

PM20

VARIABLE DISPLACEMENT PUMP
CLOSED LOOP CIRCUIT



T E C H N I C A L C A T A L O G



OVERVIEW

PM20 is a variable displacement, axial piston pump, with swashplate system, for closed loop hydrostatic transmissions.

It provides a continuously variable flow rate between zero and maximum in forward and reverse direction. Flow rate is proportional to rotation speed and swashplate angle.

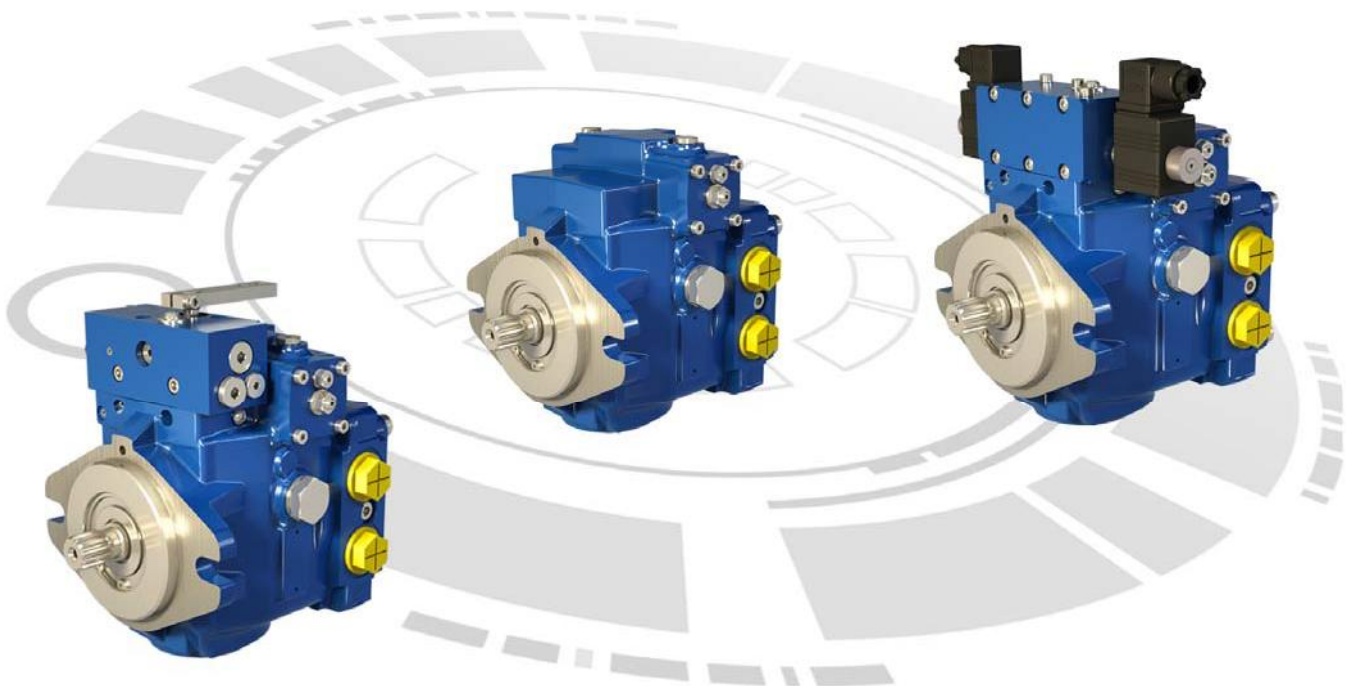
It can feature a charge pump to keep the circuit pressurised. This avoids risk of cavitations and ensures a good performance of the transmission.

It offers several types of control: servo mechanical, servo hydraulic, electro-proportional with feedback.

It is equipped with high pressure relief valves and can be delivered with auxiliary gear pumps.

It is available in single or tandem versions.

As options, PM20 can be featured with roller bearing, fluorinated elastomer seals, UNF thread ports, flushing valve, filter options and customized identification plate.



		PM20-21	PM20-25	PM20-28
Displacement	cm ³ /rev [in ³ /rev.]	21 [1.28]	25 [1.53]	27,39 [1.67]
Theoretical flow at full displacement and rated speed	L/min [GPM]	75,6 [20.0]	90.0 [23.8]	98.6 [26.0]
Rated speed	rpm		3 600	
Rated pressure	bar [PSI]		250 [3 625]	
Max. pressure	bar [PSI]		370 [5 366] *	
Mounting flange			SAE B	
Controls		Servo mechanical, Servo hydraulic, Electro-proportional		
Mass	kg [lb]	from 20 [44.1] to 23 [50.7]		
Rotation		Clockwise or Counterclockwise		

* Consult your Poclain Hydraulics application engineer.



MODEL



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Displacement cm ³ /rev [in ³ /rev]	
21 [1.28]	20
25 [1.53]	25
27,39 [1.67]	28

2

Mounting flange and shaft	
Splined shaft (z = 13; 16/32 D.P.)	S3
SAE B Splined shaft (z = 15; 16/32 D.P.)	S4
Shaft for secondary tandem pump	T1

3

Control	
Mechanical servo control with feed back	A
Hydraulic servo control	S
Electro proportional servo control 12V with feedback	Q12
Electro proportional servo control 24V with feedback	Q24

4

K restrictor mm [in]	
Without restrictor	00
Ø 0,6 [dia. 0.023]	06
Ø 0,7 [dia. 0.027]	07
Ø 0,8 [dia. 0.031]	08
Ø 0,9 [dia. 0.035]	09
Ø 1,0 [dia. 0.047]	10

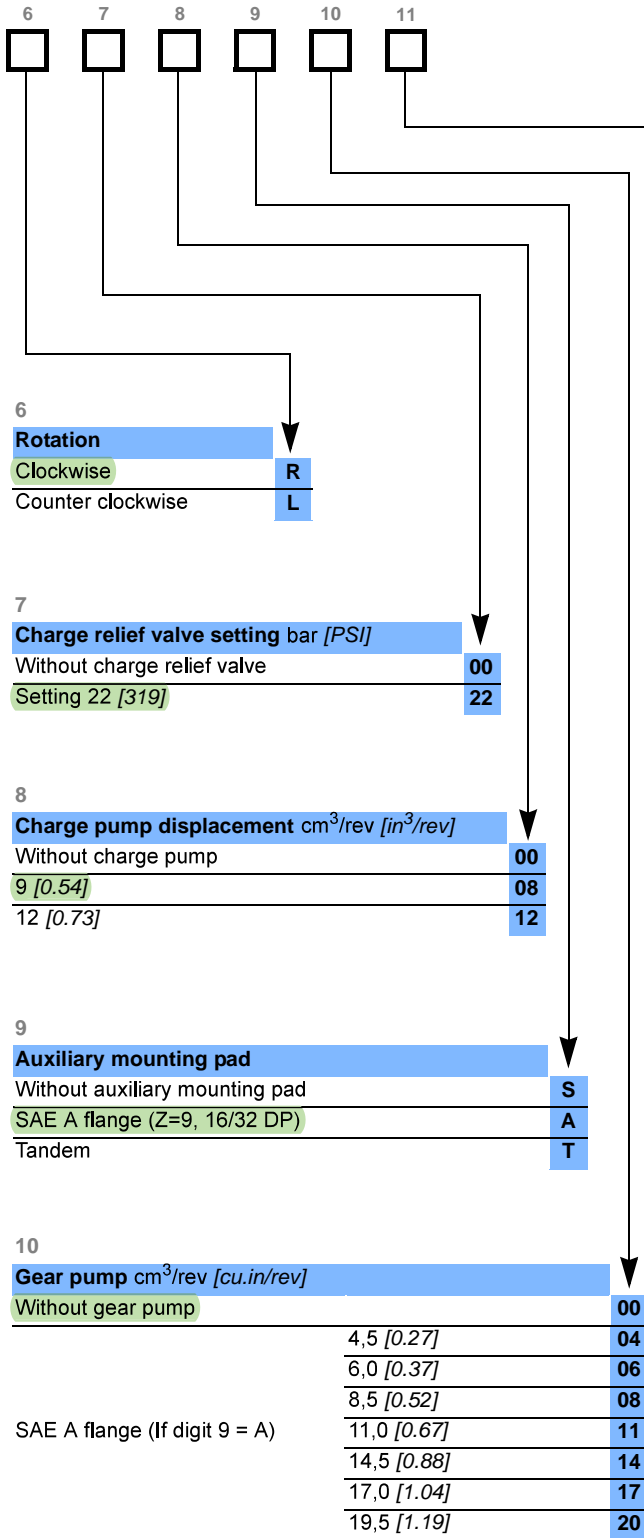
5

High pressure relief valve setting Max. system pressure (bar [PSI])	
Without valve (only check valve)	00
150 [2 175]	15
200 [2 900]	20
250 [3 625]	25
300 [4 351]	30
350 [5 076]	35
370 [5 366] *	37

* Consult your Poclain Hydraulics application engineer.



CODE



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Options	
Without option	00
Roller bearing	CR
Fluorinated elastomer seals	EV
Filter on pressure line without clogging indicator	F0
Filter on pressure line with clogging indicator	F2
External connections for filter	F3
UNF thread ports	FU
Flushing valve	VS
Finishing coat	PA
Customized identification plate	DP



In case of request for a combination of several options, please contact your Poclain Hydraulics application engineer for further information.

Model Code

Technical specifications

Operating Parameters

System design Parameters

Features

Controls

Options

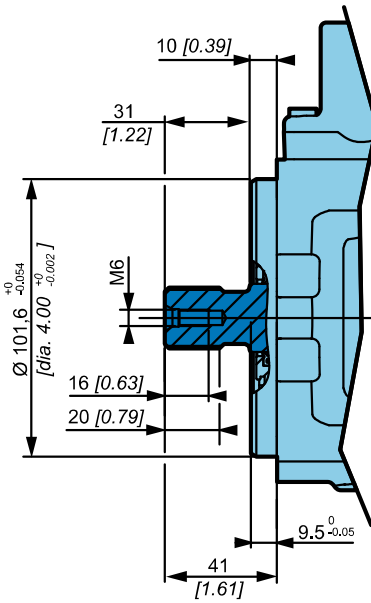


Mounting flange and shafts

SAE B- Splined shaft

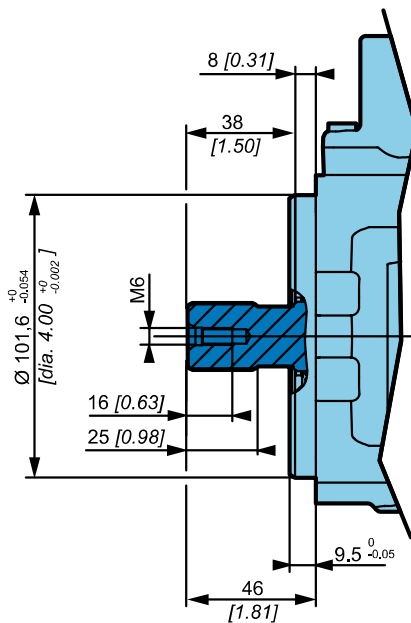
P	M	2	0	1	2	3	4	5	6	7	8	9	10	11
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S3 13 teeth; Max torque: 220 N.m [1 947 in.lbf]



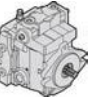
Splined ANSI B92.1a-1996
Pitch 16/32" DP
Pressure angle 30°
Tolerance class: 5

S4 15 teeth; Max torque: 360 N.m [3 186 in.lbf]



Splined ANSI B92.1a-1996
Pitch 16/32" DP
Pressure angle 30°
Tolerance class: 5

T Shaft for secondary tandem pump



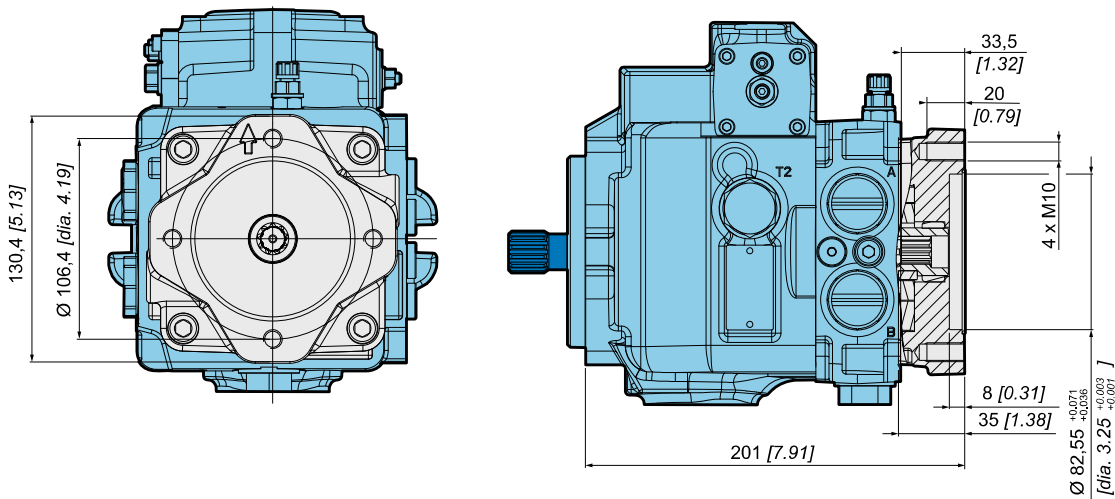
Auxiliary mounting pad

SAE A flange

Max. Torque: 80 N.m [708 in.lbf]



- 00** Without charge pump
- 09** With charge pump: 9,0 cm³/rev [0.54 in³/rev]
- 11** With charge pump: 11,0 cm³/rev [0.73 in³/rev]



Splined ANSI B92.1a-1996
 Pitch 16/32" DP
 Pressure angle 30°
 9 teeth
 Tolerance class: 5



Do not rotate the auxiliary mounting pad cover.

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CONTROLS

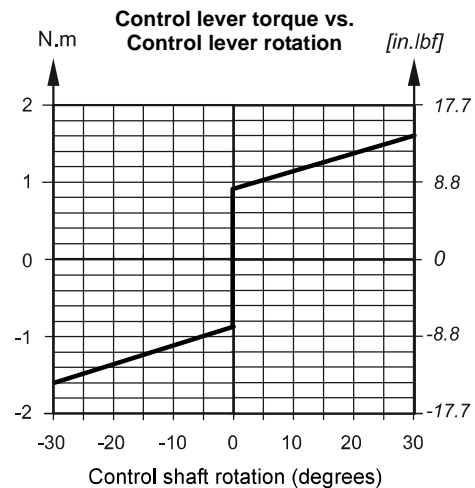
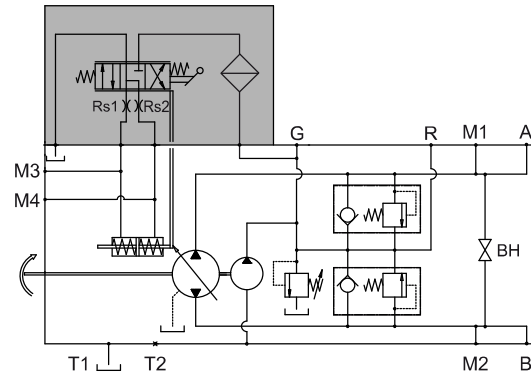
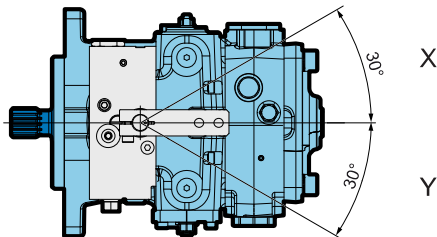
Mechanical servo control with feedback



Control function	The variation in pump displacement is reached by control lever rotation to adjust hydraulic servo piston position. Control lever range is 40°. Movement of control lever is independent of the pressure and pump speed.
Control regulation	To avoid sudden accelerations and stoppages, two restrictors (Rs1 and Rs2) are inserted between servo control and hydraulic servo piston. They are used to regulate control shifting speed.
Feedback function	The feedback system between swash plate and hydraulic servo piston permit to maintain constant displacement of the pump if the pressure between pump and hydraulic motor changes. The feedback function is reached by a lever that connects the swashplate and the hydraulic servo piston.

Flow rate determination

Rotation	Pressure	Output	Input
Clockwise (R)	X	A	B
	Y	B	A
Counter clockwise (L)	X	B	A
	Y	A	B



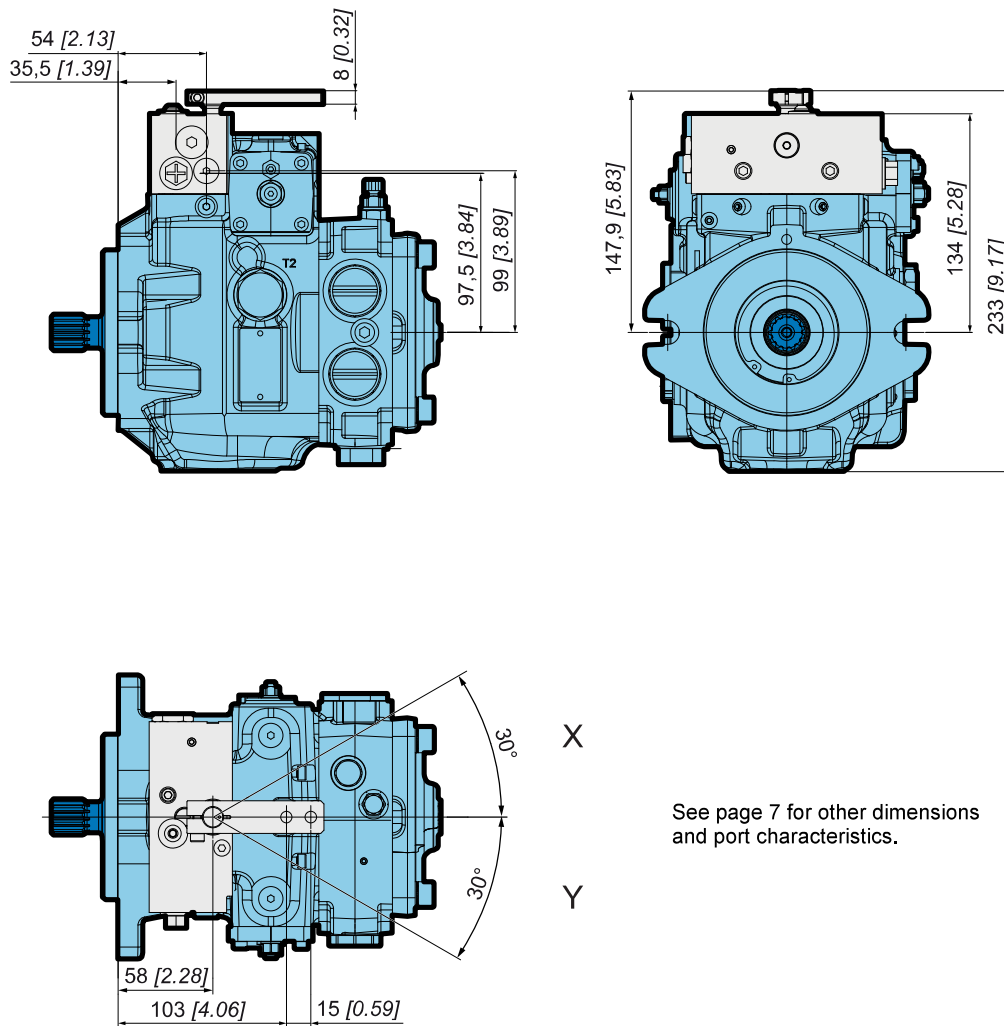
The spring return feature in the control unit is not a safety device.



To prevent damage to the control A a positive mechanical stop must be provided for the control A linkage.



Dimensions with control A



X
Y

See page 7 for other dimensions and port characteristics.

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Options