

## 9.3.1 TECHNICAL DATA

**MAX OPERATING PRESSURE (PS):** 420 bar

**PRESSURE TEST (PT):** 1.43 x PS

**NOMINAL PASSAGE DIAMETER:** 10mm, 20mm, 25mm, 32mm

**WORKING TEMPERATURE:** -40 ÷ +150

**FLUID VISCOSITY RANGE:** 10 ÷ 400 cSt

**RECOMMENDED VISCOSITY:** 36 cSt

**FLUID CONTAMINATION DEGREE:** class 21/19/16 according to ISO 4406/99

**SHUT-OFF VALVE:** ball type

**SAFETY VALVE:** with DBDS 10 cartridge

**DISCHARGE VALVE:** manual and electric

**MOUNTING POSITION:** every position

**BODY MATERIAL:** - phosphated or galvanized carbon steel  
in compliance with Directive 2002/95/EC (RoHS) to resist to corrosion.  
- nickel coating 25 - 40 µ  
- stainless steel AISI 430 (only for BS25)

**VALVES MATERIAL:** - phosphated or galvanized carbon steel in compliance with Directive 2002/95/EC (RoHS) to resist to corrosion  
- stainless steel

**SEALS MATERIAL:**

- P = Nitrile rubber (NBR)
- F = Low temp. nitrile rubber
- K = Hydrogenated nitrile (HNBR)
- E = Ethylene-propylene (EPDM)
- V = Fluorocarbon (FKM)

See Table 9.3B and/or section 1.5

**ACCUMULATOR SIDE CONNECTION:**

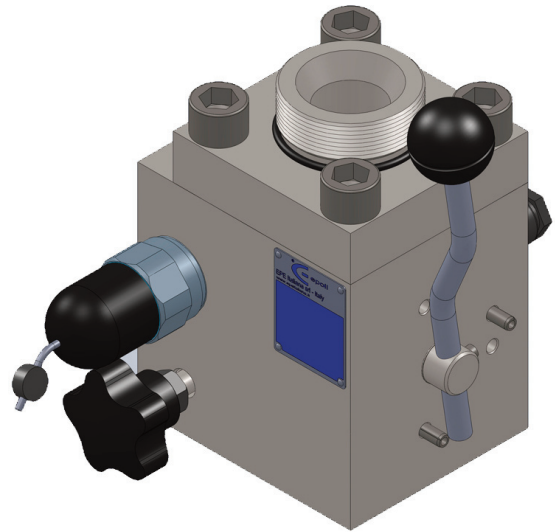
- 3/4" BSP with O-Ring for chamfer
- 1"1/4 BSP with O-Ring for chamfer
- 2" BSP with O-Ring for chamfer

**FLUID PORT CONNECTION:** see Chapter 9.3.8

**FLOW RATE:** see Chapter 9.3.10

**POWER SUPPLY:** 24 VDC, 105 VDC, 110 VDC, 220 VDC, P=26W, 100%ED, IP65 in compliance with DIN 40050, connector in compliance with DIN 43650 type A 2 poles + earthing with AC voltage; the internal connector has a bridge rectifier

**WEIGHT:** see Chapter 9.3.8



9.3a

## 9.3.2 HYDRAULIC SYMBOL

See section 9.3.8

## 9.3.3 DESCRIPTION

The EPE range of safety blocks BS is available in sizes NG10, NG20, NG25 and NG32. The safety blocks BS combine all the features to protect, isolate and discharge a hydraulic accumulator. The shut-off valve rotates of 90 degrees to instantly isolate the accumulator from the hydraulic system in emergency conditions or for maintenance. Once isolated, the accumulator can be discharged into a tank through a discharging valve with manual or electric controls. In version BS10 and BS20 when switching over the ball valve, the pump flow rate is stopped and simultaneously the accumulator discharged to the tank. During switching all three ports (P, A and T) are momentarily interconnected (negative switching overlap). Ball valves are not designed to be used as flow control valves; therefore they should always be either fully open or fully closed, to avoid damaging the sealing cups. The system security is ensured by a pressure PED an anti-tempering pressure valve certified CE/PED. The safety blocks BS allow easy and secure connection of an accumulator to a hydraulic system. Suitable for use with all types of bladder, piston and diaphragm accumulators, the compact and multifunction design allows saving space and reducing the wiring. By reducing the times required by the procedures of installation and maintenance, the security blocks BS help maximizing the productivity and profitability, minimizing the downtime of the system. For easy installation, we offer a full range of adapters, suitable for all standard fittings of any size and type. For diagnostic purposes and for continuous monitoring of pressure, all the security blocks BS are provided with a manometer connection of 1/4" BSP. The European Directive on pressure equipment 97/23/EC states that all accumulators must be provided with a safety device that intercepts, limit and discharge the pressure as well as allows carrying out the measurements. BS range satisfies all these requirements with a single and compact device. The safety block should always be mounted as close as possible to the accumulator.

### 9.3.4 PRESSURE RELIEF VALVE

The function of the pressure relief valve is to protect the accumulator during its operation. If the pressure exceeds the valve setting, this opens and discharges the fluid into the tank and allows the pressure in the system returning to a safe level. Thanks to its cartridge design, the pressure relief valve can be recalibrated to another pressure setting. This change requires a new approval according to PED 97/23 EC. The vessels discharge pressure expressed in bar, is stamped on the nameplate. The pressure relief valve is controlled and carefully sealed after approval in accordance with the rules of pressurized vessels. On their body there are stamped the CE mark, the certification ID and the serial number. All valves are supplied with a certificate attesting the calibration pressure. The documents provided with the pressure relief valve must be kept as they may be necessary in the event of repetition of the tests.

#### Manual and electric discharge valve

The discharge valve allows the discharge of the accumulator fluid in the

tank. All models of the safety block BS have a manually operated valve. In addition to the manual valve on request, could be installed a discharging electrically-controlled valve.

### 9.3.5 SAFETY BLOCK ADVANTAGES

- dirt tolerant
- light weight
- compact
- simple construction
- quick response
- works well on water, low lubricity fluids
- quick, easy installation
- low cost

### 9.3.6 SEALS-TEMPERATURE-LIQUID COMPATIBILITY

When selecting the additional seal variant, pay attention to the following non-binding notes with regard to hydraulic fluid, seals material and the permissive temperature range. (see Section 1.5)

Code letter	Polymer	ISO	Temperature range (°C)	Some of the liquids compatible with the polymer
P	Standard nitrile (Perburan)	NBR	-20 ÷ +80	Aliphatic hydrocarbons (propane, butane, gasoline, oils, mineral greases, diesel fuel, fuel oil, kerosene), mineral greases and oils, HFA - HFB - HFC fluids, many dilute acids, alkalis, saline solutions, water, water glycol
F	Low temperature nitrile	NBR	-40 ÷ +70	The same as with standard nitrile + a number of different types of Freon. (This contains less acrylonitrile than the standard and is therefore more suitable for low temperatures, but its chemical resistance is slightly lower).
K	Hydrogenated nitrile	HNBR	-30 ÷ +130	The same as with standard nitrile but with excellent performance at high and low temperatures.
E	Ethylene-Propylene	EPDM	30 ÷ +100	Hot water up to 100°C, glycol-based brake fluids, many organic and inorganic acids, detergents, solutions of sodium and potassium, phosphate ester-based hydraulic fluids, (HFD-R), silicone oils and greases, many polar solvents (alcohol, ketones, esters), Skydrol 500 and 7000, resistance to ozone, aging and weathering.
V	Fluorocarbon	FKM	-10 ÷ +150	Mineral oils and greases, non-flammable fluids of HFD group, silicone oils and greases, animal and vegetable oils and greases, aliphatic hydrocarbons (gasoline, butane, propane, natural gas), aromatics hydrocarbons (benzene, toluene), chlorinated hydrocarbons (Tetrachloroethylene, carbon tetrachloride), fuel (regular, super and containing methanol), excellent resistance to ozone, weathering and aging.

9.3b

For other hydraulic fluid and/or temperatures, please consult us.

## 9.3.7 ORDER CODE

1	2	3	4	5	6	7	8	9	10	11	12	
BS	10	M	P	360	A	5	G	4	-	C	P	K

<b>1 Series</b>	Safety block = <b>BS</b>
<b>2 Internal nominal diameter</b>	10mm = <b>10</b> 20mm = <b>20</b> 25mm = <b>25</b> 32mm = <b>32</b>
<b>3 Discharge</b>	Only manual = <b>M</b> Electric and manual = <b>E</b> Manual plus drilling for solenoid valve = <b>F</b> Drilling for solenoid valve plugged = <b>T</b>
<b>4 Relief valve</b>	Without valve, with plastic plug = <b>A</b> Valve type DBDS... (CE certified) = <b>P</b> Without valve (with plug B 2375) = <b>T</b> Valve type VS224X = <b>G</b> Valve type DBDS (Gost certified) = <b>U</b> Valve type DBDS (NR - 13) = <b>N</b> Valve type DBDS (RTN) = <b>Z</b>
<b>5 Valve setting (bar)</b>	Valves type DBDS or VS224 calibrated and certificate = <b>5 ÷ 400</b>
<b>6 Accumulator side connection</b>	BSP ISO 228 with chamfer for OR (std) = <b>A</b> For BS25 and BS32: Holes for flange SAE 3000 Psi = <b>L</b> Without adapter = <b>W</b>
<b>7 Dimension of the accumulator side connection</b>	For connection A: 3/4"BSP = <b>5</b> 1"1/4BSP = <b>7</b> 2"BSP = <b>9</b> For connection L: 2" = <b>9</b> Without adapter = <b>0</b>
<b>8 Type of installation side connection</b>	For BS25 and BS32: holes for flange CETOP -400, metric threads = <b>C</b> with flange FC For BS32: holes for flange SAE 3000 Psi, metric threads = <b>L</b> For BS25 e BS32: holes for flange SAE 6000 Psi, metric threads = <b>H</b> Thread BSP ISO 228 = <b>G</b>

<b>12 Other variants</b>
For type BS...E Sol. valve power supply 24VDC normally closed = <b>24D-C</b> Sol. valve power supply 110VDC normally closed = <b>110D-C</b> Sol. valve power supply 220VDC normally closed = <b>220D-C</b> Sol. valve power supply 24VAC normally closed = <b>24A-C</b> Sol. valve power supply 110VAC normally closed = <b>110A-C</b> Sol. valve power supply 220VAC normally closed = <b>220A-C</b> Sol. valve power supply 24VDC normally open = <b>24D-O</b> Sol. valve power supply 110VDC normally open = <b>110D-O</b> Sol. valve power supply 220VDC normally open = <b>220D-O</b> Sol. valve power supply 24VAC normally open = <b>24A-O</b> Sol. valve power supply 110VAC normally open = <b>110A-O</b> Sol. valve power supply 220VAC normally open = <b>220A-O</b>
Handle of the padlocked ball valve = <b>K</b> Micro-switch on the ball handle = <b>S</b> Two connections for manometer = <b>M2</b> Discharge connection in installation side only for BS 25/32 = <b>1</b> Special variants on request

<b>11 Seal material</b>
Nitrile rubber (NBR) = <b>P</b> Nitrile for low temp. = <b>F</b> Hydrogenated nitrile (HNBR) = <b>K</b> Ethylene-propylene (EPDM) = <b>E</b> Fluorocarbon (FKM) = <b>V</b>

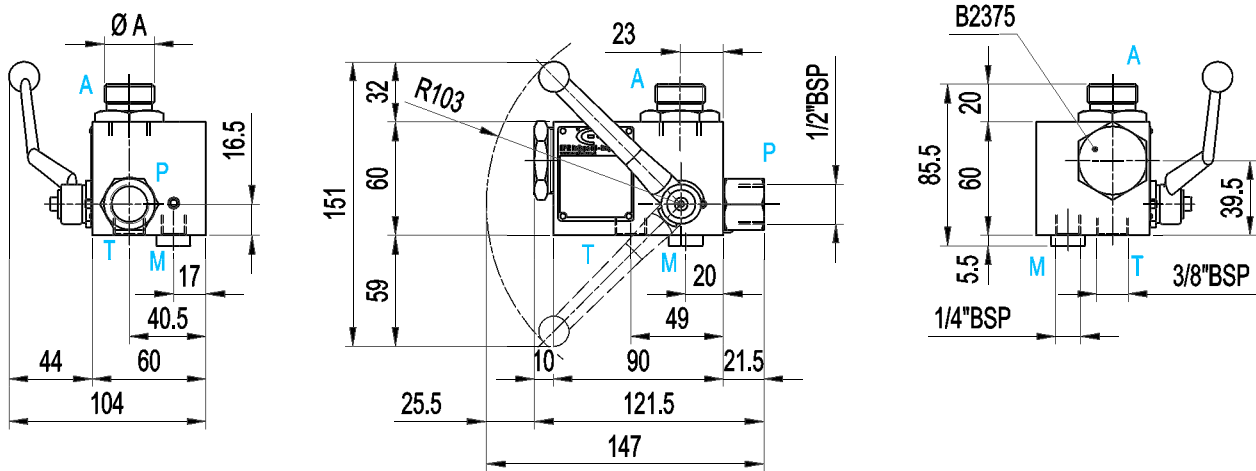
<b>10 Block material</b>
Carbon steel = <b>C</b> Nickel coated steel 25 μ. = <b>N</b> Nickel coated carbon steel 40 μ = <b>M</b> Stainless steel AISI 430 L (only for BS25) = <b>X</b> (only for DBDS in stainless steel) = <b>CX</b>

<b>9 Dimension of the installation side connection</b>
For BS10 1/2"BSP = <b>4</b> For BS20 3/4"BSP = <b>5</b> For BS25 G 1" = <b>6</b> H 1"1/4 = <b>7</b> C 1"1/4 = <b>7</b> For BS32 G1"1/2 = <b>8</b> L 1"1/2 = <b>8</b> L 2" = <b>9</b> H 1"1/4 = <b>7</b> H 1"1/2 = <b>8</b> C 1"1/4 = <b>7</b> C 1"1/2 = <b>8</b>

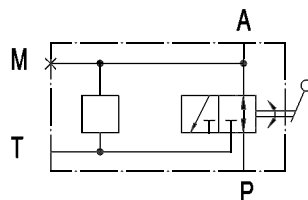
**Special variants on request**

9.3.8 DIMENSIONS

BS10MT..A.G.. - ...

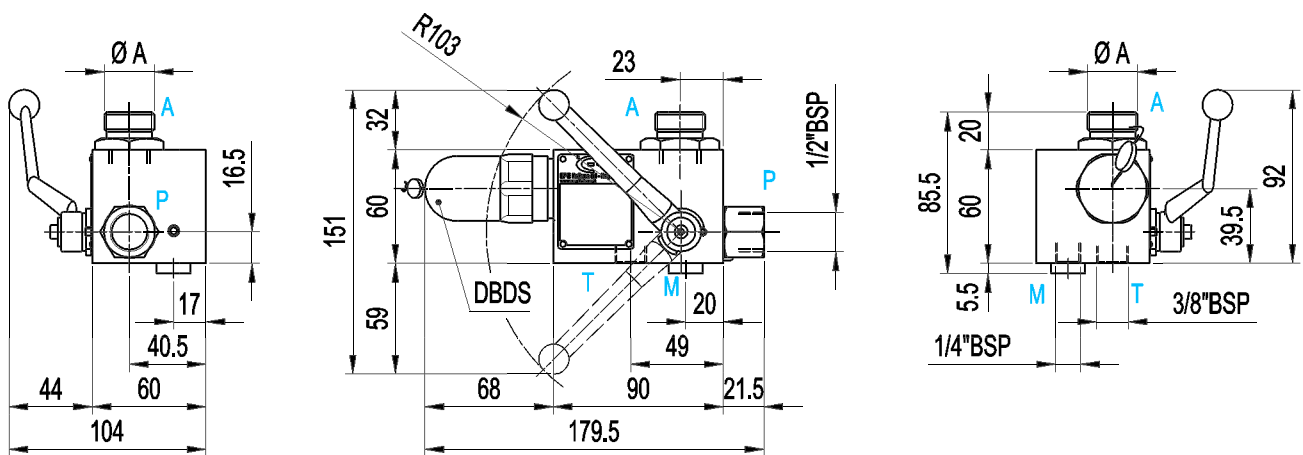


Order code	ØA	Weight
BS10MT...A5...	3/4" BSP	2.7
BS10MT...A7...	1" 1/4 BSP	2.9
BS10MT...A9...	2" BSP	3

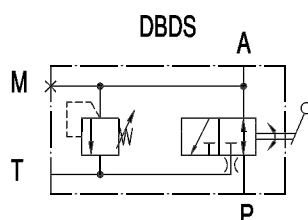


9.3ca

BS10MP..A.G.. - ...

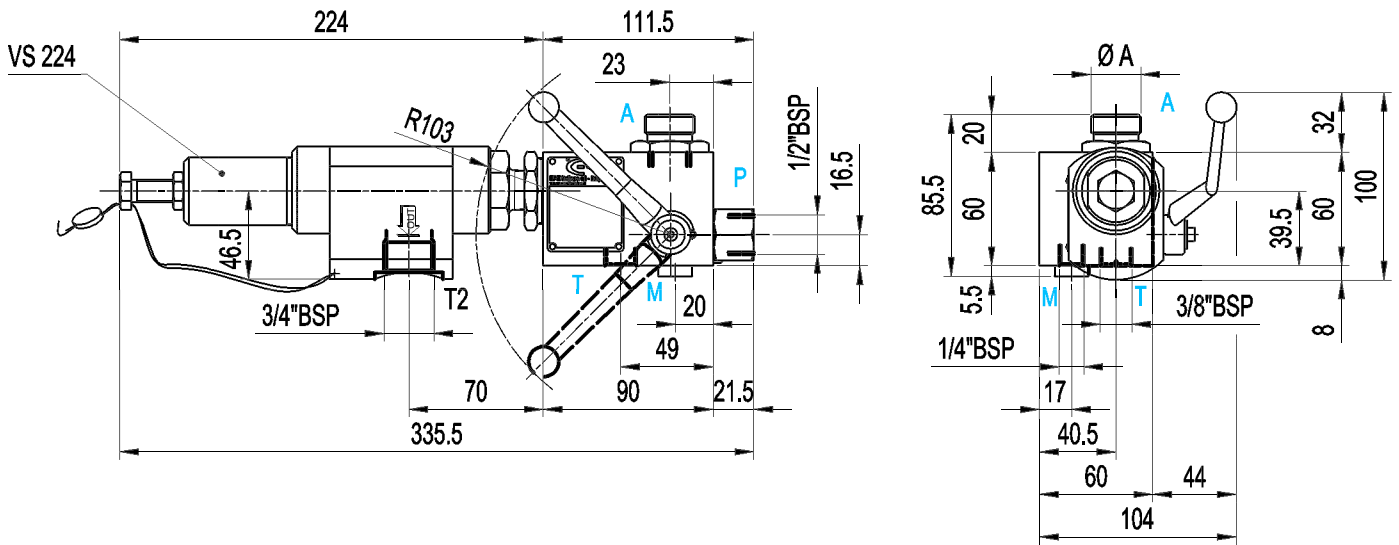


Order code	ØA	Weight
BS10MP...A5...	3/4" BSP	3.2
BS10MP...A7...	1" 1/4 BSP	3.4
BS10MP...A9...	2" BSP	3.5

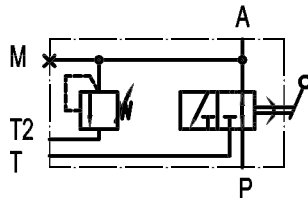


9.3cb

## BS10MG..A.G.. - ...

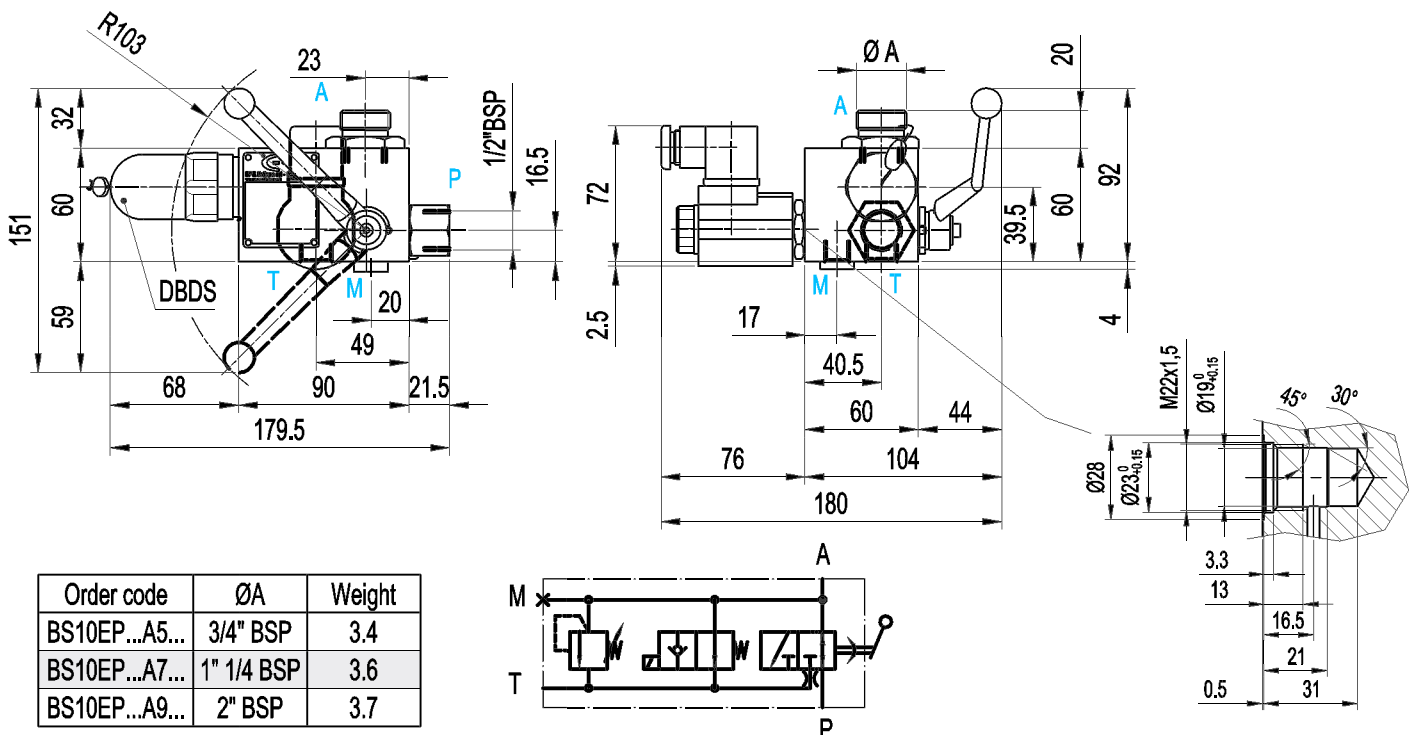


Order code	ØA	Weight
BS10MG...A5...	3/4" BSP	4.9
BS10MG...A7...	1" 1/4 BSP	5.1
BS10MG...A9...	2" BSP	5.2

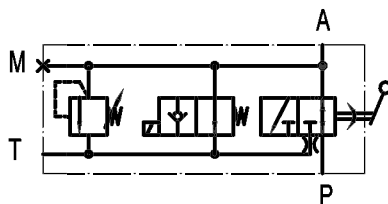


9.3cc

## BS10EP..A.G.. - ...

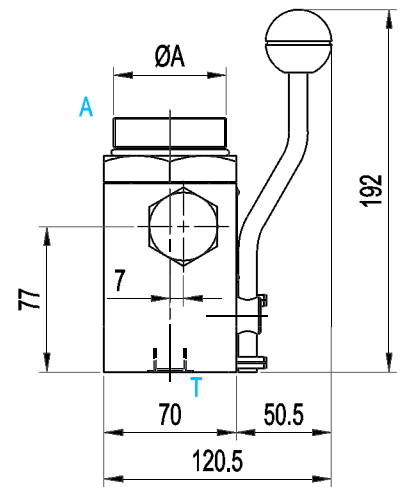
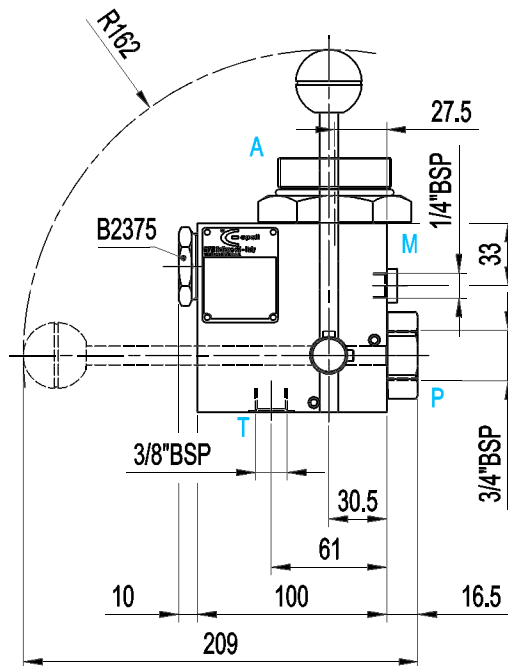
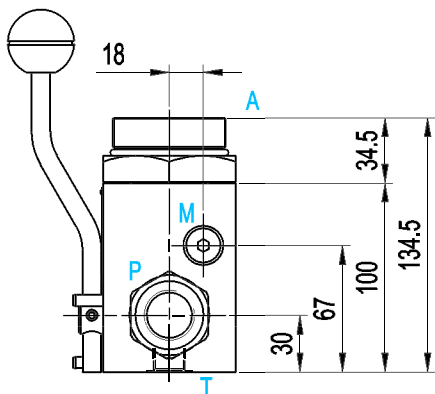


Order code	ØA	Weight
BS10EP...A5...	3/4" BSP	3.4
BS10EP...A7...	1" 1/4 BSP	3.6
BS10EP...A9...	2" BSP	3.7

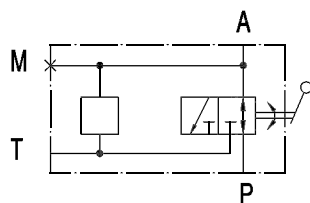


9.3cd

BS20MT..A.G.. - ...

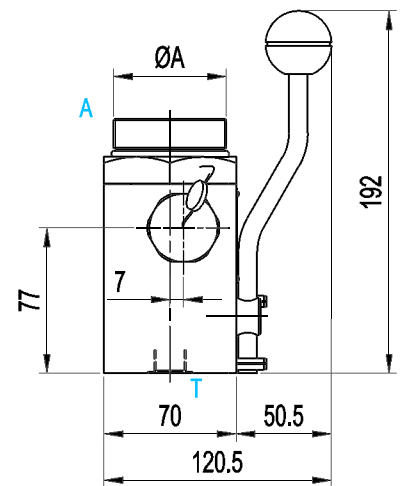
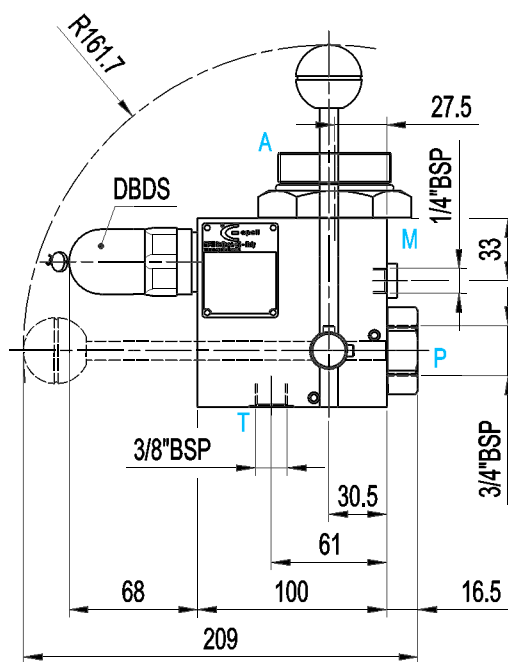
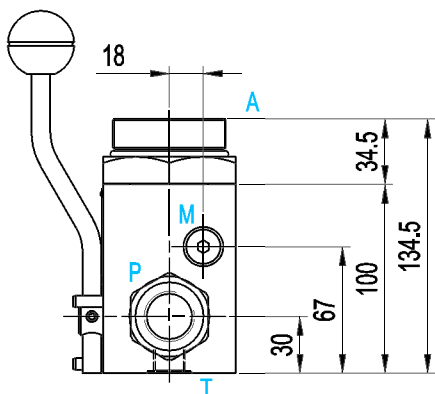


Order code	ØA	Weight
BS20MT...A7...	1" 1/4 BSP	5.6
BS20MT...A9...	2" BSP	6.1

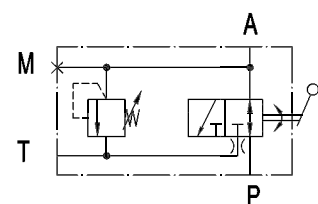


9.3ce

BS20MP..A.G.. - ...

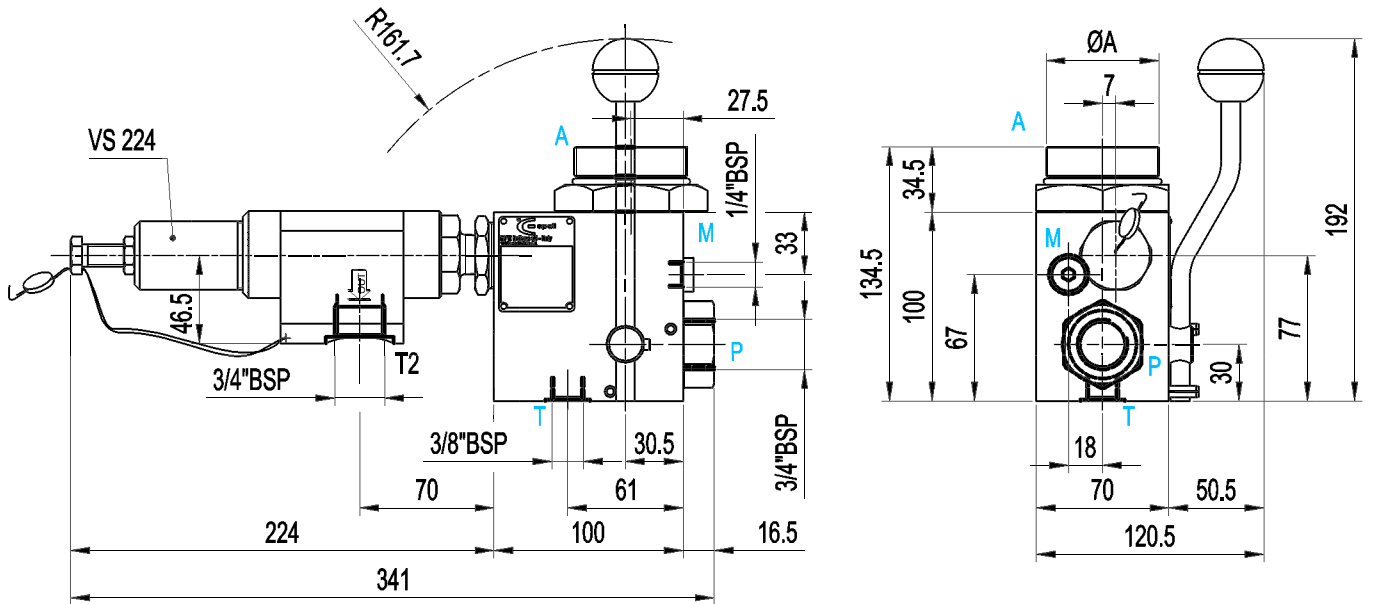


Order code	ØA	Weight
BS20MP...A7...	1" 1/4 BSP	6.1
BS20MP...A9...	2" BSP	6.7

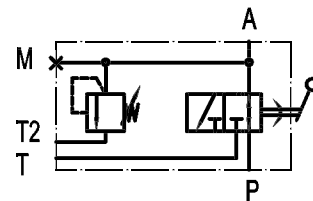


9.3cf

## BS20MG..A..G.. - ...

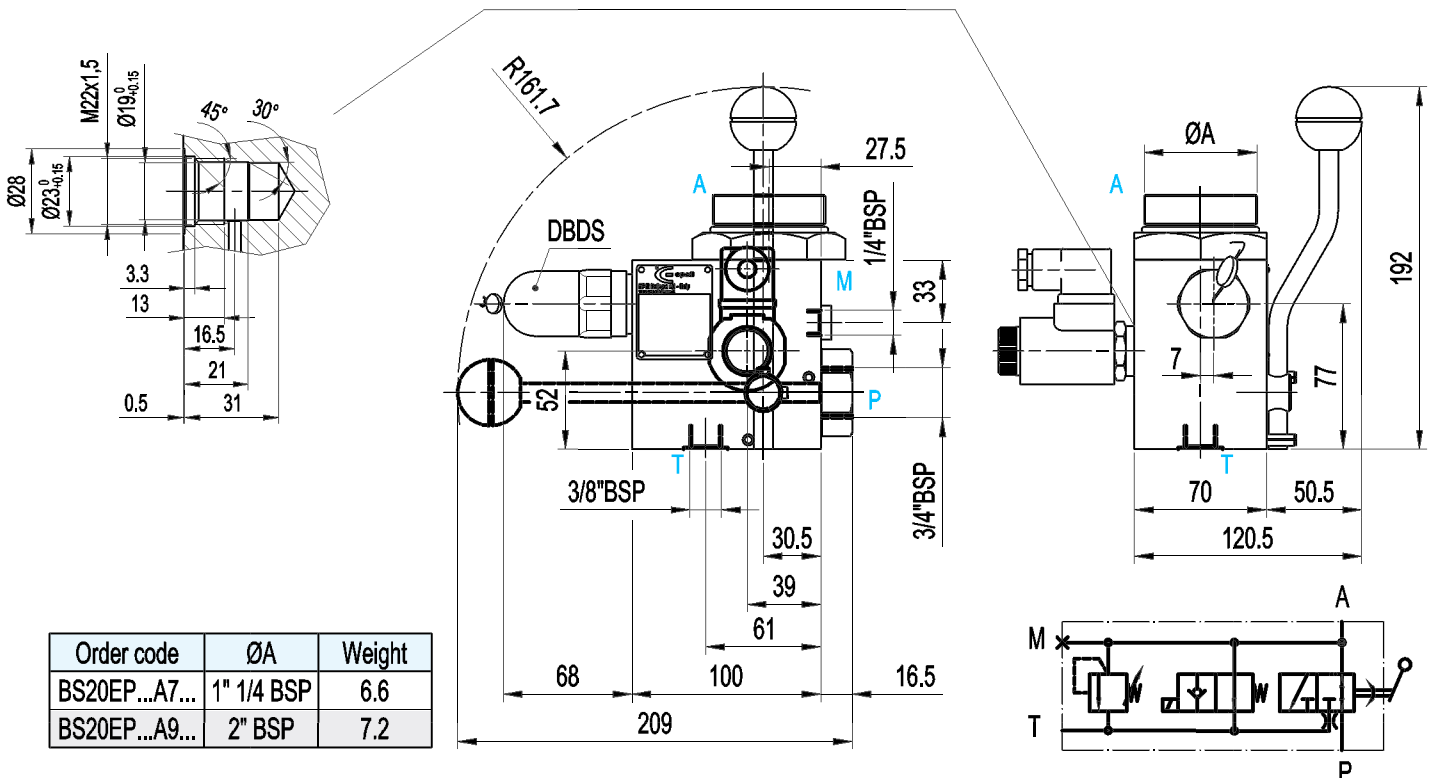


Order code	ØA	Weight
BS20MG...A7...	1" 1/4 BSP	7.8
BS20MG...A9...	2" BSP	8.3

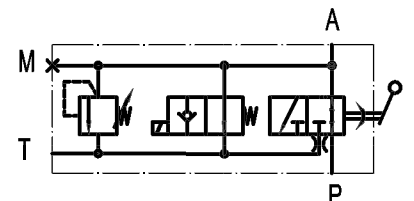


9.3cg

## BS20EP..A..G.. - ...



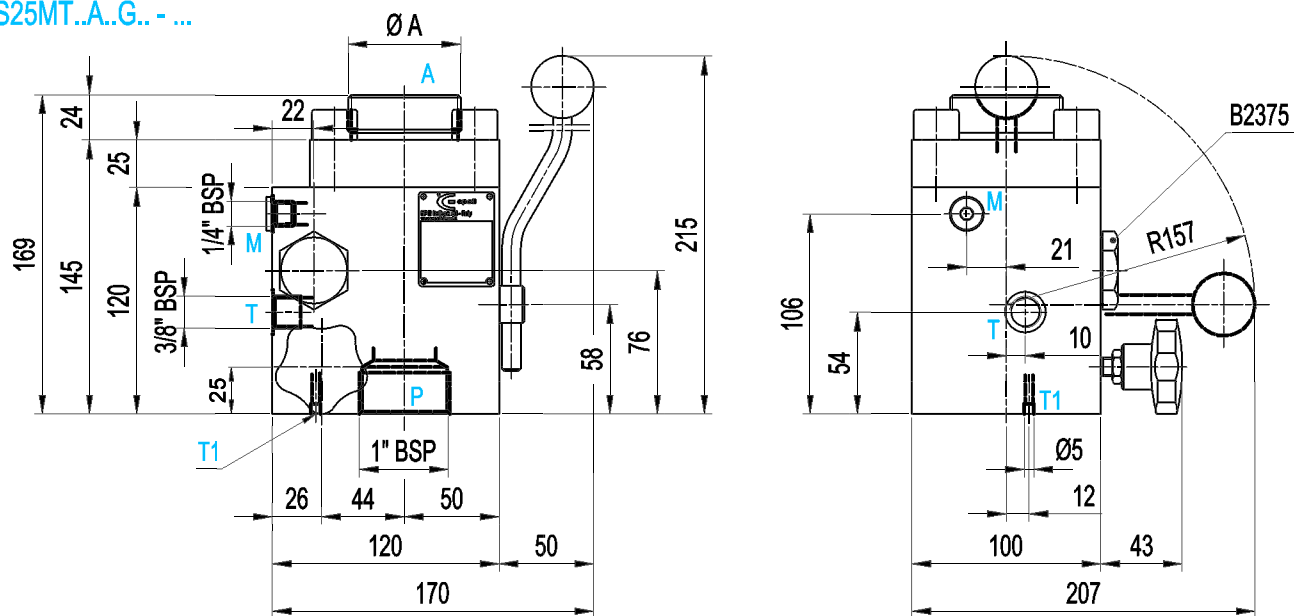
Order code	ØA	Weight
BS20EP...A7...	1" 1/4 BSP	6.6
BS20EP...A9...	2" BSP	7.2



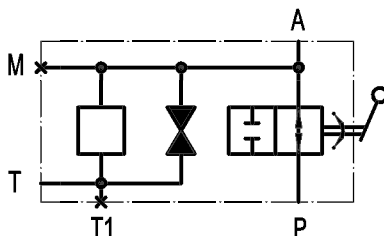
9.3ch



BS25MT..A..G.. - ...

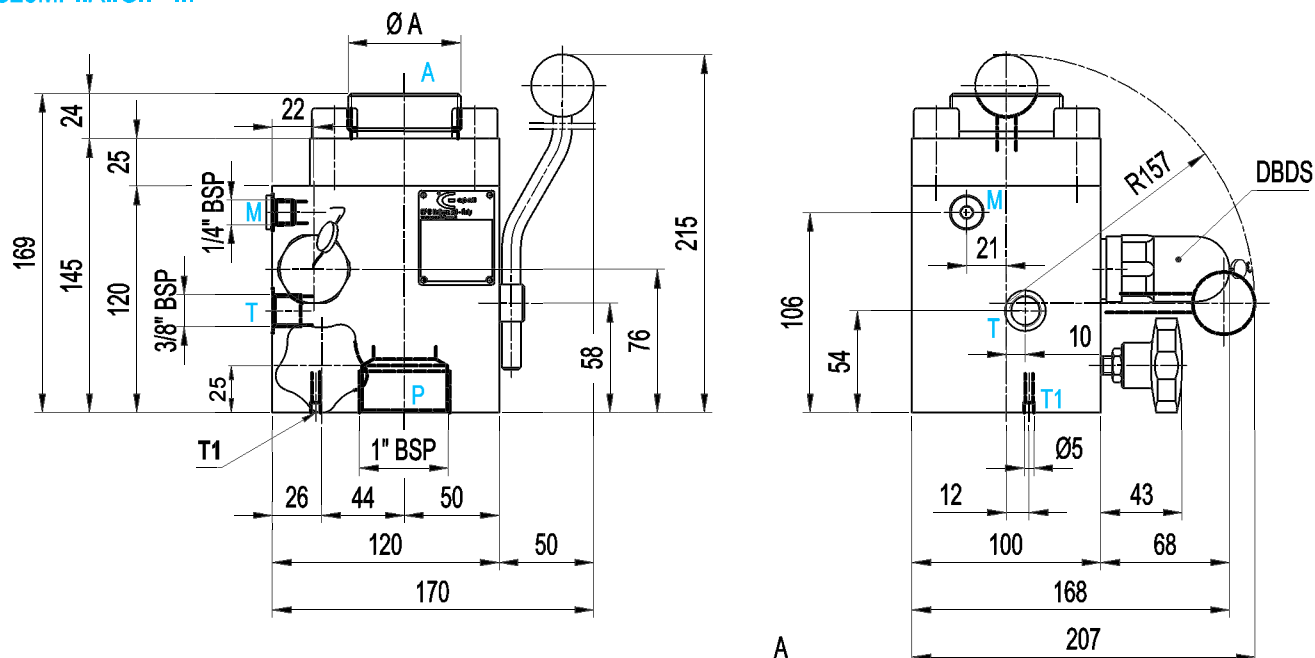


Order code	ØA	Weight
BS25MT...A7...	1" 1/4 BSP	12.4
BS25MT...A9...	2" BSP	12.5

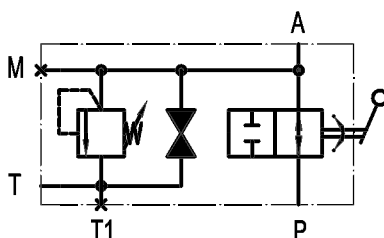


9.3ci

BS25MP..A..G.. - ...



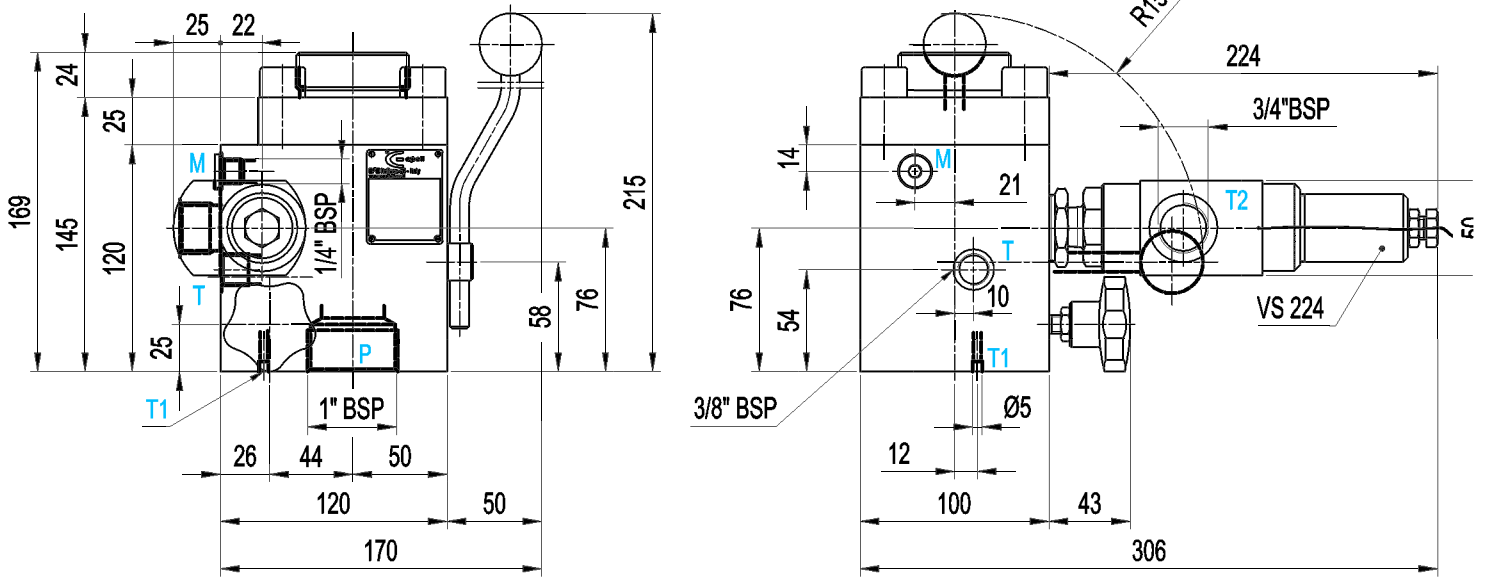
Order code	ØA	Weight
BS25MP...A7...	1" 1/4 BSP	12.7
BS25MP...A9...	2" BSP	12.9



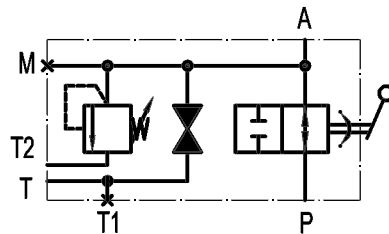
9.3cj



BS25MG.A.G. - ...

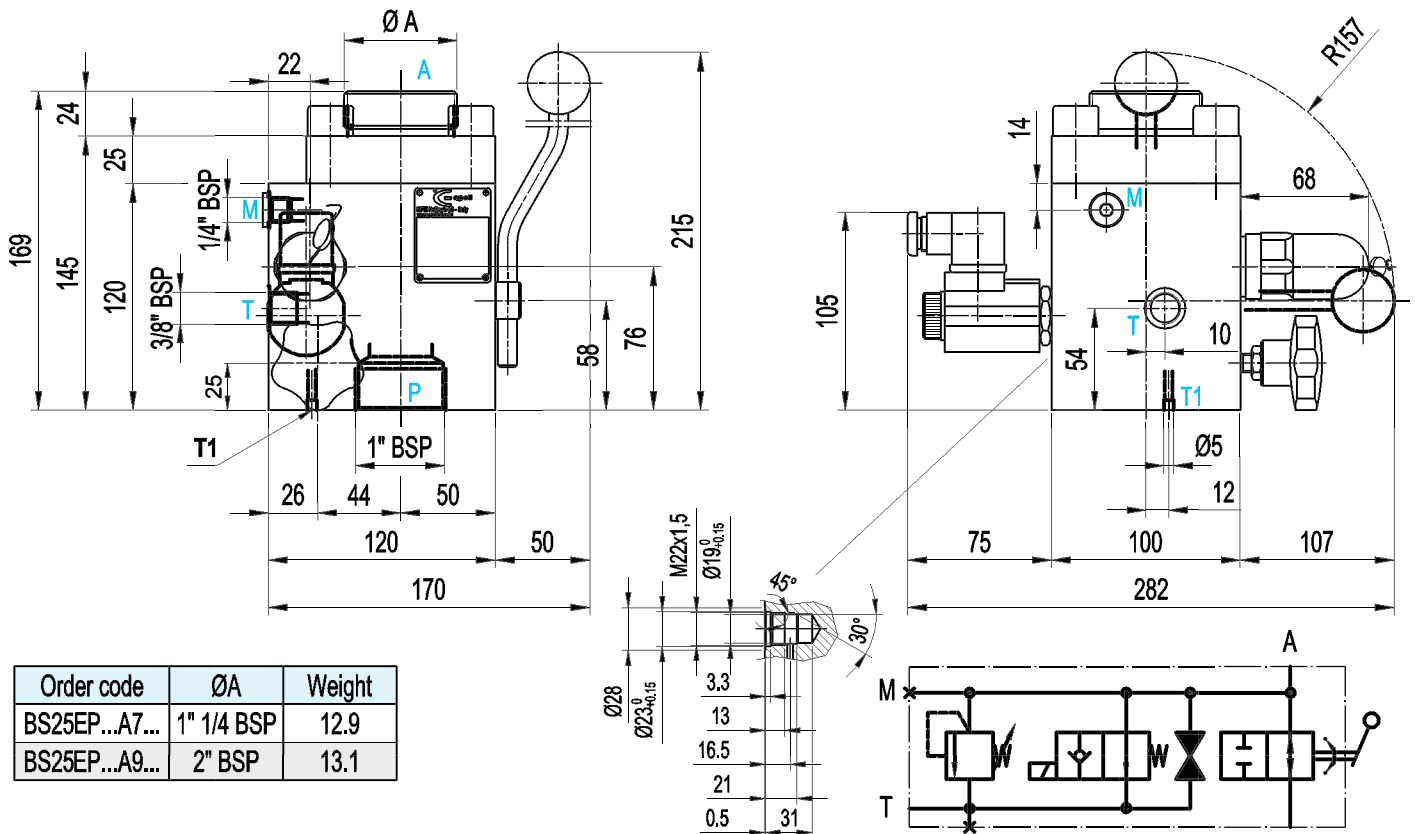


Order code	ØA	Weight
BS25EG...A7...	1" 1/4 BSP	14.5
BS25EG...A9...	2" BSP	14.6

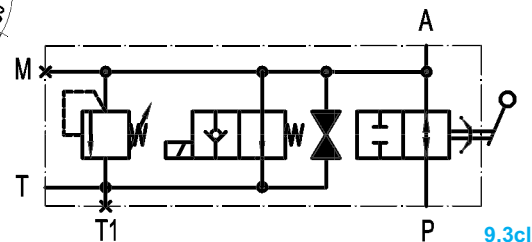


9.3ck

BS25EP.A.G. - ...

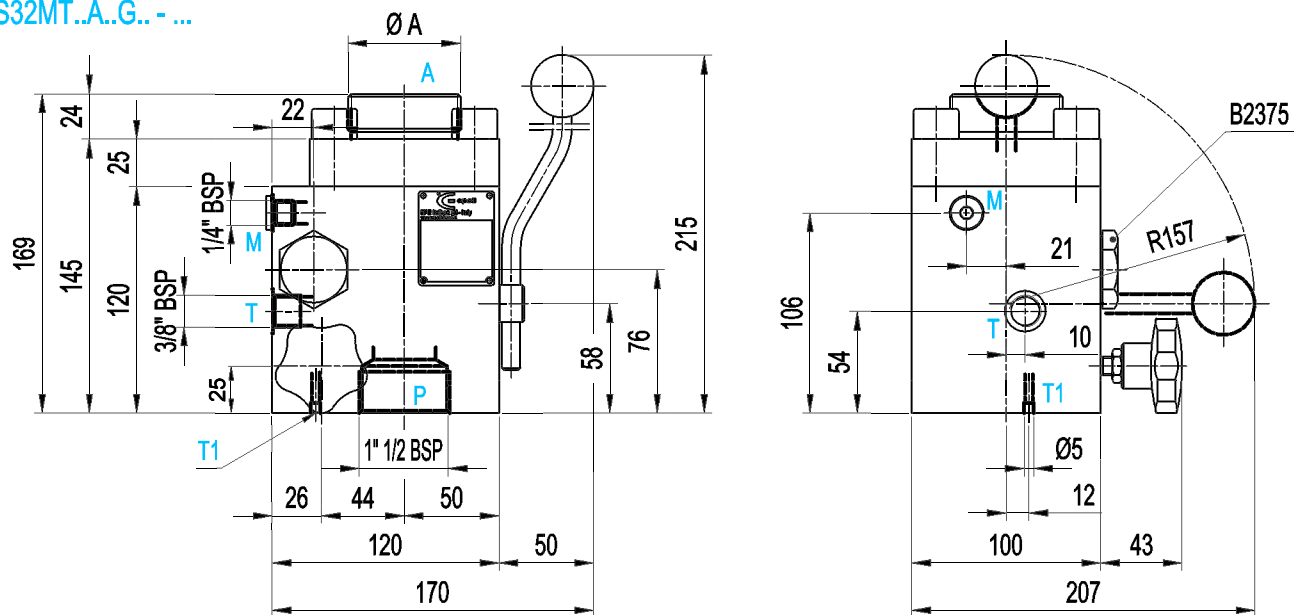


Order code	ØA	Weight
BS25EP...A7...	1" 1/4 BSP	12.9
BS25EP...A9...	2" BSP	13.1

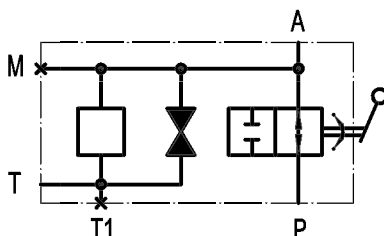


9.3cl

BS32MT..A..G.. - ...

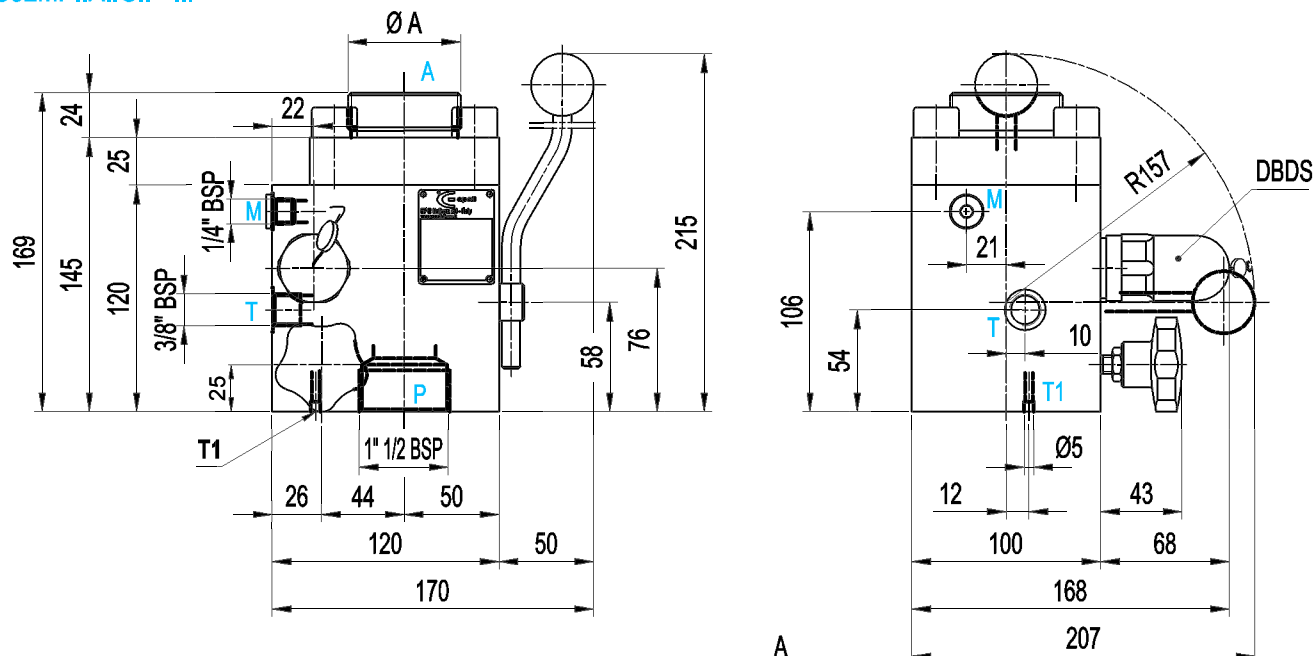


Order code	ØA	Weight
BS32MT...A7...	1" 1/4 BSP	12.4
BS32MT...A9...	2" BSP	12.5

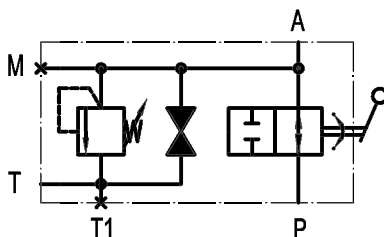


9.3cm

BS32MP..A..G.. - ...

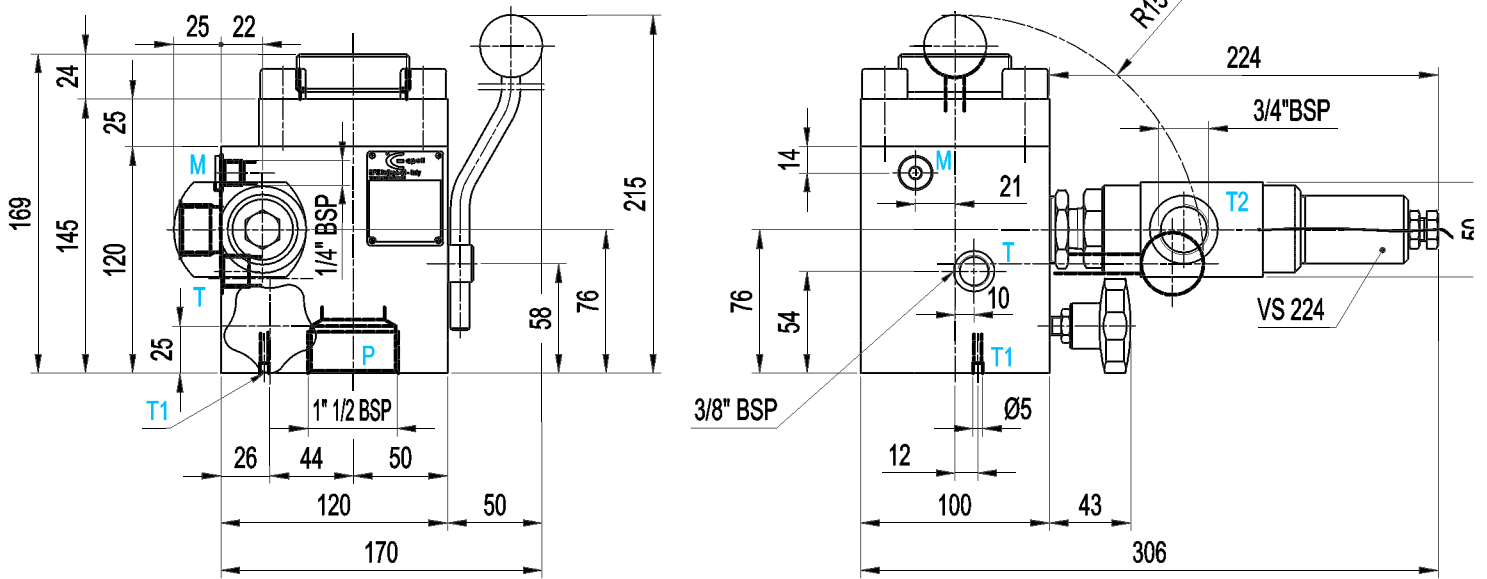


Order code	ØA	Weight
BS32MP...A7...	1" 1/4 BSP	12.7
BS32MP...A9...	2" BSP	12.9

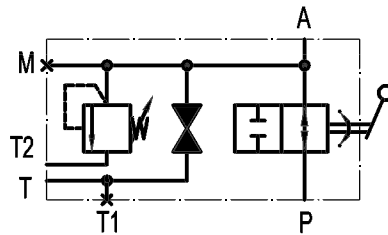


9.3cm

BS32MG..A.G.. - ...

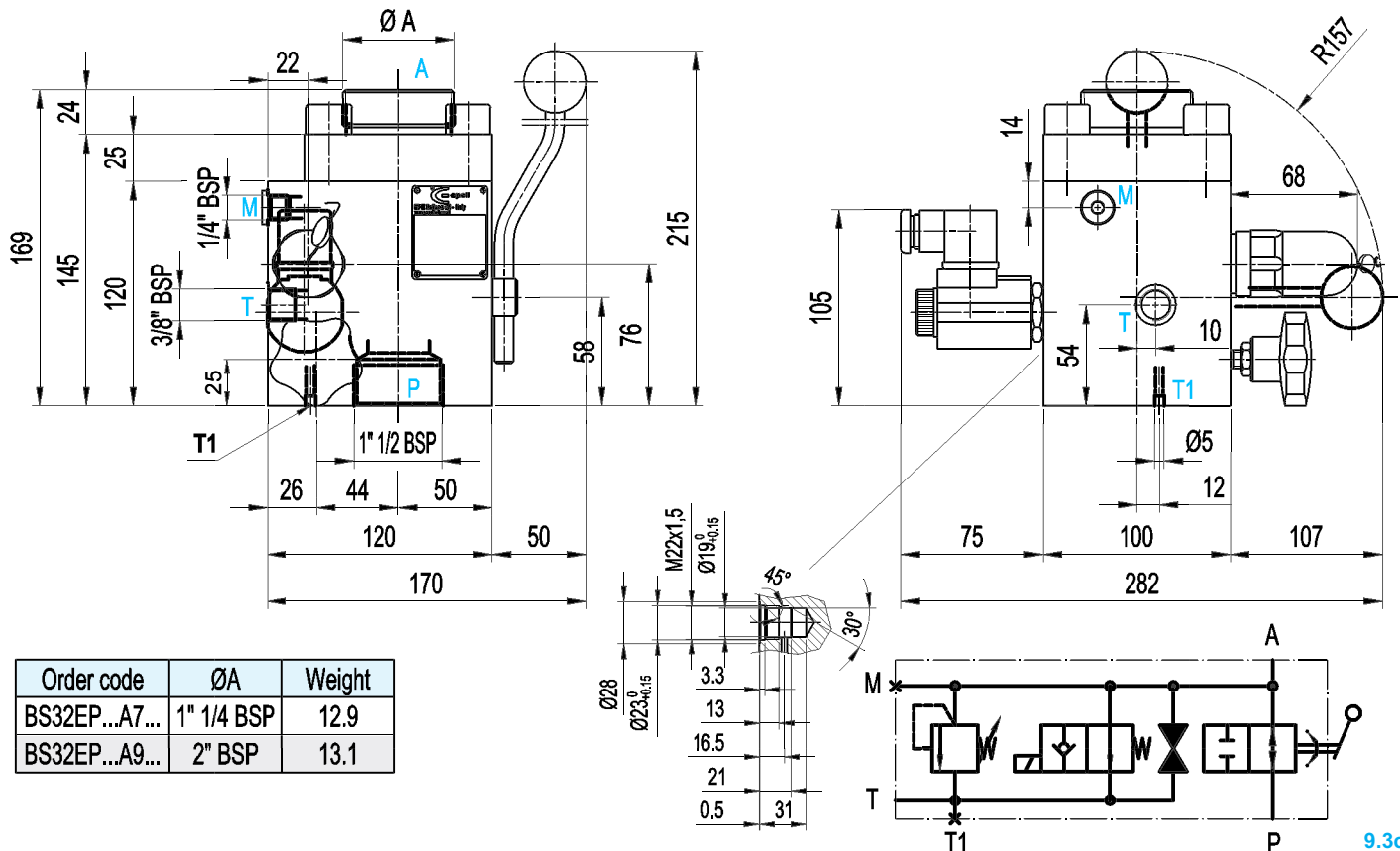


Order code	ØA	Weight
BS32MG...A7...	1" 1/4 BSP	14.5
BS32MG...A9...	2" BSP	14.6



9.3co

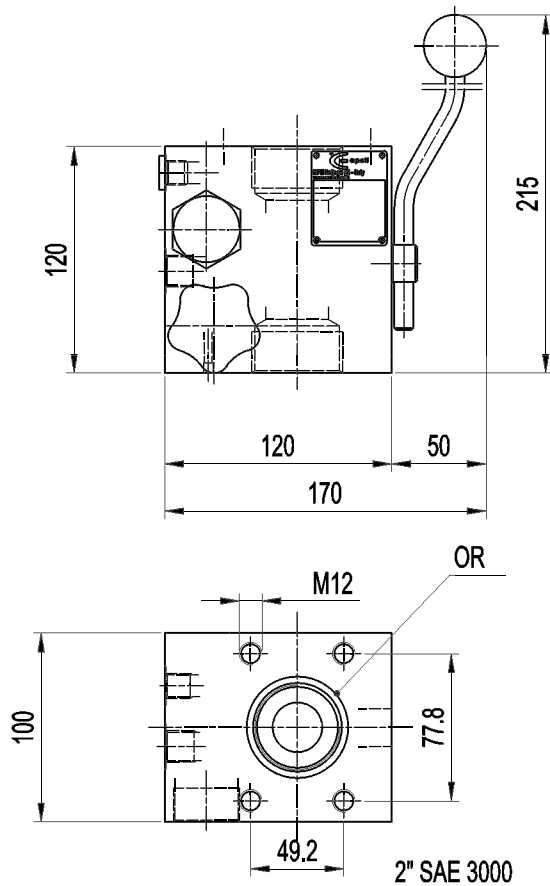
BS32EP..A.G.. - ...



Order code	ØA	Weight
BS32EP...A7...	1" 1/4 BSP	12.9
BS32EP...A9...	2" BSP	13.1

9.3cp

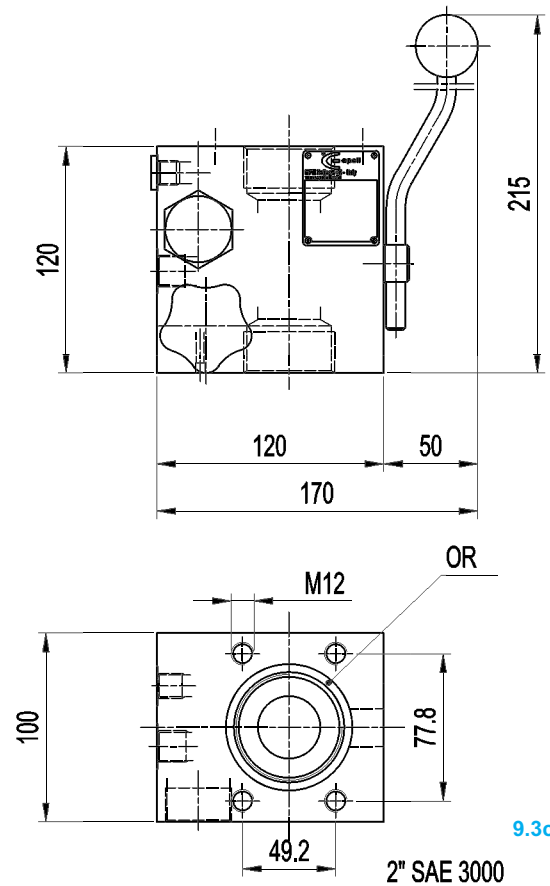
BS25M..L9..G.. - ...



9.3cq

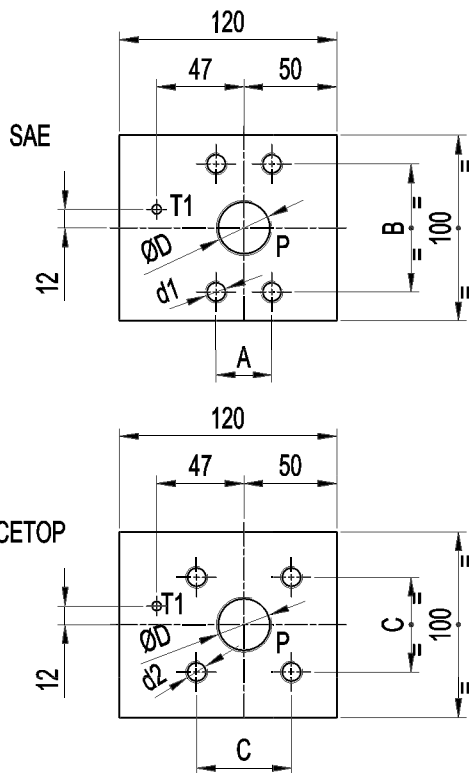
Other dimensions see previous pages

BS32M..L9..G.. - ...



9.3cr

Other dimensions see previous pages

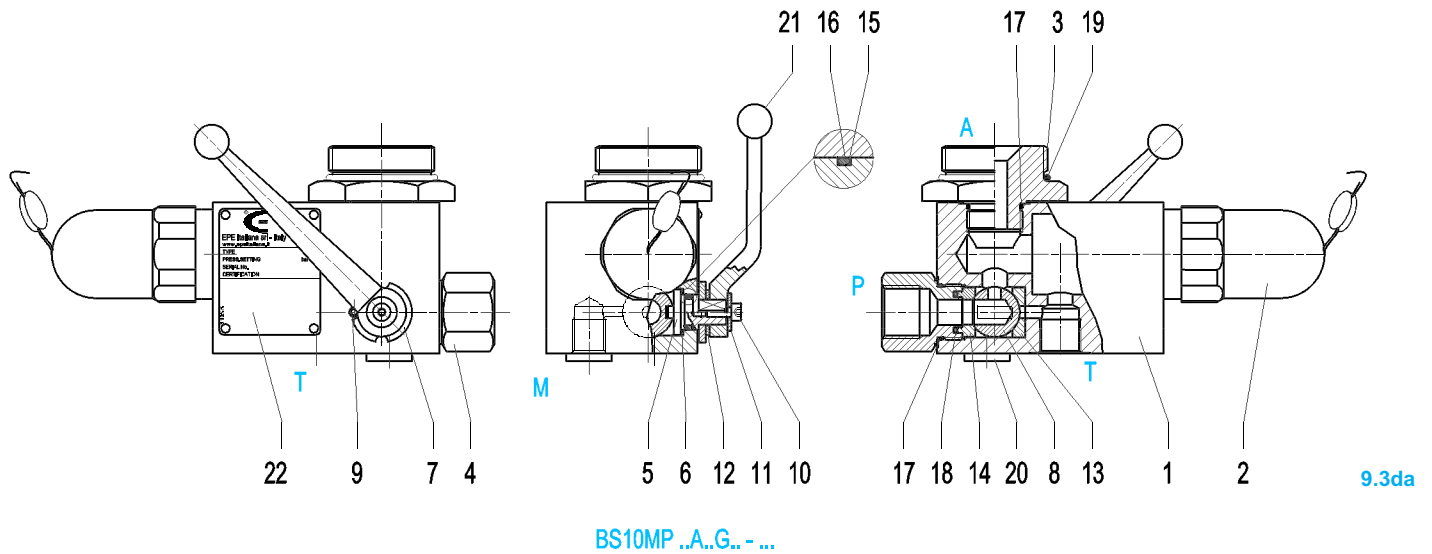


9.3cs

Type.	On request								
	For SAE Flanges				For CETOP Flanges				
		A	B	d1	Thread deep		C	d2	Thread deep
BS25	1" 1/4 SAE 6000	31,6	66,7	M14	24	CETOP 1" 1/4-400	51,6	M12	20
	1" 1/4 SAE 6000	31,6	66,7	M14	24	CETOP 1" 1/4-400	51,6	M12	20
BS32	1" 1/2 SAE 6000	36,7	79,4	M16	24	CETOP 1" 1/2-400	60,1	M14	24
	1" 1/2 SAE 3000	35,7	70	M12	20				
	2" SAE 3000	42,9	77,8	M12	20				

9.3ct

9.3.9.1 BS10 SPARE PARTS CODES

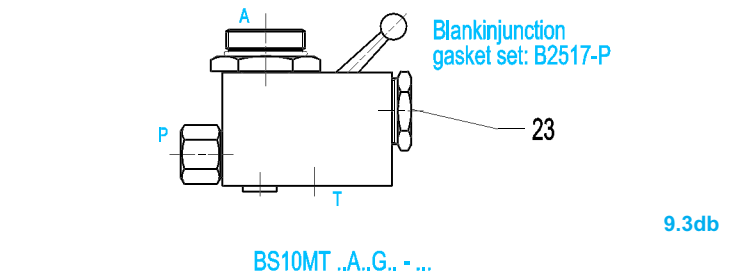


BS10MP ..A..G.. - ...

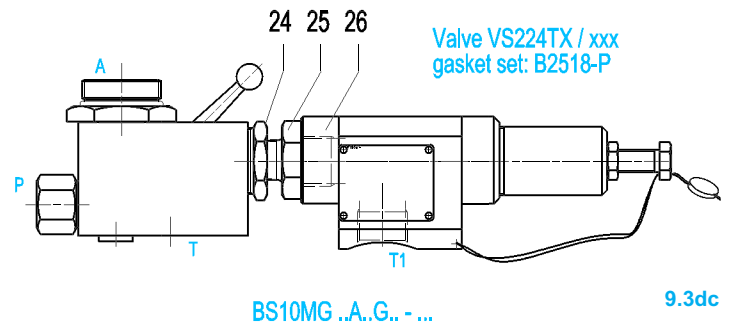
Item	Description	Q.ty	Order code
1	Body block BS10	1	Not supplied as spare part
2	Safety valve DBD ...10 k 1...	1	DBD... 10 k 1... 3/4" B10450-**
3	Niple side accumulator	1	1" 1/4 B10451-** 2" B10452-**
4	Niple installation side	1	B11855- **
5	Pin ball	1	B11856 - **
6	Gasket	1	B11857 - *
7	Washers stop end	1	B11858 - C
8	Ball DN10	1	0052S906831RN
9	Spring pins 4x8 UNI 6873	1	0023E4x8C
10	Hex. socket head cap screws M4x10 UNI5931	1	0022VTCEIM4x10CZ
11	Large whaser Ø4x12x1 UNI 6593	1	0021RL4x12x1CZ
12	Whaser Ø10 UNI 6592	1	0021RP10CZ
13	Seal for ball Ø10	1	0013G914497RN
14	Seal for ball Ø10	1	0013G913112RN
15	Antiextrusion ring Parbak	1	0011P8012 - *
16	"O" ring	1	0010R2037 - *
17	"O" ring	2	0010M20x2 - *
18	"O" ring	1	0010M12x2 - *
19	"O" ring	1	0010R3150 - *
20	Plug with rubber seals 1/4" BSP	1	0031TG2
21	Handle for BS10	1	B10100-A
22	Description plate	1	B11024 - 6 - A
23	Blankinjunction side accumulator plug	1	B2375 - **/*
24	Adapter	1	B10456-C
25	Nipple	1	B11638-C
26	Valve VS 224 X	1	VS224X / xxx
27	Complete solenoid valve	1	Normally open B2372-xxx-O Normally closed B2395-xxx-C
28	Coil + connector	1	B2370-xxx
Standard nipple ass. (parts 3-17-19)		1	3/4" N-M22/1.5A5 - **.* 1" 1/4 N-M22/1.5A7 - **.* 2" N-M22/1.5A9 - **.*
Safety block gasket sets		1	B 2140-*
Ball sets		1	B 2132-*

\* Gasket material    \*\* Component material

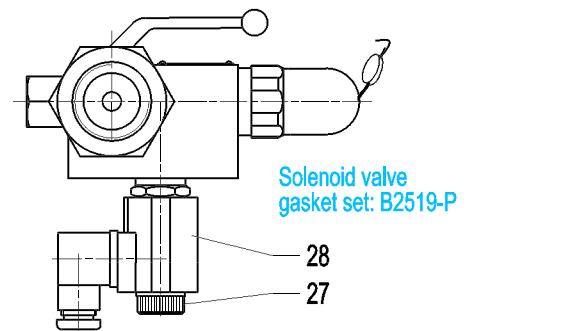
9.3de



BS10MT ..A..G.. - ...

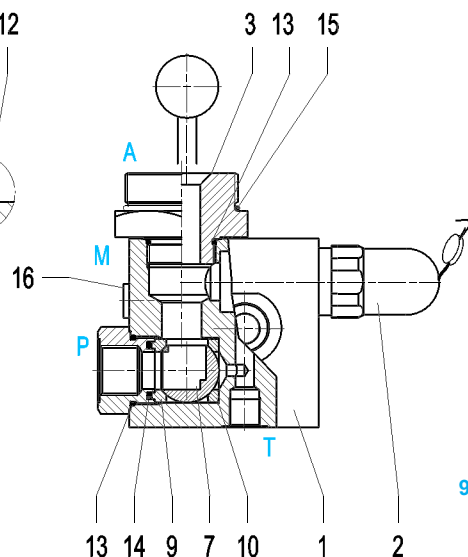
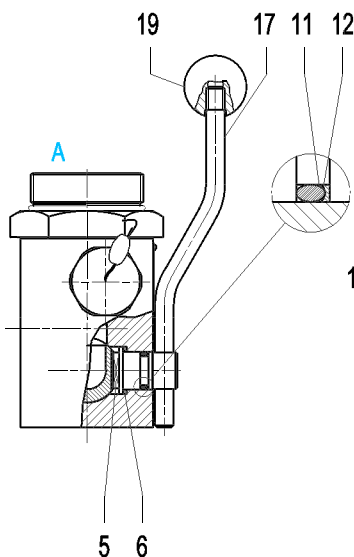
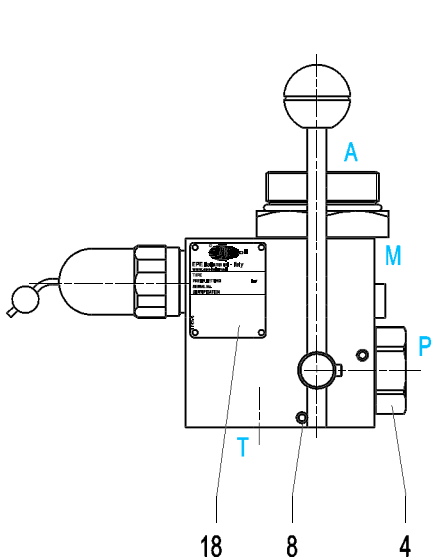


BS10MG ..A..G.. - ...



BS10EP ..A..G.. - ...

9.3.9.2 BS20 SPARE PARTS CODES



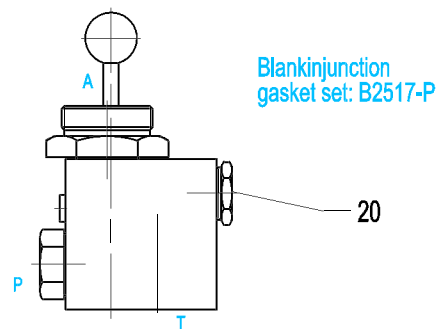
BS20MP ..A.G.. - ...

9.3df

Item	Description	Q.ty	Order code
1	Body block BS20	1	Not supplied as spare part
2	Safety valve DBD... 10 k 1...	1	DBD... 10 k 1...
3	Niple side accumulator	1	1" 1/4 B10470 - ** 2" B10471 - **
4	Niple installation side	1	B10463 - **
5	Pin ball	1	B10462 - **
6	Gasket	1	B10487 - *
7	Ball DN20	1	0052S906356RN
8	Spring pins 6x26 UNI 6873	2	0023E6x26C
9	Seal for ball Ø20	1	0013G913911RN
10	Seal for ball Ø20	1	0013G914051RN
11	Antitrusion ring Parbak	1	0011P8113 - *
12	"O" ring	1	0010R0119 - *
13	"O" ring	2	0010R3131 - *
14	"O" ring	1	0010M24x3 - *
15	"O" ring	1	0010R3218 - *
16	Plug with rubber seals 1/4" BSP	1	0031TG2
17	Handle for BS20	1	B10482 - **
18	Description plate	1	B11024 - 6 - A
19	Knob M10	1	0055PS.35-M10-EA
20	Blankinjunction side accumulorg plug	1	B2375 - **/*
21	Adapter	1	B10456-C
22	Nipple	1	B11638-C
23	Valve VS 224 X	1	VS224X / xxx
24	Complete solenoid valve	1	Normally open B2372-xxx-O Normally closed B2395-xxx-C
25	Coil + connector	1	B2370-xxx
Standard nipple ass. (parts 3-13-15)		1	1" 1/4 N-M36/1.5A7 - **.* 2" N-M36/1.5A9 - **.*
Safety block gasket sets		1	B 2141 - *
Ball sets		1	B 2133 - *

\* Gasket material \*\* Component material

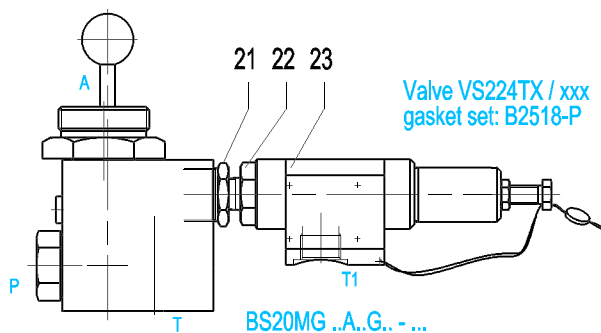
9.3dj



Blankinjunction gasket set: B2517-P

BS20MT ..A.G.. - ...

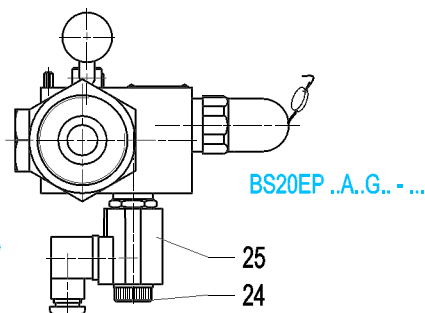
9.3dg



Valve VS224TX / xxx gasket set: B2518-P

BS20MG ..A.G.. - ...

9.3dh

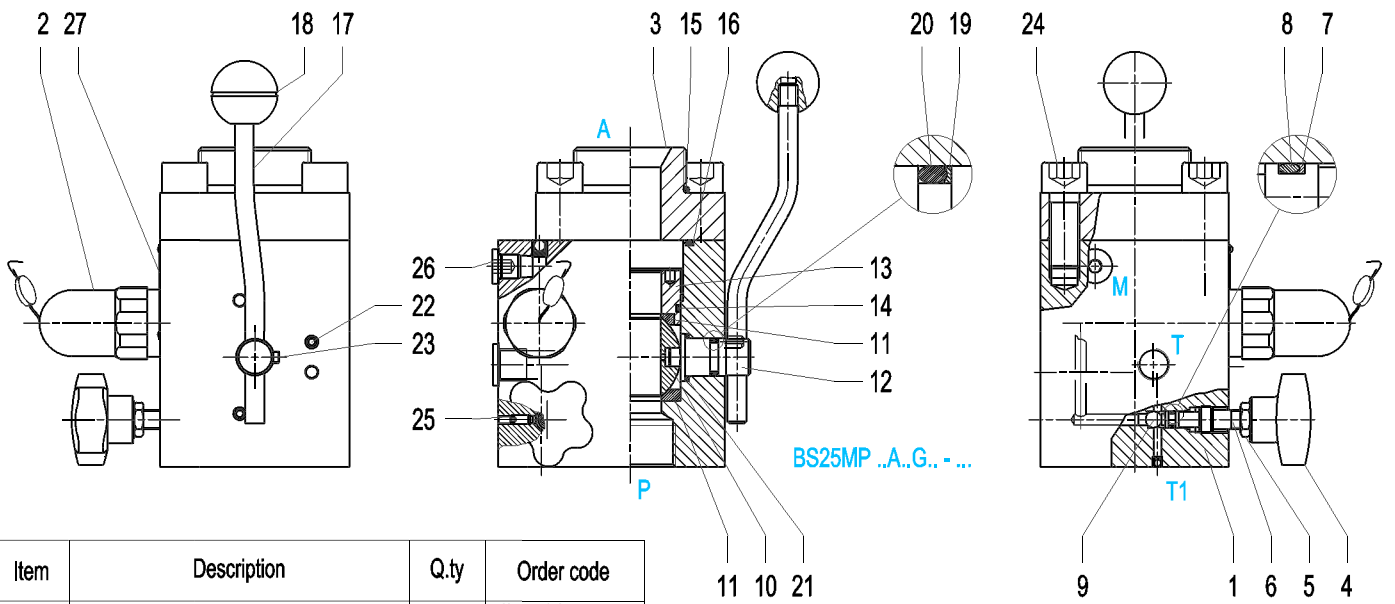


BS20EP ..A.G.. - ...

Solenoid valve gasket set: B2519-P

9.3di

9.3.9.3 BS25 SPARE PARTS CODES

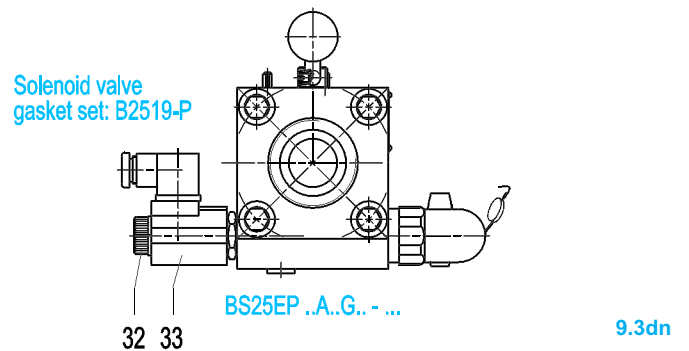
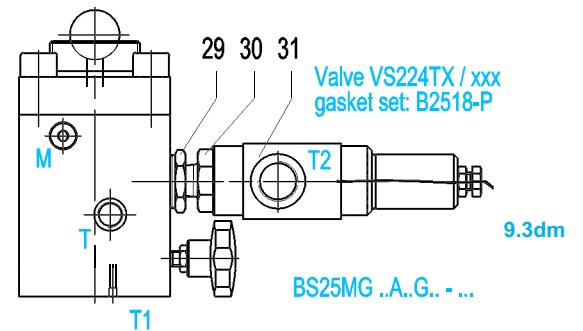
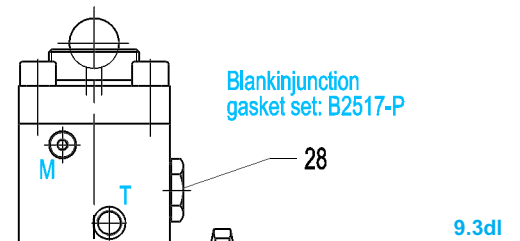


Item	Description	Q.ty	Order code
1	Body block BS25	1	Not supplied as spare part
2	Safety valve DBD... 10 k 1....	1	DBD... 10 k 1....
3	Flange accumulator side	1	1" 1/4 B10473 - ** 2" B10349 - 1 - **
4	Knob M10	1	055MVC.192/50B-M10EA
5	Hex. nut M10 UNI 5588	1	0020DNM10CZ
6	Manual discharge pin	1	B10417 - **
7	Antiextrusion ring Parbak	1	0011P8009 - *
8	"O" ring	1	0010R2021 - *
9	Ball Ø8.5	1	0051S8.5-C
10	Ball DN25	1	0052S906063RN
11	Seal for ball Ø25	2	0013G913912RN
12	Pin for ball	1	B10498 - **
13	Ring nut	1	B10494 - **
14	"O" ring	1	0010R3150 - *
15	"O" ring	1	0010R3218 - *
16	"O" ring	1	0010R0159 - *
17	Handle	1	B10482 - **
18	Knob M10	1	0055PS.35-M10-EA
19	Antiextrusion ring Parbak	1	0011P8113 - *
20	"O" ring	1	0010R0119 - *
21	Seal for pin	1	B10487 - *
22	Spring pin 6x26 UNI 6873	2	0023E6x26CZ
23	Set screw M6x8 UNI 5923-67	1	0022VSTEIM6x8CZ
24	Hex. socket head cap screws M16x40 UNI5931	4	0022VTCEIM16x40CZ
25	Set screw M5x12 UNI 5925-67	1	0022VSTEIM5x12CZ
26	Plug with rubber seal 1/4" BSP	1	0031TG2
27	Description plate	1	B11024 - 6 - A
28	Blankinjunction side accumulatorg plug	1	B2375 - ** / *
29	Adapter	1	B10456-C
30	Nipple	1	B11638-C
31	Valve VS 224 X	1	VS224X / xxx
32	Complete solenoid valve	1	Normally open B2372-xxx-0 Normally closed B2395-xxx-C
33	Coil + connector	1	B2370-xxx
Standard flange accumulator assembly ( parts 3 - 15 - 16 )		1	1" 1/4 F 2454 A7 - ** / * 2" F 2454 A9 - ** / *
Safety block gasket sets		1	B 2142 - *
Ball sets		1	B 2134 - *

\* Gasket material \*\* Component material

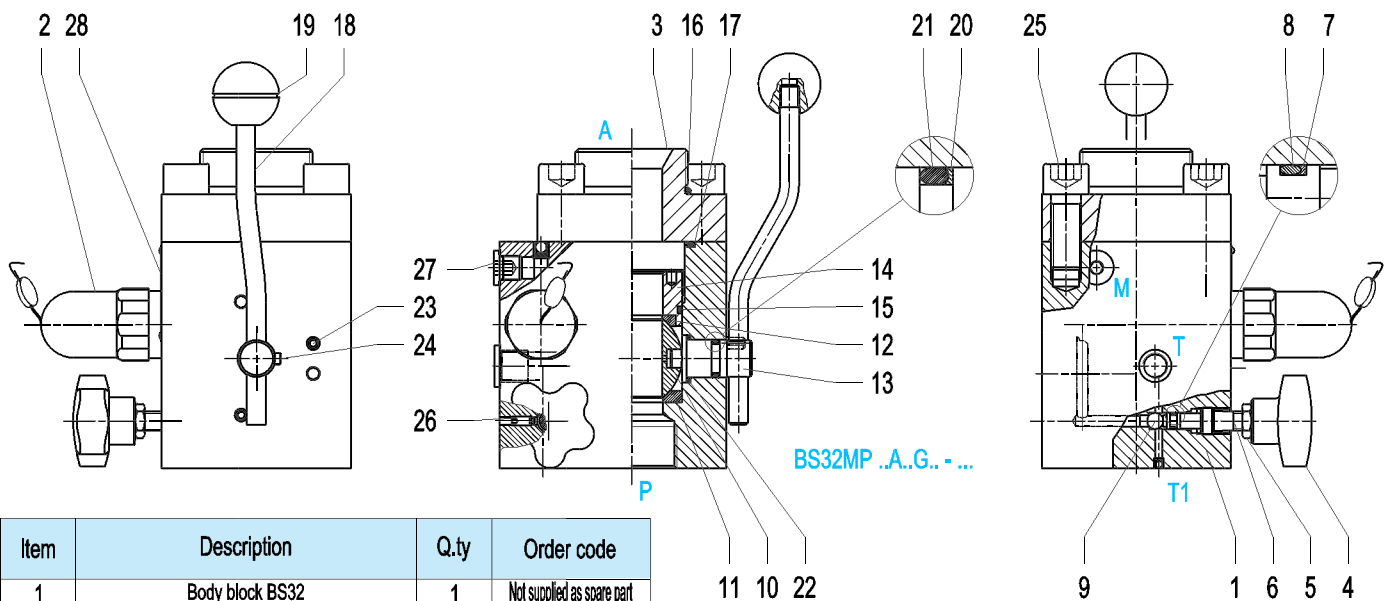
9.3do

9.3dk





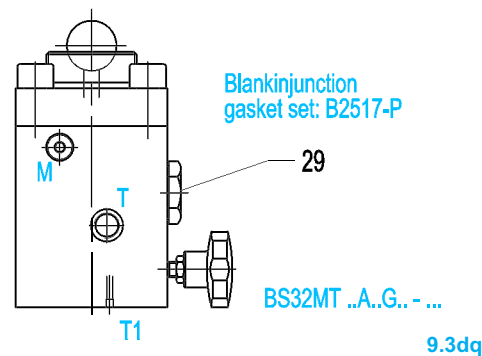
9.3.9.4 BS32 SPARE PARTS CODES



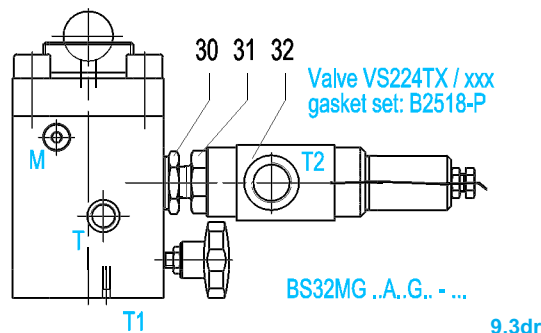
Item	Description	Q.ty	Order code
1	Body block BS32	1	Not supplied as spare part
2	Safety valve DBD... 10 k 1....	1	DBD... 10 k 1....
3	Flange accumulator side	1	2" B10349-1-**
4	Knob M10	1	055MVC.192/50BM10EA
5	Hex. nut M10 UNI 5588	1	0020DNM10CZ
6	Manual discharge pin	1	B10417 - **
7	Antiextrusion ring Parbak	1	0011P8009 - *
8	"O" ring	1	0010R2021 - *
9	Ball Ø8.5	1	0051S8.5-C
10	Ball DN32	1	0052S907744RN
11	Seal for ball Ø32	1	0013G913815RN
12	Seal for ball Ø32	1	0013G913813RN
13	Pin for ball	1	B10480R - **
14	Ring nut	1	B10478R - **
15	"O" ring	1	0010R3181 - *
16	"O" ring	1	0010R3218 - *
17	"O" ring	1	0010R0164 - *
18	Handle	1	B10482 - **
19	Knob M10	1	0055PS.35-M10-EA
20	Antiextrusion ring Parbak	1	0011P8113 - *
21	"O" ring	1	0010R0119 - *
22	Seal for pin	1	B10487 - *
23	Spring pin 6x26 UNI 6873	2	0023E6x26CZ
24	Set screw M6x8 UNI 5923-67	1	0022VSTEIM6x8CZ
25	Hex. socket head cap screws M16x40 UNI5931	4	0022VTCEIM16x40CZ
26	Set screw M5x12 UNI 5925-67	1	0022VSTEIM5x12CZ
27	Plug with rubber seal 1/4" BSP	1	0031TG2
28	Description plate	1	B11024 - 6 - A
29	Blankinjunction side accumulator plug	1	B2375 - ** / *
30	Adapter	1	B10456-C
31	Nipple	1	B11638-C
32	Valve VS 224 X	1	VS224X / xxx
33	Complete solenoid valve	1	Normally open B2372-xxx-O Normally closed B2395-xxx-C
34	Coil + connector	1	B2370-xxx
Standard flange accumulator assembly ( parts 3 - 16 - 17 )		1	2" F2454 A9 - ** / *
Safety block gasket sets		1	B 2143 - *
Ball sets		1	B 2135 - *

\* Gasket material    \*\* Component material

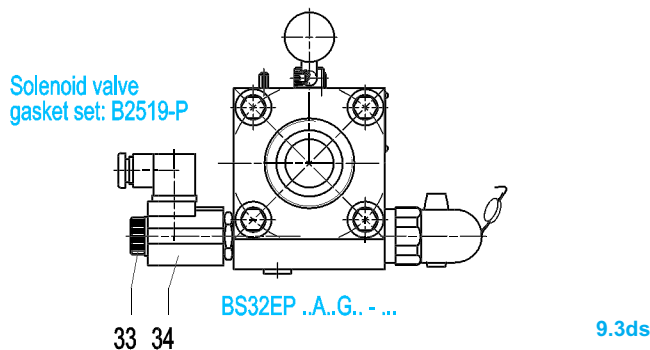
9.3dt



9.3dq



9.3dr



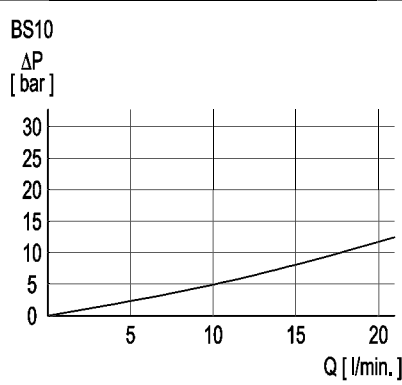
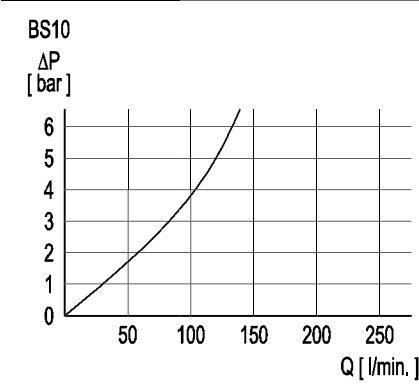
9.3ds

9.3.10 CHARACTERISTIC CURVES

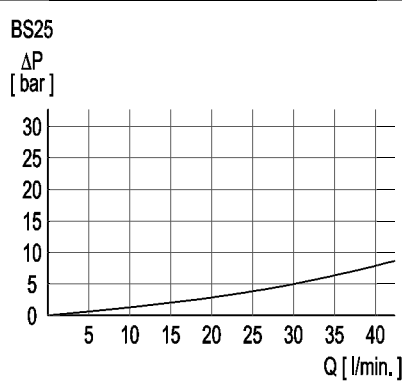
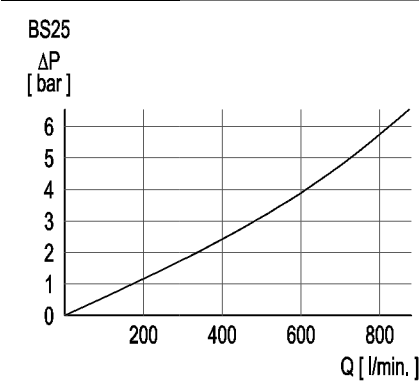
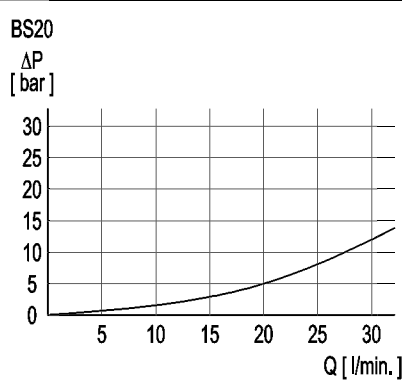
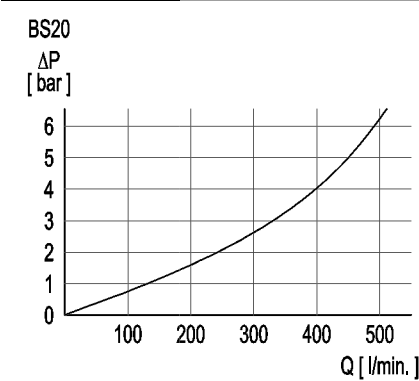
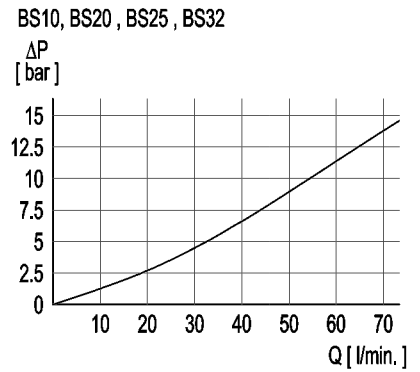
$\Delta P$  Curves

Flow rate from line to the accumulator and viceversa

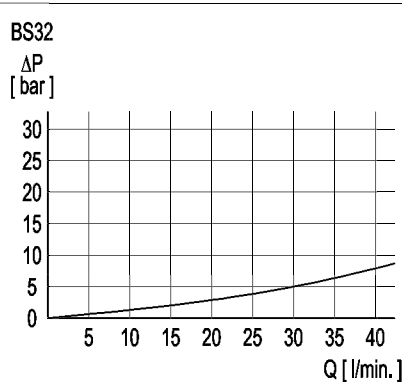
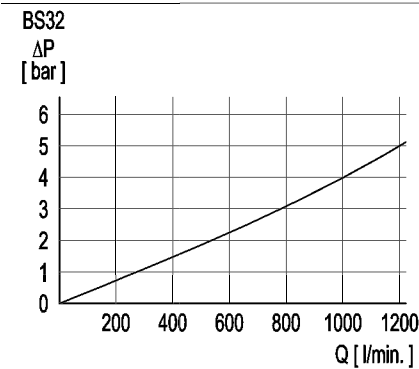
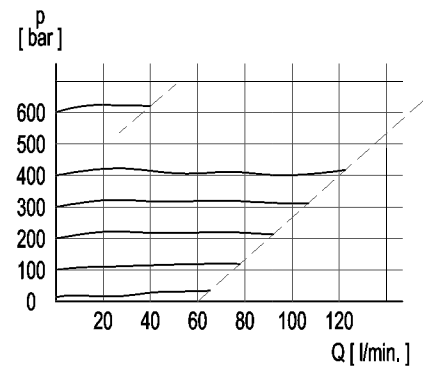
Flow rate from the accumulator to the tank



Flow rate from the accumulator via the solenoid valve to the tank



Flow rate from pressure relief valve to tank (only DBDS10)



Curves measured using mineral oil with viscosity of 36 cSt at 50°C

### 9.3.11 EUROPEAN MARKET

Directive 97/23/EC provides that pressure equipment, in which it's reasonably expected to be exceeded the allowable limits, should be provided with adequate protective equipment; for example, safety accessories such as the valves or the safety blocks type DBDS or BS. These devices shall prevent that pressure permanently exceeds the maximum allowable pressure PS of the equipment protected by them. However, it is permissible a pressure peak of short duration limited to 10% of the maximum allowable pressure. For the choice and sizing of the adequate safety device, the User should refer to specific standards. In accordance with the regulations 97/23/EC, the safety valves are classified in Category IV.

### 9.3.12 ACCESSORIES

For safety valve type VS, see section 8.1

For safety valve type DBDS, see section 9.1

For fluid side adapter, see section 9.4

For single acting flow control valves, see section 12.5

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