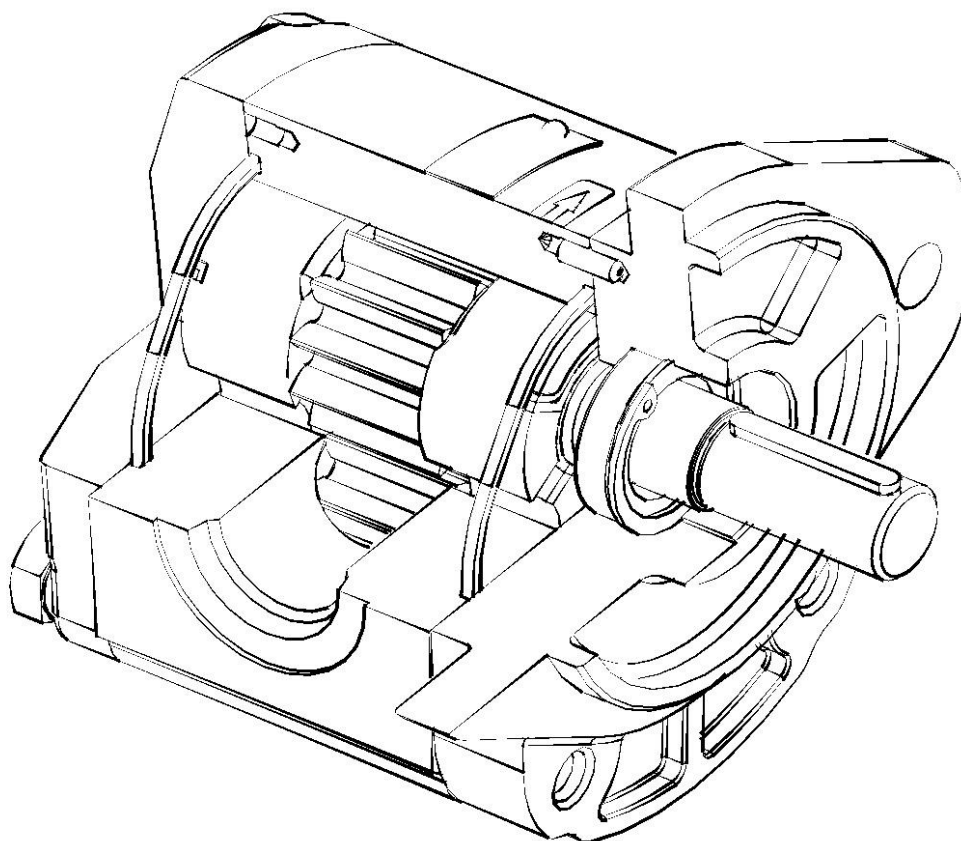


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DESCRIPTION

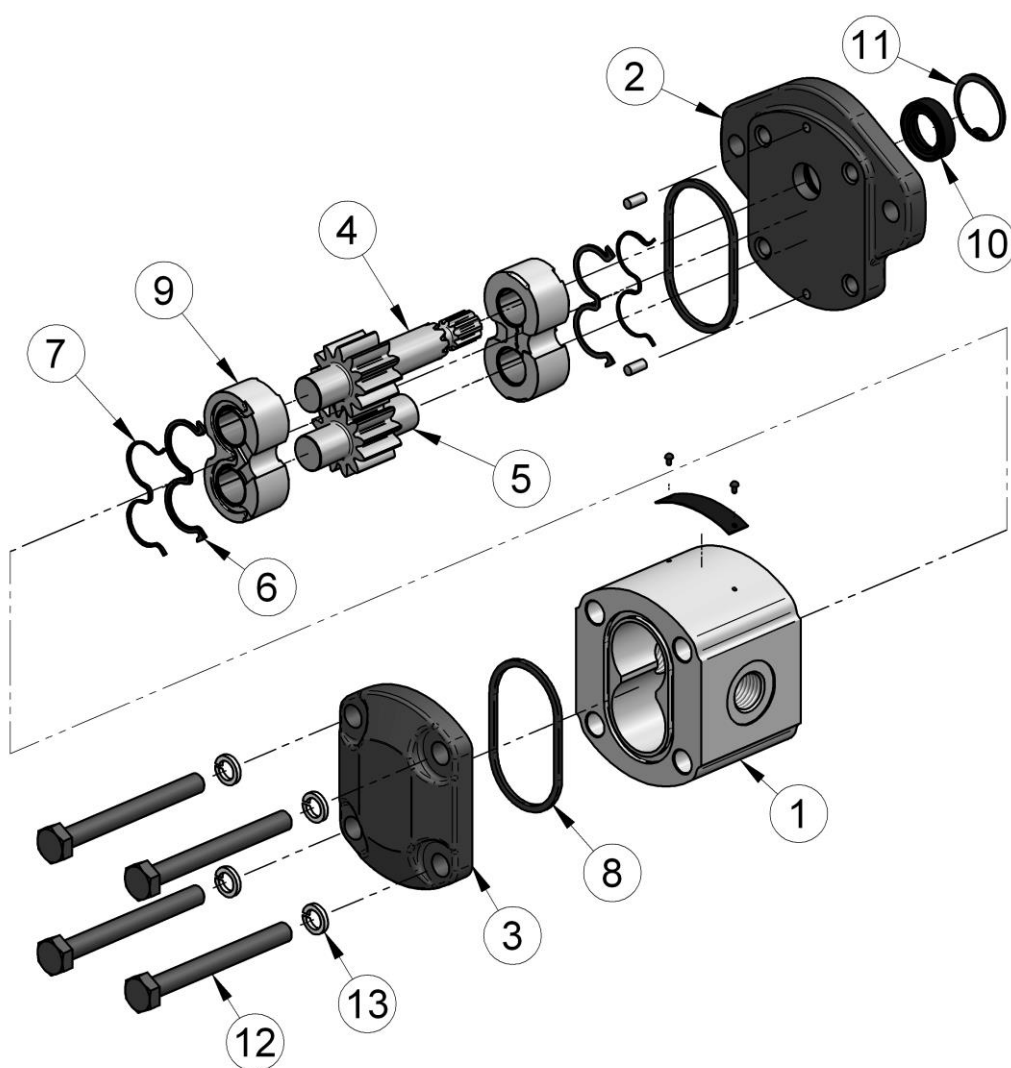
Pumps of 2.5series with external gearing are applicable for its simple design, compact dimension and a wide range of types, in modern hydraulic systems, handling technologies and mobile hydraulics.

Basic execution is composed from a few parts. The body of pump are produced from heavy duty aluminium alloy. Cover and Flange are from iron grey or aluminium alloy. All flange as well as liquid inlets and outlets (location on side - in body or axial - in cover) comply with all world-recognised standards. Gear wheels with 12 teeth are optimised to achieve a low noise level, are made of ultrahigh-strength steel. Wheel pins with high quality surface are stored in bearings, which are constantly lubricated and cooled with flow working liquid.

Upon requirement on low weight and small size is appropriate a special shortened version (for use by lower continuous pressure) - designation 2.5S.

Available is also multiple-version pumps with inlets for each section or one common inlet.

BASIC PARTS OF PUMP



1. Body
2. Flange
3. Cover
4. Driving gear
5. Driven gear
6. Balancing sealing
7. Sealing protective plate

8. Peripheral sealing
9. Bearing sleeves
10. Shaft seal
11. Safety ring
12. Connecting bolts
13. Spring washer

PARAMETER TABLE

Nominal Size Parameters		Sym.	Unit	4	6	8	12	16	20	25	31
Actual displacement		V_g	[cm ³]	4.03	6.02	8.05	12.08	16.10	20.12	25.16	31.21
Rotation speed	nominal	n_n	[min ⁻¹]	1500							
	minimum	n_{min}	[min ⁻¹]	500							
	maximum	n_{max}	[min ⁻¹]	4000	4000	3600	3600	3200	3200	2800	2200
Pressure at inlet *	minimum	p_{1min}	[bar]	0.50							
	maximum	p_{1max}	[bar]	-0.30							
Pressure at outlet **	max. continuous	p_{2n}	[bar]	280	280	280	260	260	240	200	150
	maximum	p_{2max}	[bar]	290	290	290	280	280	250	220	170
	peak	p_3	[bar]	310	310	310	300	300	270	240	190
Nominal flow rate (min.) at n_n and p_{2n}		Q_n	[dm ³ .min ⁻¹]	5.40	8.10	11.04	16.56	22.56	28.20	35.25	43.71
Maximum flow rate at n_{max} and p_{2max}		Q_{max}	[dm ³ .min ⁻¹]	15.68	23.52	28.22	42.34	50.18	62.72	68.60	66.84
Nominal input power (max.) at n_n and p_{2n}		P_n	[kW]	3.33	5.00	6.52	9.06	11.82	11.82	13.30	13.74
Maximum input power at n_{max} and p_{2max}		P_{max}	[kW]	8.77	13.15	15.78	22.04	26.12	29.02	26.46	21.91
Weight		m	[kg]	2.6	2.65	2.75	2.95	3.1	3.35	3.5	3.8

* Inlet pressure in the reversible design can be up to **$p_1 = p_{2n} - 70$ bar max.** External drainage must be used in case of the reversible design.

** Outlet pressure in the reversible design is **10% lower** than shown in the table (depending on operating conditions - it is necessary to consult with the manufacturer).

FORMULAS USED FOR CALCULATION

Flow rate

$$Q = \frac{V_g \cdot n}{1000} \cdot \eta_v \quad [\text{dm}^3 \text{ min}^{-1}]$$

V_g	$[\text{cm}^3]$	pump displacement
n	$[\text{min}^{-1}]$	rotation speed
η_v	$[-]$	volumetric efficiency

Displacement

$$V_g = \frac{Q \cdot 1000}{n \cdot \eta_v} \quad [\text{cm}^3]$$

Torque

$$M_k = \frac{V_g \cdot p}{20 \cdot \pi \cdot \eta_m} \quad [\text{Nm}]$$

p	$[\text{bar}]$	required pressure at outlet
η_m	$[-]$	mechanical efficiency

Input power

$$P = \frac{V_g \cdot n \cdot p}{600 \cdot 1000 \cdot \eta_t} \quad [\text{kW}]$$

η_t	$[-]$	total efficiency
----------	-------	------------------

PUMP EFFICIENCIES

Volumetric efficiency η_v

It determines the amount of flow losses. Its value is $\eta_v = 0.92 \div 0.98$ (depending on rotation speed, viscosity of working liquid and outlet pressure). It can be expressed as follows:

$$\eta_v = \frac{Q_{act.}}{Q_{theor.}} \quad [-]$$

$Q_{act.}$	$[\text{dm}^3 \text{ min}^{-1}]$	actual flow rate
$Q_{theor.}$	$[\text{dm}^3 \text{ min}^{-1}]$	theoretical flow rate

Mechanical efficiency η_m

It determines mechanical losses. Its value is about $\eta_m = 0.85$. It can be expressed as follows:

$$\eta_m = \frac{M_{theor.}}{M_{act.}} \quad [-]$$

$M_{act.}$	$[\text{Nm}]$	actual torque
$M_{theor.}$	$[\text{Nm}]$	theoretical torque

Total efficiency η_t

It is defined as product of η_v and η_m and determines difference between theoretical and actual required input power:

$$\eta_t = \eta_v \cdot \eta_m = \frac{P_{theor.}}{P_{act.}} \quad [-]$$

$P_{act.}$	$[\text{kW}]$	actual input power
$P_{theor.}$	$[\text{kW}]$	theoretical input power

WORKING LIQUID

- Mineral oils for hydraulic drives
- Hydraulic liquids based on plant oils suitable for hydraulic drives

Liquid temperature

$$t = -20 \div +80 [^{\circ}\text{C}] \quad \text{when used with FKM (Viton) seal up to } 120 [^{\circ}\text{C}]$$

Cinematic viscosity

Recommended (during continuous operation):

$$\nu = 20 \div 80 \cdot 10^{-6} [\text{m}^2 \cdot \text{s}^{-1}]$$

Maximum (cold starting, at viscosity >1000 , operating pressure <10 bar is permissible, speed $<1500 \cdot \text{min}^{-1}$):

$$\nu = 1200 \cdot 10^{-6} [\text{m}^2 \cdot \text{s}^{-1}]$$

Minimum (operating mode at $10 \cdot 10^{-6}$ up to $20 \cdot 10^{-6}$ should be consulted with manufacturer):

$$\nu = 10 \cdot 10^{-6} [\text{m}^2 \cdot \text{s}^{-1}]$$

Filtration coefficient β_{α}

$\beta_{25} 75 \geq$ (for pressure $p_2 < 200$ bar)

$\beta_{10} 75 \geq$ (for pressure $p_2 > 200$ bar)

Liquid contamination class according to ISO 4406

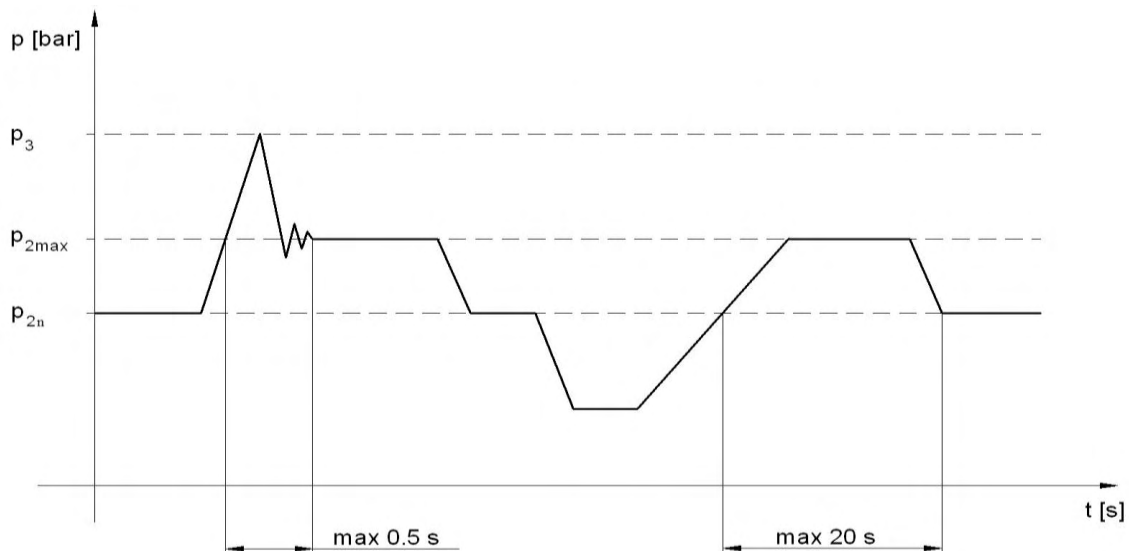
21/18/15 (for pressure $p_2 < 200$ bar)

20/17/14 (for pressure $p_2 > 200$ bar)

Liquid contamination class according to NAS 1638

10 (for pressure $p_2 < 200$ bar)

8 (for pressure $p_2 > 200$ bar)

PRESSURE LOAD

p_{2n}	max. contin. pressure	max. working pressure, at which the pump can be operated without time limitation.
p_{2max}	max. pressure	maximum pressure permissible for a short time, max. 20s.
p_3	peak pressure	short-time pressure (fractions of a second) arising in case of a sudden change of the operating mode; any excess of this pressure during operation is impermissible.

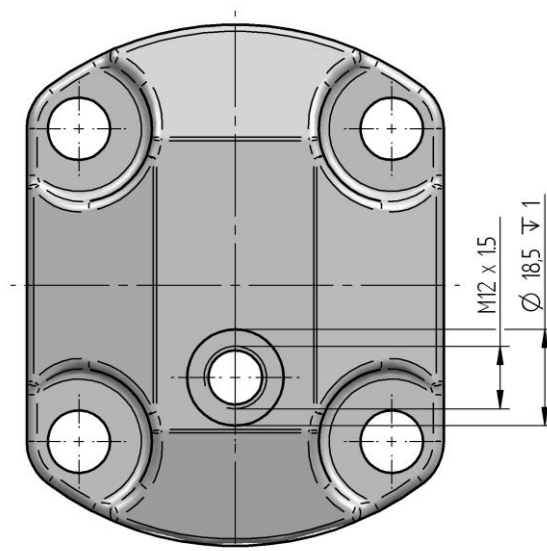
DIRECTION OF ROTATION

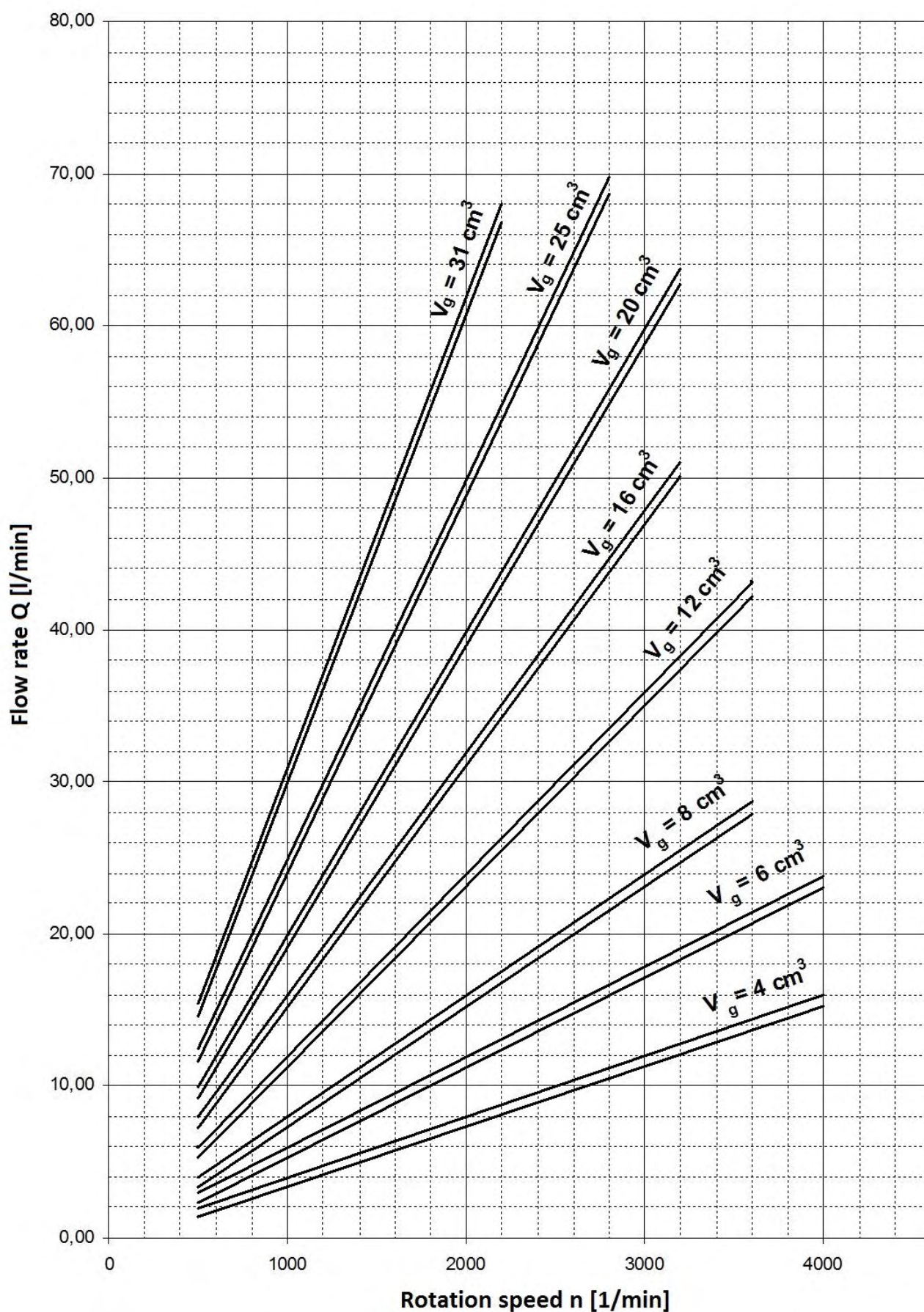
Determine direction of rotation by looking at the drive shaft. The pump can only be used in the specified direction of rotation.



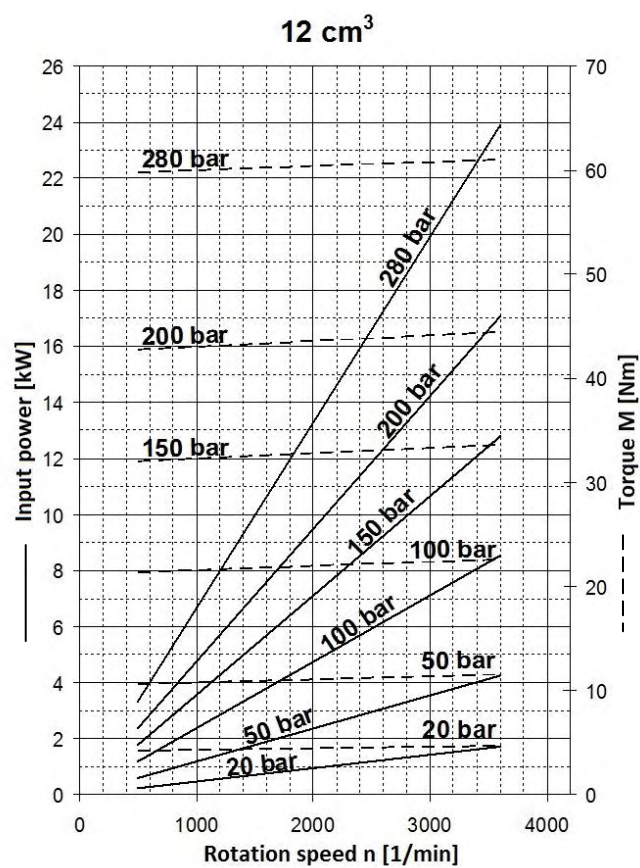
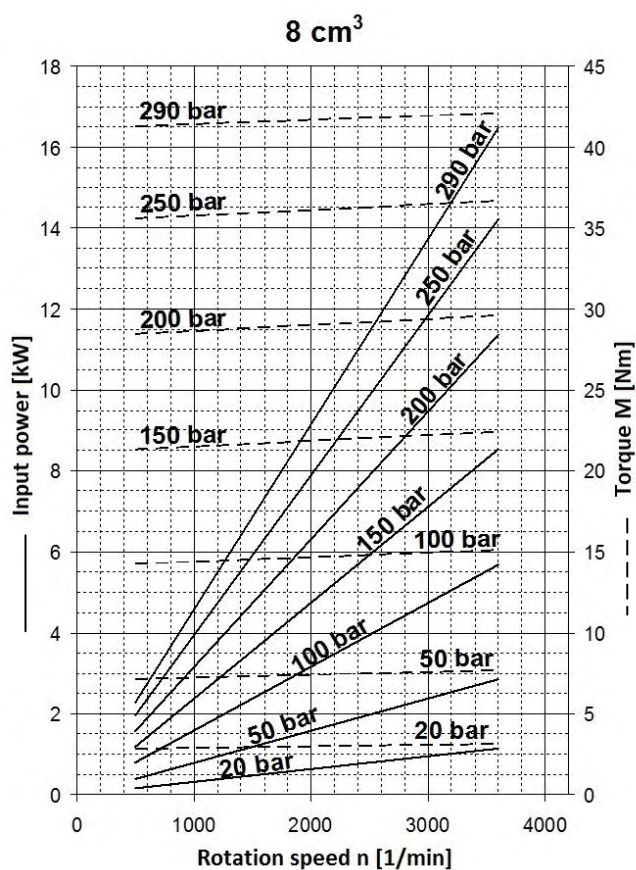
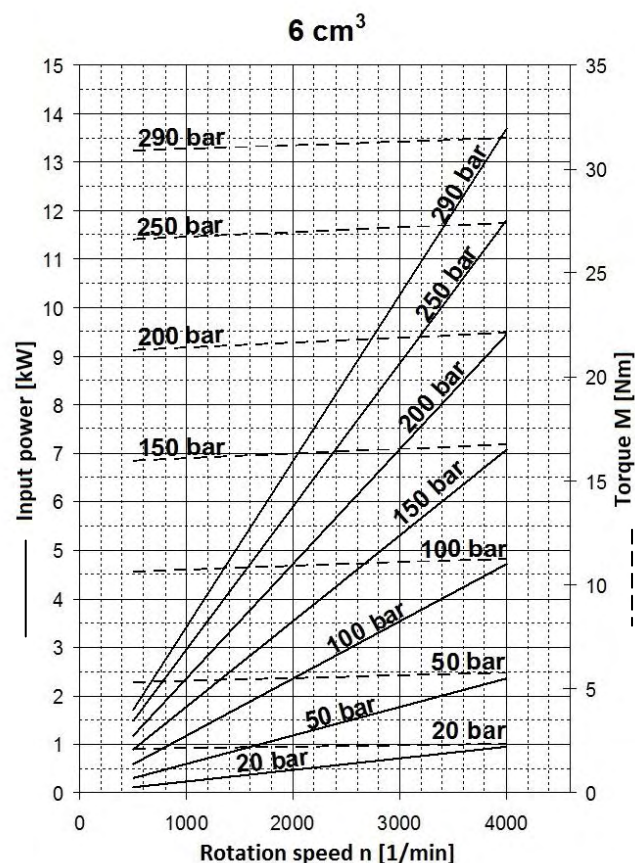
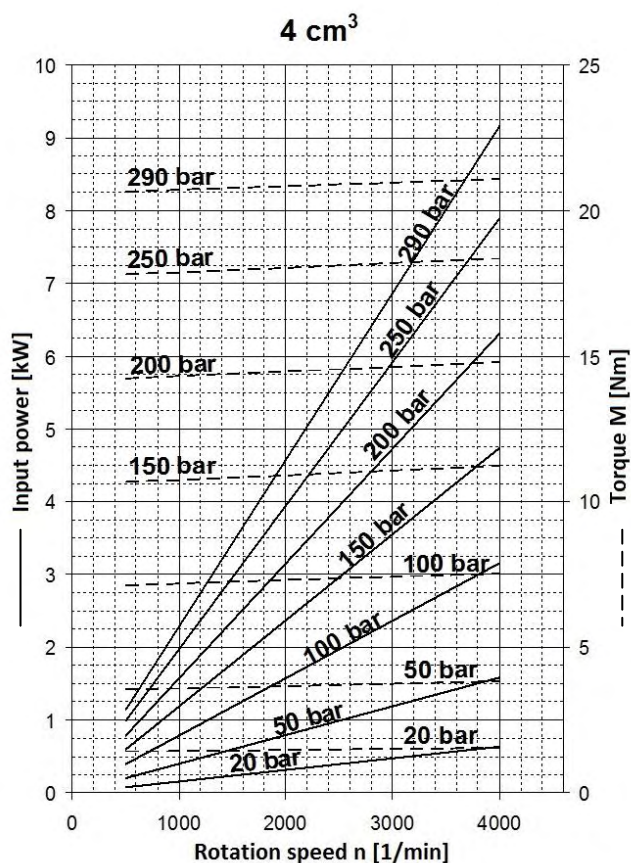
REVERSIBLE DESIGN

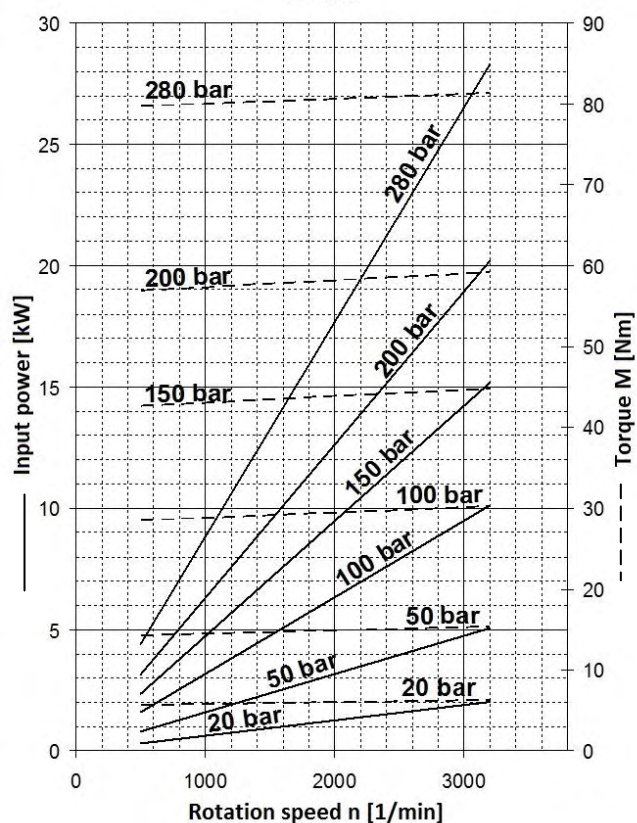
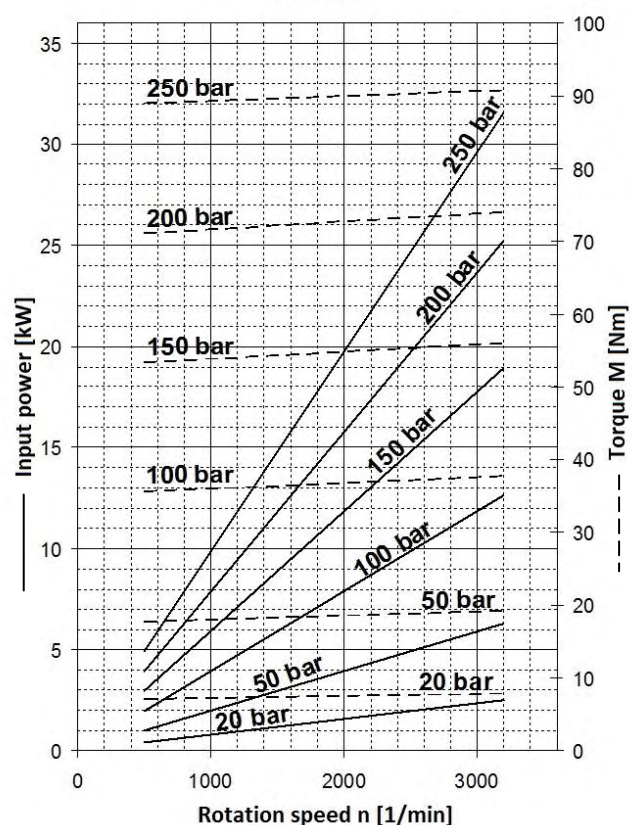
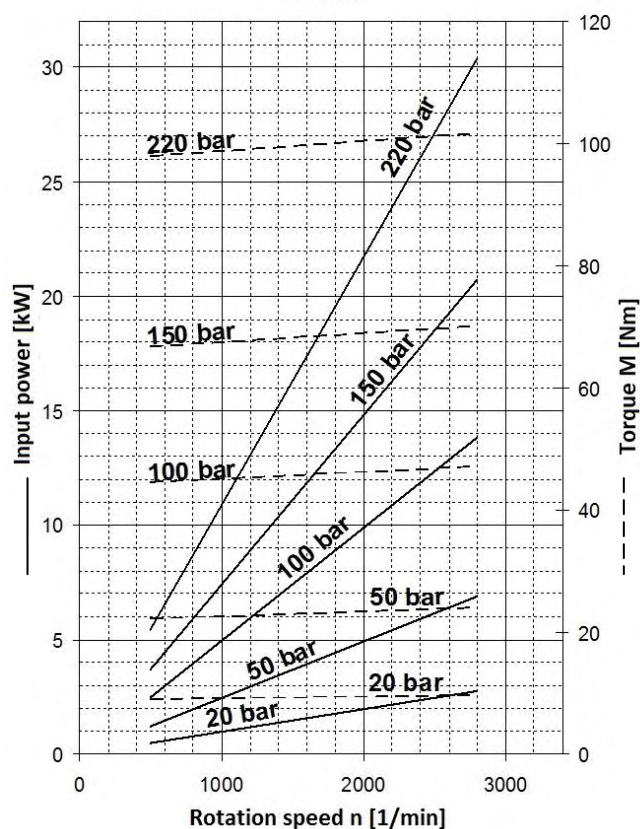
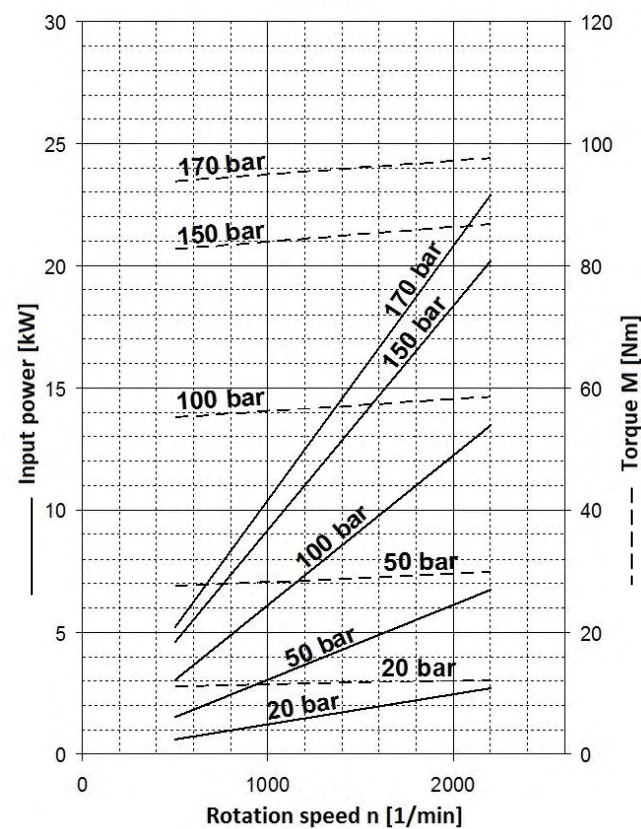
The pumps with the possibility of bidirectional rotation have a different internal arrangement requiring drainage. Two types of drain are used - internal and external. The internal drainage is always interconnected with the outlet by means of valves. The external drainage is solved by an orifice located in the cover opposite the driven gear. (see. picture below). Dimension of hole for external drain are listed in tables in chapter **LIQUID INLET AND OUTLET CONNECTION** on page 17.



2.5 FLOW RATE AND POWER CURVES

Above curves apply to ISO Vg 46 oil at temperature $t = 45^\circ\text{C}$.



16 cm³**20 cm³****25 cm³****31 cm³**

ORDER KEY – SINGLE VERSION

2.5 - 16 R - S02 D04 - S G04 G03 - V . 001

Code	Displacement [cm ³]
4	4,03
6	6,02
8	8,05
12	12,08
16	16,10
20	20,12
25	25,16
31	31,21
XX	Other displacements on request

Code	Direction of Rotation
R	Clockwise
L	Anti-clockwise
B	Bi-directional

Code	Type
2.5	Series Gear Pump
2.5S	Series Gear Pump, short version

Code	Flange design
F02	Square flange Centre ring Ø 80
R05	Rectangular flange, centre ring Ø 36,5
R06	Rectangular flange, centre ring Ø 80
R07	Rectangular flange, centre ring Ø 60
S02	SAE A
S03	SAE B
A07	Flange with trough-bolts, centre ring Ø 50
A08	Flange with trough-bolts, centre ring Ø 50
A09	Flange with trough-bolts, centre ring Ø 52 with O-ring
A10	Flange with trough-bolts, centre ring Ø 52 with O-ring
Z	Special design

Code	Location of inlets and outlets
S	Side (in the body)
R	Rear (in the cover)
C	Combination
Z	Special design

Code	Drive shaft design
C07	Taper 1:8 Key width 3
C08	Taper 1:8 Key width 3,2
C09	Taper 1:8 Key width 4
C10	Taper 1:5 Key width 3
D04	Spline SAE 9T 16/32 DP
D06	Spline SAE 11T I = 32, 16/32 DP
D07	Spline SAE 11T I = 38, 16/32 DP
D08	Spline CSN 17x1,25
D09	Spline DIN 5482 B17x14
D10	Spline GOST 6033-80
D11	Spline 16x13x3,5
K07	Cross coupling
V09	Cylindric Ø5/8", Key 4x4
V11	Cylindric Ø15, Key 4x4
V12	Cylindric Ø3/4", Key 4,8x4,8
V13	Cylindric Ø20, Key 6x6
Z	Special design

Code	Special arrangements
-	No special arrangements
001	With front-end bearing type 1
002	With front-end bearing type 2
003	Sealed section for multiple version
004	Without shaft seal
005	Inlet in body, outlet in cover
006	Inlet in cover, outlet in body
007	Inlet in body, outlet in flange
008	Inlet in flange, outlet in body
009	Drain M12 x 1,5 in cover
010	With front-end bearing type 3
011	Drain G ³ / ₄ in cover
012	Internal drain
013	Variseal
014	Shaft seal – double lip

Code	Seal material
N	NBR
V	FKM
H	HNBR

Code	Liquid inlet and outlet connection shape
M05	Thread M18x1,5
M09	Thread M27x2
G03	Thread BSP G1/2
G04	Thread BSP G3/4
G05	Thread BSP G1"
U04	Thread 7/8-14 UNF-2B
U05	Thread 1-1/16-12 UN-2B
H05	Flanged fitting Ø15 Square 4xM6 Ø35
H06	Flanged fitting Ø20 Square 4xM6 Ø40
H10	Flanged fitting Ø26 Square 4xM8 Ø55
H07	Flanged fitting Ø13,5 Square 4xM6 Ø30
H08	Flanged fitting Ø20 Square 4xM8 Ø40
K01	Flanged fitting Ø13,5 Cross 4xM6 Ø30
K02	Flanged fitting Ø20 Cross 4xM8 Ø40
K07	Flanged fitting Ø14 Cross 4xM8 Ø38
K08	Flanged fitting Ø19 Cross 4xM8 Ø38
Z	Special design

An example of designation for the 2.5 anti-clockwise pump with displacement of 8 cm³, SAE A flange, SAE 9T spline, BSP inlets in cover and standard NBR seal without special arrangements: **2.5-8L-S02D04-RG03G03-N**

ORDER KEY – MULTIPLE VERSION

2.5 - 16 / 8 / 8 R - S02 D04 - S G04 G03 / G03 G03 / G03 G03 - V . 001

Code	Displacement [cm ³]
4	4,03
6	6,02
8	8,05
12	12,08
16	16,10
20	20,12
25	25,16
31	31,21
XX	Other displacements on request

Code	Direction of Rotation
R	Clockwise
L	Anti-clockwise
B	Bi-directional

Code	Type
2.5	Series Gear Pump
2.5S	Series Gear Pump, short version

Code	Flange design
F02	 Square flange Centre ring Ø 80
R05	 Rectangular flange, centre ring Ø 36,5
R06	 Rectangular flange, centre ring Ø 80
R07	 Rectangular flange, centre ring Ø 60
S02	 SAE A
S03	 SAE B
A07	 Flange with trough-bolts, centre ring Ø 50
A08	 Flange with trough-bolts, centre ring Ø 50
A09	 Flange with trough-bolts, centre ring Ø 52 with O-ring
A10	 Flange with trough-bolts, centre ring Ø 52 with O-ring
Z	Special design

Code	Location inlets and outlets
S	 Side (in the body)
C	 Combination

Code	Drive shaft design
C07	 Taper 1:8 Key width 3
C08	 Taper 1:8 Key width 3,2
C09	 Taper 1:8 Key width 4
C10	 Taper 1:5 Key width 3
D04	 Spline SAE 9T 16/32 DP
D06	 Spline SAE 11T l = 32, 16/32 DP
D07	 Spline SAE 11T l = 38, 16/32 DP
D08	 Spline CSN 17x1,25
D09	 Spline DIN 5482 B17x14
D10	 Spline GOST 6033-80
D11	 Spline 16x13x3,5
K07	 Cross coupling
V09	 Cylindric Ø5/8'', Key 4x4
V11	 Cylindric Ø15, Key 4x4
V12	 Cylindric Ø3/4'', Key 4,8x4,8
V13	 Cylindric Ø20, Key 6x6
Z	Special design

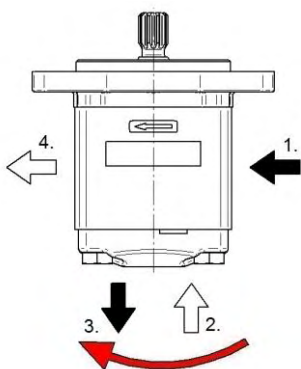
Code	Special arrangements
-	No special arrangements
001	With front-end bearing type 1
002	With front-end bearing type 2
003	Sealed section for multiple version
004	Without shaft seal
005	Inlet in body, outlet in cover
006	Inlet in cover, outlet in body
007	Inlet in body, outlet in flange
008	Inlet in flange, outlet in body
009	Drain M12 x 1,5 in cover
010	With front-end bearing type 3
011	Drain G1/4 in cover
012	Internal drain
013	Variseal
014	Shaft seal – double lip

Code	Seal material
N	 NBR
V	 FKM
H	 HNBR

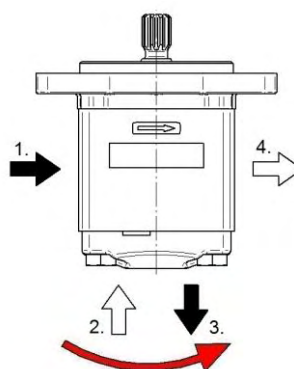
Code	Liquid inlet and outlet connection shape
M05	 Thread M18x1,5
M09	 Thread M27x2
G03	 Thread BSP G1/2
G04	 Thread BSP G3/4
G05	 Thread BSP G1
U04	 Thread 7/8-14 UNF-2B
U05	 Thread 1-1/16-12 UN-2B
H05	 Flanged fitting Ø15 Square 4xM6 Ø35
H06	 Flanged fitting Ø20 Square 4xM6 Ø40
H10	 Flanged fitting Ø26 Square 4xM8 Ø55
H07	 Flanged fitting Ø13,5 Square 4xM6 Ø30
H08	 Flanged fitting Ø20 Square 4xM8 Ø40
K01	 Flanged fitting Ø13,5 Cross 4xM6 Ø30
K02	Flanged fitting Ø20 Cross 4xM8 Ø40
K07	Flanged fitting Ø14 Cross 4xM8 Ø38
K08	Flanged fitting Ø19 Cross 4xM8 Ø38
Z	Special design

An example of designation for the 2.5 three-section clockwise pump with displacements of 12, 8 and 6 cm³, rectangular flange, centre ring Ø 36.5, cone 1:8, one metric common inlet and three outlets and FKM seal without special arrangements: **2.5-12/8/6R-R05C07-SNM05/M09M05/NM05-V**

Note: In case of combination inlets, with the code "C" is respected following sequence of inlets and outlets:



For clockwise and reverse gear pump,
in direction clockwise

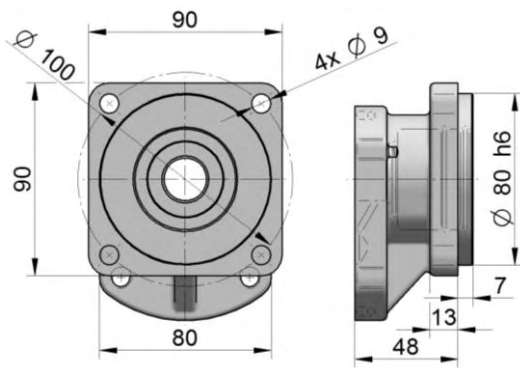
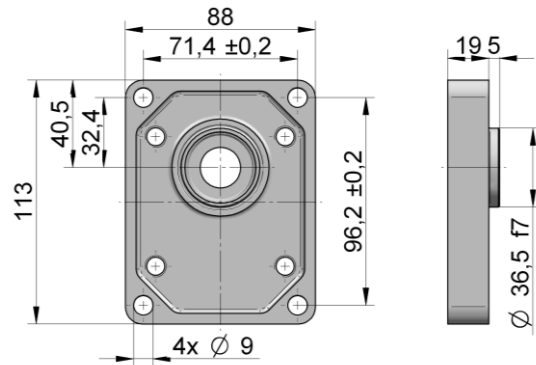
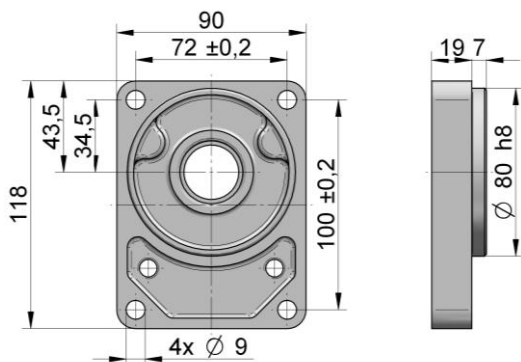
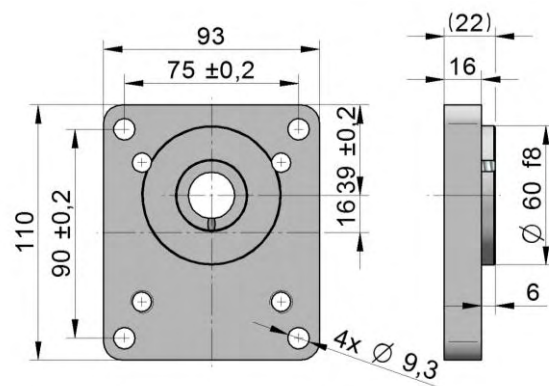
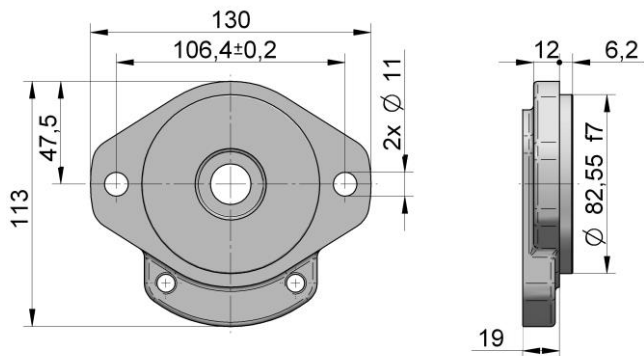
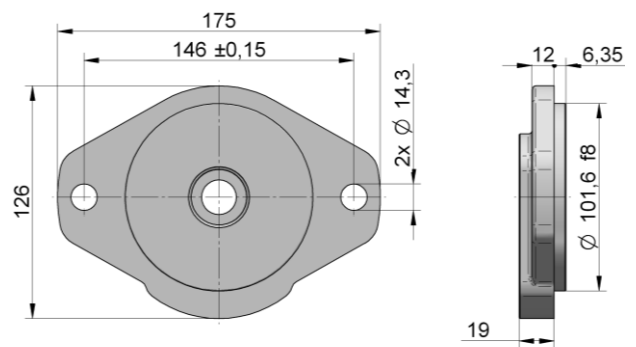
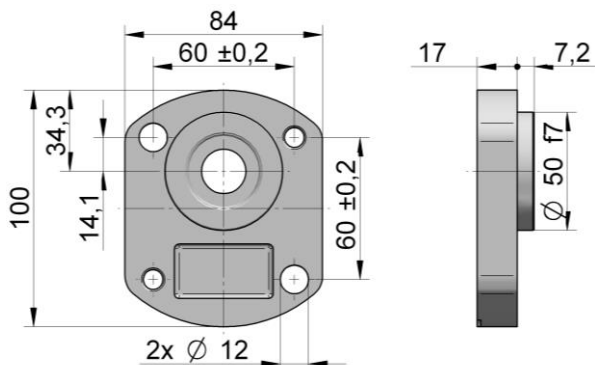
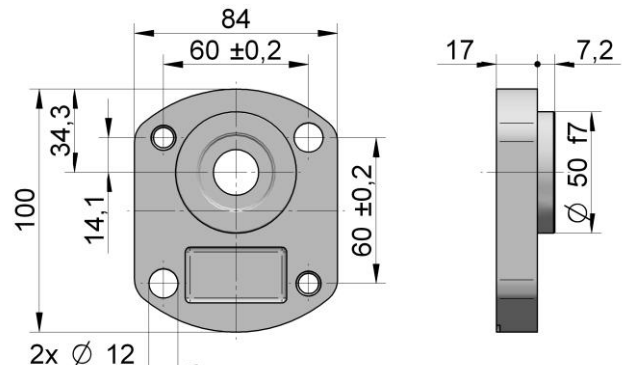


For anti-clockwise gear pump,
in direction anti-clockwise

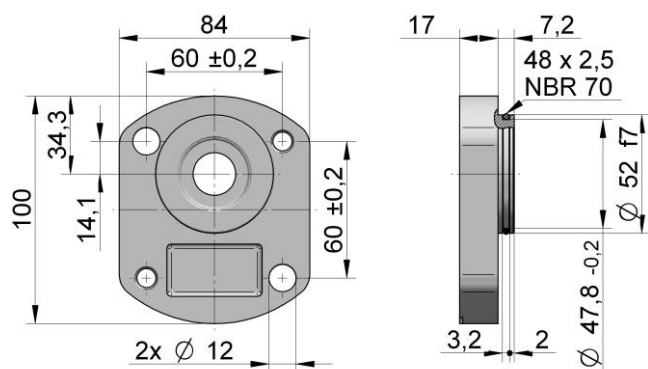
For. ex.: 2.5-12R-S02D04-CG04G04G03G03-N
1. 2. 3. 4.

COMBINATIONS OF FLANGES AND SHAFTS

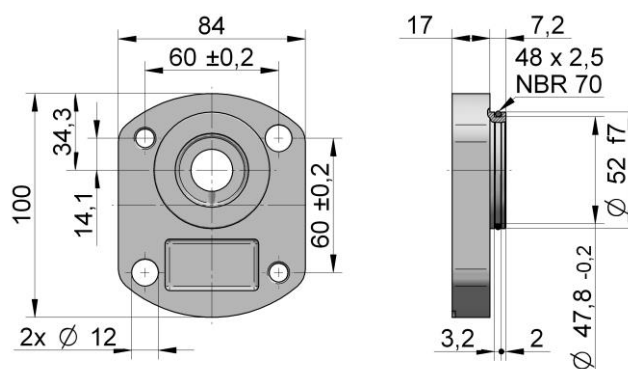
DRIVE SHAFTS		FLANGES DESIGN									
		F02	R05	R06	R07	S02	S03	A07	A08	A09	A10
C07			●								
C08			●								
C09			●								
C10				●				●	●		
D04						●	●				
D06						●	●				
D07						●	●				
D08			●								
D09				●				●	●		
D10		●									
D11					●						
K05										●	●
V09						●	●				
V11			●								
V12						●	●				
V13		●									

FLANGES DESIGN**F02:****R05:****R06:****R07:****S02:****S03:****A07:****A08:**

A09:



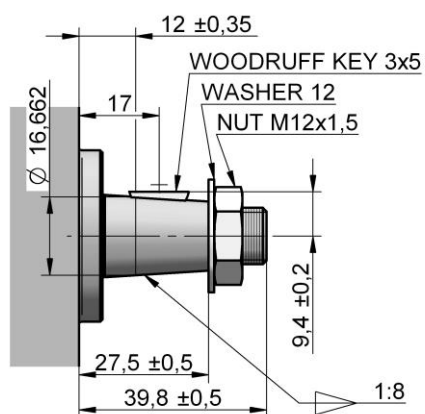
A10:



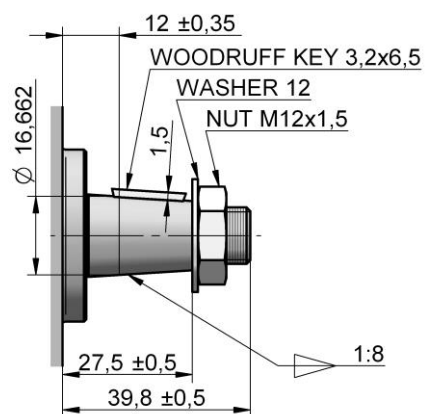
DRIVE SHAFT

Note: maximum allowed torque on a drive shaft is 100 Nm.

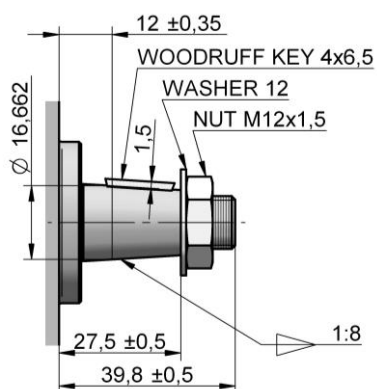
C07:



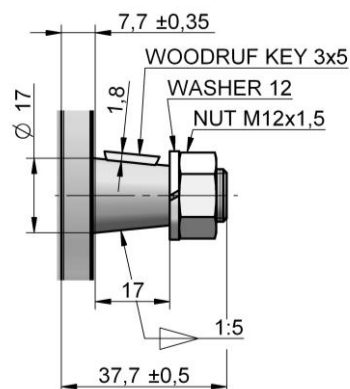
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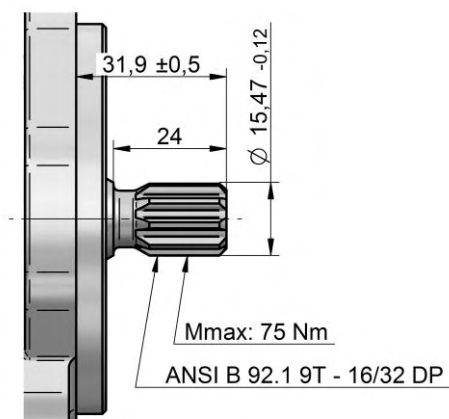
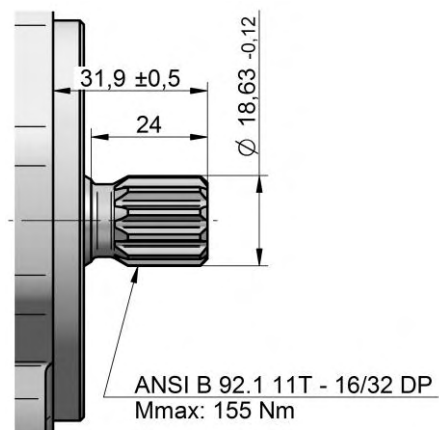
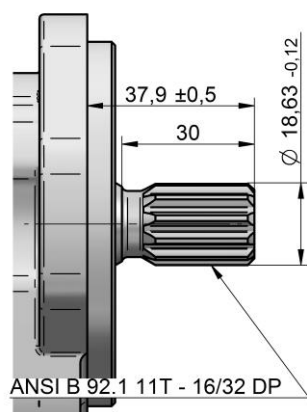
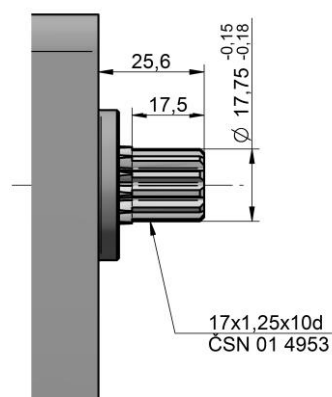
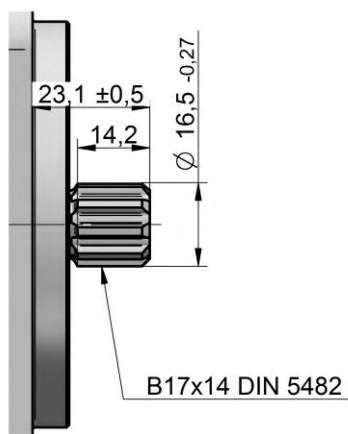
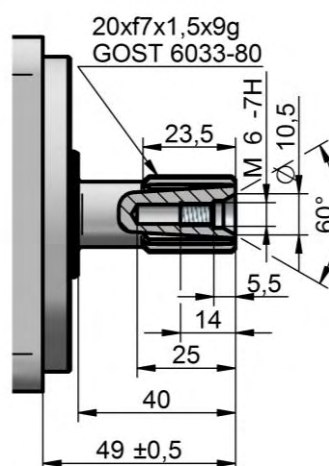


C09:

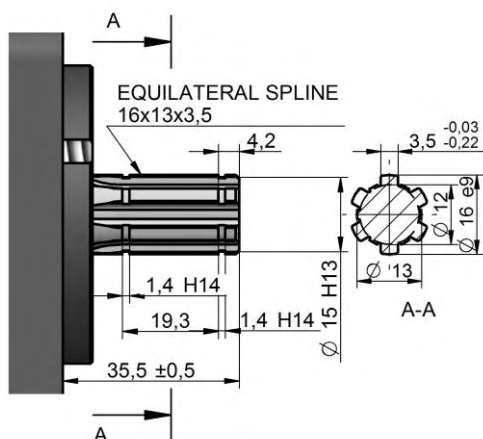


C10:

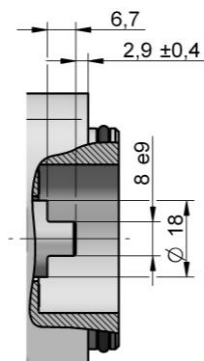


D04:**D06:****D07:****D08:****D09:****D10:**

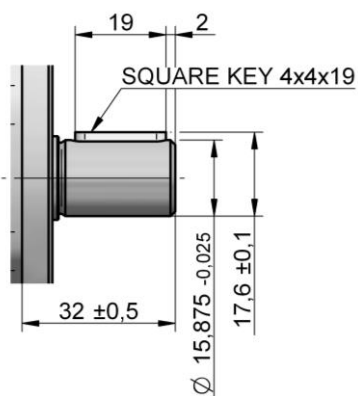
D11:



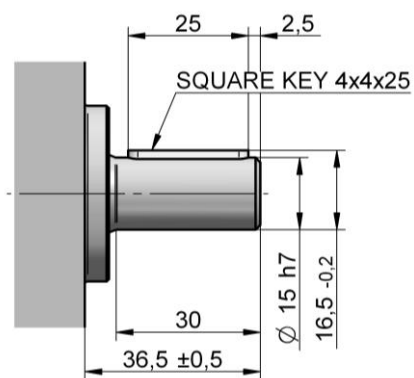
K07



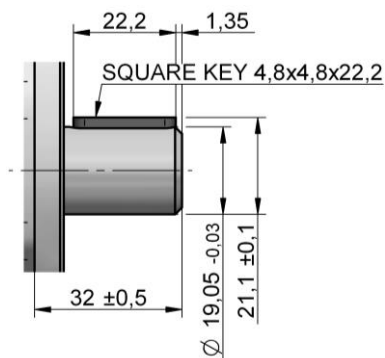
V09:



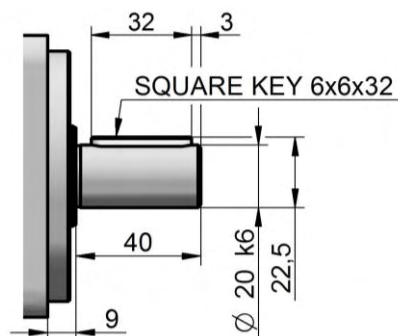
V11:



V12:

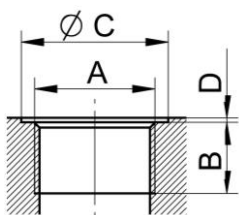


V13:



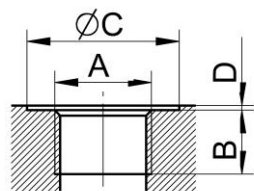
LIQUID INLET AND OUTLET CONNECTION

Metric thread according to ISO 6149



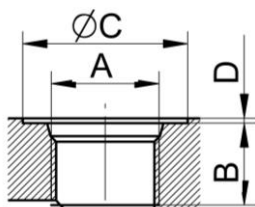
Displacement [cm ³]	Inlet					Outlet				
	Code	A	B	C	D	Code	A	B	C	D
all	M09	M 27x2	16	33	1	M05	M18x1,5	14	24	1

BSPP pipe thread according to ISO 228 - 1



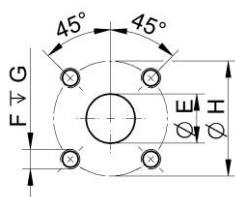
Displacement [cm³]	Inlet					Outlet				
	Code	A	B	C	D	Code	A	B	C	D
to 10	G03	G1/2	14	33	1	G03	G1/2	14	33	1
10 - 25	G04	G3/4	16	39						
above 25	G05	G1"	18	45						

UNF thread according to SAE



Displacement [cm ³]	Inlet					Outlet				
	Code	A	B	C	D	Code	A	B	C	D
to 10	U04	7/8-14 UNF-2B	17	34	1	U04	7/8-14 UNF-2B	17	34	1
11 - 31	U05	1-1/16-12 UNF-2B	19	41						

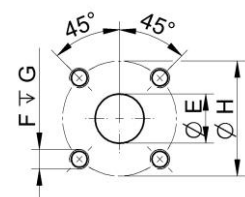
Flanged fittings according to DIN 8901/8902



Displacement [cm ³]	Inlet					Outlet				
	Code	E	F	G	H	Code	E	F	G	H
all	H06	20	M6	13	40	H05	15	M6	13	35
	H10	25	M8	13	55					

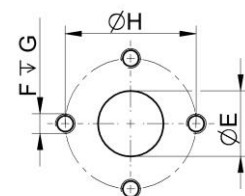
Note: H10H05 – for multiple version with one common inlet

Flanged fittings, - „square“



Displacement [cm ³]	Inlet					Outlet				
	Code	E	F	G	H	Code	E	F	G	H
all	H08	20	M8	13	40	H07	13,5	M6	13	30

Flanged fittings- „cross“



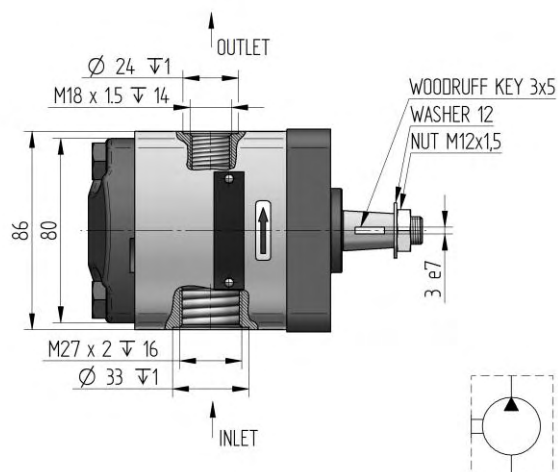
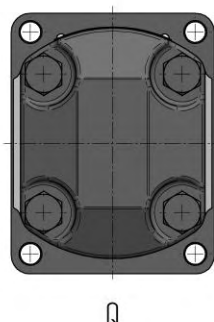
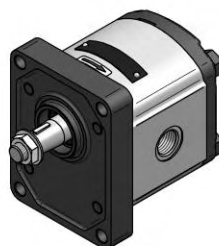
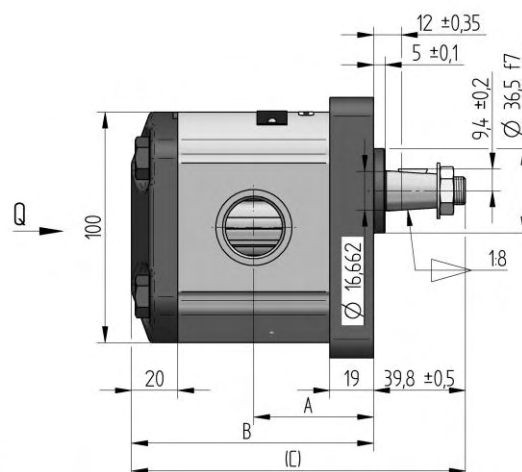
Displacement [cm³]	Inlet					Outlet					
	Code	E	F	G	H	Code	E	F	G	H	
all	K02	20	M8	13	40	K01	13,5	M6	13	30	
to 10	K07	14			38	K07	14	M8		38	
above 10	K08	19									

Drains:

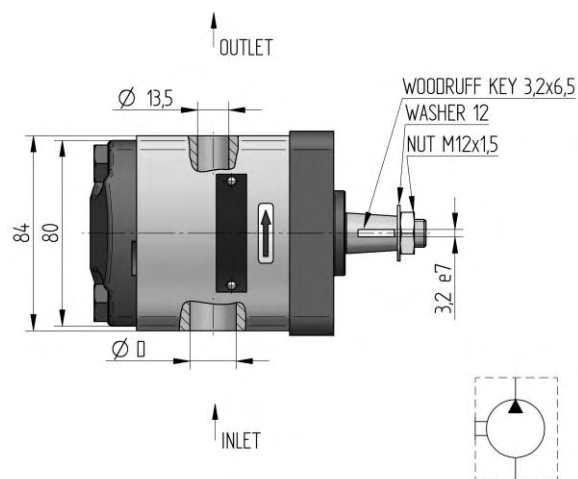
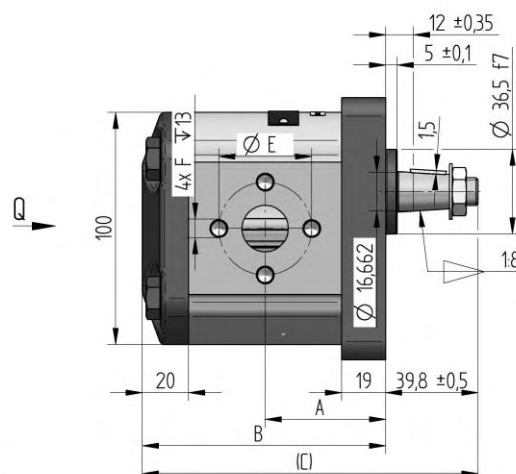
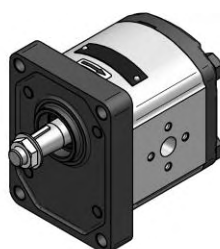
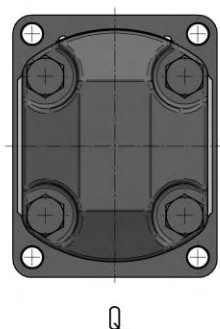
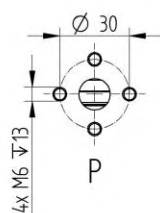
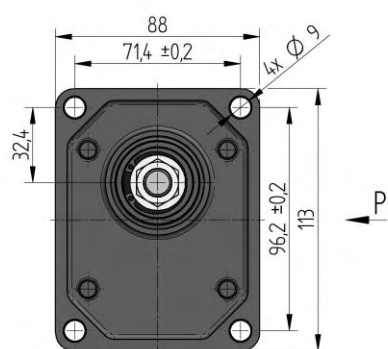
Displacement [cm ³]	Code	Outlet			
		A	B	C	D
all	M02	M12x1,5	12	20	1
	G01	G1/4	12	45	
	U01	7/16-20 UNF-2B	13	21	
	U02	9/16-18 UNF-2B	14	25	

Technical drawing of a square flange with a central threaded hole and four corner holes. Dimensions are as follows:

- Outer square dimension: 88
- Inner square dimension: $71,4 \pm 0,2$
- Central hole diameter: 13
- Corner holes: $4 \times \varnothing 9$
- Distance from corner to corner hole center: 32,4
- Distance between corner hole centers: $96,2 \pm 0,2$

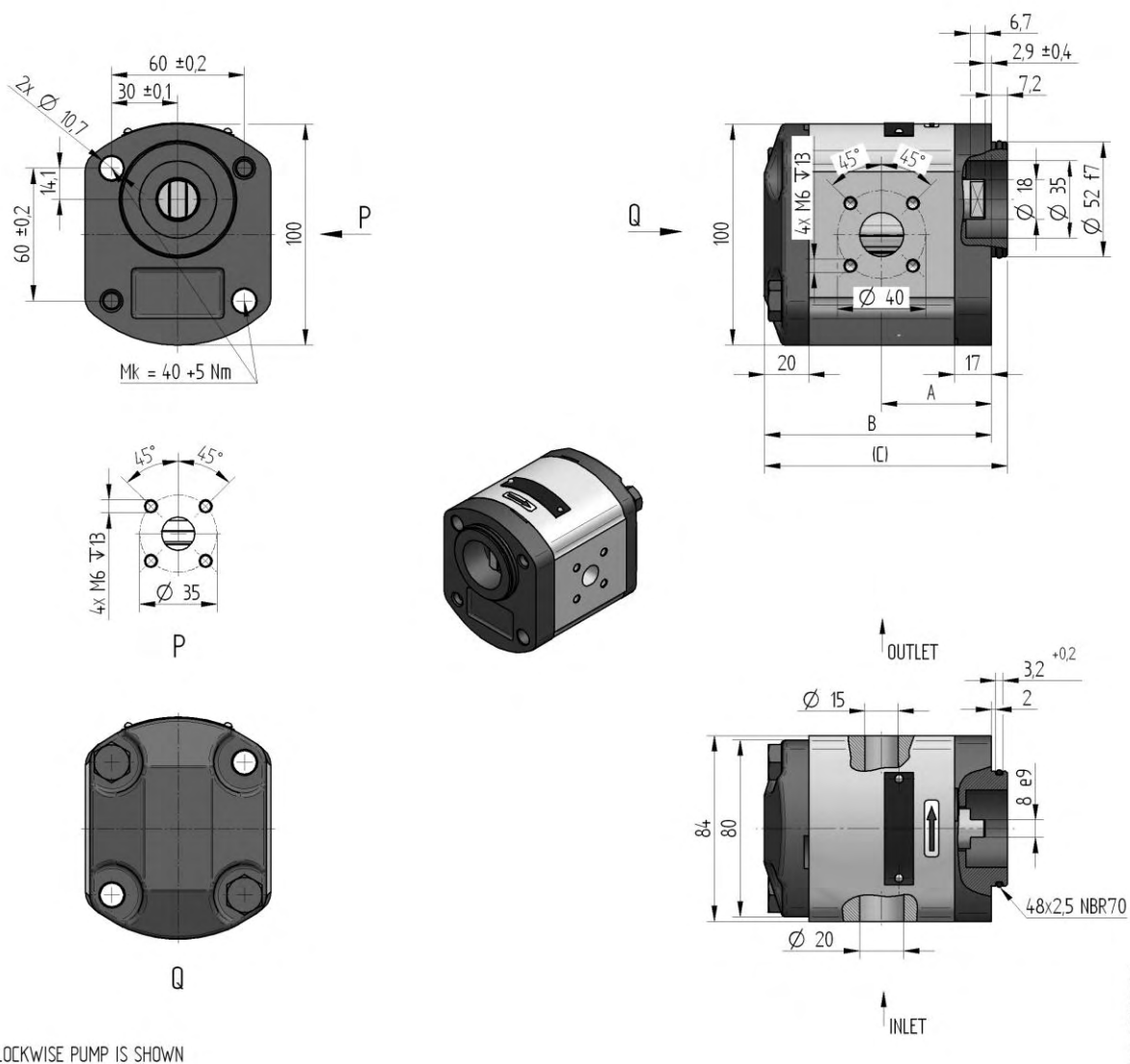


verze 01/2015



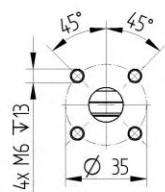
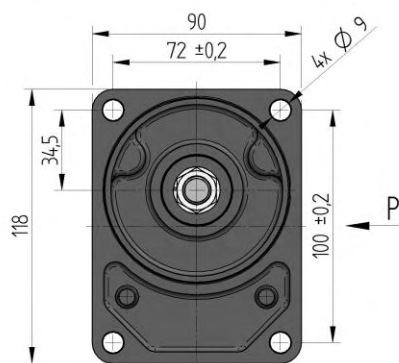
THE CLOCKWISE PUMP IS SHOWN

2.5-31R- R05C08-SK02K01-N		R	31	150	500	2 200	63.7	128.5	168.3	Ø 20	Ø 40	M8	
2.5-31L- R05C08-SK02K01-N		L											
2.5-25R- R05C08-SK02K01-N		R	25	200	500	2 800	59.0	119.1	158.9	Ø 20	Ø 40	M8	
2.5-25L- R05C08-SK02K01-N		L											
2.5-20R- R05C08-SK02K01-N		R	20	240	500	3 200	55.0	111.2	151.0	Ø 20	Ø 40	M8	
2.5-20L- R05C08-SK02K01-N		L											
2.5-16R- R05C08-SK02K01-N		R	16	260	500	3 200	51.9	104.9	144.7	Ø 20	Ø 40	M8	
2.5-16L- R05C08-SK02K01-N		L											
2.5-12R- R05C08-SK02K01-N		R	12	260	500	3 600	48.8	98.6	138.4	Ø 20	Ø 40	M8	
2.5-12L- R05C08-SK02K01-N		L											
2.5-8R- R05C08-SK01K01-N		R	8	280	500	3 600	45.6	92.3	132.1	Ø 13.5	Ø 30	M6	
2.5-8L- R05C08-SK01K01-N		L											
2.5-6R- R05C08-SK01K01-N		R	6	280	500	4 000	44.0	89.2	129.0	Ø 13.5	Ø 30	M6	
2.5-6L- R05C08-SK01K01-N		L											
2.5-4R- R05C08-SK01K01-N		R	4	280	500	4 000	42.5	86.0	125.8	Ø 13.5	Ø 30	M6	
2.5-4L- R05C08-SK01K01-N		L											
ORDER KEY	PURCH. CODE	DIRECT. OF ROT.	DISPLACEMENT [cm³/l]	NOM. PRESS. [bar]	MIN. SPEED [min⁻¹]	MAX. SPEED [min⁻¹]	A	B	C	D	E	F	
DIMENSION [mm]													

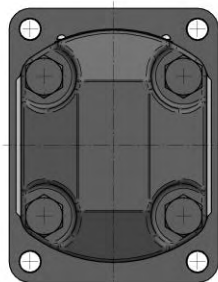


THE CLOCKWISE PUMP IS SHOWN

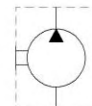
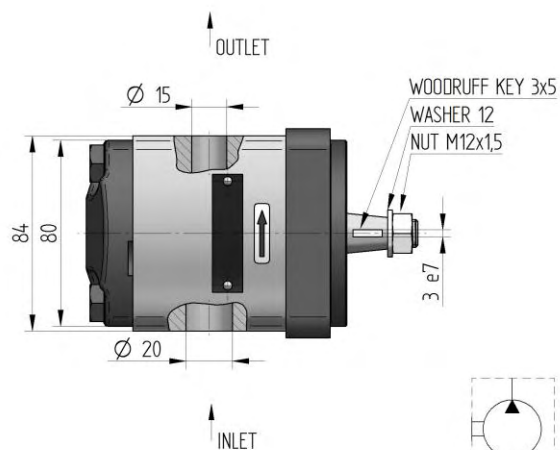
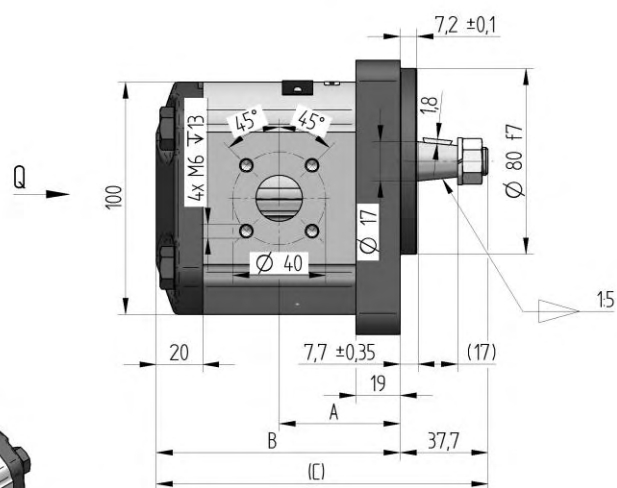
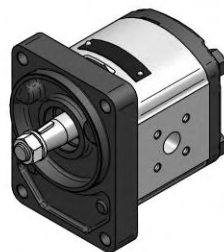
2.5-31R- A09K07-SH06H05-N.004		R	31	150	500	2 200	61.7	126.5	133.7				
2.5-31L- A09K07-SH06H05-N.004		L											
2.5-25R- A09K07-SH06H05-N.004		R	25	200	500	2 800	57.0	117.1	124.3				
2.5-25L- A09K07-SH06H05-N.004		L											
2.5-20R- A09K07-SH06H05-N.004		R	20	240	500	3 200	53.0	109.2	116.4				
2.5-20L- A09K07-SH06H05-N.004		L											
2.5-16R- A09K07-SH06H05-N.004		R	16	260	500	3 200	49.9	102.9	110.1				
2.5-16L- A09K07-SH06H05-N.004		L											
2.5-12R- A09K07-SH06H05-N.004		R	12	260	500	3 600	46.8	96.6	103.8				
2.5-12L- A09K07-SH06H05-N.004		L											
2.5-8R- A09K07-SH06H05-N.004		R	8	280	500	3 600	43.6	90.3	97.5				
2.5-8L- A09K07-SH06H05-N.004		L											
2.5-6R- A09K07-SH06H05-N.004		R	6	280	500	4 000	42.0	87.2	94.4				
2.5-6L- A09K07-SH06H05-N.004		L											
2.5-4R- A09K07-SH06H05-N.004		R	4	280	500	4 000	40.5	84.0	91.2				
2.5-4L- A09K07-SH06H05-N.004		L											
ORDER KEY	PURCH. CODE	DIRECT. OF ROT.	DISPLACEMENT [cm ³ /l]	NOM. PRESS. [bar]	MIN. SPEED [min ⁻¹]	MAX. SPEED [min ⁻¹]	A	B	C	DIMENSION [mm]			



P

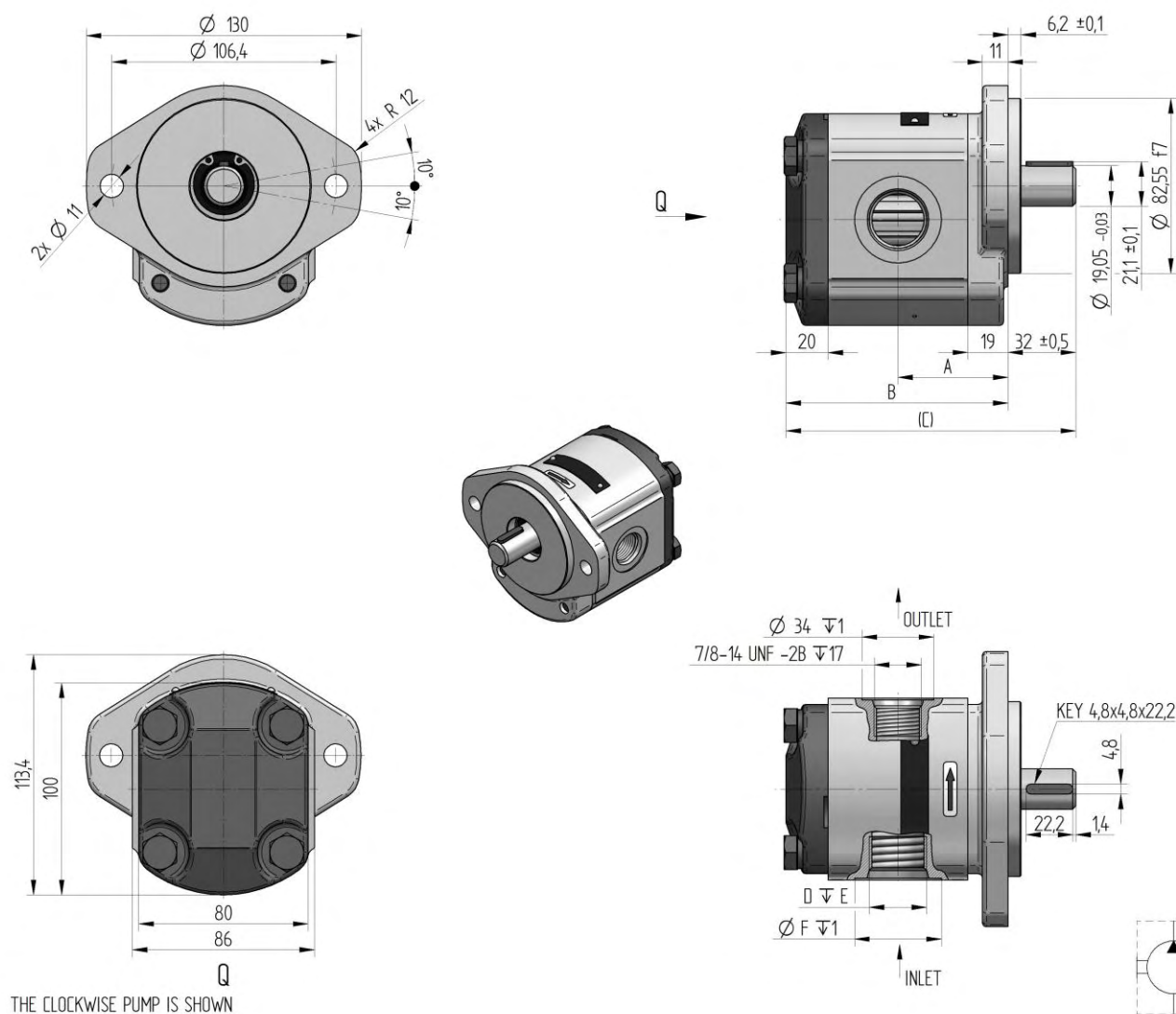


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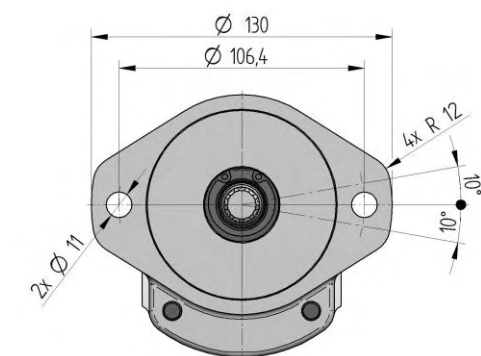


THE CLOCKWISE PUMP IS SHOWN

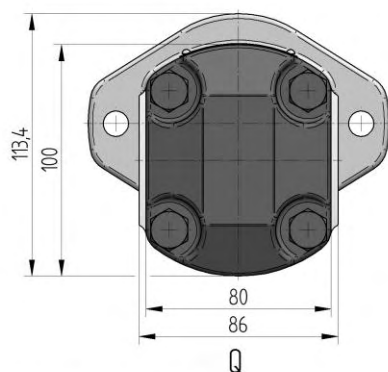
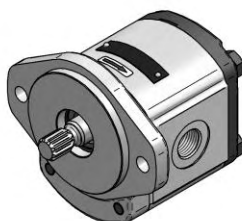
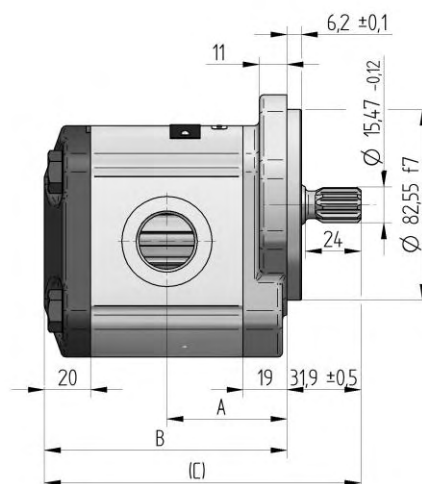
2.5-31R- R06C10-SH06H05-N		R	31	150	500	2 200	63.7	128.5	168.3			
2.5-31L- R06C10-SH06H05-N		L										
2.5-25R- R06C10-SH06H05-N		R	25	200	500	2 800	59.0	119.1	158.9			
2.5-25L- R06C10-SH06H05-N		L										
2.5-20R- R06C10-SH06H05-N		R	20	240	500	3 200	55.0	111.2	151.0			
2.5-20L- R06C10-SH06H05-N		L										
2.5-16R- R06C10-SH06H05-N		R	16	260	500	3 200	51.9	104.9	144.7			
2.5-16L- R06C10-SH06H05-N		L										
2.5-12R- R06C10-SH06H05-N		R	12	260	500	3 600	48.8	98.6	138.4			
2.5-12L- R06C10-SH06H05-N		L										
2.5-8R- R06C10-SH06H05-N		R	8	280	500	3 600	45.6	92.3	132.1			
2.5-8L- R06C10-SH06H05-N		L										
2.5-6R- R06C10-SH06H05-N		R	6	280	500	4 000	44.0	89.2	129.0			
2.5-6L- R06C10-SH06H05-N		L										
2.5-4R- R06C10-SH06H05-N		R	4	280	500	4 000	42.5	86.0	125.8			
2.5-4L- R06C10-SH06H05-N		L										
ORDER KEY	PURCH CODE	DIRECT. OF ROT.	DISPLACEMENT [cm ³ /1]	NOM. PRESS. [bar]	MIN. SPEED [min ⁻¹]	MAX. SPEED [min ⁻¹]	A	B	C	DIMENSION [mm]		



2.5-31R- S02V12-SU05U04-N		R	31	150	500	2 200	63.7	128.5	160.5	1-1/16-12 UN-2B	19	41
2.5-31L- S02V12-SU05U04-N		L										
2.5-25R- S02V12-SU05U04-N		R	25	200	500	2 800	59.0	119.1	151.1	1-1/16-12 UN-2B	19	41
2.5-25L- S02V12-SU05U04-N		L										
2.5-20R- S02V12-SU05U04-N		R	20	240	500	3 200	55.0	111.2	143.2	1-1/16-12 UN-2B	19	41
2.5-20L- S02V12-SU05U04-N		L										
2.5-16R- S02V12-SU05U04-N		R	16	260	500	3 200	51.9	104.9	136.9	1-1/16-12 UN-2B	19	41
2.5-16L- S02V12-SU05U04-N		L										
2.5-12R- S02V12-SU05U04-N		R	12	260	500	3 600	48.8	98.6	130.6	1-1/16-12 UN-2B	19	41
2.5-12L- S02V12-SU05U04-N		L										
2.5-8R- S02V12-SU04U04-N		R	8	280	500	3 600	45.6	92.3	124.3	7/8-14 UNF-2B	17	34
2.5-8L- S02V12-SU04U04-N		L										
2.5-6R- S02V12-SU04U04-N		R	6	280	500	4 000	44.0	89.2	121.2	7/8-14 UNF-2B	17	34
2.5-6L- S02V12-SU04U04-N		L										
2.5-4R- S02V12-SU04U04-N		R	4	280	500	4 000	42.5	86.0	118.0	7/8-14 UNF-2B	17	34
2.5-4L- S02V12-SU04U04-N		L										
ORDER KEY	PURCH. CODE	DIRECT. OF ROT.	DISPLACEMENT [cm ³ /1]	NOM. PRESS. [bar]	MIN. SPEED [min ⁻¹]	MAX. SPEED [min ⁻¹]	A	B	C	D	E	F
DIMENSION [mm]												

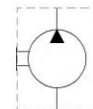
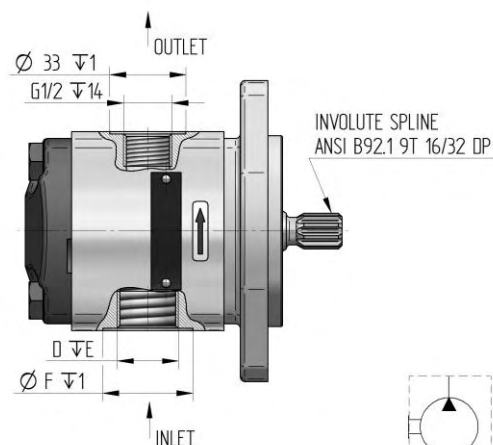


Q

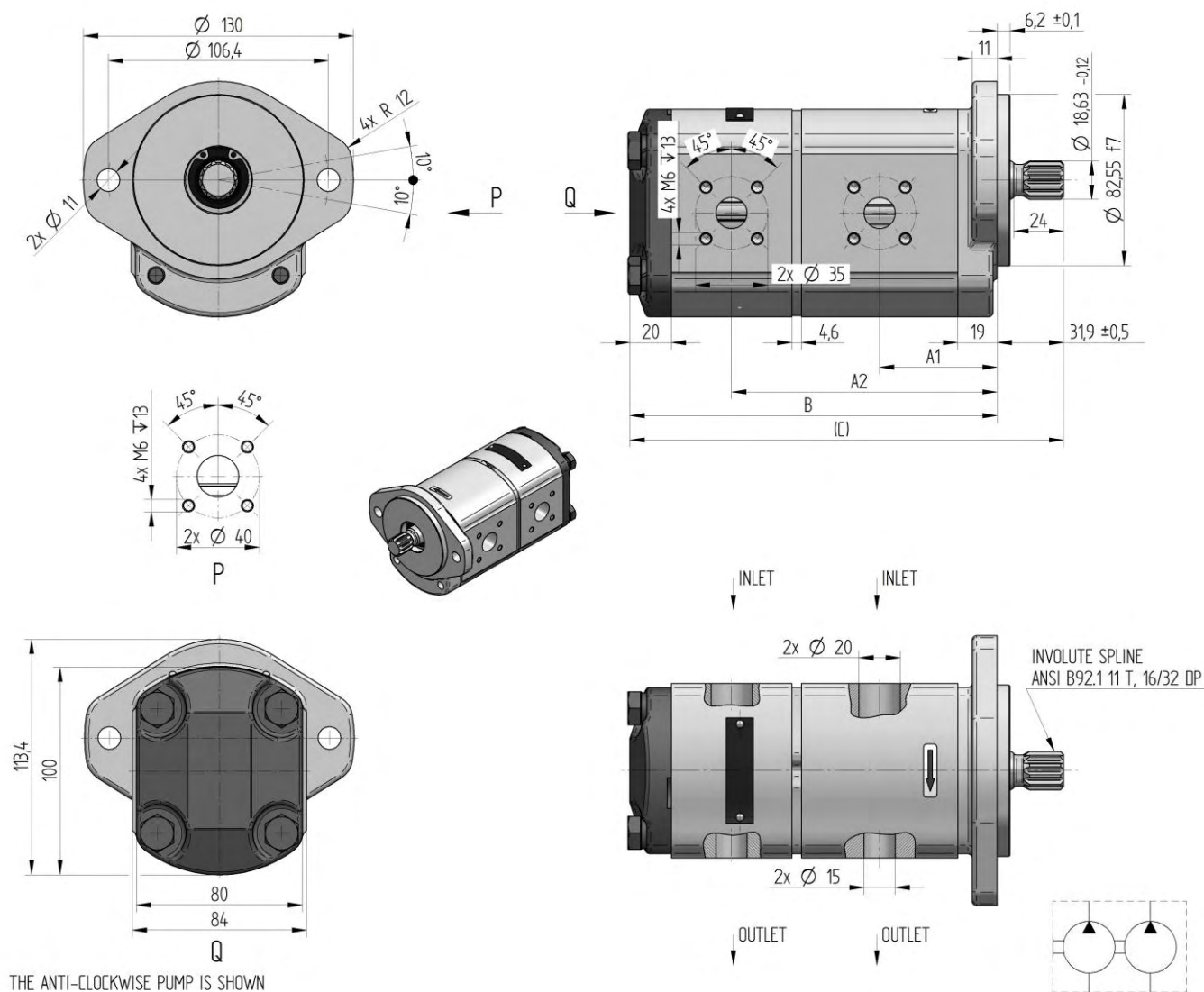


Q

THE CLOCKWISE PUMP IS SHOWN

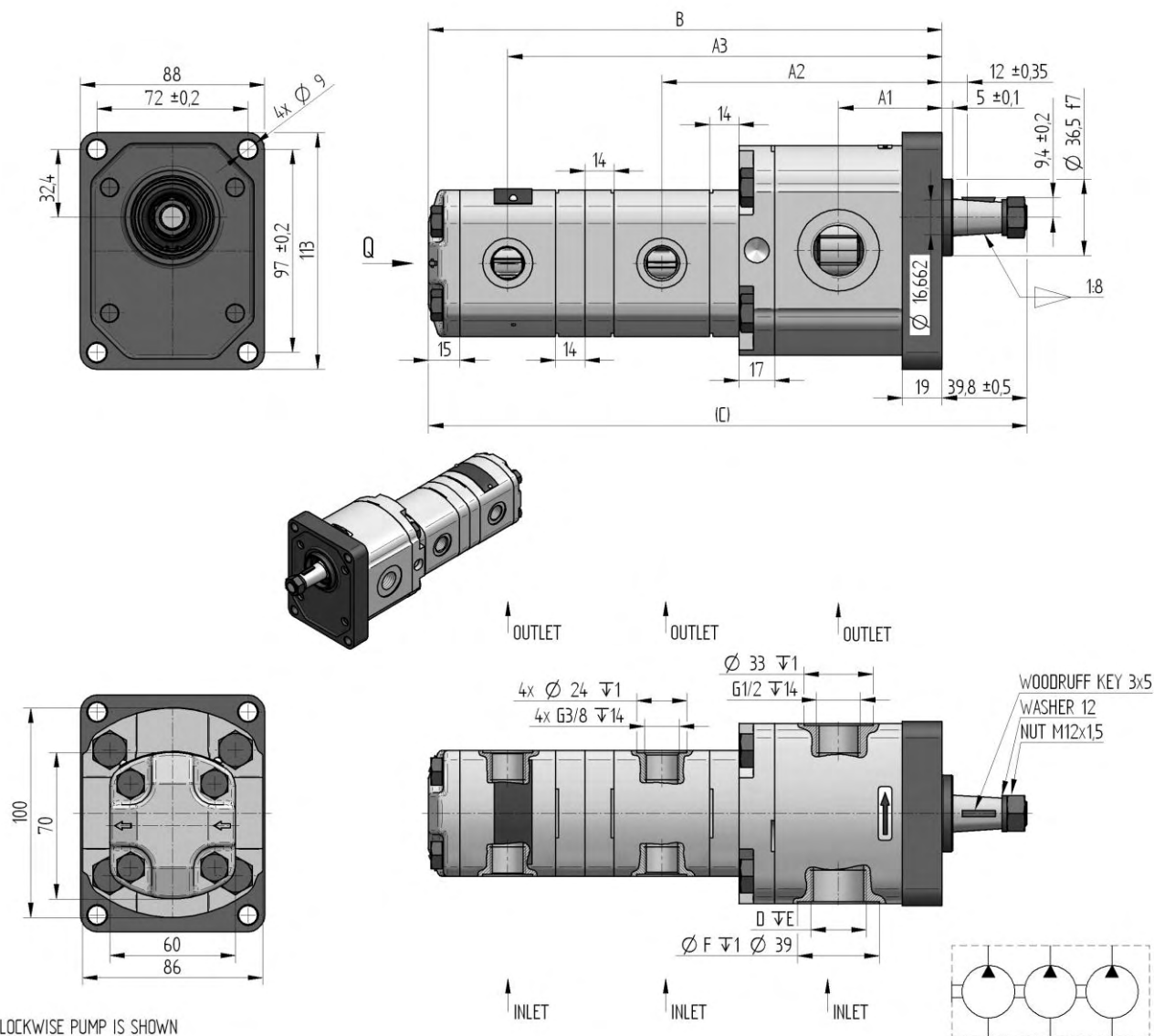


2.5-31R- S02D04-SG04G03-N		R	31	150	500	2 200	63.7	128.5	160.6	G 3/4	16	39
2.5-31L- S02D04-SG04G03-N		L										
2.5-25R- S02D04-SG04G03-N		R	25	200	500	2 800	59.0	119.1	151.2	G 3/4	16	39
2.5-25L- S02D04-SG04G03-N		L										
2.5-20R- S02D04-SG04G03-N		R	20	240	500	3 200	55.0	111.2	143.3	G 3/4	16	39
2.5-20L- S02D04-SG04G03-N		L										
2.5-16R- S02D04-SG04G03-N		R	16	260	500	3 200	51.9	104.9	137.0	G 3/4	16	39
2.5-16L- S02D04-SG04G03-N		L										
2.5-12R- S02D04-SG04G03-N		R	12	260	500	3 600	48.8	98.6	130.7	G 3/4	16	39
2.5-12L- S02D04-SG04G03-N		L										
2.5-8R- S02D04-SG03G03-N		R	8	280	500	3 600	45.6	92.3	124.4	G 1/2	14	33
2.5-8L- S02D04-SG03G03-N		L										
2.5-6R- S02D04-SG03G03-N		R	6	280	500	4 000	44.0	89.2	121.3	G 1/2	14	33
2.5-6L- S02D04-SG03G03-N		L										
2.5-4R- S02D04-SG03G03-N		R	4	280	500	4 000	42.5	86.0	118.1	G 1/2	14	33
2.5-4L- S02D04-SG03G03-N		L										
ORDER KEY	PURCH. CODE	DIRECT. OF ROT.	DISPLACEMENT [cm ³ /1]	NOM. PRESS. [bar]	MIN. SPEED [min ⁻¹]	MAX. SPEED [min ⁻¹]	A	B	C	D	E	F
DIMENSION [mm]												



Other combinations are available after consultation

ORDER KEY	PURCH. CODE	DIRECT OF ROT.	DISPLACEMENT [cm ³ /1]	NOM. PRESS. [bar]	MIN. SPEED [min ⁻¹]	MAX. SPEED [min ⁻¹]	A1	A2	B	C			
2.5-20/6R- S02D06-SH06H05/H06H05-N		R	20/6	240/280	500	3 200	55.0	120.8	165.9	197.8			
2.5-20/6L- S02D06-SH06H05/H06H05-N		L											
2.5-16/4R- S02D06-SH06H05/H06H05-N		R	16/4	260/280	500	3 200	51.9	113.0	156.5	188.4			
2.5-16/4L- S02D06-SH06H05/H06H05-N		L											
2.5-12/6R- S02D06-SH06H05/H06H05-N		R	12/6	260/280	500	3 600	48.8	108.2	153.3	185.2			
2.5-12/6L- S02D06-SH06H05/H06H05-N		L											
2.5-8/8R- S02D06-SH06H05/H06H05-N		R	8/8	280	500	4 000	45.6	103.5	150.2	182.1			
2.5-8/8L- S02D06-SH06H05/H06H05-N		L											
2.5-6/6R- S02D06-SH06H05/H06H05-N		R	6/6	280	500	4 000	44.0	98.8	143.9	175.8			
2.5-6/6L- S02D06-SH06H05/H06H05-N		L											



More informations about pumps of 1 series in relevant catalogue.

ORDER KEY	PURCH. CODE	DIR. OF ROT.	DISPLACEMENT [cm ³ /1]	NOM. PRESS [bar]	MIN. SPEED [min ⁻¹]	MAX. SPEED [min ⁻¹]	A1	A2	A3	B	C	D	E	F
2.5-16/P1-2.5/2.5R- R05C07-SG04G03/G02G02/G02G02-N		R	16/2.5/2.5	280	500	3 200	51.9	136.6	206.1	241.9	281.7	G 3/4	16	39
2.5-16/P1-2.5/2.5L- R05C07-SG04G03/G02G02/G02G02-N		L												
2.5-12/P1-2.5/2.5R- R05C07-SG04G03/G02G02/G02G02-N		R	12/2.5/2.5	280	500	3 600	48.8	130.3	199.8	235.6	275.4	G 3/4	16	39
2.5-12/P1-2.5/2.5L- R05C07-SG04G03/G02G02/G02G02-N		L												

NOTES:

[illegible]