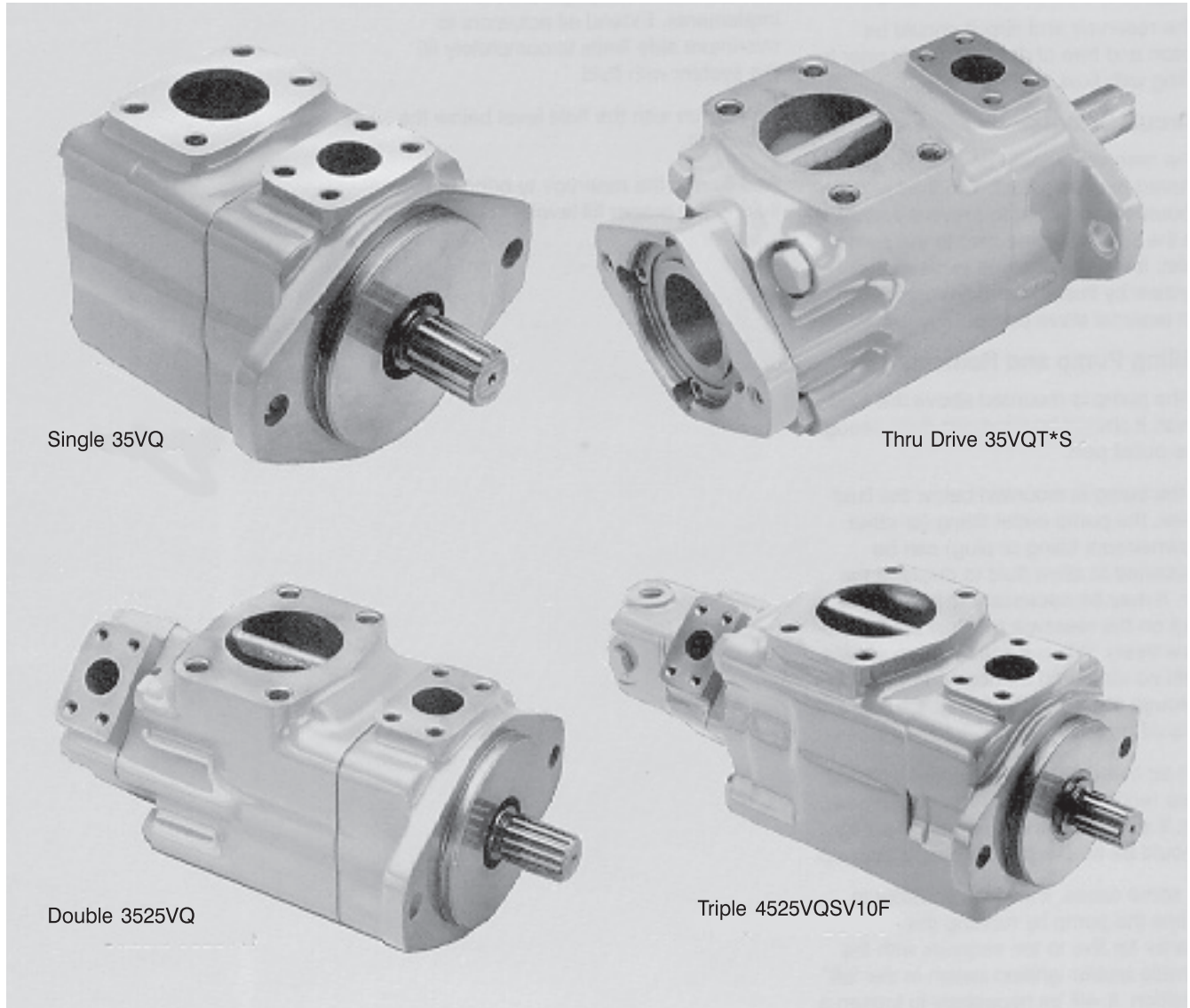


VQ Series High Speed, High Pressure Pumps



Single 35VQ

Thru Drive 35VQT*S

Double 3525VQ

Triple 4525VQSV10F

Design Features

In all pumps, except the rear pump of triple pumps, fluid flow is developed in a cartridge which consists principally of a cam ring, rotor, ten vanes, and unique side plates and support plates. The bimetallic flexible side plates are located on each side of the rotor with their bronze face toward the rotor and their steel face toward the support plate. Two cavities in each support plate hold high pressure oil against the flexible side plate, thereby hydrostatically balancing the flexible plate and providing optimum clearance with the rotor.

Performance

For a combination of maximum horsepower in a small package, high efficiency, serviceability and economy, Vickers "high output" pumps are unequalled anywhere in industry.

Durability

Vickers high speed-high pressure pumps give more staying power – they last. Their workhorse ruggedness has been proved on the newest types of giant earth-moving equipment.

Reliability & Efficiency

Axial and radial running clearances, along with lubricating oil film on the rotor and vanes, are optimized over the entire operating pressure range. Excellent cold-start capability and superior resistance to seizure make Vickers VQ pumps highly reliable and efficient.

Replaceable Cartridge

The pump cartridge described under design features is easy to service and can normally be replaced in ten minutes or less, without removing the pump from its mounting. A small stock of cartridges can serve many pump models on a variety of vehicles.

Hydraulic Balance

Pump inlet and outlet pressure chambers are diametrically opposed as shown in Figure 2. As a result, the rotor is hydraulically balanced. Bearings thus encounter no hydraulic loads, assuring long life.

Figure 3 shows an insert fitted into a slot in the vane. Outlet pressure is applied continuously only to the space between the vane and insert. Top and bottom areas of the vane are subject to either inlet or outlet pressure, depending upon the vane's location during rotor rotation. See Figure 2. Complete hydraulic balance is effected in the outlet pressure areas. Outward thrust by the vane in the inlet area is equal to the outlet pressure times the projected area of the end of the insert.

Double Pumps

Double pumps provide a single power source capable of serving two separate hydraulic circuits, or of providing greater volume through the combined delivery of both sections. In either type of application, two pumps in a single housing result in a more compact, simple installation and can be driven through a single shaft coupling.

Triple Pumps

Because triple pumps have three pumps in a single housing, they offer even more application versatility than do the double pumps described above.

Thru-Drive Pumps

These versions of single and double pumps have a rear pad for directly mounting and driving an additional pump. Many different multi-pump arrangements are thus possible.

Integral Valve Options

Single, double, and triple pumps are available with flow control and priority valve covers.

The flow control cover limits flow to the operating system to the desired maximum. Excess flow is diverted to tank. On double and triple pumps, the deliveries of the shaft-end and center pumps are proportional to speed.

The flow control cover also includes a relief valve to limit maximum operating pressure. Operating pressures of the shaft-end and center pumps of double and triple pumps must be controlled by separate, external relief valves.

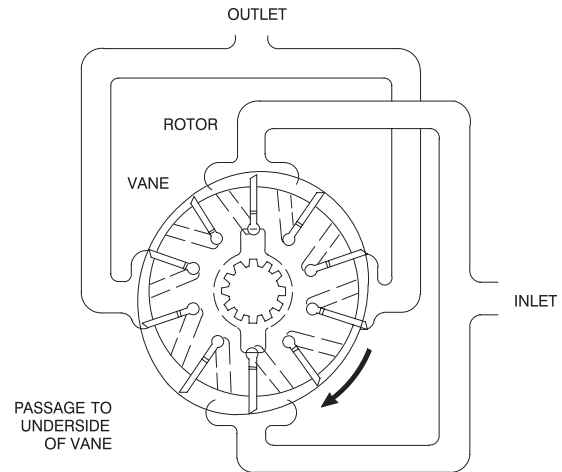


Figure 2

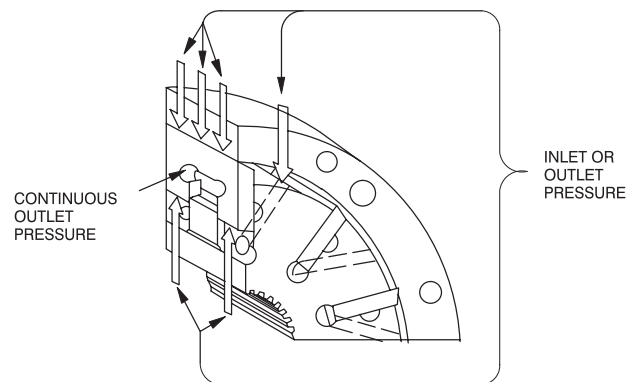


Figure 3

A typical application for the flow control is power steering, where it provides a constant supply of oil throughout the vehicle engine's mid to high speed range.

The priority valve cover maintains a nearly constant flow to a primary circuit and diverts remaining flow to a secondary circuit. The amount of flow going to the secondary circuit is determined by pump delivery. The primary circuit is protected by an integral relief valve, but an external relief valve must be provided for the secondary and any additional circuit.

Single Pump Operating Specifications

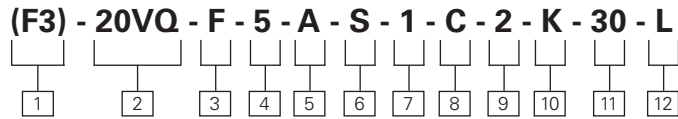
Model Series	Delivery USgpm @ 1200 r/min 7 bar (100 psi)	Displ. cm ³ /r (in ³ /r)	Max. r/min	Max. bar (psi)	Typical del. L/min (USgpm) @ max. speed & pressure	Typical input kW (hp) @ max. speed & pressure	Weight kg (lb)
20VQ	5	18,0 (1.10)	2700	210 (3000)	42,3 (11)	17,9 (24)	11,8 (26)
	8	27,4 (1.67)	2700	210 (3000)	65,4 (17)	26,1 (35)	
	11	36,4 (2.22)	2700	210 (3000)	88,5 (23)	35,4 (47.5)	
	12	39,5 (2.41)	2700	160 (2300)	98,1 (25.5)	28,4 (38)	
	14	45,9 (2.80)	2700	140 (2000)	115,4 (30)	29,1 (39)	
25VQ	12	40,2 (2.45)	2700	210 (3000)	88,5 (23)	41,0 (55)	14,5 (32)
	14	45,4 (2.77)	2700	210 (3000)	103,8 (27)	46,6 (62.5)	
	17	55,2 (3.37)	2500	210 (3000)	119,2 (31)	51,8 (69.5)	
	21	67,5 (4.12)	2500	210 (3000)	146,2 (38)	61,9 (83)	
35VQ	25	81,6 (4.98)	2500	210 (3000)	173,1 (45)	75,3 (101)	22,7 (50)
	30	97,7 (5.96)	2500	210 (3000)	211,5 (55)	87,7 (117.5)	
	35	112,8 (6.88)	2400	210 (3000)	230,8 (60)	98,5 (132)	
	38	121,6 (7.42)	2400	210 (3000)	250,0 (65)	104,4 (140)	
45VQ	42	138,7 (8.46)	2200	175 (2500)	255,8 (66.5)	91,4 (122.5)	34,1 (75)
	50	162,3 (9.90)	2200	175 (2500)	303,8 (79)	105,2 (141)	
	60	193,4 (11.80)	2200	175 (2500)	369,2 (96)	126,8 (170)	

Performance constants: SAE 10W fluid @ 82° C (180° F), and pump inlet @ 0 PSIG (14.7 PSIA)

Note: Outlet pressure must always be higher than inlet pressure.
See page 7 for details.

Model Codes

Single Pump



1 F3 – Viton seals

Omit if not required.

2 Intravane pump series

3 Integral valve options

Omit if not required

F – Flow control and relief

P – Priority valve and relief

4 Geometric displacement

Code = SAE rating (USgpm) at
1200 r/min, 7 bar (100 psi)

Code	cm ³ /r	in ³ /r
5	18,0	1.10
8	27,4	1.67
11	36,4	2.22
12	39,5	2.41
14	45,9	2.80

5 Port connections

Series	Code	Inlet	Outlets
20VQ	A	SAE 4-bolt flg.	SAE 4-bolt flg.
20VQ	AM*	Metric 4-bolt flg.	Metric 4-bolt flg.
20VQF&P	B	SAE Str. thd.	SAE Str. thd.
20VQF&P	C	SAE 4-bolt flg.	SAE Str. thd.

* Same as code "A" port connections, except metric threads for fastening flanges.

6 Mounting & shaft seal assembly

F – Foot mount with single shaft seal

S – Flange mount and double shaft seal

Omit for flange mount with single shaft seal.

7 Shaft type

1 – Straight keyed

151 – Splined

8 Outlet positions

(Viewed from cover end of pump)

A – Opposite inlet port

B – 90° CCW from inlet

C – In line with inlet

D – 90° CW from inlet

9 Controlled flow rate

(20VQF & 20VQP)

3 – 11 L/min (3 USgpm)

4 – 15 L/min (4 USgpm)

6 – 23 L/min (6 USgpm)

7 – 27 L/min (7 USgpm)

8 – 30 L/min (8 USgpm)

10 – 38 L/min (10 USgpm)

11 – 42 L/min (11 USgpm)

12 – 45 L/min (12 USgpm)

10 Relief valve setting

(20VQF & 20VQP)

bar (psi)

A – 17 (250)

B – 35 (500)

C – 52 (750)

D – 70 (1000)

E – 86 (1250)

F – 100 (1500)

G – 121 (1750)

H – 140 (2000)

J – 155 (2250)

K – 175 (2500)

11 Design

Subject to change. Installation dimensions remain the same for designs –30 through –39.

12 Shaft Rotation

(Viewed from shaft end of pump)

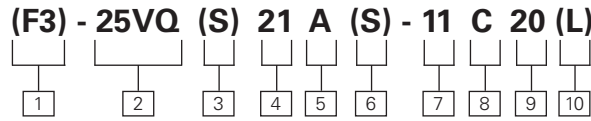
L – Left hand or counterclockwise.

Omit for right hand.

NOTE: For options other than listed above, i.e. shafts, ports, displacements, and mountings, contact your Vickers representative.

Model Codes

Single Pump



1 F3 - Viton seals

Omit if not required.

2 Intravane pump series

Standard bearing	Heavy duty bearing
25VQ	26VQ
35VQ	36VQ
45VQ	–

3 Pilot designation

S – SAE per ISO 3019/1 (SAE J744)
Omit for standard pilot.

4 Geometric displacement

Code = SAE rating (USgpm) at 1200 r/min and 7 bar (100 psi)

Frame

Size	Code	cm ³ /r	in ³ /r
25V	12	40,2	2.45
	14	45,4	2.77
	17	55,2	3.37
	21	67,5	4.12
35V	25	81,6	4.98
	30	97,7	5.96
	35	112,8	6.88
	38	121,6	7.42
45V	42	138,7	8.46
	50	162,3	9.90
	60	193,4	11.80

5 Port connections

Series	Code	Inlet	Outlets
All	A	SAE 4-bolt flg.	SAE 4-bolt flg.
All	AM*	Metric 4-bolt flg.	Metric 4-bolt flg.
25VQ	B	SAE str. thd.	SAE str. thd.
25VQ	C	SAE 4-bolt flg.	SAE str. thd.
25VQ	D	SAE str. thd.	SAE 4-bolt flg.

*Same as code "A" port connections, except metric threads for fastening flanges.

6 Mounting & shaft seal assembly

F – Foot mounting with single shaft seal
S – Flange mount and double shaft seal
Omit for flange mount with single shaft seal.

7 Shaft type

With standard pilot, single shaft seal

- 1** – Straight keyed
- 11** – Splined
- 86** – Straight keyed, heavy duty

With standard pilot, double shaft seal

- 123** – Splined (not available on 45VQ)
- 130** – Splined (for 45VQ only)

With SAE pilot, single or double shaft seal

- 203** – Straight keyed, heavy duty
- 297** – Splined

8 Outlet positions

(Viewed from cover end of pump)

- A** – Opposite inlet
- B** – 90° CCW from inlet
- C** – In line with inlet
- D** – 90° CW from inlet

9 Design

Subject to change. Installation dimensions remain the same for designs –20 through –29

10 Rotation

(Viewed from shaft end of pump)

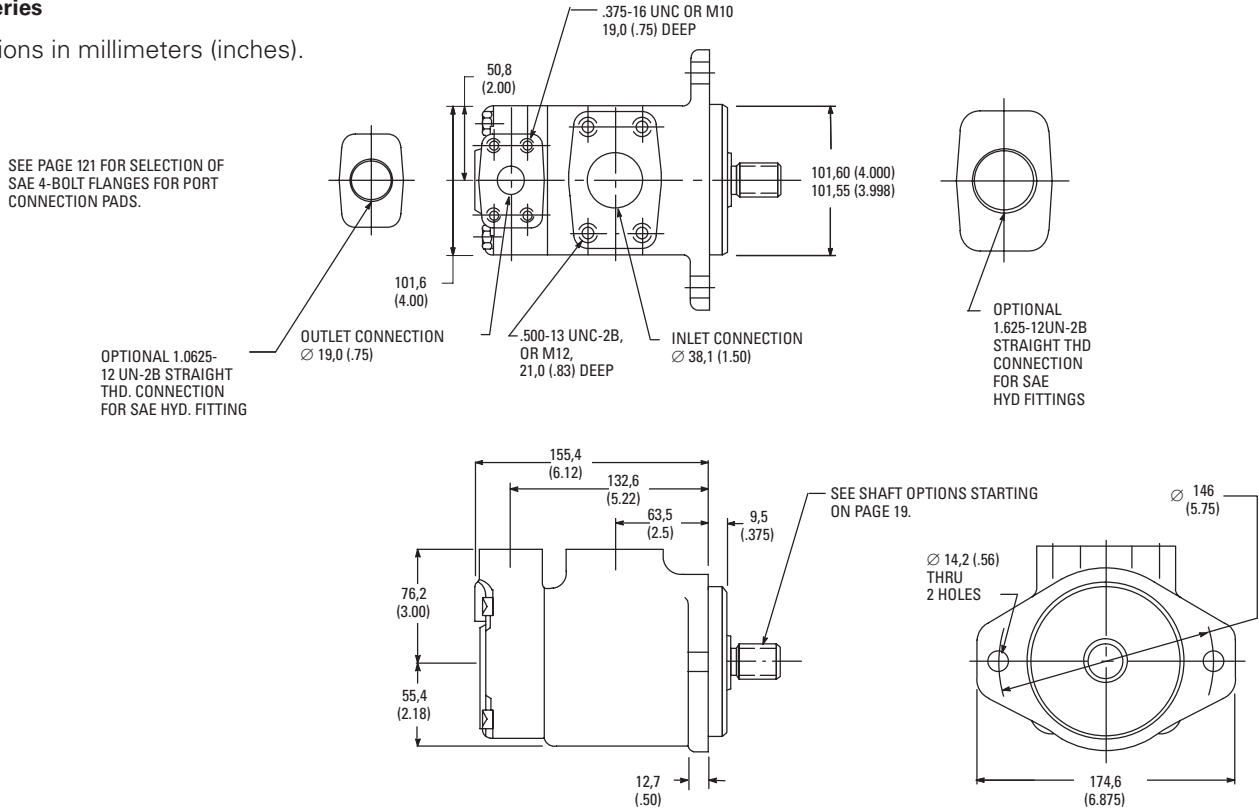
- L** – Left hand (counterclockwise)
- Omit for right hand.

NOTE: For options other than listed in the model code, i.e. shafts, ports, displacements and mountings, contact your Vickers representative.

Installation Dimensions

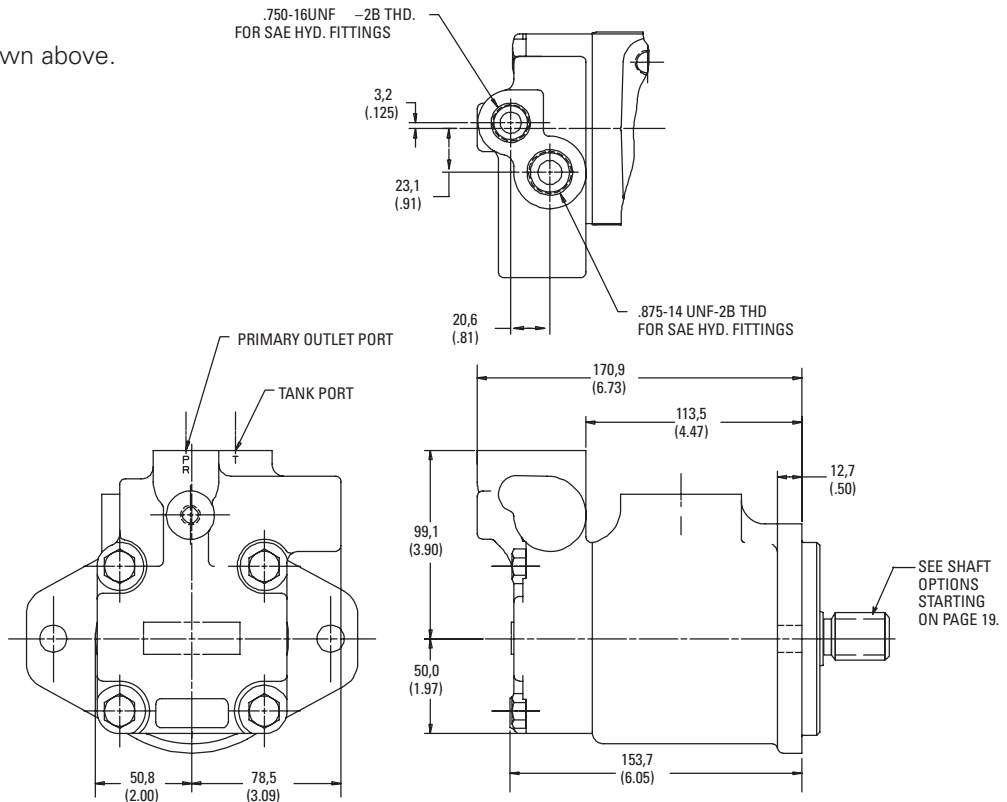
20VQ Series

Dimensions in millimeters (inches).



20VQF Series

Additional dimensions are shown above.

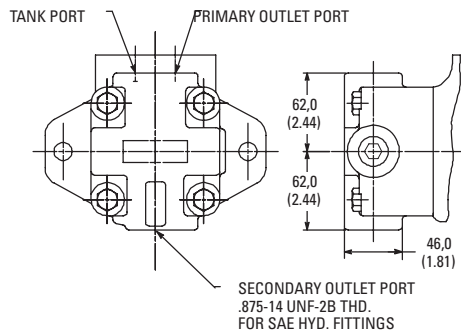
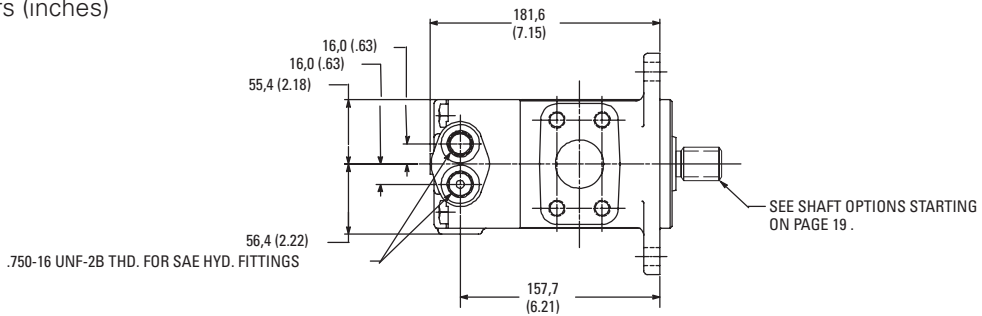


Installation Dimensions

20VQP Series

Dimensions in millimeters (inches)

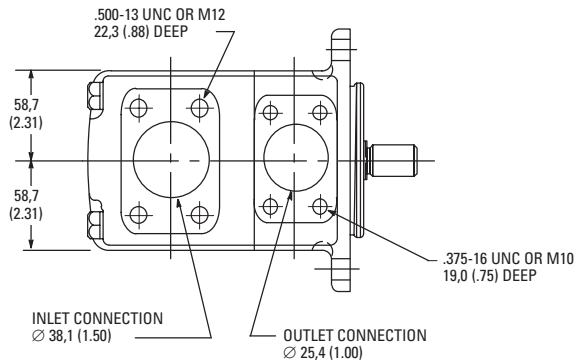
See preceding page for additional dimensions.



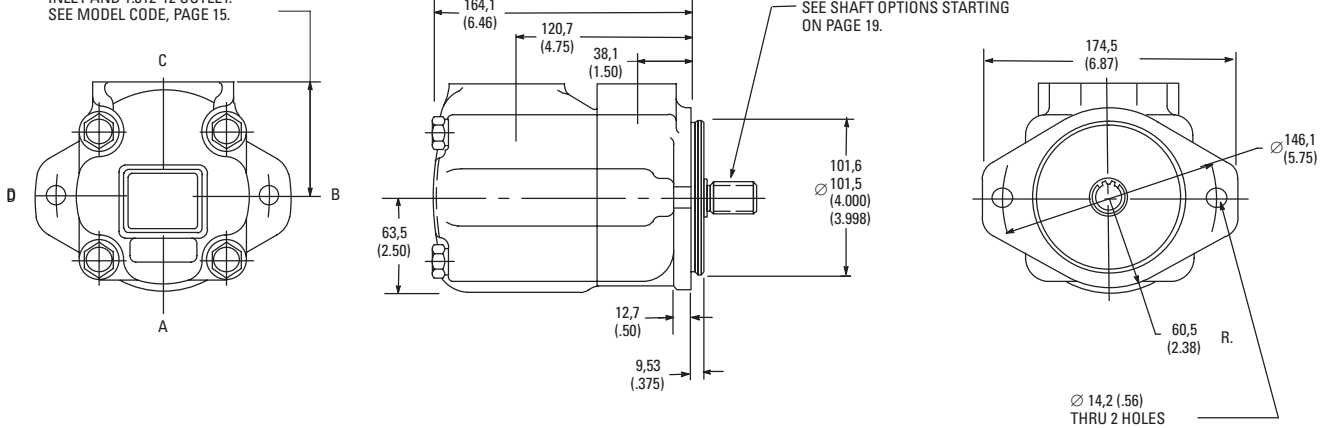
25VQ Series

Dimensions in millimeters (inches)

PORT CONNECTION PADS ARE FOR USE WITH 4-BOLT FLANGES. SEE PAGE 121 FOR SELECTION.



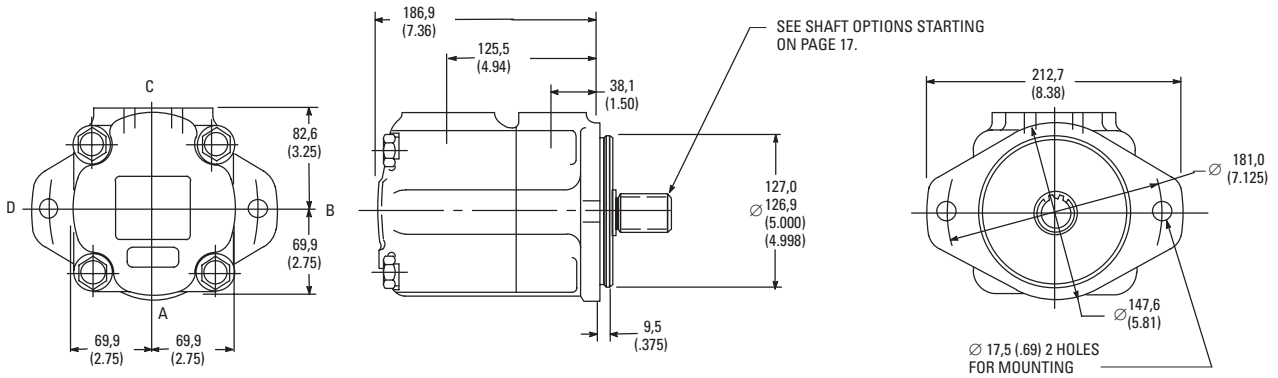
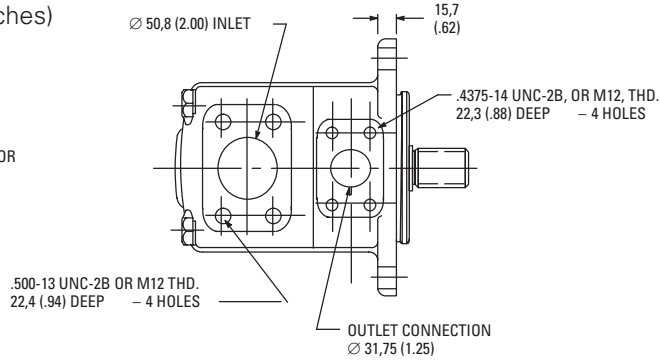
76,2 (3.00) FOR SAE 4-BOLT FLANGE PADS. 85,9 (3.38) FOR 1.875-12 STRAIGHT THREADED INLET AND 1.312-12 OUTLET. SEE MODEL CODE, PAGE 15.



35VQ Series

Dimensions in millimeters (inches)

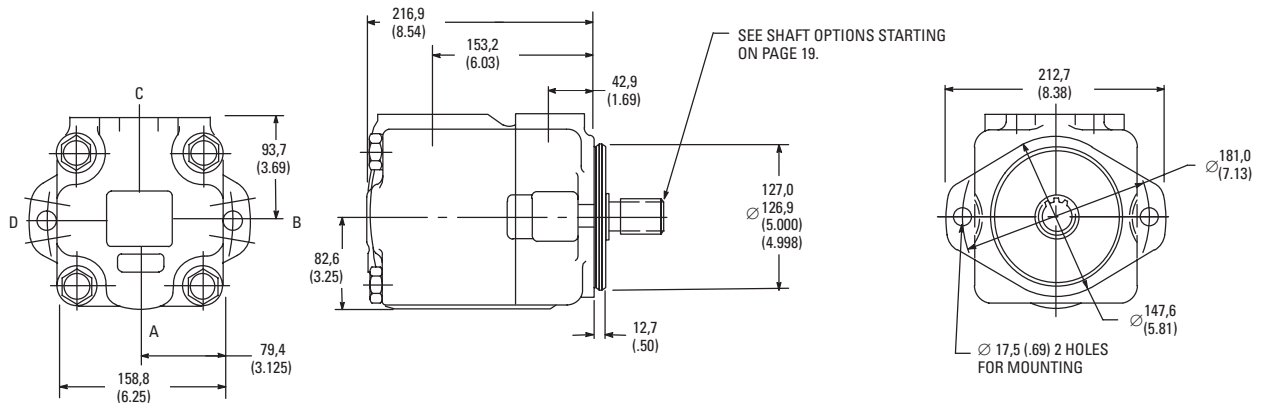
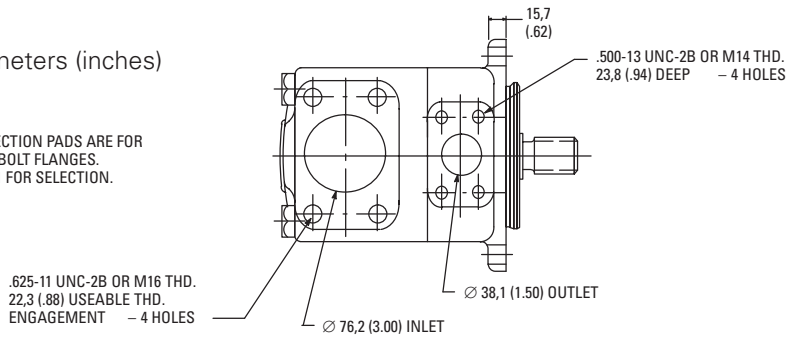
PORT CONNECTION PADS ARE FOR USE WITH 4-BOLT FLANGES. SEE PAGE 119 FOR SELECTION.



45VQ Series

Dimensions in millimeters (inches)

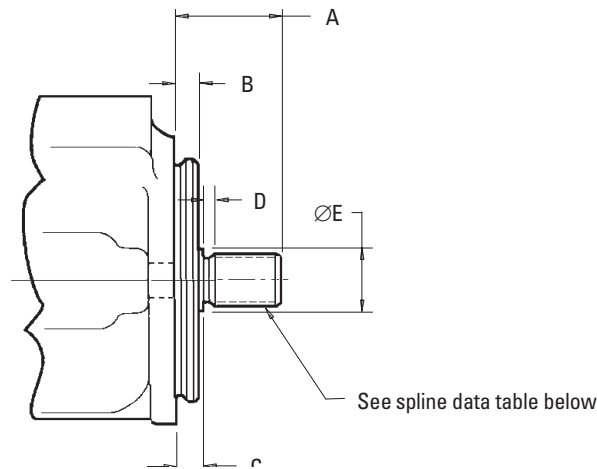
PORT CONNECTION PADS ARE FOR USE WITH 4-BOLT FLANGES. SEE PAGE 121 FOR SELECTION.



Optional Shafts

Splined Shafts

Dimensions in millimeters (inches)



Pump	Shaft Code	A	B	C	D	ØE	Spline Data (See below.)
20VQ, 20VQF, 20VQP	151	44,1 (1.62)	9,53 (.375)	11,9 (.468)	4,1 (.16)	27,8 (1.09)	A
	11	44,5 (1.75)	9,53 (.375)	11,1 (.437)	4,1 (.16)	27,8 (1.09)	A
25VQ	123	44,5 (1.75)	9,53 (.375)	15,7 (.62)	4,1 (.16)	27,8 (1.09)	A
	297	41,1 (1.62)	9,53 (.375)	7,9 (.31)	4,1 (.16)	27,8 (1.09)	C
35VQ	11	58,7 (2.31)	9,53 (.375)	11,1 (.437)	6,4 (.25)	35,1 (1.38)	D
	123	58,7 (2.31)	9,53 (.375)	15,2 (.60)	5,5 (.21)	35,1 (1.38)	D
	297	55,5 (2.19)	12,7 (.500)	7,9 (.31)	6,4 (.25)	35,1 (1.38)	E
45VQ	11	61,9 (2.44)	12,7 (.500)	14,3 (.565)	9,7 (.38)	39,6 (1.56)	D
	130	61,9 (2.44)	12,7 (.500)	15,2 (.60)	9,9 (.39)	40,4 (1.59)	D
	297	55,5 (2.19)	12,7 (.500)	7,9 (.31)	9,7 (.38)	39,6 (1.56)	E

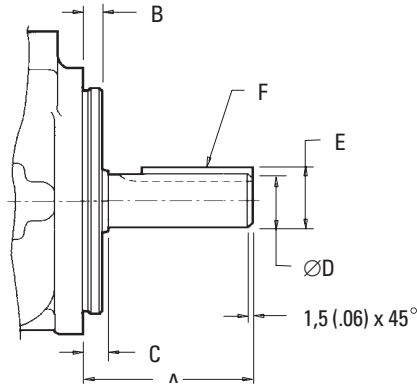
Spline Data Table

(Involute splines from above chart)

Spline Data Reference	Number of Teeth	Pitch	Major Diameter	Form Diameter	Minor Diameter	Minor Diameter
A	13	16/32	22,17 (.873) 22,15 (.872)	19,03 (.749)	18,16 (.715)	Major dia. fit
C	13	16/32	21,8 (.858) 21,6 (.852)	19,03 (.749)	18,16 (.715)	Side fit
D	14	12/24	31,70 (1.248) 31,67 (1.247)	27,4 (1.08)	26,42 (1.040)	Major dia. fit
E	14	12/24	31,2 (1.229) 31,1 (1.223)	27,4 (1.08)	26,42 (1.040)	Side fit

Straight Key Shafts

Dimensions in millimeters (inches)



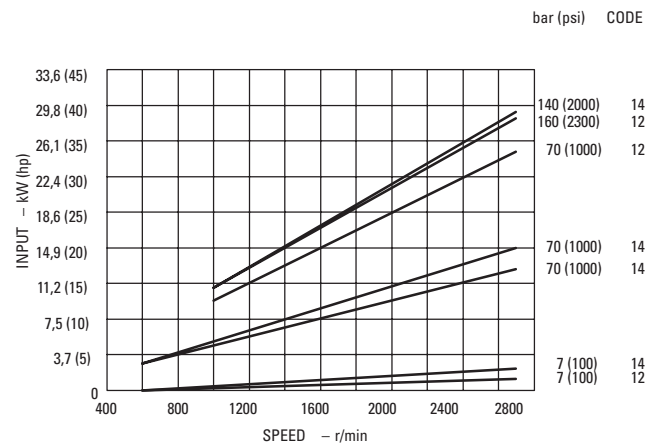
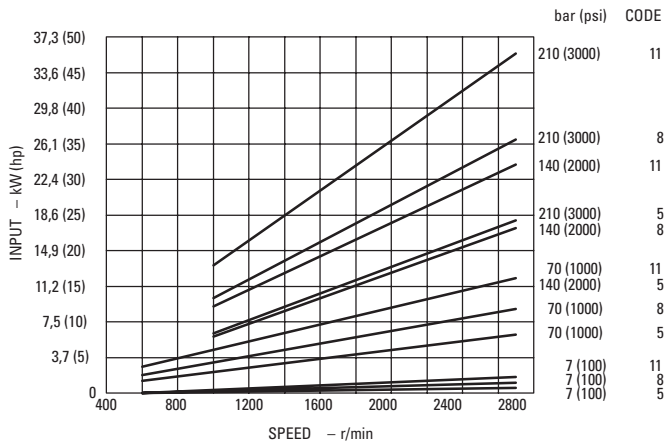
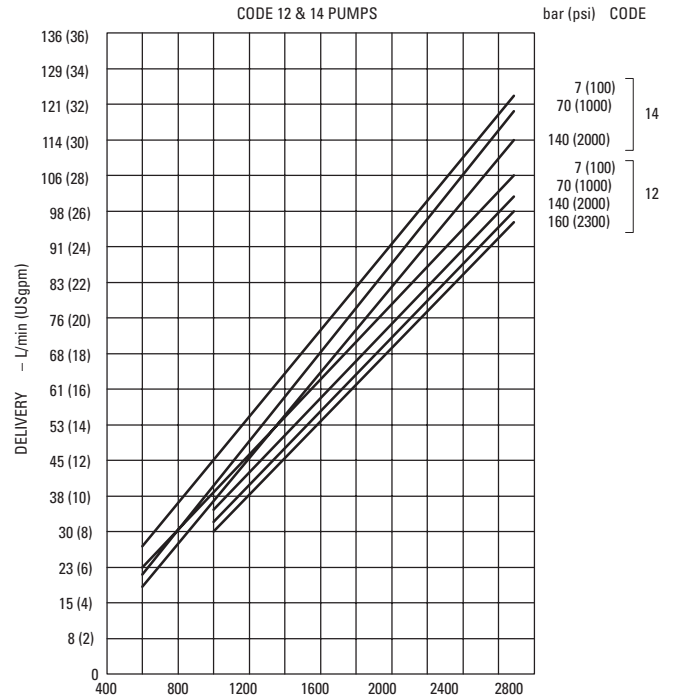
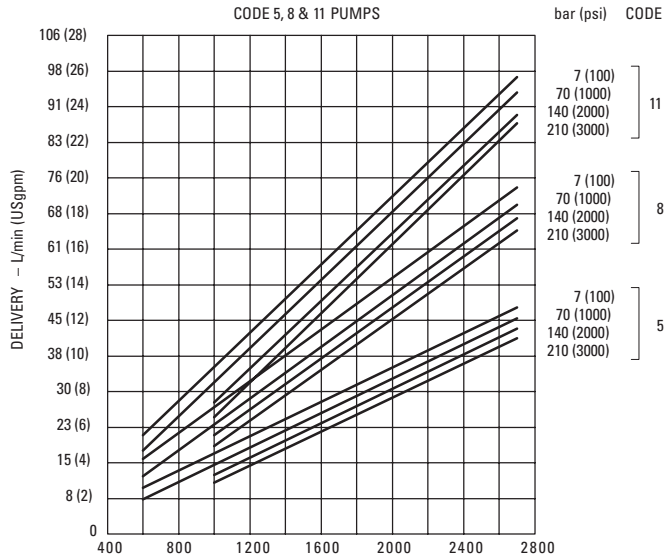
Pump	Shaft Code	A	B	C	ØD	E	F key width x length
20VQ, 20VQF, 20VQP	1	58,7 (2.31)	9,53 (.375)	11,9 (.468)	22,23 (.875) 22,20 (.874)	24,5 (.966) 24,4 (.961)	4,75 (.187) x 32 (1.25)
	1	58,7 (2.31)	9,53 (.375)	11,1 (.435)	22,23 (.875) 22,20 (.874)	24,5 (.966) 24,4 (.961)	4,75 (.187) x 32 (1.25)
25VQ	86	77,7 (3.06)	9,53 (.375)	11,1 (.435)	25,37 (.999) 25,35 (.998)	28,3 (1.11) 28,1 (1.10)	6,36 (.250) x 50,8 (2.00)
	203	77,7 (3.06)	9,53 (.375)	7,9 (.31) ▲	25,40 (1.00) 25,35 (.998)	28,20 (1.11) 27,94 (1.10)	6,36 (.250) x 49,2 (1.938)
35VQ	1	73,2 (2.88)	9,53 (.375)	11,1 (.435)	31,75 (1.250) 31,70 (1.248)	35,36 (1.39) 34,10 (1.38)	7,94 (.313) x 38,1 (1.50)
	86	85,9 (3.38)	9,53 (.375)	11,1 (.435)	34,90 (1.374) 34,87 (1.373)	38,6 (1.52) 38,3 (1.51)	7,92 (.312) x 54 (2.13)
45VQ	203	84,1 (3.31)	12,7 (.500)	7,9 (.31) ▲	34,90 (1.374) 34,87 (1.373)	38,6 (1.52) 38,3 (1.51)	7,92 (.312) x 54 (2.125)
	1	62,0 (2.44)	12,7 (.500)	14,22 (.560)	31,75 (1.250) 31,70 (1.248)	35,36 (1.39) 34,10 (1.38)	7,92 (.312) x 28,5 (1.12)
45VQ	86	87,4 (3.44)	12,7 (.500)	14,22 (.560)	38,07 (1.499) 38,05 (1.498)	42,4 (1.67) 42,1 (1.66)	9,53 (.375) x 50,8 (2.00)
	203	90,4 (3.56)	12,7 (.500)	7,9 (.31) ▲	38,07 (1.499) 38,05 (1.498)	42,4 (1.67) 42,1 (1.66)	9,53 (.375) x 57,1 (2.25)

▲ Shaft shoulder inside recess in pilot.

Typical Performance

20VQ Single Pumps

Performance Constants:
 SAE 10W fluid @ 82°C (180°F)
 Pump inlet @ 0 psig (14.7 psia)



25VQ Single & 25VQT*S Thru-drive Pumps

Performance Constants:
 SAE 10W fluid @ 82° C (180° F)
 Pump inlet @ 0 psig (14.7 psia)

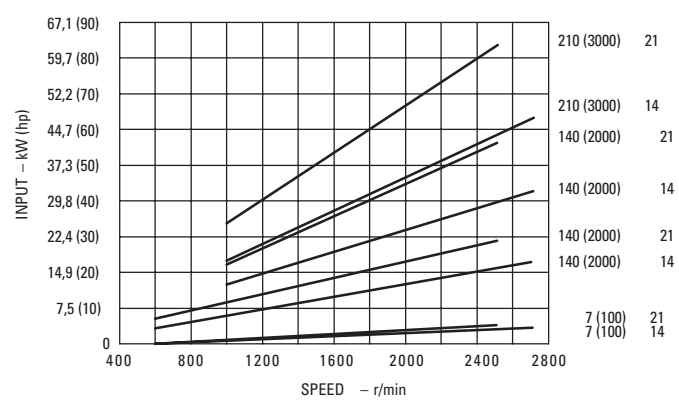
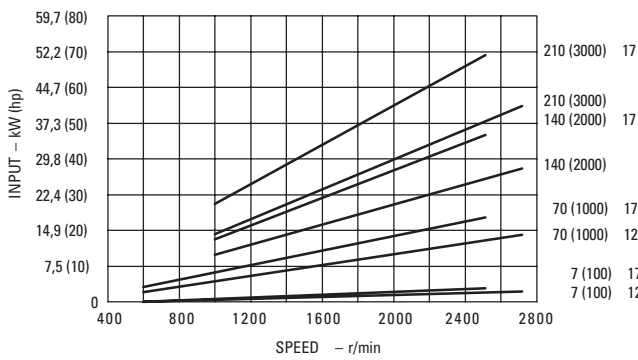
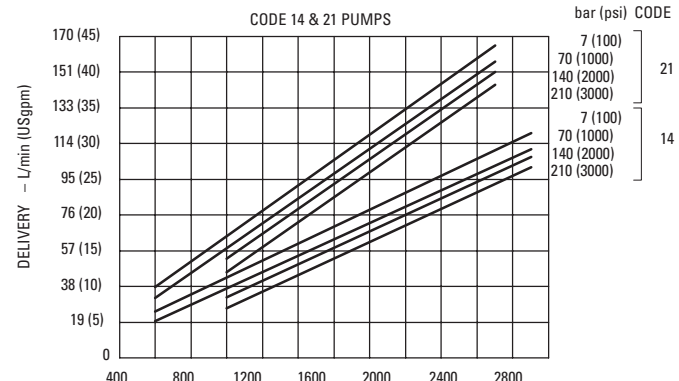
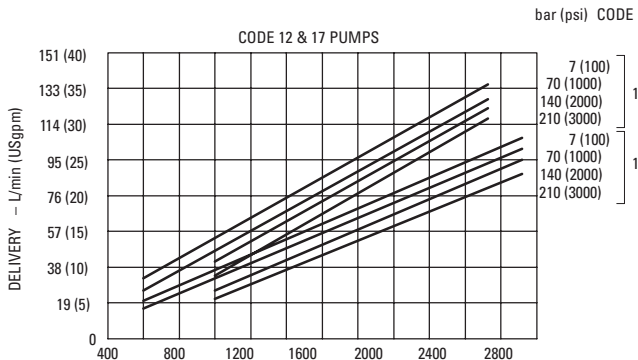
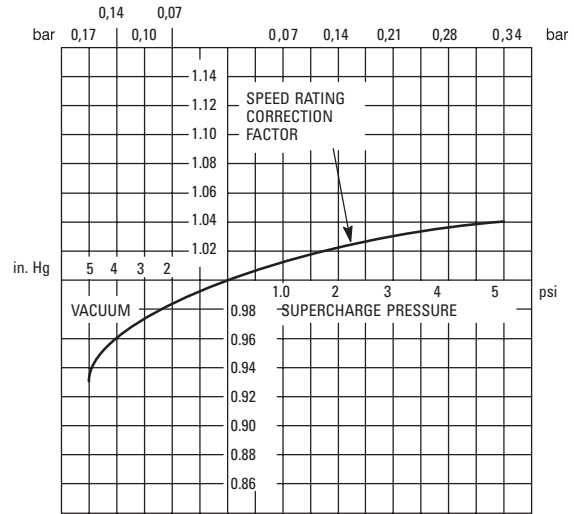
Maximum operating speeds shown on performance curves are for pumps operating at 0 psi inlet condition. To compute maximum operating speeds at other inlet conditions, use appropriate speed rating correction factor.

Example:

Max. speed @ 0 psi inlet 2700 r/min
 Correction factor @ 5 in. Hg $\times .93$
 Max. speed @ 5 in. Hg inlet 2511 r/min

Pump inlet suction should not exceed 5 in. Hg vacuum. Positive pressure on inlet should not exceed 1,4 bar (20 psi).

MAXIMUM OPERATING SPEED CORRECTION FACTORS BASED ON PUMP INLET CONDITIONS



Typical Performance

35VQ Single & 35VQT*S Thru-drive Pumps

Performance Constants:
 SAE 10W fluid @ 82° C (180° F)
 Pump inlet @ 0 psig (14.7 psia)

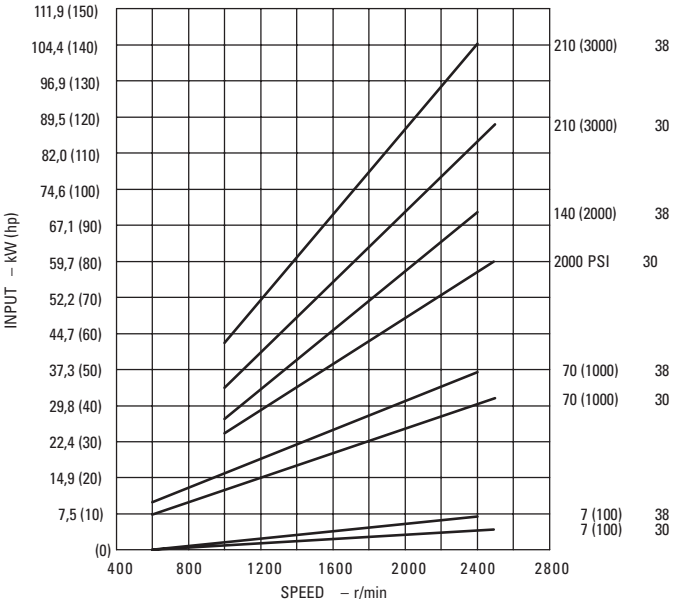
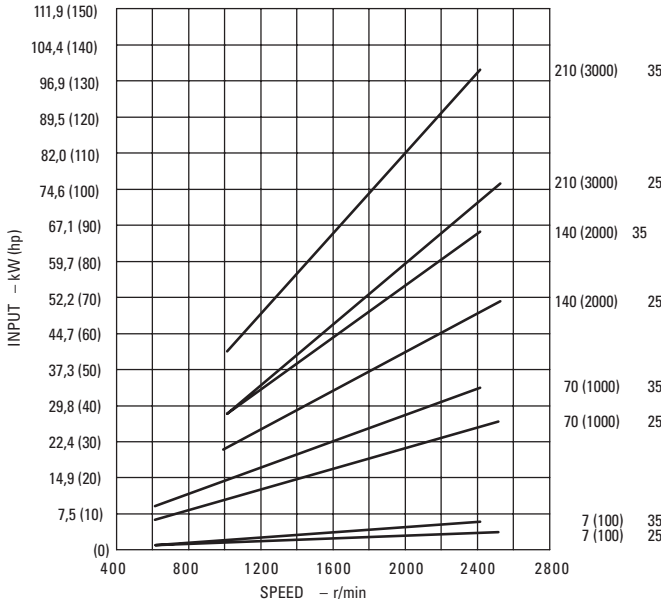
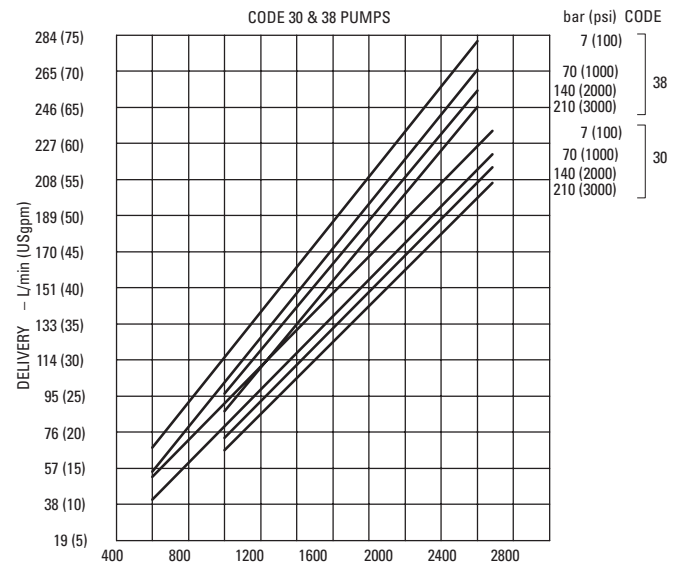
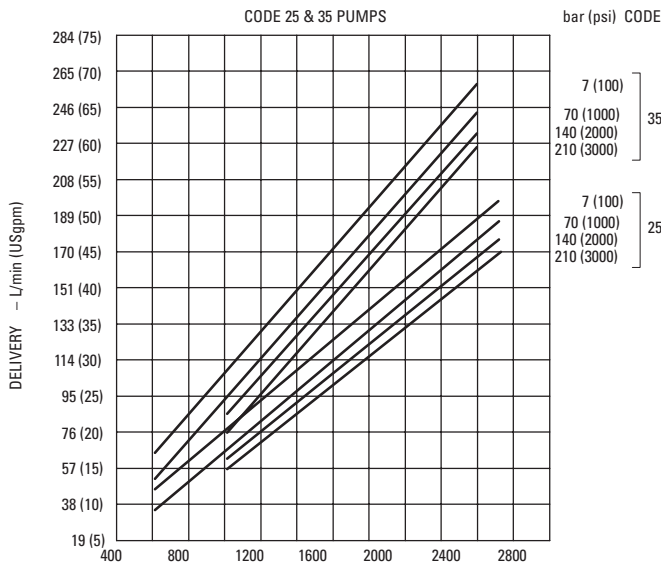
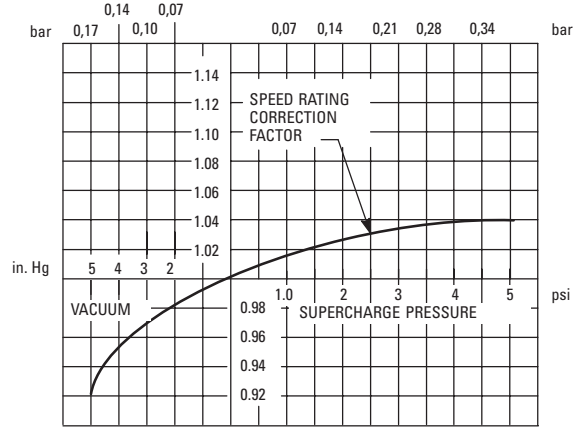
Maximum operating speeds shown on performance curves are for pumps operating at 0 psi inlet condition. To compute maximum operating speeds at other inlet conditions, use appropriate speed rating correction factor.

Example:

Max. speed @ 0 psi inlet 2500 r/min
 Correction factor @ 5 in. Hg $\times .92$
 Max. speed @ 5 in. Hg inlet 2300 r/min

Pump inlet suction should not exceed 5 in. Hg vacuum. Positive pressure on inlet should not exceed 1,4 bar (20 psi).

MAXIMUM OPERATING SPEED CORRECTION FACTORS BASED ON PUMP INLET CONDITIONS



45VQ Single & 45VQT*S Thru-drive Pumps

Performance Constants:
 SAE 10W fluid @ 82° C (180° F)
 Pump inlet @ 0 psig (14.7 psia)

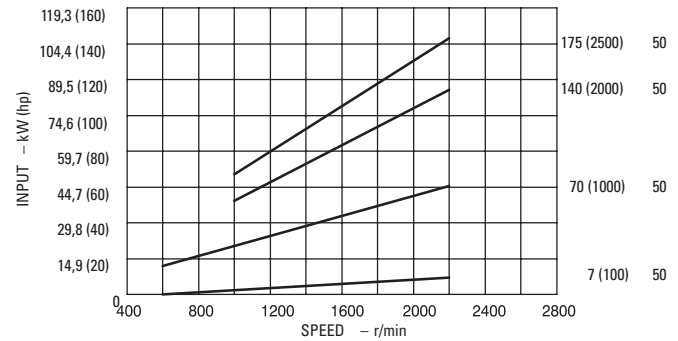
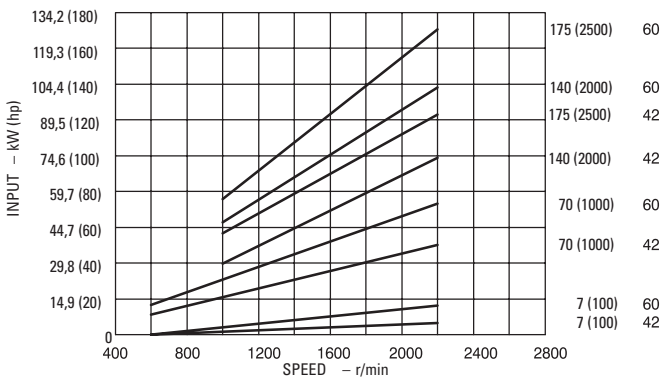
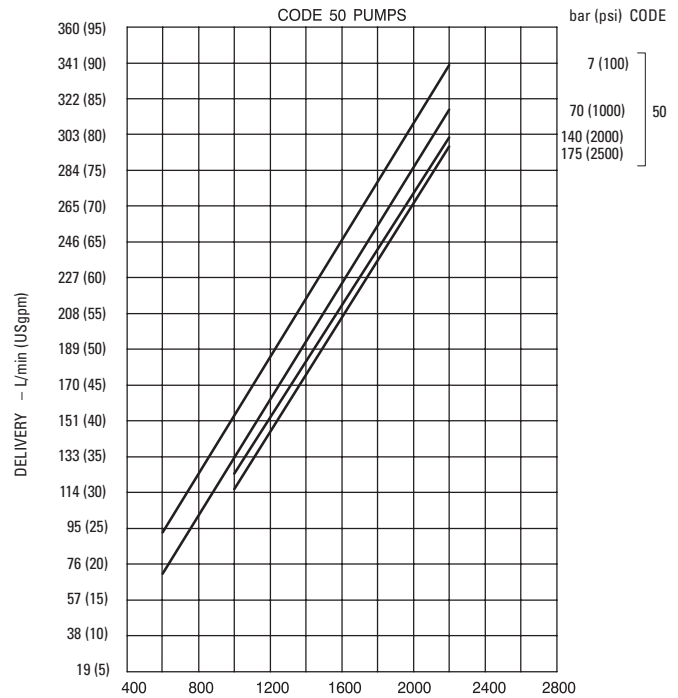
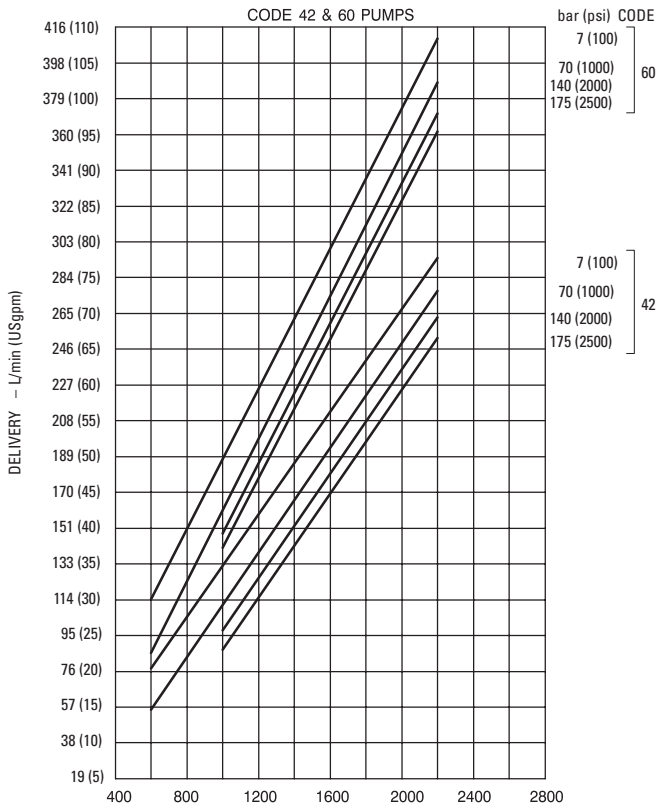
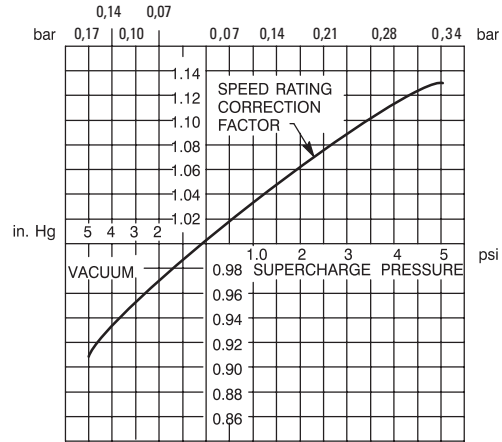
Maximum operating speeds shown on performance curves are for pumps operating at 0 psi inlet condition. To compute maximum operating speeds at other inlet conditions, use appropriate speed rating correction factor.

Example:

Max. speed @ 0 psi inlet 2200 r/min
 Correction factor @ 5 in. Hg $\times .91$
 Max. speed @ 5 in. Hg inlet 2002 r/min

Pump inlet suction should not exceed 5 in. Hg vacuum. Positive pressure on inlet should not exceed 1,4 bar (20 psi).

MAXIMUM OPERATING SPEED CORRECTION FACTORS BASED ON PUMP INLET CONDITIONS



Double Pump Operating Specifications

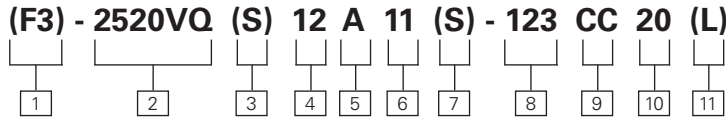
Model Series	Shaft End Pump						Cover End Pump						Wt. kg (lb.)
	Delivery USgpm @ 1200 r/min 7 bar (100 psi)	Displ. cm ³ /r (in ³ /r)	Max. r/min	Max. bar (psi)	Typical del. L/min (USgpm) @ max. speed & pressure	Typical input kW (hp) @ max. speed & pressure	Delivery USgpm @ 1200 r/min 7 bar (100 psi)	Displ. cm ³ /r (in ³ /r)	Max. r/min	Max. bar (psi)	Typical del. L/min (USgpm) @ max. speed & pressure	Typical input kW (hp) @ max. speed & pressure	
2520VQ	12	40,2 (2.45)	2700	210 (3000)	88,5 (23)	41,0 (55)	5	18,0 (1.10)	2700	210 (3000)	42,3 (11)	17,9 (24)	20,5 (45)
	14	45,4 (2.77)	2700	210 (3000)	103,8 (27)	46,6 (62.5)	8	27,4 (1.67)	2700	210 (3000)	65,4 (17)	26,1 (35)	
	17	55,2 (3.37)	2500	210 (3000)	119,2 (31)	51,8 (69.5)	11	36,4 (2.22)	2700	210 (3000)	88,5 (23)	35,4 (47.5)	
	21	67,7 (4.12)	2500	210 (3000)	146,2 (38)	61,9 (83)	12	39,5 (2.41)	2700	160 (2300)	98,1 (25.5)	28,4 (38)	
3520VQ	25	81,6 (4.98)	2500	210 (3000)	173,1 (45)	75,3 (101)	5	18,0 (1.10)	2500	210 (3000)	38,5 (10)	16,5 (22)	34,0 (75)
	30	97,7 (5.96)	2500	210 (3000)	211,5 (55)	87,7 (117.5)	8	27,4 (1.67)	2500	210 (3000)	61,5 (16)	24,0 (32.5)	
	35	112,8 (6.88)	2400	210 (3000)	230,8 (60)	98,5 (132)	11	36,4 (2.22)	2500	210 (3000)	80,8 (21)	33,0 (44)	
	38	121,6 (7.42)	2400	210 (3000)	250,0 (65)	104,4 (140)	12	39,5 (2.41)	2500	160 (2300)	90,4 (23.5)	26,1 (35)	
3525VQ	25	81,6 (4.98)	2500	210 (3000)	173,1 (45)	75,3 (101)	12	40,2 (2.45)	2500	210 (3000)	79,5 (21)	38,0 (51)	34,5 (76)
	30	97,7 (5.96)	2500	210 (3000)	211,5 (55)	87,7 (117.5)	14	45,4 (2.77)	2500	210 (3000)	91,0 (24)	43,0 (58)	
	35	112,8 (6.88)	2400	210 (3000)	230,8 (60)	98,5 (132)	17	55,2 (3.37)	2500	210 (3000)	119,2 (31)	51,5 (69)	
	38	121,6 (7.42)	2400	210 (3000)	250,0 (65)	104,4 (140)	21	67,5 (4.12)	2500	210 (3000)	146,2 (38)	61,9 (83)	
4520VQ	42	138,7 (8.46)	2200	175 (2500)	255,8 (66.5)	91,4 (122.5)	5	18,0 (1.10)	2200	210 (3000)	32,0 (8.5)	14,5 (19.5)	43,0 (94)
	50	162,3 (9.90)	2200	175 (2500)	303,8 (79)	105,2 (141)	8	27,4 (1.67)	2200	210 (3000)	51,0 (13.5)	21,0 (28.5)	
	60	193,4 (11.80)	2200	175 (2500)	369,2 (96)	126,8 (170)	11	36,4 (2.22)	2200	210 (3000)	68,0 (18)	28,5 (38.5)	
							12	39,5 (2.41)	2200	160 (2300)	77,5 (20.5)	23,0 (31)	
4525VQ	42	138,7 (8.46)	2200	175 (2500)	255,8 (66.5)	91,4 (122.5)	12	40,2 (2.45)	2200	210 (3000)	68,0 (18)	33,0 (44)	46,0 (101)
	50	162,3 (9.90)	2200	175 (2500)	303,8 (79)	105,2 (141)	14	45,4 (2.77)	2200	210 (3000)	79,5 (21)	38,0 (51)	
	60	193,4 (11.80)	2200	175 (2500)	369,2 (96)	126,8 (170)	17	55,2 (3.37)	2200	210 (3000)	100,0 (26.5)	45,5 (61)	
							21	67,5 (4.12)	2200	210 (3000)	125,0 (33)	54,5 (73)	
4535VQ	42	138,7 (8.46)	2200	175 (2500)	255,8 (66.5)	91,4 (122.5)	25	81,6 (4.98)	2200	210 (3000)	145,5 (38.5)	66,5 (89)	53,6 (118)
	50	162,3 (9.90)	2200	175 (2500)	303,8 (79)	105,2 (141)	30	97,7 (5.96)	2200	210 (3000)	178,0 (47)	77,5 (104)	
	60	193,4 (11.80)	2200	175 (2500)	369,2 (96)	126,8 (170)	35	112,8 (6.88)	2200	210 (3000)	211,5 (55)	89,5 (120)	
							38	121,6 (7.42)	2200	210 (3000)	223,0 (59)	97,0 (130)	

Performance constants: SAE 10W fluid @ 82°C (180° F); pump inlet @ 0 PSIG (14.7 PSIA)

Note: Outlet pressure must always be higher than inlet pressure. See page 7 for details.

Model Codes

Double Pump (without integral valves)



1 F3 - Viton seals

Omit if not required.

2 Intravane pump series

2520VQ	3525VQ	4525VQ
3520VQ	4520VQ	4535VQ

3 Pilot designation

S – SAE per ISO 3019/1 (SAE J744)

Omit for standard pilot.

4 Geometric displacement shaft end pump

Code = SAE rating (USgpm) at 1200 r/min and 7 bar (100 psi)

Frame Size	Code (USgpm)	cm ³ /r	in ³ /r
2520VQ	12	40,2	2.45
	14	45,4	2.77
	17	55,2	3.37
	21	67,5	4.12

35**VQ	25	81,6	4.98
	30	97,7	5.96
	35	112,8	6.88
	38	121,6	7.42

45**VQ	42	138,7	8.46
	50	162,3	9.90
	60	193,4	11.80

Note: For options other than listed in the model code, i.e. shafts, ports, displacements and mountings, contact your Vickers representative.

6 Geometric displacement - cover end pump

Code = SAE rating (USgpm) at 1200 r/min and 7 bar (100 psi)

Frame Size	Code (USgpm)	cm ³ /r	in ³ /r
**20VQ	5	18,0	1.10
	8	27,4	1.67
	11	36,4	2.22
	12	39,5	2.41
	14	45,9	2.80

**25VQ	12	40,2	2.45
	14	45,4	2.77
	17	55,2	3.37
	21	67,5	4.12

4535VQ	25	81,6	4.98
	30	97,7	5.96
	35	112,8	6.88
	38	121,6	7.42

7 Mounting & shaft seal assembly

S – Flange mount and double shaft seal

Omit for flange mount with single shaft seal.

8 Shaft type

With standard pilot, single shaft seal

- 1** – Straight keyed
- 11** – Splined
- 86** – Straight keyed, heavy duty

With standard pilot, double shaft seal

- 123** – Splined (not available on 45**VQ)
- 130** – Splined (for 45**VQ only)

With SAE pilot, single or double shaft seal

- 203** – Straight keyed, heavy duty
- 297** – Splined

9 Port orientation

(Viewed from cover end of pump)

All series except 4535VQ

With No.1 outlet opposite inlet:

AA - No. 2 outlet 135° CCW from inlet

AB - No. 2 outlet 45° CCW from inlet

AC - No. 2 outlet 45° CW from inlet

AD - No. 2 outlet 135° CW from inlet

With No.1 outlet 90° CCW from inlet:

BA - No. 2 outlet 135° CCW from inlet

BB - No. 2 outlet 45° CCW from inlet

BC - No. 2 outlet 45° CW from inlet

BD - No. 2 outlet 135° CW from inlet

With No.1 outlet inline with inlet:

CA - No. 2 outlet 135° CCW from inlet

CB - No. 2 outlet 45° CCW from inlet

CC - No. 2 outlet 45° CW from inlet

CD - No. 2 outlet 135° CW from inlet

With No.1 outlet 90° CW from inlet:

DA - No. 2 outlet 135° CCW from inlet

DB - No. 2 outlet 45° CCW from inlet

DC - No. 2 outlet 45° CW from inlet

DD - No. 2 outlet 135° CW from inlet

Series 4535VQ

With No.1 outlet opposite inlet:

AA - No. 2 outlet opposite inlet

AB - No. 2 outlet 90° CCW from inlet

AC - No. 2 outlet inline with inlet

AD - No. 2 outlet 90° CW from inlet

With No.1 outlet 90° CW from inlet:

BA - No. 2 outlet opposite inlet

BB - No. 2 outlet 90° CCW from inlet

BC - No. 2 outlet inline with inlet

BD - No. 2 outlet 90° CW from inlet

With No.1 outlet inline with inlet:

CA - No. 2 outlet opposite inlet

CB - No. 2 outlet 90° CCW from inlet

CC - No. 2 outlet inline inlet

CD - No. 2 outlet 90° CW from inlet

With No.1 outlet 90° CW from inlet:

DA - No. 2 outlet opposite inlet

DB - No. 2 outlet 90° CCW from inlet

DC - No. 2 outlet inline with inlet

DD - No. 2 outlet 90° CW from inlet

5 Port connections

Pump series	Code	Inlet	Outlet no.1	Outlet no. 2
All	A	SAE 4-bolt flg	SAE 4-bolt flg.	SAE 4-bolt flg.
All	AM*	Metric 4-bolt flg.	Metric 4-bolt flg.	Metric 4-bolt flg.
2520VQ	C	SAE 4-bolt flg.	SAE str. thd.	SAE str. thd.
All but 4535VQ	E	SAE 4-bolt flg.	SAE 4-bolt flg.	SAE str. thd.
2520VQ	F	SAE 4-bolt flg.	SAE str. thd.	SAE 4-bolt flg.

*Same as code "A" port connections, except metric threads for fastening flanges.

10 Design

11 Shaft Rotation

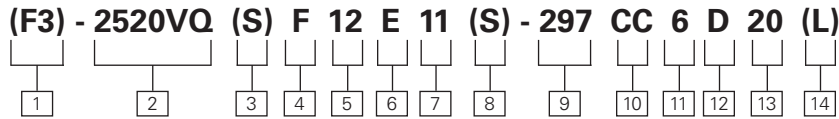
(Viewed from shaft end of pump)

L – Left hand (counterclockwise)

Omit for right hand.

Model Codes

Double Pump (without integral valves)



1 F3 - Viton seals
Omit if not required.

2	Intravane pump series	
2520VQ	3525VQ	4525VQ

3 Pilot designation
S – SAE per ISO 3019/1 (SAE J744)
Omit for standard pilot.

4 Integral valve options
F – Flow control and relief
P – Priority valve and relief

5 Geometric displacement shaft end pump
Code = SAE rating (USgpm) at 1200 r/min and 7 bar (100 psi)

Frame	Code		
Size	(USgpm)	cm ³ /r	in ³ /r
2520VQ	12	40,2	2.45
	14	45,4	2.77
	17	55,2	3.37
	21	67,5	4.12

3520VQ	25	81,6	4.98
	30	97,7	5.96
	35	112,8	6.88
	38	121,6	7.42

4520VQ	42	138,7	8.46
	50	162,3	9.90
	60	193,4	11.80

6 Port connections

Pump series	Code	Inlet	Outlet no. 1	Outlet(s) no. 2	Tank
2520VQ only	C	SAE 4-bolt flg.	SAE str. thd.	SAE str. thd.	SAE str. thd.
All pumps	E	SAE 4-bolt flg.	SAE 4-bolt flg.	SAE str. thd.	SAE str. thd.

7 Geometric displacement - cover end pump
Code = SAE rating (USgpm) at 1200 r/min and 7 bar (100 psi)

Frame	Code		
Size	(USgpm)	cm ³ /r	in ³ /r
**20VQ	5	18,0	1.10
	8	27,4	1.67
	11	36,4	2.22
	12	39,5	2.41
	14	45,9	2.80

8 Mounting & shaft seal assembly
S – Flange mount and double shaft seal
Omit for flange mount with single shaft seal.

9 Shaft type
With standard pilot, single shaft seal

- 1** – Straight keyed
- 11** – Splined
- 86** – Straight keyed, heavy duty

With standard pilot, double shaft seal

- 123** – Splined (not available on 4520VQ)
- 130** – Splined (for 4520VQ only)

With SAE pilot, single or double shaft seal

- 203** – Straight keyed, heavy duty
- 297** – Splined

10 Port orientation
(Viewed from cover end of pump)
With No.1 outlet opposite inlet:
AA - No. 2 outlet 135° CCW from inlet
AB - No. 2 outlet 45° CCW from inlet
AC - No. 2 outlet 45° CW from inlet
AD - No. 2 outlet 135° CW from inlet
With No.1 outlet 90° CCW from inlet:
BA - No. 2 outlet 135° CCW from inlet
BB - No. 2 outlet 45° CCW from inlet
BC - No. 2 outlet 45° CW from inlet
BD - No. 2 outlet 135° CW from inlet
With No.1 outlet inline with inlet:
CA - No. 2 outlet 135° CCW from inlet
CB - No. 2 outlet 45° CCW from inlet
CC - No. 2 outlet 45° CW from inlet
CD - No. 2 outlet 135° CW from inlet
With No.1 outlet 90° CW from inlet:
DA - No. 2 outlet 135° CCW from inlet
DB - No. 2 outlet 45° CCW from inlet
DC - No. 2 outlet 45° CW from inlet
DD - No. 2 outlet 135° CW from inlet

11 Controlled flow rate – USgpm
2, 4, 6, 7, 8, 10 or 12 USgpm

12 Relief valve setting – bar (psi)

C – 52 (750)	G – 121 (1750)
D – 70 (1000)	H – 140 (2000)
E – 86 (1250)	J – 155 (2250)
F – 100 (1500)	K – 175 (2500)

13 Design
(Viewed from shaft end of pump)
L - Left hand (counterclockwise)
Omit for right hand.

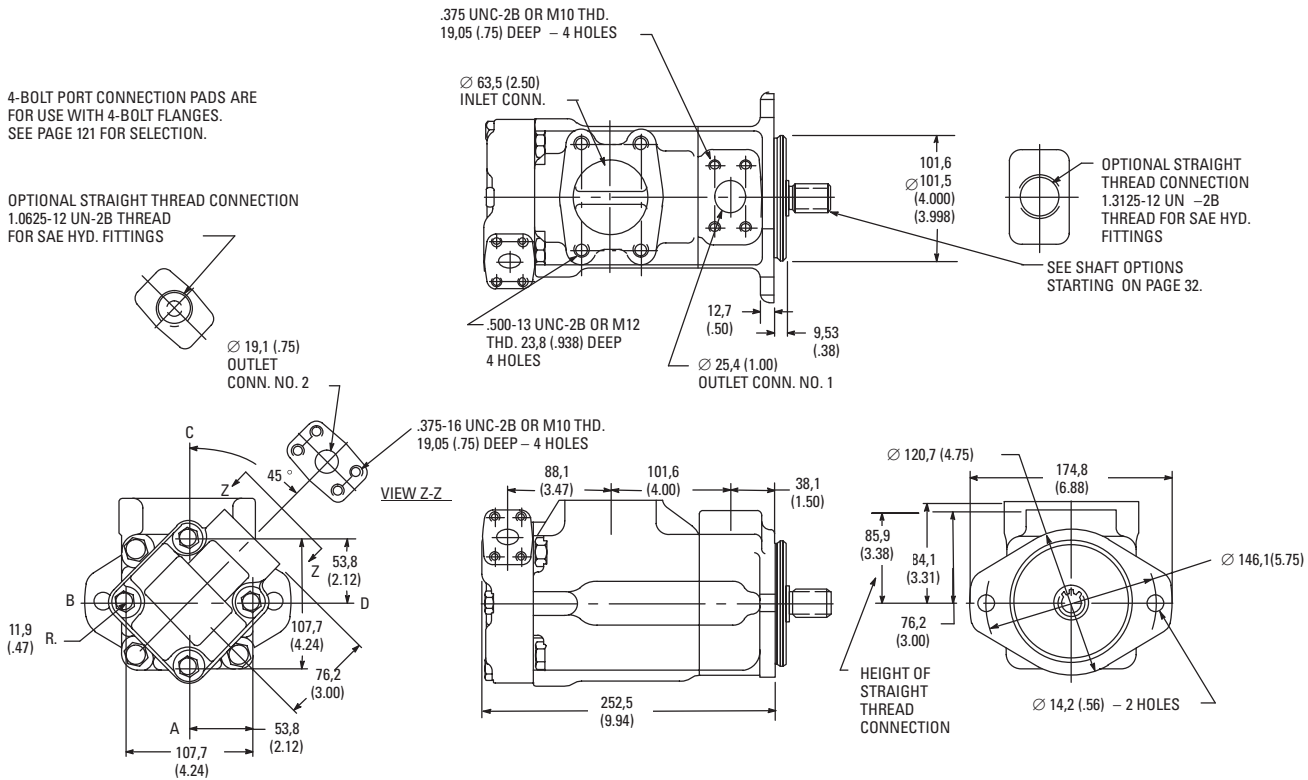
14 Shaft Rotation
(Viewed from shaft end of pump)
L – Left hand (counterclockwise)
Omit for right hand.

Note: For options other than listed in the model code, i.e. shafts, ports, displacements and mountings, contact your Vickers representative.

Installation Dimensions

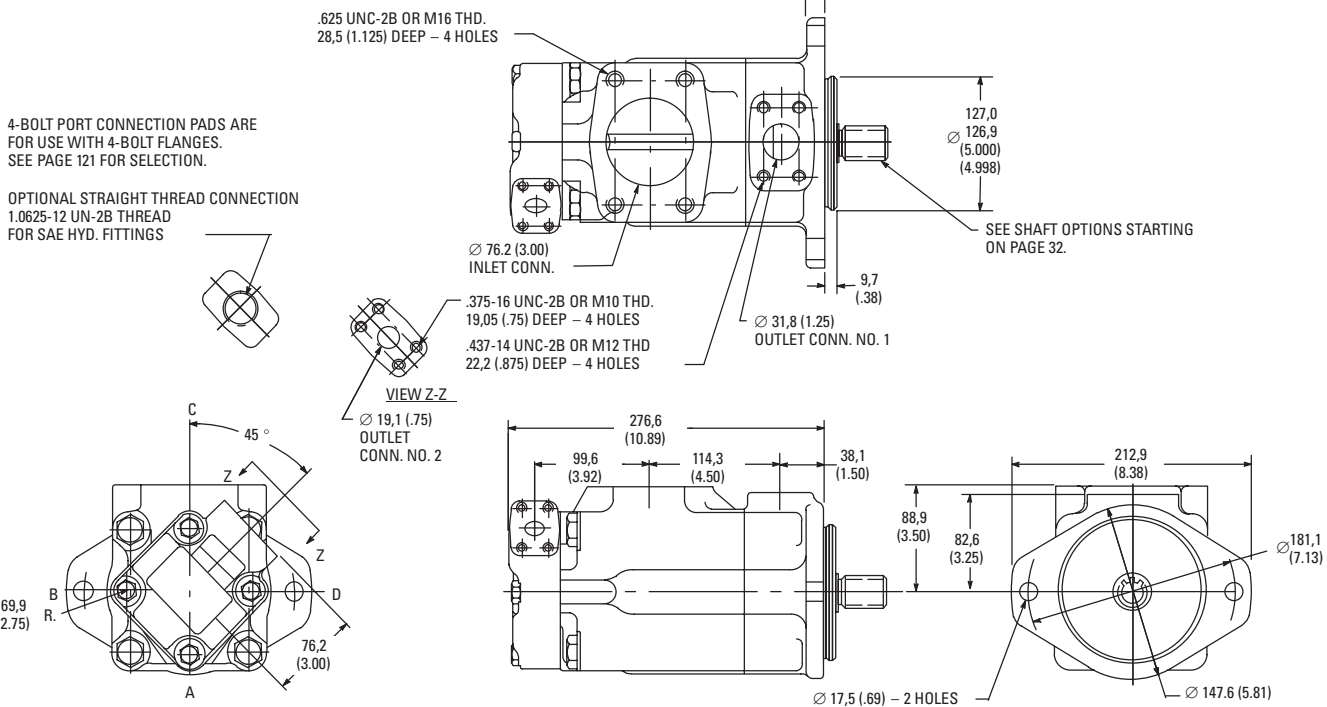
2520VQ Series

Dimensions in millimeters (inches)



3520VQ Series

Dimensions in millimeters (inches)



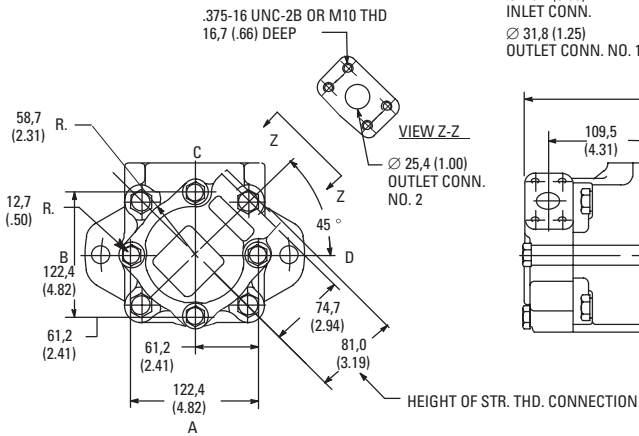
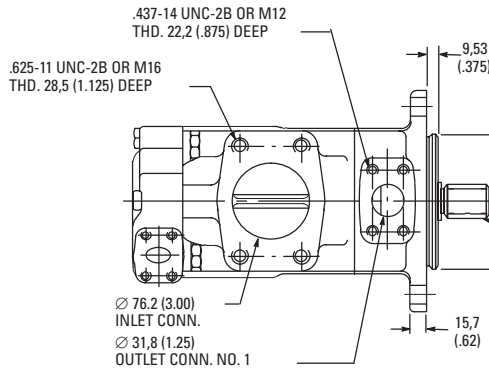
Installation Dimensions

3525VQ Series

Dimensions in millimeters (inches)

4-BOLT PORT CONNECTION PADS ARE FOR USE WITH 4-BOLT FLANGES. SEE PAGE 121 FOR SELECTION.

OPTIONAL STRAIGHT THREAD CONNECTION 1.3125-12 UN-2B THREAD FOR SAE HYD. FITTINGS

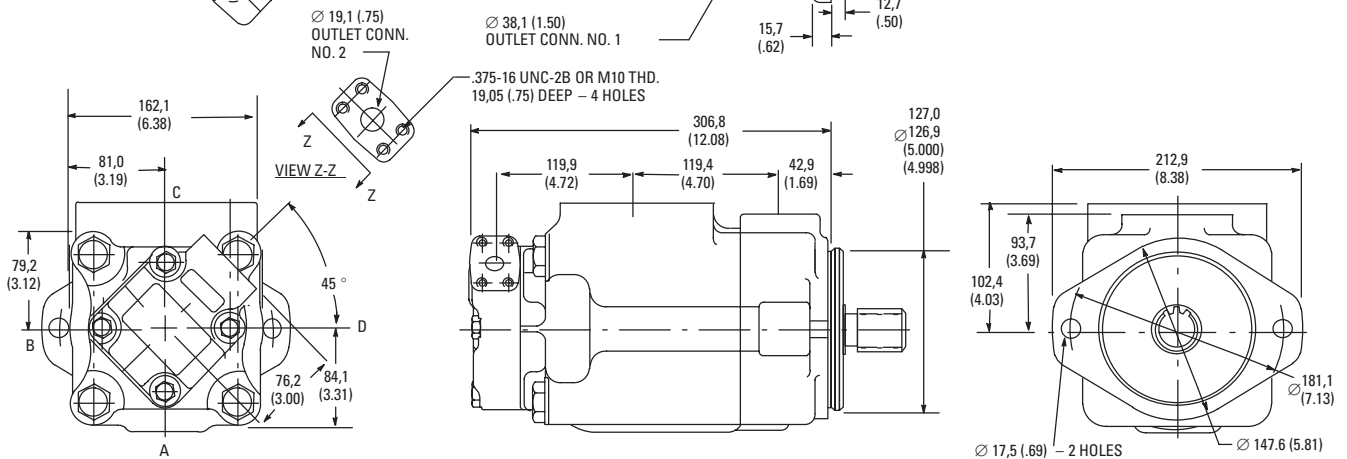
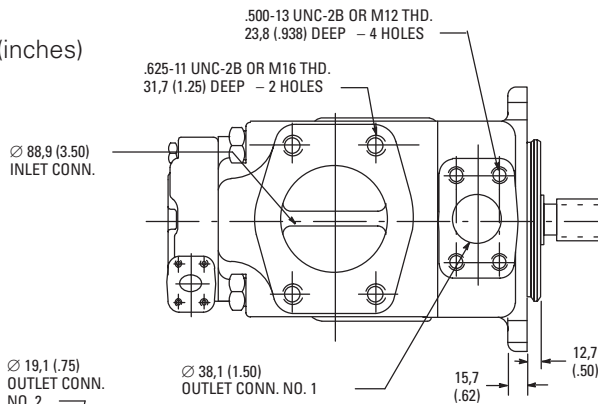


4520VQ Series

Dimensions in millimeters (inches)

4-BOLT PORT CONNECTION PADS ARE FOR USE WITH 4-BOLT FLANGES. SEE PAGE 121 FOR SELECTION.

OPTIONAL STRAIGHT THREAD CONNECTION 1.0625-12 UN-2B THREAD FOR SAE HYD. FITTINGS

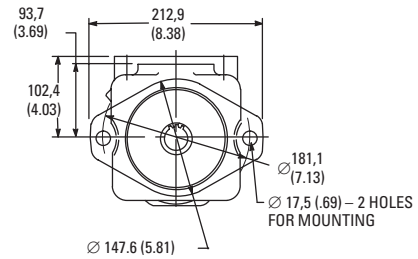
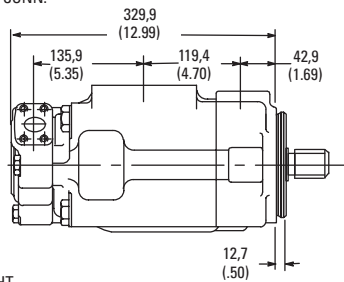
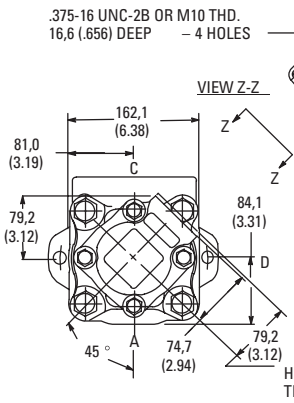
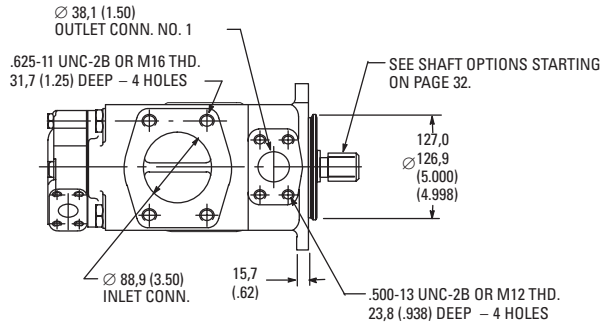


4525VQ Series

Dimensions in millimeters (inches)

4-BOLT PORT CONNECTION PADS ARE FOR USE WITH 4-BOLT FLANGES. SEE PAGE 121 FOR SELECTION.

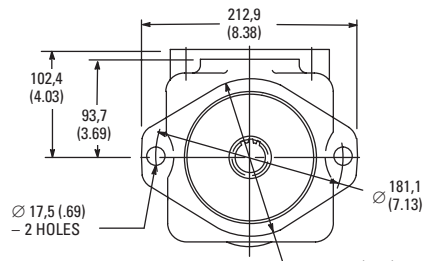
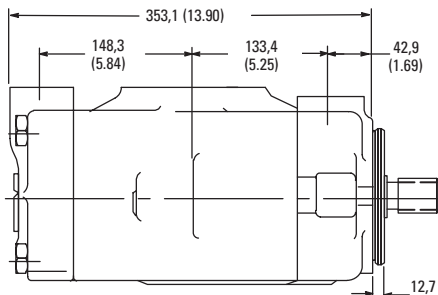
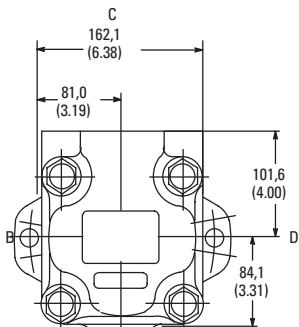
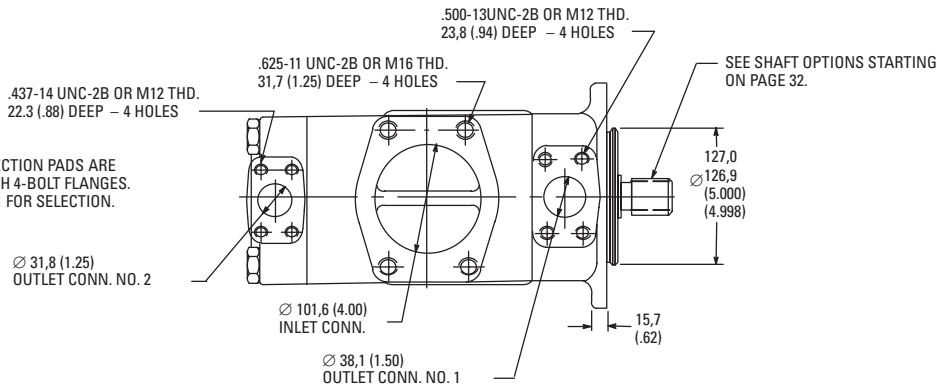
OPTIONAL STRAIGHT THREAD CONNECTION
1.3125-12 UN-2B THREAD
FOR SAE HYD. FITTINGS



4535VQ Series

Dimensions in millimeters (inches)

PORT CONNECTION PADS ARE FOR USE WITH 4-BOLT FLANGES. SEE PAGE 121 FOR SELECTION.



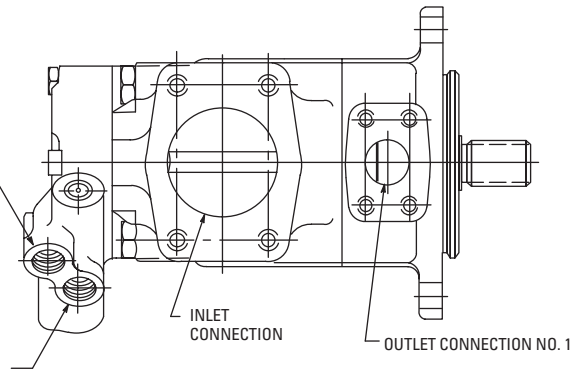
Installation Dimensions

Pumps with flow control cover

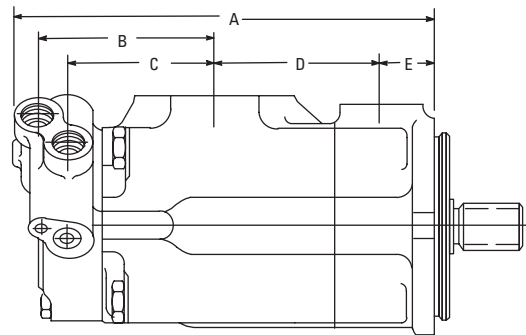
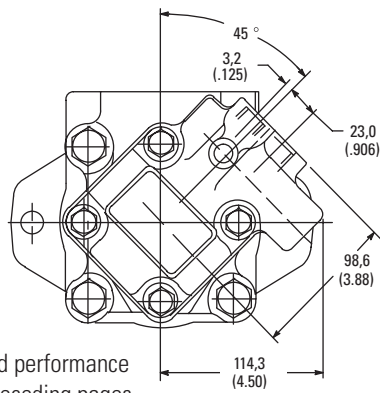
Dimensions in millimeters (inches)

Model series	A	B	Dimensions C	D	E
2520VQF	265,9 (10.47)	108,7 (4.28)	88,1 (3.47)	101,6 (4.00)	38,1 (1.50)
3520VQF	289,8 (11.41)	120,1 (4.73)	99,6 (3.92)	114,3 (4.50)	38,1 (1.50)
4520VQF	320,3 (12.61)	140,5 (5.53)	119,9 (4.72)	119,4 (4.70)	42,9 (1.69)

OUTLET CONNECTION NO. 2
.750-16 UNF-2B THD.



TANK CONNECTION
.875-14 UNF-2B THD.



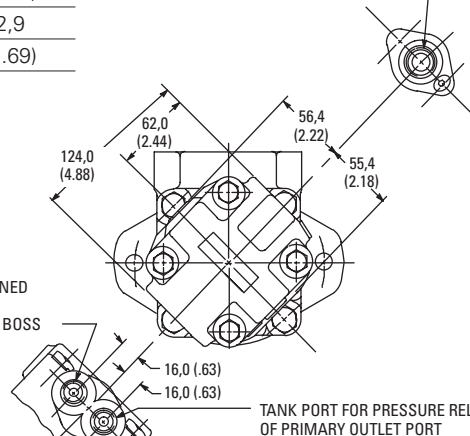
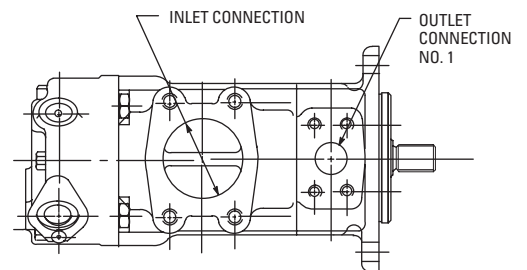
Note: For installation dimensions and performance data of basic pump series, refer to preceding pages.

Pumps with priority valve cover

Dimensions in millimeters (inches)

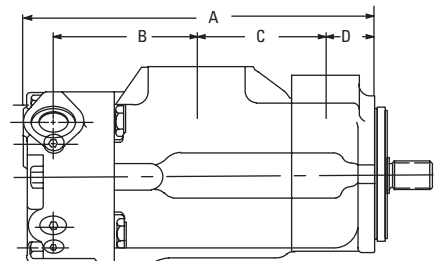
Model series	A	Dimensions B	C	D
2520VQP	276,6 (10.89)	113,0 (4.45)	101,6 (4.00)	38,1 (1.50)
3520VQP	300,7 (11.84)	124,5 (4.90)	114,3 (4.50)	38,1 (1.50)
4520VQP	331,0 (13.03)	144,8 (5.70)	119,4 (4.70)	42,9 (1.69)

SECONDARY OUTLET PORT
.875-14 UNF-2B THD PORT
MACHINED TO .62 TUBE SIZE
PER SAE SPEC FOR STRAIGHT
THD "O" RING BOSS.



#2 PRIMARY OUTLET PORT
.750-16 UNF-2B THD. PORT MACHINED
TO .50 TUBE SIZE PER SAE SPEC.
FOR STRAIGHT THREAD "O" RING BOSS

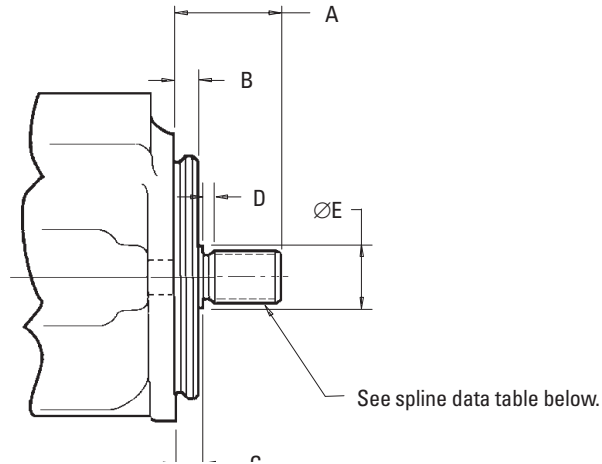
TANK PORT FOR PRESSURE RELIEF
OF PRIMARY OUTLET PORT



Optional Shafts

Splined Shafts

Dimensions in millimeters (inches)



Pump	Shaft Code	A	B	C	D	ØE	Spline Data (See below.)
2520VQ	11	44,5 (1.75)	9,53 (.375)	11,1 (.437)	4,1 (.16)	27,8 (1.09)	A
2520VQF,	123	44,5 (1.75)	9,53 (.375)	15,7 (.62)	4,1 (.16)	27,8 (1.09)	A
2520VQP	297	41,1 (1.62)	9,53 (.375)	7,9 (.31)	6,4 (.25)	27,8 (1.09)	C
3520VQ,							
3520VQF,	11	58,7 (2.31)	9,53 (.375)	11,1 (.437)	6,4 (.25)	35,1 (1.38)	D
3520VQP,	123	58,7 (2.31)	9,53 (.375)	15,2 (.60)	5,5 (.21)	35,1 (1.38)	D
3525VQ	297	55,5 (2.19)	12,7 (.500)	7,9 (.31)	5,5 (.21)	35,1 (1.38)	E
4520VQ,							
4520VQF,							
4520VQP,	11	61,9 (2.44)	12,7 (.500)	14,3 (.565)	9,7 (.38)	39,6 (1.56)	D
4525VQ,	130	61,9 (2.44)	12,7 (.500)	15,2 (.60)	9,9 (.39)	40,4 (1.59)	D
4535VQ	297	55,5 (2.19)	12,7 (.500)	7,9 (.31)	6,4 (.25)	39,6 (1.56)	E

Spline Data Table

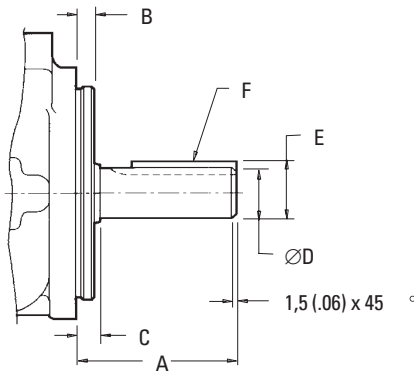
(Involute splines from above chart)

Spline Data Reference	Number of Teeth	Pitch	Major Diameter	Form Diameter	Minor Diameter	Minor Diameter
A	13	16/32	22,17 (.873) 22,15 (.872)	19,03 (.749)	18,16 (.715)	Major dia. fit
C	13	16/32	21,8 (.858) 21,6 (.852)	19,03 (.749)	18,16 (.715)	Side fit
D	14	12/24	31,70 (1.248) 31,67 (1.247)	27,4 (1.08)	26,42 (1.040)	Major dia. fit
E	14	12/24	31,2 (1.229) 31,1 (1.223)	27,4 (1.08)	26,42 (1.040)	Side fit

Optional Shafts

Straight Key Shafts

Dimensions in millimeters (inches)



Pump	Shaft Code	A	B	C	ØD	E	F key width x length
2520VQ,	1	58,7 (2.31)	9,53 (.375)	11,1 (.435)	22,23 (.875) 22,20 (.874)	24,5 (.966) 24,4 (.961)	4,75 (.187) x 32 (1.25)
2520VQF,	86	77,7 (3.06)	9,53 (.375)	11,1 (.435)	25,37 (.999) 25,35 (.998)	28,3 (1.11) 28,1 (1.10)	6,35 (.250) x 50,8 (2.00)
2520VQP	203	77,7 (3.06)	9,53 (.375)	7,9 (.31)▲	25,40 (1.00) 25,35 (.998)	28,20 (1.11) 27,94 (1.10)	6,35 (.250) x 49,2 (1.938)
3520VQ,	1	73,2 (2.88)	9,53 (.375)	11,1 (.435)	31,75 (1.250) 31,70 (1.248)	35,36 (1.39) 34,10 (1.38)	7,94 (.313) x 38,1 (1.50)
3520VQF, 3520VQP,	86	85,9(3.38)	9,53 (.375)	11,1 (.435)	34,90 (1.374) 34,87 (1.373)	38,6 (1.52) 38,3 (1.51)	7,92 (.312) x 54 (2.13)
3525VQ	203	84,1 (3.31)	12,7 (.500)	7,9 (.31)▲	34,90 (1.374) 34,87 (1.373)	38,6 (1.52) 38,3 (1.51)	7,92 (.312) x 54 (2.125)
4520VQ, 4520VQF,	1	62,0 (2.44)	12,7 (.500)	14,22 (.560)	31,75 (1.250) 31,70 (1.248)	35,36 (1.39) 34,10 (1.38)	7,92 (.312) x 28,5 (1.12)
4520VQP, 4525VQ,	86	87,4 (3.44)	12,7 (.500)	14,22 (.560)	38,07 (1.499) 38,05 (1.498)	42,4 (1.67) 42,1 (1.66)	9,53 (.375) x 50,8 (2.00)
4535VQ	203	90,4 (3.56)	12,7 (.500)	7,9 (.31)▲	38,07 (1.499) 38,05 (1.498)	42,4 (1.67) 42,1 (1.66)	9,53 (.375) x 57,1 (2.25)

▲ Shaft shoulder inside recess in pilot.

Typical Performance

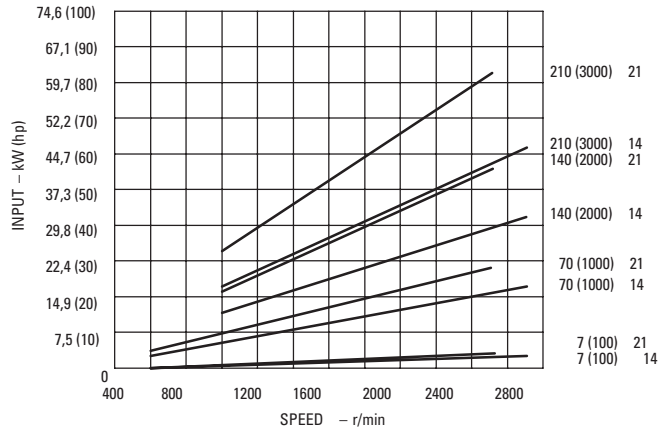
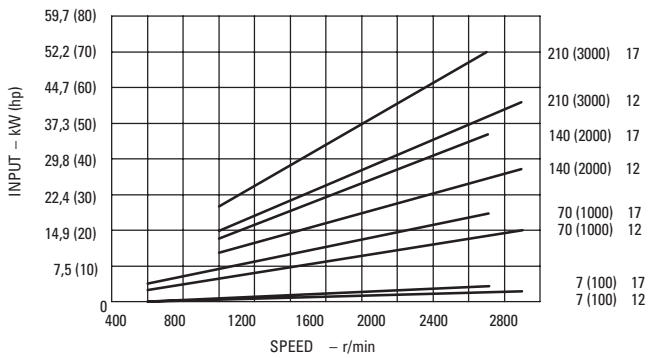
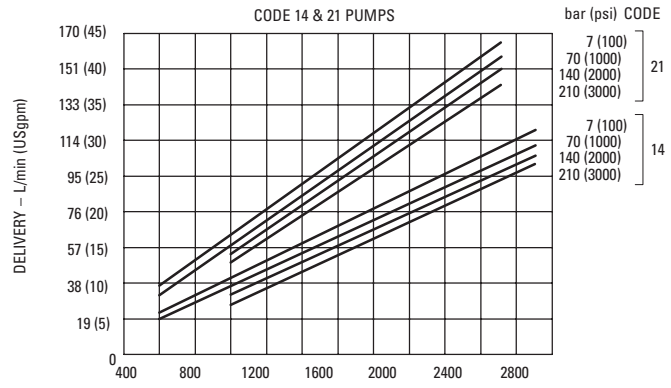
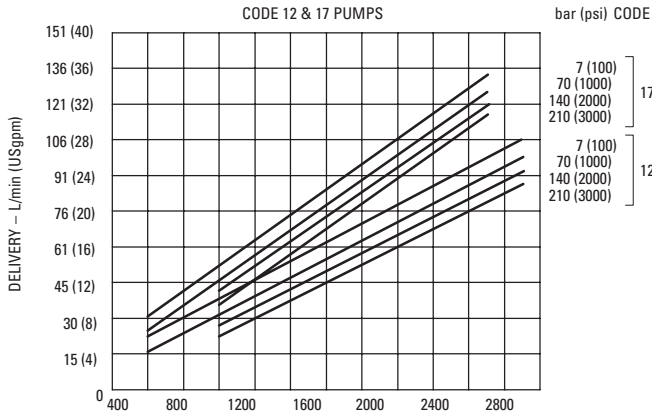
Shaft End Pumps

2520VQ Double Pumps & 2520VQV10 Triple Pumps

Performance Constants:

SAE 10W fluid @ 82°C (180°F)

Pump inlet @ 0 psig (14.7 psia)

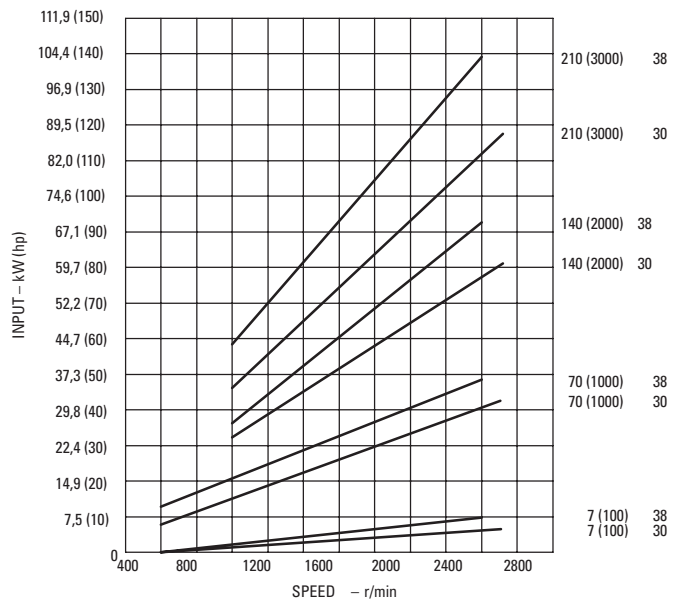
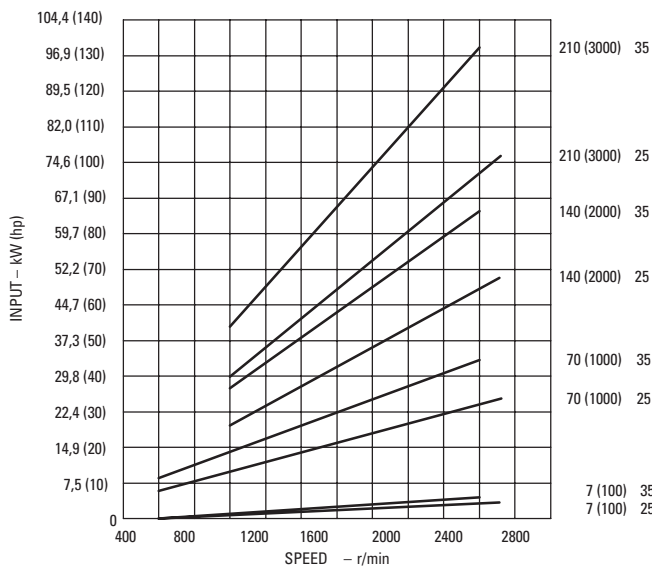
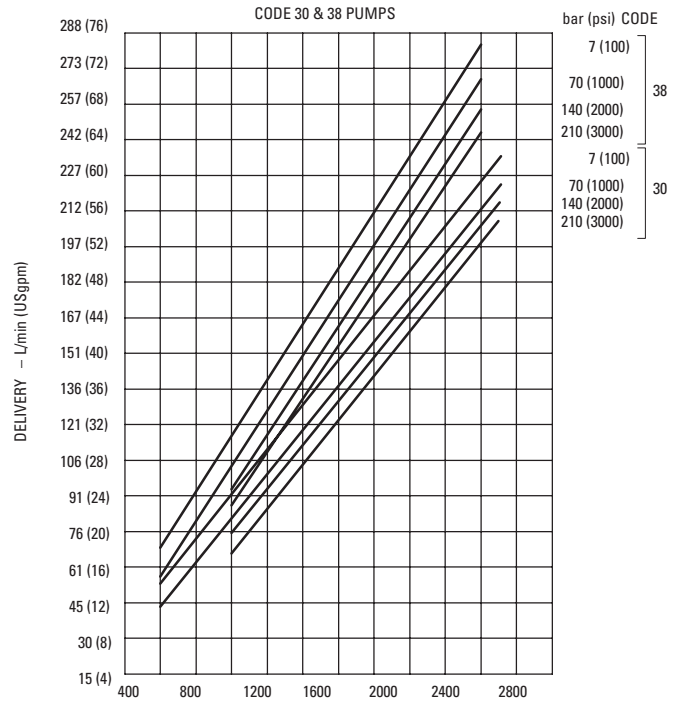
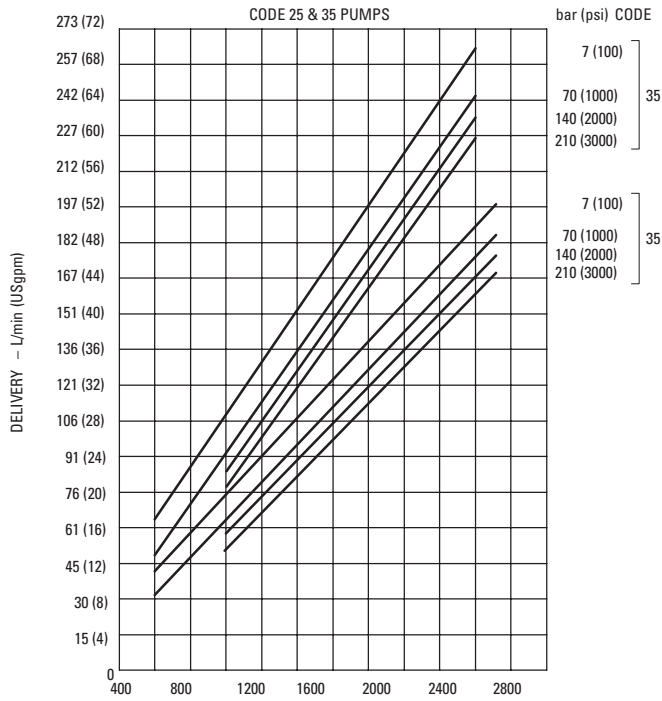


Typical Performance

Shaft End Pumps

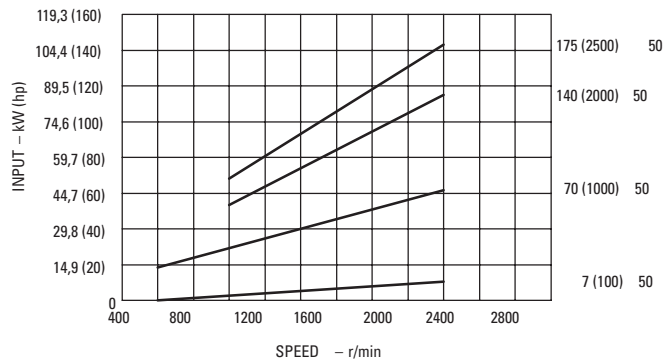
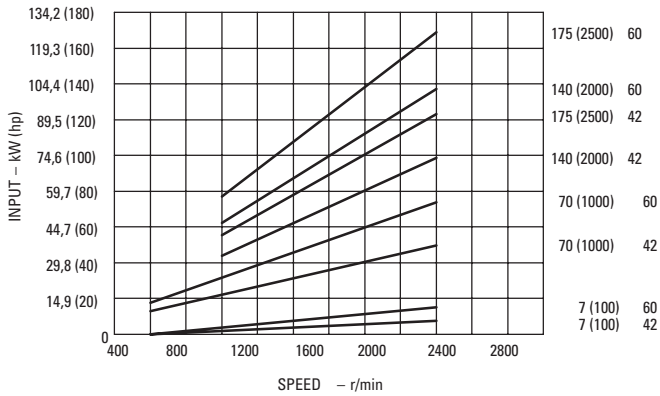
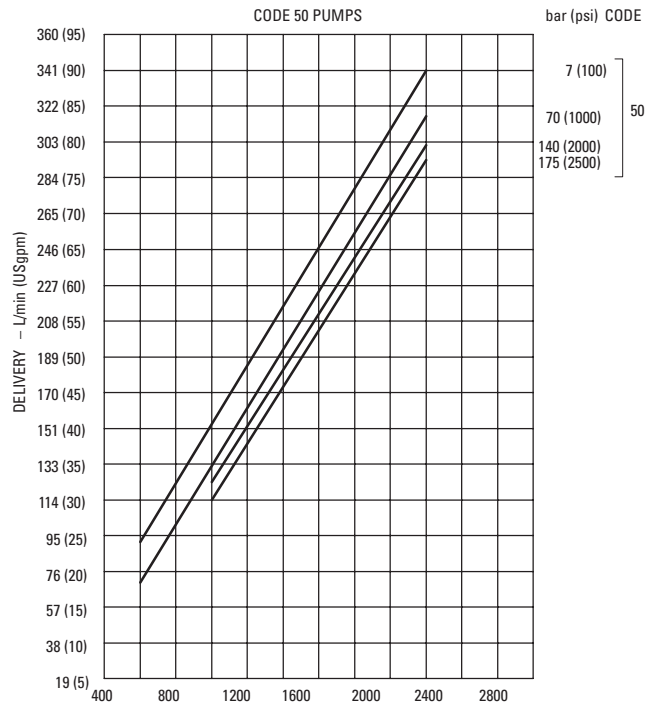
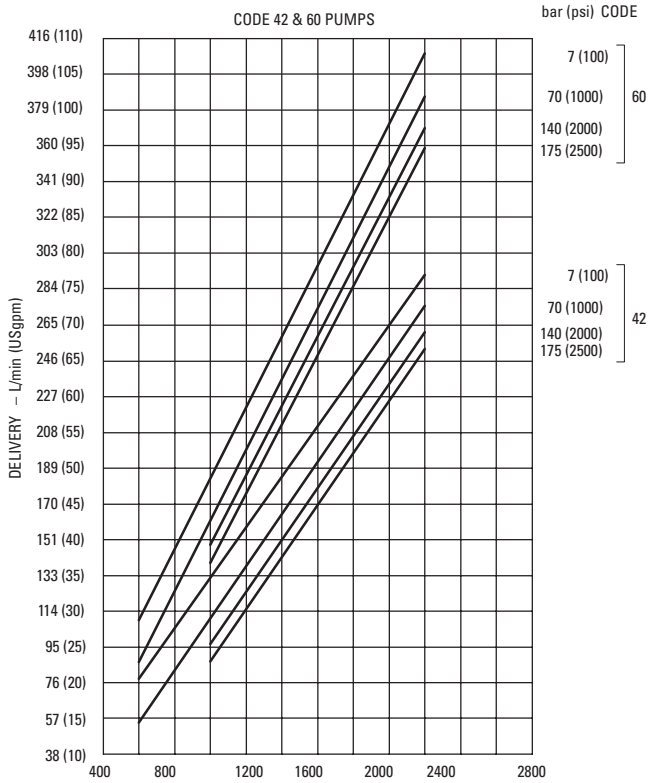
3520VQ & 3525VQ Double Pumps, 352*VQV10 Triple Pumps, 3525VQT Double Thru-drive Pumps

Performance Constants:
 SAE 10W fluid @ 82°C (180°F)
 Pump inlet @ 0 psig (14.7 psia)



**Shaft End Pumps 4520VQ, 4525VQ & 4535VQ Double Pumps,
45*5VQV10 Triple Pumps, 4525VQT Double Thru-drive Pumps**

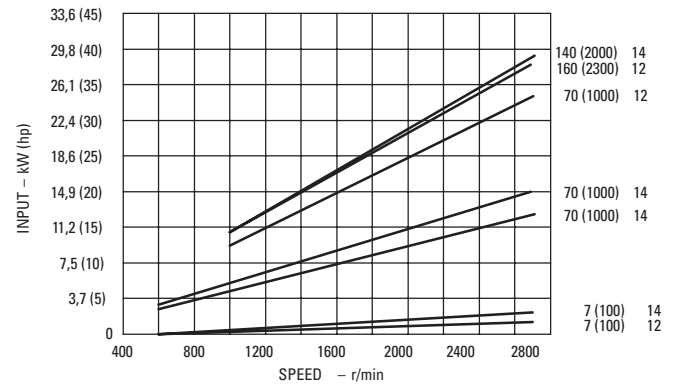
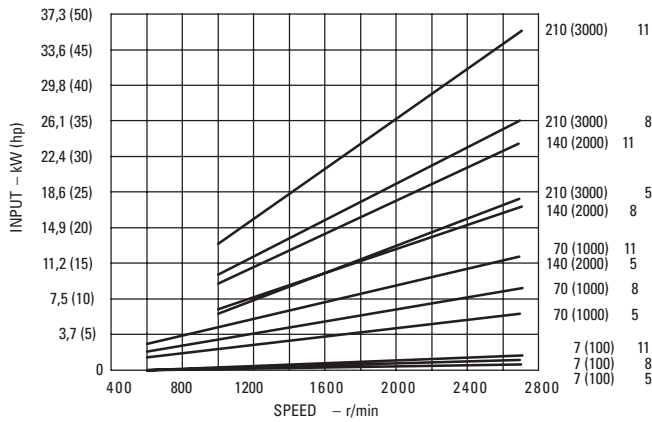
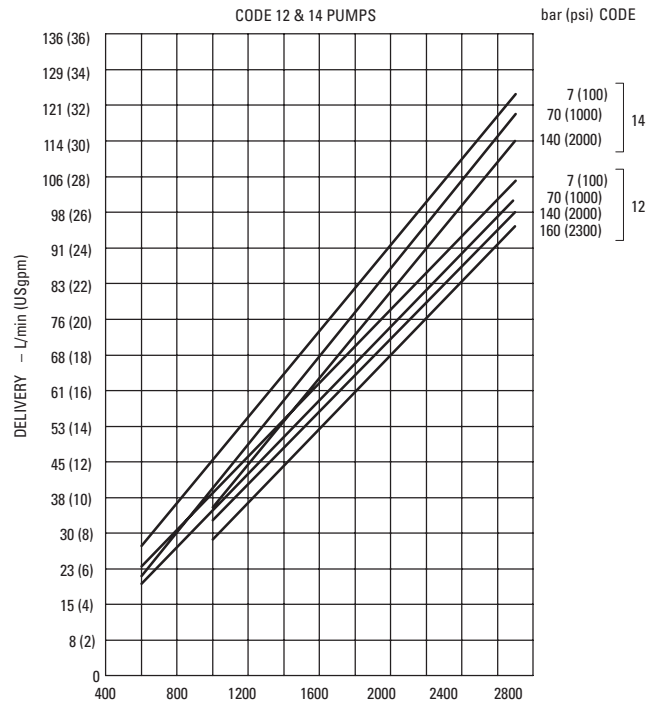
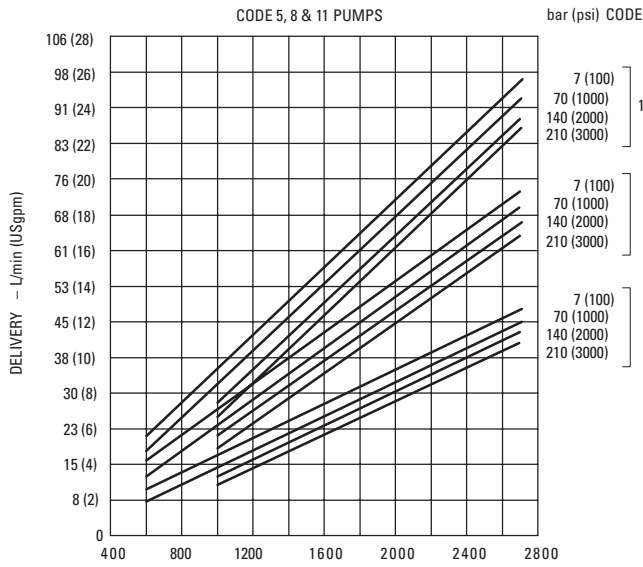
Performance Constants:
SAE 10W fluid @ 82°C (180°F)
Pump inlet @ 0 psig (14.7 psia)



Typical Performance

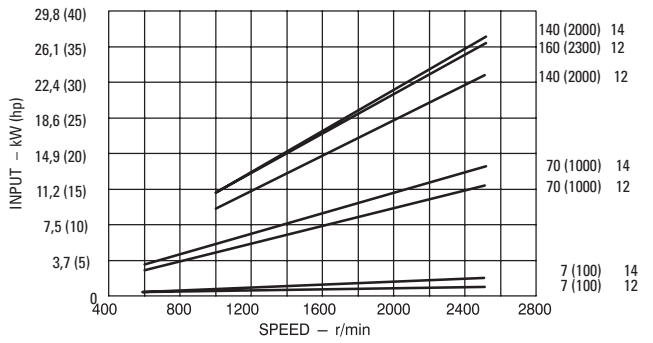
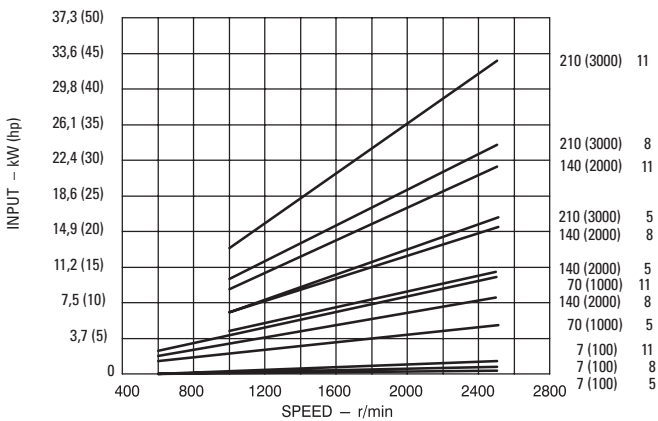
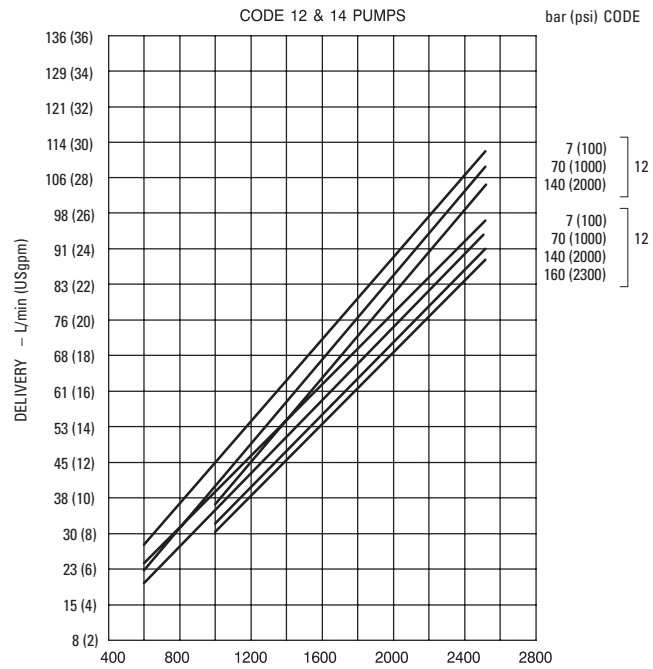
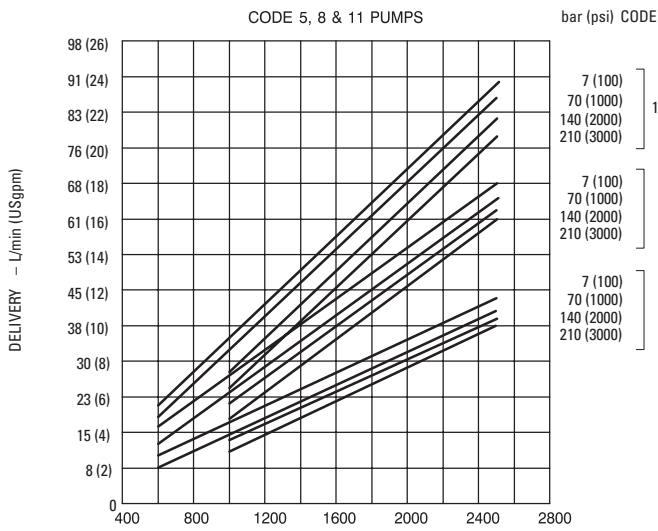
Cover-end Pumps of 2520VQ Double Pumps & Center Pumps of 2520VQV10 Triple Pumps

Performance Constants:
 SAE 10W fluid @ 82°C (180°F)
 Pump inlet @ 0 psig (14.7 psia)



Cover-end Pumps of 3520VQ Double Pumps, Center Pumps of 3520VQV10 Triple Pumps, Rear Pumps of 3525VQT Double Thru-drive Pumps

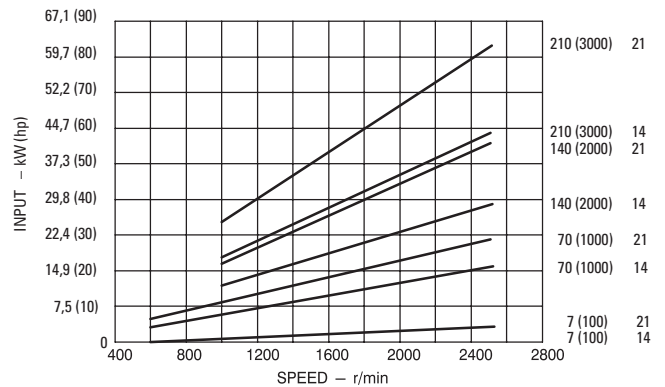
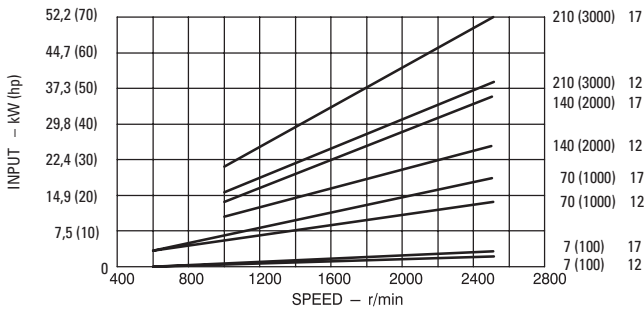
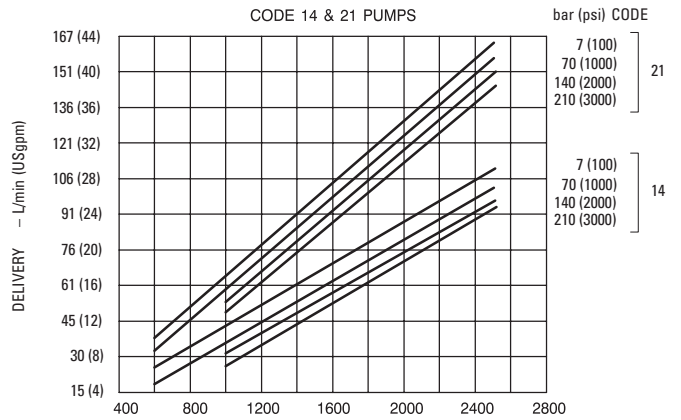
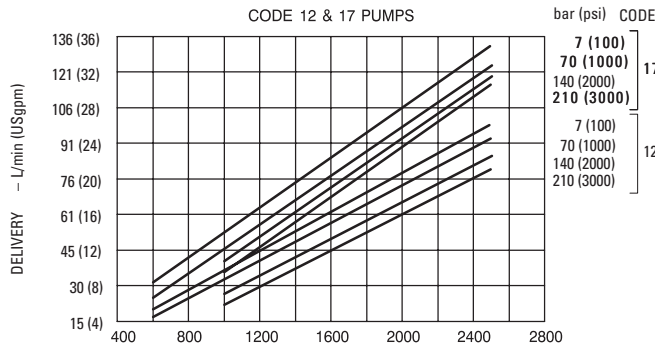
Performance Constants:
 SAE 10W fluid @ 82°C (180°F)
 Pump inlet @ 0 psig (14.7 psia)



Typical Performance

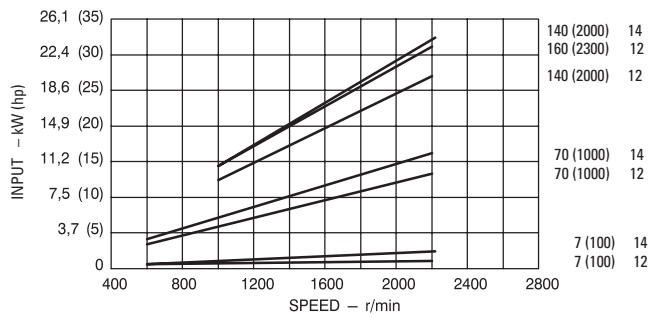
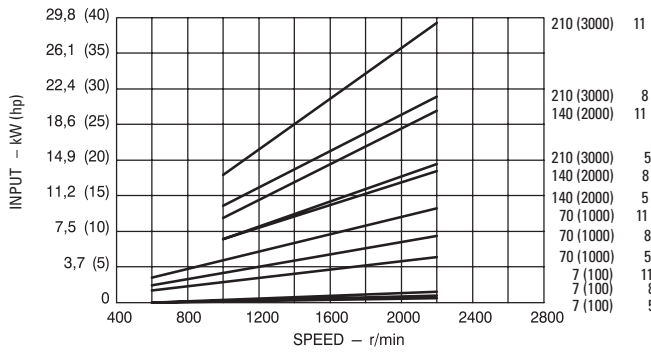
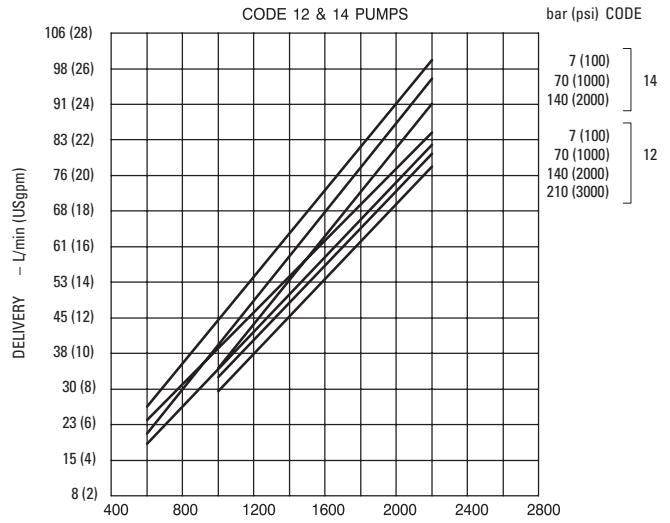
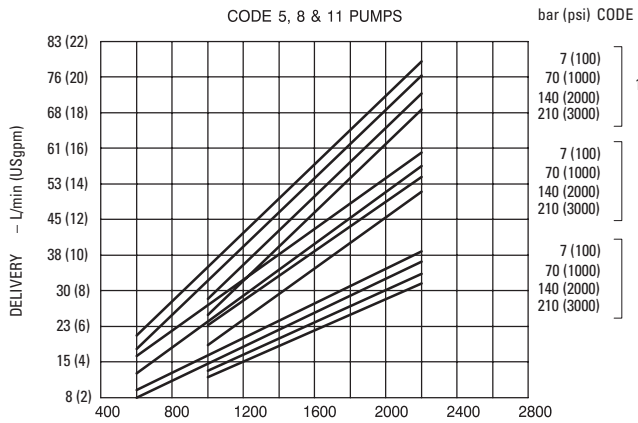
Cover-end Pumps of 3525VQ Double Pumps & Center Pumps of 3525VQV10 Triple Pumps

Performance Constants:
 SAE 10W fluid @ 82°C (180°F)
 Pump inlet @ 0 psig (14.7 psia)



Cover-end Pumps of 4520VQ Double Pumps & Center Pumps of 4520VQV10 Triple Pumps

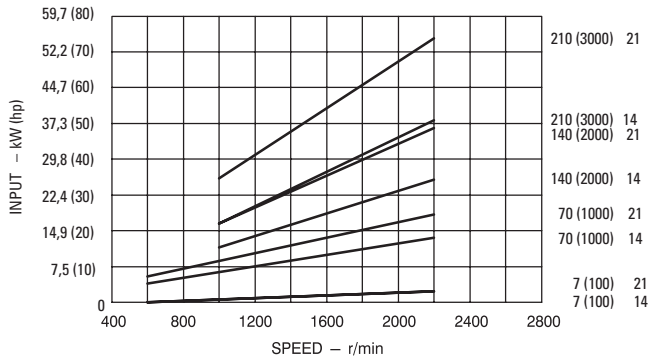
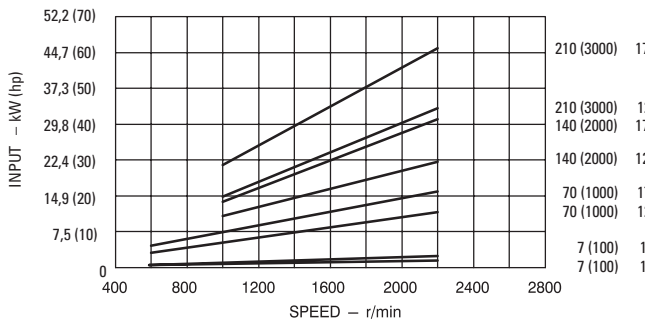
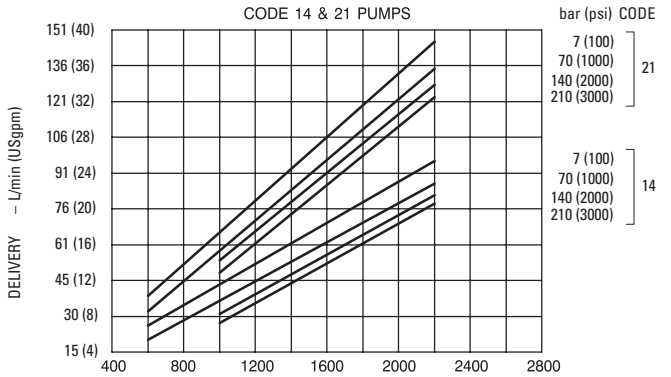
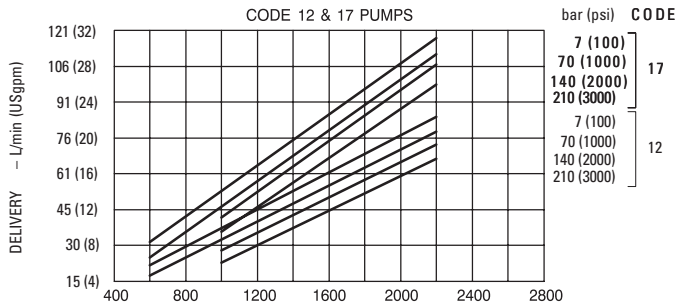
Performance Constants:
 SAE 10W fluid @ 82°C (180°F)
 Pump inlet @ 0 psig (14.7 psia)



Typical Performance

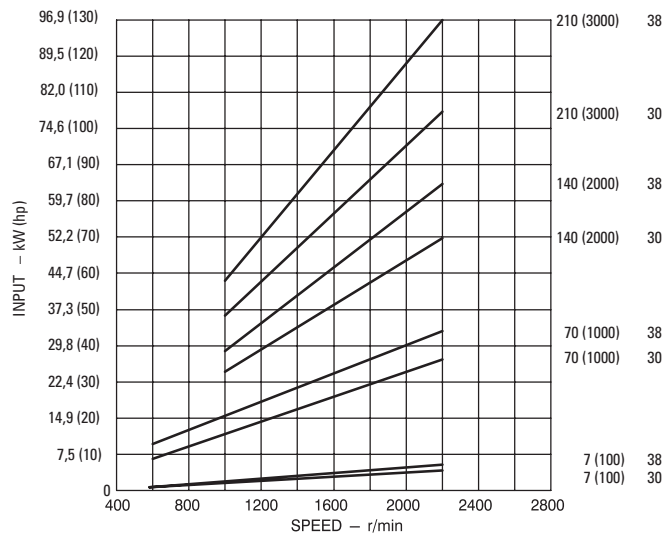
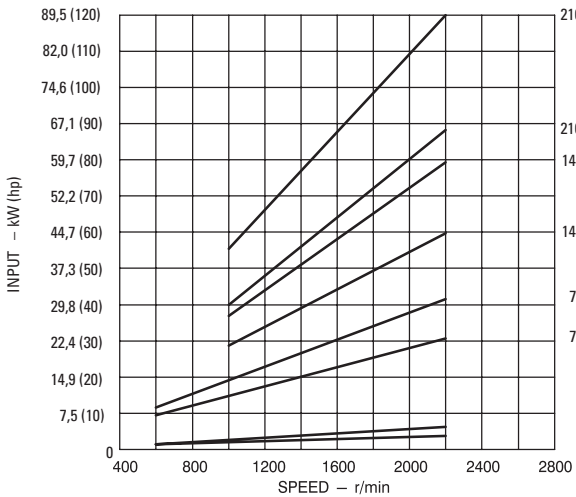
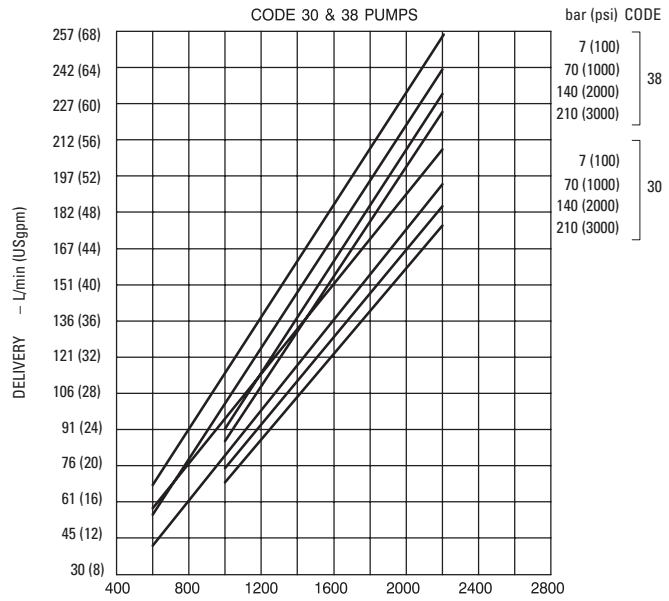
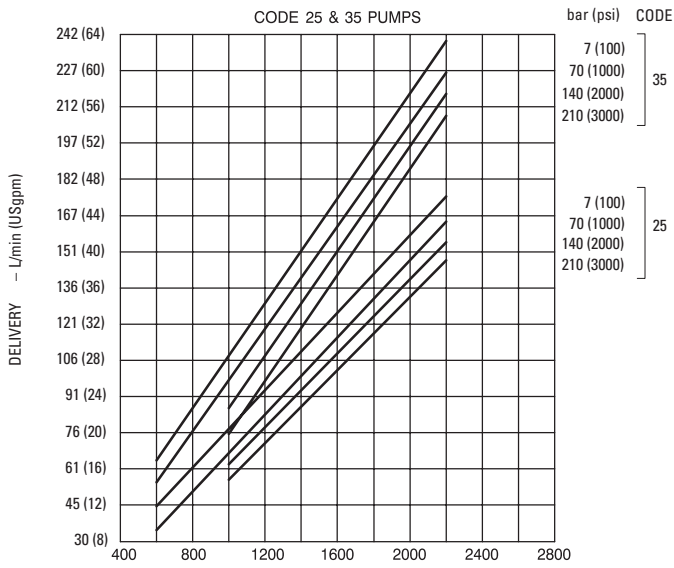
Cover-end Pumps of 4520VQ Double Pumps, Center Pumps of 4525VQV10 Triple Pumps, Rear Pumps of 4525VQT Double Thru-drive Pumps

Performance Constants:
 SAE 10W fluid @ 82°C (180°F)
 Pump inlet @ 0 psig (14.7 psia)



Cover-end Pumps of 4535VQ Double Pumps & Center Pumps of 4535VQV10 Triple Pumps

Performance Constants:
 SAE 10W fluid @ 82°C (180°F)
 Pump inlet @ 0 psig (14.7 psia)

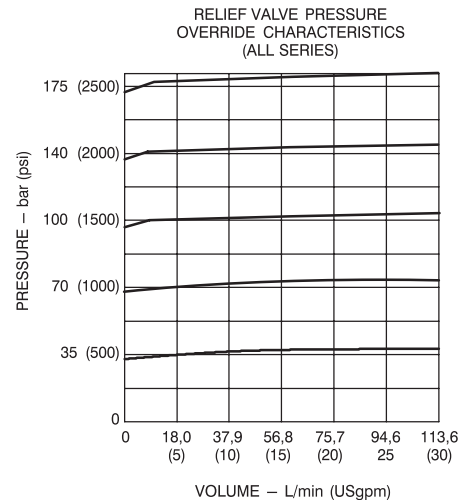
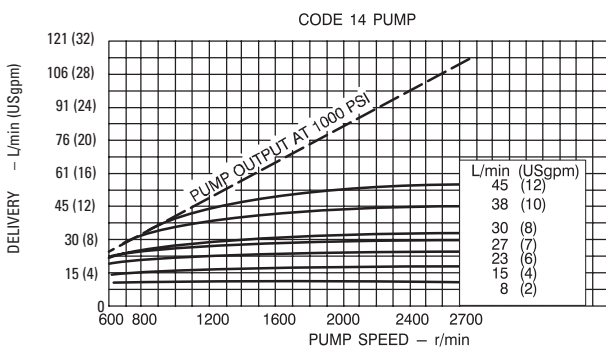
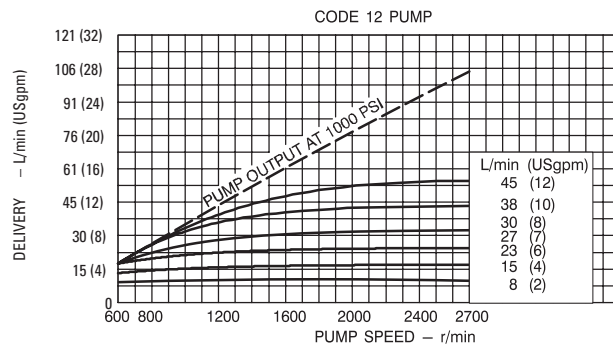
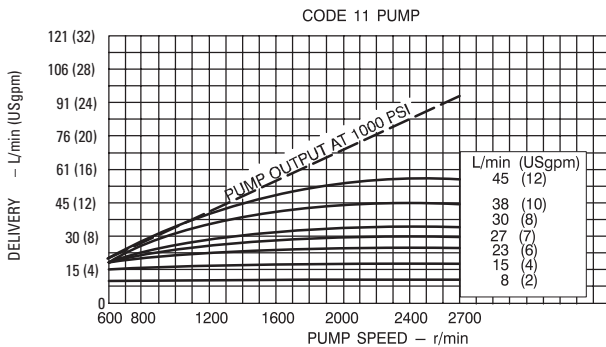
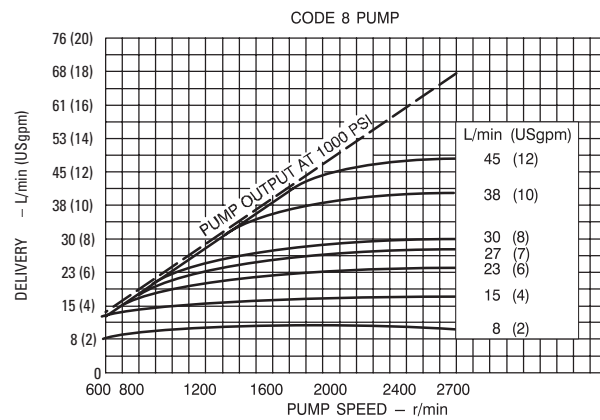
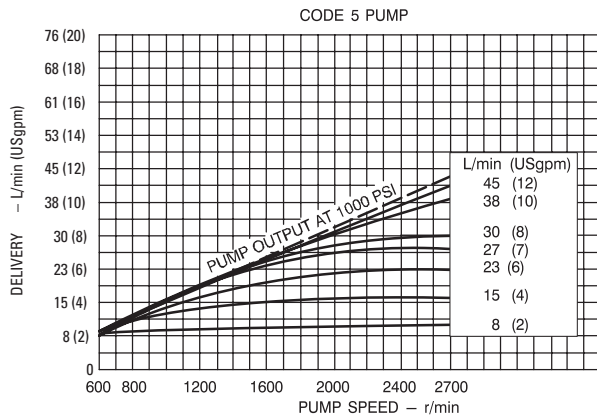


Typical Performance

Controlled Flow - Integral Valves (cover end) Models 2520VQF, 3520VQF & 4520VQF Double Pumps

Performance Constants:
 SAE 10W fluid @ 82°C (180°F)
 Pump inlet @ 0 psig (14.7 psia)

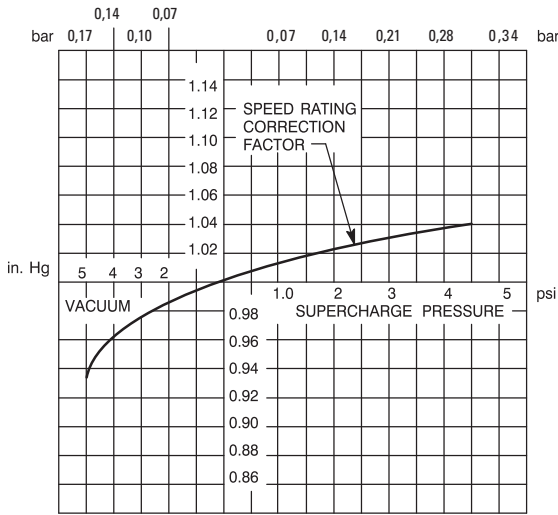
Curves shown for 70 bar (1000 psi) operating pressure. Controlled flow varies slightly at other pressures.



Speed Correction Curves

Maximum operating speed correction factors based on pump inlet conditions.

2520VQ Series

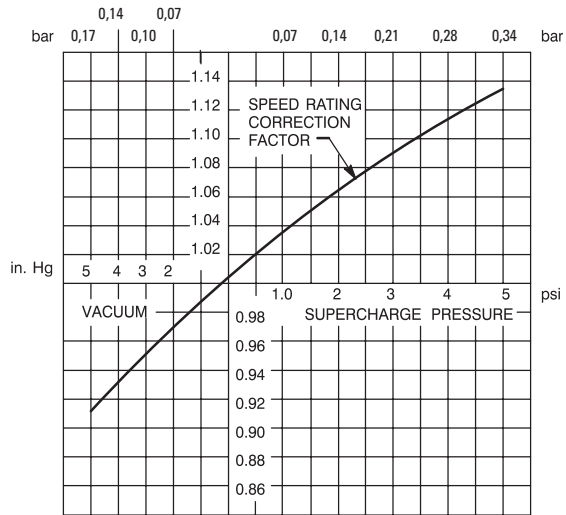


Maximum operating speeds shown on performance curves are for pumps operating at 0 psi inlet condition. To compute maximum operating speeds at other inlet conditions use the appropriate speed rating correction factor shown in the curve above.

EXAMPLE: Max. Speed @ 0 psi Inlet 2700 r/min
 Correction Factor @ 5 in. Hg $\times \frac{.93}{1.0}$
 Max. Speed @ 5 in. Hg Inlet 2511 r/min

Pump inlet suction should not exceed 5 in. Hg vacuum. Positive pressure on inlet should not exceed 1.4 bar (20 psi).

4520VQ & 4535VQ Series

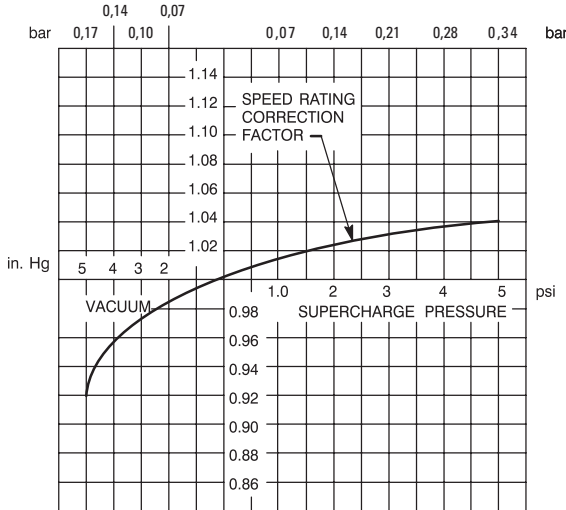


Maximum operating speeds shown on performance curves are for pumps operating at 0 psi inlet condition. To compute maximum operating speeds at other inlet conditions use the appropriate speed rating correction factor shown in the curve above.

EXAMPLE: Max. Speed @ 0 psi Inlet 2200 r/min
 Correction Factor @ 5 in. Hg $\times \frac{.91}{1.0}$
 Max. Speed @ 5 in. Hg Inlet 2002 r/min

Pump inlet suction should not exceed 5 in. Hg vacuum. Positive pressure on inlet should not exceed 1.4 bar (20 psi).

3520VQ & 3525VQ Series



Maximum operating speeds shown on performance curves are for pumps operating at 0 psi inlet condition. To compute maximum operating speeds at other inlet conditions use the appropriate speed rating correction factor shown in the curve above.

EXAMPLE: Max. Speed @ 0 psi Inlet 2500 r/min
 Correction Factor @ 5 in. Hg $\times \frac{.92}{1.0}$
 Max. Speed @ 5 in. Hg Inlet 2300 r/min

Pump inlet suction should not exceed 5 in. Hg vacuum. Positive pressure on inlet should not exceed 1.4 bar (20 psi).

Triple Pump Operating Specifications

Maximum speed ratings for triple pumps are dependent upon V10 ring size. See chart below for ratings.

Pressure ratings are shown on page 25 for VQ sections and page 69 for V10 sections.

**Cover-end pump (V10)
delivery/USgpm
@ 1200 rpm and 100 psi**

	Maximum Speed - r/min				
	2520VQSV10	3520VQSV10	3525VQSV10	4525VQSV10	4535VQSV10
1	2700	2500	2500	2200	2200
2	2700	2500	2500	2200	2200
3	2700	2500	2500	2200	2200
4	2700	2500	2200* 2500+	2200	2200
5	2700	2500	2200* 2500+	2200	2200
6	2200* 2500+	2200* 2500+	2200* 2400+	2200	2200
7	1900* 2200+	1900* 2200+	2200	2000* 2200+	2100* 2200+

* With V10 pressure over 70 bar (1000 psi)

+ With V10 pressure to 70 bar (1000 psi)

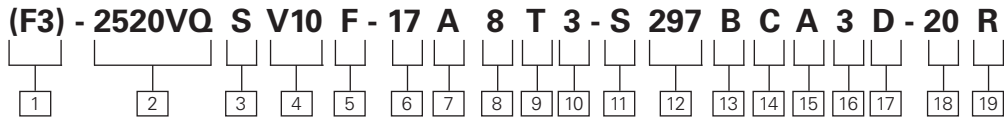
Typical Performance

For triple pump performance, use curves listed in this table:

Triple pump model series	Shaft end pump	Center pump	Cover end pump	Page no.
2520VQSV10	25**VQ			34
		**20VQ		37
			V10	75, 78, 79
3520VQSV10	35**VQ			35
		**20VQ		38
			V10	75, 78, 79
3525VQSV10	35**VQ			35
		**25VQ		39
			V10	75, 78, 79
4525VQSV10	45**VQ			36
		**25VQ		41
			V10	75, 78, 79
4535VQSV10	45**VQ			36
		**35VQ		42
			V10	75, 78, 79

Model Codes

Triple Pump



1 F3 - Viton seals
Omit if not required.

2 Double pump series
First two numerals in the series denote shaft end of triple pump; second two numerals denote the center pump.
2520VQ 4525VQ
3520VQ 4535VQ
3525VQ

3 SAE mounting
S – SAE mounting per J 744

4 Single pump series
Cover end pump of triple pump

5 Cover options for V10 pump
S – Standard cover
F – Integral flow control & relief valve
P – Integral priority valve & relief

6 SAE rated flow, shaft-end pump
Refer to table 1.

7 Double pump port connections
A – All SAE 4-bolt flange
AM – Metric 4-bolt flange

8 SAE rated flow, center pump
Refer to table 1.

9 No. 3 outlet port connection
Standard Cover
S – .750-16 straight thread
Flow Control Cover
T – .750-16 straight thread, control port & tank port.
Priority Valve Cover
K – .5625-18 straight thread, primary port & tank port.
.750-16 straight thread, secondary port

10 SAE rated flow, cover end pump
Refer to table 1.

11 Shaft seal
S – Double seal
Blank – Single seal

12 Splined shaft
297 – All series

13 No. 1 outlet port position
Refer to table 2.

14 No. 2 outlet port position
Refer to table 2.

15 No. 3 outlet port position
Refer to table 2.

16 Controlled flow rate, V10F & V10P
Omit for standard cover.
3 – 11 L/min (3 USgpm)
4 – 15 L/min (4 USgpm)

5 – 19 L/min (5 USgpm)
6 – 23 L/min (6 USgpm)
7 – 27 L/min (7 USgpm)
8 – 30 L/min (8 USgpm)

17 Relief valve setting, V10F & V10P
Omit for standard cover.
A – 17 bar (250 psi) F – 100 bar (1500 psi)
B – 35 bar (500 psi) G – 121 bar (1750 psi)
C – 52 bar (750 psi) H – 140 bar (2000 psi)
D – 70 bar (1000 psi) J – 155 bar (2250 psi)
E – 86 bar (1250 psi) K – 175 bar (2500 psi)

18 Design
Subject to change. Installation dimensions remain the same for designs -20 through -29.

19 Shaft rotation
(Viewed from shaft end of pump)
L – Left hand (counterclockwise)
R – Right hand

Table 1

Rated Flow @ 1200 r/min & 100 psi – USgpm

Shaft-end pump 2520	Shaft-end pump 35**	Shaft-end pump 45**	Center pump **20	Center pump **25	Center pump **35	Cover-end pump V10
12	25	42	5	12	25	1
14	30	50	8	14	30	2
17	35	60	11	17	35	3
21	38		12	21	38	4
			14			5
						6
						7

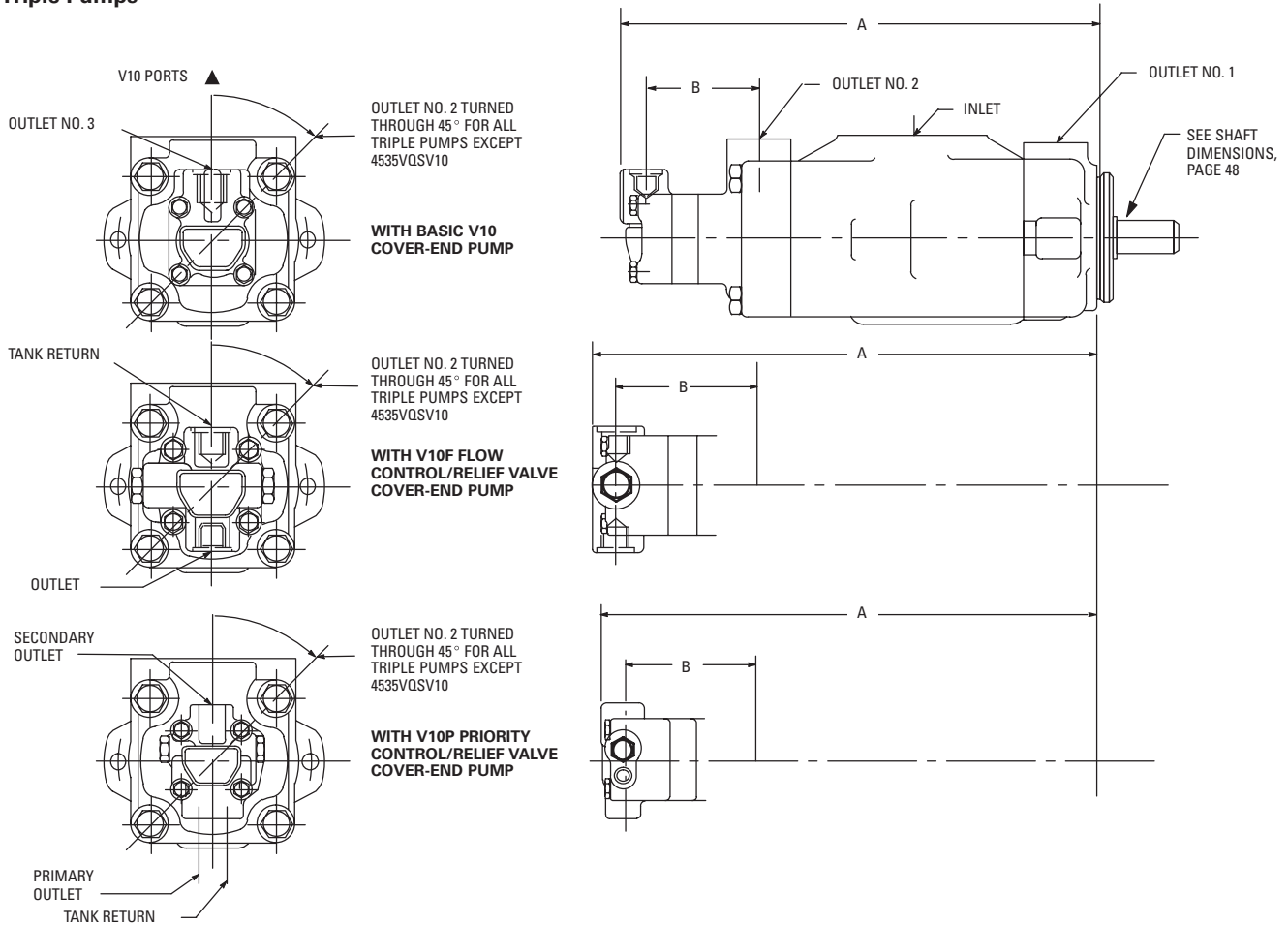
Table 2

Outlet position code

Position viewed from cover end	13 No. 1 outlet	14 No. 2 outlet	15 No. 3 outlet
Opposite inlet	A	A (4535 only)	A
135° CCW from inlet	–	A	–
90° CCW from inlet	B	B (4535 only)	B
45° CCW from inlet	–	B	–
Inline with inlet	C	C (4535 only)	C
45° CW from inlet	–	C	–
90° CW from inlet	D	D (4535 only)	D
135° CW from inlet	–	D	–

Installation Dimensions

Triple Pumps



V10 cover can be assembled in any of four positions; see model codes, page 46. 4535VQSV10 shown.

Model series	Dimensions mm (in.)					
	1, 2 & 3 USgpm*		4 & 5 USgpm*		6 & 7 USgpm*	
	A	B	A	B	A	B
2520VQSV10	350 (13.78)	87 (3.43)	356 (14.03)	94 (3.68)	361 (14.23)	99 (3.88)
2520VQSV10F	363 (14.30)	105 (4.12)	370 (14.55)	111 (4.38)	375 (14.75)	116 (4.58)
2520VQSV10P	364 (14.35)	105 (4.12)	371 (14.60)	111 (4.38)	376 (14.80)	116 (4.58)
3520VQSV10	372 (14.66)	87 (3.43)	379 (14.91)	94 (3.68)	384 (15.11)	99 (3.88)
3520VQSV10F	386 (15.18)	105 (4.12)	392 (15.43)	111 (4.37)	397 (15.63)	116 (4.57)
3520VQSV10P	387 (15.23)	105 (4.12)	393 (15.48)	111 (4.37)	398 (15.68)	116 (4.57)
3525VQSV10	381 (15.00)	86 (3.40)	387 (15.25)	93 (3.65)	392 (15.45)	98 (3.85)
3525VQSV10F	394 (15.52)	104 (4.09)	401 (15.77)	110 (4.34)	406 (15.97)	115 (4.54)
3525VQSV10P	395 (15.57)	104 (4.09)	402 (15.82)	110 (4.34)	407 (16.02)	115 (4.54)
4525VQSV10	420 (16.53)	86 (3.40)	426 (16.78)	93 (3.65)	431 (16.98)	98 (3.85)
4525VQSV10F	433 (17.05)	104 (4.09)	439 (17.30)	110 (4.34)	445 (17.50)	115 (4.54)
4525VQSV10P	434 (17.10)	104 (4.09)	441 (17.35)	110 (4.34)	446 (17.55)	115 (4.54)
4535VQSV10	445 (17.50)	84 (3.31)	451 (17.75)	90 (3.56)	456 (17.95)	96 (3.76)
4535VQSV10F	458 (18.02)	102 (4.00)	464 (18.27)	108 (4.25)	469 (18.47)	113 (4.45)
4535VQSV10P	459 (18.07)	102 (4.00)	465 (18.32)	108 (4.25)	470 (18.52)	113 (4.45)

* SAE rated flows (@1200 rpm and 100 psi) of V10, V10F & V10P cover-end pump (see page 69).

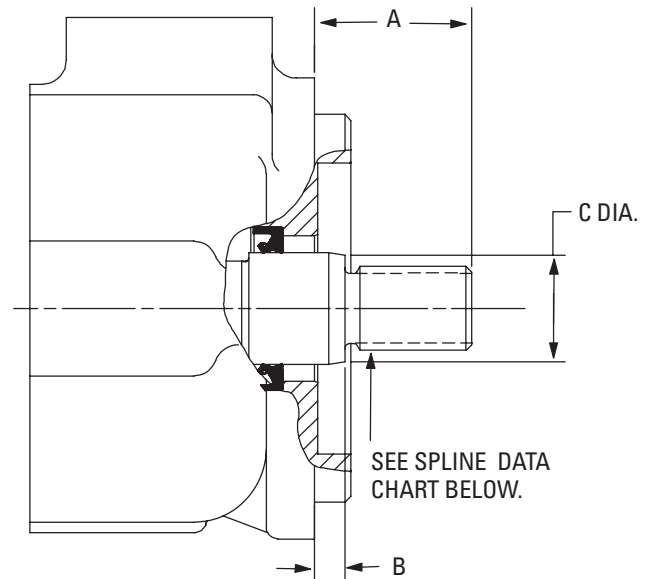
For detailed dimensions of double pump end, see pages 28 through 30; for V10 series cover-end pump, see pages 71 and 72.

Shaft – Triple Pumps

Dimensions – No. 297 shaft

Dimensions in millimeters (inches)

Model	A	B	C
2520VQSV10	41,1 (1.62)	7,9 (.31)	27,7 (1.09)
352*VQSV10	55,4 (2.18)	7,9 (.31)	35,1 (1.38)
45**VQSV10	55,4 (2.18)	7,9 (.31)	40,4 (1.59)



Spline data – No. 297 shaft

Dimensions in millimeters (inches)

Model	No. of teeth	Pitch	Major dia.	Form dia.	Minor dia.	Fit
2520VQSV10	13	16/32	21,8 (.858) 21,6 (.852)	19,0 (.749)	18,16 (.715)	
352*VQSV10	14	12/24	31,2 (1.229) 31,1 (1.223)	27,4 (1.08)	26,4 (1.040)	Side fit
45**VQSV10	14	12/24	31,2 (1.229) 31,1 (1.223)	27,4 (1.08)	26,4 (1.040)	

Shaft torque ratings – No. 297 shaft

Pump series	Drive shaft	Max. torque capability Nm (lb-in)
	Designation	
2520VQSV10	"B" per SAE J744C. 22-4 per SAE J744 Oct '83	344 (3040)
352*VQSV10	"C" per SAE J744C. 32-4 per SAE J744 Oct '83	791 (7000)
45**VQSV10	"C" per SAE J744C. 32-4 per SAE J744 Oct '83	1017 (9000)

Single Thru-drive Pump Operating Specifications

Model Series	Delivery USgpm @ 1200 r/min 7 bar (100 psi)	Displ. cm ³ /r (in ³ /r)	Max. r/min	Max. bar (psi)	Typical del. L/min (USgpm) @ max. speed & pressure	Typical input kW (hp) @ max. speed & pressure	Approx. Wt. kg (lb.)
25VQT*S	12	40,2 (2.45)	2700	210 (3000)	88,5 (23)	41,0 (55)	19,5 (43)
	14	45,4 (2.77)	2700	210 (3000)	103,8 (27)	46,6 (62.5)	
	17	55,2 (3.37)	2500	210 (3000)	119,2 (31)	51,8 (69.5)	
	21	67,5 (4.12)	2500	210 (3000)	146,2 (38)	61,9 (83)	
35VQT*S	25	81,6 (4.98)	2500	210 (3000)	173,1 (45)	75,3 (101)	28,6 (63)
	30	97,7 (5.96)	2500	210 (3000)	211,5 (55)	87,7 (117.5)	
	35	112,8 (6.88)	2400	210 (3000)	230,8 (60)	98,5 (132)	
	38	121,6 (7.42)	2400	210 (3000)	250,0 (65)	104,4 (140)	
45VQT*S	42	138,7 (8.46)	2200	175 (2500)	255,8 (66.5)	91,4 (122.5)	38,2 (84)
	50	162,3 (9.90)	2200	175 (2500)	303,8 (79)	105,2 (141)	
	60	193,4 (11.80)	2200	175 (2500)	369,2 (96)	126,8 (170)	

Performance constants: SAE 10W fluid @ 82 C. (180 F.)
Pump inlet @ 0 PSIG (14.7 PSIA)

Note: Outlet pressure must always be higher than inlet pressure. See page 7 for details.

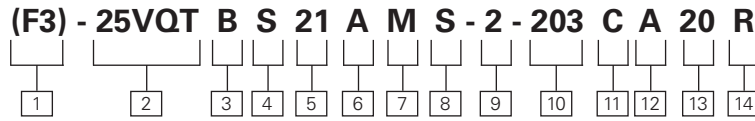
Typical Performance

For thru-drive performance, use curves on the following pages:

Thru-drive model series	Page no.
25VQT*S	22
35VQT*S	23
45VQT*S	24

Model Codes

Thru-drive Single Pump



1 F3 - Viton seals

Omit if not required.

2 Intravane pump series – Thru-drive

25VQT
35VQT Standard bearing
45VQT

26VQT
36VQT Heavy duty bearing

3 Thru-drive connection mounting adapter (2-bolt)

Code	SAE Designation	
	J744C	J744 Oct '83
A	A	82-2
B	B	101-2
BP	Special mounting with spacer for Vickers PVE12/19/21	
C	C	127-2 (not available on 25VQT)

4 Front mounting flange

Model series	SAE Designation	
	J744C	J744 Oct '83
2*VQT	B	101-2
3*VQT	C	127-2
45VQT	C	127-2

5 Geometric displacement

Code = SAE rating USgpm at 1200 r/min

Series	Code	cm ³ /r	(in ³ /r)
2*VQT	12	40,2	(2.45)
	14	45,4	(2.77)
	17	55,2	(3.37)
	21	67,5	(4.12)
3*VQT	25	81,6	(4.98)
	30	97,7	(5.96)
	35	112,8	(6.88)
	38	121,6	(7.42)
45VQT	42	138,7	(8.46)
	50	162,3	(9.90)
	60	193,4	(11.80)

6 SAE Port connections

4-bolt flange port connection

7 Metric threads on port connections

(Omit for inch threads)

8 Double shaft seal

S – Double shaft seal
Blank – Single seal

9 Coupling for tandem pump

2 – SAE splined coupling included with pump

10 Shaft type

203 – Heavy duty straight key
297 – Splined

11 Outlet positions

(Viewed from cover end of pump)
A – Opposite inlet
B – 90° CCW from inlet
C – In line with inlet
D – 90° CW from inlet

12 Adapter mounting orientation

(Viewed from cover end of pump)

Code	"A" adapter	"B" adapter
	J744C	J744 Oct '83
A	Rotated 45° CW with respect to pump mtg. flg.	In line with pump mtg. flg.
B	Rotated 45° CCW with respect to pump mtg. flg.	Rotated 90° with respect to pump mtg. flg.

13 Design

Subject to change. Installation dimensions remain the same for designs -20 through -29.

14 Shaft rotation

(Viewed from shaft end of pump)
L – Left hand (counterclockwise)
R – Right hand (clockwise)

NOTE:

For options other than listed above, i.e. shafts, ports, displacements and mountings, contact your Vickers representative.

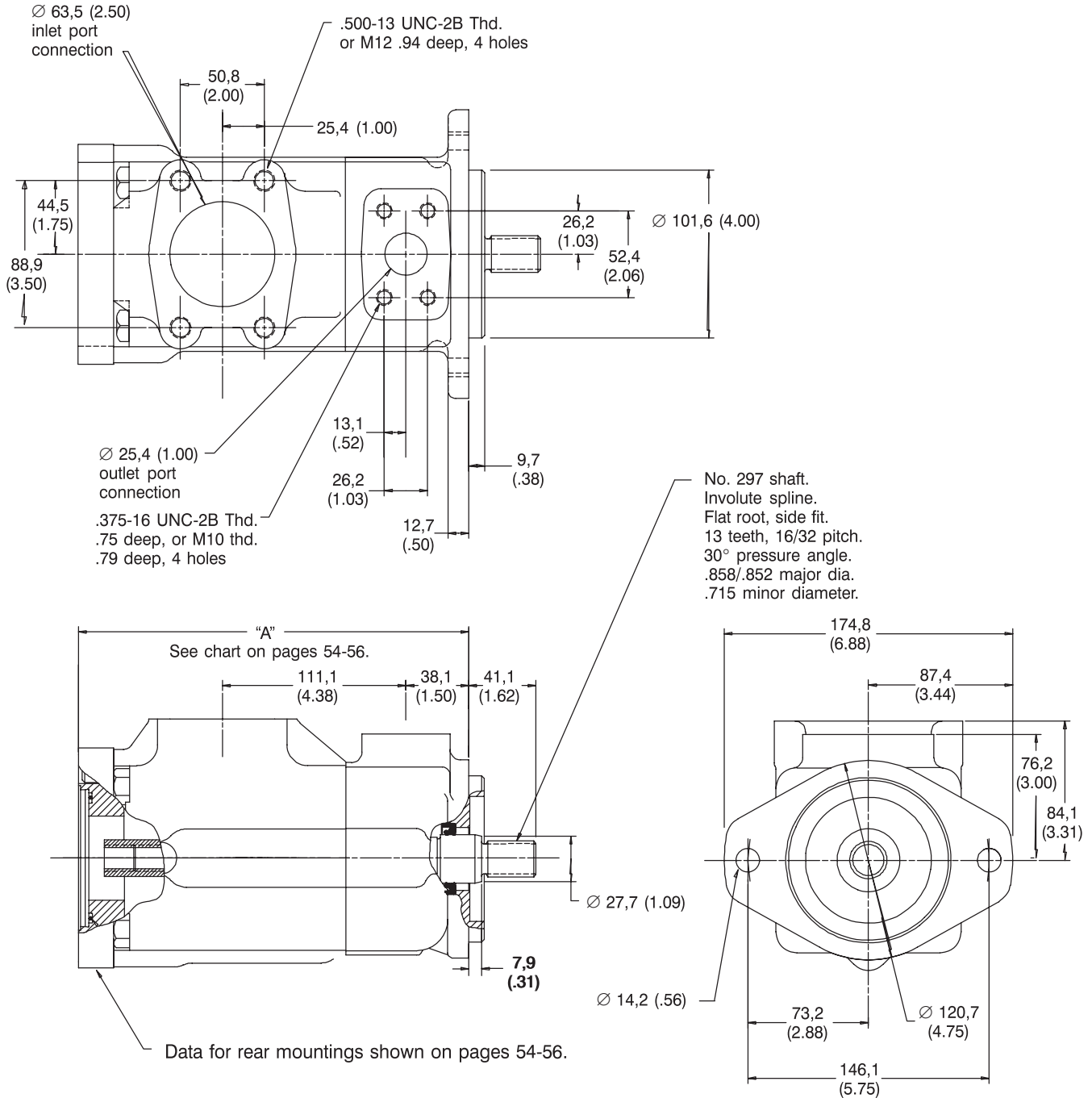
Installation Dimensions

25VQT*S Series

Dimensions in millimeters (inches)

Shaft options are shown on page 58.

See page 121 for selection of SAE 4-bolt flanges for port connection pads.

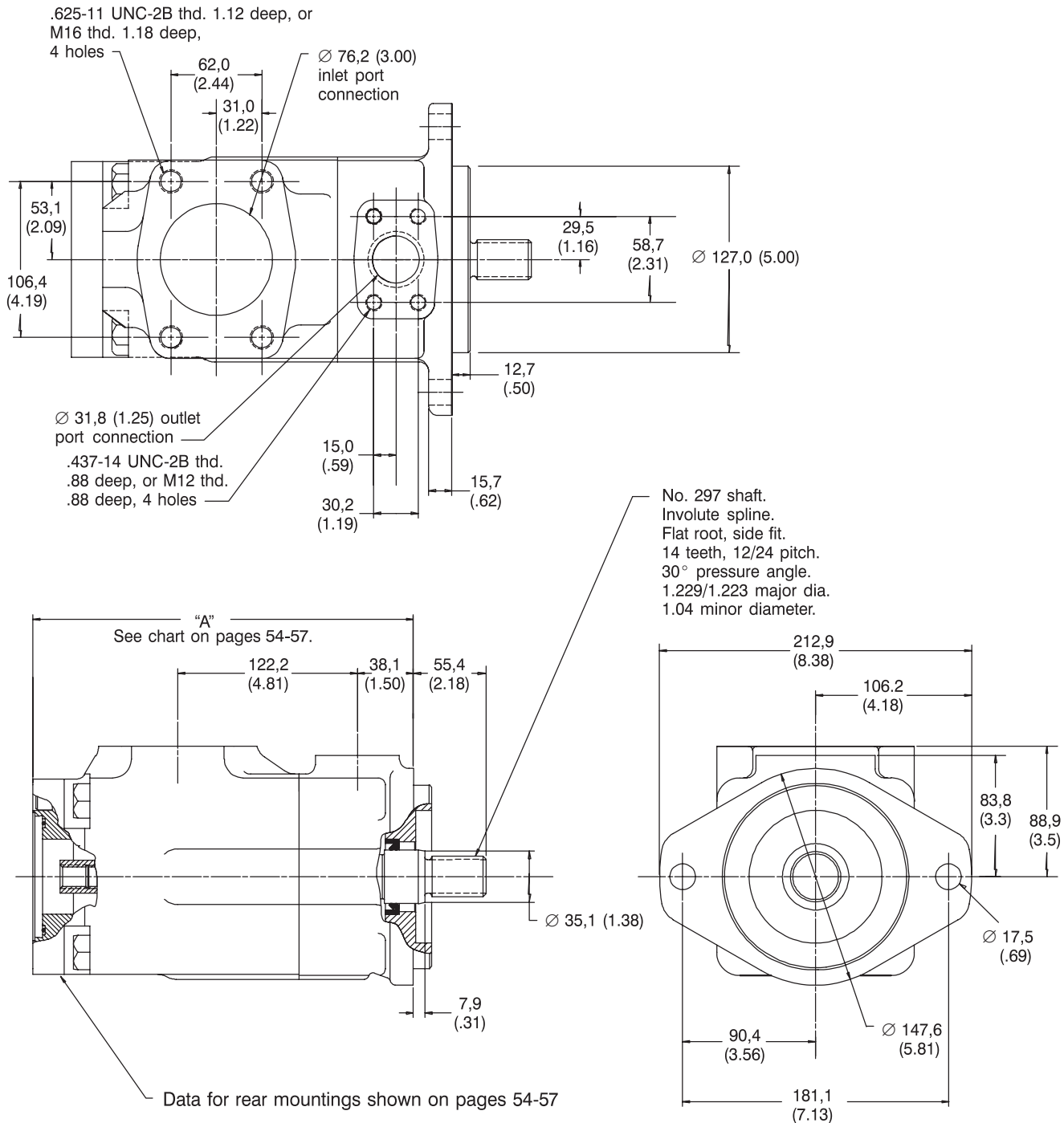


35VQT*S Series

Dimensions in millimeters (inches)

Shaft options are shown on page 58.

See page 121 for selection of SAE 4-bolt flanges for port connection pads.



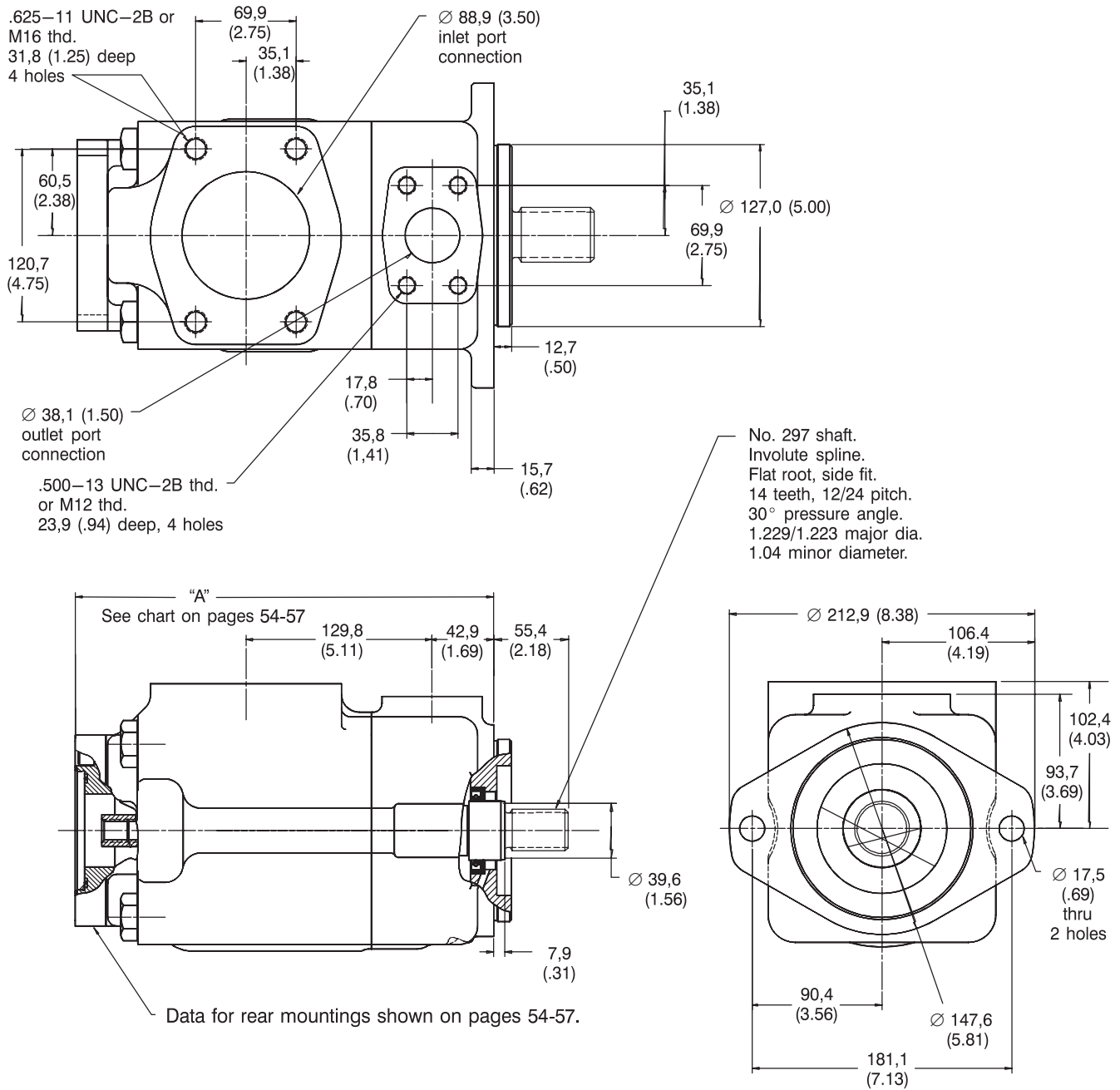
Installation Dimensions

45VQT*S Series

Dimensions in millimeters (inches)

Shaft options are shown on page 58.

See page 121 for selection of SAE 4-bolt flanges for port connection pads.

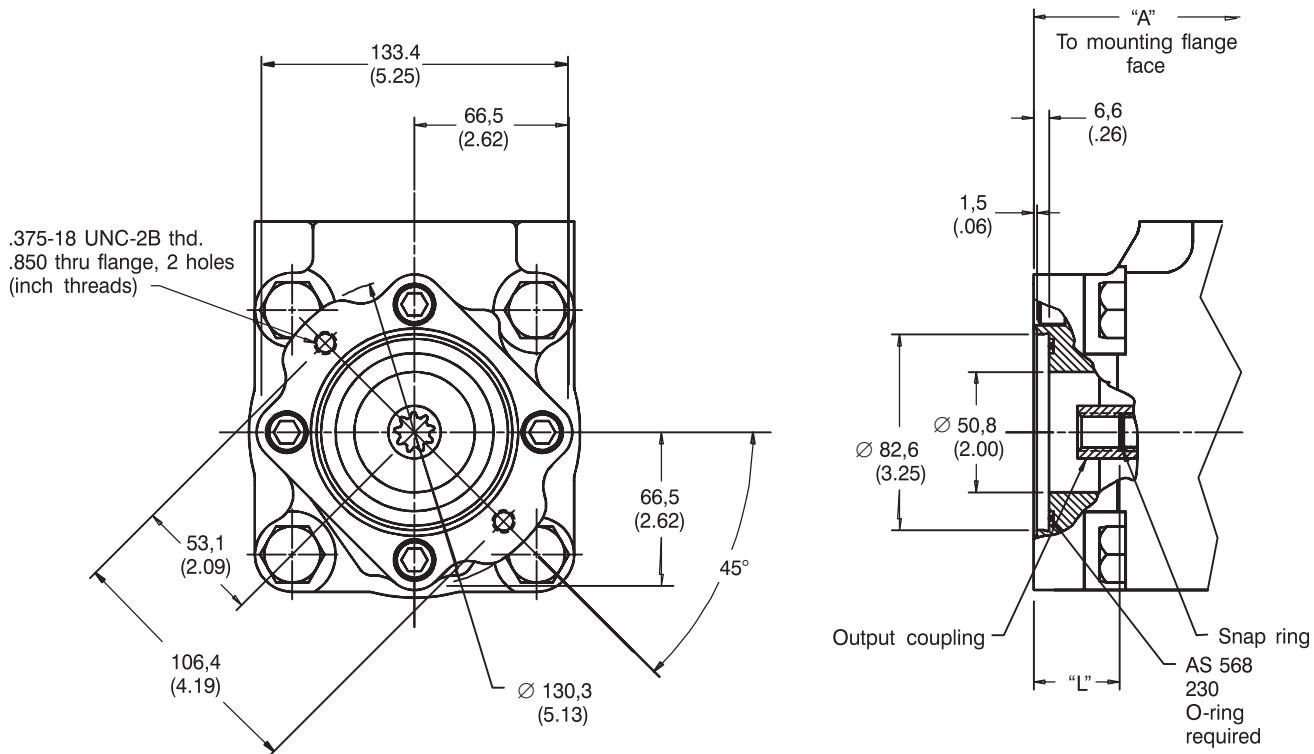


Thru-drive Rear Mountings

"A" rear mounting

Dimensions in millimeters (inches)

This unit accepts a hydraulic pump with a mounting configuration of the 82-2 (A) size per SAE std. J-744 Oct '83. The output coupling is for a pump shaft of SAE "A" size with a 30° involute spline (per SAE std J-744 Oct '83), 9T and 16/32 D.P. (Per ANSI B.92.1a1976). Concentricity of the shaft of the attached pump must meet or exceed requirements of SAE Std. J-744 Oct '83.



Pump model	Dimension "A"	Dimension "L" *
25VQTAS	236, 2 (9.3)	32,5/31,0 (1.28/1.22) 33,0 (1.30) maximum
35VQTAS	259, 1 (10.2)	32,5/31,0 (1.28/1.22) 35,6 (1.40) maximum
45VQTAS	292, 1 (11.5)	32,5/31,0 (1.28/1.22) 35,3 (1.39) maximum

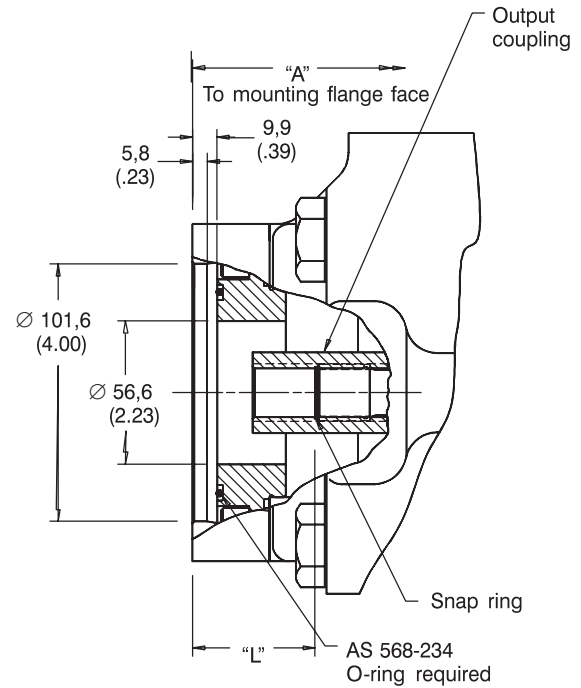
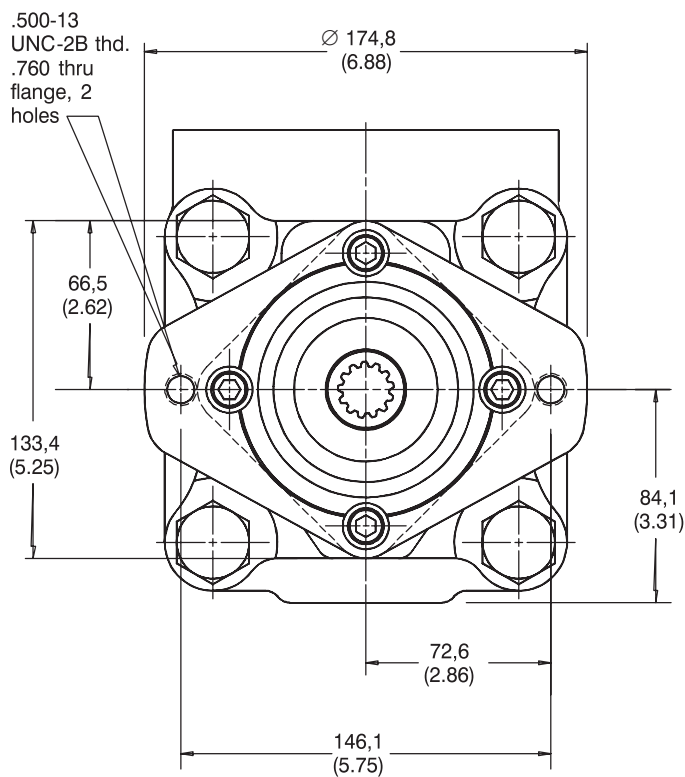
* CAUTION: Dimension "L" is important and must be observed.

Thru-drive Rear Mountings

"B" rear mounting

Dimensions in millimeters (inches)

This unit accepts a hydraulic pump with a mounting configuration of the 101-2 (B) size per SAE std. J-744 Oct '83. The output coupling is for a pump shaft of SAE "B" size with a 30° involute spline (per SAE std J-744 Oct '83), 13T and 16/32 D.P. (Per ANSI B.92.1a1976). Concentricity of the shaft of the attached pump must meet or exceed requirements of SAE Std. J-744 Oct '83.



NOTE: For mounting PVE12/19/21, use "BP" adapter.

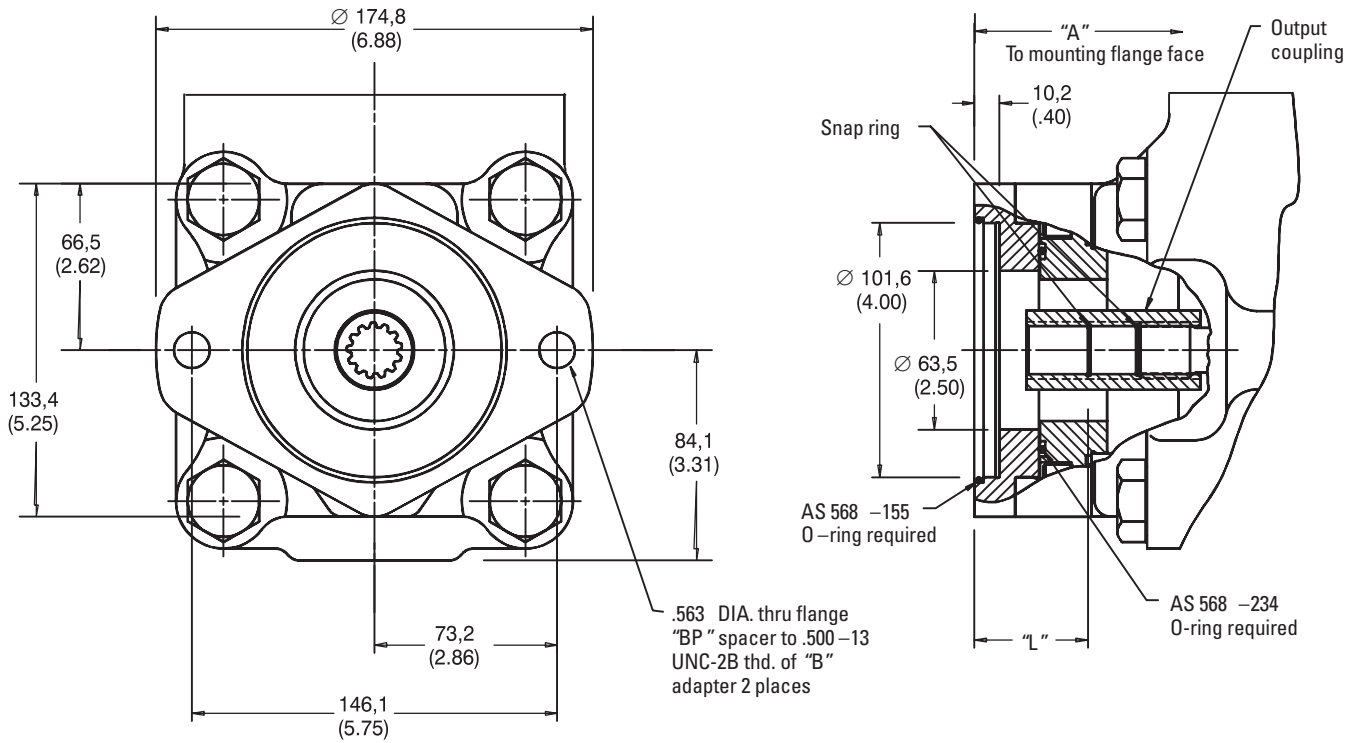
Pump model	Dimension "A"	Dimension "L" *
25VQTBS	246,4 (9.7)	42,4/39,9 (1.67/1.57) 45,2 (1.78) maximum
35VQTBS	269,2 (10.6)	42,4/39,9 (1.67/1.57) 46,7 (1.84) maximum
45VQTBS	299,7 (11.8)	42,4/39,9 (1.67/1.57) 46,2 (1.82) maximum

* CAUTION: Dimension "L" is important and must be observed.

"BP" rear mounting

Dimensions in millimeters (inches)

This SAE "B" size unit with spacer accepts a Vickers PVE12/19/21 pump. The output coupling is for a pump shaft of SAE "B" size with a 30° involute spline (per SAE std J-744 Oct '83), 13T and 16/32 D.P. (Per ANSI B.92.1a1976).



Pump model	Dimension "A"	Dimension "L" *
25VQTBPS	261,9 (10.31)	45,7/43,2 (1.80/1.70) Not SAE std.
35VQTBPS	284,5 (11.20)	45,7/43,2 (1.80/1.70) Not SAE std.
45VQTBPS	317,0 (12.48)	45,7/43,2 (1.80/1.70) Not SAE std.

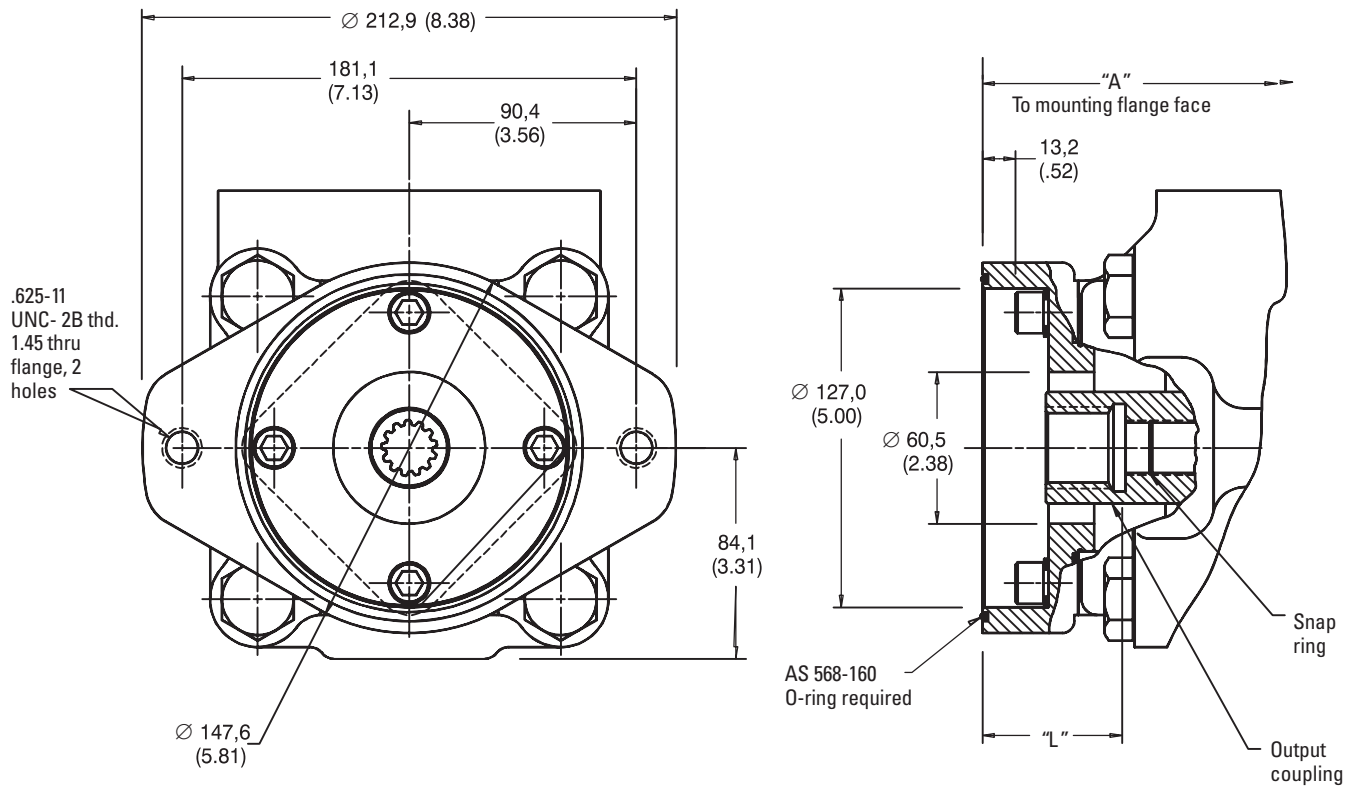
* CAUTION: Dimension "L" is important and must be observed.

Thru-drive Rear Mountings

"C" rear mounting

Dimensions in millimeters (inches)

This unit accepts a hydraulic pump with a mounting configuration of the 127-2 (C) size per SAE std. J-744 Oct '83. The output coupling is for a pump shaft of SAE "C" size with a 30° involute spline (per SAE std J-744 Oct '83), 14T and 12/24 D.P. (Per ANSI B.92.1a1976). Concentricity of the shaft of the attached pump must meet or exceed requirements of SAE Std. J-744 Oct '83.



Pump model	Dimension "A"	Dimension "L" *
35VQTCS	276,9 (10.9)	56,6/54,1 (2.23/2.13)
		61,2 (2.41) maximum
45VQTCS	307,3 (12.1)	56,6/54,1 (2.23/2.13)
		61,5 (2.42) maximum

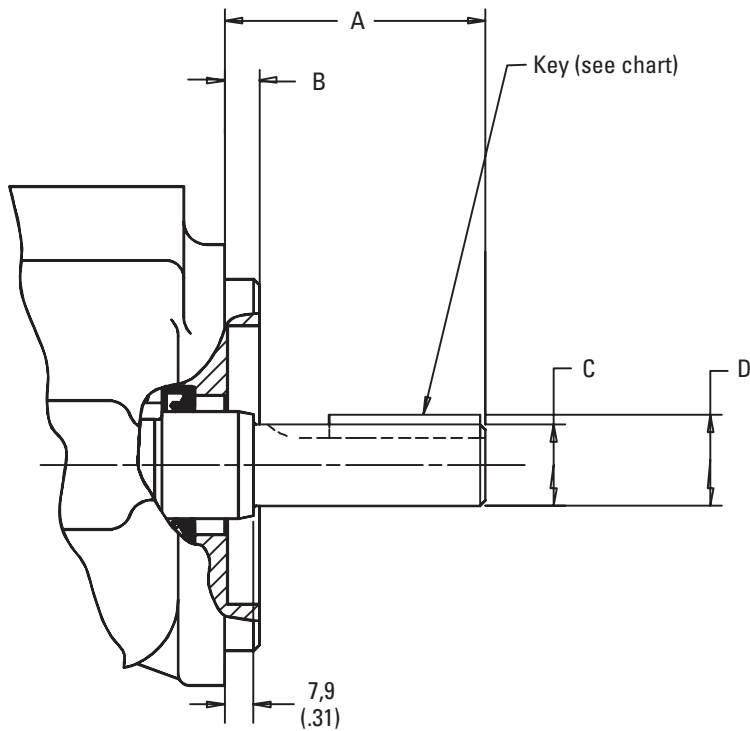
* CAUTION: Dimension "L" is important and must be observed.

Optional Shafts

#203 Straight keyed heavy duty shaft

Dimensions in millimeters (inches)

Note: No. 297 spline shaft shown on pages 51-53.



Dimensions

Model	A	B	Ø C	D	Key
25VQT*S	77,7 (3.06)	9,53 (.375)	25,40 (1.000)	28,19 (1.110)	6,35 (.250) sq. x 50,8 (2.00)
			25,35 (.998)	27,94 (1.100)	
35VQT*S	84,1 (3.31)	12,7 (.500)	34,90 (1.374)	38,56 (1.518)	7,94 (.313) sq. x 54,0 (2.13)
			34,87 (1.373)	38,30 (1.508)	
45VQT*S	90,4 (3.56)	12,7 (.500)	38,07 (1.499)	42,37 (1.668)	9,53 (.375) sq. x 57,2 (2.25)
			38,05 (1.498)	42,11 (1.658)	

Maximum Torque Loading for Direct Drives

Single pumps

All listed shafts are satisfactory up to maximum pressures in "Pressure and speed limits" in operating data for each series.

Double pumps

Where both cartridges are to be on-load together, check that the sum of their separate torques, taken from the graph below (right), does not exceed the torque limit in shaft torque Table 1.

Single thru-drive pumps and triple pumps

Where both the thru-drive pump and its rear-mounted pump are to be on-load together, check that the sum of the torques generated will never exceed the torque limit in shaft torque Table 2. Also check that the torque required on the rear-mounted pump never exceeds the thru-drive torque limit in shaft torque Table 2.

Table 2

Single Thru-drive Pumps and Triple Pumps – Shaft Torque Ratings

Pump Model	Shaft No.	Max. Input Torque Nm (lb. in.)*	Thru-drive Connection	Max. Thru-drive Torque Nm (lb. in.)
25VQT	203	402 (3560)	A B	131 (1160) 316 (2800)
25VQT or 2520VQSV10	297	344 (3040)	A B	131 (1160) 316 (2800)
35VQT	203	659(5830)	A B C	131 (1160) 348 (3080) 437 (3870)
35VQT or 352*VQSV10	297	791 (7000)	A B C	131 (1160) 348 (3080) 437 (3870)
45VQT	203	982 (8690)	A B C	131 (1160) 384 (3400) 702 (6210)
45VQT or 45*5VQSV10	297	1017 (9000)	A B C	131 (1160) 384 (3400) 702 (6210)

* Combined torque of Vickers "VQT" pump and thru-driven pump

Table 2

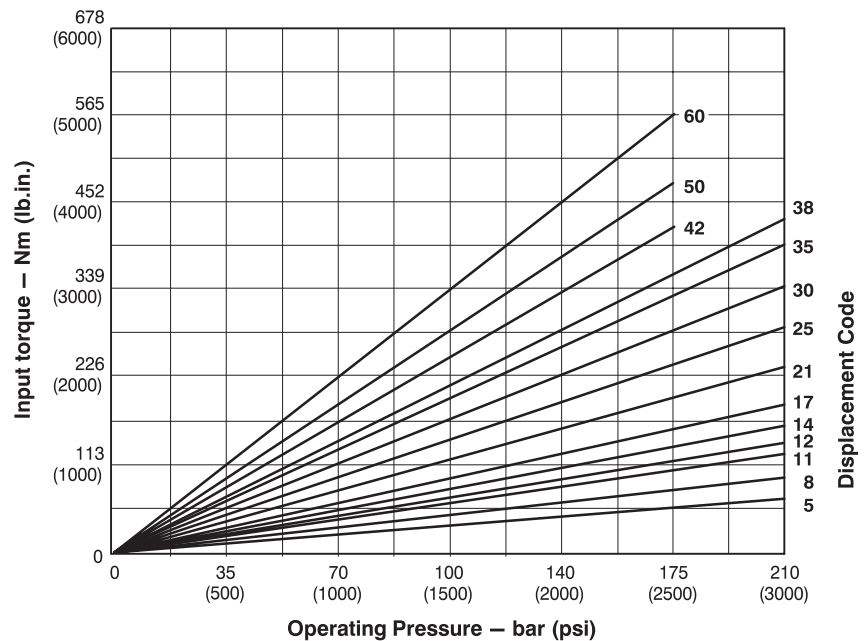
Single Thru-drive Pumps and Triple Pumps – Shaft Torque Ratings

Pump Model	Shaft Number	Maximum Input Torque Nm (lb. in.)*
25VQ or 25**VQ	1 86 11 123 203 297	316 (2800) 402 (3560) 316 (2800) 316 (2800) 402 (3560) 344 (3040)
35VQ or 35**VQ	1 11 86 123 203 297	402 (3560) 791 (7000) 659 (5830) 791 (7000) 659 (5830) 791 (7000)
45VQ or 45**VQ	1 11 86 130 203 297	402 (3560) 1017 (9000) 982 (8690) 1017 (9000) 982 (8690) 1017 (9000)

Example:

A 3525VQ38A17 pump operating at 175 bar (2500 psi) front section and 140 bar (2000 psi) rear section will require over 452 Nm (4000 lb. in.) input torque. Therefore, all listed shafts are acceptable except No. 1.

Input Torque Requirement



Double Thru-drive Pump Operating Specifications

Model Series	Displacement Code (USgpm at 1200 r/min and 7 bar (100 psi))		Displacement cm ³ /rev (in ³ /rev)	Rated Speed r/min	Maximum Pressure bar (psi)	Typical Delivery at Max Speed and Pressure l/min (USgpm)	Typical Input Power at Maximum Speed and Pressure kW (hp)
	Front Pump	Rear Pump					
	25		81,6 (4.98)	2500	207 (3000)	173,1 (45)	75 (101)
	30		97,7 (5.96)	2500	207 (3000)	211,5 (55)	88 (117.5)
	35		112,8 (6.88)	2400	207 (3000)	230,8 (60)	98 (132)
3525VQT	38		121,6 (7.42)	2400	207 (3000)	250,0 (65)	104 (140)
		12	40,2 (2.45)	2500	207 (3000)	79,0 (21)	38 (51)
		14	45,4 (2.77)	2500	207 (3000)	91,0 (24)	43 (58)
		17	55,2 (3.37)	2500	207 (3000)	119,2 (31)	51,8 (69,5)
		21	67,5 (4.12)	2500	207 (3000)	146,2 (38)	62 (83)
	42		138,7 (8.46)	2200	172 (2500)	255,8 (66.5)	91 (122.5)
	50		162,3 (9.90)	2200	172 (2500)	303,8 (79)	105 (141)
	60		193,4 (11.80)	2200	172 (2500)	369,2 (96)	127 (170)
4525VQT		12	40,2 (2.45)	2200	207 (3000)	68,0 (18)	33 (44)
		14	45,4 (2.77)	2200	207 (3000)	79,0 (21)	38 (51)
		17	55,2 (3,37)	2200	207 (3000)	100,0 (26.5)	45 (61)
		21	67,5 (4.12)	2200	207 (3000)	125,0 (33)	54 (73)

Performance constants: SAE 10W oil @ 82C (180F) and pump inlet @ 0 psig (14.7 psia).

Note: Outlet pressure must always be higher than inlet pressure. See page 8 for details.

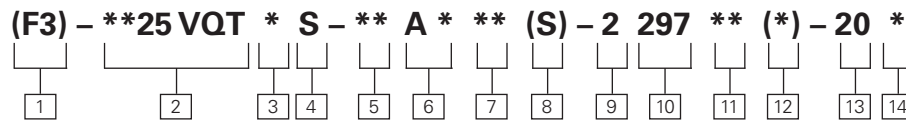
Typical Performance

For thru-drive performance, use curves on the following pages:

Model Series	Page Number	
	Shaft-end Pump	Rear Pump
3525VQT	35	39
4525VQT	36	41

Model Codes

Thru-drive Double Pump



1 F3 - Viton seals
Omit if not required.

2 Series designation
3525VQT (standard bearing)
3625VQT (3525VQT with heavy duty bearing)
4525VQT (standard bearing)

3 Thru-drive (rear) 2-bolt mounting flange
A – SAE “A” flange
B – SAE “B” adapter flange
BP – SAE “B” spacer flange for Vickers PVE12, 19, or 21 pump

4 Front mounting flange
S – SAE J-744 (127-2)

5 Geometric displacement, shaft end pump
Code = SAE rating (USgpm) at 1200 rpm and 6,9 bar (100 psi)

Pump Series	Code	cm ³ /r	in ³ /r
3*25VQT	25	81,6	4.98
	30	97,7	5.96
	35	112,8	6.88
	38	121,6	7.42

4525VQT	42	138,7	8.46
	50	162,3	9.90
	60	193,4	11.80

6 Port connections
A – SAE 4-bolt flange
B – Metric 4-bolt flange (Flange pads stamped “M” for metric threads)

7 Geometric displacement, cover end pump
Code = SAE rating (USgpm) at 1200 rpm and 6,9 bar (100 psi)

Pump Series	Code	cm ³ /r	(in ³ /r)
**25VQT	12	40	2.45
	14	45	2.77
	17	55	3.37
	21	68	4.12

8 Shaft seal assembly
S – Single seal
– Omit for double seal

9 Thru-drive coupling
2 – With spline for tandem pump

10 Shaft
297 – Splined
“C” size per SAE J744C
32-4 per SAE J744 Oct ‘83

11 Port position
(Viewed from cover end of pump)
With no. 1 outlet opposite inlet
AA – No. 2 outlet 135° CCW from inlet
AB – No. 2 outlet 45° CCW from inlet
AC – No. 2 outlet 45° CW from inlet
AD – No. 2 outlet 135° CW from inlet

With no. 1 outlet 90° CCW from inlet
BA – No. 2 outlet 135° CCW from inlet
BB – No. 2 outlet 45° CCW from inlet
BC – No. 2 outlet 45° CW from inlet
BD – No. 2 outlet 135° CW from inlet

With no. 1 outlet in line with inlet
CA – No. 2 outlet 135° CCW from inlet
CB – No. 2 outlet 45° CCW from inlet
CC – No. 2 outlet 45° CW from inlet
CD – No. 2 outlet 135° CW from inlet

With no. 1 outlet 90° CCW from inlet
DA – No. 2 outlet 135° CCW from inlet
DB – No. 2 outlet 45° CCW from inlet
DC – No. 2 outlet 45° CW from inlet
DD – No. 2 outlet 135° CW from inlet

12 Thru-drive (rear) mounting flange position
(Viewed from cover end of pump)
A – In line with no. 2 outlet port in all cases
B – 90° from no. 2 outlet port in all cases
– Omit for **25VQTA models

13 Design
Subject to change. Installation dimensions remain unchanged for designs 20 through 29.

14 Shaft rotation
(Viewed from shaft end of pump)
L – Left hand (counterclockwise)
R – Right hand (clockwise)

NOTE:

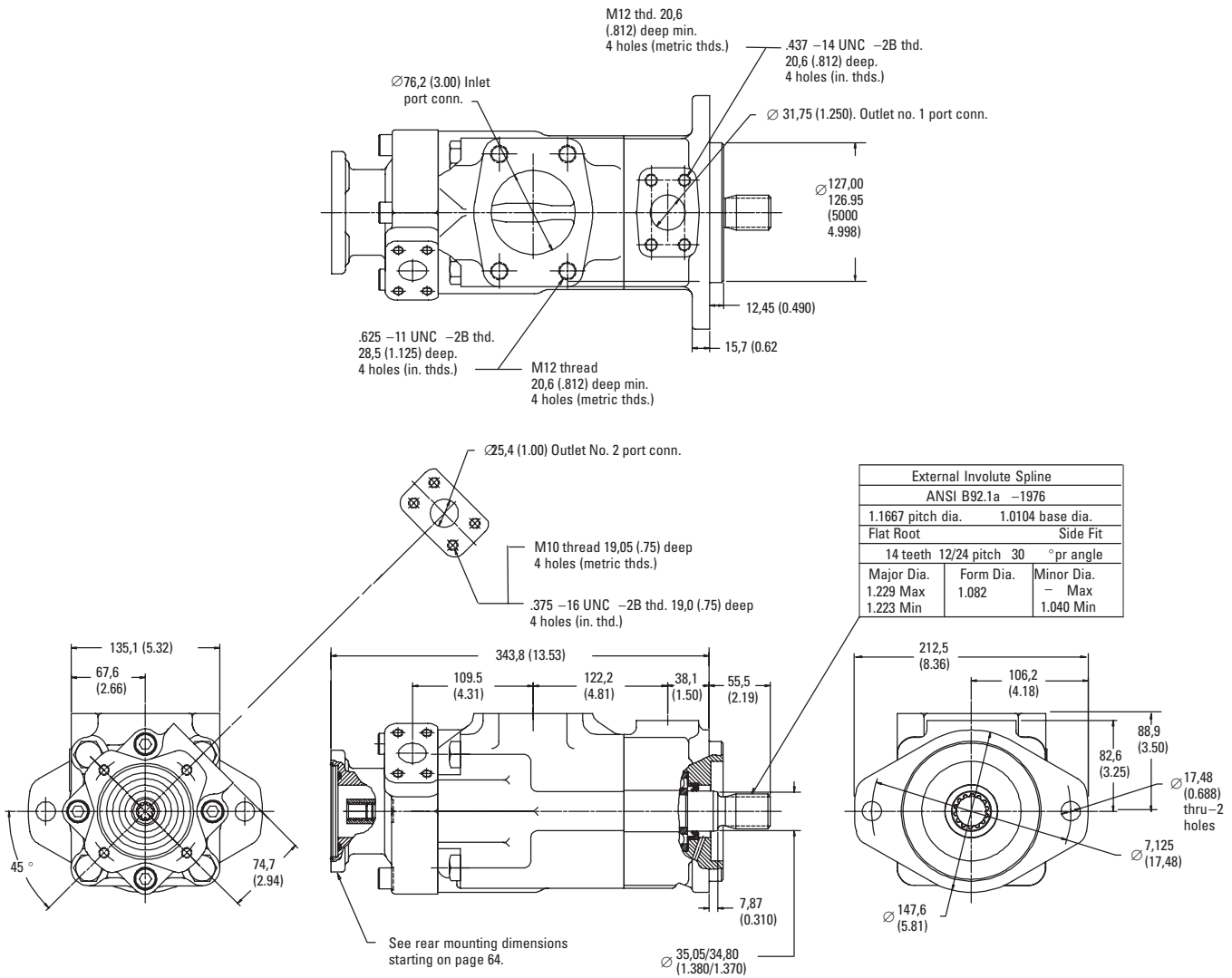
State complete model number when ordering. Example: 3525VQTAS-25A12-2297CC-20R. Port flange kits with inch screws are available from Vickers and must be ordered separately. For port flange kits, or mounting, displacement, port, and shaft options other than coded above, contact your Vickers representative.

Installation Dimensions

3525VQT Series

Dimensions in millimeters (inches)

Port connection pads are for use with SAE or metric 4-bolt flanges. Pads stamped with "M" for metric threads. See page 121 for selection of SAE flanges.

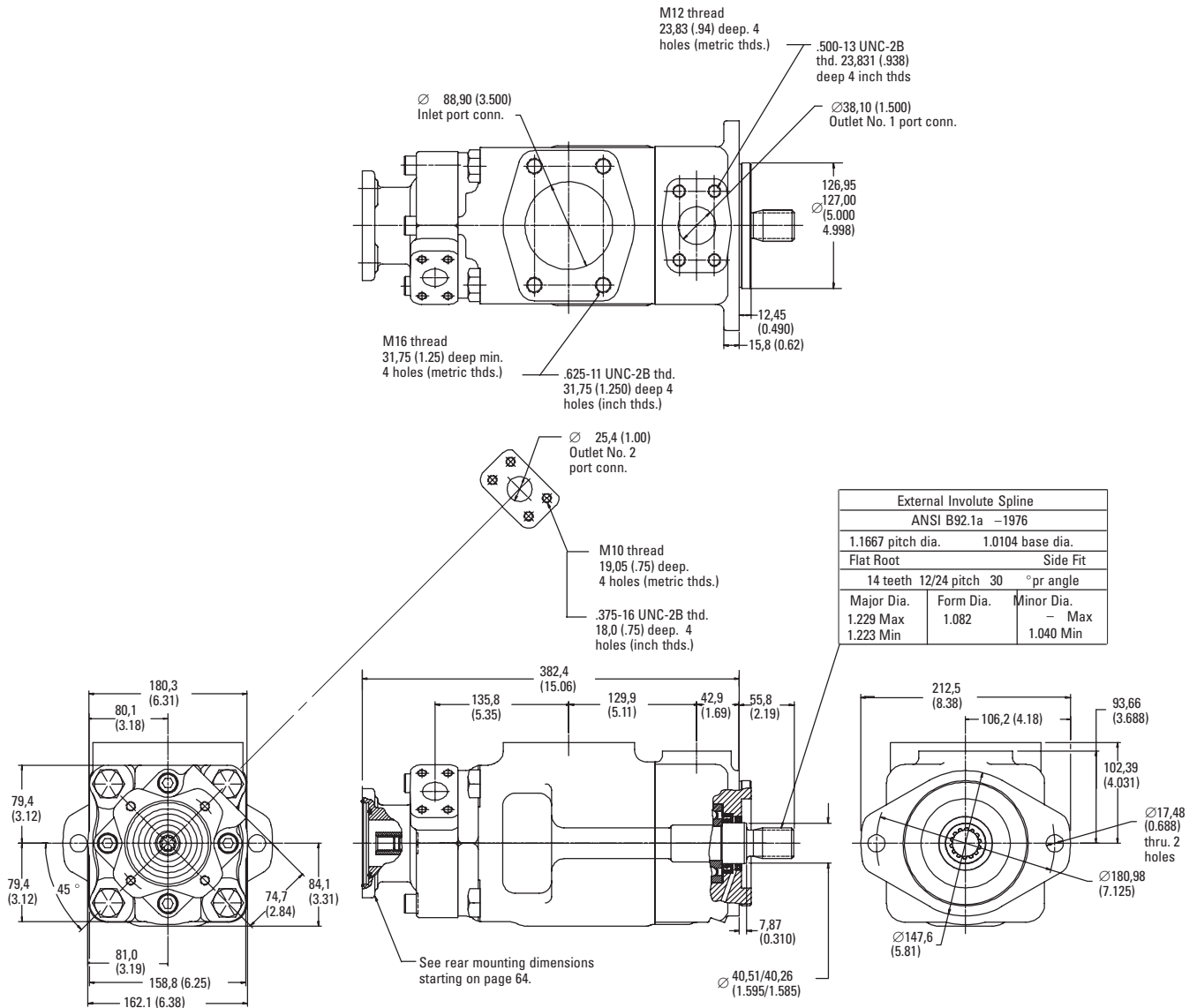


Installation Dimensions

4525VQT Series

Dimensions in millimeters (inches)

Port connection pads are for use with SAE or metric 4-bolt flanges. Pads stamped with "M" for metric threads. See page 121 for selection of SAE flanges.

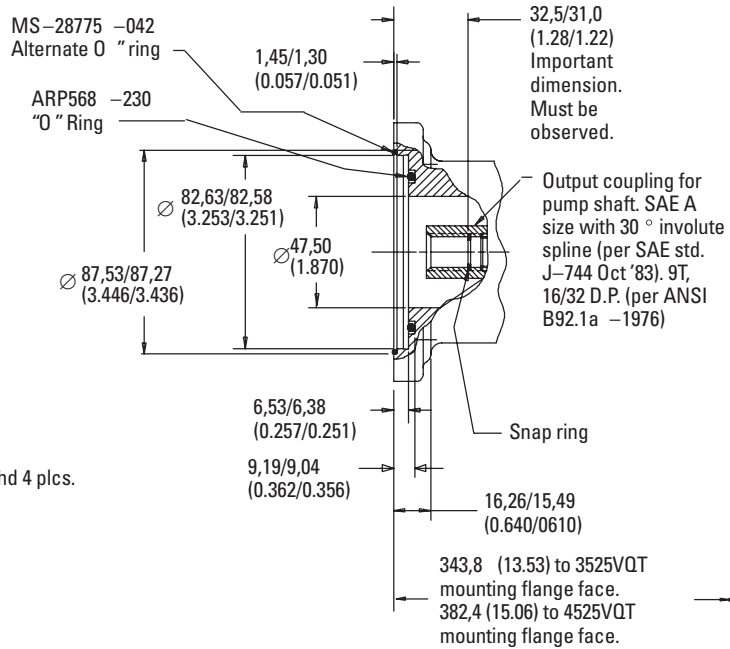
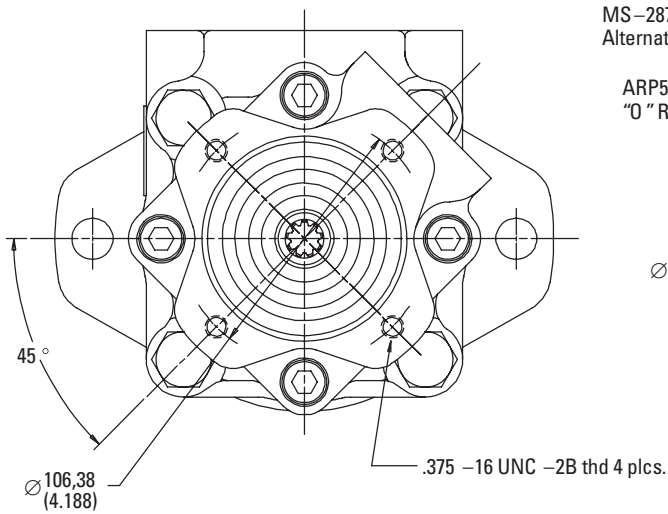


Rear Mountings for Thru-drive Double Pumps

"A" Rear Mounting

(SAE 82-2 size).

Dimensions in millimeters (inches)



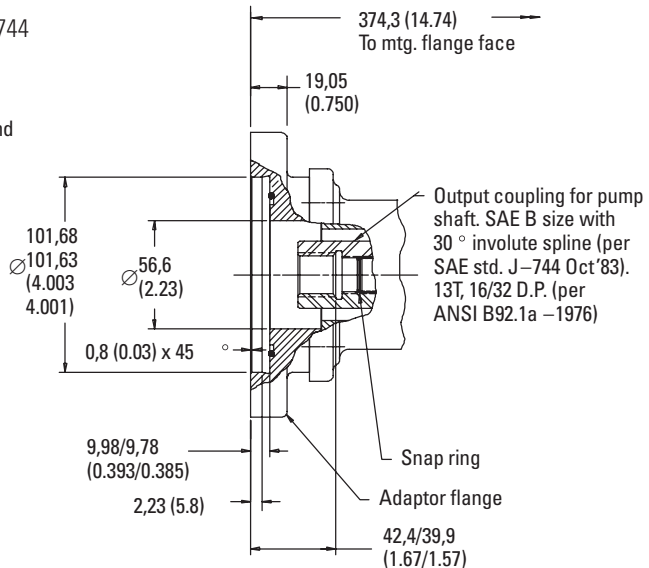
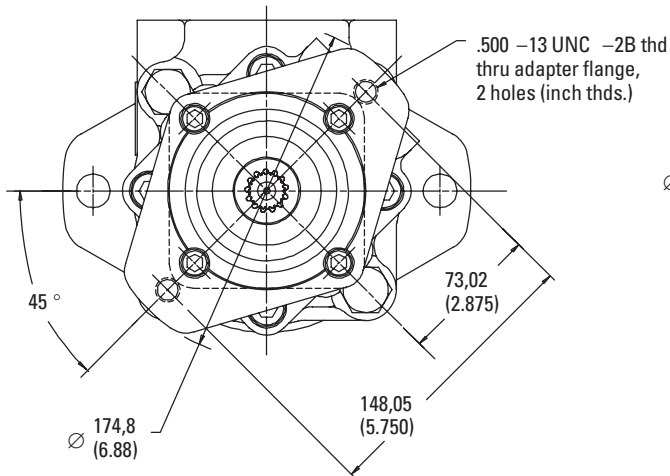
"B" Rear Mounting

(SAE 101-2 size).

Dimensions in millimeters (inches)

This unit accepts hydraulic pump with SAE mounting configuration of 101-2(B) size per SAE std. J-744 Oct '83.

NOTE: Concentricity of shaft of attached product must be to SAE std. J-744 Oct. '83 or better.

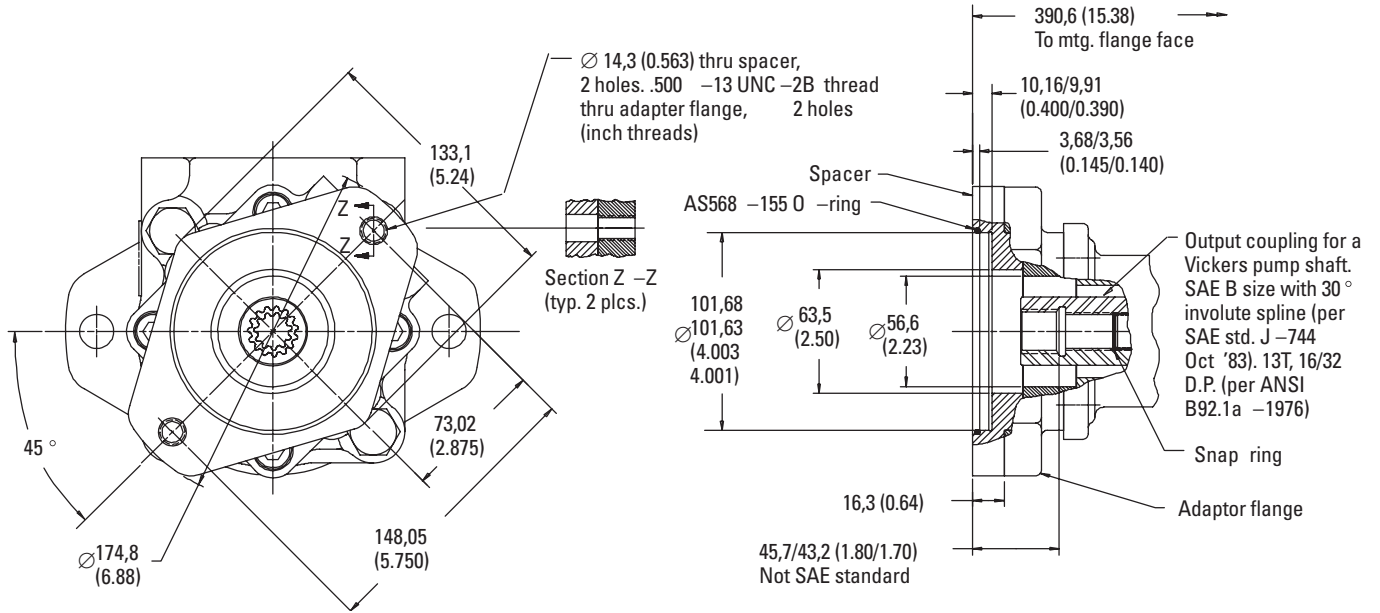


Rear Mountings for Thru-drive Double Pumps

"BP" Rear Mounting

(SAE B size with spacer for Vickers PVE19/21 pumps)

Dimensions in millimeters (inches)



Maximum Torque Loading for Direct Drives

Double Thru-drive Pumps

As pictured at right, a coupled double VQT pump and thru-driven pump are essentially three pumps driven by one drive shaft. It is critical that the sum of the torque required for each pumping section not exceed the maximum torque capability of the drive shaft.

Use the following procedure to ensure proper loading on the drive shaft:

1. Determine maximum operating torque of pumping section #1 from "Front Pump Torque Requirements" figure #1 or #2 at right.
2. Determine maximum operating torque of pumping section #2 from "Rear Pump Torque Requirements" figure #3 on following page.
3. Determine maximum operating torque of thru-driven pump (pumping section #3) from its specific catalog data, or estimate the torque using the following formula:

$$\text{Torque} = (1.15 \times \text{displacement} \times \text{pressure}) \div 6.28$$

Note: Actual torque may be higher or lower than estimated.

4. Ensure the torque determined for the #3 pumping section does not exceed the "Maximum Thru-drive Torque" for the double VQT pump in figure #4 on following page.
5. Sum all torque values from steps 1, 2 and 3 above. This value must not exceed the "Maximum Input Torque" value in figure #4 on following page.

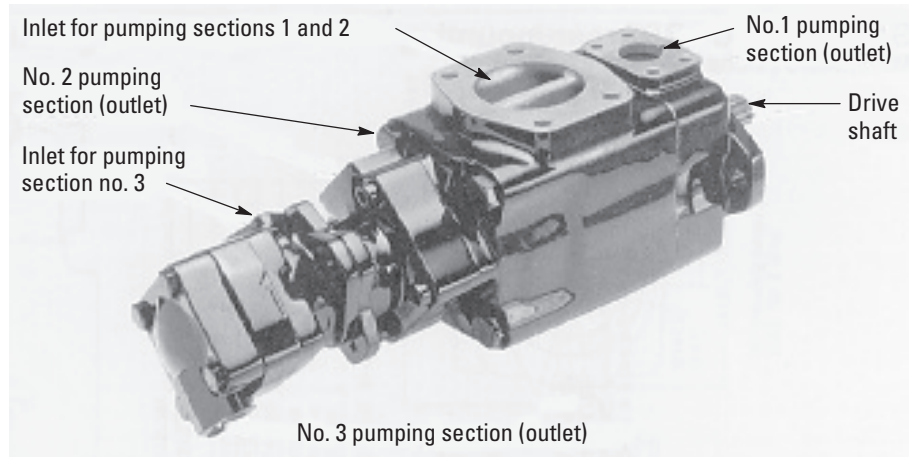


Figure 1

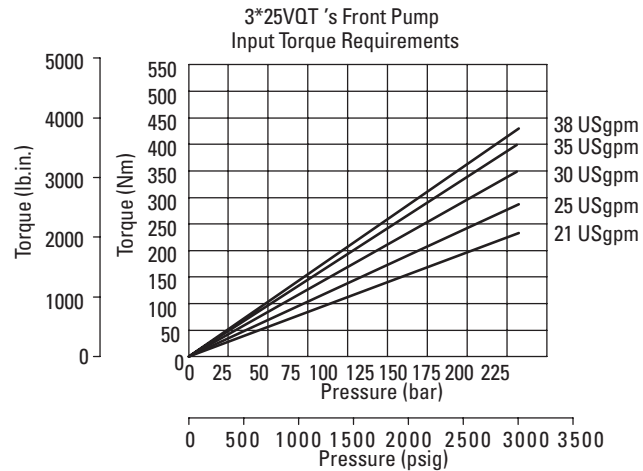


Figure 2

