

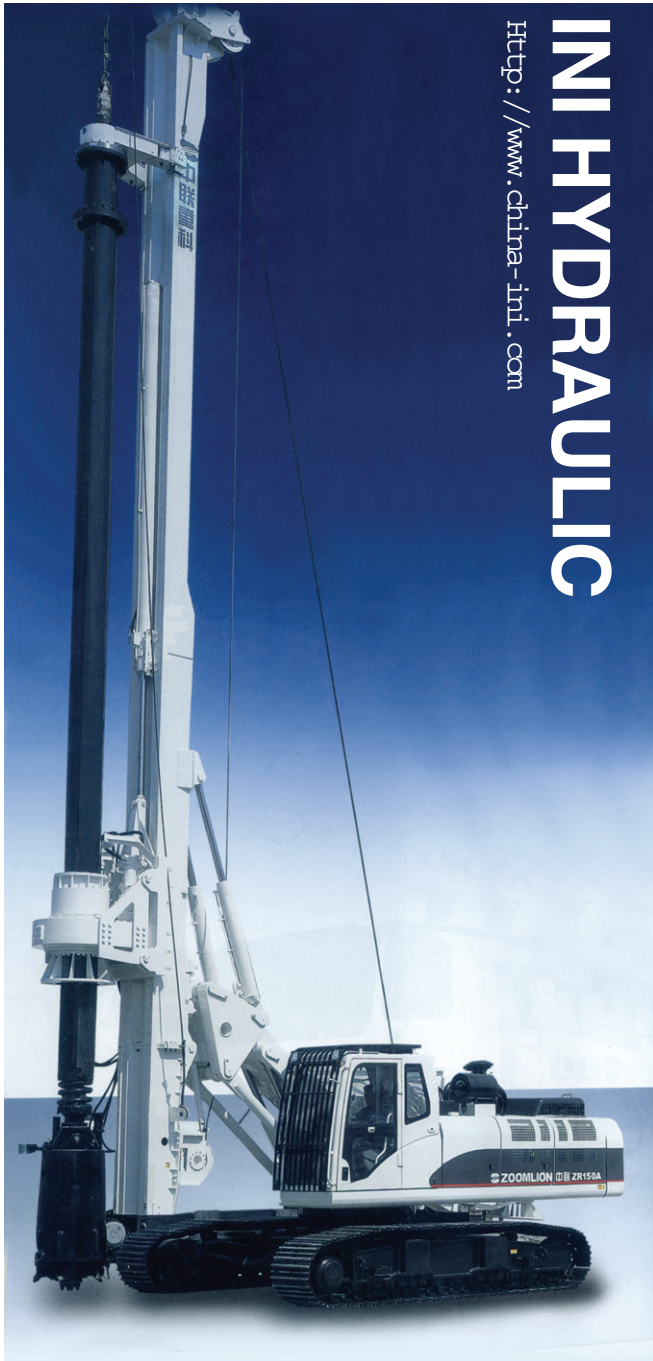
ini[®] NINGBO DAGANG INI
HYDRAULIC CO.,LTD.



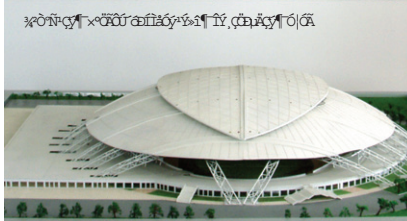
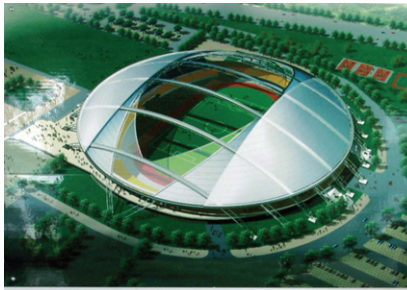
>>> [Http: //www.china-ini.com](http://www.china-ini.com)

2010 Catalogue

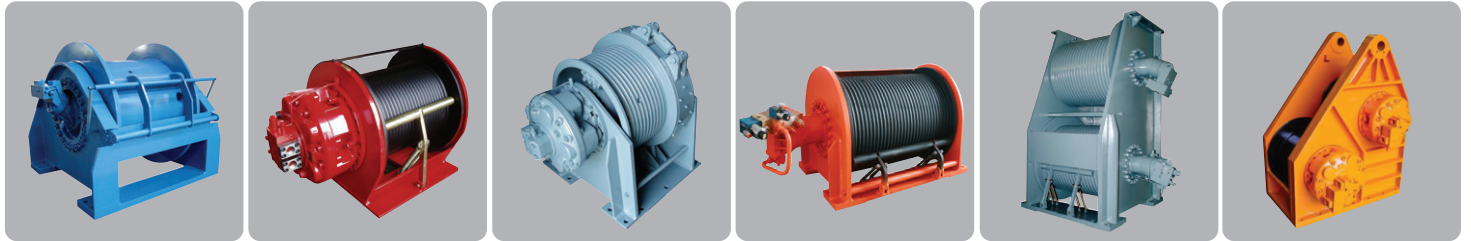
Product Shows & Applications



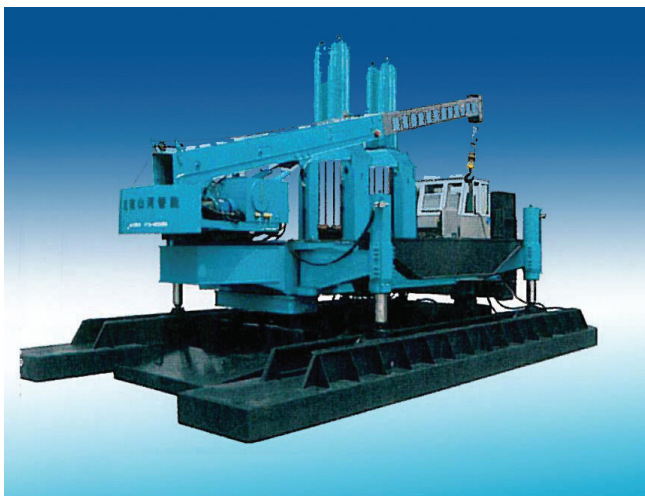
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Product Shows & Applications



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Brief Introduction



NINGBO DAGANG INI HYDRAULIC CO., LTD is situated in a state-level economic and technological development zone of BEILUN district, NINGBO. The factory covers almost 40,000 m², with 38,000 m² building area. The registered capital is 6,500,000 USD, and the total investment is 15,000,000 USD. Currently, the company is staffed with 400 employees, 20% among whom are professional technicians. The company has a strong R&D team, led by the general manager—a professorate senior engineer, who takes special allowance from State Council. The team also includes one doctor, two masters, senior engineers, engineers and engineer trainees, and two retired German experts from ZF GROUP as honor employees. They will come to the factory to help and give advices once a year. Up to now, the company owns eight invention patents and thirty practical innovation and figure patents. Several other patents are under reviewing. The company is specialized in manufacturing of electro-hydraulic proportional valves, hydraulic motors, hydrostatic drives, hydraulic winches, planetary gearboxes, high accuracy rotary flow dividers and the whole set of hydraulic system. These patent products are widely used in engineering machinery, petroleum, mining industry, geological exploration, ships, metallurgy, light industry, agriculture, landscape, environment and military industry. Now we are stepping into the international market, and our products are being exported to Southeast Asia, Middle East, Germany, USA, Netherlands, Turkey, India, Russia, Korea and other countries and regions around the world.

The company has more than 150 advanced manufacturing equipment, half of which were imported. 60% of all the machines are CNC, including three-dimension coordinate measuring machine, universal gear measuring machine, digital ultrasonic inspection machine, and universal tool microscope. A static hydrostatic drives lab and 12 factory test stands were established for product testing. The company passed ISO 9001 quality system certification, CCS certification and CE certification. The annual sales volume reaches 250 million RMB, with a production capacity of over 300 million RMB. The company was appraised as a state-level high-tech enterprise and is a patent pioneer enterprise.

● INM Series Hydraulic Motors

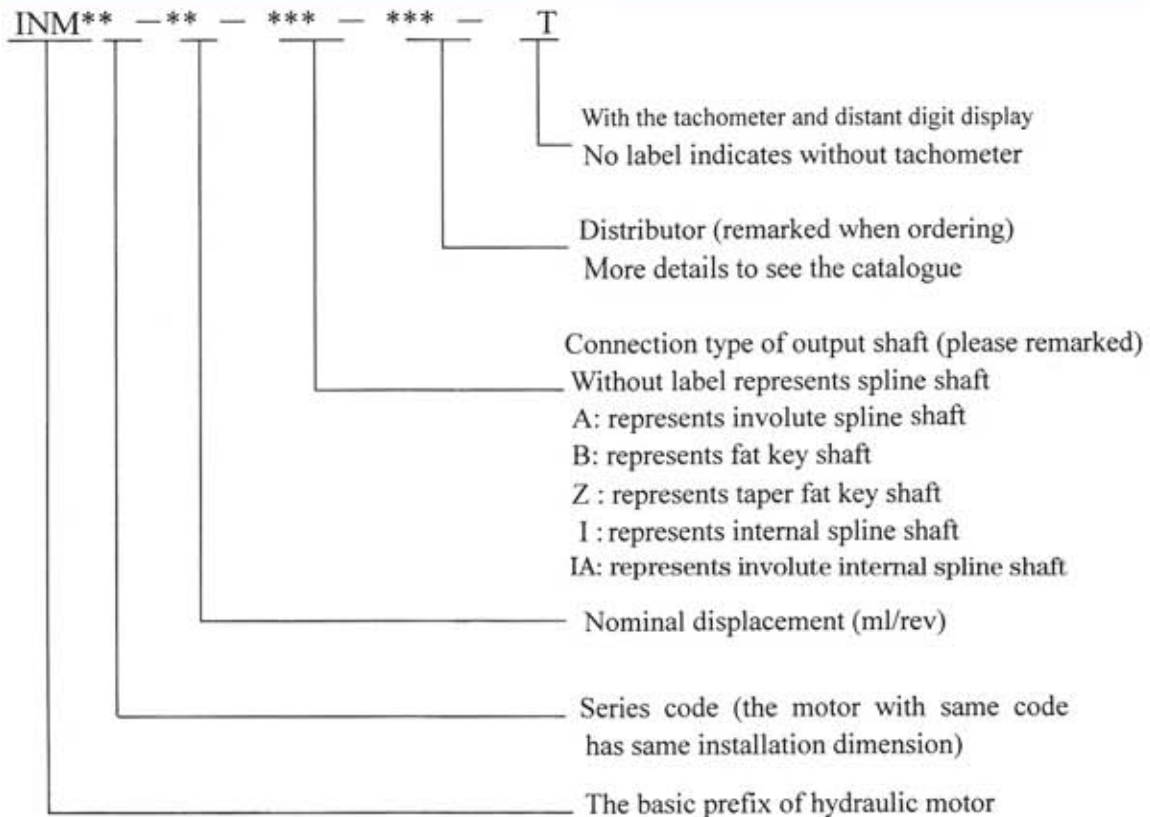
1. Brief Introduction

INM series motors are a result of the many years' of experience based on Italy technology, and incorporate a number of design variations with respect to the technology intended to increase the strength of the motor casings and the load capacity of the internal dynamic components. The result is the series of motors with high continuous power ratings, both because of the reduced internal specific loads, and because of the high mechanical and volumetric efficiency that contribute in reducing the amount of heat produced and therefore also the negative effects associated with it. The main characteristics are as follows:

- (1) The side loading between the piston and swiveling cylinder has been eliminated; the hydrostatic balance is built between the piston feet; the pistons transmit load to the shaft via a rolling bearing. All above reduces the friction loss in the load transmission. Therefore INM series hydraulic motor features high mechanical efficiency and high starting torque (above 0.92).
- (2) Rotary axial distributor (patent technology) ensures simply and reliable performance, good sealing capability, low leakage. The plastic piston ring between pistons and cylinder reduces the leakage, so the volumetric efficiency of motor is very high (more than 0.99).
- (3) Due to the reduced friction loss in structure and improved sealing capability, so the motor can operate at low speeds with a high degree of speed stability, even if at 1r/min of speed. Hereby the speed control range is wide (the speed control ratio is up to 1000).
- (4) The pistons and bearing sleeve is matched well via supporting ring to eliminate the clearance. So the series motors can run in pump condition. When the inlet port and outlet port is closed, the motors could run in freewheeling condition.
- (5) The working pressure of the series motor is very high, and the maximum pressure is up to 45MPa. The motor also features light weight, small size and high specific power,
- (6) Because of simple structure, reasonable design, and using large load capacity bearing, the series motors has many excellent features as follow good reliability, long lifetime and low noise. transmission shaft endure radial load. Circumrotate way could be reverse.

Due to above these advantages, it has been widely applied in all kinds of hydraulic transmission system such as plastic injection machine, ship and deck machinery, construction machinery and equipment, hoist and transport vehicle, heavy metallurgical machinery, petroleum and mine machine, light industry equipment, lath, light industry equipment and drilling machine etc. In particular, it can be well available in driving screw rod of injection machine, hoisting winches and capstan, and driving various slew drives.

2. Model options



3. Options example

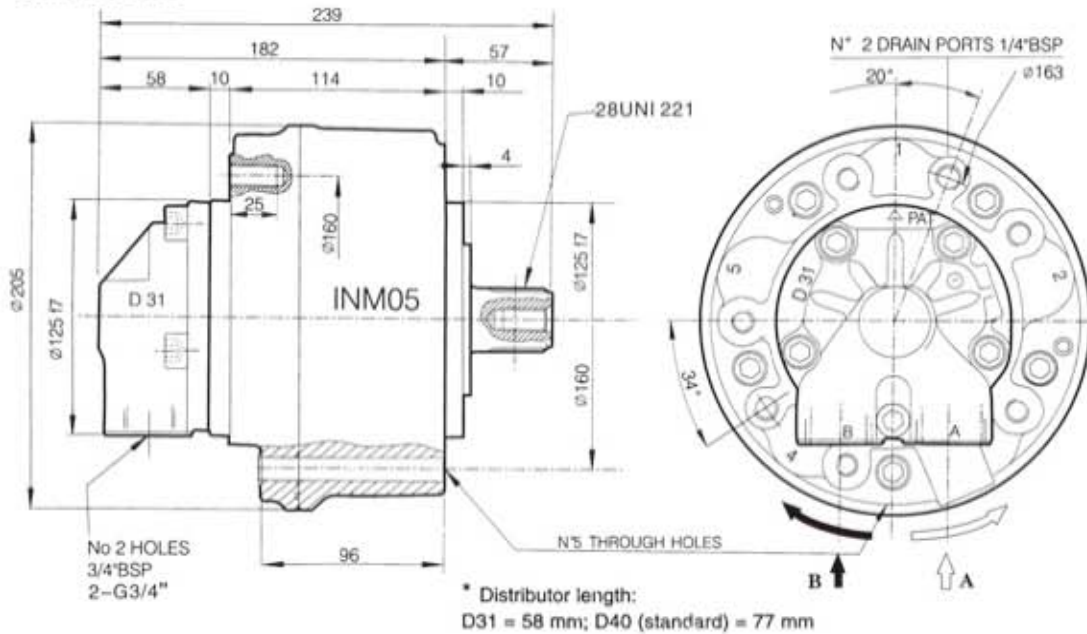
INM2-400BD31 represents that the motor is the 2 series unit of INM hydraulic motor. The nominal displacement is 400ml/rev, the output shaft is flat key shaft, and distributor model is D31 without tachometer. Please fill in the complete code options when ordering. If there are any specific requests, please noted in detail in delivery contract or contact our company

4. INM Series Hydraulic Motors Technical Data

TYPE	THEORIC DISPLACEMENT (ml/r)	RATED PRESSURE (MPa)	PEAK PRESSURE (MPa)	RATED TORQUE (N · m)	SPECIFIC TORQUE (N · m/Mpa)	CONT SPEED		WEIGHT (kg)
							Max. SPEED (r/min)	
INM05-60	59	25	45	235	9.4	1-700	1000	22
INM05-75	74	25	42.5	295	11.8	1-700	1000	
INM05-90	86	25	37.5	343	13.7	1-700	1000	
INM05-110	115	25	40	458	18.3	1-650	900	
INM05-130	129	25	37.5	513	20.5	1-650	900	
INM05-150	151	25	32.5	600	24	1-650	900	
INM05-170	166	25	32.5	660	26.4	1-600	800	
INM05-200	191	25	28	760	30.4	1-600	800	
INM1-100	99	25	42.5	385	15.4	1-550	1000	31
INM1-150	154	25	40	600	24	1-550	1000	
INM1-175	172	25	37.5	670	26.8	1-550	900	
INM1-200	201	25	35	785	31.4	1-550	800	
INM1-250	243	25	35	950	38	1-450	700	
INM1-300	290	25	30	1130	45.2	1-350	650	
INM1-320	314	25	28	1225	49	1-350	600	
INM1-350	340	25	28	1327	53	1-300	600	
INM2-200	192	25	42.5	750	30	0.7-550	800	51
INM2-250	251	25	42.5	980	39.2	0.7-550	800	
INM2-300	304	25	40	1188	47.5	0.7-500	750	
INM2-350	347	25	37.5	1355	54.2	0.7-500	750	
INM2-420	425	25	35	1658	66.3	0.7-450	750	
INM2-500	493	25	35	1923	76.9	0.7-450	700	
INM2-600	565	25	30	2208	88.3	0.7-450	700	
INM2-630	623	25	28	2433	97.3	0.7-400	650	
INM3-425	426	25	42.5	1660	66.4	0.5-300	650	87
INM3-500	486	25	42.5	1895	75.8	0.5-450	600	
INM3-600	595	25	40	2320	92.8	0.5-450	575	
INM3-700	690	25	35	2700	108	0.5-400	500	
INM3-800	792	25	35	3100	124	0.5-400	500	
INM3-900	873	25	35	3400	136	0.5-350	400	
INM3-1000	987	25	28	3850	154	0.5-300	350	
INM4-600	616	25	40	2403	96.1	0.4-400	550	120
INM4-800	793	25	40	3100	124	0.4-350	550	
INM4-900	904	25	37.5	3525	141	0.4-325	450	
INM4-1000	1022	25	35	4000	160	0.4-300	400	
INM4-1100	1116	25	35	4350	174	0.4-275	400	
INM4-1300	1316	25	28	5125	205	0.4-225	350	
INM5-800	807	25	42.5	3150	126	0.3-325	450	
INM5-1000	1039	25	42.5	4050	162	0.3-300	450	175
INM5-1200	1185	25	40	4625	185	0.3-300	400	
INM5-1300	1340	25	40	5225	209	0.3-300	400	
INM5-1450	1462	25	37.5	5700	228	0.3-275	350	
INM5-1600	1634	25	37.5	6350	254	0.3-250	300	
INM5-1800	1816	25	35	7075	283	0.3-250	300	
INM5-2000	2007	25	35	7825	313	0.3-200	250	
INM6-1700	1690	25	45	6600	264	0.2-250	400	275
INM6-2100	2127	25	40	8300	332	0.2-225	350	
INM6-2500	2513	25	35	9800	392	0.2-200	300	
INM6-3000	3041	25	30	11875	475	0.2-175	250	
INM7-1200	1214	25	30	4125	165	0.2-325	380	310
INM7-2000	2007	25	35	7975	319	0.2-350	450	
INM7-2500	2526	25	35	10050	402	0.2-300	350	
INM7-3000	2985	25	35	11877	475	0.2-250	300	
INM7-3300	3290	25	35	13075	523	0.2-220	275	
INM7-3600	3611	25	32	14350	574	0.2-200	250	
INM7-4300	4298	25	30	17100	684	0.2-175	225	

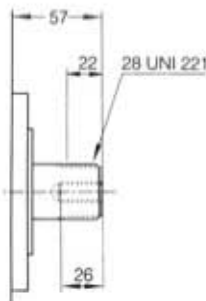
5. INM05 Series Hydraulic Motors

DIMENSIONS

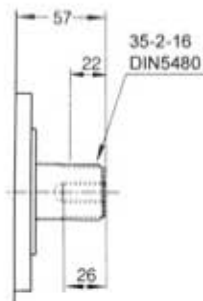


SHAFTS

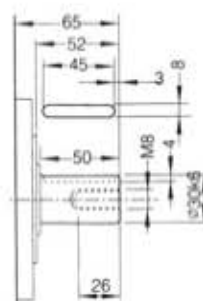
Splined



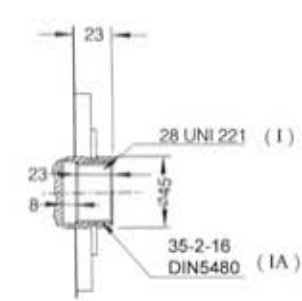
Splined A



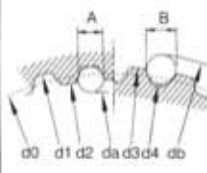
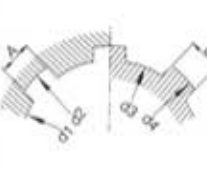
Cylindrical B



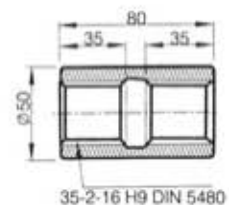
Internal spline I, IA



SPLINE DATA

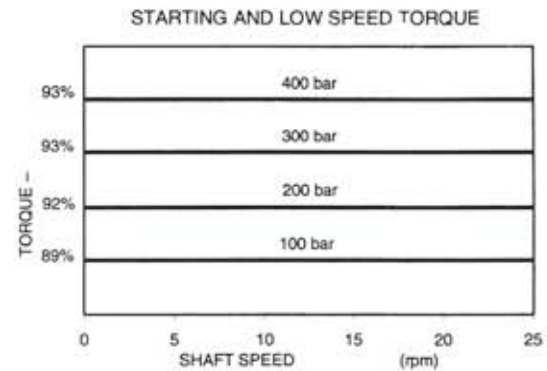
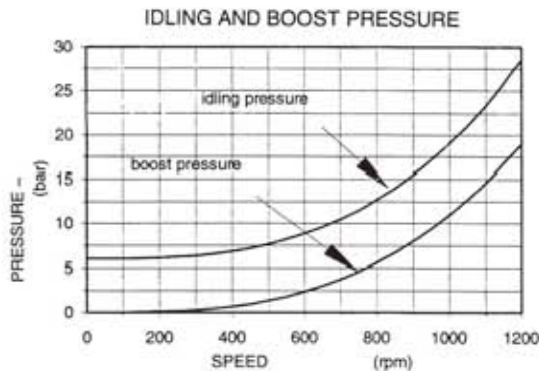
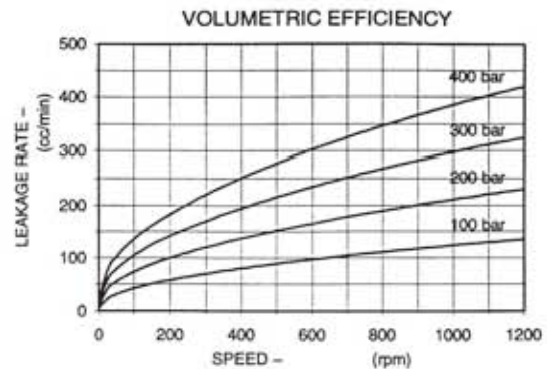
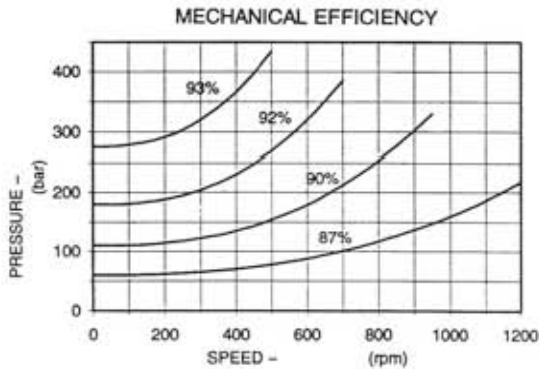
35-2-16 DIN 5480		28 UNI 221 (6-28-34) DIN 5463	
	d0 $\phi 32.0$		d1 $\phi 28.0^{+0.021}_{-0}$ H7
	d1 $\phi 35.0^{+0.520}_{+0}$ H14		d2 $\phi 34.1^{+0.180}_{+0}$ H11
	d2 $\phi 31.0^{+0.160}_{+0}$ H11		A 7.0 $^{+0.028}_{-0.013}$ F7
	A $\phi 3.5$		d3 $\phi 28.0^{-0.007}_{-0.020}$ g6
	da $\phi 27.711$ H11		d4 $\phi 34.0^{-0.065}_{-0.160}$ h14
	d3 $\phi 34.6^{-0}_{-0.160}$ h11		B 7.0 $^{-0.013}_{-0.028}$ f7
	d4 $\phi 30.6^{-0}_{-0.520}$ h14		
	B $\phi 4.0$		
	db $\phi 39.000$ fb		

ADAPTORS



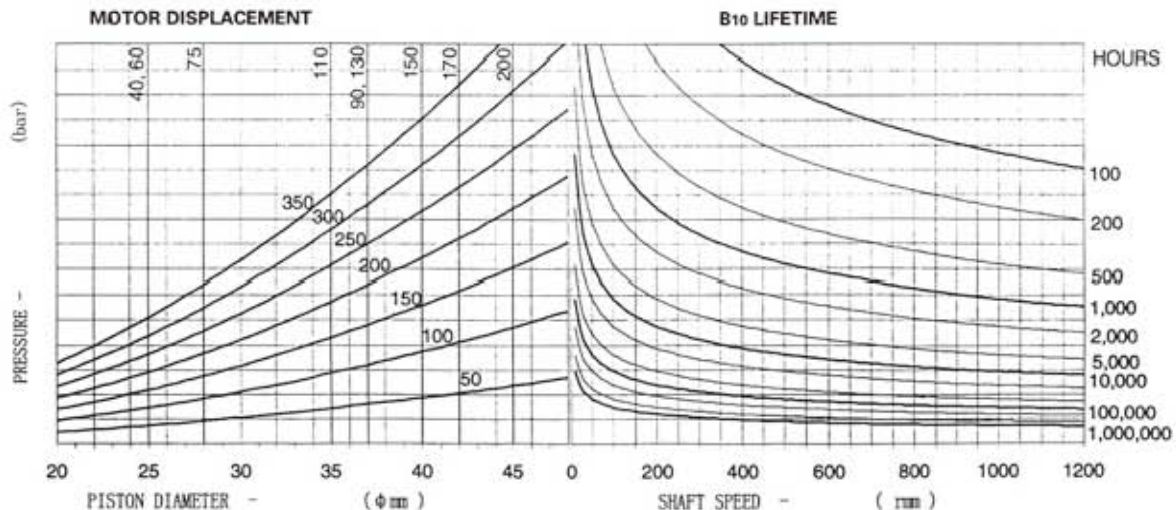
PERFORMANCE

The graphs indicate the typical performance characteristics of the **150 cc** motor operating with mineral oil with viscosity 40 cSt at 50 °C.



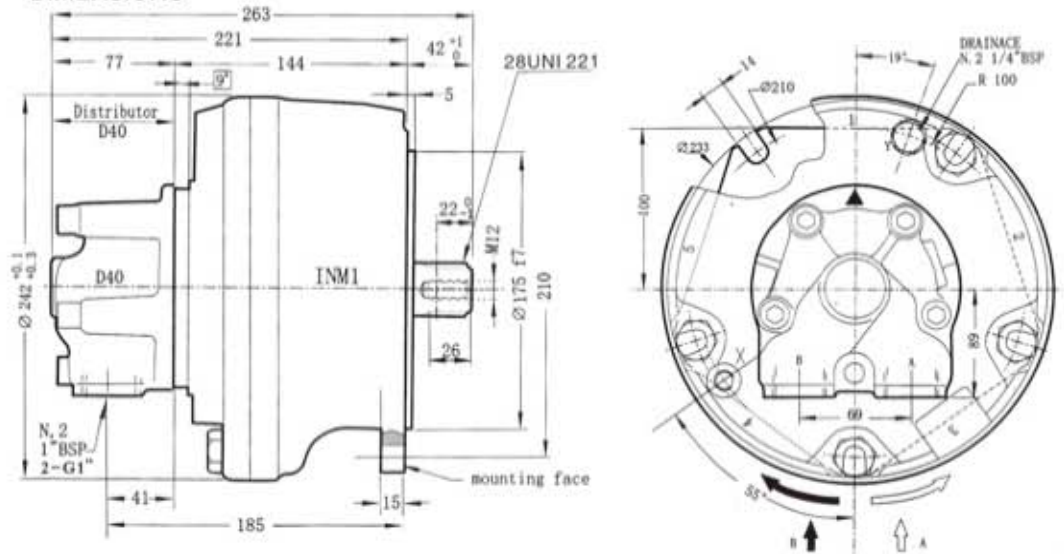
BEARING LIFETIME

The graph refers to the motor with the optional roller bearings (option H). Note that the average lifetime of a bearing (B_{50} lifetime) is approximately 5 times the B_{10} lifetime.



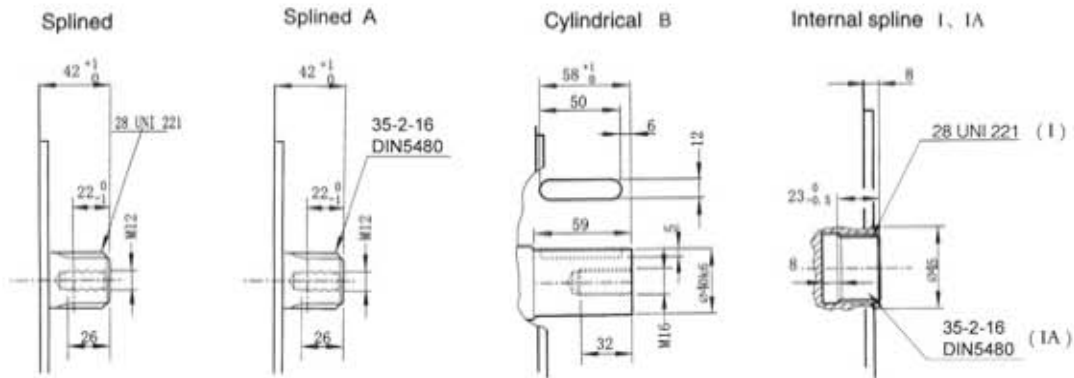
6. INM1 Series Hydraulic Motors

DIMENSIONS



Flange and shaft dimensions are the same as for GM1, M1 and P1 series motors

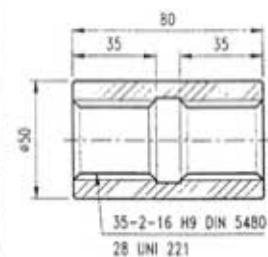
SHAFTS



SPLINE DATA

35-2-16 DIN 5480		28 UNI 221 (6-28-34 DIN 5463)	
	d0 $\varnothing 32.0$		d1 $\varnothing 28.0^{+0.021} H7$
d1 $\varnothing 35.0^{+0.030} H14$	d2 $\varnothing 31.0^{+0.030} H11$	d2 $\varnothing 34.1^{+0.030} H11$	A 7.0 $^{+0.038} F7$
d2 $\varnothing 31.0^{+0.030} H11$	A $\varnothing 3.5$	d3 $\varnothing 28.0^{+0.027} H6$	d3 $\varnothing 28.0^{+0.027} H6$
da $\varnothing 27.711 H11$	d3 $\varnothing 34.6^{+0.030} h11$	d4 $\varnothing 34.0^{+0.045} h14$	d4 $\varnothing 34.0^{+0.045} h14$
d3 $\varnothing 34.6^{+0.030} h11$	d4 $\varnothing 30.6^{+0.030} h14$	B 7.0 $^{+0.038} f7$	B 7.0 $^{+0.038} f7$
d4 $\varnothing 30.6^{+0.030} h14$	B $\varnothing 4.0$		
B $\varnothing 4.0$	db $\varnothing 39.000 f8$		
db $\varnothing 39.000 f8$			

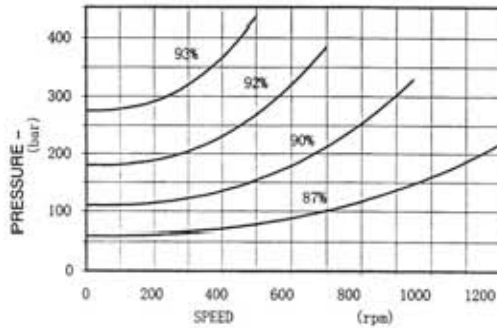
ADAPTORS



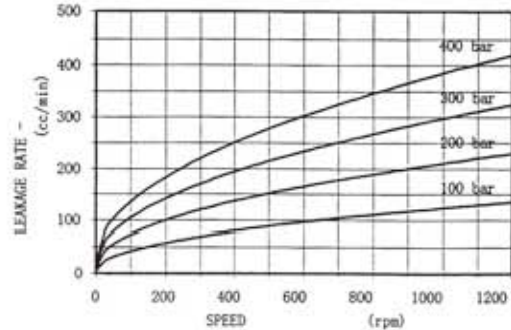
PERFORMANCE

The graphs indicate the typical performance characteristics of the **150 cc** motor operating with mineral oil with viscosity 40 cSt at 50 °C.

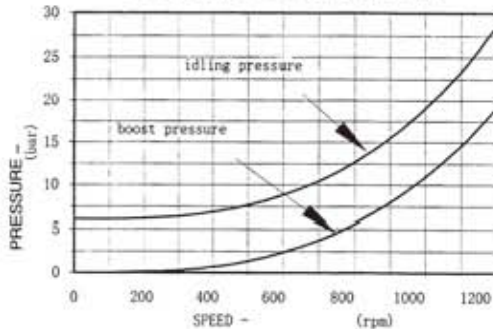
MECHANICAL EFFICIENCY



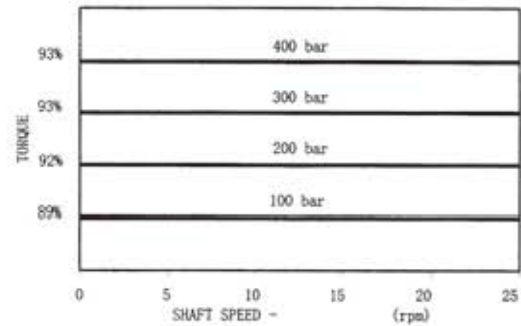
VOLUMETRIC EFFICIENCY



IDLING AND BOOST PRESSURE



STARTING AND LOW SPEED TORQUE

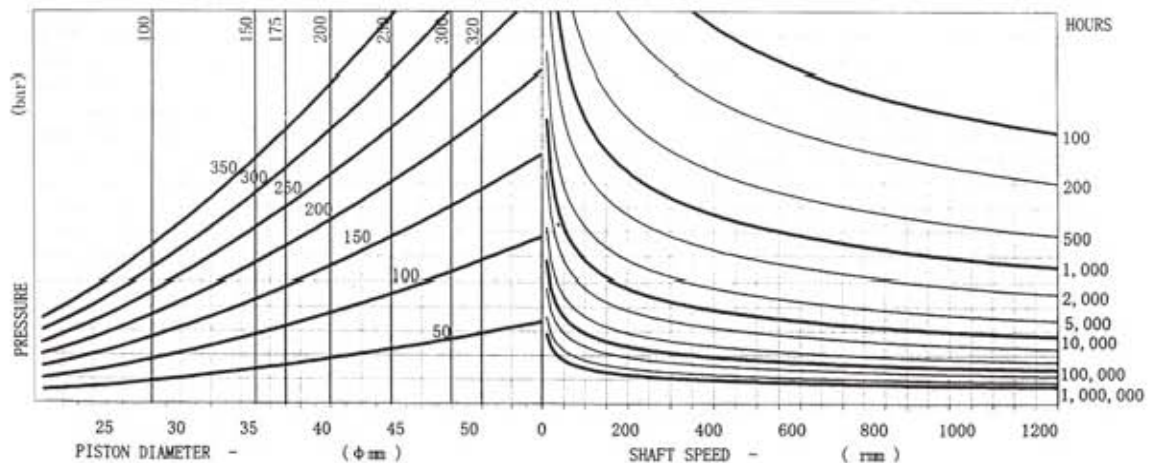


BEARING LIFETIME

The graph refers to the motor with the optional roller bearings (option H) recommended for most applications. Note that the average lifetime of a bearing (B_{10} lifetime) is approximately 5 times the B_{10} lifetime.

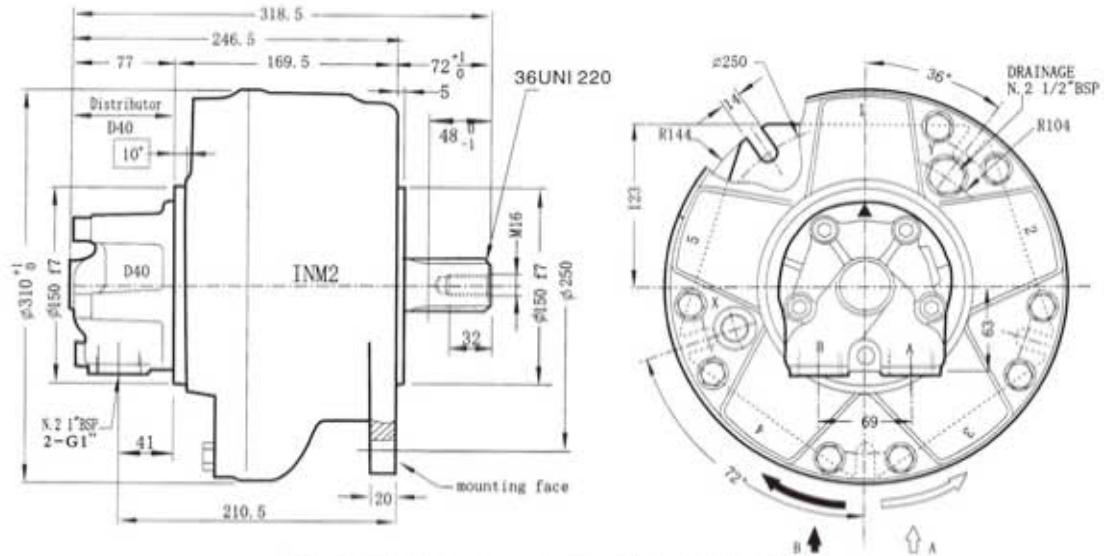
MOTOR DISPLACEMENT

B_{10} LIFETIME



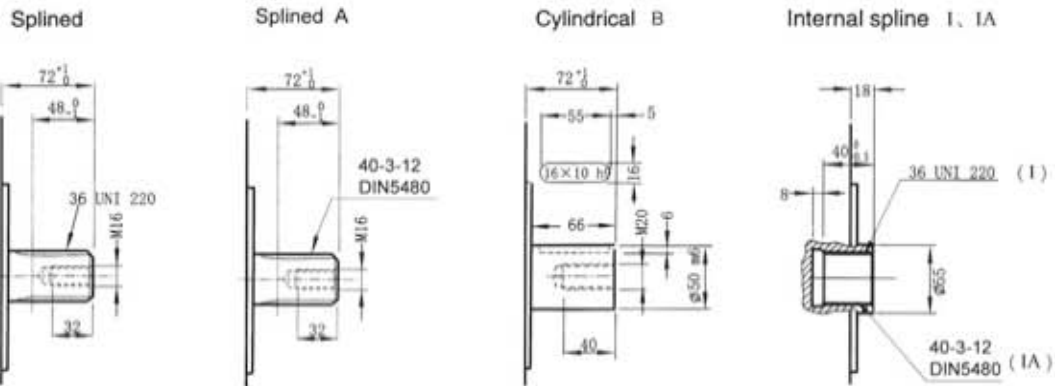
7. INM2 Series Hydraulic Motors

DIMENSIONS



Flange and shaft dimensions are the same as for GM2, M3 and P3 series motors.

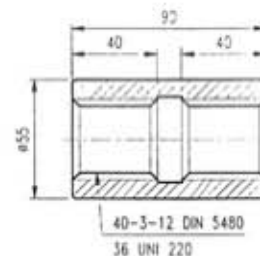
SHAFTS



SPLINE DATA

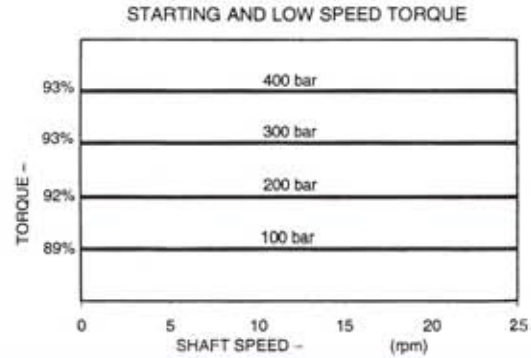
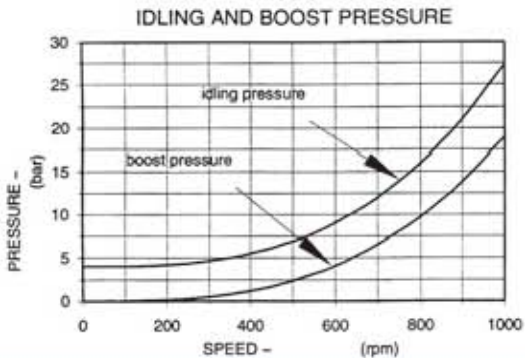
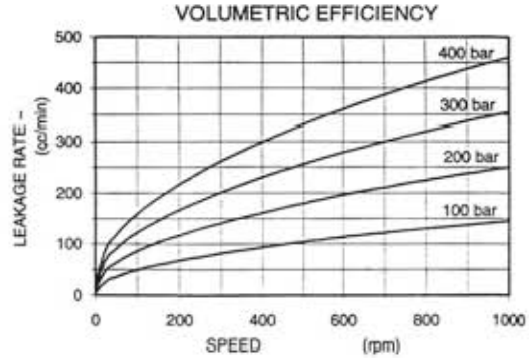
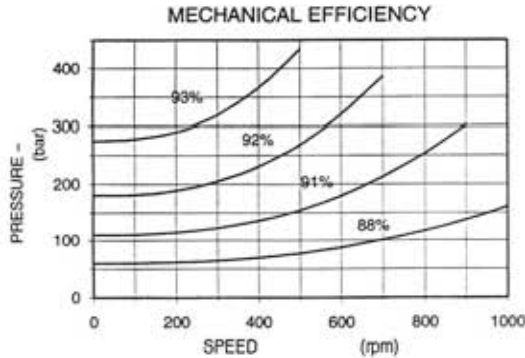
40-3-12 DIN 5480		36 UNI 220 (DIN 5462)		
	d0	∅36.0	d1	∅36.0 ^{+0.025} H7
	d1	∅40.0 ^{+0.030} H14	d2	∅40.0 ^{+0.030} H11
	d2	∅34.0 ^{+0.030} H11	A	7.0 ^{+0.008} f7
	A	∅5.25	d3	∅36.0 ^{+0.008} g6
	da	∅28.964 H11	d4	∅40.0 ^{+0.030} d11
	d3	∅39.4 ^{+0.030} h11	B	7.0 ^{+0.008} f7
	d4	∅33.4 ^{+0.030} h14		
	B	∅6.0		
	db	∅45.989 f8		

ADAPTORS



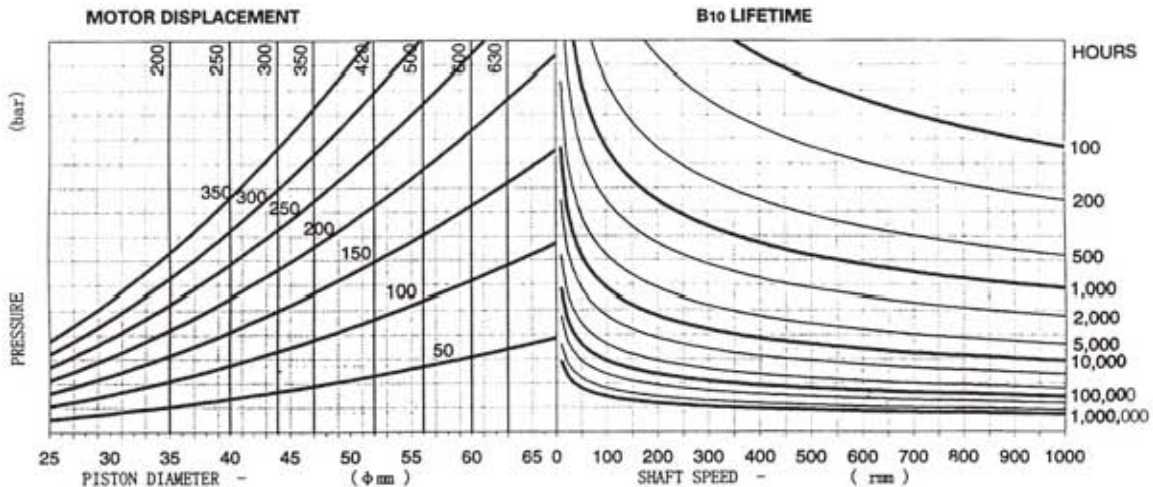
PERFORMANCE

The graphs indicate the typical performance characteristics of the **300cc** motor operating with mineral oil with viscosity 40 cSt at 50 °C.



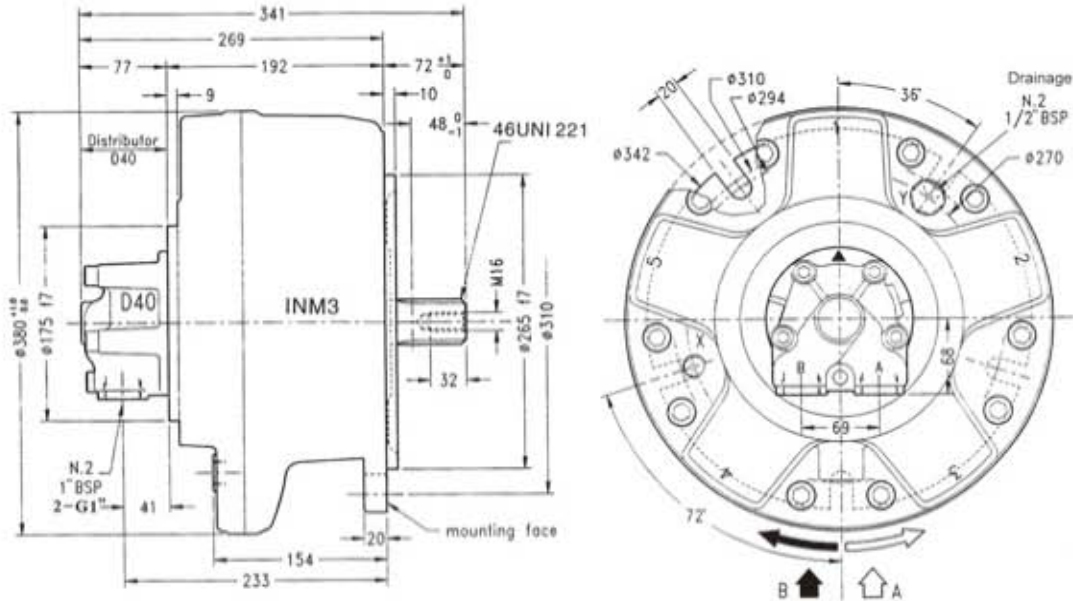
BEARING LIFETIME

The graph refers to the motor with the optional roller bearings (option H) recommended for most applications. Note that the average lifetime of a bearing (B_{50} lifetime) is approximately 5 times the B_{10} lifetime.



8. INM3 Series Hydraulic Motors

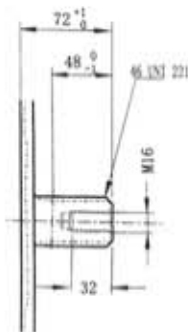
Flange dimensions are as in M5 series motors, shaft dimensions are as in M3 series motors



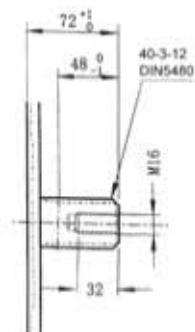
Available also GM3 completely interch.

SHAFTS

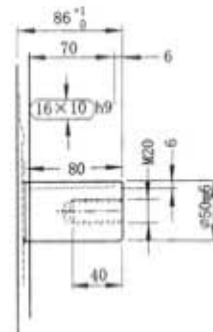
Splined



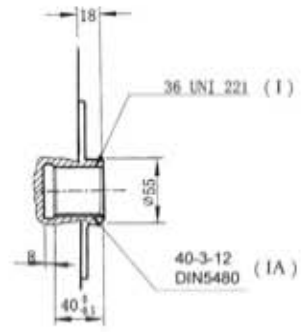
Splined A



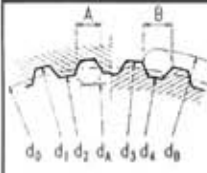
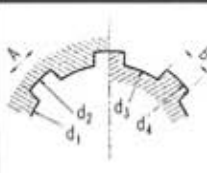
Cylindrical B



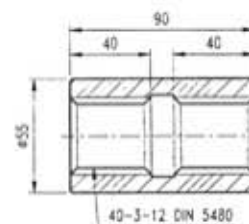
Internal spline I, IA



SPLINE DATA

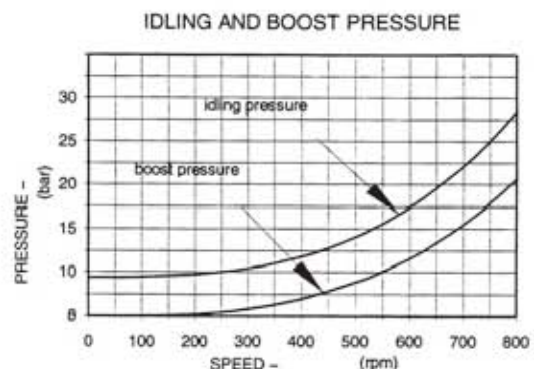
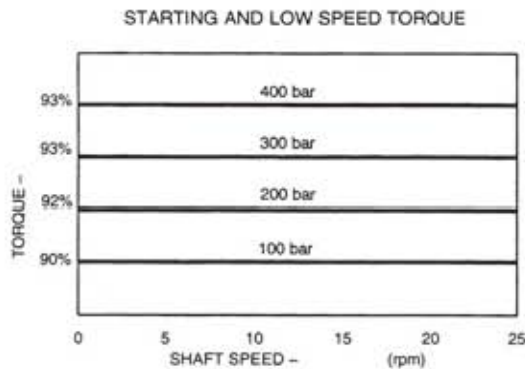
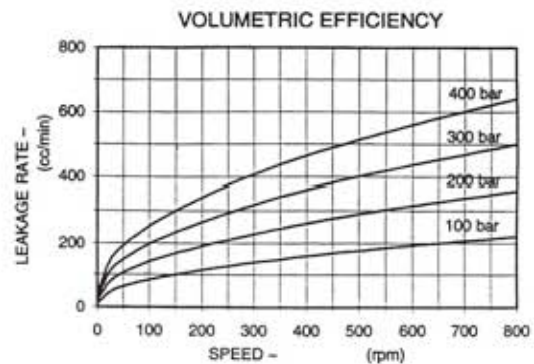
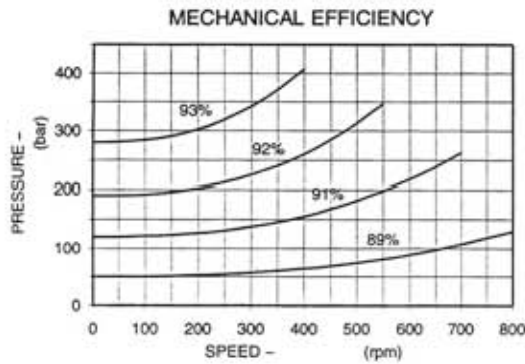
40-3-12 DIN 5480		46 UNI 221 (8-46-54 DIN 5463)	
	d0 $\varnothing 36.0$		d1 $\varnothing 46.0$ $^{+0.008}$ H7
	d1 $\varnothing 40.0$ $^{+0.020}$ H14		d2 $\varnothing 54.0$ $^{+0.010}$ H11
	d2 $\varnothing 34.0$ $^{+0.010}$ H11		A 9.0 $^{+0.008}$ F7
	A $\varnothing 5.25$		d3 $\varnothing 46.0$ $^{+0.008}$ g6
	da $\varnothing 28.964$ H11		d4 $\varnothing 54.0$ $^{+0.010}$ d11
	d3 $\varnothing 39.4$ $^{+0.010}$ h11		B 9.0 $^{+0.008}$ f7
	d4 $\varnothing 33.4$ $^{+0.010}$ h14		
	B $\varnothing 6.0$		
	db $\varnothing 45.989$ f8		

ADAPTORS



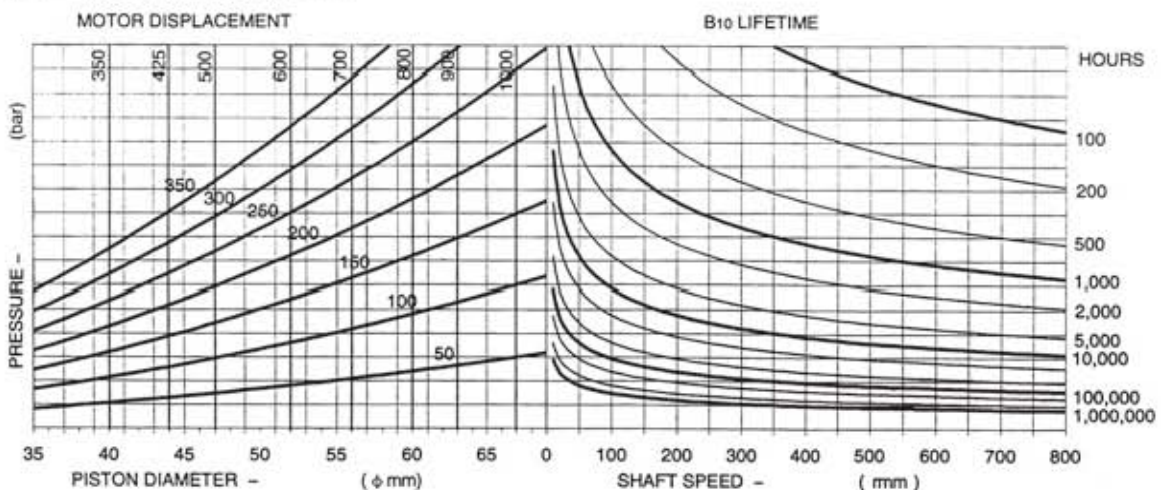
PERFORMANCE

The graphs indicate the typical performance characteristics of the **600cc** motor operating with mineral oil with viscosity 40 cSt at 50 °C.



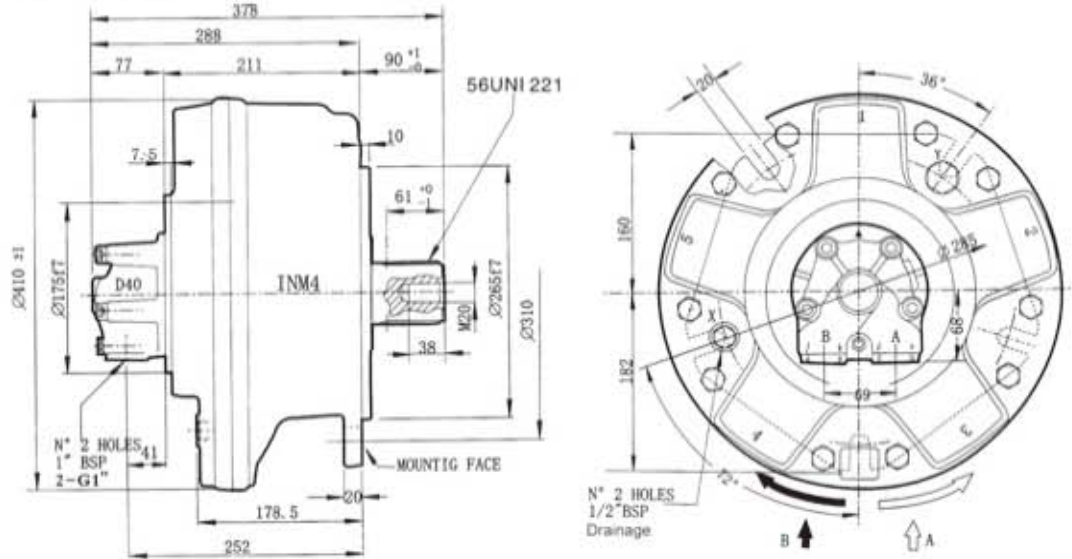
BEARING LIFETIME

The graph refers to the motor with the standard roller bearings.
 Note that the average lifetime of a bearing (B_{50} lifetime) is approximately 5 times the B_{10} lifetime.



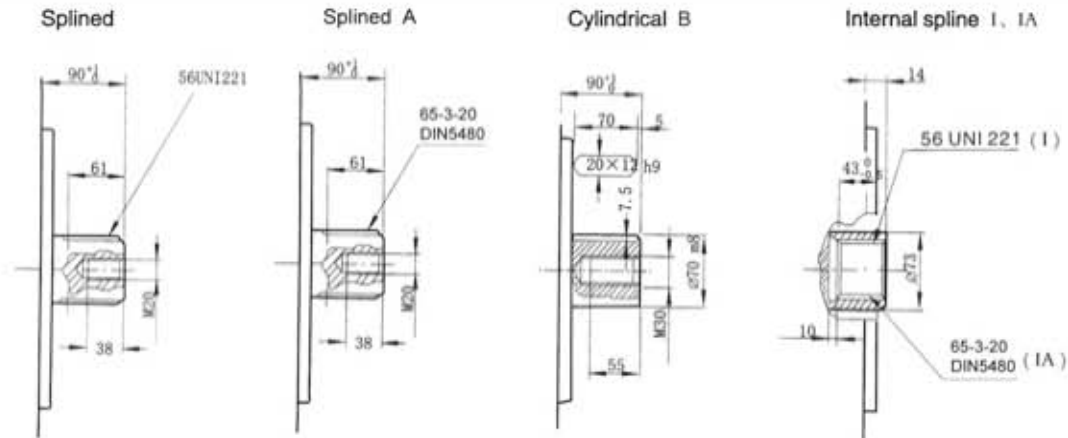
9. INM4 Series Hydraulic Motors

DIMENSIONS



Flange and shaft dimensions are as in GM4, M5 series motors

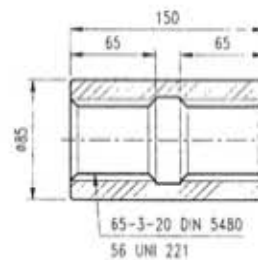
SHAFTS



SPLINE DATA

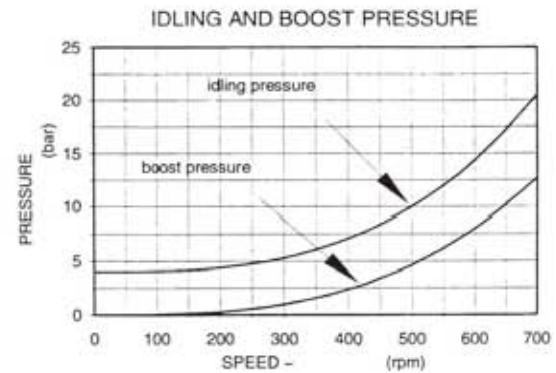
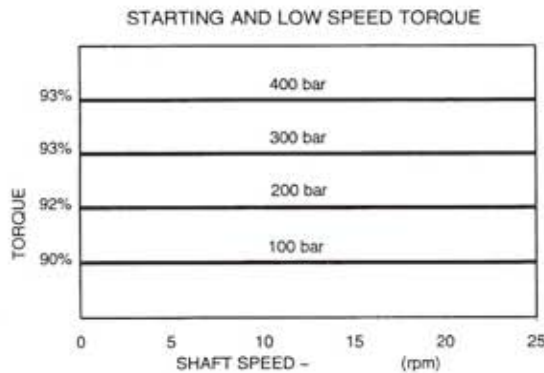
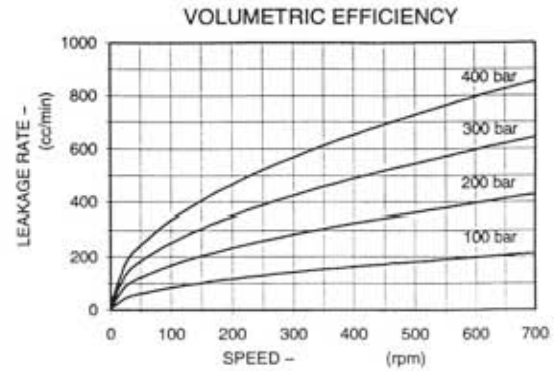
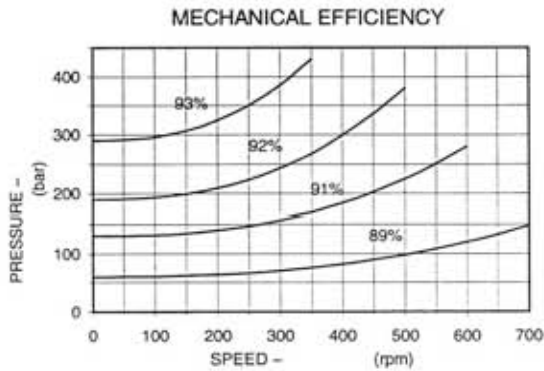
DIN	65-3-20 DIN 5480	55-2-26 DIN 5482	55-3-17 DIN 5480	56 UNI 221
d0	$\varnothing 60.0$	$\varnothing 52.0$	$\varnothing 51.0$	d1 $\varnothing 56.0$ $^{+0.030}$ H7
d1	$\varnothing 65.0$ $^{+0.740}$ H14	$\varnothing 55.0$ $^{+0.300}$ H12	$\varnothing 55.0$ $^{+0.740}$ H14	d2 $\varnothing 65.0$ $^{+0.190}$ H11
d2	$\varnothing 59.0$ $^{+0.190}$ H11	$\varnothing 50.0$ $^{+0.180}$ H11	$\varnothing 49.0$ $^{+0.190}$ H11	A $\varnothing 10.0$ $^{+0.028}$ F7
A	$\varnothing 6.25$	$\varnothing 3.5$	$\varnothing 5.25$	d3 $\varnothing 56.0$ $^{-0.010}$ g6
UNI	d4 $\varnothing 54.101$ H11	$\varnothing 46.902$ H10	$\varnothing 43.807$ H11	d4 $\varnothing 65.0$ $^{-0.100}$ d11
	d3 $\varnothing 64.4$ $^{-0.190}$ H11	$\varnothing 54.5$ $^{-0.190}$ h11	$\varnothing 54.4$ $^{-0.190}$ H11	B $\varnothing 10.0$ $^{-0.028}$ f7
	d4 $\varnothing 58.4$ $^{-0.740}$ H14	$\varnothing 49.0$ $^{-0.300}$ H12	$\varnothing 48.4$ $^{-0.820}$ h14	
	B $\varnothing 6.0$	$\varnothing 3.5$	$\varnothing 6.0$	
	d0 $\varnothing 70.999$ H8	$\varnothing 56.953$ H9	$\varnothing 60.873$ H8	

ADAPTORS



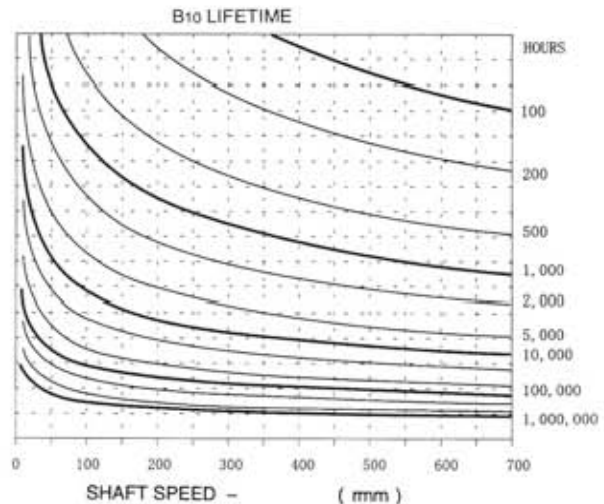
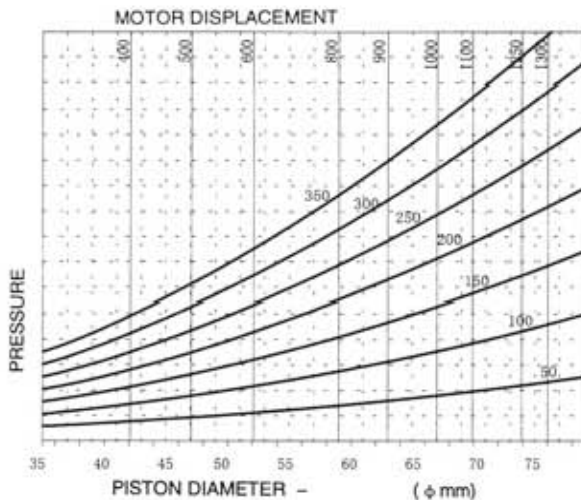
PERFORMANCE

The graphs indicate the typical performance characteristics of the 900 cc motor operating with mineral oil with viscosity 40 cSt at 50 °C.



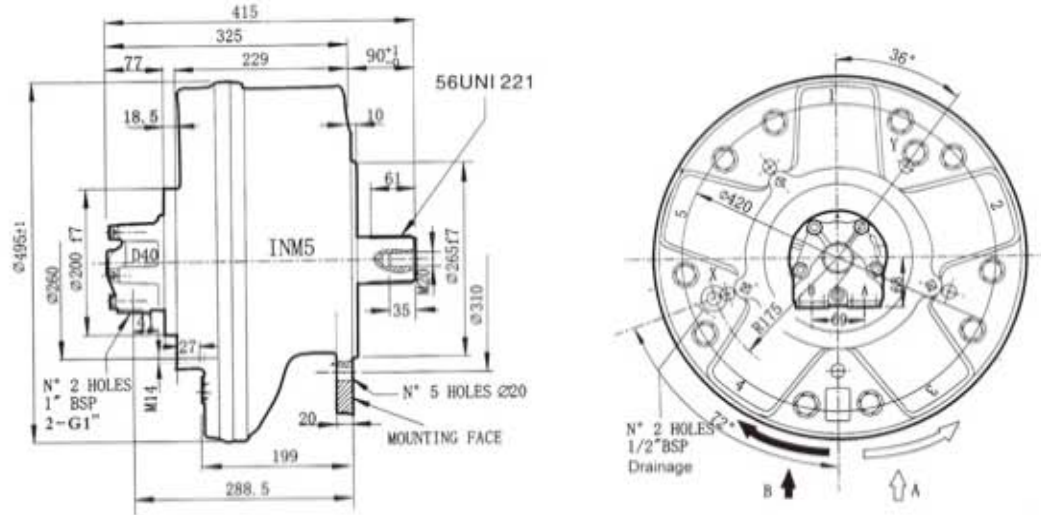
BEARING LIFETIME

The graph refers to the motor with the standard roller bearings.
 Note that the average lifetime of a bearing (B_{50} lifetime) is approximately 5 times the B_{10} lifetime.



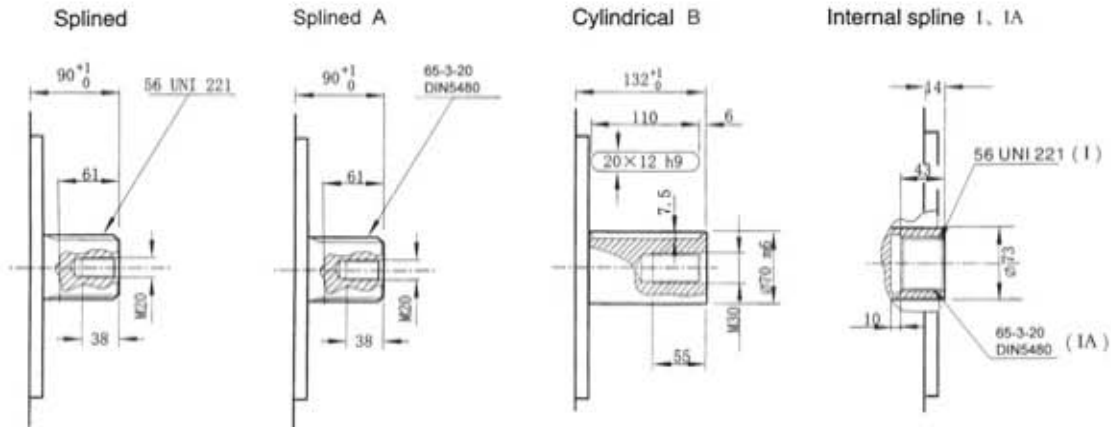
10. INM5 Series Hydraulic Motors

DIMENSIONS



Flange and shaft dimensions are as in GM5, M5 series motors

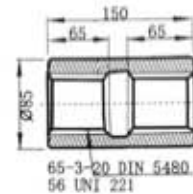
SHAFTS



SPLINE DATA

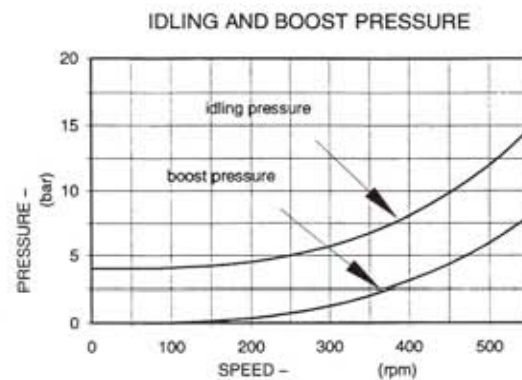
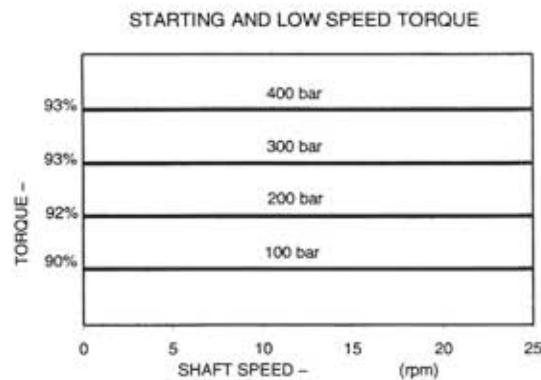
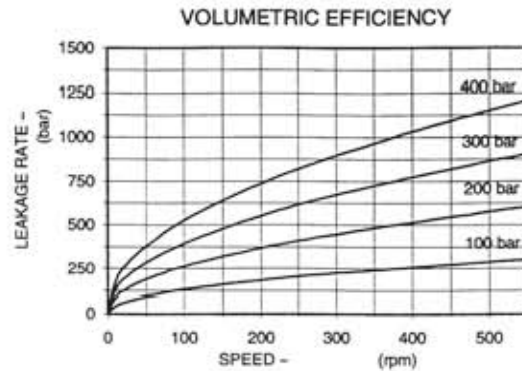
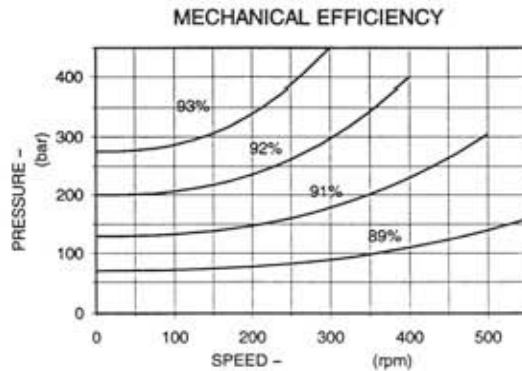
DIN	65-3-20 DIN 5480	55-2-26 DIN 5482	55-3-17 DIN 5480	56 UNI221
d0	$\varnothing 60,0$	$\varnothing 52,0$	$\varnothing 51,0$	d1 $\varnothing 56,0$ $^{+0,030}_{-0,010}$ H7
d1	$\varnothing 65,0$ $^{+0,040}_{-0,010}$ H14	$\varnothing 55,0$ $^{+0,030}_{-0,010}$ H12	$\varnothing 55,0$ $^{+0,040}_{-0,010}$ H14	d2 $\varnothing 65,0$ $^{+0,030}_{-0,010}$ H11
d2	$\varnothing 59,0$ $^{+0,010}_{-0,010}$ H11	$\varnothing 50,0$ $^{+0,010}_{-0,010}$ H11	$\varnothing 49,0$ $^{+0,010}_{-0,010}$ H11	A 10,0 $^{+0,008}_{-0,013}$ F7
A	$\varnothing 5,25$	$\varnothing 3,5$	$\varnothing 5,25$	d3 $\varnothing 56,0$ $^{+0,010}_{-0,010}$ H7
da	$\varnothing 54,101$ H11	$\varnothing 46,902$ H10	$\varnothing 43,807$ H11	d4 $\varnothing 65,0$ $^{+0,030}_{-0,010}$ H11
d3	$\varnothing 64,4$ $^{+0,040}_{-0,010}$ h11	$\varnothing 54,5$ $^{+0,010}_{-0,010}$ h11	$\varnothing 54,4$ $^{+0,010}_{-0,010}$ h11	B 10,0 $^{+0,013}_{-0,028}$ F7
d4	$\varnothing 58,4$ $^{+0,040}_{-0,010}$ h14	$\varnothing 49,0$ $^{+0,030}_{-0,010}$ h12	$\varnothing 48,4$ $^{+0,020}_{-0,020}$ h14	
B	$\varnothing 6,0$	$\varnothing 3,5$	$\varnothing 6,0$	
db	$\varnothing 70,999$ f8	$\varnothing 56,953$ e9	$\varnothing 60,873$ f8	

ADAPTORS



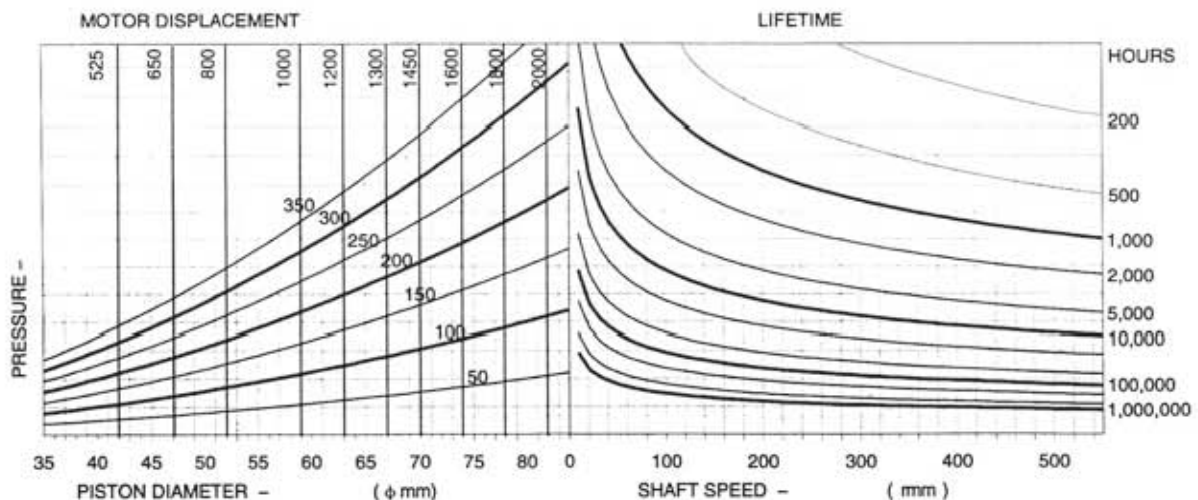
PERFORMANCE

The graphs indicate the typical performance characteristics of the **1200cc** motor operating with mineral oil with viscosity 40 cSt at 50 °C.



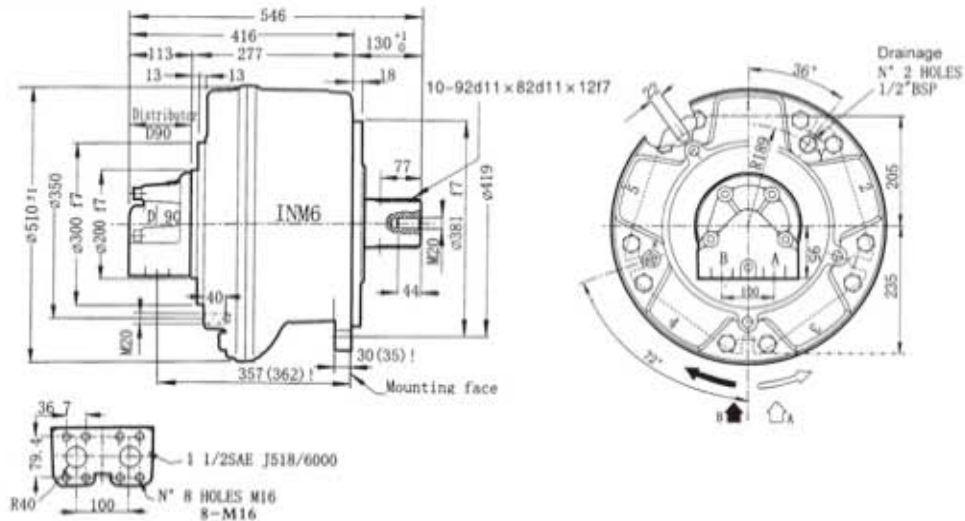
BEARING LIFETIME

The graph refers to the motor with the standard roller bearings.
 Note that the average lifetime of a bearing (B_{50} lifetime) is approximately 5 times the B_{10} lifetime.

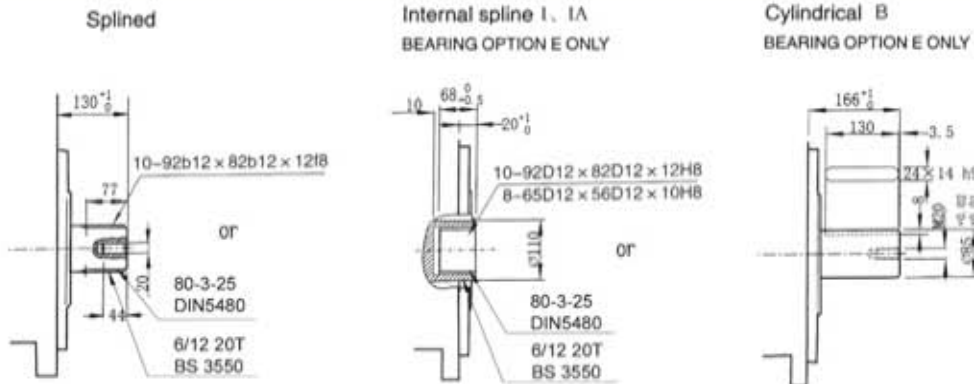


11. INM6 Series Hydraulic Motors

DIMENSIONS



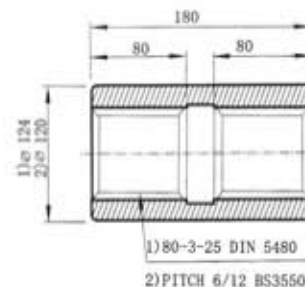
SHAFTS



SPLINE DATA

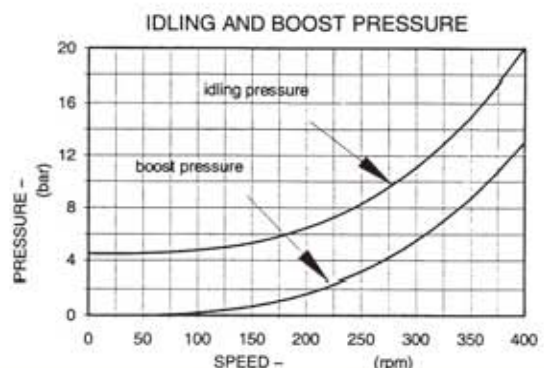
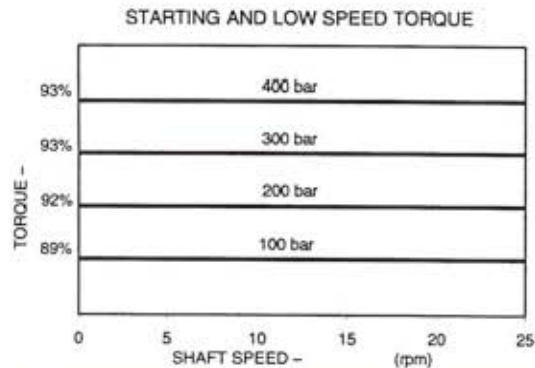
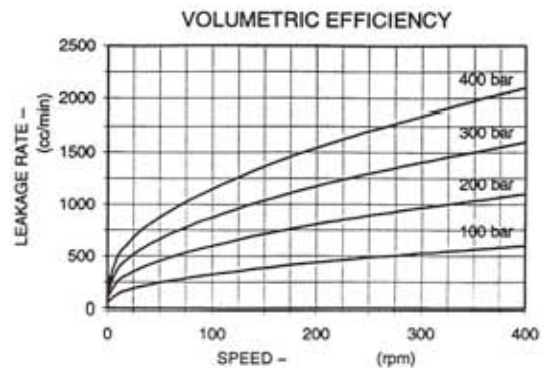
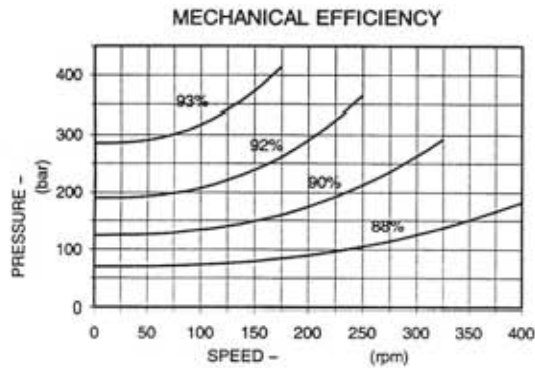
DIN	80-3-25 DIN 5480	pitch 6/12 BS 3550
d0	∅ 75.0	A ∅ 88.0 -0.047 -0.17
d1	∅ 80.0 $+0.070$ -0 H14	B ∅ 84.6
d2	∅ 74.0 $+0.190$ -0 H11	C ∅ 80.0 -0.480 -0.070
A	∅ 5.25	D ∅ 97.0 $+0.082$ -0.050
da	∅ 68.9 H9	E ∅ 8.12
d3	∅ 79.4 -0 -0.190 h11	
d4	∅ 73.4 -0 -0.070 h14	
B	∅ 6-0	
db	∅ 85.9 f8	

ADAPTORS



PERFORMANCE

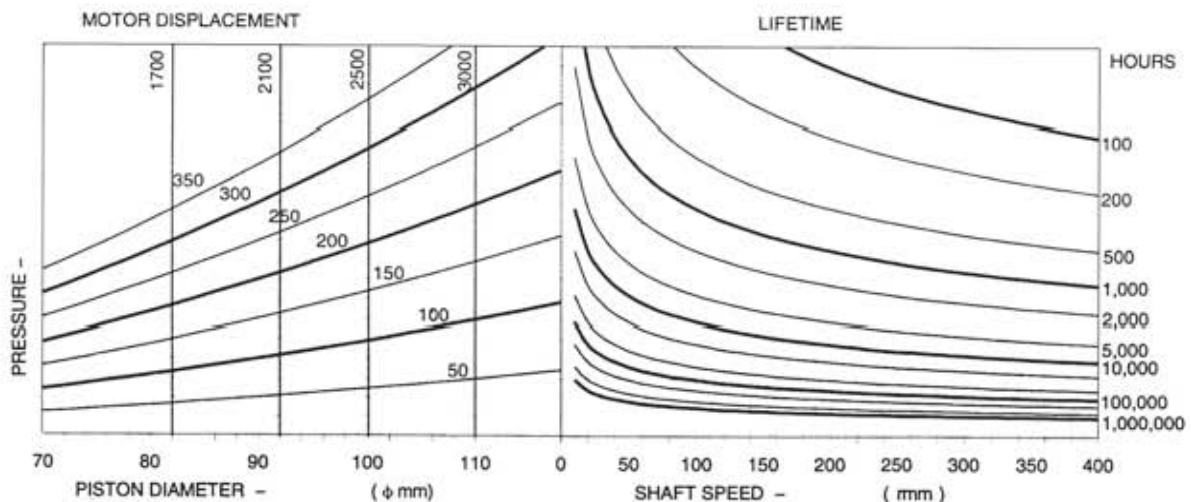
The graphs indicate the typical performance characteristics of the **2500cc** motor operating with mineral oil with viscosity 40 cSt at 50 °C.



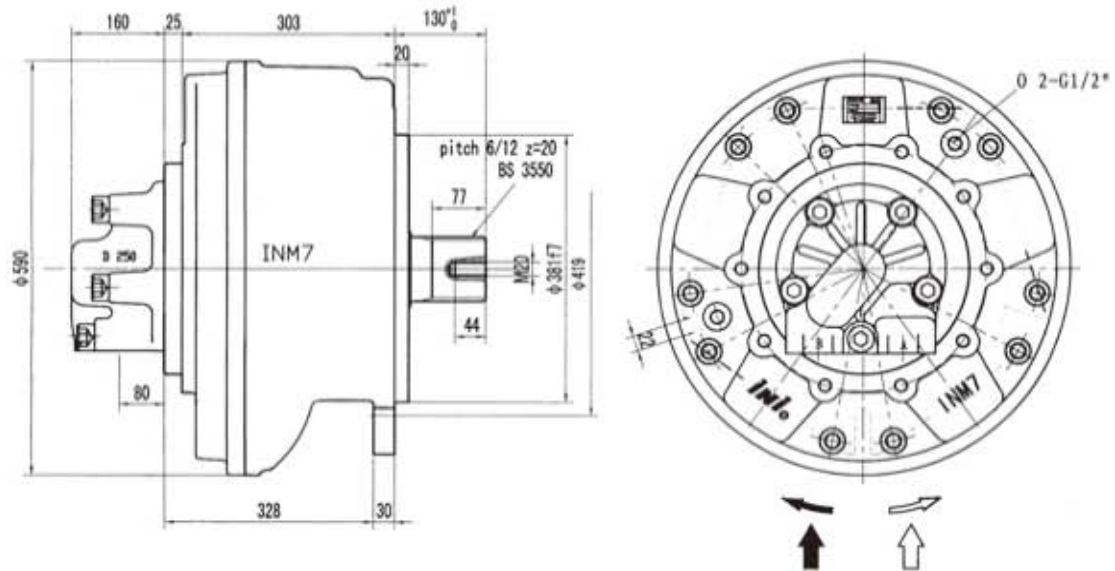
BEARING LIFETIME

The graph refers to the motor with the standard spherical roller bearings.

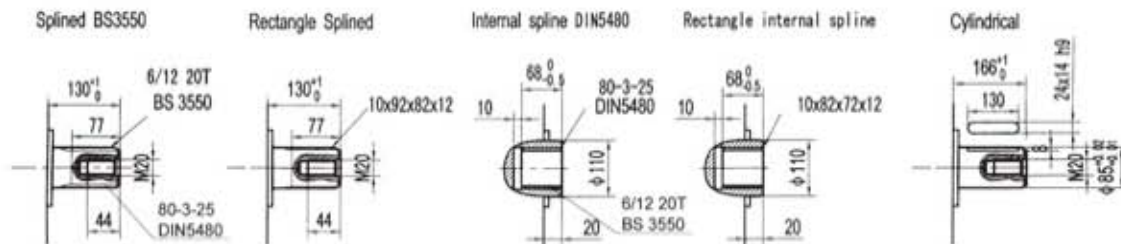
Note that the average lifetime of a bearing (B_{50} lifetime) is approximately 5 times the B_{10} lifetime.



12. INM7 Series Hydraulic Motors



SHAFTS



SPLINE DATA

	80-3-25 DIN 5480		pitch 6/12 BS 3550
	d0	φ 75.0	A φ 88.0 ^{+0.047} _{-0.17}
	d1	φ 80.0 H14	B φ 84.6
	d2	φ 74.0 H11	C φ 80.0 ^{+0.040} _{-0.070}
	A	φ 5.25	D φ 97.0 ^{+0.062} _{-0.090}
	d4	φ 68.9 H9	E φ 8.12
	d3	φ 79.4 h11	
	d4	φ 73.4 h14	
	B	φ 6.0	
	d5	φ 79.4 h11	
	d6	φ 85.9 f8	