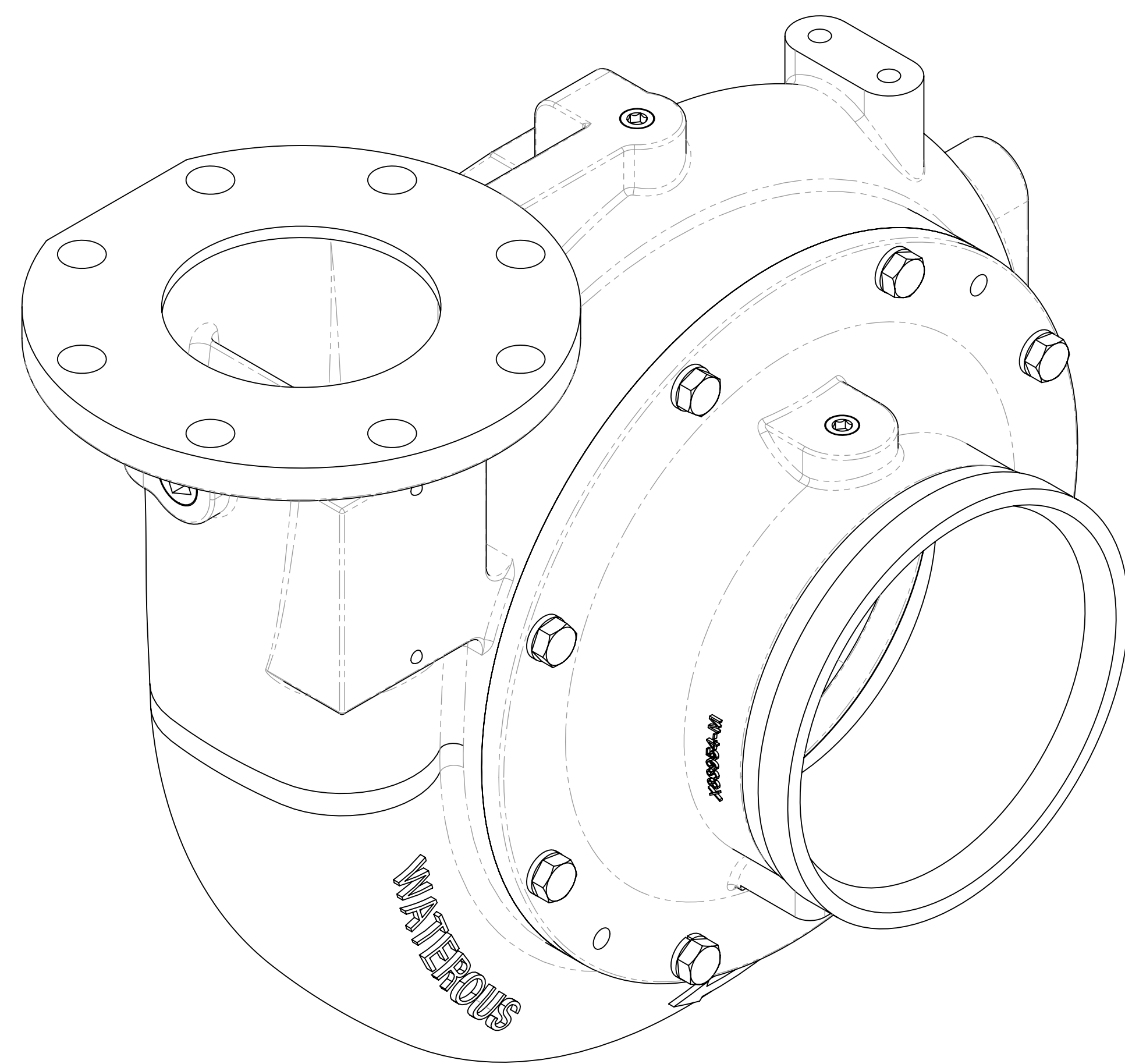
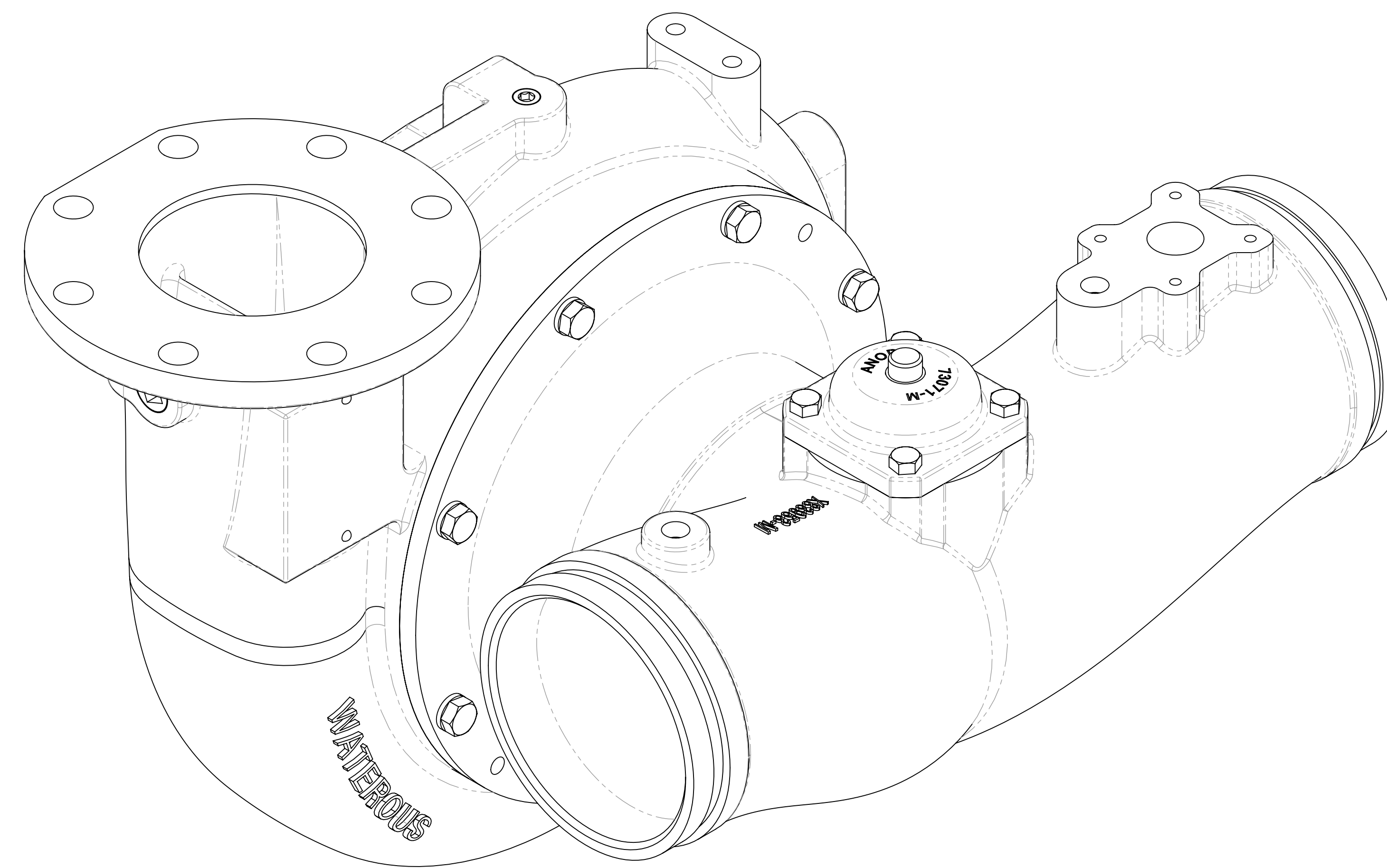


## ESU1 Series Fire Pump Dimensional Drawings

Feature		See Page		
		Single 8 in. Victaulic® Intake	Dual 6 in. Victaulic® Intake	
Basic Pump without Transmission	Body Dimensions		3-4	5-6
	Optional Discharge Arrangements	Blank (5 in. ANSI Flange)		
		4 in. ANSI Discharge Adapter	7	
	Manifold with 4 in. End Flanges	8		
Pump with Transmission			See Table on Page 2	
Optional End Yokes and Companion Flanges for use on C22			See Table on Page 17	



ESU1 with Single 8 in. Victaulic® Intake



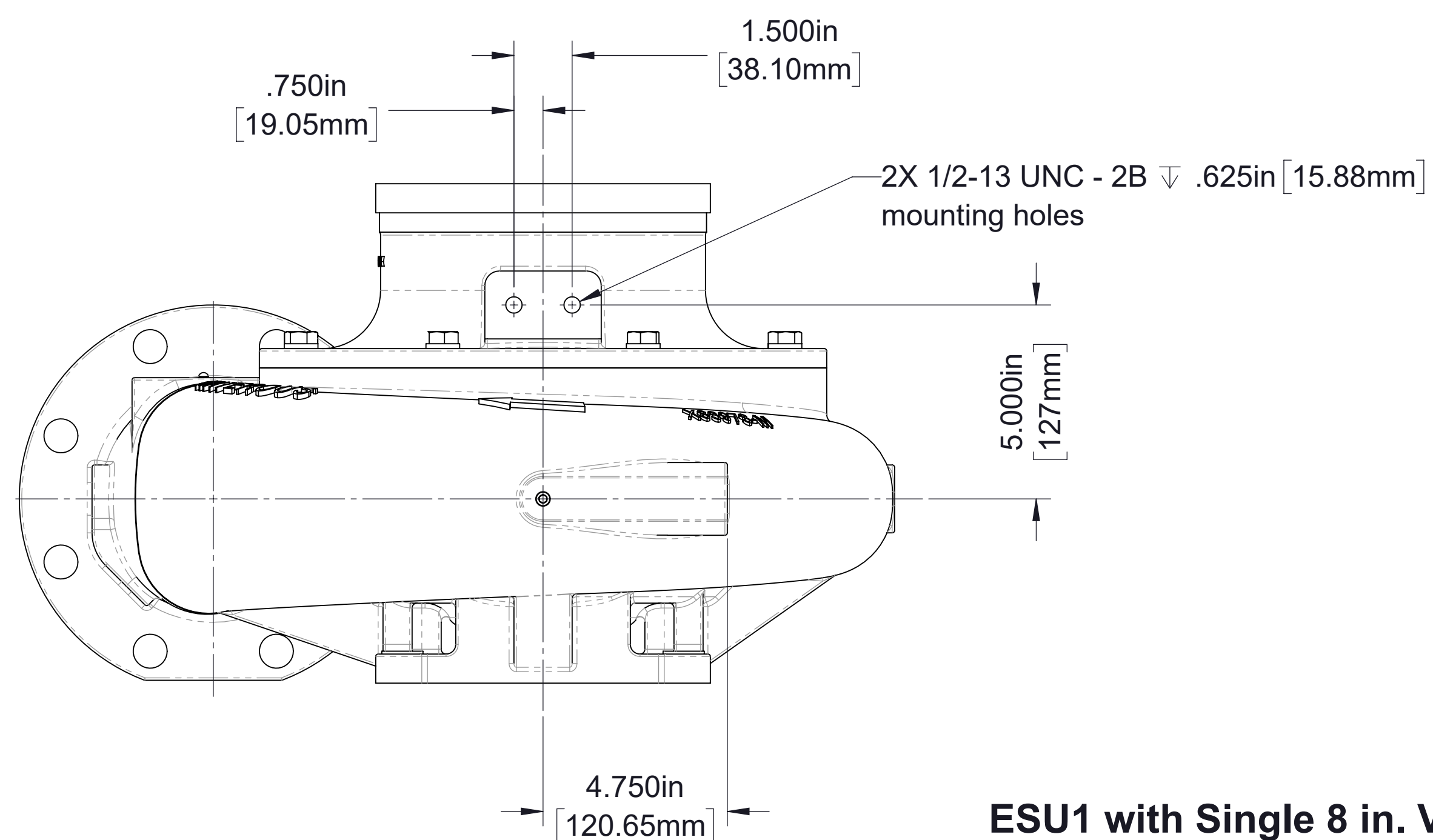
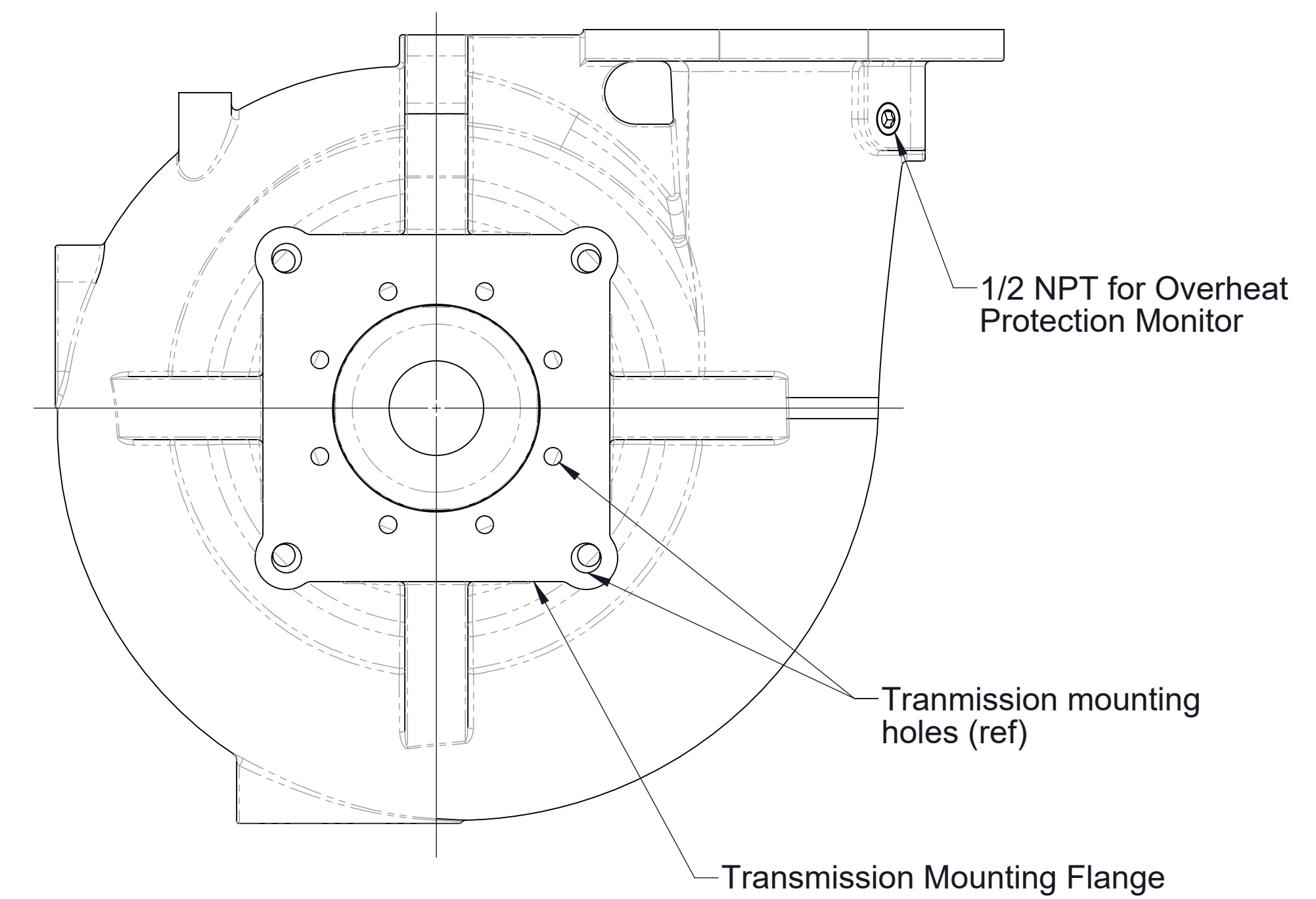
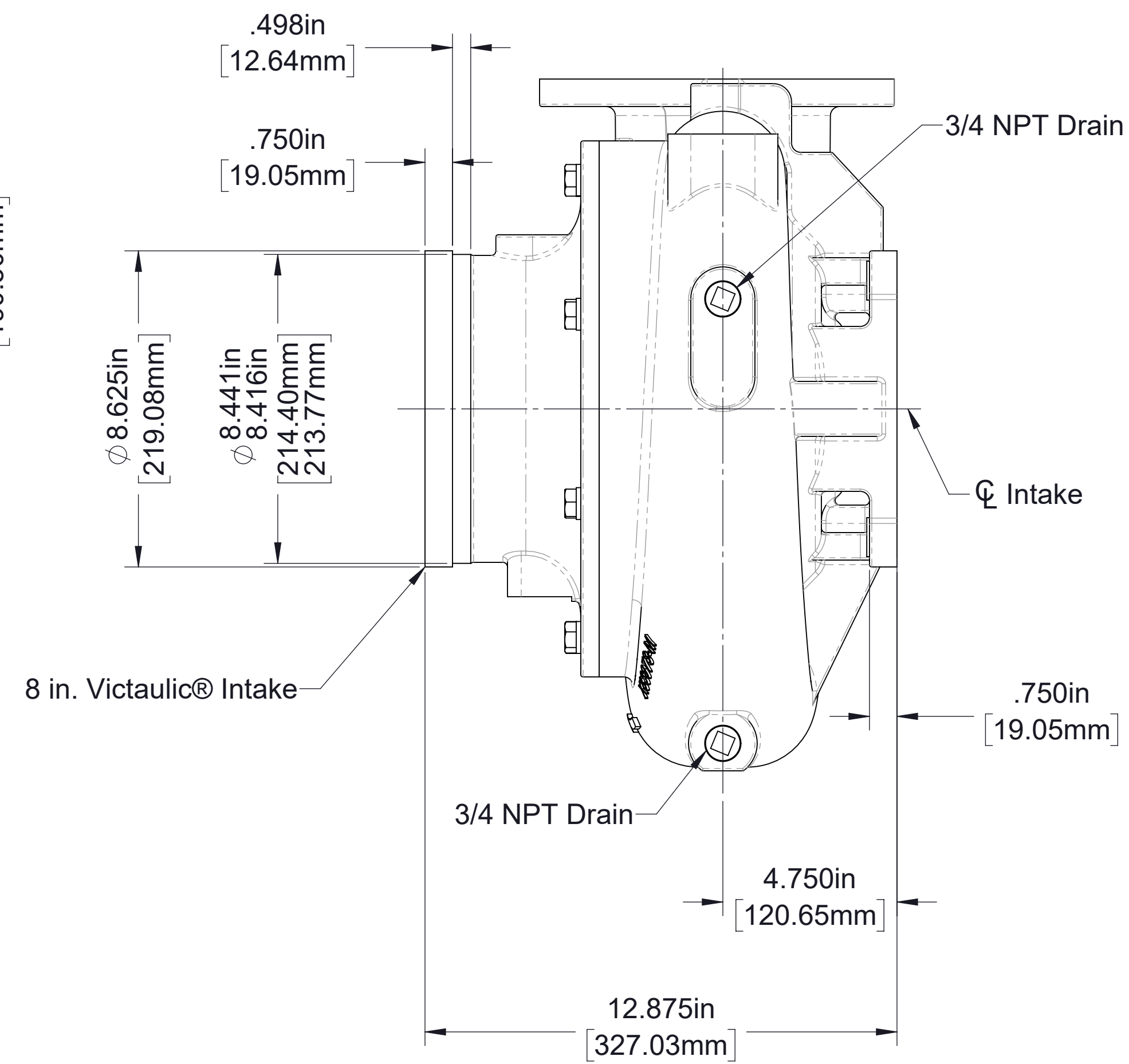
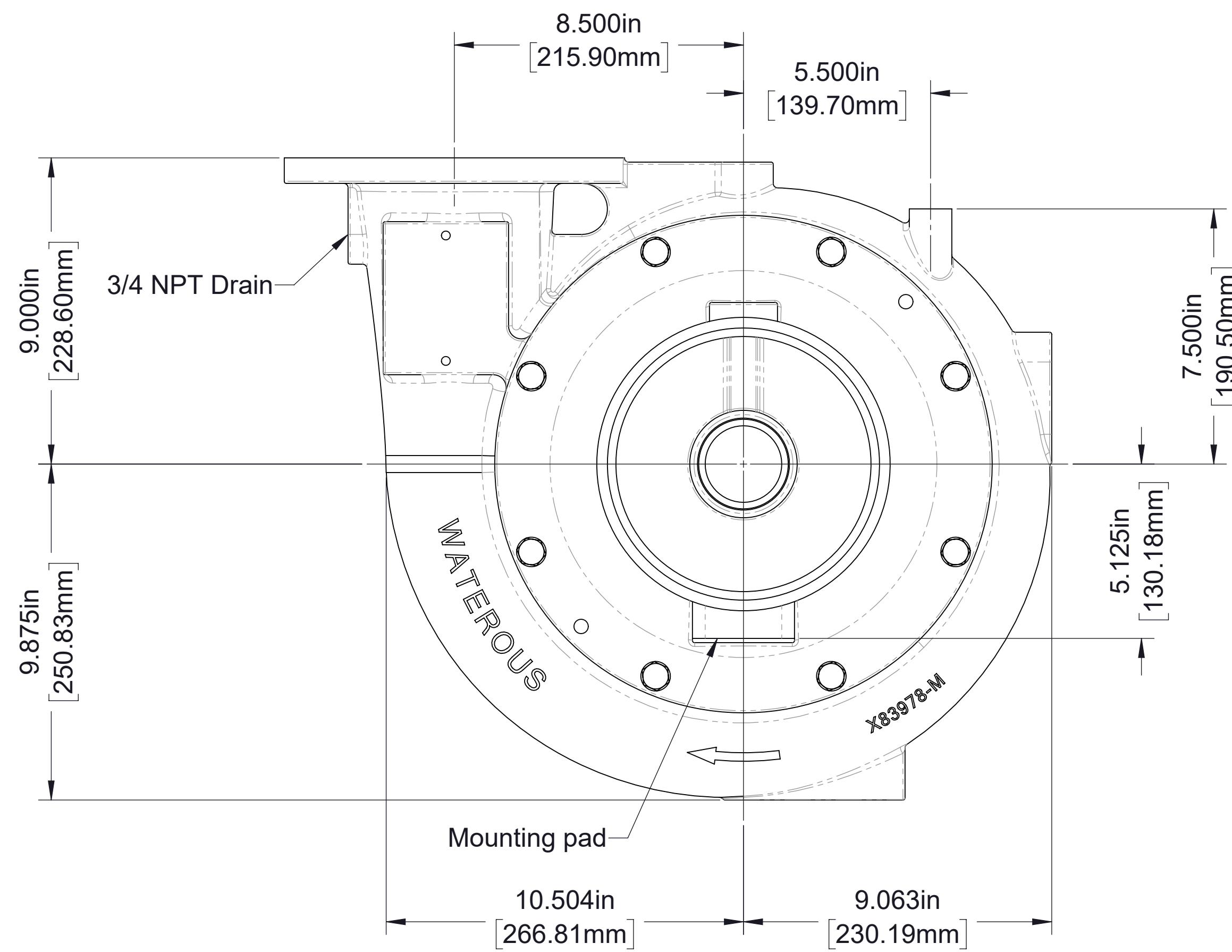
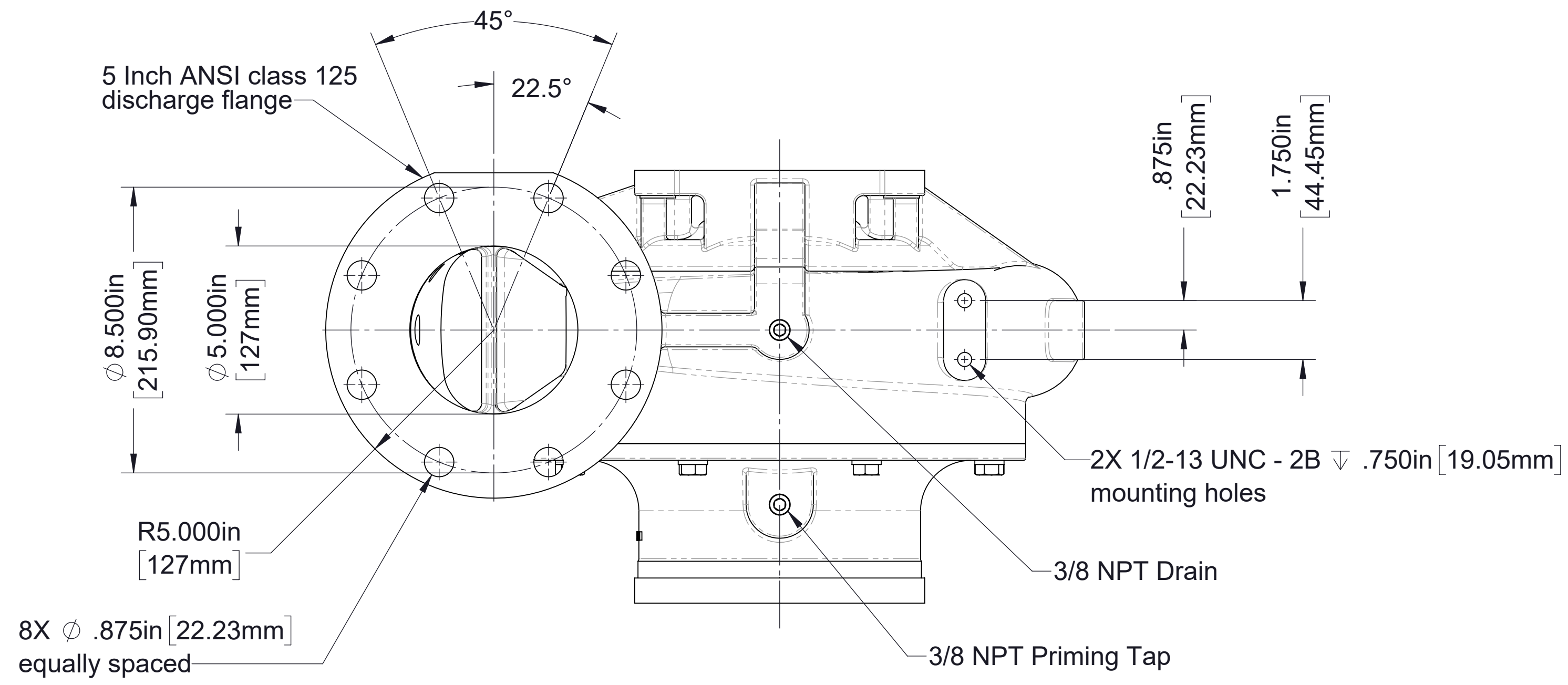
ESU1 with Dual 6 in. Victaulic® Intake

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

Transmission			Pump				See Page			
Type	Pump Mounting on Transmission	Driveline	Input Rotation (1)	Impeller Rotation (2)	Pump and Transmission Model	Hydraulic Pump Mounting Provision	Pump and Transmission		Optional Discharge Manifold Mounting on Pump	
							Dimensions	Pump Discharge Positions	4 in. End Flanges	
									Perpendicular to Intake	Parallel to Intake
<b>C22 Series</b> Chain Drive, Split Shaft	Front (Input Shaft Side)	Input and Output Shaft	CW	CW	ESU1C22C ESU1C22D ESU1C22E ESU1C22F	No	9, 17	19	21	23
						Yes	10, 17			
		Input Shaft Only	CW	CW	ESU1C22C ESU1C22D ESU1C22E ESU1C22F	No	11, 17			
						Yes	12, 17			
	Rear (Output Shaft Side)	Input and Output Shaft	CW	CCW	ESU1C22D ESU1C22E ESU1C22F	No	13, 17		22	24
						Yes	14, 17			
		Input Shaft Only	CW	CCW	ESU1C22D ESU1C22E ESU1C22F	No	15, 17			
						Yes	16, 17			
<b>D Series</b> Directly from a PTO	Opposite Input Shaft	Input Shaft Only	CW	CCW	ESU1D	N/A	18	20	25	27
			CCW	CW	ESU1D	N/A			26	28

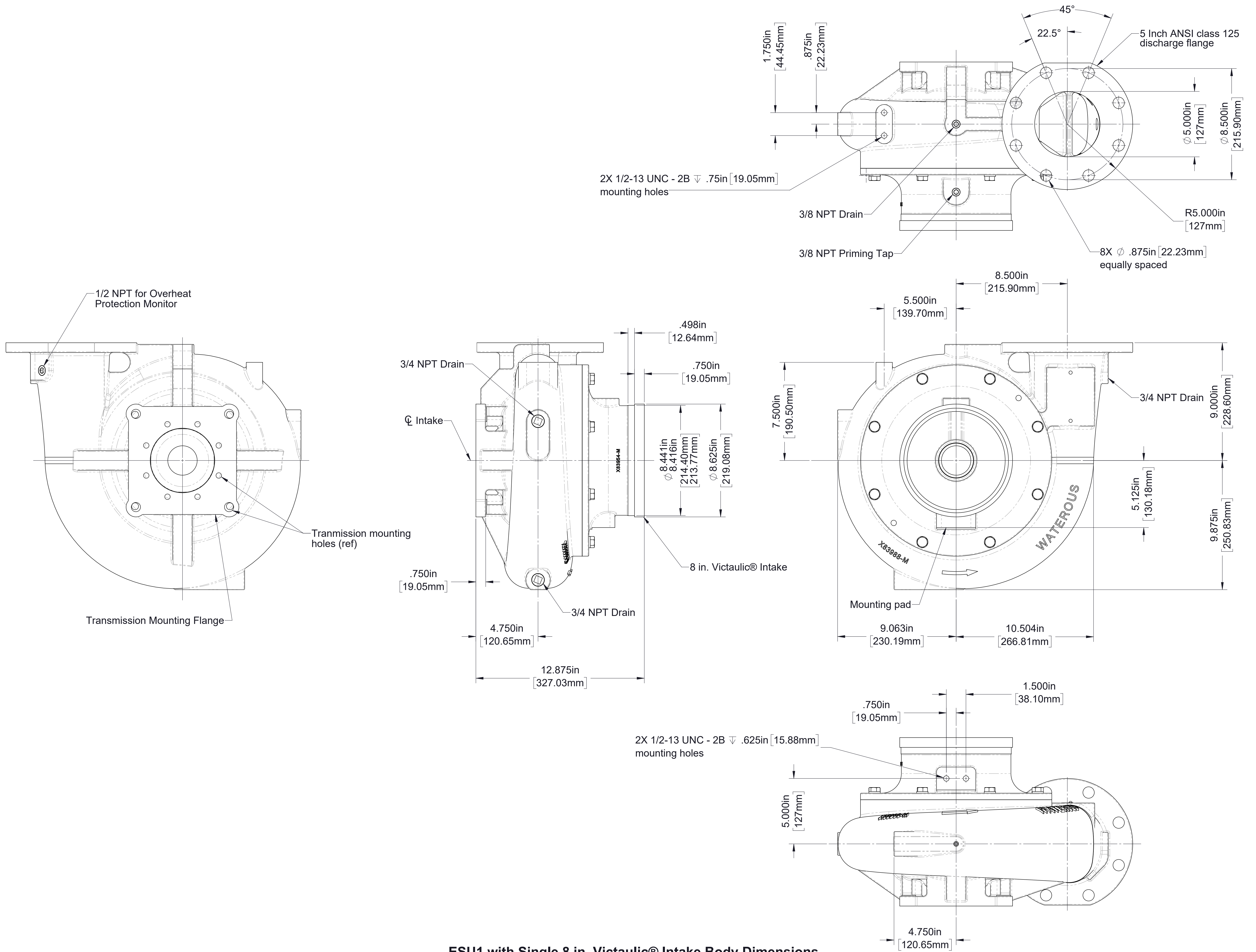
Notes:

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).



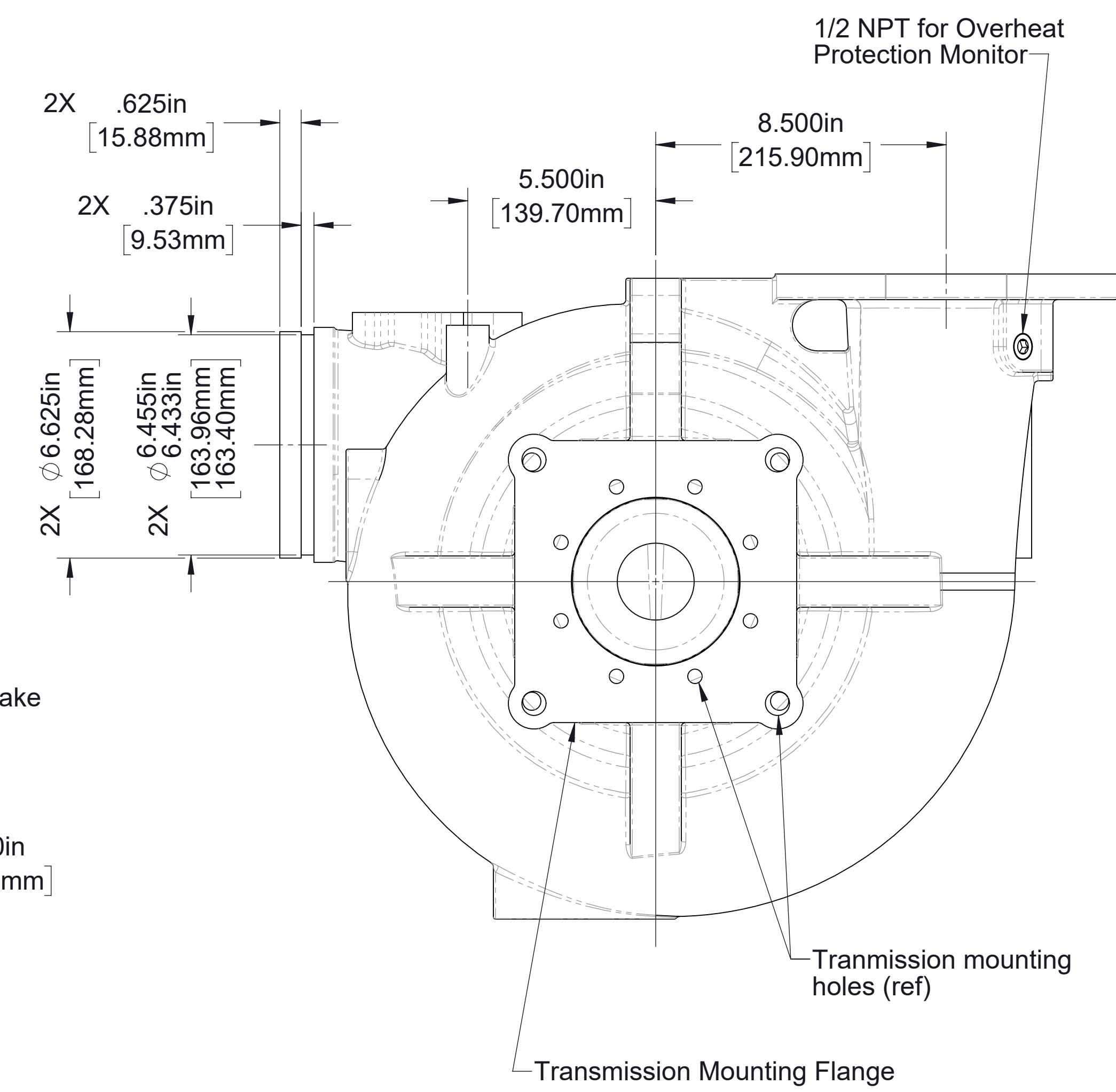
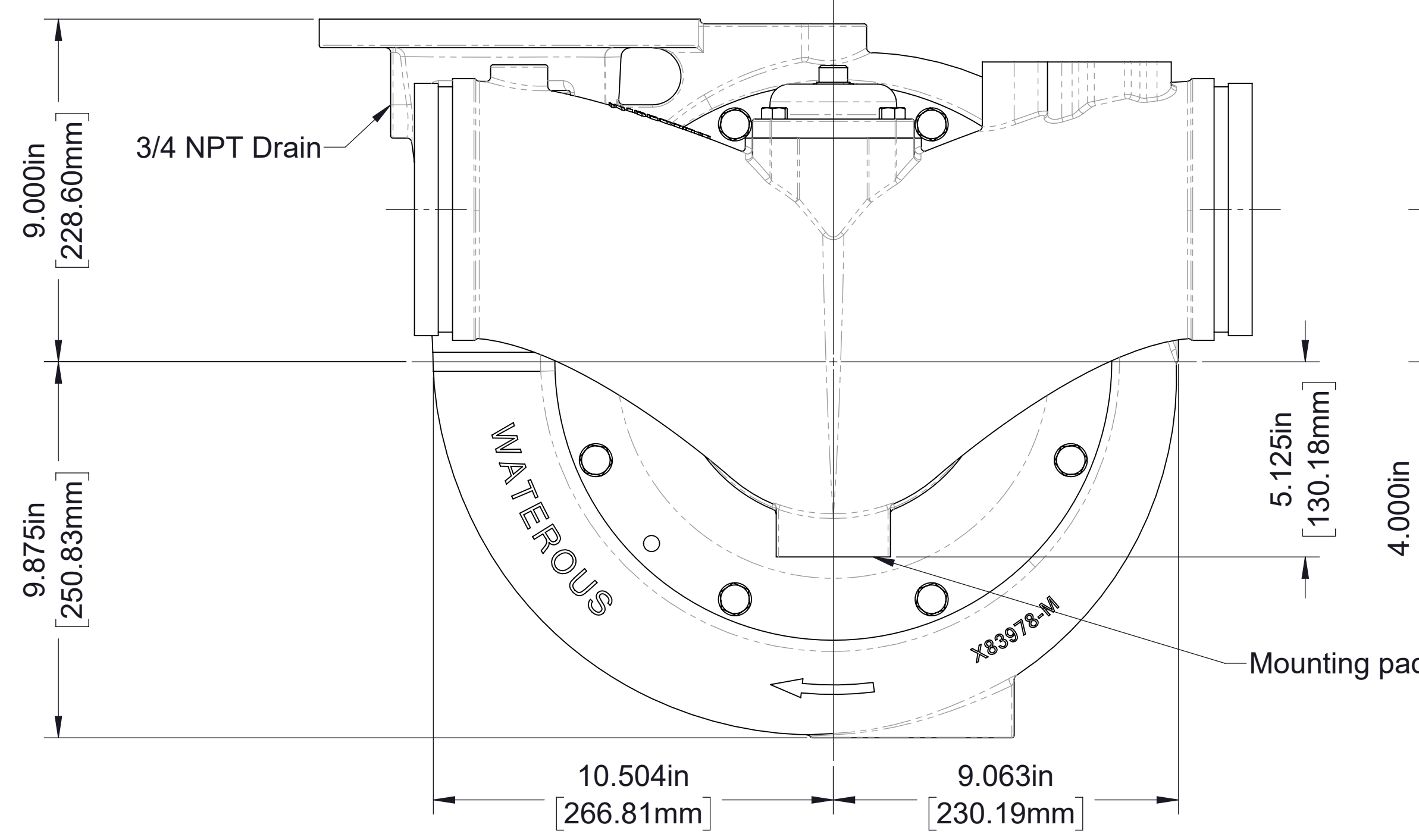
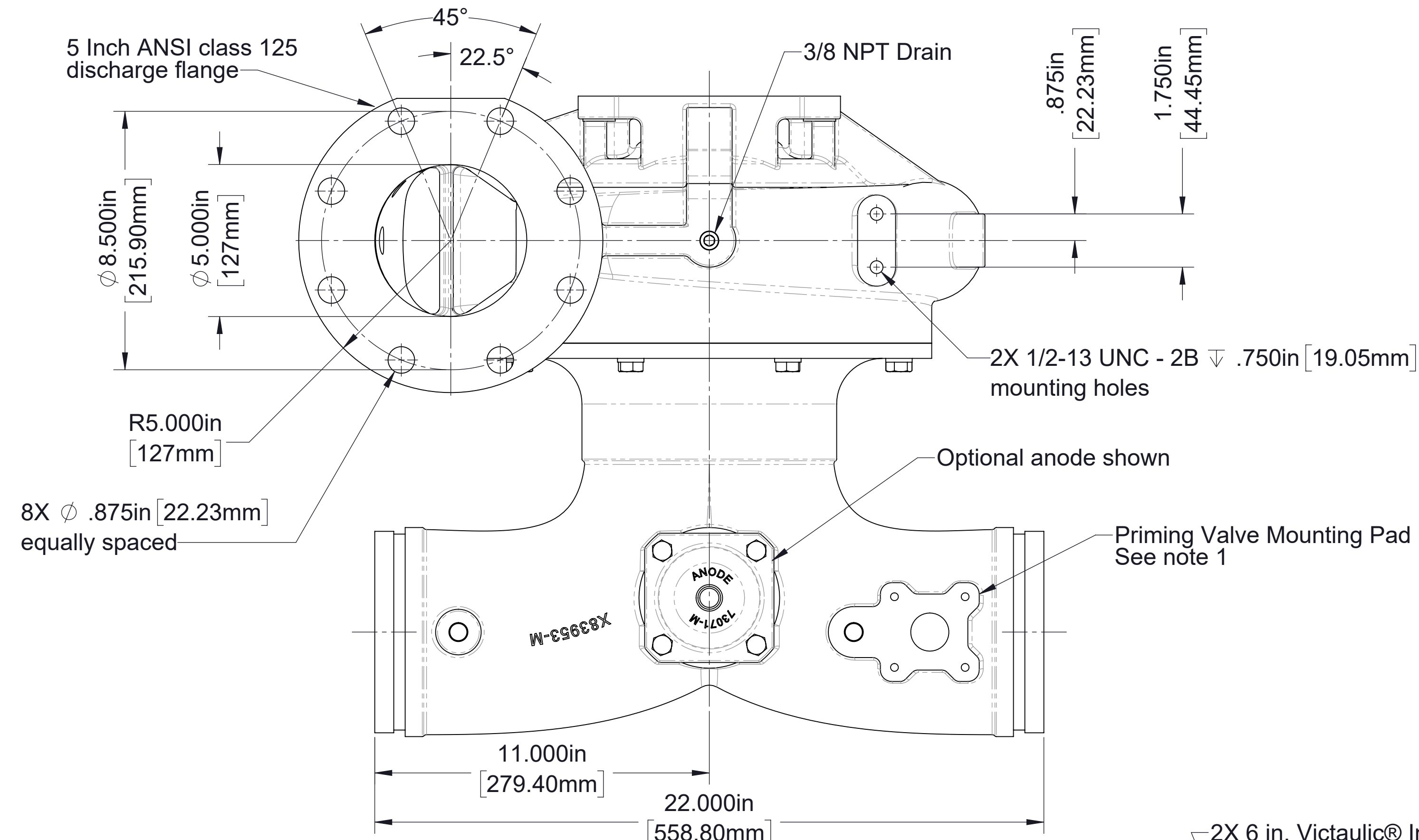
**ESU1 with Single 8 in. Victaulic® Intake Body Dimensions**

CW Impeller Rotation  
 Shown with blank 5 in. ANSI flange discharge  
 See pages 7 & 8 for optional discharge manifolds



**ESU1 with Single 8 in. Victaulic® Intake Body Dimensions**

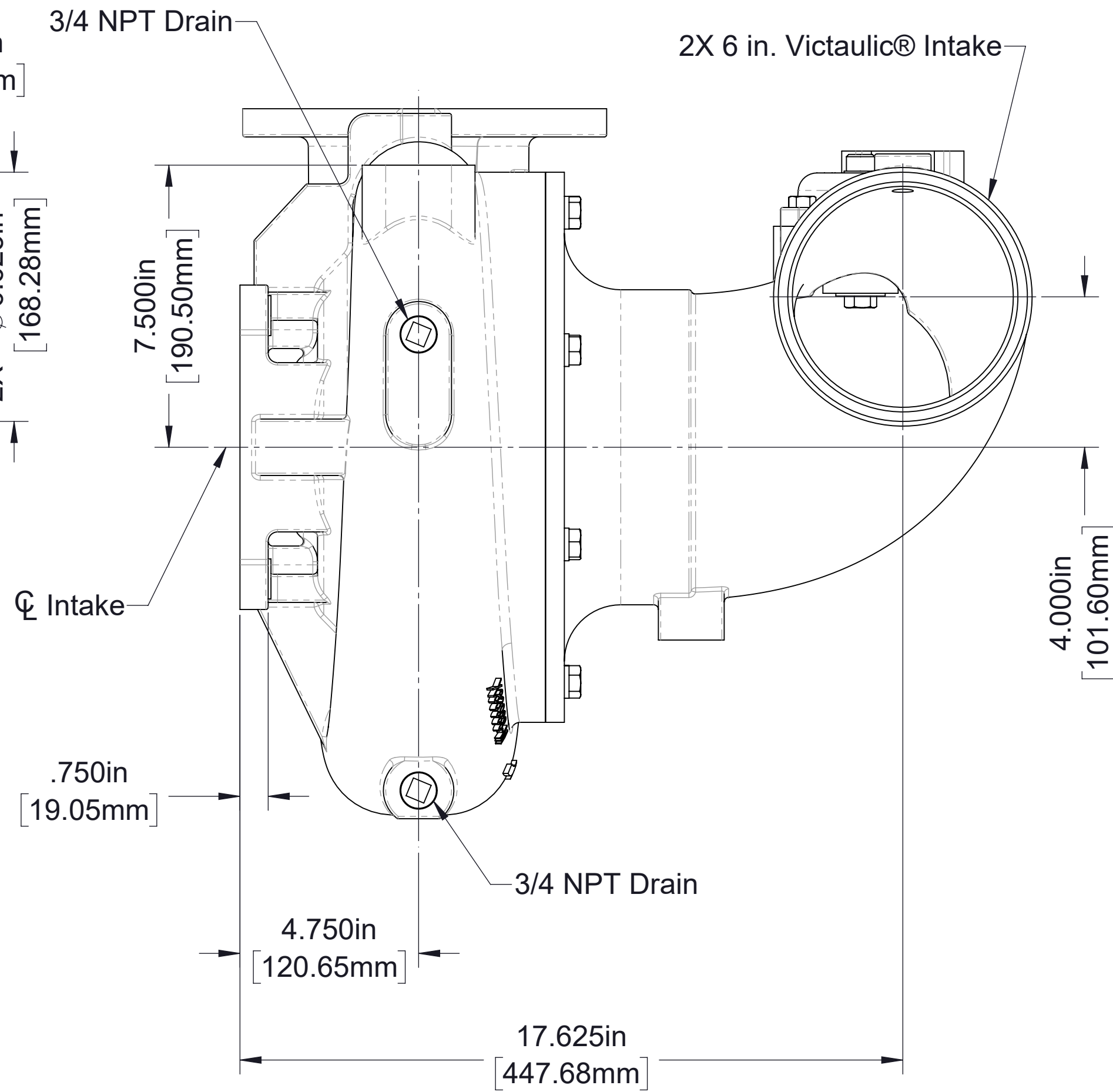
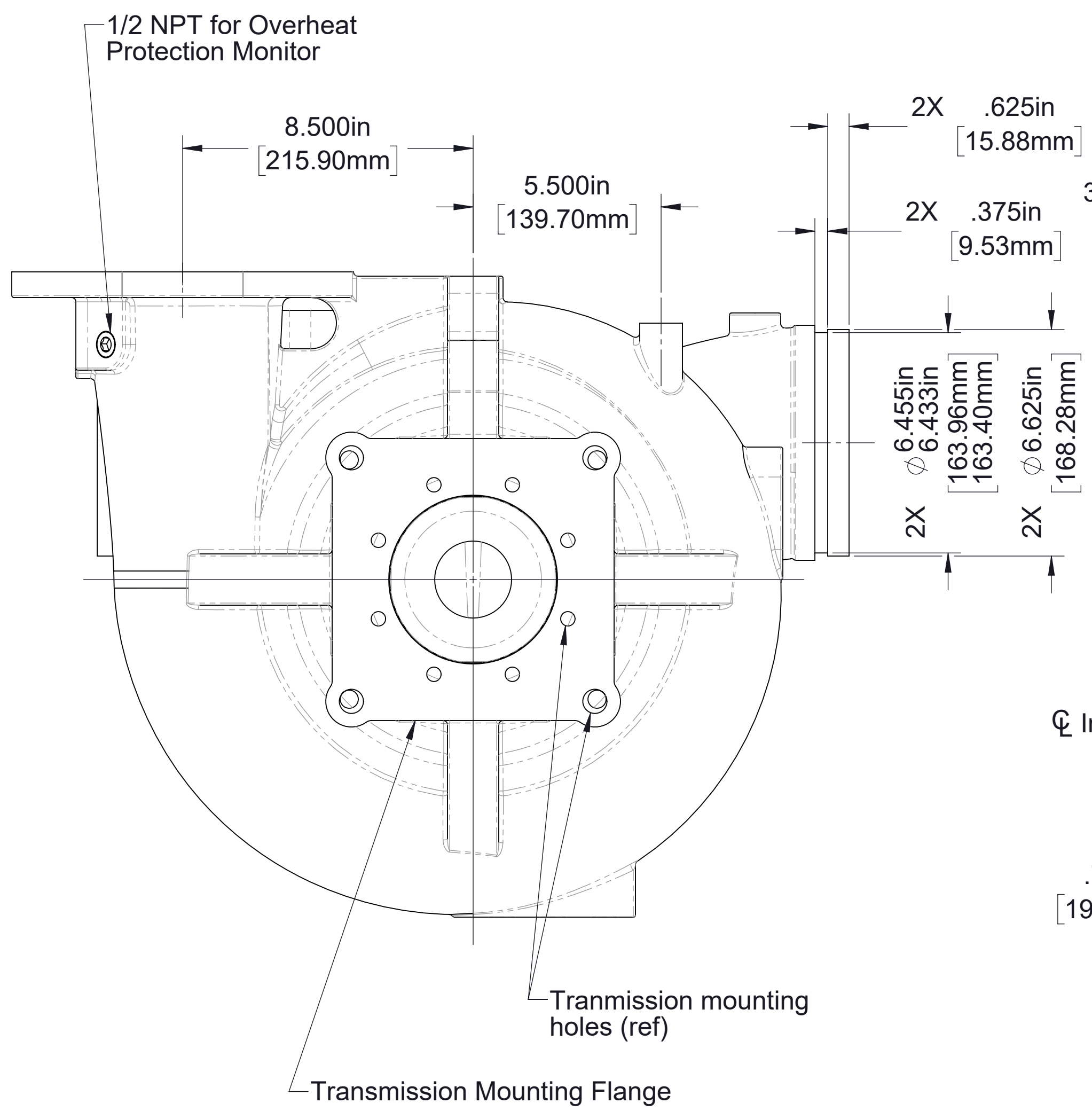
CCW Impeller Rotation  
Shown with blank 5 in. ANSI flange discharge  
See pages 7 & 8 for optional discharge manifolds



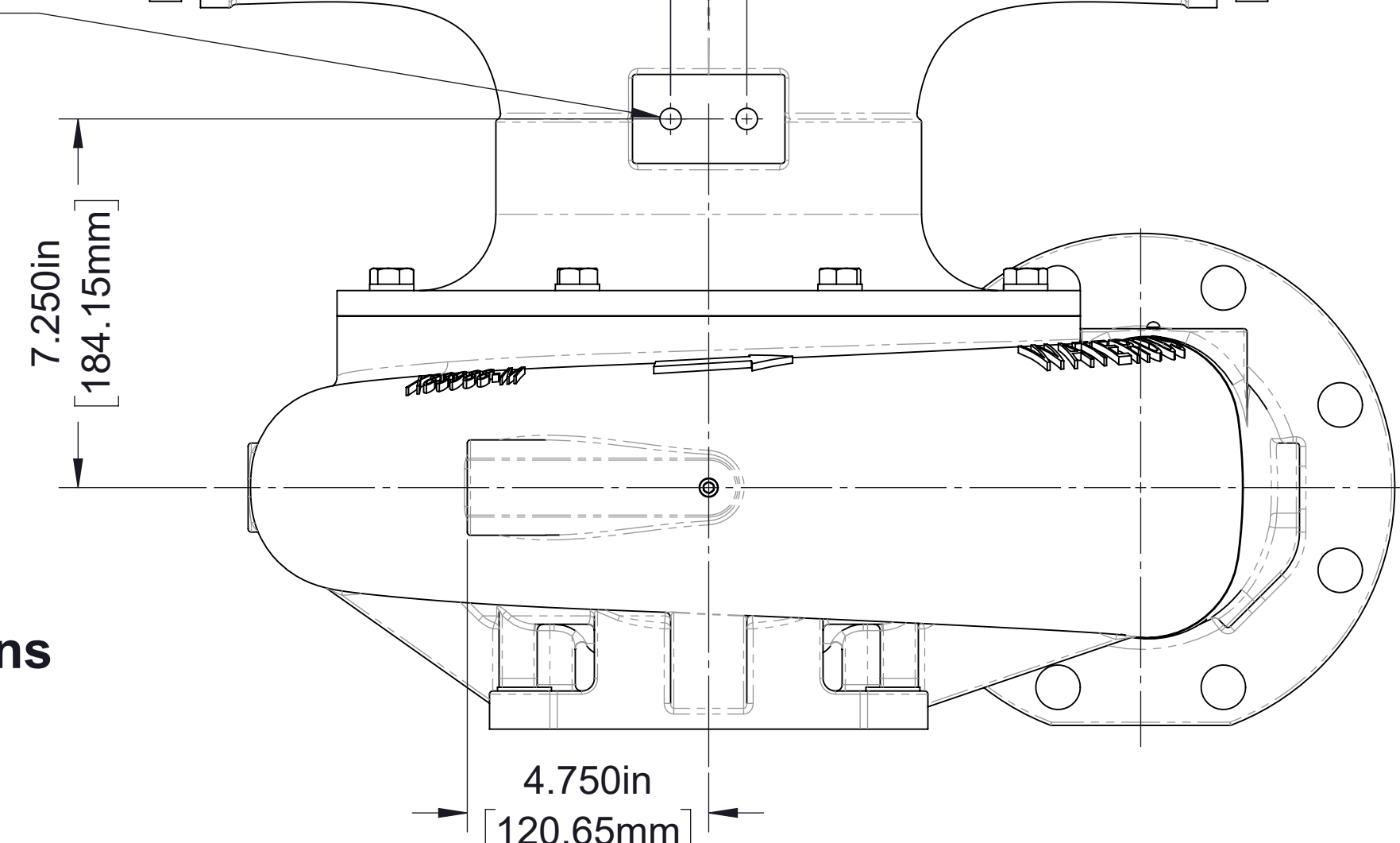
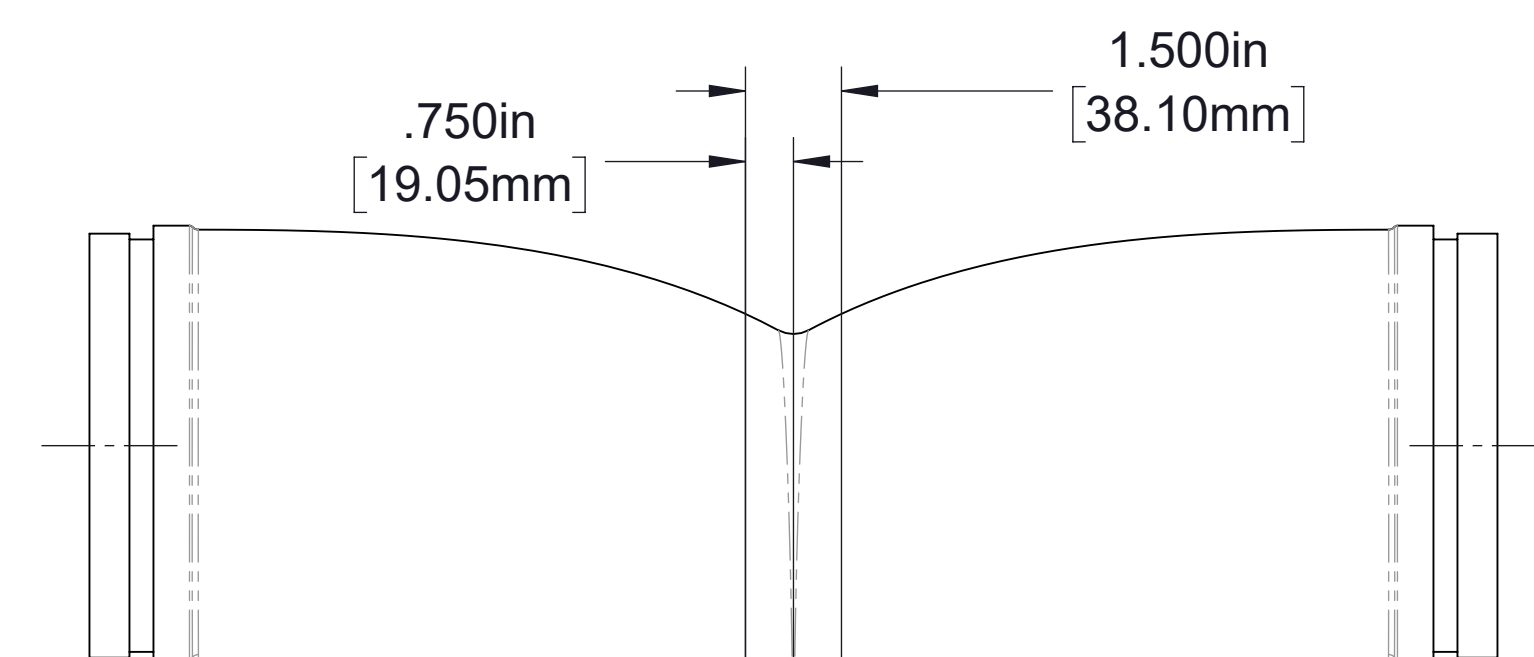
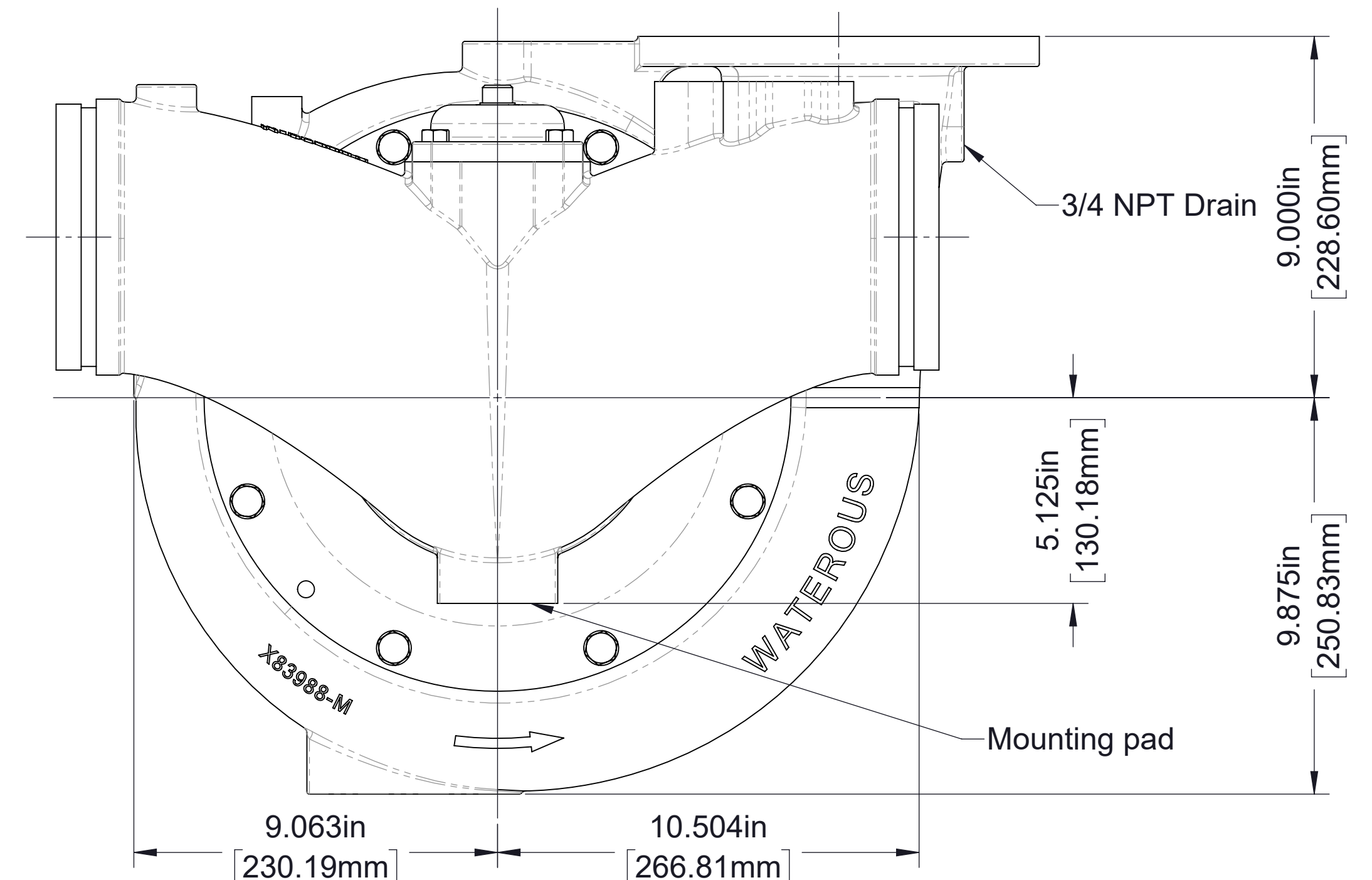
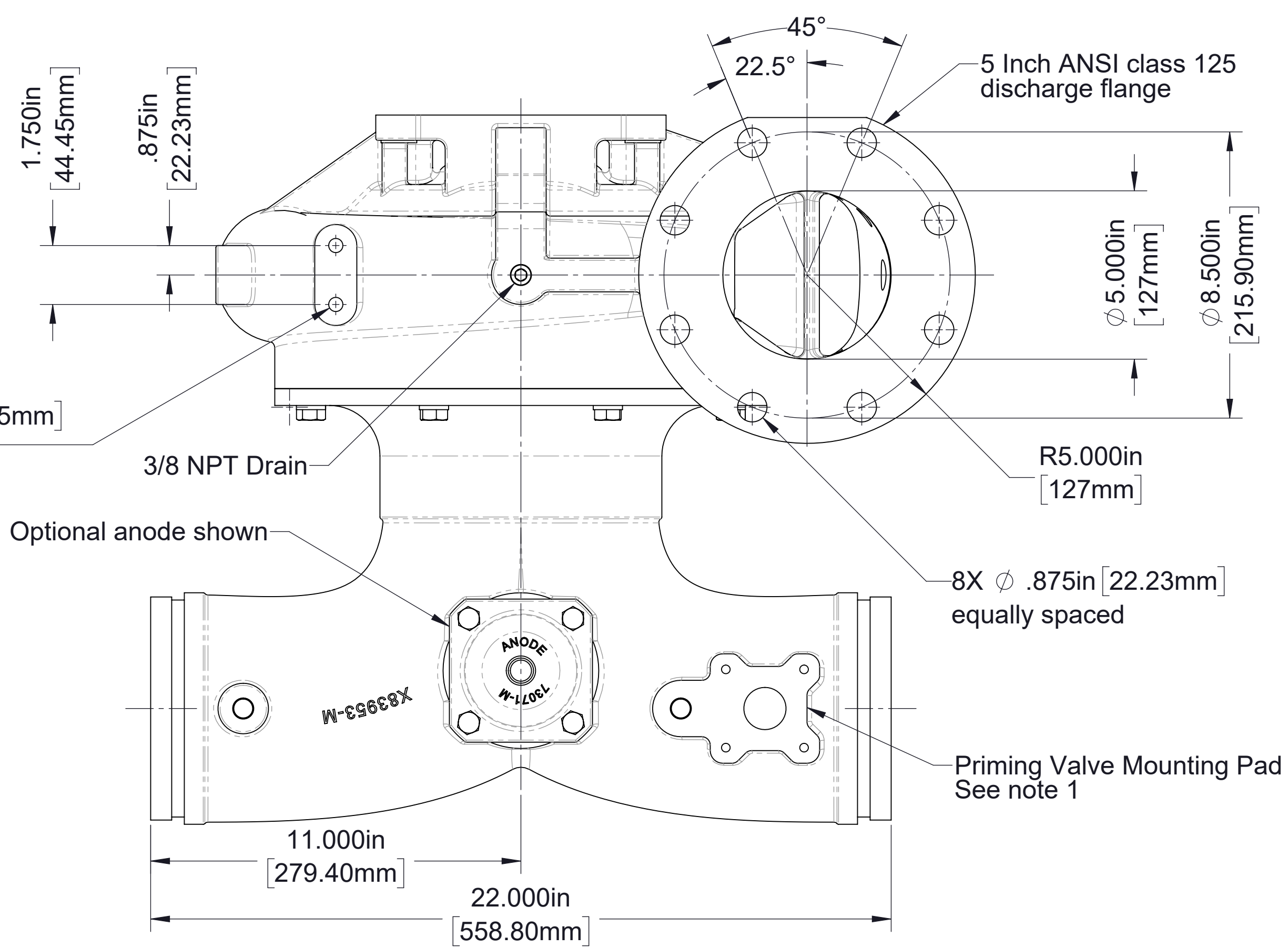
**ESU1 with Dual 6 in. Victaulic® Intake Body Dimensions**

CW Impeller Rotation  
 Shown with blank 5 in. ANSI flange discharge  
 See pages 7 & 8 for optional discharge manifolds

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



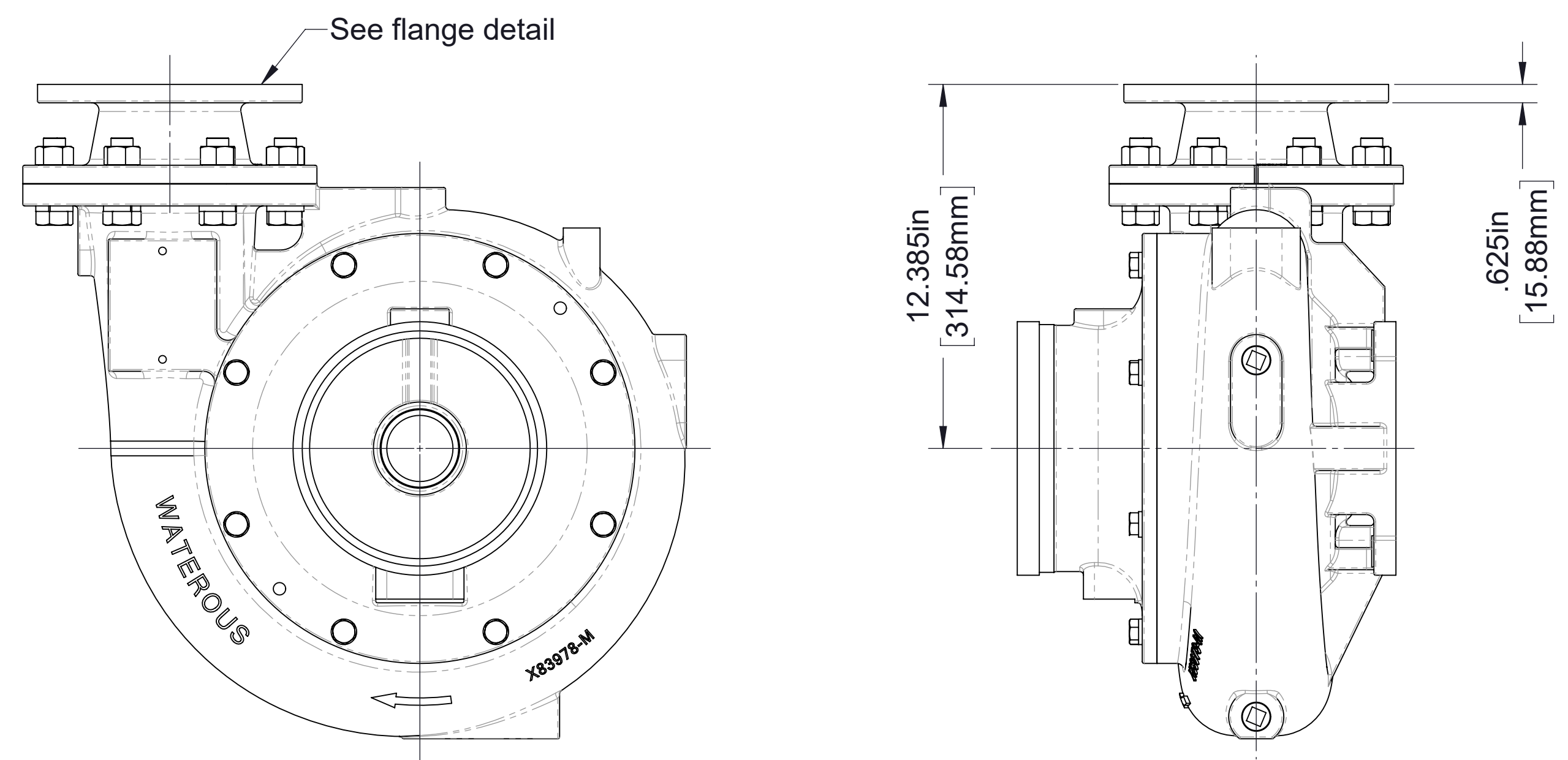
2X 1/2-13 UNC - 2B  $\nabla$  .625in [15.88mm] mounting holes



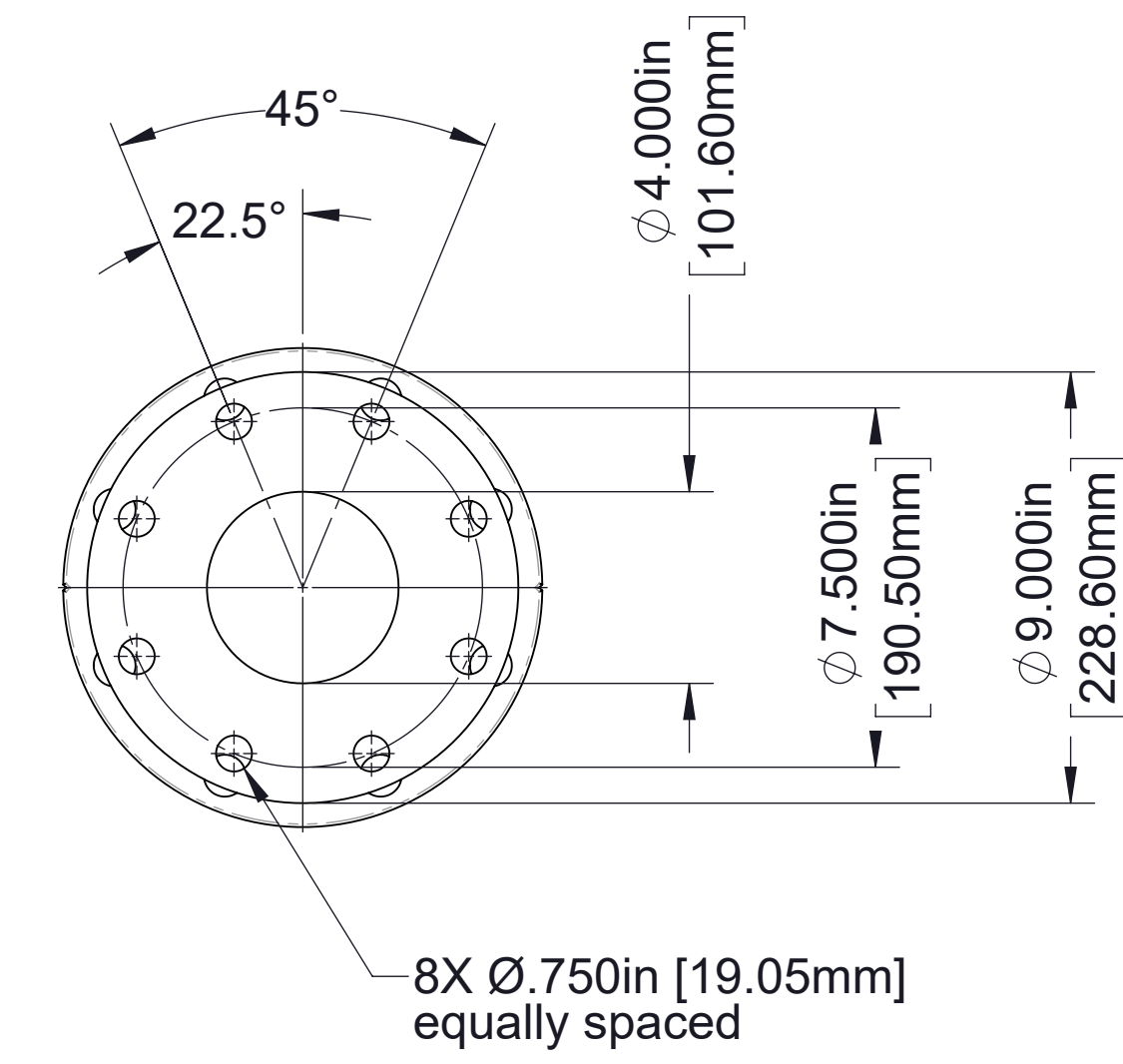
**ESU1 with Dual 6 in. Victaulic® Intake Body Dimensions**

CCW Impeller Rotation  
 Shown with blank 5 in. ANSI flange discharge  
 See pages 7 & 8 for optional discharge manifolds

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

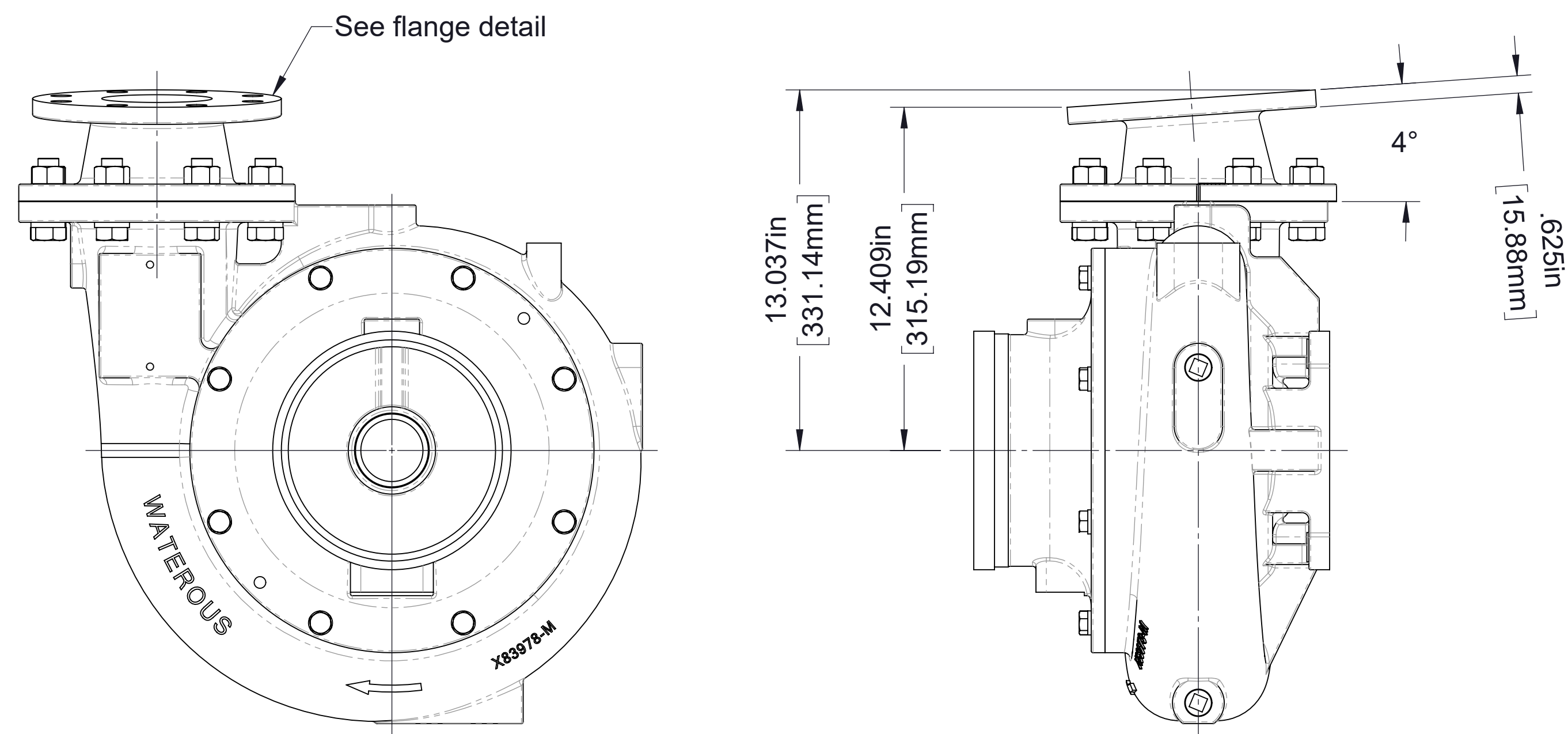


**Non-Angle  
Compensated**  
-ESU1C22  
-ESU1D

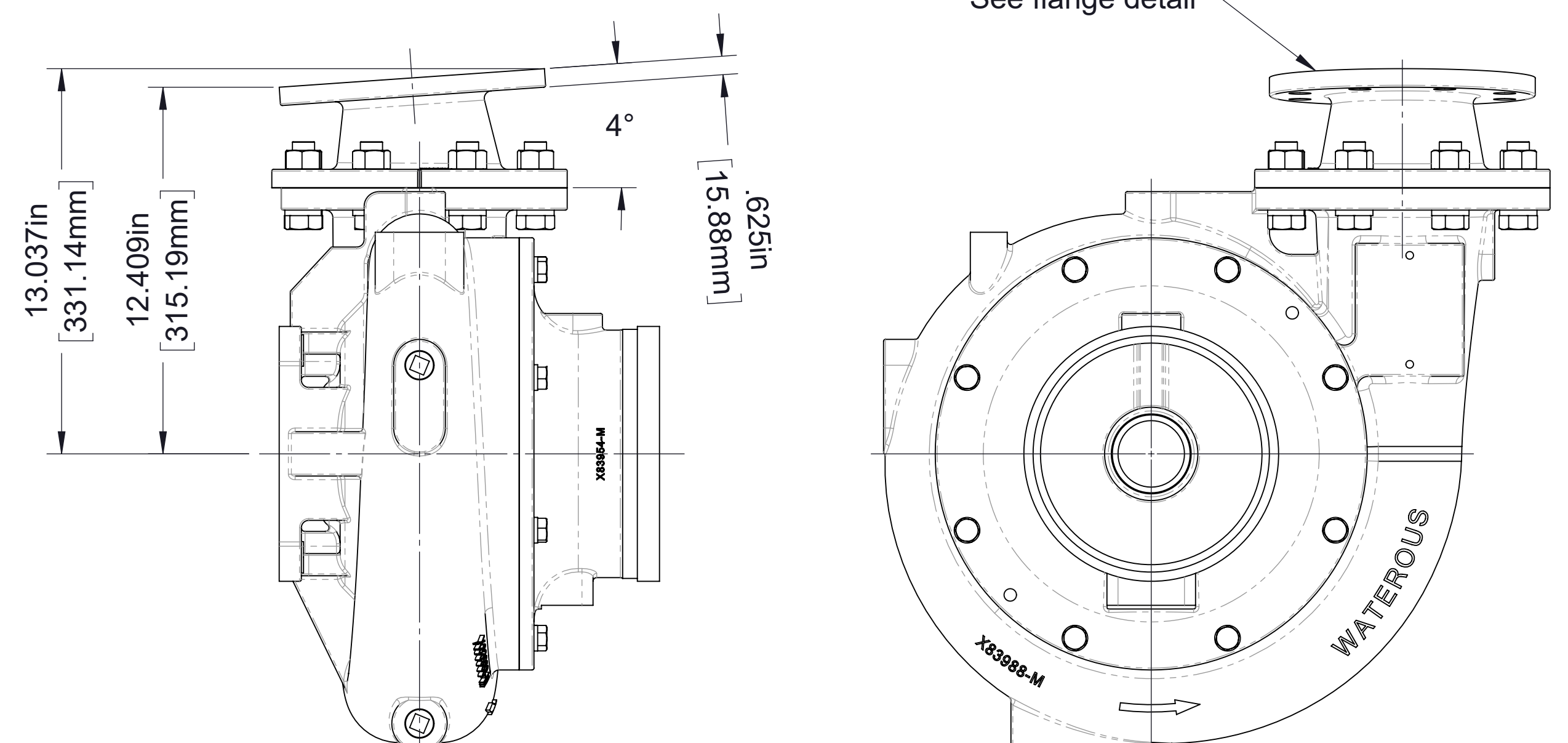


4 in. ANSI Flange Detail

**CW or CCW Impeller Rotation  
(CW Shown)**

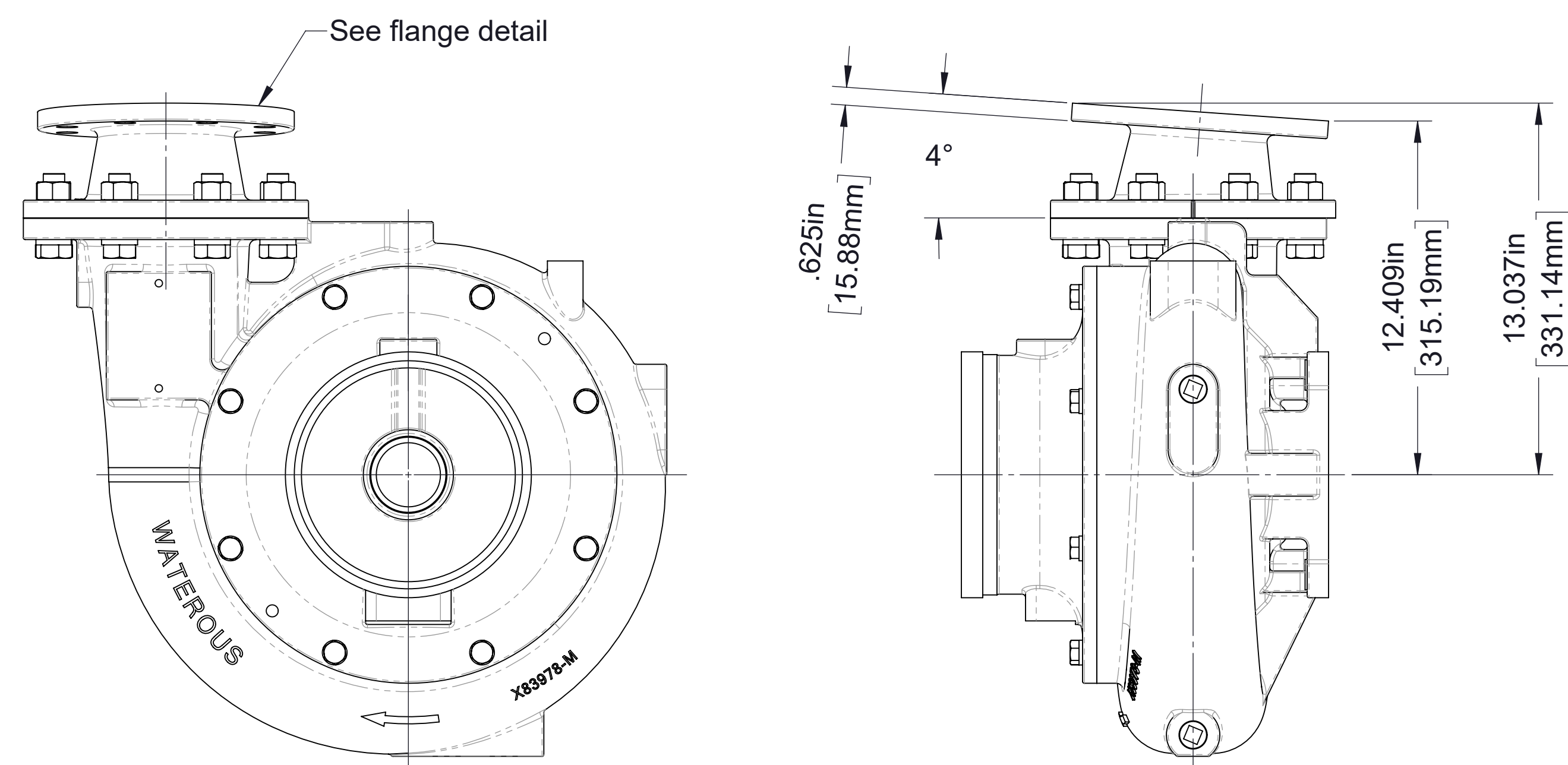


**Angle  
Compensated**  
-ESU1C22

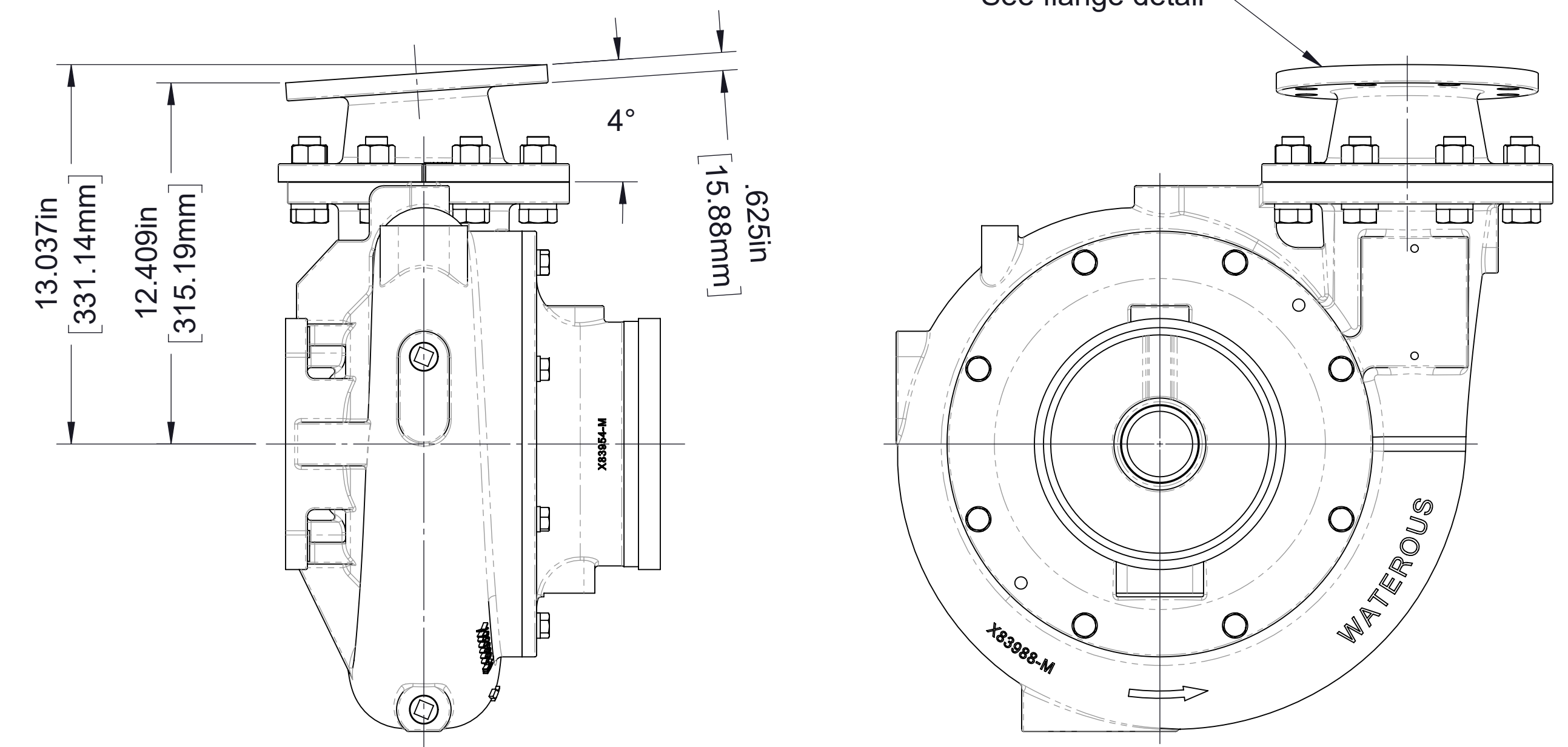


**CCW Impeller Rotation**

**CW Impeller Rotation**

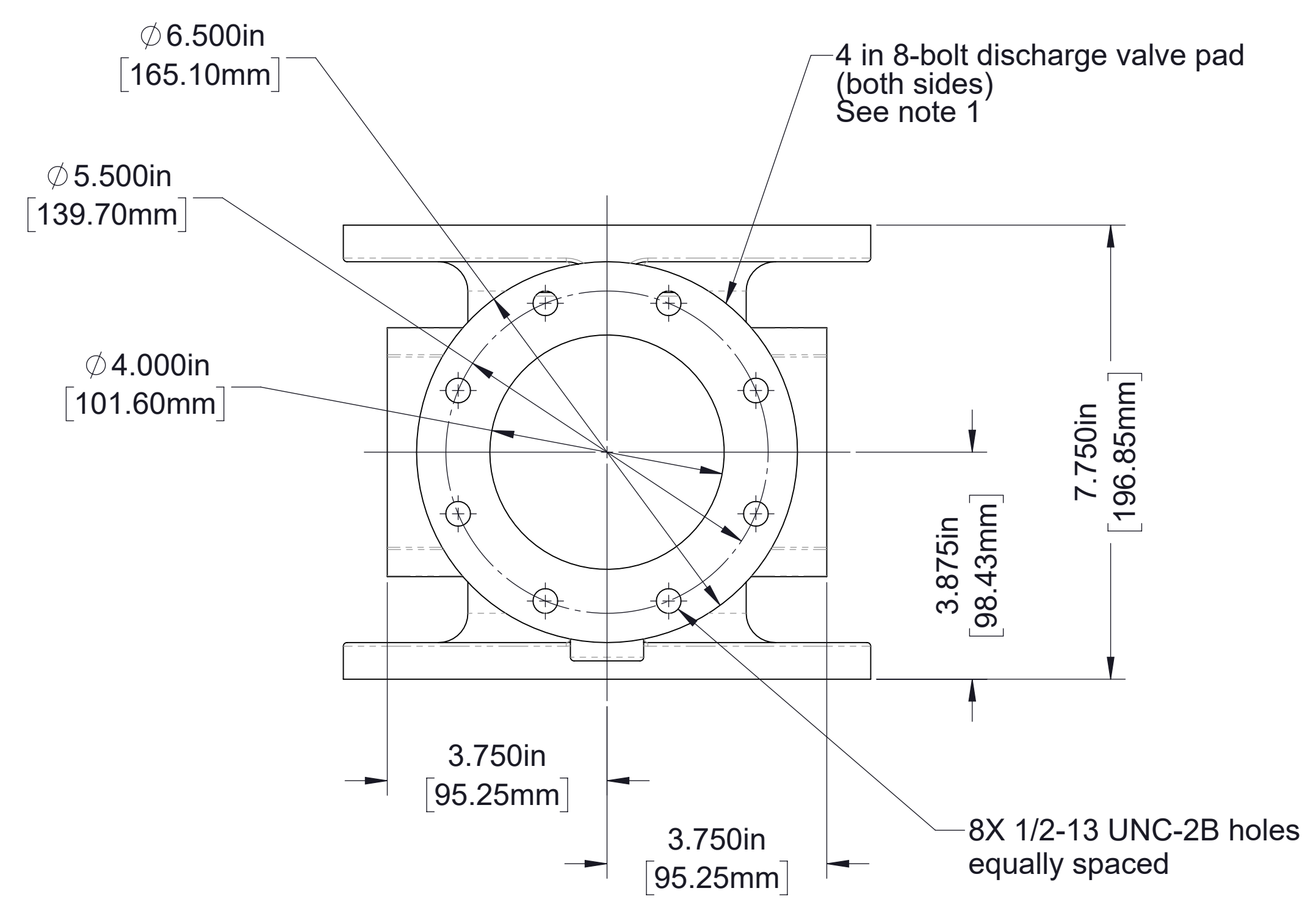
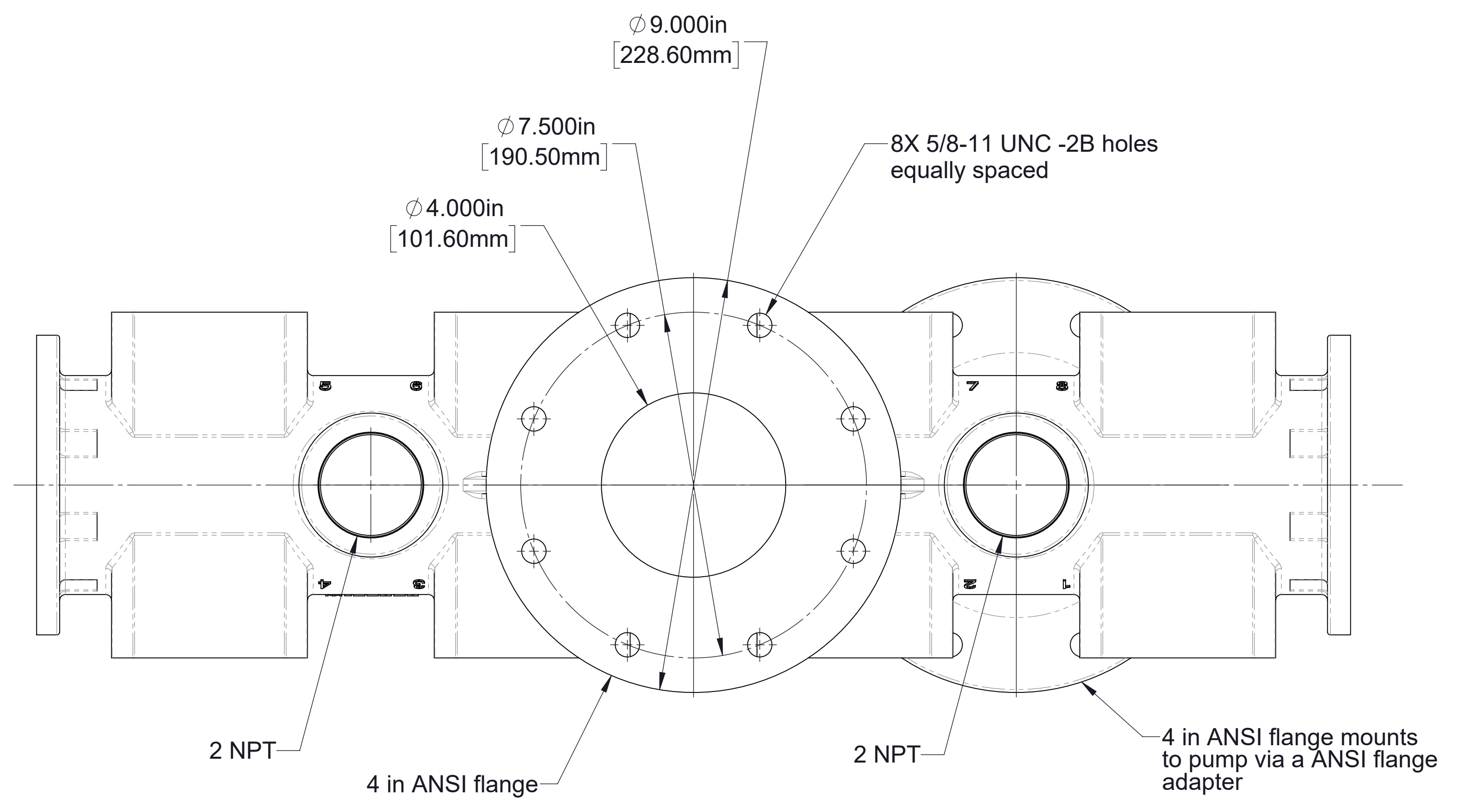
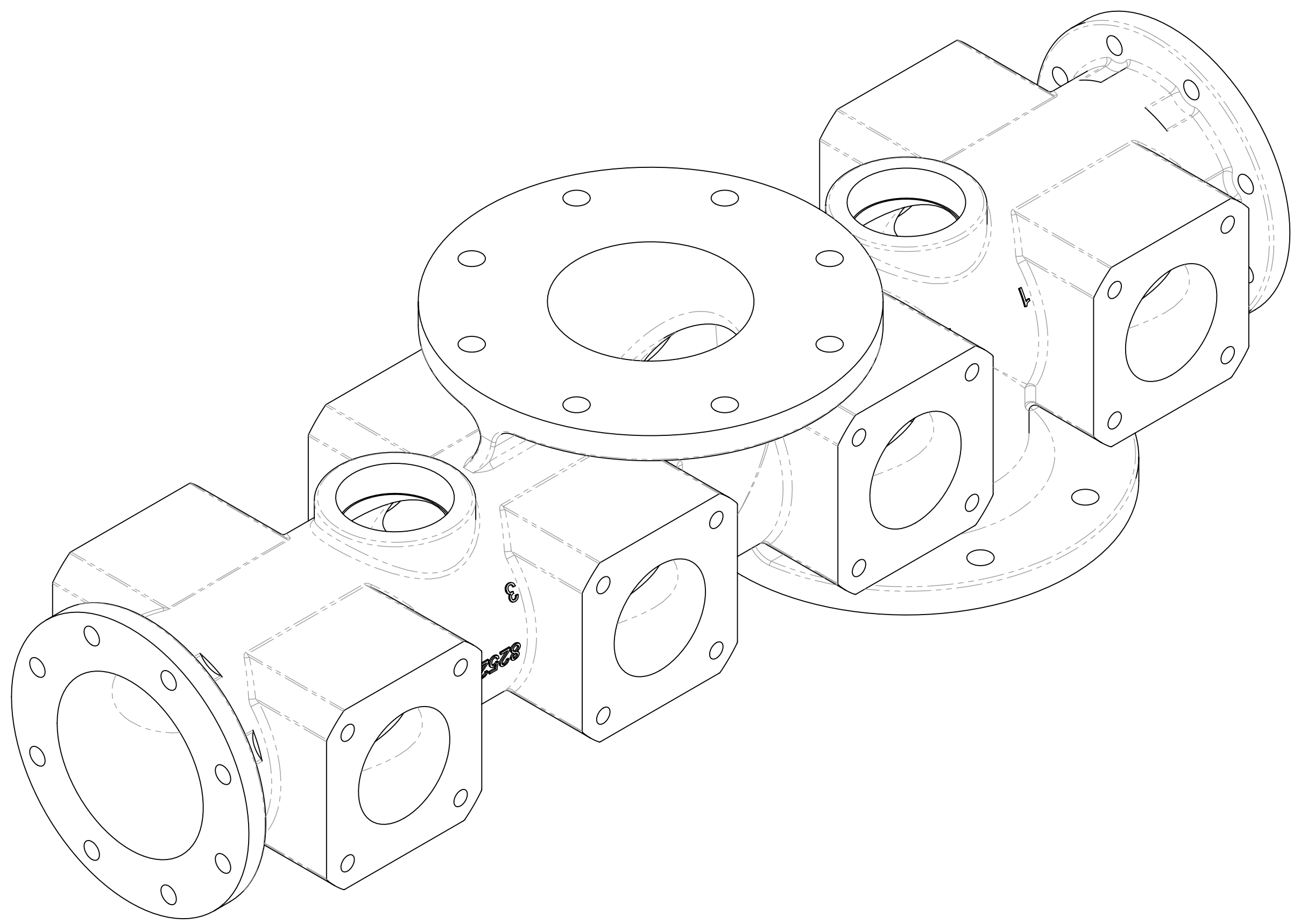


**Angle  
Compensated**  
-ESU1D

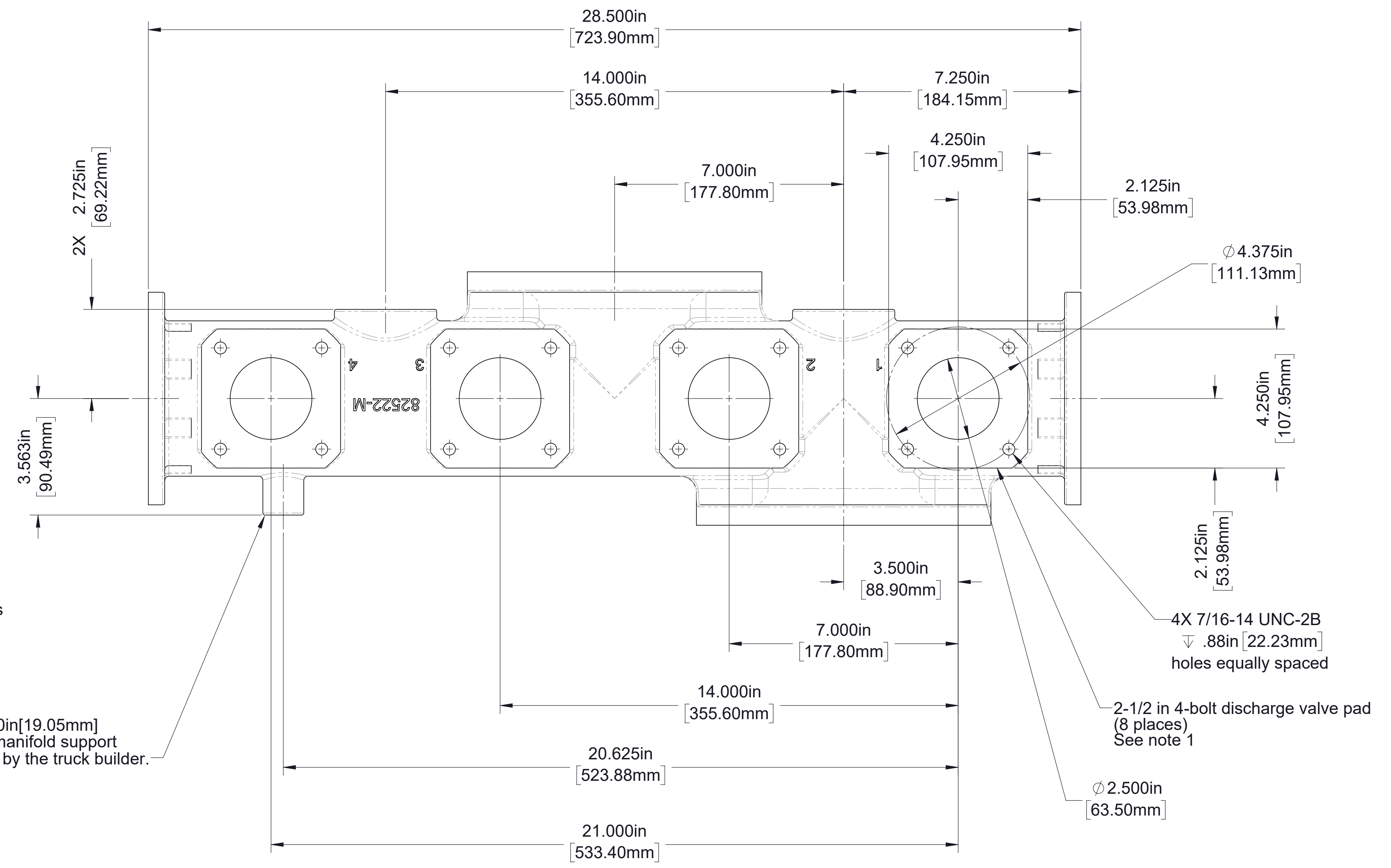


**CCW Impeller Rotation**

**CW Impeller Rotation**



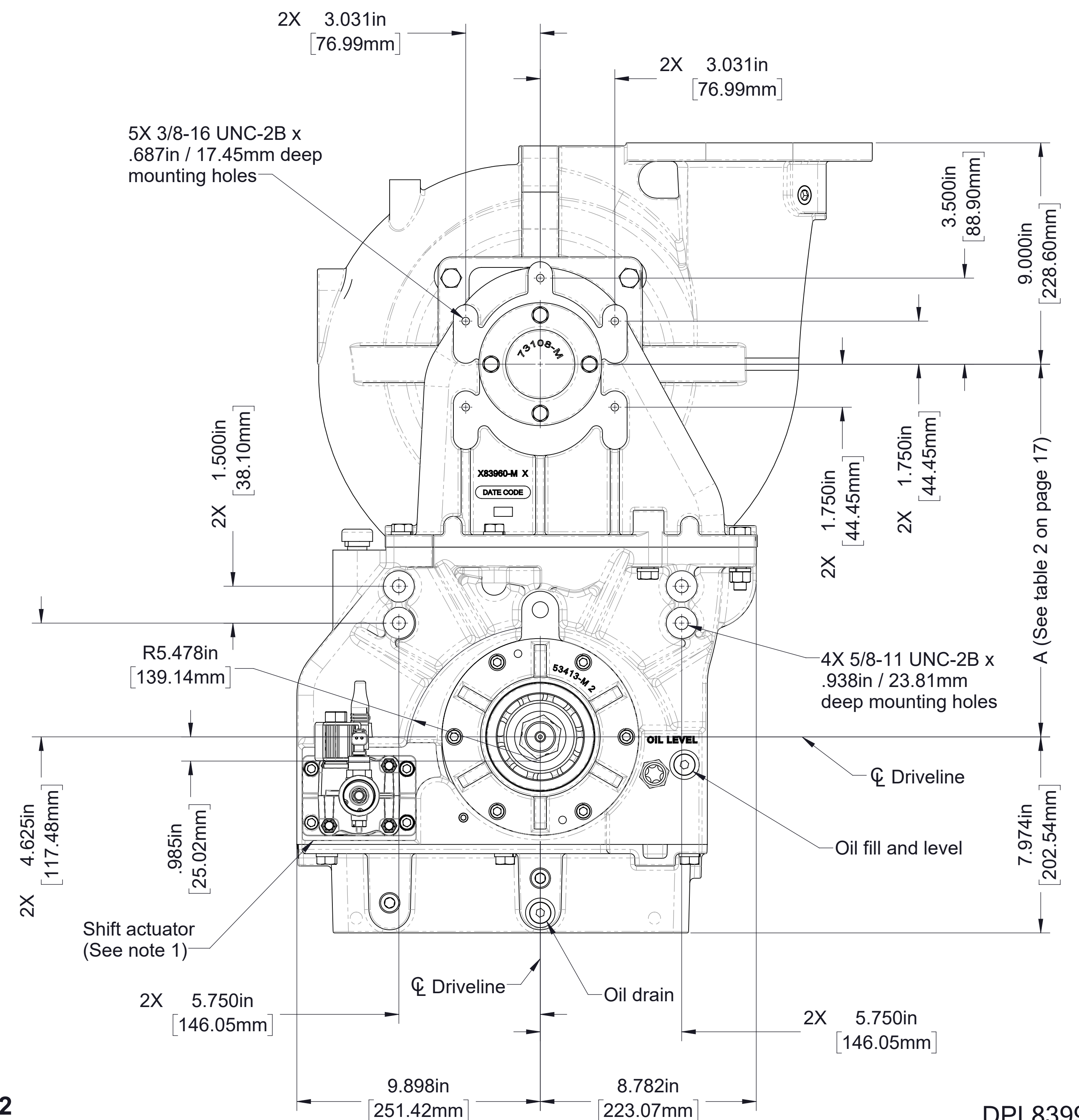
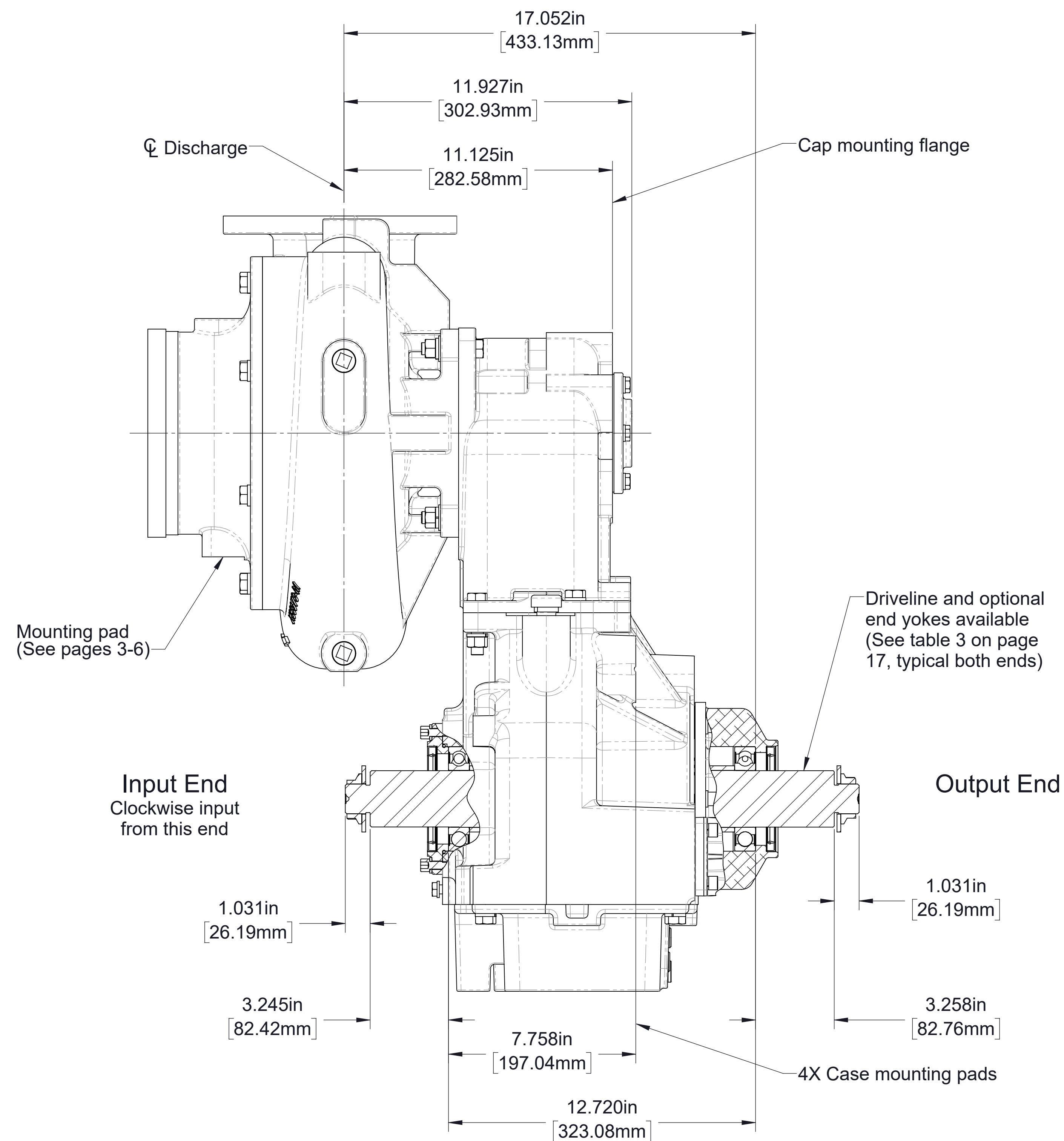
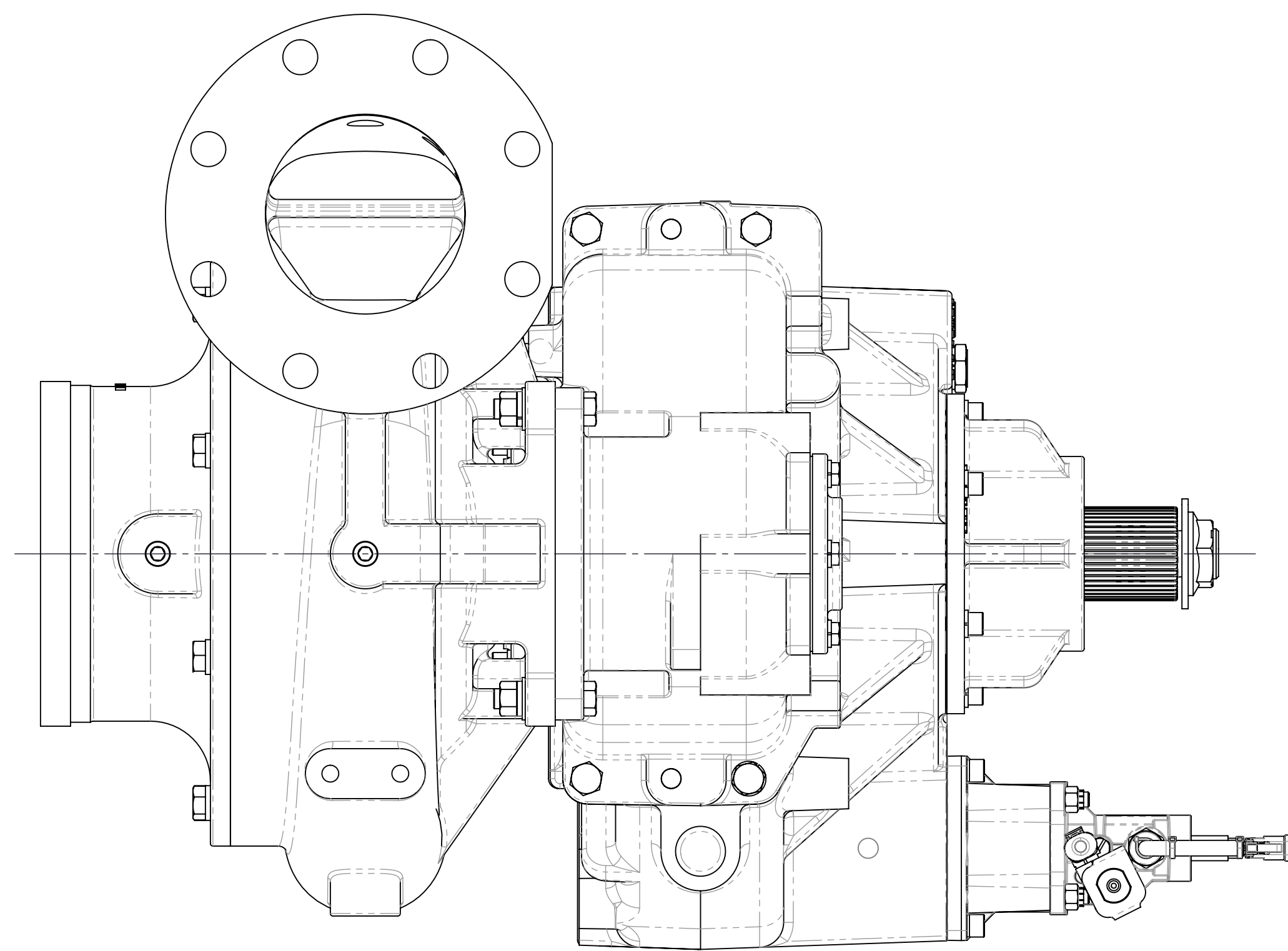
1/2-13 UNC-2B  $\nabla .750\text{in}$  [19.05mm] for use in attaching a manifold support bracket to be provided by the truck builder.



Note:  
1. see DPL82088 for information on ordering discharge valves and fittings.

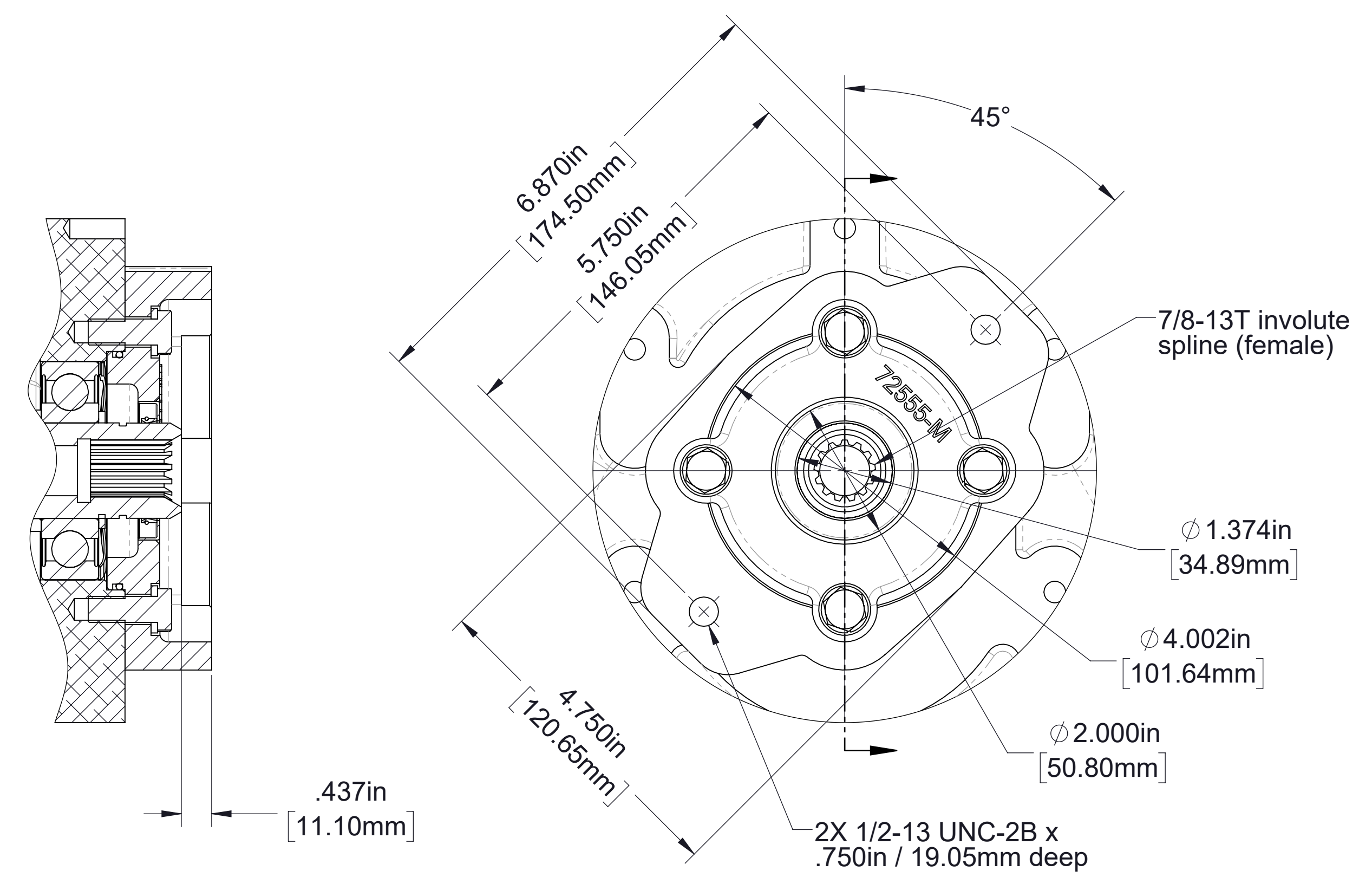
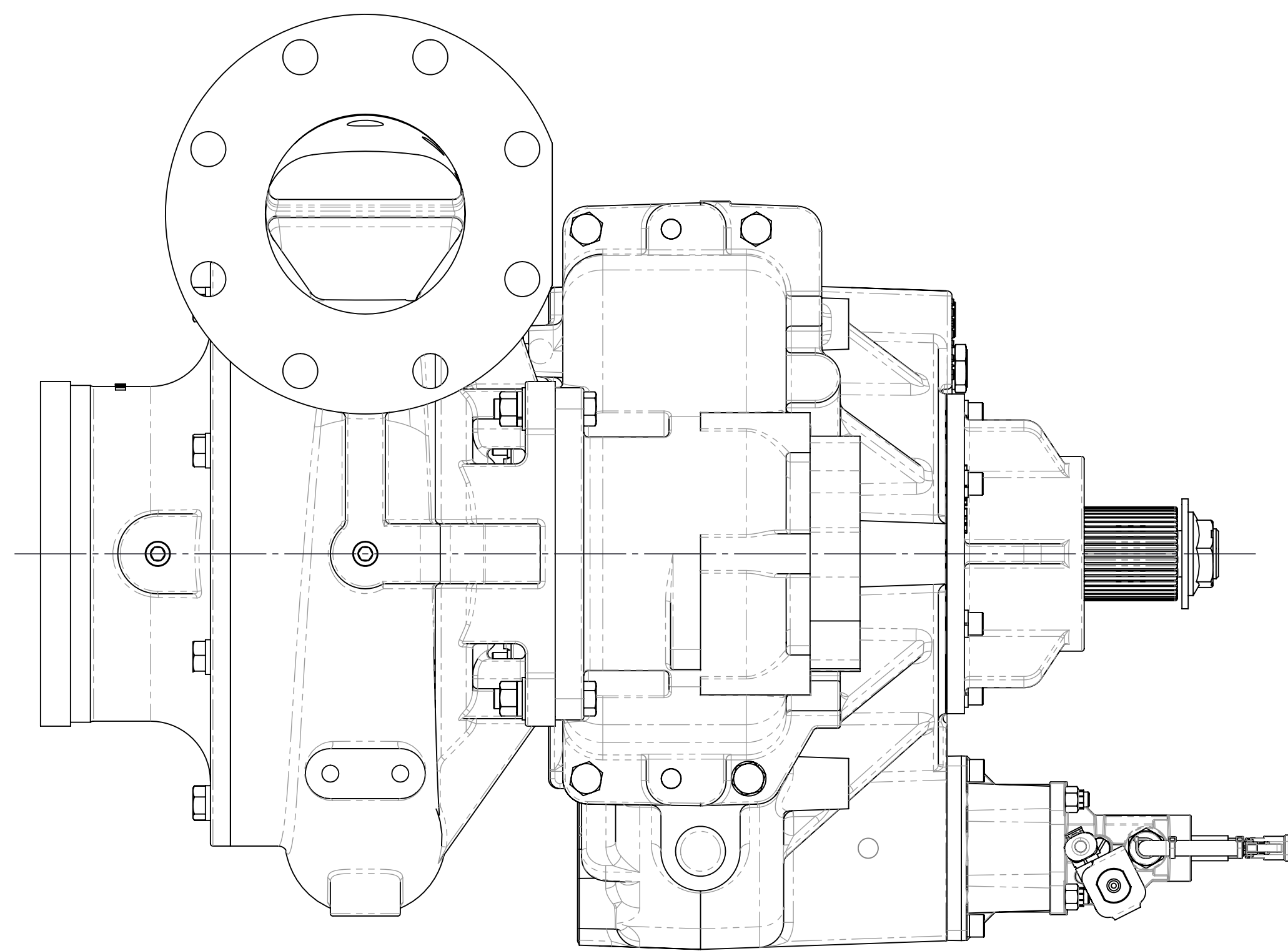
**Optional Discharge Manifold**  
See pages 21-28 for mounting details and pad designations



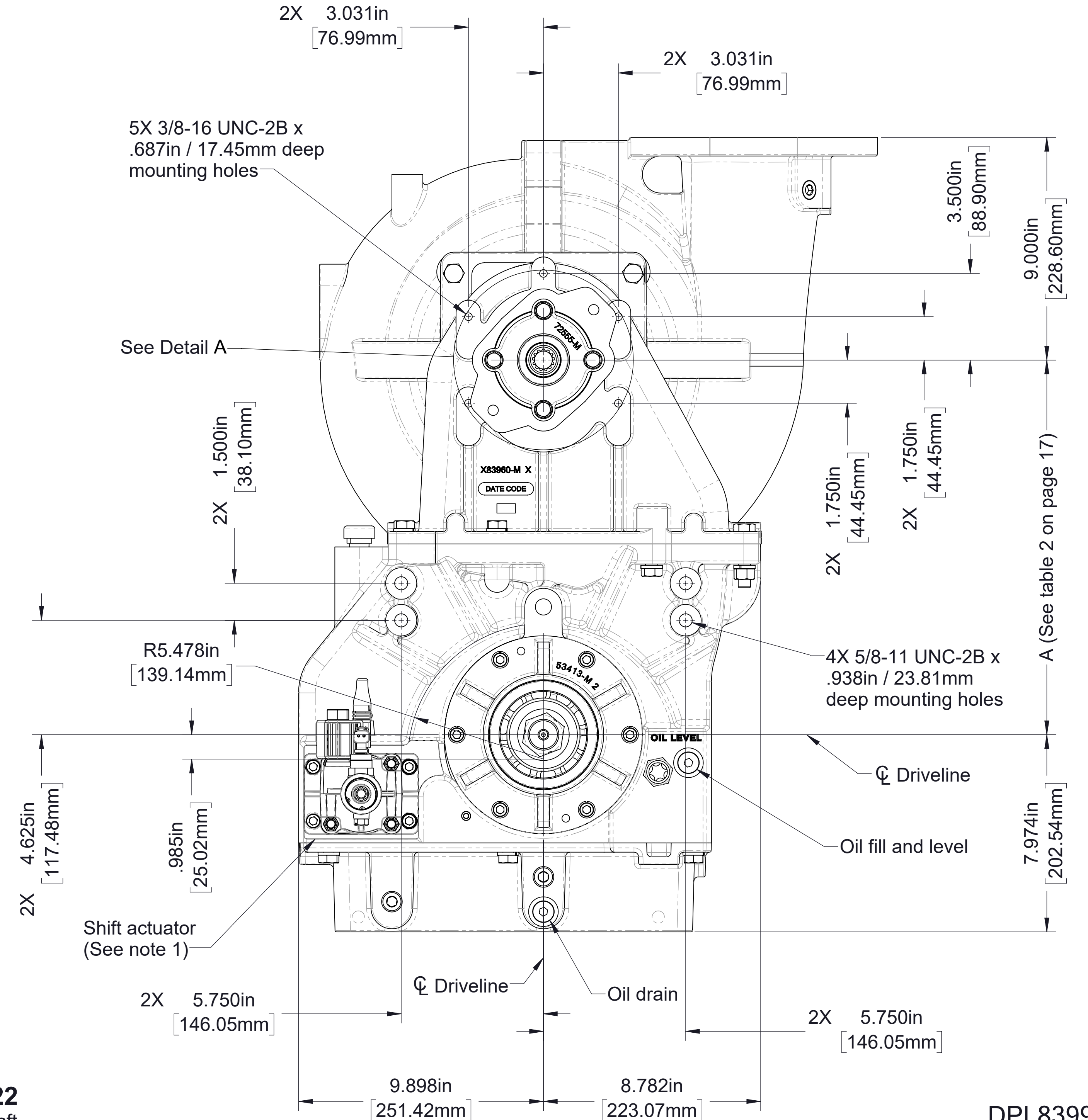
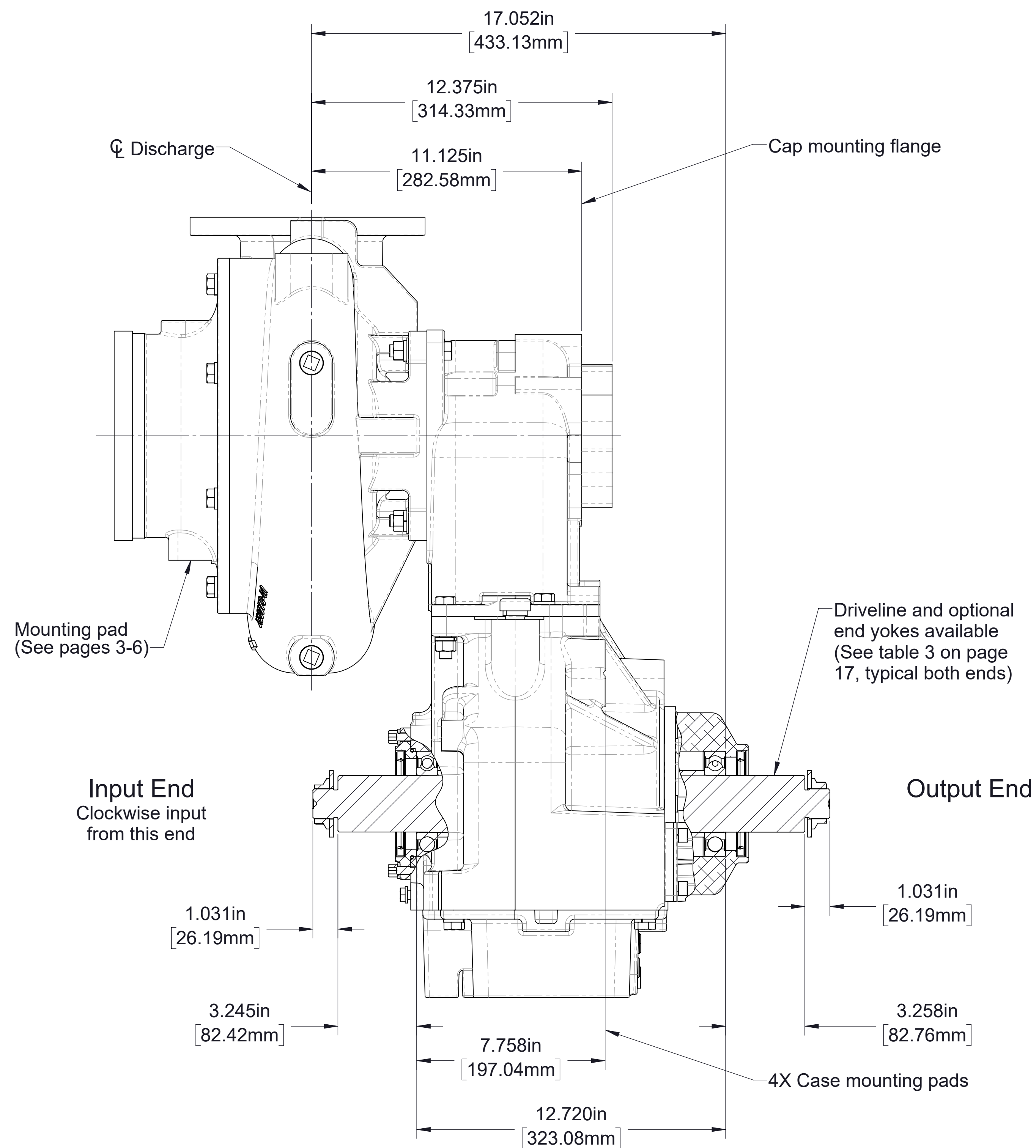


Note:  
1. See drawing DPL82086 for pneumatic shift actuator details.

**Model ESU1C22**  
 Input and Output Shaft  
 Pump mounted on front (Input shaft side) of transmission  
 Clockwise input, model ESU1C22D, 2.27 ratio, single intake, and blank discharge shown

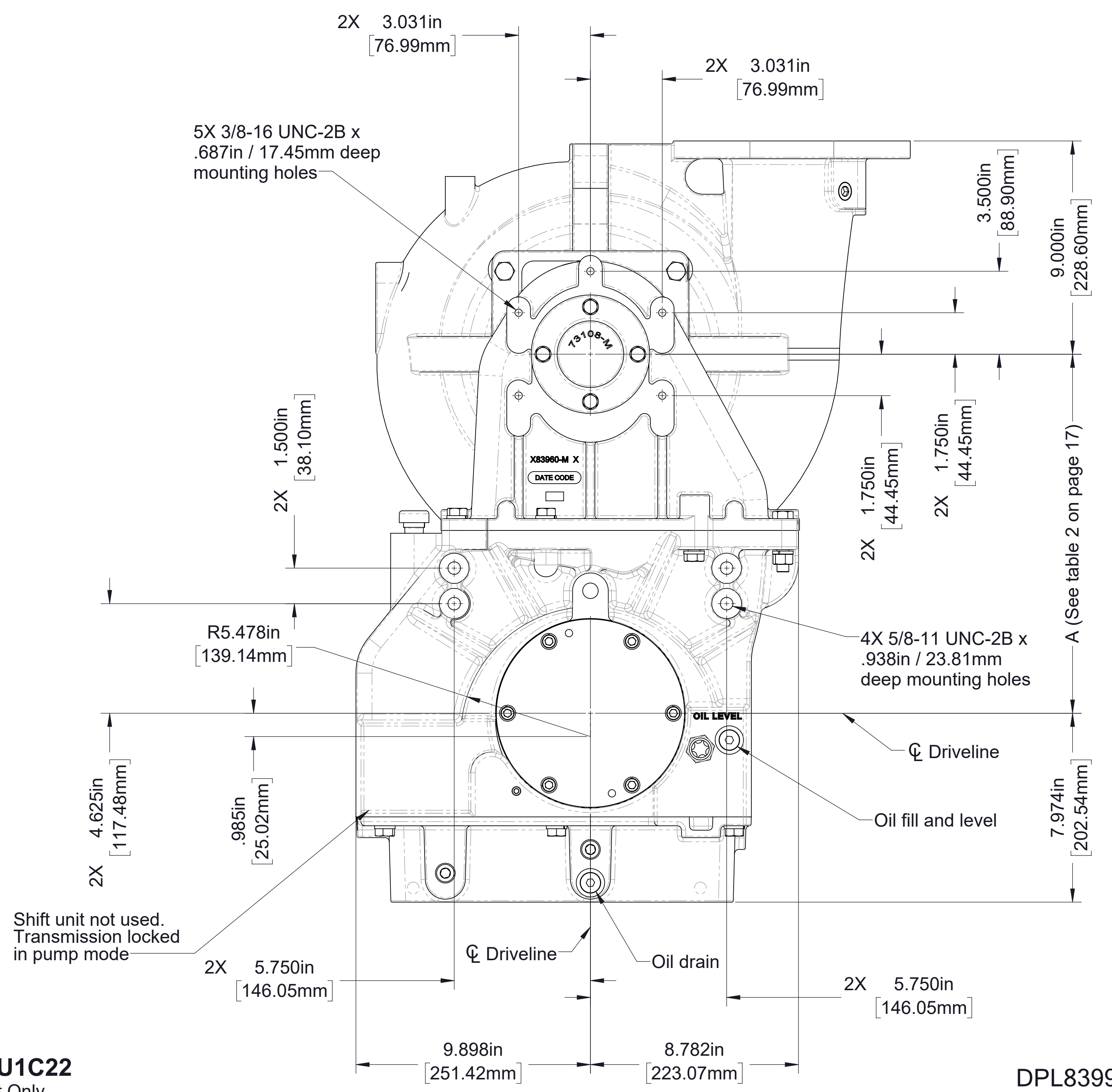
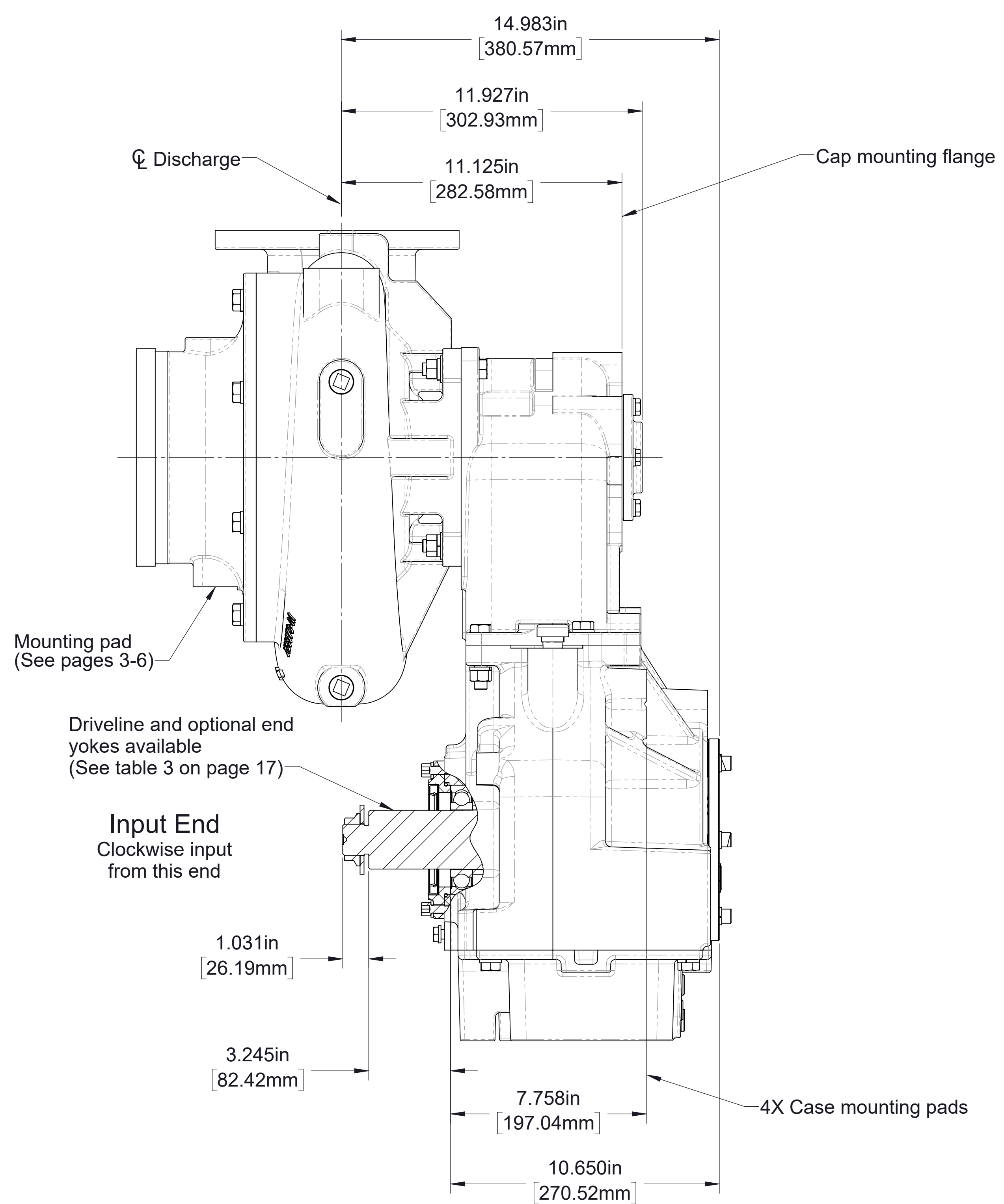
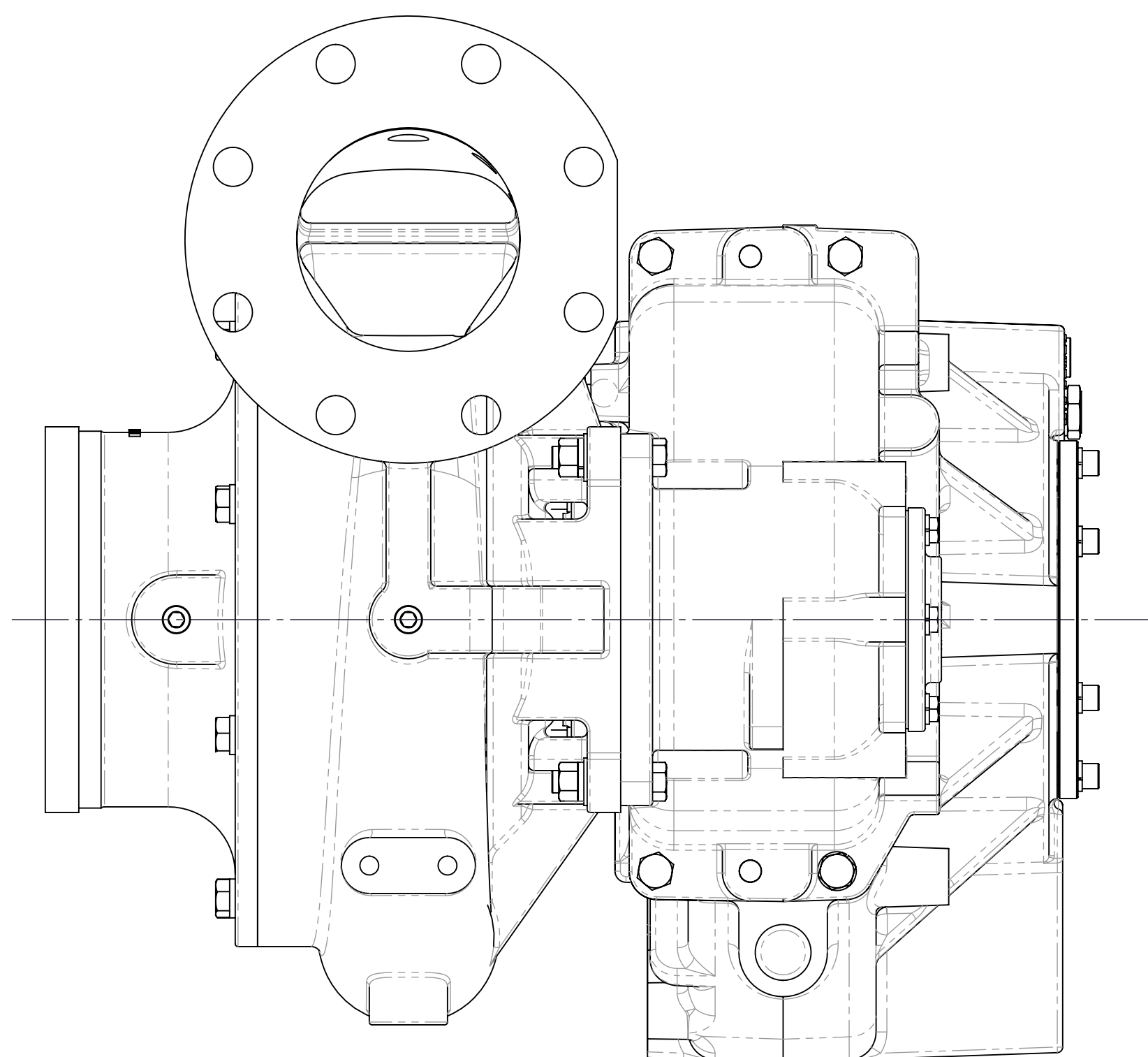


**Detail A**  
Hydraulic Pump Adapter Flange  
Used for SAE J744 class B 2-bolt hydraulic pump  
with male 7/8-13T 16/32 pitch involute spline

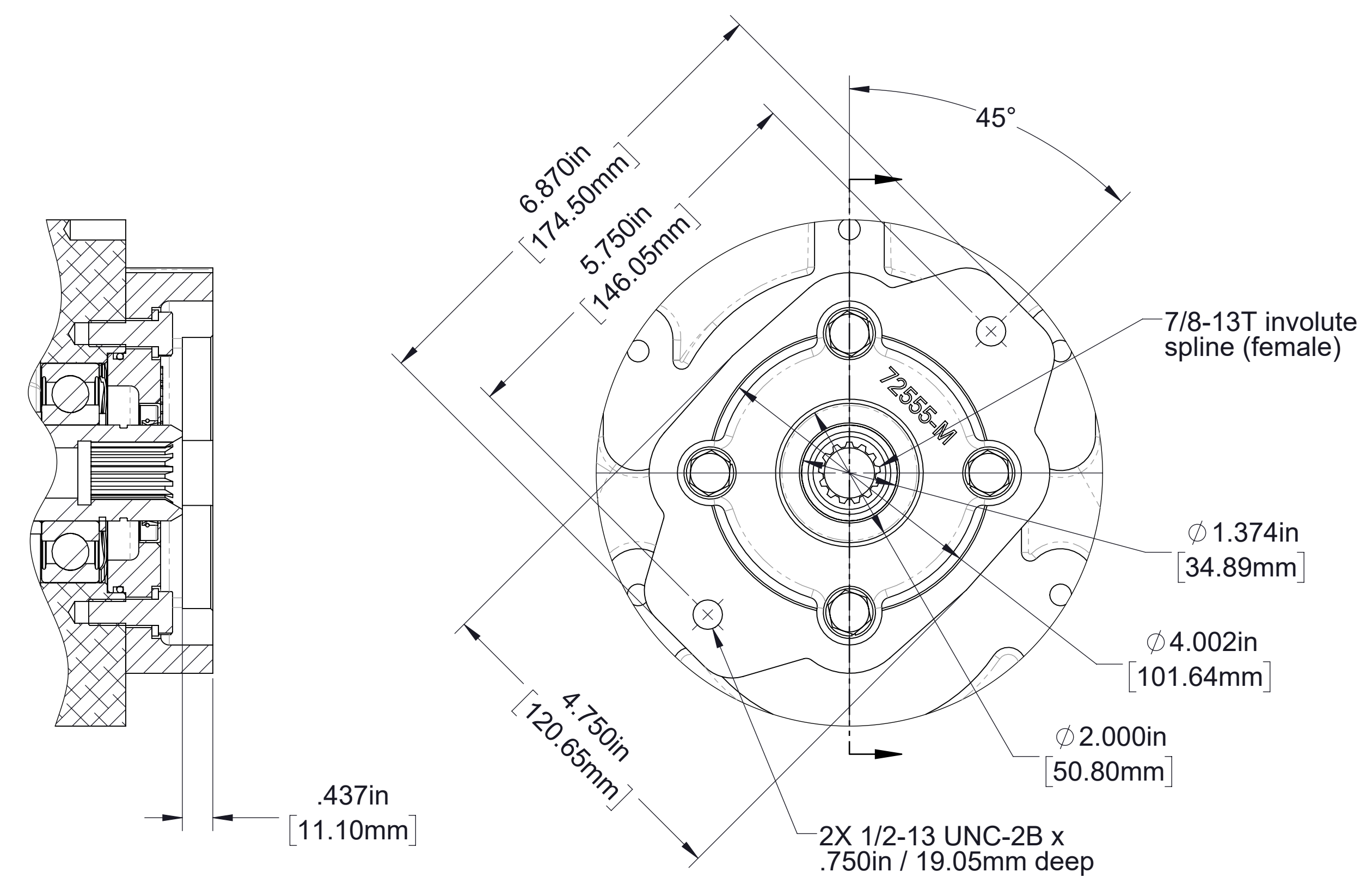
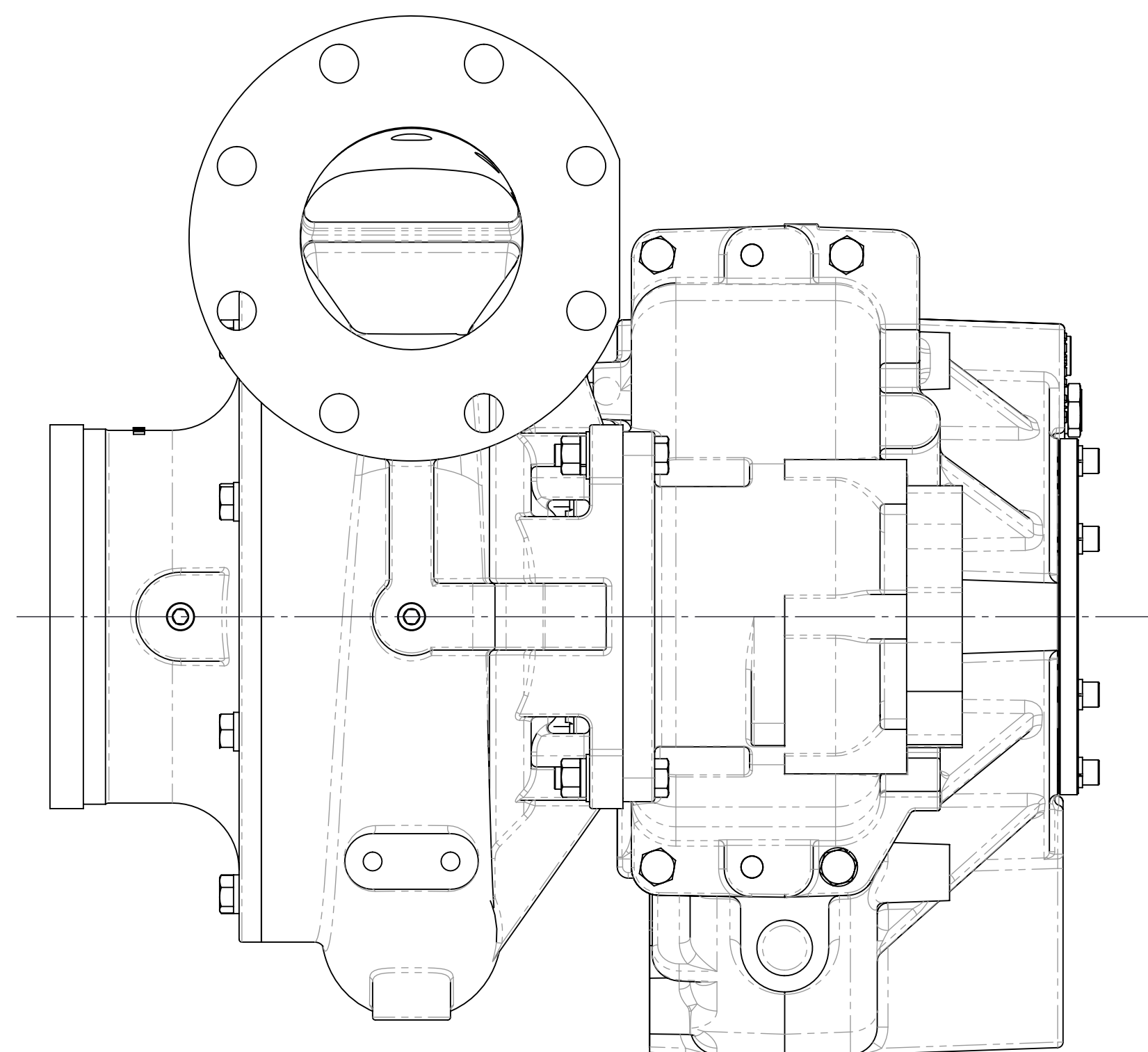


Note:  
1. See drawing DPL82086 for pneumatic shift actuator details.

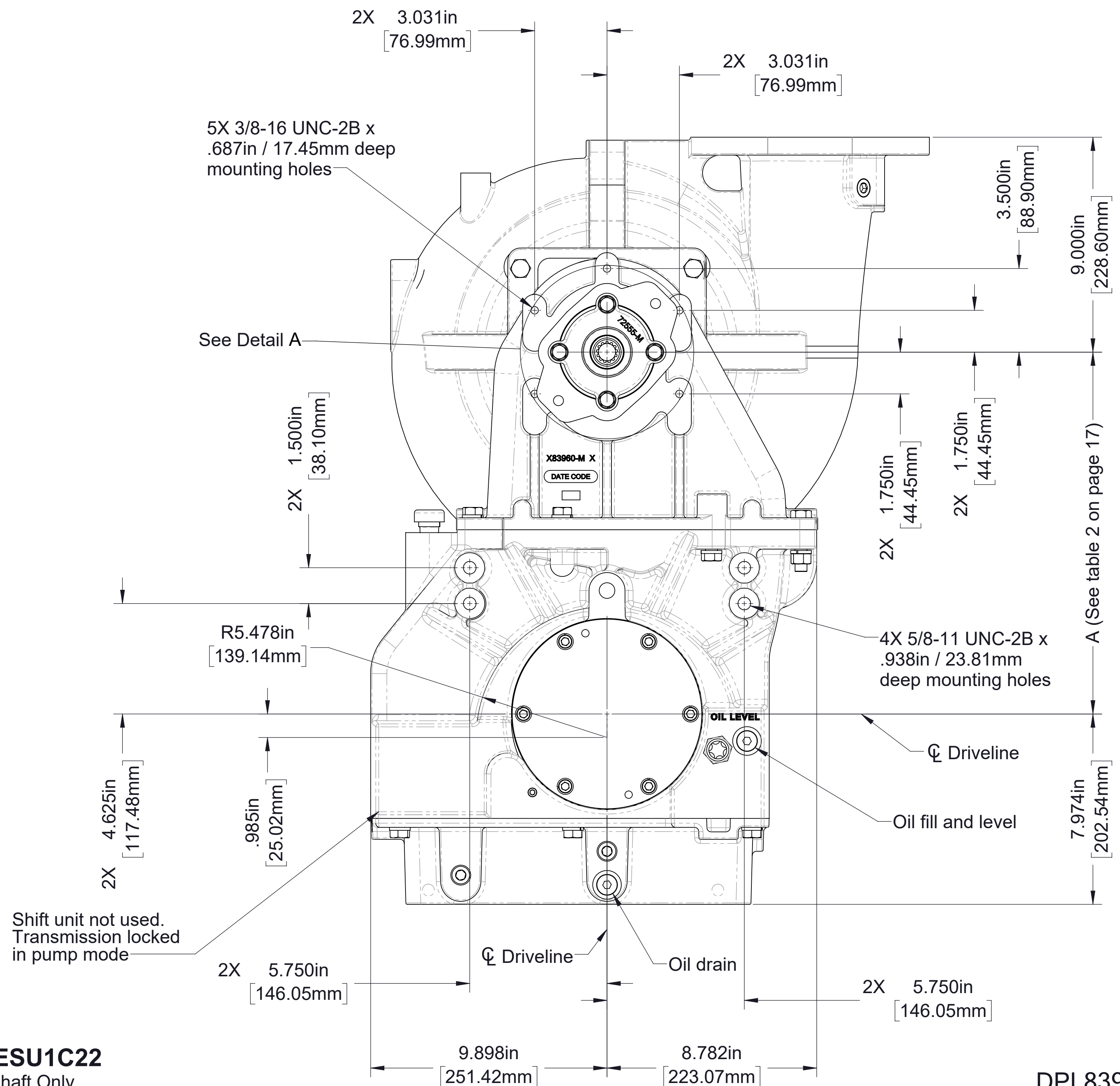
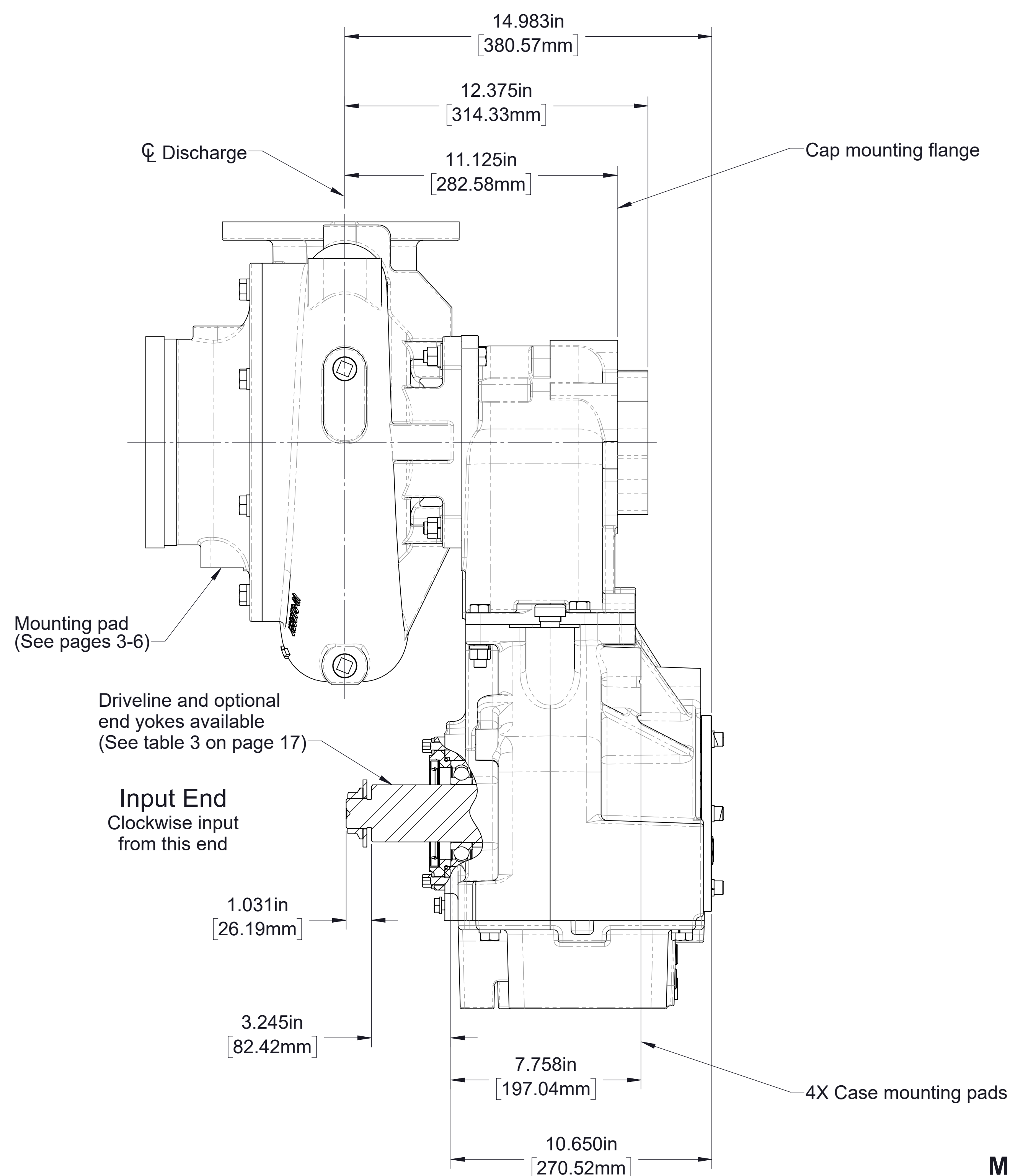
**Model ESU1C22**  
Input and Output Shaft  
Pump mounted on front (Input shaft side) of transmission  
With optional hydraulic motor mount provision  
Clockwise input, model ESU1C22D, 2.27 ratio, single intake, and blank discharge shown



**Model ESU1C22**  
 Input Shaft Only  
 Pump mounted on front (Input shaft side) of transmission  
 Clockwise input, model ESU1C22D, 2.27 ratio, single intake, and blank discharge shown



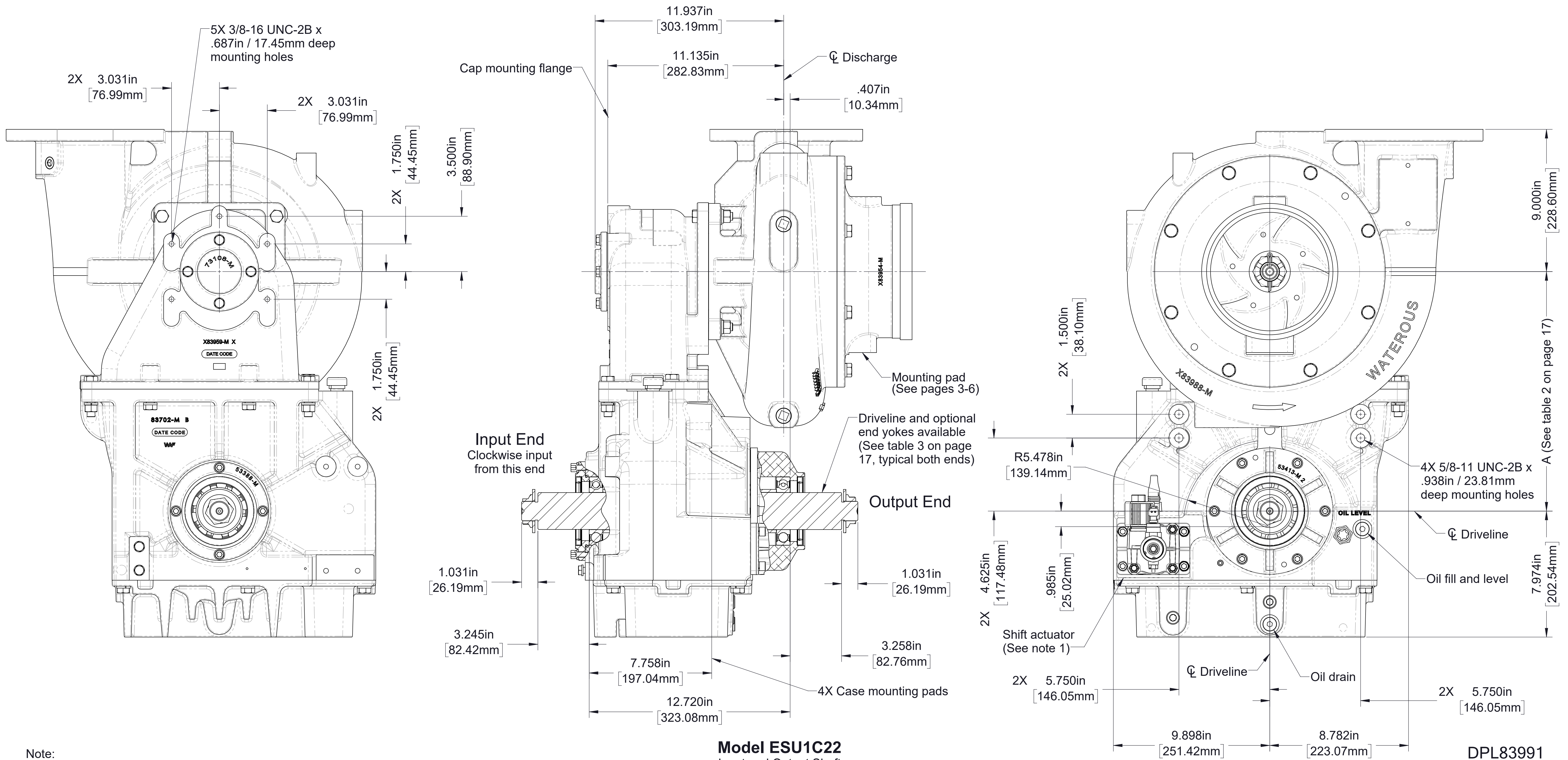
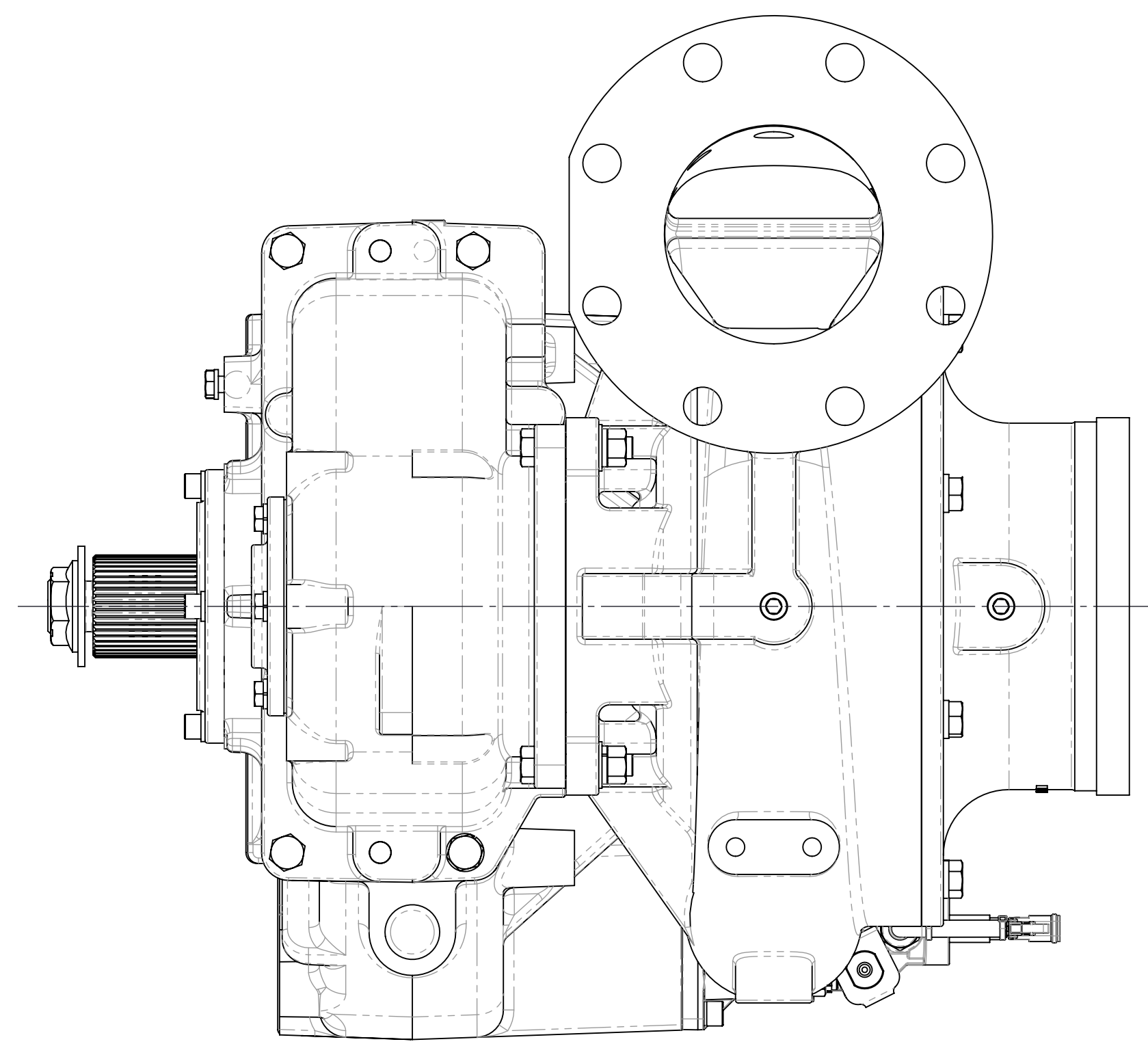
**Detail A**  
 Hydraulic Pump Adapter Flange  
 Used for SAE J744 class B 2-bolt hydraulic pump  
 with male 7/8-13T 16/32 pitch involute spline



**Model ESU1C22**

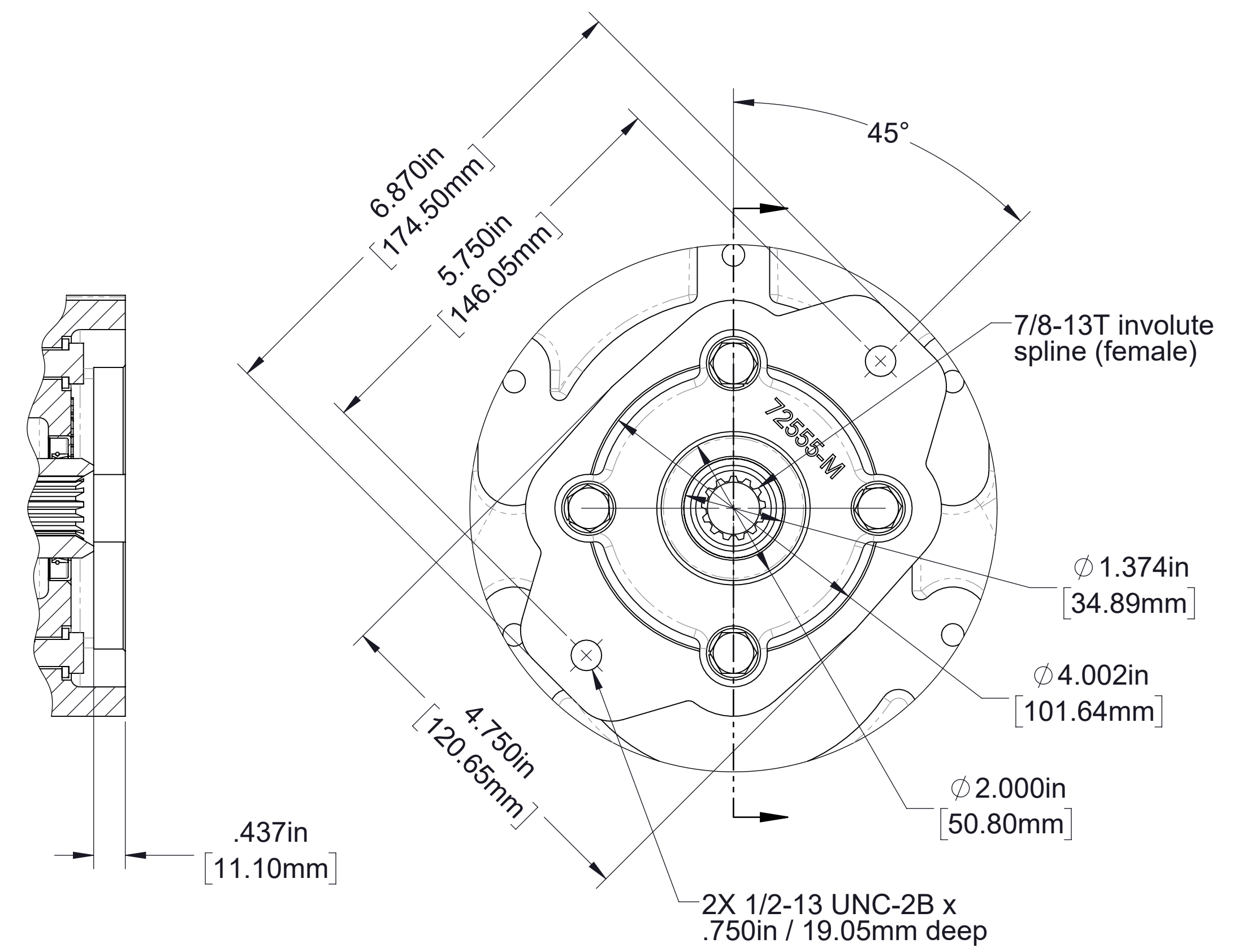
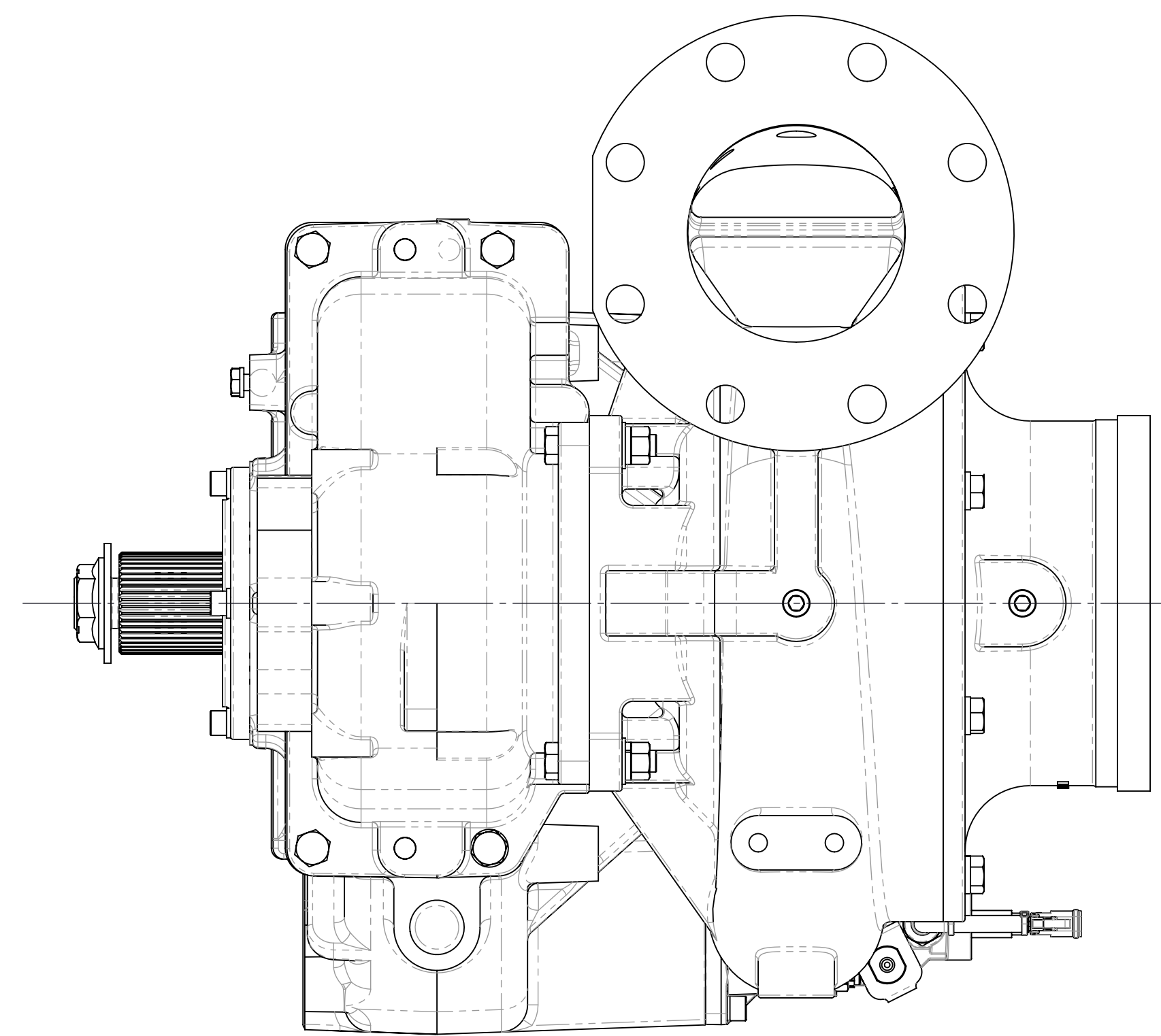
Input Shaft Only

Pump mounted on front (Input shaft side) of transmission  
 With optional hydraulic motor mount provision  
 Clockwise input, model ESU1C22D, 2.27 ratio, single intake, and blank discharge shown

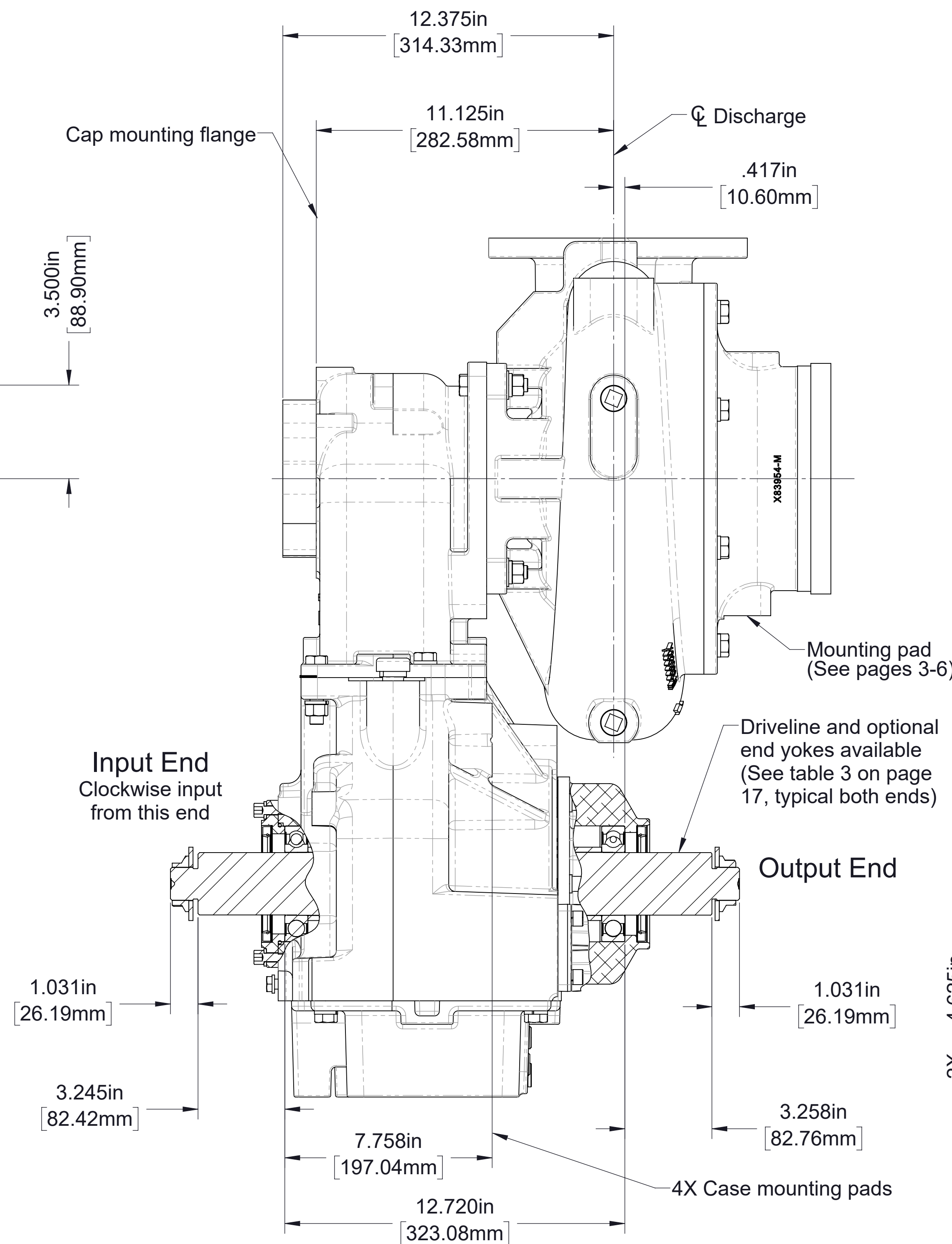
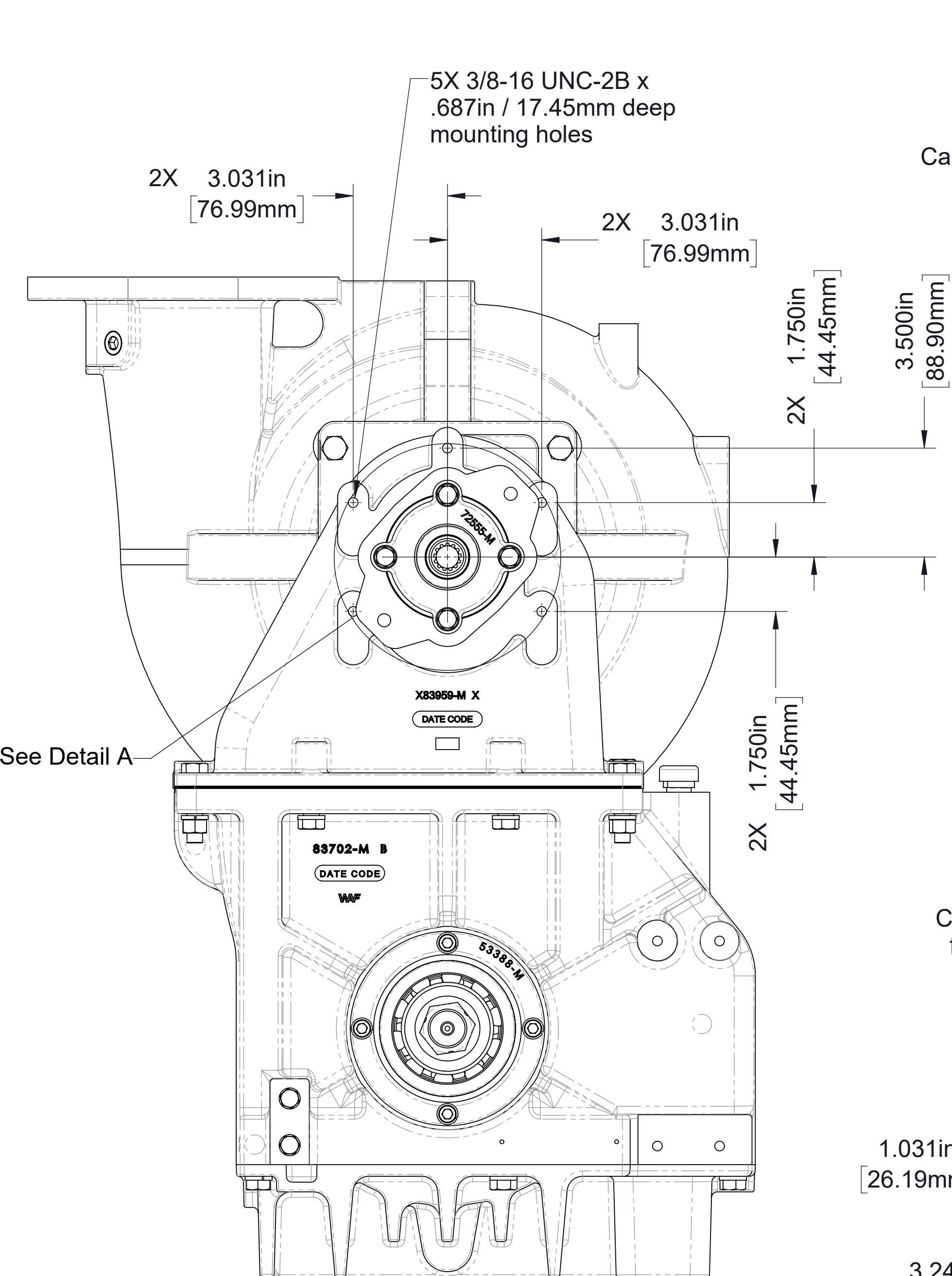


Note:  
1. See drawing DPL82086 for pneumatic shift actuator details.

**Model ESU1C22**  
Input and Output Shaft  
Pump mounted on rear (Output shaft side) of transmission  
Clockwise input, model ESU1C22D, 2.27 ratio, single intake, and blank discharge shown

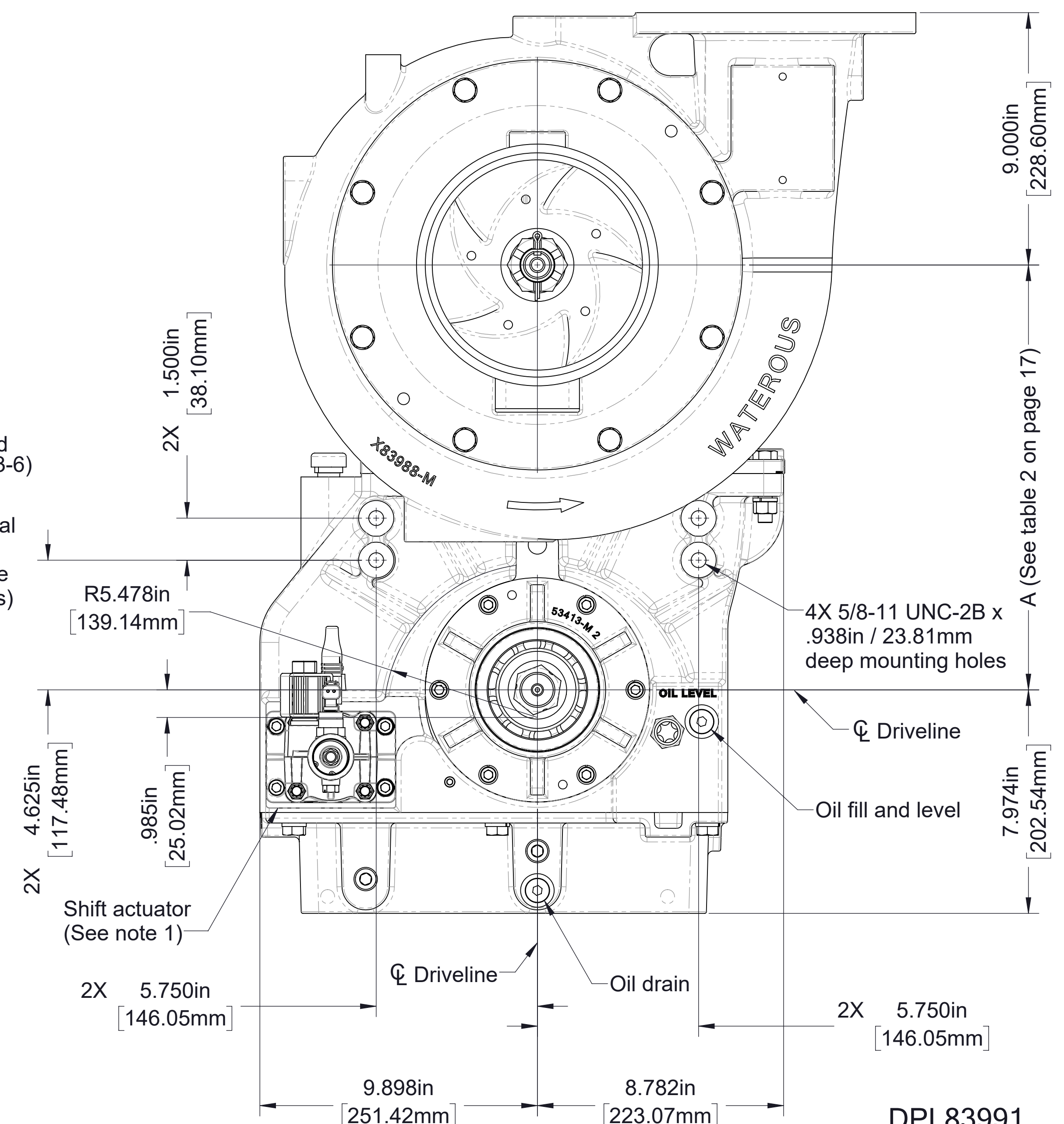


**Detail A**  
 Hydraulic Pump Adapter Flange  
 Used for SAE J744 class B 2-bolt hydraulic pump  
 with male 7/8-13T 16/32 pitch involute spline

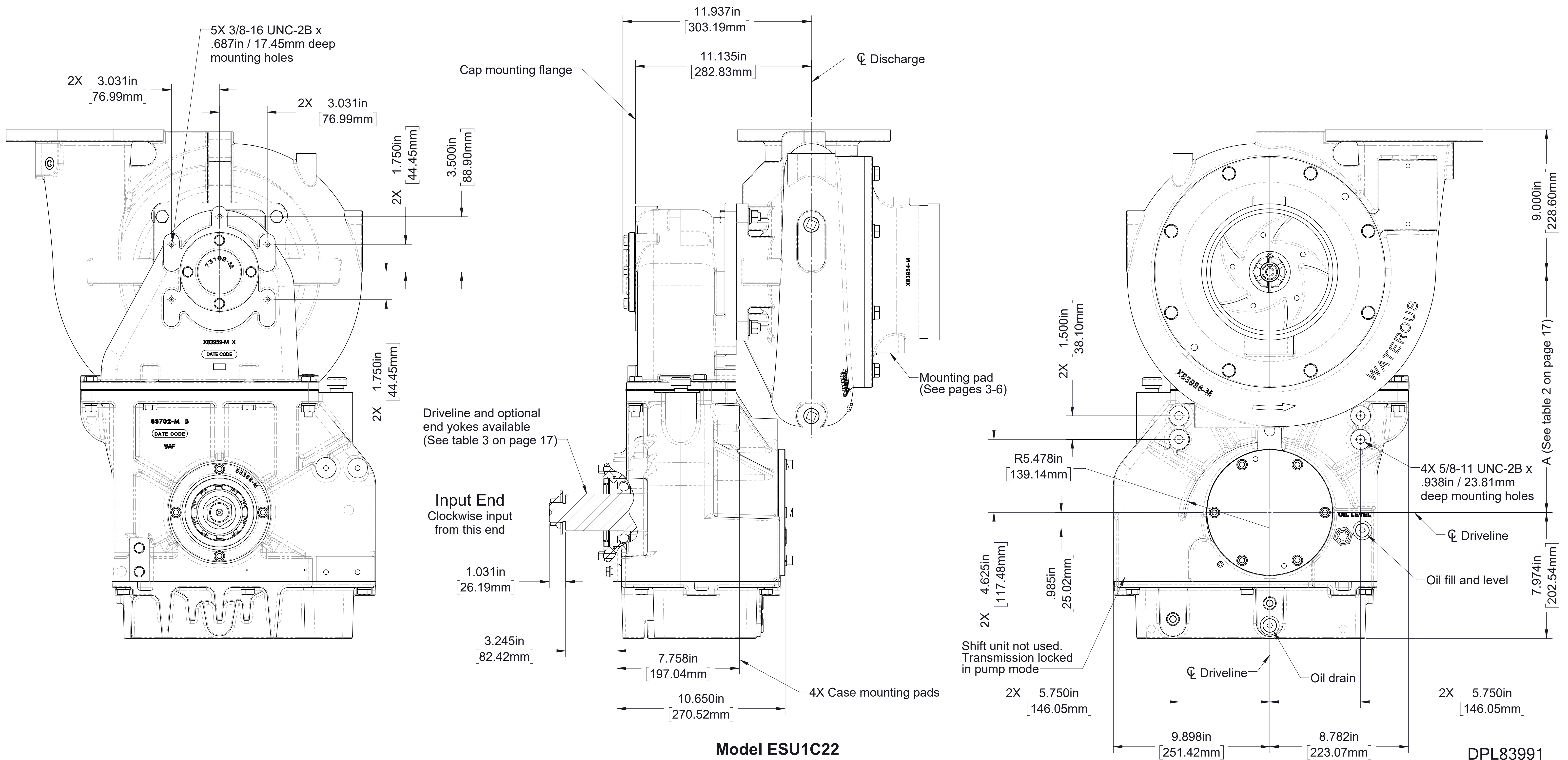
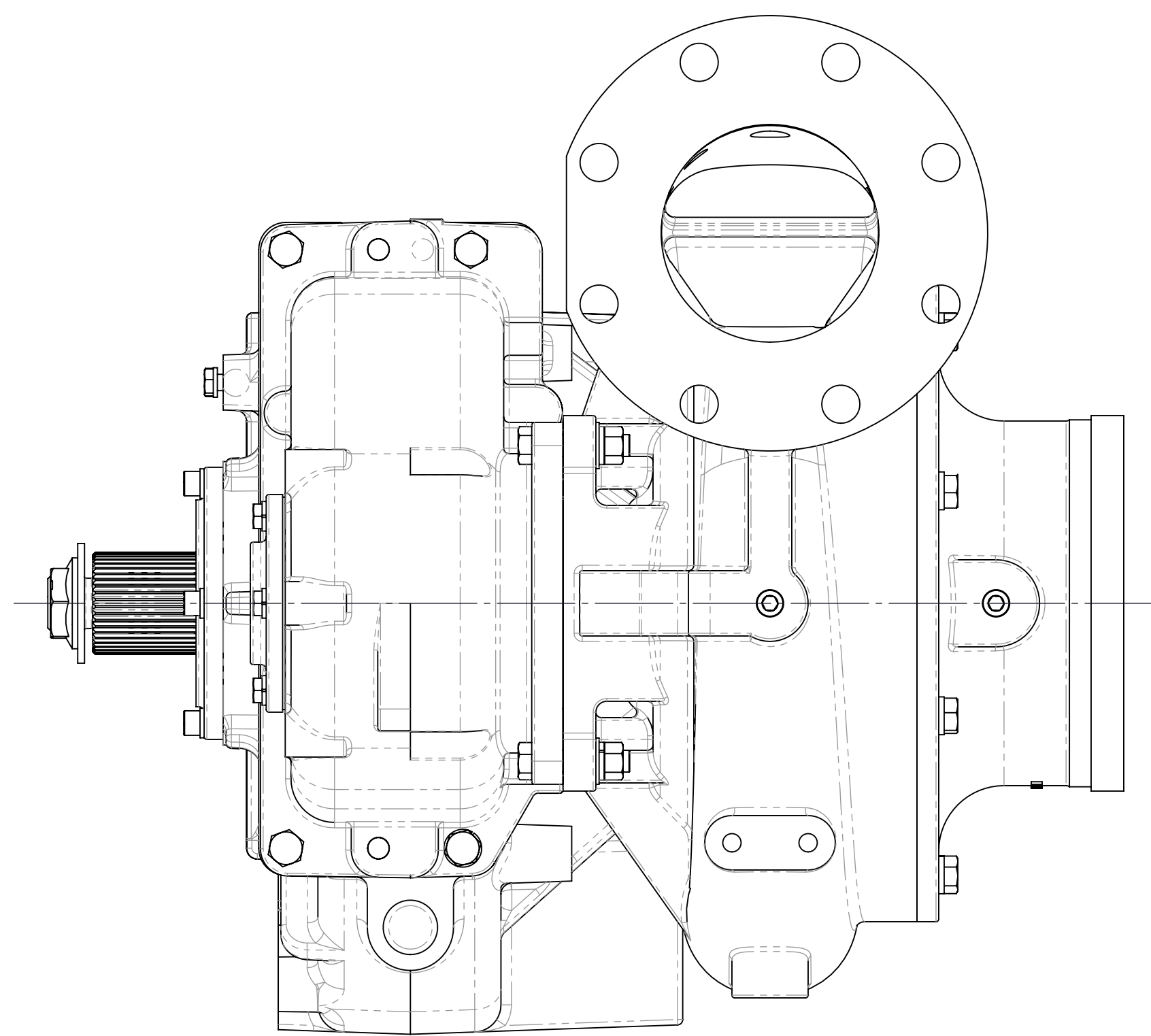


**Model ESU1C22**  
 Input and Output Shaft

Pump mounted on rear (Output shaft side) of transmission  
 With optional hydraulic motor mount provision  
 Clockwise input, model ESU1C22D, 2.27 ratio, single intake, and blank discharge shown



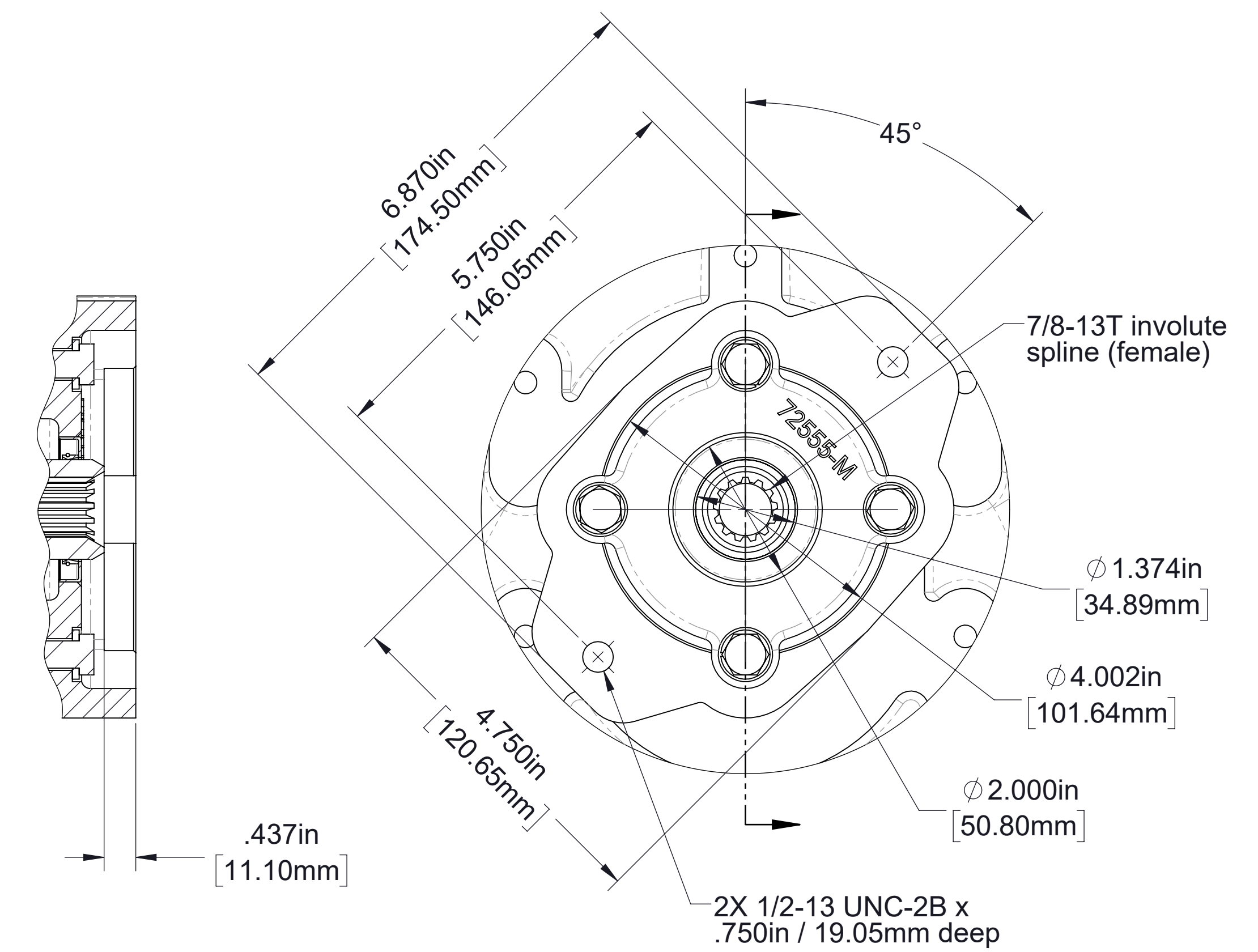
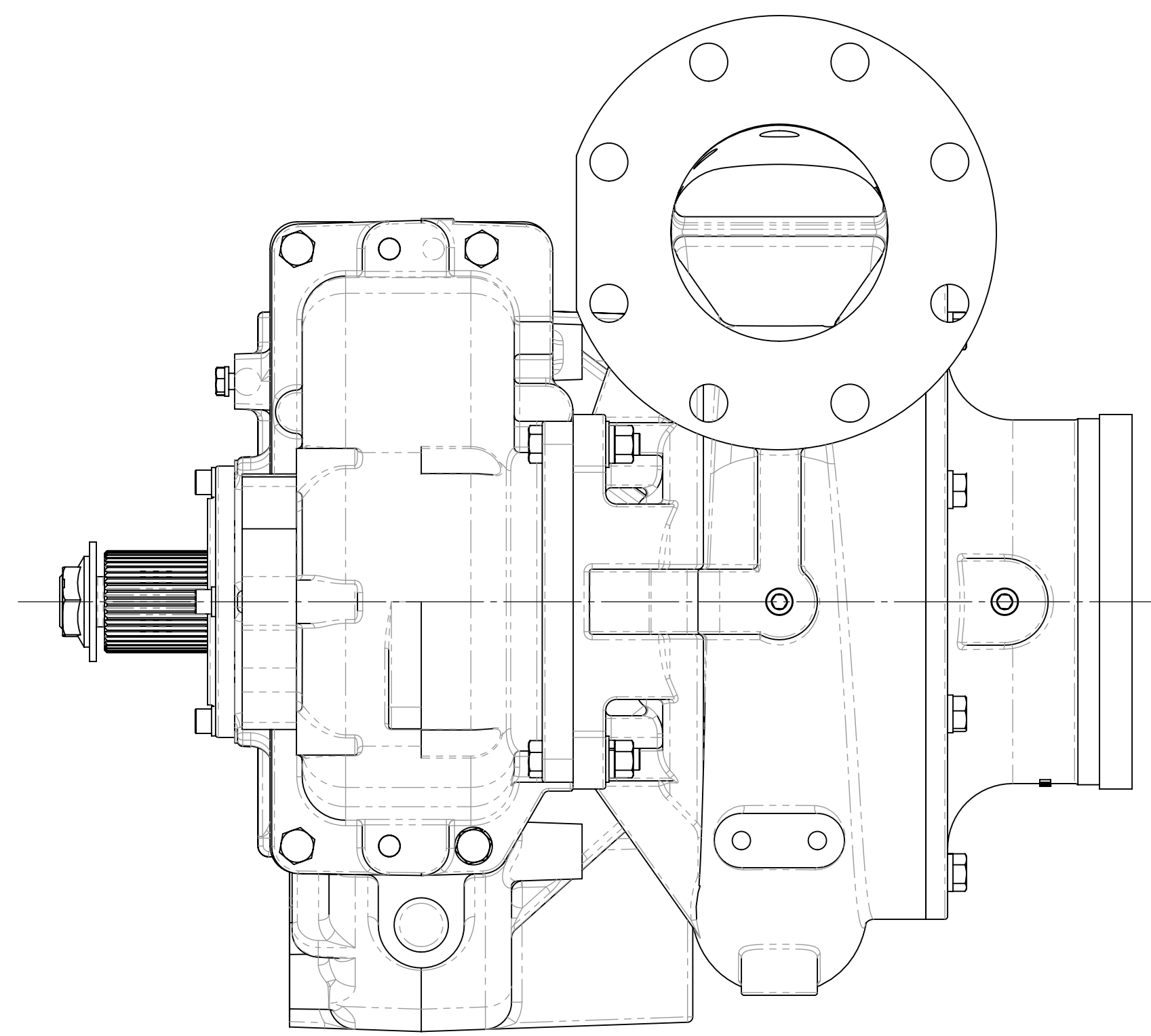
Note:  
 1. See drawing DPL82086 for pneumatic shift actuator details.



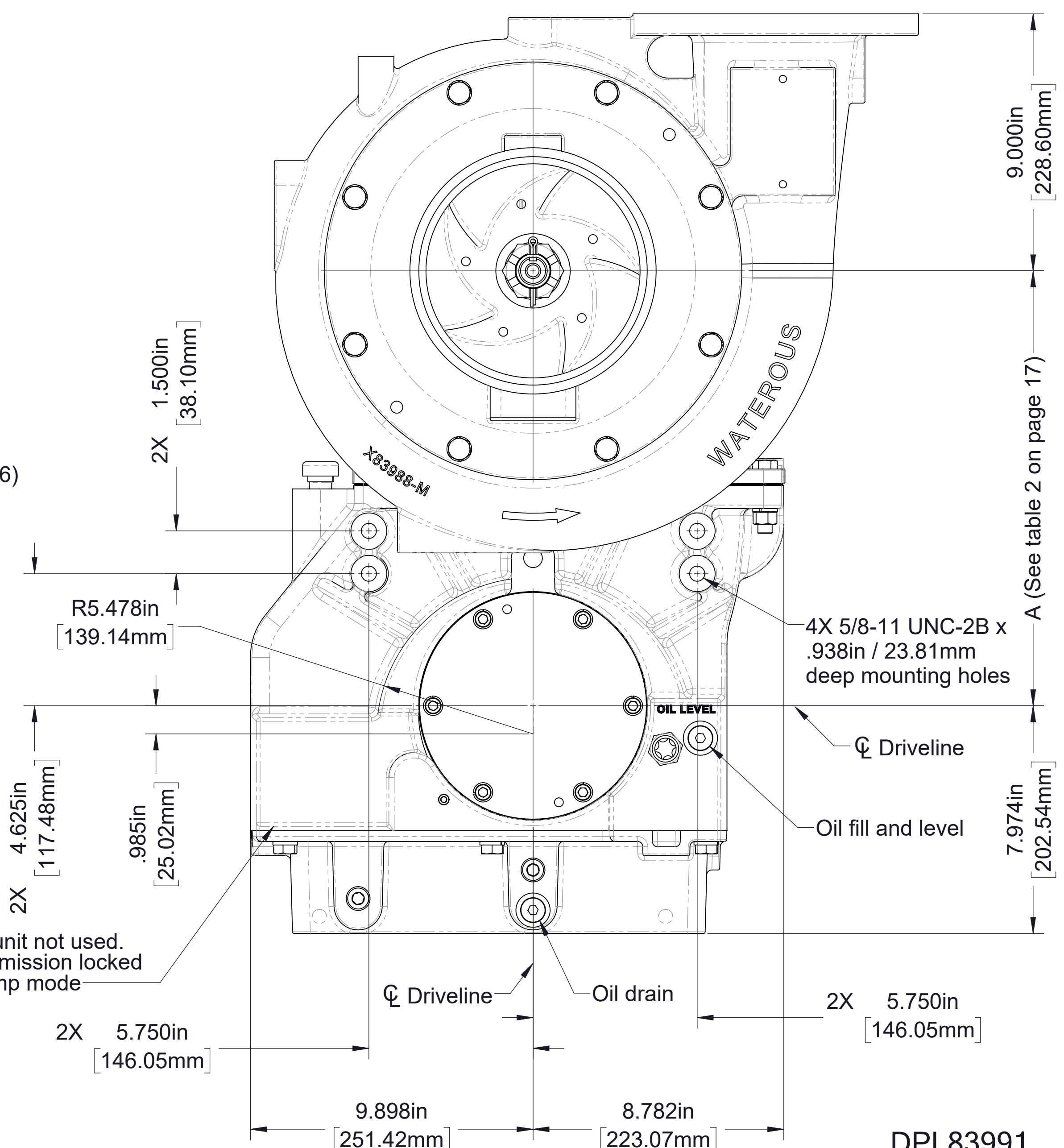
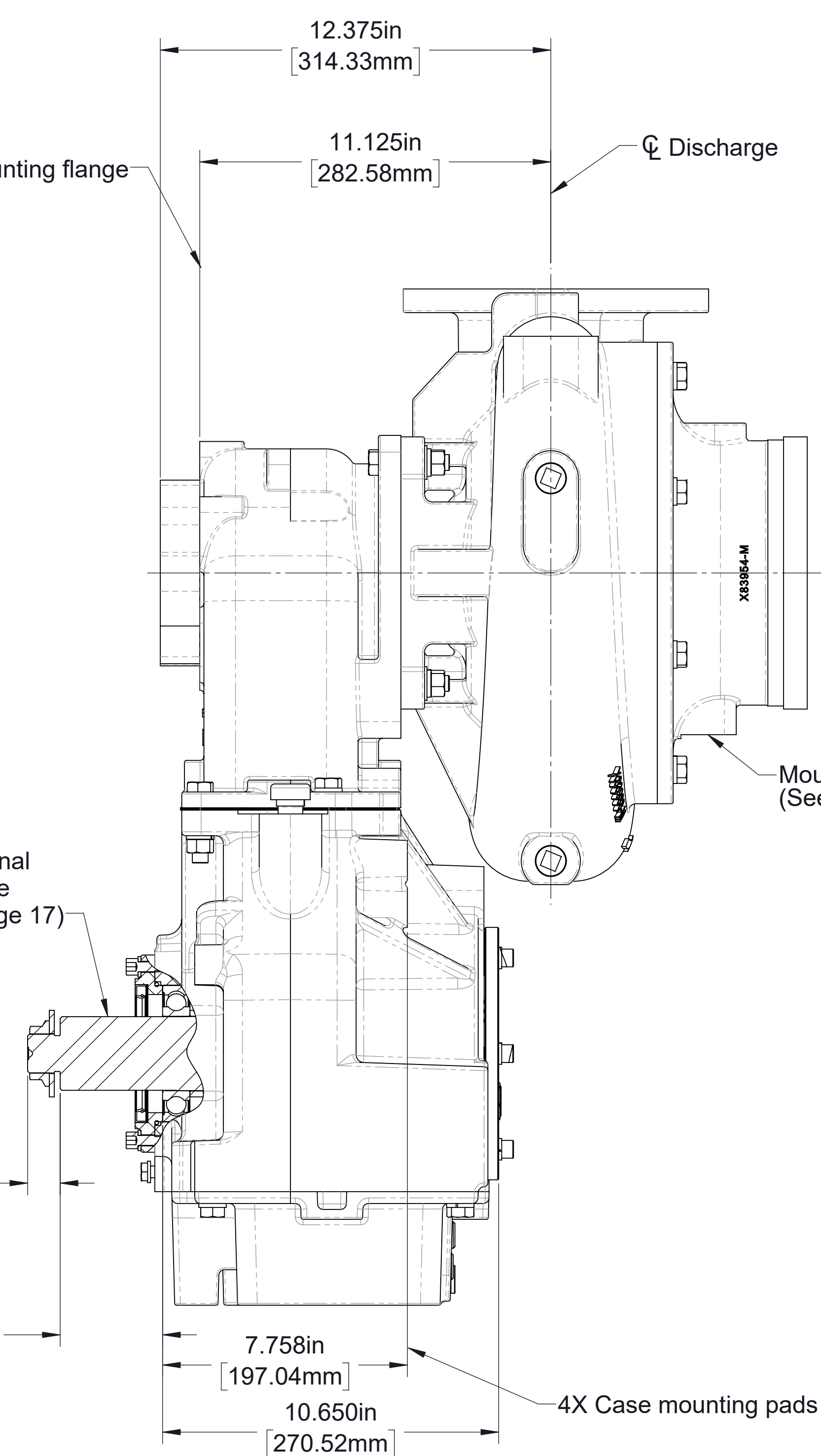
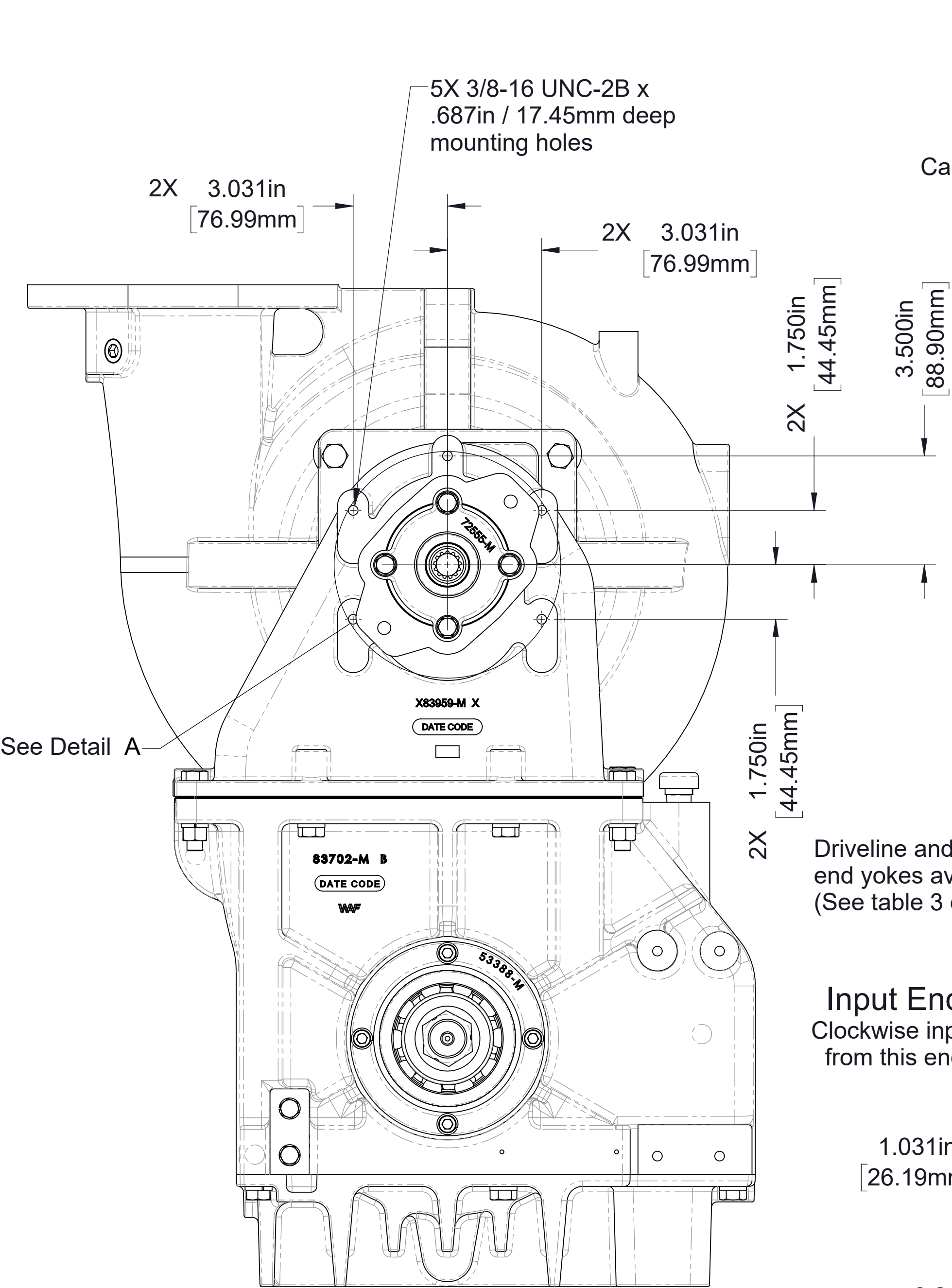
**Model ESU1C22**

Input Shaft Only

Pump mounted on rear (Output shaft side) of transmission  
 Clockwise input, model ESU1C22D, 2.27 ratio, single intake, and 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



Driveline and optional end yokes available (See table 3 on page 17)

Input End  
 Clockwise input from this end

Shift unit not used. Transmission locked in pump mode

**Model ESU1C22**

Input Shaft Only

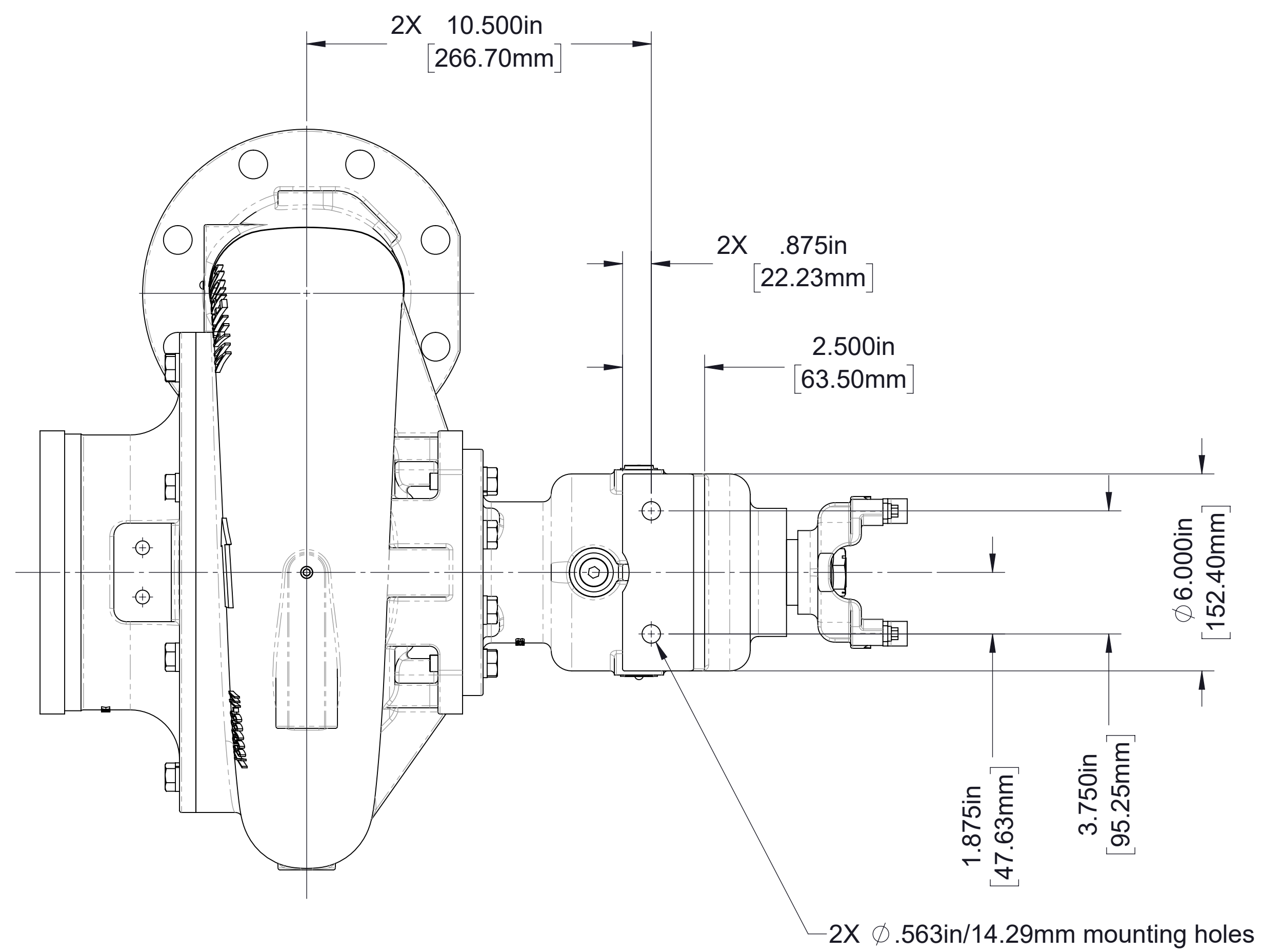
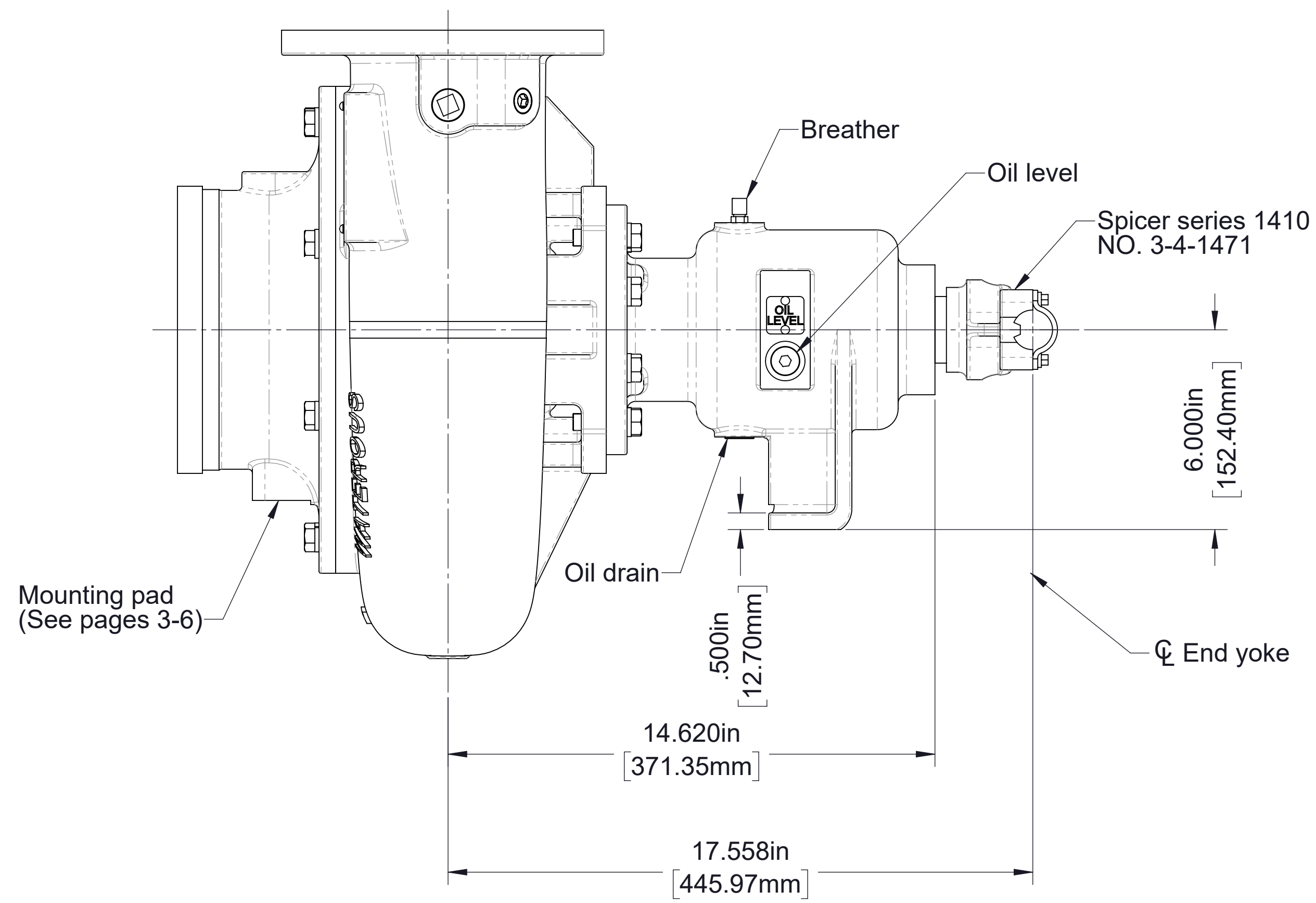
Pump mounted on rear (Output shaft side) of transmission  
 With optional hydraulic motor mount provision

Clockwise input, model ESU1C22D, 2.27 ratio, single intake, and blank discharge shown

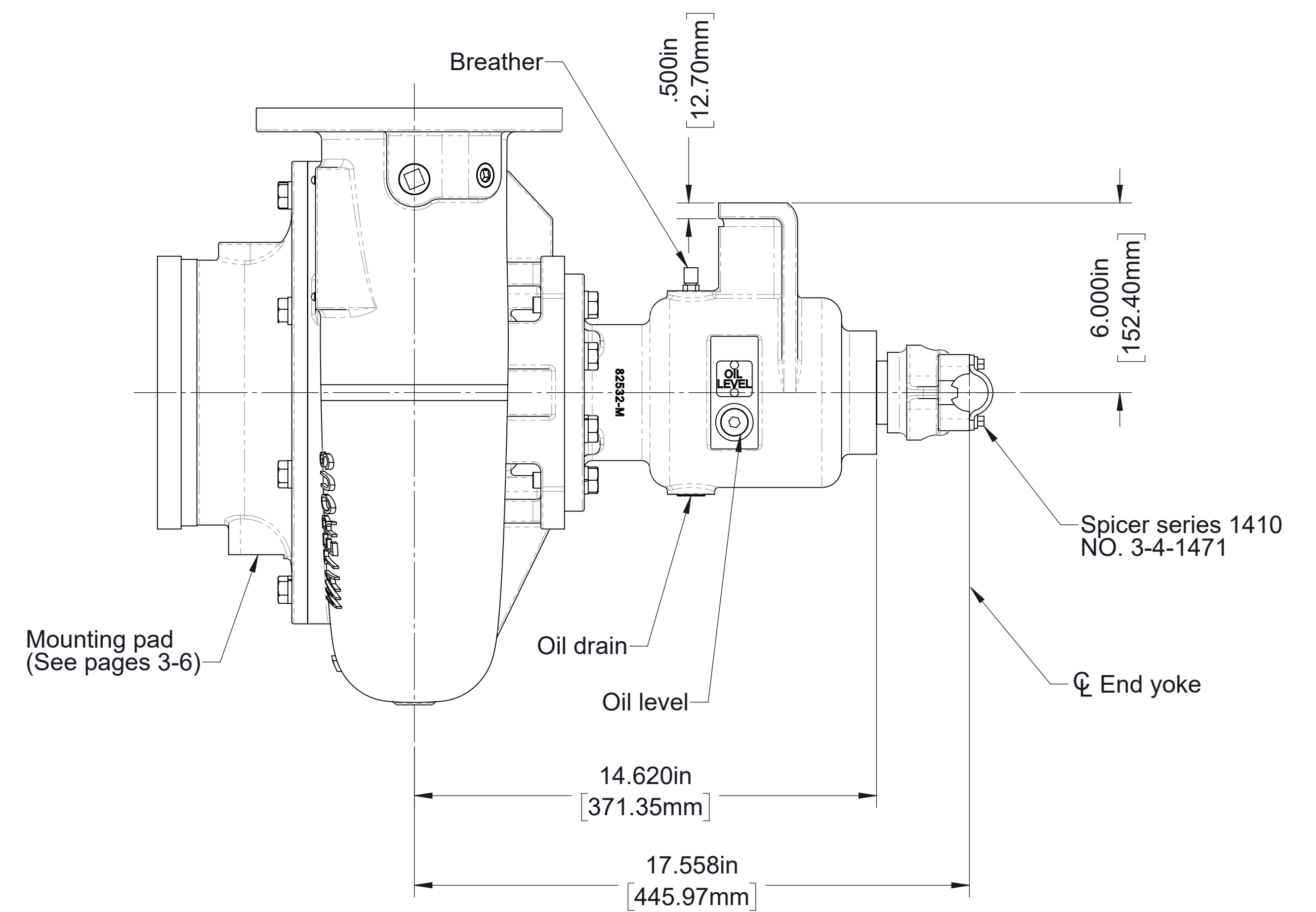
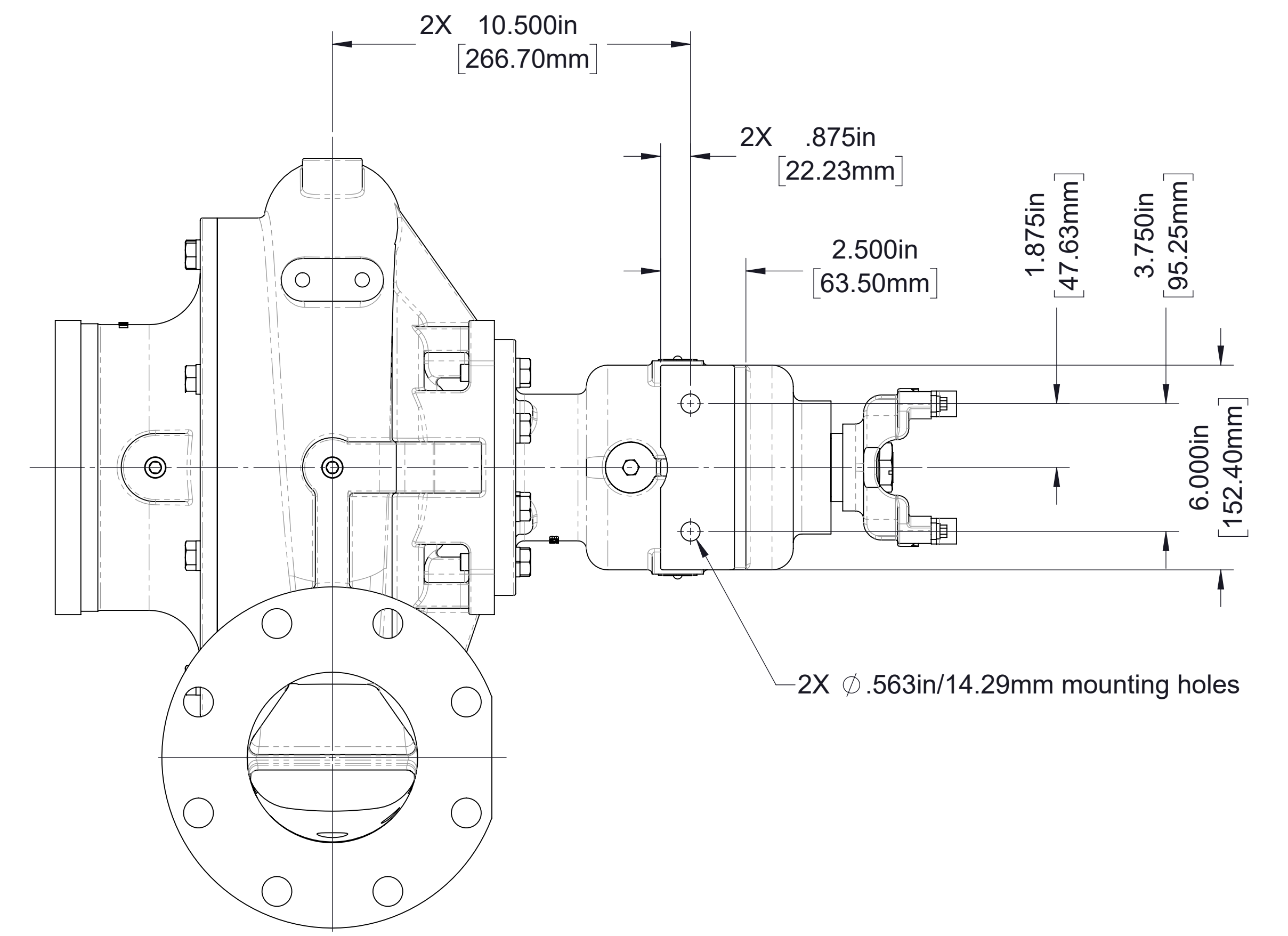


Table 2 - Available Ratios				
Dimension A				
Drive to Driven Ratio	All dimensions shown as inch/millimeter			
	C22C	C22D	C22E	C22F
1.69	14.160/359.66	15.175/385.45	17.186/436.52	19.195/487.55
1.79	14.359/364.72	15.368/390.35	17.389/441.68	19.398/492.71
1.88	14.015/355.98	15.020/381.51	17.040/432.82	19.045/483.74
1.97	14.191/360.45	15.210/386.33	17.230/437.64	19.248/488.90
2.03	14.303/363.30	15.323/389.20	17.348/440.64	19.368/491.95
2.27	14.133/358.98	15.155/384.94	17.186/436.52	19.205/487.81
2.46	14.353/364.57	15.383/390.73	17.413/442.29	19.440/493.78
2.68	14.068/357.33	15.094/383.39	17.129/435.08	19.157/486.59

Table 3 - Optional End Yokes and Companion Flanges				
Input Shaft Spline	See DPL83861 for Dimensions			
	Type	Series	Part Number	End Yoke Cross and Bearing Kit
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	-



**Vertical Pedestal**



**Inverted Pedestal**

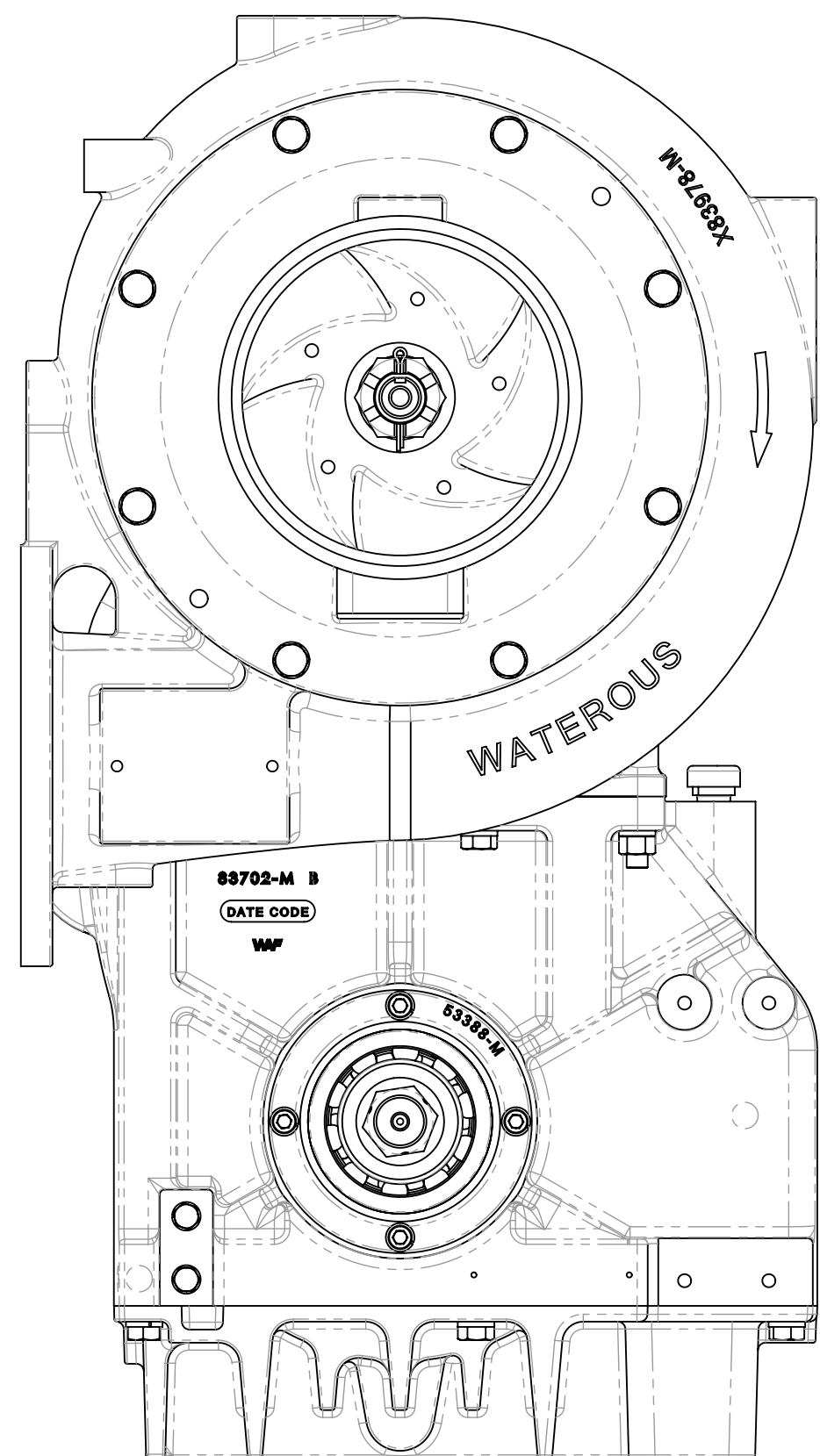
**Model ESU1D**  
 Clockwise or Counterclockwise input  
 (Clockwise shown)  
 (Single Intake shown)

Left

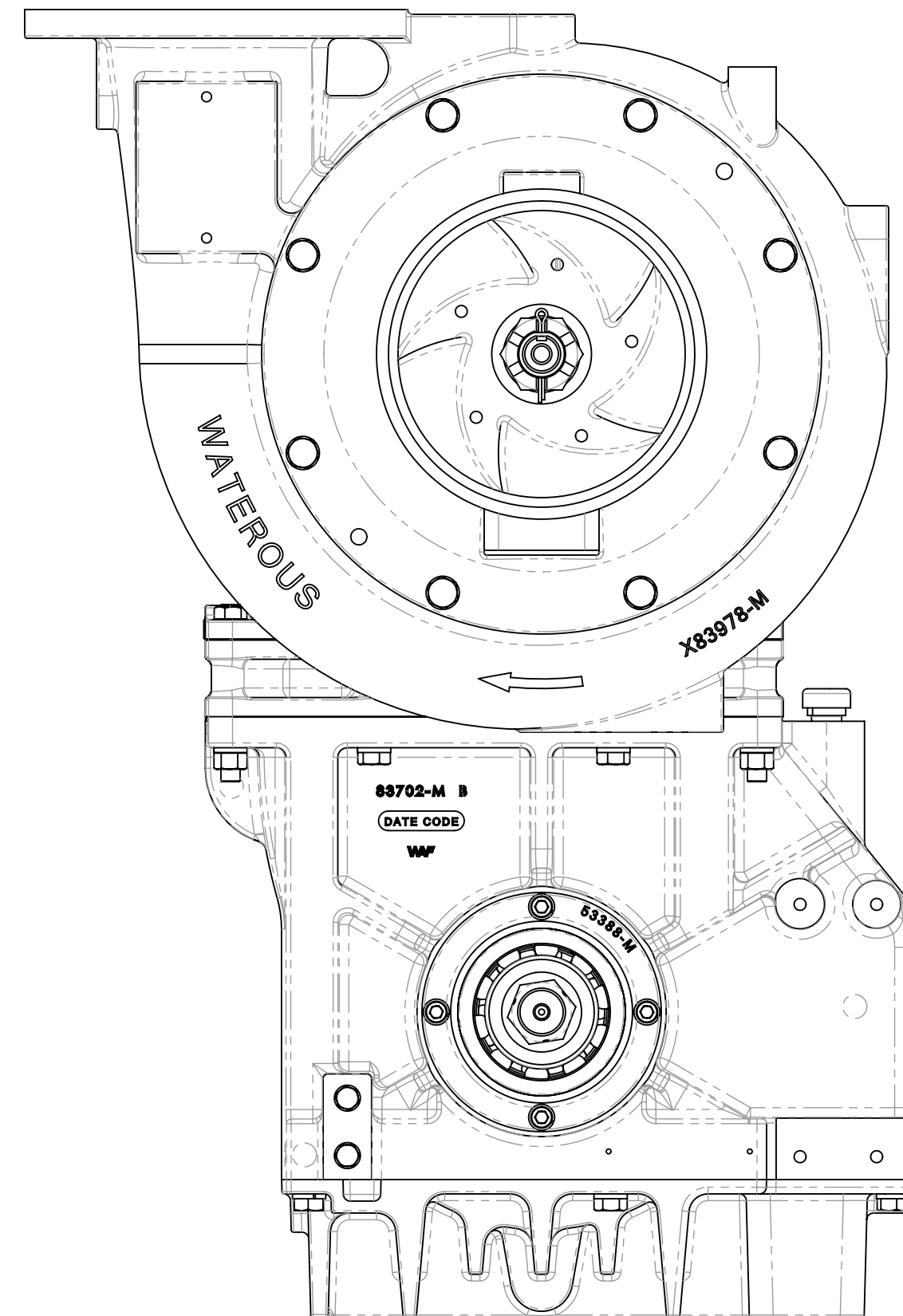
Up

Right

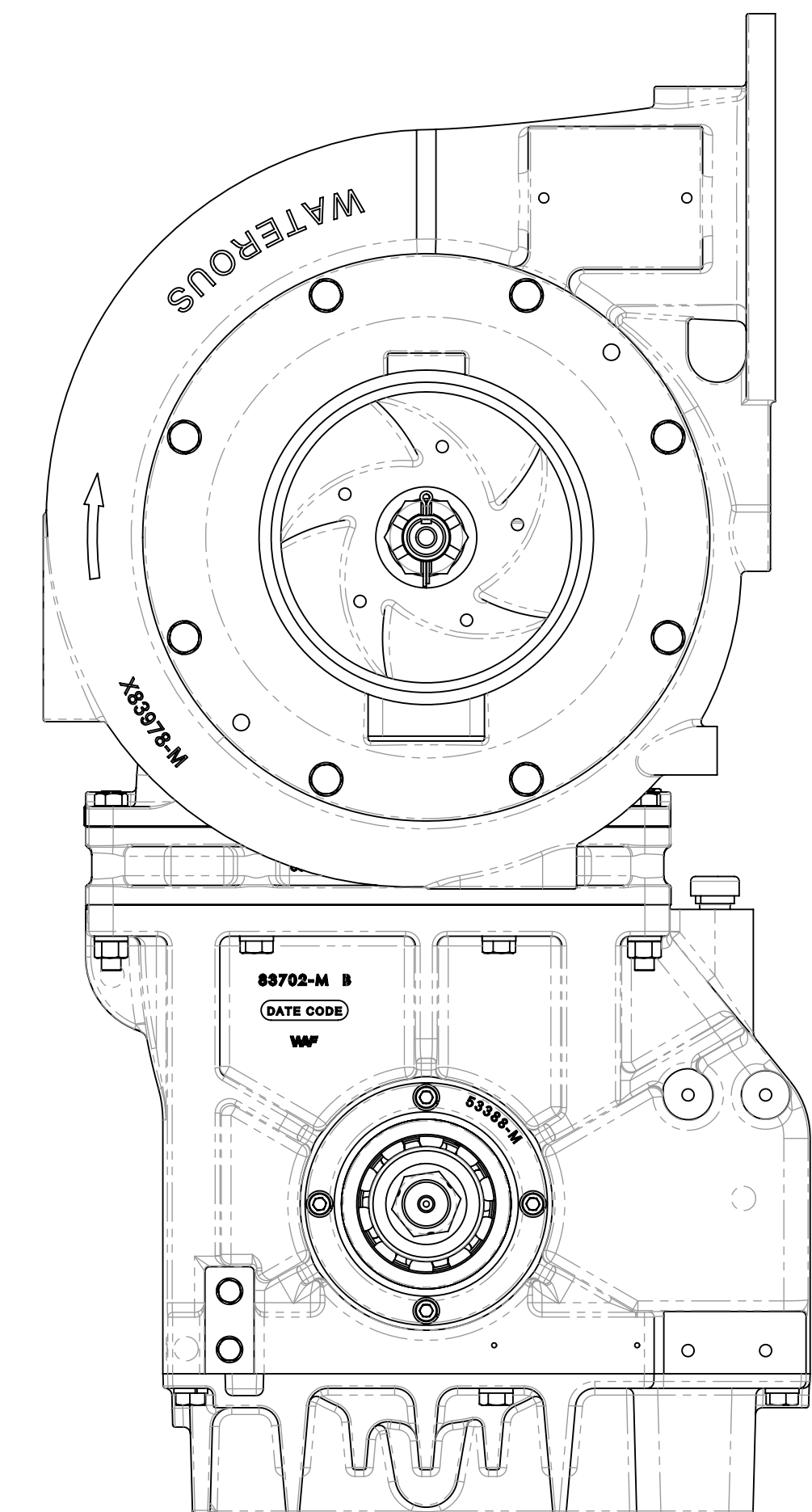
Front Facing  
(Pump  
mounted over  
input shaft)



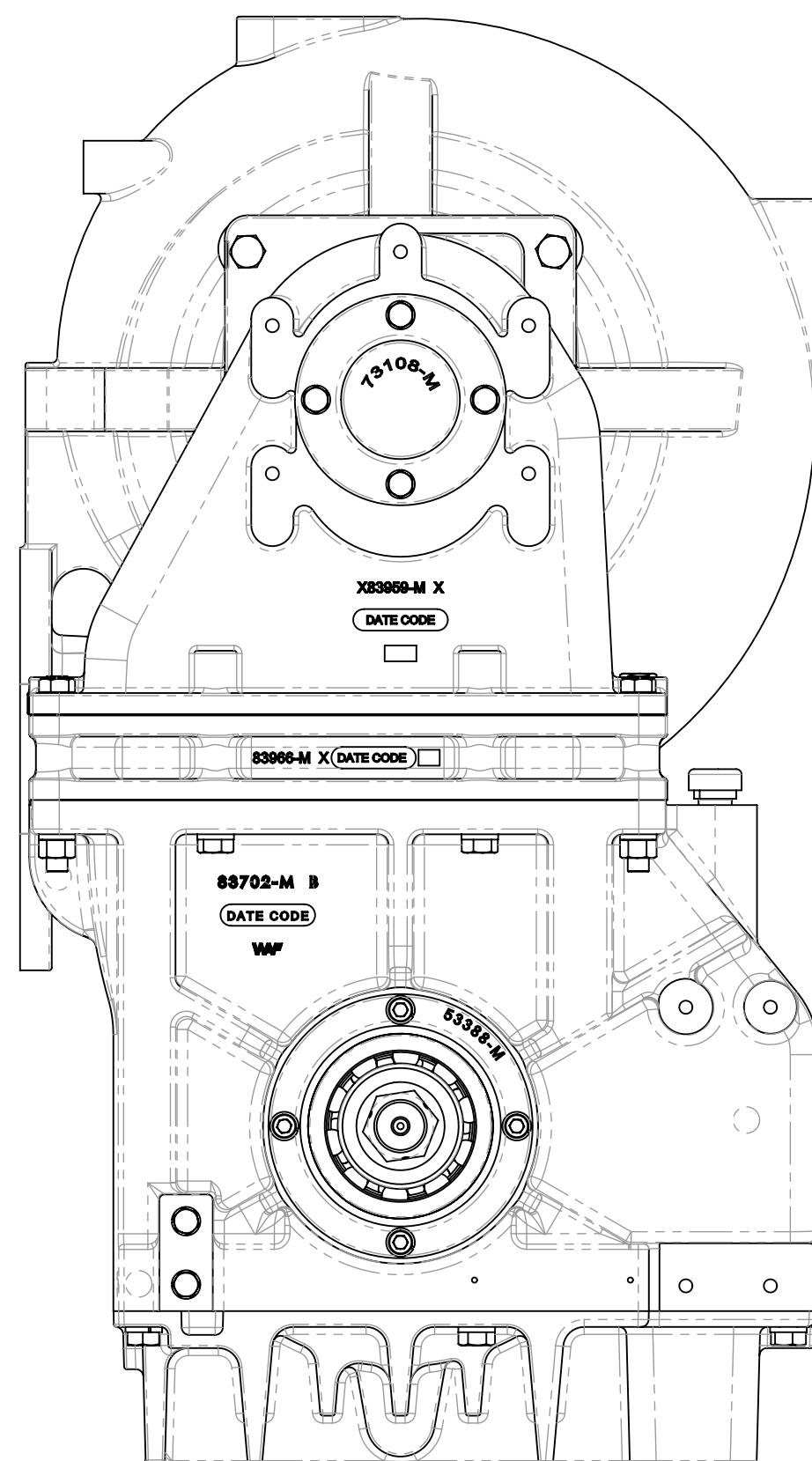
Not available on:  
-C drop  
-D drop w/ 1810 yokes



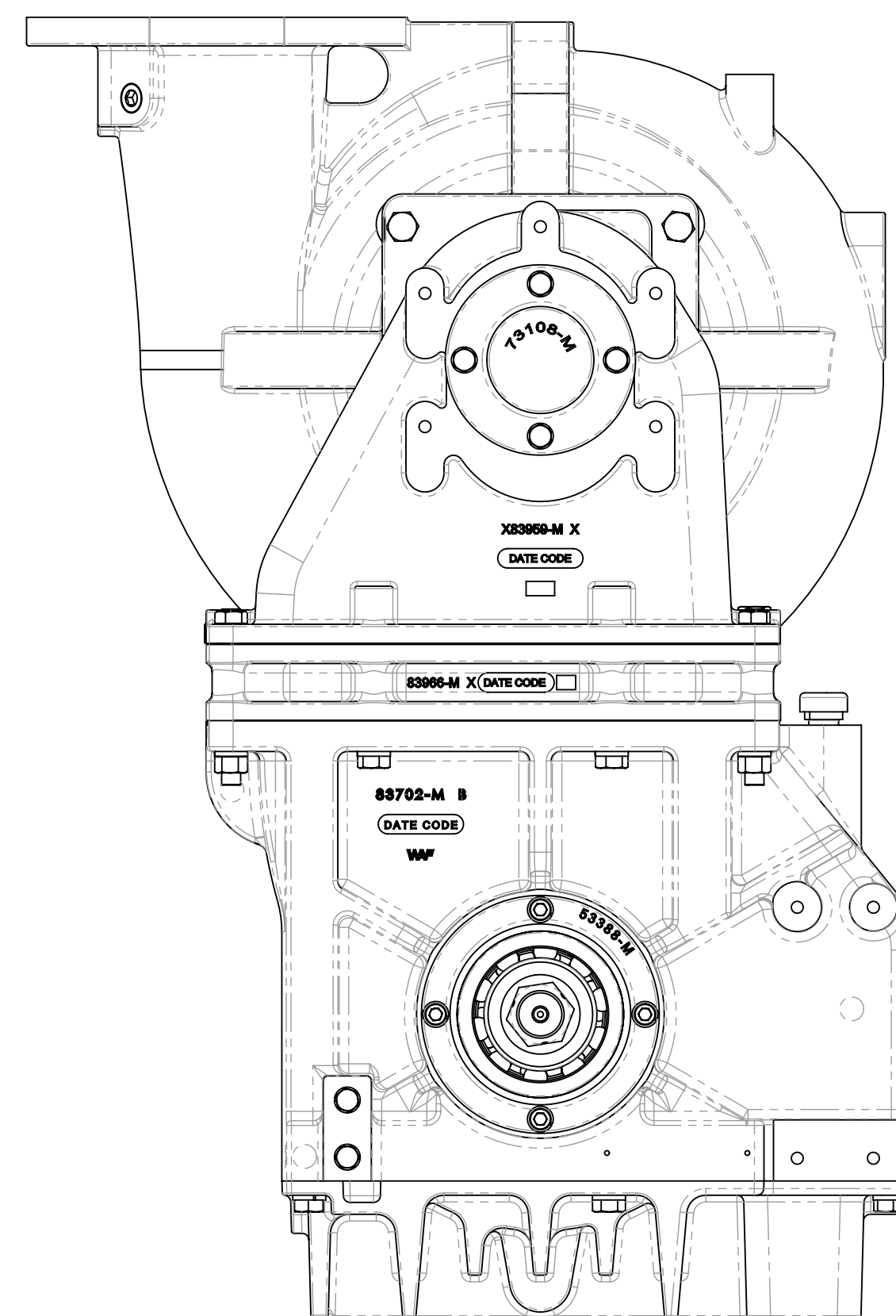
Not available on:  
-C drop w/ 1810 yokes



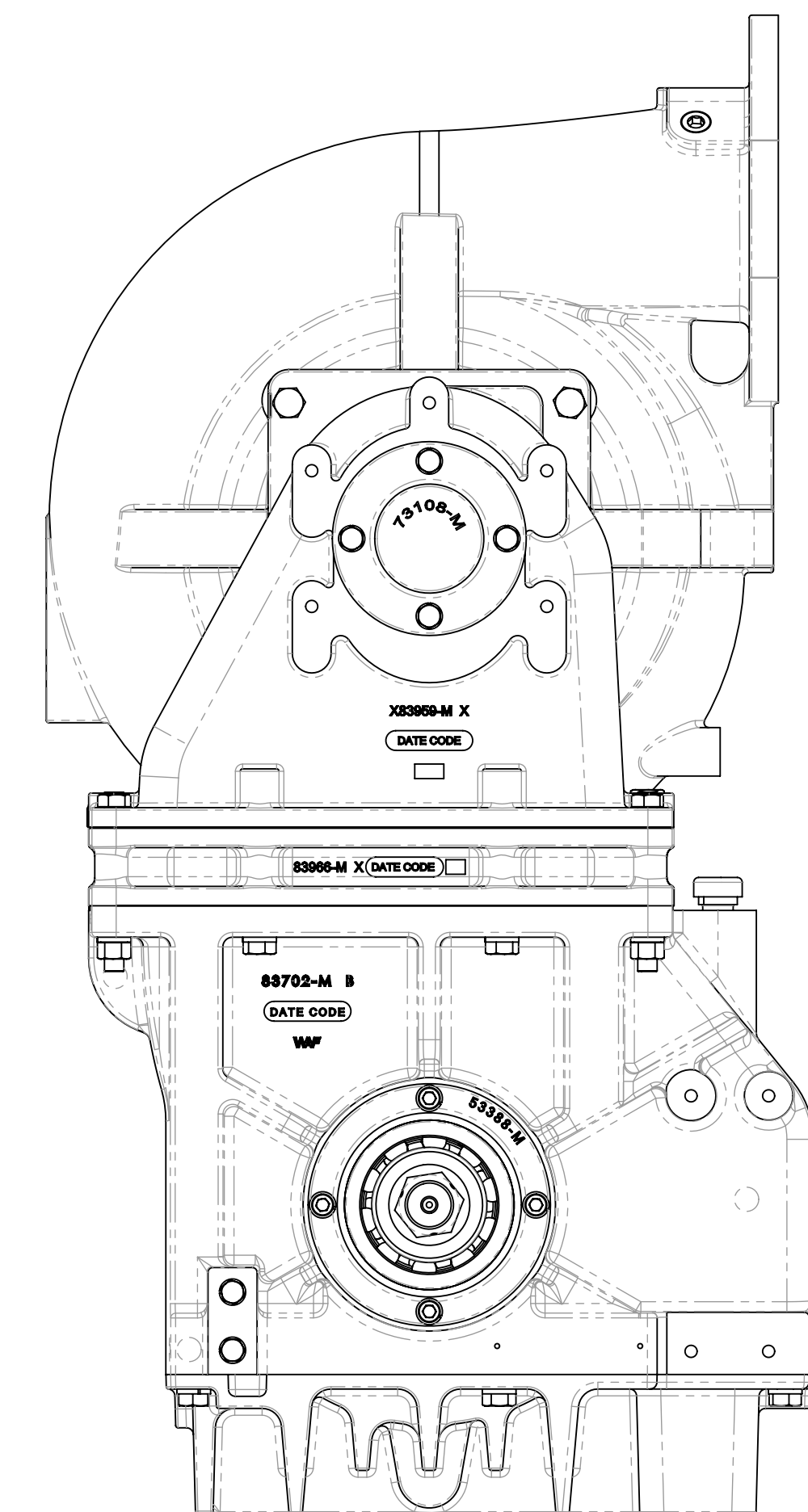
Rear Facing  
(Pump  
mounted over  
output shaft)

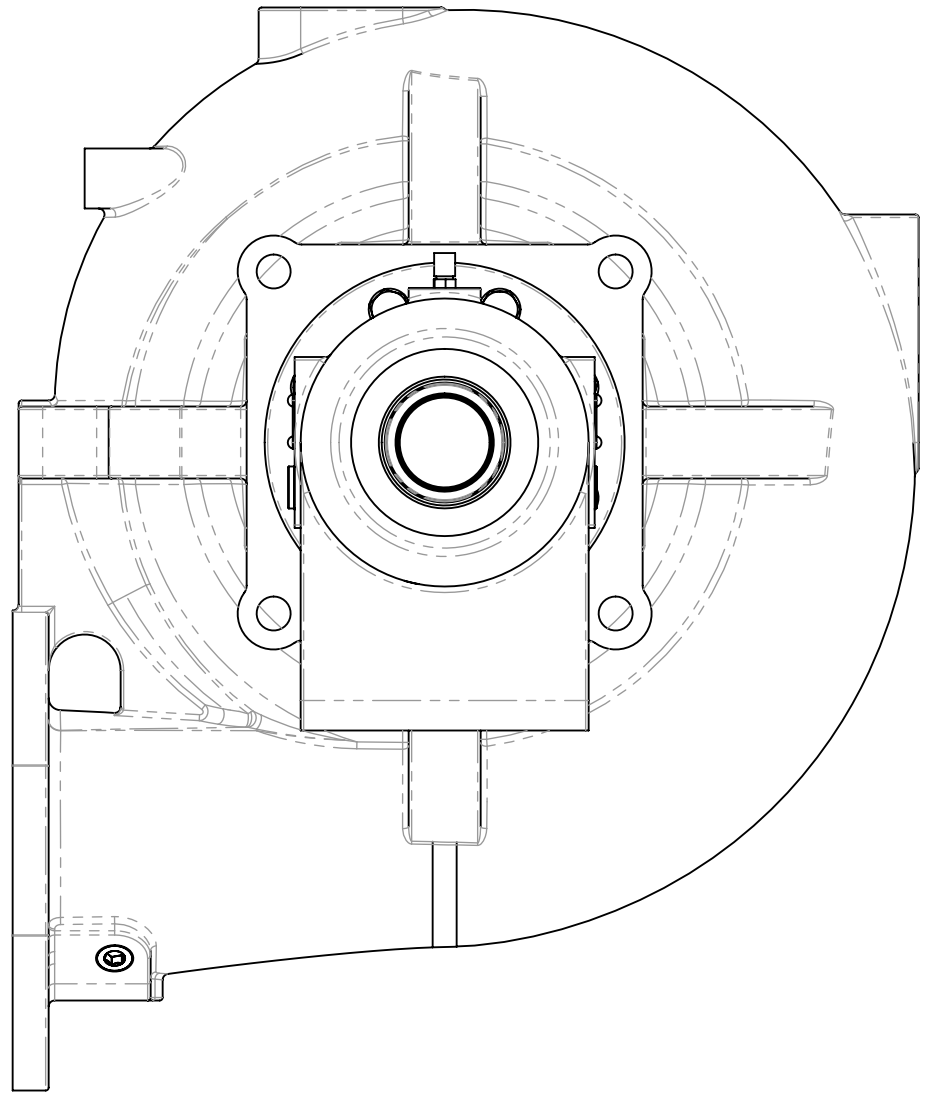
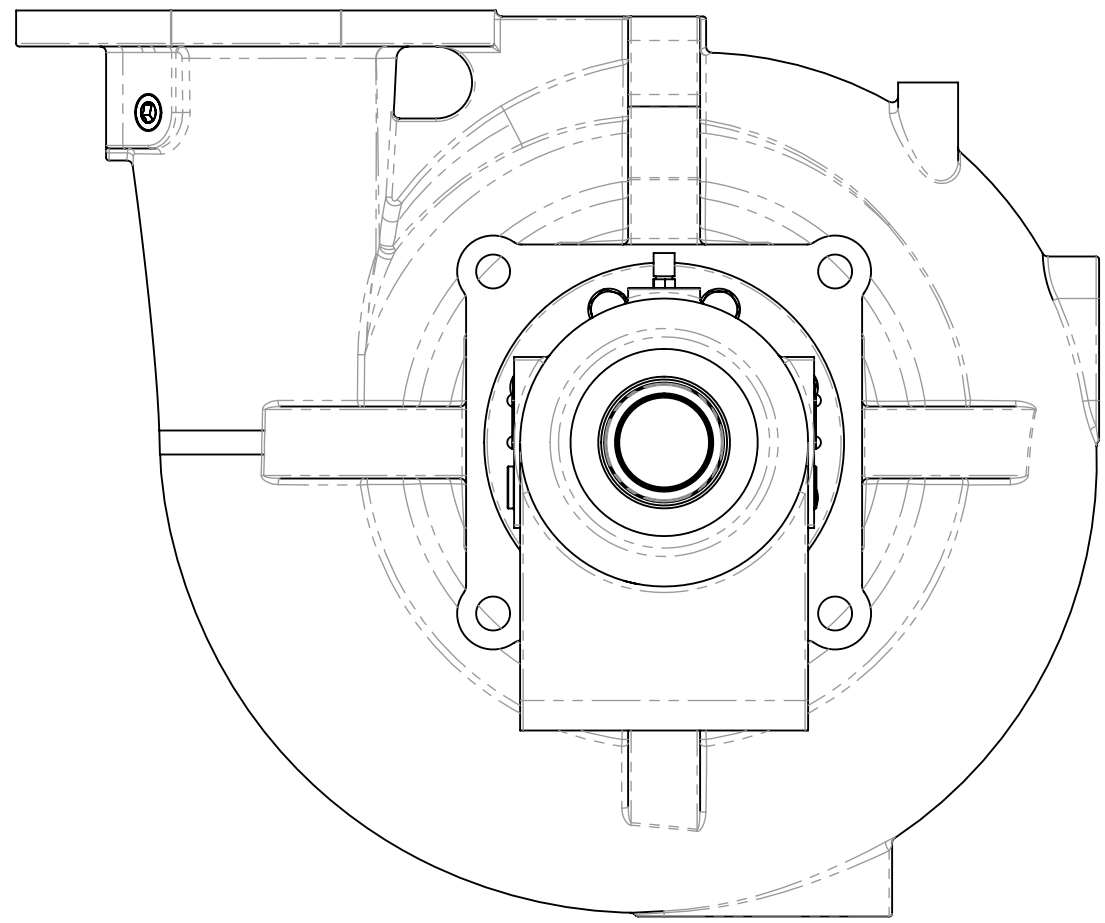
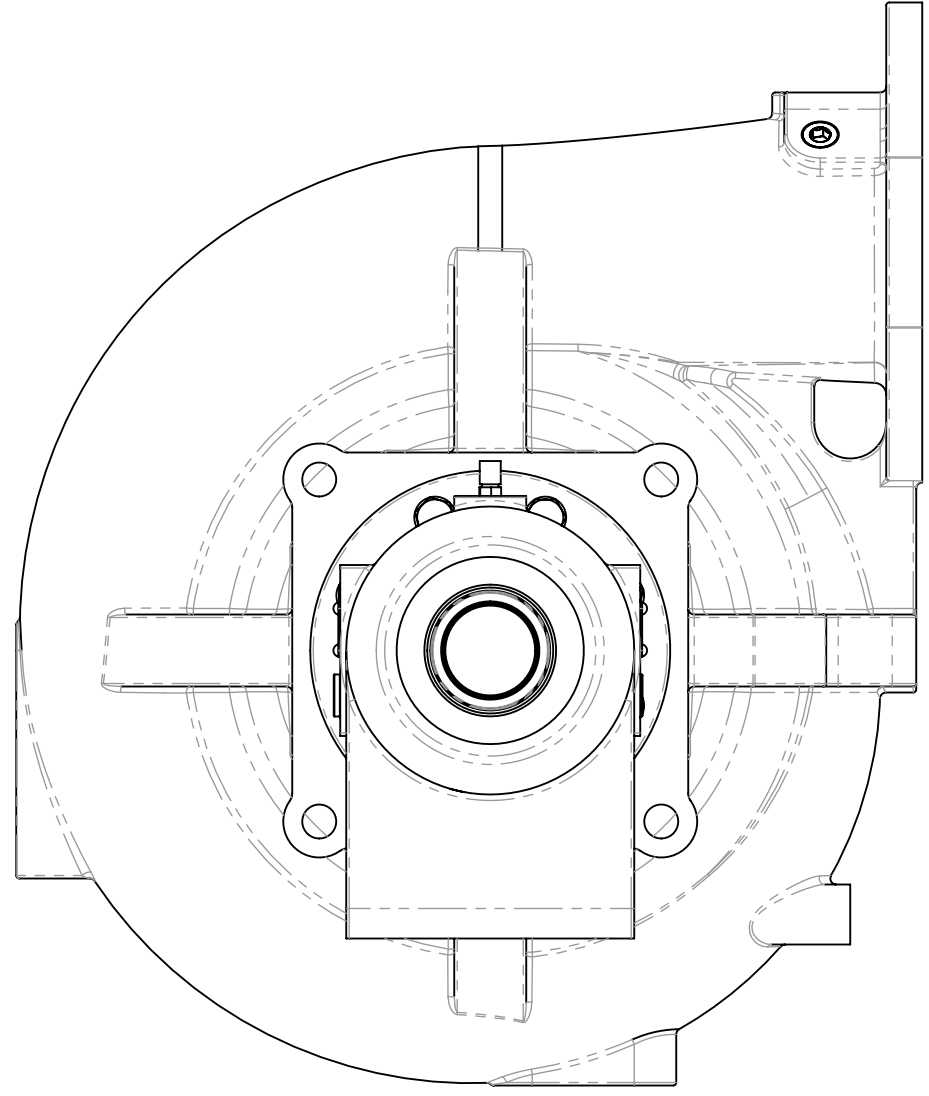
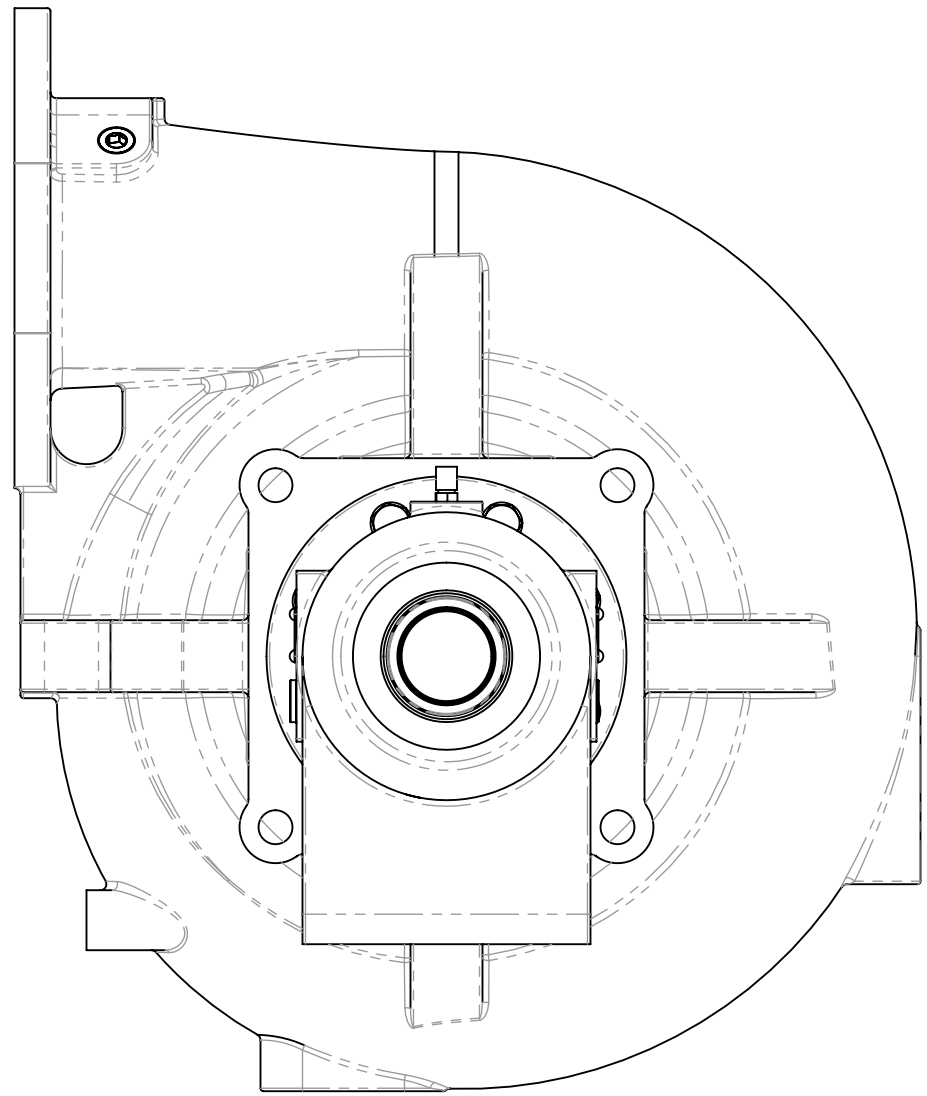
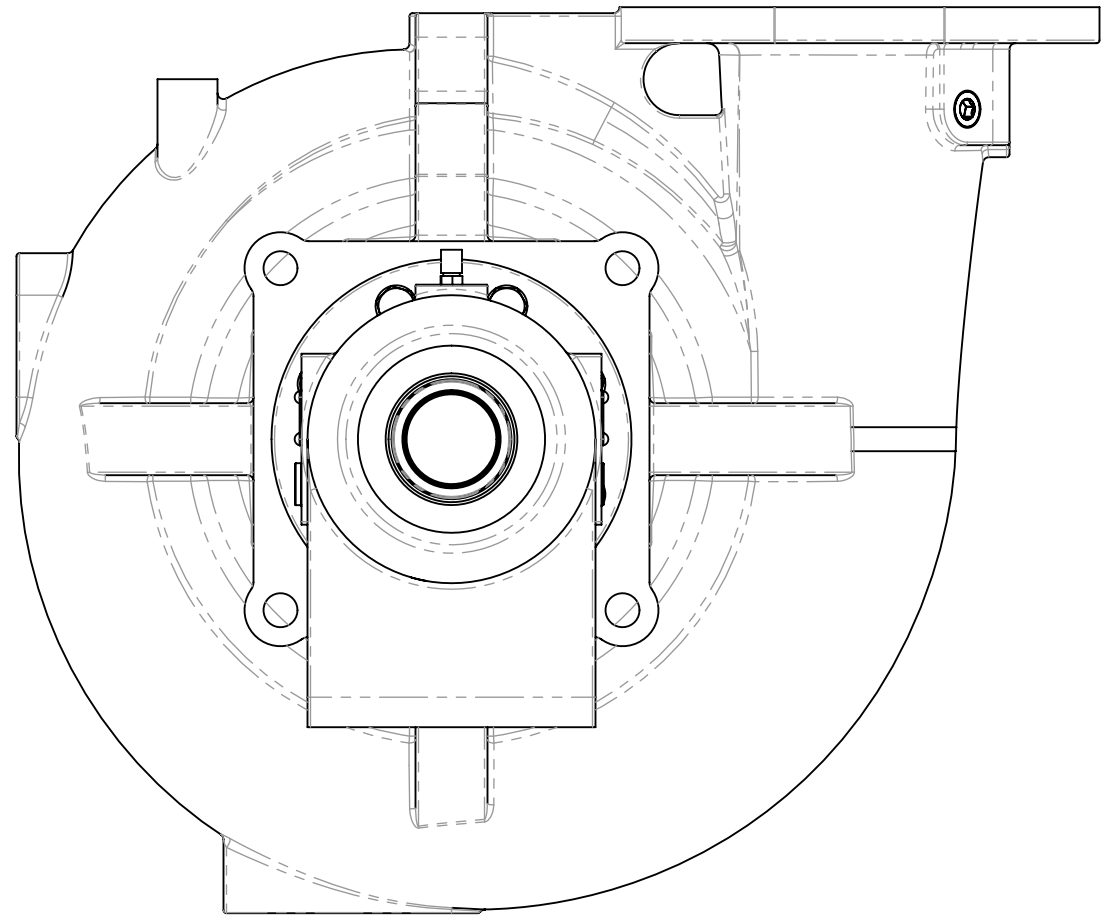
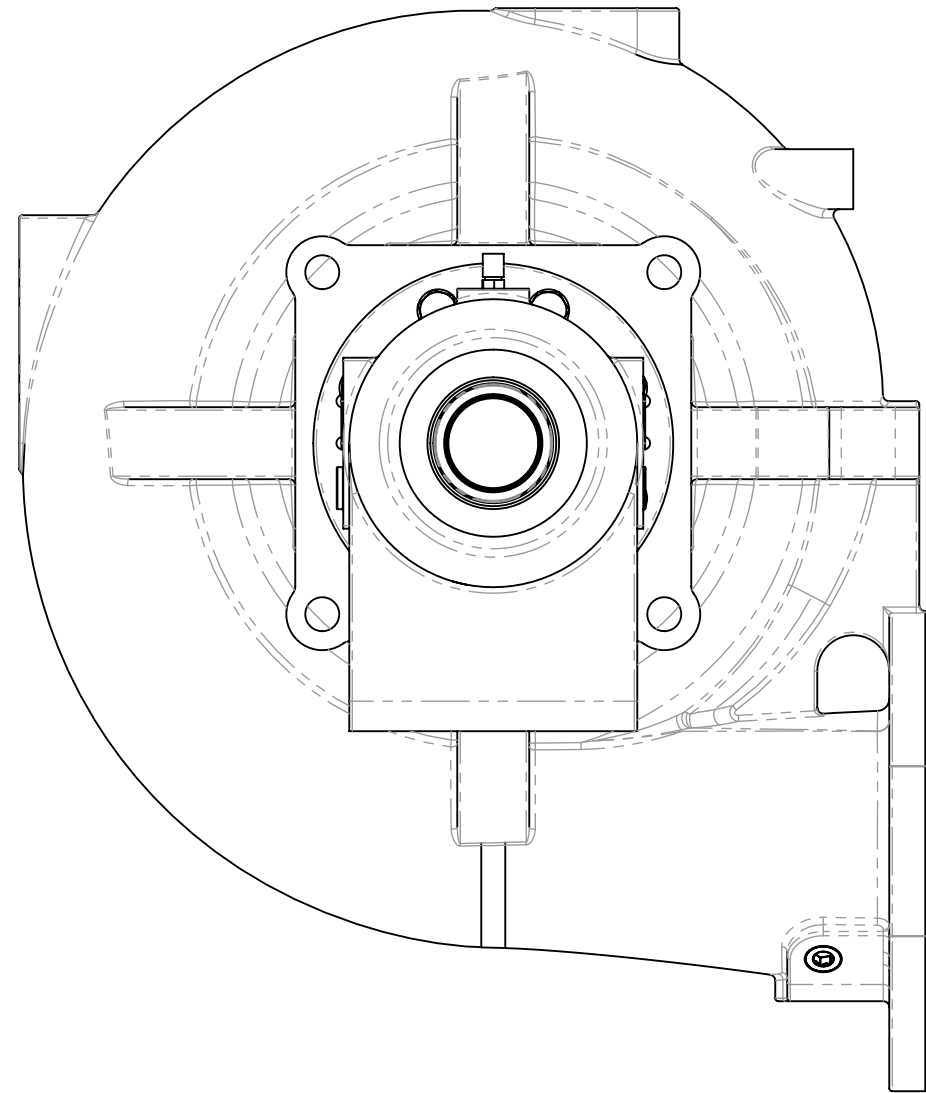


Not available on:  
-C drop  
-D drop

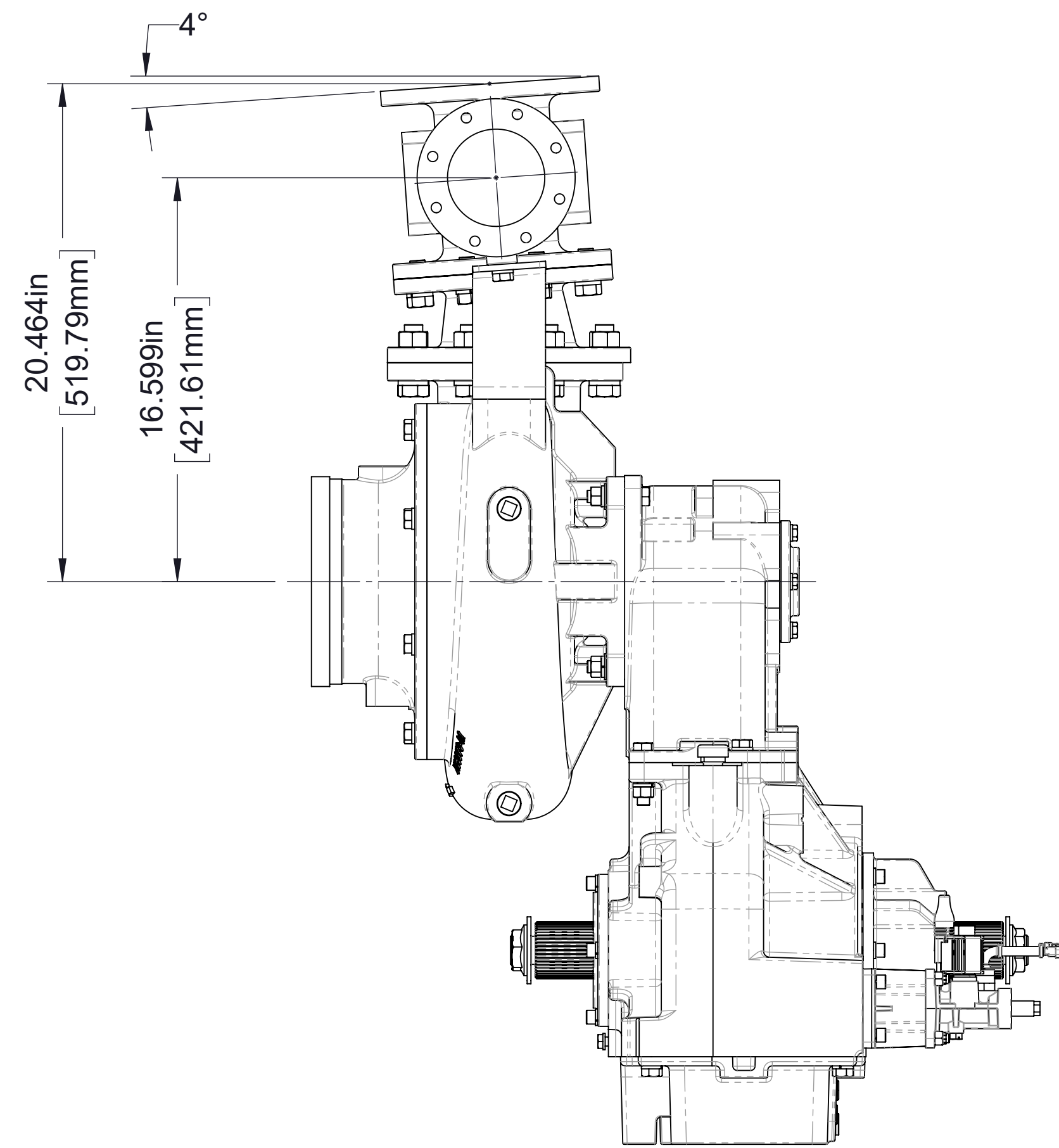
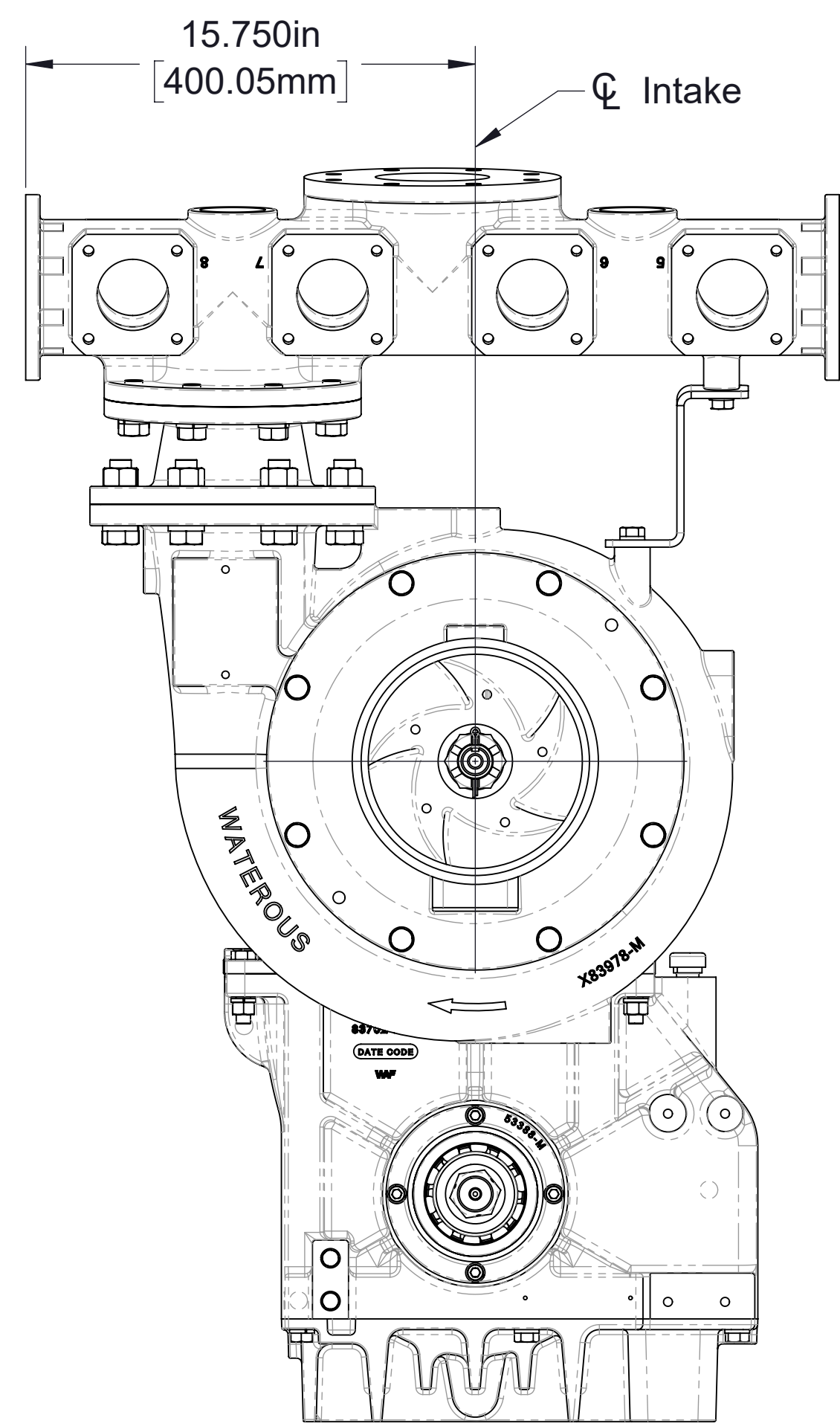


Not available on:  
-C drop

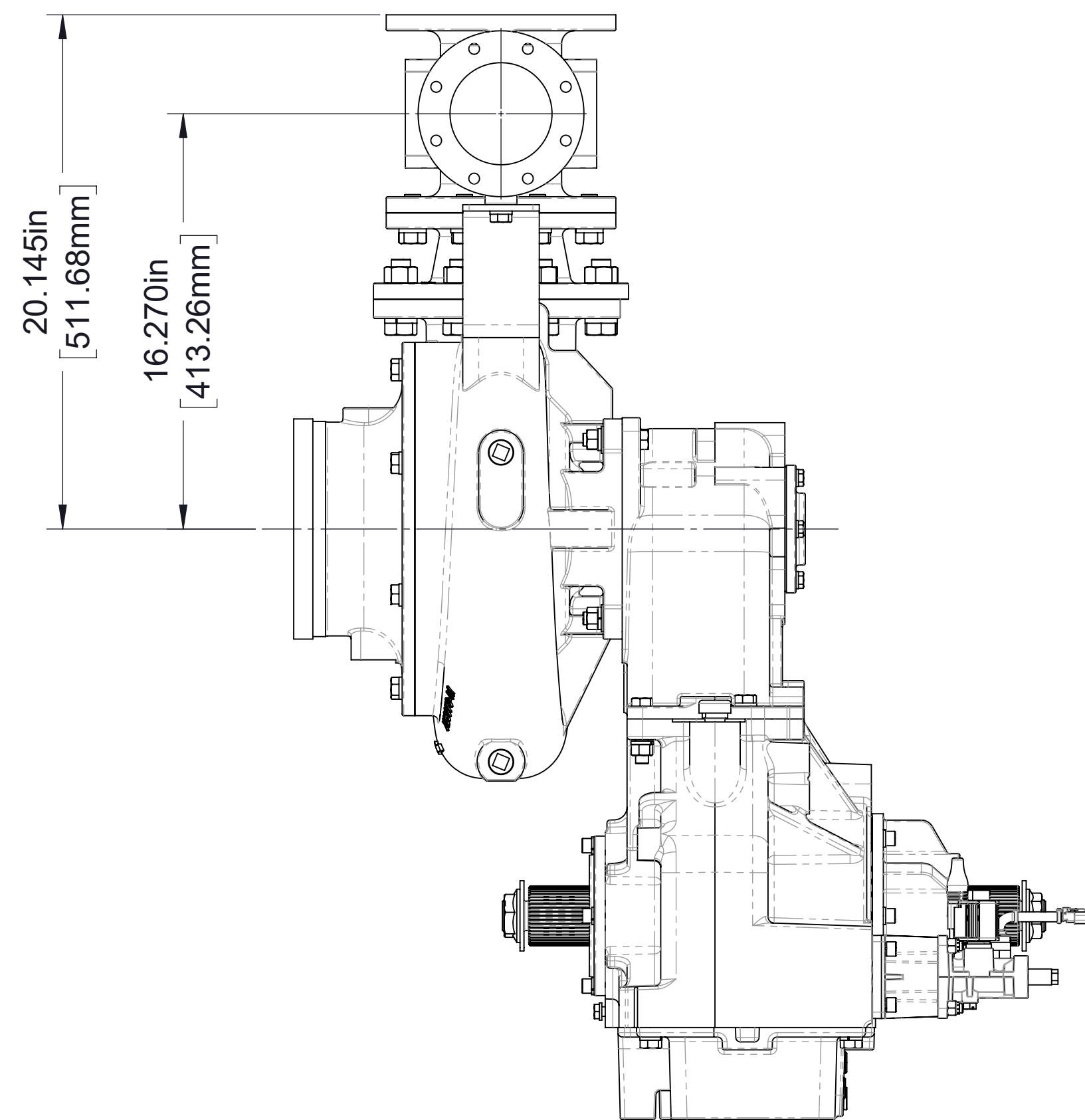
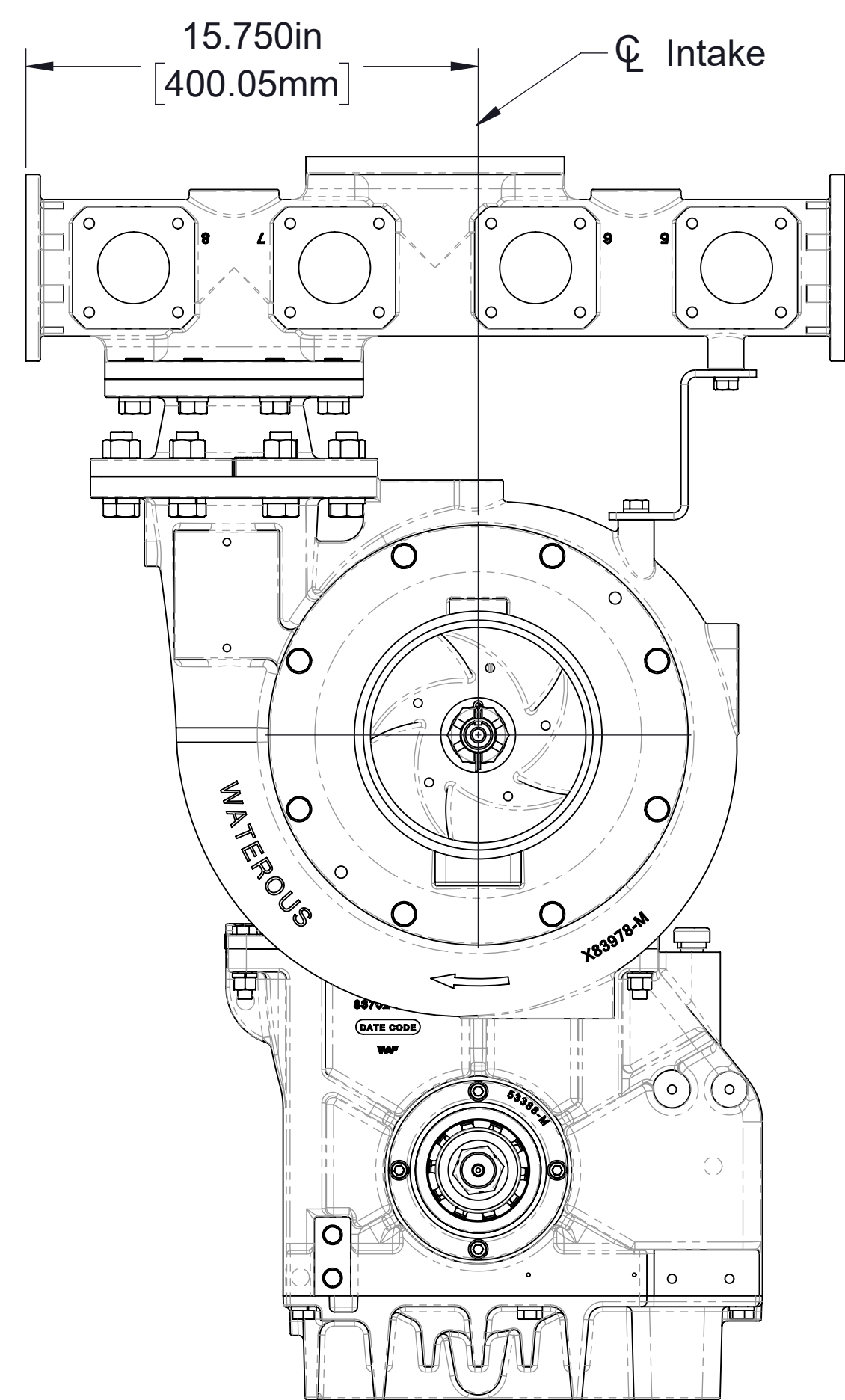


	Left	Up	Right
CW Input Rotation			
CCW Input Rotation			

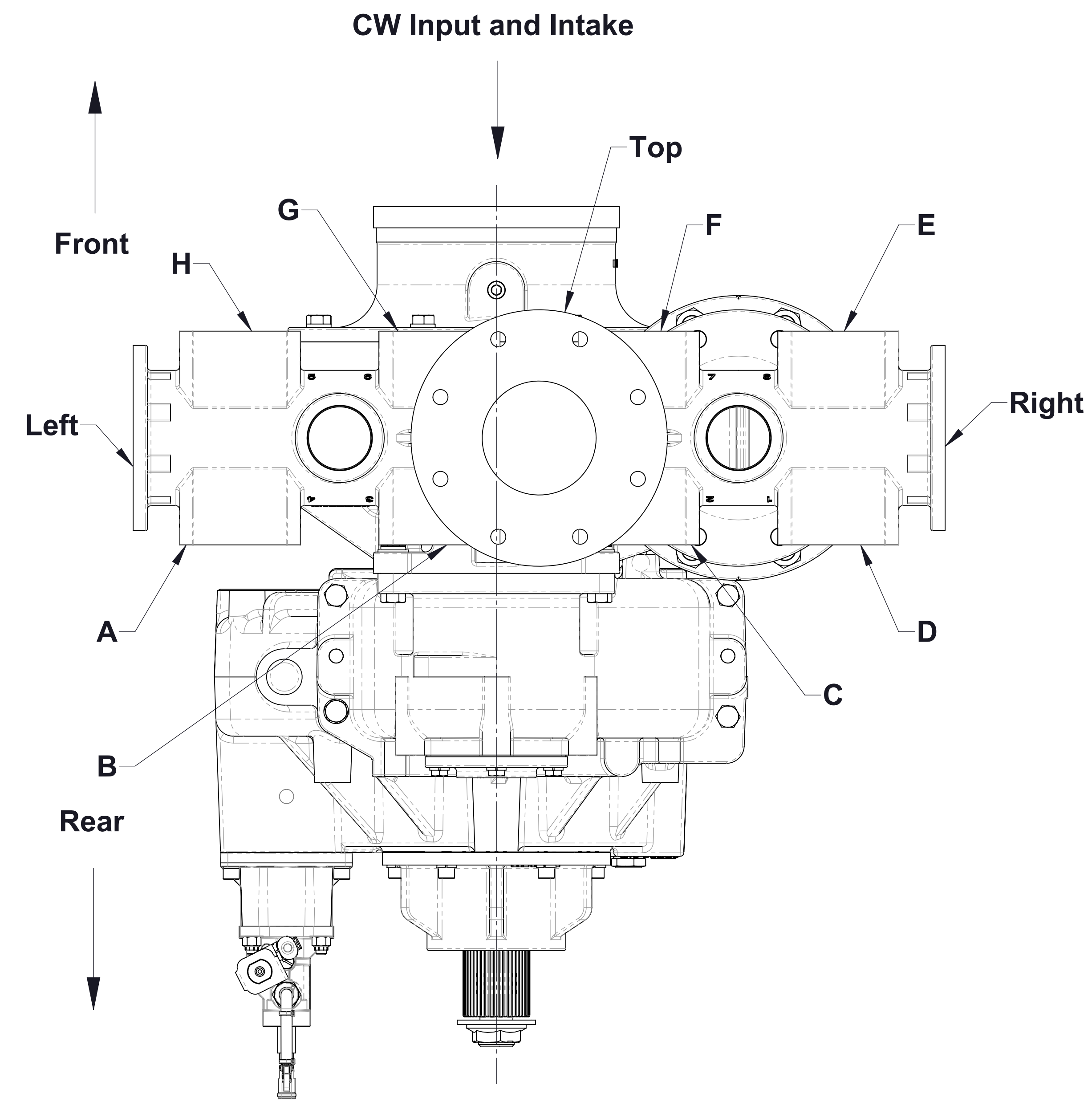
**Model ESU1D Discharge Positions**  
As viewed looking directly at transmission input shaft  
(Vertical pedestal shown)



**Angle Compensated**

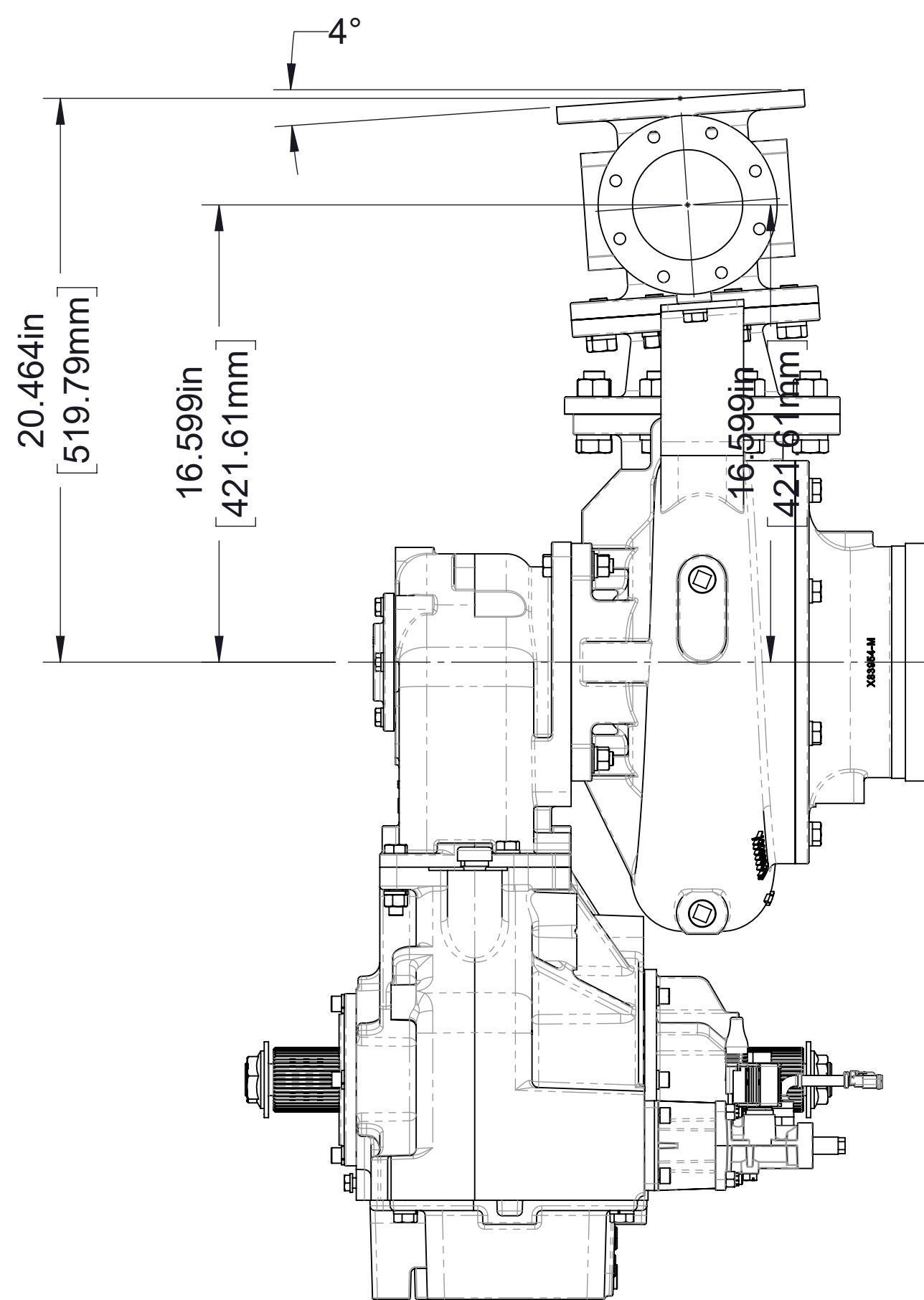
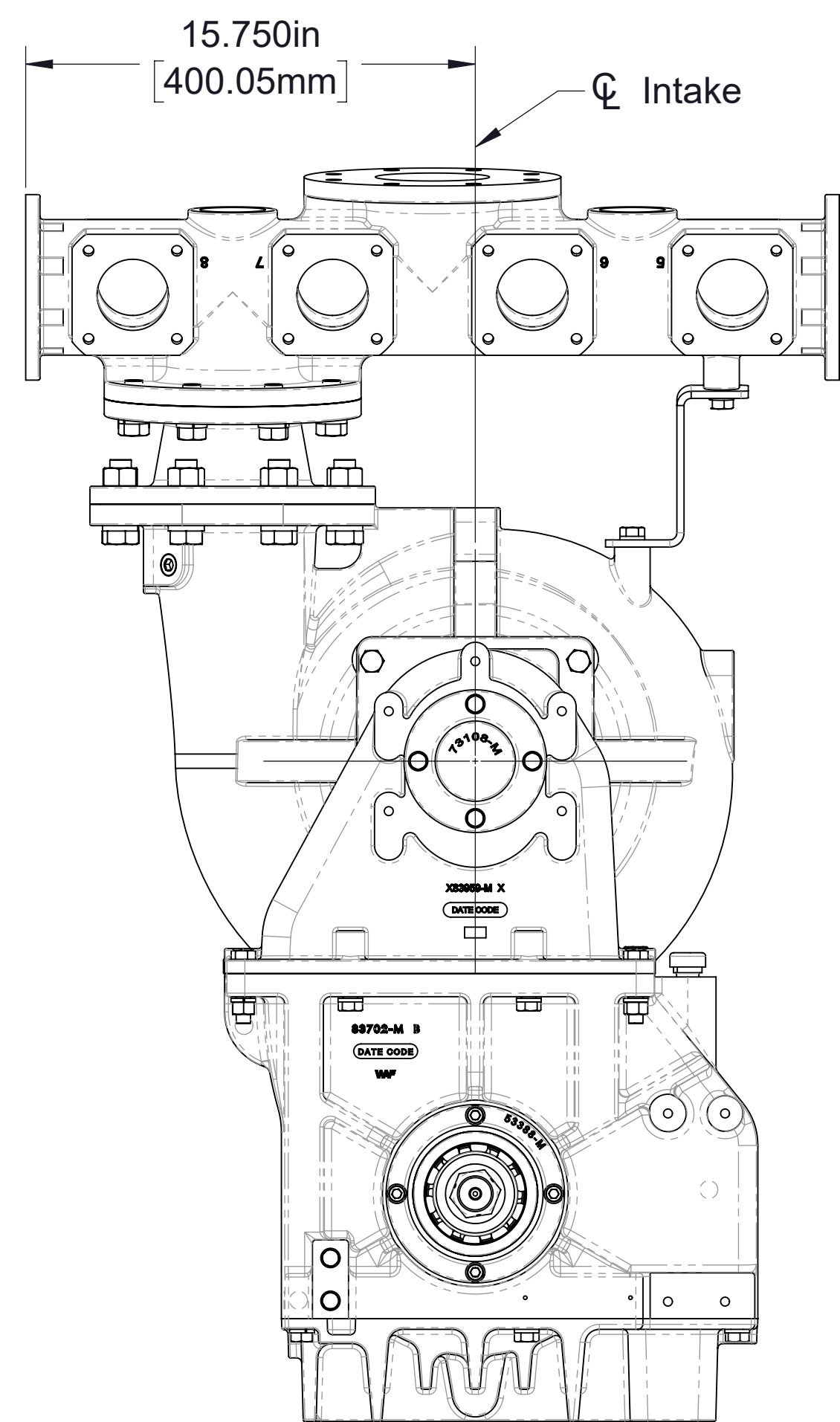


**Non-Angle Compensated**

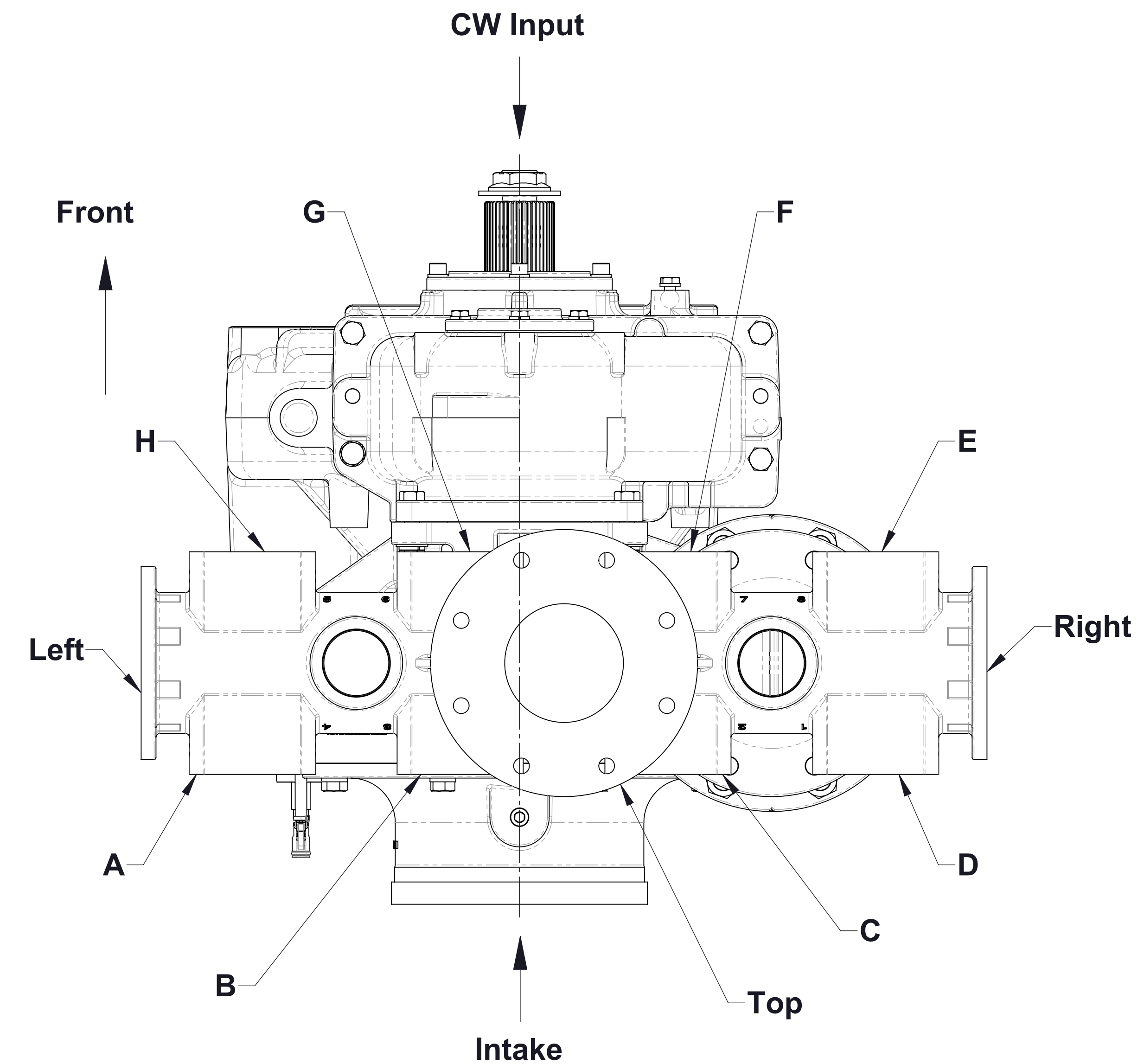


Pad	Size
Left	4 in. 8-Bolt
Right	4 in. 8-Bolt
Top	4 in. ANSI
A	2-1/2 in. 4-Bolt
B	2-1/2 in. 4-Bolt
C	2-1/2 in. 4-Bolt
D	2-1/2 in. 4-Bolt
E	2-1/2 in. 4-Bolt
F	2-1/2 in. 4-Bolt
G	2-1/2 in. 4-Bolt
H	2-1/2 in. 4-Bolt

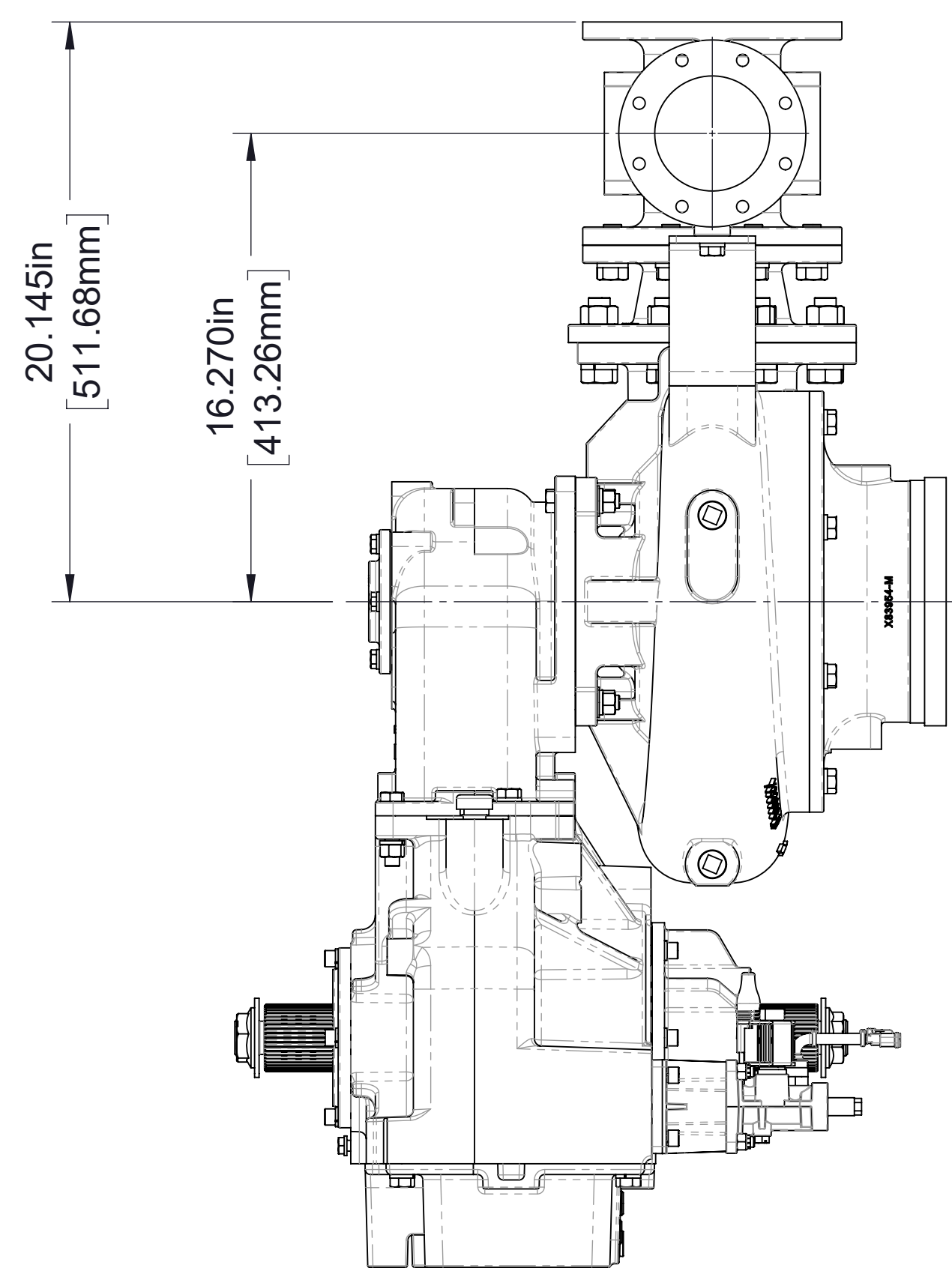
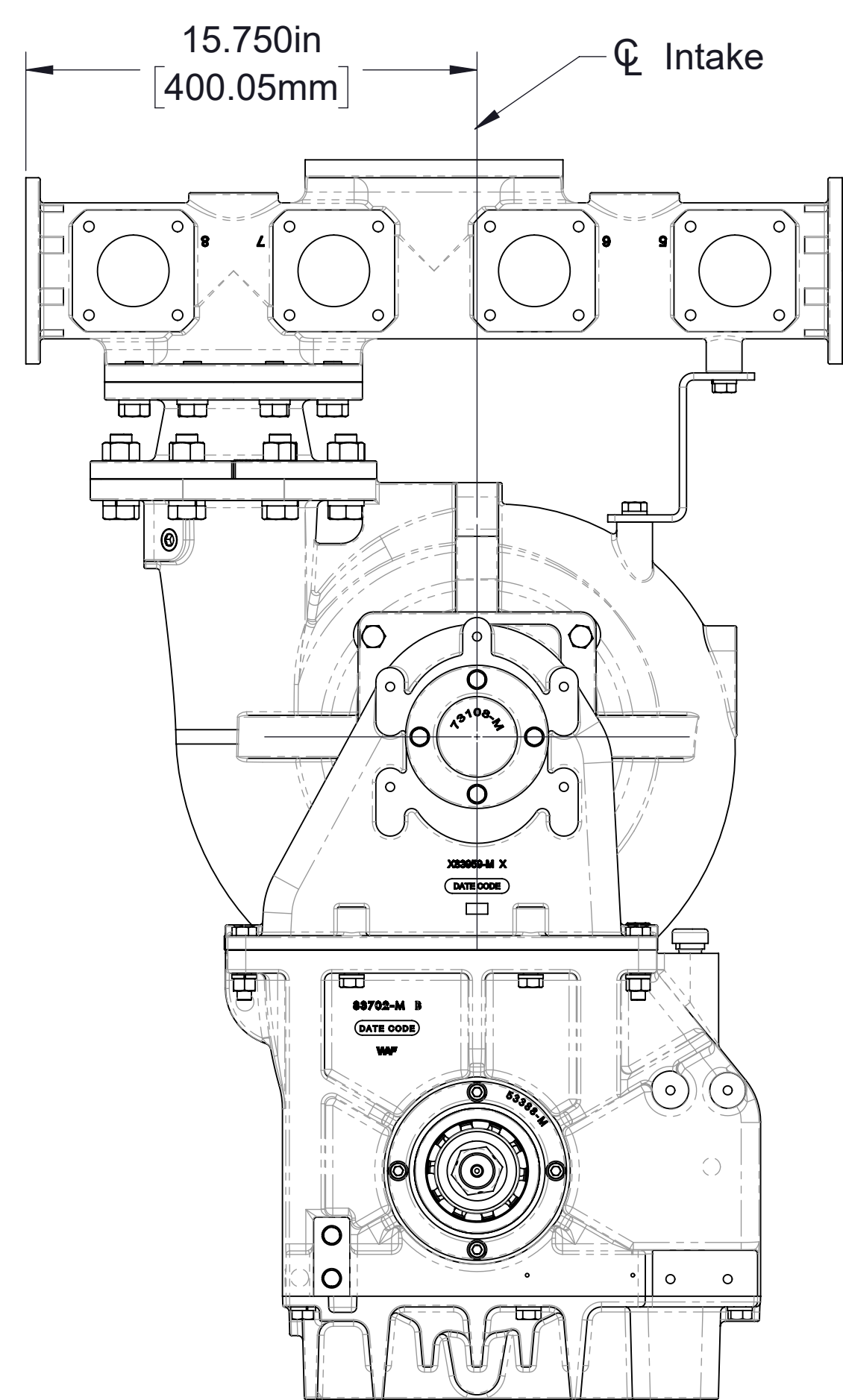
**Model ESU1C22 Discharge Manifold  
Mounted Perpendicular to Intake**  
Pump mounted on front (input side of transmission)  
See page 8 for manifold dimensions not shown



**Angle Compensated**

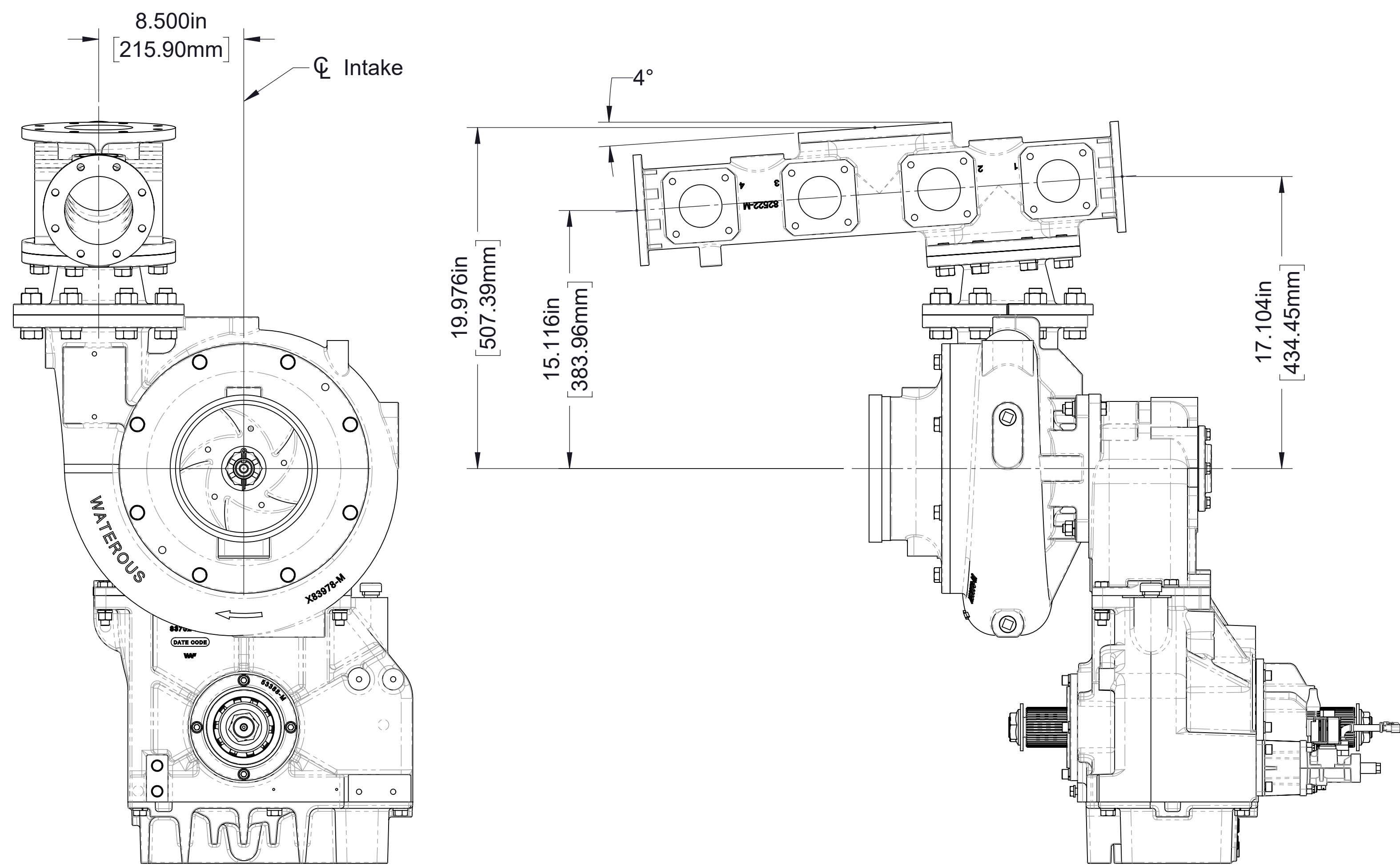


Pad	Size
Left	4 in. 8-Bolt
Right	4 in. 8-Bolt
Top	4 in. ANSI
A	2-1/2 in. 4-Bolt
B	2-1/2 in. 4-Bolt
C	2-1/2 in. 4-Bolt
D	2-1/2 in. 4-Bolt
E	2-1/2 in. 4-Bolt
F	2-1/2 in. 4-Bolt
G	2-1/2 in. 4-Bolt
H	2-1/2 in. 4-Bolt

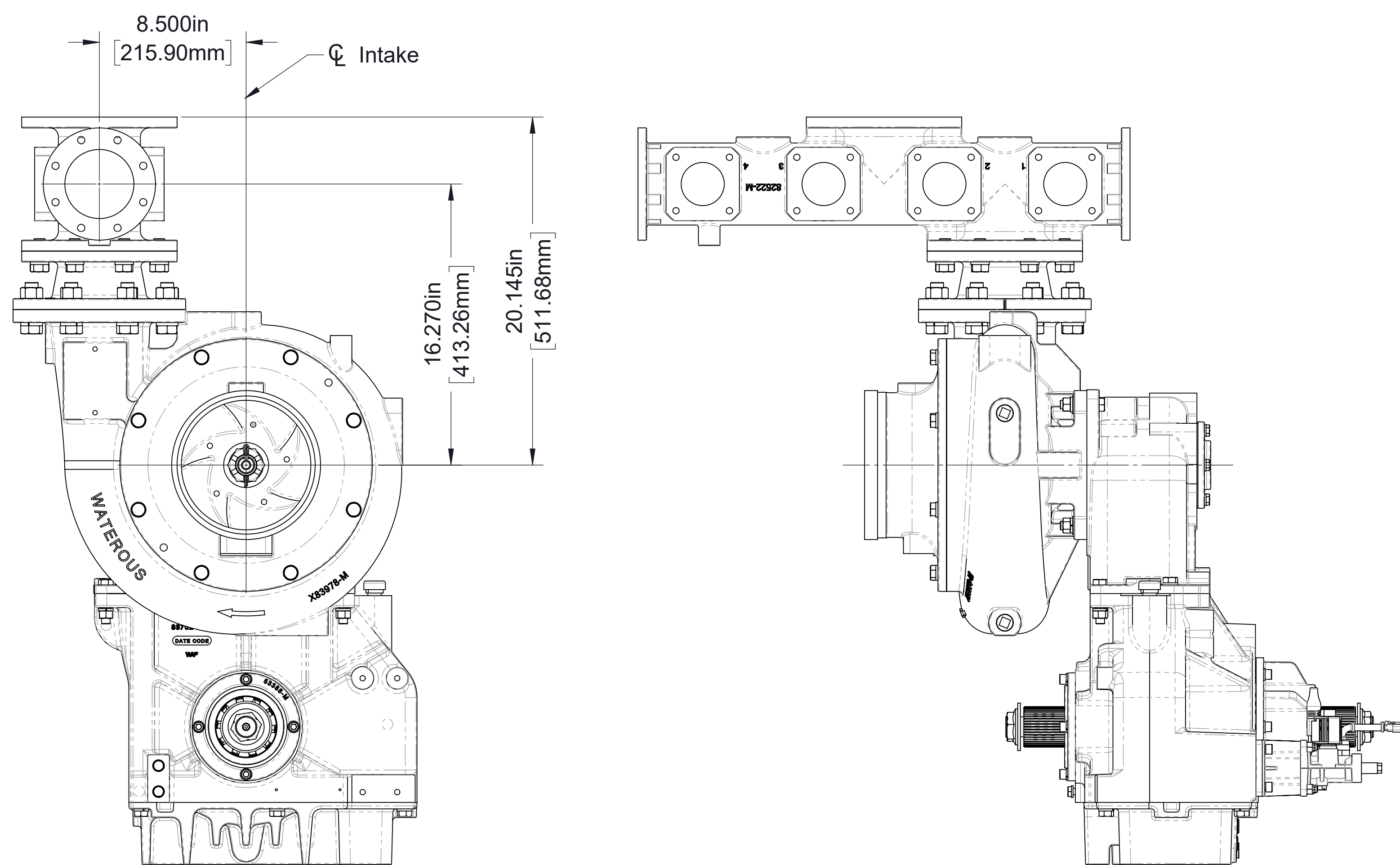


**Non-Angle Compensated**

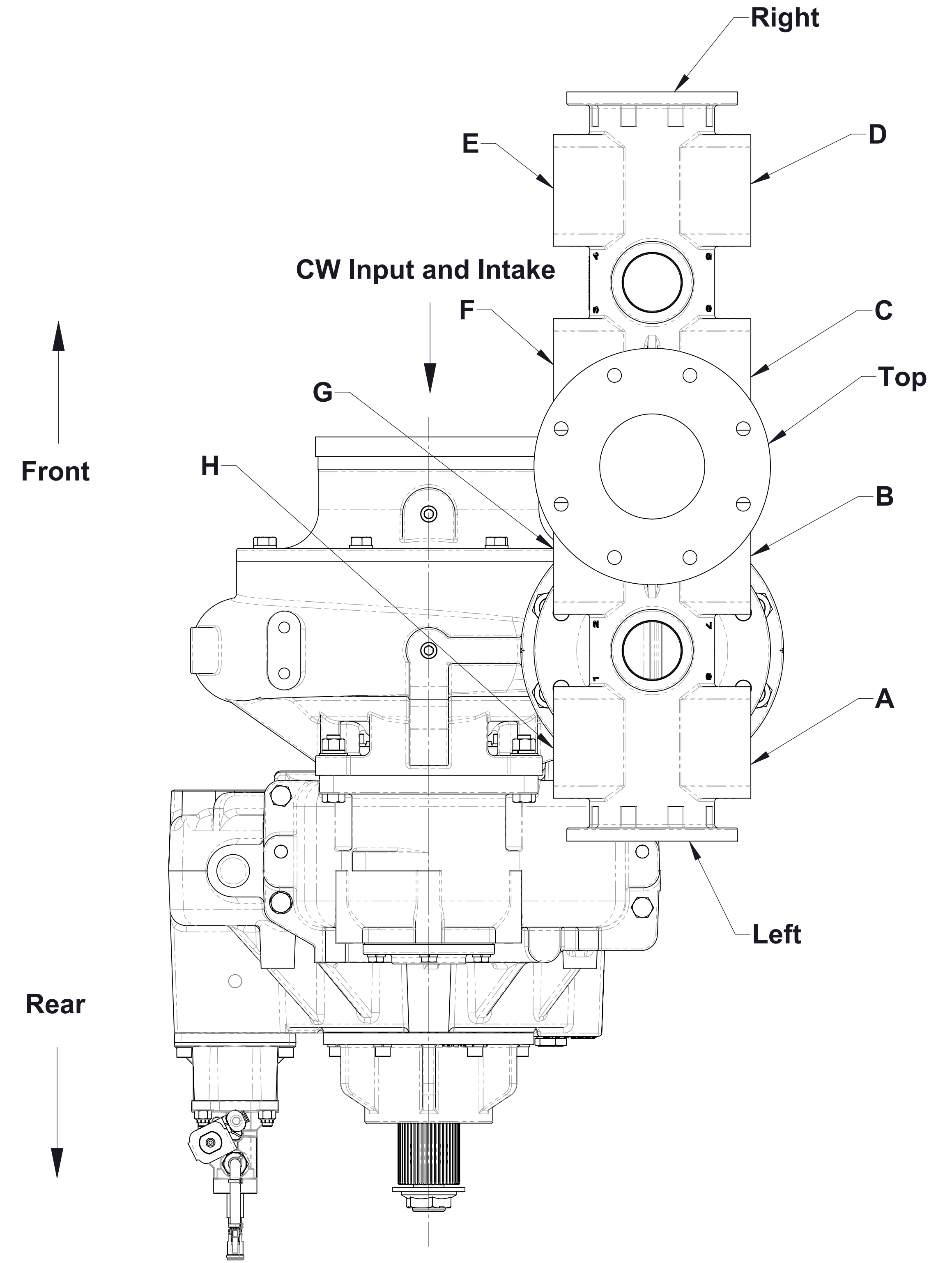
**Model ESU1C22 Discharge Manifold  
Mounted Perpendicular to Intake**  
Pump mounted on rear (output side of transmission)  
See page 8 for manifold dimensions not shown



**Angle Compensated**

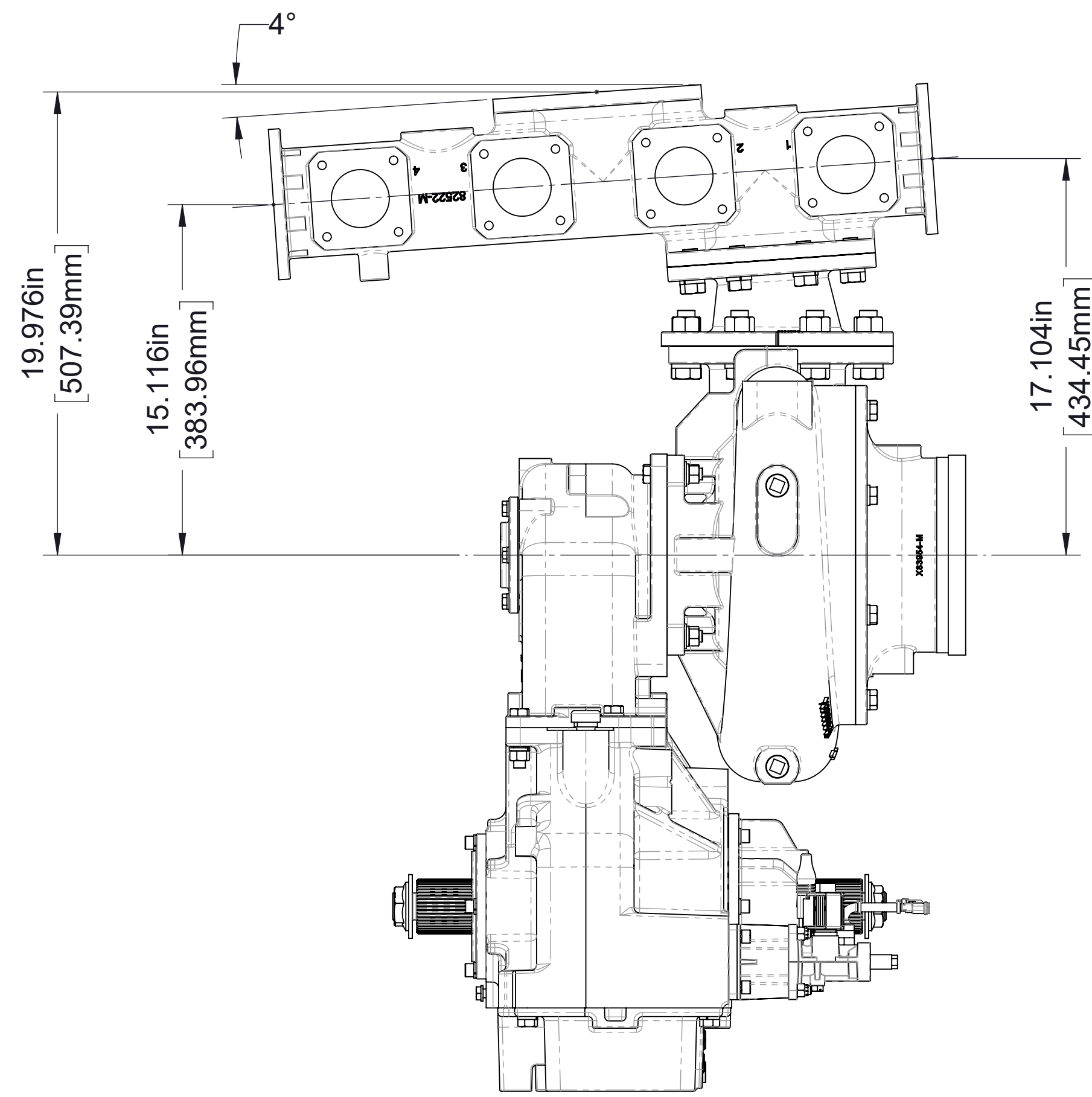
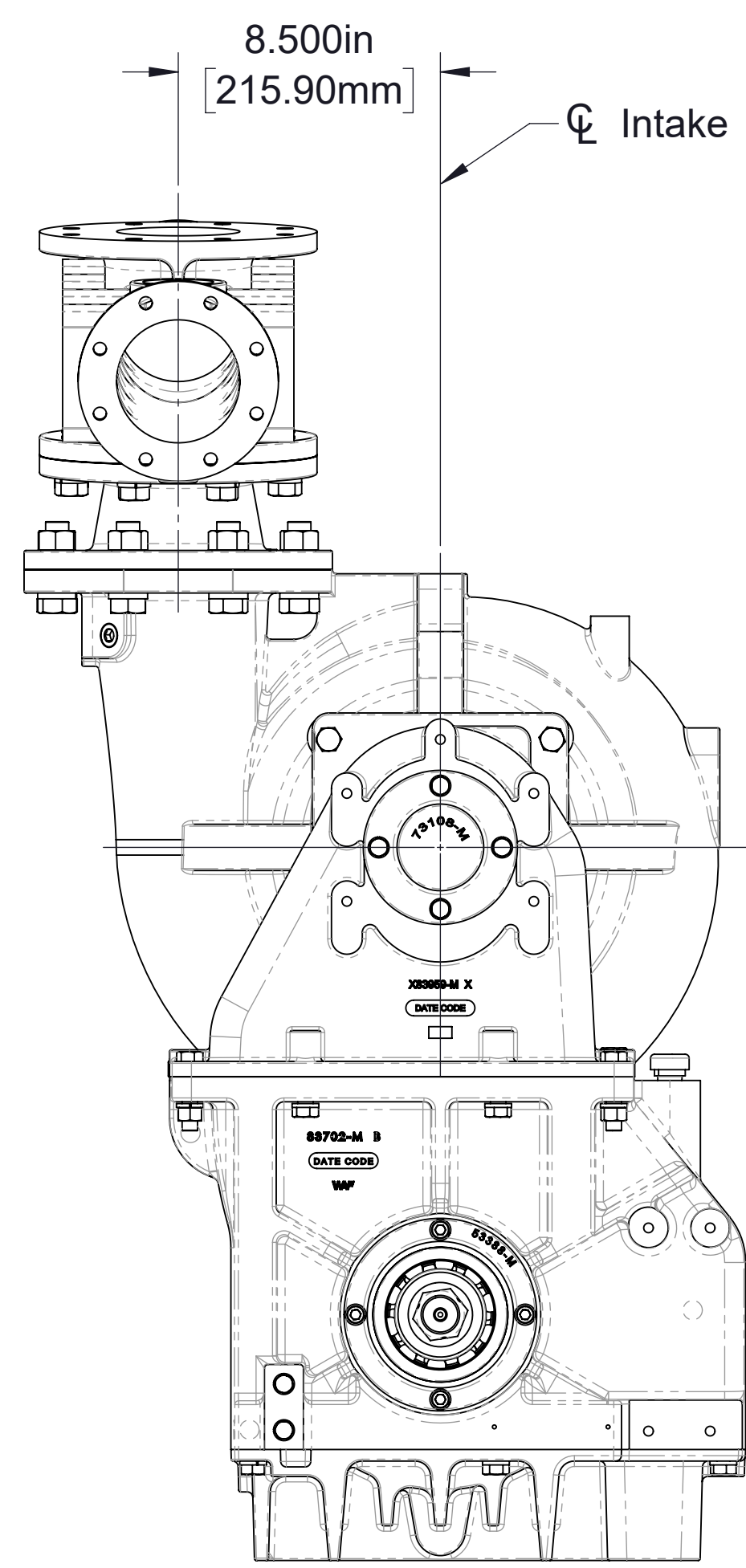


**Non-Angle Compensated**

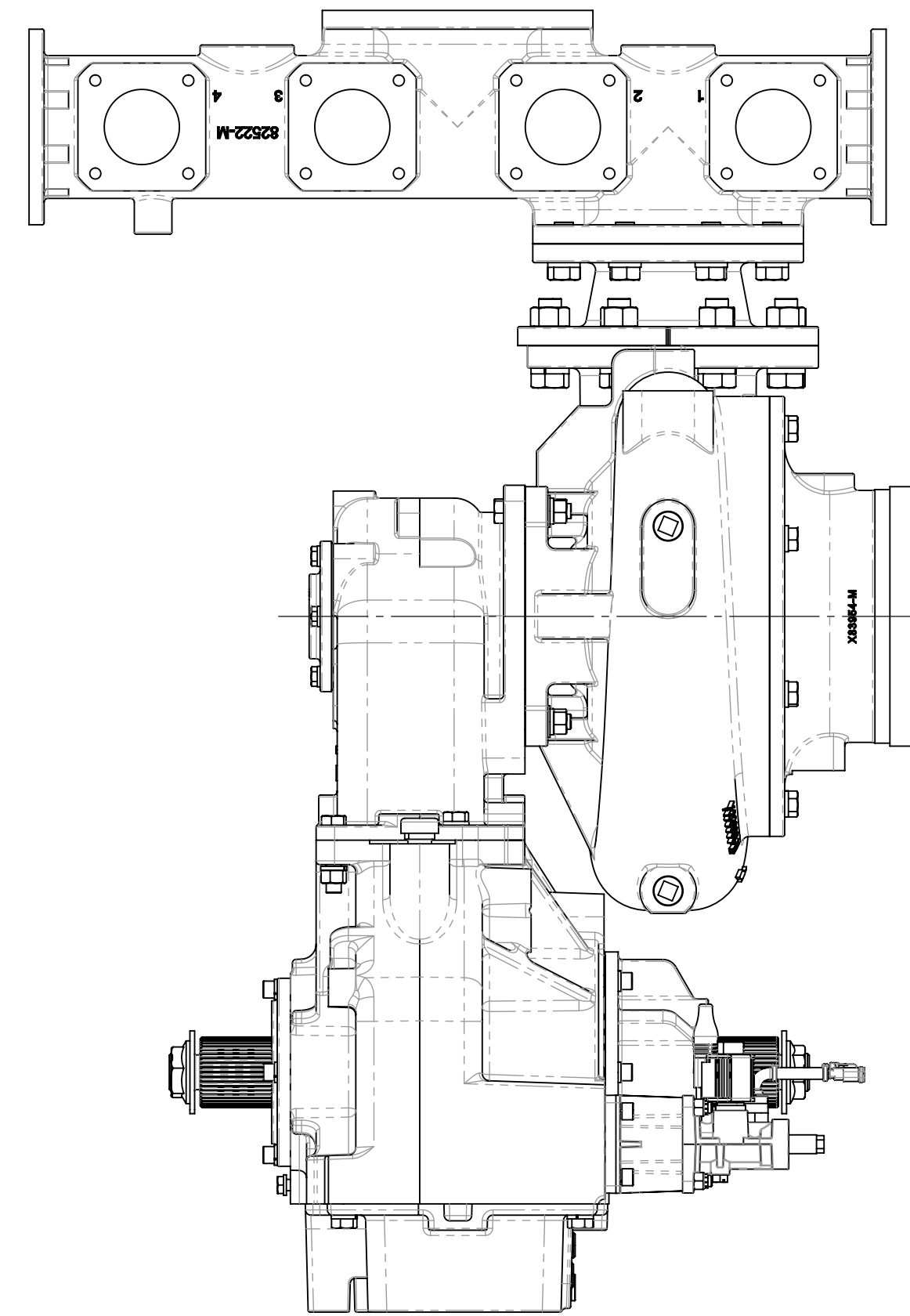
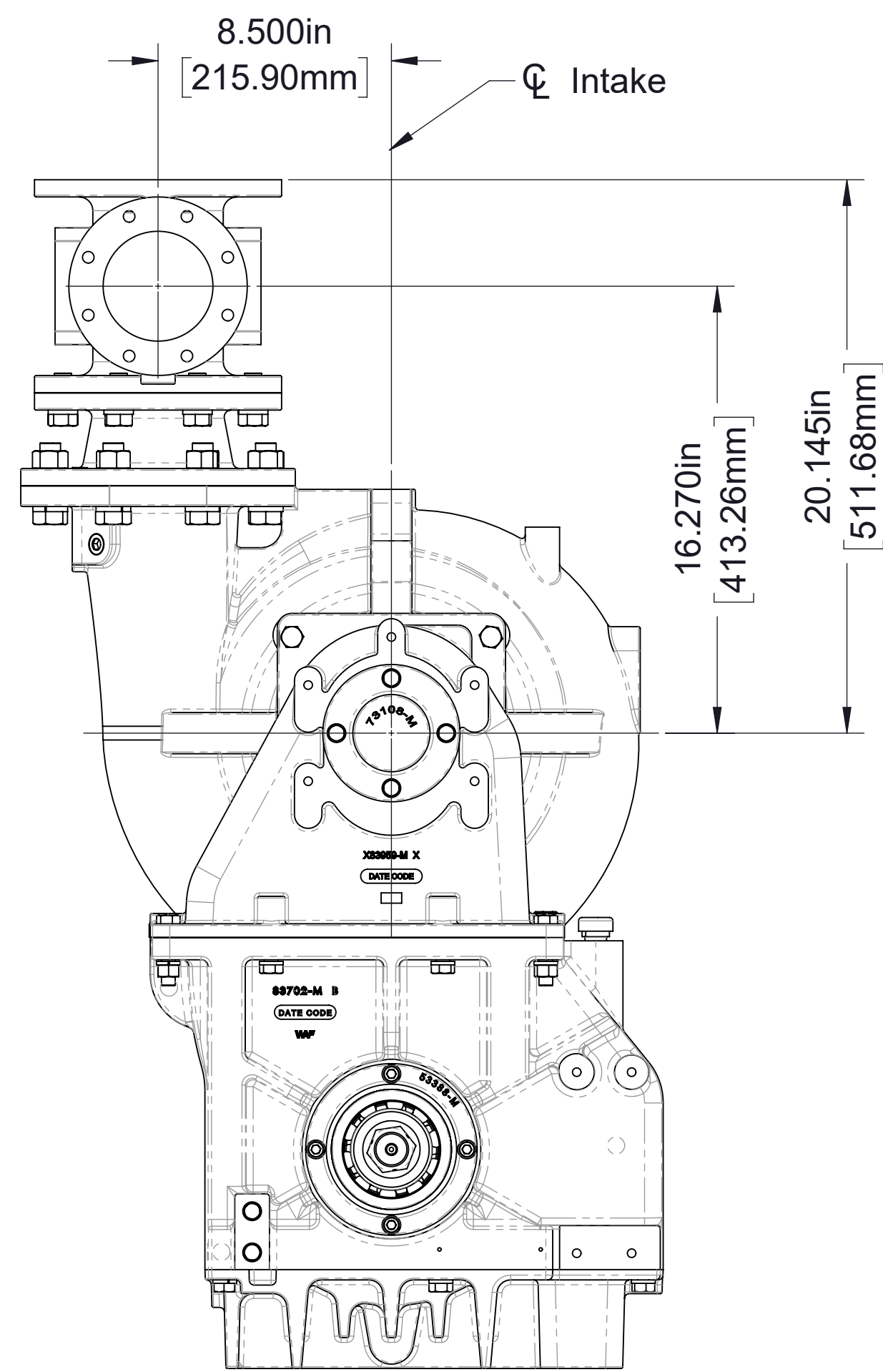


Pad	Size
Left	4 in. 8-Bolt
Right	4 in. 8-Bolt
Top	4 in. ANSI
A	2-1/2 in. 4-Bolt
B	2-1/2 in. 4-Bolt
C	2-1/2 in. 4-Bolt
D	2-1/2 in. 4-Bolt
E	2-1/2 in. 4-Bolt
F	2-1/2 in. 4-Bolt
G	2-1/2 in. 4-Bolt
H	2-1/2 in. 4-Bolt

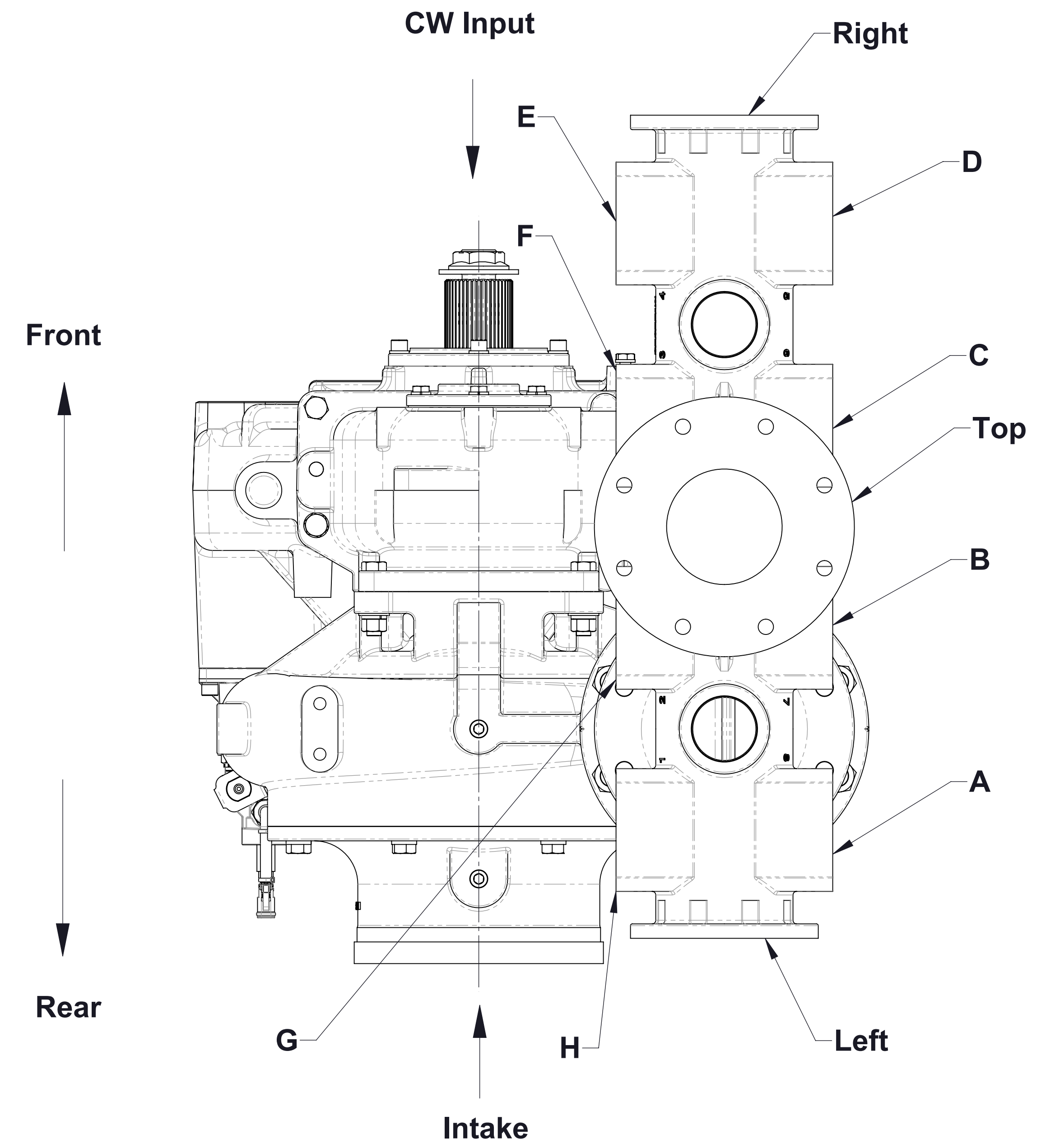
**Model ESU1C22 Discharge Manifold  
Mounted Parallel to Intake**  
Pump mounted on front (input side of transmission)  
See page 8 for manifold dimensions not shown



**Angle Compensated**



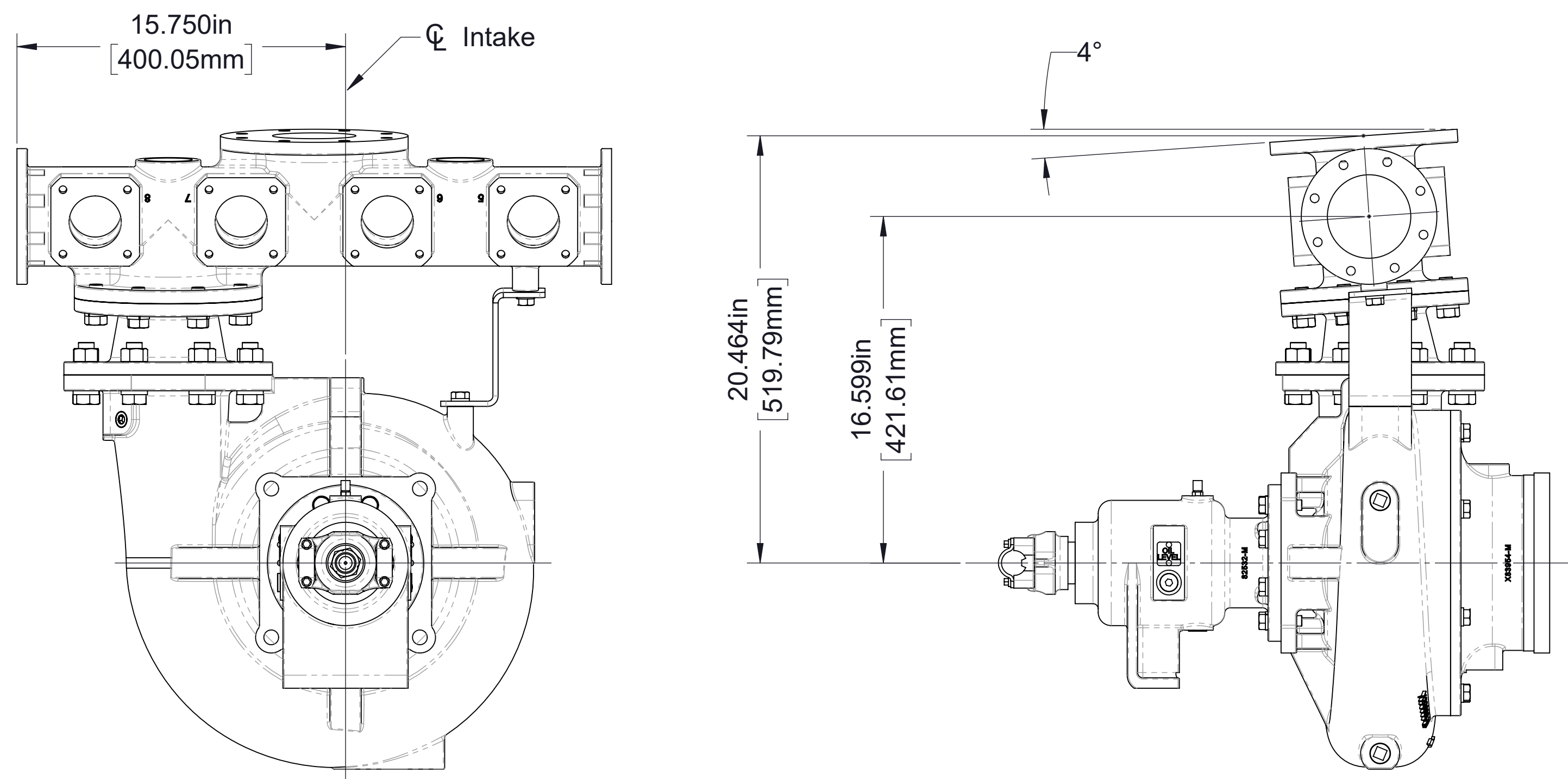
**Non-Angle Compensated**



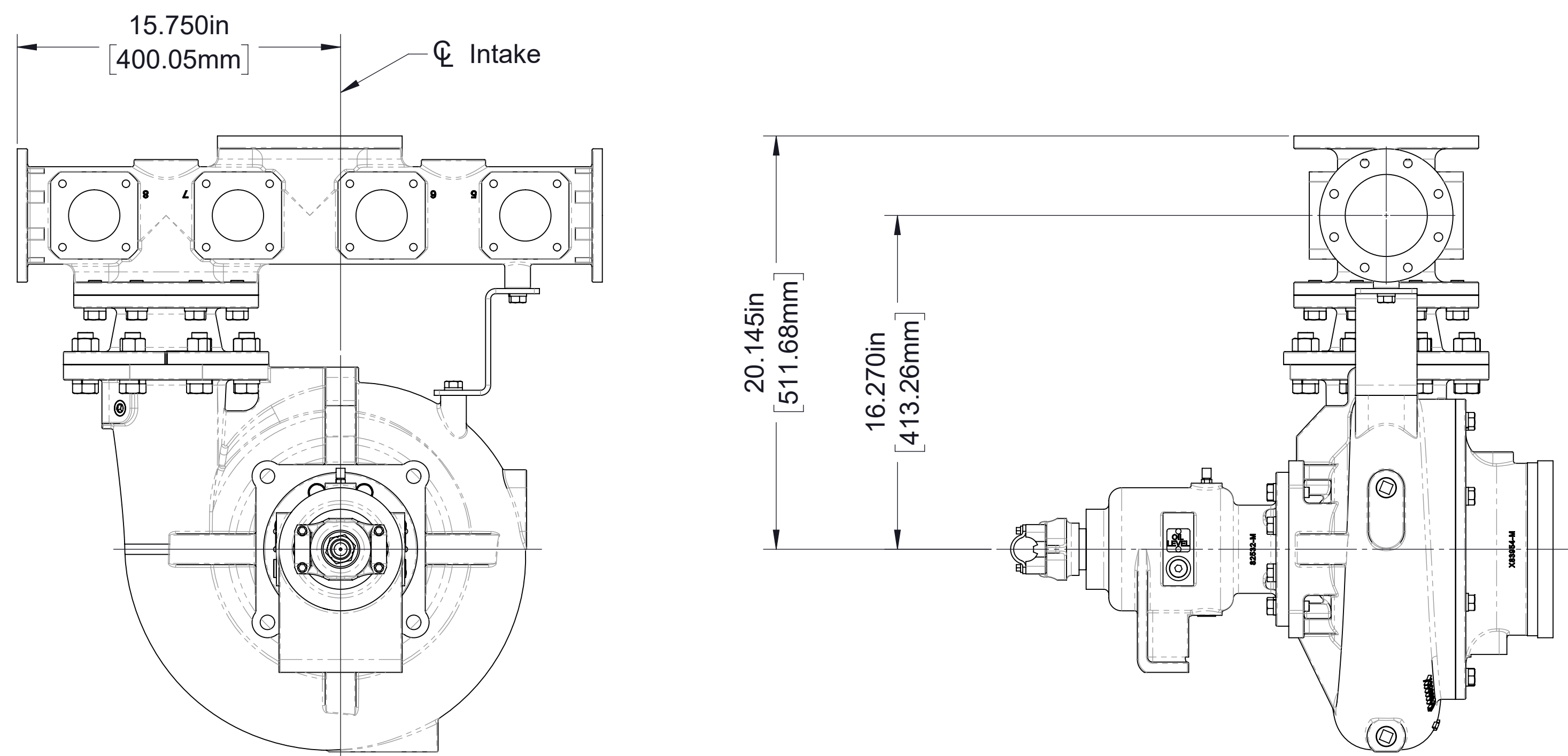
Pad	Size
Left	4 in. 8-Bolt
Right	4 in. 8-Bolt
Top	4 in. ANSI
A	2-1/2 in. 4-Bolt
B	2-1/2 in. 4-Bolt
C	2-1/2 in. 4-Bolt
D	2-1/2 in. 4-Bolt
E	2-1/2 in. 4-Bolt
F	2-1/2 in. 4-Bolt
G	2-1/2 in. 4-Bolt
H	2-1/2 in. 4-Bolt

**Model ESU1C22 Discharge Manifold  
Mounted Parallel to Intake**  
Pump mounted on rear (output side of transmission)  
See page 8 for manifold dimensions not shown

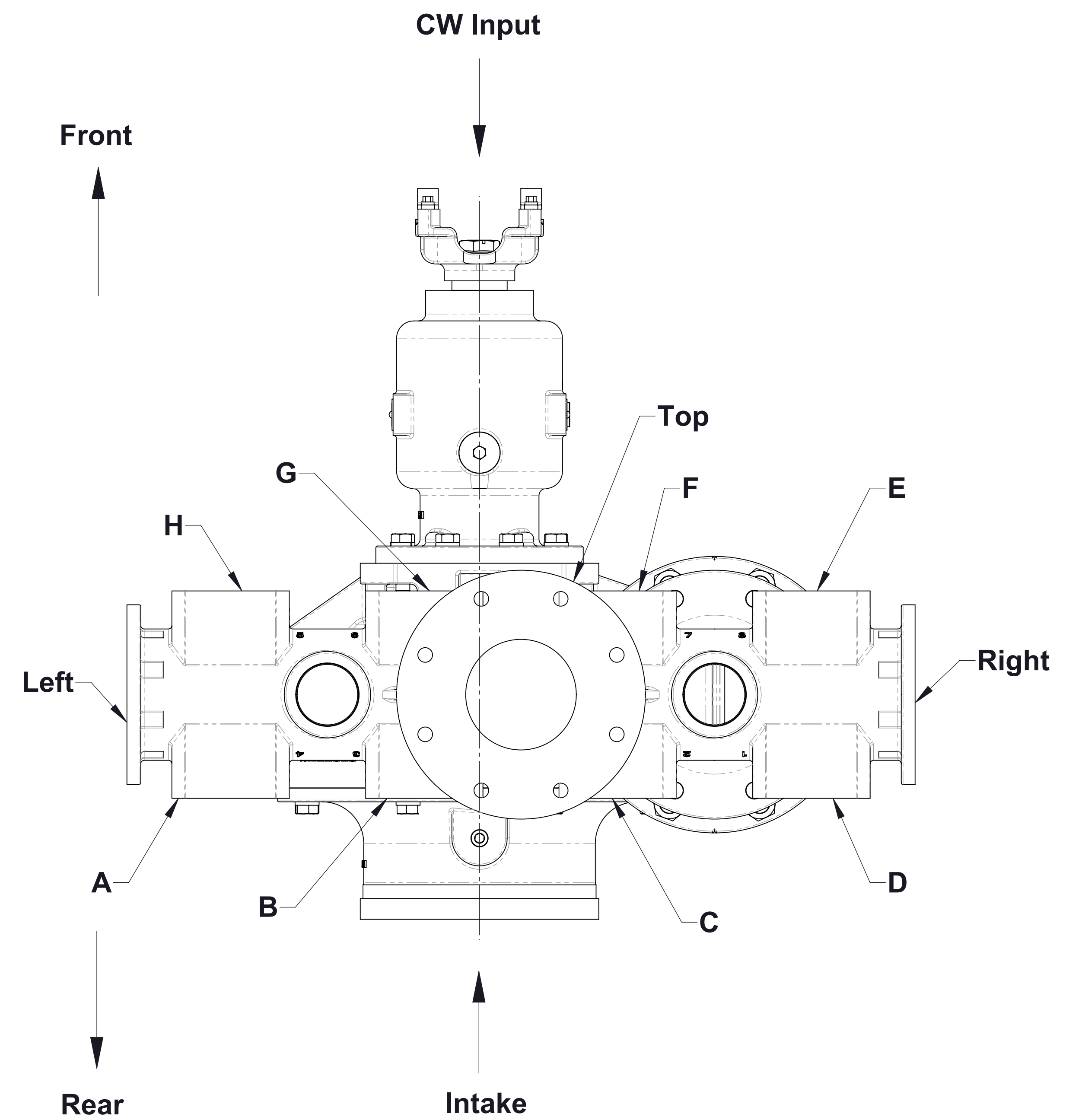




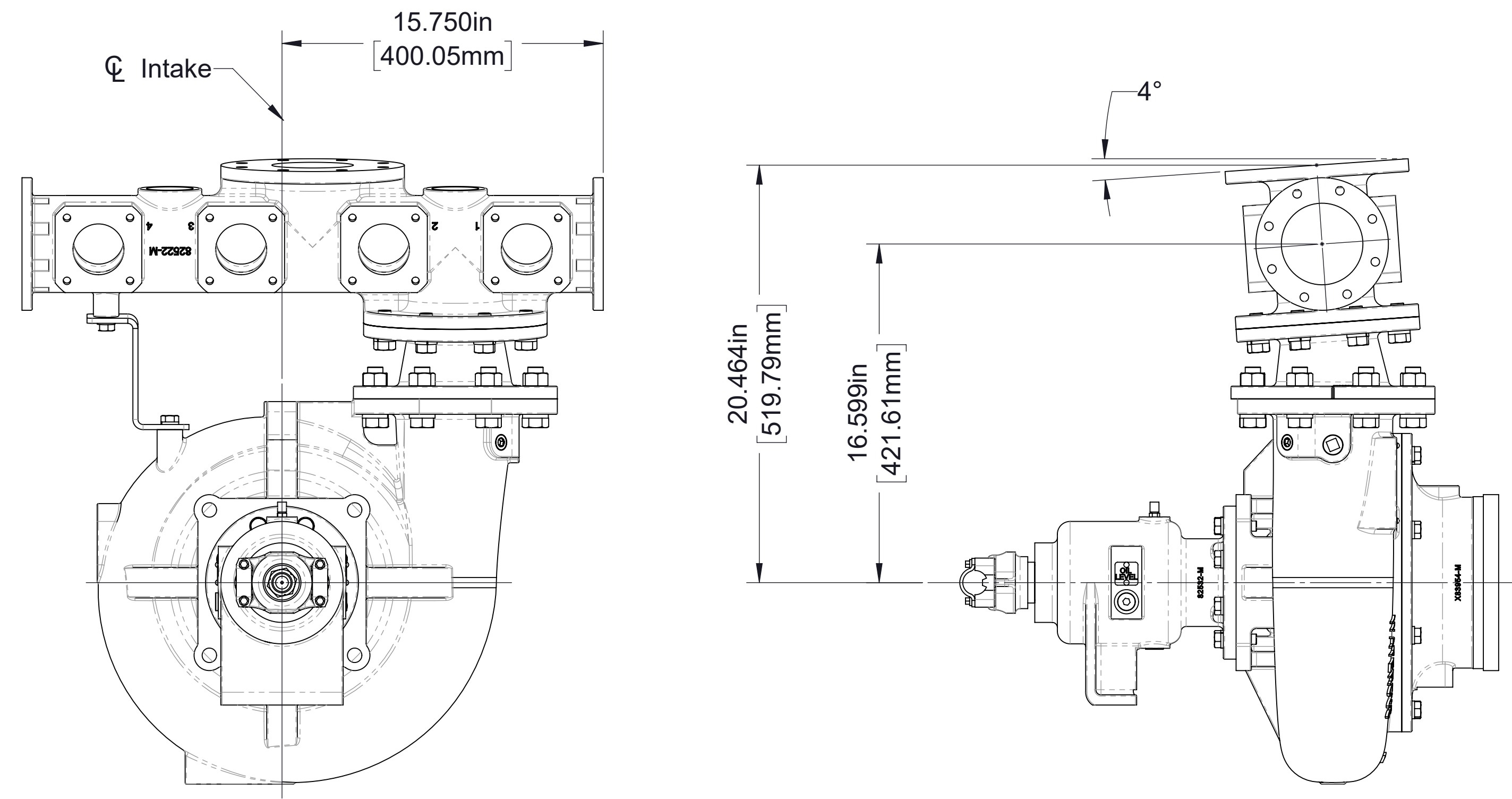
**Angle Compensated**



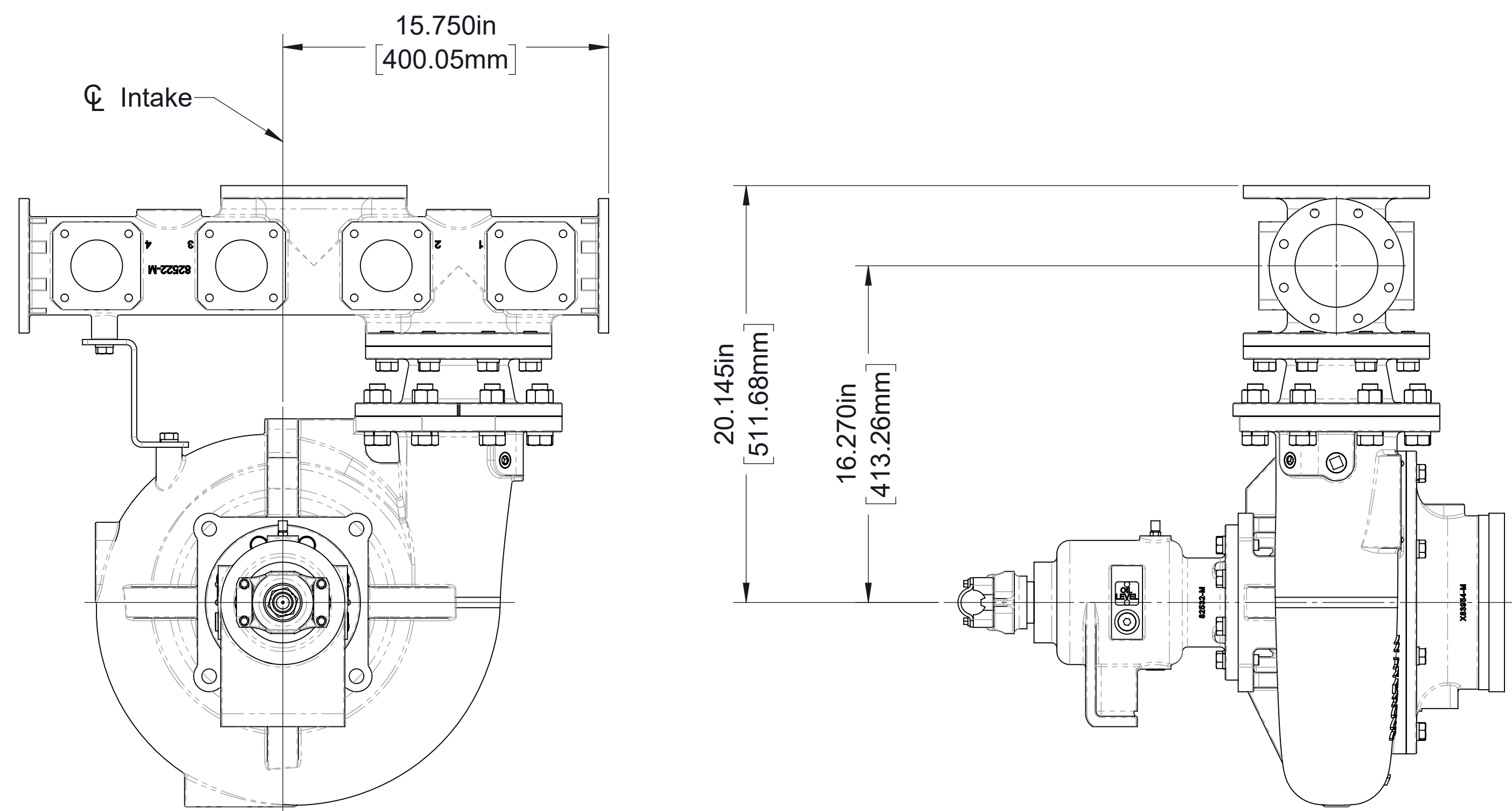
**Non-Angle Compensated**



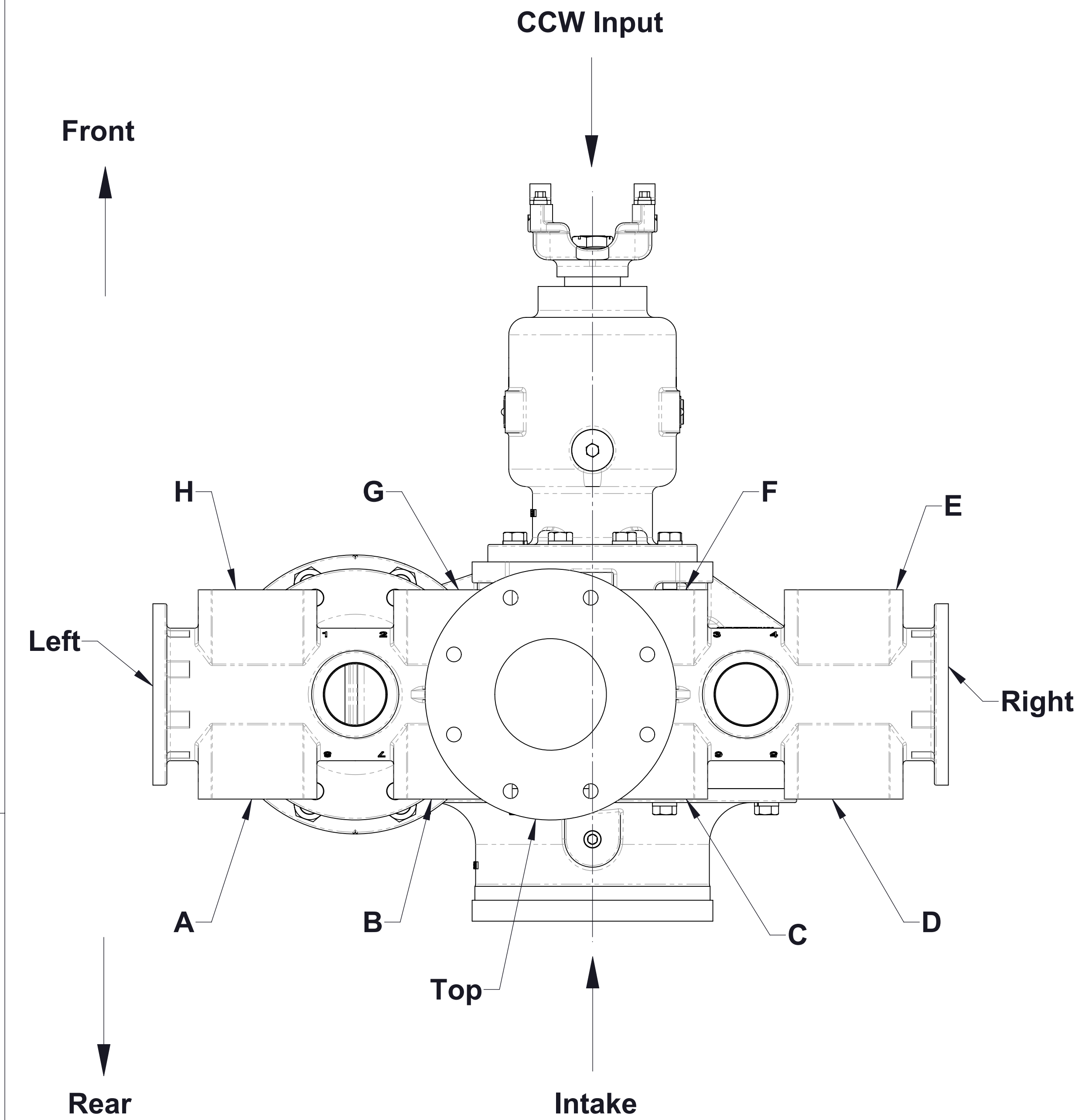
Pad	Size
Left	4 in. 8-Bolt
Right	4 in. 8-Bolt
Top	4 in. ANSI
A	2-1/2 in. 4-Bolt
B	2-1/2 in. 4-Bolt
C	2-1/2 in. 4-Bolt
D	2-1/2 in. 4-Bolt
E	2-1/2 in. 4-Bolt
F	2-1/2 in. 4-Bolt
G	2-1/2 in. 4-Bolt
H	2-1/2 in. 4-Bolt



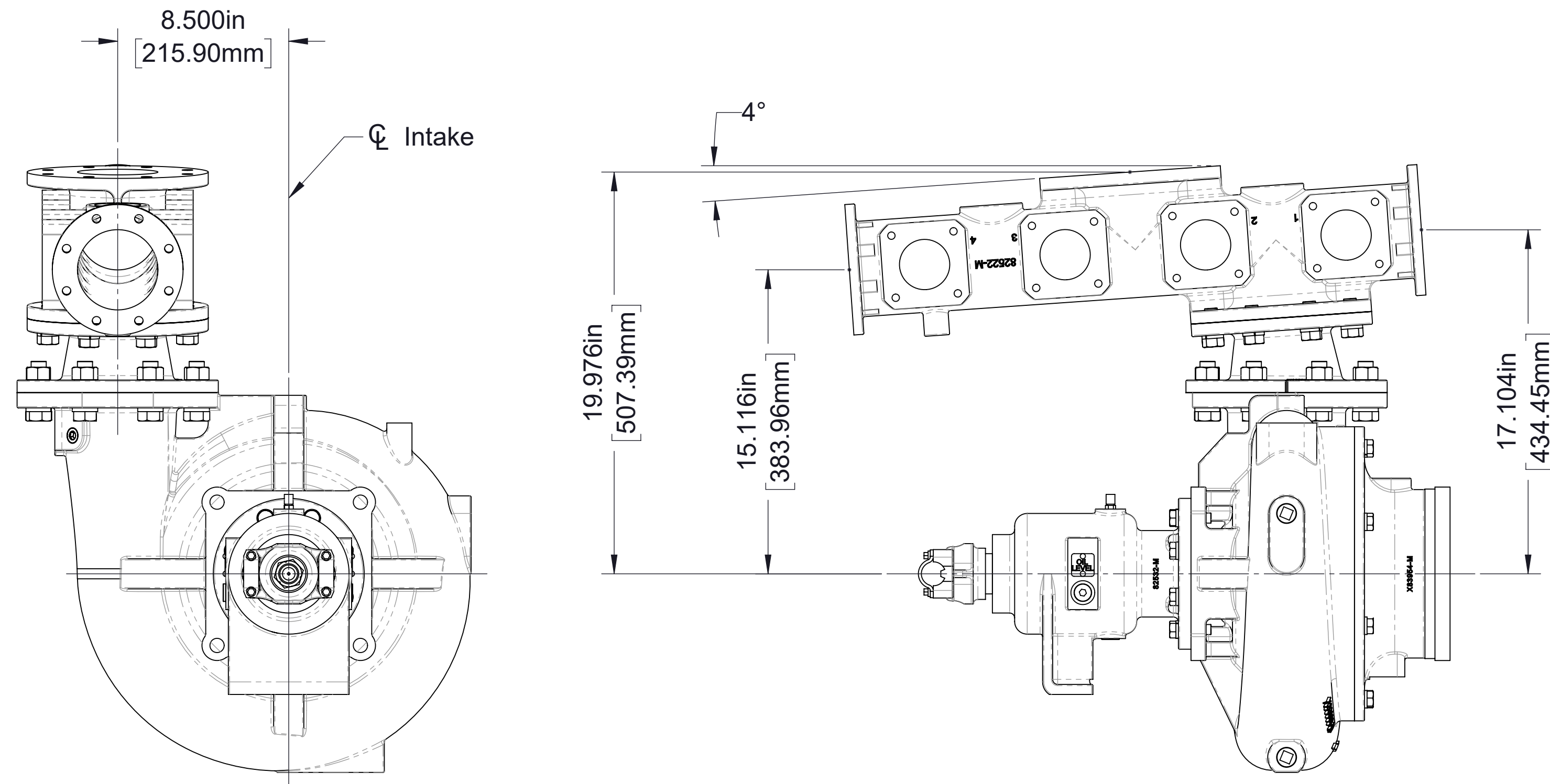
**Angle Compensated**



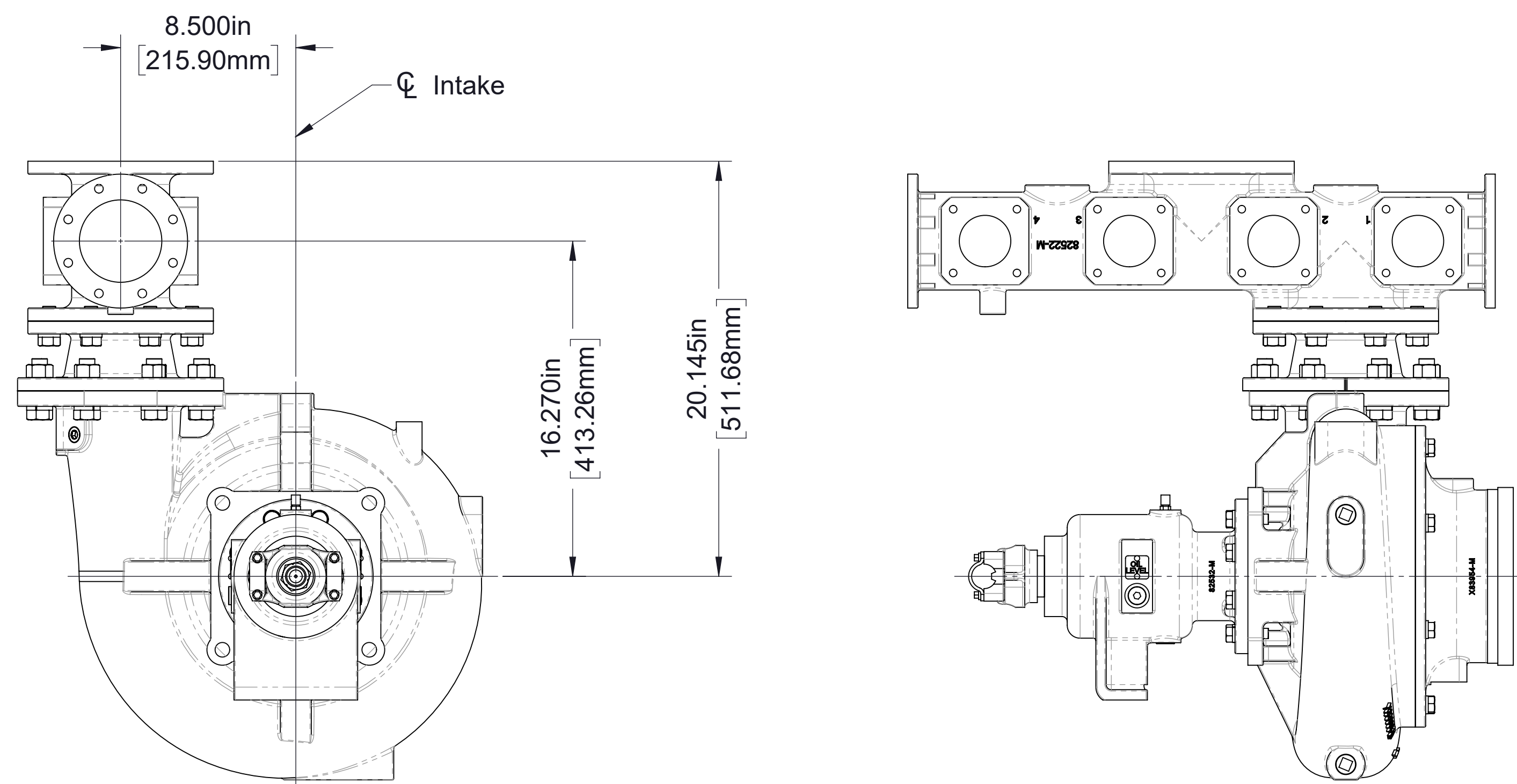
**Non-Angle Compensated**



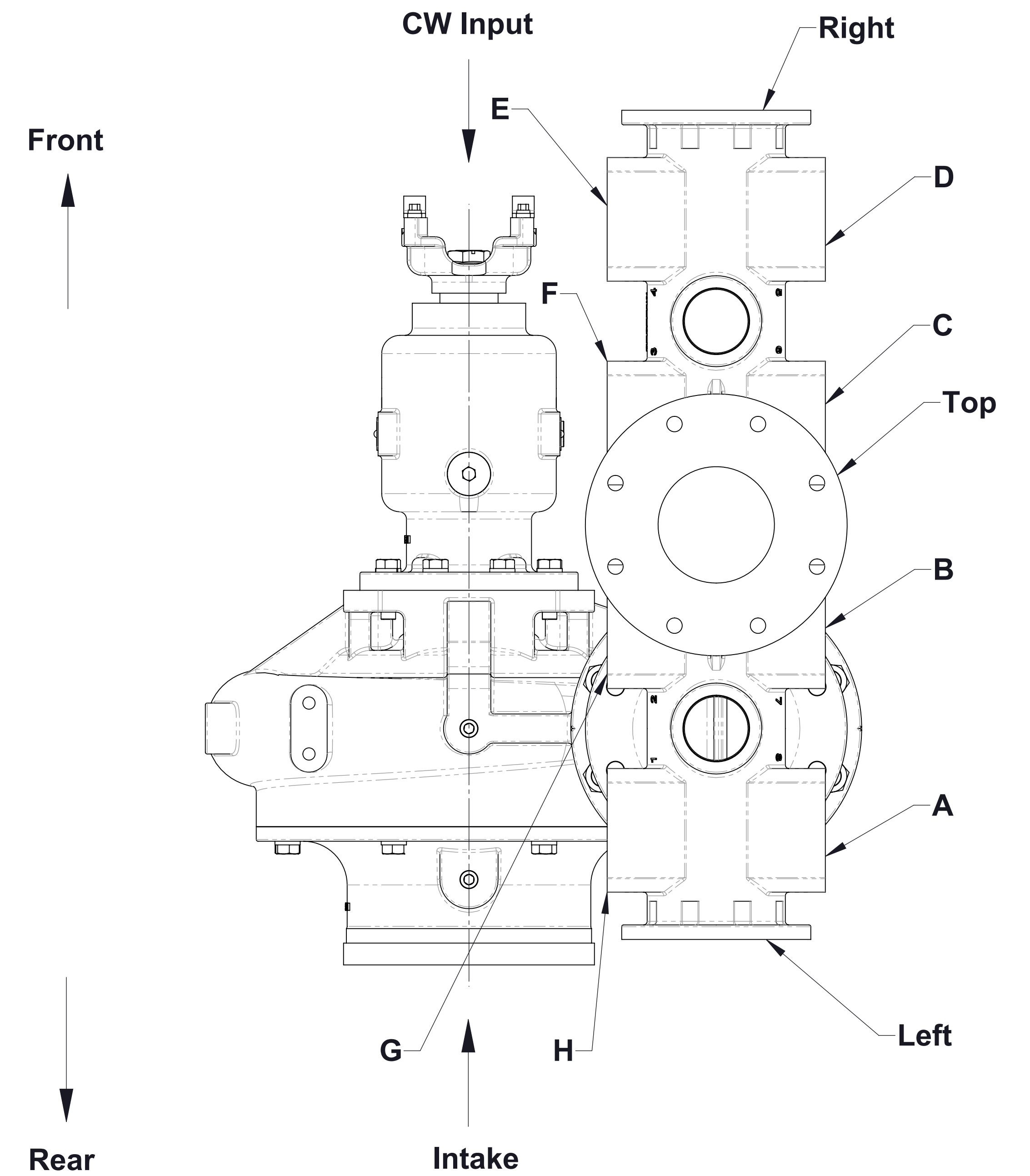
Pad	Size
Left	4 in. 8-Bolt
Right	4 in. 8-Bolt
Top	4 in. ANSI
A	2-1/2 in. 4-Bolt
B	2-1/2 in. 4-Bolt
C	2-1/2 in. 4-Bolt
D	2-1/2 in. 4-Bolt
E	2-1/2 in. 4-Bolt
F	2-1/2 in. 4-Bolt
G	2-1/2 in. 4-Bolt
H	2-1/2 in. 4-Bolt



**Angle Compensated**

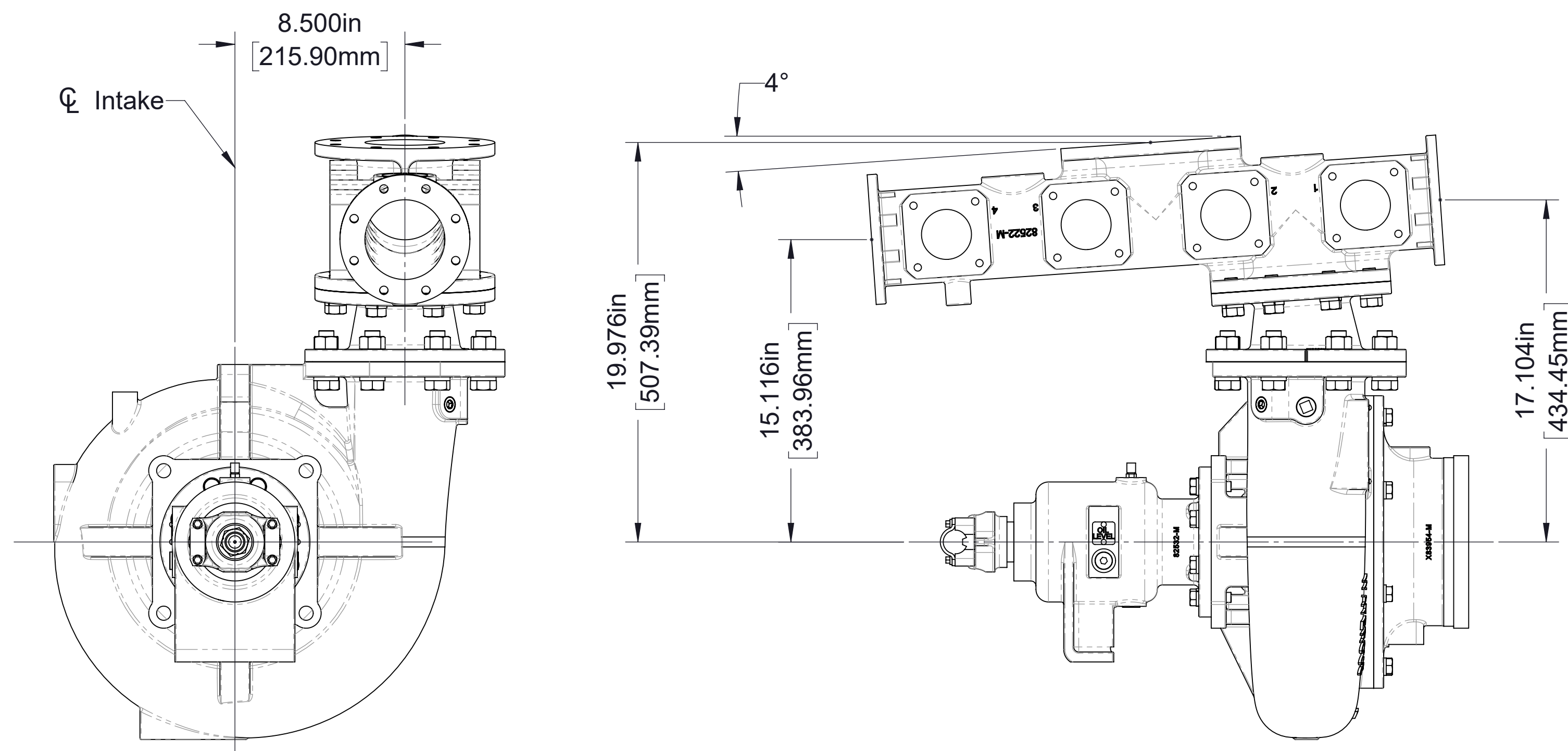


**Non-Angle Compensated**

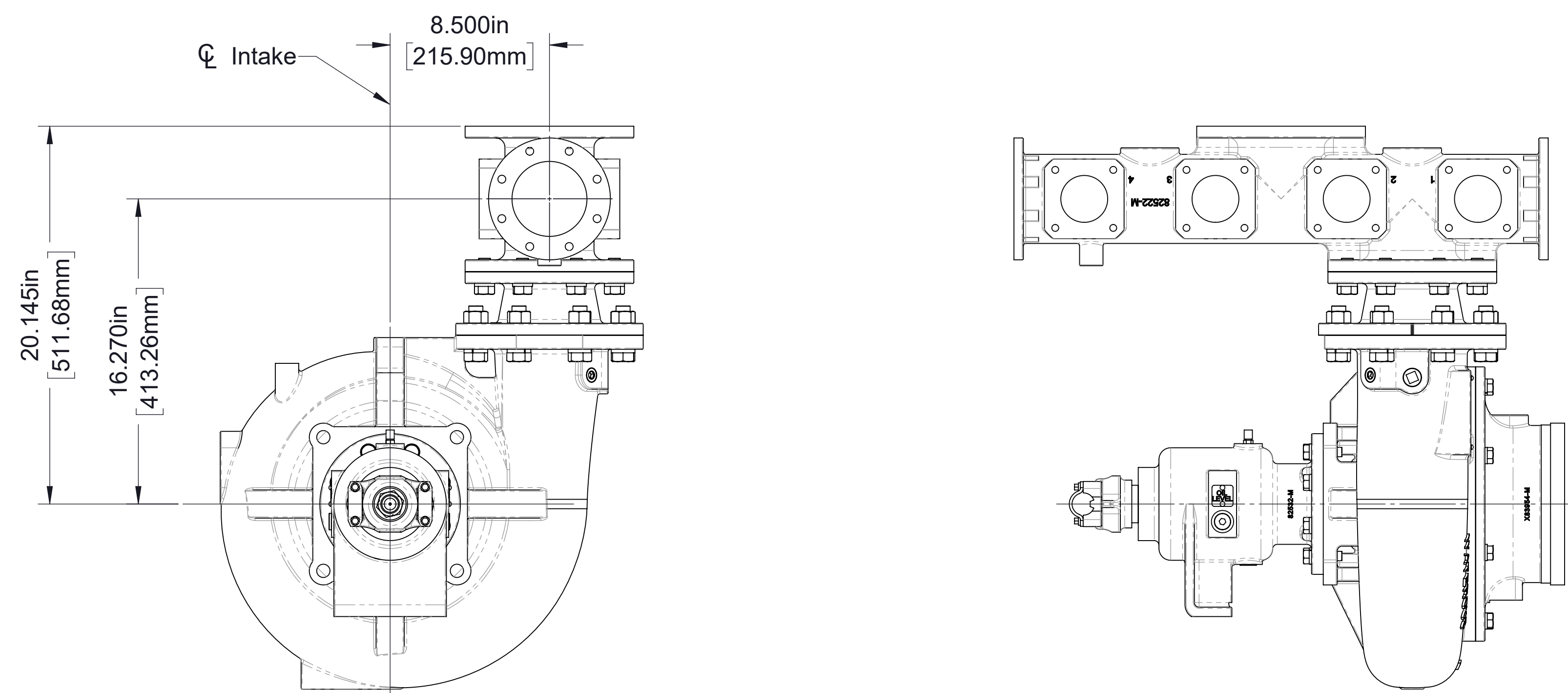


Pad	Size
Left	4 in. 8-Bolt
Right	4 in. 8-Bolt
Top	4 in. ANSI
A	2-1/2 in. 4-Bolt
B	2-1/2 in. 4-Bolt
C	2-1/2 in. 4-Bolt
D	2-1/2 in. 4-Bolt
E	2-1/2 in. 4-Bolt
F	2-1/2 in. 4-Bolt
G	2-1/2 in. 4-Bolt
H	2-1/2 in. 4-Bolt

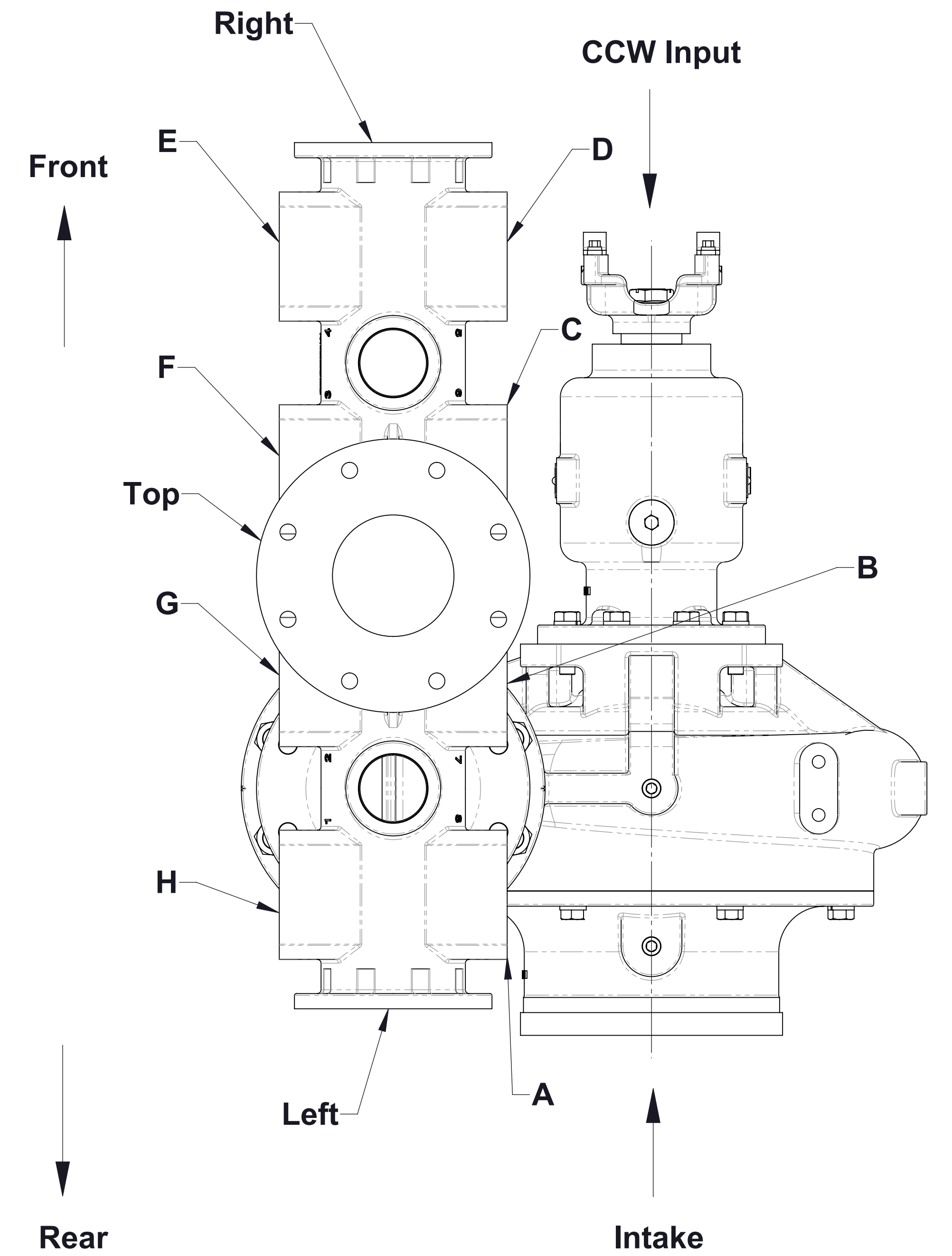
**Model ESU1D Discharge Manifold  
Mounted Parallel to Intake  
CW Input**  
See page 8 for manifold dimensions not shown



**Angle Compensated**



**Non-Angle Compensated**



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