

G Series


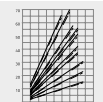


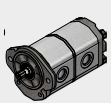
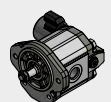
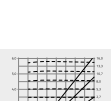
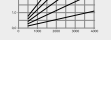

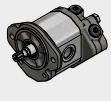


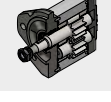

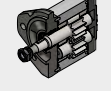

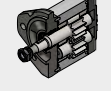
Group 2 gear pumps and motors



New

Roquet
making moves

roquetgroup.com

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Features

Roquet gear pumps offer:

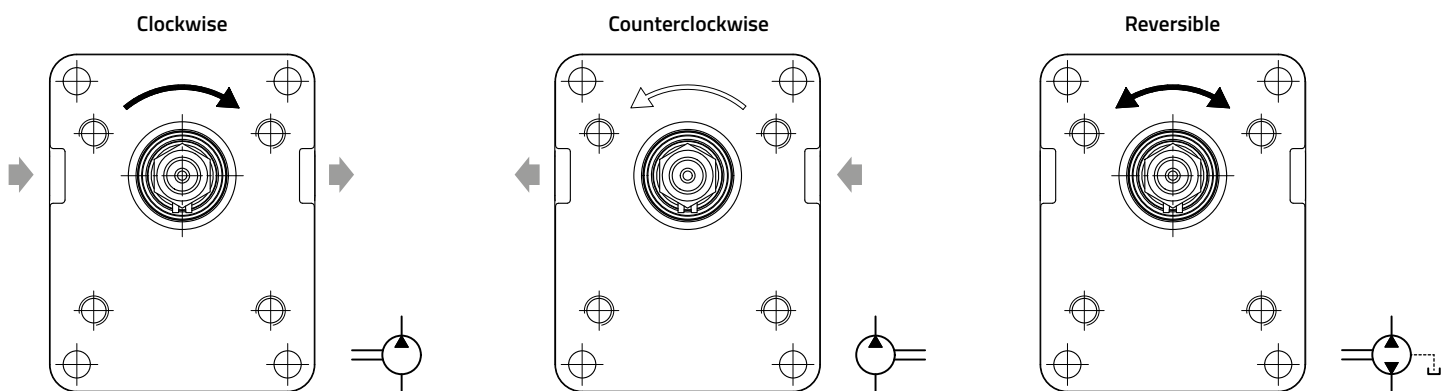
- High efficiency thanks to the specialized production processes.
- Axial compensation through floating bearings.
- High quality bushings for gear pumps.
- Aluminium or cast iron body.
- Front flange and back cover made of cast iron.
- NBR seals in the standard version.
- FKM seals available for high 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]

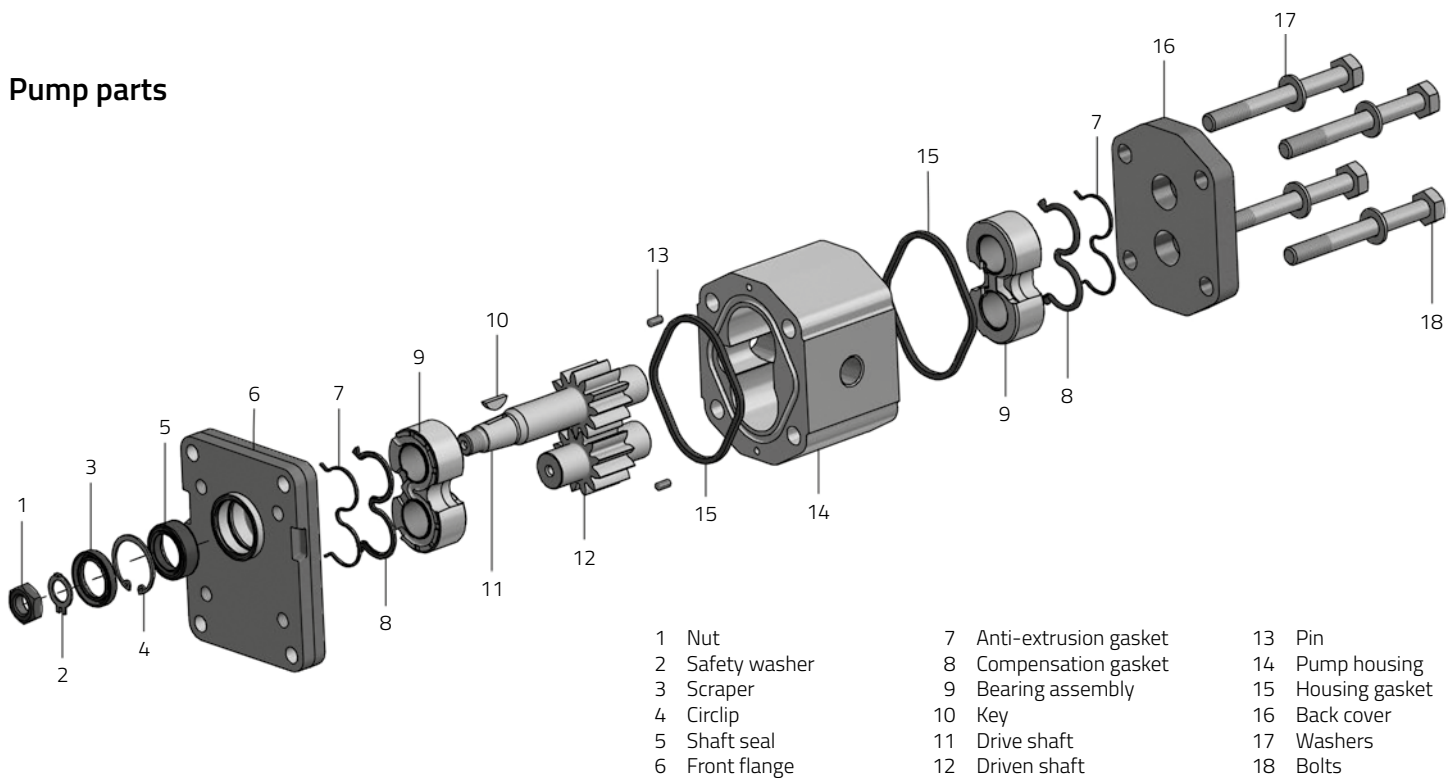
P = necessary driving power [kW]

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

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

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

Pump parts

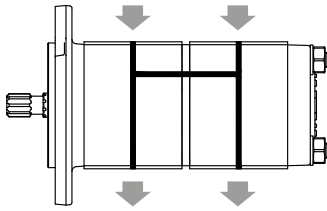


Installation recommendations

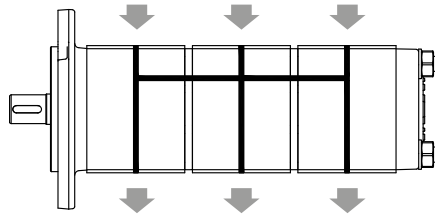
- Avoid radial and axial forces on the pump shaft for longer pump lifetime.
- The shafts of the pump have to be well aligned to avoid these forces.
- Elastic couplings are highly recommended.
- If these forces cannot be avoided, versions with outboard bearings can be offered.
- Avoid rotation speeds 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)



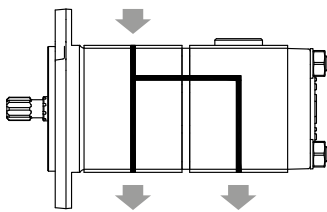
The oil can pass between sections.



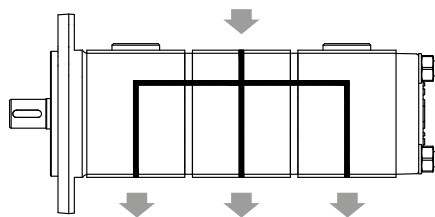
Reference

· (Without code).

Common inlet



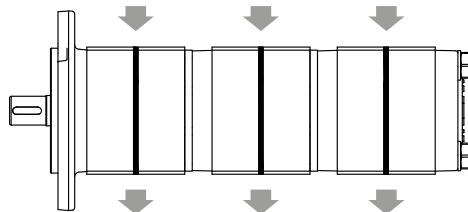
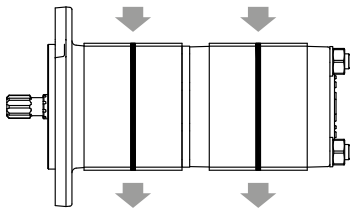
Designed to use less inlets than outlets.



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

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

Separate stages version



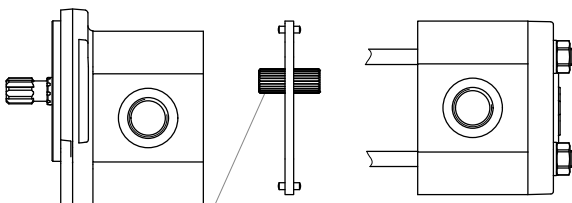
· SS (Separate stages).

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

Driving torques

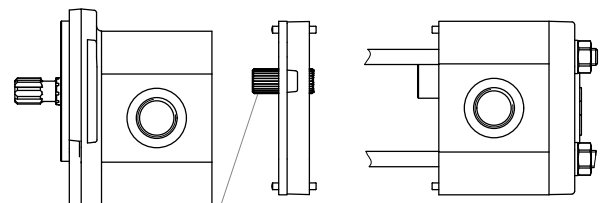
Driving torques between pumps

G+G - Common inlet



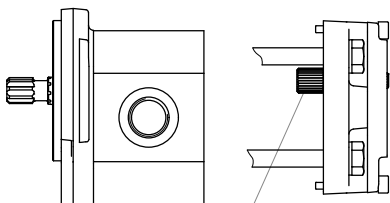
Max. 100 Nm

G+G - Separate stages



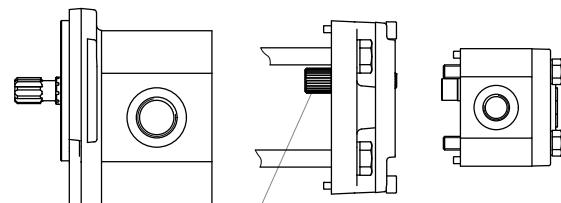
Max. 100 Nm

G+GS - Common inlet

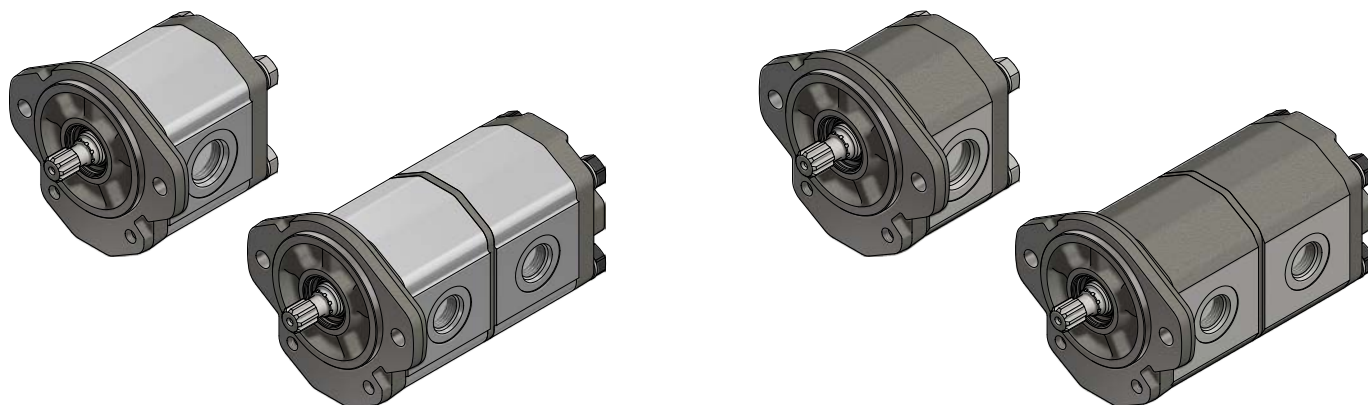


Max. 30 Nm

G+GS - Separate stages



Max. 30 Nm



G Pump 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.

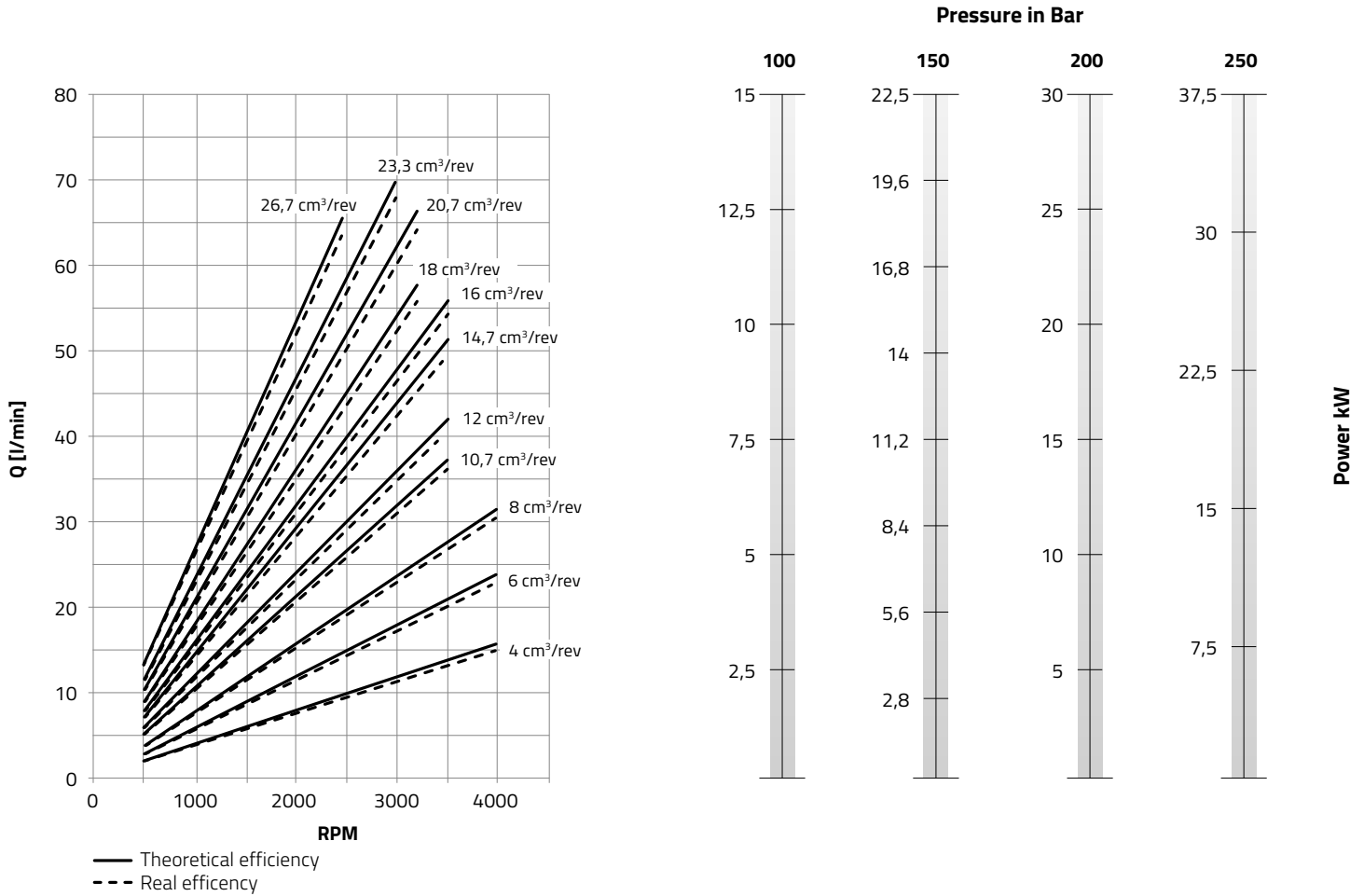
GN Pump technical data (Cast iron body)

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)	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

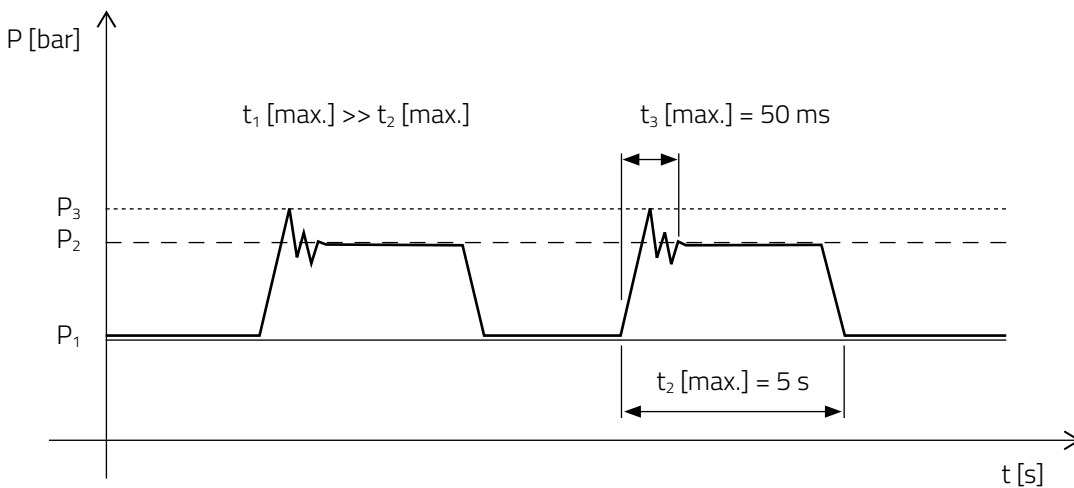


NOTE: The values shown in the above diagram have been obtained using 32cSt Kinematic viscosity oil.

Pressure definition

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

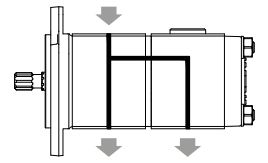
- P_1, t_1 – Maximum continuous pressure ———
- P_2, t_2 – Maximum intermittent pressure - - - -
- P_3, t_3 – Maximum peak pressure



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

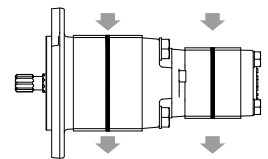
Part number example GM Pump

1	GM	15C	-	6C	D	E	10	R	-	CI1
Without pulley										Common Inlet (Inlet1)
	GM Pump (G+G)									Connection type: R
		Displacement of the Pump G-1 [cm ³ /rev]								Front flange type: 10
			Displacement of the Pump G-2 [cm ³ /rev]							Shaft form: E
										Clockwise Rotation



Part number example GS Pump

1	GS	15C	-	5C	D	E	10	R	-	SS
Without pulley										Separate Stages
	GS Pump (G+G0)									Connection type: R
		Displacement of the Pump G [cm ³ /rev]								Front flange type: 10
			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
<p>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).</p> <p>Example 1: 1G18CDE10R/V12 Example 2: 1G11CDE10R/V41T060</p>	

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)
<p>See minimum set pressure curve (page 30). Example: 1G8CDE10R/VC05V13</p>			

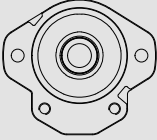
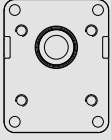

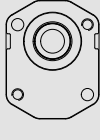
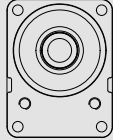
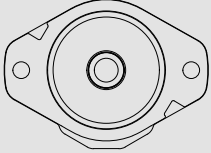
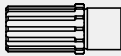
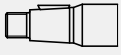
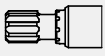
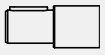
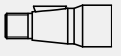
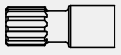
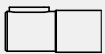


Check valve	
VA	See pressure diagram - flow (page 29). Example: 1G11CDE10R/VA

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		
08	8 l/min	Tamper-proof sealable model and standard set pressure	
10	10 l/min		Pressure range
12	12 l/min	11	Set at 80 bar (5-80 bar)
14	14 l/min	12	Set at 160 bar (85-175 bar)
16	16 l/min	13	Set at 200 bar (180-250 bar)
18	18 l/min	Tamper-proof sealed model and specific set pressure	
20	20 l/min		Pressure range
		41T***	5-80 bar
		42T***	85-175 bar
		43T***	180-250 bar
<p>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</p>			

Drive shaft-front flange common combinations

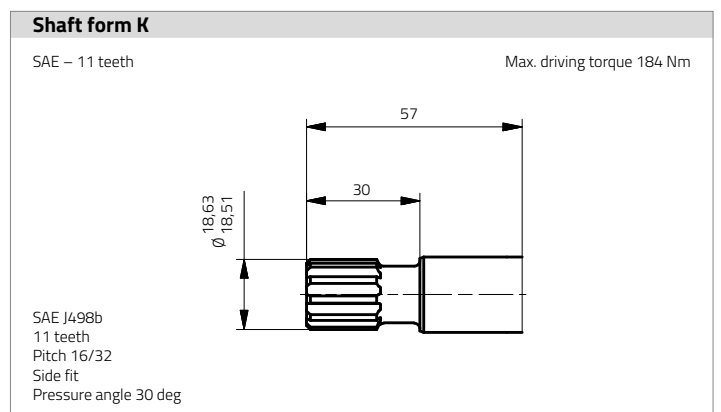
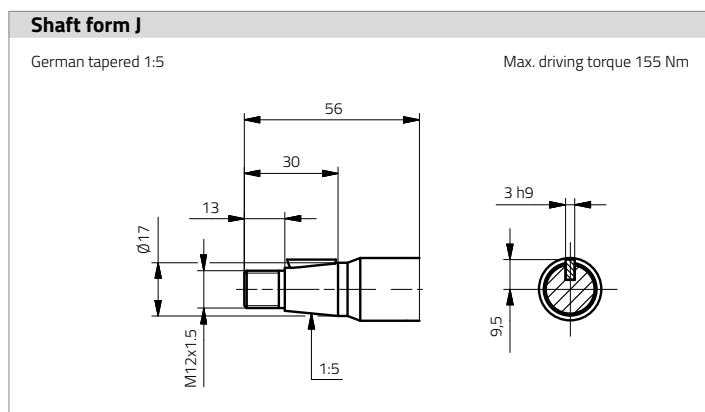
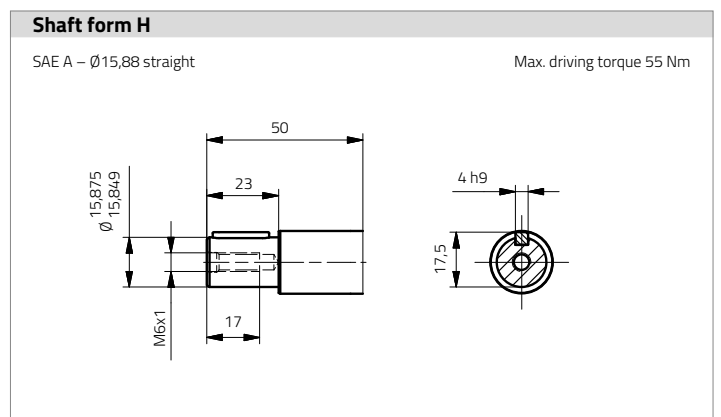
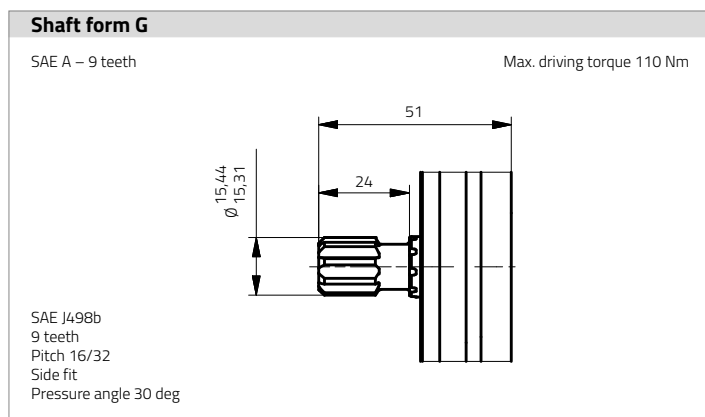
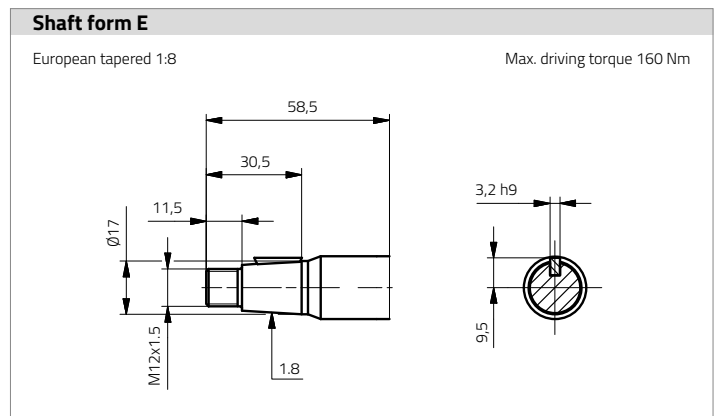
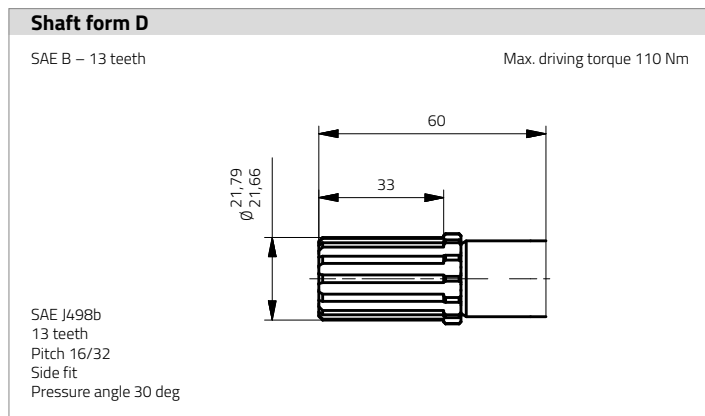
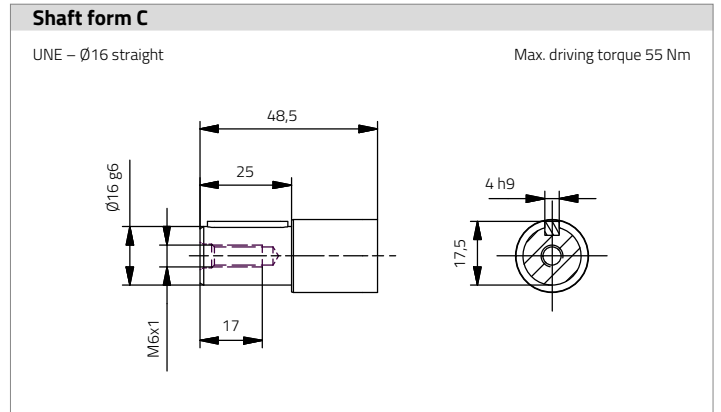
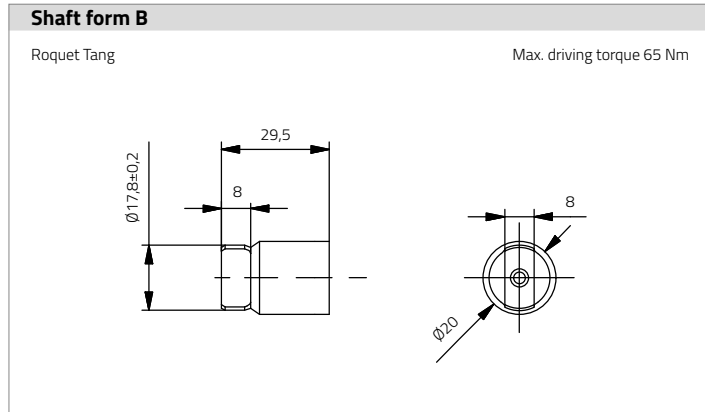
The table below only contains the most common combinations. Contact the Sales Department for other combinations.

	09  SAE A – 2 bolts	10  European	19  German 2 bolts	22  German 2 bolts	23  German	89  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.

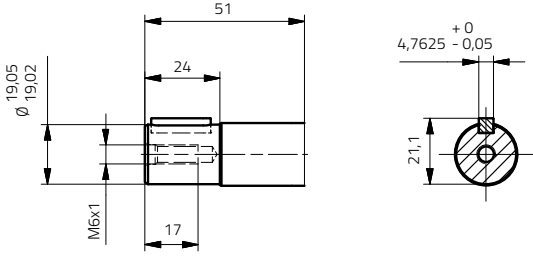
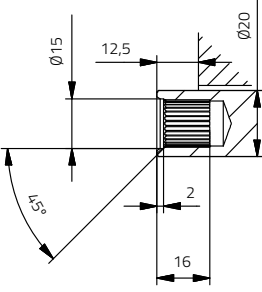
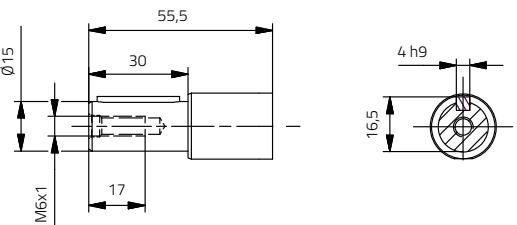
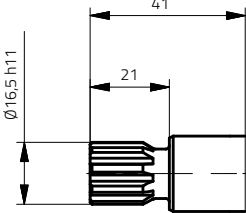
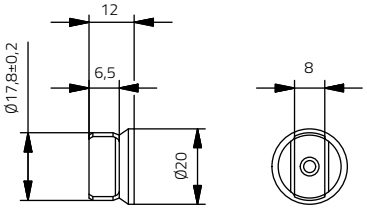
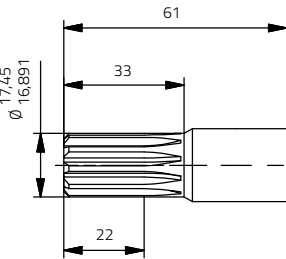
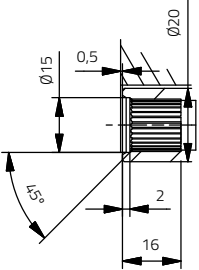
NOTE: The drive shaft length is given from the side A of the front flanges (see pages 14 and 15).



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).

<p>Shaft form L</p> <p>SAE – $\varnothing 19,05$ straight</p> <p>Max. driving torque 100 Nm</p> 	<p>Shaft form Q</p> <p>28 teeth</p> <p>Max. driving torque 100 Nm</p> 
<p>Shaft form R</p> <p>$\varnothing 15$ straight</p> <p>Max. driving torque 55 Nm</p> 	<p>Shaft form T</p> <p>DIN-5482 – 9 teeth</p> <p>Max. driving torque 130 Nm</p>  <p>DIN-5482 9 teeth B 17x14</p>
<p>Shaft form W</p> <p>Tang $\varnothing 17,8$</p> <p>Max. driving torque 65 Nm</p> 	<p>Shaft form X</p> <p>SAE A – 10 teeth</p> <p>Max. driving torque 140 Nm</p>  <p>SAE J498b 10 teeth Pitch 16/32 Side fit Pressure angle 30 deg</p>
<p>Shaft form Z</p> <p>28 teeth</p> <p>Max. driving torque 100 Nm</p>  <p>The shaft doesn't protrude</p>	

[← Return to Pumps](#)

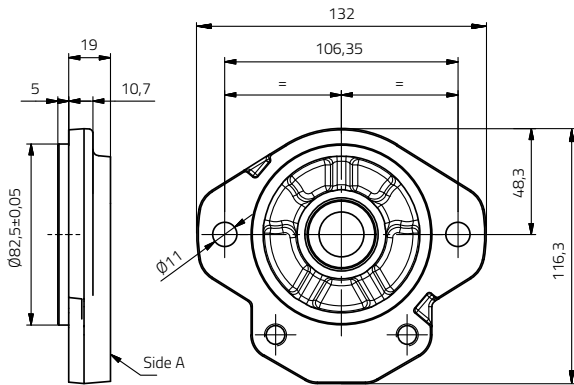
[← Return to Motors](#)

Front flanges

Contact with the Sales Department for other combinations.

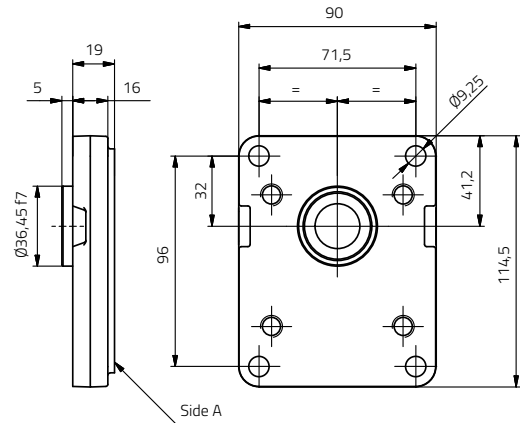
Front flange type 09

SAE A – 2 bolts



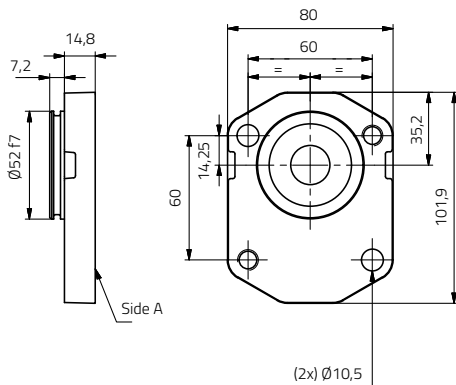
Front flange type 10

European standard



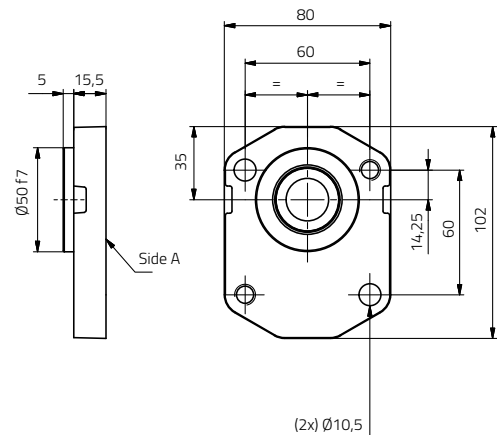
Front flange type 19

German standard – 2 bolts (Without shaft seal)



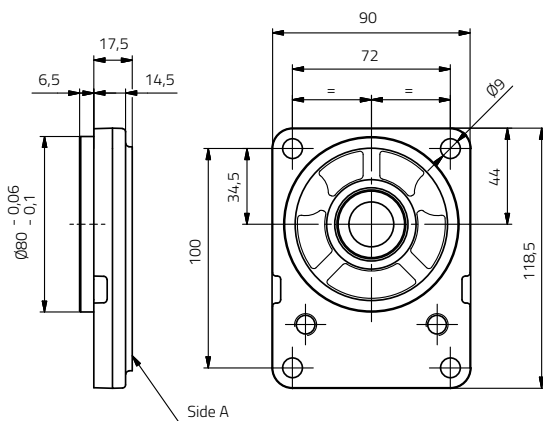
Front flange type 22

German standard – 2 bolts (With shaft seal)



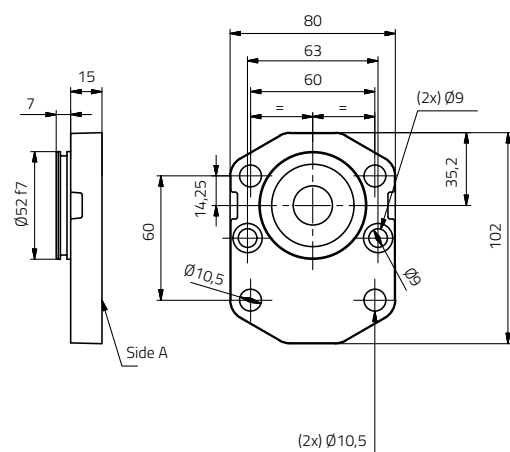
Front flange type 23

German standard



Front flange type 29

German standard (High pressure)

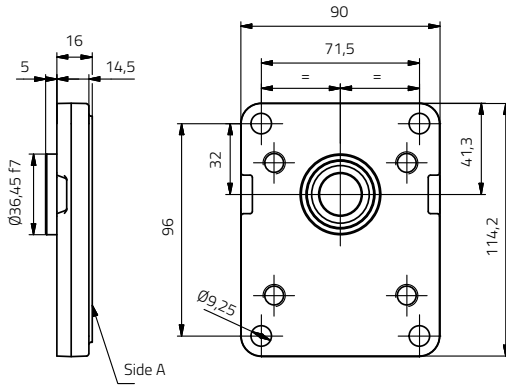


Front flanges

Contact with the Sales Department for other combinations.

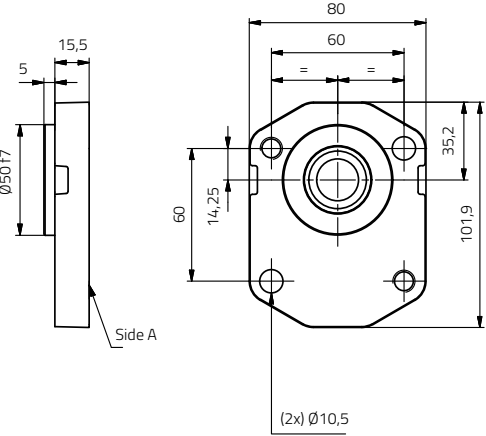
Front flange type 31

European standard for B shaft



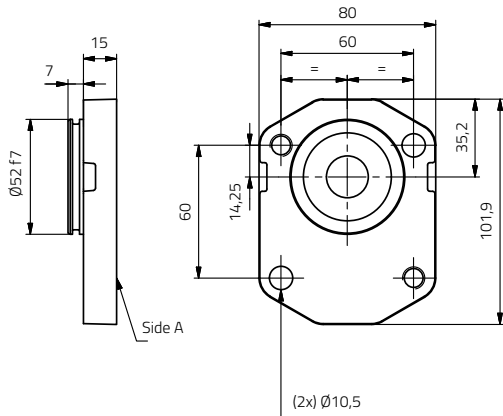
Front flange type 55

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



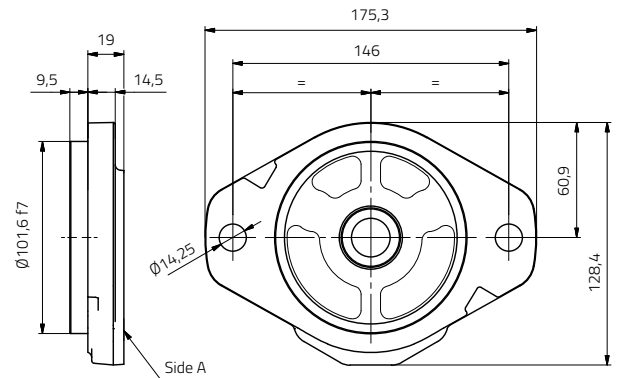
Front flange type 61

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

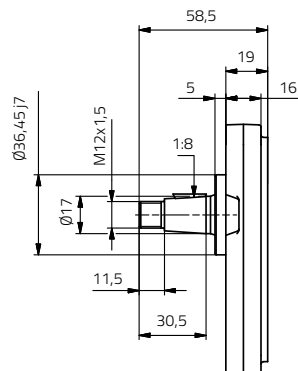


Front flange type 89

SAE B – 2 bolts



Example



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

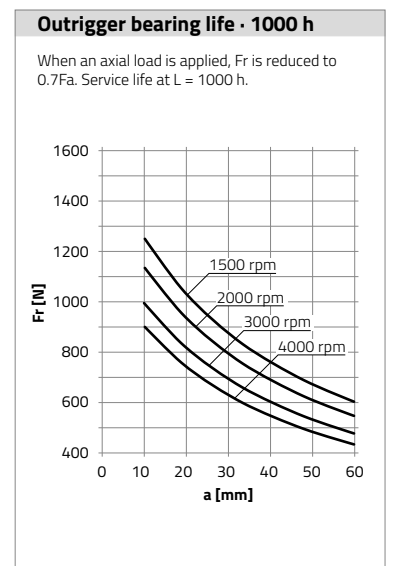
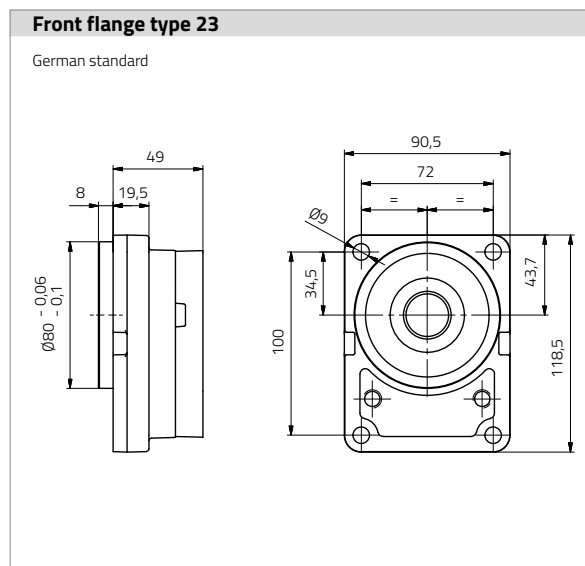
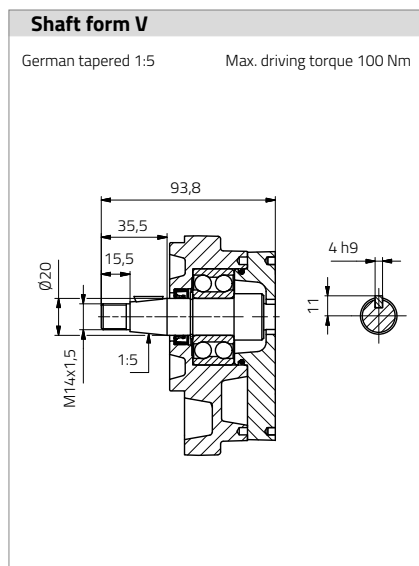
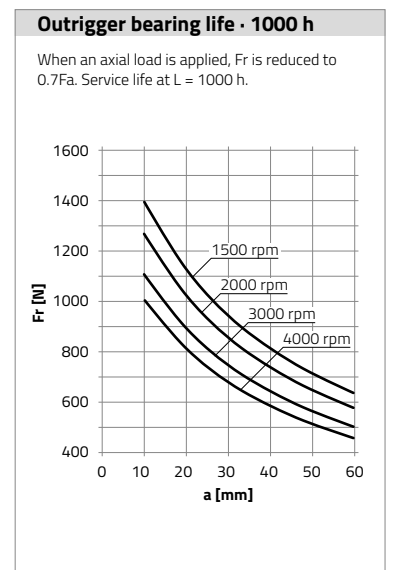
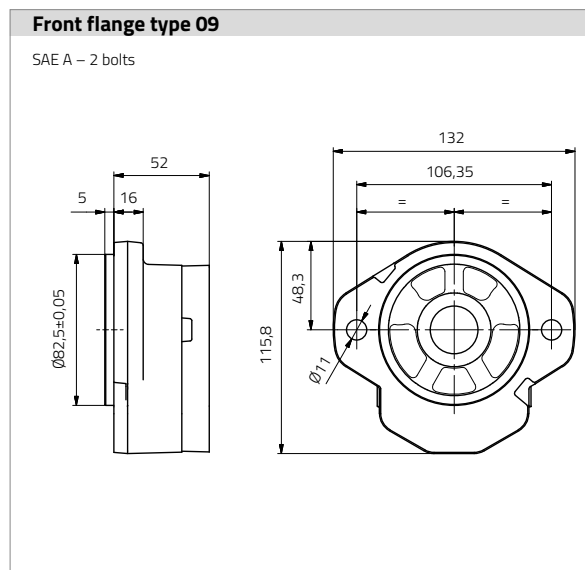
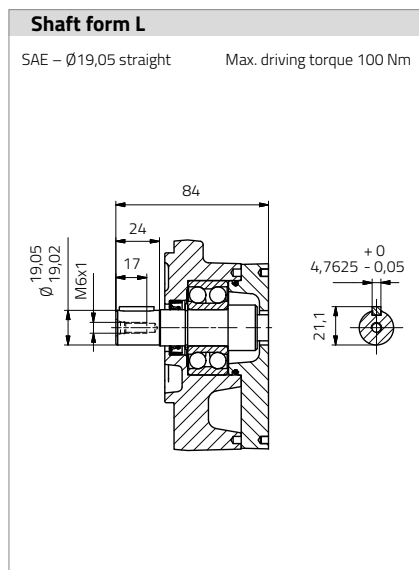
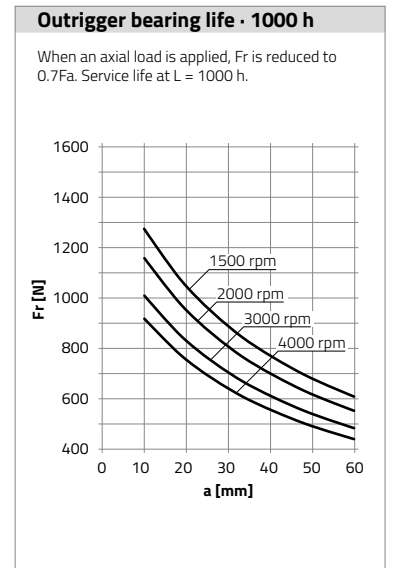
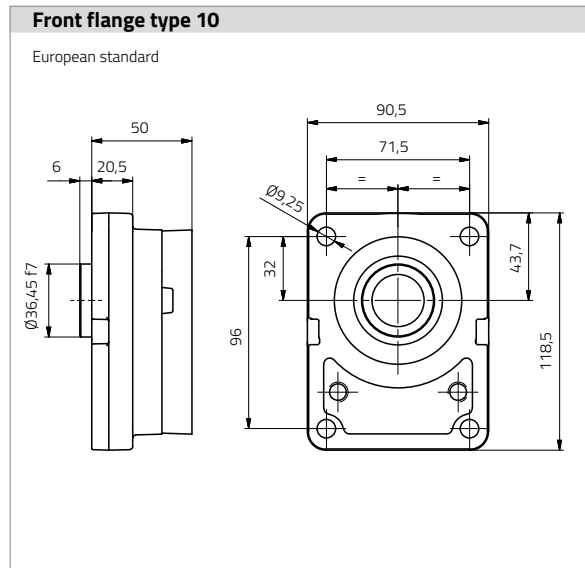
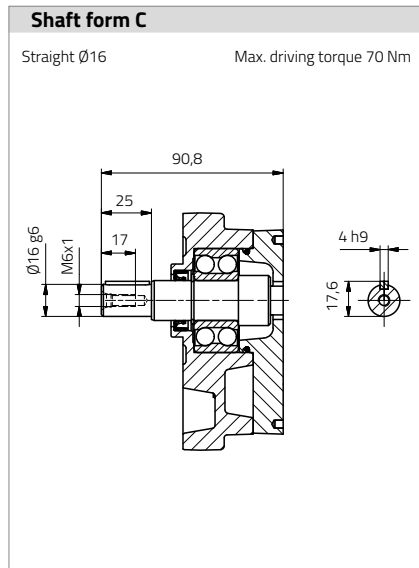
[← Return to Pumps](#)

[← Return to Motors](#)

Front flanges and shaft with outrigger bearing

Maximum radial load 125 daN — Maximum axial load 125 daN

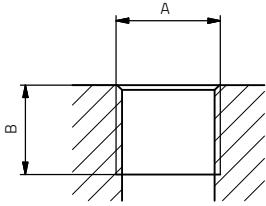
Each drive shaft and front flange on this page can be combined.



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

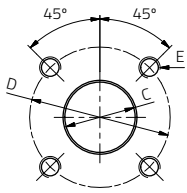
Ports

Side ports



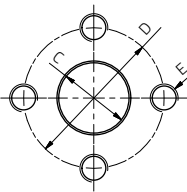
R Ports	1 rotation direction				Reversible	
	Suction		Pressure		A	B
	A	B	A	B		
Displacement [cm ³ /rev]						
4	3/8" BSP	15	3/8" BSP	15	3/8" BSP	15
6 ... 14,7	1/2" BSP	18	3/8" BSP	15	1/2" BSP	18
16 ... 26,7	3/4" BSP	17	1/2" BSP	18	3/4" BSP	17

Dimensions according to ISO 1179-1 (Parallel threads)



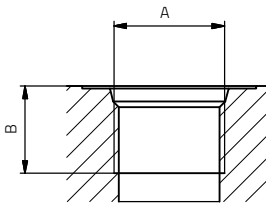
F Ports	1 rotation direction						Reversible		
	Suction			Pressure			C	D	E
	C	D	E	C	D	E			
Displacement [cm ³ /rev]									
4 ... 6	15	40	M6	15	35	M6	20	40	M6
8 ... 26,7	20	40	M6	15	35	M6	20	40	M6

Flanged ports - German standard



B Ports	1 rotation direction						Reversible		
	Suction			Pressure			C	D	E
	C	D	E	C	D	E			
Displacement [cm ³ /rev]									
4 ... 6	13,5	30	M6	13,5	30	M6	13,5	30	M6
8 ... 12	20	40	M8	15	30	M6	15	30	M6
15 ... 26,7	20	40	M8	15	30	M6	20	40	M8

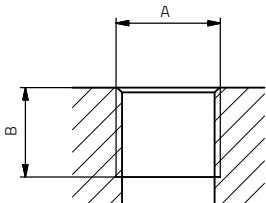
Flanged ports - European standard



S Ports	1 rotation direction				Reversible	
	Suction		Pressure		A	B
	A	B	A	B		
Displacement [cm ³ /rev]						
4 ... 26,7	1" 1/16-12 UNF	19	7/8"-14 UNF	17	7/8"-14 UNF	17

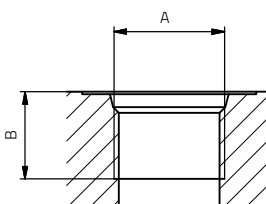
Dimensions according to ISO 11926-1 (Parallel threads)

Rear ports



T Ports	1 rotation direction + Reversible				Drain	
	Suction		Pressure		A	B
	A	B	A	B		
Displacement [cm ³ /rev]						
4 ... 26,7	1/2" BSP	15	1/2" BSP	15	1/4" G	14

Dimensions according to ISO 1179-1 (Parallel threads)



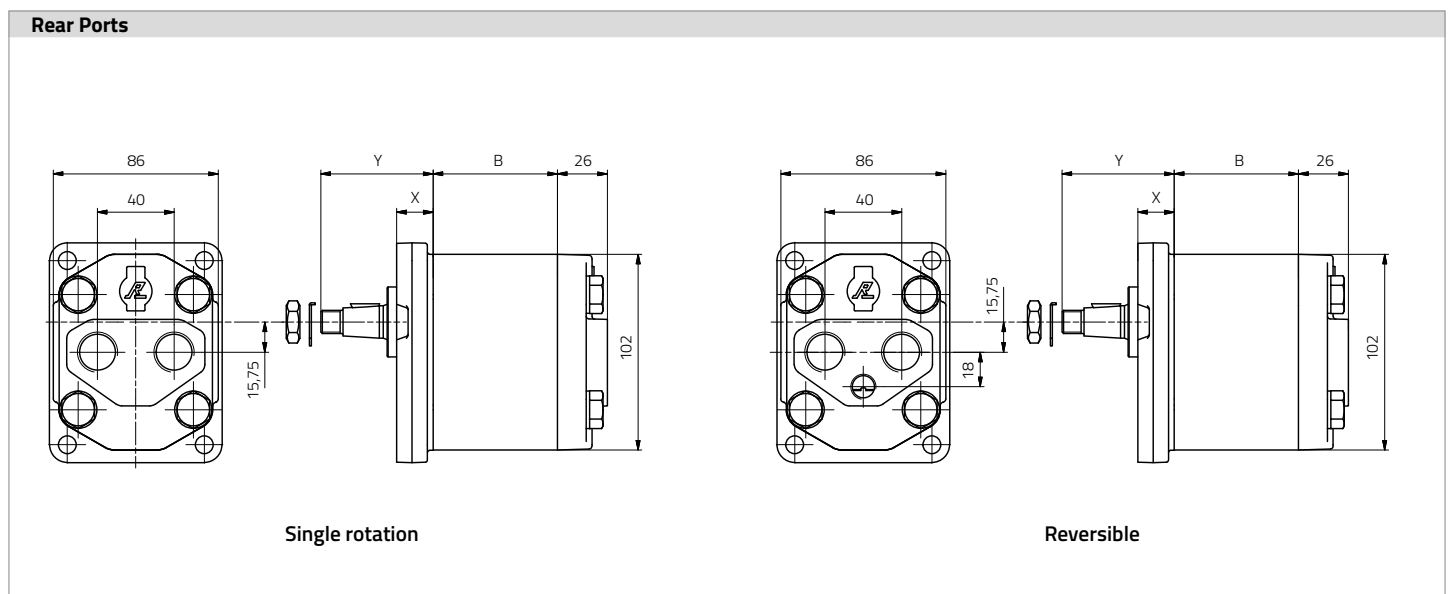
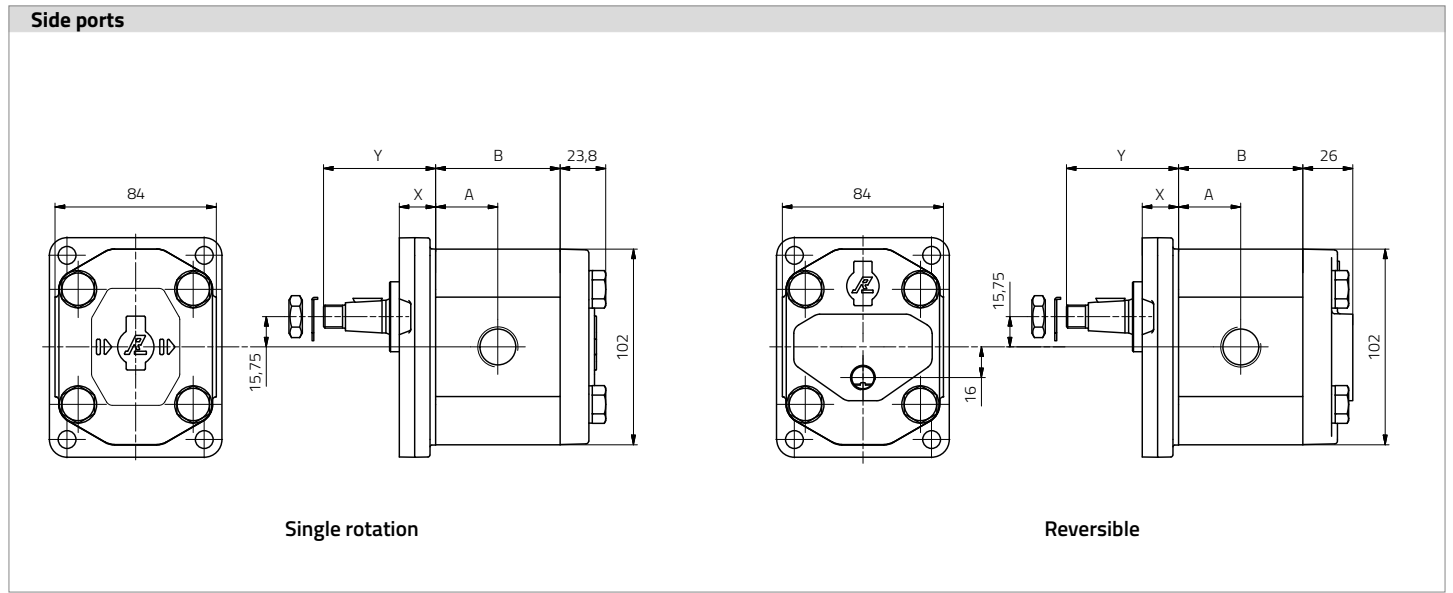
U Ports	1 rotation direction				Reversible		Drain	
	Suction		Pressure		A	B	A	B
	A	B	A	B				
Displacement [cm ³ /rev]								
4 ... 26,7	1" 1/16-12 UNF	19	7/8"-14 UNF	17	7/8"-14 UNF	17	9/16"-18 UNF	14

Dimensions according to ISO 11926-1 (Parallel threads)

[← Return to Pumps](#)

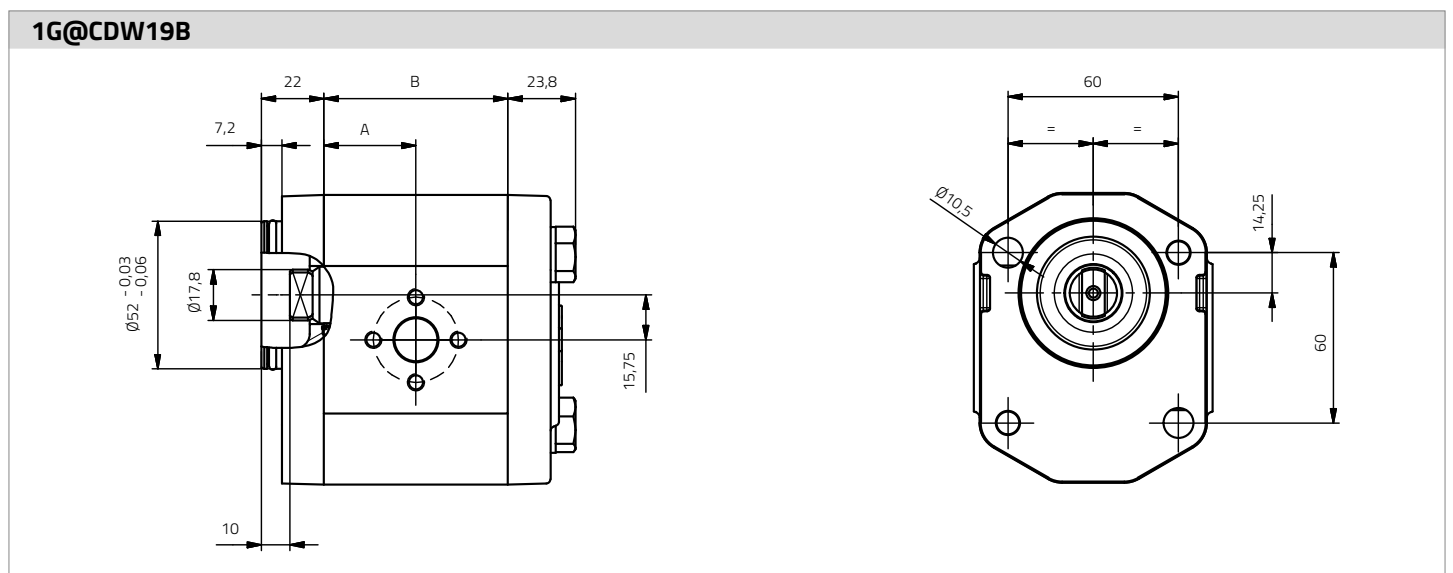
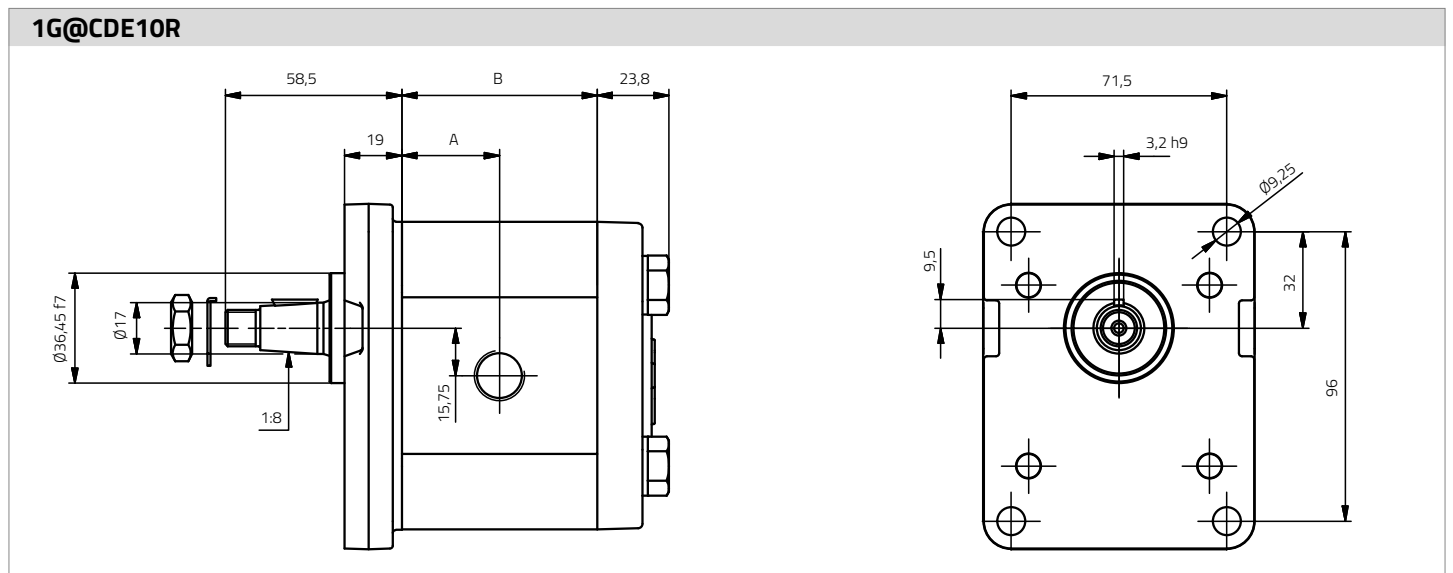
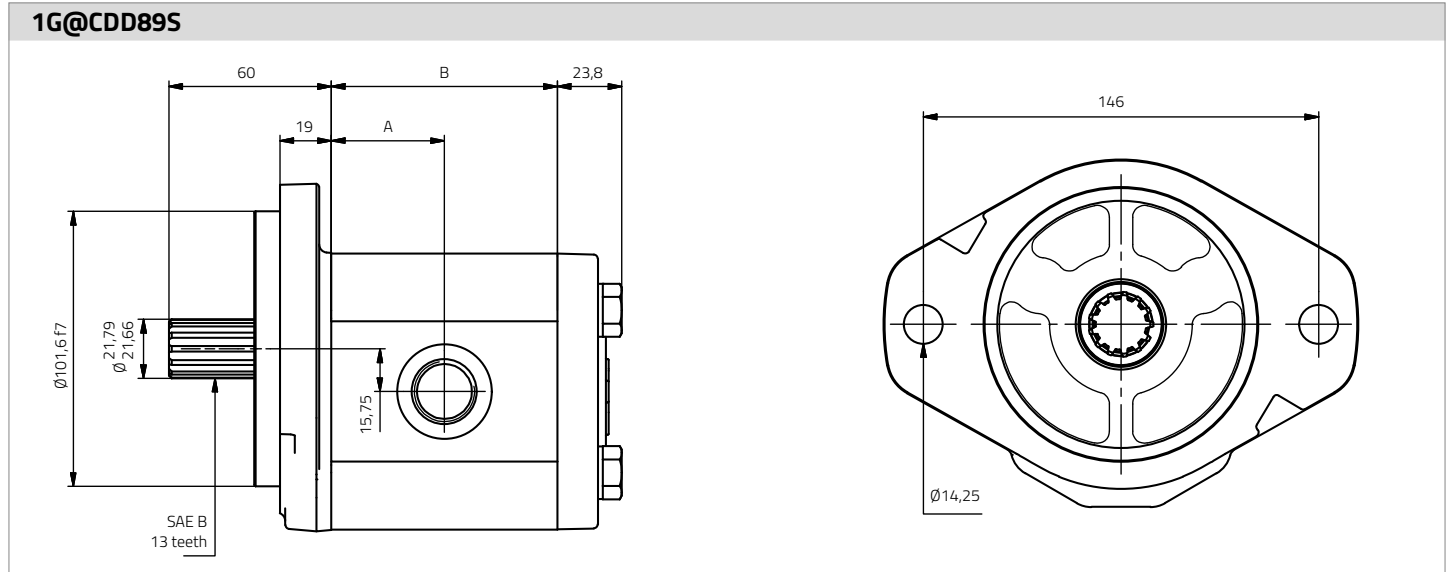
[← Return to Motors](#)

Single pumps and motors (G)



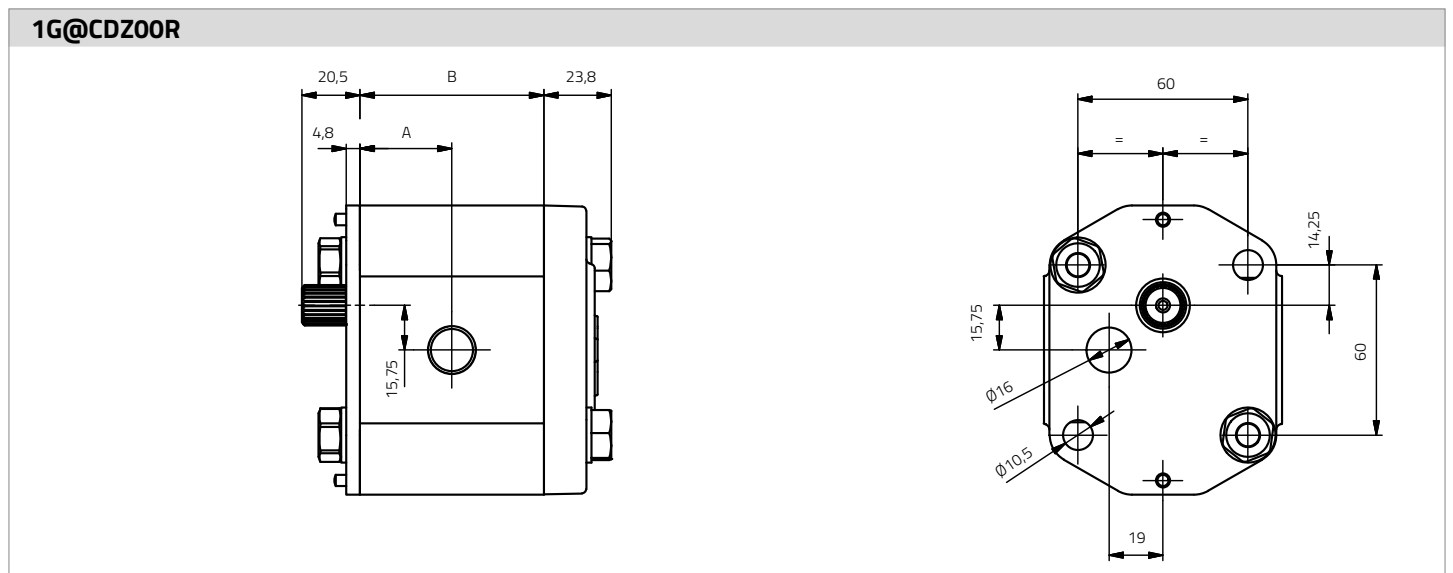
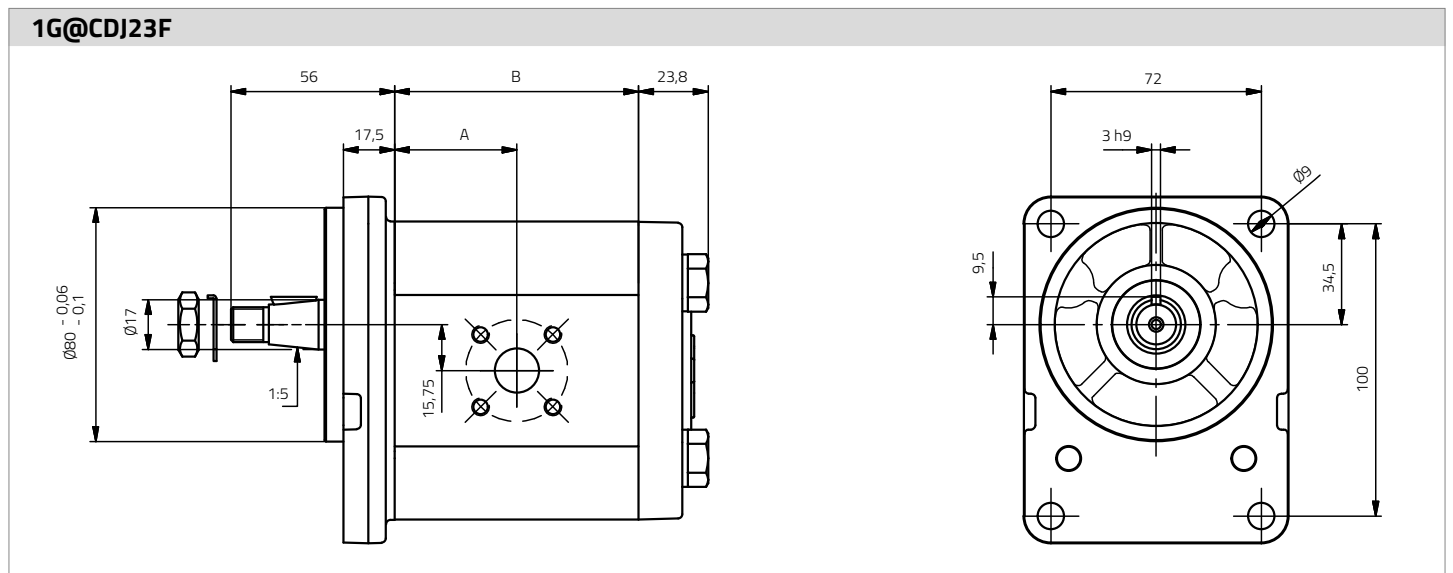
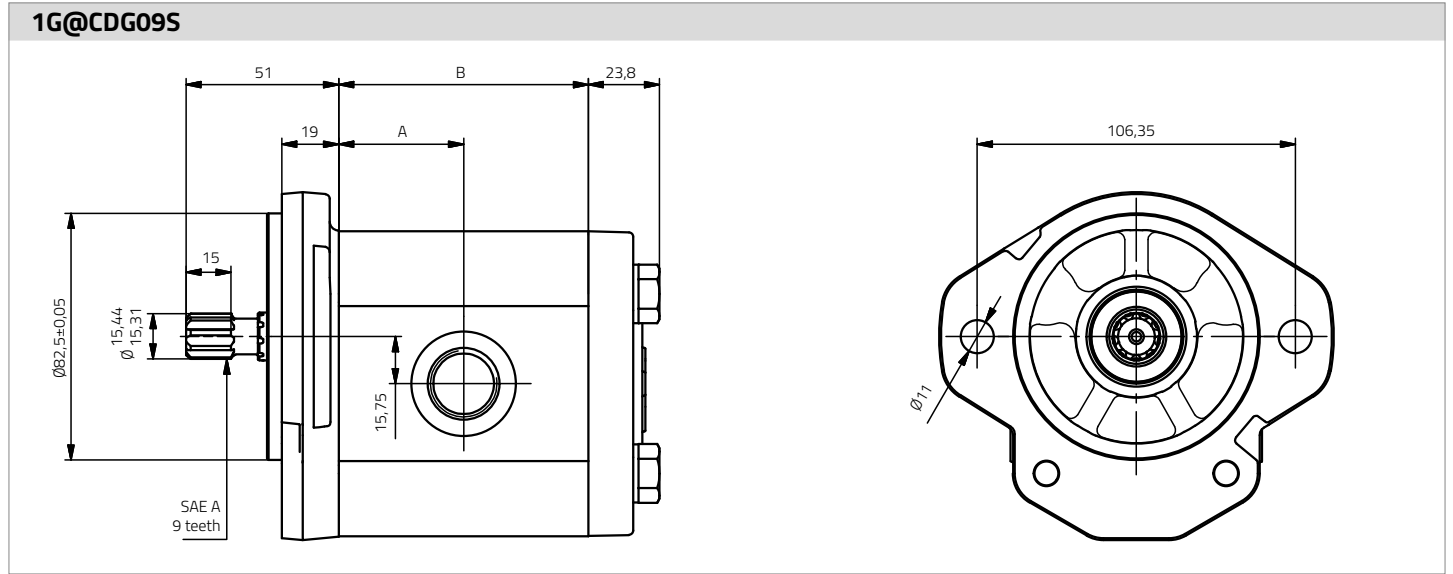
Displacement [cm ³ /rev]	A	B	Weight (kg)		Weight (kg)		Front flange type	X [mm]	Shaft form	Y [mm]
			Ex. 1G@C@E10@	Ex. 1GN@C@E10@	Ex. 1G@C@Z00@	Ex. 1GN@C@Z00@				
4	23,4	46,8	3,3	4,3	2,2	3,1	09	19	B	29,5
6	25,2	50,3	3,4	4,5	2,3	3,3	10	19	C	48,5
8	26,8	53,5	3,5	4,6	2,4	3,5	19	14,8	D	60
10,7	29	58	3,6	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



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

Configuration and dimension examples



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

Multiple pumps

Multiple pump G (GM)

Standard
Common inlet

Technical drawing of Multiple pump G (GM) showing front and side views. The front view shows a width of 84. The side view shows dimensions: Y, X, A, B, 5, B, 27, and a vertical dimension of 15,75.

Multiple pump G (GM)

Separate Stages

Technical drawing of Multiple pump G (GM) with separate stages showing front and side views. The front view shows a width of 84. The side view shows dimensions: Y, X, A, B, 18, B, 27, and a vertical dimension of 15,75.

Multiple pump G (GM)

Reversible

Technical drawing of Multiple pump G (GM) reversible showing front and side views. The front view shows a width of 84 and a vertical dimension of 16. The side view shows dimensions: Y, X, A, B, 5, B, 27, a vertical dimension of 15,75, and a horizontal dimension of 26.

Multiple pump G-GO (GS)

Standard
Common inlet
Separate Stages
Reversible

Technical drawing of Multiple pump G-GO (GS) showing front and side views. The front view shows a width of 84 and an inner width of 62. The side view shows dimensions: Y, X, A, B, 37,5, D, 17,5, a vertical dimension of 15,75, and a horizontal dimension of 5,25.

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

Features

Roquet gear motors offer:

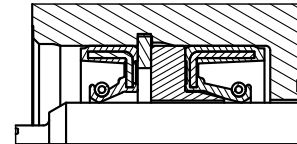
- High efficiency thanks to the specialized production processes.
- Axial compensation through floating bearings.
- High quality bushings for gear motors.
- Aluminium or cast iron body.
- Front flange and back cover made of cast iron.
- NBR seals in the standard version.
- FKM seals available for high 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

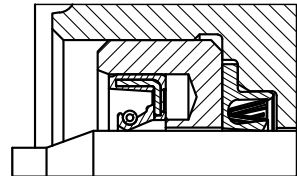
Standard motor shaft seal

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



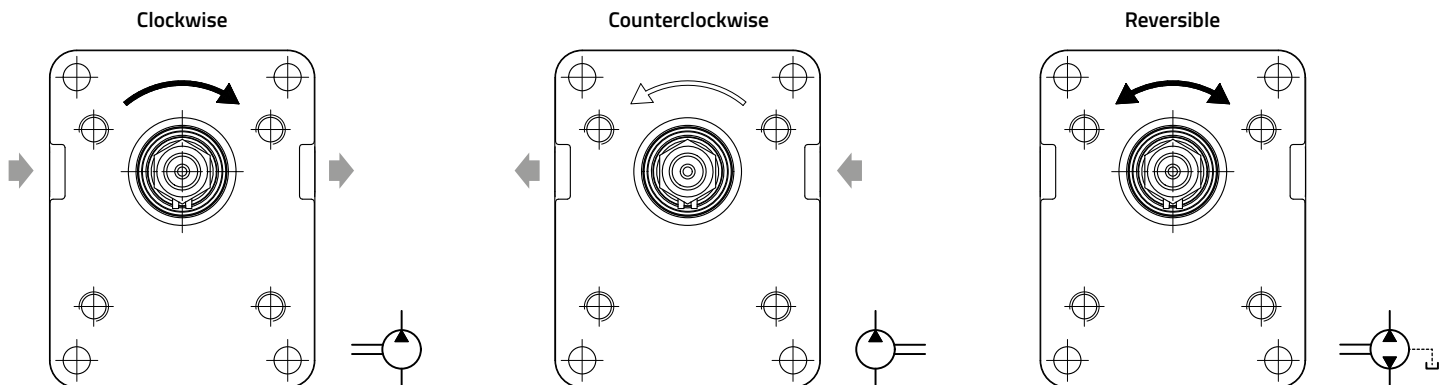
Peak pressure motor shaft seal (-LP)

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]

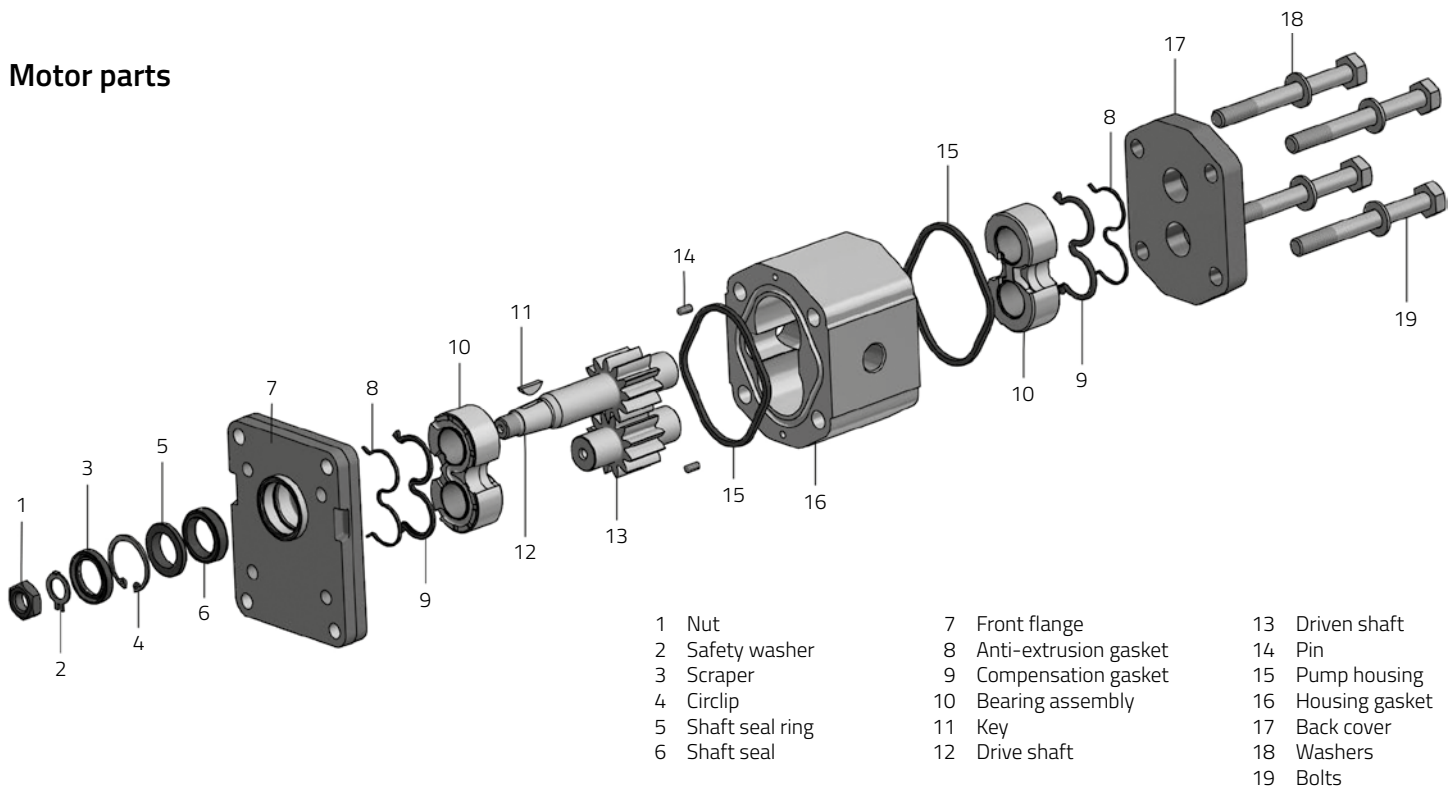
η_{vol} = volumetric efficiency ($\approx 0,95$) [%]

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

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

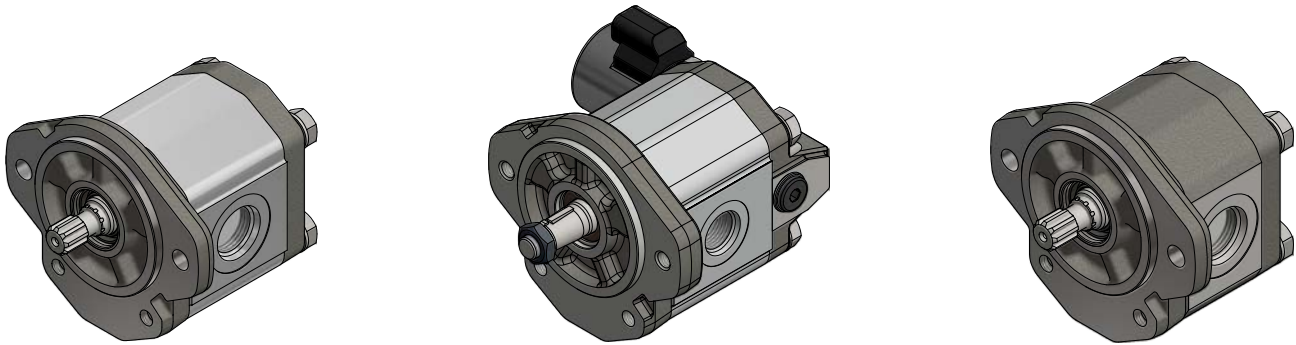
Note: Use a minimum pressure of 20 bar to ensure the starting torque.

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		-						

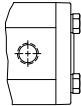
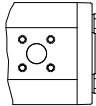
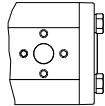
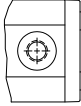
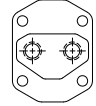
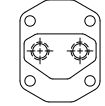
Note: Pressures obtained with flanged bodies.

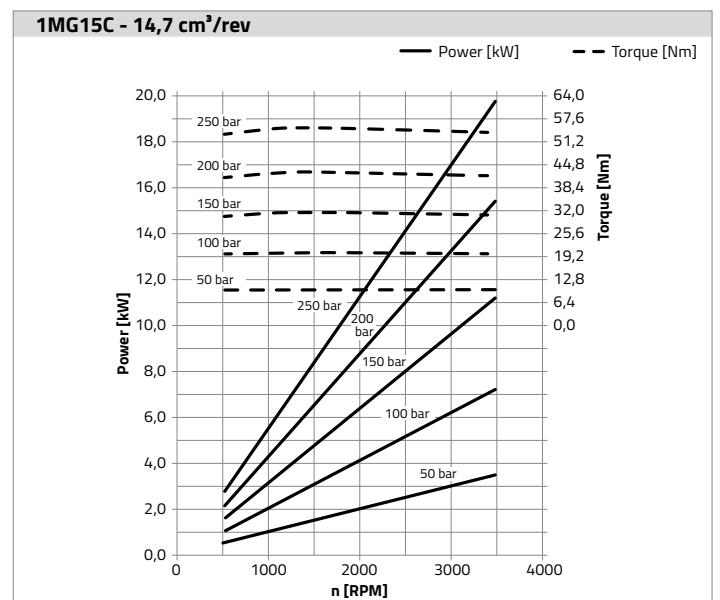
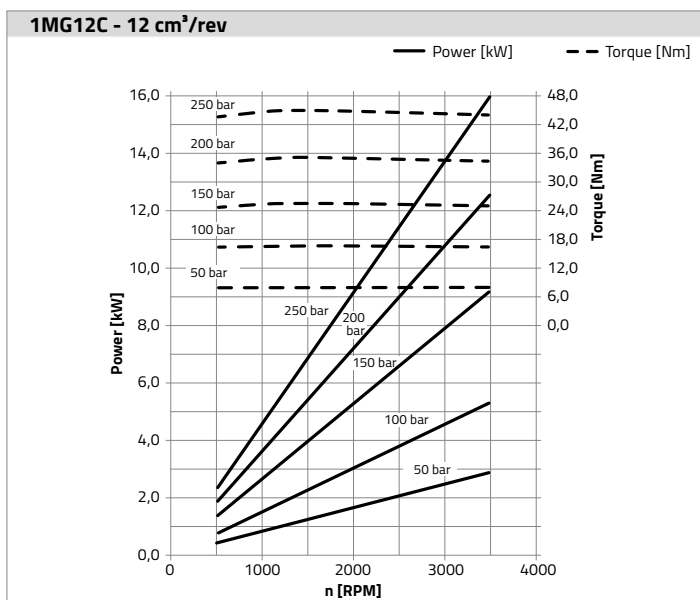
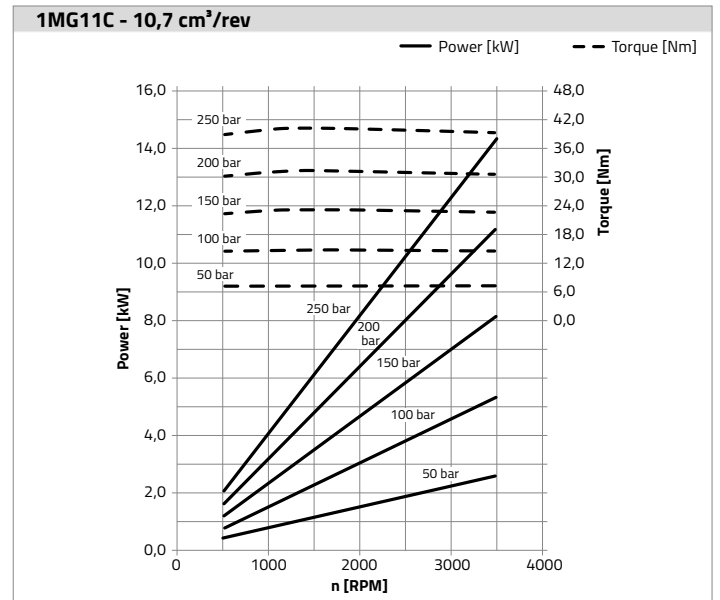
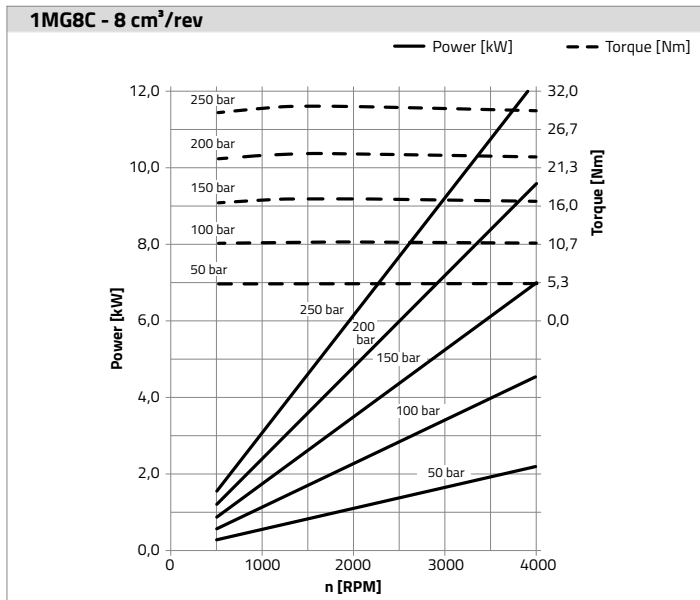
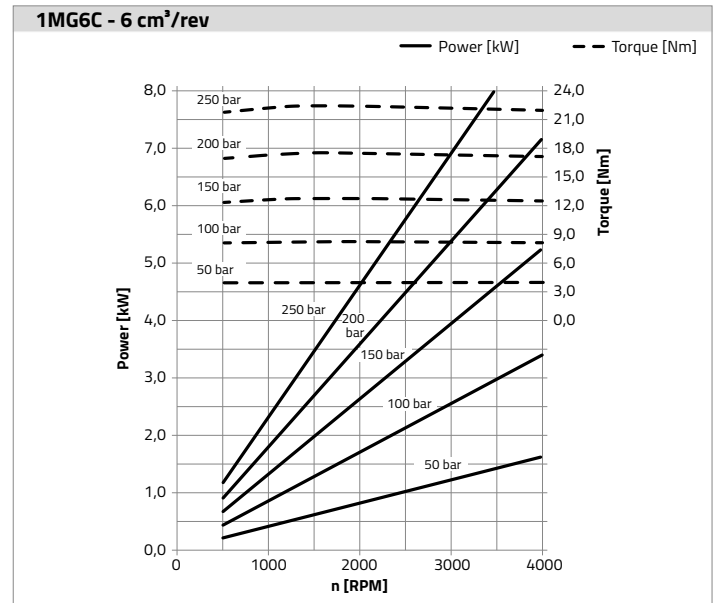
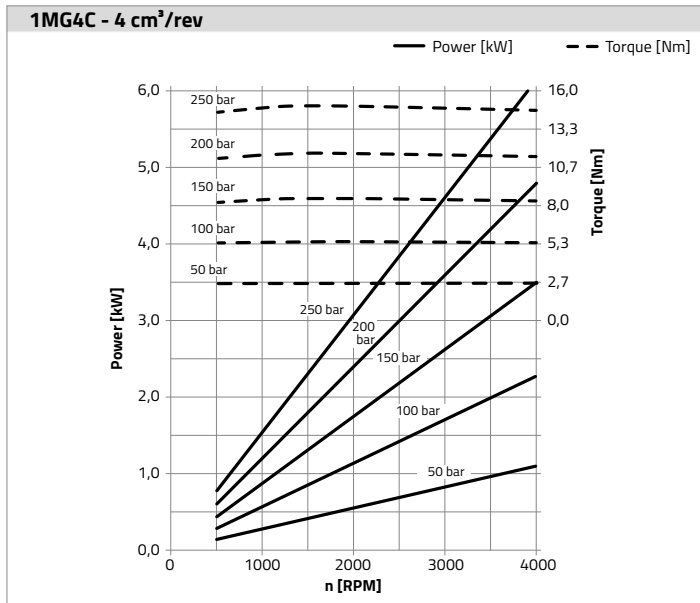
MGN motor technical data (Cast iron body)

Displacement	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)	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		-						

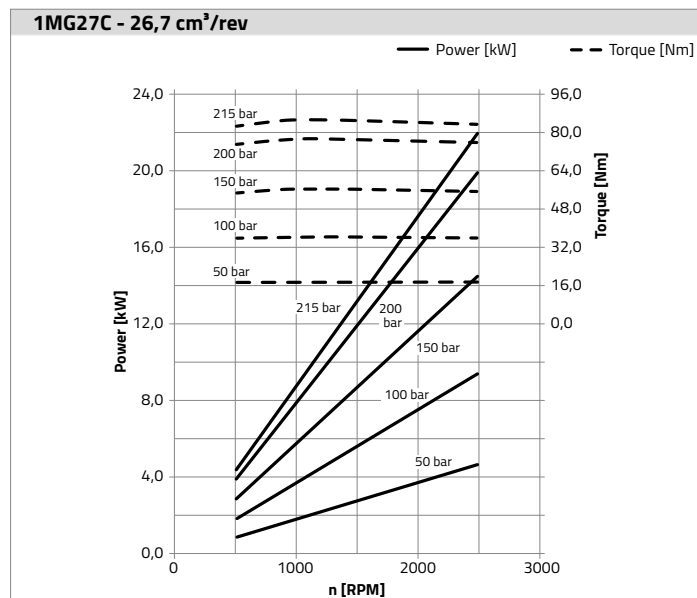
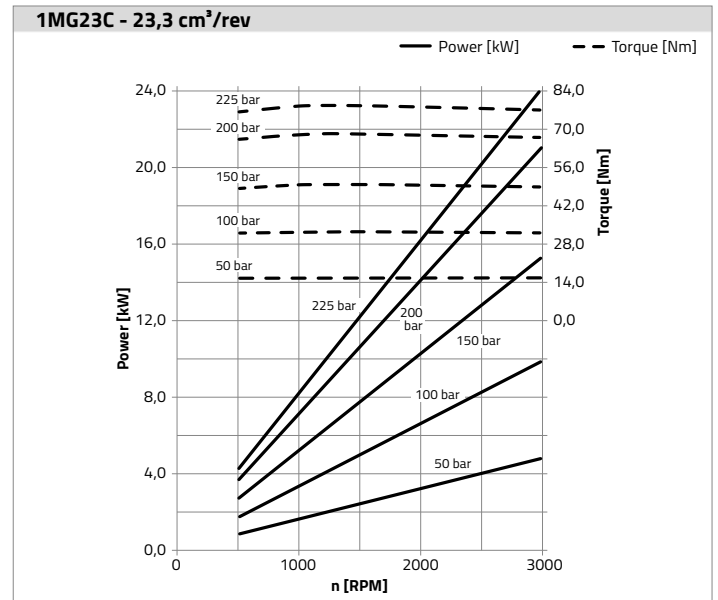
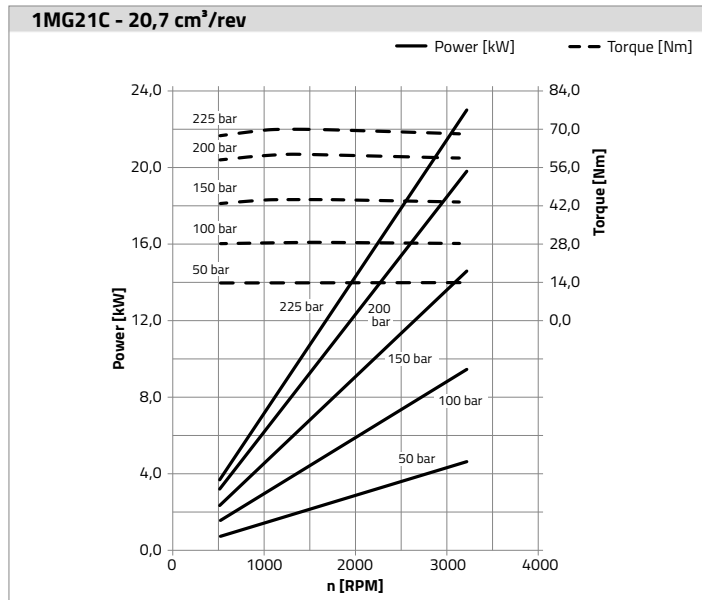
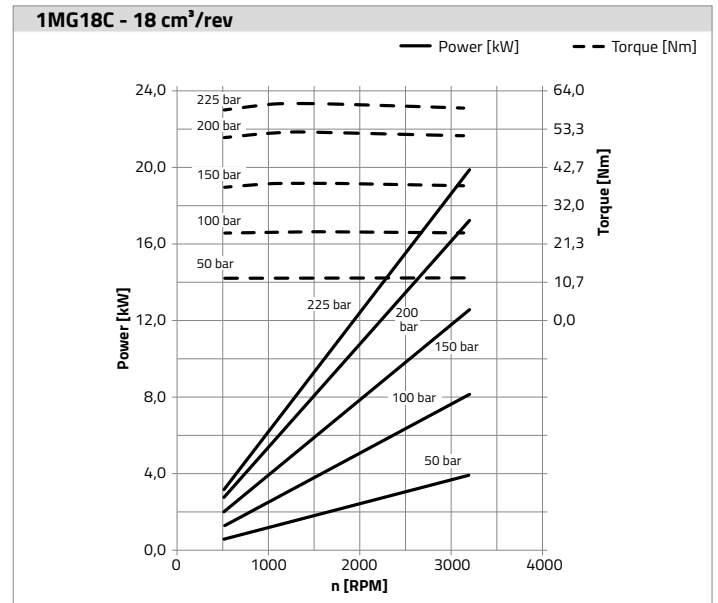
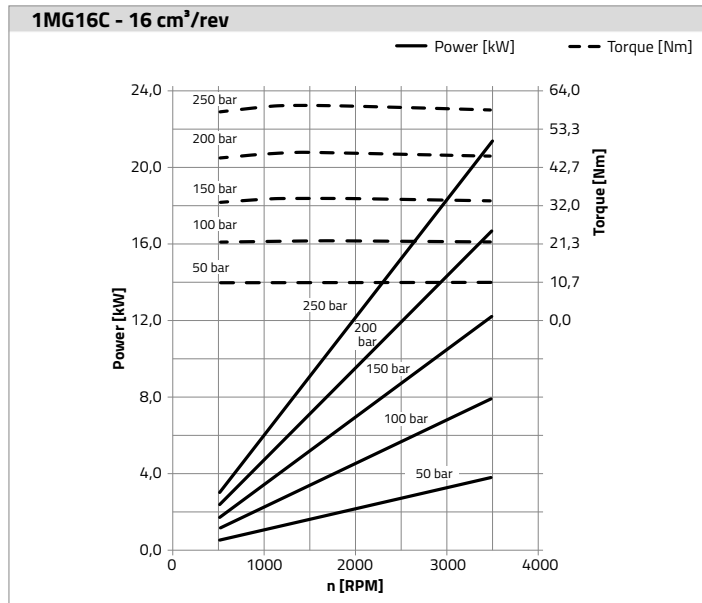
Note: With regard to all reversible motors (MG and MGN), maximum pressure is 250 bar (3600 psi), except for those values where the pressure is lower.

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

Coding System										Optional				
1	MG	15C	D	E	10	R	/	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												
6C	6,0	0,37										R	F	B
8C	8,0	0,49										BSP thread	German standard	European standard
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												
														
												S	T	U
												SAE thread	Rear ports - BSP	Rear ports - SAE
Rotation Direction												For more options see ports →		
D	Clockwise													
I	Counterclockwise													
R	Reversible													
Drive Shaft Form												Mounting Flange		
D	SAE B - 13 teeth										09	SAE A - 2 bolts		
E	European tapered 1:8										10	European flange		
G	SAE A - 9 teeth										22	German standard - 2 bolts		
H	SAE A - Ø15,88 straight										23	German standard		
J	German tapered 1:5										89	SAE B - 2 bolts		
K	SAE - 11 teeth										For more options see flanges →			
L	SAE - Ø19,05 straight													
T	DIN-5482 - 9 teeth													
												For more options see shafts →		



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



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

Flow, performance and power chart according to displacement

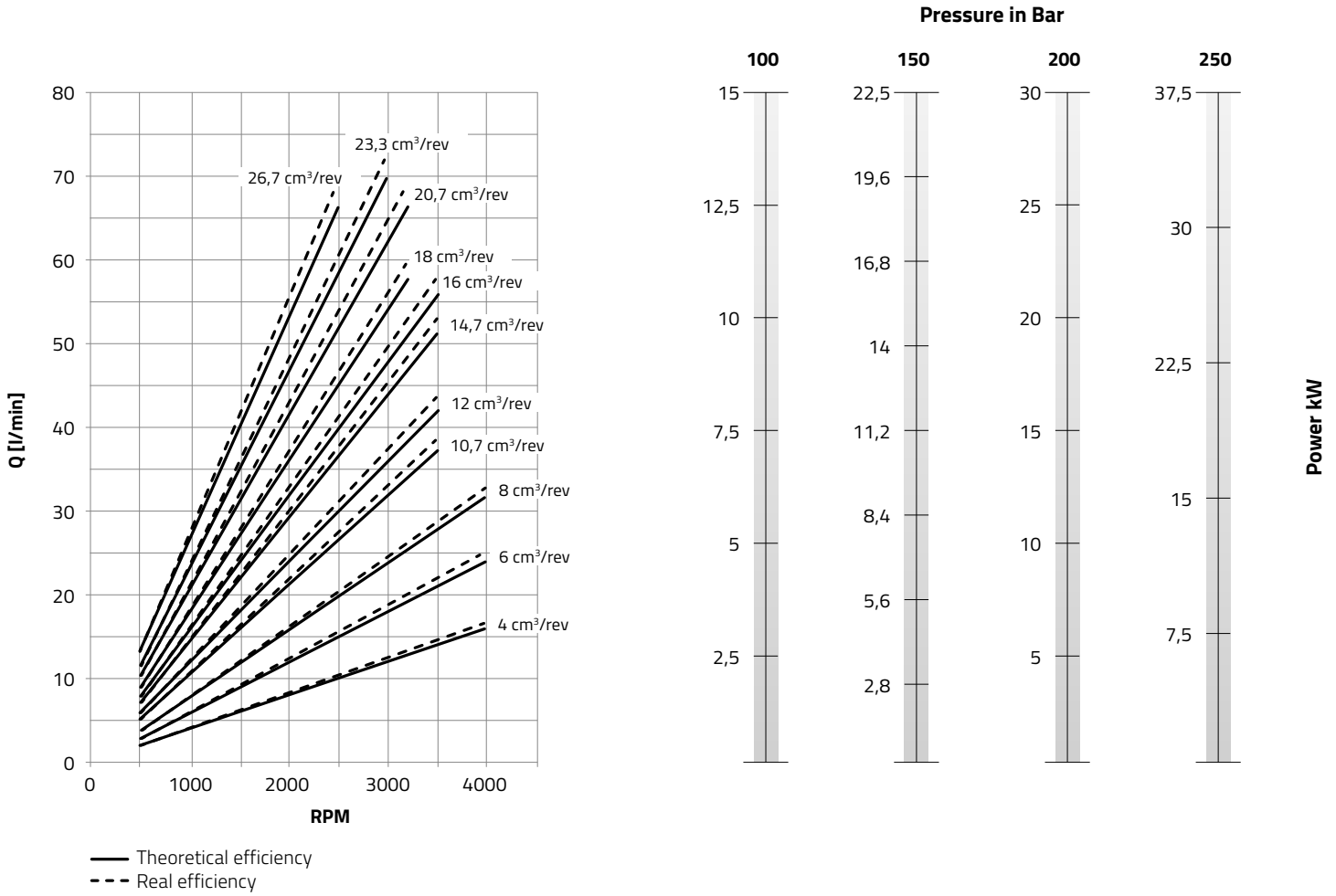
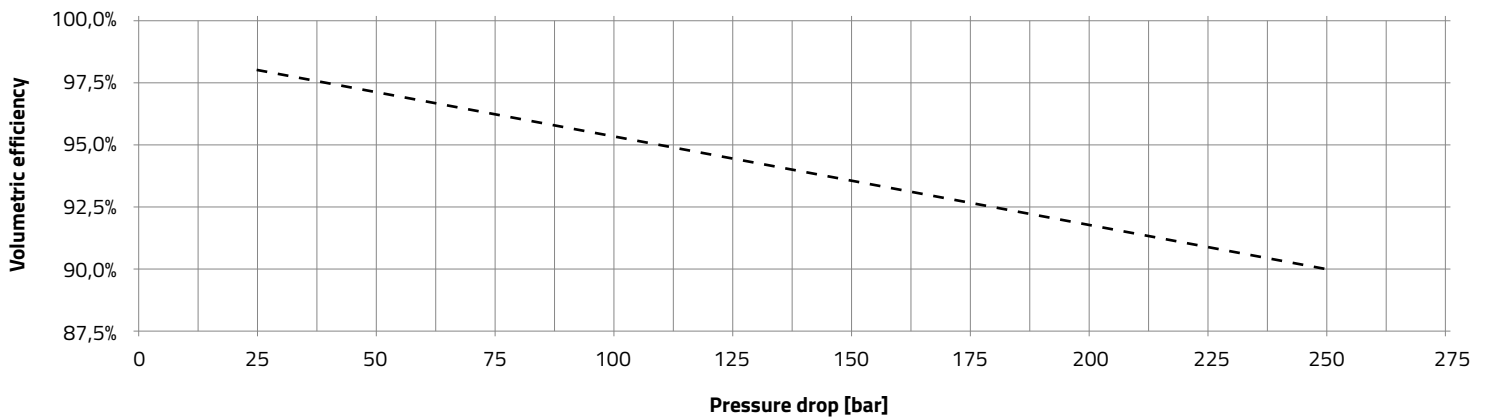


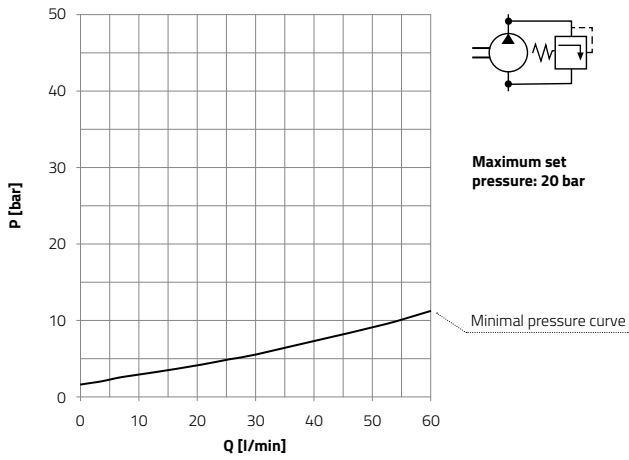
Diagram of the volumetric efficiency at 1500 R.P.M.



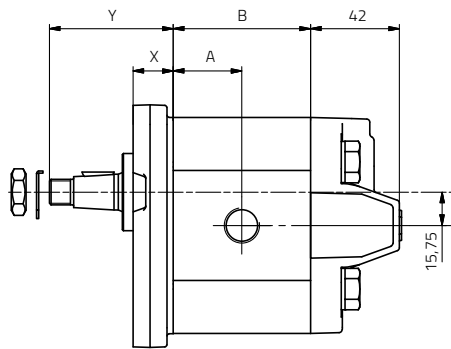
NOTE: The values shown in the above diagram have been obtained using 32cSt kinematic viscosity oil.

Low pressure relief valve

Minimum setting pressure diagram

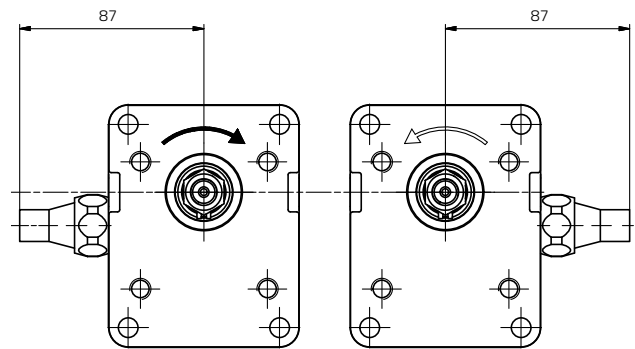
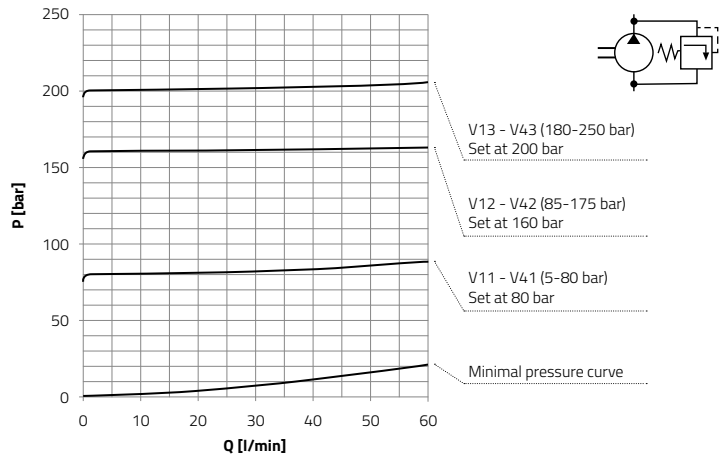


NOTE: The values shown in the above diagram have been obtained using a 32cSt kinematic viscosity oil.



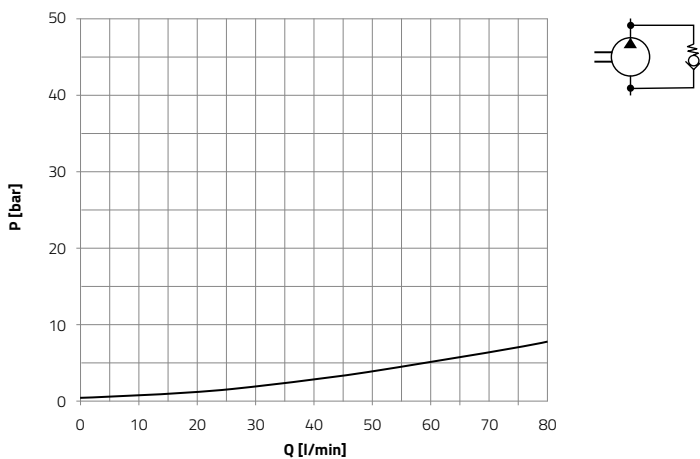
Relief valve

Relief valve pressure-flow diagram depending on pressure range

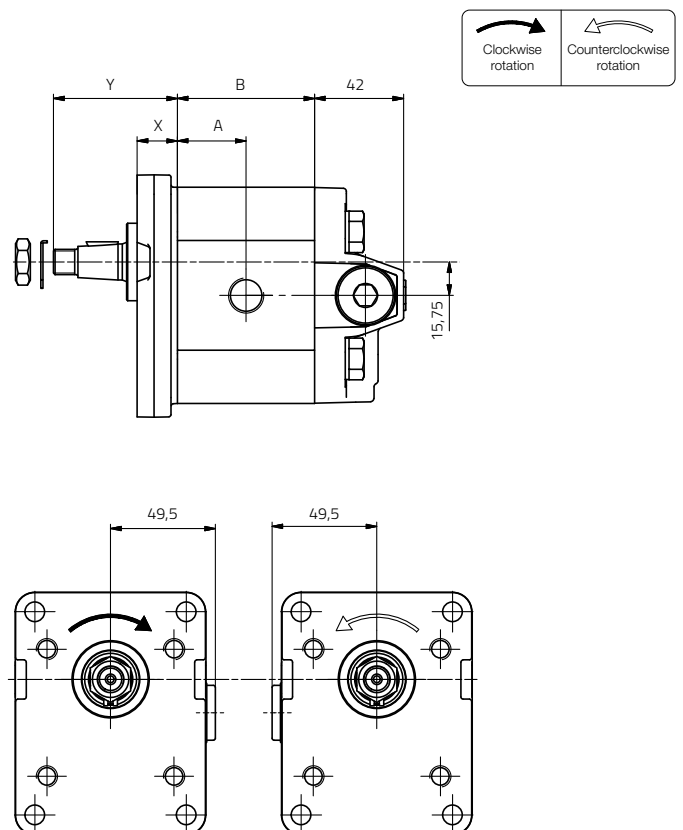


Check valve

Check valve pressure-flow diagram



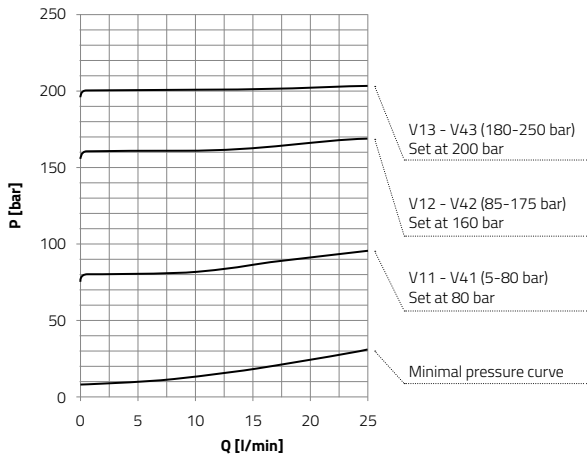
NOTE: The values shown in the above diagram have been obtained using a 32cSt kinematic viscosity oil.



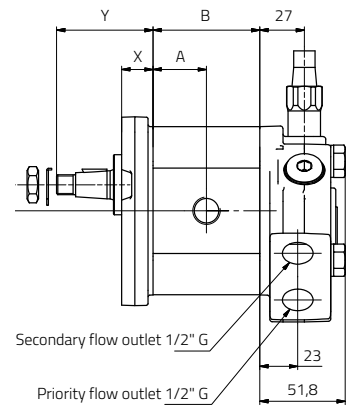
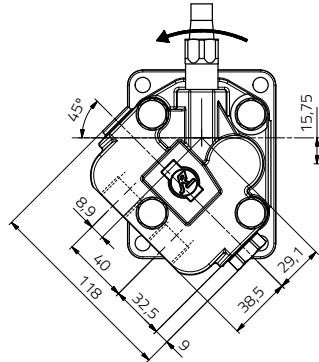
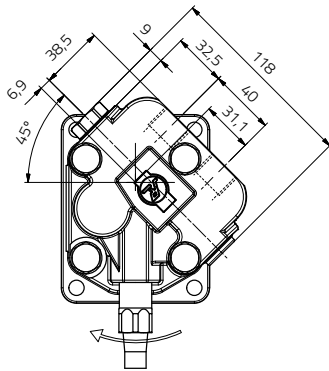
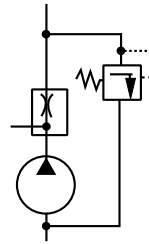
NOTE: Check general dimensions in the "dimensions" section (Page 18).

Priority flow valve

Relief valve pressure-flow diagram depending on pressure range

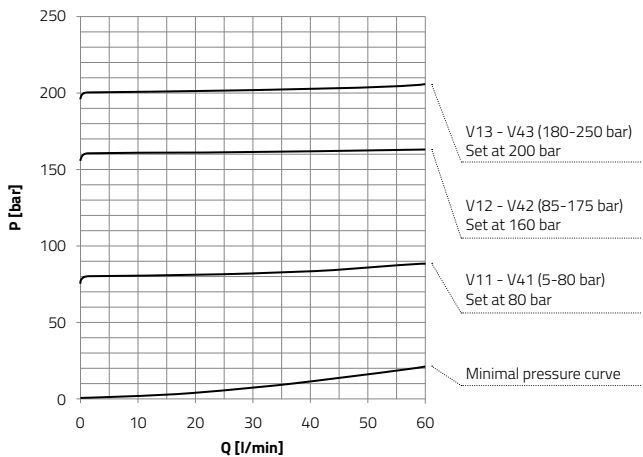


NOTE: The values shown in the above diagram have been obtained using a 32cSt kinematic viscosity oil.

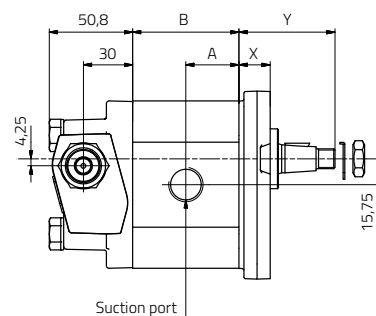
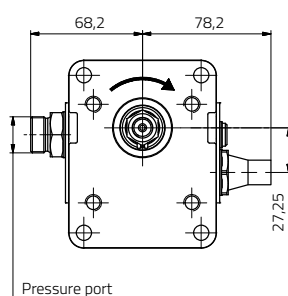
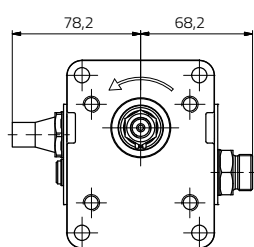
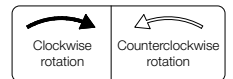
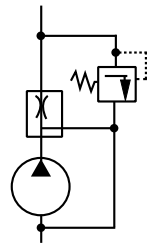


Flow control valve and relief valve

Relief valve pressure-flow diagram depending on pressure range



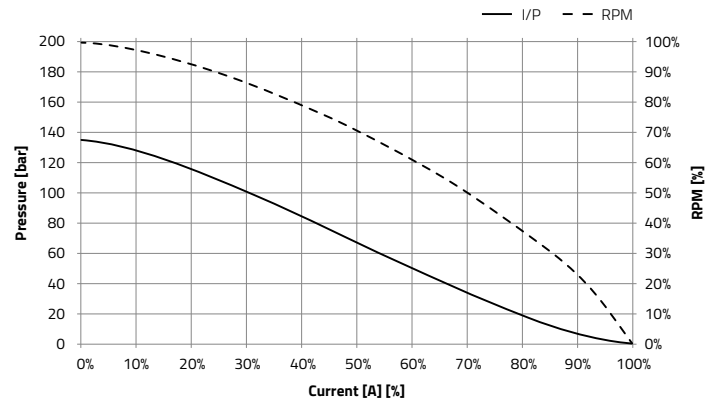
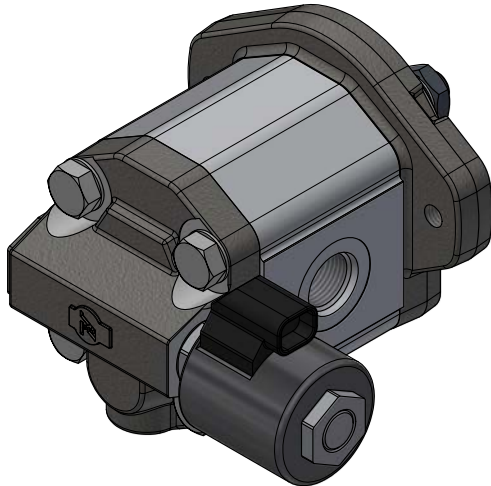
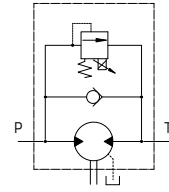
NOTE: The values shown in the above diagram have been obtained using a 32cSt kinematic viscosity oil.



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

Motor with pressure proportional relief valve

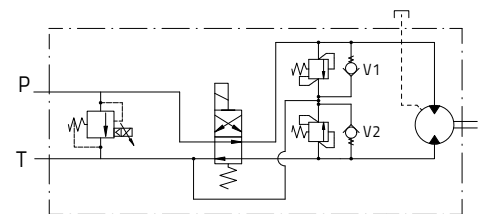
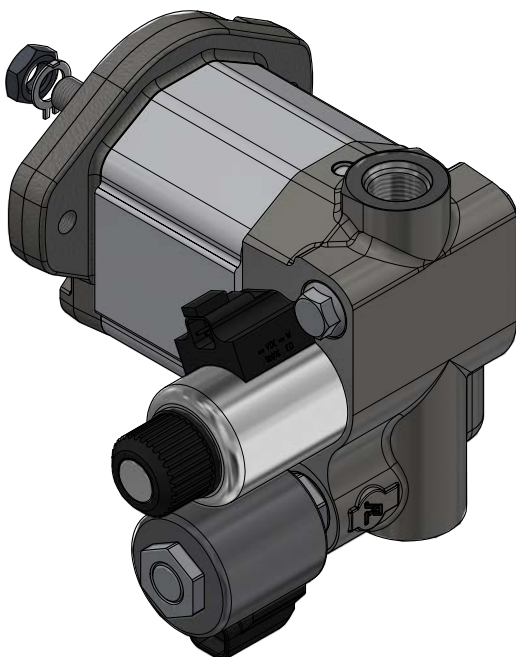
- Displacements, front flanges, drive shafts and ports most common available.
- Voltage range – 12V DC / 24V DC
- Connectors – Deutsch DT04-2P
DIN 43650 / ISO 4400



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

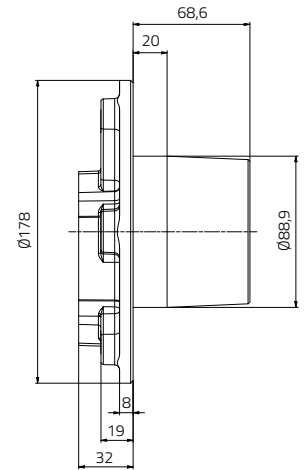
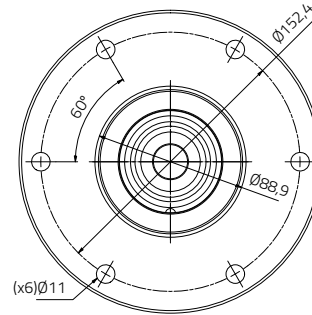
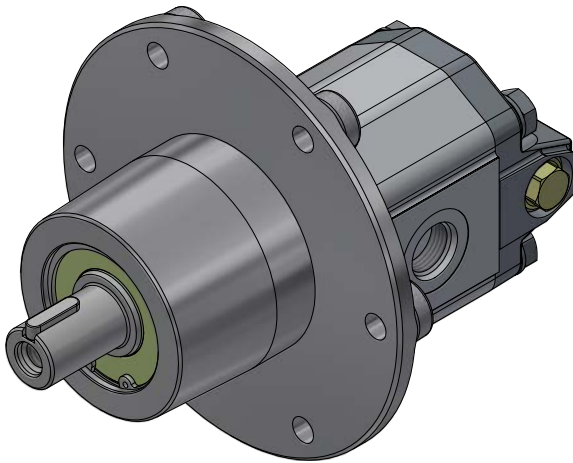


NOTE: Please contact Sales Department for more information about available ports, displacements, pressure setting and minimum order quantity.

Motors and pumps with type 45 front flanges

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

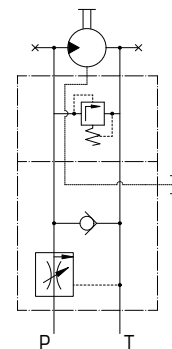
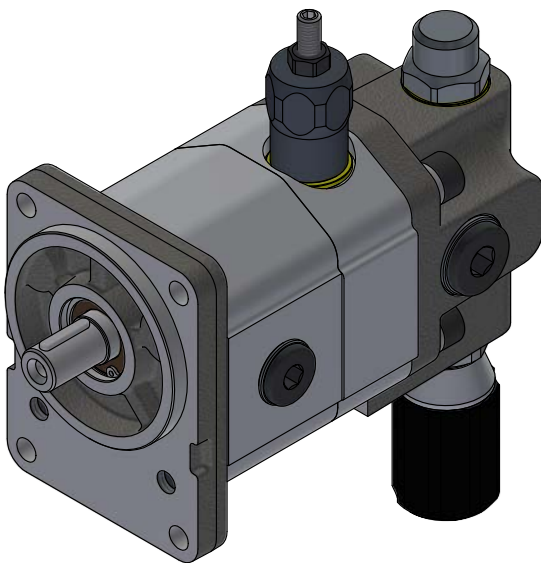
- Standard front flanges and displacements available for this option.



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

Motor for seeders

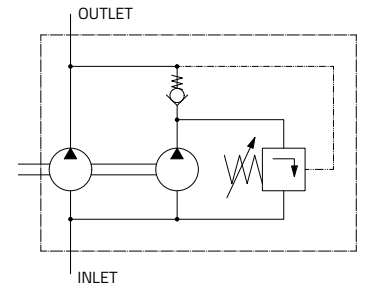
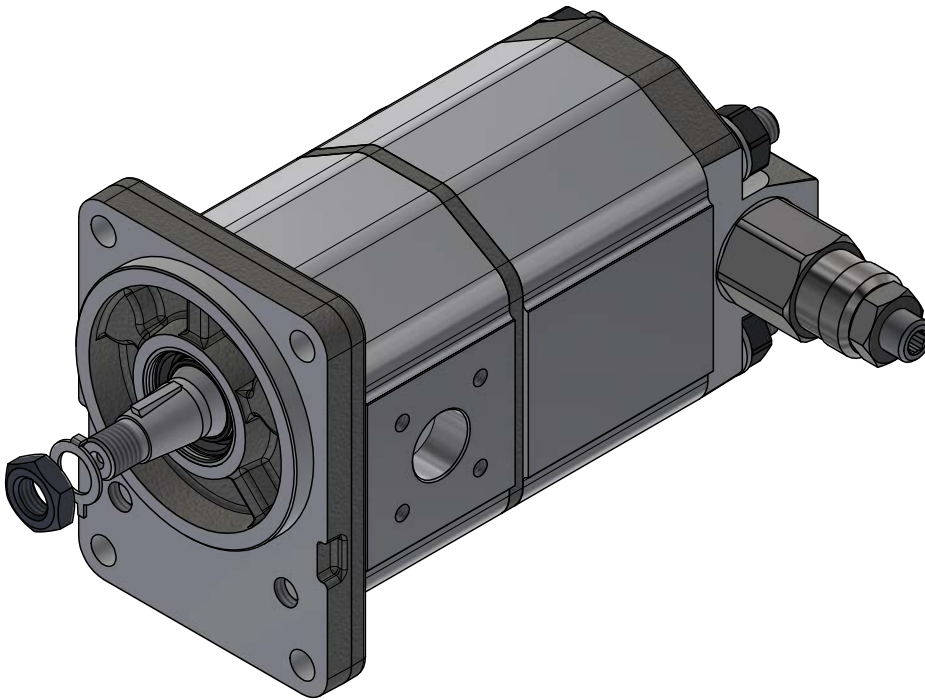
- Motors for seeders available with pressure relief valve, flow control valve, and anti-cavitation valve.
- Standard front flanges and displacements available for this option.



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

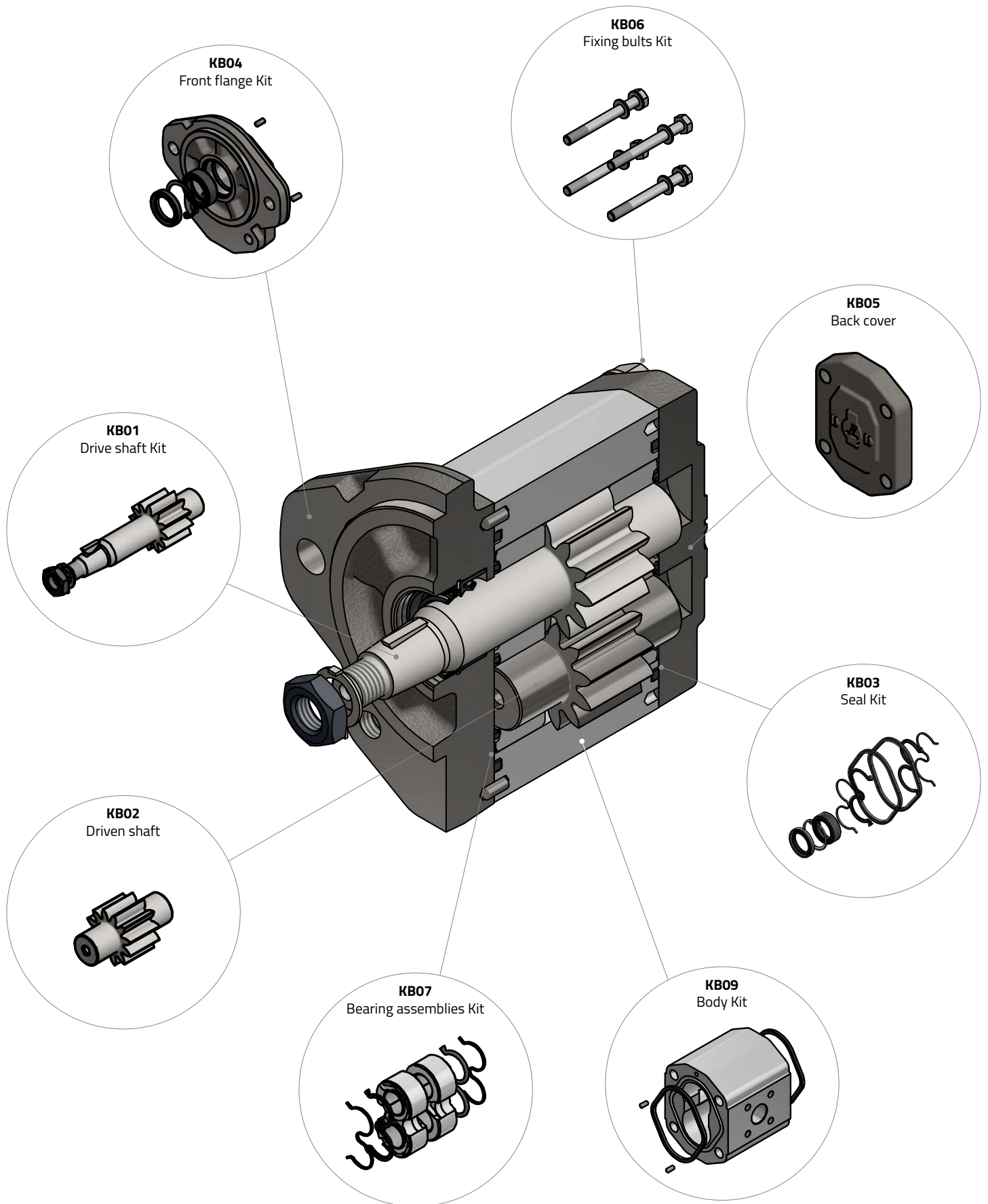
High-Low multiple pump

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.



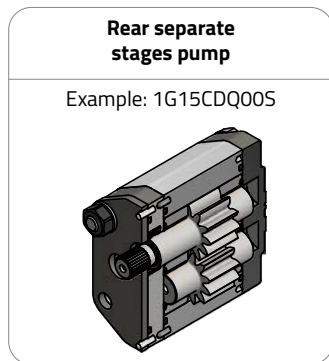
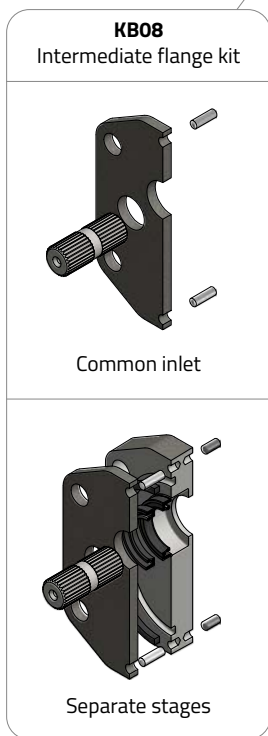
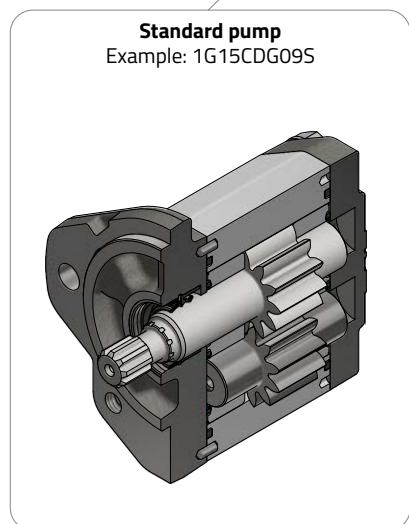
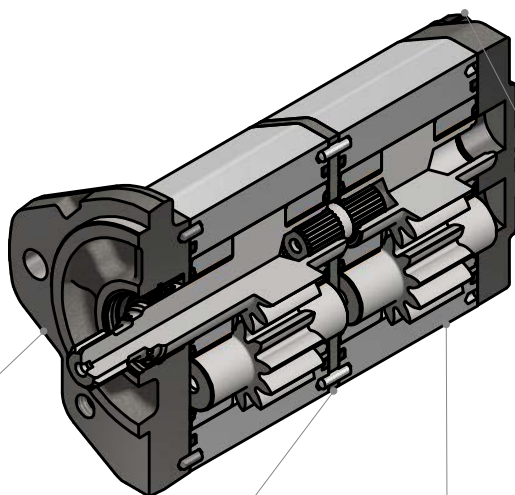
- Front flanges, drive shafts and ports most common available.
- Multiple displacement combinations available.
- Pressure settings available:
 - 50 - 100 bar (Default adjustment - 70 bar)
 - 90 - 180 bar (Default adjustment - 130 bar)

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

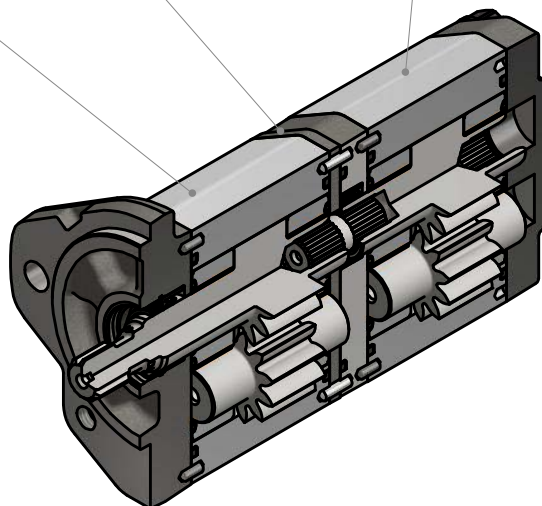


NOTE: For available reference contact the Sales Department or look in the spare parts catalogue.

Type GM

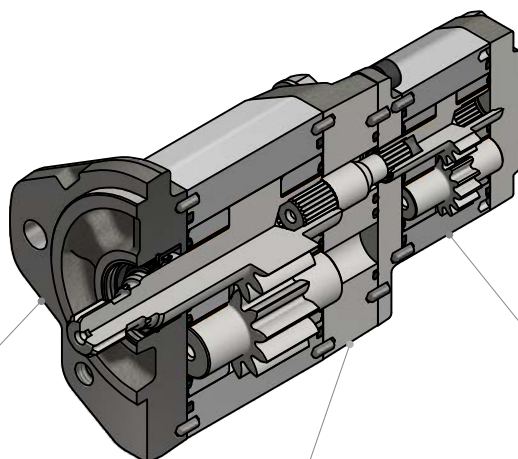


Separate stages type GM

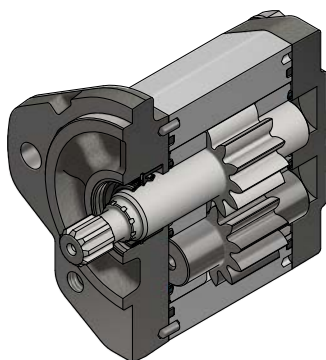


NOTE: A GM double pump can be assembled from a pump with standard reference and a pump with Z or Q shaft form for separate stages. The Z or Q kit are offered in order to transform the pump. For available reference contact the Sales Department or look at the spare parts catalogue.

Type GS

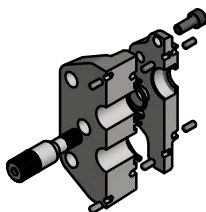


Standard front pump
Example: 1G15CDG09S



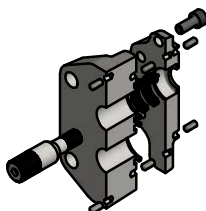
Common inlet intermediate flange kit

Example: KB0800G0G0D00-CID
Example: KB0800G0G0D00-CII

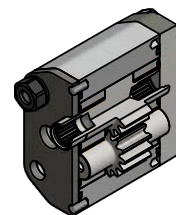


Standard intermediate flange kit and separate stages flange kit

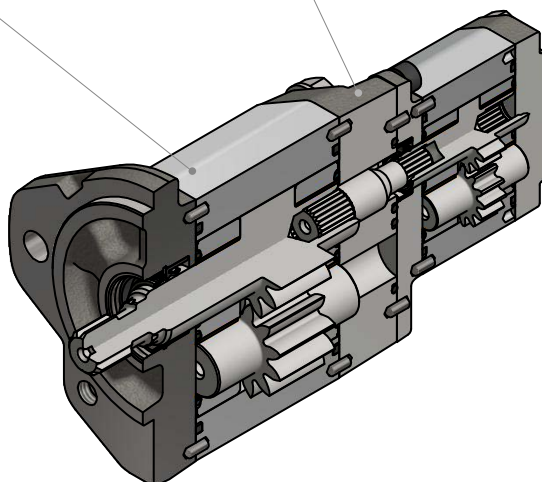
Example: KB0800G0G0D00
Example: KB0800G0G0D00-SS



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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