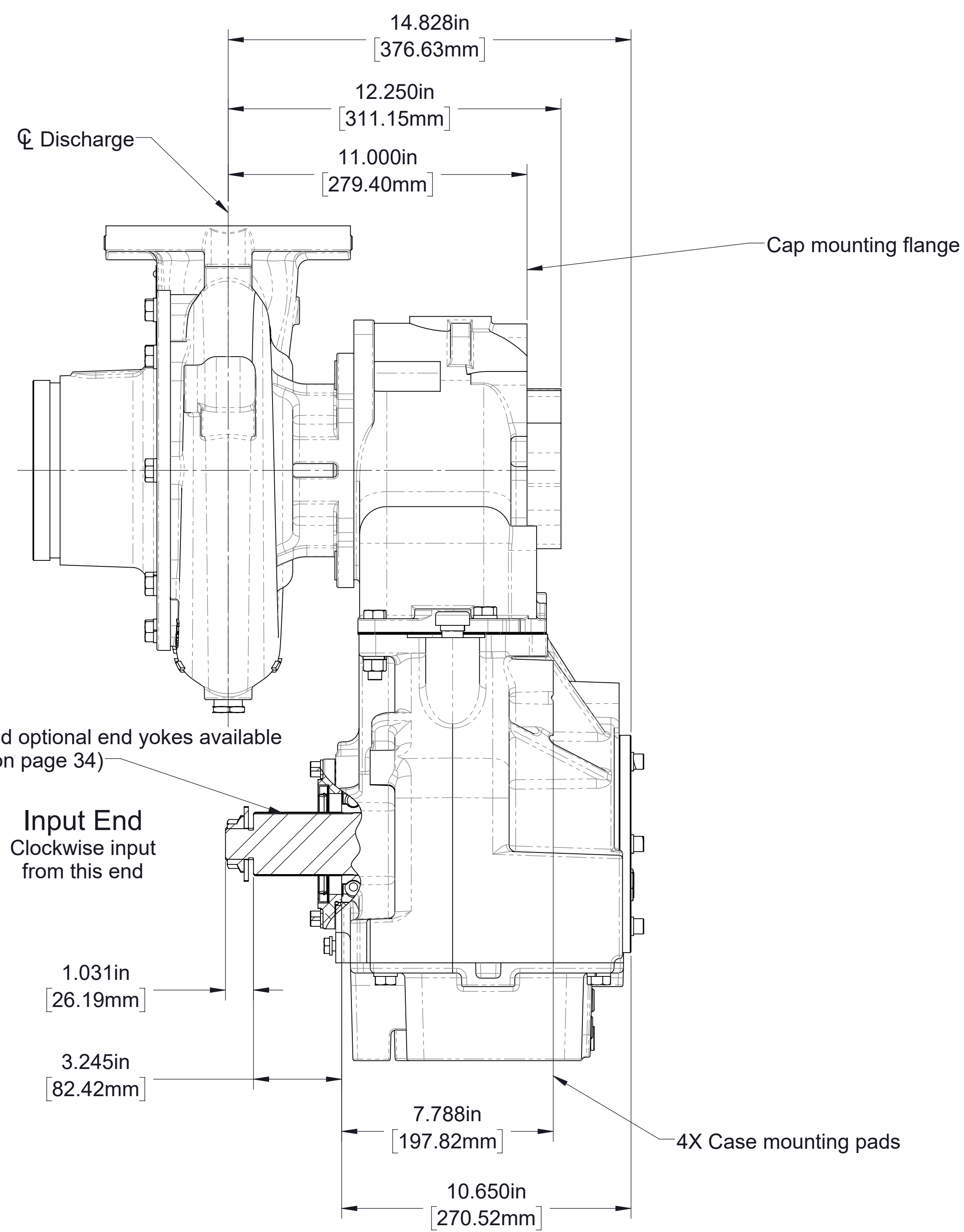
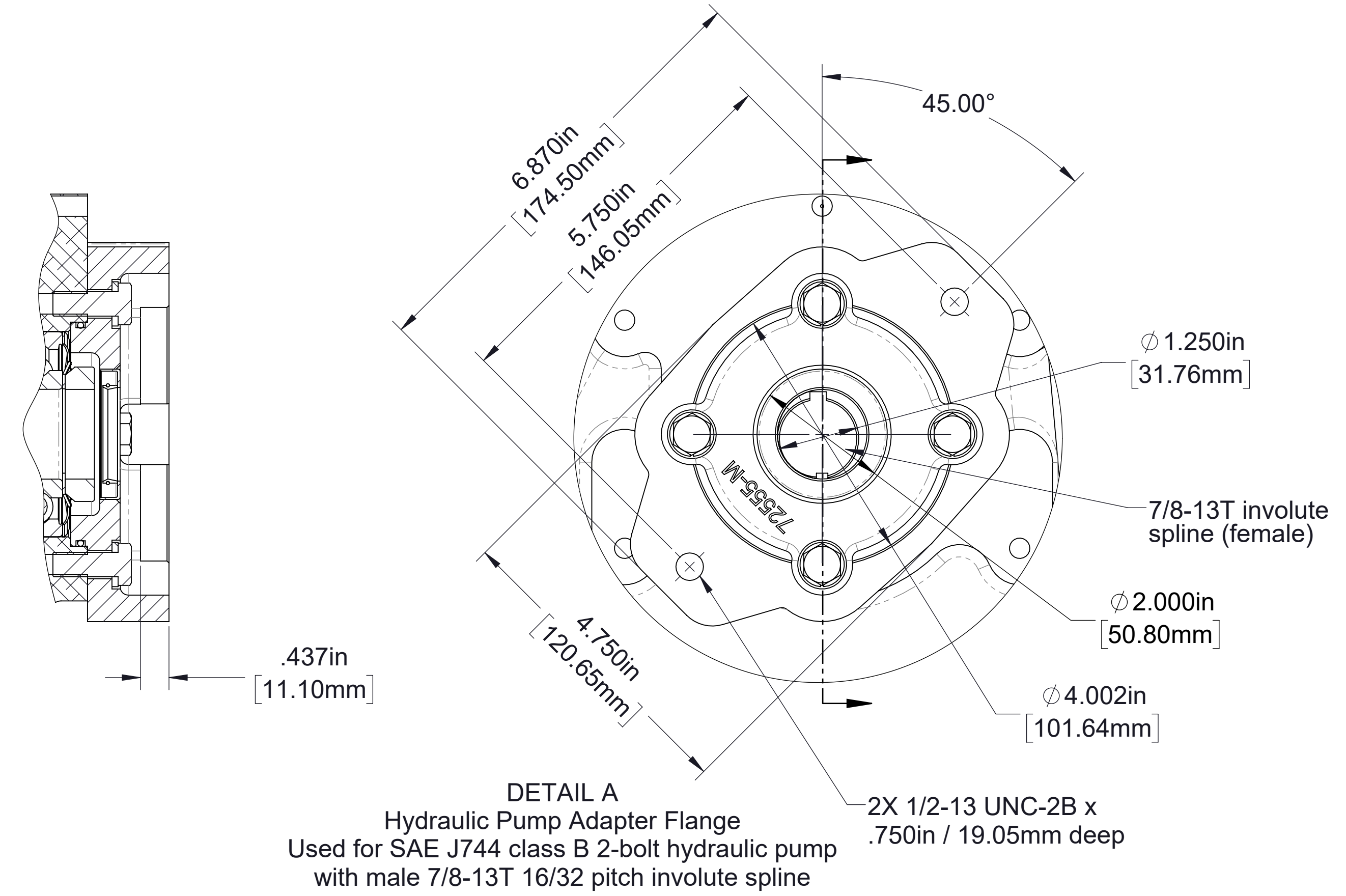
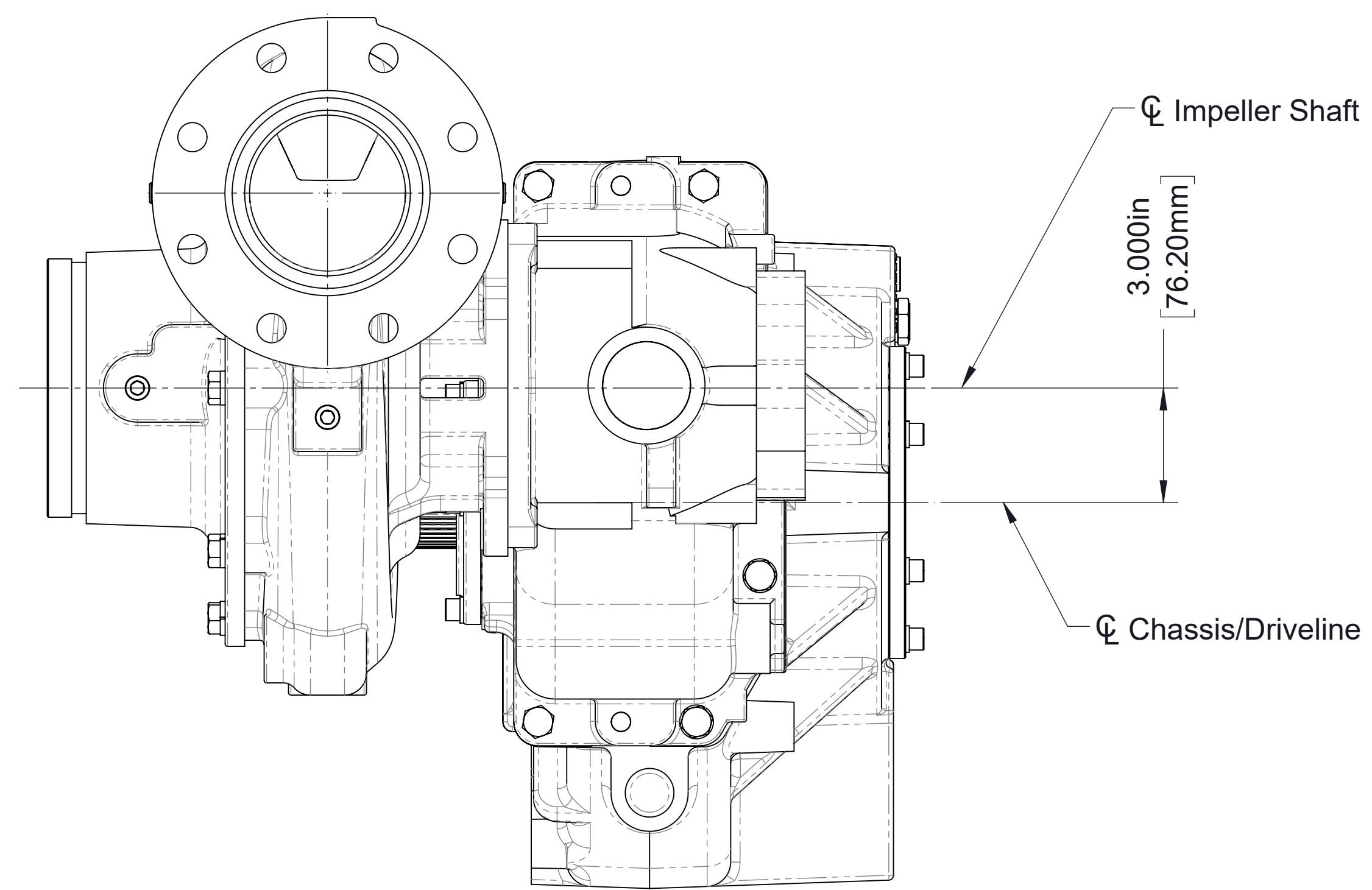
Note:
 1. See drawing DPL83919 for additional details on CXC22 pumps with Eclipse ES CAFS.



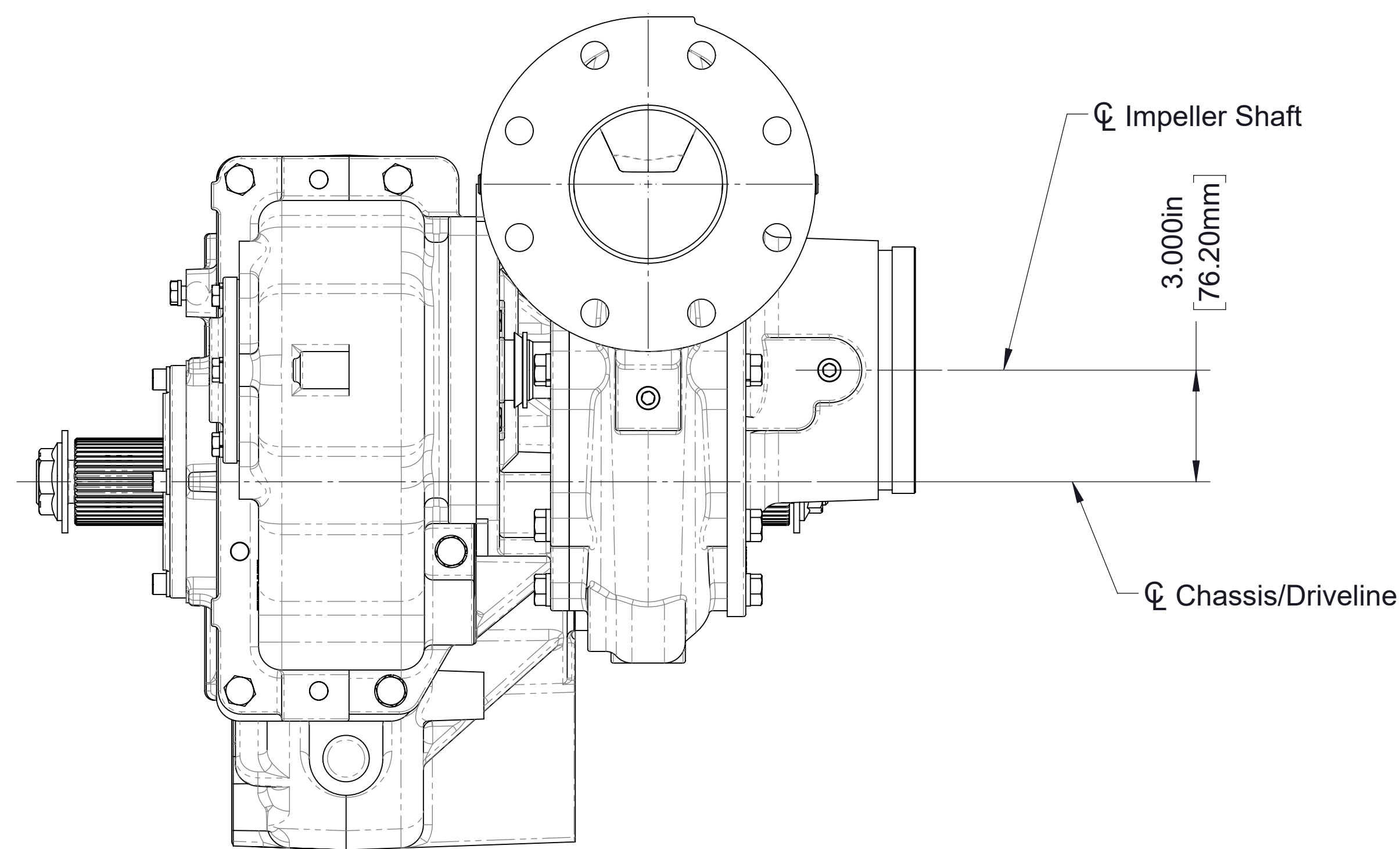
Model CX with C22

Input Shaft Only

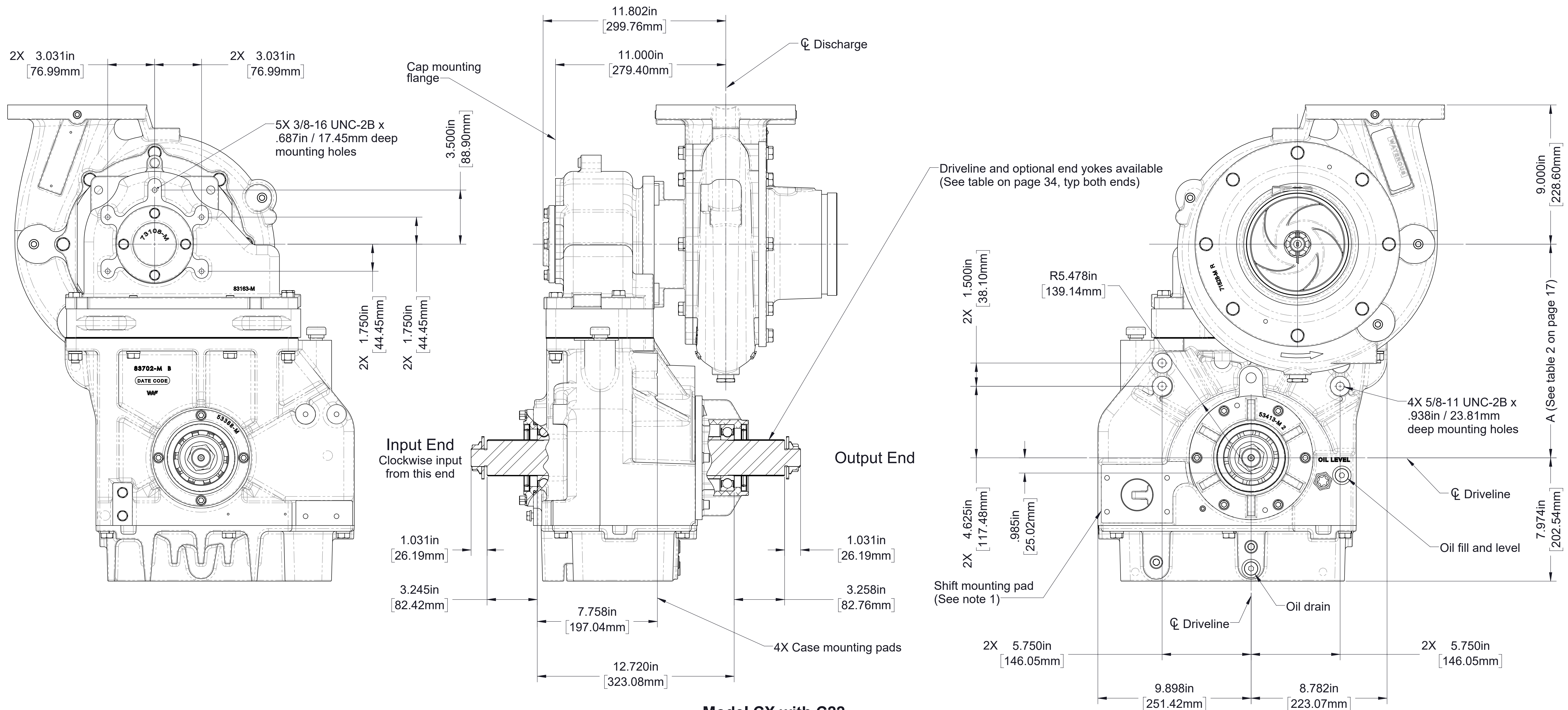
Pump mounted on front (Input shaft side) of transmission
 Clockwise input, model CXVC22C, 2.27 ratio, blank discharge shown



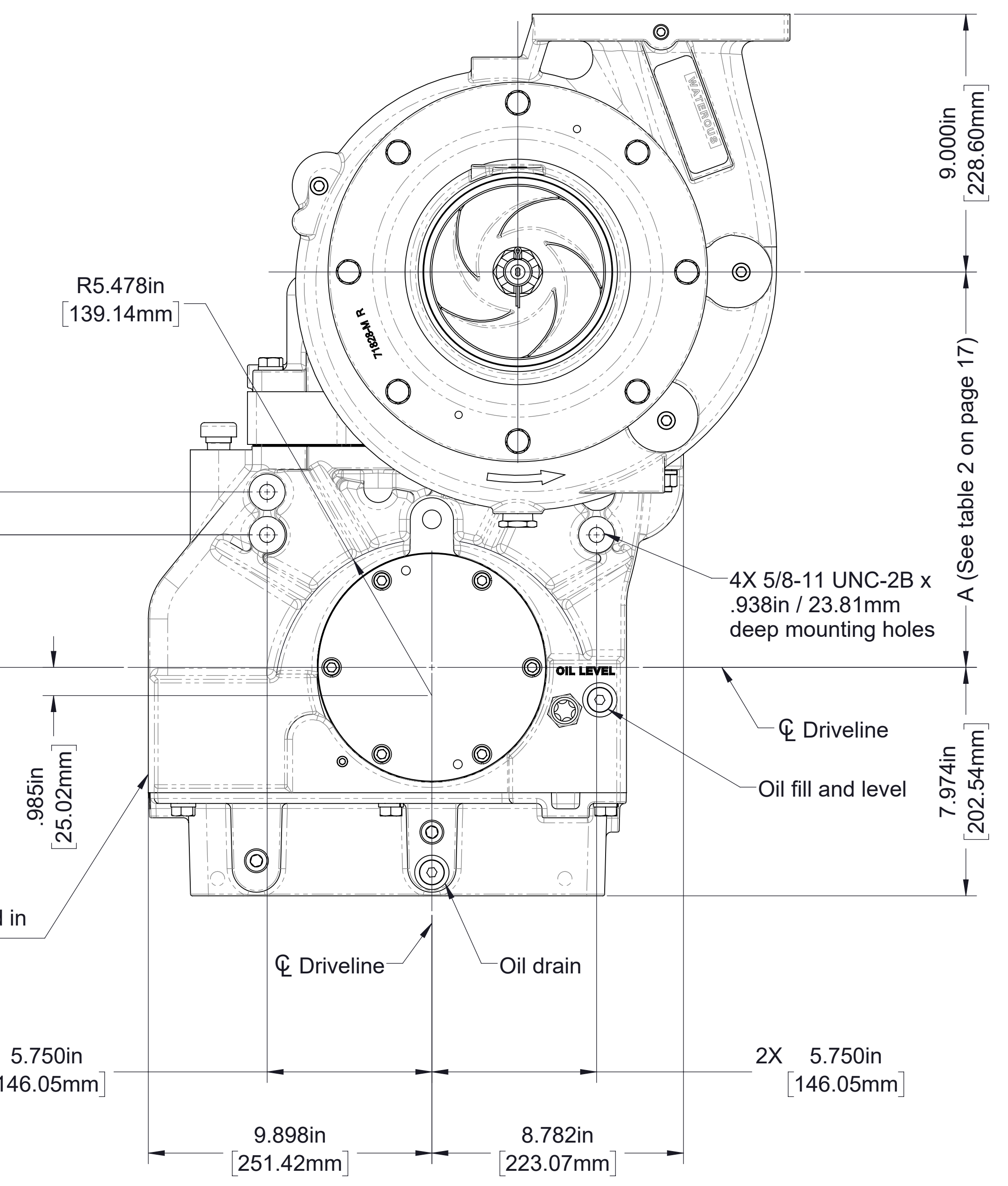
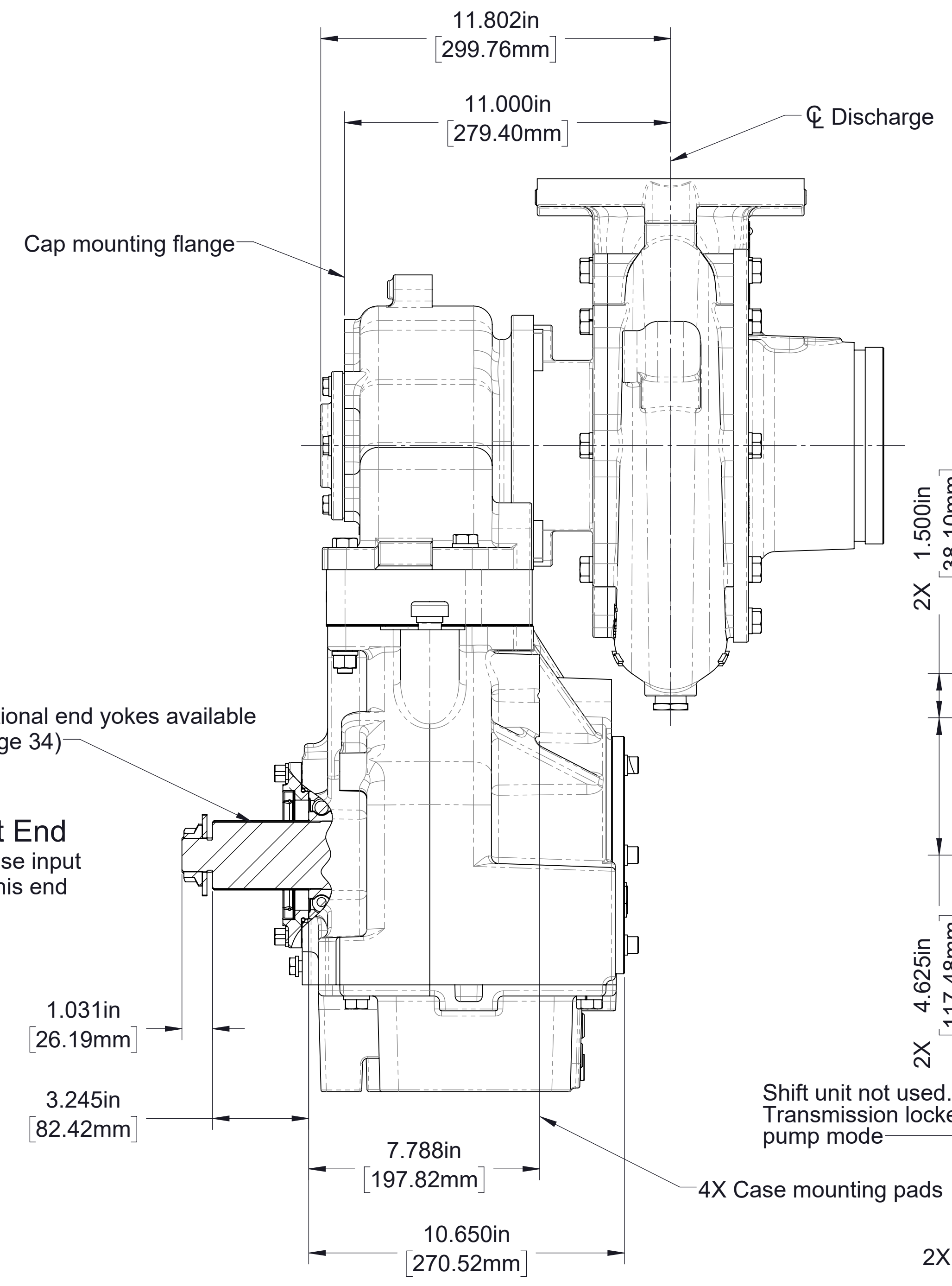
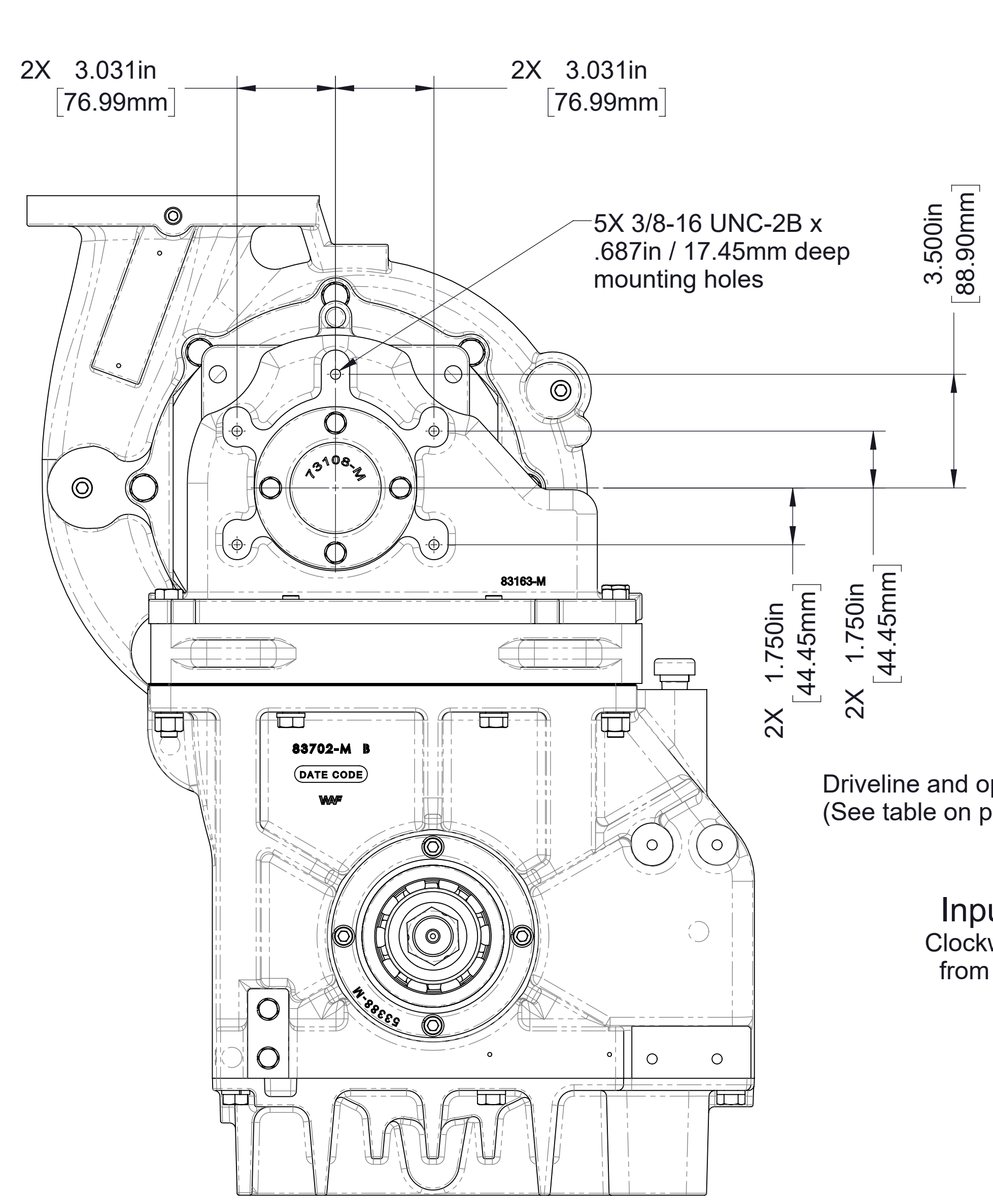
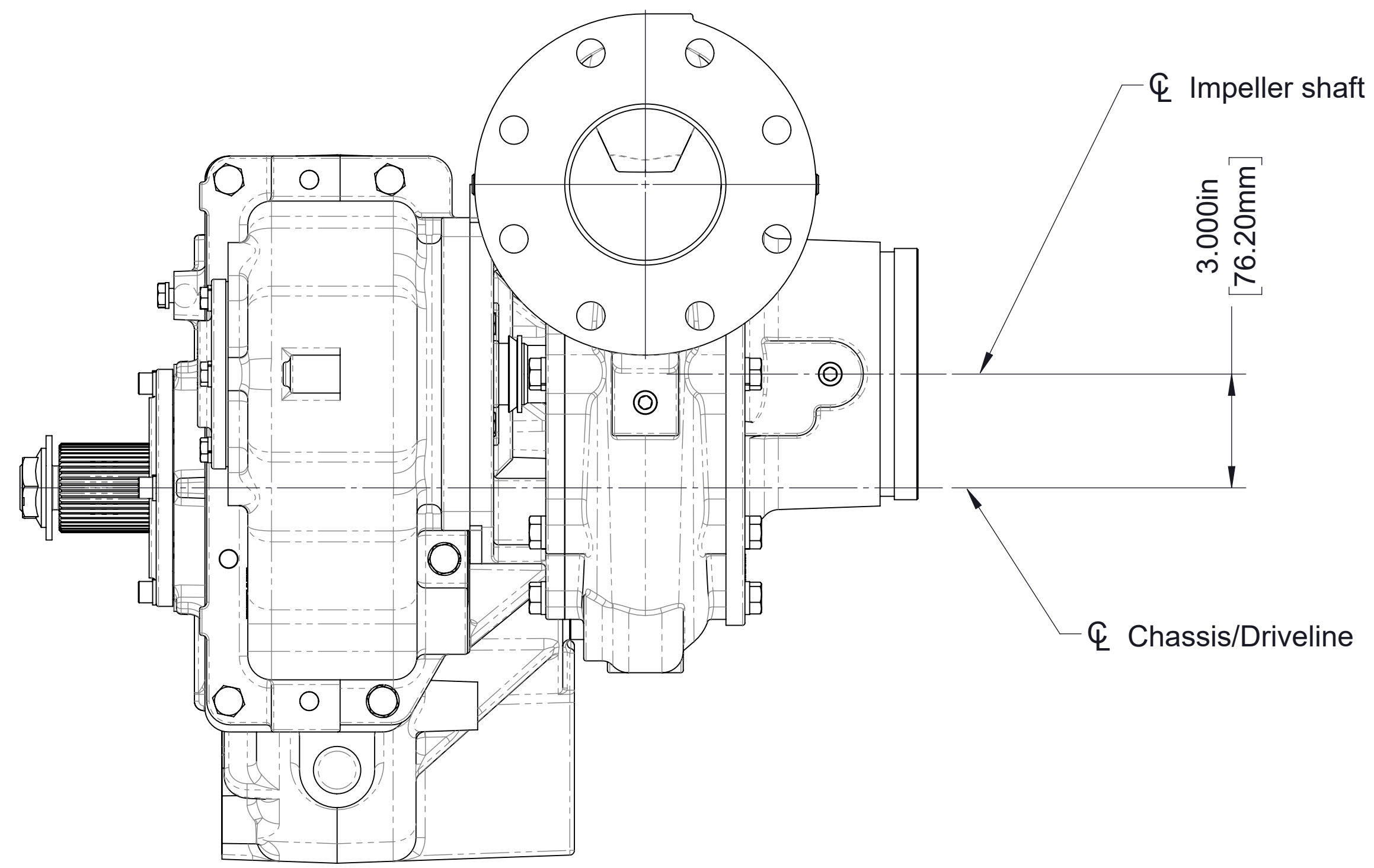
Model CX with C22
 Input Shaft Only
 Pump mounted on front (Input shaft side) of transmission
 With optional hydraulic motor mount provision
 Clockwise input, model CXVC22C, 2.27 ratio, blank discharge shown



Note:
 1. See drawing DPL82086 for shift mounting pad details.



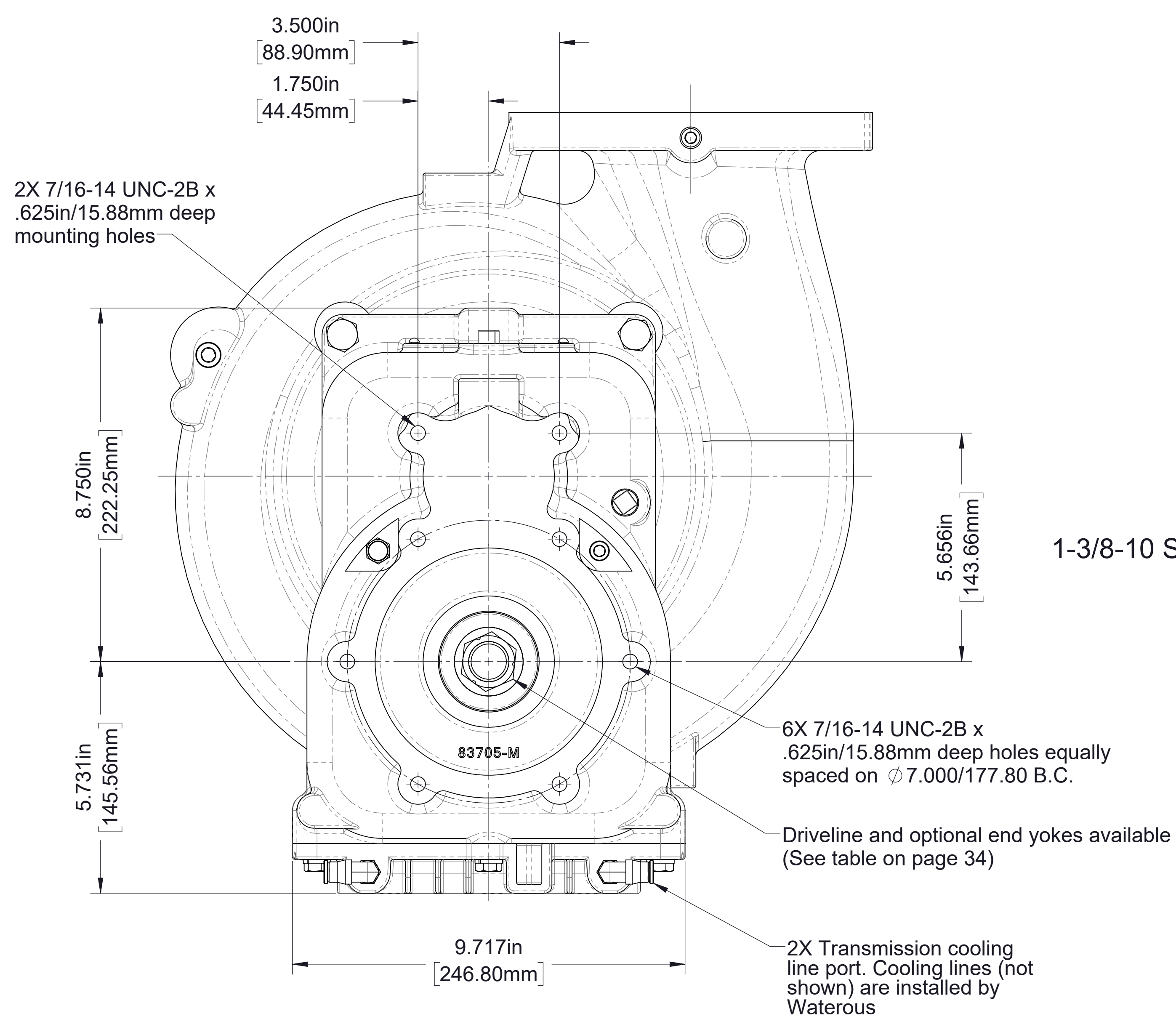
Model CX with C22
 Input and Output Shaft
 Pump mounted on rear (Output shaft side) of transmission
 Clockwise input, model CXVC22C, 2.27 ratio, blank discharge shown



Model CX with C22
 Input Shaft Only
 Pump mounted on rear (Output shaft side) of transmission
 Clockwise input, model CXVC22C, 2.27 ratio, blank discharge shown

Table 2 - Available Ratios				
Dimension A				
Drive to Driven Ratio	All dimensions shown as inch/millemeter			
	C22C	C22D	C22E	C22F
1.27	14.312/363.52	14.825/376.56	16.861/428.27	18.892/479.86
1.41	13.899/353.03	14.931/379.25	16.971/431.06	19.002/482.65
1.48	13.878/352.50	14.907/378.64	16.951/430.56	18.981/482.12
1.58	13.756/349.40	14.788/375.62	16.830/427.48	18.861/479.07
1.69	13.839/351.51	14.876/377.85	16.923/429.84	18.961/481.61
1.79	14.045/356.74	15.072/382.83	17.127/435.03	19.168/486.87
1.88	13.690/347.73	14.717/373.81	16.773/426.03	18.809/477.75
1.97	13.870/352.30	14.912/378.76	16.970/431.04	19.012/482.90
2.03	13.984/355.19	15.028/381.71	17.086/433.98	19.132/485.95
2.27	13.811/350.80	14.856/377.34	16.920/429.77	18.971/481.86
2.46	14.042/356.67	15.087/383.21	17.154/435.71	19.205/487.81
2.68	13.746/349.15	14.793/375.74	16.865/428.37	18.923/480.64

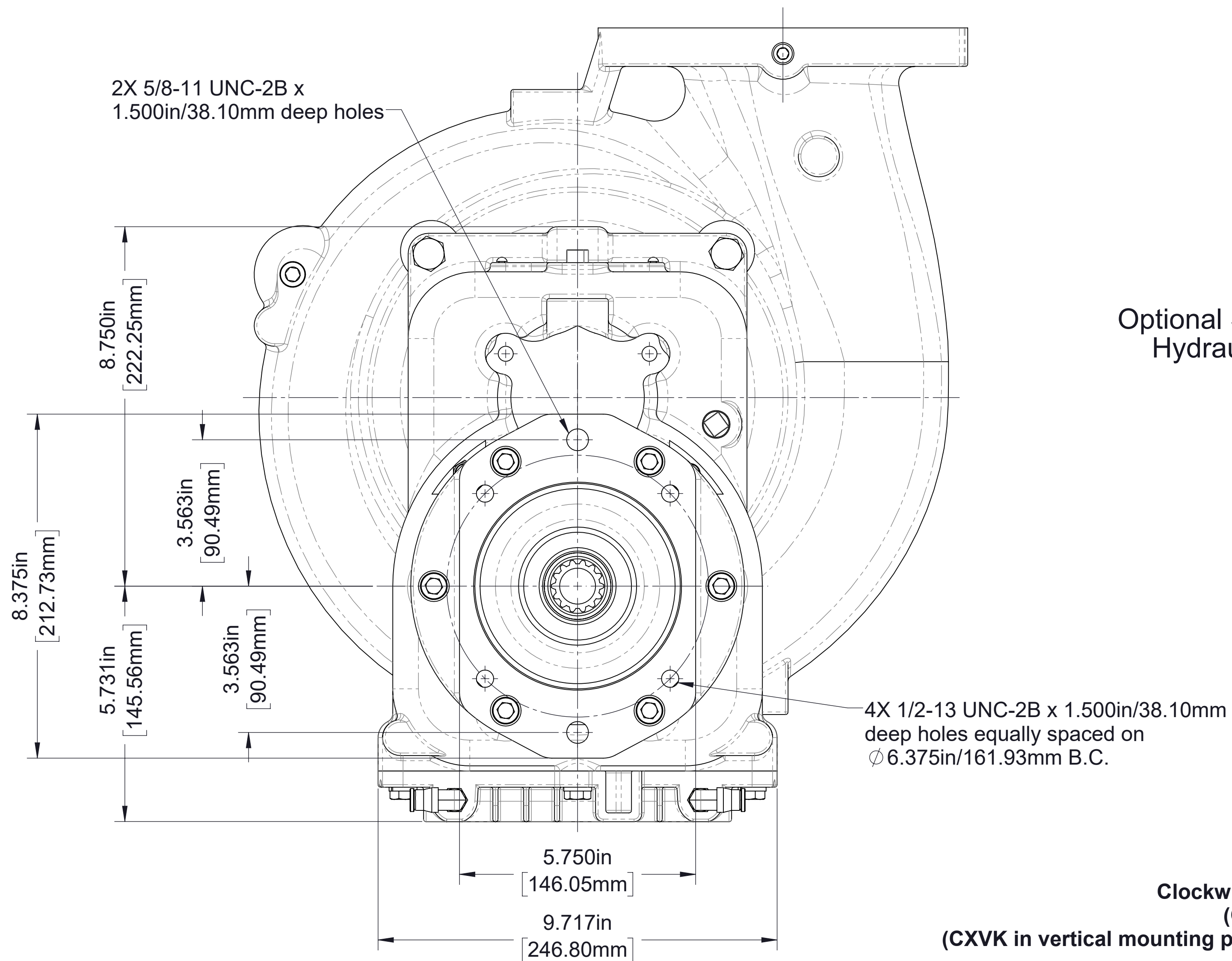
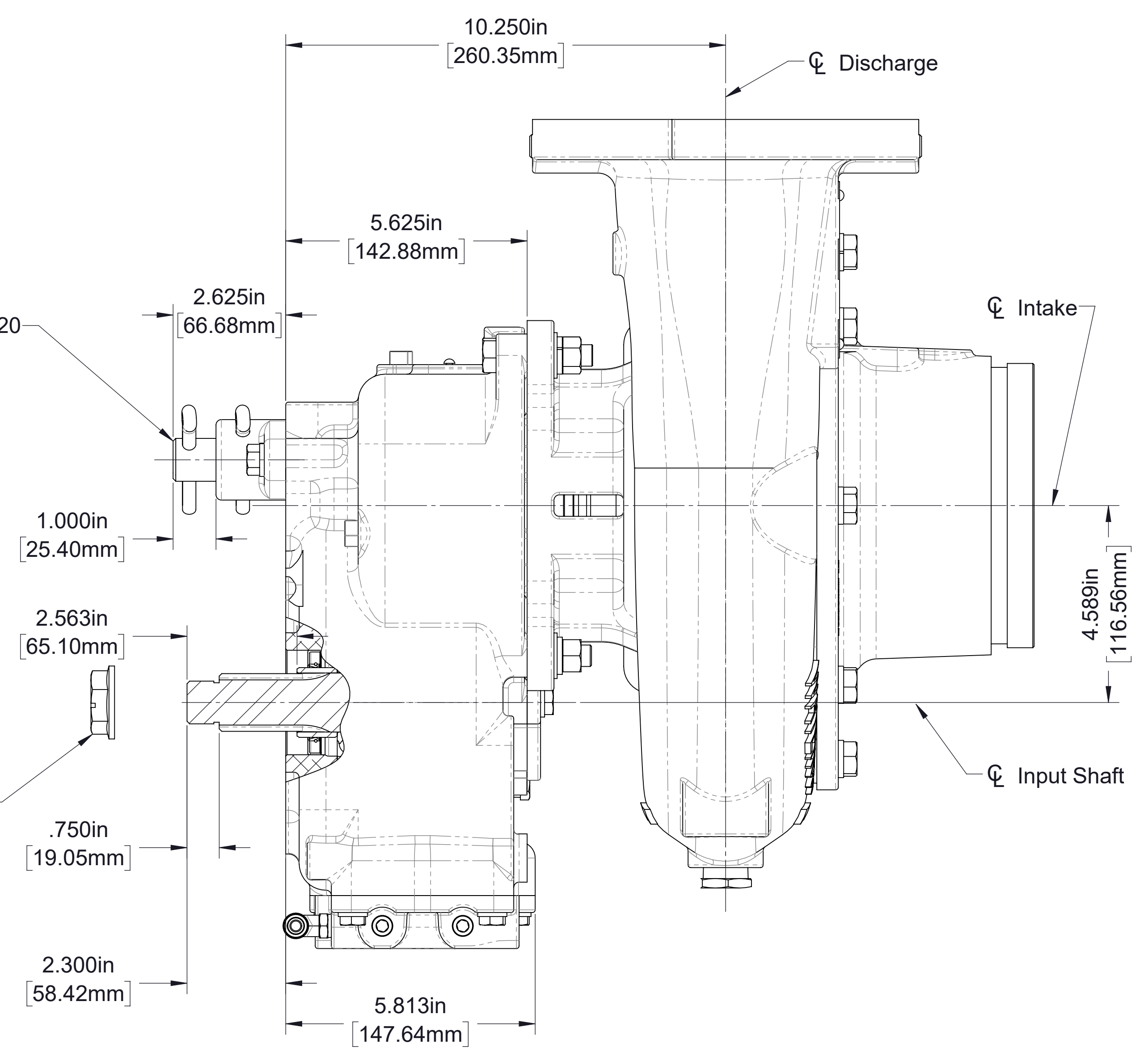
C22 Data Tables



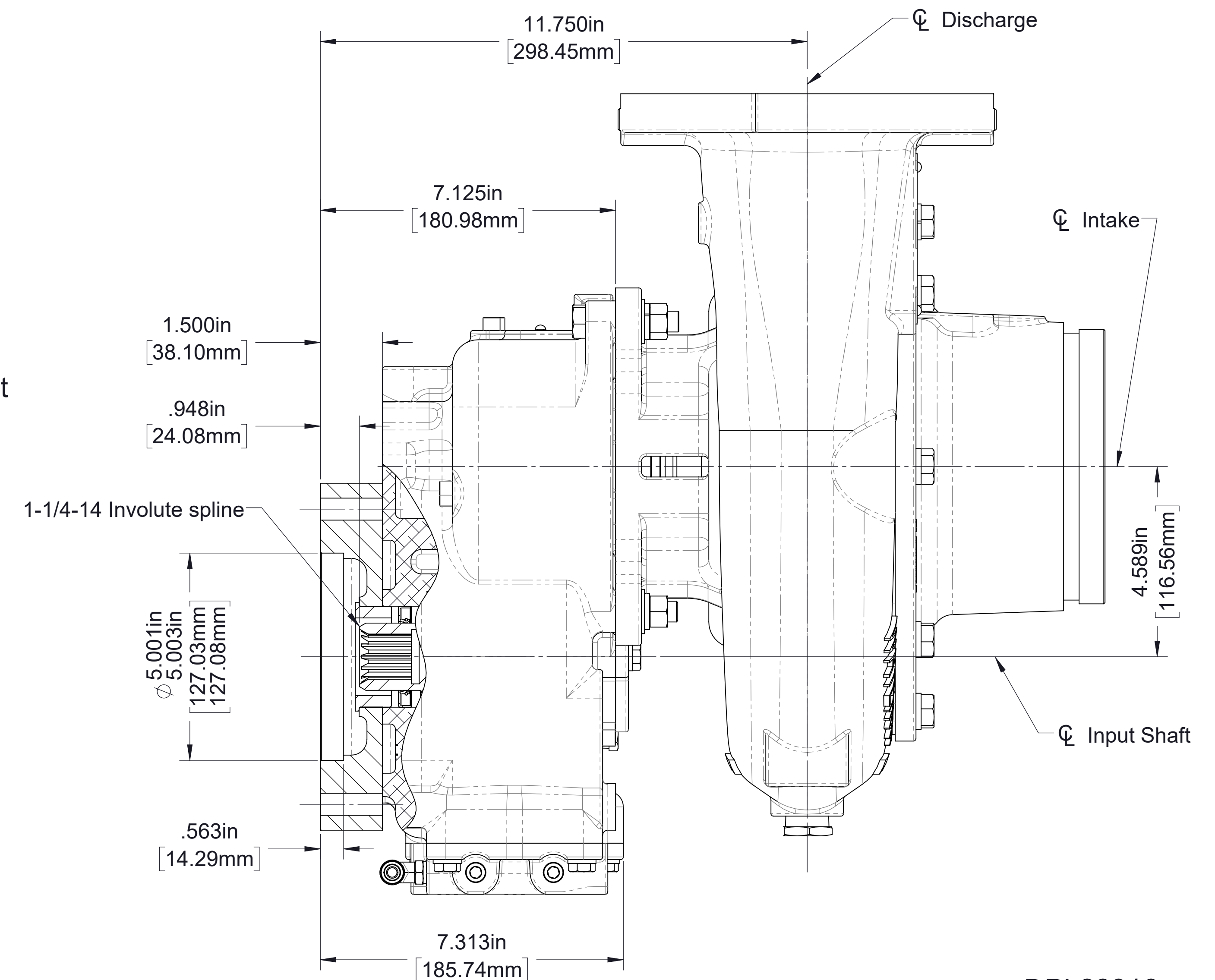
1-3/8-10 SAE Splined Input

Optional ϕ 1.000in/25.4mm suspension pin. Order kit K520

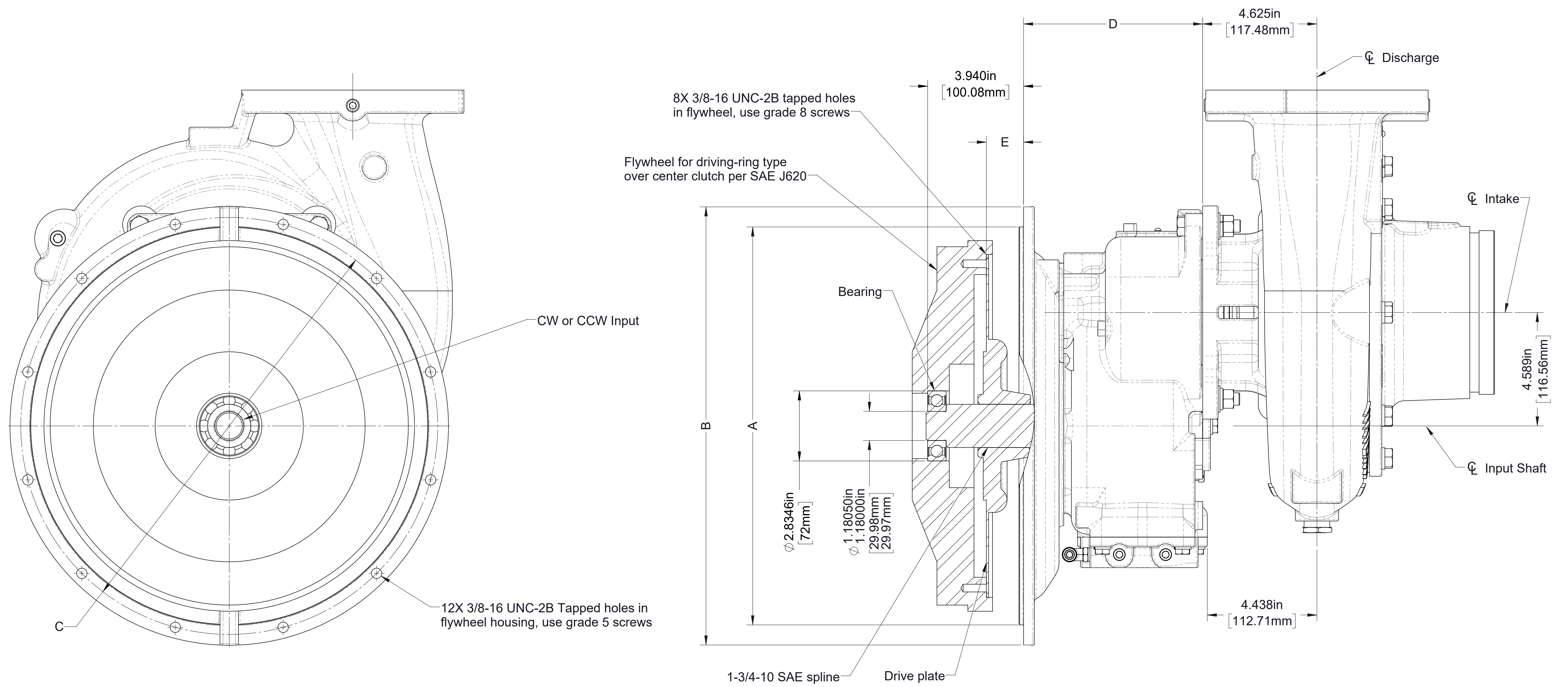
1-20 Shaft Nut, Included on drive shaft. Torque to 275-325 Lb-Ft



Optional SAE Class "C" 2 or 4 Bolt Hydraulic Pump Flange Input



Model CX with K
Clockwise or Counterclockwise input
(Clockwise input shown)
(CXVK in vertical mounting position shown, See page 26 for mounting positions)

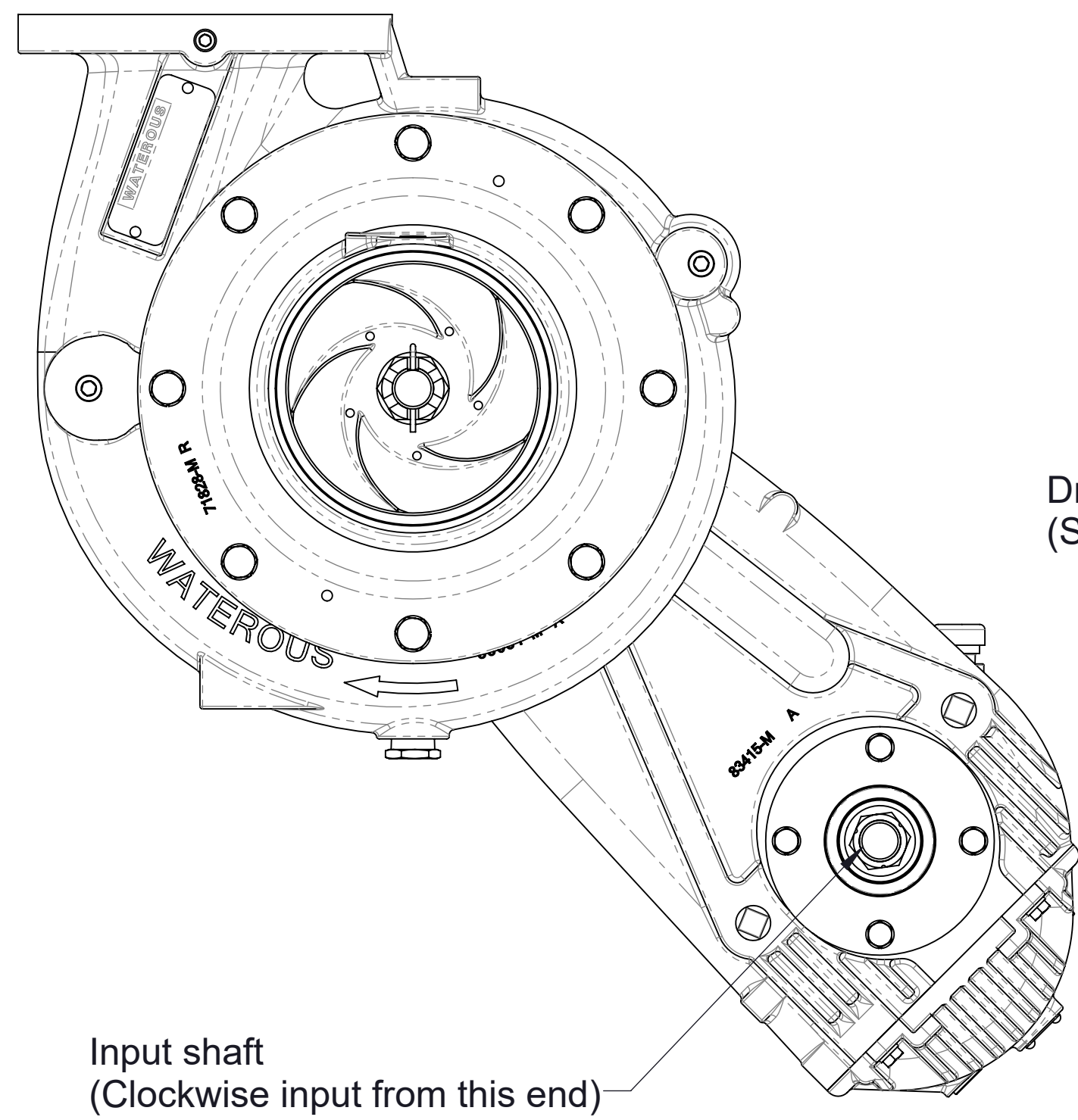


SAE Bellhousing - J617				D	SAE Flywheel - J620		Drive Plate	
Size	A	B	C		Clutch No.	E	Part No.	Torque Rating
2	17.625in 447.68mm	19.250in 488.95mm	18.375in 466.73mm	8.250in 209.55mm	10	2.12in 53.85mm	V 2462	850 ft-lb 1153 Joules
3	16.125in 409.58mm	17.750in 450.85mm	16.875in 428.63mm	7.250in 184.15mm				
4	14.250in 361.95mm	15.875in 403.23mm	15.000in 381.00mm					
2	17.625in 447.68mm	19.250in 488.95mm	18.375in 466.73mm	8.250in 209.55mm	11-1/2	1.56in 39.62mm	V 2463	
3	16.125in 409.58mm	17.750in 450.85mm	16.875in 428.63mm	7.250in 184.15mm				

Model CX with T

Clockwise or Counterclockwise input
(Clockwise input shown)

(CXVT in vertical mounting position shown, See page 26 for mounting positions)

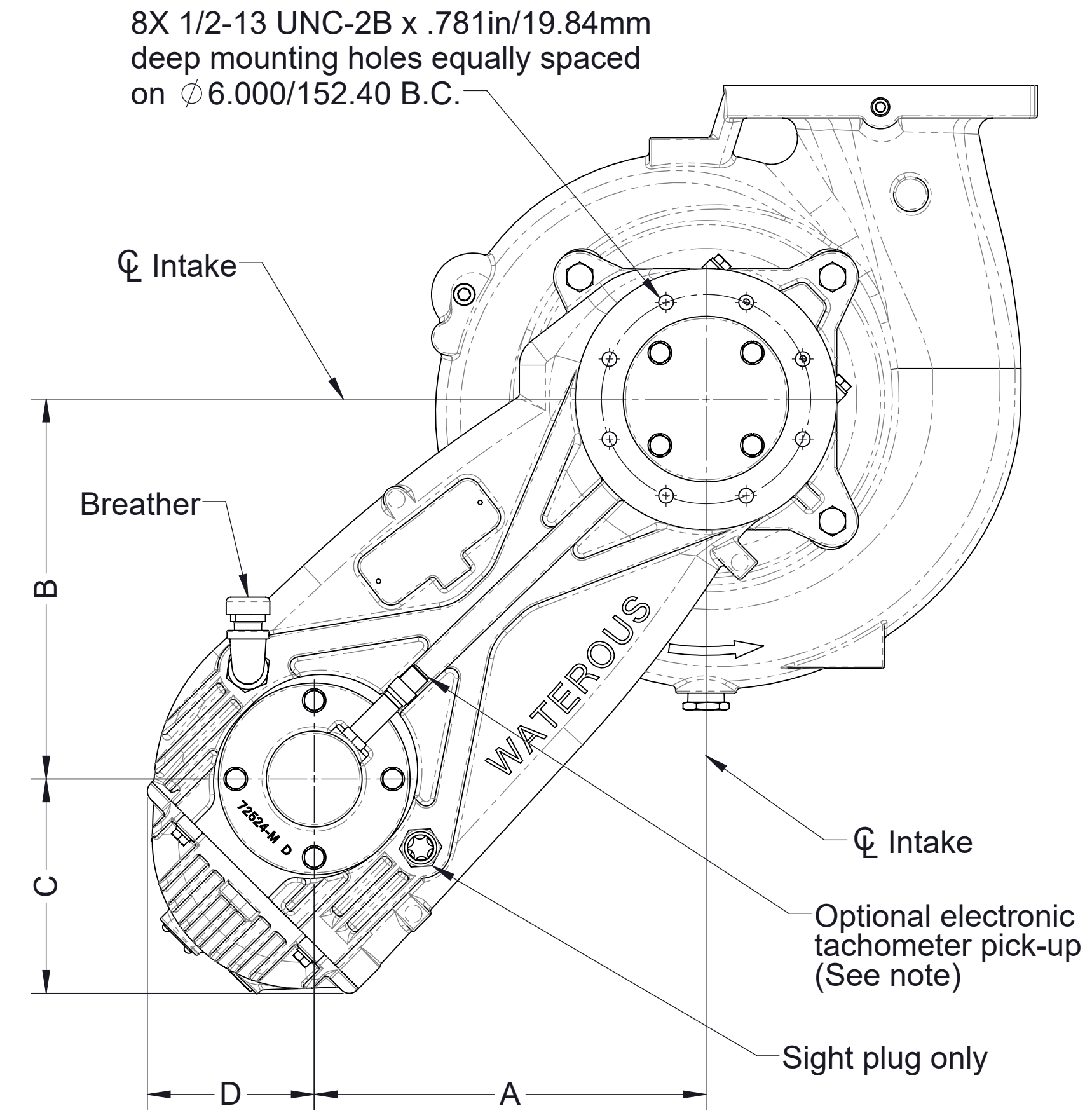
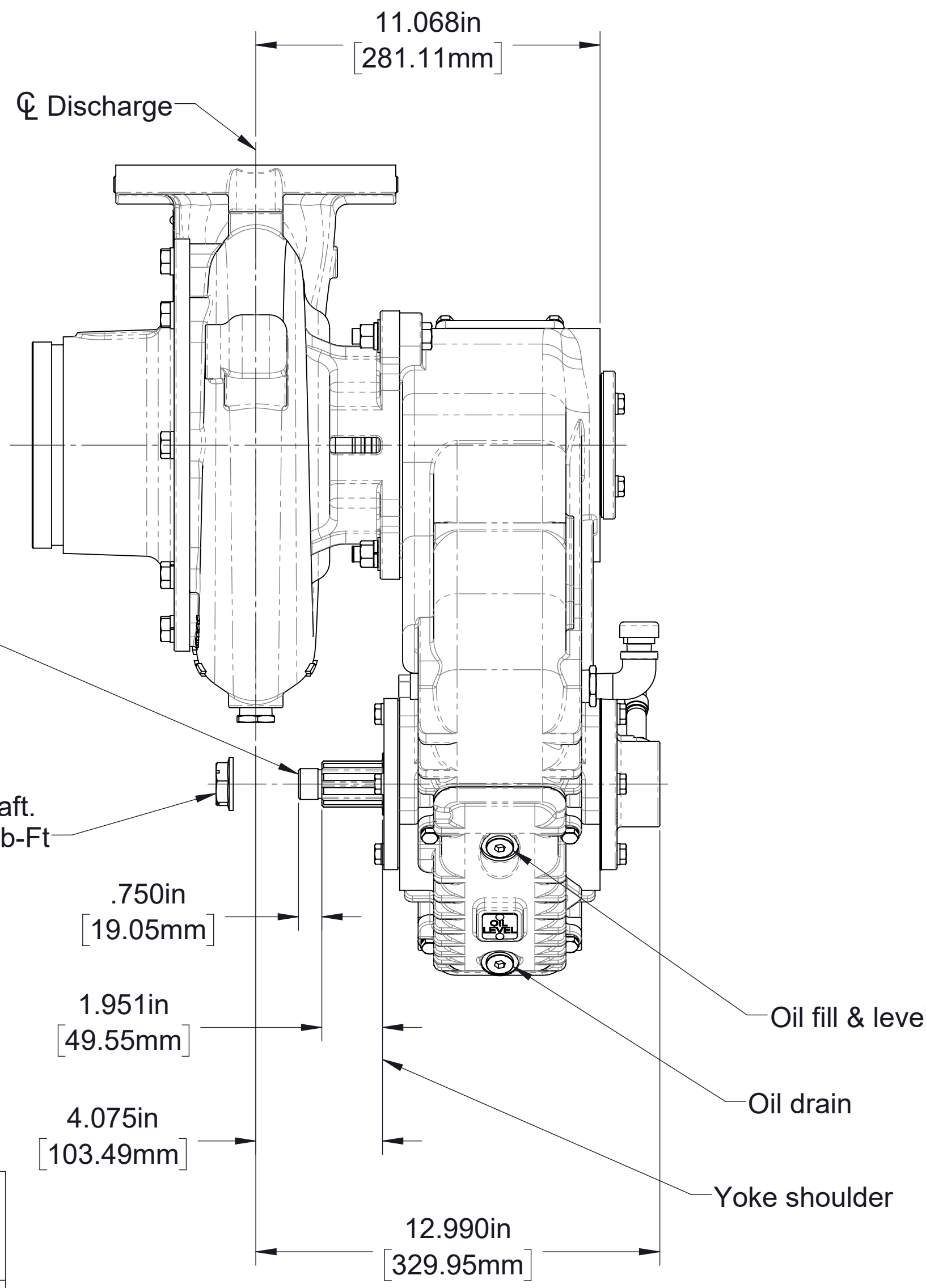


Input shaft
(Clockwise input from this end)

Vertical Mounting
(Transmission input shaft to the right of the pump intake)

Driveline and optional end yokes available
(See table on page 34)

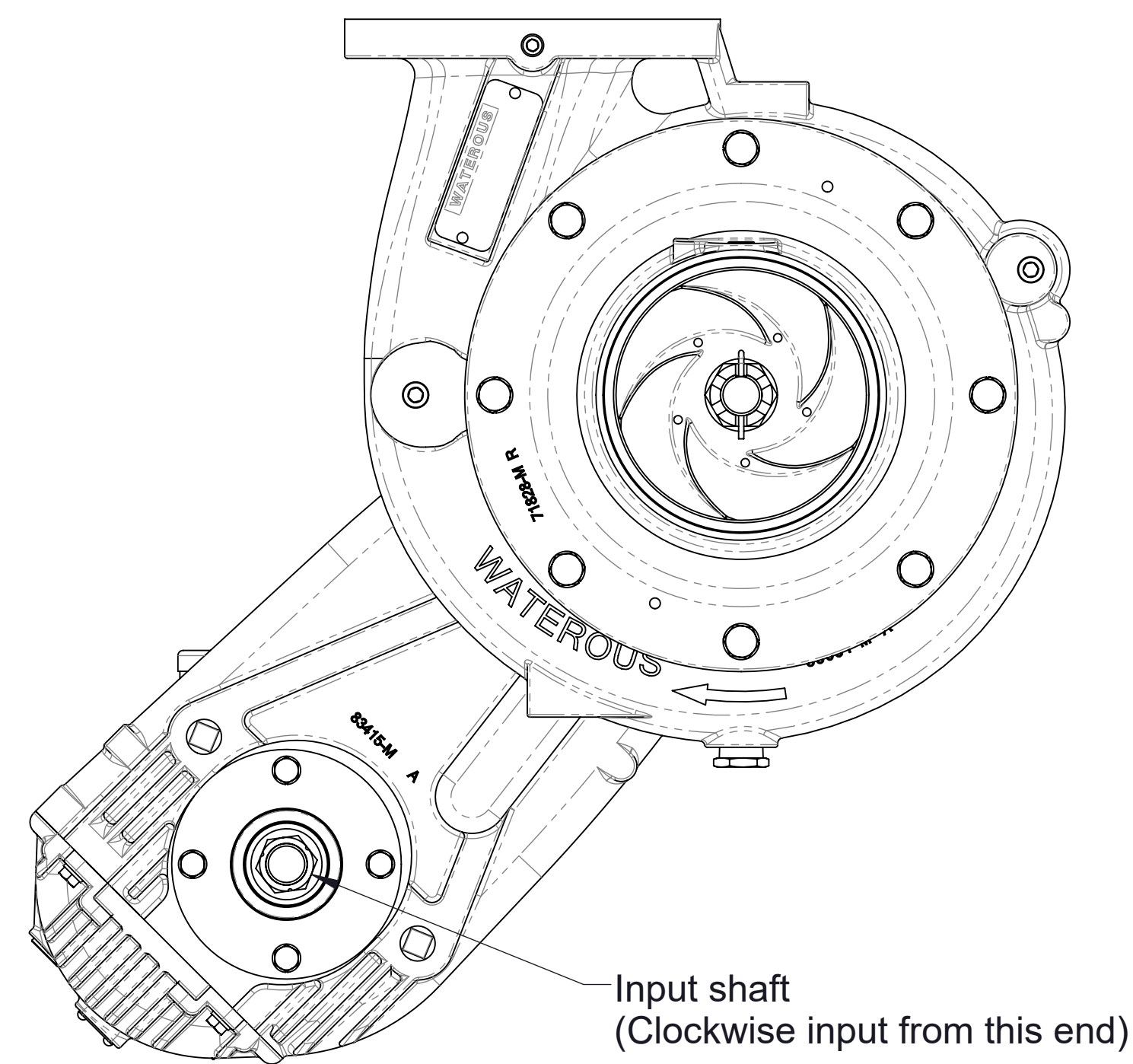
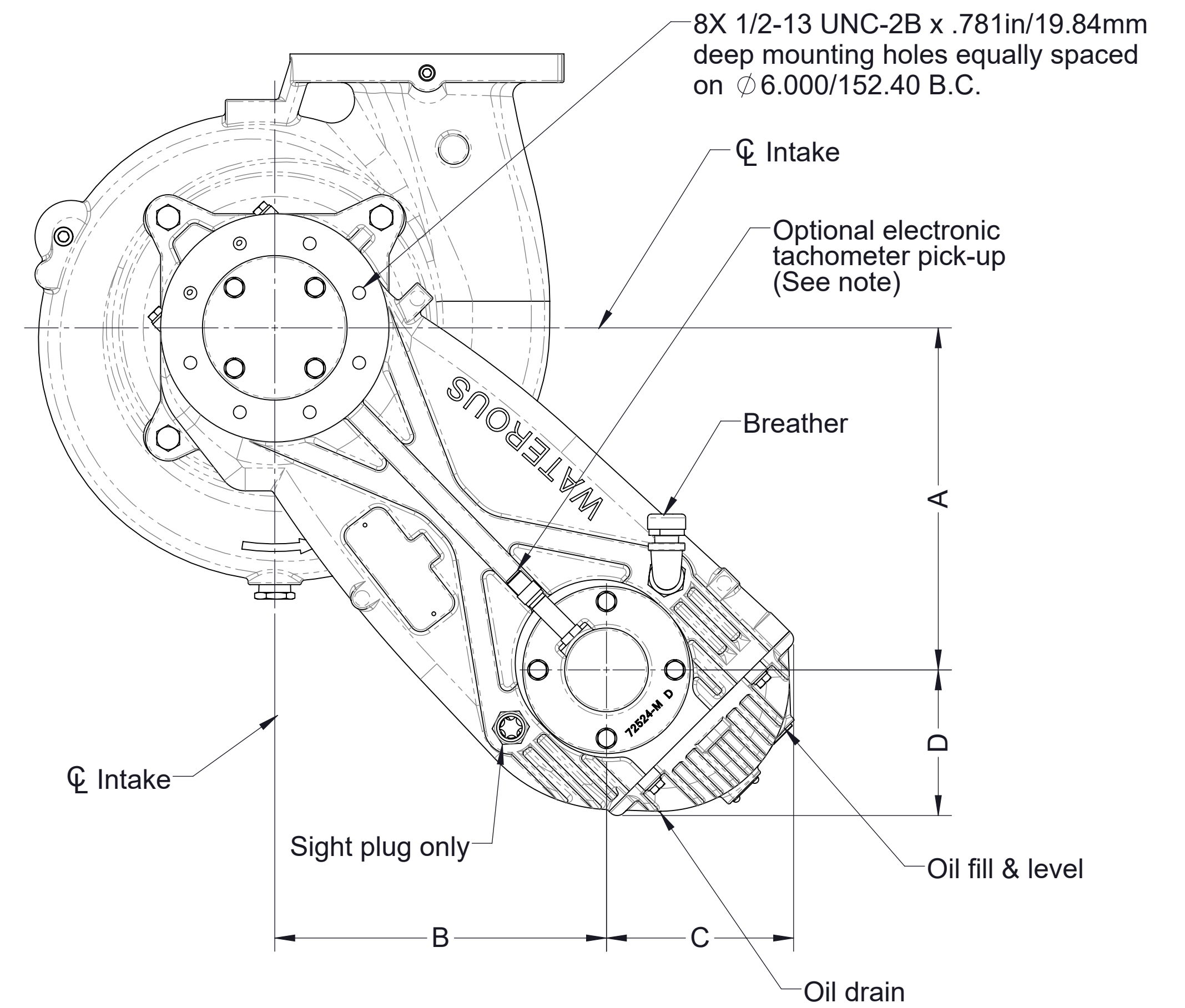
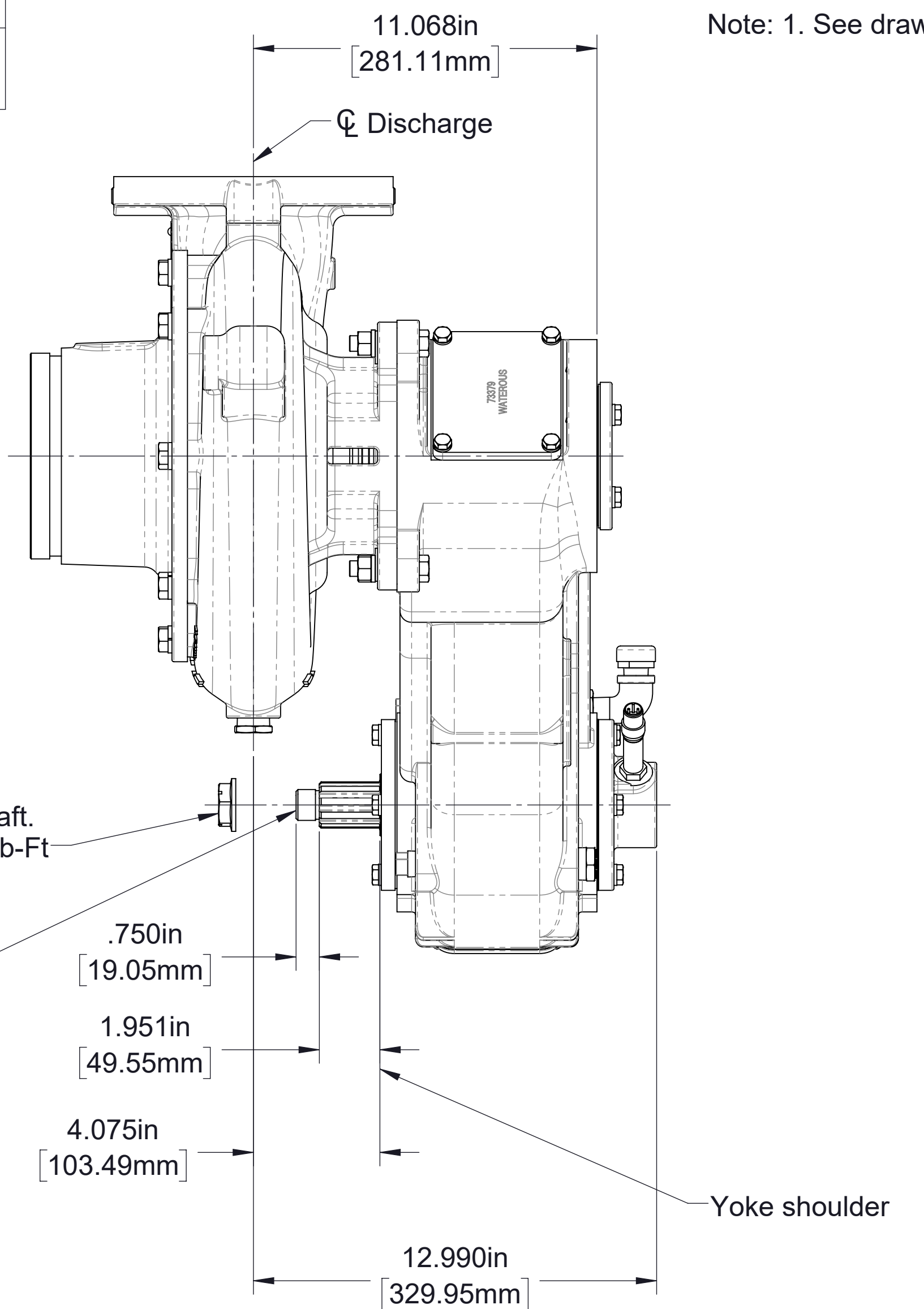
1-20 Shaft Nut,
Included on drive shaft.
Torque to 275-325 Lb-Ft



Model CX with PA

Clockwise input
CXVPA shown

Note: 1. See drawing DPL82080 for additional details of PA transmission

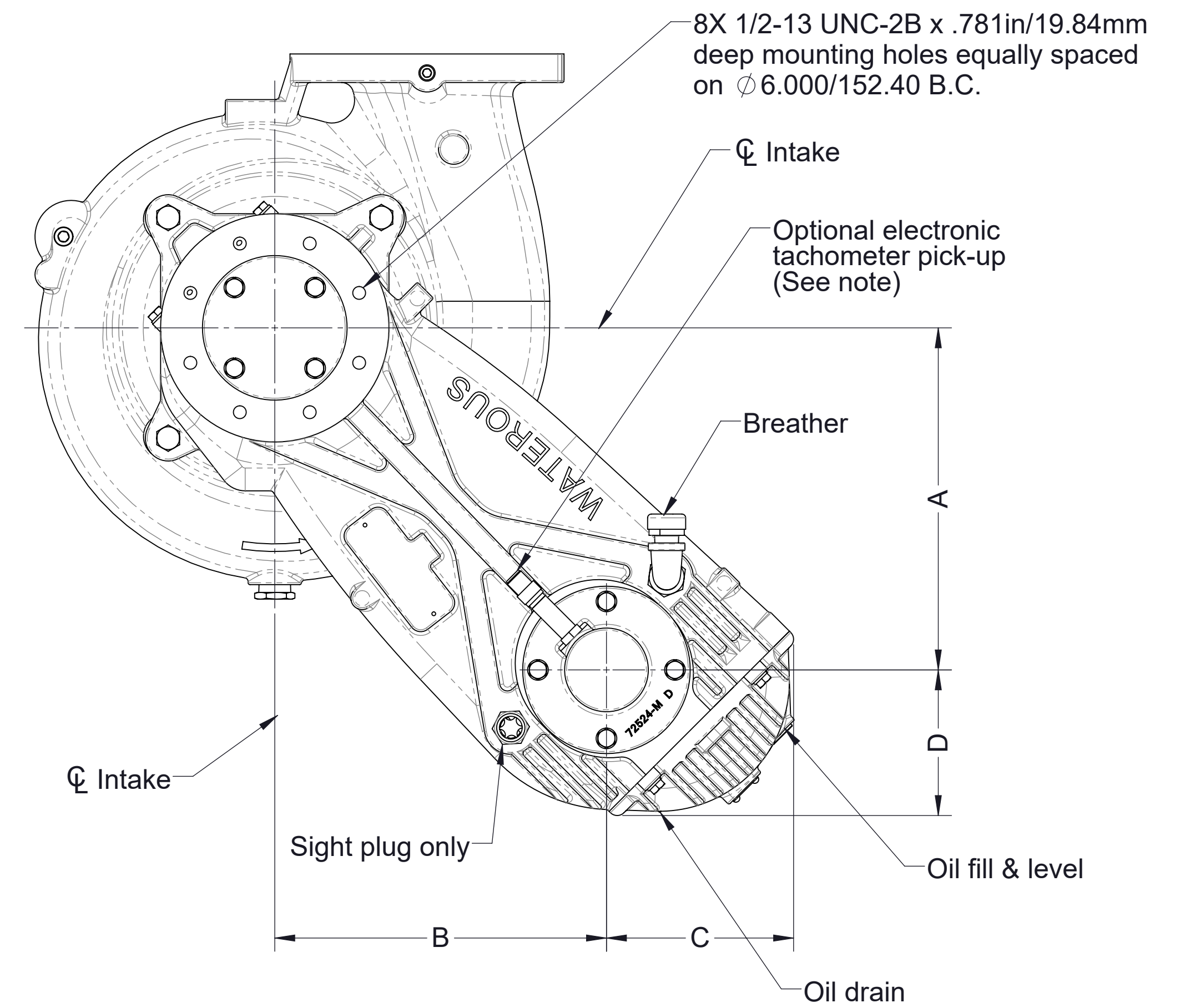
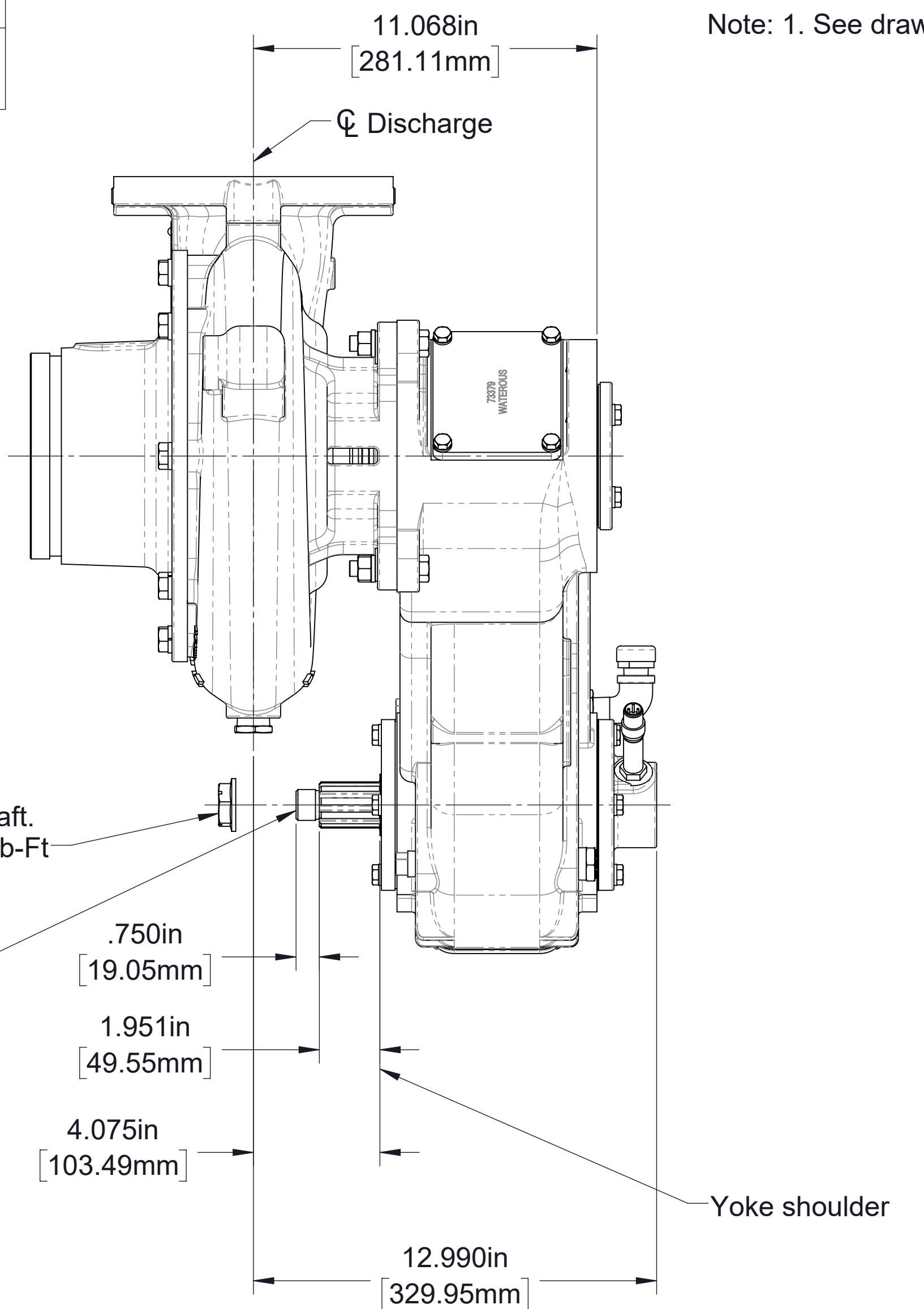


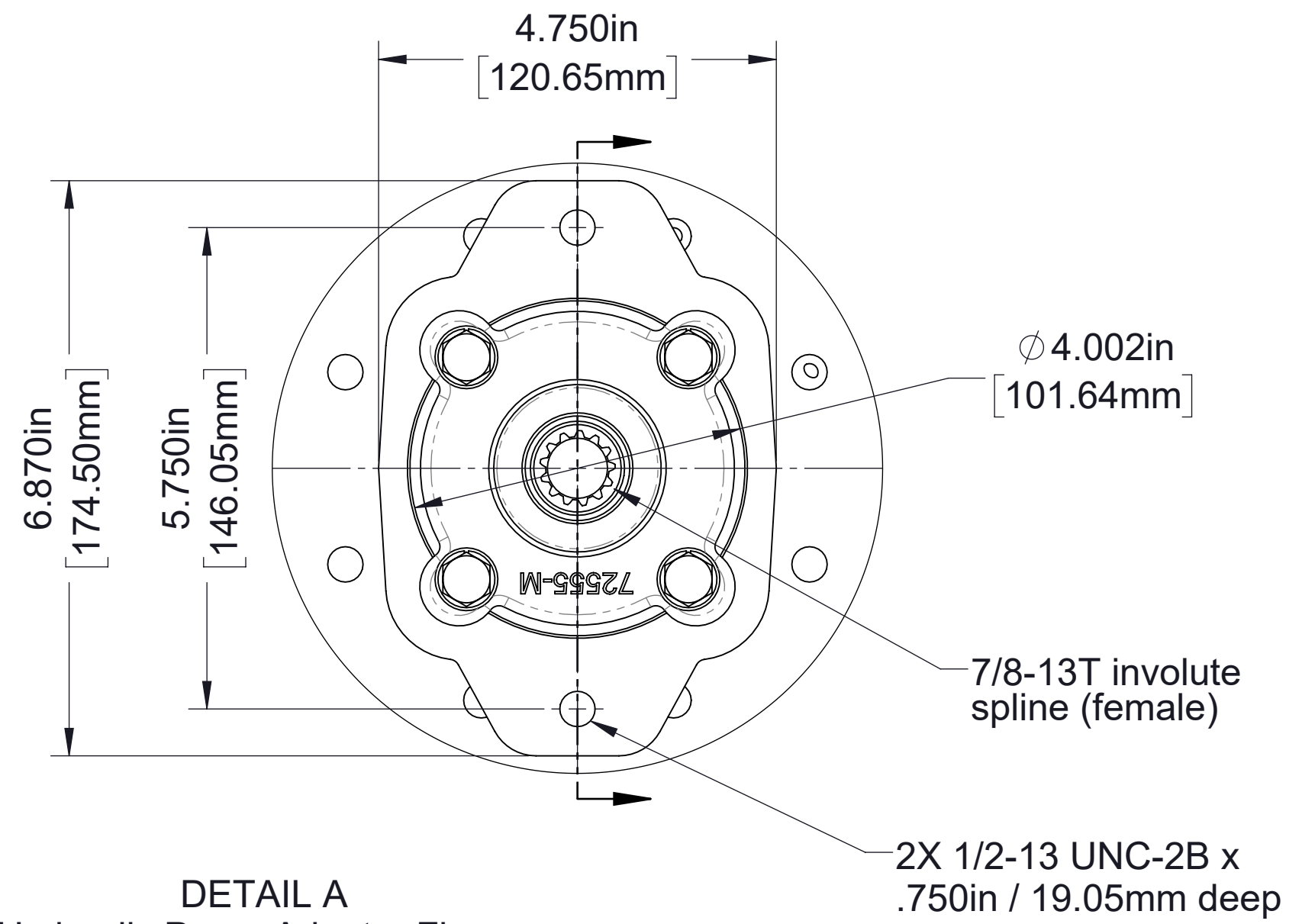
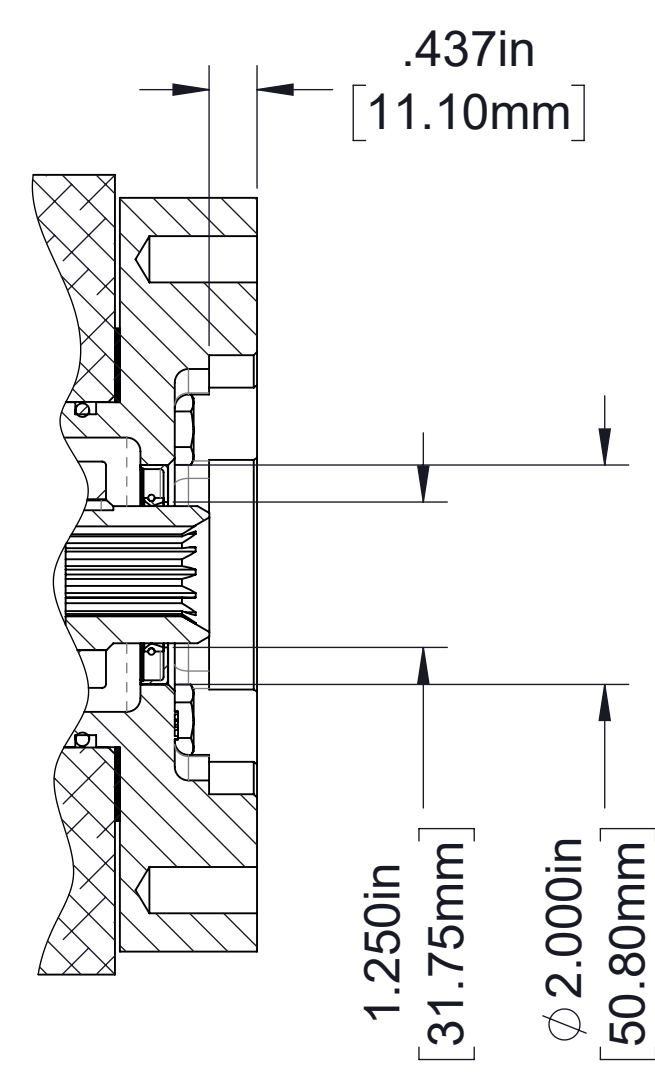
Input shaft
(Clockwise input from this end)

Left Mounting
(Transmission input shaft to the left of the pump intake)
(CXV and CXS pumps only)

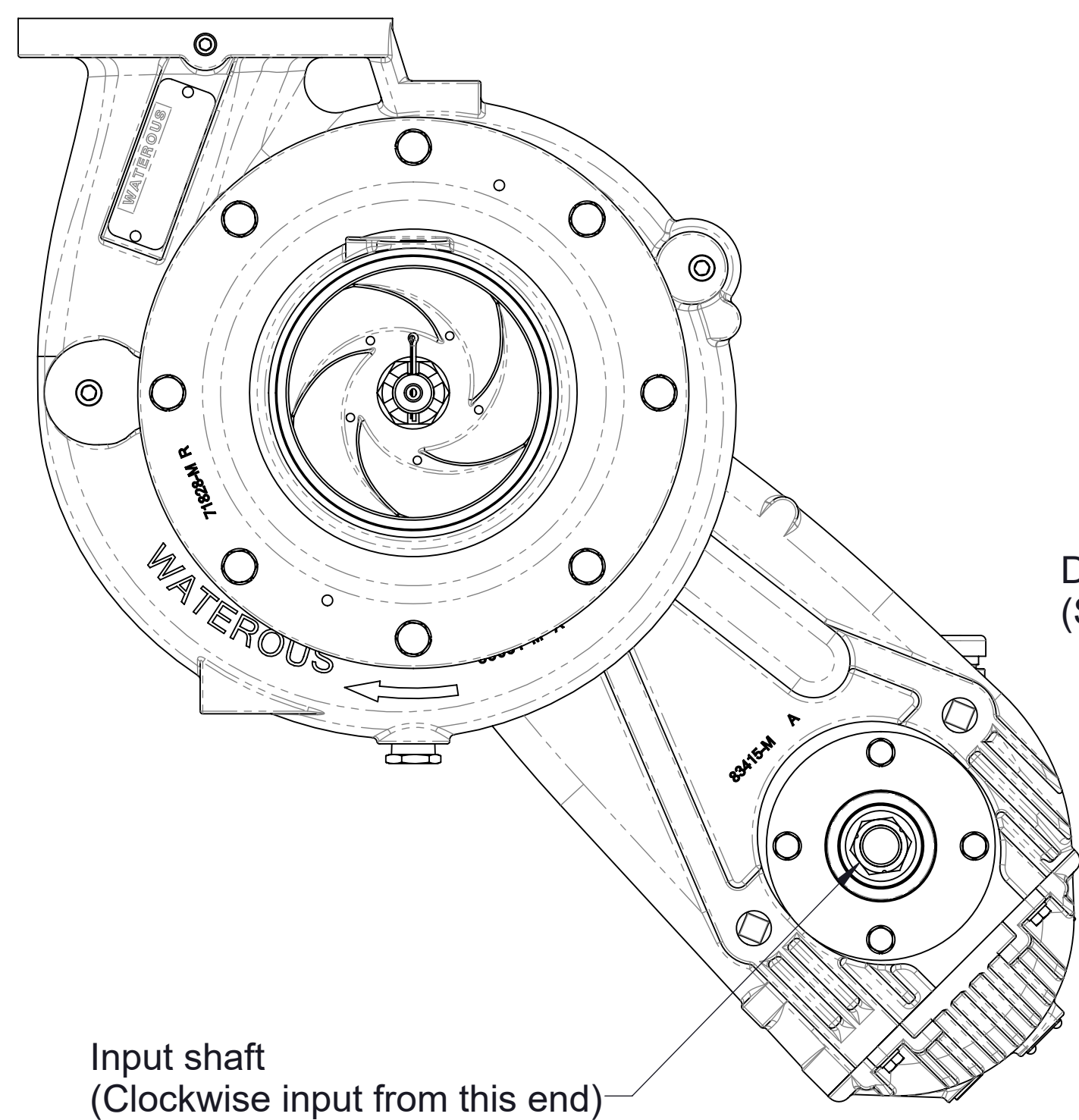
Driveline and optional end yokes available
(See table on page 34)

1-20 Shaft Nut,
Included on drive shaft.
Torque to 275-325 Lb-Ft



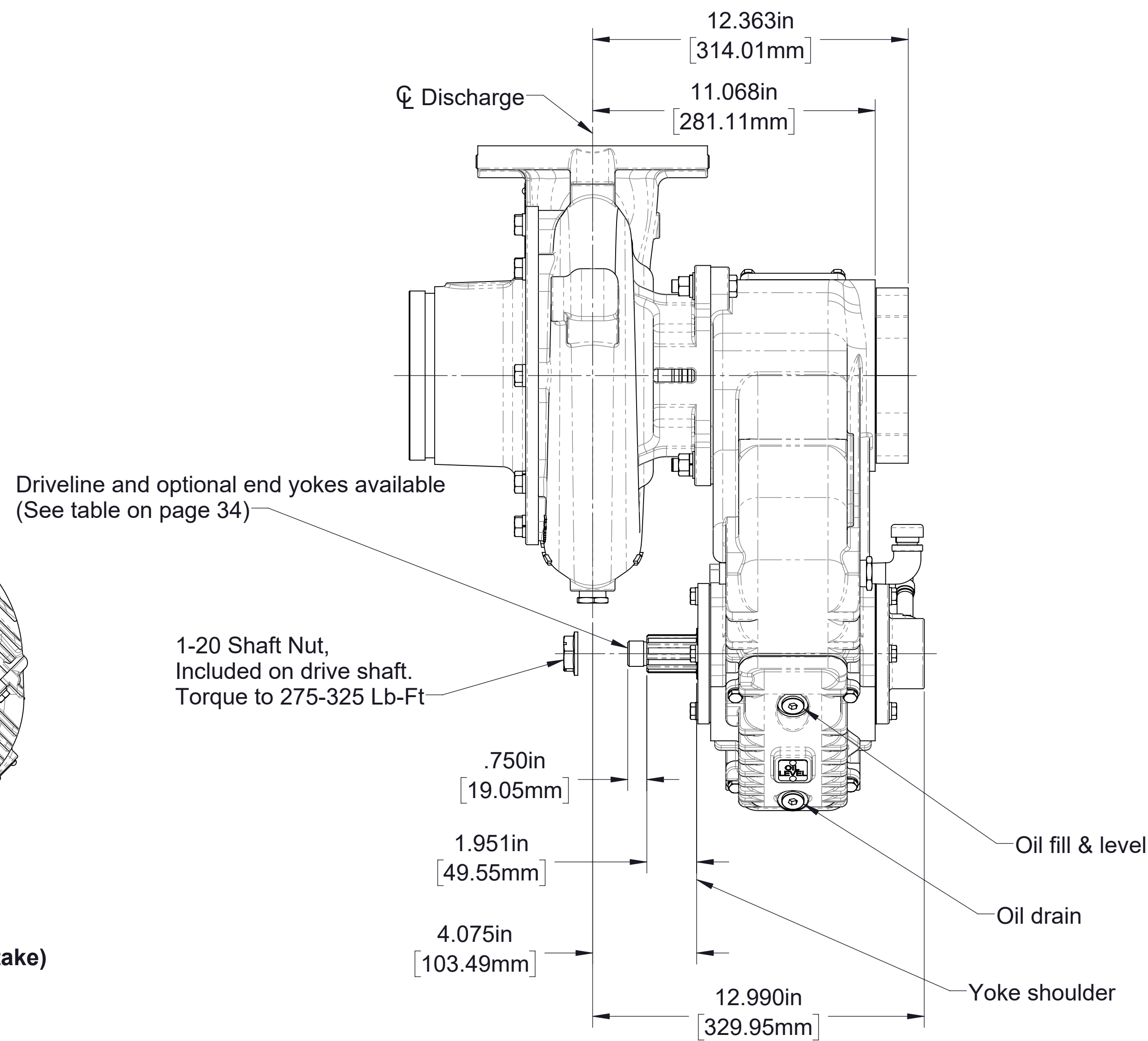


DETAIL A
 Hydraulic Pump Adapter Flange
 Used for SAE J744 class B 2-bolt hydraulic pump
 with male 7/8-13T 16/32 pitch involute spline



Input shaft
 (Clockwise input from this end)

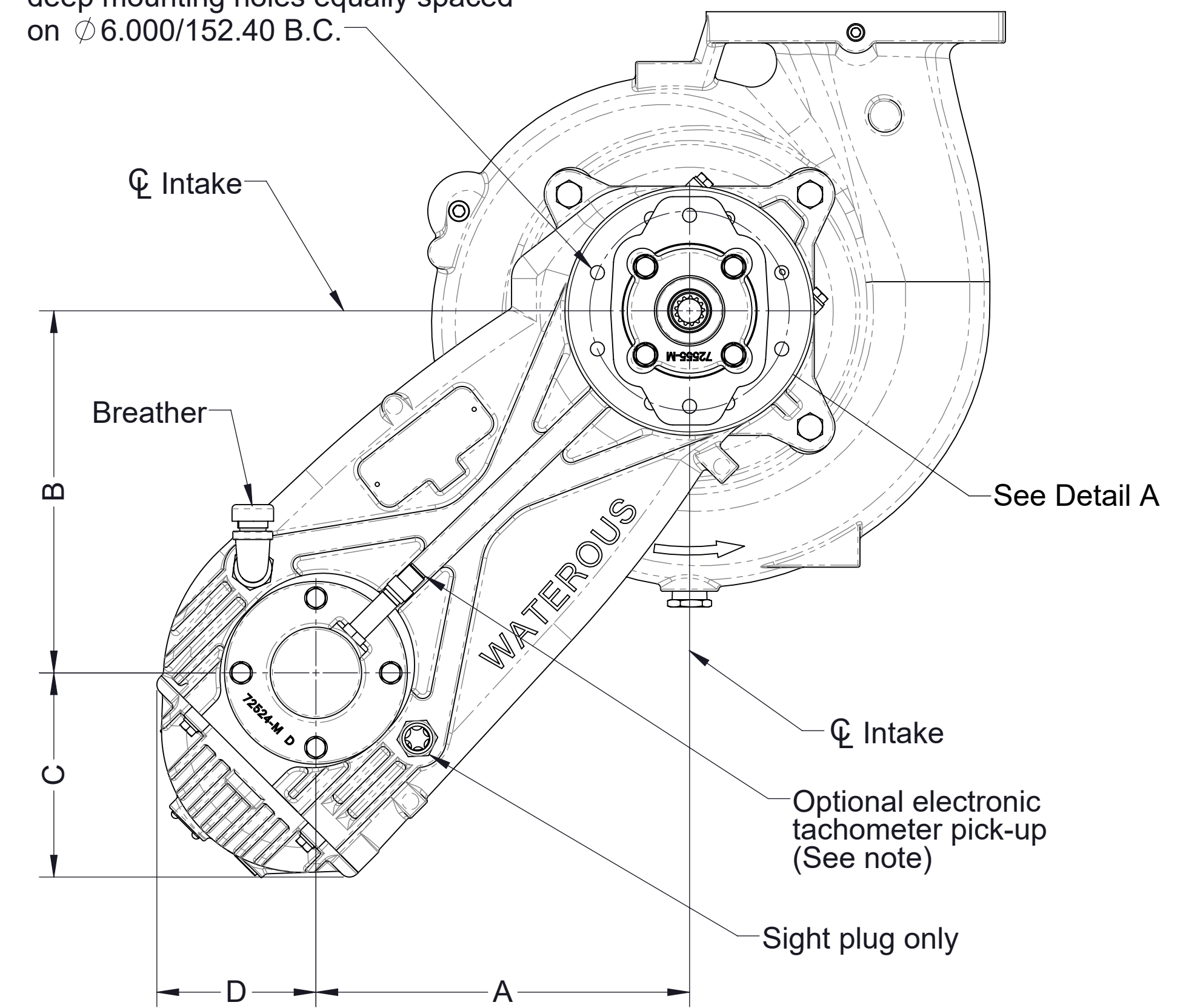
Vertical Mounting
 (Transmission input shaft to the right of the pump intake)



Driveline and optional end yokes available
 (See table on page 34)

1-20 Shaft Nut,
 Included on drive shaft.
 Torque to 275-325 Lb-Ft

8X 1/2-13 UNC-2B x .781in/19.84mm
 deep mounting holes equally spaced
 on 6.000/152.40 B.C.

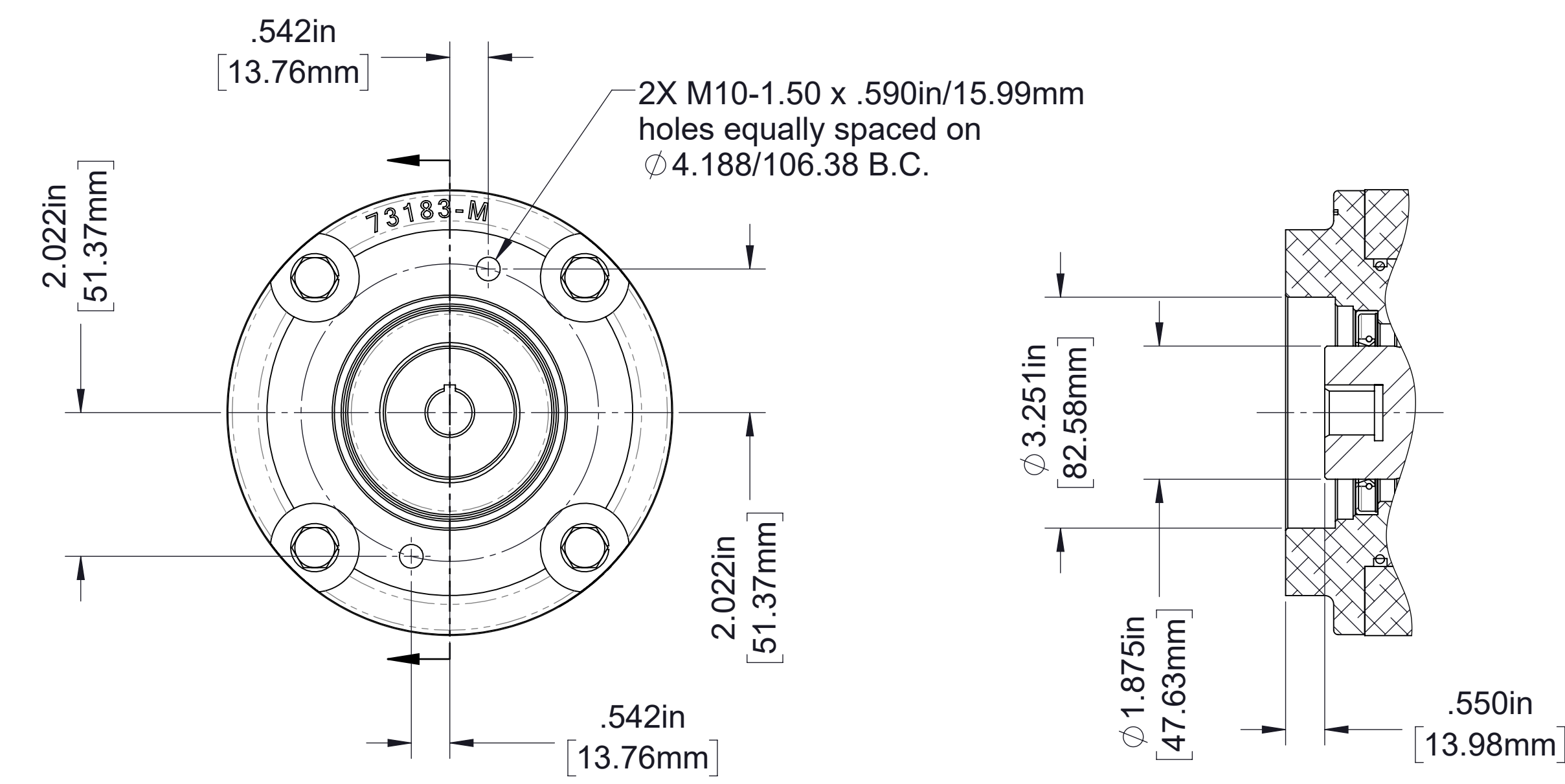
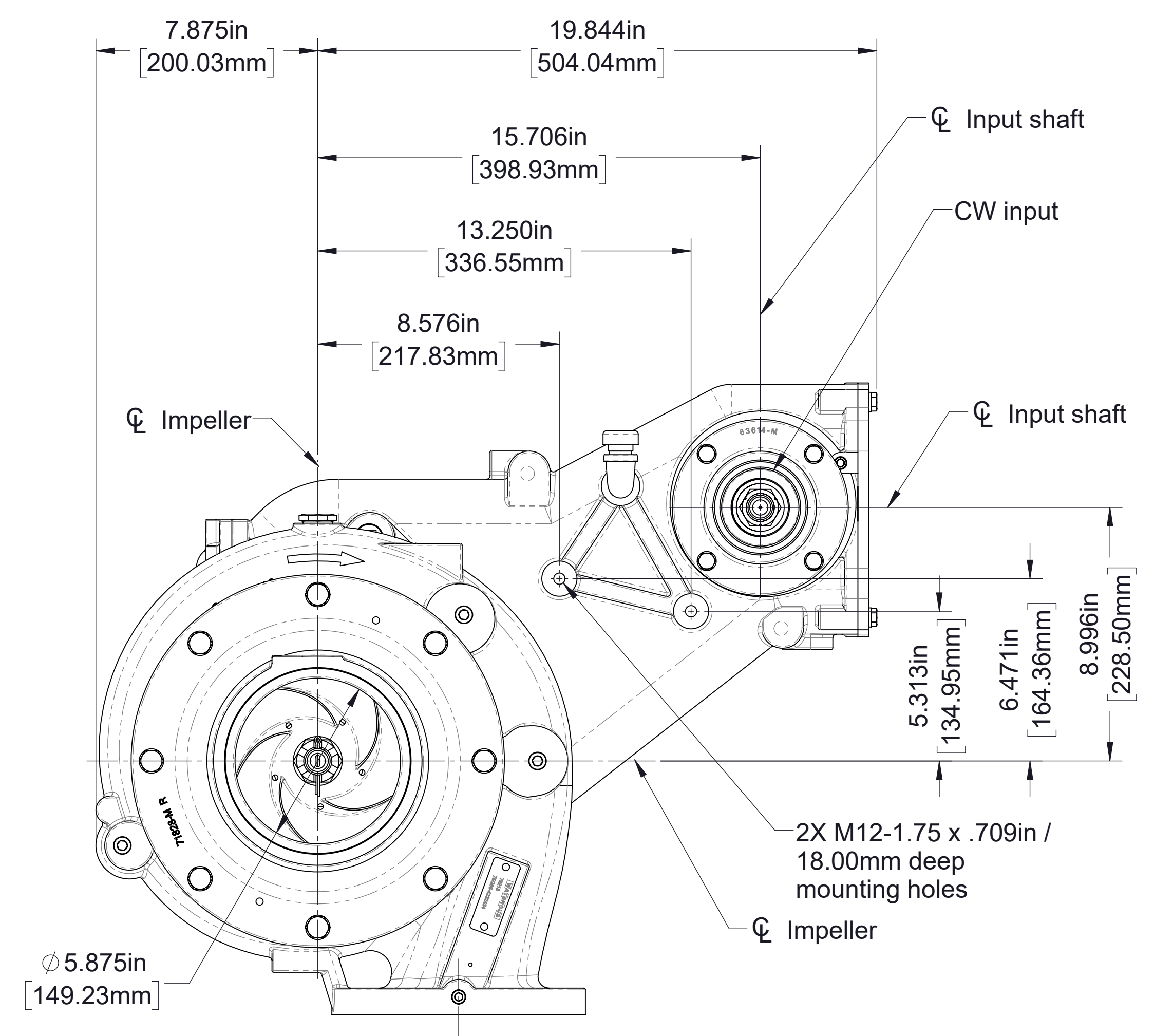
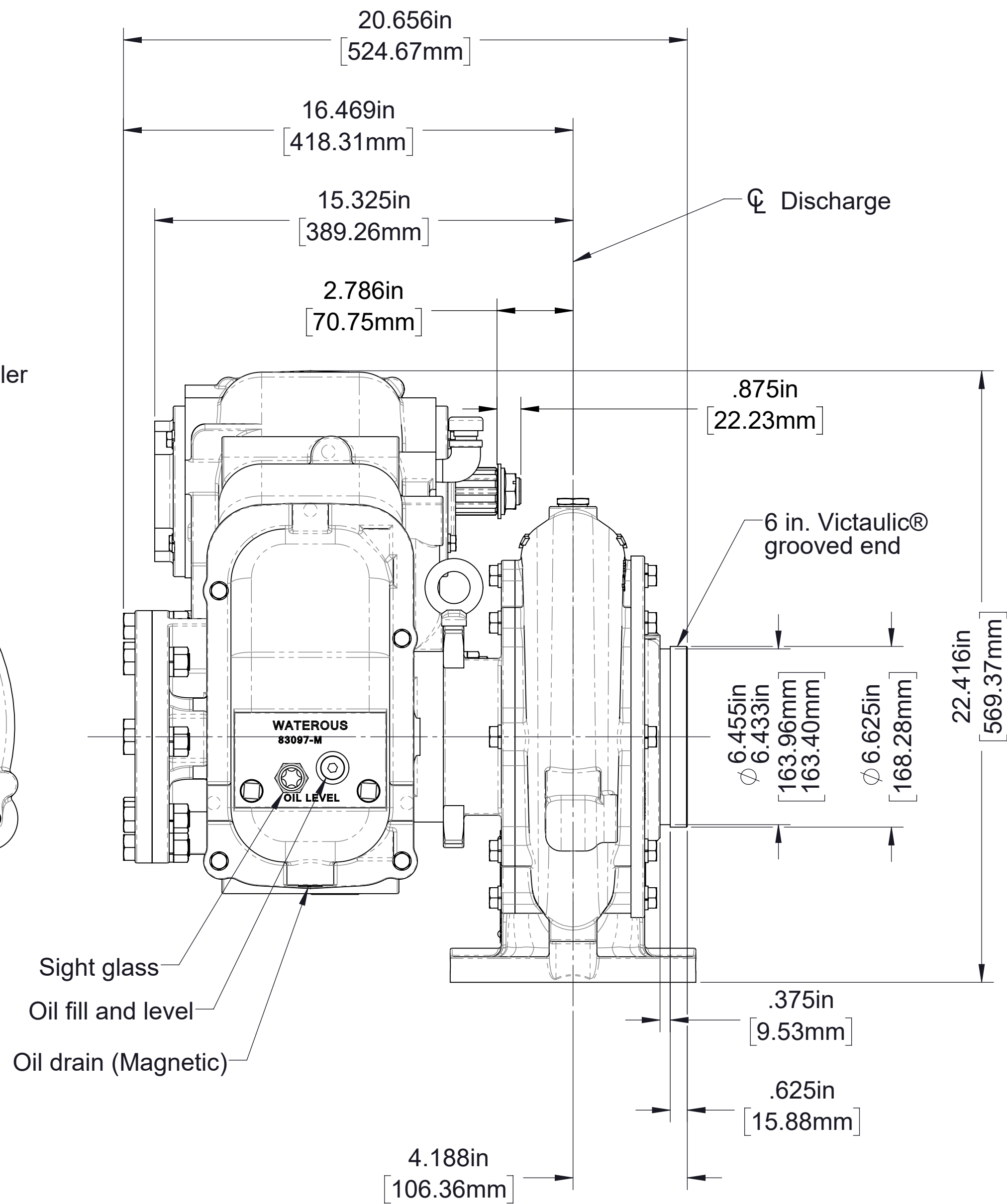
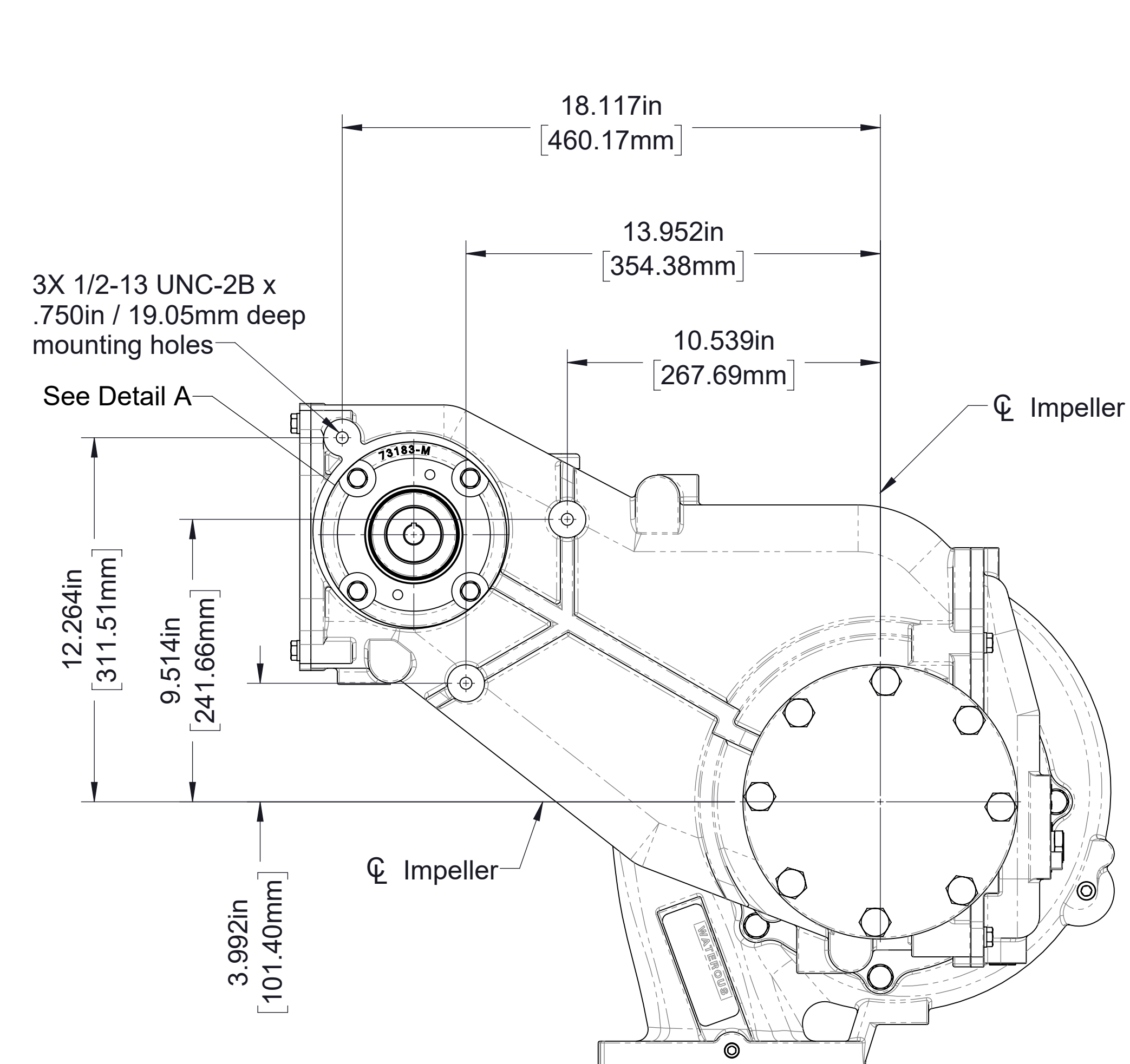


Drive Line		Ratio	Dim A	Dim B	Dim C	Dim D
Size	Spline					
1-1/2 in	1-1/2-10 SAE	1.70	11.288in 286.71mm	10.943in 277.94mm	6.111in 155.22mm	4.737in 120.32mm
		1.90	11.269in 286.24mm	10.924in 277.47mm	6.130in 155.70mm	4.755in 120.79mm
		2.10	11.239in 285.46mm	10.894in 276.70mm	6.160in 156.46mm	4.786in 121.56mm

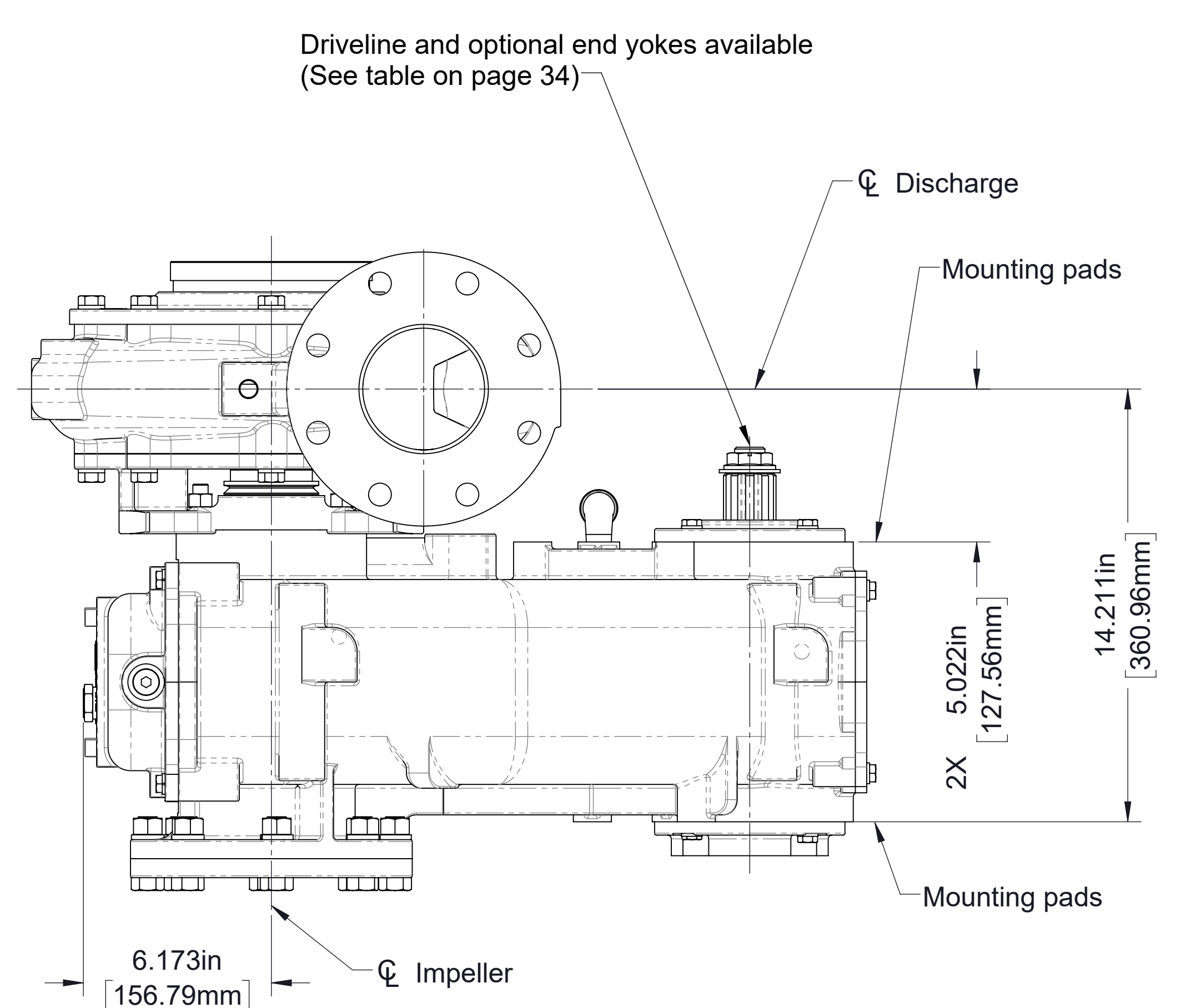
Model CX with PA

With optional hydraulic motor mount provision
 Clockwise input
 CXVPA shown

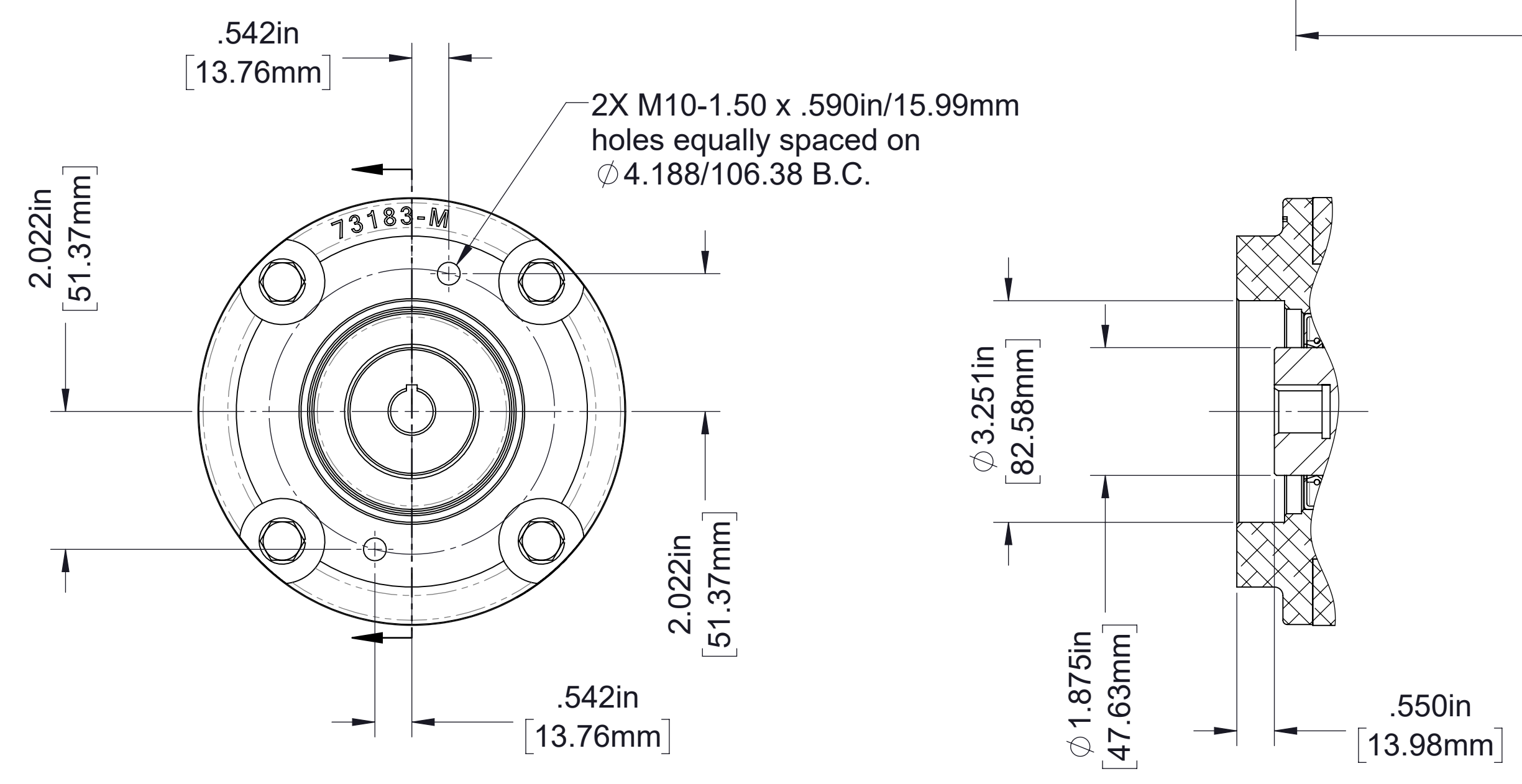
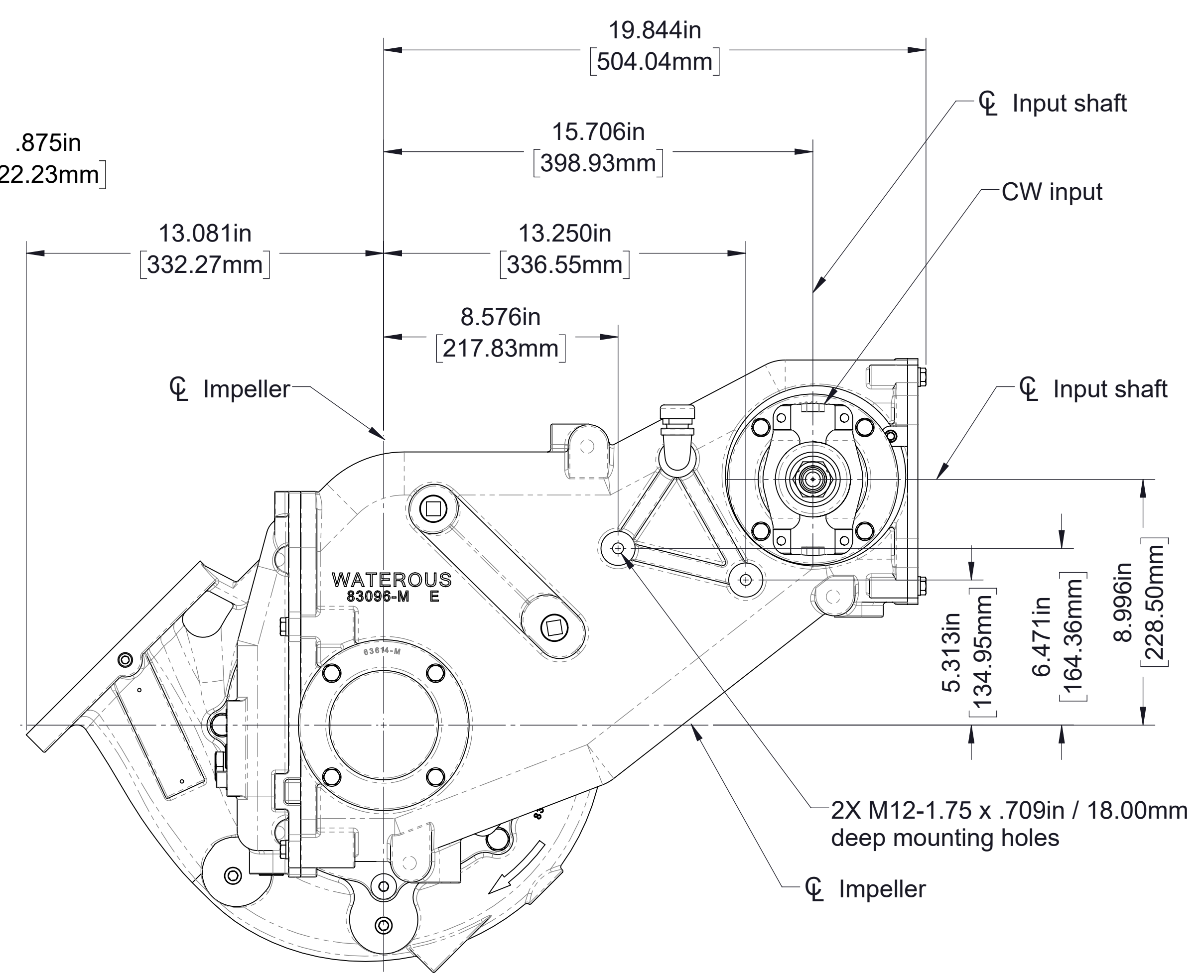
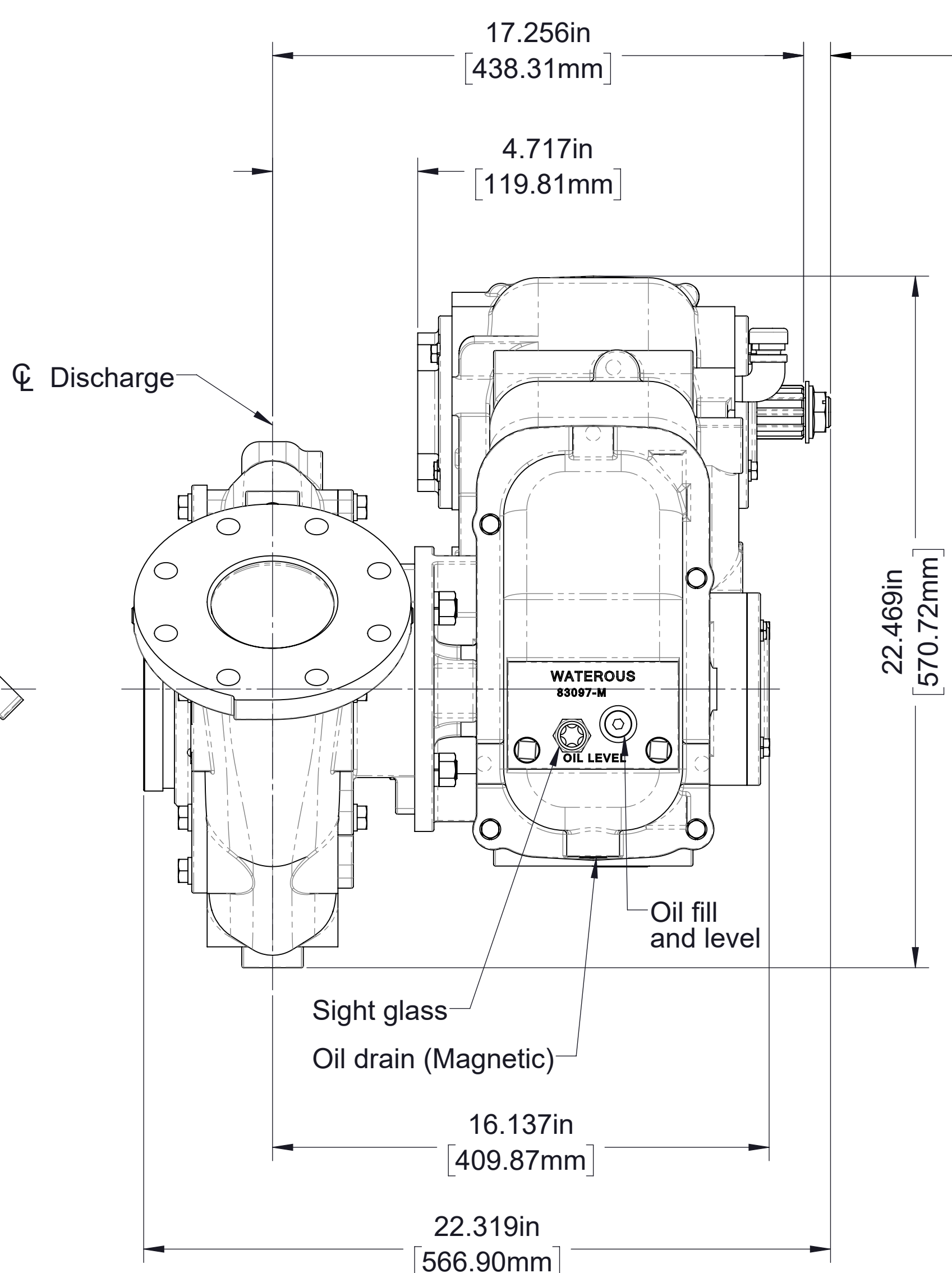
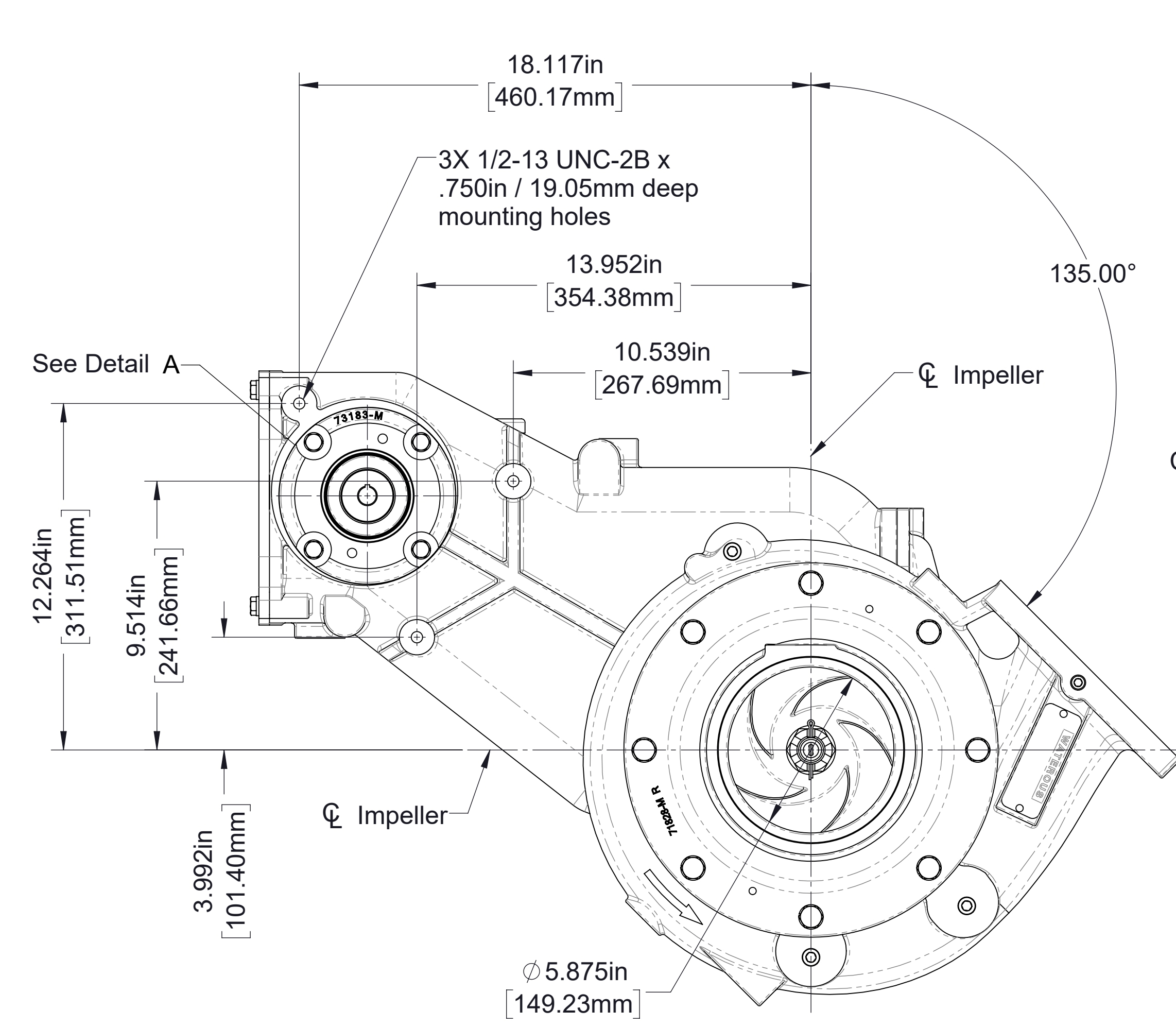
Note: See drawing DPL82080 for additional details of PA transmission



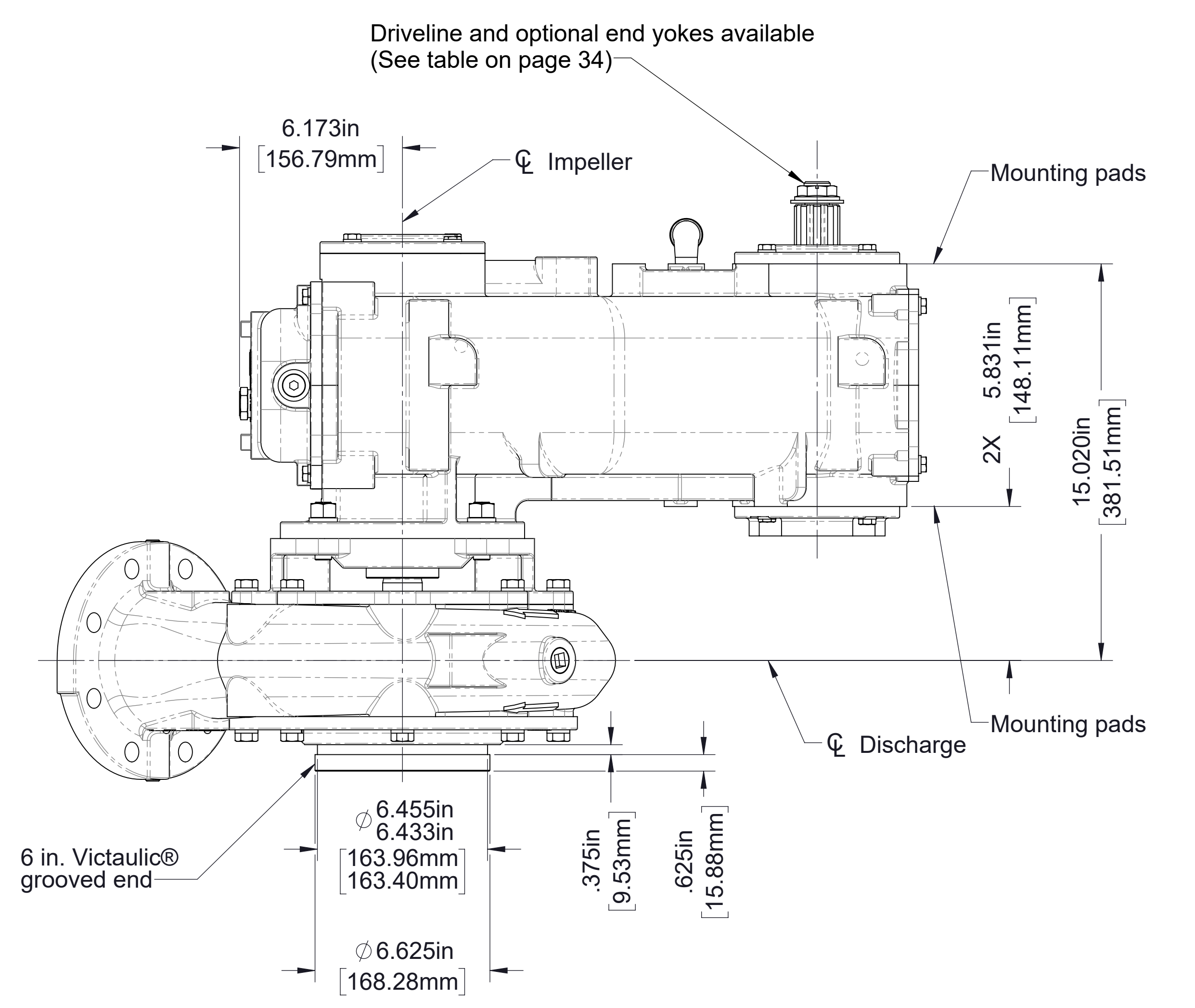
DETAIL A
Hydraulic Pump Adapter Flange
Used for SAE J744 class A 2-bolt hydraulic pump with male 5/8in keyed shaft



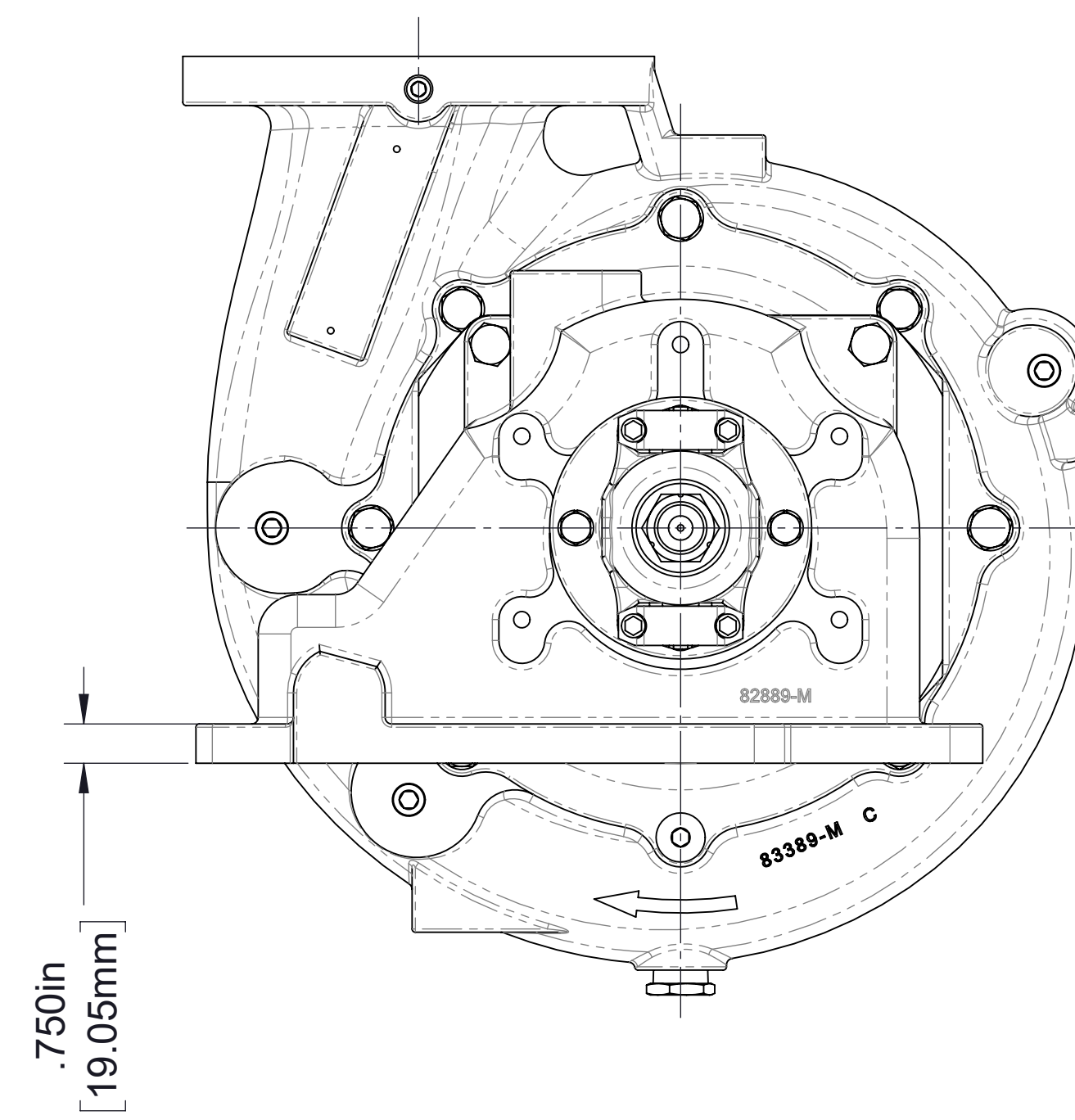
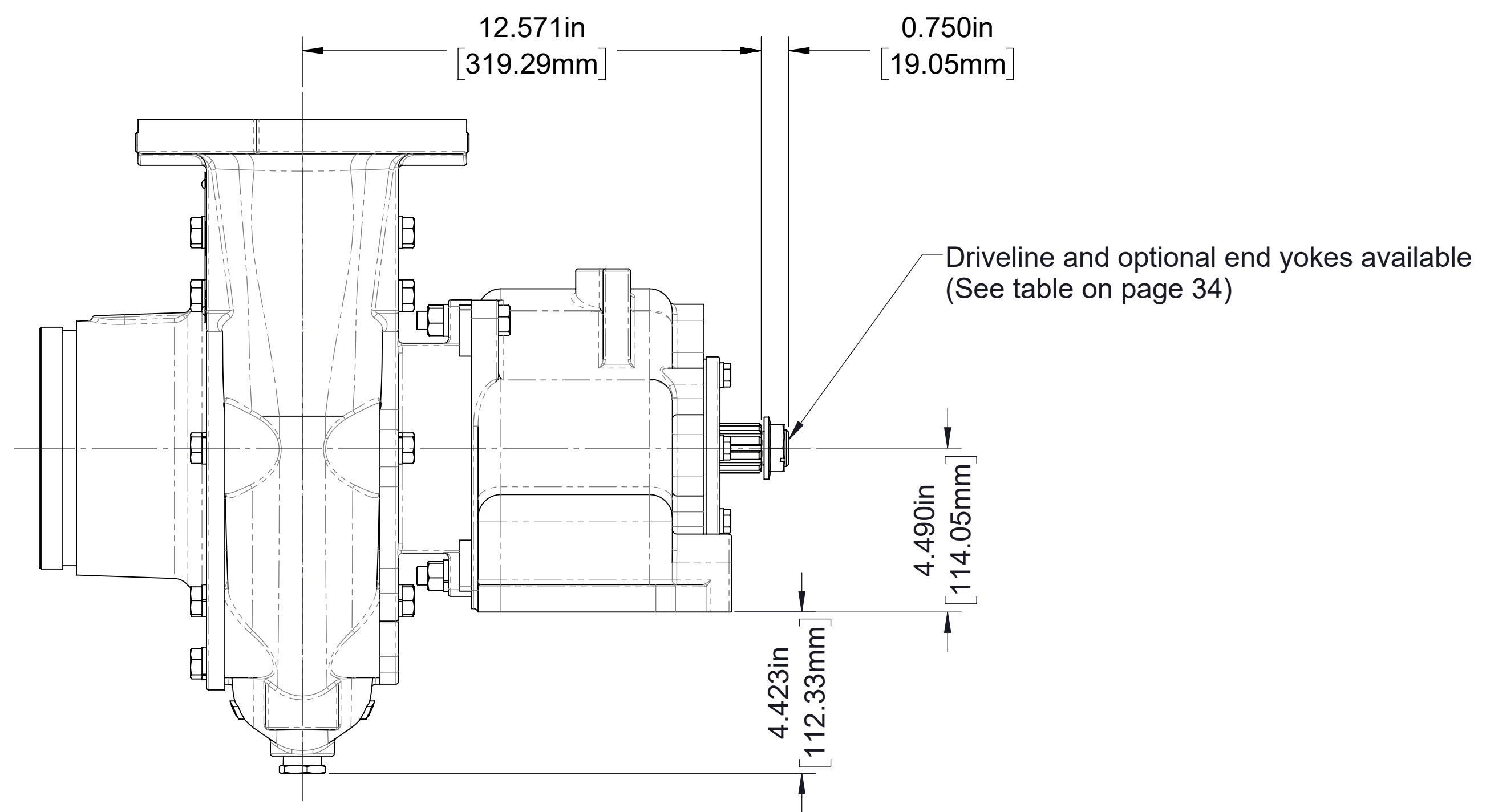
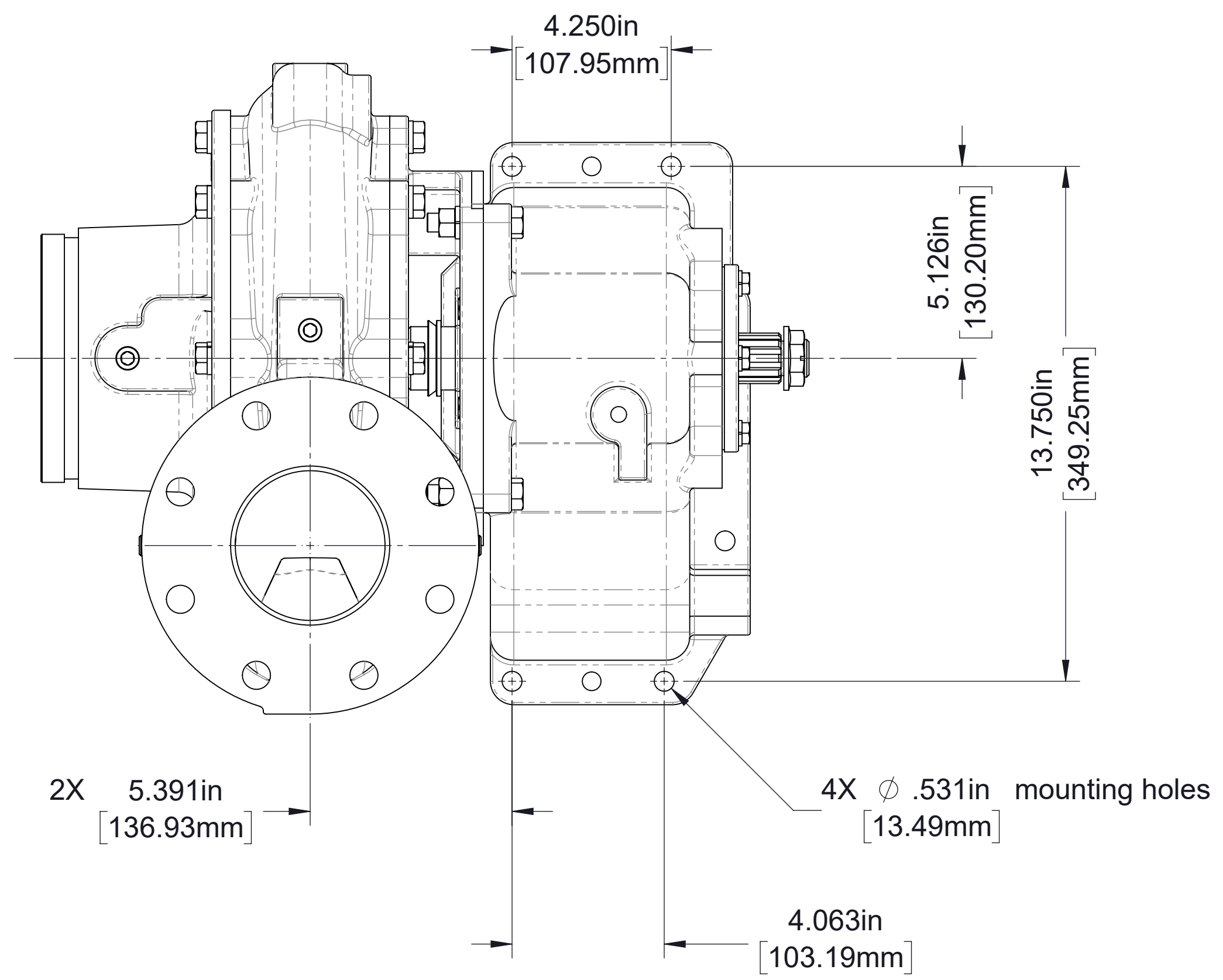
Model CXVQB
Front facing pump
Clockwise input
(CXV pumps only)



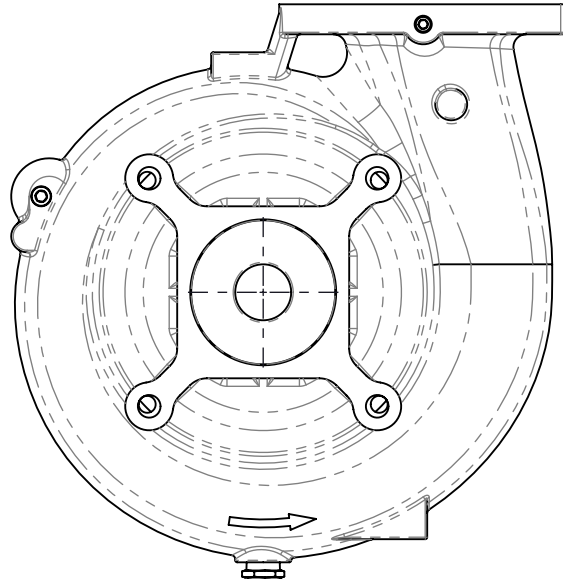
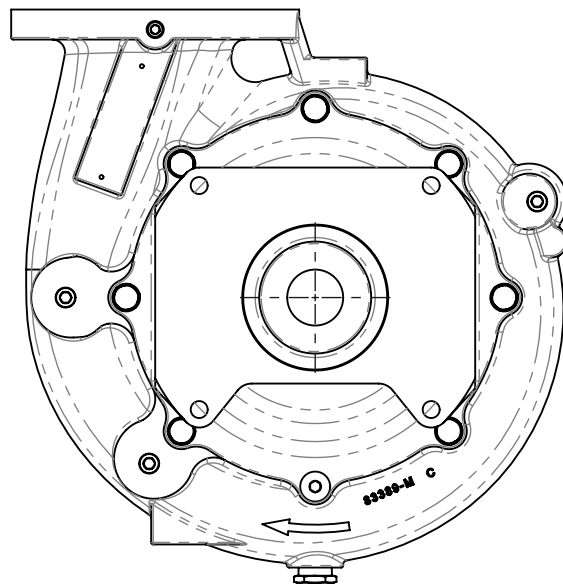
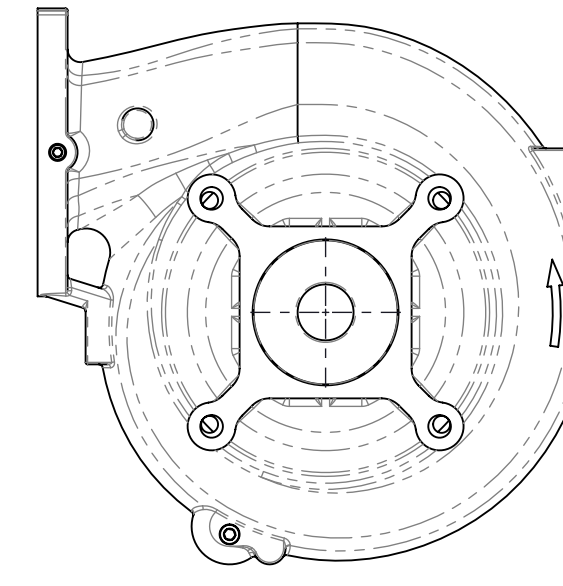
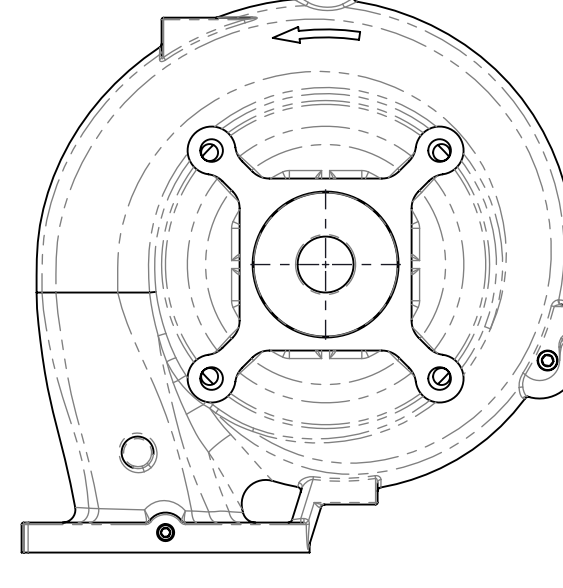
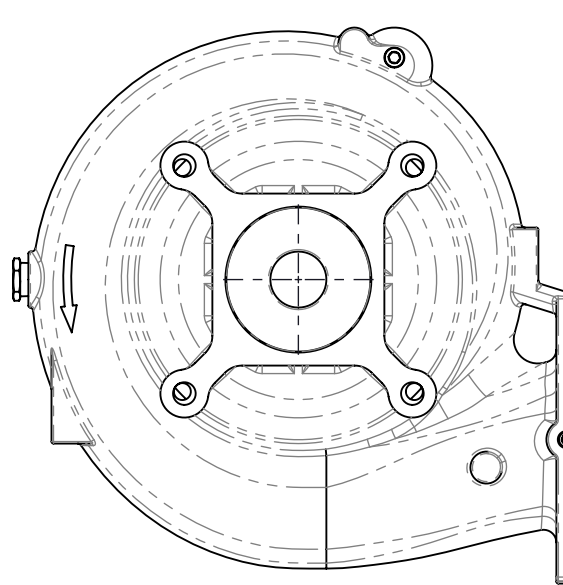
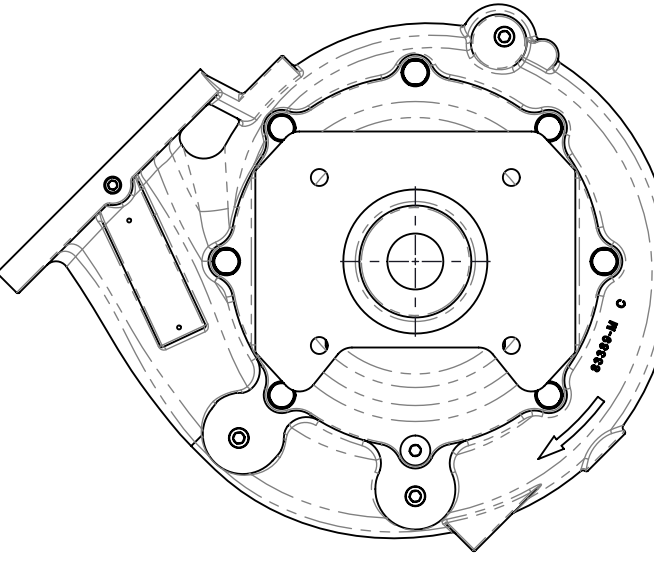
DETAIL A
 Hydraulic Pump Adapter Flange
 Used for SAE J744 class A 2-bolt hydraulic pump with male 5/8in keyed shaft



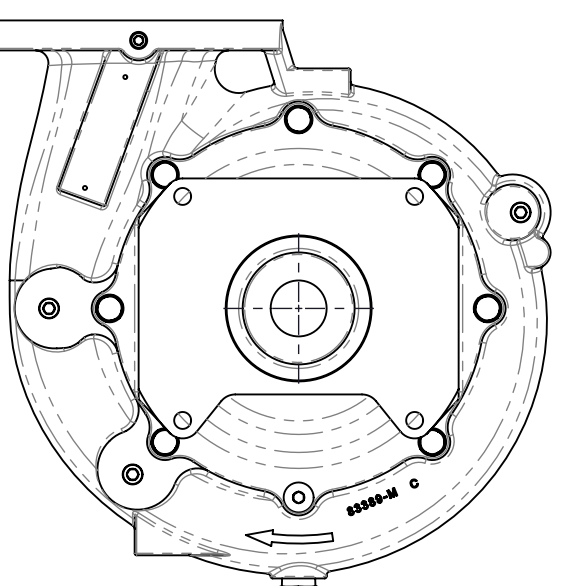
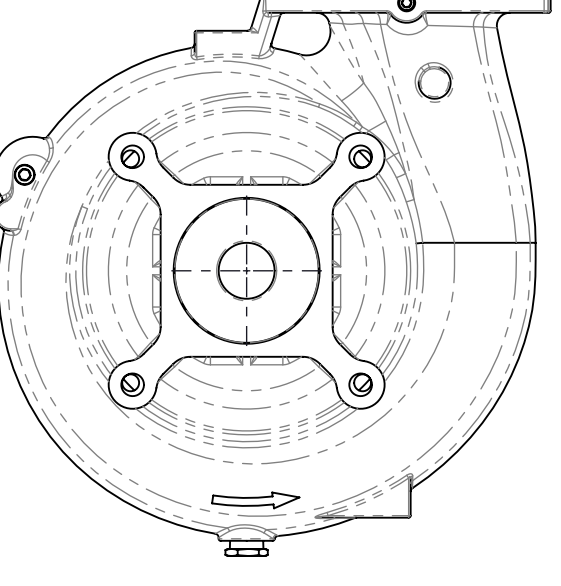
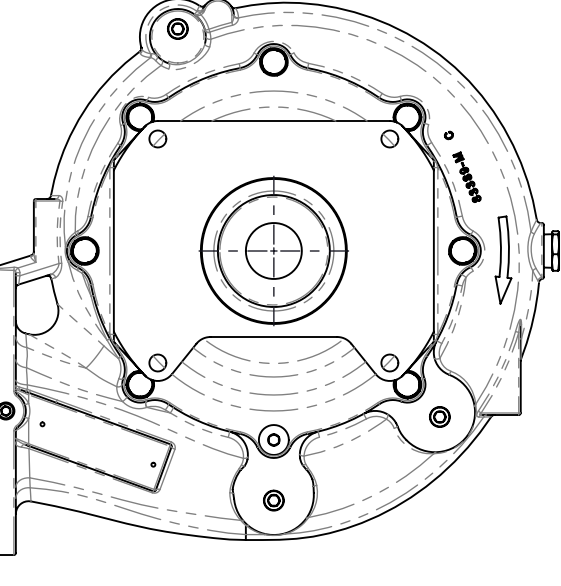
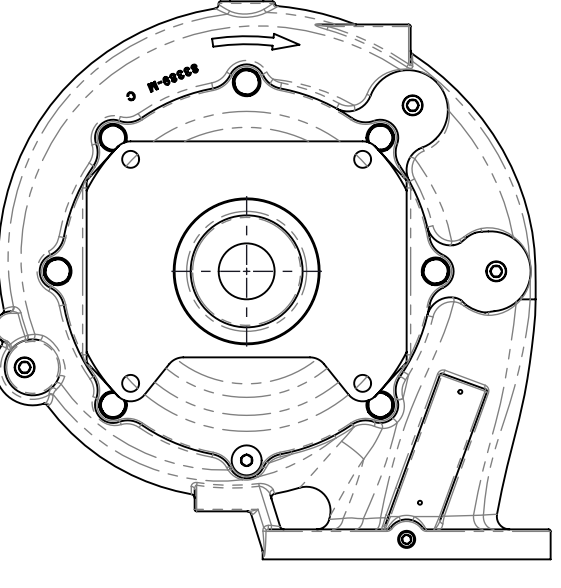
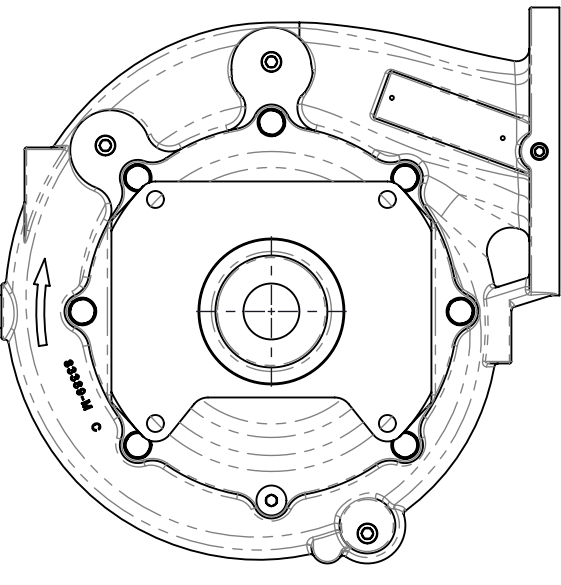
Model CXVQB
 Rear facing pump
 Clockwise input
 (CXV pumps only)



Model CX Direct Drive
 Clockwise or Counterclockwise input
 (Clockwise shown)
 (CXV shown)

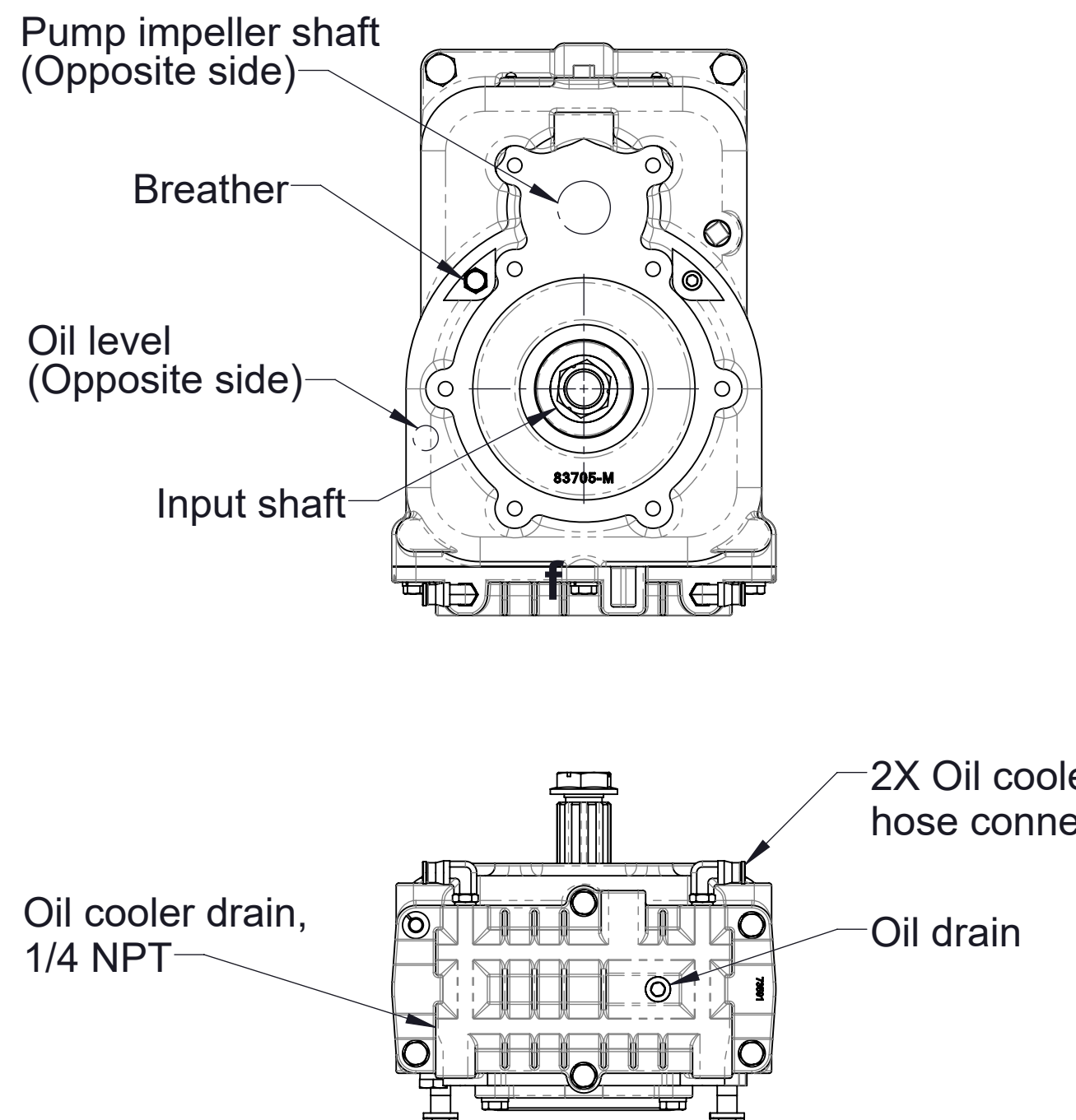
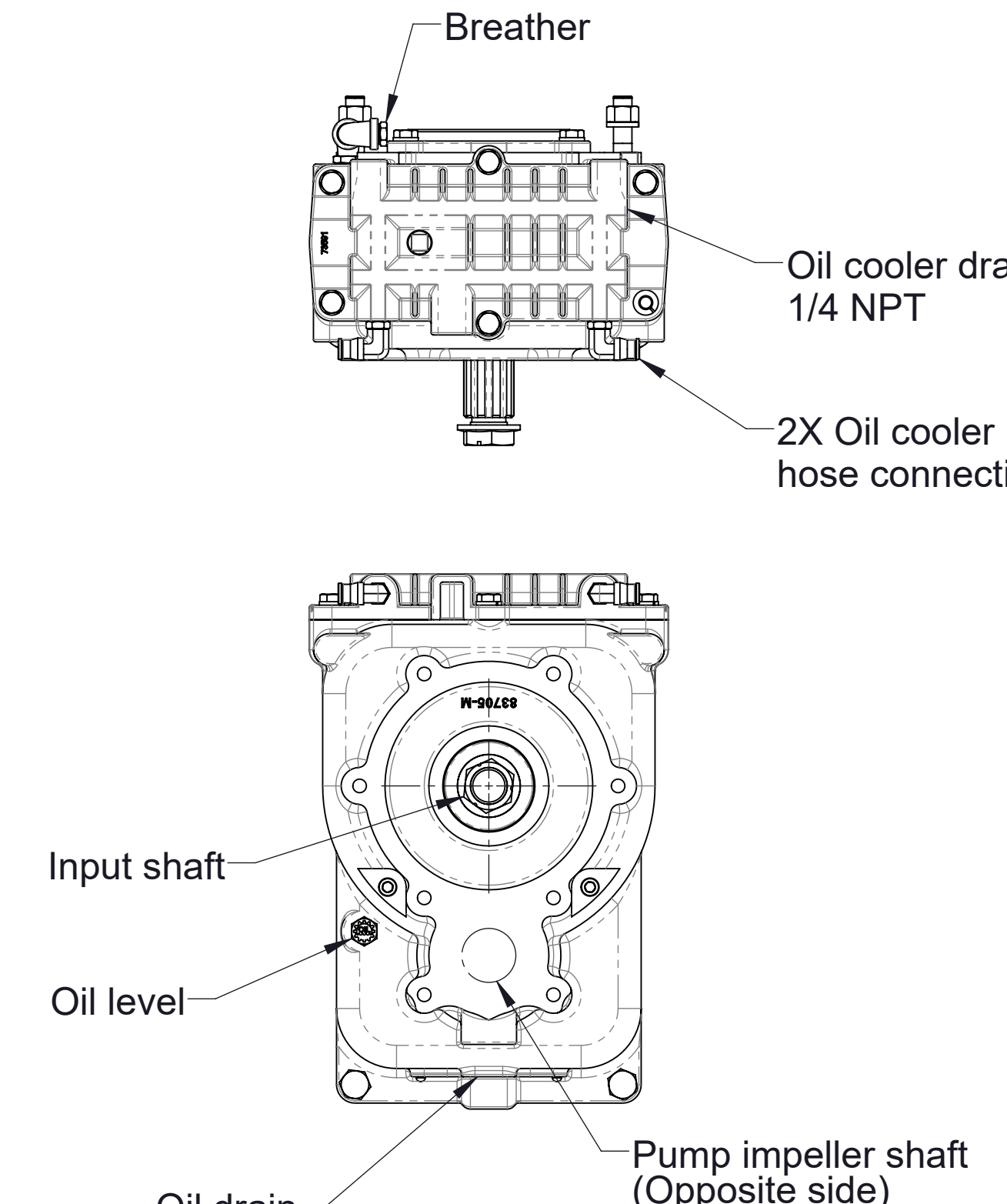
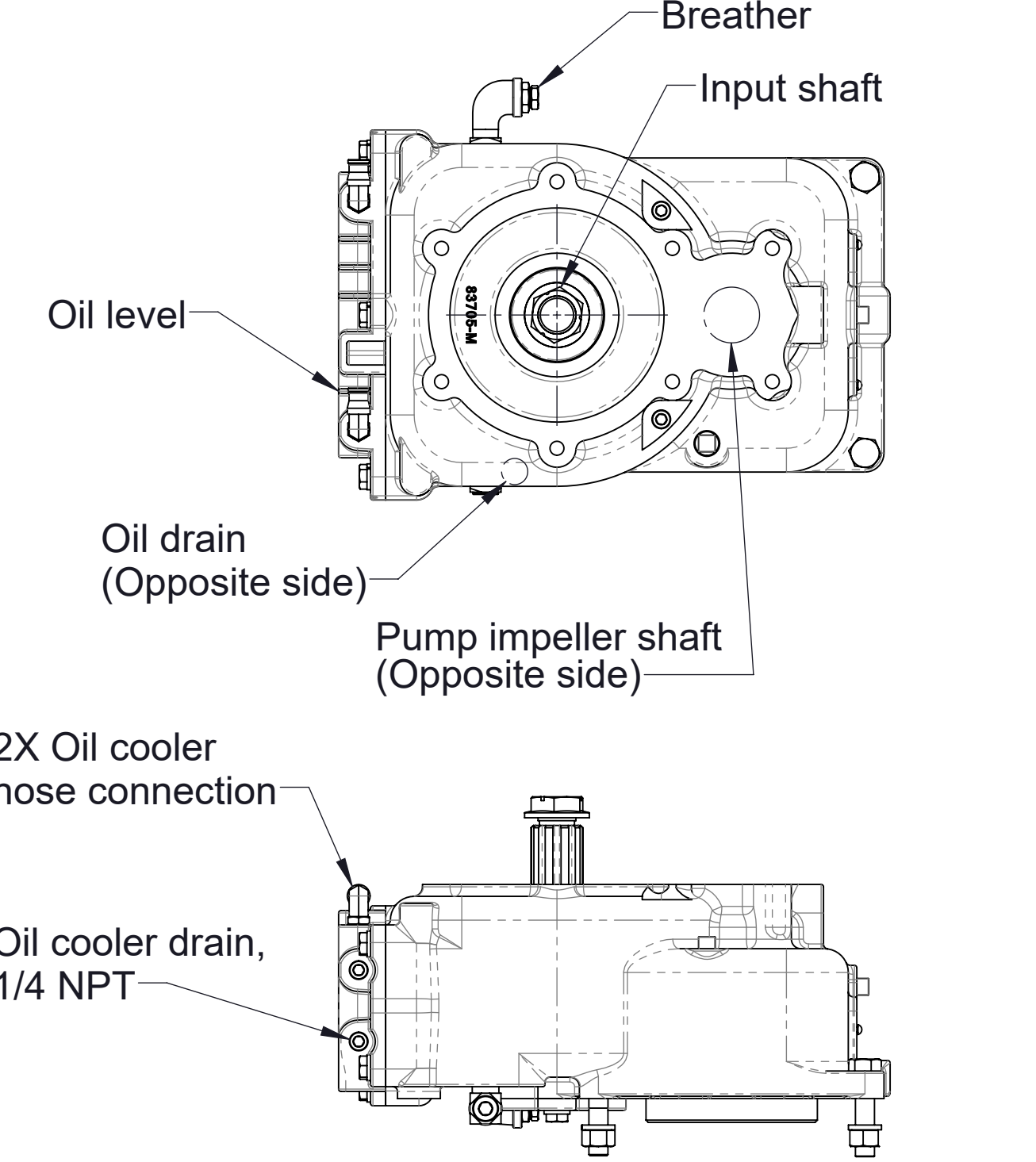
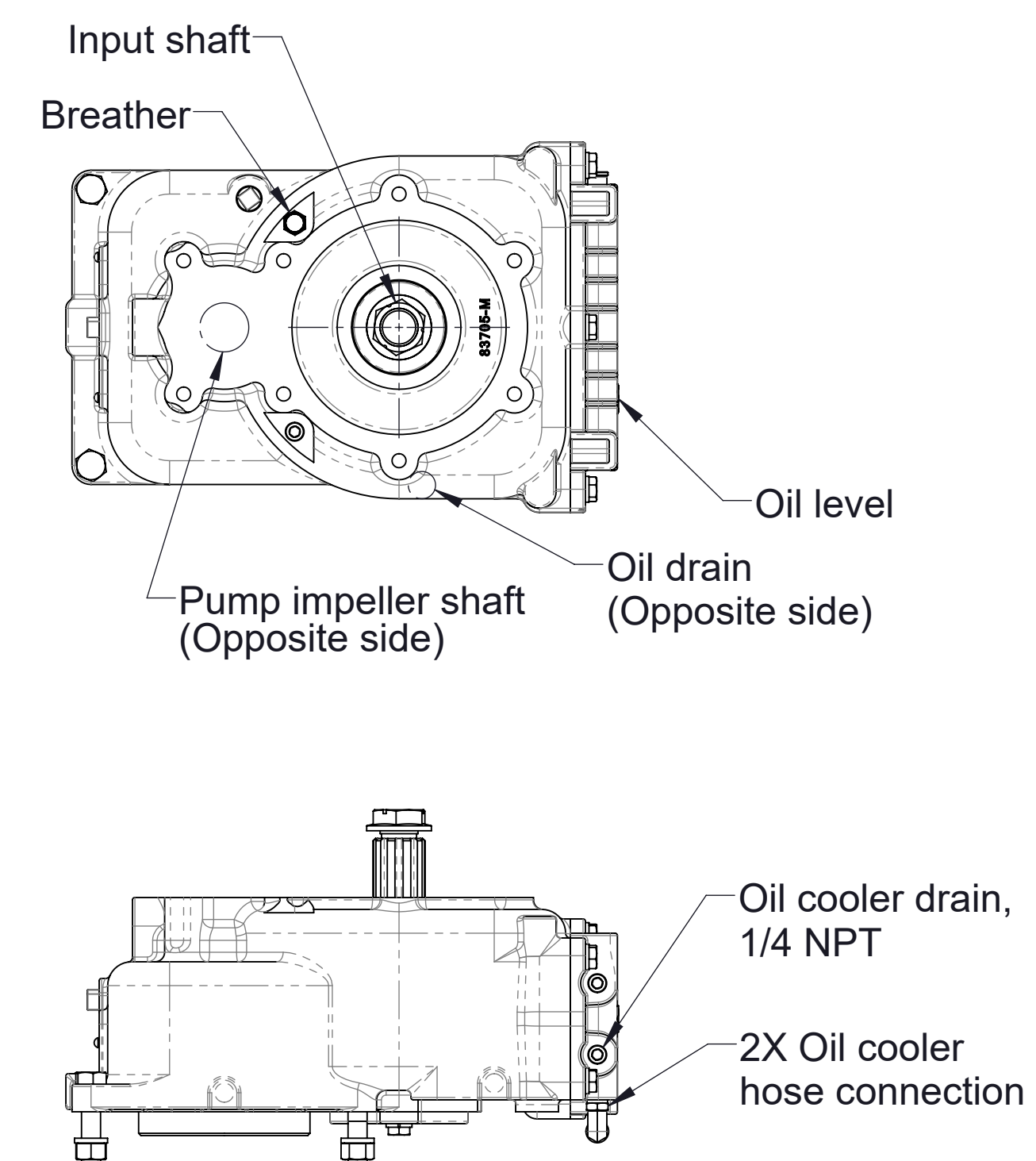
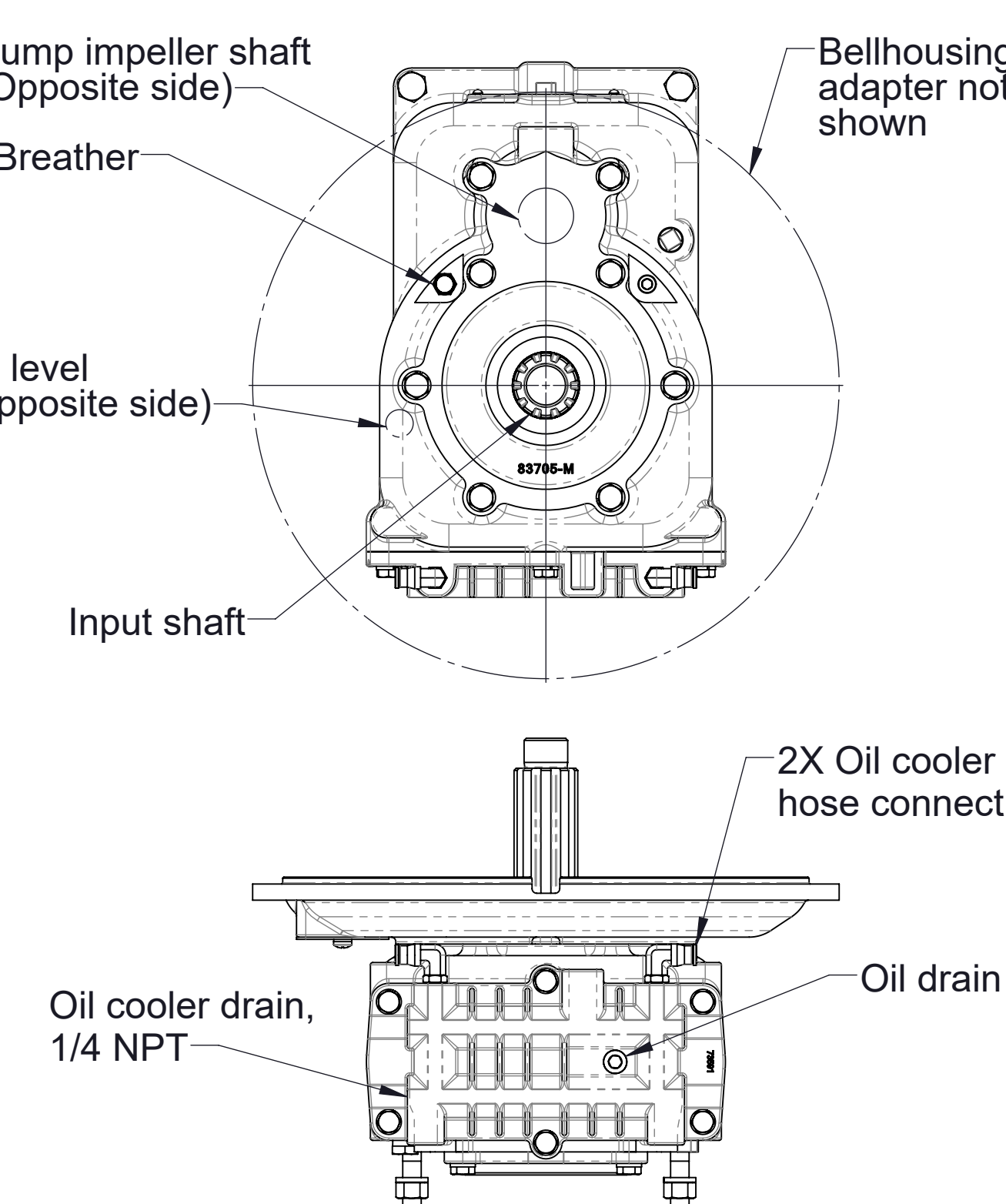
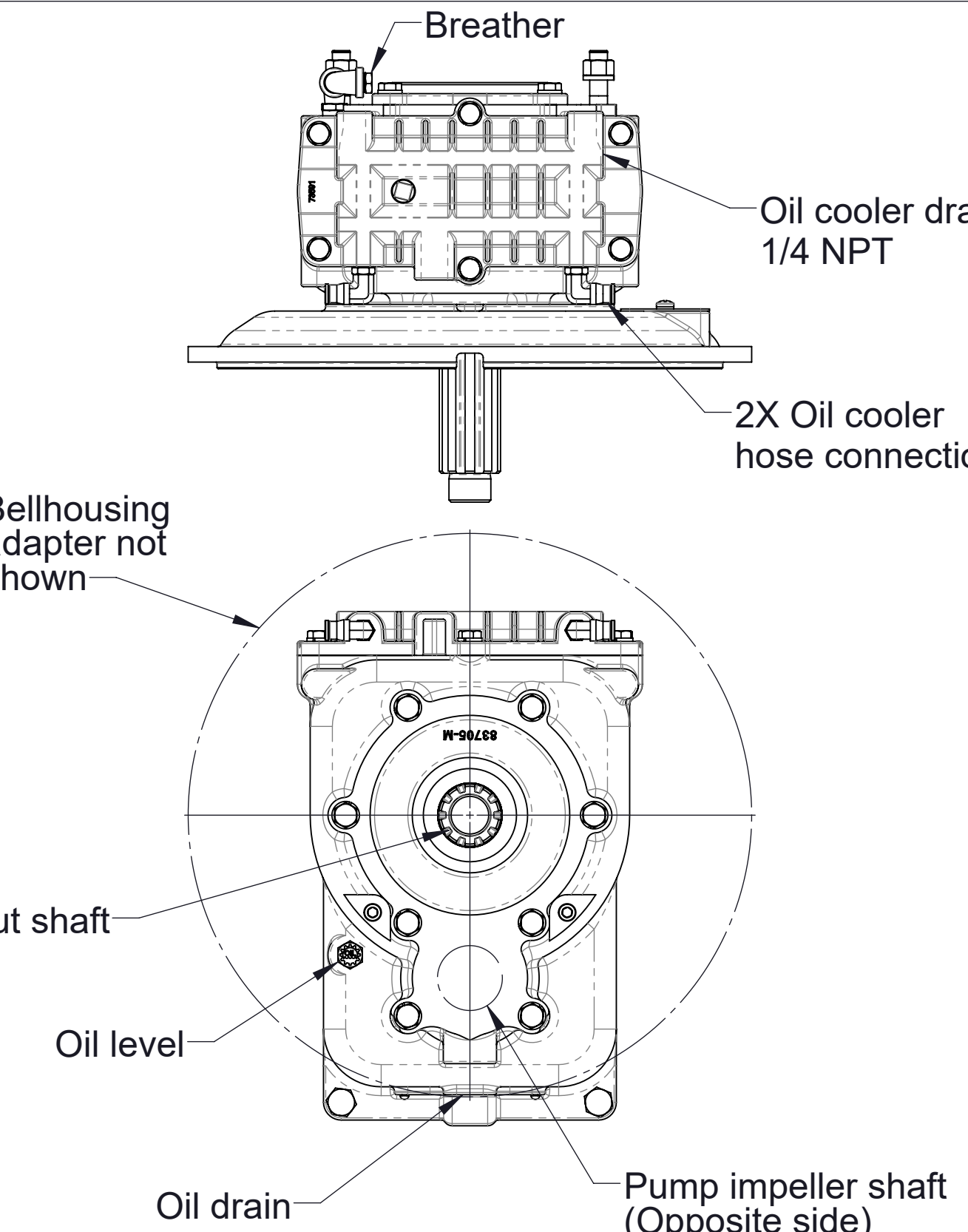
Discharge Position		Available with:								
		Transmission Series								Discharge Manifold
		C22		D	K	PA		QB	T	
		Pump mounted on input shaft side	Pump mounted on output shaft side			Vertical (Right)	Horizontal (Left)			
Up		Yes	No	No	Yes	Yes	Yes	No	Yes	Yes
		No	Yes	Yes	No	No	No	No	No	Yes
Left		No	No	No	Yes	Yes	No	No	Yes	No
Down		No	No	No	Yes	No	Yes	Yes	Yes	No
Right		No	No	No	Yes	Yes	No	No	Yes	No
45°		No	No	No	No	No	No	Yes	No	No

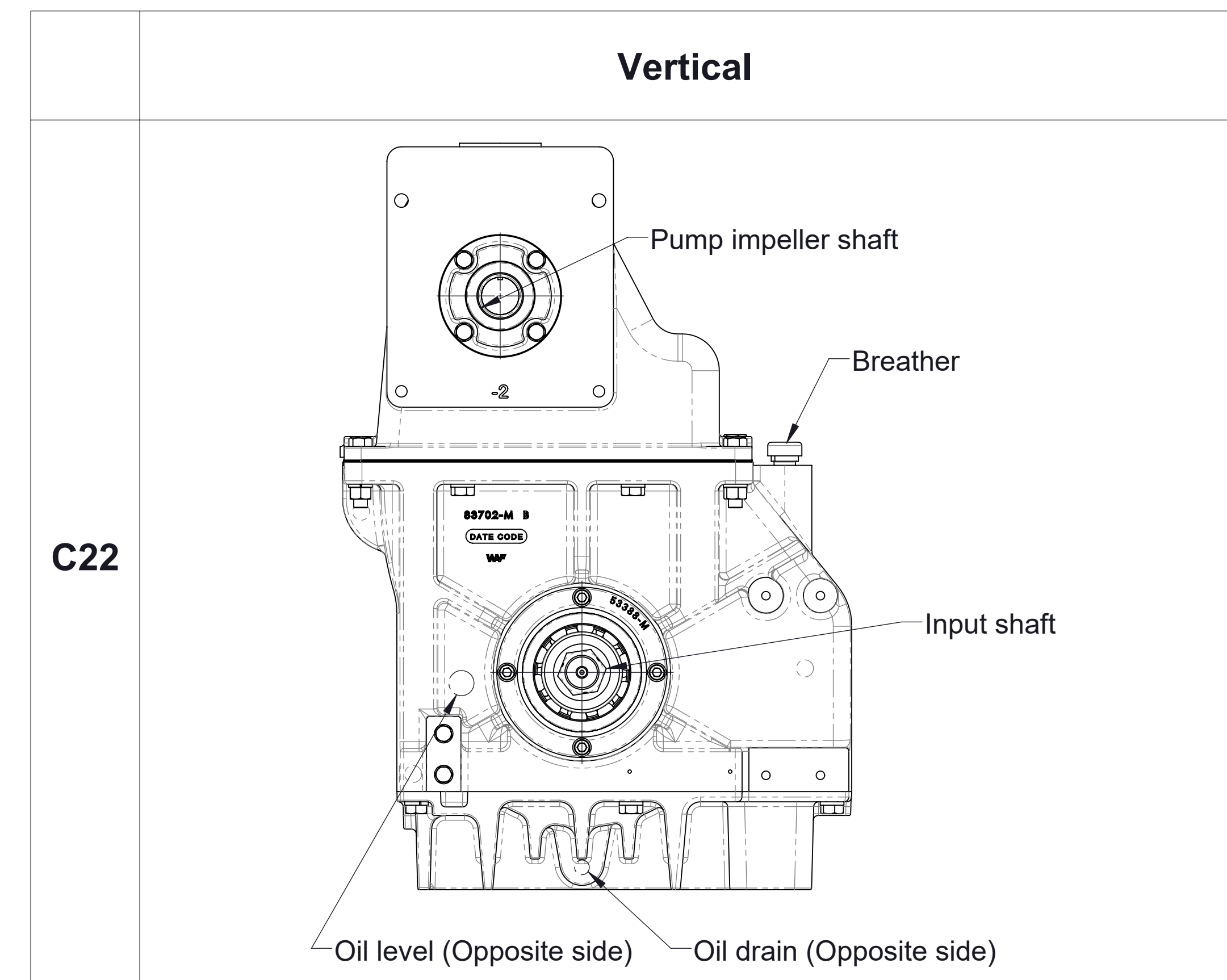
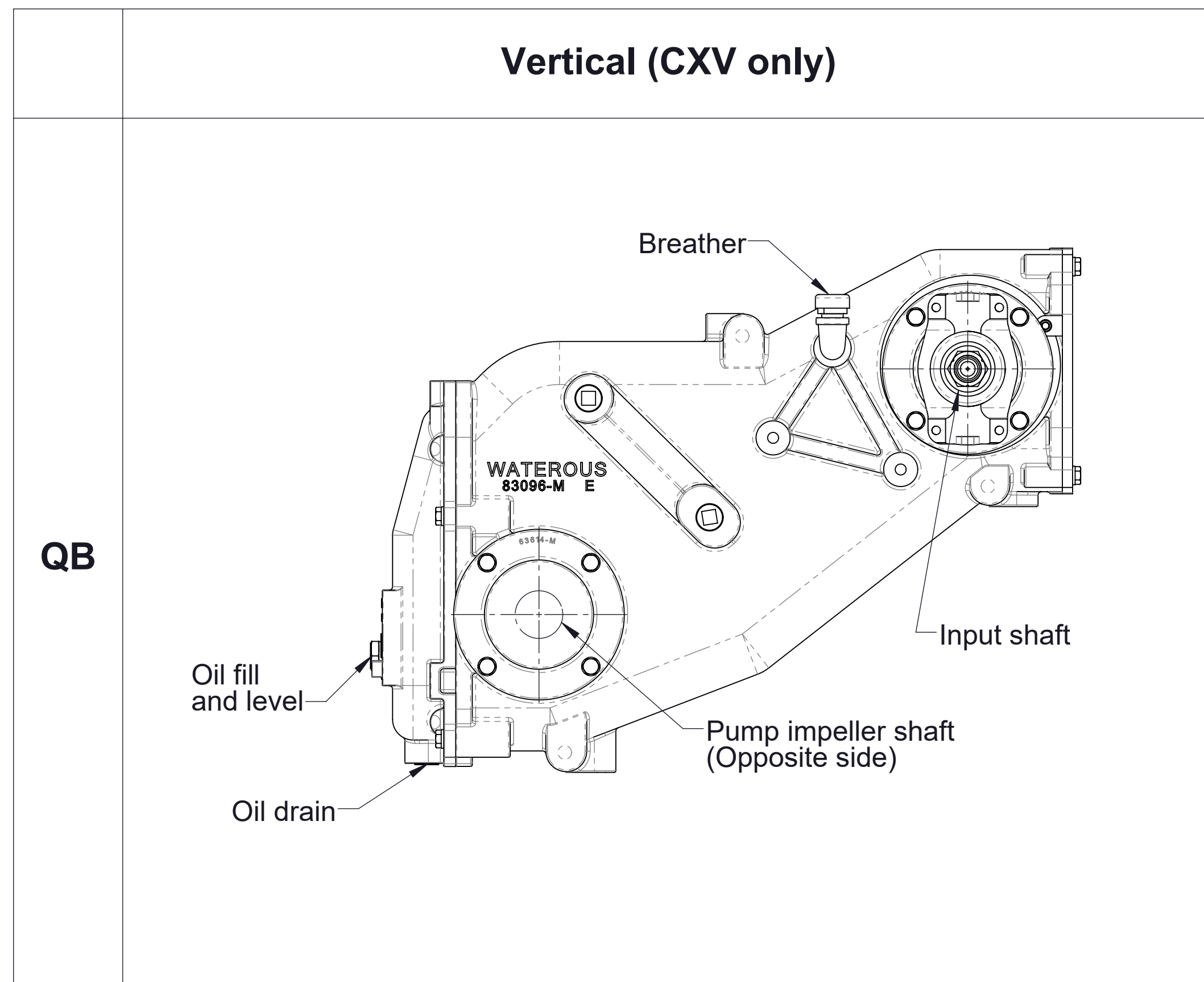
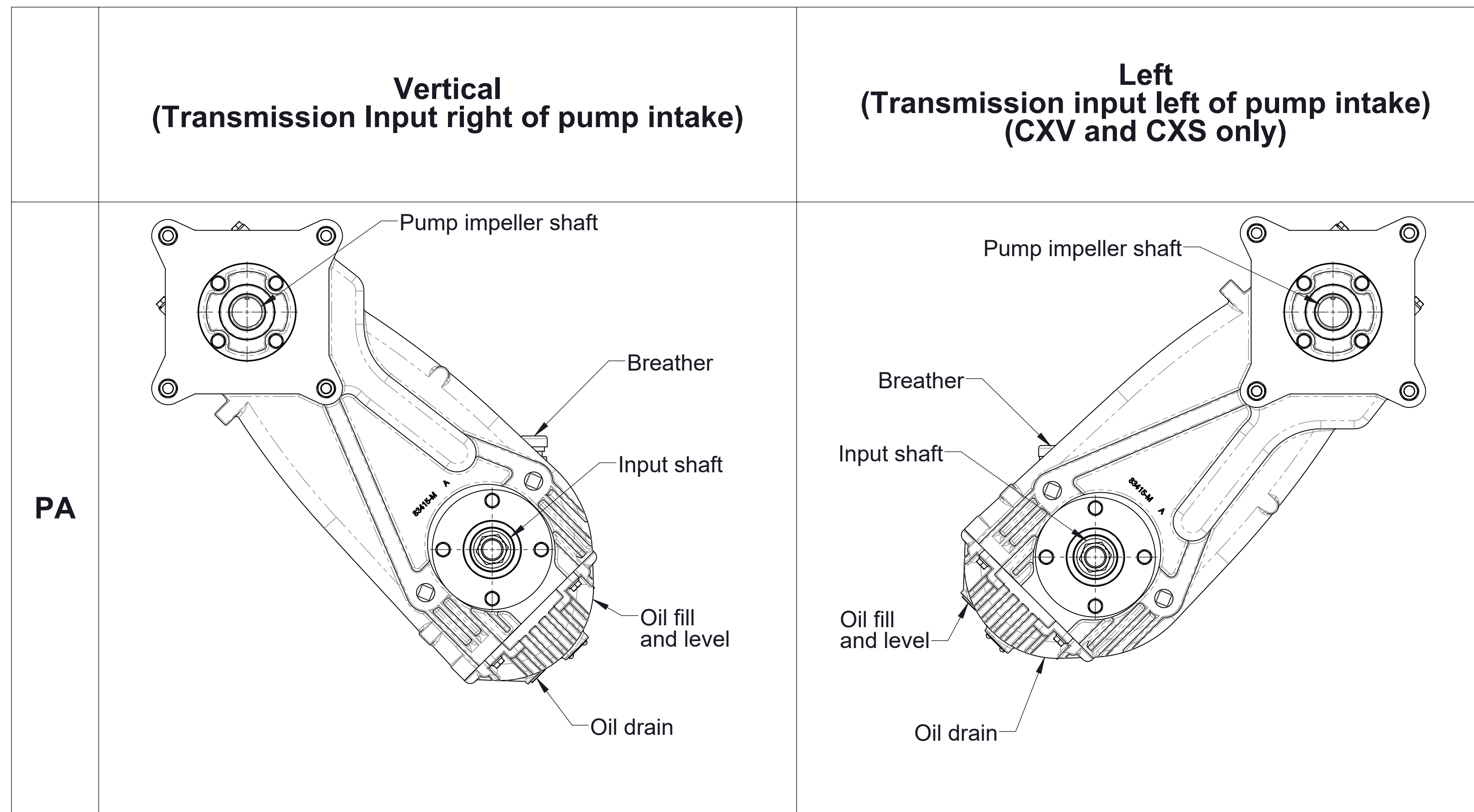
Clockwise (CW) Input Rotation

Discharge Position		Available with:				
		Transmission Series				Discharge Manifold
		D	K	QB	T	
Up		No	Yes	No	Yes	Yes
		Yes	No	No	No	Yes
Left		No	Yes	No	Yes	No
Down		No	Yes	No	Yes	No
Right		No	Yes	No	Yes	No

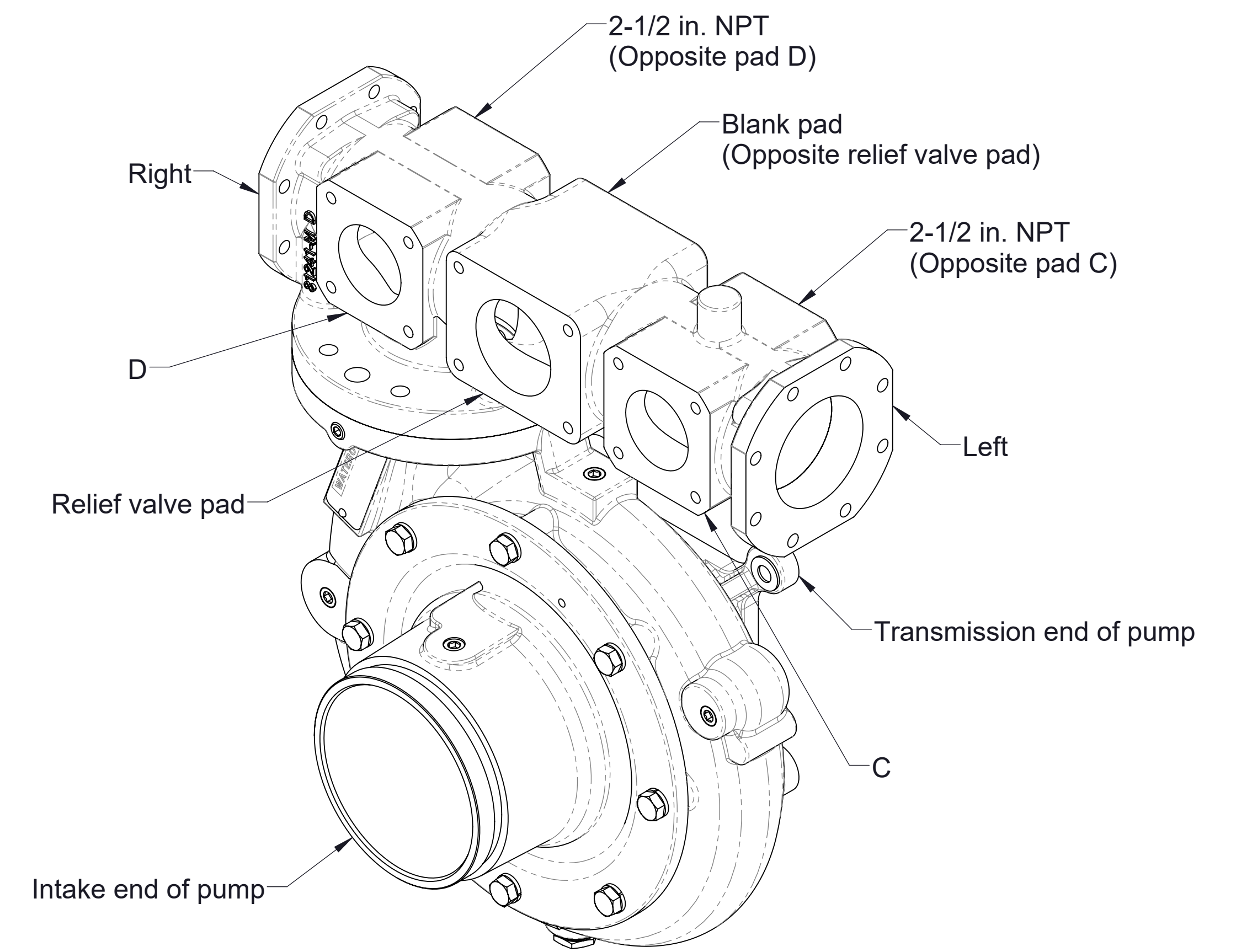
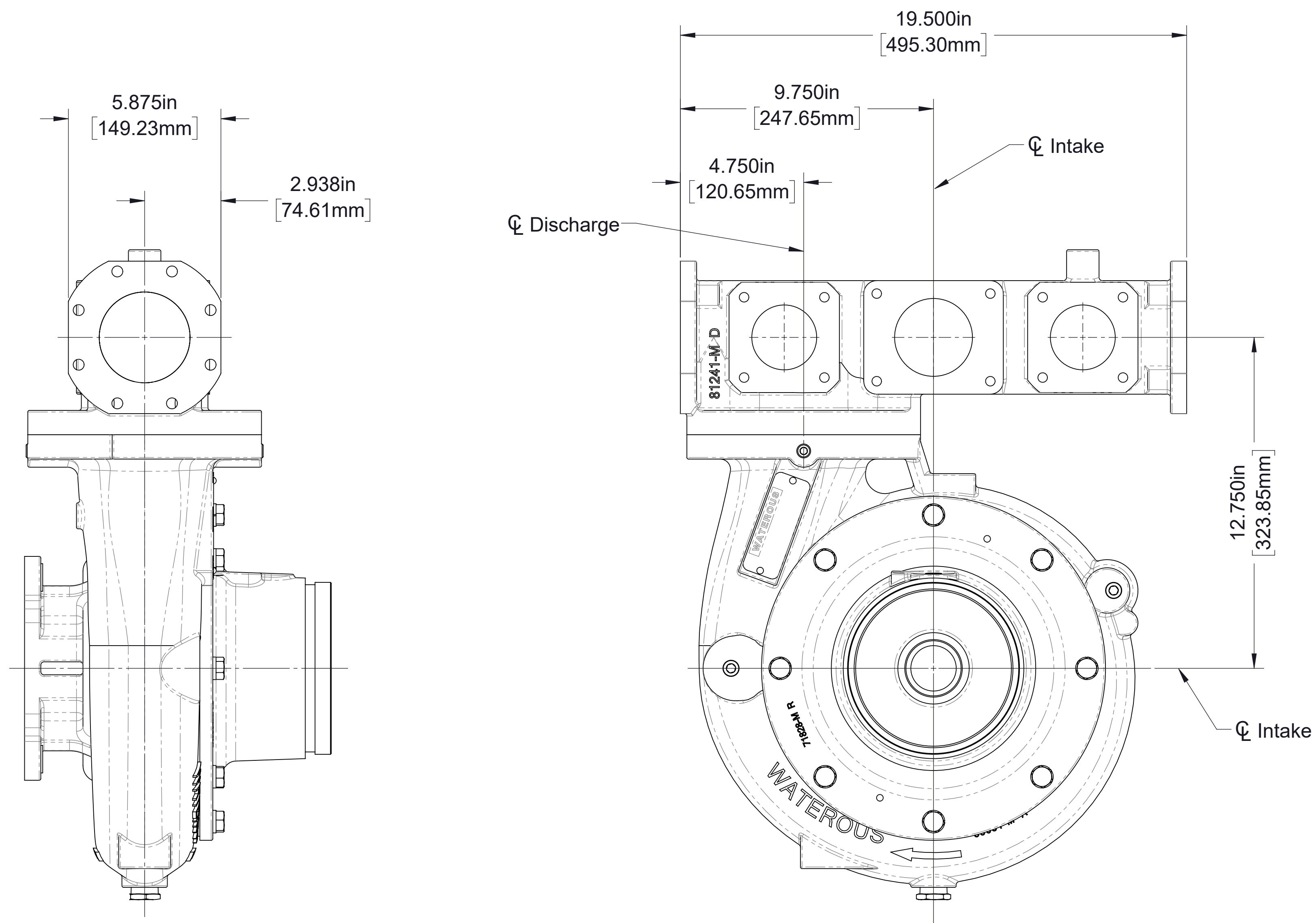
Counterclockwise (CCW) Input Rotation

Available pump discharge positions as viewed from transmission end of pump

	Vertical	Inverted	Left	Right
K	 <p>Pump impeller shaft (Opposite side)</p> <p>Breather</p> <p>Oil level (Opposite side)</p> <p>Input shaft</p> <p>2X Oil cooler hose connection</p> <p>Oil cooler drain, 1/4 NPT</p> <p>Oil drain</p>	 <p>Breather</p> <p>Oil cooler drain, 1/4 NPT</p> <p>2X Oil cooler hose connection</p> <p>Input shaft</p> <p>Oil level</p> <p>Oil drain</p> <p>Pump impeller shaft (Opposite side)</p>	 <p>Breather</p> <p>Input shaft</p> <p>Oil level</p> <p>Oil drain (Opposite side)</p> <p>Pump impeller shaft (Opposite side)</p> <p>2X Oil cooler hose connection</p> <p>Oil cooler drain, 1/4 NPT</p>	 <p>Input shaft</p> <p>Breather</p> <p>Oil level</p> <p>Oil drain (Opposite side)</p> <p>Pump impeller shaft (Opposite side)</p> <p>Oil cooler drain, 1/4 NPT</p> <p>2X Oil cooler hose connection</p>
T	 <p>Pump impeller shaft (Opposite side)</p> <p>Breather</p> <p>Oil level (Opposite side)</p> <p>Input shaft</p> <p>Bellhousing adapter not shown</p> <p>2X Oil cooler hose connection</p> <p>Oil cooler drain, 1/4 NPT</p> <p>Oil drain</p> <p>(CXN and CXV only)</p>	 <p>Breather</p> <p>Oil cooler drain, 1/4 NPT</p> <p>2X Oil cooler hose connection</p> <p>Bellhousing adapter not shown</p> <p>Input shaft</p> <p>Oil level</p> <p>Oil drain</p> <p>Pump impeller shaft (Opposite side)</p> <p>(CXN and CXV only)</p>	Not Available	Not Available



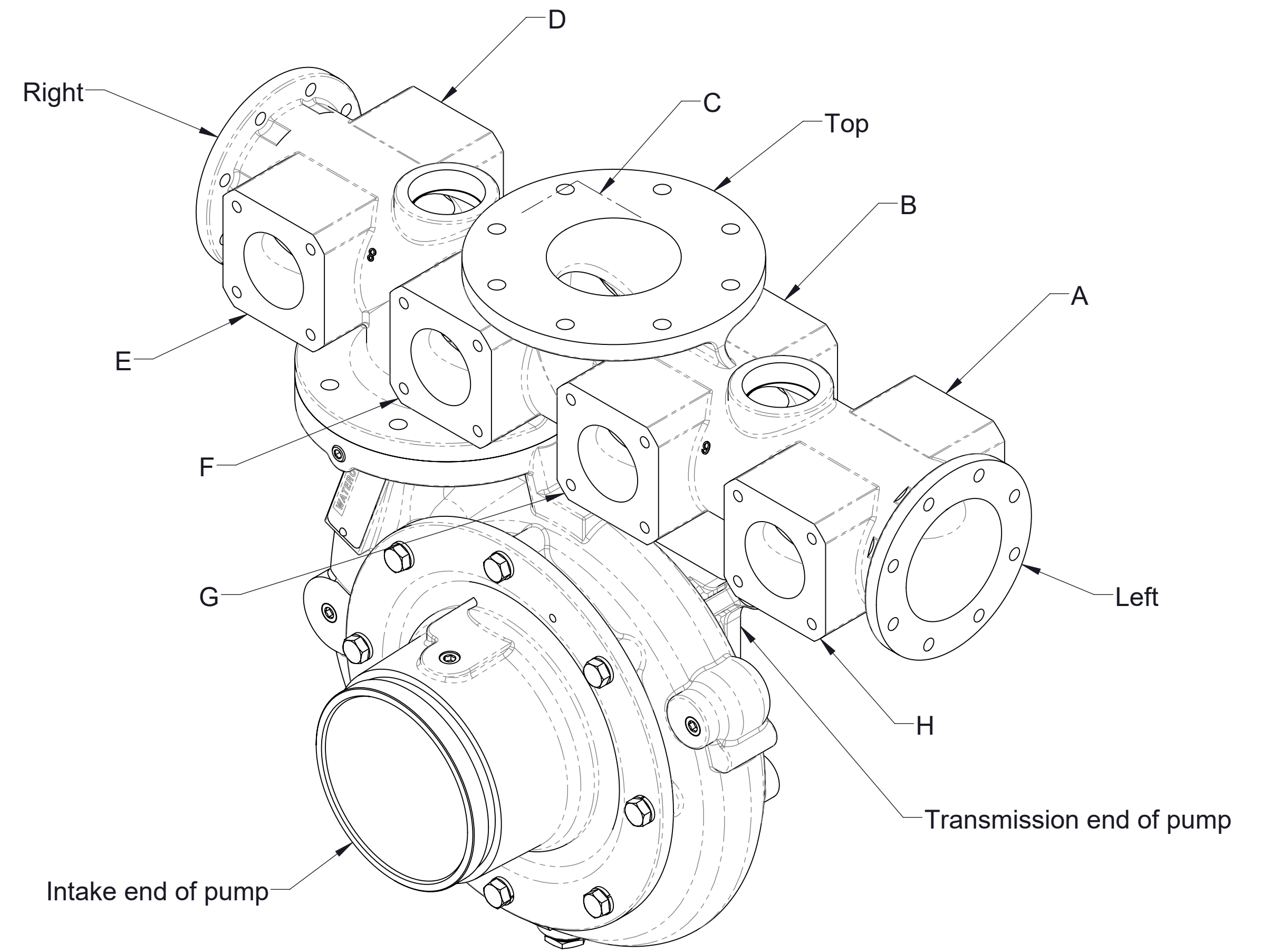
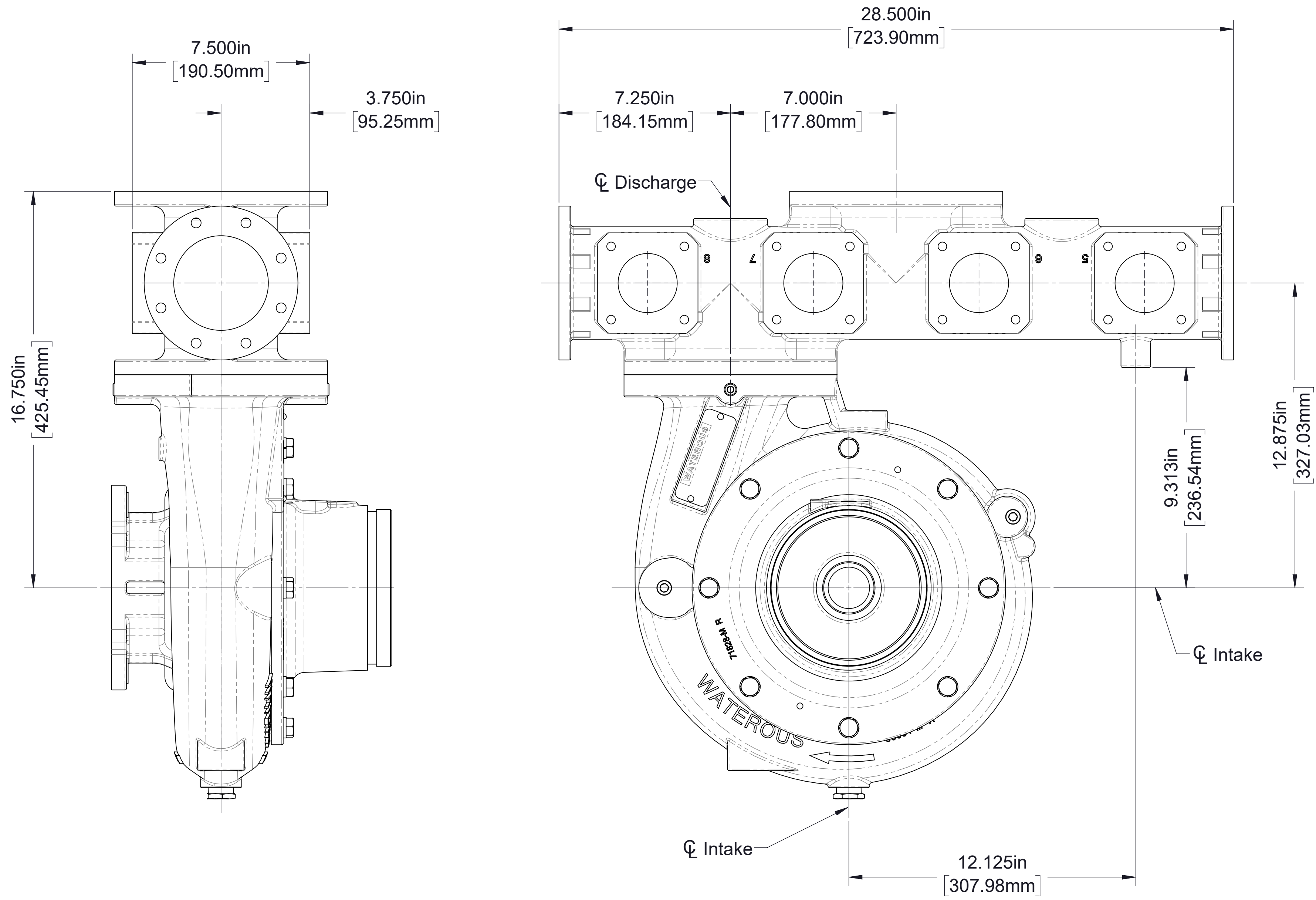
Available transmission mounting positions as viewed from transmission input shaft



Pad	Size
Left	3-1/2 in. 8-bolt
Right	3-1/2 in. 8-bolt
Relief Valve	3 in. R.V.
C	2-1/2 in. 4-bolt
D	2-1/2 in. 4-bolt

Manifold with 3-1/2 in. End Flanges Mounted Perpendicular to Intake

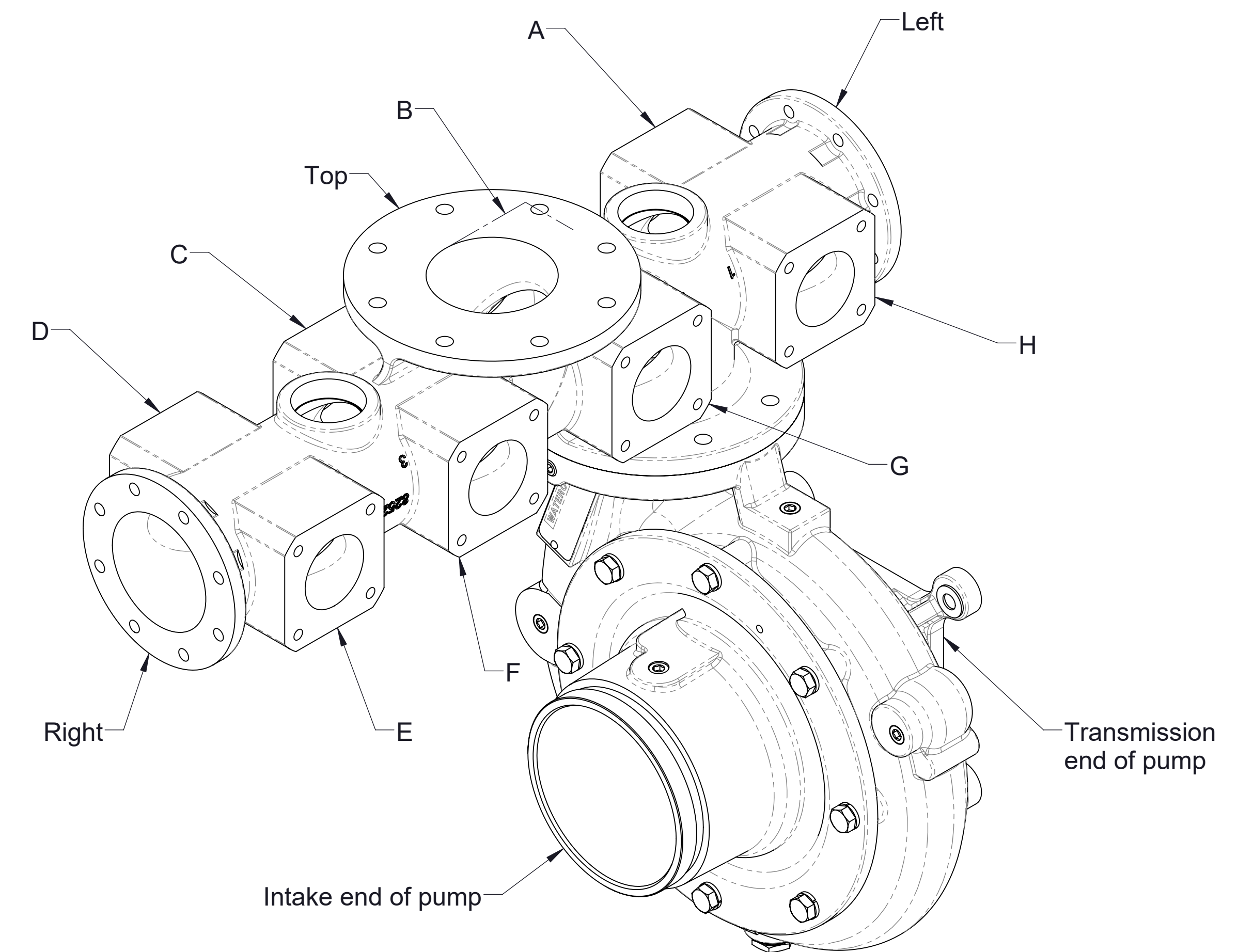
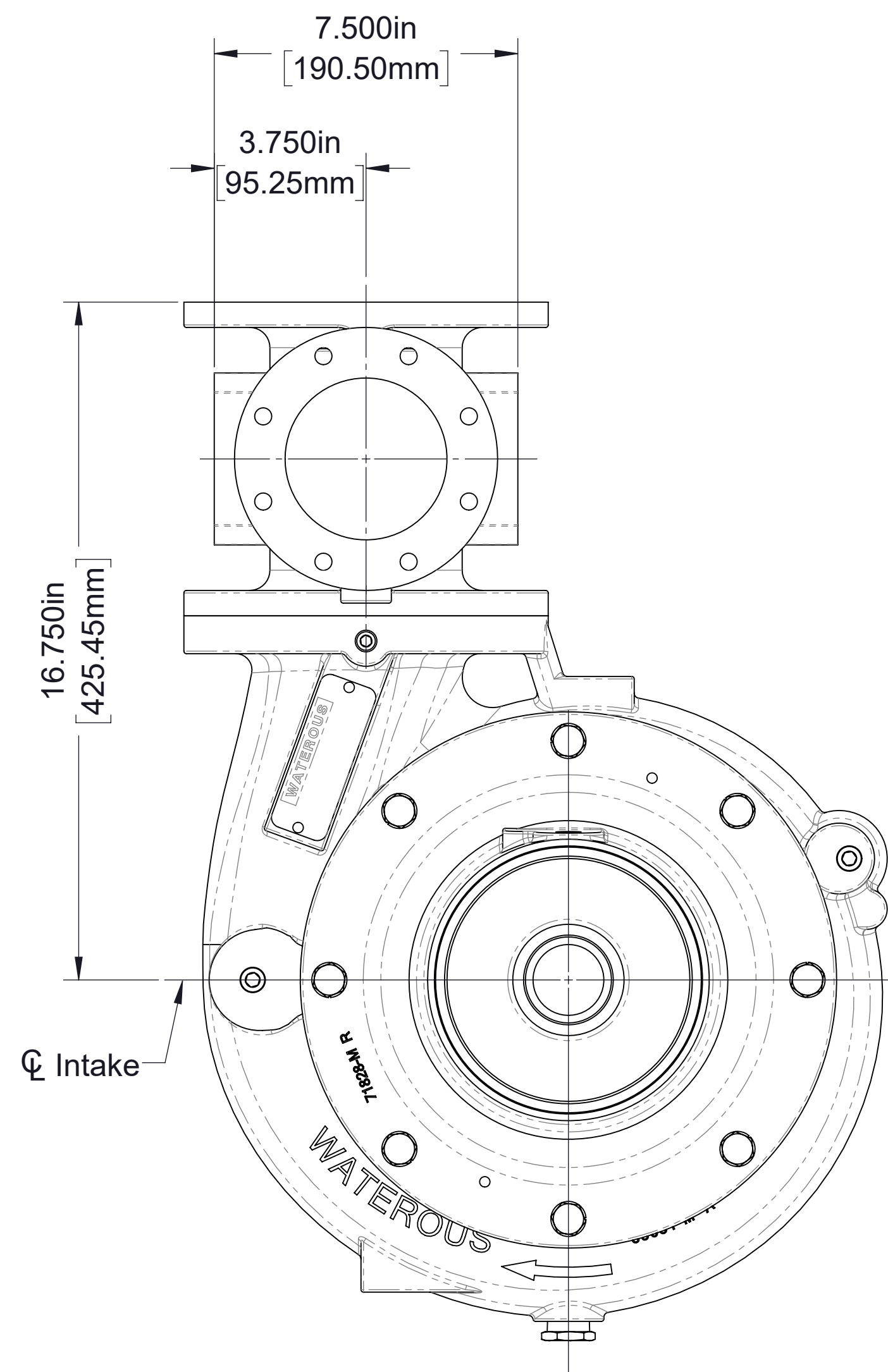
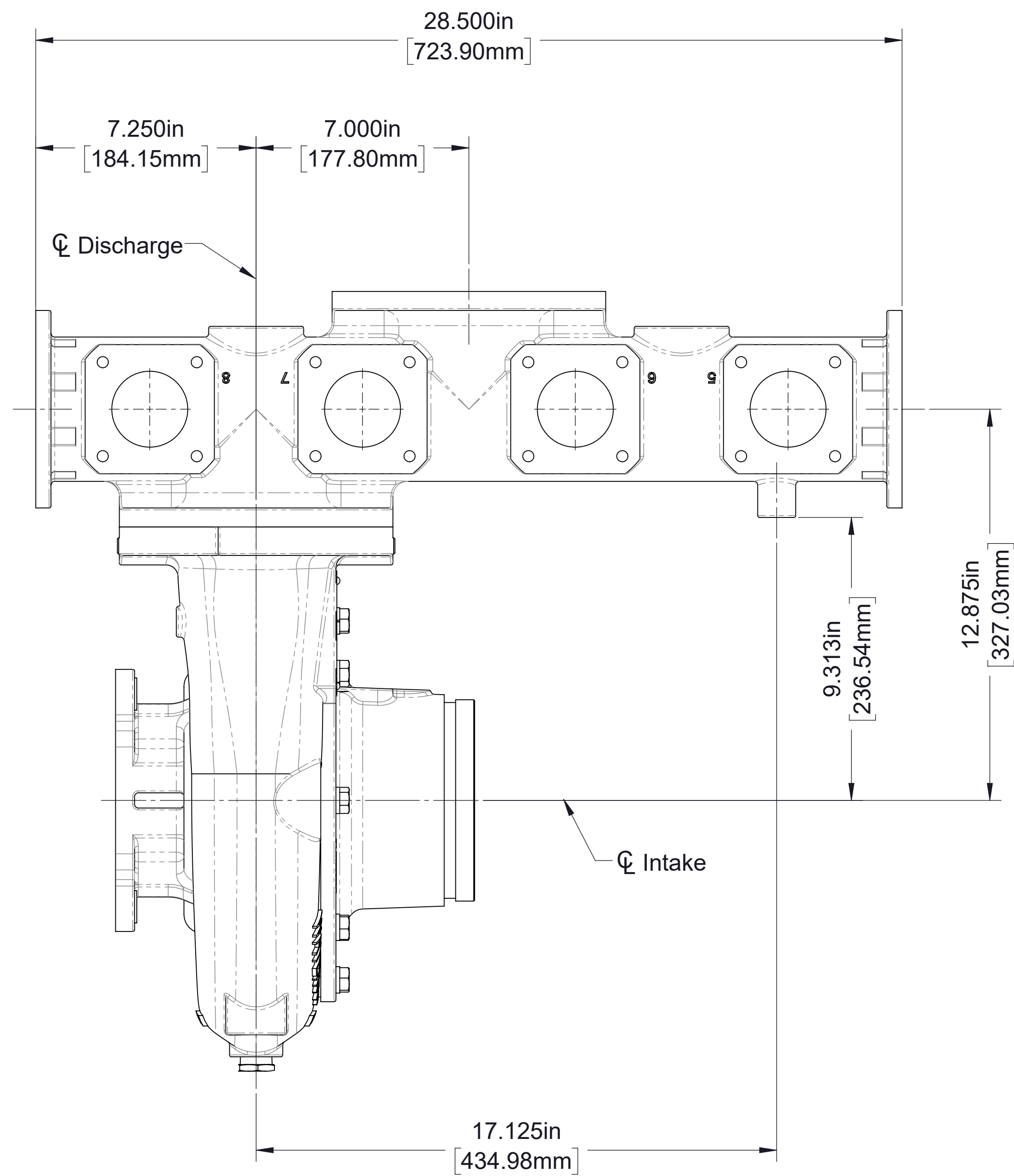
CW impeller rotation
(See page 9 for manifold dimensions not shown)



Pad	Size
Left	4 in. 8-bolt
Right	4 in. 8-bolt
Top	4 in. ANSI
A	2-1/2 in. 4-bolt
B	2-1/2 in. 4-bolt
C	2-1/2 in. 4-bolt
D	2-1/2 in. 4-bolt
E	2-1/2 in. 4-bolt
F	2-1/2 in. 4-bolt
G	2-1/2 in. 4-bolt
H	2-1/2 in. 4-bolt

Manifold with 4 in. End Flanges Mounted Perpendicular to Intake

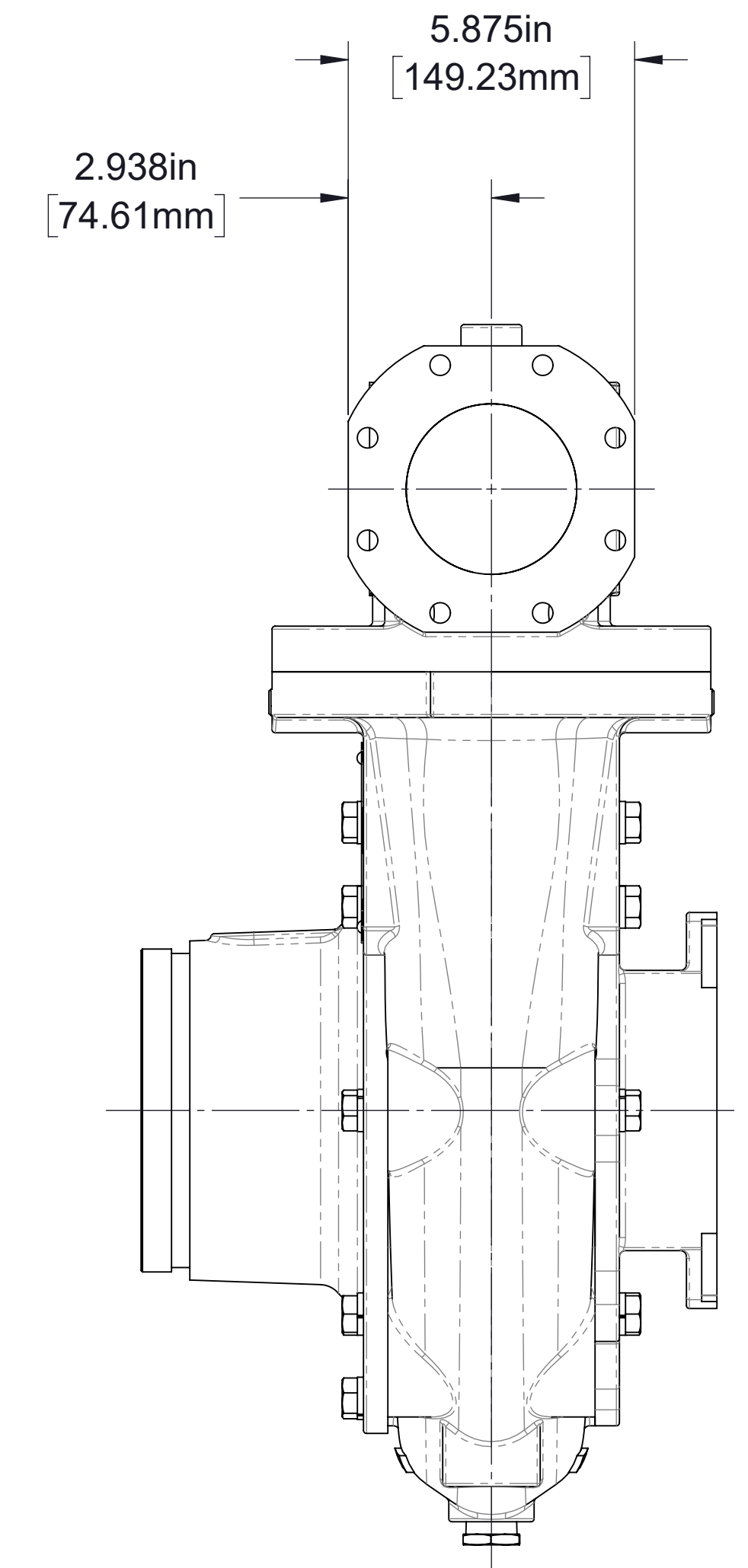
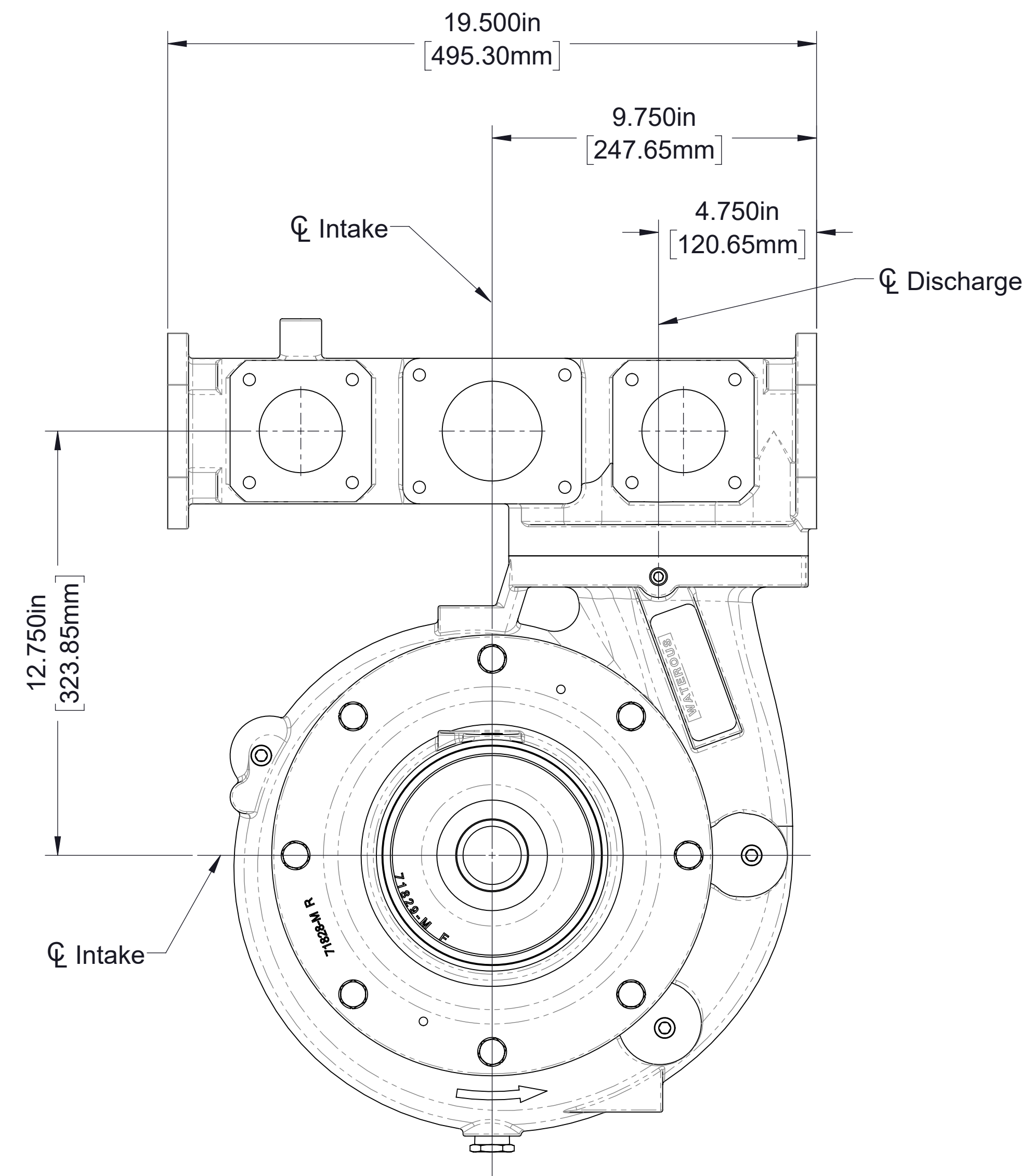
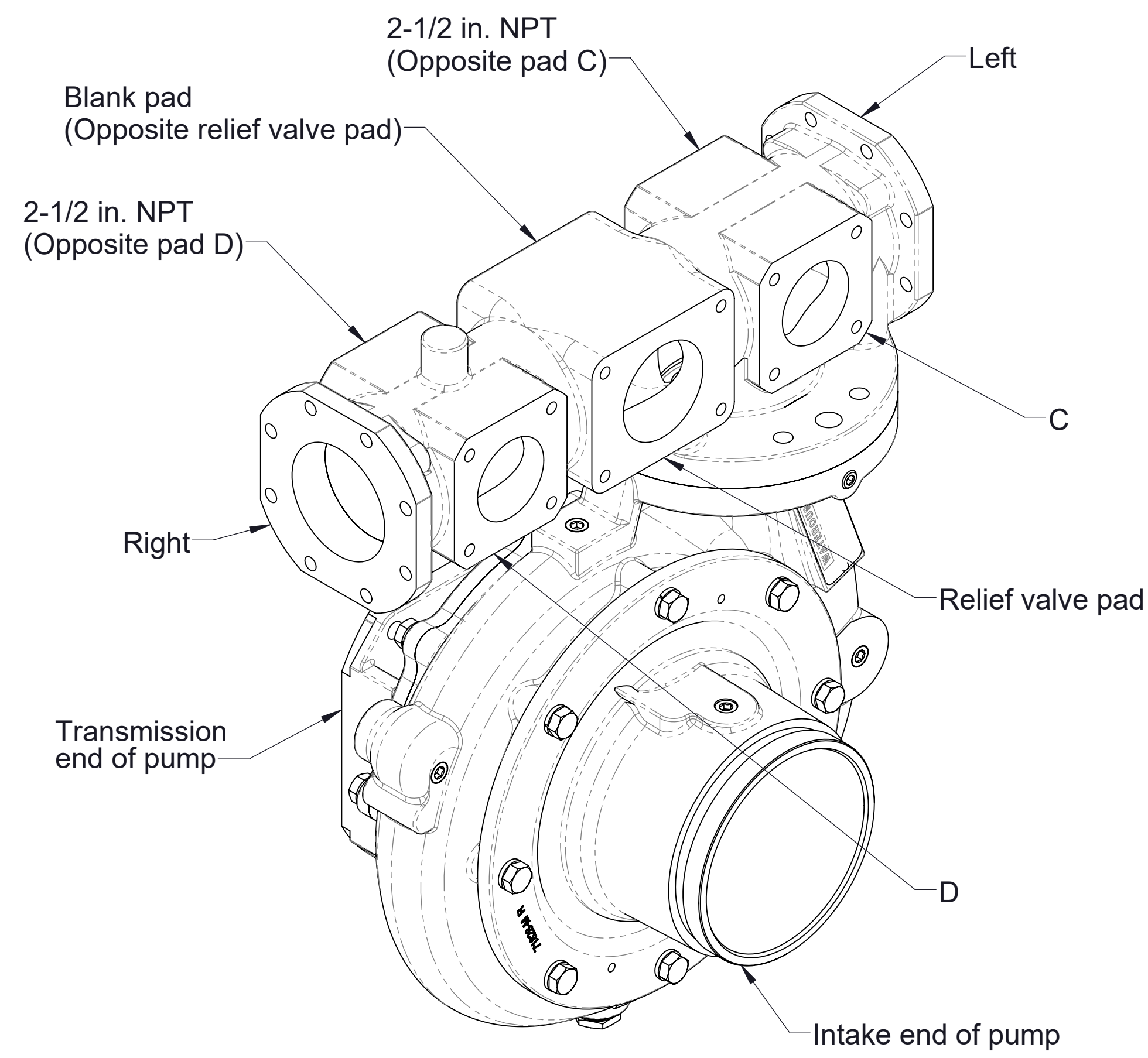
CW impeller rotation
(See page 10 for manifold dimensions not shown)



Pad	Size
Left	4 in. 8-bolt
Right	4 in. 8-bolt
Top	4 in. ANSI
A	2-1/2 in. 4-bolt
B	2-1/2 in. 4-bolt
C	2-1/2 in. 4-bolt
D	2-1/2 in. 4-bolt
E	2-1/2 in. 4-bolt
F	2-1/2 in. 4-bolt
G	2-1/2 in. 4-bolt
H	2-1/2 in. 4-bolt

Manifold with 4 in. End Flanges Mounted Parallel to Intake

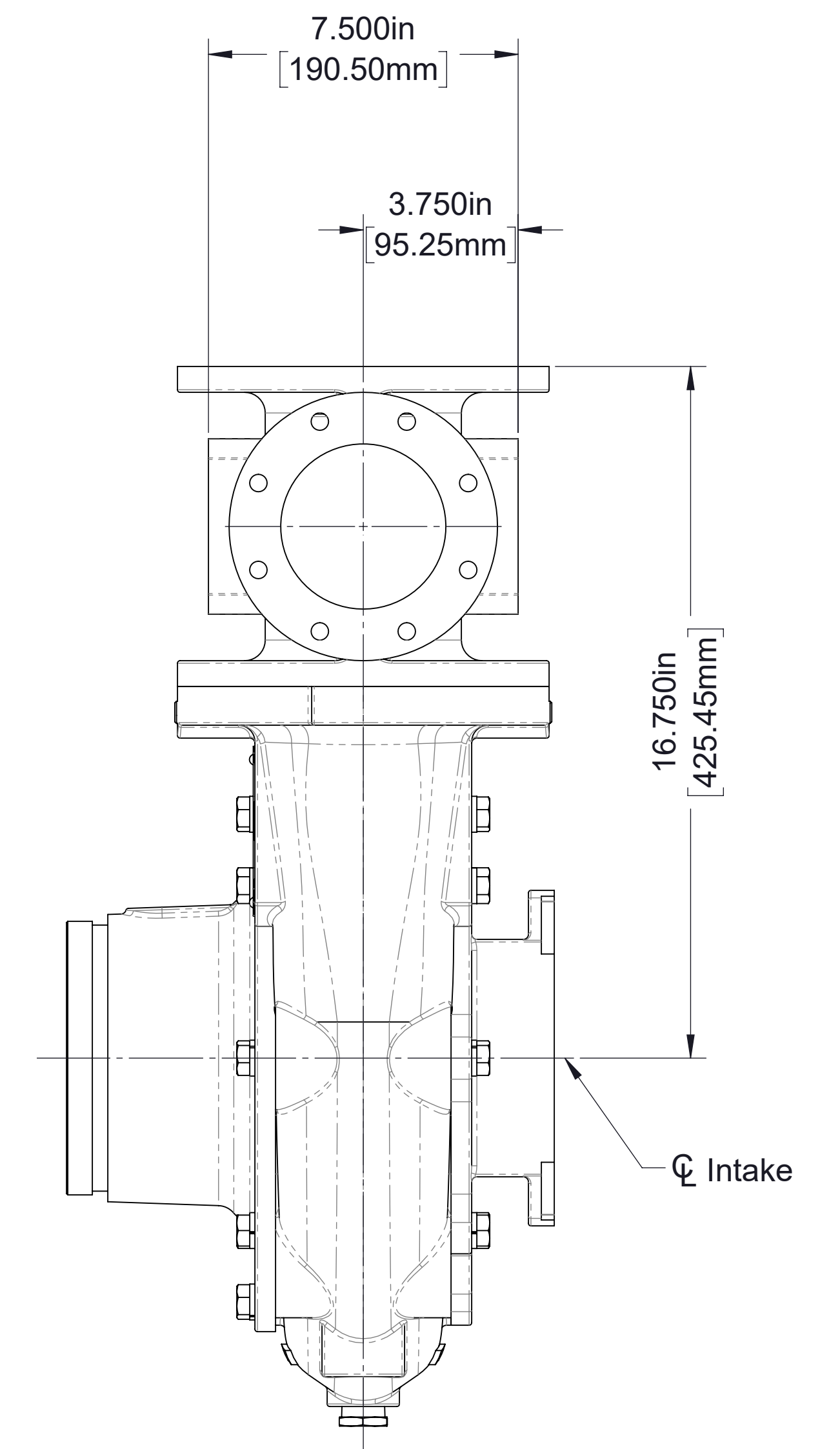
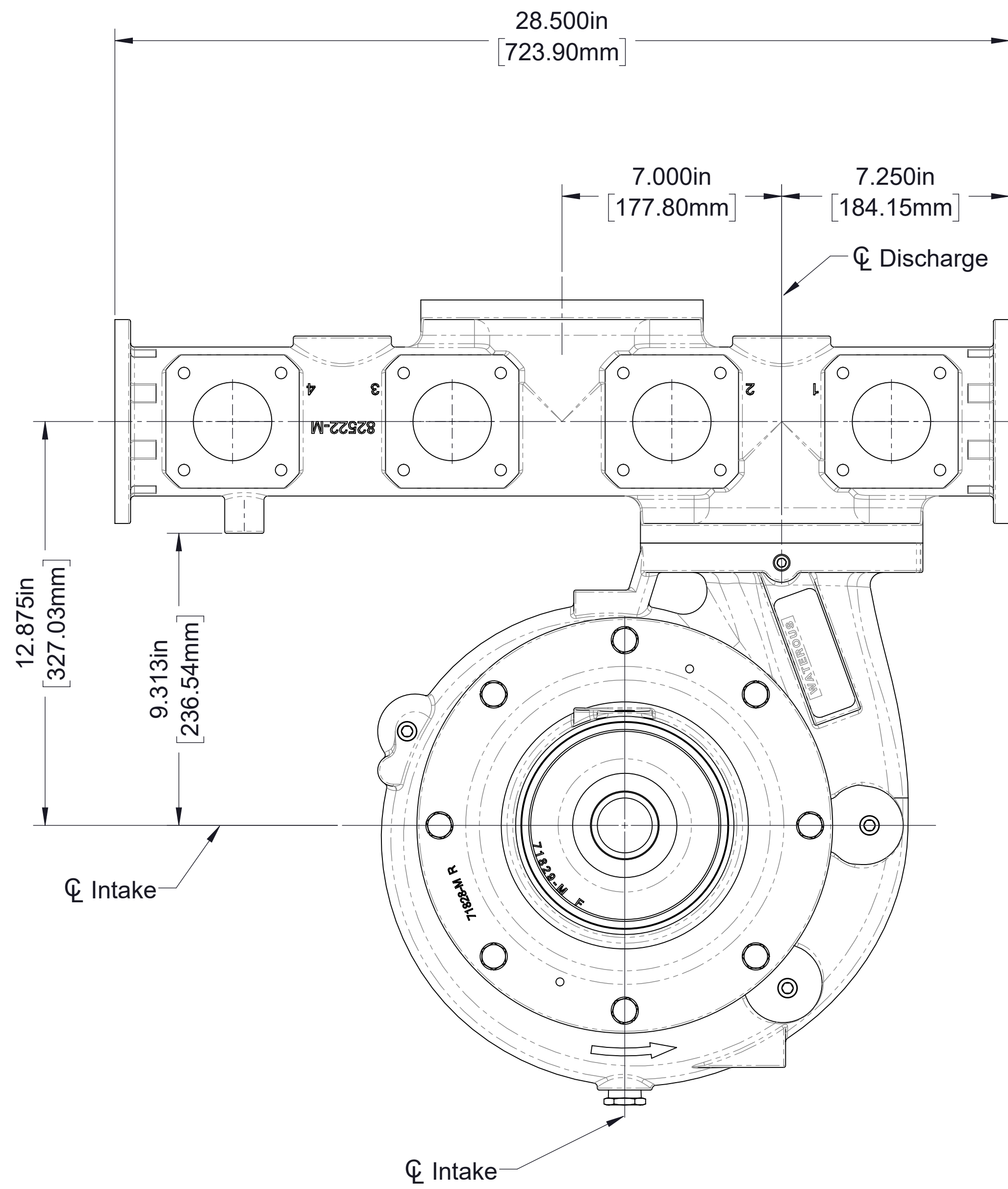
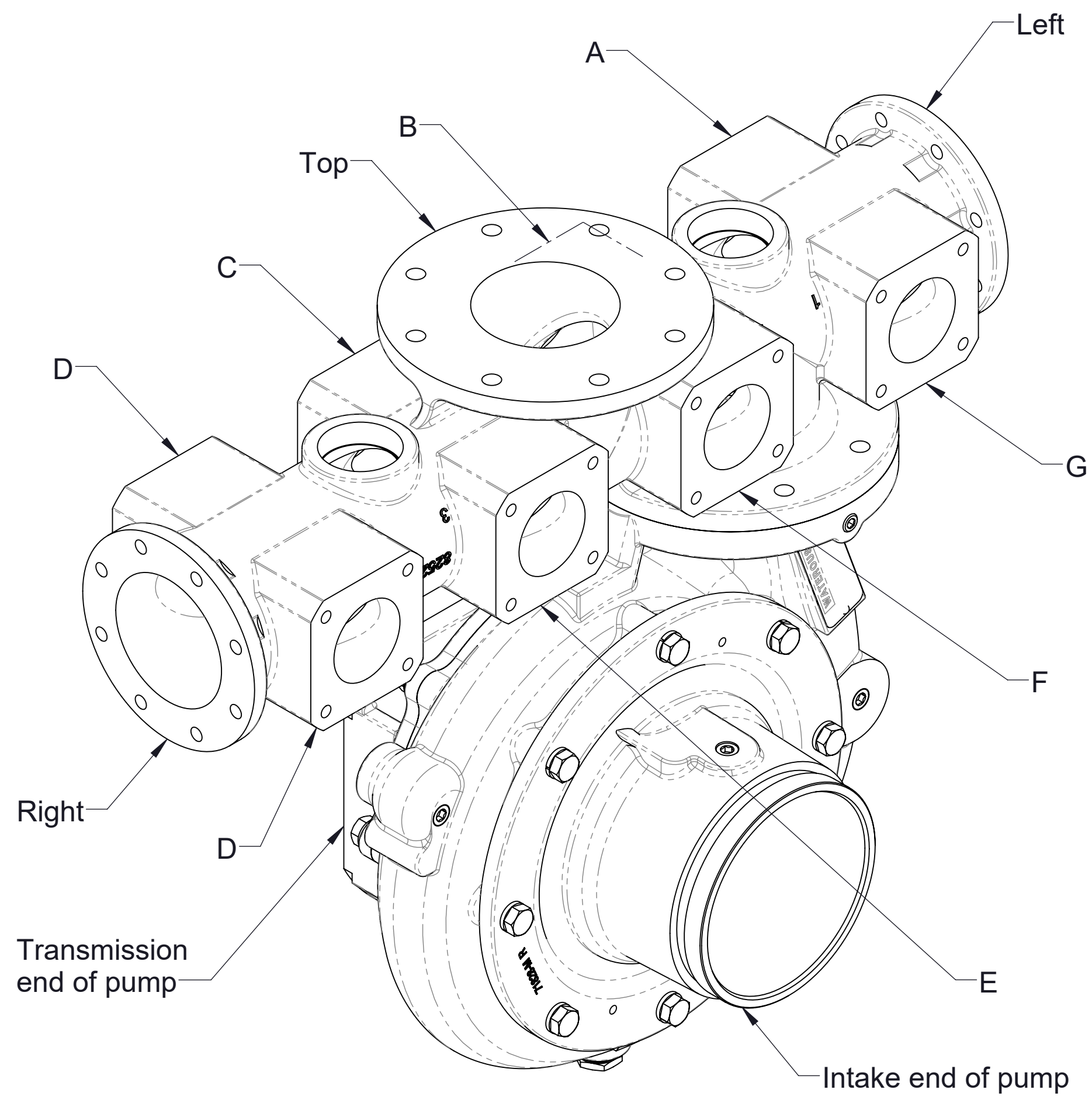
CW impeller rotation
(See page 10 for manifold dimensions not shown)



Pad	Size
Left	3-1/2 in. 8-bolt
Right	3-1/2 in. 8-bolt
Relief Valve	3 in. R.V.
C	2-1/2 in. 4-bolt
D	2-1/2 in. 4-bolt

Manifold with 3-1/2 in. End Flanges Mounted Perpendicular to Intake

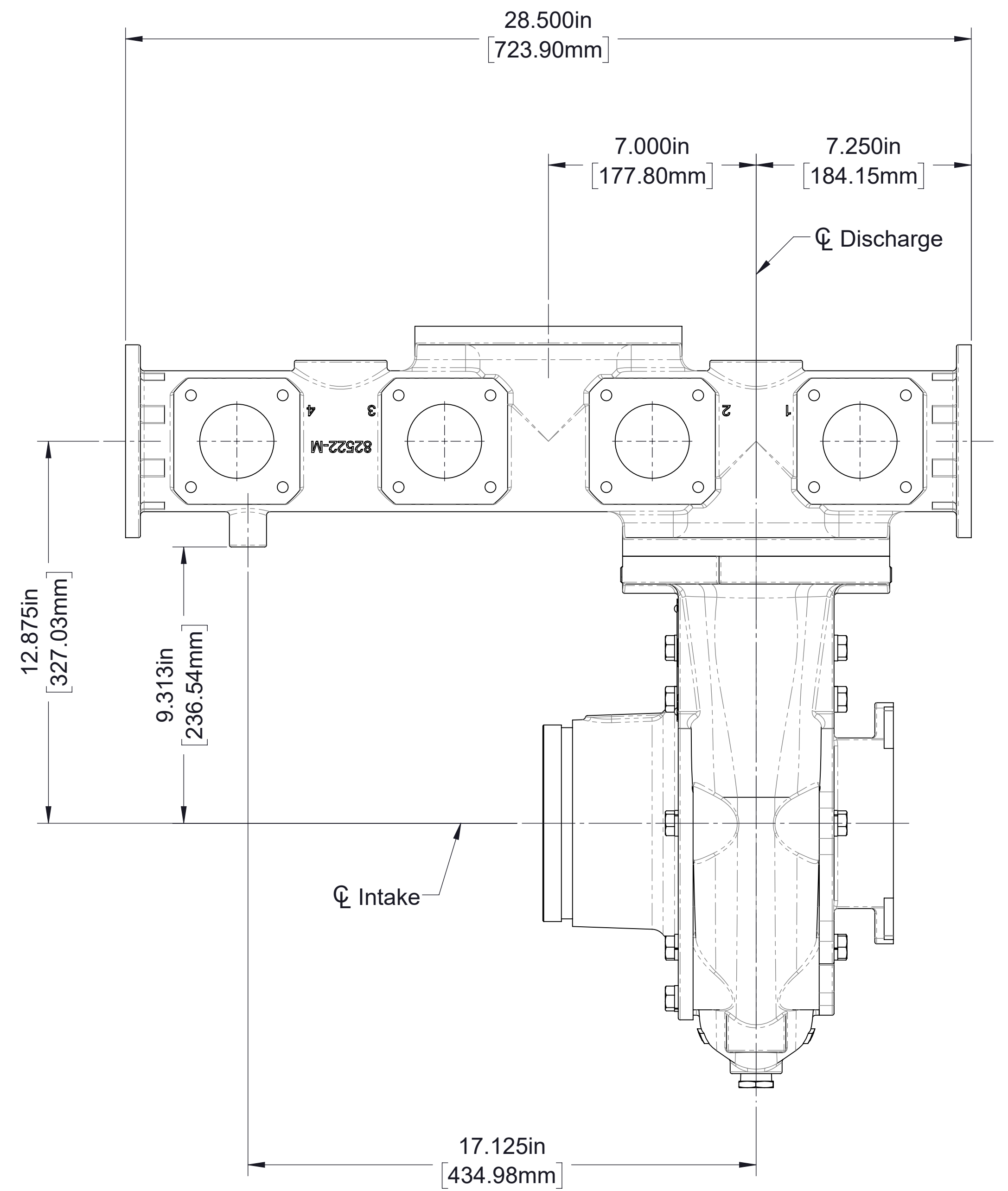
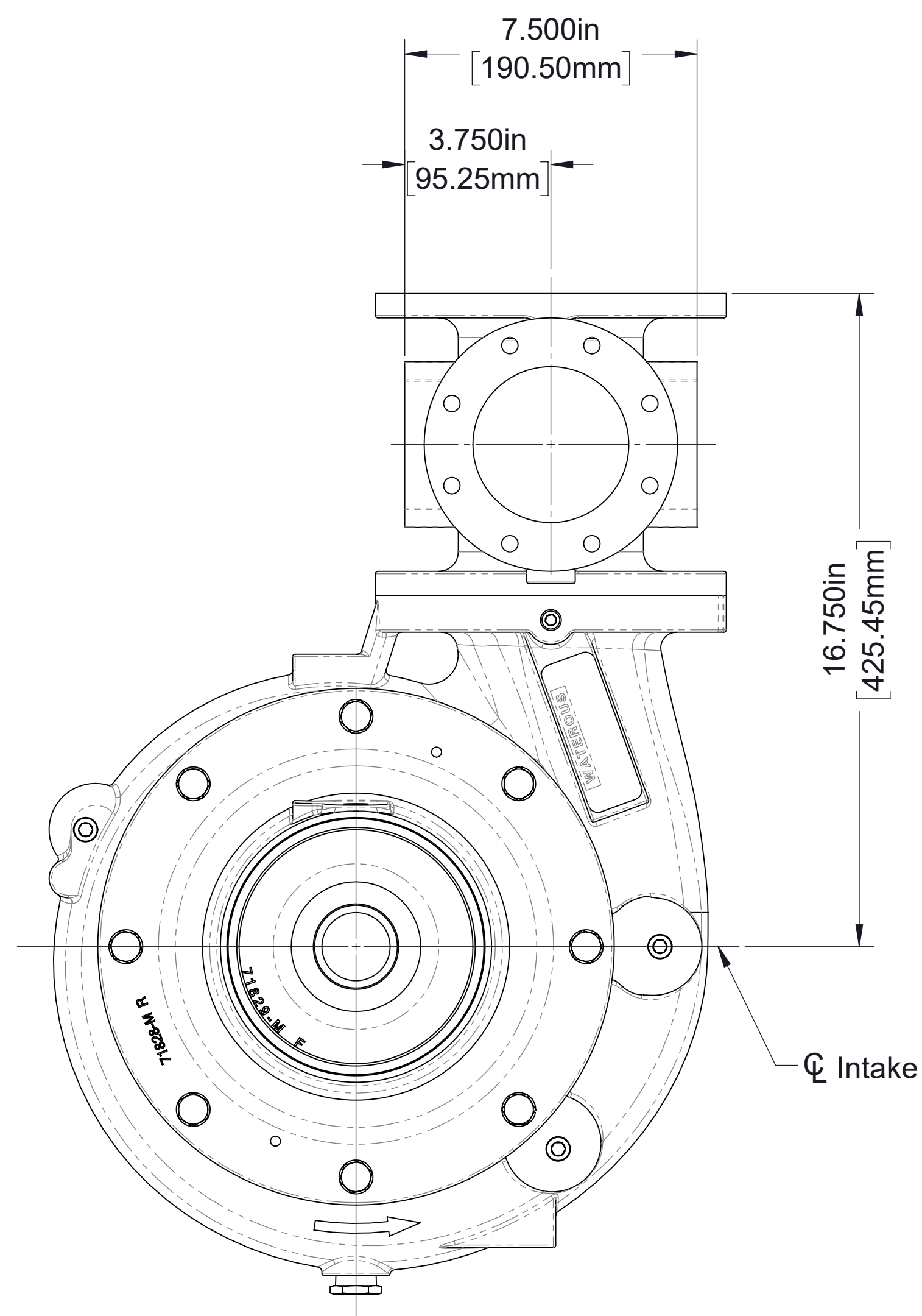
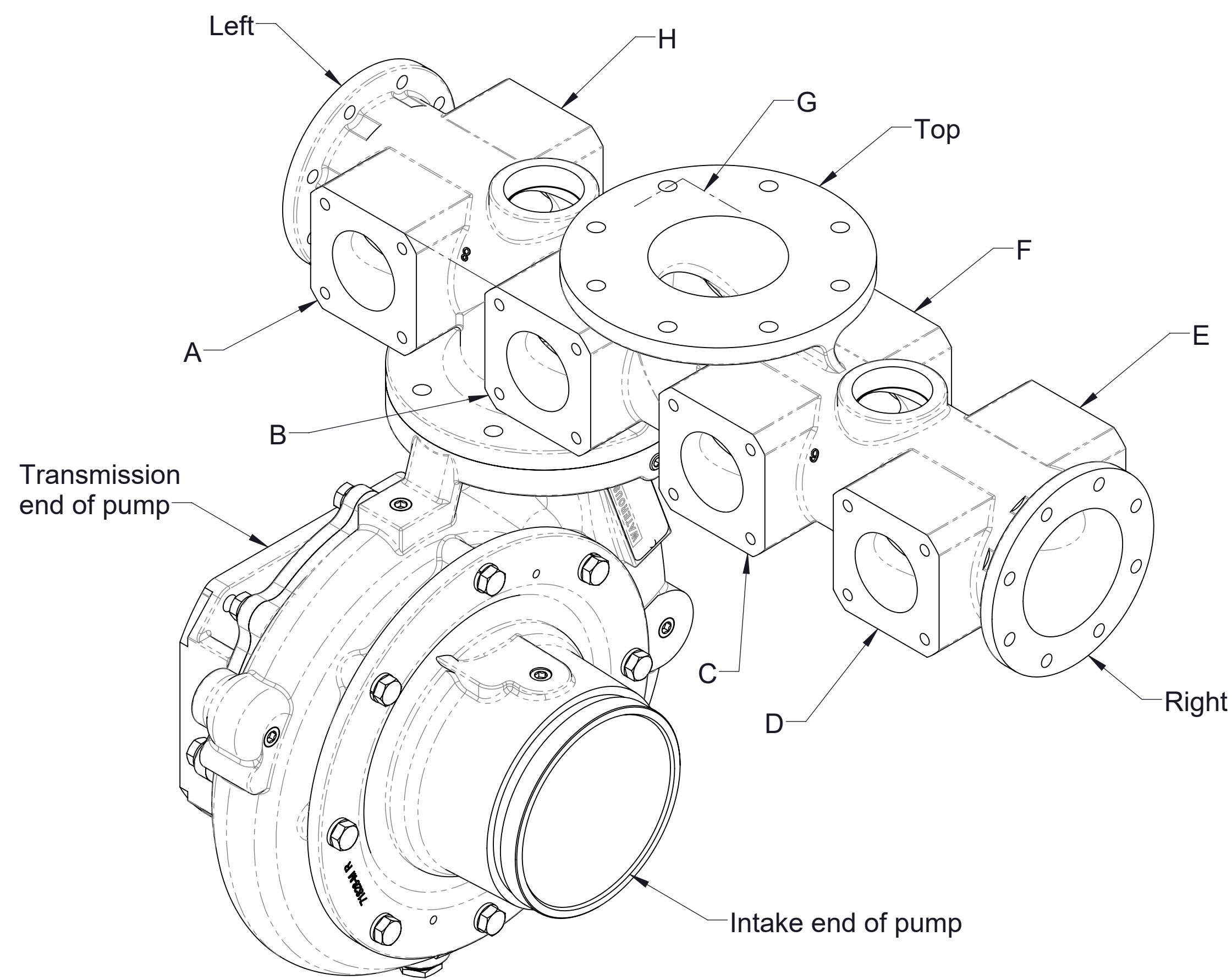
CCW impeller rotation
(See page 9 for manifold dimensions not shown)



Pad	Size
Left	4 in. 8-bolt
Right	4 in. 8-bolt
Top	4 in. ANSI
A	2-1/2 in. 4-bolt
B	2-1/2 in. 4-bolt
C	2-1/2 in. 4-bolt
D	2-1/2 in. 4-bolt
E	2-1/2 in. 4-bolt
F	2-1/2 in. 4-bolt
G	2-1/2 in. 4-bolt
H	2-1/2 in. 4-bolt

Manifold with 4 in. End Flanges Mounted Perpendicular to Intake

CCW impeller rotation
(See page 10 for manifold dimensions not shown)



Pad	Size
Left	4 in. 8-bolt
Right	4 in. 8-bolt
Top	4 in. ANSI
A	2-1/2 in. 4-bolt
B	2-1/2 in. 4-bolt
C	2-1/2 in. 4-bolt
D	2-1/2 in. 4-bolt
E	2-1/2 in. 4-bolt
F	2-1/2 in. 4-bolt
G	2-1/2 in. 4-bolt
H	2-1/2 in. 4-bolt

Manifold with 4 in. End Flanges Mounted Parallel to Intake

CCW impeller rotation
(See page 10 for manifold dimensions not shown)

Optional End Yokes and Companion Flanges

Pump Model	Transmission Series	Input Shaft Spline	Optional End Yokes and Companion Flanges See DPL83861 for Dimensions				
			Type	Series	Part Number	End Yoke Cross and Bearing Kit	
CXN CXS CXV	C22	2.35-46T Involute	End Yoke, BP	1710	V 2837	V 2839	
				1810	V 2838	V 2840	
				SPL 140	V 3338	V 3389	
			End Yoke, HR	1810	V 4102	--	
				Companion Flange	1480/1610	V 3719	--
					1650/1710	V 3619	
			ISO 8667 (Serrated)		63714		
	D Direct Drive and K Heavy Duty	1-3/8-10 SAE	End Yoke	1350	V 1641	--	
				1410	V 2591		
			Companion Flange	1350/1410	52274	--	
				1350/1410	72939		
				1350/1410	V 2593		
				70 mm Male Pilot	73276		
				70 mm Female Pilot	73377		
	DIN 100	73327					
	PA	1-1/2-10 SAE	End Yoke	1410	V 2861	--	
				Companion Flange	1350/1410		V 1822
			70 mm Male Pilot		73330		
	QB	1-3/4-10 SAE	End Yoke	1350/1410	V 3861	--	
				1350/1410	V 3861-1		
				1550	V 3077		
				SPL 90	V 3761		
			Companion Flange	1610	61320	--	
1480/1550				61319			
T Heavy Duty	Not Used, Direct Engine Mount						