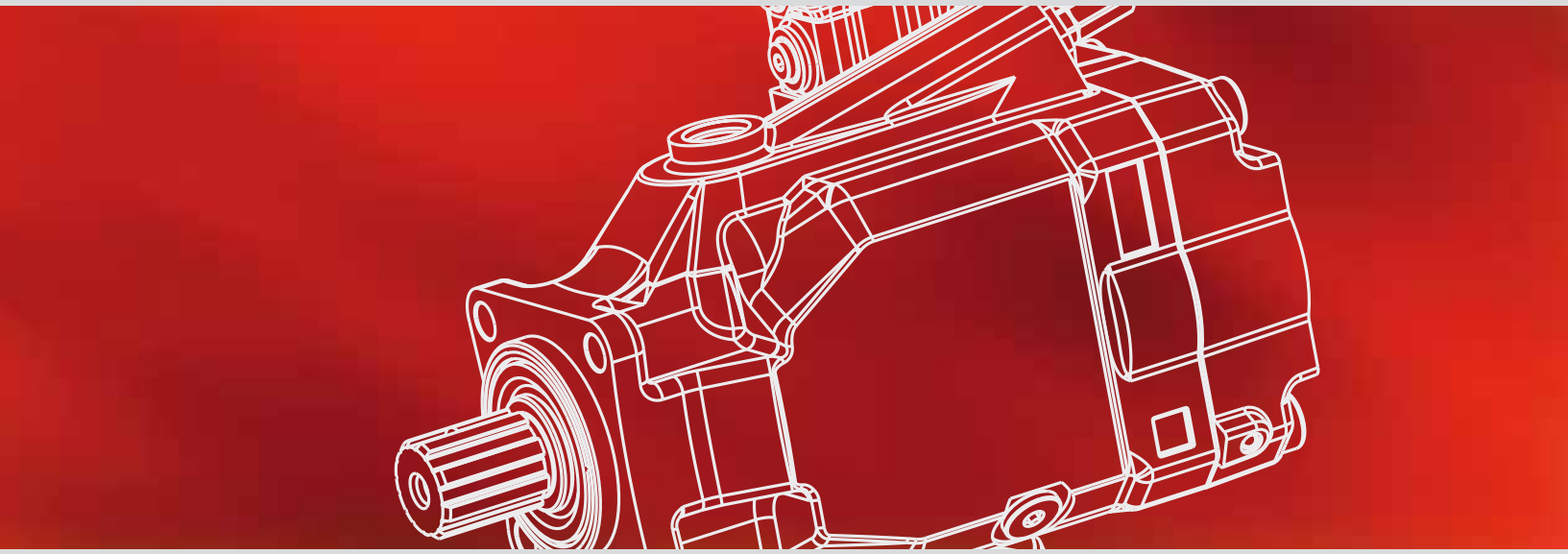
CASAPPA®
FLUID POWER DESIGN



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)	Δp < 140 (2030)	140 < Δp < 210 (2030) (3045)	Δp > 210 (3045)
Contamination class NAS 1638	9	8	7
Contamintion class ISO 4406:1999	20/18/15	19/17/14	18/16/13
Achieved with filter $\beta x_{(c)} \geq 75$ according to ISO 16889	10 µm	10 µm	10 µm

FILL WITH OIL BEFORE START-UP

Pump type			TVP 60-84	
Max. displacement (theor.) V_{max}	cm³/rev (in³/rev)		84,7 (5.17)	
Inlet pressure	bar abs. (psi)	min.	0,8 (12)	
	bar abs. (psi)	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	
Max. delivery (theor.)	l/min (US gpm)	@ n_{max}	211,8 (55.96)	
		@ 2000 min^{-1}	169,4 (44.76)	
		@ 1500 min^{-1}	127,1 (33.58)	
Max. power (theor.) ($\Delta p = p_{max}$ cont.)	kW (HP)	@ n_{max}	123,5 (165.5)	
		@ 2000 min^{-1}	98,8 (132.4)	
		@ 1500 min^{-1}	74,1 (99.3)	
Max. torque (theor.)	Nm (lbf in)	@ p_{max} cont.	471,8 (4176)	
		@ 100 bar (1450 psi)	134,8 (1193)	
Moment of inertia	kgm² (ft² 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
Operating temperature	°C (°F)	min.	-25 (-13)	-15 (5)
		max. cont.	80 (176)	110 (230)
		max. peak	100 (212)	125 (257)

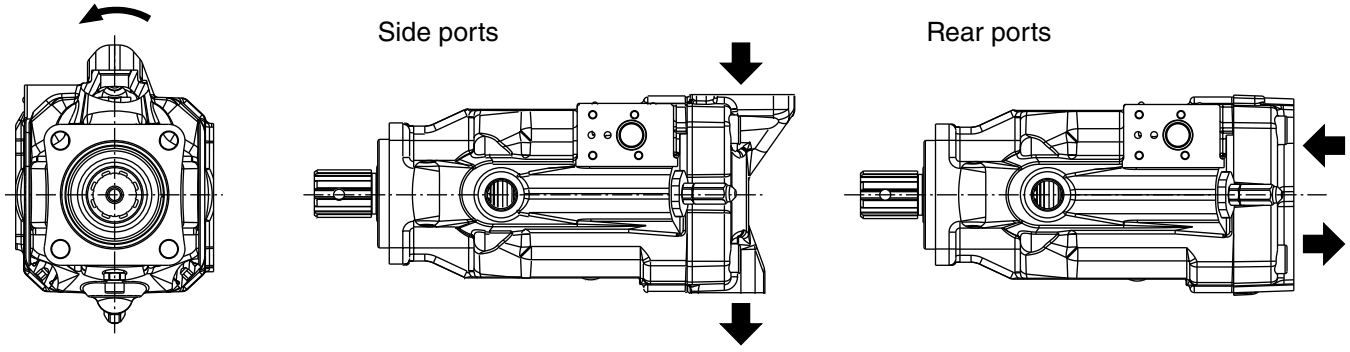
01/09.2018

o Modification from former edition.

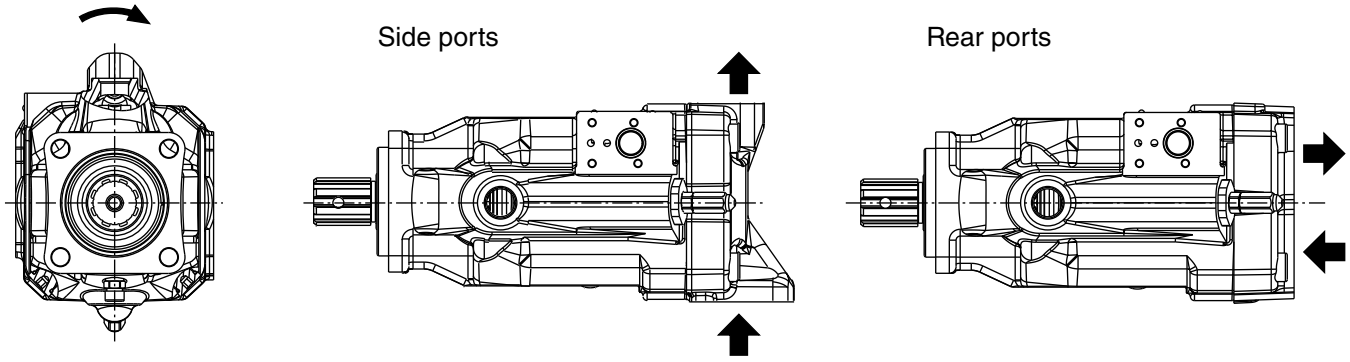
Replaces: 01/09.2018

PORTS POSITION

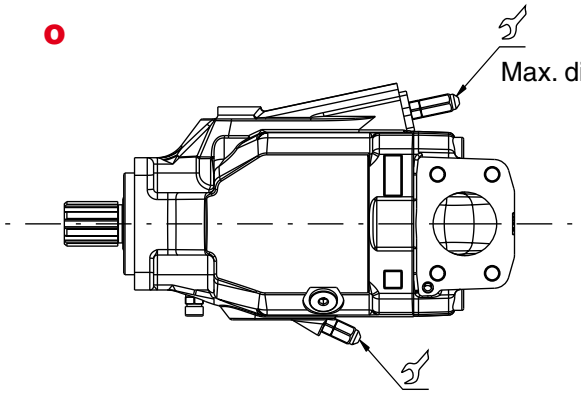
Anti-clockwise rotation



Clockwise rotation



DISPLACEMENT SETTING



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

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			TVP 60-84
Max. displacement setting range	cm³/rev (in³/rev)	from	55 (3.36)
		to	84,7 (5.17)
Min. displacement setting range	cm³/rev (in³/rev)	from	0
		to	38,1 (2.32)
One turn of screw changes pump displacement by approximately	cm³/rev (in³/rev)	E	5,0 (0.31)
		F	4,2 (0.26)

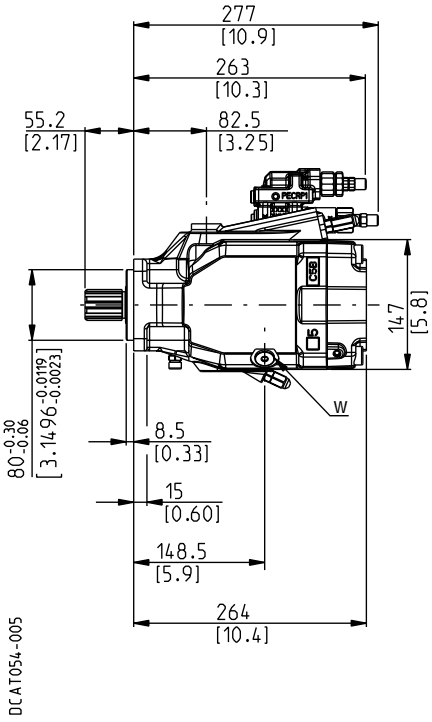
For different setting ranges, please consult our pre-sales department.

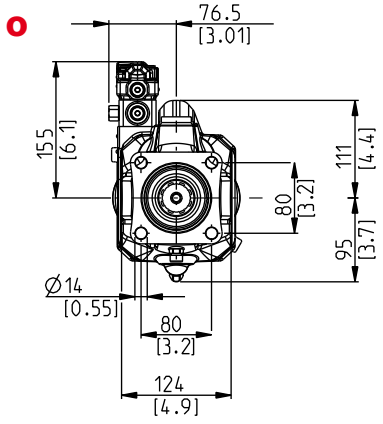
TVP 60·84 REAR PORTS - DIMENSIONS - ISO STANDARD 16 Z0

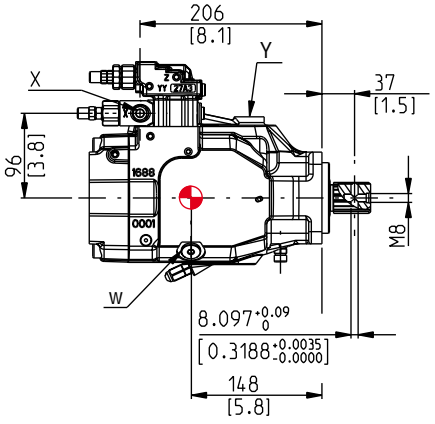
Drive shaft: **16**
Conforms to DIN ISO 14

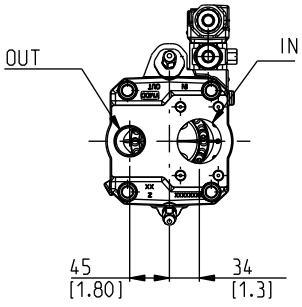
Mounting flange: **Z0**
Conforms to ISO 7653

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



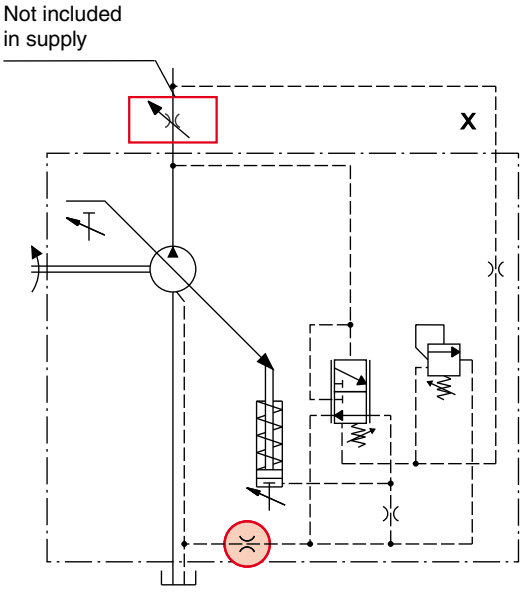






Center of gravity

RP1 - LS2 (with flow control)



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

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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.

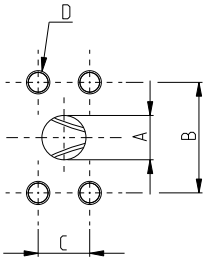
Tightening torque for low pressure port

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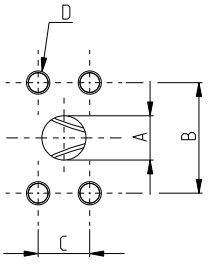
SAE FLANGED PORTS J518 - Standard pressure series 3000 psi — SSS

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

O 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

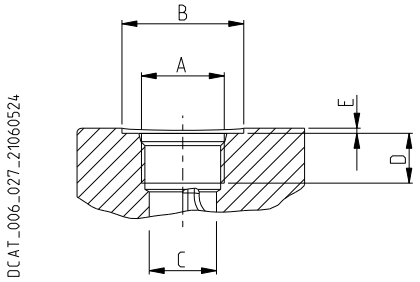
Tightening torque for low pressure port

Tightening torque for high pressure port

Replaces: 01/09.2018

SAE STRAIGHT THREAD PORTS J514 — ODT

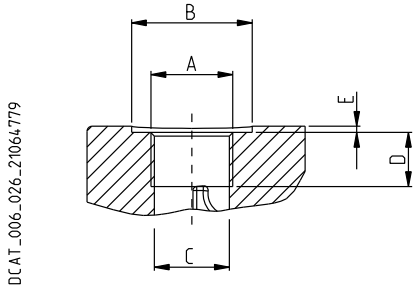
American straight thread UNC-UNF 60° conforms to ANSI B 1.1



CODE O	Nominal size	A mm (in)	Ø B mm (in)	Ø C mm (in)	D mm (in)	E mm (in)	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



CODE	Nominal size	A mm (in)	Ø B mm (in)	Ø C mm (in)	D mm (in)	E mm (in)	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 Edition: 02/02.2019 Replaces: 01/09.2018

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