

VARIABLE
DISPLACEMENT
AXIAL PISTON
PUMPS

For truck
applications

TVP

FEATURES

Variable displacement axial piston pumps swash plate design ideally suited for open circuit truck applications. The compact design allows to be mounted directly on the PTOs.

DISPLACEMENTS

Up to 84,7 cm³/rev (5.17 in³/rev)

PRESSURE

Max. continuous 350 bar (5075 psi)

Max. peak 400 bar (5800 psi)

SPEED

Max. 2500 min⁻¹

SECTOR

Truck applications

DIRECTION OF ROTATION

Clockwise or anti-clockwise defined looking at the drive shaft.

HYDRAULIC FLUID

Mineral oil based hydraulic fluid conforming to DIN 51524.

FLUID VISCOSITY

The fluid viscosity range for optimal use of TVP pump is between 15 and 35 cSt (77 and 163 SSU).

Functional limit conditions are:

max.: 1500 cSt (6819 SSU) at start up at -25 °C (-13 °F) with straight and short inlet line.

min.: 10 cSt (46 SSU) at maximum temperature of 110 °C (230 °F)

- Pump internal drain
- Compensators external drain line
- Direct mounting on the PTOs
- Body width 124 mm (4.8819 in)
- Max. and min. displacement limiter
- Flow and pressure compensator
- Compact design
- Low noise emission

FILTRATION

To ensure the optimal performance and the maximum life to the pump, the hydraulic fluid must have and maintain a contamination level within the values shown in the table below.

Working pressure bar (psi)	$\Delta p < 140$ (2030)	$140 < \Delta p < 210$ (2030) (3045)	$\Delta p > 210$ (3045)
Contamination class NAS 1638	9	8	7
Contamination class ISO 4406:1999	20/18/15	19/17/14	18/16/13
Achieved with filter $\beta_{x_{10}} \geq 75$ according to ISO 16889	10 μ m	10 μ m	10 μ m

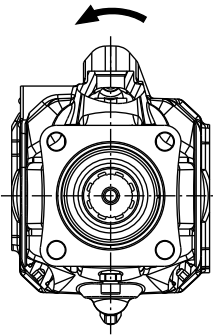
FILL WITH OIL BEFORE START-UP

Pump type	TVP 60-84			
Max. displacement (theor.) V_{max}	cm ³ /rev (in ³ /rev)	84,7 (5.17)		
Inlet pressure	bar abs. (psi)	min.	0,8 (12)	
		max.	2 (29)	
Max. outlet pressure p_{max}	bar (psi)	continuous	350 (5075)	
		peak	400 (5800)	
Compensator max. drain line pressure	bar abs. (psi)	1,5 (22)		
Max. speed n_{max}	min ⁻¹	@ V_{max} (1)	2300	
		@ n_{max}	211,8 (55.96)	
Max. delivery (theor.)	l/min (US gpm)	@ 2000 min ⁻¹	169,4 (44.76)	
		@ 1500 min ⁻¹	127,1 (33.58)	
		@ n_{max}	123,5 (165.5)	
Max. power (theor.) ($\Delta p = p_{max}$ cont.)	kW (HP)	@ 2000 min ⁻¹	98,8 (132.4)	
		@ 1500 min ⁻¹	74,1 (99.3)	
		@ p_{max} cont.	471,8 (4176)	
Max. torque (theor.)	Nm (lbf in)	@ 100 bar (1450 psi)	134,8 (1193)	
			0,009 (0.21)	
Moment of inertia	kgm ² (ft ² lbs)	0,009 (0.21)		
Weight torque	Nm (lbf in)	38 (336)		
Fill volume	l (US gallons)	1,1 (0.29)		
Mass (approx. - without oil)	kg (lbs)	26 (57.33)		
Seals		Buna	Viton	
		min.	-25 (-13)	-15 (5)
		max. cont.	80 (176)	110 (230)
Operating temperature	°C (°F)	max. peak	100 (212)	125 (257)

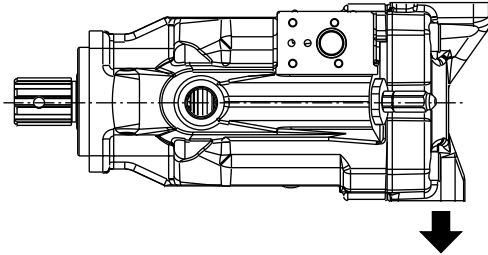
01/09.2018

PORTS POSITION

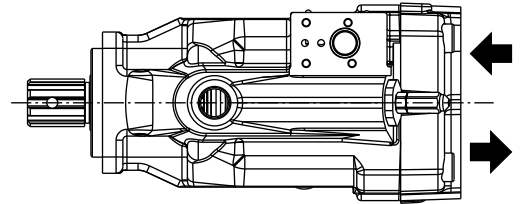
Anti-clockwise rotation



Side ports

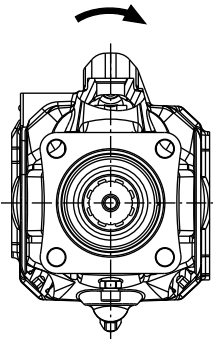


Rear ports

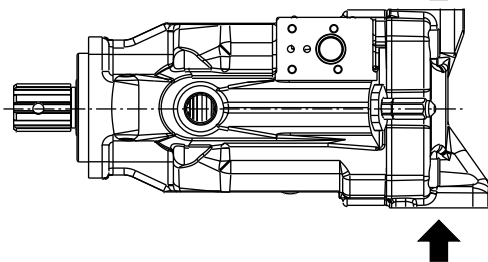


Replaces: 01/09.2018

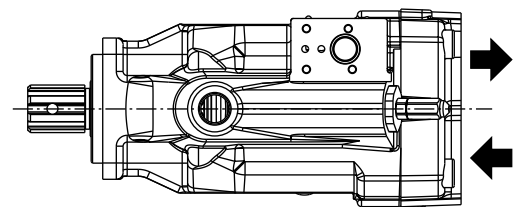
Clockwise rotation



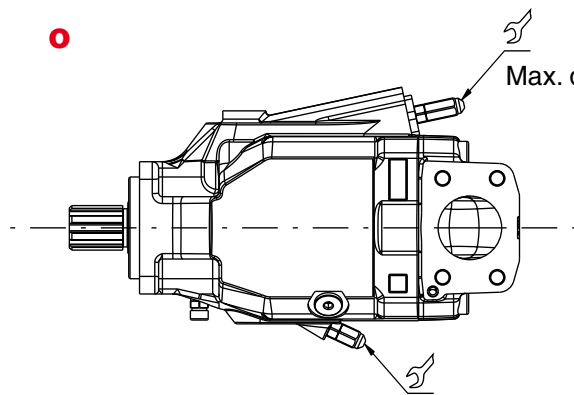
Side ports



Rear ports



DISPLACEMENT SETTING



Max. displacement limiter

- E** Max. displacement limiter
- G** Min. and Max. displacement limiter (standard)
- Tightening torque 15^{±1} Nm (124 ÷ 142 lbf in)

Min. displacement limiter

02/02.2019

TVP 60-84

Max. displacement setting range	cm ³ /rev	from	55 (3.36)
	(in ³ /rev)	to	84,7 (5.17)
Min. displacement setting range	cm ³ /rev	from	0
	(in ³ /rev)	to	38,1 (2.32)
One turn of screw changes pump displacement by approximately	cm ³ /rev	E	5,0 (0.31)
	(in ³ /rev)	F	4,2 (0.26)

For different setting ranges, please consult our pre-sales department.

TVP 60-84

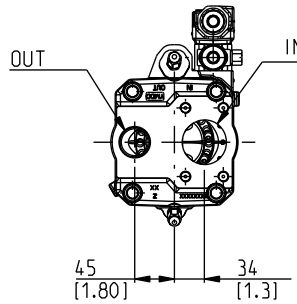
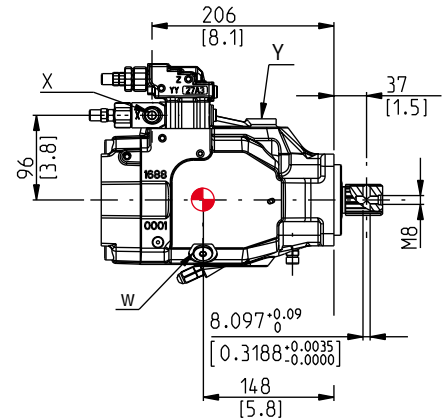
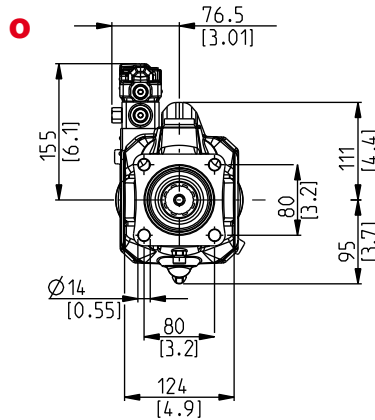
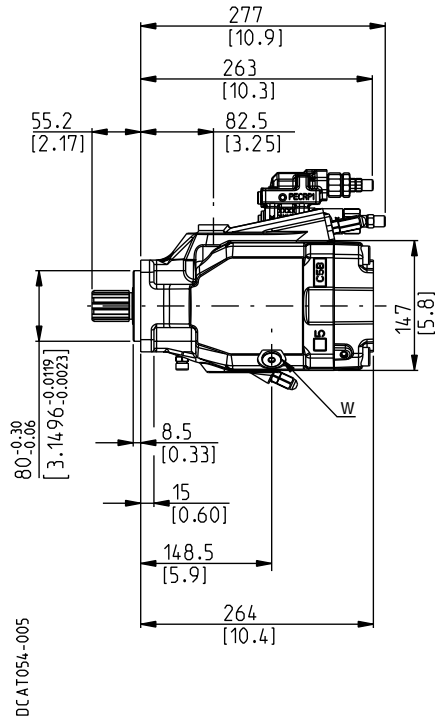
REAR PORTS - DIMENSIONS - ISO STANDARD

16 Z0

Drive shaft: **16**
Conforms to DIN ISO 14

Mounting flange: **Z0**
Conforms to ISO 7653

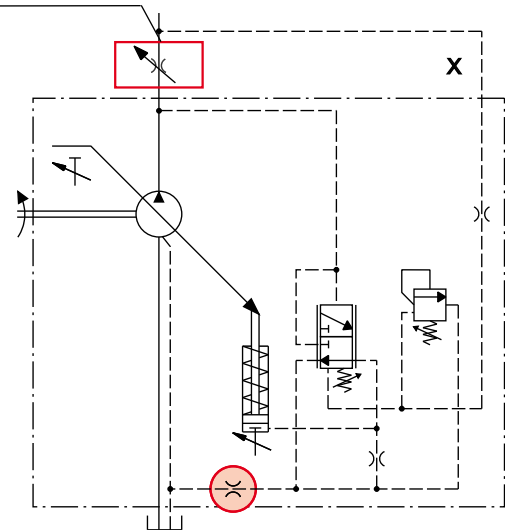
Regulators: The drawing shows a pump with flow and pressure compensator. For different regulators please consult our pre-sales department.



Center of gravity

RP1 - LS2 (with flow control)

Not included in supply



Ports (Nominal size)

IN	OUT	X	Y	W
2"	1"	Load sensing port	Drain port	Drain port

Dimensions at page 5 and page 6

Order example

TVP 60-84 S-16 Z0-P MF/OF-N-RP1-LS2-G

Replaces: 01/09.2018

02/02.2019

PORT SIZES

Replaces: 01/09.2018



Ports type	INLET / OUTLET PORTS						DRAIN PORTS		LOAD SENSING PORTS	
	Split SSM		Split SSS		SAE ODT		SAE ODT		Gas BSPP (●)	SAE ODT
	IN	OUT	IN	OUT	IN	OUT	Y	W	X	X
TVP 60-84	MF	MC	SF	SC	MF	OF	OC	OB	GA	03

(●) Standard.

Tightening torque for low pressure port

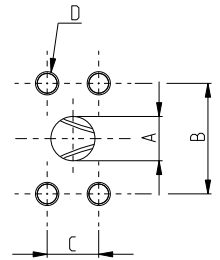
Tightening torque for high pressure port

SAE FLANGED PORTS J518 - Standard pressure series 3000 psi **SSM**

Metric thread ISO 60° conforms to ISO/R 262

CODE	Nominal size	A	B	C	D		
		mm (in)	mm (in)	mm (in)	Thread Depth mm (in)	Nm (lbf in)	Nm (lbf in)
MC	1"	25,4 (1.00)	52,4 (2.06)	26,2 (1.03)	M 10 17 (0.6693)	—	30 ^{+2,5} (266 ÷ 288)
MF	2"	51 (2.01)	77,8 (3.06)	42,9 (1.69)	M 12 20 (0.7874)	30 ^{+2,5} (266 ÷ 288)	—

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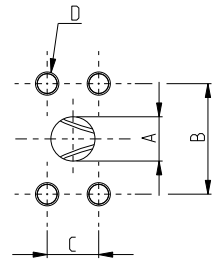
SAE FLANGED PORTS J518 - Standard pressure series 3000 psi **SSS**

American straight thread UNC-UNF 60° conforms to ANSI B 1.1


02/02.2019


CODE	Nominal size	A	B	C	D		
		mm (in)	mm (in)	mm (in)	Thread Depth mm (in)	Nm (lbf in)	Nm (lbf in)
SC	1"	25,4 (1.00)	52,4 (2.06)	26,2 (1.03)	3/8 - 16 UNC-2B 17 (0.6693)	—	30 ^{+2,5} (266 ÷ 288)
SF	2"	51 (2.01)	77,8 (3.06)	42,9 (1.69)	1/2 - 13 UNC-2B 20 (0.7874)	30 ^{+2,5} (266 ÷ 288)	—

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PORTS SIZES

 Tightening torque for low pressure port

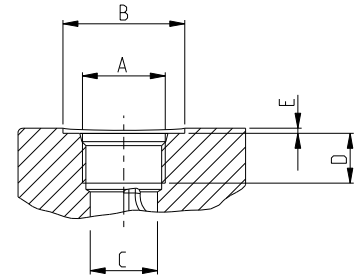
 Tightening torque for high pressure port



SAE STRAIGHT THREAD PORTS J514

ODT

American straight thread UNC-UNF 60° conforms to ANSI B 1.1

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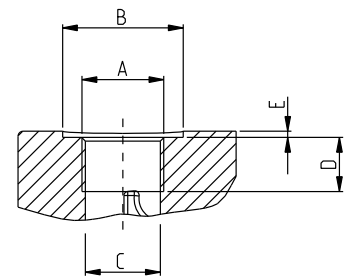
CODE	Nominal size	A	Ø B	Ø C	D	E		
							Nm (lbf in)	Nm (lbf in)
03	1/4"	7/16" - 20 UNF - 2B	—	9,5 (0.38)	—	—	—	12 ⁺¹ (106 ÷ 115)
0B	1/2"	3/4" - 16 UNF - 2B	33 (1.30)	17 (1.38)	—	1 (0.03)	20 ⁺¹ (177 ÷ 186)	—
0C	5/8"	7/8" - 20 UNF - 2B	35 (1.38)	20,5 (0.80)	—	2 (0.08)	30 ^{+2,5} (266 ÷ 288)	—
0F	1"	1 5/16" - 12 UNF - 2B	—	30,5 (1.20)	20 (0.79)	—	—	170 ⁺¹⁰ (1505 ÷ 1593)



GAS STRAIGHT THREAD PORTS

BSPP

British standard pipe parallel (55°) conforms to UNI - ISO 228

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CODE	Nominal size	A	Ø B	Ø C	D	E		
							Nm (lbf in)	Nm (lbf in)
GA	1/8"	G 1/8	—	8,75 (0.34)	12 (0.48)	—	—	5 ^{+0,25} (44 ÷ 46)

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TVP 02 T A

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Headquarters:
CASAPPA S.p.A.
Via Balestrieri, 1
43044 Lemignano di Collecchio
Parma (Italy)
Tel. (+39) 0521 30 41 11
Fax (+39) 0521 80 46 00
IP Videoconferencing
E-mail: info@casappa.com
www.casappa.com

