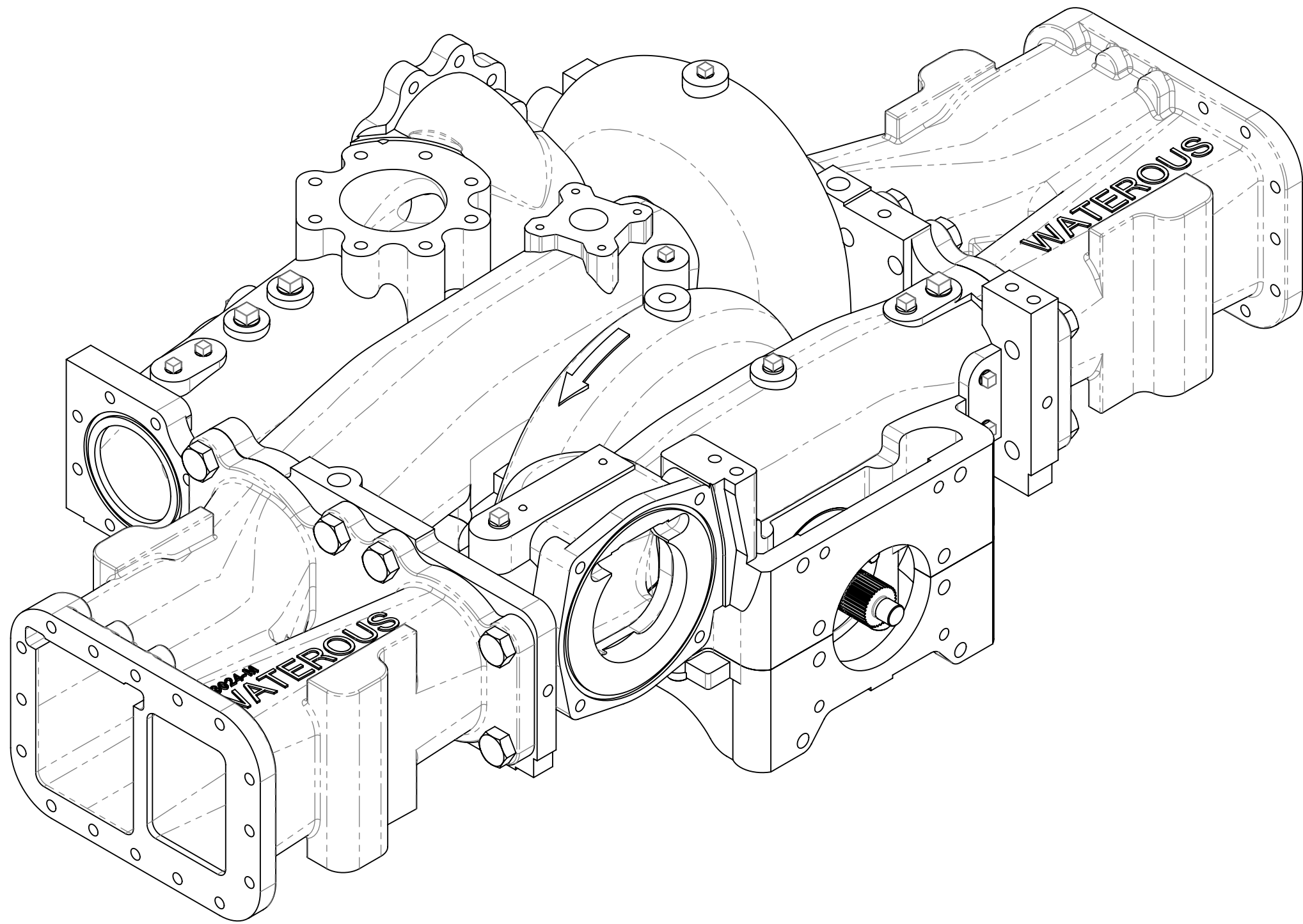


CS Series Fire Pump Dimensional Drawings

Pump Models: CS and CSU

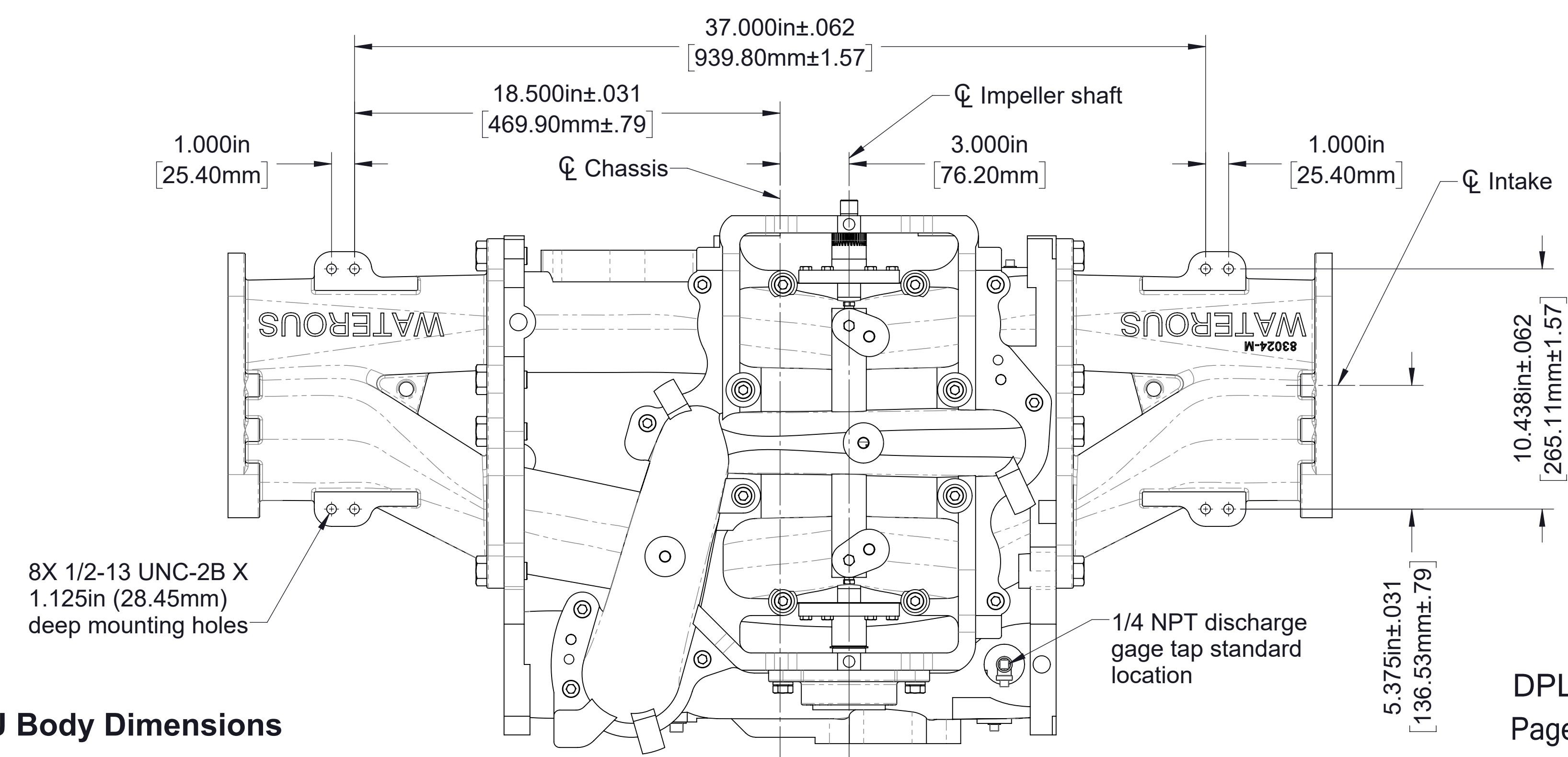
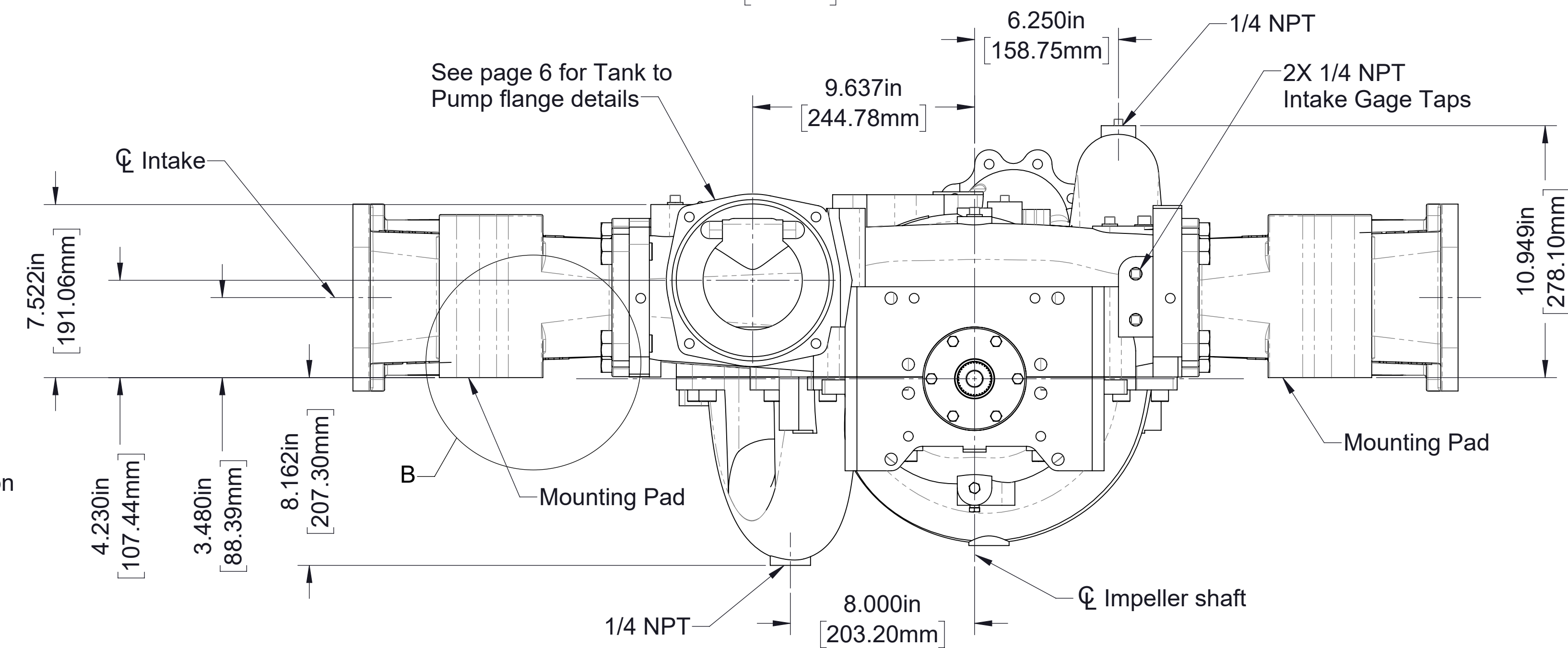
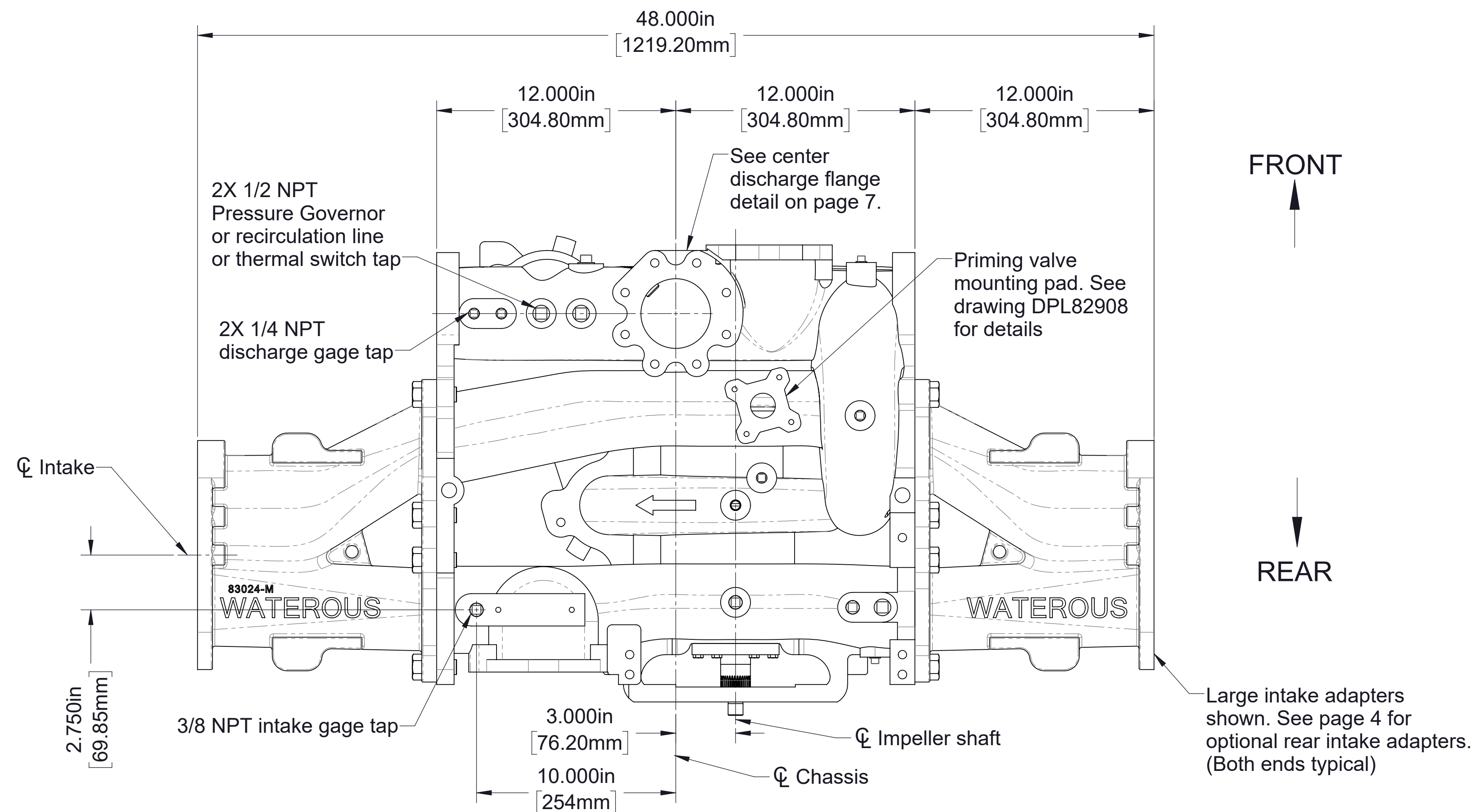
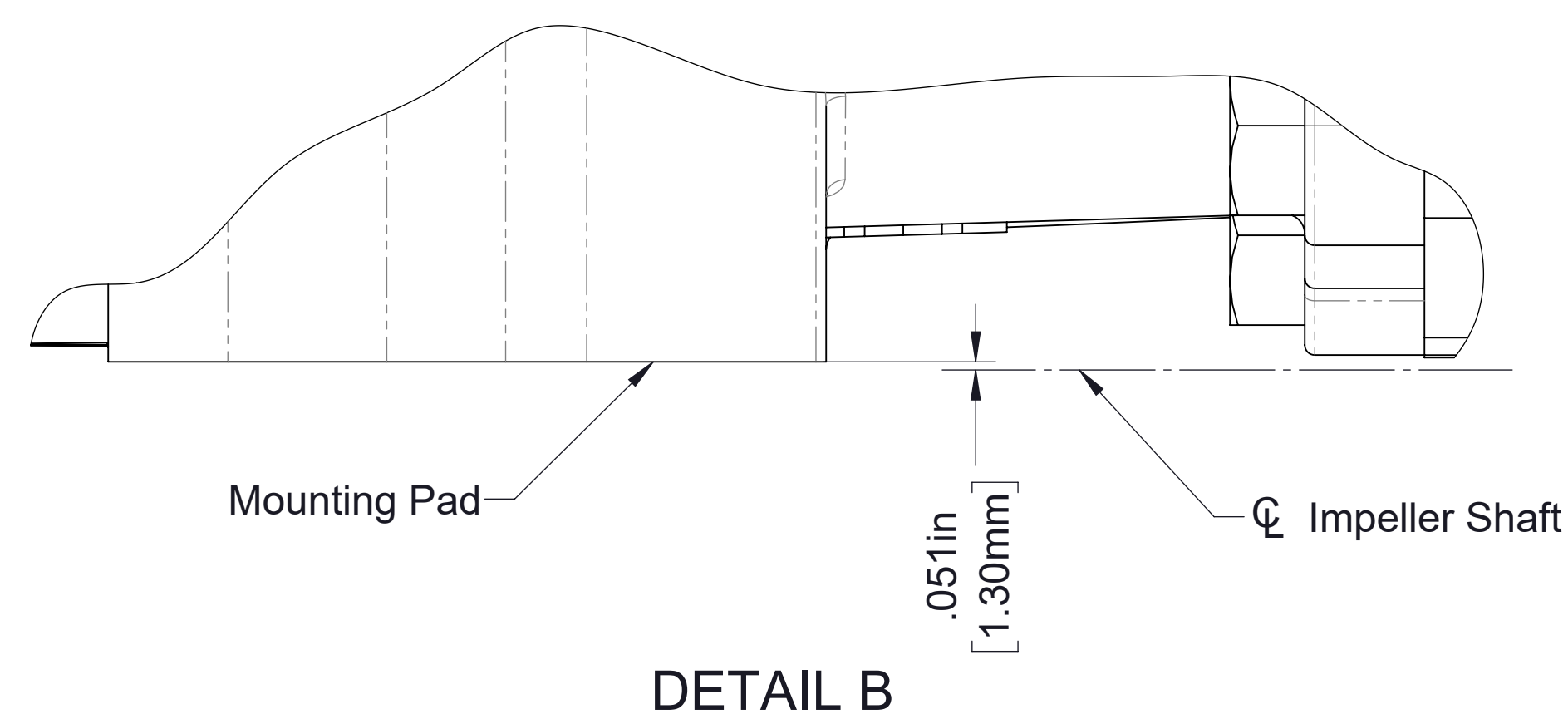
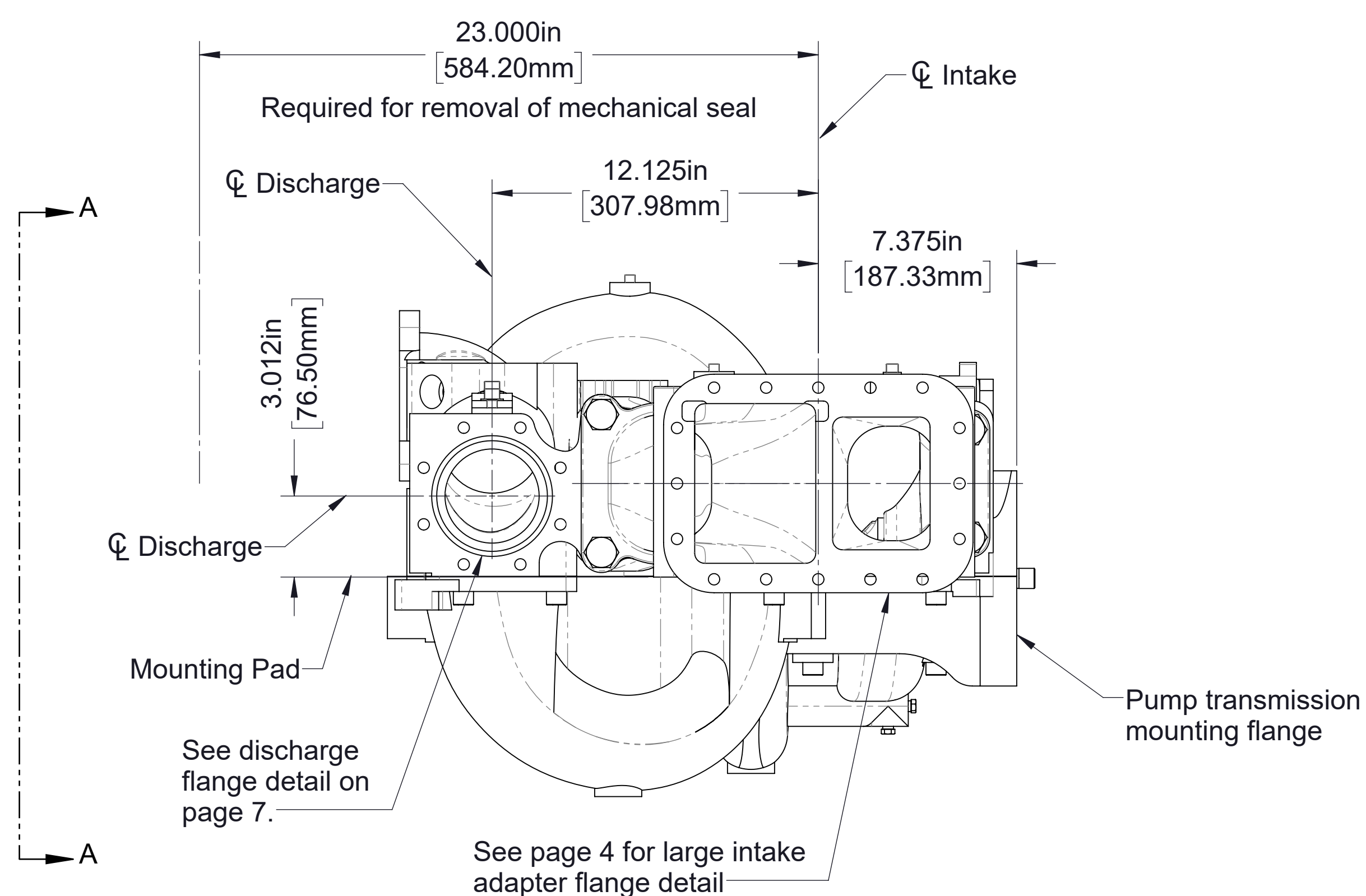
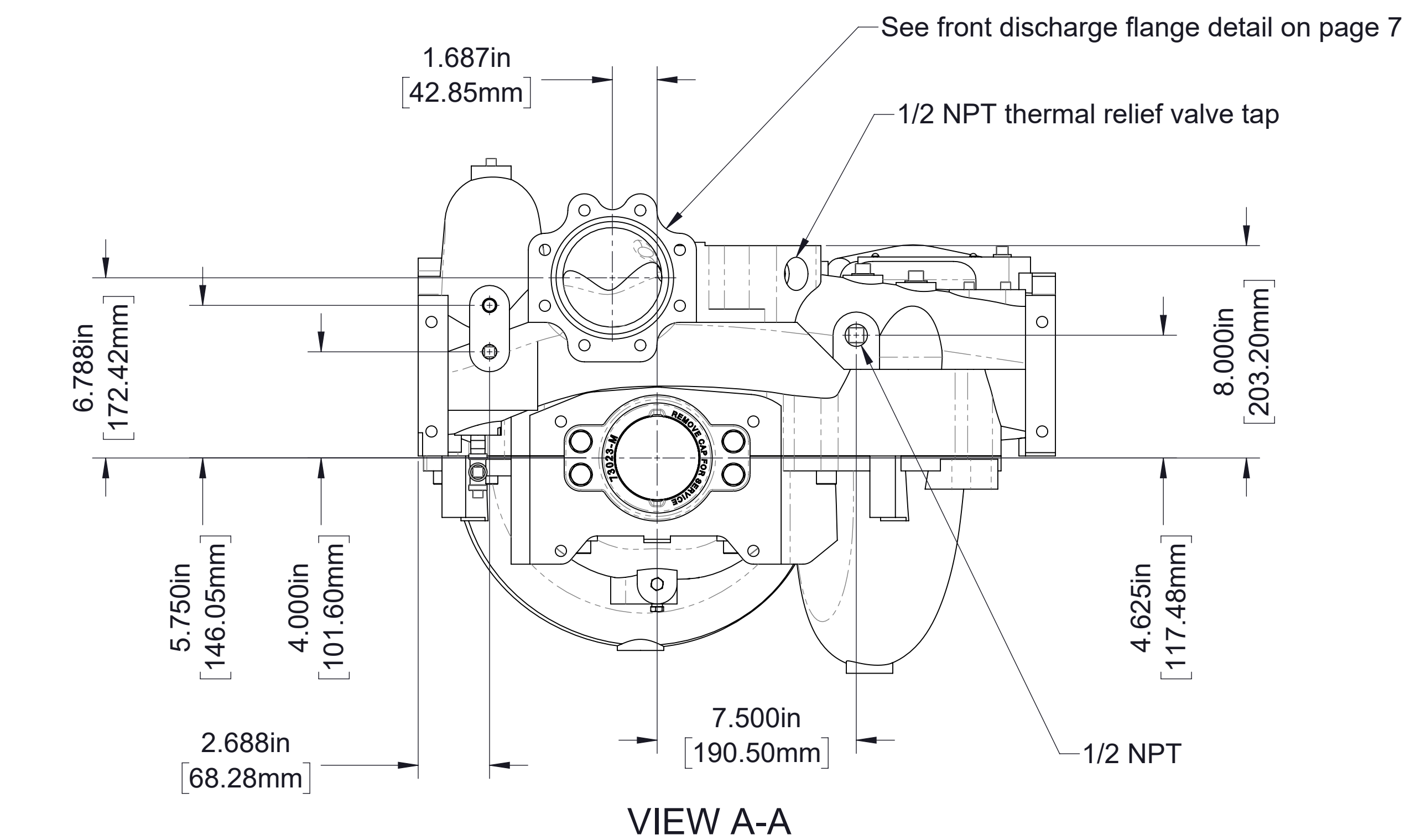
Feature	See Page
Basic Pump Body Without Transmission	3
Optional Rear Intake Adapters	4
Intake Fitting Options	5
Tank to Pump Flange Options	6
Discharge Connections	7
Pump with Transmission	See Table on Page 2



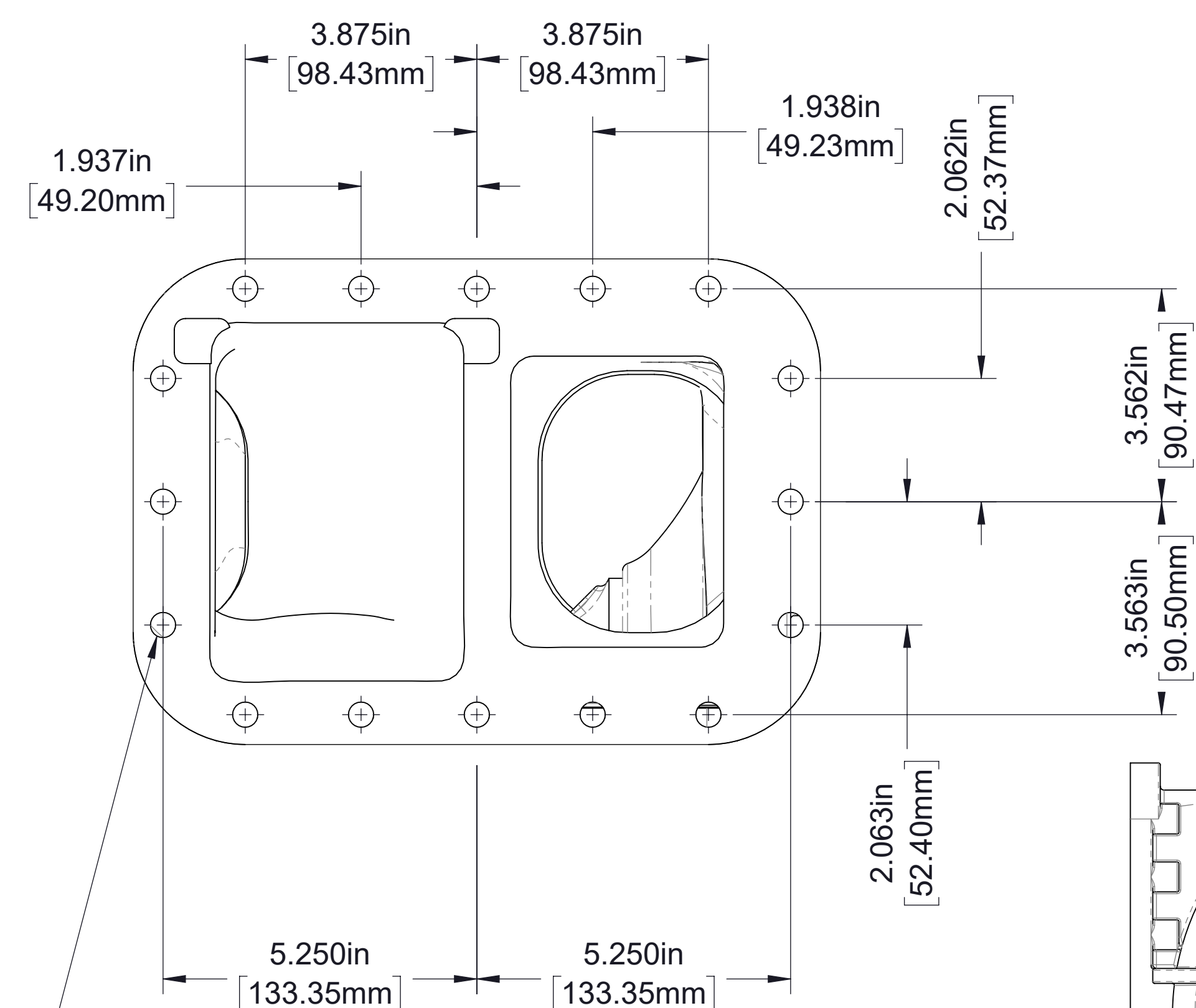
Note: Pump must be installed in accordance with Waterous Installation Instructions.

Transmission					Pump		See Page
Type	Transmission Mounting on Pump	Input Rotation (1)	Driveline Type	Hydraulic Pump Mounting Provision	Pump and Transmission Model		
					CS	CSU	
C22 Series Chain Drive, Split Shaft	Rear	CW	Input and Output Shaft	No	CSC22B CSC22C CSC22D CSC22E CSC22F	CSUC22B CSUC22C CSUC22D CSUC22E CSUC22F	8, 14
				Yes			9, 14
			Input Shaft Only	No			10, 14
				Yes			11, 14
	Front		Input and Output Shaft	N/A			12, 14
			Input Shaft Only				13, 14
		K Series (Heavy Duty) Two Gear, PTO Driven	Rear	CW	N/A	N/A	CSK
K Series (Extra Heavy Duty) Two Gear, PTO Driven	Rear	CW	N/A	N/A	--	CSUK	16
PA Series Chain Drive, PTO Driven	Rear	CW	N/A	N/A	CSPA	CSUPA	17
QC Series Chain Drive, PTO Driven	Rear	CCW	N/A	N/A	CSQC	CSUQC	18
D Series Directly from a PTO	Front	CW	N/A	N/A	CSD	CSUD	19
	Rear	CCW	N/A	N/A	CSD	CSUD	20

Note:
1. Input rotation is viewed looking directly at the transmission input shaft.

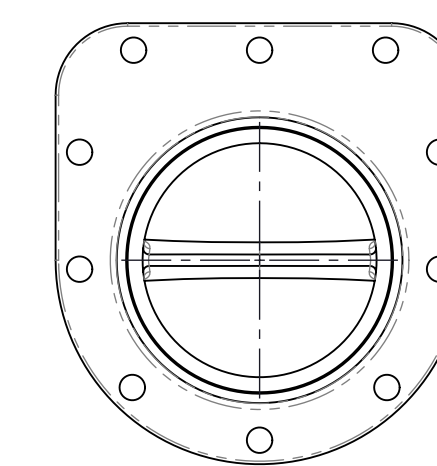
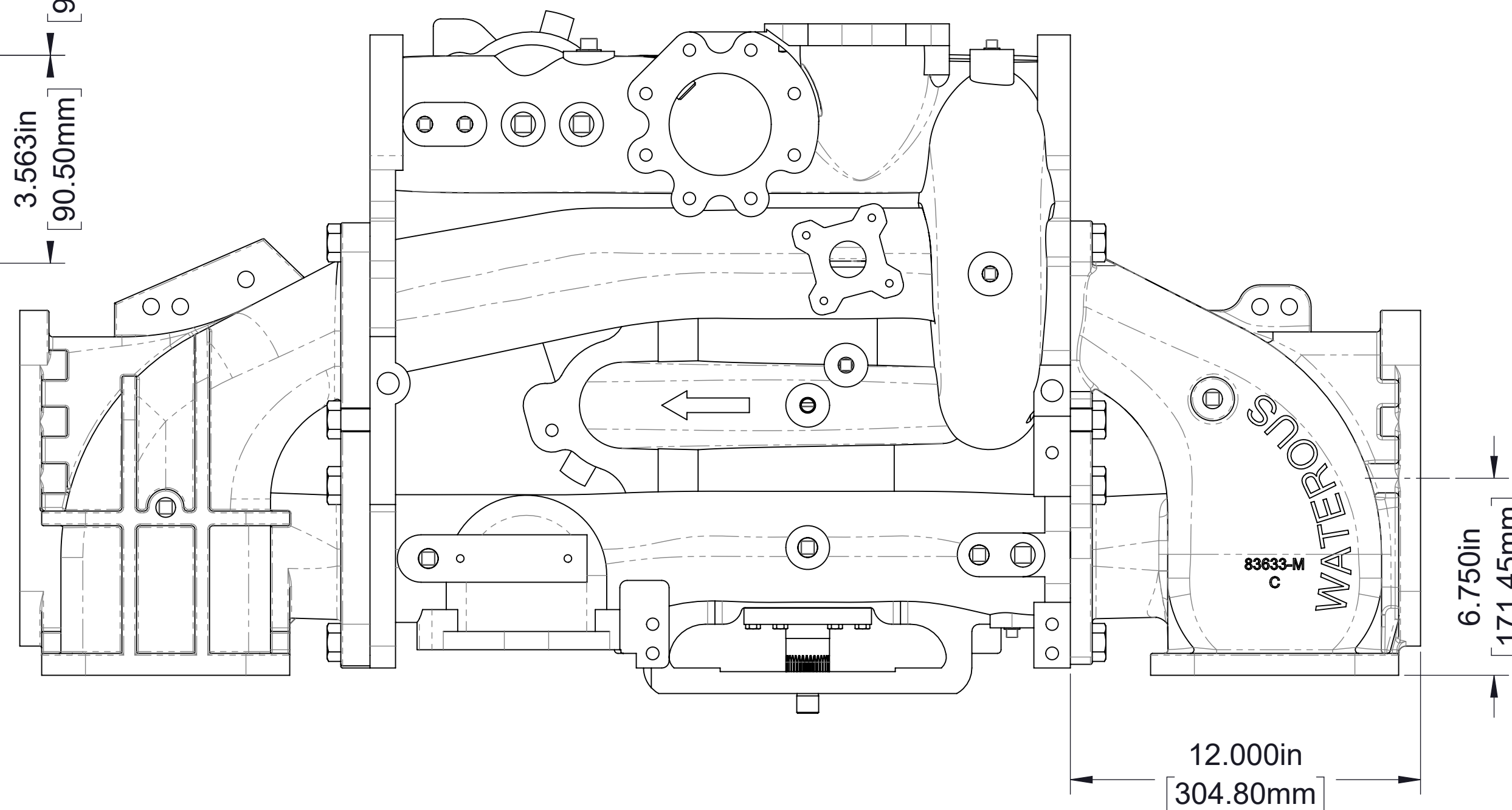


CS/CSU Body Dimensions

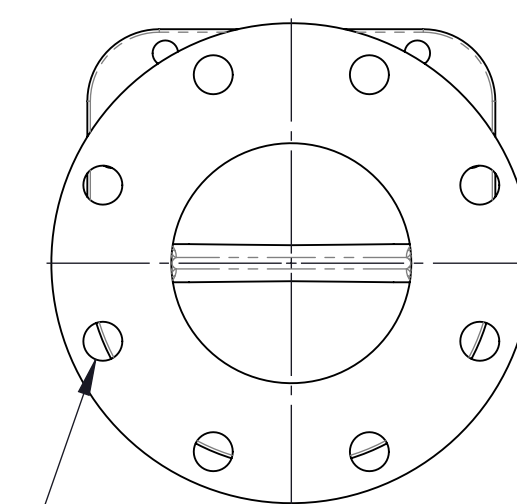


16X 1/2-13 UNC-2B X 1.125in (28.58mm) holes

DETAIL C
(Left side flange shown. Right side is mirror image)

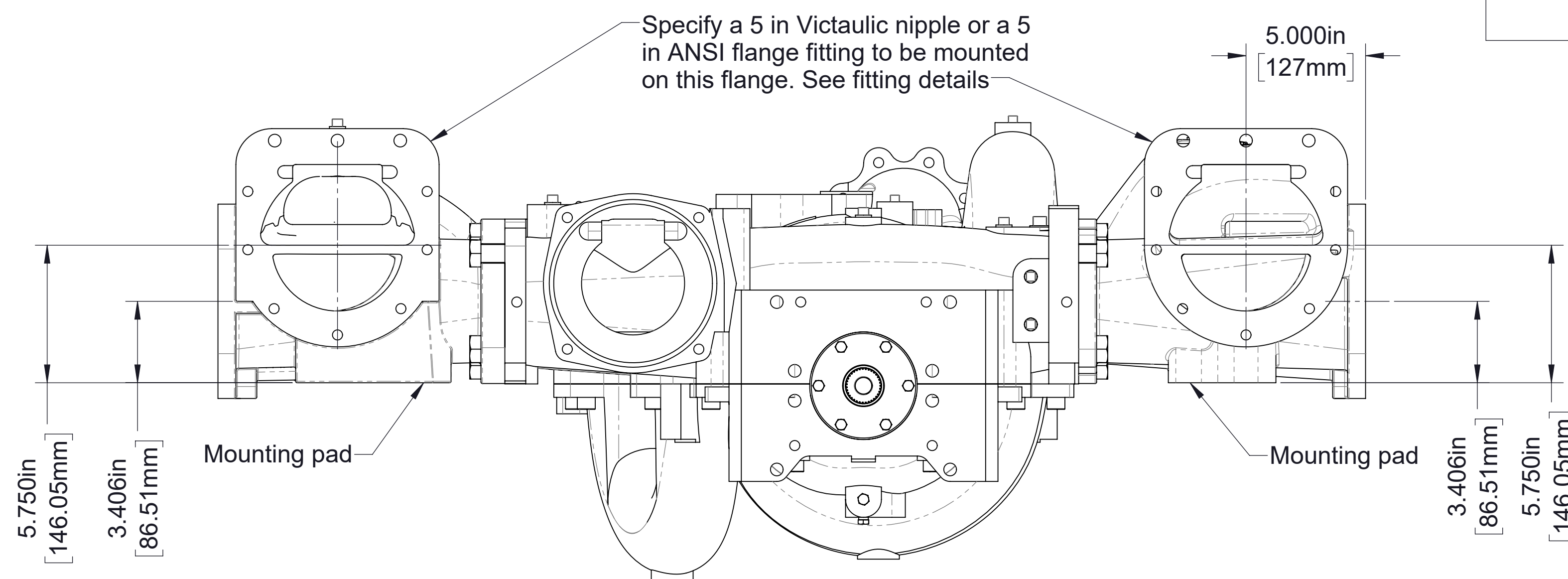
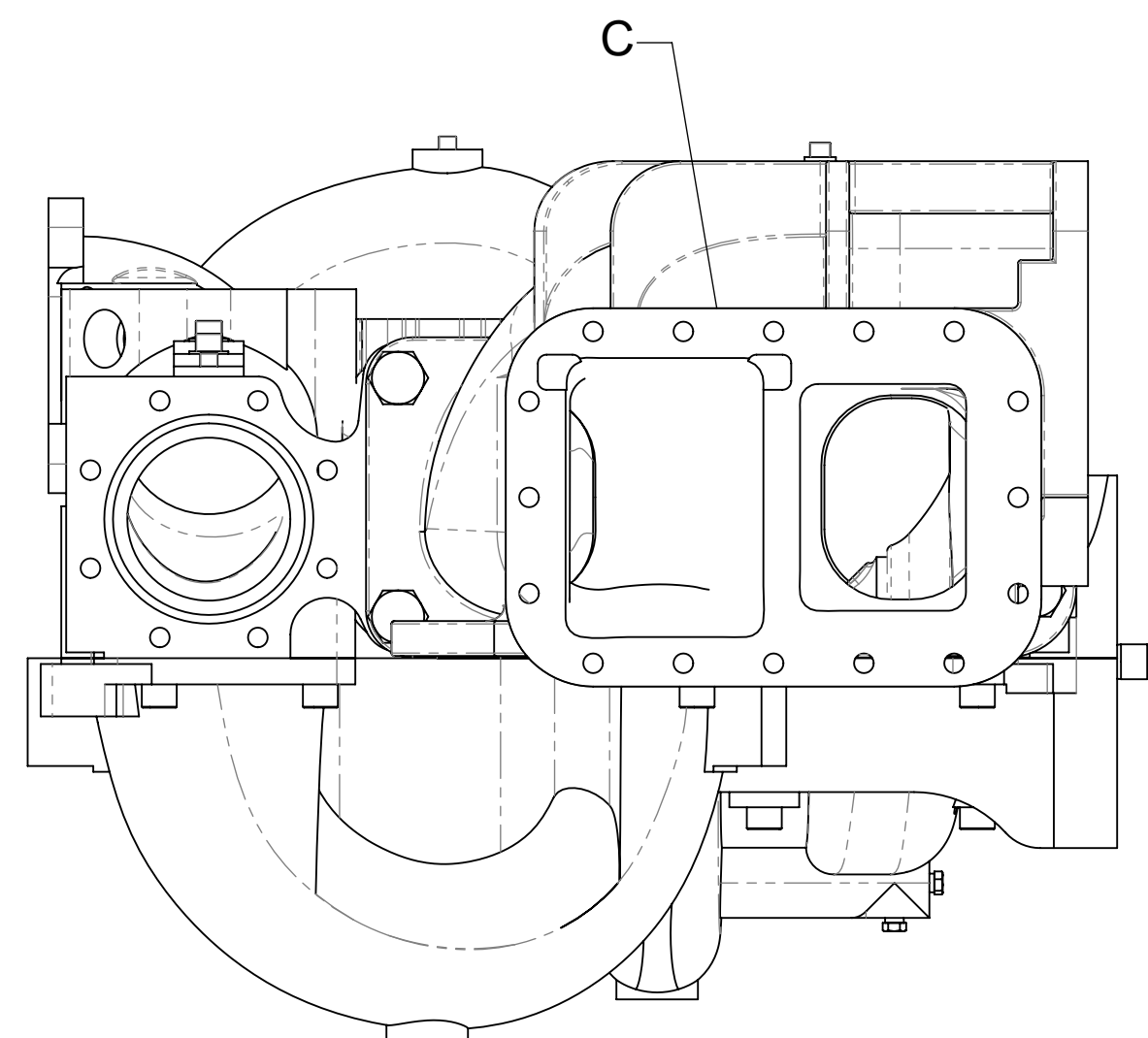


5in Victaulic Flange

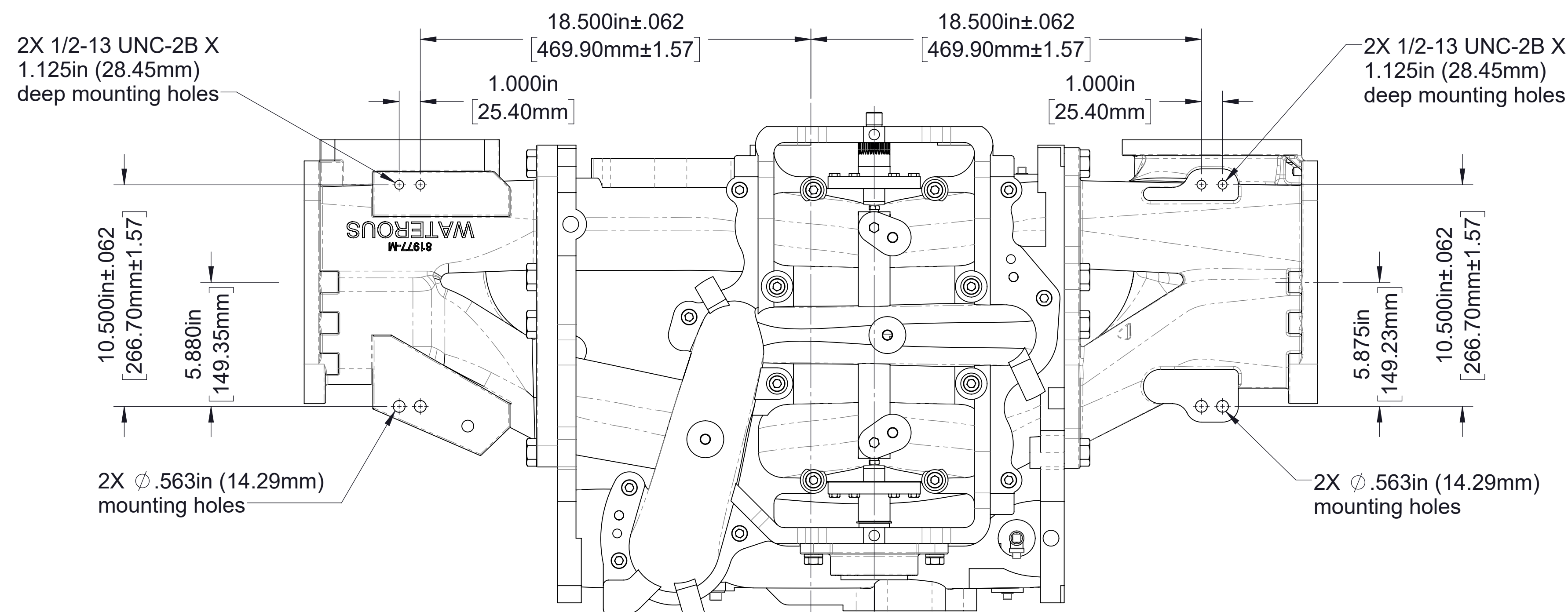
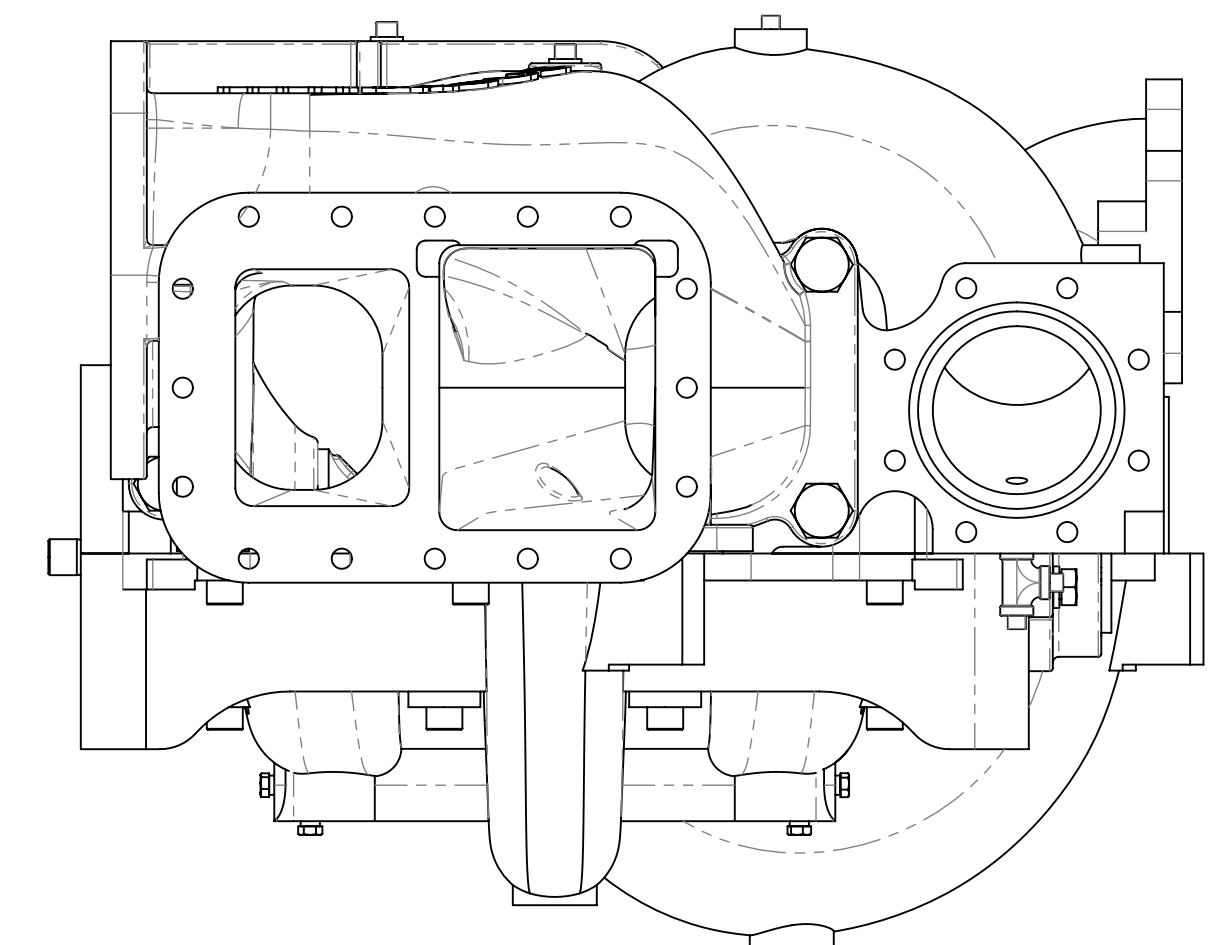


5in ANSI Flange

Available Rear Intake Adapter Fittings

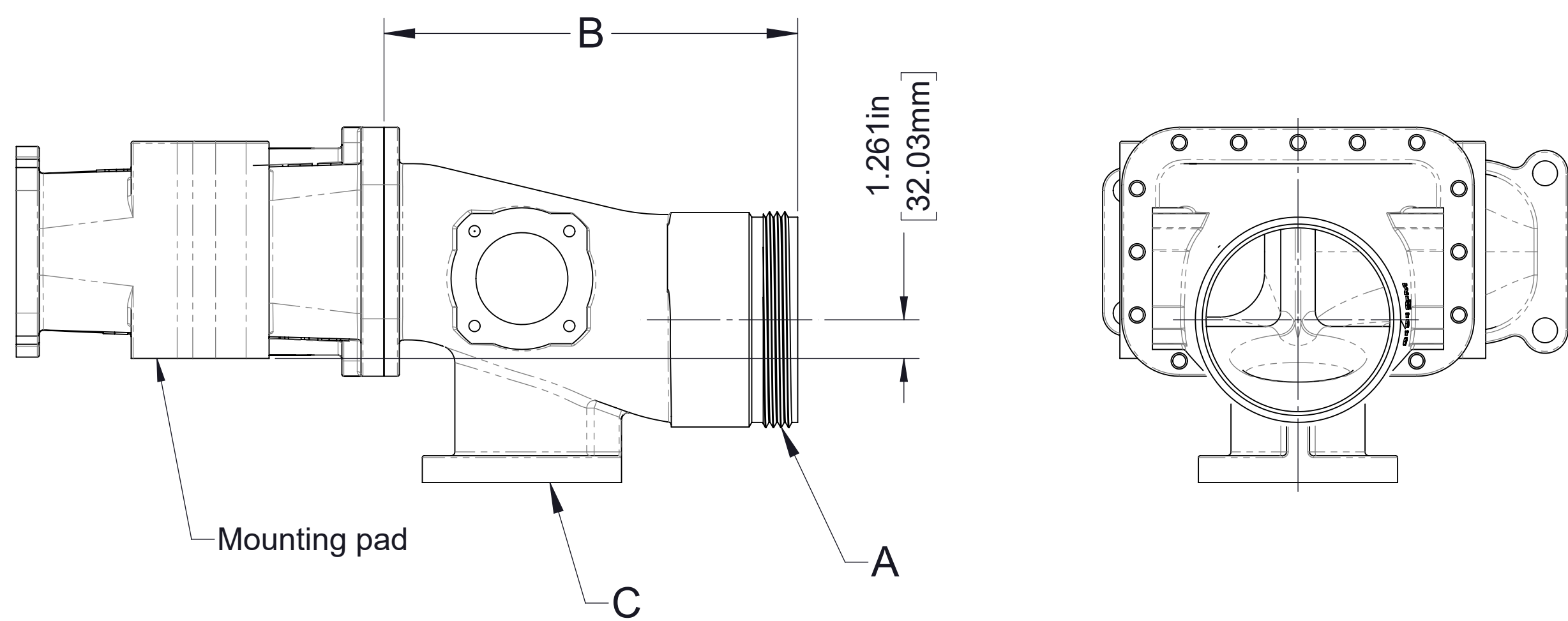
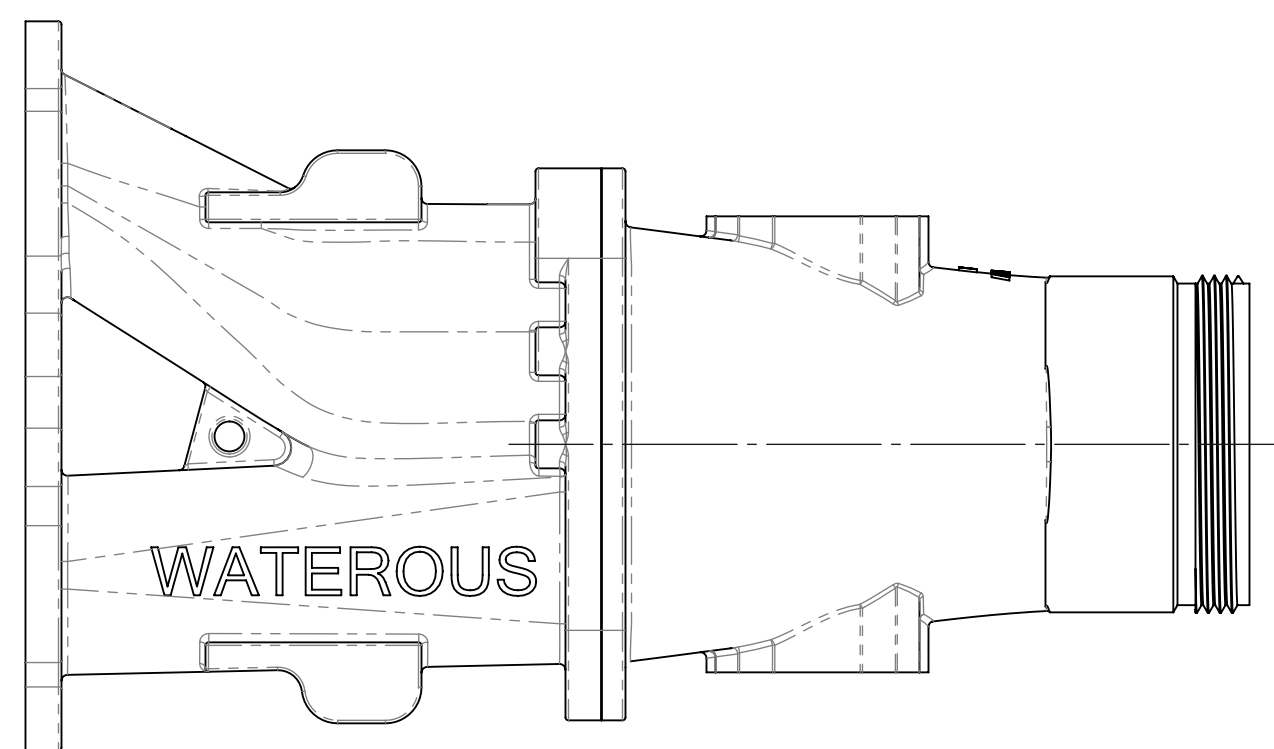


Specify a 5 in Victaulic nipple or a 5 in ANSI flange fitting to be mounted on this flange. See fitting details



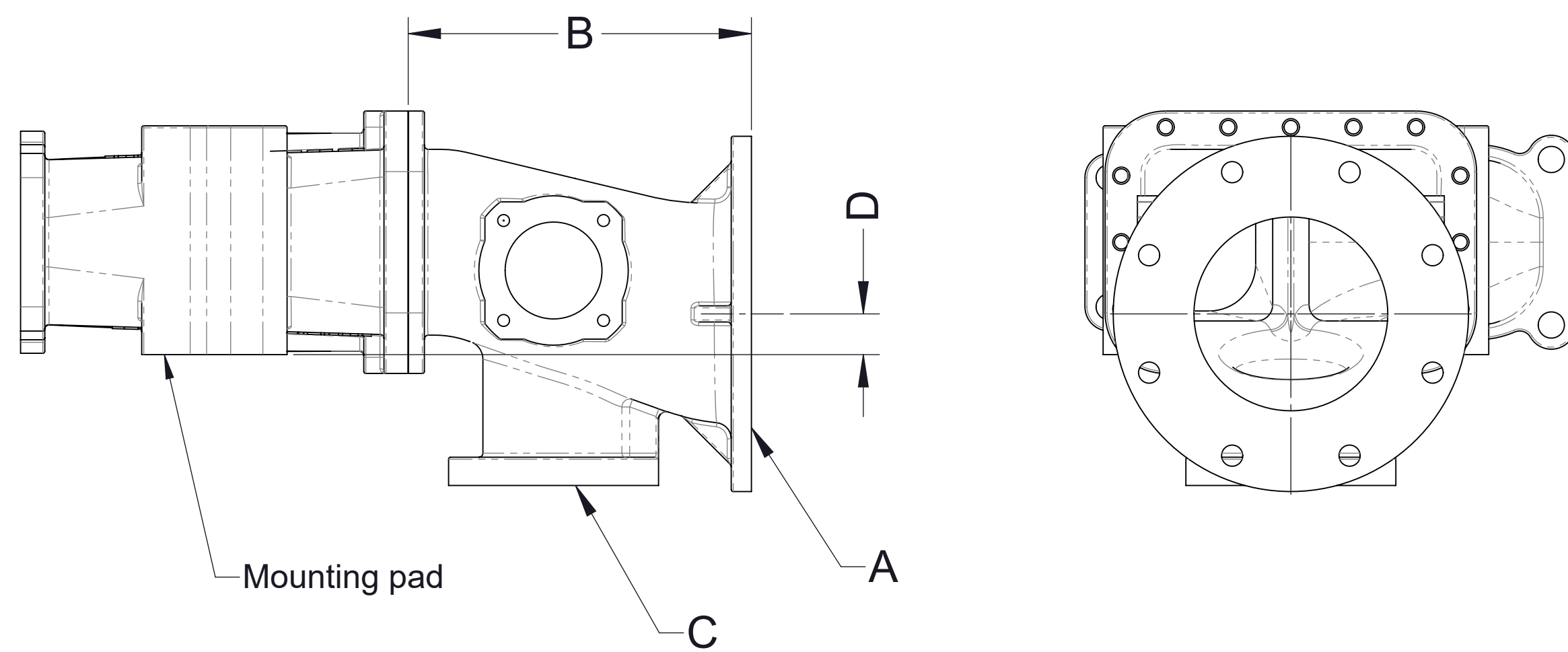
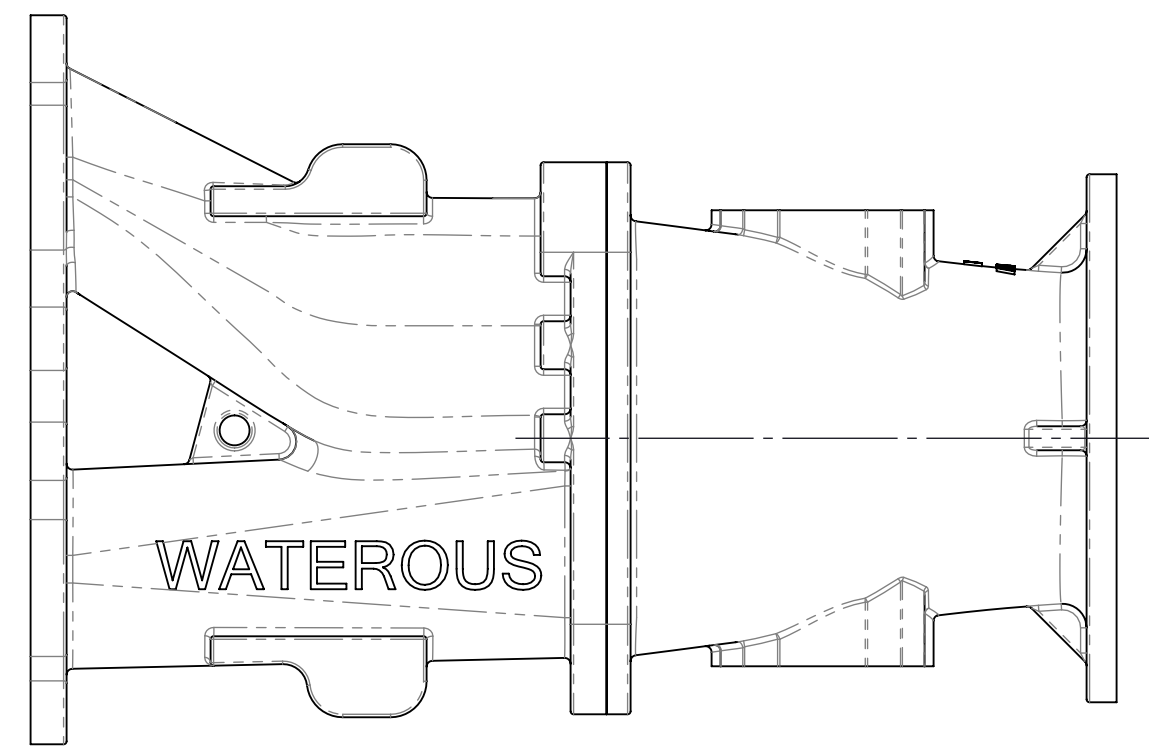
Optional Rear Intake Adapters

Available with 5.000in ANSI flange or 5.000in Victaulic Nipple



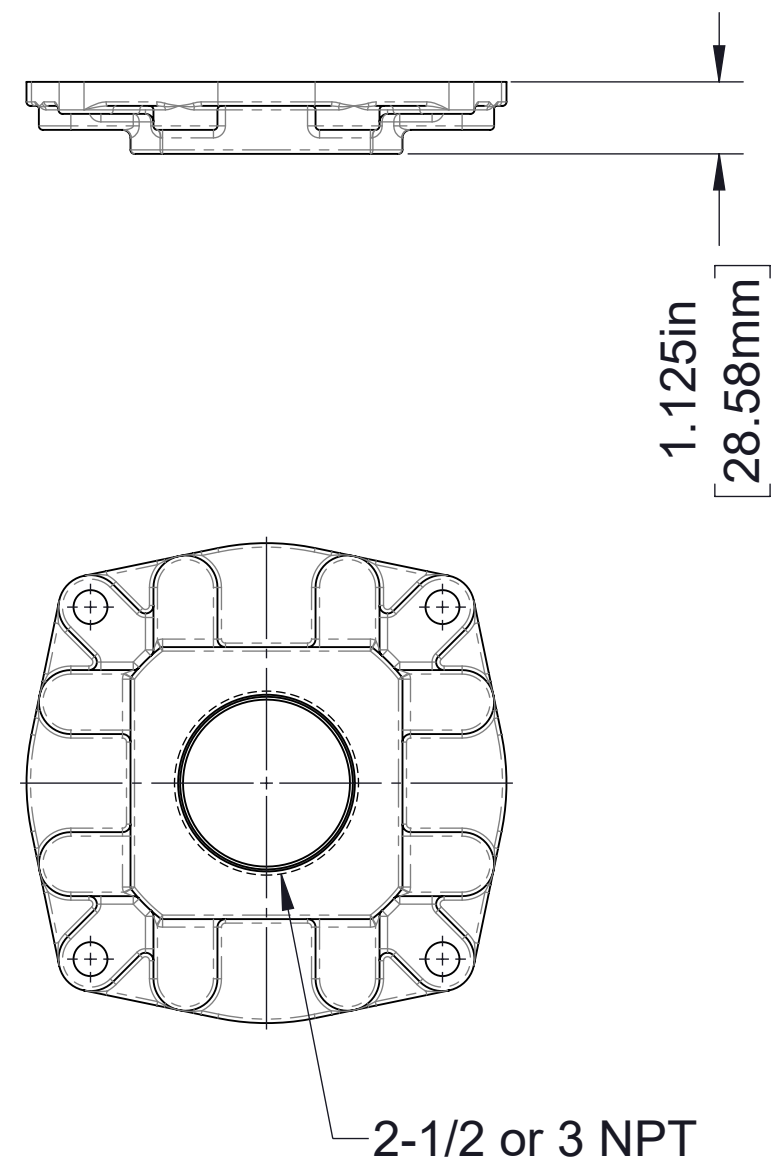
Type	End Size "A"	Length "B"	Bottom Flg "C"	Relief Valve	Part No.
Threaded	5 in NH	13.500in 342.90mm	3-1/2 in 8-bolt	No	82768
		15.000in 381.00mm	3-1/2 in 8-bolt	No	82767
	6 in NH	13.500in 342.90mm	3-1/2 in 8-bolt	No	81916
			No	Yes	82173
			5 in ANSI	Yes	82174
		15.000in 381.00mm	3-1/2 in 8-bolt	No	81915
			No	Yes	82163
			5 in ANSI	Yes	82166

Threaded Intake Fitting
81916 shown

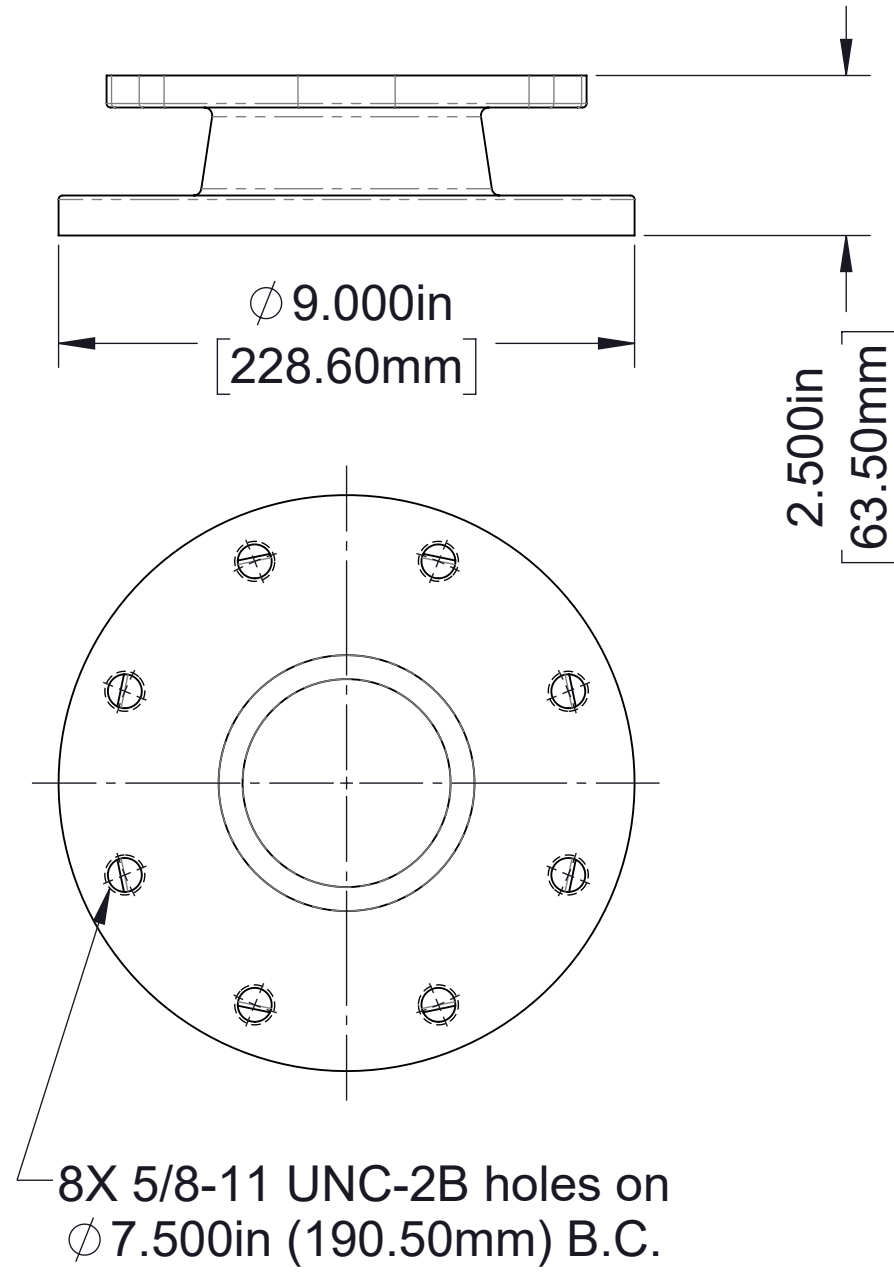


Type	End Size "A"	Length "B"	Bottom Flg "C"	"D"	Relief Valve	Part No.
Flanged	6 in ANSI	6.750in 171.45mm	2-1/2 in 4-bolt	1.980in 50.29mm	No	82289
			No		Yes	82301
			5 in ANSI		Yes	82302
		10.625in 269.88mm	3-1/2 in 8-bolt	1.261in 32.03mm	No	82011

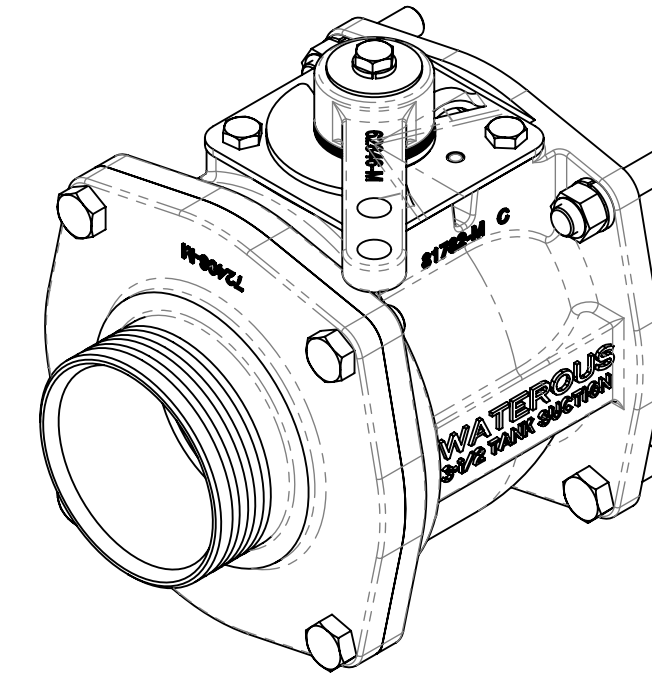
Flanged Intake Fitting
82011 shown



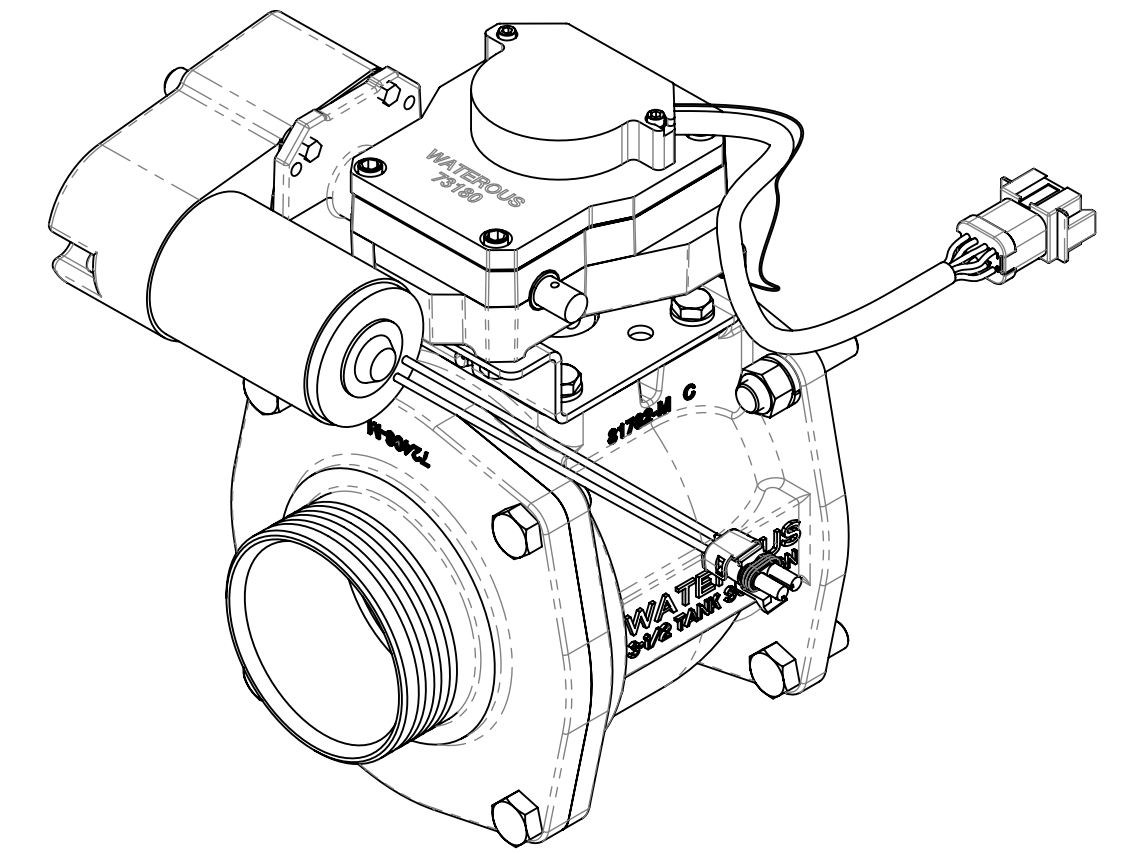
Tapped flange



4 in ANSI Flange.
(Not available with PA transmission)

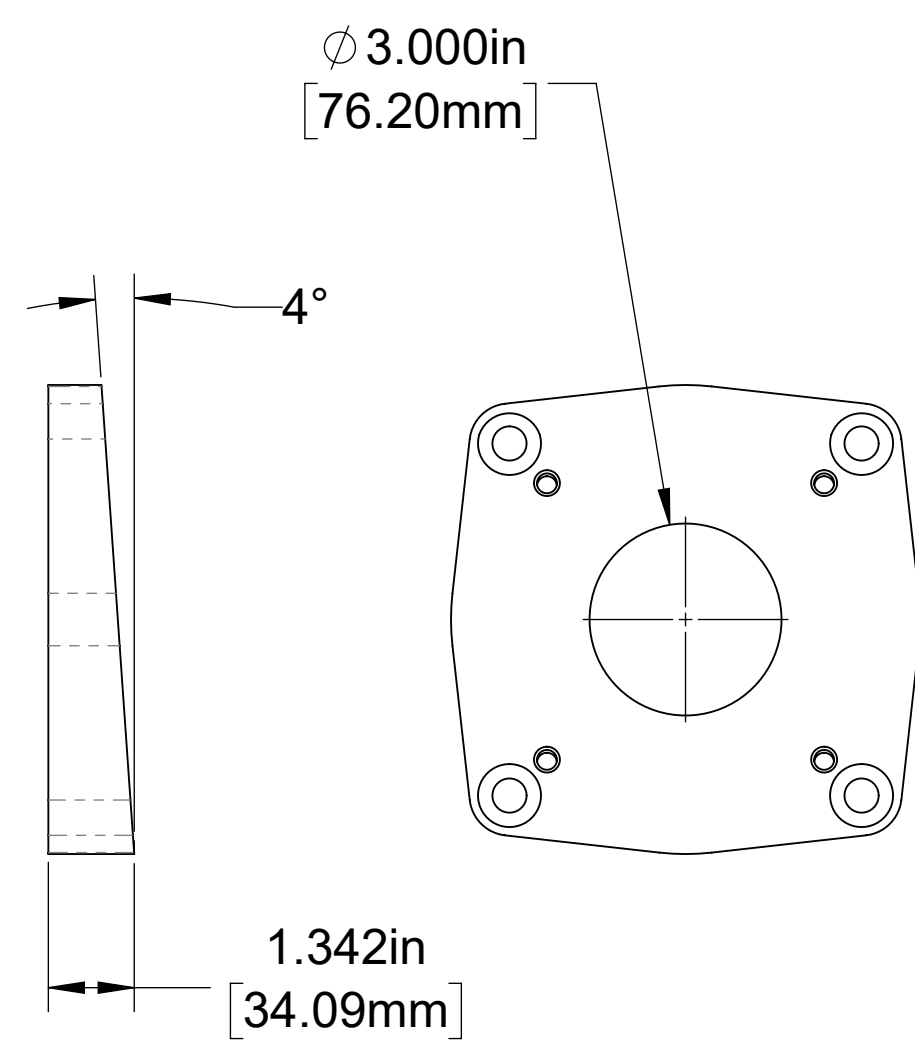


Manual tank to pump valve.
See DPL81962 for ordering details

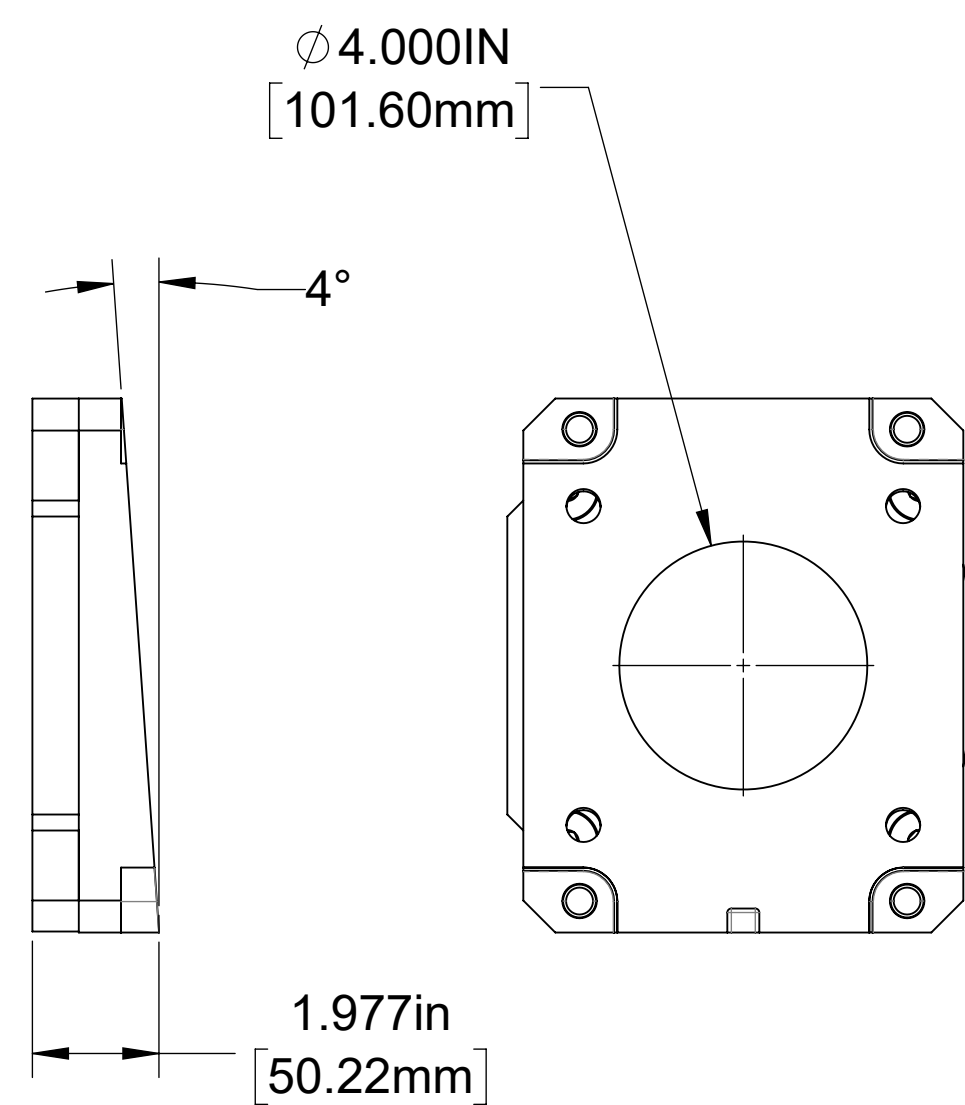


Electric tank to pump valve with rotary actuator.
See DPL82771 for ordering details

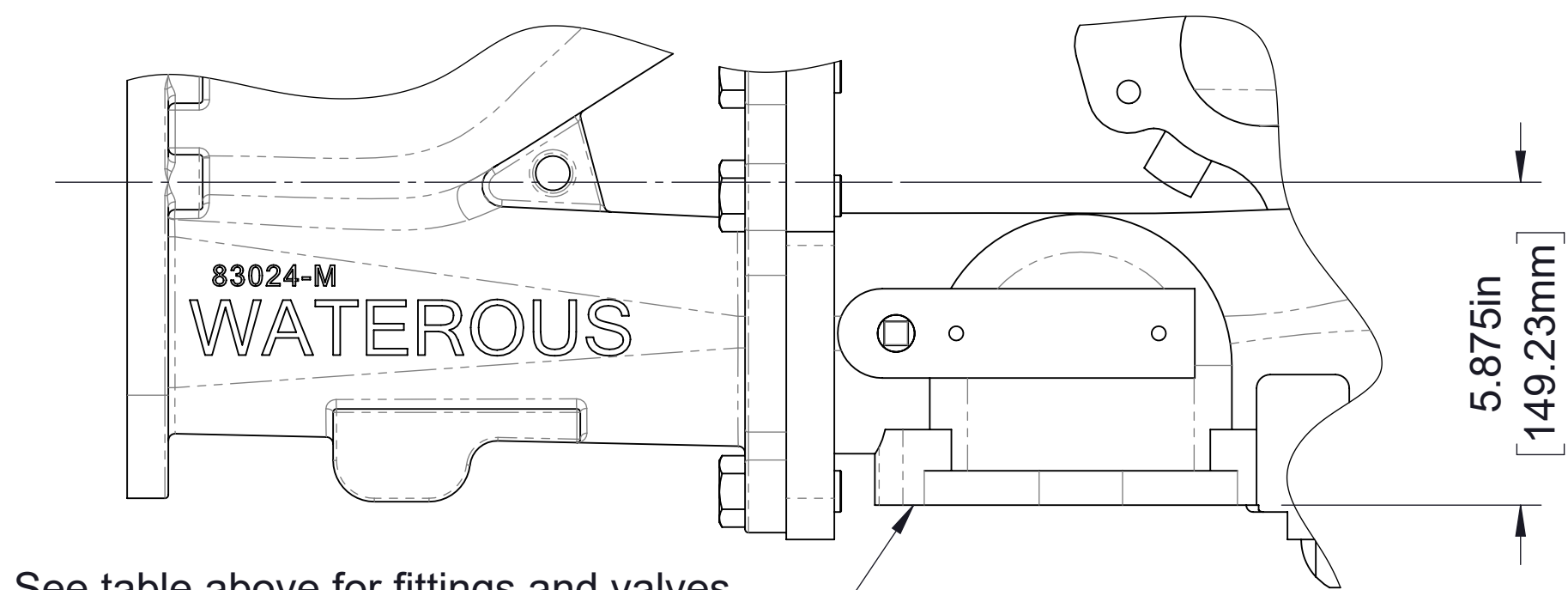
Optional Tank To Pump Flange Fittings and Valves



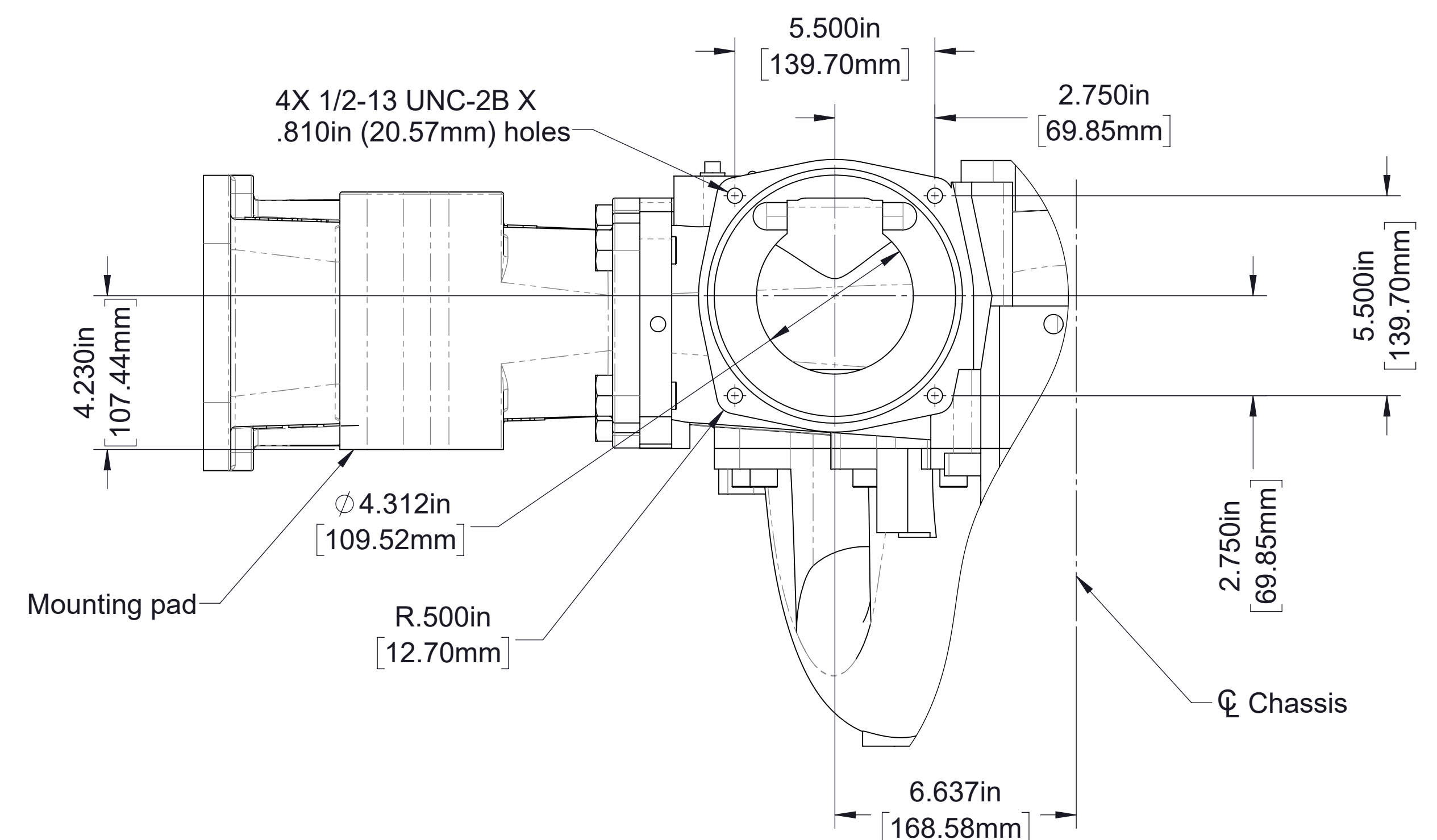
3 or 4 in Akron/Elkhart Adapters
with or without Check Valve



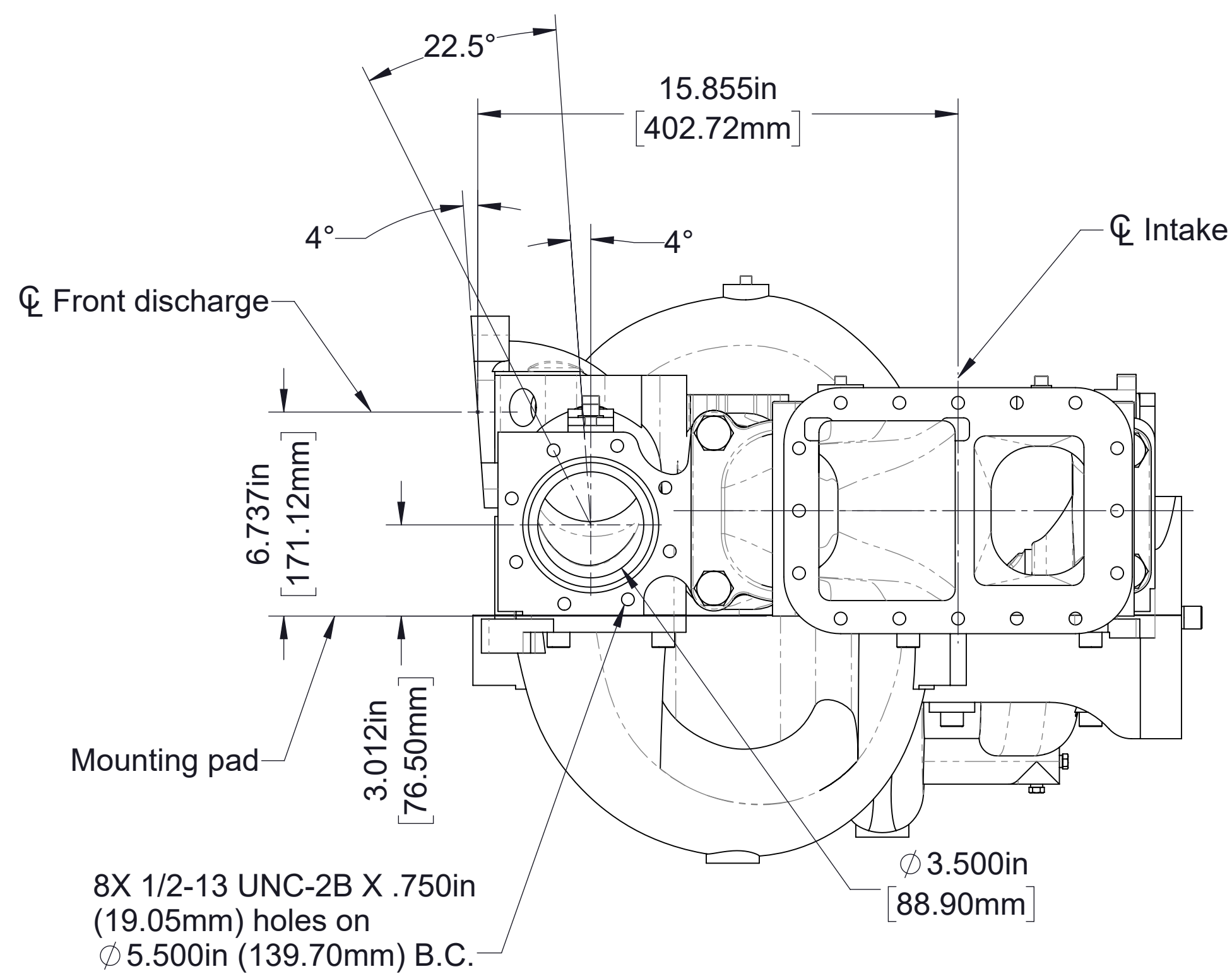
Optional Tank To Pump Flange Adapters



See table above for fittings and valves
which may be mounted on this flange.
(Flange may be ordered blank without
fittings or valves.)



Tank To Pump Flange
Use O-ring W37108-4
Available with or without check valve



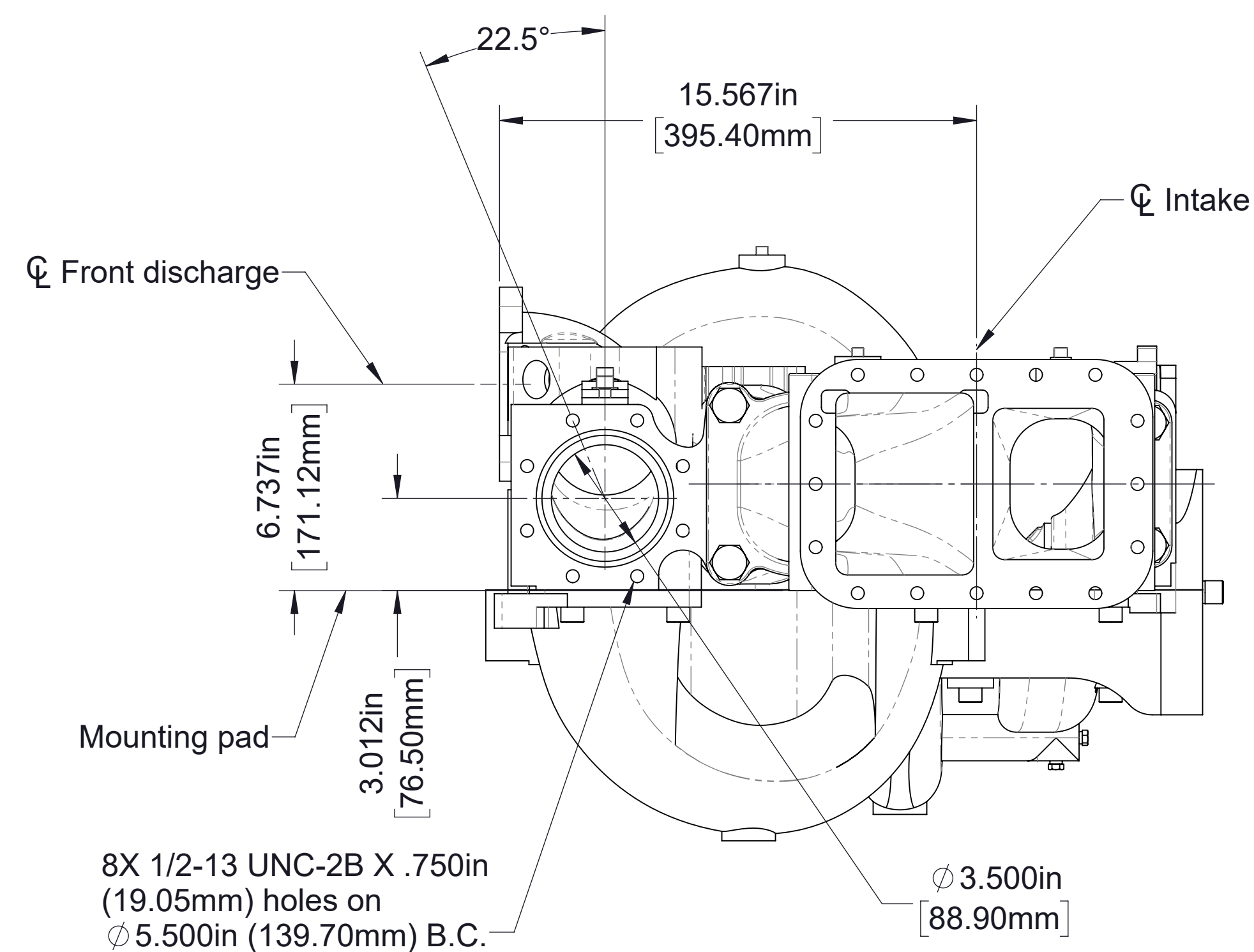
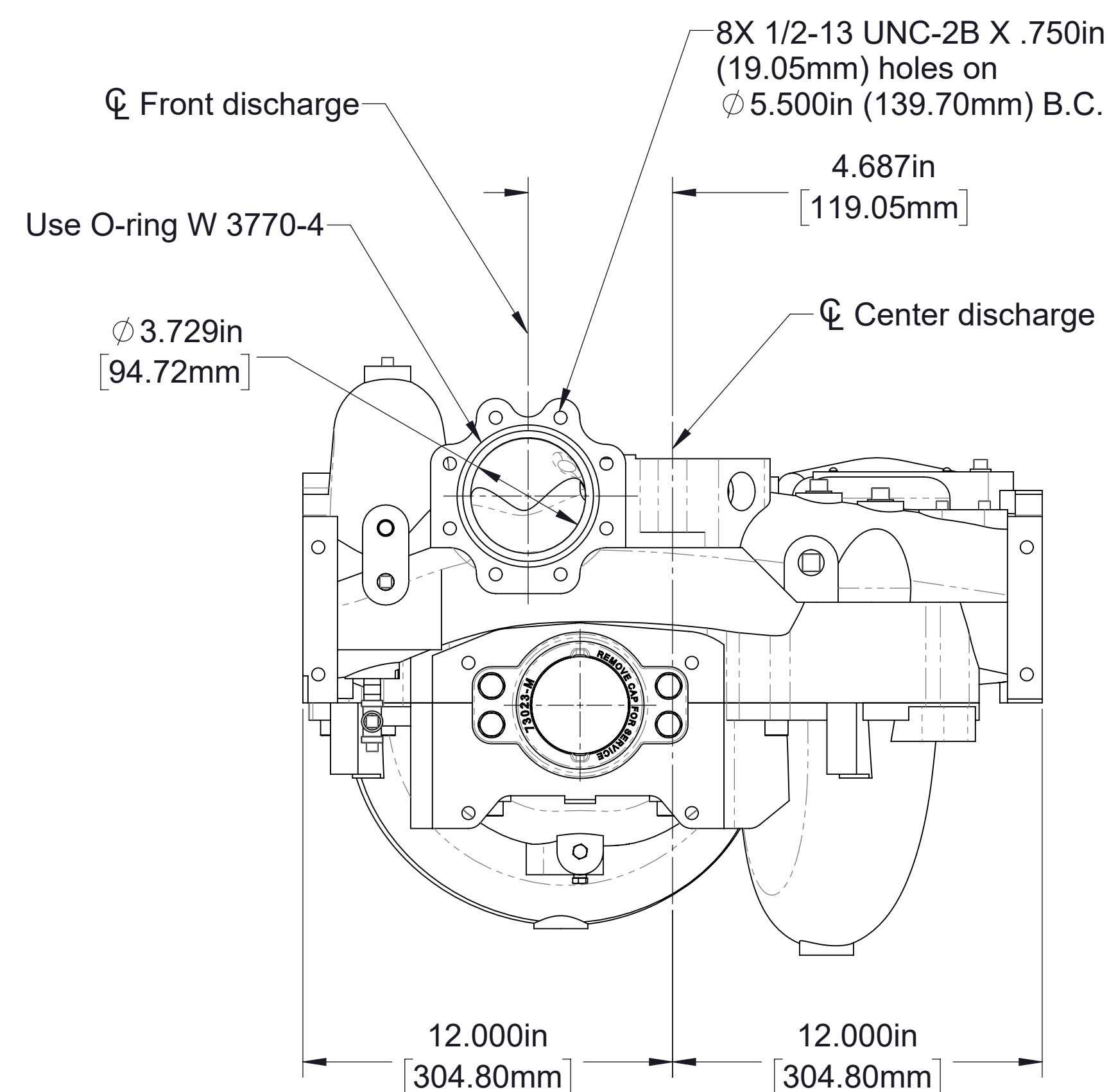
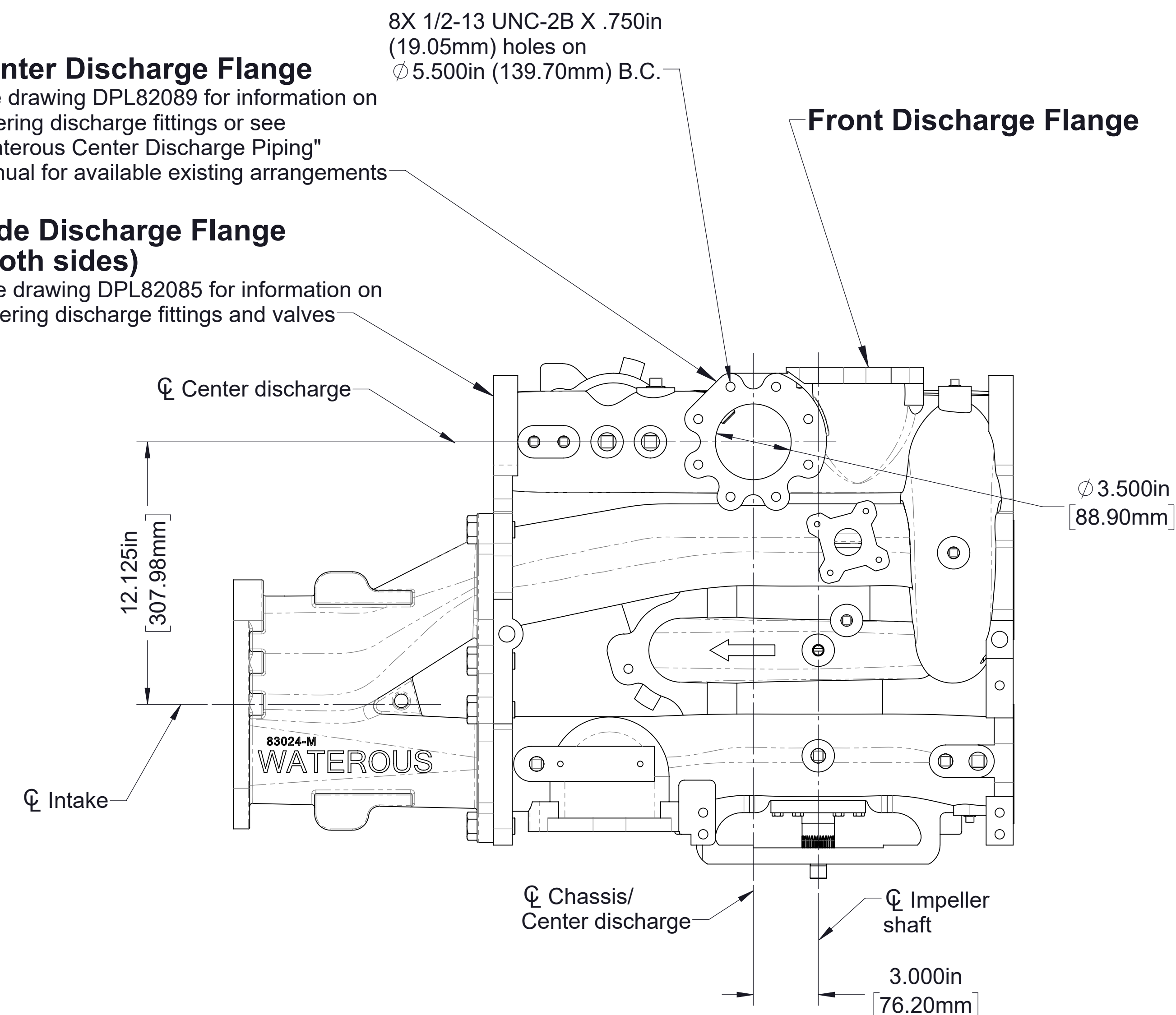
Angle Compensated Side and Front Discharge

Center Discharge Flange

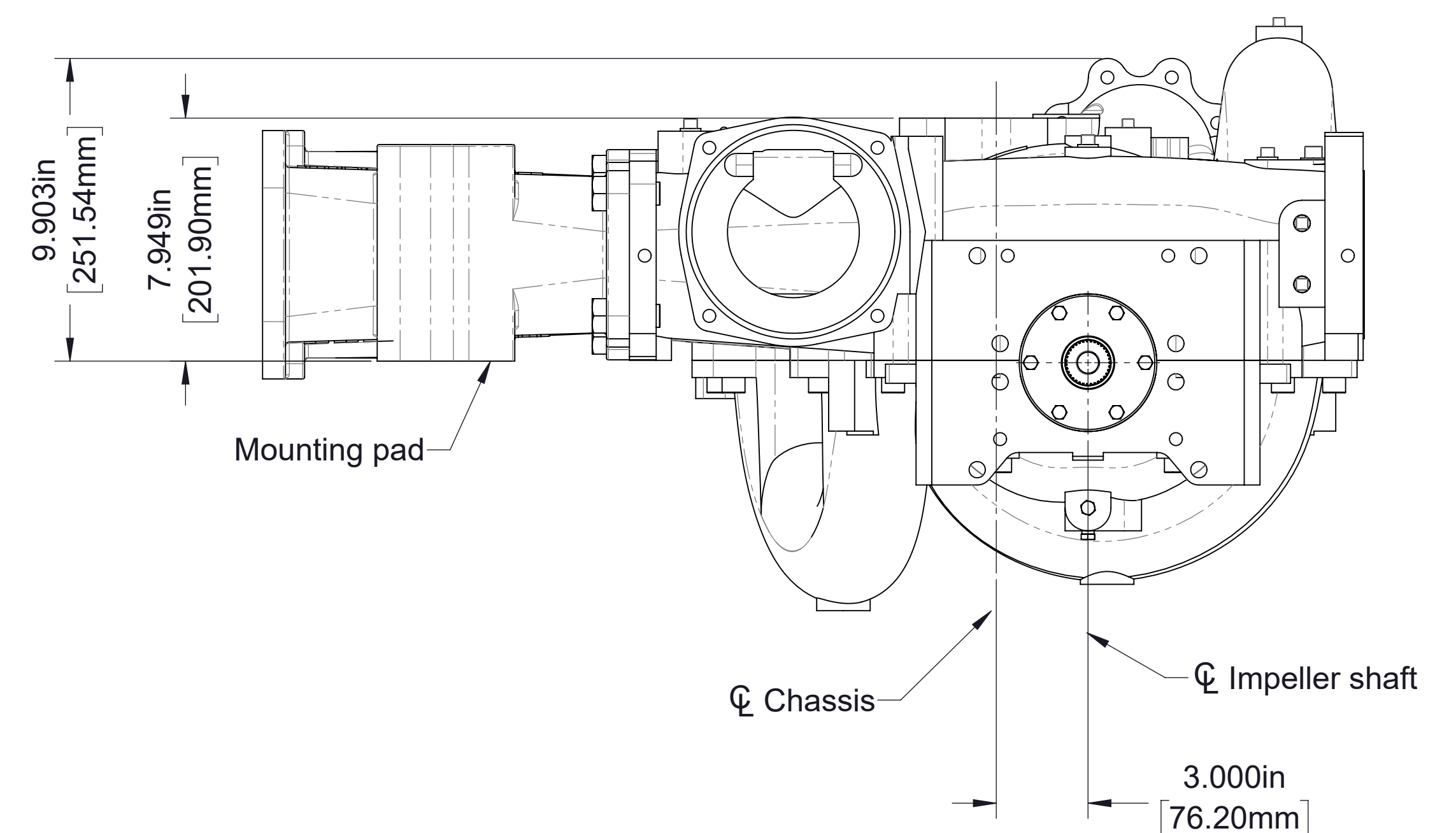
See drawing DPL82089 for information on ordering discharge fittings or see "Waterous Center Discharge Piping" manual for available existing arrangements

Side Discharge Flange (Both sides)

See drawing DPL82085 for information on ordering discharge fittings and valves

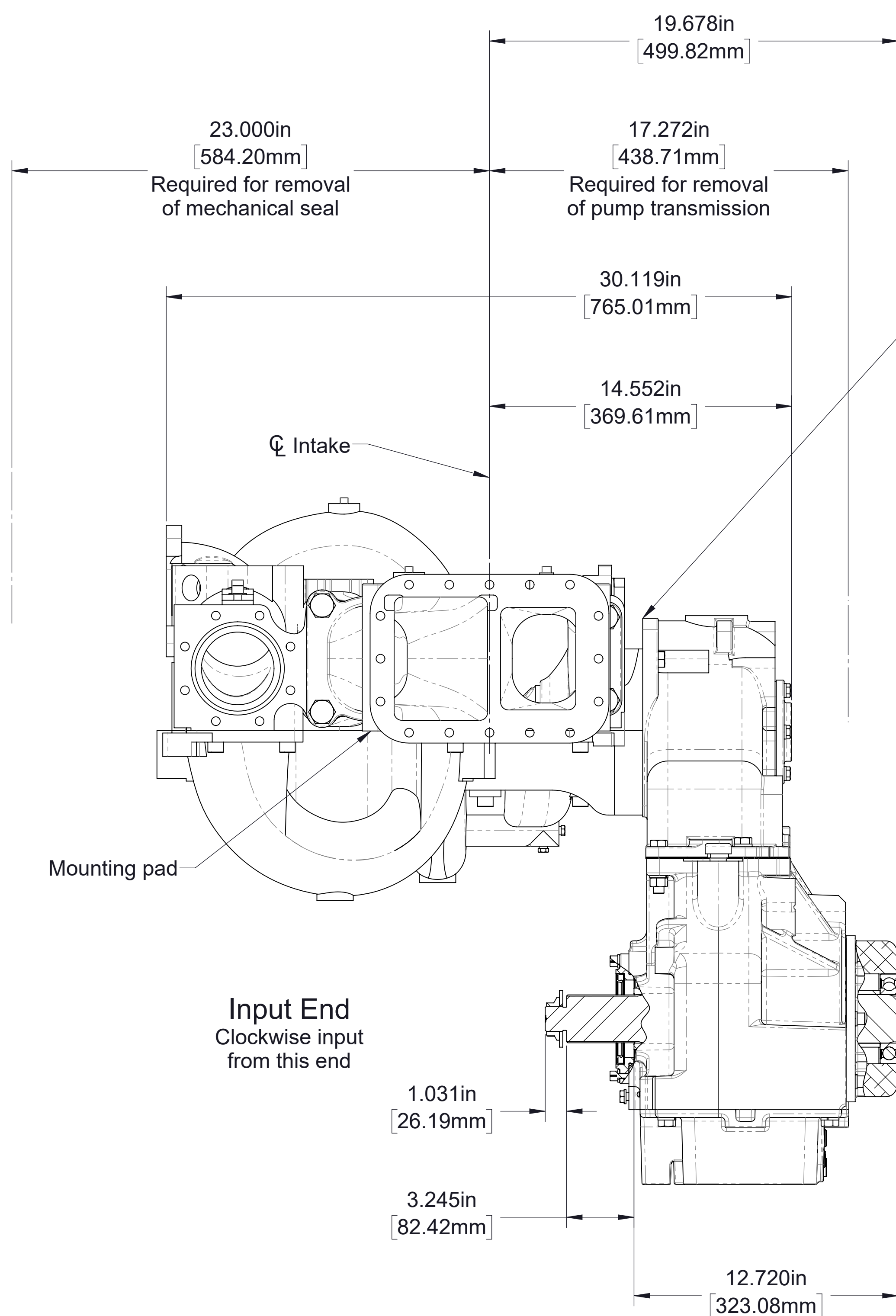


Non-Angle Compensated Side and Front Discharge



Discharge Connections

See drawing DPL82085 for information on ordering discharge fittings and valves

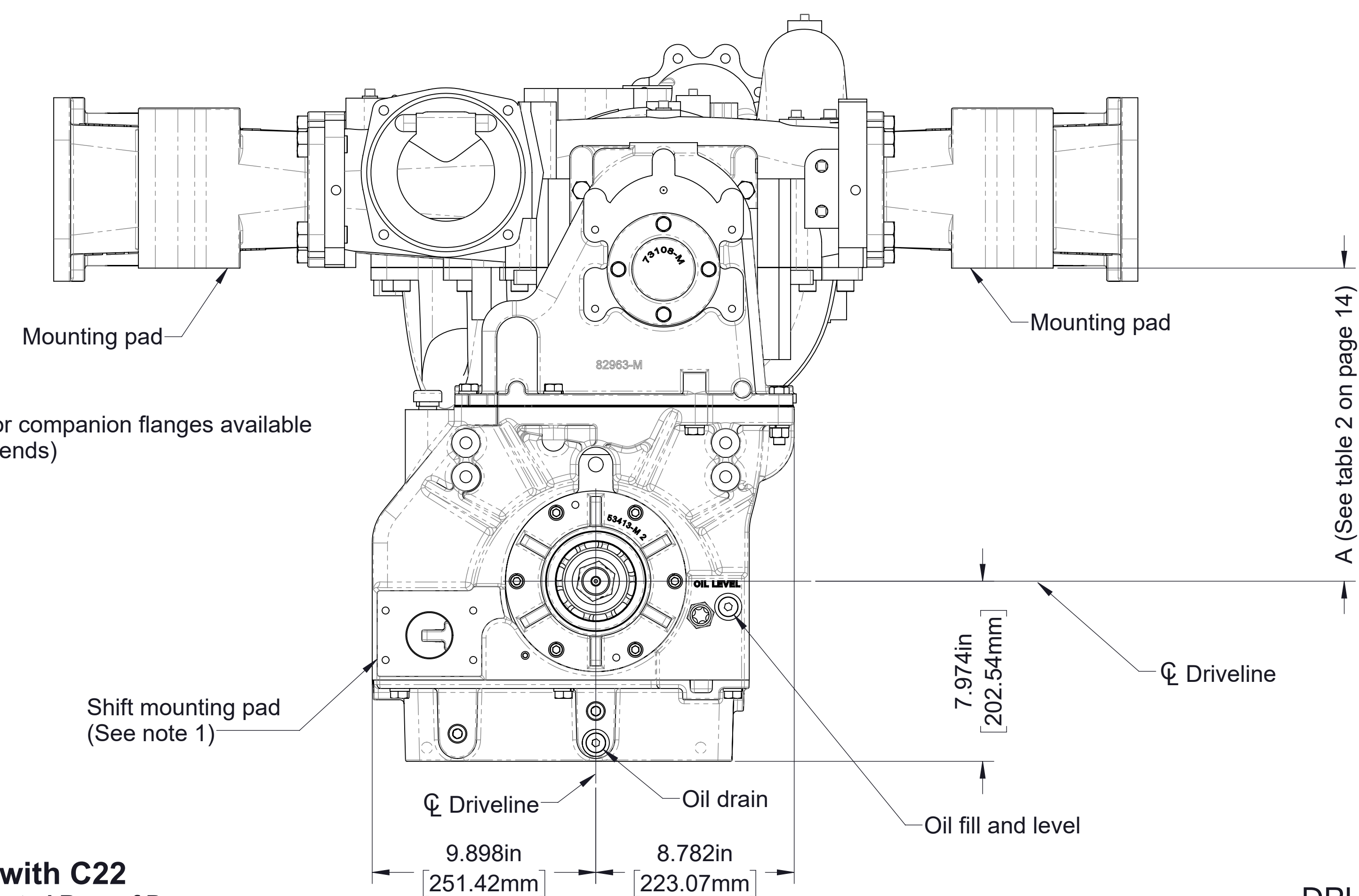
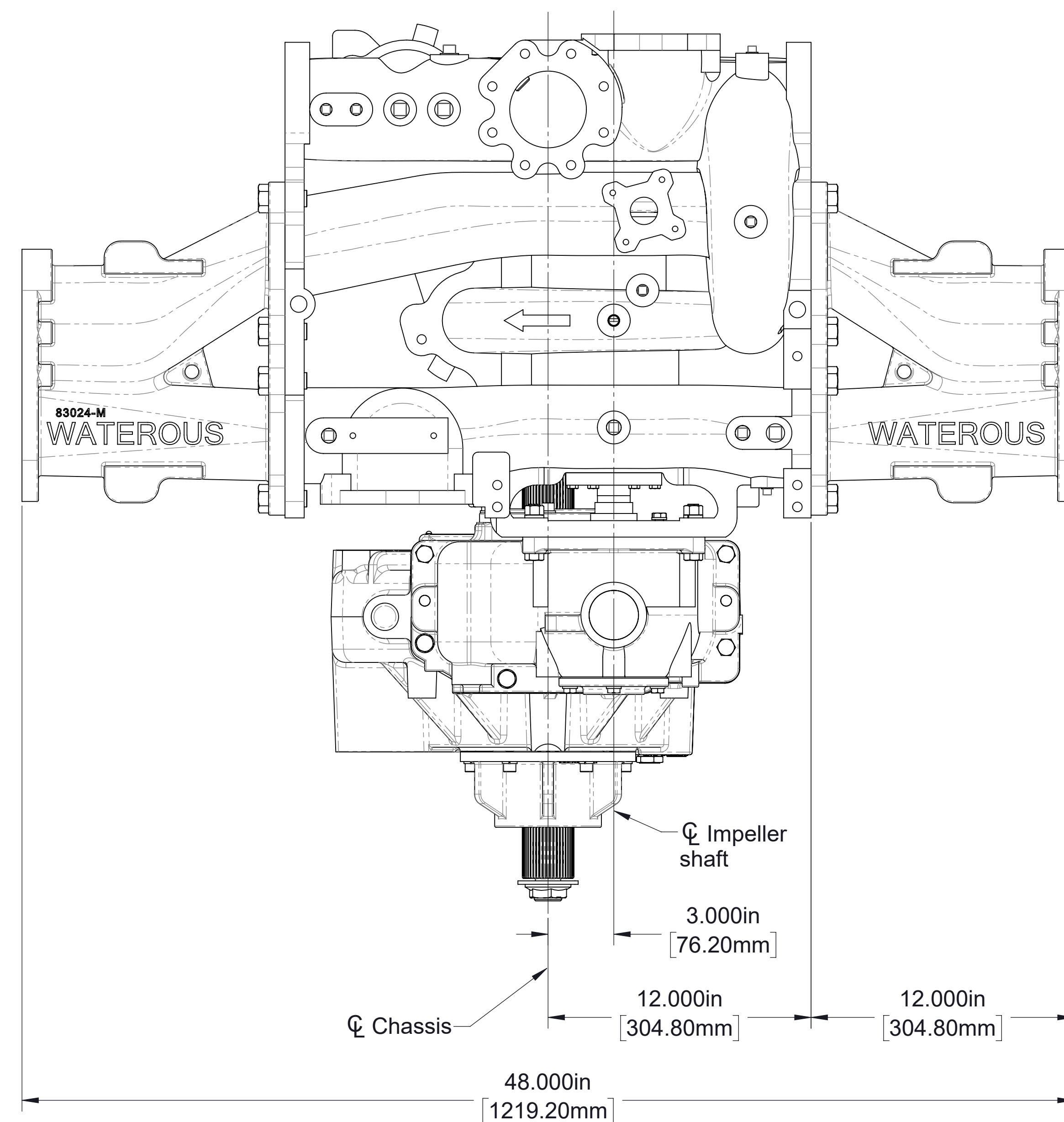


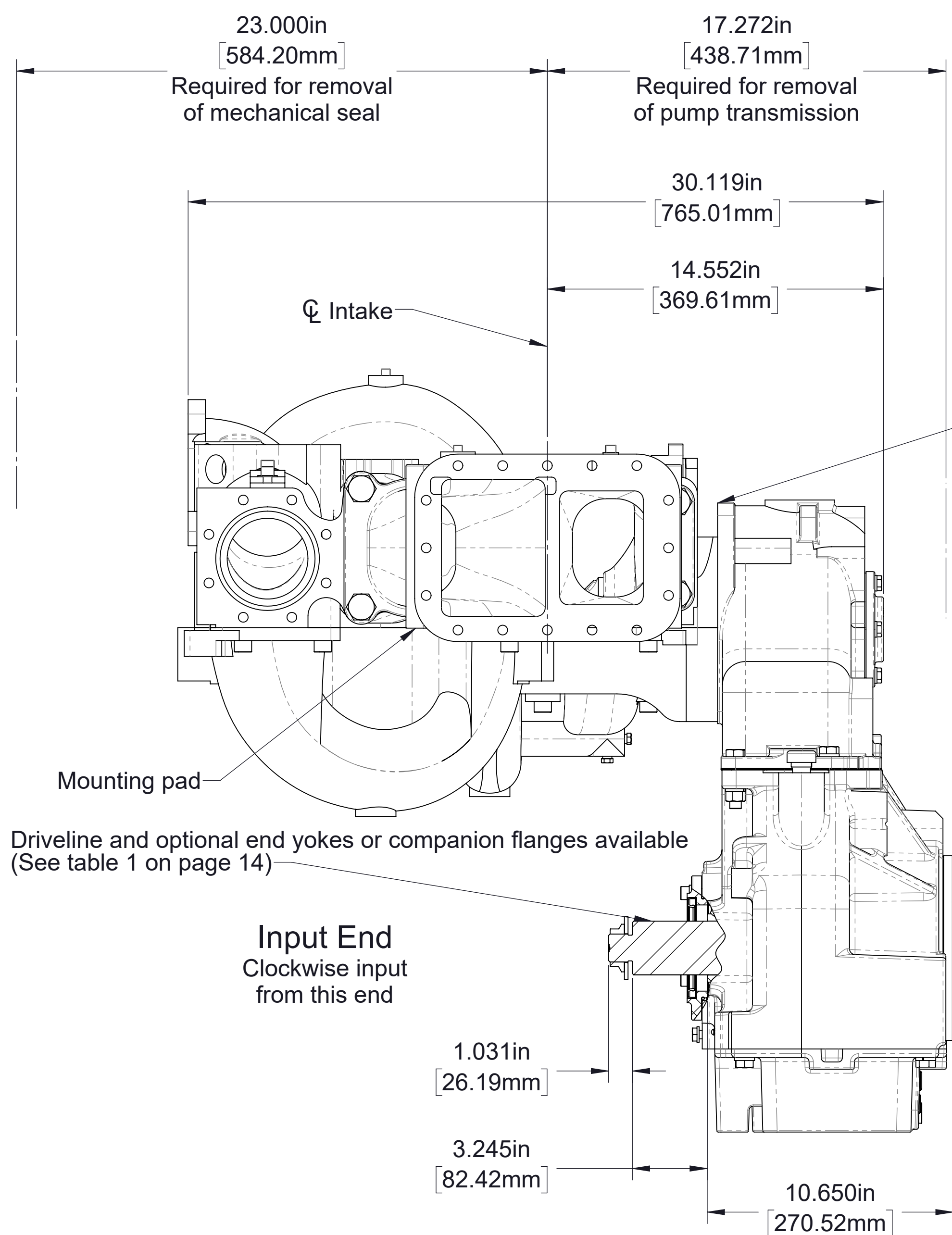
Separable impeller shaft.
Transmission may be removed from pump without disassembling the pump

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

Driveline and optional end yokes or companion flanges available
(See table 1 on page 14, typ both ends)

Model CS/CSU with C22
Input and Output Shaft, Mounted Rear of Pump
Model CSC22C, 2.27 ratio shown

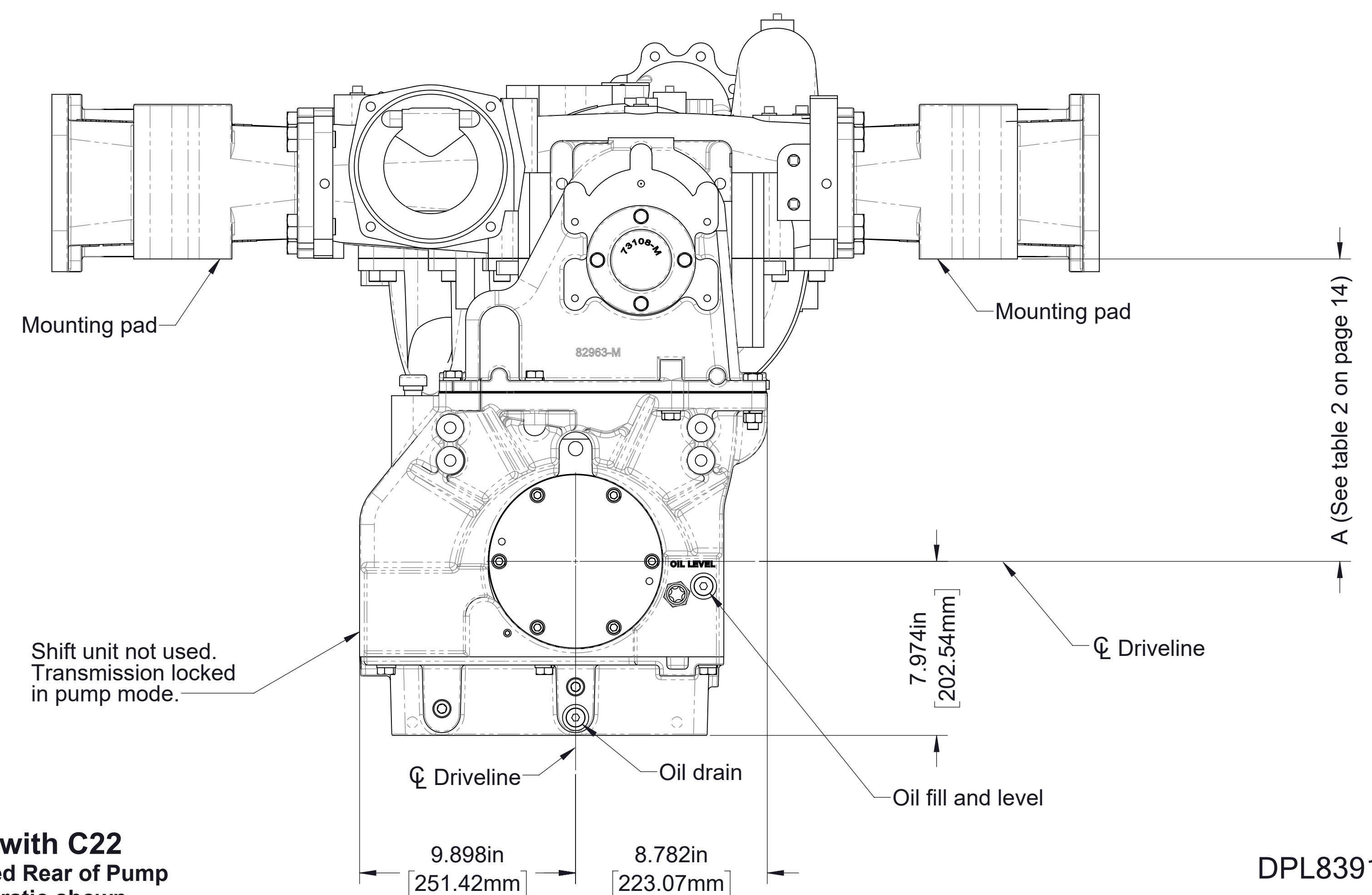
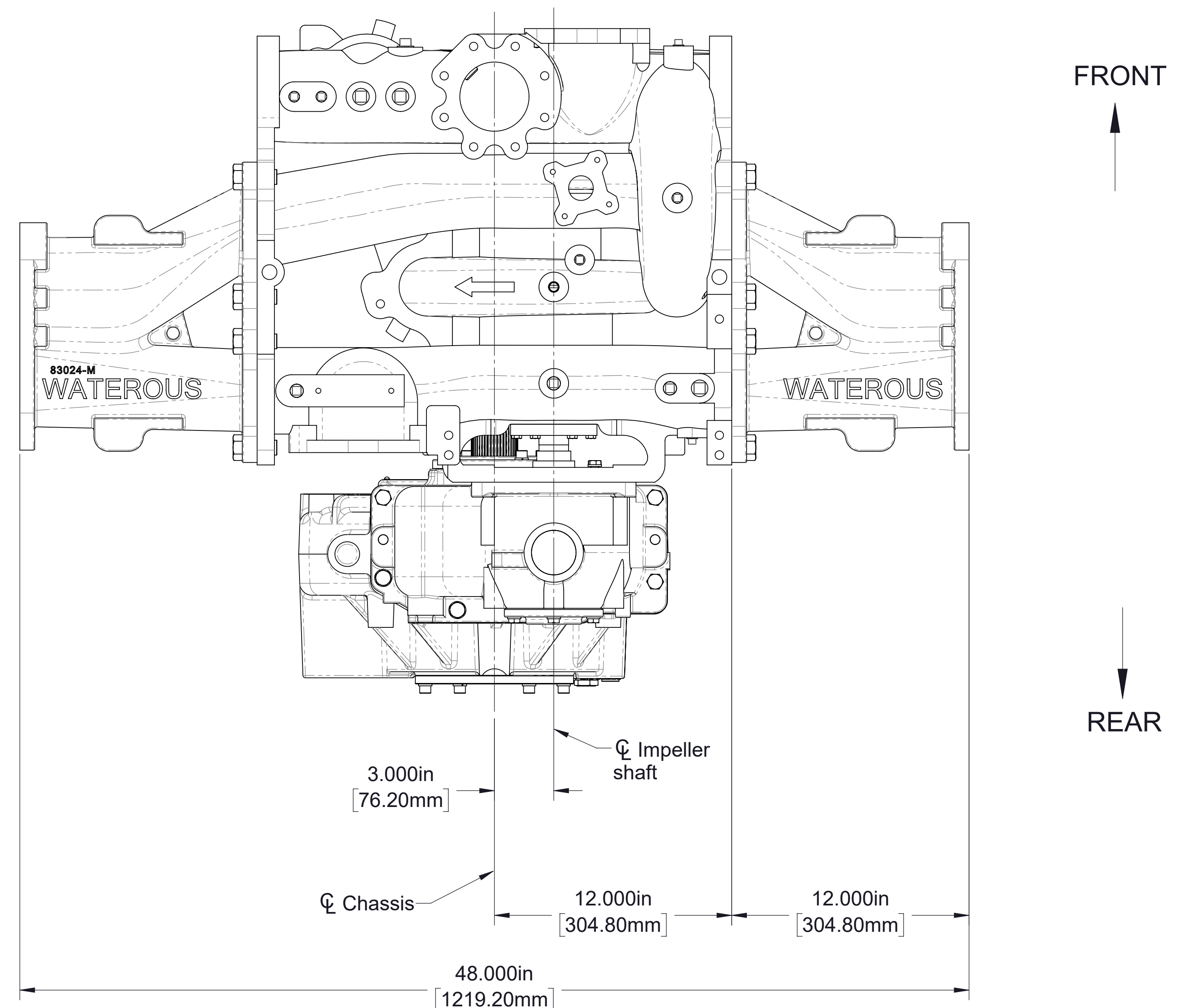


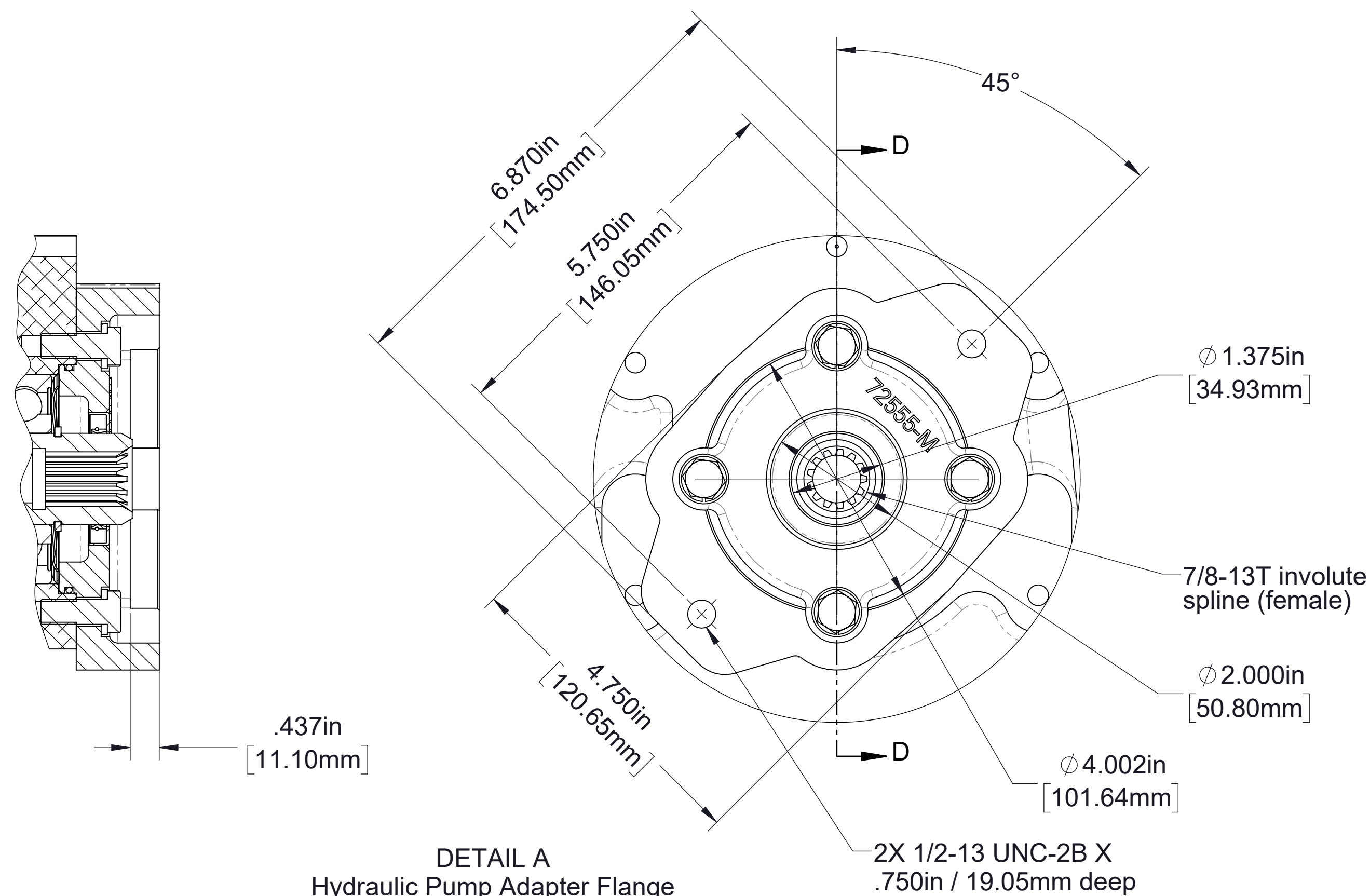


Separable impeller shaft.
Transmission may be removed from pump without disassembling the pump

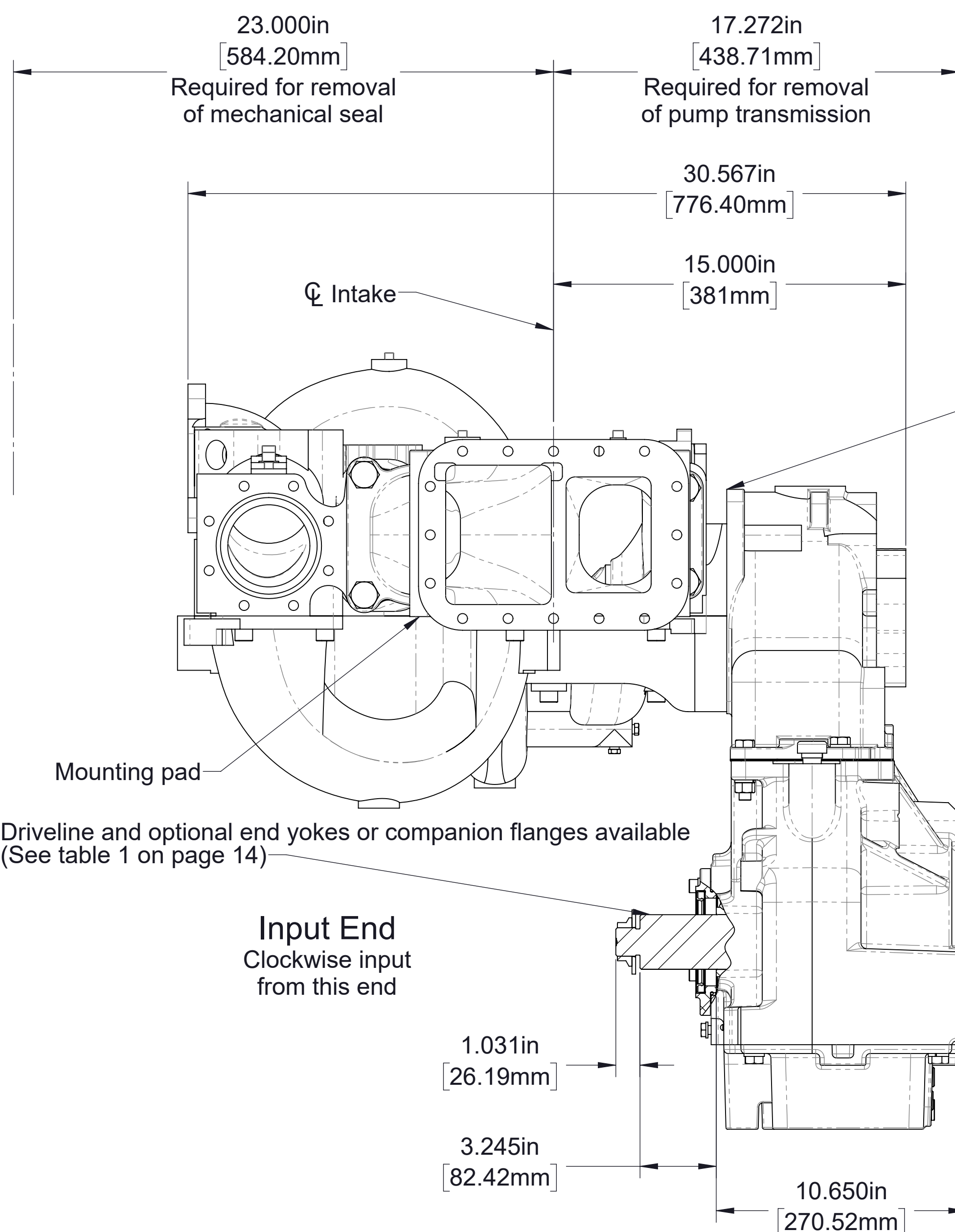
Note:
1. See drawing DPL82086 for shift mounting pad details.

Model CS/CSU with C22
Input Shaft Only, Mounted Rear of Pump
Model CSC22C, 2.27 ratio 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 shift mounting pad details.

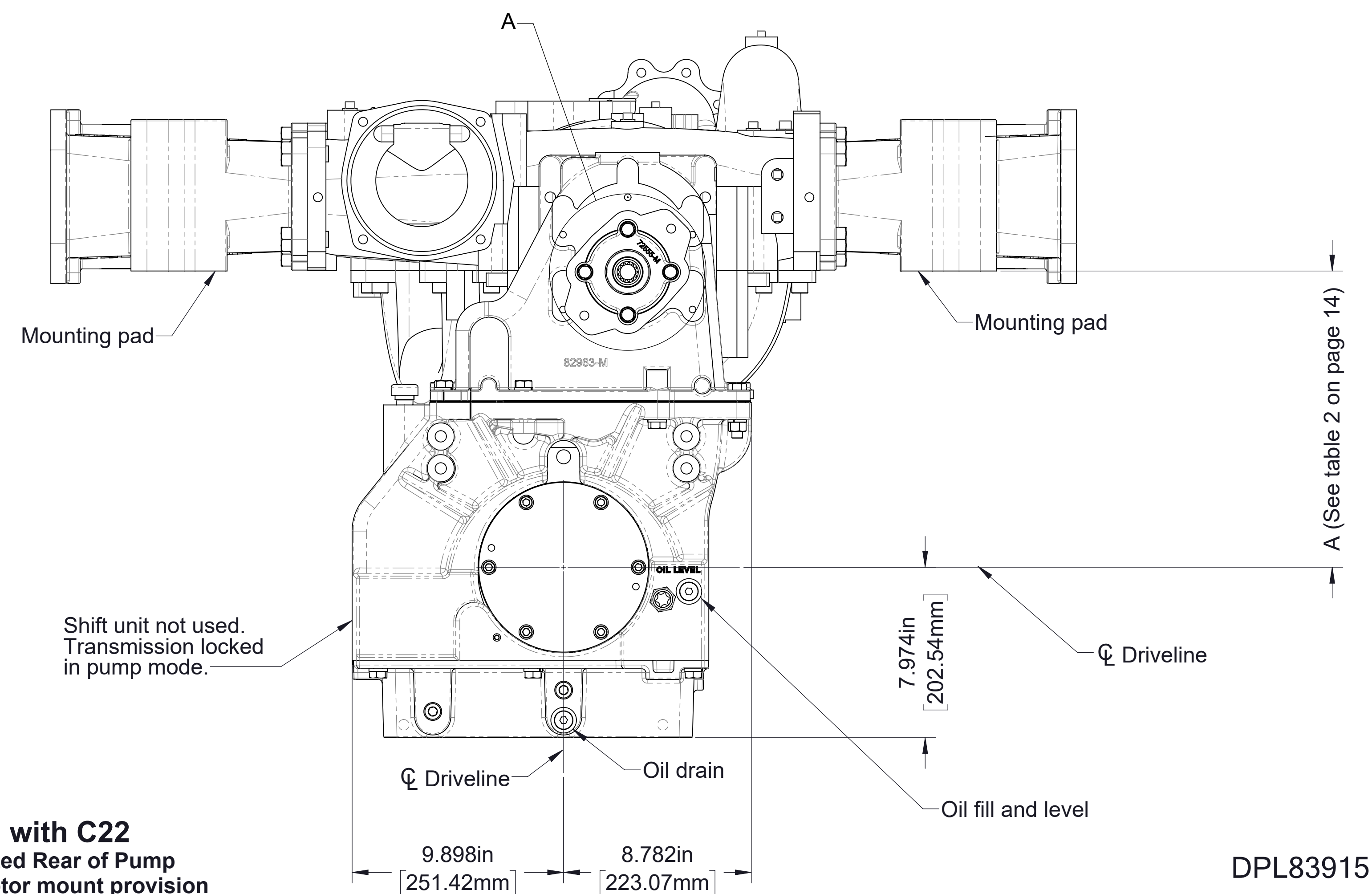
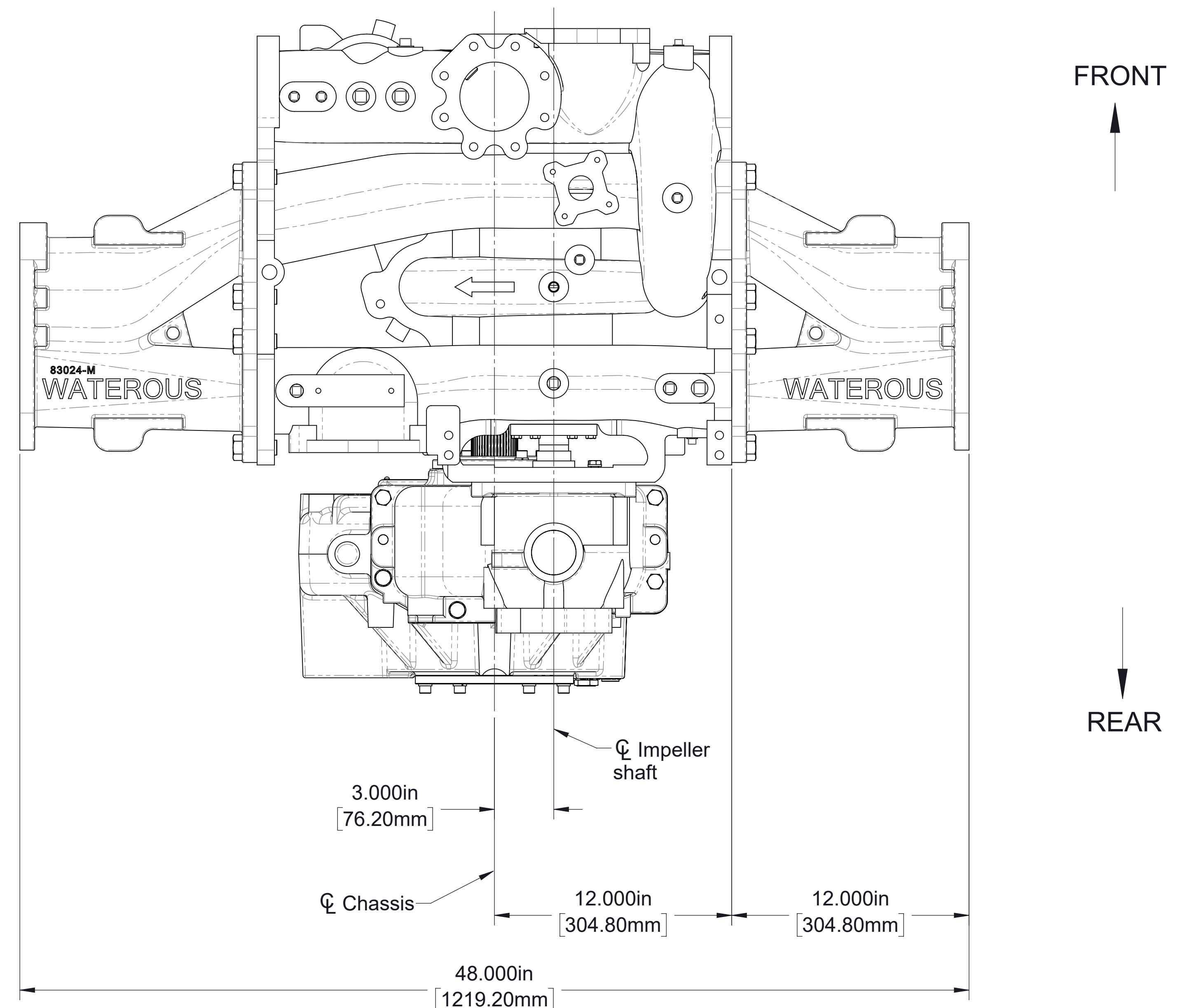
Separable impeller shaft.
Transmission may be removed
from pump without
disassembling the pump

Driveline and optional end yokes or companion flanges available
(See table 1 on page 14)

Input End
Clockwise input
from this end

1.031in
[26.19mm]

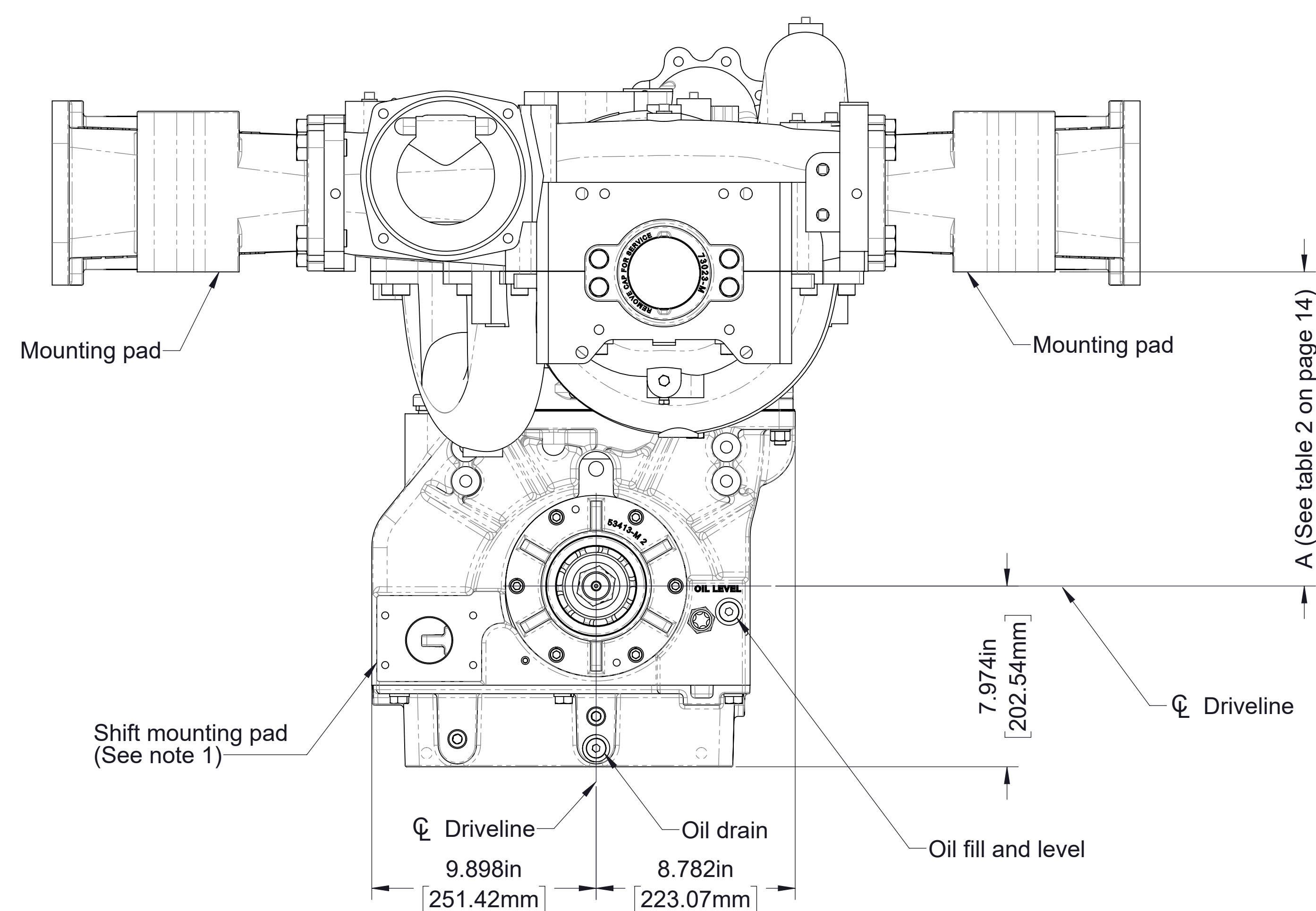
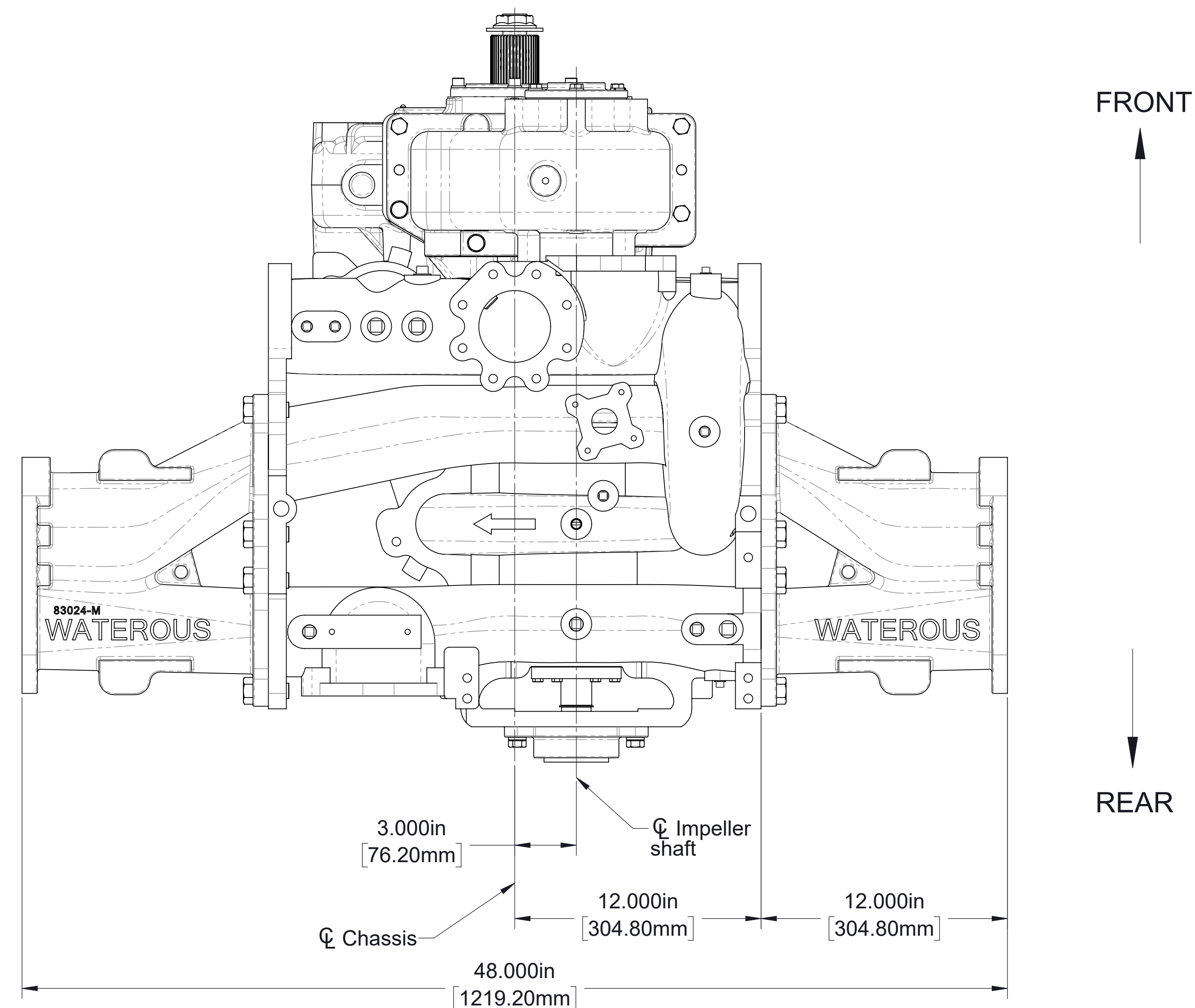
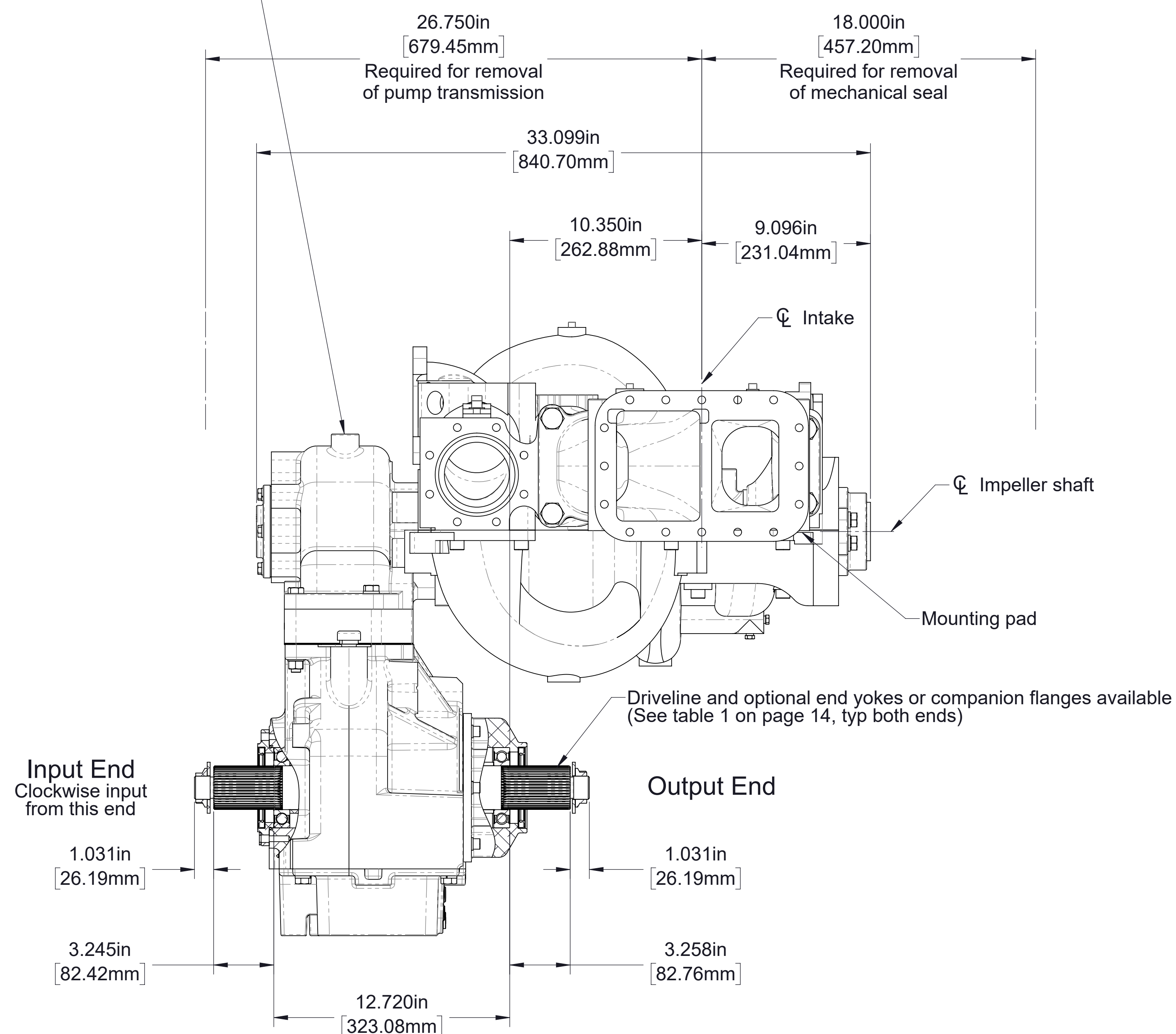
3.245in
[82.42mm]



Model CS/CSU with C22
Input Shaft Only, Mounted Rear of Pump
With optional hydraulic motor mount provision
Model CSC22C, 2.27 ratio shown

Separable impeller shaft.
Transmission may be removed from
pump without disassembling the pump

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

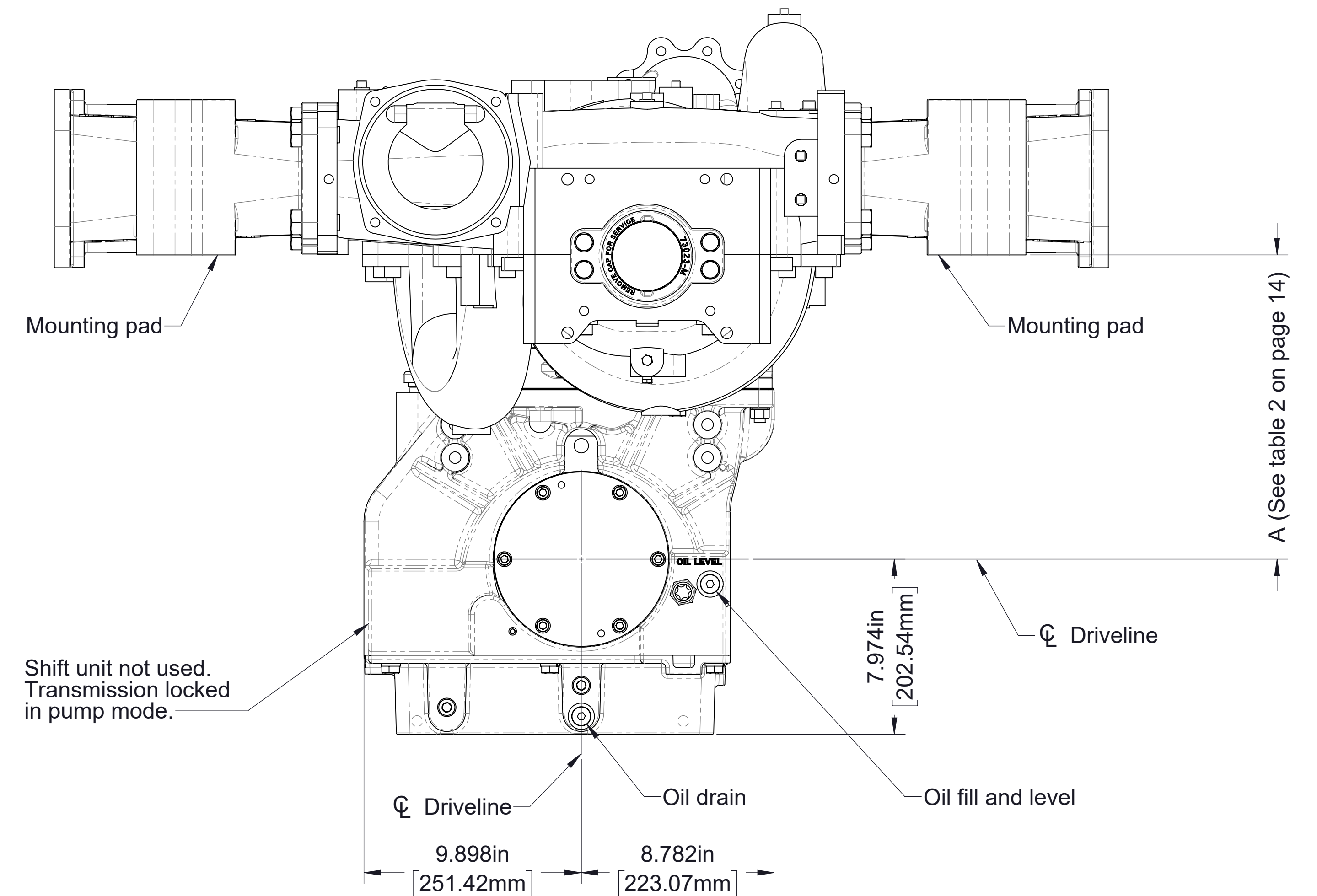
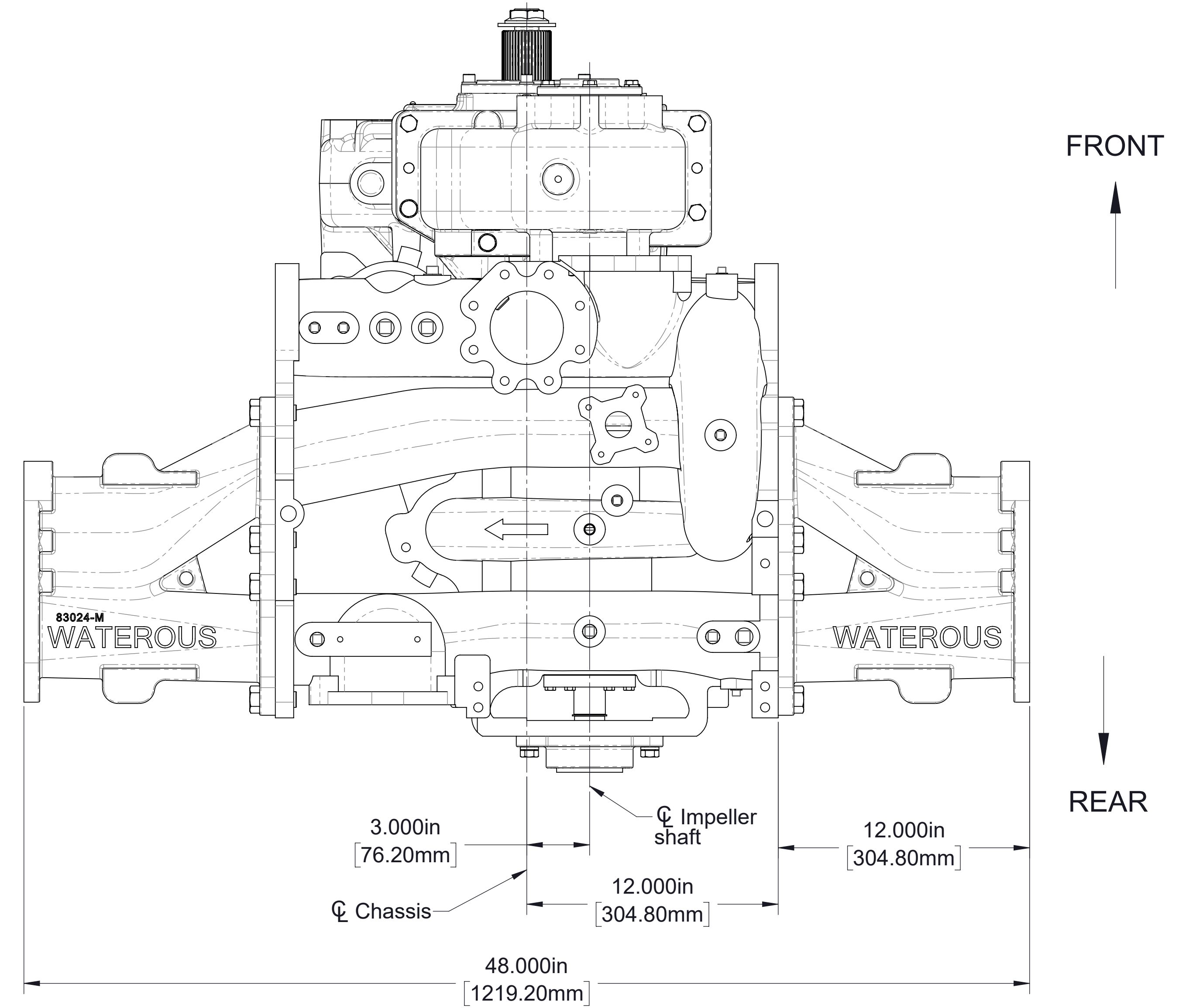
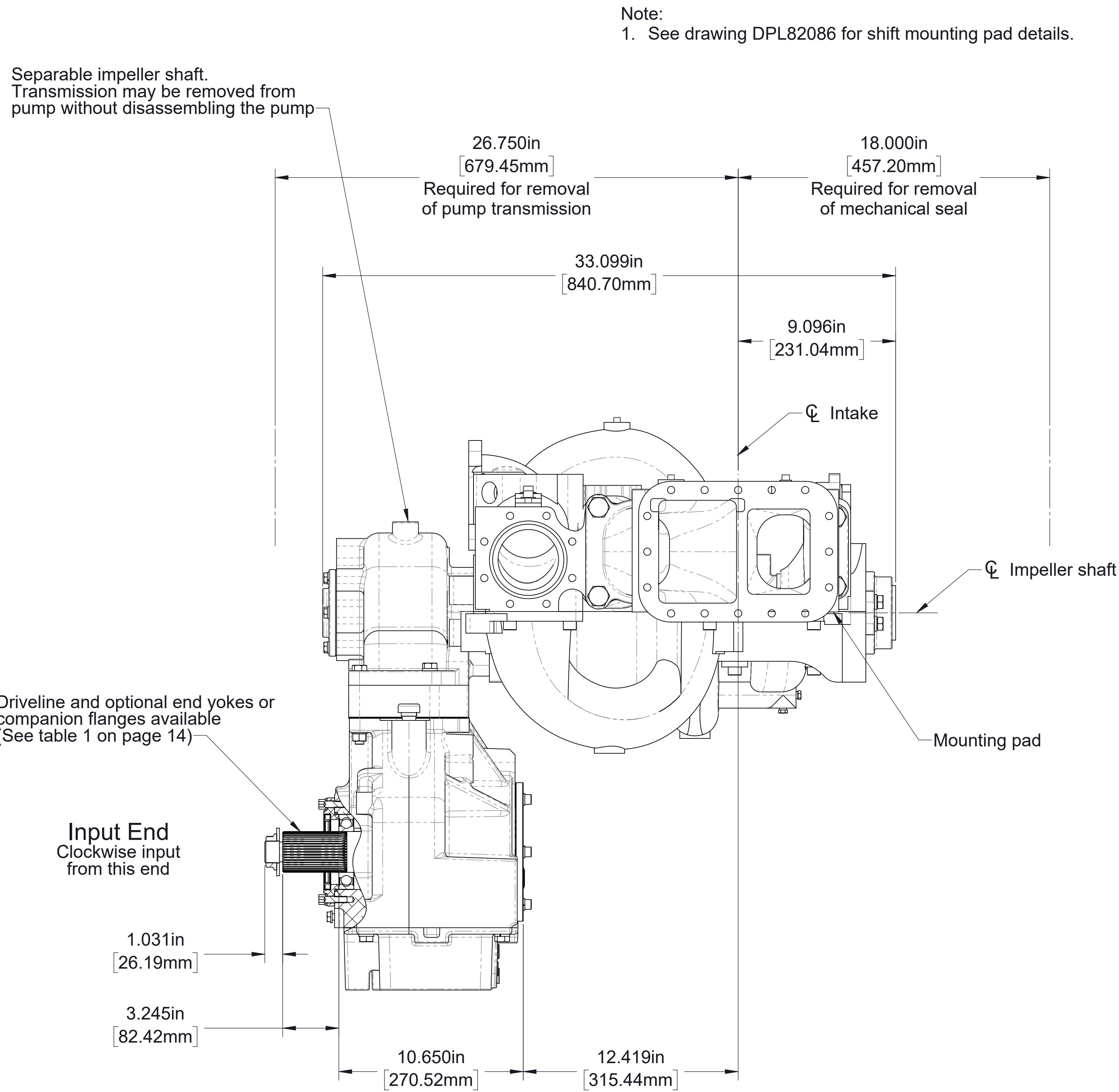


Model CS/CSU with C22
Input and Output Shaft, Mounted Front of Pump
Model CSC22C, 2.27 ratio shown

Separable impeller shaft.
Transmission may be removed from
pump without disassembling the pump

Driveline and optional end yokes or
companion flanges available
(See table 1 on page 14)

Input End
Clockwise input
from this end



Model CS/CSU with C22
Input Shaft Only, Mounted Front of Pump
Model CSC22C, 2.27 ratio shown

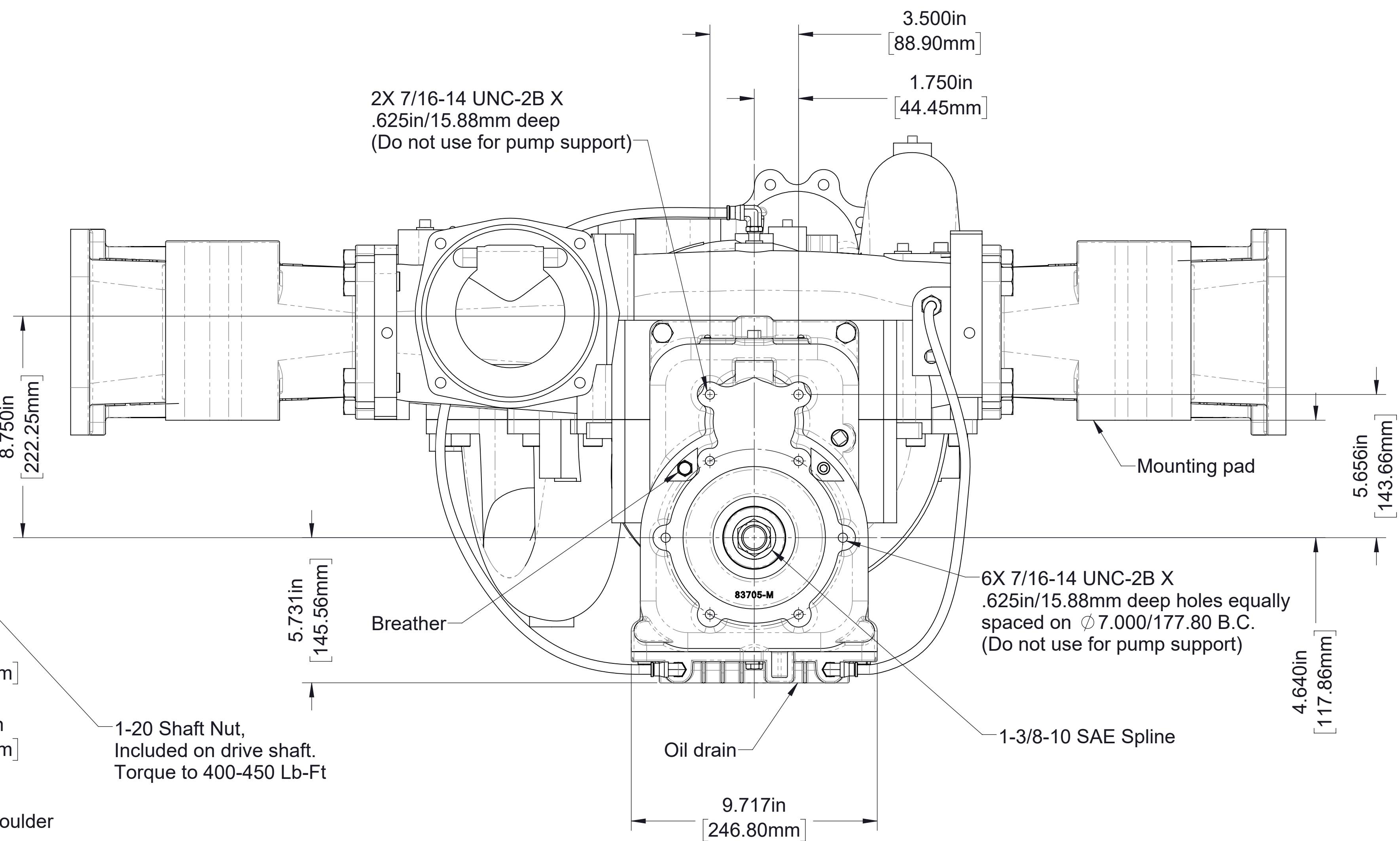
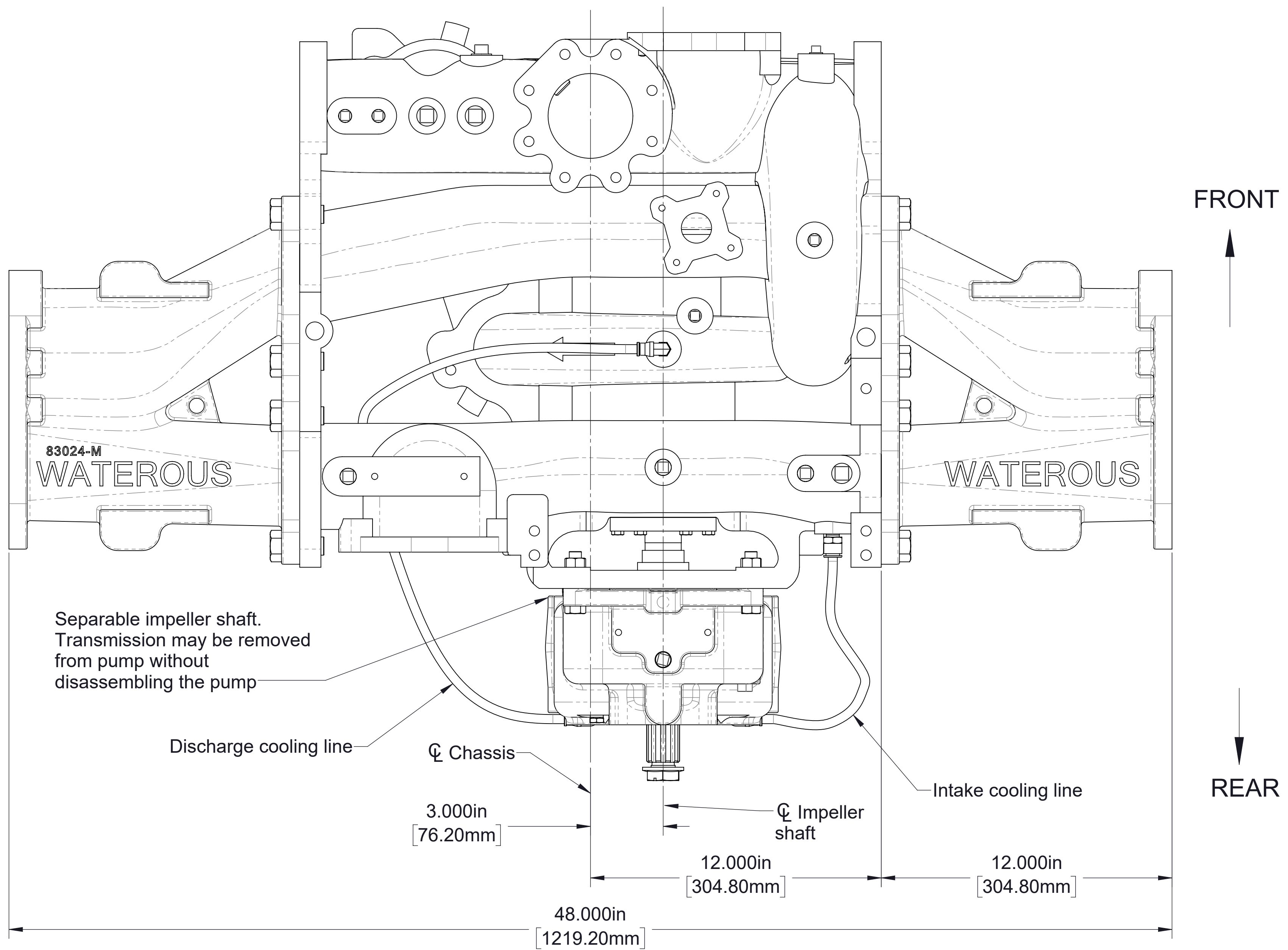
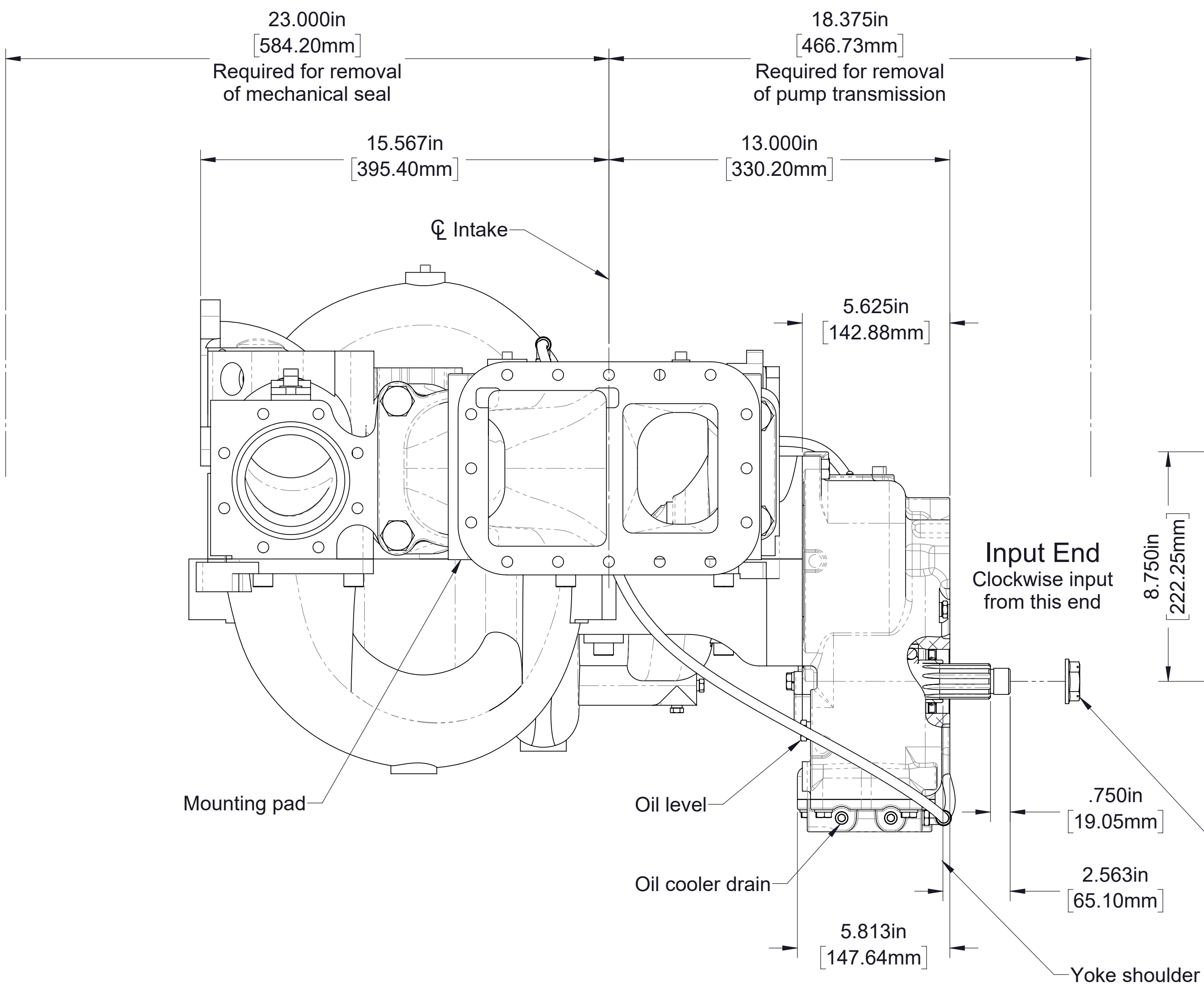
Table 1 - Available Driveline/Models							
Driveline			Optional End Yokes and Companion Flanges Available from Waterous				
Type	Size	Spline	Yoke		Cross and Bearing Kit	Companion Flange	
			Spicer Series	Part No.		Spicer Series	Part No.
Extra Heavy Duty	2.35 Inch	2.35-46T Involute	1710 BP	V 2837	V 2839	1480/1610	V 3719
			1810 BP	V 2838	V 2840	1650/1710	V 3619
			1710 HR	V 4101	--	--	--
			1810 HR	V 4102	--	--	--
			SPL140	V 3388	V 3389	--	--

Table 2 - Available Ratios					
Dimension A					
Drive to Driven Ratio	All dimensions shown as inch/millimeter				
	C22B	C22C	C22D	C22E	C22F
1.27	12.310/312.45	14.363/364.82	14.876/377.85	16.912/429.56	18.943/481.15
1.41	11.891/302.03	13.950/354.33	14.982/380.54	17.022/432.36	19.053/483.95
1.48	12.377/314.38	13.929/353.80	14.958/379.93	17.002/431.85	19.032/483.41
1.58	12.256/311.30	13.807/350.70	14.893/376.91	16.881/428.78	18.912/480.36
1.69	12.341/313.46	13.890/352.81	14.927/379.15	16.974/431.14	19.012/482.90
1.79	12.009/305.03	14.096/358.04	15.123/384.12	17.178/436.32	19.219/488.16
1.88	12.180/309.37	13.741/349.02	14.768/375.11	16.824/427.33	18.860/479.04
1.97	12.357/313.87	13.921/353.59	14.963/380.06	17.021/432.33	19.063/484.20
2.03	11.947/303.45	14.035/356.49	15.079/383.01	17.137/435.28	19.183/487.25
2.27	12.291/312.19	13.862/352.09	14.907/378.64	16.971/431.06	19.022/483.16
2.46	11.922/304.60	14.108/358.34	15.138/384.51	17.205/437.01	19.256/489.10
2.68	12.220/310.39	13.797/350.44	14.844/377.04	16.916/429.67	18.974/481.94

Notes:
1. See drawings DPL82084-1, DPL82084-2, and DPL82084-5 for pressure control systems.
2. Driveline spline typical on both ends. Optional end yokes are available.

CSK available as follows				
Model	Input	Location	Mounting	Available Ratios
Heavy Duty K	Clockwise	Rear	Vertical	1.16
				1.30
				1.38
				1.56
				1.65
				1.88
				2.14
				2.45
				2.83

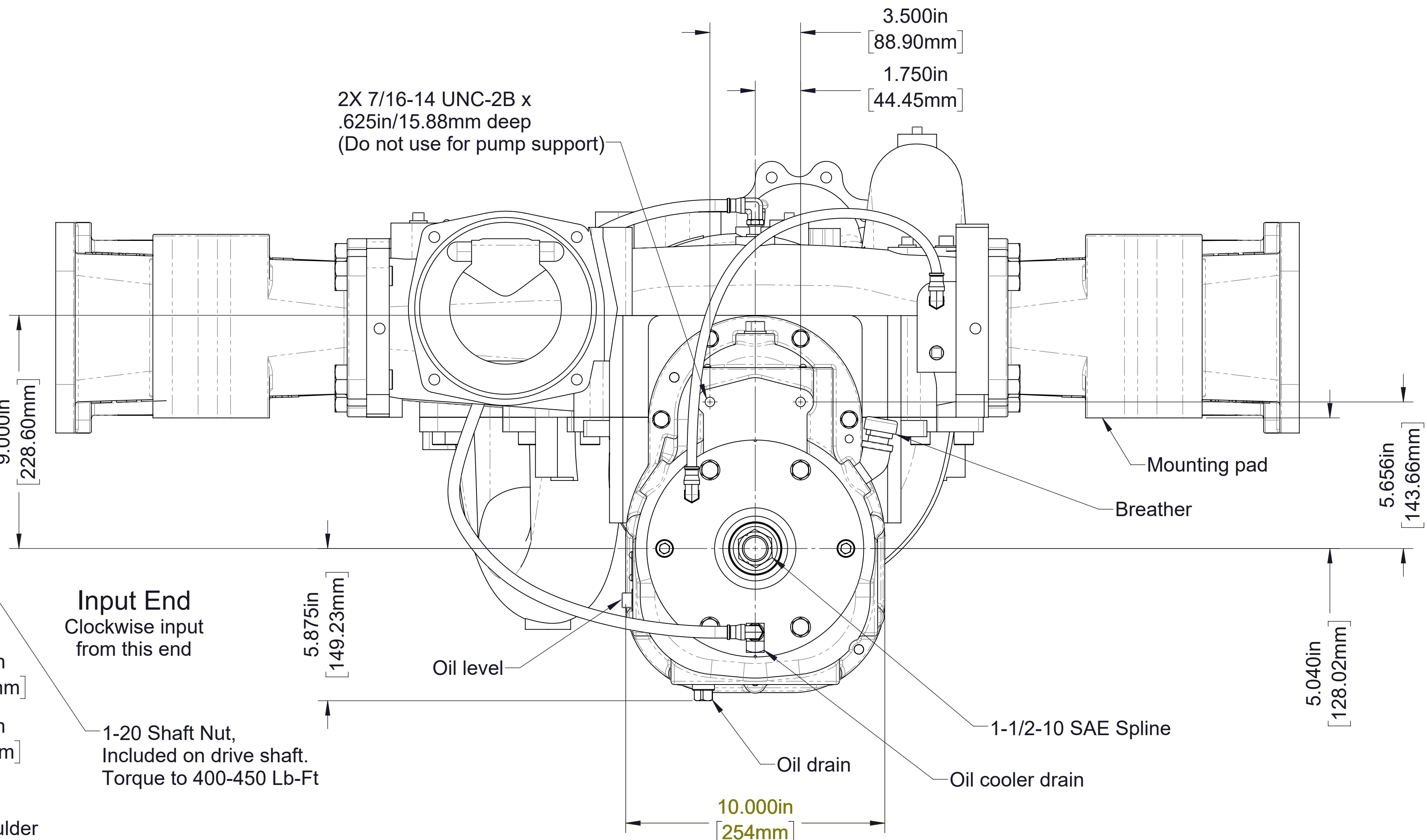
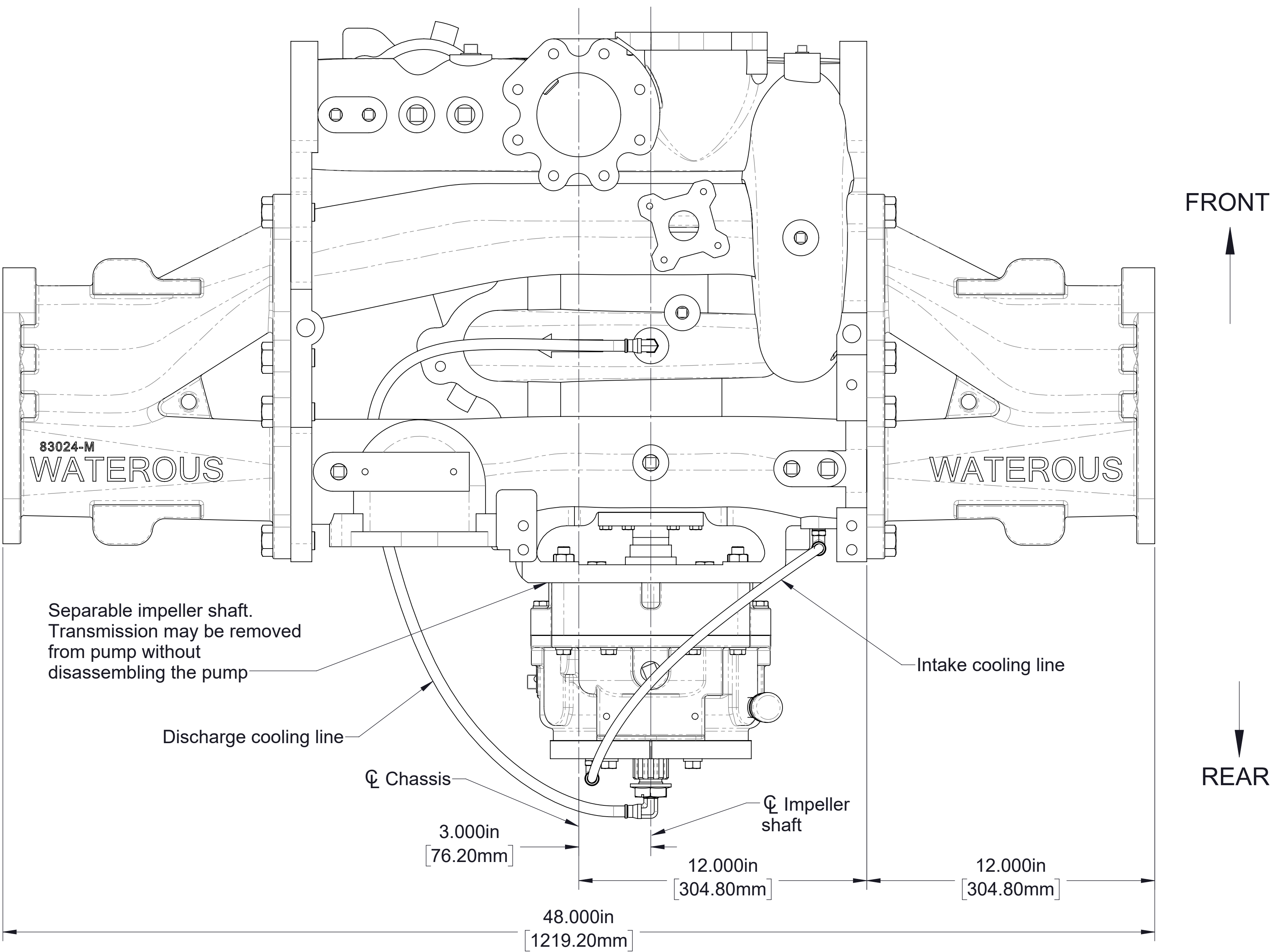
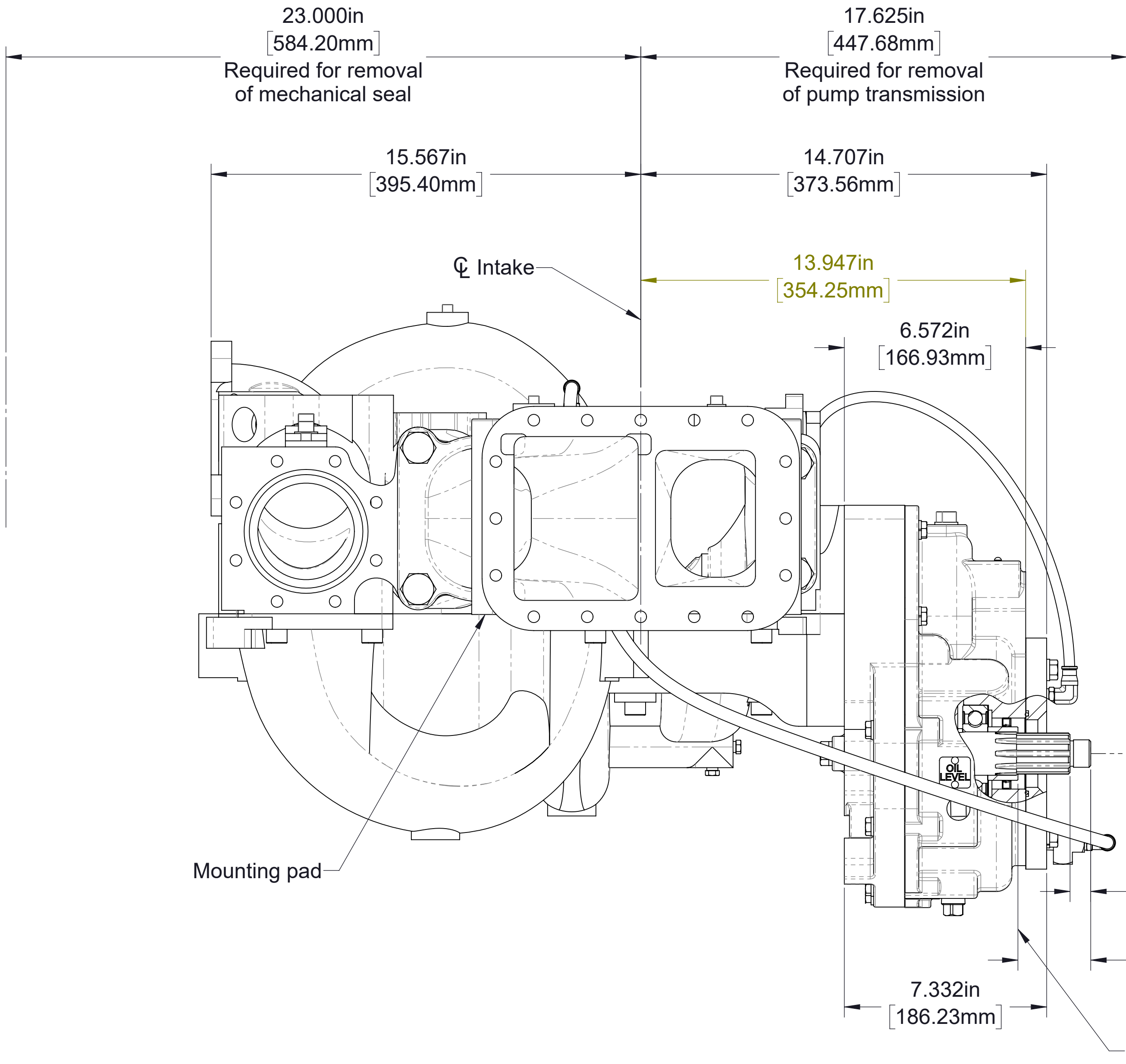
Note:
1. See drawings DPL82084-1, 82084-2, and DPL82084-5 for pressure control systems.



Model CS with K

CSUK available as follows				
Model	Input	Location	Mounting	Available Ratios
Extra Heavy Duty K	Clockwise	Rear	Vertical	1.27
				1.42
				1.69
				2.00
				2.12
				2.26
				2.56

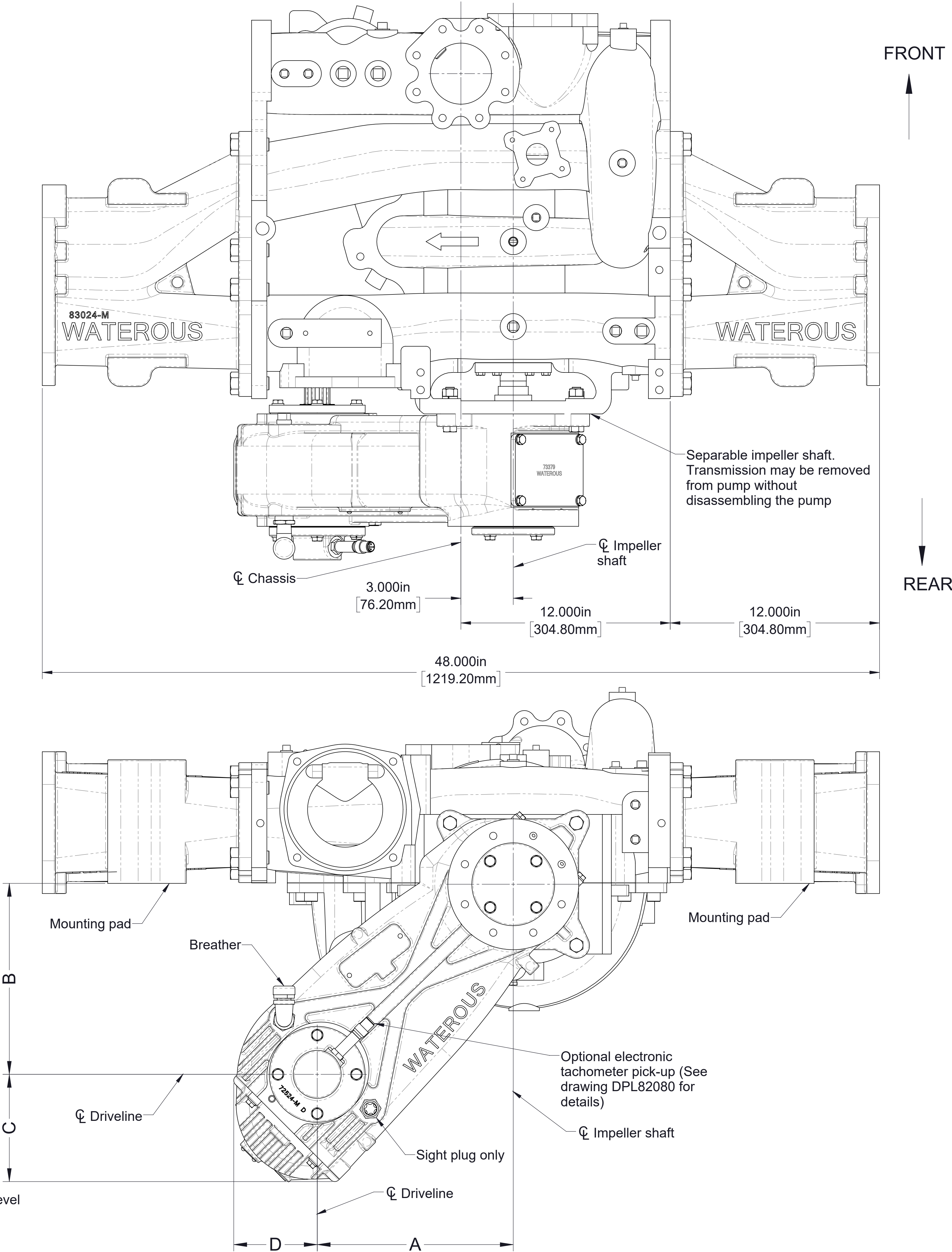
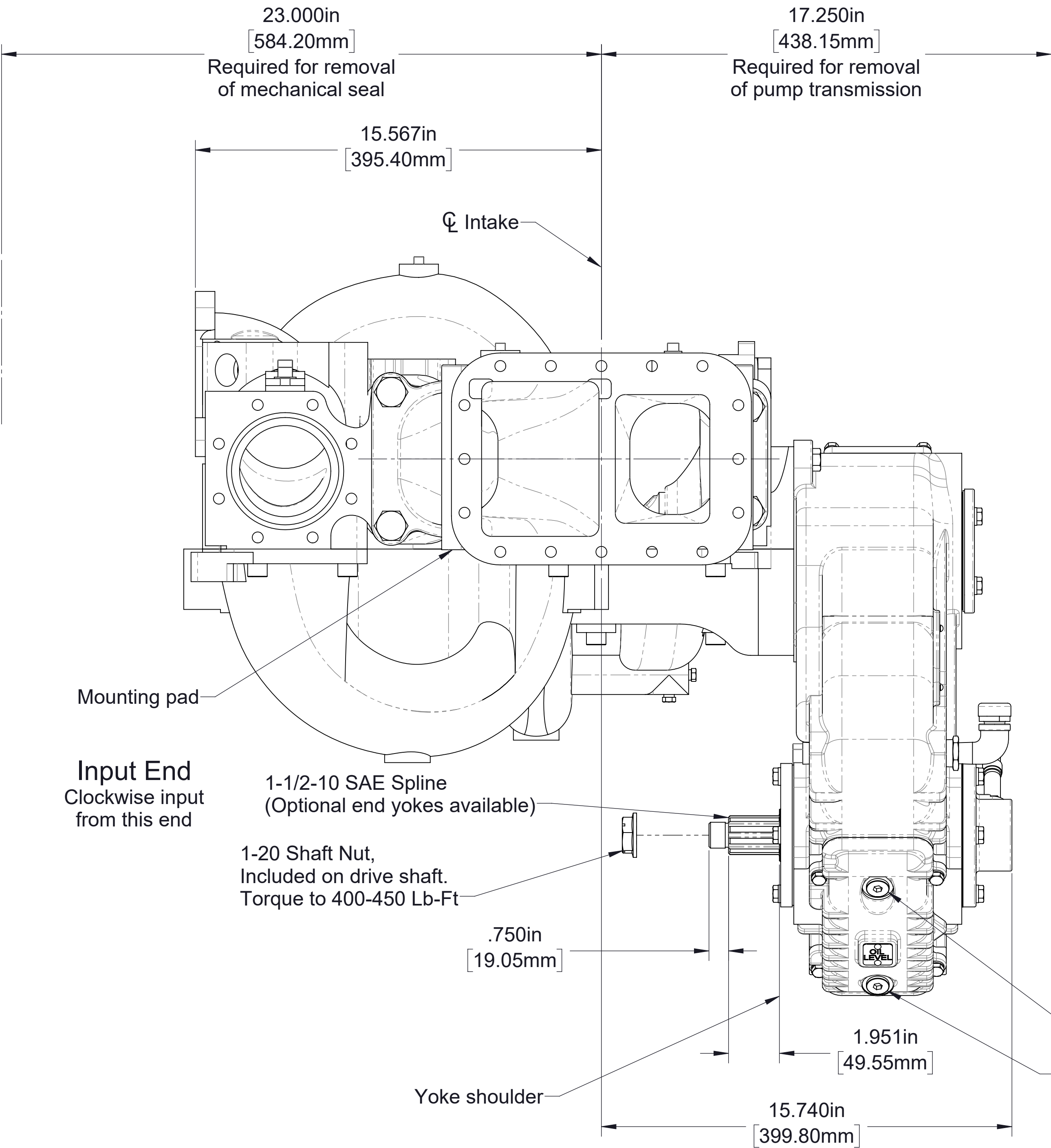
Note:
1. See drawings DPL82084-2 and DPL82084-5 for pressure control systems.



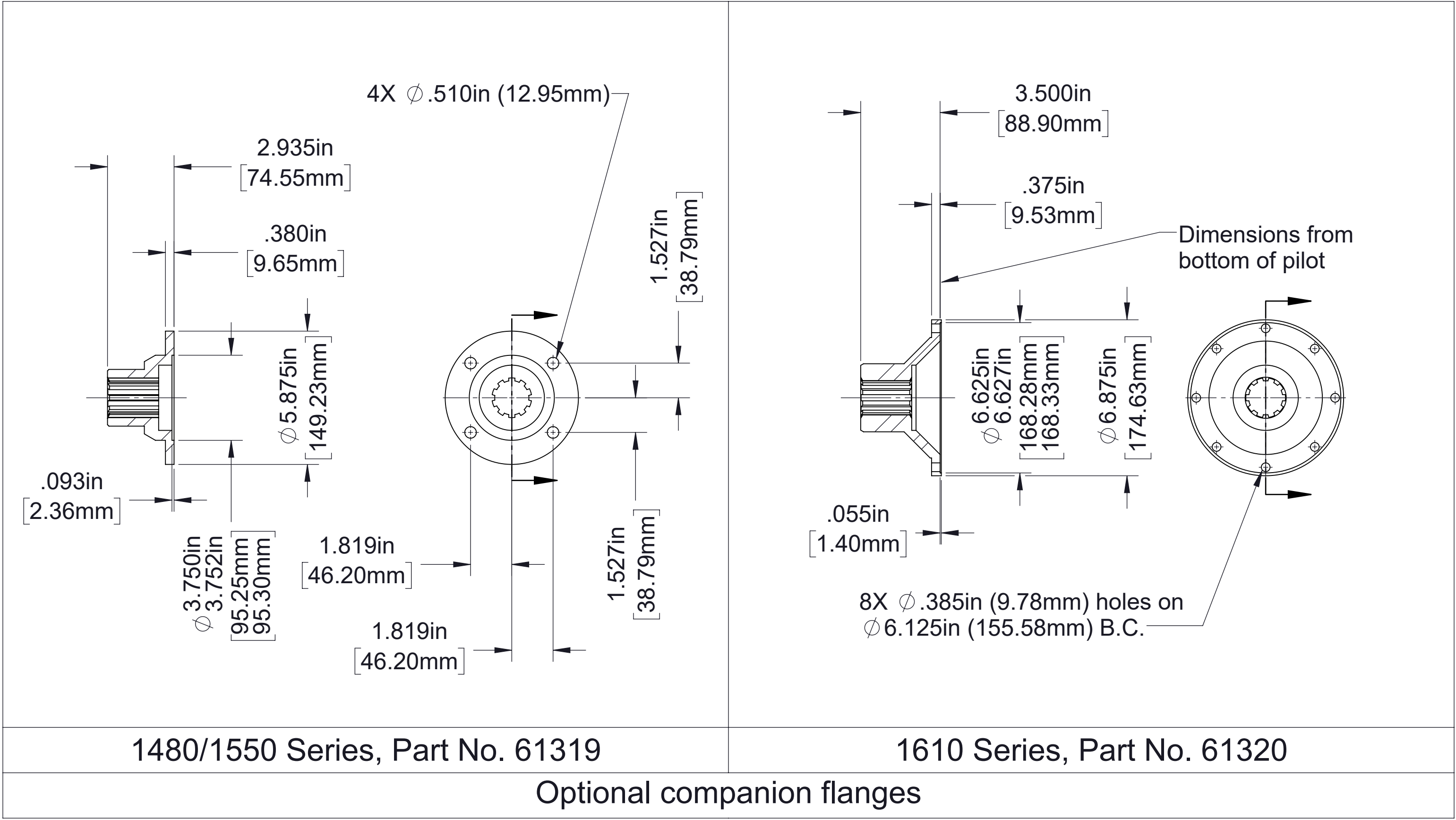
Model CSU with K

Drive Line		Ratio	Dim A	Dim B	Dim C	Dim D
Size	Spline					
1-1/2 in	1-1/2-10 SAE	1.00	11.442in 290.62mm	11.251in 285.77mm	5.855in 148.71mm	4.582in 116.39mm
		1.70	11.288in 286.71mm	10.994in 279.25mm	6.111in 155.22mm	4.737in 120.32mm
		1.90	11.269in 286.24mm	10.975in 278.77mm	6.130in 155.70mm	4.755in 120.79mm
		2.10	11.239in 285.46mm	10.945in 278.00mm	6.160in 156.46mm	4.786in 121.56mm

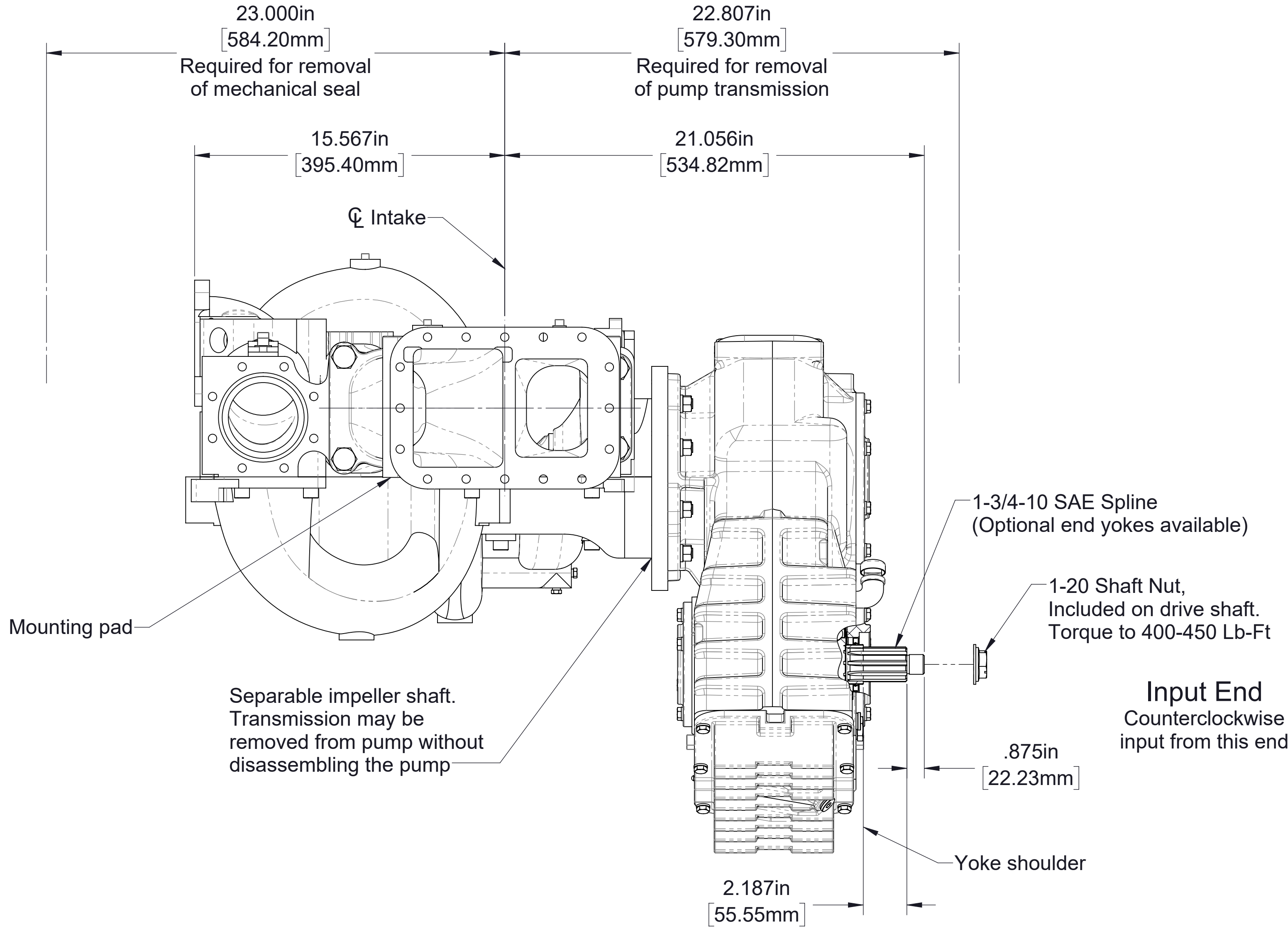
- Notes:
- See drawing DPL82080 for additional details of PA transmission
 - See drawings DPL82084-1, DPL82084-2, and DPL82084-5 for pressure control systems.



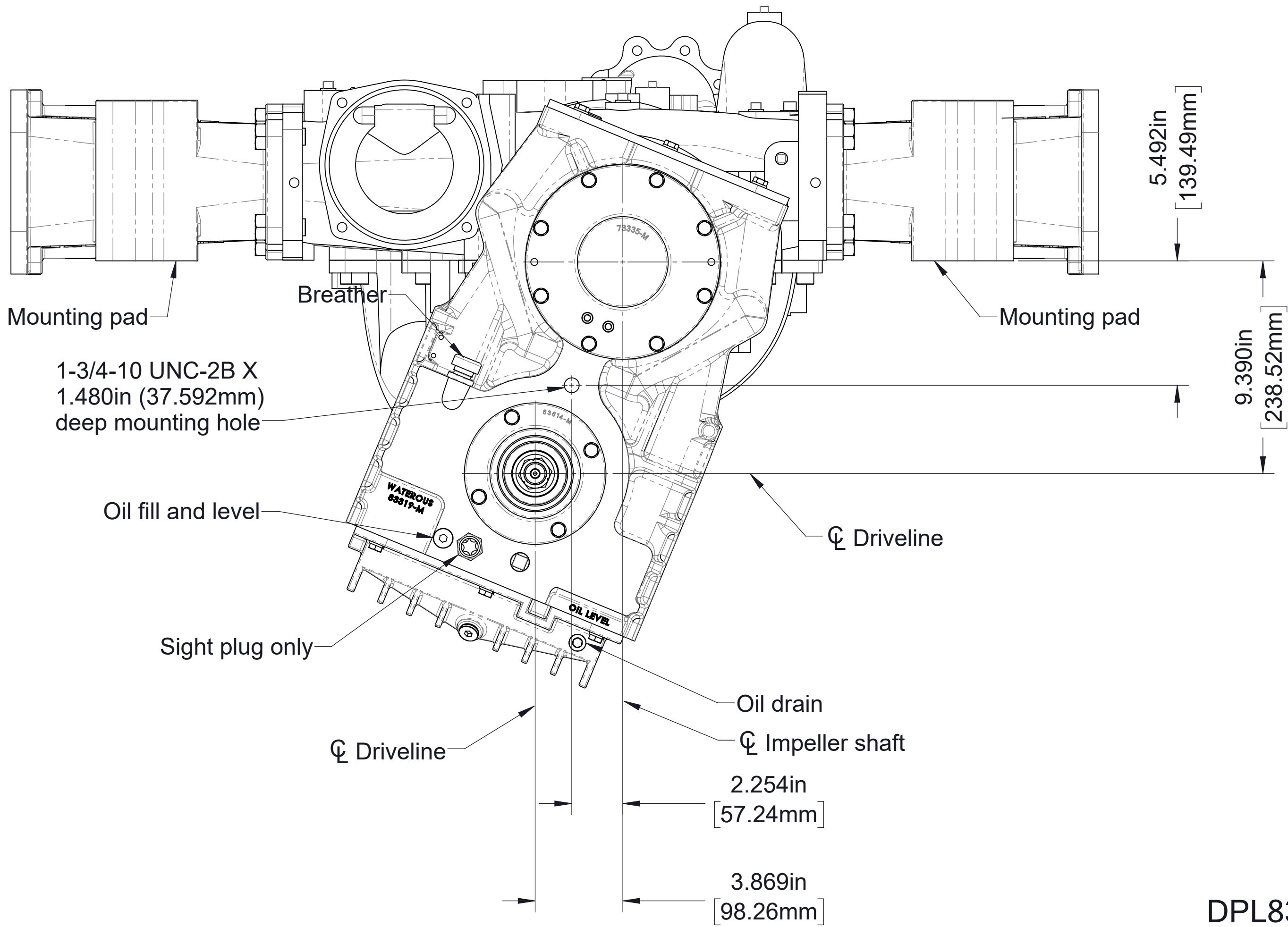
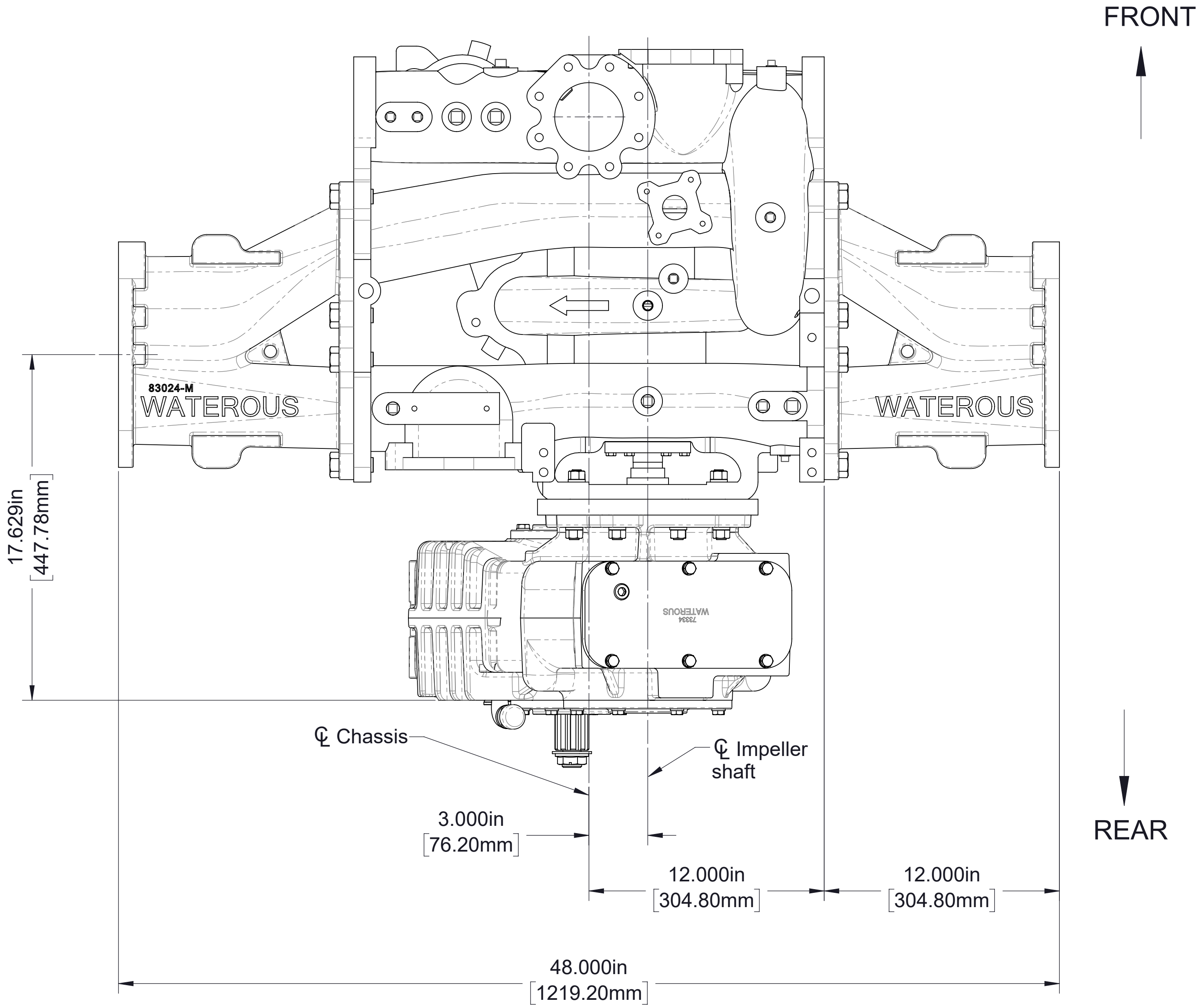
Model CS/CSU with PA

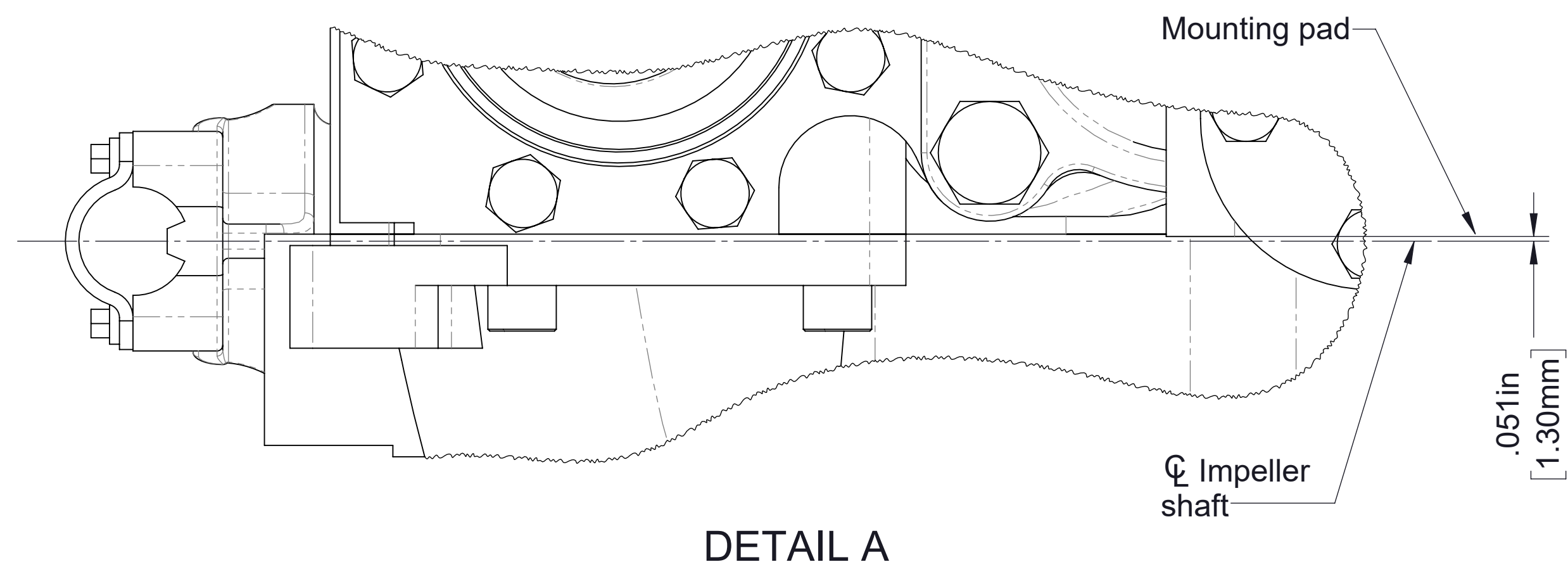


Note:
1. See drawings DPL82084-1, DPL82084-2, and DPL82084-5 for pressure control systems.

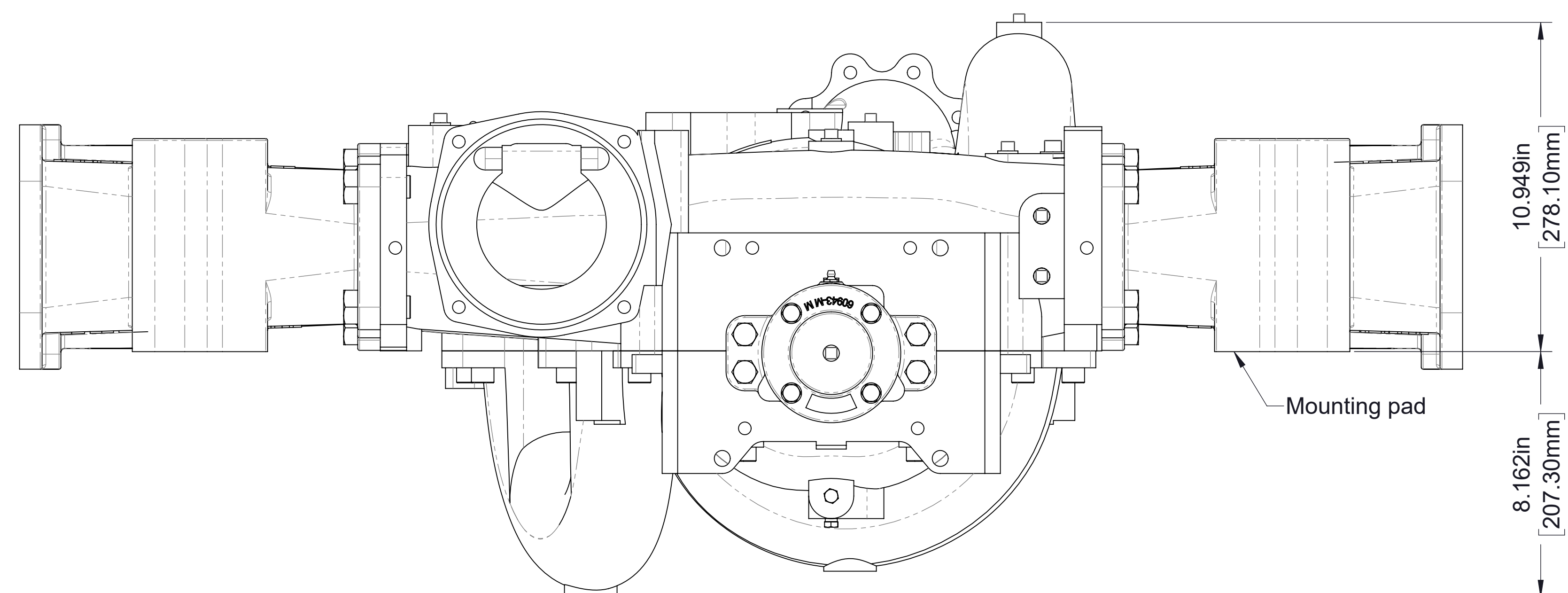
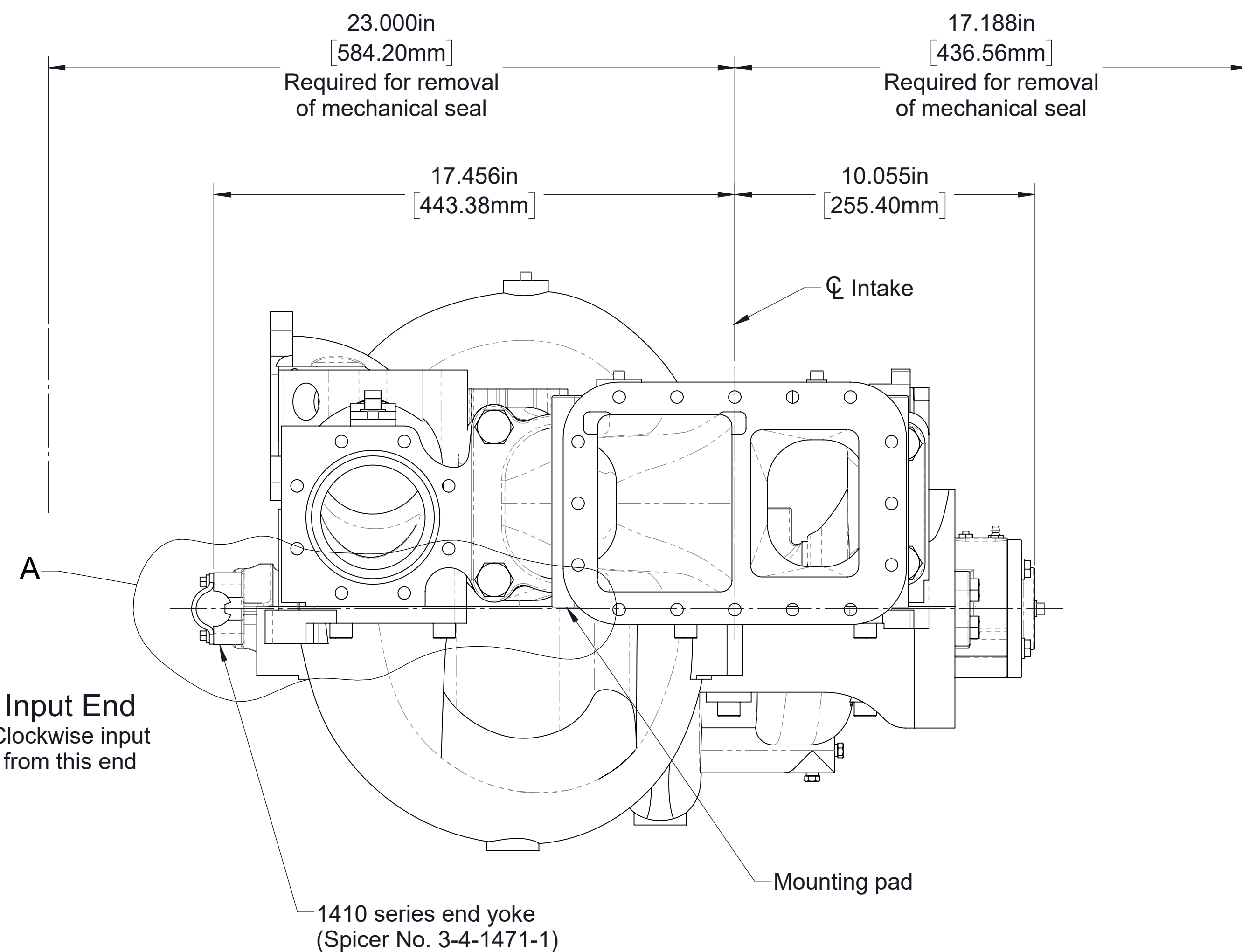
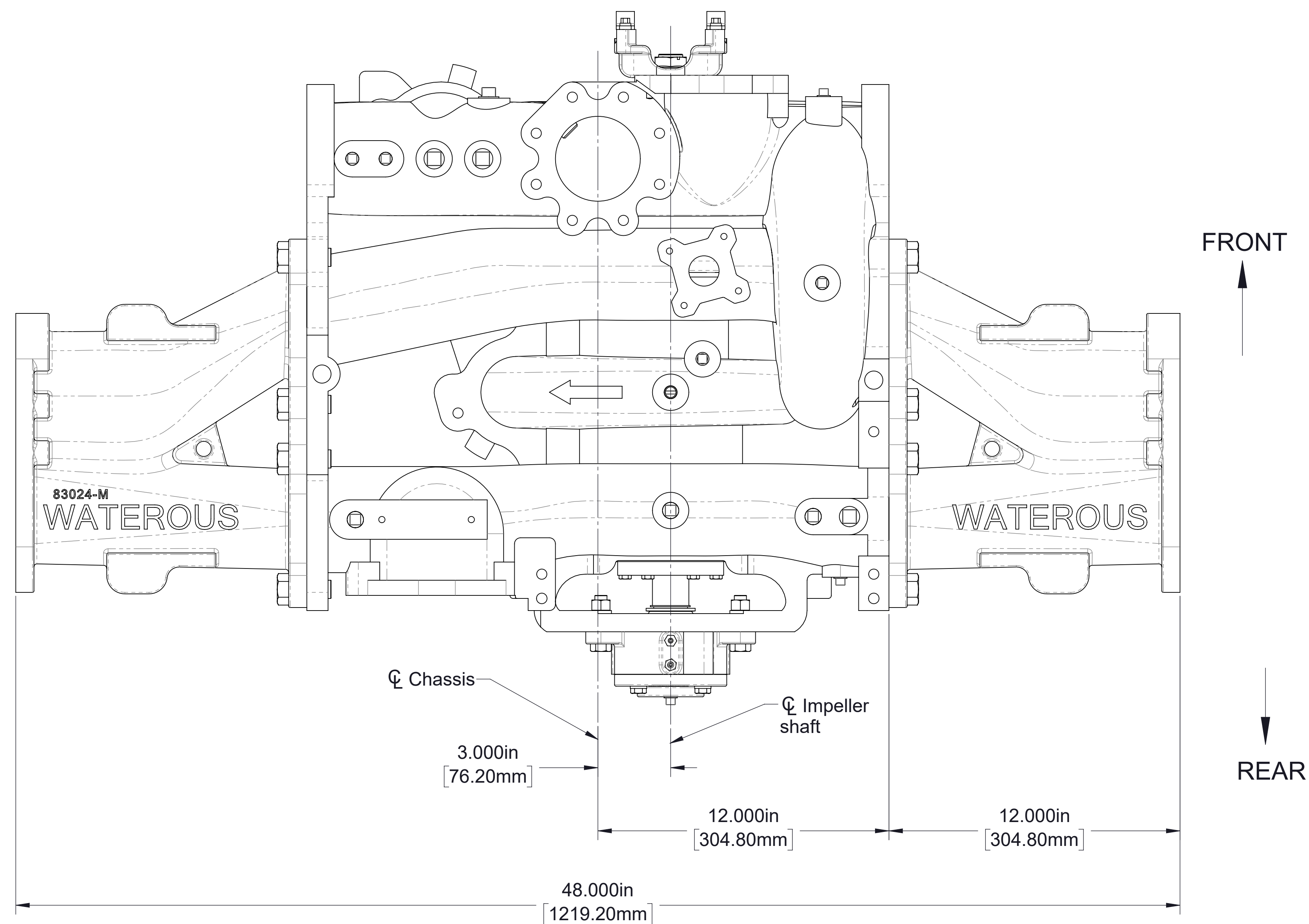


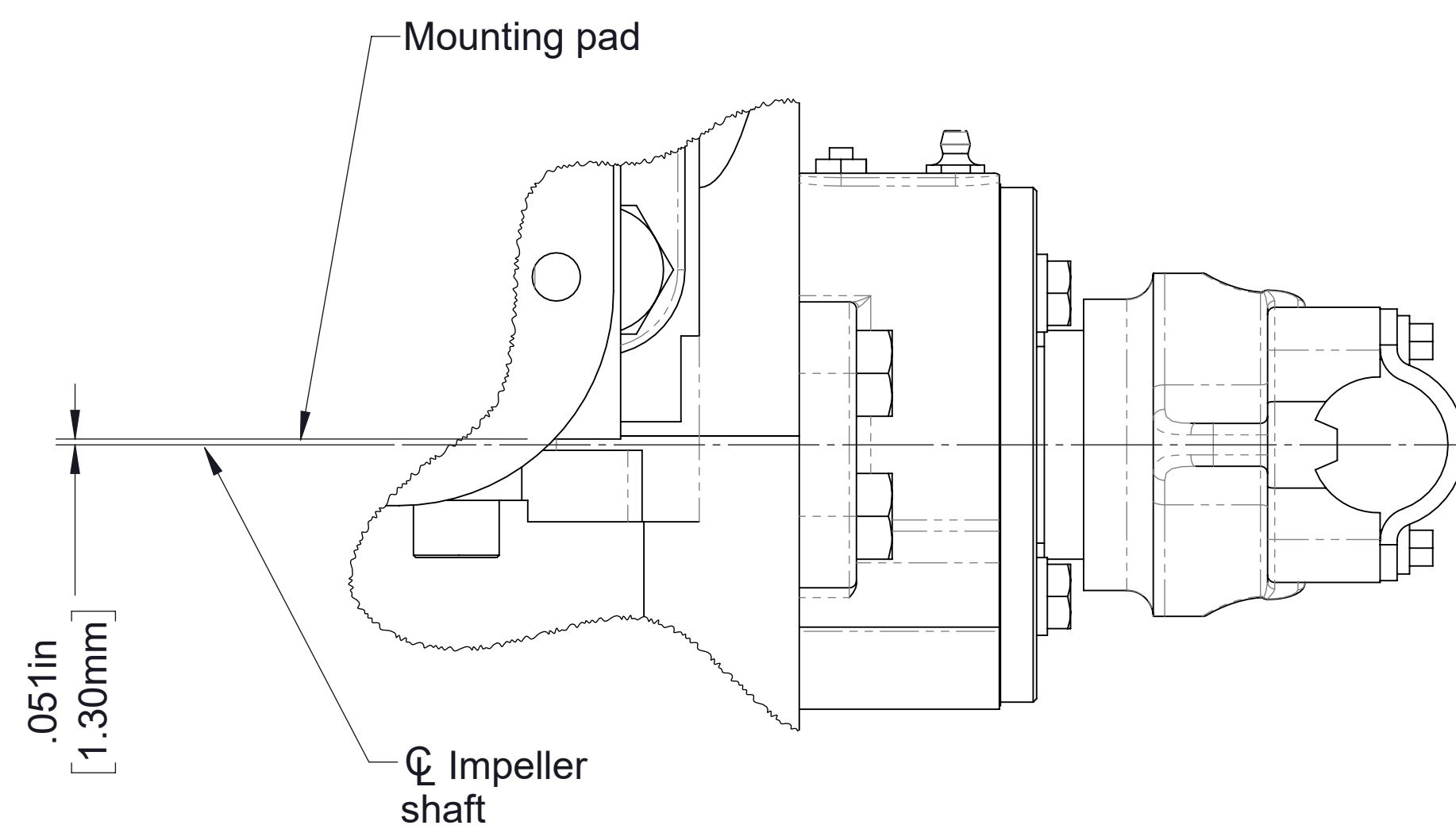
Model CS/CSU with QC





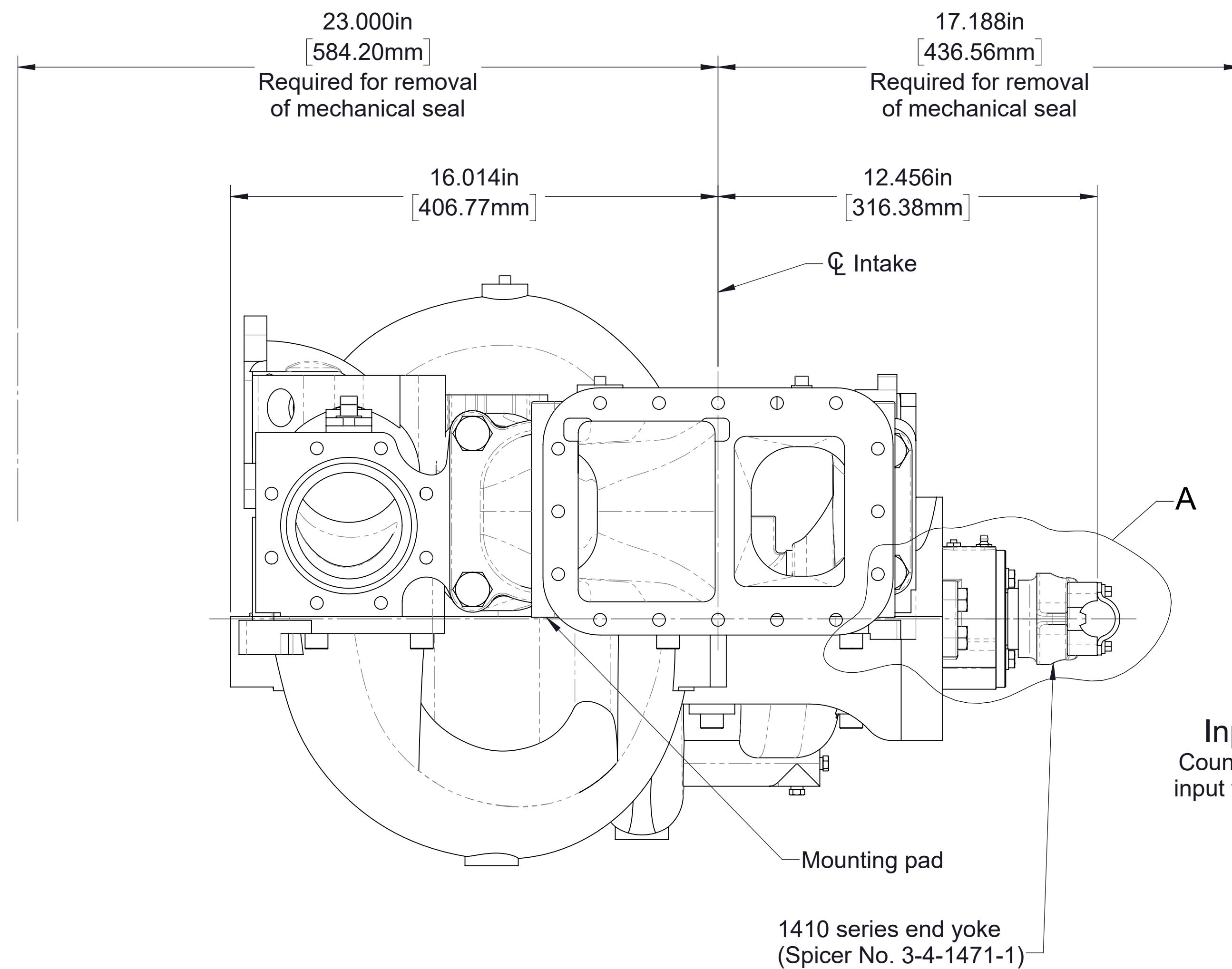
Note:
1. See drawings DPL82084-1, DPL82084-2, and DPL82084-5 for pressure control systems.





DETAIL A

Note:
1. See drawings DPL82084-1, DPL82084-2, and DPL82084-5 for pressure control systems.



Input End
Counterclockwise
input from this end

