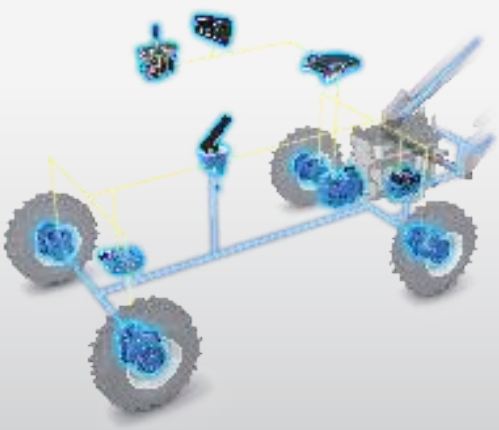
SELECTION GUIDE

2020

POCLAIN Hydraulics

Selection Guide
Content

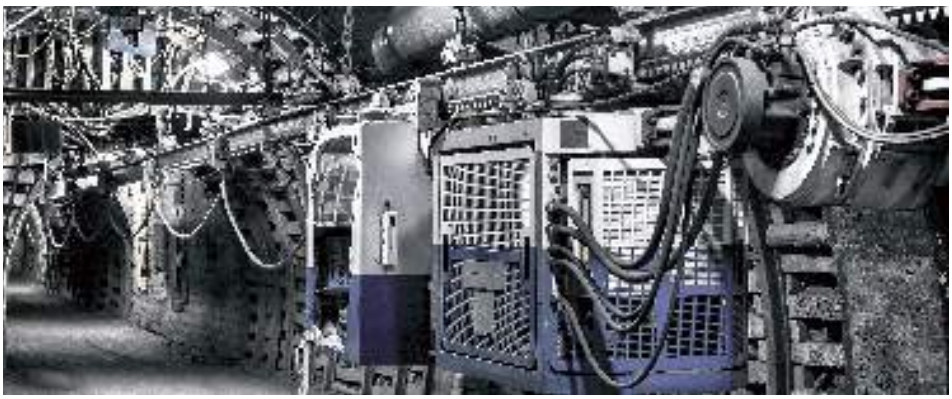


POCLAIN HYDRAULICS
SOLUTIONS FOR THE MOST DEMANDING MARKETS

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

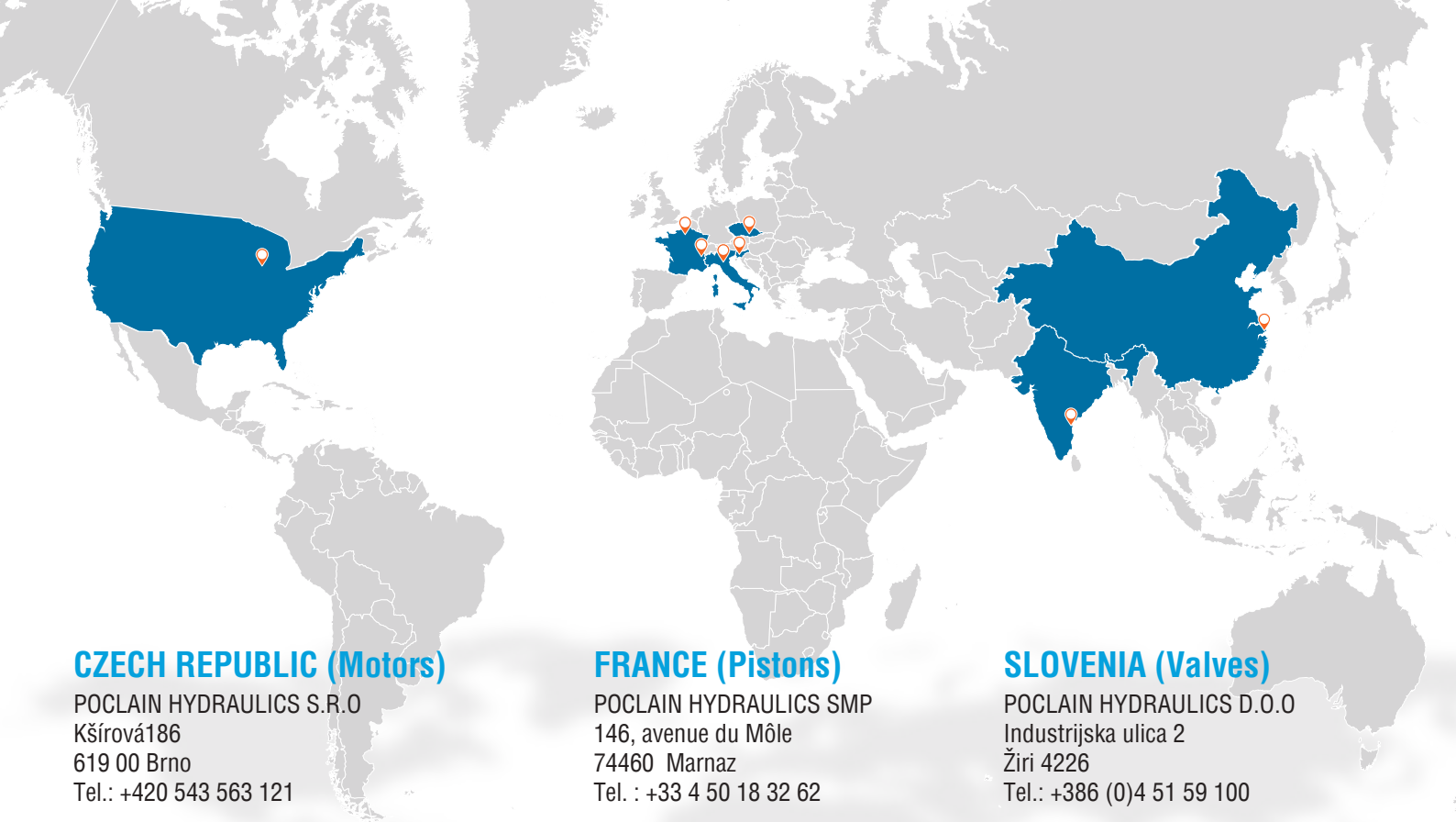
Our internationally recognized expertise allows us to expand on highly diversified markets such as the construction, agricultural, public works, material handling, industrial, environment and on-road markets. Poclain hydraulics' development is driven by our innovative spirit and our ability to anticipate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

- > Construction
- > Agricultural
- > Mining
- > Forestry
- > Environment
- > Material handling
- > Industry
- > Marine
- > On-Road
- > Etc



A CLOSE PROXIMITY PLAYER
THROUGH OUR WORLDWIDE PLANT LOCATIONS

> 5 Plants in Europe
> 2 Plants in Asia
> 1 Plant in America



CZECH REPUBLIC (Motors)

POCLAIN HYDRAULICS S.R.O
Kšírová186
619 00 Brno
Tel.: +420 543 563 121

FRANCE (Pistons)

POCLAIN HYDRAULICS SMP
146, avenue du Môle
74460 Marnaz
Tel. : +33 4 50 18 32 62

SLOVENIA (Valves)

POCLAIN HYDRAULICS D.O.O
Industrijska ulica 2
Žiri 4226
Tel.: +386 (0)4 51 59 100

CHINA (Motors, Pumps, Valves)

POCLAIN HYDRAULICS CO, LTD
Factory Building n° 11,
Phase II Shuhui Park N° 275
Qianpu Road, Songjiang District
Shanghai 201611
Tel.: +86 21 37 00 34 15

ITALY (Pumps)

POCLAIN HYDRAULICS
INDUSTRIALE SRL
Via Mavora 109
Loc. Gaggio di Piano
41013 Castelfranco Emilia (MO)
Tel.: +39 059 959711

USA (Motors)

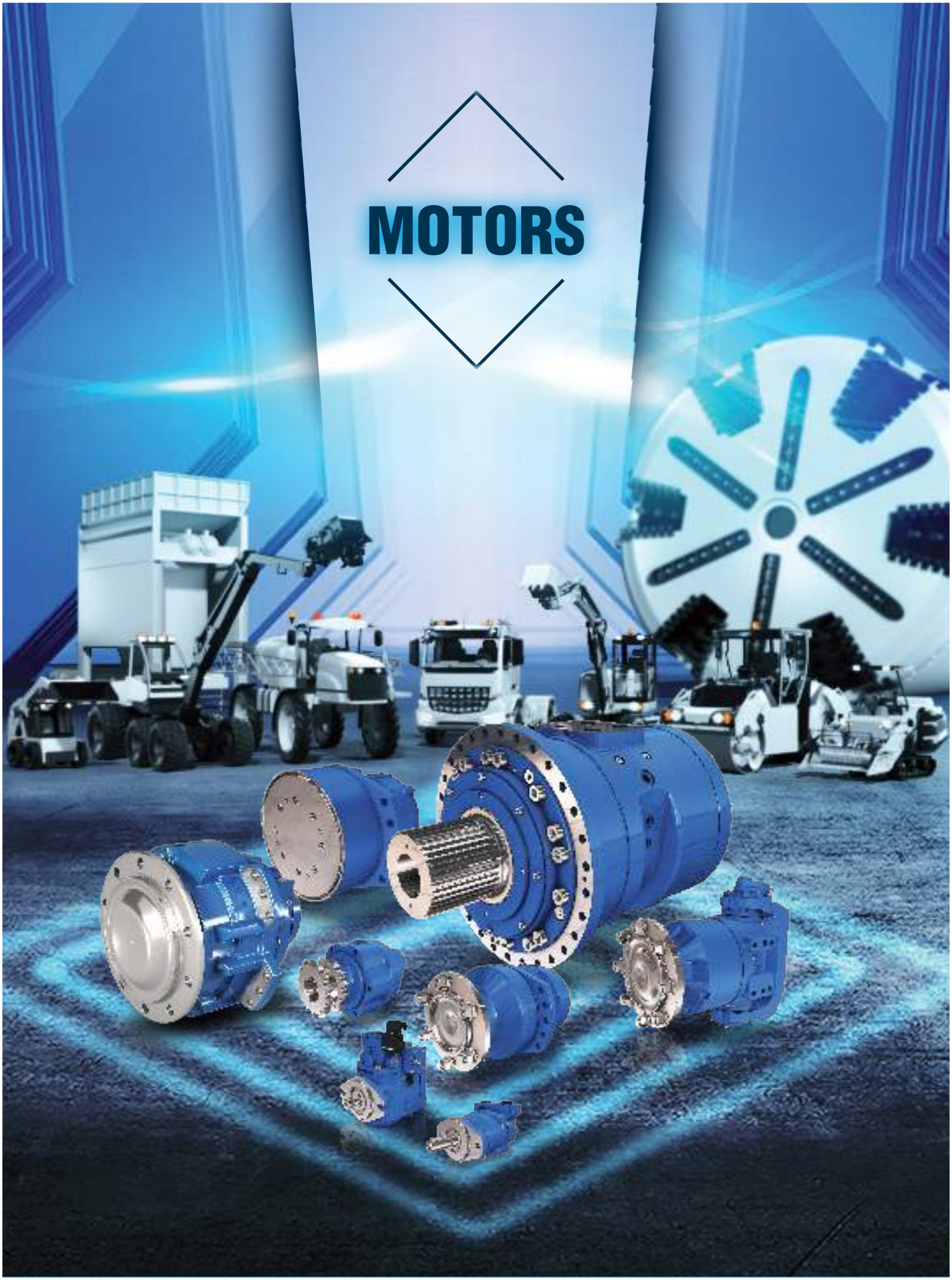
POCLAIN HYDRAULICS INC
1300 N Grandview Parkway
P.O. Box 801
Sturtevant, WI 53177
Tel.: +1 262 321 0676

FRANCE (Motors)

POCLAIN HYDRAULICS
OPERATIONS VERBERIE
Route de Compiègne
60410 Verberie
Tel.: +33 3 44 40 77 77

INDIA (Motors)

POCLAIN HYDRAULICS PVT LTD
No: 131 / 2, Kothapurinatham Road
Mannadipet Commune Panchayat
Thiruvandarkoil
Pondicherry - 605 102
Tel.: +91 4132641444 / 2641477


MOTORS

MODULARITY AND VERSATILITY

MS p.12

Displacement range	172 to 15 000 cm³/rev. [10.5 to 915 cu.in/rev.]
Max. Speed	700 rpm
Max. Power	240 kW [322 HP]

COMPACT

MK

Displacement range	272 to 2 812 cm³/rev. [16.6 to 171.5 cu.in/rev.]
Max. Speed	160 rpm
Max. Power	70 kW [94 HP]

p.32

STEERABLE WHEEL MOTORS

MG

Displacement range	172 to 2 519 cm³/rev. [10.5 to 153 cu.in/rev.]
Max. Speed	510 rpm
Max. Power	80 kW [107 HP]

p.38

SWING DRIVE

MZ

Displacement range	213 to 750 cm³/rev. [13.0 to 45.7 cu.in/rev.]
Max. Speed	470 rpm
Max. Power	29 kW [39 HP]

p.44

SKID-STEER DRIVE

ML

Displacement range	420 to 842 cm³/rev. [25.6 to 51.4 cu.in/rev.]
Max. Speed	330 rpm
Max. Power	30 kW [40 HP]

p.48

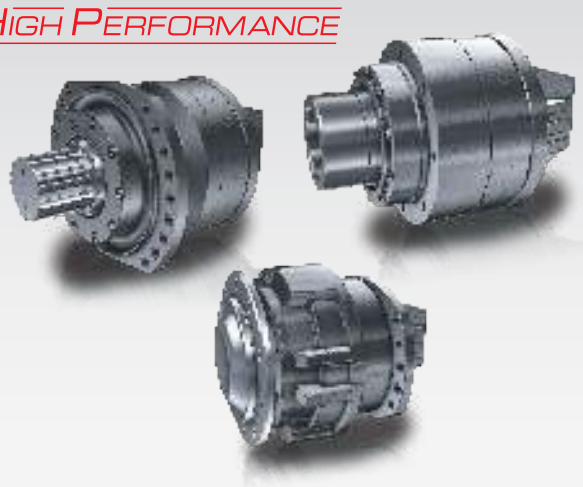
Hydraulic Motors
High Torque & Radial Pistons

HIGH PERFORMANCE

MHP

p.24

Displacement range	933 to 3 526 cm³/rev. [56.9 to 215.2 cu.in/rev.]
Max. Speed	548 rpm
Max. Power	280 kW [375 HP]



HIGH DISPLACEMENT

MI

Displacement range	7 000 to 30 000 cm³/rev. [426.9 to 1,831 cu.in/rev.]
Max. Speed	100 rpm
Max. Power	500 kW [671 HP]

p.52

HYDROBASE FOR WHEEL HUBS

MF

Displacement range	627 to 1 248 cm³/rev. [38.2 to 76.1 cu.in/rev.]
Max. Speed	150 rpm
Max. Power	41 kW [55 HP]

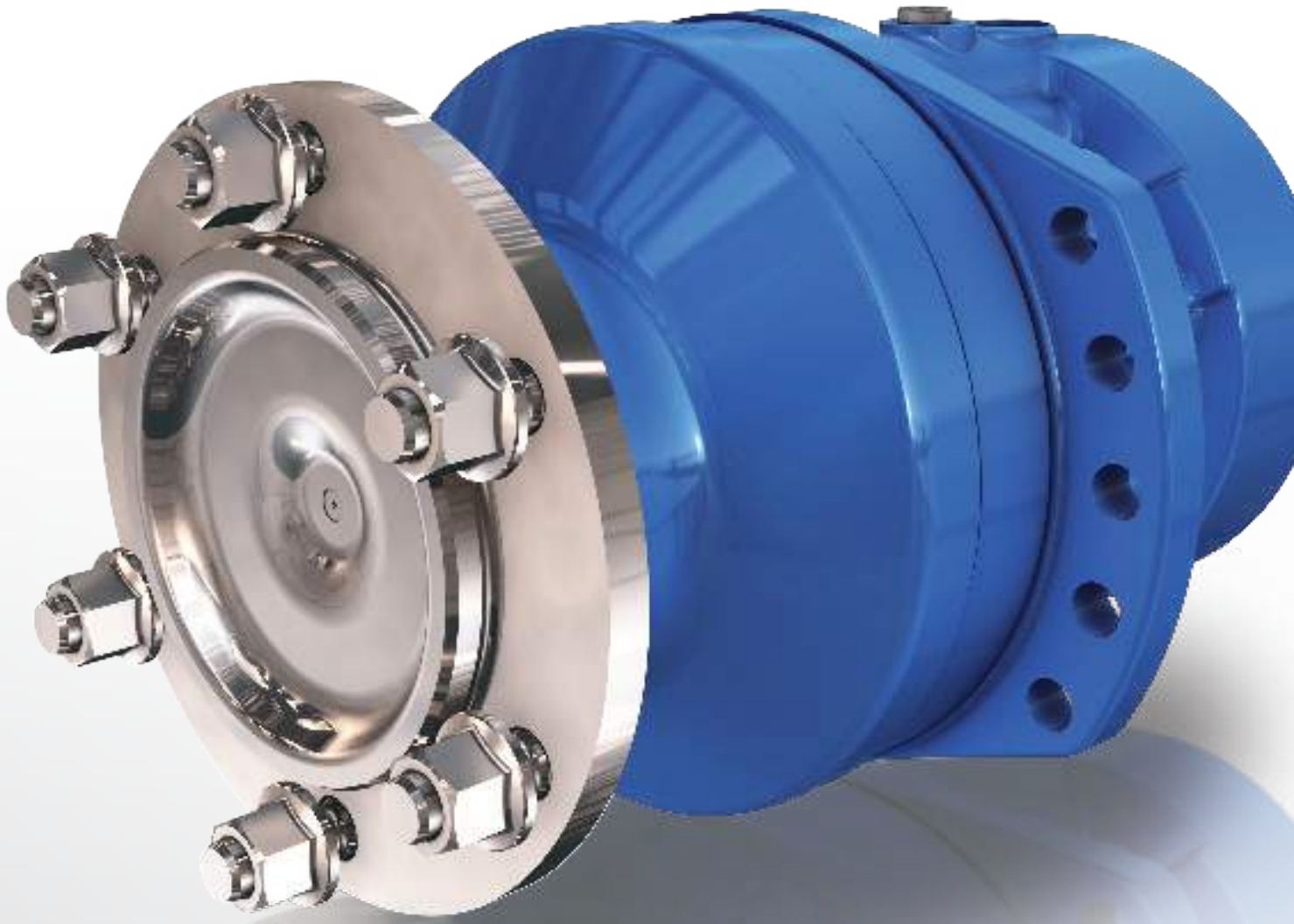
p.56

CREEP DRIVE

CDM

Displacement range	667 to 2 424 cm³/rev. [40.7 to 148.1 cu.in/rev.]
Max. Speed	315 rpm
Max. Power	40 kW [54 HP]

p.60



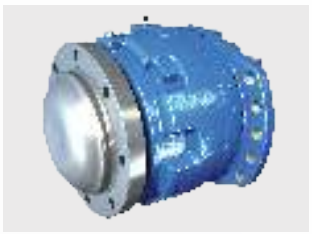
MS

- Large range of motors
- Direct drive
- High radial and axial load capability
- Single or dual displacement
- With or without brake
- Very low noise emission

MODULARITY AND VERSATILITY
A SOLUTION FOR EVERY NEED

MS/MSE02 ▪ MSE03 ▪ MS/MSE05
MS/MS08 ▪ MS/MSE11 ▪ MS/MSE18
MS25 ▪MS35 ▪ MS50 ▪ MS83 ▪ MS125

From 172 to 15 000 cm³/rev. [10.5 to 915 cu.in/rev.]
Up to 77 000 N.m [56,792 lbf.ft]
Up to 450 bar [6,530 PSI]
Up to 900 rpm
Up to 240 kW [322 HP]



Performance MS Standard

		First displacement*				Second displacement**			
	Max. Pressure bar [PSI]	Displacement range cm³/rev [cu.in/rev]	Max. Torque*** N.m [lbf.ft]	Max. Speed RPM	Max. Power kW [HP]	Displacement range cm³/rev [cu.in/rev]	Max. Torque*** N.m [lbf.ft]	Max. Speed RPM	Max. Power kW [HP]
MS02	450 [6,527]	172 - 255 [10.5] - [15.6]	1 800 [1,227]	580	18 [24]	86 - 128 [5.2] - [7.8]	916 [676]	590	12 [16]
MSE02	400 [5,802]	332 - 398 [20.2] - [24.3]	2 500 [1,843]	265	22 [29.5]	166 - 199 [10.1] - [12.1]	1 260 [930]	340	16,5 [22]
MSE03	350 [5,076]	450 - 500 [27.4] - [30.5]	2 780 [2,050]	155	22 [30]	225 - 250 [13.7] - [15.2]	1 390 [1,025]	183	16,5 [22]
MS05	450 [6,527]	260 - 560 [15.9] - [34.2]	4 000 [2,950]	350	29 [39]	130 - 280 [7.9] - [17.1]	2 000 [1,475]	360	19 [25]
MSE05	400 [5,802]	503 - 750 [30.7] - [45.7]	4 770 [3,518]	250	29 [39]	252 - 375 [15.4] - [22.9]	2 390 [1,762]	300	19 [25]
MS08	450 [6,527]	467 - 934 [28.5] - [57.0]	6 690 [4,934]	235	41 [55]	234 - 467 [14.2] - [28.5]	3 345 [2,467]	250	27 [36]
MSE08	400 [5,802]	1 043 - 1 248 [63.6] - [76.1]	7 945 [5,859]	125	41 [55]	522 - 624 [31.8] - [38.1]	3 970 [2,928]	110	27 [36]
MS11	450 [6,527]	730 - 1 259 [44.5] - [76.8]	9 000 [6,638]	200	50 [67]	365 - 630 [22.3] - [38.4]	4 500 [3,319]	200	33 [44]
MSE11	400 [5,802]	1 263 - 1 687 [77.0] - [102.9]	10 700 [7,891]	170	50 [67]	632 - 844 [38.5] - [51.4]	5 370 [3,960]	190	33 [44]
MS18	450 [6,527]	1 091 - 2 099 [66.5] - [128]	15 000 [11,063]	170	70 [94]	546 - 1 050 [33.3] - [64]	7 520 [5,546]	170	47 [63]
MSE18	400 [5,802]	2 340 - 2 812 [142.8] - [171.6]	17 900 [13,202]	90	70 [94]	1 170 - 1 406 [71.4] - [85.8]	8 950 [6,601]	110	47 [63]
MS25	450 [6,527]	2 004- 3 006 [122.3] - [183.4]	21 500 [15,857]	145	90 [121]	1 002- 1 503 [61.1] - [91.7]	10 760 [7,936]	145	60 [80]
MS35	450 [6,527]	2 439 - 4 198 [148.8] - [256]	30 000 [22,126]	140	110 [148]	1 220 - 2 099 [74.4] - [128]	15 000 [11,063]	140	73 [98]
MS50	450 [6,527]	3 500 - 6 011 [213.5] - [366.6]	43 000 [31,715]	205	140 [188]	1 750 - 3 006 [106.7] - [183.3]	21 528 [15,878]	225	93 [125]
MS83	450 [6,527]	6 679 - 10 019 [407.4] - [611.1]	71 755 [52,924]	200	200 [268]	3 340 - 5 010 [203.7] - [305.5]	35 880 [26,464]	145	135 [181]
MS125	320 - 450 [4,641 - 6,527]	10 000 - 15 000 [69] - [915]	77 000 [56,792]	130	240 [322]	5 000 - 7 500 [305] - [457.4]	53 715 [39,618]	105	160 [215]

*Available for single or dual displacement motors
**Only available for dual displacement motors
***Max. theoretical torque (N.m) : 1/(20 π) x max. displacement (cm³/rev.) x max. pressure (bar)

Dimensions MS Standard

1C : Single displacement
2C : Dual displacement

Wheel motors

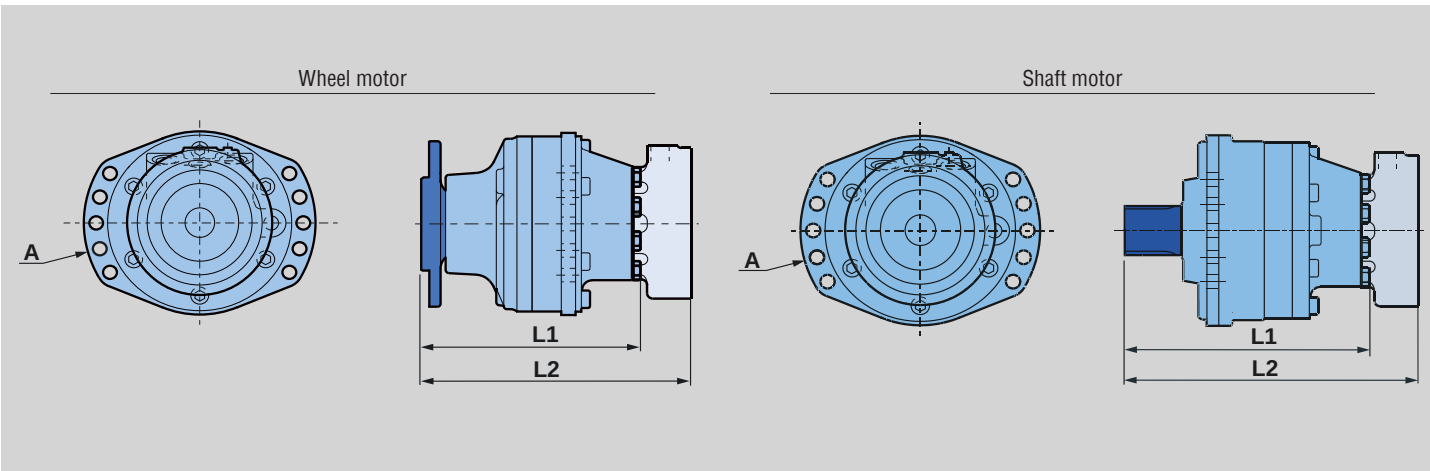
			MS02 MSE02	MSE03	MS05 MSE05	MS08 MSE08	MS11 MSE11	MS18 MSE18	MS25	MS35	MS50	MS83	MS125
L1	1C	mm [in]	224,7 [8.85]	250 [9.84]	280 [11.02]	315 [12.40]	363 [14.29]	395 [15.55]	455 [17.91]	502 [19.76]	590 [23.23]	591 [23.26]	739 [29.09]
	2C	mm [in]	255,7 [10.07]	254 [10.00]	293 [11.54]	331 [13.03]	365 [14.37]	413 [16.25]	455 [17.91]	502 [19.76]	590 [23.23]	591 [23.26]	739 [29.09]
L2 max.*	1C	mm [in]	287,2 [11.30]	296 [11.65]	349,1 [13.74]	402,1 [15.83]	427,5 [16.83]	448,7 [17.66]	593,5 [23.36]	639,5 [25.17]	729 [28.70]	780 [30.71]	906 [35.67]
	2C	mm [in]	318,2 [12.53]	300 [11.8]	362,1 [14.25]	418,1 [16.46]	426,5 [16.79]	458,7 [18.06]	612,5 [24.11]	639,5 [25.17]	729 [28.70]	780 [30.71]	906 [35.67]
A dia. max.		mm [in]	235 [9.25]	238 [9.37]	300 [11.81]	335 [13.19]	375 [14.76]	425 [16.73]	485 [19.09]	485 [19.09]	485 [19.09]	555,5 [21.87]	565 [22.24]
Weight max.**		kg [lb]	34 [75]	32 [70]	52 [114]	84 [185]	116 [255]	160 [352]	270 [594]	269 [592]	415 [913]	546 [1,201]	563 [1,239]

* Wheel motor with the longest multidiscs brake.
** Full displacement wheel motor with multidiscs brake.

Shaft motors

			MS02 MSE02	MSE03	MS05 MSE05	MS08 MSE08	MS11 MSE11	MS18 MSE18	MS25	MS35	MS50	MS83	MS125
L1	1C	mm [in]	258,1 [10.16]	- -	308 [12.13]	340 [13.38]	380 [14.96]	432 [17.00]	525 [20.67]	580 [22.83]	678 [26.69]	822 [32.36]	822 [32.36]
	2C	mm [in]	289,5 [11.4]	- -	324 [12.76]	356 [14.02]	398 [15.28]	451 [17.76]	525 [20.67]	580 [22.83]	678 [26.69]	822 [32.36]	822 [32.36]
L2 max.*	1C	mm [in]	310,5 [12.22]	- -	377 [14.84]	392 [15.43]	458,5 [18.05]	532,3 [20.95]	664 [26.14]	717 [28.22]	817 [32.16]	955 [37.60]	962 [37.87]
	2C	mm [in]	338 [13.3]	- -	393 [15.47]	409 [16.10]	458,5 [18.05]	532,3 [20.95]	664 [26.14]	717 [28.22]	817 [32.16]	955 [37.60]	962 [37.87]
A dia. max.		mm [in]	235 [8.07]	- -	300 [11.81]	335 [13.19]	375 [14.76]	425 [16.73]	485 [19.09]	425 [16.73]	485 [19.09]	565 [22.24]	565 [22.24]
Weight max.**		kg [lb]	36 [79]	- -	55 [121]	85 [187]	114 [251]	152 [334]	255 [561]	269 [592]	370 [814]	527 [1,159]	573 [1,261]

* Shaft motor with the longest multidiscs brake.
** Full displacement shaft motor with multidiscs brake.

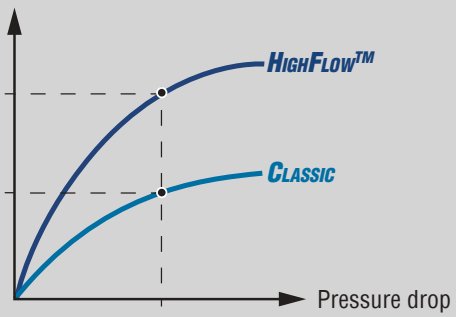


HIGHFLOW™

Maximum productivity with a minimum consumption

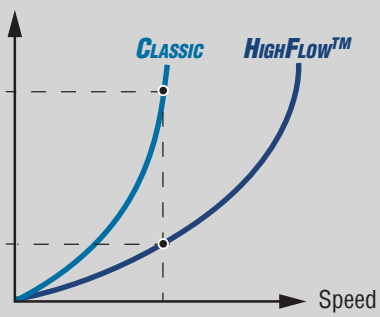
The MS HighFlow™ motor range has all the successful qualities of the MS Classic range.
They are: modular, robust and they offer additional performance in term of speed.

Maximum Speeds +50%



At an equivalent pressure drop,
a HighFlow™ motor can reach higher speeds.

Pressure Drops -50%

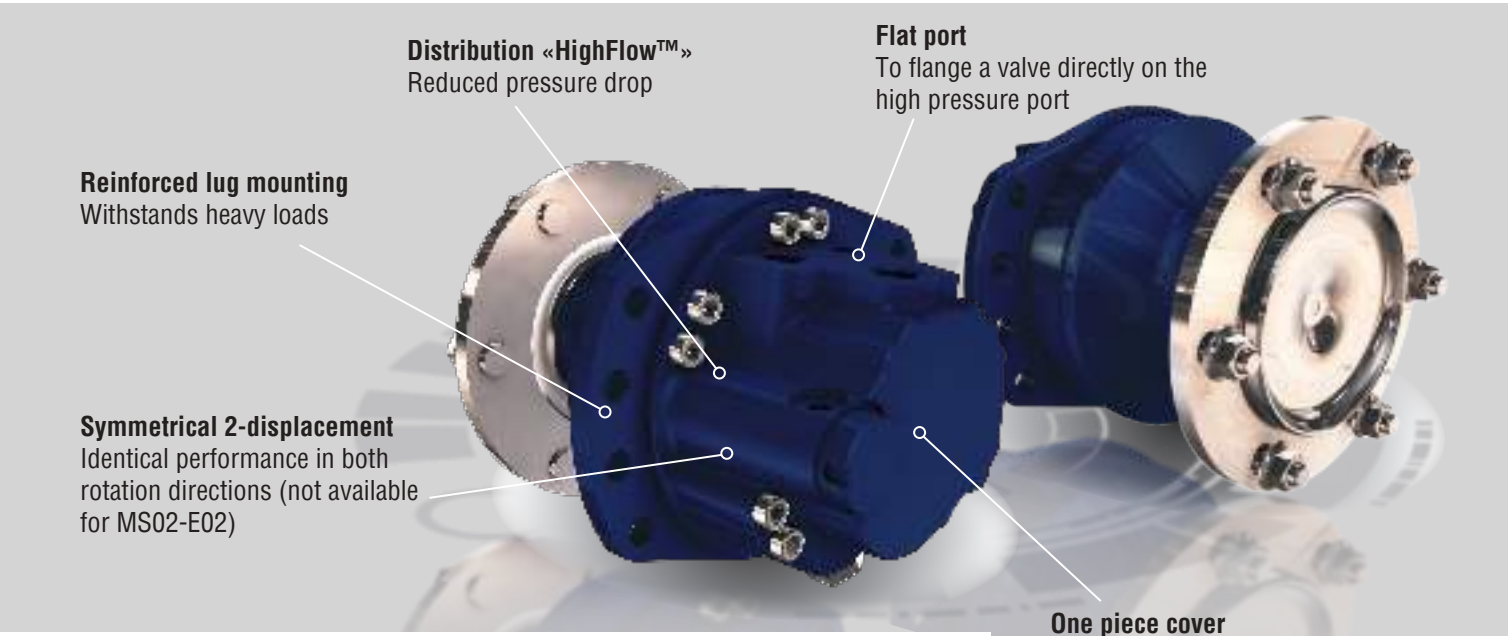


At an equivalent speed,
a HighFlow™ motor reduces pressure drops.

Performance MS HighFlow™

		First displacement*				Second displacement**			
	Max. Pressure bar [PSI]	Displacement range cm³/rev [cu.in/rev]	Max. Torque*** N.m [lbf.ft]	Max. Speed RPM	Max. Power kW [HP]	Displacement range cm³/rev [cu.in/rev]	Max. Torque*** N.m [lbf.ft]	Max. Speed RPM	Max. Power kW [HP]
MS02	450 [6,527]	172 - 255 [10.5] - [15.6]	1 800 [1,227]	850	18 [24]	86 - 128 [5.2] - [7.8]	916 [676]	900	12 [16]
MSE02	400 [5,802]	332 - 398 [20.2] - [24.3]	2 500 [1,843]	440	22 [29.5]	166 - 199 [10.1] - [12.1]	1 260 [930]	470	16,5 [22]
MS05	450 [6,527]	260 - 560 [15.9] - [34.2]	4 000 [2,950]	700	50 [67]	130 - 280 [7.9] - [17.1]	2 000 [1,475]	630	30 [40]
MSE05	400 [5,802]	503 - 750 [30.7] - [45.7]	4 770 [3,518]	380	50 [67]	252 - 375 [15.4] - [22.9]	2 390 [1,762]	370	30 [40]
MS08	450 [6,527]	467 - 934 [28.5] - [57.0]	6 690 [4,934]	450	41 [55]	234 - 467 [14.2] - [28.5]	3 345 [2,467]	450	27 [36]
MSE08	400 [5,802]	1 043 - 1 248 [63.6] - [76.1]	7 945 [5,859]	210	41 [55]	522 - 624 [31.8] - [38.1]	3 970 [2,928]	220	27 [36]

*Available for single or dual displacement motors
**Only available for dual displacement motors
***Max. theoretical torque (N.m) : 1/(20 π) x max. displacement (cm³/rev.) x max. pressure (bar)

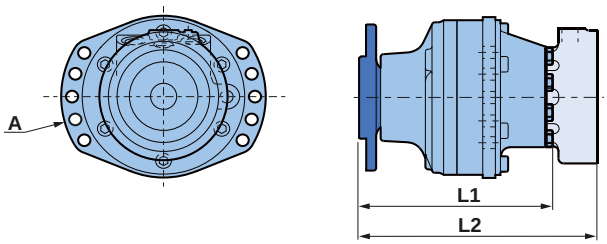


Dimensions MS HighFlow™

1C : One displacement
2C : Dual displacement

Wheel motors

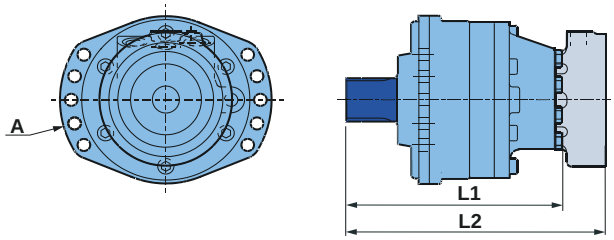
			MS02 MSE02	MS05 MSE05	MS08 MSE08
L1	1C	mm [in]	247,9 [9.76]	312 [12.28]	295 [11.61]
	2C	mm [in]	255,7 [10.07]	332 [13.07]	336,8 [13.26]
L2 max.*	1C	mm [in]	310,4 [12.22]	380,5 [14.98]	383,2 [15.08]
	2C	mm [in]	318,2 [12.53]	400,5 [15.76]	425 [16.73]
A dia. max.		mm [in]	235 [9.25]	300 [11.81]	335 [13.19]
Weight max.**		kg [lb]	39,5 [87]	57,5 [127]	89,5 [197]



* Wheel motor with the longest multidiscs brake. ** Full displacement wheel motor with multidiscs brake.

Shaft motors

			MS02 MSE02	MS05 MSE05	MS08 MSE08
L1	1C	mm [in]	258,1 [10.16]	308 [12.13]	340 [13.38]
	2C	mm [in]	289,5 [11.4]	324 [12.76]	356 [14.02]
L2 max.*	1C	mm [in]	310,5 [12.22]	400 [15.75]	392 [15.43]
	2C	mm [in]	338 [13.3]	416 [16.38]	409 [16.10]
A dia. max.		mm [in]	235 [8.07]	300 [11.81]	335 [13.19]
Weight max.**		kg [lb]	41,5 [91]	60,5 [133]	90,5 [199]



* Shaft motor with the longest multidiscs brake. ** Full displacement shaft motor with multidiscs brake.

Bearing support types

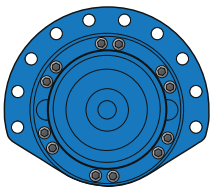





	Wheel flange	Male splined shaft	Keyed shaft	Female splined shaft	Shaft for shrink disc	Dual sprocket shaft
		NF E 22141 DIN 5480		DIN 5480		
MS02-E02	●	●	●			●
MSE03	●					
MS05-E05	●	●	●			●
MS08-E08	●	●	●			
MS11-E11	●	●				
MS18-E18	●	●	●		●	
MS25	●	●			●	
MS35	●	●			●	
MS50	●	●		●	●	
MS83	●	●		●	●	
MS125	●	●		●	●	

Chassis fixation types



	On the valving cover Two lugs	On the bearing support Two lugs	On the bearing support Circular	Horse shoe
MS02-E02	●	●		
MSE03	●	●		
MS05-E05	●	●		●
MS08-E08	●	●		
MS11-E11	●	●		
MS18-E18	●	●		
MS25	●	●		
MS35	●	●	●	
MS50	●		●	
MS83	●		●	
MS125	●		●	

PHAST PROGRAM

Fast delivery

Poclain Hydraulics is committed to supplying a number of standard motors **within 15 business days**, excluding transport.
This delivery time applies to any order of one to four identical hydraulic motors of a given size.

Making their selection from a predetermined list of motors, machine manufacturers can choose from wheel motors or shaft motors, 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.

Motor types

MS02-E02	MS05-E05	MS08-E08	MS11-E11	MS18-E18	MS35	MS50	MS83	MS125	MI250
•	•	•	•	•	•	•	•	•	•

More information > Page162

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

Brakes

Multidisc parking brake mounted at the rear of the motor

- P brake: brake with standard rear plate
- T brake: brake with reinforced rear plate
- Parking brake release pressure: 12 to 30 bar [174 to 435 PSI]

Max. parking braking torque

	N.m [lb.ft]	MS02 MSE02	MSE03	MS05 MSE05	MS08 MSE08	MS11 MSE11	MS18 MSE18	MS25	MS35	MS50	MS83	MS125
T03	2 500 [1,840]	●	●									
T04	4 220 [3,110]			●								
T08	5 620 [4,150]				●							
T09	9 000 [6,640]				●							
T12	11 840 [8,730]					●	●		●			
T19	18 600 [13,720]						●		●			
P21	20 500 [15,120]							●	●	●		
T42	25 000 [18,440]							●	●	●		
T50	30 000 [22,130]							●	●	●		
T83	42 000 [30,980]									●		
T80	72 000 [53,104]										●	●

Multidisc parking brake mounted in the bearing support

- Parking brake release pressure: 16 to 30 bar [232 to 435 PSI]
- Negative brake

Mini. parking braking torque

	N.m [lb.ft]	MS05/E05	MS11/E11	MS18/E18	MS35
P05	4 500 [3,320]	●			
P17	16 000 [11,801]		●		
P20	20 000 [14,751]			●	●
P27	19 800 [14,604]			●	●

MS18
with S20/P20 brake

Multidisc service brake mounted in the bearing support

- Pressure to obtain max. service braking torque: 120 bar [1,740 PSI]
- Positive brake

Average service braking torque

	N.m [lb.ft]	MS11/E11	MS18/E18	MS35
S17	22 000 [16,226]	●		
S20	25 000 [18,439]		●	●

MS18
with C27 brake

Multidisc parking and service brake mounted in the bearing support

- Parking brake release pressure: 100 to 130 bar [1,450 to 1,885 PSI]
- Negative brake

- Pressure to obtain max. service braking torque: 70 bar [1,015 PSI]
- Positive brake

Mini. parking and average service braking torque

	Parking	Service		
	N.m [lb.ft]	N.m [lb.ft]	MS18/E18	MS35
C27	18 000 [13,276]	32 000 [23,602]	●	●

Drum brake

Friction surface	Max. parking braking torque	Max. service braking torque								
mm	N.m [lb.ft]	N.m [lb.ft]	MS02 MSE02	MS05 MSE05	MS08 MSE08	MS11 MSE11	MS18 MSE18	MS25	MS35	MS50
200 x 40	1 300 [959]	1 300 [959]	●							
203 x 60	2 750 [2,028]	2 750 [2,028]	●							
250 x 60	5 000 [3,688]	5 000 [3,688]		●						
270 x 60	6 000 [4,425]	6 000 [4,425]			●					
315 x 80	12 000 [8,851]	12 000 [8,851]			●	●				
350 x 60	11 000 [8,113]	11 000 [8,113]					●			
432 x 102	27 000 [19,914]	27 000 [19,914]					●	●	●	●

Caliper brake

Max. service braking torque

mm	N.m [lb.ft]	MS02 MSE02
Dia. 302	1 930 [1,423]	●

MS02
with caliper brake

MS35
with drum brake

BOOSTED BRAKE

More security for self-propelled machines

Improve the braking performance of self-propelled machines by using the entirely hydrostatic braking capacity of hydraulic motors. The technology - Boosted Brake - meets the braking requirements for machines running at 40 kph [24.8 mph].

On a self-propelled machine running at 40 kph [24.8 mph] the hydrostatic brake must be combined with a friction brake to meet European regulations of deceleration.
Poclain Hydraulics has developed a new technology - Boosted Brake - to increase the hydrostatic braking capacity of self-propelled machines.

Motor sizes

MS18-E18	MS35	MHP11	MHP13	MHP17	MHP20	MHP27
●	●	●	●	●	●	●

More information > Page148

Optional features

Temperature control

	MS02-E02	MSE03	MS05-E05	MS08-E08	MS11-E11	MS18-E18	MS25	MS35	MS50	MS83	MS125
Exchange valve	●		●	●	●	●		●			
High efficiency (zero clearance pistons/ring)	●	●	●	●	●	●	●	●	●	●	●
Additional case flushing port	●	●	●	●	●	●	●	●	●	●	●

Speed

	MS02-E02	MSE03	MS05-E05	MS08-E08	MS11-E11	MS18-E18	MS25	MS35	MS50	MS83	MS125
High speed / Low pressure drop (Butterfly valving)	●	●	●	●	●	●	●	●	●	●	●
Speed sensor	●	●	●	●	●	●	●	●	●	●	●

Reinforcement

	MS02-E02	MSE03	MS05-E05	MS08-E08	MS11-E11	MS18-E18	MS25	MS35	MS50	MS83	MS125
Extra long life (Diamond™)	●	●	●	●	●	●	●	●	●	●	●
PEEK bushing (against high temperature)	●	●	●	●	●	●	●	●	●	●	●
Reinforced back plate	●	●	●	●	●	●	●	●	●	●	●
Monobloc cover			●	●							

High pressure connection

	MS02-E02	MSE03	MS05-E05	MS08-E08	MS11-E11	MS18-E18	MS25	MS35	MS50	MS83	MS125
SAE Flange			●	●	●	●	●	●	●	●	●
Metric	●		●	●	●	●		●			
UNF	●	●	●	●	●	●		●			
Manifold interface			●	●	●	●				●	●
GAS	●	●	●	●	●	●		●			●

Hollow shaft (only for splined shaft motor)

MS02-E02	MSE03	MS05-E05	MS08-E08	MS11-E11	MS18-E18	MS25	MS35	MS50	MS83	MS125
●		●	●	●	●	●	●	●	●	●

TWIN-LOCK™ : FULLY HYDROSTATIC ANTI-SKID SYSTEM

Increase the off-road capability of your machines

Wheel adherence is a critical factor with off road vehicles. Lose adequate wheel contact with the ground and you can lose control of your machine, put it temporarily out of service, cause premature tire wear, dramatically increase fuel consumption or churn up the site. Poclain Hydraulics, a specialist in hydrostatic transmission, has designed and developed Twin-Lock™ to increase the performance of its hydrostatic drive systems on difficult ground conditions and steep gradients.

Motor sizes

MS02-E02	MSE03	MS05-E05	MS08-E08	MS11-E11	MS18-E18	MS35	MS50
●	●	●	●	●	●	●	●

More information > Page142

Torque arms and shrink discs

To ease the integration of our motors into your machines, Poclain Hydraulics can supply motors with adapted torque arms and shrink discs.

MS125 motor with shrink discs

MHP

- Higher speed and power
- High efficiency
- One, dual, three or four displacements
- With or without brake
- Compactness

HIGH PERFORMANCE MOTORS

HIGH PERFORMANCE

MHP11 ▪ MHP13 ▪ MHP17
MHP20 ▪ MHP27

From 933 to 3 526 cm^3/rev. [56.9 to 215.2 cu.in/rev.]
Up to 28 059 N.m [20,695 lbf.ft]
Up to 500 bar [7,252 PSI]
Up to 548 rpm
Up to 280 kW [375 HP]

Performance

		Max. Pressure bar [PSI]	Max.Speed RPM	Displacement range cm³/rev [cu.in/rev]	Max. Torque* N.m [lbf.ft]	Max. Power** kW [HP]
Single displacement motors	**MHP11**	450 [6,527]	324	933 - 1 401 [56.9] - [85.5]	10 000 [7,376]	104 [139]
	MHP13	500 [7,252]	520	900 - 1 542 [54.9] - [94.1]	12 258 [9,041]	151 [202]
	MHP17	500 [7,252]	379	1 200 - 2 238 [73.2] - [136.6]	17 792 [13,123]	249 [334]
	MHP20	500 [7,252]	505	1 416 - 2 427 [86.4] - [148.1]	19 313 [14,244]	200 [268]
	MHP27	500 [7,252]	340	1 893 - 3 526 [115.5] - [215.2]	28 059 [20,695]	280 [375]
Dual displacements motors* **	**MHP11**	450 [6,527]	318	311 - 1 401 [19.0] - [85.5]	10 000 [7,376]	106 [142]
	MHP13	500 [7,252]	548	300 - 1 542 [18.3] - [136.6]	12 258 [9,041]	158 [212]
	MHP17	500 [7,252]	398	400 - 2 238 [24.4] - [85.4]	17 792 [13,123]	241 [323]
	MHP20	500 [7,252]	520	531 - 2 427 [32.4] - [148.1]	19 313 [14,244]	190 [255]
	MHP27	500 [7,252]	345	710 - 3 526 [32.4] - [215.2]	28 059 [20,695]	230 [308]
Three displacements motors	**MHP11**	450 [6,527]	293	311 - 1 401 [19.0] - [85.5]	10 000 [7,376]	105 [141]
	MHP13	500 [7,252]	491	300 - 1 542 [18.3] - [136.6]	12 258 [9,041]	154 [206]
	MHP17	500 [7,252]	360	400 - 2 238 [24.4] - [85.4]	17 792 [13,123]	250 [335]
	MHP20	500 [7,252]	480	354 - 2 427 [21.6] - [148.1]	19 313 [14,244]	175 [235]
	MHP27	500 [7,252]	330	473 - 3 526 [28.9] - [215.2]	28 059 [20,695]	215 [288]
Four displacements motors	**MHP20**	500 [7,252]	435	354 - 2 427 [21.6] - [148.1]	19 313 [14,244]	175 [235]
	MHP27	450 [6,527]	316	473 - 3 526 [28.9] - [215.2]	28 059 [20,695]	215 [288]

*Max. theoretical torque (N.m) : 1/(20 π) x max. displacement (cm³/rev.) x max. pressure (bar)
**Max. power obtained at max. speed
*** Symetrical valving available in configuration without boosted brake

Bearing support types

	Wheel flange	Wheel flange service brake	Wheel flange parking brake	Wheel flange combined brake	Male splined shaft	Male splined shaft parking brake	Female splined shaft	Shaft for shrink disc
					NF-E22-141 DIN 5480	NF-E22-141 DIN 5480	DIN 5480	
MHP11	●	●	●		●	●		
MHP13	●	●	●		●	●		
MHP17	●	●	●		●	●		
MHP20	●	●	●	●	●	●	●	●
MHP27	●	●	●	●	●	●	●	●

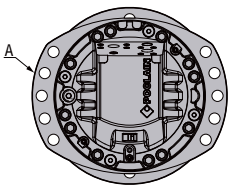
Chassis fixation types

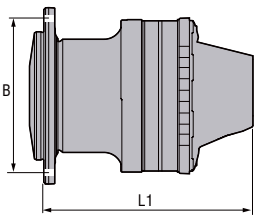
	On the valving cover Two lugs	On the bearing support Four lugs	On the bearing support Two lugs	On the bearing support
MHP11	●		●	
MHP13	●		●	
MHP17	●		●	
MHP20	●	●	●	●
MHP27	●	●	●	●

Dimensions

Thanks to its compactness and modularity, the integration of the MHP motor on customers machine is more easily facilitated, which helps to cut design and assembly cost for the OEMs, while allowing them to offer versatile and customized solutions to their end-customers.

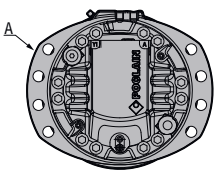
Wheel flange motor

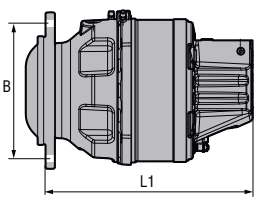




		MHP11	MHP13 MHP17	MHP20 MHP27
L1 max.	mm [in]	360,4 [14.19]	387,4 [15.25]	458,1 [18.03]
dia. A max.	mm [in]	377 [14.84]	377 [14.84]	425 [16.73]
dia. B max.	mm [in]	275 [10.83]	275 [10.83]	275 [10.83]
Weight max.	kg [lb]	- [-]	- [-]	170 [375]

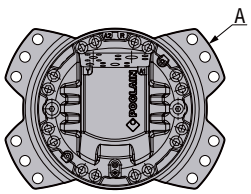
Wheel flange motor with P17-P20 parking brake or S17-S20 service brake

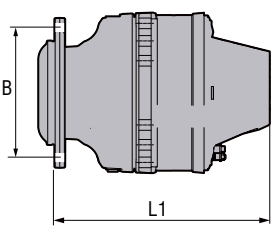




		MHP11 (P17 - S17)	MHP13 MHP17 (P17 - S17)	MHP20 MHP27 (P20-S20)
L1 max.	mm [in]	392,3 [15.44]	420,4 [16.55]	430,7 [16.96]
dia. A max.	mm [in]	377 [14.84]	377 [14.84]	425 [16.73]
dia. B max.	mm [in]	275 [10.83]	275 [10.83]	335 [13.19]
Weight max.	kg [lb]	- [-]	- [-]	- [-]

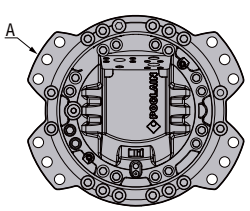
Wheel flange motor with P27 parking brake

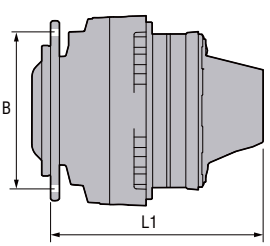




		MHP20 MHP27
L1 max.	mm [in]	456,1 [17.96]
dia. A max.	mm [in]	483 [19.01]
dia. B max.	mm [in]	335 [13.19]
Weight max.	kg [lb]	231 [509]

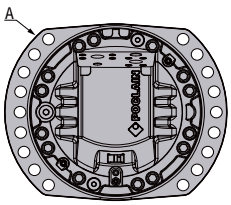
Wheel flange motor with C27 combined brake

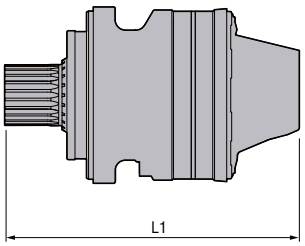




		MHP20 MHP27
L1 max.	mm [in]	456,1 [17.96]
dia. A max.	mm [in]	482 [18.98]
dia. B max.	mm [in]	335 [13.19]
Weight max.	kg [lb]	240 [529]

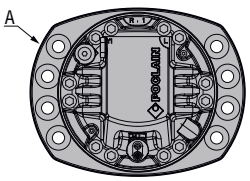
Male splined shaft motor

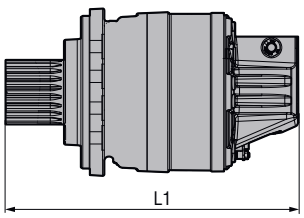




		MHP13 MHP17	MHP20 MHP27
L1 max.	mm [in]	444 [17.48]	568 [22.36]
dia. A max.	mm [in]	375 [14.76]	425 [16.73]
Weight max.	kg [lb]	- [-]	136 [299]

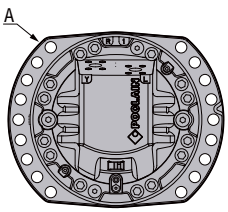
Male splined shaft motor with P17-P20 parking brake

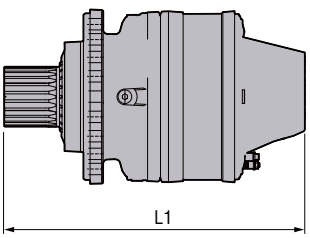




		MHP13 MHP17 (P17)
L1 max.	mm [in]	541 [21.30]
dia. A max.	mm [in]	393 [15.47]
Weight max.	kg [lb]	- [-]

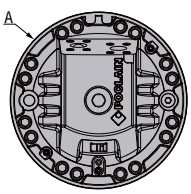
Male splined shaft motor with P27 parking brake

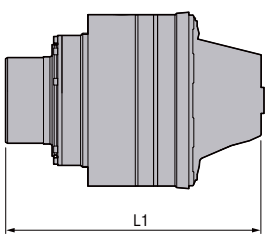




		MHP20 MHP27
L1 max.	mm [in]	599 [23.58]
dia. A max.	mm [in]	425 [16.73]
Weight max.	kg [lb]	230 [507]

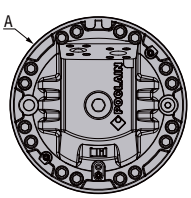
Female splined shaft motor

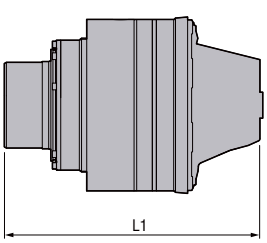




		MHP20 MHP27
L1 max.	mm [in]	502 [19.76]
dia. A max.	mm [in]	340 [13.38]
Weight max.	kg [lb]	157 [346]

Shrink disc motor





		MHP20 MHP27
L1 max.	mm [in]	495 [19.49]
dia. A max.	mm [in]	340 [13.38]
Weight max.	kg [lb]	157 [346]

Brakes

Multidisc parking brake mounted in the bearing support

- Parking brake release pressure: 16 to 30 bar [232 to 435 PSI]
- Negative brake

Mini. parking braking torque

	N.m [lb.ft]	MHP11	MHP13	MHP17	MHP20	MHP27
P17	16 000 [11,801]	●	●	●		
P20	21 700 [16,005]				●	●
P27	29 200 [21,537]				●	●

MHP20/27
with P27 brake

MHP13/17
with P17 brake

Multidisc service brake mounted in the bearing support

- Pressure to obtain max. service braking torque: 120 bar [1,740 PSI]
- Positive brake

Average service braking torque

	N.m [lb.ft]	MHP11	MHP13	MHP17	MHP20	MHP27
S17	21 300 [15,710]	●	●	●		
S20	25 000 [18,439]				●	●

MHP13/17
with S17 brake

Multidisc combined brake mounted in the bearing support or in the cover

The C27 combined brake available on MHP 20 and MHP 27 motors, combines service and parking brake ability and offers powerful and reliable braking performance thanks to its closed design (wet discs technology) not sensitive to external pollution.

- Parking brake release pressure: 100 to 130 bar [1,450 to 1,885 PSI]
- Negative brake

- Pressure to obtain max. service braking torque: 70 bar [1,015 PSI]
- Positive brake

Mini. parking and average braking torque

	Parking	Service		
	N.m [lb.ft]	N.m [lb.ft]	MHP20	MHP27
C27	18 000 [13,276]	32 000 [23,602]	●	●

MHP20/27
with C27 brake

BOOSTED BRAKE

More security for self-propelled machines

Improve the braking performance of self-propelled machines by using the entirely hydrostatic braking capacity of hydraulic motors. The technology - Boosted Brake - meets the braking requirements for machines running at 40 kph [24.8 mph].

On a self-propelled machine running at 40kph [24.8 mph] the hydrostatic brake must be combined with a friction brake to meet European regulations of deceleration.
Poclain Hydraulics has developed a new technology - Boosted Brake - to increase the hydrostatic braking capacity of self-propelled machines.

Motor sizes

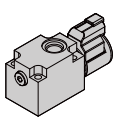
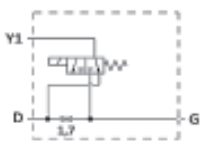
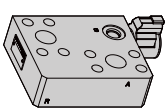
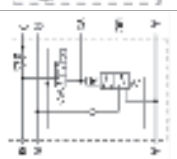
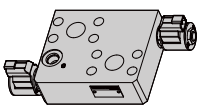
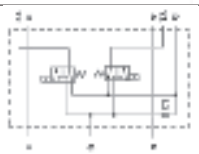
MS18-E18	MS35	MHP11	MHP13	MHP17	MHP20	MHP27
●	●	●	●	●	●	●

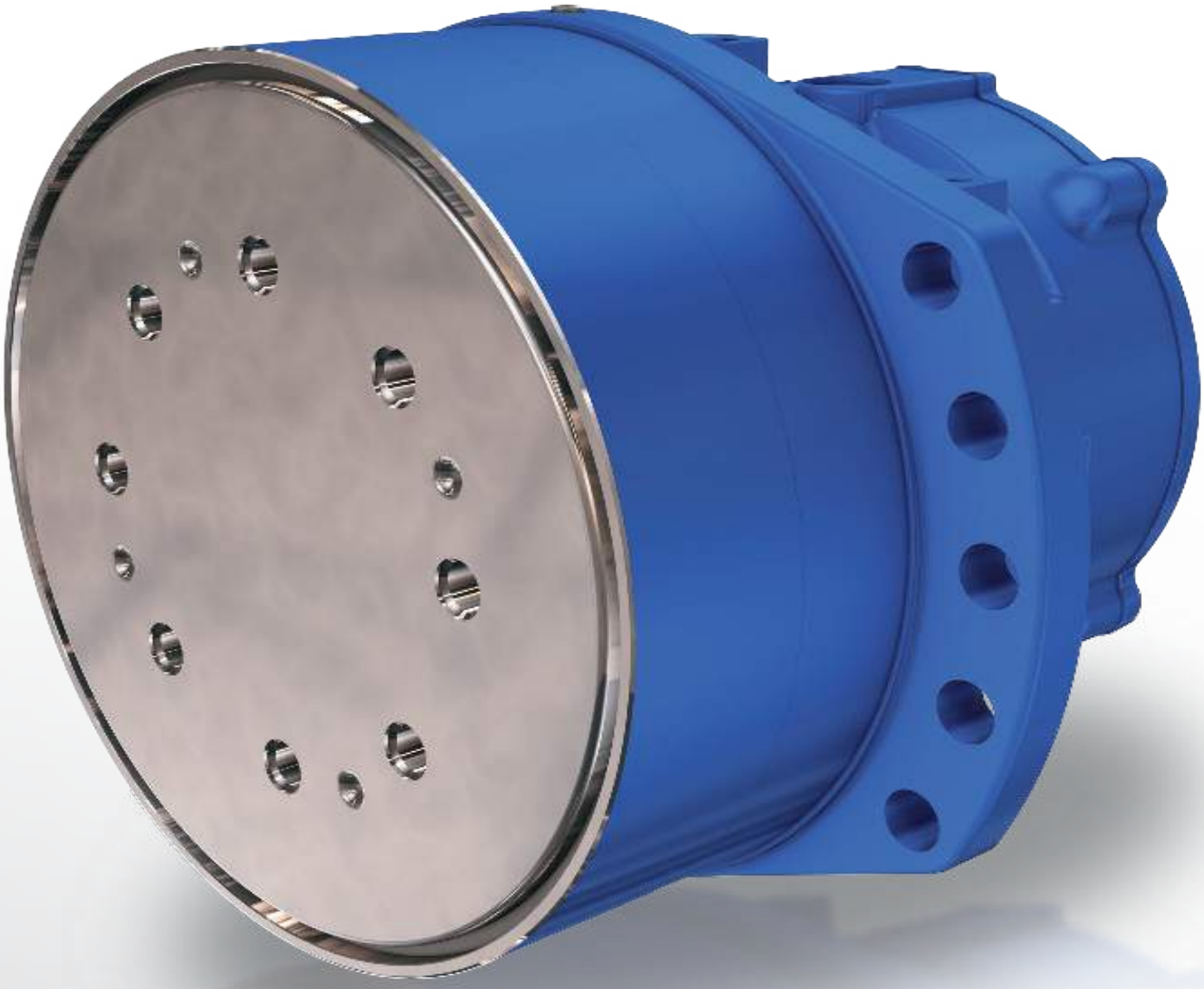
More information > Page 148

Flanged valves

Designed with a flat porting surface, the MHP 20 and MHP 27 motors can receive valve blocks, which can be flanged on the cover in order to enhance the control (electrical command for displacement shifting) and simplify the piping on the machine.

MHP20/27
with 3rd displacement
piloting valve

	Piloting	Max. operating pressure	Max.flow	Hydraulic schematics
		bar [PSI]	L/min [GPM]	
	2nd displacement	500 [7,252]	30 [7.92]	
	2nd displacement + Boosted brake	150 [2,175]	15 [3.96]	
	3rd displacement	500 [7,252]	30 [7.92]	



MK

- Ultra-short motors
- Large diameter 4 contact roller bearing
- Single or dual displacement
- With or without brake
- Compactor drive applications

COMPACTNESS
THE SHORTEST AXIAL DIMENSION

MK/MKD04 ▪ MK05 ▪ MK09
MK/MKE12 ▪ MK/MKE18

- From 272 to 2 812 cm^3/rev. [16.6 to 171.5 cu.in/rev.]
- Up to 15 030 N.m [11,085 lbf.ft]
- Up to 450 bar [6,530 PSI]
- Up to 160 rpm
- Up to 70 kW [94 HP]

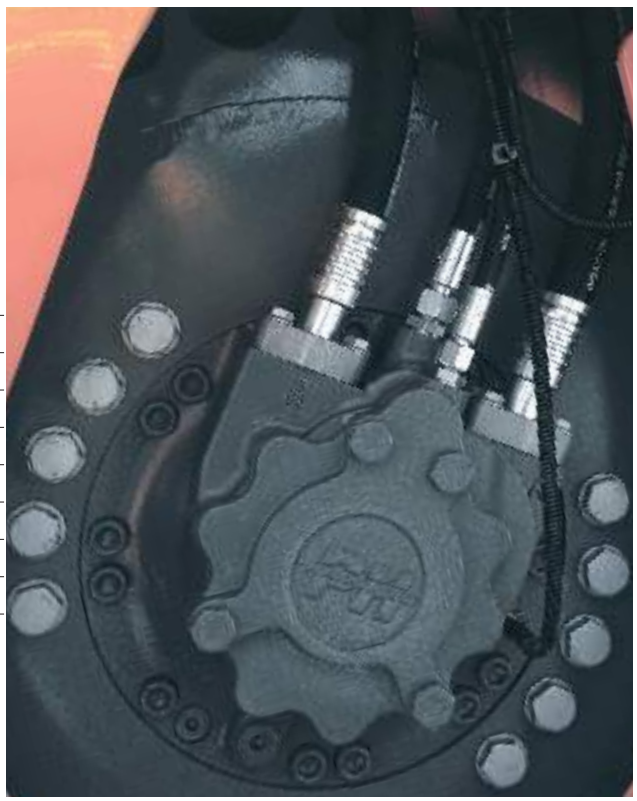
Performance

		First displacement*				Second displacement**			
	Max. Pressure bar [PSI]	Displacement range cm³/rev [cu.in/rev]	Max. Torque*** N.m [lbf.ft]	Max. Speed RPM	Max. Power kW [HP]	Displacement range cm³/rev [cu.in/rev]	Max. Torque*** N.m [lbf.ft]	Max. Speed RPM	Max. Power kW [HP]
MK04	400 [5,802]	272 - 408 [16.6] - [24.9]	2 600 [1,918]	120	18 [24]	- -	- -	-	- -
MKD04	400 [5,802]	456 - 545 [27.8] - [33.2]	3 470 [2,559]	90	18 [24]	- -	- -	-	- -
MK05	400 [5,802]	272 - 670 [16.6] - [40.9]	4 265 [3,146]	130	22,5 [30]	- -	- -	-	- -
MK09	400 [5,802]	667 - 1 000 [40.7] - [61.0]	6 370 [4,698]	100	30 [40]	- -	- -	-	- -
MK12	450 [6,527]	627 - 934 [38.2] - [57.0]	6 690 [4,934]	100	41 [55]	313 - 467 [19.1] - [28.5]	3 345 [2,467]	100	27 [36]
MKE12	450 [6,527]	1 043 - 1 356 [63.6] - [82.7]	9 710 [7,162]	100	41 [55]	521 - 678 [31.8] - [41.4]	4 855 [3,581]	100	27 [36]
MK18	450 [6,527]	1 395 - 2 099 [85.1] - [128]	15 030 [11,085]	155	70 [94]	697 - 1 049 [42.5] - [64.0]	7 510 [5,539]	160	47 [63]
MKE18	400 [5,802]	2 340 - 2 812 [142.7] - [171.5]	17 900 [13,202]	90	70 [94]	1 170 - 1 406 [71.4] - [85.8]	8 950 [6,601]	110	47 [63]

*Available for single or dual displacement motors
**Only available for dual displacement motors
***Max. theoretical torque (N.m) : 1/(20 π) x max. displacement (cm³/rev.) x max. pressure (bar)

Chassis fixation types

	On the bearing support Circular	On the valving cover Two lugs	From rear of motor
MK04	●		
MKD04	●		
MK05			●
MK09			●
MK12		●	
MKE12		●	
MK18		●	
MKE18		●	



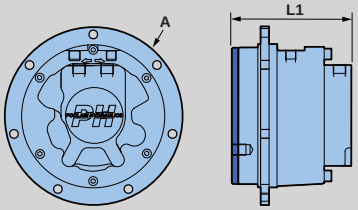
Dimensions

1C : One displacement
2C : Dual displacement

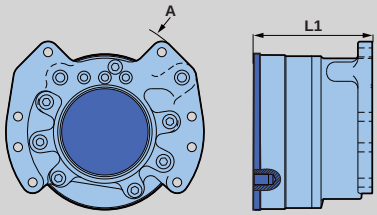
			MK04	MKD04	MK05 axial	MK05 radial	MK09	MK12 MKE12	MK18 MKE18
L1	1C	mm [in]	172,7 [6.80]	176,2 [6,93]	165 [6,5]	146,5 [5.77]	247,6 [9.75]	249 [9.8]	264 [10.39]
	2C	mm [in]	- [-]	- [-]	- [-]	- [-]	- [-]	283 [11.14]	264 [10.39]
L2 max.*	1C	mm [in]	- [-]	- [-]	- [-]	- [-]	- [-]	- [-]	363,8 [14.32]
	2C	mm [in]	- [-]	- [-]	- [-]	203,5 [8.01]	- [-]	- [-]	363,8 [14.32]
A dia. max.		mm [in]	256 [10.08]	256 [10.08]	302 [11.89]	240 [9.45]	335 [13.81]	355 [13.19]	425 [16.73]
Weight max.**		kg [lb]	31 [68]	32 [70]	35 [77]	40 [88]	72 [158]	82 [180]	132,5 [292]

* Wheel motor with the longest multidiscs brake.
** Full displacement wheel motor with multidiscs brake.

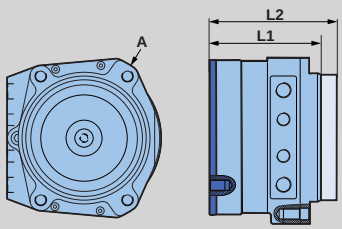
MK04 / MKD04



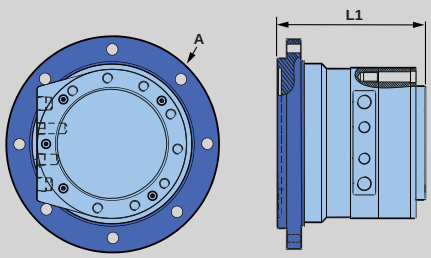
MK05 axial ports



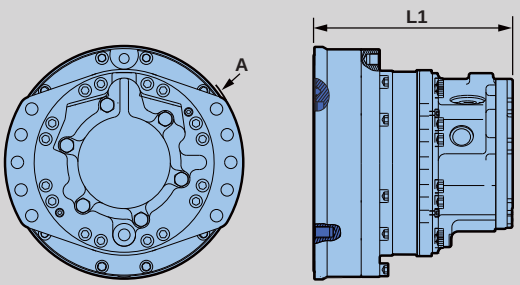
MK05 radial (with optional rear brake)



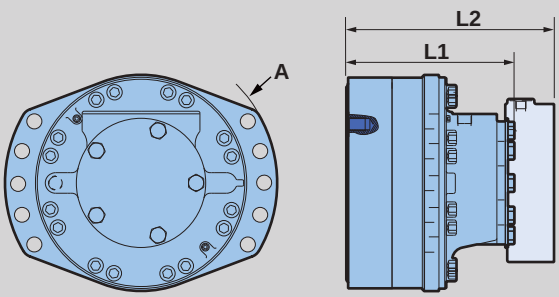
MK09



MK12-MKE12



MK18-MKE18 (with optional rear brake)



Brakes

Multidisc parking brake mounted at the rear of the motor

- F brake: brake with standard rear plate
- T brake: brake with reinforced rear plate
- Parking brake release pressure: 12 to 30 bar [174 to 435 PSI]

Max. parking braking torque

	N.m [lb.ft]	MK05	MK18 MKE18
F04/T04	3 600 [2,655]	●	
F07/T07	7000 [5,160]	●	
F12/T12	11 840 [8,730]		●
F19/T19	18 600 [13,720]		●

MK05 with brake mounted at the rear of the motor

MK18 with brake mounted at the rear of the motor

Multidisc integrated parking brake

- Parking brake release pressure: 12 to 30 bar [174 to 435 PSI]

MK09 with integrated brake and hollow shaft

Max. parking braking torque

	N.m [lb.ft]	MK09
Integrated brake	6050 [4,460]	●

Multidisc parking brake mounted in the bearing support

- Parking brake release pressure: 12 to 30 bar [174 to 435 PSI]

Max.parking braking torque

	N.m [lb.ft]	MK12 MKE12
Brake in bearing support	9 000 [6,640]	●

Claw brake

- Parking brake release pressure: 17 to 30 bar [246 to 435 PSI]

MK04 with Claw brake

Max. parking braking torque

	N.m [lb.ft]	MK04	MKD04	MK05*
Claw brake	3 170 [2,338]	●	●	
	3 500 [2,580]			●

* With axial ports

Optional features

Temperature control

	MK04	MKD04	MK05	MK09	MK12	MK18
Exchange valve						●
High efficiency (zero clearance pistons/ring)		●		●	●	
Additional case flushing port	●			●	●	●

Speed

	MK04	MKD04	MK05	MK09	MK12	MK18
High speed / Low pressure drop (Butterfly valving)		●				
Speed sensor	●	●	●	●	●	●

Reinforcement

	MK04	MKD04	MK05	MK09	MK12	MK18
Extra long life (Diamond™)		●		●	●	●
PEEK bushing (against high temperature)	●	●	●	●	●	●
Reinforced back plate					●	●
Brake lock plate (for high speed motor fixation)				●		
Reinforced front flange	●	●	●	●*	●	

* Standard

Hollow shaft

MK04	MKD04	MK05	MK09	MK12	MK18
●	●	●	●*	●	

* Standard

HIGH SPEED AXIAL PISTONS MOTORS FOR VIBRATION

Easy to integrate and versatile

Thanks to their architecture, many options are directly integrated in the cover:

- Relief valves to reduce the risk of pressure peaks
- Integrated anticavitation valves that ensure a longer lifetime of the machines
- Integrated exchange valve option to regulate the temperature of a closed loop circuit
- The speed sensor provides maximum precision in the control of the vibration speed
- Same or opposite side ports

More information > Page 65

MG

Integrated pivot
Different steering angles
Single or dual displacement
With or without brake

STEERABLE WHEEL MOTORS
EASY MOTORIZATION OF STEERING WHEELS

MG/MGE02 ▪ MG/MGE05
MG/MGE11 ▪ MG21

- From 172 to 2 519 cm^3/rev. [10.5 to 153 cu.in/rev.]
- Up to 16 030 N.m [11,823 lbf.ft]
- Up to 450 bar [6,530 PSI]
- Up to 510 rpm
- Up to 80 kW [107 HP]

Performance

		First displacement*				Second displacement**			
	Max. Pressure bar [PSI]	Displacement range cm³/rev [cu.in/rev]	Max. Torque*** N.m [lbf.ft]	Max. Speed RPM	Max. Power kW [HP]	Displacement range cm³/rev [cu.in/rev]	Max. Torque*** N.m [lbf.ft]	Max. Speed RPM	Max. Power kW [HP]
MG02	450 [6,527]	172 - 255 [10.5] - [15.6]	1 800 [1,227]	390	18 [24]	86 - 128 [5.2] - [7.8]	916 [676]	510	12 [16]
MGE02	400 [5,802]	332 - 398 [20.2] - [24.3]	2 500 [1,843]	200	22 [29.5]	166 - 199 [10.1] - [12.1]	1 260 [930]	275	16,5 [22]
MG05	450 [6,527]	260 - 560 [15.9] - [34.2]	4 010 [2,957]	420	29 [39]	130 - 280 [7.9] - [17.1]	1 862 [1,373]	420	19 [35]
MGE05	400 [5,802]	503 - 749 [30.7] - [45.7]	4 768 [3,517]	225	29 [39]	251 - 374 [15.3] - [22.8]	3 202 [2,361]	275	19 [35]
MG11	450 [6,527]	730 - 1 259 [44.5] - [76.8]	9 000 [6,638]	200	50 [67]	365 - 630 [22.3] - [38.4]	4 500 [3,319]	200	33 [44]
MGE11	400 [5,802]	1 263 - 1 687 [77.0] - [102.9]	10 700 [7,891]	170	50 [67]	632 - 844 [38.5] - [51.4]	5 370 [3,960]	190	33 [44]
MG21	400 [5,802]	1 674 - 2 519 [102.1] - [153.6]	16 030 [11,823]	138	80 [107]	837 - 1 260 [51.0] - [76.8]	8 020 [5,915]	138	53 [71]

*Available for single or dual displacement motors
**Only available for dual displacement motors
***Max. theoretical torque (N.m) : 1/(20 π) x max. displacement (cm³/rev.) x max. pressure (bar)

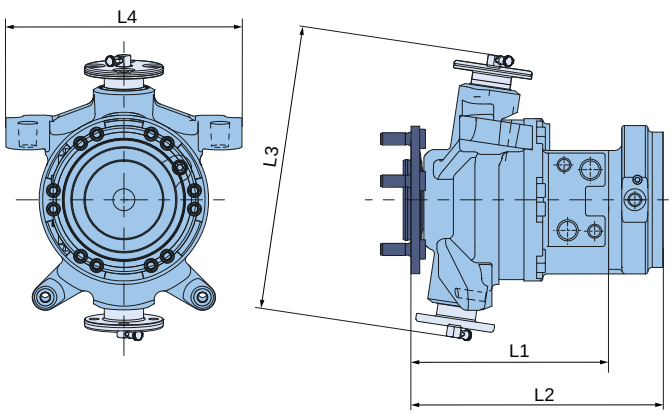
Dimensions

1C : One displacement
2C : Dual displacement

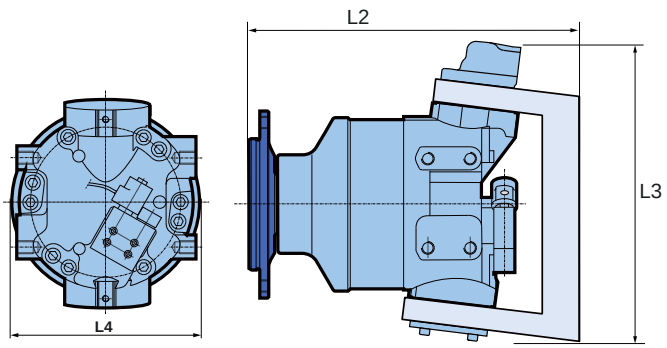
			MG02 MGE02	MG05 MGE05	MG11 MGE11	MG21 MGE21
L1	1C	mm [in]	215,1 [6,47]	- -	- -	- -
	2C	mm [in]	251,4 [9.90]	- -	- -	- -
L2 max.*	1C	mm [in]	262,9 [10.35]	426 [16.77]	513 [20.20]	554 [21.81]
	2C	mm [in]	290,4 [11.43]	426 [16.77]	513 [20.20]	554 [21.81]
L3		mm [in]	326,5 [12.85]	442 [17.40]	505 [19.88]	505 [19.88]
L4		mm [in]	270 [10.63]	224 [8.81]	314 [12.36]	314 [12.36]
Weight max.**		kg [lb]	47,8 [105.2]	97 [213]	210 [463]	230 [507]

* Wheel motor with the longest multidiscs brake.
** Two displacements wheel motor with multidiscs brake.

MG02-MGE02



MG05-MGE05 / MG11-MGE11 / MG21



PLUG AND PLAY MOTOR

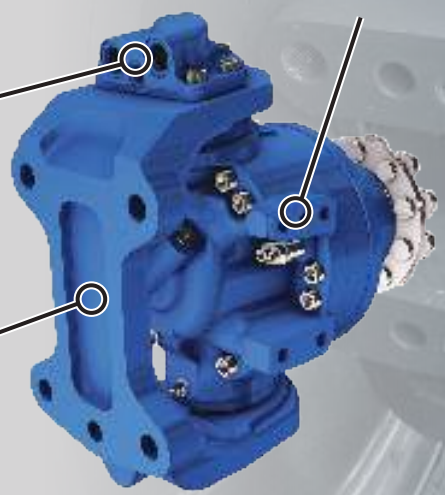
Easy integration onto the chassis

The MG motor optimizes the design of motorized steering wheels. The integration of the pivot function, steering attachments and bevel stops on the casing of the MG motor, simplify the assembly of motorized steering wheels on a chassis.

Integrated steering bracket attachment
Available on MG05/E05, MG11/E11 and MG21

Hydraulic pivot for easy piping
- No movement of high pressure pipes
- Avoid pipe damages
- Optimized length of pipes
- On MG05/E05, MG11/E11 and MG21

C-Frame
Direct mounting on machine axle



Brakes

Multidisc brake

Max. parking braking torque

N.m [lb.ft]	MG02 MGE02	MG05 MGE05
2 500 [1,840]	●	
4 500 [3,320]		●

MG02 motor
with multidisc brake at the rear

MG05 motor
with multidisc brake in the bearing support

Drum brake

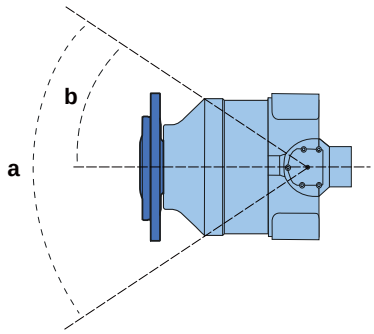
Max. service braking torque

mm	N.m [lb.ft]	MG05 MGE05
250 x 60	5 000 [3,688]	●

MG05 motor with drum brake

Steering angle

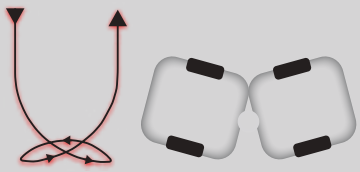
	MG05 MGE05	MG11 MGE11	MG21	MG02 MGE02
Angle a	90°	80°	80°	The steering angles a and b can be differents within the limits of the customer's chassis conception and the hydraulics connections. The steering angle is adjusted with the steering stop screws.
Angle b	45°	40°	40°	



ENHANCED STEERING ANGLE

Compared to a vehicle equipped with an articulated chassis, a vehicle fitted with motorized steering wheels offers a better steering angle and can consequently perform u-turns in a smaller radius using fewer movements.

Articuled chassis



Chassis with motorized steering wheels

3 steering modes available:

On the front wheel for road transfers

Four wheel steer to tighten the turning radius

Crab steering for sideways machine movement

Optional features

Temperature control

	MG02-E02	MG05-E05	MG11-E11	MG21
High efficiency (zero clearance pistons/ring)	●	●		
Additional case flushing port	●			

Speed

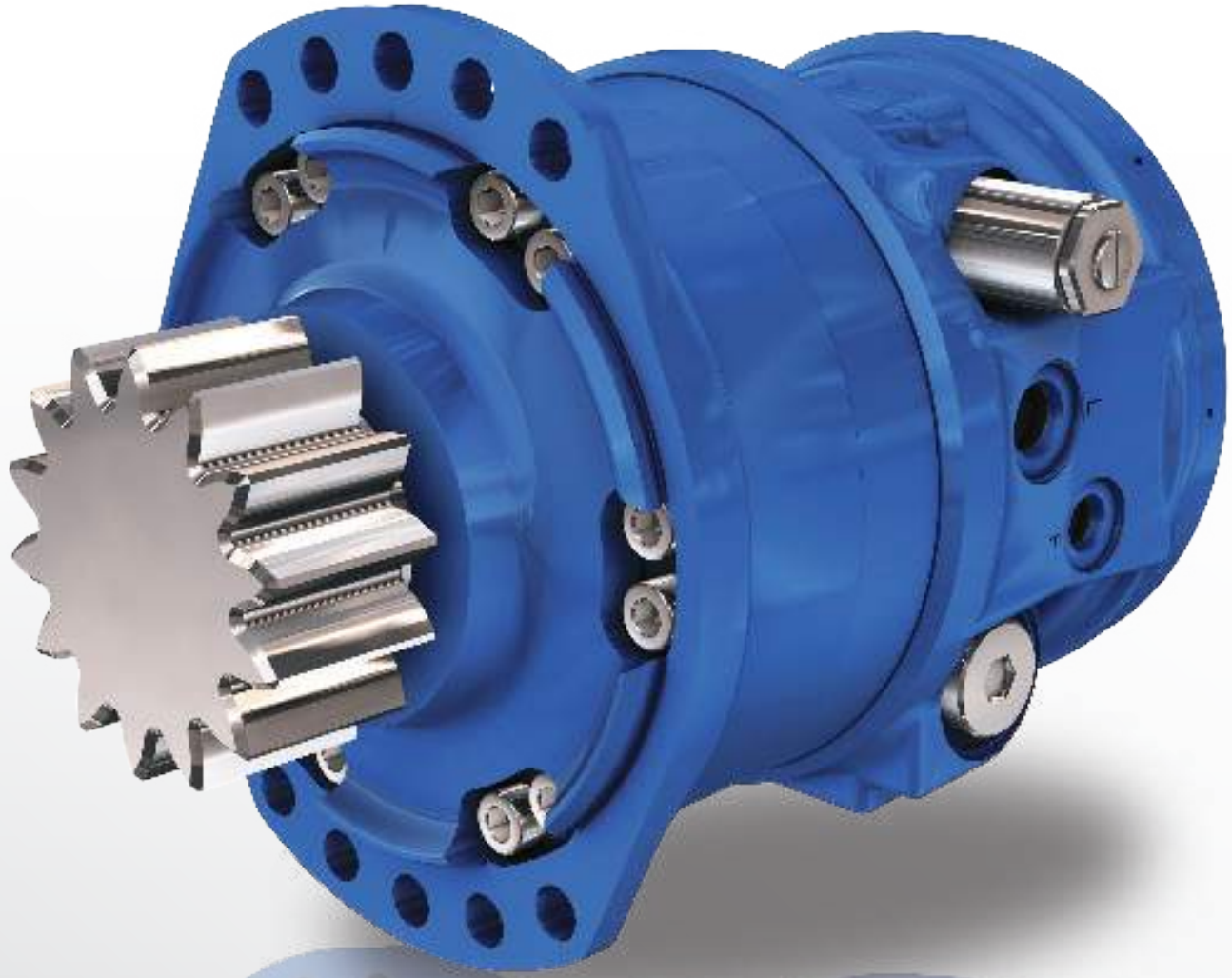
	MG02-E02	MG05-E05	MG11-E11	MG21
High speed / Low pressure drop (Butterfly valving)	●	●		
Speed sensor	●	●	●	●

Reinforcement

	MG02-E02	MG05-E05	MG11-E11	MG21
Extra long life (Diamond™)	●	●	●	●

High pressure connection

	MG02-E02	MG05-E05	MG11-E11	MG21
SAE Flange	●			
Metric	●	●	●	●
UNF	●	●	●	●



MZ

Compact motors
Large choice of pinions
Integrated shockless or anti-rebound valves
Integrated brake

SWING DRIVE
SMOOTH AND PRECISE SWING DRIVE

MZ/MZE02 ▪ MZE03 ▪ MZ/MZE05

From 213 to 750 cm³/rev. [13.0 to 45.7 cu.in/rev.]
Up to 3 100 N.m [2,286 lbf.ft]
Up to 260 bar [3,771 PSI]
Up to 470 rpm
Up to 29 kW [39 HP]

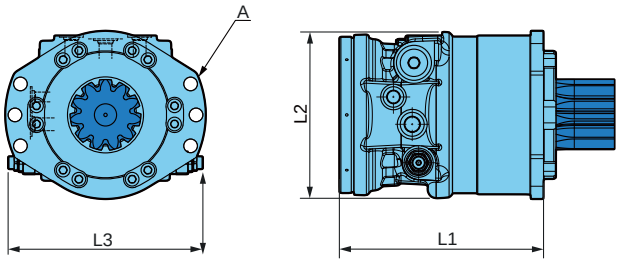
Performance

	Max. Pressure bar [PSI]	Displacement range cm^3/rev [cu.in/rev]	Max. Torque* N.m [lbf.ft]	Max. Speed RPM	Max. Power kW [HP]
MZ02	260 [3,771]	213 - 255 [13.0] - [15.6]	1 055 [778]	470	18 [24]
MZE02	260 [3,771]	332 - 398 [20.2] - [24.3]	1 650 [1,217]	265	22 [30]
MZE03	260 [3,771]	450 - 500 [27.5] - [30.5]	2 070 [1,526]	155	22 [30]
MZ05	260 [3,771]	468 - 560 [28.6] - [34.2]	2 320 [1,711]	240	29 [39]
MZE05	260 [3,771]	625 - 750 [38.1] - [45.7]	3 100 [2,286]	190	29 [39]

*Max. theoretical torque (N.m) : 1/(20 π) x max. displacement (cm^3/rev.) x max. pressure (bar)

Dimensions

		MZ02-MZE02	MZE03	MZ05-MZE05
L1	mm [in]	239 [9.41]	219 [8.62]	266,3 [10.48]
L2	mm [in]	195 [7.68]	195 [7.68]	228 [8.98]
L3	mm [in]	228 [8.97]	222 [8.74]	294 [11.57]
A dia. max.	mm [in]	340 [13.39]	302 [11.89]	300 [11.81]
Weight max.	kg [lb]	42 [93]	46 [101]	65 [143]

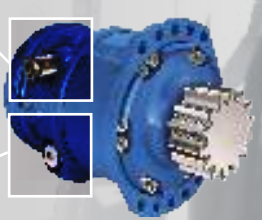


SMOOTH AND PRECISION

Built-in pressure relief and check valves

The built-in valves ensure smoother acceleration or deceleration of the turret. Coupled with the radial piston motor technology, these valves guarantee extremely accurate positioning of the mini-excavator boom.
The technical characteristics of the MZ motor - no gear box and low internal leakages - reduce turret drifting when operating on slopes.

Pressure relief valve with or without dynamic shockless behavior
Limits the pressure in the high pressure lines of the hydraulic motor.
Allows the absorption of the pressure peaks.



Check valve
Allows to compensate for leakages to prevent cavitation.

Pinion types

		MZ02-MZE02				MZE03		MZ05-MZE05	
Norm		NF ISO 53	NF ISO 53	NF ISO 53	NF ISO 53	NF ISO 53	NF ISO 53	NF ISO 53	NF ISO 53
Module		6	5	5	4,5	6	7	8	8
Number of teeth		14	17	14	11	14	12	12	11
Pitch diameter	mm [in]	84 [3.31]	85 [3.35]	70 [2.76]	49,5 [1.95]	84 [3.31]	84 [3.31]	96 [3.78]	88 [3.46]
Pressure angle		20°	20°	20°	20°	20°	20°	20°	20°

Brakes

Multidisc brake mounted at the rear of the motor

Max. braking torque

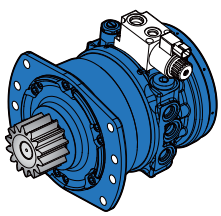
N.m [lb.ft]	MZ02-MZE02	MZE03	MZ05-MZE05
1 100 [810]	●		
1 830 [1,350]	●		
2 200 [1,620]		●	
4 910 [3,621]			●

Integrated multidisc brake

Automatic de-braking valve

De-braking valve controls time for braking / brake release of the hydraulic motor´s static brake.

	MZ02-MZE02	MZE03	MZ05-MZE05
Hydraulic		●	●
Electrical	●	●	



Electrical de-braking valve

FOR EXCAVATORS UP TO 24 TONS

MS Motors with pinion shaft

Thanks to its modular design, high performance and reliability, the MS motor is also a perfect solution for swing-drive of small / medium excavators.

	Displacement range cm³/rev [cu.in/rev]	Max. Torque* N.m [lbf.ft]	Excavator size
MS08	467 - 934 [28.5] - [57.0]	3 850 [2,840]	Up to 13 tons
MSE08	1 043 - 1 248 [63.6] - [76.2]	5 150 [3,796]	
MS11	730 - 1 259 [44.5] - [76.8]	5 200 [3,835]	Up to 18 tons
MSE11	1 263 - 1 687 [77.1] - [102.9]	6 950 [5,126]	
MS18	1 091 - 1 911 [66.6] - [116.6]	7 900 [5,827]	Up to 24 tons
MSE18	2 340 - 2 812 [142.8] - [171.6]	11 600 [8,556]	

*Theoretical torque at 260 bar [3771 PSI]

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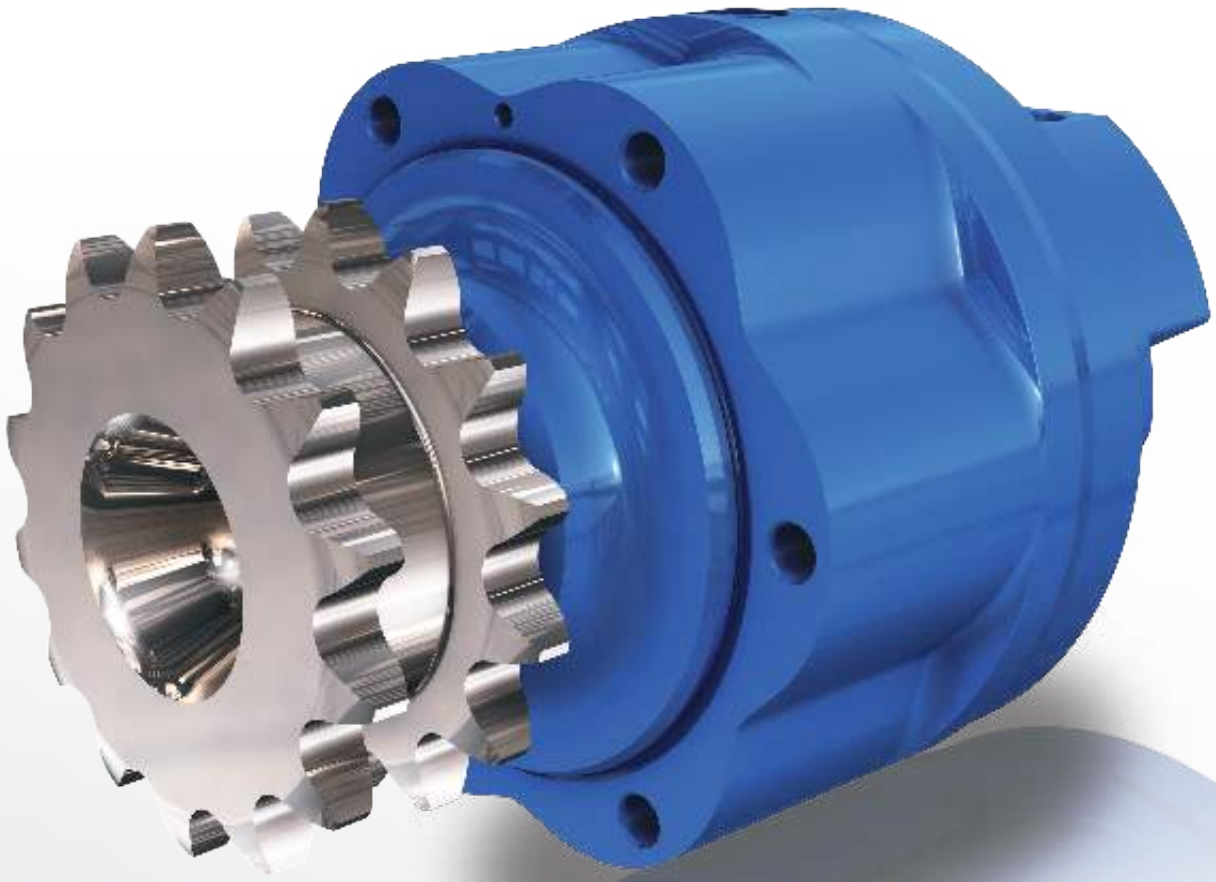


ML

- Compact motors
- Smooth speed shifting
- Integrated exchange valve
- Single or dual displacement
- Integrated brake
- Well adapted to skid-steer applications

SKID-STEER MOTOR
COMPACT SIZE FOR A CUSTOM FIT

ML/MLE06

- From 420 to 842 cm³/rev. [25.6 to 51.4 cu.in/rev.]
- Up to 4 800 N.m [3,540 lbf.ft]
- Up to 380 bar [5,526 PSI]
- Up to 330 rpm
- Up to 30 kW [40 HP]

Performance

		First displacement*				Second displacement**			
	Max. Pressure bar [PSI]	Displacement range cm³/rev [cu.in/rev]	Max. Torque*** N.m [lbf.ft]	Max. Speed RPM	Max. Power kW [HP]	Displacement range cm³/rev [cu.in/rev]	Max. Torque*** N.m [lbf.ft]	Max. Speed RPM	Max. Power kW [HP]
ML06	381 [5,526]	630 [38.4]	3 820 [2,817]	226	30 [40]	420 [25.6]	2 547 [1,875]	330	20 [27]
MLE06	381 [5,526]	702 - 842 [42.8] - [51.4]	5 106 [3,766]	203	30 [40]	421 - 561 [25.7] - [34.2]	3 402 [2,509]	322	20 [27]

*Available for single or dual displacement motors
**Only available for dual displacement motors
***Max. theoretical torque (N.m) : 1/(20 π) x max. displacement (cm³/rev.) x max. pressure (bar)

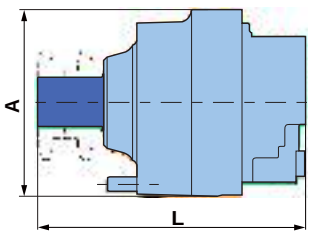
Dimensions

1C : One displacement
2C : Dual displacement

			ML06 MLE06
L	1C	mm [in]	330 [13.00]
	2C	mm [in]	340 [13.40]
A dia. max.		mm [in]	236 [9.29]
Weight max.*		kg [lb]	49 [108]

*Two displacements motor

The ML06 is designed for a skid-steer's small engine compartment.
While other motors require offset layout, these compact powerhouses can be mounted back-to back, allowing for symmetric vehicle design, increased parts commonality, and easier access or vehicle maintenance.



MORE COMFORT AND PRODUCTIVITY

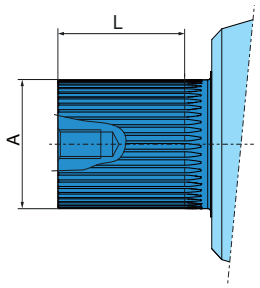
Softshift design and integrated exchange valve

The ML06 incorporates the patented SoftShift™ two-speed design that softens the shifting of the transmission, providing smoother operation and greater operator comfort.

Additionally, an integrated exchange valve sends hot oil to the cooler while providing trouble-free cold weather performance excellent for use in snow removal applications. The unique features of the ML06 motor provide greater overall productivity to skid-steer loader operation.

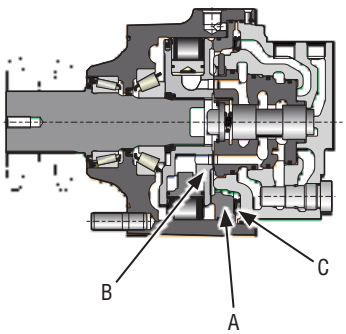
Splined shaft types

Number of teeth		53	49
Standard		ANSI B92.1-1996	ANSI B92.1-1996
Accuracy class		5	5
Module		20/40	20/40
Pressure angle		30°	30°
L	mm [in]	67,8 [2.67]	67,8 [2.67]
A dia. max.	mm [in]	68,58 [2.70]	63,5 [2.50]



Integrated claw brake

Max. parking braking torque
N.m [lb.ft]
4500 [3319]



This parking brake consists of two parts, one non rotating (A)acting as brake piston, one rotating (B) part of the cylinder block, each equiped with a row of teeth. In the absence of debraking pressure, the (C) spring maintains part A in contact with the cylinder-block, thus immobilizing it.

MS MOTORS

For small and big skid-steers

Poclain Hydraulics motors are designed to power skid-loaders of 600 kg [1,323 lb] to 1 800 kg [4,000 lb] SAE rated lift capacity.
The ML06 is best applied to loaders ranging betwen 800 kg [1,764 lb] and 1 250 kg [2,756 lb] capacity.

	Displacement range cm³/rev [cu.in/rev]	Max. Torque N.m [lbf.ft]	Skid-loader SAE rated lift capacity kg [lb]
MS02	172 to 255 [10.5 to 15.6]	1 800 [1,227]	600 to 800 [1,323 to 1,764]
MSE02	332 to 398 [20.2 to 24.3]	2 500 [1,843]	
MS05	260 to 560 [15.9 to 34.2]	4 000 [2,950]	800 to 1 650 [1,764 to 3,600]
MSE05	503 to 750 [30.7 to 45.7]	4 770 [3,518]	
MS11	730 to 1 259 [44.5 to 76.8]	9 000 [6,638]	1 250 to 1 800 [2,756 to 4,000]
MSE11	1 263 to 1 687 [77.0 to 102.9]	10 700 [7,891]	

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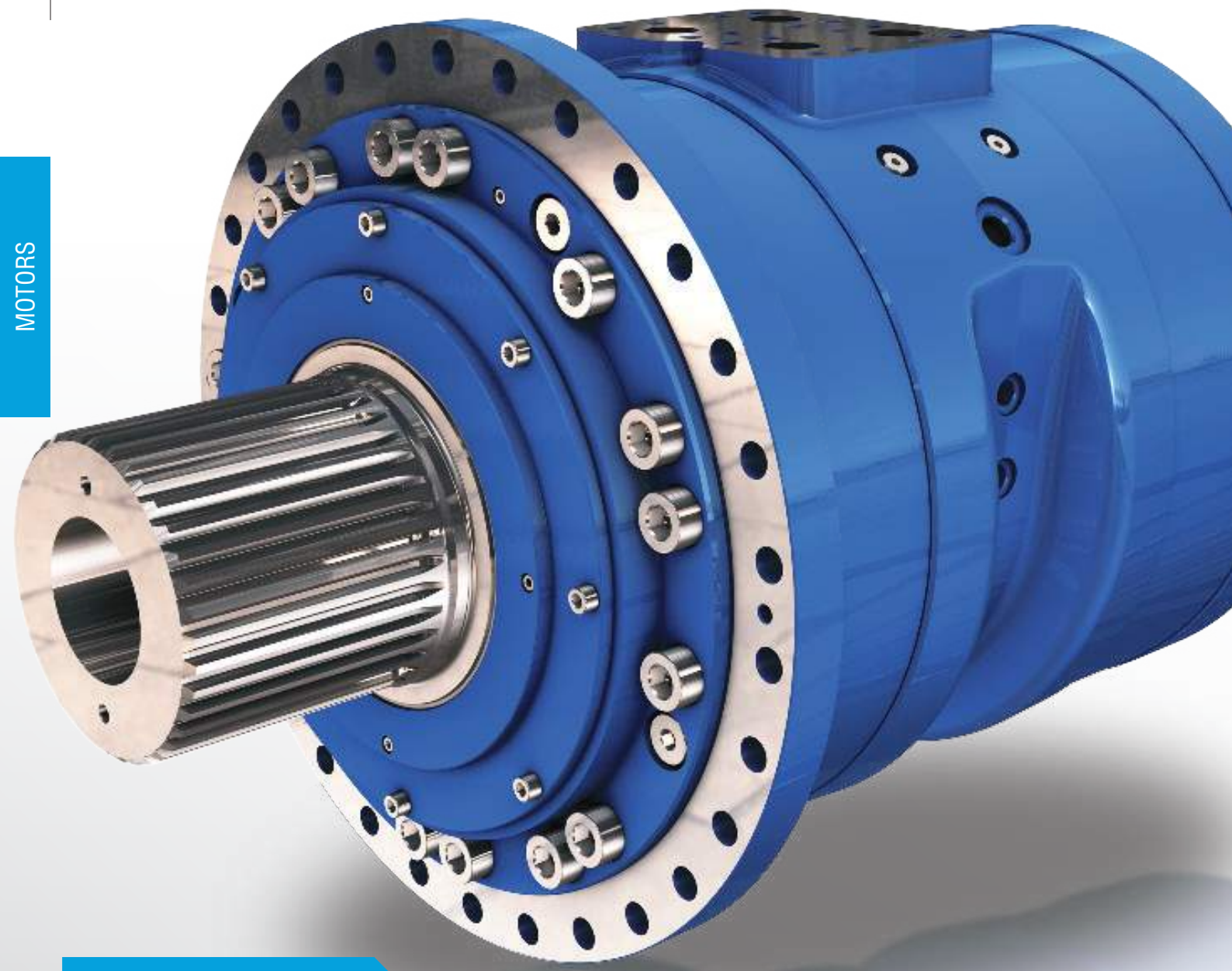


MI

- High Output Torque
- High Power Density
- Compactness
- Steady motion at very low speed
- Flanged Valves available

HIGH DISPLACEMENT
PERFORMANCE AND LOW CONSUMPTION

MI88 ▪ MI250

From 7 000 to 30 000 cm³/rev. [426.9 to 1,831 cu.in/rev.]
Up to 167 112 N.m [123,255 lbf.ft]
Up to 450 bar [6,527 PSI]
Up to 100 rpm
Up to 500 kW [671 HP]

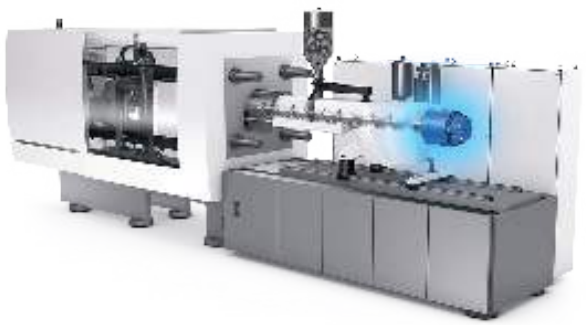
Performance

	Max. Pressure bar [PSI]	Displacement range cm³/rev [cu.in/rev]	Max. Torque* N.m [lbf.ft]	Max. Speed RPM	Max. Power kW [HP]
MI88	450 [6,527]	7 000 - 10 400 [426.9 - 634.3]	74 484 [54,936]	140	265 [355]
MI250	450 [6,527]	17 500 - 30 000 [1,037 - 1,831]	167 112 [123,255]	100	500 [671]

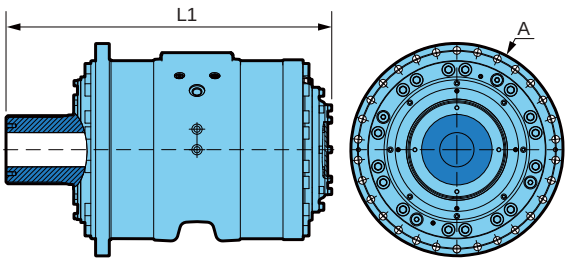
*Max. theoretical torque (N.m) : 1/(20 π) x max. displacement (cm³/rev.) x max. pressure (bar)

Dimensions

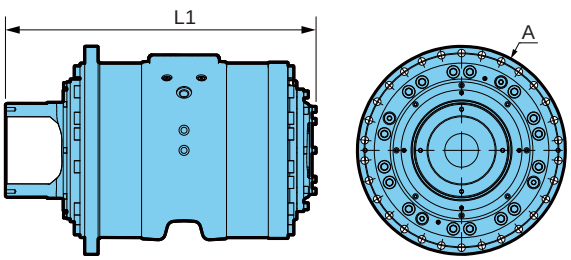
		MI88 (splined)	MI250 (splined)	MI250 (shrink disc)
L1	mm [in]	631,5 [24.87]	950,8 [37.43]	925,3 [36.43]
A dia. max.	mm [in]	500 [19.68]	631 [24.84]	631 [24.84]
Weight max.	kg [lb]	352 [776]	920 [2,028]	940 [2,070]



Male splined shaft motor



Shrink disc motor



PHAST PROGRAM

PHast

Fast delivery

Poclain Hydraulics is committed to supplying a number of standard motors **within 15 business days**, excluding transport. This delivery time applies to any order of one to four identical hydraulic motors of a given size.

Making their selection from a predetermined list of motors, machine manufacturers can choose from wheel motors or shaft motors, 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.

Motor types

MS02-E02	MS05-E05	MS08-E08	MS11-E11	MS18-E18	MS35	MS50	MS83	MS125	MI250
•	•	•	•	•	•	•	•	•	•

More information > Page 162

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

Shaft types

		Female splines	Male splines		Shrink disc	Hollow shaft
		MI250	MI88	MI250	MI250	MI250
Norm		DIN 5480	DIN 5480	DIN 5480	-	-
Module		5	5	5	-	-
Number of teeth		38	31	38	-	-
Nominal diameter	mm [in]	200 [7.87]	165 [6.50]	190 [7.48]	- -	100 [3.94]
External diameter	mm [in]	- -	169 [6.65]	200 [7.87]	280 [11.00]	- -
Internal diameter	mm [in]	- -	- -	- -	200 [7.87]	- -

Female splined shaft with circular fixation

Shaft for shrink disc with circular fixation

Female splined shaft with lugs fixation

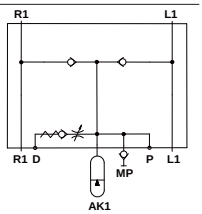
Male splined shaft with circular fixation

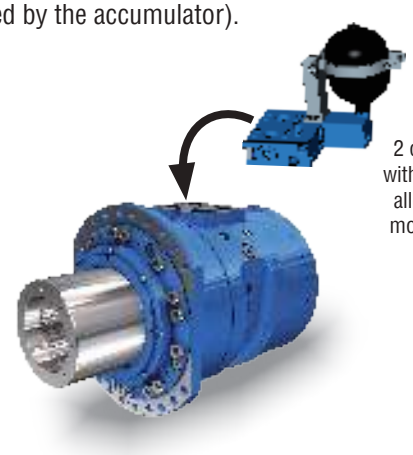
Hollow shaft

Flanged valve for MI250

This valve, which is directly flanged on the MI250, will offer enhanced protection of the motor against possible cavitation during operation, by ensuring sufficient back pressure on the motor (additional flow provided by the accumulator).
This valve is available with 2 positions for the accumulator (0° or 90°).

	Max. operating pressure	Precharge pressure	Volume	Hydraulic schematics
	bar [PSI]	bar [PSI]	L [G]	
Valve	450 [6,526]	-	170 [45]	
Accumulator	-	12 [174]	2 [0.53]	





2 or 4 DN38 ports with support surface allowing for direct mounting of valves

Torque arms and shrink discs

To ease the integration of our motors into your machines, Poclain Hydraulics can supply motors with adapted torque arms and shrink discs.

MI250 motor with torque arm

MI250 motor with shrink discs

MF

- Compatible with the original braking system (drum or disk)
- Does not affect kinematic steering or suspension
- No need to re-certify the axle
- Watertight design
- Hydraulic maintenance in sync with axle maintenance
- Compatible with different types of tires

HYDROBASE FOR WHEEL HUBS
TO PROVIDE ADDITIONAL TRACTION OR RETAINING TORQUE

MF/MFE08

- From 627 to 1 248 cm³/rev. [38.2 to 76.1 cu.in/rev.]
- Up to 7 945 N.m [5,860 lbf.ft]
- Up to 450 bar [6,530 PSI]
- Up to 150 rpm (1000 rpm in freewheeling)
- Up to 41 kW [55 HP]

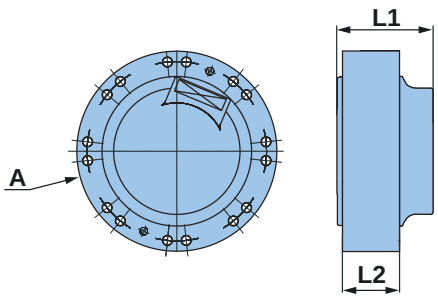
Performance

	Max. Pressure bar [PSI]	Displacement range cm³/rev [cu.in/rev]	Max. Torque* N.m [lbf.ft]	Max. Speed RPM	Max. Speed freewheeling RPM	Max. Power kW [HP]
MF08	450 [6526]	627 - 934 [38.2] - [57.0]	6 689 [4,934]	150	1 000	41 [55]
MFE08	400 [5800]	838 - 1 248 [51.1] - [76.1]	7 945 [5,860]	112	1 000	41 [55]

*Max. theoretical torque (N.m) : 1/(20 π) x max. displacement (cm³/rev.) x max. pressure (bar)

Dimensions

		MF08-MFE08
L1	mm [in]	123,2 [4.85]
L2	mm [in]	73 [2,87]
A dia.	mm [in]	257 [10.12]
Weight	kg [lb]	29 [1.14]



Optional features

Temperature control

	MF08-E08
High efficiency (zero clearance pistons/ring)	●
Mechanical freewheeling	●

Reinforcement

	MF08-E08
Extra long life (Diamond™)	●

ALL-WHEEL DRIVE FOR TRUCK

Simple design that is easy to install

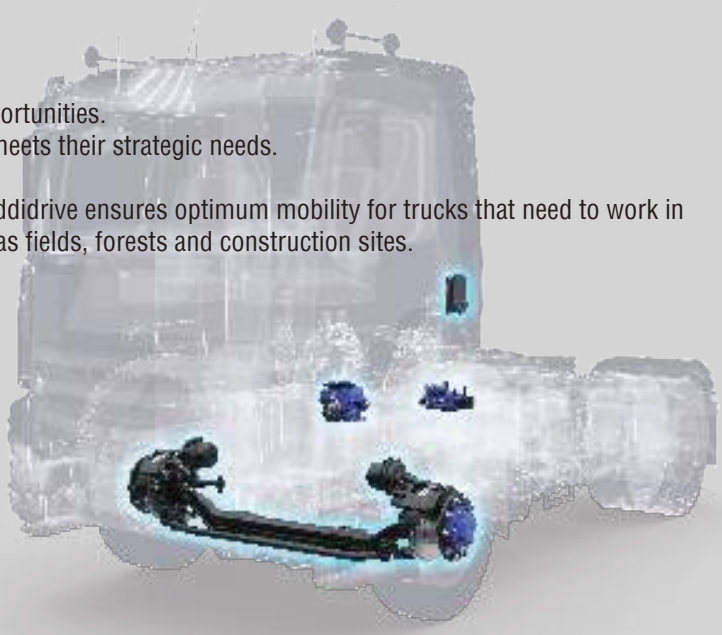
Customers have no other choice, but to opt for mechanical allwheel drive to improve the mobility of their trucks. This generates constraints and impacts their total cost of ownership, which results in:

- increased fuel consumption;
- reduction in payload capacity;
- lower levels of comfort for the driver.

Addidrive enables customers to seize new market opportunities.
OEM's are provided with a proven technology which meets their strategic needs.

A genuine alternative to mechanical all-wheel drive, Addidrive ensures optimum mobility for trucks that need to work in harsh weather conditions and irregular terrain - such as fields, forests and construction sites.

ADDIDRIVE TECHNOLOGY



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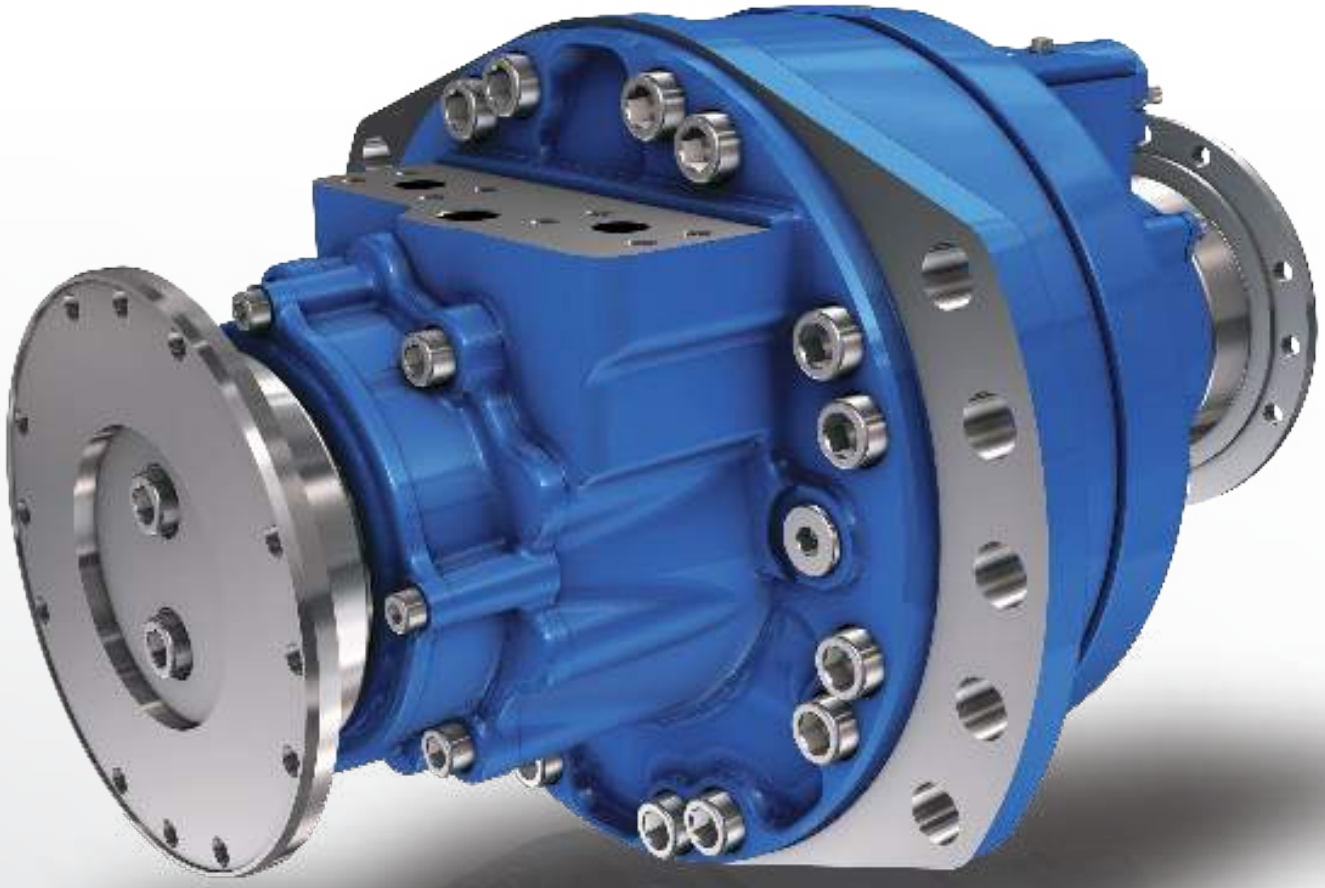


CDM

Single or dual displacement
Integrated clutch
Watertight design
Compact

CREEP DRIVE
TO WORK AT LOW AND CONSTANT SPEED

CDM222 ▪ CDM20

- From 667 to 2 424 cm³/rev. [40.7 to 148.1 cu.in/rev.]
- Up to 15 580 N.m [11,491 lbf.ft]
- Up to 450 bar [6,527 PSI]
- Up to 363 rpm (4 000 rpm in freewheeling)

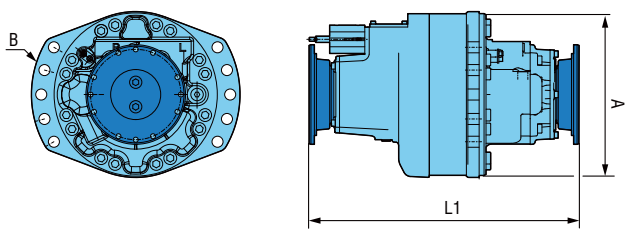
Performance

	Max. Pressure bar [PSI]	Displacement range First displacement cm³/rev [cu.in/rev]	Displacement range Second displacement cm³/rev [cu.in/rev]	Max. Torque output N.m [lbf.ft]	Max. speed CreepDrive mode RPM	Max. speed Freewheeling mode RPM	Max. Power kW [HP]
CDM222	400 [5,802]	667 - 1 000 [40.7] - [61.0]	- -	6 278 [4,630]	200	3 200	40 [53.7]
CDM20	450 [6,527]	1 416 - 2 427 [86.4] - [148.1]	708 - 1 214 [43.2] - [74.1]	15 580 [11,491]	363	3 700	175 [234.7]

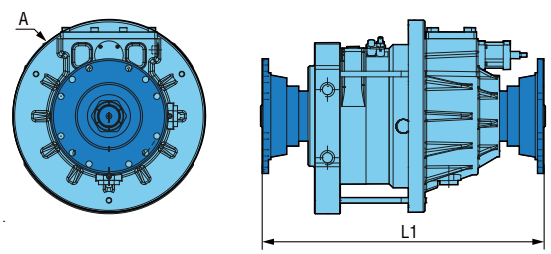
Dimensions

		CDM222		CDM20
		Companion flange	**End yoke half round**	**Companion flange**
L1	mm [in]	504,5 [19.86]	504,5 [19.86]	550 [21.65]
A dia. max.	mm [in]	340,4 [13.40]	340,4 [13.40]	329 [13.00]
B dia. max.	mm [in]	- -	- -	425 [16.73]
Weight max.	kg [lb]	120 [265]	120 [265]	160 [353]

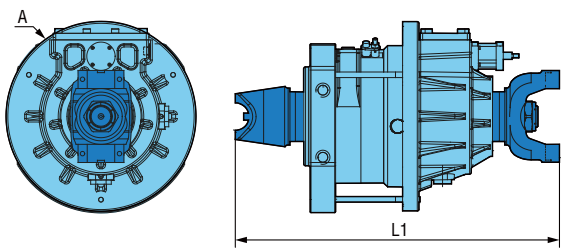
CDM20 with companion flange



CDM222 with companion flange



CDM222 with end yoke half round



Shaft types

	Companion flange						End yoke half round	
	SAE 1650	SAE 1710	SAE 1810	XS 150	XS 180	XS 200	Split eye	Solid eye
CDM222	●	●	●	●	●		●	●
CDM20		●	●	●	●	●		

CREEPDRIVE SYSTEM

Low and constant working speed

CreepDrive is a hybrid mechanical-hydraulic transmission for vehicles that travel at normal speed and work at low speed.
The system allows vehicles to work at very low constant speed regardless of the engine speed, allowing auxiliary systems to take the power they need to perform work effectively.
When the system is disengaged, the vehicle is able to drive at normal on-road speed with no additional losses.

- Can be integrated in all trucks from 12t up to 44t for multiple applications
- Compatible with diesel and gasoline
- Compatible with automatic and manual gearbox
- Fitted on trucks with or without CAN Bus

Benefits

- Ability to work at constant speed from 0.4 kph to 12 kph [0.25 mph to 7.0 mph] in both forward and reverse
- Independent of engine speed
- Compatible with low engine rpm enabling low noise level
- Easy to install and mount on the chassis
- Does not affect the original truck kinematics
- No impact on chassis stiffness, the original chassis flexibility is guaranteed
- Reduces wear on the brake, clutch and transmission
- No need for specific maintenance: CreepDrive maintenance is done simultaneously with mechanical transmission's maintenances

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Hydraulic Motors
High speed & axial pistons

FIXED DISPLACEMENT

M

Max. Torque	220 Nm [162.3 lbf.ft]
Max. Speed	3 600 rpm
Max. Power	83,1 kW [111.4 HP]

p.66

DUAL DISPLACEMENT

MV

Max. Torque	220 Nm [162.3 lbf.ft]
Max. Speed	4 200 rpm
Max. Power	76,4 kW [102.4 HP]

p.66

M
MV

Fixed or dual displacement
Hydraulic or electrical control
For open and closed loop
Compact

HIGH SPEED MOTORS
FOR OPEN AND CLOSED LOOPS

M0 ▪ M1 ▪ M2 ▪ M3
MV2▪ MV3

- From 7.0 to 65 cm³/rev. [0.43 to 3.97 cu.in/rev.]
- Up to 220 N.m [162.3 lbf.ft]
- Up to 360 bar [5,221 PSI]
- Up to 4 200 rpm
- Up to 83,1 kW [111.4 HP]

Performance

	Displacement		Displacement range	Max. Speed	Max. Power*	Max. Torque**	Max. Pressure
	Fixed	Dual	cm^3/rev [cu.in/rev]	RPM	kW [HP]	N.m [lbf.ft]	bar [PSI]
M0	●	-	7 - 18 [0.43] - [1.10]	3 600	7,8 - 19,7 [10.5] - [26.4]	65 [47.9]	300 [4,351]
M1	●	-	9 - 21 [0.55] - [1.28]	3 600	10,0 - 22,4 [13.4] - [30.0]	90 [66.4]	320 [4,641]
M2	●	-	21 - 50 [1.28] - [2.99]	3 600	23,0 - 63,1 [30.8] - [84.6]	220 [162.3]	320 [4,641]
M3	●	-	60 - 65 [3.66] - [3.94]	3 600	76,7 - 83,1 [102.8] - [111.4]	220 [162.3]	350 [5,076]
MV2	-	●	35 - 53 [2.14] - [3.23]	4 200	41,2 - 62,3 [55.2] - [83.5]	220 [162.3]	360 [5,221]
MV3	-	●	55 - 65 [3.36] - [3.97]	4 200	64,7 - 76,4 [86.8] - [102.4]	220 [162.3]	360 [5,221]

*Power given at rated pressure and max. speed
** Lowest max. torque for splined shaft. Please contact your Poclain Hydraulics application engineer for more information for different versions / options available.

EASY TO INTEGRATE AND VERSATILE

New cover of the M motors

Thanks to its architecture, many options are directly integrated in the cover:

- Relief valves can be integrated as close as possible to the motor, which is the most efficient way to reduce the risk of pressure peaks.

- Integrated anticavitation valves make machines more reliable. Customers will appreciate this option, which ensures a longer lifetime for their machines, especially for applications in open loop when the motor undergoes working sessions with high inertia and can be driven by the load.

- Thanks to the flushing valve option, the motor is now able to regulate the temperature of a closed loop circuit without addition of another valve block.

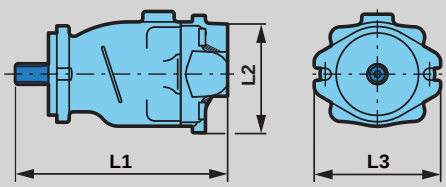
- The flange ports allow direct connection on the motor with an external valve bloc.

Dimensions

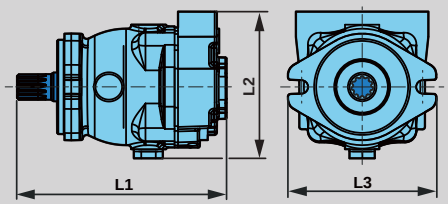
		M0	M1	M2	M3	MV2		MV3	
Displacement shif activation		-	-	-	-	Hydraulic	Electrical	Hydraulic	Electrical
L1 max.*	mm [in]	162,7 [6.41]	183,4 [7.22]	260,5 [10.25]	280,5 [11.04]	295,5 [11.63]	341,5 [13.44]	264 [10.39]	260 [10.23]
L2	mm [in]	91 [3.58]	128,5 [5.06]	164 [6.46]	163,3 [6.43]	160 [6.30]	160 [6.30]	223,5 [8.80]	236,5 [9.31]
L3	mm [in]	97 [3.82]	130 [5.12]	172 [6.77]	174 [6.85]	172 [6.77]	172 [6.77]	218 [8.58]	221 [8.70]
Weight	kg [lb]	3,5 [7.72]	8,0 [17.64]	12 [26.46]	15 [33.07]	19 [42]	19 [42]	30 [66]	30 [66]

* Motor with the longest shaft.

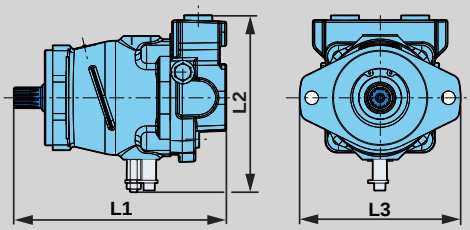
M0



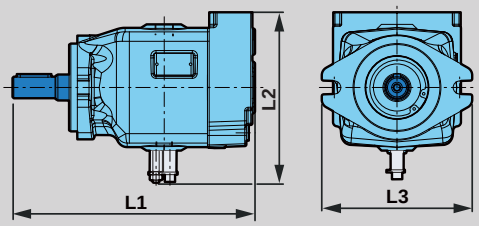
M1



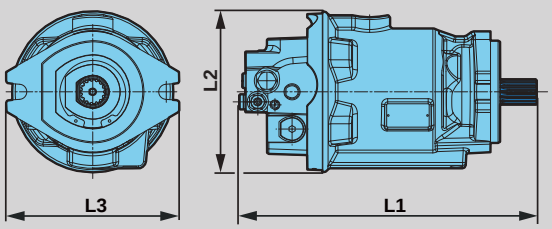
M2
with speed sensor



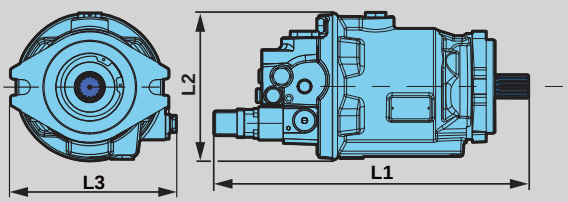
M3
with speed sensor



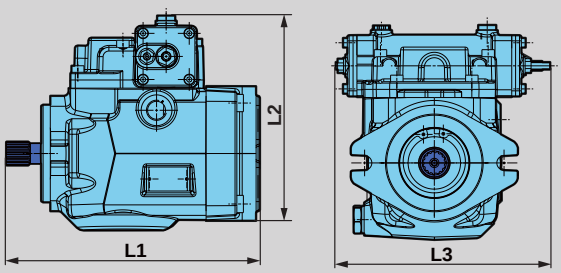
MV2
with hydraulic control



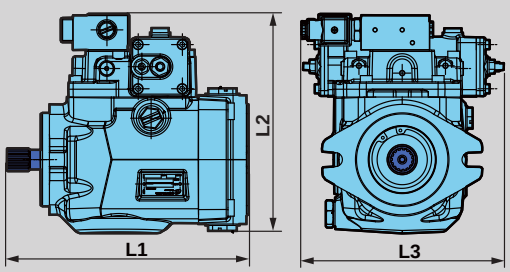
MV2
with electrical control



MV3
with hydraulic control

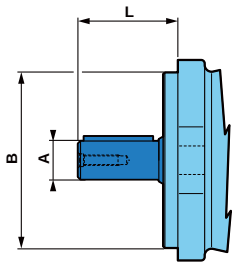


MV3
with electrical control

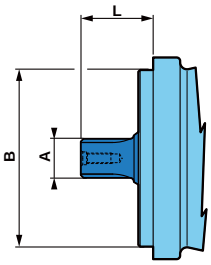


Mounting flanges and shafts

Keyed shaft



Male splined shaft



			M0	M1		M2		M3		MV2	MV3
Keyed shaft	Dia. A	mm [in]	15,875 [0.625]	19 [0.75]		22,22 [0.87]	25 [0.98]	25 [0.98]		- -	- -
	Dia. B	mm [in]	63 [2.48]	82,55 [3.25]		101,6 [4.00]	101,6 [4.00]	101,6 [4.00]		- -	- -
	L	mm [in]	25,3 [1.00]	34,6 [1.36]		57,8 [2.28]	75,0 [2.95]	75,0 [2.95]		- -	- -
Splined shaft	Number of teeth		9	11	13	13	15	13	15	15	15
	Dia. A	mm [in]	15,8 [0.62]	19 [0.75]	22,2 [0.87]	22,2 [0.87]	25 [0.98]	22,2 [0.87]	25 [0.98]	25 [0.98]	25 [0.98]
	Dia. B	mm [in]	63 [2.48]	82,55 [3.25]	82,55 [3.25]	101,6 [4.00]	101,6 [4.00]	101,6 [4.00]	101,6 [4.00]	101,6 [4.00]	101,6 [4.00]
	L	mm [in]	25,3 [1.00]	35,1 [1.38]	41,5 [1.63]	41,5 [1.63]	44,0 [1.73]	41,0 [1.61]	47,5 [1.87]	46 [1.81]	46 [1.81]
	Standard		ANSI B92.1a-1976	ANSI B92.1a-1976		ANSI B92.1a-1976		ANSI B92.1a-1976		ANSI B92.1a-1976	ANSI B92.1a-1976
	Pitch		16/32" D.P.	16/32" D.P.		16/32" D.P.		16/32" D.P.		16/32" D.P.	16/32" D.P.
	Pressure angle		30°	30°	30°	30°	30°	30°	30°	30°	30°
	Accuracy class		5	5	5	5	5	5	5	5	5

Controls

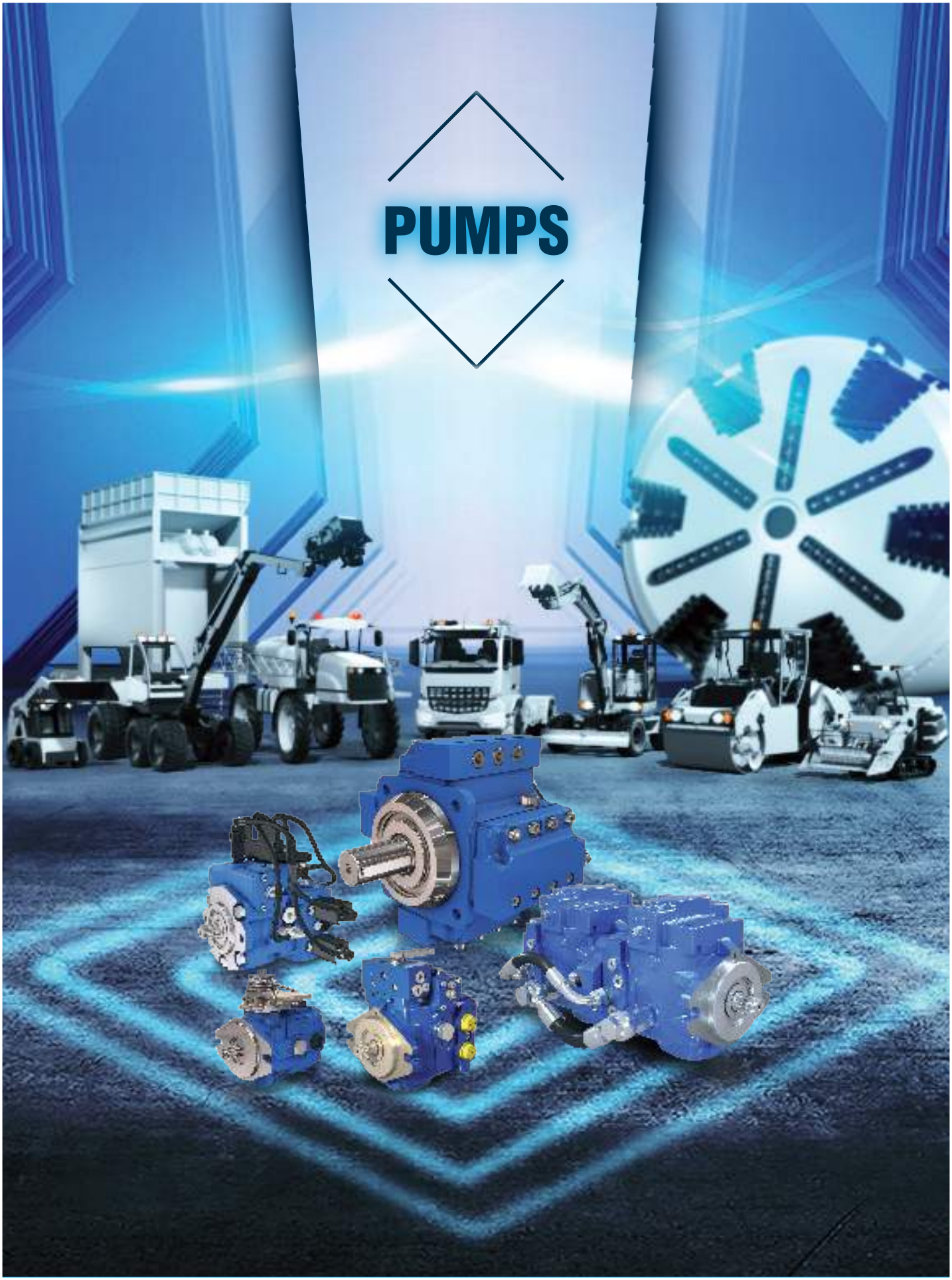
	Two positions control	
	Hydraulic	**Electrical**
MV2	●	●
MV3	●	●

Optional features

Please take in consideration that all combinations are not possible.

	M0	M1	M2	M3	MV2	MV3
Roller bearing	●	●	●	●	-	-
Flushing valve	-	●	●	●	-	-
Anticavitation valve	-	●	●	●	●	-
Relief valve	-	●	●	●	-	-
Speed sensor	-	-	●	●	●	-
Finishing coat	●	●	●	●	●	●
UNF thread ports	●	●	●	●	●	●
Flange connection	-	●	●	●	-	-
Fluorinated elastomer seals	●	●	●	●	-	-

M2 motor
with speed sensor


PUMPS

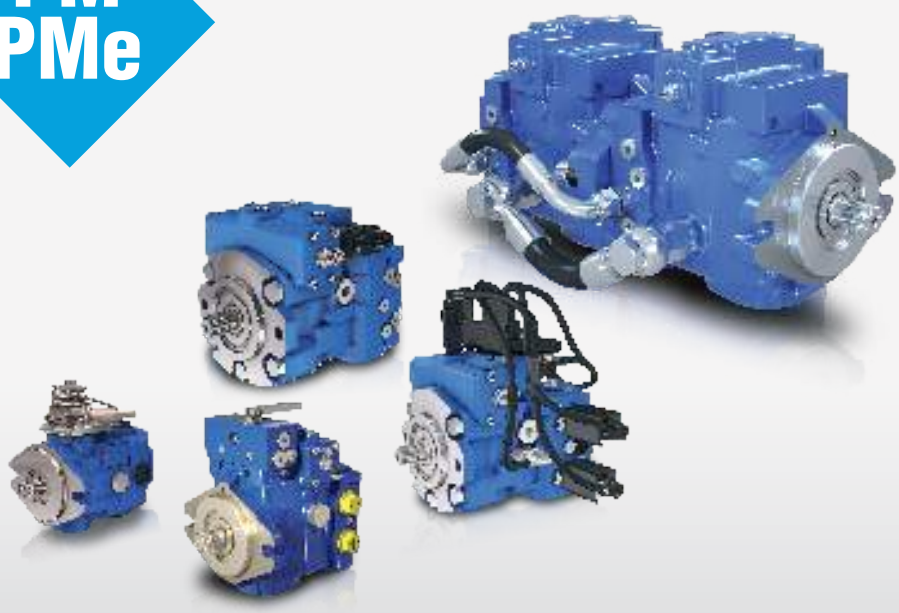
Closed loop and variable displacement

MEDIUM DUTY PUMPS

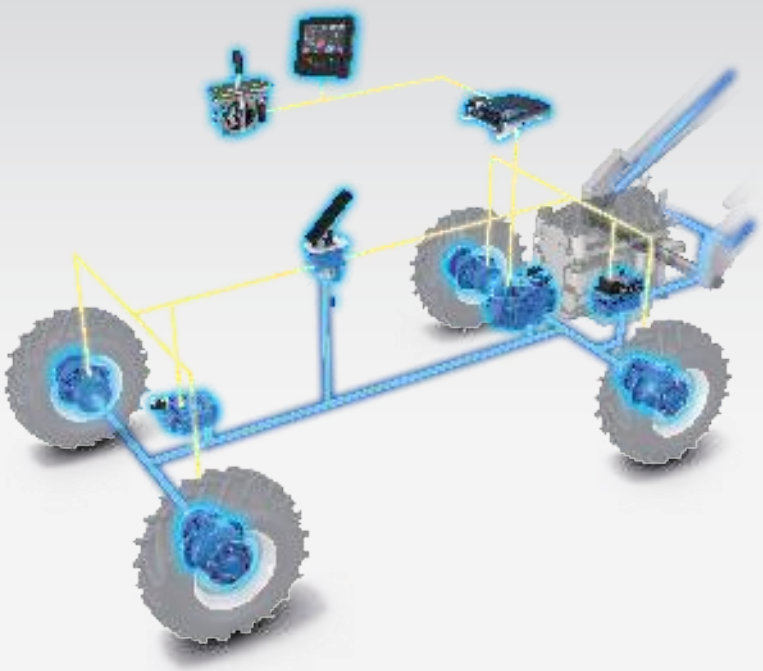
PM
PMe

Max. Pressure	400 bar [5,800 PSI]
Displacement range	7 to 65 cm³/rev. [0.43 to 3.97 cu.in/rev]
Max. Speed	3 650 RPM

p.76



Hydraulic Pumps
for open and closed loops



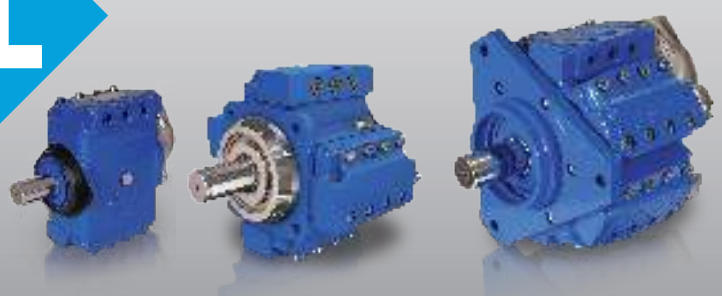
Open loop and fixed displacement

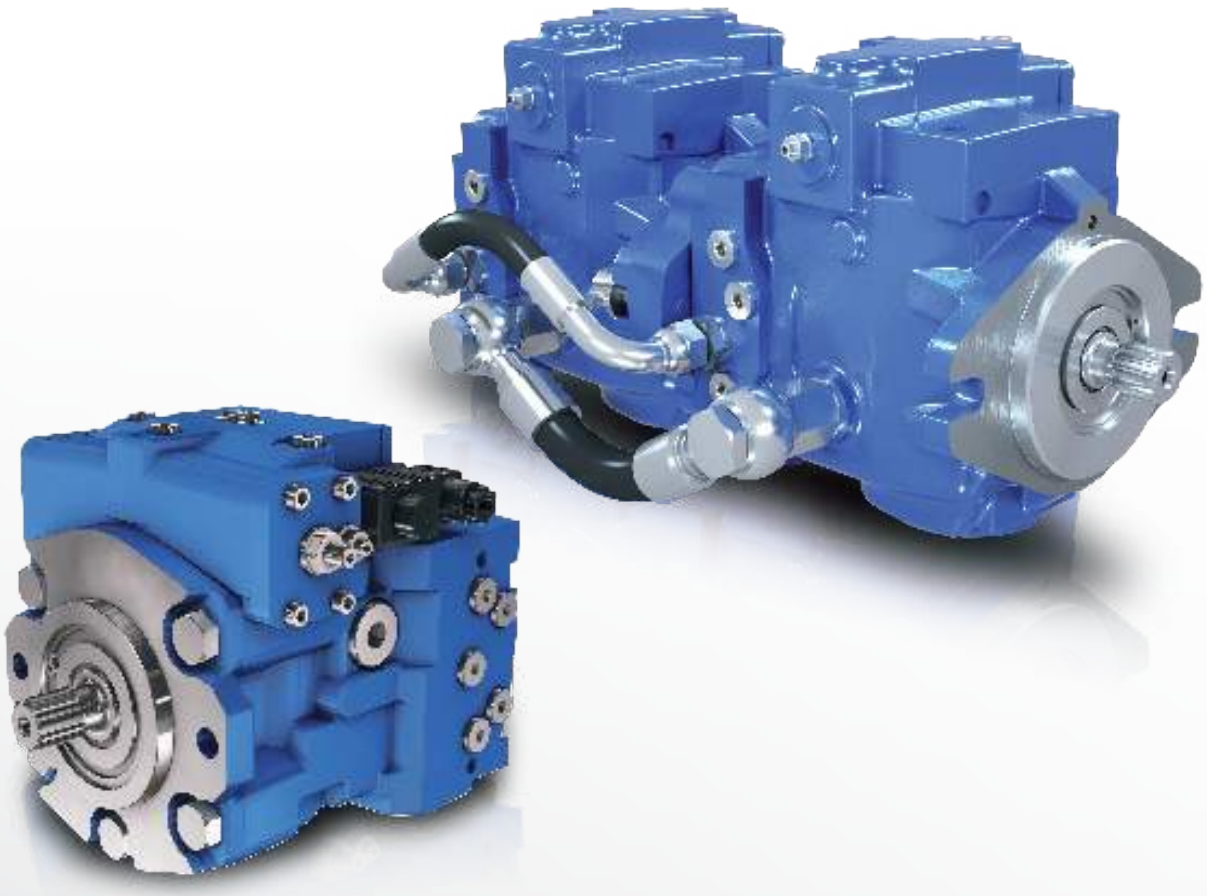
HEAVY DUTY PUMPS

PL

Max. Pressure	480 bar [7,000 PSI]
Displacement range	35 to 444 cm³/rev. [2.13 to 27.10 cu.in/rev]
Max. Speed	4 250 RPM

p.82





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 cm³/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]

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
Max. Pressure	(Continuous) bar [PSI]	210 [3,045]	210 [3,045]	250 [3,626]	300 [4,350]	300 [4,350]	250 [3,625]
	(Intermittent) bar [PSI]	300 [4,351]	350 [5,076]	350 [5,076]	400 [5,801]	400 [5,801]	350 [5,076]
Max. theorical absorbed power	kW [HP]	12,7 - 30,5 [17.0] - [40.9]	14,9 - 42,6 [20.0] - [57.1]	32,6 - 44,4 [43.7] - [59.5]	48,0 - 65,6 [64.4] - [88.0]	74,8 - 99,8 [100.3] - [133.8]	106,0 - 124,8 [142.1] - [167.3]

Mounting flanges and shafts

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

Auxiliary mounting pads

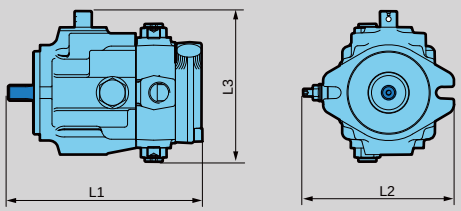
		PMV0	PM10	PM20	PM30 PMe30	PM50 PMe50	PM65
German group 1		●	●				
German group 2		●	●				
Flange SAE A	**9 teeth coupling**		●	●	●	●	●
	11 teeth coupling				●	●	●
Flange SAE B	**13 teeth coupling**				●	●	●
Flange SAE BB	**15 teeth coupling**				●	●	●
No auxiliary mounting pad		●	●	●	●	●	●

Dimensions

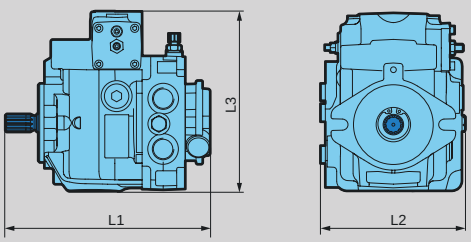
		PMV0	PM10	PM20	PM30	PMe30	PM50	PMe50	PM65
L1	mm [in]	192,8 [7.59]	204,5 [8.05]	238 [9.37]	253,2 [9.98]	256,2 [10.08]	271,5 [10.68]	282,2 [11.11]	303,5 [11.95]
L2	mm [in]	107,4 [4.23]	144 [5.67]	174 [6.85]	221,7 [8,72]	290,5 [11.44]	218 [8.58]	289,5 [11.40]	223,5 [8.8]
L3	mm [in]	129 [5.08]	187,7 [7.39]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

*Depending on the controls and the options.

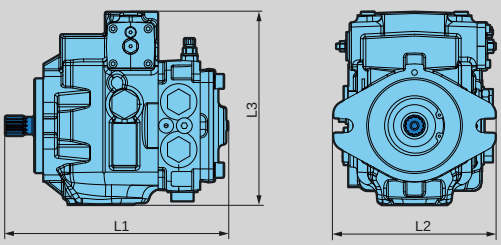
PMV0
with direct mechanical control and without auxiliary mounting pad



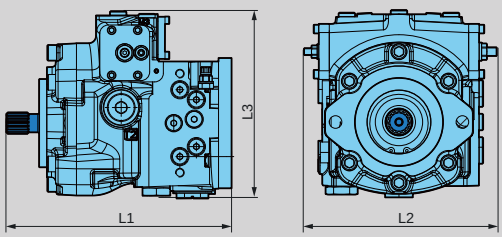
PM10
with hydraulic servo control and without auxiliary mounting pad



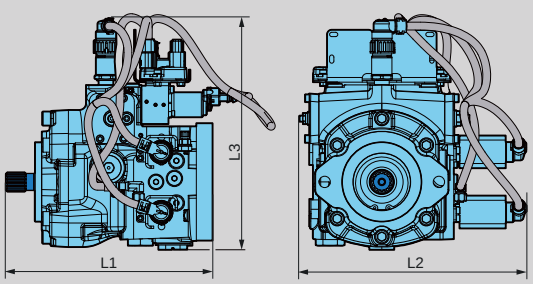
PM20
with hydraulic servo control and without auxiliary mounting pad



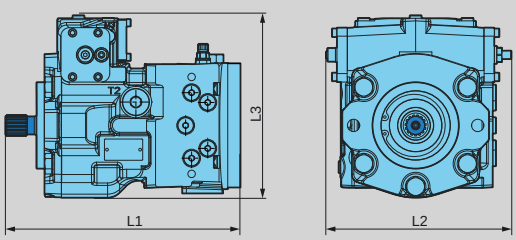
PM30
with hydraulic servo control and without auxiliary mounting pad



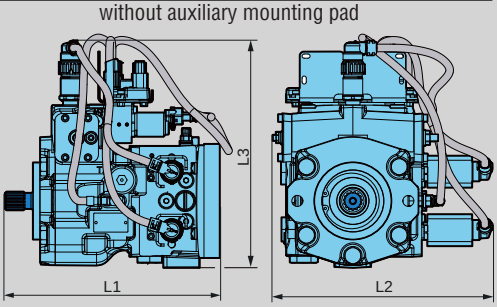
PMe30
without auxiliary mounting pad



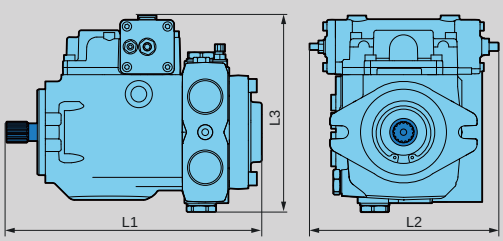
PM50
with hydraulic servo control and without auxiliary mounting pad



PMe50
without auxiliary mounting pad



PM65
with hydraulic servo control and without auxiliary mounting pad



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 pre-programmed; 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.

More information > PagePage 134

Controls

	PMV0	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)		●	●	●	●	●	●	

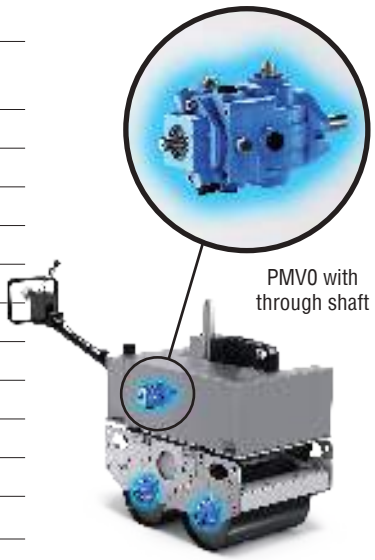
* Under development

Additional features

Please take in consideration that all combinations are not possible.

	PMV0	PM10	PM20	PM30 PMe30	PM50 PMe50	PM65
Fitting 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	●	●	●	●	●	

* Under development



PMV0 with through shaft

PHAST PROGRAM

PHast

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.

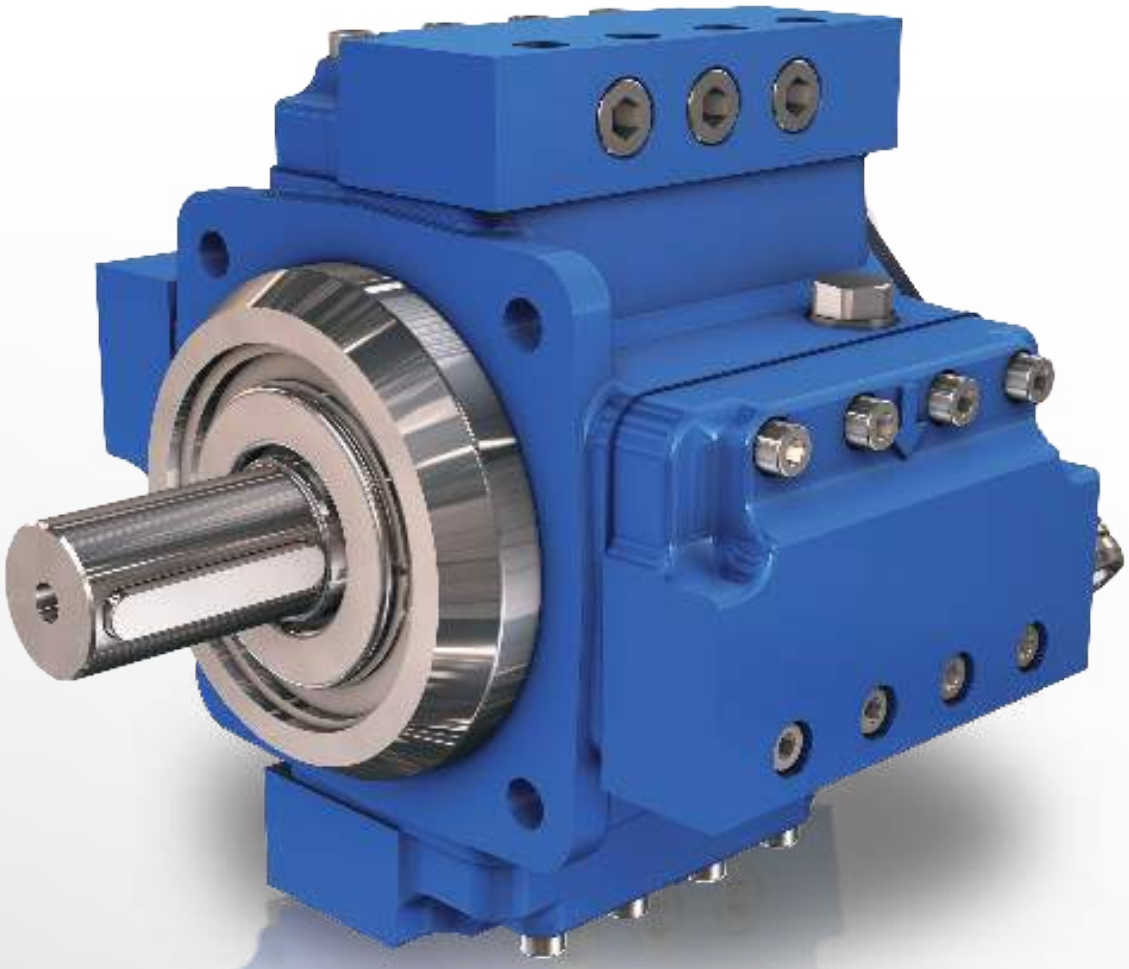
Pump types

PMV0	PM10	PM30	PM50
●*	●	●	●

* Only available with M and L control

More information > Page 162

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



PL

Radial piston technology
Fixed displacement
High strength
Robust and dust resistant

HEAVY DUTY PUMPS
FOR OPEN LOOPS

- From 35 to 444 cm³/rev. [2.13 to 27.10 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 666 kW [895 HP]

Performance

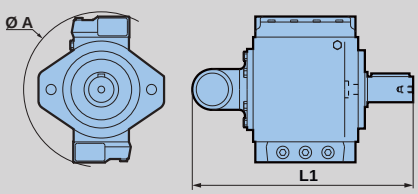
		2 outputs	3 outputs	4 outputs	4 outputs	4 outputs	4 outputs
		PL2H14	PL3H14	PL4H10	PL4H14	PL4H18	PL4H20
Displacement	cm³/rev [cu.in/rev]	2 x 17.5 to 2 x 32 [2 x 1.07 to 2 x 1.95]	3 x 17.5 to 3 x 37 [3 x 1.07 to 3 x 2.26]	4 x 10.3 to 4 x 12.5 [4 x 0.63 to 4 x 0.76]	4 x 17.5 to 4 x 37 [4 x 1.07 to 4 x 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]

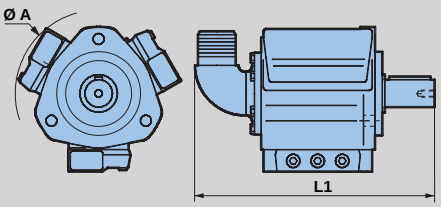
Dimensions

		PL2H14	PL3H14	PL4H10	PL4H14	PL4H18	PL4H20	PL6H14	PL6H20
Dia. A	mm [in]	320 [12.60]	320 [12.60]	275 [10.83]	320 [12.60]	440 [17.32]	550 [21.65]	352 [13.86]	550 [21.65]
L1	mm [in]	397 [15.63]	397 [15.63]	376 [14.80]	435 [17.13]	550 [21.65]	656 [25.83]	463 [18.23]	659 [25.94]
Weight	kg [lb]	38 [84]	47 [104]	42 [93]	68 [150]	140 [309]	250 [551]	84 [185]	360 [794]

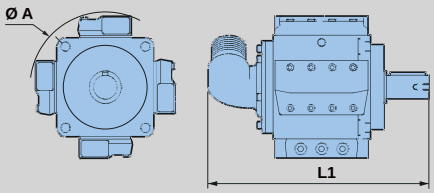
PL2H14



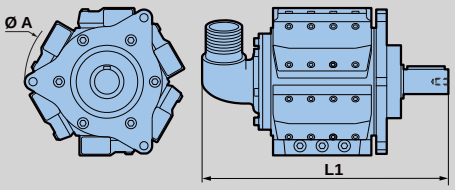
PL3H14

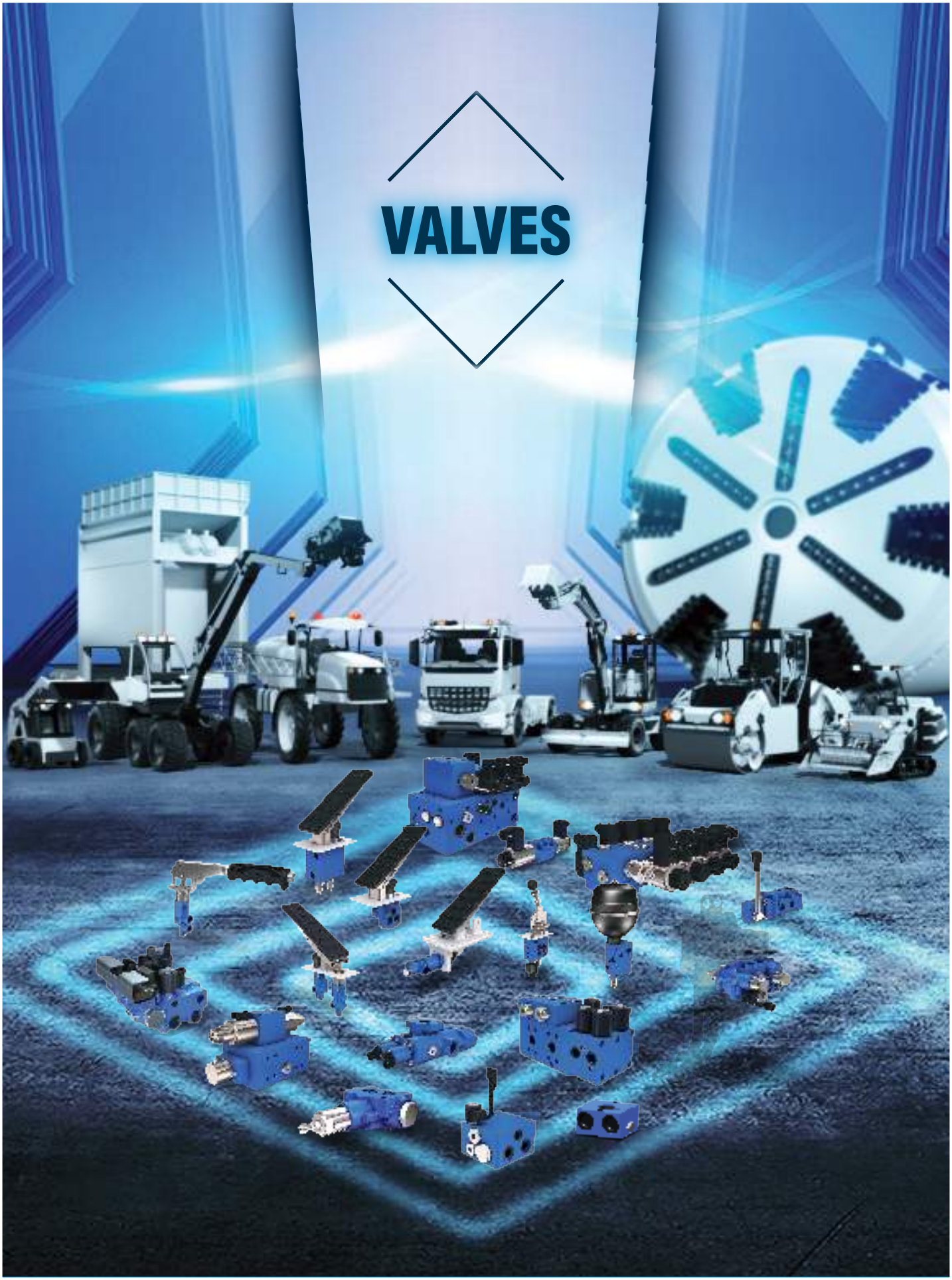


PL4H10 / 14 / 18 /20



PL6H14 / 20



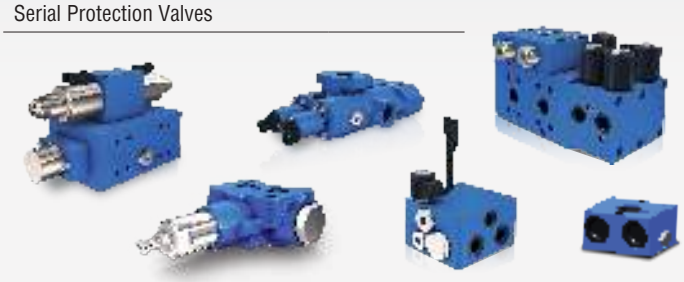

VALVES

DESIGNED FOR HYDROSTATIC TRANSMISSIONS

POWER TRANSMISSION VALVES

- Anti-Skidding Valves
- Flow Dividers
- Freewheeling Valves
- Exchanges Valves
- Selector Valves
- Pressure Reducers
- Serial Protection Valves

p.88



VARIOUS BRAKING FUNCTIONS

BRAKE VALVES

- Emergency and Parking Brake Valves
- Service Brake Valves
- Accumulator Charging Valves
- Service Brake and Accumulator Charging Valves
- Service Brake and Inching Valves
- Compact solution "All in one"
- Steering Assist Brake Valves
- Tractor and Trailer Brake Valves

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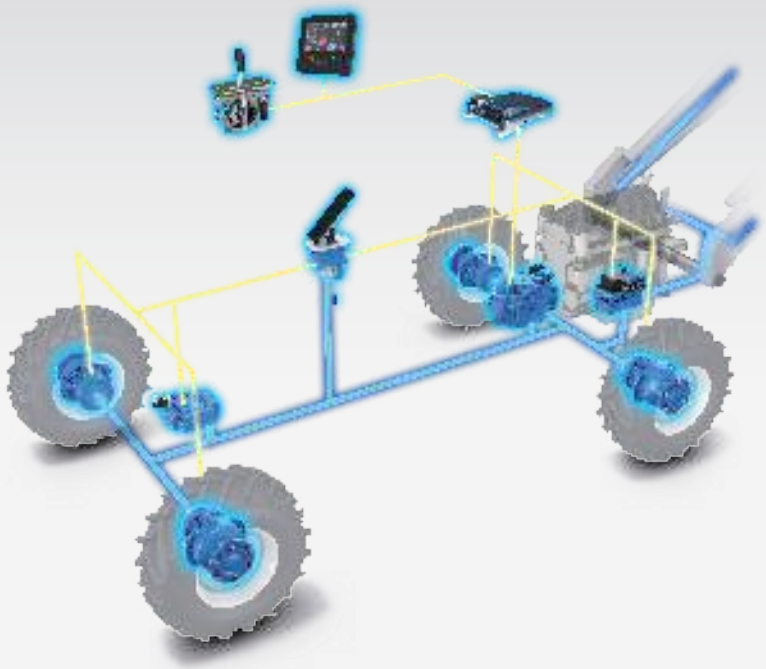
Hydraulic Valves
for open and closed loops

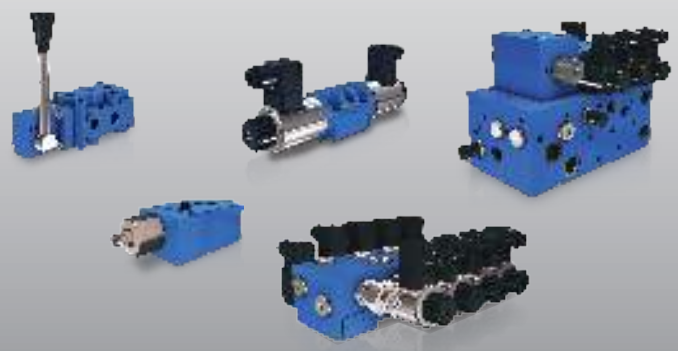


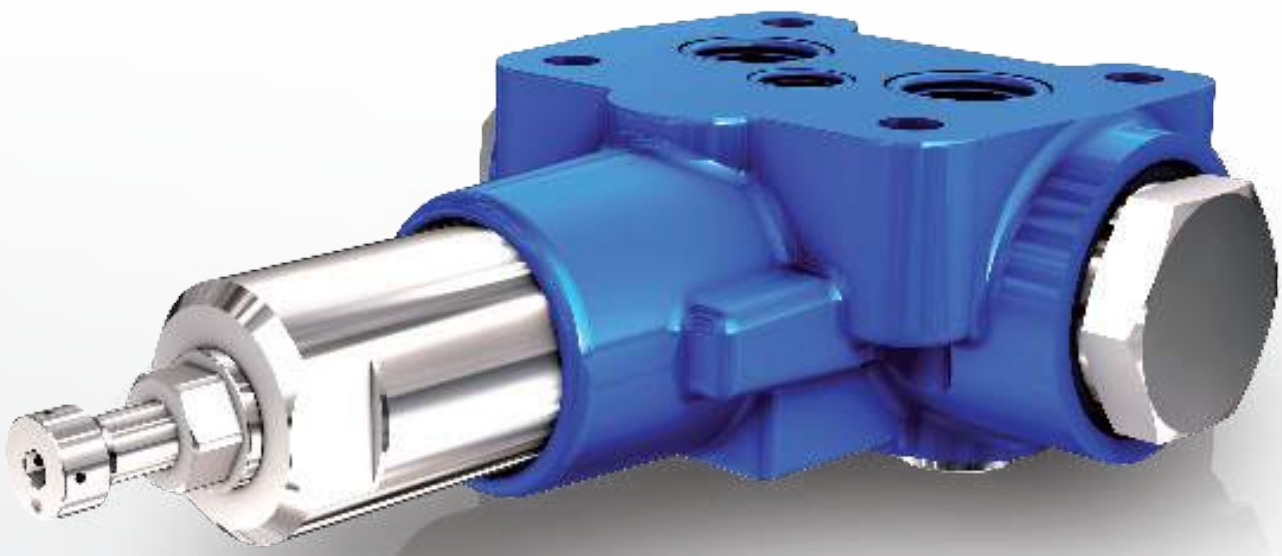
A LARGE RANGE OF FUNCTIONS

OPEN LOOP VALVES

- Directional Control Valves
- Check Valves
- Pressure Control Valves
- Flow Control Valves

p.100



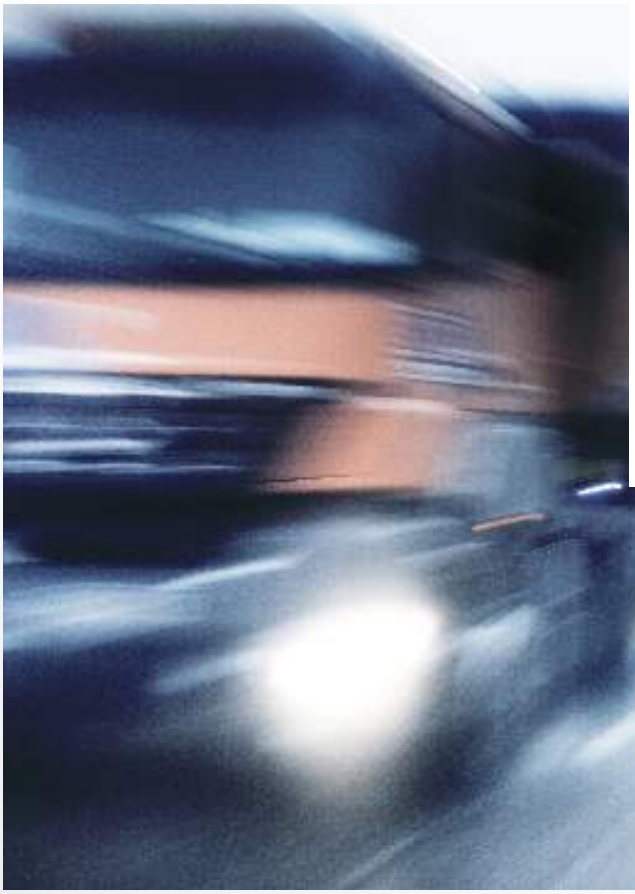


POWER TRANSMISSION VALVES

- Anti-skidding valves
- Flow dividers
- Freewheeling valves
- Exchange valves
- Selector valves
- Pressure Reducers
- Serial Protection Valves

DESIGNED FOR HYDROSTATIC TRANSMISSIONS

SIZED TO OPERATE AT HIGH PRESSURE AND HIGH FLOW



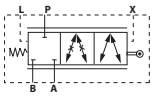
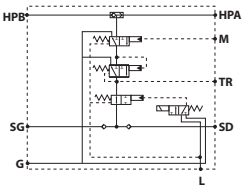
Anti-skidding valves

To control wheel slippage of hydrostatic self-propelled machines in rough terrain conditions, Poclain Hydraulics has developed two anti-skidding solutions that allow good traction control and maintain outstanding vehicle gradeability. The benefits of Twin-Lock™ and SmartDrive™ Off-Road solutions are:

- synchronization of wheel speed to avoid soil damage
- optimized machine performance and stability
- reduced fuel consumption, and
- increased tire life (reduced wear)

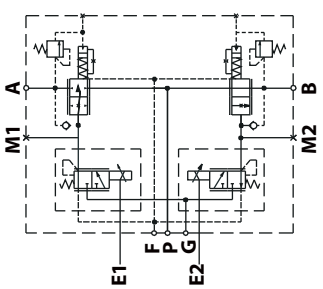
Twin-Lock™ valves

Twin-Lock™ is a unique proactive hydraulic traction control that automatically transfers torque to the wheels with the greatest ground adhesion. Since it eliminates the need for flow dividers, it dramatically reduces the heat generation and horsepower loss of conventional traction control systems.
Twin-Lock™ operates through a unique combination of serial and parallel connection between wheel motors.
The Twin-Lock™ valves prevent excessive pressure build-up in the serial lines, for instance when steering.

		Number of positions	Weight	Max. operating pressure	Nominal flow range	Operation	Connections*	Hydraulic schematics
			kg [lb]	bar [PSI]	L/min [GPM]			
VDP		2	2,6 [5.8]	450 [6,526]	26 - 50 [7 - 13]	Mechanical	Metric BSPP	
		3	3,3 [7.3]					
PR-TL-SV			9,5 [20.9]	450 [6,526]	30 - 50 [7.9 - 13]	Hydraulic	Metric	

SD-CT Off-Road™ valves

SD-CT Off-Road™ is an electronically managed traction control. By using wheel speed sensors for splippage detection and proportional valves for flow throttle, valve restricts flow only when slippage is detected. Entirely programmable, the system easily accommodates varying pump displacements and vehicle steering geometry to offer optimal performance.
SD-CT Off-Road™ can be installed by OEMs on production vehicles or offered as a conversion kit (Poclain Hydraulics motors just need to be eqipped with a pre-disposition for a speed sensor).

		Weight	Voltage	Max. operating pressure	Max.restricted flow	Connections*	Hydraulic schematics
		kg [lb]		bar [PSI]	L/min [GPM]		
VMA In-line model		7,2 [15.9]	12 V DC or 24 V DC	450 [6,526]	20 [5.2] or 50 [13.2]	Metric UNF	
VMA Flanged model		11,9 [26.2]					

*Connecting dimensions: Metric = ISO 9974; BSPP = ISO 1179; UNF = ISO 11926-1, CETOP = ISO 4401

ANTI-SKIDDING SYSTEMS

Increase the off-road capability of your machines

Wheel adherence is a critical factor with off road vehicles. Lose adequate wheel contact with the ground and you can lose control of your machine, put it temporarily out of service, cause premature tire wear, dramatically increase fuel consumption or churn up the site.
Poclain Hydraulics, has designed and developed systems to increase the performance of your machine on difficult ground conditions and steep gradients.

Twin-Lock system > Page 142
SD-CT Off-Road™ system > Page 144

Flow dividers

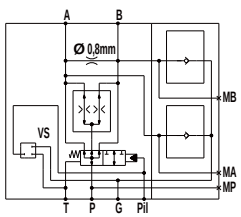
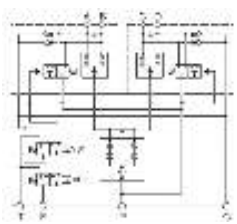
Flow divider controls the speed between wheels of the same axle or between different axles by dividing or combining the flow.
The flow divider is equipped with an electric or hydraulic controlled by-pass and can be used in open or closed loop circuits.


FD-H2-1


FD-H2-2


FD-M2


FD-M3
FD-M4

	Max. weight kg [lb]	Number of outlets	Division Ratio** (% of max. flow)	Max. operating pressure bar [PSI]	Max. by-pass flow (ratio 50/50) L/min [GPM]	By-pass control	Connections*	Hydraulic schematics
FD-H2-1	19,0 [41.9]	2	50-50 60-40 70-30 80-20	500 [7,252]	200 [52.8]	Hydraulic or Electrical	BSPP, UNF	
FD-H2-2					300 [79.3]			
FD-M2	8,0 [17.6]	2	50-50 70-30 60-40	420 [6,000]	150 [39.6]	Hydraulic or Electrical	UNF BSPP	FD-M4 
FD-M3	14,0 [30.9]	3	33-33-33	420 [6,000]	150 [39.6]	Electrical		
FD-M4	15,0 [33.1]	4	25-25-25-25 30-30-20-20 33,5-33,5-16,5-16,5	420 [6,000]	150 [39.6]			

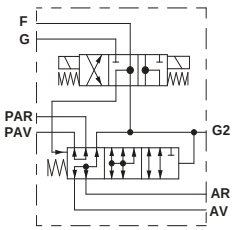
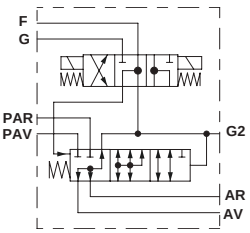
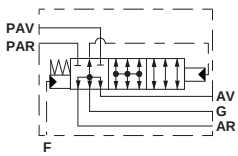
*Connecting dimensions: Metric = ISO 9974; BSPP = ISO 1179; UNF = ISO 11926-1, CETOP = ISO 4401
** Others ratio are available on-demand

Freewheeling valves

In an assist drive circuit, hydraulic motors are engaged when traction is needed, for instance, in rough terrain condition (off-road mode). At high speed (on-road mode) when traction condition are good, motors can be disengaged.
The freewheeling valve connects the high pressure ports of the motor to tank and allows pistons to stay retracted inside the cylinder-block: the motor is then freewheeled.
A pump by-pass option is of interest if the pump is only dedicated to the assist drive function.

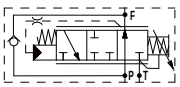
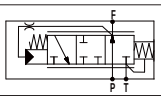
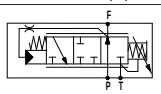

VDF-H15


VDF-H25

	Max. Weight	Max. operating pressure	Nominal flow range	Operation	Connections*	Hydraulic schematics	
	kg [lb]	bar [PSI]	L/min [GPM]			With pump by-pass	Without pump by-pass
VDF H15	19,1 [42.1]	450 [6,526]	50 - 95 [13.2 - 25.0]	Electro-hydraulic 12-24 V DC	Piped Metric, BSPP		
VDF H25	39,3 [86.6]	450 [6,526]	170 - 300 [44.9 - 79.2]	Electro-hydraulic 12-24 V DC	Flanged		
VDF H25 for remote piloting							

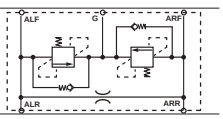
Pressure Reducers

Pressure reducing valves limit the pressure in motor brake line or in auxiliary functions line.

	Type of setting	Weight	Pressure setting range	Max. operating pressure	Max.flow	Hydraulic schematics	
		kg [lb]	bar [PSI]	bar [PSI]	L/min [GPM]	With check valve	Without check valve
PR3-...-S	Fix	0.7 [1.54]	10 to 120 [145 to 1,740]	250 [3,626]	30 [7.92]		
PR3-...-V	Variable						

Serial protection valves

Serial protection valve connects motors in serial line and provides protection of the motors against cavitation and overpressure.

	Max. operating pressure	Max.flow serial line	Max.flow cross line	Pressure relief setting	Connections*	Hydraulic schematics
	bar [PSI]	L/min [GPM]	L/min [GPM]			
SP	420 [6,000]	110 [29.0]	63 [16.6]	Fix	UNF BSPP	
		160 [42.3]	75 [19.8]			

*Connecting dimensions: Metric = ISO 9974; BSPP = ISO 1179; UNF = ISO 11926-1, CETOP = ISO 4401

Exchange valves

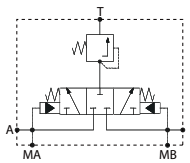
Compact exchange valves bleed hot oil from the low pressure side of a hydrostatic transmission circuit to be cooled, filtered or used as a source of oil for flushing pump and motor cases.
For all VE (except VE10), exchange pressure setting can be tuned by customer.


VE10


VE 30

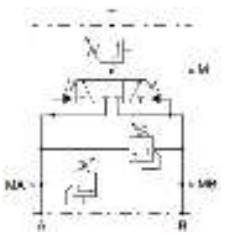

VE 60HP Flanged


VE 60HP Piped

	Weight	Max. operating pressure	Max.exchange flow	Pressure relief setting	High pressure relief setting	Connections*		Hydraulic schematics
	kg [lb]	bar [PSI]	L/min [GPM]	bar [PSI]	bar [PSI]	Piped	Flanged	
VE 10	1,1 [2,4]	450 [6,526]	10 [2.64]	18 [261] or 20 [290] or 22 [319]		●		
VE 30	1,5 [3.3]	500 [7,252]	30 [7.9]	12 to 18 [174 to 261] 18 to 24 [261 to 348] 24 to 30 [348 to 435]		●	●	
VE 60 HP**	2,4 [5.3] Flanged 3,2 [7.1] Piped	500 [7,252]	60 [15.9]	12 to 18 [174 to 261] 18 to 30 [261 to 435]		●	●	

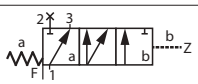
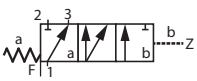
**Available types of exchange: adjustable, fixed by wire, locked

VES 60 7,3 [16.1] 450 [6,526] 60 [15.9] 12 to 18 [174 to 261] 18 to 30 [261 to 435] Up to 420 [6,091] (Factory setting) ● ●



Selector valves

- Two position flow directional control valve
- High flow bypass, very high pressure capability
- Circuit isolation
- Tool selection

	Weight	Max. operating pressure	Nominal flow range	Operation	Hydraulic schematics
	kg [lb]	bar [PSI]	L/min [GPM]		
VD-2V2H20	8.5 [18.7]	450 [6,526]	92 - 170 [25 - 44.9]	Hydraulic 12-24 V DC	
VD-3V2H25	8.5 [18.7]	450 [6,526]	170 - 300 [44.9 - 79.2]	Hydraulic	

VD-3V2H20

Customized valves and hydraulic blocks

Special combo designs are custom made and bring several benefits to specific requirements of a customer:

- Elementary functions (Hot oil exchange, freewheeling, traction control, de-braking, serial protection, circuit selection, anti-cavitation, cross-relief) integrated in a compact multifunctional block results in outstanding performance
- Hydraulic ports position and size are adjusted for easy assembly on the machine
- Optimized dimension and weight
- Surface protection adapted to different environmental conditions


combo freewheeling, flow divider, exchange, brake release

VALVES

BRAKE VALVES

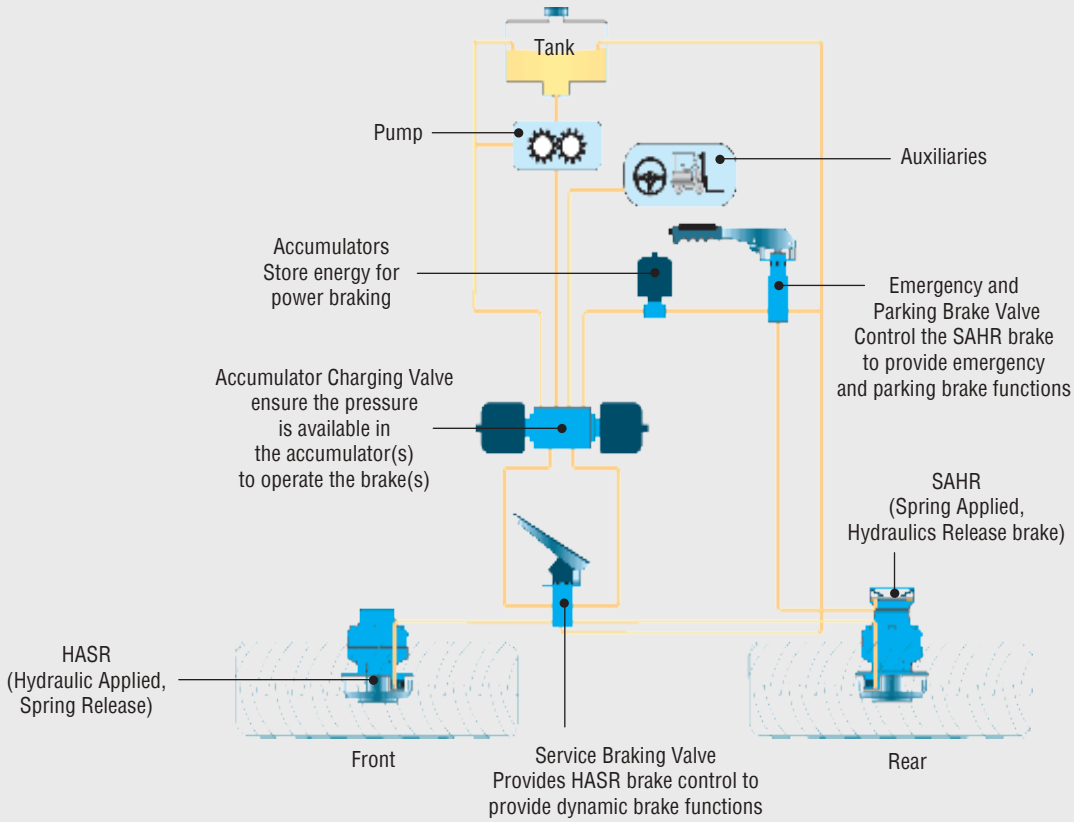
Parking and emergency brake valves
Service brake valves
Service brake valves + inching
Accumulator charging valves
Service brake and accumulator charging valves
Compact solutions «All in one»

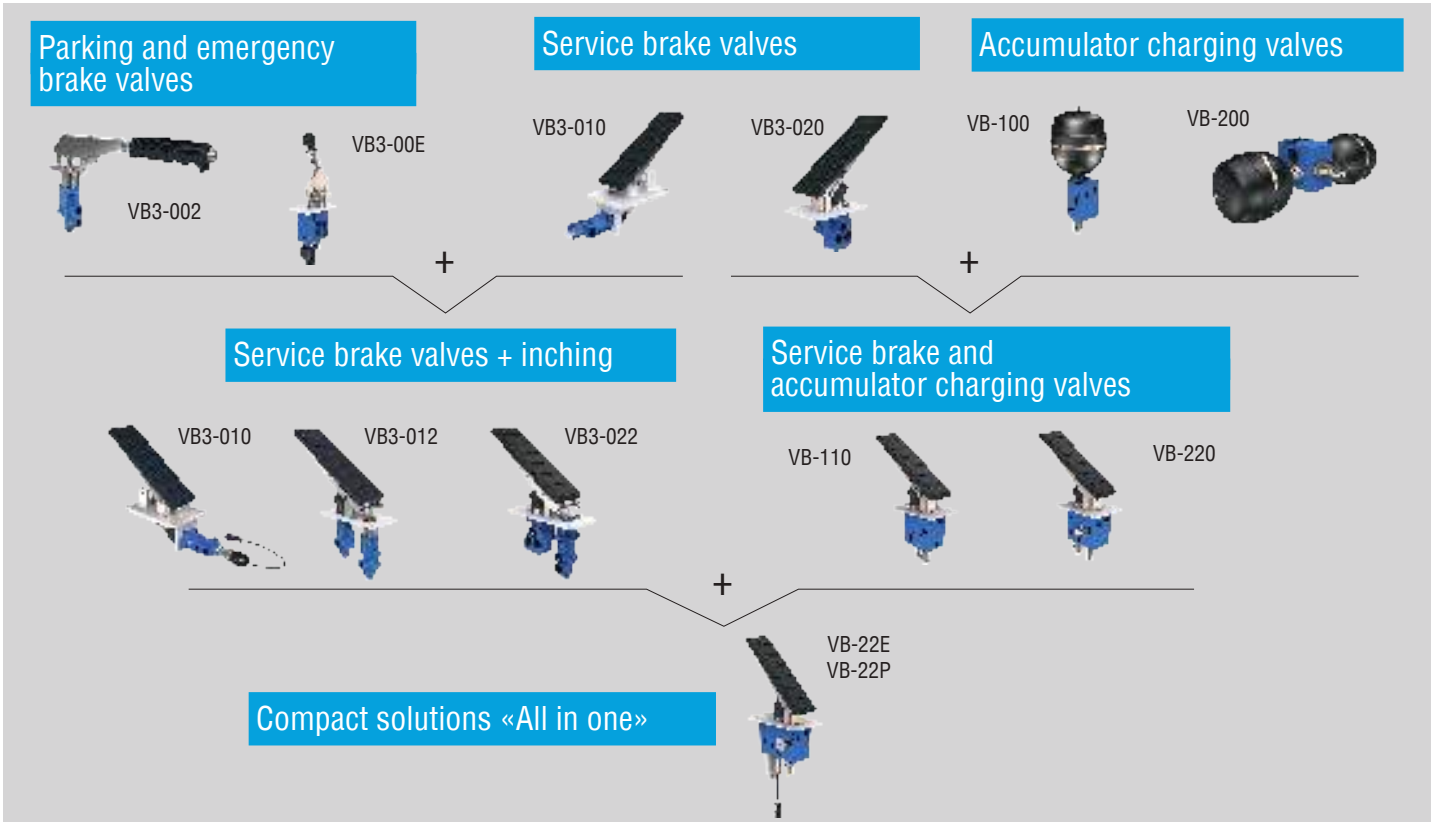
VARIOUS BRAKING FUNCTIONS
FOR ALL TYPES OF HYDRAULIC CIRCUITS

Advantages of hydraulic brake valves (power braking type) are numerous

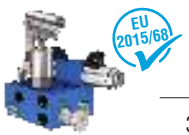
- No need for an additional supply source (air compressor)
- Valves are fed by the hydraulic source on the machine
- Hydraulic accumulators are smaller than air reservoirs
- Faster response time thanks to available reserve of energy in accumulators
- Fewer risks of system contamination and no need for additional filters
- Comfortable and progressive feel

The Poclain Hydraulics braking systems can be adapted to handle your specific braking requirements.





Parking and emergency brake valves

	Weight	Brake operating pressure	Circuit	Control	Actuator
	kg [lb]	bar [PSI]			
VB3-002	0,9 [2.0]	10 - 150 [145 - 2,175]	Single-circuit	Reverse modulating Hydraulic	Horizontal / Vertical lever Floor / Wall mount pedal
VB3-00E EU 2015/68	3,0 [6.6]	10 - 150 [145 - 2,175]	Single-circuit	Reverse modulating Electro-hydraulic	Horizontal / Vertical lever Wall mount pedal
 EU 2015/68 **VB-00M**	3,8 [8.38] 4,3 [9.48]	30 - 120 [435 - 1,740]	Single-circuit Dual-circuit	On-Off	Electrical and Manual

Service brake valves and inching

	Weight	Brake operating pressure	Brake type	Circuit	Control	Actuator
	kg [lb]	bar [PSI]				
VB3-010*	1,0 [2.2]	20 - 150 [290 - 2,175]	Service brake	Single-circuit	Modulating Mechanical	Floor / Wall mount pedal
VB3-020*	2,0 [4.4]	20 - 150 [290 - 2,175]		Dual-circuit	Modulating Mechanical	Floor / Wall mount pedal
VB3-012	3,5 [7.7]	20 - 150 [290 - 2,175]	Service brake and inching	Single-circuit	Combined VB3-002 + VB3-010	Floor mount pedal
VB3-022	4,1 [9.0]	20 - 150 [290 - 2,175]		Dual-circuit	Combined VB3-002 + VB3-020	Floor mount pedal

* Electrical inching available, pedal position sensor

Accumulator charging valves

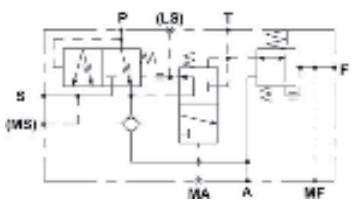
	Weight			Cut-in/ cut-out pressure range	Flow rate	
					To auxiliary	To accumulator
	kg [lb]	Circuit	Control	bar [PSI]	l/min [GPM]	l/min [GPM]
VB-100	2,2 [4.8]	Single-circuit	Hydraulic	110 / 130 [1,595 / 1,888] 120 / 140 [1,740 / 2,031] 135 / 160 [1,958 / 2,321] 160 / 190 [2,321 / 2,756]	45 - 120 [11.9 - 31.7]	2.75 - 15 [0.73 - 3.96]
VB-200	4.0 [8.8]	Dual-circuit	Hydraulic	170 / 200 [2,466 / 2,901] 180 / 210 [2,611 / 3,046]		

Compact solutions «All in one»

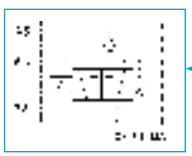
	Weight			Cut-in/ cut-out pressure range	Brake operating pressure	Flow rate		
						To auxiliary	To accumulator	
	kg [lb]	Circuit	Control	bar [PSI]	bar [PSI]	l/min [GPM]	l/min [GPM]	Actuator
VB-110	5,0 [11.0]	Single-circuit	Hydraulic	110 / 130 [1,595 / 1,888] 120 / 140 [1,740 / 2,031] 135 / 160 [1,958 / 2,321] 160 / 190 [2,321 / 2,756] 170 / 200 [2,466 / 2,901] 180 / 210 [2,611 / 3,046] 205 / 240 [2,973 / 3,481]*	30 - 120 [435 - 1,740]	45 - 120 [11.9 - 31.7]	2.75 - 15 [0.73 - 3.96]	Floor mount / Lockable pedal
VB-220	6.0 [13.2]	Dual-circuit	Hydraulic					
VB-22E	8.0 [17.6]	Dual-circuit + parking brake	Electro hydraulic					
VB-22P			Proportional Electro hydraulic					

* Only available for VB-110 and VB-220 valves.

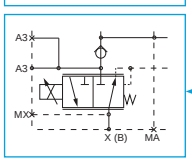
VB-110



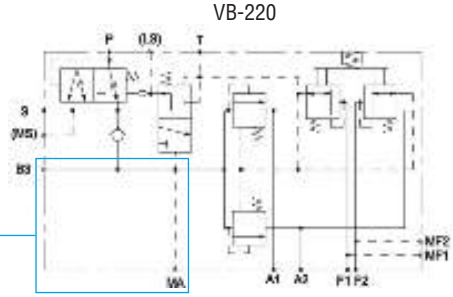
VB-22E



VB-22P



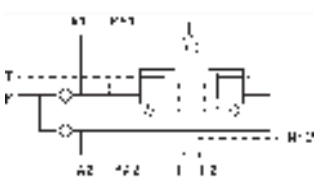
VB-220



Customized VB valves

Special combo designs are custom made and bring several benefits to specific requirements of a customer:

- Accumulators can be integrated directly on brake valve
- Protection of accumulators from AUX over pressure
- Adaptation of pushing elements on VB3-010 (roller, thread)
- Integration of two braking valves on one actuator
- Integration of additional remote hydraulic piloting on standard braking valves
- Customization of mechanical actuators according to customer needs

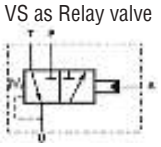


Dual circuit brake valve with accumulators and customized component

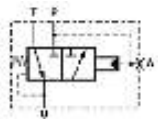
Relay valves

- Large volume brake actuation
- Long braking lines
- Fast tank return
- Remote electric actuatioin of service brake

VS as Relay valve



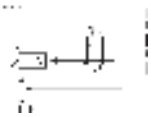
VS as Quick return valve



	Weight	Max. brake operating pressure	Max. flow rate to brake	Circuit	Control
	kg [lb]	bar [PSI]	l/min [GPM]		
VS	2,5 [5.5]	210 [3,045]	70 [18.50]	Single-circuit	Hydraulic

Electrically piloted brake valve

	Weight	Brake operating pressure	Max. flow rate to brake	Brake type	Pressure control
	kg [lb]	bar [PSI]	l/min [GPM]		
VBR-010	2,5 [5.5]	10 - 115 [145 - 1,667]	20 [5.28]	Service brake	Proportional



TRACTOR AND DUAL LINE TRAILER BRAKING SOLUTIONS

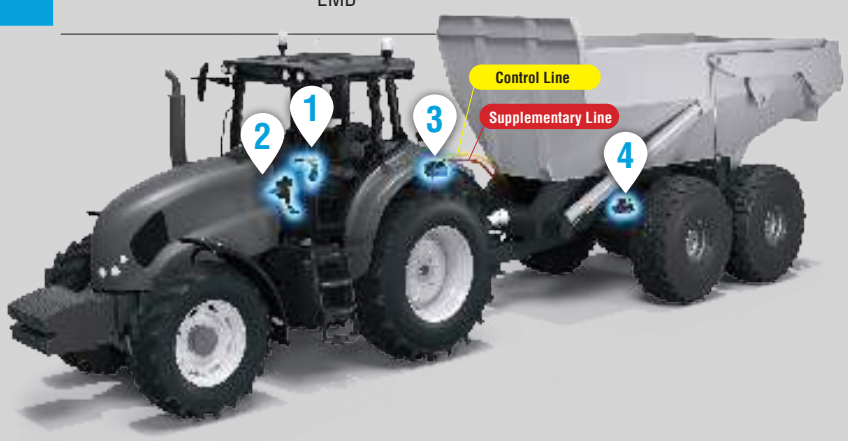
Valves compatibility and modularity

Whether you want to fit Hydraulic or Electro-hydraulic brake valves on your tractor/trailer, you can choose any of our products.
It is possible to mix and match hydraulic and electro-hydraulic components.

Poclain Hydraulics can design specific brake valves to answer your needs regarding space constraints, function integration, and/or develop specific performance characteristics.

		Hydraulic solution	Electro-hydraulic solution
1	Parking and emergency brake valves	VB3-002	VB3-00E
2	Steering assist valves	VB3-0B0 VB3-0D0	-
3	Trailer brake valves	VFR-0HX	VFR-0EX VBT
4	Energy management block valve	-	EMB

DESIGNED FOR EU2015/68

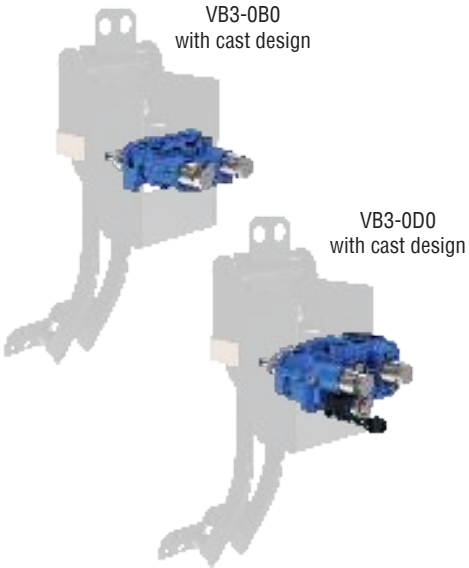


More information > Page 150

Steering assist valves

The VB3-0B0 and VB3-0D0 valves, combined with a double brake pedal, have the following functionalities:

- Off-road: steering assist braking for field work gives U-turn capability by braking the inner rear wheel. Each of the circuit selectors are associated with one of the pedals.
- On-road: mechanically linked pedals allow effective service braking.
- Dual circuit steering assist valve (VB3-0D0) acts on brakes in rear and front axles which improves driving control and safety.
- VB3-0D0 always allows independent braking in case of circuit leakage on one of the axles.



		Weight	Max. brake operating pressure	Service brake pressure
		kg [lb]	bar [PSI]	bar [PSI]
VB3-0B0	Steering assist brake (Single circuit)	7,0 [15.4]	250 [3,626]	150 [2,176]
VB3-0D0	Steering assist brake (Dual circuit) (EU 2015/68 regulation)	7,0 [15.4]	250 [3,626]	150 [2,176]

Trailer brake valves

Trailer brake valves allow to apply the trailer brake pressure based on the tractor brake pressure. They supply auxiliary equipment and are therefor equipped with a priority spool in order to supply the trailer brakes when needed (i.e. the priority is given to the brakes).

VFR-0HX VFR-0EX

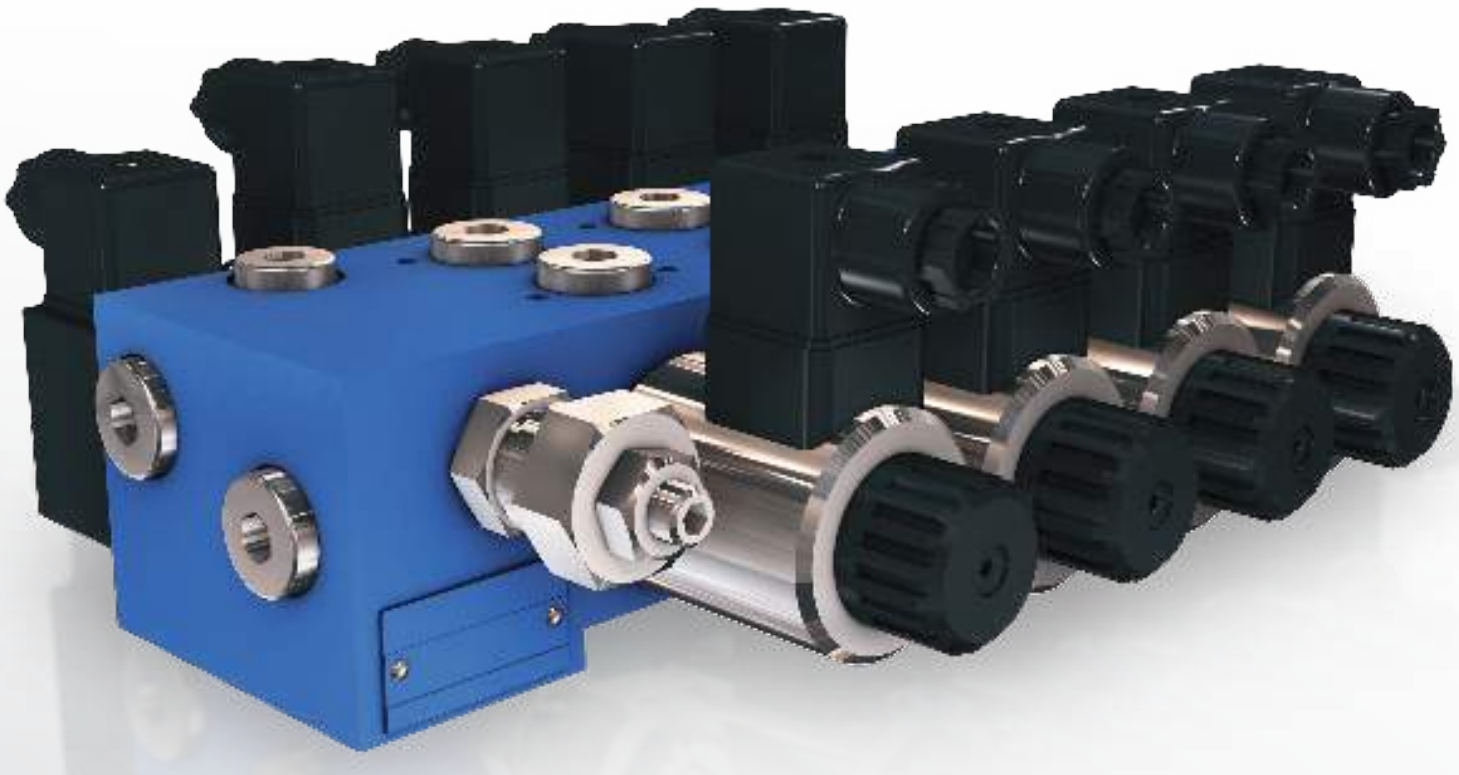
The VFR Valves are simple single circuit trailer service brake, hydraulically or electrically piloted, mounted on the tractor.

The VBT valves are single or dual circuit electronically piloted trailer service brake valves, mounted on the tractor. Beside main control line (single circuit), dual circuit contains negative emergency braking on its supplementary line.

The EMB valves are electronically piloted dual circuit service trailer service brake valves with secundary emergency brake on supplementary line. By mounting on trailer gives another option in comparison to VBT (mounted on tractor).

					Weight	Flow rate	
						To brake	To auxiliary
			Control	Circuit	kg [lb]	l/min [GPM]	l/min [GPM]
ON THE TRACTOR	**VFR-0HX**	Trailer service brake	Hydraulic	Single	6,5 [14.3]	50 [13]	200 [53]
	VFR-0EX	Trailer service brake	Electronic	Single	6,5 [14.3]		
	VBT	Trailer service brake	Electronic	Single	10 [22]	50 [13]	100 [26.5]
				Dual	16 [35.2]	50 [13]	100 [26.5]
ON THE TRAILER	**EMB**	Energy Management Block Valve	Electronic	Dual	15,2 [33.4]	30 [7.8]	

VALVES



OPEN LOOP VALVES

- Directional control valves
- Check valves
- Pressure control valves
- Flow control valves

A LARGE RANGE OF FUNCTIONS
TO ANSWER EVERY NEED









Directional control valves

CETOP valves

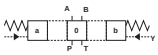
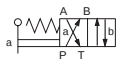
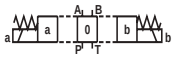
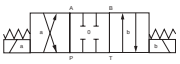
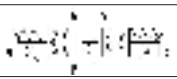
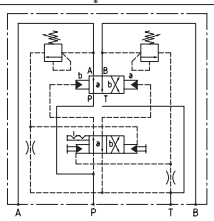
Valves for sub-plate connection to ISO 4401

KV-3KO

KV-5KL

KVP

PKV

	Actuation	Size (NG) 6	Size (NG) 10	Max. operating pressure bar [PSI]	Flow rate l/min [GPM]	Modular Mounting*	Weight kg [lb]	Hydraulic schematics (examples)
4/2 and 4/3								
KV	Hydraulic	●		350 [5,077]	80 [21.1]	CETOP	1,4 [3.1]	
			●	350 [5,077]	130 [34.2]	CETOP	4,0 [8.8]	
KV	Mechanical	●		350 [5,077]	60 [15.8]	CETOP	2,0 [4.5]	
			●	350 [5,077]	100 [26.4]	CETOP	5,2 [11.5]	
KV (5KL)	Electrical	●		350 [5,077]	75 [19.8]	CETOP	2,2 [4.9]	
KV (5KO)	Electrical		●	350 [5,077]	120 [31.6]	CETOP	7,3 [16.1]	
KV (3KO)	Electrical	●		250 [3,626]	40 [10.5]	CETOP	1,8 [3.9]	
KVP proportional	Electrical	●		350 [5,077]	30 [7.9]	CETOP	2,2 [4.9]	
PKV-10	Indirect hydraulic		●	210 [3,046]	60 [15.8]	CETOP (Non modular)	3,2 [7.0]	

Manifolds for CETOP valves

	Size (NG) 6	Size (NG) 10	Max. operating pressure bar [PSI]	Flow rate l/min [GPM]	Connections*	Weight kg [lb]
Manifold BP (max. 8 stations)	●		350 [5,077]	80 [21.1]	CETOP	2,3 to 41.2 [5.1 to 90.8]
		●	350 [5,077]	120 [31.6]	CETOP	

Manifold BP

Subplates for CETOP valves

	Size (NG) 6	Size (NG) 10	Max. operating pressure bar [PSI]	Flow rate l/min [GPM]	Connections*	Weight kg [lb]
Subplates PP-KV (max.1 station)	●		350 [5,077]	80 [21.1]	CETOP	0,9 [2.0]
		●	350 [5,077]	120 [31.6]	CETOP	2,3 [5.1]

Subplate PP-KV-6

Subplate PP-KV-10

*Connecting dimensions: Metric = ISO 9974; Gas = ISO 1179; UNF = ISO 11926-1, CETOP = ISO 4401

VALVES

KVM valves for modular mounting

KVM 4/2

KVM 4/3

KVM-VV

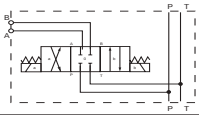
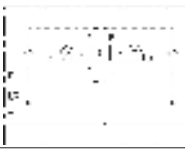
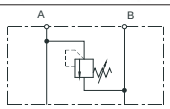
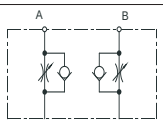
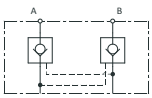
KVM-NDV

KVM-NOV

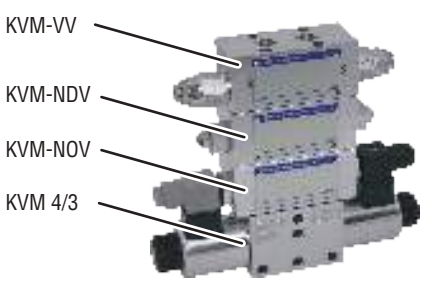
OB
Inlet block

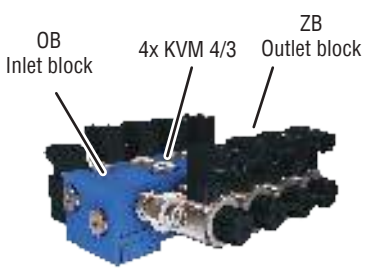
ZB
Outlet block

Screw set
SET-KVM

	Size (NG)	Max. operating pressure	Flow rate	Actuation	Modular Mounting*	Non modular in line connection	Weight	Hydraulic schematics (examples)
	6	bar [PSI]	l/min [GPM]				kg [lb]	
KVM-On/Off (4/2 and 4/3)	●	350 [5,077]	40 [10.5]	Electrical	Bankable	Metric, Gas, UNF	2,4 [5.3]	
KVM6-PO (Proportional) (4/2 and 4/3)	●	350 [5,077]	30 [7.9]	Electrical	Bankable	Metric, Gas, UNF	2,4 [5.3]	
KVM-PL (Load sensing signal)	●	350 [5,077]	40 [10.5]	Electrical	Bankable	Metric, Gas, UNF	2,4 [5.3]	
KVM-VV (pressure relief valve)	●	350 [5,077]	40 [10.5]		Bankable		1,8 [4.0]	
KVM-NDV (Throttle with check valve)	●	350 [5,077]	40 [10.5]		Bankable		1,5 [3.3]	
KVM-NOV (Pilot operated check valve)	●	350 [5,077]	40 [10.5]		Bankable		1,4 [3.1]	
OB-Inlet block	●	350 [5,077]	40 [10.5]		Bankable	In line	1,2 to 4.5 [2.7 to 9.9]	
ZB-Outlet block	●	350 [5,077]	40 [10.5]		Bankable	In line	0,8 [1.8]	
Screw set SET-KVM	●							

Vertical stacking ⊕ Bankable mounting





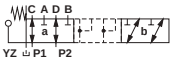
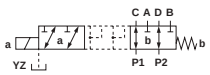
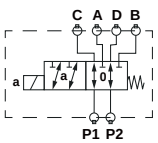
*Connecting dimensions: Metric = ISO 9974; Gas = ISO 1179; UNF = ISO 11926-1, CETOP = ISO 4401

6/2 selector valves


KV6K2


KV-6/2-6


KV-6/2-6 (Lever operated)

	Actuation	Size (NG)				Max. operating pressure	Flow rate	Non modular in line connection	Weight	Hydraulic schematics (examples)
		6	8	10	16	bar [PSI]	l/min [GPM]		kg [lb]	
KV	Hydraulic				●	450 [6,527]	300 [79.3]	SAE, UNF	16,8 [37.0]	
KV	Mechanical	●				350 [5,077]	60 [15.8]	Metric, Gas, UNF	2,4 [5.3]	
				●		350 [5,077]	120 [31.6]	Metric, Gas, UNF	5,3 [11.7]	
KV	Electrical	●				350 [5,077]	50 [13.2]	Metric, Gas, UNF	2,5 [5.5]	
				●		350 [5,077]	120 [31.6]	Metric, Gas, UNF	5,5 [12.1]	
					●	350 [5,077]	250 [65.8]	Gas, UNF	22 [48.5]	
KV6K2	Electrical	●				350 [5,077]	50 [13.2]	Metric, Gas, UNF	2,9 [6.4]	
			●			315 [4,569]*	90 [23.8]	Metric, Gas, UNF	4,8 [10.6]	

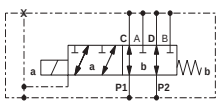
* 250 bar [3,626 PSI] without drain release and 350 bar [5,077 PSI] with drain release.

6/2 selector valves for modular mounting


KVH-6/2-8


KVH-6/2-10 (N2)

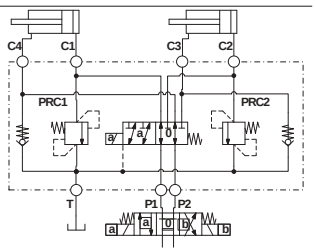

KVH-6/2-6 (N3)

	Actuation	Size (NG)			Max. operating pressure	Flow rate	Non modular in line connection	Weight	Hydraulic schematics (examples)
		6	8	10	bar [PSI]	l/min [GPM]		kg [lb]	
KVH	Electrical	●			315 [4,569]	50 [13.2]	Metric, Gas, UNF	2,7 [5.9]	
			●		350 [5,077]	90 [23.8]	Metric, Gas, UNF	3,8 [7.7]	
				●	315 [4,569]	120 [31.6]	Metric, Gas, UNF	5,5 [12.1]	

7/2 selector valves

The KV-7/2 valve is used as diverter between two hydraulic cylinders which are not operated simultaneously. This is the perfect solution for all applications where pressure peaks appear because of mechanical shocks acting on hydraulic cylinder(s).

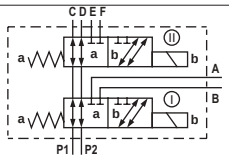
KV-7/2-6

	Actuation	Size (NG)	Max. operating pressure	Flow rate	Non modular in line connection	Weight	Hydraulic schematics (examples)
		6	bar [PSI]	l/min [GPM]		kg [lb]	
KV-7/2	Electrical	●	350 [5,077]	50 [13.2]	Metric, Gas, BSPP	3,6 [7.9]	

*Connecting dimensions: Metric = ISO 9974; Gas = ISO 1179; UNF = ISO 11926-1, CETOP = ISO 4401

8/3 selector valves

KV-8/3-6

	Actuation	Size (NG)	Max. operating pressure	Flow rate	Non modular in line connection	Weight	Hydraulic schematics (examples)
		6	bar [PSI]	l/min [GPM]		kg [lb]	
KV	Electrical	●	250 [3,626]	50 [13.2]	Metric, Gas, UNF	3,8 [8.4]	

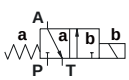
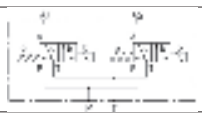
Piped assembly valves

KVC-3/2

This valve (NG 10) can be used to by-pass one half of a Twin-Lock ™ motor to create a two speeds machine.

KVC2-3/2

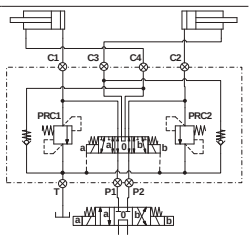
This valve is often used to control parking brake actuation and displacement switch of motors.

	Actuation	Size (NG)		Max. operating pressure	Flow rate	Non modular in line connection	Weight	Hydraulic schematics (examples)
		4	10	bar [PSI]	l/min [GPM]		kg [lb]	
KVC-3/2-4	Electrical	●		160 [2 320]	16 [4.2]	Metric, Gas	1,6 [3.5]	
KVC-3/2-10	Electrical		●	350 [5 077]	100 [26.4]	Metric, Gas, UNF	7,1 [15.6]	
KVC2-3/2-4	Electrical	●		160 [2 320]	16 [4.2]	Metric, Gas, UNF	3,5 [7.7]	

Dedicated valve for snow plough

The KV-7/3-6 valve has been designed especially for use on variable V-blade snow plows, it allows to switch between tilting each blade individually or both simultaneously. The integrated pressure relief valves prevent hydraulic circuit against pressure peeks and the hydraulic accumulator absorbs impact energy to return it back to the circuit through check valves.

KV-7/3-6

	Actuation	Size (NG)	Max. operating pressure	Flow rate	Non modular in line connection	Weight	Hydraulic schematics (examples)
		6	bar [PSI]	l/min [GPM]		kg [lb]	
KV-7/3	Electrical	●	350 [5,077]	50 [13.2]	Metric, Gas, BSPP	3,6 [7.9]	

*Connecting dimensions: Metric = ISO 9974; Gas = ISO 1179; UNF = ISO 11926-1, CETOP = ISO 4401

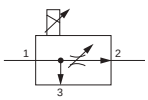
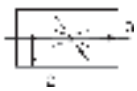
Flow control valves

VP-NDV 

TVTC 

TVTP-P0
TVTP-P
TVTP-B 

DTP 

	Size (NG)		Max. operating pressure	Flow rate	Connections*	Setting Method	Weight	Hydraulic schematics
	6	10	bar [PSI]	l/min [GPM]			kg [lb]	
Throttle/check valve								
VP-NDV	●		350 [5 076]	60 [15.8]	CETOP	Manual	1,4 [3.2]	
		●	350 [5 076]	100 [26.4]			3,3 [7.3]	
Pressure compensated flow control valves								
TVTC	●		350 [5 076]	50 [13.2]	in line Metric, Gas, UNF	Mechanical	3,0 [6.6]	
TVTP-P	●		210 [3 046]	50 to 90 [13.2 to 23.8]	Cartridge	Electric proportional	1,0 [2.2]	
		●	210 [3 046]	90 to 150 [23.8 to 39.6]	Cartridge	Electric proportional	1,6 [3.5]	
TVTP-P0	●		210 [3 046]	60 to 90 [15.9 to 23.8]	Cartridge	Electric proportional	1,0 [2.2]	
TVTP-B	●		350 [5 076]	60 to 90 [15.9 to 23.8]	Cartridge	Manual	0,6 [1.3]	
		●	350 [5 076]	90 to 150 [23.8 to 39.6]	Cartridge	Manual	1,0 [2.2]	
Flow dividers								
DTP	●		350 [5 076]	20 to 70 [5.3 to 18.5]	in line Metric, Gas, UNF		1,7 [3.8]	
		●	350 [5 076]				2,7 [5.9]	

VALVES

PHAST PROGRAM

More information > Page 162

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

Fast delivery

Poclain Hydraulics is committed to supplying 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.

PHast

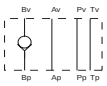
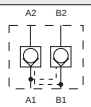
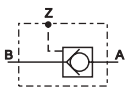
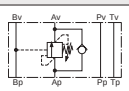
Valves type

Directional control valves	Bankable mounting	Vertical stacking	Chek valves	Pressure control valves	Flow control valves
KV6K2 KV-6/2-6 KVC-3/2-4 KVC-3/2-10 KV-8/3-6 KVH-6/2 KV CETOP (3;5) KVC	KVM OB-KVM-6 ZB-KVM-6	KVM-VV-6 KVM-NDV-6 KVM-NOV-6	NOV VP-NDV VP-NOV	VP-RT	DTP TVTC TVTP

*Connecting dimensions: Metric = ISO 9974; Gas = ISO 1179; UNF = ISO 11926-1, CETOP = ISO 4401

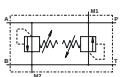
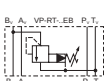
Check valves

VP-NV  VP-NOV  NOV-E 

	Size (NG)		Max. operating pressure	Flow rate	Connections*	Weight	Hydraulic schematics
	6	10	bar [PSI]	l/min [GPM]		kg [lb]	
Direct operated valves							
VP-NV	●		350 [5 076]	50 [13.2]	CETOP	0,9 [1.9]	
		●	350 [5 076]	100 [26.4]	CETOP	2,8 [6.1]	
VP-NOV	●		350 [5 076]	60 [15.8]	CETOP	1,8 [3,9]	
		●	350 [5 076]	100 [26.4]	CETOP	3,5 [7.7]	
Pilot operated valves							
NOV-6D	●		350 [5 076]	60 [15.8]	in line Gas, UNF	1,5 [3.3]	
NOV-E	●		350 [5 076]	35 [9.2]	in line Gas, UNF	0,5 [1.1]	
		●	350 [5 076]	50 [13.2]		0.7 [1.4]	
Counterbalance piloted valve							
VP-BZV	●		270 [3 916]	60 [15.8]	CETOP	1,8 [4.0]	

Pressure control valves

VVP   VVB2  VP-RT

	Size (NG)		Max. operating pressure	Flow rate	Connections*	Operation	Weight	Hydraulic schematics
	6	10	bar [PSI]	l/min [GPM]			kg [lb]	
VVP	●		400 [5 802]	50 [13.2]	Cartridge, in line	Direct	0,5 [1.1]	
		●	400 [5 802]	120 [31.7]			0,6 [1.3]	
VVB2	●		210 [3 046]	60 [15.9]	in line Metric, Gas, UNF	Direct	1,8 [4.1]	
VP-RT	●		350 [5 076]	50 [13.2]	CETOP	Pilot	1,7 [3.8]	
		●	350 [5 076]	100 [26.4]			2,6 [5.7]	

Customized valves and hydraulic blocks

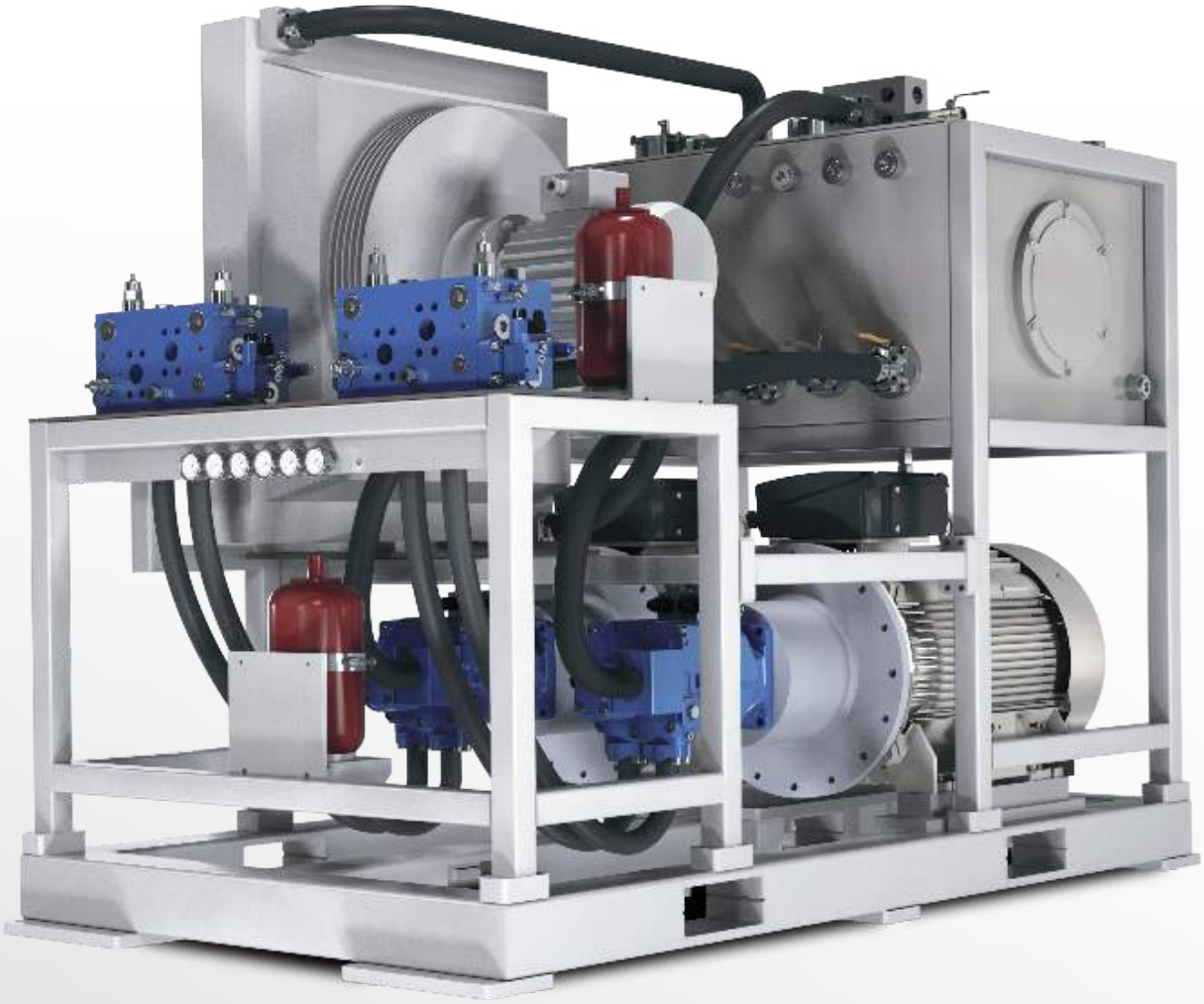
Special combo designs are custom made and bring several benefits to specific requirements of a customer:

- Elementary functions integrated in a compact multifunctional block results in outstanding performance
- Hydraulic ports position and size are adjusted for easy assembly on the machine
- Optimized dimension and weight
- Surface protection adapted to different environmental conditions

Flow divider and diverter

*Connecting dimensions: Metric = ISO 9974; Gas = ISO 1179; UNF = ISO 11926-1, CETOP = ISO 4401


HYDRAULIC
POWER DRIVE



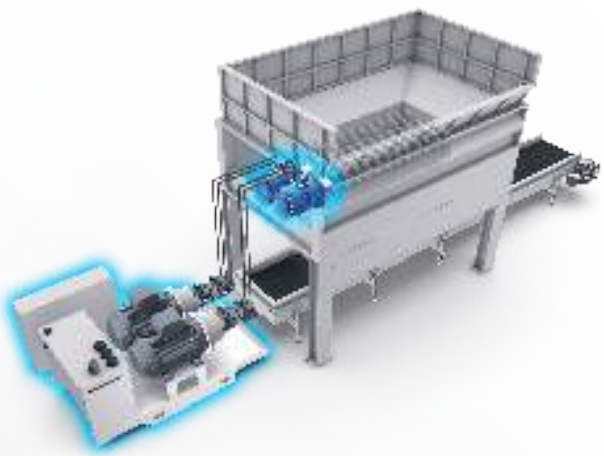
HPD

- Compact design
- Several models for single and dual drive
- Designed to drive Poclain Hydraulics radial motors
- Designed for closed loop circuit
- Over pressure protection
- Anti-cavitation with accumulator
- Air or Water cooling system

HYDRAULIC POWER DRIVES
FOR CLOSED LOOP SYSTEMS

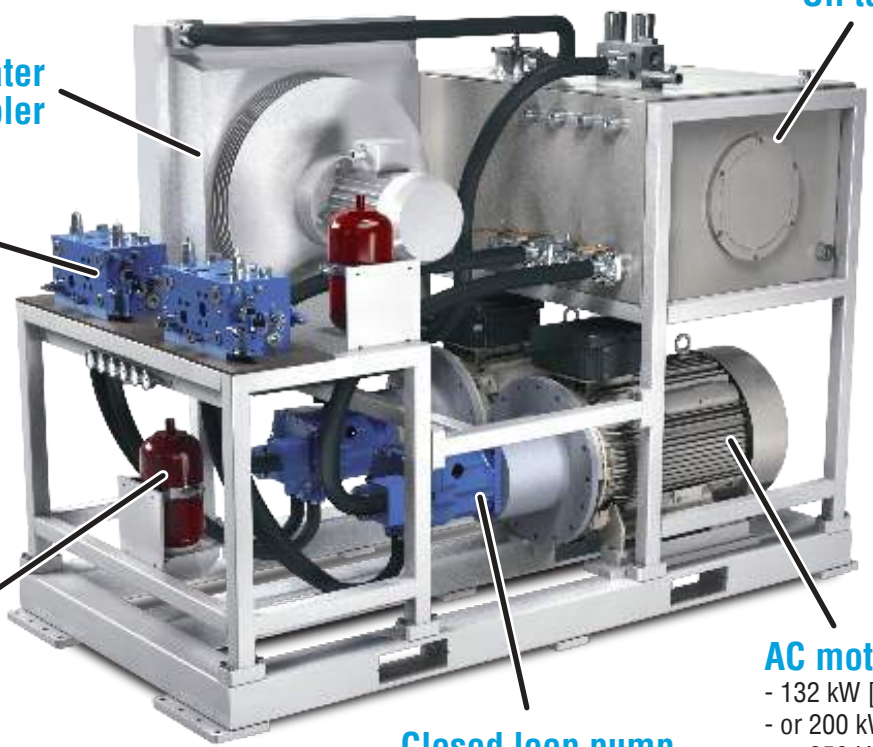
HPD Single hydraulic motor drive
HPD Dual hydraulic motor drive

Up to 500 kW [670.5 HP]
Up to 560 cm³/rev [37.17 cu.in/rev] (Main pump displacement)
Up to 450 bar [6,526 PSI]



Components

Complete solution in a single compact unit.
Several models designed to fit the customer needs.



Optional:
oil pan, hoses between HPD and hydraulic motor etc.

Main models

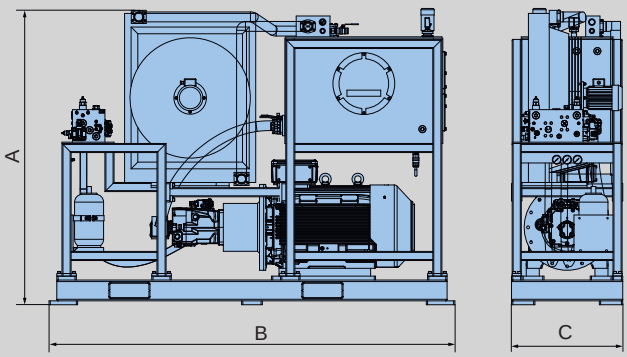
These are the main models of HPD. Poclain Hydraulics can provides others models on request.

	HPD Model	AC Motor kW [HP]	Closed loop pump cm³/rev [cu.in/rev]	Preferred Hydraulic motor
Single hydraulic motor drive	S.1	132 [177]	210 [12.8]	MHP20 or MHP27 or MS50 or MS83 or MS125
	S.2	132 [177]	280 [17.1]	MHP20 or MHP27 or MS50 or MS83 or MS125
	S.3	200 [268]	210 [12.8]	MHP20 or MHP27 or MS125 or MI250
	S.4	200 [268]	280 [17.1]	MHP20 or MHP27 or MS125 or MI250
	S.5	200 [268]	2 x 210 [2 x 12.8]	MHP20 or MHP27 or MS125 or MI250
	S.6	250 [335]	280 [17.1]	MI250
	S.7	250 [335]	2 x 210 [2 x 12.8]	MI250
	S.8	250 [335]	2 x 280 [2 x 17.1]	MI250
Dual hydraulic motor drive	D.1	2 x 132 [2 x 177]	2 x 210 [2 x 12.8]	2 x MHP20 or MHP27 or MS50 or MS83 or MS125
	D.2	2 x 132 [2 x 177]	2 x 280 [2 x 17.1]	2 x MHP20 or MHP27 or MS50 or MS83 or MS125
	D.3	2 x 200 [2 x 268]	2 x 210 [2 x 12.8]	2 x MHP20 or MHP27 or MS125 or MI250
	D.4	2 x 200 [2 x 268]	2 x 280 [2 x 17.1]	2 x MHP20 or MHP27 or MS125 or MI250
	D.5	2 x 200 [2 x 268]	2x 2 x 210 [2 x 2 x 12.8]	2 x MHP20 or MHP27 or MS125 or MI250
	D.6	2 x 250 [2 x 335]	2 x 280 [2 x 17.1]	2 x MI250
	D.7	2 x 250 [2 x 335]	2x 2 x 210 [2 x 2 x 12.8]	2 x MI250
	D.8	2 x 250 [2 x 335]	2 x 2 x 280 [2 x 2 x 17.1]	2 x MI250

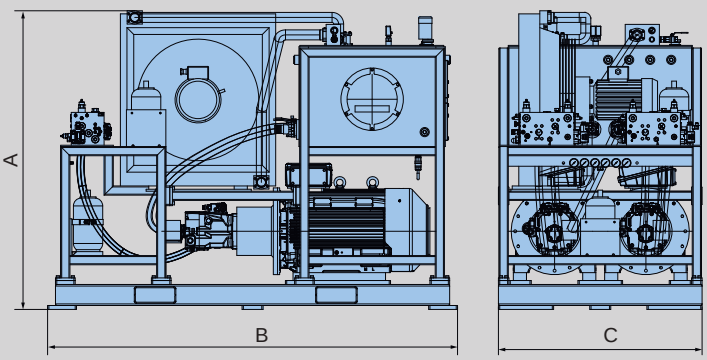
Dimensions

		Single hydraulic motor drive			Dual hydraulic motor drive		
		132 kW	200 kW	250 kW	2 x 132 kW	2 x 200 kW	2 x 250 kW
A	mm	2 228	2 278	2 278	2 254	2 278	2 278
	[in]	[87.7]	[89.7]	[89.7]	[88.7]	[89.7]	[89.7]
B	mm	2 720	3 120	3 779	2 920	3 120	3 829
	[in]	[107.1]	[122.8]	[148.8]	[114.9]	[122.8]	[150.7]
C	mm	855	855	907	1 550	1 550	1 654
	[in]	[33.6]	[33.6]	[35.7]	[61.0]	[61.0]	[65.1]

HPU single hydraulic motor drive



HPU dual hydraulic motor drive



LARGE SIZE HYDRAULIC MOTORS

Reliability, ease of integration and performance

Reliability, ease of integration and performance are key selection criteria for high displacement hydraulic motors, especially for application in harsh environments. To meet these requirements, Poclain Hydraulics offers a complete range of large size hydraulic motors with all the benefits of radial piston technology (high torque, efficiency, easy control, robustness,…) and a displacement of up to 30 liters.

	Max. Pressure bar [PSI]	Displacement range cm³/rev [cu.in/rev]	Max. Torque N.m [lbf.ft]	Max. Speed RPM	Max. Power kW [HP]
MHP20 to MHP27	500 [7,252]	473 to 3 526 [28.9 to 215.2]	28 059 [20,695]	548	280 [375]
MS50 to MS125	450 [6,527]	3 500 to 15 000 [213.5 to 915]	77 000 [56,792]	200	240 [322]
MI250	450 [6,527]	17 500 to 30 000 [1,037 to 1,831]	167 112 [123,255]	100	500 [671]

More information MS motors > Page 12
More information MHP motors > Page 24
More information MI motors > Page 52

ELECTRONICS

DESIGNED TO CONTROL STANDARD MACHINES

SMARTDRIVE EASY

p.118

DESIGNED TO CONTROL THE MOST DEMANDING MACHINES

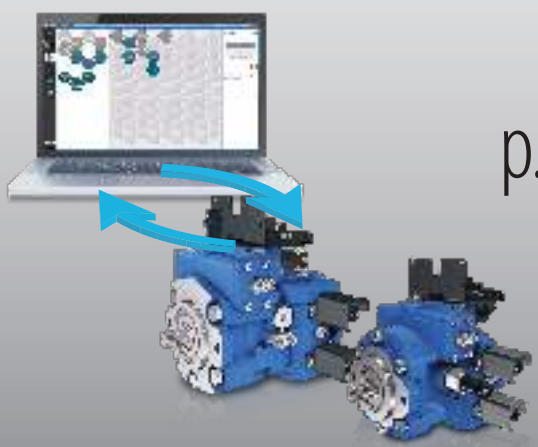
SMARTDRIVE CT

HIGH PERFORMANCE

p.122

DESIGNED TO REDUCE DEVELOPMENT TIME AND COSTS

PMe ECU



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Electronic management of hydrostatic transmissions

Ready-to-use solutions

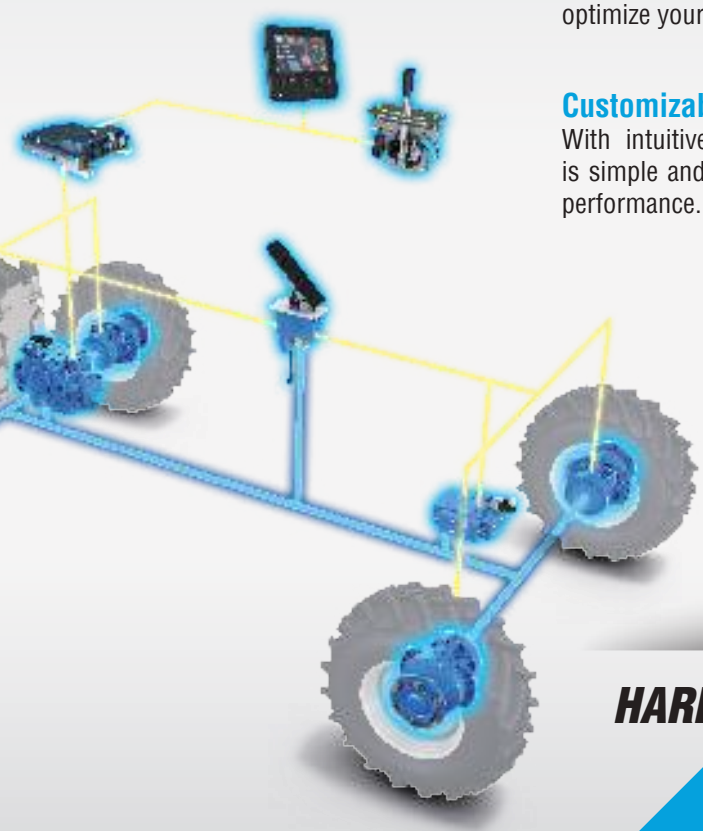
Well suited to the architecture of your machine, our electronic solutions can be integrated without additional major investments. You control the costs and time-to-market of your machines.

Solutions that improve the performance and the control of your machines

The combined efficiencies of our Electronic Control Units and our software can optimize your machine by adjusting their performances exactly to your needs.

Customizable and easy to use

With intuitive ergonomic interfaces, the handling of our electronic solutions is simple and fast. It is easy to set up your own software to achieve the desired performance.



HARDWARE TO COMMAND AND CONTROL

ACTUATORS & SENSORS

p.134

SMARTDRIVE EASY

- Very compact
- One CAN bus
- IP65 water resistant
- E24 10R-05 1942 certified
- Generic embedded software
- Configuration and diagnostic tool

DESIGNED TO CONTROL
STANDARD MACHINES

SD-EASY
EASY-DESIGN
PHASES-EASY

Easy to integrate
The small size of the SD-Easy Electronic Control Unit (ECU) makes it easy to integrate in the cabin or anywhere on the machine. Operational in a temperature range of - 40°C to +85°C [-40°F to 185°F], the SD-Easy is IP65, which makes it water resistant.

Easy to set-up
A list of functions ready-to-use allows you to set-up the ECU to comply with your requirements.

For standard applications
The SD-Easy is used for standard applications that do not require many inputs/outputs and not more than one CAN bus.
Very easy to wire, use and diagnose, the simple regulation loops used for the control command make it also very easy to parameterize.

A long experience for robustness
Today, this ECU is used on hundreds of applications. It has collected and capitalized a lot from this long experience, so that today you can benefit very easily from this wealth of knowledge for your application.

SD-Easy characteristics

Max. current	A	14
Microprocessor	bits	16
Inputs	ANA	5
	DIN	5
	FREQ	2
Outputs	STOR 0,5A	4
	PWM 2A	4
Supply output	5V	1
	12V	1
Microcontroller		1
CAN Bus		1
Protection		IP65
Certification		E24 10R-05 1942
Operating temperature	°C [°F]	- 40 to 85 [- 40 to 185]

Weight	kg [lb]	0,5 [1.1]
Dimension L x l x h	mm [in]	138 x 90 x 53,1 [5.43 x 3.54 x 2.09]

Easy-Design: Design your own management software

Easy Design is a PC software that allows you to design your dedicated software in five very simple steps. Starting from a list of generic functions, you can select which ones you would like to use for your application.
The generated software is then ready to use.

❶ **Select your functions**

❷ **Get a functions summary**

❸ **Get an electrical schematic**

❹ **Save your design**

❺ **Get your Software**

SD-Easy embeded functions

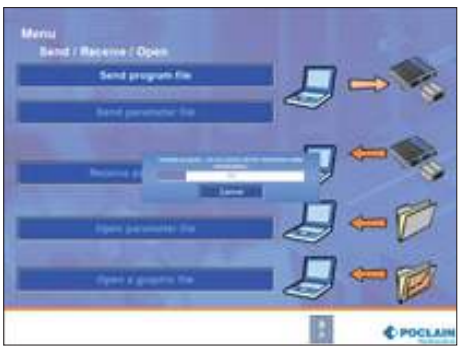
PROTECTION **Prevent failure of the hydrostatic transmission**	**Over pressure limitation**
	Over power limitation
	Engine over speed limitation
	Over temperature
PRODUCTIVITY **Improve performance for increased productivity**	**Combined braking (dynamic + hydraulic)**
	Travel / work mode
	Constant engine command for tools management
SAFETY **Ensure compliance with regulatory requirements**	**Safety start management**
	Hill Start
	Automatic application of the parking brake
	Brake lights
	Backing-up alarm
COMFORT **Improve comfort for better productivity**	**Anti-stall**
	Cruise control / Speed control loop
	Electronic inching
	Motor displacement automatic shifting
	Command limiter
	Display management
	CAN broadcasting
ENVIRONMENT **Reduce environmental impact**	**Smart Automotive / Hydraulic automotive like**
DRIVING ERGONOMICS	**Friction joystick**
	Travel pedal

Phases-Easy: Configuration and diagnostic tool

Installed on a computer running a Windows OS and connected to an ECU via its USB/Serial adapter, Phases-Easy is the diagnostic tool that allows you to communicate with the SmartDrive Easy ECU. Phases-Easy can be used to carry out configuration, optimization and maintenance operations for the hydrostatic transmission system in the best possible ergonomic conditions.

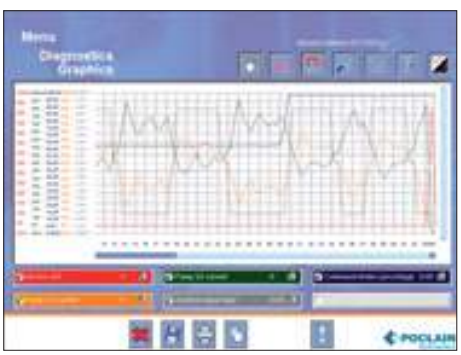
❶ Configure your ECU

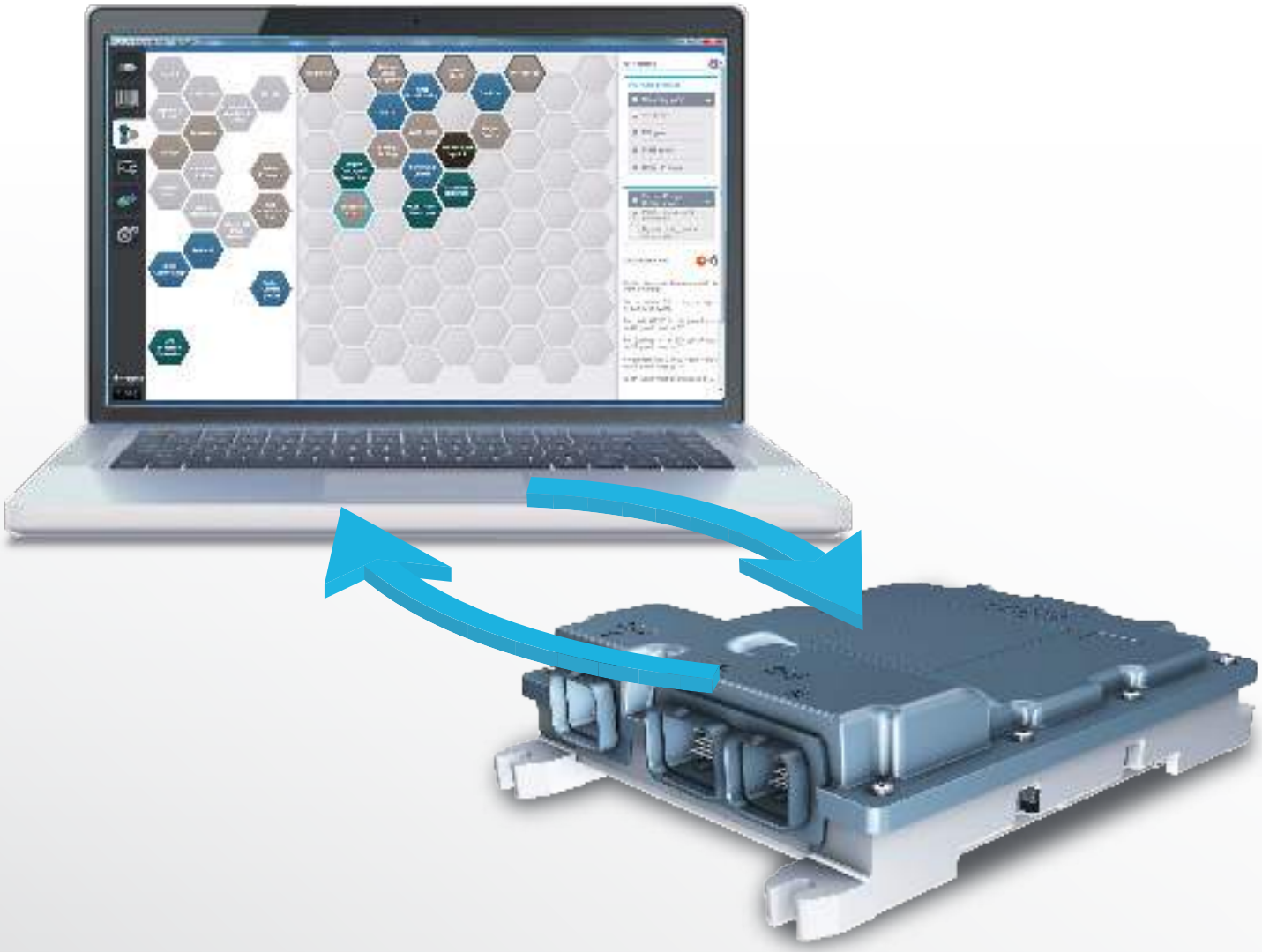
- Download embedded software into the ECU
- Set the parameters to get the expected behavior on the machine (acceleration/deceleration ramps, maximum speeds, engine speeds, …)
- Upload/download parameter file to be able to manage different machines configurations with the same embedded software



❷ Diagnose your ECU

- Check input/outputs status
- Check all the application variables
- Check error codes and descriptions
- Use the grapher to do measurements with up to six signals





ELECTRONICS

SMARTDRIVE CT

- Off-road and on-road applications
- Three CAN buses
- IP67 water proof
- E13 10R-04 12836 certified
- Ag PI-d, PI-d, SIL2 performance levels
- Generic embedded software
- Configuration and diagnostic tool

DESIGNED TO CONTROL
THE MOST DEMANDING MACHINES

SD-CT 200/300
CT-DESIGN
PHASES-CT

High level of performance
The SD-CT ECUs are compatible for use in both on-road and off-road applications, particularly because of their electromagnetic compatibility certified by their E marking and their safety-assurance architecture capable of reaching performance Ag-PI-d, PI-d and SIL2 level.

Calculation power
SD-CT ECUs are made efficient by incorporating an electronic architecture built around a 32-bit microprocessor and a 8-bit auxiliary microprocessor. They have a calculation capability compatible with your machines' safety, comfort and energy efficiency requirements. These technical characteristics provide access to sophisticated software functions that guarantee efficient and accurate control of your applications.

Communication
The SD-CT ECUs have large communication capabilities. The three integrated CAN buses allow you to share information (engine, hydraulic components, etc.), and configure and diagnose your machine without overloading the CAN buses.
Equipped with 40 high-power inputs and 22 high-power outputs, they provide accurate control of the hydrostatic transmission.

Robustness
SD-CT ECUs are designed to be used in extreme conditions. Operational over a temperature range of - 40°C to +85°C [-40°F to 185°F], they also operate in the case of immersion of up to under one meter of water (IP67). Their electromagnetic compatibility (EMC), certified 'E', makes them compatible with the most demanding uses.

SD-CT 200/300 characteristics

		SD-CT 200	SD-CT 300
Power supply	V	8 to 32	
Max. current	A	35,4	
Protection		IP67	
Microprocessor	bits	32 + 8	
Inputs	ANA	11	17
	FREQ	5	8
	UNIV	9	15
Outputs	STOR 2A	4	4
	STOR 2,6A	0	4
	PWM 2A	6	8
	LSD 4A	0	3
	LSD 5,2A	3	3
Supply output	5V	1	
Microcontroller		2	
CAN Bus		3	
Certification		E13 10R-04 12836	
Performance level		SIL2 level Ag-PI-d, PI-d (ISO 13849:2006) capable	
Operating temperature	°C [°F]	-40 to 85 [-40 to 185]	
Weight	kg [lb]	1,270 [2.76]	
Dimension L x l x h	mm [in]	236,2 x 180,4 x 56 [9.30 x 7.10 x 2.20]	

ECODRIVE™

Reduced consumption in work and road modes

The EcoDrive™ solution is applicable to all machines with an electronic pump control and internal combustion engine control by CAN Bus.
Completely automatic, the EcoDrive™ function requires no particular action from the driver and always selects the best combination of internal combustion engine speed and pump displacement.
Machines fitted with the EcoDrive™ function are therefore much more eco-friendly, with reduced fuel consumption, CO_2 emissions and noise impact.

More information > Page 146

SD-CT 200/300 embedded functions

PROTECTION **Prevent failure of the hydrostatic transmission**	Over pressure limitation
	Over power limitation
	Engine over speed limitation
	Over temperature
PRODUCTIVITY **Improve performance for increased productivity**	Combine braking (dynamic + hydraulic)
	Anti-skid
	Travel / work mode
	Constant engine command for tools management
	2 pumps management (tandem or independent)
	Difflock management
	Set wheel circonference by CAN
SAFETY **Ensure compliance with regulatory requirements**	Safety start management
	Hill Start
	Automatic application of the parking brake
	Driver presence
	Brake lights
	Backing-up alarm (when going reverse)
COMFORT **Improve comfort for better productivity**	Anti-stall
	Cruise control / Speed control loop
	Electronic inching
	Motor displacement automatic shifting
	Enhanced shifting
	Command limiter
	Display management
	CAN broadcasting
ENVIRONMENT **Reduce environmental impact**	EcoDrive™
	Smart Automotive / Hydraulic automotive like
DRIVING ERGONOMICS	Friction joystick
	Acceleration joystick (CAN or Wired)
	Travel pedal and joystick

CT-Design: Design your own management software

CT-Design is a very ergonomic and easy to use interface to configure the software you will need for your application.

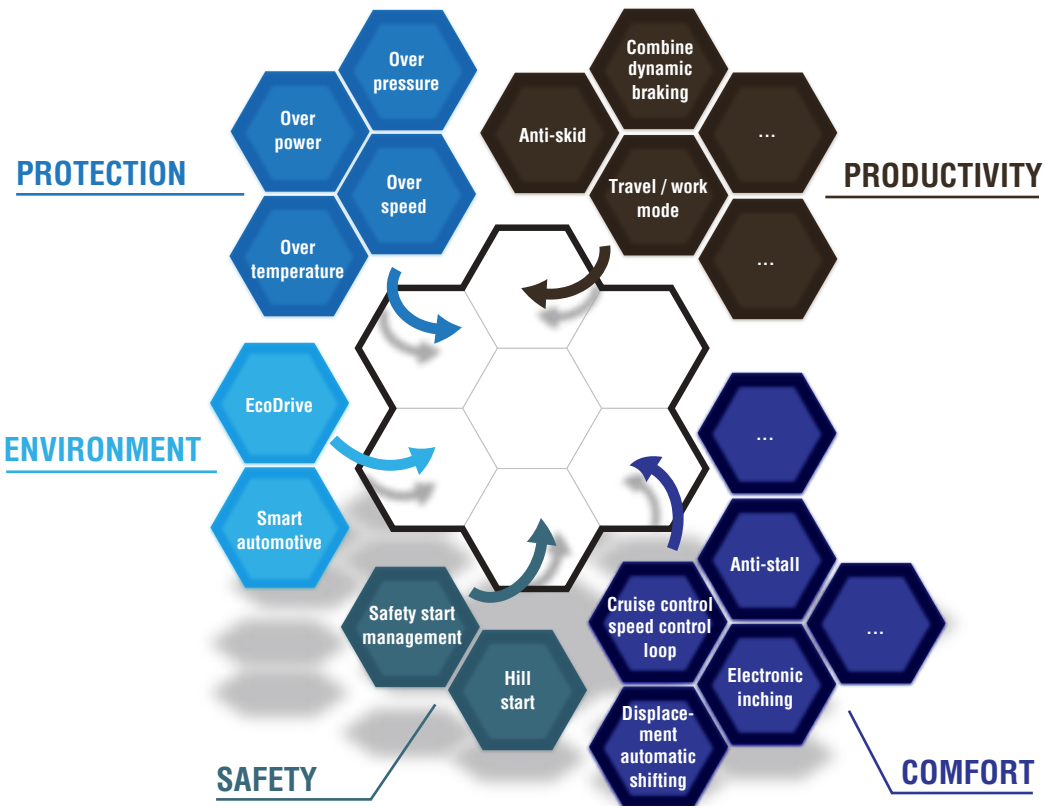
A Platform approach

The CT-Design software offers functions especially created for target pumps and applications.

Functions ready-to-use

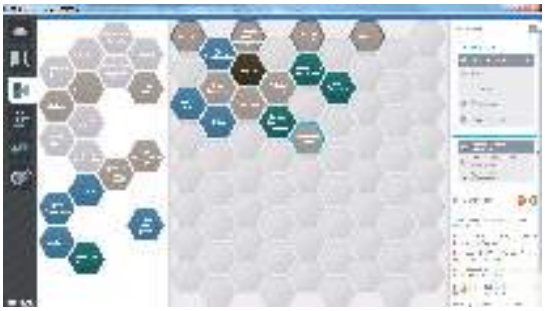
With the CT-Design software, Poclain Hydraulics is making access to electronically controlled hydrostatic transmissions easier by allowing OEMs to create their own management software.

Thanks to a library of fully tested software functions, each customer using CT-Design can, without any further help, combine the necessary functions to generate their software in just a few clicks, and reduce development time and costs.

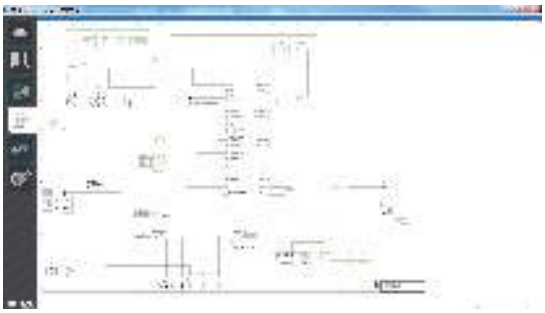


CT Design is a PC software that allows to design your dedicated software in four very simple steps. Starting from a list of generic functions, you can select which ones you would like to use for your application.
The generated software is then ready to use.

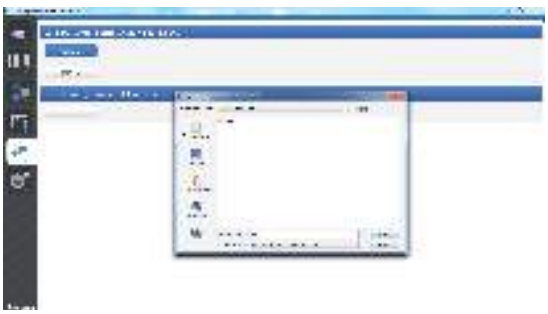
❶ Select your functions



❷ Get a electrical schematic



❸ Save your design



❹ Get your Software

Phases-CT: Optimize and diagnose your hydraulic transmission

Installed on a computer running a Windows OS and connected to a SD-CT 200/300 ECU via its USB/CAN-bus adapter, the PHASES-CT software can be used to carry out configuration, optimization and maintenance operations for the hydrostatic transmission systems in the best possible ergonomic conditions.

In particular, it allows the user:

- to download the embedded software in the SD-CT 200/300 ECU
- to adjust and control the operating parameters of the SD-CT 200/300 ECU
- to calibrate and to check the operation of the sensors and driving devices connected to the SD-CT 200/300 ECU
- to diagnose the possible malfunctions of the hydrostatic transmission by displaying the error list

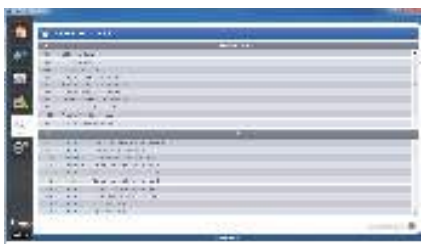
Its main assets are:

- a graphical interface, user friendly, multilingual and configurable
- the visualization of error messages
- direct access to software settings
- real-time monitoring of input and outputs values as well as their location on the SD-CT 200/300 connectors
- real-time monitoring of 12 machine parameters simultaneously in a table or a graphic
- recording of monitoring curves

Different access levels protected by passwords defines the access each user will have on Phases functions. Phases is available in nine languages

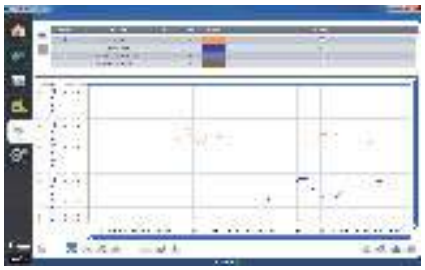
You can easily check the status of the inputs and outputs of your application by real-time monitoring

Guided processes allow driving devices to be calibrated for better accuracy



Monitor error messages

Parameters set-up



For diagnostic or for measurement analyses, the grapher can monitor up to 12 signals at the same time

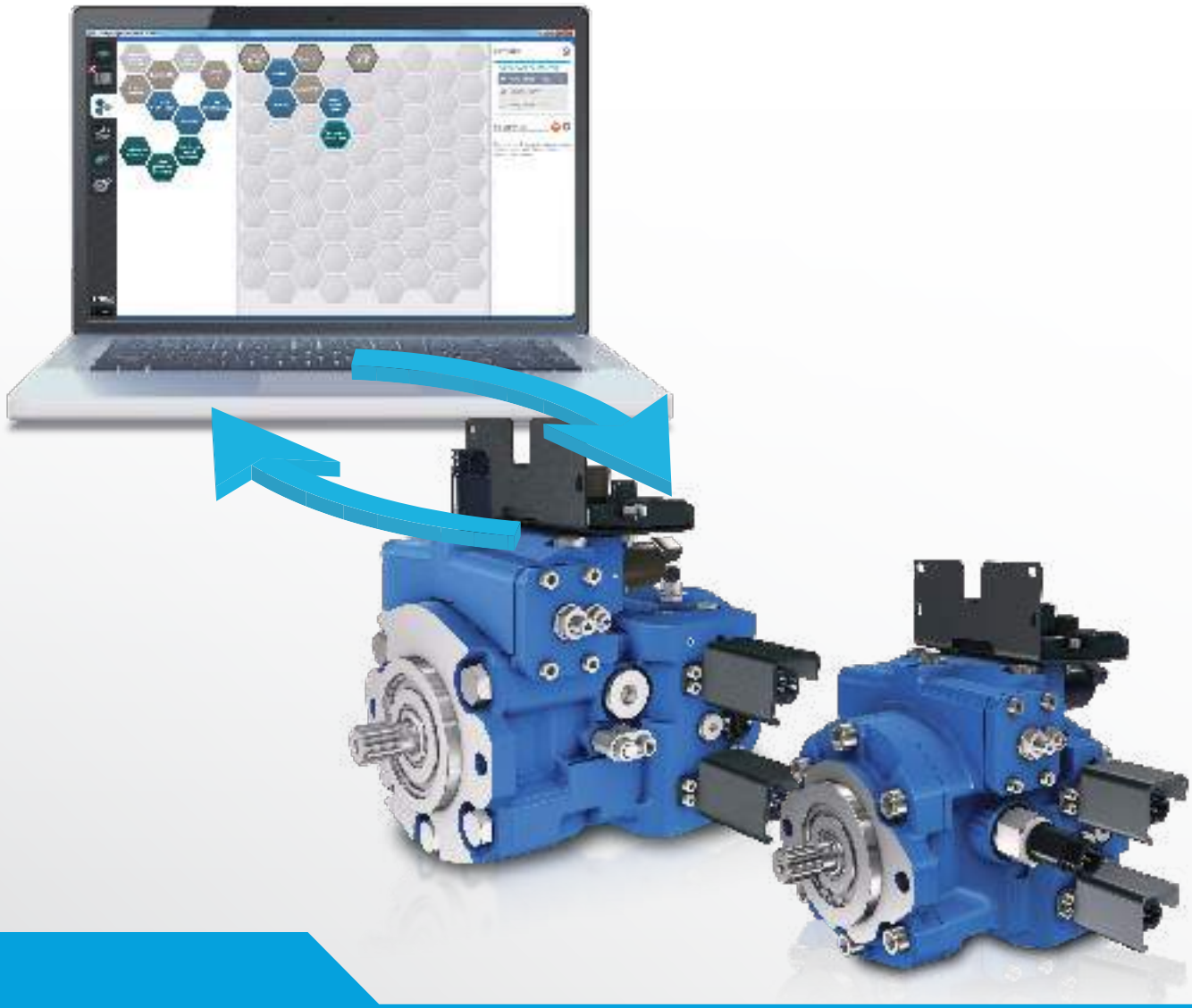
ELECTRONICS

SD-CT OFF-ROAD: ELECTRONIC ANTI-SKID SYSTEMS

Increase the off-road capability of your machines

The speed sensors incorporated in the hydraulic motors continuously measure the rotation speed of each powered wheel. The regulating computer compares those speeds and if necessary reduces hydraulic flow to the wheel which is slipping by means of a antiskidding valve.
This solution is applicable to all machines with at least two wheel drive.

More information > Page 144

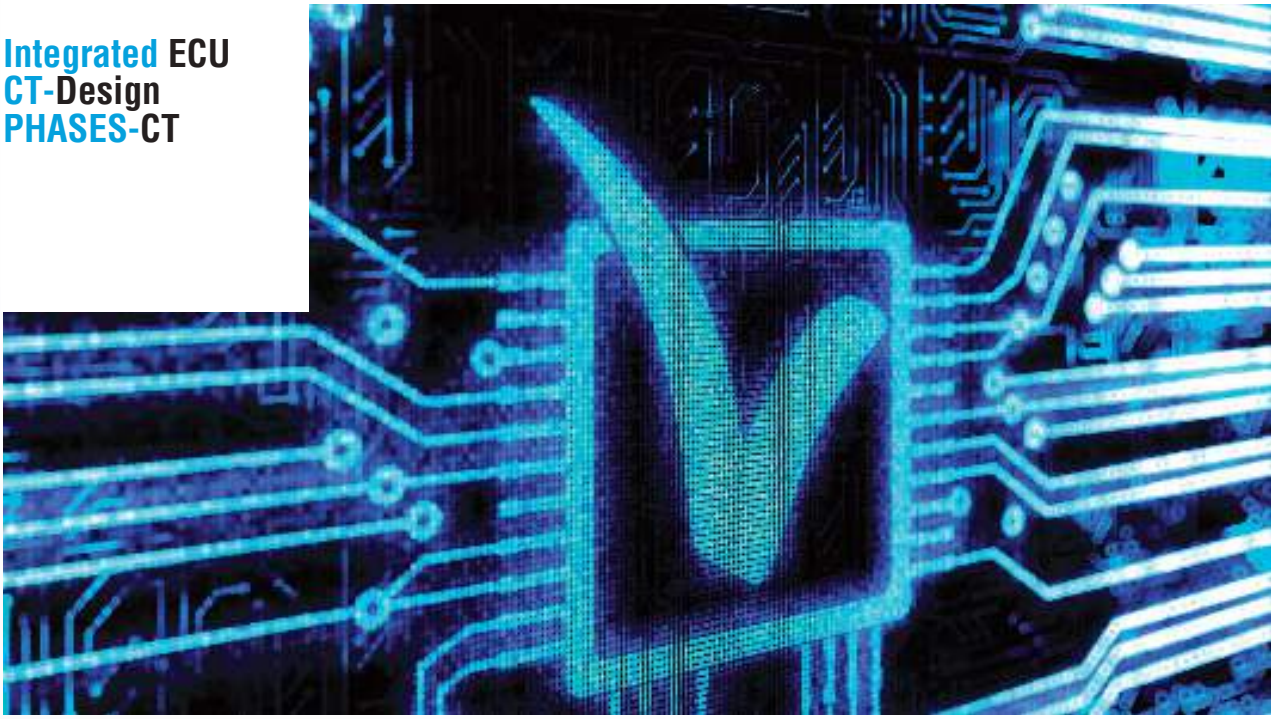


PMe ECU

- Off-road and on-road applications
- Two CAN buses
- IP6K9K protection
- Ag PI-d, PI-d, SIL2 performance levels
- Generic embedded software
- Configuration and diagnostic tool

DESIGN TO REDUCE
DEVELOPMENT TIME AND COSTS

Integrated ECU
CT-Design
PHASES-CT



High level of performance

The PMe pumps are designed to meet all your requirements, point by point. The integrated Electronic Control Unit (ECU) gives you access to a high level of safety for your control systems.
The control software, pre-installed at the factory, contains all the necessary functions to meet your needs in term of performances, safety and comfort. Its communication capabilities make it easy to install and it integrates seamlessly with the rest of your machine.

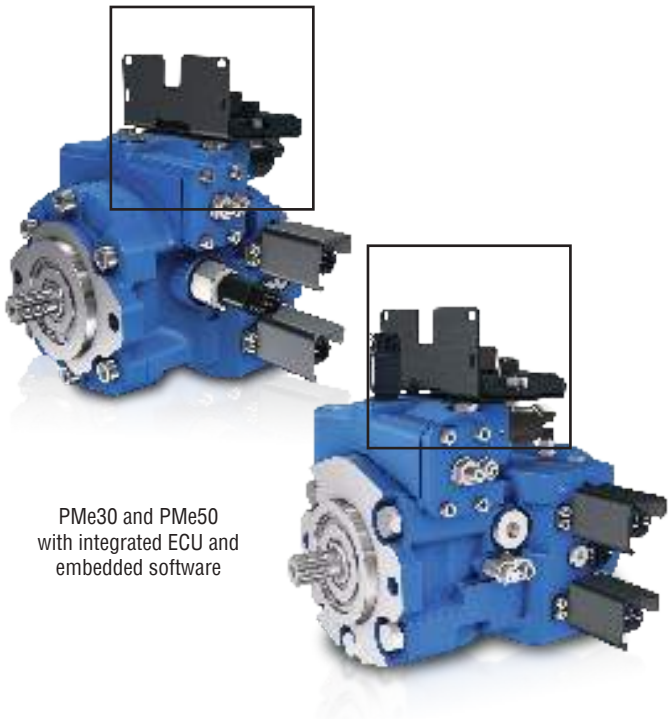
Reduce your development times and costs

With the PMe pumps, you get a pre-connected electronic harness and embedded software in the integrated ECU. This Plug & Drive™ system will reduce development times and costs for your transmission control system.

PMe30 and PMe50 pumps with pre-connected electronic harness and integrated ECU and embedded software

Integrated ECU characteristics

Power supply	V	8 to 32
Max. current	A	17
Protection		IP6K9K (ISO 20653)
Input	ANA	7
	DIN	5
	UNIV	2
Output	STOR 0,5A	2
	STOR 2A	2
	PWM 2A	4
	LSD 4A	4
Supply output	5V	1
Microcontroller		1
CAN Bus		2
Performance level		SIL2 level Ag-PI-d, PI-d (ISO 13849:2006)
Operating temperature	°C [°F]	- 40 to 100 [-40 to 212]



PMe30 and PMe50 with integrated ECU and embedded software

The PMe pumps provide an automatic calibration of the minimum and maximum currents to allow having a better accuracy and controllability of the pump. Besides saving time by avoiding the currents setting at the end of the production line, and the simplicity of use, the pump current calibration provides the accuracy needed to get better driving performances in all conditions (speed control loop, shifting, antistal …).

YOU ALREADY HAVE AN ELECTRONIC CONTROL UNIT IN YOUR MACHINE?

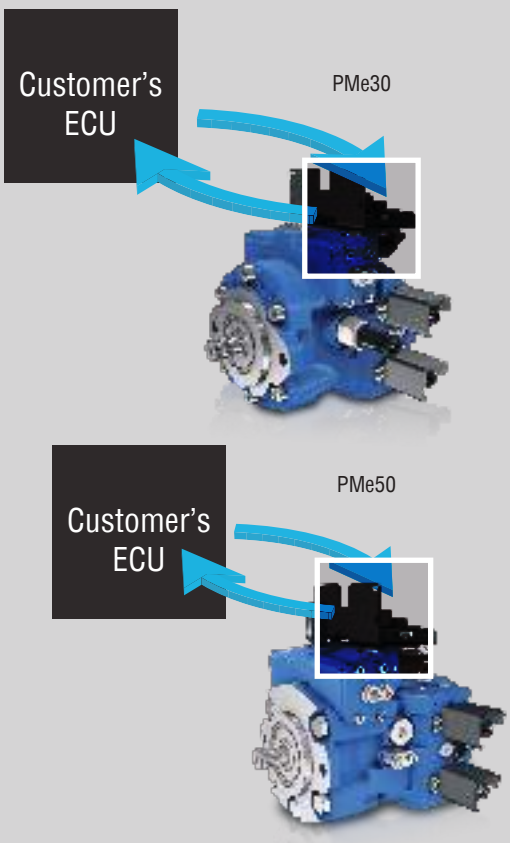
Use our PMe pumps in slave mode with the CAN Control option

With your CAN bus control (Master ECU), the PMe pumps can be used as a slave unit and allows you to benefit from the accuracy of the swashplate control without changing your main control.

The integrated ECU on the PMe pumps can be easily controlled by CAN as it is 100% compliant with the J1939 standard.

The master ECU sends the command at which it wants to set the pump and the PMe adjust the swashplate accordingly. The CAN messages redundancy allows for safe control of the pump.

The PMe pumps can also provide the plugged sensors' physical and electrical values (temperature, pressure, speed) via CAN bus to the master ECU.



PMe functions packages

The PMe pumps are available with a pre-defined list of software functionalities grouped in three packages.

Standard Package (Mandatory functions)	Driving Package (Enhanced driving functions)	Protection Package (Hydrostatic transmission protection functions)
Start-up check	Anti-stall	Overpressure protection
Command device (travel pedal, joystick or hydraulic automotive like)	Hill start	Overpower protection
CAN Joystick	CAN broadcasting	Engine overspeed protection
Proportional engine control	Speed control loop	Temperature protection
Fixed engine speed	Mixed (Automotive or Fixed) engine speed	
Driver presence	Shifting	
Brake lights		
Braking/Inching management		
Diagnostic		

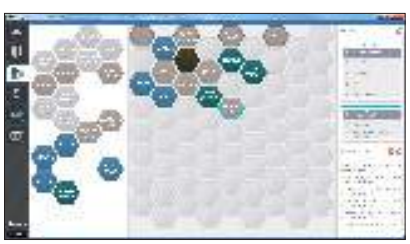
Several combinations are possible:

- Standard package alone: mandatory whatever the package choice
- Standard package + Driving package
- Standard package + Protection package
- Standard package + Driving package + Protection package

CT-Design: Design your own management software

The CT-Desin is a very ergonomic and easy to use interface to configure the software you will need for your application.
You drag and drop the functionalities you want to activate in PMe pump, then a design file is generated to be downloaded into the integrated ECU of the PMe pump.

Select your function



Enter the pump model code

Save your design

More information > Page 126

Phases-CT: Optimize and diagnose your hydraulic transmission

Installed on a computer running a Windows OS and connected to integrated ECU of the PMe pumps via its USB/CAN-bus adapter, the PHASES-CT software can be used to carry out configuration, optimization and maintenance operations for the hydrostatic transmission systems in the best possible ergonomic conditions.

More information > Page 128

ACTUATORS & SENSORS

- Displays
- Pedals
- Joysticks
- Sensors

HARDWARES TO COMMAND AND CONTROL
HYDROSTATIC TRANSMISSIONS

Displays

Visualize the main data of the hydraulic transmission: speed, pressure, temperature, error messages and more with our displays.

		SD-DISPLAY-2.8-CR0451	SD-DISPLAY-4.3-CRO452
		Color display, allowing to display the status of your hydraulic transmission or assistance. 9 keys to navigate and to change parameters values. This display is delivered with an application software	Color display, allowing to display the status of your hydraulic transmission or assistance. 10 keys to navigate and to change parameters values. This display is delivered without software (using Phases-CT for downloading)
Display size		2.8"	4.3"
Display type		LCD TFT color, 320 x 240 pixels	LCD TFT color, 480 x 272 pixels
Power supply	V	8 to 32	8 to 32
Overvoltage	V	36	36
Current at 24V	mA	70	100
Operating temperature	°C [°F]	-20 to +70 [-4 to +158]	-20 to +65 [-4 to +149]
Weight	g [lb]	170 [0.37]	220 [0.48]
Max. dimensions	mm [in]	87,5 x 87,5 x 36,3 [3.44 x 3.44 x 1.42]	124,5 x 109,5 x 39 [4.90 x 4.31 x 1.53]
Protection		IP67 (Front) / IP65 (Back)	IP67 (Front) / IP65 (Back)
CAN Bus		1 (ISO11898, 2.0B)	1 (ISO11898, 2.0B)
Layer2, CANopen, J1939		Yes	Yes

Joysticks

Provide the drive speed command

		Friction joystick with center lock	Friction joystick with Z gate*
		Joystick with center lock	Hall effect joystick with two opposite analog signals and a neutral switch
Power supply	V	5	5
Operating temperature	°C [°F]	-25 to +70 [-13 to +158]	-40 to +80 [-40 to +176]
Weight	g [lb]	560 [1.23]	1 000 [2.20]
Max. dimensions	mm [in]	189,1 x 82,5 x 60 [7.45 x 3.25 x 2.36]	135 x 160 x 75 [5.31 x 6.30 x 2.95]
Protection		IP65	IP67

* Prepared for "add-on" multifunction grip.

Pedals

Provide the drive speed command

		Floor pedal	Wall pedal
		Pedal with dual output signal. Contactless sensor. Travel and brake control.	Pedal with potentiometer. Travel and brake control.
Power supply	V	5	5
Operating temperature	°C [°F]	-40 to +85 [-40 to +185]	-40 to +85 [-40 to +185]
Weight	g [lb]	960 [2.11]	1 050 [2.32]
Max. dimensions	mm [in]	247 x 97 x 160 [9.72 x 3.82 x 6.30]	-
Protection		IP66	IP66

Sensors

		Pressure sensors	Speed sensor	High resolution speed sensor	Temperature sensors	Steering sensor
		Allows to measure the pressure in the high pressure circuit from 20 to 600 bar [290 to 8,702 PSI]. Use to limit pressure and power to control the torque.	Installed in the motor, it allows to get rotation speed and direction information.	Installed in the motor, it allows to get high rotation speed and direction information.	Allow to check oil temperature to avoid over temperature in the hydraulic circuit. Available in digital or analogic version.	It detects the machine's turning direction to the right, to the left or straight on.
Operating voltage	V	5	5	5	5	5
Operating temperature	°C [°F]	-40 to +125 [-40 to +257]	-40 to +85 [-40 to +185]	-40 to +85 [-40 to +185]	-20 to +120 [-4 to +248]	-40 to +85 [-40 to +185]
Protection		IP67 / IP6K9K	IP66	IP6K9K	IP67 / IP6K9K	IP66


SYSTEMS

Off-Road applications

FULLY HYDROSTATIC ANTISKID

TWIN LOCK

p.142

ELECTRONIC ANTISKID

SD-CT OFF-ROAD

p.144

AUTOMATIC ENGINE RPM MANAGEMENT

ECODRIVE

p.146

BOOSTED HYDROSTATIC BRAKE

BOOSTED BRAKE

p.148

TRACTOR AND DUAL LINE TRAILER BRAKING

TRACTOR & TRAILER BRAKING

p.150

Ready to use
Hydrostatic Solutions

Poclain Hydraulics offers ready-to-use hydrostatic solutions for off-road and on-road applications.

Our expertise in hydraulics, mechanics and electronics enables us to understand your needs and provide value to your customers.

By entrusting us with your hydrostatic systems, you will save development time and cost, paving the way for more efficient, productive and safe machines.

On-Road applications

ALL WHEEL DRIVE FOR TRUCKS

ADDIDRIVE

p.152

CONSTANT AND LOW SPEED

CREEP DRIVE

p.154

TWIN LOCK

The TwinLock™ solution transfers the torque from the wheels that are slipping to the wheels with the greatest grip. It is the ideal compromise between a parallel circuit and a series circuit.

This solution is applicable on all machines with at least three-wheel drive.

FULLY HYDROSTATIC ANTISKID
ENHANCE THE CROSSING CAPACITY OF YOUR MACHINES

Twin-Lock™ motors
The Twin-Lock™ solution is available from MS02 to MS50 motors.

More information
> Page 12

Hydraulic pump
With our wide range you will find the pump that meets the full needs of your application.

More information
> Page 76

By-pass valve
This valve can be used to by-pass one half of a Twin-Lock ™ motor to create a two speeds machine.

KVC-3/2 (NG10)

More information
> Page 105

Twin-Lock™ valve
Two valves are available in order to facilitate steering when Twin-Lock™ is used.

VDP
with a mechanical control

More information
> Page 90

PR-TL-SV
with a hydraulic control

Ground protection
Avoid wheel slippage and damage to ground.

Better productivity
Greater productivity of the machines due to better off-road performance.

Proactive operation
Provide excellent responsiveness of the solution with instantaneous torque transfer from the wheel with poor grip to the wheel with strong grip.

Reduced maintenance
Simplify maintenance with a 100% hydraulic solution requiring no electronic control.

SD-CT OFF-ROAD

The speed sensors incorporated in the hydraulic motors continuously measure the rotation speed of each powered wheel. The ECU compares those speeds and if necessary reduces hydraulic flow to the wheel that is skidding thanks to the antiskidding valve.

This solution is applicable on all machines with at least two drive wheel drive.

AUTOMATIC ELECTRONIC ANTISKID
ENHANCE THE TRACTION POTENTIAL OF YOUR MACHINES

Hydraulic motors + Speed sensor
Any motor equipped with speed sensor or predisposition for speed sensor can be used.

More information
> Page 11

Hydraulic pump
With our wide range you will find the pump that meets the full needs of your application.

More information
> Page 76

Antiskidding VMA valve
It provides regulation of the input flow of the two motors on the same axle.

More information
> Page 90

Steering sensor
It detects the machine's turning direction to the right, to the left or straight on.

More information
> Page 137

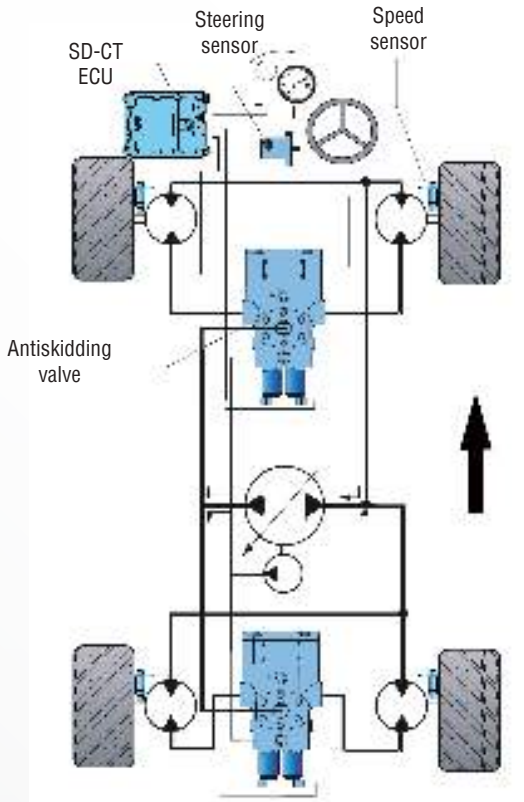
SD-CT ECU + Embedded software
The SD-CT ECU and its embedded software set-up, calibrates, controls and diagnoses the hydrostatic transmission.

More information
> Page 122

Ground protection
Avoid wheel slippage and damage to ground.

Better productivity
Greater productivity of the machines due to better off-road performance.

High flexibility
Excellent flexibility of the solution, effective torque transfer from the wheel with poor grip to the wheel with strong grip.



ECODRIVE

The EcoDrive™ solution is applicable to all machines with an electronic pump control and internal combustion engine controlled by CAN Bus.

Completely automatic, the EcoDrive™ function requires no particular action from the driver and always selects the best combination of engine speed and pump displacement.

Machines fitted with the EcoDrive™ function are much more eco-friendly, with reduced fuel consumption, CO_2 emissions and noise impact.

AUTOMATIC ENGINE RPM MANAGEMENT
REDUCED CONSUMPTION AND NOISE IMPACT

Hydraulic motor
With our wide range you will find the motor that meets the full needs of your application.

More information
> Page 11

Hydraulic pump
Any pump equipped with an electrical control can be used for this solution.

SD-CT ECU + Embedded software
The ECU continuously receives the engine load information through CAN bus and adapts the engine speed and the pump displacement to achieve the lowest possible rpm while meeting the load and power requirements.
Actual engine power always matches engine power required by machine operation.

More information
> Page 122

Green Machine
EcoDrive™ reduces fuel consuption up to 15%, effectively reducing CO_2 emission.

Easy Machine
EcoDrive™ is totally automatic and allows the driver to keep his mind on the job.

Quiet Machine
By reducing engine speed, EcoDrive™ reduces machine noise emission.

BOOSTED BRAKE

Boosted Brake™ offers increased hydrostatic braking capabilities. It meets regulation requirements in terms of braking distances, while reducing dynamic brake usage and minimizing engine loading.

Applicable to all machines subject to high and/or repeated deceleration, both on the road and in the field, Boosted Braking™ is especially recommended for machines with a low engine braking capability.

BOOSTED HYDRAULIC BRAKE
MORE SAFETY FOR YOUR MACHINES

Hydraulic motor
MHP 11 to 27, MS18-E18 and MS35 can be equipped with Boosted Braking function.

More information
> Page 11

Hydraulic pump
Any pumps equipped with an electrical control can be used for this solution.

A simple spool is integrated into the motor

Motor without Boosted Brake
Half of the hydrostatic braking torque is used when the motor is in half displacement.

Motor with Boosted Brake
All the hydrostatic braking torque is used even if the motor is in half displacement.

More braking capacity
Reduces braking distances in road mode and off-road mode.

Lower maintenance costs
It preserves (or limits use of) friction brakes and requires no maintenance.

More engine protection
Saves engines from over-speed. It maintains hydrostatic braking capability even for Tier IV / Stage 4 engines with poor load retaining capability. Maintenance operations are therefore less frequent.

Easy integration
The solution is integrated into the hydraulic motors without any extra piping.

DESIGNED FOR EU2015/68

TRACTOR & TRAILER BRAKING

Poclain Hydraulics smart components meet the new EU2015/68 regulation requirements and help you get the most of your braking system:

- Trailer load measurement flexibility
- Easy integration of the components
- Braking rate adjustment through parameters
- Same components across your range
- Potential for additional functions (Hillstart, Parklock...)

TRACTOR AND DUAL LINE TRAILER BRAKE
SOLUTION FOR 1, 2 OR 3-AXLE TRAILERS

TRACTOR SIDE

Steering assist brake valve
- Four wheel braked tractor
- Automatic connection riht/left

More information > Page 99

Parking/emergency brake valve
- Parking brake modulating valve
- Park lock option

More information > Page 96

Dual line trailer brake valve
- A single valve across your range of tractors
- A single valve to cover existing trailers (single line, CUNA) and future dual line trailers
- Leakage detection on the control line and leakage stop
- Enhanced park brake test function
- Automatic re-fill of the trailer accumulator each time the tractor stops

More information > Page 99

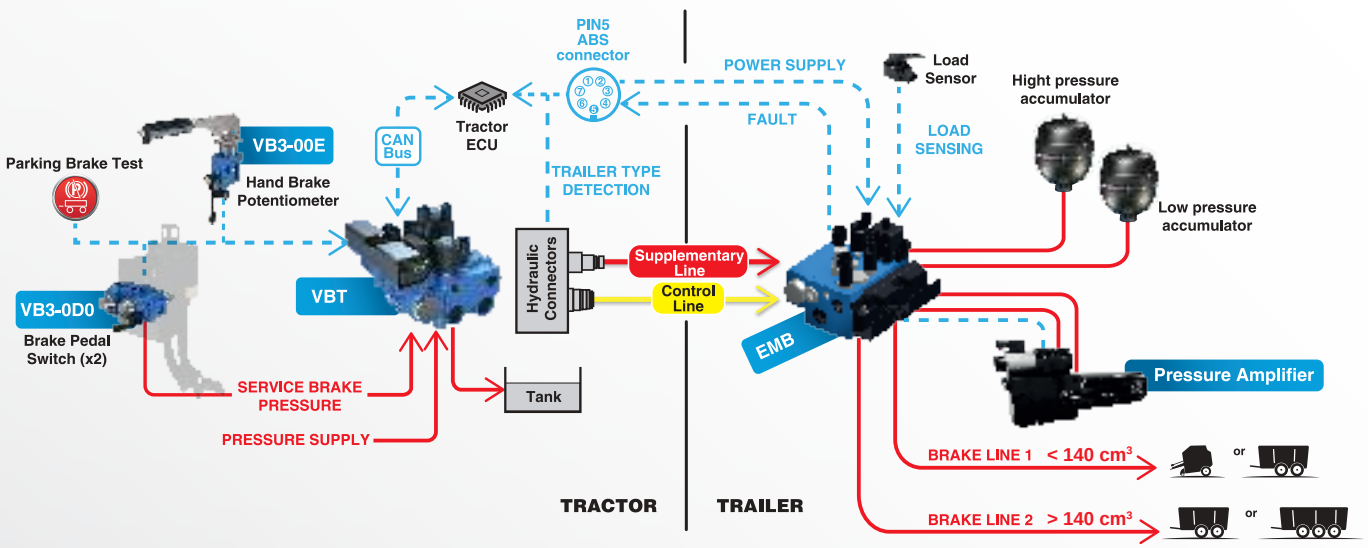
TRAILER SIDE

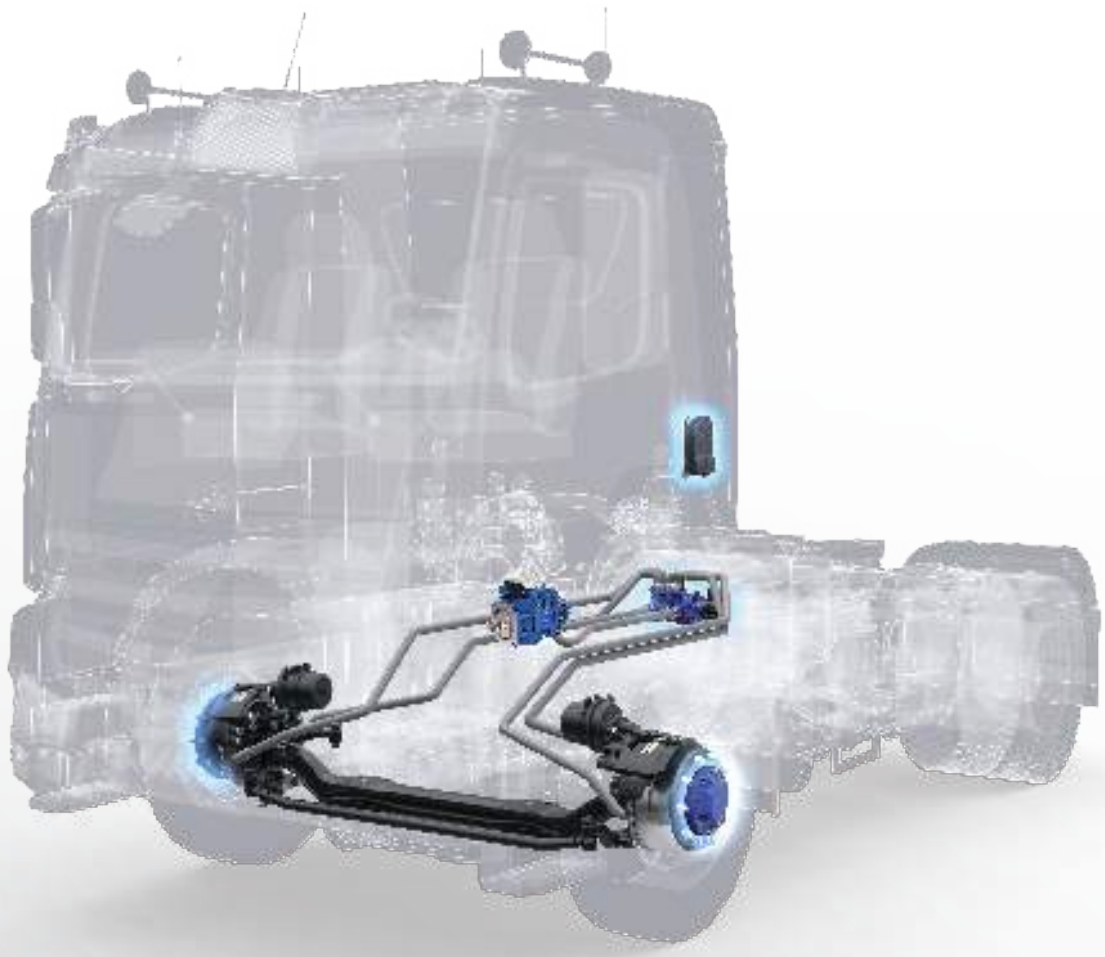
Dual line trailer brake valve
- Energy and braking management

More information > Page 99

Pressure amplifier
- For trailer with two or three axles

Load sensor
- The weight information can come from any sensor type: shok absorber pressure, position sensor, load cell, etc





ADDIDRIVE

- Pioneering All-Wheel-Drive solution combining the best of off-road and on-road worlds
- Already adopted by various truck manufacturers
- Suits all types of trucks
- Integral solution reducing development time
- Peace of mind thanks to higher efficiency

PIONEERING ALL-WHEEL-DRIVE SOLUTION
GO ANYWHERE WHATEVER THE WEATHER

MF Hydraulic motor
Fitted on the front wheels, the MF motors provide traction or retaining torque as needed.

More information
> Page 56

PW Variable Pump
Powered by the engine or the gearbox PTO, the PW pump generates and provides hydraulic power to the MF motors.

SD-CT200 ECU + Embedded software
The ECU manages communication and additional functions.

- Automotive standards / IP67 Protection / PI-d / SIL2.
- Compatible with the CAN truck network.

More information
> Page 122

Addiflow™ control valve
The AddiFlow™ control valve ensures the safety and management of the activation, release and free-wheeling of MF motors.

Performance
- Increased payload capacity compared to a mechanical all-wheel drive truck
- Easier to drive over obstacles with or without load
- Allows for closer approach to work site
- The boost at start function helps the truck to start in difficult conditions, in forward and reverse directions, without forcing the clutch
- Limited impact on fuel consumption compared to a standard truck

Safety and reliability
- No risk of getting stuck due to traction loss thanks to the transfer of the rear torque to the front
- Automatic disengagement at 30 kph [18.6 mph]
- Better maneuverability thanks to traction on the main axle when driving around corners and in the event of poor traction when driving in a straight line
- Adapted to extreme temperatures from -40°C to +40°C [-40°F to +104°F]

Comfort
- Easy access to the driver's cabin, with all the comfort of a standard truck
- Lower center of gravity to improve driver comfort
- Enhanced turning radius compared to a standard truck or mechanical all-wheel drive
- Stable truck and trailer coupling

Versatile
- Compatible with all truck brands and models
- Compatible with the existing trailer fleet
- Enables one truck to be used for various tasks

CREEP DRIVE

Vehicles equipped with CreepDrive™ feature two independent transmissions: the standard mechanical one and a hydrostatic one.

The mechanical transmission is used for traveling on the road, while its hydraulic counterpart is used for working at low and constant speed.

Shifting from one to the other is done by activating a switch.

LOW AND CONSTANT WORKING SPEED
TWO INDEPENDANT TRANSMISSIONS IN ONE VEHICLE

CDM motor
Compact and lightweight, it can easily be inserted into transmission shafts.

More information
> Page 60

Variable Displacement-Pump
Powered by the engine or the gearbox PTO, the pump generates and provides hydraulic power to the CDM motor.

Exchange valve VE60
Used to deflect a part of the oil to the cooling system.

More information
> Page 93

KVC3/2 piloting valve
Pilots the speeds change (automatic shifting managed by ECU - SmartDrive).

More information
> Page 105

SD-EASY & Embedded Software
The ECU manages communication and additional functions.

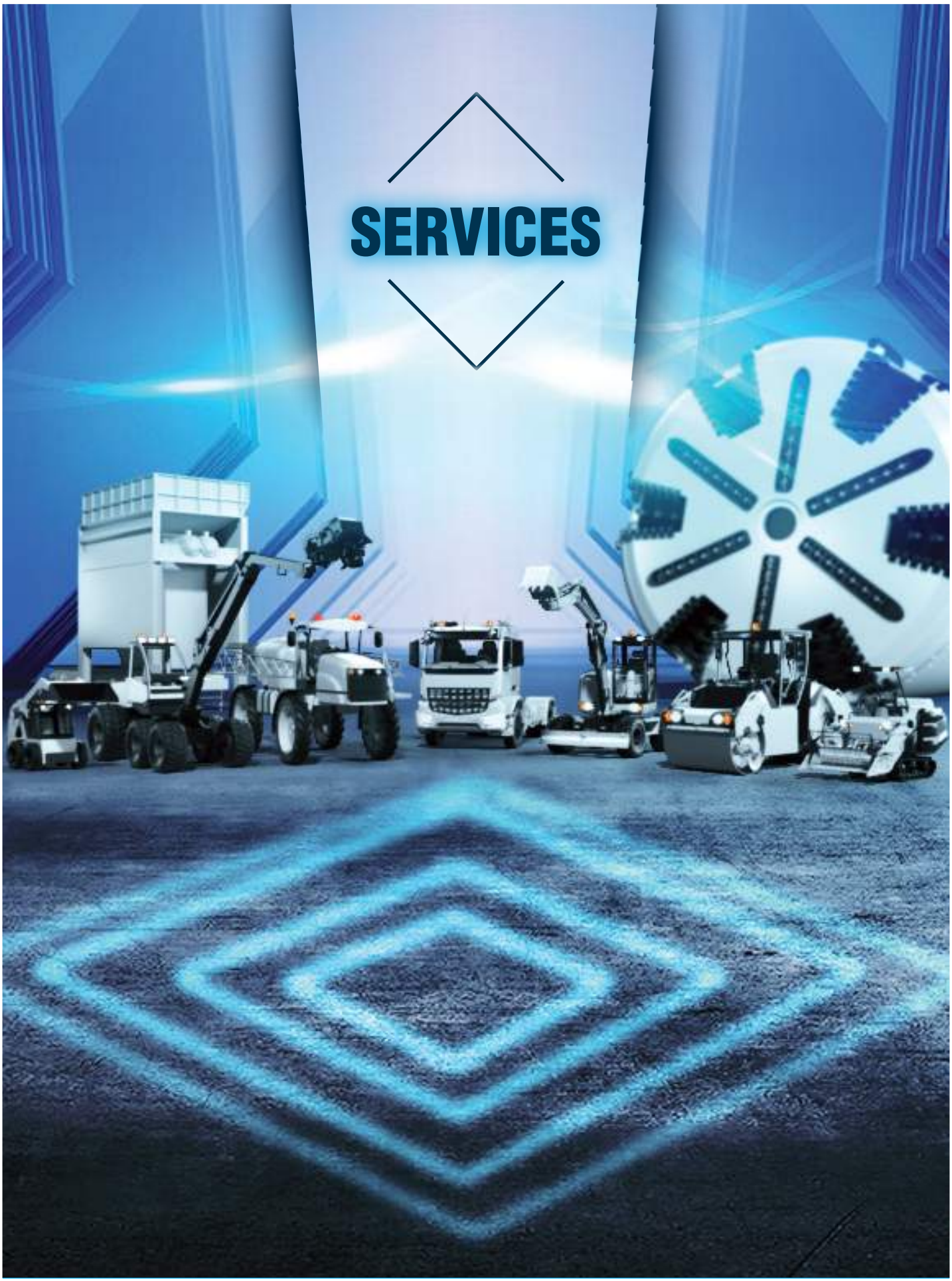
More information
> Page 118

Independent of engine speed
Working speed is low and constant regardless of engine rpm in forward and reverse direction, even on uneven roads.

Easy integration
Light and compact to fit into any mechanical transmission.

Lower maintenance costs
Prevents brakes, clutch and transmission from wearing.

CreepDrive box: Remote control
It simplifies the installation of the Creepdrive system on vehicles. It includes the SD-Easy ECU, a joystick, a display and start/stop/emergency buttons.


SERVICES

Poclain Hydraulics is a partner you can rely on to accompany you through the design and sizing of your hydrostatic transmission.

Whatever your expertise in hydrostatics, whatever your application, we offer you our 60 years of experience at all stages of your application's lifetime. From design to after-sales, we guarantee the highest level of quality throughout our collaboration.

Our services include: delivery of systems for a complete transmission, start-up of new transmissions with on-site commisionning, troubleshooting, full testing of vehicles at our proving grounds in France, software customization, wiring services on prototypes, repair, spare parts delivery, trainings.

> Poclain Hydraulics commits to attaining results.
> Your transmission will perform at an optimum level.
> Time to market and technical risks are reduced.
> Your application will be followed throughout its lifecycle

POCLAIN Hydraulics

Poclain hydraulics Services
Making Your Life Easier

SYSTEM OFFERING
TO FACE EURO STAGE V REGULATION

Machines for Construction, Agriculture, and Material Handling will all be in the scope of the new standard.

One of the most impacted power ranges will be the engines between 19 and 37 kW (25 and 50 HP). Many of them will require technology such as common rail fuel systems and exhaust after treatment devices such as Diesel Particles Filter or/and SCR. In short, OEMs will have to:

- Adapt to tighter space constraints to install exhaust after treatment devices.
- Manage the additional costs linked to those new devices.
- Integrate the higher Total Cost Of Ownership(TCO) due to higher maintenance costs on Stage V engines mainly for Rental.

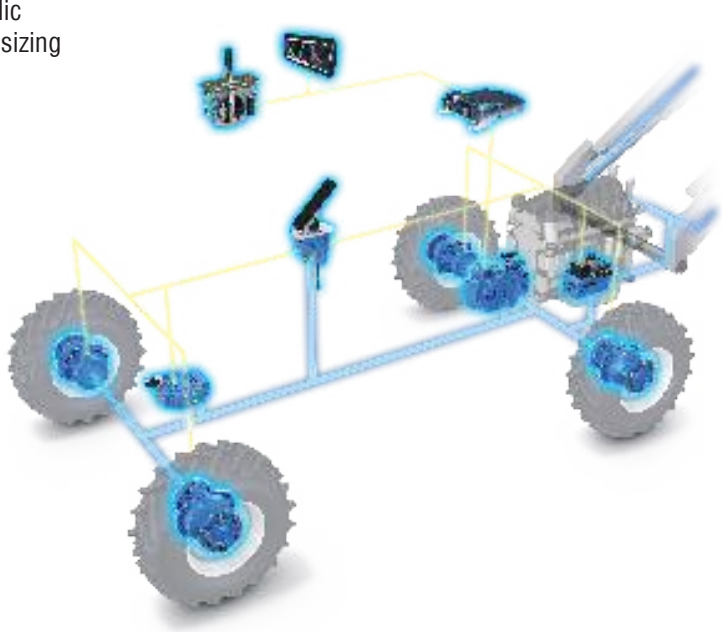
One of the possible ways to minimize the impact of this regulation is to downsize the diesel engine used on the machine below the 19 kW threshold. When this is possible, it has to be done without sacrificing machine perfomances.

To make this change possible, Poclain Hydraulics has been improving the efficiency of a great part of its hydrostatic transmission offering over the last five years. Hydraulic loss reduction opens the door for diesel engine downsizing without compromising the machine performances.

> The higher efficiency of Cam-lob technology versus high speed motor with gearbox bridges a first gap in this quest of highly efficient hydrostatic transmissions.

> The Poclain Hydraulics PM pump offering provides opportunities to further reduce hydraulic losses from the transmission.

> The electronic control of hydrostatic transmissions gives more possibilities to ICE downsizing without sacrificing machine performances.




STAGE V

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	MI250
●	●	●	●	●	●	●	●	●	●

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 valves
KV-6K/2-6 KV-6/2-6 KVC-3/2-10 KV-8/3-6 KVH-6/2 KV-4 Cetop KVC	KVM OB-KVM-6 ZB-KVM-6	KVM-VV-6 KVM-NDV-6 KVM-NOV-6	NOV VP-NDV VP-NOV	VP-RT	DTP TVTC TVTP

WE SUPPORT YOU
EVERYWHERE, EVERYDAY

Our certified repair processes meet our demanding quality, safety and environment standards. Our network of 12 internal and 25 external Certified Repair Centers (CRC) cover all the main countries where our customers need local services.

Our CRC manage warranties and customer requests through an RMA (Return Material Authorization) management system. To support customer service, our network relies on our after-sales department, which regularly distributes documentation about new products, updates existing brochures and supports the network via our product expert hotline (motors, pumps, valves and systems).

We also offer reman replacement programs, express repairs and preventive maintenance programs.

Our After-Sales Customer Logistics Agents, located in all our subsidiaries, manage requests for original spare parts, which are distributed from our logistics platforms in the United States, Europe and Asia, to ensure the best customer satisfaction. Quotes are sent within 24 hours and we can arrange express delivery if required.

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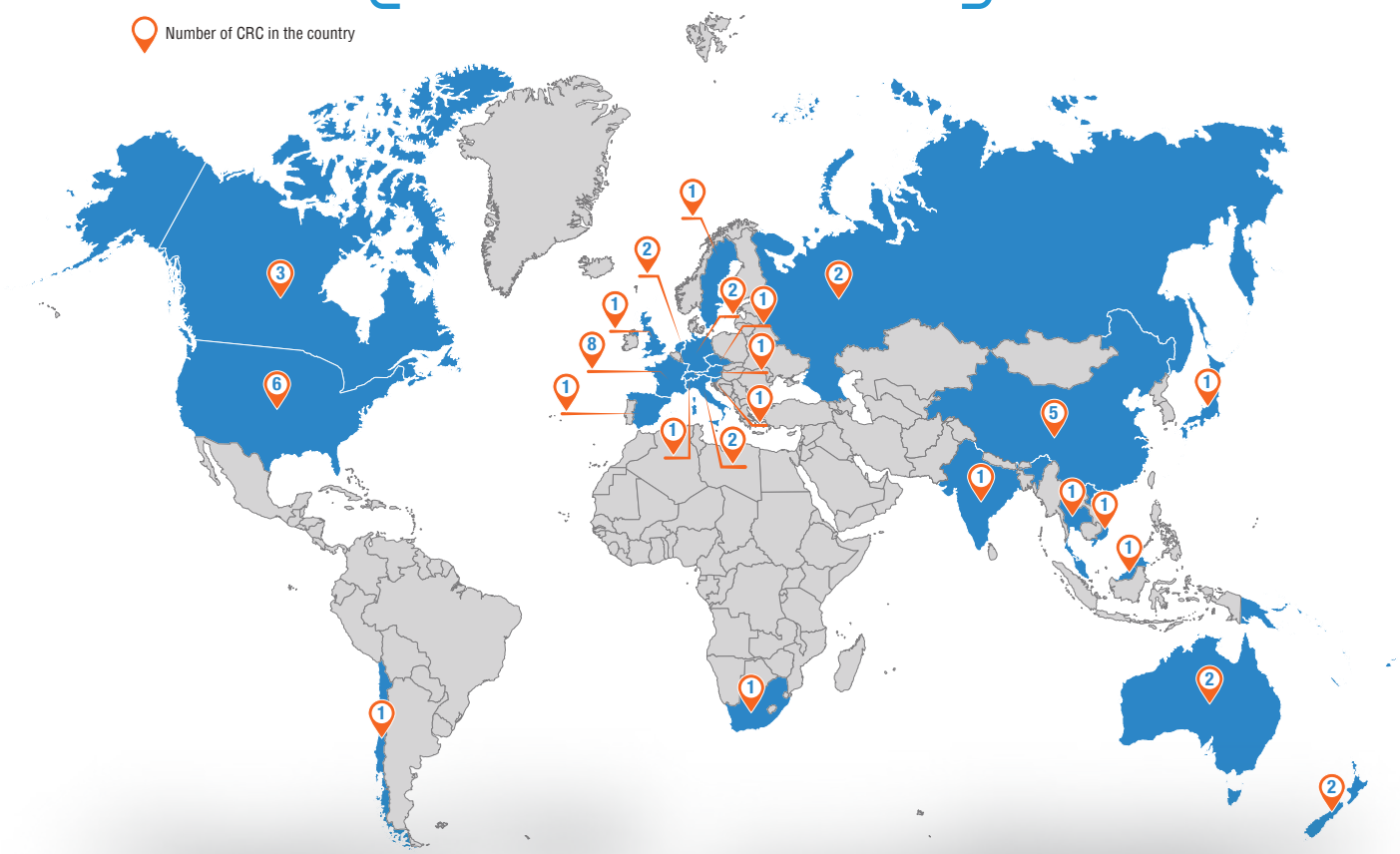
POCLAIN Hydraulics
REPAIR CENTER

Inspection •
Repairs and Tests •
Flash Repairs •
Spare Parts Sales •

47
CERTIFIED REPAIR CENTERS
WORLDWIDE

• Hot Line
• Technical Expertises
• After-Sales Training
• Field Campaigns
• Repair Documentation

Number of CRC in the country



More information

To find the nearest Certified Repair Center go to our dedicated web page
www.poclain-hydraulics.com/en/services/certified-repair-centers

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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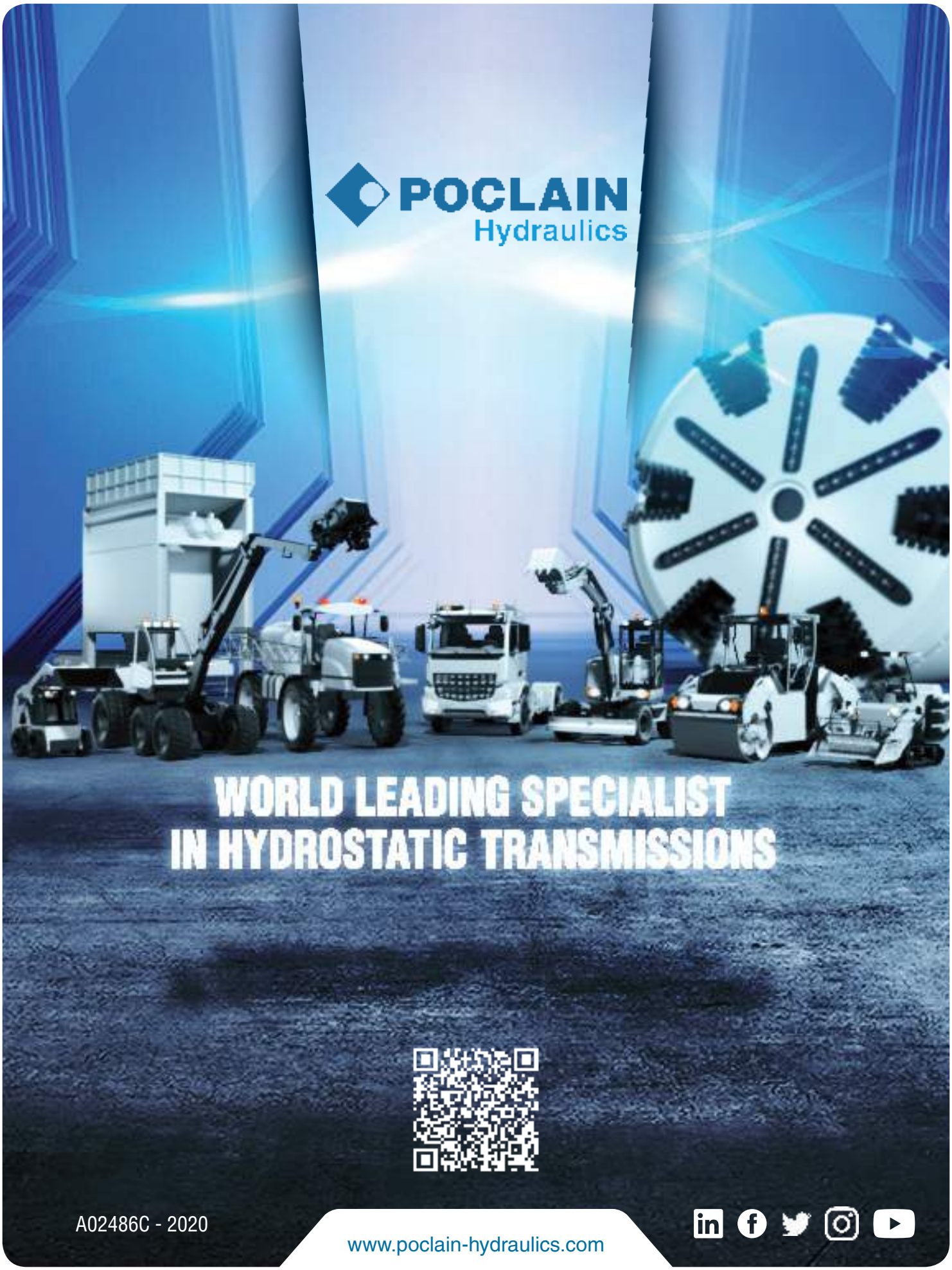
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