

Axial piston variable pump (A)A4VSO

RA 92050-A/06.09 1/64
Replaces: 09.97

Data sheet

Series 10, 11 and 30
Size 40...1000
Nominal pressure 5100 psi (350 bar)
Peak pressure 5800 psi (400 bar)
Open circuit



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Features

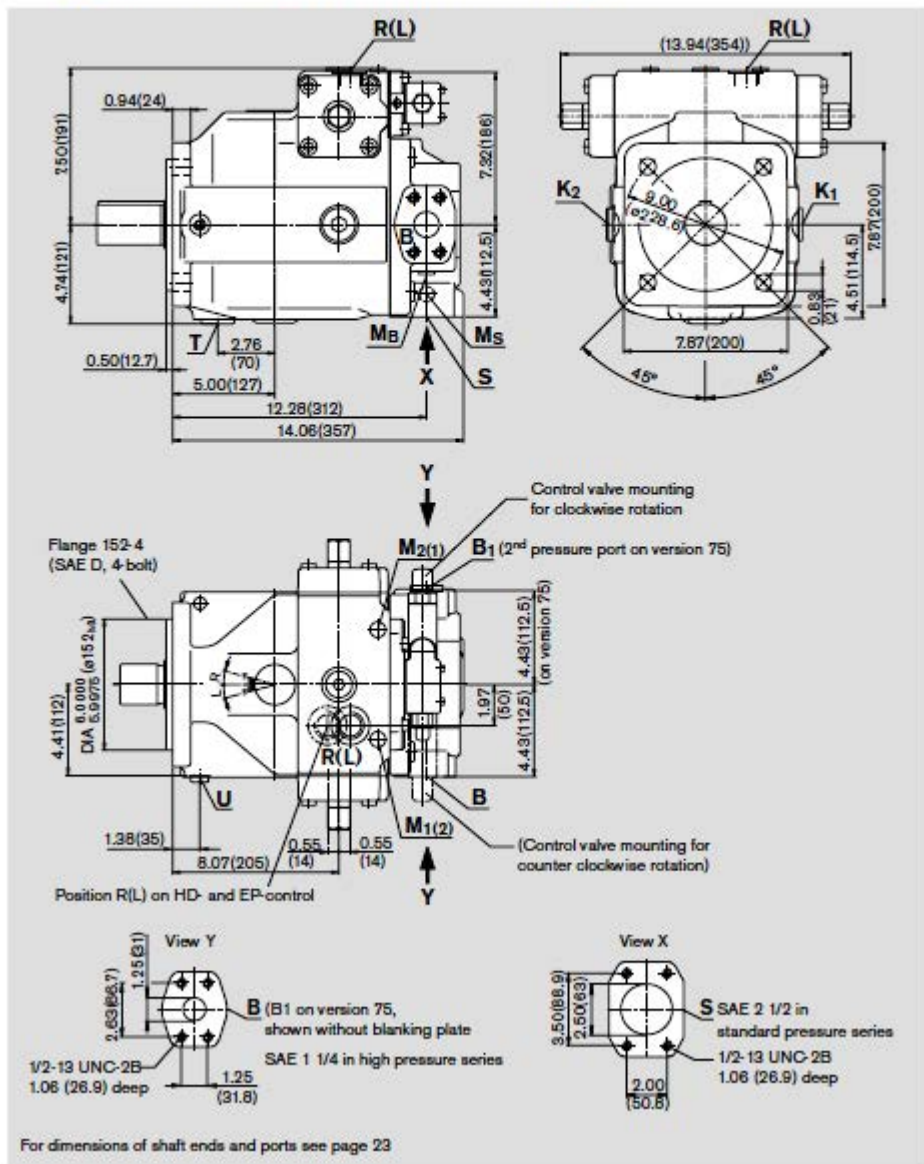
- Axial piston pump in swash plate design for hydrostatic drives in open circuit operation
- The flow is proportional to the input drive speed and dis-

Dimensions, size 125

Before finalising your design please request a certified installation drawing. Dimensions in inches (mm).

Series 3

Example: SAE with N00 (for U99 dimensions, see page 61)
pressure control; for exact dimensions of control devices see separate data sheets



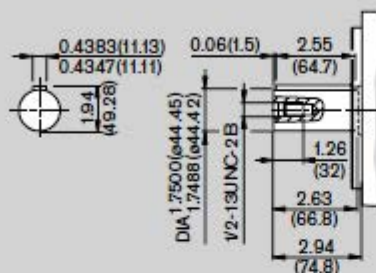
For dimensions of shaft ends and ports see page 23

Dimensions, size 125

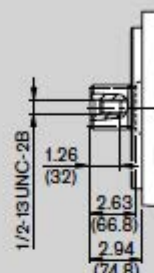
Before finalising your design please request a certified installation drawing. Dimensions in inches (mm).

Shaft ends

K Parallel keyed shaft to ISO 3019-1, SAE D



S Splined shaft to ISO 3019-1, SAE D
44-4, 1 3/4 in, 8/16 DP; 13T¹⁾



Ports

max. tightening torque ²⁾

S	Suction port (standard pressure series)	SAE J518	2 1/2 in	
	Mounting bolts	ISO 68	1/2-13UNC-2B; 1.06(27) deep ²⁾	
K ₁ , K ₂	Flushing port	ISO 11926	1 5/16-12UN-2B; 0.79(20) deep (plugged)	394 lb-ft (540 Nm)
T	Drain	ISO 11926	1 5/16-12UN-2B; 0.79(20) deep (plugged)	394 lb-ft (540 Nm)
M _B	Gauge port outlet pressure	ISO 11926	7/16-20UNF-2B; 0.39(10) deep (plugged)	29 lb-ft (40 Nm)
M _S	Gauge port suction pressure	ISO 11926	7/16-20UNF-2B; 0.39(10) deep (plugged)	29 lb-ft (40 Nm)
R(L)	Fill + air bleed (case drain port)	ISO 11926	1 5/16-12UN-2B; 0.79(20) deep	394 lb-ft (540 Nm)
U	Flushing port	ISO 11926	7/16-20UNF-2B; 0.39(10) deep (plugged)	29 lb-ft (40 Nm)
M ₁ , M ₂	Gauge port control chamber press.	DIN 3852	M14x1.5; 0.47(12) deep (plugged)	29 lb-ft (40 Nm)

on version 63

B	Pressure port (high pressure series)	SAE J518	1 1/4 in	
	Mounting bolts	ISO 68	1/2-13UNC-2B; 1.06(27) deep ²⁾	
B ₁	Additional port	ISO 11926	1 5/16-12UN-2B; 0.79(20) deep (plugged)	394 lb-ft (540 Nm)

on version 75

B	Pressure port (high pressure series)	SAE J518	1 1/4 in	
	Mounting bolts	ISO 68	1/2-13UNC-2B; 1.06(29) deep ²⁾	
B ₁	2 nd pressure port (high pressure series)	SAE J518	1 1/4 in (closed with blanking plate)	
	Mounting bolts	ISO 68	1/2-13UNC-2B; 1.06(29) deep ²⁾	

¹⁾ ANSI B92.1a-1976, 30° pressure angle, flat base, flank centering, fit class 5

²⁾ for the max. tightening torques please observe the manufacturer's information on the used fittings and the general information on page 64

Through drive

The axial piston unit (A)A4VSO can be equipped with a through drive, as shown in the type code on page 4.

The through drive execution is designated by the code K/U 15...99.

We recommend, that no more than three pumps be coupled together.

Permissible input and through drive torques

Size		40	71	125	180	250	355	500	750	1000
Splined shaft										
Mix. perm. total input torque at shaft of pump 1 (Pump 1 + pump 2)										
	$T_{tot\ max}$	lib-ft (446)	583 (790)	1027 (1392)	1478 (2004)	2052 (2782)	2133 (2860)	4105 (5566)	6157 (8346)	8209 (11130)
		Nm (223)	291 (395)	513 (696)	739 (1002)	1026 (1391)	1457 (1976)	2052 (2783)	3076 (4174)	4104 (5565)
A	Perm. through drive torque	$T_{D1\ max}$	lib-ft (223)	291 (395)	513 (696)	739 (1002)	1026 (1391)	1457 (1976)	2052 (2783)	3076 (4174)
		$T_{D2\ max}$	lib-ft (223)	291 (395)	513 (696)	739 (1002)	1026 (1391)	1457 (1976)	2052 (2783)	3076 (4174)
B	Perm. through drive torque	$T_{D1\ max}$	lib-ft (223)	291 (395)	513 (696)	739 (1002)	1026 (1391)	1457 (1976)	2052 (2783)	3076 (4174)
		$T_{D2\ max}$	lib-ft (223)	291 (395)	513 (696)	739 (1002)	1026 (1391)	1457 (1976)	2052 (2783)	3076 (4174)
Keyed shaft										
Mix. perm. total input torque at shaft of pump 1 (Pump 1 + pump 2)										
	$T_{tot\ max}$	lib-ft (446)	583 (790)	1027 (1392)	1479 (2004)	1889 (2560)	2917 (3952)	3835 (5200)	5541 (7513)	6965 (9444)
		Nm (223)	291 (395)	513 (696)	739 (1002)	1026 (1391)	1457 (1976)	2052 (2783)	3076 (4174)	4104 (5565)
A	Perm. through drive torque	$T_{D1\ max}$	lib-ft (223)	291 (395)	513 (696)	739 (1002)	863 (1169)	1457 (1976)	1783 (2417)	2463 (3339)
		$T_{D2\ max}$	lib-ft (223)	291 (395)	513 (696)	739 (1002)	863 (1169)	1457 (1976)	1783 (2417)	2463 (3339)
B	Perm. through drive torque	$T_{D1\ max}$	lib-ft (223)	291 (395)	513 (696)	739 (1002)	863 (1169)	1457 (1976)	1783 (2417)	2463 (3339)
		$T_{D2\ max}$	lib-ft (223)	291 (395)	513 (696)	739 (1002)	1026 (1391)	1457 (1976)	2052 (2783)	3076 (4174)

Distribution of torques



Single pump with through drive

If no further pumps are factory-mounted the simple type code is sufficient.

Included in this case are:

- on all through drives except K/U 99
- shaft coupler, mounting screws, seal and if required an adapter flange
- on K/U 99

with through drive shaft, without shaft coupler, without adapter flange; unit is closed with pressure tight cover.

Universal through drive

On pump sizes 125...355 all through drives are supplied as universal through drives „U“.

These have the advantage, that they can be adapted later on.

Simply by exchanging the adapter flange and the shaft coupler it is possible to convert the through drive option. The conversion sets must be ordered separately, see RE 95581.

Combination pumps

Independent circuits are available for the user when further pumps are built on.

- If the combination consists of 2 Rexroth axial piston pumps, and if this must be factory mounted, the two individual type codes must be joined by a „+“.

Ordering example:

AA4VSO 125 DR/ 30 R – PSD75U16 + AA4VSO 71 DR / 10 R – PSD63N00

- If a gear or a radial piston pump must be factory mounted as the second pump please consult us.

Overview of (A)A4VSO through drive options

Through drive - (A)A4VSO			Mounting option 2. pump				Through drive
Flange	Coupler for splined shaft ¹⁾	Code	(A)A4VSO/G size (shaft)	(A)A4CSG size (shaft)	(A)A10V(S)/O/31(2) ²⁾ size (shaft)	A10V(S)/O/52(3) Gear and vane pump (shaft) cm ³ /rev	available on size
Flange SAE J 744 (ISO 3019-1)							
82-2 (A) ¹⁾	16-4 (5/8in, 8T) ³⁾	K/U01	-	-	-	AZ-PF-1X-(R) 004...028 ⁴⁾ PGH2/3(R) 5...18	40...750
	19-4 (3/4in, 11T) ³⁾	K/U52	-	-	18 (S)/31	10, 18 (S) -	40...355
101-2 (B) ¹⁾	22-4 (7/8in, 13T) ³⁾	K/U68	-	-	28 (S)/31	28 (S) -	40...500
	25-4 (1in, 15T) ³⁾	K/U04	-	-	45 (S)/31	45 (S) -	40...500
127-2 (C) ¹⁾	32-4 (1 1/4in, 14T) ³⁾	K/U07	-	-	71 (S)/31	-	71...500
	38-4 (1 1/2in, 17T) ³⁾	K/U24	-	-	100 (S)/31	85 (S) -	125...500
127-4(C) ¹⁾	32-4 (1 1/4in, 14T) ³⁾	K/U15	40 (S) -	-	71(S)/32	-	40...355
	38-4 (1 1/2in, 17T) ³⁾	K/U16	71 (S) -	-	-	-	71...355
152-4(D) ¹⁾	44-4 (1 3/4in, 13T) ³⁾	K/U17	125 (S) -	-	140 (S)/31/32	-	125...500
	50-4 (2in, 15T) ³⁾	U78	180 (S) -	-	-	-	180...355
165-4(E) ¹⁾	50-4 (2in, 15T) ³⁾	U18	250 (S) -	250 (S) -	-	-	250, 355
			355 (R) -	355 (R) -	-	-	355
Flange ISO 3019-2 (metric)							
80, 2-bolt	19-4 (3/4in, 11T) ³⁾	KB2	-	-	18 (S)/31	10 (S) -	in preparation
100, 2-bolt	22-4 (7/8in, 13T) ³⁾	KB3	-	-	28 (S)/31	-	in preparation
	25-4 (1in, 15T) ³⁾	KB4	-	-	45 (S)/31	-	500
125, 2-bolt	32-4 (1 1/4in, 14T) ³⁾	KB5	-	-	71 (S)/31	-	in preparation
	38-4(1 1/2in, 17T) ³⁾	KB6	-	-	100 (S)/31	-	in preparation
125, 4-bolt	W 32x2x14x9g ²⁾	K31	40 (Z) -	-	-	-	500
140, 4-bolt	W 40x2x16x9g ²⁾	K33	71 (Z) -	-	-	-	500, 750
160, 4-bolt	W 50x2x24x9g ²⁾	K34	125 (Z) -	-	-	-	500, 750
			180 (Z) -	-	-	-	500, 750
	32-4 (1 1/4in, 14T) ³⁾	KB8	-	-	71 (S)/32	-	in preparation
180, 4-bolt	44-4 (1 3/4in, 13T) ³⁾	KB7	-	-	140 (S)/31/32	-	500
	38-4 (1 1/2in, 17T) ³⁾	KB9	-	-	100 (S)/32	-	in preparation
224, 4-bolt	W 60x2x28x9g ²⁾	K35	250 (Z) -	250 (Z) -	-	-	500, 750
	W 70x3x22x9g ²⁾	K77	355 (Z) -	355 (Z) -	-	-	500
315, 8-bolt	W 80x3x25x9g ²⁾	K43	500 (Z) -	500 (Z) -	-	-	500, 750
400, 8-bolt	W 90x3x26x9g ²⁾	K76	750 (Z) -	750 (Z) -	-	-	750
	W 100x3x32x9g ²⁾	K88	1000 (Z) -	-	-	-	1000
Dia 63-4, metr. Keyed dia 25		K/U57	-	-	-	R4	40 a. 71

¹⁾ 2 = 2-bolt, 4 = 4-bolt

²⁾ to DIN 5480

³⁾ Splined shafts acc. to ISO 3019-1 (SAEJ744)

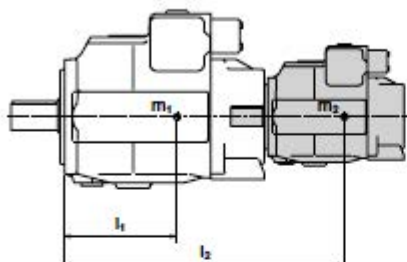
⁴⁾ Rexroth recommends special versions of the gear pumps. Please consult us.

⁵⁾ If a through drive for an A10V(S)O with R-shaft is desired, please consult us.

⁶⁾ Keyed shaft on through drive code K/U57

Permissible mass moment of inertia

referred to the mounting flange of the main pump



m_1, m_2 lbs (kg) Weight of pump

l_1, l_2 in (mm) Distance center of gravity

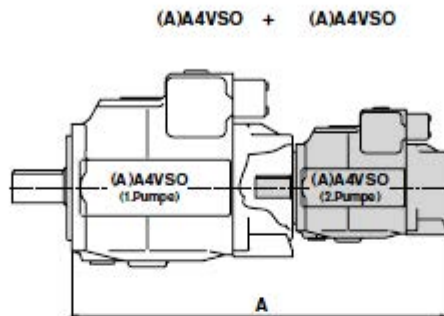
$$T_m = m_1 \cdot l_1 \cdot \frac{1}{12} + m_2 \cdot l_2 \cdot \frac{1}{12} \quad [\text{lb-ft}]$$

$$(T_m = m_1 \cdot l_1 \cdot \frac{1}{102} + m_2 \cdot l_2 \cdot \frac{1}{102}) \quad [\text{Nm}]$$

Size			40	71	125	180	250	355	500	750	1000
Perm. mass moment of inertia	$T_{m \text{ perm.}}$	lb-ft (Nm)	1327 (1800)	1475 (2000)	3098 (4200)	3098 (4200)	6859 (9300)	6859 (9300)	11506 (15600)	14382 (19500)	14382 (19500)
Perm. mass moment at dynam. acceleration of $10 g \hat{=} 98,1 \text{ m/sec}^2$	$T_{m \text{ perm.}}$	lb-ft (Nm)	132 (180)	148 (200)	310 (420)	310 (420)	686 (930)	686 (930)	1151 (1560)	1438 (1950)	1438 (1950)
Weight (A4VSO...DR)	m	lbs (kg)	86 (39)	117 (53)	194 (88)	225 (102)	406 (184)	456 (207)	705 (320)	1041 (460)	1333 (605)
Distance center of gravity	l_j	in (mm)	4.72 (120)	5.51 (140)	6.69 (170)	7.08 (180)	6.26 (210)	6.66 (220)	9.05 (230)	10.23 (260)	11.41 (290)

Dimensions combination pumps

Before finalising your design please request a certified installation drawing. Dimensions in inches (mm).



Overall length A

(A)A4VSO (1. pump)	(A)A4VSO.DR.N00 (2. pump)								
	Size 40	Size 71	Size 125	Size 180	Size 250	Size 355	Size 500	size 750	Size 1000
Size 40	22.17(563)	-	-	-	-	-	-	-	-
Size 71	23.27(591)	24.41(620)	-	-	-	-	-	-	-
Size 125	25.16(639)	26.30(668)	29.17(741)	-	-	-	-	-	-
Size 180	26.10(663)	27.24(692)	30.12(765)	31.89(810)	-	-	-	-	-
Size 250	28.46(723)	29.61(752)	31.97(812)	33.78(858)	36.14(918)	-	-	-	-
Size 355	29.61(752)	30.75(781)	33.11(841)	34.92(887)	37.28(947)	38.44(976)	-	-	-
Size 500	30.35(771)	31.50(800)	33.86(860)	34.85(880)	38.43(976)	39.57(1005)	43.70(1110)	-	-
Size 750	32.32(821)	33.46(850)	35.83(910)	36.61(930)	40.39(1026)	41.54(1055)	45.67(1160)	47.80(1214)	-
Size 1000	*	*	*	*	*	*	*	*	53.66(1366)

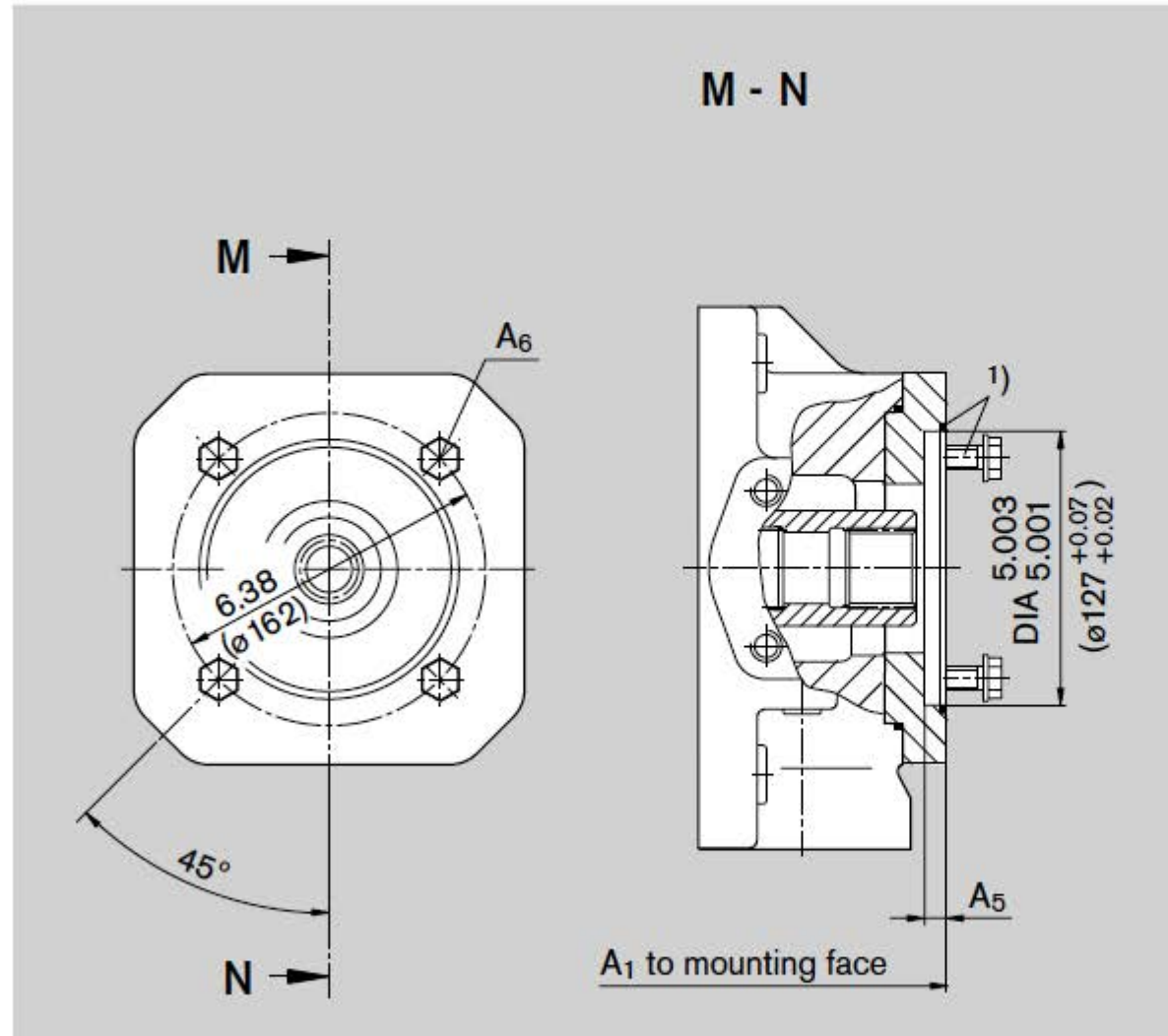
* on request

U15

Flange 127-4 to ISO 3019-1 (SAE C, 4-bolt)

Shaft coupler 32-4 to ISO 3019-1 (SAE C, 1 1/4 in, 12/24 DP; 14 T)³⁾

for mounting an AA4VSO/G 40 splined shaft



M - N

Size	A ₁	A ₅	A ₆ ²⁾
125	14.61(371)	0.51(13)	M12
180	15.55(395)	0.51(13)	M12
250	17.91(455)	0.51(13)	M12
355	19.06(484)	0.51(13)	M12

Further dimensions on request

1) Mounting screws and O-ring seal are included with supply

2) Thread to DIN 13, for the max. tightening torques observe the general information on page 64

3) To ANSI B92.1a-1976, 30° pressure angle, flat base, flank centering, fit class 5