

VPA10V

Variable Displacement Axial Piston Pumps



DESCRIPTION

Anfield VPA10V(S) series variable displacement axial piston pumps are designed for open loop circuits and can be used in either mobile and industrial applications. The output flow is proportional to the drive speed and the displacement.

The VPA10V(S) series pumps are available in six displacements, ranging from 1.10 in³/rev (18 cm³/rev) to 8.54 in³/rev (140 cm³/rev). They offer speeds up to 3,300 rpm, a rated working pressure of 4000 psi (280 bar), single pump or through-drive pumps allowing for multi-circuit systems. Offered in SAE or Metric mounting with side or rear porting.

Available in a variety of controls with short control response times. These variable pumps offer the benefit of providing power only when needed.



FEATURES

- Variable pump with axial piston rotary group in swashplate design
- Series 31 in sizes 18, 28, 45, 71, 100, 140
- Designed for hydrostatic drives in open circuit
- Output flow is proportional to the drive speed and displacement and can be infinitely varied by adjusting the swashplate angle.
- Versatile controller range
- Short control time
- Excellent suction performance
- Low noise level
- Long service life
- Favorable power/weight ratio
- Pump can be offered with Buna-N or Viton seal options

TECHNICAL SPECIFICATIONS

Model	Displacement $V_{g\max}$		Max. Speed n_{\max} rpm	Max. Flow $q_{v\max}$		Pressure PSI		Max. Power		Suction Port S 	Pressure Port B 	Drain Port L ₁ 	Pilot Port X 	Weight (approx.)	
	cm ³ /r	in ³ /r		gpm	lpm	Rated	Max	hp	kw					lbs	kg
VPA10V(S)-O-18	18	1.10	3300	15.7	59.4	4000	5000	38	28	1" CD 61 (3/8-16 UNC-2B)	3/4" CD 61 (3/8-16 UNC-2B)	SAE-6	SAE-4	28.7	13
VPA10V(S)-O-28	28	1.71	3000	22.2	84	4000	5000	52	39	1-1/4" CD 61 (7/16-14 UNC-2B)	3/4" CD 61 (3/8-16 UNC-2B)	SAE-8	SAE-4	37.5	17
VPA10V(S)-O-45	45	2.75	2600	30.9	117	4000	5000	74	55	1-1/2" CD 61 (1/2-13 UNC-2B)	1" CD 61 (3/8-16 UNC-2B)	SAE-10	SAE-4	50.7	23
VPA10V(S)-O-71	71	4.33	2200	41.2	156	4000	5000	98	73	2" CD 61 (1/2-13 UNC-2B)	1" CD 61 (3/8-16 UNC-2B)	SAE-10	SAE-4	79.4	36
VPA10V(S)-O-100	100	6.10	2000	52.8	200	4000	5000	125	93	2-1/2" CD 61 (1/2-13 UNC-2B)	1-1/4" CD 62 (1/2-13 UNC-2B)	SAE-12	SAE-4	110.2	50
VPA10V(S)-O-140	140	8.54	1800	66.5	251	4000	5000	158	118	2-1/2" CD 61 (1/2-13 UNC-2B)	1-1/4" CD 62 (1/2-13 UNC-2B)	SAE-12	SAE-6	143.3	65

Notes:

1. **Absolute pressure at suction port S (inlet):** Ps min: 11.6 psi (0.8 bar), Ps max: 435 psi (30 bar)
2. **Viscosity:** optimal range 16 to 36 mm²/s (80 to 170 SUS)
3. **Temperature:** T min = -20°C (-4°F), T max = +80°C (+176°F)
4. **Filtration of the hydraulic fluid:** A cleanliness level of at least 20/18/15 is to be maintained according to ISO 4406. At very high hydraulic fluid temperatures (maximum 230 °F (110 °C), measured at Drain port L, L1), at least a cleanliness level of 19/17/14 according to ISO 4406 is necessary.
5. **Cold start:** Allow pump to run ≤ 3 minutes without load (p ≤ 725 psi (50 bar)), Speed ≤ 1000 rev/min. Permissible temperature difference between axial piston unit and hydraulic fluid in the system maximum 45 °F (7.2°C).
6. **Weight:** indicated in the table correspond to units without through drive and are approximate.

Anfield VPA10V cut sheet – Rev D (11/19/21)

DESIGNATION & ORDERING CODE

VPA10V(S)-O-71-DR-31-R-P-S-C-62-N00

1	2	3	4	5	6	7	8	9	10	11

1 Axial Piston Unit

VPA10V	Swashplate Design, Variable Pump
VPA10VS	Swashplate Design, Variable Pump (Industrial)

2 Operating Mode

O	Pump, Open Circuit
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3 Displacement

	cm ³ /rev	in ³ /rev		cm ³ /rev	in ³ /rev
18	18	1.10	71	71	4.33
28	28	1.71	100	100	6.10
45	45	2.75	140	140	8.54

4 Control Device

		18	28	45	71	100	140
DR	Pressure Control	•	•	•	•	•	•
DRG	Pressure Remote Control	•	•	•	•	•	•
DFR	Pressure & Flow Control (X-T open)	•	•	•	•	•	•
DFR1	Pressure & Flow Control (X-T plugged)	•	•	•	•	•	•
DFLR	Pressure, Flow & Power Control	-	•	•	•	•	•

5 Series

31	Series
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6 Direction of Rotation

R	Clockwise	L	Counter-clockwise
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7 Seal Material

P	Buna-N	V	FKM Fluorocarbon Viton®
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8 Drive Shaft

		18	28	45	71	100	140
K	SAE Keyed Shaft	3/4"	7/8"	1"	1 1/4"	1 1/2"	1 3/4"
S	SAE Splined Shaft	3/4"	7/8"	1"	1 1/4"	1 1/2"	1 3/4"
	Number of Teeth	11	13	15	14	17	13
R	SAE Splined Shaft, Reinforced (Similar to shaft S however for higher input torque)	3/4"	7/8"	1"	1 1/4"	1 1/2"	-
	Number of Teeth	11	13	15	14	17	-
U	SAE Splined Shaft, Smaller size (Reduced diameter, not for through-drive)	5/8"	-	7/8"	-	1 1/4"	-
	Number of Teeth	9	-	13	-	14	-
W	SAE Splined Shaft, Reinforced U-type shaft	-	-	7/8"	-	1 1/4"	-
	Number of Teeth	-	-	13	-	14	-
P	Parallel w/ Key DIN 6885 (mm)	18	22	25	32	40	45

9 Mounting Flange

		18	28	45	71	100	140
C	SAE 2-Bolt	3/4" SAE A	4" SAE B	4" SAE B	5" SAE C	5" SAE C	-
A	ISO 2-Bolt (mm)	80	100	100	125	125	-
D	SAE 4-Bolt	-	-	-	-	-	6" SAE D
B	ISO 4-Bolt (mm)	-	-	-	-	-	180

10 Service Ports

		18	28	45	71	100	140
61	Rear Ports, UNC Mounting Screws ^{1 2}	-	•	•	•	•	•
62	Opposite Side Ports, UNC Mounting Screws ²	•	•	•	•	•	•
11	Rear Ports, Metric Mounting Screws ¹	-	•	•	•	•	•
12	Opposite Side Ports, Metric Mounting Screws	•	•	•	•	•	•

Port pos. 61, 11 only for version without Through-drive

¹ All rear porting, non-Through-drive only

² VPA10V071 = 8 threaded holes on pressure port code 11, 61, 12 & 62

11 Through-drive

		18	28	45	71	100	140
N00	Without Through-Drive	•	•	•	•	•	•

With through-drive to accept axial piston or gear pump

		18	28	45	71	100	140
K04	101-2 (B) 1" 15T (B-B) VPA10V45(S,R), 60(U,W)	-	•	•	•	•	•
K01	82-2 (A) 5/8" 9T (A) VPA10V18(S,R)	•	•	•	•	•	•
K52	82-2 (A) 3/4" 11T (A-B) VPA10V18(S,R)	•	•	•	•	•	•
K02/K68	101-2 (B) 7/8" 13T (B) VPA10V28(S,R), 45(U,W)	-	•	•	•	•	•
K07	127-2 (C) 1 1/4" 14T (C) VPA10V71(S,R), 100(U,W)	-	-	-	•	•	•
K24	127-2 (C) 1 1/2" 17T (C-C) VPA10V100(S,R)	-	-	-	-	•	•
K17	152-4 (D) 1 3/4" 13T (D) VPA10V140(S,R)	-	-	-	-	-	•
KB7	ISO 3019-2 1 3/4" 13T (D) VPA10V140(S,R)	-	-	-	-	-	•