Rexroth
Bosch Group

Axial piston variable pump A4VSO

RE 92050/04.09 **1**/68
Replaces: 03.09

Data sheet

Series 10, 11 and 30
Size 40...1000
Nominal pressure 350 bar
Peak pressure 400 bar
Open circuit

Contents

Features

- Axial piston pump in swash plate design for hydrostatic drives in open circuit operation
- The flow is proportional to the input drive speed and displacement. By adjusting the swash plate angle it is possible to infinitely vary the output flow.
- Excellent suction characteristics
- Low noise level
- Long service life
- Modular design
- Short response times
- Variable through drive options
- Visual swivel angle indicator
- Optional mounting position
- Operation on HF-fluids under reduced operational data possible
  A special version is available for operation with HFC-fluid see data sheet RE 92053

For the descriptions of the control devices see the separate RE data sheets
RE 92056, RE 92060, RE 92064,
RE 92072, RE 92076, RE 92080, RE 92088

Type code for Standard program

	A4VS		O			/			–						
01	02	03	04	05	06		07	08		09	10	11	12	13	14

	Hydraulic fluid / Version	40	71	125	180	250	355	500	750	1000	
01	Mineral oil and HFD-fluids (no code)	●	●	●	●	●	●	●	●	●	
	HFA-, HFB- and HFC-Fluids	●	●	–	–	–	–	●	–	–	**E**
	For operation on HFC-special performance version see RE 92053 (HFA and HFB see RE 90223)			●	●	●	●				
	High-Speed-Version	–	–	–	–	●	●	●	–	–	**H**

	Axial piston unit	
02	Swash plate design, variable	**A4VS**

	Boost pump (Impeller)										
03	without boost pump (no coden)	●	●	●	●	●	●	●	●	●	
	with boost pump (Impeller) only with port plate 25 (service port connections)	–	–	–	–	–	–	–	●	–	**L**

	Type of operation	
04	Pump, open circuit	**O**

	Size	40	71	125	180	250	355	500	750	1000
05	Displacement $V_{g\,max}$ [cm³]	40	71	125	180	250	355	500	750	1000

	Control devices											
06	Pressure control	(RE 92060)	DR	●	●	●	●	●	●	●	●	●	**DR..**
	Pressure control for parallel operation		DP	●	●	●	●	●	●	●	●	●	**DP..**
	Flow control		FR	●	●	●	●	●	●	–	–	–	**FR..**
	Pressure and flow control		DFR	●	●	●	●	●	●	–	–	–	**DFR..**
	Power control with hyperbolic curve	(RE 92064)	LR	●	●	●	●	●	●	●	●	●	**LR..**[1]
	Manual control	(RE 92072)	MA	●	●	●	●	●	●	●	–	–	**MA..**
	Electric motor control		EM	●	●	●	●	●	●	●	–	–	**EM..**
	Hydraulic control, control volume dependent	(RE 92076)	HM	●	●	●	●	●	●	●	●	●	**HM..**
	Hydr. control, with servo/proportional valve		HS	●	●	●	●	●	●	●	●	●	**HS..**[1]
	Electronic control		EO	●	●	●	●	●	●	●	●	●	**EO..**[1]
	Hydraulic control, pilot pressure dependent	(RE 92080)	HD	●[2]	●[2]	●	●	●	●	●	●	●	**HD..**[1]
	Secundary speed control	(RE 92056)	DS1	●	●	●	●	●	●	●	●	o	**DS1..**[1]
	Electro-hydraulic control system DFE1 System solution SYHDFEE	(RE 92088) (RE 30035)		●	●	●	●	●	●	–	–	–	**DFE1..**[1]

	Series										
07		●	●	–	–	–	–	–	–	–	**10(11)**[2]
		–	–	●	●	●	●	●	●	●	**30**

● available o in preparation – not available ▭ = preferred program

[1] when operating on HF-fluids, observe the limitations as shown in the relevant data sheets of the control devices and the mounted valves

[2] Versions with HD-controls only in series 11

Type code for Standard program

	A4VS		O			/			–						
01	02	03	04	05	06		07	08		09	10	11	12	13	14

Direction of rotation

08	with view on shaft end	right hand	R
		left hand	L

Seals		**40**	**71**	**125**	**180**	**250**	**355**	**500**	**750**	**1000**	
09	NBR (Nitrile-rubber), Shaft seal FKM (Fluoro-rubber)	●	●	●	●	●	●	●	●	●	**P**
	FKM (Fluoro-rubber) / for operation on HFD	●	●	●	●	●	●	●	●	●	**V**
	HFC-special performance version see RE 92053	–	–	●	●	●	●	–	–	–	**F**

Shaft end

10	Keyed parallel shaft to DIN 6885	**P**
	Splined shaft to DIN 5480	**Z**

Mounting flange			**40**	**71**	**125**	**180**	**250**	**355**	**500**	**750**	**1000**	
11	similar to ISO 3019-2 metric	4-hole	●	●	●	●	●	●	–	–	–	**B**
		8-hole	–	–	–	–	–	–	●	●	●	**H**

Service line connections

12	Port B and S: SAE flange on side, 90° offset, metric fixing screws	●	●	●	●	●	●	–	–	–	**13** [1]
	Port B and S: SAE flange on side, 90° offset, metric fixing screws 2. pressure port B_1, opposite B – closed with blanking plate on delivery	●	●	●	●	●	●	●	●	●	**25**

● available O in preparation ▭ = preferred program

[1]) only with through drive code N00 and K..

continuation of type code see page 4

Type code for Standard program

	A4VS		O			/			–						
01	02	03	04	05	06		07	08		09	10	11	12	13	14

	Through drive			40	71	125	180	250	355	500	750	1000	
13	without auxiliary pump, without through drive			●	●	●	●	●	●	●	●	●	N00
	with through drive for mounting an axial piston unit, gear or radial piston pump			●	●	–	–	–	–	●	●	●	K...
	Universal through drive, can be adapted			–	–	●	●	●	●	–	–	–	U...
	Flange	splined shaft coupler [1]	to mount										
	125, 4-hole (ISO[2]))	32x2x14x9g	A4VSO/G 40	●	●	●	●	●	●	●	○	○	31
	140, 4-hole (ISO[2]))	40x2x18x9g	A4VSO/G 71	–	●	●	●	●	●	●	●	○	33
	160, 4-hole (ISO[2]))	50x2x24x9g	A4VSO/G 125	–	–	●	●	●	●	●	●	○	34
	160, 4-hole (ISO[2]))	50x2x24x9g	A4VSO/G 180	–	–	–	●	●	●	●	●	○	34
	224, 4-hole (ISO[2]))	60x2x28x9g	A4VSO/G, A4CSG 250	–	–	–	–	●	●	●	●	○	35
	224, 4-hole (ISO[2]))	70x3x22x9g	A4VSO/G, A4CSG 355	–	–	–	–	–	●	●	○	○	77
	315, 8-hole (ISO[2]))	80x3x25x9g	A4VSO/G, A4CSG 500	–	–	–	–	–	–	●	●	○	43
	400, 8-hole (ISO[2]))	90x3x28x9g	A4VSO/G, A4CSG 750	–	–	–	–	–	–	–	●	○	76
	400, 8-hole (ISO[2]))	100x3x32x9g	A4VSO/G 1000	–	–	–	–	–	–	–	–	●	88
	80, 2-hole (ISO[2]))	3/4in 19-4 (SAE A-B)	A10VSO 10/52, 18/31	○	●	○	○	○	○	○	○	○	B2
	100, 2-hole (ISO[2]))	7/8in 22-4 (SAE B)	A10VSO 28/31	●	●	●	●	○	○	○	○	○	B3
	100, 2-hole (ISO[2]))	1in 25-4 (SAE B-B)	A10VSO 45/31	●	●	●	●	●	●	●	○	○	B4
	125, 2-hole (ISO[2]))	1 1/4in 32-4 (SAE C)	A10VSO 71/31	–	●	●	●	●	●	○	○	○	B5
	160, 4-hole (ISO[2]))	1 1/4in 32-4 (SAE C)	A10VSO 71/32	–	○	○	○	●	○	○	○	○	B8
	125, 2-hole (ISO[2]))	1 1/2in 38-4(SAE C-C)	A10VSO 100/31	–	–	○	○	○	○	○	○	○	B6
	180, 4-hole (ISO[2]))	1 1/2in 38-4 (SAE C-C)	A10VSO 100/32	–	–	○	○	○	○	○	○	○	B9
	180, 4-hole (ISO[2]))	1 3/4in 44-4 (SAE D)	A10VSO 140/31/32	–	–	–	●	●	●	●	○	○	B7
	82-2 (SAE A)	5/8in 16-4 (SAE A)	AZ-PF-1X-004...022	●	●	●	●	●	●	●	●	○	01
	82-2 (SAE A)	3/4in 19-4 (SAE A-B)	A10VSO 10, 18/31/52(3)	●	●	○	○	○	○	○	○	○	52
	101-2 (SAE B)	7/8in 22-4 (SAE B)	AZ-PN-1X-020...032, A10VO 28/31/52(3)	●	●	●	●	●	●	●	○	○	68
	101-2 (SAE B)	1in 25-4 (SAE B-B)	PGH4, A10VO45/31	●	●	●	●	●	●	●	○	○	04
	127-2 (SAE C)	1 1/4in 32-4 (SAE C)	A10VO 71/31	–	●	●	●	●	●	●	○	○	07
	127-2 (SAE C)	1 1/2in 38-4 (SAE C-C)	PGH5, A10VO100/31	–	–	●	●	●	●	●	○	○	24
	152-4 (SAE D)	1 3/4in 44-4 (SAE D)	A10VO 140/31	–	–	–	●	●	●	●	○	○	17
	Ø 63, metr.4-hole	for keyed shaft Ø 25	R4	●	●	○	○	○	○	○	○	○	57
	with through drive shaft, without coupler, without adapter flange, closed with cover plate			●	●	●	●	●	●	●	●	●	99

Filtration (only with HS- and DS-control)

14	without filter	N
	Sandwich plate filter (with HS- and DS-control see RE 92076 and RE 92056)	Z

[1]) Keyed shaft coupler on K/U 57 through drive [2]) to ISO 3019-2 metric

Combination pumps

1. Combination pumps consisting of axial piston units – ordering example see page 38; overview mounting options see page 39
2. if delivery with mounted gear or radial piston pump is desired, please consult us.

● available ○ in preparation – not available = preferred program

Technical data

Hydraulic fluid

For extensive information on the selection of hydraulic fluids and application conditions please consult our data sheets RE 90220 (mineral oils), RE 90221 (ecologically acceptable fluids) and RE 90223 (HF-fluids).

The variable pump A4VSO is suitable for operation on HF-fluids. (HFA, HFB, and HFC: ***E***A4VSO or A4VSO....***F***
HFD: standard version A4VSO with FKM seals)

However, limitations to the technical data, according to RE 90223 must be observed.

On certain selected HFC-fluids, pump sizes **125...355**, executed in accordance to RE 92053 can be operated with the **same pressures and speeds** as on mineral oil.

On operation with HFA and HFB-fluids, limitations of the technical data must be observed according to RE 90223.
On operation with rolling oil please consult us.

When ordering, please state the fluid to be used.

Operating viscosity range

Within the operating viscosity range between 16...100 mm²/s the units can be operated without limitations of the technical data.
In order to obtain optimum efficiency and service life, we recommend that the operating viscosity (at operating temperature) be selected in the range

ν_{opt} = opt. viscosity range 16...36 mm²/s

referred to tank temperature (open circuit).

Limit of viscosity range

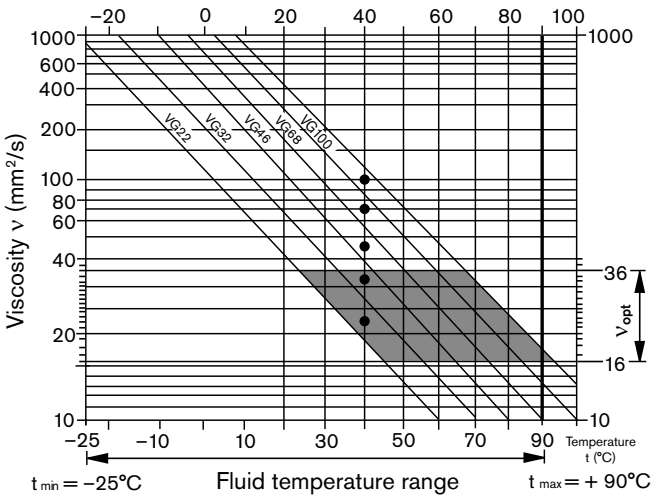
For critical operating conditions the following values apply:

ν_{min} = 10 mm²/s
for short periods (t < 3 min)
at max. permissible case drain temperature
t_{max} = +90°C.

ν_{max} = 1000 mm²/s
for short periods (on cold start, operating viscosity should be below 100 mm²/sec within 15 minutes)
t_{min} = –25°C

For detailed information on operation with low temperatures see RE 90300-03-B.

Selection diagram



Notes on the selection of hydraulic fluid

In order to select the correct fluid, it is necessary to know the operating temperature in the tank (open circuit) in relation to the ambient temperature.

The hydraulic fluid should be selected so that within the operating temperature range, the viscosity lies within the optimum range (ν_{opt}); see shaded section in the selection diagram. We recommend, that the higher viscosity grade is selected in each case.

Temperature range (see selection diagram)

t_{min} = – 25° C
t_{max} = + 90° C

Example: at an ambient temperature of X° C the operating temperature in the tank is 60° C. In the optimum viscosity range (ν_{opt} ; shaded area), this corresponds to grades VG 46 or VG 68; select: VG 68.
Important: The case drain temperature is influenced by pressure and speed and is always higher than the tank temperature. However the max. temperature at any point in the system may not exceed 90° C.

Technical data

Bearing flushing

For the following operating conditions bearing flushing is required for a safe, continuous operation:

- Applications with special fluids (non mineral oils) due to limited lubricity and narrow operating temperature range
- Operation at critical conditions of temperature and viscosity with mineral oil

Flushing is recommended with vertical mounting (drive shaft facing upwards) in order to ensure lubrication of the front bearing and shaft seal.

Flushing is carried out via port „U“, located in the front flange area of the pump. The flushing fluid flows through the front bearing and leaves the pump together with the case drain flow.

Depending on pump size, the following flushing flows are recommended:

Size		**40**	**71**	**125**	**180**	**250**
recommended flushing flow	q_{Sp} L/min	3	4	5	7	10

Size		**355**	**500**	**750**	**1000**
recommended flushing flow	q_{Sp} L/min	15	20	30	40

These recommended flushing flows will cause a pressure drop of approx. 2 bar (series 1) and 3 bar (series 3) between the entrance to port„U“ and the pump case (including the pipe fittings).

Notes regarding series 30

When using external bearing flushing the throttle screw at port U must be turned in to the end stop.

Filtration of the fluid (Axial piston unit)

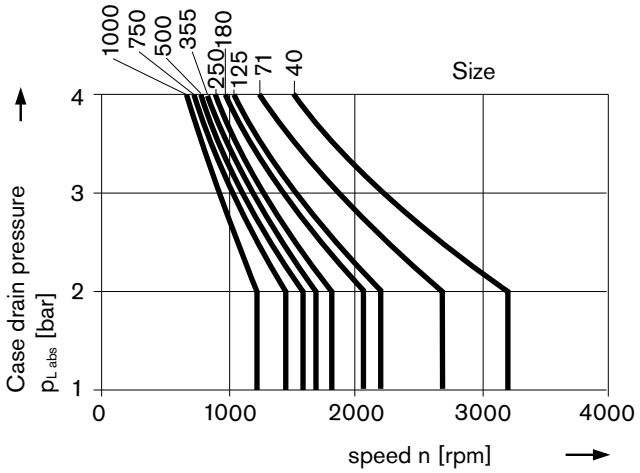
The finer the filtration, the better the achieved cleanliness of the fluid and the longer the life of the axial piston pump.

To ensure a reliable functioning of the axial piston unit, a minimum cleanliness class of

20/18/15 acc. to ISO 4406 is necessary.

Case drain pressure

The permissible case drain pressure (housing pressure) is dependent on the drive speed (see diagram).



Max. case drain pressure (housing pressure)

$p_{L\,abs\,max}$ ——————————————— 4 bar absolute

These are approximate values; under certain operating conditions a reduction in these values may be necessary.

Direction of flow

S to B.

Technical data

Operating pressure range

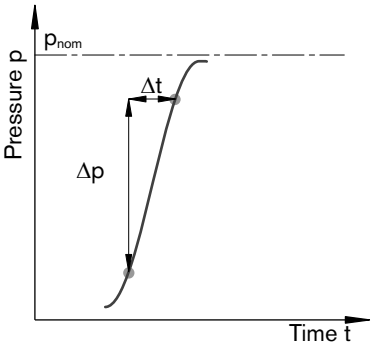
Pressure at service line port (pressure port) B

Nominal pressure p_{nom} 350 bar absolute

Peak pressure p_{max} 400 bar absolute
Total operating period 300 h
Single operating period 1 s

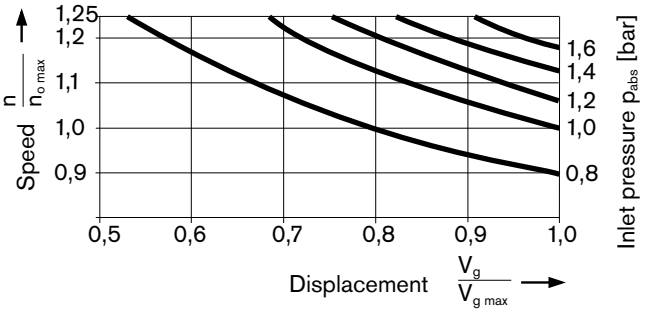
Minimum pressure (high-pressure side) 15 bar
For lower pressures please consult us.

Rate of pressure change R_A 16000 bar/s



Pressure at suction port S (inlet)
Minimum suction pressure $p_{S\,min}$ 0.8 bar absolute
Maximum suction pressure $p_{S\,max}$ 30 bar absolute

Minimum pressure (inlet)
In order to avoid damage to the axial piston unit, a minimum pressure must be ensured at the suction port S (inlet). The minimum pressure is dependent on the speed and displacement of the axial piston unit.



The inlet pressure is the static feed pressure or the minimum dynamic value of the boost pressure.

Please note:
Max. permissible drive speed $n_{o\,max.\,perm.}$ (speed limit) see page 8

Please contact us if these conditions cannot be satisfied.

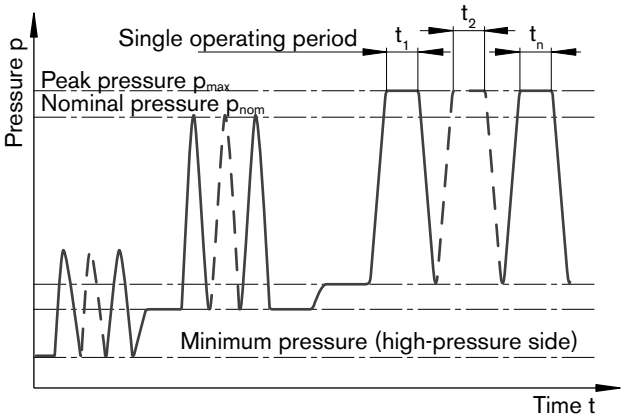
Definition

Nominal pressure p_{nom}
The nominal pressure corresponds to the maximum design pressure.

Peak pressure p_{max}
The peak pressure corresponds the maximum operating pressure within the single operating period. The sum of the single operating periods must not exceed the total operating period.

Minimum pressure (high-pressure side)
Minimum pressure on the high-pressure side (B) that is required in order to prevent damage to the axial piston unit.

Rate of pressure change R_A
Maximum permissible rate of pressure build-up and pressure reduction during a pressure change over the entire pressure range.



Total operating period = $t_1 + t_2 + \ldots + t_n$

Technical data

Table of values (theoretical values, without considering efficiencies and tolerances; values rounded off)

Size				40	71	125	180	250/ H [1]	355/ H [1]	500/ H [1]	750	750 with Impeller	1000
Displacement		$V_{g\,max}$	cm³	40	71	125	180	250/ 250	355/ 355	500/ 500	750	750	1000
Speed [2]													
max. at $V_{g\,max}$		$n_{o\,max}$	rpm	2600	2200	1800	1800	1500/ 1900	1500/ 1700	1320/ 1500	1200	1500	1000
max. at $V_g \leq V_{g\,max}$ (speed limit)		$n_{o\,max\,zul.}$	rpm	3200	2700	2200	2100	1800/ 2100	1700/ 1900	1600/ 1800	1500	1500	1200
Flow													
at $n_{o\,max}$		$q_{vo\,max}$	L/min	104	156	225	324	375/ 475	533/ 604	660/ 750	900	1125	1000
at $n_E = 1500$ rpm		$q_{VE\,max}$	L/min	60	107	186	270	375	533	581[3]	770[3]	1125	–
Power	$\Delta p = 350$ bar												
at $n_{o\,max}$		$P_{o\,max}$	kW	61	91	131	189	219/ 277	311/ 352	385/ 437	525	656	583
at $n_E = 1500$ rpm		$P_{E\,max}$	kW	35	62	109	158	219	311	339[3]	449[3]	656	–
Torque													
bat $V_{g\,max}$	$\Delta p = 350$ bar	T_{max}	Nm	223	395	696	1002	1391	1976	2783	4174	4174	5565
	$\Delta p = 100$ bar	T	Nm	64	113	199	286	398	564	795	1193	1193	1590
Rotary stiffness													
	Shaft end P	c	kNm/rad	80	146	260	328	527	800	1145	1860	1860	2730
	Shaft end Z	c	kNm/rad	77	146	263	332	543	770	1136	1812	1812	2845
Moment of inertia rotary group		J_{TW}	kgm²	0,0049	0,0121	0,03	0,055	0,0959	0,19	0,3325	0,66	0,66	1,20
Angular acceleration max.[4]		α	rad/s²	17000	11000	8000	6800	4800	3600	2800	2000	2000	1450
Case volume		V	L	2	2,5	5	4	10	8	14	19	22	27
Weight (with press. contr.) approx.		m	kg	39	53	88	102	184	207	320	460	490	605

[1]) High-Speed-Version

[2]) Values are valid with inlet pressure p_{abs} 1 bar at inlet port S, with increased speed up to speed limit please observe diagram, page 7

[3]) $V_g < V_{g\,max}$

[4]) – The range of validity lies between zero and the maximum permissible drive speeds.
Valid for external excitation (eg. diesel engine 2- to 8-fold rotary frequency, cardan shaft 2-fold rotary frequency).
– The limiting value is only valid for a single pump.
– The loading capacity of the connecting parts must be considered.

Notes
Exceeding the maximum or falling below the minimum permissible values can lead to a loss of function, a reduction in operational service life or total destruction of the axial piston unit.
The permissible values can be determined through calculation.

Determination of pump size

Flow $q_V = \dfrac{V_g \cdot n \cdot \eta_V}{1000}$ [L/min]

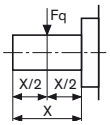
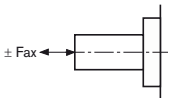
Drive torque $T = \dfrac{V_g \cdot \Delta p}{20 \cdot \pi \cdot \eta_{mh}}$ [Nm]

Power $P = \dfrac{2\pi \cdot T \cdot n}{60000} = \dfrac{q_V \cdot \Delta p}{600 \cdot \eta_t}$ [kW]

V_g = geometr. displacement per rev. in cm³
Δp = pressure difference in bar
n = speed in rpm
η_V = volumetric efficiency
η_{mh} = mechanical-hydraulic efficiency
η_t = overall efficiency ($\eta_t = \eta_V \cdot \eta_{mh}$)

Technical data

Permissible radial and axial forces on the drive shaft

Size					40	71	125	180	250	355	500	750*	1000
Radial force, max.		at X/2	$F_{q\,max}$	N	1000	1200	1600	2000	2000	2200	2500	3000	3500
Axial force, max.			$\pm F_{ax\,max}$	N	600	800	1000	1400	1800	2000	2000	2200	2200

* also valid for versions with boost pump

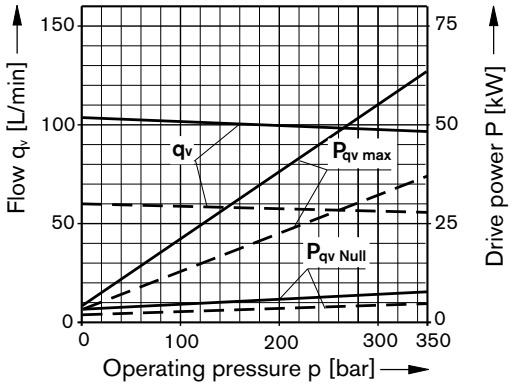
Characteristics

Drive power and flow

(Fluid: Hydraulic oil ISO VG 46 DIN 51519, t = 50°C)

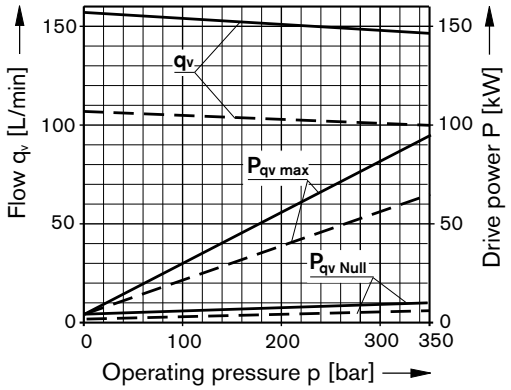
Overall efficiency: $\eta_t = \frac{q_v \cdot p}{P_{q_v\,max} \cdot 600}$ Volumetric efficiency: $\eta_v = \frac{q_v}{q_{v\,theor}}$

Size 40



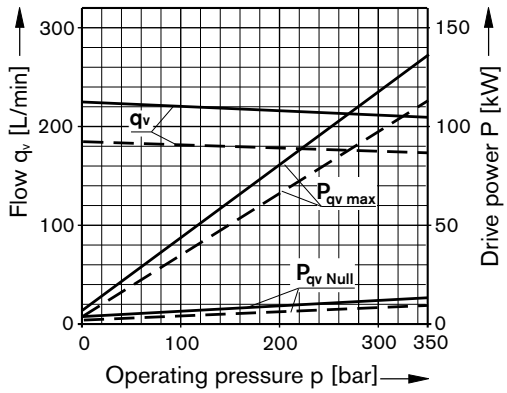
n = 2600 rpm
n = 1500 rpm

Size 71



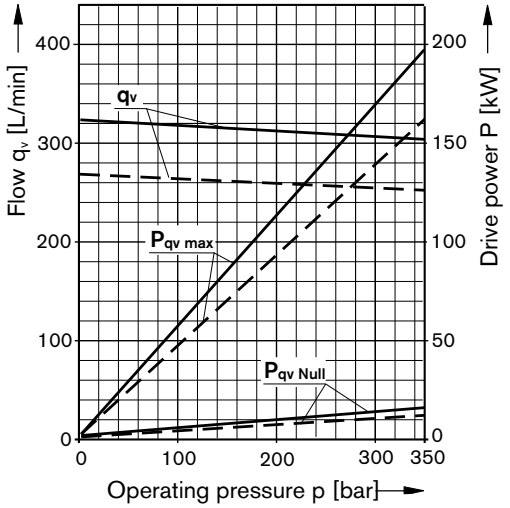
n = 2200 rpm
n = 1500 rpm

Size 125



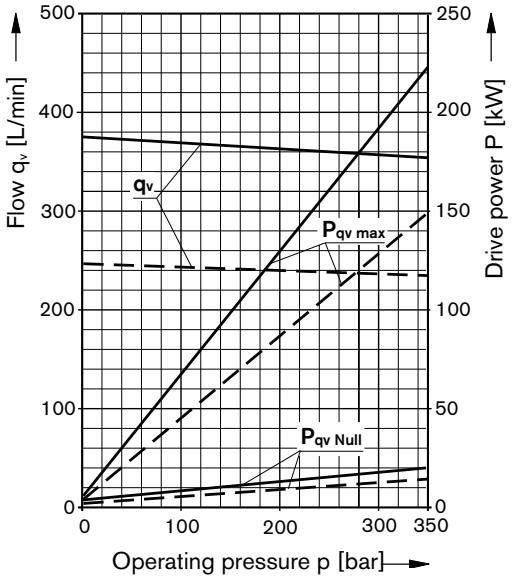
n = 1800 rpm
n = 1500 rpm

Size 180



n = 1800 rpm
n = 1500 rpm

Size250



n = 1500 rpm
n = 1000 rpm

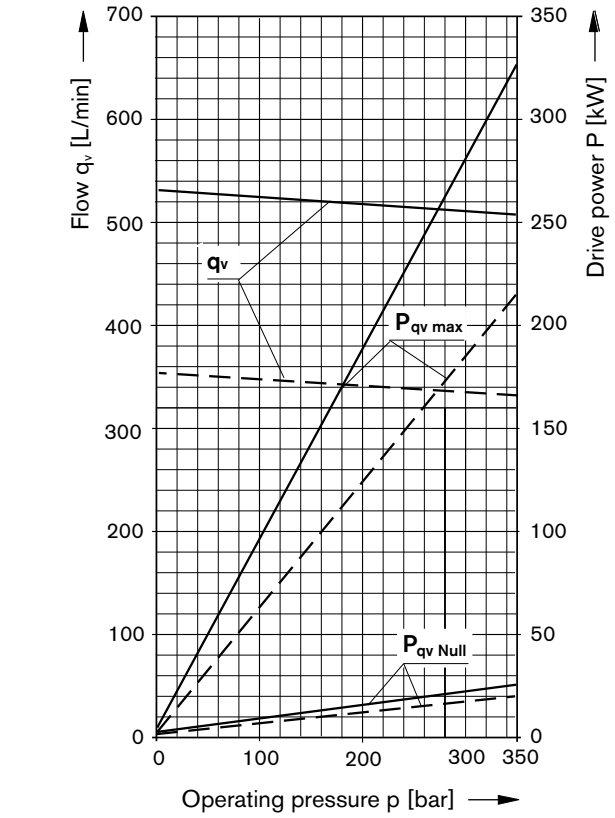
Characteristics

Drive power and flow

(Fluid: Hydraulic oil ISO VG 46 DIN 51519, t = 50°C)

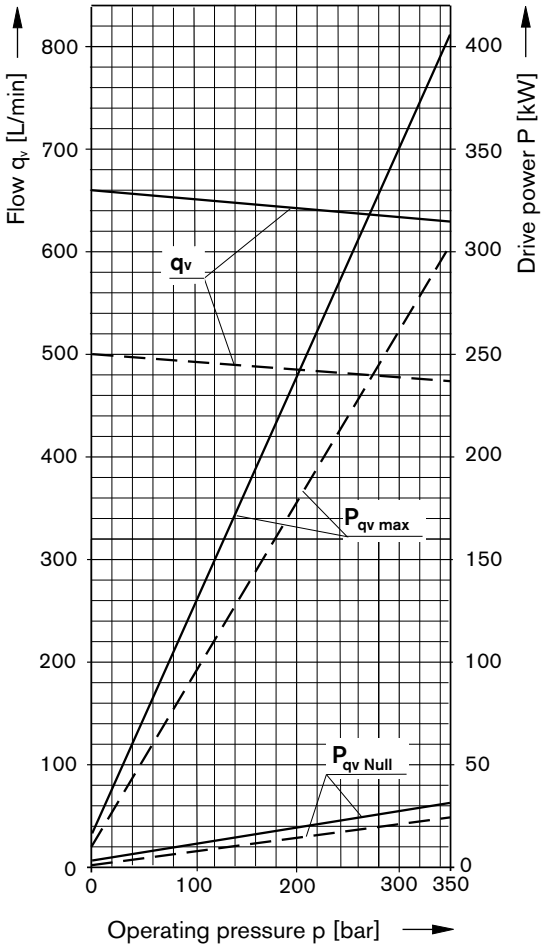
Overall efficiency: $\eta_t = \frac{q_v \cdot p}{P_{q_v\,max} \cdot 600}$ Volumetric efficiency: $\eta_v = \frac{q_v}{q_{v\,theor}}$

Size 355



n = 1500 rpm
n = 1000 rpm

Size 500



n = 1320 rpm
n = 1000 rpm

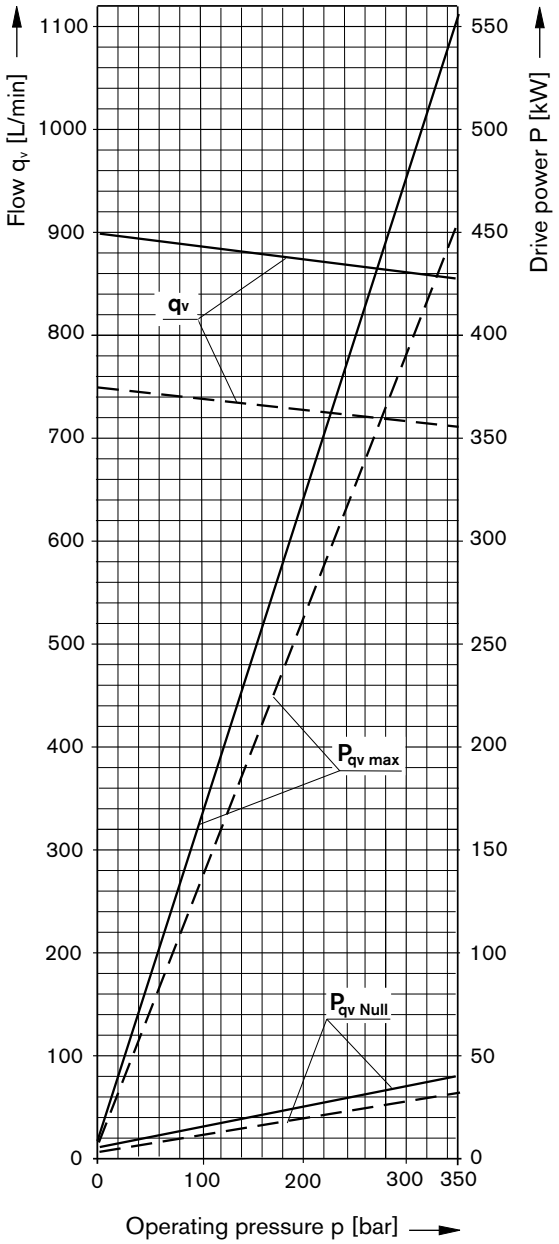
Characteristics

Drive power and flow

(Fluid: Hydraulic oil ISO VG 46 DIN 51519, t = 50°C)

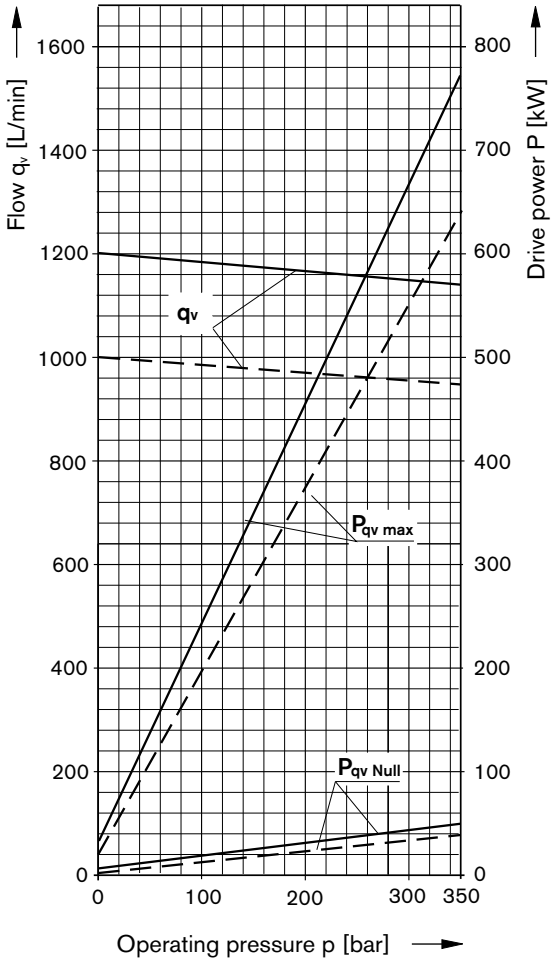
Overall efficiency: $\eta_t = \frac{q_v \cdot p}{P_{q_v\,max} \cdot 600}$ Volumetric efficiency: $\eta_v = \frac{q_v}{q_{v\,theor}}$

Size 750



n = 1200 rpm
n = 1000 rpm

Size 1000



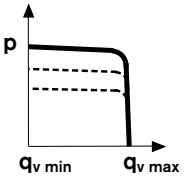
n = 1200 rpm
n = 1000 rpm

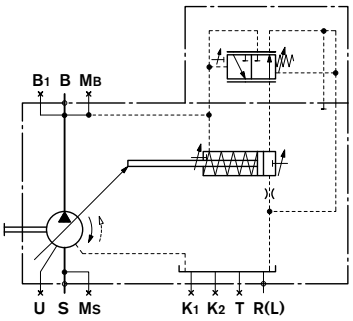
Summary of controls

Pressure control DR (see RE 92060)

The DR- pressure control limits the maximum pressure at the pump outlet within the pump's control range. This max. pressure level can be steplessly set at the control valve.
Setting range 20...350 bar

Optional:
Remote control (DRG)

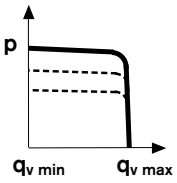


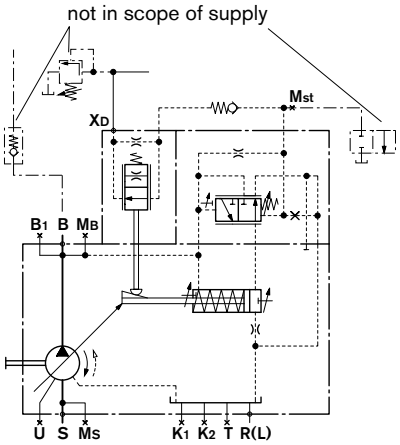


Pressure control for parallel operation DP (see RE 92060)

Suitable for pressure control with multiple A4VSO axial piston pumps in parallel operation.

Optional:
Flow control (DPF)

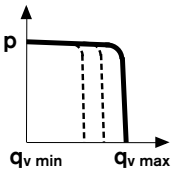


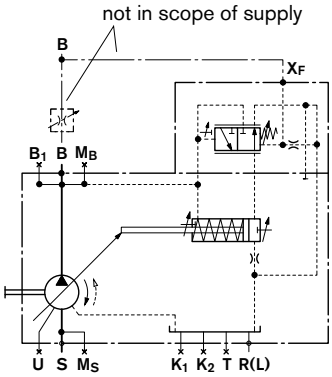


Flow control FR (see RE 92060)

Maintains a constant flow in a hydraulic system.

Optional:
Remote pressure control (FRG)
connection between X_F and tank closed
(FR1, FRG1)

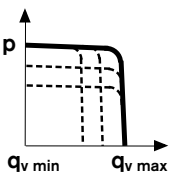


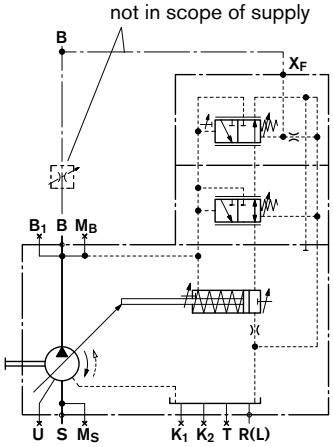


Pressure and flow control DFR (see RE 92060)

This control maintains a constant flow from the pump even under varying operating conditions. Overriding this control is a mechanically adjustable pressure control.

Optional:
connection between X_F and tank closed (DFR1)



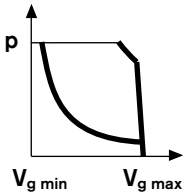


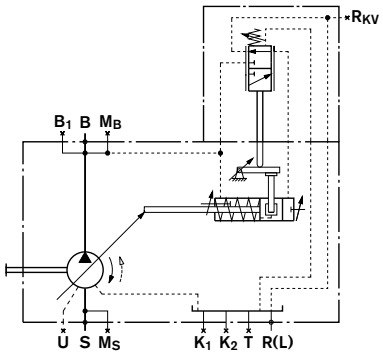
Summary of controls

Power control LR2 with hyperbolic characteristic (see RE 92064)

The hyperbolic power control maintains a constant preset drive power at the same input speed.

Optional:
Pressure control (LR2D), remotely controlled (LR2G);
Flow control (LR2F, LR2S);
Hydraulic stroke limiter (LR2H);
Mechanical stroke limiter (LR2M);
Hydraulic two-point control (LR2Z);
with electric unloading valve for easy start (LR2Y).

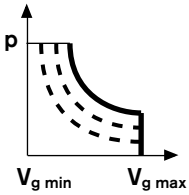


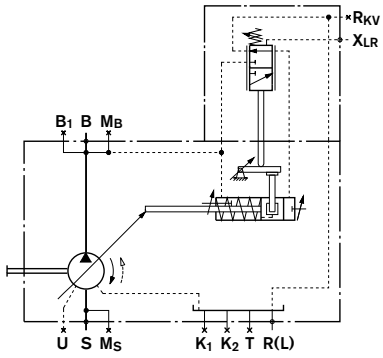


Power control LR3 with remote control of power characteristics (see RE 92064)

This power control maintains a constant preset drive power, with remote control of the power characteristics.

Optional:
Pressure control (LR3D), remotely controlled (LR3G);
Flow control (LR3F, LR3S);
Hydraulic stroke control (LR3H);
Mechanical stroke control (LR3M);
Hydraulic two-point control (LR3Z).
with electric unloading valve for easy start (LR3Y)



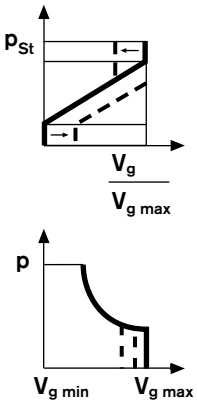


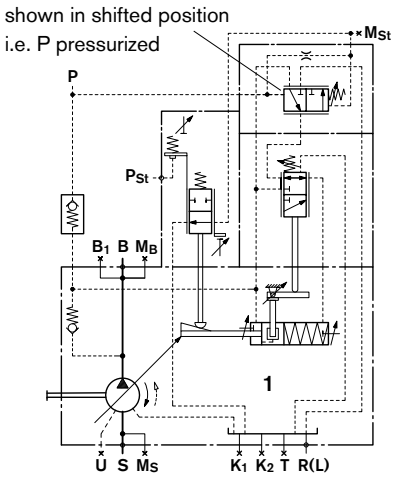
Hydraulic control LR2N and LR3N pilot pressure dependent, initial position $V_{g\,min}$ (see RE 92064)

With overriding power control.

The pump displacement is proportional to a pilot pressure signal in P_{St}.
The additional hyperbolic power control overrides the pilot pressure signal and holds the preset drive power constant.

Optional:
Remote control of power characteristics (LR3N)
Pressure control (LR.DN),
Remote pressure control (LR.GN)
Electric control of pilot pressure signal (LR.NT)

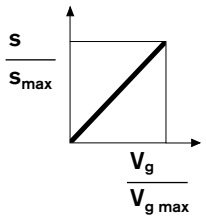


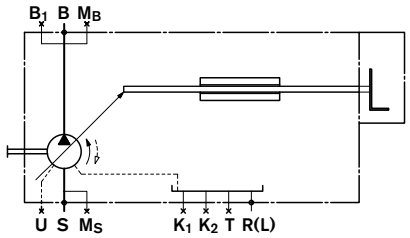


Summary of controls

Manual control MA (see RE 92072)

Stepless adjustment of displacement by means of a handwheel.

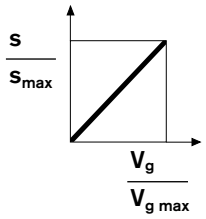


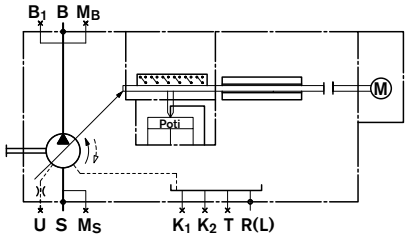


Electric motor control EM (see RE 92072)

Stepless adjustment of displacement via an electric motor.

Various intermediate displacement values can be selected with a programmed sequence control, by means of built on limit switches and an optional potentiometer for feedback signal.

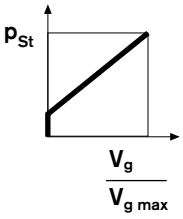


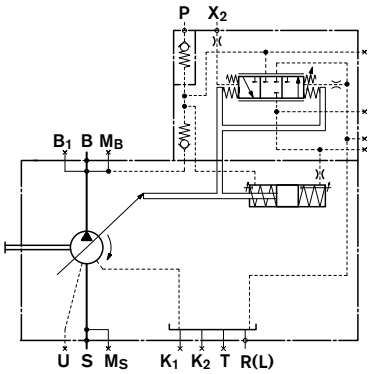


Hydraulic control HD pilot pressure dependent (see RE 92080)

Stepless adjustment of displacement proportional to a pilot pressure signal. The displacement is proportional to the applied pilot pressure (Difference between pilot pressure level and pump case pressure).

Optional:
Pilot pressure curves (HD1, HD2, HD3)
Pressure control (HD.B),
Remote pressure control (HD.GB)
Power control (HD1P)
with electric control of pilot pressure (HD1T)



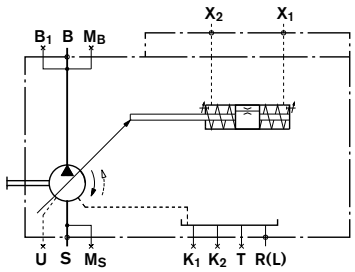


Summary of controls

Hydraulic control HM 1/2, control volume dependent (see RE 92076)

The pump displacement is infinitely variable in relation to the control oil volume in ports X_1 and X_2.

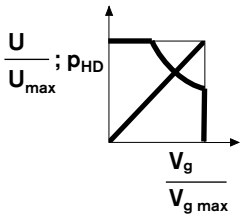
Application:
– 2-point control
– basic control device for servo or proportional valve control

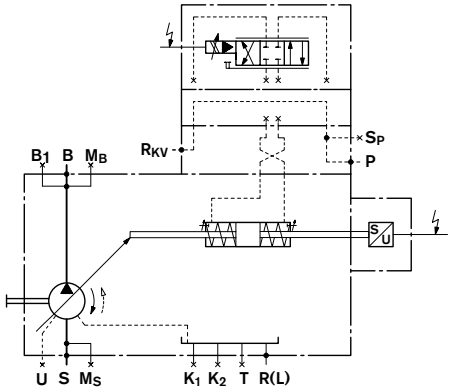


Control system HS, HS4, with servo or proportional valve (see RE 92076)

The stepless displacement control is accomplished by by means of servo or proportional valve with electrical feedback of the swivel angle.
The HS4P-control system is fitted with a built on pressure transducer so that it can be utilized for electrical pressure and power control.

Optional:
Servo valve (HS);
Proportional valve (HS4);
Short circuit valve (HSK, HS4K, HS4KP);
Without valves (HSE, HS4E).
For oil-immersed use (HS4M)

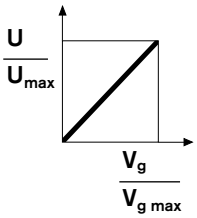


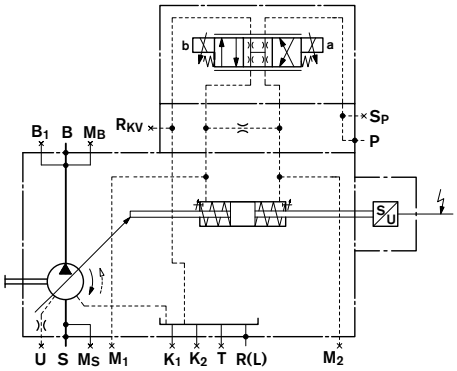


Control system EO1/2 (see RE 92076)

The stepless adjustment of the displacement is accomplished by means of a proportional valve with electrical feedback of the swivel angle.
This control can be utilized as an electric control of displacement.

Optional:
Control pressure range (EO1, EO2)
Short circuit valve (EO1K, EO2K)
Without valves (EO1E, EO2E)

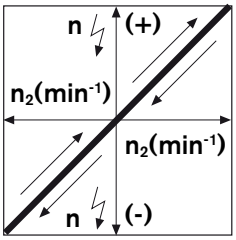


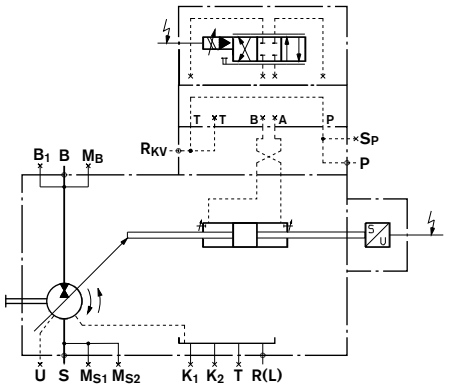


Summary of controls

Speed control DS1, secundary controlled (see RE 92056)

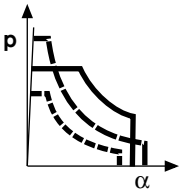
The speed control DS1 controls the secundary unit (motor) in such a manner, that this motor delivers sufficient torque to maintain the required output speed. When connected to a constant pressure system, this torque is proportional to motor displacement and thus also proportional to the swivel angle.

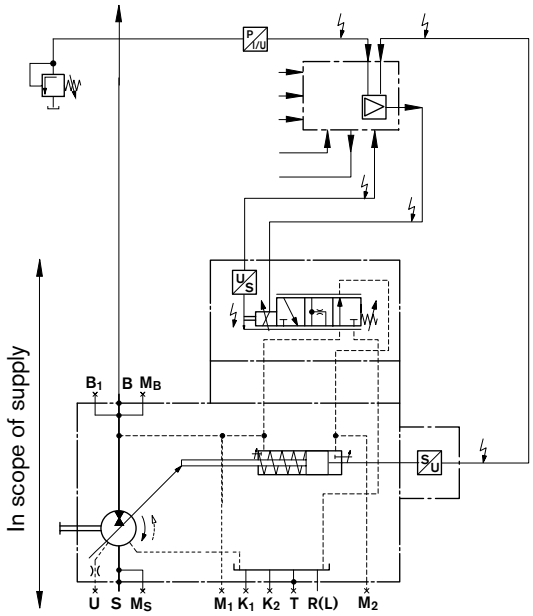




Electro hydraulic control system DFE1 (see RE 92088)

The power, pressure and swivel angle control of the variable pump A4VSO...DFE1 is accomplished by means of an electrically controlled proportional valve. A current signal to the proportional valve moves the control piston and determines via an integrated positional transducer the cradle's swivel angle and thus the pump flow. When the electric drive motor is switched off and the system is pressureless, the bias spring in the control chamber will swivel the pump to max. displacement ($V_{g\,max}$).



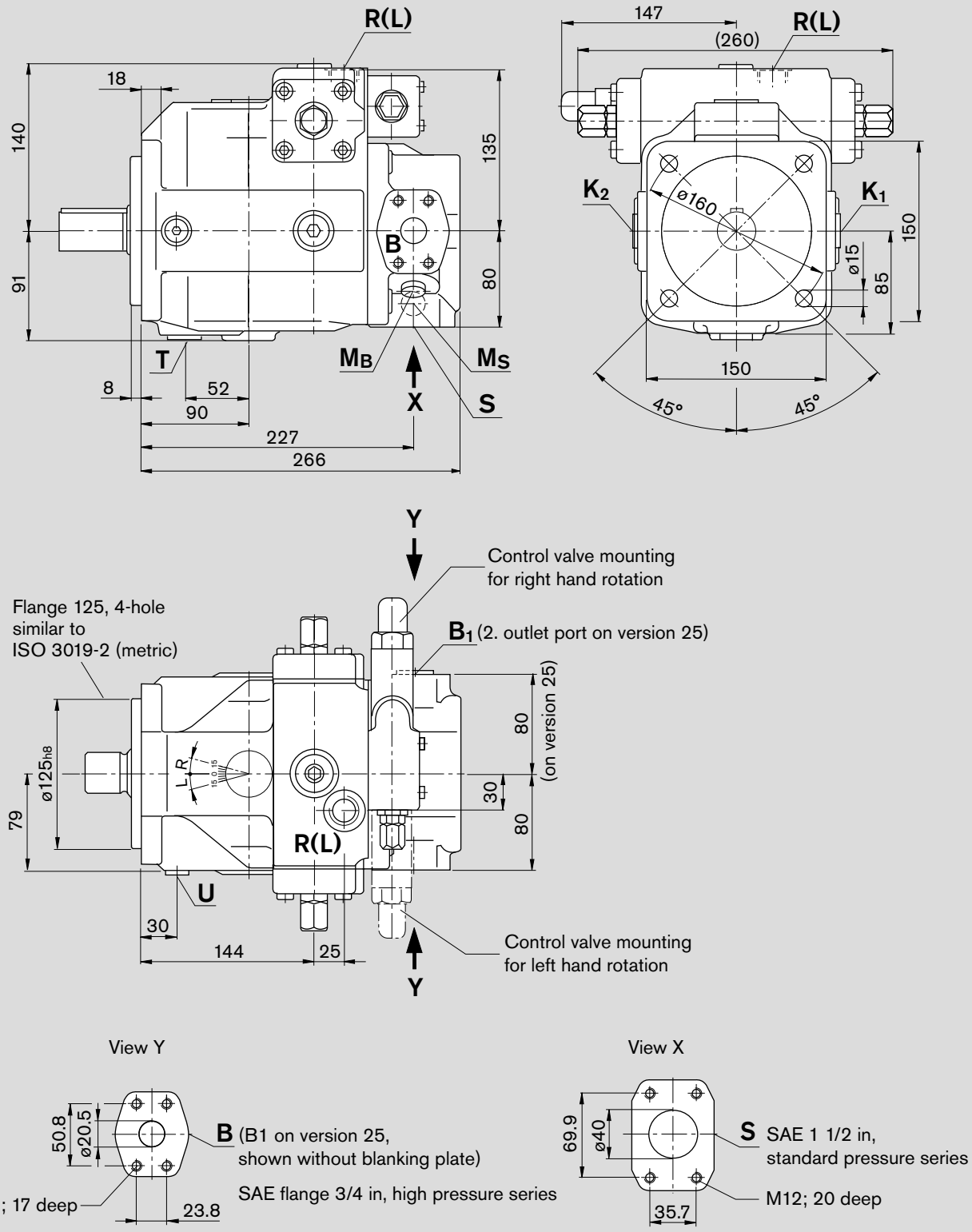


Dimensions, size 40

Before finalising your design please request a certified installation drawing. Dimensions in mm.

Series 1

(Example: pressure control; for exact dimensions of the control devices see separate data sheets)



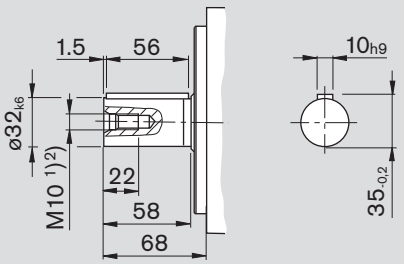
For dimensions of shaft ends and ports see page 19

Dimensions, size 40

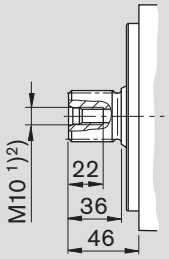
Before finalising your design please request a certified installation drawing. Dimensions in mm.

Shaft ends

P Keyed to DIN 6885
AS10x8x56



Z Splined to DIN 5480
W32x2x14x9g



Ports

				max. tightening torque 2)
S	Suction port (standard pressure series) Fixing thread	SAE J518 3) DIN 13	1 1/2 in M12x1,75; 20 deep 2)	
K_1, K_2	Flushing port	DIN 3852	M22x1,5;14 deep (plugged)	210 Nm
T	Drain	DIN 3852	M22x1,5;14 deep (plugged)	210 Nm
M_B	Measuring port outlet pressure	DIN 3852	M14x1,5;12 deep (plugged)	80 Nm
M_S	Measuring port suction pressure	DIN 3852	M14x1,5;12 deep (plugged)	80 Nm
R(L)	Fill and bleed (case drain port)	DIN 3852	M22x1,5; 14 deep	210 Nm
U	Flushing port	DIN 3852	M14x1,5;12 deep (plugged)	80 Nm
on version 13				
B	Pressure port (high pressure series) Fixing thread	SAE J518 3) DIN 13	3/4 in M10x1,5; 17 deep 2)	
B_1	Additional port	DIN 3852	M22x1,5;14 deep (plugged)	210 Nm
on version 25				
B	Pressure port (high pressure series) Fixing thread	SAE J518 3) DIN 13	3/4 in M10x1,5; 17 deep 2)	
B_1	2. press. port (high pressre series) Fixing thread	SAE J518 3) DIN 13	3/4 in (closed with blanking plate) M10x1,5; 17 deep 2)	

1) Center bore to DIN 332 (threaded to DIN 13)

2) for the max. tightening torques please observe the manufacturer‘s information on the used fittings and the general information on page 68

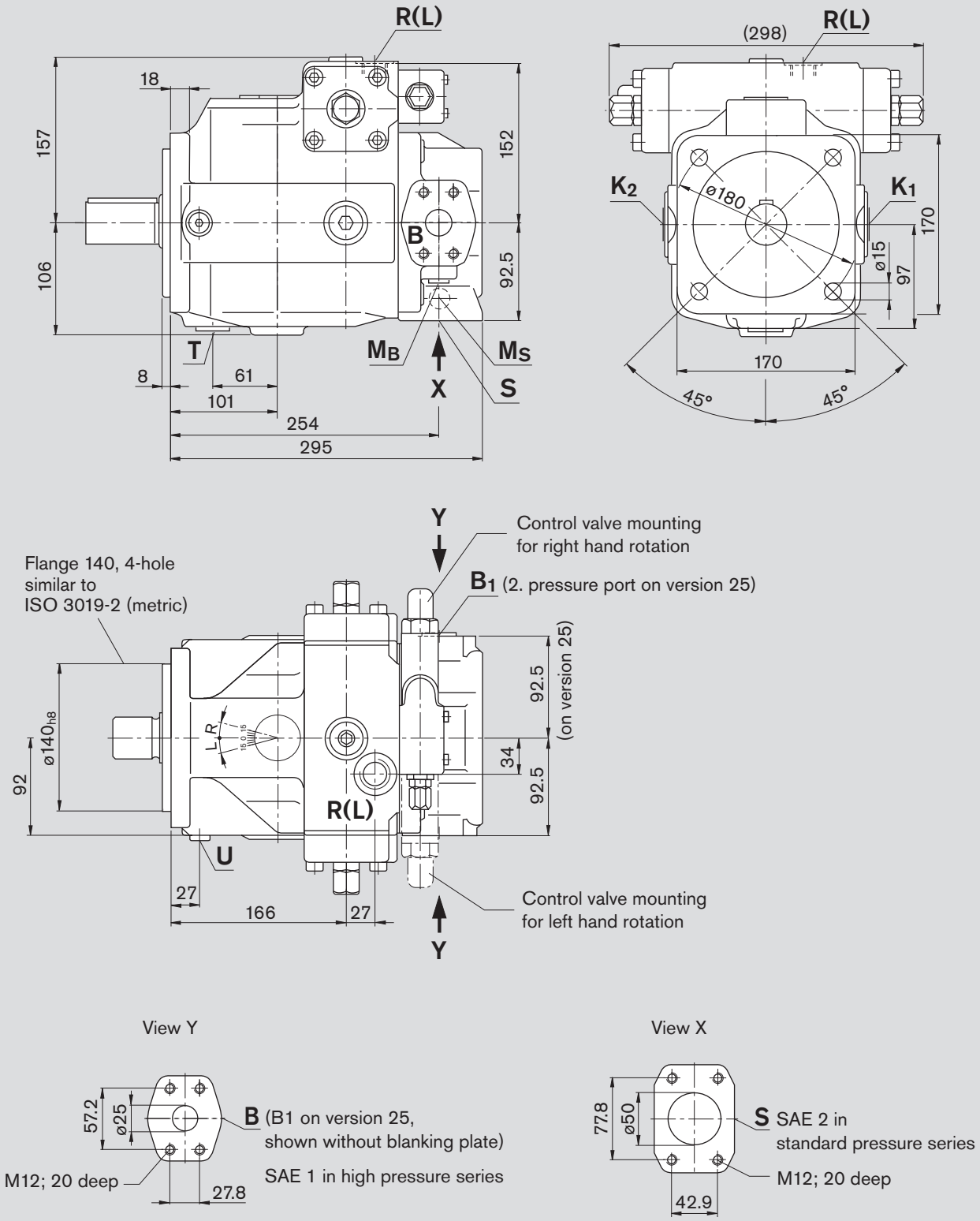
3) Caution: metric thread deviates from standard

Dimensions, size 71

Before finalising your design please request a certified installation drawing. Dimensions in mm.

Series 1

(Example: pressure control; for exact dimensions of control devices see separate data sheets)



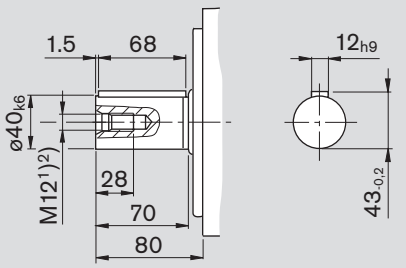
For dimensions of shaft ends or ports see page 21

Dimensions, size 71

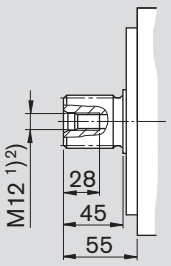
Before finalising your design please request a certified installation drawing. Dimensions in mm.

Shaft ends

P Keyed to DIN 6885
AS12x8x68



Z Splined to DIN 5480
W40x2x18x9g



Ports

				max. tightening torque 2)
S	Suction port (standard pressure series) Fixing thread	SAE J518 3) DIN 13	2 in M12x1,75; 20 deep 2)	
K_1, K_2	Flushing port	DIN 3852	M27x2;16 deep (plugged)	330 Nm
T	Drain	DIN 3852	M27x2;16 deep (plugged)	330 Nm
M_B	Measuring port outlet pressure	DIN 3852	M14x1,5;12 deep (plugged)	80 Nm
M_S	Measuring port suction pressure	DIN 3852	M14x1,5;12 deep (plugged)	80 Nm
R(L)	Fill + air bleed (case drain port)	DIN 3852	M27x2; 16 deep	330 Nm
U	Flushing port	DIN 3852	M14x1,5;12 deep (plugged)	80 Nm
on version 13				
B	Pressure port (high pressure series) Fixing thread	SAE J518 3) DIN 13	1 in M12x1,75; 20 deep 2)	
B_1	Additional port	DIN 3852	M27x2;16 deep (plugged)	330 Nm
on version 25				
B	Pressure port (high pressure series) Fixing thread	SAE J518 3) DIN 13	1 in M12x1,75; 20 deep 2)	
B_1	2. pressure port (high pressure series) Fixing thread	SAE J518 3) DIN 13	1 in (closed with blanking plate) M12x1,75; 20 deep 2)	

1) Center bore to DIN 332 (thread to DIN 13)

2) for the max. tightening torques please observe the manufacturer's information on the used fittings and the general information on page 68

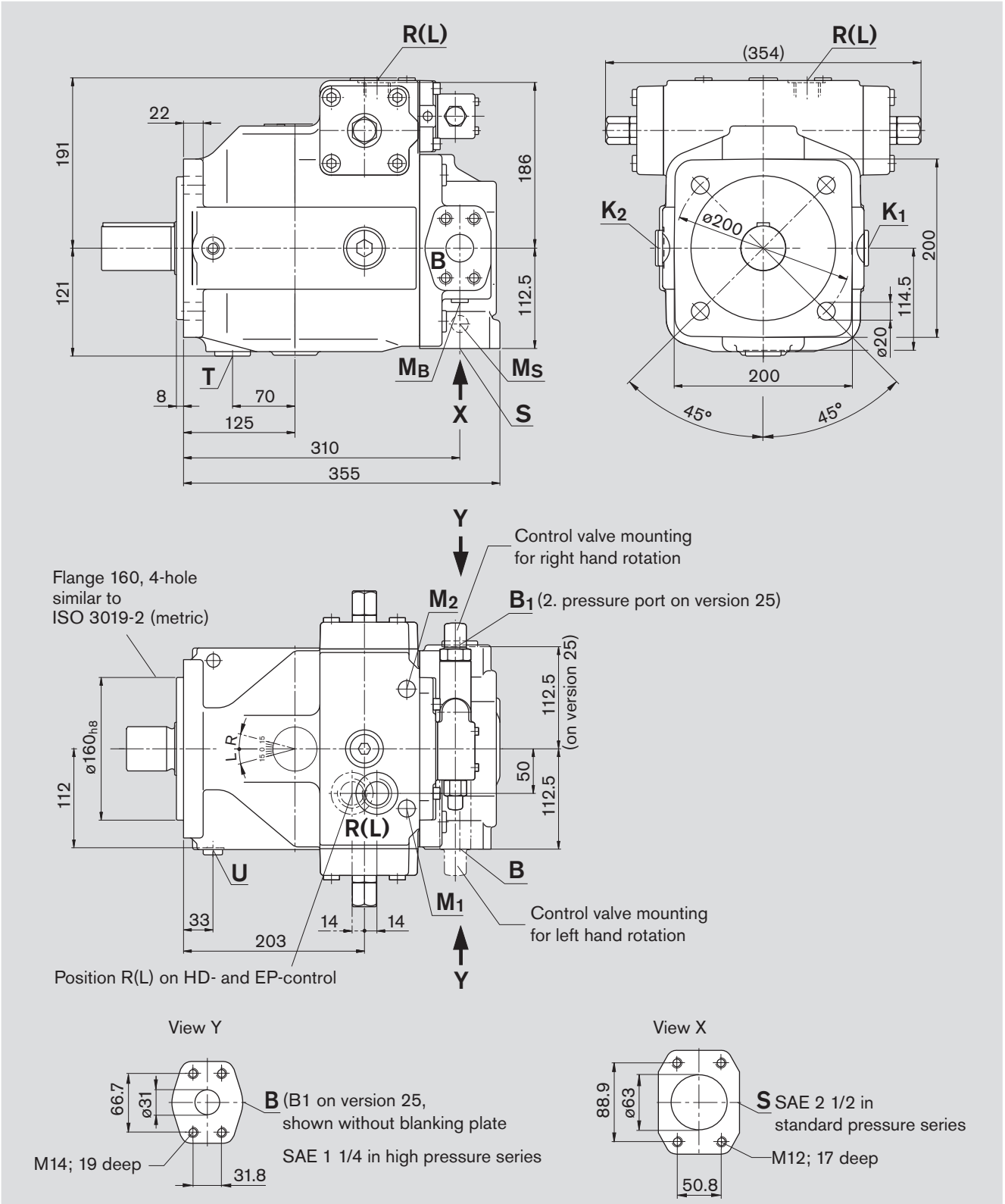
3) Caution: metric thread deviates from standard

Dimensions, size 125

Before finalising your design please request a certified installation drawing. Dimensions in mm.

Series 3

(Example: pressure control; for exact dimensions of control devices see separate data sheets)



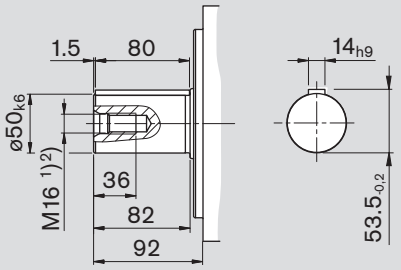
For dimensions of shaft ends and ports see page 23

Dimensions, size 125

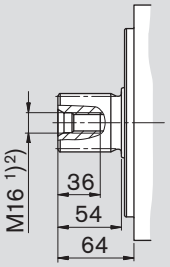
Before finalising your design please request a certified installation drawing. Dimensions in mm.

Shaft ends

P Keyed to DIN 6885
AS14x9x80



Z Splined to DIN 5480
W50x2x24x9g



Ports

				max. tightening torque 2)
S	Suction port (standard pressure series) Fixing thread	SAE J518 3) DIN 13	2 1/2 in M12x1,75; 17 deep 2)	
K_1, K_2	Flushing port	DIN 3852	M33x2; 18 deep (plugged)	540 Nm
T	Drain	DIN 3852	M33x2; 18 deep (plugged)	540 Nm
M_B	Measuring port outlet pressure	DIN 3852	M14x1,5; 12 deep (plugged)	80 Nm
M_S	Measuring port suction pressure	DIN 3852	M14x1,5; 12 deep (plugged)	80 Nm
R(L)	Fill + air bleed (case drain port)	DIN 3852	M33x2; 18 deep	540 Nm
U	Flushing port	DIN 3852	M14x1,5; 12 deep (plugged)	80 Nm
M_1, M_2	Measuring port control chamber press.	DIN 3852	M14x1,5; 12 deep (plugged)	80 Nm

on version 13

B	Pressure port (high pressure series) Fixing thread	SAE J518 3) DIN 13	1 1/4 in M14x2; 19 deep 2)	
B_1	Additional port	DIN 3852	M33x2; 18 deep (plugged)	540 Nm

on version 25

B	Pressure port (high pressure series) Fixing thread	SAE J518 3) DIN 13	1 1/4 in M14x2; 19 deep 2)	
B_1	2. pressure port (high pressure series) Fixing thread	SAE J518 3) DIN 13	1 1/4 in (closed with blanking plate) M14x2; 19 deep 2)	

1) Center bore to DIN 332 (thread to DIN 13)

2) for the max. tightening torques please observe the manufacturer's information on the used fittings and the general information on page 68

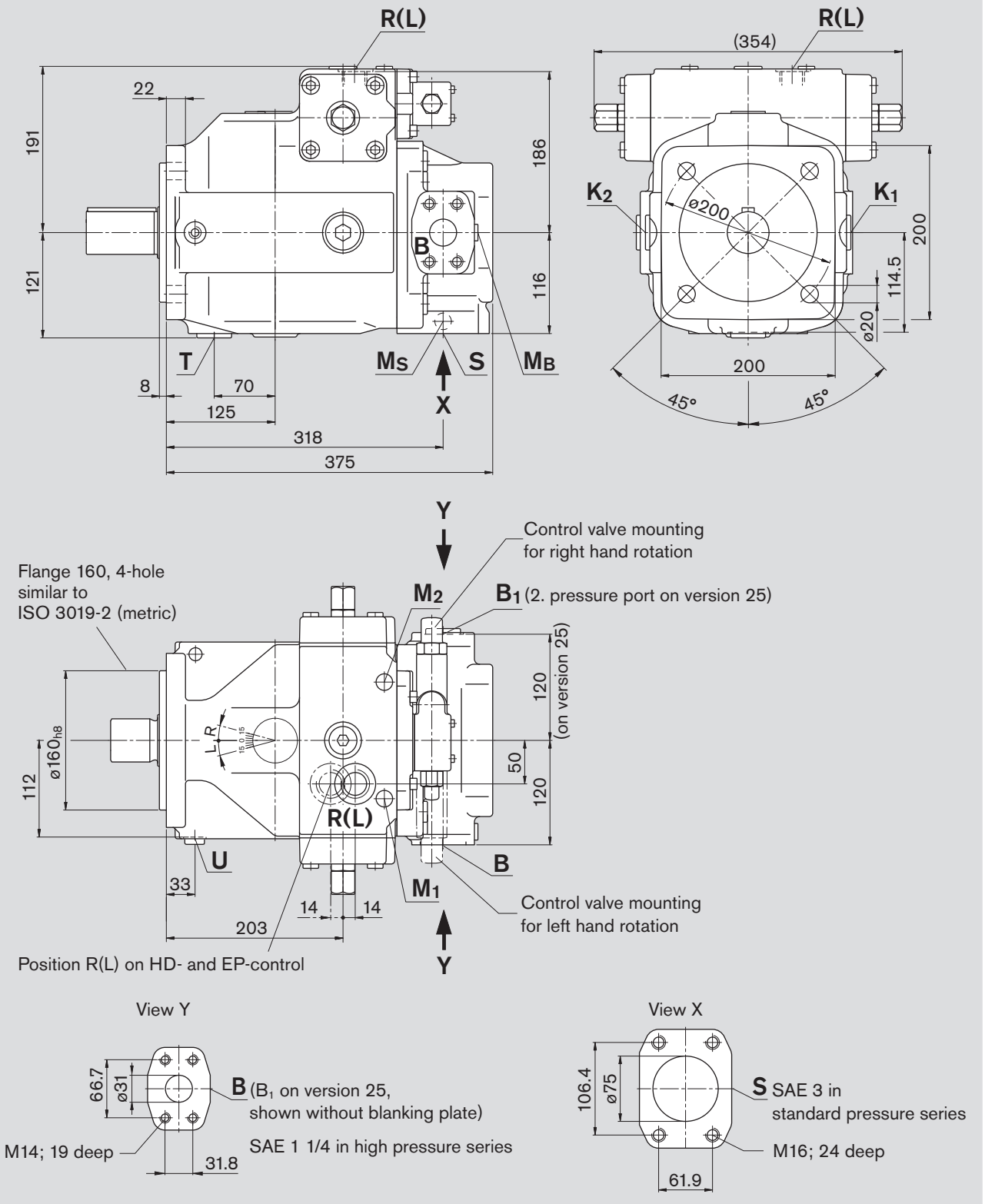
3) Caution: metric thread deviates from standard

Dimensions, size 180

Before finalising your design please request a certified installation drawing. Dimensions in mm.

Series 3

(Example: pressure control; for exact dimensions of control devices see separate data sheets)



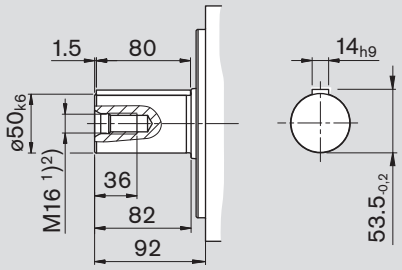
For dimensions of shaft ends and ports see page 25

Dimensions, size 180

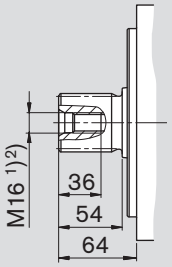
Before finalising your design please request a certified installation drawing. Dimensions in mm.

Shaft ends

P Keyed to DIN 6885
AS14x9x80



Z Splined to DIN 5480
W50x2x24x9g



Ports

				max. tightening torque 2)
S	Suction port (standard pressure series) Fixing thread	SAE J518 3) DIN 13	3 in M16x2; 24 deep 2)	
K_1, K_2	Flushing port	DIN 3852	M33x2; 18 deep (plugged)	540 Nm
T	Drain	DIN 3852	M33x2; 18 deep (plugged)	540 Nm
M_B	Measuring port outlet pressure	DIN 3852	M14x1,5; 12 deep (plugged)	80 Nm
M_S	Measuring port suction pressure	DIN 3852	M14x1,5; 12 deep (plugged)	80 Nm
R(L)	Fill + air bleed (case drain port)	DIN 3852	M33x2; 18 deep	540 Nm
U	Flushing port	DIN 3852	M14x1,5; 12 deep (plugged)	80 Nm
M_1, M_2	Measuring port control chamber pressure	DIN 3852	M14x1,5; 12 deep (plugged)	80 Nm

on version 13

B	Pressure port (high pressure series) Fixing thread	SAE J518 3) DIN 13	1 1/4 in deep 2) M14x2; 19 deep 2)	
B_1	Additional port	DIN 3852	M33x2;18 deep (plugged)	540 Nm

on version 25

B	Pressure port (high pressure series) Fixing thread	SAE J518 3) DIN 13	1 1/4 in M14x2; 19 deep 2)	
B_1	2. pressure port (high pressure series) Fixing thread	SAE J518 3) DIN 13	1 1/4 in (closed with blanking plate) M14x2; 19 deep 2)	

1) Center bore to DIN 332 (thread to DIN 13)

2) for the max. tightening torques please observe the manufacturer‘s information on the used fittings and the general information on page 68

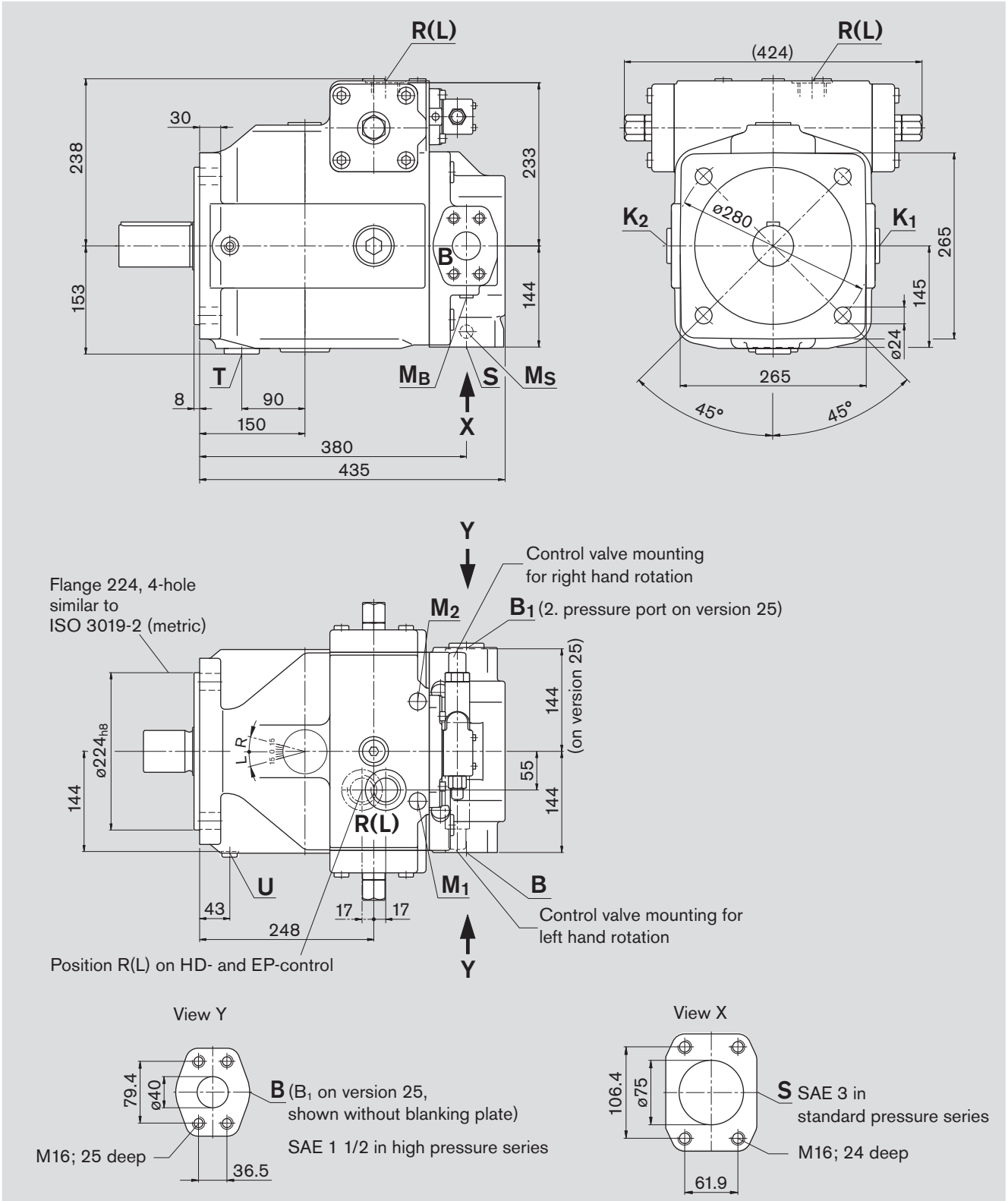
3) Caution: metric thread deviates from standard

Dimensions, size 250

Before finalising your design please request a certified installation drawing. Dimension in mm.

Series 3

(Example: pressure control; for exact dimensions of control devices see separate data sheets)



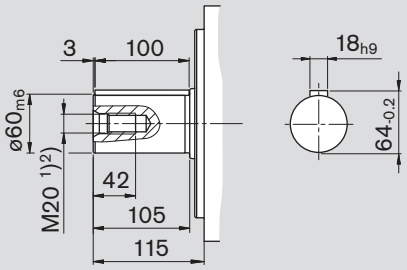
For dimensions on shaft ends and ports see page 27

Dimensions, size 250

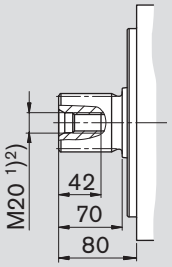
Before finalising your design please request a certified installation drawing. Dimensions in mm.

Shaft ends

P Keyed to DIN 6885
AS18x11x100



Z Splined to DIN 5480
W60x2x28x9g



Ports

				max. tightening torque 2)
S	Suction port (standard pressure series) Fixing thread	SAE J518 3) DIN 13	3 in M16x2; 24deep 2)	
K_1, K_2	Flushing port	DIN 3852	M42x2; 20 deep (plugged)	720 Nm
T	Drain	DIN 3852	M42x2; 20 deep (plugged)	720 Nm
M_B	Measuring port outlet pressure	DIN 3852	M14x1,5; 12 deep (plugged)	80 Nm
M_S	Measuring port suction pressure	DIN 3852	M14x1,5; 12 deep (plugged)	80 Nm
R(L)	Fill + air bleed (case drain port)	DIN 3852	M42x2; 20 deep	720 Nm
U	Flushing port	DIN 3852	M14x1,5; 12 deep (plugged)	80 Nm
M_1, M_2	Measuring port control chamber pressure	DIN 3852	M18x1,5; 12 deep (plugged)	140 Nm

on version 13

B	Pressure port (high pressure series) Fixing thread	SAE J518 3) DIN 13	1 1/2 in M16x2; 25 deep 2)	
B_1	Additional port	DIN 3852	M42x2; 20 deep (plugged)	720 Nm

on version 25

B	Pressure port (high pressure series) Fixing thread	SAE J518 3) DIN 13	1 1/2 in M16x2; 25 deep 2)	
B_1	2. pressure port (high pressure series) Fixing thread	SAE J518 3) DIN 13	1 1/2 in (closed with blanking plate) M16x2; 25 deep 2)	

1) Center bore to DIN 332 (thread to DIN 13)

2) for the max. tightening torques please observe the manufacturer's information on the used fittings and the general information on page 68

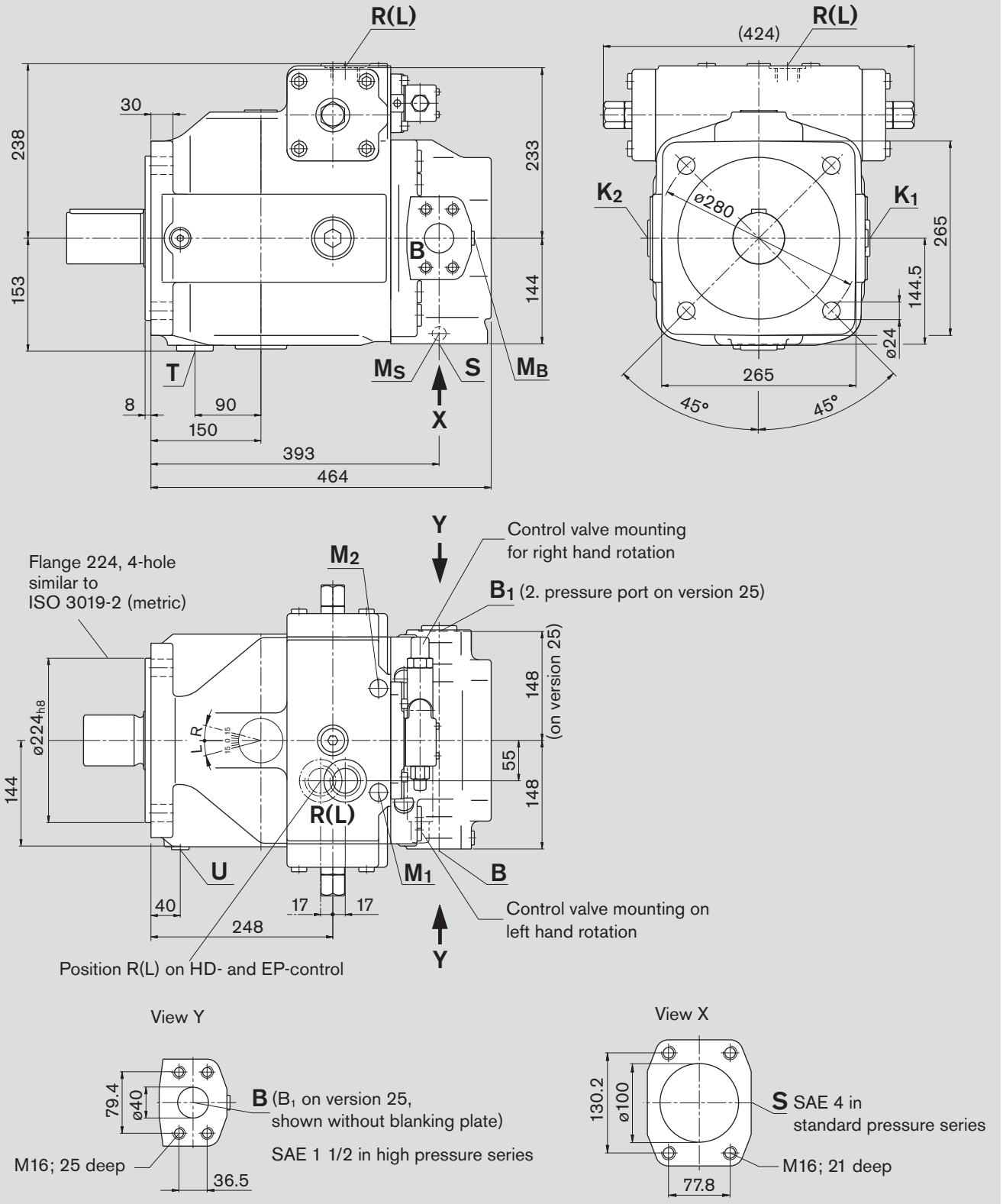
3) Caution: thread deviates from standard

Dimensions, size 355

Before finalising your design please request a certified installation drawing. Dimensions in mm.

Series 3

(Example: pressure control; for exact dimensions of control devices see separate data sheets)



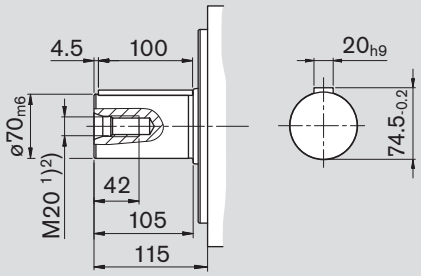
For dimensions of shaft ends and ports see page 29

Dimensions, size 355

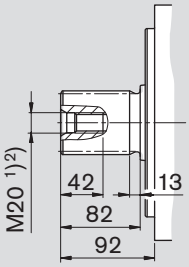
Before finalising your design please request a certified installation drawing. Dimensions in mm.

Shaft ends

P Keyed to DIN 6885
AS20x12x100



Z Splined to DIN 5480
W70x3x22x9g



Ports

				max. tightening torque [2]
S	Suction port (standard pressure series) Fixing thread	SAE J518 [3] DIN 13	4 in M16x2; 21 deep [2]	
K_1, K_2	Flushing port	DIN 3852	M42x2; 20 deep (plugged)	720 Nm
T	Drain	DIN 3852	M42x2; 20 deep (plugged)	720 Nm
M_B	Measuring port outlet pressure	DIN 3852	M14x1,5; 12deep (plugged)	80 Nm
M_S	Measuring port suction pressure	DIN 3852	M14x1,5; 12 deep (plugged)	80 Nm
R(L)	Fill + air bleed (case drain port)	DIN 3852	M42x2; 20 deep	720 Nm
U	Flushing port	DIN 3852	M18x1,5;12 deep (plugged)	140 Nm
M_1, M_2	Measuring port control chamber pressure	DIN 3852	M18x1,5; 12 deep (plugged)	140 Nm

on version 13

B	Pressure port (high pressure series) Fixing thread	SAE J518 [3] DIN 13	1 1/2 in M16x2; 25 deep [2]	
B_1	Additional port	DIN 3852	M42x2; 20 deep (plugged)	720 Nm

on version 25

B	Pressure port (high pressure series) Fixing thread	SAE J518 [3] DIN 13	1 1/2 in M16x2; 25 deep[2]	
B_1	2. pressure port (high pressure series) Fixing thread	SAE J518 [3] DIN 13	1 1/2 in (closed with blanking plate) M16x2; 25 deep [2]	

[1] Center bore to DIN 332 (thread to DIN 13)

[2] for the max. tightening torques please observe the manufacturer‘s information on the used fittings and the general information on page 68

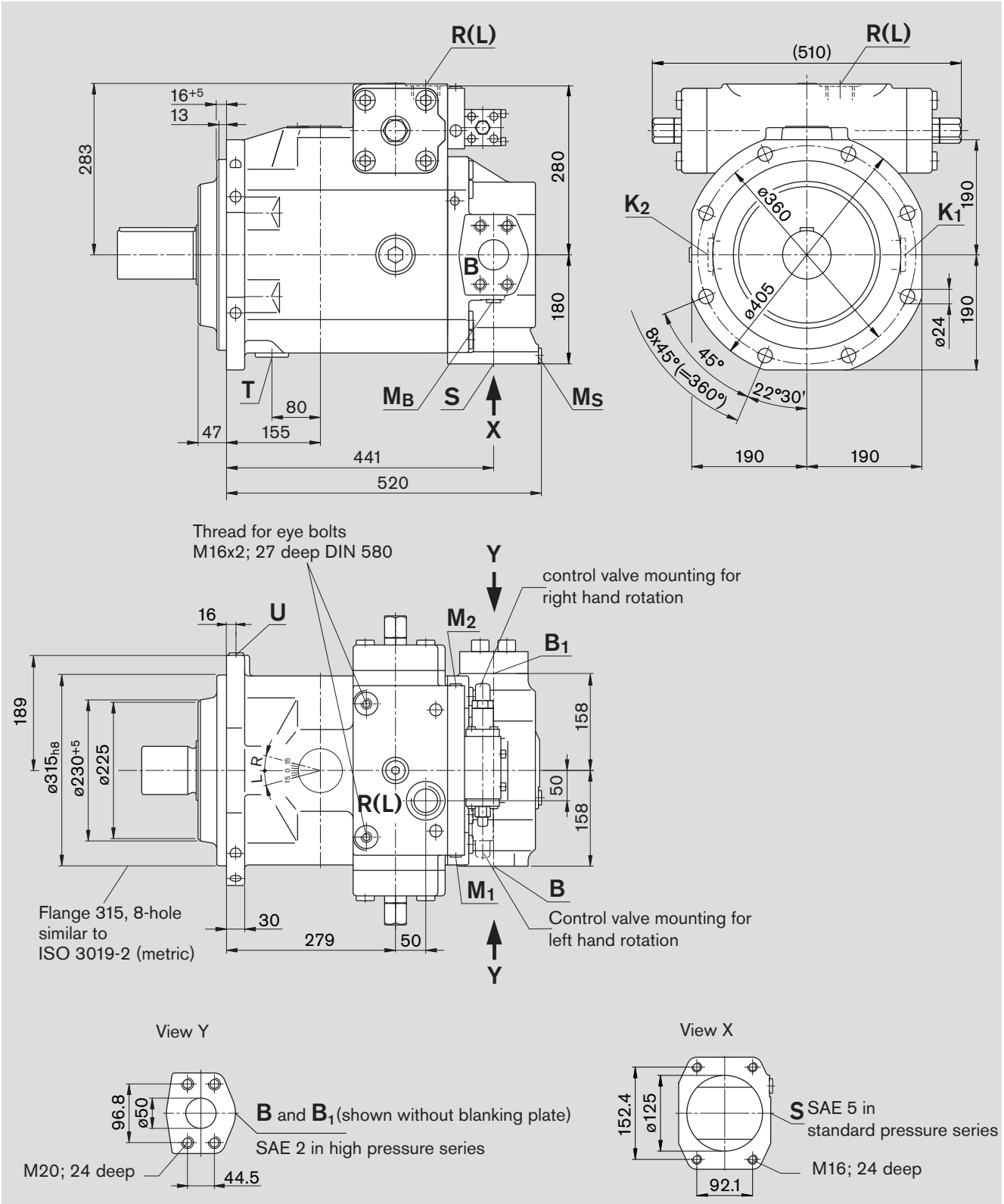
[3] Caution: metric thread deviates from standard

Dimensions, size 500

Before finalising your design please request a certified installation drawing. Dimensions in mm.

Series 3

(Example: pressure control; for exact dimensions of control devices see separate data sheets)



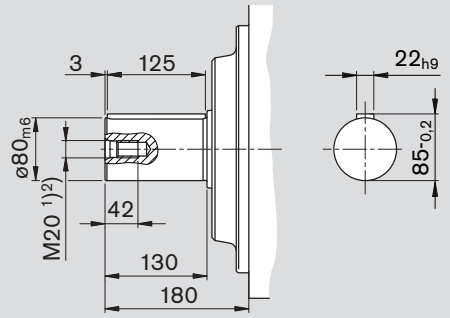
For dimensions of shaft ends and ports see page 31

Dimensions, size 500

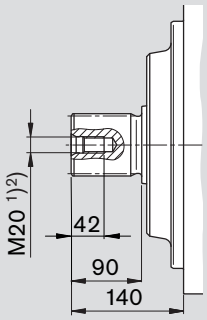
Before finalising your design please request a certified installation drawing. Dimensions in mm.

Shaft ends

P Keyed to DIN 6885
AS22x14x125



Z Splined to DIN 5480
W80x3x25x9g



Ports

				max. tightening torque 2)
S	Suction port (standard pressure series) Fixing thread	SAE J518 3) DIN 13	5 in M16x2; 24 deep 2)	
K_1, K_2	Flushing port	DIN 3852	M48x2; 22 deep (plugged)	960 Nm
T	Drain	DIN 3852	M48x2; 22 deep (plugged)	960 Nm
M_B	Measuring port outlet pressure	DIN 3852	M18x1,5; 12 deep (plugged)	140 Nm
M_S	Measuring port suction pressure	DIN 3852	M18x1,5; 12 deep (plugged)	140 Nm
R(L)	Fill + air bleed (case drain port)	DIN 3852	M48x2; 22 deep	960 Nm
U	Flushing port	DIN 3852	M18x1,5; 12 deep (plugged)	140 Nm
M_1, M_2	Measuring port control chamber pressure or dependent on control device	DIN 3852 DIN 3852	M18x1,5; 12 deep (plugged) M14x1,5; 12 deep (plugged)	140 Nm 80 Nm
B	Pressure port (high pressure series) Fixing thread	SAE J518 3) DIN 13	2 in M20x2,5; 24 deep 2)	
B_1	2. pressure port (high pressure series) Fixing thread	SAE J518 3) DIN 13	2 in (closed with blanking plate) M20x2,5; 24 deep 2)	

1) Center bore to DIN 332 (thread to DIN 13)

2) for the max. tightening torques please observe the manufacturer's information on the used fittings and the general information on page 68

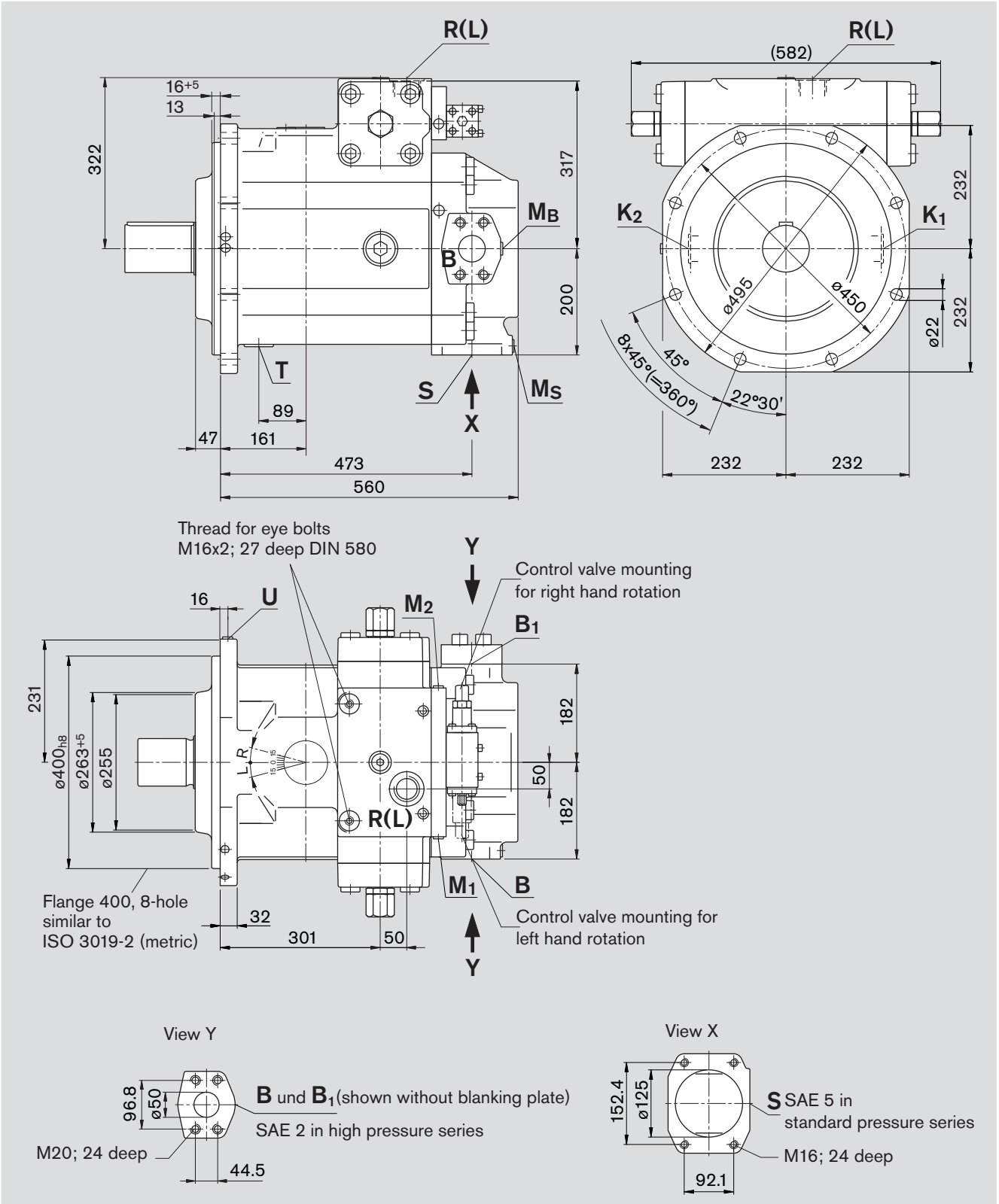
3) Caution: metric thread deviates from standard

Dimensions, size 750

Before finalising your design please request a certified installation drawing. Dimensions in mm.

Series 3

(Example: pressure control; for exact dimensions of control devices see separate dData sheets)



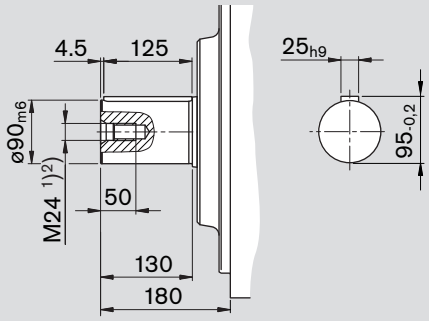
For dimensions of shaft ends and ports see page 33

Dimensions , size 750

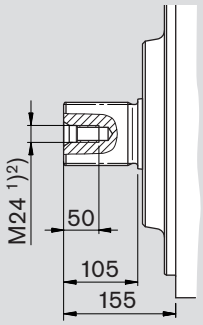
Before finalising your design please request a certified installation drawing. Dimensions in mm.

Shaft ends

P Keyed to DIN 6885
AS25x14x125



Z Splined to DIN 5480
W90x3x28x9g



Ports

				max. tightening torques 2)
S	Suction port (standard pressure series) Fixing thread	SAE J518 3) DIN 13	5 in M16x2; 24 deep 2)	
K_1, K_2	Flushing port	DIN 3852	M48x2; 20 deep (plugged)	960 Nm
T	Drain	DIN 3852	M48x2; 20 deep (plugged)	960 Nm
M_B	Measuring port outlet pressure	DIN 3852	M18x1,5; 12 deep (plugged)	140 Nm
M_S	Measuring port suction pressure	DIN 3852	M18x1,5; 12 deep (plugged)	140 Nm
R(L)	Fill + air bleed (case drain port)	DIN 3852	M48x2; 20 deep	960 Nm
U	Flushing port	DIN 3852	M18x1,5; 12 deep (plugged)	140 Nm
M_1, M_2	Measuring port control chamber press. or dependent on control device	DIN 3852 DIN 3852	M18x1,5; 12 deep (plugged) M14x1,5; 12 deep (plugged)	140 Nm 80 Nm
B	Pressure port (high pressure series) Fixing thread	SAE J518 3) DIN 13	2 in M20x2,5; 24 deep 2)	
B_1	2. pressure port (high pressure series) Fixing thread	SAE J518 3) DIN 13	2 in (closed with blanking plate) M20x2,5; 24 deep 2)	

1) Center bore to DIN 332 (thread to DIN 13)

2) for the max. tightening torques please observe the manufacturer‘s information on the used fittings and the general information on page 68

3) Caution: metric thread deviates from standard

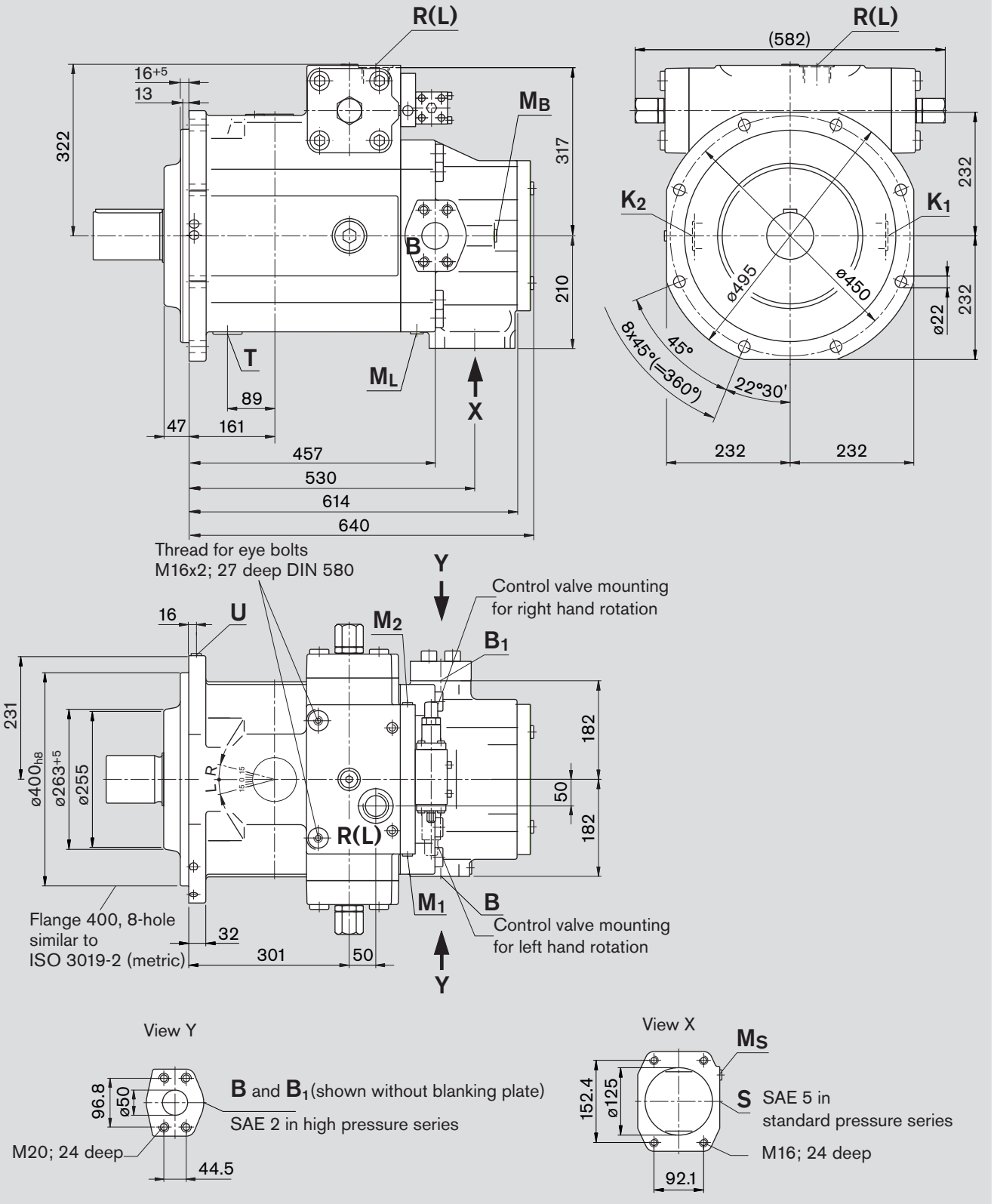
Dimensions, size 750

Before finalising your design please request a certified installation drawing. Dimensions in mm.

with boost pump (Impeller)

Series 3

(Example: pressure control; for exact dimensions of control devices see separate data sheets)



For dimensions of shaft ends and ports see page 35

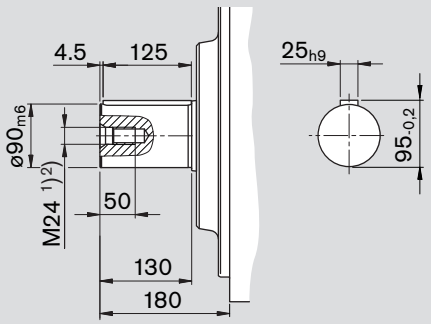
Dimensions, size 750

Before finalising your design please request a certified installation drawing. Dimensions in mm.

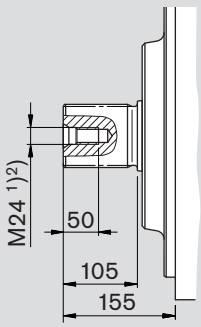
with boost pump (Impeller)

Shaft ends

P Keyed to DIN 6885
AS25x14x125



Z Splined to DIN 5480
W90x3x28x9g



Ports

				max. tightening torque 2)
S	Suction port (standard pressure series) Fixing thread	SAE J518 3) DIN 13	5 in M16x2; 24 deep 2)	
K_1, K_2	Flushing port	DIN 3852	M48x2; 20 deep (plugged)	960 Nm
T	Drain	DIN 3852	M48x2; 20 deep (plugged)	960 Nm
M_B	Measuring port outlet pressure	DIN 3852	M18x1,5; 12 deep (plugged)	140 Nm
M_S	Measuring port suction pressure	DIN 3852	M18x1,5; 12 deep (plugged)	140 Nm
M_L	Measuring port boost pressure	DIN 3852	M18x1,5; 12 deep (plugged)	140 Nm
R(L)	Fill + air bleed (case drain port)	DIN 3852	M48x2; 20 deep	960 Nm
U	Flushing port	DIN 3852	M18x1,5; 12 deep (plugged)	140 Nm
M_1, M_2	Measuring port control chamber press. or dependent on control device	DIN 3852 DIN 3852	M18x1,5; 12 deep (plugged) M14x1,5; 12 deep (plugged)	140 Nm 80 Nm
B	Pressure port (high pressure series) Fixing thread	SAE J518 3) DIN 13	2 in M20x2,5; 24 deep 2)	
B_1	2. pressure port (high pressure series) Fixing thread	SAE J518 3) DIN 13	2 in (closed with blanking plate) M20x2,5; 24 deep 2)	

1) Center bore to DIN 332 (thread to DIN 13)

2) for the max. tightening torques please observe the manufacturer‘s information on the used fittings and the general information on page 68

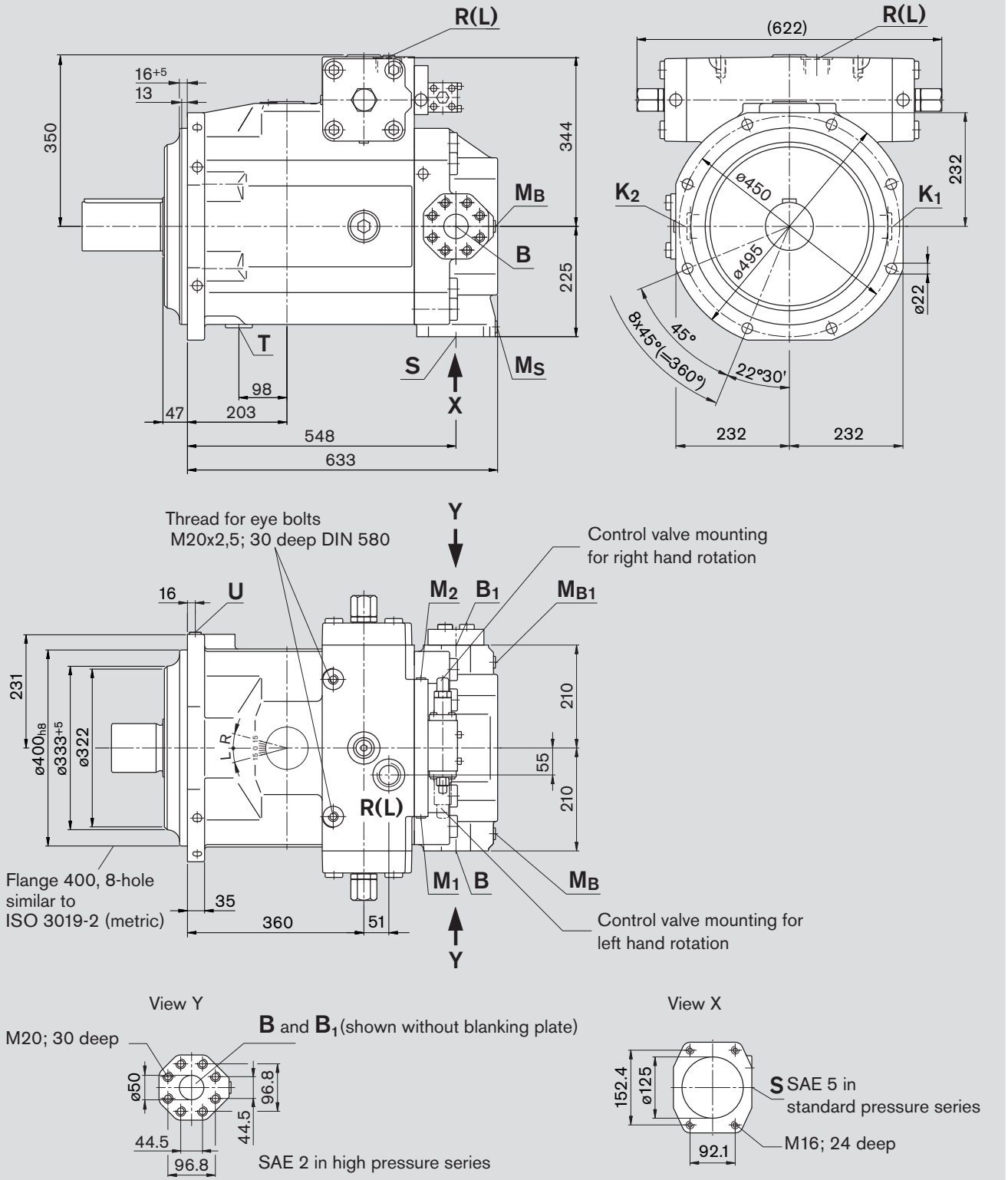
3) Caution: metric thread deviates from standard

Dimensions, size 1000

Before finalising your design please request a certified installation drawing. Dimensions in mm.

Series 3

(Example: pressure control; for exact dimensions of control devices see separate data sheets)



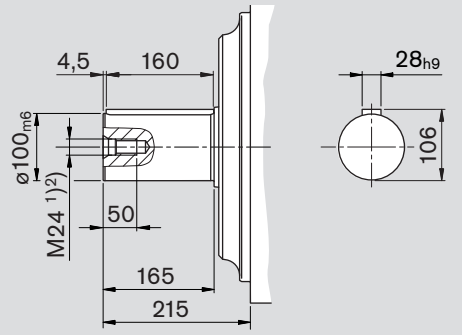
For dimensions of shaft ends and ports see page 37

Dimensions, size 1000

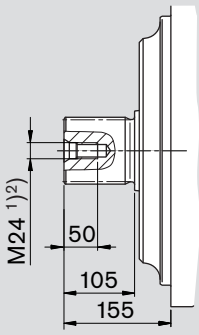
Before finalising your design please request a certified installation drawing. Dimensions in mm.

Shaft ends

P Keyed to DIN 6885
AS28x16x160



Z Splined to DIN 5480
W100x3x32x9g



Ports

				max. tightening torque 2)
S	Suction port (standard pressure series) Fixing thread	SAE J518 3) DIN 13	5 in M16x2; 24 deep 2)	
K_1, K_2	Flushing port	DIN 3852	M48x2; 20 deep (plugged)	960 Nm
T	Drain	DIN 3852	M48x2; 20 deep (plugged)	960 Nm
M_B, M_{B1}	Measuring port outlet pressure	DIN 3852	M18x1,5; 12 deep (plugged)	140 Nm
M_S	Measuring port suction pressure	DIN 3852	M18x1,5; 12 deep (plugged)	140 Nm
R(L)	Fill + air bleed (case drain port)	DIN 3852	M48x2; 20 deep	960 Nm
U	Flushing port	DIN 3852	M18x1,5; 12 deep (plugged)	140 Nm
M_1, M_2	Measuring port control chamber press.or dependent on control device	DIN 3852 DIN 3852	M18x1,5; 12 deep (plugged) M14x1,5; 12 deep (plugged)	140 Nm 80 Nm
B	Pressure port (high pressure series) Fixing thread	SAE J518 3) DIN 13	2 in M20x2,5; 30 deep 2)	
B_1	2. pressure port (high pressure series) Fixing thread	SAE J518 3) DIN 13	2 in (closed with blanking plate) M20x2,5; 30 deep 2)	

1) Center bore to DIN 332 (thread to DIN 13)

2) for the max. tightening torques please observe the manufacturer's information on the used fittings and the general information on page 68

3) Caution: metric thread deviates from standard

Through drive

The axial piston unit A4VSO can be equipped with a through drive, as shown in the type code on page 4.
The through drive execution is designated by the code K/U 31...99.

We recommend, that no more than three pumps be coupled together.

Permissible input and through drive torques

Size				40	71	125	180	250	355	500	750	1000
Splined shaft												
Max. perm. total input torque at shaft of pump 1												
(Pump 1 + pump 2)	$T_{tot\ max}$	Nm		446	790	1392	2004	2782	3952	5566	8348	11130
A Perm.through drive torque	$T_{D1\ max}$	Nm		223	395	696	1002	1391	1976	2783	4174	5565
	$T_{D2\ max}$	Nm		223	395	696	1002	1391	1976	2783	4174	5565
B Perm. through drive torque	$T_{D1\ max}$	Nm		223	395	696	1002	1391	1976	2783	4174	5565
	$T_{D2\ max}$	Nm		223	395	696	1002	1391	1976	2783	4174	5565
Keyed shaft												
Max. perm. total input torque at shaft of pump 1												
(Pump 1 + pump 2)	$T_{tot\ max}$	Nm		380	700	1392	1400	2300	3557	5200	7513	9444
A Perm. through drive torque	$T_{D1\ max}$	Nm		223	395	696	1002	1391	1976	2783	4174	5565
	$T_{D2\ max}$	Nm		157	305	696	398	909	1581	2417	3339	3879
B Perm. through drive torque	$T_{D1\ max}$	Nm		157	305	696	398	909	1581	2417	3339	3879
	$T_{D2\ max}$	Nm		223	395	696	1002	1391	1976	2783	4174	5565

Distribution of torques

Single pump with through drive

If no further pumps are factory-mounted the simple type code is sufficient.

included in this case are:

on all through drives except K/U 99
shaft coupler, mounting screws, seal and if required an adapter flange

on K/U 99
with through drive shaft, without shaft coupler, without adapter flange; unit is closed with pressure tight cover.

Universal through drive

On pump sizes 125...355 all through drives are supplied as universal through drives „U“ .

These have the advantage, that they can be adapted later on.

Simply by exchanging the adapter flange and the shaft coupler it is possible to convert the through drive option.
The conversion sets must be ordered separately, see RE 95581.

Combination pumps

Independent circuits are available for the user when further pumps are built on.

1. If the combination consists of **2 Rexroth axial piston pumps**, and if this must be **factory mounted**, the two individual type codes must be joined by a „+“ .

   Ordering example:
   A4VSO 125 DR / 30 R – PPB13K33 **+** A4VSO 71 DR / 10 R – PZB13N00

2 If a **gear** or a radial piston pump must be **factory mounted** as the second pump please consult us.

Overview of A4VSO through drive options

Through drive - A4VSO			Mounting option 2. pump					Through drive
Flange	Coupler for splined shaft [6]	Code	A4VSO/G size (shaft)	A4CSG size (shaft)	A10V(S)O/31(2) [5] size (shaft)	A10V(S)O/52(3) size (shaft)	External/internal gear pump	available for size
Flange ISO 3019-2 (metric)								
80, 2-hole	19-4 (3/4in, 11T) [3]	**K/UB2**	–	–	18 (S)/31	10 (S)	–	71
100, 2-hole	22-4 (7/8in, 13T) [3]	**K/UB3**	–	–	28 (S)/31	–	–	40...180
	25-4 (1in, 15T) [3]	**K/UB4**	–	–	45 (S)/31	–	–	40...500
125, 2-hole	32-4 (1 1/4in, 14T) [3]	**K/UB5**	–	–	71 (S)/31	–	–	71...355
	38-4(1 1/2in, 17T) [3]	**UB6**	–	–	100 (S)/31	–	–	in preparation
125, 4-hole	W 32x2x14x9g [2]	**K/U31**	40 (Z)	–	–	–	–	40...500
140, 4-hole	W 40x2x18x9g [2]	**K/U33**	71 (Z)	–	–	–	–	71...750
160, 4-hole	W 50x2x24x9g [2]	**K/U34**	125 (Z)	–	–	–	–	125...750
			180 (Z)	–	–	–	–	180...750
	32-4 (1 1/4in, 14T) [3]	**UB8**	–	–	71 (S)/32	–	–	250
180, 4-hole	44-4 (1 3/4in, 13T) [3]	**K/UB7**	–	–	140 (S)/31/32	–	–	180... 500
	38-4 (1 1/2in, 17T) [3]	**UB9**	–	–	100 (S)/32	–	–	in preparation
224, 4-hole	W 60x2x28x9g [2]	**K/U35**	250 (Z)	250 (Z)	–	–	–	250...750
	W 70x3x22x9g [2]	**K/U77**	355 (Z)	355 (Z)	–	–	–	355, 500
315, 8-hole	W 80x3x25x9g [2]	**K43**	500 (Z)	500 (Z)	–	–	–	500, 750
400, 8-hole	W 90x3x28x9g [2]	**K76**	750 (Z)	750 (Z)	–	–	–	750
	W 100x3x32x9g [2]	**K88**	1000 (Z)	–	–	–	–	1000
Flange SAE J 744 (ISO 3019-1)								
82-2 (A) [1]	16-4 (5/8in, 9T) [3]	**K/U01**	–	–	–	–	AZ-PF-1X-004...022 [4]	40...750
	19-4 (3/4in, 11T) [3]	**K/U52**	–	–	18 (S)/31	10, 18 (S)	–	40 u. 71
101-2 (B) [1]	22-4 (7/8in, 13T) [3]	**K/U68**	–	–	28 (S)/31	28 (S)	AZ-PN-1X-020...032 [4]	40...500
	25-4 (1in, 15T) [3]	**K/U04**	–	–	45 (S)/31	45 (S)	PGH4	40...500
127-2 (C) [1]	32-4 (1 1/4in, 14T) [3]	**K/U07**	–	–	71 (S)/31	–	–	71...500
	38-4 (1 1/2in, 17T) [3]	**K/U24**	–	–	100 (S)/31	85 (S)	PGH5	125...500
152-4 (D) [1]	44-4 (1 3/4in, 13T) [3]	**K/U17**	–	–	140 (S)/31	–	–	180...500
Dia 63-4, metr.	Keyed dia 25	**K/U57**	–	–	–	–	R4	40 u. 71

[1] 2 = 2-hole, 4 = 4-hole

[2] to DIN 5480

[3] Splined shafts acc. to SAEJ744 OCT83

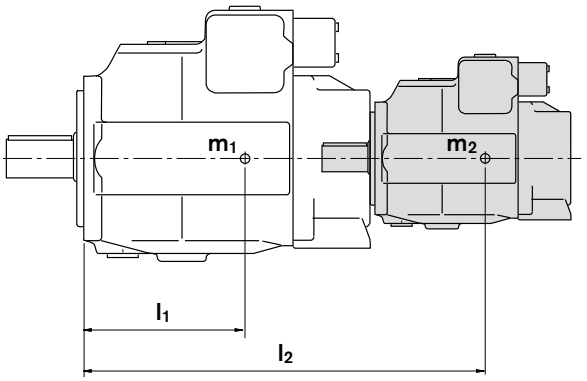
[4] Rexroth recommends special executions of the gear pumps. Please consult us.

[5] If a through drive for an A10V(S)O with R-shaft is desired, please consult us.

[6] Keyed shaft on through drive code K/U57

Permissible mass moment of inertia

referred to the mounting flange of the main pump



m_1, m_2 [kg] Weight of pump

l_1, l_2 [mm] Distance center of gravity

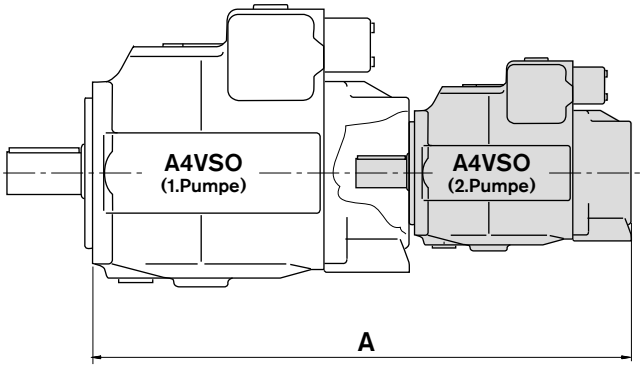
$$T_m = m_1 \bullet l_1 \bullet \frac{1}{102} + m_2 \bullet l_2 \bullet \frac{1}{102} \text{ [Nm]}$$

Size			40	71	125	180	250	355	500	750	1000
Perm. mass moment of inertia	$T_{m\ perm.}$	Nm	1800	2000	4200	4200	9300	9300	15600	19500	19500
Perm. mass moment at dynam. acceleration of 10 g ≙ 98,1 m/sec²	$T_{m\ perm.}$	Nm	180	200	420	420	930	930	1560	1950	1950
Weight (A4VSO...DR)	m	kg	39	53	88	102	184	207	320	460	605
Distance center of gravity	l_1	mm	120	140	170	180	210	220	230	260	290

Dimensions combination pumps

Before finalising your design please request a certified installation drawing. Dimensions in mm.

A4VSO + A4VSO



Overall lenght A

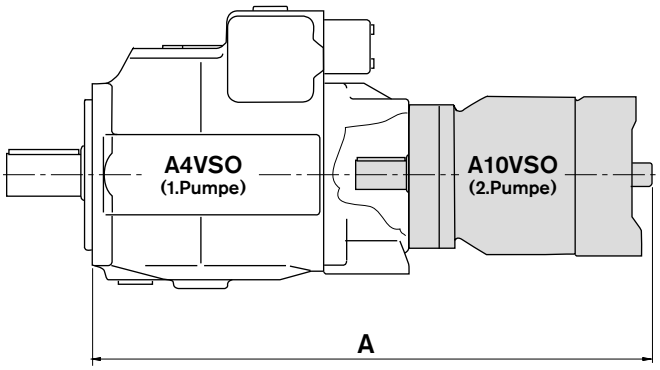
A4VSO	A4VSO..DR..N00 (2. pump)								
(1. pump)	Size 40	Size 71	Size 125	Size 180	Size 250	Size 355	Size 500	size 750	Size 1000
Size 40	554	–	–	–	–	–	–	–	–
Size 71	582	611	–	–	–	–	–	–	–
Size 125	635	664	724	–	–	–	–	–	–
Size 180	659	688	748	768	–	–	–	–	–
Size 250	719	748	808	828	904	–	–	–	–
Size 355	748	777	837	857	933	962	–	–	–
Size 500	771	800	860	880	976	1005	1110	–	–
Size 750	821	850	910	930	1026	1055	1160	1214	–
Size 1000	*	*	*	*	*	*	*	*	1368

* on request

Dimensions combination pumps

Before finalising your design please request a certified installation drawing. Dimensions in mm.

A4VSO + A10VSO



Overall lenght A

A4VSO	A10VSO.../31 (2. pump)					
(1. pump)	Size 18	Size 28	Size 45	Size 71	Size 100	Size 140
Size 40	458	496	514	–	–	–
Size 71	486	497	540	580	–	–
Size 125	564	575	593	628	698	–
Size 180	588	599	617	652	722	744
Size 250	648	659	677	712	782	791
Size 355	*	*	706	741	*	820
Size 500	700	711	729	764	857	868
Size 750	750	761	779	812	907	917
Size 1000	*	*	*	*	*	*

* on request

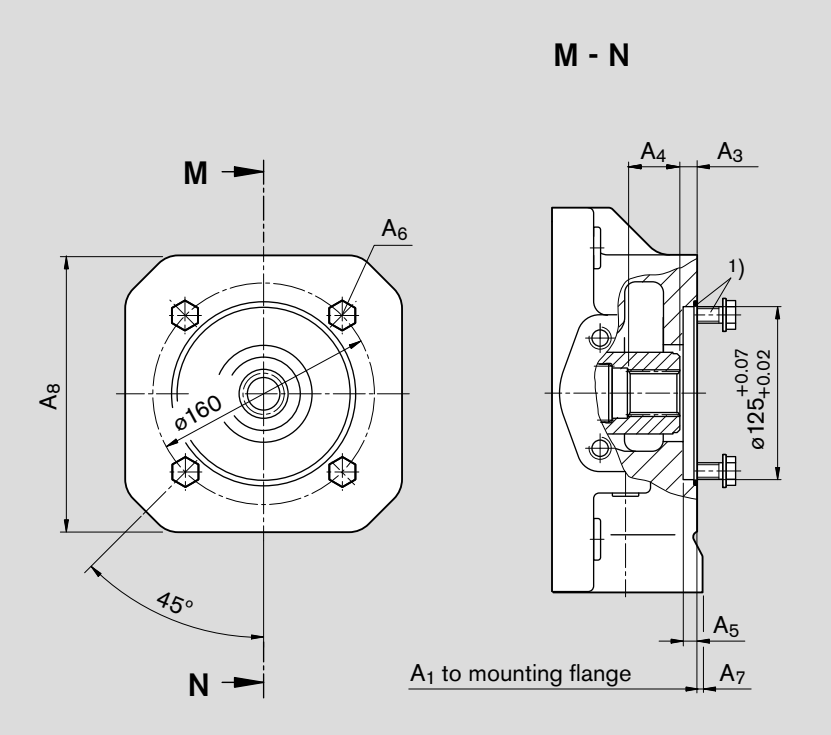
Dimensions through drives

Before finalising your design please request a certified installation drawing. Dimensions in mm.

K31

Flange ISO 3019-2 125, 4-hole
Shaft coupler to DIN 5480 N32x2x14x8H

for mounting an A4VSO/G 40 splined shaft



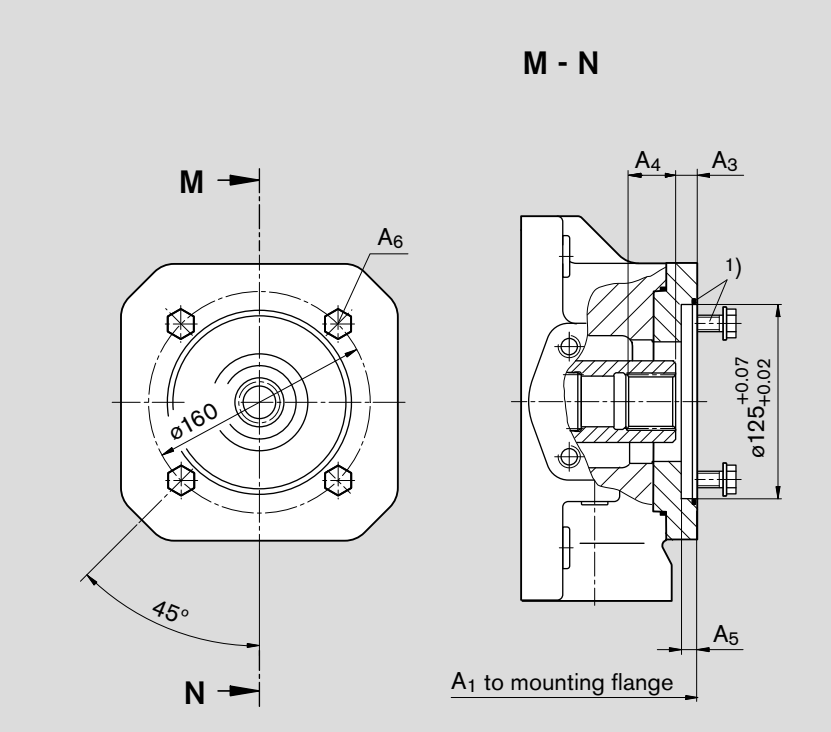
Size	A_1	A_3	A_4	A_5	A_6 [2]
40	288	12,5	40	9	M12
71	316	12,5	33,6	9	M12
500	505	12,5	38,5	9	M12
750	in preparation				
1000	in preparation				

Size	A_7	A_8
40	–	–
71	–	–
500	15	240
750	in preparation	
1000	in preparation	

U31

Flange ISO 3019-2 125, 4-hole
Shaft coupler to DIN 5480 N32x2x14x8H

for mounting an A4VSO/G 40 splined shaft



Size	A_1	A_3	A_4	A_5	A_6 [2]
125	369	12,5	35,6	9	M12
180	393	12,5	35,6	9	M12
250	453	12,5	38	9	M12
355	482	12,5	38	9	M12

[1]) Mounting screws and O-ring seal are included with supply
[2]) Thread to DIN 13, for the max. tightening torques observe the general information on page 68

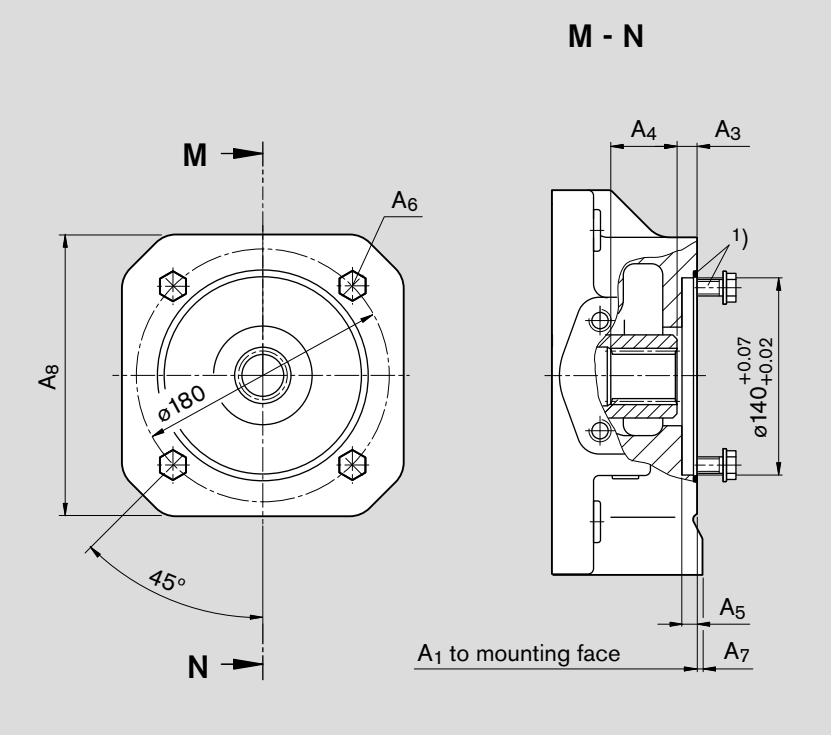
Dimensions through drives

Before finalising your design please request a certified installation drawing. Dimensions in mm.

K33

Flange ISO 3019-2 140, 4-hole
Shaft coupler to DIN 5480 N40x2x18x8H

for mounting an A4VSO/G 71 splined shaft



Size	A_1	A_3	A_4	A_5	A_6 [2]
71	316	11,5	42,8	9	M12
500	505	12,5	57	9	M12
750	555	12,5	44,5	9	M12
750 *	in preparation				
1000	in preparation				

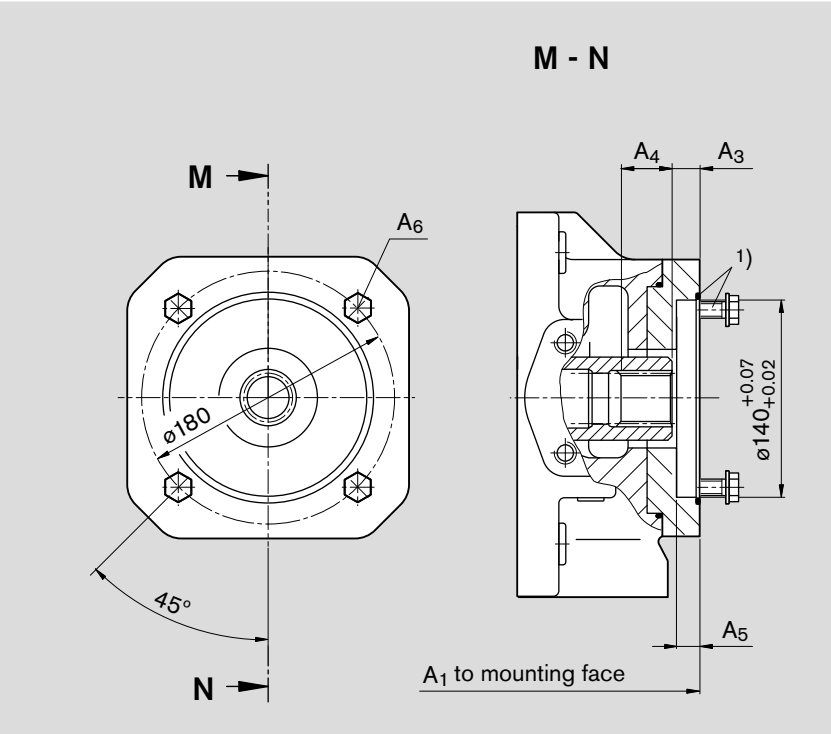
Size	A_7	A_8
71	–	–
500	15	240
750	–	–
750 *	in preparation	
1000	in preparation	

* with boost pump

U33

Flange ISO 3019-2 140, 4-hole
Shaft coupler to DIN 5480 N40x2x18x8H

for mounting an A4VSO/G 71 splined shaft



Size	A_1	A_3	A_4	A_5	A_6 [2]
125	369	12,5	43,8	9	M12
180	393	12,5	43,8	9	M12
250	453	12,5	48,9	9	M12
355	482	12,5	48	9	M12

[1]) Mounting screws and O-ring seal are included with supply
[2]) Thread to DIN 13, for the max. tightening torques observe the general information on page 68

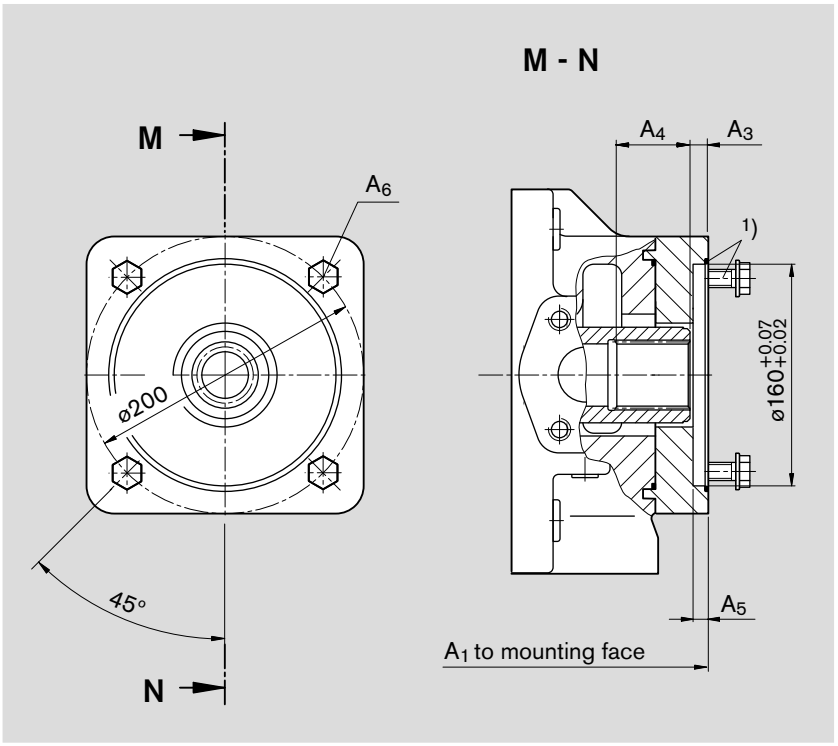
Dimensions through drives

Before finalising your design please request a certified installation drawing. Dimensions in mm.

K34

Flange ISO 3019-2 160, 4-hole
Shaft coupler to DIN 5480 N50x2x24x8H

for mounting an A4VSO/G 125 or 180 splined shaft



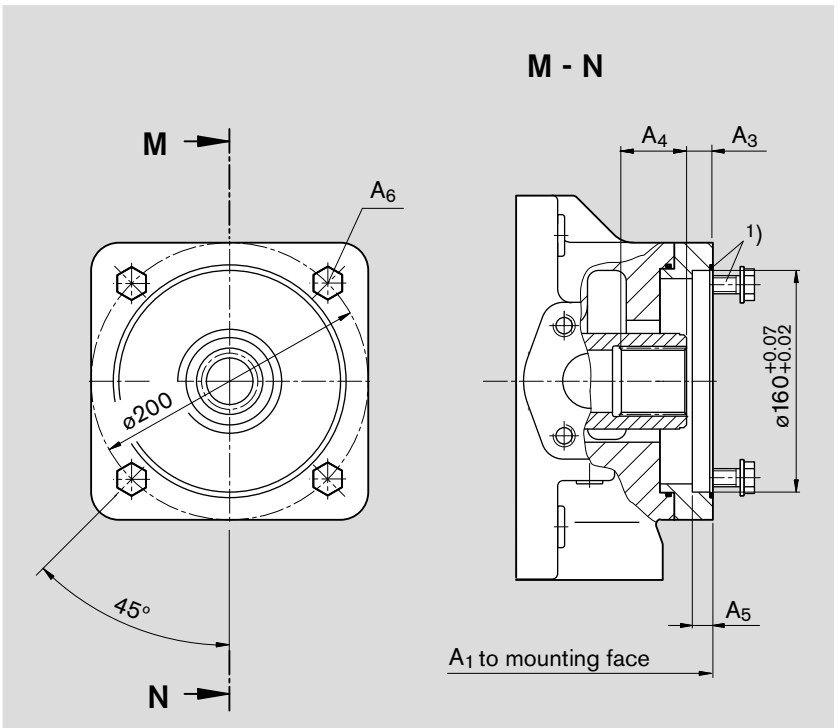
Size	A_1	A_3	A_4	A_5	A_6 [2])
500	505	13,5	54,5	9	M16
750	555	12,5	55,5	9	M16
750 *	in preparation				
1000	in preparation				

* with boost pump

U34

Flange ISO 3019-2 160, 4-hole
Shaft coupler to DIN 5480 N50x2x24x8H

for mounting an A4VSO/G 125 or 180 splined shaft



Size	A_1	A_3	A_4	A_5	A_6 [2])
125	369	12,5	51,6	9	M16
180	393	12,5	51,6	9	M16
250	453	12,5	54	9	M16
355	482	12,5	54	9	M16

[1]) Mounting screws and O-ring seal are included with supply
[2]) Thread to DIN 13, for the max. tightening torques observe the general information on page 68

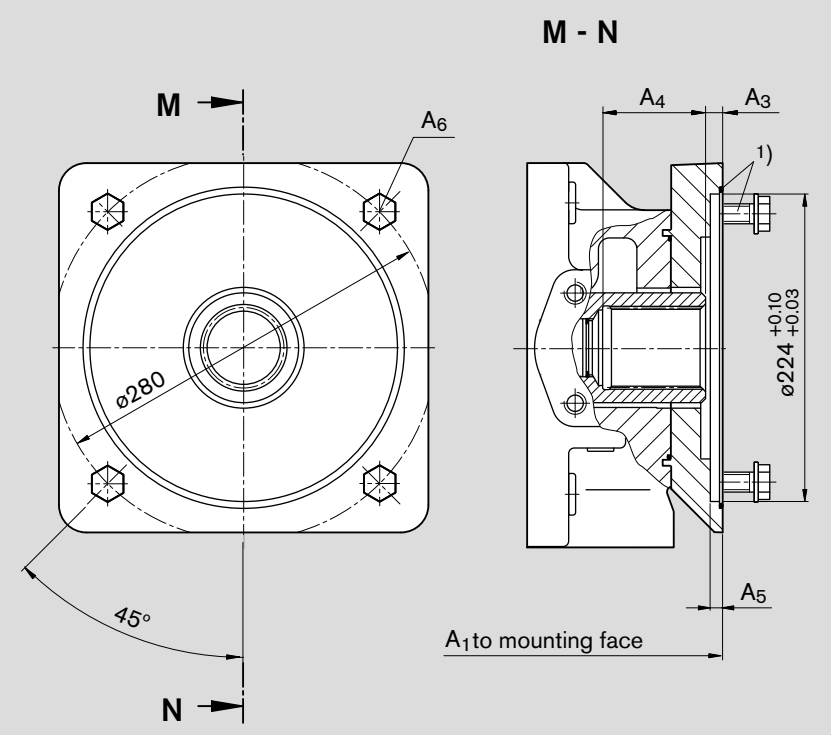
Dimensions through drives

Before finalising your design please request a certified installation drawing. Dimensions in mm.

K35

Flange ISO 3019-2 224, 4-hole
Shaft coupler to DIN 5480 N60x2x28x8H

for mounting an A4VSO/G or A4CSG 250 splined shaft



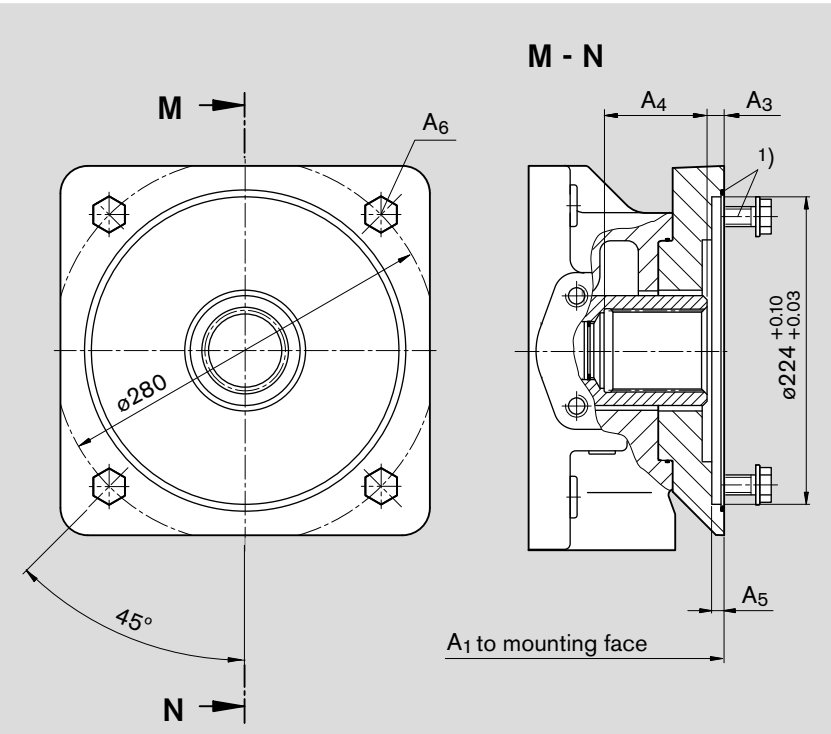
Size	A_1	A_3	A_4	A_5	A_6 [2]
500	541	12,5	74	9	M20
750	591	12,5	74	9	M20
750*	in preparation				
1000	in preparation				

* with boost pump

U35

Flange ISO 3019-2 224, 4-hole
Shaft coupler to DIN 5480 N60x2x28x8H

for mounting an A4VSO/G or A4CSG 250 splined shaft



Size	A_1	A_3	A_4	A_5	A_6 [2]
250	469	12,5	75	9	M20
355	498	12,5	75	9	M20

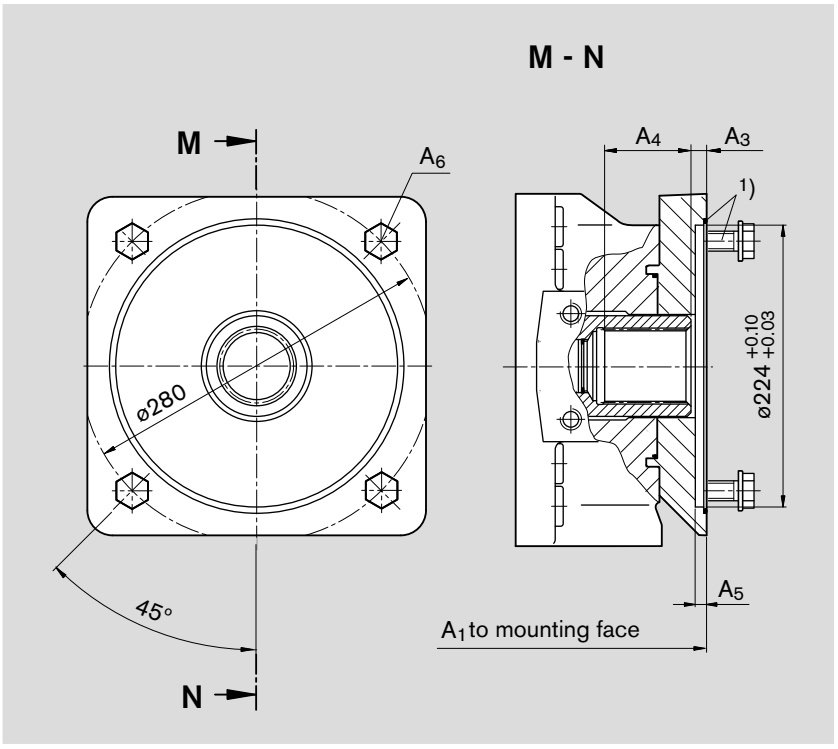
[1]) Mounting screws and O-ring seal are included with supply
[2]) Thread to DIN 13, for the max. tightening torques observe the general information on page 68

Dimensions through drives

Before finalising your design please request a certified installation drawing. Dimensions in mm.

K77 **Flange** ISO 3019-2 224, 4-hole
Shaft coupler to DIN 5480 N70x3x22x8H

for mounting an A4VSO/G or A4CSG 355 splined shaft

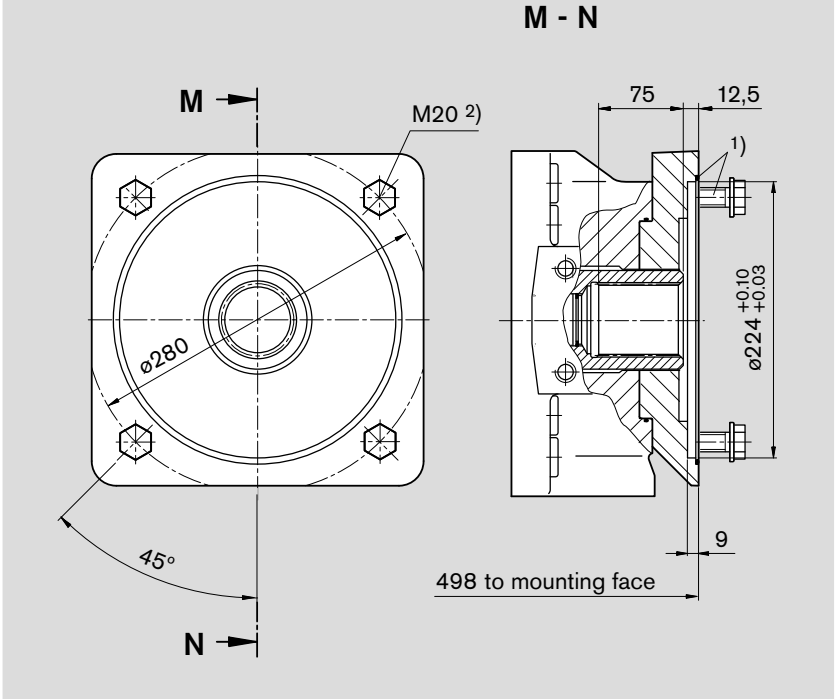


Size	A_1	A_3	A_4	A_5	A_6 [2)]
500	541	12,5	76	9	M20
750	in preparation				
1000	in preparation				

U77 **Flange** ISO 3019-2 224, 4-hole
Shaft coupler to DIN 5480 N70x3x22x8H

for mounting an A4VSO/G or A4CSG 355 splined shaft

Size 355



1) Mounting screws and O-ring seal are included with supply
2) Thread to DIN 13, for the max. tightening torques observe the general information on page 68

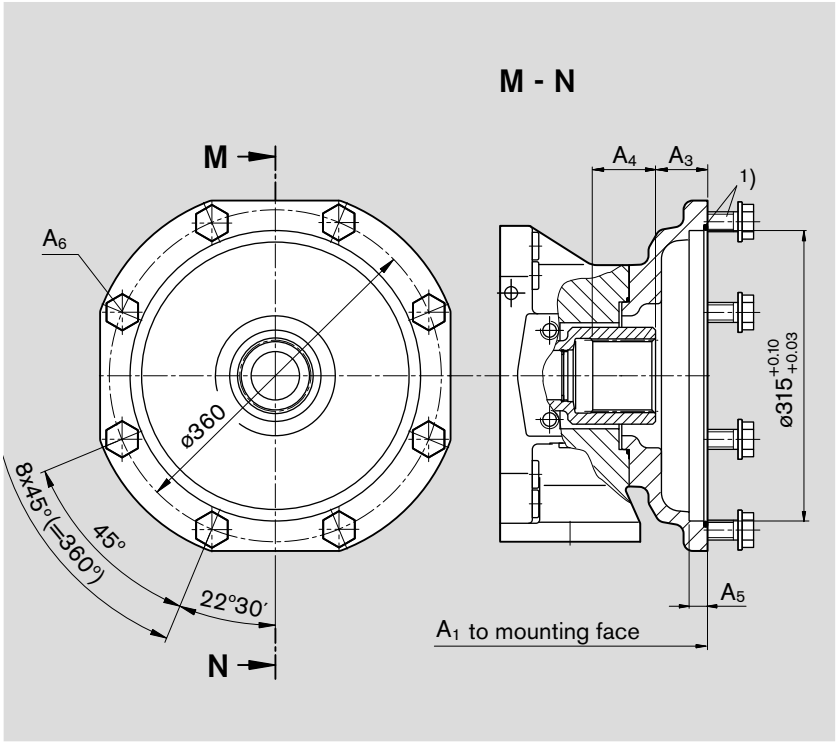
Dimensions through drives

Before finalising your design please request a certified installation drawing. Dimensions in mm.

K43

Flange ISO 3019-2 315, 8-hole
Shaft coupler to DIN 5480 N80x3x25x8H

for mounting an A4VSO/G or A4CSG 500 splined shaft



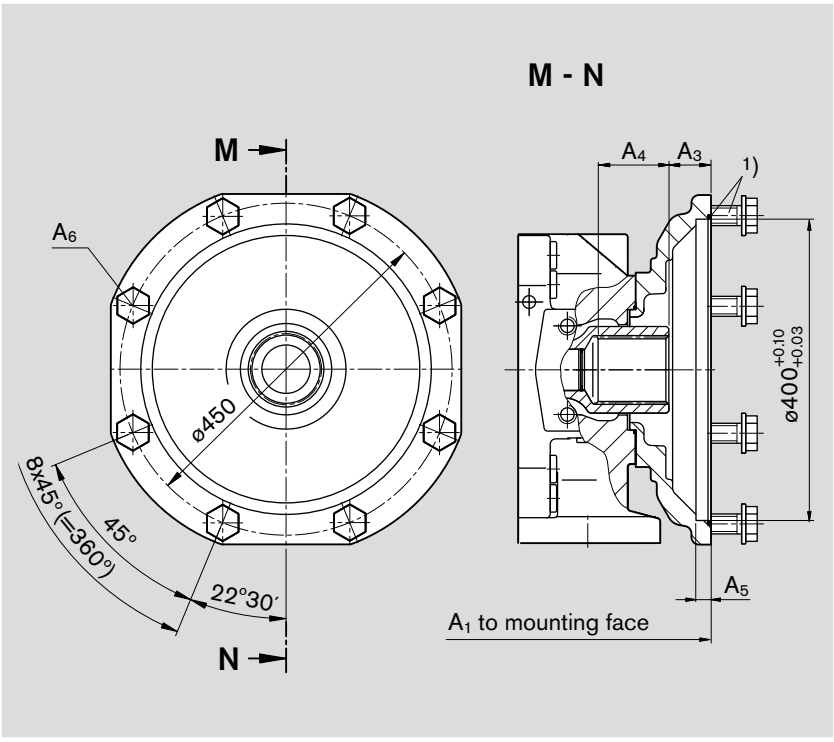
Size	A_1	A_3	A_4	A_5	A_6 [2]
500	590	53,5	71,9	19	M20
750	640	53,5	71,9	19	M20
750*	in preparation				
1000	in preparation				

* with boost pump

K76

Flange ISO 3019-2 400, 8-hole
Shaft coupler to DIN 5480 N90x3x28x8H

for mounting an A4VSO/G or A4CSG 750 splined shaft



Size	A_1	A_3	A_4	A_5	A_6 [2]
750	655	104	53	19	M20
750*	in preparation				
1000	in preparation				

* with boost pump

[1]) Mounting screws and O-ring seal are included with supply
[2]) Thread to DIN 13, for the max. tightening torques observe the general information on page 68

Dimensions through drives

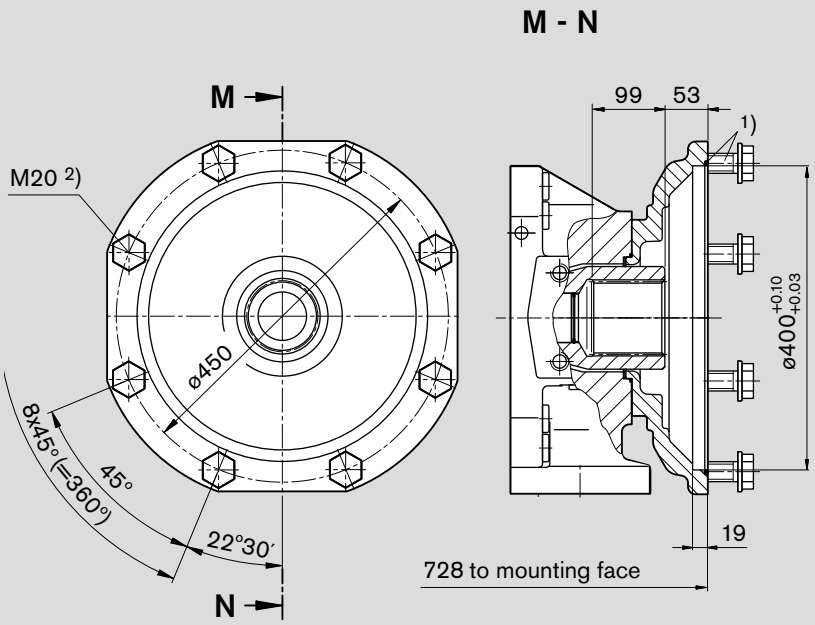
Before finalising your design please request a certified installation drawing. Dimensions in mm.

K88

Flange ISO 3019-2 400, 8-hole
Shaft coupler to DIN 5480 N100x3x32x8H

for mounting an A4VSO/G 1000 splined shaft

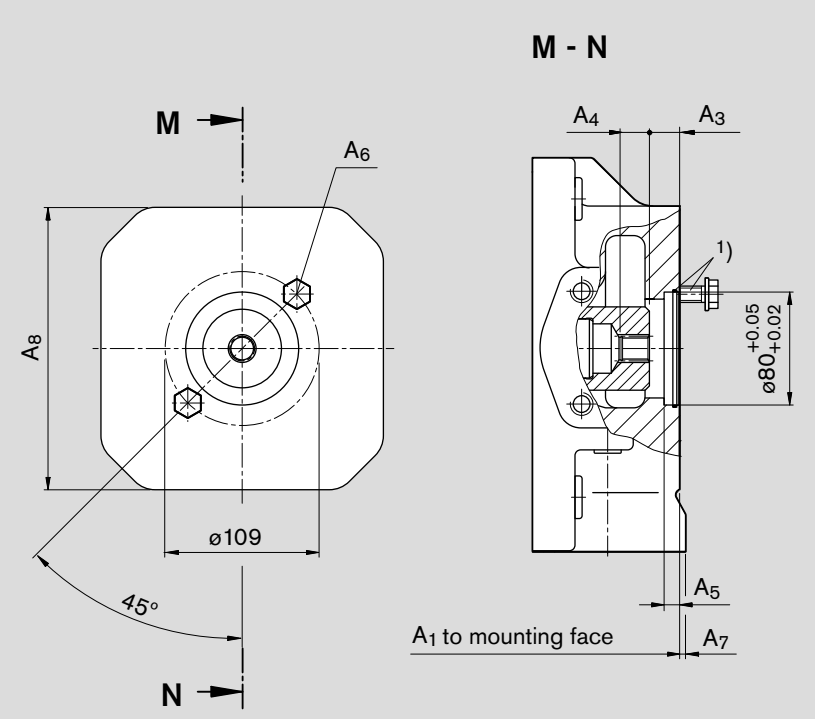
Size 1000



KB2

Flange ISO 3019-2 80, 2-hole
Shaft coupler for splined shaft, 19-4 SAE A-B, 3/4 in, 16/32 DP; 11T 3)

for mounting an A10VSO 18/31 shaft S – see RE 92712 or an A10VSO 10/52 shaft S – see RE 92703



Size	A_1	A_3	A_4	A_5	A_6 2)
40	in preparation				
71	291	21,5	19	10	M10
500	in preparation				
750	in preparation				
1000	in preparation				

Size	A_7	A_8
40	in preparation	
71	2	140
500	in preparation	
750	in preparation	
1000	in preparation	

Sizes 125...355 with U-through drive in preparation

1) Mounting screws and O-ring seal are included with supply
2) Thread to DIN 13, for the max. tightening torques observe the general information on page 68
3) To ANSI B92.1a-1976, 30° pressure angle, flat base, flank centering, fit class 5

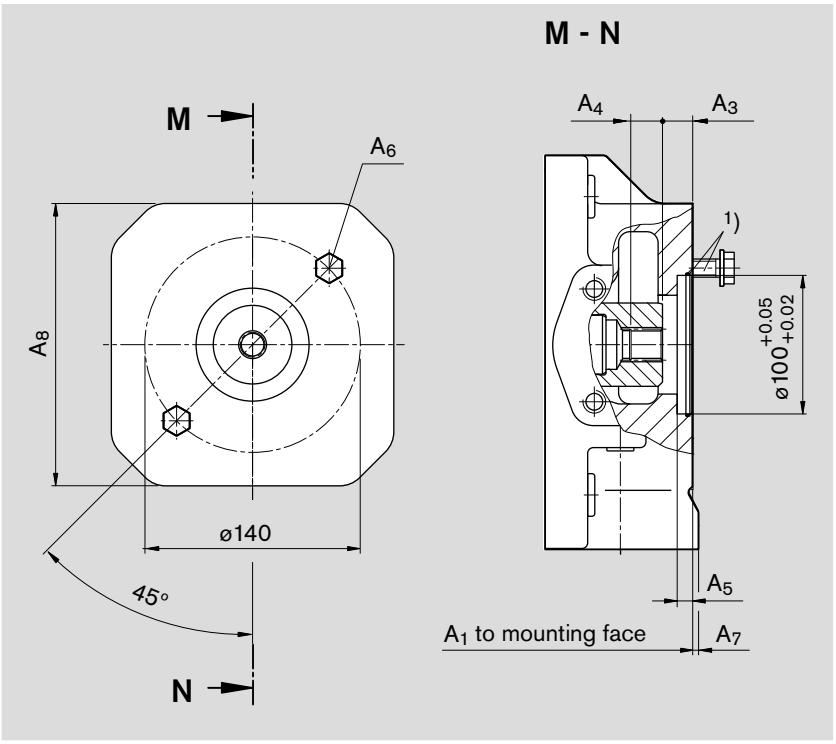
Dimensions through drives

Before finalising your design please request a certified installation drawing. Dimensions in mm.

KB3

Flange ISO 3019-2 100, 2-hole
Shaft coupler for splined shaft, 22-4 SAE B, 7/8 in, 16/32 DP; 13T [3])

for mounting an A10VSO 28/31 splined shaft S (see RE 92711)



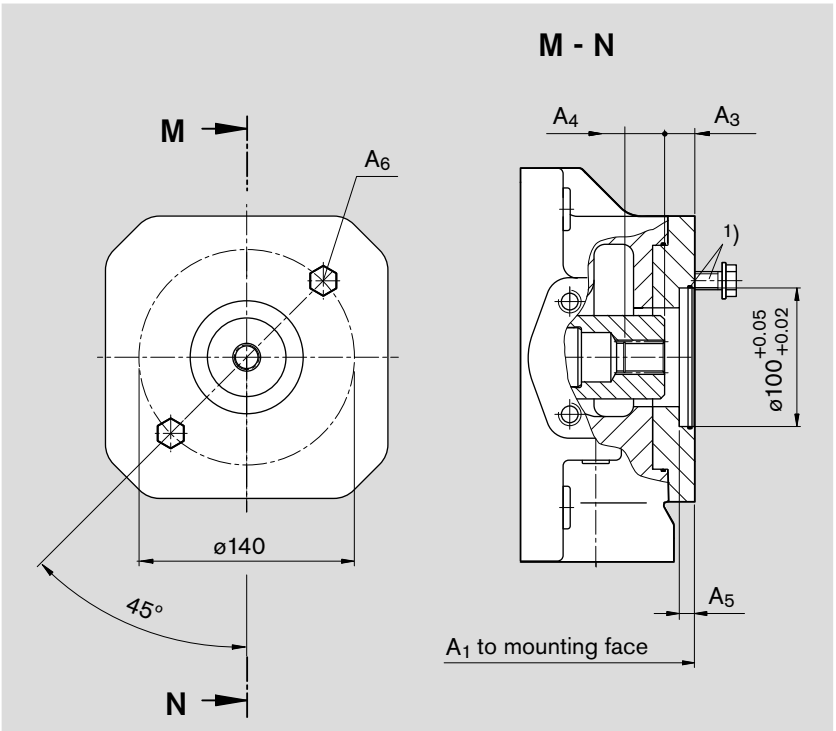
Size	A_1	A_3	A_4	A_5	A_6 [2])
40	290	20,3	23	10	M12
71	291	20,4	23	10	M12
500	in preparation				
750	in preparation				
1000	in preparation				

Size	A_7	A_8
40	–	–
71	2	140
500	in preparation	
750	in preparation	
1000	in preparation	

UB3

Flange ISO 3019-2 100, 2-hole
Shaft coupler for splined shaft, 22-4 SAE B, 7/8 in, 16/32 DP; 13T [3])

for mounting an A10VSO 28/31 splined shaft S (see RE 92711)



Size	A_1	A_3	A_4	A_5	A_6 [2])
125	369	20,5	24,9	10	M12
180	393	20,5	24,9	10	M12
250	in preparation				
355	in preparation				

[1]) 2 mounting screws and O-ring seal are included with supply
[2]) Thread to DIN 13, for the max. tightening torques observe the general information on page 68
[3]) To ANSI B92.1a-1976, 30°pressure angle, flat base, flank centering, fit class 5

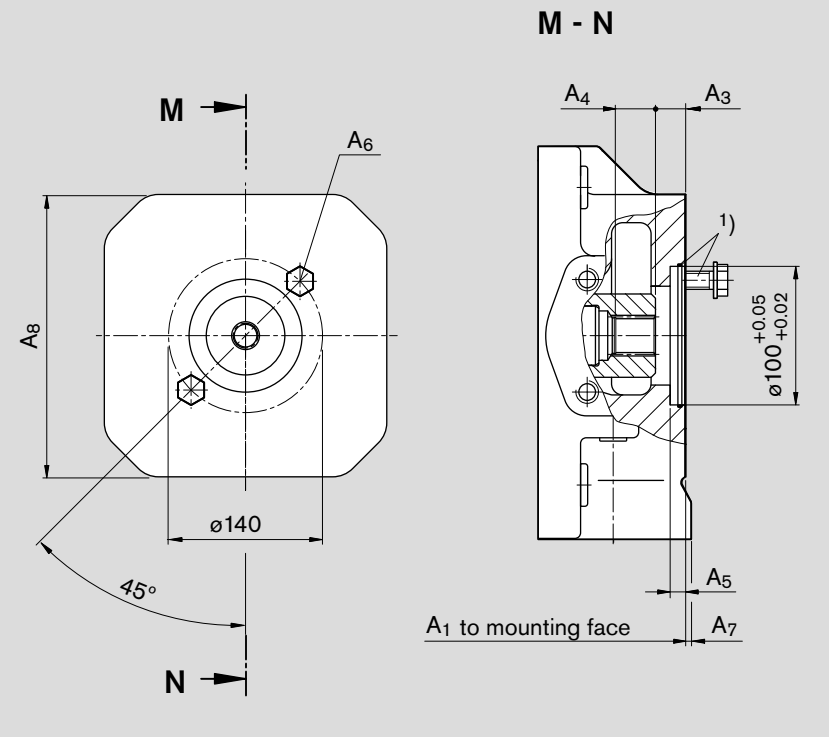
Dimensions through drives

Before finalising your design please request a certified installation drawing. Dimensions in mm.

KB4

Flange ISO 3019-2 100, 2-hole
Shaft coupler for splined shaft, 25-4 SAE B-B, 1 in, 16/32 DP; 15T [3])

for mounting an A10VSO 45/31 splined shaft S – see RE 92711



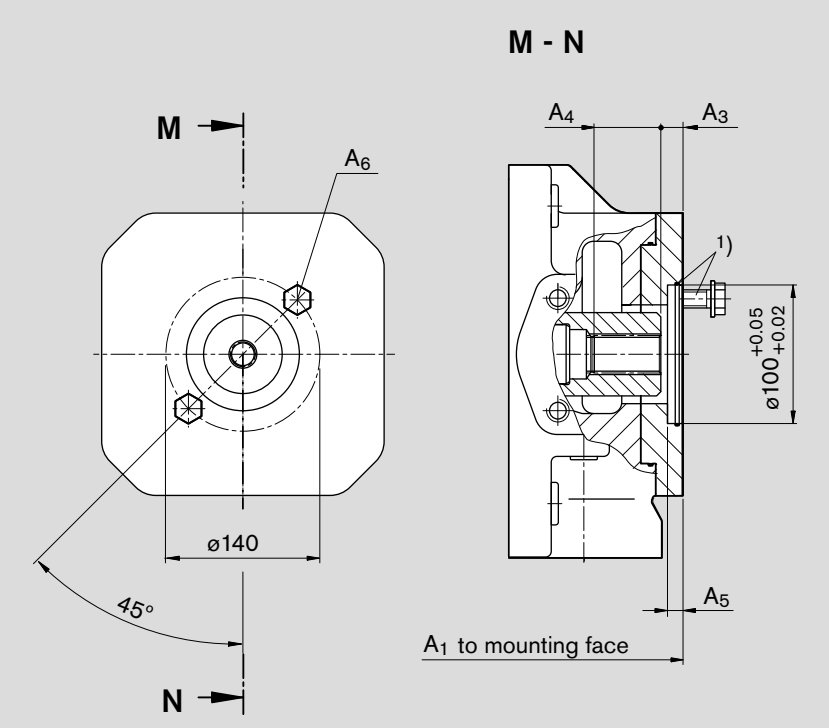
Size	A_1	A_3	A_4	A_5	A_6 [2])
40	290	20,8	27,5	10	M12
71	316	20,8	27,5	8	M12
500	505	20,4	28,9	10	M12
750	in preparation				
1000	in preparation				

Size	A_7	A_8
40	–	–
71	–	–
500	15	240
750	in preparation	
1000	in preparation	

UB4

Flange ISO 3019-2 100, 2-hole
Shaft coupler for splined shaft, 25-4 SAE B-B, 1 in, 16/32 DP; 15T [3])

for mounting an A10VSO 45/31 splined shaft S – see RE 92711



Size	A_1	A_3	A_4	A_5	A_6 [2])
125	369	18,9	29,5	10	M12
180	393	18,9	29,5	10	M12
250	453	20,9	29,5	10	M12
355	482	20,9	29,5	10	M12

[1]) 2 mounting screws and O-ring seal are included with supply
[2]) Thread to DIN 13, for the max. tightening torques observe the general information on page 68
[3]) To ANSI B92.1a-1976, 30° pressure angle, flat base, flank centering, fit class 5

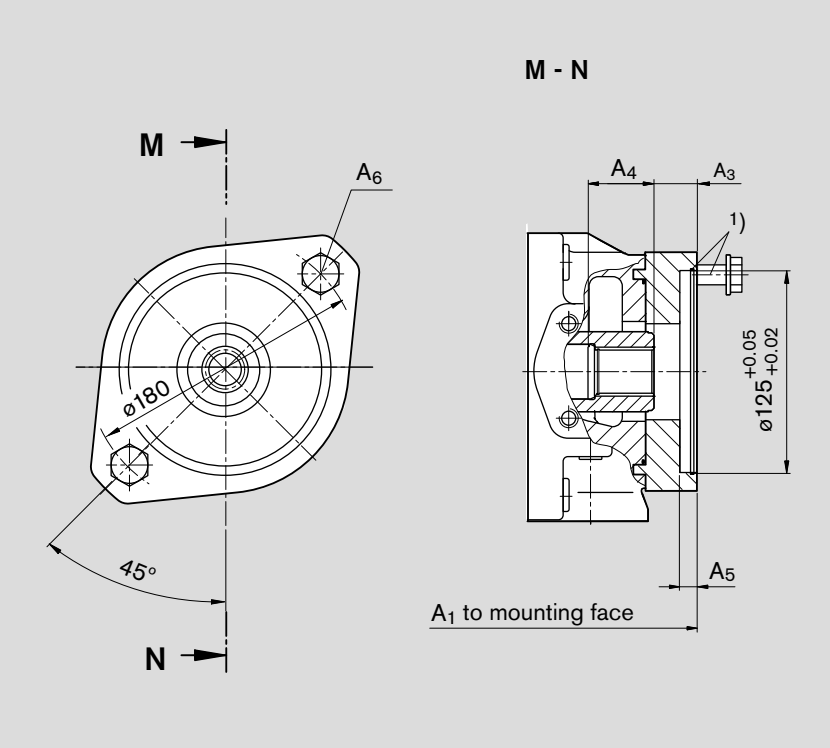
Dimensions through drives

Before finalising your design please request a certified installation drawing. Dimensions in mm.

KB5

Flange ISO 3019-2 125, 2-hole
Shaft coupler for splined shaft, 32-4 SAE C, 1 1/4 in, 12/24 DP; 14T [3])

for mounting an A10VSO 71/31 splined shaft S (see RE 92711)

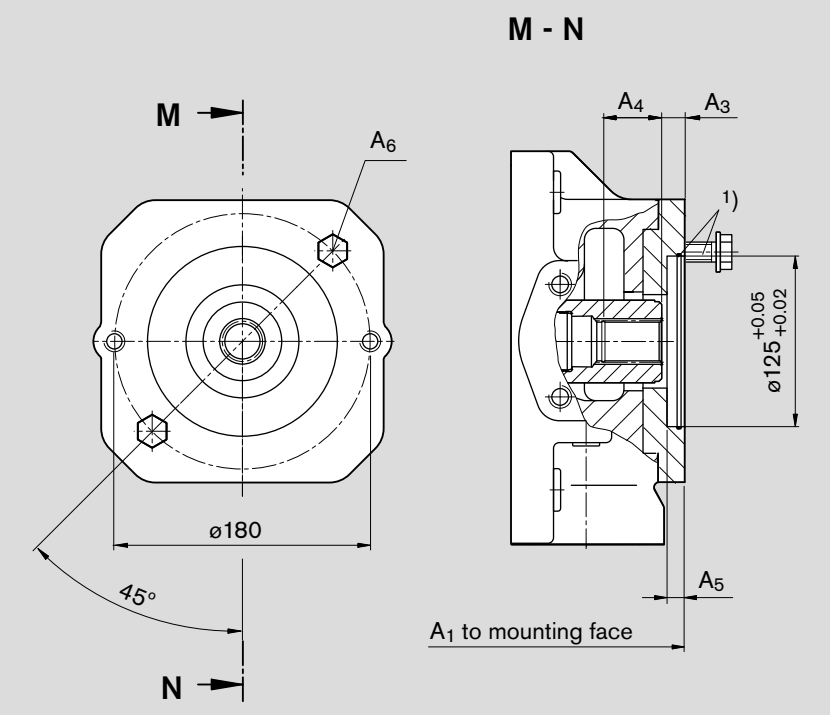


Size	A_1	A_3	A_4	A_5	A_6 [2])
71	321	23	38	10	M20
500	in preparation				
750	in preparation				
1000	in preparation				

UB5

Flange ISO 3019-2 125, 2-hole
Shaft coupler for splined shaft, 32-4 SAE C, 1 1/4 in, 12/24 DP; 14T [3])

for mounting an A10VSO 71/31 splined shaft S (see RE 92711)



Size	A_1	A_3	A_4	A_5	A_6 [2])
125	369	20	38	9	M16
180	393	20	38	9	M16
250	453	20,9	37,9	9	M16
355	482	20,9	37,9	9	M16

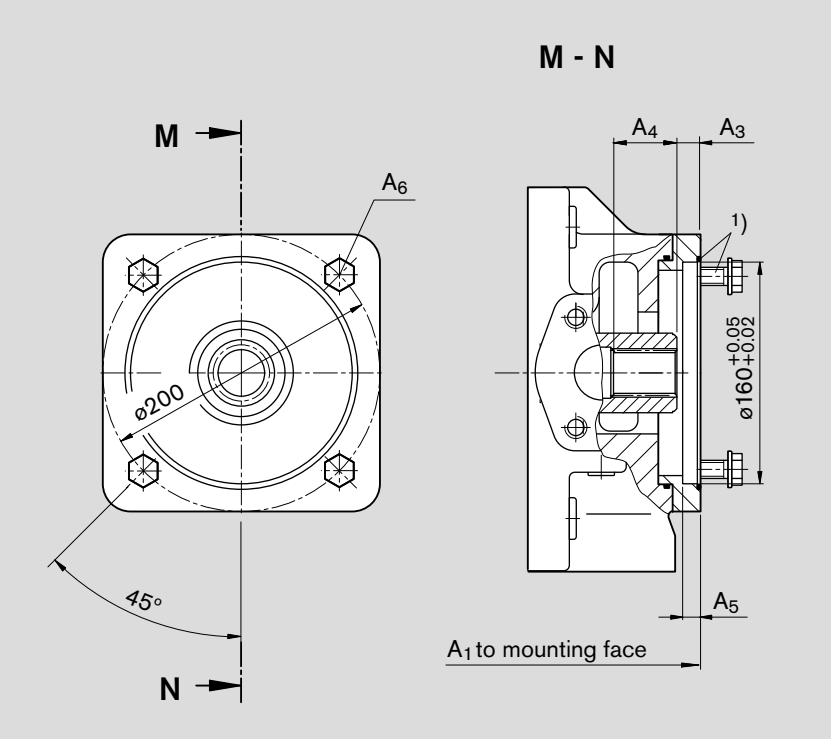
[1]) 2 mounting screws and O-ring seal are included with supply
[2]) Thread to DIN 13, for the max. tightening torques observe the general information on page 68
[3]) To ANSI B92.1a-1976, 30° pressure angle, flat base, flank centering, fit class 5

Dimensions through drives

Before finalising your design please request a certified installation drawing. Dimensions in mm.

UB8 **Flange** ISO 3019-2 160, 4-hole
Shaft coupler for splined shaft, 32-4 SAE C, 1 1/4 in, 12/24 DP; 14T [3])

for mounting an A10VSO 71/32 splined shaft S (see RE 92714)



Size	A_1	A_3	A_4	A_5	A_6 [2])
125	in preparation				
180	in preparation				
250	453	20,9	38	9	M16
355	in preparation				

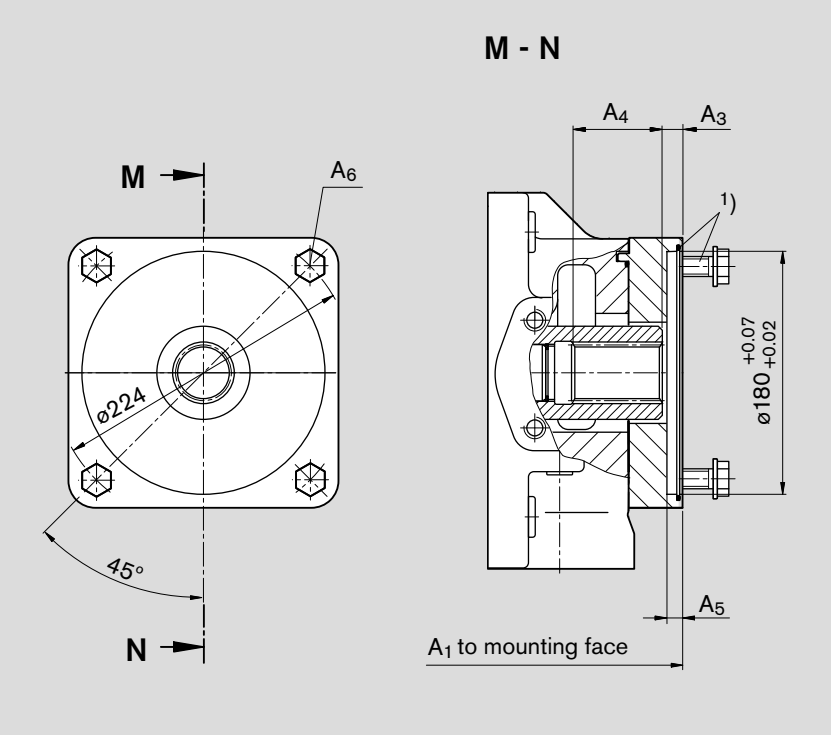
[1]) Mounting screws and O-ring seal are included with supply
[2]) Thread to DIN 13, for the max. tightening torques observe the general information on page 68
[3]) To ANSI B92.1a-1976, 30° pressure angle, flat base, flank centering, fit class 5

Dimensions through drives

Before finalising your design please request a certified installation drawing. Dimensions in mm.

KB7 **Flange** ISO 3019-2 180, 4-hole
Shaft coupler for splined shaft, 44-4 SAE D, 1 3/4 in, 8/16 DP; 13T [3])

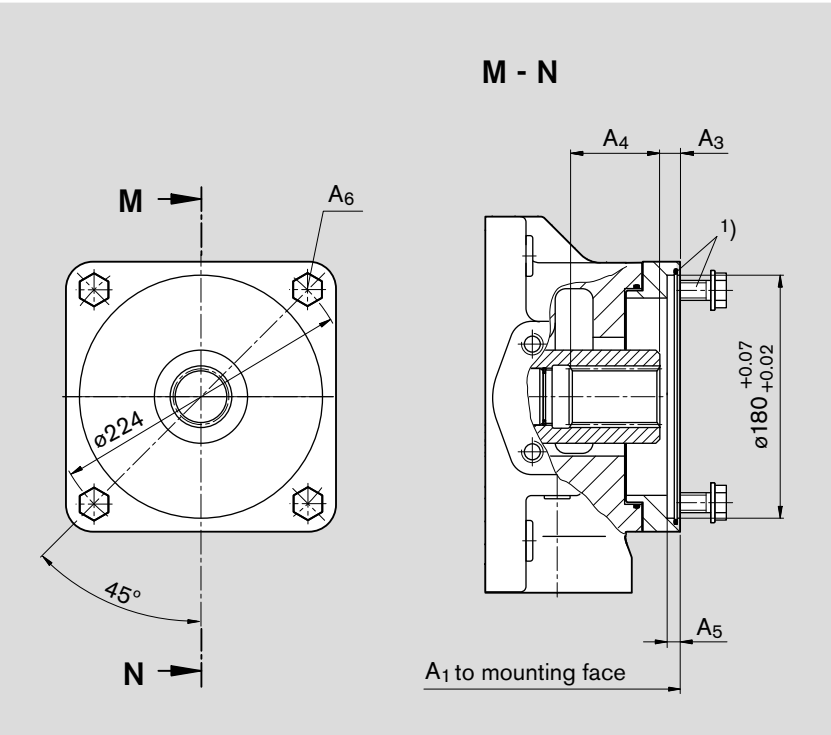
for mounting an A10VSO 140/31(32) splined shaft S – see RE 92711 (RE 92714)



Size	A_1	A_3	A_4	A_5	A_6 [2])
500	530	10,4	63,6	10	M16
750	in preparation				
1000	in preparation				

UB7 **Flange** ISO 3019-2 180, 4-hole
Shaft coupler for splined shaft, 44-4 SAE D, 1 3/4 in, 8/16 DP; 13T [3])

for mounting an A10VSO 140/31(32) splined shaft S – see RE 92711 (RE 92714)



Size	A_1	A_3	A_4	A_5	A_6 [2])
180	406	10,6	62	9	M16
250	453	10,6	64	9	M16
355	482	10,6	64	9	M16

[1]) Mounting screws and O-ring seal are included with supply
[2]) Thread to DIN 13, for the max. tightening torques observe the general information on page 68
[3]) To ANSI B92.1a-1976, 30° pressure angle, flat base, flank centering, fit class 5

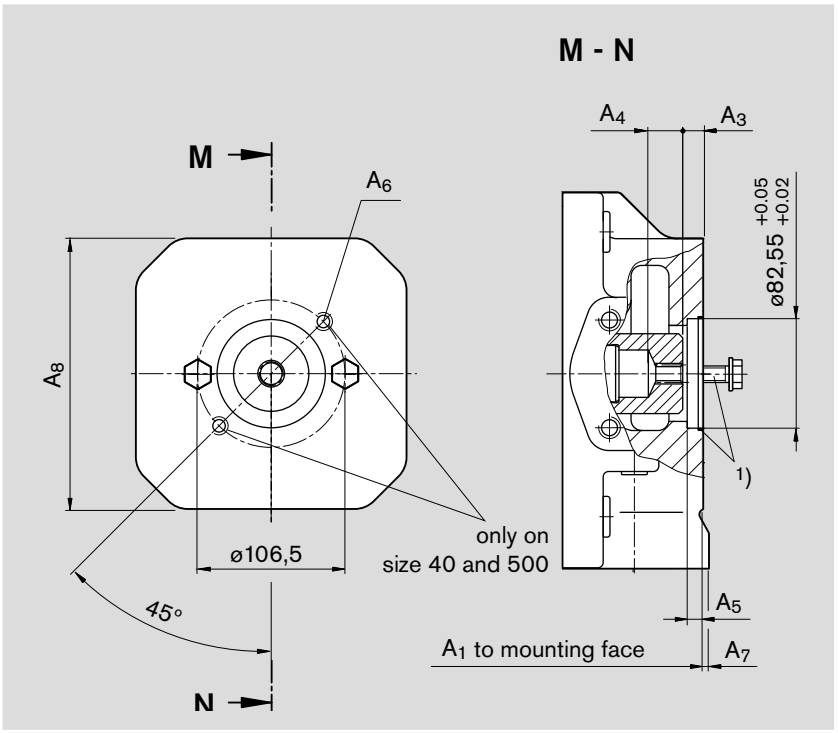
Dimensions through drives

Before finalising your design please request a certified installation drawing. Dimensions in mm.

K01

Flange ISO 3019-1 82-2 (SAE A)
Shaft coupler for splined shaft, 16-4 SAE A, 5/8 in, 16/32 DP; 9T [3])

for mounting an external gear pump AZ-PF-1X-004 ... 022 (see RE 10089)
Rexroth recommends a special execution of the gear pump, please consult us



Size	A_1	A_3	A_4	A_5	A_6 [2])
40	263	10,3	25,9	10	M10
71	291	10,3	24,6	10	M10
500	505	10,3	32,7	10	M10
750	555	10,3	32,7	10	M10
750*	in preparation				
1000	in preparation				

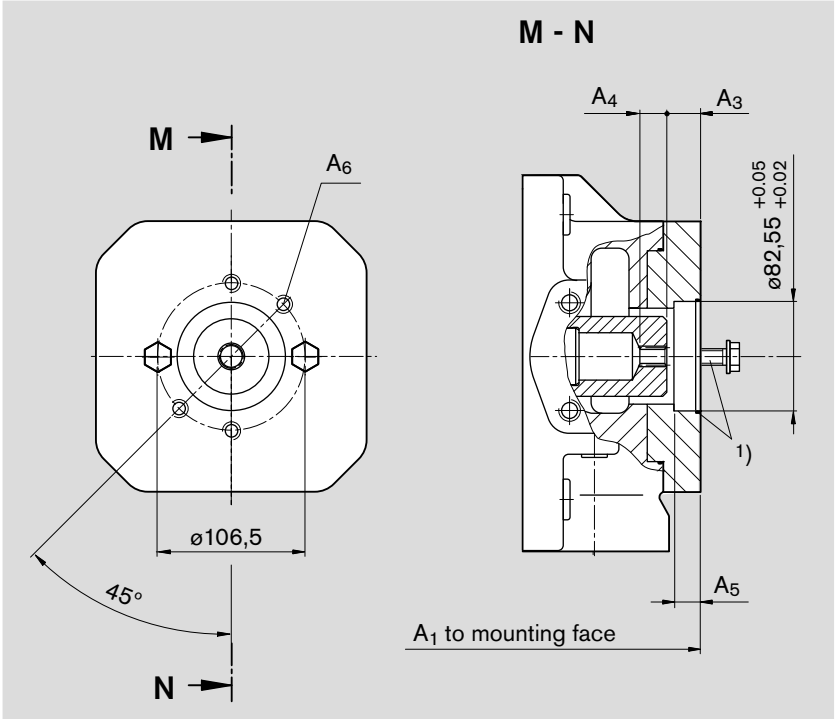
NG	A_7	A_8
40	–	–
71	2	140
500	15	240
750	–	–
750*	in preparation	
1000	in preparation	

* with boost pump

U01

Flange ISO 3019-1 82-2 (SAE A)
Shaft coupler for splined shaft, 16-4 SAE A, 5/8 in, 16/32 DP; 9T [3])

for mounting an external gear pump AZ-PF-1X-004 ... 022 (see RE 10089)
Rexroth recommends a special execution of the gear pump, please consult us



Size	A_1	A_3	A_4	A_5	A_6 [2])
125	369	16	19,4	13	M10
180	393	16	19,4	13	M10
250	453	16	19,4	13	M10
355	482	16	19,4	13	M10

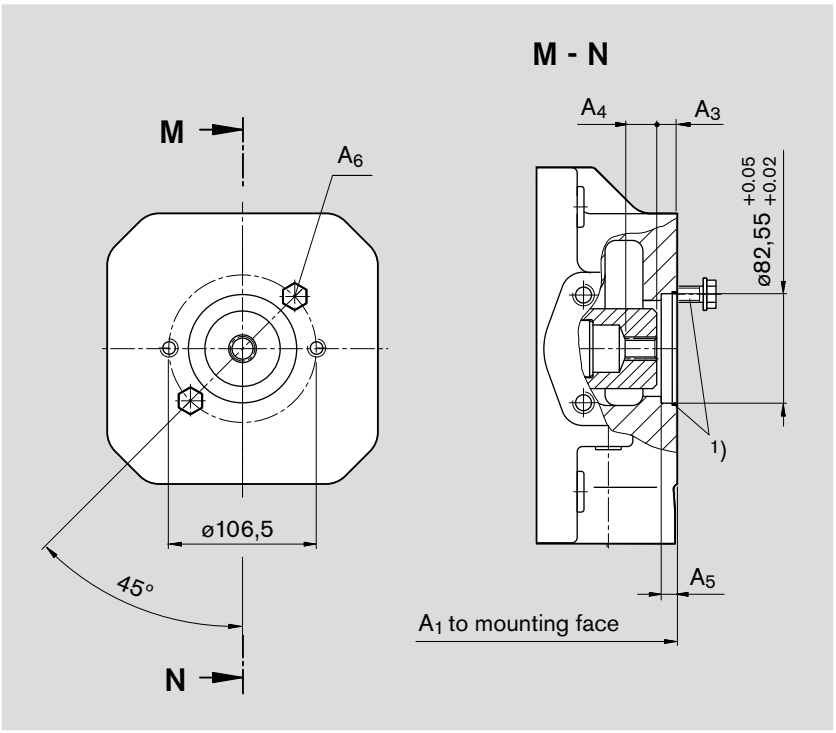
[1]) 2 mounting screws and O-ring seal are included with supply
[2]) Thread to DIN 13, for the max. tightening torques observe the general information on page 68
[3]) To ANSI B92.1a-1976, 30° pressure angle, flat base, flank centering, fit class 5

Dimensions through drives

Before finalising your design please request a certified installation drawing. Dimensions in mm.

K52 **Flange** ISO 3019-1 82-2 (SAE A)
Shaft coupler for splined shaft, 19-4 SAE A-B, 3/4 in, 16/32 DP; 11T [3])

for mounting an A10VSO 18/31 splined shaft S (see RE 92711) or A10VSO10 or 18/52 splined shaft S (see RE 92703)



Size	A_1	A_3	A_4	A_5	A_6 [2])
40	263	10,5	33,8	10	M10
71	315	10,5	30	10	M10
500	in preparation				
750	in preparation				
1000	in preparation				

Sizes 125...355 with U-through drive in preparation

[1]) 2 mounting screws and O-ring seal are included with supply
[2]) Thread to DIN 13, for the max. tightening torques observe the general information on page 68
[3]) To ANSI B92.1a-1976, 30° pressure angle, flat base, flank centering, fit class 5

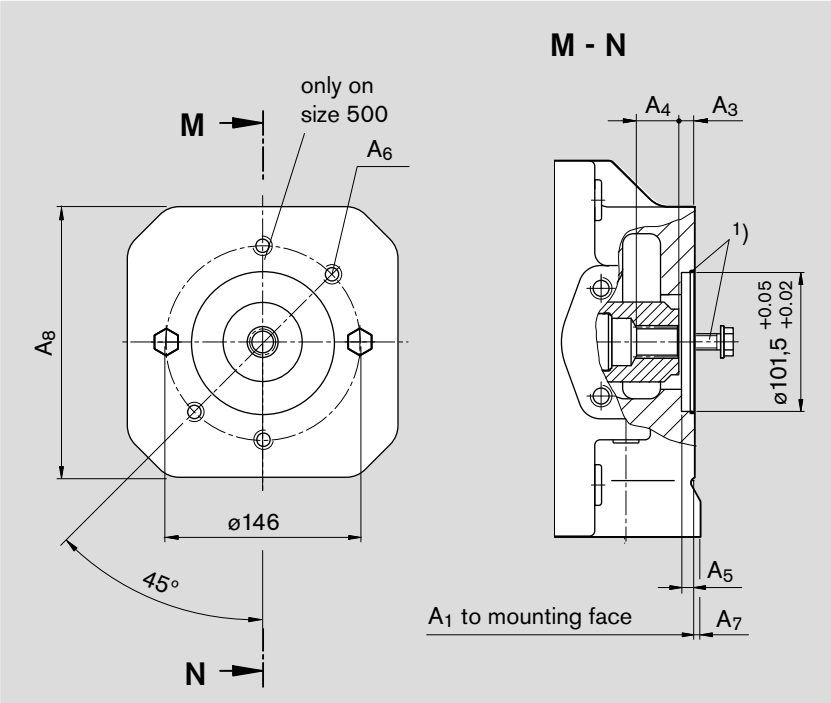
Dimensions through drives

Before finalising your design please request a certified installation drawing. Dimensionse in mm.

K68

Flange ISO 3019-1 101-2 (SAE B)
Shaft coupler for splined shaft 22-4 SAE B, 7/8 in, 16/32 DP; 13T [3])

for mounting an external gear pump AZ-PN-1X020...032 (see RE 10091 or an A10VO 28/31 and 52(53) splined shaft S (see RE 92701 and 92703)
Rexroth recommends a special excution of the gear pump, please consult us



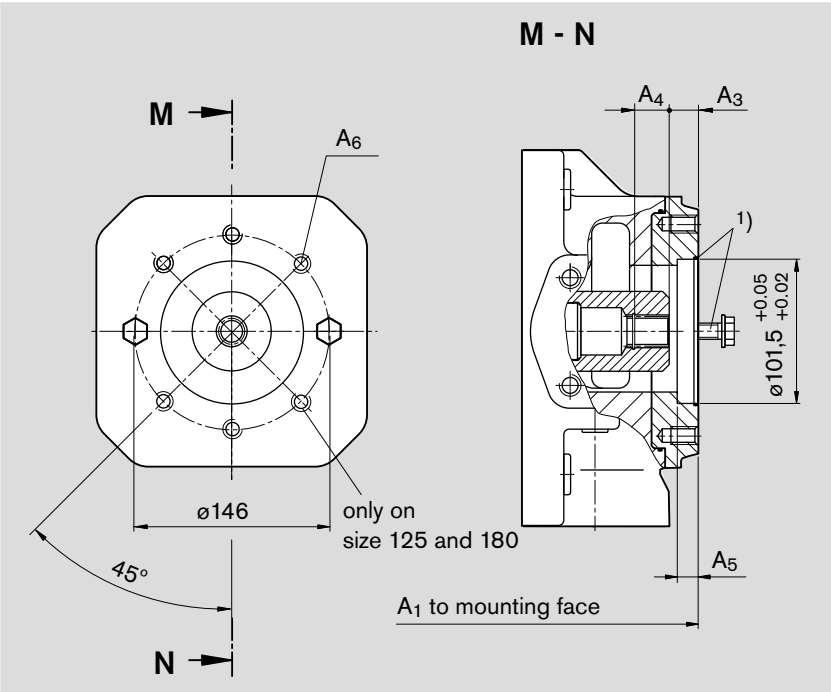
Size	A_1	A_3	A_4	A_5	A_6 [2])
40	290	20,4	23,1	10	M12
71	322	10,4	35,1	10	M12
500	505	19,5	25	10	M12
750	in preparation				
1000	in preparation				

Size	A_7	A_8
40	–	–
71	–	–
500	15	240
750	in preparation	
1000	in preparation	

U68

Flange ISO 3019-1 101-2 (SAE B)
Shaft coupler for splined shaft 22-4 SAE B, 7/8 in, 16/32 DP; 13T [3])

for mounting an external gear pump AZ-PN-1X020...032 (see RE 10091 or an A10VO 28/31 and 52(53) splined shaft S (see RE 92701 and 92703)
Rexroth recommends a special execution of the gear pump, please consult us



Size	A_1	A_3	A_4	A_5	A_6 [2])
125	369	28	25	13	M12
180	393	28	25	13	M12
250	453	19,5	23,1	13	M12
355	482	19,5	23,1	13	M12

[1]) 2 mounting screws and O-ring seal are included with supply
[2]) Thread to DIN 13, for the max. tightening torques observe the general information on page 68
[3]) To ANSI B92.1a-1976, 30° pressure angle, flat base, flank centering, fit class 5

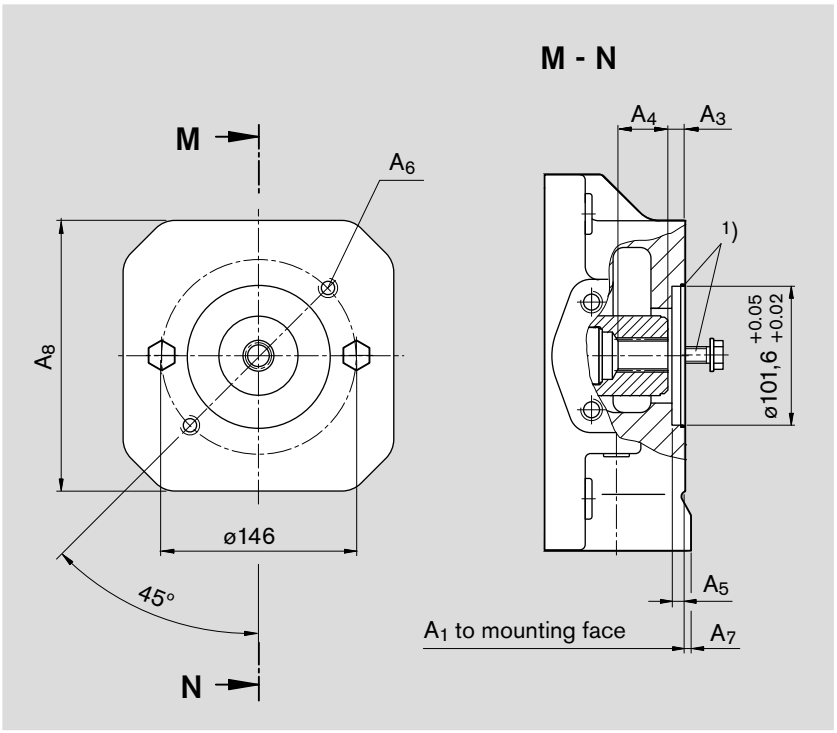
Dimensions through drives

Before finalising your design please request a certified installation drawing. Dimensions in mm.

K04

Flange ISO 3019-1 101-2 (SAE B)
Shaft coupler for splined shaft 25-4 SAE B-B, 1 in, 16/32 DP; 15T [3])

for mounting an A10VO 45/31 and 52 (53) splined shaft S (see RE 92701 and 92703) or an internal gear pump PGH4 (see RE 10223)



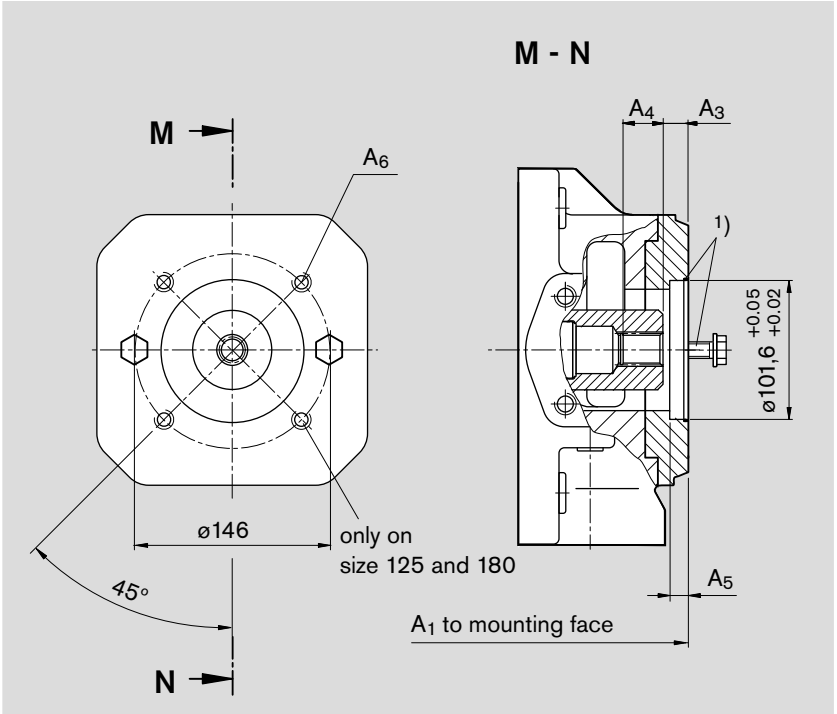
Size	A_1	A_3	A_4	A_5	A_6 [2])
40	290	10,4	37,9	10	M12
71	322	10,3	35,7	10	M12
500	505	10,3	28,9	10	M12
750	in preparation				
1000	in preparation				

Size	A_7	A_8
40	–	–
71	–	–
500	15	240
750	in preparation	
1000	in preparation	

U04

Flange ISO 3019-1 101-2 (SAE B)
Shaft coupler for splined shaft 25-4 SAE B-B, 1 in, 16/32 DP; 15T [3])

for mounting an A10VO 45/31 and 52 (53) splined shaft S (see RE 92701 and 92703) or an internal gear pump PGH4 (see RE 10223)



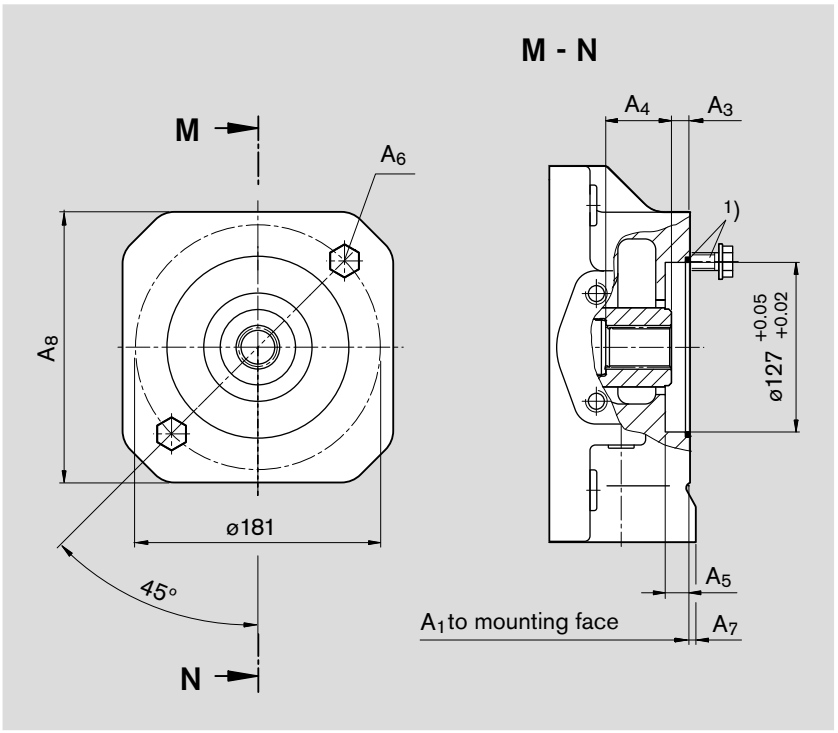
Size	A_1	A_3	A_4	A_5	A_6 [2])
125	369	18,9	29,4	13	M12
180	393	18,9	29,4	13	M12
250	453	18,9	29,4	13	M12
355	482	18,9	29,4	13	M12

[1]) 2 mounting screws and O-ring seal are included with supply
[2]) Thread to DIN 13, for the max. tightening torques observe the general information on page 68
[3]) To ANSI B92.1a-1976, 30° pressure angle, flat base, flank centering, fit class 5

Dimensions through drives

Before finalising your design please request a certified installation drawing. Dimensions in mm.

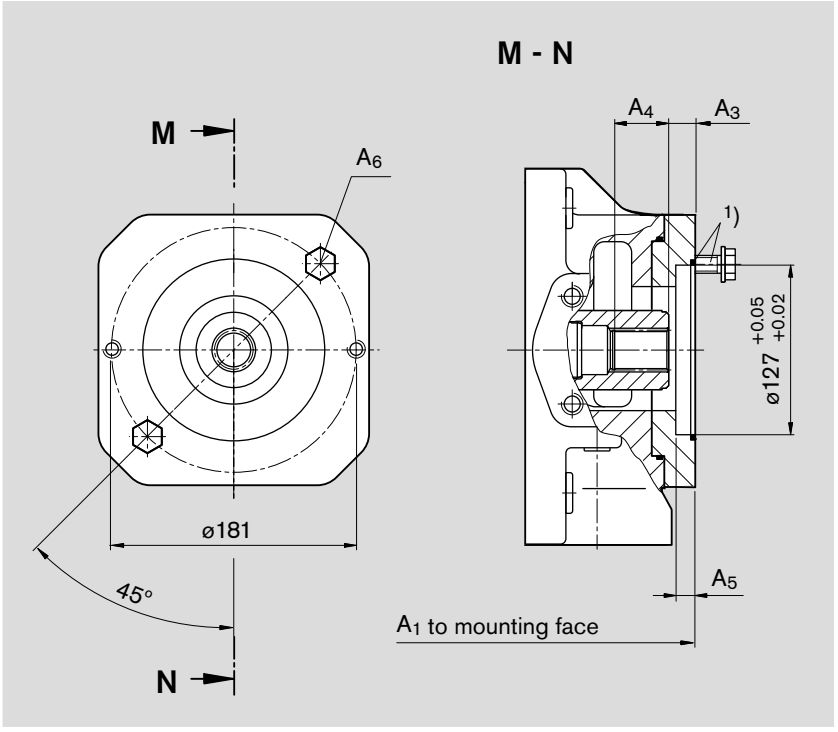
K07 **Flange** ISO 3019-1 127-2 (SAE C)
Shaft coupler for splined shaft 32-4 SAE C, 1 1/4 in, 12/24 DP; 14T [3])
for mounting an A10VO 71/31 splined shaft S (see RE 92701)



Size	A_1	A_3	A_4	A_5	A_6 [2])
71	321	10,4	47,6	13	M16
500	505	11,3	40,2	13	M16
750	in preparation				
1000	in preparation				

Size	A_7	A_8
71	–	–
500	15	240
750	in preparation	
1000	in preparation	

U07 **Flange** ISO 3019-1 127-2 (SAE C)
Shaft coupler for splined shaft 32-4 SAE C, 1 1/4 in, 12/24 DP; 14T [3])
for mounting an A10VO 71/31 splined shaft S (see RE 92701)



Size	A_1	A_3	A_4	A_5	A_6 [2])
125	369	20,9	37,9	13	M16
180	393	20,9	37,9	13	M16
250	453	20,9	37,9	13	M16
355	482	20,9	37,9	13	M16

[1]) 2 mounting screws and O-ring seal are included with supply
[2]) Thread to DIN 13, for the max. tightening torques observe the general information on page 68
[3]) To ANSI B92.1a-1976, 30° pressure angle, flat base, flank centering, fit class 5

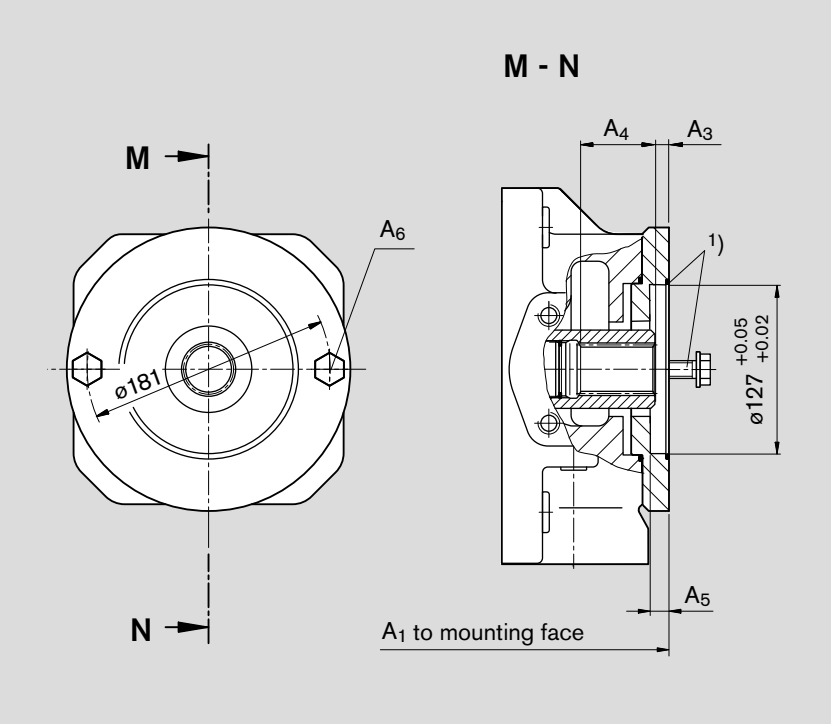
Dimensions through drives

Before finalising your design please request a certified installation drawing. Dimensions in mm.

K24

Flange ISO 3019-1 127-2 (SAE C)
Shaft coupler for splined shaft 38-4 SAE C-C, 1 1/2 in, 12/24 DP; 17T [3])

for mounting an A10VO 100/31 splined shaft S (see RE 92701) or an A10VO 85/52(53) splined shaft S (see RE 92703) or an internal gear pump PGH5 (see RE 10223)

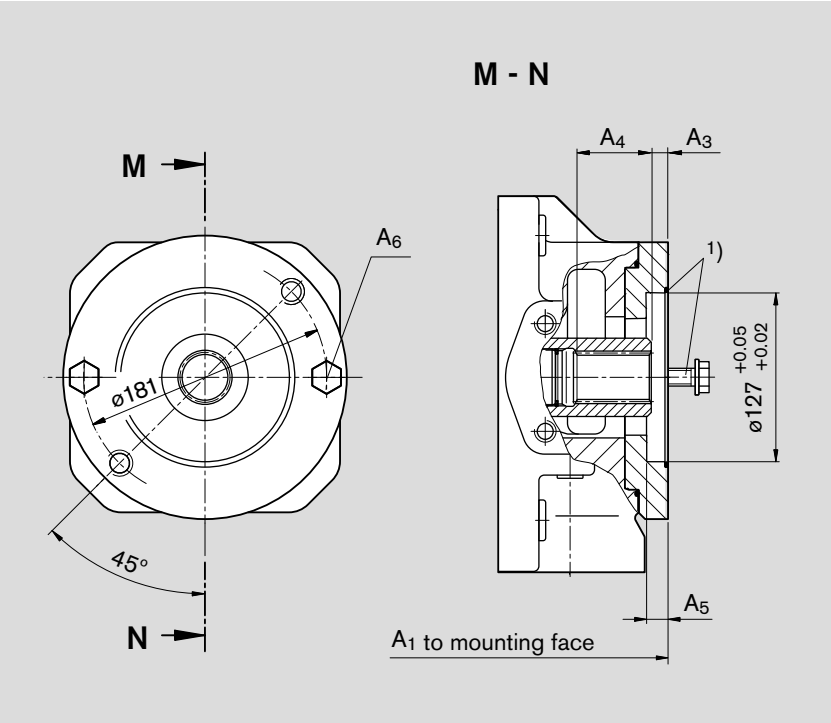


Size	A_1	A_3	A_4	A_5	A_6 [2])
500	505	10,3	56,7	13	M16
750	in preparation				
1000	in preparation				

U24

Flange ISO 3019-1 127-2 (SAE C)
Shaft coupler for splined shaft 38-4 SAE C-C, 1 1/2 in, 12/24 DP; 17T [3])

for mounting an A10VO 100/31 splined shaft S (see RE 92701) or an A10VO 85/52(53) splined shaft S (see RE 92703) or an internal gear pump PGH5 (see RE 10223)



Size	A_1	A_3	A_4	A_5	A_6 [2])
125	369	10,4	50	13	M16
180	393	10,4	50	13	M16
250	453	12,4	55	13	M16
355	482	12,4	55	13	M16

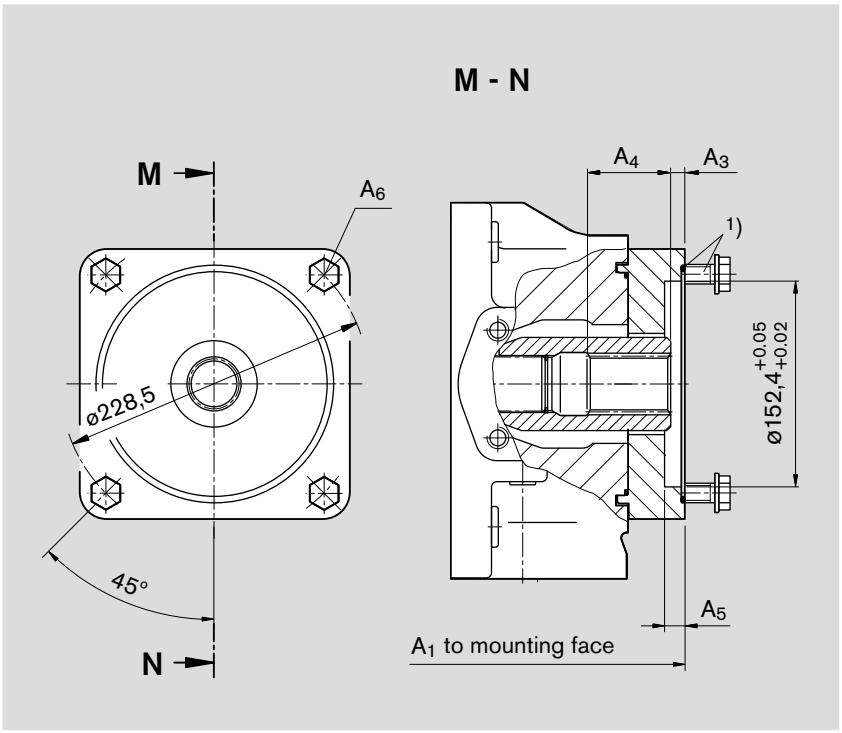
[1]) 2 mounting screws and O-ring seal are included with supply
[2]) Thread to DIN 13, for the max. tightening torques observe the general information on page 68
[3]) To ANSI B92.1a-1976, 30° pressure angle, flat base, flank centering, fit class 5

Dimensions through drives

Before finalising your design please request a certified installation drawing. Dimensions in mm.

K17 **Flange** ISO 3019-1 152-4 (SAE D)
Shaft coupler for splined shaft 44-4 SAE D, 1 3/4 in, 8/16 DP; 13T [3])

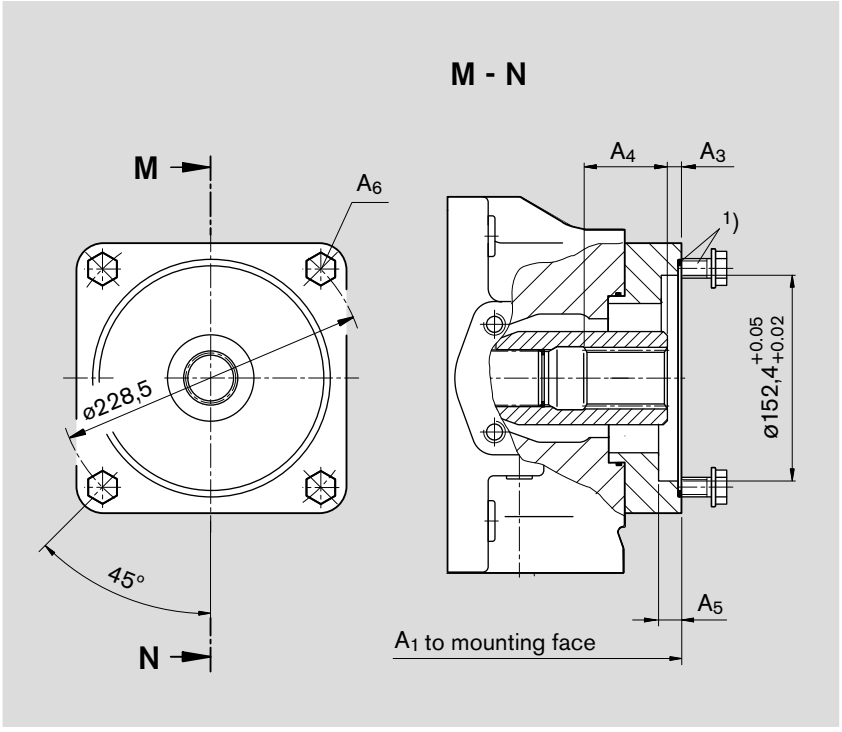
for mounting an A10VO 140/31 splined shaft S (see RE 92701)



Size	A_1	A_3	A_4	A_5	A_6 [2])
500	505	10,4	59,6	13	M16
750	in preparation				
1000	in preparation				

U17 **Flange** ISO 3019-1 152-4 (SAE D)
Shaft coupler for splined shaft 44-4 SAE D, 1 3/4 in, 8/16 DP; 13T [3])

for mounting an A10VO 140/31 splined shaft S (see RE 92701)



Size	A_1	A_3	A_4	A_5	A_6 [2])
180	406	10,4	62	13	M16
250	453	10,6	62	13	M16
355	482	10,6	62	13	M16

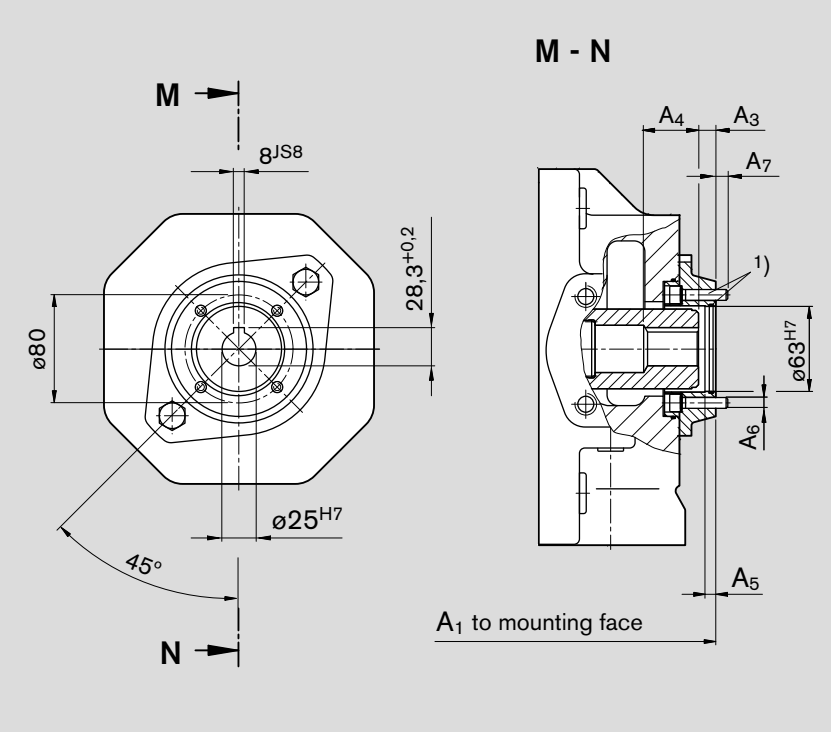
[1]) 2 mounting screws and O-ring seal are included with supply
[2]) Thread to DIN 13, for the max. tightening torques observe the general information on page 68
[3]) To ANSI B92.1a-1976, 30° pressure angle, flat base, flank centering, fit class 5

Dimensions through drives

Before finalising your design please request a certified installation drawing. Dimensions in mm.

K57 **dia. 63 metric**, 4-hole
Shaft coupler for keyed shaft dia. 25

for mounting a radial piston pump R4 (see RE 11263)



Size	A_1	A_3	A_4	A_5	A_6 [2]	A_7
40	288	11	56	8	M8	9
71	319	10,9	42	8	M8	9
500	in preparation					
750	in preparation					

Sizes 125...355 with U-through drive in preparation

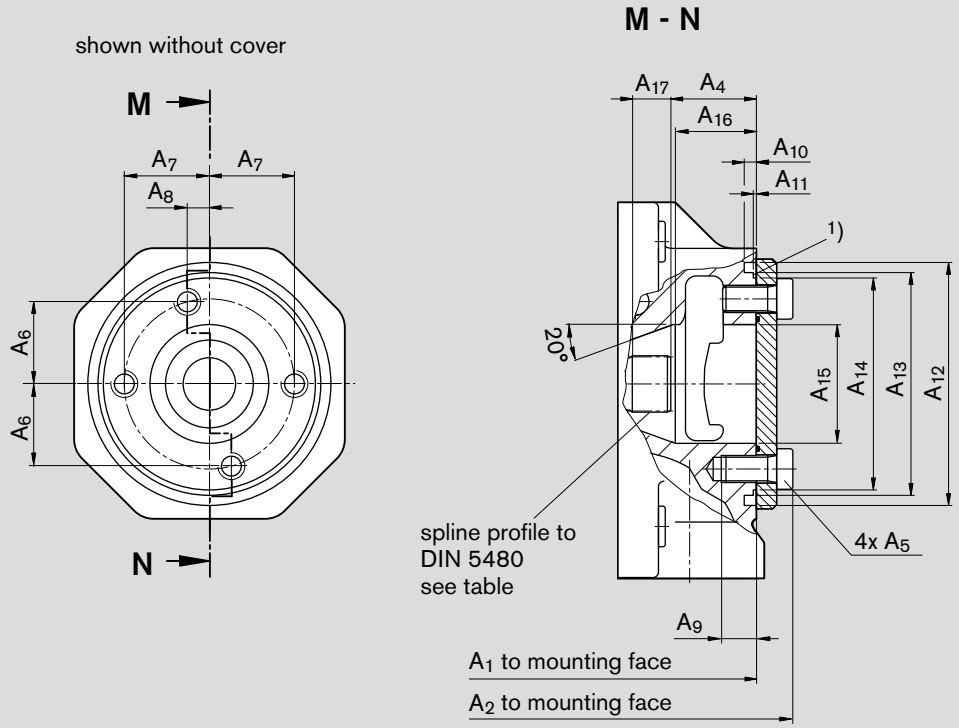
[1]) Mounting screws and O-ring seal are included with supply
[2]) Thread to DIN 13, for the max. tightening torques observe the general information on page 68

Dimensions through drives

Before finalising your design please request a certified installation drawing. Dimensions in mm.

K99 Sizes 40 and 71

with through drive shaft, without shaft coupler, without adapter flange, **closed with pressure tight cover**



depiction shows
size 71

Size Main pump	A_1	A_2	A_4	A_5	A_6	A_7	A_8	A_9	A_{10}	A_{11}	A_{12}	A_{13}
40	263	280	$51.3^{\pm1}$	M12x25	$37^{\pm0.2}$	$37^{\pm0.2}$	0	18	9	$2.3^{+0.1}$	ø118	$ø105_{g6}$
71	291	310	$48^{\pm1}$	M12x25	$42{,}3^{\pm0{,}15}$	$45^{\pm0{,}15}$	$15.4^{\pm0.15}$	18	9	$2.7^{+0.1}$	ø130	$ø116_{g6}$

Size Main pump	A_{14}	A_{15}	A_{16}	A_{17}	**Spline profile to DIN 5480**	[1]) **O-Ring** for retrofitting (not in supply)
40	$ø97.6_{-0.4}$	ø52	44	14	W25x1,25x18x9g	99 x 3
71	$ø106.4_{-0.4}$	ø63	38	16	W30x1,25x22x9g	110,72 x 3,53

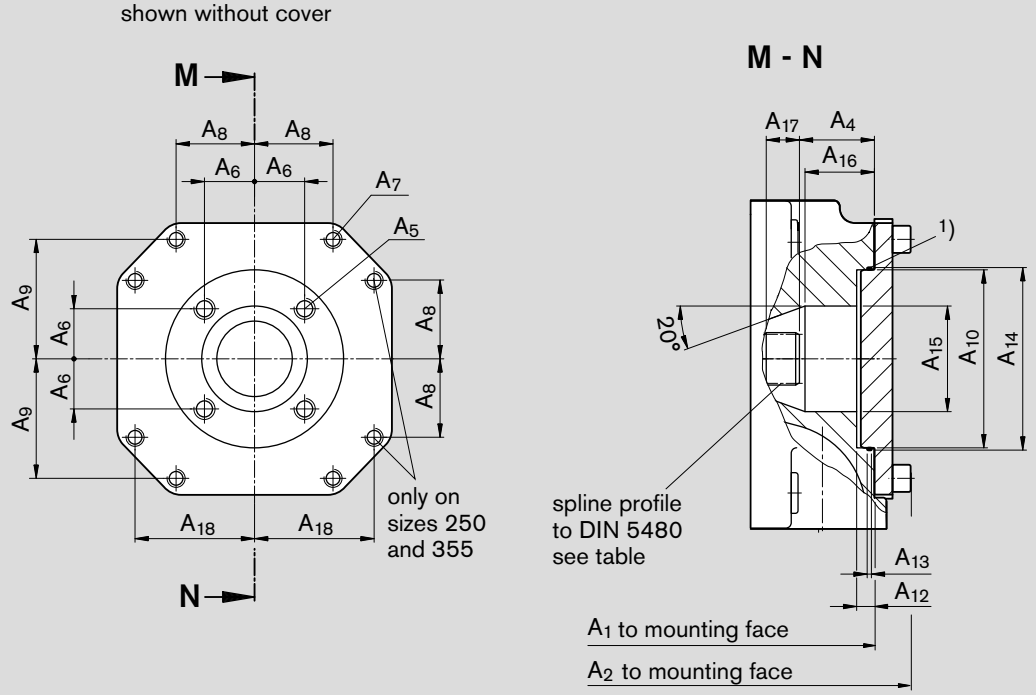
Sizes 125...1000 see pages 65 and 66

Dimensions through drives

Before finalising your design please request a certified installation drawing. Dimensions in mm.

U99 Sizes 125...355

with through drive shaft, without shaft coupler, without adapter flange, **closed with pressure tight cover**



Size Main pump	A_1	A_2	A_4	A_5	A_6	A_7	A_8	A_9	A_{10}	A_{12}	A_{13}
125	347	368	49.7±1	M14; 15 deep	$33{,}2^{+0.15}$	M12; 18 deep	–	$79{,}2^{+0.15}$	ø118^{H7}	9	$2{,}8^{+0,2}$
180	371	392	49.7±1	M14; 15 deep	$33{,}2^{+0.15}$	M12; 18 deep	–	$79{,}2^{+0.15}$	ø118^{H7}	9	$2{,}8^{+0,2}$
250	431	455	61.4±1	M20; 22 deep	$44{,}5^{+0.15}$	M10; 15 deep	$58{,}15^{+0.15}$	$86{,}2^{+0.15}$	ø160^{H7}	9	$2{,}8^{+0,2}$
355	460	487	61.4±1	M20; 22 deep	$44{,}5^{+0.15}$	M10; 15 deep	$58{,}15^{+0.15}$	$86{,}2^{+0.15}$	ø160^{H7}	9	$2{,}8^{+0,2}$

Size Main pump	A_{14}	A_{15}	A_{16}	A_{17}	A_{18}	Spline profile to DIN 5480	[1] **O-Ring** for retrofitting (included in supply)
125	ø$121^{+0.1}$	ø70	46	22	–	W35x1,25x26x9g	118 x 2
180	ø$121^{+0.1}$	ø70	46	25	–	W35x1,25x26x9g	118 x 2
250	ø$163^{+0.1}$	ø87	64	30,5	$86{,}2^{+0,15}$	W42x1,25x32x9g	160 x 2
355	ø$163^{+0.1}$	ø87	64	34	$86{,}2^{+0,15}$	W42x1,25x32x9g	160 x 2

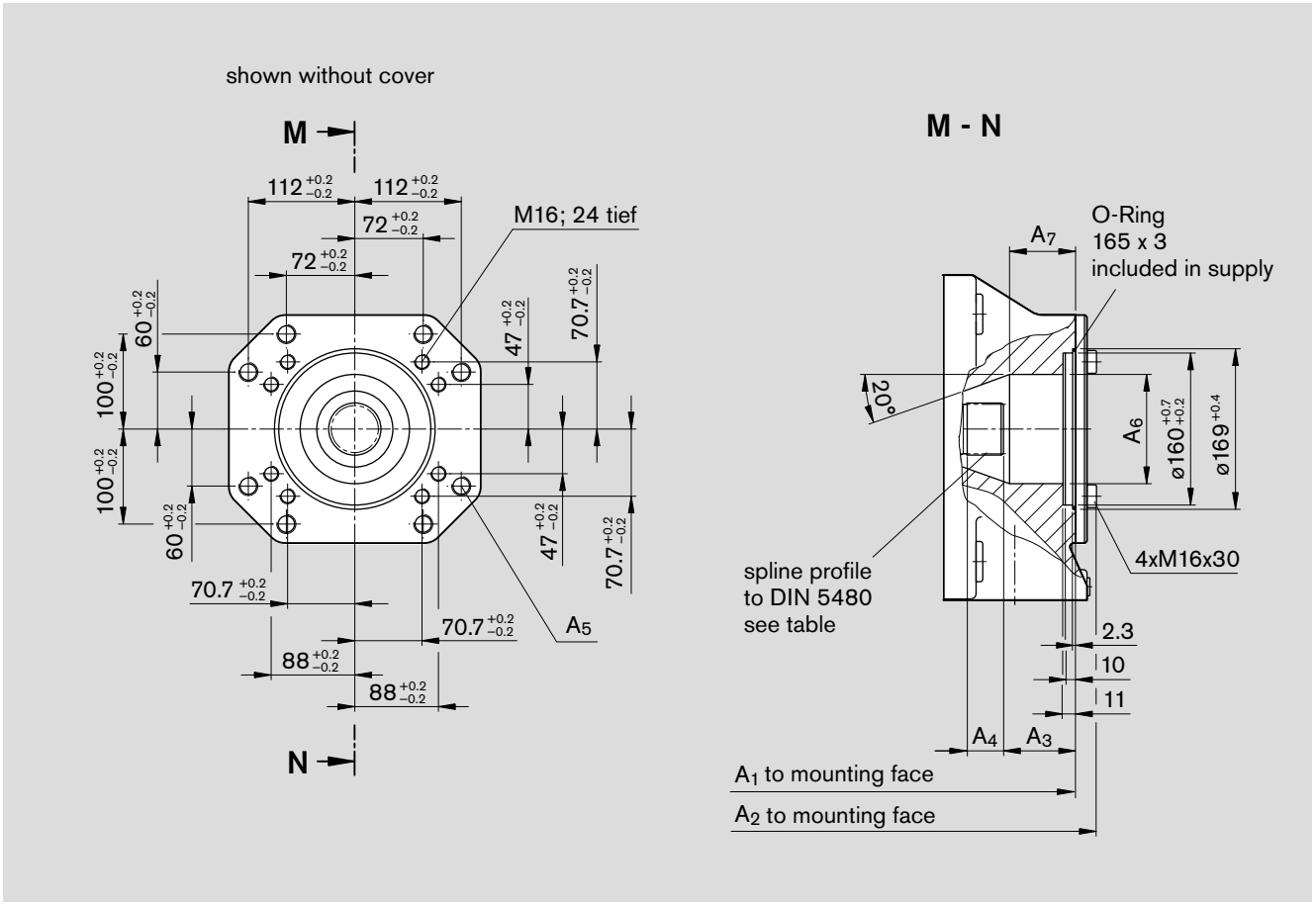
Sizes 500...1000 see page 66

Dimensions through drives

Before finalising your design please request a certified installation drawing. Dimensions in mm.

K99 Sizes 500...1000

with through drive shaft, without shaft coupler, without adapter flange, **closed with pressure tight cover**



Size Main pump	A_1	A_2	A_3	A_4	A_5	A_6	A_7	Spline profile to DIN 5480
500	505	527	73	41	M20; 24 deep	ø115	75	W55x1,25x42x9g
750	555	577	73	41	M20: 24 deep	ø115	75	W55x1,25x42x9g
750*	in preparation							
1000	628	650	77	66,5	M20; 30 deep	ø138	65	W65x1,25x50x9g

* with boost pump

Sizes 40 and 71 see page 64 and sizes 125...355 see page 65

Installation notes

Mounting position:

Optional. The pump case must be filled with fluid during commissioning and remain full when operating.
In order to reduce the operating noise level, all connecting lines (suction, pressure and case drain lines) must be de-coupled from the tank, using flexible elements.
The use of check valves in the case drain line must be avoided.
The case drain line must be returned directly to tank without a reduction in cross section.
Exceptions maybe possible, please consult us first.

1. **Vertical installation** (shaft end pointing upwards)
With a vertical installation, bearing flushing is recommended to provide lubrication for the front bearing, see page 6.

The following installation conditions must be taken into account:

1.1 Installation into the reservoir

a) When the minimum fluid level is equal to or above the pump mounting flange area: ports »R/L«, »T« and »S« open (see fig. 1).

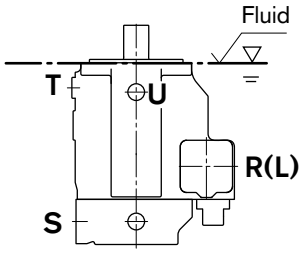


Fig. 1

b) When the minimum fluid level is below the mounting flange area: ports»R/L«,»T« und possibly »S« must be piped as shown in fig. 2. Also observe the conditions as shown in point 1.2.

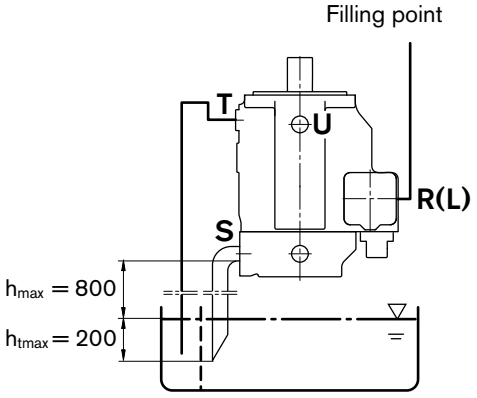


Fig. 2

1.2 Installation outside the reservoir

Before installation, fill the pump housing with the pump in a horizontal position.
Pipe port »T« to tank, »R/L« plugged.
Filling in mounted condition: fill via »R« and bleed via»T«, afterwards plug port»R«.
Conditions: A minimum pump inlet pressure (suction pressure) of 0,8 bar abs. is necessary. Avoid mounting above the reservoir in order to reduce the noise level.

2. **Horizontal installation**
The highest situated of the ports»T«,»K_1«, »K_2« or »R/L« must be used for filling/bleeding and subsequently to connect the case drain line.

2.1 Installation inside the reservoir

a) When the minimum fluid level is equal to or lies above the upper edge of the pump: case drain port and suction port »S« open (see fig. 3).

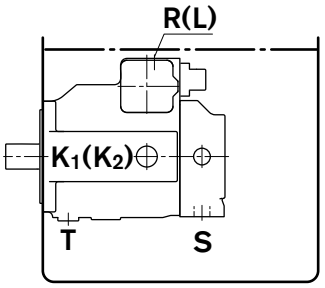


Fig. 3

b) When the minimum fluid level lies below the upper edge of the pump: case drain port and possibly port »S« must be piped, see fig. 4. Observe conditions as shown in point 1.2.

Fill pump housing prior to commissioning.

2.2 Installation outside the reservoir

Fill the pump housing before commissioning.
a) Mounting above the reservoir see fig. 4.
Observe conditions as shown in point 1.2.
b) Mounting below the reservoir
Case drain port and port »S« must be piped (see fig. 5).

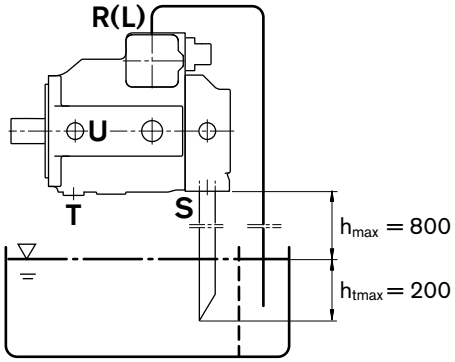


Fig. 4

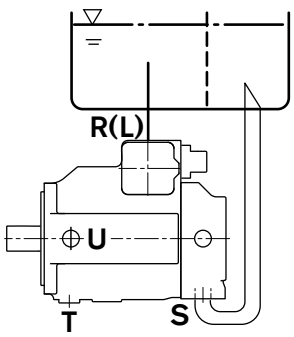


Fig. 5

Notes

General information

– The pump A4VSO was designed for operation in open loop circuits.

– Systems design, installation and commissioning requires trained technicians or tradesmen.

– All hydraulic ports can only be used for the fastening of hydraulic service lines.

– Tightening torques:
  - All tightening torques mentioned in this data sheet are maximum values and may not be exceeded (Maximum values for the female threads in the castings).
    Please comply with the manufacturer‘s information regarding the max. permissible tightening torques for the used fittings.
  - For fastening screws to DIN 13 we recommend to check the permissible tightening torque in each individual case acc. to VDI 2230 issue 2003.

– During and shortly after operation of a pump the housing and especially a solenoid can be extremely hot. Take suitable safety measures (e.g. wear protective clothing).

– All given data and information has to be adhered to.

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