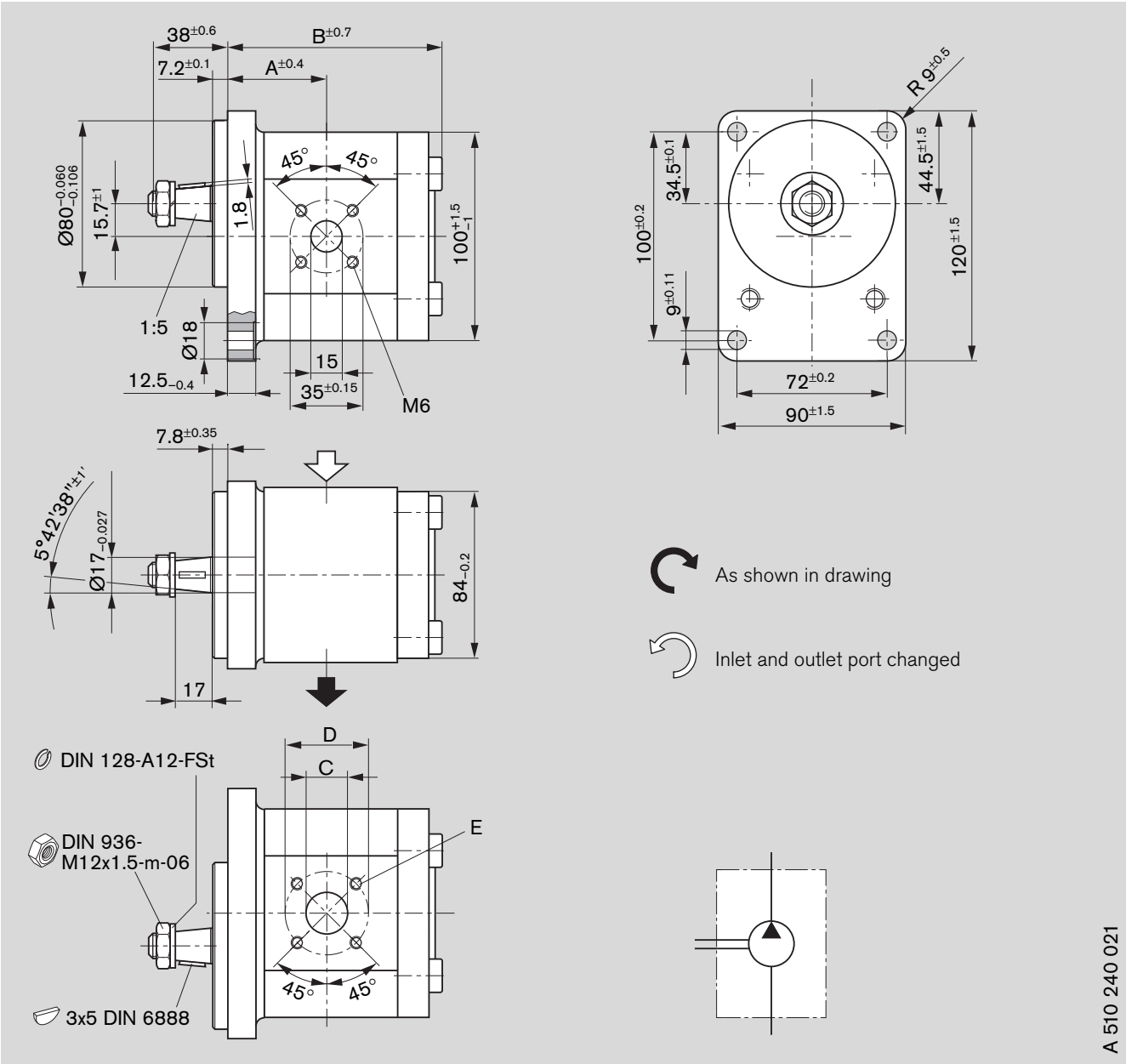


Dimensions

Standard range



Ordering code

AZPF - 10 - ☐ ☐ ☐ ☐ C B 20 M B
AZPF - 11 - ☐ ☐ ☐ ☐ C B 20 M B*

Displace- ment [cm³/rev]	Ordering-No.		Max. operating pressure [bar]	Max. rotation speed [rpm]	kg	Dimension				
	 L	 R				A [mm]	B	C	D	E
4	0 510 225 306	0 510 225 006	280	4000	3.2	39.9	85.0	15	40	M6
5.5	0 510 325 306	0 510 325 006	280	4000	3.2	41.1	87.5	15	40	depth 13
8	0 510 425 307	0 510 425 009	280	4000	3.3	43.2	91.6	20	40	
11	0 510 525 311	0 510 525 009	280	3500	3.5	47.0	96.6	20	40	
14	0 510 525 319	0 510 525 018	280	3000	3.7	47.5	101.6	20	40	
16	0 510 625 315	0 510 625 022	280	3000	3.7	47.5	105.0	20	40	
19	0 510 625 314	0 510 625 013	230	3500	3.8	47.5	110.0	20	40	
22.5	0 510 725 330*	0 510 725 030	210	2500	3.8	55.1	115.4	20	40	

A 510 240 021

Specification

General	
Construction	External gear pump
Mounting	Flange or through-bolting with spigot
Line ports	Screw, flange
Direction of rotation (looking on shaft)	Clockwise or counter-clockwise, the pump may only be driven in the direction indicated
Installation position	Any
Load on shaft	Radial and axial forces after consulting
Ambient temperature range	-30°C...+80°C or max. 110°C with FKM seal
Hydraulic fluid	- Mineral oil compliant with DIN 51 524, 1-3, however under higher load at least HLP compliant with DIN 51 524 Part 2 recommended. - Comply with RE 90220 - Further operating fluids possible after consultation
Viscosity	12...800 mm ² /s permitted range 20...100 mm ² /s recommended range ...2000 mm ² /s range permitted for starting
Hydraulic fluid temperature range	max. +80°C with NBR seals*) max. +110°C with FKM seals**)
Filtration ***)	At least cleanliness level 20/18/15 compliant with ISO 4406 (1999)

*) NBR = Perbunan®

**) FKM = Viton®

***) During the application of control systems or devices with critical counter-reaction, such as steering and brake valves, the type of filtration selected must be adapted to the sensitivity of these devices/systems.

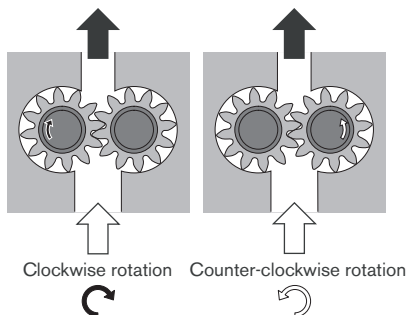
Safety requirements pertaining to the whole systems are to be observed.

In the case of applications with high numbers of load cycles please consulting.

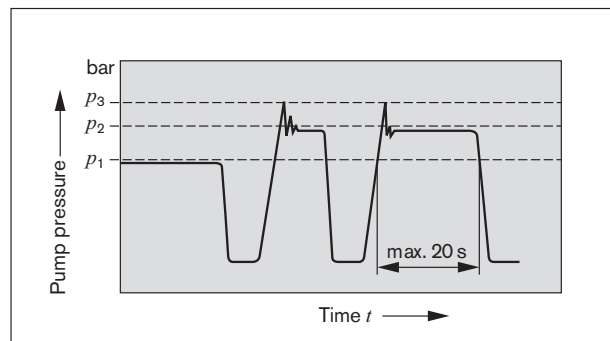
Definition of direction of rotation

Always look on the drive shaft.

Caution: Dimensions drawings always show clockwise-rotation pumps. On counter-clockwise-rotation pumps the positions of the drive shaft and the suction and pressure ports are different.



Definitions of pressures



p_1 max. continuous pressure
 p_2 max. intermittent pressure
 p_3 max. peak pressure

AZPF-1x

Displacement	V	cm ³ /rev	4	5.5	8	11	14	16	19	22.5	22.5
Suction pressure p_e		bar	0.7...3 (absolute), with tandem pumps: $p_e (p_2) = \max. 0.5 > p_e (p_1)$								
Max. continuous pressure p_1			250						210	180	210
Max. intermittent pressure p_2			280						230	210	230
Max. peak pressure p_3			300						250	230	250
Min. rotational speed	< 100	rpm	600	500	500	500	500	500	500	500	500
at bar	12 mm ² /s		1200	1200	1000	1000	800	800	800	800	800
	180... p_2		1400	1400	1400	1200	1000	1000	1000	1000	1000
	25 mm ² /s		700	700	700	600	500	500	500	500	500
Max. rotational speed at	p_2		4000			3500	3000	3000	3000	2500	3000

*) Version with extended bearings

AZPF-2x

Displacement	V	cm³/rev	4	5.5	8	11	14	16	19	22.5	25	28	
Suction pressure	p_e	bar	0.7...3 (absolute), with tandem pumps: $p_e (p_2) = \max. 0.5 > p_e (p_1)$										
Max. continuous pressure	p_1		250								220	195	170
Max. intermittent pressure	p_2		280								250	225	200
Max. peak pressure	p_3		300								290	265	240
Min. rotational speed	< 100	rpm	600	500	500	500	500	500	500	500	500	500	
at bar	12 mm²/s		1200	1200	1000	1000	800	800	800	800	800	800	
	180... p_2		1400	1400	1400	1200	1000	1000	1000	1000	1000	1000	
	25 mm²/s		700	700	700	600	500	500	500	500	500	500	
Max. rotational speed at	p_o		4000			3500	3000	3000	3500	3500	3000	3000	

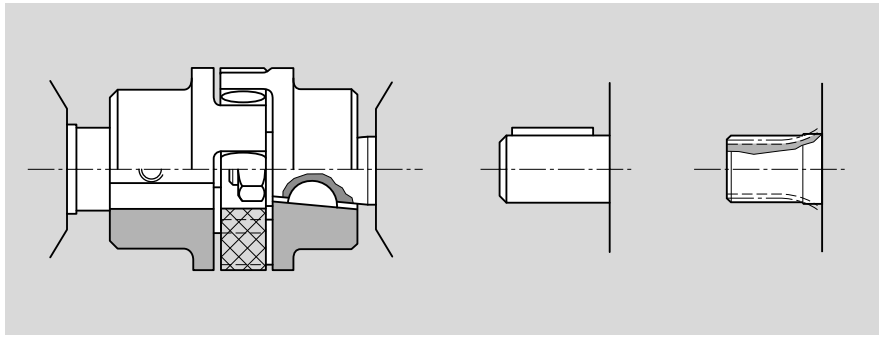
Drive arrangements

1. Flexible couplings

The coupling must not transfer any radial or axial forces to the pump.

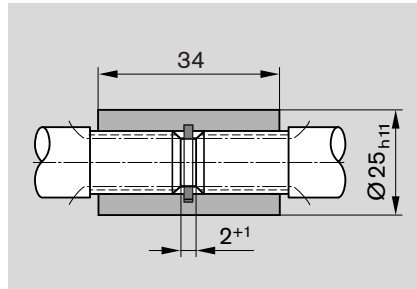
The maximum radial runout of shaft spigot is 0.2 mm.

Refer to the fitting instructions provided by the coupling manufacturer for details of the maximum permitted shaft misalignment.



2. Coupling sleeve

Used on shafts with DIN or SAE splining. Caution: There must be no radial or axial forces exerted on the pump shaft or coupling sleeve. The coupling sleeve must be free to move axially. The distance between the pump shaft and drive shaft must be 2^{+1} . Oil-bath or oil-mist lubrications is necessary.



Splined shaft	$M_{\max}$ [Nm]	V [cm ³ /rev]	$p_{\max}$ [bar]
DIN	100	4...28	$p_{\max}$
SAE 9t	110		
SAE 11t	180		

3. Drive shaft with tang

For the close-coupling of the pumps to electric motor or internal-combustion engine, gear, etc.

The pump shaft has a special tang and driver ③ (not included in supply). There is no shaft sealing.

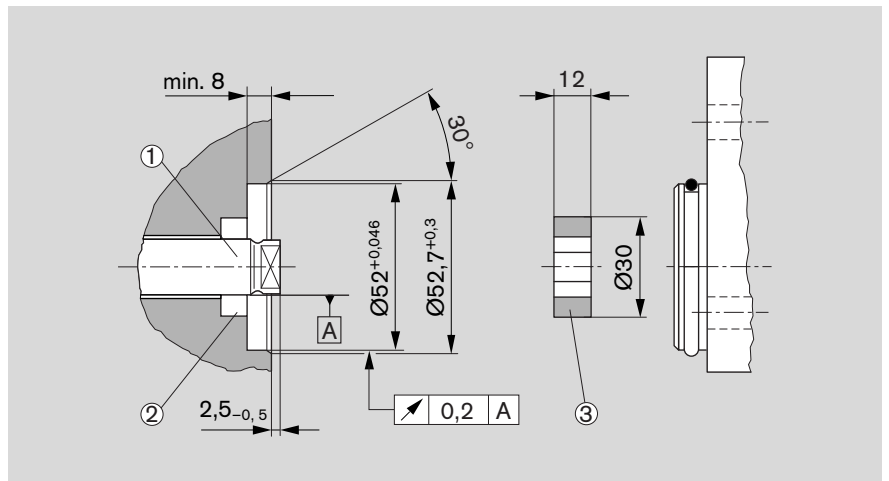
The recommended arrangements and dimensions for the drive end and sealing are as follows.

① Drive shaft

Case-hardening steel DIN 17 210
e.g. 20 MnCrS 5
case-hardened 0.6 deep; HRC 60 $\pm$ 3.
Surface for sealing ring
ground without rifling $R_{\max.} \leq 4\mu\text{m}$

② Radial shaft seal ring

Rubber-covered seal (see DIN 3760, Type AS or double-lipped ring).
Cut 15° chamfer or fit shaft seal ring with protection sleeve.



Drive with tang

AZPF-1x

$M_{\max.}$ [Nm]	V [cm ³ /rev]	$p_{\max.}$ [bar]
65	4...14	280
	16	230
65	19	190
	22.5	160

AZPF-2x

$M_{\max.}$ [Nm]	V [cm ³ /rev]	$p_{\max.}$ [bar]
85	4...14	280
	16	280
	19	250
	22.5	210
	25	190
	28	170