

Eaton Vickers

Q Series Piston Pumps

Variable Displacement, Quiet Series for Industrial Applications

Technical Catalog

PVQ10

PVQ13

PVQ20

PVQ25

PVQ32

PVQ40

PVQ45



VICKERS[®]

Model Number System

PVQ20 and PVQ32

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

P V Q 2 0 A 2 R A 9 S E 1 S 2 1 C * 2 1 V * 1 1 B D 1 2 S *

Nos	Feature	Code	Description	Nos	Feature	Code	Description
1,2,3	Series PVQ	P V Q	Inline piston pump Variable volume Quiet series			CM**	Low pressure compensator. Standard model is CM7, indicating factory setting of 70 bar (1000 psi); range is 02-10 in tens of bar (350-2000 psi).
4,5	Displacement in cc/rev and pressure ratings	20 32	21,1 cc/rev (1.29 cir), 210 bar (3000 psi) 32,9 cc/rev (2.01 cir), 140 bar (2000 psi)			C**V**B	Pressure compensator C**, as above with load-sensing. Standard load-sensing setting is 11 bar (160 psi); range 10-17 bar (150-250 psi); with bleed-down orifice. Example: C21V11B indicates PVQ20 compensator with 210 bar pressure setting and 11 bar load-sense differential.
6,7	Mounting flange specifications	B2 MB	Flange SAE J744 101-2 (SAE B) Flange ISO 3019/2-100A2HW (available with N" drive shaft only)			C**V**P	Pressure compensator with load-sensing as C**V**B above, but with bleed-down orifice plugged.
8	Rotation viewed from shaft end	R L	Right hand (cw), standard Left hand (ccw), optional			C**VC**B	Pressure compensator with load-sensing. Compensator same as C** above. Standard load-sensing setting is 24 bar (350 psi), range 17-31 bar (250-450 psi). With bleed-down orifice.
9,10	Thru-drive without coupling (available)	Blank A9 A11	No thru-drive SAE J744 82-2 (SAE A) w/9T spline with side ports only SAE J744 82-2 (SAE A) w/11T spline			CG	Pressure compensator modified for hydraulic remote control.
11,12	Ports, type and location	SE SS	SAE O-ring rear port, 1.625" inlet and outlet (standard) SAE O-ring side port, 1.625" inlet and outlet (optional)			CD**	Electric dual range compensator. PVQ20: CD21 is standard 210 bar setting of high range (24-210 bar). PVQ32: CD14 is standard 140 bar setting of high range (24-140 bar). Both units require low range to be set by customer (20-100 bar).
13	Shafts, input	1 3 N 28	Straight keyed SAE "B" modified, 2.31" long Splined SAE "B" modified, 13T 16/32 DP major dia. fit Shaft end ISO 3019/2 E25N (available with "MB" mount only) 26-tooth splined shaft (Eaton). Used in PVQ20/32 single to mount on PVQ40/45 "B26" thru-drive.			UV	Unloading Valve for accumulator circuits. See installation details.
14	Seals	S F	Buna N, standard Fluorocarbon, optional				
15,16	Pump design number	21	Design number subject to change. Installation dimensions remain unchanged for designs 10-19.				
17,18	Control type	C**	Pressure compensator. PVQ20: Standard model is C21, indicating setting of 210 bar (3000 psi); range is 02-21 in tens of bar (350-3000 psi). PVQ32: Standard model is C14, indicating factory setting of 138 bar (2000 psi); range is 02-14 in tens of bar (350-2000 psi).				

Model Number System

PVQ20 and PVQ32

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
P	V	Q	2	0	A	2	R	A	9	S	E	1	S	2	1	C	*	2	1	V	*	1	1	B	D	1	2	S	*

Nos	Feature	Code	Description	Nos	Feature	Code	Description
19,20	Pressure setting	21 14	210 bar (3000 psi) PVQ20 140 bar (2000 psi) PVQ32	27,28	Control design	12 12 13 21	C** and CM** C**D and CM**D C**V(C)**B and C**V(C)**P UV, CD** CG 30
21,22	Flow control option	Blank V VC	No flow control	29,30	Special pump option suffixes	S2 S3	Shaft up mounting British Standard Parallel Threads Counterbore Ports (ISO R288 threads). Contact Eaton for available configurations.
23,24	Load sense differential pressure setting	Blank	No flow control			S9	Special CG compensator for use with electronically modulated relief valves
25	Flow control optional features	Blank B P	No flow control				
26	Control option	Blank D	Without adjustable maximum displacement stop (standard) Adjustable maximum displacement stop (optional)				

RATINGS

Model Number System	Maximum Geometric Displacement cm ³ /r (in ³ /r)	Rated Speed r/min	Maximum Pressure bar (psi)	Input Power at Max. Pressure and Rated Speed kW (hp)	Approx. Weight kg (lb)
PVQ20	21,1 (1.290)	1800	210 (3000)	14,9 (20)	14 (31)
PVQ32	32,9 (2.010)	1800	140 (2000)	15,6 (21)	14 (31)

Pressure Limits:

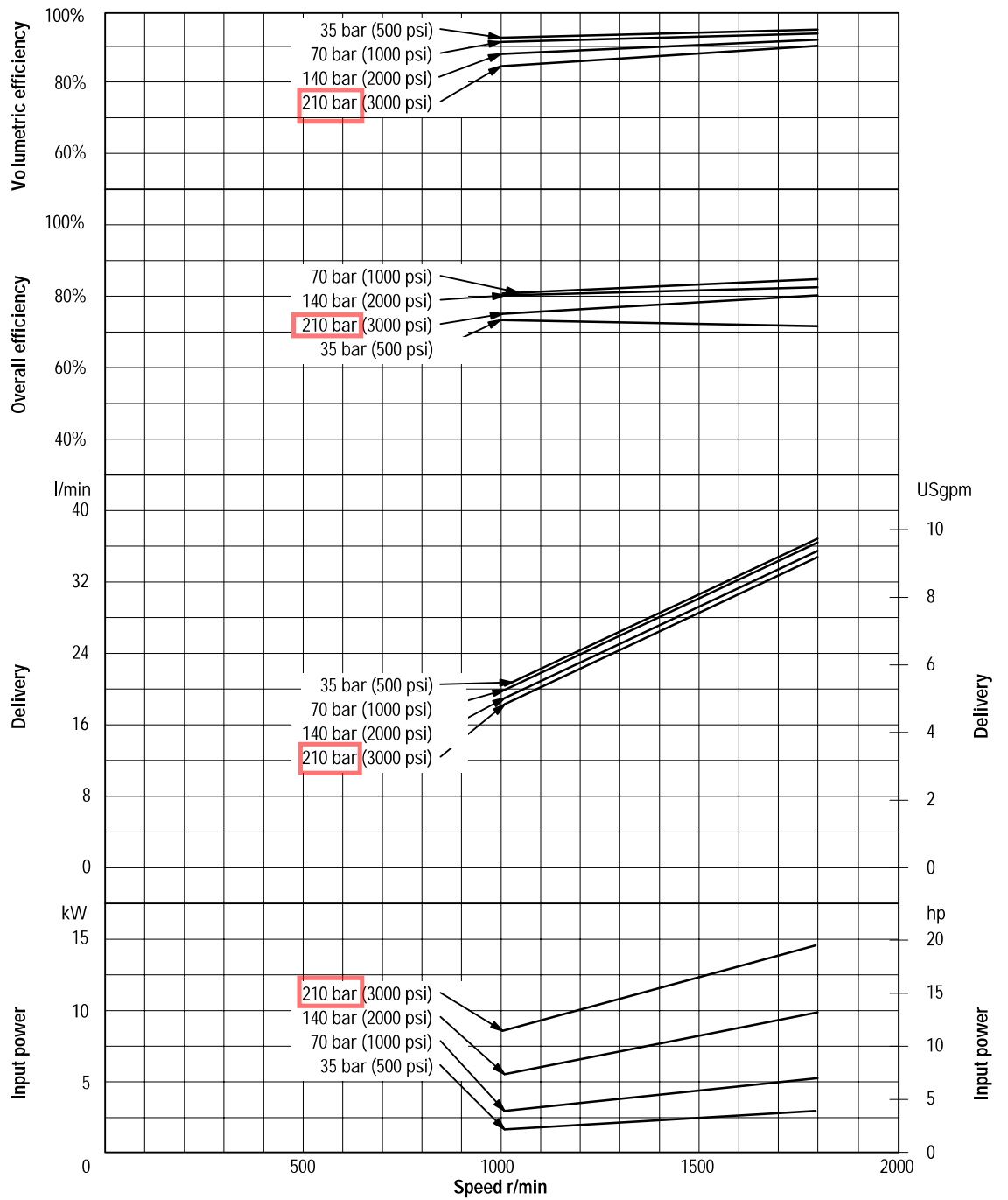
Case pressure – 0,35 bar (5 psig) maximum
Inlet pressure – 0,2 bar (5 in. Hg) vacuum to 2 bar (30 psig)

Performance Curves

PVQ20

Oil type: SAE 10W
 Oil temperature: 49°C (120°F)
 Inlet: 0.2 bar (5 in. Hg)

Note: To obtain full flow operation of pump, pressure compensator setting must be 14 bar (200 psi) above desired operating pressure. Full flow curves were obtained with compensator settings 14 bar (200 psi) above 210 bar (3000 psi) max. rated pressure.



Operating Data

PVQ20 and PVQ32 Sound Data

Temperature: 50°C (120°F)
Test Fluid: URSA-ED (10W)
Inlet Pressure: Atmospheric
(0 psig)

SOUND DATA

Speed r/min	Pressure bar (psi)	Sound Level dB(A)*			
		Full Stroke		Cutoff	
		PVQ20	PVQ32	PVQ20	PVQ32
1000	35 (500)	53	58	43	47
	70 (1000)	56	59	47	50
	140 (2000)	57	61	52	54
	210 (3000)	59	—	54	—
1200	35 (500)	55	61	43	47
	70 (1000)	58	62	48	51
	140 (2000)	59	63	52	54
	210 (3000)	61	—	55	—
1500	35 (500)	57	63	47	50
	70 (1000)	59	65	51	54
	140 (2000)	61	65	56	55
	210 (3000)	62	—	59	—
1800	35 (500)	60	66	50	53
	70 (1000)	62	67	53	56
	140 (2000)	63	68	58	62
	210 (3000)	64	—	58	—

*Sound pressure data equivalent to NFPA Standard.

PVQ20 and PVQ32 Response Data

Yoke response recorded at rated speed and pressure, 0 psi inlet, 82°C (180°F), SAE 10W oil. Pressure rise was 6900 bar (100,000 psi) per second.

RESPONSE DATA

Control Type	PVQ20		PVQ32	
	On stroke	Off stroke	On stroke	Off stroke
Pressure compensator	0.070 sec.	0.023 sec.	0.080 sec.	0.020 sec.
load-sense compensator	0.090 sec.	0.015 sec.	0.100 sec.	0.018 sec.