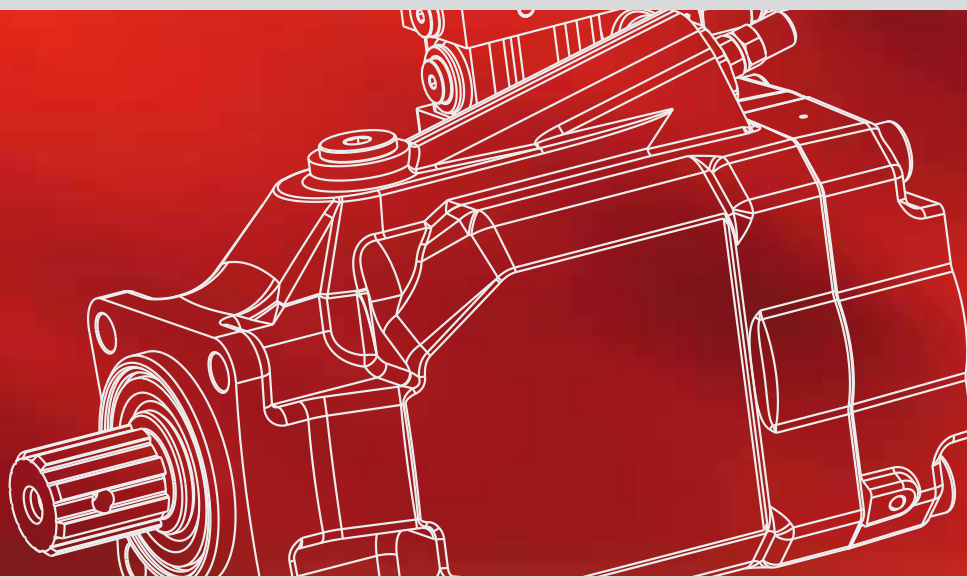


PRELIMINARY
FOR INTERNAL USE ONLY



VARIABLE
DISPLACEMENT
AXIAL PISTON
PUMPS

For truck
applications



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 400 cSt (68 and 1819 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 line
- Compensators external drain line
- Direct mounting on the PTOs
- Body width 124,2 mm (4.8898 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)	$\Delta p < 210$ (3045)	$\Delta p > 210$ (3045)
Contamination class NAS 1638	8	7
Contamination class ISO 4406:1999	19/17/14	18/16/13
Achieved with filter $\beta_{x(c)} \geq 75$ according to ISO 16889	10 μm	10 μm

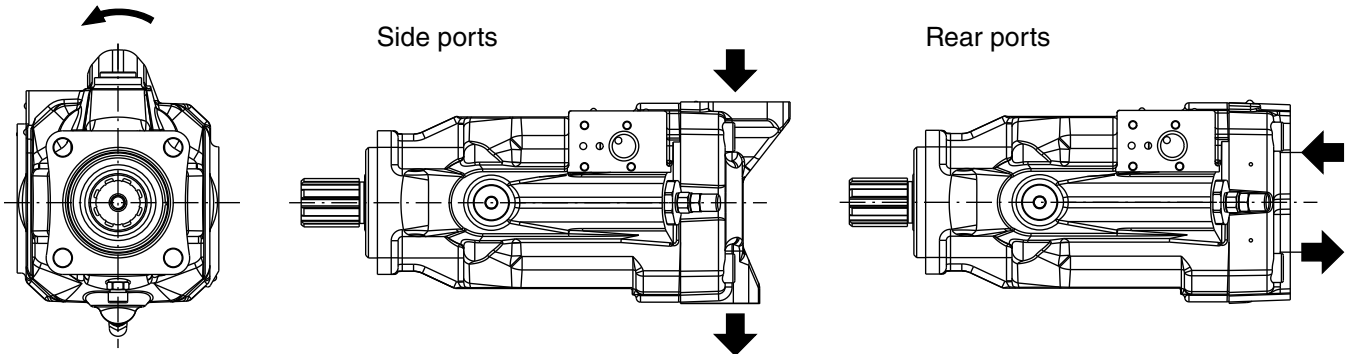
FILL WITH OIL BEFORE START-UP

Pump type	TVP 60-84			
Max. displacement (theor.) V_{max}	cm ³ /rev (in ³ /rev)	84,7 (5.17)		
Inlet pressure	bar abs. (in Hg) min. bar abs. (psi) max.	0,85 (25)		
		continuous	350 (5075)	
Max. outlet pressure p_{max}	bar (psi)	peak	400 (5800)	
		Compensator max. drain line pressure	bar abs. (psi)	1,5 (22)
Max. speed n_{max}	min ⁻¹	@ V_{max} (1)	2500	
		@ 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)	
		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)

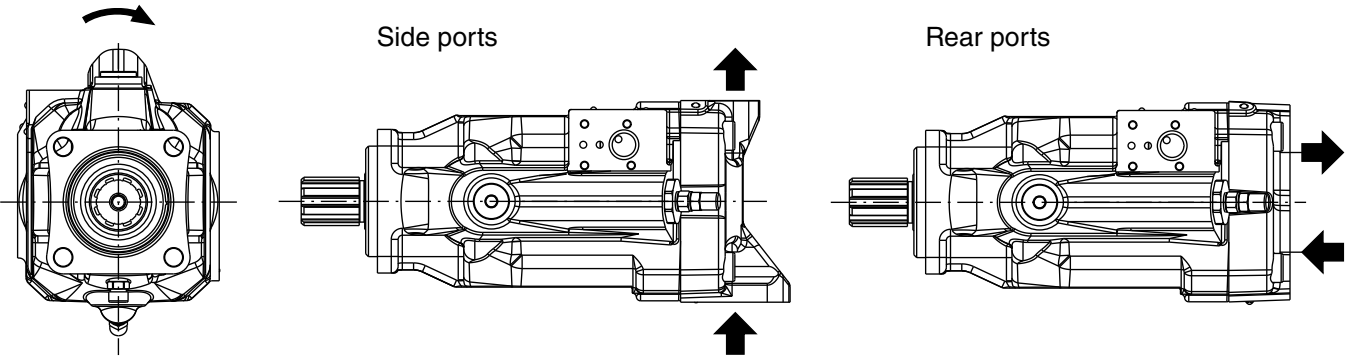
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PORTS POSITION

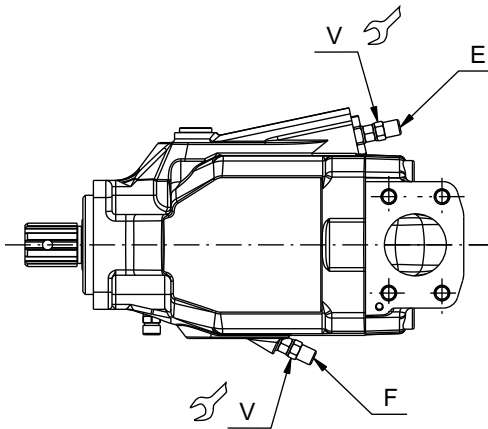
Anti-clockwise rotation



Clockwise rotation



DISPLACEMENT SETTING



- E:** Max. displacement limiter
- F:** Min. displacement limiter
- G:** Min. and Max. displacement limiter (standard)
- V:** Tightening torque $10^{\pm 1}$ Nm (80 ÷ 97 lbf in)

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TVP 60-84

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

For different setting ranges, please consult our technical sales department.

TVP 60-84

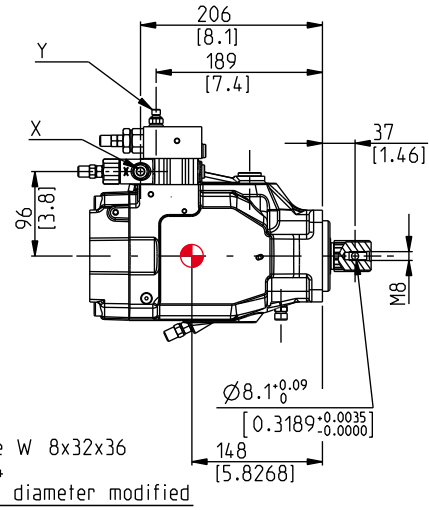
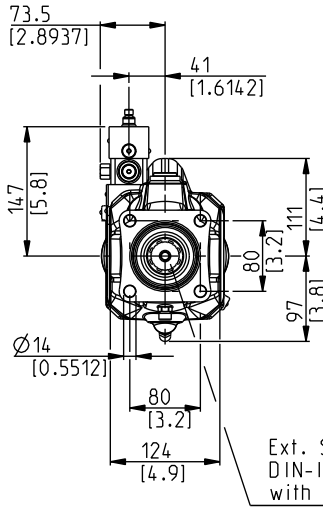
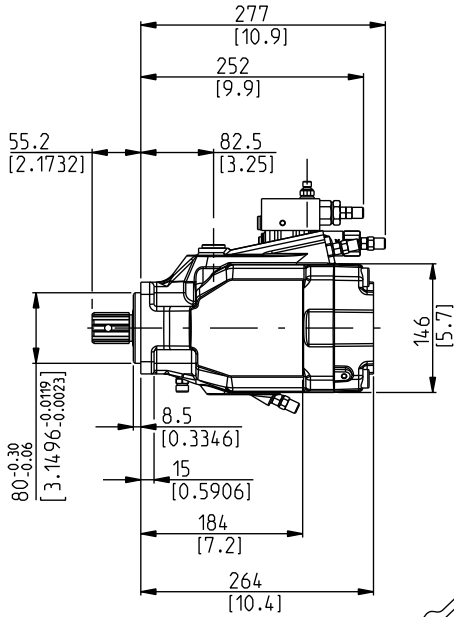
REAR PORTS - DIMENSIONS - ISO STANDARD

16 Z0

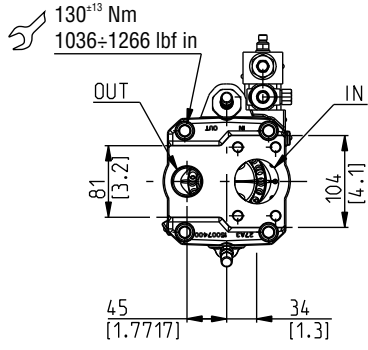
Drive shaft: **16**
Conforms to DIN ISO 14

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

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



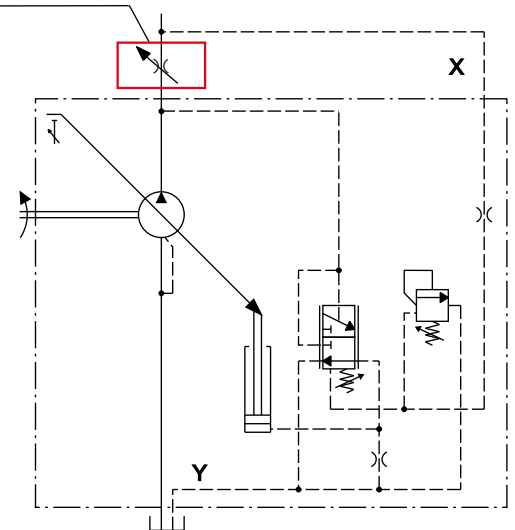
Ext. Spline W 8x32x36
DIN-ISO 14
with major diameter modified



Center of gravity

RP1 - LS2 (with flow control)

Not included in supply



Ports (Nominal size)			
IN	OUT	X	Y
2"	1"	Load sensing port	Compensator drain port

Dimensions at page 5 and page 6

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

PORTS SIZES

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

(●) Available only with inlet and outlet ports type Split SSS and SAE ODT.

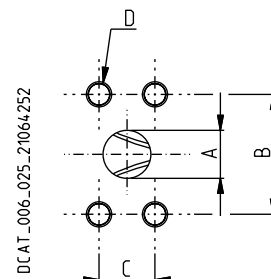
Tightening torque for low pressure side port

Tightening torque for high pressure side port [values obtained at 350 bar (5075 psi)]

SAE FLANGED PORTS J518 - Standard pressure series 3000 psi SSM

Metric thread ISO 60° conforms to ISO/R 262

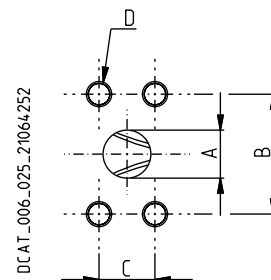
CODE	Nominal size	A	B	C	D		
		mm (in)	mm (in)	mm (in)	Thread Depth mm (in)	Nm (lbf in)	Nm (lbf in)
MC	1"	25,4 (1.0000)	52,4 (2.0630)	26,2 (1.0315)	M 10 17 (0.6693)	—	30 ^{+2,5} (266 ÷ 288)
MF	2"	51 (2.0079)	77,8 (3.0630)	42,9 (1.6890)	M 12 20 (0.7874)	30 ^{+2,5} (266 ÷ 288)	—



SAE FLANGED PORTS J518 - Standard pressure series 3000 psi SSS


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


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 (1.0000)	52,4 (2.0630)	26,2 (1.0315)	3/8 - 16 UNC-2B 17 (0.6693)	—	35 ^{+2,5} (310 ÷ 332)
SF	2"	51 (2.0079)	77,8 (3.0630)	42,9 (1.6890)	1/2 - 13 UNC-2B 20 (0.7874)	30 ^{+2,5} (266 ÷ 288)	—



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PORTS SIZES

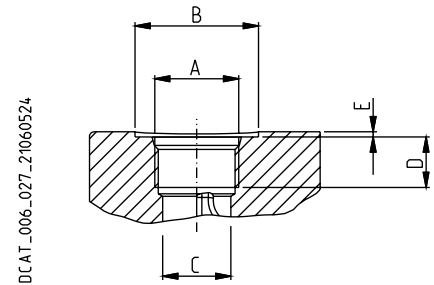
 Tightening torque for low pressure side port



 Tightening torque for high pressure side port [values obtained at 350 bar (5075 psi)]

SAE STRAIGHT THREAD PORTS J514

ODT

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

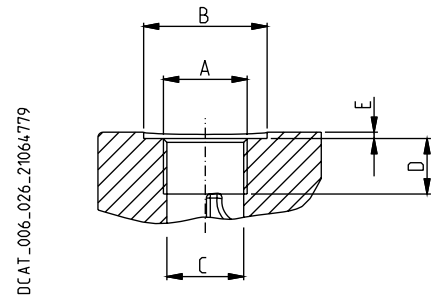




CODE	Nominal size	A	Ø B	Ø C	D	E		
		mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	Nm (lbf in)	Nm (lbf in)
03	1/4"	7/16" - 20 UNF - 2B	—	9,5 (0.3740)	—	—	—	12 ⁺¹ (106 ÷ 115)
0F	1"	1 5/16" - 12 UNF - 2B	—	30,5 (1.2008)	20 (0.7874)	—	—	170 ⁺¹⁰ (1505 ÷ 1593)

GAS STRAIGHT THREAD PORTS

BSPP

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



CODE	Nominal size	A	Ø B	Ø C	D	E		
		mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	Nm (lbf in)	Nm (lbf in)
GA	1/8"	G 1/8	—	8,75 (0.3444)	12 (0.4724)	—	—	5 ^{+0,25} (44 ÷ 46)

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TVP 01 T A

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