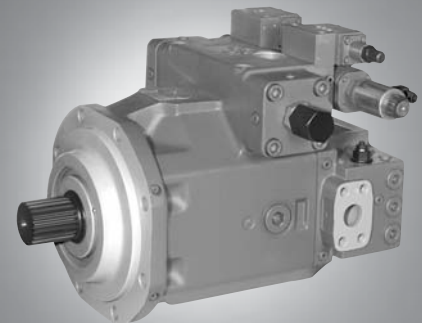


Electro-hydraulic control with proportional solenoid EP

RE 92 084/07.04 1/16

for closed circuit operation

for variable pump
A4CSG series 3
A4VSG series 1 and 3



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Features

- 2 – Electro-proportional control current dependent
- 3 – High control accuracy
- 4 – With fail-safe to zero flow (spring centered) on power loss
- 5 – Emergency manual override
- 6 – Use of standard proportional amplifiers possible

Further information:

11	Variable pump A4CSG	Size 250...750	RE 92105
12	Variable pump A4VSG	Size 40...1000	RE 92100

EP - Electro-hydraulic control with proportional solenoid

The EP control adjusts the pump displacement proportional to the solenoid current.

The mechanical feedback system ensures a reliable and secure center (zero flow) position on power loss. This push-back to zero flow position is assisted by the standard spring centering.

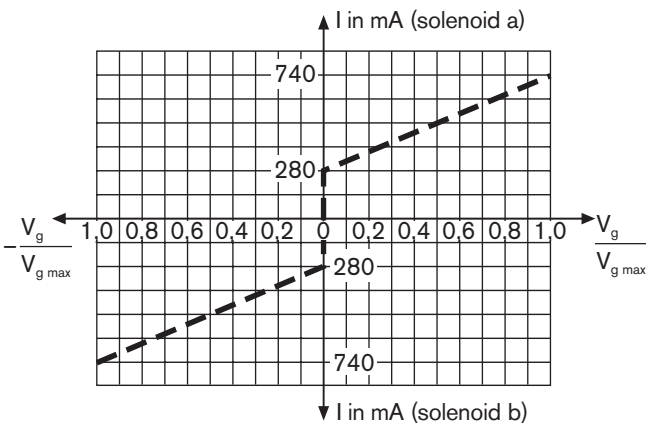
There are two solenoids: one for each swivel direction.

Standard is an emergency manual override on each solenoid. On actuation, these enable an adjustment of displacement from zero to V_{gmax} (proportional to applied force).

To control the solenoids, we recommend the use of current controlled amplifiers with PWM-signal (pulse width modulation), eg. VT 10159 (corresponds to VT 3000 but with 100 Hz see RE 29935). Please order separately.

Flows in both swivel directions can be limited by mechanical stops between V_{gmax} and 50% V_{gmax} , for the size 500 between V_{gmax} and 70% V_{gmax} .

Characteristic

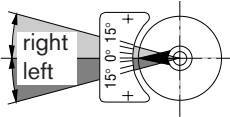


Relation between

Direction of rotation-solenoid-direction of flow

Direction of rotation	Solenoid	Swivel range ¹⁾	Direction of flow	Pressure side
clockwise	b	right	B to A	A
	a	left	A to B	B
c. clockwise	b	right	A to B	B
	a	left	B to A	A

¹⁾ compare swivel angle indicator.



Pressure control

The pressure control is an additional function, which regulates pump displacement as soon as a pre-set command value of pressure is reached. This max pressure is set at a pilot pressure control valve, and if this pressure is exceeded the pressure control valve opens and de-strokes the pump until this pre-set pressure is reached again.

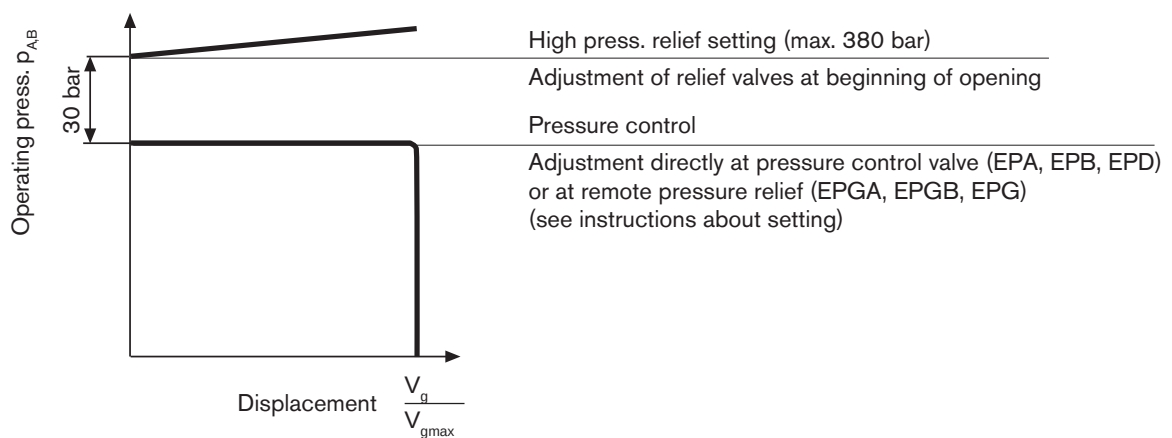
The pressure control is available as an option:

- EPA in port A only (circuit drawings see page 6)
- EPB in port B only (circuit drawings see page 8)
- EPD in both ports A and B (circuit drawings see page 10)

Adjustment range 50...350 bar

Standard setting of pressure control is 350 bar, other settings please state in clear text when ordering. The pressure control settings must be around 30 bar lower than the settings of the high pressure relief valves (A4CSG), in order to avoid that the high pressure relief valves open before the pressure control is activated (heat development and loss of energy).

Characteristic



Remote pressure control

Remote setting of pressure control is accomplished via ports X_A resp. X_B .

The external pressure relief valves do not belong to the scope of supply.

Recommended: direct operated relief valve DBD 6 (RE 25 402)

Max. line length between pump and external relief valve not to exceed 2 m.

Standard setting of differential pressure at pressure control valve 30 bar. Pilot oil consumption in this case approx. 2L/min.

If a different setting is required please state in clear text (range 14 - 50 bar).

Information for adjustment of remote pressure control:

Setting of external pressure relief valve plus differential pressure at pressure control valve = pressure control setting.

Example:

external pressure relief valve:	320 bar
differential pressure at pressure control valve:	30 bar
results in pressure control setting of	$320 + 30 = 350$ bar

Optional remote pressure control :

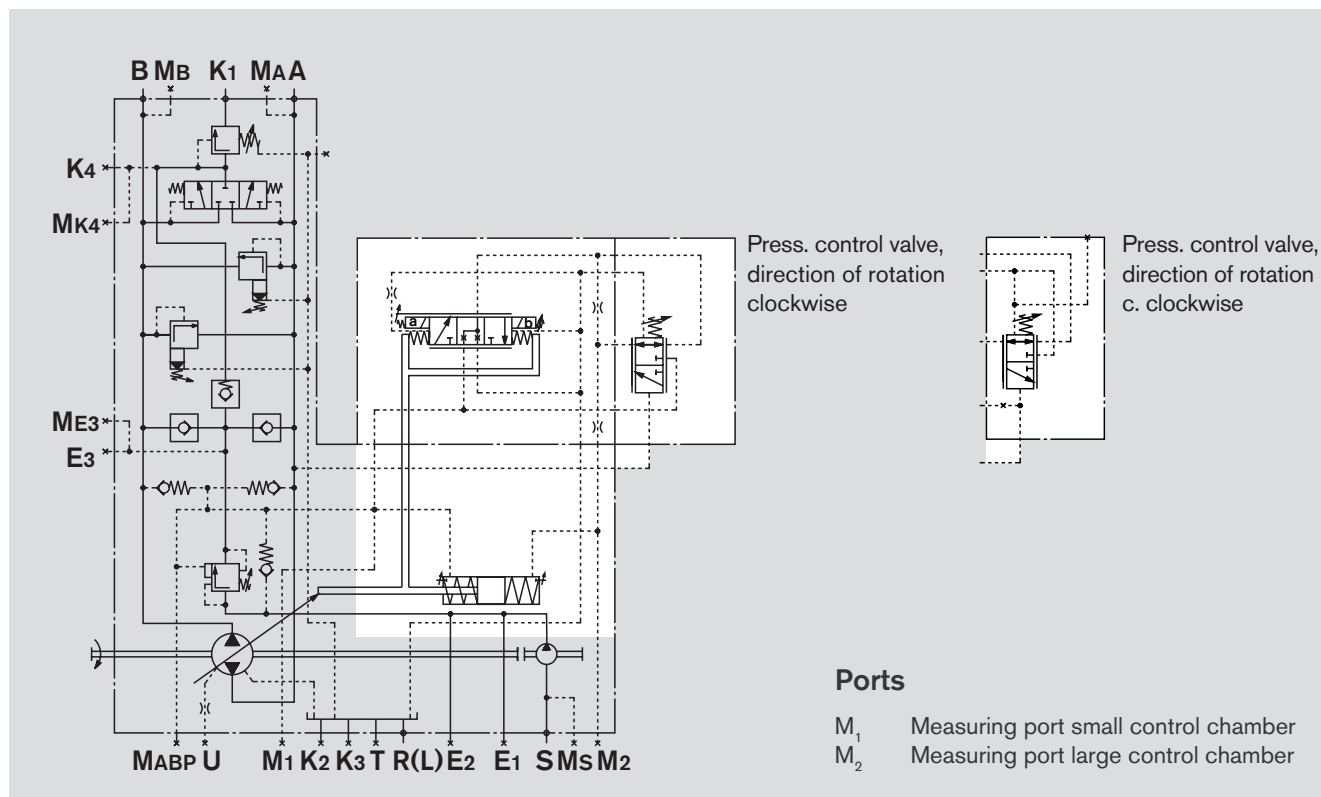
- EPGA in port A only (circuit drawing see page 7)
- EPGB in port B only (circuit drawing see page 9)
- EPG in both ports A and B (circuit drawing see page 11)

EPA with pressure control for port A only

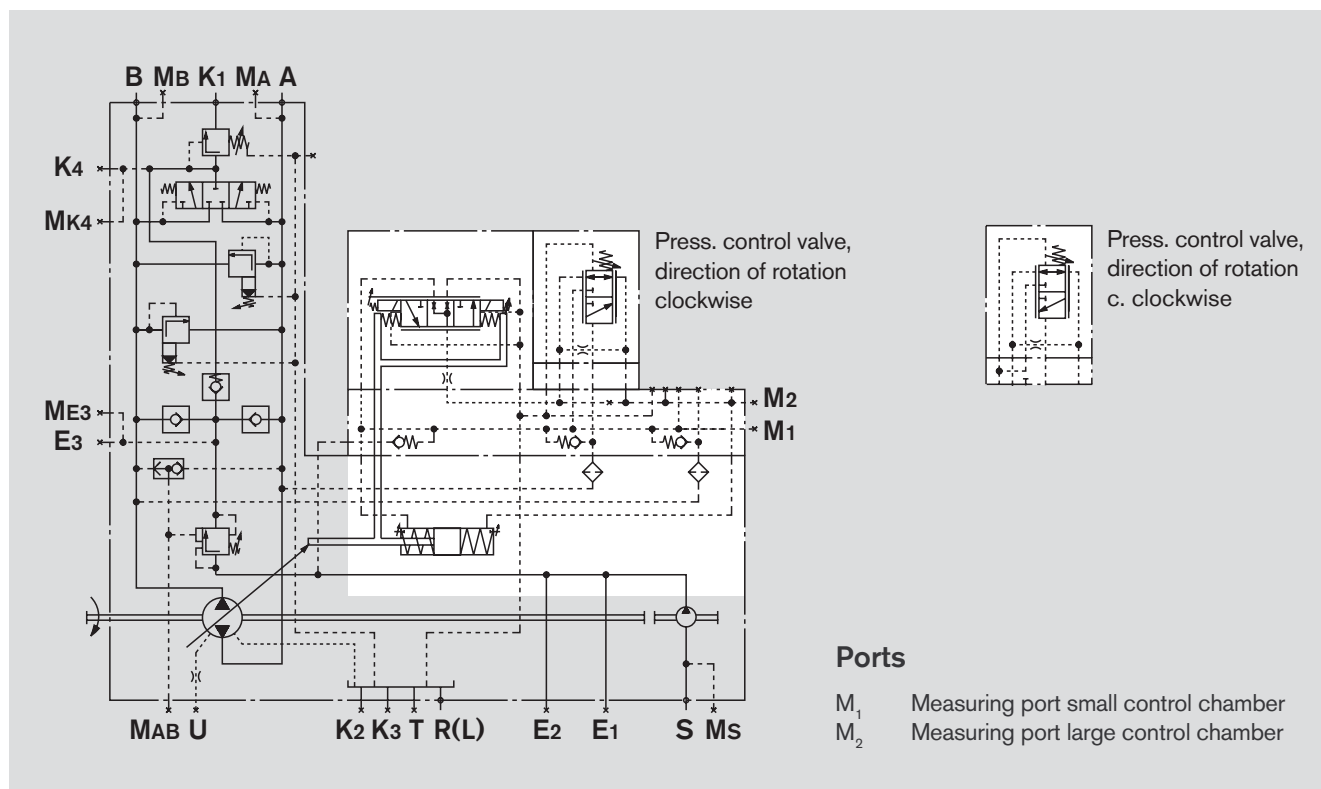
The pressure control valve regulates the pressure in port A.

Description see page 5.

Circuit drawing sizes 250 and 355



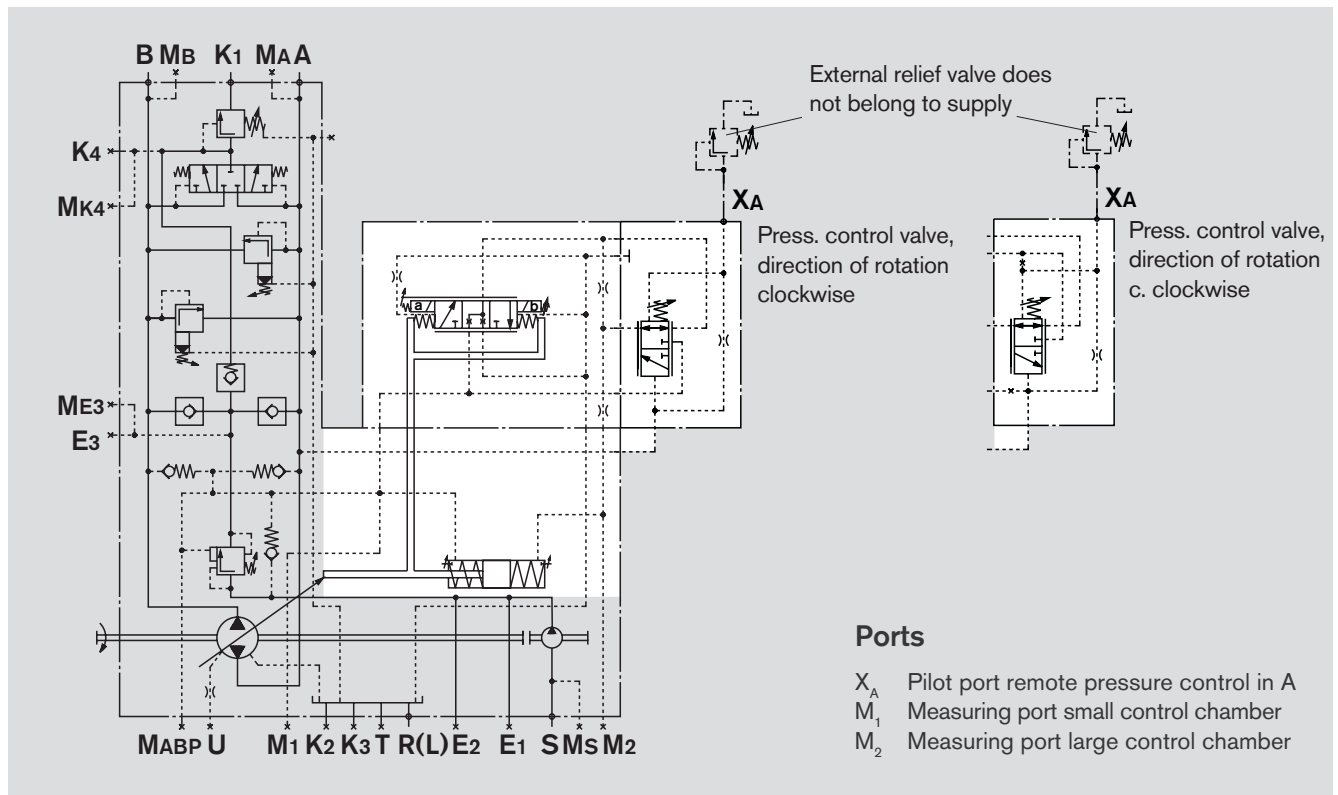
Circuit drawing sizes 500 and 750



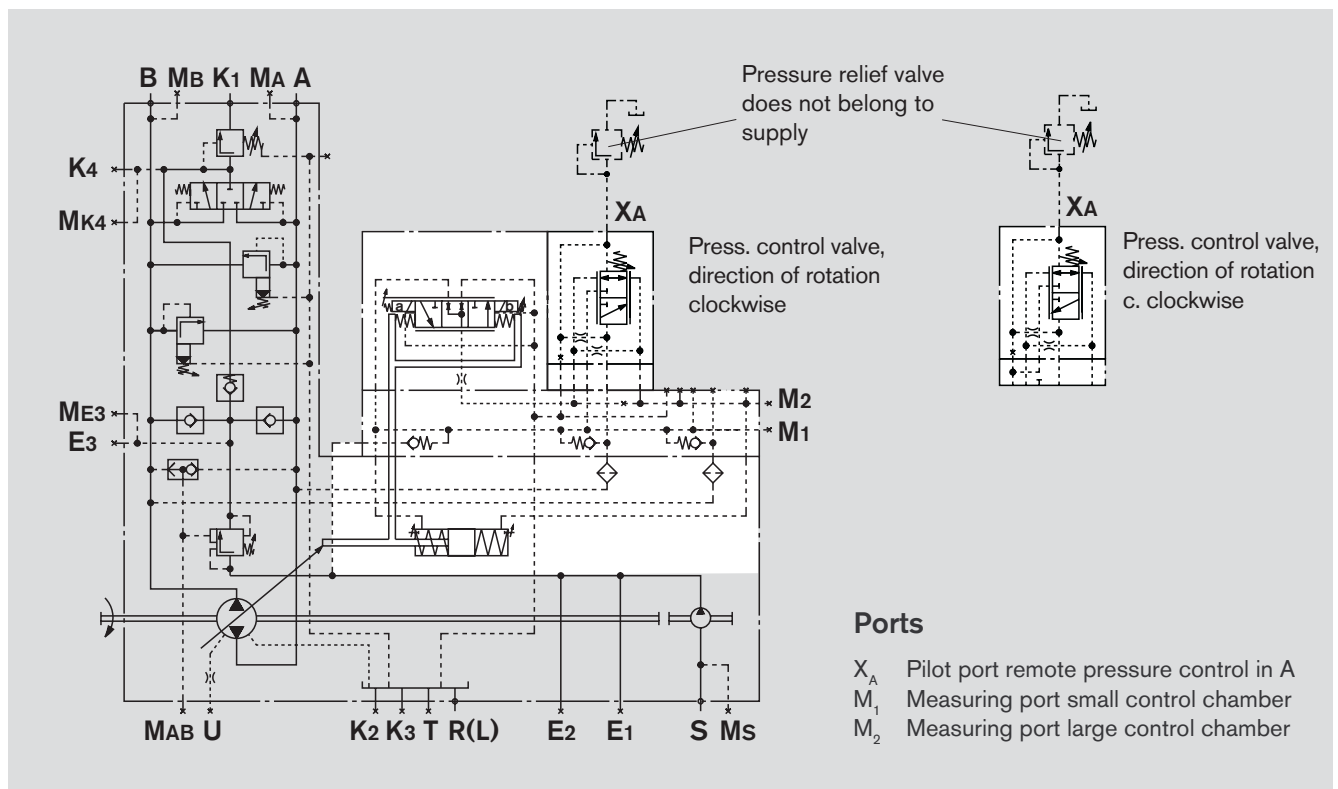
EPGA with remote pressure control in port A only

Remote setting of pressure control is accomplished via port X_A . The external relief valve is not included in the supply. Description see page 5.

Circuit drawing sizes 250 and 355



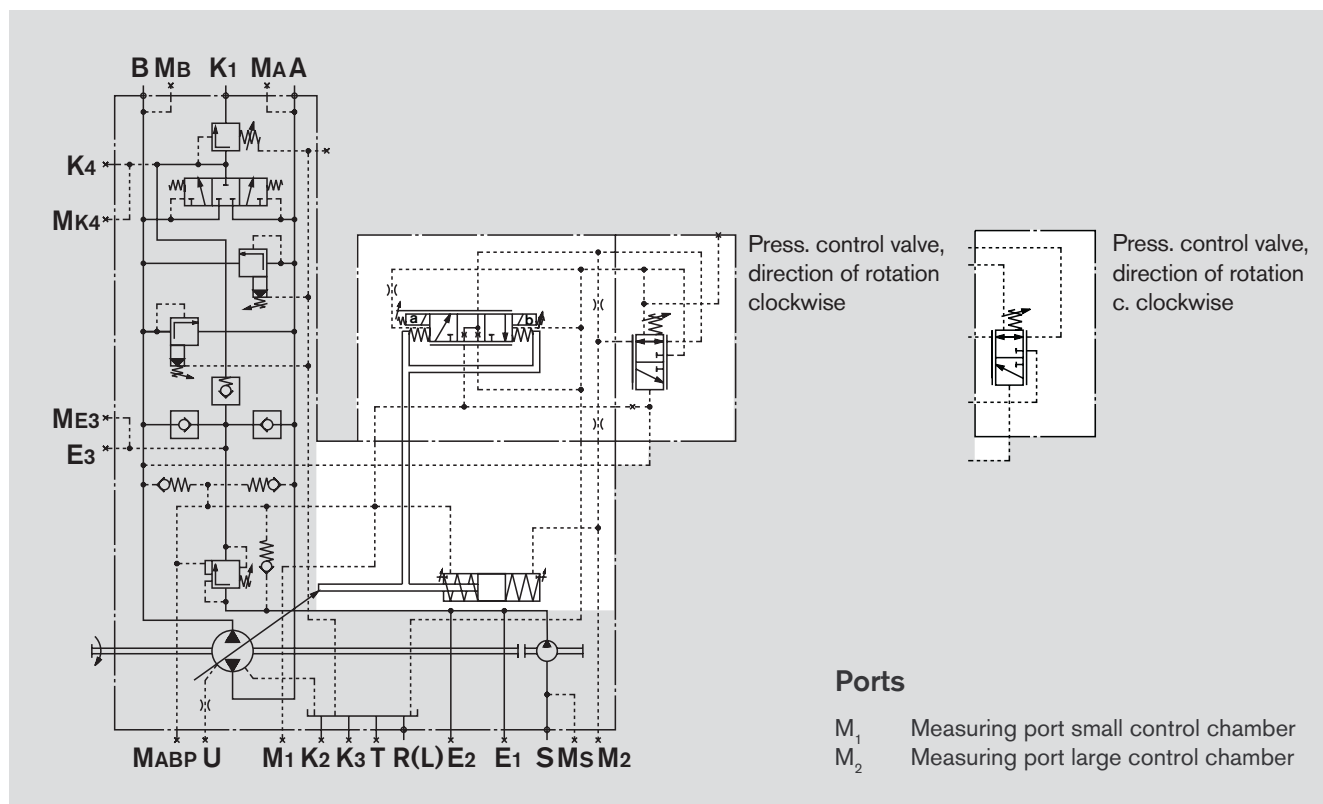
Circuit drawing sizes 500 and 750



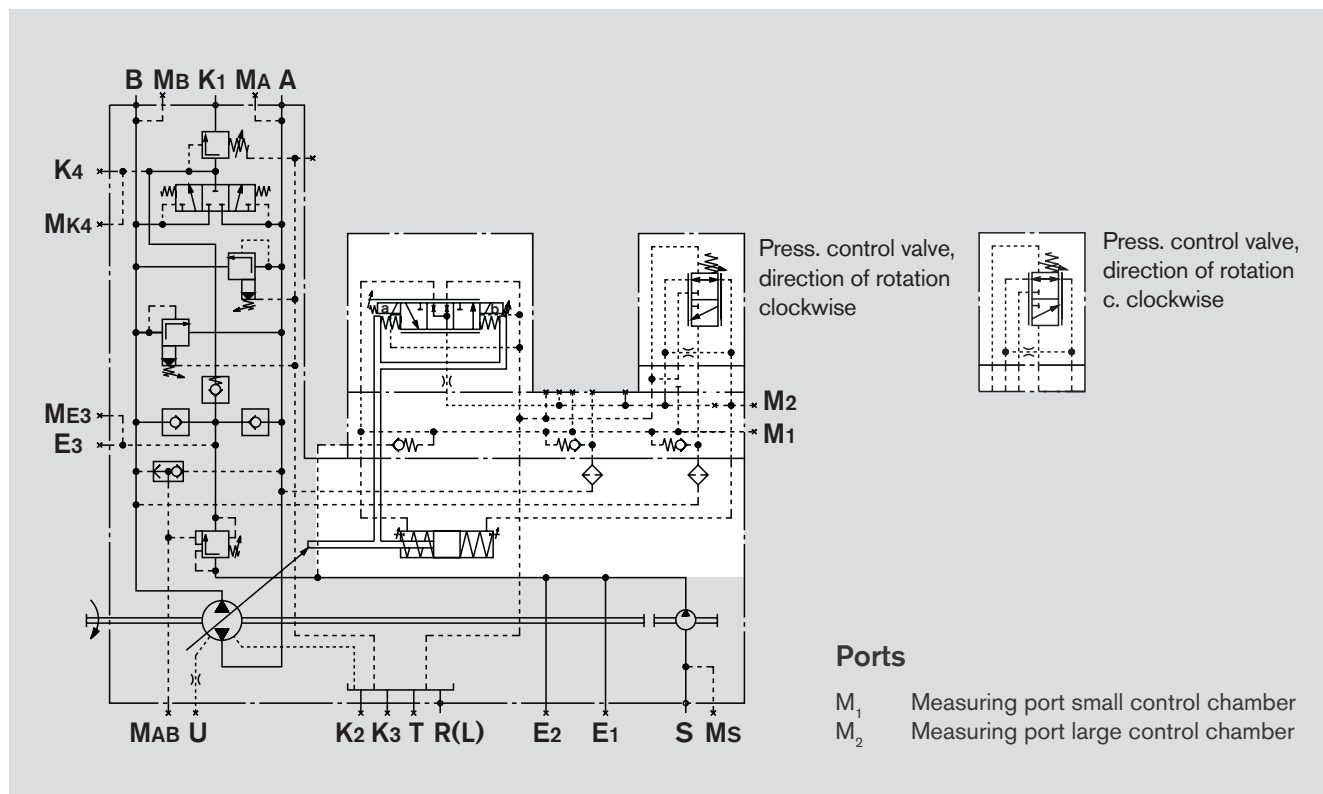
EPB with pressure control in port B only

The pressure control valve regulates the pressure in port B.
Description see page 5.

Circuit drawing sizes 250 and 355



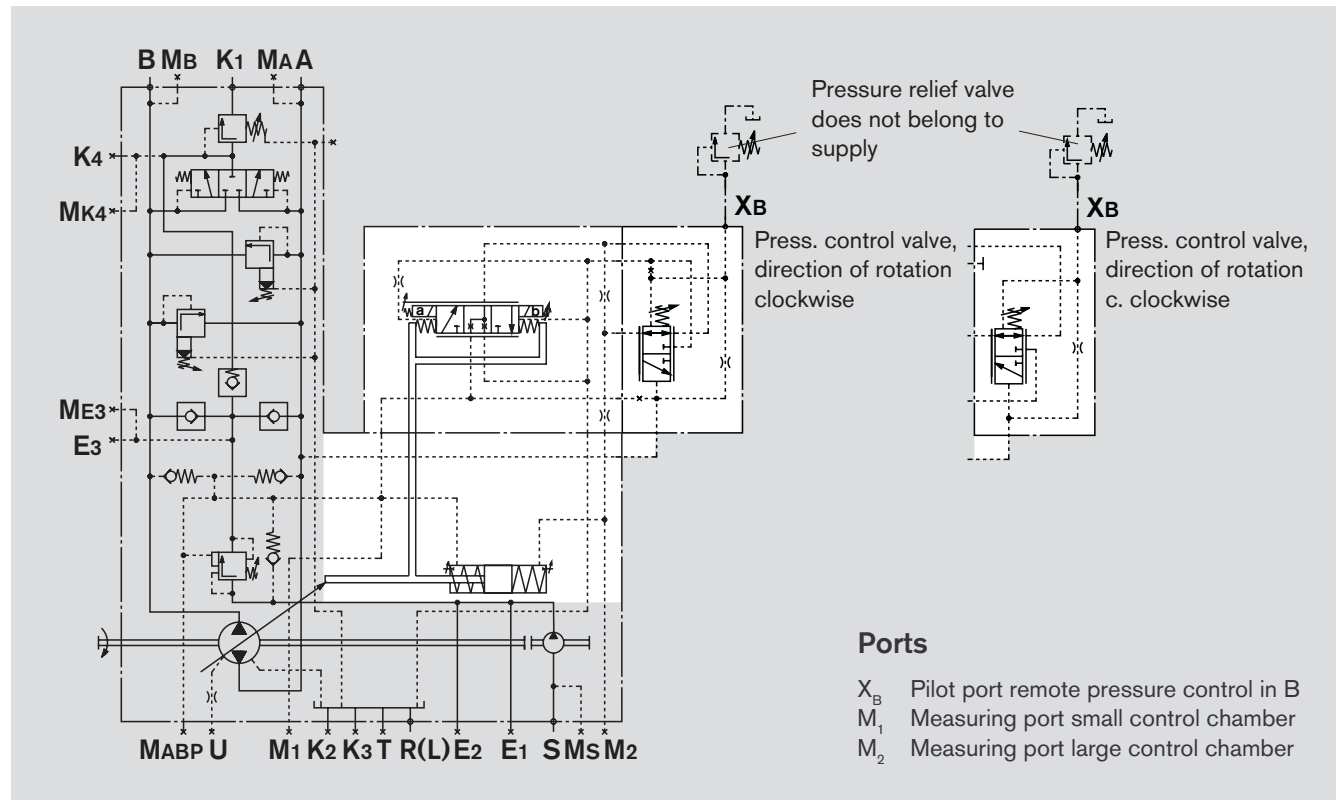
Circuit drawing sizes 500 and 750



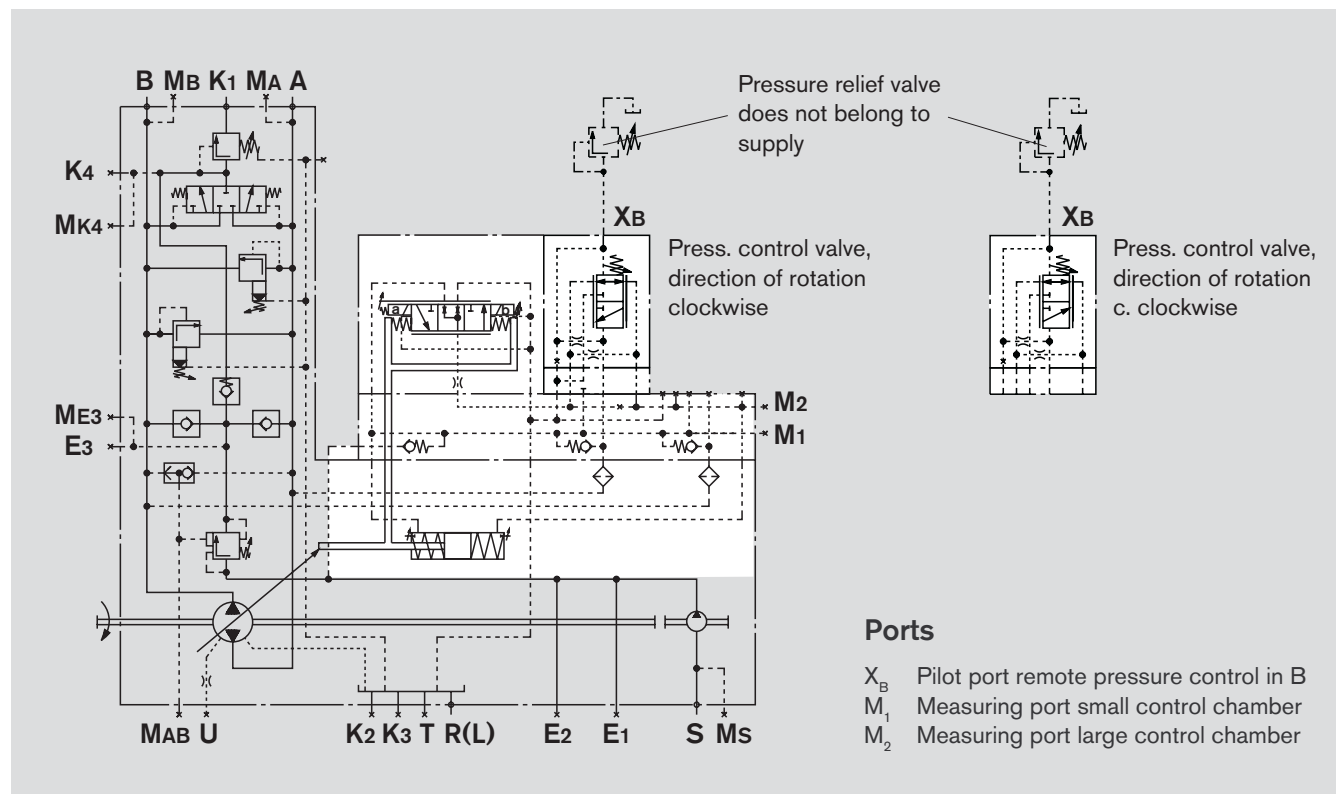
EPGB with remote pressure control in port B only

Remote setting of pressure control is accomplished via port X_B. The external relief valve does not belong to the supply. Description see page 5.

Circuit drawing sizes 250 and 355



Circuit drawing sizes 500 and 750

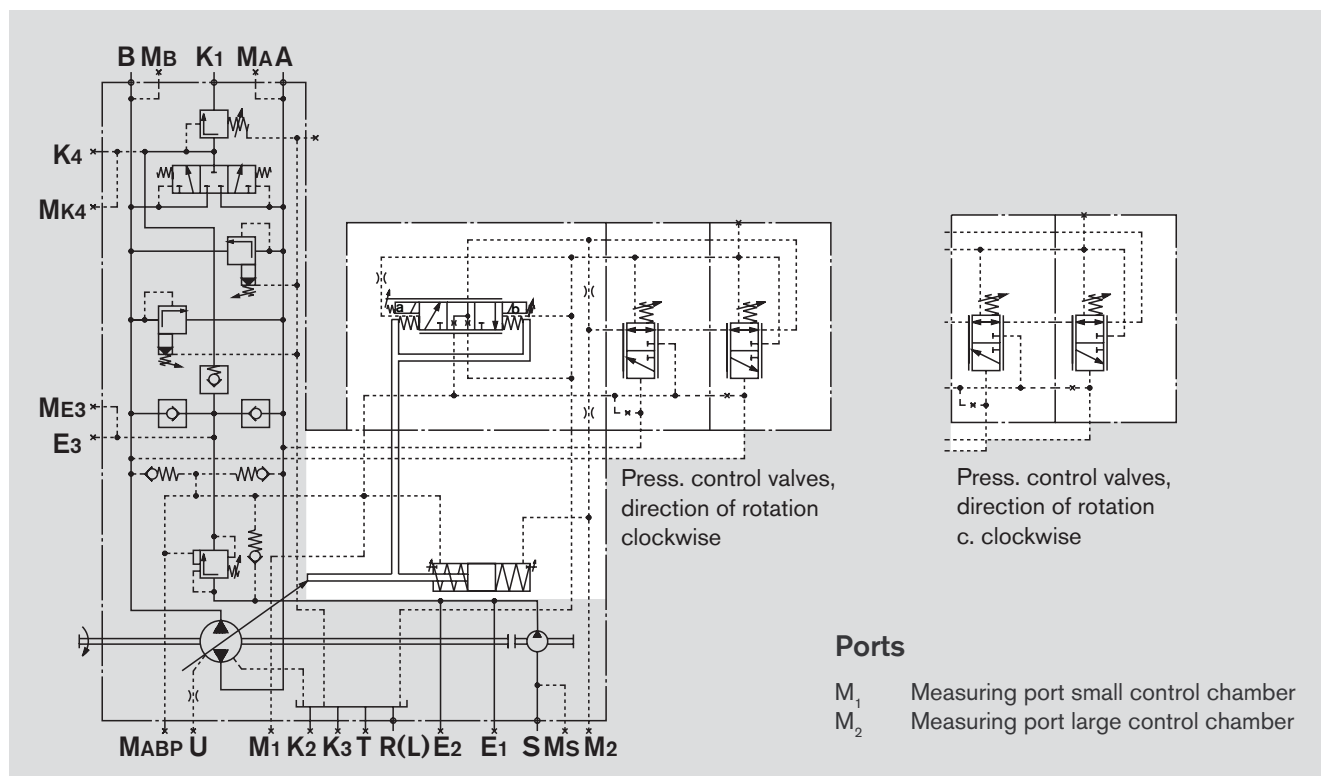


EPD with pressure control in both ports A and B

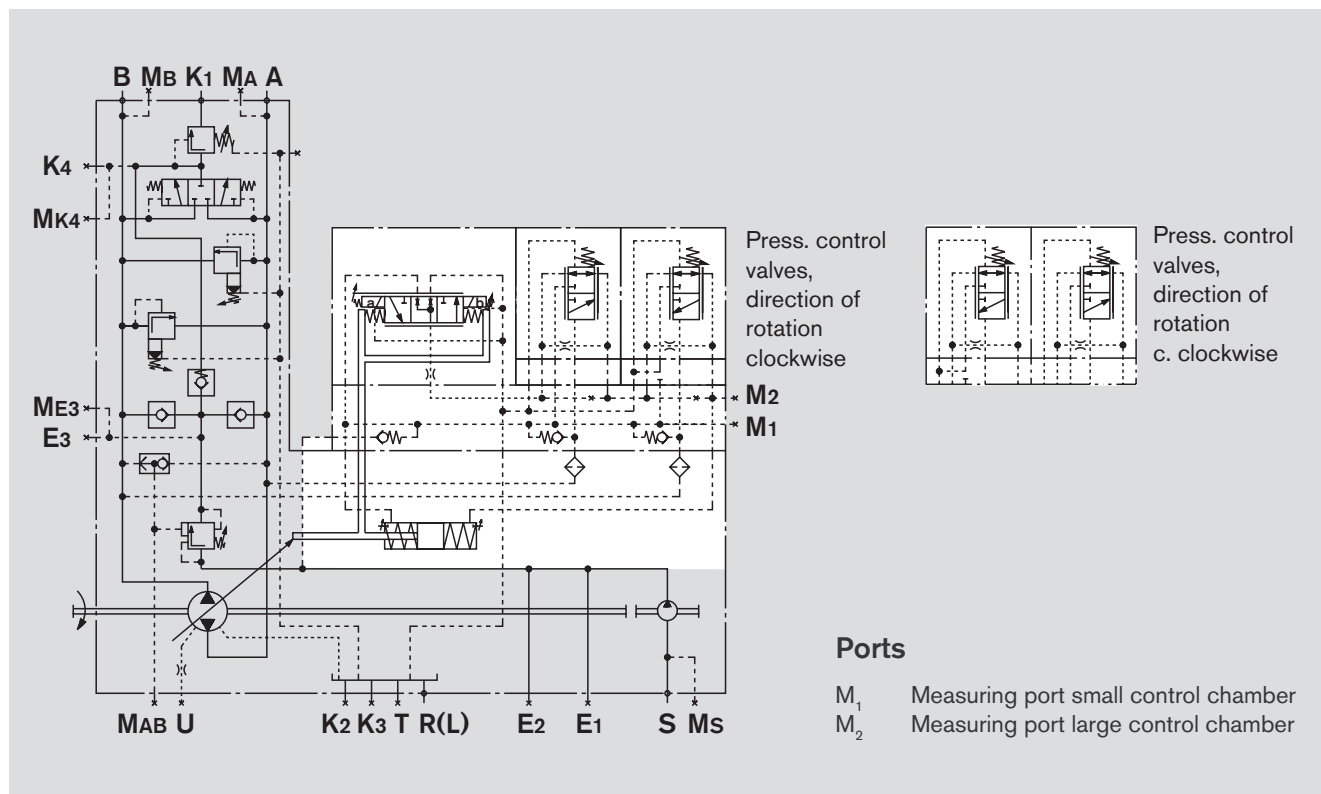
Two pressure relief valves control the pressure independently in ports A resp. B.

Description see page 5.

Circuit drawing EPD sizes 250 and 355



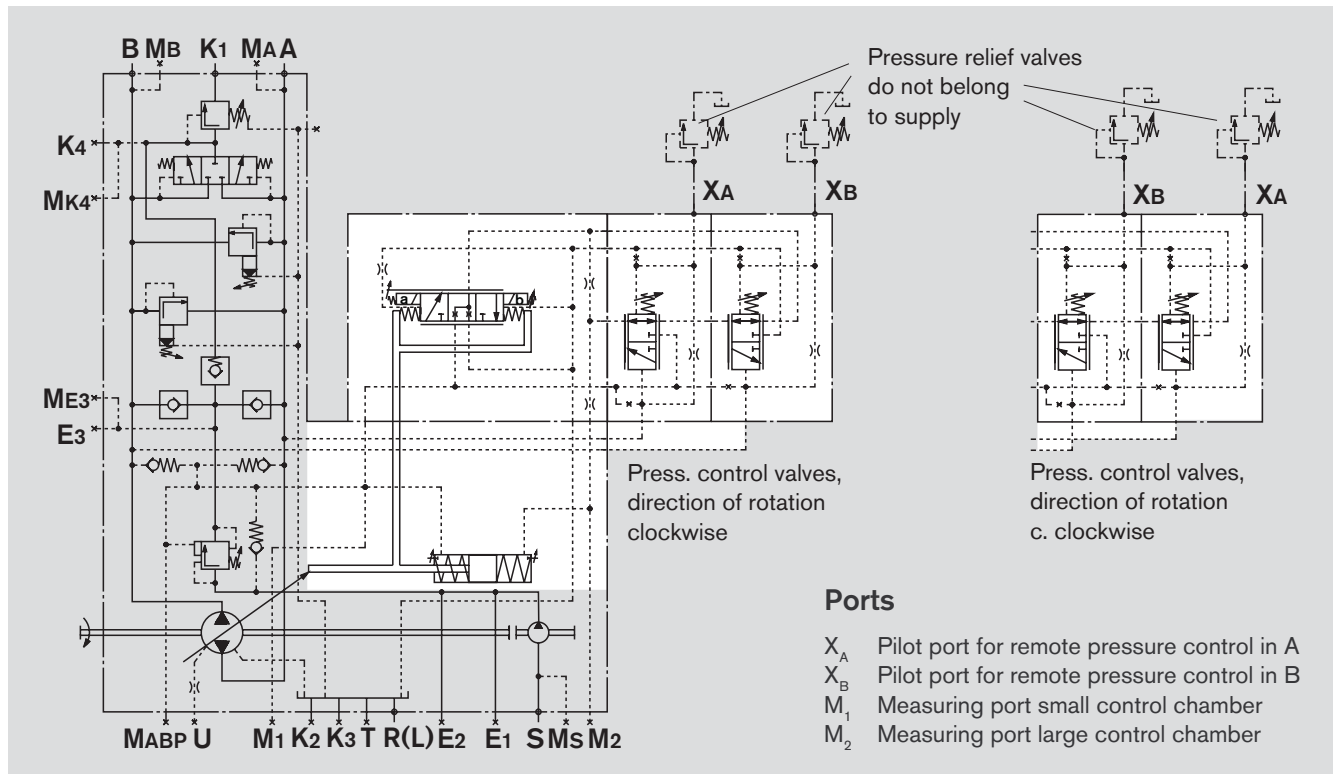
Circuit drawing EPD sizes 500 and 750



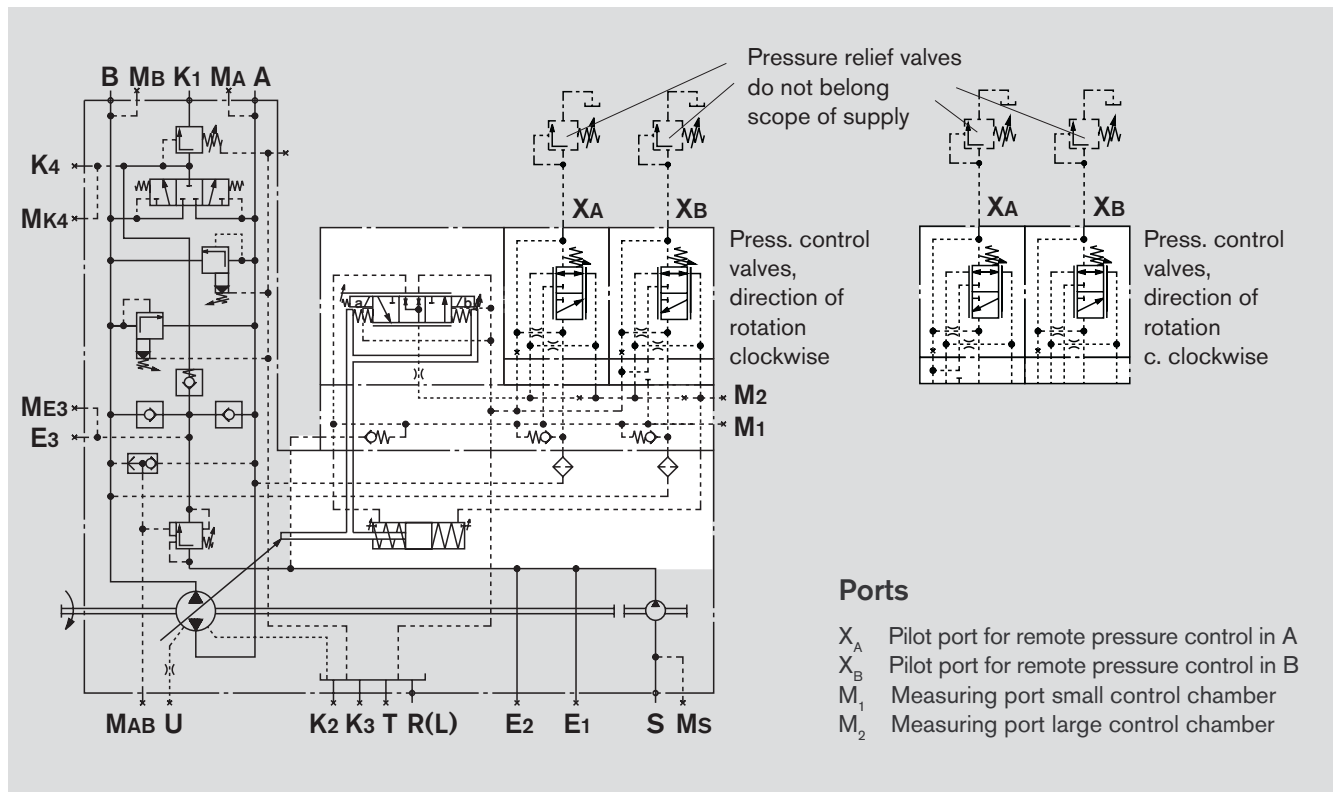
EPG with remote pressure control in both ports A and B

The remote setting of pressure is accomplished via ports X_A and X_B . The external relief valves do not belong to the scope of supply. Description see page 5.

Circuit drawing EPG sizes 250 and 355



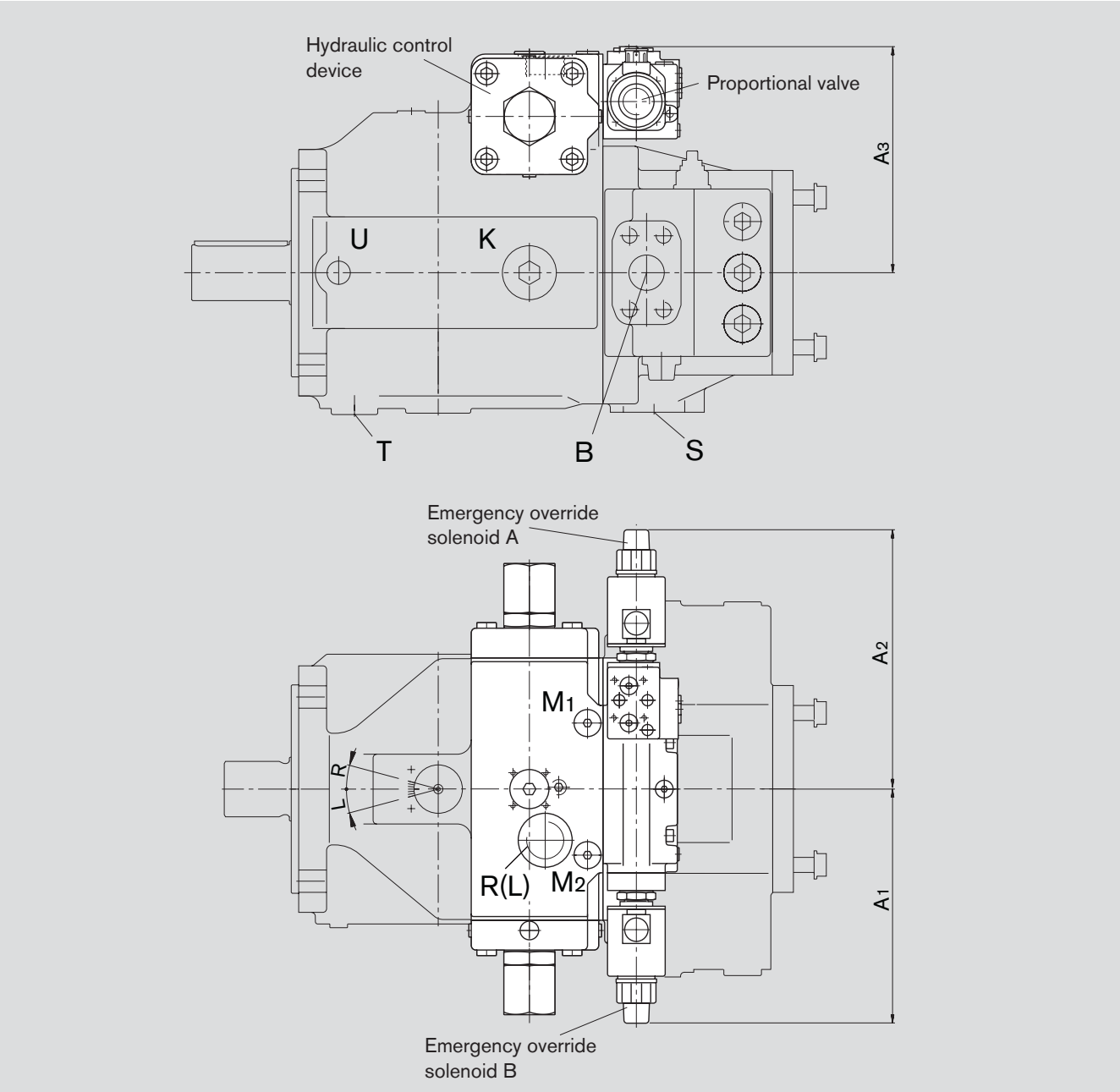
Circuit drawing EPG sizes 500 und 750



Unit dimensions EP

Before finalising your design please request a certified installation drawing.

Sizes 250 and 355



Unit dimensions

Size	A ₁	A ₂	A ₃
250	252	279	243
355	252	279	243

For detailed dimensions and technical data see the main data sheets A4CSG RE 92105 or A4VSG RE 92100.

Ports

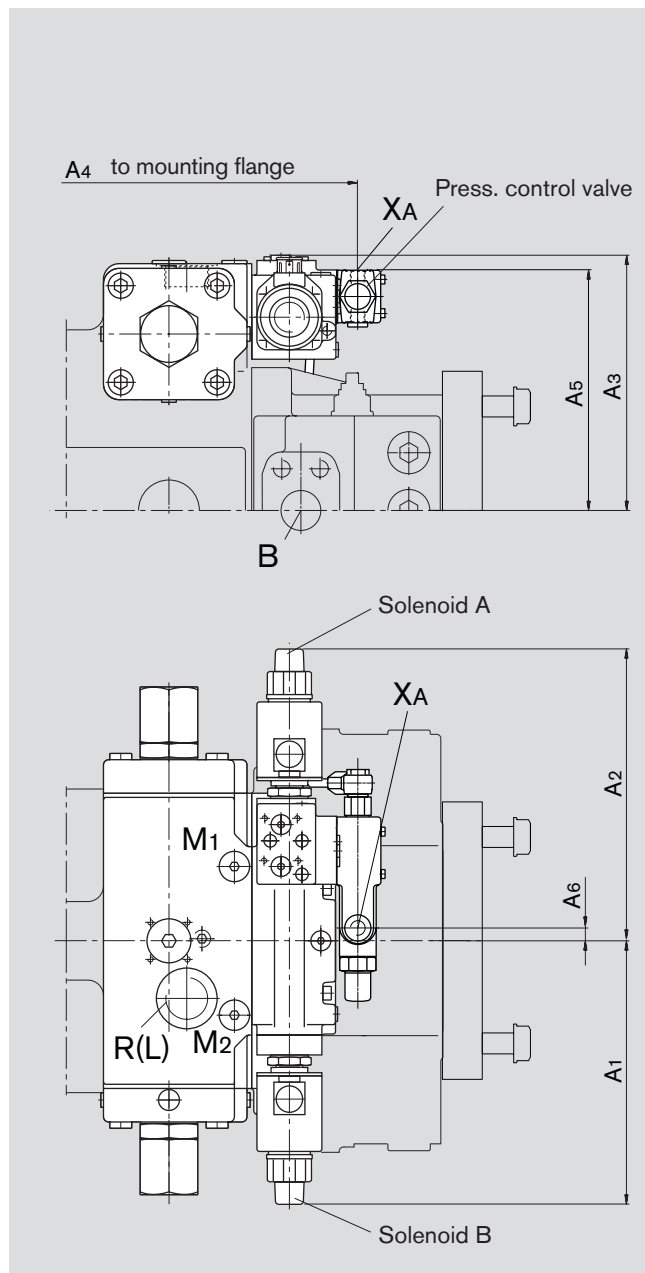
				max. tightening torque ¹⁾
M ₁	Measuring port small control chamber	DIN 3852	M18x1,5; 12 deep (plugged)	140 Nm
M ₂	Measuring port large control chamber	DIN 3852	M18x1,5; 12 deep (plugged)	140 Nm

¹⁾ see safety information

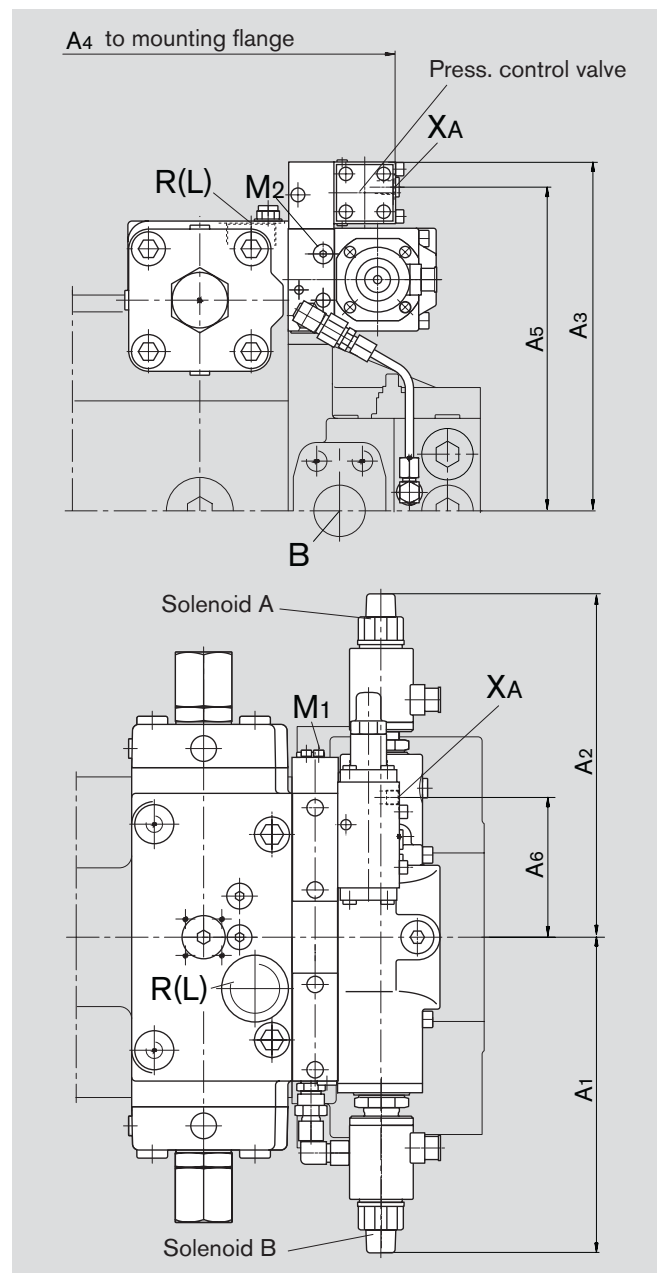
Unit dimensions EPA / EPGA

Before finalising your design please request a certified installation drawing.

Sizes 250 and 355



Sizes 500 and 750



Unit dimensions

Size	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆
250	252	279	243	428	228	13
355	252	279	243	428	228	13
500	306	332	342	469	315	136
750	315	332	372	501	345	136

For detailed dimensions and technical data of the variable pump see main data sheet A4CSG RE 92105 or A4VSG RE 92100.

Ports

max. tightening torque ¹⁾

X _A	Pilot port for remote pressure control in A	DIN 3852	M14x1,5; 12 deep (with EPA plugged)	80 Nm
M ₁	Measuring port small control chamber	DIN 3852	M18x1,5; 12 deep ²⁾ (Size 250 a. 355)	140 Nm
			M22x1,5; 14 deep ²⁾ (Size 500 a. 750)	210 Nm
M ₂	Measuring port large control chamber	DIN 3852	M18x1,5; 12 deep ²⁾ (Size 250 a. 355)	140 Nm
			M14x1,5; 12 deep ²⁾ (Size 500 a. 750)	80 Nm

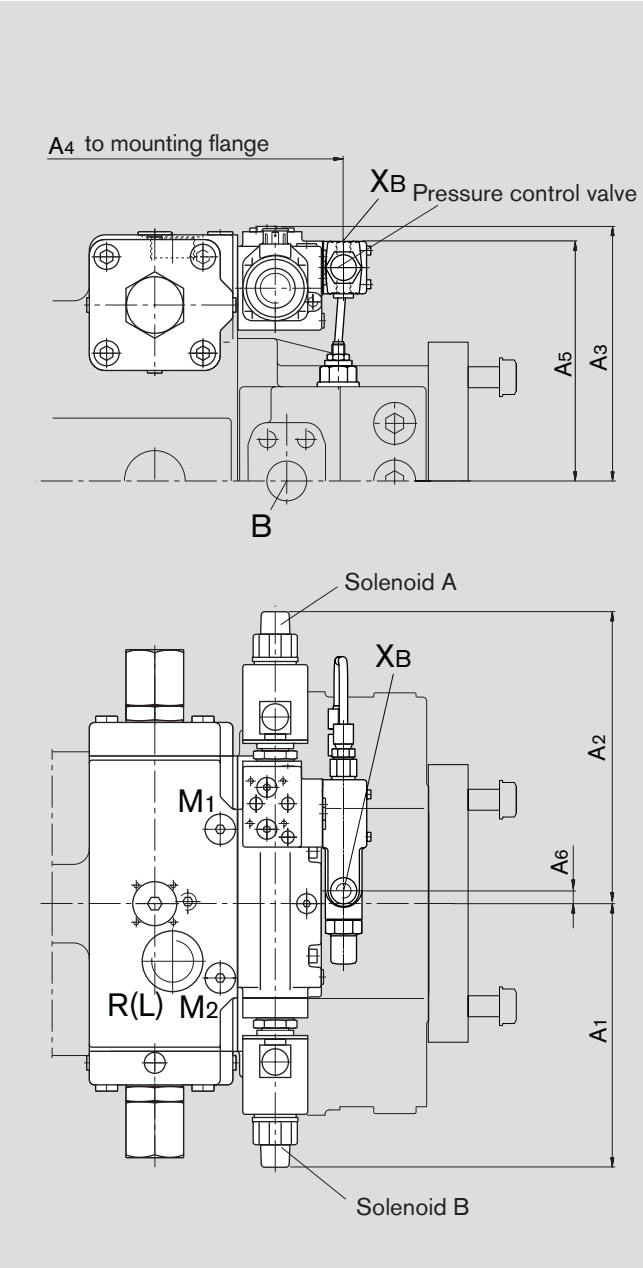
¹⁾ see safety information

²⁾ plugged

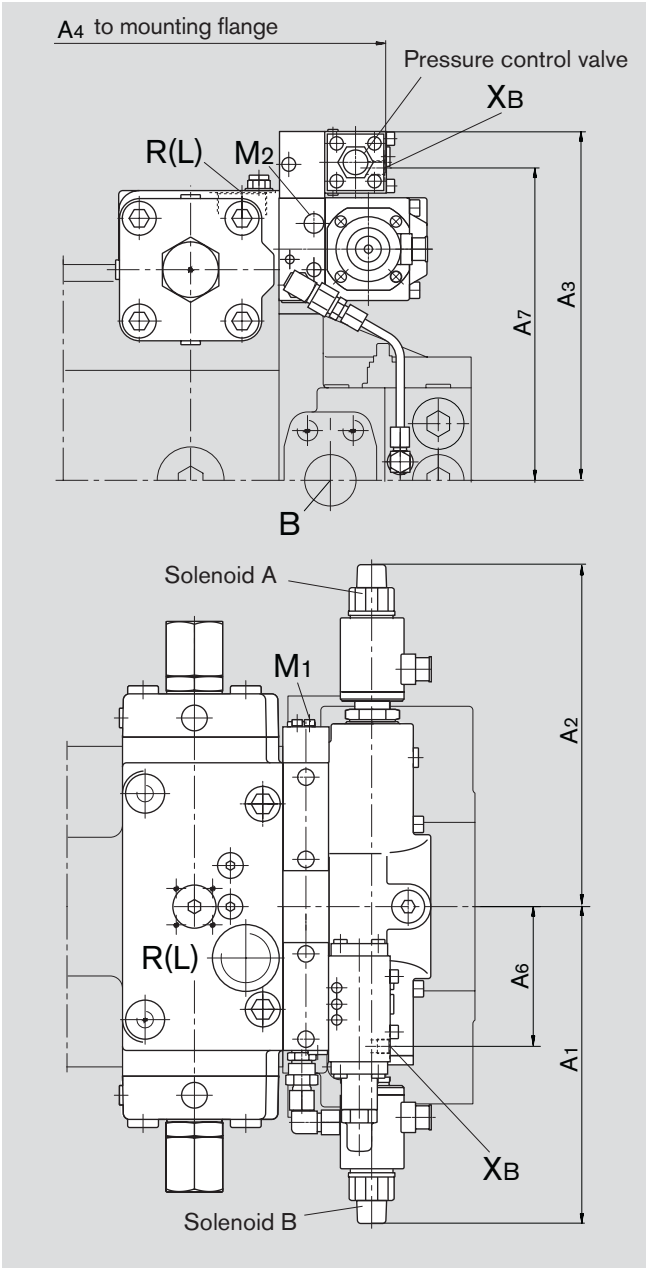
Unit dimensions EPB / EPGB

Before finalising your design please request a certified installation drawing.

Sizes 250 and 355



Sizes 500 and 750



Unit dimensions

Size	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇
250	252	279	243	428	228	13	—
355	252	279	243	428	228	13	—
500	306	332	342	469	—	136	304
750	315	332	372	501	—	136	304

For detailed dimensions and technical data of the variable pump see main data sheets A4CSG RE 92105 or A4VSG RE 92100.

Ports

max. tightening torque ¹⁾

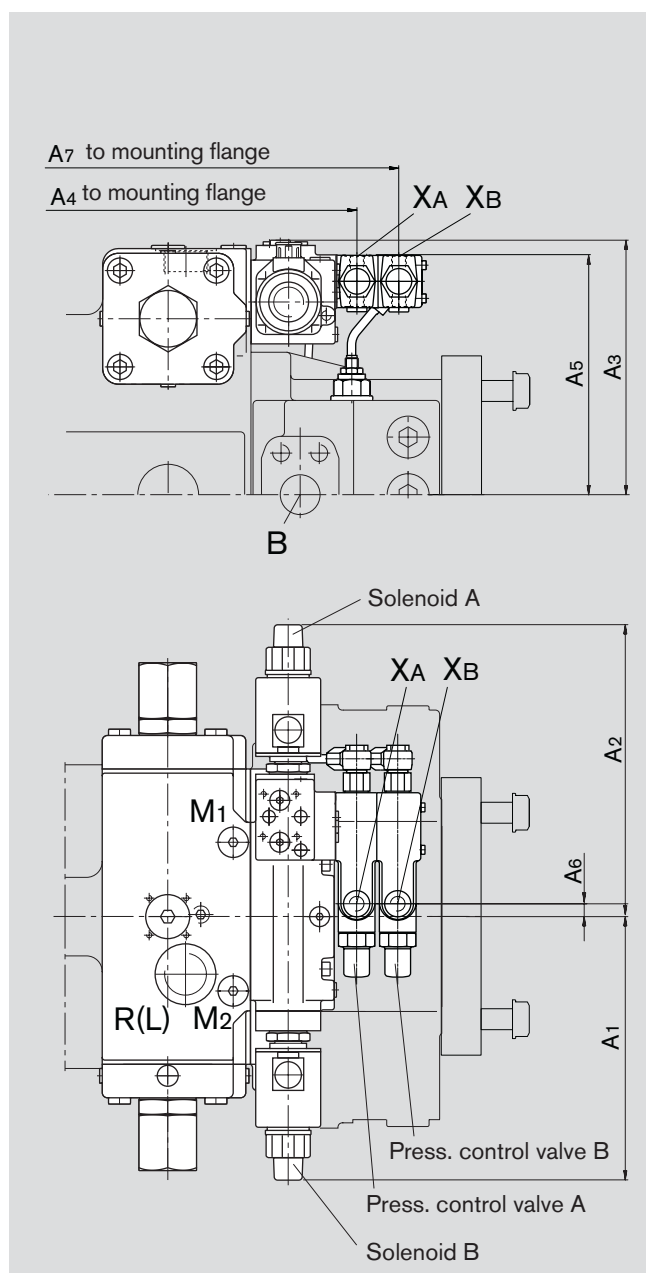
X _B	Pilot port for remote pressure control in B	DIN 3852	M14x1,5; 12 deep (with EPB plugged)	80 Nm
M ₁	Measuring port small control chamber	DIN 3852	M18x1,5; 12 deep ²⁾ (Size 250 a. 355)	140 Nm
			M22x1,5; 14 deep ²⁾ (Size 500 a. 750)	210 Nm
M ₂	Measuring port large control chamber	DIN 3852	M18x1,5; 12 deep ²⁾ (Size 250 a. 355)	140 Nm
			M14x1,5; 12 deep ²⁾ (Size 500 a. 750)	80 Nm

¹⁾ see safety information ²⁾ plugged

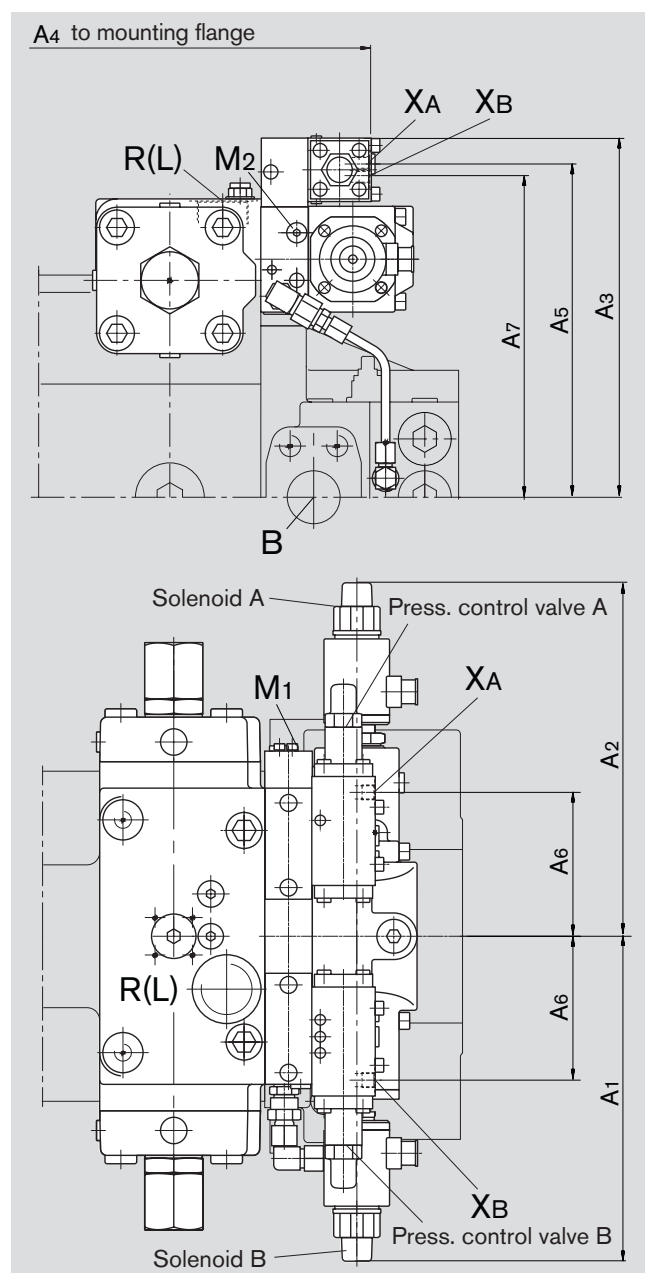
Unit dimensions EPD / EPG

Before finalising your design please request a certified installation drawing.

Sizes 250 and 355



Sizes 500 and 750



Unit dimensions

Size	A ₁	A ₂	A ₃	A ₄	A ₅	A ₆	A ₇
250	252	279	243	428	228	13	468
355	252	279	243	428	228	13	468
500	306	332	342	469	315	136	304
750	315	332	372	501	345	136	334

Detailed dimensions and technical data of the variable pump see main data sheets A4CSG RE 92105 or A4VSG RE 92100.

Ports

max. tightening torque ¹⁾

X _A , X _B	Pilot ports for remote pressure control	DIN 3852	M14x1,5; 12 deep (with EPD plugged)	80 Nm
M ₁	Measuring port small control chamber	DIN 3852	M18x1,5; 12 deep ²⁾ (Size 250 a. 355)	140 Nm
			M22x1,5; 14 deep ²⁾ (Size 500 a. 750)	210 Nm
M ₂	Measuring port large control chamber	DIN 3852	M18x1,5; 12 deep ²⁾ (Size 250 a. 355)	140 Nm
			M14x1,5; 12 deep ²⁾ (Size 500 a. 750)	80 Nm

¹⁾ see safety information

²⁾ plugged

Type of connector

Hirschmann-connector

to DIN EN 175301-803/ISO 4400

Type of protection IP 65

Male plug: to DIN EN 175 301–803/ISO 4400 with screwed connection for cable joint M16x1,5 for cable ø 4,5...10mm does not belong to supply of EP, is available however under the following Rexroth Material-Nr.: R902602623 (black)
or R902602622 (grey)

Safety information

- The pump A4V(C)SG was designed for operation in closed 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 max. tightening torques, mentioned in this data sheet are maximum values and cannot be exceeded (they represent the max. permissible value for the female threads in the castings)

For fastening screws to DIN 13 we recommend to check the permissible tightening torques in each individual case acc. to VDI 2230 dated 2003.

- **Warning-high temperature hazard**

During and shortly after operation of a pump the housing and especially a solenoid can be extremely hot, avoid being burned!