



EXTERNAL GEARS MOTORS

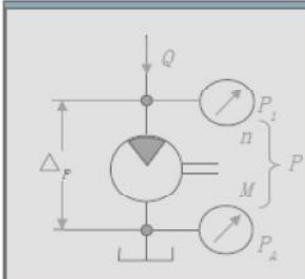
GEAR MOTOR USE GUIDE



2: SPECIFICATION

Series	DISPLACEMENT (ml/r)	PRESSURE			SPEED (r/min)		TOTAL EFFICIENCY (T>%)	VOLUMETRIC EFFICIENCY (V>%)	MECHANICAL EFFICIENCY (M>%)	OUTPUT TORQUE (N.m)
		P1	P2	P3	MAX	Min				
1MF/1AMF	1.1 to 5.1	200	230	250	4000	650	78	92	85	Refer to below formula
1MF/1AMF	5.1 to 8.5	200	230	250	3600	650				
2MF	4 to 8	200	230	250	4000	600	80	94	85	
2MF	8 to 15	200	250	280	3500	600				
2MF	15 to 20	200	250	280	3000	600				
2MF	20 to 26	200	250	280	2500	500				
2MF	26 to 30	200	250	280	2000	500				
2.5MF	10 to 20	200	230	250	3600	500	80	94	85	
2.5MF	20 to 30	200	230	250	3600	500				
2.5MF	30 to 40	180	230	250	3000	500				
3MF	22 to 43	200	230	250	3000	400	82	95	86	
3MF	43 to 70	200	230	250	2500	400				
3MF	70 to 89	200	230	250	2200	400				
3.5MF	52 to 73	170	200	210	3600	500	82	95	86	
3.5MF	73 to 100	150	165	180	3000	500				
3.5MF	100 to 115	120	130	140	2500	500				

3: FORMULA



$$Q = V \cdot n \cdot 10^3 / \eta_v$$

$$M = p \cdot V \cdot \eta_m / 62.83$$

$$P = p \cdot V \cdot n \cdot \eta_t / 600 \cdot 1000$$

V [cm³/r] Q [l/min] p [bar] n [r/min] P [kW] M [Nm]

4: Characteristics

Direction of rotation/:bi-direction and single-direction

Permissible ambient temperature range: min = - 20 ° C — max = + 60 ° C

Operating pressures:input side= refer above data ; outlet side p2 max = 3 bar

Drain pressure :pd max = 2 bar Short time: pd max = 5 bar

GEAR MOTOR USE GUIDE



4: Characteristics

Fluid temperature range $_{max} = 90 \text{ }^{\circ} \text{C}$ for NBR rotary shaft lip-type seal.
 $100 \text{ }^{\circ} \text{C}$ for FKM rotary shaft lip-type seal

Viscosity range: $_{min} = 10 \text{ mm}^2/\text{s}$ — $_{max} = 600 \text{ mm}^2/\text{s}$

Filtration:

Recommended: Viscosity range: $V = 30 \dots 45 \text{ mm}^2/\text{s}$

Recommended hydraulic fluids use: GB11118-94.: L-HM46 or equate NFE-603/DIN51524 II-85)

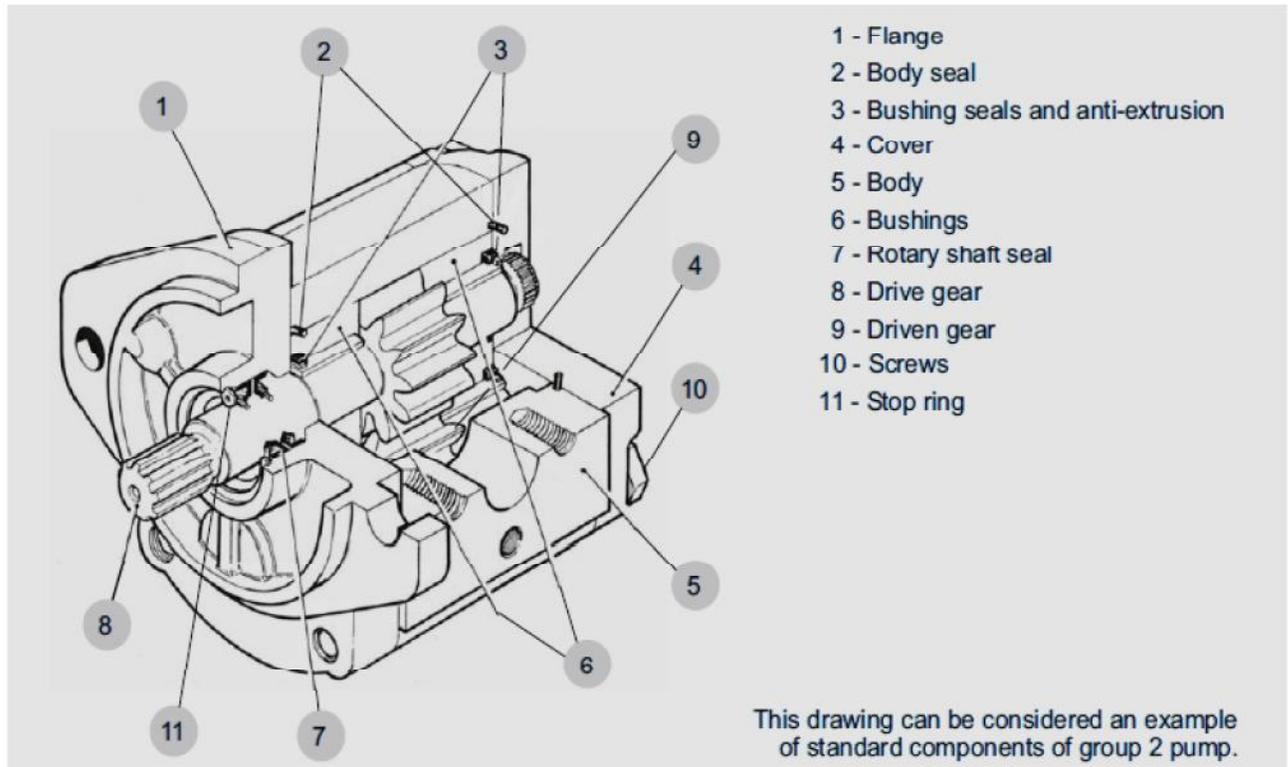
Characteristic curves refer to pages: page 3 to 6

	P<2000PSI(14MPa)	2000PSI(14MPa)<P<3050PSI(21MPa)	P>3050PSI(21MPa)
NAS1638	10	9	8
ISO4406	19/16	18/15	17/14
FILTER	25um	20um	10um

4: Integrate

All motor can be combination with relief valve , proportional valve , thermostatic valve

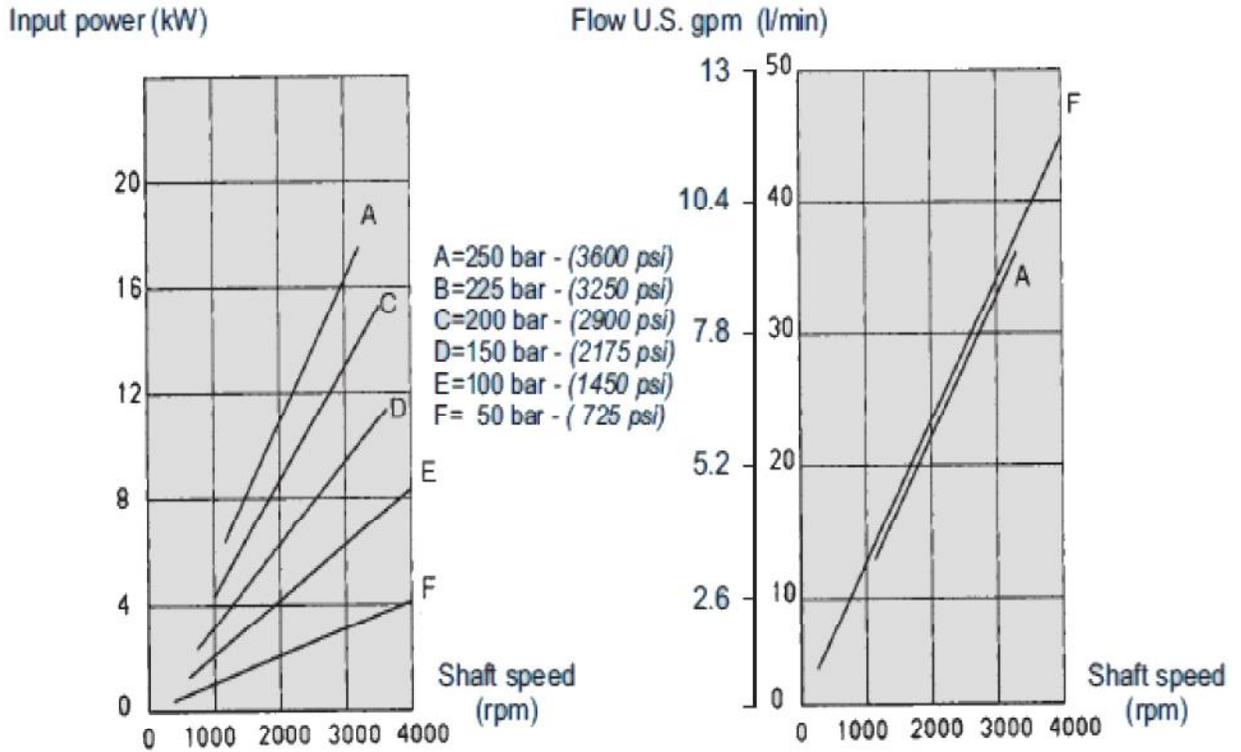
5: Gear Pump / Motor in detail



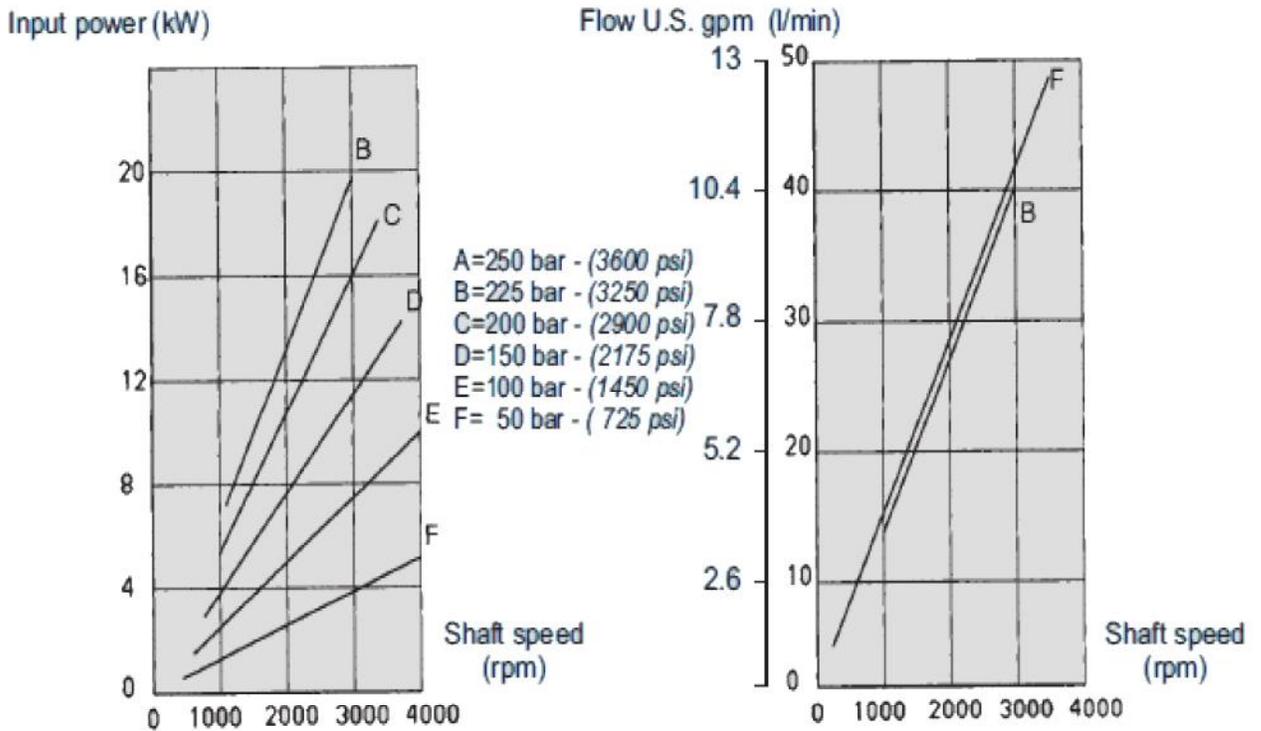
2MF BI-DIRECTION GEAR MOTOR



Characteristic Curves of 2MF11 —2MF11



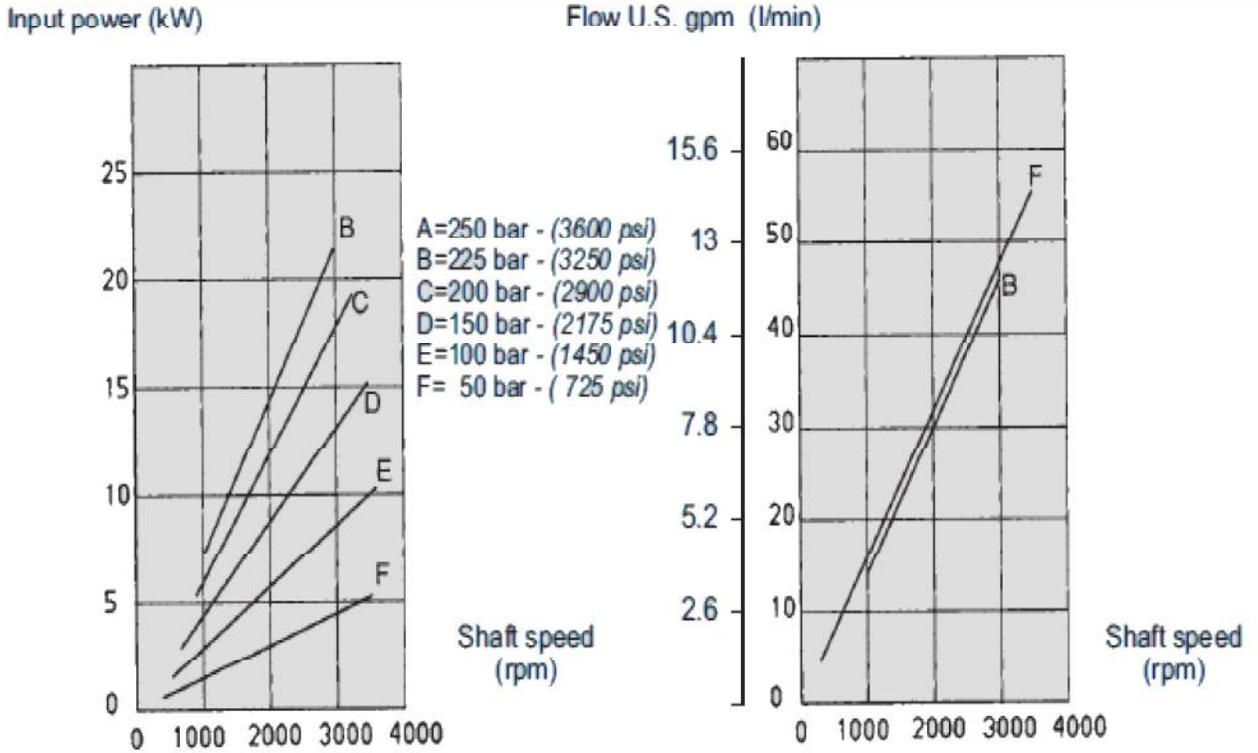
Characteristic Curves of 2MF14 —2MF14



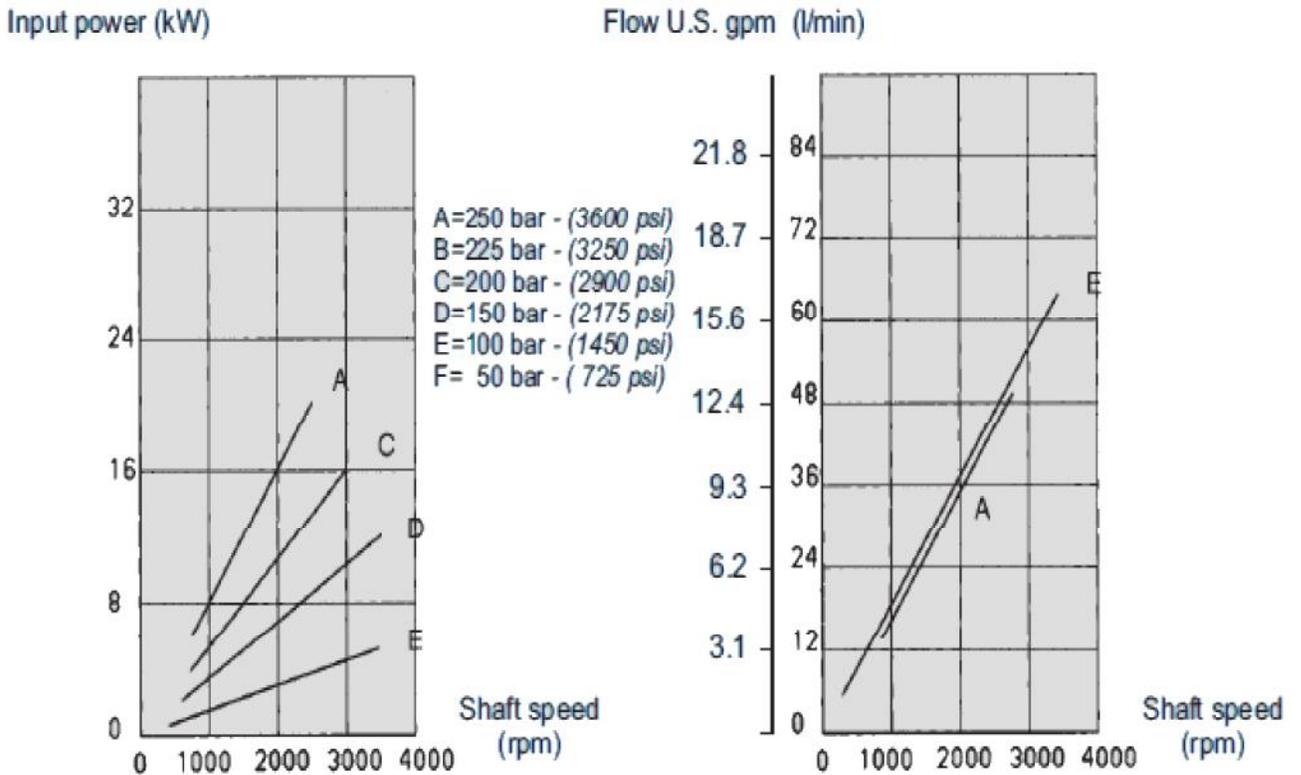
2MF BI-DIRECTION GEAR MOTOR



Characteristic Curves of 2MF16 —2MF16



Characteristic Curves of 2MF19 —2MF19

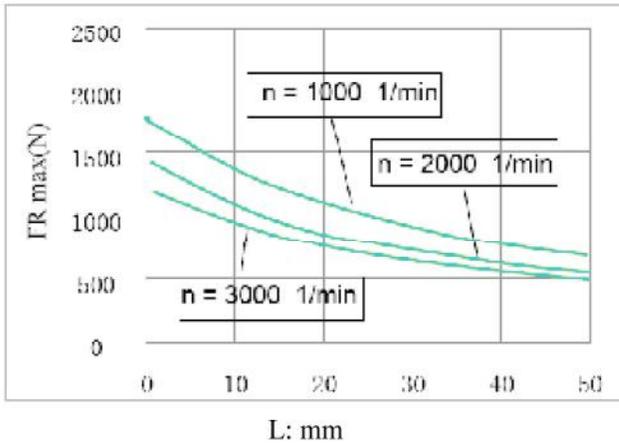


2MF BI-DIRECTION GEAR MOTOR

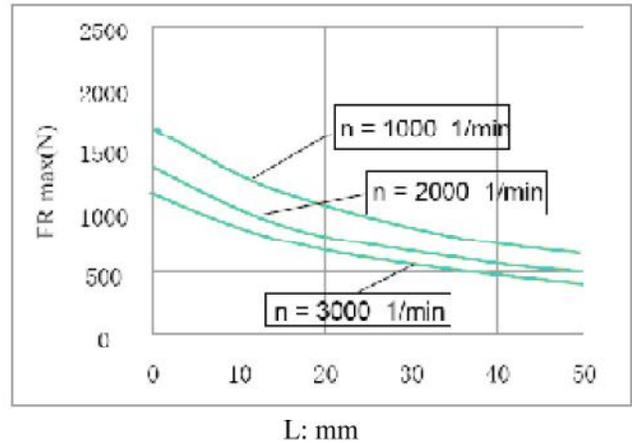


PERMISSIBLE LOAD OF OUTBOARD BEARING

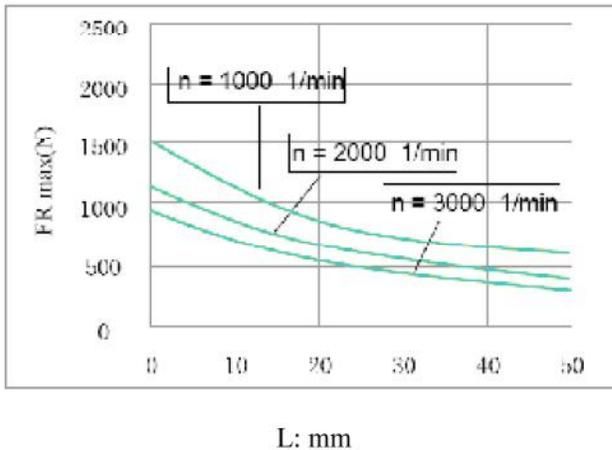
FO=0 N



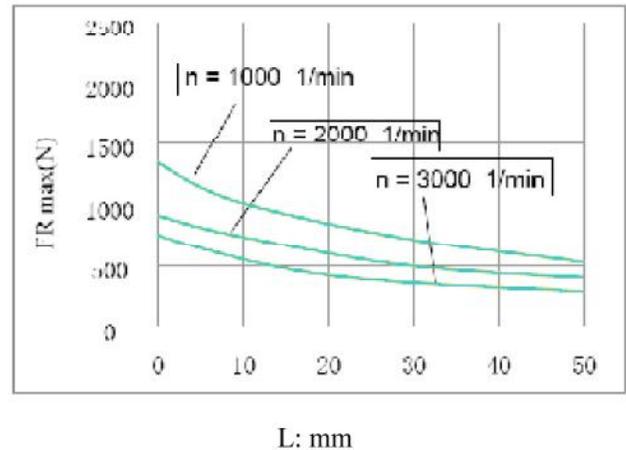
FO=200 N



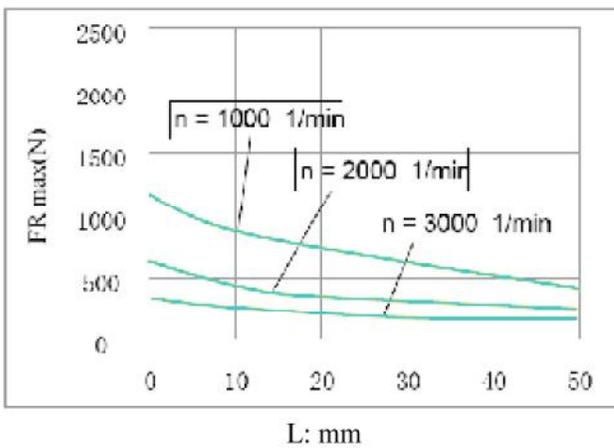
FO=400 N



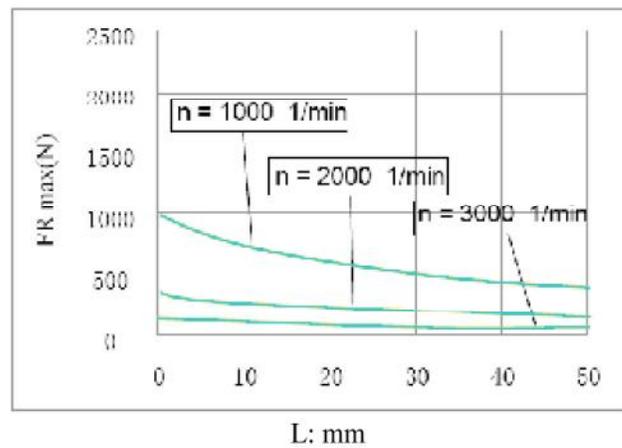
FO=600 N



FO=800 N



FO=900 N



2MF BI-DIRECTION GEAR MOTOR



Ordering code

Shaft extension and flange combination :

Z03 : 1:8shaft + Europe rectangle flange; S02:SAE 16/32 spline 11 tooth+SAE-A flange;
 S03:SAE 16/32 spline 9 tooth+SAE-A flange; S04: SAE 16/32 spline 10 tooth+SAE-A flange;
 P02:5/8 key shaft +SAE-A flange; P21: 3/4 key shaft +SAE-A flange;
 More reference accessory 2

Inlet/outlet combination :

F06 : inlet= $\varnothing 40 \setminus M8 \setminus \varnothing 20$; outlet= $\varnothing 30 \setminus M6 \setminus \varnothing 13$
 F85 : inlet= $\varnothing 35 \setminus M6 \setminus \varnothing 15$; outlet= $\varnothing 35 \setminus M6 \setminus \varnothing 15$
 MF52 : inlet= $\varnothing 35 \setminus M6 \setminus \varnothing 15$; outlet= $\varnothing 40 \setminus M6 \setminus \varnothing 20$
 L04; inlet=G1/2; outlet=G1/2;
 L46; inlet=G3/4; outlet=G3/4;
 L76; inlet=1-5/16-12; outlet=1-5/16-12;

Rotation direction:

B:Bi-direction
 L: CCW
 R: CW

Mode of drain

I: Inner drain
 Omit: Outside drain

2	A	M	F	8	F06	Z03	B	BB	-	0	-	I	-	F
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Inlet/out position combination :

BF-Back inlet and front out.
 BB-Back inlet and back out
 BS-Back inlet and side out.
 SB-Side inlet and back out.
 SF-Side inlet and front out.
 SS-Side inlet and side out.

Motor displacement:

4/6/8/10/12/14/16/18/20/23/25

FContinuous work pressure :200 bar

M: Gear Motor

A: Cast iron cover
 Omit: Aluminum cover

O: Outboard bearing
 Omit: without outboard bearing

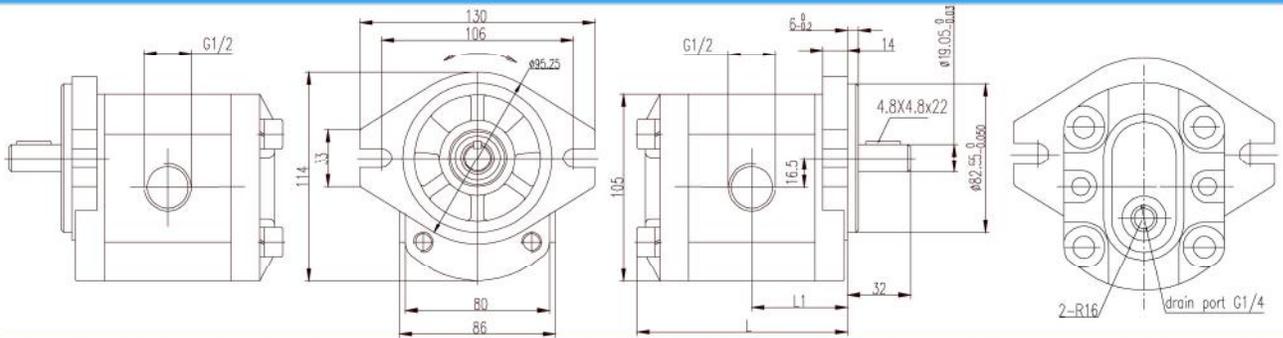
1:Group 1
 2:Group 2
 3:Group 3

F: FKM seal
 Omit: NBR seal

2MF BI-DIRECTION GEAR MOTOR

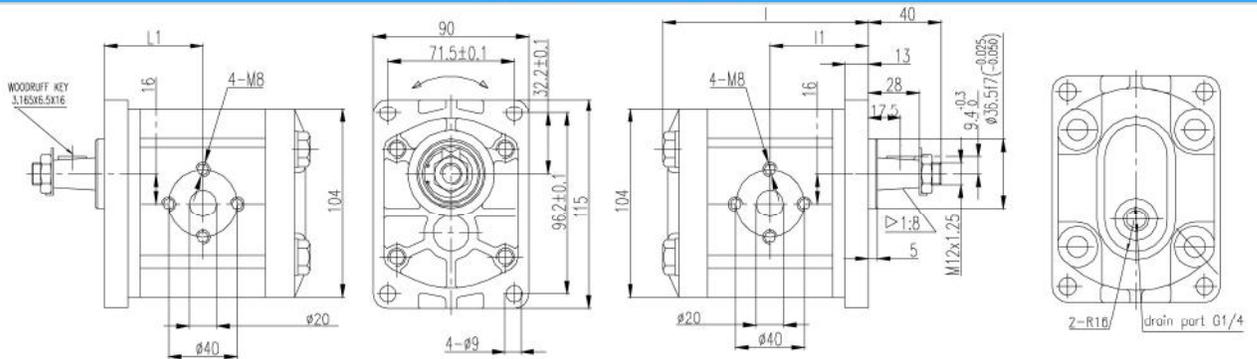


TYPE: 2MF**L04P02B



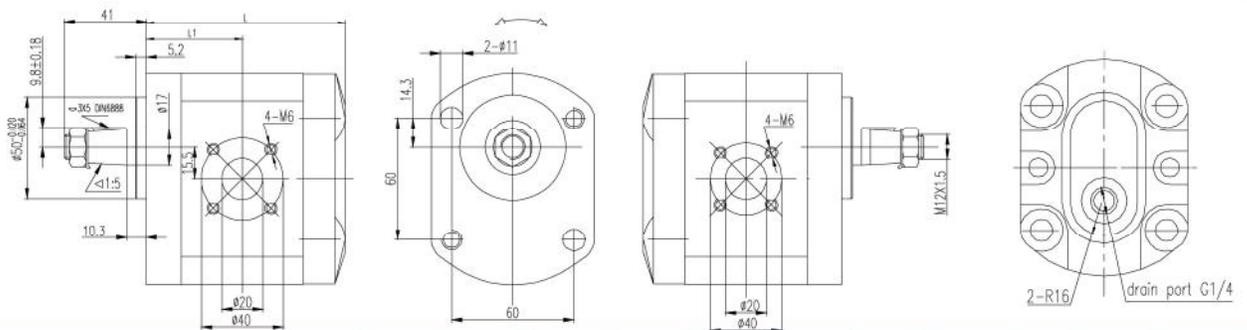
DISPLACEMENT (ml/r)	4	6	8	10	12	14	16	18	20	23	25
L1	44	45	47	48	50	51	53	55	56	58	60
L	96	98	102	104	108	108	114	117	120	123	128

TYPE: 2MF**F**Z03B



DISPLACEMENT (ml/r)	4	6	8	10	12	14	16	18	20	23	25
L1	46	47	49	50	52	53	55	57	58	60	62
L	98	100	104	106	110	112	116	119	122	125	130

TYPE: 2MF**F**Z11B

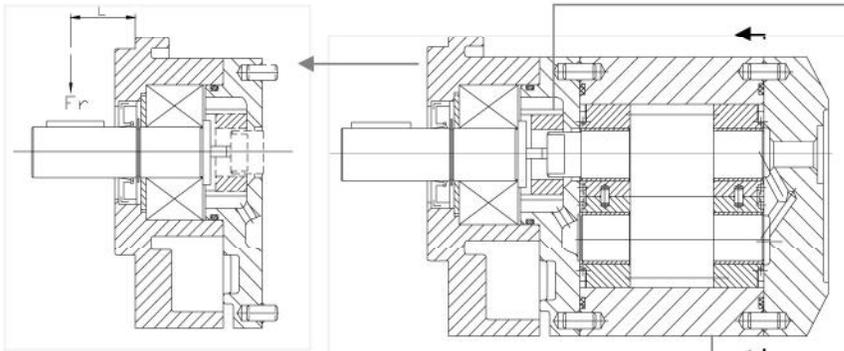


DISPLACEMENT (ml/r)	4	6	8	10	12	14	16	18	20	23	25
L1	39	40	41	43	44	46	48	49	51	54	57
L	90	91	94	96.5	98.5	103.5	107	111	116	118	120

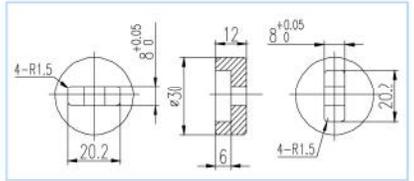
2MF -B-0 GEAR MOTOR WITH OUTBOARD BEARING



OUTBOARD BEARING: 2MF**L**P21B-0

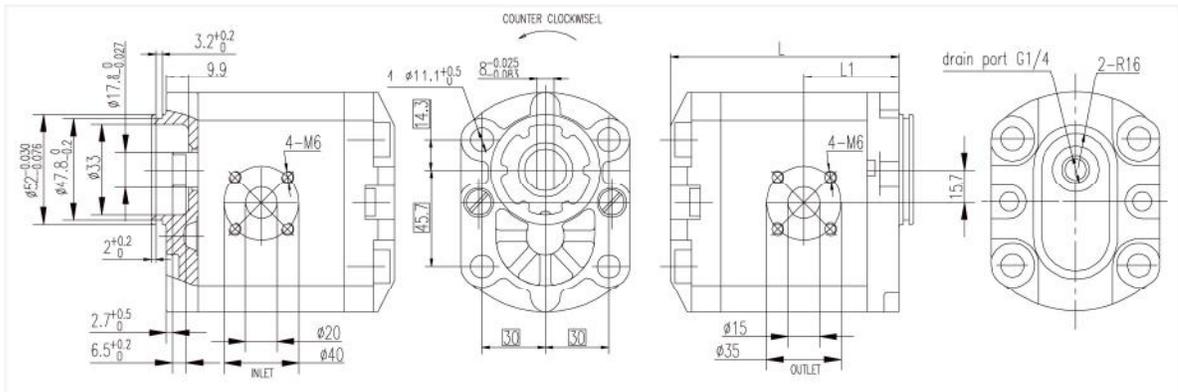


COUPLING: 2MF-C1

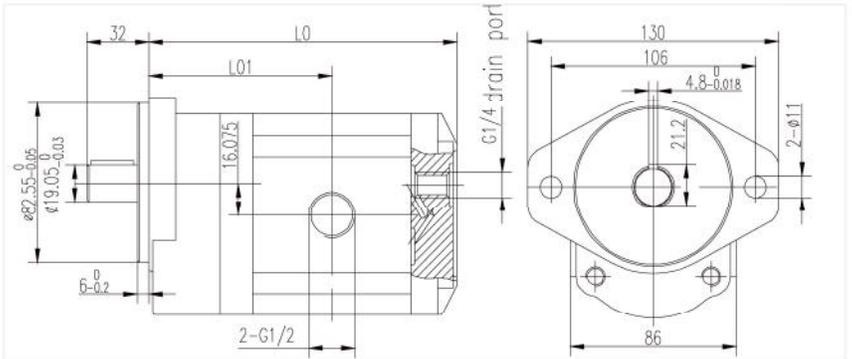


Permissible Load $/:F_r$ please to look curves on page 7

TYPE: 2MF**F**B11B



TYPE:
2MF**L**P21B-0
Note:
-O: Outboard bearing/
-B: Bi- direction



DISPLACEMENT (ml/r)	4	6	8	10	12	14	16	18	20	23	25
LO1	79	80.5	82	84	86	80	88	90	91	94	95
LO	131	134	137	140	144	137	150	153	156	160	163
L1	39	40	41	43	44	46	48	49	51	54	57
L	90	91	94	96.5	98.5	103.5	107	111	116	118	120