M MOTORS

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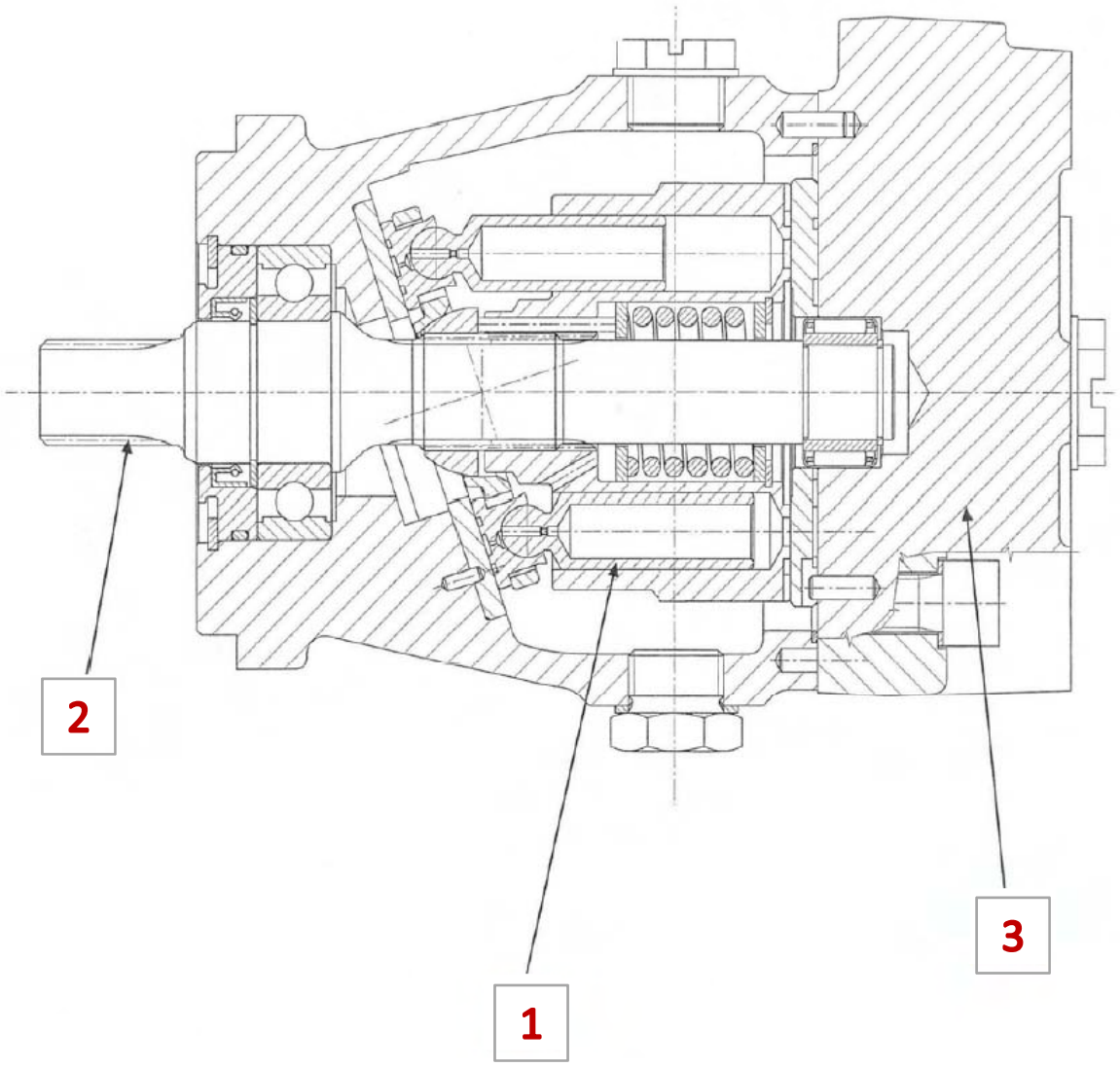
M2 MOTOR.

HOW TO ORDER “M2”



ORDER CODE

M2	34	S3	04	00	00	0000
	1	2	3	4	5	6

1	CILINDRATA	*DISPLACEMENT*
24	24,41 cm3/giro	*24,43 cm3/rev*
28	28,34 cm3/giro	*28,36cm3/rev*
34	34,36 cm3/giro	*34,39 cm3/rev*
40	41,11 cm3/giro	*41,15 cm3/rev*
50	49,06 cm3/giro	*49,11 cm3/rev*

2	ALBERO	*SHAFT*
C3	Cilindrico D = 22,22 (standard)	*D = 22,22 (standard)*
D6	Cilindrico D = 25	*D = 25*
S3	Scanalato Z = 13 16/32 D.P. (standard)	*Z = 13 16/32 D.P. (standard)*
S4	Scanalato Z = 15 16/32 D.P.	*Z = 15 16/32 D.P.*

3	ATTACCHI	*CONNECTIONS*
02	Laterali	*Side*
04	Posteriori	*Rear*
05	Laterali e posteriori	*Side and rear*

4	OPTIONALS	*OPTIONS*
00	Senza optionals	*Without options*
BV	Bypass a vite	*Screw bypass*
CR	Cuscinetto a rulli	*Roller bearing*
DP	Drenaggio posteriore	*Rear drain port*
RA	Valvola anticavitazione su "A"	*Anticavitation valve on "A"*
RB	Valvola anticavitazione su "B"	*Anticavitation valve on "B"*
RR	Valvola anticavitazione su "A + B"	*Anticavitation valve on "A + B"*
VS	Valvola di scambio	*Purge valve*

5	ESECUZIONI SPECIALI	*SPECIAL EXECUTIONS*
00	Esecuzione standard (filetti 3/4" gas)	*Standard execution (3/4" gas threads)*
FM	Filettature metriche (per quantità)	*Metric threads (for quantities)*
FS	Flange SAE (per quantità)	*SAE flanges (for quantities)*
FU	Filetti UNF + O-ring (per quantità)	*UNF threads (for quantities)*
ES	Esecuzione speciale	*Special execution*

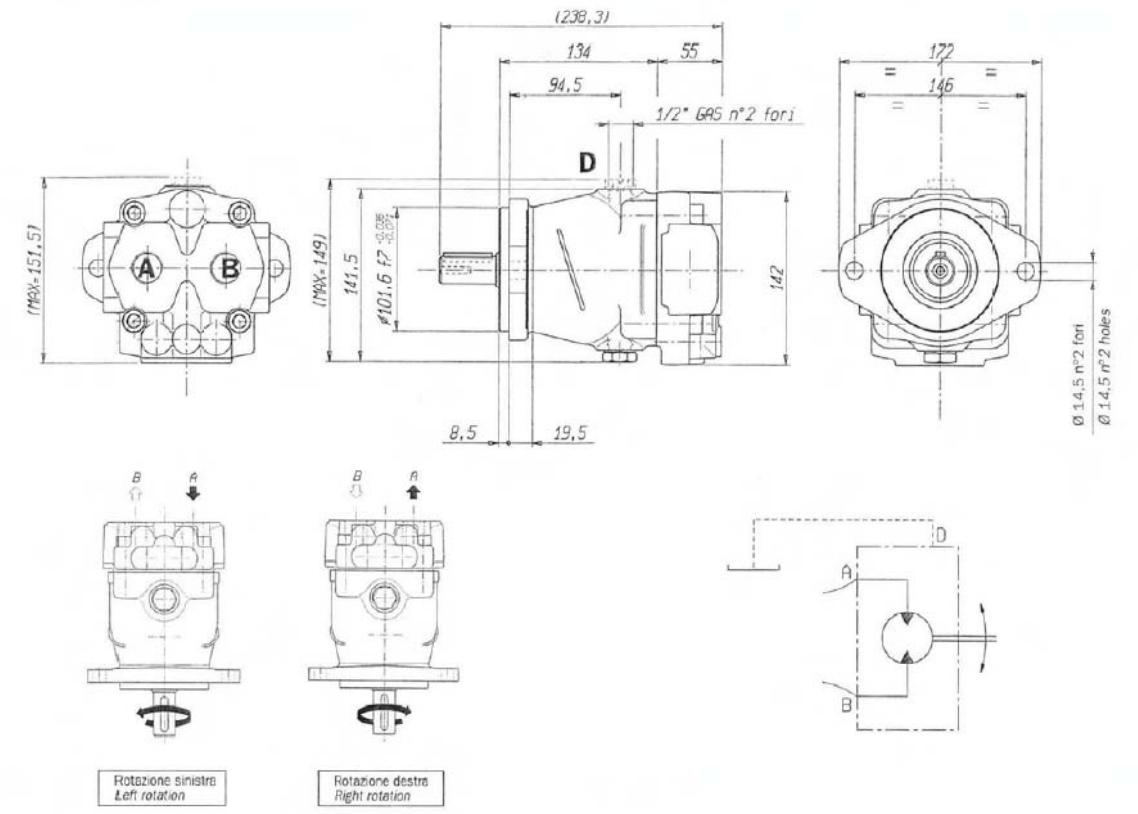
Note: in field nr.6 the settings of possible max. relief valves on the motor must be indicated

EXAMPLE OF ORDER CODE

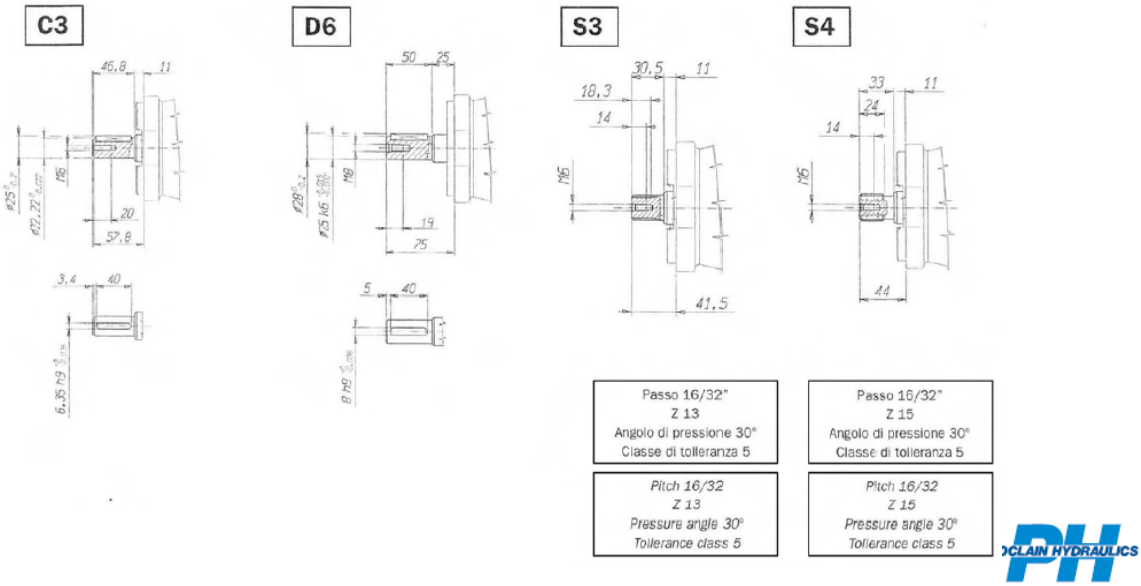
M0 11 C1 02 00 00

Order for motor 11,82 cm3/rev.,
parallel shaft D.15,875,
rear connections without options,
standard threads 1/2" gas

"M1" MOTORS

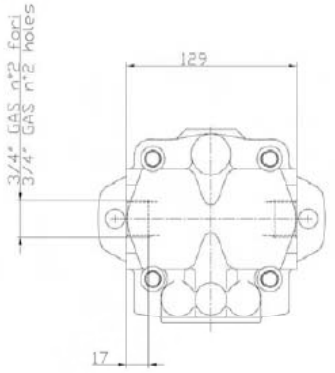


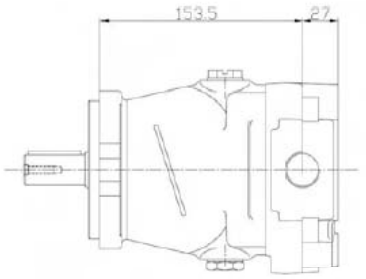
SHAFT



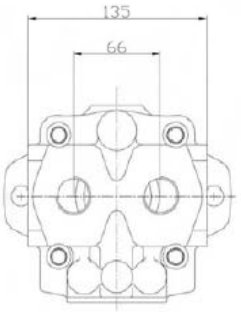
CONNECTIONS

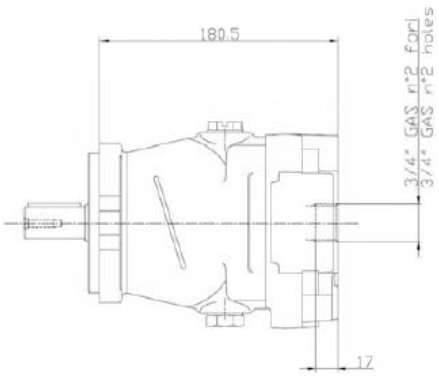
02 Attacchi laterali
Lateral connection



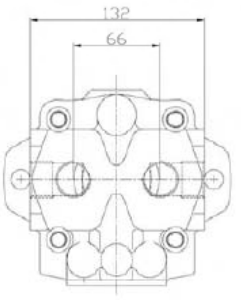


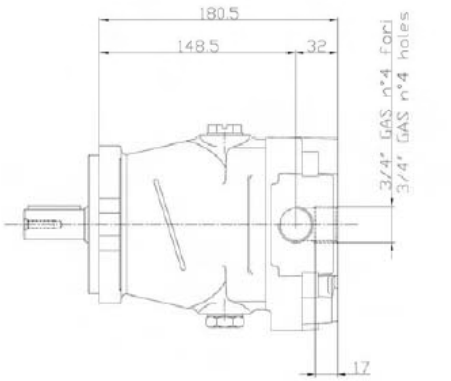
04 Attacchi posteriori
Rear connection





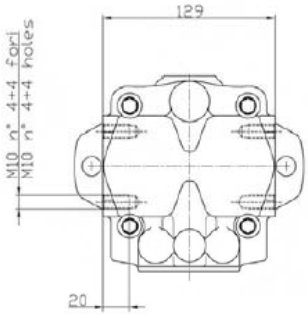
05 Attacchi laterali + posteriori
Lateral + Rear connection

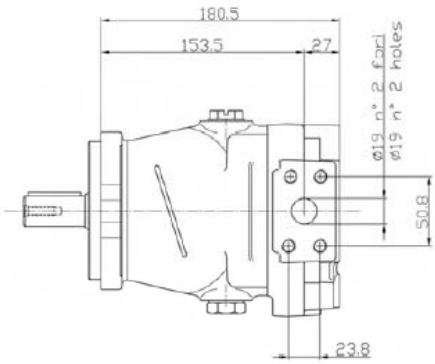




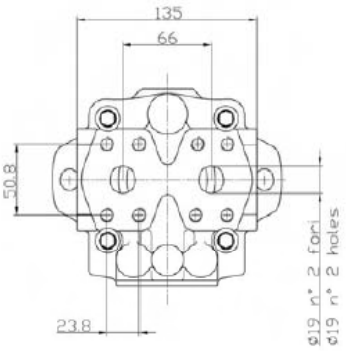
SAE FLANGE CONNECTIONS

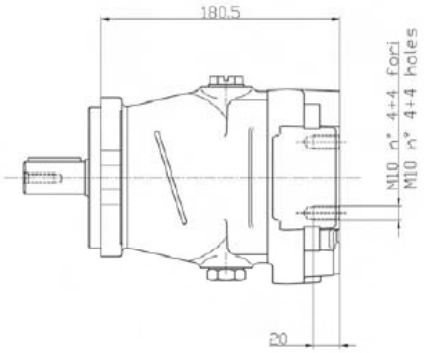
02 Attacchi laterali 3/4" SAE 6000
Lateral connection 3/4" SAE 6000



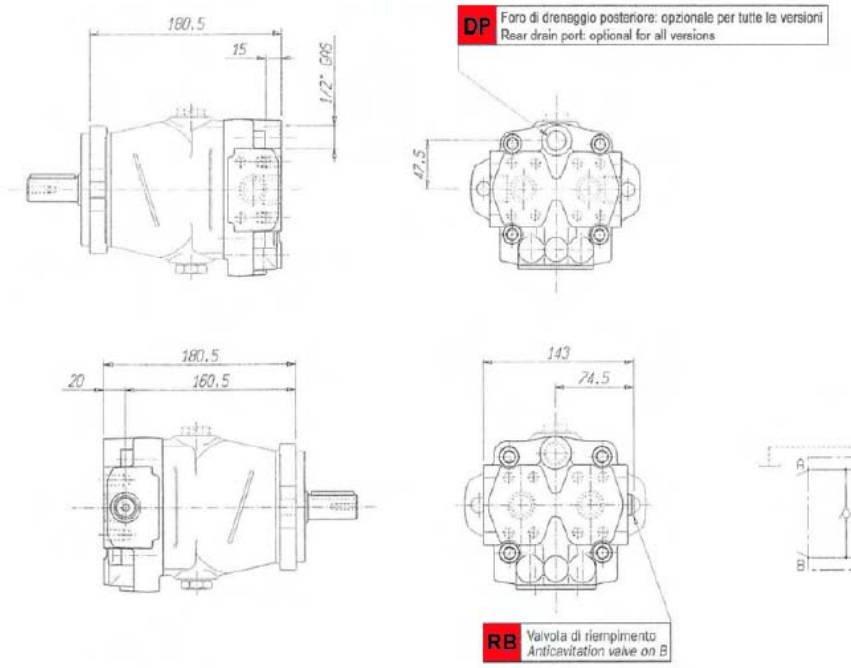


04 Attacchi posteriori 3/4" SAE 6000
Rear connection 3/4" SAE 6000



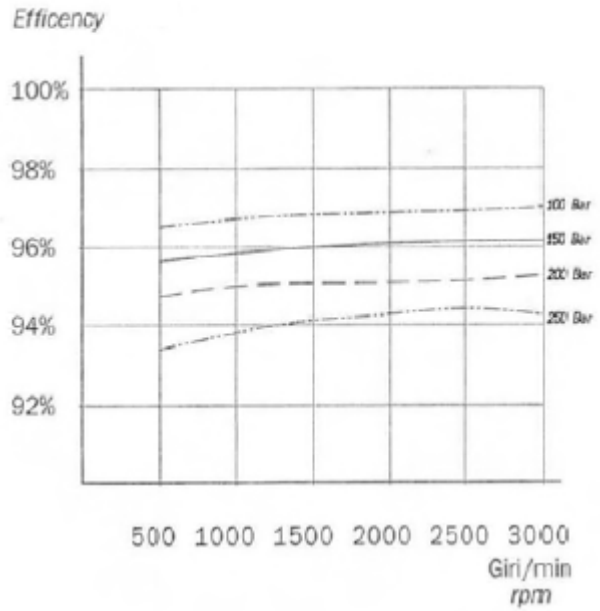


OPTIONS

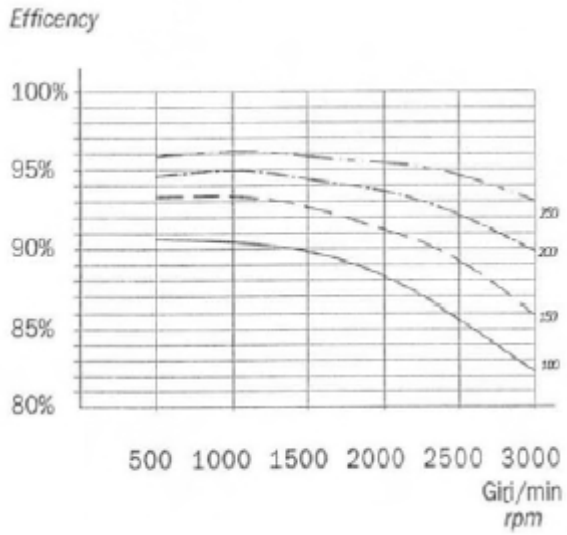

DP
Foro di drenaggio posteriore: opzionale per tutte le versioni
Rear drain port: optional for all versions
180,5
15
1/2" GAS
47,5
180,5
20
160,5
143
74,5
A
D
B
RB
Valvola di riempimento
Anticavitation valve on B
Foro per drenaggio
Drain port
180,5
31
149,5
15
1/2" GAS
149
47,5
RR
n° 2 Valvole di riempimento
Anticavitazion valve on A+B
205,5
180,5
25
59
80
140,5
40
Valvola massima di scambio
Purge pressure valve
(MAX. 153,5)
146
80
126
VS
Valvola di scambio
Purge valve

MOTOR PERFORMANCE CURVES

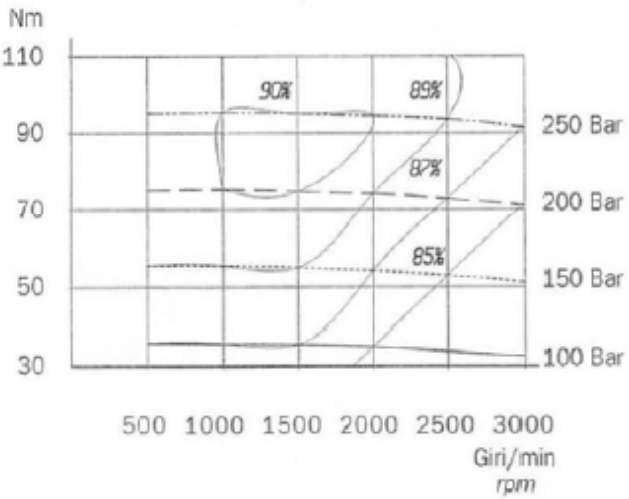
VOLUMETRIC EFFICIENCY



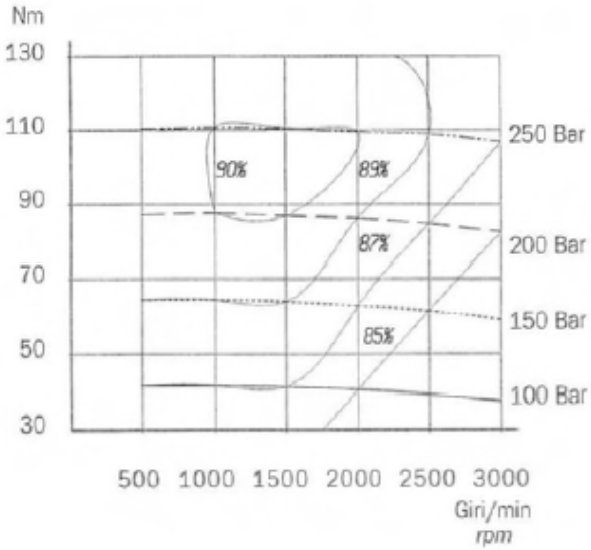
MECHANICAL EFFICIENCY



M2-24 MOTOR TOTAL EFFICIENCY

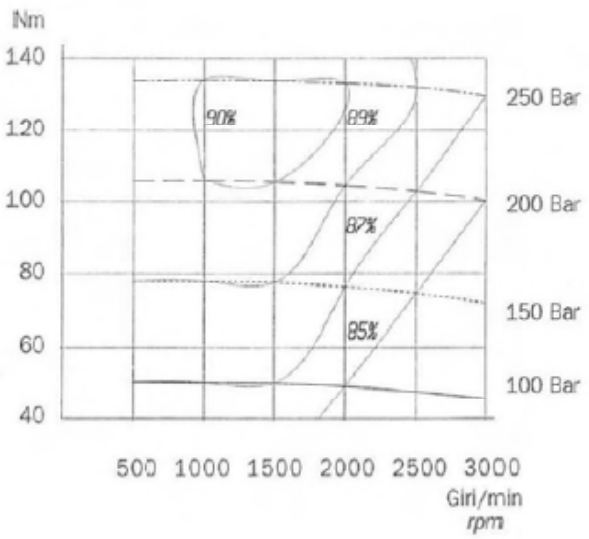


M2-28 MOTOR EFFICIENCY

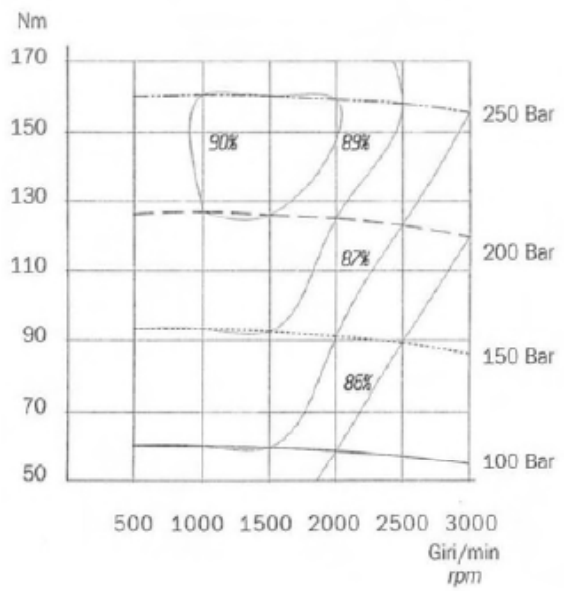


MOTOR PERFORMANCE CURVES

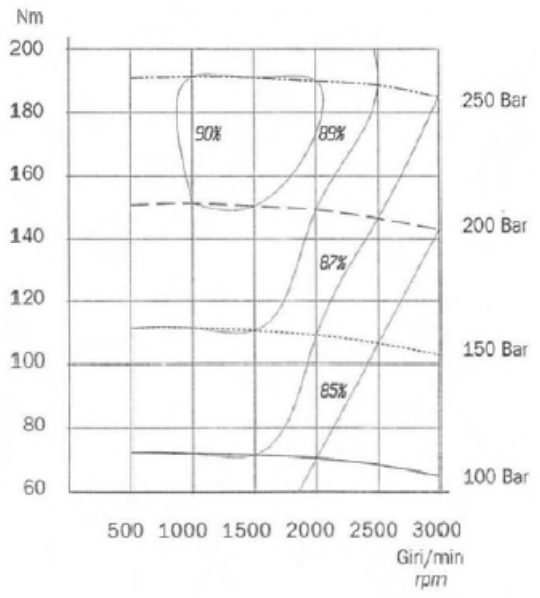
M2-34 MOTOR TOTAL EFFICIENCY



M2-40 MOTOR TOTAL EFFICIENCY



M2-50 MOTOR TOTAL EFFICIENCY



CALCULATION FORMULA FOR "M2" MOTORS BEARING LIFE

Rear bearing:

$$L_{HP} = \frac{16667}{n}\left[\frac{15100}{\sqrt{CP}}\right]^{3,33}$$

- p = 3 *ball bearing*
- p = 3,33 *roller bearing*
- K_A = 9560 *ball bearing*
- K_A = 17200 *roller bearing*
- L = *distance between flange and radial load (mm)*
- n = *rotation speed (rpm)*
- F_p = *internal radial load (N)*
- R = *external radial load (N)*
- α = *angle of external radial load (degrees)*
- P_{in} = *input pressure (bar)*
- P_{out} = *output pressure (bar)*

CA	CP
$(0,66F_p - R_xL_2)^2 + (R_yL_2)^2$	$(0,34F_p - R_xL_1)^2 + (R_yL_1)^2$

R_x	R_y	F_p - M2	F_p - M4	F_p - M5	L_1	L_2
R cos α	R sin α	$0,855V_c(P_{in}+P_{out})$	$0,806V_c(P_{in}+P_{out})$	$0,758V_c(P_{in}+P_{out})$	0,1+0,0085L	1,1+0,0085L

If the motor works at time intervals $q_1, q_2, \ldots, q_n$ with differen values of rotation speed, working pressure and radial loac the above mentioned formulas calculate, for each interva the fatigue life of each bearing (rear and front one). Th following formula calculates each bearing's total life for th whole motor's working cycle.

$$L_H = \frac{100}{\frac{q_1}{L_{H1}} + \frac{q_2}{L_{H2}} + \ldots + \frac{q_n}{L_{Hn}}}$$

When:
$q_1, q_2, \ldots, q_n$ (%) = percentages of the considered cycle whe the motor works in constant conditions.
$L_{H1}, L_{H2}, \ldots, L_{Hn}$ (hours) = life of each bearing referring t intervals $q_1, q_2, \ldots, q_n$