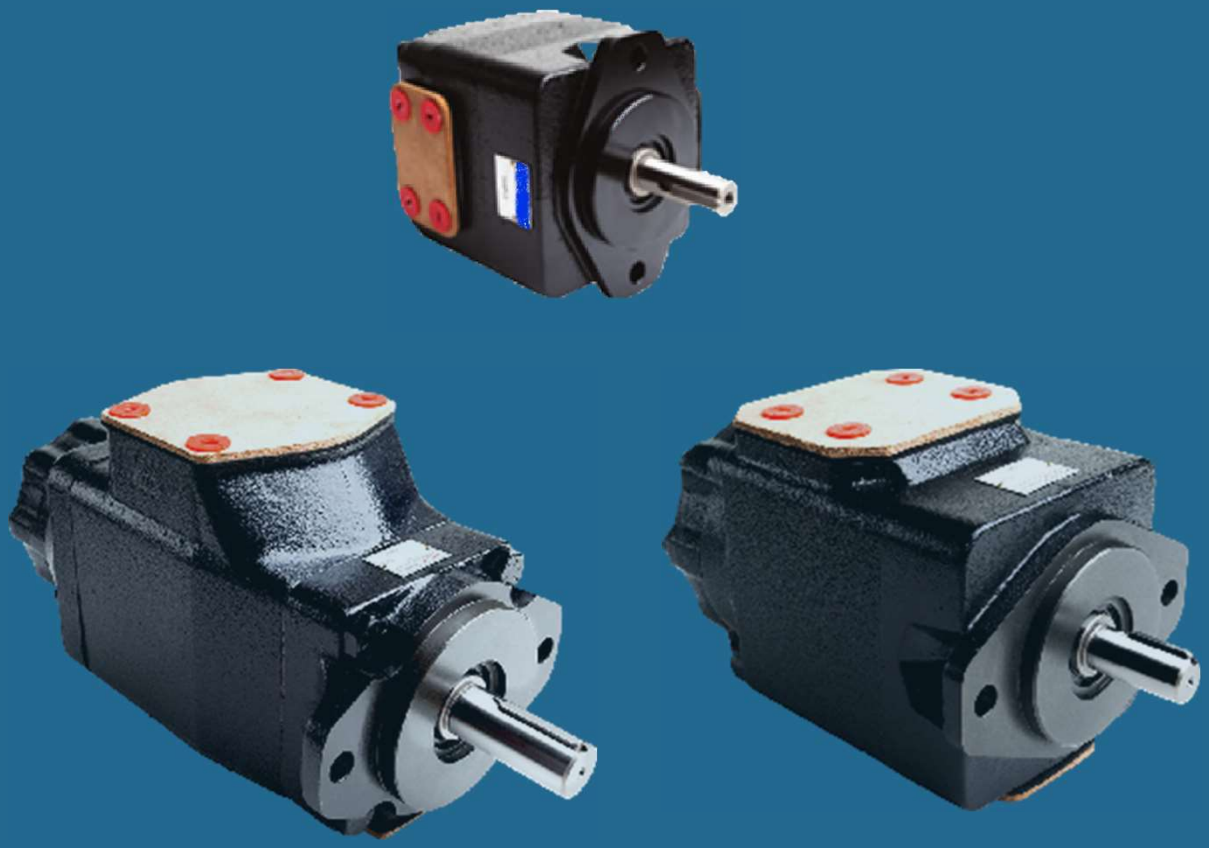
ST Series Fixed Displacement Vane Pump

ST Series Fixed Displacement Vane Pumps
Up to 320 Bar(4040 psi)



ST6, ST7 Series High Pressure Single Vane Pump

"ST6, ST7" Series

Features and Handling

• ST6, ST7 Series are fixed displacement and balanced type single vane pumps. The pump is designed for higher operating pressure and greater flow at the same housing size.

• With a balanced pin-vane design, outlet pressure is continuously applied only the pin. The pin provides the steady light force against the vane. Top and bottom areas of the vane are subject to the same pressure, either inlet or outlet pressure, depending on the vane's location during rotor rotation. This pin-vane design minimizes noise level and improves volumetric efficiency.

• With the cartridge independent of the shaft, allowing for easy change of flow capacity and field servicing without removing the pump from its mounting.

• Allowing low flow at high pressure. (300 bar max) and high flow at low pressure *For ST7 Series.

**Foot Mounting is available for each pump. For more details, see Foot Mounts.*

ST6 Series High Pressure Single Vane Pump

"ST6C" Series

■ Specification

Size	Displacement cm3/r (in3/r)	Max. Intermittent Pressure bar (psi)	Max. Continuous Pressure bar (psi)	Min. Speed rpm	Max. Speed rpm	Weight
003	10.8 (0.66)	275 (4000)	240 (3500)	600	2800	15.0 (33.0)
005	17.2 (1.05)					
006	21.3 (1.30)					
008	26.4 (1.61)					
010	34.1 (2.08)					
012	37.1 (2.26)					
014	46.0 (2.81)					
017	58.3 (3.56)					
020	63.8 (3.89)					
022	70.3 (4.29)				2500	
025	79.3 (4.84)					
028	88.8 (5.42)	206 (3000)	160 (2300)			
031	100.0 (6.10)					

ST6 Series High Pressure Single Vane Pump

"ST6C" Series

■ Ordering Code : Single Pump

ST6C	-	003	-	1	R	01	-	A	-	M0
1		2		3	4	5		6		7

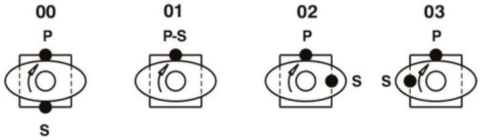
1. Model
   Industrial - ST6C SAE B 2 bolts mounting flange J744

2. Displacement
   Volumetric displacement cm³/rec (in³/rev)
   - 003 - 10.8 (0.66)
   - 005 - 17.2 (1.05)
   - 006 - 21.3 (1.30)
   - 008 - 26.4 (1.61)
   - 010 - 34.1 (2.08)
   - 012 - 37.1 (2.26)
   - 014 - 46.0 (2.81)
   - 017 - 58.3 (3.56)
   - 020 - 63.8 (3.89)
   - 022 - 70.3 (4.29)
   - 025 - 79.3 (4.84)
   - 028 - 88.8 (5.42)
   - 031 - 100.0 (6.10)

3. Type of shaft
   - 1 - SAE B Keyed Shaft
   - 2 - non SAE Keyed Shaft
   - 3 - SAE B Splined Shaft
   - 4 - SAE BB Splined Shaft

4. Direction of rotation (Viewed from shaft end)
   - R - Turn right
   - L - Turn left

5. Porting combination
   00 – standard



S – Suction port P – Pressure port

6. Design letter

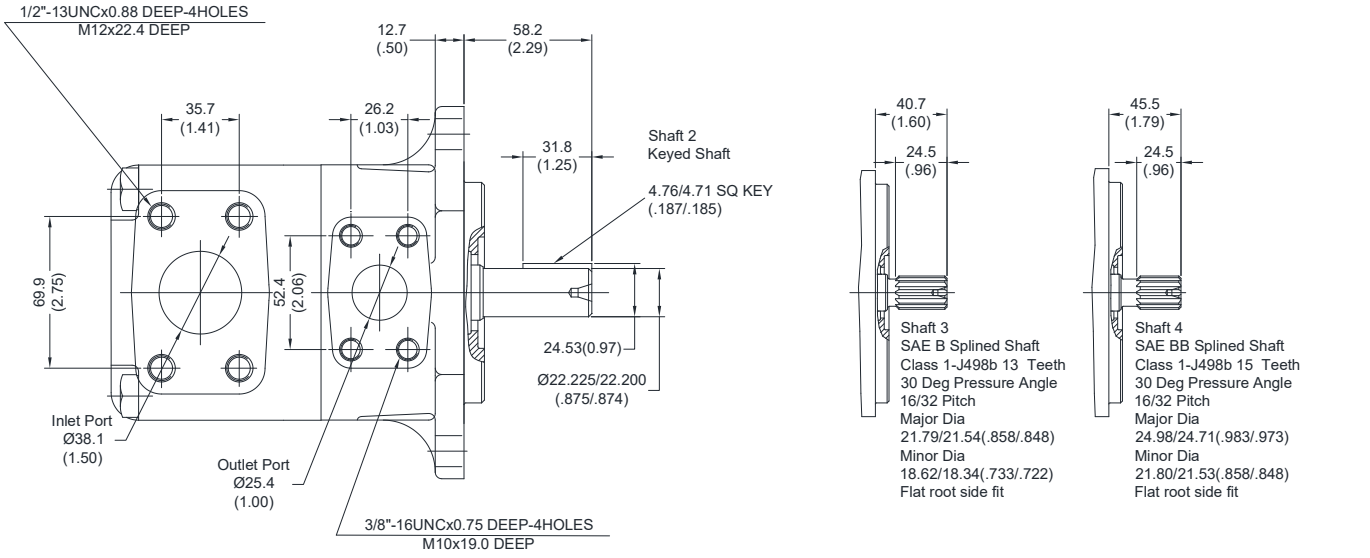
7. Port Connection (4 bolts SAE flange J518C)
   - 00 - UNC Port Connection
   - M0 - Metric Port Connection

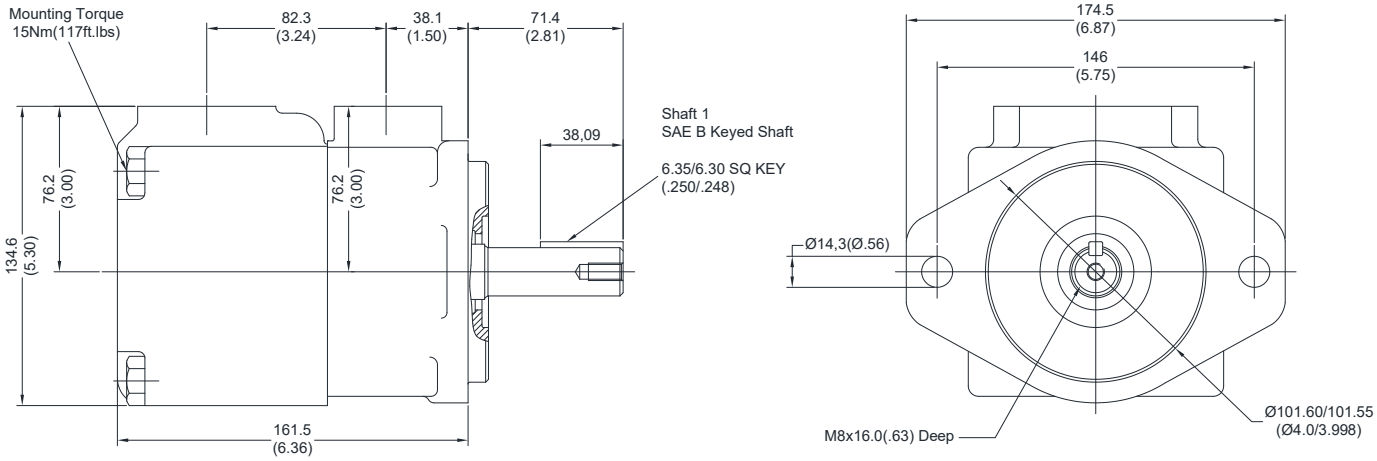
ST6 Series High Pressure Single Vane Pump

"ST6C" Series

■ Installation Dimension mm (inch)

ST6C





ST6 Series High Pressure Single Vane Pump

"ST6C" Series

Performance Characteristics

OPERATING CHARACTERISTICS – TYPICAL [115 SUS]

Series	Volumetric Displacement	Speed n [R.P.M]	Flow Q [GPM]			Input power P [HP]		
			p = 0 PSI	p = 2000 PSI	p = 3500 PSI	p = 100 PSI	p = 2000 PSI	p = 3500 PSI
03	0.66 in3/rev	1200	3.42	-	-	1.43	-	-
		1800	5.14	3.61	-	2.11	8.45	-
05	1.05 in3/rev	1200	5.45	3.99	-	1.55	8.17	-
		1800	8.18	6.65	5.56	2.29	12.00	19.59
06	1.30 in3/rev	1200	6.75	5.22	4.13	1.62	9.69	16.13
		1800	10.13	8.60	7.51	2.40	14.28	23.57
08	1.61 in3/rev	1200	8.37	6.84	5.75	1.72	11.58	19.43
		1800	12.55	11.02	9.93	2.54	17.11	28.53
10	2.08 in3/rev	1200	10.81	9.28	8.19	1.86	14.43	24.42
		1800	16.22	14.69	13.60	2.76	21.38	36.00
12	2.26 in3/rev	1200	11.76	10.23	9.14	1.92	15.53	26.36
		1800	17.64	16.11	15.02	2.84	23.05	38.92
14	2.81 in3/rev	1200	14.58	13.05	11.96	2.08	18.83	32.12
		1800	21.88	20.35	19.26	3.09	27.99	47.56
17	3.56 in3/rev	1200	18.48	16.95	15.86	2.31	23.38	40.08
		1800	27.73	26.20	25.11	3.43	34.81	59.51
20	3.89 in3/rev	1200	20.23	18.70	17.61	2.41	25.41	43.64
		1800	30.34	28.81	27.42	3.58	37.86	64.85
22	4.29 in3/rev	1200	22.29	20.76	19.67	2.53	27.82	47.85
		1800	33.43	31.90	30.81	3.76	41.47	71.16
25[1)]	4.84 in3/rev	1200	25.14	23.61	22.52	2.70	31.15	53.68
		1800	37.71	36.18	35.09	4.01	46.46	79.90
28[1)]	5.42 in3/rev	1200	28.15	26.62	25.86[2)]	2.87	34.66	51.37[2)]
		1800	42.23	40.70	39.94[2)]	4.27	51.74	76.73[2)]
31[1)]	6.10 in3/rev	1200	31.70	30.17	29.41[2)]	3.08	38.80	57.58[2)]
		1800	47.56	46.03	45.27[2)]	4.58	57.95	86.06[2)]

1) 25 - 28 - 31 = 2500 R.P.M. max. 2) 28 - 31 = 3000 PSI max. i nt.

- Not to use because internal leakage greater than 50% theoretical fl ow.
- Port connection can be furnished with metric threads.

ST7 Series High Pressure Single Vane Pump

"ST7DS" Series

■ Specification

Size	Displacement cm3/r 1(in3/r)	Max. Intermittent Pressure bar (psi)	Max. Continuous Pressure bar (psi)	Min. Speed rpm	Max. Speed rpm	Weight
014	47.6 (2.90)	300 (4350)	250 (3600)	600	3000	27.0 (59.4)
017	58.2 (3.55)					
020	66.0 (4.03)					
022	70.0 (4.27)					
024	79.5 (4.85)					
028	89.7 (5.47)					
031	98.3 (6.00)					
035	111.0 (6.77)	280 (4060)			2800	
038	120.3 (7.34)					
042	136.0 (8.30)	260 (3770)	235 (3400)		2500	
045	145.7 (8.89)	240 (3500)	206 (3000)		2200	
050	158.0 (9.64)	206 (3000)	160 (2300)			

ST7 Series High Pressure Single Vane Pump

"ST7DS" Series

Ordering Code : Single Pump

ST7DS	-	014	-	1	R	01	-	A	-	M0
1		2		3	4	5		6		7

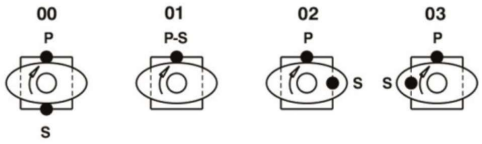
1. Model
   Industrial - ST7DS
   SAE C 2 mounting flange J744

2. Displacement
   Volumetric displacement cm³/rec (in³/rev)
   - 014 - 47.6 (2.90)
   - 017 - 58.2 (3.55)
   - 020 - 66.0 (4.03)
   - 022 - 70.0 (4.27)
   - 024 - 79.5 (4.85)
   - 028 - 89.7 (5.47)
   - 031 - 98.3 (6.00)
   - 035 - 111.0 (6.77)
   - 038 - 120.3 (7.34)
   - 042 - 136.0 (8.30)
   - 045 - 145.7 (8.89)
   - 050 - 158.0 (9.64)

3. Type of shaft
   ST7DS
   - 1 - SAE C Keyed Shaft
   - 2 - non SAE Keyed Shaft
   - 3 - SAE C Splined Shaft
   - 4 – non SAE Splined Shaft

4. Direction of rotation (Viewed from shaft end)
   - R - Turn right
   - L - Turn left

5. Porting combination
   00 – standard



S – Suction port P – Pressure port

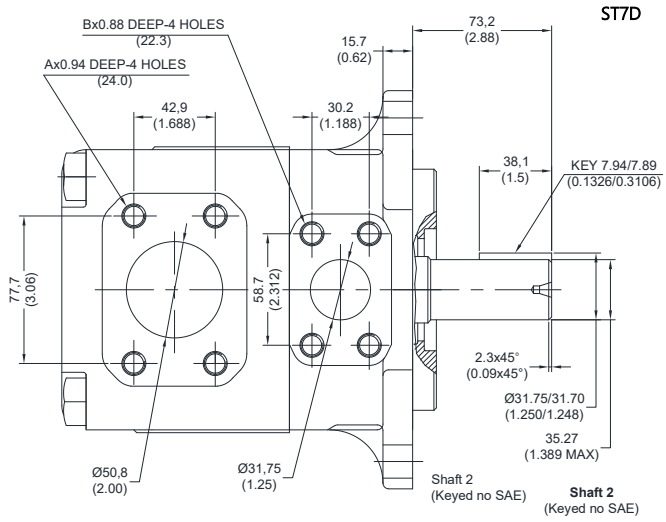
6. Design letter

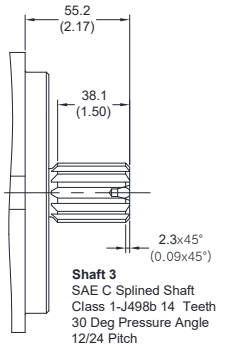
7. Port Connection (4 bolts SAE flange J518C)
   - 00 - UNC Port Connection
   - M0 - Metric Port Connection

ST7 Series High Pressure Single Vane Pump

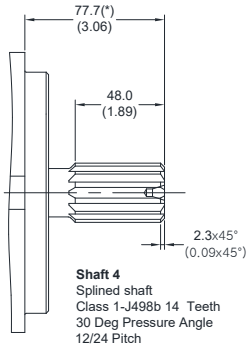
"ST7DS" Series

Installation Dimension mm (inch)

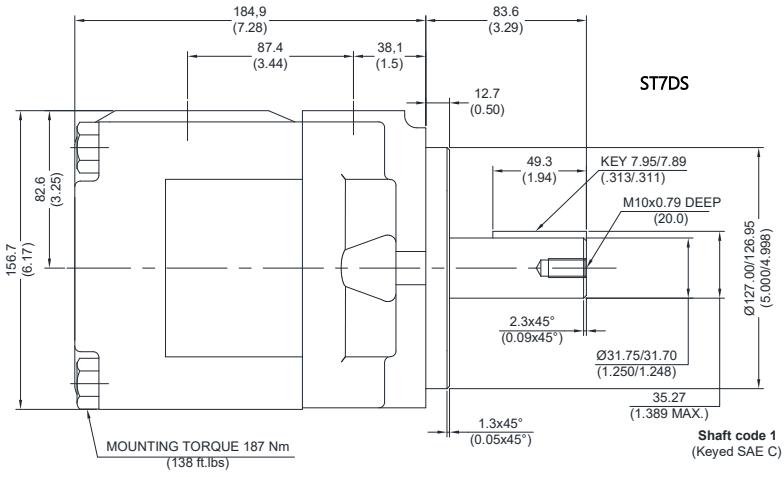


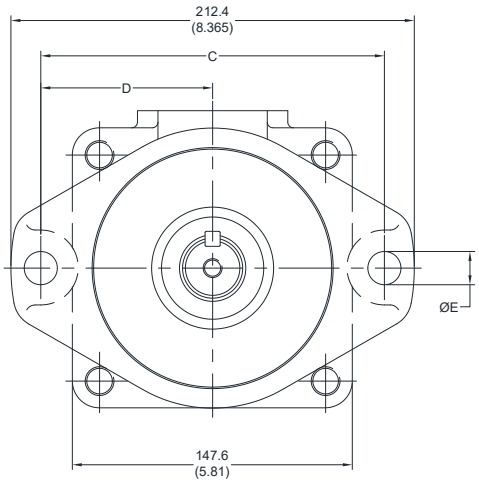


Shaft 3
SAE C Splined Shaft
Class 1-J498b 14 Teeth
30 Deg Pressure Angle
12/24 Pitch
Major Dia
31.22/30.96(1.229/1.219)
Minor Dia
26.99/26.66(1.063/1.050)
Flat root side fit

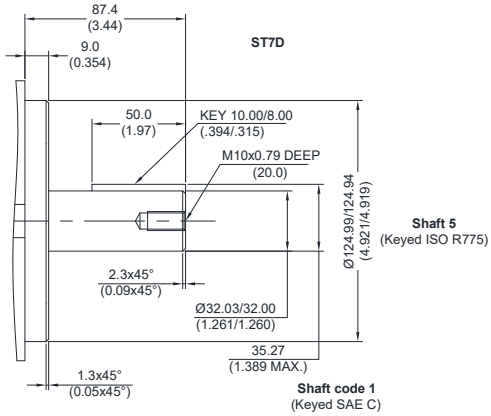


Shaft 4
Splined shaft
Class 1-J498b 14 Teeth
30 Deg Pressure Angle
12/24 Pitch
Major Dia
31.22/30.96(1.229/1.219)
Minor Dia
26.99/26.66(1.063/1.050)
Flat root side fit





Model	ST7DS		ST7D	
Code	00	M0	Y0[1)]	M0
A	1/2 -13 UNC	M12	M12	M12
B	7/16 - 14 UNC	M12	M10	M12
C	181.0 (7.12)			180.0 (7.09)
D	90.5 (3.56)			90.0 (3.54)
E	17.5 (0.69)			18.0 (0.71)



Shaft 5
(Keyed ISO R775)

ST7 Series High Pressure Single Vane Pump

"ST7DS" Series

Performance Characteristics

OPERATING CHARACTERISTICS - TYPICAL [115 SUS]

Series	Volumetric Displacement	Speed n [R.P.M]	Flow Q [GPM]			Input power P [HP]		
			p = 0 PSI	p = 2000 PSI	p = 3500 PSI	p = 100 PSI	p = 2000 PSI	p = 3500 PSI
14	2.68 in3/rev	1800	20.92	19.18	17.19	3.46	27.77	58.49
17	3.36 in3/rev		26.16	24.41	22.42	3.77	33.88	71.92
20	4.03 in3/rev		31.39	29.64	27.65	4.07	39.98	85.35
22	4.29 in3/rev		33.43	31.69	29.70	4.19	42.37	90.60
24	4.95 in3/rev		38.57	36.82	34.83	4.49	48.36	103.78
28	5.49 in3/rev		42.80	41.06	39.06	4.74	53.30	114.65
31	6.05 in3/rev		47.18	45.43	43.44	4.99	58.41	125.88
35	6.92 in3/rev		53.93	52.18	50.44[1)]	5.39	66.29	130.39[1)]
38	7.36 in3/rev		57.35	55.61	53.87[1)]	5.59	70.28	138.38[1)]
42	8.39 in3/rev		65.39	63.65	62.15[2)]	6.05	79.66	149.39[2)]
45	8.89 in3/rev		69.29	67.11	65.47[3)]	6.74	83.75	144.41[3)]
50	9.64 in3/rev		75.14	72.96	71.78[4)]	7.08	90.58	134.54[4)]

1) 35 - 38 = 4060 PSI max. int. 2) 42 = 3770 PSI max. int 3) 45 = 3500 PSI max. int. 4) 50 = 3000 PSI max. int.

*Special 2"½ (2.5 dia) suction also available

ST7 Series High Pressure Single Vane Pump

"ST7ES" Series

■ Specification

Size	Displacement cm3/r 1(in3/r)	Max. Intermittent Pressure bar (psi)	Max. Continuous Pressure bar (psi)	Min. Speed rpm	Max. Speed rpm	Weight
042	132.3 (8.07)	240 (3500)	206 (3000)	600	2200	43.0 (94.6)
045	142.4 (8.70)					
050	158.5 (9.67)					
052	164.8 (10.00)					
054	173.8 (10.60)					
057	180.7 (11.02)					
062	196.7 (12.00)					
066	213.3 (13.00)					
072	227.1 (13.86)					
085	269.8 (16.40)	90 (1300)	75 (1100)		2000	

ST7 Series High Pressure Single Vane Pump

"ST7ES" Series

■ Ordering Code : Single Pump

ST7ES	-	042	-	1	R	01	-	A	-	M0
1		2		3	4	5		6		7

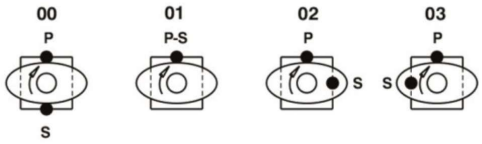
1. Model
   Industrial - ST7ES
   SAE C 2 mounting flange J744

2. Displacement
   Volumetric displacement cm³/rec (in³/rev)
   042 - 132.3 (8.07)
   045 - 142.4 (8.70)
   050 - 158.5 (9.67)
   052 - 164.8 (10.00)
   054 - 173.8 (10.60)
   057 - 180.7 (11.02)
   062 - 196.7 (12.00)
   066 - 213.3 (13.00)
   072 - 227.1 (13.86)
   085 - 269.8 (16.40)

3. Type of shaft
   ST7ES
   1 - SAE B Keyed Shaft
   2 - non SAE Keyed Shaft
   3 - SAE B Splined Shaft
   4 - SAE BB Splined Shaft
   5 – ISO 3019-G38M Keyed Shaft

4. Direction of rotation (Viewed from shaft end)
   R - Turn right
   L - Turn left

5. Porting combination
   00 – standard



   S – Suction port P – Pressure port

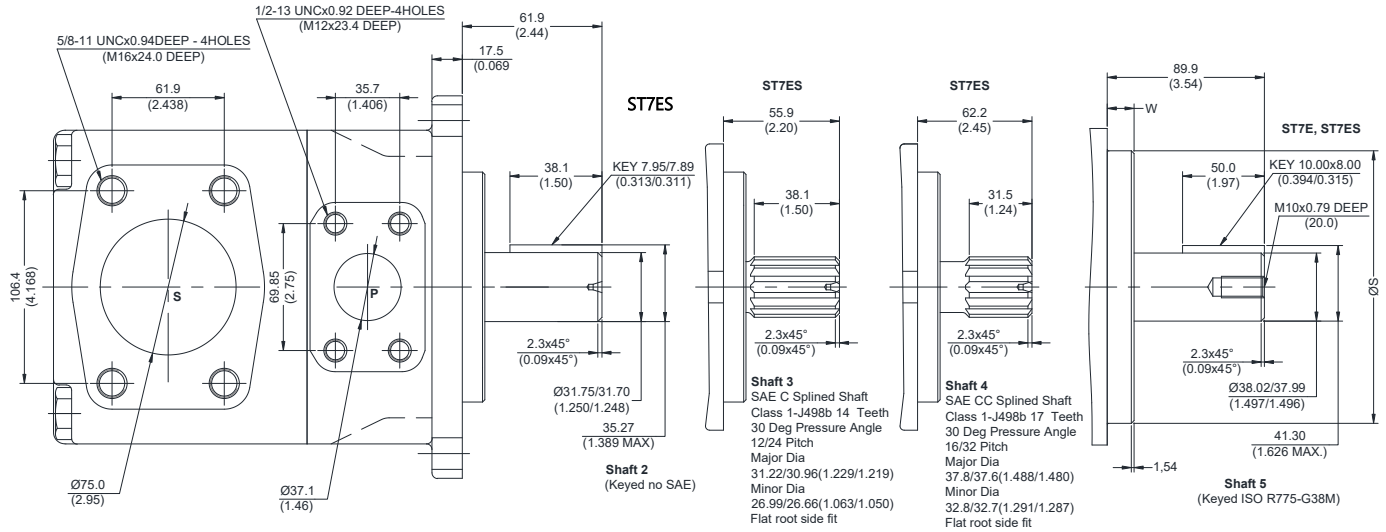
6. Design letter

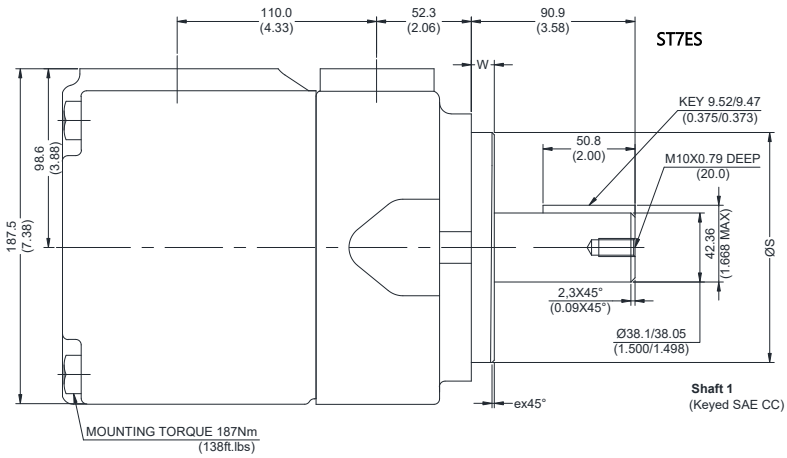
7. Port Connection (4 bolts SAE flange J518C)
   00 - UNC Port Connection
   M0 - Metric Port Connection

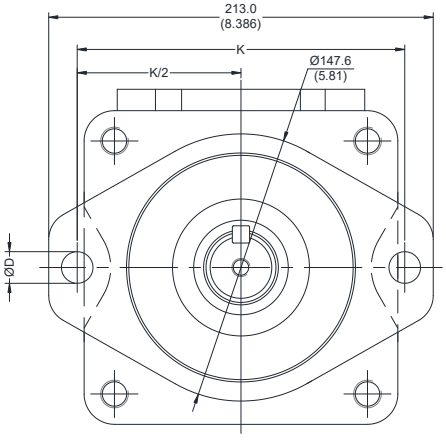
ST7 Series High Pressure Single Vane Pump

"ST7ES" Series

■ Installation Dimension mm (inch)







Alternate mounting flange						
Series	ØS		ex45°	W	K	ØD
	MAX.	MIN.				
ST7E	124.99 (4.921)	124.94 (4.919)	2.0 (0.079)	9.49 (0.374)	180.0 (7.087)	18.0 (0.709)
ST7ES	127.00 (5.00)	126.94 (4.998)	1.3 (0.051)	12.7 (0.50)	181.0 (7.126)	17.5 (0.689)

ST7 Series High Pressure Single Vane Pump

"ST7ES" Series

Performance Characteristics

OPERATING CHARACTERISTICS - TYPICAL [115 SUS]

Series	Volumetric Displacement	Speed n [R.P.M]	Flow Q [GPM]			Input power P [HP]		
			p = 0 PSI	p = 2000 PSI	p = 3500 PSI	p = 100 PSI	p = 2000 PSI	p = 3500 PSI
042	8.07 in3/rev	1800	62.92	60.37	58.52	8.09	78.44	133.80
045	8.70 in3/rev		67.72	65.17	63.32	8.37	84.04	143.60
050	9.67 in3/rev		75.38	72.83	70.98	8.82	92.97	159.24
052	10.00 in3/rev		78.37	75.82	73.97	8.99	96.47	165.36
054	10.43 in3/rev		81.27	78.72	76.87	9.17	99.75	177.46
057	11.18 in3/rev		87.12	84.57	82.72	9.51	106.57	189.84
062	12.00 in3/rev		93.54	90.99	89.14	9.88	114.17	196.34
066	13.00 in3/rev		101.44	98.89	97.04	10.34	123.38	212.46
072	13.86 in3/rev		108.00	105.45	103.60	10.72	131.04	225.86
085	16.40 in3/rev		127.79	126.13[1)]	-	11.88	101.66[1)]	-

1) 85 = 1300 PSI max. int.

*Special 3"½ (3.5 dia) suction also available

ST6, ST7, ST67 Series High Pressure Double Vane Pump

"ST6, ST7, ST67" Series

Features and Handling

• ST6, ST7, ST67 Series are fixed displacement and balanced type double vane pumps. The pump is designed for higher operating pressure and greater flow at the same housing size.

• With a balanced pin-vane design, outlet pressure is continuously applied only the pin. The pin provides the steady light force against the vane. Top and bottom areas of the vane are subject to the same pressure, either inlet or outlet pressure, depending on the vane's location during rotor rotation. This pin-vane design minimizes noise level and improves volumetric efficiency.

• With the cartridge independent of the shaft, allowing for easy change of flow capacity and field servicing without removing the pump from its mounting.

• Allowing low flow at high pressure. (300 bar max) and high flow at low pressure *For ST7, ST67 Series.

**Foot Mounting is available for each pump. For more details, see Foot Mounts.*

ST6CC Series High Pressure Double Vane Pump

"ST6CC" Series Double Vane Pump

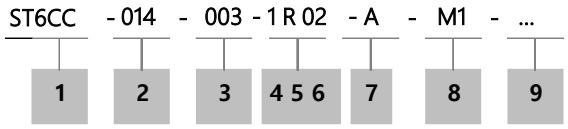
■ Specification

Shaft End Pump				Cover End Pump				Min. speed	Max. speed	Weight
Size	Displacement cm3/r 1(in3/r)	Max. Intermittent Pressure bar (psi)	Max. Continuous Pressure bar (psi)	Size	Displacement cm3/r 1(in3/r)	Max. Intermittent Pressure bar (psi)	Max. Continuous Pressure bar (psi)	rpm	rpm	kg (lb)
003	10.8 (0.66)	275 (4000)	240 (3500)	003	10.8 (0.66)	275 (4000)	240 (3500)	600	2800	27.0 (59.4)
005	17.2 (1.05)			005	17.2 (1.05)					
006	21.3 (1.30)			006	21.3 (1.30)					
008	26.4 (1.61)			008	26.4 (1.61)					
010	34.1 (2.08)			010	34.1 (2.08)					
012	37.1 (2.26)			012	37.1 (2.26)					
014	46.0 (2.81)			014	46.0 (2.81)					
017	58.3 (3.56)			017	58.3 (3.56)					
020	63.8 (3.89)			020	63.8 (3.89)					
022	70.3 (4.29)			022	70.3 (4.29)					
025	79.3 (4.84)			025	79.3 (4.84)					
028	88.8 (5.42)	206 (3000)	160 (2300)	028	88.8 (5.42)	206 (3000)	160 (2300)			
031	100.0 (6.10)			031	100.0 (6.10)					

ST6CC Series High Pressure Double Vane Pump

"ST6CC" Series Double Vane Pump

■ Ordering Code : Double Pump



1. Model
   Industrial - ST6CC

2. Displacement P1
   Volumetric displacement cm³/rec (in³/rev)
   - 003 - 10.8 (0.66)
   - 005 - 17.2 (1.05)
   - 006 - 21.3 (1.30)
   - 008 - 26.4 (1.61)
   - 010 - 34.1 (2.08)
   - 012 - 37.1 (2.26)
   - 014 - 46.0 (2.81)
   - 017 - 58.3 (3.56)
   - 020 - 63.8 (3.89)
   - 022 - 70.3 (4.29)
   - 025 - 79.3 (4.84)
   - 028 - 88.8 (5.42)
   - 031 - 100.0 (6.10)

3. Displacement P2
   Volumetric displacement cm³/rec (in³/rev)
   - 003 - 10.8 (0.66)
   - 005 - 17.2 (1.05)
   - 006 - 21.3 (1.30)
   - 008 - 26.4 (1.61)
   - 010 - 34.1 (2.08)
   - 012 - 37.1 (2.26)
   - 014 - 46.0 (2.81)
   - 017 - 58.3 (3.56)
   - 020 - 63.8 (3.89)
   - 022 - 70.3 (4.29)
   - 025 - 79.3 (4.84)
   - 028 - 88.8 (5.42)
   - 031 - 100.0 (6.10)

4. Type of shaft
   ST6CC
   - 1 – non SAE Keyed Shaft
   - 3 – SAE BB Splined Shaft
   - 5 – SAE B Splined Shaft

5. Direction of rotation (Viewed from shaft end)
   - R – Turn right
   - L – Turn left

6. Porting combination (see page Porting Diagrams)
   - 00 – Standard

7. Design letter

8 Port Connection(4 bolts SAE flange J518C)
   - 00 - UNC Port Connection
   - M0 - Metric Port Connection

Code		4 bolt SAE flanges		
UNC	Metric	P1	P2	S
00	0M	1"	1"	3"
01	M0	1"	3/4"[1)]	3"
10	1M	1"	1"	2 1/2"[2)]
11	M1	1"	3/4"[1)]	2 1/2"[2)]

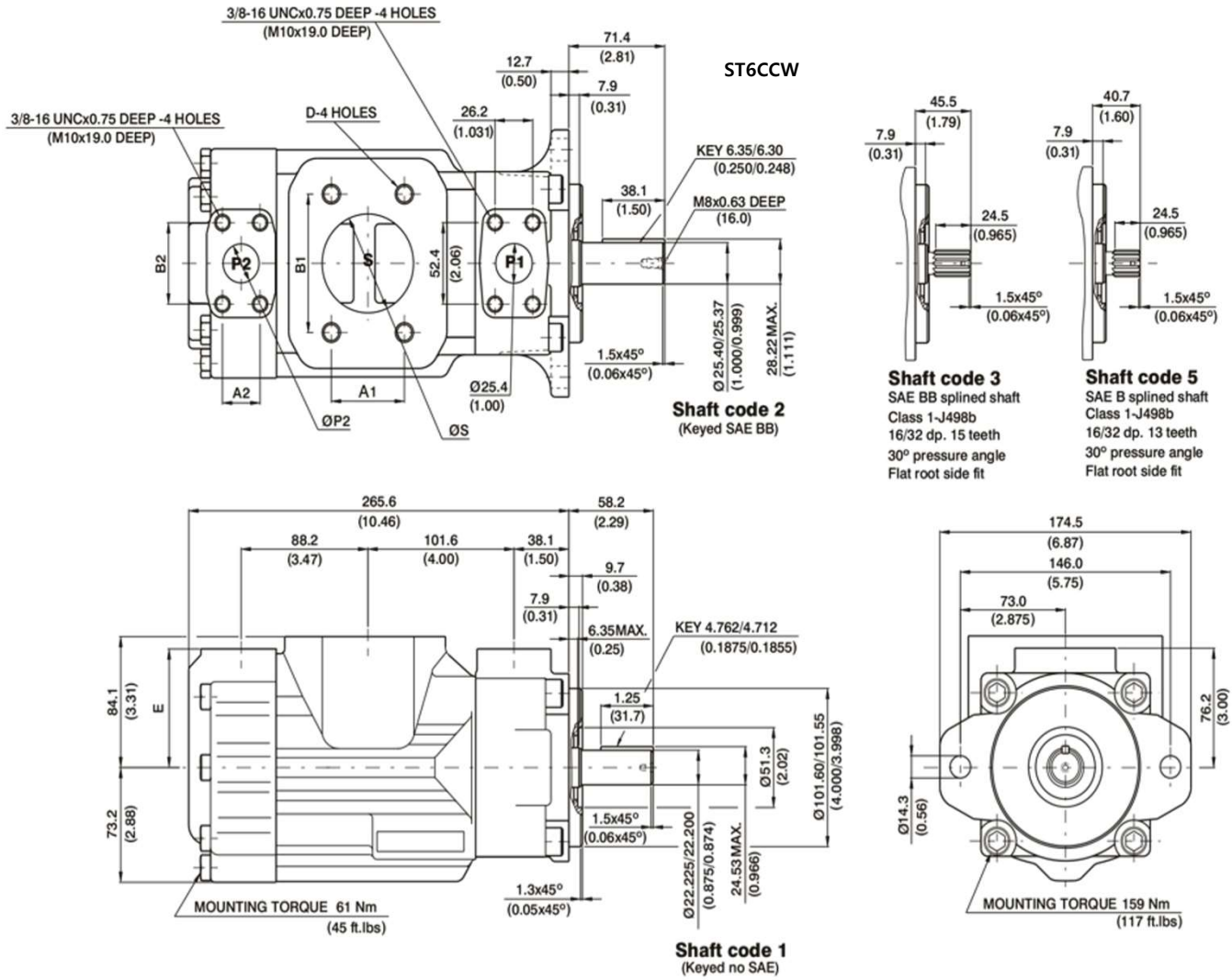
1) for 46 ml/rev max.
2) for 12l ml/rev max.
always select the largest cartridge in the front place.(see page Hose Size Selection Nomograph)

9. Modifications

ST6CC Series High Pressure Double Vane Pump

"ST6CC" Series Double Vane Pump

■ Installation Dimension mm (inch)



Shaft torque limits [ml/rev x bar (in³/rev x psi)]	
Shaft	Vp x p max. (P1+P2)
1	14300 (12666)
2	21420 (18972)
3	32670 (28937)
5	20600 (18246)

Inlet Port Size	S	A1	B1	D
3"	76.2 (3.00)	61.9 (2.44)	106.4 (4.19)	5/8" - 11 UNC x 1.12 DEEP M16 x 28.4 DEEP
2½"	63.5 (2.50)	50.9 (2.00)	88.9 (3.50)	1/2" - 13 UNC x 0.94 DEEP M12 x 23.9 DEEP

Cover End Outlet Port Size	P2	A2	B2	E
1"	25.4 (1.00)	26.2 (1.03)	52.4 (2.06)	74.7 (2.94)
3/4"	19.0 (0.75)	22.4 (0.88)	47.7 (1.88)	76.2 (3.00)

ST6CC Series High Pressure Double Vane Pump

"ST6CC" Series Double Vane Pump

Performance Characteristics

OPERATING CHARACTERISTICS - TYPICAL [115 SUS]

Pressure port	Series	Volumetric Displacement	Flow Q {GPM} & n = 1800 RPM			Input power P {HP} & n = 1800 RPM		
			p = 0 PSI	p = 2000 PSI	p = 3500 PSI	p = 0 PSI	p = 2000 PSI	p = 3500 PSI
P1 & P2	003	0.66 in^3/rev	5.14	3.61	-	2.11	8.45	-
	005	1.05 in^3/rev	8.18	6.65	5.56	2.29	12.00	19.59
	006	1.30 in^3/rev	10.13	8.60	7.51	2.40	14.28	23.57
	008	1.61 in^3/rev	12.55	11.02	9.93	2.54	17.11	28.53
	010	2.08 in^3/rev	16.22	14.69	13.60	2.76	21.38	36.00
	012	2.26 in^3/rev	17.64	16.11	15.02	2.84	23.05	38.92
	014	2.81 in^3/rev	21.88	20.35	19.26	3.09	27.99	47.56
	017	3.56 in^3/rev	27.73	26.20	25.11	3.43	34.81	59.51
	020	3.89 in^3/rev	30.34	28.81	27.42	3.58	37.86	64.85
	022	4.29 in^3/rev	33.43	31.90	30.81	3.76	41.47	71.16
	025[1)]	4.84 in^3/rev	37.71	36.18	35.09	4.01	46.46	79.90
	028[1)]	5.42 in^3/rev	42.23	40.70	39.94[2)]	4.27	51.74	76.73[2)]
	031	6.10 in^3/rev	47.56	46.03	45.27[2)]	4.58	57.95	86.06[2)]

1) 025 - 028 - 031 = 2500 R.P.M. max. 2) 028 - 031 = 2200 PSI max. int.
- Not to use because internal leakage greater than 50% theoretical flow.
- Port connection can be furnished with metric threads.

ST67DC Series High Pressure Double Vane Pump

"ST67DC" Series Double Vane Pump

Specification

Shaft End Pump				Cover End Pump				Min. speed	Max. speed	Weight
Size	Displacement cm³/r 1(in³/r)	Max. Intermittent Pressure bar (psi)	Max. Continuous Pressure bar (psi)	Size	Displacement cm³/r 1(in³/r)	Max. Intermittent Pressure bar (psi)	Max. Continuous Pressure bar (psi)	rpm	rpm	kg (lb)
014	47.6 (2.90)	300 (4350)	250 (3600)	003	10.8 (0.66)	275 (4000)	240 (3500)	600	2500	37.0 (81.4)
017	58.2 (3.55)			005	17.2 (1.05)					
020	66.0 (4.03)			006	21.3 (1.30)					
022	70.0 (4.27)			008	26.4 (1.61)					
024	79.5 (4.85)			010	34.1 (2.08)					
028	89.7 (5.47)			012	37.1 (2.26)					
031	98.3 (6.00)			014	46.0 (2.81)					
035	111.0 (6.77)	280 (4060)		017	58.3 (3.56)					
038	120.3 (7.34)			020	63.8 (3.89)					
042	136.0 (8.30)	260 (3770)	235 (3400)	022	70.3 (4.29)					
045	145.7 (8.89)	240 (3500)	206 (3000)	025	79.3 (4.84)					
050	158.0 (9.64)	206 (3000)	160 (2300)	028	88.8 (5.42)	206 (3000)	160 (2300)			
				031	100.0 (6.10)					

ST67DC Series High Pressure Double Vane Pump

"ST67DC" Series Double Vane Pump

■ Ordering Code : Double Pump

ST67DC - 014 - 003 - 1 R 02 · A - M0 - ..

1 2 3 4 5 6 7 8 9

1. Model :
   Industrial - ST67DC

2. Displacement P1
   Volumetric displacement cm³/rec (in³/rev)
   7D
   014 - 47.6 (2.90)
   017 - 58.2 (3.55)
   020 - 66.0 (4.03)
   022 - 70.0 (4.27)
   024 - 79.5 (4.85)
   028 - 89.7 (5.47)
   031 - 98.3 (6.00)
   035 - 111.0 (6.77)
   038 - 120.3 (7.34)
   042 - 136.0 (8.30)
   045 - 145.7 (8.89)
   050 - 158.0 (9.64)

3. Displacement P2
   Volumetric displacement cm³/rec (in³/rev)
   6C
   003 - 10.8 (0.66)
   005 - 17.2 (1.05)
   006 - 21.3 (1.30)
   008 - 26.4 (1.61)
   010 - 34.1 (2.08)
   012 - 37.1 (2.26)
   014 - 46.0 (2.81)
   017 - 58.3 (3.56)
   020 - 63.8 (3.89)
   022 - 70.3 (4.29)
   025 - 79.3 (4.84)
   028 - 88.8 (5.42)
   031 - 100.0 (6.10)

4. Type of shaft
   ST67DC
   1 - SAE C Keyed Shaft
   2 - non SAE Keyed Shaft
   3 - SAE C Splined Shaft
   4 - SAE C spec. Splined Shaft

5. Direction of rotation (Viewed from shaft end)
   R - Turn right
   L - Turn left

6. Porting combination (see page Porting Diagrams)
   00 - standard

7. Design letter

8. Port Connection (4 bolts SAE flange J518C)
   00 - UNC Port Connection
   M0 - Metric Port Connection

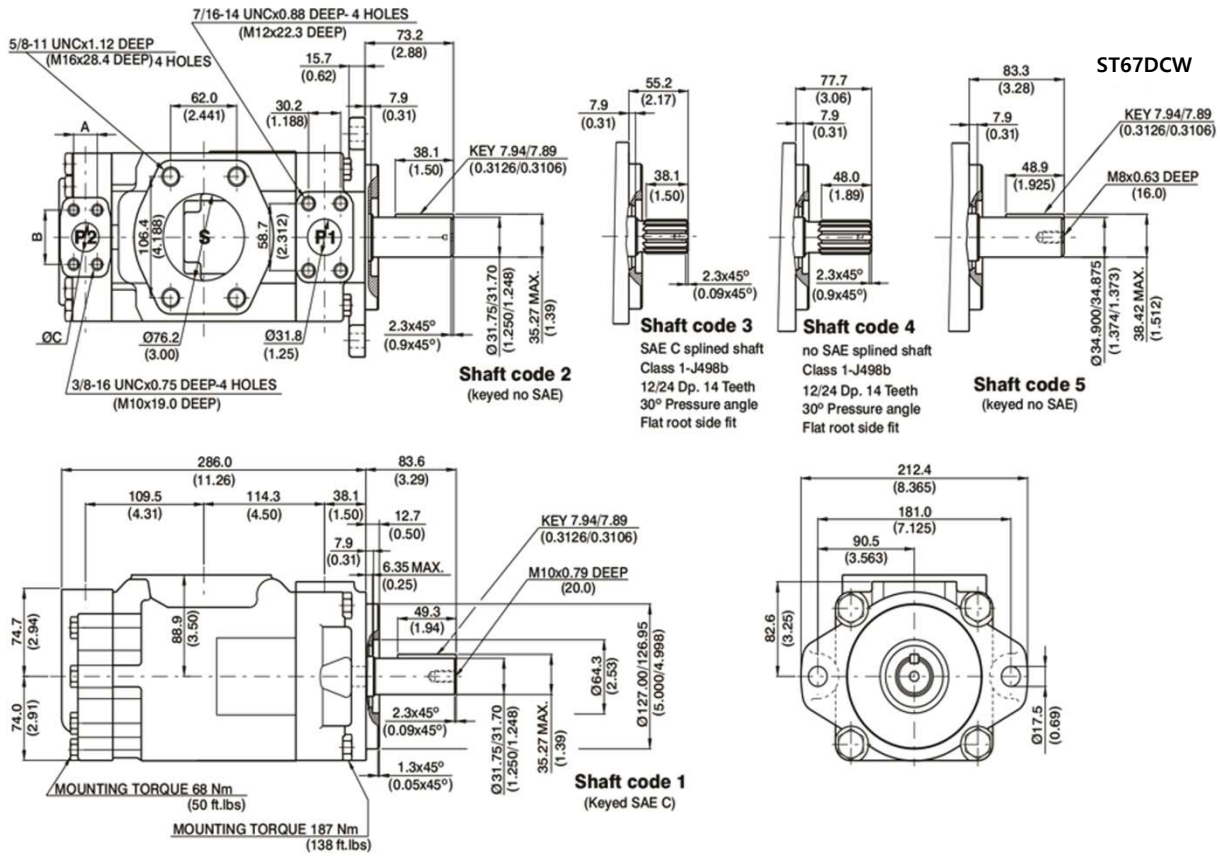
Code		4 bolt SAE flanges		
UNC	Metric	P1	P2	S
00	M0	1¼"	1"	3"
01	M1	1¼"	3/4"	3"

9. Modifications

ST67DC Series High Pressure Double Vane Pump

"ST67DC" Series Double Vane Pump

■ Installation Dimension mm (inch)



Shaft torque limits [ml/rev x bar (in³/rev x psi)]	
Shaft	Vp x p max. (P1+P2)
1	43240 (38299)
2	34590 (30638)
3	61200 (54207)
4	
5	55600 (49247)

Cover End Outlet Port Size	A	B	C
1"	26.2 (1.03)	52.4 (2.06)	25.4 (1.00)
3/4"	22.4 (0.88)	47.7 (1.88)	19.0 (0.75)

ST67DC Series High Pressure Double Vane Pump

"ST67DC" Series Double Vane Pump

Performance Characteristics

OPERATING CHARACTERISTICS - TYPICAL [115 SUS]

Pressure port	Series	Volumetric Displacement	Flow Q {GPM} & n = 1800 RPM			Input power P {HP} & n = 1800 RPM		
			p = 0 PSI	p = 2000 PSI	p = 3500 PSI	p = 0 PSI	p = 2000 PSI	p = 3500 PSI
P1	014	2.90 in^3/rev	22.64	20.46	18.82	4.02	29.31	49.34
	017	3.55 in^3/rev	27.68	25.50	23.86	4.31	35.20	59.64
	020	4.00 in^3/rev	31.39	29.21	27.57	4.53	39.52	67.21
	022	4.29 in^3/rev	33.43	31.69	30.32	4.19	42.37	72.57
	024	4.80 in^3/rev	37.82	35.63	33.99	4.91	47.02	80.32
	028	5.50 in^3/rev	42.66	40.48	38.84	5.19	52.68	90.23
	031	6.00 in^3/rev	46.75	44.57	42.93	5.43	57.45	98.58
	035	6.80 in^3/rev	52.79	50.61	48.97	5.78	64.50	110.91
	038	7.30 in^3/rev	57.21	55.03	53.39	6.04	69.66	119.94
	042	8.30 in^3/rev	64.68	62.50	60.86	6.47	78.37	135.19
	045	8.90 in^3/rev	69.29	67.11	65.47	6.74	83.74	144.61
	050	9.64 in^3/rev	75.14	72.96	71.78[1)]	7.08	90.58	134.54[1)]
P2	003	0.66 in^3/rev	5.14	3.61	-	2.11	8.45	-
	005	1.05 in^3/rev	8.18	6.65	5.56	2.29	12.00	19.59
	006	1.30 in^3/rev	10.13	8.60	7.51	2.40	14.28	23.57
	008	1.61 in^3/rev	12.55	11.02	9.93	2.54	17.11	28.53
	010	2.08 in^3/rev	16.22	14.69	13.60	2.76	21.38	36.00
	012	2.26 in^3/rev	17.64	16.11	15.02	2.84	23.05	38.92
	014	2.81 in^3/rev	21.88	20.35	19.26	3.09	27.99	47.56
	017	3.56 in^3/rev	27.73	26.20	25.11	3.43	34.81	59.51
	020	3.89 in^3/rev	30.34	28.81	27.42	3.58	37.86	64.85
	022	4.29 in^3/rev	33.43	31.90	30.81	3.76	41.47	71.16
	025	4.84 in^3/rev	37.71	36.18	35.09	4.01	46.46	79.90
	028	5.42 in^3/rev	42.23	40.70	39.94[1)]	4.27	51.74	76.73[1)]
	031 using	6.10 in^3/rev	47.56	46.03	45.27[1)]	4.58	57.95	86.06[1)]

1) 028 - 031 - 050 = 3000 PSI max. int.
- Not to use because internal leakage greater than 50% theoretical flow.
- Port connection can be furnished with metric threads.

ST67EC Series High Pressure Double Vane Pump

"ST67EC" Series Double Vane Pump

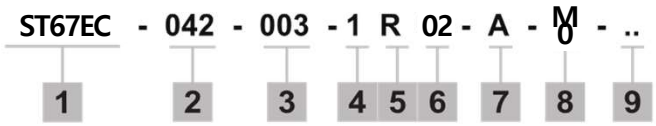
Specification

Shaft End Pump				Cover End Pump				Min. speed	Max. speed	Weight
Size	Displacement cm³/r 1(in³/r)	Max. Intermittent Pressure bar (psi)	Max. Continuous Pressure bar (psi)	Size	Displacement cm³/r 1(in³/r)	Max. Intermittent Pressure bar (psi)	Max. Continuous Pressure bar (psi)	rpm	rpm	kg (lb)
042	132.3 (8.07)	240 (3500)	206 (3000)	003	10.8 (0.66)	275 (4000)	240 (3500)	600	2200	54.2 (119.2)
045	142.4 (8.70)			005	17.2 (1.05)					
050	158.5 (9.67)			006	21.3 (1.30)					
052	164.8 (10.00)			008	26.4 (1.61)					
054	173.8 (10.60)			010	34.1 (2.08)					
057	180.7 (11.02)			012	37.1 (2.26)					
062	196.7 (12.00)			014	46.0 (2.81)					
066	213.3 (13.00)			017	58.3 (3.56)					
072	227.1 (13.86)			020	63.8 (3.89)					
085	269.8 (16.40)	90 (1300)	75 (1100)	022	70.3 (4.29)					
				025	79.3 (4.84)					
				028	88.8 (5.42)	206 (3000)	160 (2300)			
				031	100.0 (6.10)					

ST67EC Series High Pressure Double Vane Pump

"ST67EC" Series Double Vane Pump

■ Ordering Code : Double Pump



1. Model :
   Industrial - ST67EC
   SAE C 2 bolts mounting flange J744

2. Displacement P1
   Volumetric displacement cm³/rec (in³/rev)
   7E
   042 - 132.3 (8.07)
   045 - 142.4 (8.70)
   050 - 158.5 (9.67)
   052 - 164.8 (10.00)
   054 - 173.8 (10.60)
   057 - 180.7 (11.02)
   062 - 196.7 (12.00)
   066 - 213.3 (13.00)
   072 - 227.1 (13.86)
   085 - 269.8 (16.40)

3. Displacement P2
   Volumetric displacement cm³/rec (in³/rev)
   6C
   003 - 10.8 (0.66)
   005 - 17.2 (1.05)
   006 - 21.3 (1.30)
   008 - 26.4 (1.61)
   010 - 34.1 (2.08)
   012 - 37.1 (2.26)
   014 - 46.0 (2.81)
   017 - 58.3 (3.56)
   020 - 63.8 (3.89)
   022 - 70.3 (4.29)
   025 - 79.3 (4.84)
   028 - 88.8 (5.42)
   031 - 100.0 (6.10)

4. Type of shaft
   1 - SAE CC Keyed Shaft
   2 - non SAE Keyed Shaft
   3 - SAE C Splined Shaft
   4 - SAE CC Splined Shaft

5. Direction of rotation (Viewed from shaft end)
   R - Turn right
   L - Turn left

6. Porting combination (see page Porting Diagrams)
   00 - standard

7. Design letter

8. Port Connection (4 bolts SAE flange J518C)
   00 - UNC Port Connection
   M0 - Metric Port Connection

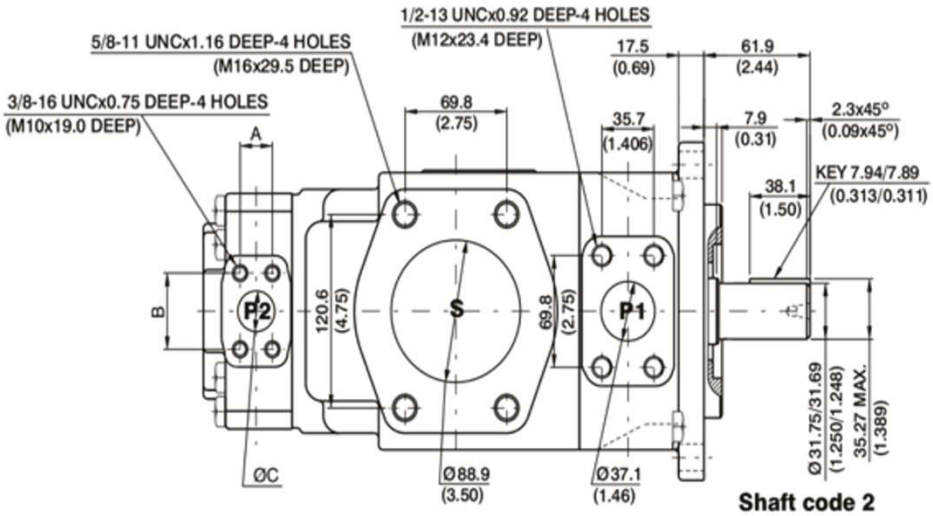
Code		4 bolt SAE flanges		
UNC	Metric	P1	P2	S
00	M0	1½"	1"	3½"
01	M1	1½"	3/4"	3½"

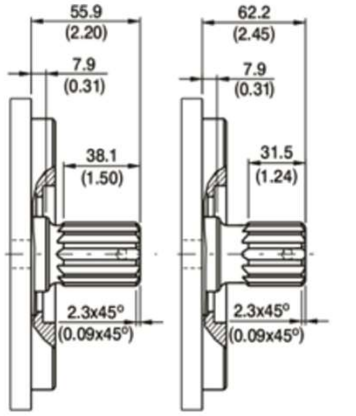
9. Modifications

ST67EC Series High Pressure Double Vane Pump

"ST67EC" Series Double Vane Pump

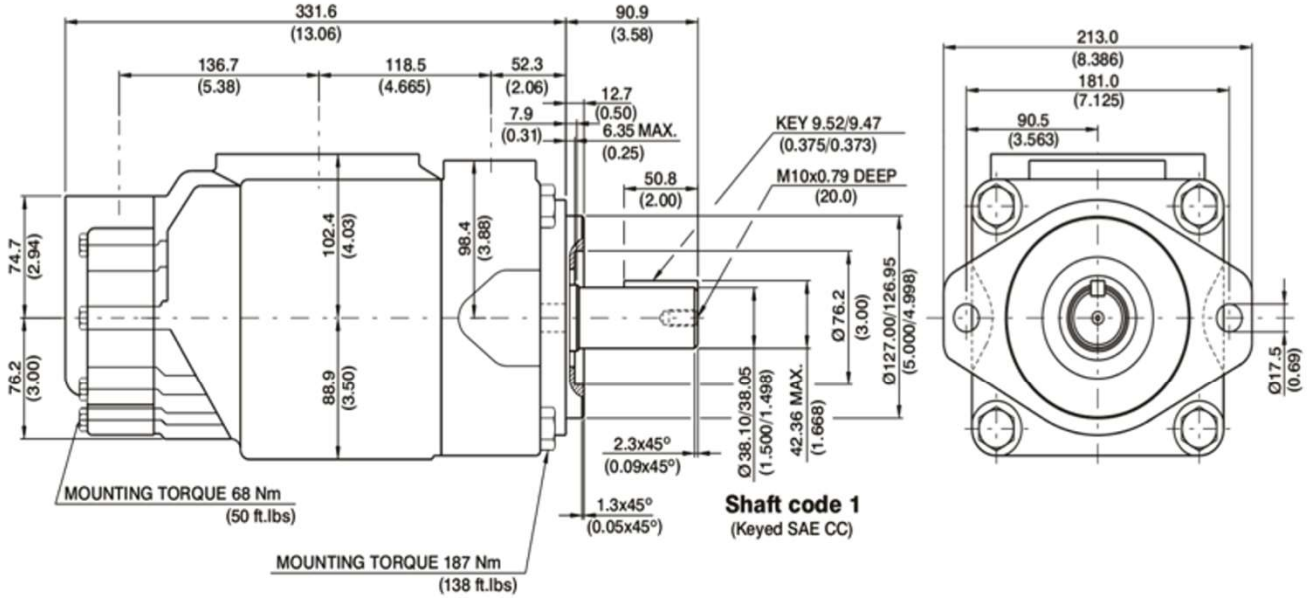
■ Installation Dimension mm (inch)





Shaft code 3
SAE C splined shaft
Class 1-J498b
12/24 dp. 14 teeth
30° pressure angle
Flat root side fit

Shaft code 4
SAE CC splined shaft
Class 1-J498b
12/24 dp. 17 teeth
30° pressure angle
Flat root side fit



Cover End Outlet Port Size	A	B	C
1"	26.2 (1.03)	52.4 (2.06)	25.4 (1.00)
3/4"	22.4 (0.88)	47.7 (1.88)	19.0 (0.75)

Shaft torque limits [ml/rev x bar (in³/rev x psi)]	
Shaft	Vp x p max. (P1+P2)
1	72306 (64044)
2	34590 (30638)
3	61200 (54207)
4	76376 (67582)

ST67EC Series High Pressure Double Vane Pump

"ST67EC" Series Double Vane Pump

Performance Characteristics

OPERATING CHARACTERISTICS - TYPICAL [115 SUS]

Pressure port	Series	Volumetric Displacement	Flow Q {GPM} & n = 1800 RPM			Input power P {HP} & n = 1800 RPM		
			p = 0 PSI	p = 2000 PSI	p = 3500 PSI	p = 0 PSI	p = 2000 PSI	p = 3500 PSI
P1	042	8.07 in^3/rev	62.92	60.37	58.52	8.09	78.44	133.80
	045	8.70 in^3/rev	67.72	65.17	63.32	8.37	84.04	143.60
	050	9.67 in^3/rev	75.38	72.83	70.98	8.82	92.97	159.24
	052	10.00 in^3/rev	78.37	75.82	73.97	8.99	96.47	165.36
	054	10.43 in^3/rev	81.27	78.72	76.87	9.17	99.75	177.46
	057	11.18 in^3/rev	87.12	84.57	82.72	9.51	106.57	189.84
	062	12.00 in^3/rev	93.54	90.99	89.14	9.88	114.17	196.34
	066	13.00 in^3/rev	101.44	98.89	97.04	10.34	123.38	212.46
	072	13.86 in^3/rev	108.00	105.45	103.60	10.72	131.04	225.86
	085	16.40 in^3/rev	127.79	126.13[1)]	-	11.88	101.66[1)]	-
P2	003	0.66 in^3/rev	5.14	3.61	-	2.11	8.45	-
	005	1.05 in^3/rev	8.18	6.65	5.56	2.29	12.00	19.59
	006	1.30 in^3/rev	10.13	8.60	7.51	2.40	14.28	23.57
	008	1.61 in^3/rev	12.55	11.02	9.93	2.54	17.11	28.53
	010	2.08 in^3/rev	16.22	14.69	13.60	2.76	21.38	36.00
	012	2.26 in^3/rev	17.64	16.11	15.02	2.84	23.05	38.92
	014	2.81 in^3/rev	21.88	20.35	19.26	3.09	27.99	47.56
	017	3.56 in^3/rev	27.73	26.20	25.11	3.43	34.81	59.51
	020	3.89 in^3/rev	30.34	28.81	27.42	3.58	37.86	64.85
	022	4.29 in^3/rev	33.43	31.90	30.81	3.76	41.47	71.16
	025	4.84 in^3/rev	37.71	36.18	35.09	4.01	46.46	79.90
	028	5.42 in^3/rev	42.23	40.70	39.94[2)]	4.27	51.74	76.73[2)]
	031	6.10 in^3/rev	47.56	46.03	45.27[2)]	4.58	57.95	86.06[2)]

1) 085 = 1300 PSI max. int. 2) 028 - 031 = 3000 PSI max. int.
- Not to use because internal leakage greater than 50% theoretical flow.
- Port connection can be furnished with metric threads.

ST7EDS Series High Pressure Double Vane Pump

"ST7EDS" Series Double Vane Pump

Specification

Shaft End Pump				Cover End Pump				Min. speed	Max. speed	Weight
Size	Displacement cm³/r 1(in³/r)	Max. Intermittent Pressure bar (psi)	Max. Continuous Pressure bar (psi)	Size	Displacement cm³/r 1(in³/r)	Max. Intermittent Pressure bar (psi)	Max. Continuous Pressure bar (psi)	rpm	rpm	kg (lb)
042	132.3 (8.07)	240 (3500)	206 (3000)	014	47.6 (2.90)	300 (4350)	250 (3600)	600	2200	64.5 (141.9)
045	142.4 (8.70)			017	58.2 (3.55)					
050	158.5 (9.67)			020	66.0 (4.03)					
052	164.8 (10.00)			022	70.0 (4.27)					
054	173.8 (10.60)			024	79.5 (4.85)					
057	180.7 (11.02)			028	89.7 (5.47)					
062	196.7 (12.00)			031	98.3 (6.00)					
066	213.3 (13.00)			035	111.0 (6.77)	280 (4060)				
072	227.1 (13.86)			038	120.3 (7.34)					
085	269.8 (16.40)	90 (1300)	75 (1100)	042	136.0 (8.30)	260 (3770)	235 (3400)			
				045	145.7 (8.89)	240 (3500)	206 (3000)			
				050	158.0 (9.64)	206 (3000)	160 (2300)			

ST7EDS Series High Pressure Double Vane Pump

"ST7EDS" Series Double Vane Pump

■ Ordering Code : Double Pump

ST7EDS	-	042	-	014	-	1	R	02	-	A	-	M0	-	..
		1		2		3	4	5	6	7		8		9

1. Model :
   Industrial - ST7EDS SAE C 2 bolts Mounting flange J744

2. Displacement
   Volumetric displacement cm³/rec (in³/rev)
   - 042 - 132.3 (8.07)
   - 045 - 142.4 (8.70)
   - 050 - 158.5 (9.67)
   - 052 - 164.8 (10.00)
   - 054 - 173.8 (10.60)
   - 057 - 180.7 (11.02)
   - 062 - 196.7 (12.00)
   - 066 - 213.3 (13.00)
   - 072 - 227.1 (13.86)
   - 085 - 269.8 (16.40)

3. Displacement P2
   Volumetric displacement cm³/rev (in³/rev)
   - 014 - 47.6 (2.90)
   - 017 - 58.2 (3.55)
   - 020 - 66.0 (4.03)
   - 022 - 70.0 (4.27)
   - 024 - 79.5 (4.85)
   - 028 - 89.7 (5.47)
   - 031 - 98.3 (6.00)
   - 035 - 111.0 (6.77)
   - 038 - 120.3 (7.34)
   - 042 - 136.0 (8.30)
   - 045 - 145.7 (8.89)
   - 050 - 158.0 (9.64)

4. Type of shaft
   ST7ED, ST7EDS
   - 5 - ISO R775-G38M Keyed Shaft

   ST7EDS
   - 1 - SAE CC Keyed Shaft
   - 2 - non SAE Keyed Shaft
   - 3 - SAE C Splined Shaft
   - 4 - SAE CC Splined Shaft

5. Direction of rotation (Viewed from shaft end)
   - R - Turn right
   - L - Turn left

6. Porting combination
   - 00 - standard

7. Design letter

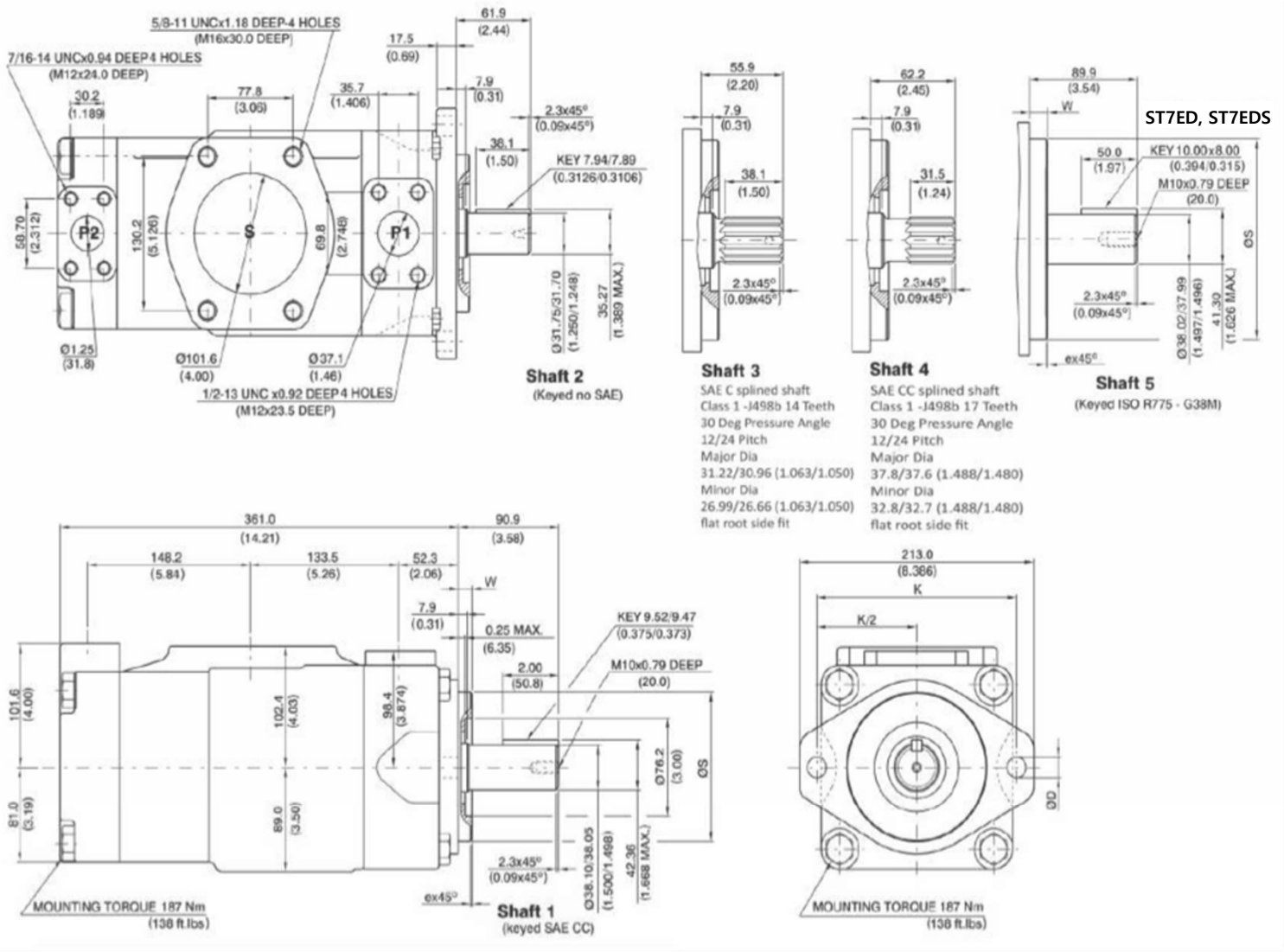
8. Port Connection (4 bolts SAE flange J518C)
   - 00 - UNC Port Connection (Except HT7ED)
   - M0 - Metric Port Connection

9. Modifications

ST7ED Series High Pressure Double Vane Pump

"ST7EDS" Series Double Vane Pump

■ Installation Dimension mm (inch)



Alternate mounting flange						
Model	ØS		ex 45°	W	K	ØD
	MAX.	MIN.				
ST7ED	124.99 (4.921)	124.94 (4.919)	2.0 (0.079)	9.49 (0.374)	180.0 (7.087)	18.0 (0.709)
ST7EDS	127.00 (5.00)	126.94 (4.998)	1.3 (0.051)	12.7 (0.50)	181.0 (7.126)	17.5 (0.689)

Shaft torque limits [ml/rev x bar (in³/rev x psi)]	
Shaft	Vp x p max. (P1+P2)
1	72372 (64039)
2	34590 (30638)
3	61200 (54207)
4	68568 (60673)
5	

Cartridge Kit for Vane Pump ST6 and ST7 Series

"ST6, ST7" Series Cartridge Kit

Features and Handling

• The ST Series cartridge kit is interchangeable with DENISON. The balanced design and double lip vane technology are key features in providing a contamination resistant and reliable cartridge kit. High pressure and variable speed capabilities, extremely low noise make this fluid power source ideal for all kind of applications.

With these exceeding high qualities, our ST Series cartridges have satisfied many OEM clients around the world for more than 40 years.

Specifications : ST6C

Cartridge Kit "ST6C" for single pump and double pump

Delivery at 1200 r/min & 7 bar (100 psi) USgpm	Displacement cm^3/r 1(in^3/r)	Min. Speed rpm	Max. Speed rpm	Max. Pressure bar (psi)	Typical Delivery at max speed & pressure L/min (USgpm)	Typical Input Power at max speed & pressure kW (hp)	Weight kg (lb)
003	10.8 (0.66)	600	2800	275 (4000)	21.3 (5.64)	13.9 (18.67)	4.0 (8.8)
005	17.2 (1.05)				29.3 (7.73)	22.2 (29.7)	
006	21.3 (1.30)				43.3 (11.45)	27.4 (36.77)	
008	26.4 (1.61)				55.1(14.57)	34.0 (45.54)	
010	34.1 (2.08)				80.2 (21.18)	43.9 (54.84)	
012	37.1 (2.26)				80.8 (21.35)	47.7 (63.93)	
014	46.0 (2.81)				112.2 (29.63)	59.3 (79.49)	
017	58.3 (3.56)				154.6 (40.84)	75.1 (100.70)	
020	63.8 (3.89)				159.1 (42.04)	82.1 (110.04)	
022	70.3 (4.29)		2500		158.9 (41.98)	80.8 (108.35)	
025	79.3 (4.84)				180.4 (47.66)	91.2 (122.24)	
028	88.8 (5.42)			206 (3000)	207.6 (54.85)	76.6 (102.67)	
031	100.0 (6.10)				239.6 (63.30)	86.2 (115.55)	

Cartridge Kit for Vane Pump ST6 and ST7 Series

"ST6, ST7" Series Cartridge Kit

Specifications : ST7DS

Cartridge Kit "ST7DS" for single pump and double pump

Delivery at 1200 r/min & 7 bar (100 psi)	Displacement	Min. Speed	Max. Speed	Max. Pressure	Typical Delivery at max speed & pressure	Typical Input Power at max speed & pressure	Weight
USgpm	cm^3/r 1(in^3/r)	rpm	rpm	bar (psi)	L/min (USgpm)	kW (hp)	kg (lb)
014	47.6 (2.90)	600	3000	300 (4350)	104.7 (27.65)	65.9 (88.33)	7.8 (17.1)
017	58.2 (3.55)				155.9 (41.18)	82.4 (110.42)	
020	66.0 (4.03)				168.0 (44.39)	99.1 (132.83)	
022	70.0 (4.27)				189.8 (50.15)	105.0 (140.74)	
024	79.5 (4.85)				215.4 (56.90)	121.7 (163.15)	
028	89.7 (5.47)				235.8 (62.30)	135.0 (180.95)	
031	98.3 (6.00)				261.1 (68.97)	148.8 (199.41)	
035	111.0 (6.77)		2800	280 (4060)	283.3 (74.84)	148.2 (198.69)	
038	120.3 (7.34)				303.8 (80.26)	157.6 (211.32)	
042	136.0 (8.30)		2500	260 (3770)	320.4 (84.65)	149.0 (199.72)	
045	145.7 (8.89)		2200	240 (3500)	300.7 (79.43)	129.0 (172.89)	
050	158.0 (9.64)			206 (3000)	324.3 (85.67)	119.9 (160.69)	

Specifications : ST7ES

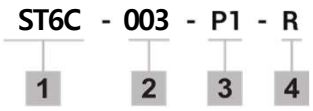
Cartridge Kit "ST7ES" for single pump and double pump

Delivery at 1200 r/min & 7 bar (100 psi)	Displacement	Min. Speed	Max. Speed	Max. Pressure	Typical Delivery at max speed & pressure	Typical Input Power at max speed & pressure	Weight
USgpm	cm^3/r 1(in^3/r)	rpm	rpm	bar (psi)	L/min (USgpm)	kW (hp)	kg (lb)
042	132.3 (8.07)	600	2200	240 (3500)	259.5 (68.56)	117.1 (156.94)	11.8 (26.0)
045	142.4 (8.70)				283.4 (74.87)	126.2 (169.19)	
050	158.5 (9.67)				319.0 (84.28)	140.3 (188.06)	
052	164.8 (10.00)				331.1 (87.49)	145.1 (194.48)	
054	173.8 (10.60)				352.8 (93.21)	153.8 (206.15)	
057	180.7 (11.02)				370.1 (97.77)	159.9 (214.31)	
062	196.7 (12.00)				403.7 (106.65)	174.1 (233.37)	
066	213.3 (13.00)				448.3 (118.45)	188.6 (252.82)	
072	227.1 (13.86)				468.4 (123.76)	201.1 (269.54)	
085	269.8 (16.40)		2000	90 (1300)	495.6 (130.93)	80.3 (107.69)	

Cartridge Kit for Vane Pump ST6 and ST7 Series

"ST6, ST7" Series Cartridge Kit

■ Ordering Code : Single Pump



1. Model

Industrial	- ST6C, ST7DS, HT7ES ST6CC, ST67DC, ST67EC, ST7EDS

2. Ring size (Usgpm)

6C	- 003, 005, 006, 008, 010, 012, 014, 017, 020, 022, 025, 028, 031
7D	- 014, 017, 020, 022, 024, 028, 031, 035, 038, 042, 045, 050
7E	- 042, 045, 050, 052, 054, 057, 062, 066, 072, 085

3. Cartridge Position

P1	- For single pump or shaft end in double pump
P2	- For cover end in double

4. Shaft Rotation (Viewed from shaft end)

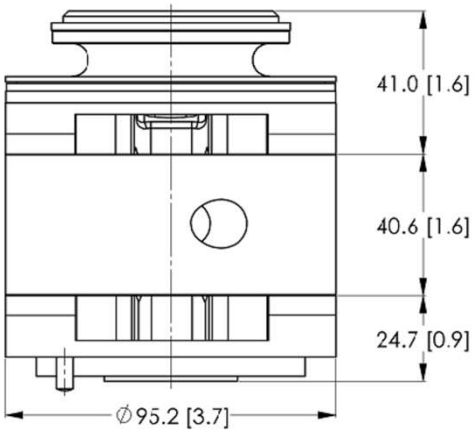
R	- Turn right
L	- Turn left

Cartridge Kit for Vane Pump ST6 and ST7 Series

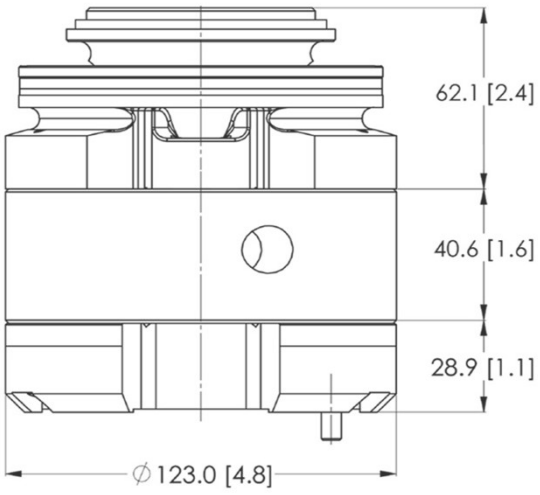
"ST6, ST7" Series Cartridge Kit

■ Installation Dimension mm (inch)

Cartridge Kit ST6C



Cartridge Kit ST7D, ST67D

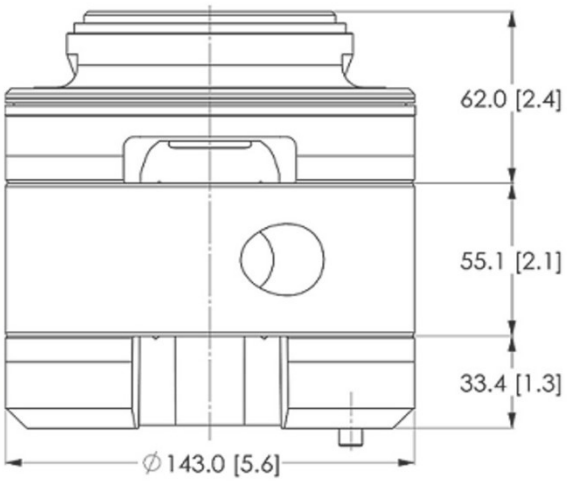


Cartridge Kit for Vane Pump ST6 and ST7 Series

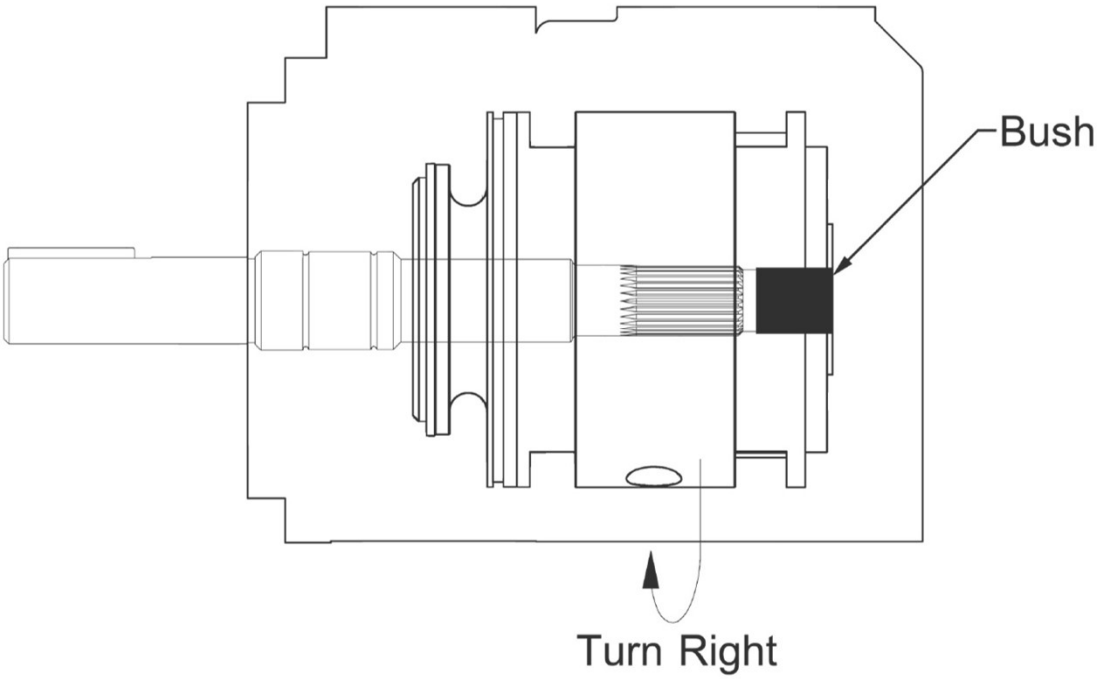
"ST6, ST7" Series Cartridge Kit

■ Installation Dimension mm (inch)

Cartridge Kit ST7E



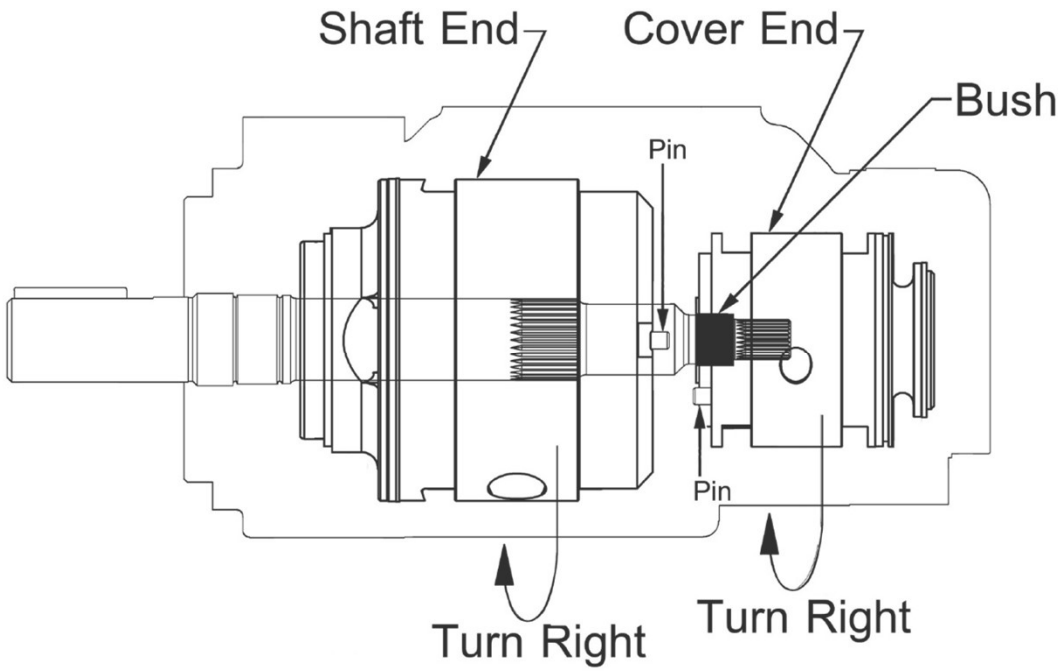
■ Cartridge Kit ST Series : Single pump



Cartridge Kit for Vane Pump ST6 and ST7 Series

"ST6, ST7" Series Cartridge Kit

■ Cartridge Kit ST Series : Double pump



■ Cartridge Kit Components (ST Series)