

G Series

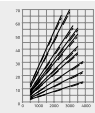
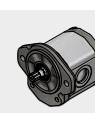
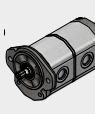
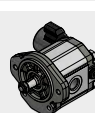
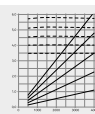
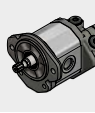
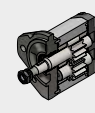
Group 2 gear pumps and motors



New

Roquet
making moves

roquetgroup.com

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Features

Roquet gear pumps offer:

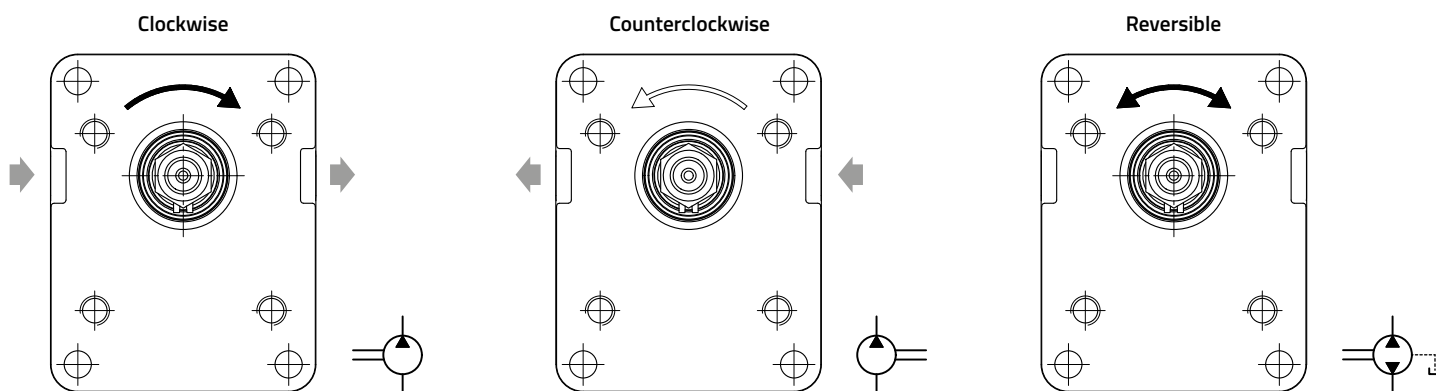
- High efficiency thanks to the specialized production processes.
- Axial compensation through floating bearings.
- High quality bushings for gear pumps.
- Aluminium or cast iron body.
- Front flange and back cover made of cast iron.
- NBR seals in the standard version.
- FKM seals available for high temperature applications.
- 100% of pumps delivered are tested.
- Option to create multiple pumps combining different Roquet pump models.
- Different multiple pumps inlets connected, common inlet & separate stages.
- Front flanges with outboard bearing configurations.
- Back covers with integrated valves.

Technical information

Displacement range	4 – 26,7 cm ³ /rev
Shafts, flanges and ports	According to European, German and American standards
Direction of rotation	Clockwise, counterclockwise and reversible
Inlet port pressure range	0,7 – 1,5 bar (absolute pressure)
Fluid	Recommended Mineral oil - ISO 6743 tipo HM, HV o HG
Viscosity	Recommended viscosity at work 20-80 cSt (mm ² /s) Maximum viscosity allowed at start 800 cSt (mm ² /s)
Oil working temperature	Recommended temperature 50 °C – Material NBR (-30/+80 °C) FKM (-20/+120 °C)
Cleanliness	ISO 4406 22/19/16

Direction of rotation

The direction of rotation is always defined looking at the pump from the front flange.



Common formulas

$$v = \frac{Q}{6 \cdot A} \quad [\text{m/s}]$$

$$Q = \frac{V \cdot n \cdot \eta_{\text{vol}}}{1000} \quad [\text{l/min}]$$

$$M = \frac{(V \cdot \Delta p)}{(62,8 \cdot \eta_{\text{hm}})} \quad [\text{N} \cdot \text{m}]$$

$$P = \frac{(Q \cdot \Delta p)}{(600 \cdot \eta_t)} \quad [\text{kW}]$$

v = fluid speed [m/s]

Q = pump flow [l/min]

A = tube section [cm²]

V = pump displacement [cm³/rev]

n = rotation speed [rev/min]

Δp = pressure difference [bar]

M = necessary driving torque [N · m]

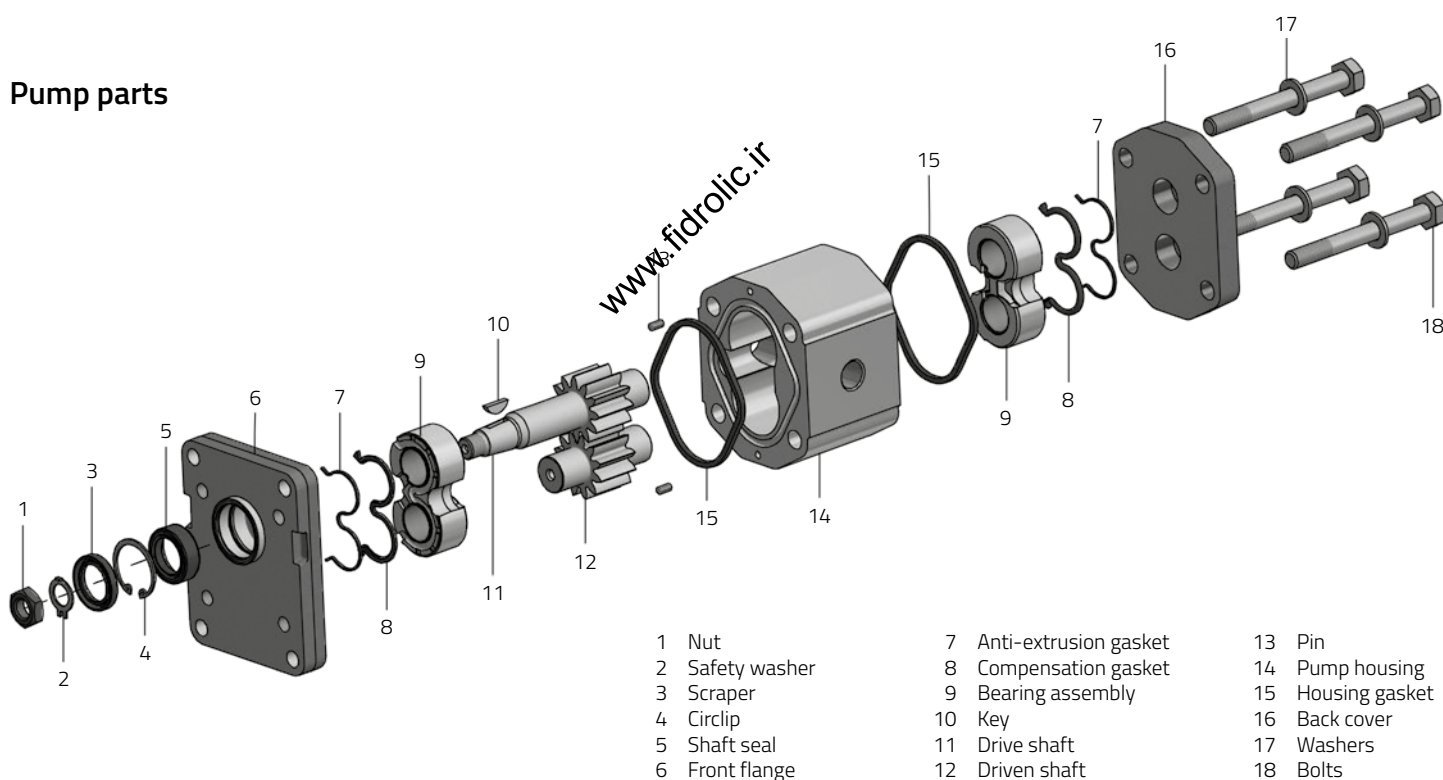
P = necessary driving power [kW]

η_{vol} = volumetric efficiency ($\approx 0,95$) [%]

η_{hm} = hydromechanical efficiency ($\approx 0,89$) [%]

η_t = total efficiency ($\approx 0,85$) [%]

Pump parts

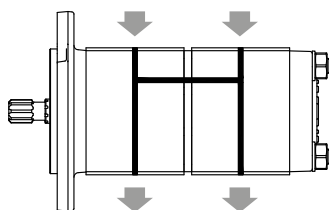


Installation recommendations

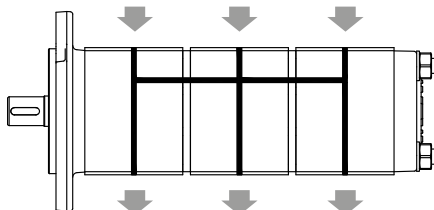
- Avoid radial and axial forces on the pump shaft for longer pump lifetime.
- The shafts of the pump have to be well aligned to avoid these forces.
- Elastic couplings are highly recommended.
- If these forces cannot be avoided, versions with outboard bearings can be offered.
- Avoid rotation speeds lower than those shown in the "technical data" section.
- Avoid pump starts under load at low temperatures.
- When starting, clean the whole installation before first run of system.
- Submerged installation recommended.
- If the pump shall be painted, protect the seal area and the drive shaft to avoid possible oil leaks.
- In reversible pumps, if possible, connect the drain to tank.

Versions

Standard version (Inlets connected)



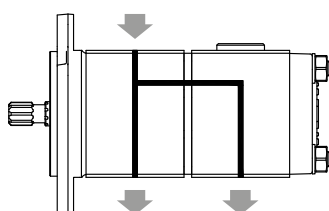
The oil can pass between sections.



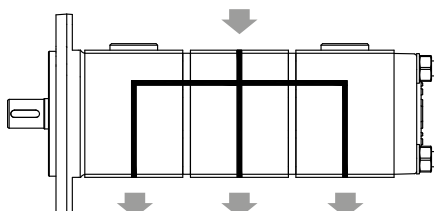
Reference

· (Without code).

Common inlet



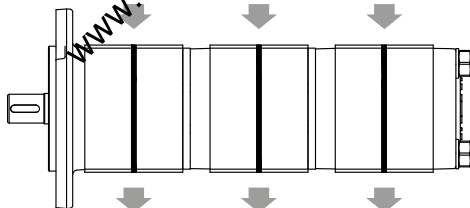
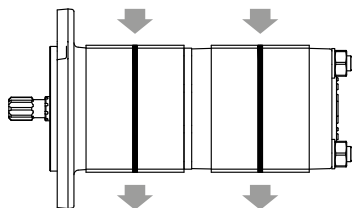
Designed to use less inlets than outlets.



- CI1 (Common inlet, body 1 inlet port).

- CI2 (Common inlet, body 2 inlet port).

Separate stages version



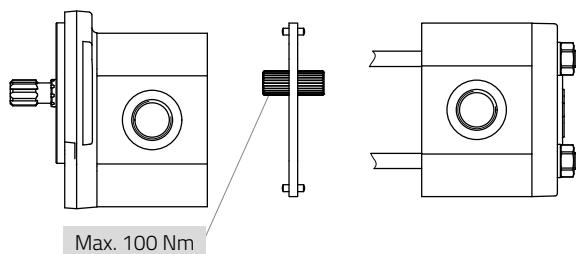
· SS (Separate stages).

Note: The pump length and the intermediate flanges are different than the above ones.

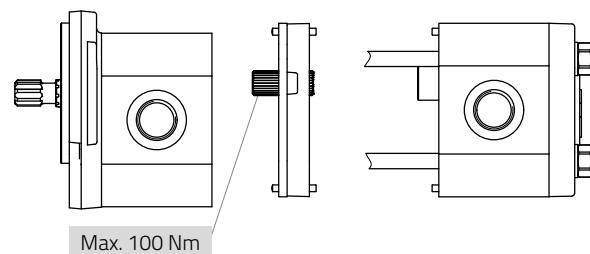
Driving torques

Driving torques between pumps

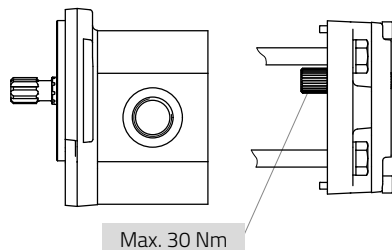
G+G - Common inlet



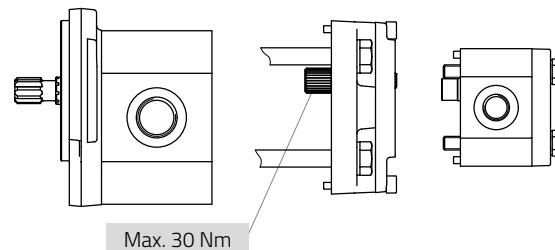
G+G - Separate stages

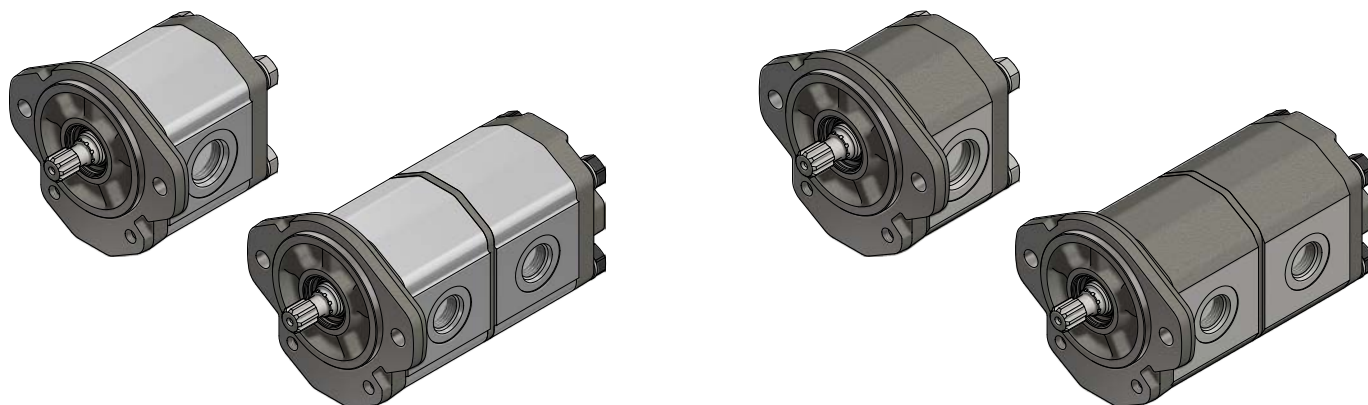


G+GS - Common inlet



G+GS - Separate stages





G Pump technical data (Aluminium body)

Displacement	cm³/v-cc/rev (in³/rev)	4 (0,24)	6 (0,37)	8 (0,49)	10,7 (0,65)	12 (0,73)	14,7 (0,90)	16 (0,98)	18 (1,10)	20,7 (1,26)	23,3 (1,42)	26,7 (1,62)	
Cont. max. pressure	bar (psi)	275 (3990)					250 (3625)		225 (3265)	200 (2900)	180 (2610)	170 (2465)	
Intermittent max. pressure	bar (psi)	300 (4350)					275 (3990)		250 (3625)	225 (3265)	200 (2900)	190 (2755)	
Maximum peak pressure	bar (psi)	310 (4495)					285 (4135)		260 (3770)	235 (3410)	210 (3045)	200 (2900)	
R.P.M. at cont. pressure		3500			3000		2500		2300		2000		
Max. R.P.M		4000			3500					3200		3000	2500
Min. R.P.M. at given pressures	100 bar (1450 psi)	500											
	175 bar (2540 psi)	1100		1200	1000		850				750		
	250 bar (3625 psi)	1400			1300		1200		1100		–		
	300 bar (4350 psi)	1750			1500		–						

Note: Pressures obtained with flanged bodies.

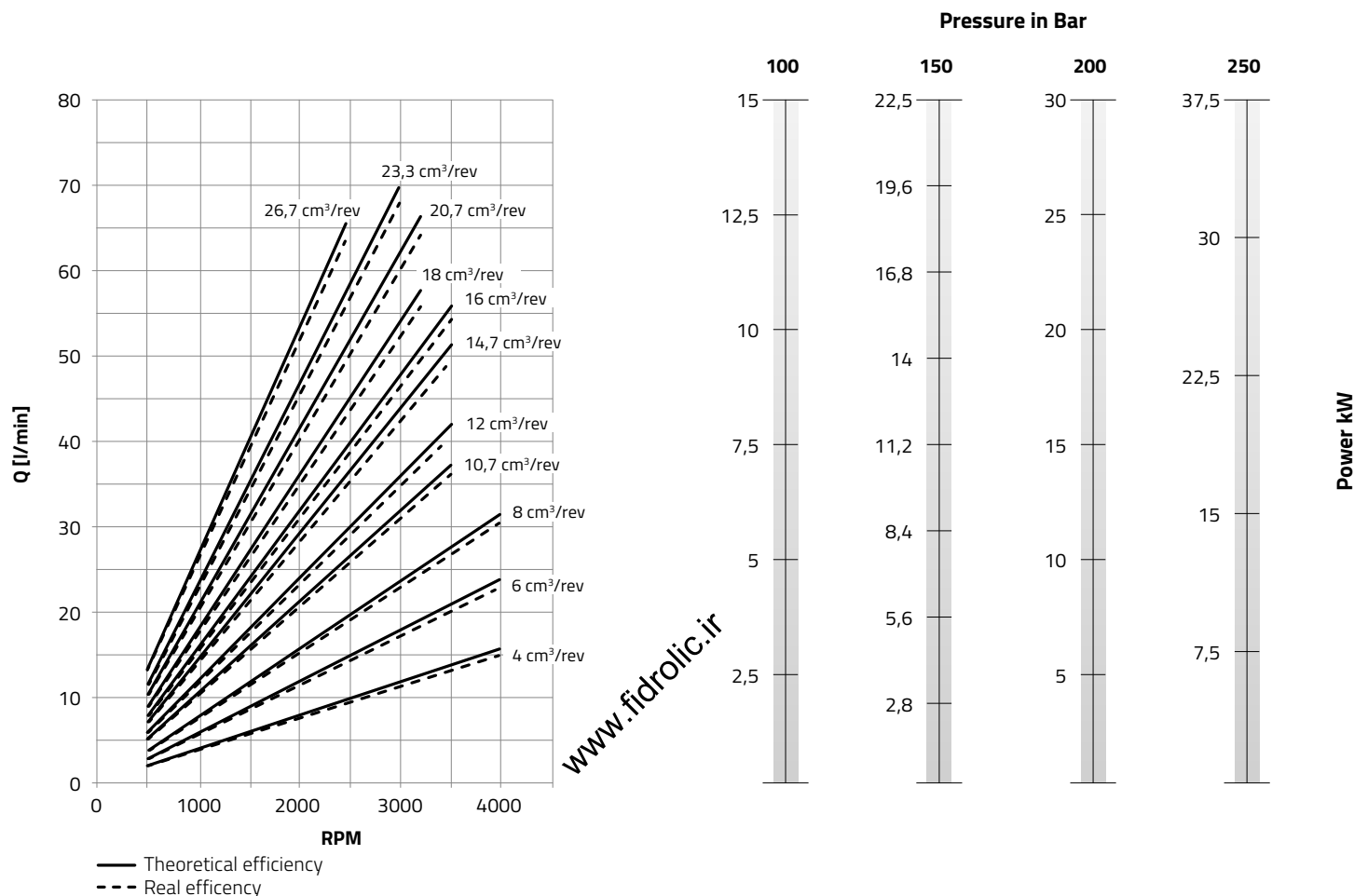
GN Pump technical data (Cast iron body)

Displacement	cm³/v-cc/rev (in³/rev)	4 (0,24)	6 (0,37)	8 (0,49)	10,7 (0,65)	12 (0,73)	14,7 (0,90)	16 (0,98)	18 (1,10)	20,7 (1,26)	23,3 (1,42)	26,7 (1,62)
Cont. max. pressure	bar (psi)	290 (4205)					275 (3990)		250 (3625)	235 (3410)	225 (3265)	215 (3120)
Intermittent max. pressure	bar (psi)	350 (5075)					330 (4785)		300 (4350)	275 (3990)	260 (3770)	250 (3625)
Maximum peak pressure	bar (psi)	360 (5220)					340 (4930)		310 (4495)	285 (4135)	270 (3915)	260 (3770)
R.P.M. at cont. pressure		3500			3000		2500		2300		2000	
Max. R.P.M		4000			3500				3200		3000	2500
Min. R.P.M. at given pressures	100 bar (1450 psi)	500										
	175 bar (2540 psi)	1100		1200	1000		850				750	
	250 bar (3625 psi)	1400			1300		1200		1100		–	
	300 bar (4350 psi)	1750			1500		–					

Note: With regard to all reversible pumps (G and GN), maximum pressure is 250 bar (3600 psi), except for those values where the pressure is lower.

Note: The definition of the pressure ranges is shown on page 7.

Flow, performance and power chart according to displacement



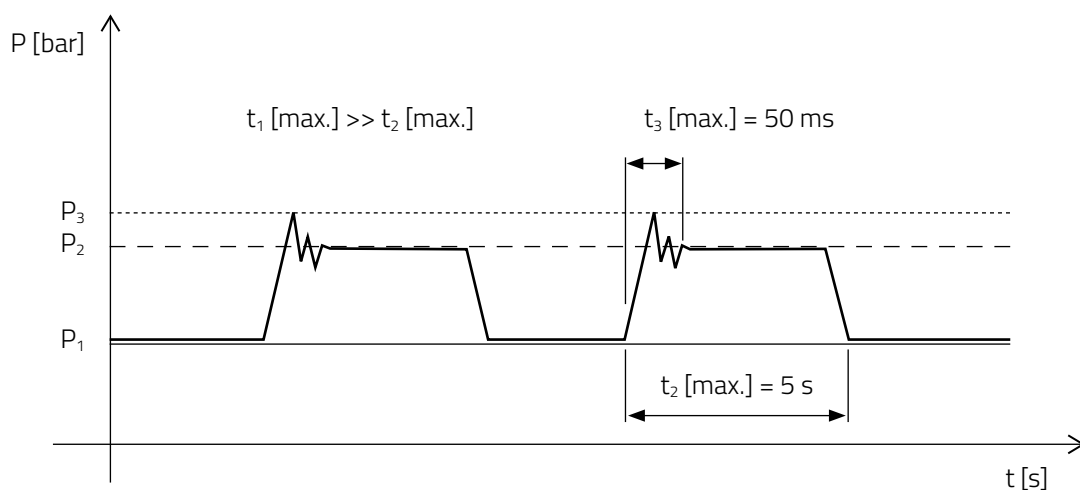
Pressure definition

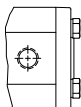
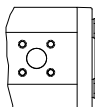
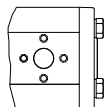
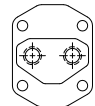
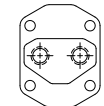
Technical data tables show 3 levels of maximum pressure to which a pump can be used:

P_1, t_1 – Maximum continuous pressure ———

P_2, t_2 – Maximum intermittent pressure - - -

P_3, t_3 – Maximum peak pressure $t_3 \leq 50 \text{ ms}$

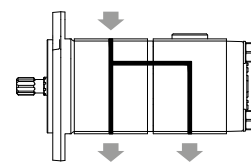


Coding System								Optional				
1	G	15C	D	E	10	R		/	V	42	T***	-***
Type 1 Without pulley 2 With pulley 5 Pump with floating shaft and back-up bearing								Code V FKM seals and shaft seal RV Only FKM shaft seal ID Internal drain				
Model G Single – Aluminium body GN Single – Cast iron body GM Multiple (G+G) GNM Multiple (GN+GN) GS Multiple (G+GO) GNS Multiple (GN+GO)								Alternatives with Valves VA Check valve V@ Relief valve VBP@ Low pressure relief valve RC@V@ Priority flow valve VC@V@ Flow control valve See variants with valves →				
Pump Displacement [cm³/rev] & [in³/rev] 4C 4,0 0,24 6C 6,0 0,37 8C 8,0 0,49 11C 10,7 0,65 12C 12,0 0,73 15C 14,7 0,90 16C 16,0 0,98 18C 18,0 1,10 21C 20,7 1,26 23C 23,3 1,42 27C 26,7 1,62								Chamber Type CI@ Standard SS Common inlet SS Separate stages				
Rotation Direction D Clockwise I Counterclockwise R Reversible								Port Connection Forms  R BSP thread  F German standard  B European standard  S SAE thread  T Rear ports - BSP  U Rear ports - SAE				
Drive Shaft Form D SAE B - 13 teeth — SAE J498b E European tapered 1:8 G SAE A - 9 teeth — SAE J498b H SAE A - Ø15,88 straight J German tapered 1:5 K SAE - 11 teeth — SAE J498b L SAE - Ø19,05 straight T DIN-5482 - 9 teeth Q Multiple pumps — (SS) Z Multiple pumps — (CI) For more options see shafts →								Mounting Flange 09 SAE A - 2 bolts 10 European flange 22 German standard - 2 bolts 23 German standard 89 SAE B - 2 bolts 00 Multiple pumps For more options see flanges →				

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Part number example GM Pump

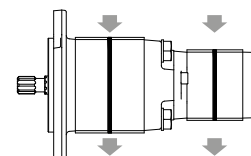
1	GM	15C	-	6C	D	E	10	R	-	CI1
Without pulley	GM Pump (G+G)	Displacement of the Pump G-1 [cm ³ /rev]					Front flange type: 10	Connection type: R		Common Inlet (Inlet 1)
				Displacement of the Pump G-2 [cm ³ /rev]		Shaft form: E				
					Clockwise Rotation					



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Part number example GS Pump

1	GS	15C	-	5C	D	E	10	R	-	SS
Without pulley	GS Pump (G+G0)	Displacement of the Pump G [cm ³ /rev]					Front flange type: 10	Connection type: R		Separate Stages
				Displacement of the Pump G0 [cm ³ /rev]		Shaft form: E				
					Clockwise Rotation					



Pumps and motors codification with integrated valves

Relief valve	
Tamper-proof sealable model and standard set pressure	
	Pressure range
V11	Set at 80 bar (5-80 bar)
V12	Set at 160 bar (85-175 bar)
V13	Set at 200 bar (180-250 bar)
Tamper-proof sealed model and specific set pressure	
	Pressure range
V41T***	5-80 bar
V42T***	85-175 bar
V43T***	180-250 bar
In the relief valve with tamper-proof cap, the signs *** have to be replaced by the set pressure (3 numbers) of the valve. See minimum set pressure curve (page 29). Example 1: 1G18CDE10R/V12 Example 2: 1G11CDE10R/V41T060	

Flow control valve with relief valve			
VC	@	V	@
Controlled flow		Tamper-proof sealable model and standard set pressure	
05	5 l/min		Pressure range
08	8 l/min		
12	12 l/min	11	Set at 80 bar (5-80 bar)
16	16 l/min	12	Set at 160 bar (85-175 bar)
22	22 l/min	13	Set at 200 bar (180-250 bar)
See minimum set pressure curve (page 30). Example: 1G8CDE10R/VC05V13			

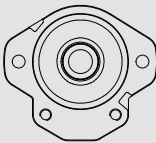
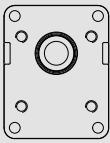
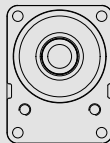
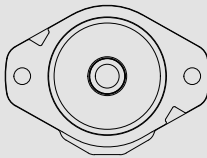
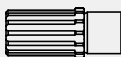
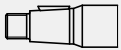
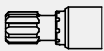
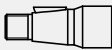
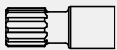
Check valve	
VA	See pressure diagram - flow (page 29). Example: 1G11CDE10R/VA

Low pressure relief valve	
VBPT**	The signs ** have to be replaced by the set pressure (2 numbers). See minimum set pressure curve (page 29). Example: 1G15CDE10R/VBP14

Priority flow rate with relief valve			
RC	@	V	@
Priority flow PF		Model without valve	
05	5 l/min	00	Without relief valve
06	6 l/min	Tamper-proof sealable model and standard set pressure	
08	8 l/min		Pressure range
10	10 l/min	11	Set at 80 bar (5-80 bar)
12	12 l/min	12	Set at 160 bar (85-175 bar)
14	14 l/min	13	Set at 200 bar (180-250 bar)
16	16 l/min	Tamper-proof sealed model and specific set pressure	
18	18 l/min		Pressure range
20	20 l/min	41T***	5-80 bar
		42T***	85-175 bar
		43T***	180-250 bar
In the relief valve with tamper-proof cap, the signs *** have to be replaced by the set pressure (3 numbers) of the valve. See minimum set pressure curve (page 30). Example 1: 1G11CDE10R/RC08V41T060 Example 2: 1G16CDE10R/RC16V12			

Drive shaft-front flange common combinations

The table below only contains the most common combinations. Contact the Sales Department for other combinations.

	09	10	19	22	23	89
						
	SAE A – 2 bolts	European	German 2 bolts	German 2 bolts	German	SAE B – 2 bolts
D  SAE B – 13 teeth						D 89
E  European tapered 1:8		E 10				
G  SAE A – 9 teeth	G 09					
H  SAE A – Ø15,88 straight	H 09					
J  German tapered 1:5				J 22	J 23	
K  SAE – 11 teeth	K 09					
L  SAE – Ø19,05 straight	L 09					
T  DIN-5482 – 9 teeth					T 23	
W  Tang			W19			

Drive shafts

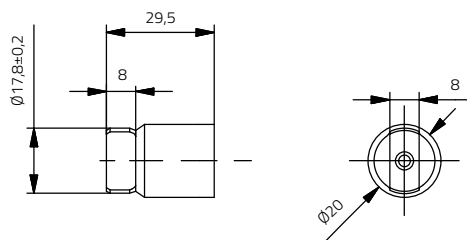
Contact with the Sales Department for other combinations.

NOTE: The drive shaft length is given from the side A of the front flanges (see pages 14 and 15).

Shaft form B

Roquet Tang

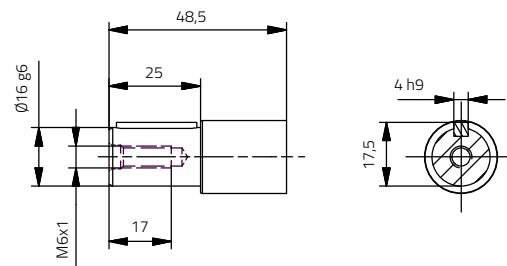
Max. driving torque 65 Nm



Shaft form C

UNE – Ø16 straight

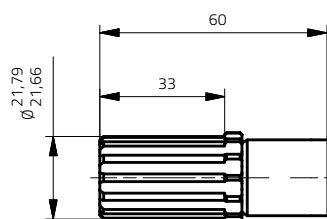
Max. driving torque 55 Nm



Shaft form D

SAE B – 13 teeth

Max. driving torque 110 Nm

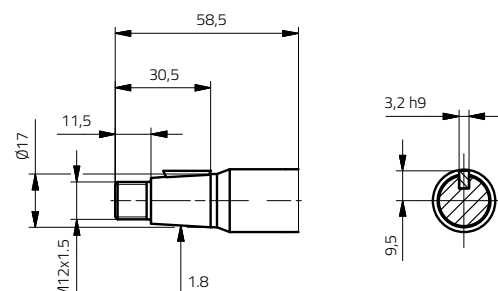


SAE J498b
13 teeth
Pitch 16/32
Side fit
Pressure angle 30 deg

Shaft form E

European tapered 1:8

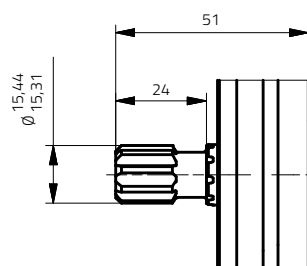
Max. driving torque 160 Nm



Shaft form G

SAE A – 9 teeth

Max. driving torque 110 Nm

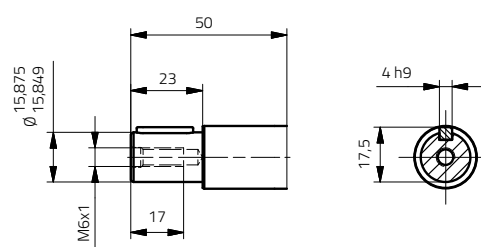


SAE J498b
9 teeth
Pitch 16/32
Side fit
Pressure angle 30 deg

Shaft form H

SAE A – Ø15,88 straight

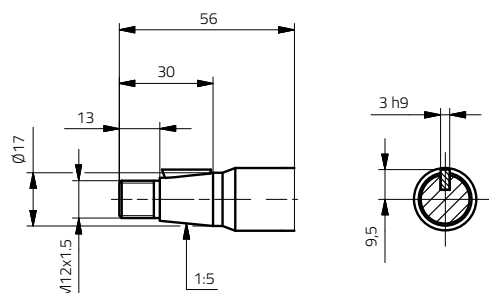
Max. driving torque 55 Nm



Shaft form J

German tapered 1:5

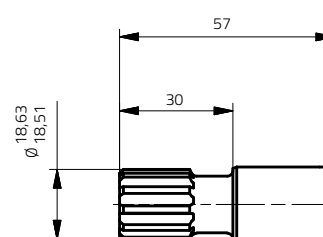
Max. driving torque 155 Nm



Shaft form K

SAE – 11 teeth

Max. driving torque 184 Nm



SAE J498b
11 teeth
Pitch 16/32
Side fit
Pressure angle 30 deg

Drive shafts

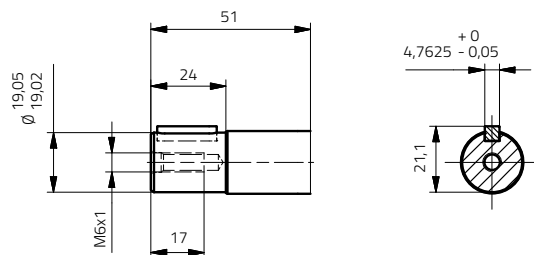
Contact with the Sales Department for other combinations.

NOTE: The drive shaft length is given from the side A of the front flanges (see pages 14 and 15).

Shaft form L

SAE – Ø19,05 straight

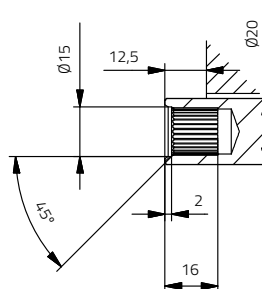
Max. driving torque 100 Nm



Shaft form Q

28 teeth

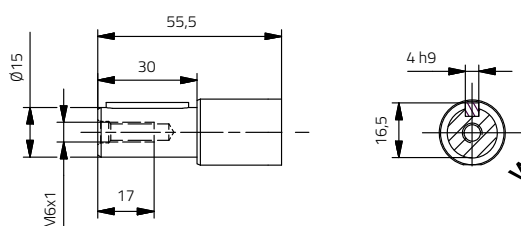
Max. driving torque 100 Nm



Shaft form R

Ø15 straight

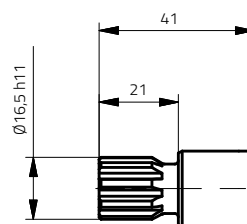
Max. driving torque 55 Nm



Shaft form T

DIN-5482 – 9 teeth

Max. driving torque 130 Nm

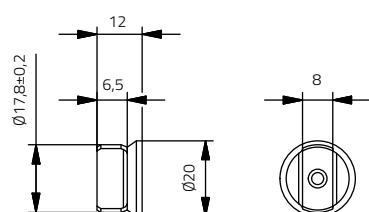


DIN-5482
9 teeth
B 17x14

Shaft form W

Tang Ø17,8

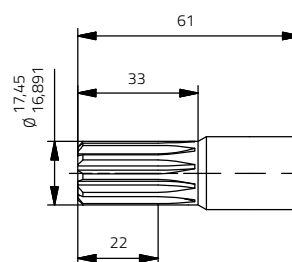
Max. driving torque 65 Nm



Shaft form X

SAE A – 10 teeth

Max. driving torque 140 Nm

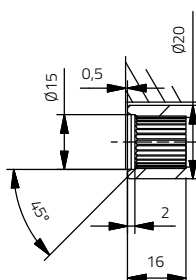


SAE J498b
10 teeth
Pitch 16/32
Side fit
Pressure angle 30 deg

Shaft form Z

28 teeth

Max. driving torque 100 Nm



The shaft doesn't protrude

← Return to Pumps

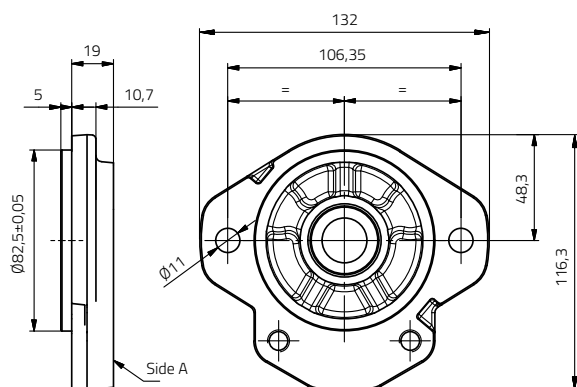
← Return to Motors

Front flanges

Contact with the Sales Department for other combinations.

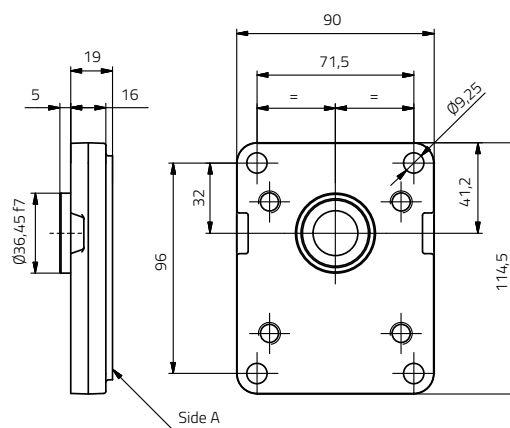
Front flange type 09

SAE A – 2 bolts



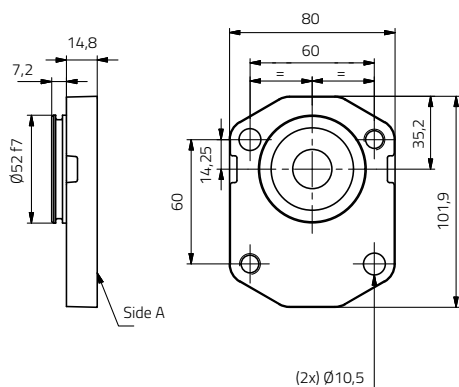
Front flange type 10

European standard



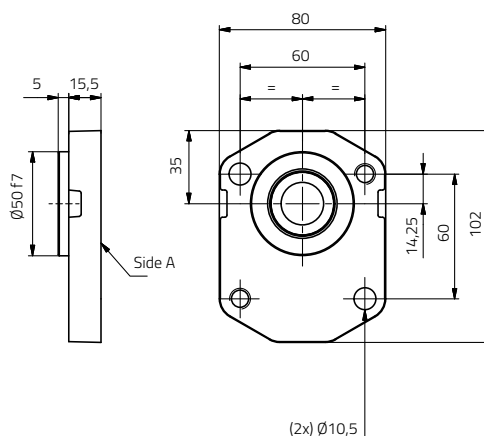
Front flange type 19

German standard – 2 bolts (Without shaft seal)



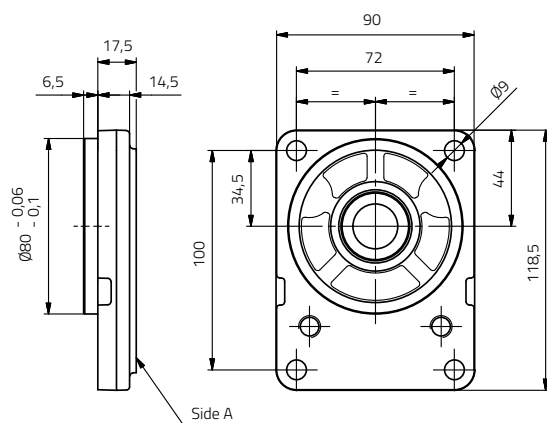
Front flange type 22

German standard – 2 bolts (With shaft seal)



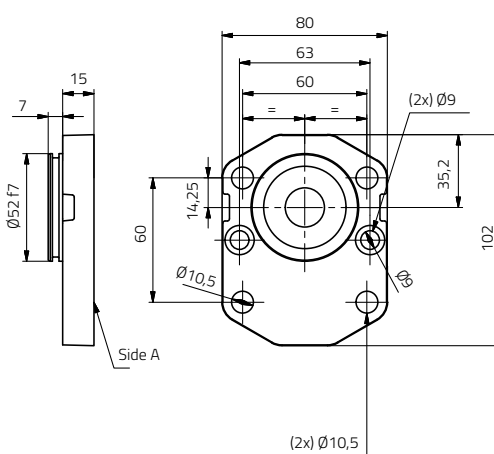
Front flange type 23

German standard



Front flange type 29

German standard (High pressure)

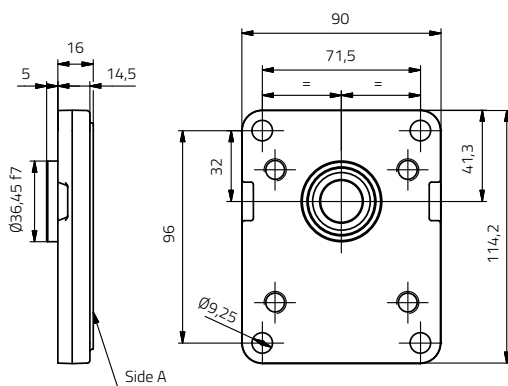


Front flanges

Contact with the Sales Department for other combinations.

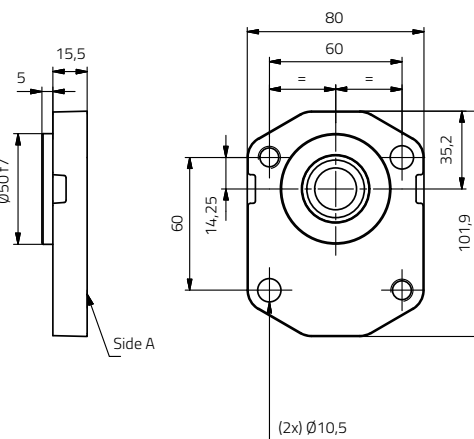
Front flange type 31

European standard for B shaft



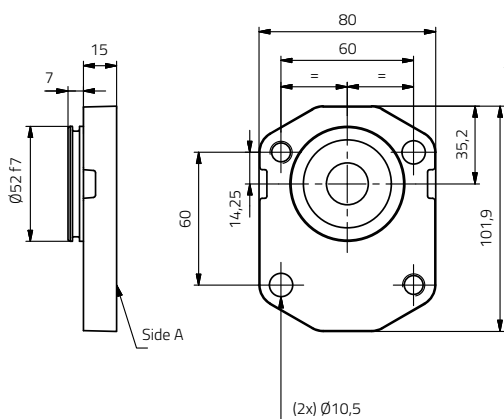
Front flange type 55

German standard – 2 bolts (opposed diagonal from 22 flange)



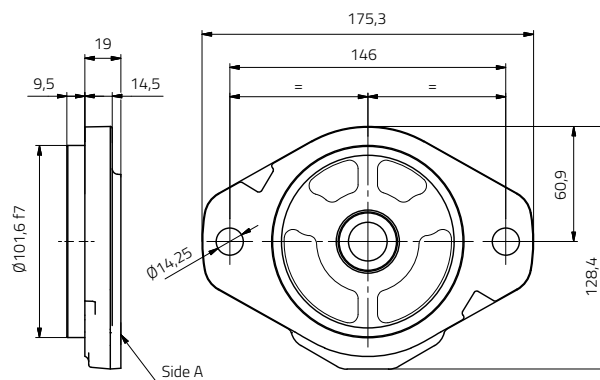
Front flange type 61

German standard – 2 bolts (opposed diagonal from 19 flange)

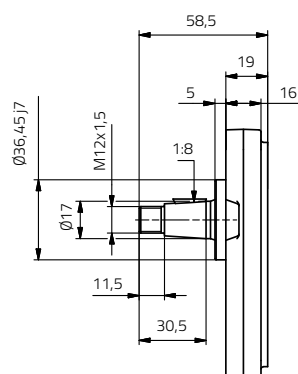


Front flange type 89

SAE B – 2 bolts



Example



NOTE: The useful length of the drive shaft varies depending on the front flange thickness.

Front flanges and shaft with outrigger bearing

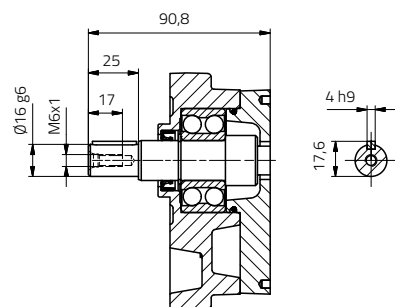
Each drive shaft and front flange on this page can be combined.

Maximum radial load 125 daN — Maximum axial load 125 daN

Shaft form C

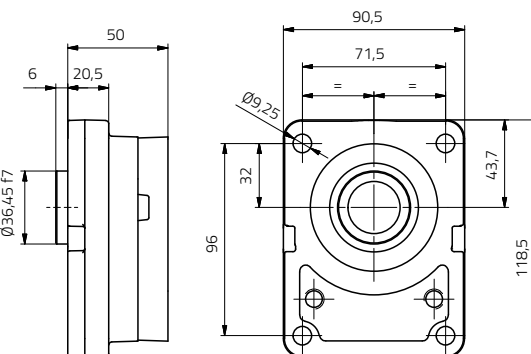
Straight Ø16

Max. driving torque 70 Nm



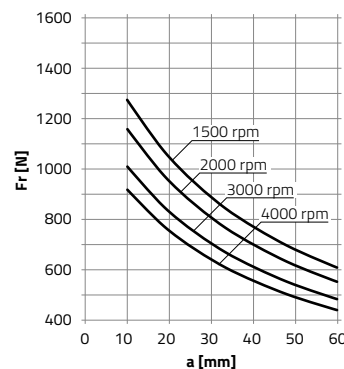
Front flange type 10

European standard



Outrigger bearing life · 1000 h

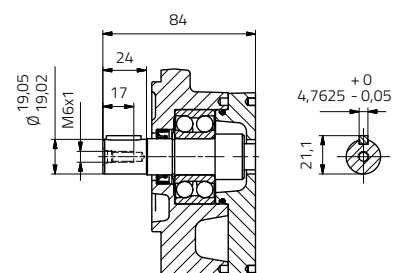
When an axial load is applied, Fr is reduced to 0.7Fa. Service life at L = 1000 h.



Shaft form L

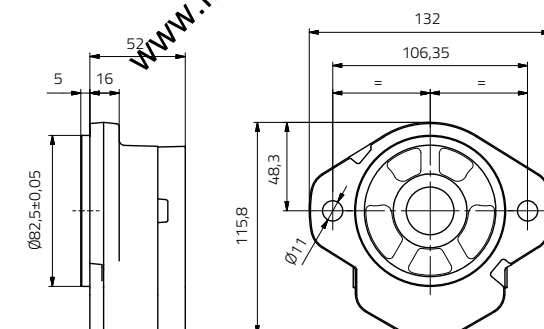
SAE – Ø19,05 straight

Max. driving torque 100 Nm



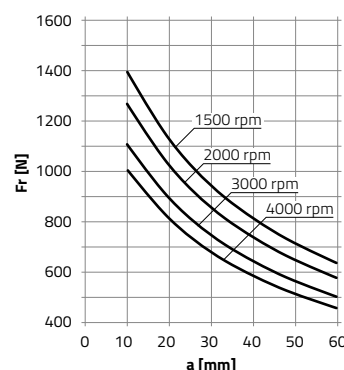
Front flange type 09

SAE A – 2 bolts



Outrigger bearing life · 1000 h

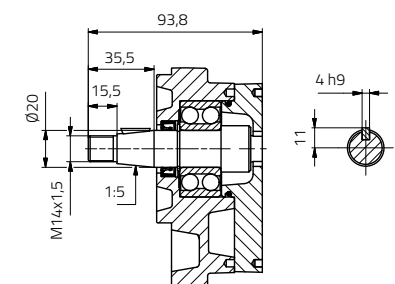
When an axial load is applied, Fr is reduced to 0.7Fa. Service life at L = 1000 h.



Shaft form V

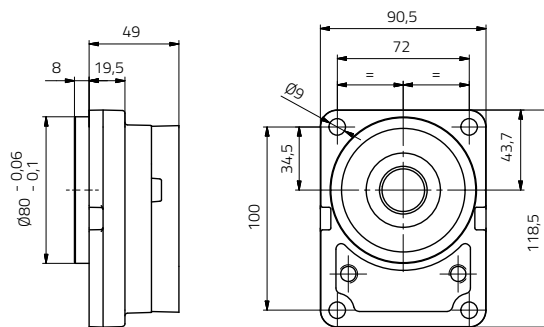
German tapered 1:5

Max. driving torque 100 Nm



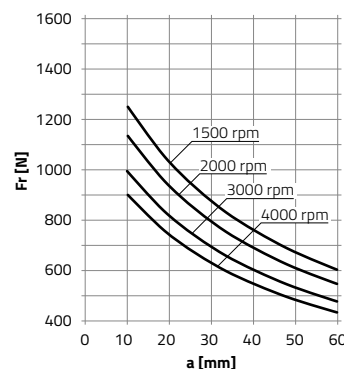
Front flange type 23

German standard



Outrigger bearing life · 1000 h

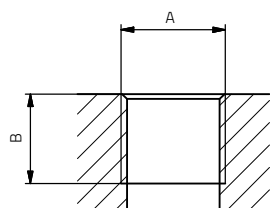
When an axial load is applied, Fr is reduced to 0.7Fa. Service life at L = 1000 h.



NOTE: Length "a" refers to the distance between the mating face and the equivalent force Fr applied.

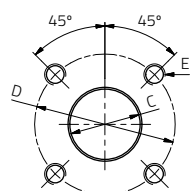
Ports

Side ports



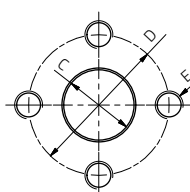
R Ports	1 rotation direction				Reversible	
Displacement [cm³/rev]	Suction		Pressure			
	A	B	A	B	A	B
4	3/8" BSP	15	3/8" BSP	15	3/8" BSP	15
6 ... 14,7	1/2" BSP	18	3/8" BSP	15	1/2" BSP	18
16 ... 26,7	3/4" BSP	17	1/2" BSP	18	3/4" BSP	17

Dimensions according to ISO 1179-1 (Parallel threads)



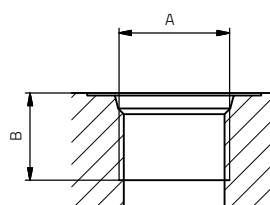
F Ports	1 rotation direction						Reversible		
Displacement [cm³/rev]	Suction			Pressure					
	C	D	E	C	D	E	C	D	E
4 ... 6	15	40	M6	15	35	M6	20	40	M6
8 ... 26.7	20	40	M6	15	35	M6	20	40	M6

Flanged ports - German standard



B Ports	1 rotation direction						Reversible		
Displacement [cm³/rev]	Suction			Pressure					
	C	D	E	C	D	E	C	D	E
4 ... 6	13,5	30	M6	13,5	30	M6	13,5	30	M6
8 ... 12	15	40	M8	15	30	M6	15	30	M6
15 ... 26,7	20	40	M8	15	30	M6	20	40	M8

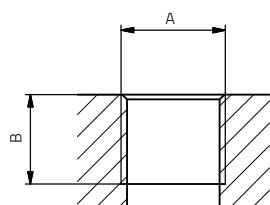
Flanged ports - European standard



S Ports	1 rotation direction				Reversible	
Displacement [cm³/rev]	Suction		Pressure			
	A	B	A	B	A	B
4 ... 26,7	1" 1/16-12 UNF	19	7/8"-14 UNF	17	7/8"-14 UNF	17

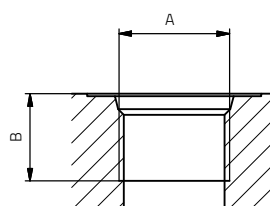
Dimensions according to ISO 11926-1 (Parallel threads)

Rear ports



T Ports	1 rotation direction + Reversible				Drain	
Displacement [cm³/rev]	Suction		Pressure			
	A	B	A	B	A	B
4 ... 26.7	1/2" BSP	15	1/2" BSP	15	1/4" G	14

Dimensions according to ISO 1179-1 (Parallel threads)

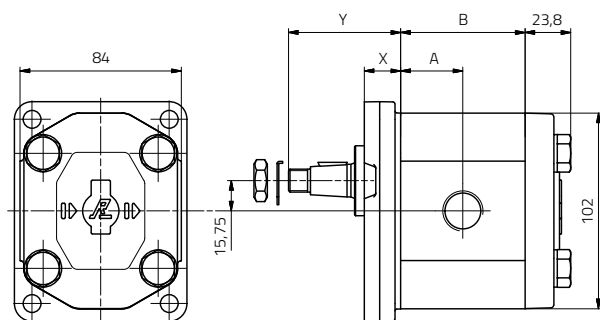


U Ports	1 rotation direction				Reversible		Drain	
Displacement [cm³/rev]	Suction		Pressure					
	A	B	A	B	A	B	A	B
4 ... 26,7	1"1/16-12 UNF	19	7/8"-14 UNF	17	7/8"-14 UNF	17	9/16"-18 UNF	14

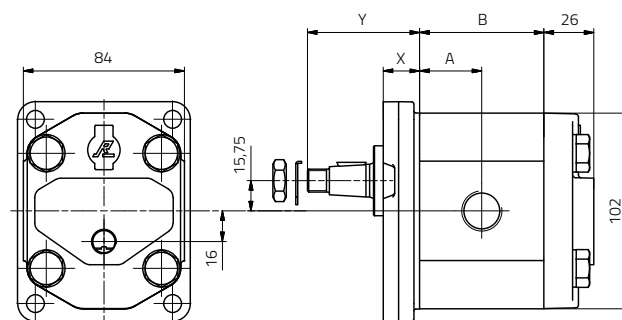
Dimensions according to ISO 11926-1 (Parallel threads)

Single pumps and motors (G)

Side ports

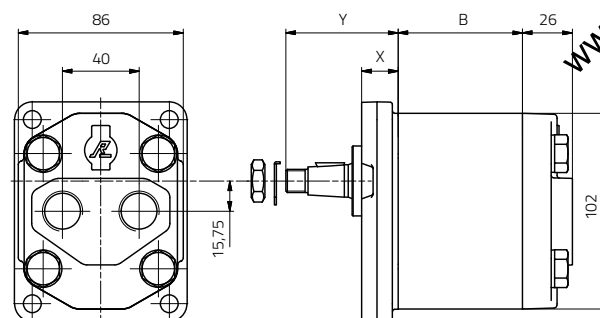


Single rotation

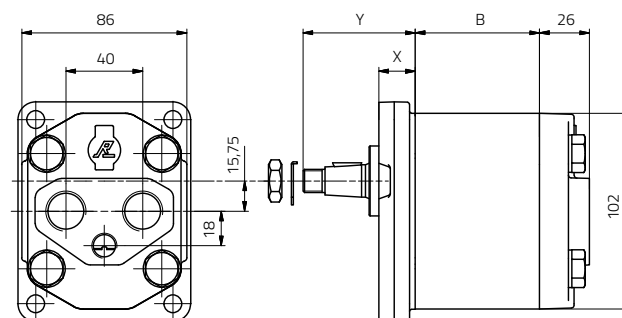


Reversible

Rear Ports



Single rotation

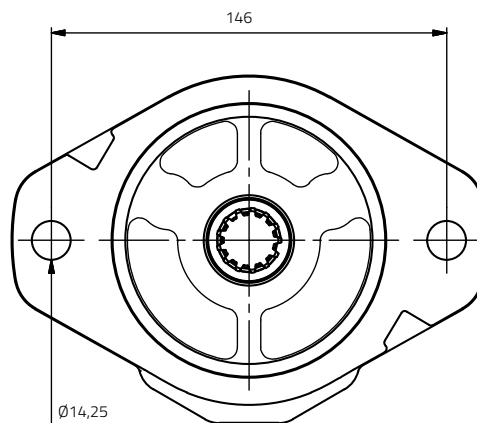
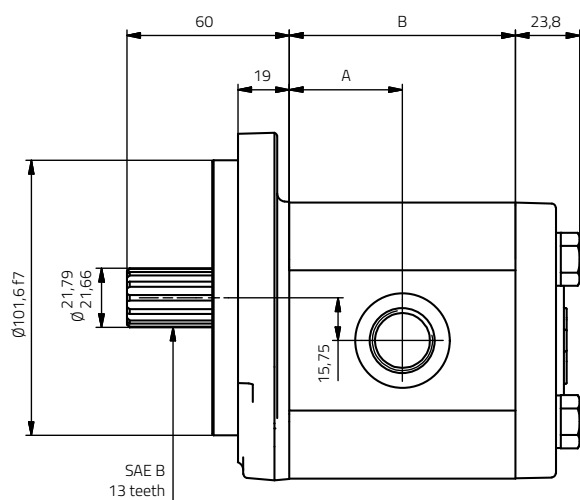


Reversible

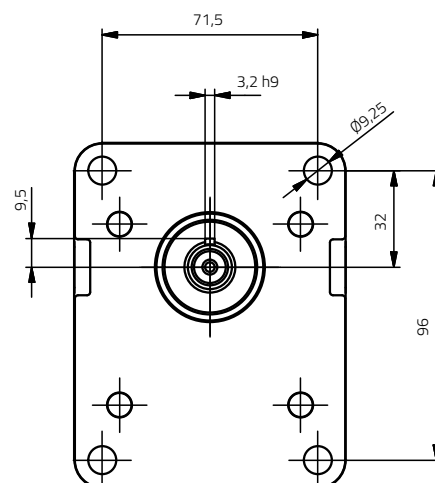
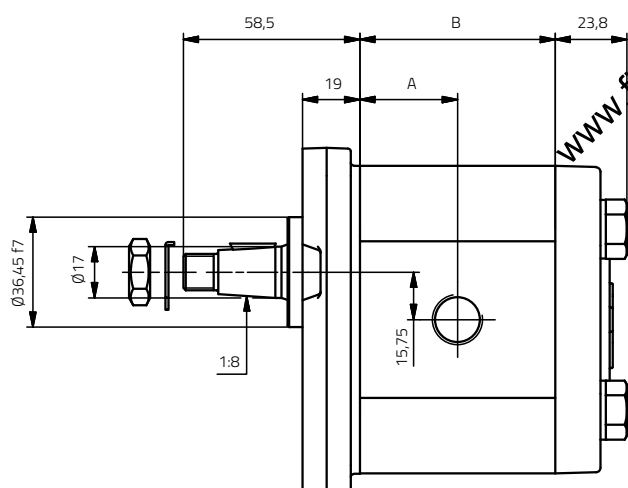
Displacement [cm ³ /rev]	A	B	Weight (Kg) Ex. 1G@C@E10@	Weight (Kg) Ex. 1GN@C@E10@	Weight (Kg) Ex. 1G@C@Z00@	Weight (Kg) Ex. 1GN@C@Z00@	Front flange type	X [mm]	Shaft form	Y [mm]
4	23,4	46,8	3,3	4,3	2,2	3,1	09	19	B	29,5
6	25,2	50,3	3,4	4,5	2,3	3,3	10	19	C	48,5
8	26,8	53,5	3,5	4,6	2,4	3,5	19	14,8	D	60
10,7	29	58	3,6	4,8	2,5	3,7	22	15,5	E	58,5
12	30,3	60,5	3,8	5	2,6	3,8	23	17,5	G	51
14,7	32,4	64,8	3,9	5,2	2,7	4	29	15	H	50
16	33,5	67	4	5,4	2,8	4,1	31	16	J	56
18	35,3	70,5	4,2	5,7	2,9	4,3	55	15,5	K	57
20,7	37,5	75	4,4	6	3	4,5	61	16	L	51
23,3	39,8	79,5	4,6	6,3	3,1	4,7	89	19	Q	12,5
26,7	41,8	83,5	4,9	6,6	3,3	4,9			R	55,5
									T	41
									X	61
									Z	0,5

Configuration and dimension examples

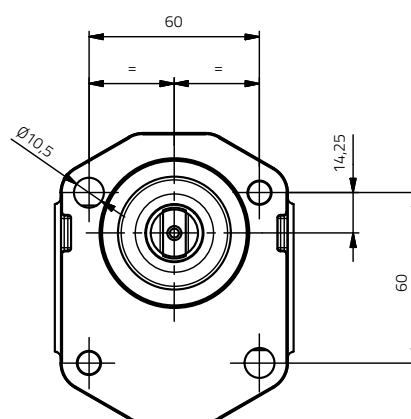
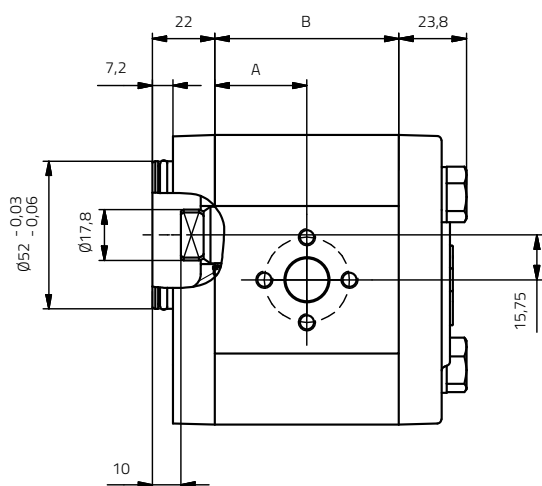
1G@CDD89S



1G@CDE10R



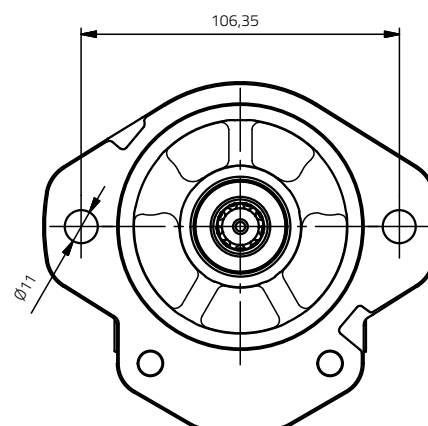
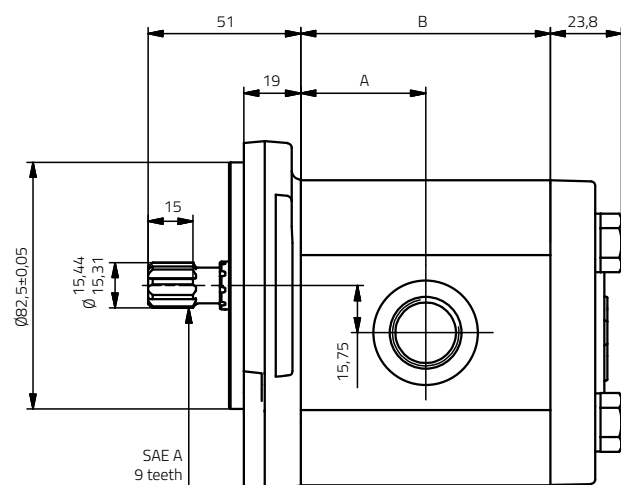
1G@CDW19B



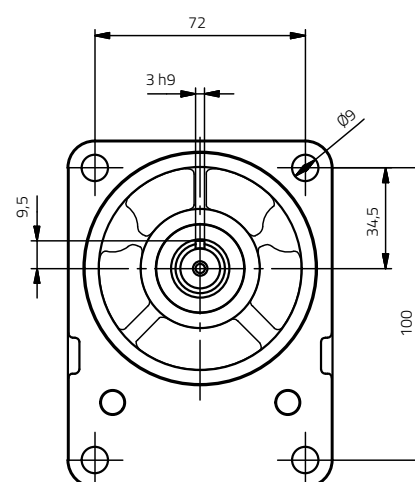
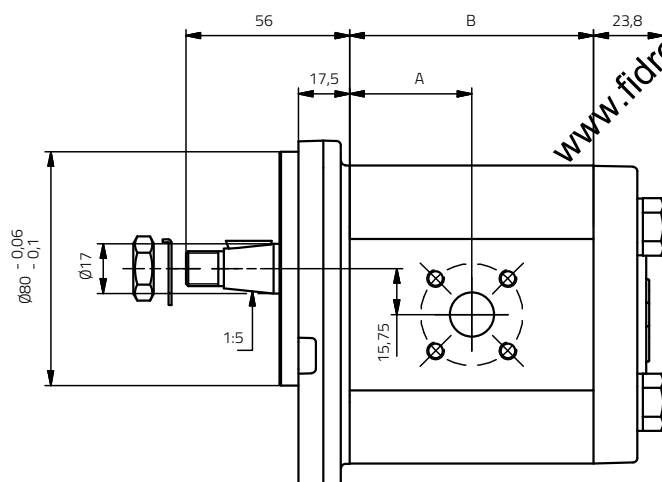
NOTE: Check general dimensions in the "dimensions" section (Page 18).

Configuration and dimension examples

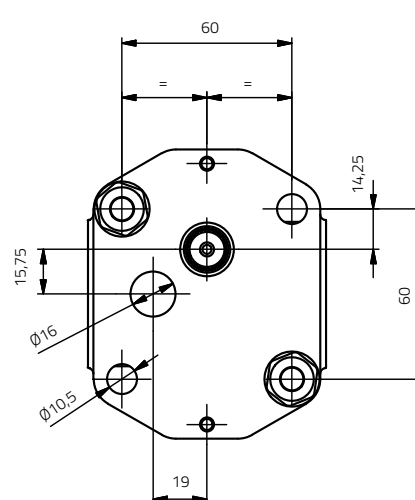
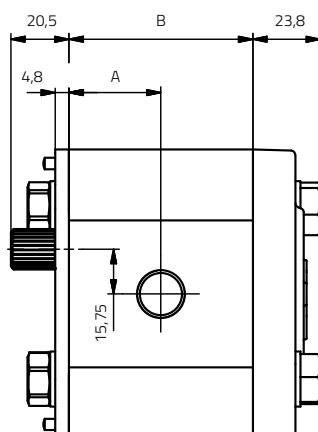
1G@CDG09S



1G@CDJ23F



1G@CDZ00R

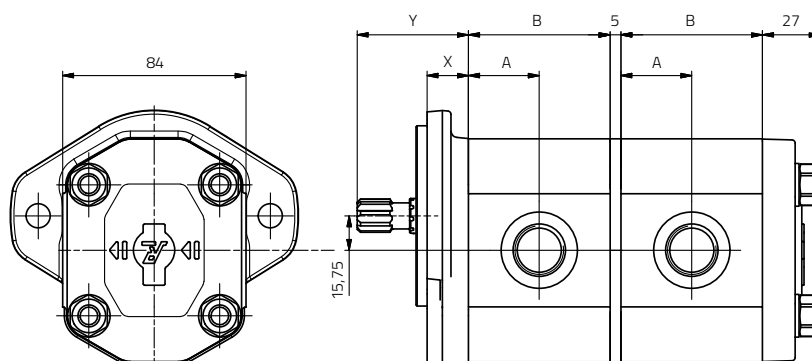


NOTE: Check general dimensions in the "dimensions" section (Page 18).

Multiple pumps

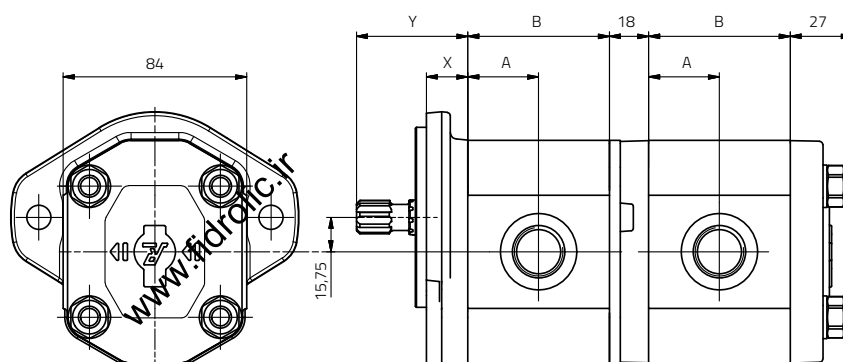
Multiple pump G (GM)

Standard
Common inlet



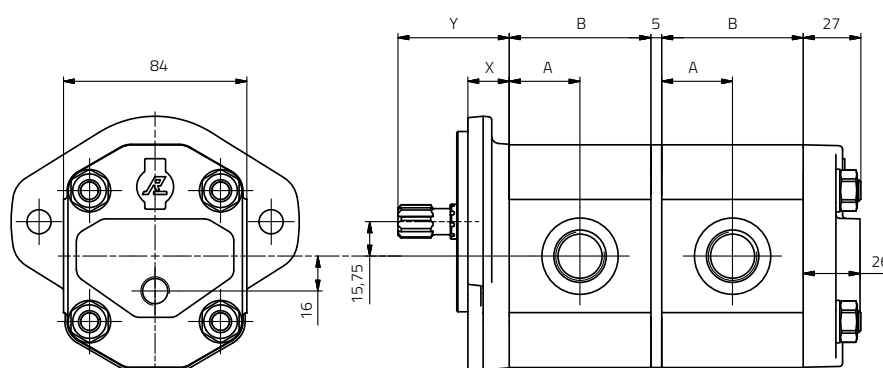
Multiple pump G (GM)

Separate Stages



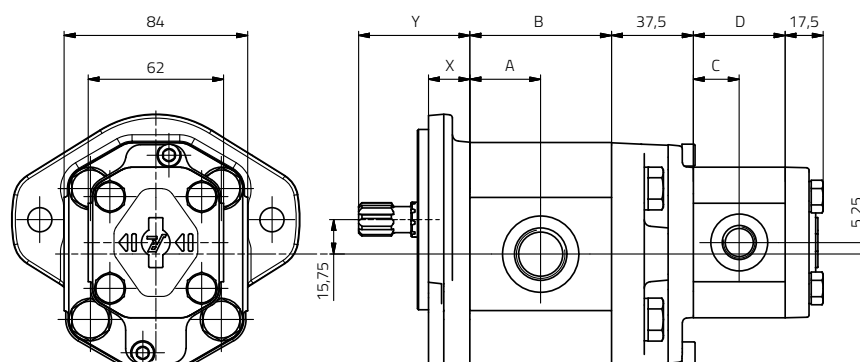
Multiple pump G (GM)

Reversible



Multiple pump G-GO (GS)

Standard
Common inlet
Separate Stages
Reversible



NOTE: Check general dimensions in the "dimensions" section (Page 18).

Features

Roquet gear motors offer:

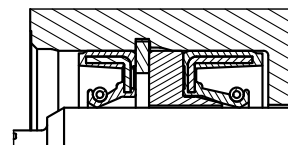
- High efficiency thanks to the specialized production processes.
- Axial compensation through floating bearings.
- High quality bushings for gear motors.
- Aluminium or cast iron body.
- Front flange and back cover made of cast iron.
- NBR seals in the standard version.
- FKM seals available for high temperature applications.
- 100% of motors delivered are tested.
- Front flanges with outboard bearing configurations.
- Back covers with integrated valves for motors.

Technical information

Displacement range	4 – 26,7 cm ³ /rev
Shafts, flanges and ports	According to European, German and American standards
Direction of rotation	Clockwise, counterclockwise and reversible
Fluid	Recommended Mineral oil - ISO 6743 tipo HM, HV o HG
Viscosity	Recommended viscosity at work 20-80 cSt (mm ² /s) Maximum viscosity allowed at start 800 cSt (mm ² /s)
Oil working temperature	Recommended temperature 50 °C – Material NBR (-30/+80 °C) FKM (-20/+120 °C)
Cleanliness	ISO 4406 22/19/16

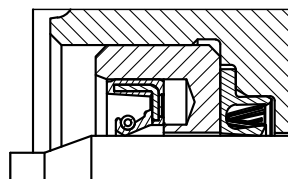
Standard motor shaft seal

Maximum drain line pressure - 5 bar (72 psi)
(Maximum pressure value at minimum R.P.M.)



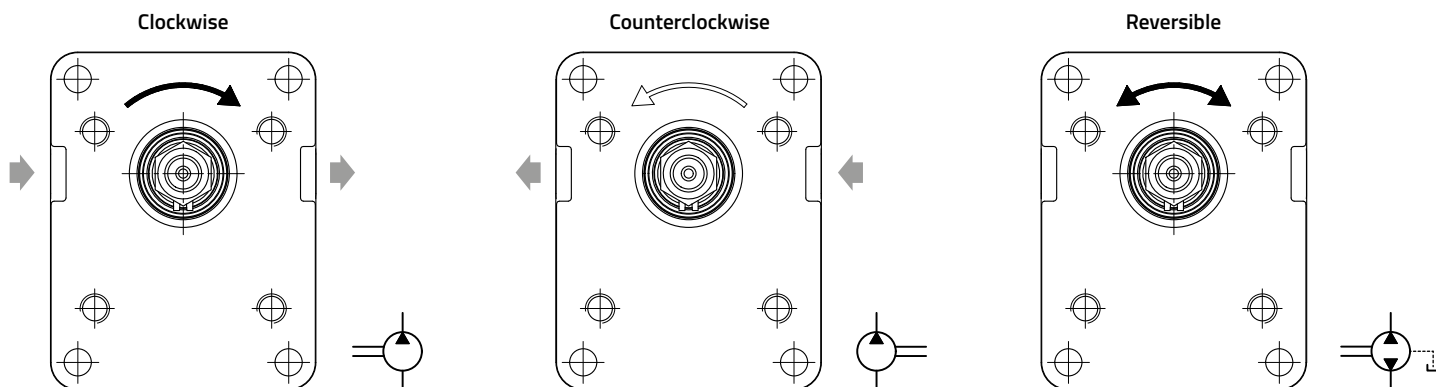
Peak pressure motor shaft seal (-LP)

Maximum drain line pressure - 20 bar (290 psi)
(Maximum pressure value at minimum R.P.M.)



Direction of rotation

The direction of rotation is always defined looking at the motor from the front flange.



Common formulas

$$v = \frac{Q}{(6 \cdot A)} \quad [\text{m/s}]$$

$$n = \frac{Q \cdot 1000 \cdot \eta_{\text{vol}}}{V} \quad [\text{min}^{-1}]$$

$$M = \frac{(V \cdot \Delta p \cdot \eta_{\text{hm}})}{(62,8)} \quad [\text{N} \cdot \text{m}]$$

$$P = \frac{(Q \cdot \Delta p)}{(600 \cdot \eta_t)} \quad [\text{kW}]$$

v = fluid speed [m/s]

Q = pump flow [l/min]

A = tube section [cm²]

V = pump displacement [cm³/rev]

n = rotation speed [rev/min]

Δp = pressure difference [bar]

M = necessary driving torque [N · m]

P = necessary driving power [kW]

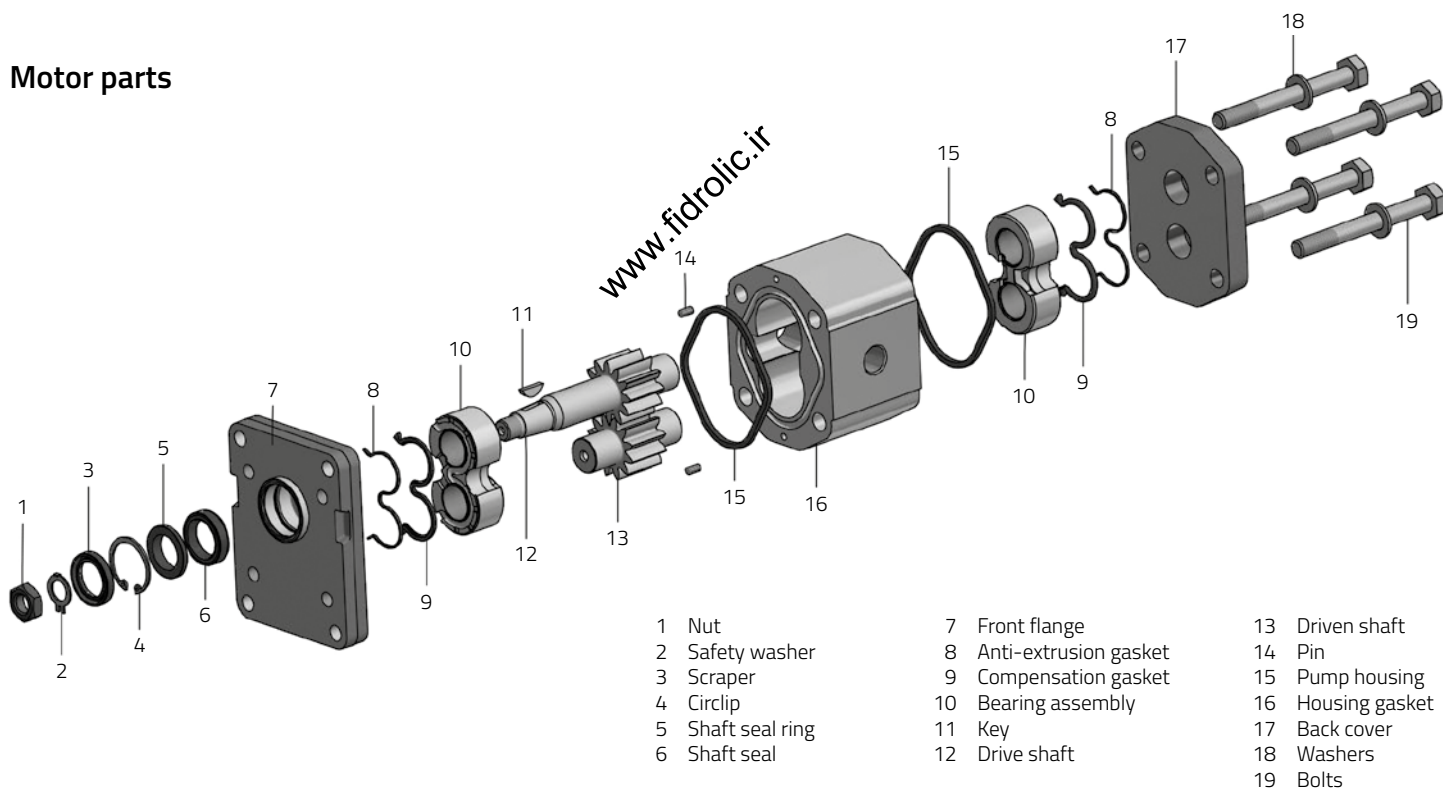
η_{vol} = volumetric efficiency ($\approx 0,95$) [%]

η_{hm} = hydromechanical efficiency ($\approx 0,85$) [%]

η_t = total efficiency ($\approx 0,82$) [%]

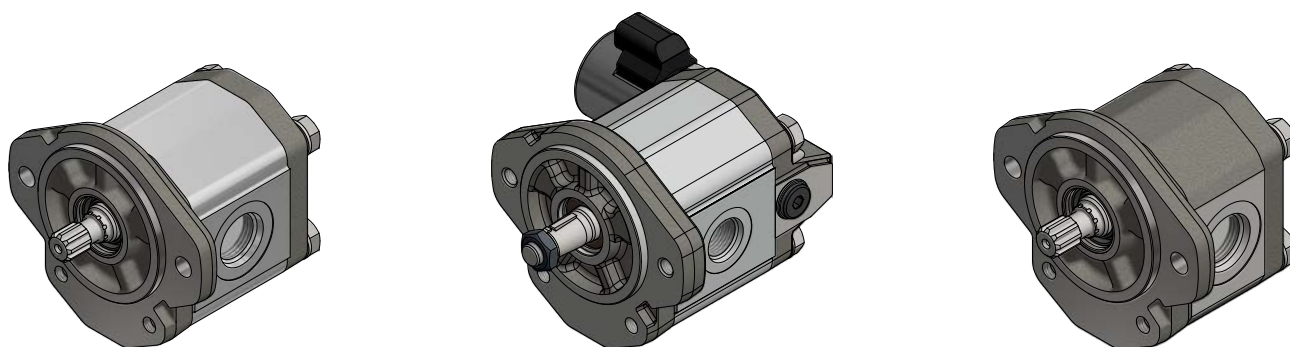
Note: Use a minimum pressure of 20 bar to ensure the starting torque.

Motor parts



Installation recommendations

- Avoid radial and axial forces on the motor shaft for longer pump lifetime.
- The shafts of the motor have to be well aligned to avoid these forces.
- Elastic couplings are highly recommended.
- If these forces cannot be avoided, versions with outboard bearings can be offered.
- Avoid rotation speeds lower than those shown in the "technical data" section.
- Avoid motor starts under load at low temperatures.
- When starting, clean the whole installation before first run of system.
- If the motor shall be painted, protect the seal area and the drive shaft to avoid possible oil leaks.
- In reversible motors, if possible, connect the drain to tank.


MG motor technical data (Aluminium body)

Displacement	cm ³ /v-cc/rev (in ³ /rev)	4 (0,24)	6 (0,37)	8 (0,49)	10,7 (0,65)	12 (0,73)	14,7 (0,90)	16 (0,98)	18 (1,10)	20,7 (1,26)	23,3 (1,42)	26,7 (1,62)	
Cont. max. pressure	bar (psi)	275 (3990)					250 (3625)		225 (3265)	200 (2900)	180 (2610)	170 (2465)	
Intermittent max. pressure	bar (psi)	300 (4350)					275 (3990)		250 (3625)	225 (3265)	200 (2900)	190 (2755)	
Maximum peak pressure	bar (psi)	310 (4495)					285 (4135)		260 (3770)	235 (3410)	210 (3045)	200 (2900)	
R.P.M. at cont. pressure		3500			3000		2500		2300		2000		
Max. R.P.M		4000			3500					3200		3000	2500
Min. R.P.M. at given pressures	100 bar (1450 psi)	500											
	175 bar (2540 psi)	1100		1200	1000		850				750		
	250 bar (3625 psi)	1400			1300		1200		1100		–		
	300 bar (4350 psi)	1750			1500		–						

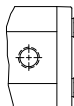
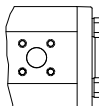
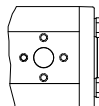
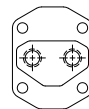
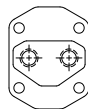
Note: Pressures obtained with flanged bodies.

MGN motor technical data (Cast iron body)

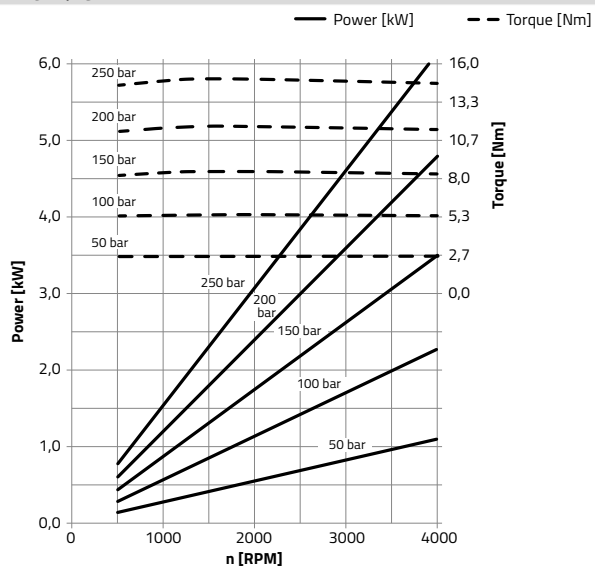
Displacement	cm³/v-cc/rev (in³/rev)	4 (0,24)	6 (0,37)	8 (0,49)	10,7 (0,65)	12 (0,73)	14,7 (0,90)	16 (0,98)	18 (1,10)	20,7 (1,26)	23,3 (1,42)	26,7 (1,62)
Cont. max. pressure	bar (psi)	290 (4205)				275 (3990)			250 (3625)	235 (3410)	225 (3265)	215 (3120)
Intermittent max. pressure	bar (psi)	310 (4495)				300 (4350)			280 (4060)	275 (3990)	260 (3770)	250 (3625)
Maximum peak pressure	bar (psi)	325 (4715)				310 (4495)			300 (4350)	285 (4135)	270 (3915)	260 (3770)
R.P.M. at cont. pressure		3500			3000		2500		2300		2000	
Max. R.P.M		4000			3500				3200		3000	2500
Min. R.P.M. at given pressures	100 bar (1450 psi)	500										
	175 bar (2540 psi)	1100		1200	1000		850				750	
	250 bar (3625 psi)	1400			1300		1200		1100		–	
	300 bar (4350 psi)	1750			1500		–					

Note: With regard to all reversible motors (MG and MGN), maximum pressure is 250 bar (3600 psi), except for those values where the pressure is lower.

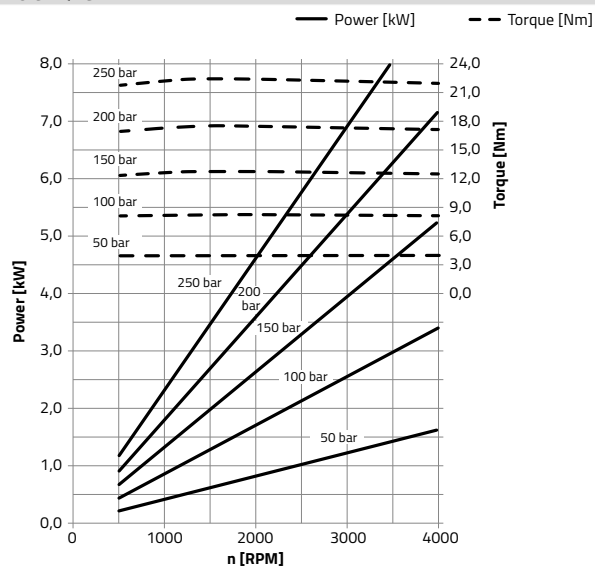
Note: The definition of the pressure ranges is shown on page 7.

Coding System		1	MG	15C	D	E	10	R	Optional										
									/	V	42	T***	-***						
Type										Code									
1	Without pulley								V	FKM seals and shaft seal									
2	With pulley								RV	Only FKM shaft seal									
5	Motor with floating shaft and back-up bearing								ID	Internal drain									
									LP	Peak pressure shaft seal									
Model										Alternatives with Valves									
MG	Single – Aluminium body								VA	Check valve									
MGN	Single – Cast iron body								V@	Relief valve									
										See variants with valves →									
Motor Displacement [cm³/rev] & [in³/rev]										Port Connection Forms									
4C	4,0	0,24	www.fidrollic.ir																
6C	6,0	0,37																	
8C	8,0	0,49									R			F			B		
11C	10,7	0,65									BSP thread			German standard			European standard		
12C	12,0	0,73																	
15C	14,7	0,90																	
16C	16,0	0,98																	
18C	18,0	1,10																	
21C	20,7	1,26									For more options see ports →								
23C	23,3	1,42									Mounting Flange								
27C	26,7	1,62									09	SAE A - 2 bolts							
										10	European flange								
										22	German standard - 2 bolts								
										23	German standard								
										89	SAE B - 2 bolts								
										For more options see flanges →									
Rotation Direction																			
D	Clockwise																		
I	Counterclockwise																		
R	Reversible																		
Drive Shaft Form																			
D	SAE B - 13 teeth																		
E	European tapered 1:8																		
G	SAE A - 9 teeth																		
H	SAE A - Ø15,88 straight																		
J	German tapered 1:5																		
K	SAE - 11 teeth																		
L	SAE - Ø19,05 straight																		
T	DIN-5482 - 9 teeth																		
For more options see shafts →																			

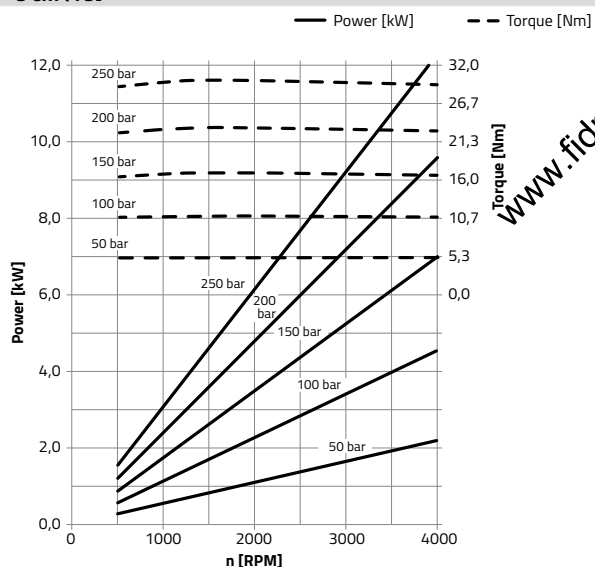
1MG4C - 4 cm³/rev



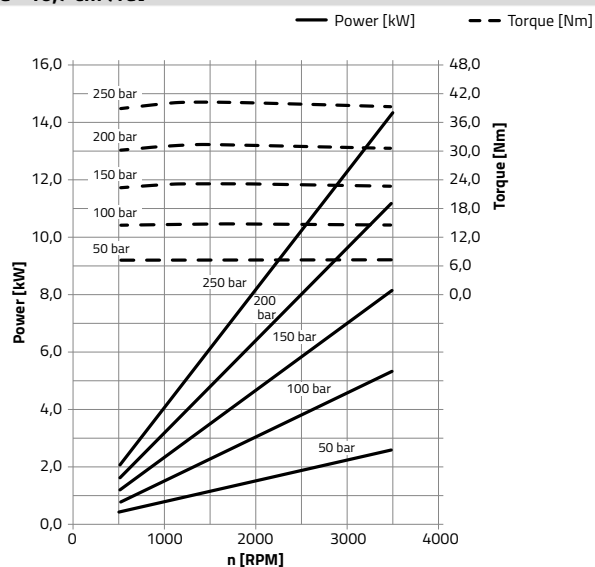
1MG6C - 6 cm³/rev



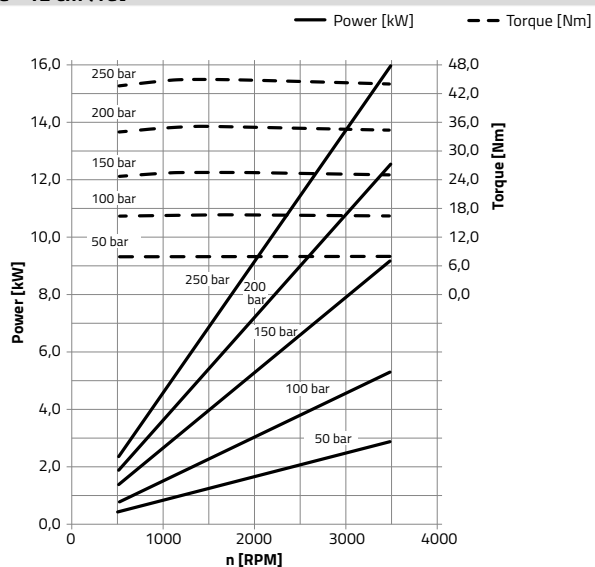
1MG8C - 8 cm³/rev



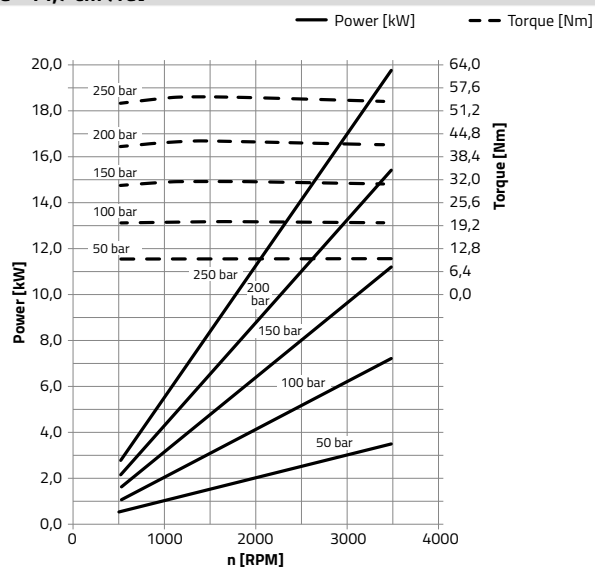
1MG11C - 10,7 cm³/rev



1MG12C - 12 cm³/rev

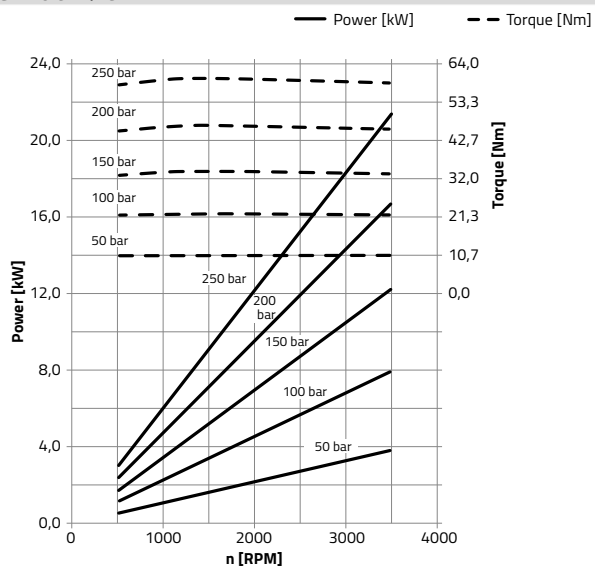


1MG15C - 14,7 cm³/rev

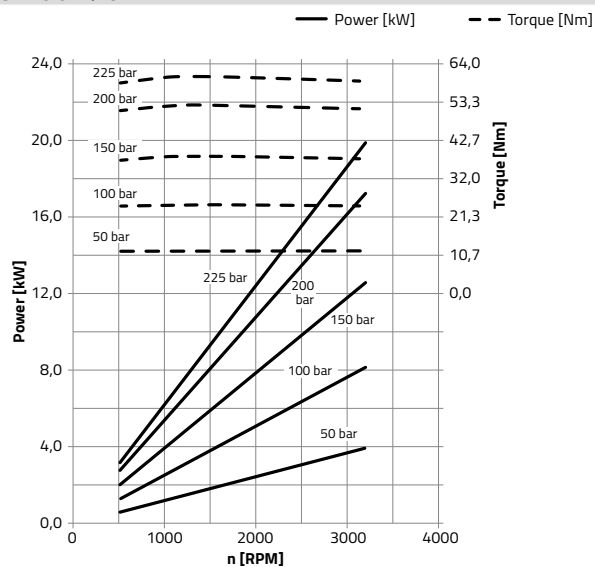


NOTE: The values shown in the above diagram have been obtained using 32cSt kinematic viscosity oil.

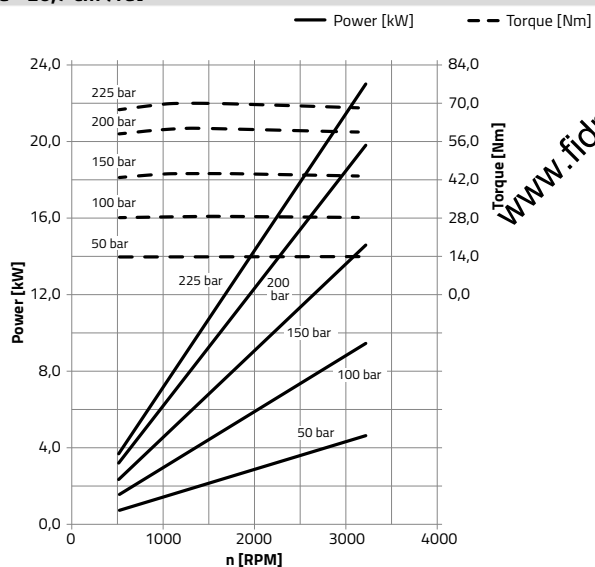
1MG16C - 16 cm³/rev



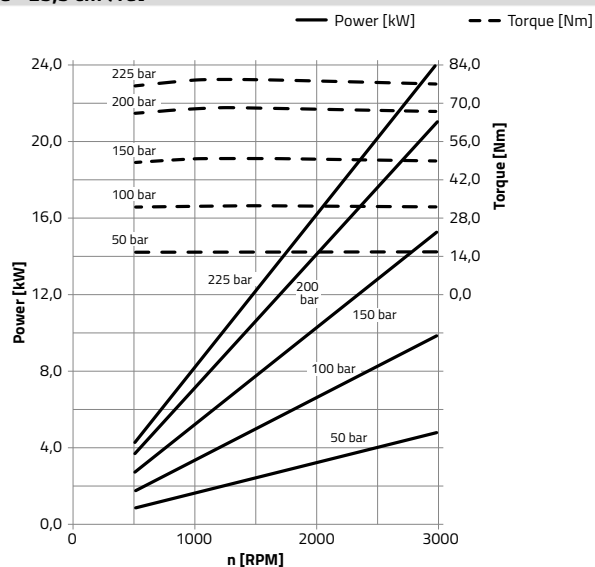
1MG18C - 18 cm³/rev



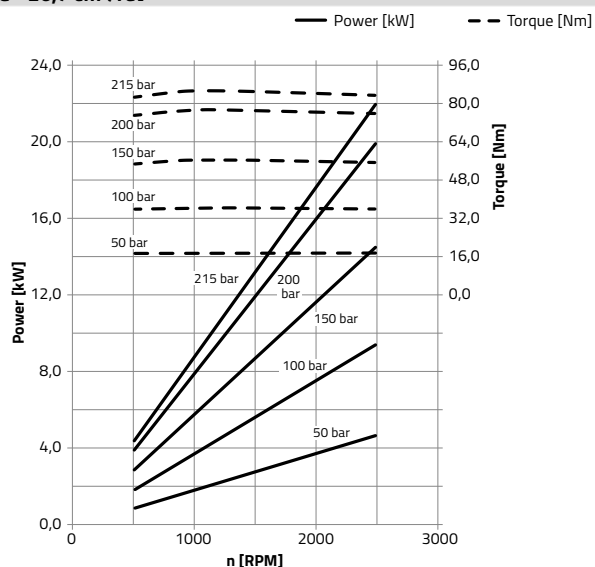
1MG21C - 20,7 cm³/rev



1MG23C - 23,3 cm³/rev



1MG27C - 26,7 cm³/rev



NOTE: The values shown in the above diagram have been obtained using 32cSt kinematic viscosity oil.

Flow, performance and power chart according to displacement

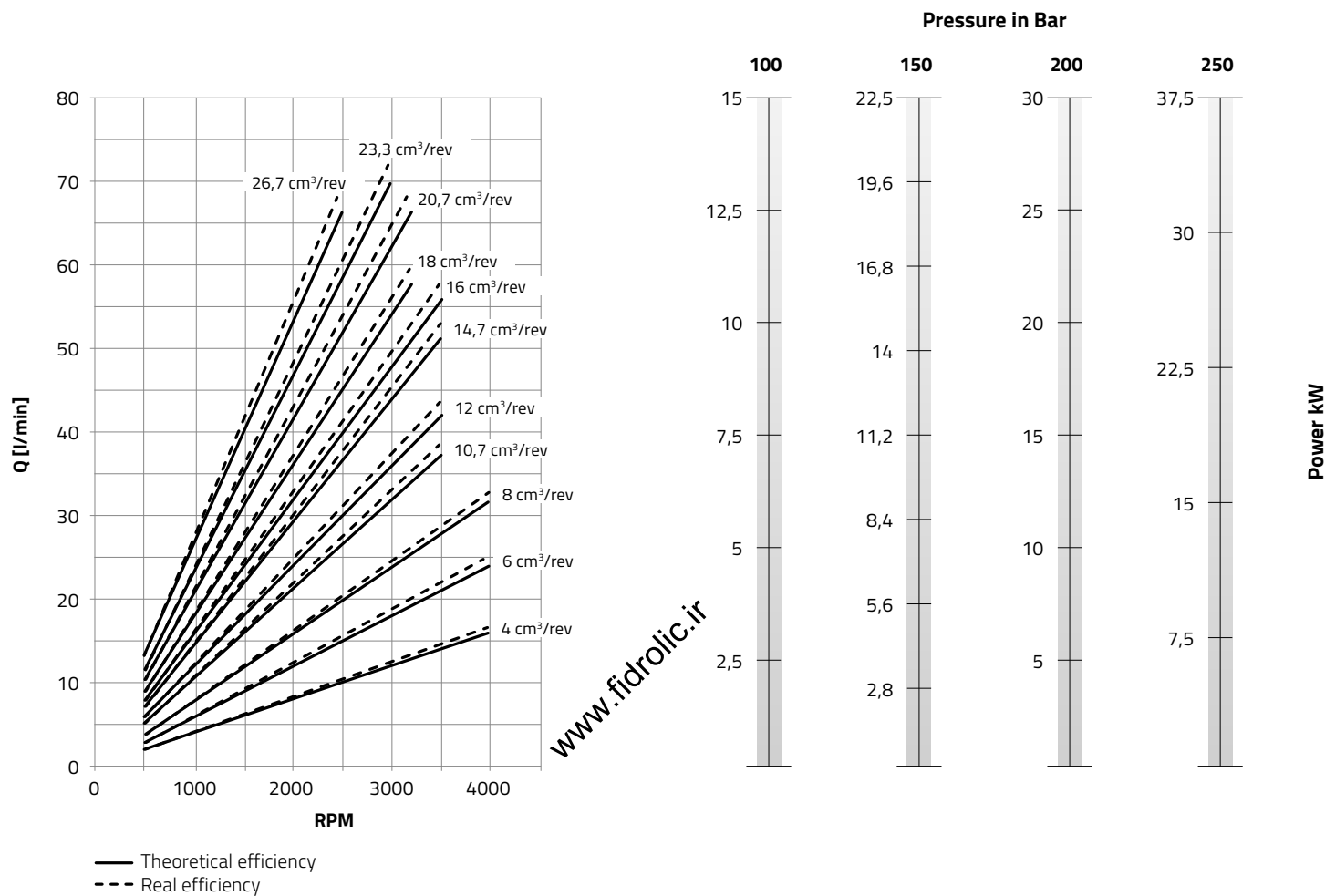
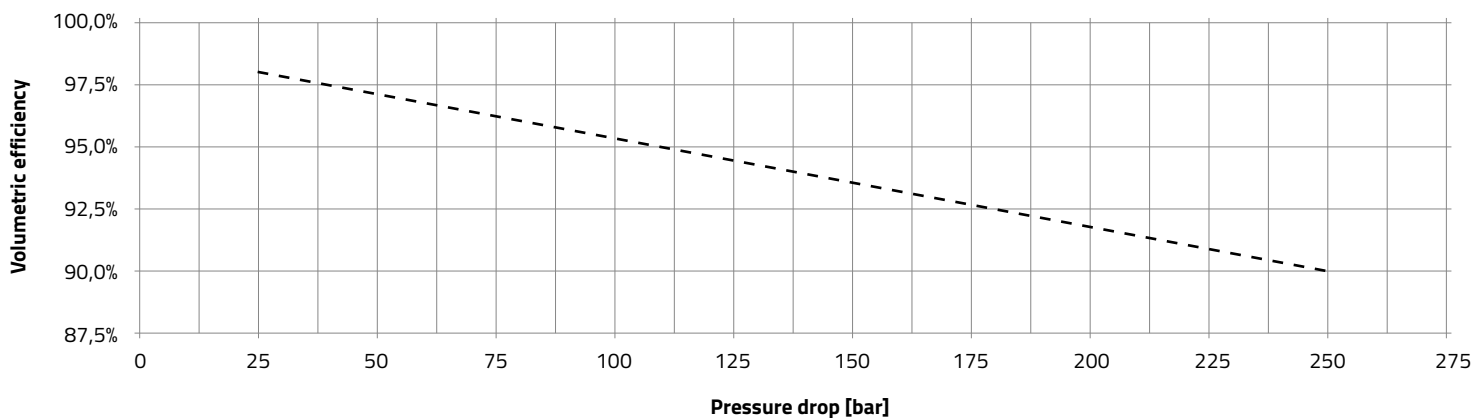


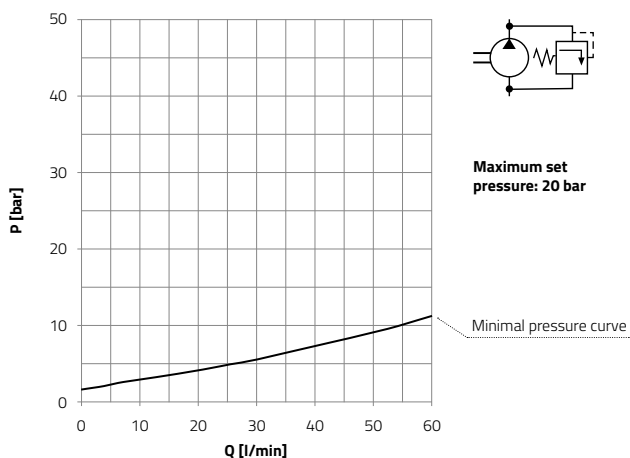
Diagram of the volumetric efficiency at 1500 R.P.M.



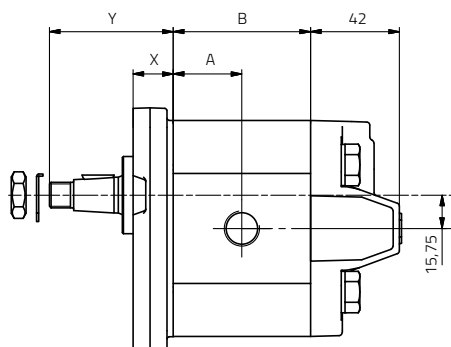
NOTE: The values shown in the above diagram have been obtained using 32cSt kinematic viscosity oil.

Low pressure relief valve

Minimum setting pressure diagram

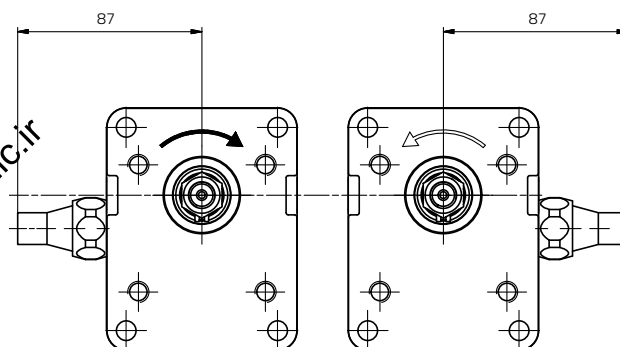
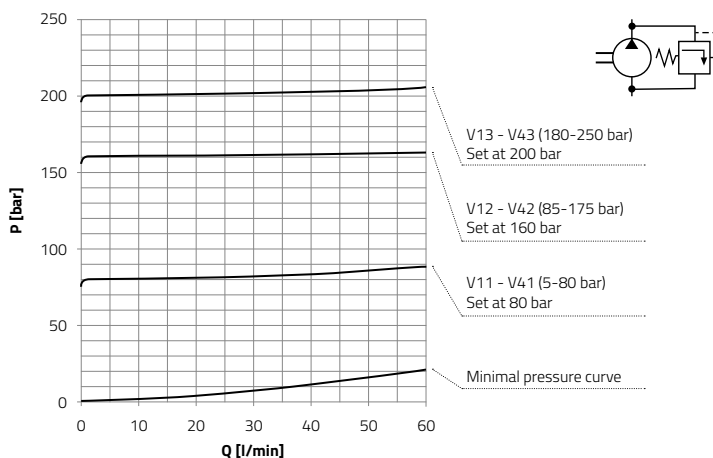


NOTE: The values shown in the above diagram have been obtained using a 32cSt kinematic viscosity oil.



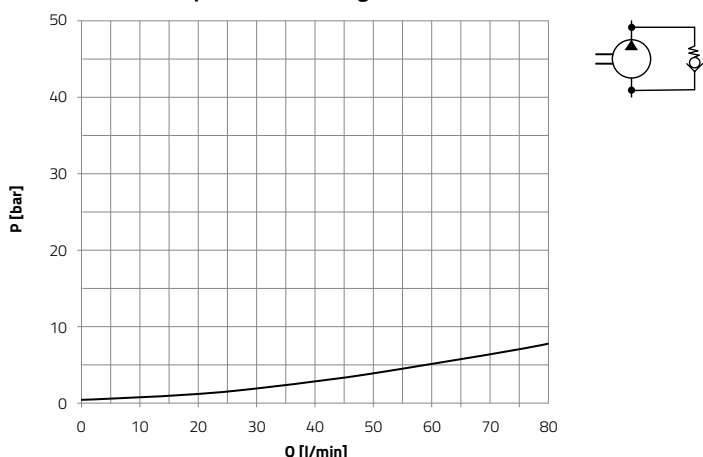
Relief valve

Relief valve pressure-flow diagram depending on pressure range

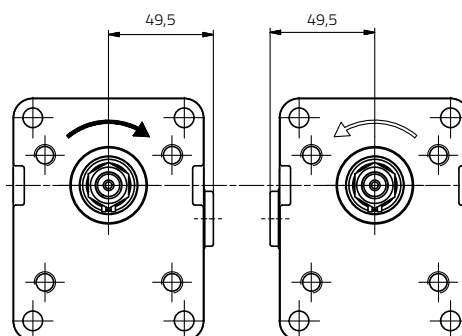
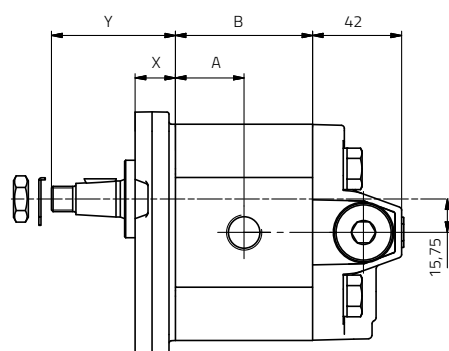


Check valve

Check valve pressure-flow diagram



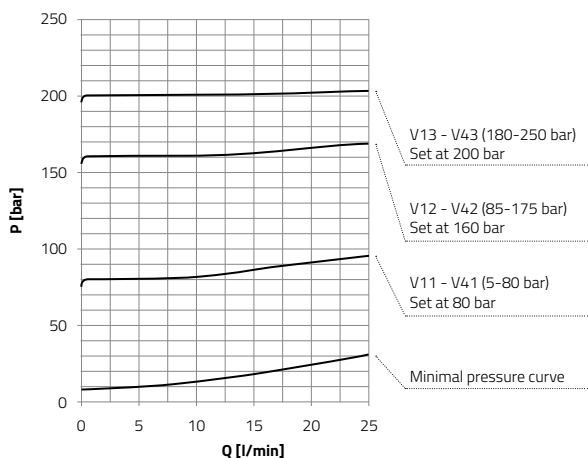
NOTE: The values shown in the above diagram have been obtained using a 32cSt kinematic viscosity oil.



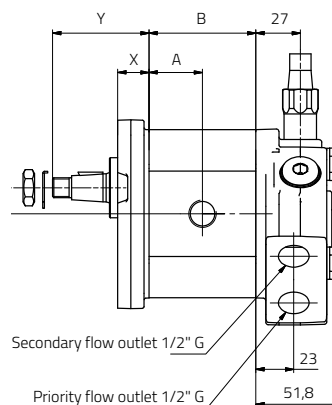
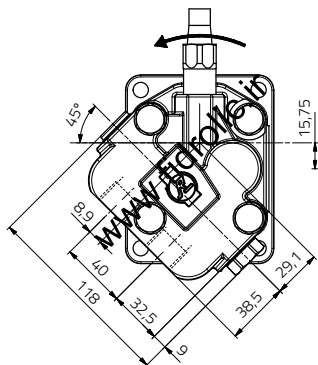
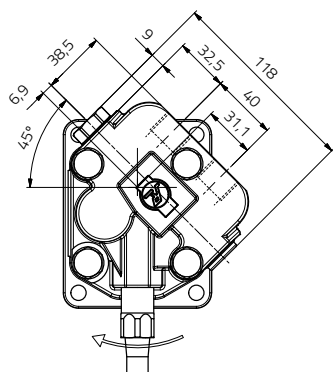
NOTE: Check general dimensions in the "dimensions" section (Page 18).

Priority flow valve

Relief valve pressure-flow diagram depending on pressure range

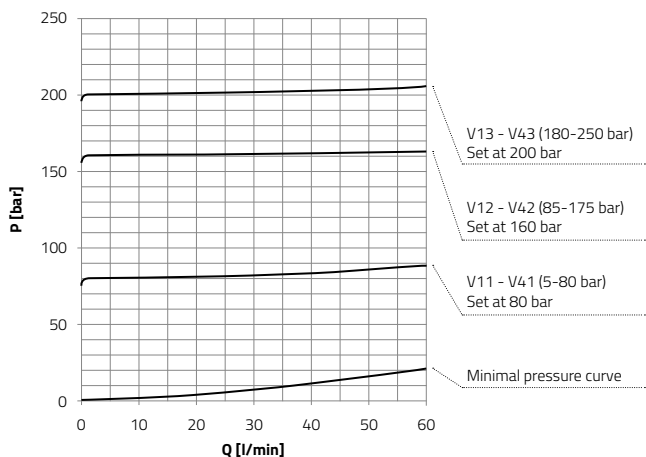


NOTE: The values shown in the above diagram have been obtained using a 32cSt kinematic viscosity oil.

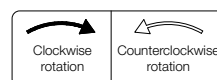
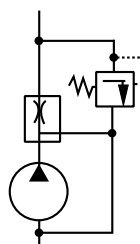
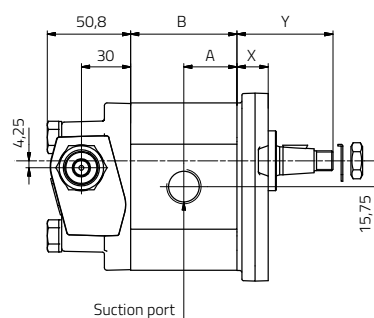
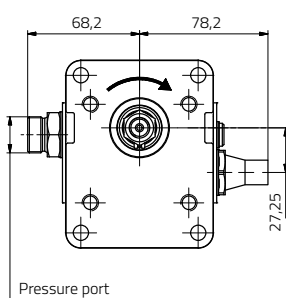
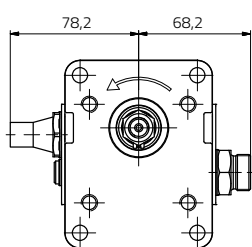


Flow control valve and relief valve

Relief valve pressure-flow diagram depending on pressure range



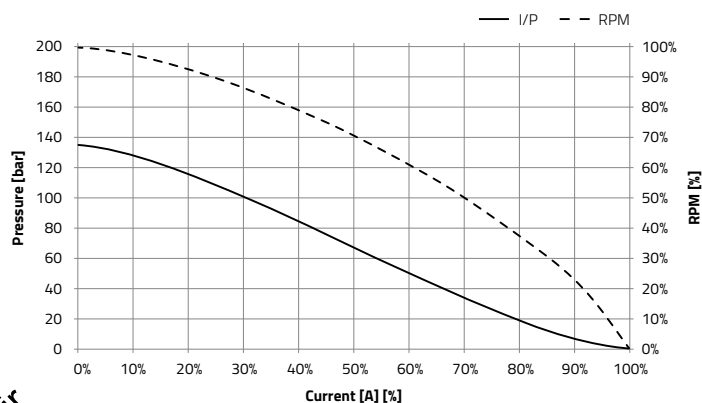
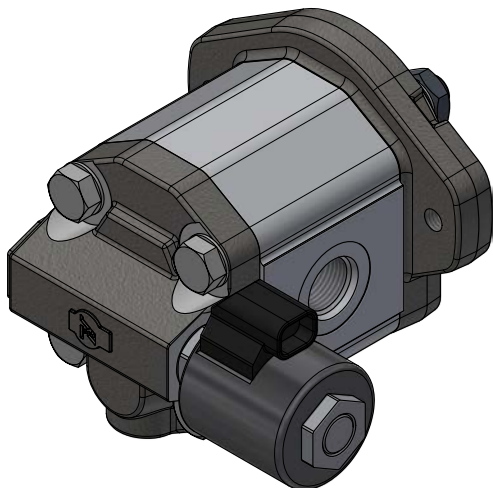
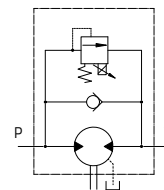
NOTE: The values shown in the above diagram have been obtained using a 32cSt kinematic viscosity oil.



NOTE: Check general dimensions in the "dimensions" section (Page 18).

Motor with pressure propotional relief valve

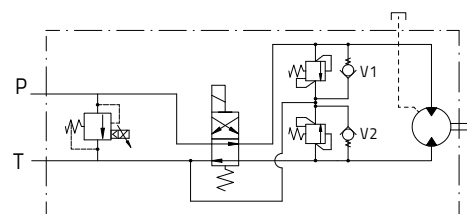
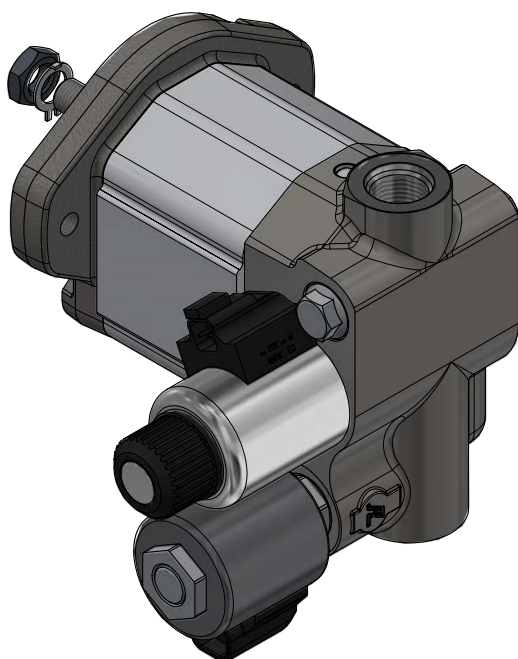
- Displacements, front flanges, drive shafts and ports most common available.
- Voltage range – 12V DC / 24V DC
- Connectors – Deutsch DT04-2P
DIN 43650 / ISO 4400



NOTE: Graph of valve behavior adjusted at 135 bar and motor's RPM [%], in function of electric current [A] [%].

Motor with electrical overcharge – suction valve

- Displacements, front flanges, drive shafts and ports most common available.
- Voltage range – 12V DC / 24V DC
- Connectors – Deutsch DT04-2P
DIN 43650 / ISO 4400

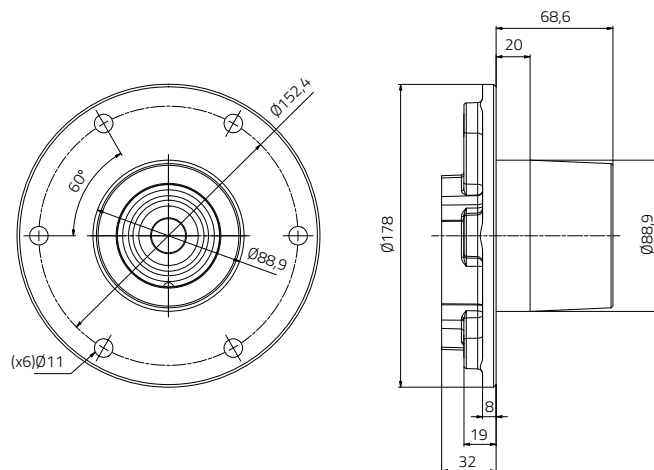
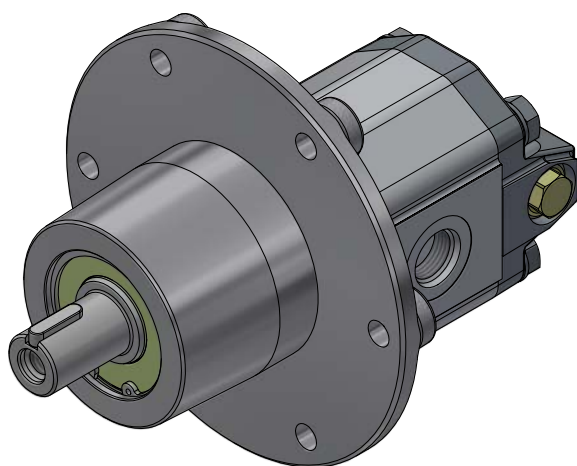


NOTE: Please contact Sales Department for more information about available ports, displacements, pressure setting and minimum order quantity.

Motors and pumps with type 45 front flanges

Aluminium front flange with 6 fastening points, optimal for motors used for mowers.

- Standard front flanges and displacements available for this option.

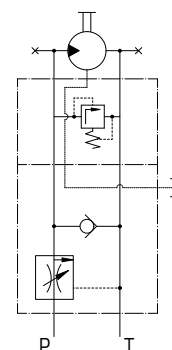
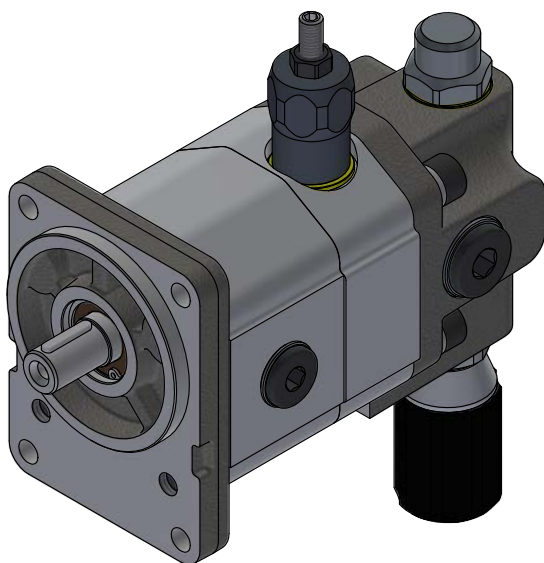


NOTE: Please contact Sales Department for more information about minimum order quantity.

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Motor for seeders

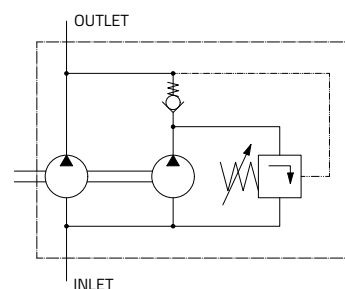
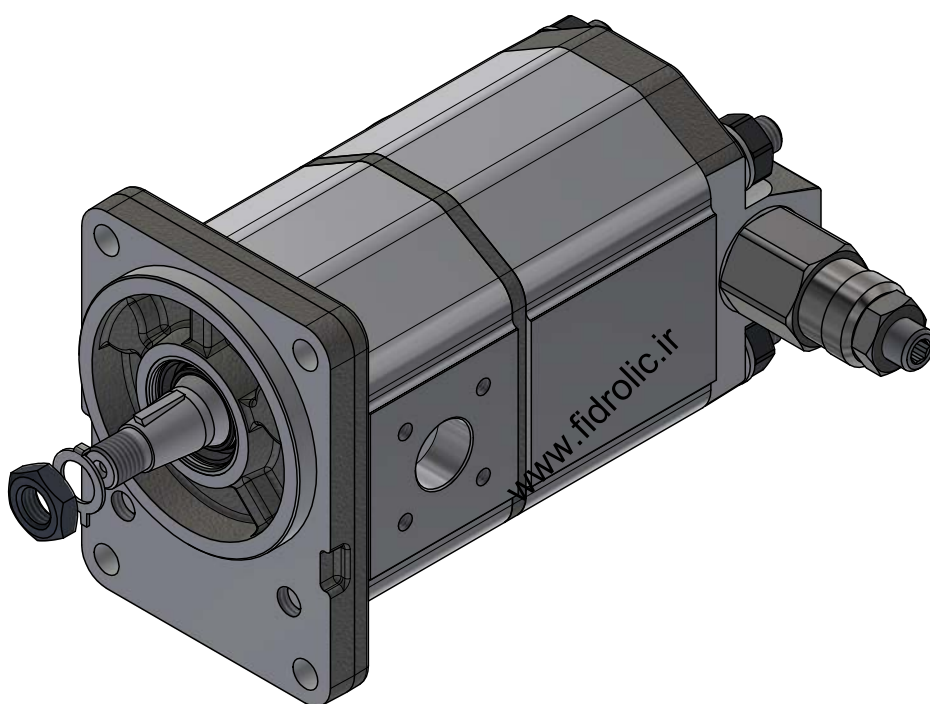
- Motors for seeders available with pressure relief valve, flow control valve, and anti-cavitation valve.
- Standard front flanges and displacements available for this option.



NOTE: Please contact Sales Department for more information about minimum order quantity.

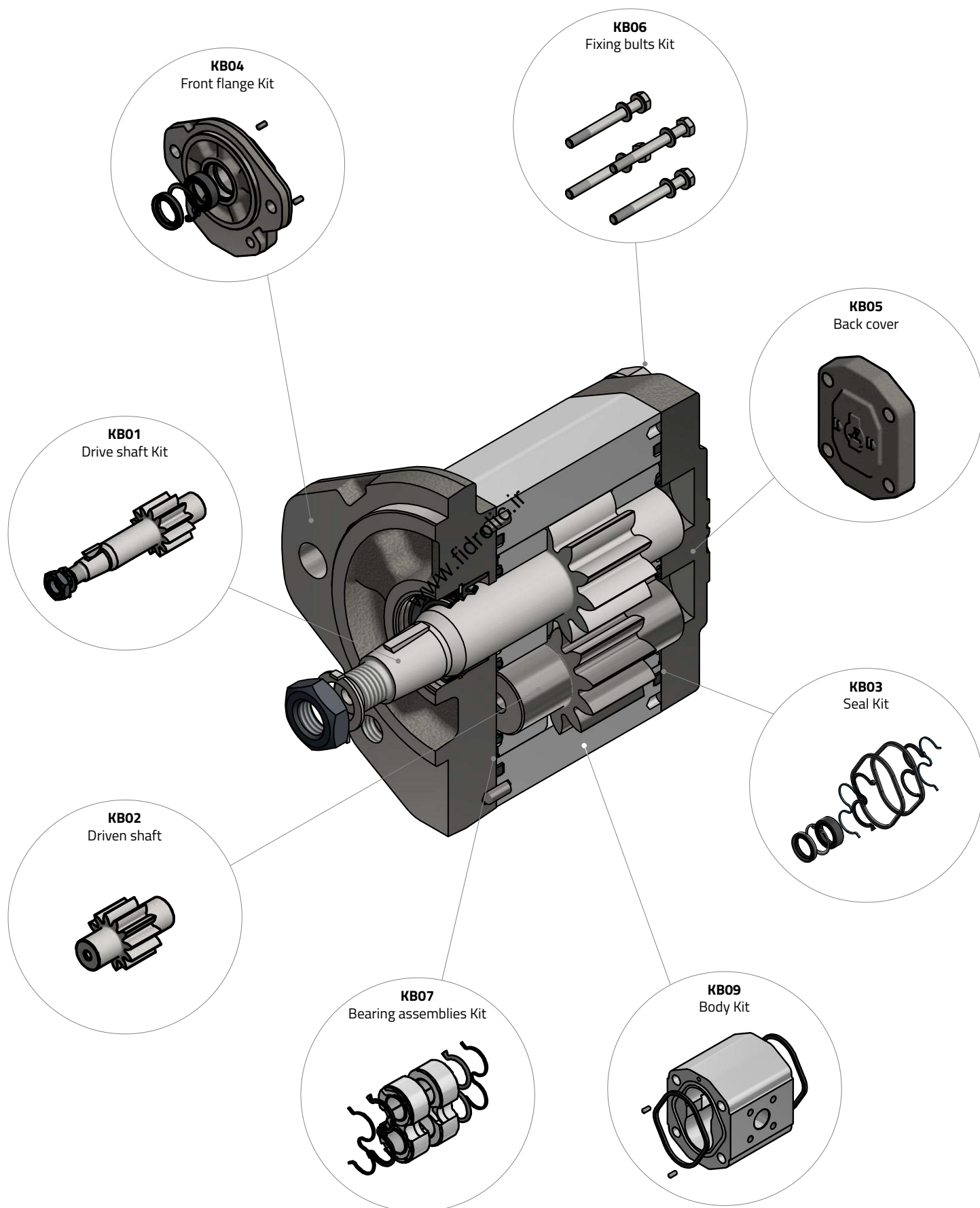
High-Low multiple pump

Multiple High-Low pump is a double stage pump optimal for cutting machines, presses, clamping mechanisms and other applications whom require a fast movement at low pressure, and a slow movement at high pressure.



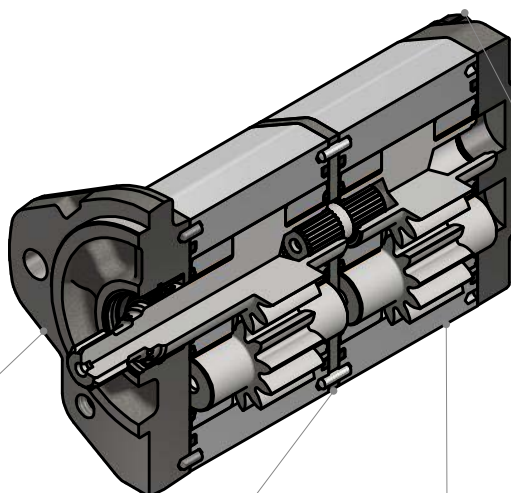
- Front flanges, drive shafts and ports most common available.
- Multiple displacement combinations available.
- Pressure settings available:
 - 50 - 100 bar (Default adjustment - 70 bar)
 - 90 - 180 bar (Default adjustment - 130 bar)

NOTE: Please contact Sales Department for more information about available ports, displacements, pressure setting and minimum order quantity.

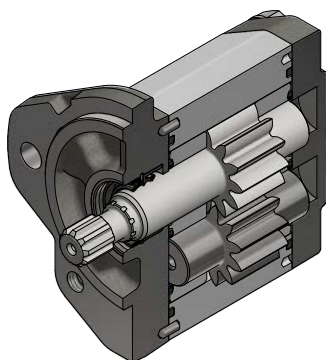


NOTE: For available reference contact the Sales Department or look in the spare parts catalogue.

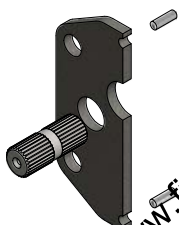
Type GM



Standard pump
Example: 1G15CDG09S



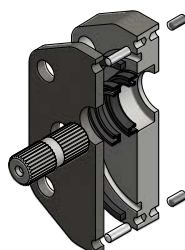
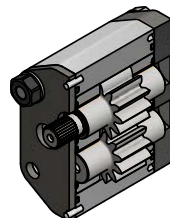
KB08
Intermediate flange kit



Common inlet

Rear standard and common inlet pump

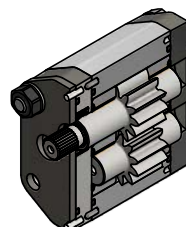
Example: 1G15CDZ00S



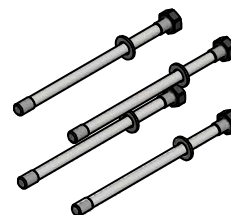
Separate stages

Rear separate stages pump

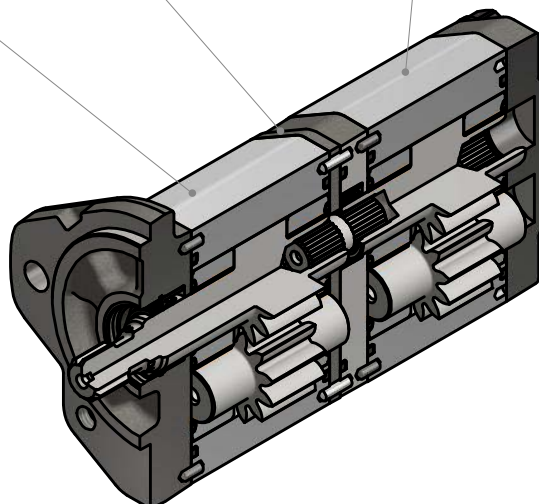
Example: 1G15CDQ00S



KB06
Rods Kit

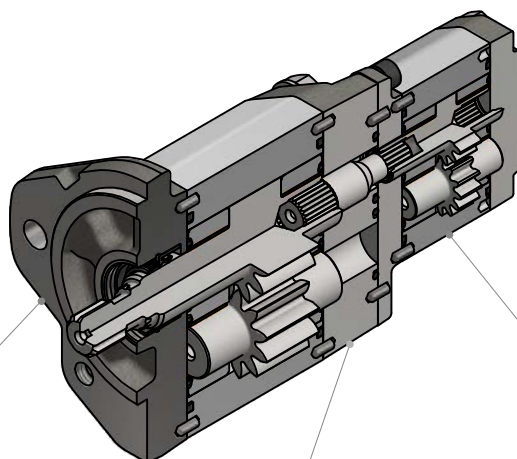


Separate stages type GM

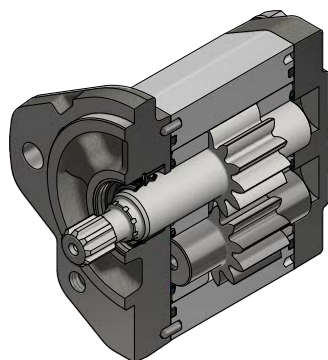


NOTE: A GM double pump can be assembled from a pump with standard reference and a pump with Z or Q shaft form for separate stages. The Z or Q kit are offered in order to transform the pump. For available reference contact the Sales Department or look at the spare parts catalogue.

Type GS

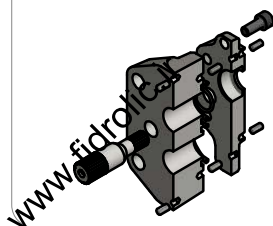


Standard front pump
Example: 1G15CDG09S



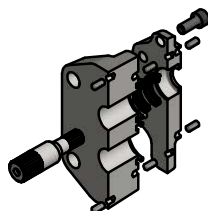
Common inlet intermediate flange kit

Example: KB0800G0G0D00-CID
Example: KB0800G0G0D00-CII

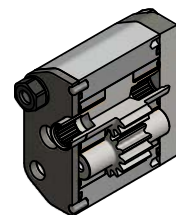


Standard intermediate flange kit and separate stages flange kit

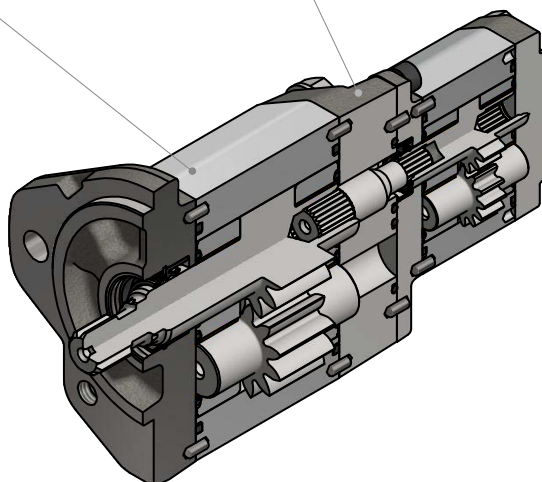
Example: KB0800G0G0D00
Example: KB0800G0G0D00-SS



Rear standard pump
Example: 1G03CDS00S



Separate stages type GS



NOTE: A GS double pump can be assembled from a pump with standard reference and a pump with S shaft. Is offered an intermediate flange kit for standard, common inlet or separate stages versions. For available reference contact the Sales Department or look at the spare parts catalogue.

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