

**EATON**

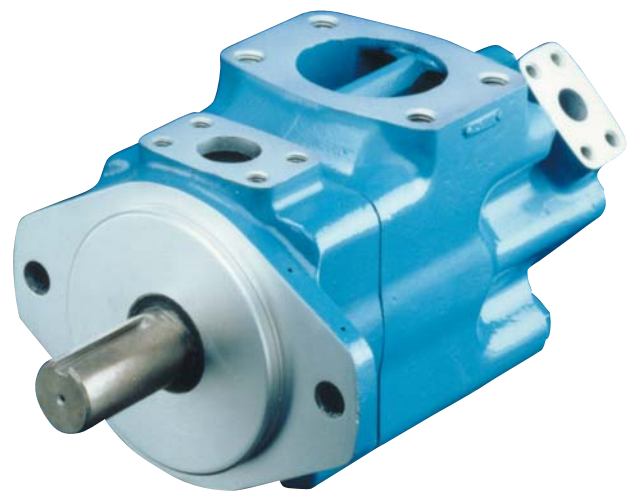
**Vickers**

**3500 PSI Fixed Displacement Mobile Vane Pumps**

VQH Series (Supplement to Catalog 353)



Single 35VQH



Double 3525VQH



Thru-Drive 35VQHT\*S

**VICKERS**<sup>®</sup>

# Single and Thru-Drive Pumps

VQH Series fixed displacement single and double vane pumps employ a new rotor design that enhances pressure capability and efficiency over the 20th design VQ pumps. VQH cartridge kits are interchangeable with those of VQ series. In order to accommodate high pressure requirements, the VQH pump housing is upgraded to ductile iron. The VQH installation dimensions are exactly the same as VQ pumps.

## Available Pump Frame sizes are:

Single and Thru-Drive pumps:  
25, 35, and 45

Double Pumps:

2520, 3520, 3525, 4520, 4525 and 4535

For installation dimensions, please refer to VQ pump section in Cat. 353 "Vane Pump and Motor Design Guide for Mobile Equipment."

FRAME SIZES	DELIVERY USGPM @1200 RPM 100 PSI	DISPL. CM3/R (IN3/R)	MAX. R/MIN	MAX. CONTINUOUS BAR (PSI)	MAX. PEAK BAR (PSI)	TYPICAL DEL. L/MIN (USGPM) @ MAX. SPEED & PRESSURE	TYPICAL INPUT KW (HP) @ MAX. SPEED & PRESSURE	WEIGHT KG (LB)
25VQH	12	40,2 (2.45)	2700	241 (3500)	262 (3800)	89 (24)	45 (60)	14,5 (32)
	14	45,4 (2.77)	2700	241 (3500)	262 (3800)	104 (28)	51 (69)	
	17	55,2 (3.37)	2500	241 (3500)	262 (3800)	120 (32)	57 (77)	
	19	61,3 (3.74)	2500	241 (3500)	262 (3800)	140,1 (37)	66 (88)	
	21	67,5 (4.12)	2500	241 (3500)	262 (3800)	159 (42)	73 (98)	
35VQH	25	81,6 (4.98)	2500	228 (3300)	248 (3600)	189,3 (50)	82 (110)	22,7 (50)
	30	97,7 (5.96)	2500	228 (3300)	248 (3600)	227,1 (60)	98 (132)	
	35	112,8 (6.88)	2400	228 (3300)	248 (3600)	255,5 (68)	106 (142)	
	38	121,6 (7.42)	2400	228 (3300)	248 (3600)	272,5 (72)	116 (155)	
45VQH	42	138,7 (8.46)	2200	228 (3300)	248 (3600)	282 (75)	123 (165)	34,1 (75)
	47	151,9 (9.27)	2200	228 (3300)	248 (3600)	315 (83)	137 (184)	
	50	162,3 (9.90)	2200	228 (3300)	248 (3600)	335 (89)	143 (192)	
	57	190,2 (11.61)	2200	228 (3300)	248 (3600)	382,3 (101)	165 (221)	
	60	193,4 (11.80)	2200	207 (3000)	248 (3600)	397,5 (105)	158 (212)	

# Double Pumps

## Performance Data

### Shaft End Pump

MODEL SERIES	DELIVERY USGPM @1200 RPM 100 PSI	DISPL. CM <sup>3</sup> /R (IN <sup>3</sup> /R)	MAX. R/MIN	MAX. CONTINUOUS BAR (PSI)	TYPICAL DEL. L/MIN (USGPM) @ MAX. SPEED & PRESSURE	TYPICAL INPUT KW (HP) @ MAX. SPEED & PRESSURE
2520	12	40,2 (2.45)	2700	241 (3500)	89 (24)	45 (60)
	14	45,4 (2.77)	2700	241 (3500)	104 (28)	51 (69)
	17	55,2 (3.37)	2500	241 (3500)	120 (32)	57 (77)
	19	61,3 (3.74)	2500	241 (3500)	140,1 (37)	66 (88)
	21	67,5 (4.12)	2500	241 (3500)	159 (42)	73 (98)
3520	25	81,6 (4.98)	2500	228 (3300)	189,3 (50)	82 (110)
	30	97,7 (5.96)	2500	228 (3300)	227,1 (60)	98 (132)
	35	112,8 (6.88)	2400	228 (3300)	255,5 (68)	106 (142)
	38	121,6 (7.42)	2400	228 (3300)	272,5 (72)	116 (155)
3525	25	81,6 (4.98)	2500	228 (3300)	189,3 (50)	82 (110)
	30	97,7 (5.96)	2500	228 (3300)	227,1 (60)	98 (132)
	35	112,8 (6.88)	2400	228 (3300)	255,5 (68)	106 (142)
	38	121,6 (7.42)	2400	228 (3300)	272,5 (72)	116 (155)
4520	42	138,7 (8.46)	2200	228 (3300)	282 (75)	123 (165)
	47	151,9 (9.27)	2200	228 (3300)	315 (83)	137 (184)
	50	162,3 (9.90)	2200	228 (3300)	335 (89)	143 (192)
	57	190,2 (11.61)	2200	228 (3300)	382,3 (101)	165 (221)
	60	193,4 (11.80)	2200	207 (3000)	397,5 (105)	158 (212)
4525	42	138,7 (8.46)	2200	228 (3300)	282 (75)	123 (165)
	47	151,9 (9.27)	2200	228 (3300)	315 (83)	137 (184)
	50	162,3 (9.90)	2200	228 (3300)	335 (89)	143 (192)
	57	190,2 (11.61)	2200	228 (3300)	382,3 (101)	165 (221)
	60	193,4 (11.80)	2200	207 (3000)	397,5 (105)	158 (212)
4535	42	138,7 (8.46)	2200	228 (3300)	282 (75)	123 (165)
	47	151,9 (9.27)	2200	228 (3300)	315 (83)	137 (184)
	50	162,3 (9.90)	2200	228 (3300)	335 (89)	143 (192)
	57	190,2 (11.61)	2200	228 (3300)	382,3 (101)	165 (221)
	60	193,4 (11.80)	2200	207 (3000)	425 (112.4)	158 (212)

# Double Pumps

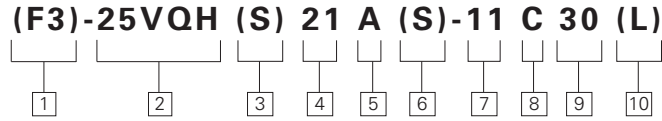
## Performance Data

### Cover End Pump

MODEL SERIES	DELIVERY USGPM @1200 RPM 100 PSI	DISPL. CM <sup>3</sup> /R (IN <sup>3</sup> /R)	MAX. R/MIN	MAX. CONTINUOUS BAR (PSI)	TYPICAL DEL. L/MIN (USGPM) @ MAX. SPEED & PRESSURE	TYPICAL INPUT KW (HP) @ MAX. SPEED & PRESSURE	WEIGHT KG (LB)
2520	5	18,0 (1.10)	2700	228 (3300)	44,5 (12)	21 (28)	20,5 (45)
	8	27,4 (1.67)	2700	228 (3300)	68,5 (18)	31 (42)	
	11	36,4 (2.22)	2700	228 (3300)	93,9 (25)	42 (56)	
	12	39,5 (2.41)	2700	228 (3300)	103 (27)	44 (59)	
	14	45,9 (2.80)	2700	207 (3000)	121,9 (32)	51 (68)	
3520	5	18,0 (1.10)	2700	228 (3300)	44,5 (12)	21 (28)	34,0 (75)
	8	27,4 (1.67)	2700	228 (3300)	68,5 (18)	31 (42)	
	11	36,4 (2.22)	2700	228 (3300)	93,9 (25)	42 (56)	
	12	39,5 (2.41)	2700	228 (3300)	103 (27)	44 (59)	
	14	45,9 (2.80)	2700	207 (3000)	121,9 (32)	51 (68)	
3525	12	40,2 (2.45)	2700	241 (3500)	89 (24)	45 (60)	34,5 (76)
	14	45,4 (2.77)	2700	241 (3500)	104 (28)	51 (69)	
	17	55,2 (3.37)	2500	241 (3500)	120 (32)	57 (77)	
	19	61,3 (3.74)	2500	241 (3500)	140,1 (37)	66 (88)	
	21	67,5 (4.12)	2500	241 (3500)	159 (42)	73 (98)	
4520	5	18,0 (1.10)	2700	228 (3300)	44,5 (12)	21 (28)	43,0 (95)
	8	27,4 (1.67)	2700	228 (3300)	68,5 (18)	31 (42)	
	11	36,4 (2.22)	2700	228 (3300)	93,9 (25)	42 (56)	
	12	39,5 (2.41)	2700	228 (3300)	103 (27)	44 (59)	
	14	45,9 (2.80)	2700	207 (3000)	121,9 (32)	51 (68)	
4525	12	40,2 (2.45)	2700	241 (3500)	89 (24)	45 (60)	46,0 (101)
	14	45,4 (2.77)	2700	241 (3500)	104 (28)	51 (69)	
	17	55,2 (3.37)	2500	241 (3500)	120 (32)	57 (77)	
	19	61,3 (3.74)	2500	241 (3500)	140,1 (37)	66 (88)	
	21	67,5 (4.12)	2500	241 (3500)	159 (42)	73 (98)	
4535	25	81,6 (4.98)	2500	228 (3300)	189,3 (50)	82 (110)	53,5 (118)
	30	97,7 (5.96)	2500	228 (3300)	227,1 (60)	98 (132)	
	35	112,8 (6.88)	2400	228 (3300)	255,5 (68)	106 (142)	
	38	121,6 (7.42)	2400	228 (3300)	272,5 (72)	116 (155)	

# Model Codes

Single Pump



**1 F3 - Viton seals**

Omit if not required.

**2 Intravane pump series**

Standard bearing  
 25VQH  
 35VQH  
 45VQH

**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 (USGPM)	CM <sup>3</sup> /R	IN <sup>3</sup> /R
25VQH	12	40,2	2.45
	14	45,4	2.77
	17	55,2	3.37
	19	61,3	3.74
	21	67,5	4.12
35VQH	25	81,6	4.98
	30	97,7	5.96
	35	112,8	6.88
	38	121,6	7.42
45VQH	42	138,7	8.46
	47	151,9	9.27
	50	162,3	9.90
	57	190,2	11.61
	60	193,4	11.80

**5 Port Connections**

SERIES	CODE	INLET	OUTLET
All	A	SAE 4-bolt flg.	SAE 4-bolt flg.
All	AM*	Metric 4-bolt flg.	Metric 4-bolt flg.
25VQH	B	SAE str. thd.	SAE str. thd.
25VQH	C	SAE 4-bolt flg.	SAE str.thd.
25VQH	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 45VQH)  
 130 – Splined (for 45VQH 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**

**10 Rotation**

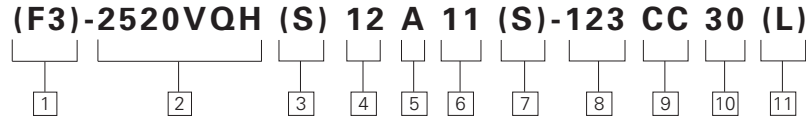
(Viewed from shaft end of pump)  
 L - Left hand (counterclockwise)  
 Omit for right hand.

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

# Model Codes

Double Pump

(without integral valves)



**1 F3 - Viton seals**

Omit if not required.

**2 Intravane pump series**

2520VQH  
3525VQH  
4525VQH  
3520VQH  
4520VQH  
4535VQH

**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 <sup>3</sup> R	IN <sup>3</sup> R
25VQH	12	40,2	2.45
	14	45,4	2.77
	17	55,2	3.37
	19	61,3	3.74
35VQH	25	81,6	4.98
	30	97,7	5.96
	35	112,8	6.88
45VQH	38	121,6	7.42
	42	138,7	8.46
	47	151,9	9.27
	50	162,3	9.90
	57	190,2	11.61
	60	193,4	11.80

**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.
2520VQH	C	SAE 4-bolt flg.	SAE str. thd.	SAE str. thd.
All but 4535VQH	E	SAE 4-bolt flg.	SAE 4-bolt flg.	SAE str. thd.
2520VQH	F	SAE 4-bolt flg.	SAE str. thd.	SAE 4-bolt flg.

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

**6 Geometric displacement - cover end pump**

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

FRAME SIZE	CODE (USGPM)	CM <sup>3</sup> R	IN <sup>3</sup> R	
**20VQH	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		
	**25VQH	12	40,2	2.45
	14	45,4	2.77	
	17	55,2	3.37	
	19	61,3	3.74	
	21	67,5	4.12	
4535VQH	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

**With No.1 outlet inline with inlet:**

BD - No. 2 outlet 135 CW from 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

**10 Design**

**11 Shaft rotation**

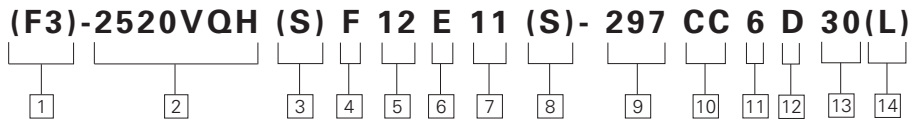
(Viewed from shaft end of pump)  
L - Left hand (counterclockwise)  
Omit for right hand.

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

# Model Codes

Double Pump

(with integral valves)



**1 F3 - Viton seals**  
Omit if not required.

**2 Intravane pump series**  
2520VQH  
3520VQH  
4520VQH

**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 SIZE	CODE (USGPM)	CM <sup>3</sup> R	IN <sup>3</sup> /R
2520VQH	12	40,2	2.45
	14	45,4	2.77
	17	55,2	3.37
	19	61,3	3.74
	21	67,5	4.12
35VQH	25	81,6	4.98
	30	97,7	5.96
	35	112,8	6.88
	38	121,6	7.42
45VQH	42	138,7	8.46
	47	151,9	9.27
	50	162,3	9.90
	57	190,2	11.61
	60	193,4	11.80

**6 Port connections**

PUMP SERIES	CODE	INLET	OUTLET NO.1	OUTLET 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 SIZE	CODE (USGPM)	CM <sup>3</sup> R	IN <sup>3</sup> /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 4520VQH)  
130 – Splined (for 4520VQH 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

**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)

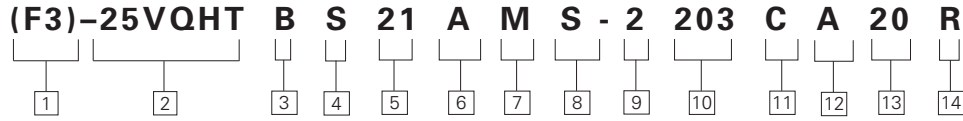
**13 Design**  
(Viewed from shaft end of pump)  
L - Left hand (counterclockwise)  
Omit for right hand.

**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.

# Model Codes

Thru-drive Single Pump



**1 F3 - Viton seals**

Omit if not required.

**2 Series designation**

25VQHT Standard bearing  
35VQHT  
45VQHT

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

SAE DESIGNATION		
Code	J744C	J744 Oct83
A	A	82-2
B	B	101-2
BP	Special mounting with spacer for Vickers PVE 12/19/21	
C	C	127-2 (not available on 25VQHT)

**4 Front mounting flange**

SAE DESIGNATION		
Model Series	J744C	J744 Oct83
2*VQT	B	101-2
3*VQT	C	127-2
45VQT	C	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 <sup>3</sup> /R	IN <sup>3</sup> /R
2*VQHT	12	40,2	2.45
	14	45,4	2.77
	17	55,2	3.37
	19	61,3	3.74
	21	67,5	4.12
3*VQHT	25	81,6	4.98
	30	97,7	5.96
	35	112,8	6.88
	38	121,6	7.42
45VQHT	42	138,7	8.46
	47	157,9	9.27
	50	162,3	9.90
	57	190,2	11.61
	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  
– Single seal

**9 Coupling for tandem pump**

2 – SAE splined coupling included with pump

**10 Shaft**

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
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 in the model code, i.e. shafts, ports, displacements and mountings, contact your Vickers representative.



# Notes

# Notes

# Notes

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