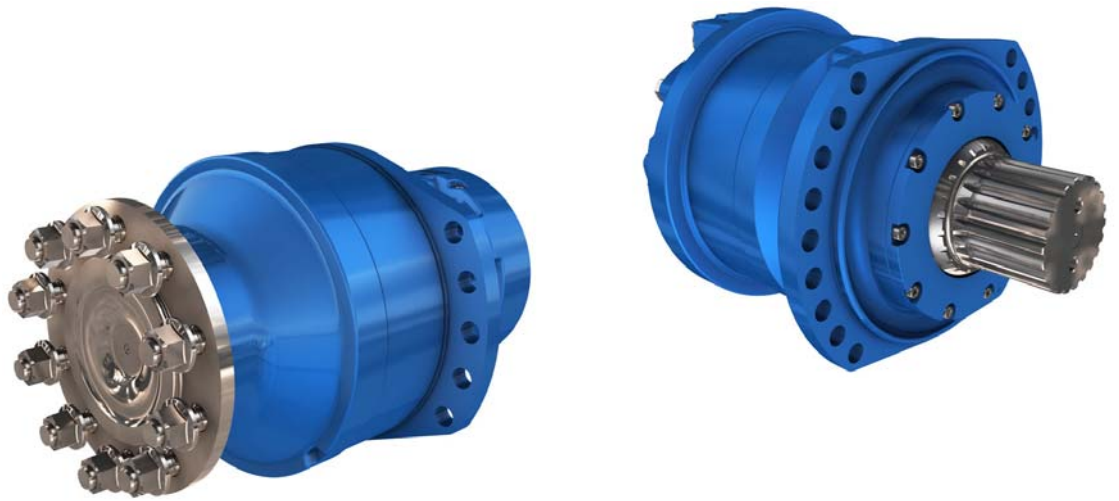


MS25

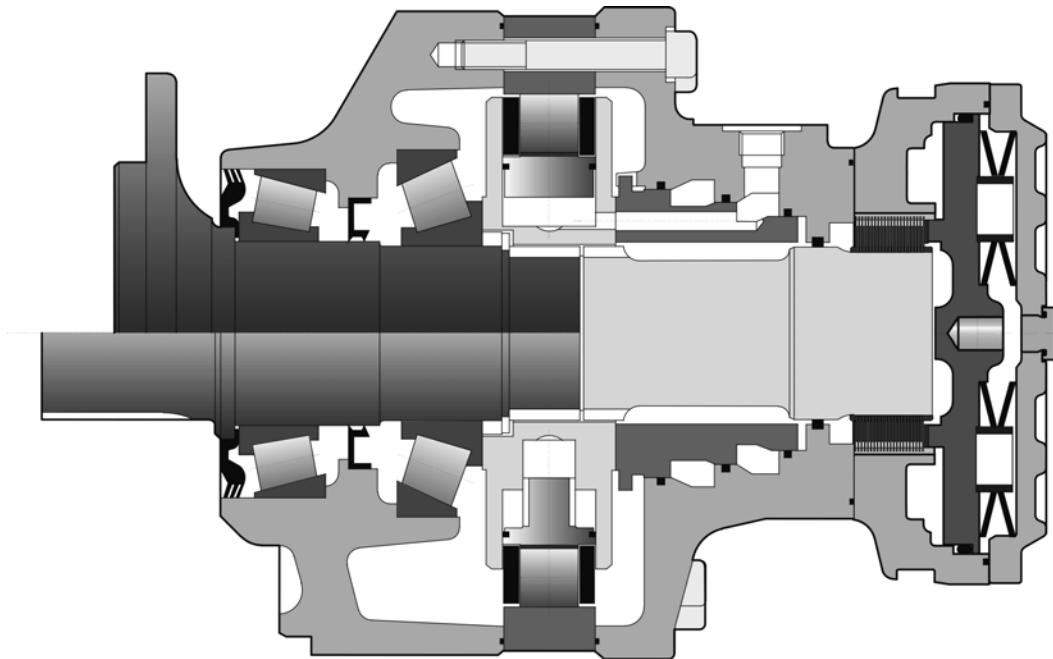
HYDRAULIC MOTORS



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



CHARACTERISTICS



Motor inertia

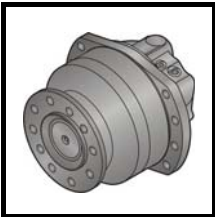
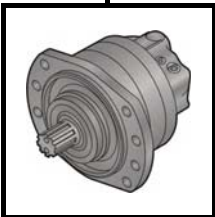
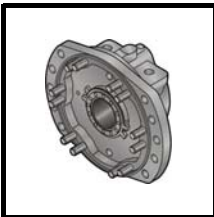
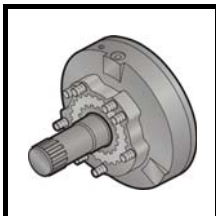
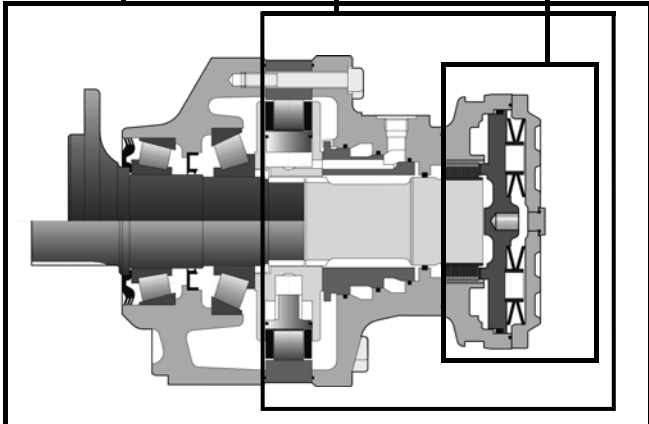
0.4 kg.m²

	C	Displacement		Theoretical torque		Max. power			Max. speed		Max. pressure
		1	2	1	1	2	2	1	2		
		cm ³ /tr [cu.in./rev.]	cm ³ /tr [cu.in./rev.]	at 100 bar Nm	at 1000 PSI [lb.ft]	1 kW [HP]	2 preferred kW [HP]	2 non-preferred kW [HP]	1 tr/min [RPM]	2	bar [PSI]
Cams with equal lobes	8	2,004 [122.2]	1,002 [61.1]	3,186	[1,620]	90 [121]	60 [80]	45 [60]	145	145	450 [6,527]
	0	2,498 [152.4]	1,249 [76.2]	3,972	[2,020]				137	137	
	1	2,752 [167.8]	1,376 [83.9]	4,376	[2,225]				125	135	
	2	3,006 [183.3]	1,503 [91.7]	4,780	[2,431]				115	130	
Cams with unequal lobes	A	2,505 [152.8]	1,503 [91.7]	3,983	[2,025]	90 [121]	60 [80]	45 [60]	115	130	450 [6,527]
			1,002 [61.1]								

- ① First displacement
- ② Second displacement

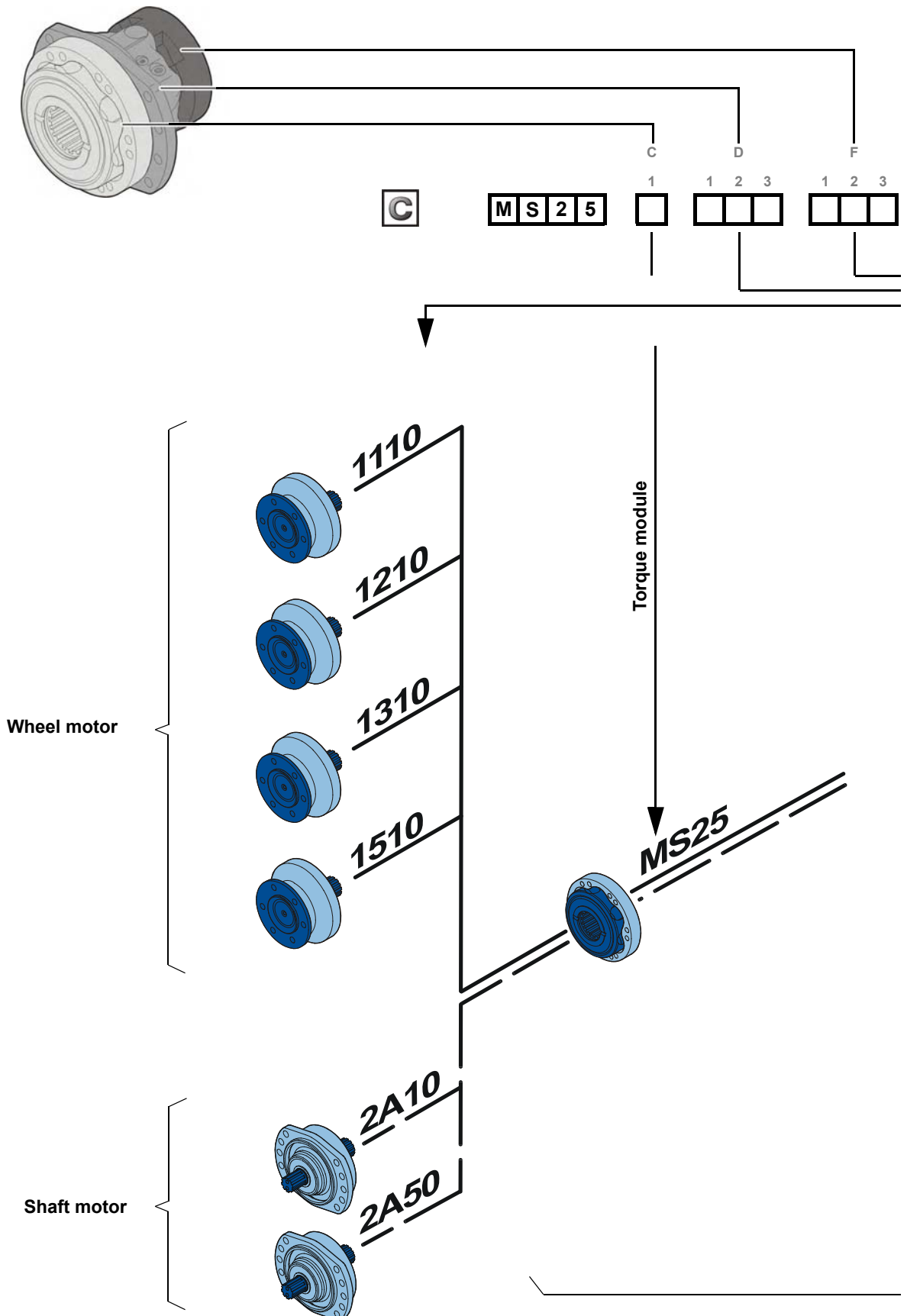


CONTENT

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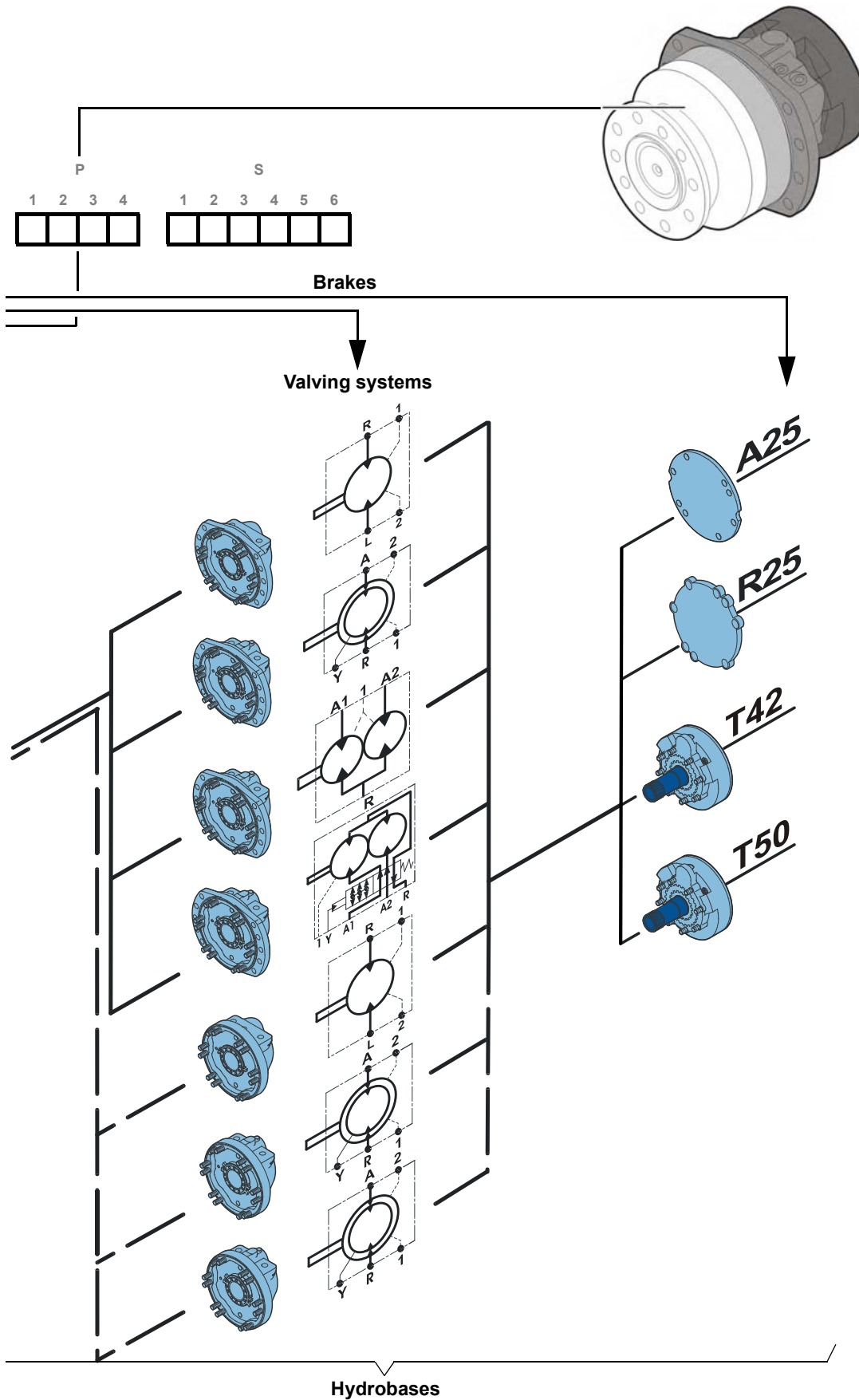


MODUL





ARITY



Modularity and Model code

Wheel motor

Shaft motor

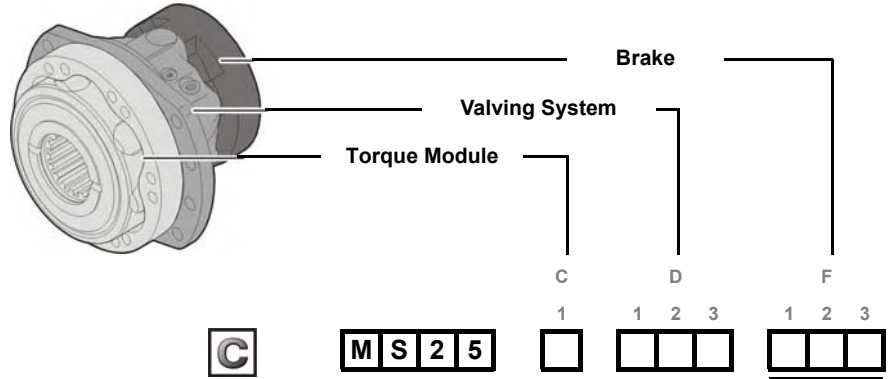
Valving systems and hydrobases

Brake

Options



MODEL



		①	②
		cm ³ /tr [cu.in/rev.]	cm ³ /tr [cu.in/rev.]
Cams with equal lobes	8	2 004 [122,2]	1 002 [61,1]
	0	2 498 [152,4]	1 249 [76,2]
	1	2 752 [167,8]	1 376 [83,9]
	2	3 006 [183,3]	1 503 [91,7]
Cams with unequal lobes	A	2 505 [152,8]	1 503 [91,7] 1 002 [61,1]

① First displacement
② Second

Without mounting	1	1	-	-
Lug fixing	2	2	E	V
	1-displacement	2-displacement	Twin-Lock™	Twin-Lock™ or 2-displacement

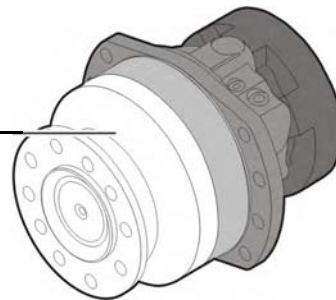
No transmission cover	0
ISO 6162 SAE flanges	1
ISO 9974-1 metric connections	

1-displacement valving	1
Symmetrical	A Ratio 2
	B Ratio <2
	C Ratio >2
2-displacement & Twin-Lock™ valving (Clockwise)	D Ratio 2
	E Ratio <2
2-displacement & Twin-Lock™ valving (Counterclockwise)	F Ratio >2
	G Ratio 2
	H Ratio <2
	J Ratio >2

Without brake	Simple plate	A	2	5
	Reinforced plate	R	2	5
Brake	Screwed environmental cover	T	4	2
		T	5	0



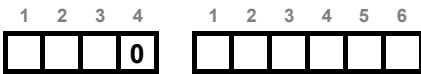
CODE



Bearing support

P

S



- 0 Without bearing support
- 1 Without mounting
- 2 Lug mounting

- Without shaft 0
- 10 x Ø24 on Ø335 1
- 12 x Ø25 on Ø425 2
- 10 x Ø24 on Ø335 3
- 12 (8+4) Ø24 on Ø275 5
- For male shaft bearing support A

- Without Options or Adaptations 0
- Fluorinated elastomer seals 1
- T4 speed sensor (without rotation direction) 2
- Industrial bearing support 6
- Diamond™ 7
- Predisposition for speed sensor 8
- Double centering 9
- Hollow shaft A
- Drain on the bearing support B
- Abrasive environment C
- Reinforced sealing E
- Special wheel rim mounting G
- Surface heat treatment of the shaft J
- TD speed sensor (two phase shifted frequencies) Q
- TR speed sensor (digital rotation direction) S

- Without studs 1
- With studs + nuts 2
- With studs 3
- M threaded holes 4

- Male shafts**
- NF E22-141 splines 1
 - DIN 5480 splines 5

Modularity and Model code

Wheel motor

Shaft motor

Valving systems and hydrobases

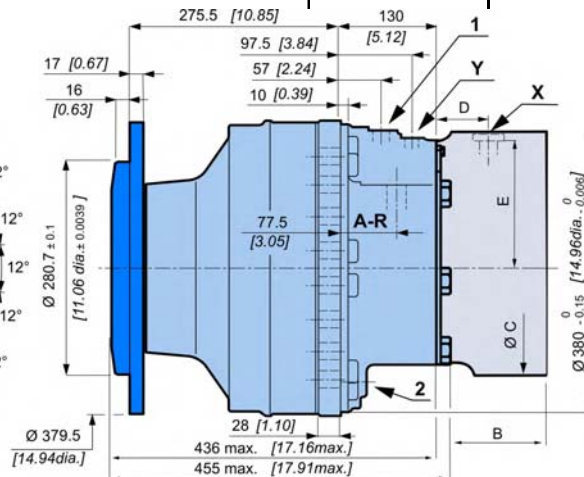
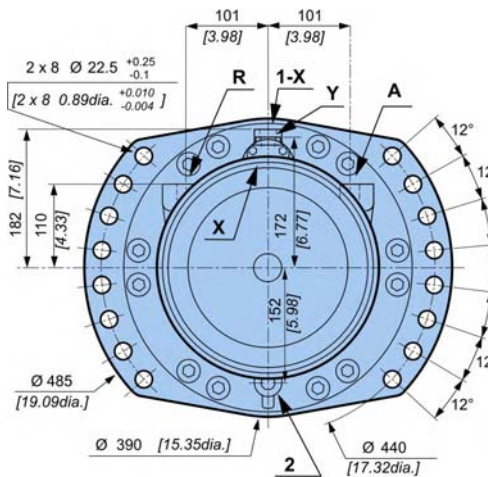
Brake

Options



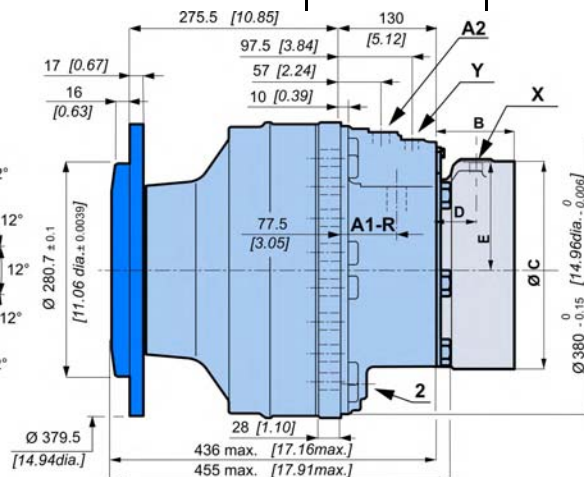
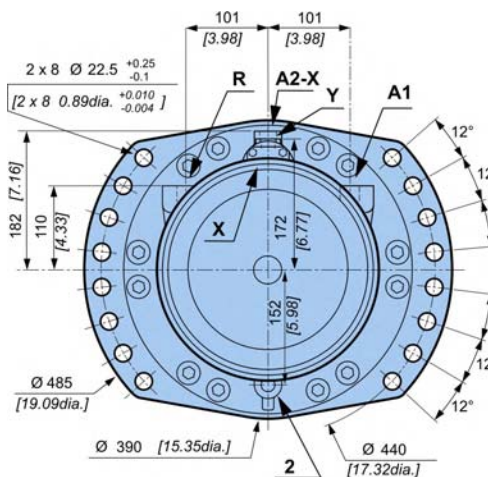
WHEEL MOTOR

Dimensions for standard (1110) 2-displacement motor



	210 kg [462 lb]	270 kg [594 lb]
	5.00 L [300 cu.in.]	4.00 L [240 cu.in.]

Dimensions for standard (1210) Twin-Lock™



	210 kg [462 lb]	270 kg [594 lb]
	5.00 L [300 cu.in.]	4.00 L [240 cu.in.]

- Modularity and Model code
- Wheel motor
- Shaft motor
- Valving systems and hydrobases
- Brake
- Options



Also see 'Valving systems and hydrobases' section (thumbnail opposite).

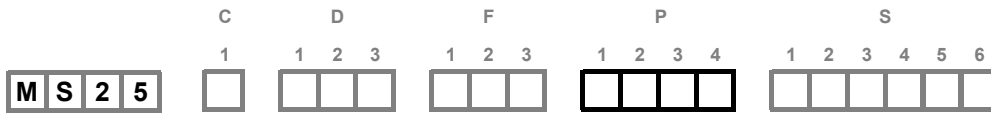
	C	T 4 2	T 5 0
B	148 [5.83]	157.5 [6.20]	
C	Ø375 [14.76 dia.]	Ø375 [14.76 dia.]	
D	63.5 [2.50]	63.5 [2.50]	
E	183.5 [7.22]	183.5 [7.22]	



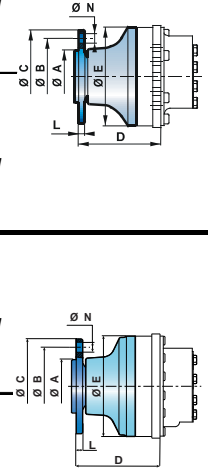
Also see "Brake" section (thumbnail opposite).



Support types

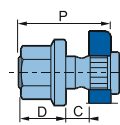


	A mm [in]	B mm [in]	C mm [in]	D mm [in]	E mm [in]	N mm [in]	Wheel rim mountings	L mm [in]
	Ø 280.7 [11.05 dia.]	Ø 335 [13.19 dia.]	Ø 379 [14.92 dia.]	275.5 [10.85]	Ø 390 [15.35 dia.]	Ø 24 [0.94 dia.]	10 x M22x1.5	17 [0.67]
	Ø 370 [14.57 dia.]	Ø 425 [16.73 dia.]	Ø 472 [18.58 dia.]	333.45 [13.13]	Ø 390 [15.35 dia.]	Ø 26 [1.02 dia.]	12 x M24x2	24 [0.94]
	Ø 280.7 [11.05 dia.]	Ø 335 [13.19 dia.]	Ø 385 [15.16 dia.]	236.5 [9.31]	Ø 390 [15.35 dia.]	Ø 24 [0.94 dia.]	10 x M22x1.5	17 [0.67]
	Ø 220.7 [8.69 dia.]	Ø 275 [10.83 dia.]	Ø 314 [12.36 dia.]	241.5 [9.51]	Ø 390 [15.35 dia.]	8 x Ø 22 [8 x 0.87 dia.] 4 x Ø 22 [4 x 0.87 dia.]	-	17 [0.67]



Studs

		P mm [in]	C min. mm [in]	C max. mm [in]	D mm [in]	Class
Various studs	M22 x 1.5	80 [3.15]	5 [0.20]	36 [1.42]	26 [1.02]	12.9
	M24 x 2	95 [3.74]		38 [1.50]	30 [1.18]	
Screws	M20	-	-	-	-	12.9



See generic installation motors N°B59689D.



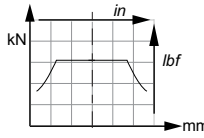
Load curves

Permissible radial loads

Test conditions :

Static : 0 tr/min [0 RPM] 0 bar [0 PSI]

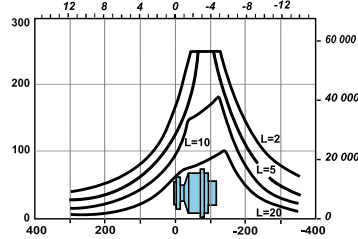
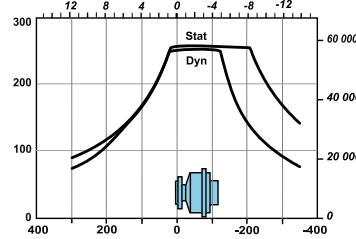
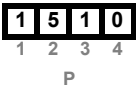
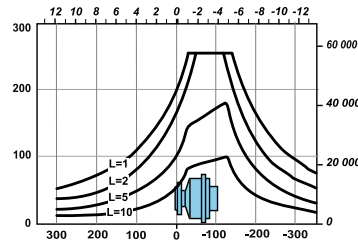
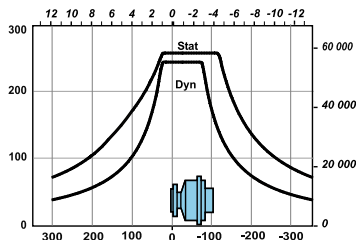
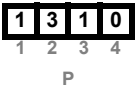
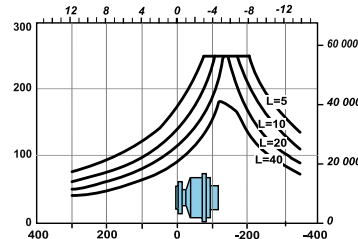
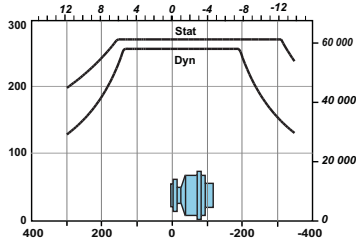
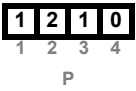
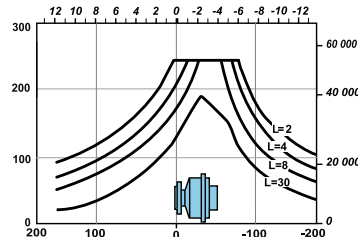
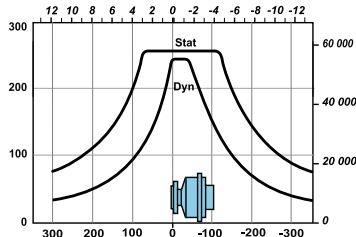
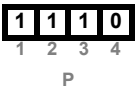
Dynamic : 0 tr/min [0 RPM], code 0 displacement, without axial load at max. torque



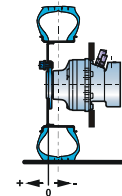
Service life of bearings

Test conditions :

L : Millions B10 revolutions at 150 bars (average pressure), with 25 cSt fluid, code 0 displacement, without axial load.



The service life of the components is influenced by the pressure. You must check that the combination of forces applied (Axial load / Radial load) is compatible with the permissible loads for the components, and that the resulting service lives of these components complies with the application's specifications. For an accurate calculation, consult your Poclain Hydraulics application engineer.



Modularity and Model code

Wheel motor

Shaft motor

Valving systems and hydrobases

Brake

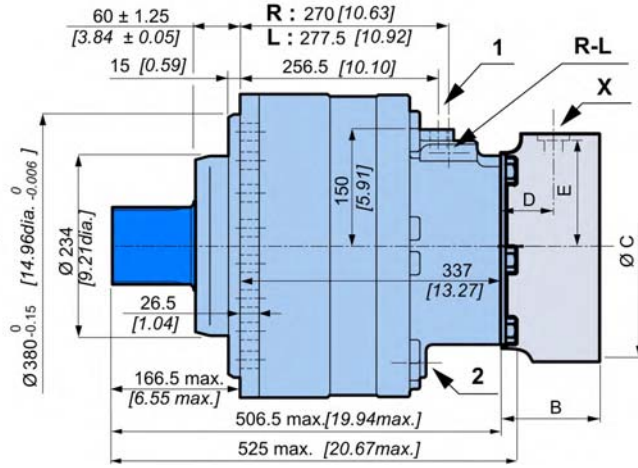
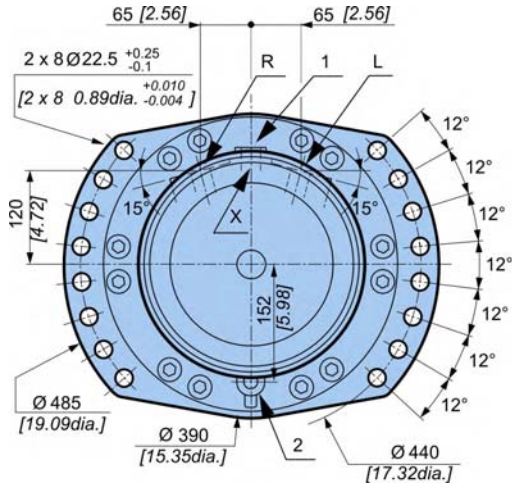
Options





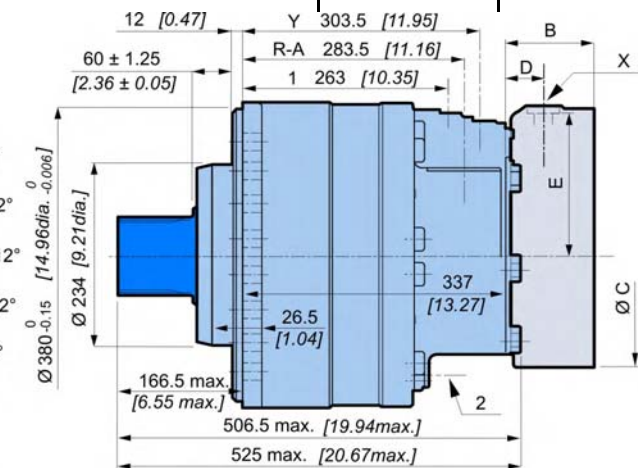
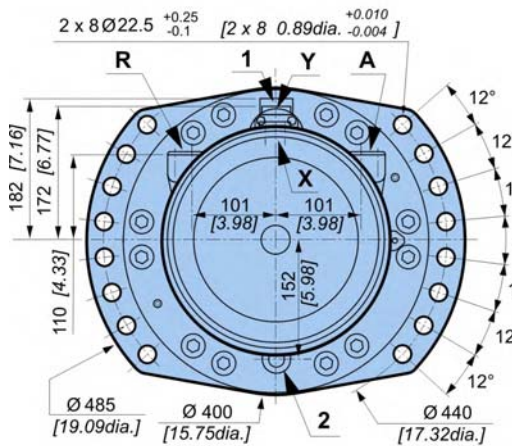
SHAFT MOTOR

Dimensions for standard (2A50) 1-displacement motor



	195 kg [429 lb]	255 kg [561 lb]
	5.00 L [300 cu.in]	4.00 L [240 cu.in]

Dimensions for standard (2A50) 2-displacement motor



	195 kg [429 lb]	255 kg [561 lb]
	5,00 L [300 cu.in]	4,00 L [240 cu.in]



Also see 'Valving systems and hydrobases' section (thumbnail opposite).

	C	T 4 2	T 5 0
B	148 [5.83]	157.5 [6.20]	
C	Ø375 [14.76 dia.]	Ø375 [14.76 dia.]	
D	63.5 [2.50]	63.5 [2.50]	
E	183.5 [7.22]	183.5 [7.22]	



Also see "Brake" section (thumbnail opposite).

Modularity and Model code

Wheel motor

Shaft motor

Valving systems and hydrobases

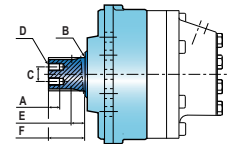
Brake


Options



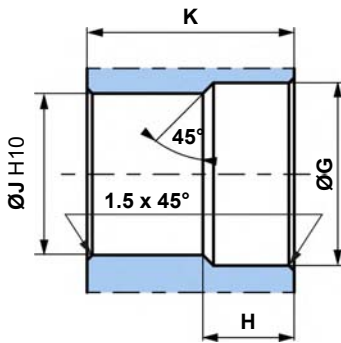
Support types

				C	D	F	P	S							
				1	1 2 3	1 2 3	1 2 3 4	1 2 3 4 5 6							
				A		B		C		D		E		F	
DIN 5480 splines															
2	A	5	0	23		R 4		35		2 x M14		25		105	
1	2	3	4	[0.91]		[R 0.16]		[1.38]				[0.98]		[4.13]	
Nominal Ø				100											
Module				3											
Z				32											
NF E22-141 splines															
2	A	1	0	23		R 4		35		2 x M14		26.5		105	
1	2	3	4	[0.91]		[R 0.16]		[1.38]				[1.04]		[4.13]	
Nominal Ø				100											
Module				2.5											
Z				38											



 Also see 'Valving systems and hydrobases' section (thumbnail opposite).

Splined coupling



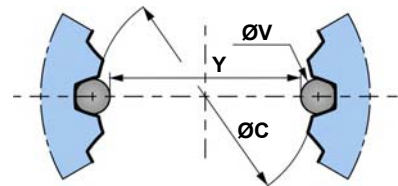
Standard NF E 22-141

Pressure angle 20°.
Centering on flanks.
Slide fit (7H quality).

Standard DIN 5480

Pressure angle 30°.
Centering on flanks.
Slide fit (7H quality).

N : Nominal Ø.
Mo : Module.
Z : Number of teeth.



	Ø G	H	Ø J	K	N	Mo	Z	Offset	Ø C (H10)	Ø V	Y	Tolerance µm [µin]
2 A 1 0 1 2 3 4 P	101 [3.98]	28 [1.10]	95 [3.74]	104 [4.09]	100 [3.94]	2.5	38	2 [0.08]	95 [3.74]	5 [0.20]	90.125 [3.55]	+ 104 / 0 [+4.0945 / 0]
2 A 5 0 1 2 3 4 P	101.5 [4.00]	28 [1.10]	94 [3.70]	104 [4.09]	100 [3.94]	3	32	- 0.35 [0.0138]	94 [3.70]	5.25 [0.21]	89.066 [3.51]	+ 73 / 0 [+2.874 / 0]

General tolerances : ± 0.25 [±0.0098].

Material: Ex: 42CrMo4.

Hardening treatment to obtain R = 800 to 900 N/mm² [R = 116 030 to 130 533 PSI].

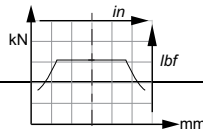


Load curves

Permissible radial loads

Max. permissible loads: 0 tr/min [0 RPM]; 0 bar [0 PSI]

Continuous permissible loads:
 > 0 tr/min [> 0 RPM]; 275 bar [3 988 PSI].



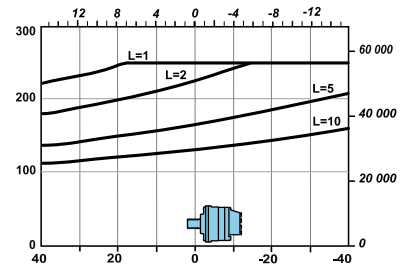
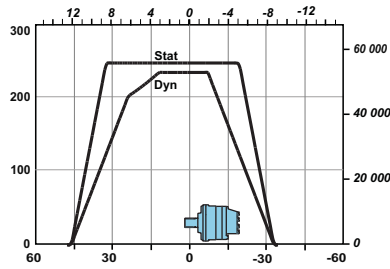
Service life of bearings

Test conditions :

L : Millions B10 revolutions at 150 bars (average pressure), with 25 cSt fluid, code 0 displacement, without axial load.

2	A	5	0
1	2	3	4

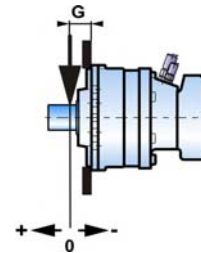
P



The service life of the components is influenced by the pressure. You must check that the combination of forces applied (Axial load / Radial load) is compatible with the permissible loads for the components, and that the resulting service lives of these components complies with the application's specifications. For an accurate calculation, consult your Poclain Hydraulics application engineer.



C				G
2	A	1	0	115.75 [4.56]
2	A	5	0	125 [4.92]



Modularity and Model code

Wheel motor

Shaft motor

Valving systems and hydrobases

Brake

Options



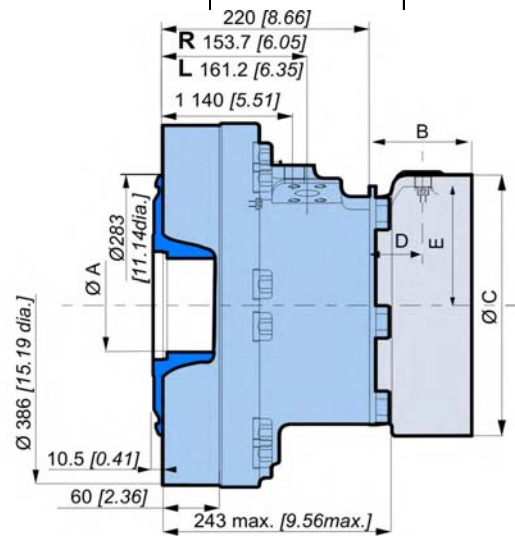
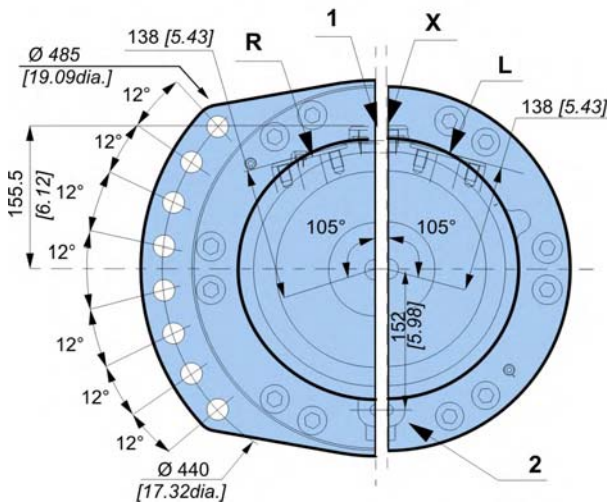


VALVING SYSTEMS AND HYDROBASES



Dimensions for 1-displacement valving

	13.8 kg [30 lb]	19.9 kg [44 lb]
	0.35 L [21 cu.in]	0.45 L [27 cu.in]



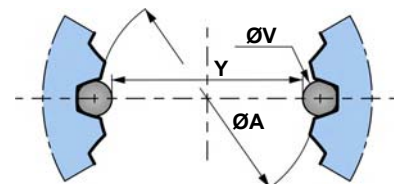
C	T 4 2	T 5 0
B	148 [5.83]	157.5 [6.20]
C	Ø375 [14.76 dia.]	Ø375 [14.76 dia.]
D	63.5 [2.50]	63.5 [2.50]
E	183.5 [7.22]	183.5 [7.22]

Also see "Brake" section (thumbnail opposite).

Cylinder block splines

(as per standard NF E22-141)

ØA	Module	Z	Dimension on 2 pins	
			Y	ØV
100 [3.937]	2.5	38	90.169 [3.550]	5 [0.197]



You are advised to have the installation validated by your Poclair Hydraulics application engineer before using the hydraulic unit in an application.



We must provide you with a detailed plan of the interface for any hydraulic unit use, consult your Poclair Hydraulics sales engineer.

Modularity and Model code

Wheel motor

Shaft motor

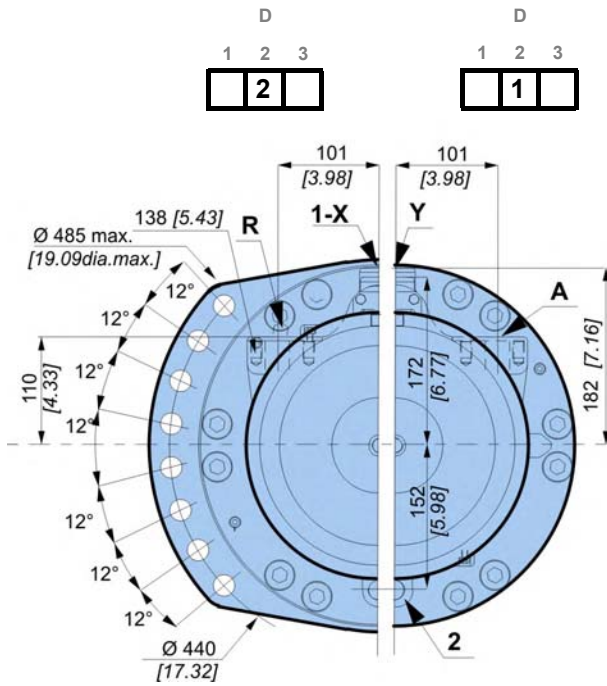
Valving systems and hydrobases

Brake

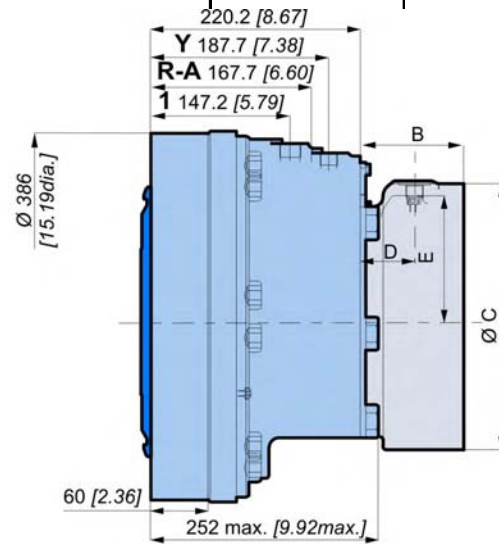
Options



Dimensions for 2-displacement valving

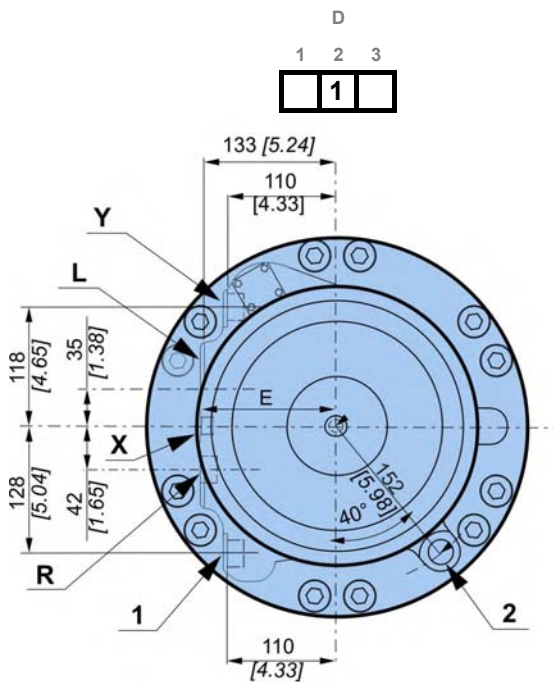


	13.8 kg [30 lb]	19.9 kg [44 lb]
	0.35 L [21 cu.in]	0.45 L [27 cu.in]

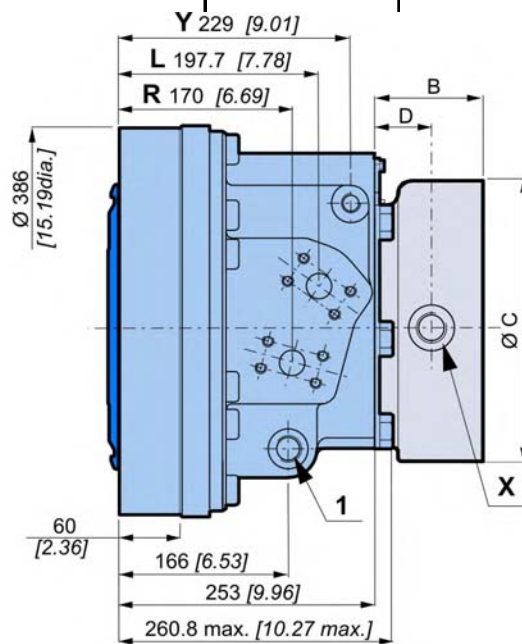


Dimensions for 2-displacement symmetrical valving

For a small displacement, there is no preferred orientation for this motor.

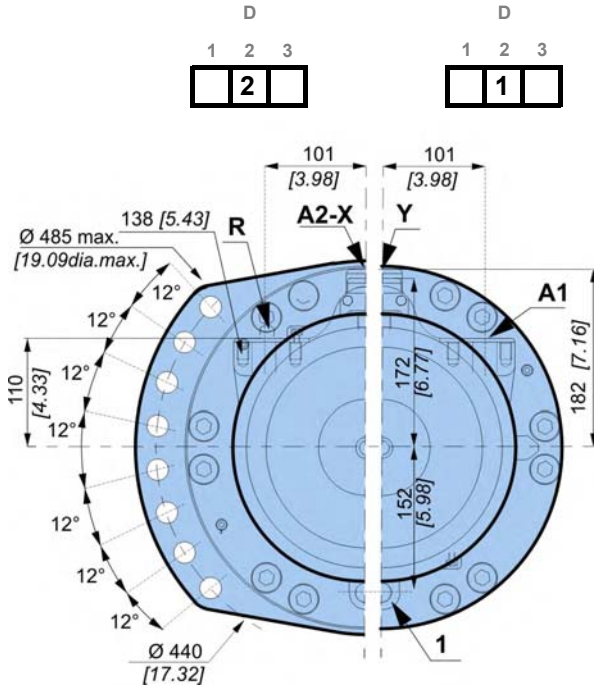


	13.8 kg [30 lb]	19.9 kg [44 lb]
	0.35 L [21 cu.in]	0.45 L [27 cu.in]

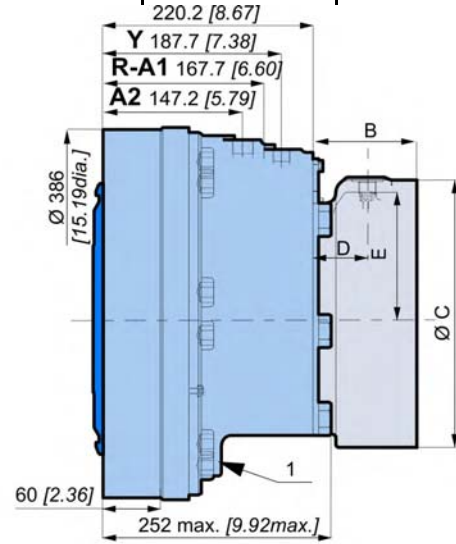




Dimensions for Twin-Lock™



	13.8 kg [30 lb]	19.9 kg [44 lb]
	0.35 L [21 cu.in]	0.45 L [27 cu.in]



	C	T 4 2	T 5 0
B	148 [5.83]	157.5 [6.20]	
C	Ø375 [14.76 dia.]	Ø375 [14.76 dia.]	
D	63.5 [2.50]	63.5 [2.50]	
E	183.5 [7.22]	183.5 [7.22]	

Also see "Brake" section (thumbnail opposite).

Modularity and Model code

Wheel motor

Shaft motor

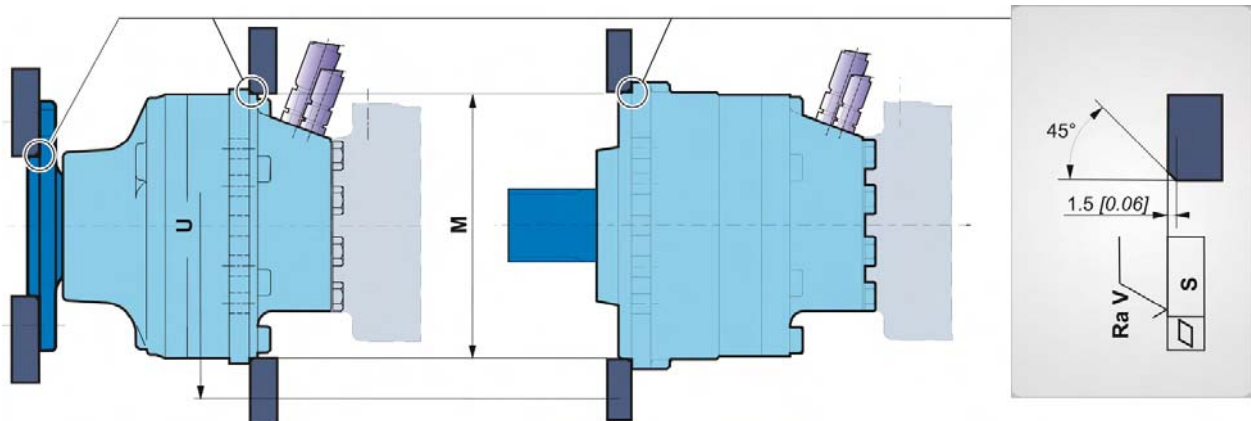
Valving systems and hydrobases

Brake


Options



Chassis mountings



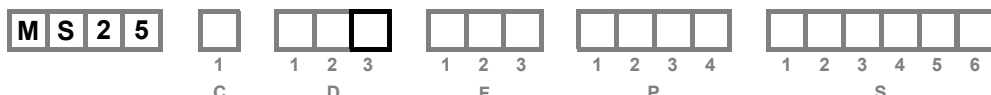
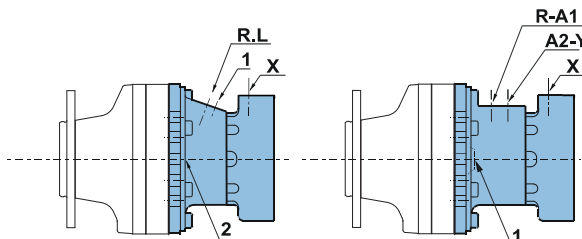
Take care over the immediate environment of the connections.

	$\varnothing M$ ⁽¹⁾	$\varnothing U$	S	Ra V		Class
Wheel motor	380	440	0.2	12.5 μ m	2 x 8 \varnothing 22.5	8.8
Shaft motor	[14.96]	[17.32]	[0.008]	[0.49 μ in]	M20 x 2	

(1) +0.3 [+0.012]
+0.2 [+0.008]



Hydraulic connections



	Old standards	Standards	Power supply	Case drain	2 nd displacement control	Control of parking break
	1	ISO 6 162 DIN 3 852	ISO 6 162 ISO 9 974-1	R-L DN25 PN400	1, 2 M22x1.5	X M18x1.5
	1	ISO 6 162 DIN 3 852	ISO 6 162 ISO 9 974-1	R-A DN25 PN400	1, 2 M22x1.5	Y M18x1.5
	1*	ISO 6 162 DIN 3 852	ISO 6 162 ISO 9 974-1	DN25 PN400	M27x2	M20x1.5 M18x1.5
	1	ISO 6 162 DIN 3 852	ISO 6 162 ISO 9 974-1	R-A1 DN25 PN400	A2 M27x2	1, 2 M22x1.5
					Y M18x1.5	X M18x1.5
ISO 9 974-1						
Max. pressures	MS	bar [PSI]		450 [6,527]	1 [15]	30 [435]

* : Only symmetrical valving



You are strongly advised to use the fluids specified in brochure "Installation guide" N° B59689D.



To find the connections' tightening torques, see the brochure "Installation guide" N° B59689D.



Do not put either a check valve or a poppet valve on the pilot lines (parking brake and displacement change) between the charge pump and the pilot valve. Do not use a piloting valve with integrated check valve.

Modularity and Model code

Wheel motor

Shaft motor

Valving systems and hydrobases

Brake

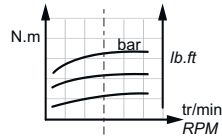
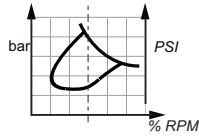
Options



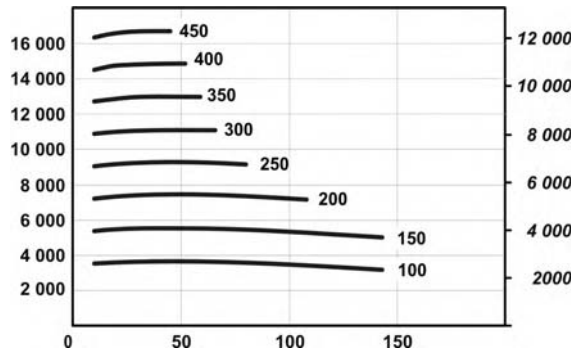
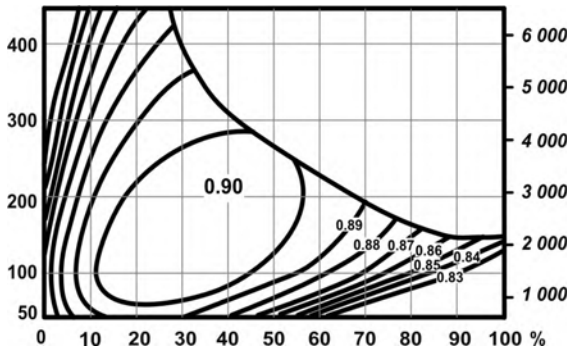
Efficiency

Overall efficiency

Average values given for guidance for code 0 displacement after 100 hours of operation with HV46 hydraulic fluid at 50°C [122°F].



Actual output torque

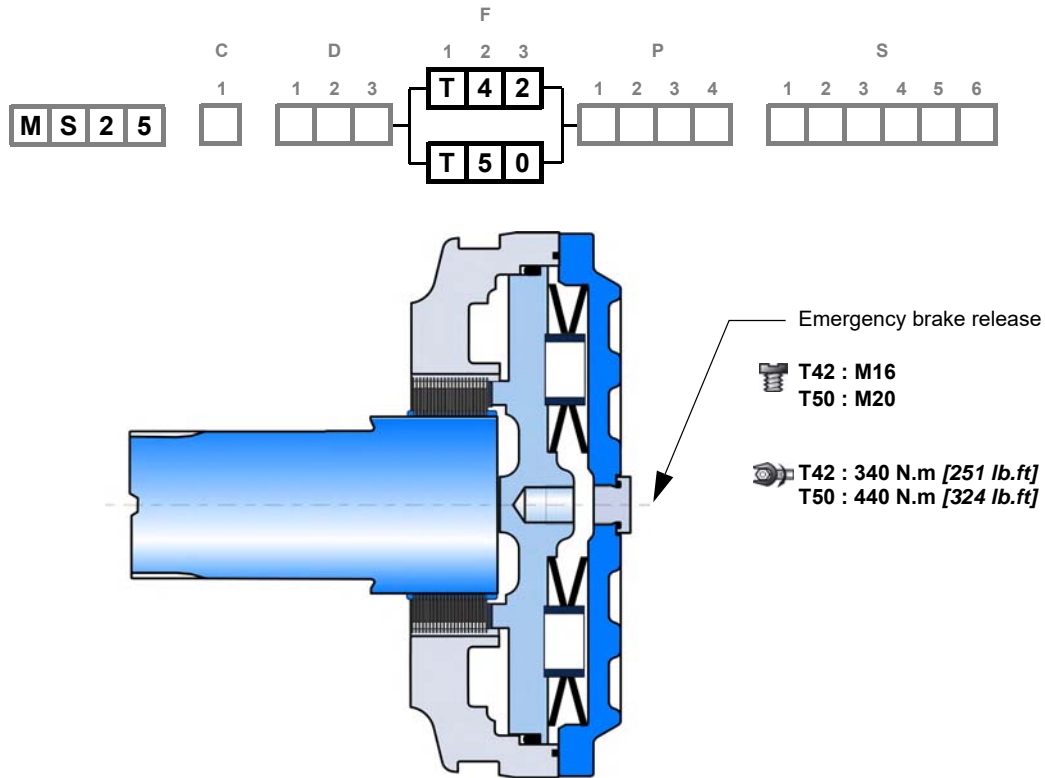


The starting torque is taken to be approximately 85% of the first value for available pressure. For a precise calculation, consult your Poclain Hydraulics application engineer.



BRAKES

Rear brake



Brake principle

This is a multidisc brake which functions through the absence of pressure. The spring exerts a force on the piston, which acts on the fixed mobile discs, and thus immobilizes the shaft. The braking torque decreases in linear proportion to the brake release pressure.

C	T 4 2	T 5 0
Parking brake torque at 0 bars on housing (new brake)	25,000 Nm [18,440 lb.ft]	30,000 Nm [22,130 lb.ft]
Dynamic emergency braking torque at 0 bars on housing	16,250 Nm [11,990 lb.ft]	19,500 Nm [14,380 lb.ft]
Residual parking braking at 0 bars on housing *	18,750 Nm [13,830 lb.ft]	22,500 Nm [16,600 lb.ft]
Min. brake release pressure	12 bar [174 PSI]	12 bar [174 PSI]
Max. brake release pressure	30 bar [435 PSI]	30 bar [435 PSI]
Oil capacity	400 cm ³ [24.4 cu.in]	450 cm ³ [27.5 cu.in]
Volume for brake release	135 cm ³ [8.2 cu.in]	135 cm ³ [8.2 cu.in]

* After emergency brake has been used



Do not run-in the multidisc brakes.



A functional check of the parking brake must be carried out each time it is used as an auxiliary brake (or emergency brake). For all vehicles capable of speeds over 25 km/hour, please contact your Poclair Hydraulics application engineer.

Modularity and Model code

Wheel motor

Shaft motor

Valving systems and hydrobases

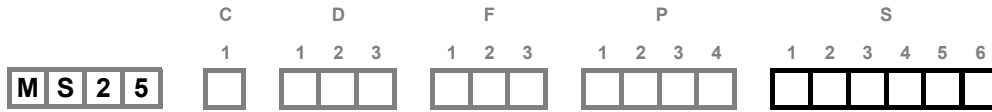
Brake

Options





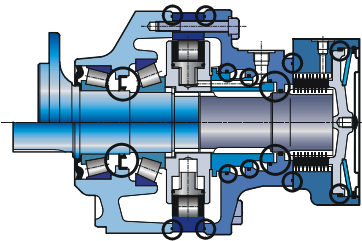
OPTIONS



You can accumulate more than one optional part. Consult your Poclain Hydraulics sales engineer.

1 - Fluorinated elastomer seals

Nitrile seals marked in the figure below replaced by fluorinated elastomer seals.

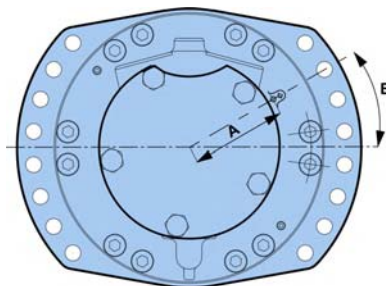


Consult your Poclain Hydraulics sales engineer.

2 - S - Q - 8 - Installed speed sensor or predisposition

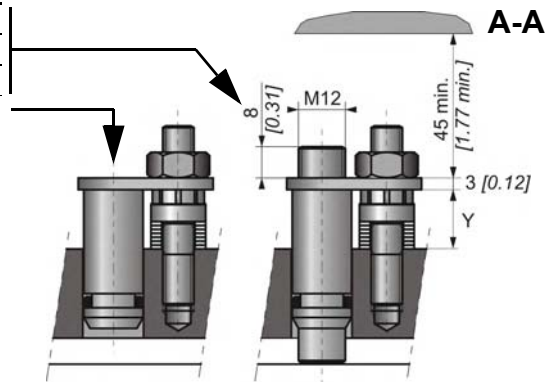
Designation

T4 speed sensor (without rotation direction)	2
TR speed sensor (digital rotation direction)	S
TD speed sensor (two phase shifted frequencies)	Q
Predisposition for speed sensor	8



	mm [in]	mm [in]
A	118.9 [4.68]	118.9 [4.68]
B	0°	20°

2-displacement | 1-displacement



Max. length Y= 15.6

Standard number of pulses per revolution= 56



Look at the "Mobile Electronic" N° A01889D technical catalogue for the sensor specifications and its connection.



To install the sensor, see the "Installation guide" brochure No. B61352L.

Modularity and Model code

Wheel motor

Shaft motor

Valving systems and hydrobases

Brake

Options



6 - Industrial support

Reduction of around 50% from the rated value in the bearings' preload value.



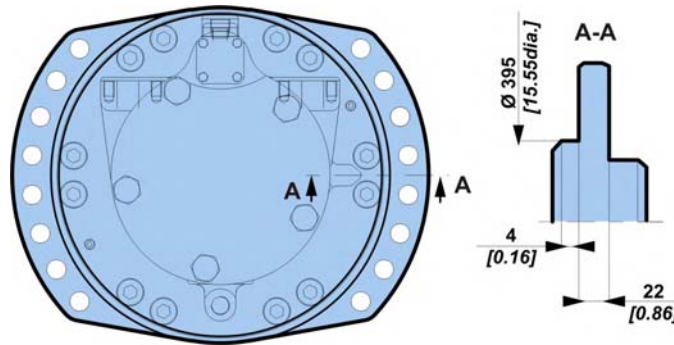
For a precise calculation, consult your Poclair Hydraulics application engineer.

7 - Diamond™

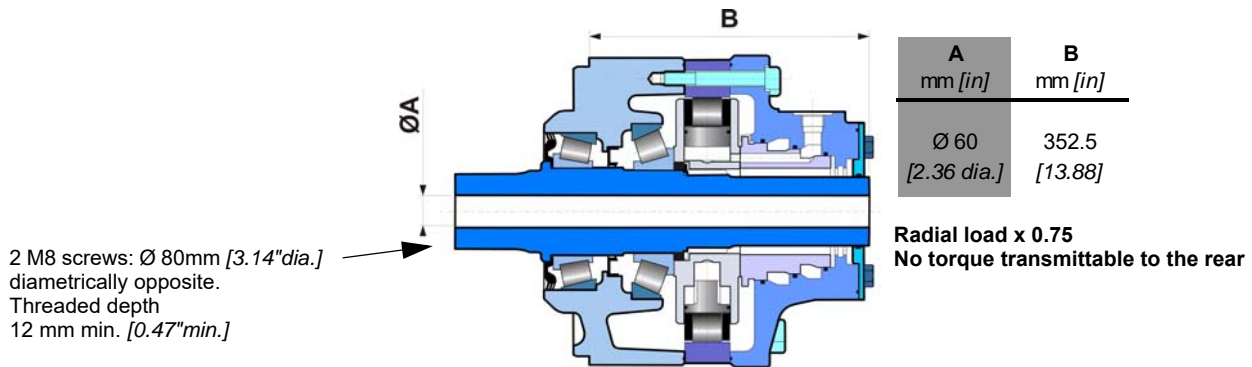
Special treatment of the motor core which considerably increases its strength, making the motor much more tolerant to temporary instances of the operating conditions being exceeded.

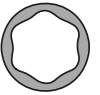
9 - Double-centering valving cover

This option allows a motor to be installed from the front or the back.

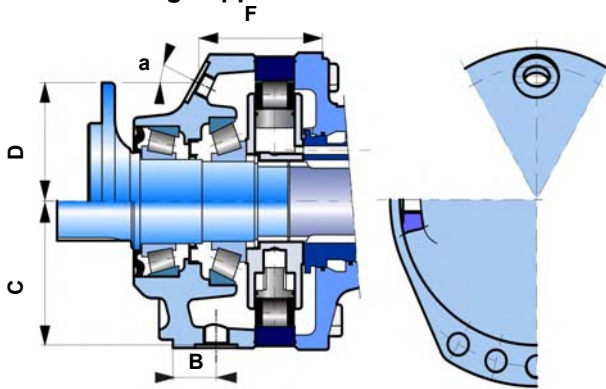


A - Hollow shaft





B - Drain on the bearing support

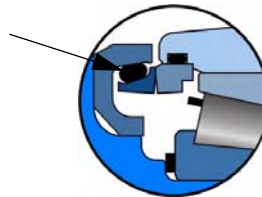


		B	C	D	F	a
		mm [in]	mm [in]	mm [in]	mm [in]	
Shaft motor	M22 x 1.5	56.0 [2.20]	193 [7.60]			
Wheel motor				112.0 [4.41]	113 [4.43]	30°

C - Abrasive environments (mechanical seal)

Some environments can be very harmful. The mirror seal gives reinforced motor sealing.

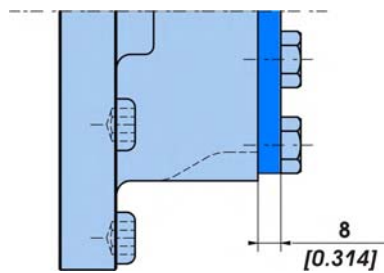
Mechanical seal



These seals are available for standard wheel motors and short wheel motors.

E - Reinforced sealing

Requires reinforced seals and, for an unbraked motor, a rear reinforced plate (R25 - 15 [0.594] thick, instead of 6 [0.237]).



G - Special wheel rim mounting

Enables certain combinations different from the standard mountings defined on page 10.



Consult your Poclair Hydraulics sales engineer.

Modularity and Model code

Wheel motor

Shaft motor

Valving systems and hydrobases

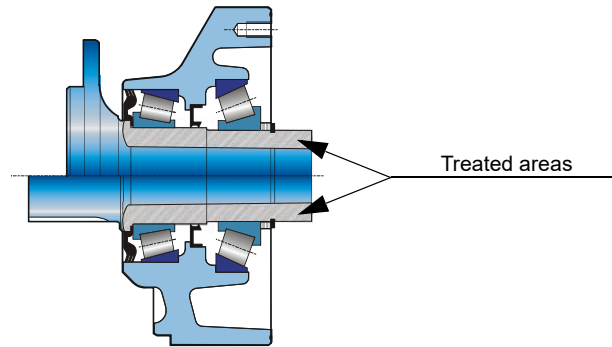
Brake

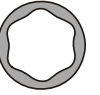
Options



J - Treated shaft

Heat treatment on the indicated bearing radius and splines.









Modularity and
Model code

Wheel motor

Shaft motor

Valving systems
and hydrobases

Brake

Options



Poclain Hydraulics reserves the right to make any modifications it deems necessary to the products described in this document without prior notification. The information contained in this document must be confirmed by Poclain Hydraulics before any order is submitted.

Illustrations are not binding.

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-  01/08/2023
-  801 478 122E
-  801 478 192F
-  801 578 105G
-  801 578 117U
-  801 578 129H
-  A50152N
-  Not available
-  A14244H

