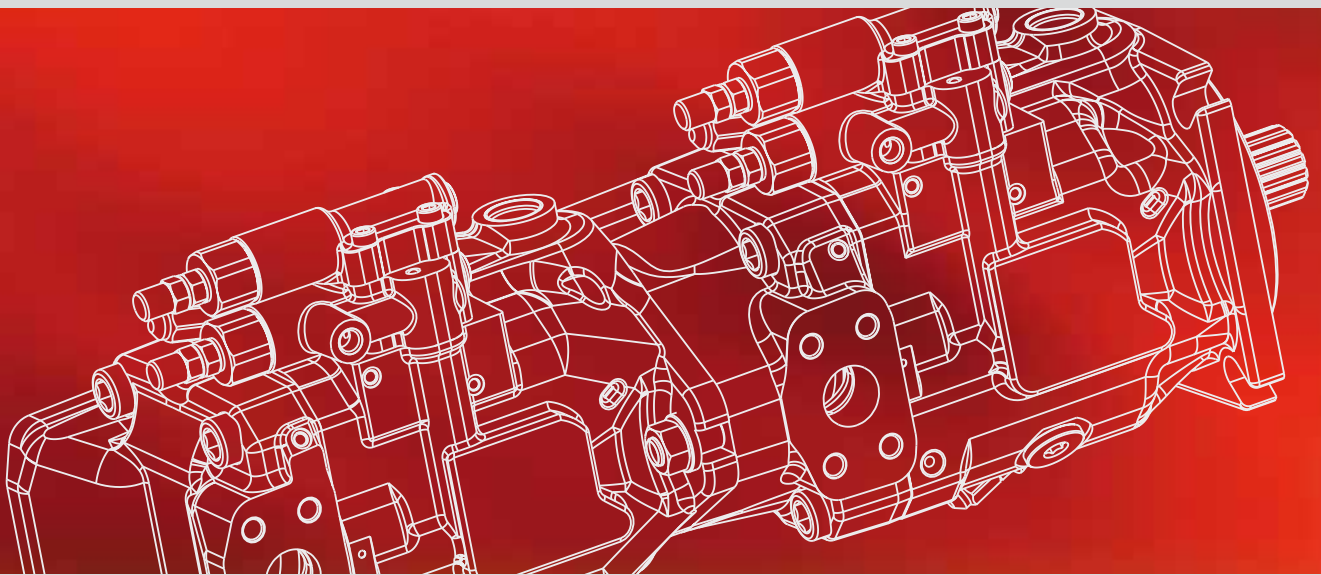




VARIABLE
DISPLACEMENTS
AXIAL PISTON
PUMPS

MVP

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Replaces: 09/10.2024

10/12.2025



Modification from former edition.

INTRODUCTION

Variable displacement axial piston pumps swash plate design ideally suited for medium and high pressure open circuit applications. The compact design allows to be mounted directly on engine motors.

DISPLACEMENTS

From 14 cm³/rev (0.85 in³/rev)

To 115 cm³/rev (7.02 in³/rev)

PRESSURE

Max. constant operating pressure 280 bar (4060 psi)

Max. system pressure (relief valve setting) 315 bar (4568 psi)

Max. peak of pressure 350 bar (5075 psi)

SPEED

Max. 3500 min⁻¹

APPLICATION

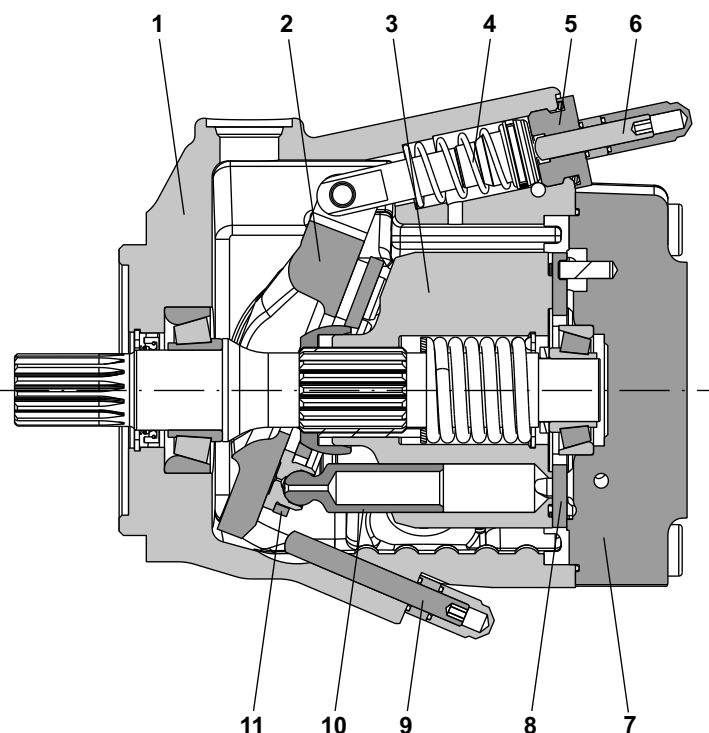
Medium, high pressure

SECTOR

Mobile

TYPICAL APPLICATIONS

- Skid Steer Loaders
- Wheel Loaders - Backhoe Loaders
- Mini and Midi-Excavators
- Telehandlers
- Forklifts
- Windmills - Green Energy
- Tractors & Attachements



1	Pump body
2	Swash plate
3	Cylinders block
4	Counterbalancing spring
5	Plug
6	Max. displacement limiter
7	Cover
8	Valve plate
9	Min. displacement limiter
10	Piston
11	Piston guide plate

09/10.2024

- Compact design
- Longer service life
- Low noise emission
- Max. and min. displacement limiter
- Drive shaft bearing suitable for radial and axial loads
- Hydraulic and Electro-hydraulic displacement controls

GENERAL INFORMATION / INSTRUCTIONS

DIRECTION OF ROTATION

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

HYDRAULIC FLUID

Mineral oil based hydraulic fluid conforming to DIN 51524, fire resistant fluids and biodegradable fluids according to the technical data shown in the tables on pages 7 ÷ 9. The system should be designed to prevent aeration of the hydraulic fluid.

FLUID VISCOSITY

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

Functional limit conditions are:

max.: 1500 cSt (6818 SSU) at start up at minimum temperature of -25 °C (-13 °F) with straight and short inlet line.
 min.: 10 cSt (58 SSU) at maximum temperature of 110 °C (230 °F)

FILTRATION

To ensure the optimal performance and the maximum life to the pump, the hydraulic fluid must have and maintain a fluid contamination 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 $\beta_{x_{(c)}} \geq 75$ according to ISO 16889	10 μm	10 μm	10 μm

Casappa recommends to use its own production filters:



STORAGE

The storage must be in a dry environment.
 Max storage time in ideal conditions is 24 months.
 The ideal storage temperature is between 5 °C (41 °F) and 20 °C (68 °F). No problem in case of temperature between -40 °C (-40 °F) and 50 °C (122 °F). Below -40 °C (-40 °F) please consult our pre-sales department.

INSTALLATION

Check that the maximum coupling eccentricity stays within 0,25 mm (0.0098 in) to reduce shaft loads due to misalignment. It is advised to use a flexible coupling suitable to absorb eventual rotational shocks. For applications with axial and radial loads exceeding published standards, consult our sales department. The direction of rotation of the pump must agree with the prime mover rotation. Before installation, the case of the pump must be filled with fluid.

LINES

The lines must have a major diameter which is at least as large as the diameter of pump ports, and must be perfectly sealed. To reduce loss of power, the lines should be as short as possible, reducing the sources of hydraulic resistance (elbow, throttling, gate valves, etc.) to a minimum. A length of flexible tubing is recommended to reduce the transmission of vibrations. Before connecting the lines, remove any plug and make sure that the lines are perfectly clean. Check that the drain line is dimensioned in a way to guarantee a case pressure lower than 1,5 bar (22 psi) absolute. The drain line must be connected directly (no filter, no valves, no oil cooler) to the tank and must terminate below the oil level. Check that the dimensions of the suction line guarantee a pressure equal or superior to 0,8 bar (12 psi). Inlet pressure less than 0,8 bar (12 psi) could cause an increase of noise emission, the decrease of the pump performances and a reduction of its life expectancy.

STARTING UP

Check that all connections are secure and that the entire system is completely clean. Add oil to the tank always using a filter. Bleed the air from the circuit to help the filling. Turn on the system for a few moments at minimum speed, then bleed the circuit again and check the level of oil in the tank. Gradually increase the pressure and speed of rotation up to the pre-set operating levels, which must stay within the stated limits as specified in the catalogue.

FOR VERY LOW TEMPERATURE

STARTING UP

We strongly recommend to warm up the oil before running the machine. If this is not possible, the warm up of the oil and of the pump should be carried out following these instructions:

- Start the pump in stand-by condition at minimum speed.
 Keep this working condition until the pump case reaches -20 °C (-4 °F)
- Increase slowly the displacement. Max pressure permitted: 50 bar (725 psi). The maximum permitted speed is strictly connected to the layout of the inlet circuit; check that there is no cavitation before increasing the speed.
- Keep this working condition until the oil temperature in the whole system is -10 °C (14 °F).
- Maximum pressure can be achieved from now on.
- Always check the outlet flow to prevent cavitation damage.

All the temperature are referred to oil with viscosity ISO VG 32 according to DIN 51 519.

SUGGESTIONS

To prevent cavitation at low temperature we suggest:

- To warm up the tank
- To pressurize the tank
- To oversize the inlet hose

05/10.2014

MOUNTING POSITIONS

Standard pump is supplied with D1 drain hole open and D2, D3, D4 plugged.

Before installation fill the pump with hydraulic oil for at least 3/4 of the volume keeping it in horizontal position.

The pump can be mounted in a horizontal or vertical position.

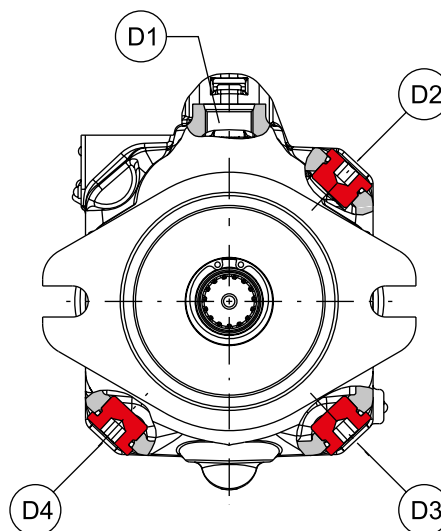
The highest of the case drain ports must be used to keep the required filling oil.

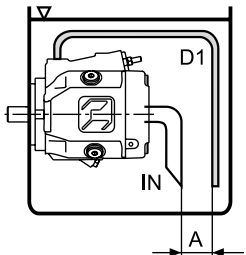
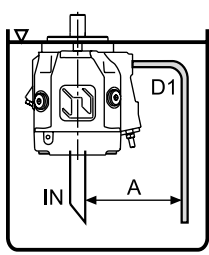
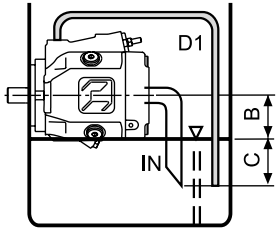
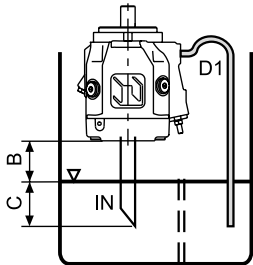
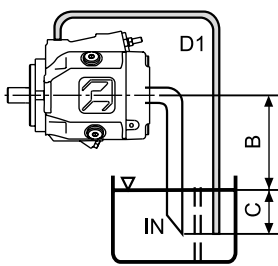
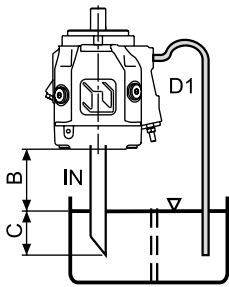
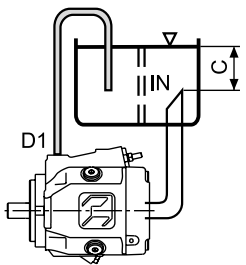
If D1 is not the highest drain port it must be closed by moving the plug from the hole chosen for the drain line.

The pump can be located above the oil level if the absolute pressure at the inlet port stays within the stated limits.

With exception of pump mounted below the oil level, we recommend to interpose a baffle plate between inlet and drain line.

To reduce further noise emission, we recommend to mount the pump below the oil level and avoid suction lines with sharp restrictions.

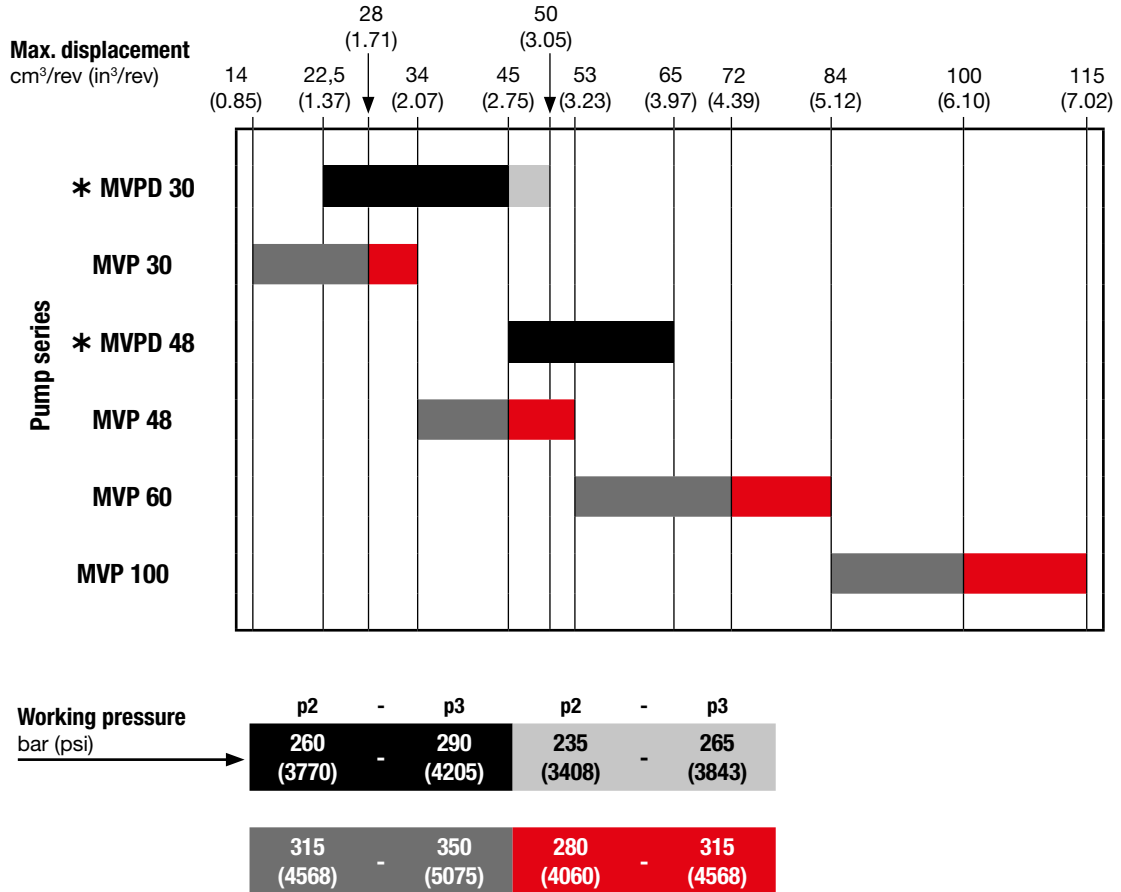


HORIZONTAL MOUNTING		VERTICAL MOUNTING	
	Arrangement inside the tank. Minimum oil level equal or above the pump mounting face. $A \geq 200 \text{ mm (7.874 in)}$		Arrangement inside the tank. Minimum oil level equal or above the pump mounting face. $A \geq 200 \text{ mm (7.874 in)}$
	Arrangement inside the tank. Minimum oil level below the pump mounting face. Min. inlet pressure= 0,8 bar abs (24 in Hg) $B \leq 800 \text{ mm (31.4961 in)}$ $C = 200 \text{ mm (7.874 in)}$		Arrangement inside the tank. Minimum oil level below the pump mounting face. Min. inlet pressure= 0,8 bar abs (24 in Hg) $B \leq 800 \text{ mm (31.4961 in)}$ $C = 200 \text{ mm (7.874 in)}$
	Arrangement outside the tank above oil level. Min. inlet pressure= 0,8 bar abs (24 in Hg) $B \leq 800 \text{ mm (31.4961 in)}$ $C = 200 \text{ mm (7.874 in)}$		Arrangement outside the tank above oil level. Min. inlet pressure= 0,8 bar abs (24 in Hg) $B \leq 800 \text{ mm (31.4961 in)}$ $C = 200 \text{ mm (7.874 in)}$
	Arrangement outside the tank below oil level. $C = 200 \text{ mm (7.874 in)}$		

IN= inlet line - D1= drain line - A= min. distance between the line - B+C= permissible suction height - C= line immersion depth

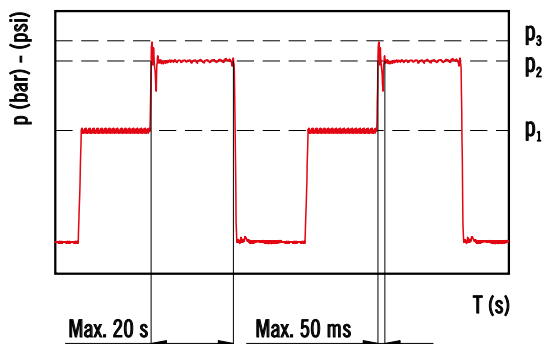
DISPLACEMENTS AND WORKING PRESSURES RANGE

MVP-MVPD Comparison



*: MVPD Series. For more information please consult the respective technical catalogue.

PRESSURE DEFINITION



p₁ Constant operating pressure
p₂ System pressure (relief valve setting)
p₃ Peak of pressure

The peak of pressure is the max pressure allowed and it corresponds to the overshoot of the relief valve.

Please note that both relief valve setting and overshoot must be lower than their limits.

If the relief setting is compliant but the overshoot is higher than the limit, the relief setting must be decreased until the overshoot is compliant to Casappa limit.

Please contact us for high frequency applications.

09/10.2024

FEATURES

Technical data with mineral oil

HL or HLP mineral oil based hydraulic fluid to DIN 51524

Pump type MVP			30-28	30-34	48-45	48-53	60-60	60-72	60-84	100-100	100-115
Max. displacment (theor.) V_{max}	cm ³ /rev (in ³ /rev)		28 (1.71)	34,8 (2.12)	45 (2.75)	53,7 (3.28)	60 (3.66)	72 (4.39)	84,7 (5.17)	100 (6.10)	115 (7.02)
Inlet pressure	bar abs. (in Hg)	min.						0.8 (24)			
	bar abs. (psi)	max.						25 (363)			
Max. outlet pressure p_{max}	bar (psi)	p_1	280 (4060)	250 (3625)	280 (4060)	250 (3625)	280 (4060)	280 (4060)	250 (3625)	280 (4060)	250 (3625)
		p_2	315 (4568)	280 (4060)	315 (4568)	280 (4060)	315 (4568)	315 (4568)	280 (4060)	315 (4568)	280 (4060)
		p_3	350 (5075)	315 (4568)	350 (5075)	315 (4568)	350 (5075)	350 (5075)	315 (4568)	350 (5075)	315 (4568)
Max. drain line pressure	bar abs. (psi)	2 (29) But max. 0,5 bar higher than inlet pressure									
Max. speed n_{max}	min ⁻¹	@ V_{max} (1)	3500	2900	3000	2500	3000	2700	2300	2200	2000
Min. speed n_{min}	min ⁻¹	@ V_{max} (1)	500	500	500	500	500	500	500	500	500
Max. delivery (theor.)	l/min (US gpm)	@ n_{max}	98 (25.9)	101 (26.7)	135 (35.7)	134 (35.4)	180 (47.6)	194 (51.3)	194 (51.3)	220 (58.12)	230 (60.77)
		@ 2000 min ⁻¹	56 (14.8)	70 (18.5)	90 (23.8)	107 (28.3)	120 (31.7)	144 (38.0)	169 (44.7)	200 (52.8)	230 (60.77)
		@ 1500 min ⁻¹	42 (11.1)	52 (13.7)	68 (18.0)	81 (21.4)	90 (23.8)	108 (28.5)	127 (33.6)	150 (39.6)	173 (45.7)
Max. power (theor.) ($\Delta p = p_{max}$ cont.)	kW (HP)	@ n_{max}	45,7 (61.2)	42,1 (56.4)	63 (84.4)	55,9 (74.9)	84 (112.6)	90,7 (121.5)	81 (108.5)	102,6 (137.5)	95,8 (128.4)
		@ 2000 min ⁻¹	26,1 (35.0)	29 (38.9)	42 (56.3)	44,8 (60.0)	56 (75.0)	67,2 (90.0)	70,6 (94.6)	93,3 (125.0)	95,8 (128.4)
		@ 1500 min ⁻¹	19,6 (26.3)	21,8 (29.2)	31,5 (42.2)	33,6 (45.0)	42 (56.3)	50,4 (67.5)	52,9 (70.9)	70 (93.8)	71,8 (96.2)
Max. torque (theor.)	Nm (lbf in)	@ p_{max} cont.	124,8 (1105)	138,5 (1226)	200,5 (1775)	213,7 (1891)	267,4 (2367)	320,9 (2840)	337 (2983)	445 (3939)	458 (4054)
		@ 100 bar (1450 psi)	44,6 (395)	55,4 (490)	71,6 (634)	85,5 (757)	95,5 (845)	114,6 (1014)	134,8 (1193)	159 (1407)	183 (1620)
Moment of inertia rotary group	kgm ² (ft ² lbs)		0,002 (0.05)	0,002 (0.05)	0,003 (0.07)	0,003 (0.07)	0,008 (0.19)	0,008 (0.19)	0,008 (0.19)	0,014 (0.33)	0,014 (0.33)
Fill volume	l (US gallons)		0,85 (0.22)	0,85 (0.22)	1 (0.26)	1 (0.26)	1,3 (0.34)	1,3 (0.34)	1,3 (0.34)	1,8 (0.48)	1,8 (0.48)
Mass (approx.)	kg (lbs)		15 (33.1)	15 (33.1)	19 (41.9)	19 (41.9)	22 (48.5)	22 (48.5)	22 (48.5)	44 (97.0)	44 (97.0)
Seals			N= Buna					V= Viton			
Operating temperature	°C (°F)	min.									
		max. cont.									
		max. peak									

(1) = with an inlet pressure of 1 bar abs (14.5 psi) and viscosity between 15 and 35 cSt (77 and 163 SSU).
 Reducing the displacement or increasing the inlet pressure the max. speed changes. See table at page 10.
 Max. speed limit are: MVP 30: 3500 min⁻¹ - MVP 48: 3000 min⁻¹ - MVP 60: 3000 min⁻¹ - MVP 100: 2200 min⁻¹
 Please contact us for different working conditions.

FEATURES

Technical data restrictions with fire resistant fluid

(1) = with an inlet pressure of 1 bar abs (14.5 psi) and viscosity between 15 and 35 cSt (77 and 163 SSU).

HFA - Oil emulsion in water (5 ÷ 15 % of oil)

Pump type MVP			30-28	30-34	48-45	48-53	60-60	60-72	60-84	100-100	100-115
Max. outlet pressure p_{max}	bar (psi)	p_1					140 (2030)				
		p_2					150 (2175)				
		p_3					160 (2320)				
Max. speed n_{max}	min^{-1}	@ V_{max} (1)	2200	1800	2000	1700	2000	1700	1500	1400	1300
Seals			N= Buna								
Operating temperature	$^{\circ}C$ ($^{\circ}F$)	min.	2 (36)								
		max.	55 (131)								
Bearing life (ref. mineral oil)	%		20 %								

HFB - Water emulsion in oil (40 % of water)

Pump type MVP			30-28	30-34	48-45	48-53	60-60	60-72	60-84	100-100	100-115
Max. outlet pressure p_{max}	bar (psi)	p_1					160 (2320)				
		p_2					170 (2465)				
		p_3					180 (2610)				
Max. speed n_{max}	min^{-1}	@ V_{max} (1)	2350	1900	2150	1800	2150	1800	1600	1500	1400
Seals			N= Buna								
Operating temperature	$^{\circ}C$ ($^{\circ}F$)	min.	2 (36)								
		max.	60 (140)								
Bearing life (ref. mineral oil)	%		40 %								

HFC - Water-glycol (35 ÷ 55 % of water)

Pump type MVP			30-28	30-34	48-45	48-53	60-60	60-72	60-84	100-100	100-115
Max. outlet pressure p_{max}	bar (psi)	p_1					180 (2610)				
		p_2					195 (2828)				
		p_3					210 (3045)				
Max. speed n_{max}	min^{-1}	@ V_{max} (1)	2350	1900	2150	1800	2150	1800	1600	1500	1400
Seals			N= Buna								
Operating temperature	$^{\circ}C$ ($^{\circ}F$)	min.	-10 (14)								
		max.	60 (140)								
Bearing life (ref. mineral oil)	%		40 %								

09/10.2024

FEATURES

Technical data restrictions with fire resistant fluid

(1) = with an inlet pressure of 1 bar abs (14.5 psi) and viscosity between 15 and 35 cSt (77 and 163 SSU).

HFD - Phosphate ester

Pump type MVP			30-28	30-34	48-45	48-53	60-60	60-72	60-84	100-100	100-115
Max. outlet pressure p_{max}	bar (psi)	P_1					200 (2900)				
		P_2					220 (3190)				
		P_3					240 (3480)				
Max. speed n_{max}	min ⁻¹	@ V_{max} (1)	2350	1900	2150	1800	2150	1800	1600	1500	1400
Seals			V= Viton								
Operating temperature	°C (°F)	min.	-10 (14)								
		max.	80 (176)								
Bearing life (ref. mineral oil)	%		90 %								

Technical data restrictions with biodegradable fluids

HETG - Natural based fluid (the water content must never exceed 0,1 %)

Pump type MVP			30-28	30-34	48-45	48-53	60-60	60-72	60-84	100-100	100-115
Max. outlet pressure p_{max}	bar (psi)	P_1					180 (2610)				
		P_2					195 (2828)				
		P_3					210 (3045)				
Max. speed n_{max}	min ⁻¹	@ V_{max} (1)	2350	1900	2150	1800	2150	1800	1600	1500	1400
Seals			N= Buna								
Operating temperature	°C (°F)	min.	-10 (14)								
		max.	60 (140)								
Bearing life (ref. mineral oil)	%		50 %								

HEPG - Polyglycol based synthetic fluid (the water content must never exceed 0,1 %)

Pump type MVP			30-28	30-34	48-45	48-53	60-60	60-72	60-84	100-100	100-115
Max. outlet pressure p_{max}	bar (psi)	P_1					180 (2610)				
		P_2					195 (2828)				
		P_3					210 (3045)				
Max. speed n_{max}	min ⁻¹	@ V_{max} (1)	2350	1900	2150	1800	2150	1800	1600	1500	1400
Seals			V= Viton								
Operating temperature	°C (°F)	min.	-15 (5)								
		max.	90 (194)								
Bearing life (ref. mineral oil)	%		75 %								

HEES - Synthetic esters (the water content must never exceed 0,1 %)

Pump type MVP			30-28	30-34	48-45	48-53	60-60	60-72	60-84	100-100	100-115
Seals			V= Viton								
Operating temperature	°C (°F)	min.	-15 (5)								
		max.	80 (176)								
Bearing life (ref. mineral oil)	%		100 %								

09/10.2024

FEATURES

Design calculations for pump

Q	l/min (US gpm)	Flow
M	Nm (lbf in)	Torque
P	kW (HP)	Power
V	cm ³ /rev (in ³ /rev)	Displacement
n	min ⁻¹	Speed
Δp	bar (psi)	Pressure
$\eta_v = \eta_v(V, \Delta p, n)$		Volumetric efficiency
$\eta_{hm} = \eta_{hm}(V, \Delta p, n)$		Hydro-mechanical efficiency
$\eta_t = \eta_v \cdot \eta_{hm}$		Overall efficiency

$$Q = Q_{theor.} \cdot \eta_v$$

$$Q_{theor.} = \frac{V \text{ (cm}^3\text{/rev)} \cdot n \text{ (min}^{-1}\text{)}}{1000} \quad [\text{l/min}]$$

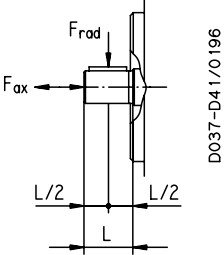
$$M = \frac{M_{theor.}}{\eta_{hm}}$$

$$M_{theor.} = \frac{\Delta p \text{ (bar)} \cdot V \text{ (cm}^3\text{/rev)}}{62,83} \quad [\text{Nm}]$$

$$P_{IN} = \frac{P_{OUT}}{\eta_t}$$

$$P_{OUT} = \frac{\Delta p \text{ (bar)} \cdot Q \text{ (l/min)}}{600} \quad [\text{kW}]$$

Max. permissible load on drive shaft

Pump type		MVP 30•28	MVP 30•34	MVP 48•45	MVP 48•53	MVP 60•60	MVP 60•72	MVP 60•84	MVP 100•100	MVP 100•115
F_{ax} Axial force		N (lbf)	1000 (225)	1000 (225)	1500 (337)	1500 (337)	2000 (450)	2000 (450)	2000 (450)	2000 (450)
F_{rad} Radial force	@ L/2	N (lbf)	1500 (337)	1500 (337)	1500 (337)	1500 (337)	3000 (675)	3000 (675)	3000 (675)	3000 (675)

% Variation of the max. speed in relation of the inlet pressure and/or displacement reduction

Inlet pressure	Displacement %					% Variation of the max. speed
psi (bar abs)	65	70	80	90	100	
12 (0,8)	120	115	105	97	90	
13 (0,9)	120	120	110	103	95	
14.5 (1,0)	120	120	115	107	100	
17 (1,2)	120	120	120	113	106	
20 (1,4)	120	120	120	120	112	
23 (1,6)	120	120	120	120	117	
29 (2,0)	120	120	120	120	120	

Max. speed must not exceed the limits specified at page 7.

Example 1

Displacement: 100 %
 Speed: 100 %
 Inlet pressure: 1,0 bar abs. (14.5 psi)

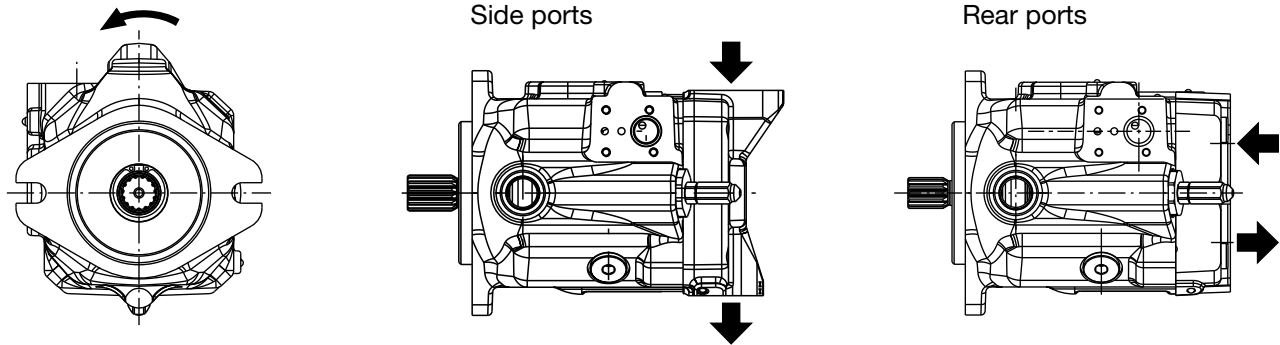
Example 2

Displacement: 80 %
 Inlet pressure: 1,0 bar abs. (14.5 psi)
 Speed: 115 %

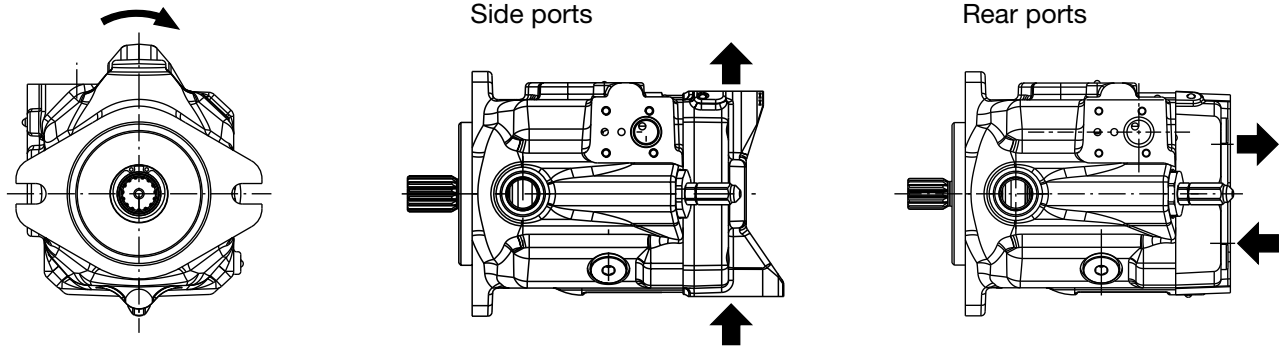
FEATURES

Definition of rotation direction looking at the drive shaft

Anti-clockwise rotation

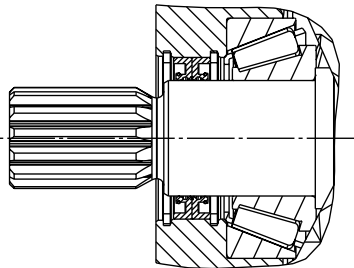


Clockwise rotation



DOUBLE SHAFT SEAL OPTION

The double shaft seal is available for the following configuration:

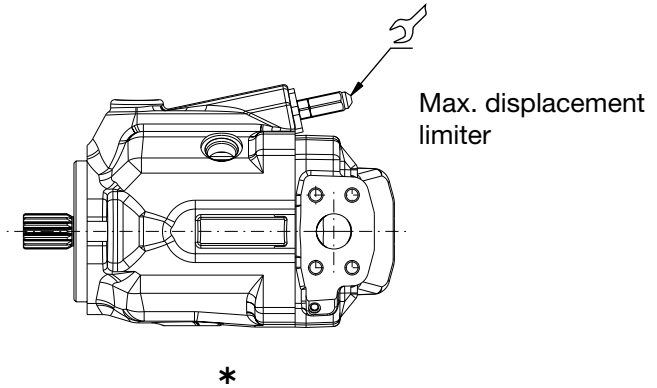
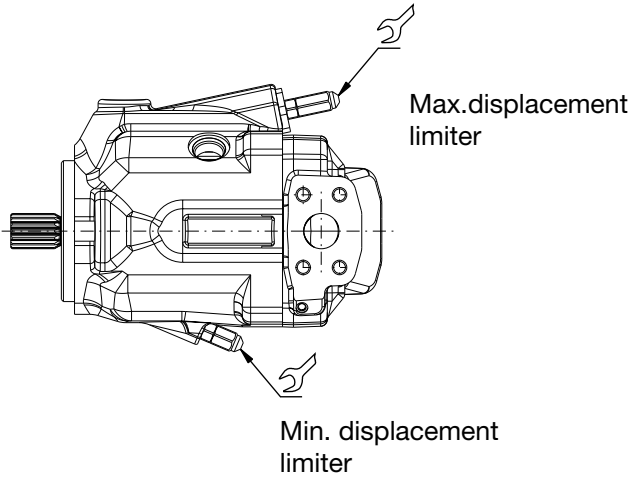


Pump type	MOUNTING FLANGES			
	S1	S5	S7	S8
MVP30	X	X		
MVP48		X		
MVP60			X	X
MVP100				X

X Available combination

09/10.2024

DISPLACEMENT SETTING



E: Max. displacement limiter (Min displacement limiter is plugged)

G: Min. and Max. displacement limiter

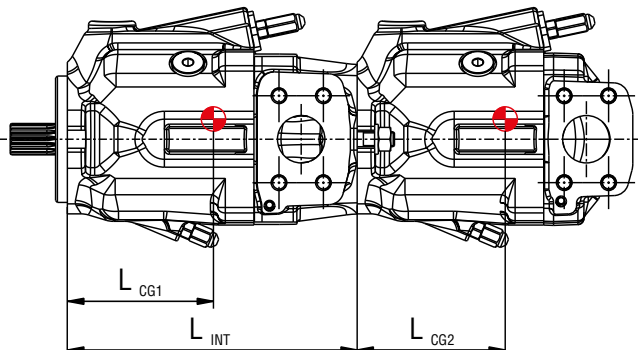
Tightening torque $15^{\pm 1}$ Nm (124 ÷ 142 lbf in)

* Special body without Min. displacement limiter is available only on request, please contact us for more information

			MVP30	MVP48	MVP60	MVP100
Max. displacement setting range	cm ³ /rev (in ³ /rev)	from	14 (0.85)	34 (2.07)	53 (3.23)	84 (5.12)
		to	34 (2.07)	53 (3.23)	84 (5.12)	115 (7.02)
Min. displacement setting range	cm ³ /rev (in ³ /rev)	from	0	0	0	0
		to	14 (0.85)	10,7 (0.65)	38,1 (2.32)	38 (2.32)
One turn of screw changes pump displacement by approximately	cm ³ /rev (in ³ /rev)	E	2,8 (0.17)	3,2 (0.20)	5,0 (0.31)	6 (0.37)
		F	2,3 (0.14)	3,0 (0.18)	4,2 (0.26)	5,5 (0.34)

Please contact us for different setting range.

CENTER OF GRAVITY



Center of gravity

$$M_{MF} = \frac{L_{CG1} \cdot m_1 + (L_{INT} + L_{CG2}) \cdot m_2}{102} \quad [Nm]$$

M_{MF} : Load moment on mounting flange

L_{CG} : Distance from center of gravity to mounting flange [mm]

m : Weight (kg)

		MVP30	MVP48	MVP60	MVP100
L_{CG1}	mm (in)	100 (3.94)	116 (4.57)	120 (4.72)	154 (6.06)
L_{CG2}	mm (in)	90 (3.54)	99 (3.90)	107 (4.21)	135 (5.31)
L_{INT}	mm (in)	208 (8.19)	233 (9.17)	253 (9.96)	315.8 (12.43)

For single pumps refer to L_{CG2} values
Average data, please contact us for specific values.

09/10.2024

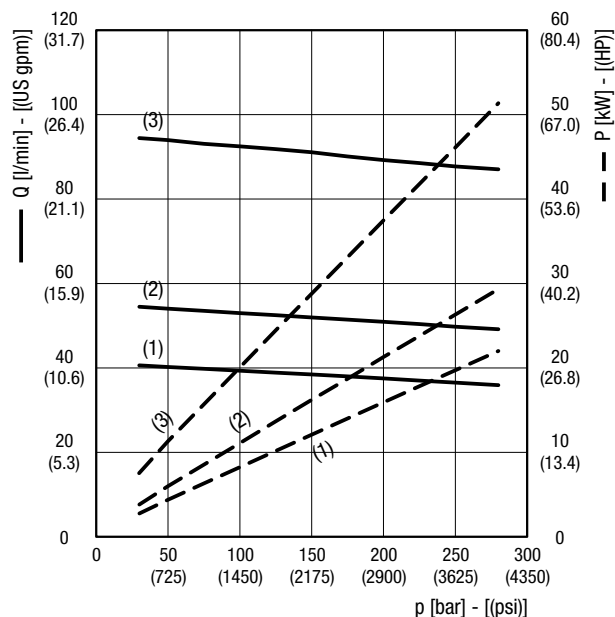
MVP30•28

OPERATING CURVES

Each curve has been obtained at 50 °C (122 °F), using oil with viscosity 46 cSt (210 SSU) at 40 °C (104 °F) and at these speed:
 (1) 1500 min⁻¹
 (2) 2000 min⁻¹
 (3) 3500 min⁻¹

Delivery / power

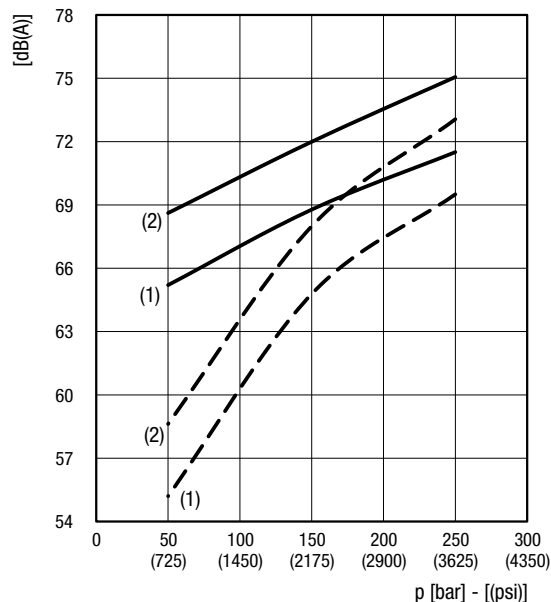
@ max. displacement



Noise level

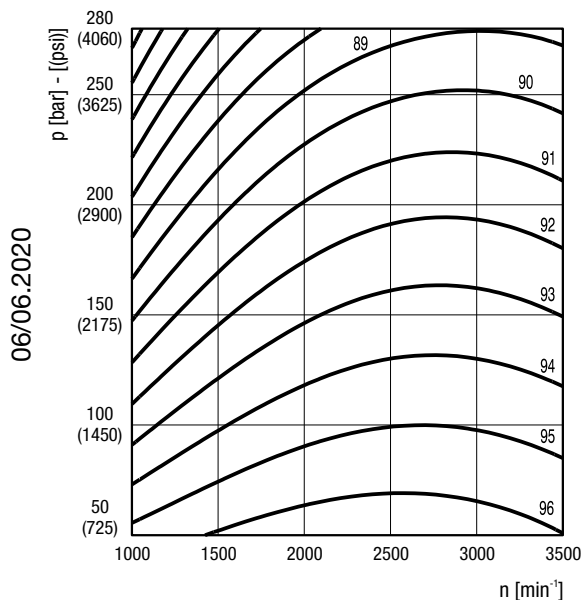
Distance from microphone to pump = 1 m (39.37 in)

—— @ max. displacement — — — @ min. displacement



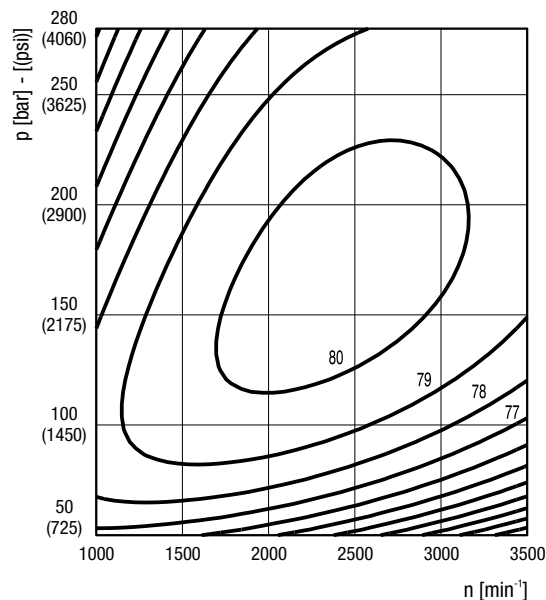
Volumetric efficiency

@ max. displacement



Overall efficiency

@ max. displacement



Values shown in the diagrams are indicative only. Actual values may vary depending on the pump configuration.

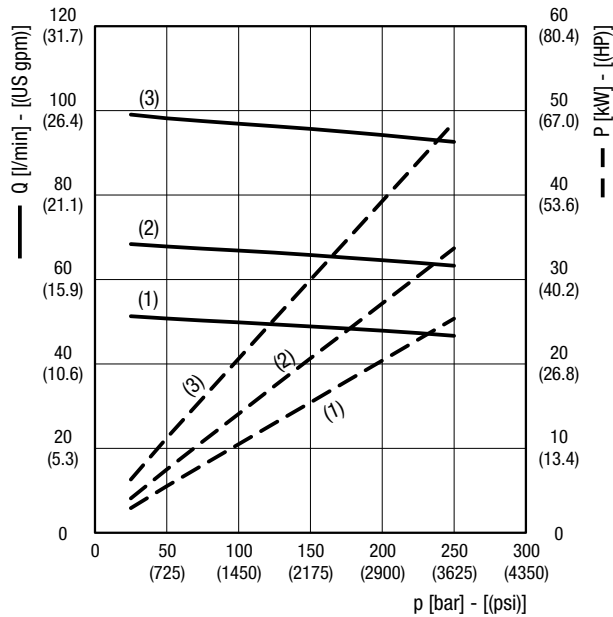
MVP30•34

OPERATING CURVES

Each curve has been obtained at 50 °C (122 °F), using oil with viscosity 46 cSt (210 SSU) at 40 °C (104 °F) and at these speed: (1) 1500 min⁻¹
(2) 2000 min⁻¹
(3) 2900 min⁻¹

Delivery / power

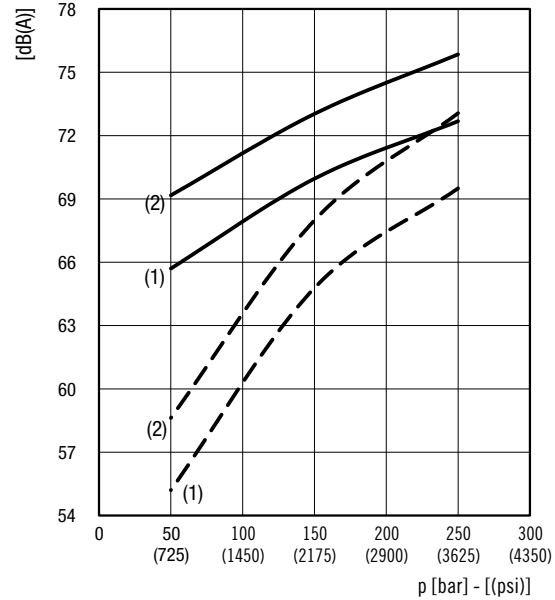
@ max. displacement



Noise level

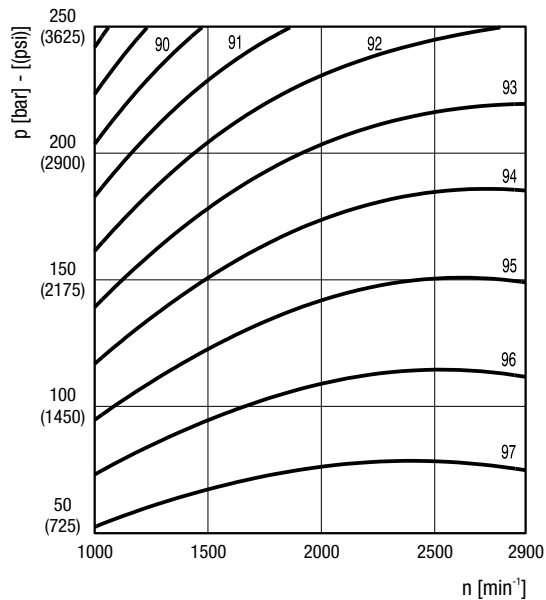
Distance from microphone to pump = 1 m (39.37 in)

— @ max. displacement — — — @ min. displacement



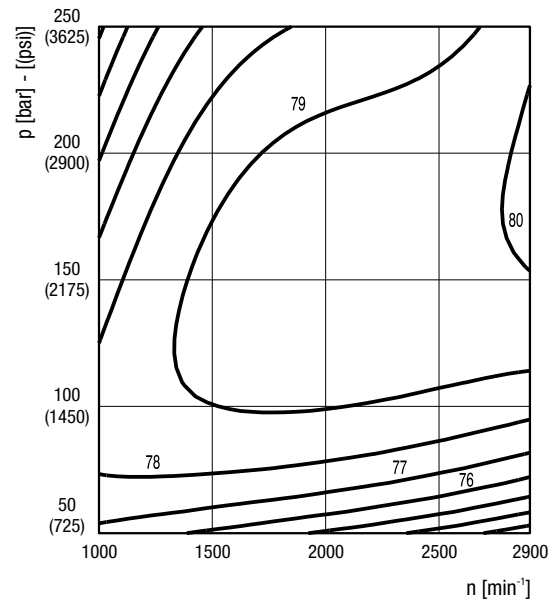
Volumetric efficiency

@ max. displacement



Overall efficiency

@ max. displacement



Values shown in the diagrams are indicative only. Actual values may vary depending on the pump configuration.

06/06.2020

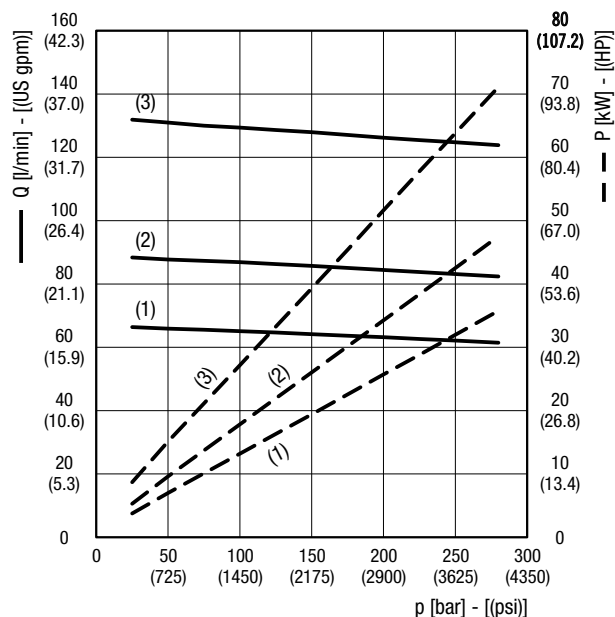
MVP48•45

OPERATING CURVES

Each curve has been obtained at 50 °C (122 °F), using oil with viscosity 46 cSt (210 SSU) at 40 °C (104 °F) and at these speed:
 (1) 1500 min⁻¹
 (2) 2000 min⁻¹
 (3) 3000 min⁻¹

Delivery / power

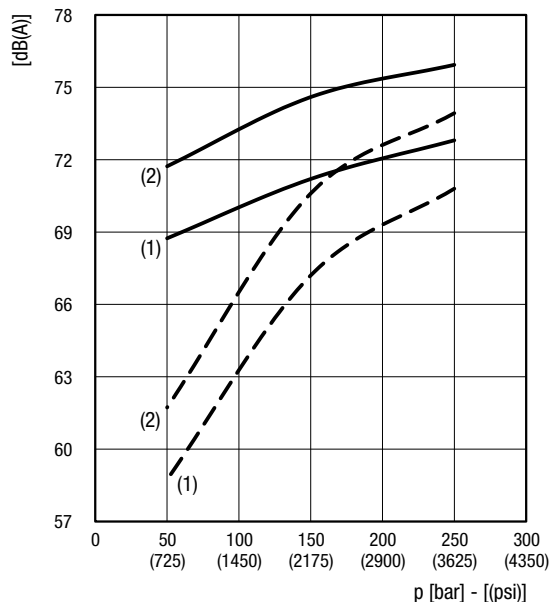
@ max. displacement



Noise level

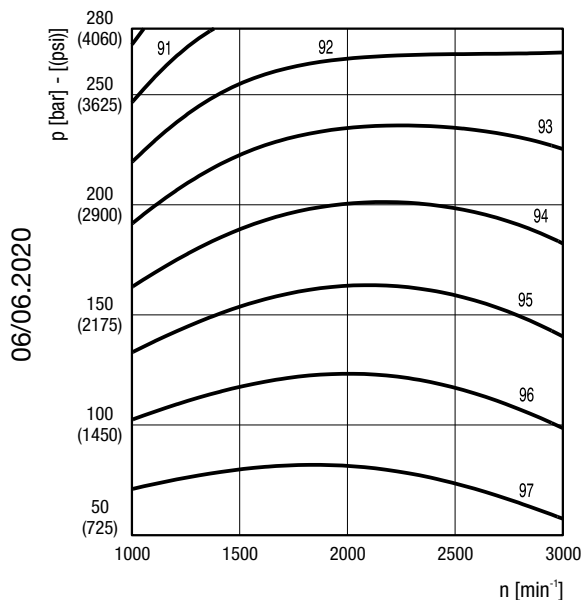
Distance from microphone to pump = 1 m (39.37 in)

— @ max. displacement — — — @ min. displacement



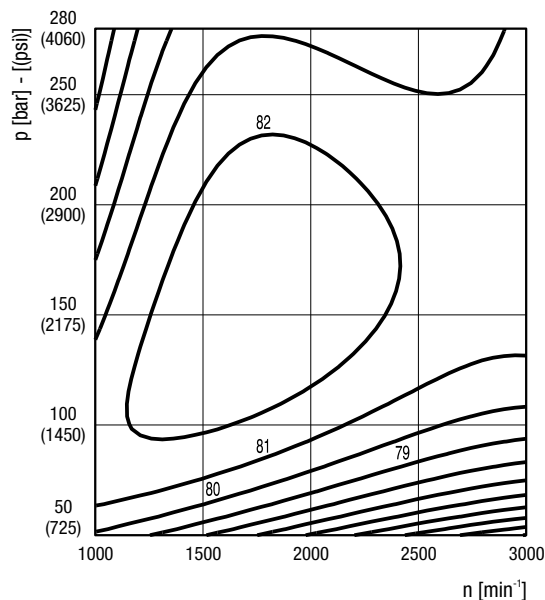
Volumetric efficiency

@ max. displacement



Overall efficiency

@ max. displacement



Values shown in the diagrams are indicative only. Actual values may vary depending on the pump configuration.

MVP48•53

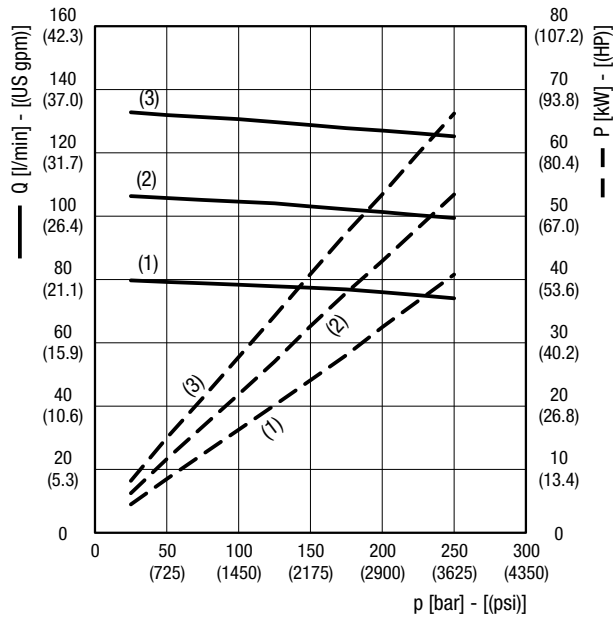
OPERATING CURVES

Each curve has been obtained at 50 °C (122 °F), using oil with viscosity 46 cSt (210 SSU) at 40 °C (104 °F) and at these speed:

- (1) 1500 min⁻¹
- (2) 2000 min⁻¹
- (3) 2500 min⁻¹

Delivery / power

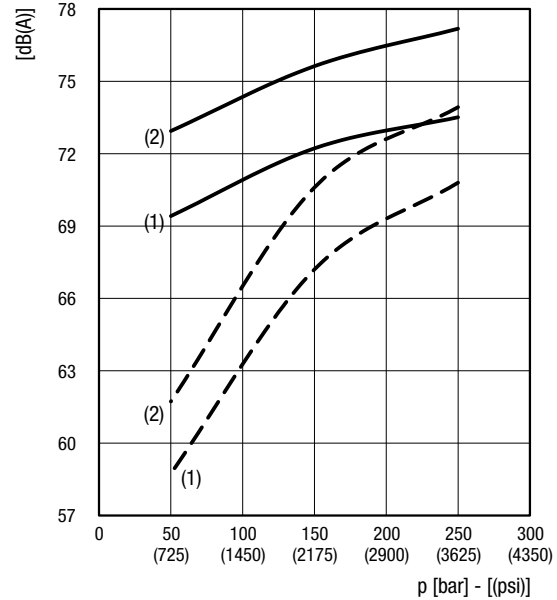
@ max. displacement



Noise level

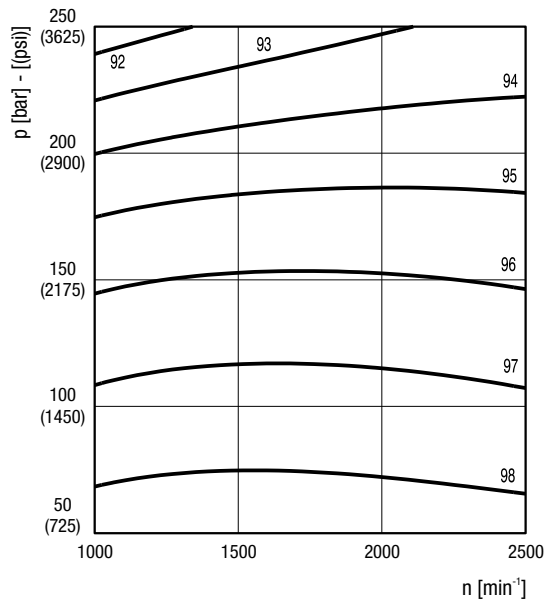
Distance from microphone to pump = 1 m (39.37 in)

— @ max. displacement — — — @ min. displacement



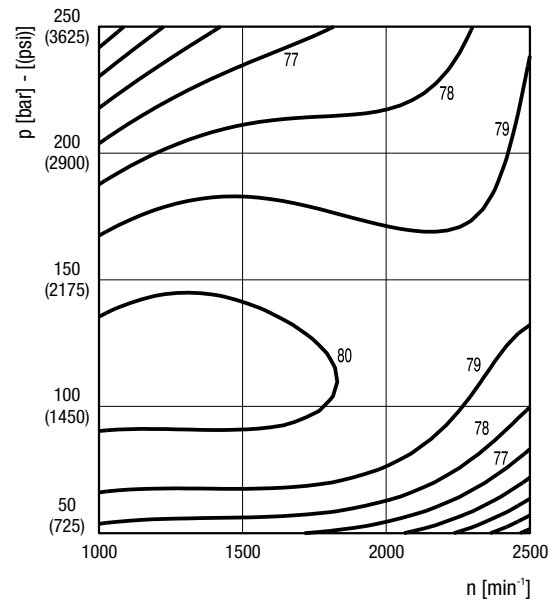
Volumetric efficiency

@ max. displacement



Overall efficiency

@ max. displacement



Values shown in the diagrams are indicative only. Actual values may vary depending on the pump configuration.

06/06.2020

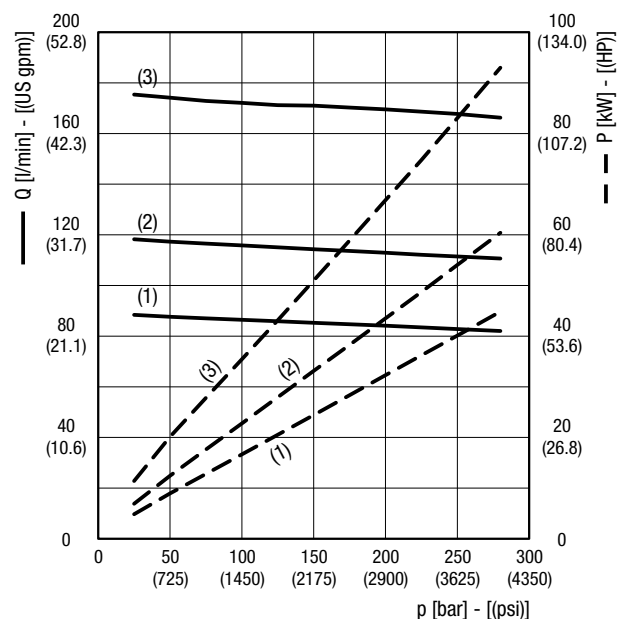
MVP60•60

OPERATING CURVES

Each curve has been obtained at 50 °C (122 °F), using oil with viscosity 46 cSt (210 SSU) at 40 °C (104 °F) and at these speed:
 (1) 1500 min⁻¹
 (2) 2000 min⁻¹
 (3) 3000 min⁻¹

Delivery / power

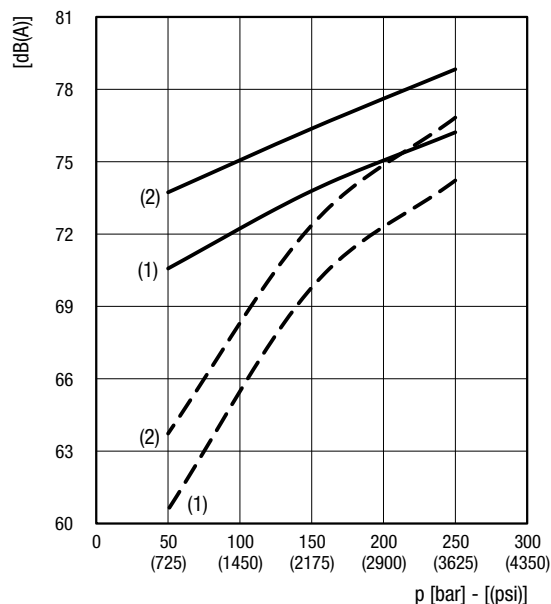
@ max. displacement



Noise level

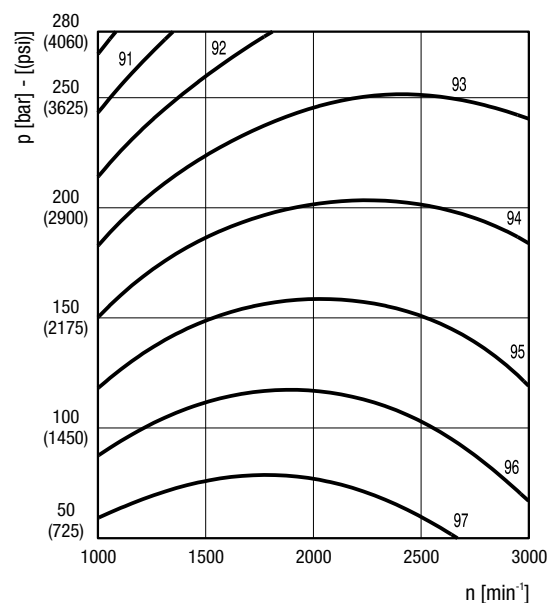
Distance from microphone to pump = 1 m (39.37 in)

— @ max. displacement - - - @ min. displacement



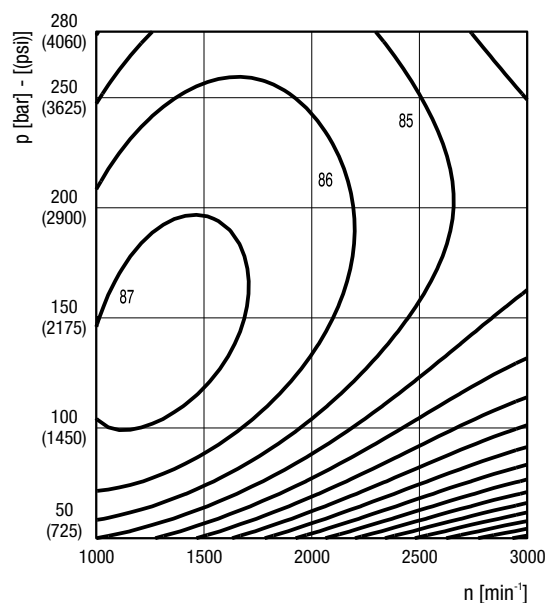
Volumetric efficiency

@ max. displacement



Overall efficiency

@ max. displacement



Values shown in the diagrams are indicative only. Actual values may vary depending on the pump configuration.

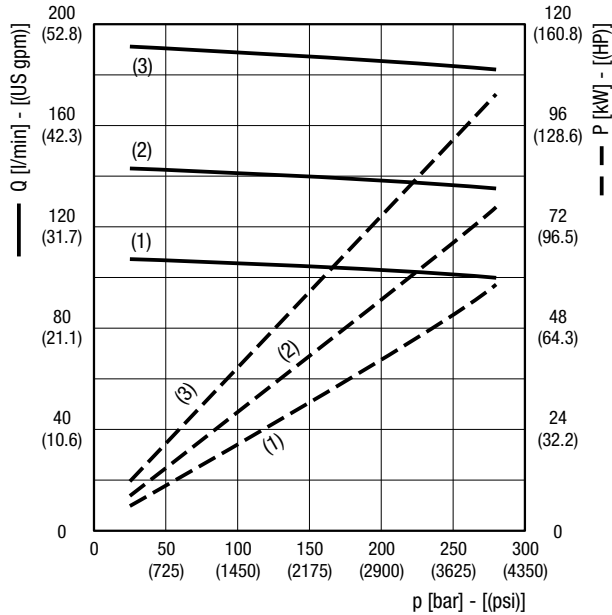
MVP60•72

OPERATING CURVES

Each curve has been obtained at 50 °C (122 °F), using oil with viscosity 46 cSt (210 SSU) at 40 °C (104 °F) and at these speed: (1) 1500 min⁻¹
(2) 2000 min⁻¹
(3) 2700 min⁻¹

Delivery / power

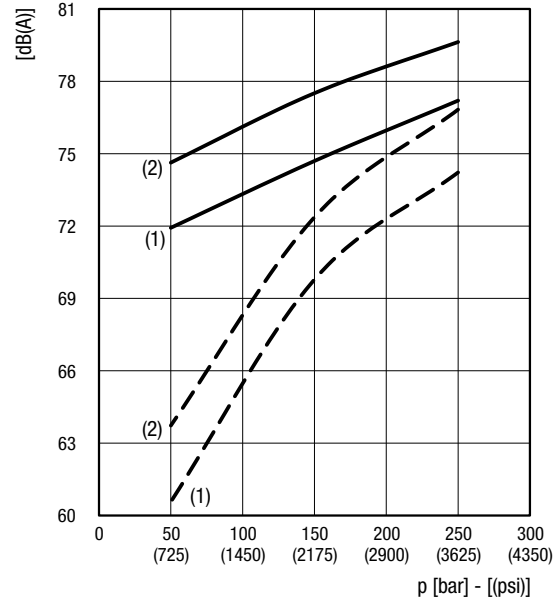
@ max. displacement



Noise level

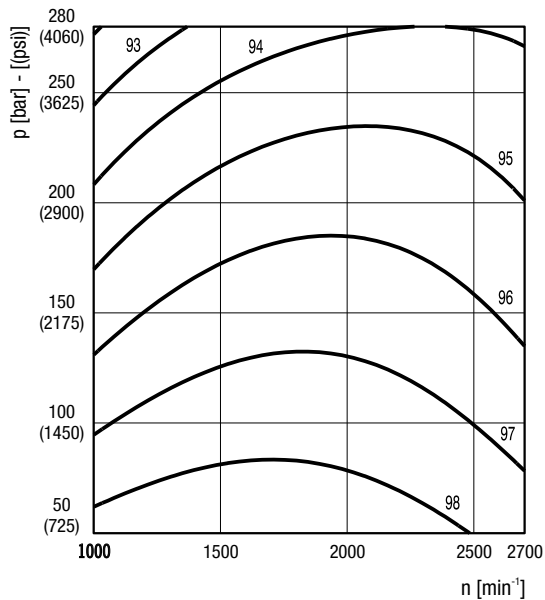
Distance from microphone to pump = 1 m (39.37 in)

— @ max. displacement — — — @ min. displacement



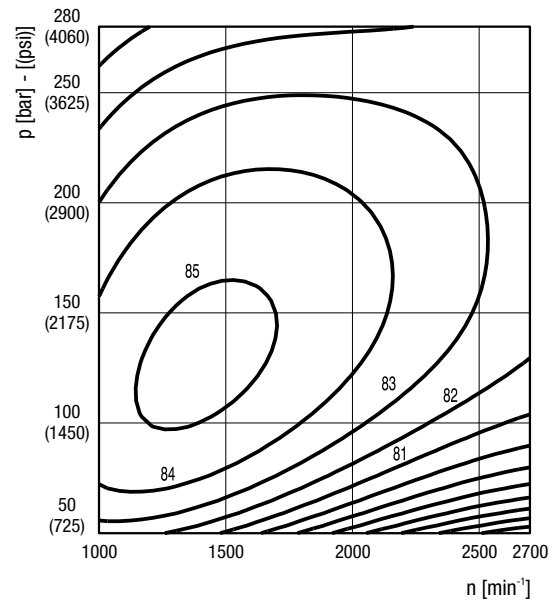
Volumetric efficiency

@ max. displacement



Overall efficiency

@ max. displacement



Values shown in the diagrams are indicative only. Actual values may vary depending on the pump configuration.

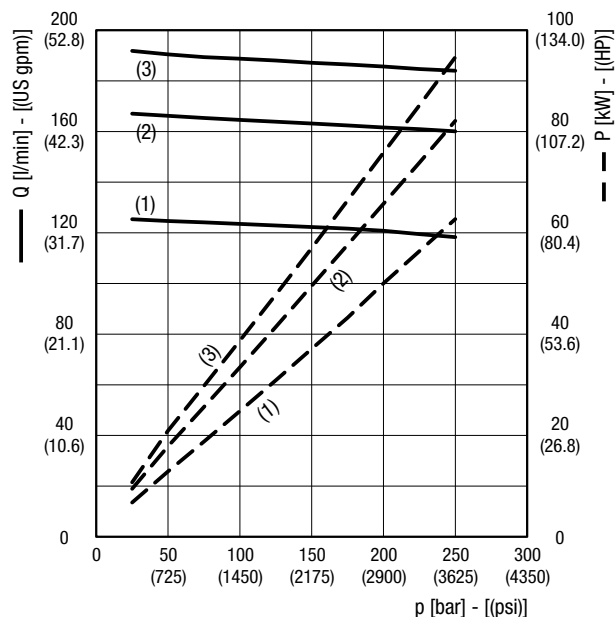
MVP60•84

OPERATING CURVES

Each curve has been obtained at 50 °C (122 °F), using oil with viscosity 46 cSt (210 SSU) at 40 °C (104 °F) and at these speed:
 (1) 1500 min⁻¹
 (2) 2000 min⁻¹
 (3) 2300 min⁻¹

Delivery / power

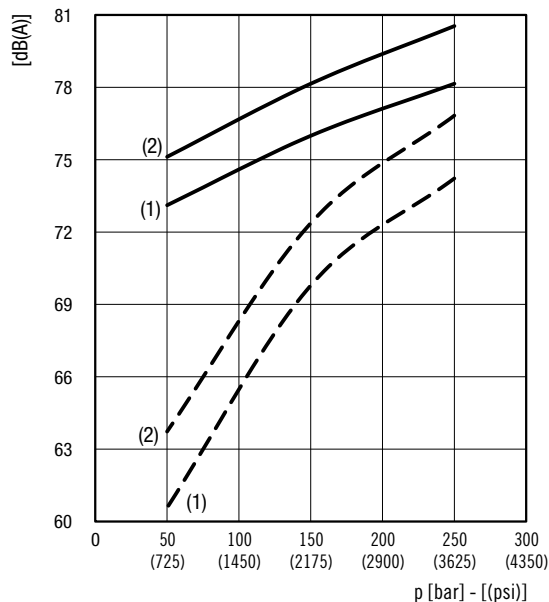
@ max. displacement



Noise level

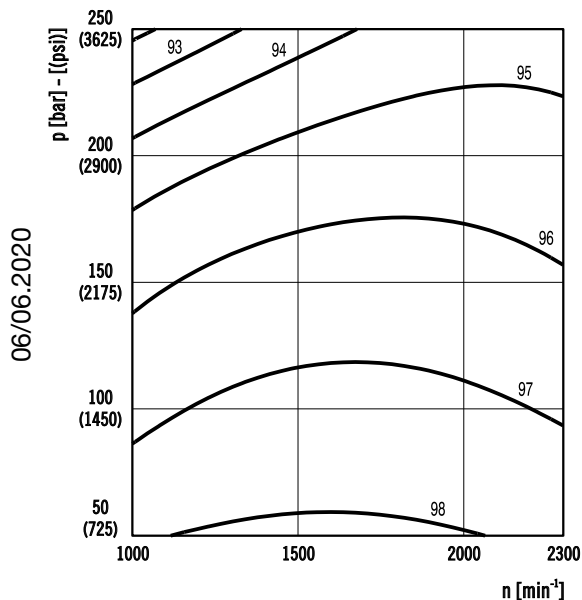
Distance from microphone to pump = 1 m (39.37 in)

—— @ max. displacement — — — @ min. displacement



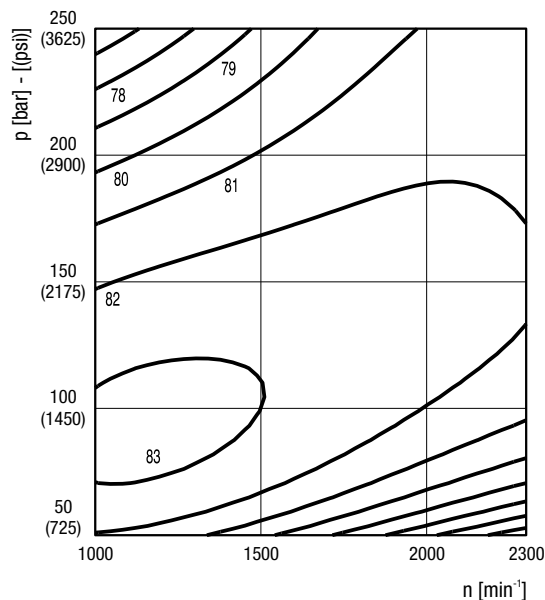
Volumetric efficiency

@ max. displacement



Overall efficiency

@ max. displacement



Values shown in the diagrams are indicative only. Actual values may vary depending on the pump configuration.

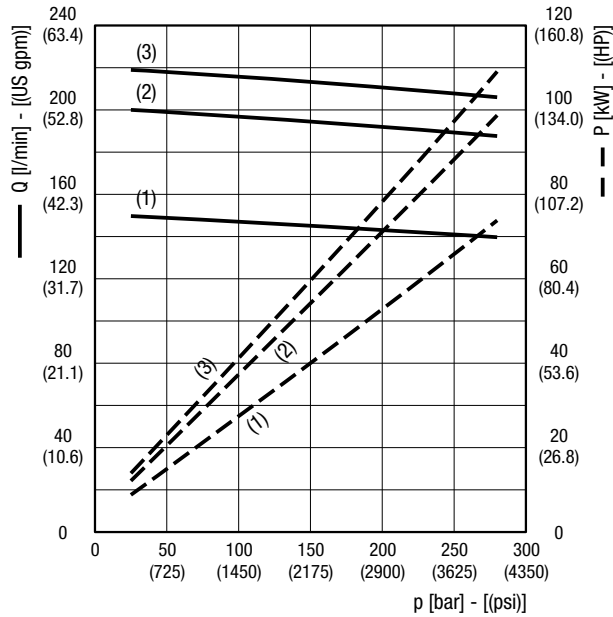
MVP100•100

OPERATING CURVES

Each curve has been obtained at 50 °C (122 °F), using oil with viscosity 46 cSt (210 SSU) at 40 °C (104 °F) and at these speed: (1) 1500 min⁻¹
(2) 2000 min⁻¹
(3) 2200 min⁻¹

Delivery / power

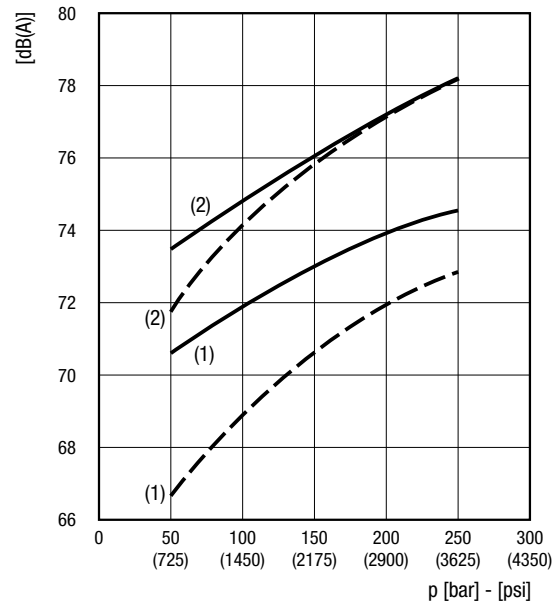
@ max. displacement



Noise level

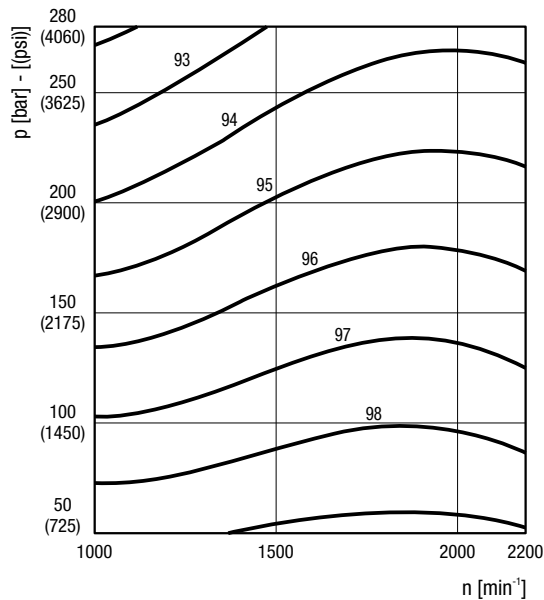
Distance from microphone to pump = 1 m (39.37 in)

— @ max. displacement — — — @ min. displacement



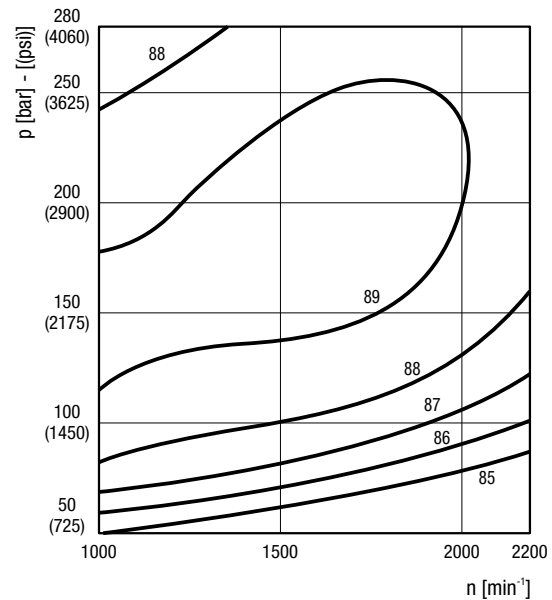
Volumetric efficiency

@ max. displacement



Overall efficiency

@ max. displacement



Values shown in the diagrams are indicative only. Actual values may vary depending on the pump configuration.

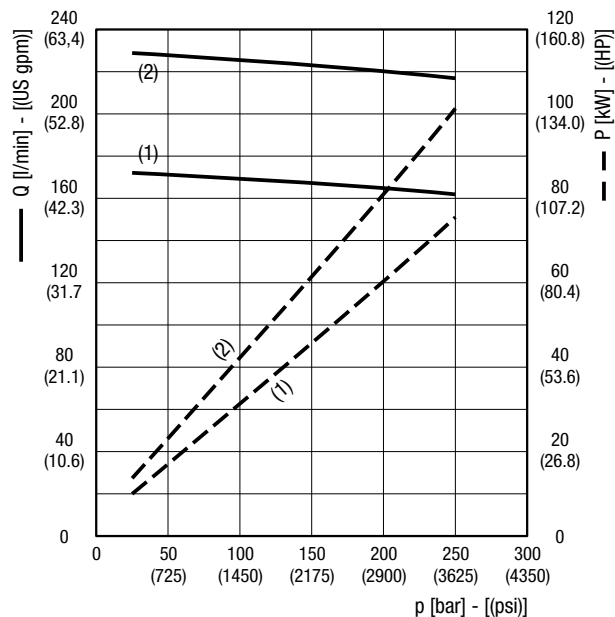
MVP100•115

OPERATING CURVES

Each curve has been obtained at 50 °C (122 °F), using oil with viscosity 46 cSt (210 SSU) at 40 °C (104 °F) and at these speed:
(1) 1500 min⁻¹
(2) 2000 min⁻¹

Delivery / power

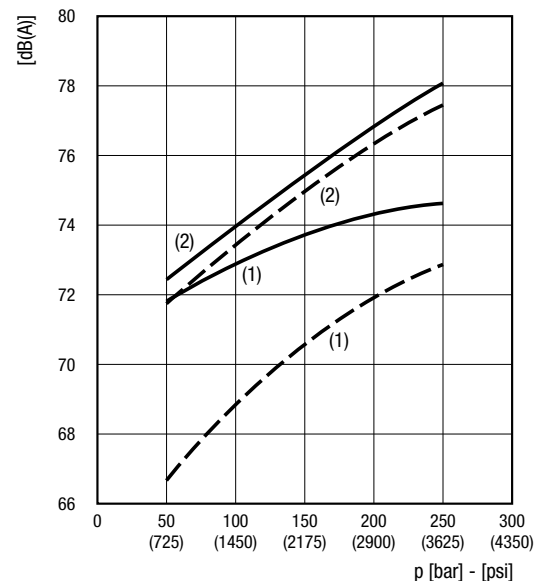
@ max. displacement



Noise level

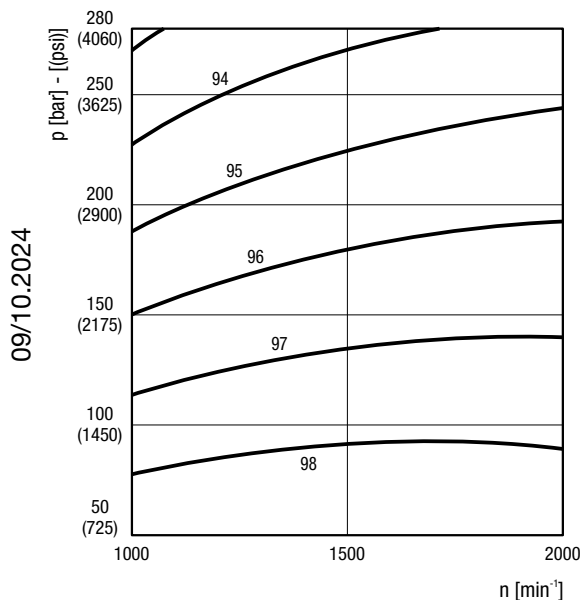
Distance from microphone to pump = 1 m (39.37 in)

— @ max. displacement — — — @ min. displacement



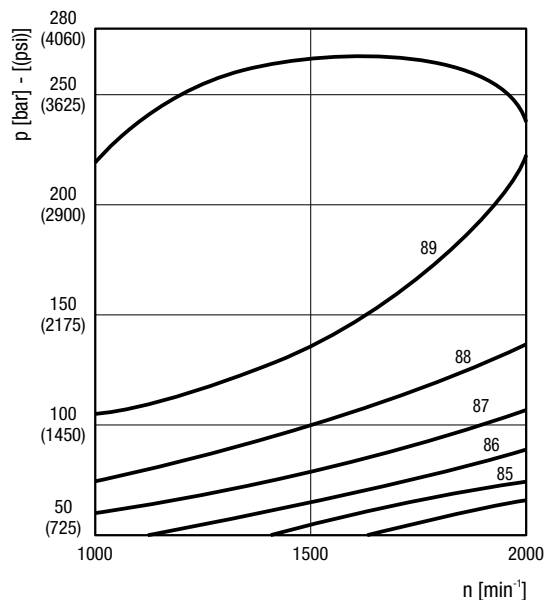
Volumetric efficiency

@ max. displacement



Overall efficiency

@ max. displacement



Values shown in the diagrams are indicative only. Actual values may vary depending on the pump configuration.

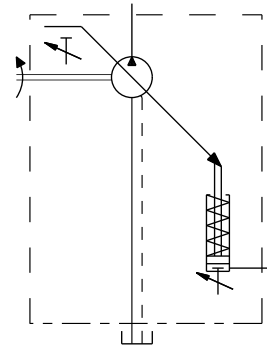
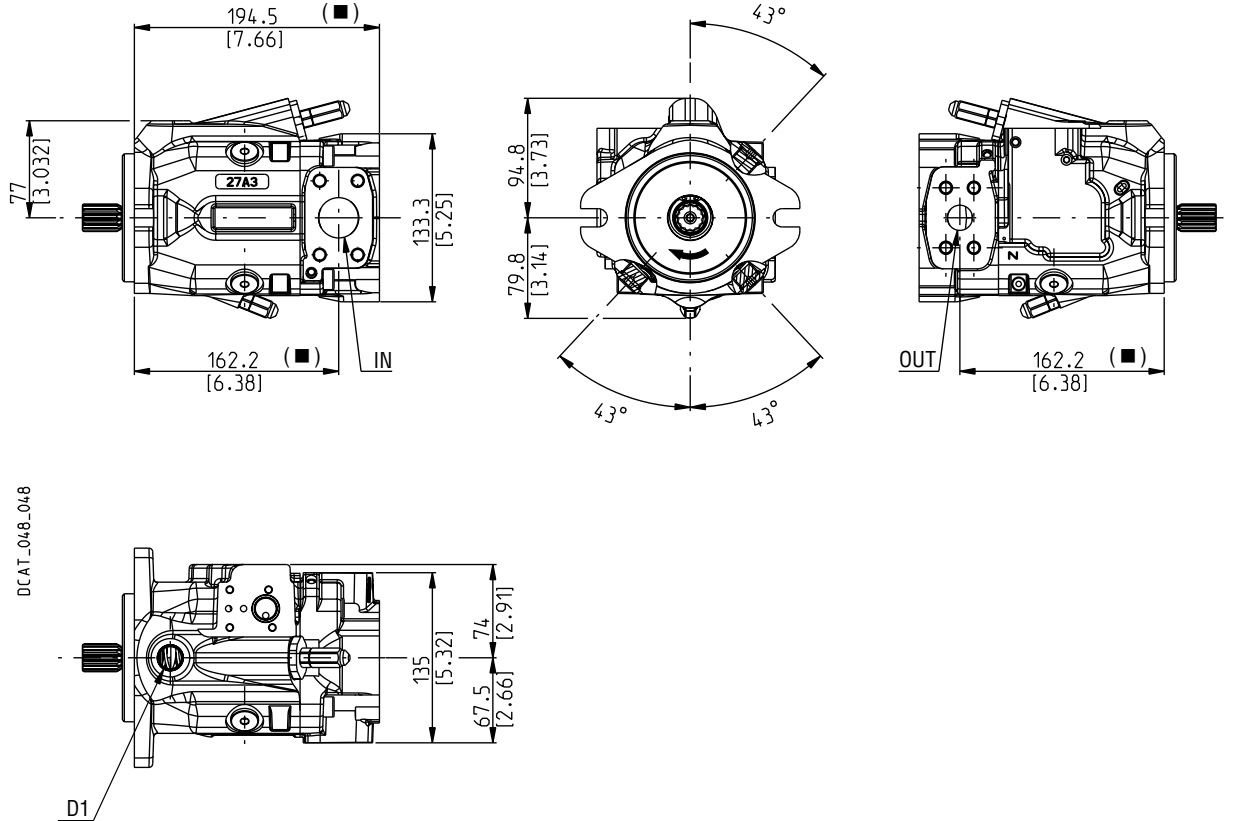
MVP30

SIDE PORTS - DIMENSIONS

L

Drive shafts: see page 38
Mounting flanges: see page 42
Ports: see page 46 ÷ 48

(■)
Dimension refer to S5 mounting flange.
For S1 flange add 27 mm (1.06 in).



07/03.2022

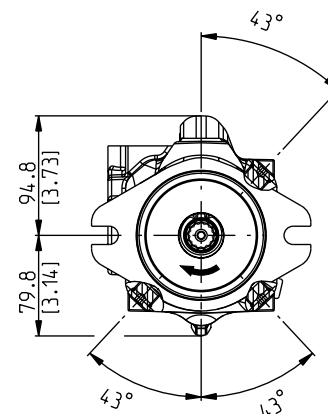
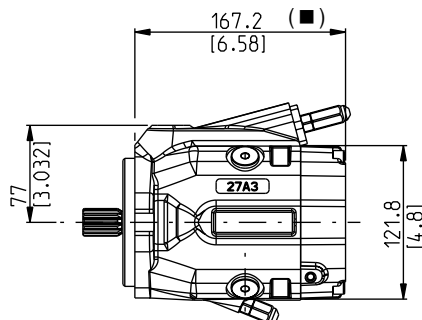
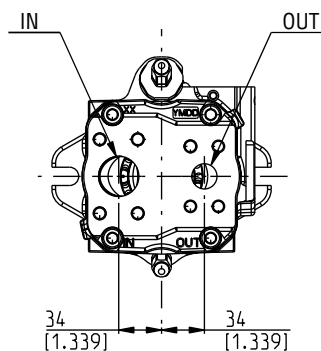
MVP30

REAR PORTS - DIMENSIONS

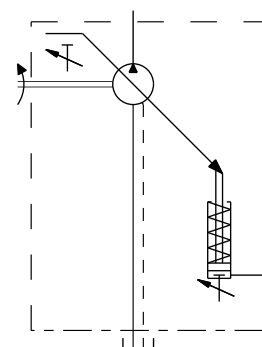
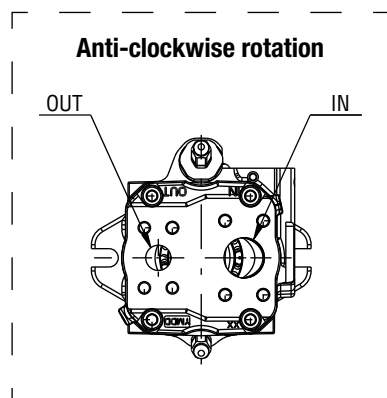
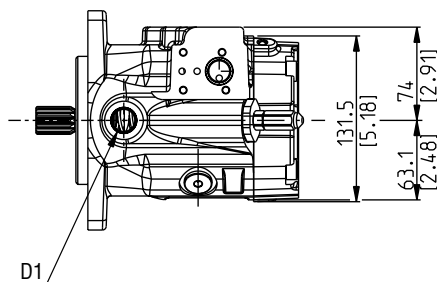
P

Drive shafts: see page 38
Mounting flanges: see page 42
Ports: see page 46 ÷ 48

■
Dimension refer to S5 mounting flange.
For S1 flange add 27 mm (1.06 in).



DCAT_048_047



07/03.2022

MVP30/KP20

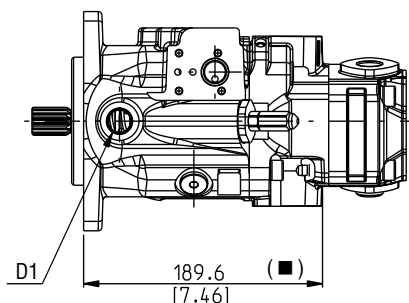
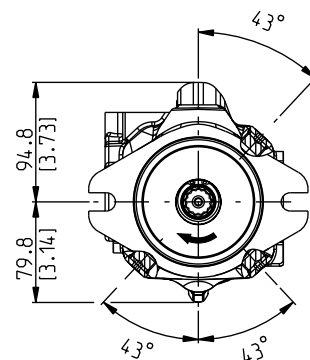
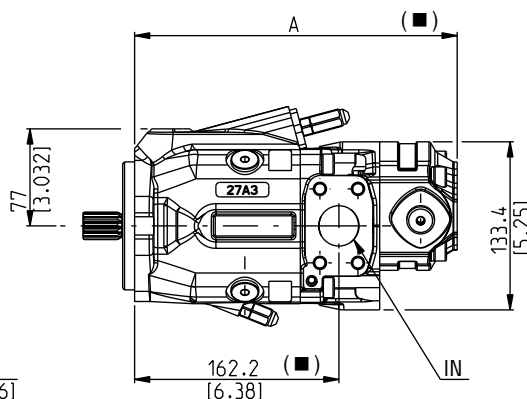
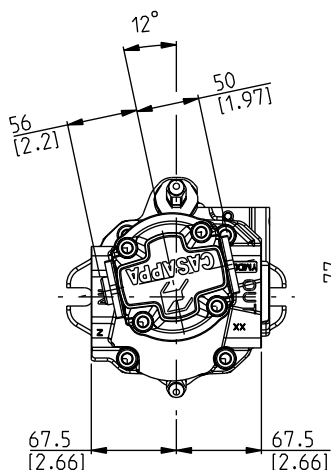
MULTIPLE PUMPS - DIMENSIONS

L

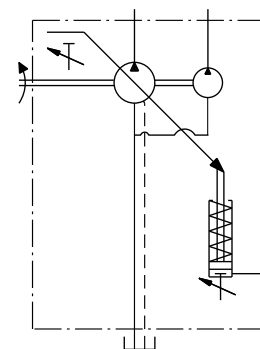
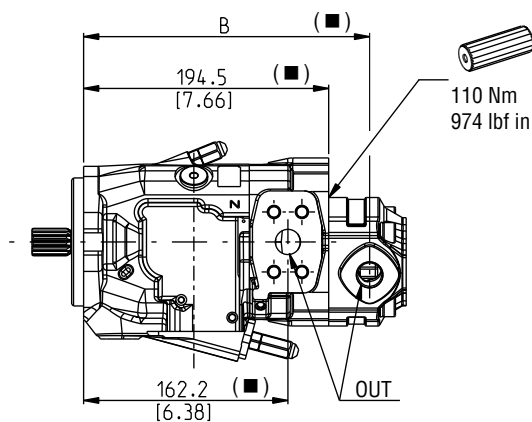
Common inlet intermediate flange:
MVP code **P7**
KP20 code **N5**

Drive shafts: see page 38
Mounting flanges: see page 42
Ports: see page 46 ÷ 48

■
Dimension refer to S5 mounting flange.
For S1 flange add 27 mm (1.06 in).



DCAT_048_048_KP20



07/03.2022

Gear pump KAPPA 20 (for more information please see the respective technical catalogue)

Pump type	4	6,3	8	11,2	14	16	20	Dimensions
MVP30	247,5 (9.74)	250 (9.84)	252,5 (9.94)	256 (10.08)	260 (10.24)	265,5 (10.45)	272 (10.71)	mm (in) A
	218,5 (8.60)	221 (8.70)	223,5 (8.80)	227 (8.94)	225,5 (8.86)	231 (9.09)	237,5 (9.35)	mm (in) B

MVP30/PHP20

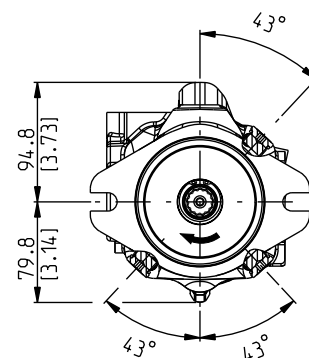
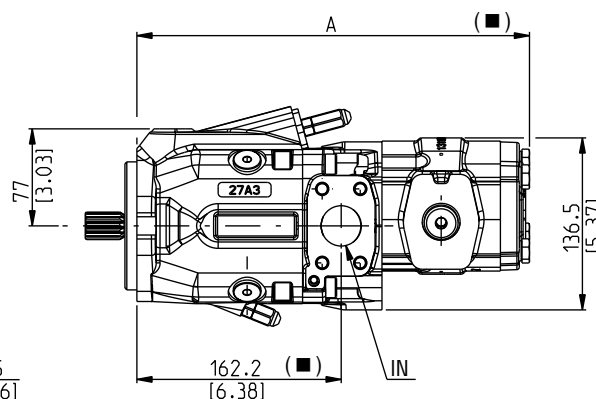
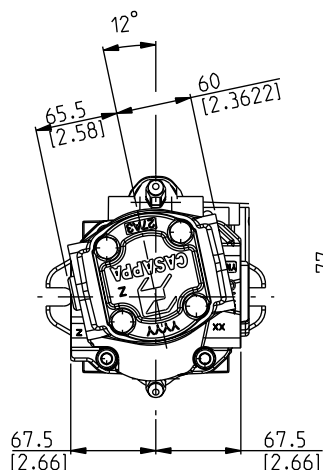
MULTIPLE PUMPS - DIMENSIONS

L

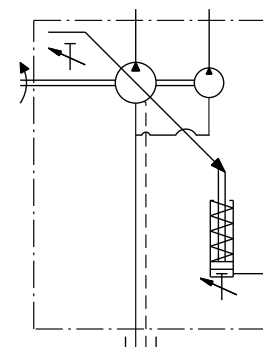
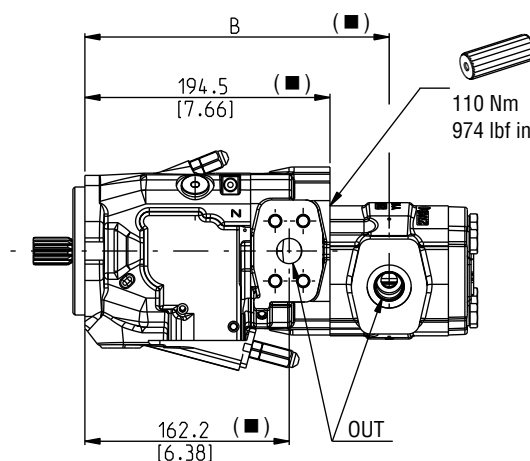
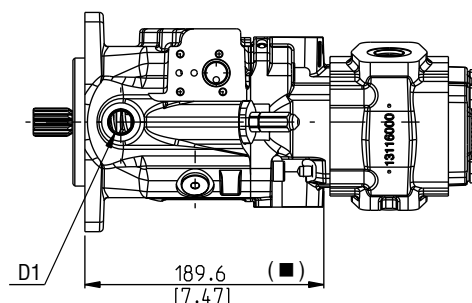
Common inlet intermediate flange:
MVP code **I7**
PHP20 code **S7**

Drive shafts: see page 38
Mounting flanges: see page 42
Ports: see page 46 ÷ 48

(■)
Dimension refer to S5 mounting flange.
For S1 flange add 27 mm (1.06 in).
Also available in
combination with PLP20



DCAT_048_048_PHP20



Gear pump POLARIS PH20 (for more information please see the respective technical catalogue)

Pump type	8	10,5	11,2	14	16	18	19	20	23	24,5	25	27,8	31,5	Dimensions
MVP30	274,6 (10.81)	278,6 (10.97)	279,1 (10.99)	284,1 (11.41)	287,6 (11.32)	289,8 (11.41)	291 (11.46)	294,1 (11.58)	297,6 (11.72)	299,9 (11.81)	301,6 (11.87)	304,4 (11.98)	311,6 (12.27)	mm (in) A
	228 (8.98)	231 (9.09)	231,5 (9.11)	236,5 (9.31)	239,5 (9.43)	230,4 (9.07)	231 (9.09)	232,5 (9.15)	234,2 (9.22)	235,3 (9.26)	236,5 (9.31)	237,9 (9.36)	241,5 (9.51)	mm (in) B

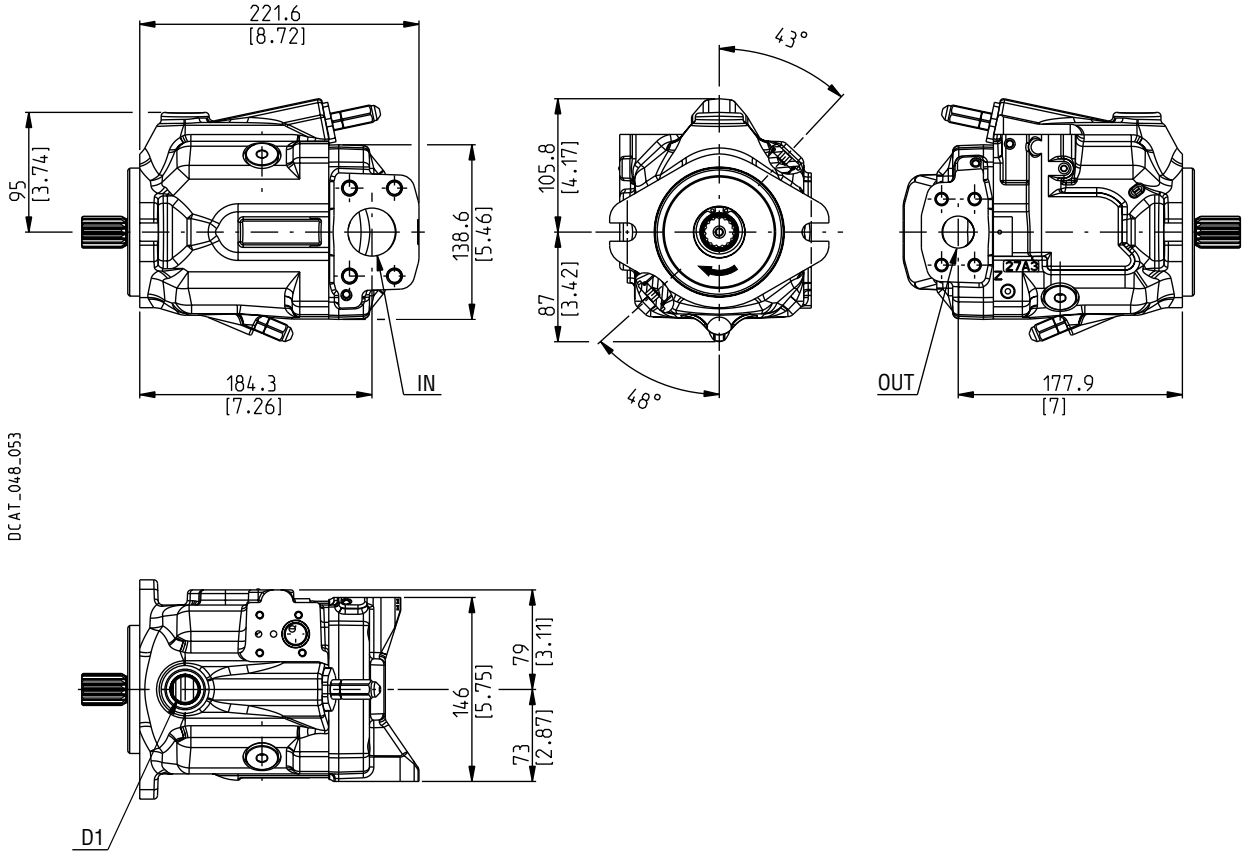
07/03.2022

MVP48

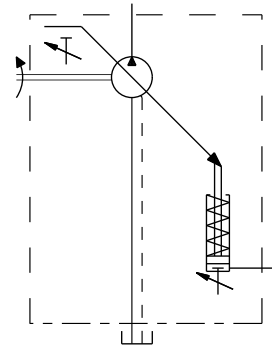
SIDE PORTS - DIMENSIONS

L

Drive shafts: see page 39
Mounting flanges: see page 42
Ports: see page 46 ÷ 48

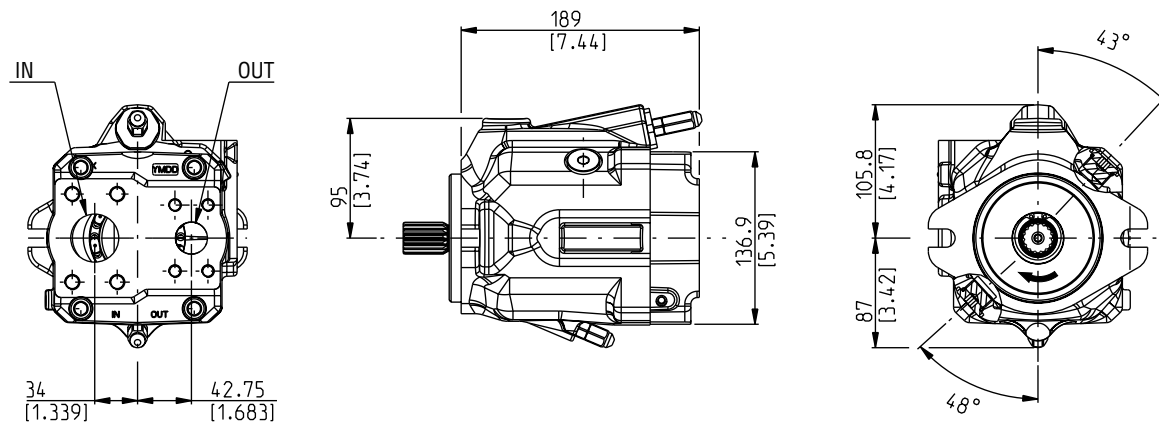


DCAT_048_053

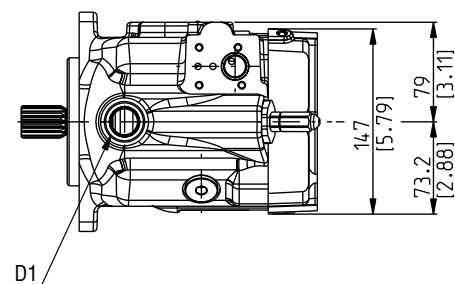


06/06.2020

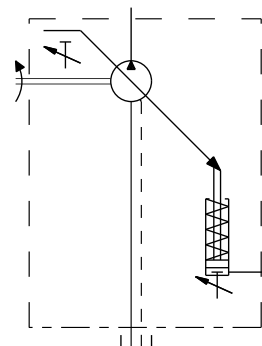
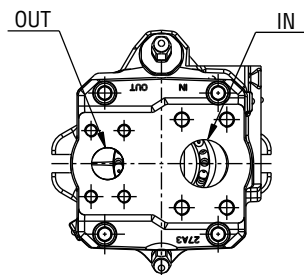
Drive shafts: see page 39
Mounting flanges: see page 42
Ports: see page 46 ÷ 48



DCAT_048_031



Anti-clockwise rotation



06/06.2020

MVP48/KP20

MULTIPLE PUMPS - DIMENSIONS

L

Common inlet intermediate flange:

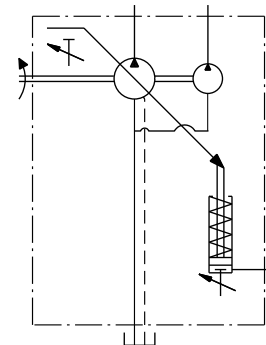
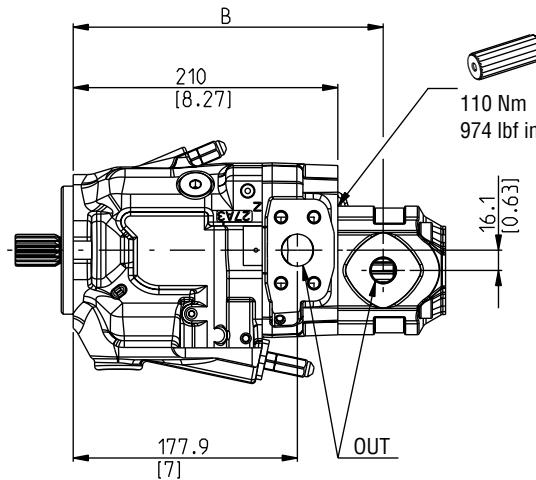
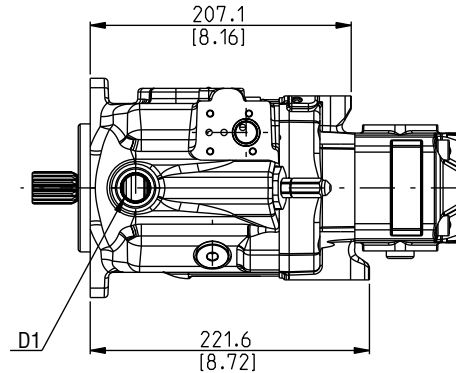
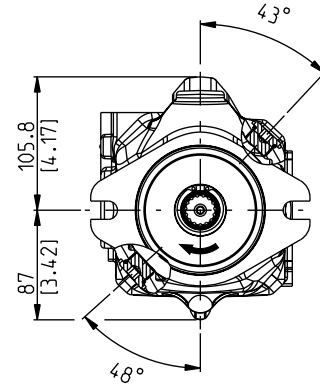
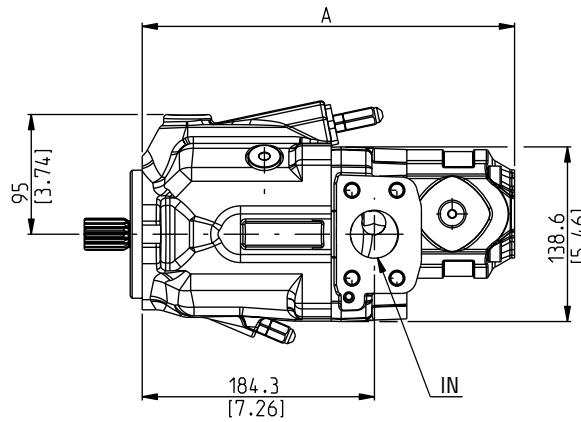
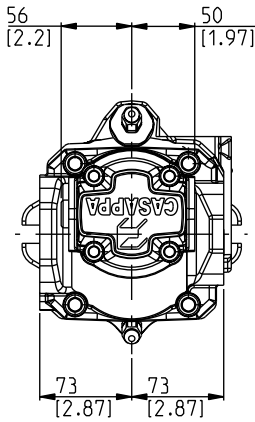
MVP code **P7**

KP20 code **N5**

Drive shafts: see page 39

Mounting flanges: see page 42

Ports: see page 46 ÷ 48



DCAT_048_031_KP20

06/06.2020

Gear pump KAPPA 20 (for more information please see the respective technical catalogue)

Pump type	4	6,3	8	11,2	14	16	20	Dimensions
MVP48	263 (10.35)	265,5 (10.45)	268 (10.55)	271,5 (10.69)	275,5 (10.85)	281 (11.06)	287,5 (11.32)	mm (in) A
	234 (9.21)	236,5 (9.31)	239 (9.41)	242,5 (9.55)	241 (9.49)	246,5 (9.70)	253 (9.96)	mm (in) B

MVP48/PHP20

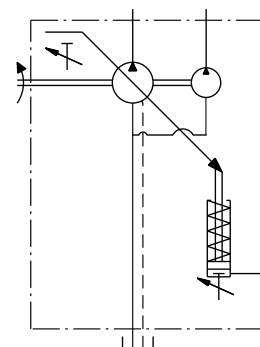
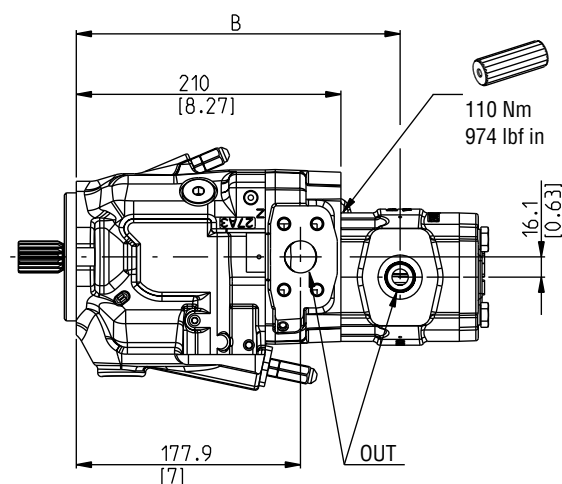
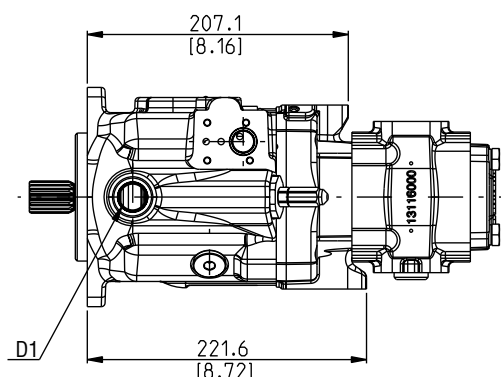
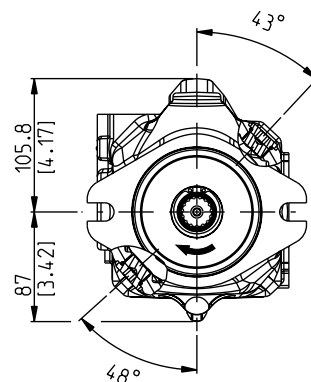
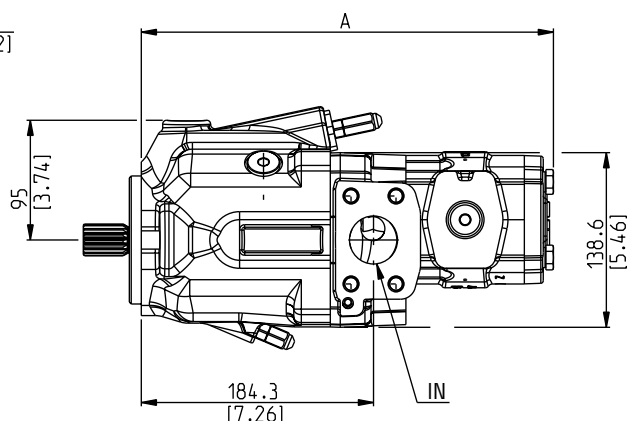
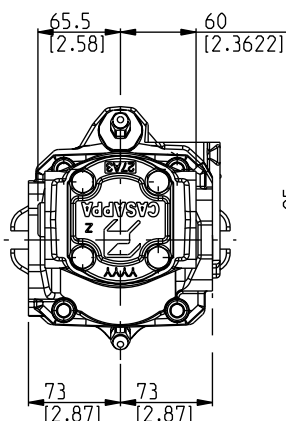
MULTIPLE PUMPS - DIMENSIONS

L

Common inlet intermediate flange:
MVP code **I7**
PHP20 code **S7**

Drive shafts: see page 39
Mounting flanges: see page 42
Ports: see page 46 ÷ 48

Also available in
combination with PLP20



DCAT_048_031_PHP

06/06.2020

Gear pump POLARIS PH20 (for more information please see the respective technical catalogue)

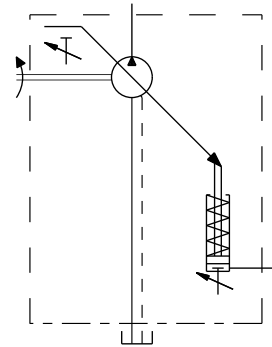
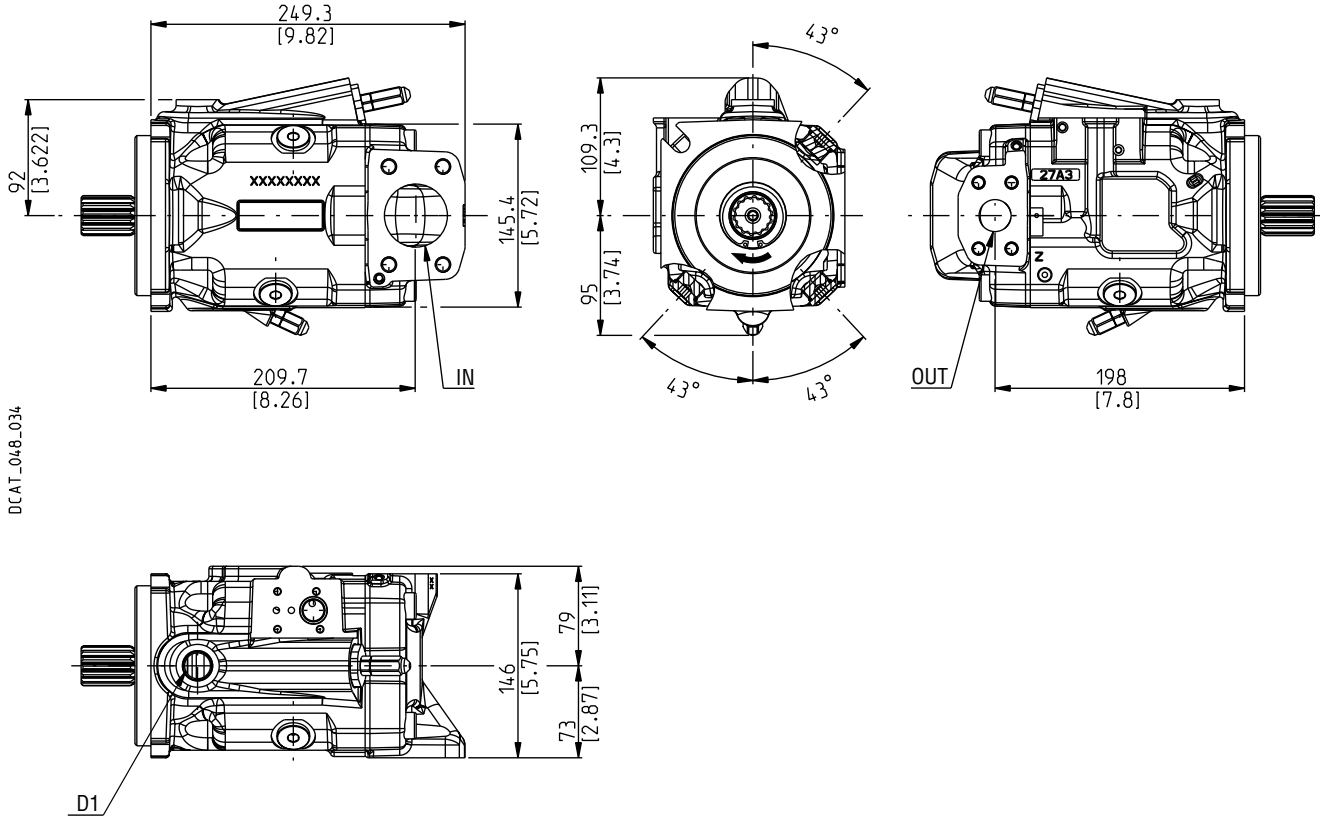
Pump type	8	10,5	11,2	14	16	18	19	20	23	24,5	25	27,8	31,5	Dimensions
MVP48	290,1 (11.42)	294,1 (11.58)	294,6 (11.60)	299,6 (11.80)	303,1 (11.93)	305,3 (12.02)	306,5 (12.07)	309,6 (12.19)	313,1 (12.33)	315,4 (12.42)	317,1 (12.48)	319,9 (12.59)	327,1 (12.88)	mm (in) A
	243,5 (9.59)	246,5 (9.70)	247 (9.72)	252 (9.92)	255 (10.04)	245,9 (9.68)	246,5 (9.70)	248 (9.76)	249,7 (9.83)	250,8 (9.87)	252 (9.92)	253,4 (9.97)	257 (10.12)	mm (in) B

MVP60

SIDE PORTS - DIMENSIONS

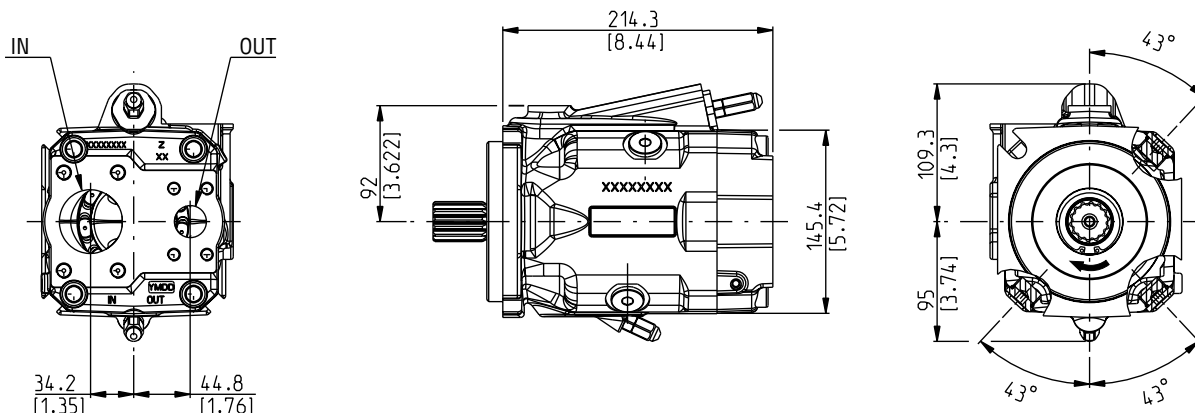
L

Drive shafts: see page 40
Mounting flanges: see page 42 ÷ 43
Ports: see page 46 ÷ 48

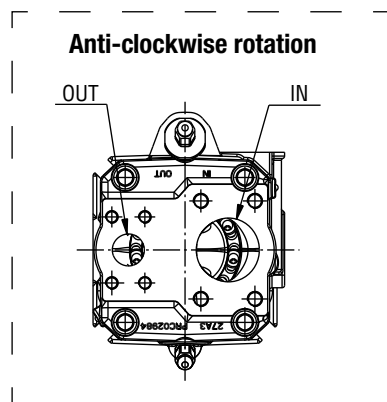
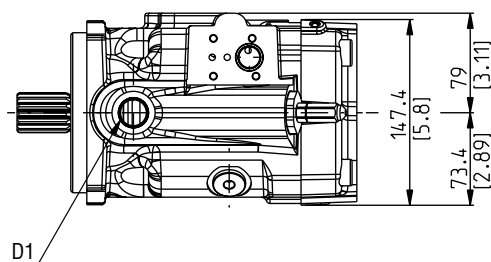


06/06.2020

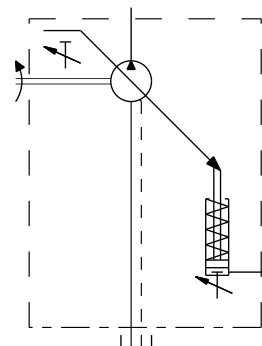
Drive shafts: see page 40
Mounting flanges: see page 42 ÷ 43
Ports: see page 46 ÷ 48



DCAT_048_005



06/06.2020



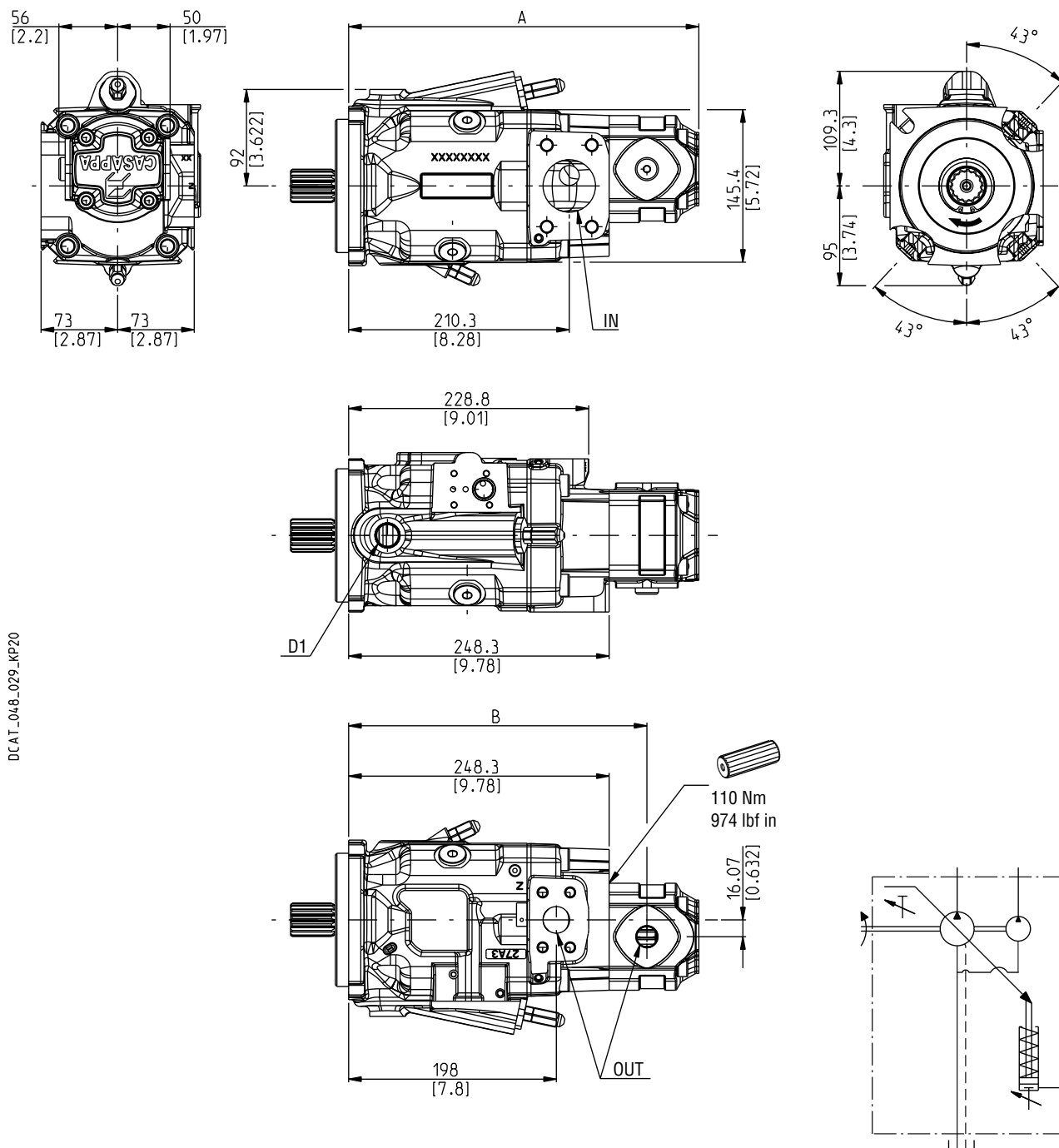
MVP60/KP20

MULTIPLE PUMPS - DIMENSIONS

L

Common inlet intermediate flange:
MVP code **P7**
KP20 code **N5**

Drive shafts: see page 40
Mounting flanges: see page 42 ÷ 43
Ports: see page 46 ÷ 48



Gear pump KAPPA 20 (for more information please see the respective technical catalogue)

Pump type	4	6,3	8	11,2	14	16	20	Dimensions
MVP60	301,3 (11.86)	303,8 (11.96)	306,3 (12.06)	309,8 (12.20)	313,8 (12.35)	319,3 (12.57)	325,8 (12.83)	mm (in) A
	272,3 (10.72)	274,8 (10.82)	277,3 (10.92)	280,8 (11.06)	279,3 (11.00)	284,8 (11.21)	291,3 (11.47)	mm (in) B

MVP60/PHP20

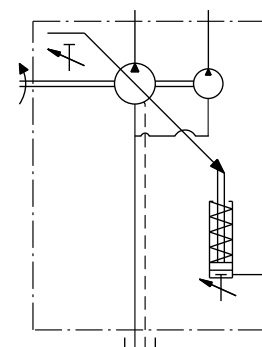
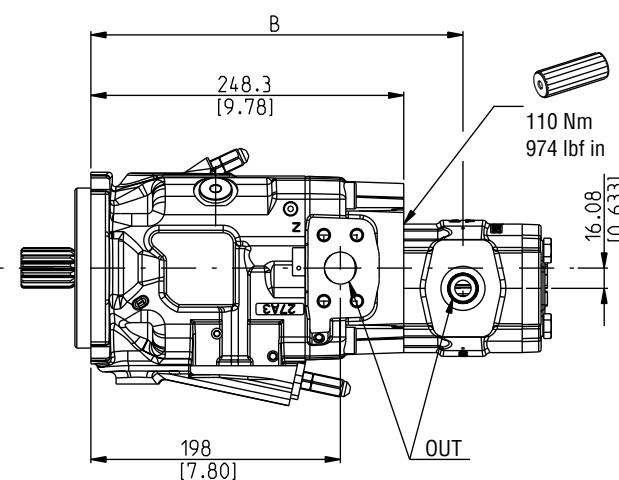
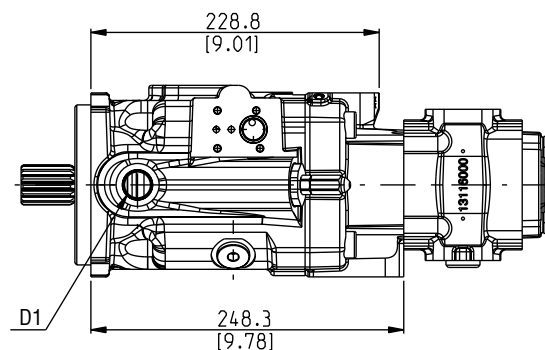
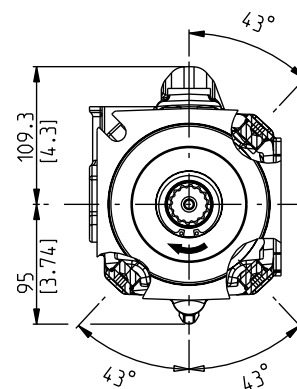
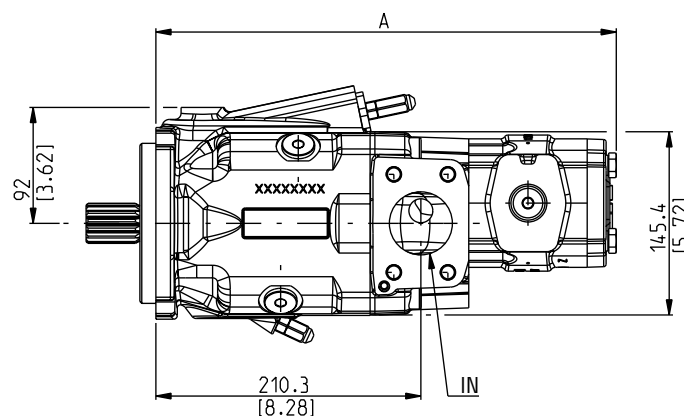
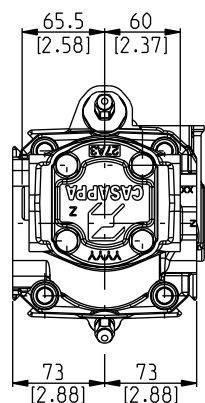
MULTIPLE PUMPS - DIMENSIONS

L

Common inlet intermediate flange:
MVP code **I7**
PHP20 code **S7**

Drive shafts: see page 40
Mounting flanges: see page 42 ÷ 43
Ports: see page 46 ÷ 48

Also available in
combination with PLP20



DCAT_048_035_PHP

06/06.2020

Gear pump POLARIS PH20 (for more information please see the respective technical catalogue)

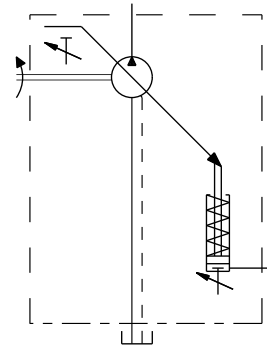
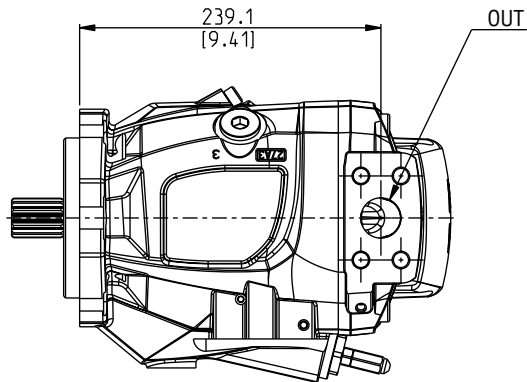
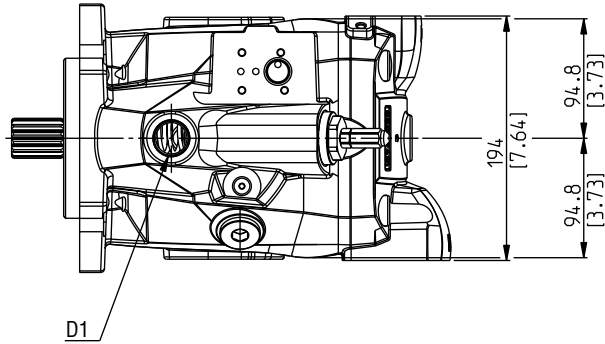
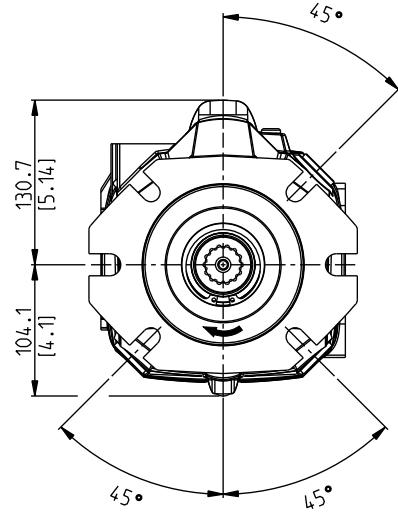
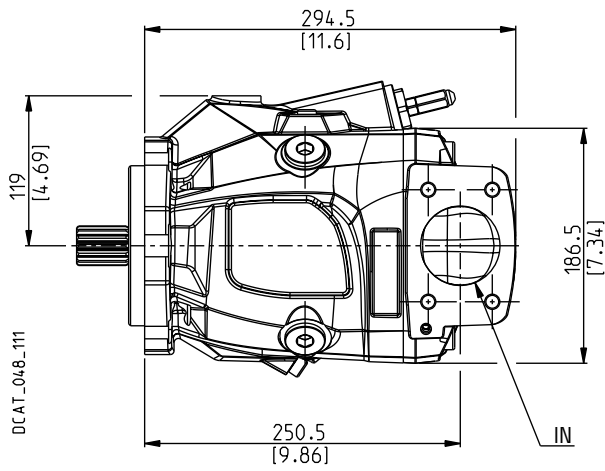
Pump type	8	10,5	11,2	14	16	18	19	20	23	24,5	25	27,8	31,5	Dimensions
MVP60	328,4 (12.93)	332,4 (13.09)	332,9 (13.11)	337,9 (13.30)	341,4 (13.44)	343,6 (13.53)	344,8 (13.57)	347,9 (13.70)	351,4 (13.83)	353,7 (13.93)	355,4 (13.99)	358,2 (14.10)	365,4 (14.39)	mm (in) A
	281,8 (11.09)	284,8 (11.21)	285,3 (11.23)	290,3 (11.43)	293,3 (11.55)	284,2 (11.19)	284,8 (11.21)	286,3 (11.27)	288 (11.34)	289,1 (11.38)	290,3 (11.43)	291,7 (11.48)	295,3 (11.63)	mm (in) B

MVP100

SIDE PORTS - DIMENSIONS

L

Drive shafts: see page 41
Mounting flanges: see page 44
Ports: see page 46 ÷ 48



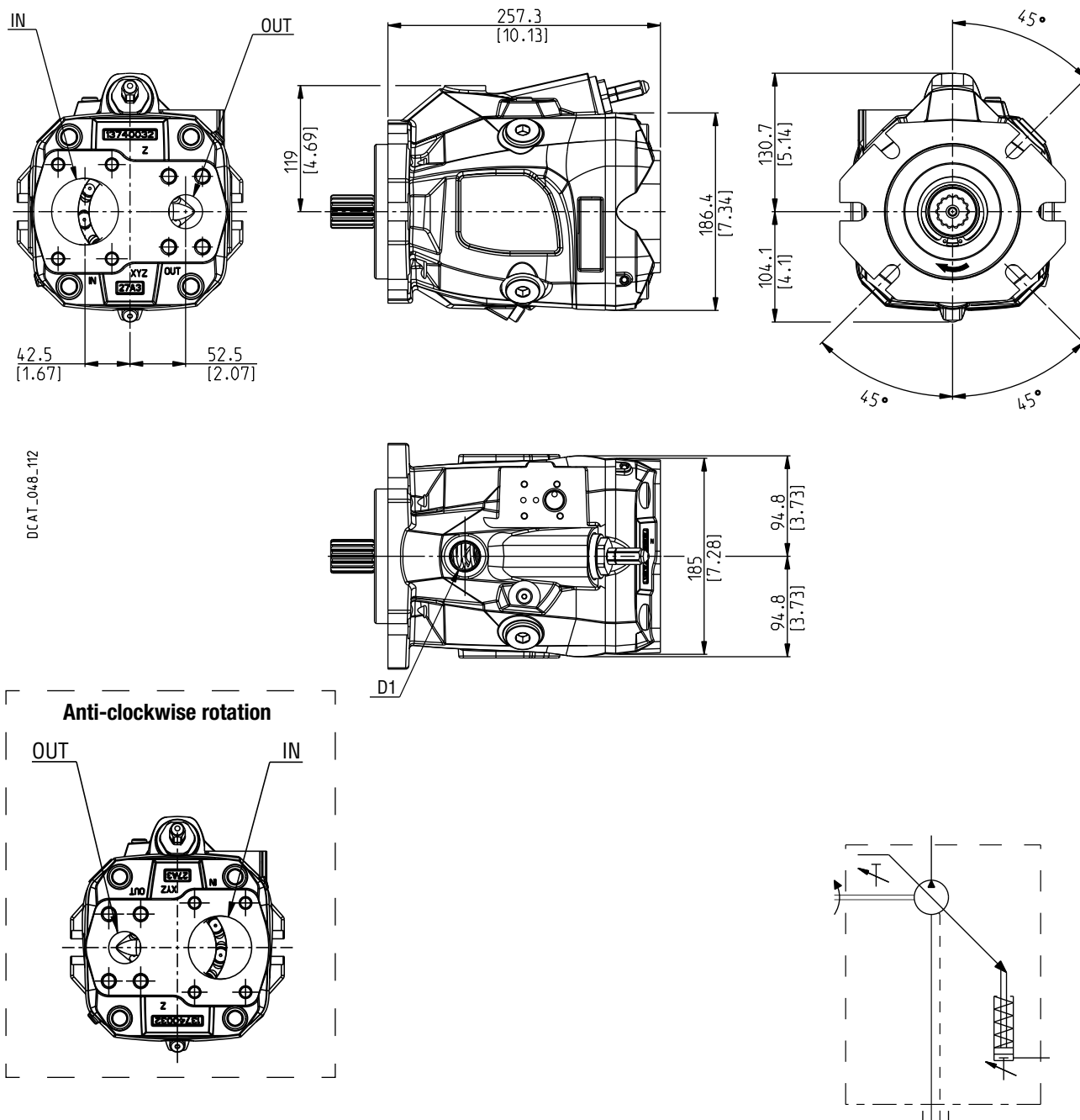
09/10.2024

MVP100

REAR PORTS - DIMENSIONS

P

Drive shafts: see page 41
Mounting flanges: see page 44
Ports: see page 46 ÷ 48



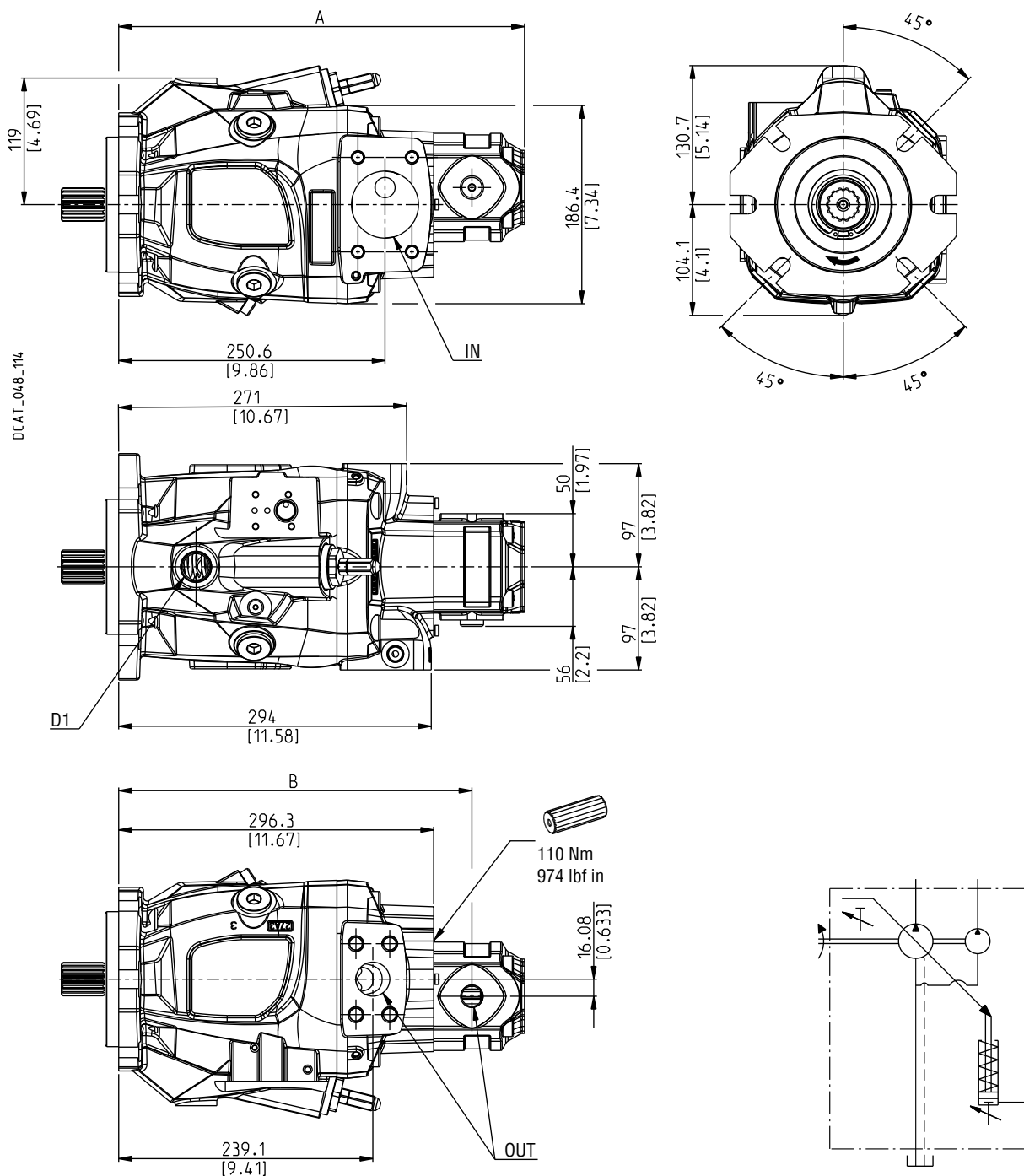
MVP100/KP20

MULTIPLE PUMPS - DIMENSIONS

L

Common inlet intermediate flange:
MVP code **P7**
KP20 code **N5**

Drive shafts: see page 41
Mounting flanges: see page 44
Ports: see page 46 ÷ 48



Gear pump KAPPA 20 (for more information please see the respective technical catalogue)

Pump type	4	6,3	8	11,2	14	16	20	Dimensions
MVP100	349,3 (13.75)	351,8 (13.85)	354,3 (13.95)	357,8 (14.09)	361,8 (14.24)	367,3 (14.46)	373,8 (14.72)	mm (in) A
	320,3 (12.61)	322,8 (12.71)	325,3 (12.81)	328,8 (12.94)	327,3 (12.89)	332,8 (13.10)	339,3 (13.36)	mm (in) B

MVP100/PHP20

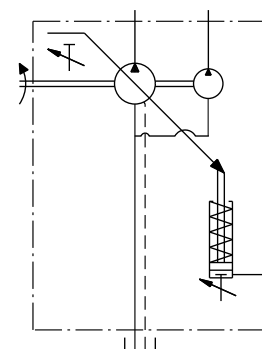
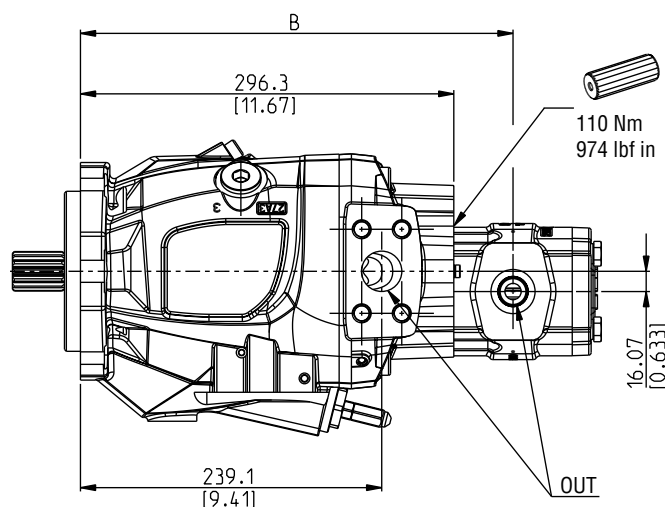
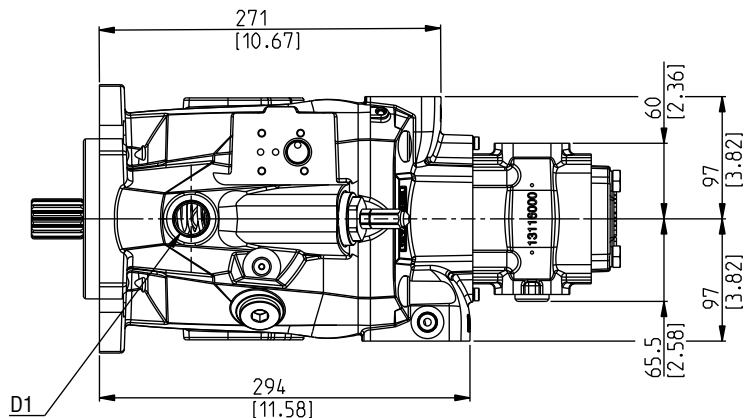
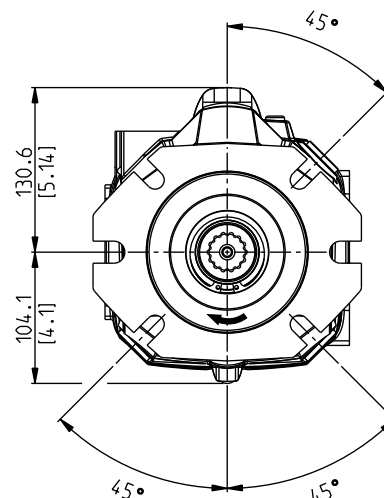
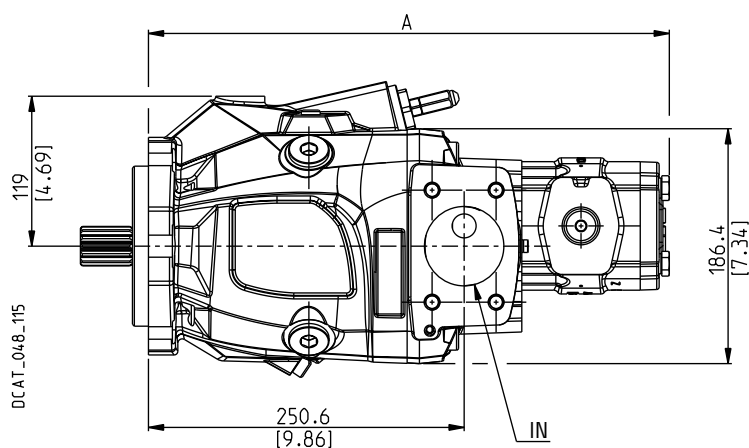
MULTIPLE PUMPS - DIMENSIONS

L

Common inlet intermediate flange:
MVP code **I7**
PHP20 code **S7**

Drive shafts: see page 41
Mounting flanges: see page 44
Ports: see page 46 ÷ 48

Also available in
combination with PLP20



Gear pump POLARIS PH20 (for more information please see the respective technical catalogue)

Pump type	8	10,5	11,2	14	16	18	19	20	23	24,5	25	27,8	31,5	Dimensions
MVP100	375,9 (14.80)	379,9 (14.96)	380,4 (14.98)	385,4 (15.17)	388,9 (15.31)	391,1 (15.40)	392,3 (15.44)	395,4 (15.57)	398,9 (15.70)	401,2 (15.80)	402,9 (15.86)	405,7 (15.97)	412,9 (16.26)	mm (in) A
	328,8 (12.94)	331,8 (13.06)	332,3 (13.08)	337,3 (13.28)	340,3 (13.40)	331,2 (13.04)	331,8 (13.06)	333,3 (13.12)	335,0 (13.19)	336,1 (13.23)	337,7 (13.30)	338,7 (13.33)	342,3 (13.48)	mm (in) B

09/10.2024

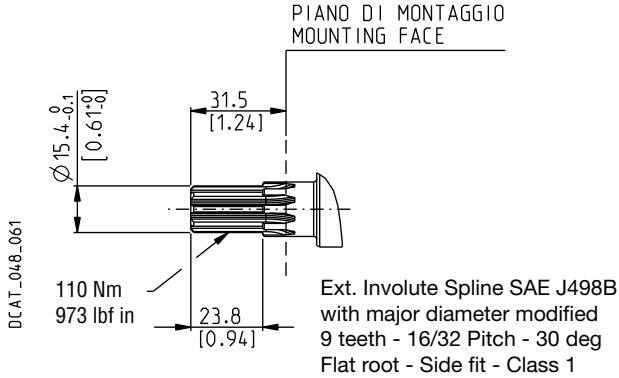
MVP30

DRIVE SHAFTS

SAE "A" SPLINE

03

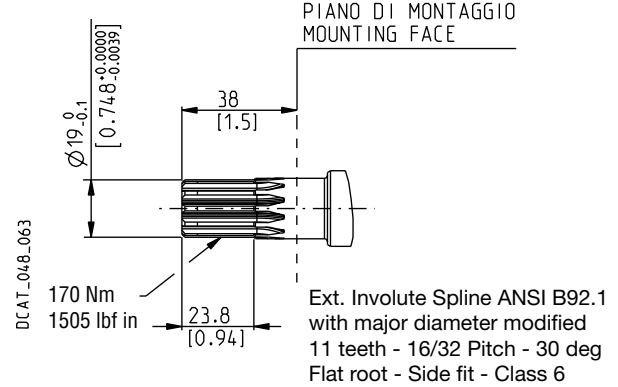
Mounting face refers to flange code **S1**



SAE SPLINE

07

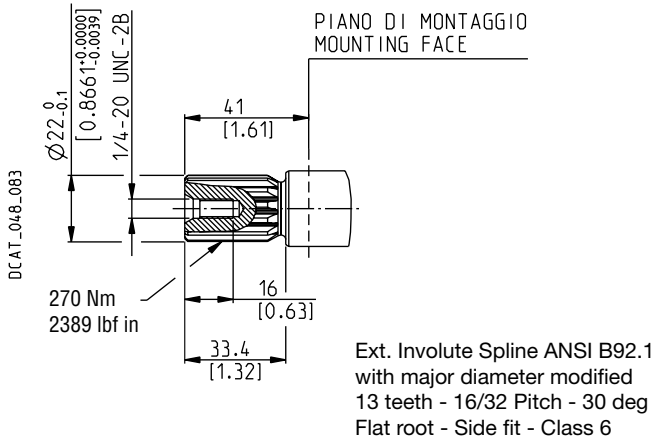
Mounting face refers to flange code **S1**



SAE "B" SPLINE

04

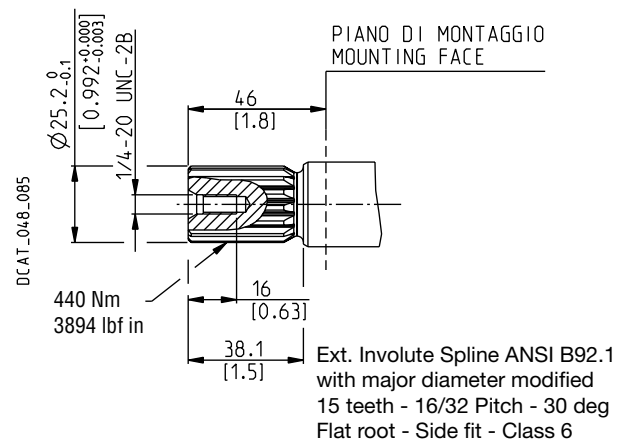
Mounting face refers to flange code **S5**



SAE "BB" SPLINE

05

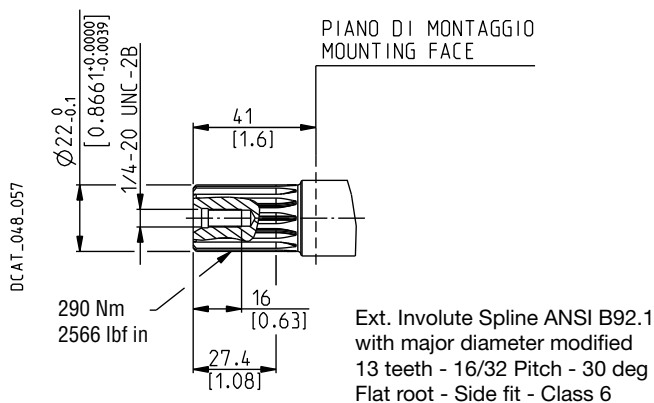
Mounting face refers to flange code **S5**



SAE "B" SPLINE

4R

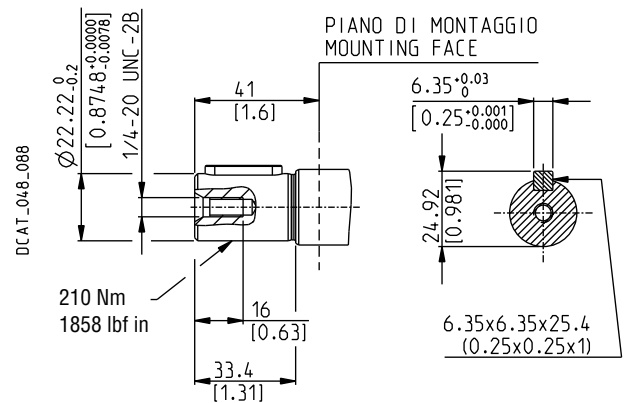
Mounting face refers to flange code **S5**



SAE "B" STRAIGHT

32

Mounting face refers to flange code **S5**



07/03.2022

Please contact us for different drive shafts.

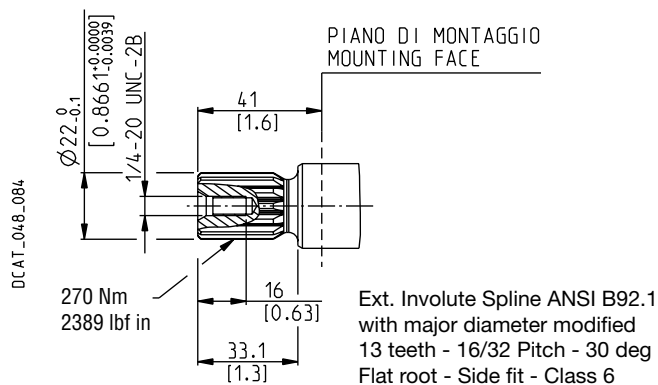
MVP48

DRIVE SHAFTS

SAE "B" SPLINE

04

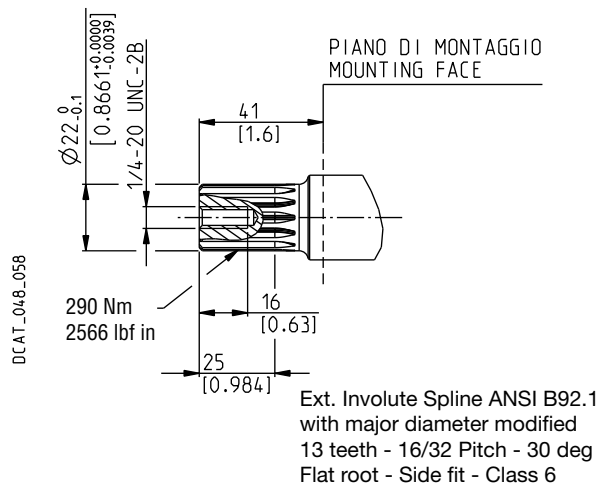
Mounting face refers to flange code **S5**



SAE "B" SPLINE

4R

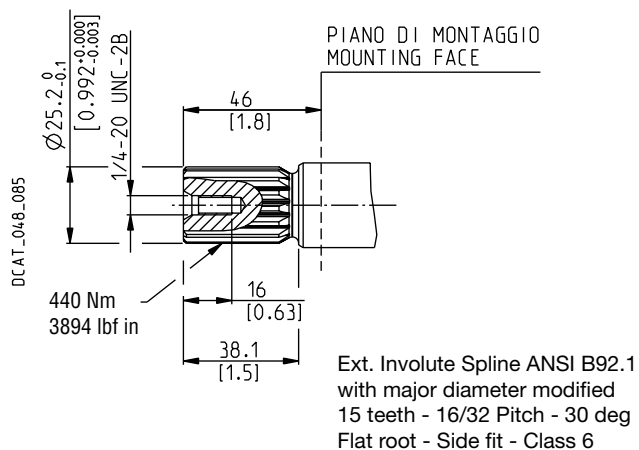
Mounting face refers to flange code **S5**



SAE "BB" SPLINE

05

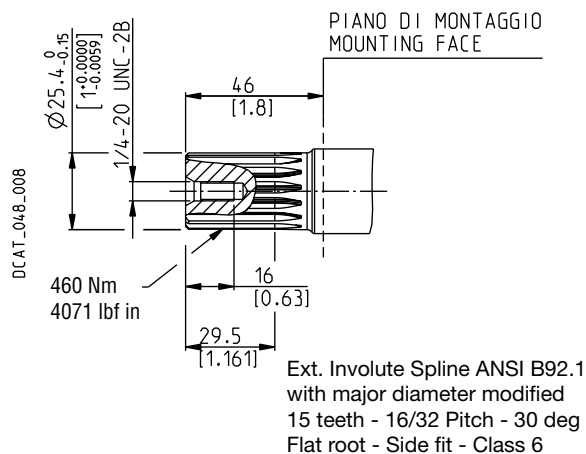
Mounting face refers to flange code **S5**



SAE "BB" SPLINE

5R

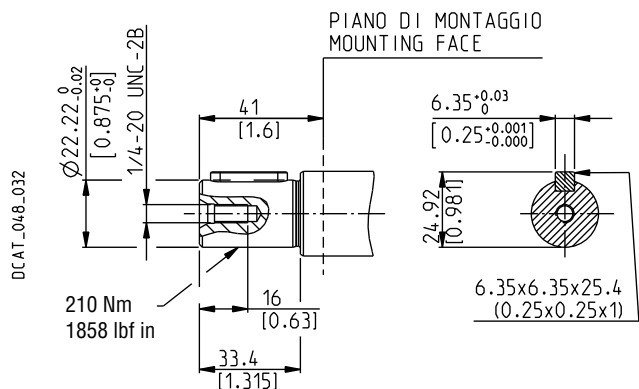
Mounting face refers to flange code **S5**



SAE "B" STRAIGHT

32

Mounting face refers to flange code **S5**



Please contact us for different drive shafts.

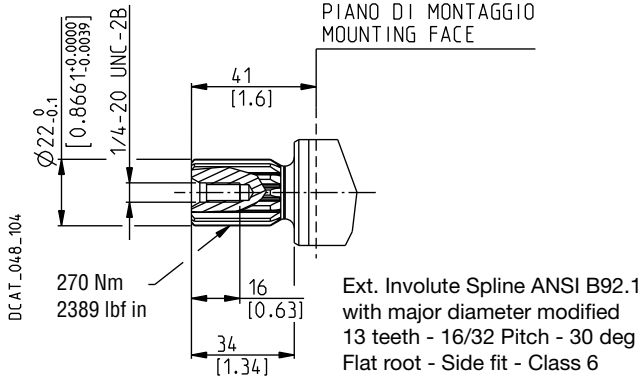
MVP60

DRIVE SHAFTS

SAE "B" SPLINE

04

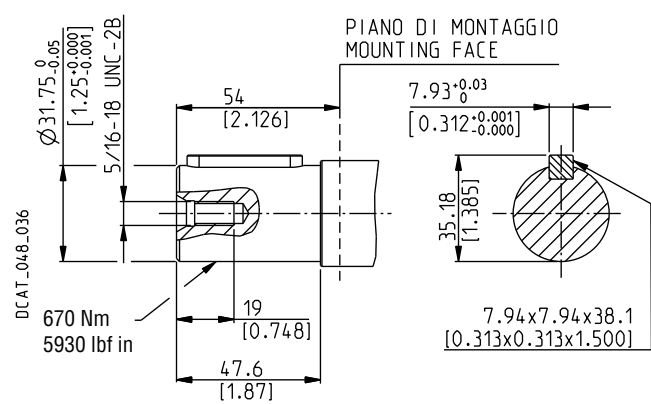
Mounting face refers to flange code **S5**



SAE "C" STRAIGHT

34

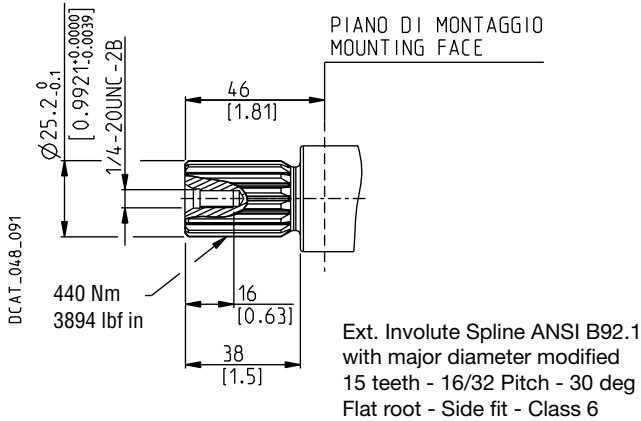
Mounting face refers to flange code **S8**



SAE "BB" SPLINE

05

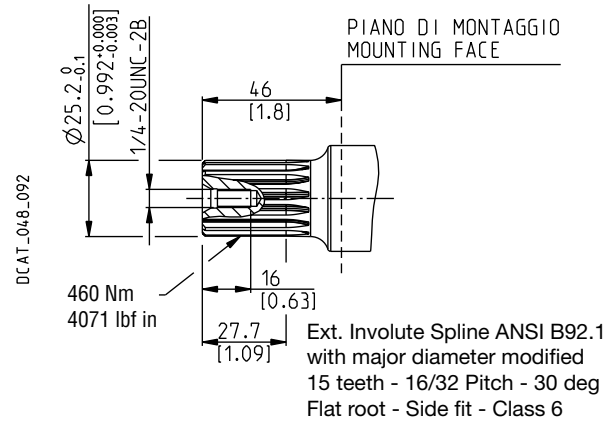
Mounting face refers to flange code **S5**



SAE "BB" SPLINE

5R

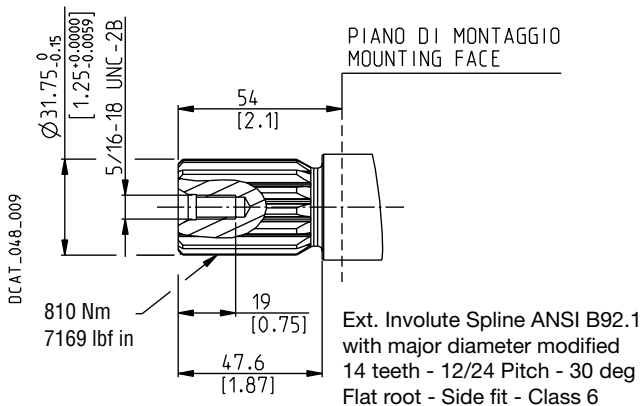
Mounting face refers to flange code **S5**



SAE "C" SPLINE

06

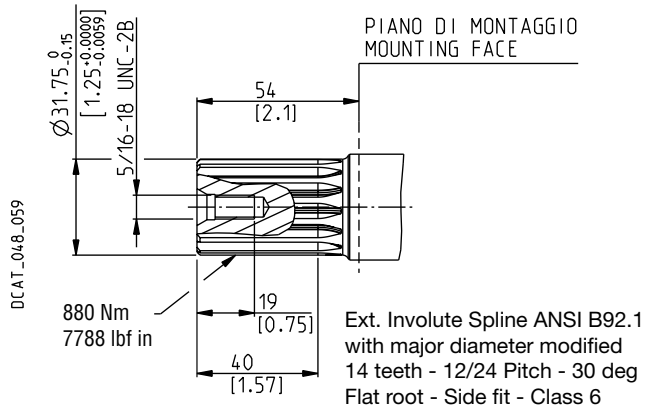
Mounting face refers to flange code **S7** and **S8**



SAE "C" SPLINE

6R

Mounting face refers to flange code **S7** and **S8**



Please contact us for different drive shafts.

07/03.2022

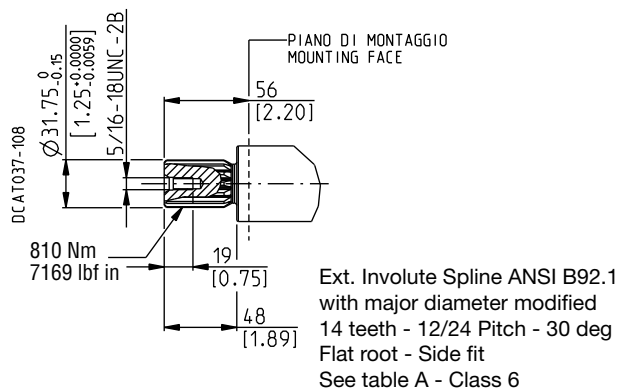
MVP100

DRIVE SHAFTS

SAE "C" SPLINE

06

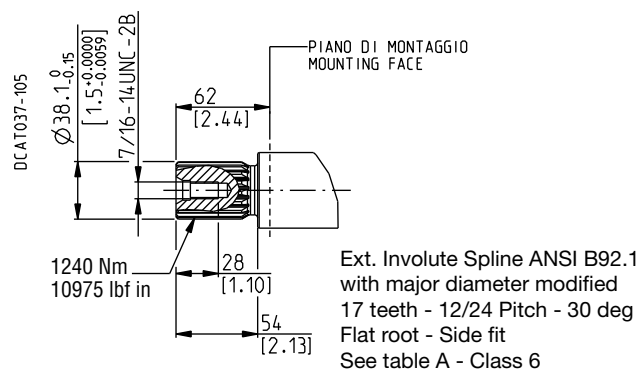
Mounting face refers to flange code **S8**



SAE "CC" SPLINE

HM

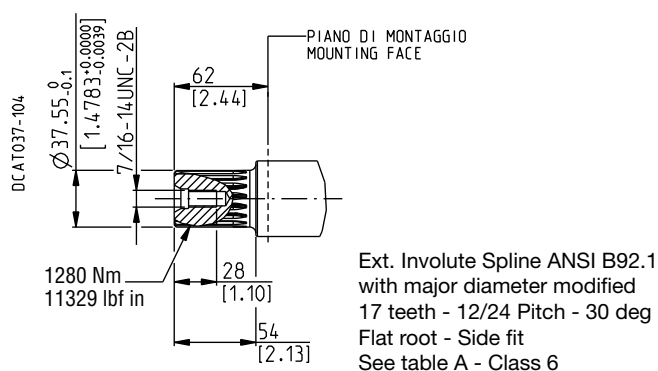
Mounting face refers to flange code **S8**



SAE "CC" SPLINE

HK

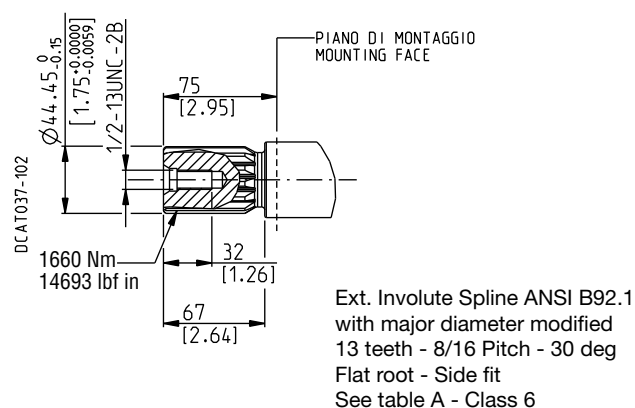
Mounting face refers to flange code **S8**



SAE "D" SPLINE

HJ

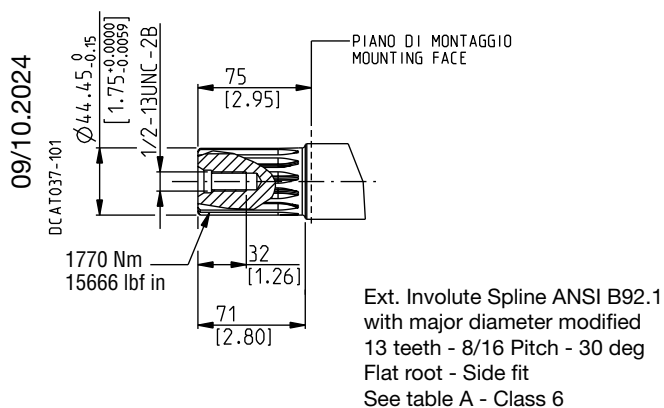
Mounting face refers to flange code **S8**



SAE "D" SPLINE

HI

Mounting face refers to flange code **S8**



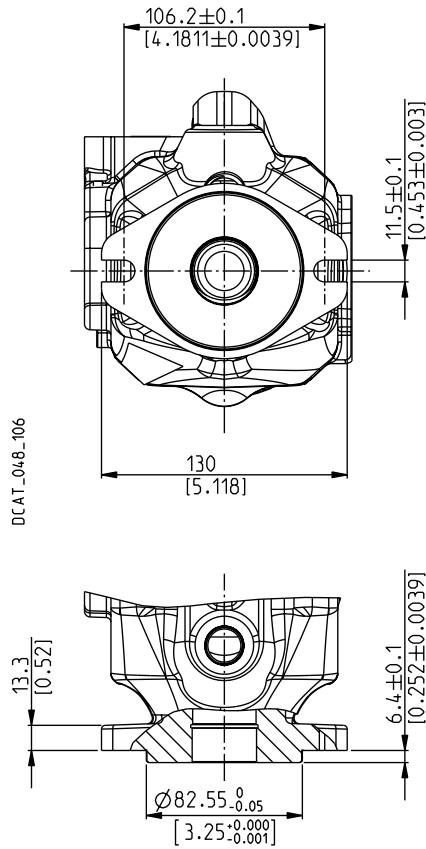
Please contact us for different drive shafts.

MOUNTING FLANGES AND TABLE OF COMPATIBILITY

SAE "A" 2 HOLES

S1

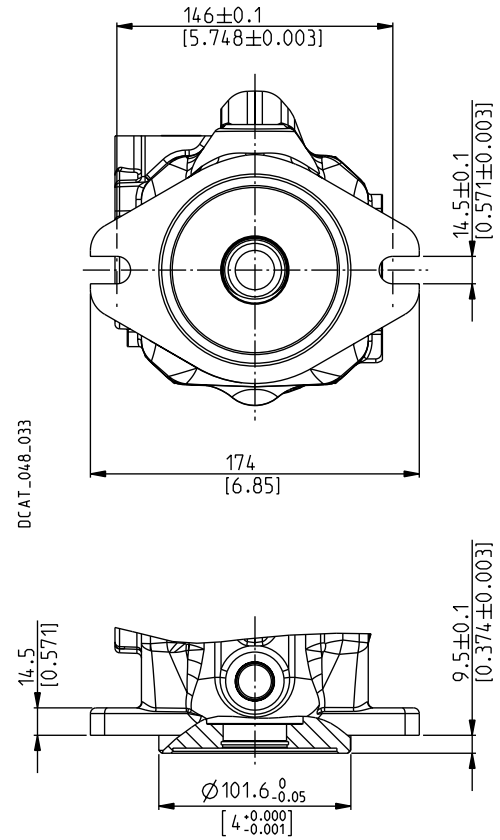
Conforms to SAE J744



SAE "B" 2 HOLES

S5

Conforms to SAE J744



DRIVE SHAFTS

See page 38

Pump type	03	07	04
MVP30	X	X	X

X Available combination

DRIVE SHAFTS

See page 38 ÷ 40

Pump type	04	4R	32	05	5R	06	6R	34
MVP30	X	X	X					
MVP48	X	X	X	X	X			
MVP60	X			X	X	X	X	X

X Available combination

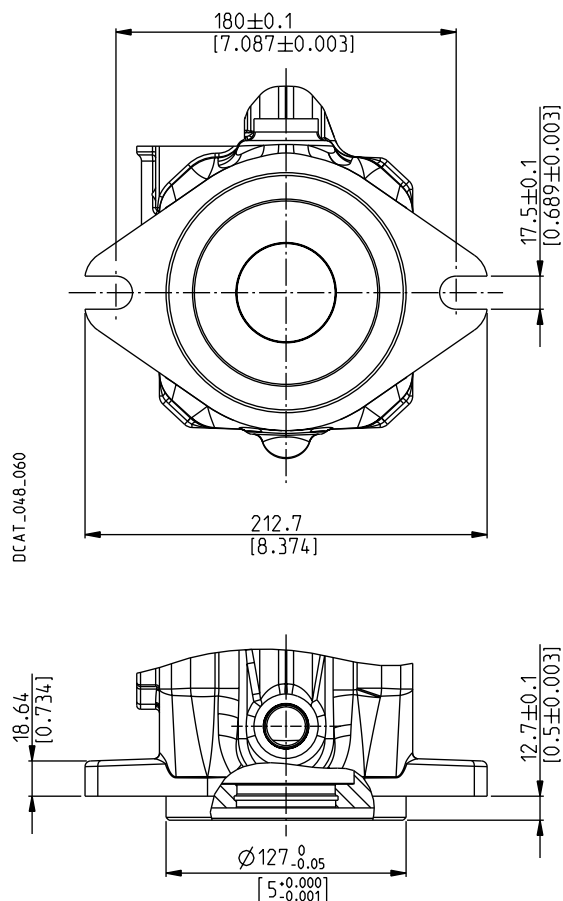
06/06.2020

MOUNTING FLANGES AND TABLE OF COMPATIBILITY

SAE "C" 2 HOLES

S7

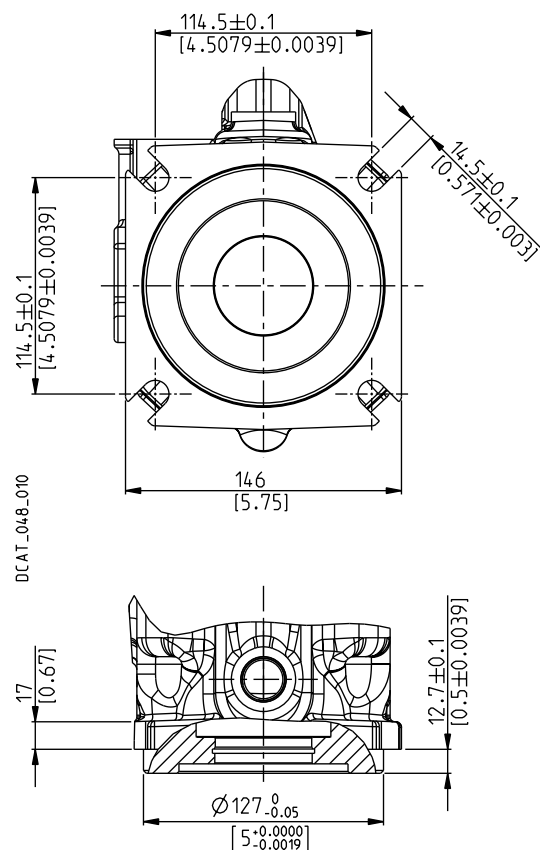
Conforms to SAE J744



SAE "C" 4 HOLES

S8

Conforms to SAE J744



DRIVE SHAFTS

See page 40

Pump type	04	05	5R	06	6R	34
MVP60	X	X	X	X	X	X

X Available combination

DRIVE SHAFTS

See page 40

Pump type	04	05	5R	06	6R	34
MVP60	X	X	X	X	X	X

X Available combination

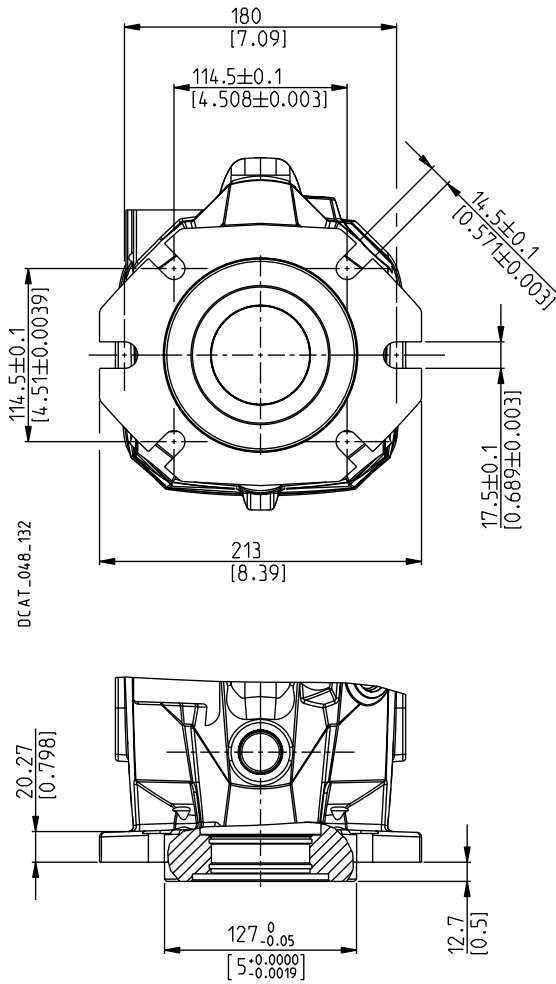
09/10.2024

MOUNTING FLANGES AND TABLE OF COMPATIBILITY

SAE "C" 6 HOLES

S8

Conforms to SAE J744



DRIVE SHAFTS

See page 41

Pump type	06	6R	34	HM	HK	HJ	HI
MVP100	X	X		X	X	X	X

X Available combination

09/10.2024

NOTES

09/10.2024

PORTS TYPE

Ports type	INLET / OUTLET PORTS						DRAIN PORTS		LOAD SENSING PORTS (X)		KP20 / PHP20 GEAR PUMPS	
	Split SSM		Split SSS		SAE ODT		Gas BSPP	SAE ODT (●)	Gas BSPP (●)	SAE ODT	Gas BSPP	SAE ODT
	IN	OUT	IN	OUT	IN	OUT	D1 - D2 - D3 - D4		X	X	OUT	OUT
MVP30	MD	MB	SD	SB	OG (■)	OD (■)	—	OB	GA	03	GD	OC
MVP48	ME	MC	SE	SC	OH (■)	OF (■)	GD	OC	GA	03	GD	OC
MVP60	MF	MC	SF	SC	MF	OF	GD	OC	GA	03	GD	OC
MVP100	MG	QD	SG	VD	—	—	—	OD	GA	03	GD	OC

(X) Load sensing port. Please contact us for more information.

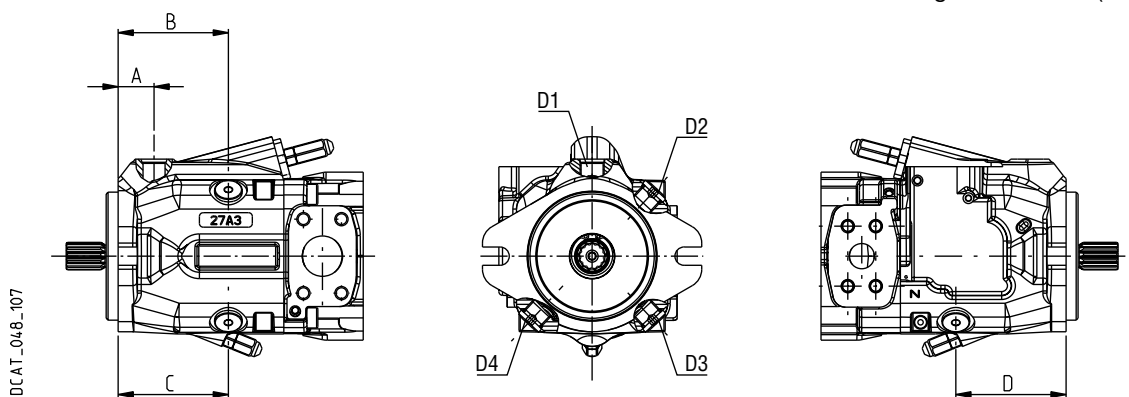
(●) Standard.

(■) Only for rear ports.

DRAIN PORTS POSITION



Dimension refer to S5 mounting flange.
For S1 flange add 27 mm (1.06 in).



Pump type	A	B	C	D
	mm (in)	mm (in)	mm (in)	mm (in)
MVP30	28,5 (1.12) (◆)	87,5 (3.44) (◆)	87,5 (3.44) (◆)	87,5 (3.44) (◆)
MVP48	36 (1.42)	97 (3.82)	97 (3.82)	97 (3.82)
MVP60	37 (1.46)	113 (4.45)	99 (3.90)	99 (3.90)
MVP100	73 (2.27)	127 (5.00)	127 (5.00)	127 (5.00)

PORTS TYPE



Tightening torque for low pressure side port



Tightening torque for high pressure side port

SAE FLANGED PORTS J518

SSM

Metric thread ISO 60° conforms to ISO/R 262

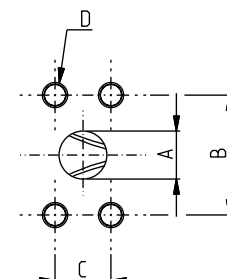
Standard pressure series 3000 psi - Code 61

CODE	Nominal size	A	B	C	D		
		mm (in)	mm (in)	mm (in)	Thread Depth mm (in)	Nm (lbf in)	Nm (lbf in)
MB	3/4"	20 (0.79)	47,6 (1.87)	22,2 (0.87)	M 10 17 (0.67)	—	45 ^{+2,5} (398 ÷ 420)
MC	1"	25,4 (1.00)	52,4 (2.06)	26,2 (1.03)	M 10 17 (0.67)	—	30 ^{+2,5} (266 ÷ 288)
MD	1" 1/4	32 (1.26)	58,7 (2.31)	30,2 (1.19)	M 10 17 (0.67)	20 ⁺¹ (177 ÷ 186)	—
ME	1" 1/2	38,1 (1.50)	69,8 (2.75)	35,7 (1.41)	M 12 20 (0.79)	30 ^{+2,5} (266 ÷ 288)	—
MF	2"	51 (2.01)	77,8 (3.06)	42,9 (1.69)	M 12 20 (0.79)	30 ^{+2,5} (266 ÷ 288)	—
MG	2" 1/2	63 (2.48)	88,9 (3.5)	50,8 (2.0)	M 12 17 (0.67)	30 ^{+2,5} (266 ÷ 288)	—

Standard pressure series 6000 psi - Code 62

QD	1" 1/4	32 (1.26)	66,7 (2.63)	31,8 (1.25)	M 14 19 (0.75)	60 ⁺⁵ (531 ÷ 575)
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DCAT_006_025_21064252



SAE FLANGED PORTS J518

SSS

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

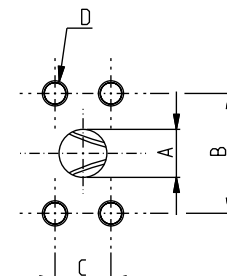
Standard pressure series 3000 psi - Code 61

CODE	Nominal size	A	B	C	D		
		mm (in)	mm (in)	mm (in)	Thread Depth mm (in)	Nm (lbf in)	Nm (lbf in)
SB	3/4"	20 (0.79)	47,6 (1.87)	22,2 (0.87)	3/8 - 16 UNC-2B 17 (0.67)	—	30 ^{+2,5} (266 ÷ 288)
SC	1"	25,4 (1.00)	52,4 (2.06)	26,2 (1.03)	3/8 - 16 UNC-2B 17 (0.67)	—	35 ^{+2,5} (310 ÷ 332)
SD	1" 1/4	32 (1.26)	58,7 (2.31)	30,2 (1.19)	7/16 - 14 UNC-2B 17 (0.67)	25 ⁺¹ (221 ÷ 230)	—
SE	1" 1/2	38,1 (1.50)	69,8 (2.75)	35,7 (1.41)	1/2 - 13 UNC-2B 20 (0.79)	30 ^{+2,5} (266 ÷ 288)	—
SF	2"	51 (2.01)	77,8 (3.06)	42,9 (1.69)	1/2 - 13 UNC-2B 20 (0.79)	30 ^{+2,5} (266 ÷ 288)	—
SG	2" 1/2	63 (2.48)	88,9 (3.5)	50,8 (2.0)	1/2-13 UNC-2B 17 (0.67)	30 ^{+2,5} (266 ÷ 288)	—

Standard pressure series 6000 psi - Code 62

VD	1" 1/4	32 (1.26)	66,7 (2.63)	31,8 (1.25)	1/2-13 UNC-2B 19 (0.75)	65 ⁺⁵ (575 ÷ 620)
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DCAT_006_025_21064252



09/10.2024

PORTS TYPE



Tightening torque for low pressure side port

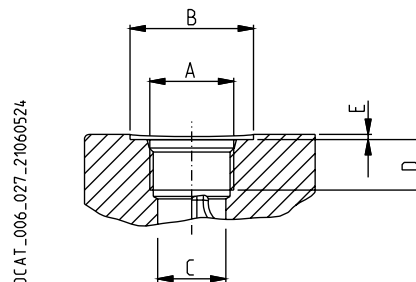


Tightening torque for high pressure side port

SAE STRAIGHT THREAD PORTS J514

ODT

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



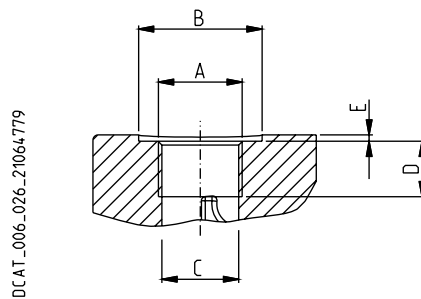
CODE	Nominal size	A	Ø B	Ø C	D	E		
		mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	Nm (lbf in)	Nm (lbf in)
03 (X)	1/4"	7/16" - 20 UNF - 2B	—	9,5 (0.37)	—	—	—	12 ⁺¹ (106 ÷ 115)
0B (●)	1/2"	3/4" - 16 UNF - 2B	33 (1.30)	17 (0.67)	—	1 (0.04)	20 ⁺¹ (177 ÷ 186)	—
0C (●)	5/8"	7/8" - 14 UNF - 2B	35 (1.38)	20,5 (0.81)	—	2 (0.08)	30 ^{+2,5} (266 ÷ 288)	—
0C (◆)			34 (1.34)	20,5 (0.81)	17 (0.67)	0,5 (0.02)	—	70 ⁺⁵ (620 ÷ 664)
0D (●)	3/4"	1 1/16" - 12 UNF - 2B	40 (1.57)	24,8 (0.98)	—	0,5 (0.02)	40 ^{+2,5} (354 ÷ 76)	—
0D			—	—	20 (0.79)	—	—	120 ⁺¹⁰ (1062 ÷ 1151)
0F	1"	1 5/16" - 12 UNF - 2B	—	30,5 (1.20)	20 (0.79)	—	—	170 ⁺¹⁰ (1505 ÷ 1593)
0G	1" 1/4	1 5/8" - 12 UNF - 2B	—	—	20 (0.79)	—	70 ⁺⁵ (620 ÷ 664)	—
0H	1" 1/2	1 7/8" - 12 UNF - 2B	—	45 (1.77)	20 (0.79)	—	100 ⁺⁵ (885 ÷ 929)	—

(X) = Load sensing port - (●) = Drain port - (◆) = KP20 / PHP20 outlet port

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 (X) (●)	1/8"	G 1/8	—	8,75 (0.34)	12 (0.47)	—	—	5 ^{+0,25} (44 ÷ 46)
GD (●)	1/2"	G 1/2	30 (1.18)	19 (0.75)	17 (0.67)	2 (0.08)	20 ⁺¹ (177 ÷ 186)	—
GD (◆)			—	19 (0.75)	17 (0.67)	—	—	50 ^{+2,5} (443 ÷ 465)

(X) = Load sensing port - (●) = Drain port - (◆) = KP20 / PHP20 outlet port

PRESSURE COMPENSATOR

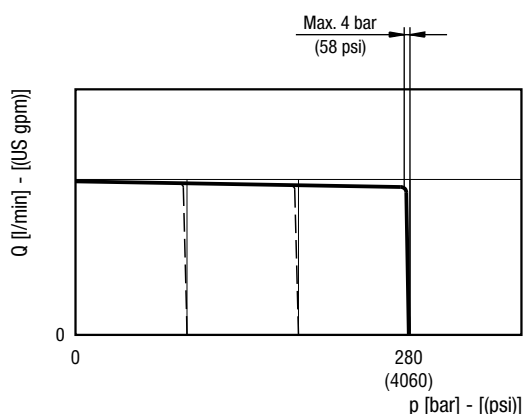
RPO

Regulates the pump displacement automatically to maintain the pressure below the fixed pre-adjusted limit.

Compensator type	Pump type	Pressure setting range	Standard setting
		bar (psi)	bar (psi)
RPO	MVP30-28	80 ÷ 280 (1160 ÷ 4060)	280 (4060)
	MVP30-34	80 ÷ 250 (1160 ÷ 3625)	250 (3625)
	MVP48-45	80 ÷ 280 (1160 ÷ 4060)	280 (4060)
	MVP48-53	80 ÷ 250 (1160 ÷ 3625)	250 (3625)
	MVP60-60	80 ÷ 280 (1160 ÷ 4060)	280 (4060)
	MVP60-72	80 ÷ 280 (1160 ÷ 4060)	280 (4060)
	MVP60-84	80 ÷ 250 (1160 ÷ 3625)	250 (3625)
	MVP100-100	80 ÷ 280 (1160 ÷ 4060)	280 (4060)
	MVP100-115	80 ÷ 250 (1160 ÷ 3625)	250 (3625)

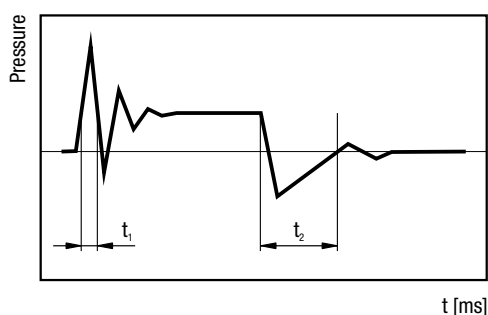
OPERATING CURVES

Curves have been obtained at the speed of 1500 min⁻¹ and oil temperature 50 °C (122 °F).



RESPONSE AND RECOVERY TIME

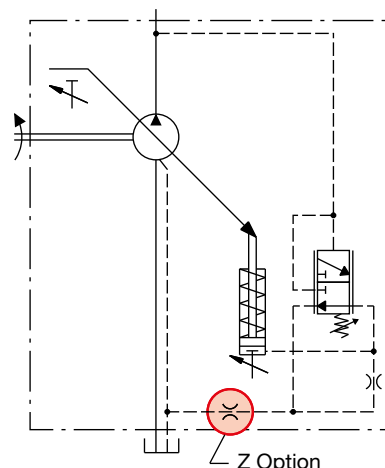
According to SAE J745 (using outlet pressure).



NOTES

Please contact us for more information.

RPO



Z OPTION

Damping restrictor for critical applications. In case of system instability or pressure oscillations, the additional damping restrictor slows down the pump control system, damping the regulation transients. The pump recovery time increases. The use of the damping restrictor must be evaluated and approved by Casappa technical sales department for the specific application.

REMOTE CONTROL

For remote pressure compensator LS3 see page 53.

	t_1	t_2
Pump type	Response time [ms] (off stroke)	Recovery time [ms] (on stroke)
MVP30	46	150
MVP48	48	150
MVP60	50	150
MVP100	54	160

09/10.2024

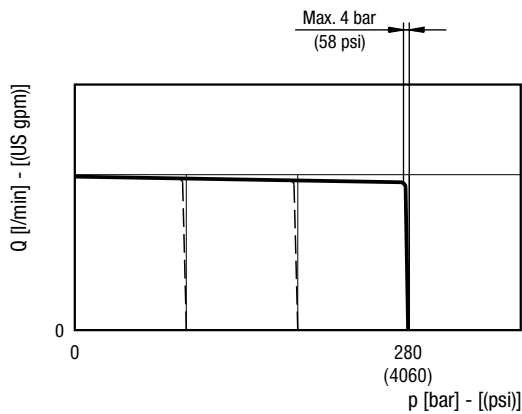
PRESSURE COMPENSATOR

RP1

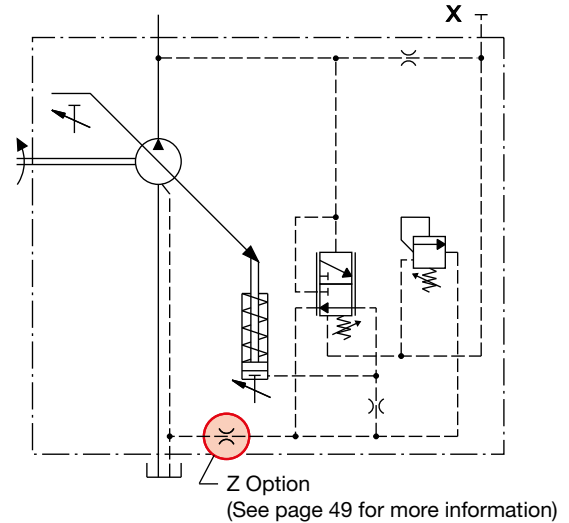
Regulates the pump displacement automatically to maintain the pressure below the fixed pre-adjusted limit.
Designed to work at high frequency ≥ 2 cycle/min and/or at pressure > 280 bar (4060 psi).

OPERATING CURVES

Curves have been obtained at the speed of 1500 min^{-1} and oil temperature 50°C (122°F).

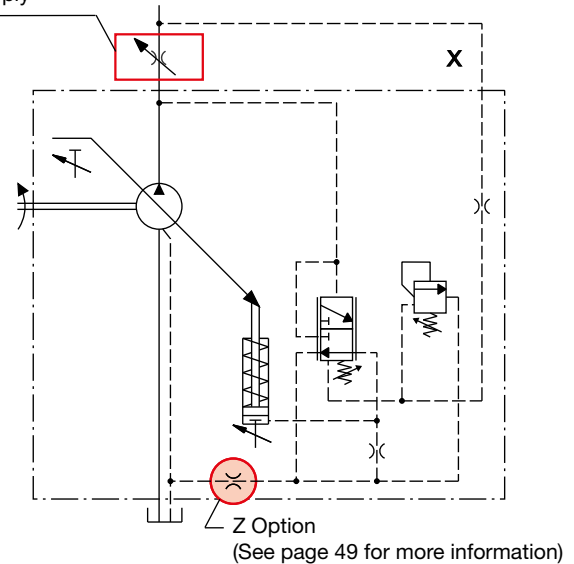


RP1



RP1 - LS2 (with flow control)

Not included
in supply



NOTES

X: Load-sensing port. Dimensions at page 46 ÷ 48.
Please contact us for more information.

05/10.2014

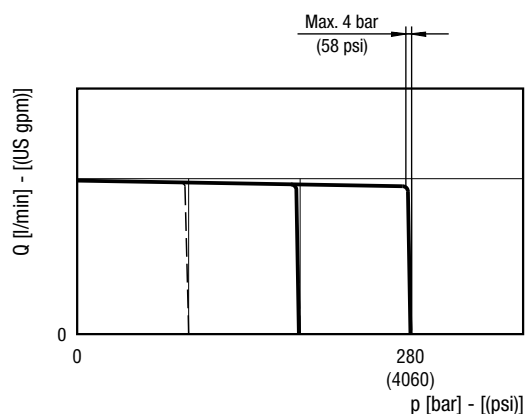
DUAL SETTING PRESSURE COMPENSATOR

RP2

Regulates the pump displacement automatically to maintain the pressure below two fixed pre-adjusted limits. The electrically piloted valve allows to switch between the two different limits.

OPERATING CURVES

Curves have been obtained at the speed of 1500 min⁻¹ and oil temperature 50 °C (122 °F).



VALVE FEATURES

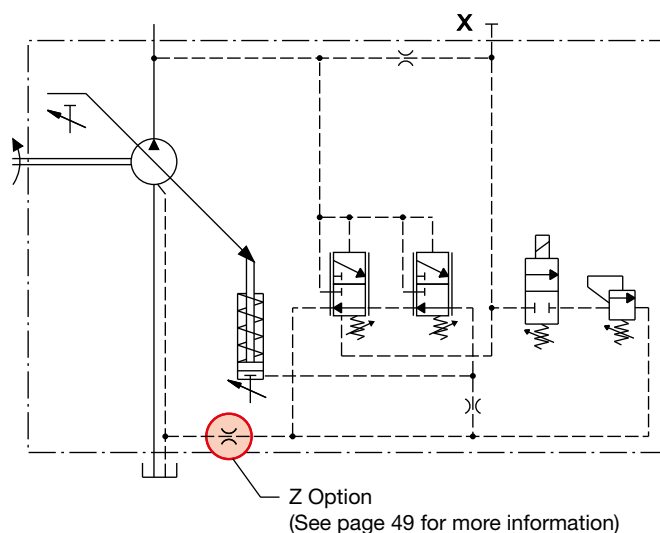
Valve code	Arrangement	Voltage
1	Normally closed	12 V DC
2	Normally closed	24 V DC
6	Normally open	12 V DC
7	Normally open	24 V DC

08/05.2024

NOTES

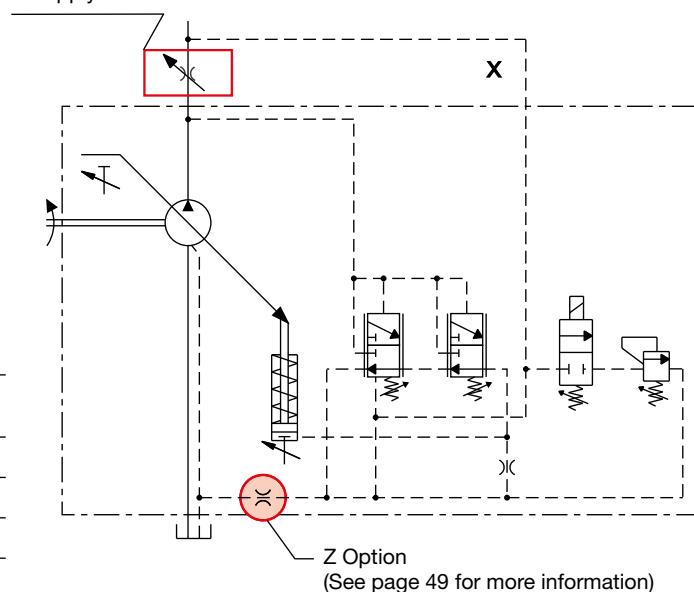
X: Load-sensing port. Dimensions at page 46 ÷ 48.
Connectors availability at page 60.
Please contact us for more information.

RP2



RP2 - LS2 (with flow control)

Not included in supply



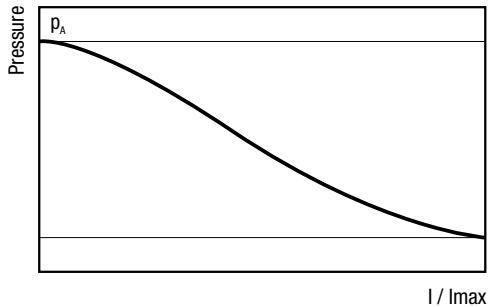
PRESSURE ELECTRONIC COMPENSATOR

PEC

Regulates the pump displacement automatically to maintain the pressure below the variable limit set through a command current signal.

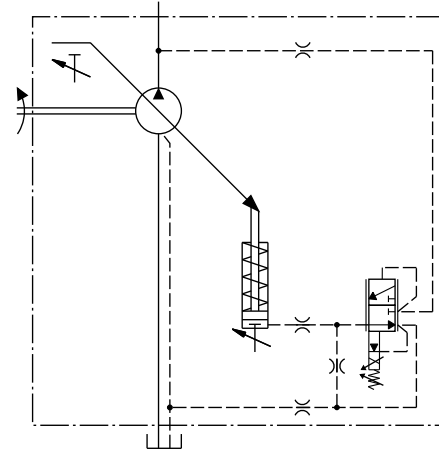
PEC

OPERATING CURVES



VALVE FEATURES

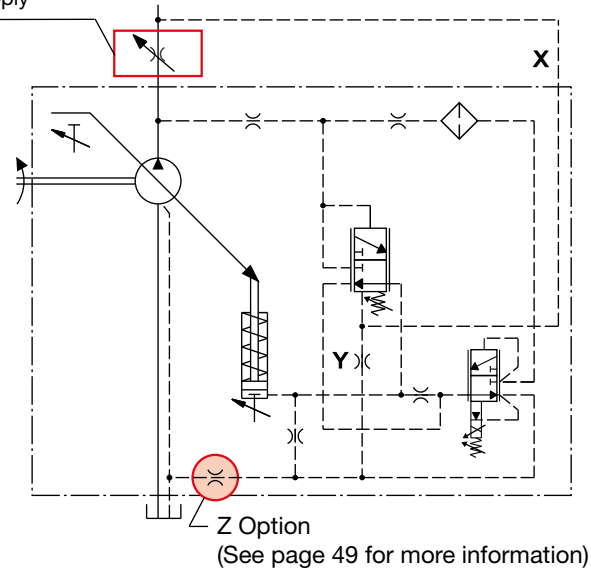
Valve code	Arrangement	Voltage
1	Normally closed	12 V DC
2	Normally closed	24 V DC



PEC-LS0 (Bleed open) / PEC-LS2 (Bleed closed)

For LS2 configuration Y is plugged.

Not included
in supply



09/10.2024

NOTES

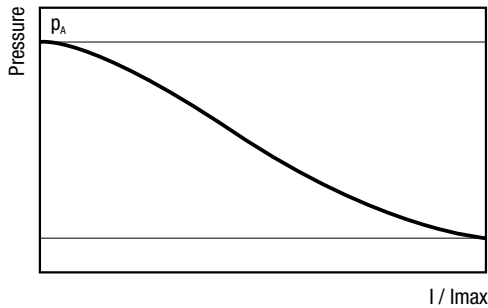
X: Load-sensing port. Dimensions at page 46 ÷ 48.
Connectors availability at page 60.
Please contact us for more information.

PRESSURE ELECTRONIC COMPENSATOR PLUS ANGULAR SENSOR

PECA

Regulates the pump displacement automatically to maintain the pressure below the variable limit set through a command current signal. The swivel angular sensor converts the actual position of the swashplate into a voltage output signal that is used by the integrated electronic control unit to realise pump and system control logics.

OPERATING CURVES

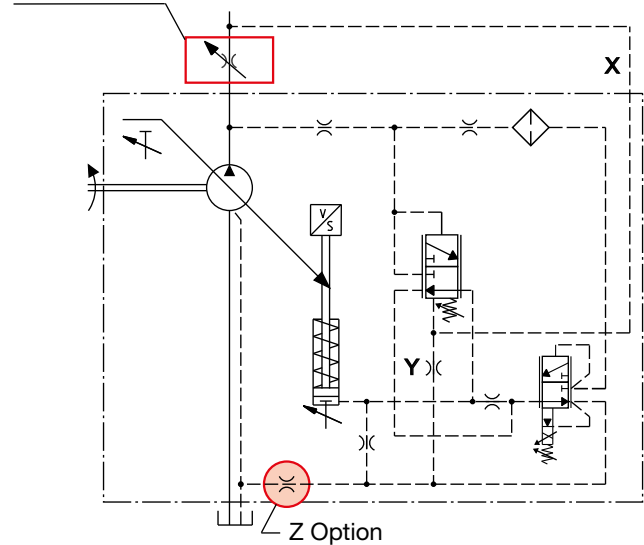


Valve code	Arrangement	Voltage
1	Normally closed	12 V DC
2	Normally closed	24 V DC

PECA-LS0 (Bleed open) / PECA-LS2 (Bleed closed)

For LS2 configuration Y is plugged.

Not included
in supply



Z OPTION

Damping restrictor for critical applications.

In case of system instability or pressure oscillations, the additional damping restrictor slows down the pump control system, damping the regulation transients.

The pump recovery time increases.

The use of the damping restrictor must be evaluated and approved by Casappa technical sales department for the specific application.

10/12.2025

NOTES

X: Load-sensing port. Dimensions at page 46 ÷ 48.

Connectors availability at page 62.

Please contact us for more information.

ELECTRO-PROPORTIONAL DISPLACEMENT COMPENSATOR

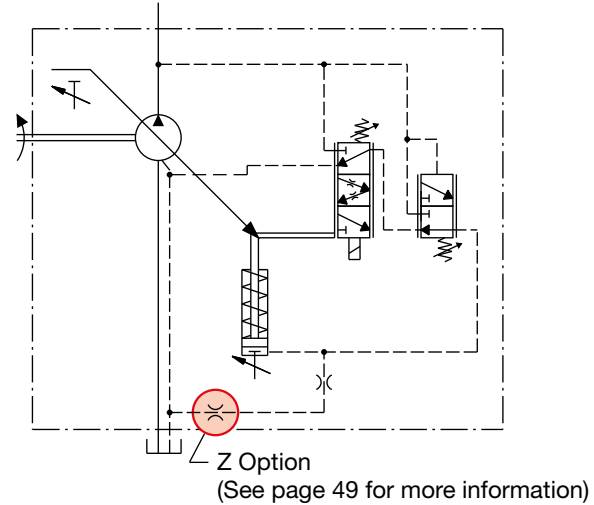
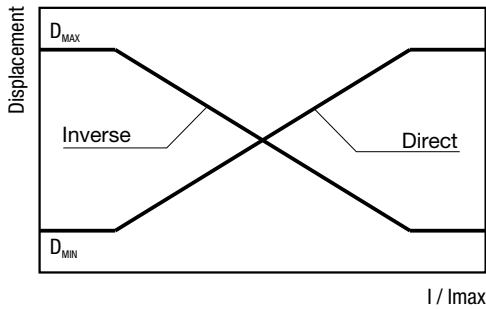
DEC

Regulates the pump displacement automatically to maintain it below the variable limit set through a command current signal. In the standard version, the electro-proportional displacement regulator is combined with pressure compensator.

DEC

Torque regulation for open center valve.

OPERATING CURVES



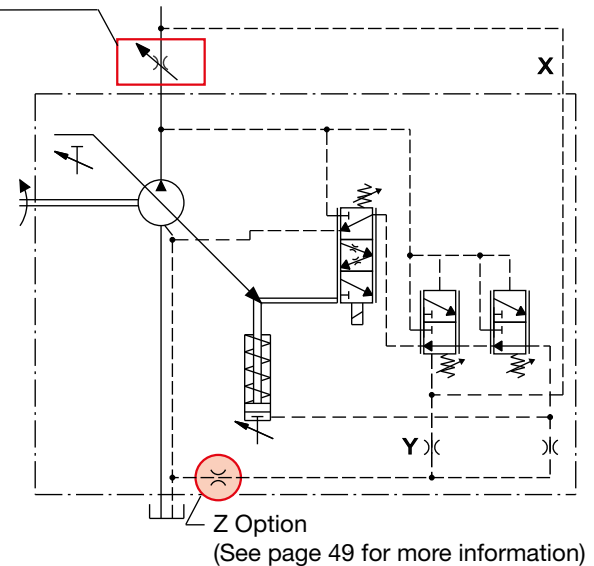
VALVE FEATURES

Valve code	Arrangement	Voltage
1	Inverse	12 V DC
2	Inverse	24 V DC
6	Direct	12 V DC
7	Direct	24 V DC

DEC-LS0 / DEC-LS2

Torque regulation for closed center valve.
For LS2 configuration Y is plugged.

Not included
in supply



NOTES

Connectors availability at page 60.
Please contact us for more information.

09/10.2024

ELECTRO-PROPORTIONAL TORQUE COMPENSATOR

TEC

Regulates the pump displacement automatically, according to the load pressure, to maintain the absorbed torque below the variable limit set through a command current signal. In the standard version, the electro-proportional displacement regulator is combined with pressure compensator.

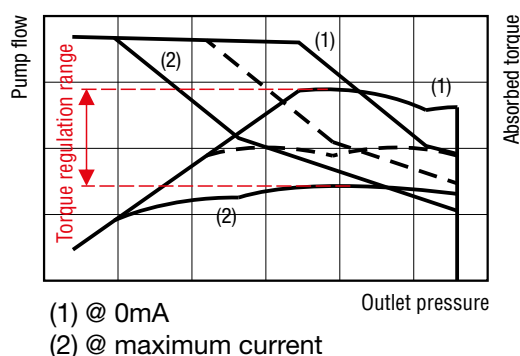
The regulated torque decreases with increasing current. Depending on the selected option for torque range, the torque regulation range is according to the following table:

Torque range code	MVP30	MVP48	MVP60	MVP100
	Nm (lbf in)	Nm (lbf in)	Nm (lbf in)	Nm (lbf in)
H1	105 (929) 150 (1328)	160 (1416) 230 (2036)	255 (2257) 365 (3231)	345 (3054) 495 (4381)
H2	90 (797) 130 (1151)	135 (1195) 200 (1770)	210 (1859) 315 (2788)	290 (2567) 430 (3806)
H3	75 (664) 110 (978)	115 (1018) 175 (1549)	180 (1593) 275 (2434)	250 (2213) 370 (3275)
H4	60 (531) 90 (797)	95 (841) 145 (1283)	145 (1283) 225 (1991)	200 (1770) 305 (2700)
H5	50 (443) 75 (664)	75 (664) 120 (1062)	115 (1018) 185 (1637)	155 (1372) 255 (2257)

The table can be used to identify the appropriate torque range code based on the torque requirements. Please contact us for more information.

Notably, the absorbed torque at minimum current might exceed the maximum torque value of the range, while the absorbed torque at maximum current might fall below the minimum torque value of the range.

OPERATING CURVES



VALVE FEATURES

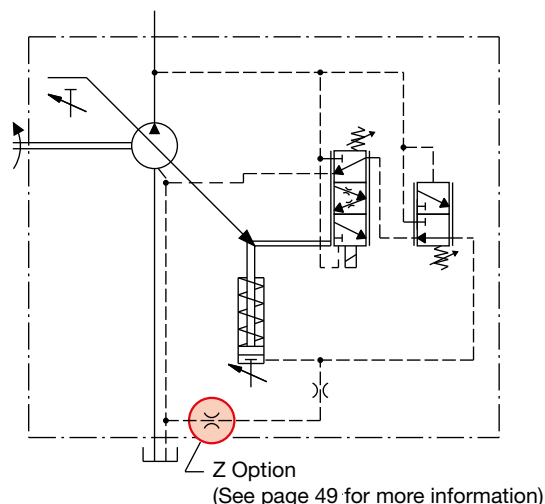
Valve code	Arrangement	Voltage
1	Inverse	12 V DC
2	Inverse	24 V DC

NOTES

Connectors availability at page 60. Please contact us for more information.

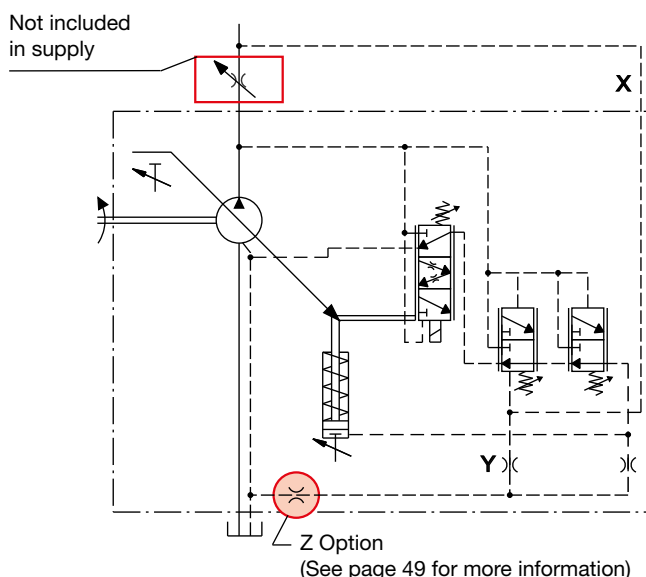
TEC

Torque regulation for open center valve.



TEC-LS0 / TEC-LS2

Torque regulation for closed center valve. For LS2 configuration Y is plugged.



09/10.2024

FLOW COMPENSATOR (Load-sensing)

LS

Regulates the pump displacement to maintain a constant (load independent) pressure drop across a flow metering device. In the standard version the flow compensator is combined with pressure compensator.

Flow compensator type	Pressure compensator	Differential pressure setting range bar (psi)	Standard setting bar (psi)
LS0 (■)	RPO	12 ÷ 40 (174 ÷ 580)	14 (203)
LS2 (◆)	RPO		
LS3 (●)	RPO		

(■): Suggested when the directional control valve does not have the bleed function

(◆): Y is plugged. Suggested when the directional control valve has the bleed function

(●): For remote pressure control.

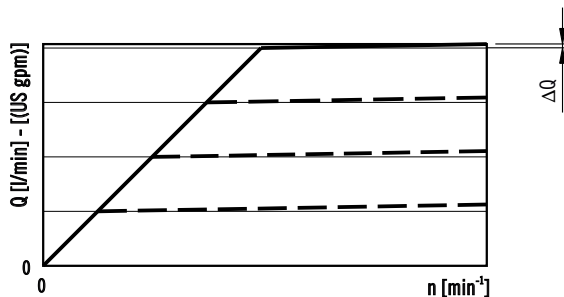
Pilot flow $\approx 1,3 \div 1,5$ l/min (0.34 ÷ 0.40 US gpm)

In standard setting conditions 14 bar (203 psi) the stand-by pressure is $15^{\pm 2}$ bar ($218^{\pm 29}$ psi).

OPERATING CURVES

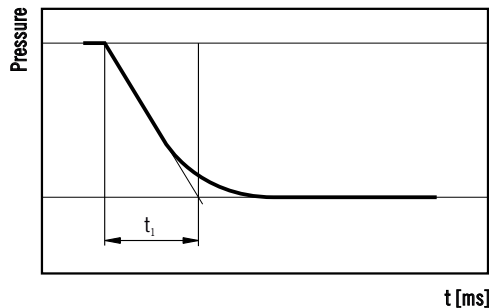
Curves have been obtained at the speed of 1500 min^{-1} and oil temperature 50°C (122°F).

Curve at variable speed



RESPONSE TIME

According to SAE J745 (using outlet pressure).

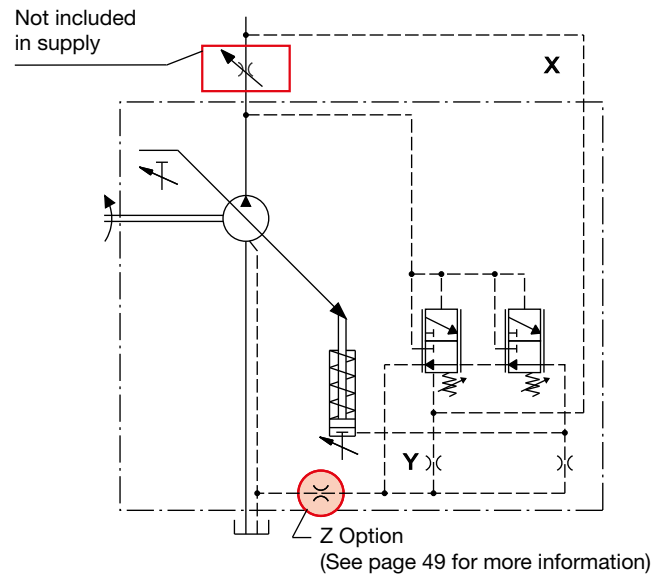


NOTES

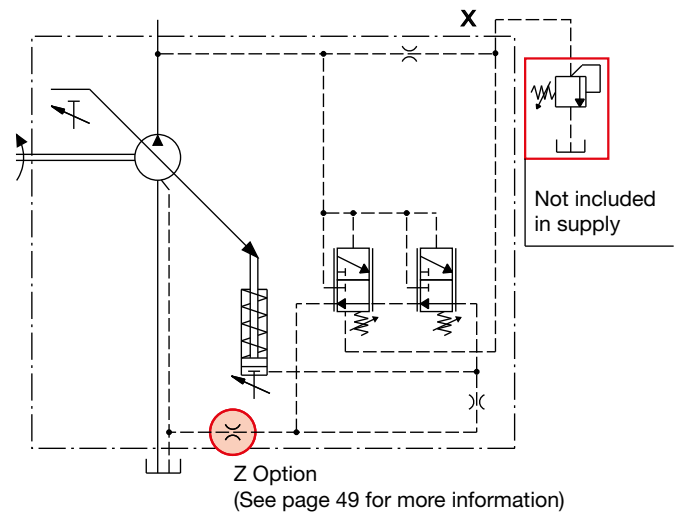
X: Load-sensing port. Dimensions at page 46 ÷ 48.
Available without pressure compensator RP.
Please contact us for more information.

LS0 (Bleed open) - LS2 (Bleed closed)

For LS2 configuration Y is plugged.



LS3 - Remote pressure compensator



ΔQ max

Pump type	l/min (US gpm)
MVP 30	0,9 (0.24)
MVP 48	1,7 (0.45)
MVP 60	2,5 (0.66)
MVP100	3,3 (0.87)

tᵢ

Pump type	Response time [ms] - (off stroke)
MVP 30	120
MVP 48	120
MVP 60	120
MVP100	130

According to SAE J745 (using outlet pressure)

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TORQUE LIMITER

RN

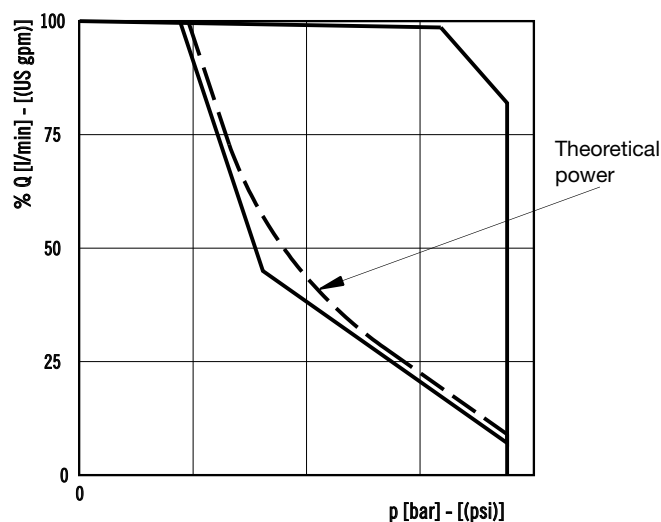
Regulates the pump displacement according to the system pressure, to maintain the pre-adjusted torque value and protect the prime mover from overload. To have the best torque limiter regulation, the pre-adjusted absorbed torque has to be higher than the value shown in the following table.

Pump type	Min. torque	Min. power (●)
	Nm (lbf in)	kW (HP)
MVP30	45 (398)	7.1 (9,5)
MVP48	61 (540)	9.6 (12,9)
MVP60	97 (859)	15.2 (20,4)
MVP100	140 (1239)	32.3 (43,3)

(●) @ 1500 min⁻¹

For lower torque setting values, the regulator limits the maximum working pressure to a value lower than the standard setting for the pressure regulator 280 bar (4060 psi). When ordering the torque limiter please specify the requested value of torque [eg. 70 Nm (620 lbf in)] or the requested power and speed [eg. 10 kW (13.4 HP) at 1500 min⁻¹].

OPERATING CURVES

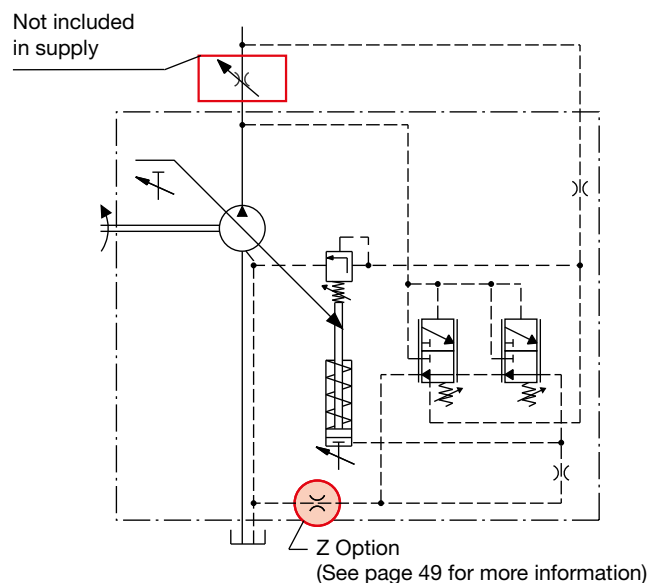


NOTES

X: Load-sensing port. Dimensions at page 46 ÷ 48
Available without pressure compensator RP.
Please contact us for more information.

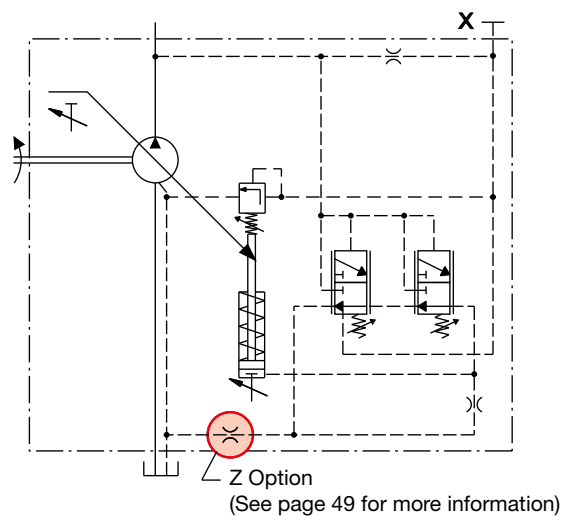
RN0 - Standard

Torque limitation for closed center valve.



RN1 - Internal pilot

Torque limitation for open center valve.



DUAL SETTING TORQUE LIMITER

RN2

Regulates the pump displacement automatically to maintain the torque below two fixed pre-adjusted limits. The electrically piloted valve allows to switch between the two different limits.

RN2-LS0 / RN2-LS2

For LS2 configuration Y is plugged.

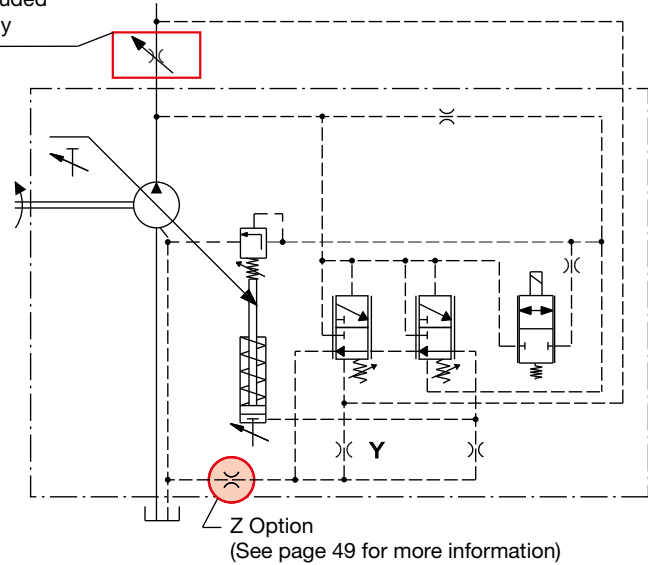
Pump type	Min. torque	Min. power (●)
	Nm (lbf in)	kW (HP)
MVP30	45 (398)	7.1 (9,5)
MVP48	61 (540)	9.6 (12,9)
MVP60	97 (859)	15.2 (20,4)
MVP100	140 (1239)	32.3 (43,3)

(●) @ 1500 min⁻¹

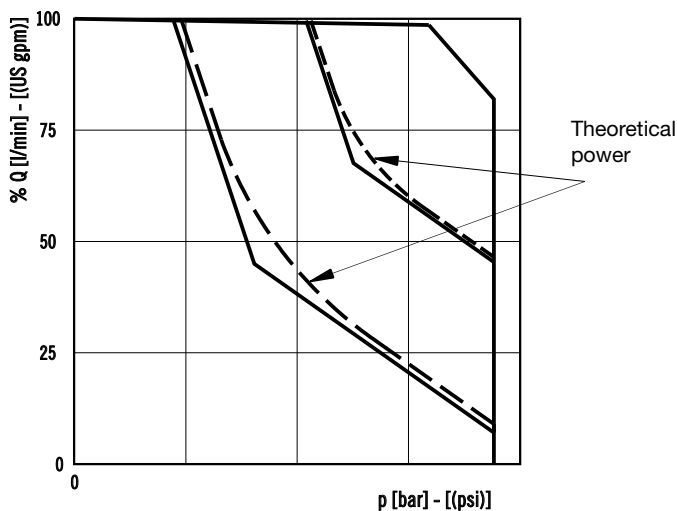
For lower torque setting values, the regulator limits the maximum working pressure to a value lower than the standard setting for the pressure regulator 280 bar (4060 psi).

When ordering the torque limiter please specify the requested value of torque [eg. 70 Nm (620 lbf in)] or the requested power and speed [eg. 10 kW (13.4 HP) at 1500 min⁻¹].

Not included in supply



OPERATING CURVES



NOTES

X: Load-sensing port. Dimensions at page 46 ÷ 48
Connectors availability at page 60.
Please contact us for more information.

VALVE FEATURES

Valve code	Arrangement	Voltage
1	Normally closed	12 V DC
2	Normally closed	24 V DC
6	Normally open	12 V DC
7	Normally open	24 V DC

09/10.2024

HIGH PERFORMANCE TORQUE LIMITER

RN3

Regulates the pump displacement according to the system pressure, to maintain the pre-adjusted torque value and protect the prime mover from overload.

This version is optimized for LS systems. With the standard torque limiter RN0, in case of a high flow through the LS main valve the torque absorbed by the pump can be slightly lower than the pre-adjusted torque value, resulting in a lower flow. The RN3 version grants the pre-adjusted torque value even at high flow through the LS main valve.

To have the best torque limiter regulation, the pre-adjusted absorbed torque has to be higher than the value shown in the following table.

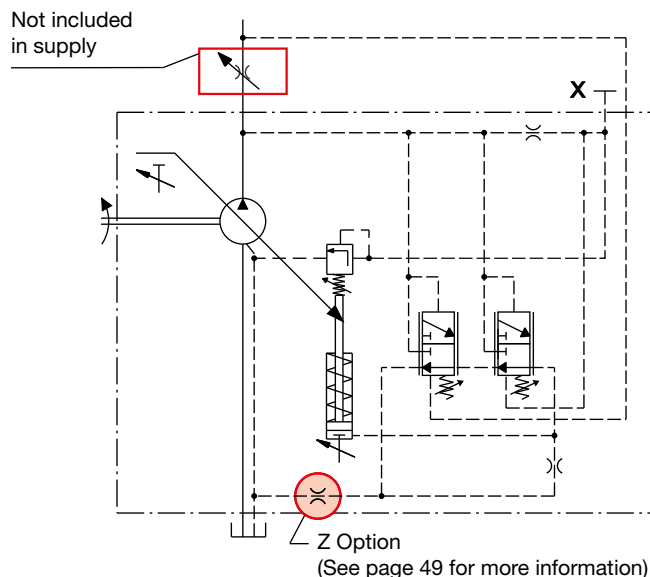
Pump type	Min. torque	Min. power (●)
	Nm (lbf in)	kW (HP)
MVP30	45 (398)	7.1 (9,5)
MVP48	61 (540)	9.6 (12,9)
MVP60	97 (859)	15.2 (20,4)
MVP100	140 (1239)	32.3 (43,3)

(●) @ 1500 min⁻¹

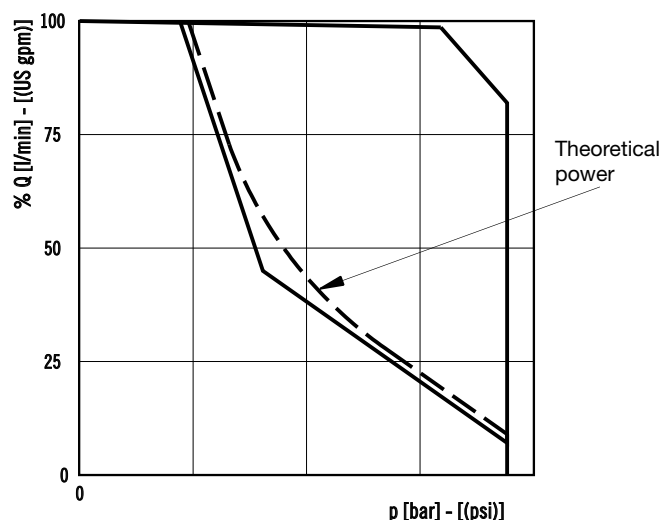
For lower torque setting values, the regulator limits the maximum working pressure to a value lower than the standard setting for the pressure regulator 280 bar (4060 psi).

When ordering the torque limiter please specify the requested value of torque [eg. 70 Nm (620 lbf in)] or the requested power and speed [eg. 10 kW (13.4 HP) at 1500 min⁻¹].

RN3 - Special version



OPERATING CURVES



NOTES

X: Load-sensing port. Dimensions at page 46 ÷ 48.

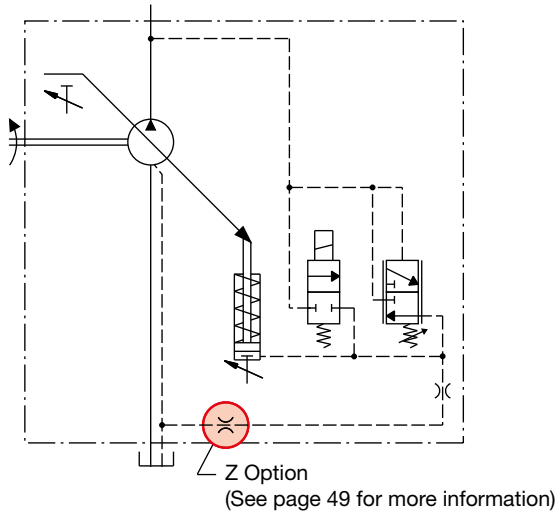
Available without pressure compensator RP.

Please contact us for more information.

UNLOADING VALVE

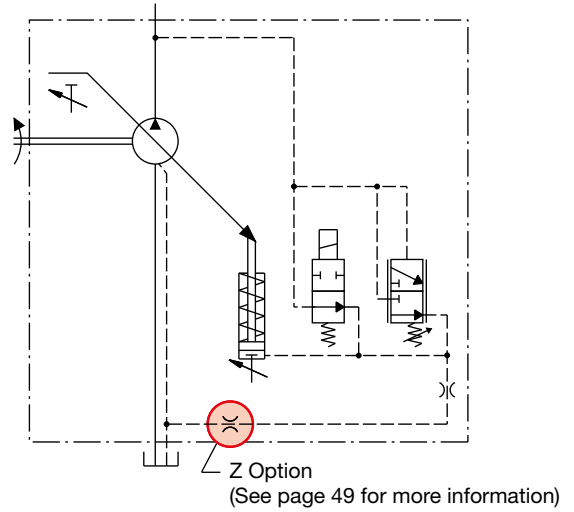
U..

NC (normally closed)



With the valve NC type (normally closed), energizing the solenoid valve the displacement is reset and the pump is unloaded.

NA (normally open)



With the valve NA type (normally open), energizing the solenoid valve the pump works at the maximum displacement.

VALVE FEATURES

Valve code	Arrangement	Voltage
U1	Normally closed	12 V DC
U2	Normally closed	24 V DC
U6	Normally open	12 V DC
U7	Normally open	24 V DC

NOTES

Available without pressure compensator RP.
Connectors available at page 60.
Please contact us for other connectors and more information.

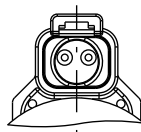
09/10.2024

CONNECTORS

CONNECTOR: Deutsch DT04-2P

D

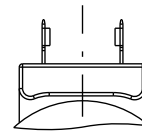
Protection: IP69K with mating connector mounted



CONNECTOR: DIN 43650

S

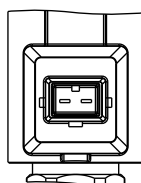
Protection: IP65 with mating connector mounted



CONNECTOR: Junior Timer

JT

Protection: IP67 with mating connector mounted



COIL FEATURES

REGULATOR: PEC - PECA

Connector type	D (Deutsch DT04-2P) - S (DIN 43650) - JT (Junior timer)	
Voltage	12 V DC	24 V DC
Resistance @ 20 °C (68 °F)	4,9 Ω	17,1 Ω
Dither frequency	150 Hz	150 Hz
Dither amplitude	200 mA peak to peak	100 mA peak to peak
Operating temperature	-30 ÷ 110 °C (-22 ÷ 230 °F)	-30 ÷ 110 °C (-22 ÷ 230 °F)

REGULATORS: DEC - TEC

Connector type	D (Deutsch DT04-2P) - S (DIN 43650) - JT (Junior timer)	
Voltage	12 V DC	24 V DC
Resistance @ 20 °C (68 °F)	5,5 ± 3% Ω	21,33 ± 5% Ω
Dither frequency	150 Hz	150 Hz
Dither amplitude	200 mA peak to peak	100 mA peak to peak
Operating temperature	-30 ÷ 110 °C (-22 ÷ 230 °F)	-30 ÷ 110 °C (-22 ÷ 230 °F)

REGULATORS: RP2 - RN2 - U...

Connector type	D (Deutsch DT04-2P) - S (DIN 43650) - JT (Junior timer)	
Voltage	12 V DC	24 V DC
Resistance @ 20 °C (68 °F)	7,5 Ω	30 Ω
Dither frequency	150 Hz	150 Hz
Operating temperature	-30 ÷ 110 °C (-22 ÷ 230 °F)	-30 ÷ 110 °C (-22 ÷ 230 °F)

09/10.2024

SWIVEL ANGULAR SENSOR MVP SERIES

The swivel angular sensor converts the actual position of the swashplate into a voltage output signal that can be used for different purposes.

Application: Non-contact swashplate position measurement (for example for electronic torque regulation in CS torque control).

Electrical characteristics

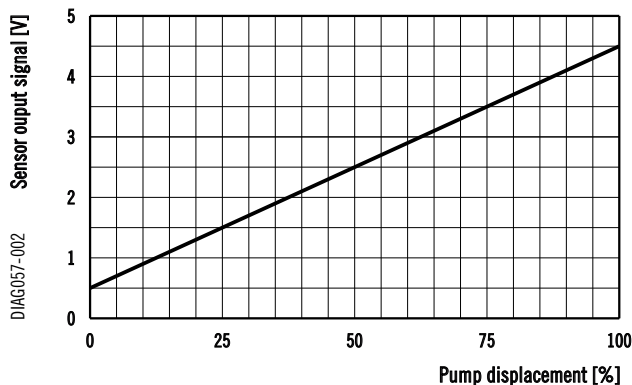
Power supply	8 ÷ 30 V DC
Operating temperature	-40 ÷ 125 °C (-40 ÷ 257 °F)
Cable lenght	150 mm (5.91 in)
Angular resolution	12 bit
Output signal	0,5 ÷ 4,5 V
Cable	4-core, 0,34 mm ² (0.0005 in ²) unshielded
Current consumption	< 40 mA
Short circuit immunity	Output against ground Output against Vbb
Reverse polarity protection	Power supply lines
EMC protection	
Radiated emission	Reference standards: UNI EN 14982 • Frequency range: 30 MHz ÷ 1 GHz
Radiated immunity	Reference standards: ISO11452-2 • Frequency range: 200 MHz ÷ 2 GHz • Test level: 100 V/m
Load dump protection	Reference standards: ISO 7637-2 • Test level: 123 V
Electrostatic discharge	Reference standards: ISO 10605 • ±4, ±6, ±8 kV (Contact discharge) • ±4, ±6, ±8, ±15 kV (Indirect discharge) • ±4, ±6, ±8, ±15 kV (Air discharge)

Environmental resistance

Random noise	Reference standards: EN 60068-2-64 • ASD= 0,1 g ² (RMS 3,3 g) • f= 10 ÷ 1000 Hz • Duration per axis (xyz): 8 h
Mechanical shock	Reference standards: EN 60068-2-29 • Type of shock: Half sine • Acceleration amplitude: = 40 g • Shock duration: 6 ms • 100 positive shocks for each axis • 100 negative shocks for each axis
IP67 protection	Reference standards: EN 60529
IP6K9K protection	Reference standards: ISO 20653
Temperature cycle test	Reference standards: ISO 16750-4 • Temperature: -40 ÷ 125 °C (-40 ÷ 257 °F) • Number of cycles: 30
Temperature shock test	Reference standards: ISO 16750-4 • 60 min @ -40 °C • 20 min @ 125 °C • Number of cycles: 20
Low temperature test	Reference standards: ISO 16750-4 • Temperature: -40° C (-40 °F) • Test duration: 24 h
High temperature test	Reference standards: ISO 16750-4 • Temperature: 125 °C (257 °F) • Test duration: 48 h

Output signal

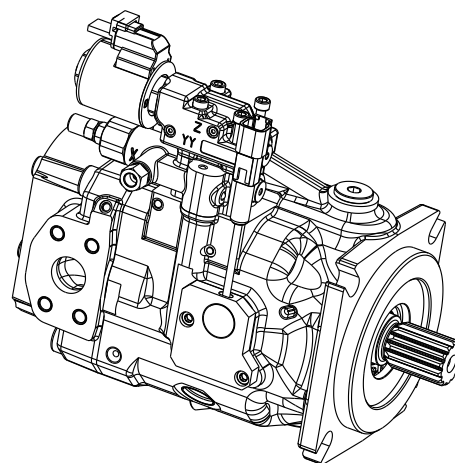
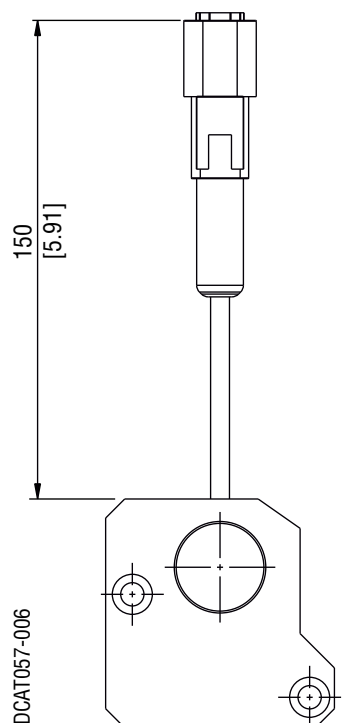
Output signal is proportional to swashplate angular position



SWIVEL ANGULAR SENSOR MVP SERIES

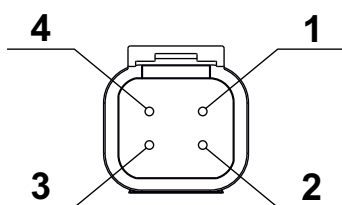
Mounting position

For more information please refer to the technical catalogue.



Connector type

4 pin DTM04-4P – Secondary lock WM-4P



Pin	Function
1	Power supply / V DC
2	Signal
3	Ground
4	Vprog

Mating Connector: DTM06-4S with secondary lock WM-4S

10/12.2025

NOTES

10/10.2025

MULTIPLE PUMPS WITH THROUGH DRIVE

THROUGH DRIVE

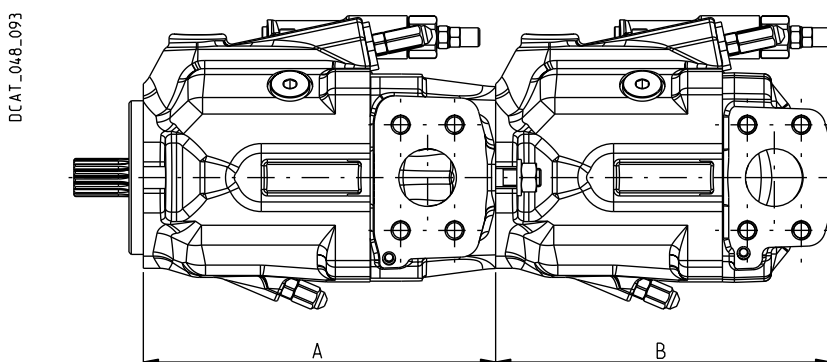
MVP through drive axial piston pumps offer the flexibility to obtain different groups able to supply several hydraulic systems. The operating characteristics of each assembled pumps are the same as the corresponding single pumps according to the following conditions:

- 1) Do not exceed the maximum transmissible torque.
- 2) The maximum rotational speed is that of the lowest rated speed of the single unit incorporated.

M	Nm (lbf in)	Torque
V	cm ³ /rev (in ³ /rev)	Displacement
Δp	bar (psi)	Pressure
$\eta_{hm} = \eta_{hm}(V, \Delta p, n)$		Hydro-mechanical efficiency

$$M = \frac{\Delta p \text{ (bar)} \cdot V \text{ (cm}^3\text{/rev)}}{62,83 \cdot \eta_{hm}} \quad [\text{Nm}]$$

Notes: The torque absorbed from the shaft of the first pump results from the sum of the torques due to all the single stages. The achieved value must not exceed the maximum torque limit given for the shaft of the first pump.



- A:** Front section (through drive)
B: MVP Rear pump (the same of single pump with side or rear ports)
 Gear rear pump are also available, please see the respective technical catalogues.

09/10.2024

Pump type	A	
	Flanged for	Code
MVP30	SAE A	AS1
	SAE B	AS5
MVP48	SAE B	AS5
MVP60	SAE B	AS5
MVP100	SAE A	AS1
	SAE B	AS5
	SAE C	AS7

MVP30

FRONT SECTION - DIMENSIONS

AS1

Through drive SAE A

Drive shafts: see page 38

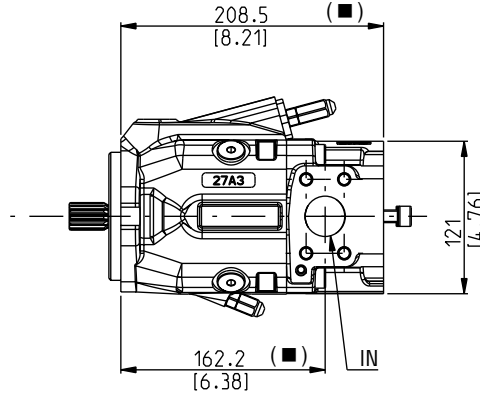
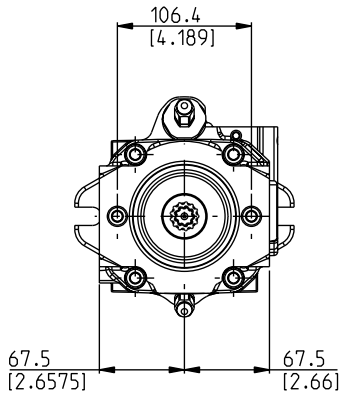
Mounting flanges: see page 42

Ports: see pages 46 ÷ 48

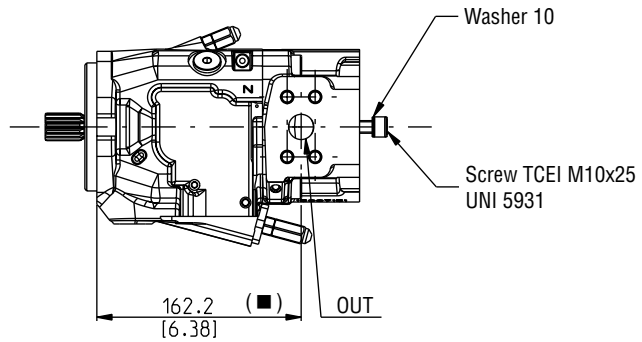
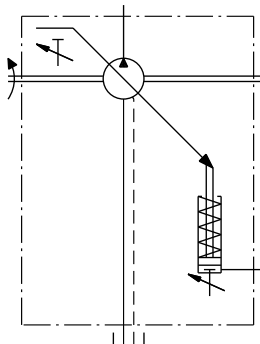
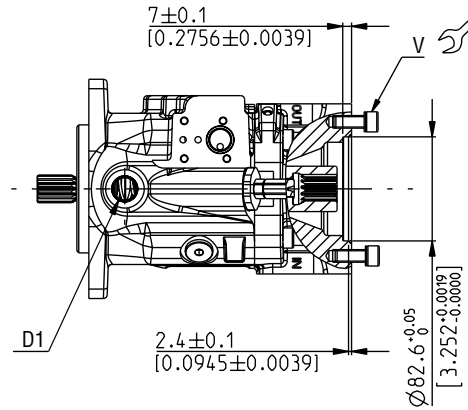
(■)

Dimension refer to S5 mounting flange.
For S1 flange add 27mm (1.06 in).

The drawing shows a front section with
clockwise rotation



DCAT_048_103



Screws tightening torque Nm (lbf in)

V

70 ±7
(558 ÷ 682)

07/03.2022

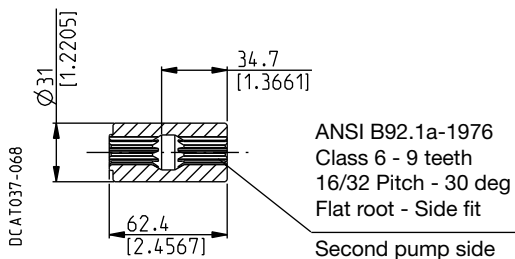
MVP30

COUPLINGS - DIMENSIONS

SAE "A" SPLINE

03

Available with flange code **AS1**

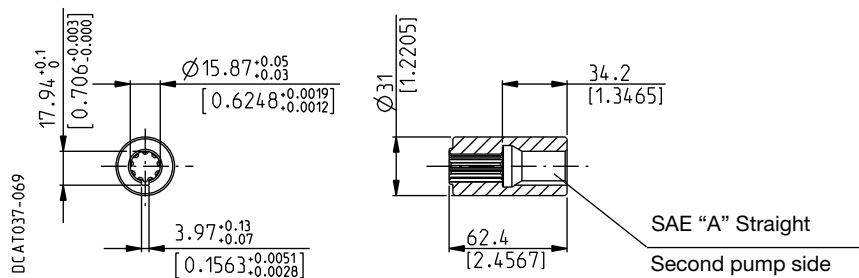


MAX 100 Nm (885 lbf in)

SAE "A" STRAIGHT

31

Available with flange code **AS1**



MAX 70 Nm (620 lbf in)

05/10.2014

MVP30

FRONT SECTION - DIMENSIONS

AS5

Through drive SAE B

Drive shafts: see page 38

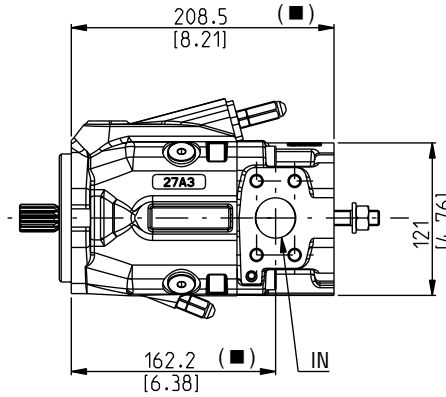
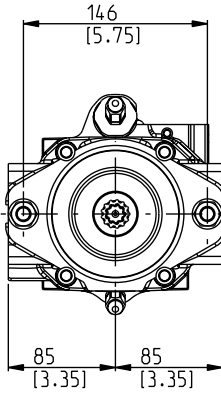
Mounting flanges: see page 42

Ports: see pages 46 ÷ 48

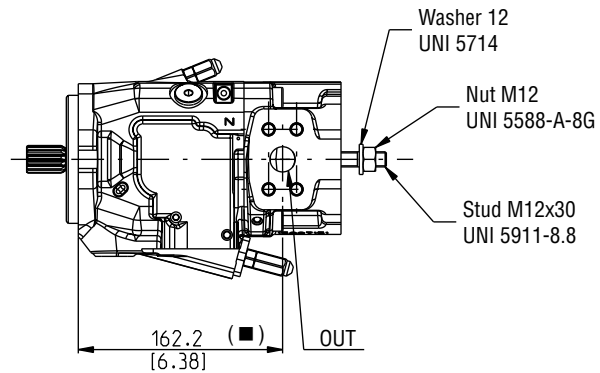
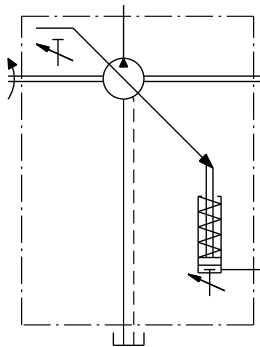
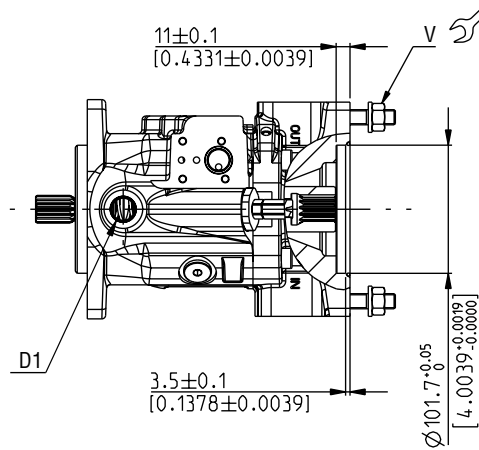
(■)

Dimension refer to S5 mounting flange.
For S1 flange add 27mm (1.06 in).

The drawing shows a front section with
clockwise rotation



DCAT_048_062



Screws tightening torque Nm (lbf in)

V

100 ±10
(797 ÷ 974)

07/03.2022

COUPLINGS - DIMENSIONS

04

DCA1037-070
 Ø 36
 [1.4, 173]
 34.8
 [1.37, 01]
 62.4
 [2.45, 67]
 ANSI B92.1a-1976
 Class 6 - 13 teeth
 16/32 Pitch - 30 deg
 Flat root - Side fit
 Second pump side

32

DCAT037-071

25.21^{+0.1}₋₀
[0.9925, 0.0039]
[0.0000]

6.35^{+0.13}_{-0.07}
[0.25, 0.0051]
[0.0028]

Ø22.22^{+0.05}_{-0.03}
[0.8748, 0.0019]
[0.0012]

Ø36
[1.4, 1.73]

35.9
[1.4, 1.34]

62.4
[2.45, 6.7]

SAE "B" Straight
Second pump side

05/10.2014

MVP48

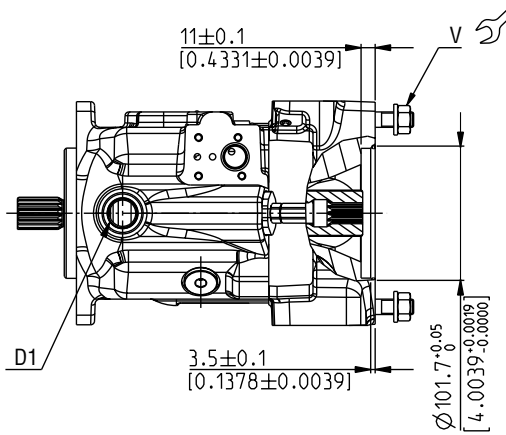
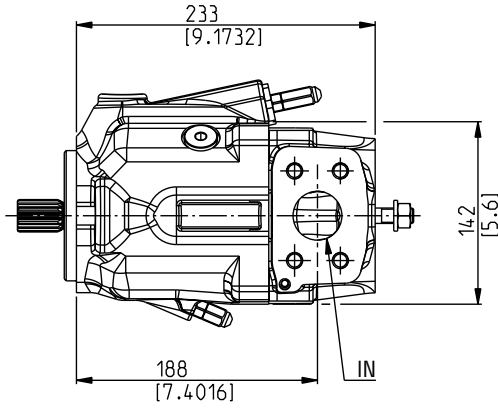
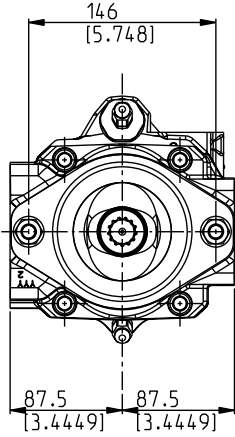
FRONT SECTION - DIMENSIONS

AS5

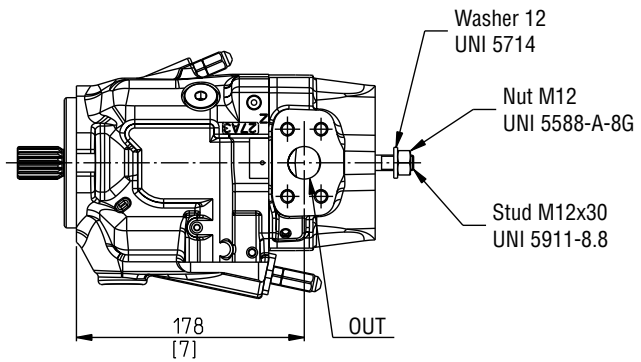
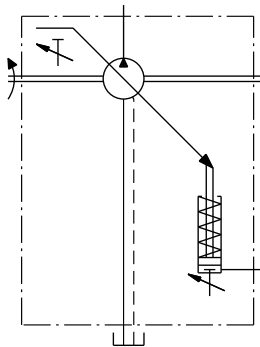
Through drive SAE B

Drive shafts: see page 39
Mounting flanges: see page 42
Ports: see pages 46 ÷ 48

The drawing shows a front section with clockwise rotation



DCAT_048_038



Screws tightening torque Nm (lbf in)

V

100 ±10
(797 ÷ 974)

06/06.2020

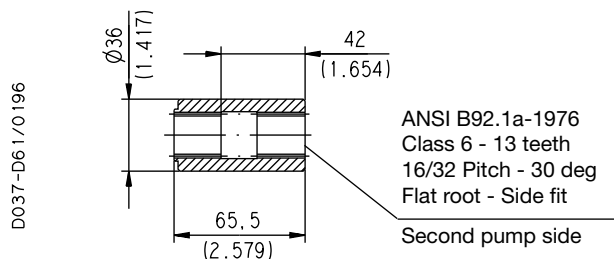
MVP48

COUPLINGS - DIMENSIONS

SAE "B" SPLINE

04

Available with flange code **AS5**

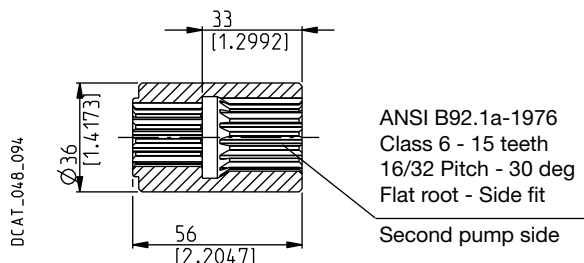


MAX 200 Nm (1770 lbf in)

SAE "BB" SPLINE

05

Available with flange code **AS5**

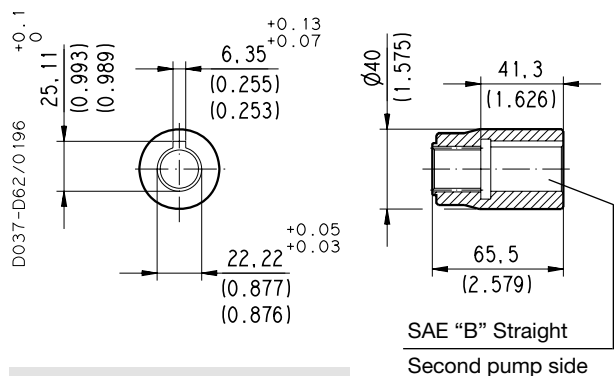


MAX 250 Nm (2213 lbf in)

SAE "B" STRAIGHT

32

Available with flange code **AS5**

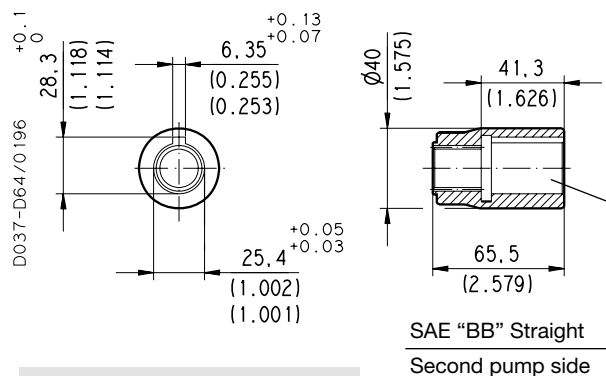


MAX 250 Nm (2213 lbf in)

SAE "BB" STRAIGHT

33

Available with flange code **AS5**



MAX 250 Nm (2213 lbf in)

05/10.2014

MVP60

FRONT SECTION - DIMENSIONS

AS5

Through drive SAE B

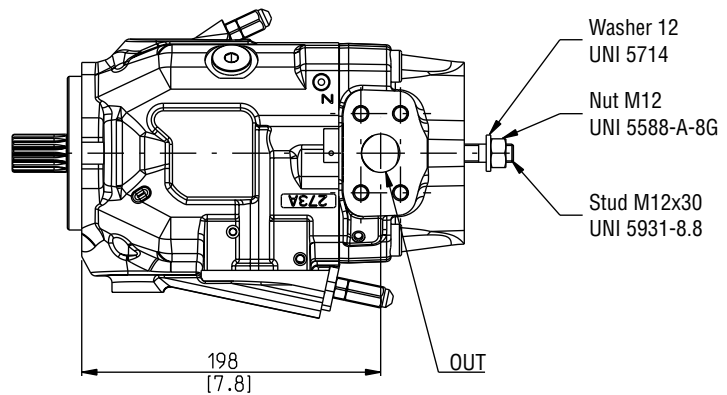
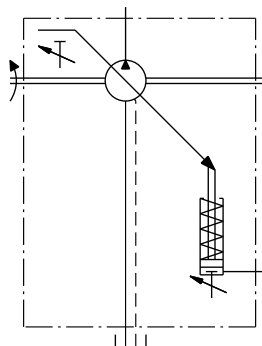
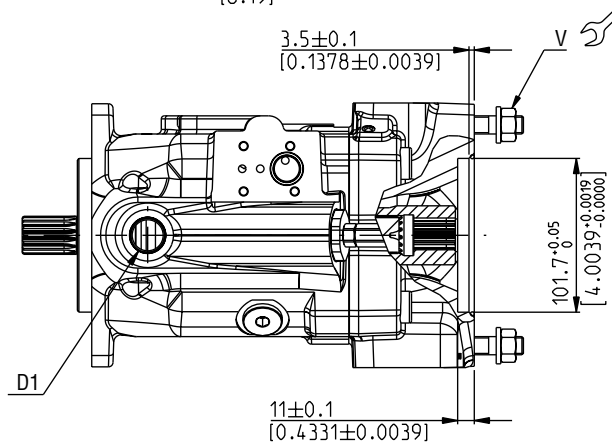
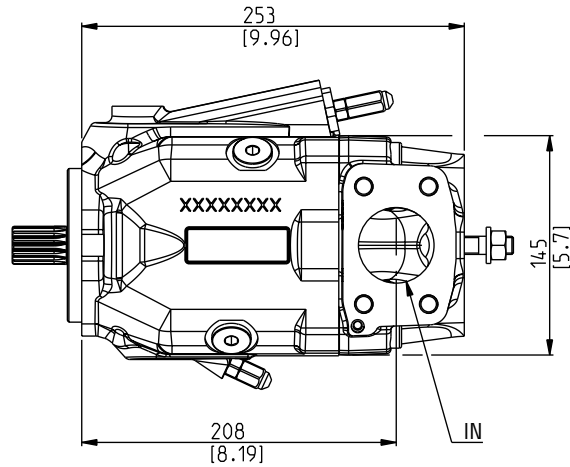
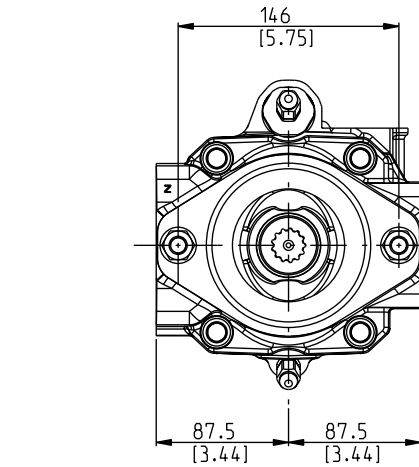
Drive shafts: see page 40

Mounting flanges: see pages 42 ÷ 43

Ports: see pages 46 ÷ 48

The drawing shows a front section with clockwise rotation

DCAT_048_040



Screws tightening torque Nm (lbf in)

V

100 ±10
(797 ÷ 974)

06/06.2020

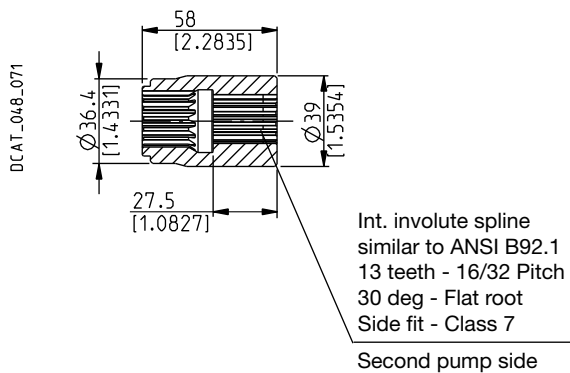
MVP60

COUPLINGS - DIMENSIONS

SAE "B" SPLINE

04

Available with flange code **AS5**

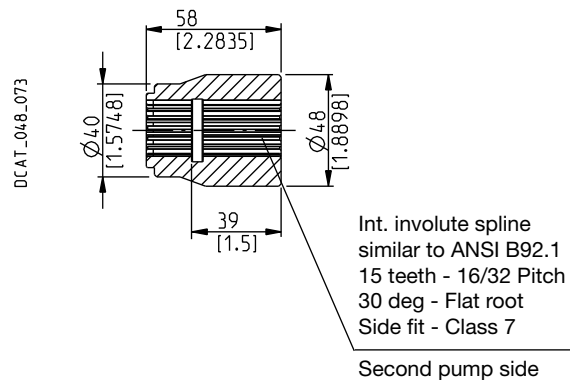


MAX 200 Nm (1770 lbf in)

SAE "BB" SPLINE

05

Available with flange code **AS5**

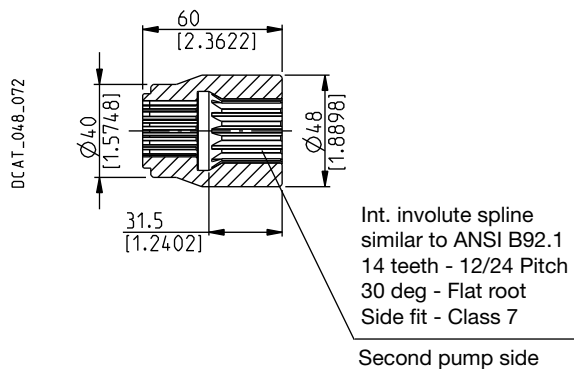


MAX 250 Nm (2213 lbf in)

SAE "C" SPLINE

06

Available with flange code **AS5**



MAX 430 Nm (3806 lbf in)

05/10.2014

MVP100

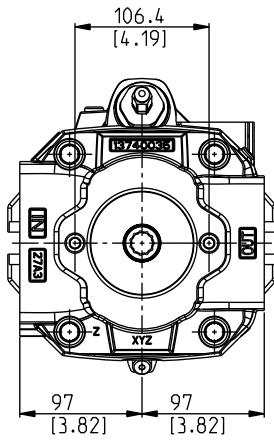
FRONT SECTION - DIMENSIONS

AS1

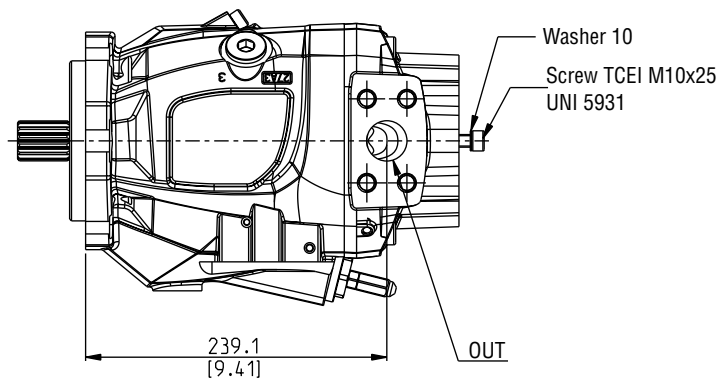
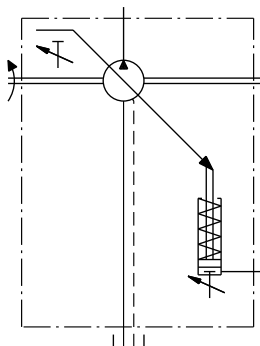
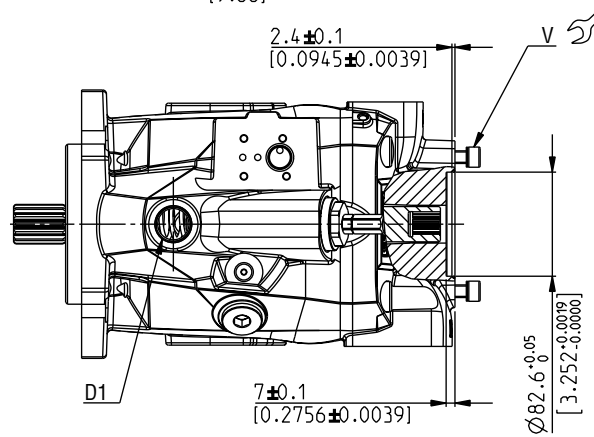
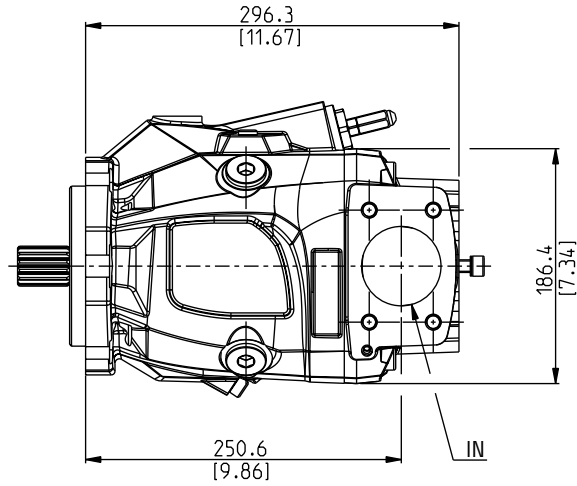
Through drive SAE A

Drive shafts: see page 41
Mounting flanges: see page 44
Ports: see pages 46 ÷ 48

The drawing shows a front section with clockwise rotation



DCAT_048_127



Screws tightening torque Nm (lbf in)

V

70 ±7
(558 ÷ 682)

09/10.2024

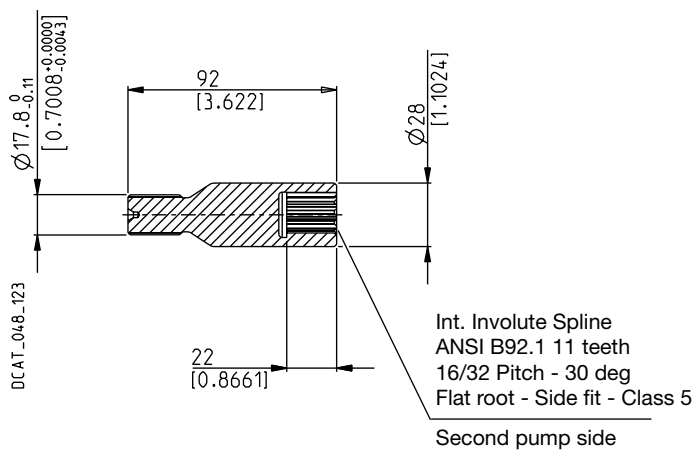
MVP100

COUPLINGS - DIMENSIONS

SAE SPLINE

07

Available with flange code **AS1**



MAX 170 Nm (1505 lbf in)

09/10.2024

MVP100

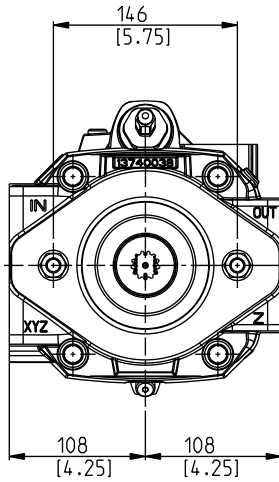
FRONT SECTION - DIMENSIONS

AS5

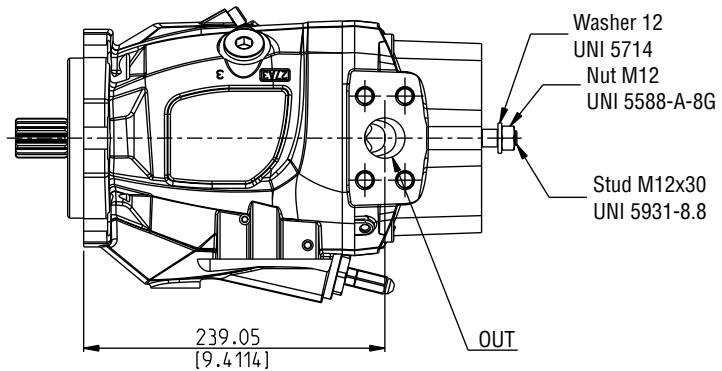
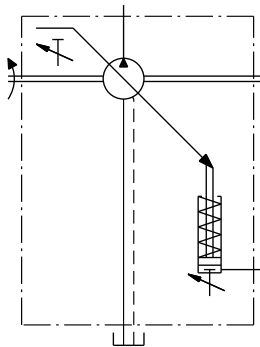
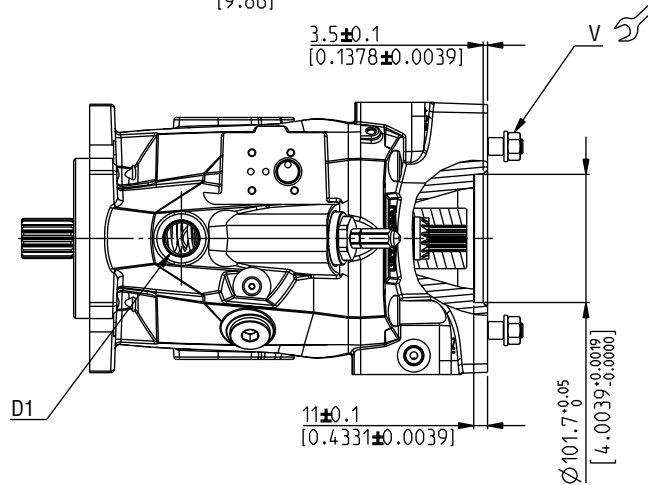
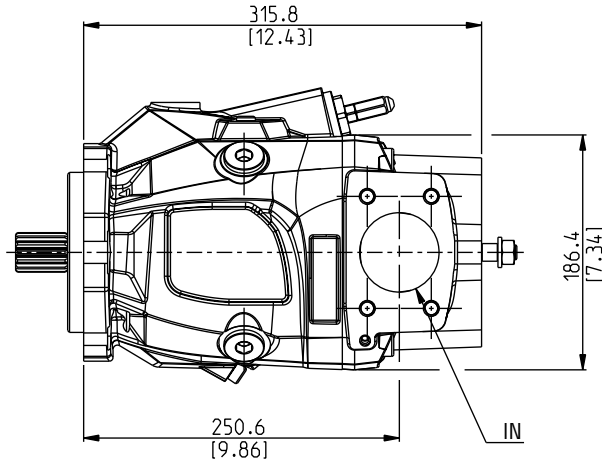
Through drive SAE B

Drive shafts: see page 41
Mounting flanges: see page 44
Ports: see pages 46 ÷ 48

The drawing shows a front section with clockwise rotation



DCAT_048_128



Screws tightening torque Nm (lbf in)

V

100 ±10
(797 ÷ 974)

09/10.2024

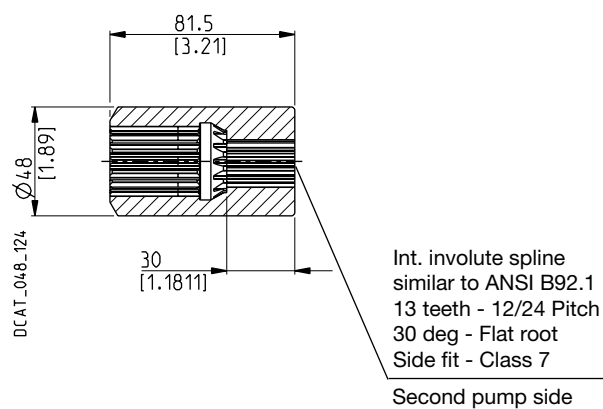
MVP100

COUPLINGS - DIMENSIONS

SAE "B" SPLINE

04

Available with flange code **AS5**



MAX 200 Nm (1770 lbf in)

09/10.2024

MVP100

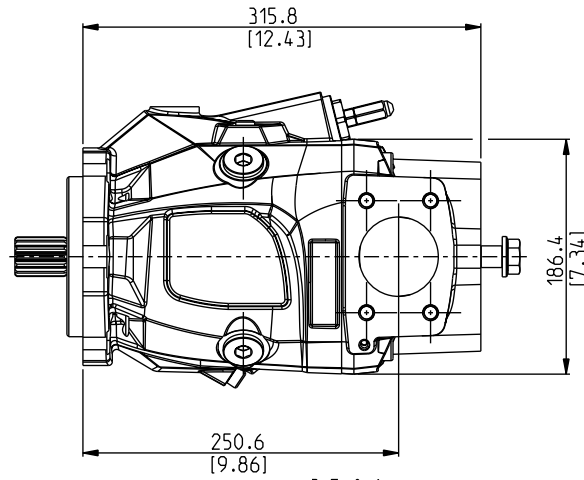
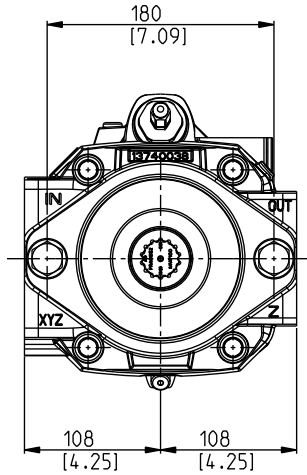
FRONT SECTION - DIMENSIONS

AS7

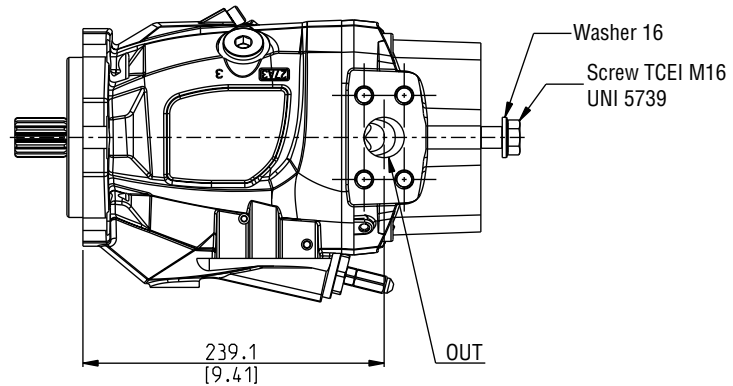
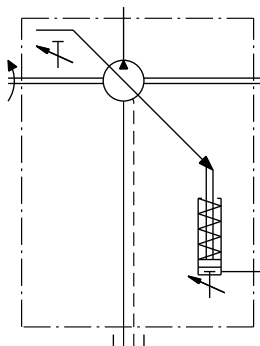
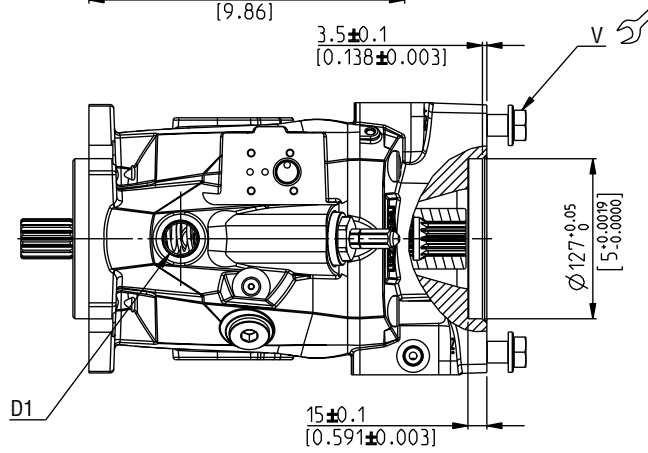
Through drive SAE C

Drive shafts: see page 41
Mounting flanges: see page 44
Ports: see pages 46 ÷ 48

The drawing shows a front section with clockwise rotation



DCAT_048_129



Screws tightening torque Nm (lbf in)

V

140 ±14
(1115 ÷ 1363)

09/10.2024

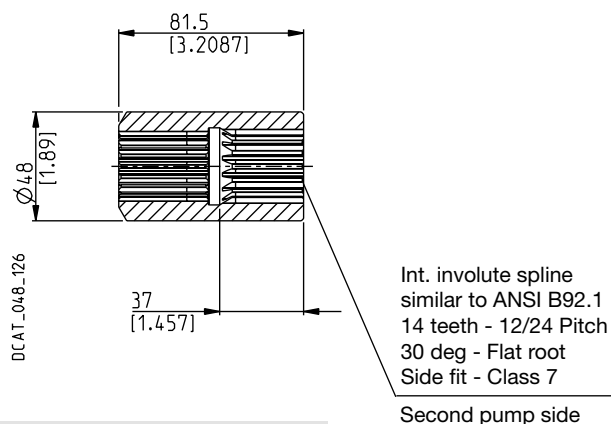
MVP100

COUPLINGS - DIMENSIONS

SAE "C" SPLINE

06

Available with flange code **AS7**

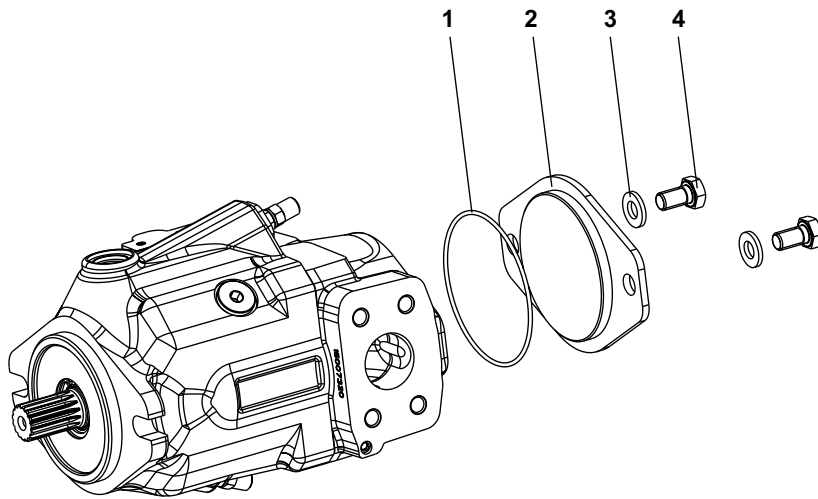


MAX 430 Nm (3806 lbf in)

09/10.2024

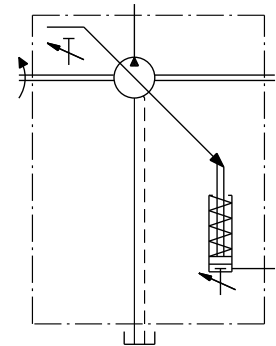
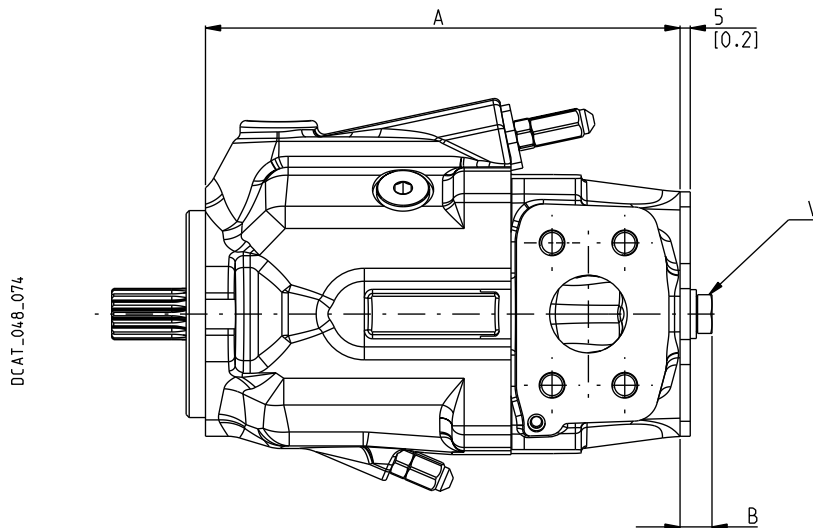
FRONT SECTION KIT COVER

Kit cover is available to obtain single pumps starting from the front sections of multiple pumps.
Before closing the intermediate flange check that the coupling has been removed.



Kit part brake down

- 1 - Seal
- 2 - Flange
- 3 - Washers
- 4 - Screws



Pump type	Flanged for	Code	Front section		Code
			A	B	
			mm (in)	mm (in)	
MVP30	SAE A	AS1	236 (9.2913)	14 (0.5512)	62100006
MVP100			154 (6.0630)	14 (0.5512)	
MVP30			209 (8.2283)		
MVP48	SAE B	AS5	233 (9.1732)	16 (0.6299)	62100007
MVP60			253 (9.9606)		
MVP100			154 (6.0630)		
MVP100	SAE C	AS7	154 (6.0630)	19 (0.7480)	62100008

Screws tightening torque Nm (lbf in)

V
20 ±1
(159 ÷ 195)

09/10.2024

HOW TO ORDER SINGLE PUMPS

1	2	3	4	5	6	7	8 ...				
MVP30-28	S	-	04	S5	-	L	MD/MB	-	N	-	...

1	Pump type (max. displacement)	Code
	28 cm³/rev (1.74 in³/rev)	MVP 30-28
	34,8 cm³/rev (2.12 in³/rev)	MVP 30-34
	45 cm³/rev (2.75 in³/rev)	MVP 48-45
	53,7 cm³/rev (3.28 in³/rev)	MVP 48-53
	60 cm³/rev (3.66 in³/rev)	MVP 60-60
	72 cm³/rev (4.39 in³/rev)	MVP 60-72
	84,7 cm³/rev (5.17 in³/rev)	MVP 60-84
	100 cm³/rev (6.10 in³/rev)	MVP 100-100
	115 cm³/rev (7.02 in³/rev)	MVP 100-115

2	Rotation	Code
	Anti-clockwise	S
	Clockwise	D

3	Drive shaft (a)	Code
	SAE "A" spline (9 teeth)	03
	SAE spline (11 teeth)	07
	SAE "B" spline (13 teeth)	04
	SAE "B" spline (13 teeth)	4R
	SAE "B" straight	32
	SAE "BB" spline (15 teeth)	05
	SAE "BB" spline (15 teeth)	5R
	SAE "C" spline (14 teeth)	06
	SAE "C" straight	34
	SAE "CC" spline (17 teeth)	HM
	SAE "CC" spline (17 teeth)	HK
	SAE "D" spline (13 teeth)	HJ
	SAE "D" spline (13 teeth)	HI

4	Mounting flange (a)	Code
	SAE "A" 2 holes	S1
	SAE "B" 2 holes	S5
	SAE "C" 2 holes	S7
	SAE "C" 4 holes - 6 holes	S8

5	Ports position	Code
	Side	L
	Rear	P

Code	Inlet/outlet ports		6
	Nominal size		
	Inlet IN	Outlet OUT	Pump type
	SAE 3000	SAE 3000/6000	
SAE FLANGED PORTS METRIC THREAD (SSM)			
MD/MB	1" 1/4	3/4"	MVP 30
ME/MC	1" 1/2	1"	MVP 48
MF/MC	2"	1"	MVP 60
MG/QD	2" 1/2	1" 1/4	MVP 100
SAE FLANGED PORTS UNC THREAD (SSS)			
SD/SB	1" 1/4	3/4"	MVP 30
SE/SC	1" 1/2	1"	MVP 48
SF/SC	2"	1"	MVP 60
SG/VD	2" 1/2	1" 1/4	MVP 100
SAE STRAIGHT THREAD PORTS (ODT)			
OG/OD (b)	1" 1/4	3/4"	MVP 30
OH/OF (b)	1" 1/2	1"	MVP 48
MF/OF (b)	2"	1"	MVP 60

Code	Seals	7
N	Buna (standard)	
V	Viton	

Code	Regulators	8
...	See how to order on page 79 ÷ 81	

- (a) Drive shafts availability at pages 38 ÷ 41 and mounting flanges availability at pages 42 ÷ 44
- (b) Only for rear ports

09/10.2024

HOW TO ORDER REGULATORS

PRESSURE COMPENSATORS - FLOW COMPENSATORS (Load-sensing)

	8	9	10	11	12	13	14	15
Pressure compensator	RP0	-				Z	- G	- DP
Pressure compensator (High pressure/frequency)	RP1	-				Z	- G	- DP
Pressure compensator with flow control	RP1	-		LS2	- SA	- Z	- G	- DP
Dual setting pressure compensator	RP2	- 1	- S	-		Z	- G	- DP
Dual setting pressure compensator with flow control	RP2	- 1	- S	- LS2	- SA	- Z	- G	- DP
Flow compensator (Bleed open)				LS0	- SA	- Z	- G	- DP
Flow compensator (Bleed closed)				LS2	- SA	- Z	- G	- DP
Pressure compensator for remote control				LS3	-	Z	- G	- DP

Replaces: 09/10.2024

8	Pressure control option	Code
	Pressure compensator	RP0
	Pressure compensator (High pressure/frequency)	RP1
	Dual setting pressure compensator	RP2

9	Valve type	Code
	Normally closed 12 V DC	1
	Normally closed 24 V DC	2
	Normally open 12 V DC	6
	Normally open 24 V DC	7

10	Connector type	Code
	Deutsch DT04-2P+	D
	DIN 43650	S
	Junior timer	JT

11	Flow control option	Code
	Flow compensator	LS0
	Flow compensator for remote control	LS2
	Pressure compensator for remote control	LS3

Code	 Angular sensor option	12
	Without angular sensor (standard - no code)	
SA	Angular sensor	

Code	Restrictor option	13
	Without restrictor (standard - no code)	
Z	Damping restrictor (only for critical applications)	

Code	Displacement limiter	14
E	Max. displacement limiter	
G	Min. and Max. displacement limiter	

Code	Double shaft seal option	15
	Without double shaft seal (standard - no code)	
DP	Double shaft seal (availability at page 11)	

 10/12.2025

ORDER EXAMPLE

MVP60 pump with dual setting pressure compensator:

MVP60.60S-05S5-LMF/MC-N-RP2-1-S-G-DP

HOW TO ORDER REGULATORS

PRESSURE ELECTRONIC COMPENSATORS

	8	9	10	11	12	13	14	15	16	17
Pressure electronic compensator	PEC	- 1	- A	-	...	/ ...	- D	-	G	- DP
Pressure electronic compensator with flow control	PEC	- 1	- A	- LS0	- ...	/ ...	- D	- Z	- G	- DP
	PEC	- 1	- A	- LS2	- ...	/ ...	- D	- Z	- G	- DP
Pressure electronic compensator plus angular sensor with flow control	PECA	- 1	- A	- LS0	- ...	...	- D	- Z	- G	- DP
	PECA	- 1	- A	- LS2	- ...	...	- D	- Z	- G	- DP

8	Regulators type	Code
	Pressure electronic compensator	PEC
	Pressure electronic compensator and swashplate angular sensor	PECA

9	Valve type	Available for	Code
	Normally closed 12 V		1
	Normally closed 24 V		2

10	Position	Code
	Position 0°	A
	Position 90°	B

11	Flow control option	Code
	Flow compensator (Bleed open)	LS0
	Flow compensator (Bleed closed)	LS2

12	Min. pressure setting	Code
	Please specify the requested value in bar	...

13	Max. pressure setting	Code
	Please specify the requested value in bar	...

Code	Connector type	14
D	Deutsch DT04-2P	
S	DIN 43650	
JT	Junior timer	

Code	Restrictor option	15
	Without restrictor (standard - no code)	
Z	Damping restrictor (only for critical applications)	

Code	Displacement limiter	16
E	Max. displacement limiter	
G	Min. and Max. displacement limiter	

Code	Double shaft seal option	17
	Without double shaft seal (standard - no code)	
DP	Double shaft seal (availability at page 11)	

ORDER EXAMPLE

MVP60 pump with PEC compensator with flow control:

MVP60.60S-05S5-LMF/MC-N-PEC-1-D-A-LS2-Z-G-DP

HOW TO ORDER REGULATORS

ELECTRO-PROPORTIONAL DISPLACEMENT COMPENSATORS - UNLOADING VALVES

	8	9	10	11	12	13	14	15	16
Electro-proportional displacement compensator	DEC	-	1	D	RP0	Z	SA	G	DP
	DEC	-	1	D	LS0	Z	SA	G	DP
	DEC	-	1	D	LS2	Z	SA	G	DP
Electro-proportional torque compensator	TEC	H1	1	D	RP0	Z	SA	G	DP
	TEC	H1	1	D	LS0	Z	SA	G	DP
	TEC	H1	1	D	LS2	Z	SA	G	DP
Unloading valve	U..	-	1	S	-	Z	SA	G	DP

8	Regulators type	Code
	Electro-proportional displacement compensator	DEC
	Electro-proportional torque compensator	TEC
	Unloading valve	U

9	Torque range	Code
	Values at page 55	H1
	Values at page 55	H2
	Values at page 55	H3
	Values at page 55	H4
	Values at page 55	H5

10	Valve type	Code
	Normally closed 12 V	1
	Normally closed 24 V	2
	Normally open 12 V	6
	Normally open 24 V	7

11	Connector type	Code
	Deutsch DT04-2P	D
	DIN 43650	S
	Junior timer	JT

Code	Flow control option	12
LS0	Flow compensator (Bleed open) + RP0	
LS2	Flow compensator (Bleed closed) + RP0	
RP0	No flow compensator	

Code	Restrictor option	13
	Without restrictor (standard - no code)	
Z	Damping restrictor (only for critical applications)	

Code	Angular sensor option	14
SA	Angular sensor (Only for MVP100)	

Code	Displacement limiter	15
E	Max. displacement limiter	
G	Min. and Max. displacement limiter	

Code	Double shaft seal option	16
	Without double shaft seal (standard - no code)	
DP	Double shaft seal (availability at page 11)	

ORDER EXAMPLE

MVP60 pump with electro-proportional displacement compensator and flow control:

MVP60.60S-05S5-LMF/MC-N-DEC-1-D-LS0-G-DP

HOW TO ORDER REGULATORS

TORQUE LIMITERS

	8	9	10	11	12	13	14	15	16	17
Torque limiter - standard	RN0 -				Z -	G -	DP -	... /		...
Torque limiter - internal pilot	RN1 -				Z -	G -	DP -	... /		...
Dual setting torque limiter with flow control	RN2 -	1 -	S -	LS0 -	Z -	G -	DP -	... /	... /	...
	RN2 -	1 -	S -	LS2 -	Z -	G -	DP -	... /	... /	...
High performance torque limiter	RN3 -			LS0 -	Z -	G -	DP -	... /		...
	RN3 -			LS2 -	Z -	G -	DP -	... /		...

8	Regulators type	Code
	Torque limiter - standard	RN0
	Torque limiter - internal pilot	RN1
	Dual setting torque limiter with flow control	RN2
	High performance torque limiter	RN3

9	Valve type	Code
	Normally closed 12 V DC	1
	Normally closed 24 V DC	2
	Normally open 12 V DC	6
	Normally open 24 V DC	7

10	Connector type	Code
	Deutsch DT04-2P	D
	DIN 43650	S
	Junior timer	JT

11	Flow control option	Code
	Flow compensator (Bleed open)	LS0
	Flow compensator (Bleed closed)	LS2

12	Restrictor option	Code
	Without restrictor (standard - no code)	
	Damping restrictor (only for critical applications)	Z

Code	Displacement limiter	13
E	Max. displacement limiter	
G	Min. and Max. displacement limiter	

Code	Double shaft seal option	14
	Without double shaft seal (standard - no code)	
DP	Double shaft seal (availability at page 11)	

Code	Torque limiter setting (a)	15
...	Please specify the requested torque value in Nm	

Code	Second torque limiter setting (a)	16
...	Please specify the requested torque value in Nm	

Code	Torque limiter setting speed (b)	17
...	Please specify the requested speed value	

- (a) Refer to page 55 ÷ 57 for more information
 (b) Do not exceed the maximum speed shown on page 7 ÷ 9

ORDER EXAMPLE

MVP60 pump with dual setting torque limiter with flow control:

MVP60.60S-05S5-LMF/MC-N-RN2-1-S-LS0-Z-G-DP-150/200/2100

08/05.2024

HOW TO ORDER MULTIPLE PUMPS - PISTON PUMP/GEAR PUMP

Common inlet

1	2	3	4	5	6	7	8 ...	9	10	11	7	12	13	14	15						
MVP30-28	S	-	04	S5	-	L	MD/MB	-	N	-	...	-	G	-	DP	-	P7		-	A	(# / # / #) /

Front section

KP20-6,3	S	-	-	L	**GD	-	N5	-	N	-	P
----------	---	---	---	---	------	---	----	---	---	---	---

Rear section

1	Pump type (max. displacement)	Code
---	-------------------------------	------

Front section - The same of single pumps **MVP ...**

Rear section - KAPPA 20 gear pumps (a) **KP 20 ...**

Rear section - POLARIS PH gear pumps (b) **PHP 20 ...**

2	Rotation	Code
---	----------	------

Anti-clockwise **S**

Clockwise **D**

3	Drive shaft (c)	Code
---	-----------------	------

SAE "A" spline (9 teeth) **03**

SAE spline (11 teeth) **07**

SAE "B" spline (13 teeth) **04**

SAE "B" spline (13 teeth) **4R**

SAE "B" straight **32**

SAE "BB" spline (15 teeth) **05**

SAE "BB" spline (15 teeth) **5R**

SAE "C" spline (14 teeth) **06**

SAE "C" spline (14 teeth) **6R**

SAE "C" straight **34**

SAE "CC" spline (17 teeth) **HM**

SAE "CC" spline (17 teeth) **HK**

SAE "D" spline (13 teeth) **HJ**

SAE "D" spline (13 teeth) **HI**

4	Mounting flange (c)	Code
---	---------------------	------

SAE "A" 2 holes **S1**

SAE "B" 2 holes **S5**

SAE "C" 2 holes **S7**

SAE "C" 4 holes - 6 holes **S8**

5	Ports position	Code
---	----------------	------

Side **L**

6	Inlet/outlet ports (a) - (b)	Code
---	------------------------------	------

Pump type	Nominal size		
	Inlet IN	Outlet OUT	
	SAE 3000	SAE 3000/6000	
SAE FLANGED PORTS METRIC THREAD (SSM)			
MVP 30	1" 1/4	3/4"	MD/MB
MVP 48	1" 1/2	1"	ME/MC
MVP 60	2"	1" 1/4	MF/MC
MVP 100	2" 1/2	1" 1/4	MG/QD

Code	Inlet/outlet ports	6
------	--------------------	---

Nominal size

Inlet IN	Outlet OUT	Pump type
SAE 3000	SAE 3000/6000	

SAE FLANGED PORTS UNC THREAD (SSS)

SD/SB	1" 1/4	3/4"	MVP 30
SE/SC	1" 1/2	1"	MVP 48
SF/SC	2"	1"	MVP 60
SG/VD	2" 1/2	1" 1/4	MVP 100

SAE STRAIGHT THREAD PORTS (ODT)

	—	—	MVP 30
	—	—	MVP 48
MF/OF	2"	1"	MVP 60

Code	Seals	7
------	-------	---

N Buna (standard)

V Viton

Code	Regulators	8
------	------------	---

... See how to order on page 81 ÷ 83

Code	Displacement limiter	9
------	----------------------	---

E Max. displacement limiter

G Min. and Max. displacement limiter

Code	Double shaft seal option	10
------	--------------------------	----

Without double shaft seal (standard - no code)

DP Double shaft seal (availability at page 11)

Code	Intermediate flange	11
------	---------------------	----

FRONT SECTION

P7 Flanged for KP20

I7 Flanged for PHP20

REAR SECTION

N5 Kappa 20 (common inlet)

S7 Polaris PHP 20 (common inlet)

Code	Sections	12
------	----------	----

A Front

P Rear

09/10.2024

HOW TO ORDER MULTIPLE PUMPS - PISTON PUMP/GEAR PUMP

13	Torque limiter setting (#)	Code
Please specify the requested torque value in Nm ...		

14	Second torque limiter setting (#)	Code
Please specify the requested torque value in Nm ...		

15	Torque limiter setting speed (#)	Code
Please specify the requested speed value ...		

- ☐ Omit code only if ordering assembled multiple pumps
- (#) Only for torque limiter. Refer to page 83 for more information. Write these codes at the end only if ordering assembled multiple pumps
- (a) KAPPA 20 gear pumps: displacements on page 24, 28, 32 and 36. For more information, please see the respective technical catalogue
- (b) POLARIS PH gear pumps: displacements on page 25, 29, 33 and 37. For more information, please see the respective technical catalogue
- (c) Drive shafts availability at pages 38 ÷ 41 and mounting flanges availability at pages 42 ÷ 44

ORDER EXAMPLE

Common inlet double pump MVP 60 with RN1 torque limiter-internal pilot + PHP20 gear pump.

INDIVIDUAL SECTIONS

Front section

MVP 60.60S-06S8-LMF/MC-N-RN1-G-DP-I7-A (100/2500)

Rear section

PHP 20.23S-L **/GD-S7-N-P

ASSEMBLED DOUBLE PUMP

MVP 60.60S-06S8-LMF/MC-N-RN1-G-DP/PHP 20.23-L/GD (100/2500)**

08/05.2024

HOW TO ORDER MULTIPLE PUMPS - PISTON PUMP/PISTON PUMP

Through drive

1	2	3	4	5	6	7	8 ...	9	10	11	12	13	14	15						
MVP 60-60	S	-	05	S5	-	L	MF/MC	-	N	-	...	-	G	-	AS5	-	04	-	DP	(# / # / #) /
Front section (through drive)																				

MVP 30-28	S	-	04	S5	-	L	MD/MB	-	N	-	...	-	G	-	...	/	...	/	...
Rear section (single pump)																			

1	Pump type (max. displacement)	Code
Front section MVP (the same of single pumps) (a)		MVP ...
Rear section MVP (the same of single pumps) (a)		MVP ...

2	Rotation	Code
Anti-clockwise		S
Clockwise		D

3	Drive shaft (b)	Code
SAE "A" spline (9 teeth)		03
SAE spline (11 teeth)		07
SAE "B" spline (13 teeth)		04
SAE "B" spline (13 teeth)		4R
SAE "B" straight		32
SAE "BB" spline (15 teeth)		05
SAE "BB" spline (15 teeth)		5R
SAE "C" spline (14 teeth)		06
SAE "C" spline (14 teeth)		6R
SAE "C" straight		34
SAE "CC" spline (17 teeth)		HM
SAE "CC" spline (17 teeth)		HK
SAE "D" spline (13 teeth)		HJ
SAE "D" spline (13 teeth)		HI

4	Mounting flange (b)	Code
SAE "B" 2 holes		S1
SAE "B" 2 holes		S5
SAE "C" 2 holes		S7
SAE "C" 4 holes - 6 holes		S8

5	Ports position	Code
Side		L

6	Inlet/outlet ports		Code
Pump type	Nominal size		
	Inlet IN	Outlet OUT	
	SAE 3000	SAE 3000/6000	
SAE FLANGED PORTS METRIC THREAD (SSM)			
MVP 30	1" 1/4	3/4"	MD/MB
MVP 48	1" 1/2	1"	ME/MC
MVP 60	2"	1" 1/4	MF/MC
MVP 100	2" 1/2	1" 1/4	MG/QD

Code	Inlet/outlet ports	6
------	--------------------	---

	Nominal size		Pump type
	Inlet IN	Outlet OUT	
	SAE 3000	SAE 3000/6000	
SAE FLANGED PORTS UNC THREAD (SSS)			
SD/SB	1" 1/4	3/4"	MVP 30
SE/SC	1" 1/2	1"	MVP 48
SF/SC	2"	1"	MVP 60
SF/VD	2" 1/2	1" 1/4	MVP 100
SAE STRAIGHT THREAD PORTS (ODT)			
	—	—	MVP 30
	—	—	MVP 48
MF/OF	2"	1"	MVP 60

Code	Seals	7
N	Buna (standard)	
V	Viton	

Code	Regulators	8
...	See how to order on page 81 ÷ 83	

Code	Displacement limiter	9
E	Max. displacement limiter	
G	Min. and Max. displacement limiter	

Code	Intermediate flange (c)	10
AS1	SAE "A" 2 holes	
AS5	SAE "B" 2 holes	
AS7	SAE "C" 2 holes	

Code	Coupling (d)	11
03	SAE "A" spline (9 teeth)	
07	SAE "A" straight	
31	SAE "A" straight	
04	SAE "B" spline (13 teeth)	
32	SAE "B" straight	
05	SAE "BB" spline (15 teeth)	
33	SAE "BB" straight	
06	SAE "C" spline (14 teeth)	

09/10.2024

HOW TO ORDER MULTIPLE PUMPS - PISTON PUMP/PISTON PUMP

12	Double shaft seal option	Code
Without double shaft seal (standard - no code)		
Double shaft seal (availability at page 11)		DP
13	Torque limiter setting (#)	Code
Please specify the requested torque value in Nm		
		...
14	Second torque limiter setting (#)	Code
Please specify the requested torque value in Nm		
		...
15	Torque limiter setting speed (#)	Code
Please specify the requested speed value		
		...

- (a) Displacements on page 80
- (b) Drive shafts availability at pages 38 ÷ 41 and mounting flanges availability at pages 42 ÷ 44
- (c) Intermediate flanges on page 61
- (d) Couplings availability:
 MVP30 on page 63 and 65
 MVP48 on page 67
 MVP60 on page 69
 MVP100 on page 71 - 73 and 75

☐ Omit code only if ordering assembled multiple pumps
 (#) Only for torque limiter. Refer to page 81 for more information.

ORDER EXAMPLE

Through drive double pump MVP 60 with RN2 (dual setting torque limiter with remote flow control) + MVP 30 with LS0 flow compensator.

INDIVIDUAL SECTIONS

Front section

MVP 60.60S-06S8-LMF/MC-N-RN2-1-S-LS2-G-AS5/04-DP (70/85/2600)

Rear section

MVP 30.34S-04S5-LMD/MB-N-LS0-Z-G

ASSEMBLED DOUBLE PUMP

MVP 60.60S-06S8-LMF/MC-N-RN2-1-S-LS2-G-DP (70/85/2600)/ MVP 30.34S-04S5-LMD/MB-N-LS0-Z-G

Through drive double pump MVP 48 with RN0 (standard torque limiter) + KP 30 gear pump.

INDIVIDUAL SECTIONS

Front section

MVP 48.45S-04S5-LME/MC-N-RN0-G-AS5/04-DP (80/2300)

Rear section

KP30.51S0-04S5-LED/EB-N-P

ASSEMBLED DOUBLE PUMP

POMPA MVP 48.45S-04S5-LME/MC-N-RN0-G-DP/KP30.51-04S5-LED/EB (80/2300)

07/03.2022

NOTES

MVP 10 T A

Edition: 10/12.2025

Replaces: MVP 09 T A



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