

# Parker Vane Pumps:

## For Small Envelope PTO Applications



### Overview:

Single flow / dual flow / & high flow needs, these pumps are available with single or dual outlets providing a wide range of flow options. Parker vane pumps are also available with double shaft seals with weep hole for your wet spline application needs.

“D” frame models have displacements up to 9.64 cubic inches. “B” frame models have the capability of 4600 psi. “CC” models have double pump flows up to 12.2 cubic inches, providing flows over 116 gpm at maximum pump RPM.

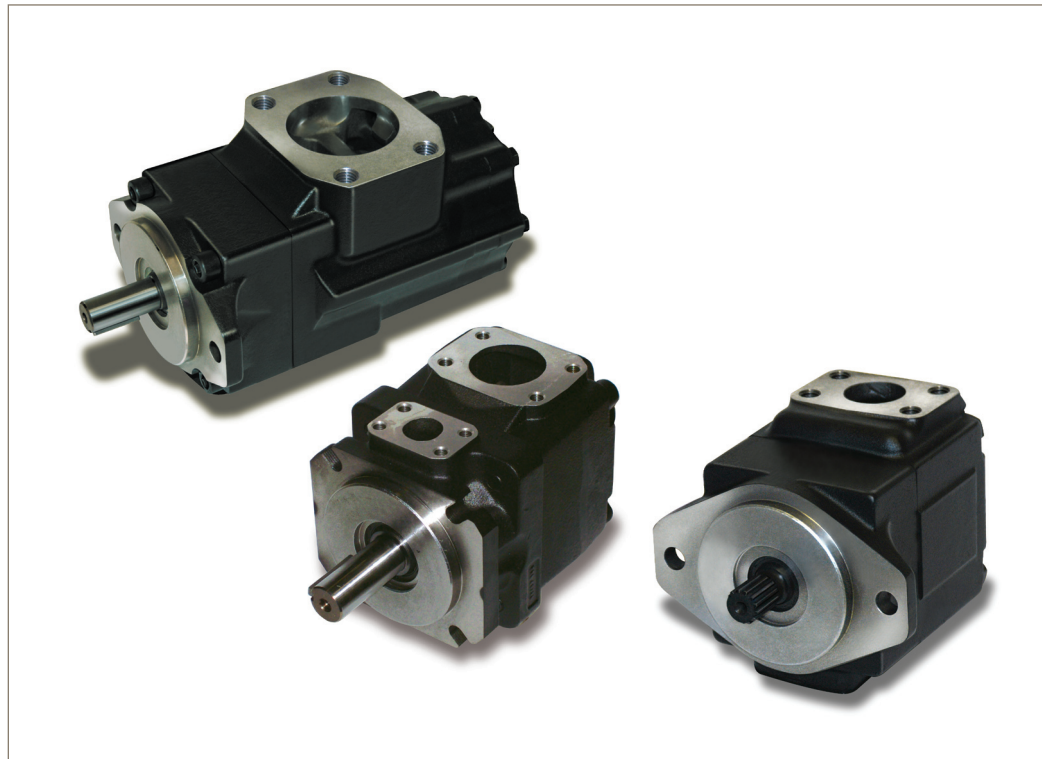
### Mounting Options:

- Single Pumps SAE “B” 2 bolt mounting T7BS/T6C
- Single Pump SAE “C” 2 or 4 bolt mounting T7DSW
- Double Pumps SAE “B” 2 bolt mounting T7BBS/T6CC

### Contact Information:

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**Hydraulic Pump Division**  
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Marysville, Ohio 43040

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www.phpump.com



### Product Features and Benefits:

- Quiet
- Self Wear Compensating
- Wide Range of Displacements:
  - “D” 2.68 - 9.64 in<sup>3</sup>/rev
  - “C” 0.66 - 6.10 in<sup>3</sup>/rev
  - “B” 0.35 - 3.05 in<sup>3</sup>/rev
  - “CC” 1.32 - 12.20 in<sup>3</sup>/rev
  - “BB” 0.70 - 6.10 in<sup>3</sup>/rev
- Pressures up to 4600 PSI
- Speeds down to 400 RPM
- Cartridge Technology allows quick, easy displacement modification
- Double Shaft Seals available
- Rear Port option on Single Pumps



ENGINEERING YOUR SUCCESS.

**Model No.**

**T7B or T7BS - B10 - 1 R 00 - A 1 M0 \*\***

**T7B Series** - 100 A2 HW  
 ISO 2 bolts 3019-2 mounting flange  
**T7BS Series** - SAE B 2 bolt  
 Mounting flange J744

**Displacement**  
 Volumetric displacement (in<sup>3</sup>/rev)  
 B02 = 0.35      B09 = 1.70  
 B03 = 0.60      B10 = 1.92  
 B04 = 0.78      B11 = 2.14  
 B05 = 0.97      B12 = 2.47  
 B06 = 1.20      B14 = 2.70  
 B07 = 1.37      B15 = 3.01  
 B08 = 1.51

**Type of shaft T7B - T7BS**  
 2 = keyed (ISO R775)

**Type of shaft T7BS**  
 1 = keyed (SAE B)  
 3 = splined (SAE B)  
 4 = splined (SAE BB)

**Modifications**

**Mounting with connection variables**  
 4 bolts SAE flange (J518C)

	Metric Thread T7B - T7BS		UNC Thread T7BS	
	M0	M1	00	01
P	1"	3/4"	1"	3/4"
S	1-1/2"			

**Seal Class**  
 1 = S1 - BUNA N  
 4 = S4 - EPDM  
 5 = S5 - VITON

**Design Letters**

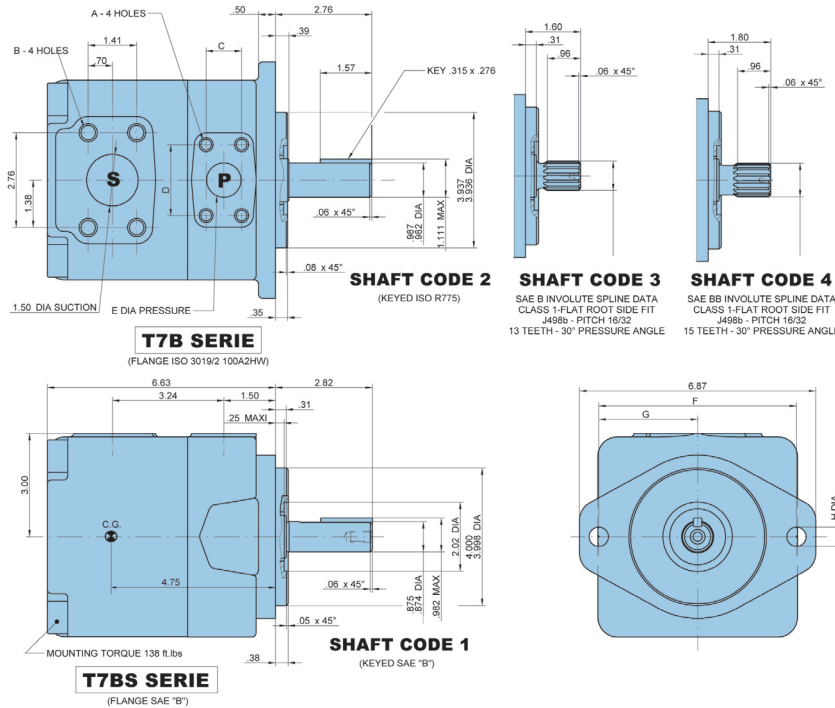
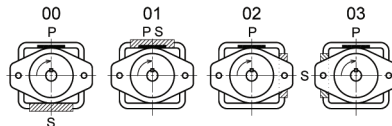
**Porting Combination**

00 = standard

**Direction of rotation (view on shaft end)**

R = clockwise  
 L = counter clockwise

**P = pressure port**  
**S = suction Port**



**Operating Characteristics - Typical (115 SUS)**

Pressure Port	Series	Volumetric Displacement Vi	Flow qVe (GPM) & n = 1800 RPM			Input Power P (HP) & n = 1800 RPM		
			p = 0 PSI	p = 2000 PSI	p = 4650 PSI	p = 100 PSI	p = 2000 PSI	p = 4650 PSI
T7B & T7BS	B02	.35 in <sup>3</sup> /rev	2.76	2.51	1.73	0.97	4.53	9.34
	B03	.60 in <sup>3</sup> /rev	4.66	4.21	3.63	1.08	6.78	14.49
	B04	.78 in <sup>3</sup> /rev	6.09	5.61	5.06	1.17	8.47	18.36
	B05	.97 in <sup>3</sup> /rev	7.56	7.11	6.53	1.25	10.22	22.35
	B06	1.20 in <sup>3</sup> /rev	9.32	8.87	8.29	1.36	12.30	27.11
	B07	1.37 in <sup>3</sup> /rev	10.70	10.25	9.67	1.44	13.93	30.84
	B08	1.51 in <sup>3</sup> /rev	11.79	11.34	10.76	1.50	15.23	33.80
	B09	1.70 in <sup>3</sup> /rev	13.27	12.82	12.24	1.59	16.97	37.80
	B10	1.92 in <sup>3</sup> /rev	14.98	14.53	13.95	1.69	19.00	42.43
	B11	2.14 in <sup>3</sup> /rev	16.64	16.19	15.68 <sup>1)</sup>	1.79	20.97	44.05 <sup>1)</sup>
	B12	2.47 in <sup>3</sup> /rev	19.26	18.81	18.29 <sup>1)</sup>	1.95	24.07	50.69 <sup>1)</sup>
	B14	2.70 in <sup>3</sup> /rev	21.02	20.57	20.05 <sup>1)</sup>	2.05	26.16	55.15 <sup>1)</sup>
	B15	3.01 in <sup>3</sup> /rev	23.49	23.04	22.59 <sup>2)</sup>	2.20	29.08	57.39 <sup>2)</sup>

1) B11 - B12 - B14 = 4350 PSI max. int.

2) B15 = 4060 PSI max. int.

**Model No.**

**T6C - 022 - 1 R 00 - B 1 - \*\***

**Series - SAE B 2 bolts**  
**Mounting flange J744**

**Severe duty shaft option**

**Displacement**

Volumetric displacement (in<sup>3</sup>/rev.)

- 003 = .66                      017 = 3.56
- 005 = 1.05                    020 = 3.89
- 006 = 1.30                    022 = 4.29
- 008 = 1.61                    025 = 4.84
- 010 = 2.08                    028 = 5.42
- 012 = 2.26                    031 = 6.10
- 014 = 2.81

**Type of shaft**

- 1 = keyed (SAE B)
- 2 = keyed (non SAE)
- 3 = splined (SAE B)
- 4 = splined (SAE BB)

**Modifications**

**Seal Class**

- 1 = S1 BUNA N - 0,7 bar max. (for mineral oil)
- 4 = S4 EPDM - 7 bar max. (for fire resistant fluids)
- 5 = S5 - VITON® - 7 bar max. (for mineral oil and fire resistant fluids)

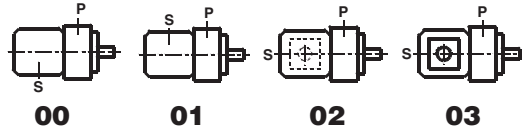
**Design Letters**

**Porting Combination**

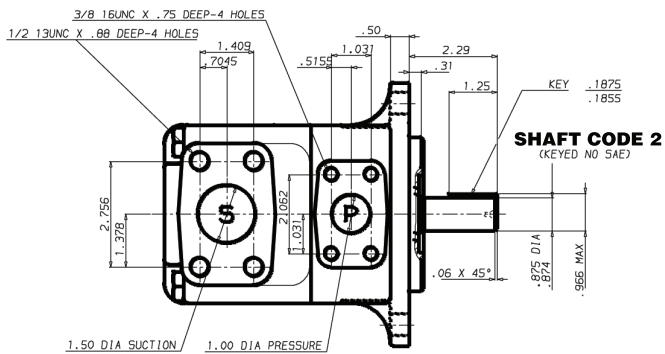
00 = standard

**Direction of Rotation (view of shaft end)**

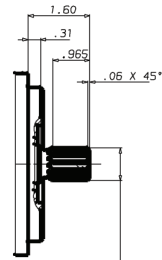
- R = Clockwise
- L = Counter-clockwise



**P = Pressure Port**  
**S = Suction Port**

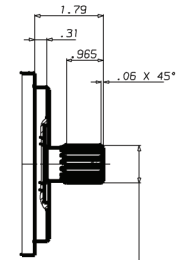


**SHAFT CODE 2**  
 (KEYED NON SAE)



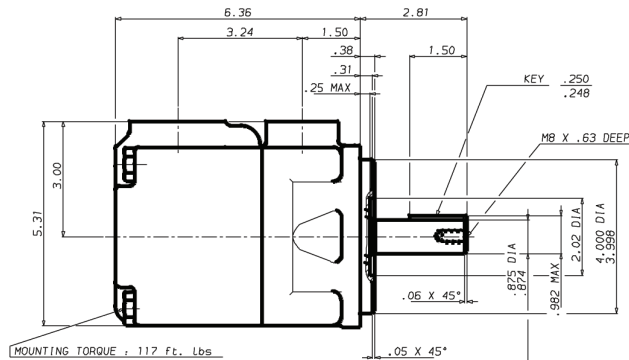
**SHAFT CODE 3**

SAE B splined shaft  
 Class 1-J498 b  
 16/32 d.p. -13 teeth  
 30° pressure angle  
 Flat root side fit

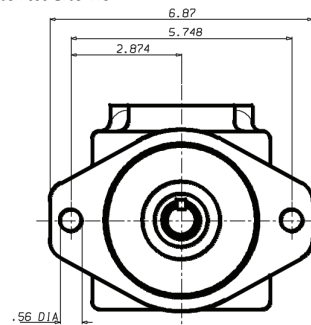


**SHAFT CODE 4**

SAE B-B splined shaft  
 Class 1-J498 b  
 16/32 d.p. -15 teeth  
 30° pressure angle  
 Flat root side fit



**SHAFT CODE 1**  
 (KEYED SAE B)



**Operating Characteristics - Typical (24 cSt)**

Pressure Port	Series	Volumetric Displacement Vi	Flow qVe (GPM) & n = 1800 RPM			Input Power P (HP) & n = 1800 RPM		
			p = 0 PSI	p = 2000 PSI	p = 3500 PSI	p = 100 PSI	p = 2000 PSI	p = 3500 PSI
P1 & P2	003	.66 in <sup>3</sup> /rev	5.14	3.85	2.95	2.11	8.45	13.38
	005	1.05 in <sup>3</sup> /rev	8.18	6.86	5.99	2.29	12.00	19.59
	006	1.30 in <sup>3</sup> /rev	10.13	8.84	7.94	2.40	14.28	23.57
	008	1.61 in <sup>3</sup> /rev	12.55	11.26	10.36	2.54	17.11	28.53
	010	2.08 in <sup>3</sup> /rev	16.22	14.93	14.03	2.76	21.38	36.00
	012	2.26 in <sup>3</sup> /rev	17.64	16.35	15.45	2.84	23.05	38.92
	014	2.81 in <sup>3</sup> /rev	21.88	20.59	19.69	3.09	27.99	47.56
	017	3.56 in <sup>3</sup> /rev	27.73	26.44	25.54	3.43	34.81	59.51
	020	3.89 in <sup>3</sup> /rev	30.34	29.05	28.15	3.58	37.86	64.85
	022	4.29 in <sup>3</sup> /rev	33.43	32.14	31.24	3.76	41.47	71.16
	025	4.84 in <sup>3</sup> /rev	37.71	36.42	35.52	4.01	46.46	79.90
	028	5.42 in <sup>3</sup> /rev	42.23	40.94	40.32 <sup>1)</sup>	4.27	51.74	76.73 <sup>1)</sup>
	031	6.10 in <sup>3</sup> /rev	47.56	46.27	45.65 <sup>1)</sup>	4.58	57.95	86.06 <sup>1)</sup>

1) 028 - 031 = 3000 PSI max. int.

**Model No.**

**T7DW or T7DSW - B42 - 1 R 00 - A 1 M0 AA**

**T7DW Series** - SAE C 4 bolt  
ISO 2 bolts 3019-2 mounting flange  
**T7DSW Series** - SAE C 4 bolt  
Mounting flange J744

**Displacement**

Volumetric displacement (in<sup>3</sup>/rev)

B14 = 2.64      B31 = 5.94  
B17 = 3.30      B35 = 6.80  
B20 = 3.95      B38 = 7.23  
B22 = 4.29      B42 = 8.26  
B24 = 4.86      045 = 8.89  
B28 = 5.39      050 = 9.64

**Type of shaft T7DSW**

1 = keyed (SAE C 32-1)  
2 = keyed (non SAE)  
3 = splined (SAE C 32 - 4)  
4 = splined (non SAE)

**Type of shaft T7DW - T7DSW**

5 = keyed (ISO 3019-2 - G32M)

**Modifications**

**Mounting with connection variables**

4 bolts SAE flange J518

	P = 1 1/4" - S = 2"		
	UNC	Metric	
T7DW		M0	
T7DSW	00	M0	Y0 <sup>1)</sup>

<sup>1)</sup> 3630 PSI max. int.

**Seal Class**

1 = S1 - BUNA N  
4 = S4 - EPDM  
5 = S5 - VITON

**Design Letters**

**Porting Combination**

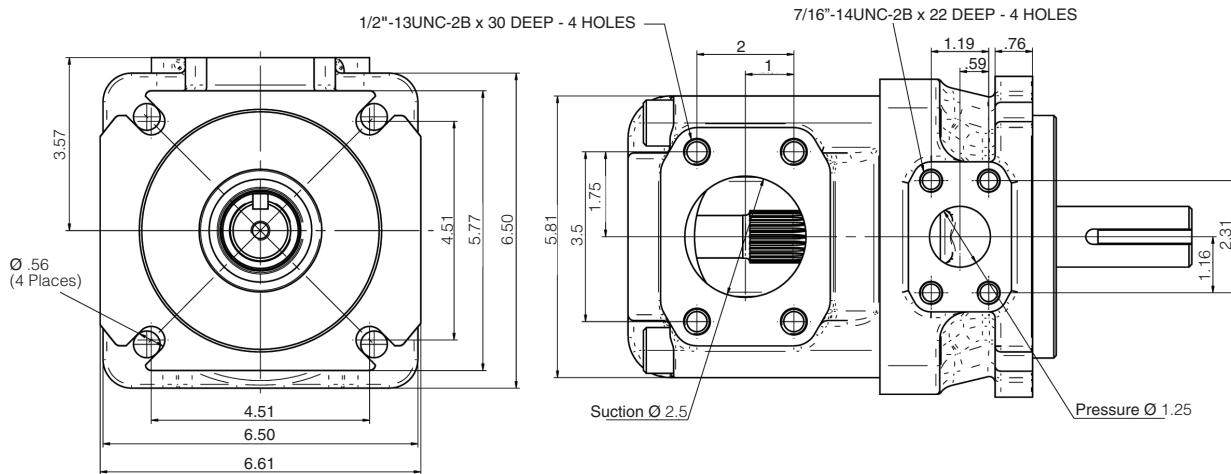
00 = standard

**Direction of rotation (view on shaft end)**

R = clockwise  
L = counter clockwise

**P = pressure port**

**S = suction Port**



**Operating Characteristics - Typical (115 SUS)**

Pressure Port	Series	Volumetric Displacement Vi	Flow qVe (GPM) & n=1800 RPM			Input P (HP) & n=1800 RPM		
			p = 0 PSI	p = 2000 PSI	p = 4350 PSI	p = 100 PSI	p = 2000 PSI	p = 4350 PSI
T7D & T7DS	B14	2.64 in <sup>3</sup> /rev	20.54	18.81	16.82	3.23	27.56	56.83
	B17	3.30 in <sup>3</sup> /rev	25.68	23.94	21.96	3.53	33.64	69.87
	B20	3.95 in <sup>3</sup> /rev	30.82	29.08	27.09	3.84	39.73	82.90
	B22	4.29 in <sup>3</sup> /rev	33.43	31.69	29.71	3.99	42.82	89.54
	B24	4.86 in <sup>3</sup> /rev	37.85	36.12	34.13	4.25	48.06	100.76
	B28	5.39 in <sup>3</sup> /rev	42.04	40.30	38.31	4.50	53.02	111.39
	B31	5.94 in <sup>3</sup> /rev	46.32	44.58	42.59	4.75	58.09	122.25
	B35	6.80 in <sup>3</sup> /rev	52.98	51.24	49.50 <sup>1)</sup>	5.15	65.97	130.00 <sup>1)</sup>
	B38	7.23 in <sup>3</sup> /rev	56.35	54.62	52.88 <sup>1)</sup>	5.35	69.97	138.00 <sup>1)</sup>
	B42	8.26 in <sup>3</sup> /rev	64.34	62.61	61.11 <sup>2)</sup>	5.82	79.43	145.84 <sup>2)</sup>
	045	8.89 in <sup>3</sup> /rev	69.29	66.90	65.19 <sup>3)</sup>	6.65	85.16	144.19 <sup>3)</sup>
050	9.64 in <sup>3</sup> /rev	75.14	72.75	71.56 <sup>4)</sup>	7.00	92.09	136.87 <sup>4)</sup>	

<sup>1)</sup> B35 - B38 = 4060 PSI max. int.

<sup>2)</sup> B42 = 3770 PSI max. int.

<sup>3)</sup> 045 = 3500 PSI max. int.

<sup>4)</sup> 050 = 3000 PSI max. int.

**Model No.**

**T7BB or T7BBS - B10 - B10 - 1 R 00 - A 1 M1 \*\***

**T7BB Series** - 100 A2 HW  
 ISO 2 bolts 3019-2 mounting flange  
**T7BBS Series** - SAE B 2 bolt  
 Mounting flange J744

**Displacement P1 and P2**

Volumetric displacement (in<sup>3</sup>/rev)

B02 = 0.35      B09 = 1.70  
 B03 = 0.60      B10 = 1.92  
 B04 = 0.78      B11 = 2.14  
 B05 = 0.97      B12 = 2.47  
 B06 = 1.20      B14 = 2.70  
 B07 = 1.37      B15 = 3.01  
 B08 = 1.51

**Type of shaft T7BB - T7BBS**

5 = keyed (ISO R775)

**Type of shaft T7BS**

1 = keyed (non SAE)  
 2 = keyed (SAE BB)  
 3 = splined (SAE B)  
 4 = splined (SAE BB)

**Modifications**

**Mounting with connection variables**  
 4 bolts SAE flange (J518C)

	Metric Thread T7BB - T7BBS		UNC Thread T7BBS	
	M0	M1	00	01
P1	1"	3/4"	1"	3/4"
P2	3/4"			
S	2-1/2"			

**Seal Class**

1 = S1 - BUNA N  
 4 = S4 - EPDM  
 5 = S5 - VITON

**Design Letters**

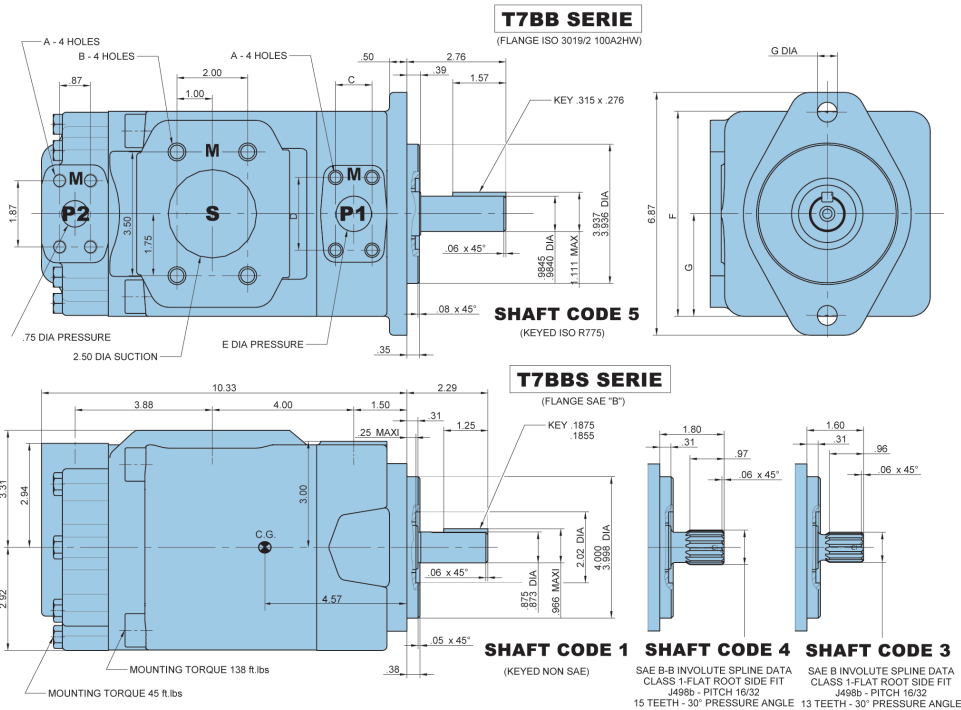
**Porting Combination**

00 = standard

**Direction of rotation (view on shaft end)**

R = clockwise

L = counter clockwise



**Operating Characteristics - Typical (115 SUS)**

Pressure Port	Series	Volumetric Displacement Vi	Flow qVe (GPM) & n = 1800 RPM			Input Power P (HP) & n = 1800 RPM		
			p = 0 PSI	p = 2000 PSI	p = 4650 PSI	p = 100 PSI	p = 2000 PSI	p = 4650 PSI
P1 & P2	B02	.35 in <sup>3</sup> /rev	2.76	2.51	1.73	0.97	4.53	9.34
	B03	.60 in <sup>3</sup> /rev	4.66	4.21	3.63	1.08	6.78	14.49
	B04	.78 in <sup>3</sup> /rev	6.09	5.61	5.06	1.17	8.47	18.36
	B05	.97 in <sup>3</sup> /rev	7.56	7.11	6.53	1.25	10.22	22.35
	B06	1.20 in <sup>3</sup> /rev	9.32	8.87	8.29	1.36	12.30	27.11
	B07	1.37 in <sup>3</sup> /rev	10.70	10.25	9.67	1.44	13.93	30.84
	B08	1.51 in <sup>3</sup> /rev	11.79	11.34	10.76	1.50	15.23	33.80
	B09	1.70 in <sup>3</sup> /rev	13.27	12.82	12.24	1.59	16.97	37.80
	B10	1.92 in <sup>3</sup> /rev	14.98	14.53	13.95	1.69	19.00	42.43
	B11	2.14 in <sup>3</sup> /rev	16.64	16.19	15.68 <sup>(1)</sup>	1.79	20.97	44.05 <sup>(1)</sup>
	B12	2.47 in <sup>3</sup> /rev	19.26	18.81	18.29 <sup>(1)</sup>	1.95	24.07	50.69 <sup>(1)</sup>
	B14	2.70 in <sup>3</sup> /rev	21.02	20.57	20.05 <sup>(1)</sup>	2.05	26.16	55.15 <sup>(1)</sup>
	B15	3.01 in <sup>3</sup> /rev	23.49	23.04	22.59 <sup>(2)</sup>	2.20	29.08	57.39 <sup>(2)</sup>

1) B11 - B12 - B14 = 4350 PSI max. int.

2) B15 = 4060 PSI max. int.

Model No.

T6CC W - 022 - 008 - 1 R 00 - C 1 00 - \*\*

Series - SAE B 2 bolts  
Mounting flange J744

Severe duty shaft

Displacement P1 and P2

Volumetric displacement (in<sup>3</sup>/rev.)

003 = .66            017 = 3.56  
005 = 1.05          020 = 3.89  
006 = 1.30          022 = 4.29  
008 = 1.61          025 = 4.84  
010 = 2.08          028 = 5.42  
012 = 2.26          031 = 6.10  
014 = 2.81

Type of shaft            Severe duty shaft (T6CCW only)

1 = keyed (non SAE)    2 = keyed (SAE BB)  
3 = splined (SAE BB)  
5 = splined (SAE B)

Direction of Rotation (view of shaft end)

R = Clockwise  
L = Counter-clockwise

Modifications

Mounting with connection variables

4 bolts SAE flange J518

	P1 = 1" - S = 3"		P1 = 1" - S = 2 1/2" <sup>(2)</sup>	
	00	01	10	11
P2	1"	3/4" <sup>(1)</sup>	1"	3/4"

1) for 2.81 in<sup>3</sup>/rev. max

2) for 7.69 in<sup>3</sup>/rev. max

The largest cartridge must be always mounted in the front

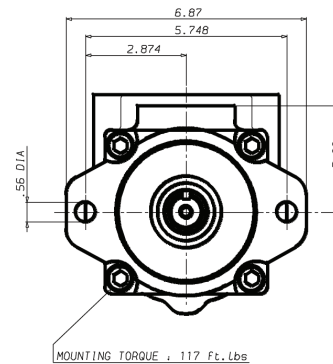
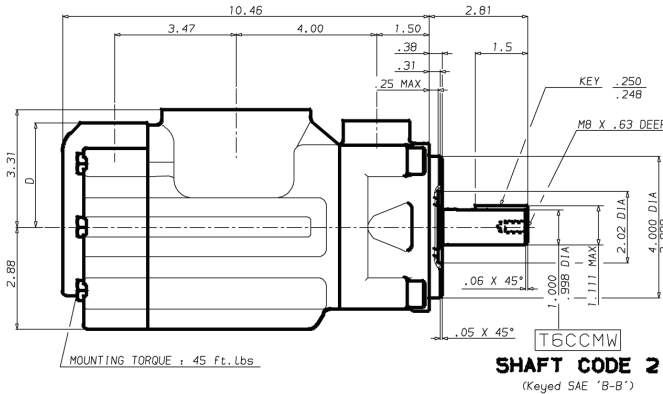
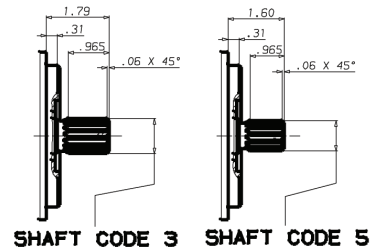
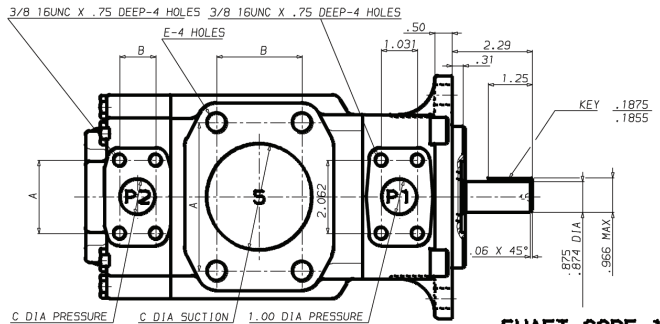
Seal Class

1 = S1 - BUNA N  
4 = S4 - EPDM  
5 = S5 - VITON®

Design Letters

Porting Combination

00 = standard



## Operating Characteristics - Typical (115 SUS)

Pressure Port	Series	Volumetric Displacement V <sub>i</sub>	Flow q <sub>Ve</sub> (GPM) & n = 1800 RPM			Input Power P (HP) & n = 1800 RPM		
			p = 0 PSI	p = 2000 PSI	p = 3500 PSI	p = 100 PSI	p = 2000 PSI	p = 3500 PSI
P1 & P2	003	.66 in <sup>3</sup> /rev	5.14	3.85	2.95	2.11	8.45	13.38
	005	1.05 in <sup>3</sup> /rev	8.18	6.86	5.99	2.29	12.00	19.59
	006	1.30 in <sup>3</sup> /rev	10.13	8.84	7.94	2.40	14.28	23.57
	008	1.61 in <sup>3</sup> /rev	12.55	11.26	10.36	2.54	17.11	28.53
	010	2.08 in <sup>3</sup> /rev	16.22	14.93	14.03	2.76	21.38	36.00
	012	2.26 in <sup>3</sup> /rev	17.64	16.35	15.45	2.84	23.05	38.92
	014	2.81 in <sup>3</sup> /rev	21.88	20.59	19.69	3.09	27.99	47.56
	017	3.56 in <sup>3</sup> /rev	27.73	26.44	25.54	3.43	34.81	59.51
	020	3.89 in <sup>3</sup> /rev	30.34	29.05	28.15	3.58	37.86	64.85
	022	4.29 in <sup>3</sup> /rev	33.43	32.14	31.24	3.76	41.47	71.16
	025	4.84 in <sup>3</sup> /rev	37.71	36.42	35.52	4.01	46.46	79.90
	028	5.42 in <sup>3</sup> /rev	42.23	40.94	40.32 <sup>(1)</sup>	4.27	51.74	76.73 <sup>(1)</sup>
	031	6.10 in <sup>3</sup> /rev	47.56	46.27	45.65 <sup>(1)</sup>	4.58	57.95	86.06 <sup>(1)</sup>

1) 028 - 031 = 3000 PSI max. int.

# Chelsea® 890 Series

New Powershift P.T.O. for  
Allison 3000/4000 Transmissions



## Overview:

The 890 Series Power Take-Off (P.T.O.) is mounted between the transmission and the frame rail of the truck. It mounts like a standard side mounted P.T.O. with an additional bracket at the rear of the transmission. It places the output of the P.T.O. beyond the rear of the transmission where there is extra space. The 890 Series is a single unit, not a P.T.O. with an extension. The main shaft is one piece eliminating the input splines between the P.T.O. and the shaft extension. The clutch has been moved to the rear of the unit to allow the housing and gear section to tuck in tightly to the transmission. The output utilizes a wet spline which eliminates fretting problems.

## Applications:

- Refuse
- Fire and Rescue
- Sewer Sanitation
- Aerial

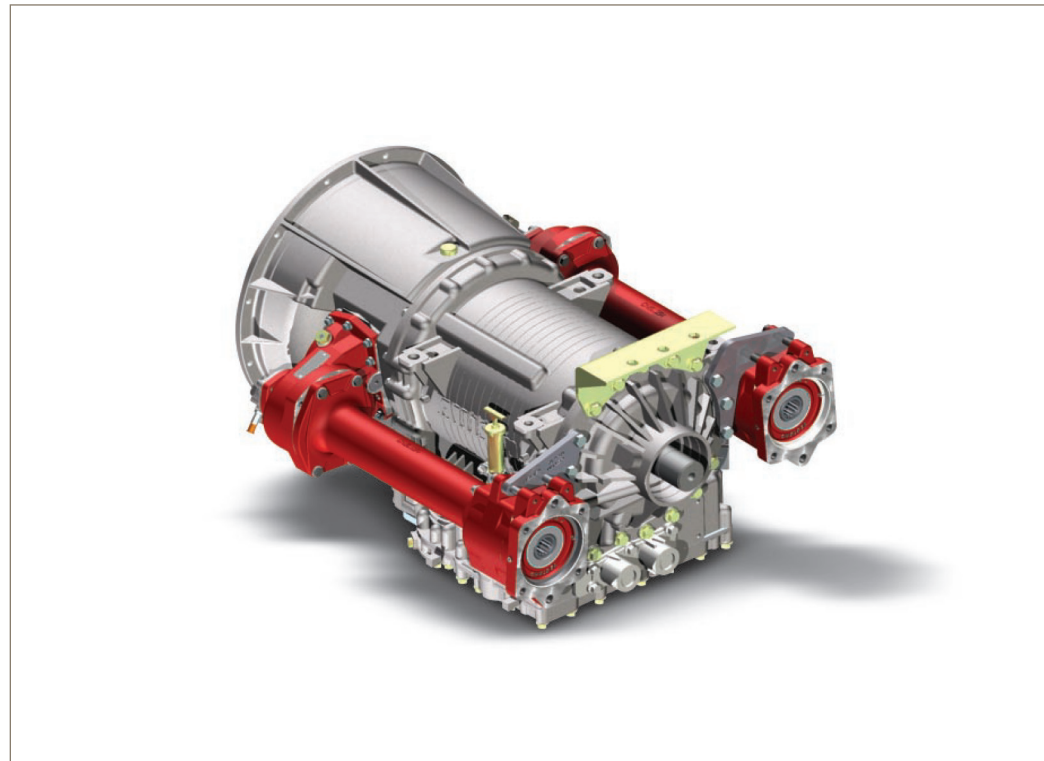
## Contact Information:

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## Product Features and Benefits:

- **Moves the P.T.O. mounting flange to the rear of the transmission** - Allows larger pumps and in some cases it will eliminate the need for a drive shaft
- **Requires less space than current P.T.O.s** - will help clear frame rails etc.
- **Torque ratings up to 670 lbs.-ft.** - Allows the use of higher flow and pressure pumps
- **Multiple output ratios available** - Allows for more efficient systems
- **The 890 Series can be installed in 2 pieces** - One lighter P.T.O. housing and then the shaft
- **Single piece shaft** - Eliminates the splines at the housing end of the unit
- **Wet spline outputs** - Extends shaft life. Eliminates the need to disassemble to frequently grease the splines
- **Patent Pending**

ENGINEERING YOUR SUCCESS.

**Model No.**

**890 L A FJ W - B S XS**

**Basic Model**  
890

**Mounting Type**  
**L** = MD Left Hand Mount  
**R** = MD Right Hand Mount  
**H** = HD Left Hand Mount  
**E** = MD EVS Left Hand Mount  
**T** = MD EVS Top Mount  
**U** = HD Top Mount  
**X** = No Bracket & Hose Kit

**Gear Ratio**  
**A** = 24/40      **D** = 27/37  
**B** = 25/39      **E** = 29/35  
**C** = 26/38      **F** = 31/33

**Input Gear Designator**  
**FJ** = Allison

**Lubrication**  
**W** = Wet Spline

**Output Designation**

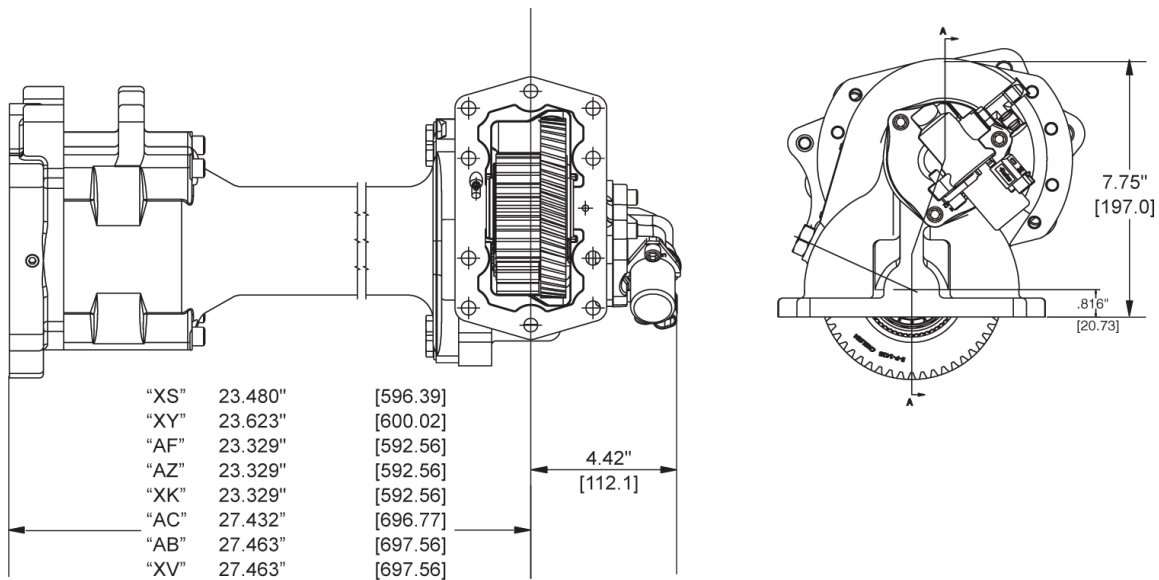
**XS** = Class "C" 2 & 4-Bolt Pump Mount  
**XK** = Class "B" 2 & 4-Bolt Pump Mount  
**AF** = Class "B-B" 2 & 4-Bolt Pump Mount  
**XY** = DIN 5462 Pump Mount  
**AZ** = Class "B" 2 & 4-Bolt Pump Flange  
     Class "C" Shaft  
**XV** = 1-1/2" - 10 Spline Shaft w/1410 Flange  
**AB** = 1-1/2" - 10 Spline Shaft w/DIN 120 Flange  
**AC** = 1-1/2" - 10 Spline Shaft w/DIN 100 Flange

**Assembly Arrangement**

\*5\* Gear forward left side mount

**Shifter Type**

**B** = 12 Volt Hydraulic  
**B** = 24 Volt Hydraulic  
**B** = 12 Volt Hydraulic w/E.O.C.  
**B** = 24 Volt Hydraulic w/E.O.C.  
**B** = 12 Volt Remote Valve w/o E.O.C.  
**B** = 24 Volt Remote Valve w/o E.O.C.



**Series Specifications Chart - 890 Series**

	890*A	890*B	890*C	890*D	890*E	890*F
<b>Standard Output Shaft Size</b>	S.A.E. "C" ("XS") Output					
<b>Intermittent Torque Rating (Lbs. ft.)</b>	670	630	590	550	485	430
<b>Intermittent Torque Rating (N.m.)</b>	908	854	800	746	658	583
<b>Horsepower Rating for Intermittent Service at 500 R.P.M. of Output Shaft (HP)</b>	64	60	56	52	46	41
<b>at 1000 R.P.M. of Output Shaft (HP)</b>	128	120	112	105	92	82
<b>at 500 R.P.M. of Output Shaft (Kw)</b>	48	45	42	39	35	31
<b>at 1000 R.P.M. of Output Shaft (Kw)</b>	95	90	84	78	69	61
<b>Approximate Weight</b>	86 lbs. (39 kg)					

