

EATON

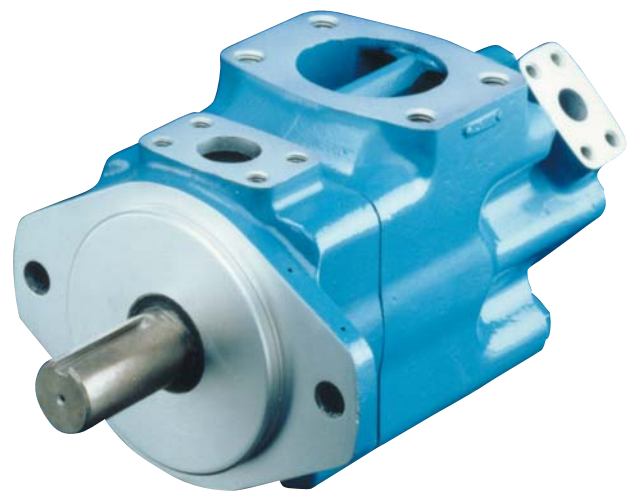
Vickers

3500 PSI Fixed Displacement Mobile Vane Pumps

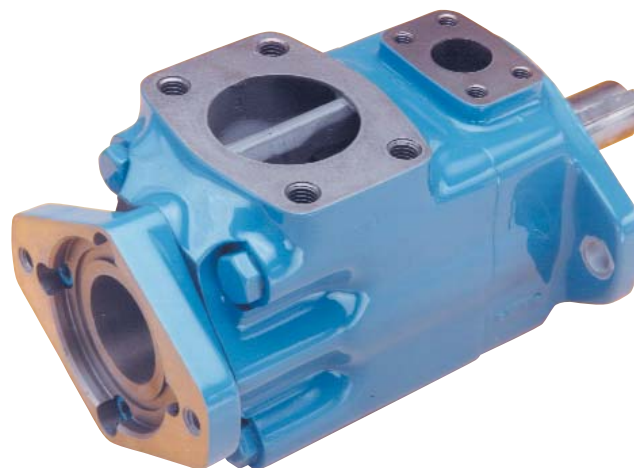
VQH Series (Supplement to Catalog 353)



Single 35VQH



Double 3525VQH



Thru-Drive 35VQHT*S

VICKERS[®]

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 ³ /R (IN ³ /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

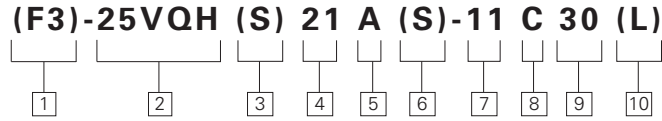
Performance Data

Cover End Pump

MODEL SERIES	DELIVERY USGPM @1200 RPM 100 PSI	DISPL. CM ³ /R (IN ³ /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 ³ R	IN ³ 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

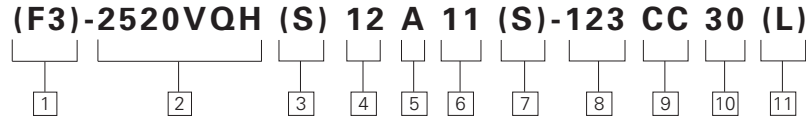
(Viewed from shaft end of pump)
 L - Left hand (counterclockwise)
 Omit for right hand.

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 ³ R	IN ³ 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 ³ R	IN ³ 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

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

10 Design

11 Shaft rotation

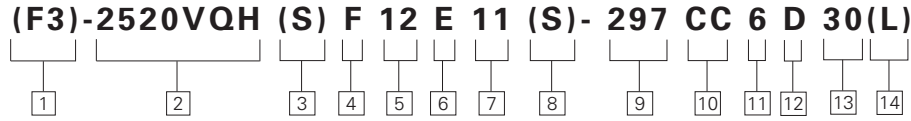
(Viewed from shaft end of pump)
L - Left hand (counterclockwise)
Omit for right hand.

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 ³ R	IN ³ /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 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 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.

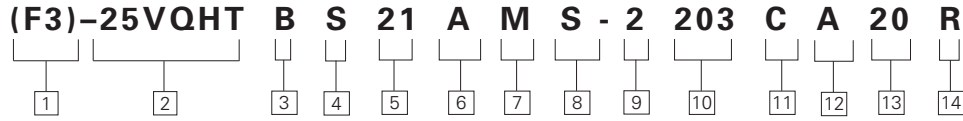
14 Shaft Rotation

(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 ³ /R	IN ³ /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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