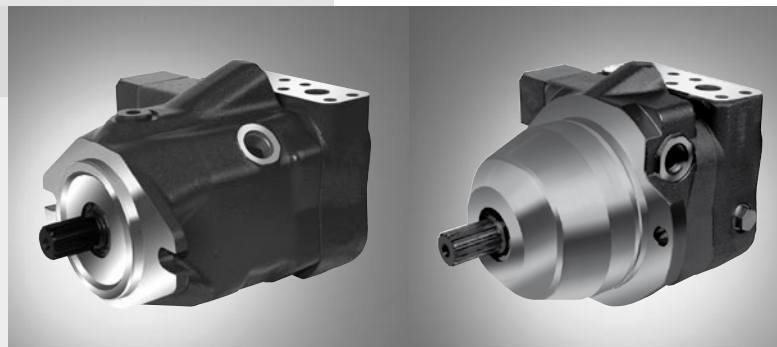


Axial piston variable motor A10VM Plug-in version A10VE

RE 91703/06.09 1/28
Replaces:09.07

Data sheet

Series 52
Size 28...85
Nom. pressure 280 bar
Peak pressure 350 bar
open and closed circuit



A10VM

A10VE

Contents

Ordering code - standard program	
Technical data	
Two-point control, directly operated DG	
Two-point control, hydraulically operated HZ/HZ6	
Two-point control, electrically operated EZ	
Unit dimensions A10VM, size 28	
Unit dimensions A10VM, size 45	
Unit dimensions A10VM, size 63	
Unit dimensions A10VM, size 85	
Unit dimensions A10VE, size 28	
Unit dimensions A10VE, size 45	
Unit dimensions A10VE, size 63	
Integrated flushing and boost press. relief valve , N007	
Speed pickup	
Installation position	
Notes	
General information	

Features

3	– Dual displacement motor, axial piston swashplate design, for hydrostatic transmissions in open and closed circuits
6	
7	– Output speed is directly proportional to inlet flow and inversely proportional to motor displacement
8	
9	– Output torque increases proportional to the pressure difference between high and low pressure sides and increasing displacement
11	
13	– Heavy duty bearings for long service life
15	– High permissible output speed
17	– Well proven A10-rotary unit technology
19	– High power/weight ratio – compact dimensions
21	– Cost effective
23	– Low noise
24	– Control range 1 : 3,75
25	– External control pressure supply possible
26	– Minimum displacement can be set externally
27	– SAE-2-bolt mounting flange on A10VM
28	– Special 2-bolt mounting flange on A10VE

Ordering code - Standardprogram

Packaging - Processing
Bid on Equipment
 1-847-683-7720
www.bid-on-equipment.com

A10V	E			/	52	W		-	V		F			
01	02	03	04		05	06	07		08	09	10	11	12	13

Axial piston unit

01	Swash plate design, variable														A10V
----	------------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	-------------

Operating mode

02	Motor, plug-in type														E
----	---------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	----------

Size

									28	45	63
03	Displacement $V_{g \max}$ [cm ³]								28	45	63

Control devices

04	Two point control														
	Directly operated, external control supply, without pilot valve							●	●	○					DG
	Hydraulically	Stroking time orifice	without					●	●	●					HZ
			with					●	●	●				HZ6	
	Electrically with solenoid valve	Stroking time orifice	without					●	●	●					EZ1
			Control voltage 12V ¹⁾	with					●	●	●				EZ6
	Electrically with solenoid valve	Stroking time orifice	without					●	●	●					EZ2
			Control voltage 24V ¹⁾	with					●	●	●				EZ7

Series

05															52
----	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-----------

Direction of rotation

06	Viewed on shaftend									Bi-directional					W
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Minimum displacement

									28	45	63
07	$V_{g \min}$ (in cm ³) steplessly adjustable	from/to						10/28	12/25	16/38	1
	Adjustment please state in clear text	from/to						–	26/45	40/62	2

Seals

08	FKM (fluoro rubber)														V
----	---------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	----------

Shaft end

									28	45	63	
09	Splined acc. to SAE J744 (for details see unit dimensions)								●	●	●	R
									–	●	●	W

Mounting flange

10	Special 2-bolt								●	●	●	F
----	----------------	--	--	--	--	--	--	--	---	---	---	----------

Ports for service lines

11	SAE flanges at side-same side, metric fixing screws								●	●	●	10N00
	SAE flanges at rear, metric fixing screws								○	●	○	11N00
	Threaded ports on side, same side, metric thread								●	●	●	16N00

Valves

12	Without valves								●	●	●	0
	Integrated flushing valve, only with side ports (10N00 and 16N00)								●	●	●	7

Speed pickup

13	Without speed pickup								●	●	●	–
	Prepared for inductive type of speed pickup ID R								○	●	○	D

¹⁾ Shown in the unit dimensions: DIN connector from HIRSCHMANN;
 Preferred for mobile applications (other dimensions): DEUTSCH connector molded, 2-pin – without suppressor diode;
 Please specify the required connector design in plain text.

● available ○ in preparation – not available

Technical data

Fluid

Prior to project design please see our data sheets RE 90220 (mineral oil), RE 90221 (ecologically acceptable fluids) and RE90223 (HF-fluids) for detailed information on fluids and application conditions.

When operating on ecologically acceptable fluids, limitations to the technical data may be necessary.

Please contact us and state the fluid used in clear text when ordering.

Operating viscosity range

For optimum efficiency and service life we recommend an operating viscosity (at operating temperature) in the range

$$v_{opt} = \text{opt. operating viscosity } 16 \dots 36 \text{ mm}^2/\text{s}$$

referred to circuit temperature in closed circuits or tank temperature in open circuits.

Limits of viscosity range

The following limits are valid for extreme operating conditions:

$$v_{min} = 5 \text{ mm}^2/\text{s} \text{ (closed circuit)}$$

$$v_{min} = 10 \text{ mm}^2/\text{s} \text{ (open circuit)}$$

briefly ($t \leq 1 \text{ min}$) at max. permissible temperature of 115 °C.

Please note, that the max. fluid temperature of 115 °C may also not be exceeded in certain areas (for instance bearing area) The temperature in the bearing area is approx. 5 K higher than the average fluid temperature.

$$v_{max} = 1600 \text{ mm}^2/\text{s}$$

$$\text{briefly } (t \leq 1 \text{ min})$$

on cold start ($t_{min} = -25^\circ\text{C}$, $p \leq 30 \text{ bar}$, $n \leq 1000 \text{ rpm}$).

At temperatures between -25 °C and -40 °C special measures may be required for certain installation positions. Please consult us for further information

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

Notes on the selection of the hydraulic fluid

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

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

Example: at an ambient temperature of X °C the operating temperature in the tank is 60 °C. In the optimum viscosity range (v_{opt} ; shaded area) this corresponds to viscosity grades VG 46 resp. VG 68; select VG 68.

Important: The leakage oil (case drain oil) temperature is influenced by pressure and motor speed and is always higher than the tank temperature. However, at no point in the circuit may the temperature exceed 115 °C.

If it is not possible to comply with the above conditions because of extreme operating parameters or high ambient temperatures please consult us

Filtration of fluid

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

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

20/18/15 to ISO 4406 is necessary.

At very high fluid temperatures (90 °C to max. 115 °C) the minimum cleanliness has to be at least

19/17/14 to ISO 4406 .

If above cleanliness classes cannot be met please consult us.

Operating pressure range

Pressure at port A or B

(Pressure data to DIN 24312)

Nominal pressure p_N _____ 280 bar ¹⁾

Peak pressure p_{max} _____ 350 bar

With motors connected in series please consult us.

Case drain pressure

Max. permissible pressure at leakage port L

$p_{abs max}$ operation as a motor in open circuit _____ 4 bar abs

$p_{abs max}$ operation as a motor in closed circuit _____ 4 bar abs

$p_{abs max}$ motor/pump operation in open circuit _____ 2 bar abs

Direction of rotation

Direction of rotation, viewed on shaft end

clockwise

counter-clockwise

B to A

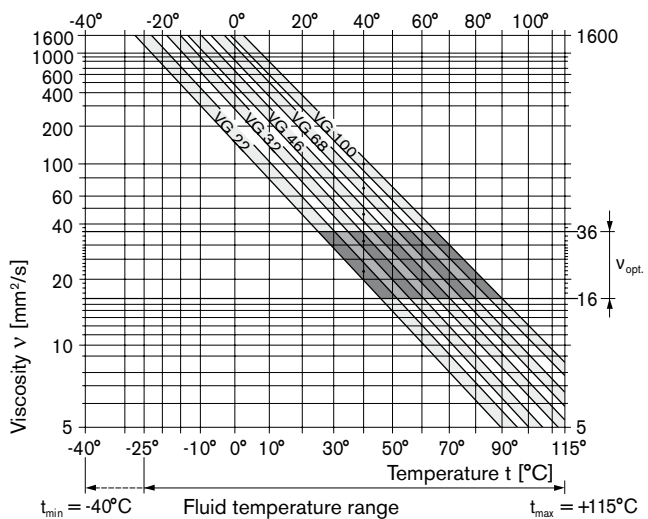
A to B

Adjustment of displacement

The minimum displacement is steplessly adjustable within the range of the screw lengths 1 or 2 (see ordering code).

Please state minimum displacement in clear text when ordering.

Selection diagram



¹⁾ Higher pressures on request

Technical data

Table of values

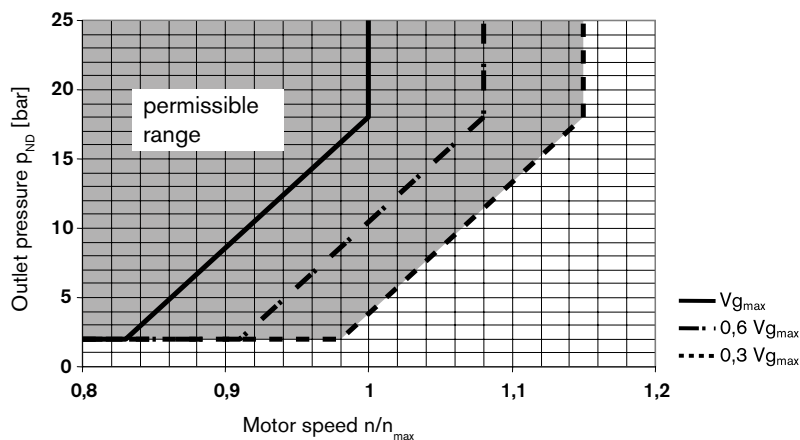
theoretical, rounded values, without considering η_{mh} and η_v

Size			28	45	63	85
Displacement	$V_{g\ max}$	cm ³	28	45	62	87
	$V_{g\ min}$	cm ³	8 (VM)/10(VE)	12	16	22
Speed ¹⁾						
max. at $V_{g\ max}$	$n_{0\ max}$	rpm	4700	4000	3300	3100
max. at $V_{g\ min}$	$n_{0\ max\ zul}$	rpm	5400	4600	3900	3560
Min. speed in cont. operation	$n_{0\ min}$	rpm	250	250	250	250
Inlet flow						
at $n_{0\ max}$ and $V_{g\ max}$	$q_{V0\ max}$	L/min	131,6	180	205	270
Torque constant ²⁾ at $V_{g\ max}$	T_K	Nm/bar	0,445	0,716	1,002	1,35
Torque						
at $V_{g\ max}$ $p_N = 280\ bar$	T_{max}	Nm	125	200	276	387
Actual starting torque						
at $n = 0\ rpm$ $p_N = 280\ bar$	T	Nm	92	149	205	253
Rotary stiffness	Shaft R	Nm/rad	26000	41000	69400	152900
	Shaft W	Nm/rad	19800	34400	54000	117900
Mass moment of inertia (about output shaft)	J	kgm ²	0,0017	0,0033	0,0056	0,012
Angular acceleration, max.		rad/s ²	5500	4000	3300	2700
Filling volume		L	0,6	0,7	0,8	1,0
Weight approx.	m	kg	14	18	26	34

¹⁾ At max. speed in closed circuit operation make sure that motor outlet pressure is at least $\geq 18\ bar$.

²⁾ in open circuit Δp 280bar at $p_{boostpress.}$ 2bar
in closed circuit Δp 260bar at $p_{boostpress.}$ 20bar

Minimum required outlet pressure at port A (B) depending on motor speed


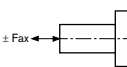


Technical data

Calculating size

Flow	$q_v = \frac{V_g \cdot n}{1000 \cdot \eta_v}$	[L/min]	V_g = geometric displacement per rev. in cm ³
Torque	$T = \frac{1,59 \cdot V_g \cdot \Delta p \cdot \eta_{mh}}{100}$	[Nm]	Δp = Differential pressure in bar
or	$T = T_K \cdot \Delta p \cdot \eta_{mh}$		n = speed in rpm
Output power	$P = \frac{2\pi \cdot T \cdot n}{60000} = \frac{q_v \cdot \Delta p \cdot \eta_t}{600}$	[kW]	η_v = volumetric efficiency
Output speed	$n = \frac{q_v \cdot 1000 \cdot \eta_v}{V_g}$	[min ⁻¹]	η_{mh} = mechanical-hydraulic efficiency
			η_t = Total efficiency ($\eta_t = \eta_v \cdot \eta_{mh}$)
			T_K = Torque constant

Permissible radial and axial forces on drive shaft

Size		28	45	63	85
Max. radial force	 bei X/2 $F_{q \max}$ N	1200	1500	1700	2000
Max. axial force	 F_{ax} N	1000	1500	2000	3000

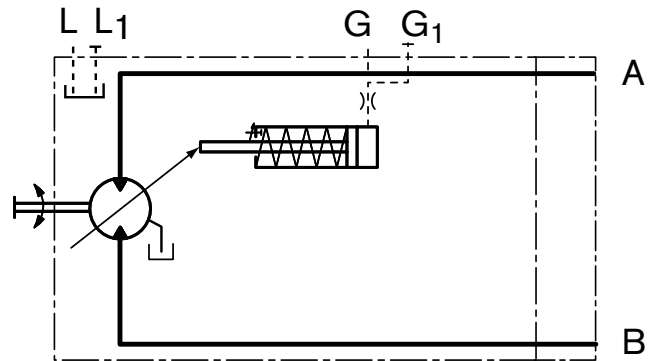
Two-point direct control DG

Normally the motor is at max. displacement. By applying an external pressure to port G, the control piston is directly pressurized and the motor swivels back to min. displacement

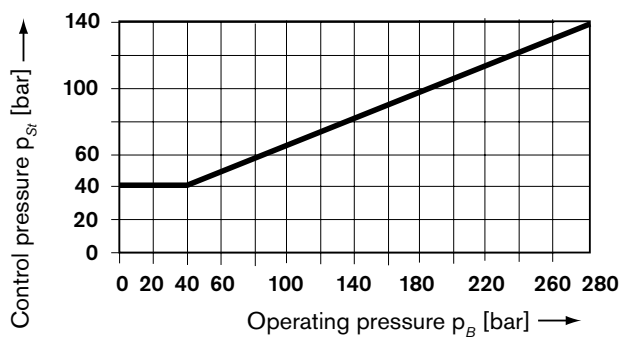
The minimum required control pressure is $p_{St} \geq 40$ bar

Please note, that this minimum required control pressure at port G depends directly on the operating pressure p_B in port A or B. (Pressure in A or B), see control pressure diagram below. With a control pressure above this minimum required pressure level the motor will destroke properly.

Schematic



Control pressure diagram



Ports

A, B Pressure port

L, L₁ Case drain ports

G, G₁ Ports for external control pressure

Control pressure = 0 bar $\hat{=}$ $V_{g,max}$

Control pressure ≥ 40 bar = $V_{g,min}$ (see diagram)

The max. perm. control pressure is $p_{St} \hat{=}$ 280 bar.

$V_{g,min}$. adjustment please state in clear text with order

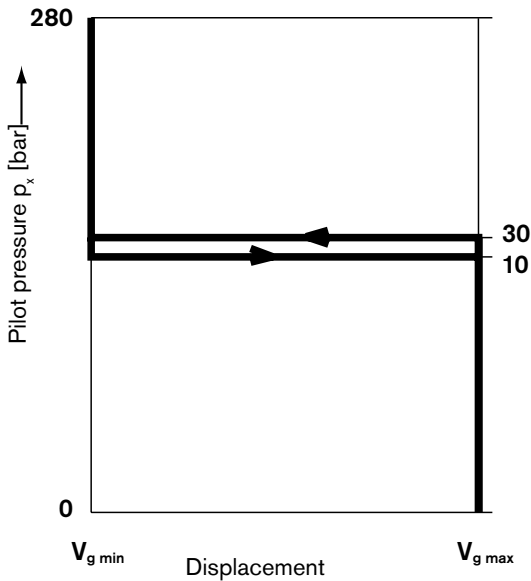
Two-point control, hydraulically operated HZ/HZ6

Normally the motor is at max. displacement. By applying a pilot pressure p_x to port X the pilot valve shifts and the control piston is pressurized causing the motor to swivel to min. displacement. ($p_x \geq 30\text{bar}$).

The necessary control pressure is via a shuttle valve taken out of the motor pressure side A or B. A minimum pressure difference of $\Delta p_{A,B} \geq 20\text{ bar}$ between the motor pressure sides is required.

Only $V_{g\text{ max}}$ or $V_{g\text{ min}}$ are possible.

$V_{g\text{ min}}$ - adjustment please state in clear ext when ordering.



Pilot pressure $p_x = 0\text{ bar} \hat{=} V_{g\text{ max}}$

Pilot pressure $p_x \geq 30\text{ bar} \hat{=} V_{g\text{ min}}$

Techn. data HZ/HZ6	
Minimum pilot pressure	30 bar
Maximum pilot pressure	280 bar

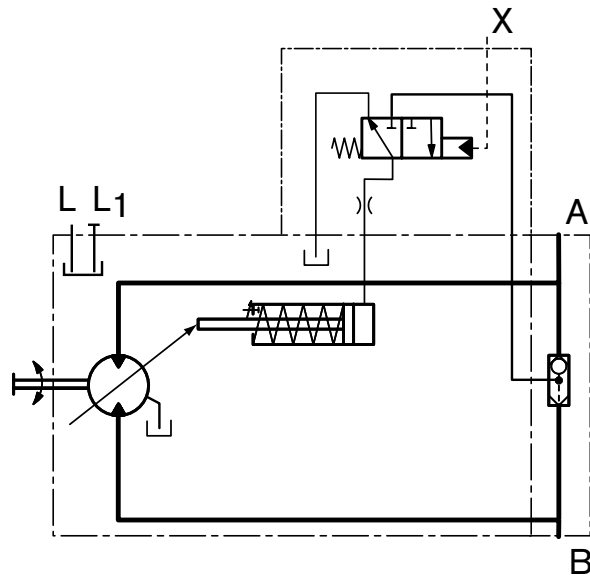
Version HZ6 with stroking time shuttle orifice

Slow down of swivel action by means of shuttle orifice.

This enables a smooth swivel action.

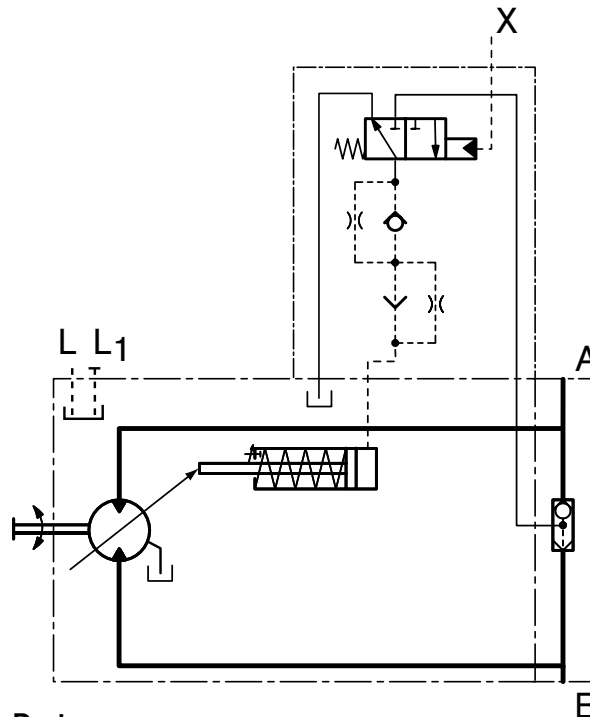
Standard orifice size = 0,21 mm; other sizes on request.

Schematic HZ



- Ports
- A,B Pressure ports
 - L, L1 Case drain ports
 - X Pilot pressure port

Schematic HZ6



- Ports
- A,B Pressure ports
 - L, L1 Case drain ports
 - X Pilot pressure port

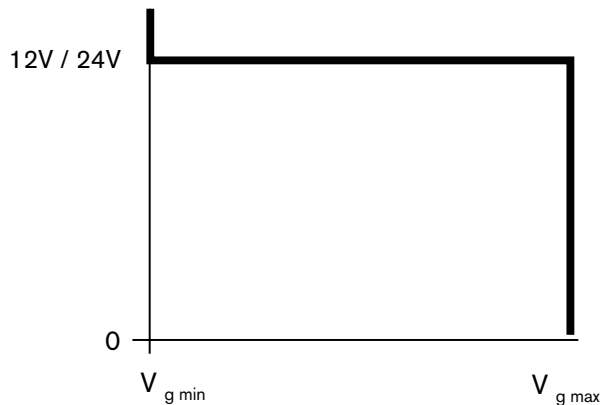
Two-point control, electrically operated EZ¹⁾

Normally the motor is at maximum displacement. By energizing the solenoid of the control valve, the control piston is pressurized and the motor swivels to minimum displacement.

The control pressure is via a shuttle valve taken out of the motor pressure side A or B. A minimum pressure difference of $\Delta p_{A,B} \geq 20$ bar between the pressure sides is required.

The motor can only swivel between $V_{g \max}$ or $V_{g \min}$.

$V_{g \min}$ -adjustment please state in clear text when ordering..



De-energized $\triangleq V_{g \max}$
 Energized $\triangleq V_{g \min}$

Techn. data EZ		
Version	EZ 1/6	EZ 2/7
Supply voltage	12V DC	24V DC
Nom. current at 20°C	1,5 A	0,8 A
Duty cycle	100%	100%
Plug protection class to DIN 43650	IP 65	IP 65

Ambient temperature range -20°C to +60°C.
 If the above temperature range cannot be met please consult us

Features

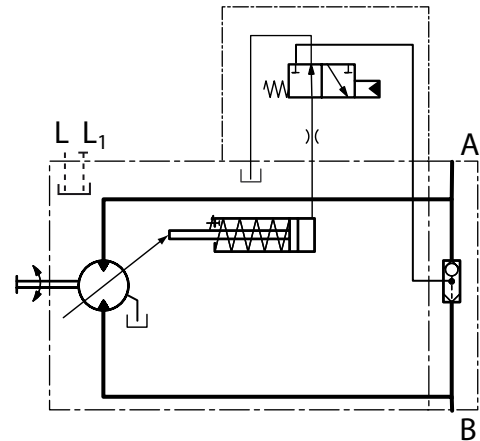
- with spring return at solenoid
- Solenoid plug can be turned 4 x 90°

Version EZ6/7 with stroking time shuttle orifice

Slow down of swivel action by means of shuttle orifice. This enables a smooth swivel action.
 Standard orifice size = 0,21 mm; other sizes on request

¹⁾ Shown in the unit dimensions: DIN connector from HIRSCHMANN;
 Preferred for mobile applications (other dimensions): DEUTSCH connector molded, 2-pin – without suppressor diode;
 Please specify the required connector design in plain text.

Schematic EZ1/2

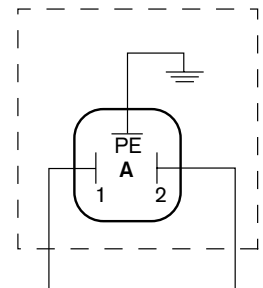
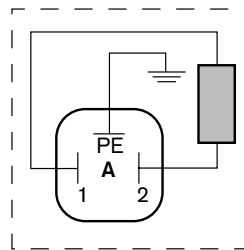


Ports

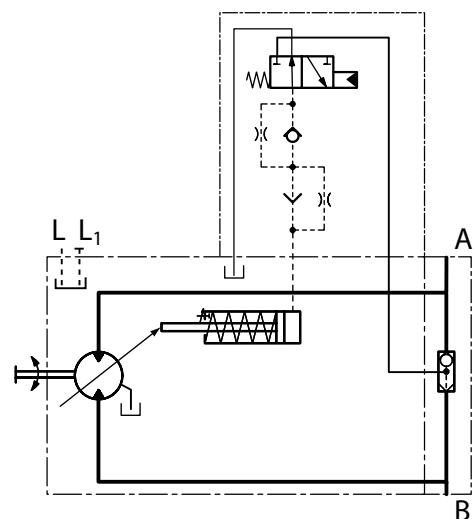
- A, B Pressure ports
- L, L1 Case drain ports

Connection to solenoid acc. to DIN 43650

Plug connection to DIN EN 175301-803-A Cable screw joint M16x1,5



Schematic EZ6/7



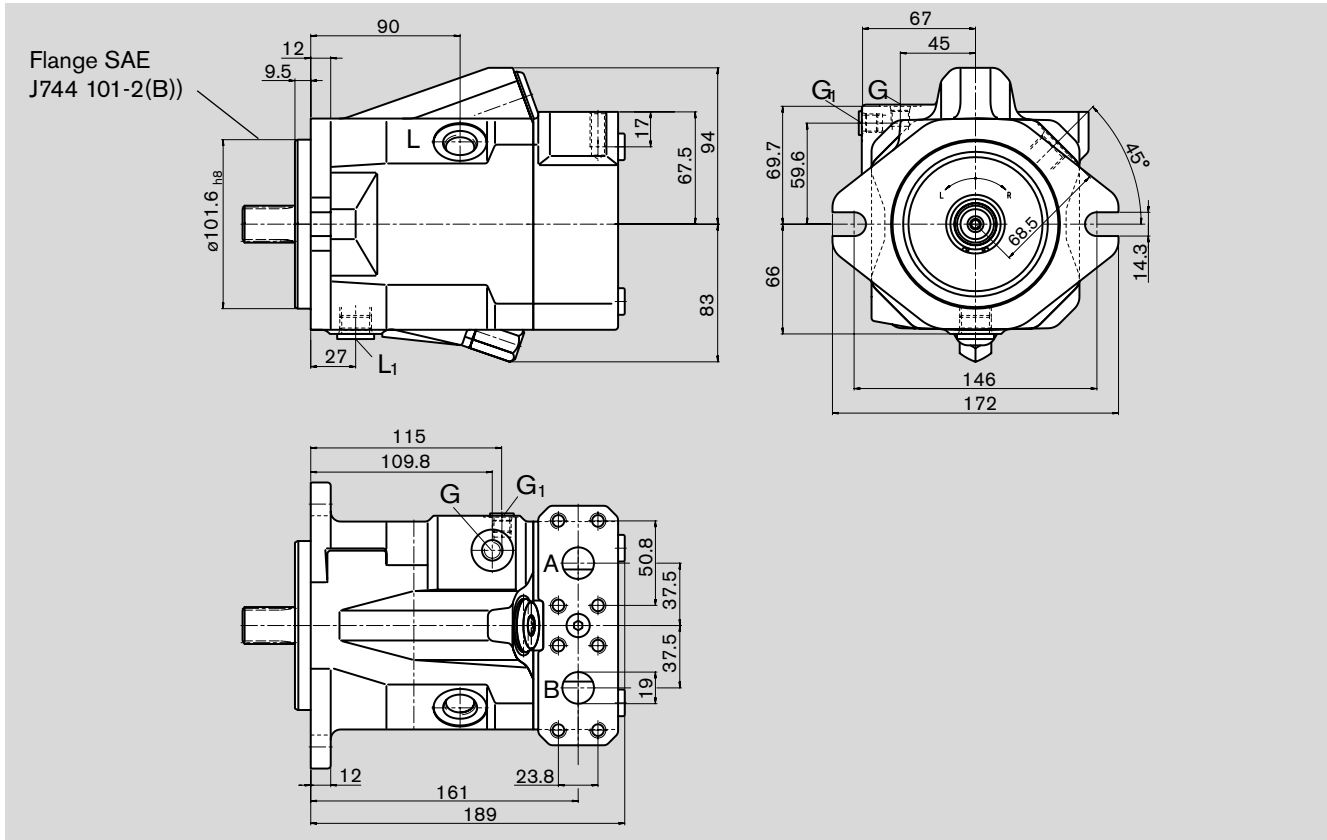
Ports

- A, B Pressure ports
- L, L1 Case drain ports

Unit dimensions A10VM, Size 28

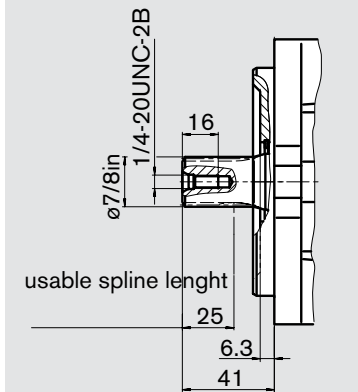
Before finalising your design please request a certified installation drawing

A10VM 28DG/52WX-VXC10N000



Shaft end

R splined 7/8in 13T 16/32DP¹⁾
(SAE J744 - 22-4 (B))



Ports

Port	Description	Thread	Size	Tightening torque, max. ²⁾
A, B	Pressure port (high press. series, code 62) Fixing thread	SAE J518C DIN 13	3/4 in M10; 17 deep	60 Nm
L/L ₁	Case drain port (L ₁ plugged)	ISO 11926	3/4-16 UNF-2B	160 Nm
G, G ₁	Port for ext. contr. press. (G ₁ plugged)	ISO 11926	7/16-20 UNF-2B; 12 tief	40 Nm

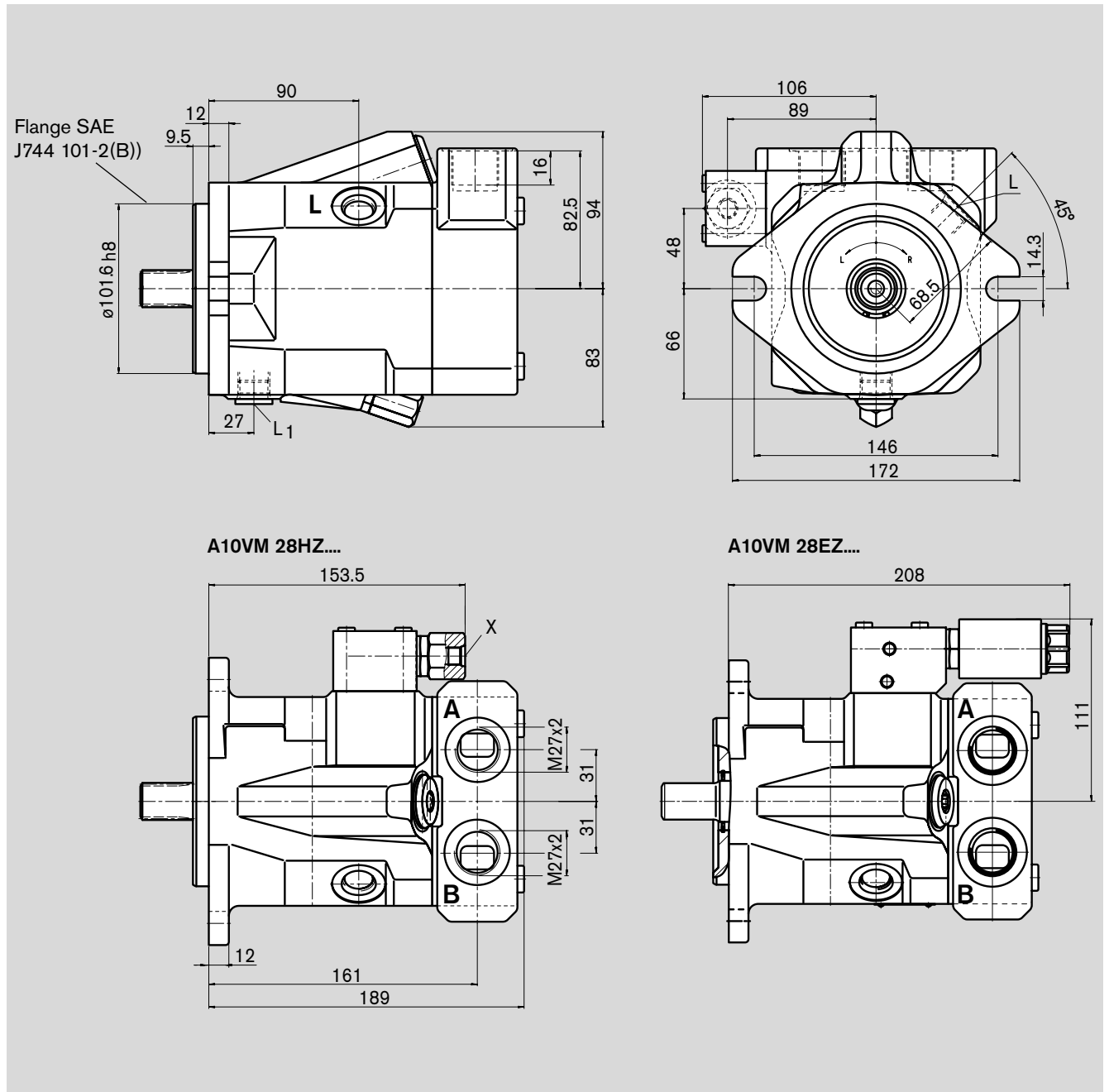
¹⁾ ANSI B92.1a-1996, 30° pressure angle, flat base, flank centering, fit class 5

²⁾ see saafety information

Unit dimensions A10VM, Size 28

Before finalising your design please request a certified installation drawing

A10VM 28HZX/52WX-VXC16N000
A10VM 28EZX/52WX-VXC16N000



Ports

Port	Standard	Thread	Tightening torque, max. ²⁾
A, B Pressure port	DIN 3852-1	M27x2; 16 deep	330 Nm
L/L ₁ Case drain port (L ₁ plugged)	ISO 11926	3/4-16 UNF-2B	160 Nm
X Pilot pressure port	ISO 11926	7/16-20UNF-2B; 10 deep	40 Nm

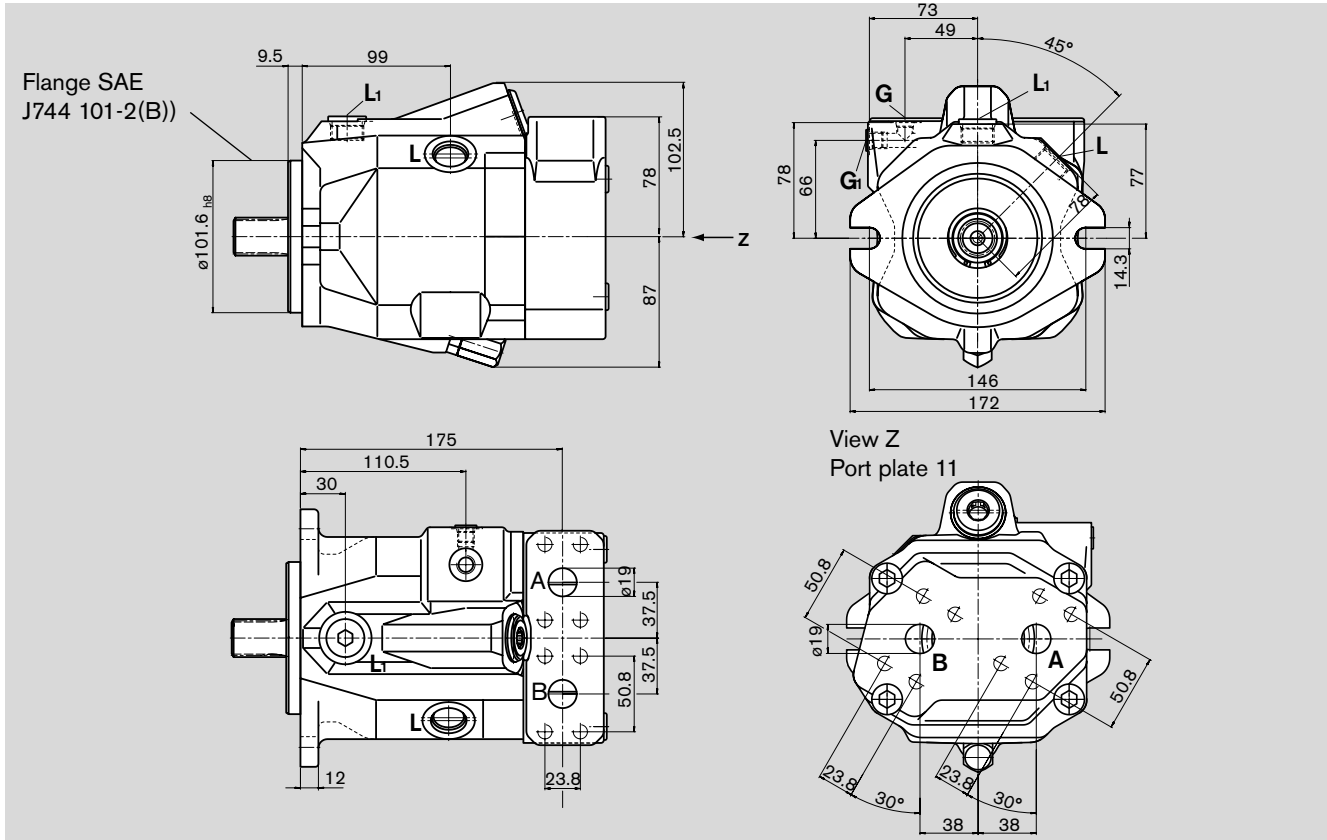
¹⁾ ANSI B92.1a-1996, 30° pressure angle, flat base, flank centering, fit class 5

²⁾ see safety information

Unit dimensions A10VM, Size 45

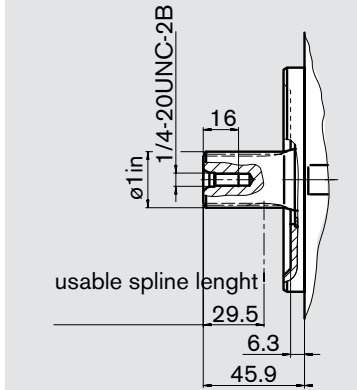
Before finalising your design please request a certified installation drawing

A10VM 45DG/52WX-VXC10N000
A10VM 45DG/52WX-VXC11N000

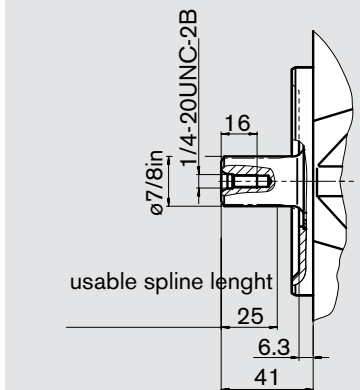


Shaft ends

R splined 1 in 15T 16/32DP¹⁾
 (SAE J744 - 25-4 (B-B))



W splined 7/8 in 13T 16/32DP¹⁾
 (SAE J744 - 22-4 (B))



Ports

Port	Thread	Size	Tightening torque, max. ²⁾
A, B Pressure port (high press. series, code 62) Fixing thread	SAE J518C DIN 13	3/4 in M10; 17 deep	60 Nm
L/L ₁ Case drain port (L ₁ plugged)	DIN 11926	7/8-14 UNF-2B	240 Nm
G, G ₁ Port for ext. control press. (G ₁ plugged)	ISO 11926	7/16-20 UNF-2B; 12 deep	40 Nm

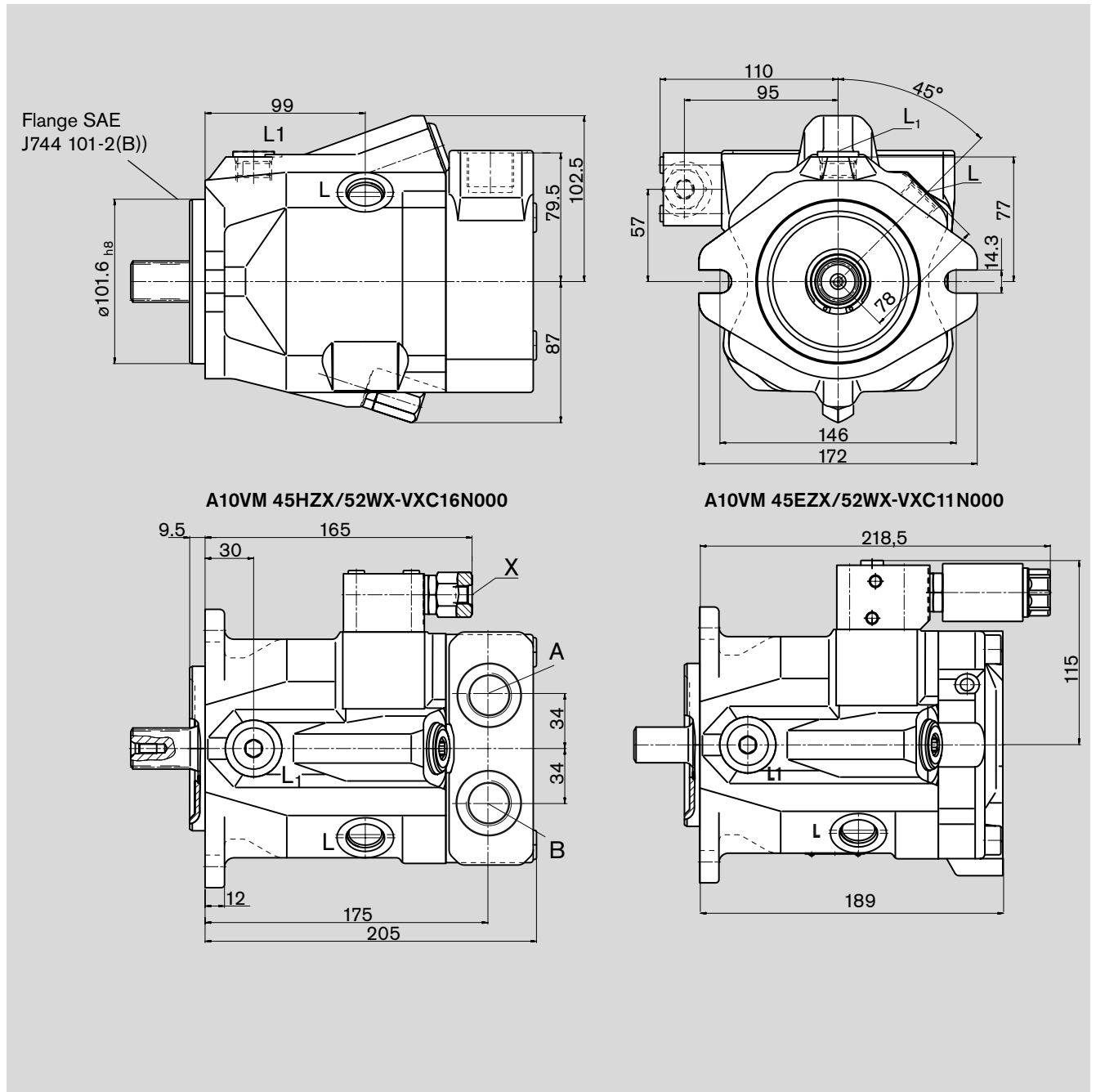
¹⁾ ANSI B92.1a-1996, 30° pressure angle, flat base, flank centering, fit class 5

²⁾ see safety information

Unit dimensions A10VM, Size 45

Before finalising your design please request a certified installation drawing

A10VM 45HZX/52WX-VXC16N000
A10VM 45EZX/52WX-VXC11N000



Ports

Port	Standard	Thread	Tightening torque, max. ²⁾
A, B Pressure port	DIN 3852-1	M27x2; 16 deep	330 Nm
L/L ₁ Case drain port (L ₁ plugged)	ISO 11926	7/8-14 UNF-2B	240 Nm
X Pilot pressure port	ISO 11926	7/16-20UNF-2B; 10 deep	40 Nm

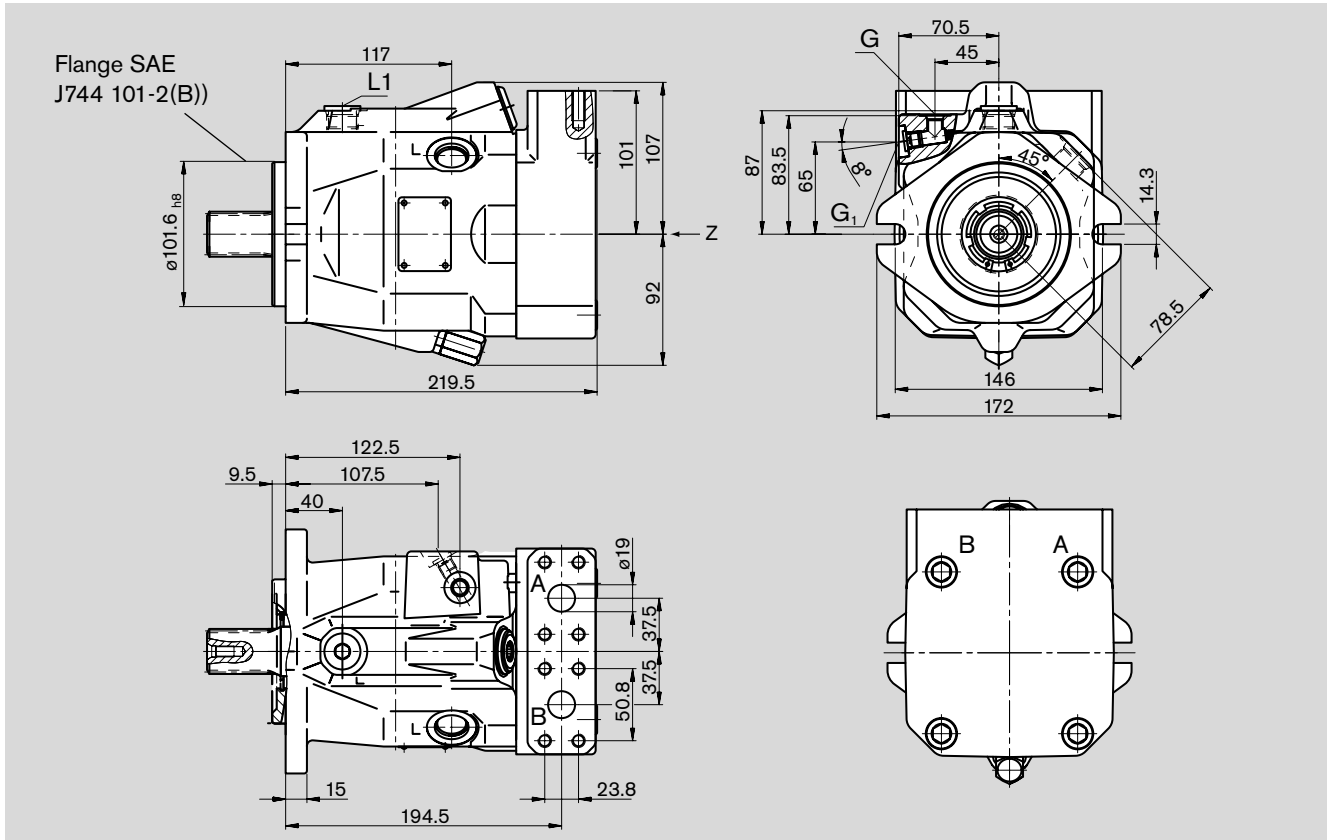
¹⁾ ANSI B92.1 a-1996, 30° pressure angle, flat base, flank centering, fit class 5

²⁾ see safety information

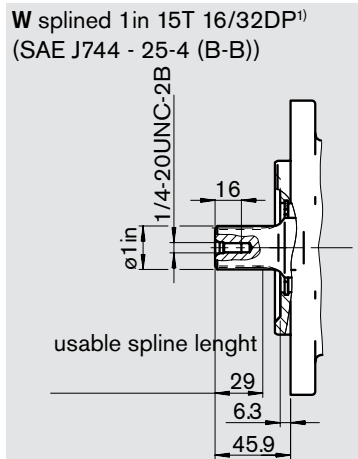
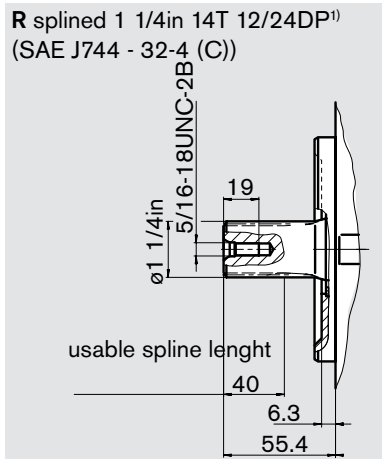
Unit dimensions A10VM, Size 63

Before finalising your design please request a certified installation drawing

A10VM 63DG/52WX-VXC10N000



Shaft ends



Ports

			Tightening torque, max. ²⁾
A/B	Pressure port (high press. series, code 62) Fixing thread	SAE J518C DIN 13	3/4 in M10; 17 deep 60 Nm
L/L ₁	Case drain port (L ₁ plugged)	ISO 11926	7/8-14 UNF-2B 240 Nm
G, G ₁	Port for ext. control press. (G ₁ plugged)	ISO 11926	7/16-20 UNF-2B; 12 deep 40 Nm

¹⁾ ANSI B92.1a-1996, 30° pressure angle, flat base, flank centering, fit class 5

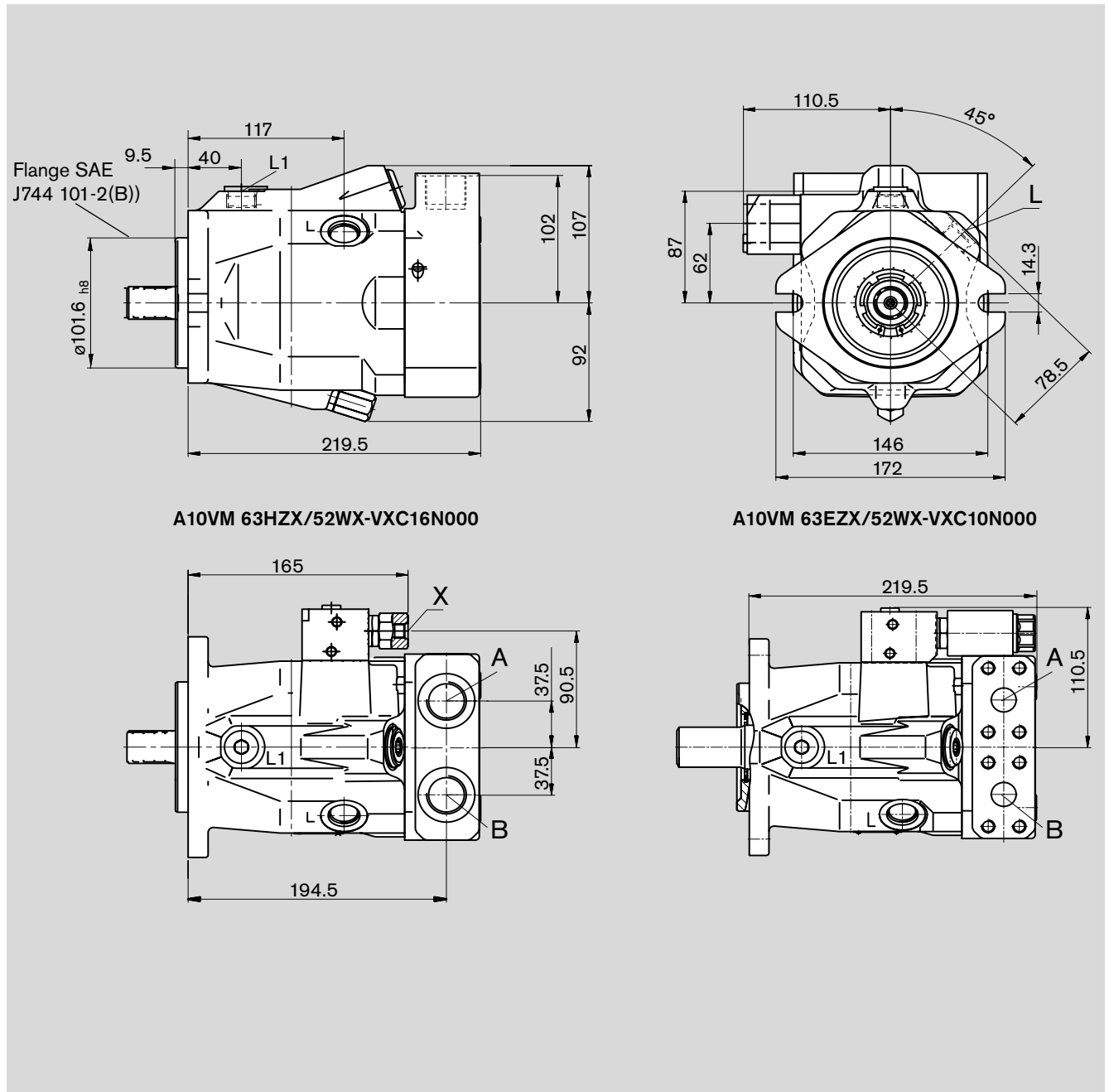
²⁾ see safety information

Unit dimensions A10VM, Size 63

Before finalising your design please request a certified installation drawing.

A10VM 63HZX/52WX-VXC16N000

A10VM 63EZX/52WX-VXC10N000



Ports

Port	Standard	Thread	Tightening torque, max. ²⁾
A/B Pressure port	DIN 3852-1	M27x2; 16 deep	330 Nm
L/L ₁ Case drain port (L ₁ plugged)	ISO 11926	7/8-14 UNF-2B	240 Nm
X Pilot pressure port	DIN 3852	7/16-20UNF-2B; 10 deep	40 Nm

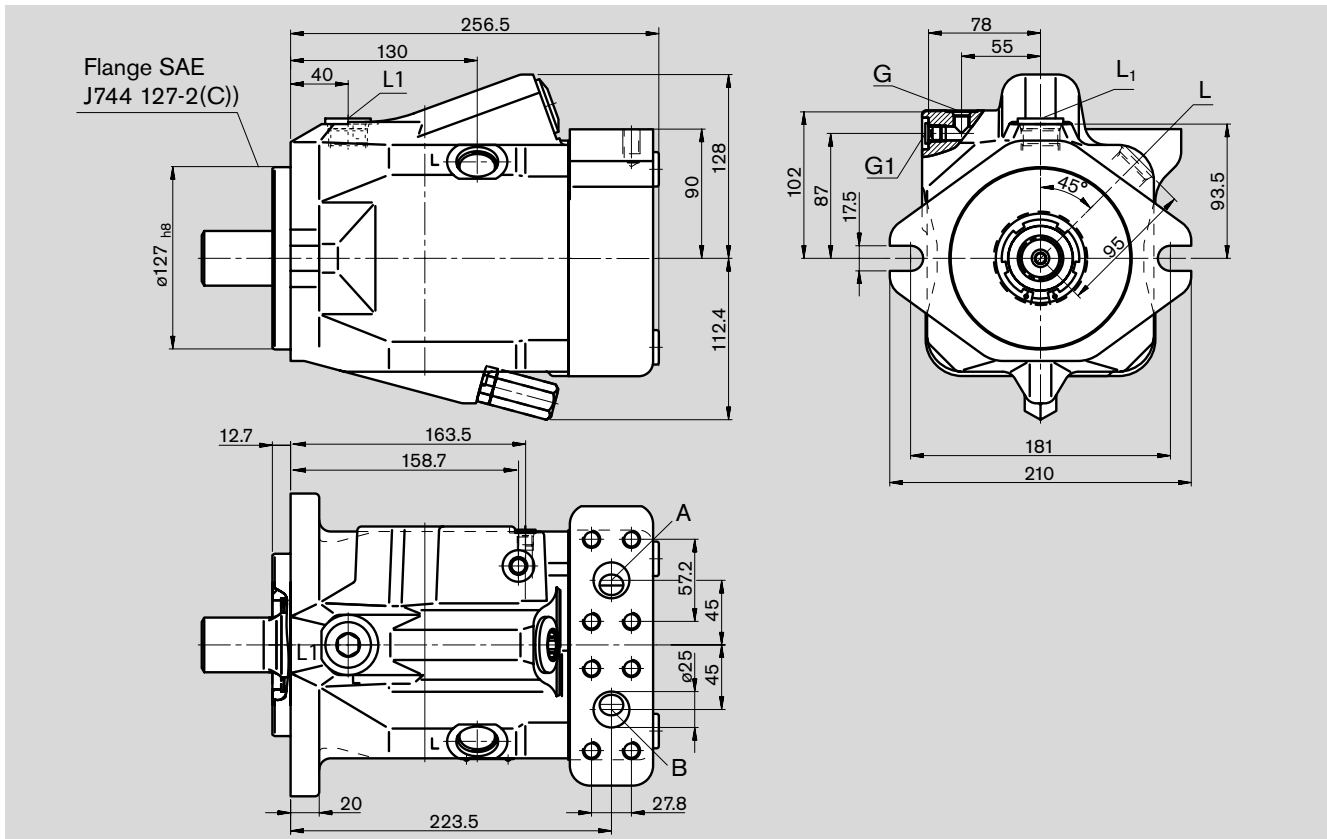
¹⁾ ANSI B92.1 a-1996, 30° pressure angle, flat base, flank centering, fit class 5

²⁾ see safety information

Unit dimensions A10VM, Size 85

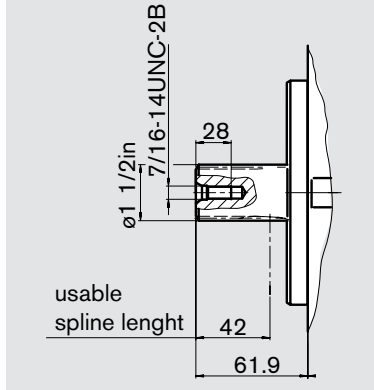
Before finalising your design please request a certified installation drawing.

A10VM 85DG/52WX-VXC10N000

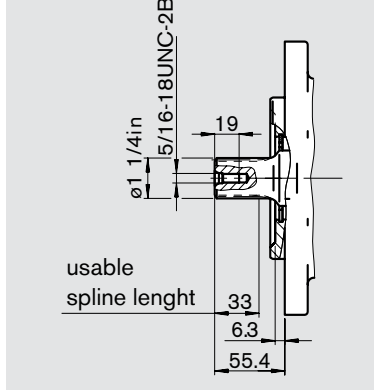


Shaft ends

R splined 1 1/2in 17T 12/24DP¹⁾
(SAE J744 - 38-4 (C-C))



W splined 1 1/4in 14T 12/24DP¹⁾
(SAE J744 - 32-4 (C))



Ports

				Tightening torque, max. ²⁾
A/B	Pressure port (high press. series, code 62) Fixing thread	SAE J518C DIN 13	1 in M12; 17 deep	130 Nm
L/L ₁	Case drain port (L ₁ plugged)	ISO 11926	1 1/16-12 UN-2B	360 Nm
G, G ₁	Port for ext. control press. (G ₁ plugged)	ISO 11926	7/16-20 UNF-2B	40 Nm

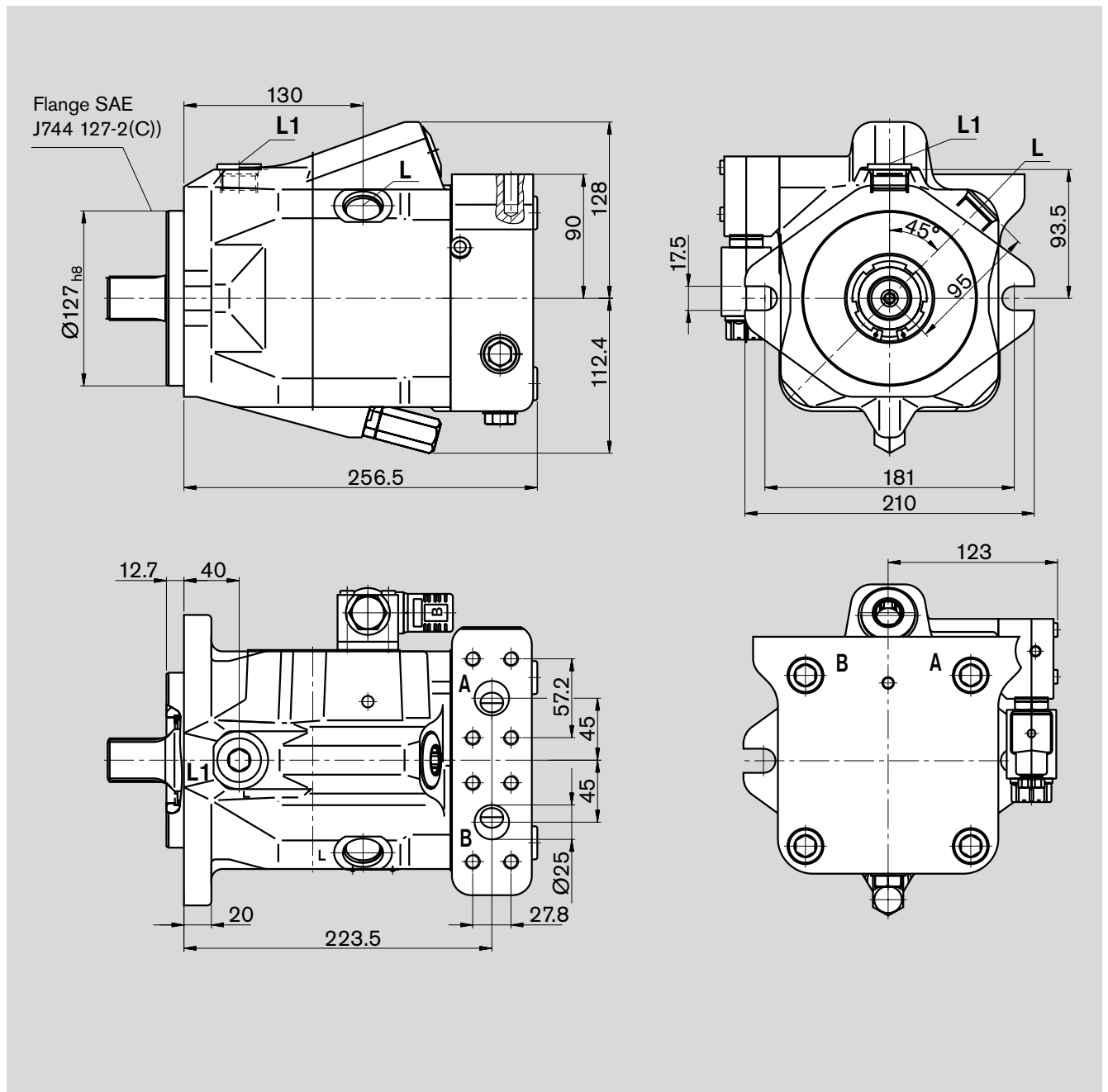
¹⁾ ANSI B92.1a-1996, 30° pressure angle, flat base, flank centering, fit class 5

²⁾ see safety information

Unit dimensions A10VM, Size 85

Before finalising your design please request a certified installation drawing.

A10VM 85EZ/52WX-VXC10N000



Ports

				Tightening torque, max. ²⁾
A/B	Pressure port (high press. series, code 62) Fixing thread	SAE J518C DIN 13	1 in M12; 17 deep	130 Nm
L/L ₁	Case drain port (L ₁ , plugged)	ISO 11926	1 1/16-12 UN-2B	360 Nm

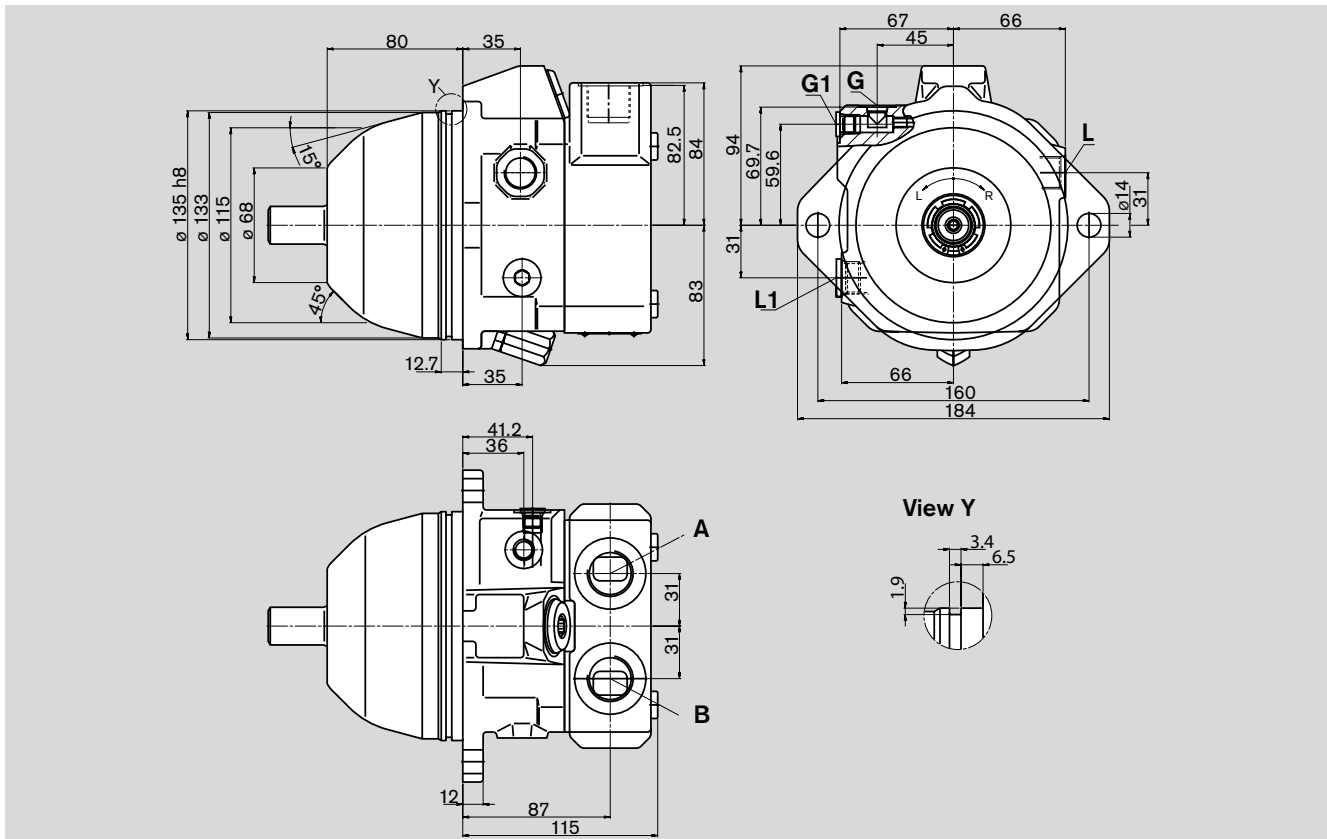
¹⁾ ANSI B92.1a-1996, 30° pressure angle, flat base, flank centering, fit class 5

²⁾ see safety information

Unit dimensions A10VE, Size 28

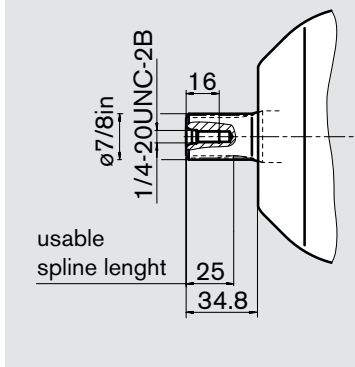
Before finalising your design please request a certified installation drawing

A10VE 28DG/52WX-VXF16N000



Shaft end

R splined 7/8in 13T 16/32DP¹⁾
(SAE J744 - 22-4 (B))



Ports

Port	Description	Standard	Thread	Tightening torque, max. ²⁾
A/B	Pressure port	DIN 3852-1	M27 x 2; 16 deep	330 Nm
L/L ₁	Case drain port (L ₁ plugged)	ISO 11926	3/4-16 UNF-2B	160 Nm
G, G ₁	Port for ext. control press. (G ₁ plugged)	ISO 11926	7/16-20 UNF-2B	40 Nm

¹⁾ ANSI B92.1a-1996, 30° pressure angle, flat base, flank centering, fit class 5

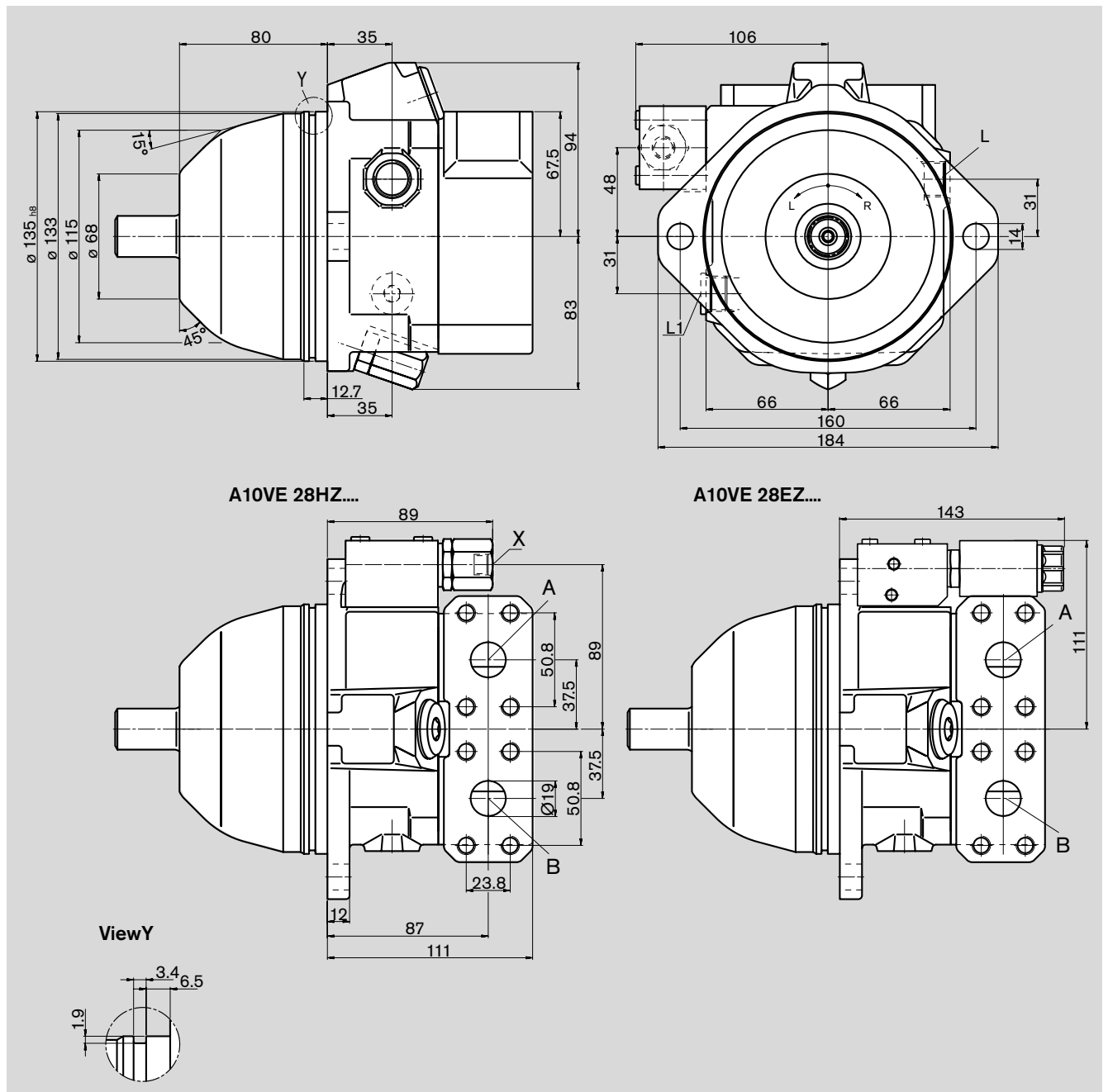
²⁾ see safety information

Unit dimensions A10VE, size 28

Before finalising your design please request a certified installation drawing

A10VE 28HZX/52WX-VXF10N000

A10VE 28EZX/52WX-VXF10N000



Ports

Port	Thread	Size	Tightening torque, max. ²⁾
A, B Pressure port (high press. series, code 62) Fixing thread	SAE J518C DIN 13	3/4 in M10; 17 deep	60 Nm
L/L ₁ Case drain port (L ₁ plugged)	ISO 11926	3/4-16 UNF-2B	160 Nm
X Pilot pressure port	ISO 11926	7/16-20 UNF-2B	40 Nm

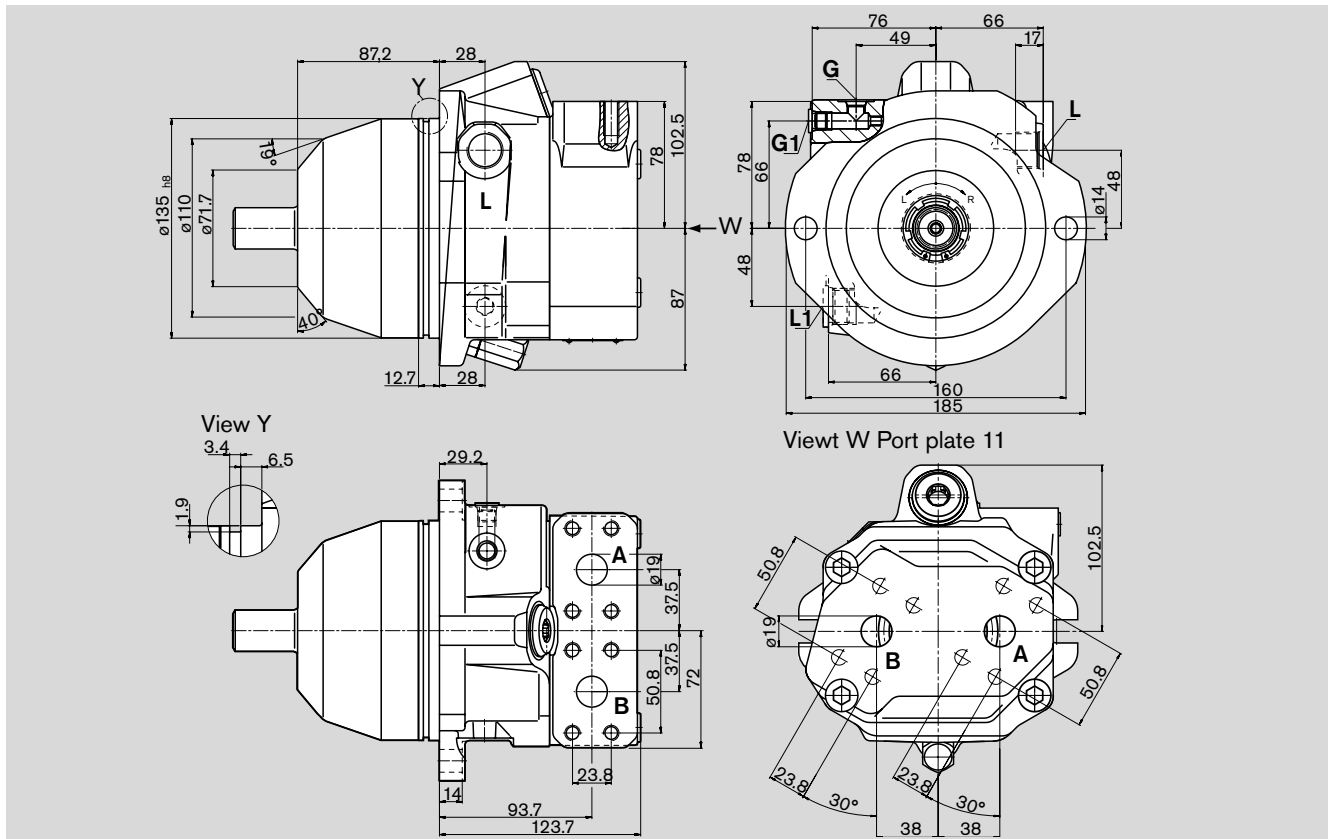
¹⁾ ANSI B92.1 a-1996, 30° pressure angle, flat base, flank centering, fit class 5

²⁾ see safety information

Unit dimensions A10VE, Size 45

Before finalising your design please request a certified installation drawing.

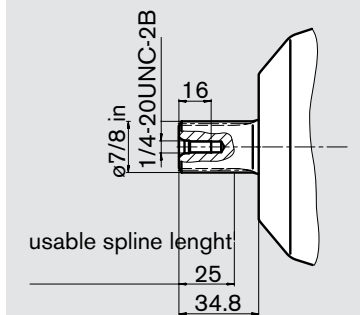
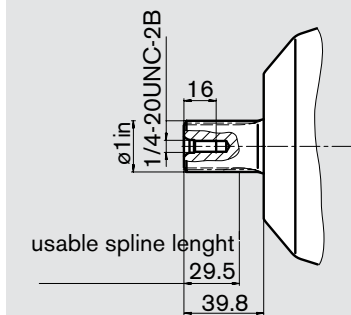
A10VE 45DG/52WX-VXF10N000
A10VE 45DG/52WX-VXF11N000



Shaft ends

R splined 1 in 15T 16/32DP¹⁾
(SAE J744 - 25-4 (B-B))

W splined 7/8 in 13T 16/32DP¹⁾
(SAE J744 - 22-4 (B))



Ports

Port	Description	Thread	Size	Tightening torque, max. ²⁾
A/B	Pressure port (high press. series, code 62) Fixing thread	SAE J518C DIN 13	3/4 in M10; 17 deep	60 Nm
L/L ₁	Case drain port (L ₁ plugged)	ISO 11926	7/8-14 UNF-2B	240 Nm
G, G ₁	Port for ext. control press. (G ₁ plugged)	ISO 11926	7/16-20 UNF-2B	40 Nm

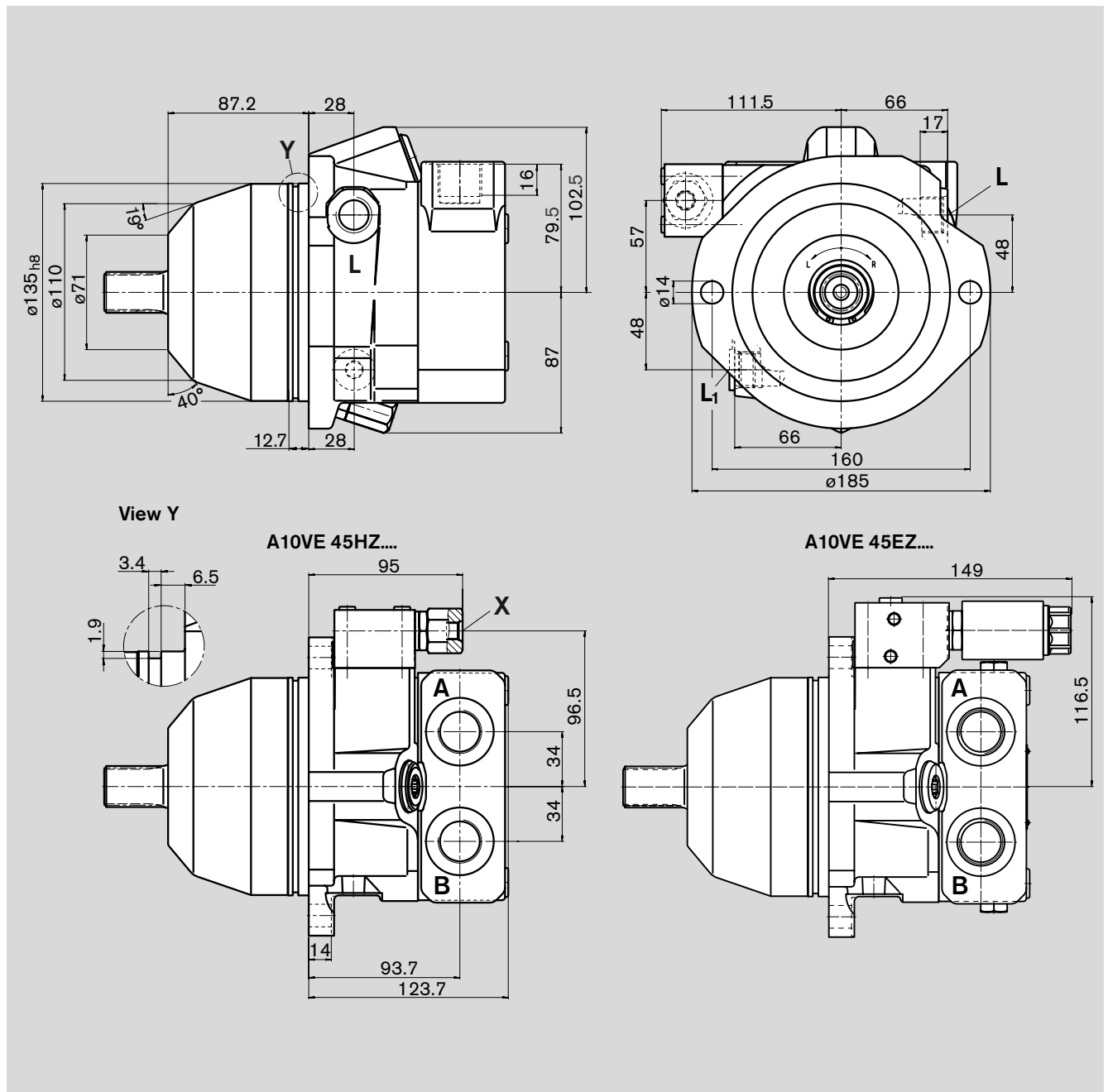
¹⁾ ANSI B92.1a-1996, 30° pressure angle, flat base, flank centering, fit class 5

²⁾ see safety information

Unit dimensions A10VE, Size 45

Before finalising your design please request a certified installation drawing.

A10VE 45HZX/52WX-VXF16N000
A10VE 45EZX/52WX-VXFXN000



Ports

Port	Standard	Thread	Tightening torque, max. ²⁾
A/B Pressure port	DIN 3852-1	M27x2; 16 deep	330 Nm
L/L ₁ Case drain port (L ₁ plugged)	ISO 11926	7/8-14 UNF-2B	240 Nm
X Pilot pressure port	ISO 11926	7/16-20 UNF-2B	40 Nm

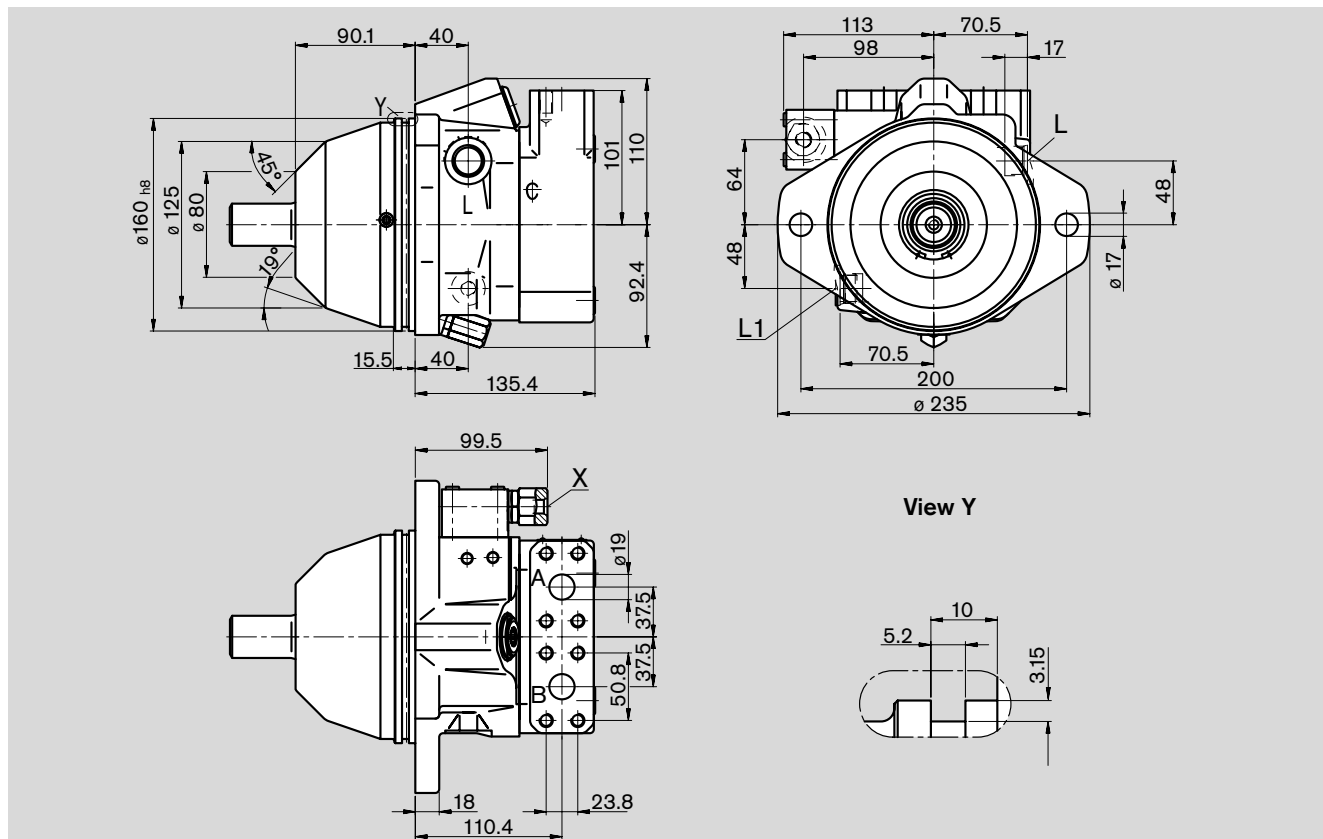
¹⁾ ANSI B92.1a-1996, 30° pressure angle, flat base, flank centering, fit class 5

²⁾ see safety information

Unit dimensions A10VE, Size 63

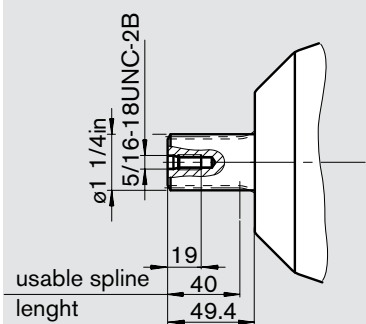
Before finalising your design please request a certified installation drawing.

A10VE 63HZ/52WX-VXF10N000

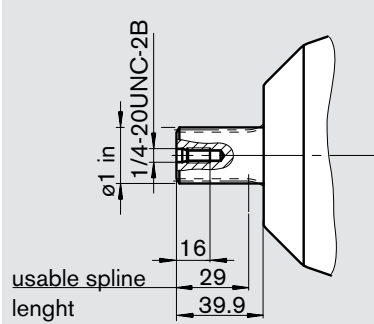


Shaft ends

R splined 1 1/4in 14T 12/24DP¹⁾
(SAE J744 - 32-4 (C))



W splined 1in 15T 16/32DP¹⁾
(SAE J744 - 25-4 (B-B))



Ports

			Tightening torque, max. ²⁾
A/B	Pressure port (high press. series, code 62) Fixing thread	SAE J518 DIN 13	3/4 in M10; 17 deep 60 Nm
L/L ₁	Case drain port (L ₁ plugged)	ISO 11926	7/8-14 UNF-2B 240 Nm
X	Pilot pressure port	ISO 11926	7/16-20 UNF-2B 40 Nm

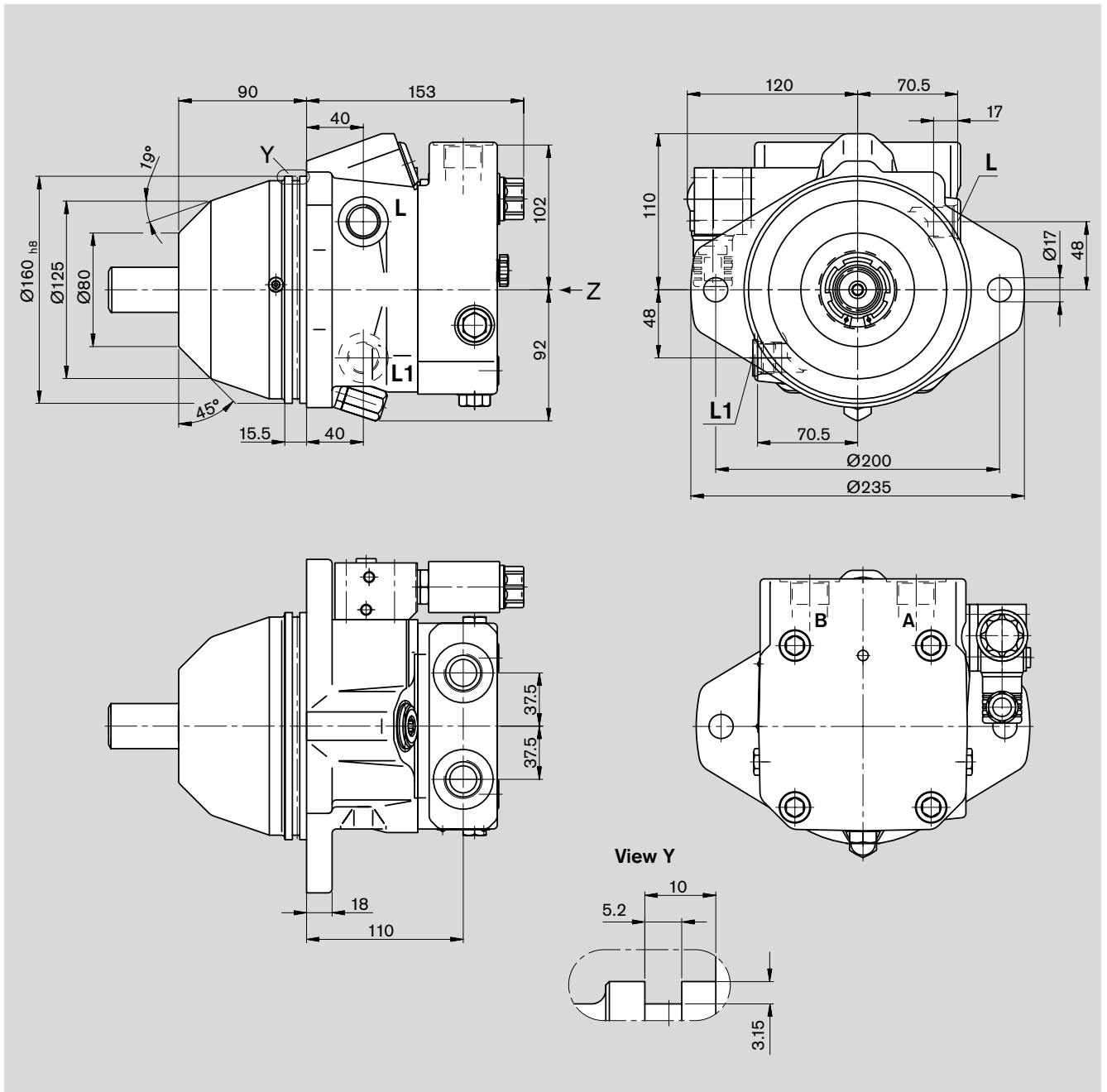
¹⁾ ANSI B92.1a-1996, 30° pressure angle, flat base, flank centering, fit class 5

²⁾ see safety information

Unit dimensions A10VE, Size 63

Before finalising your design please request a certified installation drawing.

A10VE 63EZX/52WX-VXF16N000



Ports

Port	Standard	Thread	Tightening torque max. ²⁾
A/B Pressure port	DIN 3852-1	M27x2; 16 deep	330 Nm
L/L ₁ Case drain port (L ₁ plugged)	ISO 11926	7/8-14 UNF-2B	240 Nm

¹⁾ ANSI B92.1a-1996, 30° pressure angle, flat base, flank centering, fit class 5

²⁾ see safety information

Integrated flushing and boost press. relief valve, N007

The flushing and boost pressure relief valve is used in closed circuits to flush an unacceptable heat load out of the circuit and to maintain a minimum boost pressure level (fixed setting). The valve is integrated into the port plate.

A built-in fixed orifice determines the flushing flow, which is taken out of the low pressure side of the loop and directed into the motor housing. It leaves the housing together with the case drain flow. This combined flow must be replenished with fresh, cool fluid by means of the boost pump.

Standard flushing flow

With a pressure of $p_{ND} = 20$ bar in the low pressure side of the circuit and an orifice dia. of $\varnothing 1,6$ mm the flushing flow amounts to 5,5 L/min (Size 28 - 85).

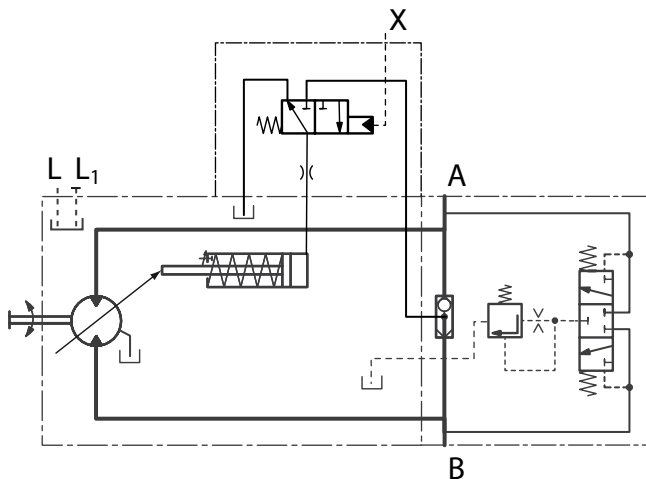
Other orifice diameters can be ordered in clear text.

Further flushing flows for sizes 28 - 85 see table:

Flushing flow (L/min)	Orifice dia. in mm
3,5	1,2
5,5	1,6
7,2	1,8

Schematic

eg.. A10VO..HZ/...N007



Speed pickup

Before finalising your design please request a certified installation drawing

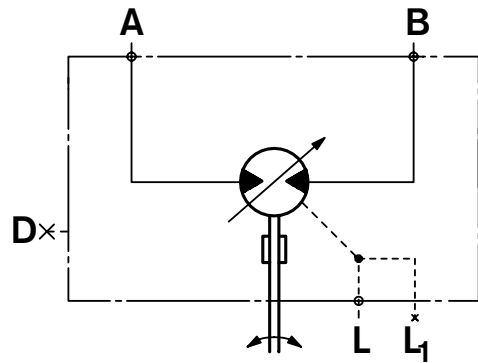
The version A10VM/E...D („prepared for speed pickup“) comprises gearing around the rotary unit.

In this case, the rotating cylinder barrel can provide a speed dependent signal, which can be picked up by a suitable sensor and processed for further evaluation. The sensor port will be plugged for delivery.

This preparation for speed pickup does not include the necessary working parts. They must be ordered separately as a kit with a corresponding part number.

Inductive speed sensor ID R 18/20-L250 (see RE 95130) and mounting parts (spacer and 2 seals per kit) can be ordered separately under the following part numbers:

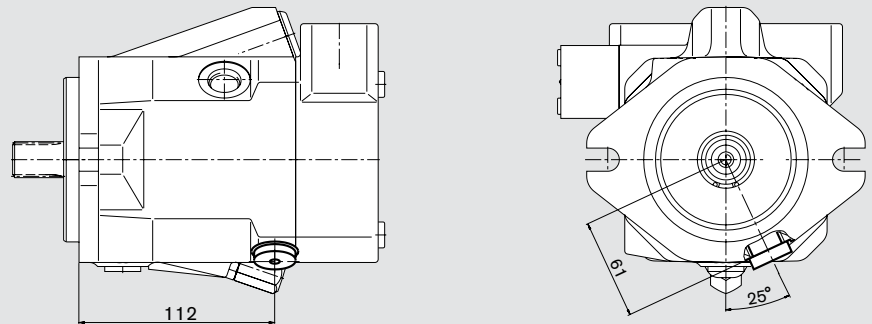
Schematic



Size	Part Nr.	Number of teeth
28	R902428802	48
45	R902437557	48
63	R902428802	56
85	In preparation.	

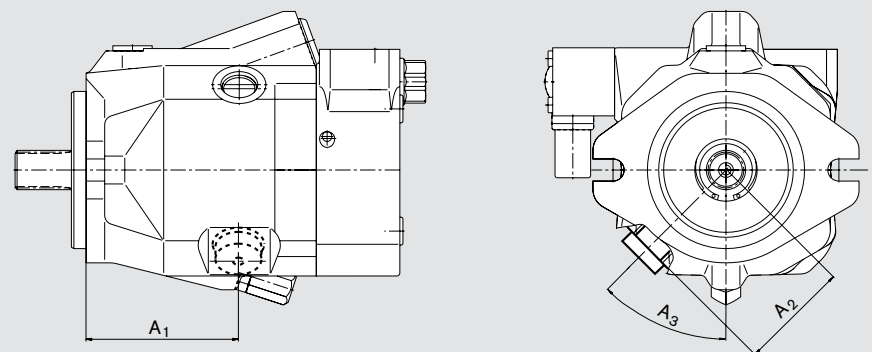
Dimensions port D

A10VM 28

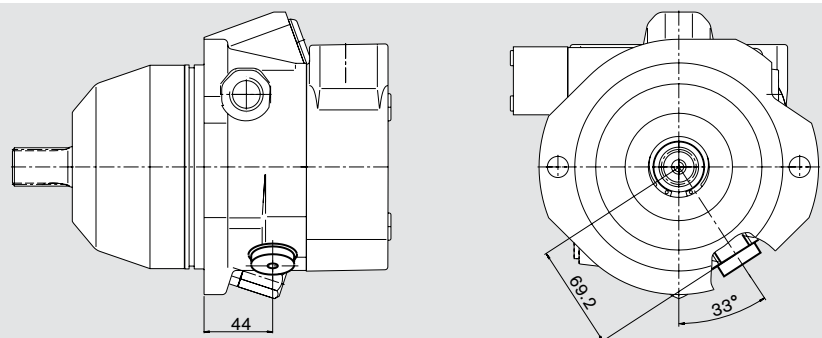


A10VM 45, 63 and 85

Size	A1	A2	A3
45	96	69,2	45°
63	140,5	71	57,5°
85	130	91,3	45°



A10VE 45



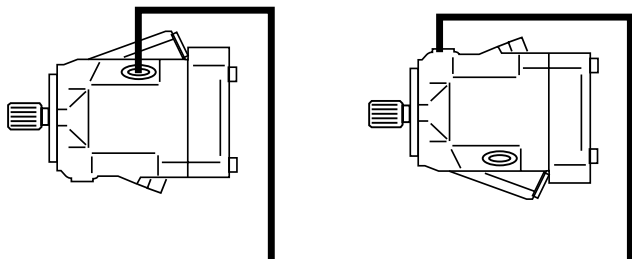
Mounting position

The motor housing must be filled during start up and operation. The drain line must be arranged, so that the housing cannot empty itself when the motor is at standstill. The end of the drain line must enter the tank below the minimum fluid level.

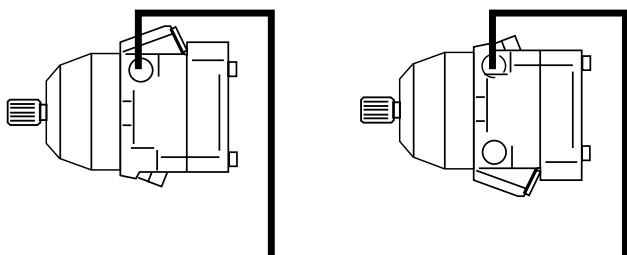
In all installation positions the highest case drain port must be used to fill the housing and to connect the drain line.

In case of a vertical installation please consult us.

A10VM



A10VE



Safety information

- The variable motor A10VM/VE was designed for operation in open and closed circuits.
- System design, installation and commissioning require trained technicians and tradesmen.
- All hydraulic ports can only be used for the fastening of hydraulic service lines.
- Tightening torques: The tightening torques, given in this data sheet represent maximum values and may not be exceeded (max. values for the female threads in the motor castings). Please comply with the manufacturer's information regarding the maximum permissible tightening torques for the used fittings!
For fastening screws to DIN 13 we recommend to check the permissible tightening torques in each case acc. to VDI 2230 issue 2003.
- During and shortly after operation of a motor the housing and especially a solenoid can be extremely hot, avoid being burned. Take suitable safety measures (eg. wear protective clothing).
- All given data, information or instructions must be adhered to!

Bosch Rexroth AG
Hydraulics
Axialkolbenmaschinen
An den Kelterwiesen 14
72160 Horb a.N., Germany
Telefon +49 (0) 74 51 - 92 0
Telefax +49 (0) 74 51 - 82 21
info.brm-ak@boschrexroth.de
www.boschrexroth.com/axialkolbenpumpen

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Subject to change.