

Ordering code for standard program

	A2F		M		/	6		W	-	V						
01	02	03	04	05		06	07	08		09	10	11	12	13	14	15

Hydraulic fluid

01	Mineral oil and HFD. HFD for sizes 250 to 1000 only in combination with long-life bearings "L" (without code)																
	HFB, HFC hydraulic fluid															Sizes 5 to 200 (without code)	
																Sizes 250 to 1000 (only in combination with long-life bearings "L")	E-

Axial piston unit

02	Bent-axis design, fixed															A2F
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Drive shaft bearing

03																5 to 200	250 to 500	710 to 1000	
	Standard bearing (without code)															●	●	-	
Long-life bearing															-	●	●	L	

Operating mode

04	Motor (plug-in motor A2FE, see RE 91008)															M
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Size (NG)

05	Geometric displacement, see table of values on page 7																					
		5	10	12	16	23	28	32	45	56	63	80	90	107	125	160	180	200	250	355	500	710

Series

06																6
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Index

07																NG10 to 180	1
																NG200	3
																NG5 and 250 to 1000	0

Direction of rotation

08	Viewed on drive shaft, bidirectional															W
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Seals

09	FKM (fluor-caoutchouc)															V
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Drive shafts

10																5	10	12	16	23	28	32	45	56	63	80	90	107	125	160	180	200	250 to 1000	
	Splined shaft															-	●	●	●	●	●	●	-	●	●	●	●	●	●	●	●	-	A	
	DIN 5480															-	●	●	-	●	●	-	●	●	-	●	-	●	-	-	-	●	Z	
	Parallel keyed shaft															●	●	●	●	●	●	-	●	●	●	●	●	●	●	●	●	-	B	
	DIN 6885															-	●	●	-	●	●	-	●	●	-	●	-	●	-	-	-	●	P	
Conical shaft ¹⁾															●	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	C		

Mounting flanges

11																5 to 250	355 to 1000		
	ISO 3019-2																	●	-
4-hole																			
8-hole																	-	●	H

● = Available ○ = On request - = Not available ■ = Preferred program

1) Conical shaft with threaded pin and woodruff key (DIN 6888). The torque must be transmitted via the tapered press fit.

Ordering code for standard program

	A2F		M		/	6		W	-	V						
01	02	03	04	05		06	07	08		09	10	11	12	13	14	15

Port plates for service lines ²⁾		5	10-16	23	28, 32	45	56,63	80,90	107-125	160-180	200	250	355-500	1000		
12	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
	Threaded ports A and B at side, opposite	03	0	●	●	●	●	-	-	-	-	-	-	-	-	030
	Threaded ports A and B at side and rear ³⁾	04	0	-	●	●	●	●	-	-	-	-	○	-	-	040
	SAE flange ports A and B at bottom (same side)	10	0	-	-	-	●	●	●	●	●	-	-	○	-	100
	Port plate with 1-level pressure- relief valves for mounting a counterbalance valve ⁵⁾	BVD 17	1	-	-	-	-	-	-	●	-					171 178
		18	8	-	-	-	●	●	●	●	●	-	-	-	-	181
		BVE 18	8	-	-	-	-	-	-	●	●	-	- ⁴⁾	-	-	188
	Port plate with pressure-relief valves	19	1	-	-	-	●	●	●	●	●	-	-	-	-	191
	2	2	-	-	-	●	●	●	●	●	-	-	-	-	192	
Valves (see pages 34 to 41)																
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 ⁵⁾⁶⁾															8	
Flushing and boost pressure valve, integrated															9	

Speed sensors (see pages 42 and 43)		5 to 16	23 to 180	200	250 to 500	710 to 1000 ⁴⁾	
13	Without speed sensor (without code)	●	●	●	●	●	
	Prepared for HDD speed sensor	-	▲	▲	●	-	F
	HDD speed sensor mounted ⁷⁾	-	▲	▲	●	-	H
	Prepared for DSA speed sensor	-	○	○	○	-	U
	DSA speed sensor mounted ⁷⁾	-	○	○	○	-	V

Special version		
14	Standard version (without code)	
	Special version for slew drives (standard with port plate 19)	J

Standard / special version		
15	Standard version (without code)	
	Standard version with installation variants, e. g. T ports against standard open or closed	-Y
	Special version	-S

● = Available ○ = On request - = Not available ▲ = Not for new projects ■ = Preferred program

2) Fastening thread or threaded ports, metric

3) Threaded ports at the sides (sizes 10 to 63) plugged with threaded plugs

Technical data

Table of values (theoretical values, without efficiency and tolerances; values rounded)

Size	NG		5	10	12	16	23	28	32	45	56	63	80
Displacement geometric, per revolution	V_g	cm ³	4.93	10.3	12	16	22.9	28.1	32	45.6	56.1	63	80.4
Speed maximum ¹⁾	n_{nom}	rpm	10000	8000	8000	8000	6300	6300	6300	5600	5000	5000	4500
	$n_{max}^{2)}$	rpm	11000	8800	8800	8800	6900	6900	6900	6200	5500	5500	5000
Input flow ³⁾													
at n_{nom} and V_g	q_v	L/min	49	82	96	128	144	177	202	255	281	315	362
Torque ⁴⁾													
at V_g and $\Delta p = 350$ bar	T	Nm	24.7 ⁵⁾	57	67	89	128	157	178	254	313	351	448
	T	Nm	–	66	76	102	146	179	204	290	357	401	512
Rotary stiffness	c	kNm/rad	0.63	0.92	1.25	1.59	2.56	2.93	3.12	4.18	5.94	6.25	8.73
Moment of inertia for rotary group	J_{GR}	kgm ²	0.00006	0.0004	0.0004	0.0004	0.0012	0.0012	0.0012	0.0024	0.0042	0.0042	0.0072
Maximum angular acceleration	α	rad/s ²	5000	5000	5000	5000	6500	6500	6500	14600	7500	7500	6000
Case volume	V	L		0.17	0.17	0.17	0.20	0.20	0.20	0.33	0.45	0.45	0.55
Mass (approx.)	m	kg	2.5	5.4	5.4	5.4	9.5	9.5	9.5	13.5	18	18	23

Size	NG		90	107	125	160	180	200	250	355	500	710	1000
Displacement geometric, per revolution	V_g	cm ³	90	106.7	125	160.4	180	200	250	355	500	710	1000
Speed maximum ¹⁾	n_{nom}	rpm	4500	4000	4000	3600	3600	2750	2700	2240	2000	1600	1600
	$n_{max}^{2)}$	rpm	5000	4400	4400	4000	4000	3000	–	–	–	–	–
Input flow ³⁾													
at n_{nom} and V_g	q_v	L/min	405	427	500	577	648	550	675	795	1000	1136	1600
Torque ⁴⁾													
at V_g and $\Delta p = 350$ bar	T	Nm	501	594	696	893	1003	1114	1393	1978	2785	3955	5570
	T	Nm	573	679	796	1021	1146	1273	–	–	–	–	–
Rotary stiffness	c	kNm/rad	9.14	11.2	11.9	17.4	18.2	57.3	73.1	96.1	144	270	324
Moment of inertia for rotary group	J_{GR}	kgm ²	0.0072	0.0116	0.0116	0.0220	0.0220	0.0353	0.061	0.102	0.178	0.55	0.55
Maximum angular acceleration	α	rad/s ²	6000	4500	4500	3500	3500	11000	10000	8300	5500	4300	4500
Case volume	V	L	0.55	0.8	0.8	1.1	1.1	2.7	2.5	3.5	4.2	8	8
Mass (approx.)	m	kg	23	32	32	45	45	66	73	110	155	325	336

- 1) The values are valid:
 - for the optimum viscosity range from $\nu_{opt} = 36$ to 16 mm²/s
 - with hydraulic fluid based on mineral oils
- 2) Intermittent maximum speed: overspeed for unload and overhauling processes, $t < 5$ s and $\Delta p < 150$ bar
- 3) Restriction of input flow with counterbalance valve, see page 39
- 4) Torque without radial force, with radial force see page 8
- 5) Torque at $\Delta p = 315$ bar

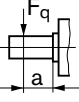
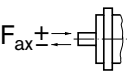
Note

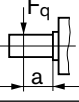
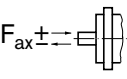
Operation above the maximum values or below the minimum values may result in a loss of function, a reduced service life or in the destruction of the axial piston unit. Other permissible limit values, with respect to speed variation, reduced angular acceleration as a function of the frequency and the permissible start up angular acceleration (lower than the maximum angular acceleration) can be found in data sheet RE 90261.

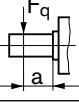
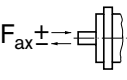
Technical data

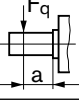
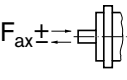
Permissible radial and axial forces of the drive shafts

(splined shaft and parallel keyed shaft)

Size	NG		5	5 ³⁾	10	10	12	12	16	23	23	
Drive shaft	ø	mm	12	12	20	25	20	25	25	25	30	
Maximum radial force ¹⁾ at distance a (from shaft collar)		$F_{q \max}$	kN	1.6	1.6	3.0	3.2	3.0	3.2	3.2	5.7	5.4
		a	mm	12	12	16	16	16	16	16	16	16
with permissible torque	T_{\max}	Nm	24.7	24.7	66	66	76	76	102	146	146	
△ permissible pressure Δp	Δp _{perm}	bar	315	315	400	400	400	400	400	400	400	
Maximum axial force ²⁾		+F _{ax max}	N	180	180	320	320	320	320	320	500	500
		-F _{ax max}	N	0	0	0	0	0	0	0	0	0
Permissible axial force per bar operating pressure	±F _{ax perm/bar}	N/bar	1.5	1.5	3.0	3.0	3.0	3.0	3.0	5.2	5.2	

Size	NG		28	28	32	45	56	56 ⁴⁾	56	63	80	
Drive shaft	ø	mm	25	30	30	30	30	30	35	35	35	
Maximum radial force ¹⁾ at distance a (from shaft collar)		$F_{q \max}$	kN	5.7	5.4	5.4	7.6	9.5	7.8	9.1	9.1	11.6
		a	mm	16	16	16	18	18	18	18	18	18
with permissible torque	T_{\max}	Nm	179	179	204	290	357	294	357	401	512	
△ permissible pressure Δp	Δp _{perm}	bar	400	400	400	400	400	330	400	400	400	
Maximum axial force ²⁾		+F _{ax max}	N	500	500	500	630	800	800	800	1000	
		-F _{ax max}	N	0	0	0	0	0	0	0	0	0
Permissible axial force per bar operating pressure	±F _{ax perm/bar}	N/bar	5.2	5.2	5.2	7.0	8.7	8.7	8.7	8.7	10.6	

Size	NG		80 ⁴⁾	80	90	107	107	125	160	160	180	
Drive shaft	ø	mm	35	40	40	40	45	45	45	50	50	
Maximum radial force ¹⁾ at distance a (from shaft collar)		$F_{q \max}$	kN	11.1	11.4	11.4	13.6	14.1	14.1	18.1	18.3	18.3
		a	mm	20	20	20	20	20	20	25	25	25
with permissible torque	T_{\max}	Nm	488	512	573	679	679	796	1021	1021	1146	
△ permissible pressure Δp	Δp _{perm}	bar	380	400	400	400	400	400	400	400	400	
Maximum axial force ²⁾		+F _{ax max}	N	1000	1000	1000	1250	1250	1250	1600	1600	1600
		-F _{ax max}	N	0	0	0	0	0	0	0	0	0
Permissible axial force per bar operating pressure	±F _{ax perm/bar}	N/bar	10.6	10.6	10.6	12.9	12.9	12.9	16.7	16.7	16.7	

Size	NG		200	250	355	500	710	1000	
Drive shaft	ø	mm	50	50	60	70	90	90	
Maximum radial force ¹⁾ at distance a (from shaft collar)		$F_{q \max}$	kN	20.3	1.2 ⁶⁾	1.5 ⁶⁾	1.9 ⁶⁾	3.0 ⁶⁾	2.6 ⁶⁾
		a	mm	25	41	52.5	52.5	67.5	67.5
with permissible torque	T_{\max}	Nm	1273	5)	5)	5)	5)	5)	
△ permissible pressure Δp	Δp _{perm}	bar	400	5)	5)	5)	5)	5)	
Maximum axial force ²⁾		+F _{ax max}	N	1600	2000	2500	3000	4400	4400
		-F _{ax max}	N	0	0	0	0	0	0
Permissible axial force per bar operating pressure	±F _{ax perm/bar}	N/bar	16.7	5)	5)	5)	5)	5)	

1) With intermittent operation

2) Maximum permissible axial force during standstill or when the axial piston unit is operating in non-pressurized condition.

3) Conical shaft with threaded pin and woodruff key (DIN 6888)

4) Restricted technical data only for splined shaft

5) Please contact us.

6) When at a standstill or when axial piston unit operating in non-pressurized conditions. Higher forces are permissible when under pressure, please contact us.

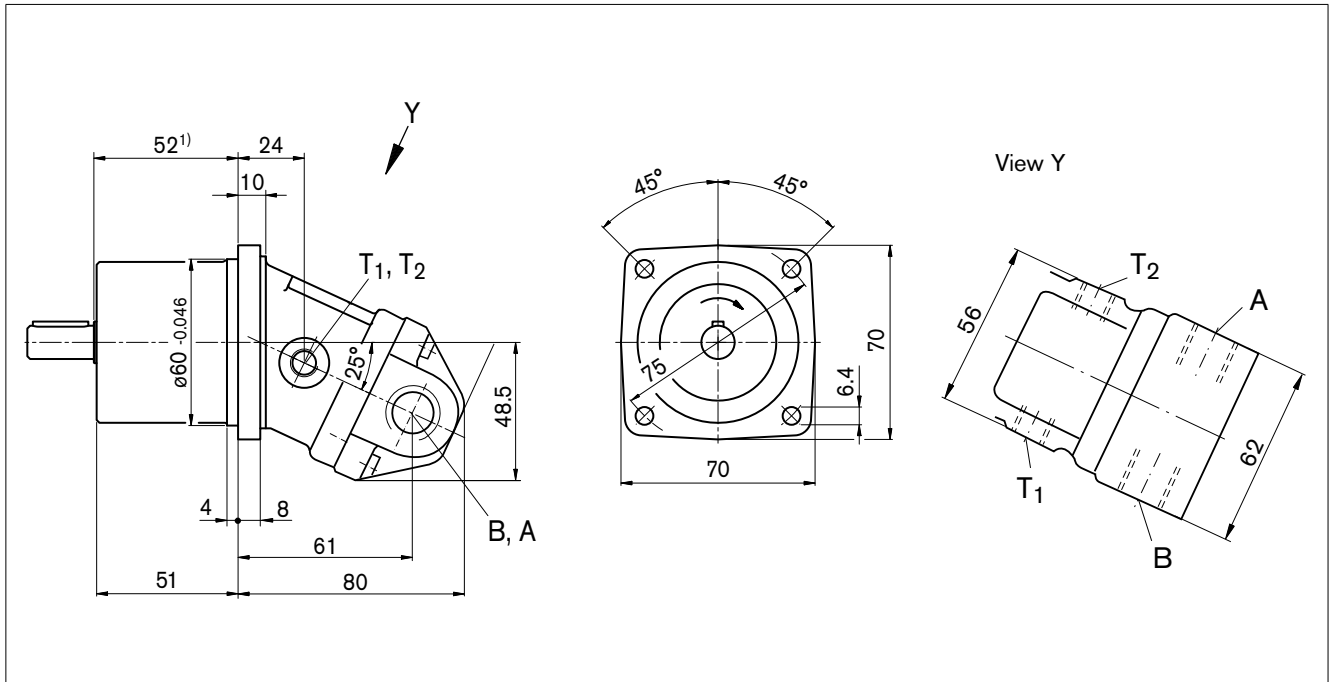
Note

Influence of the direction of the permissible axial force:

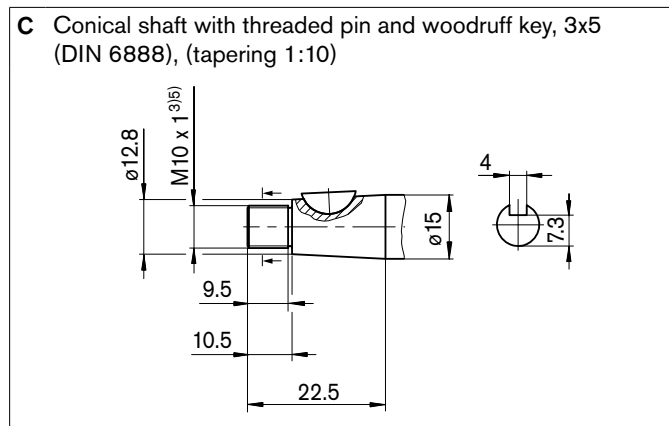
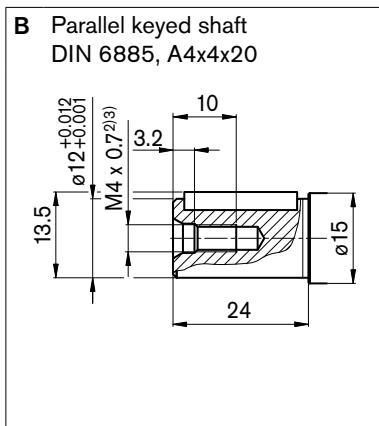
+F_{ax max} = Increase in service life of bearings

-F_{ax max} = Reduction in service life of bearings (avoid)

Dimensions size 5



Drive shafts



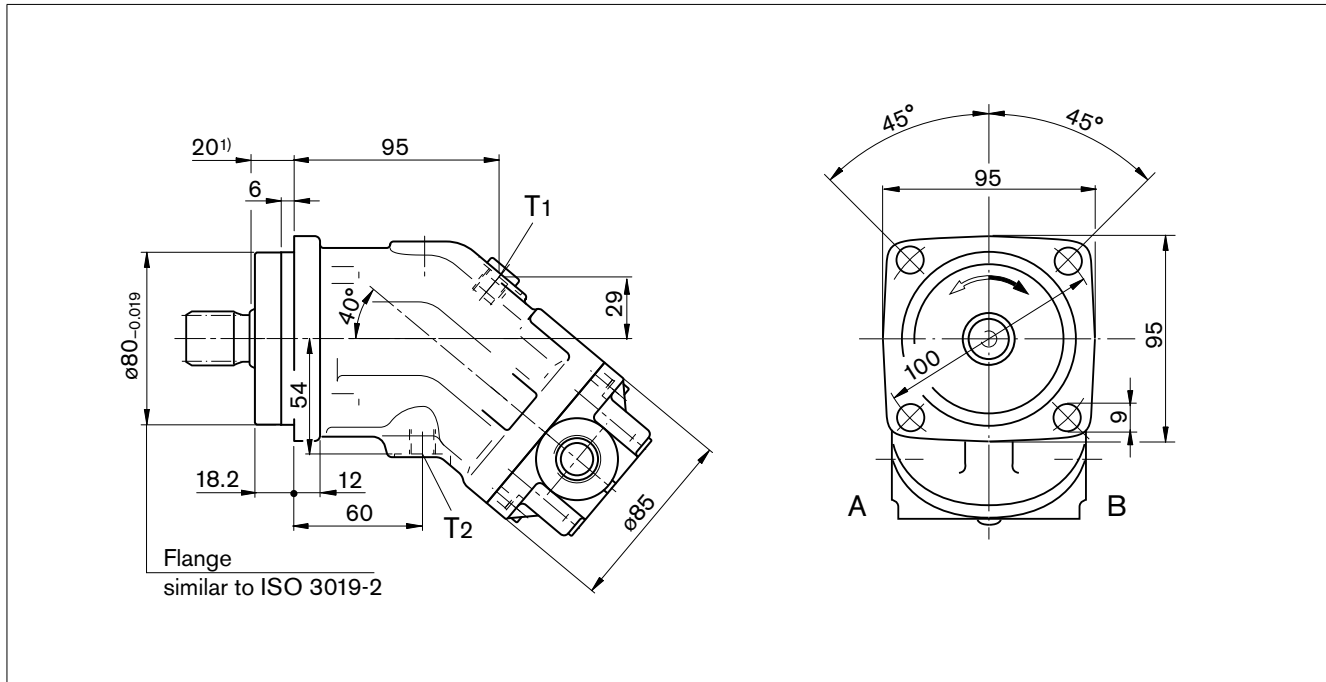
Ports

Designation	Port for	Standard ⁶⁾	Size ³⁾	Maximum pressure [bar] ⁴⁾	State ⁷⁾
A, B	Service line	DIN 3852	M18 x 1.5; 12 deep	350	O
T ₁	Drain line	DIN 3852	M10 x 1; 8 deep	3	O
T ₂	Drain line	DIN 3852	M10 x 1; 8 deep	3	O

1) To shaft collar

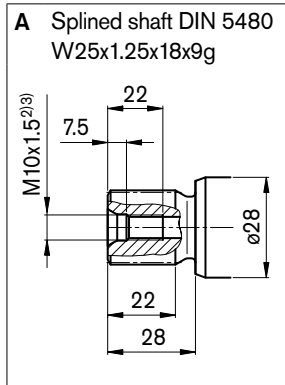
2) Center bore according to DIN 332 (thread according to DIN 13)

Dimensions sizes 10, 12, 16

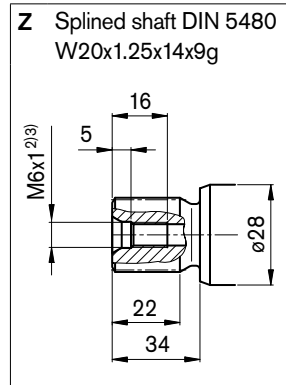


Drive shafts

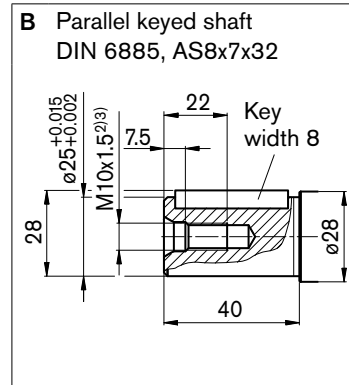
Sizes 10, 12, 16



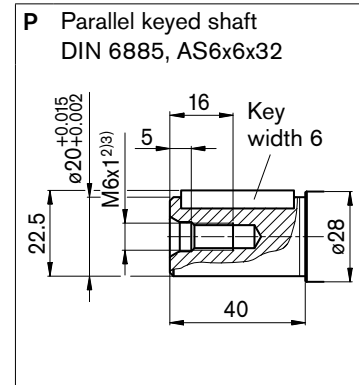
Sizes 10, 12



Sizes 10, 12, 16



Sizes 10, 12



Ports

Designation	Port for	Standard	Size ³⁾	Maximum pressure [bar] ⁴⁾	State ⁷⁾
A, B	Service line (see port plates)			450	
T ₁	Drain line	DIN 3852 ⁶⁾	M12 x 1.5; 12 deep	3	X ⁵⁾
T ₂	Drain line	DIN 3852 ⁶⁾	M12 x 1.5; 12 deep	3	O ⁵⁾

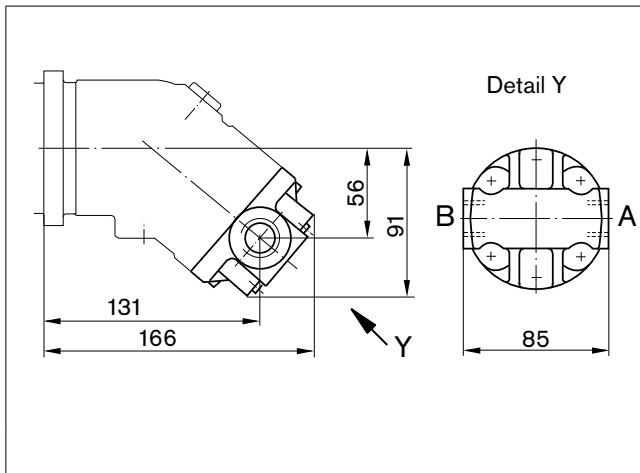
1) To shaft collar

2) Center bore according to DIN 332 (thread according to DIN 13)

Dimensions sizes 10, 12, 16

Location of the service line ports on the port plates

03 – Threaded ports at side, opposite



04 – Threaded ports at side and rear

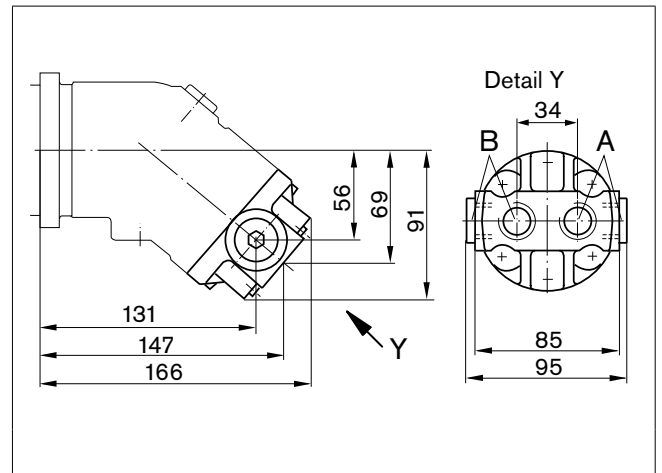
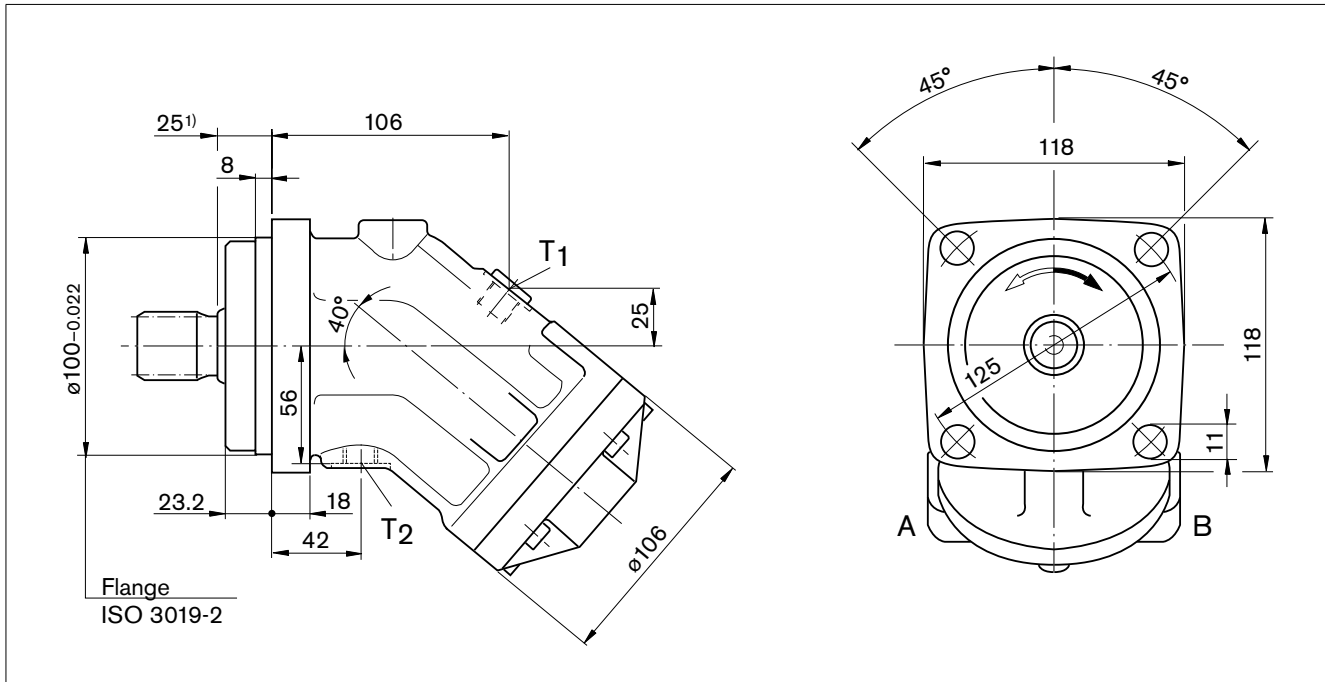


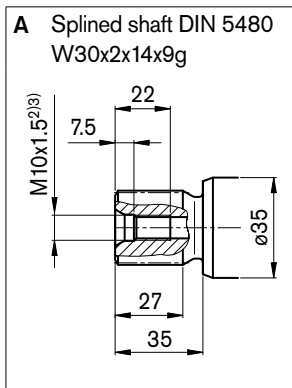
Plate	Designation	Port for	Standard ⁽³⁾	Size ⁽¹⁾	Maximum pressure [bar] ⁽²⁾	State ⁽⁴⁾
03	A, B	Service line	DIN 3852	M22 x 1.5; 14 deep	450	O
04		Service line	DIN 3852	M22 x 1.5; 14 deep	450	1x O each

Dimensions sizes 23, 28, 32

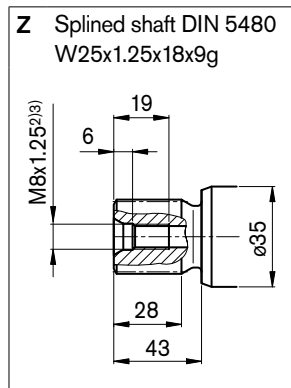


Drive shafts

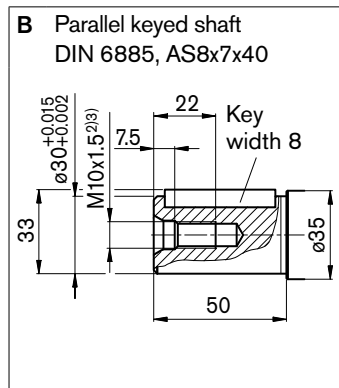
Sizes 23, 28, 32



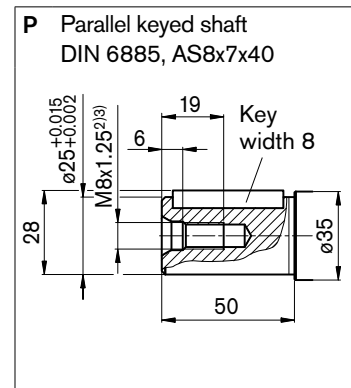
Sizes 23, 28



Sizes 23, 28, 32



Sizes 23, 28



Ports

Designation	Port for	Standard	Size ³⁾	Maximum pressure [bar] ⁴⁾	State ⁷⁾
A, B	Service line (see port plates)			450	
T ₁	Drain line	DIN 3852 ⁶⁾	M16 x 1.5; 12 deep	3	X ⁵⁾
T ₂	Drain line	DIN 3852 ⁶⁾	M16 x 1.5; 12 deep	3	O ⁵⁾

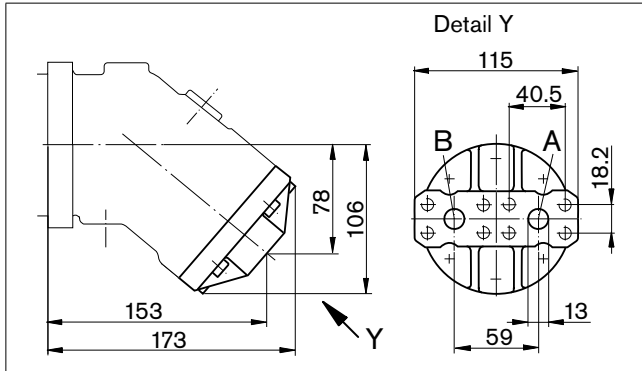
1) To shaft collar

2) Center bore according to DIN 332 (thread according to DIN 13)

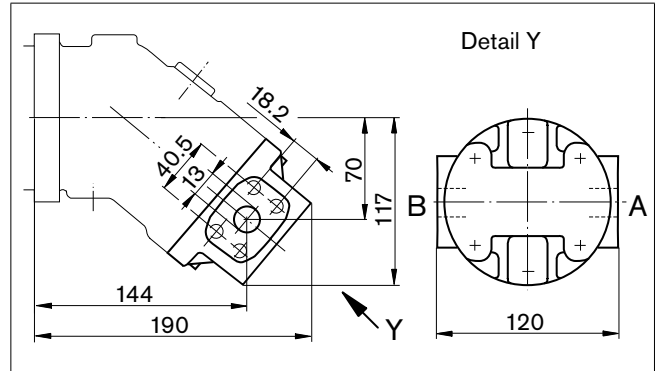
Dimensions sizes 23, 28, 32

Location of the service line ports on the port plates

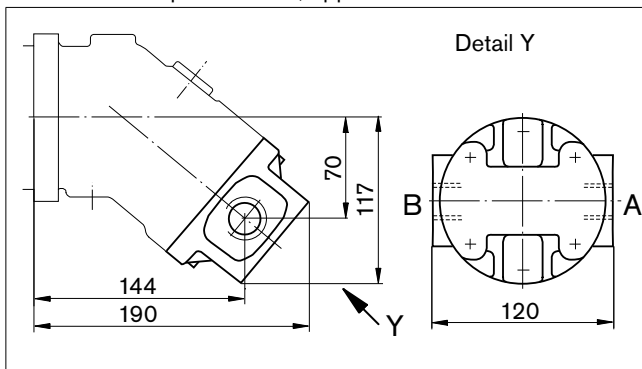
01 – SAE flange ports at rear



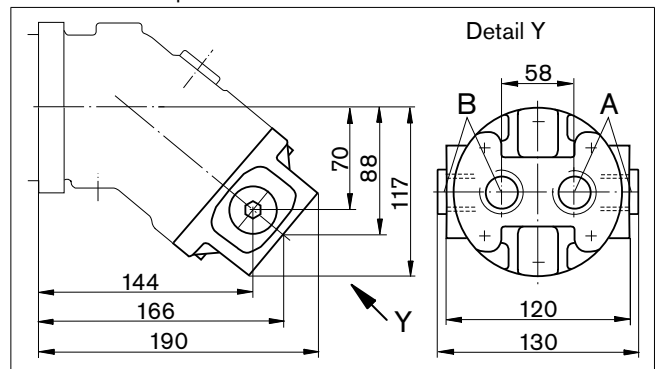
02 – SAE flange ports at side, opposite



03 – Threaded ports at side, opposite



04 – Threaded ports at side and rear



10 – SAE flange ports at bottom (same side)⁴⁾

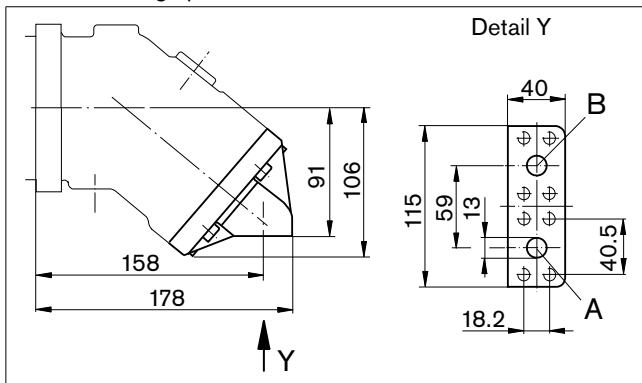
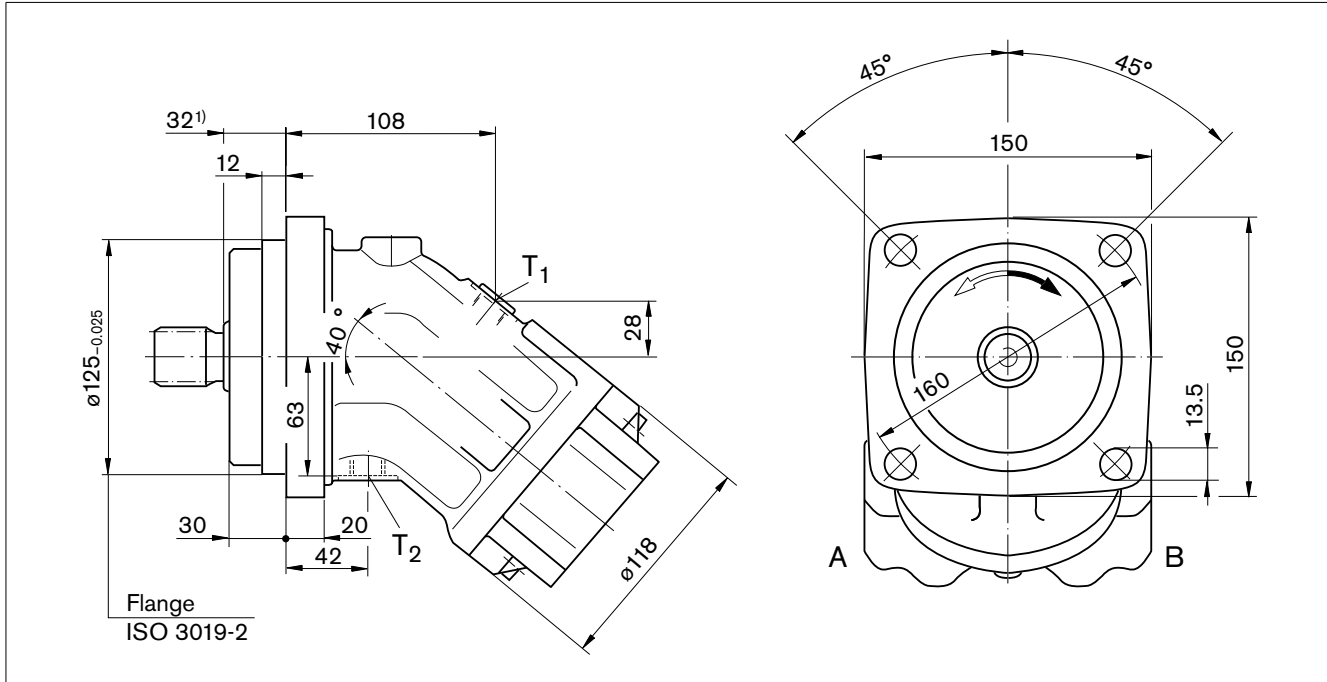
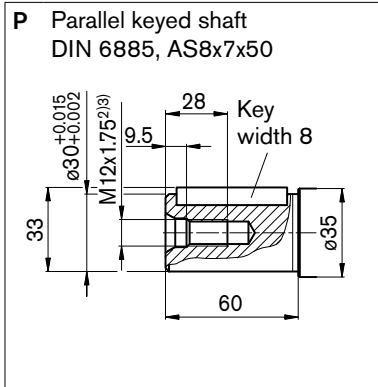
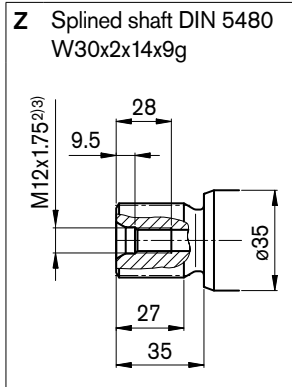


Plate	Designation	Port for	Standard	Size ¹⁾	Maximum pressure [bar] ²⁾	State ⁶⁾
01, 02, 10	A, B	Service line	SAE J518 ³⁾	1/2 in	450	O
		Fastening thread A/B	DIN 13	M8 x 1.25; 15 deep		
03		Service line	DIN 3852 ⁵⁾	M27 x 2; 16 deep	450	O
04		Service line	DIN 3852 ⁵⁾	M27 x 2; 16 deep	450	1x O each

Dimensions size 45



Drive shafts



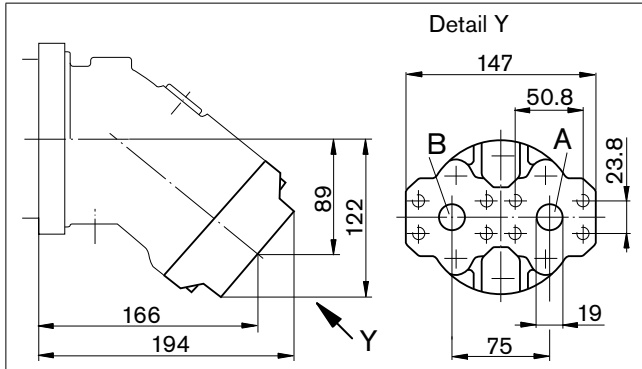
Ports

Designation	Port for	Standard	Size ³⁾	Maximum pressure [bar] ⁴⁾	State ⁷⁾
A, B	Service line (see port plates)			450	
T ₁	Drain line	DIN 3852 ⁶⁾	M18 x 1.5; 12 deep	3	X ⁵⁾
T ₂	Drain line	DIN 3852 ⁶⁾	M18 x 1.5; 12 deep	3	O ⁵⁾

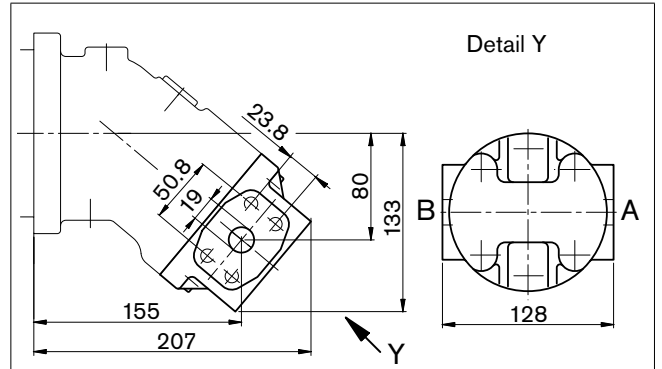
Dimensions size 45

Location of the service line ports on the port plates

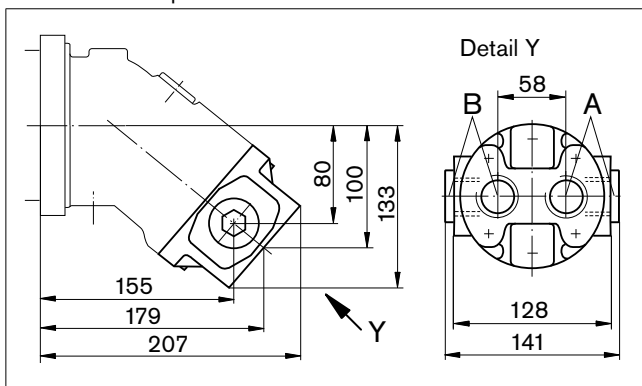
01 – SAE flange ports at rear



02 – SAE flange ports at side, opposite



04 – Threaded ports at side and rear



10 – SAE flange ports at bottom (same side)

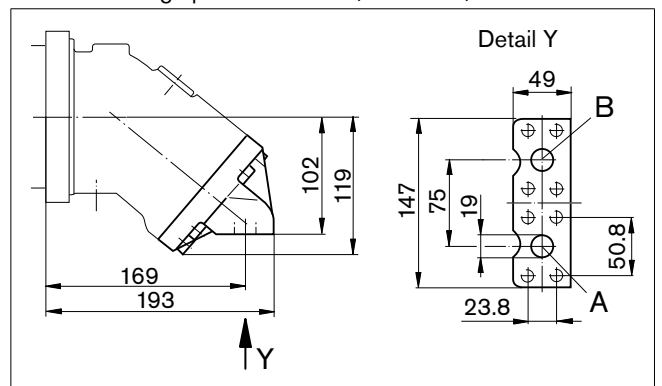
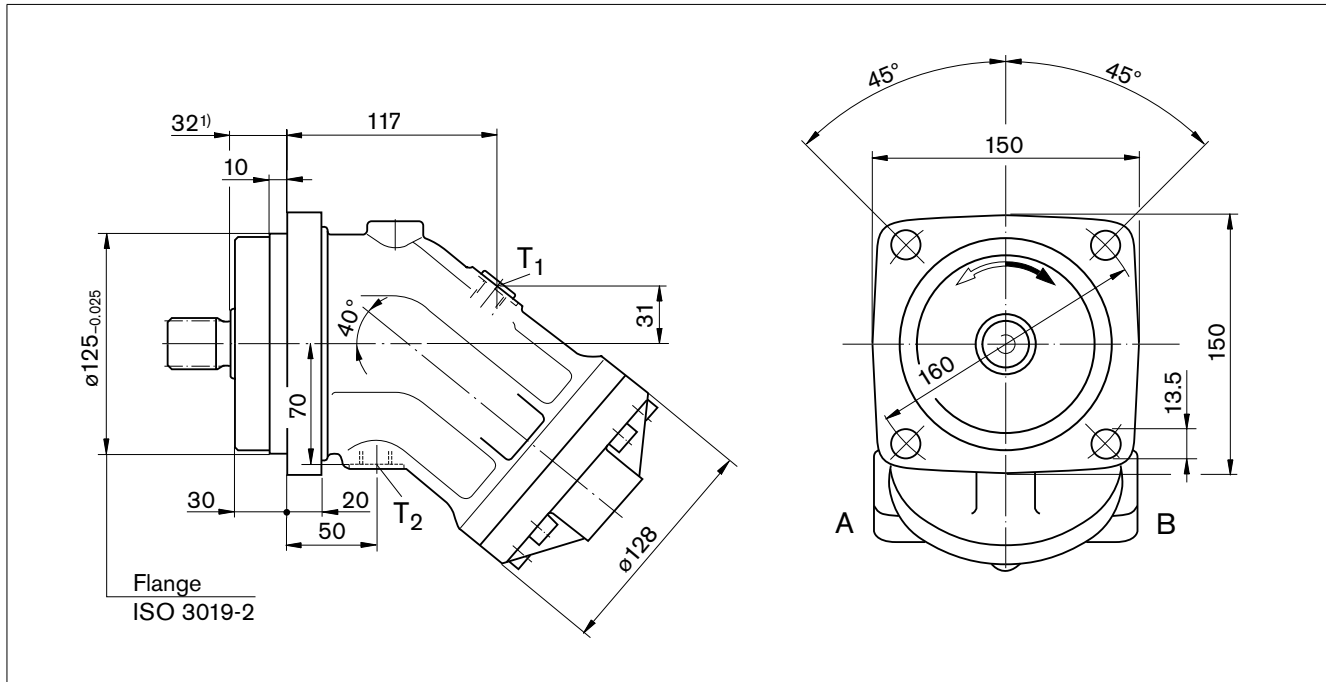


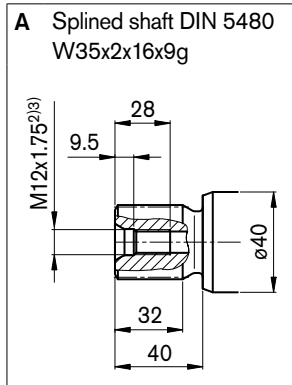
Plate	Designation	Port for	Standard	Size ¹⁾	Maximum pressure [bar] ²⁾	State ⁵⁾
01, 02, 10	A, B	Service line	SAE J518 ³⁾	3/4 in	450	O
		Fastening thread A/B	DIN 13	M10 x 1.5; 17 deep		
04		Service line	DIN 3852 ⁴⁾	M33 x 2; 18 deep	450	1x O each

Dimensions sizes 56, 63

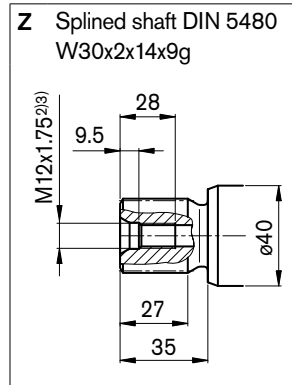


Drive shafts

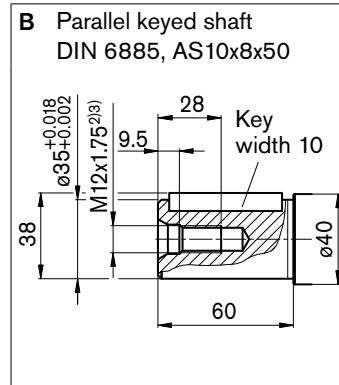
NG56, 63



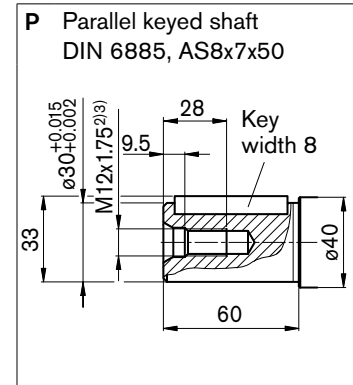
NG56



NG56, 63



NG56



Ports

Designation	Port for	Standard	Size ³⁾	Maximum pressure [bar] ⁴⁾	State ⁷⁾
A, B	Service line (see port plates)			450	
T ₁	Drain line	DIN 3852 ⁶⁾	M18 x 1.5; 12 deep	3	X ⁵⁾
T ₂	Drain line	DIN 3852 ⁶⁾	M18 x 1.5; 12 deep	3	O ⁵⁾

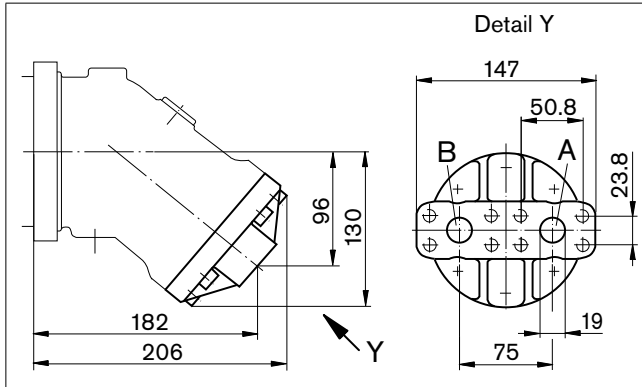
1) To shaft collar

2) Center bore according to DIN 332 (thread according to DIN 13)

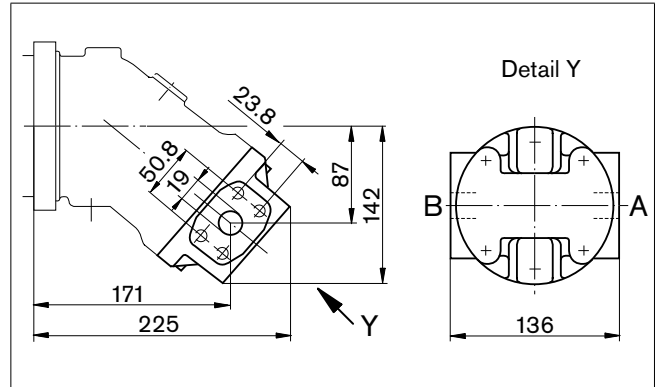
Dimensions sizes 56, 63

Location of the service line ports on the port plates

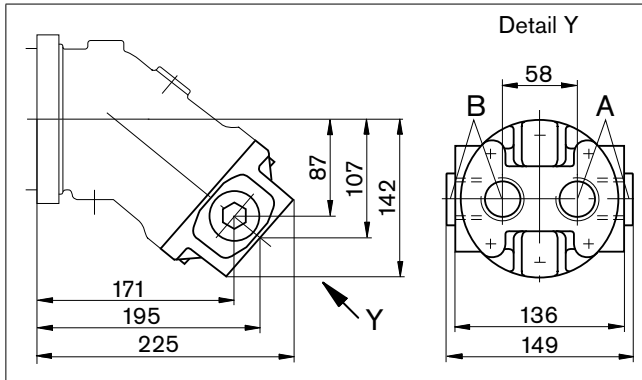
01 – SAE flange ports at rear



02 – SAE flange ports at side, opposite



04 – Threaded ports at side and rear



10 – SAE flange ports at bottom (same side)

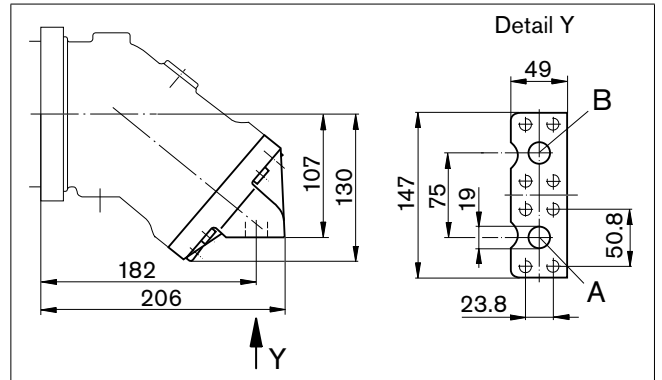
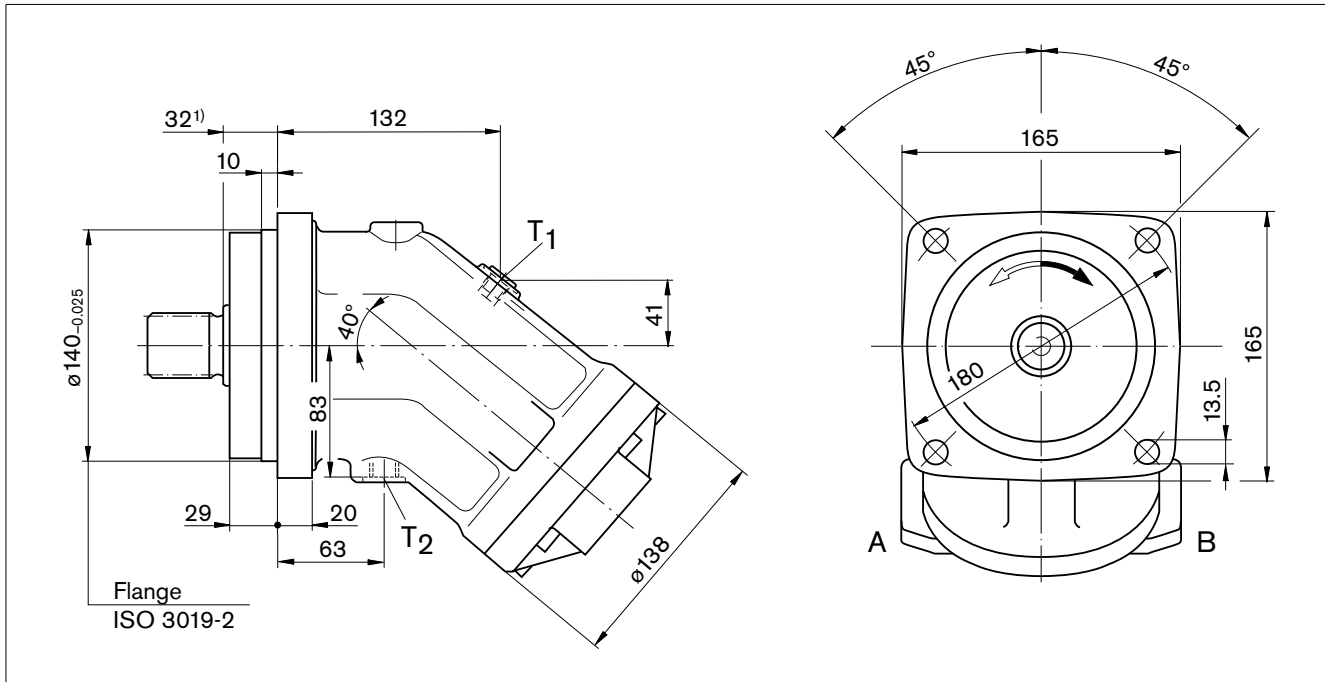


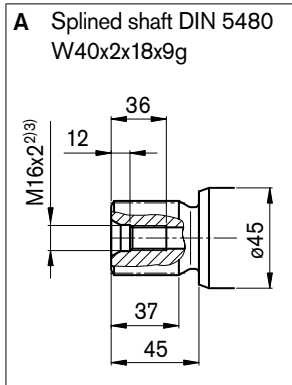
Plate	Designation	Port for	Standard	Size ¹⁾	Maximum pressure [bar] ²⁾	State ⁵⁾
01, 02, 10	A, B	Service line Fastening thread A/B	SAE J518 ³⁾ DIN 13	3/4 in M10 x 1.5; 17 deep	450	O
04		Service line	DIN 3852 ⁴⁾	M33 x 2; 18 deep	450	1x O each

Dimensions sizes 80, 90

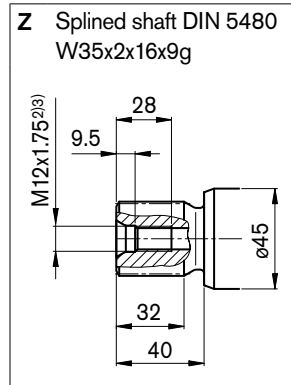


Drive shafts

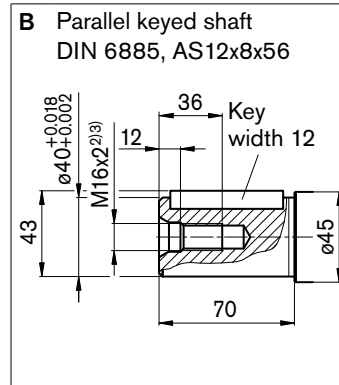
NG80, 90



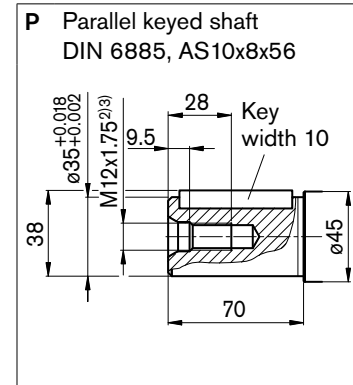
NG80



NG80, 90



NG80



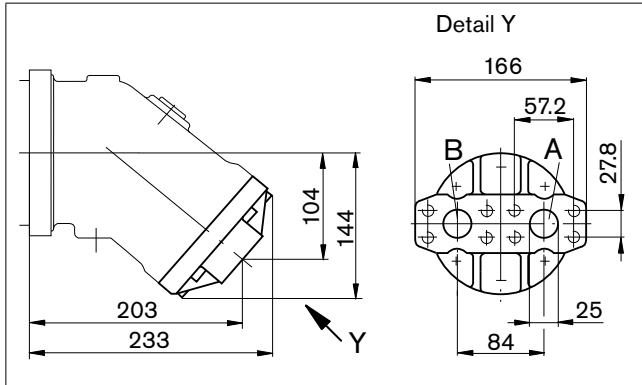
Ports

Designation	Port for	Standard	Size ³⁾	Maximum pressure [bar] ⁴⁾	State ⁷⁾
A, B	Service line (see port plates)			450	
T ₁	Drain line	DIN 3852 ⁶⁾	M18 x 1.5; 12 deep	3	X ⁵⁾
T ₂	Drain line	DIN 3852 ⁶⁾	M18 x 1.5; 12 deep	3	O ⁵⁾

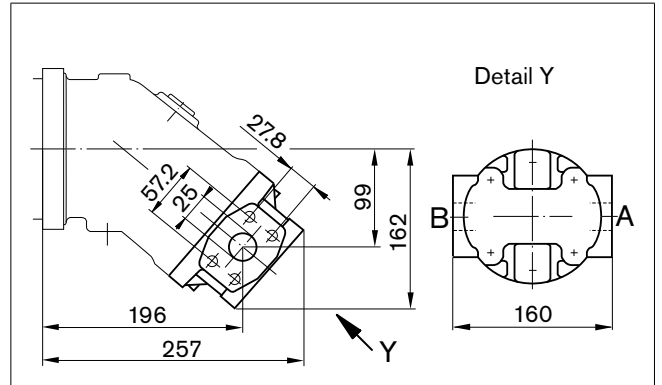
Dimensions sizes 80, 90

Location of the service line ports on the port plates

01 – SAE flange ports at rear



02 – SAE flange ports at side, opposite



10 – SAE flange ports at bottom (same side)

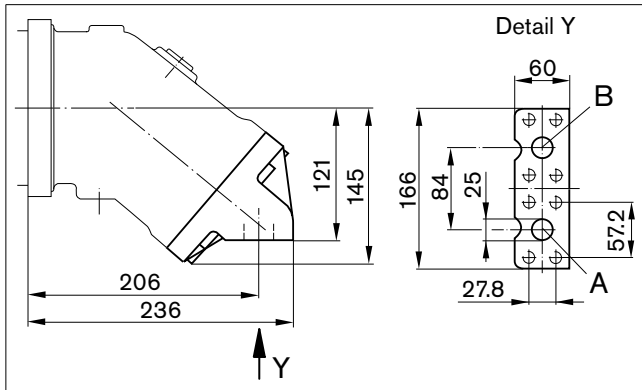
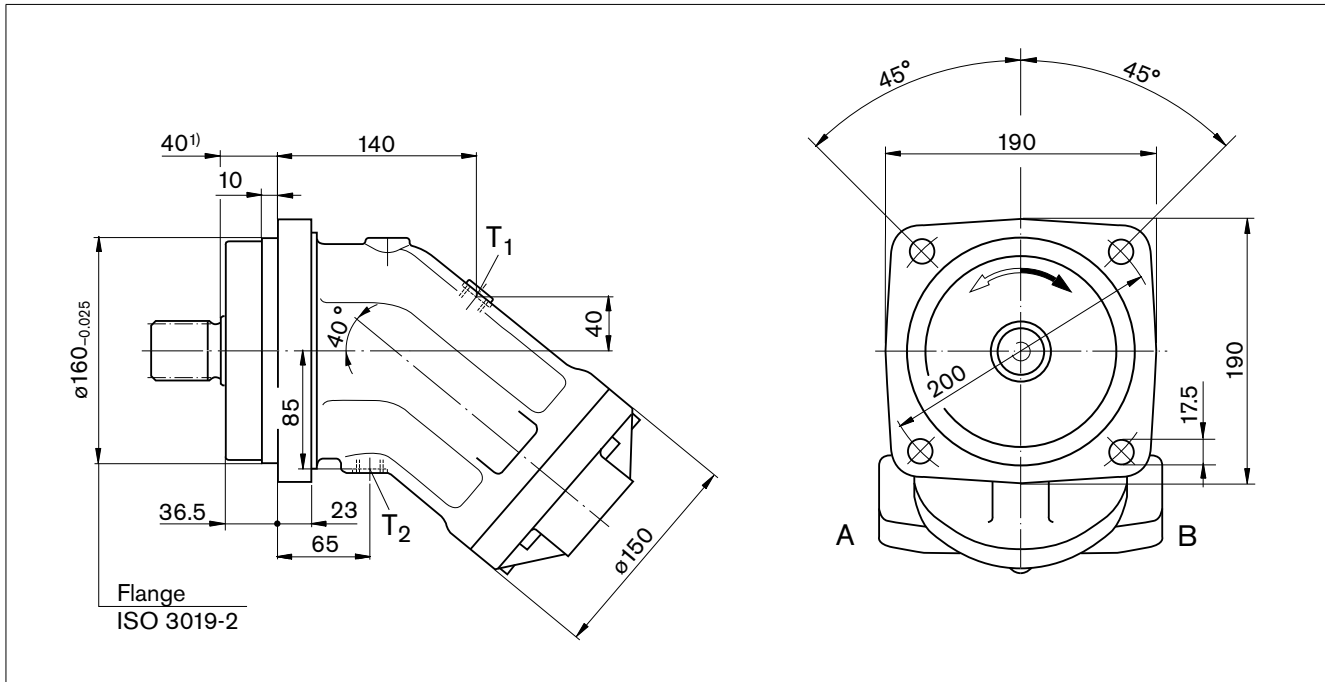


Plate	Designation	Port for	Standard	Size ¹⁾	Maximum pressure [bar] ²⁾	State ⁴⁾
01, 02, 10	A, B	Service line Fastening thread A/B	SAE J518 ³⁾ DIN 13	1 in M12 x 1.75; 17 deep	450	O

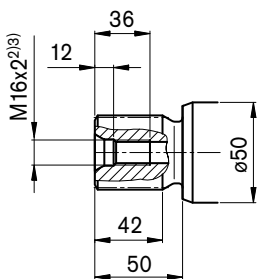
Dimensions sizes 107, 125



Drive shafts

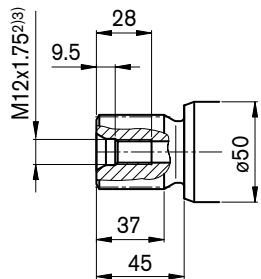
NG107, 125

A Splined shaft DIN 5480
W45x2x21x9g



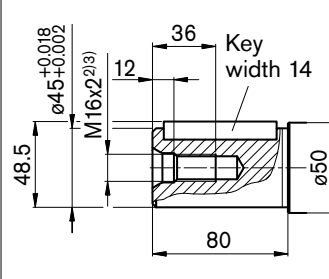
NG107

Z Splined shaft DIN 5480
W40x2x18x9g



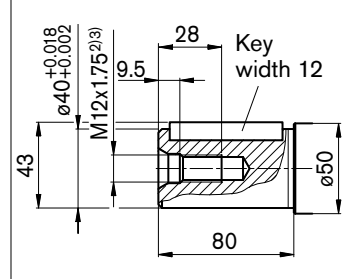
NG107, 125

B Parallel keyed shaft
DIN 6885, AS14x9x63



NG107

P Parallel keyed shaft
DIN 6885, AS12x8x63



Ports

Designation	Port for	Standard	Size ³⁾	Maximum pressure [bar] ⁴⁾	State ⁷⁾
A, B	Service line (see port plates)			450	
T ₁	Drain line	DIN 3852 ⁶⁾	M18 x 1.5; 12 deep	3	X ⁵⁾
T ₂	Drain line	DIN 3852 ⁶⁾	M18 x 1.5; 12 deep	3	O ⁵⁾

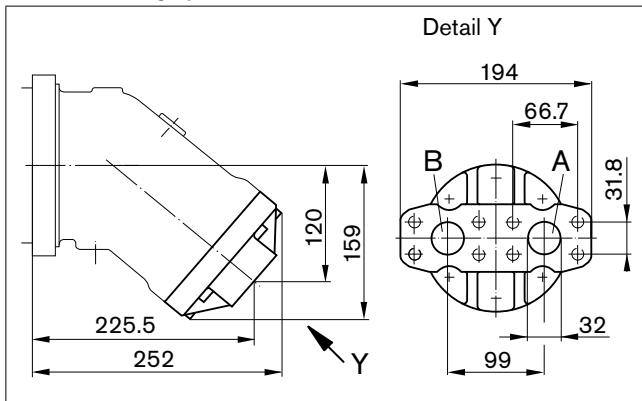
1) To shaft collar

2) Center bore according to DIN 332 (thread according to DIN 13)

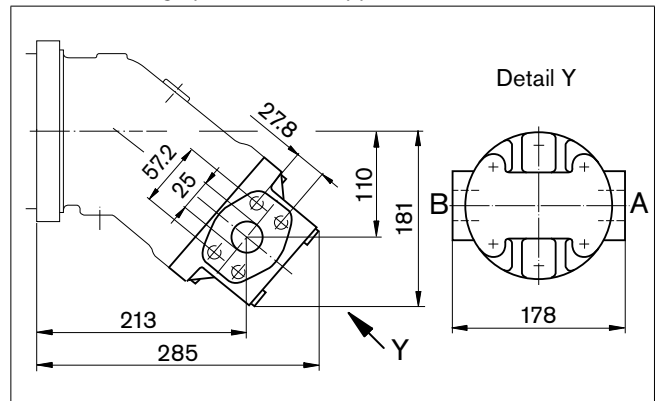
Dimensions sizes 107, 125

Location of the service line ports on the port plates

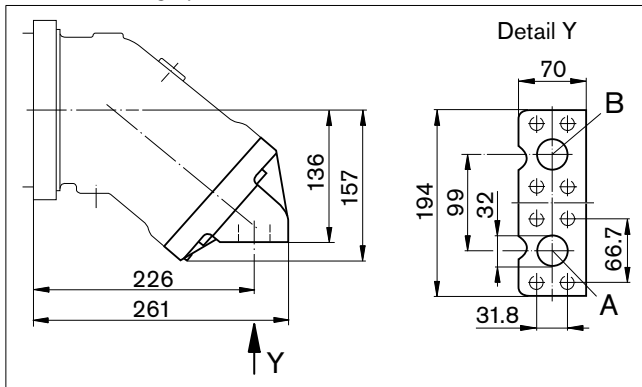
01 – SAE flange ports at rear



02 – SAE flange ports at side, opposite (size 107)



10 – SAE flange ports at bottom (same side)



02 – SAE flange ports at side, opposite (size 125)

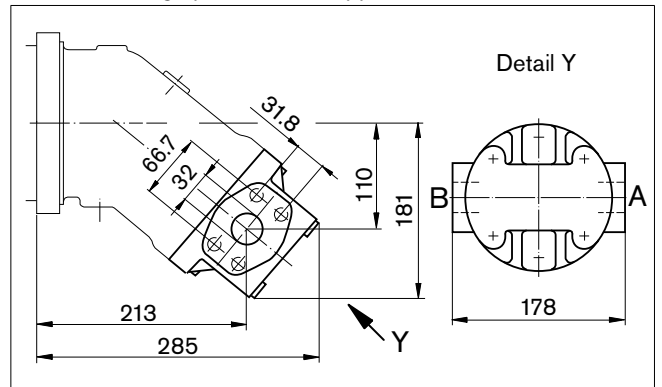
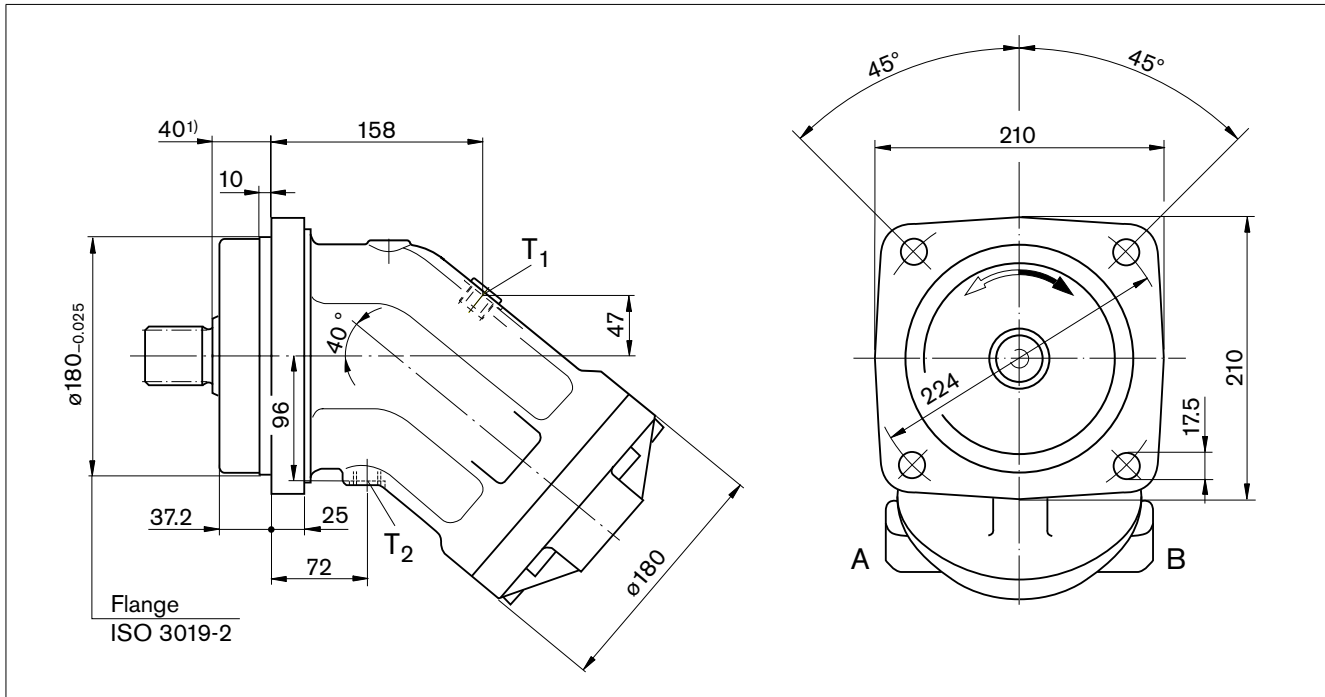


Plate	Designation	Port for	Standard	Size ¹⁾	Maximum pressure [bar] ²⁾	State ⁴⁾
01, 10	A, B	Service line	SAE J518 ³⁾	1 1/4 in	450	O
		Fastening thread A/B	DIN 13	M14 x 2; 19 deep		
02 (size 107)	A, B	Service line	SAE J518 ³⁾	1 in	450	O
		Fastening thread A/B	DIN 13	M12 x 1.75; 17 deep		
02 (size 125)	A, B	Service line	SAE J518 ³⁾	1 1/4 in	450	O
		Fastening thread A/B	DIN 13	M14 x 2; 19 deep		

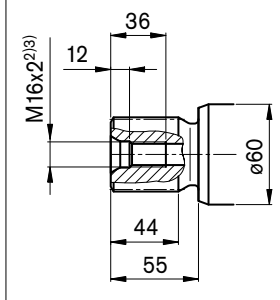
Dimensions sizes 160, 180



Drive shafts

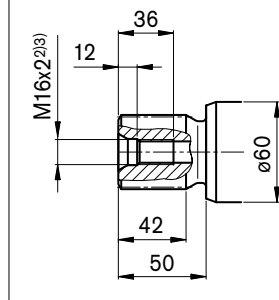
NG160, 180

A Splined shaft DIN 5480
W50x2x24x9g



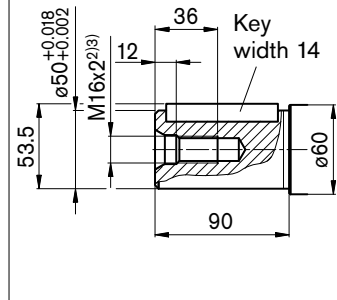
NG160

Z Splined shaft DIN 5480
W45x2x21x9g



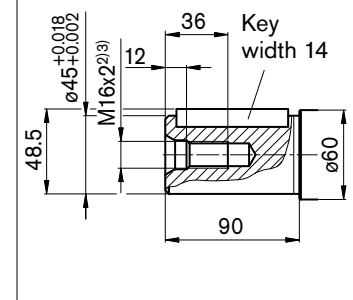
NG160, 180

B Parallel keyed shaft
DIN 6885, AS14x9x70



NG160

P Parallel keyed shaft
DIN 6885, AS14x9x70



Ports

Designation	Port for	Standard	Size ³⁾	Maximum pressure [bar] ⁴⁾	State ⁷⁾
A, B	Service line (see port plates)			450	
T ₁	Drain line	DIN 3852 ⁶⁾	M22 x 1.5; 14 deep	3	X ⁵⁾
T ₂	Drain line	DIN 3852 ⁶⁾	M22 x 1.5; 14 deep	3	O ⁵⁾

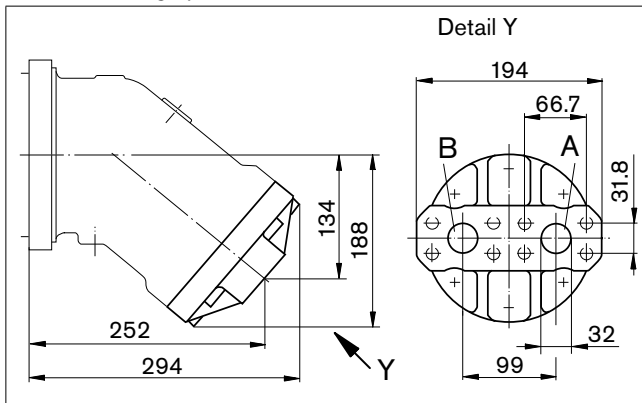
1) To shaft collar

2) Center bore according to DIN 332 (thread according to DIN 13)

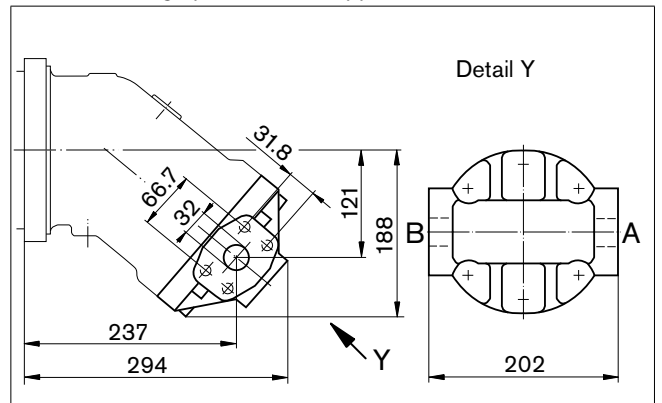
Dimensions sizes 160, 180

Location of the service line ports on the port plates

01 – SAE flange ports at rear



02 – SAE flange ports at side, opposite



10 – SAE flange ports at bottom (same side)

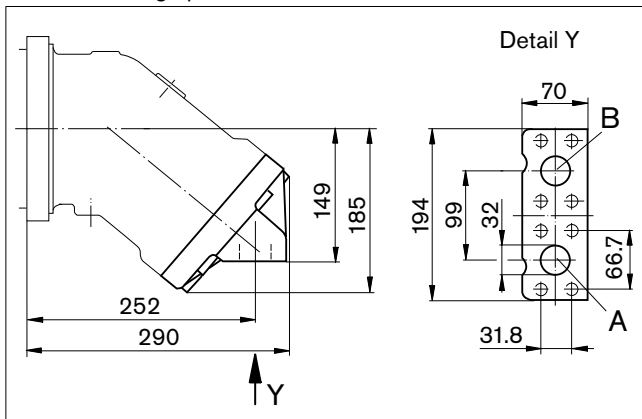
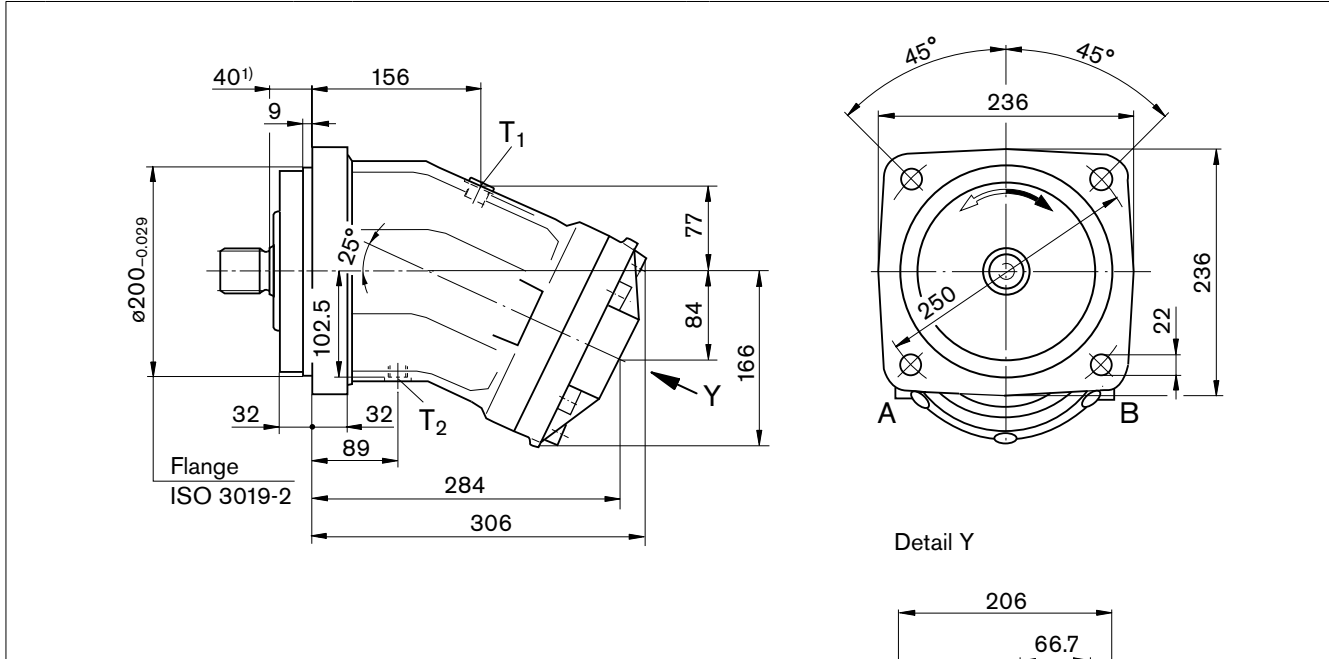


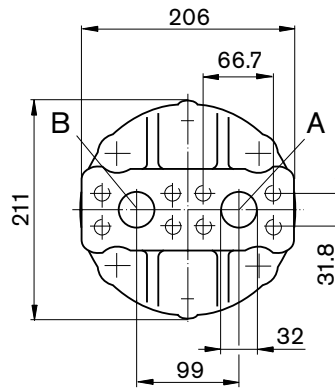
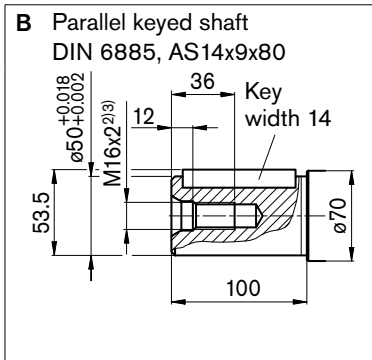
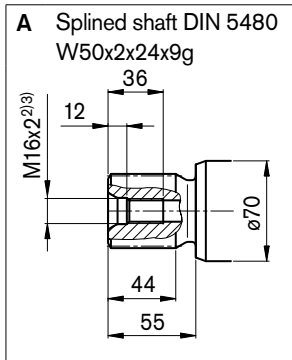
Plate	Designation	Port for	Standard	Size ¹⁾	Maximum pressure [bar] ²⁾	State ⁴⁾
01, 02, 10	A, B	Service line Fastening thread A/B	SAE J518 ³⁾ DIN 13	1 1/4 in M14 x 2; 19 deep	450	O

Dimensions size 200

Port plate 01 – SAE flange ports at rear



Drive shafts



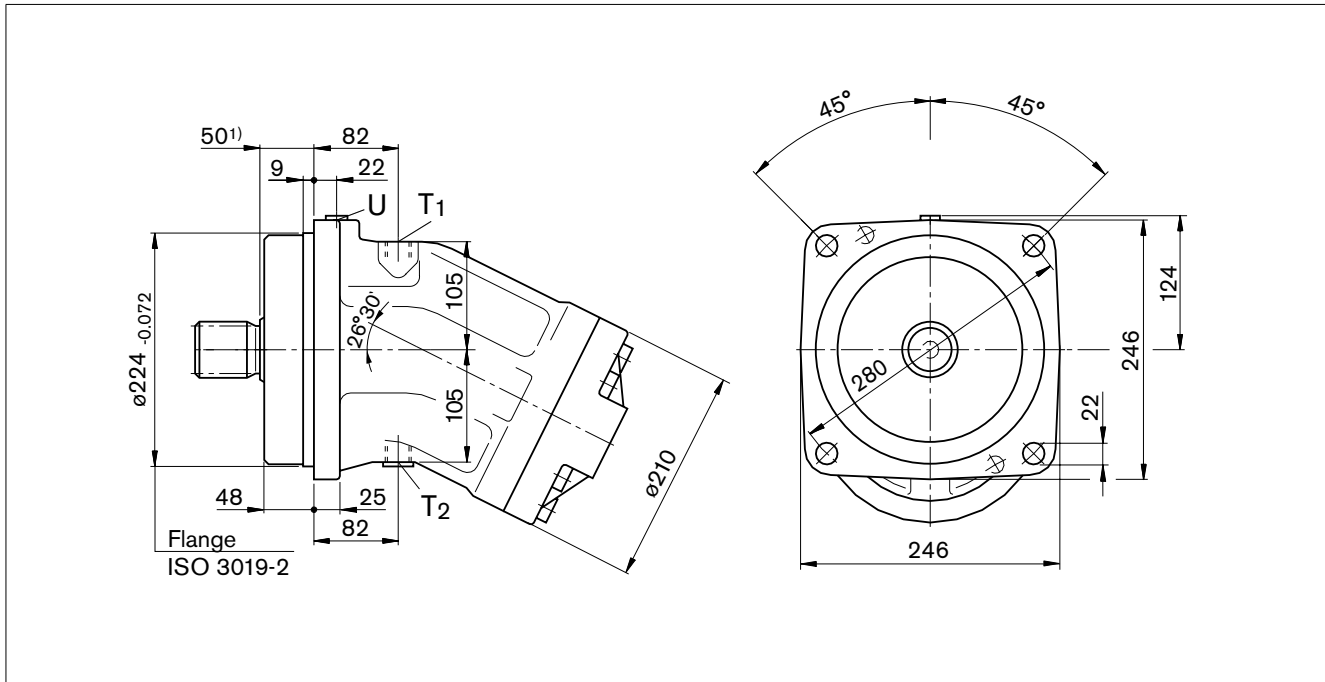
Ports

Designation	Port for	Standard	Size ³⁾	Maximum pressure [bar] ⁴⁾	State ⁸⁾
A, B	Service line Fastening thread A/B	SAE J5185 ⁵⁾ DIN 13	1 1/4 in M14 x 2; 19 deep	450	O
T ₁	Drain line	DIN 3852 ⁷⁾	M22 x 1.5; 14 deep	3	X ⁶⁾
T ₂	Drain line	DIN 3852 ⁷⁾	M22 x 1.5; 14 deep	3	O ⁶⁾

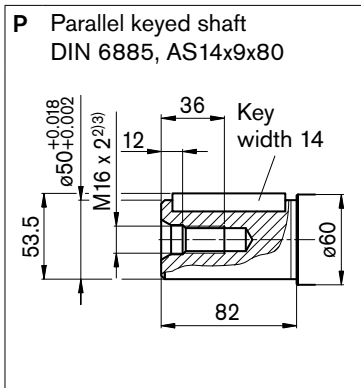
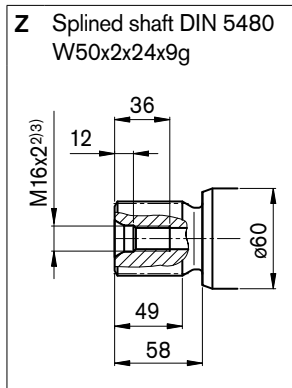
1) To shaft collar

2) Center bore according to DIN 332 (thread according to DIN 13)

Dimensions size 250



Drive shafts



Ports

Designation	Port for	Standard	Size ³⁾	Maximum pressure [bar] ⁴⁾	State ⁷⁾
A, B	Service line (see port plates)			400	
T ₁	Drain line	DIN 3852 ⁶⁾	M22 x 1.5; 14 deep	3	O ⁵⁾
T ₂	Drain line	DIN 3852 ⁶⁾	M22 x 1.5; 14 deep	3	X ⁵⁾
U	Bearing flushing	DIN 3852 ⁶⁾	M14 x 1.5; 12 deep	3	X

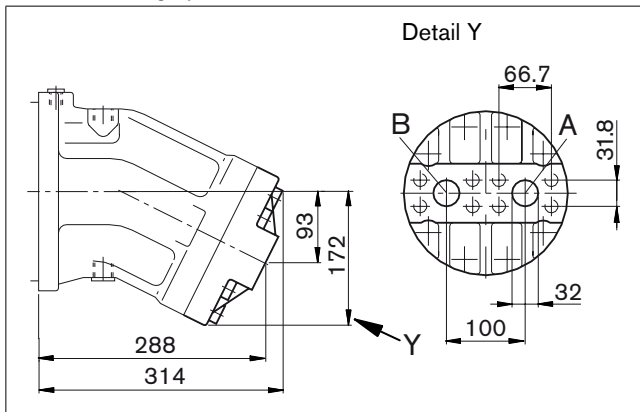
1) To shaft collar

2) Center bore according to DIN 332 (thread according to DIN 13)

Dimensions size 250

Location of the service line ports on the port plates

01 – SAE flange ports at rear



02 – SAE flange ports at side, opposite

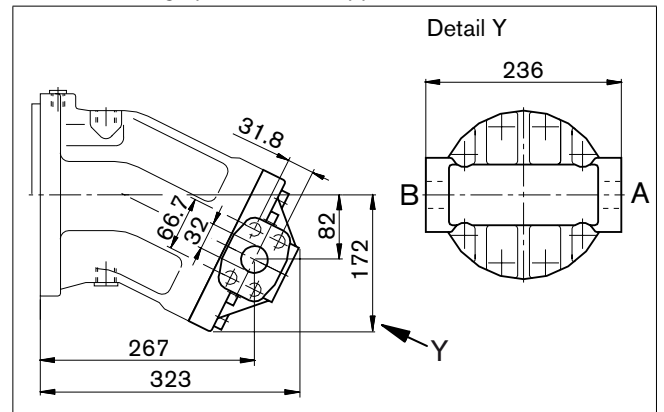
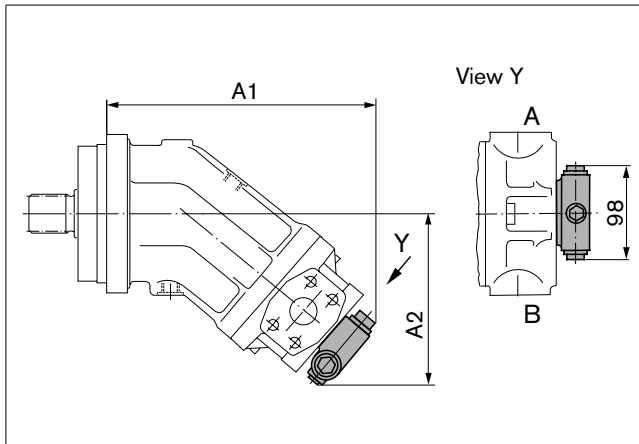


Plate	Designation	Port for	Standard	Size ¹⁾	Maximum pressure [bar] ²⁾	State ⁴⁾
01, 02	A, B	Service line Fastening thread A/B	SAE J518 ³⁾ DIN 13	1 1/4 in M14 x 2; 19 deep	400	O

Flushing and boost pressure valve

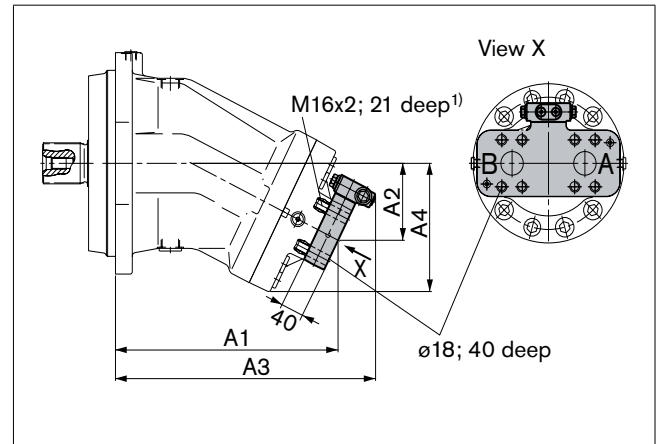
Dimensions

Port plate 027 – SAE flange ports at side



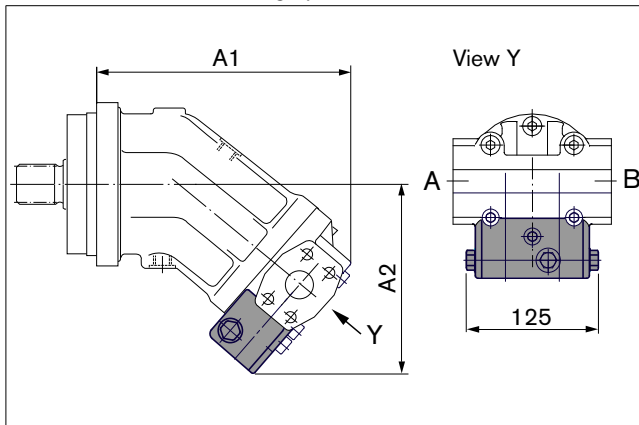
Size	A1	A2
45	223	151
107, 125	294	192
160, 180	315	201
250	344	172

Port plate 017 – SAE flange ports at rear



Size	A1	A2	A3	A4
355	356	120	421	198
500	397	130	464	220

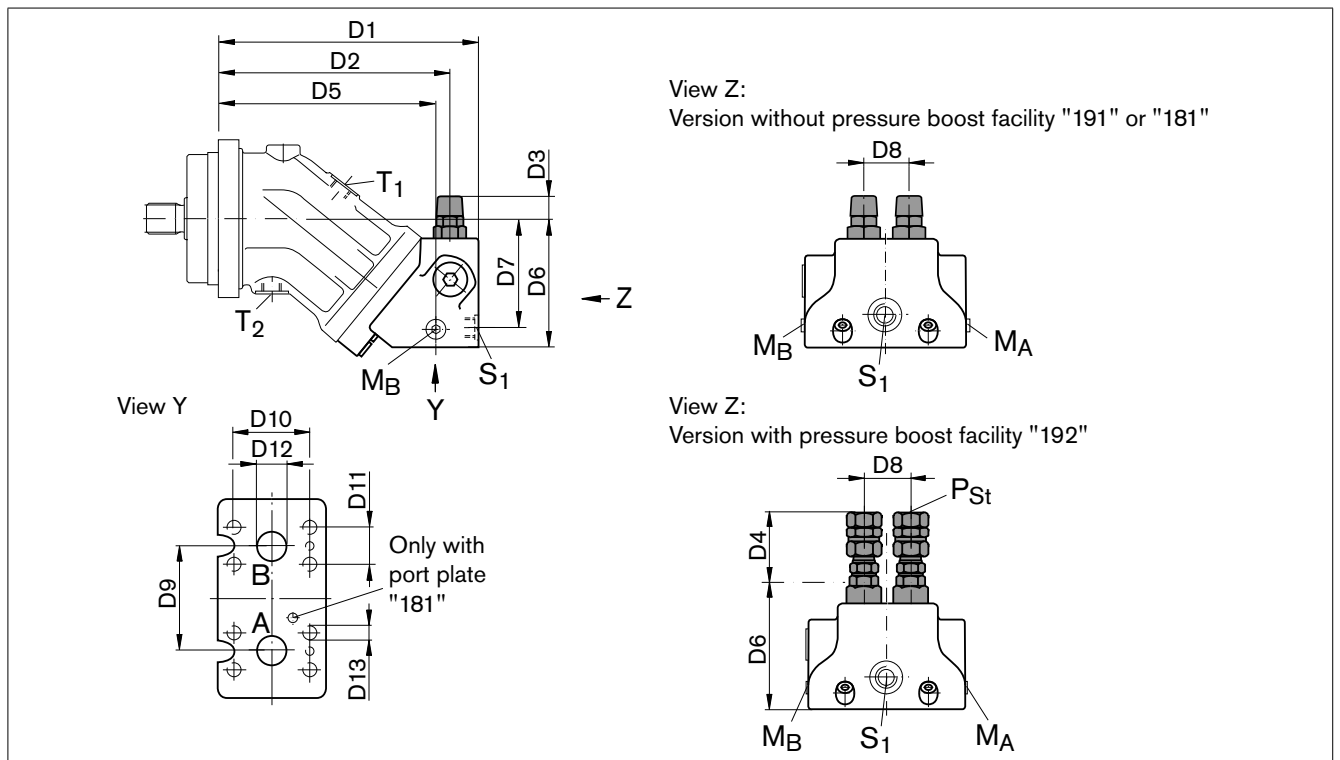
Port plate 029 – SAE flange ports at side



Size	A1	A2
56, 63	225	176
80, 90	257	186.7

Pressure-relief valve

Dimensions



Size		D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13 ²⁾
28, 32	MHDB.16	209	186	25	68	174	102	87	36	66	50.8	23.8	ø19	M10; 17 deep
45	MHDB.16	222	198	22	65	187	113	98	36	66	50.8	23.8	ø19	M10; 17 deep
56, 63	MHDB.22	250	222	19	61	208	124	105	42	75	50.8	23.8	ø19	M10; 13 deep
80, 90	MHDB.22	271	243	17.5	59	229	134	114	42	75	57.2	27.8	ø25	M12; 18 deep
107, 125	MHDB.32	298	266	10	52	250	149.5	130	53	84	66.7	31.8	ø32	M14; 19 deep
160, 180	MHDB.32	332	301	5	47	285	170	149	53	84	66.7	31.8	ø32	M14; 19 deep

Size	A, B	S ₁ ¹⁾	M _A , M _B ¹⁾	P _{St} ¹⁾
28, 32	3/4 in	M22 x 1.5; 14 deep	M20 x 1.5; 14 deep	G 1/4
45	3/4 in	M22 x 1.5; 14 deep	M20 x 1.5; 14 deep	G 1/4
56, 63	3/4 in	M26 x 1.5; 16 deep	M26 x 1.5; 16 deep	G 1/4
80, 90	1 in	M26 x 1.5; 16 deep	M26 x 1.5; 16 deep	G 1/4
107, 125	1 1/4 in	M26 x 1.5; 16 deep	M26 x 1.5; 16 deep	G 1/4
160, 180	1 1/4 in	M26 x 1.5; 16 deep	M30 x 1.5; 16 deep	G 1/4

Assembly instructions for port plate with pressure boost facility "192":

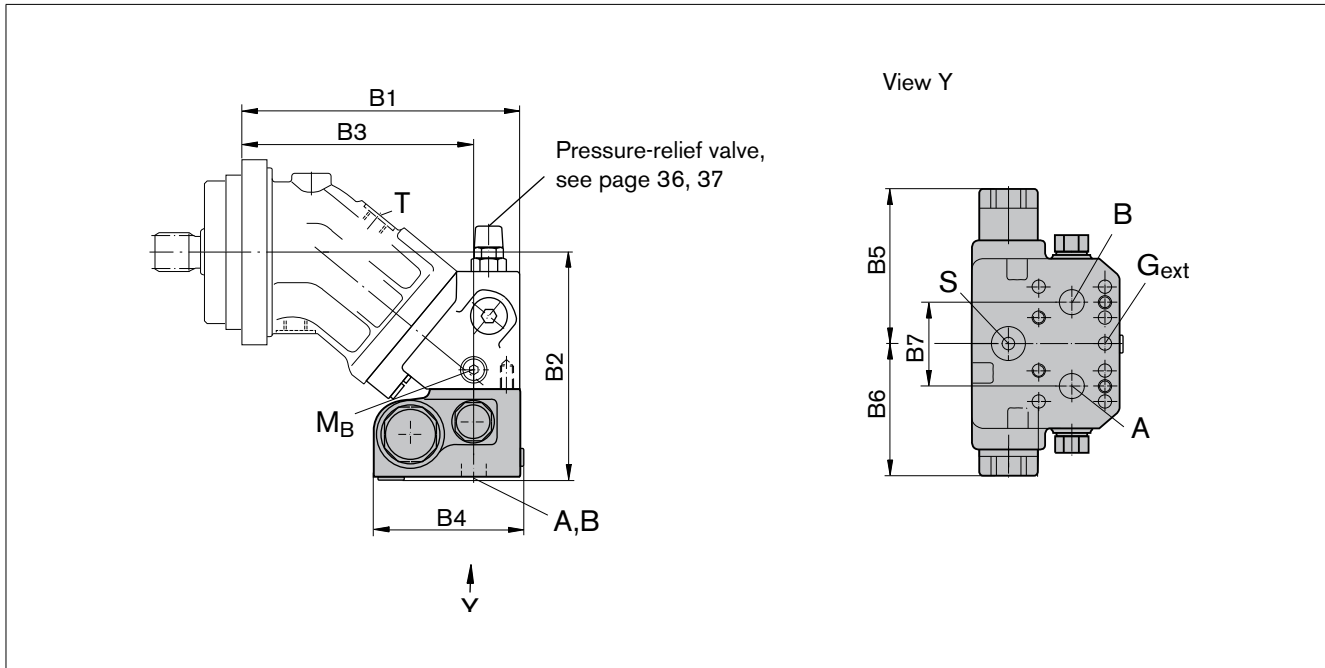
The lock nut must be counterheld when installing the hydraulic line at the p_{st} port!

Ports

Designation	Port for	Standard	Size	Maximum pressure [bar] ²⁾	State ³⁾
A, B	Service line	SAE J518	See above	450	O
S ₁	Supply (only with port plate 191/192)	DIN 3852	See above	5	O
M _A , M _B	Measuring operating pressure	DIN 3852	See above	450	X
P _{St}	Pilot pressure (only with port plate 192)	DIN ISO 228	See above	30	O

Counterbalance valve BVD and BVE

Dimensions



A2FM Size	Counterbalance valve			Dimensions							
	Type	Ports A, B		B1	B2	B3	B4 (S)	B4 (L)	B5	B6	B7
28, 32	BVD20..16	3/4 in		209	175	174	142	147	139	98	66
45	BVD20..16	3/4 in		222	196	187	142	147	139	98	66
56, 63	BVD20..17	3/4 in		250	197	208	142	147	139	98	75
80, 90	BVD20..27	1 in		271	207	229	142	147	139	98	75
107, 125	BVD20..28	1 in		298	238	251	142	147	139	98	84
107, 125	BVD25..38	1 1/4 in		298	239	251	158	163	175	120.5	84
160, 180	BVD25..38	1 1/4 in		332	260	285	158	163	175	120.5	84
107, 125	BVE25..38	1 1/4 in		298	240	251	167	172	214	137	84
160, 180	BVE25..38	1 1/4 in		332	260	285	167	172	214	137	84
250	On request										

Ports

Designation	Port for	Version	Standard	Size ¹⁾	Maximum pressure [bar] ²⁾	State ⁴⁾
A, B	Service line		SAE J518	see table above	420	O
S	Infeed	BVD20	DIN 3852 ³⁾	M22 x 1.5; 14 deep	30	X
		BVD25, BVE25	DIN 3852 ³⁾	M27 x 2; 16 deep	30	X
Br	Brake release, reduced high pressure	L	DIN 3852 ³⁾	M12 x 1.5; 12.5 deep	30	O
G _{ext}	Brake release, high pressure	S	DIN 3852 ³⁾	M12 x 1.5; 12.5 deep	420	X
M _A , M _B	Measuring pressure A and B		ISO 6149 ³⁾	M12 x 1.5; 12 deep	420	X

Speed sensors

Size			23, 28, 32	45	56, 63	80, 90	107, 125
Number of teeth			38	45	47	53	59
DSA	A	Insertion depth (tolerance ± 0.1)	18.4	18.4	18.4	18.4	18.4
	B	Contact surface	57.9	64.9	69.9	74.9	79.9
	C		74.5	81.5	86.5	91.5	96.5
	D		54.7	54.3	61.5	72.5	76.8

Size			160, 180	200	250	355	500
Number of teeth			67	80	78	90	99
HDD	A	Insertion depth (tolerance ± 0.1)	–	–	32	32	32
	B	Contact surface	–	–	110.5	122.5	132.5
	C		–	–	149	161	171
	D		–	–	82	93	113
DSA	A	Insertion depth (tolerance ± 0.1)	18.4	18.4	32	32	32
	B	Contact surface	87.4	100.9	–	–	–
	C		104	117.5	–	–	–
	D		86.8	97.5			