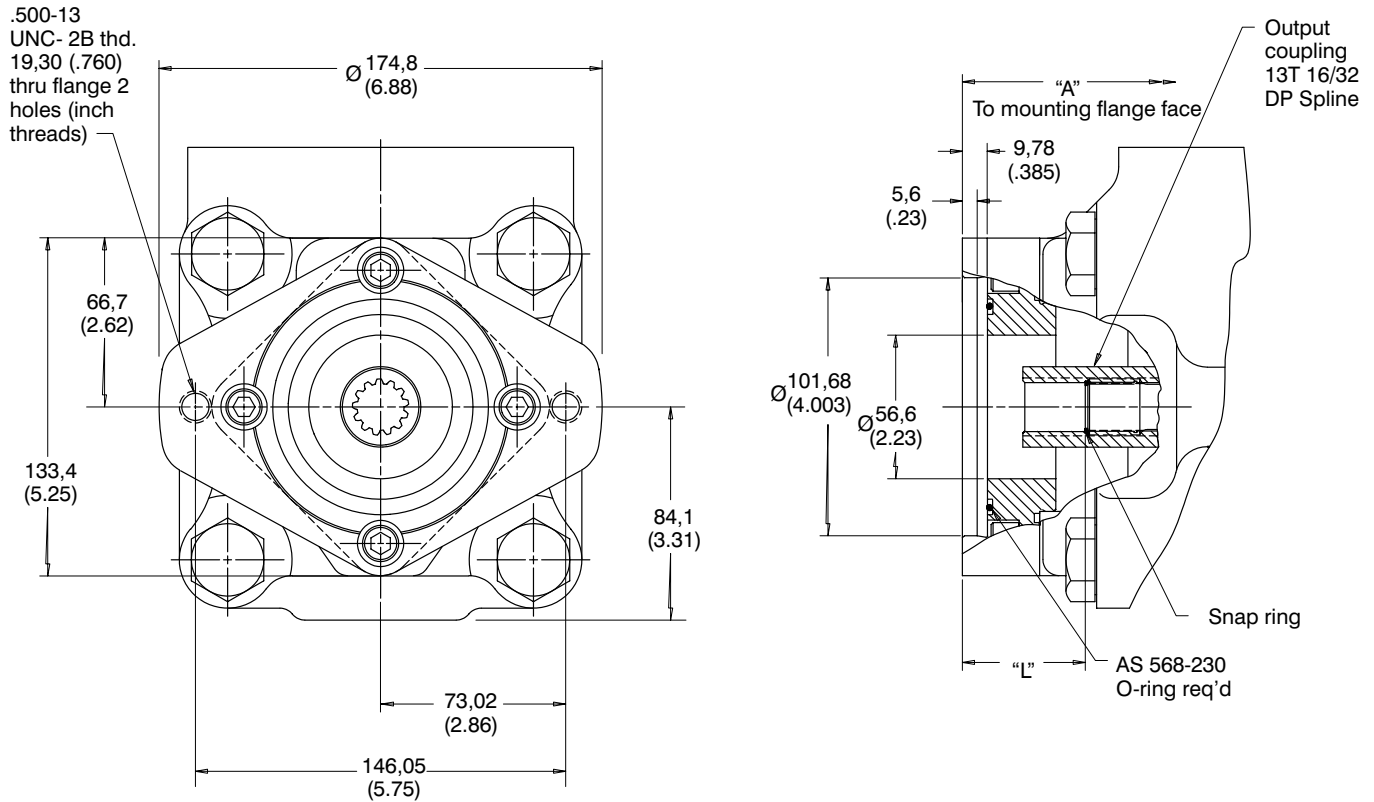


**VT Thru-Drive Rear Mountings Installation Dimensions

www.SaarStore.com

**VT Thru-Drive Rear Mountings

"B" Rear Mounting



Pump Model	Dimension "A"		Dimension "L"*
	**VTBS Models	**VTBM Models	
25VTB	245,8 (9.67)	245,8 (9.67)	42,3/39,9 (1.67/1.57) 45,2 (1.78) Maximum
35VTB	268,2 (10.56)	268,2 (10.56)	42,3/39,9 (1.67/1.57) 46,7 (1.84) Maximum
45VTB	300,7 (11.84)	331,0 (13.03)	42,3/39,9 (1.67/1.57) 46,2 (1.82) Maximum

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

NOTE: This unit **accepts** a hydraulic pump which conforms to flange and shaft codes specified in ISO 3019/1 (SAE J744 Jul88).

Flange Code	Shaft Code	SAE J744C (Ref)
101-2	22-4	B

**VTB

The following Vickers shaft selection will comply with the above:

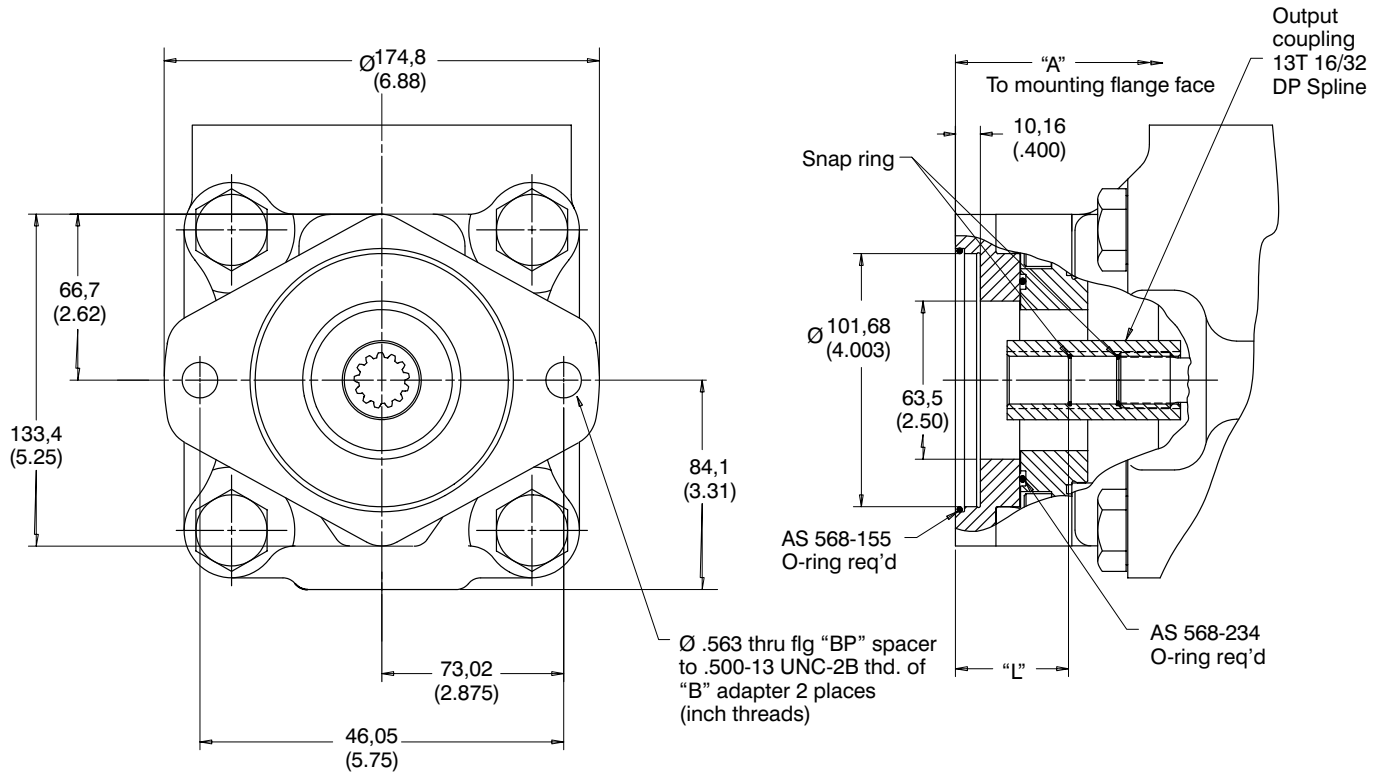
Rear Pump Model	Shaft
PVB10/15 Piston pump	S124
V2010/2020 Double pump	11
20V Vane pump	151
25V Vane pump	11
2520V Double pump	11

**VT Thru-Drive Rear Mountings Installation Dimensions

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**VT Thru-Drive Rear Mountings

"BP" Rear Mounting



Pump Model	Dimension "A"		Dimension "L"*
	**VTBPS	**VTBPM	
25VTBP	261,9 (10.31)	261,9 (10.31)	45,6/43,2 (1.80/1.70) Not SAE std.
35VTBP	284,5 (11.20)	284,5 (11.20)	45,6/43,2 (1.80/1.70) Not SAE std.
45VTBP	317,0 (12.48)	347,2 (13.67)	45,6/43,2 (1.80/1.70) Not SAE std.

NOTE: These units accept a Vickers pump as below which conforms to flange code 101-2 in ISO 3019/1 (SAE J744C Jul88) and has a Vickers type 9 shaft.

**VTBP

The following Vickers shaft selection will comply with the above:

Rear Pump Model	Shaft
PVE12/19/21 Piston pump	9

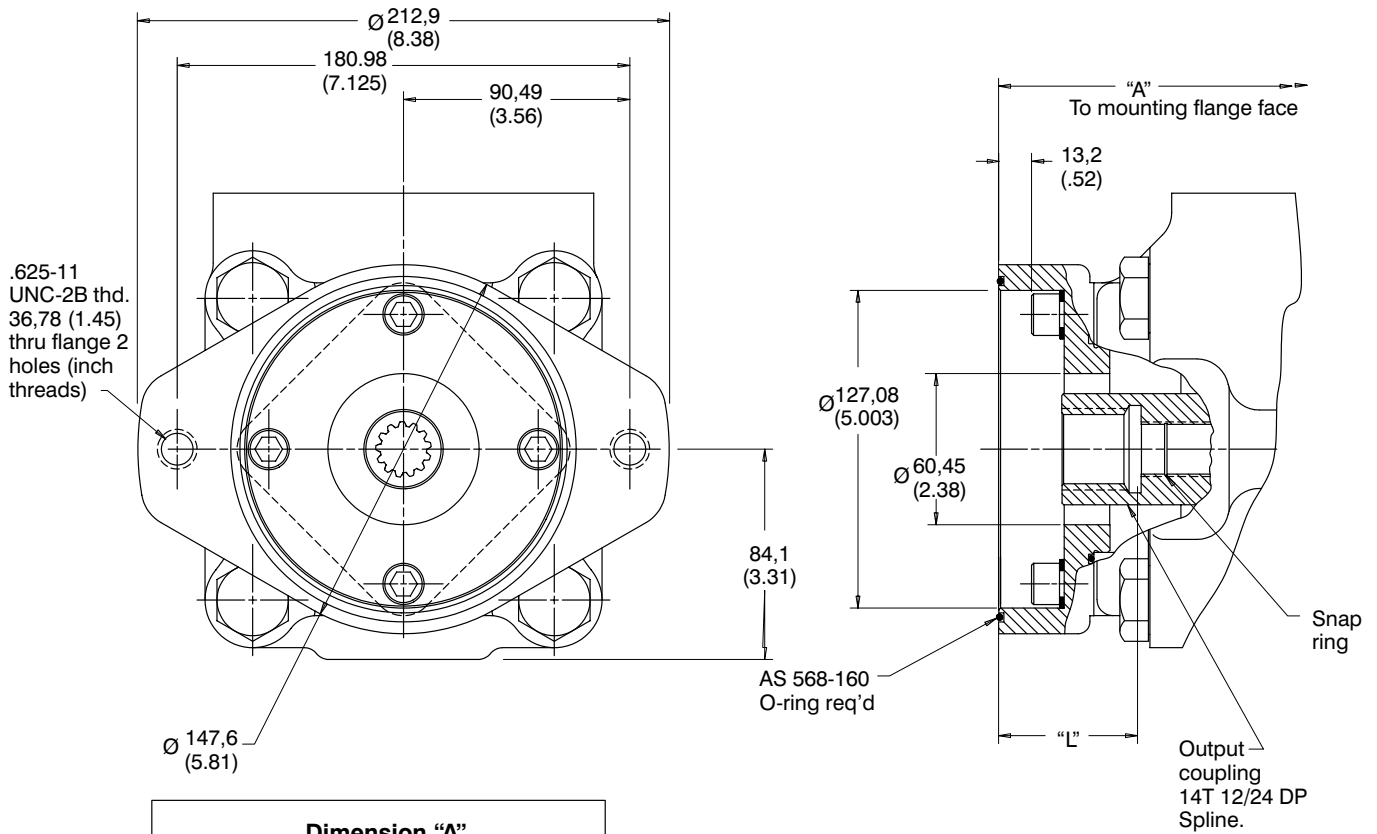
* Caution: Dimension "L" is important and must be observed.

**VT Thru Drive Rear Mountings Installation Dimensions

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**VT Thru-Drive Rear Mountings

"C" Rear Mounting



Pump Model	Dimension "A"		Dimension "L"*
	**VTCS Models	**VTCM Models	
35VTC	275,8 (10.86)	275,8 (10.86)	56,6/54,2 (2.23/2.13)
			61,2 (2.41) Maximum
45VTC	308,4 (12.14)	338,6 (13.33)	56,6/54,2 (2.23/2.13)
			61,5 (2.42) Maximum

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

NOTE: This unit **accepts** a hydraulic pump which conforms to flange and shaft codes specified in ISO 3019/1 (SAE J744 Jul88).

Flange Code	Shaft Code	SAE J744C (Ref)
127-2	32-4	C

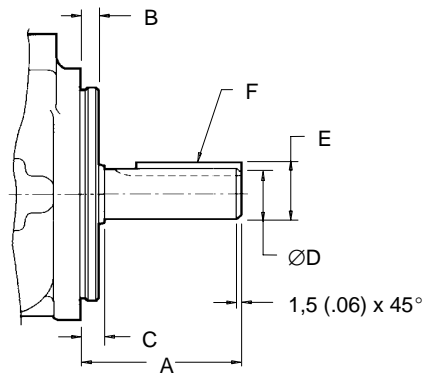
**VTC

The following Vickers shaft selection will comply with the above:

Rear Pump Model	Shaft
35V Vane pump	11
3520/3525V Double pumps	11
45V Vane pump	11

Straight Key Shafts

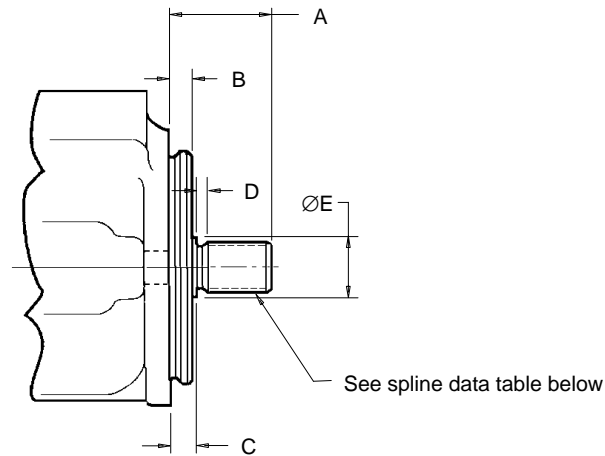
Thru-drive shafts, see pages 32.



Pump	Shaft Code	A	B	C	ØD	E	F key width x length
20V	1	59 (2.32)	9,53 (.375)	12,1 (.476)	22,23 (.875) 22,20 (.874)	24,5 (.966) 24,4 (.961)	4,75 (.817) x 32 (1.25)
25V 2520V	1	59 (2.32)	9,53 (.375)	11,1 (.435)	22,23 (.875) 22,20 (.874)	24,5 (.966) 24,4 (.961)	4,75 (.817) x 32 (1.25)
25V 252*V	86	78 (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)
25VM 252*VM 25VT*M	292N	52,3 (2.06)	9,25 (.364)	10,4 (.41)	25,02 (.985) 25,00 (.984)	28,02 (1.10) 27,81 (1.09)	8,00 (.314) x 28 (1.10)
25VT*S 25VS	202	71,4 (2.81)	9,53 (.375)	7,9 (.310) ▲	22,23 (.875) 22,20 (.874)	25,15 (.990) 24,90 (.980)	6,36 (.250) x 50,8 (2.00)
252*VS	203	77,7 (3.06)	9,53 (.375)	7,9 (.310) ▲	25,40 (1.00) 25,35 (.998)	28,20 (1.11) 27,94 (1.10)	6,36 (.250) x 50,8 (2.00)
35V 352*V	1	73,2 (2.88)	9,53 (.375)	11,1 (.435)	31,75 (1.25) 31,70 (1.24)	35,36 (1.39) 34,10 (1.38)	7,94 (.313) x 38,1 (1.50)
	86	86 (3.88)	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)
35VM 352*VM 35VT*M	292N	68,4 (2.70)	9,12 (.359)	10,4 (.41)	37,01 (1.457) 36,75 (1.447)	35,00 (1.378) 34,80 (1.370)	10 (.394) x 45 (1.77)
35VS 352*VS	202	84,1 (3.31)	12,7 (.50)	10,4 (.41)	31,75 (1.25) 31,70 (1.24)	35,36 (1.39) 34,10 (1.38)	7,94 (.313) x 45 (1.77)
35VT*S 35VS 352*VS	203	84,1 (3.31)	12,7 (.50)	7,9 (.310) ▲	34,90 (1.374) 34,87 (1.373)	38,56 (1.518) 38,30 (1.508)	7,92 (.312) x 54 (2.125)
45V 45**V	1	62 (2.44)	12,7 (.500)	14,22 (.560)	31,75 (1.25) 31,70 (1.24)	35,36 (1.39) 34,10 (1.38)	7,92 (.312) x 28,5 (1.12))
	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)
45VS 45**VS	202	84,1 (3.31)	12,7 (.500)	14,22 (.560)	31,75 (1.25) 31,70 (1.24)	35,36 (1.39) 34,10 (1.38)	7,94 (.313) x 63 (2.48)
45VM 452*VM 45VT*M	292N	92 (3.62)	9,12 (.359)	10,0 (.394)	40,01 (1.575) 39,99 (1.574)	43,0 (1.693) 42,8 (1.685)	12 (.472) x 63 (2.48)
45VT*S 45VS 45**VS	203	87,4 (3.44)	9,14 (.360)	7,9 (.310) ▲	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.

Splined Shafts



Pump	Shaft Code	A	B	C	D	ØE	Spline Data (see below)
20V	151	41,1 (1.62)	9,53 (.375)	11,1 (.437)	3,9 (.156)	27,8 (1.09)	A
25V 2520V	11	44,5 (1.75)	9,53 (.375)	11,1 (.437)	3,9 (.156)	27,8 (1.09)	A
2525V	174	59,9 (2.36)	9,53 (.375)	17,3 (.68)	3,0 (.12)	29,2 (1.15)	B
25VT*S 25VS 252*VS	297	41,1 (1.62)	9,14 (.36)	7,9 (.31)	4,1 (.16)	27,8 (1.09)	C
35V 352*V	11	58,7 (2.31)	9,53 (.375)	11,1 (.437)	6,35 (.25)	35,1 (1.38)	D
35VT*S 35VS 352*VS	297	55,5 (2.19)	9,14 (.360)	7,9 (.310)	5,5 (.21)	35,1 (1.38)	E
45V 45**V	11	61,9 (2.44)	12,7 (.500)	14,3 (.565)	9,7 (.38)	39,6 (1.56)	D
45VT*S 45VS 45**VS	297	55,5 (2.19)	9,14 (.360)	7,9 (.310)	9,7 (.38)	39,6 (1.56)	E

Spline Data Table

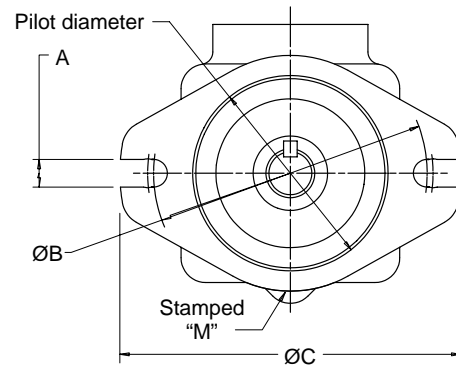
(Involute splines from above chart)

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)	18,63 (.734) 18,35 (.723)	Major dia. fit
B	14	12/24	31,22 (1.23) 31,11 (1.22)	27,48 (1.08)	27,0 (1.063) 26,7 (1.05)	Side fit
C	13	16/32	22,2 (.875) 21,7 (.853)	19,03 (.749)	18,4 (.725)	Side fit
D	14	12/24	31,7 (1.25) 31,67 (1.247)	27,2 (1.07)	26,99 (1.06) 26,64 (1.05)	Major dia. fit
E	14	12/24	31,6 (1.25) 31,1 (1.22)	27,48 (1.08)	26,7 (1.05)	Side fit

Optional ISO 3019/2 Metric Pilot Flange Mounting Options for "VM" & "VT*M" Pumps

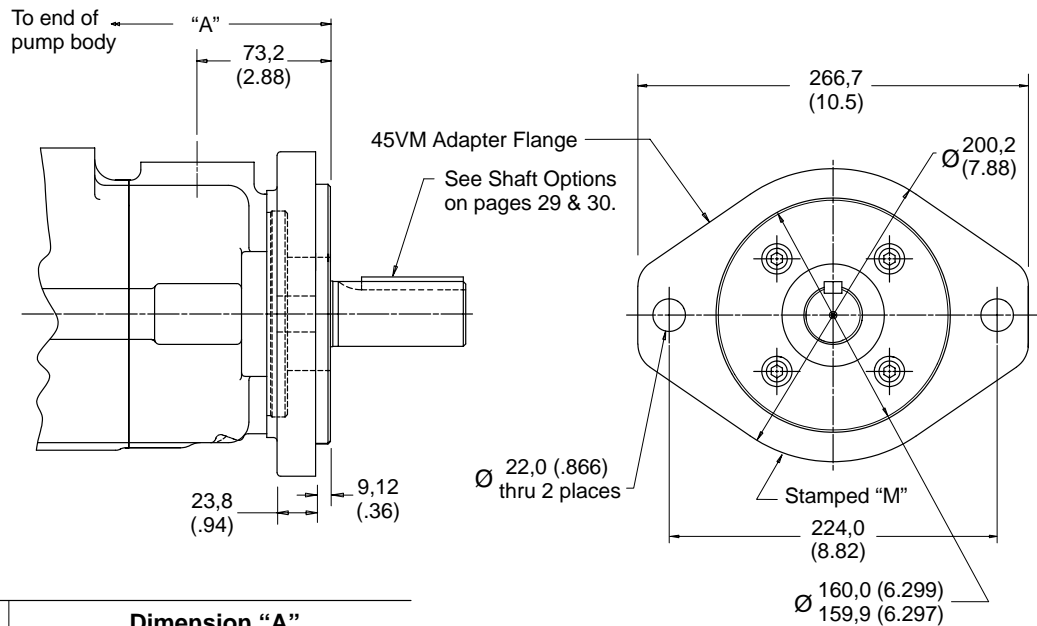
25 and 35 Size Pumps

Model	A	ØB	ØC	Pilot diameter
25VM Single Pumps	14,27	140	175	100,0 (3.937)
25VT*M Thru-drive Pumps	(.562)	(5.51)	(6.87)	99,95 (3.935)
25**VM Double Pumps				
35VM Single Pumps	18,34	180	212	125,02 (4.922)
35VT*M Thru-drive Pumps	(.722)	(7.09)	(8.33)	124,97 (4.920)
35**VM Double Pumps				



45 Size Pumps

45VM Single Pumps
 45VT*M Thru-drive Pumps
 45**VM Double Pumps



45VT** Thru-drive Pumps	Dimension "A"	
	45VT*S Pumps	45VT*M Pumps
Rear Mounting Type		
A	291,6 (11.48)	321,8 (12.67)
B	300,7 (11.84)	331,0 (13.03)
BP	317,0 (12.48)	347,2 (13.67)
C	308,4 (12.14)	338,6 (13.33)

Single pumps (not thru-drive models)
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.

Thru-drive pumps **VT* models

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 1
Single & Double Pumps Shaft
Torque Ratings**

Pump Model	Shaft No.	Maximum input torque Nm (lb-in)
25V or 25**V	1	250 (2200)
	11	250 (2200)
	86	400 (3560)
	174	550 (4900)
	292N	316 (2800)
35V or 35**V	1	400 (3560)
	11	580 (5100)
	86	600 (5300)
	292N	400 (3560)
45V or 45**V	1	400 (5300)
	11	820 (7200)
	86	820 (7200)
	292N	820 (7200)

Example:

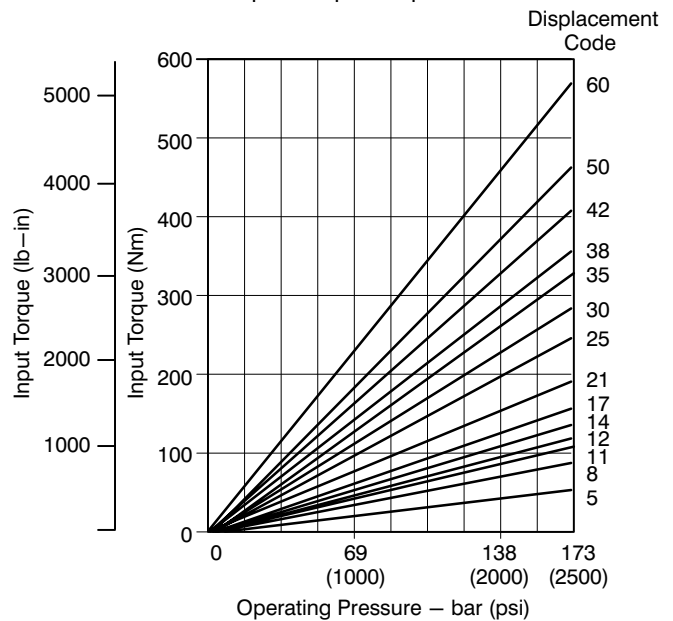
A 3525V38A17 pump operating at 172 bar (2500 psi) front section and 138 bar (2000 psi) rear section will require over 450 Nm (4000 lb-in) input torque. Therefore, all listed shafts are acceptable except No. 1.

**Table 2 Thru-Drive Pumps
Shaft Torque Ratings**

Pump Model	Shaft No.	Max. Input Torque Nm (lb-in)*	Thru-drive connection	Max. Thru-drive Torque Nm (lb-in)
	202	250 (2200)	A	131 (1160)
			B	250 (2200)
25VT*S 25VS 242*VS	203	400 (3560)	A	131 (1160)
			B	316 (2800)
	297	316 (2800)	A	131 (1160)
			B	316 (2800)
	292N	316 (2800)	A	131 (1160)
			B	316 (2800)
35VT*S 35VS 352*VS	292N	400 (3560)	A	131 (1160)
			B	316 (2800)
			C	400 (3560)
	203	600 (5300)	A	131 (1160)
			B	316 (2800)
			C	437 (3870)
	297	790 (7000)	A	131 (1160)
			B	316 (2800)
			C	437 (3870)
	292N	904 (8000)	A	131 (1160)
			B	384 (3400)
			C	702 (6210)
45VT*S 45VS 45**VS	203	810 (7200)	A	131 (1160)
			B	384 (3400)
			C	702 (6210)
	297	1020 (9000)	A	131 (1160)
			B	384 (3400)
			C	702 (6210)

* Combined torque of Vickers "VT" pump and thru-drive pump.

Input Torque Requirement



Recommended Drives

Vickers units are designed for use on direct coaxial drives using spline connections and/or flexible couplings. If drives imposing radial and/or axial loads, or key drives are being considered, consult your Vickers representative for additional information.

Drive Alignment

Concentricity and angular alignment of shafts are important to pump life. Misalignment can induce heavy loads on bearings, causing premature failure. Flexible coupling halves must be aligned according to the coupling manufacturer's recommendations.

Universal Joints

When using double universal joint couplings, the shafts must be parallel and the yokes must be in line. The offset should be kept as low as possible. Maximum allowable offset will, of course, vary with application conditions. The pump shaft to universal joint diametral fit should be close (major diameter fit) with no appreciable looseness.

Mounting Pad Accessory Drives

A splined shaft is recommended on applications where the pump shaft is coupled directly into a transmission or gear box. Spline drives should be lubricated. The possibility of interference between the shaft and transmission splines, due to tolerance stack-up, can exist. To reduce this possibility, side tooth spline fits should be used. A side tooth fit and short length of engagement permits more flexibility and less tendency for side loading than does a major diameter fit spline or long spline engagement.

Mounting Dimensions

Requirements

Dimensional control requirements of the customer's mounting pad to which the pump or motor is affixed are as follows.

Pilot Diameter

Concentricity of the customer's female pilot diameter relative to the effective axis of the female drive must be within .10 mm (.004") total indicator reading. The clearance between the male and female pilot diameters must be +.0127 to .0508 mm (+.0005 to +.0020 inch).

Mounting Face

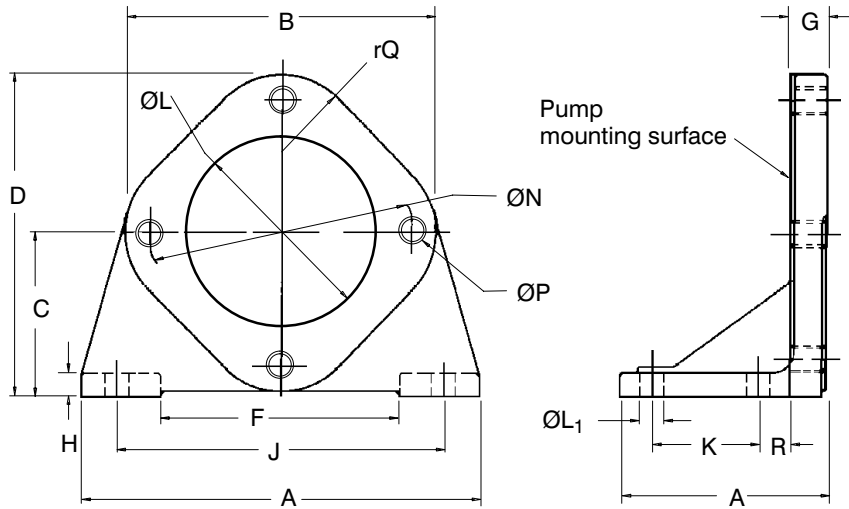
The customer's mounting face to which the pump or motor is affixed must be square to the axis of the female drive within .04 mm per 25 mm (.0015 inch per inch).

Shafts

Dimensions of keyed shaft receivers must be between +.002554 and +.0254 mm (+.0001 and +.0010) of the maximum shaft diameter shown on the respective Vickers installation drawing.

Foot Mounting Bracket Option

(Not suitable for thru-drive pumps)
Bolts for mounting pump are supplied with bracket.



Part No.	A	B	C	D	E	F	G	H	J
422583	171 (6.75)	178 (7.00)	92 (3.625)	181 (7.125)	93 (3.656)	98 (3.858)	17,4 (.687)	13 (.50)	146 (5.750)
422584	265 (10.43)	212 (8.37)	109,5 (4.312)	216 (8.50)	129 (5.06)	164 (6.46)	19 (.750)	16 (.62)	235 (9.250)

Part No.	K	ØL	ØL ₁	ØN	ØP	rQ	R
422583	50,8 (2.00)	101,6 (4.00)	11,1 (.593)	146 (5.750)	1/2"-13 UNC	51 (2.00)	13 (.512)
422584	76,2 (3.00)	127 (5.00)	17,5 (.68)	180,7 (7.125)	3/8"-11 UNC	64 (2.52)	19 (.748)

422583 for use with frame sizes 20, 25 and .2520 pumps. Weighs 2,7 kg (6 lbs.)
422584 for use with frame sizes 35, 45, 35** and 45** pumps. Weighs 5,9 kg (13 lbs.)

Moment of Inertia

Model	Nm/sec ²	Moment lb-in-sec ²
25V	0,000757	(.00670)
35V	0,001395	(.01235)
45V	0,003073	(.02720)
2520V	0,001309	(.01159)
2525V	0,001469	(.01300)
3520V	0,001629	(.01495)
3525V	0,002042	(.01807)
4520V	0,003186	(.02820)
4525V	0,003732	(.03303)
4535V	0,004554	(.04031)

Vane Pump Approximate Weights

Frame size	kg (lbs.)	
20V	12.0	(26)
25V	14.8	(33)
25V(T)	19.4	(43)
35V	22.7	(50)
35V(T)	28.7	(63)
45V	34.0	(75)
45V(T)	38.1	(84)
2520V	20.5	(45)
2525V	23,1	(51)
3520V	34.0	(75)
3525V	34.5	(76)
4520V	43.0	(95)
4525V	46.0	(101)
4535V	53.5	(118)

Mounting Options

Mounting attitude of all pumps is unrestricted except for any limitations in respect to rear-end pumps to be titled to **VT pumps. Such limitations will be found in the technical literature for those specific pumps.

Ordering Procedure

State full model designation(s) when ordering pumps. Port flange kits are available from Vickers and must be ordered as separate items.

Specify "BP" adapter when coupling PVE12/19/21 as second pump on thru-drives.

Existing "B" thru-drives can be converted to "BP" using the following kits:

25VT: 941295 Adapter kit
452865 Coupling

35VT/45VT: 941295 Adapter kit only

Note: Adaptor kit and couplings are included with unit when ordered with "BP" designation in model code.

Service Information

Refer to specific Vickers part drawing or overhaul manual (below) for service information or consult your Vickers representative.

Service Literature:

20V	I-3195-S
25V	I-3196-S
35V	I-3197-S
45V	I-3199-S
2520V	I-3200-S
2525V	I-3212-S
3520V	I-3202-S
3525V	I-3203-S
4520V	I-3204-S
4525V	I-3208-S
4535V	I-3209-S
25VT	I-3154-S
35VT	I-3149-S
45VT	I-3151-S

Overhaul Manuals:

25V	I-3157-S
25VT	I-3157-S
35V	I-3157-S
35VT	I-3157-S
45V	I-3157-S
45VT	I-3157-S
2520V	I-3155-S
3520V	I-3155-S
3525V	I-3155-S
4520V	I-3155-S
4525V	I-3155-S
4535V	I-3155-S