1.5ME

Aluminium gear motors

Technical Catalogue

E0.109.0219.02.00IM02

OIL SOLUTIONS
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"For All Your Hydraulic Needs"

salami®

GEAR MOTORS

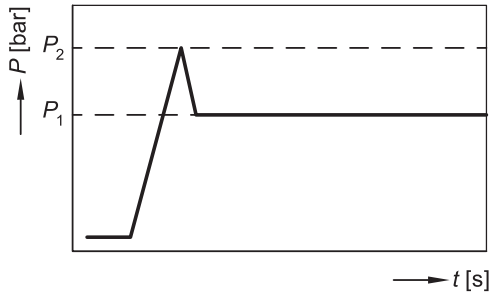
•Displacements from 2.8 cm³/rev to 73.4 cm³/rev *(from 0.17 cu.in./rev to 4.48 cu.in./rev).*
•Rated pressure up to 250 bar (3625psi).
•Speed up to 4500 rpm.
•Flanges, shafts and ports for ISO, DIN and SAE standards.
•Available in uni and bi-directional version for all the sizes, displacements and configurations.
•High volumetric efficiency thanks to an innovative design and an accurate control of machining tolerances.
•Axial compensation achieved by the use of floating bushes that allow high volumetric efficiency throughout the working pressure range.
•DU bearings to ensure high pressure capability.
•12 teeth integral gear and shaft.
•Aluminium body.
•Cast iron flange and cover.
•Double shaft seals in all motor series. The one which faces the internal side is reinforced.
•Nitrile seals as standard and Viton seals in high temperature applications.
•Available with different valves and circuit configurations built-in rear cover.
•All motors are hydraulically tested after assembly to ensure the highest standard performance.

WORKING CONDITIONS

- Max pressure drain	20 bar (290 psi)
- Minimum operating fluid viscosity	12 mm²/sec
- Permitted viscosity range	12 - 800 mm² / sec
- Recommended viscosity range	20 - 80 mm² / sec
- Permitted viscosity for starting	2000 mm² / sec
- Fluid operating temperature range	-20 to 80 °C
- Fluid operating temperature range with FPM seals	-15 to 110°C
- Fluid operating temperature range with HNBR seals*	-30 to 110°C
- Hydraulic fluid	Mineral oil according to DIN 51524. Other hydraulic fluids on request.

*Available on request

DEFINITION OF PRESSURES



P_1 max. continuous pressure
P_2 starting pressure (depending on the application, this must be taken into consideration when setting the pressure of the hydraulic system’s pressure-relief valve).

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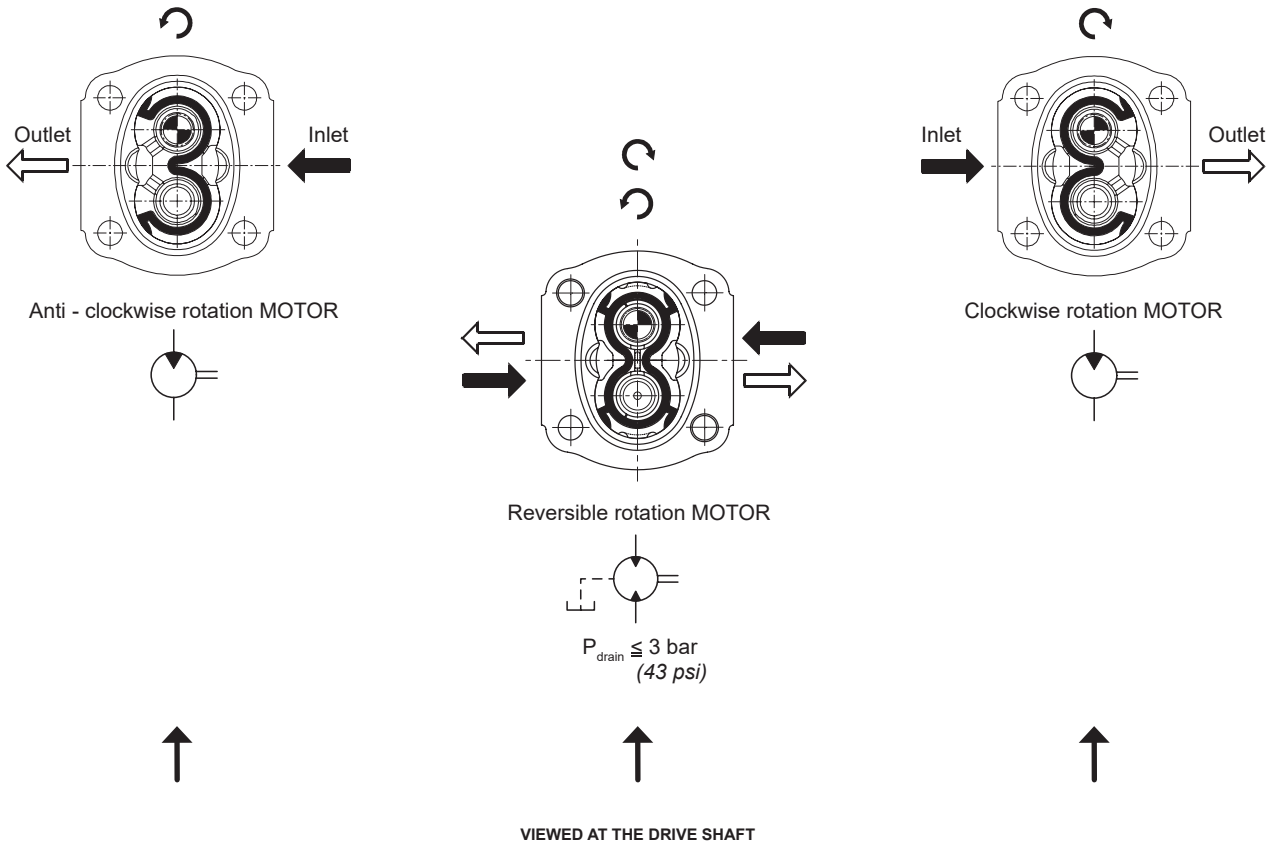
DRIVE SHAFTS

Radial and axial loads on the shafts must be avoided since they reduce the life of the unit.
In order to avoid misalignment during the assembly with the primary engine, a connection with “Oldham” coupling (or coupling having convex toothed hub) is recommended.

ROTATION



HYDRAULIC PIPE LINE

To calculate hydraulic pipe line size, the designer can use; as an approximate guide, the following fluid speed figures:

From 6 to 10 m/sec on pressure pipe line	From *19.7* to *32.8 ft/sec* on pressure pipe line

The lowest fluid speed values in pipe lines is recommended when the operating temperature range is high and/or for continuous duty.
The highest value is recommended when the temperature difference is low and/or for intermittent duty.
In case of reversible motor allowance must be made to ensure the motor is not drained, through the case drain, when stationary.

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FILTRATION INDEX RECOMMENDED

Working pressure	>200 bar/2900 psi	<200 bar/2900 psi
Contamination class NAS 1638	9	10
Contamination class ISO 4406	19/18/15	20/19/16
Achieved with filter β_x=75	15 µm	25 µm

COMMON FORMULAS FOR MOTORS

Based on SI units

Input flow: $Q = \frac{V \cdot n}{1000 \cdot \eta_v}$ l/min

Output torque: $M = \frac{V \cdot \Delta p \cdot \eta_m}{20 \cdot \pi}$ Nm

Output power: $P = \frac{M \cdot n}{9550} = \frac{Q \cdot \Delta p \cdot \eta_t}{600}$ kW

Variables: SI units [US units]

Based on US units

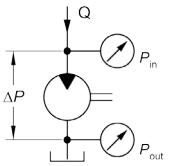
Input flow: $Q = \frac{V \cdot n}{231 \cdot \eta_v}$ [US gal/min]

Output torque: $M = \frac{V \cdot \Delta p \cdot \eta_m}{2 \cdot \pi}$ [lbf•in]

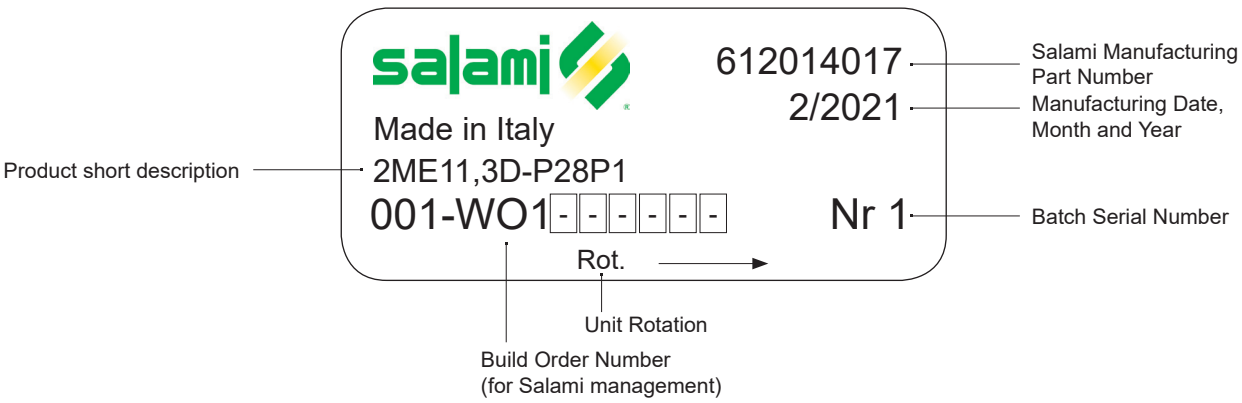
Output power: $P = \frac{M \cdot n}{63\,025} = \frac{Q \cdot \Delta p \cdot \eta_t}{1714}$ [hp]

LEGENDA

V	=	Displacement	cm³/rev [in³/rev]
P_{out}	=	Outlet pressure	bar [psi]
P_{in}	=	Inlet pressure	bar [psi]
ΔP	=	$P_{out} - P_{in}$ (system pressure)	bar [psi]
n	=	Speed	min⁻¹ (rpm)
η_v	=	Volumetric efficiency	
η_m	=	Mechanical efficiency	
η_t	=	Overall efficiency ($\eta_v \cdot \eta_m$)	



IDENTIFICATION LABEL



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TECHNICAL DATA

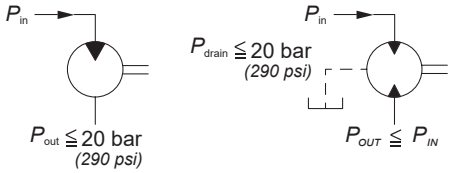
	Displacement		Max. continuous pressure P1		Max. starting pressure P2		Max. speed at P2	Min. speed at P1
GROUP 1.5 - E SERIES	cm³/rev	*cu.in/rev*	bar	*psi*	bar	*psi*	rpm	
1.5ME - 2.8	2.8	*0.17*	250	*3625*	270	*3915*	4500	700
1.5ME - 3.5	3.5	*0.21*	250	*3625*	270	*3915*	4500	700
1.5ME - 4.1	4.1	*0.25*	250	*3625*	270	*3915*	4000	700
1.5ME - 5.2	5.2	*0.32*	230	*3335*	250	*3625*	4000	700
1.5ME - 6.2	6.2	*0.38*	230	*3335*	250	*3625*	3600	600
1.5ME - 7.6	7.6	*0.46*	200	*2900*	220	*3190*	3300	600
1.5ME - 9.3	9.3	*0.57*	180	*2610*	200	*2900*	3000	600
1.5ME - 11	11	*0.67*	170	*2465*	190	*2755*	3000	600

GROUP 2 - E SERIES	cm³/rev	*cu.in/rev*	bar	*psi*	bar	*psi*	rpm	
2ME - 4.5	4.6	*0.27*	250	*3625*	280	*4060*	4000	600
2ME - 6.5	6.5	*0.4*	250	*3625*	280	*4060*	4000	600
2ME - 8.3	8.2	*0.5*	250	*3625*	280	*4060*	3600	500
2ME - 10.5*	10.6	*0.65*	250	*3625*	280	*4060*	3500	500
2ME - 11.3	11.5	*0.68*	250	*3625*	280	*4060*	3500	500
2ME - 12.5*	12.7	*0.77*	250	*3625*	280	*4060*	3400	500
2ME - 13.8	13.8	*0.84*	250	*3625*	280	*4060*	3400	500
2ME - 16	16.6	*1.01*	250	*3625*	280	*4060*	3200	450
2ME - 19	19.4	*1.15*	220	*3190*	240	*3480*	3200	450
2ME - 22.5	22.9	*1.37*	200	*2900*	220	*3190*	3000	450
2ME - 26	26.6	*1.62*	180	*2610*	200	*2900*	2850	450

*Available for quantity

GROUP 2.5 - B SERIES	cm³/rev	*cu.in/rev*	bar	*psi*	bar	*psi*	rpm	
2.5MB - 16	16	*0.97*	250	*3625*	280	*4060*	3000	600
2.5MB - 19	19.3	*1.17*	250	*3625*	280	*4060*	3000	600
2.5MB - 22	22.2	*1.35*	250	*3625*	280	*4060*	3000	500
2.5MB - 25	25.2	*1.53*	250	*3625*	280	*4060*	3000	500
2.5MB - 28	27.6	*1.68*	250	*3625*	280	*4060*	3000	500
2.5MB - 32	32.4	*1.97*	230	*3330*	250	*3625*	3000	500
2.5MB - 38	38.1	*2.32*	200	*2900*	220	*3190*	2750	400
2.5MB - 44	44.2	*2.69*	170	*2465*	190	*2755*	2500	400

GROUP 3 - E SERIES	cm³/rev	*cu.in/rev*	bar	*psi*	bar	*psi*	rpm	
3ME - 27	27	*1.65*	250	*3625*	280	*4060*	3000	600
3ME - 33	33.5	*2.04*	250	*3625*	280	*4060*	3000	600
3ME - 38	38.7	*2.36*	250	*3625*	280	*4060*	2750	500
3ME - 46	46.9	*2.86*	250	*3625*	270	*3915*	2750	500
3ME - 55	54.1	*3.3*	220	*3190*	240	*3480*	2500	400
3ME - 65	63.1	*3.85*	200	*2900*	220	*3190*	2500	400
3ME - 75	73.4	*4.48*	180	*2610*	200	*2900*	2500	400



The Motors are equipped with HPD shaft seal (20bar),
on request is available also for motor with outrigger bearing.
Max drain pressure is influenced by rotational speed of the unit.

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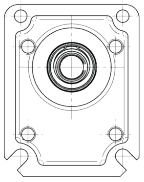
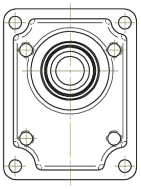
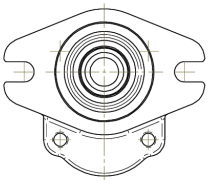
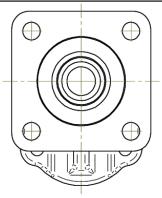
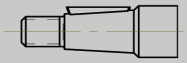
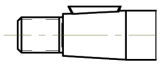
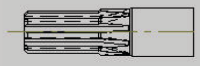
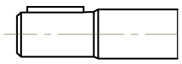
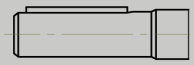
Final revised edition - February 2019
The data in this catalogue refers to the standard product.
The policy of Salami S.p.A. consists of a continuous improvement of its products. It reserves the right to change the specifications of the different products whenever necessary and without giving prior information.
If any doubts, please contact our sales department.

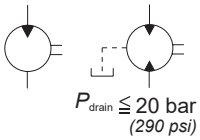
SHAFTS AND FLANGES COMBINATION

1.5ME	 CODE **P0** - (Ø25,4 mm) European standard	 CODE **P01** - (Ø30 mm) European standard	 CODE **S0** - SAE AA 2 bolts	 CODE **S1** - SAE AA 4 bolts
 CODE **18** - Tapered 1:8	18P0			
 CODE **19** - Tapered 1:8		19P01		
 CODE **51** - SAE A Splined 9T			51S0	
 CODE **80** - SAE AA Parallel Ø12,7			80S0	
 CODE **83** - SAE Parallel Ø12,7				83S1

1.5ME

GEAR MOTORS "E" SERIES
Aluminium Body

Displacements up to 0.67 cu.in./rev
Pressure up to 3625 psi

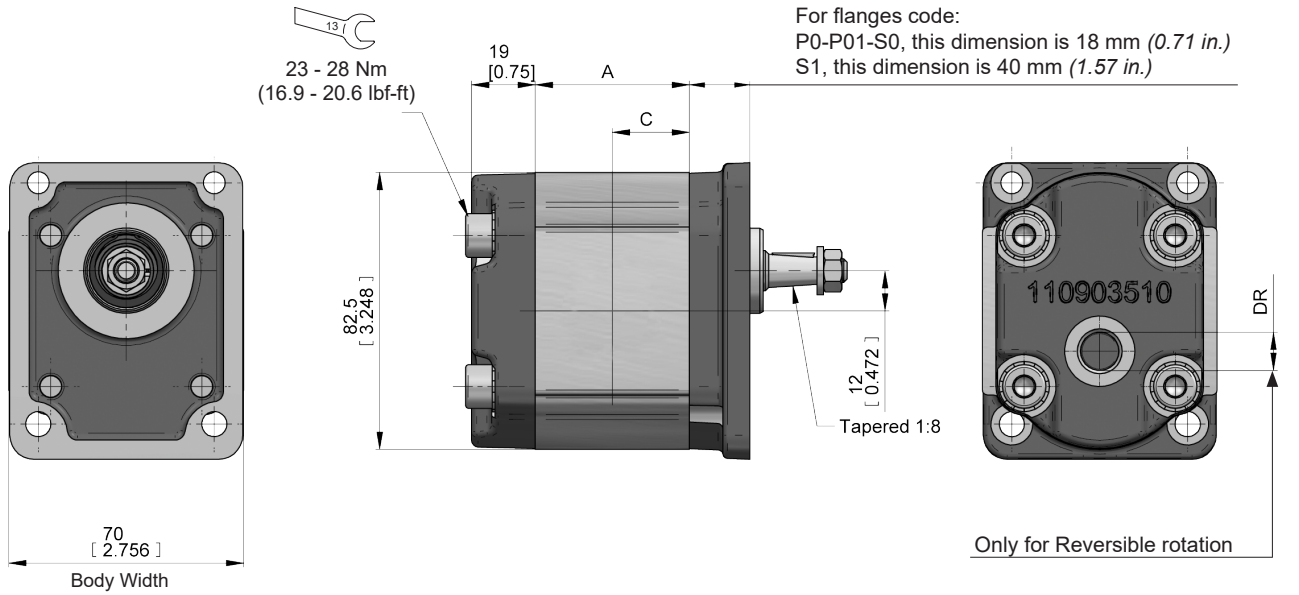


GEAR MOTORS

Displacements up to 11 cm³/rev
Pressure up to 250 bar

ASSEMBLING DIMENSIONS AND WORKING CONDITIONS

Type		2.8	3.5	4.1	5.2	6.2	7.6	9.3	11
Displacement	cm³/rev *cu.in./rev*	2.8 *0.17*	3.5 *0.21*	4.1 *0.25*	5.2 *0.32*	6.2 *0.38*	7.6 *0.46*	9.3 *0.57*	11 *0.67*
Dimension A	mm *in*	47.9 *1.89*	49.9 *1.96*	51.6 *2.03*	54.7 *2.15*	57.5 *2.26*	61.5 *2.42*	66.3 *2.61*	71.1 *2.80*
Dimension C	mm *in*	23.95 *0.94*	24.95 *0.98*	25.8 *1.02*	27.35 *1.08*	28.75 *1.13*	30.75 *1.21*	33.15 *1.31*	35.55 *1.40*
Max continuous pressure	P[1] bar *psi*	250 *3625*	250 *3625*	250 *3625*	230 *3335*	230 *3335*	200 *2900*	180 *2610*	170 *2465*
Max starting pressure	P[2] bar *psi*	270 *3915*	270 *3915*	270 *3915*	250 *3625*	250 *3625*	220 *3190*	200 *2900*	190 *2755*
Max speed	rpm	4500	4500	4000	4000	3600	3300	3000	3000
Min speed	rpm	700	700	700	700	600	600	600	600
Weight	kg *lbs*	1.30 *2.87*	1.34 *2.94*	1.37 *3.02*	1.42 *3.13*	1.45 *3.20*	1.52 *3.35*	1.59 *3.50*	1.66 *3.66*



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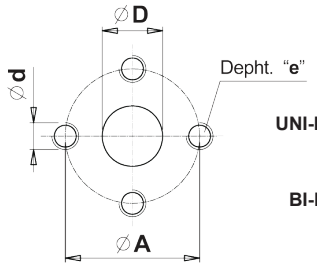
FLANGED and THREADED PORTS



code P

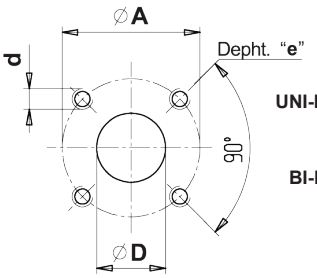
Flanged ports
european standard

UNI-DIRECTIONAL MOTORS

BI-DIRECTIONAL MOTORS

TYPE	OUTLET				INLET				DRAIN*
	Ø D	Ø A	d	e	Ø D	Ø A	d	e	DR
From 2.8 to 11	13 *(0.51")*	30 *(1.18")*	M6	13 *(0.51")*	12 *(0.47")*	30 *(1.18")*	M6	13 *(0.51")*	G1/4

*Only for Reversible rotation



code B

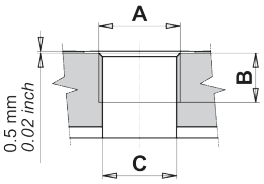
Flanged ports
german standard

UNI-DIRECTIONAL MOTORS

BI-DIRECTIONAL MOTORS

TYPE	OUTLET				INLET				DRAIN*
	Ø D	Ø A	d	e	Ø D	Ø A	d	e	DR
From 2.8 to 11	13 *(0.51")*	30 *(1.18")*	M6	13 *(0.51")*	12 *(0.47")*	30 *(1.18")*	M6	13 *(0.51")*	G1/4

*Only for Reversible rotation



code G

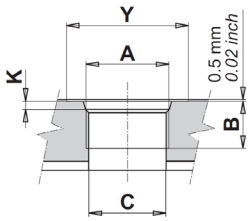
Threaded ports
GAS (BSPP)

UNI-DIRECTIONAL MOTORS

TYPE	OUTLET			INLET		
	A	B	C	A	B	C
From 2.8 to 6.2	G1/2	15 *(0.59")*	17 *(0.67")*	G3/8	13 *(0.51")*	13 *(0.51")*
From 7.6 to 11				G1/2	15 *(0.59")*	

BI-DIRECTIONAL MOTORS

TYPE	OUTLET			INLET			DRAIN
	A	B	C	A	B	C	DR
From 2.8 to 6.2	G3/8	13 *(0.51")*	13 *(0.51")*	G3/8	13 *(0.51")*	13 *(0.51")*	G1/4
From 7.6 to 11	G1/2	15 *(0.59")*	30 *(1.18")*	G1/2	15 *(0.59")*		



code R

Threaded ports
SAE (ODT)

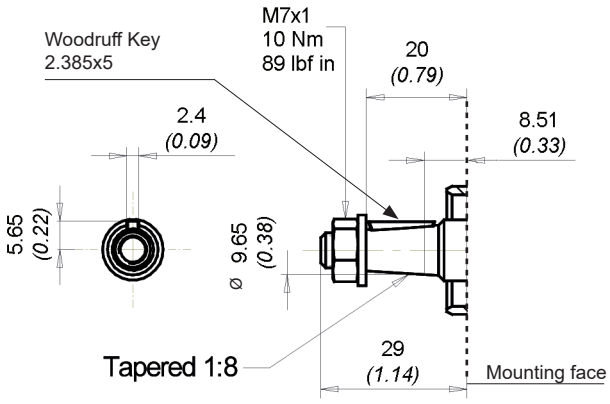
UNI-DIRECTIONAL MOTORS

TYPE	OUTLET					INLET				
	A	B	C	Y	K	A	B	C	Y	K
From 2.8 to 6.2	3/4 -16 UNF (SAE 8)	14.5 *(0.57")*	13 *(0.51")*	30 *(1.18")*	2.5 *(0.10")*	9/16 - 18 UNF (SAE6)	13 *(0.51")*		25 *(0.98")*	2.5 *(0.10")*
From 7.6 to 11	7/8 -14 UNF (SAE10)	16.7 *(0.66")*	20 *(0.79")*	34 *(1.34")*	2.5 *(0.10")*	3/4 -16 UNF (SAE8)	14.5 *(0.57")*	15 *(0.59")*	30 *(1.18")*	

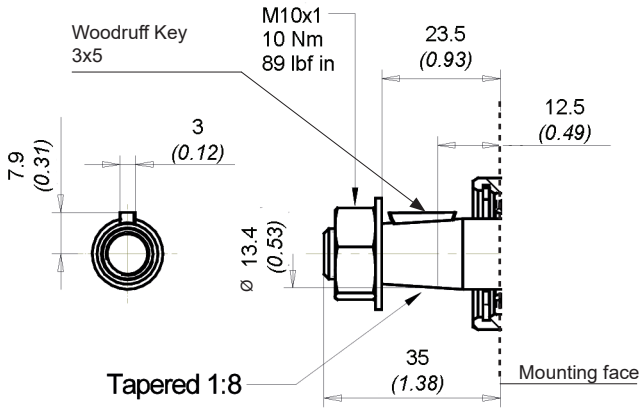
BI-DIRECTIONAL MOTORS

TYPE	OUTLET					INLET					DRAIN
	A	B	C	Y	K	A	B	C	Y	K	DR
From 2.8 to 6.2	3/4 - 16 UNF (SAE 8)	14.5 *(0.57")*	13 *(0.51")*	30 *(1.18")*	2.5 *(0.10")*	3/4 - 16 UNF (SAE8)	13 *(0.51")*		25 *(0.98")*	2.5 *(0.10")*	7/16 - 20 UNF (SAE4)
From 7.6 to 11	7/8 - 14 UNF (SAE10)	16.7 *(0.66")*	13 *(0.51")*	34 *(1.34")*	2.5 *(0.10")*	7/8 - 14 UNF (SAE10)	14.5 *(0.57")*	13 *(0.51")*	30 *(1.18")*		

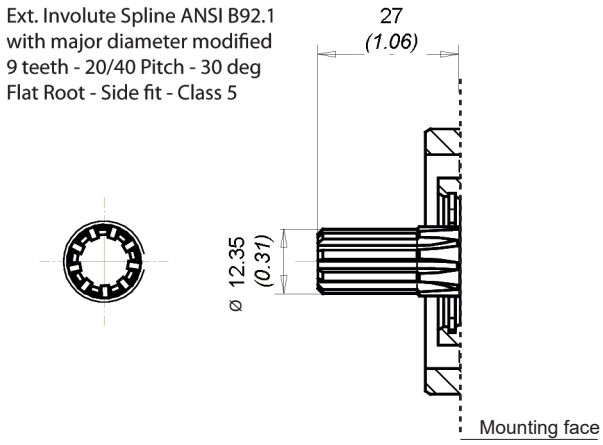
DRIVE SHAFTS



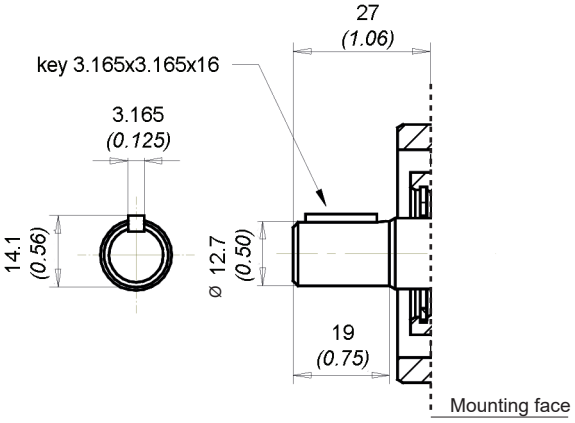
code 18 Max torque 20 Nm (177 lbf in)
European Tapered 1:8



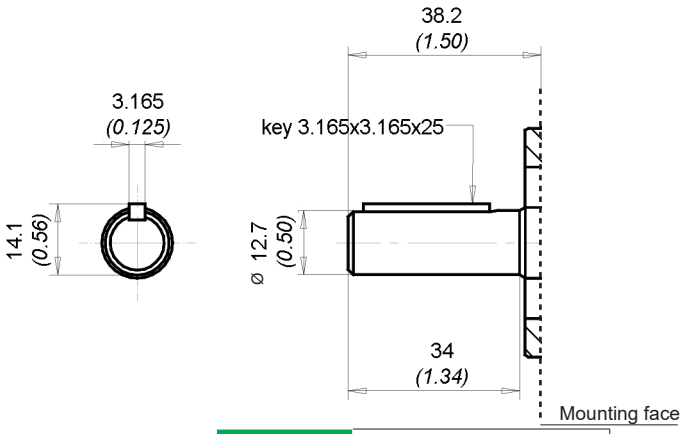
code 19 Max torque 60 Nm (531 lbf in)
European Tapered 1:8



code 51 Max torque 50 Nm (442 lbf in)
SAE A Spline 9T



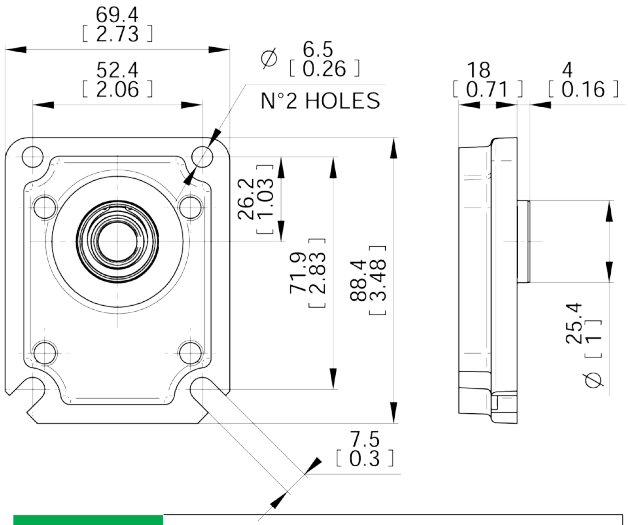
code 80 Max torque 40 Nm (354 lbf in)
SAE AA Parallel



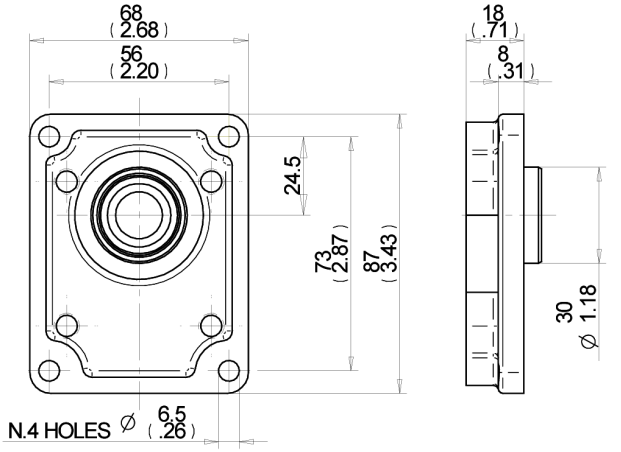
code 83 Max torque 40 Nm (354 lbf in)
SAE Parallel

E0.109.0219.02.00IM02

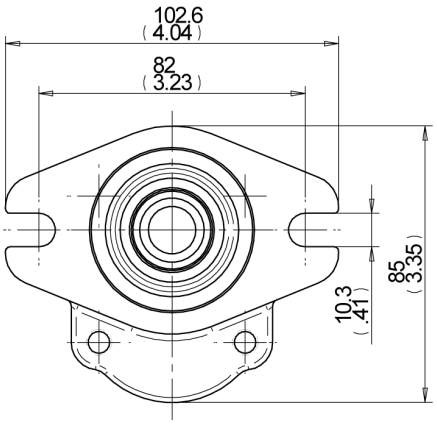
MOUNTING FLANGES

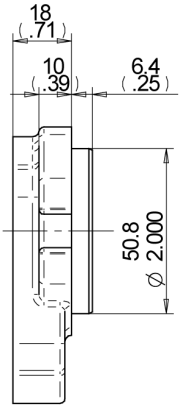


P0	European standard
With shaft code 18	

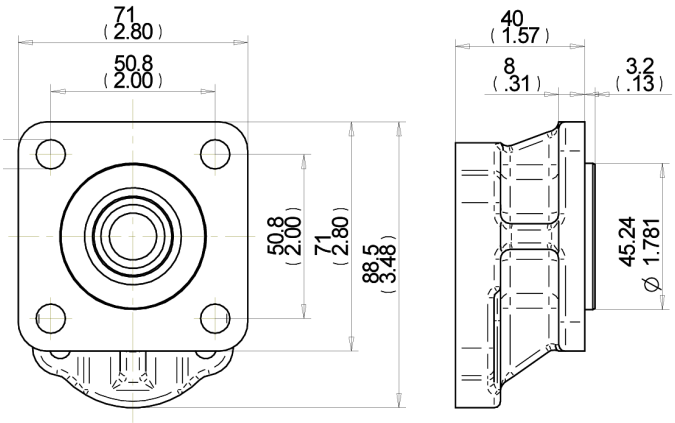


P01	European standard
With shaft code 19	





S0	SAE AA 2 bolts
With shaft code 51-80	



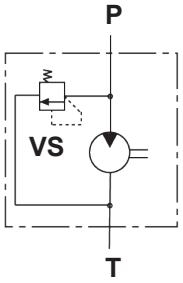
S1	SAE AA 4 bolts
With shaft code 83	

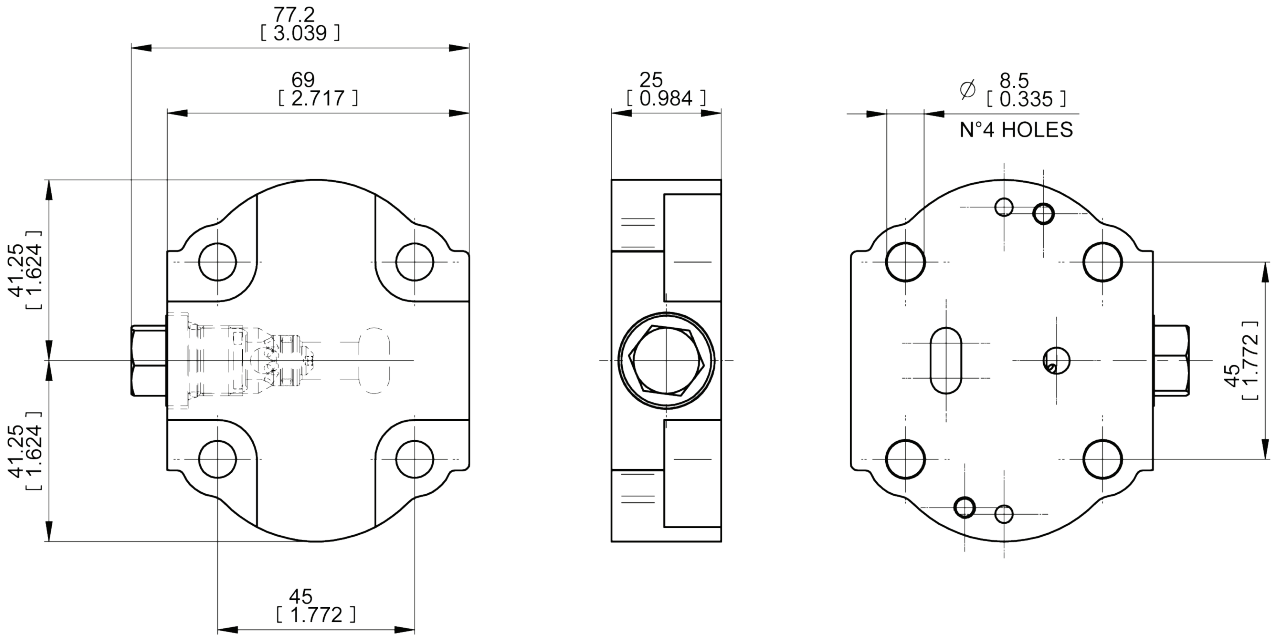
1800-OILSOL
1800-645765
https://oilsolutions.com.au/
sales@oilsolutions.com.au

REAR COVERS WITH RELIEF VALVE

code VS

With main relief valve
with internal unloading line.
Rear cover with fixed setting main relief valve.
Available values of fixed setting (20 bar-250 bar/*290 psi-3625 psi*)
(Standard setting are multiple of 10 bar).

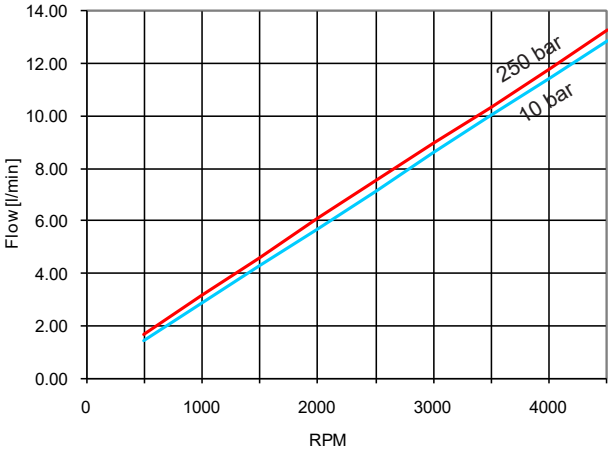


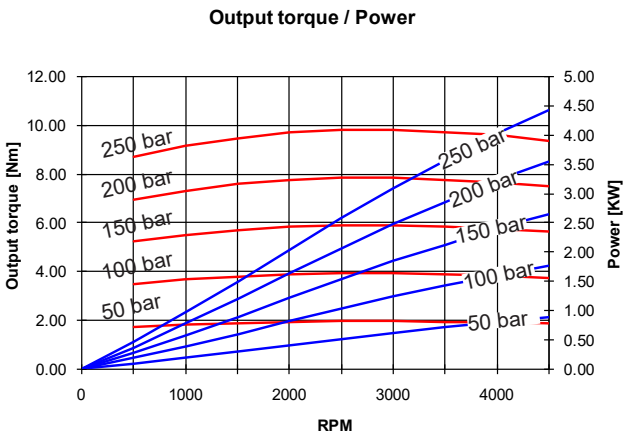


E0.109.0219.02.00IM02

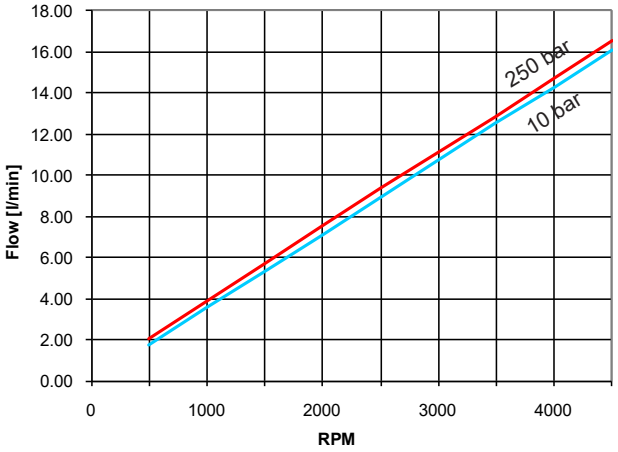
PERFORMANCE CURVES

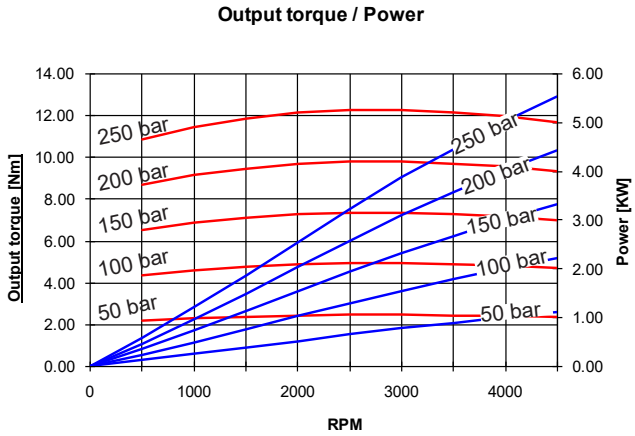
Performance curves carried out with oil viscosity at 21 cSt and oil temperature at 50°C



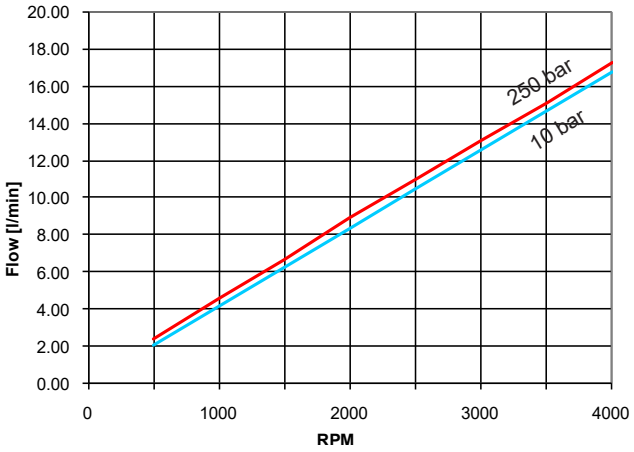


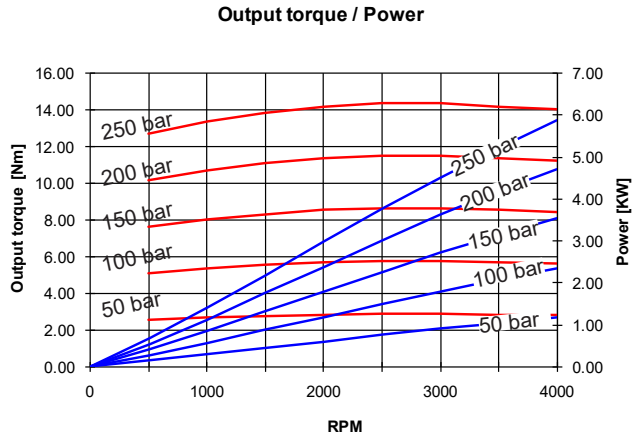
1.5ME - 2.8





1.5ME - 3.5





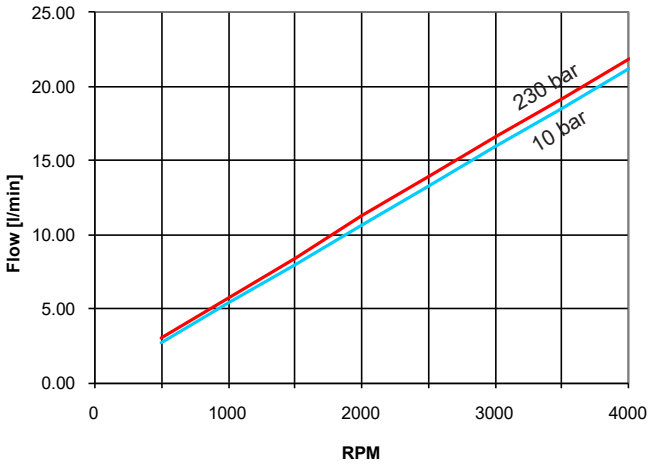
1.5ME - 4.1

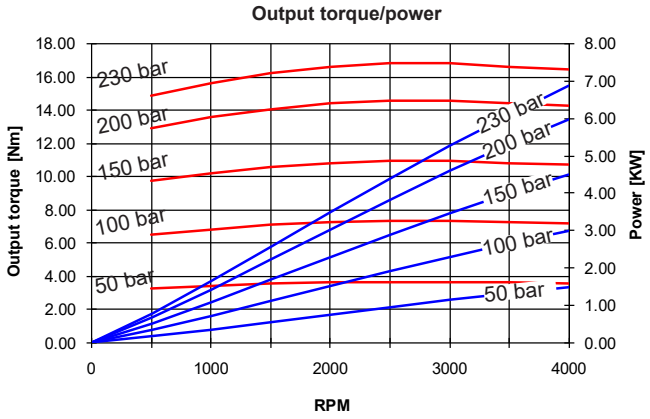
1.5ME

GEAR MOTORS "E" SERIES
Aluminium Body

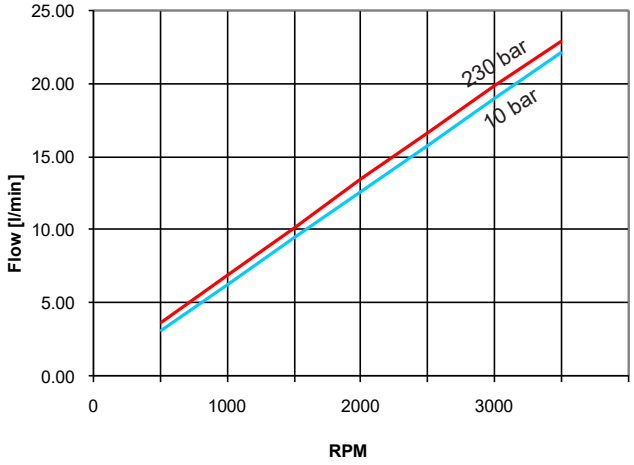
PERFORMANCE CURVES

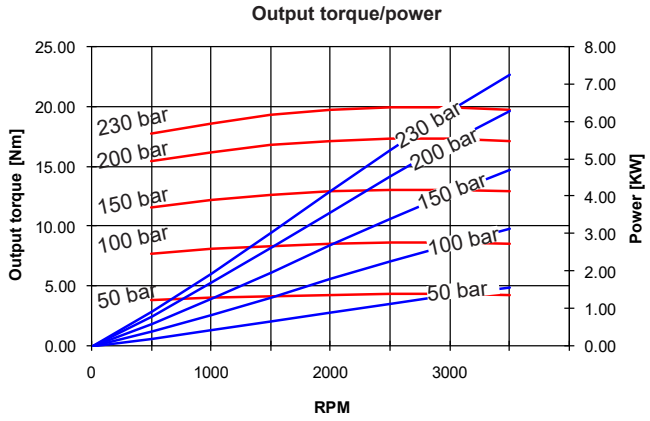
Performance curves carried out with oil viscosity at 21 cSt and oil temperature at 50°C



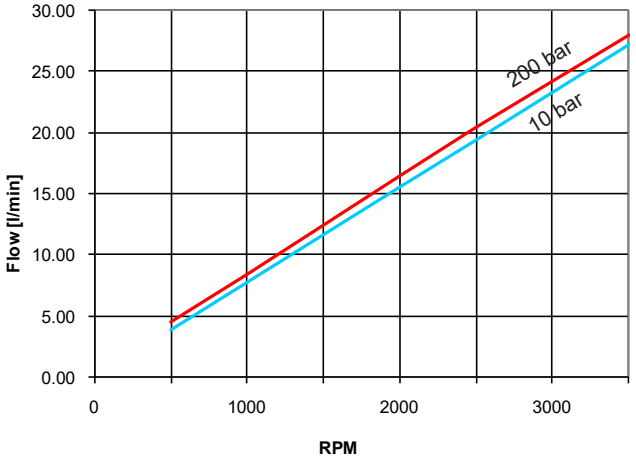


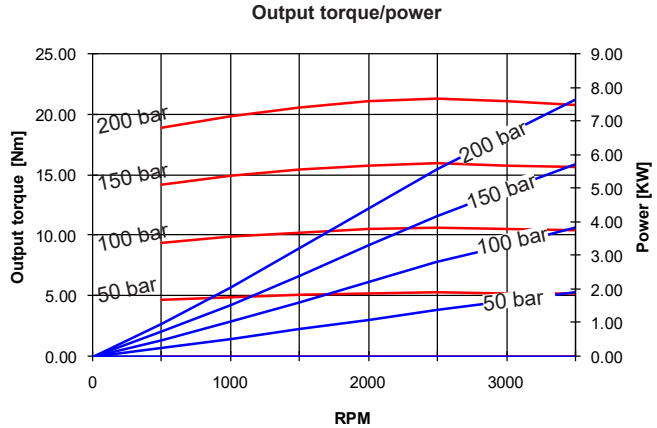
1.5ME - 5.2





1.5ME - 6.2





1.5ME -7.6

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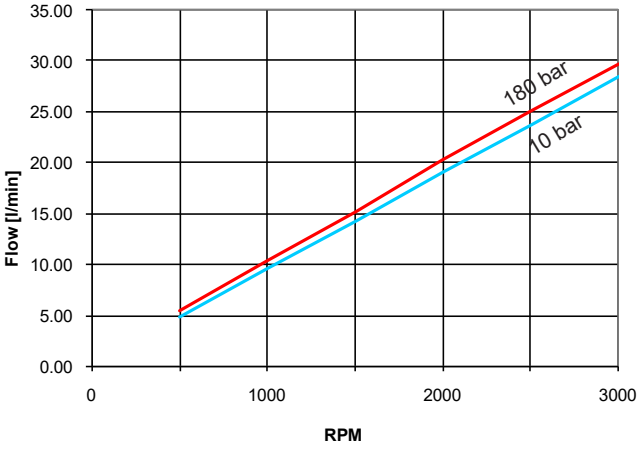
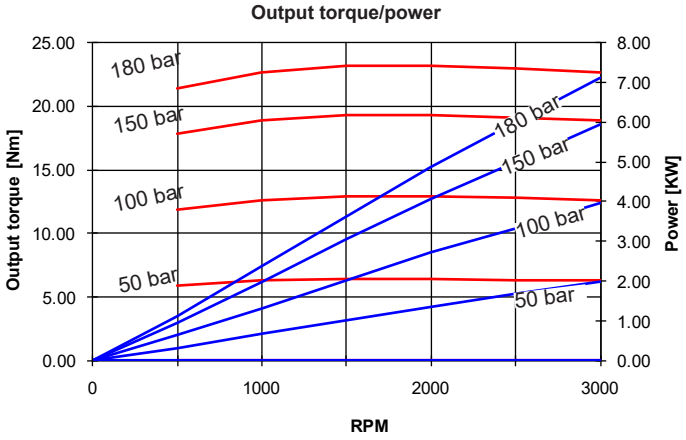
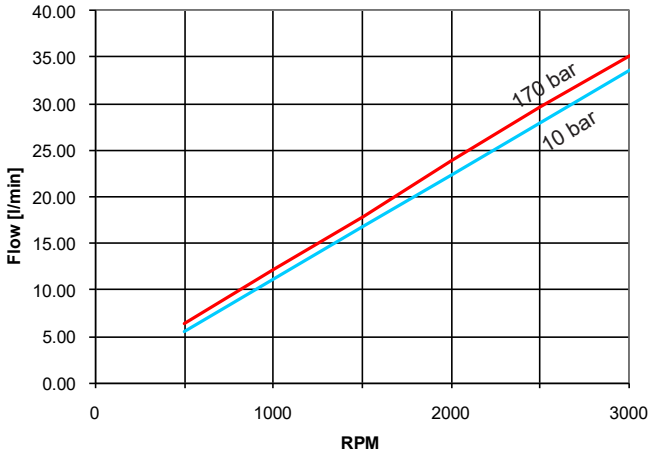
PERFORMANCE CURVES

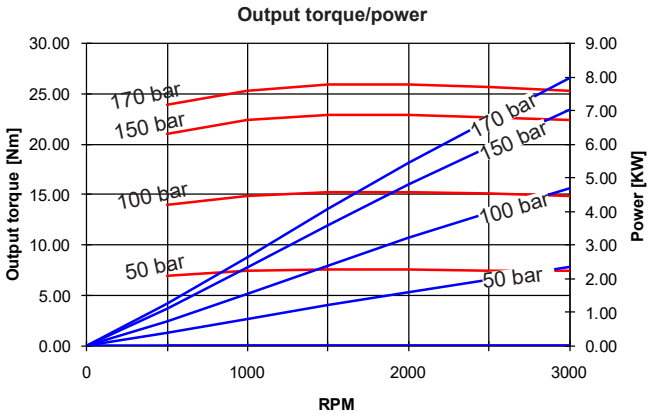
Performance curves carried out with oil viscosity at 21 cSt and oil temperature at 50°C





1.5ME - 9.3



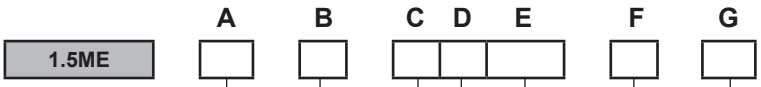


1.5ME - 11

How to order-1.5ME

GEAR MOTORS "E" SERIES
Aluminium Body

SINGLE MOTORS



DISPLACEMENTS		CODES A
2.8 cm³/rev.	*0.17 cu.in/rev.*	2.8
3.5 cm³/rev.	*0.21 cu.in/rev.*	3.5
4.1 cm³/rev.	*0.25 cu.in/rev.*	4.1
5.2 cm³/rev.	*0.32 cu.in/rev.*	5.2
6.2 cm³/rev.	*0.38 cu.in/rev.*	6.2
7.6 cm³/rev.	*0.46 cu.in/rev.*	7.6
9.3 cm³/rev.	*0.57 cu.in/rev.*	9.3
11 cm³/rev.	*0.67 cu.in/rev.*	11

ROTATION (page 132)	CODES B
Clockwise	D
Anti-clockwise	S
Reversible	R

PORTS (page 141)	CODES C
Flanged ports european standard	P
Flanged ports german standard	B
Threaded ports GAS (BSPP)	G
Threaded ports SAE (ODT)	R

DRIVE SHAFTS (page 142)	CODES D
European Tapered 1:8	18
European Tapered 1:8	19
SAE A splined 9T	51
SAE AA parallel Ø12,7	80
SAE parallel Ø12,7	83

G VALVES IN THE COVER (page 144)	CODE
Adjustable main relief valve	VS

F SEAL	CODE
Buna standard	
Viton	V

E MOUNTING FLANGES (page 143)	CODES
European standard	P0
European standard	P01
SAE AA (2 bolts)	S0
SAE AA (4 bolts)	S1

Order example: 1.5ME11.3D, ports SAE (R), drive shaft (82), mounting flange (S2).
1.5ME11.3D-R82S2

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