

# **POCLAIN HYDRAULICS**

# SOLUTIONS FOR THE MOST DEMANDING MARKETS

Poclain hydraulics specializes in the design, manufacturing and marketing of hydrostatic transmissions.

Our internationally recognized expertise allows us to expand on highly diversified markets such as the construction, agricultural, public works, material handling, industrial, environment and on-road markets. Poclain hydraulics' development is driven by our innovative spirit and our ability to anticipate the needs of a wide range of cutting edge applications.

> Construction > Material handling

> Agricultural > Industry

> Mining > Marine

> Forestry > On-Road

> Environment > Etc











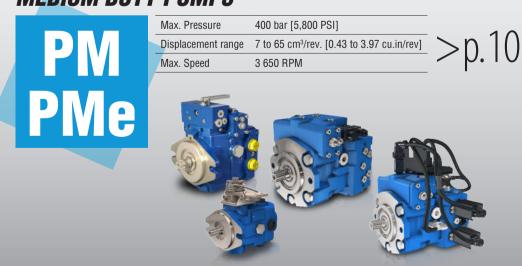


# Closed loop and variable displacement

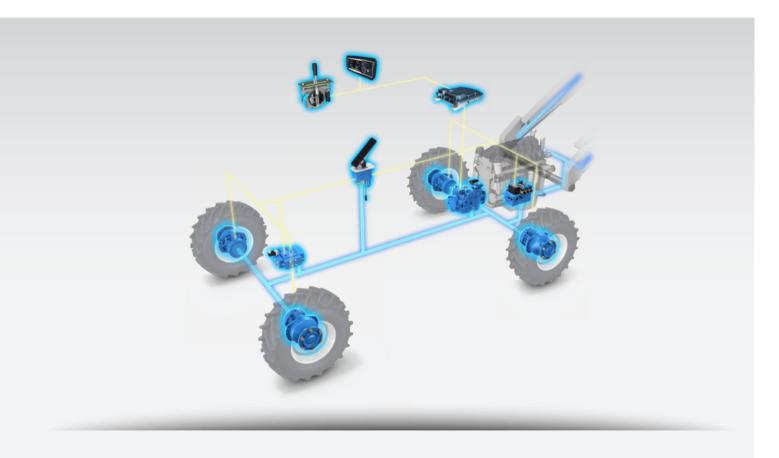
#### **HEAVY DUTY PUMPS**



#### **MEDIUM DUTY PUMPS**

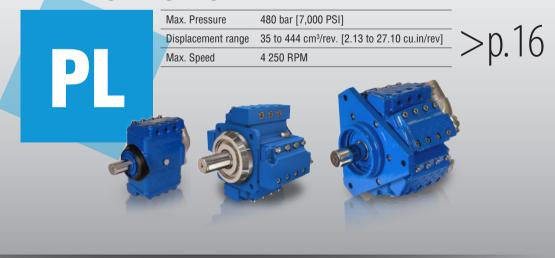


# Hydraulic Pumps for open and closed loops



# Open loop and fixed displacement

#### **HEAVY DUTY PUMPS**





P90

Axial piston technology
Variable displacement
High design flexibility
Low noise level
High torque for throughdrive
Overpressure protection

# **HEAVY DUTY CYCLE**

# FOR ROBUST AND PRECISE TRANSMISSIONS

P90-055 • P90-075 • P90-100 P90-130 • P90-180 • P90-250

From 55 to 250 cm³/rev. [3.35 to 15.25 cu.in/rev.]

Up to 2 938 N.m [2,600 lbf.ft]

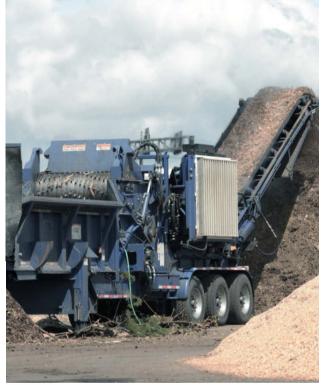
Up to 480 bar [7,000 PSI]

Up to 4 250 rpm

Up to 424 kW [568 HP]









#### Performance

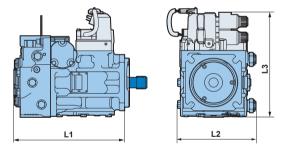
		P90-055	P90-075	P90-100	P90-130	P90-180	P90-250
Displacement	cm³/rev [cu.in/rev]	55 [3.35]	75 [4.58]	100 [6.10]	130 [7.91]	180 [10.98]	250 [15.25]
May Crood	(Continuous) RPM	3 900	3 600	3 300	3 100	2 600	2 300
Max. Speed –	(Intermittent) RPM	4 250	3 950	3 650	3 400	2 850	2 500
Mary Dynasowa	(Continuous) bar [PSI]	420 [6,092]	420 [6,092]	420 [6,092]	420 [6,092]	420 [6,092]	420 [6,092]
Max. Pressure –	(Intermittent) bar [PSI]	480 [6,962]	480 [6,962]	480 [6,962]	480 [6,962]	480 [6,962]	480 [6,962]

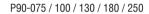
# Dimensions

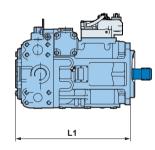
		P90-055	P90-075	P90-100	P90-130	P90-180	P90-250
L1	mm	288,8	306,1	339,1	370	398	419
	[in]	[11.37]	[12.05]	[13.35]	[14.58]	[15.67]	[16.5]
L2	mm	204,4	210	228,1	221,5	294,42	-
	[in]	[8.04]	[8.27]	[8.98]	[8.72]	[11.59]	[-]
L3	mm	282,3	265	283	311	360	360
	[in]	[11.11]	[10.43]	[11.14]	[12.24]	[14.17]	[14.17]
Weight max.*	kg	40	49	49	88	136	154
	[lb]	[88]	[108]	[108]	[194]	[300]	[340]

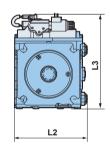


P90-055









# Auxiliary mounting pads

		P90-055	P90-075	P90-100	P90-130	P90-180	P90-250
Flange SAE A	9 teeth coupling	•	•	•	•	•	•
Flange SAE BB	15 teeth coupling	•	•	•	•	•	•
Flange SAE B	13 teeth coupling	•	•	•	•	•	•
Flange SAE C	14 teeth coupling	•	•	•	•	•	•
Flores OAF D	13 teeth coupling				•	•	•
Flange SAE D	27 teeth coupling				•	•	•
FI 04F F	13 teeth coupling					•	•
Flange SAE E	27 teeth coupling					•	•
No auxiliary mountin	g pad	•	•	•	•	•	•

 $<sup>\</sup>ensuremath{^{\star}}\xspace \ensuremath{\text{Depending}}\xspace$  on the controls and the options.

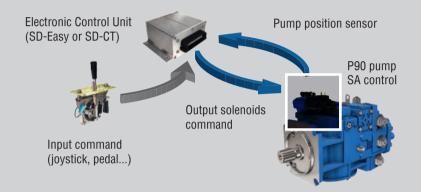
# **ELECTRONIC CONTROL OF THE P90**

#### **SmartDrive system**

The P90 control logic relies on a closed loop regulation of the pump.

The control system's brain is the ECU (SD-Easy or SD-CT), which sends PWM (Pulse Width Modulation) signals to the two main control solenoid valves that pilot the servo cylinder of the pump.

The exact position of the pump swashplate is tracked by a Hall effect feedback potentiometer whose inputs are constantly processed by the ECU to reach a very high pump displacement control accuracy.



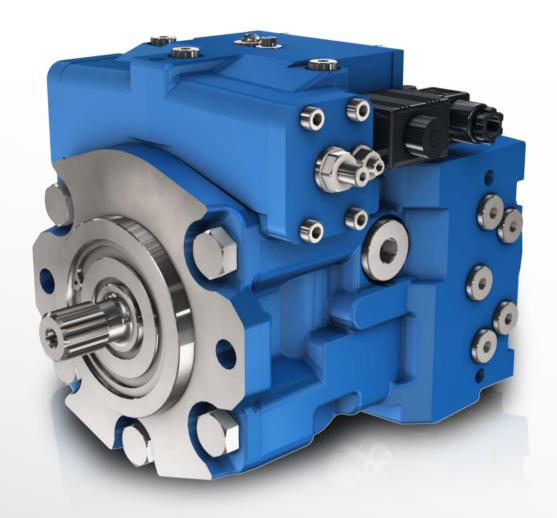
	Proportional el	ectronic control
	12V	24V
P90-055	•	•
P90-075	•	•
P90-100	•	•
P90-130	•	•
P90-180	•	•
P90-250	•	•

#### Mounting flanges and shafts

				D00 400			200 050
		P90-055	P90-075	P90-100	P90-130	P90-180	P90-250
	Splined shaft 14 teeth, pitch 12/24	•	•	•			
Flange SAE C	Splined shaft 21 teeth, pitch 16/32	•	•	•			
	Splined shaft 23 teeth, pitch 16/32		•	•			
Flange SAE D	Splined shaft 27 teeth, pitch 16/32				•		
Flallye SAE D	Splined shaft 13 teeth, pitch 8/16			•	•		
Florgo CAF F	Splined shaft 27 teeth, pitch 16/32					•	•
Flange SAE E	Splined shaft 13 teeth, pitch 8/169					•	•

#### Optional features

	P90-055	P90-075	P90-100	P90-130	P90-180	P90-250
Speed sensor	•	•	•	•	•	•
Suction filtration	•	•	•	•	•	•
Charge pressure filtration	•	•	•	•	•	•
Integral pressure filter	•	•	•	•	•	•
Remote pressure	•	•	•	•	•	•



# PM PMe

Axial piston technology Variable displacement Compact design A large choice of controls **Embedded electronics** Plug & Drive™ solution

# **MEDIUM DUTY PUMPS**

# **DESIGN FOR PERFORMANCE AND EASY INTEGRATION**

PMV0 - PM10 - PM20 - PM30 - PMe30 PM50 - PMe50 - PM65

From 7 to 65 cm<sup>3</sup>/rev. [0.43 to 3.97 cu.in/rev.]

Up to 103,5 N.m [916 lbf.ft]

Up to 400 bar [5,800 PSI]

Up to 3 600 rpm

Up to 124,8 kW [167.4 HP]















kW [HP]

Performance							
	-	PMV0	PM10	PM20	PM30 PMe30	PM50 PMe50	PM65
Displacement range	cm3/rev [cu.in/rev]	7 - 18 [0.43] - [1.10]	7 - 21 [0.43] - [1.28]	21 - 27.4 [1.28] - [1.67]	25 - 34,2 [1.53] - [2.09]	40 - 52 [2.44] - [3.17]	55 - 65 [3.36] - [3.97]
Rated Speed	RPM	3 600	3 600	3 600	3 600	3 600	3 600
May Draggue	(Continuous) bar [PSI]	210 [3,045]	210 [3,045]	250 [3,626]	300 [4,350]	300 [4,350]	250 [3,625]
Max. Pressure	(Intermittent) bar [PSI]	300 [4,351]	350 [5,076]	350 [5,076]	400 [5,801]	400 [5,801]	350 [5,076]

32,6 - 44,4 [43.7] - [59.5]

48,0 - 65,6 [64.4] - [88.0]

14,9 - 42,6 [20.0] - [57.1]

74,8 - 99,8 [100.3] - [133.8]

106,0 - 124,8 [142.1] - [167.3]

12,7 - 30,5 [17.0] - [40.9]

			PMV0	PM10	PM20	PM30 PMe30	PM50 PMe50	PM65
	Calined shoft	9 teeth, pitch 12/24	•	•				
	Splined shaft	11 teeth, pitch 16/32	•	•				
Flange SAE A		Diameter 15,875 [0.624]	•					
	Key shaft mm [in]	Diameter 18 [0.71]	•					
		Diameter 19,05 [0.75]		•				
		11 teeth, pitch 16/32		•				
	Splined shaft	13 teeth, pitch 16/32		•	•	•	•	
EL 04E B		14 teeth, pitch 12/24					•	
Flange SAE B		Diameter 19,05 [0.75]		•				
	Key shaft mm [in]	Diameter 22,22 [0.87]						•
	\$1	Diameter 25,38 [0.99]					•	
Flange SAE BB	Splined shaft	15 teeth, pitch 16/32			•	•	•	•

		PMV0	PM10	PM20	PM30 PMe30	PM50 PMe50	PM65
German group 1		•	•				
German group 2		•	•				
Flance CAF A	9 teeth coupling		•	•	•	•	•
Flange SAE A	11 teeth coupling				•	•	•
Flange SAE B	13 teeth coupling				•	•	•
Flange SAE BB	15 teeth coupling				•	•	•
No auxiliary mounting	ı pad	•	•	•	•	•	•

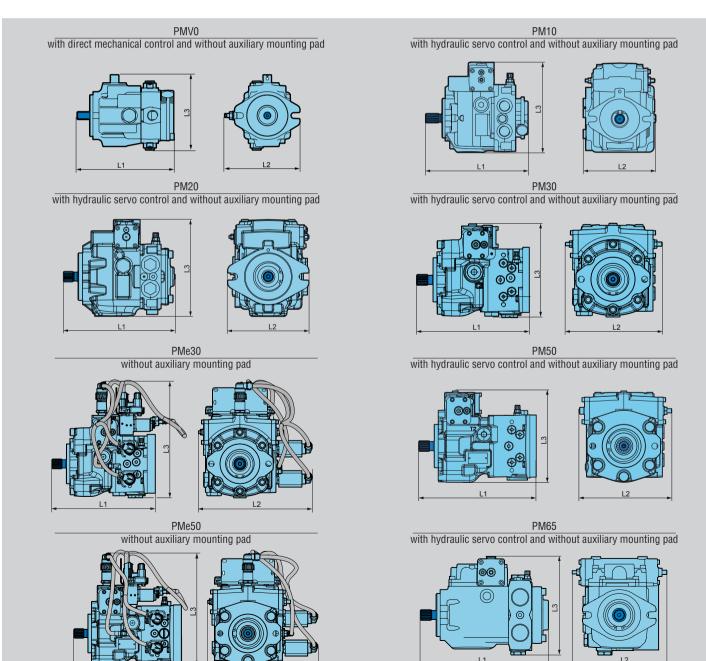
Max. theorical

absorbed power

#### **Dimensions**

		PMV0	PM10	PM20	PM30	PMe30	PM50	PMe50	PM65
14	mm	192,8	204,5	238	253,2	256,2	271,5	282,2	303,5
L1	[in]	[7.59]	[8.05]	[9.37]	[9.98]	[10.08]	[10.68]	[11.11]	[11.95]
10	mm	107,4	144	174	221,7	290,5	218	289,5	223,5
L2	[in]	[4.23]	[5.67]	[6.85]	[8,72]	[11.44]	[8.58]	[11.40]	[8.8]
L3	mm	129	187,7	207,2	212,2	290,5	214,5	299,0	232,5
Lo	[in]	[5.08]	[7.39]	[8.16]	[8.35]	[11.44]	[8.45]	[11.77]	[9.15]
Weight max.*	kg	9,5	18,8	20,8	29	31,5	32	32	30,5
	[lb]	[20.9]	[41.4]	[45.8]	[63.9]	[69.4]	[70.5]	[70.5]	[67.2]

<sup>\*</sup>Depending on the controls and the options.



#### PMe: EMBEDDED ELECTRONIC

#### Reduce your development costs and time

The PMe is designed to be easily integrated into a wide variety of machines. The PMe's on-board ECU can withstand the harshest environments, including proximity to the combustion engine. The ECU is pre-wired and preprogrammed; after shipping, the system is ready to be connected to the driving devices (e.g. the travel pedal, joystick, brake pedal) and is ready to use.

The associated electronic devices are delivered already plugged onto the pump and wired to the ECU. The factory-installed harnesses are tested at the end of the assembly line prior to delivery. The two integrated CAN Buses allow configurating, machine diagnosing and information sharing with other machine components (e.g. engine, displays, hydraulic components).

Among the many pre-defined software functionalities included in the PMe packages, the speed control loop is available for specific applications that need constant driving speed, a pre-requisite being two speed sensors in the wheels. The PMe pump can also be used as a slave unit via CAN Bus. The CAN message redundancy allows for safe control of the pump. It ensures an accurate control thanks to an internal pump calibration. The PMe can also provide the plugged sensors' physical and electrical values (temperature, pressure, speed) via CAN Bus to the master ECU.



#### Controls

	PMVO	PM10	PM20	PM30	PMe30	PM50	PMe50	PM65
Direct mechanical (M)	•	•						
Direct mechanical with return spring (N)	•	•						
Direct mechanical with return spring and zero position setting (L)	•							
Mechanical servo control with feed-back (A)		•	•	•		•		•
Hydraulic servo control (S)	•	•	•	•		•		•
Hydraulic servo control with feed-back (T)		•	•*	•		•		
Hydraulic Automotive Control (D)		•	•*	•		•		•
Electrical on-off servo control without electrovalve (C)		•		•		•		•
Electrical on-off servo control with return spring without electrovalve (B)		•	•*	•		•		•
Electrical on-off servo control with electrovalve (C12/C24)		•		•		•		•
Electrical on-off servo control with return spring and electrovalve (B12/B24)		•	•*	•		•		•
Electro-proportional servo control (P)		•	•*	•	•	•	•	•
Electro-proportional servo control with feed-back (Q)		•	•	•	•	•	•	

<sup>\*</sup> Under development

PMV0 with through shaft

#### Additional features

Please take in consideration that all combinations are not possible.

	PMV0	PM10	PM20	PM30 PMe30	PM50 PMe50	PM65
itting for rear power take-off (through shaft)	•					
Electrical by-pass with brake engaged	•					
Mechanical inching		•		•	•	•
Hydraulic inching		•		•	•	•
Brake inching				•	•	
Lever by-pass	•					
Low noise valve plate	•					
Pressure filter	•	•	•	•	•	•
Flushing valve	•	•	•	•	•	•
Safety valve		•	•	•	•	
Pressure cut-off valve (option LP)		•		•*	•*	•
Anti-stall valve		•		•	•	•
Neutral position switch (only for control A)		•		•	•	•
Roller bearing	•	•	•	•	•	
UNF ports	•	•	•	•	•	•
SAE ports	•	•	•	•	•	•
Speed sensor				•	•	
Fluorinated elastomer seals	•	•	•	•	•	

#### **PHAST PROGRAM**

#### **Fast delivery**

Poclain Hydraulics is committed to supplying a number of standard pumps within 10 business days, excluding transport.

This delivery time applies to any order limited to one pump per Part Number, per customer and per month.

Making their selection from a predetermined list of pumps, machine manufacturers can choose from pumps with mechanical servo control (A) or hydraulic servo control (S) or electro proportional servo control (P) or electro proportional servo control with feeback (Q). All pumps are equipped with a high pressure relief valve setting, internal charge pump and charge relief valve setting, SAE A flange for the auxiliary mounting pad and a flushing valve.

#### **Pump types**

PMV0	PM10	PM30	PM50
•*	•	•	•

<sup>\*</sup> Only available with M and L control



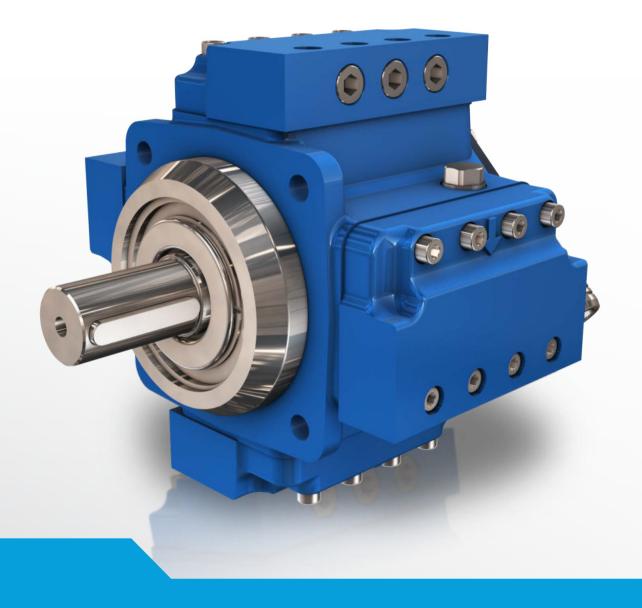
#### **More information > Page 20**

Visit our dedicated web page www.poclain-hydraulics.com/en/services/phast





<sup>\*</sup> Under development



Radial piston technology Fixed displacement High strength Robust and dust resistant

# **HEAVY DUTY PUMPS**

# **FOR OPEN LOOPS**



Up to 2 938 N.m [2,600 lbf.ft]

Up to 480 bar [7,000 PSI]











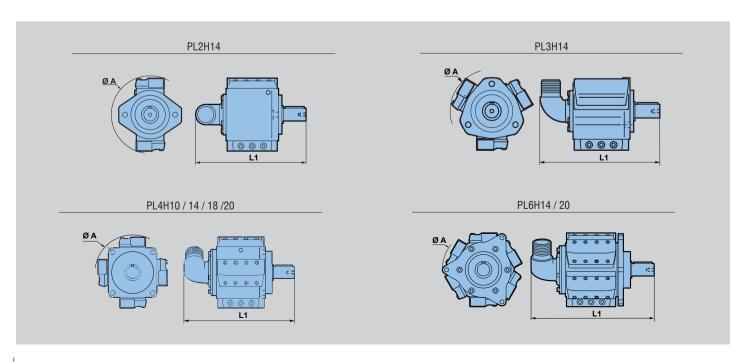
#### Performance

		2 outputs	3 outputs	4 outputs	4 outputs	4 outputs	4 outputs
		PL2H14	PL3H14	PL4H10	PL4H14	PL4H18	PL4H20
Displacement	cm³/rev [cu.in/rev]	2 x 17.5 to 2 x 32 [2 x 1.07 to 2 x 1.95]	3 x 17.5 to 3 x 37 [3 x 1.07 to 3 x 2.26]	4 x 10.3 to 4 x 12.5 [4 x 0.63 to 4 x 0.76]	4 x 17.5 to 4 x 37 [4 x 1.07 to 4 x 2.26]	4 x 33 to 4 x 52 [4 x 2.01 to 4 x 3.17]	4 x 58 to 4 x 74 [4 x 3.54 to 4 x 4.52]
Max. Pressure	bar [PSI]	450 [6,526]	450 [6,526]	450 [6,526]	450 [6,526]	450 [6,526]	450 [6,526]
Max. Speed	RPM	3 100 to 2 400	3 400 to 2 400	2 700	3 100 to 2 000	2 500 to 2 400	2 400 to 2 300
Max. Power	kW [HP]	81 to 115 [109 to 155]	134 to 200 [180 to 269]	84 to 102 [113 to 137]	163 to 222 [219 to 298]	246 to 376 [331 to 506]	417 to 510 [561 to 686]

		6 outputs	6 outputs
		PL6H14	PL6H20
Displacement	cm³/rev [cu.in/rev]	6 x 17.5 to 6 x 32 [6 x 1.07 to 6 x 1.95]	6 x 58 to 6 x 74 [6 x 3.5 to 6 x 4.51]
Max. Pressure	bar [PSI]	450 [6,526]	450 [6,526]
Max. Speed	RPM	3 200 to 2 300	2 400 to 2 000
Max. Power	kW [HP]	252 to 331 [339 to 445]	626 to 666 [842 to 895]

#### Dimensions

		PL2H14	PL3H14	PL4H10	PL4H14	PL4H18	PL4H20	PL6H14	PL6H20
Dio A	mm	320	320	275	320	440	550	352	550
Dia. A	[in]	[12.60]	[12.60]	[10.83]	[12.60]	[17.32]	[21.65]	[13.86]	[21.65]
14	mm	397	397	376	435	550	656	463	659
LI	[in]	[15.63]	[15.63]	[14.80]	[17.13]	[21.65]	[25.83]	[18.23]	[25.94]
Weight	kg	38	47	42	68	140	250	84	360
weigiit	[lb]	[84]	[104]	[93]	[150]	[309]	[551]	[185]	[794]



# **FAST DELIVERY PROGRAM**

FOR MOTORS, PUMPS AND VALVES





#### **More information**

Visit our dedicated web page www.poclain-hydraulics.com/en/services/phast



> The sales of PHast are subject to Poclain Hydraulics' General Terms & Conditions of sales.

#### MS and MI Motors

Poclain Hydraulics is committed to supplying a number of standard motors within 15 business days, excluding transport.

Making their selection from a predetermined list of motors, machine manufacturers can choose from wheel motors (for sizes 02 to 125) or shaft motors (for sizes 11 to 125), in a fixed displacement or double displacement version, with or without a brake. All motors are equipped with a pre-disposition for speed sensor. Pre-configured motors are equipped to guarantee a maximum level of performance.



#### > Order limited to four PHast motors, per motor size.

#### **Motor types**

MS02-E02	MS05-E05	MS08-E08	MS11-E11	MS18-E18	MS35	MS50	MS83	MS125
•	•	•	•	•	•	•	•	•



#### PM pumps

Poclain Hydraulics is committed to supplying a number of standard pumps within 10 business days, excluding transport.

Making their selection from a predetermined list of pumps, machine manufacturers can choose from pumps with mechanical servo control (A) or hydraulic servo control (S) or electro proportional servo control (P) or electro proportional servo control with feeback (Q). All pumps are equipped with a high pressure relief valve setting, internal charge pump and charge relief valve setting, SAE A flange for the auxiliary mounting pad and a flushing valve.



> Order limited to one pump per part number per customer and per month.

#### **Pump types**

PMV0	PM10	PM30	PM50
•*	•	•	•



\* Only available with M and L control

#### **Open Loop Valves**

Poclain Hydraulics is committed to supplying a number of standard valves within 5 business days, excluding transport.

- > Up to 5 pieces for each part number delivery within 5 days max.
- > Up to 50 pieces for each part number delivery up to 4 weeks.

#### Valves type

Directional control valves	Bankable mounting	Vertical stacking	Chek valves	Pressure control valves	Flow control valve
KV-6K/2-6 KV-6/2-6					
KVC-3/2-10	KVM	KVM-VV-6	NOV		DTP
KV-8/3-6	OB-KVM-6	KVM-NDV-6	VP-NDV	VP-RT	TVTC
KVH-6/2	ZB-KVM-6	KVM-NOV-6	VP-NOV		TVTP
KV-4 Cetop					
KVC					





# **A WORLDWIDE** SALES NETWORK



#### More than 200 distributors in the world



#### **More information**

To find the nearest distributor go to our dedicated web page www.poclain-hydraulics.com/en/contact-us/distributors





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