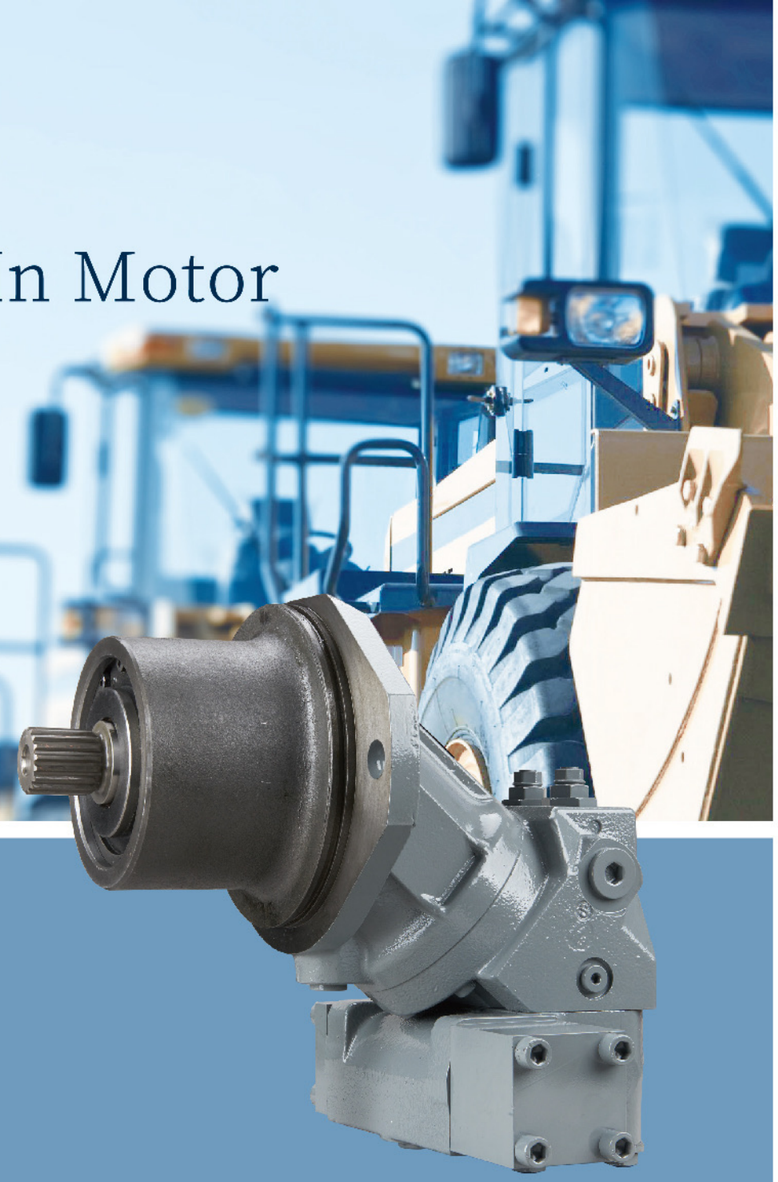
ZP2FE

Fixed Plug-In Motor

- Size(ml/r): 28-180
- Nominal pressure (bar): 350 bar
- Maximum pressure (bar): 400 bar



Fixed plug-in motor with axial tapered piston rotary group of bent-axis design, for hydrostatic drives in open and closed circuits

- Far-reaching integration in mechanical gearbox due to recessed mounting flange located in the center of the case (extremely space-saving construction)
- Small dimensions
- The output torque increases with the pressure differential between the high-pressure and the low-pressure side. The output speed is dependent on the flow of the
- pump and the displacement of the motor
- High total efficiency
- Easy to install, simply plug into the mechanical gearbox

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Technical data

Details regarding the choice of hydraulic fluid

The correct choice of hydraulic fluid requires knowledge of the operating temperature in relation to the ambient temperature: in a closed circuit, the circuit temperature, in an open circuit, the reservoir temperature.

Note

The case drain temperature, which is affected by pressure and speed, can be higher than the circuit temperature or reservoir temperature. At no point of the component may the temperature be higher than 115 ℃. The temperature difference specified below is to be taken into account when determining the viscosity in the bearing.

Filtration of the hydraulic fluid

Finer filtration improves the cleanliness level of the hydraulic fluid, which increases the service life of the axial piston unit. To ensure the functional reliability of the axial piston unit, a gravimetric analysis of the hydraulic fluid is necessary to determine the amount of solid contaminant and to determine the cleanliness level according to ISO 4406. A cleanliness level of at least 20/18/15 is to be maintained.

At very high hydraulic fluid temperatures (90 ℃ to maximum 115 ℃), a cleanliness level of at least 19/17/14 ISO 4406 according to ISO 4406 is necessary.

Shaft seal Permissible pressure loading

The service life of the shaft seal is influenced by the speed of the axial piston unit and the case drain pressure (case pressure). The mean differential pressure of 2 bar between the case and the ambient pressure may not be enduringly exceeded at normal operating temperature. For a higher differential pressure at reduced speed, see diagram. Momentary pressure spikes($t < 0.1$ s) of up to 10 bar are permitted. The service life of the shaft seal decreases with an increase in the frequency of pressure spikes.

Temperature range

The FKM shaft seal may be used for case drain temperatures from -25 ℃ to +115 ℃.

Note

For application cases below -25 ℃ an NBR shaft seal is required (permissible temperature range: -40 ℃ to +90 ℃).

Technical data

Size		NG		28	32	45	56	63	80
Displacement geom -etric, per revolution		V_g	cm^3	28.1	32	45.6	56.1	63	80.4
Speed maximum		n	rpm	5000	5000	4500	4200	4000	3500
Max. flow		q_V	l/min	140	160	205	235	252	281
Torque	Δp = 350 bar	T	Nm	157	178	254	313	351	448
	Δp = 400 bar	T	Nm	179	204	290	357	401	512
Case volume		V	L	0.20	0.20	0.33	0.45	0.45	0.55
Mass (approx.)		m	kg	10.5	10.5	15	18	19	23

Size		NG		90	107	125	160	180
Displacement geom -etric, per revolution		V_g	cm^3	90	106.7	125	160.4	180
Speed maximum		n	rpm	3500	3000	3000	2650	2650
Max. flow		q_V	l/min	315	321	375	424	477
Torque	Δp = 350 bar	T	Nm	501	594	696	893	1003
	Δp = 400 bar	T	Nm	573	679	796	1021	1146
Case volume		V	L	0.55	0.8	0.8	1.1	1.1
Mass (approx.)		m	kg	25	34	36	47	48

Ordering Code / Standard Program

ZP2F		E	125	W	6	1	V	Z	L	100
01	02	03	04	05	06	07	08	09	10	11

EAxial piston unit

01	Bent-axis design, fixed A2F	ZP2F

Drive shaft bearing — 28 to 180

02	Standard bearing (without code)	●	
	Long-life bearing	–	L

Mounting

03	plug-in	E

Sizes

04	Geometric displacement	28	32	45	56	63	80	90	107	125	160	180

Direction of rotation

05	Viewed on drive shaft, bidirectional	W

Series

06		6

Index

07	28 to180	1

Seals

08	FKM (fluor-caoutchouc)	V

Drive shafts

		28	32	45	56	63	80	90	107	125	160	180	
09	Splined shaft DIN 5480	●	●	–	●	●	●	●	●	●	●	●	A
		●	–	●	●	–	●	–	●	–	●	–	Z

Mounting flanges — 28 to 180

10	ISO 3019-2	2 - h o l e	●	L
		4 - h o l e	–	M

				28	32	45	56	63	80	90	107	125	160	180	
11	SAE flange ports A and B at rear	01	0	–	–	–	–	–	–	–	–	–	–	–	010
			7	–	–	–	–	–	–	–	–	–	–	–	017
	SAE flange ports A and B at side, opposite	02	0	–	–	–	–	–	–	–	–	–	–	–	020
			7	–	–	–	▲	▲	▲	▲	●	●	●	●	027
			9	–	–	–	●	●	●	●	–	–	–	–	029
	SAE flange ports A and B at bottom	10	0	●	●	●	●	●	●	●	●	●	●	●	100
			7	–	–	–	–	–	–	–	–	–	–	–	107
	Port plate with 1-level pressure-relief valves and MZD for mounting a counterbalance	17	1	–	–	–	–	–	–	–	●	●	●	●	171
															178
		18	8	●	●	●	●	●	●	●	●	●	●	●	181
		18		–	–	–	–	–	–	–	●	●	●	●	188
	Port plate with pressure-relief valves	19	1	●	●	●	●	●	●	●	●	●	●	●	191
			2	●	●	●	●	●	●	●	●	●	●	●	192

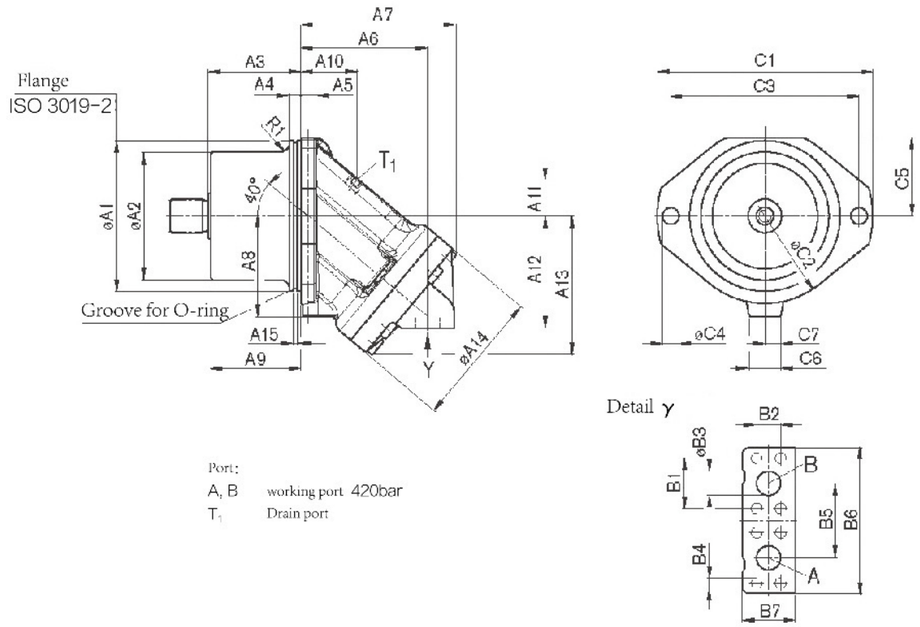
● Available – Not available ▲ On request

Valves

12	Without valve	0
	Pressure-relief valve (without pressure boost facility)	1
	Pressure-relief valve (with pressure boost facility)	2
	Flushing and boost pressure valve, mounted	7
	Counterbalance valve BVD/BVE mounted	8
	Flushing and boost pressure valve, integrated	9

Dimensions sizes 28 to 180

10 –SAE



Port:

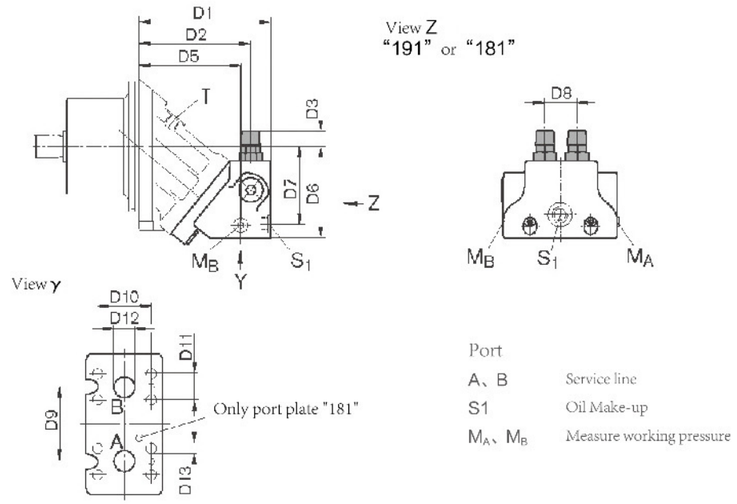
A, B	working port	420bar
T_1	Drain port	

Size	ΦA1	ΦA2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	ΦA14	A15
28、32	135 -0.025	94 -0.5	88.8	15	16	94	114	95	87.1	45	27	91	106	106	5.2
45	160 0.025	117 +1.5 -2	92.3	15	18	109	133	106	90	50	31.3	102	119	118	5.2
56、63	160 -0.025	121 -0.5	92.3	15	18	122	146	109	90	59	34	107	130	128	5.2
80、90	190 -0.076	140.3 -0.5	110	15	20	127	157	123	106	54	41	121	145	138	5.2
107、125	200 -0.029	152.3 -0.5	122.8	15	20	143	178	135	119	58	41	136	157	150	5.2
160、180	200 -0.029	171.6 -0.5	122.8	15	20	169	206	134	119.3	75	47	149	185	180	5.2

Size	B1	B2	ΦB3	B4，DIN 13	B5	B6	B7	C1	ΦC2	C3	ΦC4	C5	C6	C7
28、32	40.5	18.2	13	M8 x 1.25; 15 (Deep)	59	115	40	188	154	160	14	71	42	13
45	50.8	23.8	19	M10 x 1.5; 17 (Deep)	75	147	49	235	190	200	18	82	47.5	15
56、63	50.8	23.8	19	M10 x 1.5; 17 (Deep)	75	147	48	235	190	200	18	82	36	0
80、90	57.2	27.8	25	M12 x 1.75; 17 (Deep)	84	166	60	260	220	224	22	98	40	0
107、125	66.7	31.8	32	M14 x 2; 19 (Deep)	99	194	70	286	232	250	22	103	40	0
160、180	66.7	31.8	32	M14 x 2; 19 (Deep)	99	194	70	286	232	250	22	104	42	0

Size	R1	O-ring	Service line port A、B SAE J518	Drain port T_1,DIN 3852
28、32	10	126 x 4	1/2 in	M16 x 1.5; 12 (Deep)
45	10	150 x 4	3/4 in	M18 x 1.5; 12 (Deep)
56、63	10	150 x 4	3/4 in	M18 x 1.5; 12 (Deep)
80、90	10	180 x 4	1 in	M18 x 1.5; 12 (Deep)
107、125	16	192 x 4	1 1/4 in	M18 x 1.5; 12 (Deep)
160、180	12	192 x 4	1 1/4 in	M22 x 1.5; 14 (Deep)

Dimensions sizes 28 to 180



Port

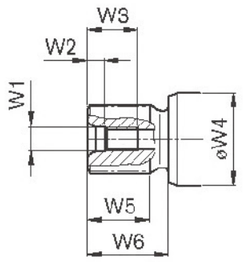
A、B	Service line
S1	Oil Make-up
M_A、M_B	Measure working pressure

Size	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13
107、125 ZPYLF-M33	216	184	10	52	168	149.5	130	53	84	66.7	31.8	Ø32	M14; 19 (Deep)
160、180 ZPYLF-M33	249	218	5	47	202	170	149	53	84	66.7	31.8	Ø32	M14; 19 (Deep)

Size	A、B	S1	M_A, M_B	P_{St}
107、125	oil feeding	M26 x 1.5; 16 (Deep)	M26 x 1.5; 16 (Deep)	G 1/4
160、180	Measuring working pressure	M26 x 1.5; 16 (Deep)	M30 x 1.5; 16 (Deep)	G 1/4

Drive shaft 28 to 180

Drive shaft

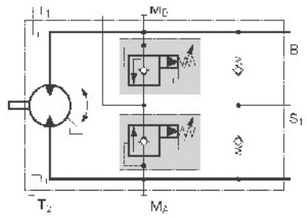


Size	Splined shaft (DIN 5480)	W1	W2	W3	ØW4	W5	W6
28、32	A W30 x 2 x 14 x 9g	M10 x 1.5	7.5	22	35	27	35
28	Z W25 x 1.25 x 18 x 9g	M8 x 1.25	6	19	35	28	43
45	Z W30 x 2 x 14 x 9g	M12 x 1.75	9.5	28	35	27	35
56、63	A W35 x 2 x 16 x 9g	M12 x 1.75	9.5	28	40	32	40
56	Z W30 x 2 x 14 x 9g	M12 x 1.75	9.5	28	40	27	35
80、90	A W40 x 2 x 18 x 9g	M16 x 2	12	36	45	37	45
80	Z W35 x 2 x 16 x 9g	M12 x 1.75	9.5	28	45	32	40
107、125	A W45 x 2 x 21 x 9g	M16 x 2	12	36	50	42	50
107	Z W40 x 2 x 18 x 9g	M12 x 1.75	9.5	28	50	37	45
160、180	A W50 x 2 x 24 x 9g	M16 x 2	12	36	60	44	55
160	Z W45 x 2 x 21 x 9g	M16 x 2	12	36	60	42	50

Pressure-relief valve

The ZPYLF pressure-relief valves protect the hydraulic motor from overload. As soon as the set cracking pressure is reached, the hydraulic fluid flows from the high pressure side to the low-pressure side. The pressure-relief valves are only available in combination with port plates181, 191 or 192

Cracking pressure setting range ----------50 to 420 bar



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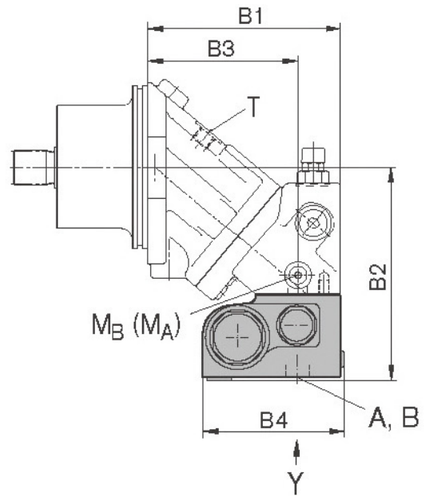
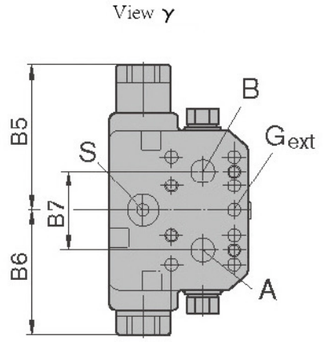
Counterbalance valve BVD

Dimenssion





ZP2FE sizes	Types	Port A、B	Dimenssion							
			B1	B2	B3	B4 (S)	B4 (L)	B5	B6	B7
28、32	BVD20..16	3/4 in	145	175	110	142	147	139	98	66
45	BVD20..16	3/4 in	161	196	126	142	147	139	98	66
56、63	BVD20..17	3/4 in	189	197	147	142	147	139	98	75
80、90	BVD20..27	1 in	193	207	151	142	147	139	98	75
107、125	BVD20..28	1 in	216	238	168	142	147	139	98	84
107、125	BVD25..38	1 1/4in	216	239	168	158	163	175	120.5	84
160、180	BVD25..38	1 1/4in	249	260	202	158	163	175	120.5	84
107、125	BVE25..38	1 1/4in	216	240	168	167	172	214	137	84
160、180	BVE25..38	1 1/4in	249	260	202	167	172	214	137	84

Port

Name	Port for	Version	Standard	Size	Max. pressure [bar]	State
A、B	Service line		SAE J518	See the above sheet	420	O
S	Infeed	BVD20	DIN 3852	M22 x 1.5; 14 (Deep)	30	X
		BVD25、BVE25	DIN 3852	M27 x 2; 16 (Deep)	30	X
Br	Brake release, reduced high pressure	L	DIN 3852	M12 x 1.5; 12.5 (Deep)	30	O
G_{ext}	Brake release,high pressure	S	DIN 3852	M12 x 1.5; 12.5 (Deep)	420	X
M_A、M_B	Measuring pressure A andB		ISO 6149	M12 x 1.5; 12 (Deep)	420	X

O = Must be connected (plugged on delivery)

X = Plugged (in normal operation)