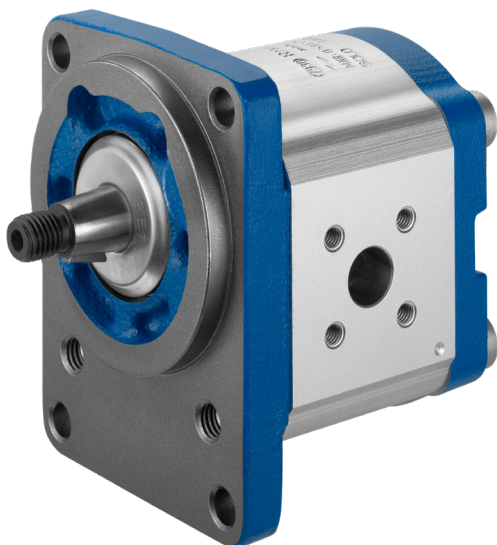


External gear motor High Performance AZMF



Notice: Product image deviates from delivery condition

- ▶ Platform F
- ▶ Fixed displacement
- ▶ Size 8 to 28
- ▶ Continuous pressure up to 250 bar
- ▶ Maximum intermittent pressure up to 280 bar

Features

- ▶ Consistently high quality due to high-volume series production
- ▶ Long service life
- ▶ Wide speed range
- ▶ Slide bearings for high loading
- ▶ Optional bi-directional version for 2- and 4-quadrant operation
- ▶ Numerous configuration variants available
- ▶ Output shafts according to ISO or SAE and customer-specific solutions
- ▶ Port connections:
Connection flanges or screw-in threads
- ▶ High pressures though small installation space and low weight
- ▶ Wide viscosity and temperature range

Contents

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Product description

General information

The key task of external gear motors is to convert hydraulic energy (flow and pressure) into mechanical energy (torque and rotational speed). To reduce heat loss, Rexroth external gear motors are designed to be extremely efficient. This efficiency is achieved through pressure-dependent gap sealing and high-precision manufacturing technology. Rexroth external gear motors are available in four platforms: Platforms B, F, N and G, with different gear wheel widths within a platform for different displacements. Additional versions with different flanges, ports, shafts and valve attachments are also available.

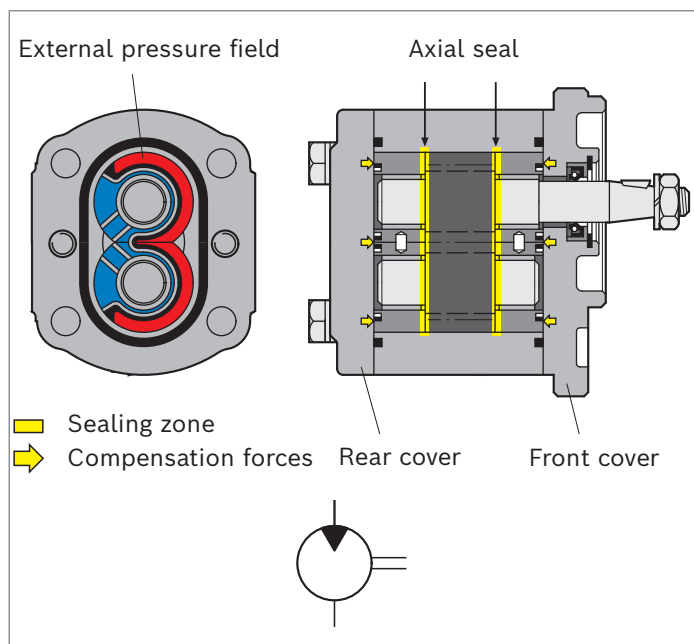
At external gear motors, you distinguish between motors for one direction of rotation and bi-directional motors.

Design

Gear motor for one direction of rotation

These gear motors are designed asymmetrically, i.e., fixed high-pressure and low-pressure sides. This means reversing operation is not possible. Motors require a special start-up sequence to ensure good efficiency. Any leakage oil is drained internally. The shaft seal limits drain line pressure.

▼ Design gear motor for one direction of rotation

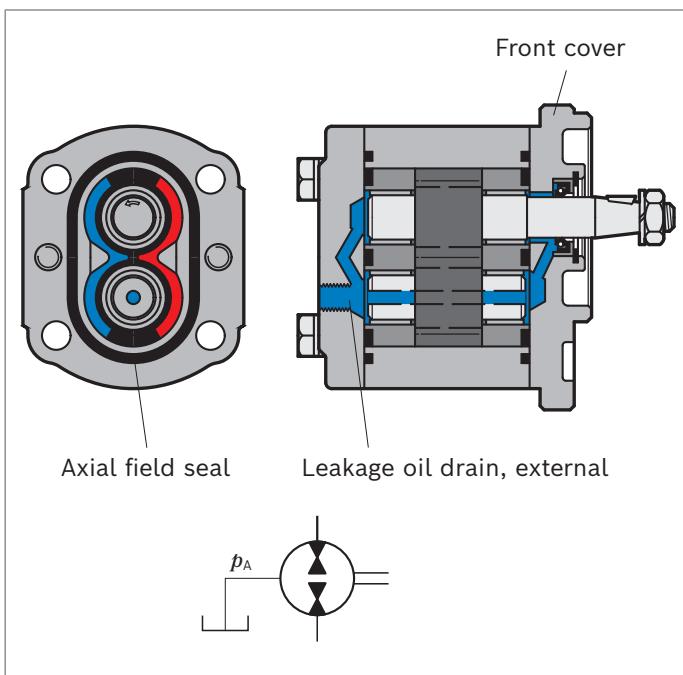


Gear motor, bi-directional

Due to their symmetrical layout, the high-pressure and low-pressure chambers are separate from the bearing and shaft seal chambers. Any leakage oil is drained through a separate drain port in the housing cover. This drain line allows the motor to run in reverse, making series connections possible. Standard motors and pumps can only withstand up to approx. 3 bar abs. due to the connection between the shaft seal and the low-pressure side.

The figure shows a bi-directional motor for 4-quadrant operation, i.e., output drive torque and drive torque in both directions (motor functions as a pump when the load is reversed).

▼ Design gear motor, bi-directional



Type code

01	02	03	04	05	06	07	08	09	10	11	12	13	14
AZ	M	F	-			-							-

Product

01	External Gear unit	AZ
----	--------------------	-----------

Function

02	Motor	M
----	-------	----------

Model

03	High Performance, Platform F (5.5 ... 28 cm ³ /rev) (5.5 cm ³ /rev, upon request)	F
----	---	----------

Series

04	Bearing diameter 18 mm	1
	Bearing diameter 20 mm	2

Version

05	Phosphated, high precision cover fixation	1
	Zinc plated or aluminum, high precision cover fixation	2
	Zinc plated or aluminum, high precision cover fixation, with valve KBVS	3

Nominal size (NG)

06	Geometric displacement V_g [cm ³], see chapter "Technical data"	005¹⁾	008	011	014	016	019	022	025	028
----	---	-------------------------	------------	------------	------------	------------	------------	------------	------------	------------

Direction of rotation

07	Viewed on drive shaft	clockwise	R
		counter-clockwise	L
		bi-directional	U

Drive shaft

Typical front cover

08	Tapered keyed shaft	1 : 5	B, N	C
		1 : 8	O	H
		1 : 5	A	S
	Tang drive		T	N
	Parallel keyed shaft	SAE J744 16-1, length 32 mm	R	Q
	Splined shaft	B17x14 acc. to DIN 5482	B, O	F
		SAE J744 19-4 11T, length 38 mm	R	P
		SAE J744 16-4 9T	R	R

Front cover

09	Outrigger bearing	spigot dia 80 mm	Type 1	A
	Rectangular flange	spigot dia 80 mm		B
		spigot dia 36.47 mm (M8)		O
	2-bolt mounting	spigot dia 52 mm	with O-ring	M
	4-bolt mounting	spigot dia 52 mm	with O-ring	T
	2-bolt flange	SAE J744 82-2 (A) spigot diameter 82.55 mm		R

Port connection

10	Pipe thread according to ISO 228-1		01
	Metric thread according to ISO 9974-1		02
	UN-thread acc. to ISO 11926-1/ASME B 1.1, O-ring		12
	Square flange (German version)		20
	Square flange (Italian version)		30
	Metric thread according to ISO 6149, O-ring		50

1) On request

4 **AZMF** | External gear motor High Performance
Type code

01	02	03		04	05		06	07	08	09	10	11	12	13		14
AZ	M	F	-			-									-	

Sealing material

11	NBR (nitrile rubber)	M
	FKM (fluorocarbon rubber)	P
	NBR, shaft seal in FKM	K

Rear cover

12	Standard (cast iron)	B
	Pressure relief valve with internal residual flow	D
	Proportional pressure relief valve	G
	Axial drain port	L

Valve setting

13	Cracking pressure in bar, 3-digit, e.g. 180 bar	180XX
----	---	-------

Non standard version

14	Special version ²⁾ (characteristics not covered by type code)	SXXXX
----	--	-------

Notice

► Not all of the variants according to the type code are possible.

► Please select the desired motor with the help of the selection table (preferred types) or after consultation with Bosch Rexroth.

► Special options are available on request.

1) For more information about special version. Please contact us.

Type code motor-pump combination

01	02	04	05	06	07	08	09	10	11	12	13	14	
AZMF		-			-							-	

Product

01	External gear motor	AZMF
----	---------------------	-------------

Model (pump)

02	High Performance	1.0 ... 7.1 cm ³ /rev	Data sheet 10088	B
		4.0 ... 28 cm ³ /rev	Data sheet 10089	F
		22.5 ... 100 cm ³ /rev	Data sheet 10093	G
	SILENCE	4.0 ... 28 cm ³ /rev	Data sheet 10095	S
		22.5 ... 100 cm ³ /rev	Data sheet 10098	U
	SILENCE PLUS	12.0 ... 28 cm ³ /rev	Data sheet 10094	J

Series (according to data sheet of motor stage 1)

04	Bearing diameter 18 mm	1
	Bearing diameter 20 mm	2

Version (according to data sheet of motor stage 1)

05	Phosphated, high precision cover fixation	1
	Zinc plated, high precision cover fixation	2
	Zinc plated, high precision cover fixation, with valve KBVS	3

Nominal size (NG)

06	In accordance with data sheet for the individual series	
----	---	--

Direction of rotation

07	Viewed on drive shaft	clockwise	R
		counter-clockwise	L
		bi-directional	U

Drive shaft (according to motor stage1)

08	In accordance with data sheet of motor stage 1	
----	--	--

Front cover (according to motor stage1)

09	In accordance with data sheet of motor stage 1	
----	--	--

Port connection (per motor stage)

10	In accordance with data sheet for the individual series	
----	---	--

Sealing material

11	NBR (nitrile rubber)	M
	FKM (fluorocarbon rubber)	P
	NBR (nitrile rubber), shaft seal in FKM (fluorocarbon rubber)	K

Rear cover (according to last motor stage)

12	In accordance with data sheet of the last motor stage	
----	---	--

Valve setting

13	Cracking pressure in bar, 3-digit, e.g. 180 bar	180XX
----	---	--------------

Non standard version

14	Special version (characteristics not covered by type code)	SXXXX
----	--	--------------

Notice

- ▶ Not all of the variants according to the type code are possible.
- ▶ Please select the desired motor with the help of the selection table (preferred types) or after consultation with Bosch Rexroth.
- ▶ Special options are available on request.

Example motor-pump combination:

01	02	03		04	05		06	07	08	09	10	11	12	13		14
AZ	M	FF	-	1	1	-	011/011	R	N	T	20	20	M	B	-	S0569

Technical data

Operating conditions

Size				8	11	14	16
Series				Series 1x			
Displacement geometric, per revolution			V_g cm ³	8	11	14	16
Motor inlet pressure	start up pressure		$p_{\text{start-up}}$ bar	80	60	50	50
	maximum continuous pressure		p_1 bar	250	250	250	250
	maximum intermittent pressure ²⁾		p_2 bar	280	280	280	280
	maximum pressure peak		p_3 bar	300	300	300	300
	minimum inlet pressure absolute ³⁾		p_{min} bar	0.7	0.7	0.7	0.7
Motor output pressure for	bi-directional motors		p_A bar	≤ continuous pressure			
	non-bi-directional motors	absolute	p_A bar	3	3	3	3
		upon start-up	p_A bar	10	10	10	10
	Motors with proportional pressure relief valve max.		p_A bar	40	40	40	40
Pressure in the drain port maximum ¹⁾	absolute		p_L bar	3	3	3	3
	upon start-up		p_L bar	10	10	10	10
Minimum rotational speed at $v = 12 \text{ mm}^2/\text{s}$	$p < 100 \text{ bar}$		n_{min} rpm	500	500	500	500
	$p = 100 \dots 180 \text{ bar}$		n_{min} rpm	1000	1000	800	800
	$p = 180 \text{ bar} \dots p_2$		n_{min} rpm	1400	1200	1000	1000
	$v = 25 \text{ mm}^2/\text{s}$		n_{min} rpm	700	600	500	500
Maximum rotational speed	at p_2		n_{max} rpm	4000	3500	3000	3000
Maximum rotational speed	at p_2 and 50% duty cycle		n_{max} rpm	4500	4000	3500	3500

Size				19	22	25	28
Series				Series 2x			
Displacement geometric, per revolution			V_g cm ³	19	22.5	25	28
Motor inlet pressure	start up pressure		$p_{\text{start-up}}$ bar	50	50	50	50
	maximum continuous pressure		p_1 bar	250	220	195	170
	maximum intermittent pressure ²⁾		p_2 bar	280	250	225	200
	maximum pressure peak		p_3 bar	300	280	255	230
	minimum inlet pressure absolute ³⁾		p_{min} bar	0.7	0.7	0.7	0.7
Motor output pressure for	bi-directional motors		p_A bar	≤ continuous pressure			
	non-bi-directional motors	absolute	p_A bar	3	3	3	3
		upon start-up	p_A bar	10	10	10	10
	Motors with proportional pressure relief valve max.		p_A bar	40	40	40	40
Pressure in the drain port maximum ¹⁾	absolute		p_L bar	3	3	3	3
	upon start-up		p_L bar	10	10	10	10
Minimum rotational speed at $v = 12 \text{ mm}^2/\text{s}$	$p < 100 \text{ bar}$		n_{min} rpm	500	500	500	500
	$p = 100 \dots 180 \text{ bar}$		n_{min} rpm	800	800	800	800
	$p = 180 \text{ bar} \dots p_2$		n_{min} rpm	1000	1000	1000	1000
	$v = 25 \text{ mm}^2/\text{s}$		n_{min} rpm	800	800	500	500
Maximum rotational speed	at p_2		n_{max} rpm	3500	3500	3000	3000
Maximum rotational speed	at p_2 and 50% duty cycle		n_{max} rpm	4000	4000	3500	3500

1) For bi-directional motors

2) Limited service life with threaded ports (applicable for applications with $p_2 > 210 \text{ bar}$)

3) To avoid low inlet pressures with fast reduction of the inlet amount and large flywheel mass of the consumer, an anti-cavitation valve with correspondingly low pressure drop is to be provided.

Rotary stiffness of drive shaft

Drive shaft				C	F	H	N	P	Q	R	S
Rotary stiffness	series 1x	c	Nm/rad	215	250	246	264	305	232	220	293
	series 2x	c	Nm/rad	246	292	287	312	370	268	251	352

General technical data

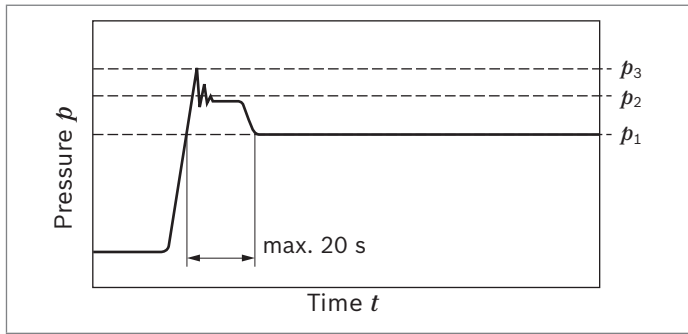
Installation position			No restrictions ¹⁾								
Type of mounting			See offer drawing								
Port connection			See chapter "Port connections"								
Direction of rotation viewed on drive shaft			One direction of rotation (motor rotation is only admissible in the indicated direction) or bi-directional.								
Drive shaft loading			Axial and radial forces only after consultation								
Ambient temperature range	t		°C	-30 ... +80 with NBR seals (NBR = nitrile rubber)							
	t		°C	-20 ... +110 with FKM seals (FKM = fluorocarbon rubber)							

Corrosion protection

Version 1 (phosphated): Unit with low corrosion protection		The surface serves for protection against flash rust during transport or as priming for painting.									
Version 2 (galvanized, passivated): Unit with corrosion protection		Degree of corrosion and rust according to DIN EN ISO 9227					Test duration 96 h: no red rust				

1) For motors with proportional pressure relief valve, the installation position of the coil is ±45° downwards.

▼ Pressure definition



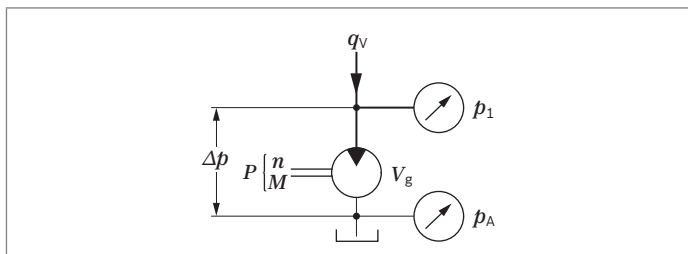
- p_1 Maximum continuous pressure
 p_2 Maximum intermittent pressure
 p_3 Maximum pressure peak

Determining operating characteristics

Inlet flow	$q_v = \frac{V_g \times n}{1000 \times \eta_v}$	[l/min]
Rotational speed	$n = \frac{q_v \times 1000 \times \eta_v}{V_g}$	[rpm]
Torque	$M = \frac{V_g \times \Delta p \times \eta_{hm}}{20 \times \pi}$	[Nm]
Power	$P = \frac{2 \pi \times M \times n}{60000} = \frac{q_v \times \Delta p \times \eta_t}{600}$	[kW]

Key

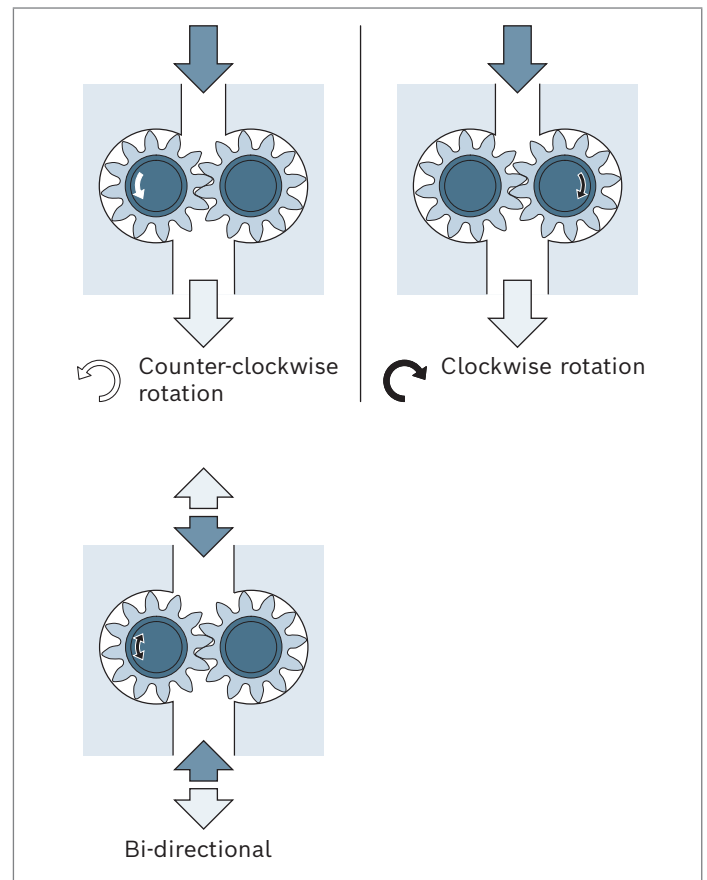
- V_g Displacement per revolution [cm³]
 Δp Differential pressure [bar] ($\Delta p = p_1 - p_A$)
 n Rotational speed [rpm]
 q_v Inlet flow [l/min]
 M Torque [Nm]
 P Power [kW]
 η_v Volumetric efficiency¹⁾
 η_{hm} Hydraulic-mechanical efficiency²⁾
 η_t Total efficiency ($\eta_t = \eta_v \times \eta_{hm}$)²⁾



Notice

- Please observe the safety requirements for the overall system.
- Please contact us regarding applications with frequent load cycles.
- In the "Diagrams/characteristic curves" chapter, you can find diagrams for a rough calculation.

▼ Direction of rotation viewed on drive shaft



1) Parameter as a decimal, e.g. 0.9

Hydraulic fluid

The external gear unit is designed for operation with HLP mineral oil according to DIN 51524, 1-3. Under higher load, however, Bosch Rexroth recommends at least HLP compliant with DIN 51524 Part 2.

See the following data sheet for application instructions and requirements for selecting hydraulic fluid, behavior during operation as well as disposal and environmental protection before you begin project planning:

- ▶ 90220: Hydraulic fluids based on mineral oils and related hydrocarbons

Other hydraulic fluids on request.

Selection of hydraulic fluid

Bosch Rexroth evaluates hydraulic fluids on the basis of the Fluid Rating according to the technical data sheet 90235.

Hydraulic fluids with positive evaluation in the Fluid Rating are provided in the following technical data sheet:

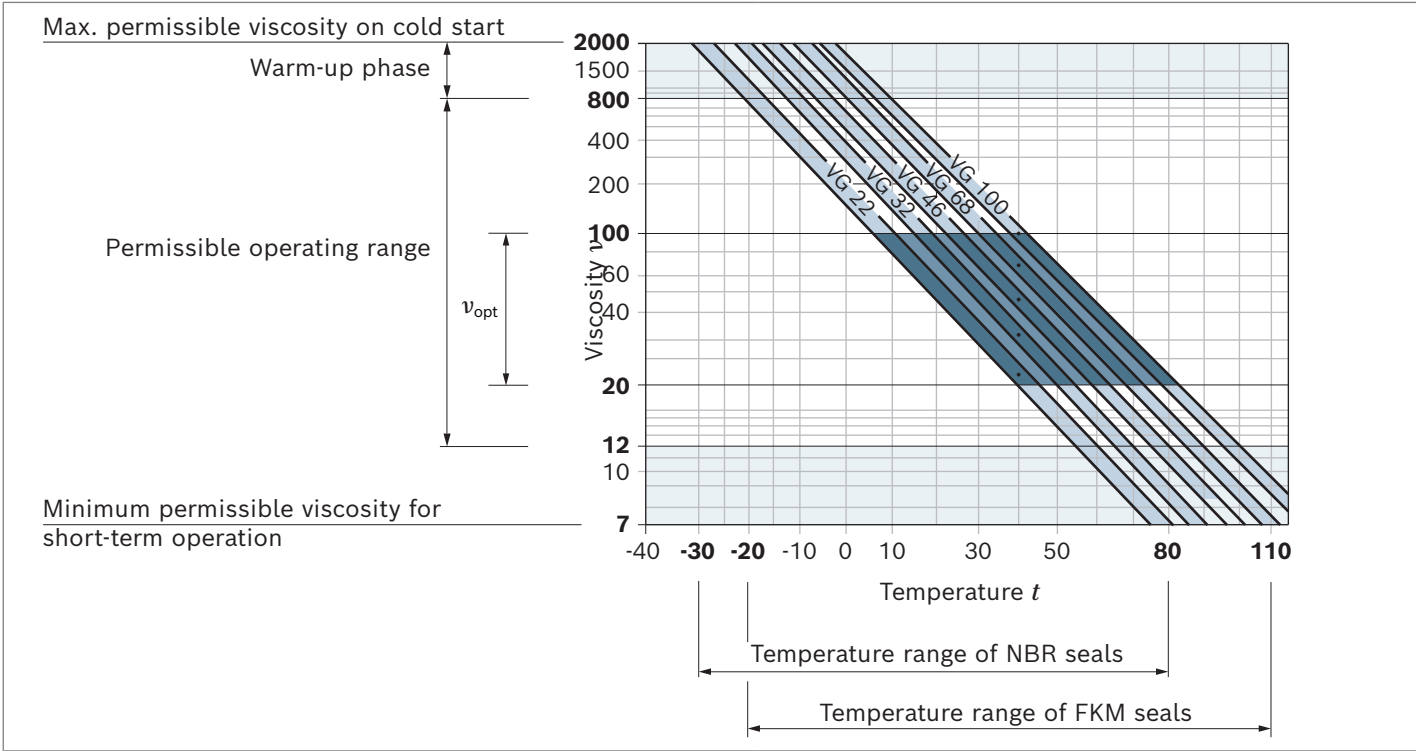
- ▶ 90245: Bosch Rexroth Fluid Rating List for Rexroth hydraulic components (pumps and motors)

Selection of hydraulic fluid shall make sure that the operating viscosity in the operating temperature range is within the optimum range (v_{opt} see “Selection diagram”).

Viscosity and temperature of hydraulic fluids

Viscosity range	
Permissible operating range	$v = 12 \dots 800 \text{ mm}^2/\text{s}$
Recommended in continuous operation	$v_{opt} = 20 \dots 100 \text{ mm}^2/\text{s}$
Permissible for cold start	$v_{max} \leq 2000 \text{ mm}^2/\text{s}$
Temperature range	
With NBR seals (NBR = nitrile rubber)	$t = -30 \text{ }^{\circ}\text{C} \dots +80 \text{ }^{\circ}\text{C}$
With FKM seals (FKM = fluorocarbon rubber)	$t = -20 \text{ }^{\circ}\text{C} \dots +110 \text{ }^{\circ}\text{C}$

▼ Selection diagram

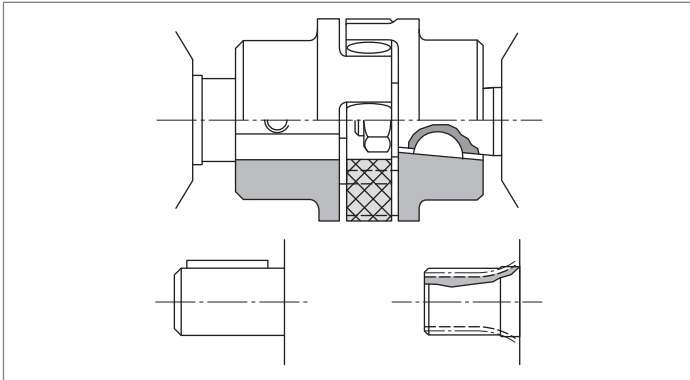


Please observe the information on the filtration of hydraulic fluid (see chapter "Project planning information").

Drives

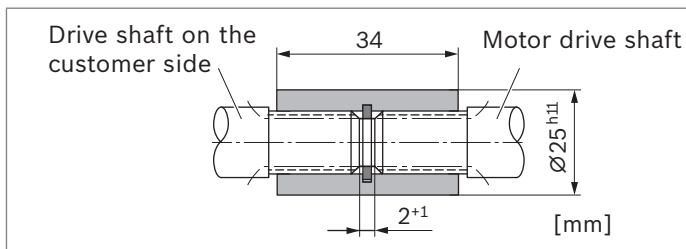
Elastic couplings

- ▶ The coupling should not transfer any radial or axial forces to the motor.
- ▶ The maximum radial runout deviation from the motor shaft to the spigot should not exceed 0.2 mm.
- ▶ See the coupling manufacturer's assembly instructions for permissible shaft misalignment tolerances.



Coupling sleeve

- ▶ To be used for splined shaft profile according to DIN and SAE
- ▶ Attention: Make sure no radial and axial forces act on the motor shaft and coupling sleeve. The coupling sleeve should freely move in the axial direction.
- ▶ The distance between the motor drive shaft and the drive shaft on the customer side should be 2^{+1} mm
- ▶ Reserve installation space for the retaining ring.
- ▶ Oil-bath or oil-mist lubrication required

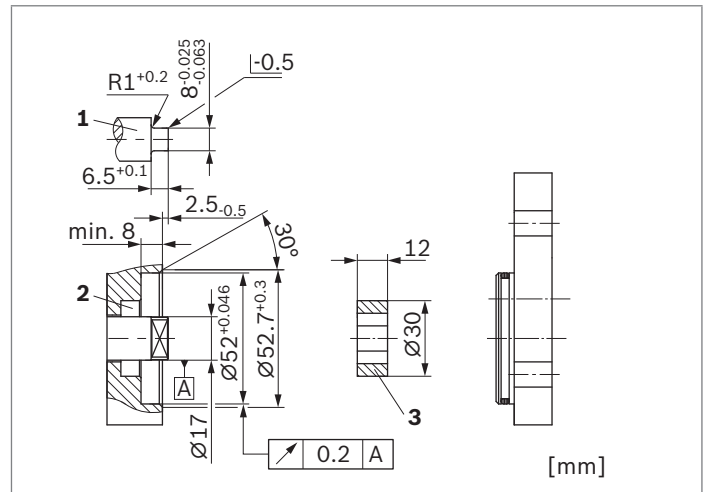


Tang drive coupling

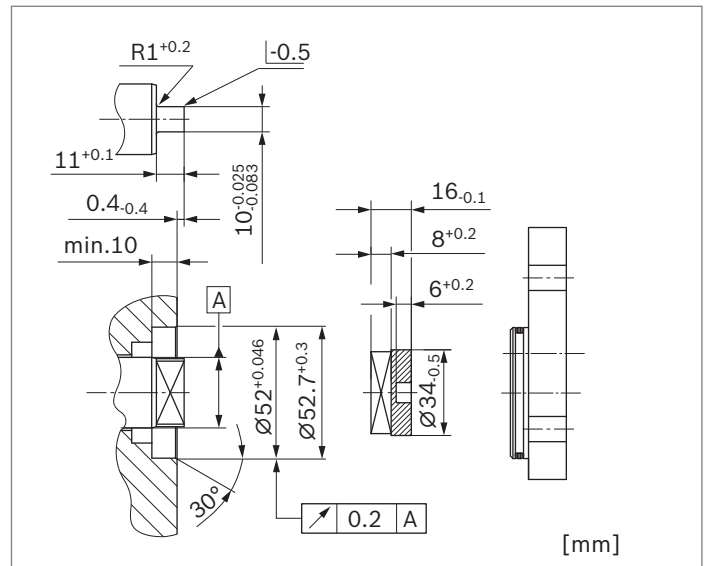
- ▶ For attaching the motor directly to consumers
- ▶ Motor drive shaft with special tang drive and driver (3)
- ▶ No shaft seal
- ▶ Drive-side side installation and sealing according to following recommendations and dimensions
- ▶ Drive shaft on the customer side (1)
 - Case hardening steel DIN 17210, e.g. 20 MnCrS 5 case-hardened 0.6 deep; HRC 60±3
 - Seal ring contact surface ground without rifling $R_{\max} \leq 4 \mu\text{m}$

- The maximum transmissible torque of 85 Nm applies to a claw height of 19 mm. With lower claw heights, e.g. 17 mm, the maximum transmissible torque decreases to 65 Nm.
- ▶ Radial shaft seal ring on the customer side (2)
 - Provide with rubber cover (see DIN 3760, type AS, or double-lipped ring)
 - Provide installation edges with 15° chamfer and/or shaft seal with protection sleeve

▼ AZMF-1x

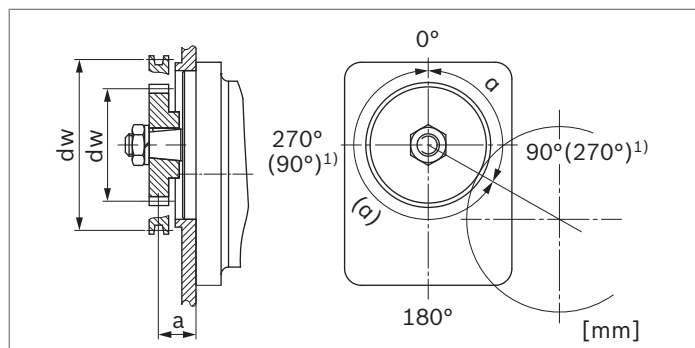


▼ AZMF-2x



4. V-belt and gear wheel without outrigger bearing

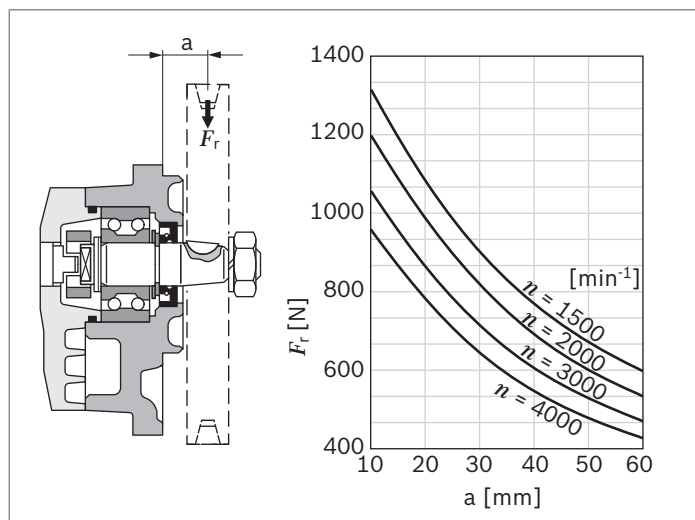
For V-belt or gear wheel output drives, please contact us and indicate the application and mounting conditions (dimensions a , d_w and angle α).



5. Outrigger bearing

Motors with outrigger bearing are offered to eliminate possible problems with V-belt or gear wheel output drives. The diagrams show the radial load capacity in relation to a bearing service life of $L_H = 1000$ h

▼ Front cover A (type 1, with claw)



¹) Values in parentheses refer to counter-clockwise rotation.

Maximum transferable drive torques

▼ Tapered keyed shafts

Drive shaft code	Designation	$M_{\max}$ Nm	Nominal size	$p_{2 \max}$ series 1x bar	$p_{2 \max}$ series 2x bar
C	1 : 5	155	8 ... 16	280	–
			19	–	280
			22	–	250
			25	–	225
			28	–	200
H	1 : 5	160	8 ... 16	280	–
			19	–	280
			22	–	250
			25	–	225
			28	–	200
S	1 : 5	65	8 ... 11	280	–
			14	260	–
			16	230	–
			19	–	190
			22	–	160
			25	–	140
			28	–	130

▼ Tang drive

Drive shaft code	Designation	$M_{\max}$ Nm	Nominal size	$p_{2 \max}$ series 1x bar	$p_{2 \max}$ series 2x bar
N		65	8 ... 11	280	–
			14	260	–
			16	230	–
		85	19	–	250
			22	–	210
			25	–	190
			28	–	170

▼ Parallel keyed shaft

Drive shaft code	Designation	$M_{\max}$ Nm	Nominal size	$p_{2 \max}$ series 1x bar	$p_{2 \max}$ series 2x bar
Q	SAE J744 16-1, length 32 mm	80	8 ... 16	280	–
			19	–	230
			22	–	200
			25	–	180
			28	–	160

▼ Splined shaft

Drive shaft code	Designation	$M_{\max}$ Nm	Nominal size	$p_{2 \max}$ series 1x bar	$p_{2 \max}$ series 2x bar
F	B17x14 acc. to DIN 5482	100	8 ... 16	280	–
			19	–	280
			22	–	250
			25	–	225
			28	–	200
P	SAE J744 19-4 11T, length 38 mm	180	8 ... 16	280	–
			19	–	280
			22	–	250
			25	–	225
			28	–	200
R	SAE J744 16-4 9	110	8 ... 16	280	–
			19	–	280
			22	–	250
			25	–	225
			28	–	200

Gear motors with integrated valves; sensors

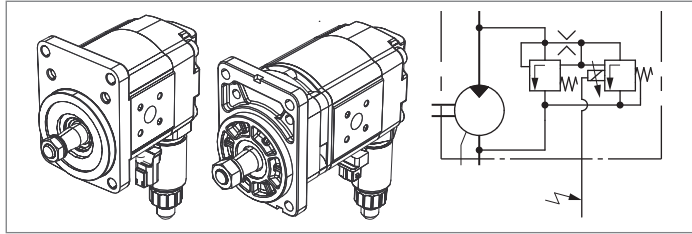
Gear motor with integrated pilot operated proportional pressure relief valve

Gear motor with integrated pilot operated proportional pressure relief valve and shaft seal unloading thanks to three-chamber principle.

Gear motors without shaft seal unloading are not recommended due to the loading from the oil return, particularly with cold oil.

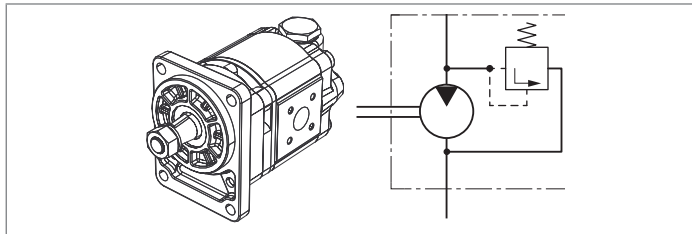
The basis of this drive unit is a motor of the "F" series. A proportional pressure relief valve is integrated in the rear cover. This unit offers the following advantages:

- ▶ No piping necessary for the proportional pressure relief valve function
- ▶ Integrated pressure limitation
- ▶ Fail-safe behavior in case of power failure
- ▶ Drag speed almost zero
- ▶ Motor speed proportionally controllable
- ▶ Insensitive to pressure loads from the outlet.



Gear motor with pressure relief valve

Return flow pressure ≤ 3 bar (10 bar during start-up)

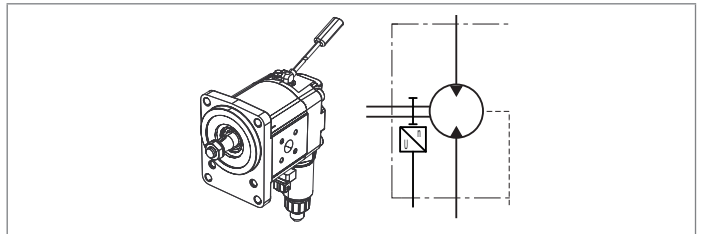


Gear motor with integrated speed sensor

The Hall effect-based DSM1-10 speed sensor has been specially developed for use under harsh conditions in mobile working machines. The sensor detects the rotational speed signal of ferromagnetic gear wheels. As an active sensor, he delivers a signal with a constant amplitude that is independent of the rotational speed.

Due to its compact and robust design, the external gear motor with integrated speed sensor is particularly suitable for:

- ▶ Fan drives in buses, trucks and construction machinery from 7 to 20 kW
- ▶ As vibration drive for road rollers and pavers.

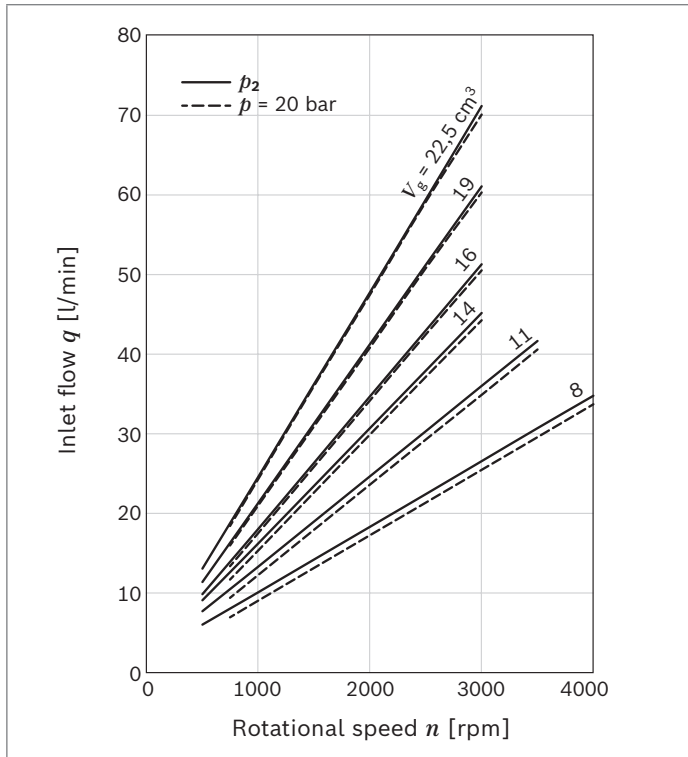


For further information see:
Speed sensor data sheet 95132.

Diagrams/characteristic curves

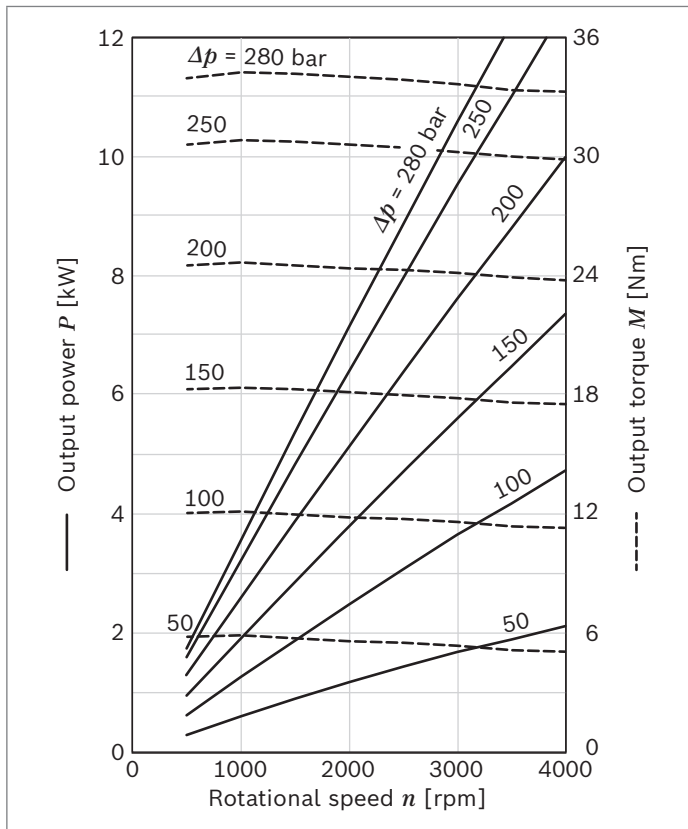
Inlet flow characteristic curve

▼ Inlet flow

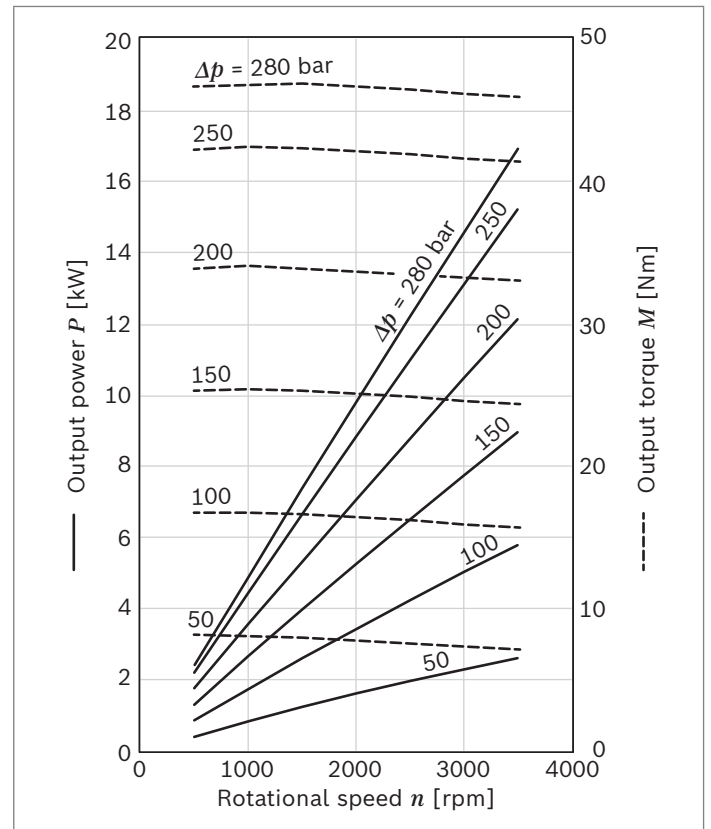


Performance charts

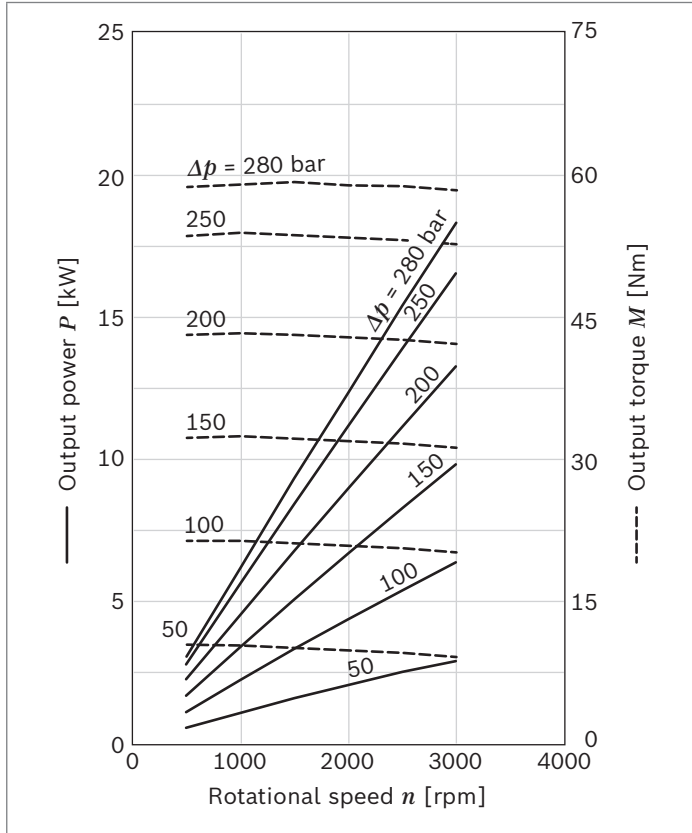
▼ Size 8



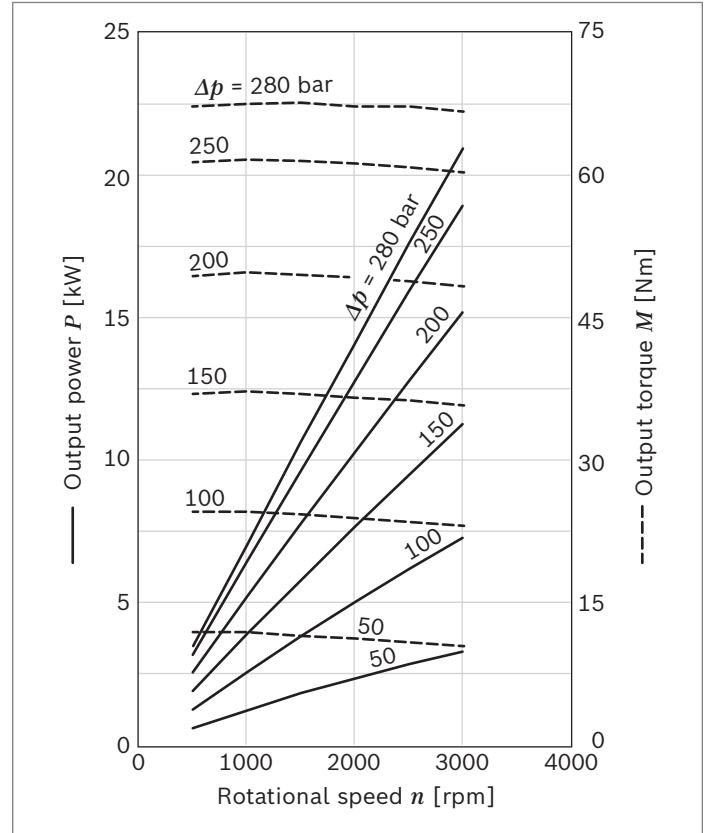
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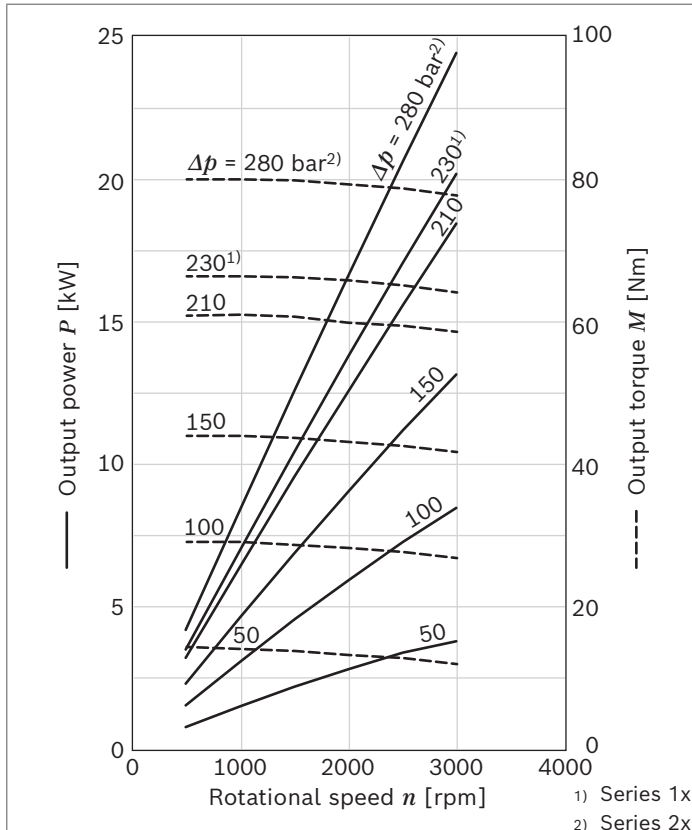
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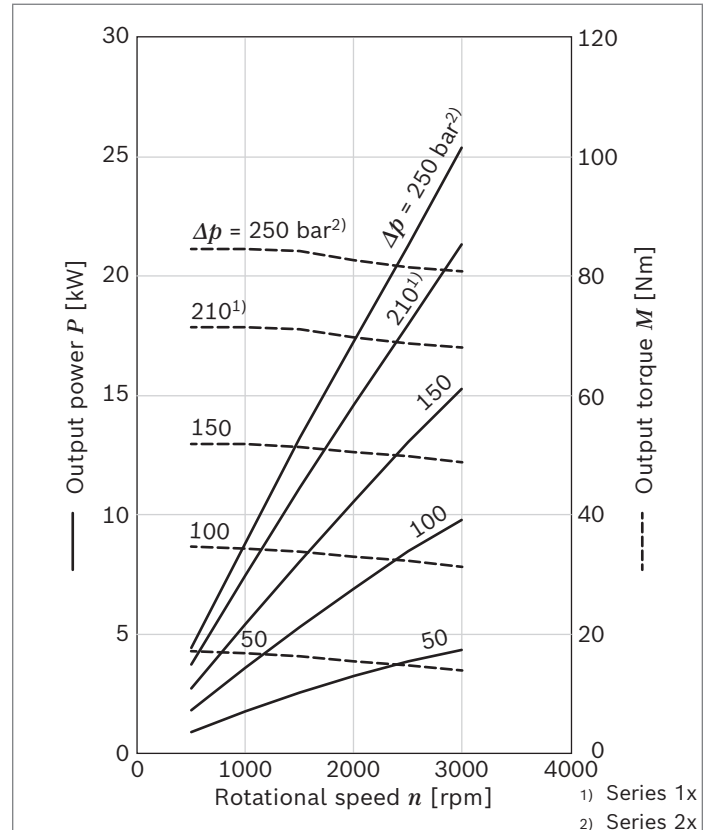
▼ **Size 16**



▼ **Size 19**

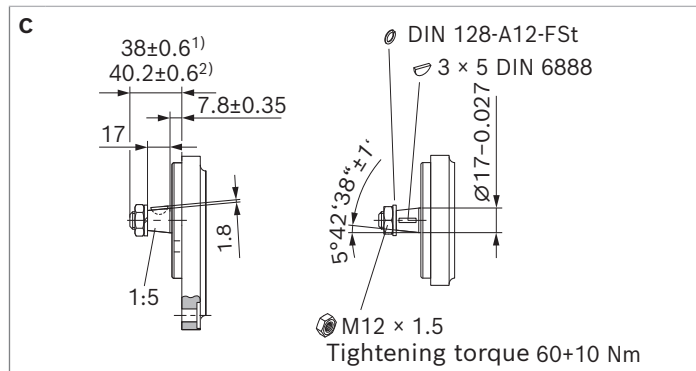
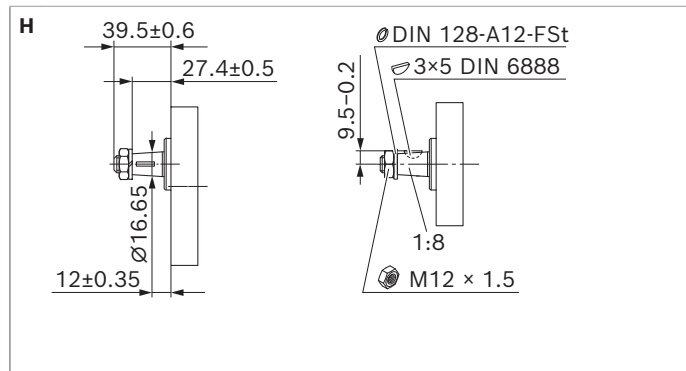
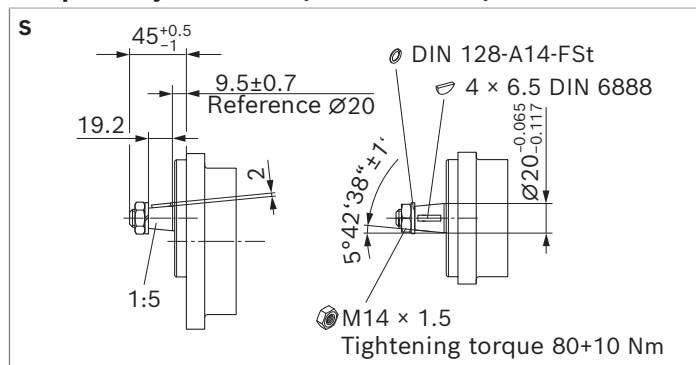
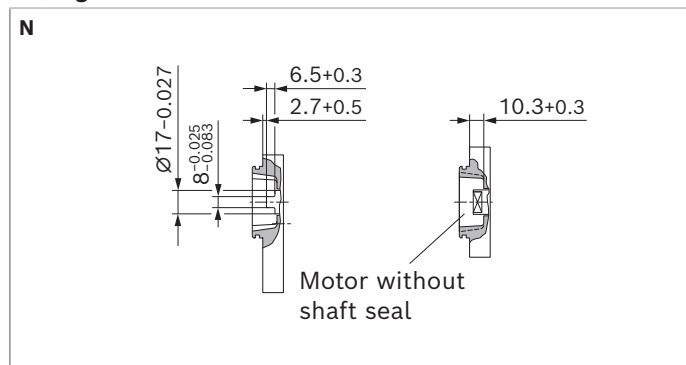
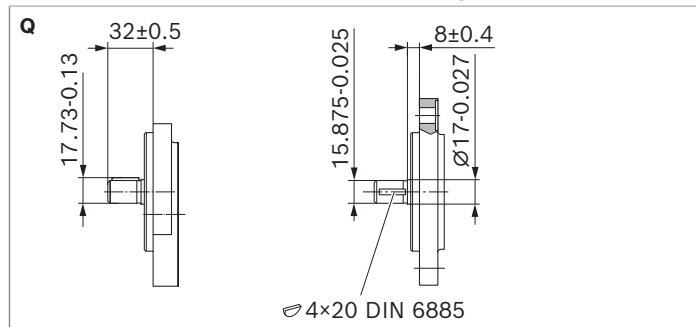
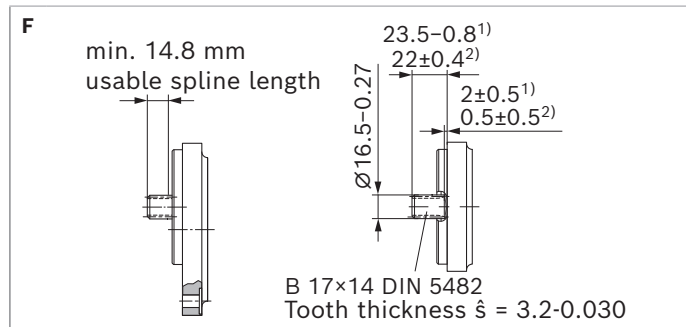
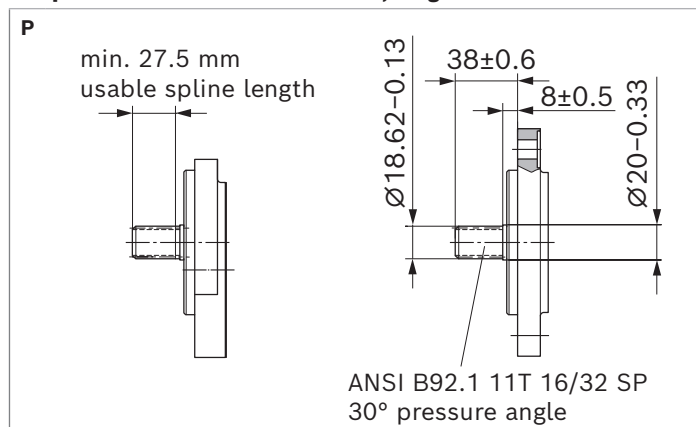
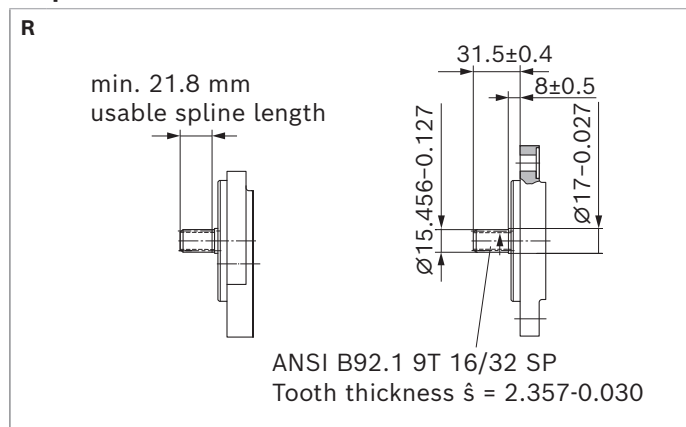


▼ **Size 22**



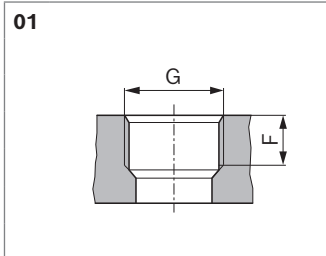
Notice

Characteristic curves measured at $v = 32 \text{ mm}^2/\text{s}$ and $t = 50 \text{ }^\circ\text{C}$.

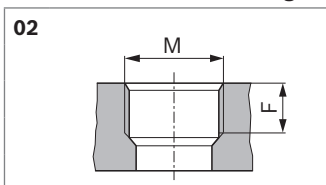
Drive shafts▼ **Tapered keyed shaft 1 : 5**▼ **Tapered keyed shaft 1 : 8**▼ **Tapered keyed shaft 1 : 5 (for front cover A)**▼ **Tang drive**▼ **Parallel keyed shaft SAE J744 16-1, length 32 mm**▼ **Splined shaft B17x14 acc. to DIN 5482**▼ **Splined shaft SAE J744 19-4 11T, length 38 mm**▼ **Splined shaft SAE J744 16-4 9T**

1) In combination with front cover B

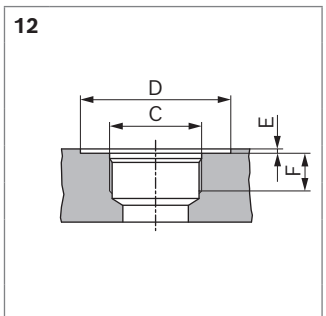
2) In combination with front cover O

Port connections¹⁾**▼ Pipe thread according to ISO 228-1²⁾**

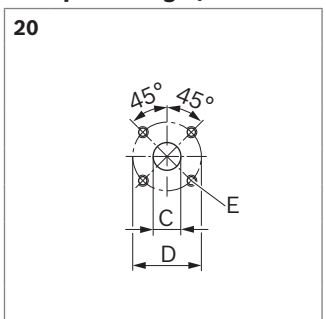
Direction of rotation	Nominal size	Series	Inlet port (pressure side)		Outlet port (tank side)	
			G	F [mm]	G	F [mm]
Clockwise/ Counter-clockwise	8 ... 16	1x	G 1/2	16	G 3/4	16
	19 ... 28	2x	G 3/4	16	G 1	19
Direction of rotation	Nominal size	Series	Port connections			
			G	F [mm]		
Bi-directional	8 ... 28	1x, 2x	G 1/2	18		

▼ Metric thread according to ISO 9974-1²⁾

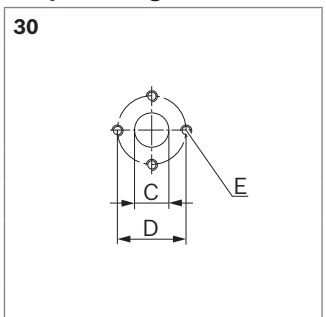
Direction of rotation	Nominal size	Series	Inlet port (pressure side)		Outlet port (tank side)	
			M	F [mm]	G	F [mm]
Clockwise/ Counter-clockwise	8 ... 16	1x	M18 × 1.5	14	M26 × 1.5	18
	11 ... 16	1x	M22 × 1.5	14	M26 × 1.5	16
	19 ... 25	2x	M22 × 1.5	14	M33 × 2	18

▼ UN-thread acc. to ISO 11926-1/ASME B 1.1, O-ring²⁾

Direction of rotation	Nominal size	Series	Inlet port (pressure side)				Outlet port (tank side)			
			C	D	E	F	C	D	E	F
Clockwise/ Counter-clockwise	8 ... 14	1x	7/8-14 UN-2B	35	0.5	17	1 1/16-12 UN-2B	45	0.5	19
	16 ... 28	1x, 2x	7/8-14 UN-2B	35	0.5	17	1 5/16-12 UN-2B	50	0.5	20
Direction of rotation	Nominal size	Series	Port connections							
			C	D	E	F				
Bi-directional	8 ... 28	1x, 2x	7/8-14 UN-2B	35	0.5	17				

▼ Square flange (German version)

Direction of rotation	Nominal size	Series	Inlet port (pressure side)			Outlet port (tank side)		
			C	D	E	C	D	E
Clockwise/ Counter-clockwise	8 ... 22	1x	15	35	M6; 13 mm deep	20	40	M6; 13 mm deep
	19 ... 28	2x	15	35	M6; 13 mm deep	26	55	M8; 13 mm deep
Direction of rotation	Nominal size	Series	Port connections					
			C	D	E			
Bi-directional	8 ... 28	1x, 2x	15	35	M6; 13 mm deep			

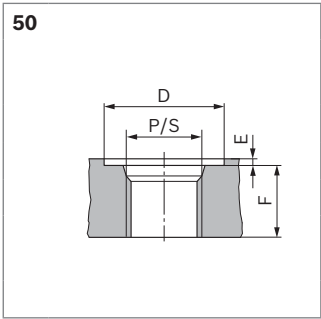
▼ Square flange (Italian version)

Direction of rotation	Nominal size	Series	Inlet port (pressure side)			Outlet port (tank side)		
			C	D	E	C	D	E
Clockwise/ Counter-clockwise	8	1x	13.5	30.2	M6; 13 mm deep	13.5	30.2	M6; 13 mm deep
	11 ... 28	1x, 2x	13.5	30.2	M6; 13 mm deep	20	39.7	M8; 13 mm deep
Direction of rotation	Nominal size	Series	Port connections					
			C	D	E			
Bi-directional	8 ... 28	1x, 2x	13.5	30.2	M6; 13 mm deep			

1) Customer-specific versions may differ (see offer drawing)

2) Limited service life with threaded ports (applicable for applications with $p_2 > 210$ bar)

▼ **Metric thread according to ISO 6149, O-ring²⁾**

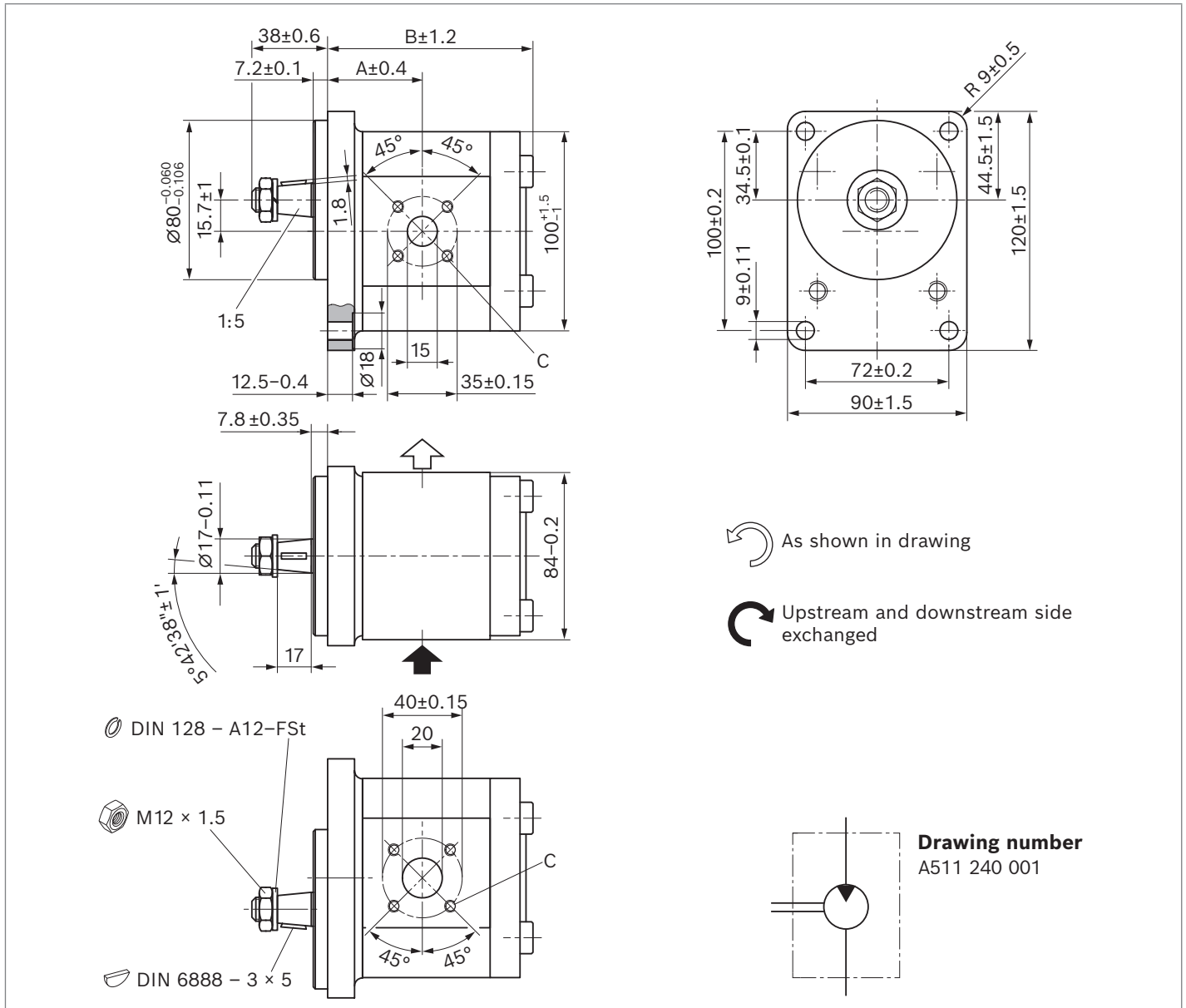


Direction of rotation	Nominal size	Series	Inlet port (pressure side)				Outlet port (tank side)			
			S	D [mm]	E [mm]	F [mm]	P	D [mm]	E [mm]	F [mm]
Clockwise/ Counter-clockwise	8 ... 16	1x	M22 × 1.5	34	0.5	18	M27 × 2	40	0.5	19
	19 ... 28	2x	M22 × 1.5	34	0.5	18	M33 × 2	46	0.5	18
Direction of rotation	Nominal size	Series	Port connections							
			P/S	D [mm]	E [mm]	F [mm]				
Bi-directional	8 ... 28	1x, 2x	M22 × 1.5	34	0.5	19				

2) Limited service life with threaded ports (applicable for applications with $p_2 > 210$ bar)

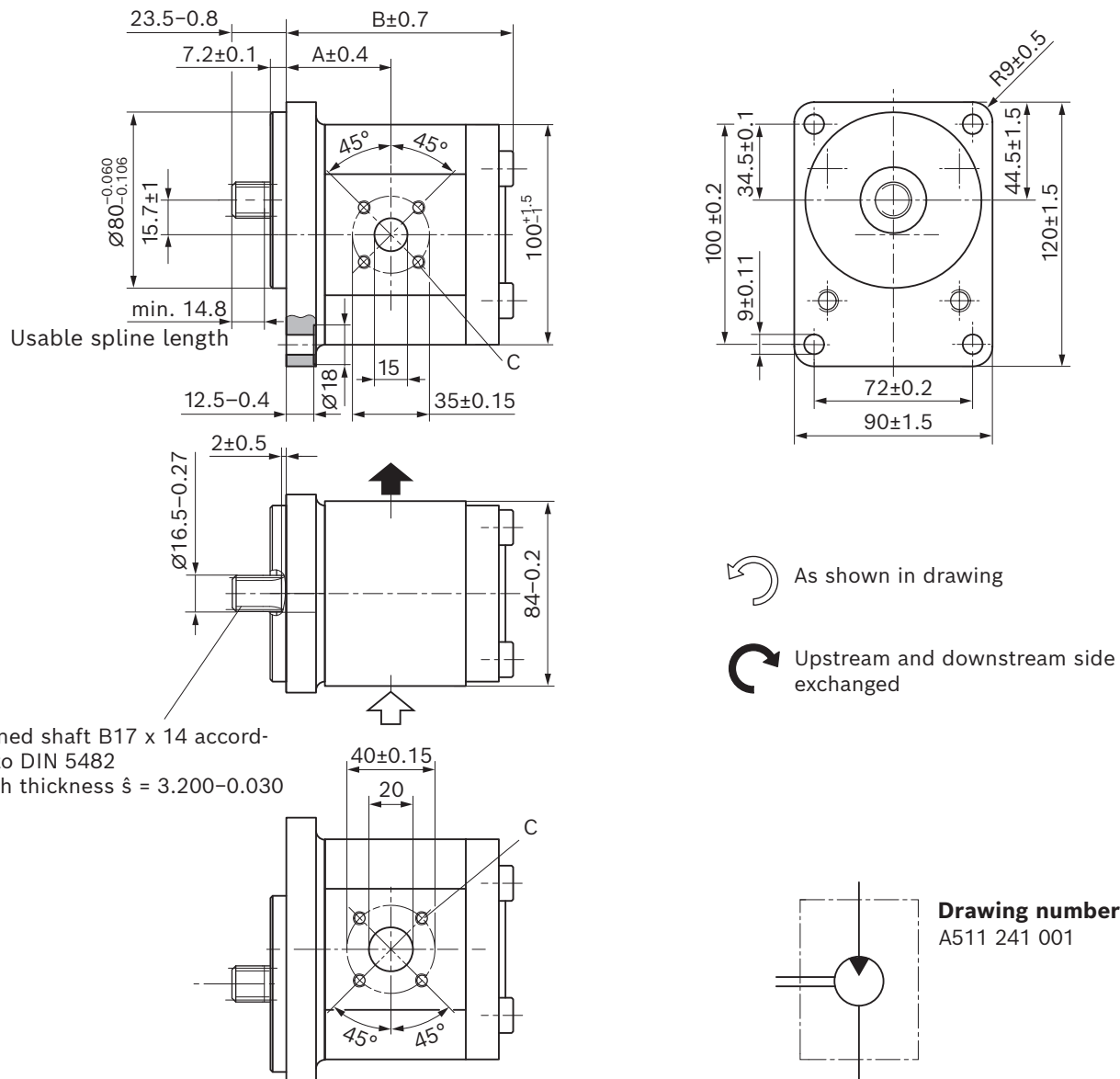
Dimensions – Preferred program

▼ Tapered keyed shaft 1:5 with rectangular flange spigot diameter 80 mm AZMF-...-xCB20MB



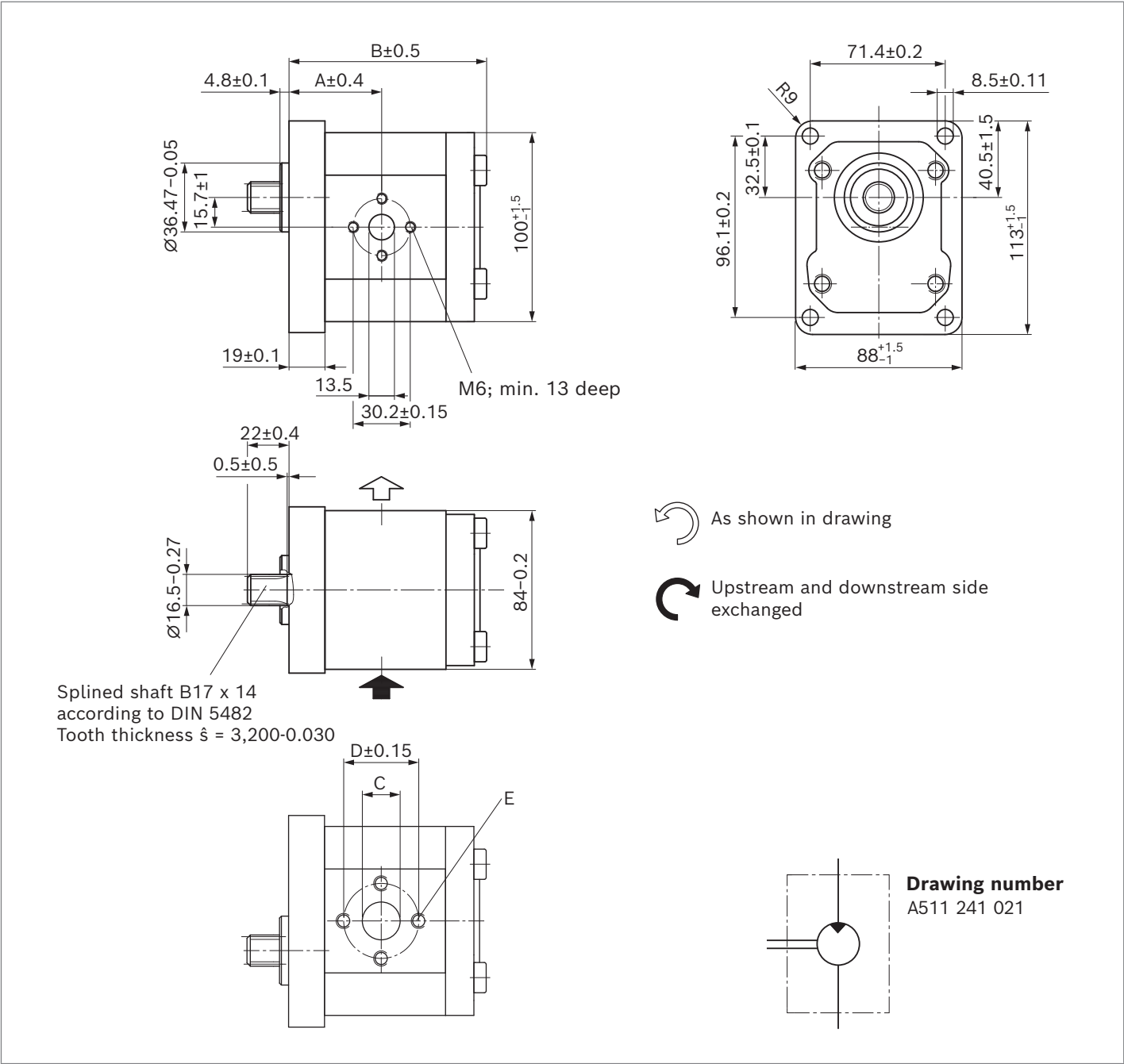
NG	Order number		Direction of rotation	Maximum intermittent pressure p_2 [bar]	Maximum rotational speed [rpm]	Dimensions		
	Counter-clockwise	Clockwise				A	B	C
8	0511425300	0511425001	210	4000	43.2	90.7	M6; min. 13 deep	
11	0511525300	0511525001	210	3500	47.0	95.9		
	0511525311		210	3500	47.0	94.1		
14	0511525304		210	3000	47.5	100.9		
16		0511625005	210	3000	47.5	104.4		
19	0511625308	0511625009	180	3000	47.5	109.4		
		0511625003	180	3000	47.5	109.4		
22	0511725304	0511725005	210	3000	61.1	125.0		

▼ **Splined shaft B17 x14 acc. to DIN 5482 with rectangular flange spigot diameter 80 mm**
AZMF-...-x FB20MB



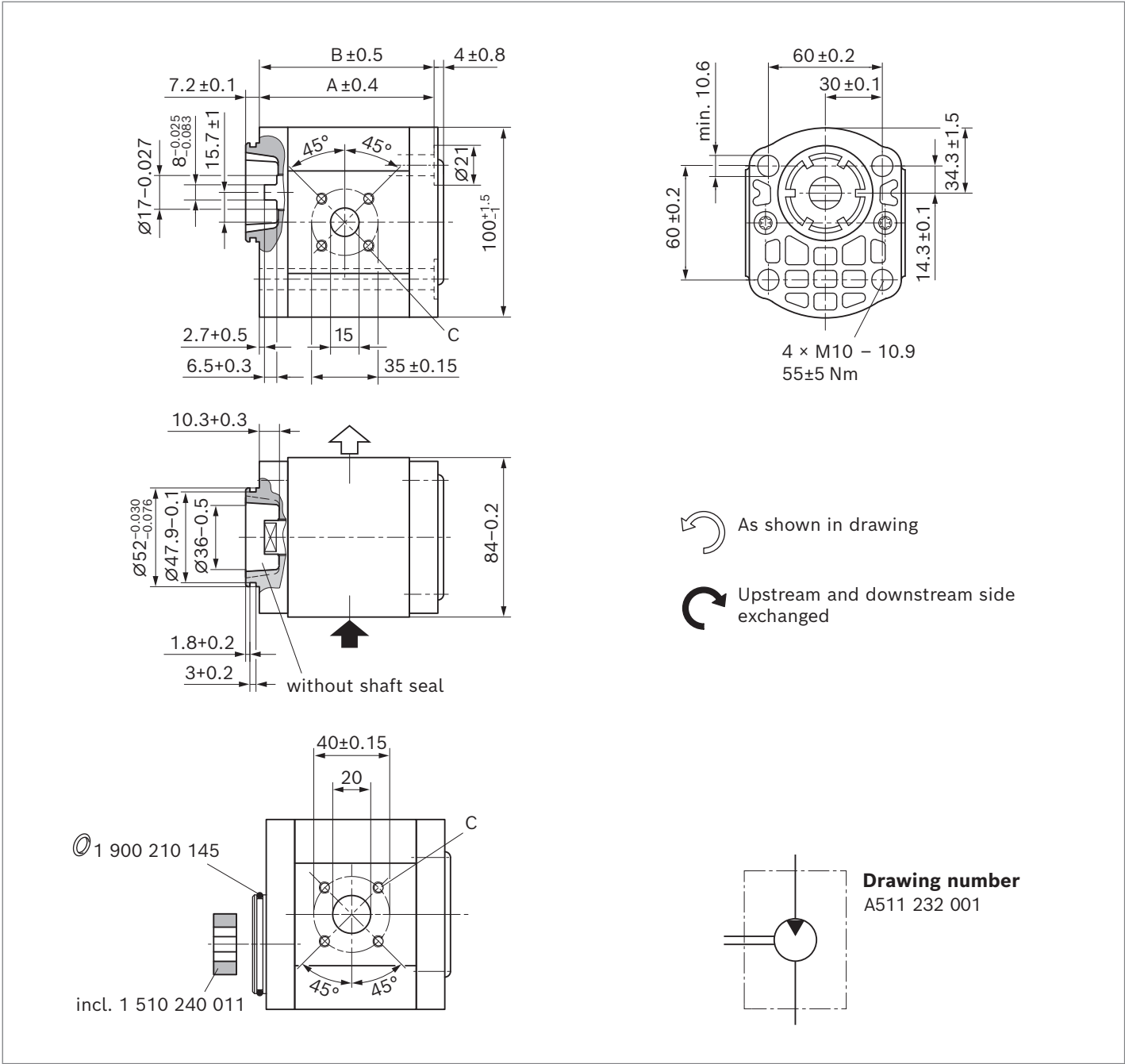
NG	Order number		Maximum intermittent pressure p_2 [bar]	Maximum rotational speed [rpm]	Dimensions		
	Direction of rotation						
	Counter-clockwise	Clockwise			A	B	C
8	0511425301	0511425002	210	4000	43.2	91.0	M6; min. 13 deep
11	0511525301		210	3500	47.0	96.0	
16	0511625301	0511625001	210	3000	47.5	104.4	
19	0511625300	0511625002	180	3000	47.5	109.4	
22	0511725303	0511725004	180	3000	61.1	126.8	

▼ **Splined shaft B17 ×14 acc. to DIN 5482 with rectangular flange spigot diameter 36.47 mm (M8)**
AZMF-...-xFO30MB



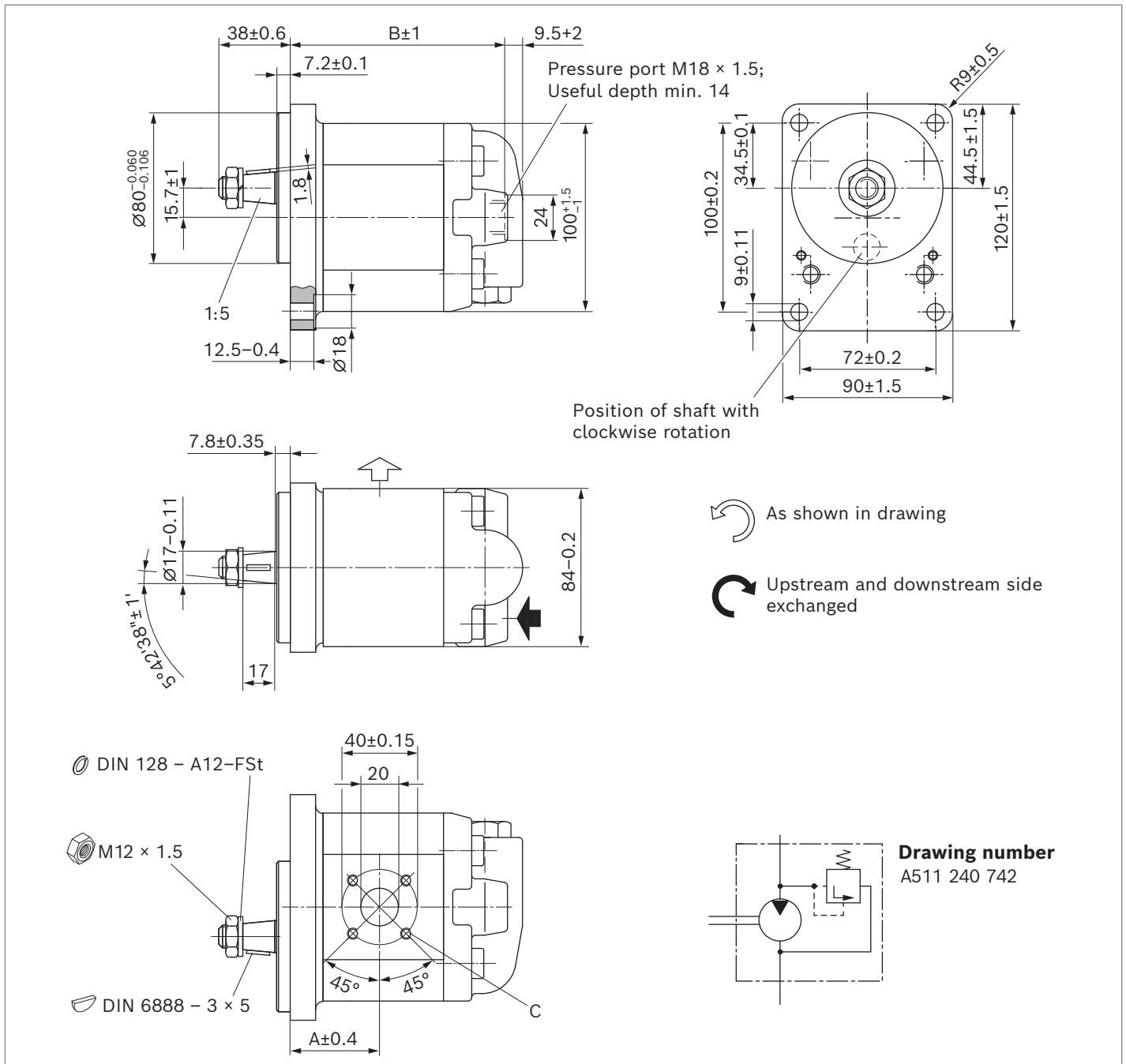
NG	Order number	Maximum intermittent pressure p_2 [bar]	Maximum rotational speed [rpm]	Dimensions				
	Direction of rotation Clockwise			A	B	C	D	E
8	0511425003	210	4000	44.9	90.7	13.5	30.2	M6; min. 13 deep

▼ Tang drive with 4-bolt mounting spigot diameter 52 mm, with O-ring
AZMF-...-xNT20MB-S0184



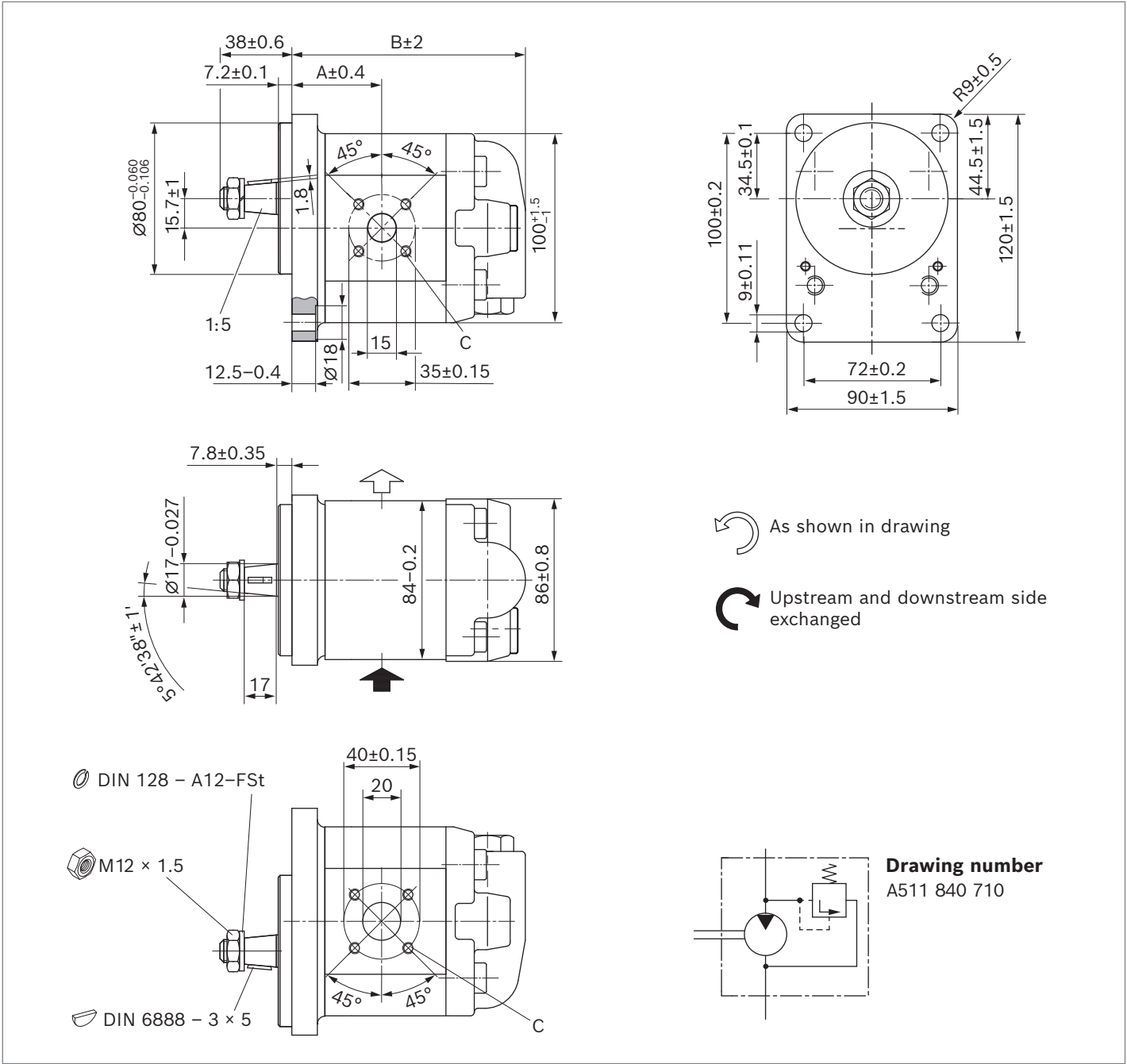
NG	Order number		Maximum intermittent pressure p_2 [bar]	Maximum rotational speed [rpm]	Dimensions		
	Direction of rotation				A	B	C
	Counter-clockwise	Clockwise					
8	0511415300	0511415001	250	4000	40.7	80.3	M6; min. 13 deep
11	0511515300	0511515001	250	3500	44.5	85.3	
16	0511615301	0511615002	220	3000	45.0	93.7	
19	0511615300	0511615001	190	3000	45.0	98.7	
22	0511715300	0511715001	160	3000	52.6	104.1	

▼ **Tapered keyed shaft 1:5 with rectangular flange spigot diameter 80 mm, pressure relief valve with internal residual flow and suction port in rear cover**
AZMF-...-xCBxxxD150XX



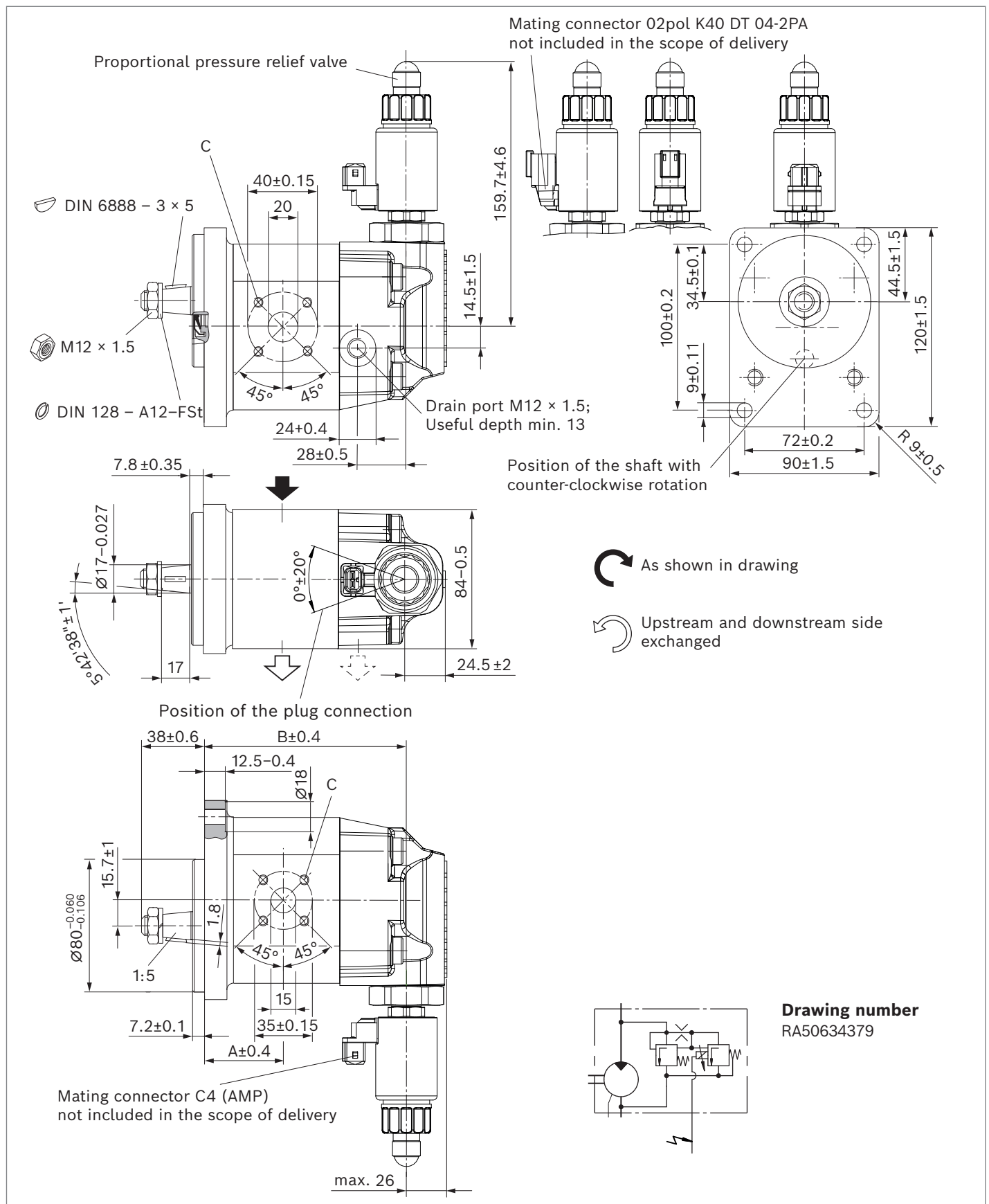
NG	Order number	Maximum intermittent pressure p_2 [bar]	Maximum rotational speed [rpm]	Dimensions		
	Direction of rotation			A	B	C
	Clockwise					
8	0511425008	150	4000	43.2	101.8	M6; min. 13 deep

▼ **Tapered keyed shaft 1:5 with rectangular flange spigot diameter 80 mm, pressure relief valve with internal residual flow**
AZMF-...-xCB20MD



NG	Order number	Maximum intermittent pressure p_2 [bar]	Maximum rotational speed [rpm]	Dimensions		
	Direction of rotation			A	B	C
	Counter-clockwise					
8	0511425304	150	3500	43.2	110.8	M6; min. 13 deep

▼ **Tapered keyed shaft 1:5 with rectangular flange spigot diameter 80 mm and proportional pressure relief valve**
AZMF-...-xCB20PG

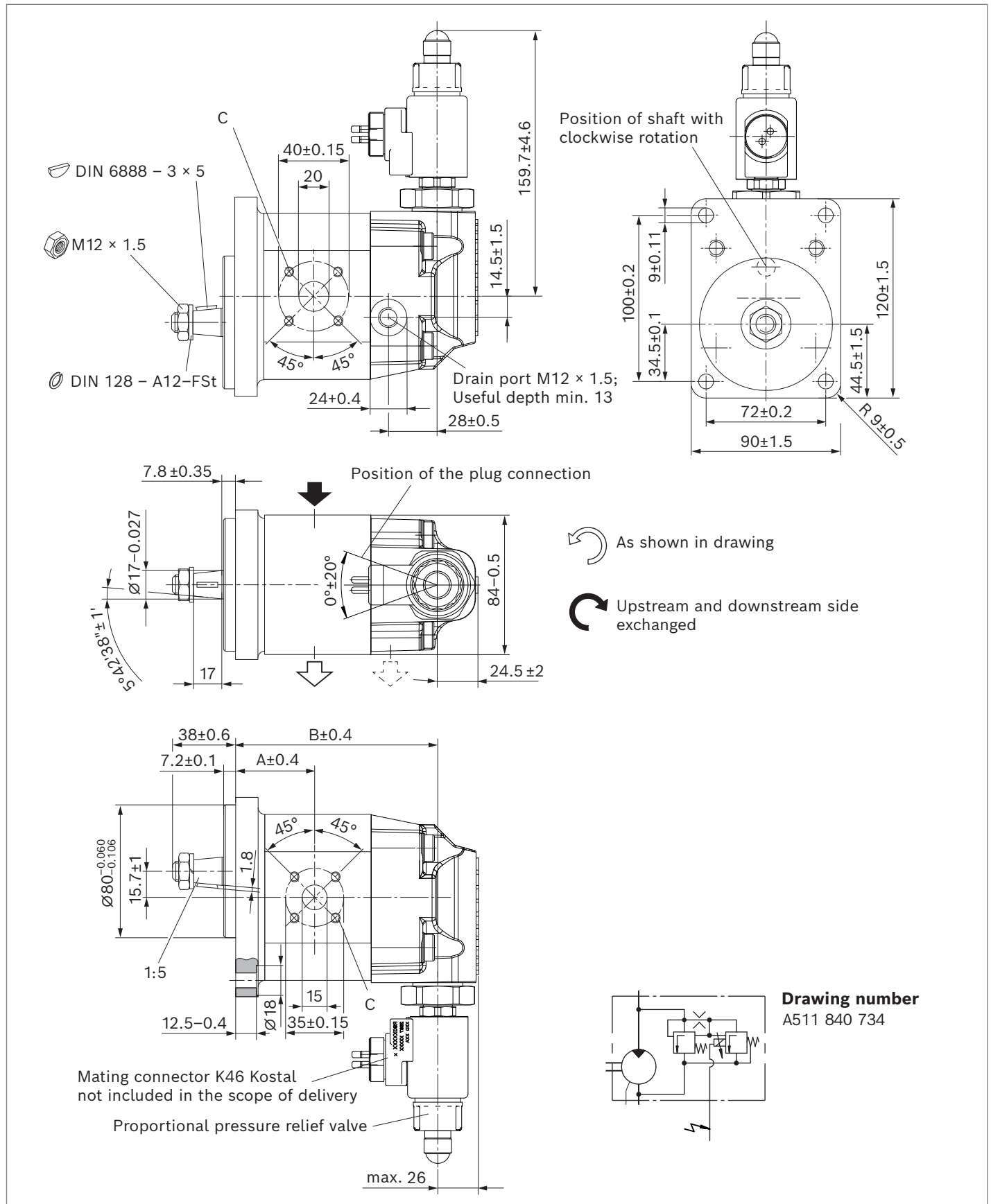


▼ **Tapered keyed shaft 1:5 with rectangular flange spigot diameter 80 mm and proportional pressure relief valve**
AZMF-...-xCB20PG

NG	Order number	Direction of rotation		Maximum pressure at the pressure relief valve [bar]	Maximum rotational speed [rpm]	Dimensions			Valve		Connector
		Counter-clockwise	Clockwise			A	B	C	Order number	Voltage [V]	
8			0511425018	185	3000	43.2	109.0	M6; min. 13 deep		24	C4 (2pol.)
			0511425017	110	3000	43.2	109.0		R901104239	24	C4 (2pol.)
11	0511525314			185	3000	42.0	114.0			24	C4 (2pol.)
			0511525025	220 ¹⁾	3000	42.0	114.0		R901122151	24	K40 (2pol.)
	0511525315		0511525024	220 ¹⁾	3000	42.0	114.0			24	C4 (2pol.)
			0511525019	130	3000	42.0	114.0			24	C4 (2pol.)
14			0511525020	220 ¹⁾	3000	42.0	119.0			24	C4 (2pol.)
			0511525015	220 ¹⁾	3000	42.0	119.0		R901036386	12	C4 (2pol.)
			0511525016	185	3000	42.0	119.0		R901036387	12	C4 (2pol.)
			0511525017	155	3000	42.0	119.0		R901070407	12	C4 (2pol.)
			0511525026	110	3000	42.0	119.0		R901070756	12	K40 (2pol.)
16	0511625315			155	3000	42.0	122.4			12	C4 (2pol.)
			0511625034	110	3000	42.0	122.4		R901070756	12	K40 (2pol.)
			0511625033	250	3000	42.0	122.4		R901250625	24	K40 (2pol.)
	0511625317		0511625029	220 ¹⁾	3000	42.0	122.4		R901070736	12	K40 (2pol.)
	0511625313			220 ¹⁾	3000	42.0	122.4		R901036386	12	C4 (2pol.)
			0511625030	220 ¹⁾	3000	42.0	122.4			24	C4 (2pol.)
			0511625024	220 ¹⁾	3000	42.0	122.4		R901036386	12	C4 (2pol.)
19	0511625311			185	3000	47.5	127.4			24	C4 (2pol.)
	0511625312			220 ¹⁾	3000	47.5	127.4		R901122151	24	K40 (2pol.)
			0511625026	220 ¹⁾	3000	47.5	127.4		R901070736	12	K40 (2pol.)
			0511625027	220 ¹⁾	3000	47.5	127.4			24	C4 (2pol.)
			0511625023	150 ¹⁾	3000	47.5	127.4			12	C4 (2pol.)
22			0511725029	220 ¹⁾	3000	55.1	132.8			24	C4 (2pol.)
			0511725031	220 ¹⁾	3000	55.1	132.8		R901070736	12	K40 (2pol.)
			0511725035	220 ¹⁾	3000	55.1	132.8		R901236512	24	C4 (2pol.)
			0511725028	220 ¹⁾	3000	55.1	132.8		R901036386	12	C4 (2pol.)

1) Short-term

- ▼ **Tapered keyed shaft 1:5 with rectangular flange spigot diameter 80 mm and proportional pressure relief valve with an internal resistor of 11.5 Ω**
AZMF-13-xCB20PG-S0458

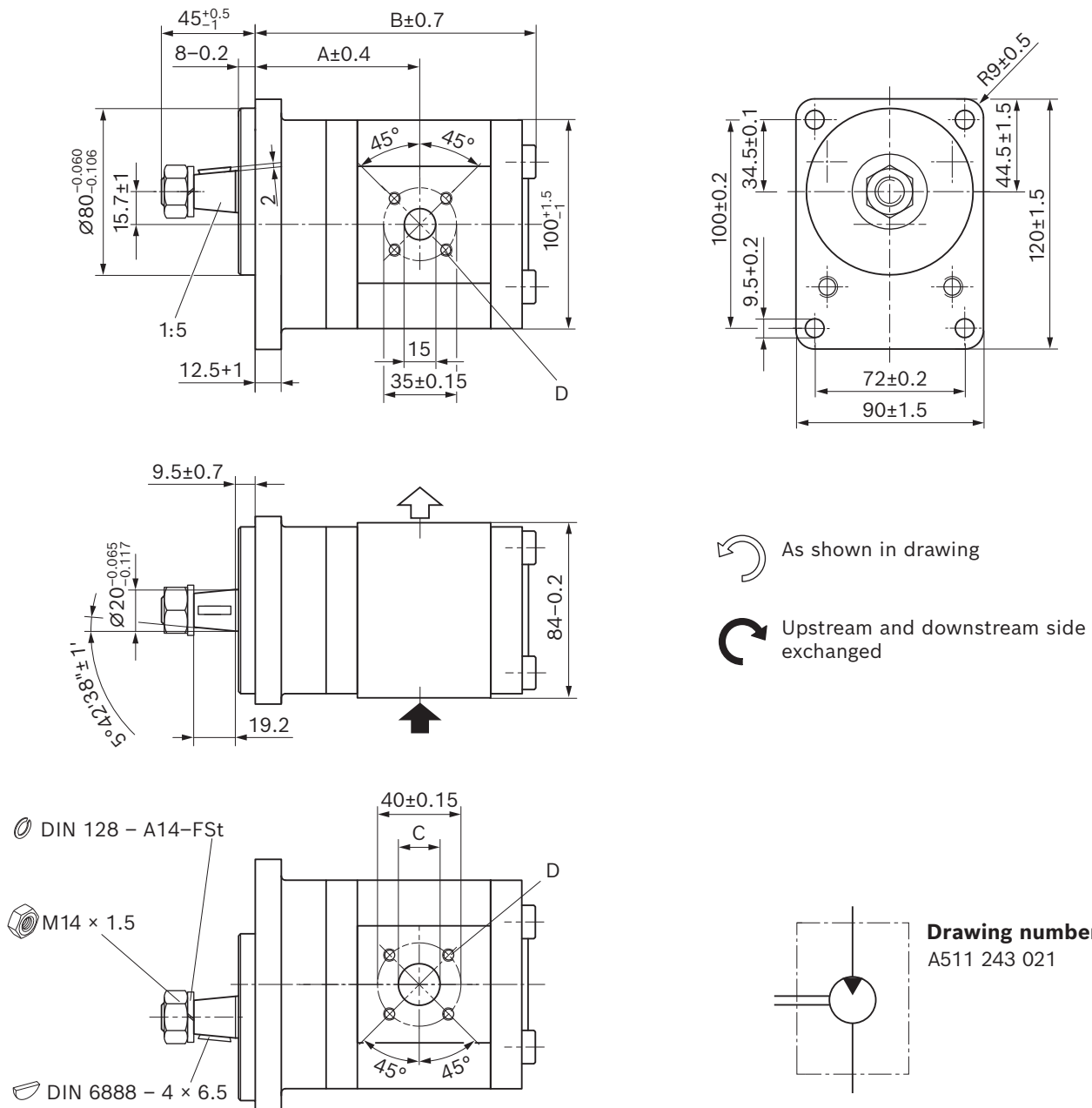


▼ **Tapered keyed shaft 1:5 with rectangular flange spigot diameter 80 mm and proportional pressure relief valve with an internal resistor of 11.5 Ω**
AZMF-13-xCB20PG-S0458

NG	Order number		Direction of rotation	Maximum pressure at the pressure relief valve [bar]	Maximum rotational speed [rpm]	Dimensions			Valve		Connector
	Counter-clockwise	Clockwise				A	B	C	Order number	Voltage [V]	
11	0511525313			185	3500	42.0	114.0	M6; min. 13 deep	R901101014	24	K46 (Kostal)
16	0511625316	0511625025	220 ¹⁾	3000	47.5	122.4	R901101327		24	K46 (Kostal)	
22	0511725314		220 ¹⁾	3000	55.1	132.8	R901101327		24	K46 (Kostal)	
		0511725040	220 ¹⁾	3000	55.1	132.8	R901267110		24	K46 (Kostal)	
		0511725039	220 ¹⁾	3000	55.1	132.8	R901267111		12	K46 (Kostal)	

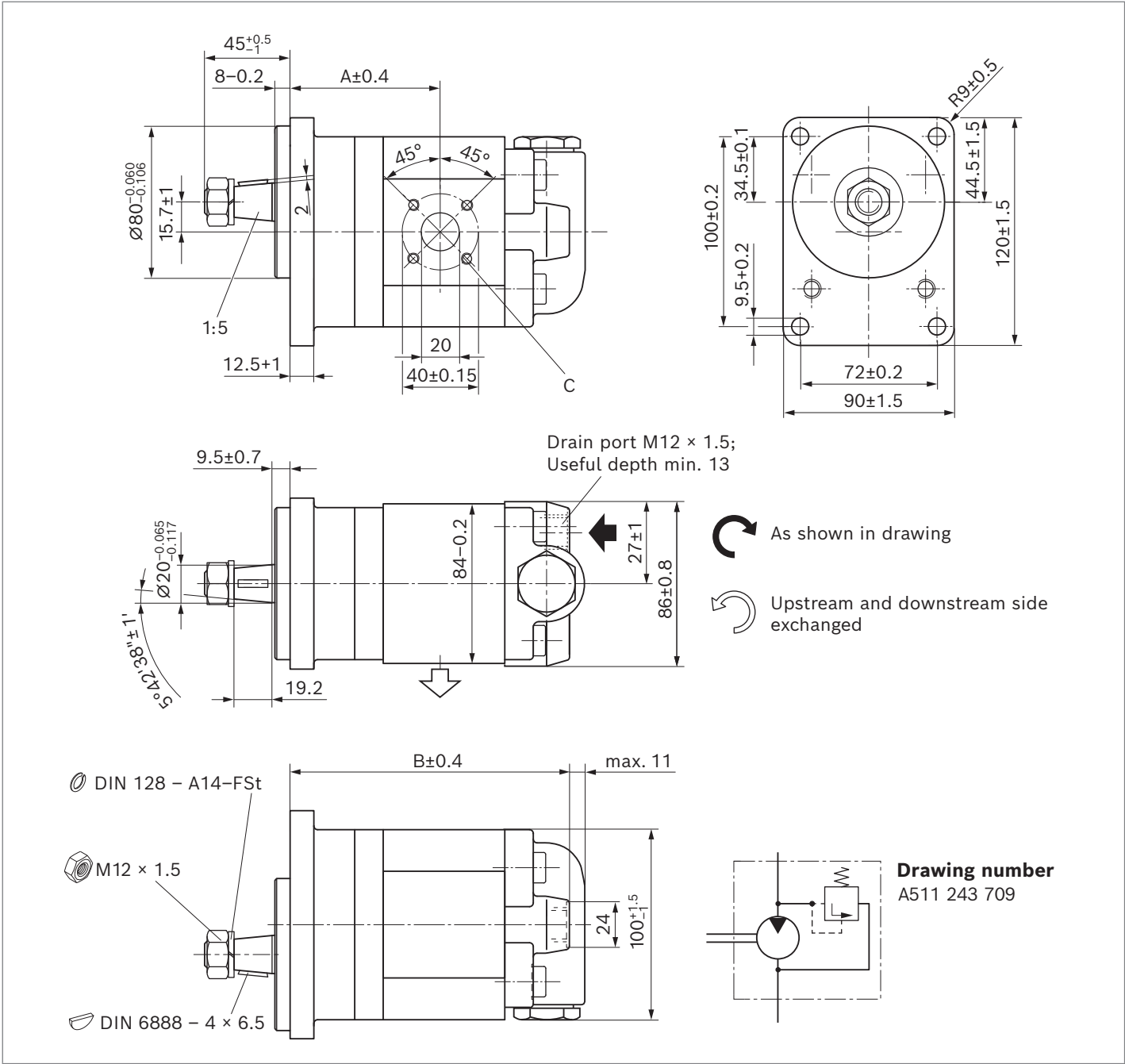
1) Short-term

▼ **Tapered keyed shaft 1:5 with outrigger bearing spigot diameter 80 mm (type 1)**
AZMF-...-xSA20MB



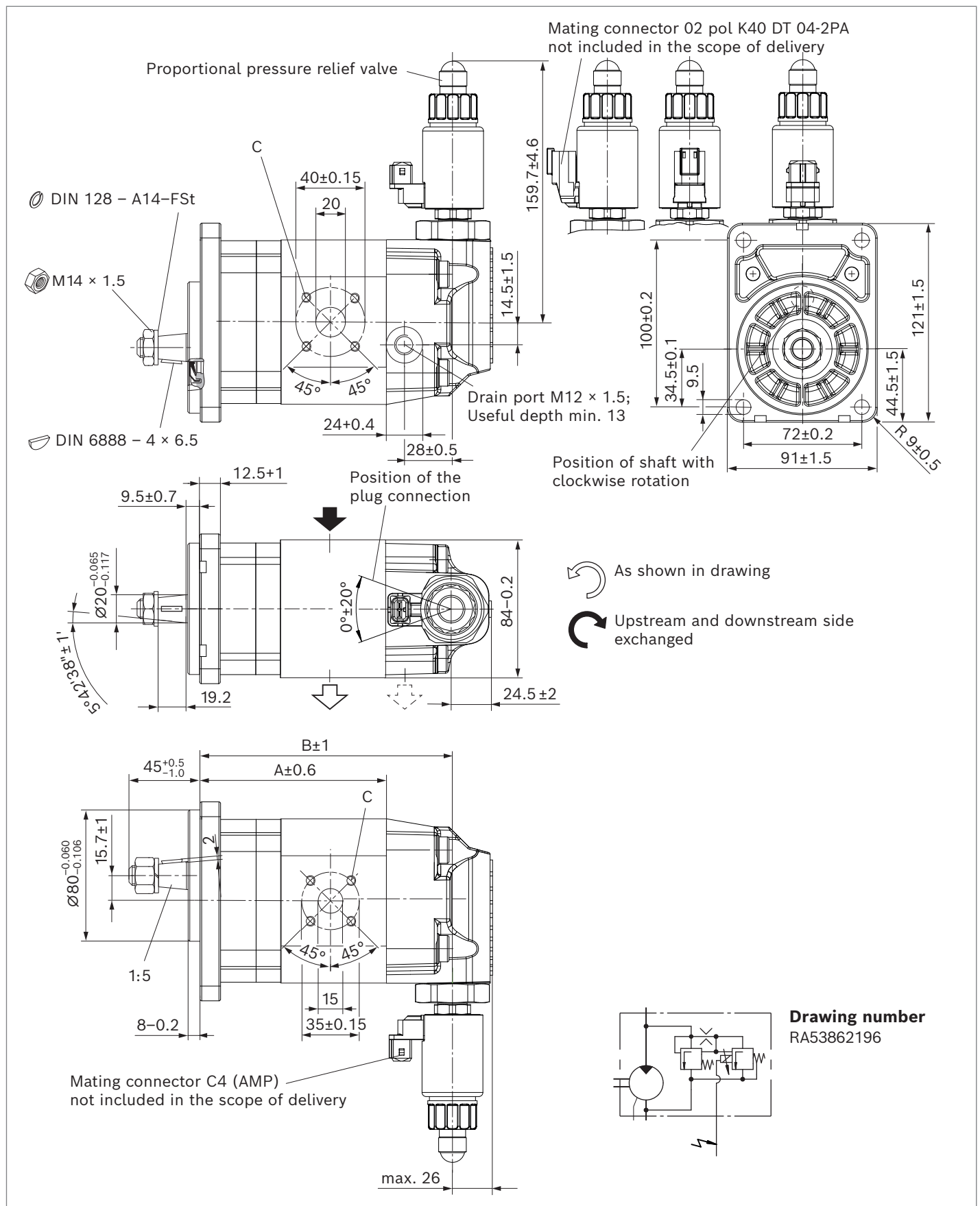
NG	Order number		Maximum intermittent pressure p_2 [bar]	Maximum rotational speed [rpm]	Dimensions			
	Direction of rotation Counter-clockwise	Clockwise			A	B	C	D
8	0511445300	0511445001	280	4000	74.7	120.6	20	M6; min. 13 deep
11	0511545300	0511545001	280	3500	78.5	125.6	20	
16	0511645300	0511645001	230	3000	79.0	134.0	20	
19	0511645302		210	3000	79.0	139.0	20	
22	0511745300	0511745001	190	2500	92.6	156.4	20	

▼ **Tapered keyed shaft 1:5 with outrigger bearing spigot diameter 80 mm (type 1) and port in rear cover “D”**
AZMF-...-xSA20MDx-S0076



NG	Order number		Maximum intermittent pressure p_2 [bar]	Maximum rotational speed [rpm]	Dimensions		
	Direction of rotation				A	B	C
	Counter-clockwise	Clockwise					
8		0511445003	200	4000	74.7	133.1	M6; min. 13 deep
11	0511545302	0511545003	150	3500	79.1	138.1	

▼ **Tapered keyed shaft 1:5 with outrigger bearing spigot diameter 80 mm (type 1) and proportional pressure relief valve**
AZMF-...-xSA20PGx

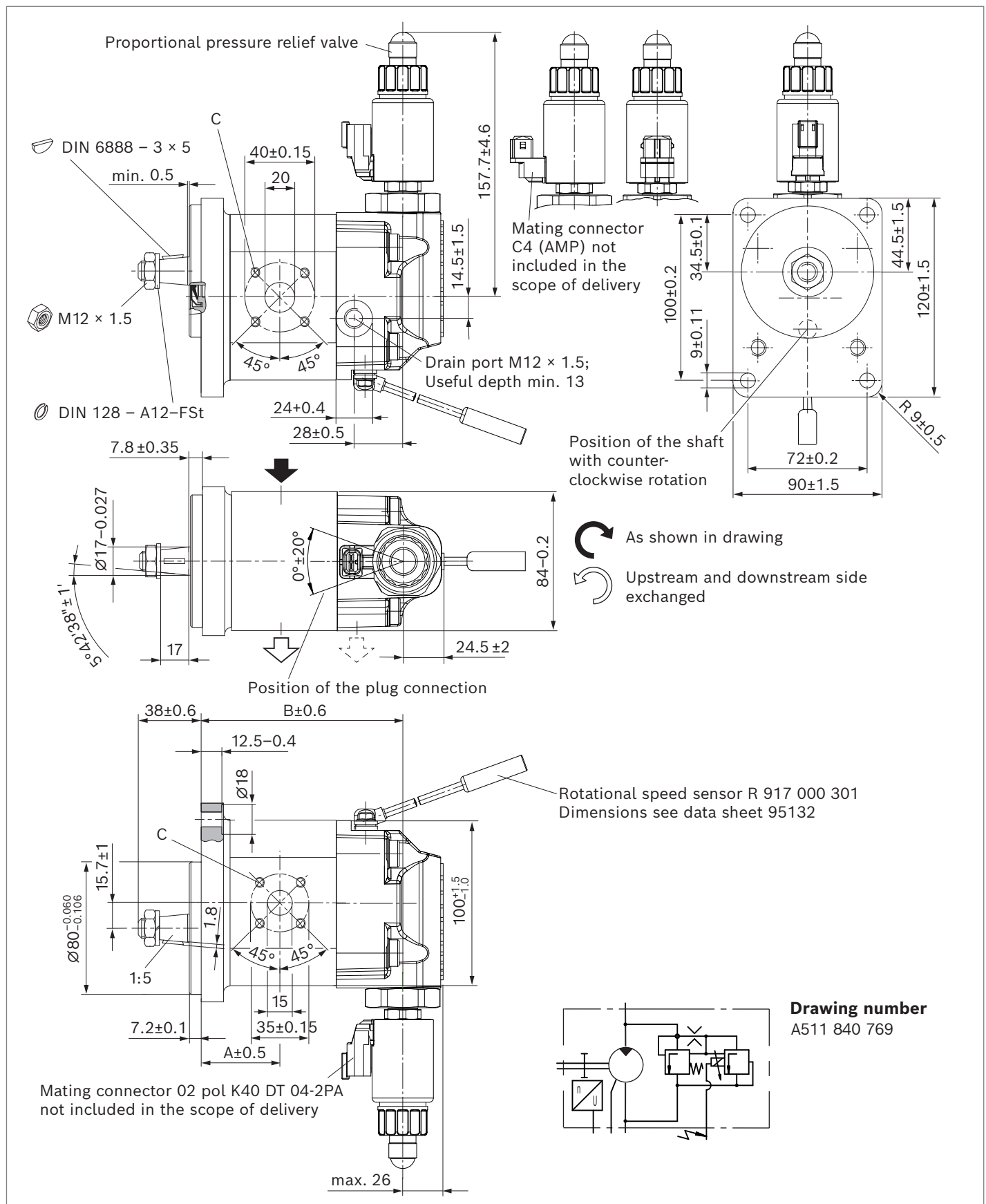


▼ **Tapered keyed shaft 1:5 for front cover A with outrigger bearing spigot diameter 80 mm (type 1) and proportional pressure relief valve**
AZMF-...-xSA20PGx

NG	Order number		Maximum pressure at the pressure relief valve [bar]	Maximum rotational speed [rpm]	Dimensions			Valve		Connector
	Counter-clockwise	Clockwise			A	B	C	Order number	Voltage [V]	
8	0511445303		170	3000	74.7	140.5	M6; min. 13 deep	R901265439	12	K40 (2pol.)
	0511445304		220	3000	74.7	140.5		R901070717	24	K40 (2pol.)
16		0511645018	220	3000	78.9	153.8		R901036405	24	C4 (2pol.)
		0511645013	220	3000	78.9	153.8		R901036386	12	C4 (2pol.)
		0511645014	185	3000	78.9	153.8		R901036387	12	C4 (2pol.)
		0511645015	155	3000	78.9	153.8		R901036407	12	C4 (2pol.)
		0511645016	130	3000	78.9	153.8		R901036402	12	C4 (2pol.)
19	0511645311		220 ¹⁾	3000	78.9	158.8		R901070717	24	K40 (2pol.)

1) Short-term

▼ **Tapered keyed shaft 1:5 with rectangular flange spigot diameter 80 mm and proportional pressure relief valve KBVS.3**
AZMF-13-xCB20PX-S0689

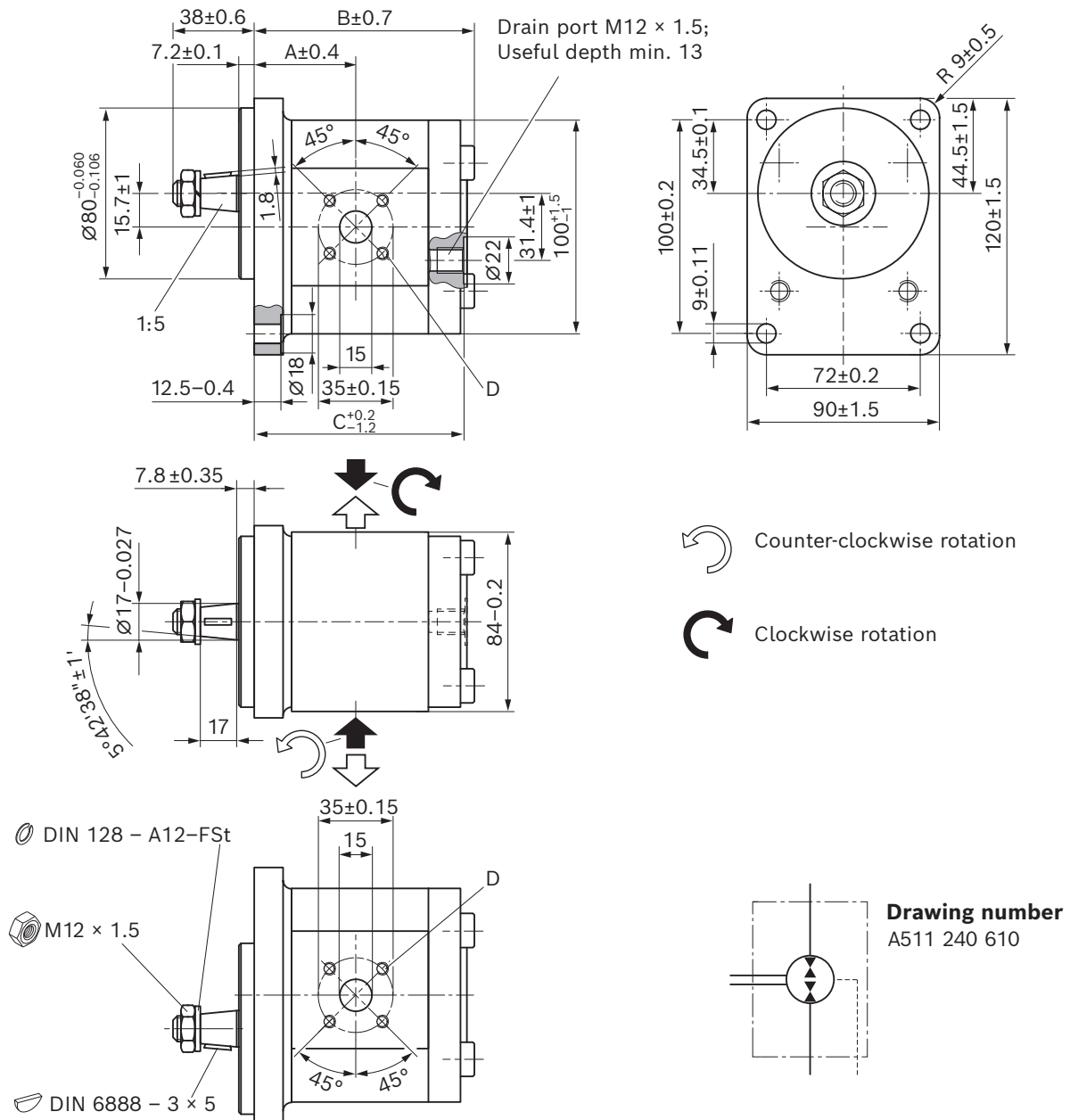


▼ **Tapered keyed shaft 1:5 with rectangular flange spigot diameter 80 mm and proportional pressure relief valve from BRI-CC**
AZMF-13-xCB20Px-S0689

NG	Order number		Maximum pressure at the pressure relief valve [bar]	Maximum rotational speed [rpm]	Dimensions			Valve		Connector
	Counter-clockwise	Clockwise			A	B	C	Order number	Voltage [V]	
16	0511625318		185	3000	47.5	122.4	M6; min. 13 deep	R901036387	12	C4 (2pol.)
19		0511625028	220	3000	47.5	127.4		R901036386	12	C4 (2pol.)
22		0511725032	220 ¹⁾	2500	55.1	132.8		R901036386	12	C4 (2pol.)

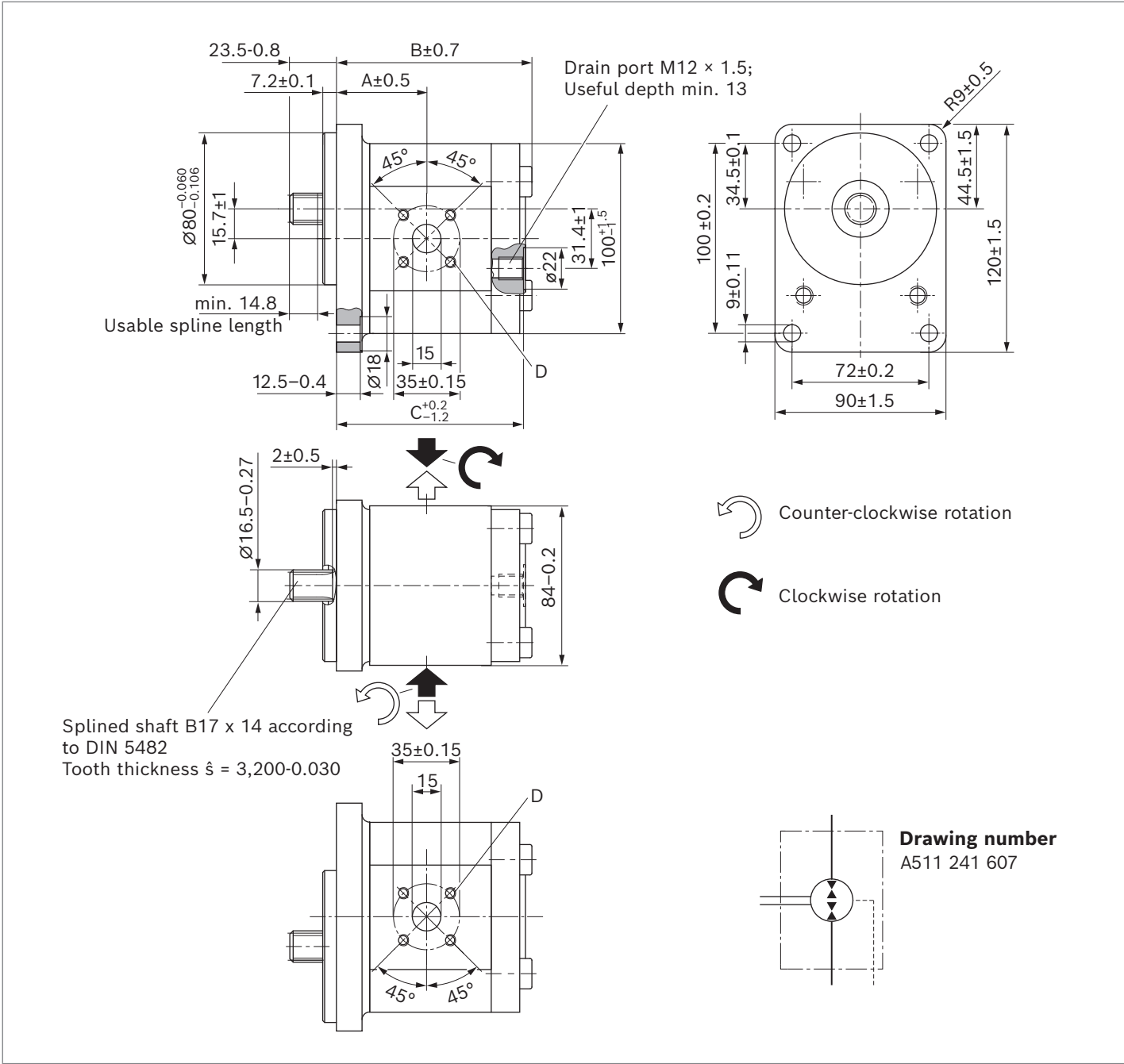
1) Short-term

▼ **Tapered keyed shaft 1:5 with rectangular flange spigot diameter 80 mm and axial drain port**
AZMF-...-xUCB20ML



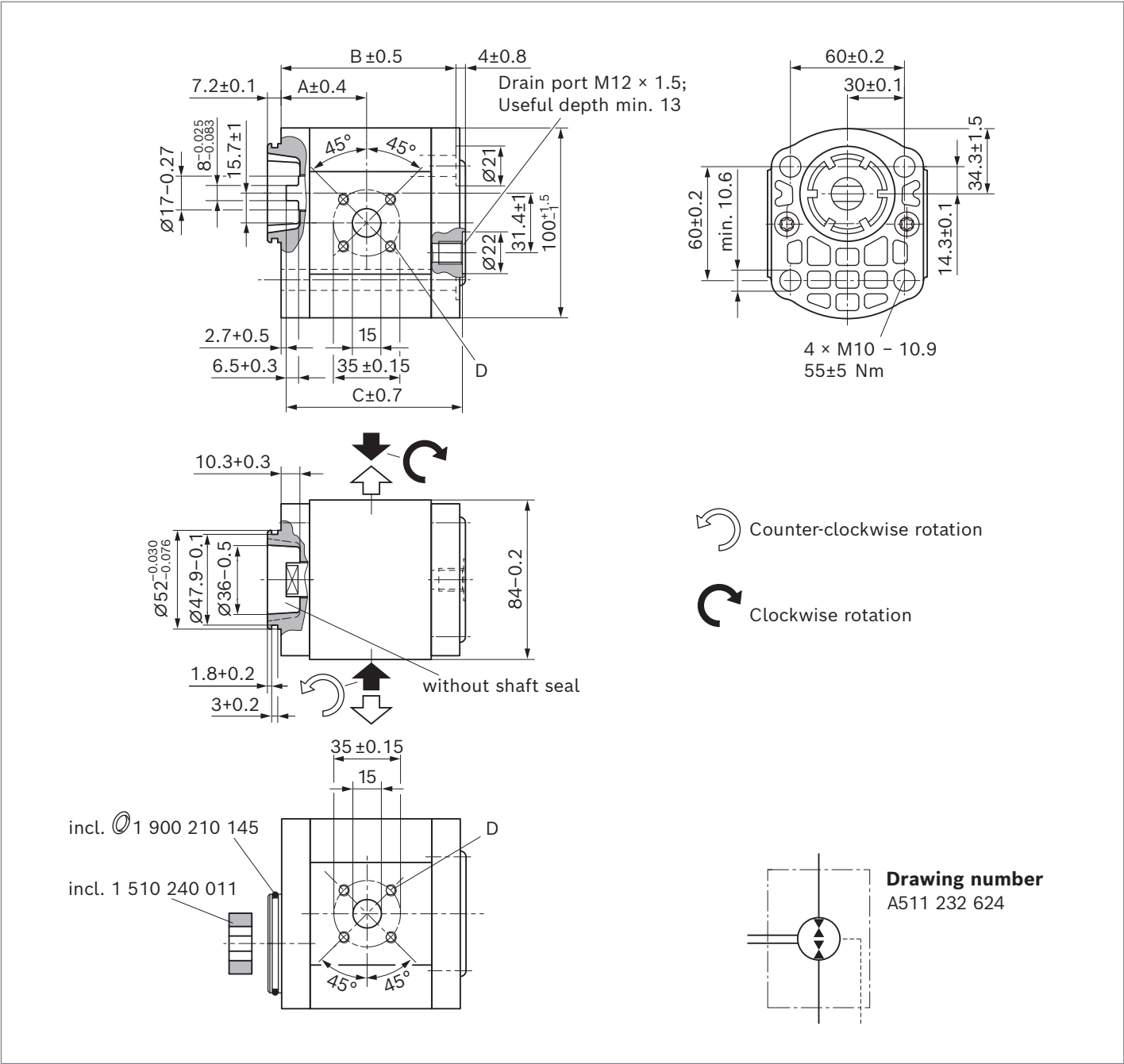
NG	Order number	Maximum intermittent pressure p_2 [bar]	Maximum rotational speed [rpm]	Dimensions			
	Direction of rotation Bi-directional			A	B	C	D
8	0511425601	250	4000	43.2	89.5	85.8	M6;min. 13 deep
11	0511525604	250	3500	47.0	95.9	90.8	
16	0511625602	250	3000	47.5	104.3	99.2	

▼ **Splined shaft B17x14 acc. to DIN 5482 with rectangular flange spigot diameter 80 mm and axial drain port**
AZMF-...-xUFB20ML



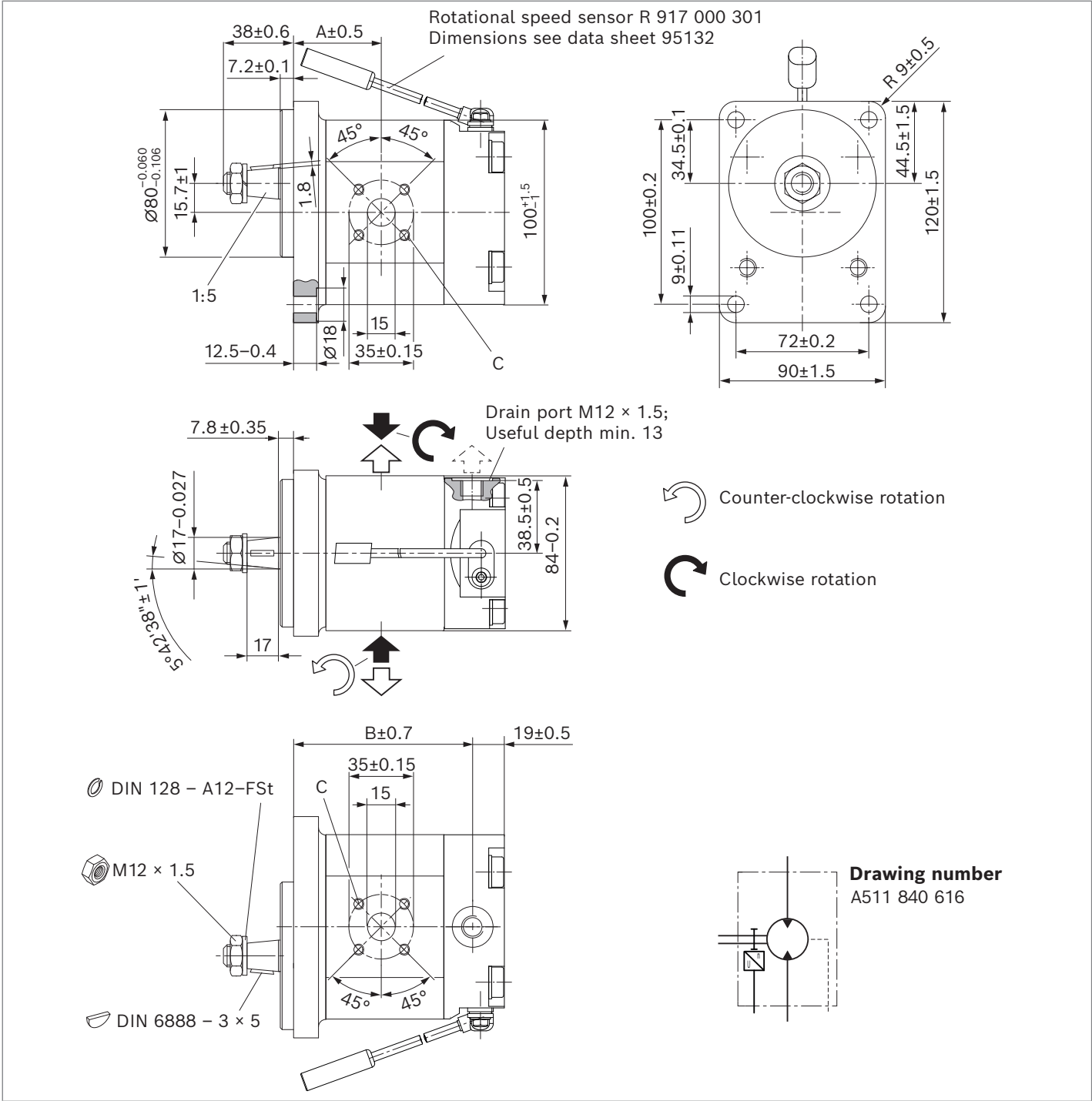
NG	Order number	Maximum intermittent pressure p_2 [bar]	Maximum rotational speed [rpm]	Dimensions			
	Direction of rotation			A	B	C	D
	Bi-directional						
8	0511425603	250	4000	43.2	91.0	85.8	M6; min. 13 deep
11	0511525601	250	3500	47.0	96.0	90.8	
16	0511625603	250	3000	47.5	104.4	99.2	
19	0511625605	210	3000	47.5	109.4	104.2	
22	0511725602	180	2500	55.1	114.8	109.6	

▼ **Tang drive with 4-bolt mounting spigot diameter 52 mm, with O-ring and axial drain port**
AZMF-...-xUNT20ML



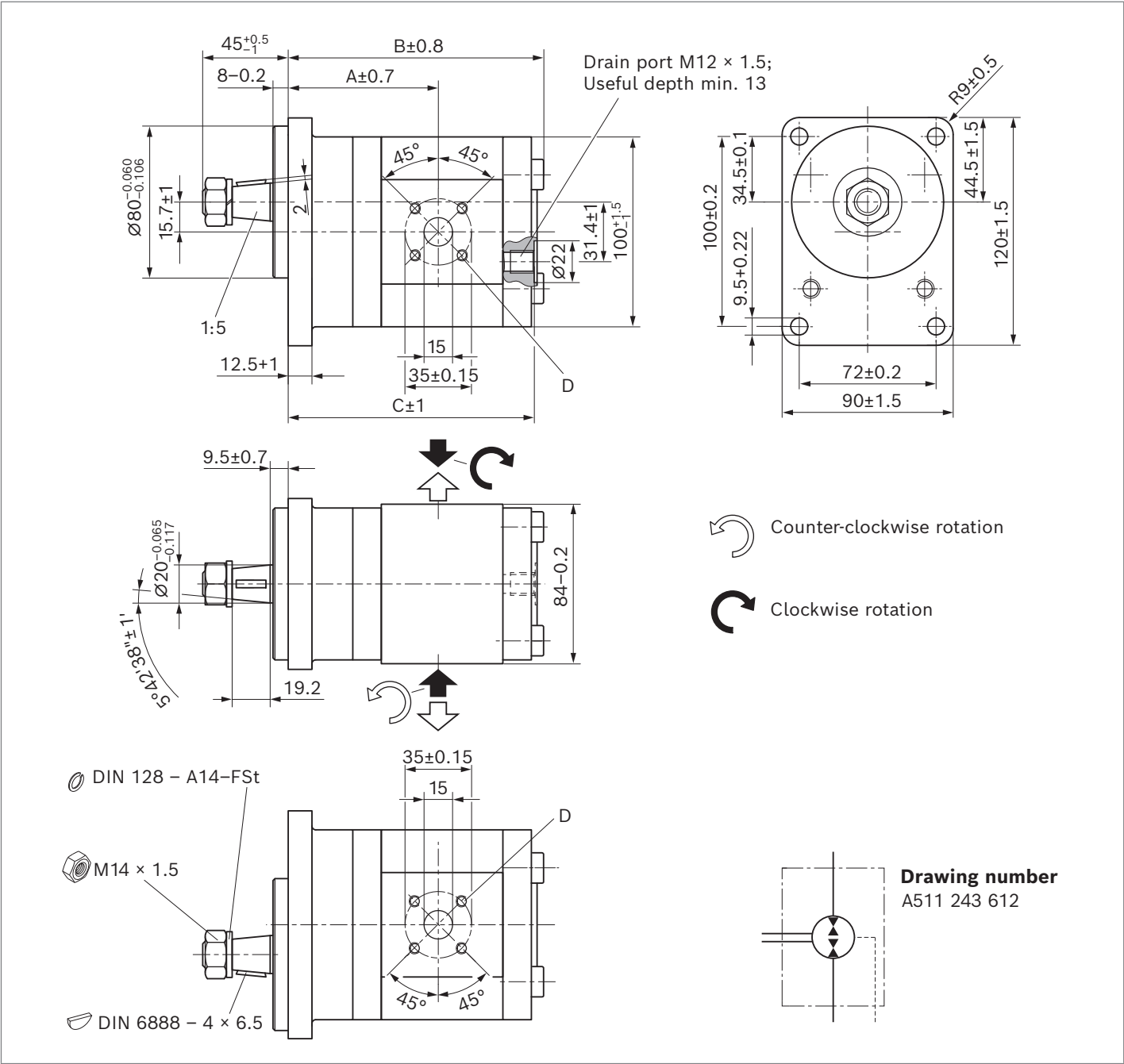
NG	Order number	Maximum intermittent pressure p_2 [bar]	Maximum rotational speed [rpm]	Dimensions			
	Direction of rotation			A	B	C	D
	Bi-directional						
8	0511415605	250	4000	40.7	80.3	82.8	M6; min. 13 deep
11	0511515602	250	3500	44.5	85.3	87.8	
16	0511615607	220	3000	45.0	93.7	96.2	
19	0511615608	190	3000	45.0	98.7	101.2	
22	0511715601	160	3000	52.6	104.1	106.6	

▼ **Tapered keyed shaft 1:5 with rectangular flange spigot diameter 80 mm and fan motor with speed sensor, pulse encoder wheel with 9 teeth**
AZMF-11-xUCB20PX-S0747



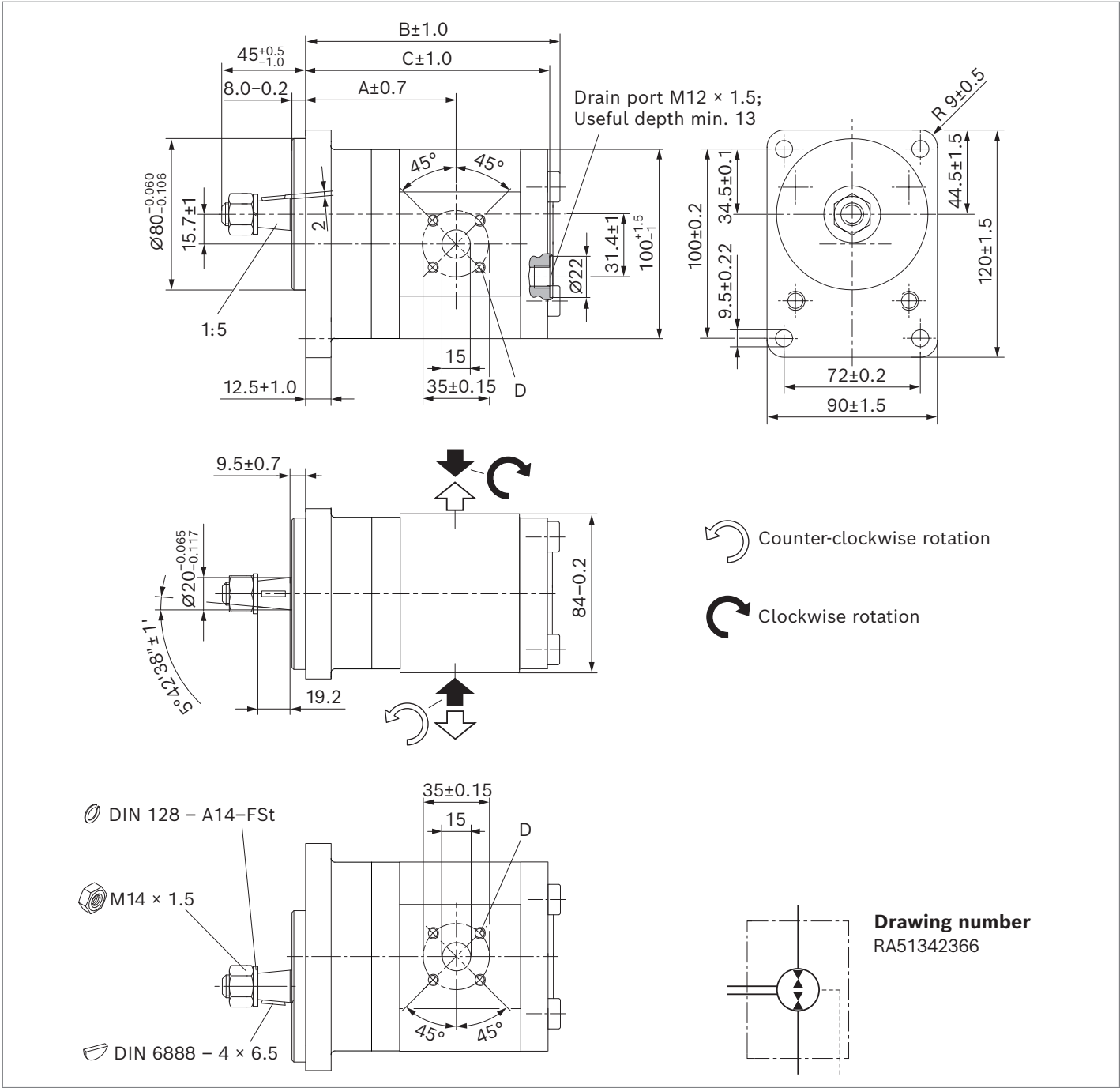
NG	Order number	Maximum intermittent pressure p_2 [bar]	Maximum rotational speed [rpm]	Dimensions		
	Direction of rotation			A	B	C
	Bi-directional					
16	0511625627	250	3000	47.5	96.2	M6; min. 13 deep

▼ **Tapered keyed shaft 1:5 for front cover A with outrigger bearing spigot diameter 80 mm (type 1) and axial drain port**
AZMF-10-xUSA20ML



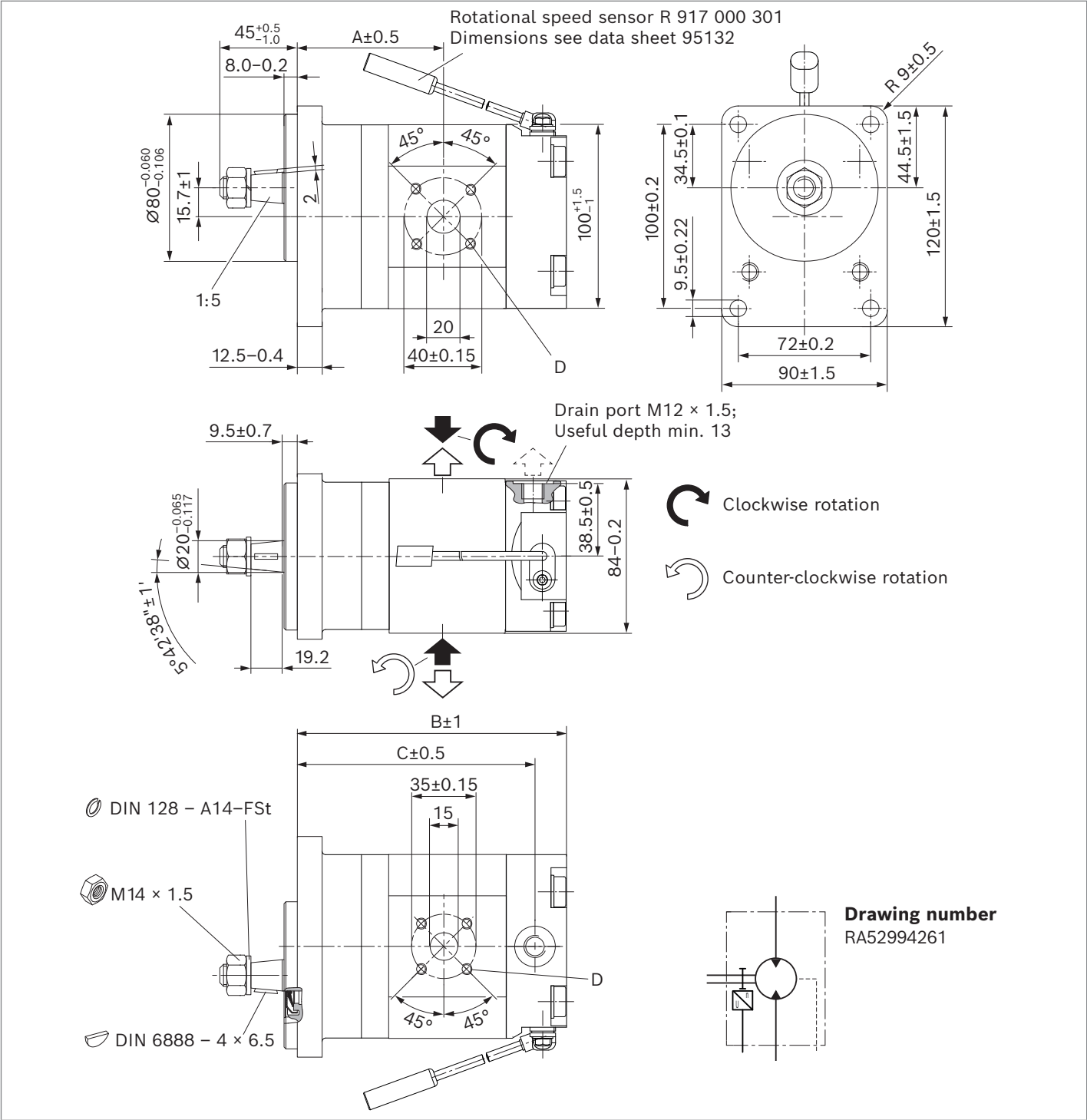
NG	Order number	Maximum intermittent pressure p_2 [bar]	Maximum rotational speed [rpm]	Dimensions			
	Direction of rotation			A	B	C	D
	Bi-directional						
8	0511445601	250	4000	74.8	120.8	116.9	M6; min 13 deep
11	0511545601	250	3500	78.6	125.8	121.9	
14	0511545607	250	3000	79.0	130.6	126.8	
16	0511645601	230	3000	79.1	134.2	130.3	
19	0511645603	190	3000	79.1	139.2	135.3	

▼ Tapered keyed shaft 1:5 for front cover A with outrigger bearing spigot diameter 80 mm (type 1) and axial drain port
AZMF-12-xUSA20PL



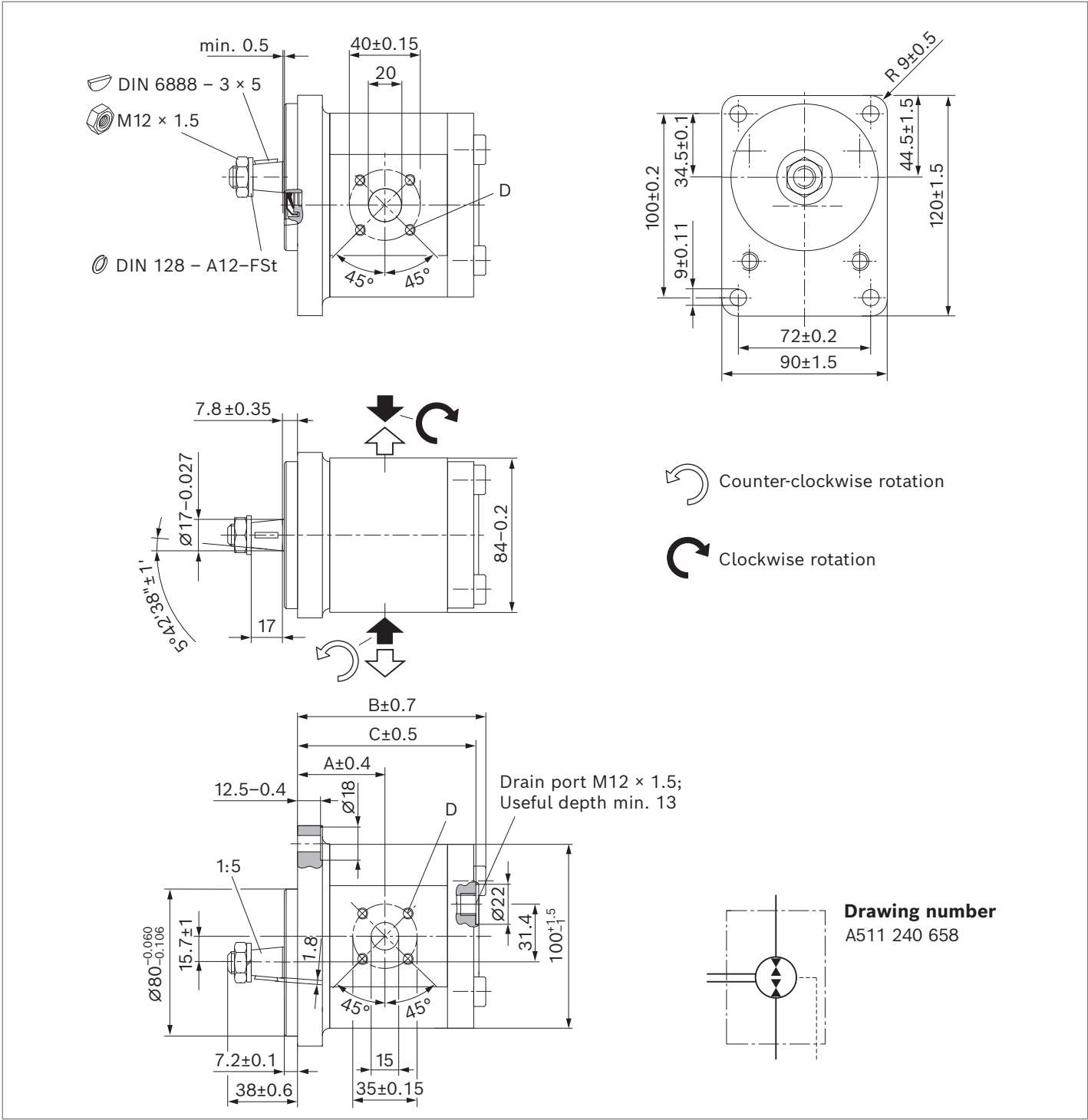
NG	Order number	Maximum intermittent pressure p_2 [bar]	Maximum rotational speed [rpm]	Dimensions			
	Direction of rotation			A	B	C	D
	Bi-directional						
8	0511445602	250	4000	74.7	120.8	117.0	M6; min. 13 deep
11	0511545606	250	3500	78.5	125.8	121.8	
14	0511545609	250	3000	79.0	130.6	126.8	
16	0511645608	230	3000	79.1	134.2	130.3	

▼ **Tapered keyed shaft 1:5 for front cover A with outrigger bearing spigot diameter 80 mm (type 1) and fan motor with speed sensor, pulse encoder wheel with 9 teeth**
AZMF-13-xUSA20PL-S0747



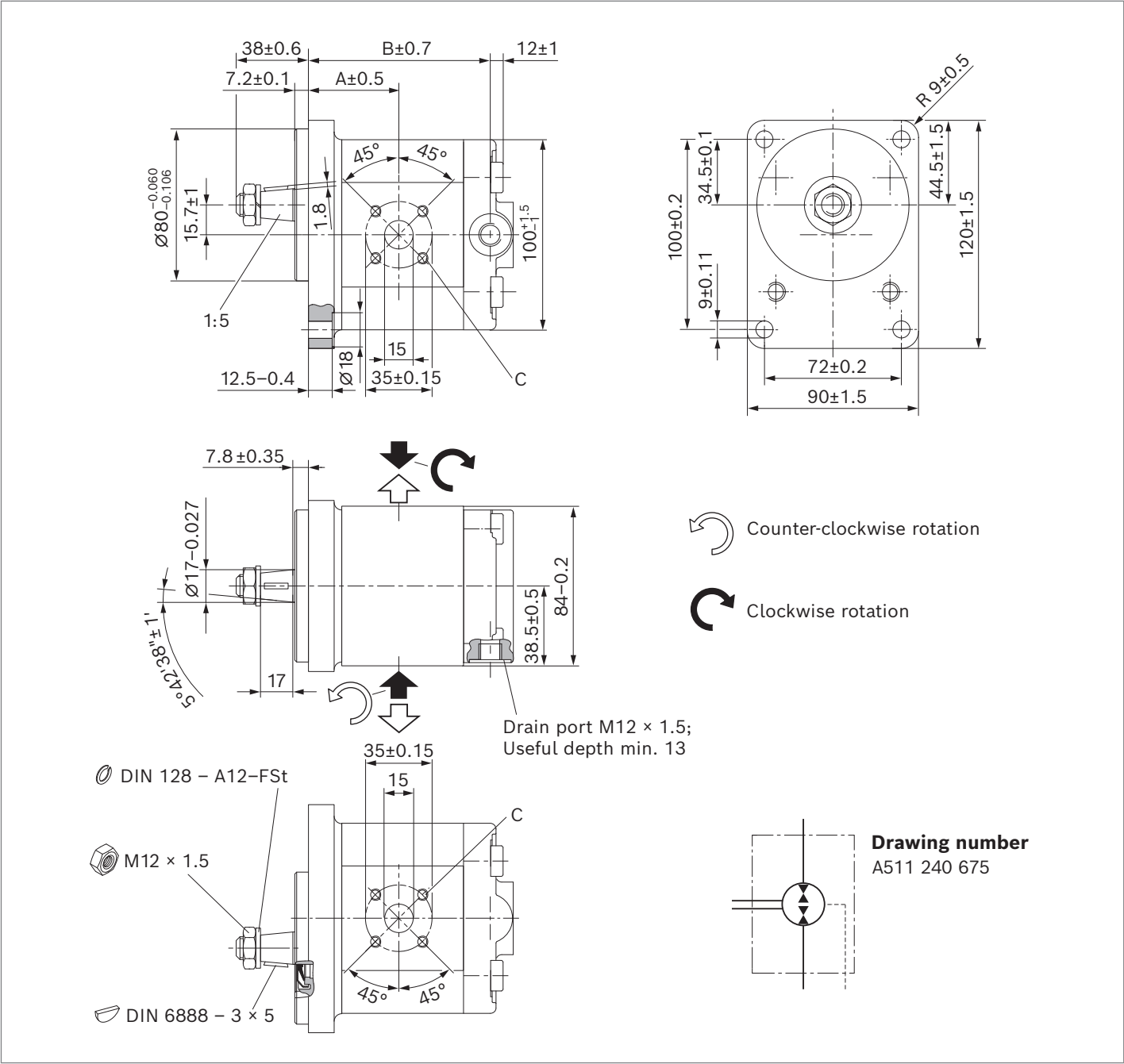
NG	Order number	Maximum intermittent pressure p_2 [bar]	Maximum rotational speed [rpm]	Dimensions			
	Direction of rotation			A	B	C	D
	Bi-directional						
19	0511645610	210	3000	79.0	151.7	132.7	M6; min. 13 deep

▼ Tapered keyed shaft 1:5 with rectangular flange spigot diameter 80 mm and dust protection cover for shaft seal
AZMF- ...-xUCB20PL-S0540



NG	Order number	Direction of rotation	Maximum intermittent pressure p_2 [bar]	Maximum rotational speed [rpm]	Dimensions			
					A	B	C	D
11	0511525609	Clockwise	210	3500	47.0	94.2	90.8	M6; min. 13 deep

▼ **Tapered keyed shaft 1:5 with rectangular flange spigot diameter 80 mm and dust protection cover for shaft seal, radial drain port in the rear cover**
AZMF-12-xUCB20PX-S0570



NG	Order number	Maximum intermittent pressure p_2 [bar]	Maximum rotational speed [rpm]	Dimensions		
	Direction of rotation			A	B	C
	Bi-directional					
8	0511425608	250	4000	43.2	82.8	M6; min.13 deep
11	0511525613	250	3500	47.0	87.8	
14	0511525614	250	3000	47.5	92.8	
16	0511625620	250	3000	47.8	96.2	

Technical drawing of a 1/2" NPT 100mm ball valve, showing front, top, and side views with dimensions and assembly details.

Front View Dimensions:

- Top flange outer diameter: $\varnothing 80_{-0.060}^{+0.106}$
- Top flange thickness: 15.7 ± 1
- Top flange hole diameter: $\varnothing 18$
- Top flange hole spacing: 38 ± 0.6
- Top flange hole diameter: 7.2 ± 0.1
- Top flange hole spacing: $A \pm 0.5$
- Top flange hole diameter: $B \pm 0.7$
- Top flange hole spacing: 12 ± 1
- Top flange hole diameter: 107 ± 1.5
- Top flange hole spacing: $12.5 - 0.4$
- Top flange hole diameter: 15
- Top flange hole spacing: 35 ± 0.15
- Top flange hole diameter: 1.8
- Top flange hole spacing: 45°
- Top flange hole spacing: 45°
- Top flange hole diameter: 1.5
- Top flange hole spacing: C

Top View Dimensions:

- Top flange outer diameter: 100 ± 0.2
- Top flange thickness: 34.5 ± 0.1
- Top flange hole diameter: 9 ± 0.11
- Top flange hole spacing: 72 ± 0.2
- Top flange hole spacing: 90 ± 1.5
- Top flange hole diameter: 44.5 ± 1.5
- Top flange hole spacing: 120 ± 1.5
- Top flange hole diameter: $R 9 \pm 0.5$

Side View Dimensions:

- Side flange outer diameter: $\varnothing 17 - 0.027$
- Side flange thickness: 7.8 ± 0.35
- Side flange hole diameter: $5^\circ 42' 38'' \pm 1'$
- Side flange hole spacing: 17
- Side flange hole diameter: 38.5 ± 0.5
- Side flange hole spacing: $87 - 0.2$
- Side flange hole diameter: 35 ± 0.15
- Side flange hole spacing: 15
- Side flange hole diameter: 1.5
- Side flange hole spacing: 45°
- Side flange hole spacing: 45°
- Side flange hole diameter: C

Assembly Details:

- Top flange: $\varnothing$ DIN 128 - A12-FSt
- Top flange: M12 $\times$ 1.5
- Top flange: DIN 6888 - 3 $\times$ 5
- Top flange: min. 0.5
- Top flange: 35 $\pm$ 0.15
- Top flange: 15
- Top flange: C
- Top flange: 45 $^\circ$
- Top flange: 45 $^\circ$
- Top flange: 1.5
- Top flange: C

Legend:

- Counter-clockwise rotation
- Clockwise rotation

Drain port M12 $\times$ 1.5; Useful depth min. 13

Drawing number
RA53257471

NG	Order number	Maximum intermittent pressure p_2 [bar]	Maximum rotational speed [rpm]	Dimensions		
	Direction of rotation			A	B	C
	Counter-clockwise					
19	0511625621	250	3000	58.4	113.2	M6; min. 13 deep
22	0511725617	250	3000	61.1	118.6	

Project planning information

Technical data

All mentioned technical data are dependent on manufacturing tolerances and are applicable for certain boundary conditions.

Note that certain deviations are therefore possible and that technical data may vary when certain boundary conditions (e.g., viscosity) change.

Motors delivered by Bosch Rexroth are tested for function and performance.

The motor may only be operated with the permissible data (see chapter "Technical data").

Characteristic curves

When dimensioning the gear motor, observe the maximum possible application data on the basis of the characteristic curves shown.

Application information

External gear units are not approved in on-highway vehicles for safety-relevant functions, as well as functions in the drive train, for steering, braking and level regulation. Classified as on-highway vehicles are e.g. vehicles such as motorbikes, private cars, trucks, vans, freight cars, buses and trailers. The European vehicle classes L (motorbikes), M (private cars), N (vehicles for transporting goods such as trucks and vans) and O (trailers and semi-trailers) serve as reference.

Notice

When used as an auxiliary steering motor, the vehicle manufacturer should make sure that the steering system continues to operate safely, even if the auxiliary steering motor fails (regulation similar to ECE R-79 can be referred)..

Filtration of the hydraulic fluid

Since the majority of premature failures in gear motors occur due to contaminated hydraulic fluid, filtration should maintain a cleanliness level of 20/18/15 as defined by ISO 4406. Thus contamination can be reduced to an acceptable degree in terms of particle size and concentration.

Bosch Rexroth generally recommends full-flow filtration.

The basic contamination of the hydraulic fluid filled in should not exceed level 20/18/15 as defined by ISO 4406. New fluids are often above this value. In such instances, a filling device with a special filter should be used.

Bosch Rexroth is not liable for wear due to contamination. For hydraulic systems or devices with function-related critical failure effects, such as steering and brake valves, the type of filtration selected must be adapted to the sensitivity of these devices.

Drain line

For bi-directional motors and/or motors that can be loaded by the return flow, a drain line is to be connected directly at the reservoir. Ensure adequate dimensioning.

Further information

Installation drawings and dimensions are valid at date of publication, subject to modifications.

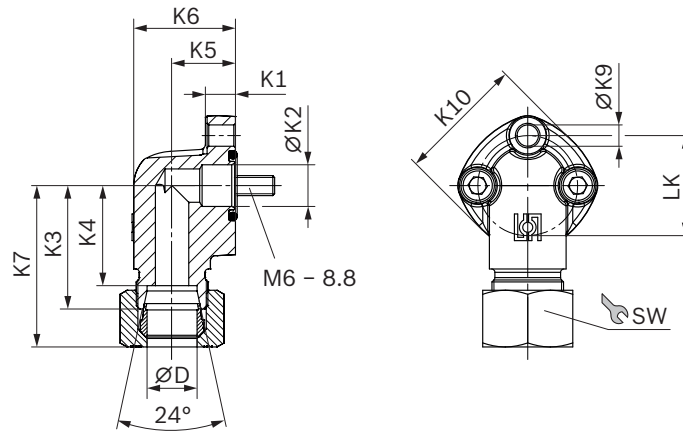
Further information and notes on project planning can be found in the "General instruction manual for external gear units": www.boschrexroth.com/07012-B, chapter 5.5.



Accessories

▼ 90° angle flange, 3-hole, for square flange 30 (see chapter "Port connection")

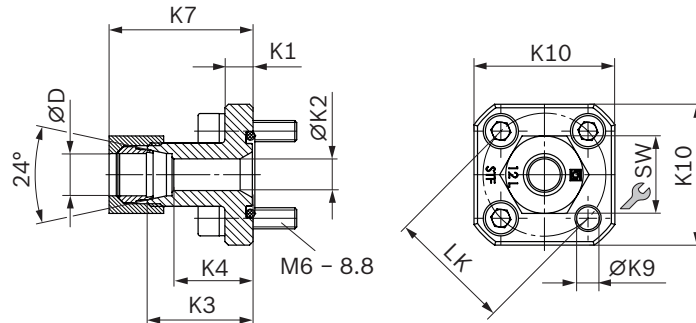
Complete fitting with O-ring, metric screw set, nut and cutting ring.



LK	D	Series ¹⁾	Material number	p_{max}	K1	K2	K3	K4	K5	K6	K7	K9	K10	SW	Screws	O-ring	Weight
mm	mm			bar	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	3 ×	NBR	kg
30	12	L	1515702146	250	9	12.5	37	30	19	30.5	46	6.4	38	22	M6 × 25	16 × 2.5	0.18

▼ Straight flange, for square flange 20 (see chapter "Port connection")

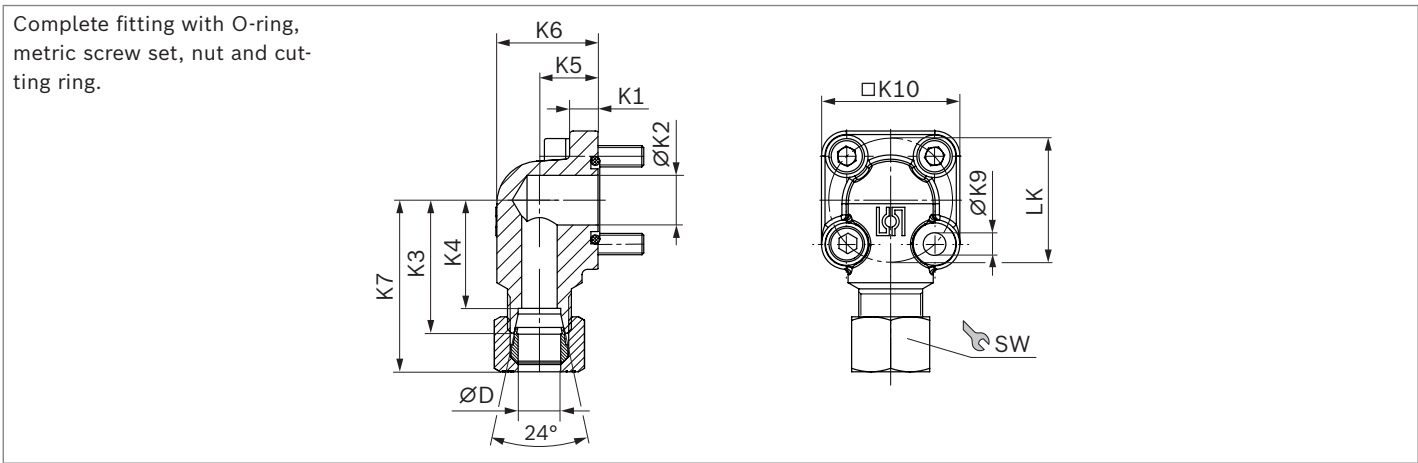
Complete fitting with O-ring, metric screw set, nut and cutting ring.



LK	D	Series ¹⁾	Material number	p_{max}	K1	K2	K3	K4	K7	K9	K10	SW	Screws	O-ring	Weight
mm	mm			bar	mm	mm	mm	mm	mm	mm	mm	mm	4 ×	NBR	kg
35	10	L	1515702064	315	8	7	30	23.0	38.0	6.5	40	19	M6 × 22	20 × 2.5	0.13
35	12	L	1515702065	315	8	9	30	23.0	38.5	6.5	40	22	M6 × 22	20 × 2.5	0.14
35	15	L	1515702066	250	8	11	30	23.0	39.0	6.5	40	27	M6 × 22	20 × 2.5	0.15
40	15	L	1515702067	100	8	11	35	28.0	44.0	6.5	40	27	M6 × 22	26 × 2.5	0.16
40	18	L	1515702068	100	8	14	35	27.5	44.0	6.5	40	32	M6 × 22	26 × 2.5	0.17
40	22	L	1515702069	100	8	18	35	27.5	45.0	6.5	40	36	M6 × 22	26 × 2.5	0.16
40	28	L	1515702008	100	8	19	35	27.5	45.0	6.5	40	41	M6 × 22	26 × 2.5	0.18

¹⁾ See DIN EN ISO 8434-1

▼ **90° angle flange, for square flange 20 (see chapter "Port connection")**



LK	D	Series ¹⁾	Material number	p _{max}	K1	K2	K3	K4	K5	K6	K7	K9	K10	SW	Screws		O-ring	Weight
mm	mm			bar	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	2 ×	2 ×	NBR	kg
35	10	L	1515702070	315	8	14	37.5	30.5	16.5	28.5	45.0	6.4	39	19	M6 × 22	M6 × 35	20 × 2.5	0.18
35	12	L	1515702071	315	8	14	37.5	30.5	16.5	28.5	46.0	6.4	39	22	M6 × 22	M6 × 35	20 × 2.5	0.19
35	15	L	1515702072	250	8	14	37.5	30.5	16.5	28.5	46.0	6.4	39	27	M6 × 22	M6 × 35	20 × 2.5	0.20
35	16	S	1515702002	315	8	15	38.0	29.5	20.0	33.0	49.0	6.4	39	30	M6 × 22	M6 × 40	20 × 2.5	0.25
35	18	L	1545702006	250	8	15	37.5	30.0	20.0	33.0	47.0	6.4	39	32	M6 × 22	M6 × 40	20 × 2.5	0.22
35	20	S	1515702017	315	8	15	45.0	34.5	25.0	38.0	57.0	6.4	39	36	M6 × 22	M6 × 45	20 × 2.5	0.30
40	15	L	1515702073	100	9	20	38.0	31.0	22.5	38.0	47.0	6.4	42	27	M6 × 22	M6 × 22	26 × 2.5	0.26
40	18	L	1515702074	100	9	20	38.0	30.5	22.5	38.0	47.5	6.4	42	32	M6 × 22	M6 × 22	26 × 2.5	0.27
40	20	S	1515702011	250	9	20	40.0	29.5	22.5	37.0	52.0	6.4	42	36	M6 × 22	M6 × 45	26 × 2.5	0.26
40	22	L	1515702075	100	9	20	38.0	30.5	22.5	38.0	48.0	6.4	42	36	M6 × 22	M6 × 22	26 × 2.5	0.27
40	28	L	1515702010	100	9	20	40.0	32.5	28.0	44.0	50.5	6.4	42	41	M6 × 22	M6 × 50	26 × 2.5	0.37
40	35	L	1515702018	100	9	20	41.0	30.5	34.0	53.0	53.0	6.4	42	50	M6 × 22	M6 × 60	26 × 2.5	0.41

Notice
Permissible tightening torques can be found in the
“General instruction manual for external gear units”:
www.boschrexroth.com/07012-B



1) See DIN EN ISO 8434-1

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