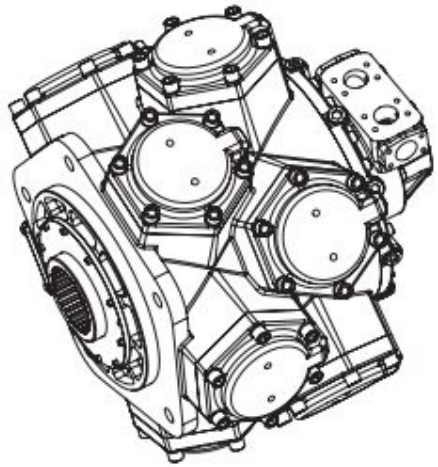
VER: OIL-18-01/1001

2018

Low-Speed High-Torque

CM series Radial Piston Hydraulic Motor

Intermot Product Catalogue



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NINGBO INTERMOT HYDRAULIC MOTOR CO., LTD.

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intermot® 英特姆®

ABOUT US

NINGBO OIL CONTROL HYDRAULIC CO., LTD. is a Sino-Italian Joint venture specializing in designing and manufacturing of hydraulic motor, gearbox, hydraulic winch and other hydraulic products. Evolving from its predecessor NINGBO INTERMOT HYDRAULIC MOTOR CO., LTD., established by INTERMOT S.r.l. (Italy), R&D S.r.l. (Italy) and the holding family members of SAI S.p.a. (Italy), Ningbo Oil Control has more than 20 years of experience and in-depth know-how in the hydraulic industry. Our products have covered a great variety of applications throughout the world with INTERMOT brand renowned for its outstanding price for value to the customers. Relying on the latest technology from Italy, the company integrates the corporate functions of R&D, designing & roto-typing, production, testing and marketing.

Up to now, we possess modernized workshop of over 20,000 square meters and an array of high-quality automatic machinery and equipments from Europe, Japan and Taiwan with the ultimate pursuit of quality, stability and precision. Our staff is qualified with strict professional training, competitive skills and personality. With management information systems such as ERP and CRM, we are certified with ISO9001:2000 and CCS marine certification. Scientific and efficient management has also contributed to the excellent quality of INTERMOT products and responsive and professional after-sales service has won great reputation in the industry.

Our main product range includes: NHM series, CM series, FMB (fixed disp.) / FMC(dual-disp.) series of low-speed high-torque hydraulic motor, OILW travel gearbox, OILP planetary gearbox, OILH hydraulic winch, EPMZ orbit hydraulic motor. Meanwhile, we are also the distributor of the hydraulic products such as 'M+S' orbit motor of Bulgaria and orbit motor of Eaton Jining. Our hydraulic motors are widely applied in construction engineering, hoisting and transportation, metallurgic and heavy duty machinery, oil extraction, coal mining, marine applications, machine tools, plastic molding machines, geological prospecting and other hydraulic transmission systems. Our products are particularly suitable for driving injection mounding machine, lifting screw drives, driving winch and various rolling drums, as well as other transmission mechanics like track and wheel machines. Confronting with the challenge of the new century, we always honor our quality slogan, being 'Take responsibility for our products and services, while fulfilling the actual demands of our customers' . In pursuit of quality, we are keen to provide our customers with reliable products and services, striving to be the leader in the hydraulic motor sector in China.

CONTENT




CM series products are widely used for hydraulic transmission systems of plastic machinery, oil extraction, mining machinery, shipdeck machinery, marine engineering & other applications.

General Characteristics:

PRODUCT DESCRIPTION

Twin-crank10-piston model (CM90/100/160)

Single-crank 5-piston model (CM16/24/54/82)

Twin-crank14-piston model (CM230)

Item	Description
Product Type	Fixed disp. radial piston low-speed high-torque hydraulic motor
Product Series	CM
Type of Installation	Front flanged connection (other interfaces / flanges available)
Oil Port Connection	Flanged connection
Installation Angle	Adjustable as required
Rotating Direction	Clockwise / Anti-clockwise, reversible
Oil Temperature Range	Note: In case of ordering for use of HFB, HFCY and biologic degradable oil;FPM seal should be used for HFD.HLP Mineral Oil in compliance with DIN51 524 part 2;For Phosphorousacid-Ester(HFD), FPM Seals required and for HFB,HFCY or other bio-fluids, or consult our engineer
Hydraulic Fluids	-25~70°C
Range of oil viscosity	v=18~1000cst
Cleanliness of oil	Allowable highest pollution grade of solid particle of oil: NAS 1638 Class 9; Oil filtration system with filtration rating of 10um (β10≥75) or higher is recommended.

Performance Introduction / Ordering code

PERFORMANCE ITEM	CM series
Peak pressure	300bar
Max. intermittent pressure	250bar
Max. continuous pressure	210bar
Max. drain port pressure	5~15 bar
Start-up efficiency	>90%
Volumetric efficiency	>95%
Mechanical efficiency	>86%
Thermal resistance	80°C
Noise level at max. power output	<82dB

The above data are measured and obtained under specific actual experimental conditions, and only for product description purposes. The data should not be interpreted as warranted characteristics in legal term. Ningbo Intermot (Ningbo Oil Control Hydraulic Co., Ltd.)reserves the rights to implement modifications without notice. All Partial or total reproduction and copy of such data without formal authorization is strictly

Ordering Code

*** ***** * * * *

- ***: Serial number of motor
  CM 16/24/54/82 Single-crank five-piston model
  CM 90/100/160 Twin-crank ten-piston model
  CM 230 Twin-crank fourteen-piston model
- *****: Motor displacement (ml/r)
  CM 16 series: 1600/1800/2000/2250
  CM 24 series: 2400/2800/3100
  CM 54 series: 3600/4500/5400
  CM 82 series: 6500/7000/7600/8200
  CM 90 series: 9000/9900/10800
  CM 100 series: 11300/13260/14560
  CM 160 series: 16450
  CM 230 series: 19500/21500/23000
- *: Output shaft option
  P: Parallel key; D: Standard spline;
  K: Customised Special option F: Internal involute spline to DIN 5480
- *: Motor rotation direction (view from motor output shaft)
  N: Standard direction (A port as inlet, clockwise; B port as inlet, anti-clockwise)
  S: Opposite direction (B port as inlet, clockwise; A port as inlet, anti-clockwise)
- *: Installation direction of oil distributor cover:
  A: Standard installation (see dimensional drawings of installation for the CM series of motors)
- *: Flushing
  T: with flushing
  W: without flushing

Installation and Maintenance Instructions:

Hydraulic motor must be operated in accordance with the instructions and maintained on a frequent basis as a precision hydraulic product.

1. Prior to installation, inspection on motor output shaft should be undertaken for flexibility. The motor must be fully filled with hydraulic oil and kept away from any wastes or pollution particles when stored for over 3 months.
2. Prior to the first-time startup of the motor, the casing of motor must be filled with sufficient hydraulic oil for lubrication of the dynamic parts and avoid emptying of the motor body.
3. The connection parts with the motor must be of abundant rigidity. Ensure the requirements on the radial size of motor flange and concentricity of shaft and connection part be fulfilled during installation.
4. The drain-line must be positioned in a way that the internal operating parts of motor shall be immersed in the hydraulic oil and operate with proper lubrication for longer service life.
5. Ensure that hydraulic oil of cleanliness NAS 1638 Class 9, is used with minimum filtration rating β10≥75; Range of hydraulic oil viscosity: 18-1000mm2/s; viscosity recommended: 30-50mm2/s.
6. Oil drain pipe shall be connected to the oil tank separately. In most cases, the back pressure of motor casing is 5bar.
7. Strictly ensure the cleanliness of the oil port connection, and keep away any waste or solid particles.
8. Service life of a motor can be prolonged by discharging or reducing the radial load of force on the output shaft.
9. Output shaft must be kept clean. Upon installation, the motor must be strapped tightened with hoisting wire and application of grease is forbidden.
10. Welding on motor casing or other metal parts connected thereto is forbidden.
11. Oil drain pipe shall be periodically checked for fluidity and oil status. Stop the machine immediately and perform a check in case of any abnormities.
12. Temperature of motor casing shall be controlled below 70℃. Installation of flushing is recommended to obtain optimal running of the motor.

Characteristics of CM16/24/54/82/90/100/160/230 series

1 High efficiency

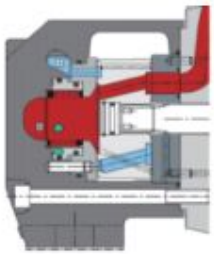
With pressurized hydraulic oil column transmitting force to the spherical surface of the driving shaft eccenter, the lips of each end of a telescopic cylinder seal against the spherical surface of the eccenter and the cylinder cover. This proven design minimises the mechanical contacts and leakage between the friction pairs of the critical parts and there are no oval wear on the moving parts and no direct side-forces on the cylinder joints. Rigorous selection and special treatments of materials, application of latest surface treatment technologies also contribute to the great performance of such design. Patented Oil distributor design with Dynamic Pressure Balance and Automatic Thermal Expansion Compensation functions result in the enhancement of the mechanical and Volumetric Efficiency of the design.the cylinder can only expand and retract linearly so there are no transverse components of the thrust. This means no oval wear on the moving parts and no side forces on the cylinder joints.

CM

NHM

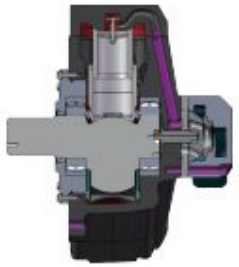
2 Low noise

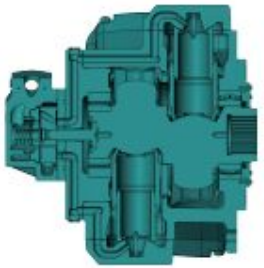
Such type of hydraulic motor is composed of 5/10 telescopic cylinders with lower vibrating frequency and featured by low noise and small inertia in operation.
All parts under friction are completely under dynamic balance and thus operation is more noise-free and smooth due to use of the state-of-the-art oil distributor. Special compensation groove design on the distribution valve helps buffer the impact force on the oil groove surfaces and avoid oil blocking. Moreover, with the application of optimized oil distribution devices, the moving and friction parts are in complete dynamic balance, which also enables the motor to run smoother and quieter.



3 High output torque

Well proven design incorporates high mechanical and volumetric efficiency, thus the output torque is higher compared to other designs with the same displacement. Moreover, continuous running pressure tolerance is also high than many other structures.



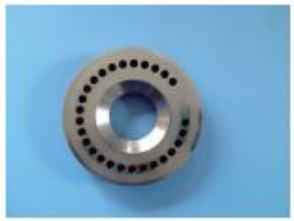


4 High startup torque and good low-speed stability

While working, all mechanical parts of the motor are in a state of self-lubrication and oil slick protection. Due to the specialty of the structure, frictions and impacts on the parts are minimized which results in the output of stable torque and rotation speed, even at startup with load.

5 Reliable performance

Due to the latest plasma coating technology incorporated in the surface of the spherical shaft eccenter and oil distributors, the novel design offers great performance with enhanced abrasion resistance, corrosion resistance, high temperature resistance, oxidation resistance, combined with reliability and long service life. Stemming from the equipment of the latest advanced oil distribution system, the twin-crank CM series design realizes the complicated oil distribution process for the dual-crank setting, which renders stable torque and speed with less internal leakage and higher efficiency. The sophisticated 180 ° dual-eccenter structure significantly reduces the radial forces on the bearings and enhances the stability and service life of the motor.



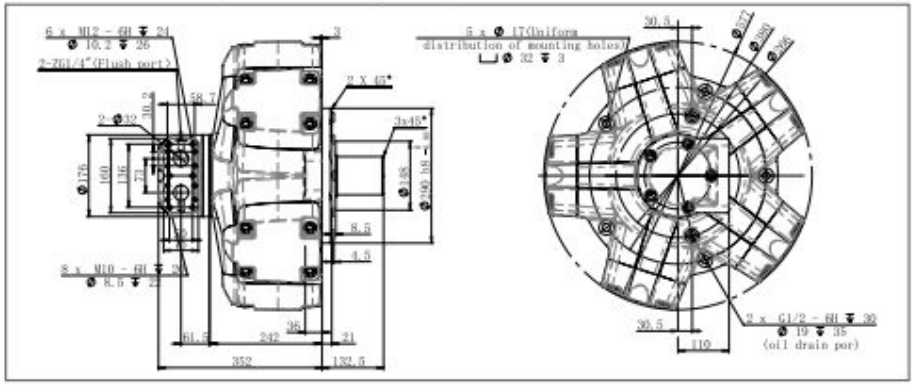
Technical parameters of CM series motor

Type	Displacement (ml/rev)	Unit Torque (Nm/Bar)	Rated Pressure (Bar)	Max. Pressure (Bar)	Max.Power (KW)	Rated Torque (NM)	Rated Speed (without flushing) (r/min)	Max. Speed (with flushing) (r/min)	Weight (kg)
CM16									
CM16-1600	1600	25.5	210	250	110	5350.3	210	240	212
CM16-1800	1800	28.7	210	250	115	6019.1	205	235	215
CM16-2000	2000	31.8	210	250	120	6687.9	200	230	218
CM16-2250	2250	35.8	210	250	125	7523.9	190	220	220
CM24									
CM24-2400	2400	38.2	210	250	155	8025.5	190	210	316
CM24-2800	2800	44.6	210	250	170	9363.1	180	200	320
CM24-3100	3100	49.4	210	250	185	10366.2	170	190	330
CM54									
CM54-3600	3600	57.3	210	250	185	12038.2	145	175	500
CM54-4500	4500	71.7	210	250	210	15047.8	130	145	520
CM54-5400	5400	86.0	210	250	210	18057.3	110	130	550
CM82									
CM82-6500	6500	103.5	210	250	250	21735.7	110	130	760
CM82-7000	7000	111.5	210	250	250	23407.6	100	120	770
CM82-7600	7600	121.0	210	250	250	25414.0	95	115	775
CM82-8200	8200	130.6	210	250	250	27420.4	90	110	780
CM90									
CM90-9000	9000	143.3	210	250	270	30095.5	110	130	800
CM90-9900	9900	157.6	210	250	285	33105.1	100	120	810
CM90-10800	10800	172.0	210	250	300	36114.6	90	110	820
CM100									
CM100-11300	11300	179.9	210	250	310	37786.6	90	110	1020
CM100-13260	13260	211.1	210	250	320	44340.8	80	100	1030
CM100-14560	14560	231.8	210	250	335	48687.9	70	90	1050
CM160									
CM160-16000	16450	261.9	210	250	335	55008.0	60	75	1080
CM230									
CM230-19500	19500	310.5	210	250	350	65207.0	60	65	1450
CM230-21500	21500	342.4	210	250	360	71894.9	55	60	1460
CM230-23000	23000	366.2	210	250	375	76910.8	50	55	1480
maximum value obtain with flushing									

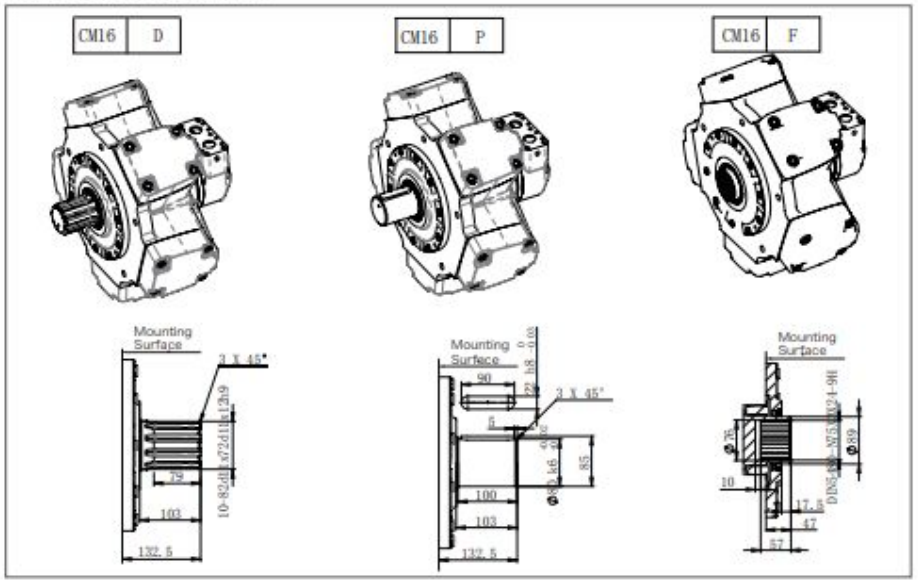
Installation Dimensions and output shaft options for CM16

CM16 - (1600/1800/2000/2250) radial piston LSHT hydraulic motor

External size of CM16 (standard configuration)



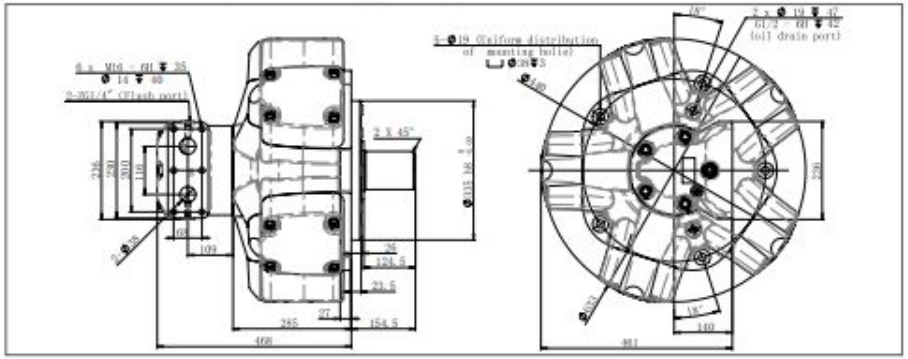
CM16 output shaft options



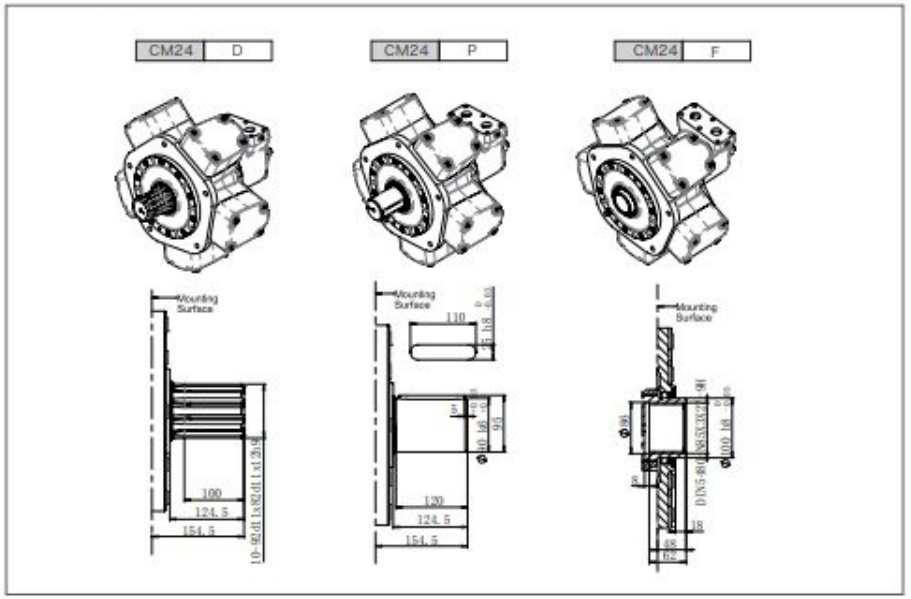
Installation Dimensions and output shaft options for CM24

CM24 - (2400/2800/3100) radial piston LSHT hydraulic motor

External size of CM24 (standard configuration)



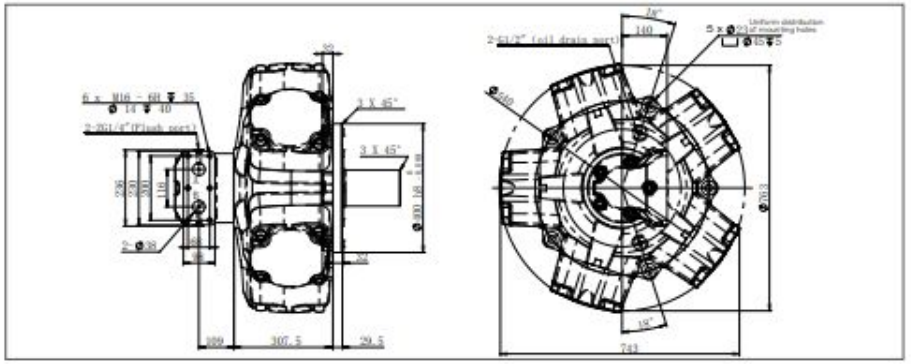
CM24 output shaft options



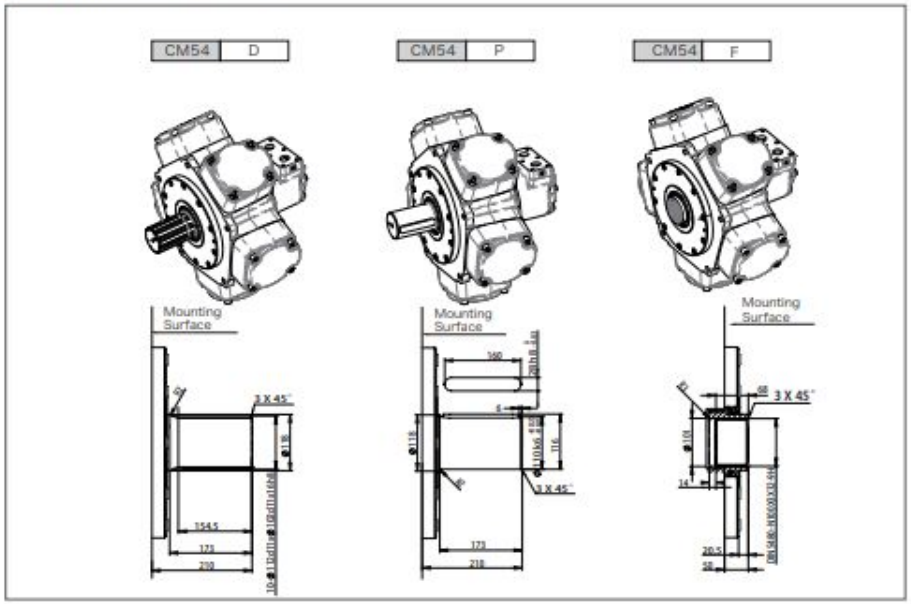
Installation Dimensions and output shaft options for CM54

CM54 - (3600/4500/5400) radial piston LSHT hydraulic motor

External size of CM54 (standard configuration)



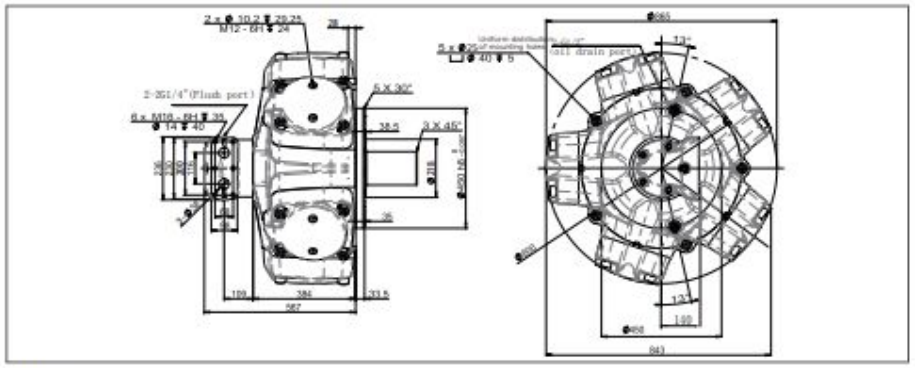
CM54 output shaft options



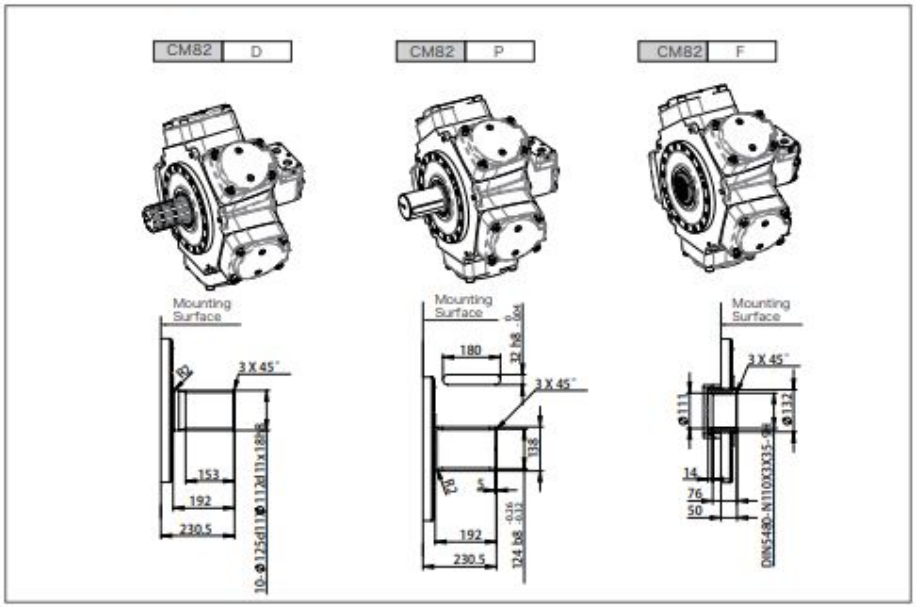
Installation Dimensions and output shaft options for CM82

CM82 - (6500/7000/7600/8200) radial piston LSHT hydraulic motor

External size of CM82 (standard configuration)



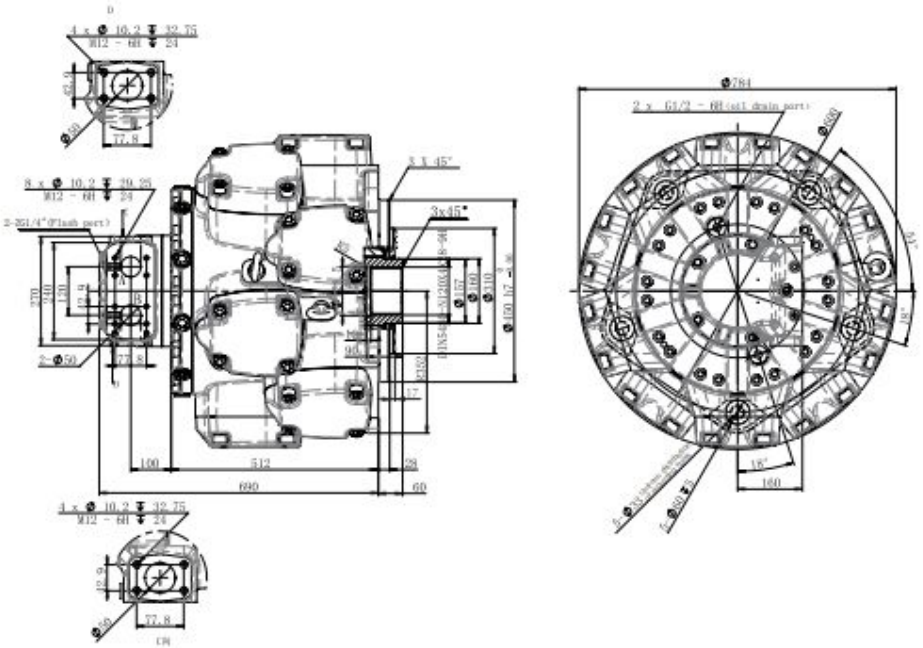
CM82 output shaft options



Installation Dimensions and output shaft options for CM90

CM90 - (9000/9900/10800) radial piston LSHT hydraulic motor

External size of CM90 (standard configuration)

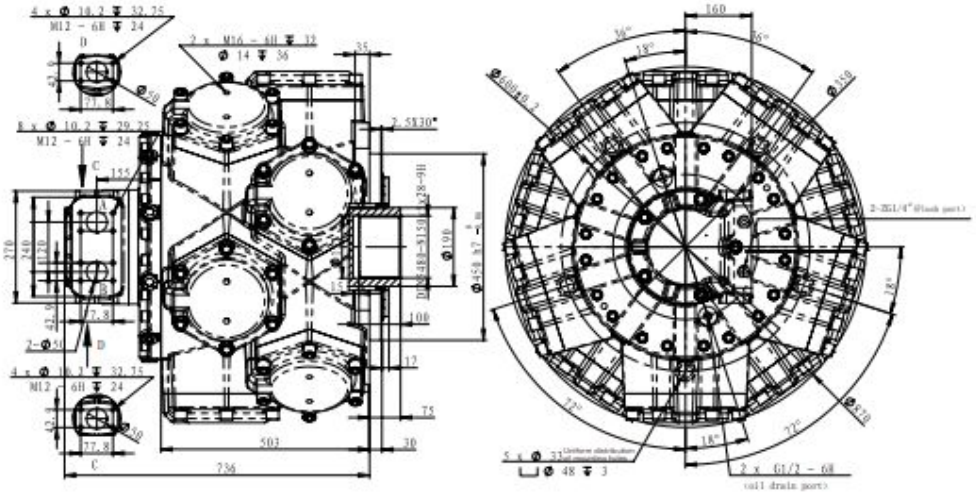


NINGBO OIL CONTROL HYDRAULIC CO.,LTD.

Installation Dimensions and output shaft options for CM100/CM160

CM100-(11300/13200/14560) / CM160-16000 radial piston LSHT hydraulic motor

External size of CM100 / CM160 (standard configuration)

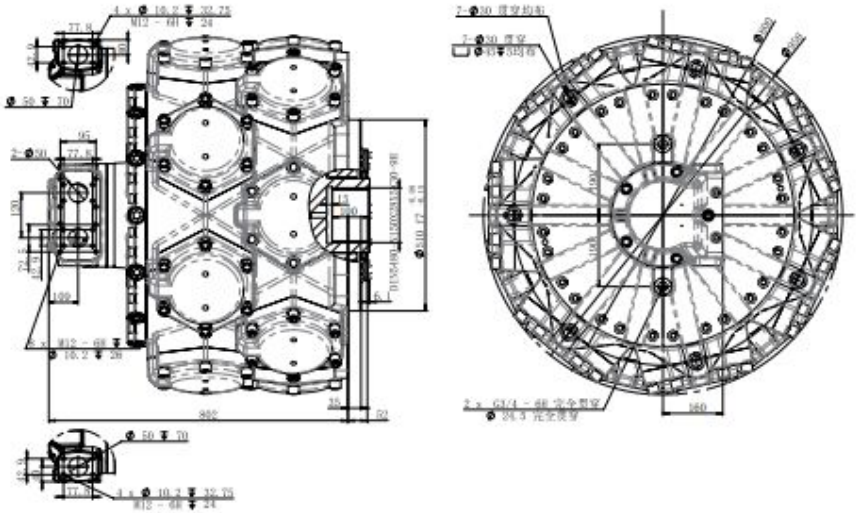


NINGBO OIL CONTROL HYDRAULIC CO.,LTD.

Installation Dimensions and output shaft options for CM230

CM230-(19500/21500/2300) radial piston LSHT hydraulic motor

External size of CM230 (standard configuration)



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