



SAFETY VALVES type VS

8.1



BURST AND FUSE DISK type DR and DF

8.2



GAS SIDE ADAPTERS type TG

8.3



SHUT OFF 2-WAY VALVES GAS SIDE

8.4



SHUT OFF 3-WAY VALVES GAS SIDE

8.5



CHARGING AND SHUT-OFF SAFETY BLOCK type BC

8.6

8.1.1 TECHNICAL DATA

MAX OPERATING PRESSURE (PS): 360 bar

PRESSURE SETTING (P): 10 ÷ 360 (upon request)

ORIFICE: 9.5 mm

LIFT: 2 mm

WORKING TEMPERATURE: -40 ÷ +150 °C

REPETIBILITY: ± 3% of P

CALIBRATION ERROR: < 3%

OVERPRESSURE BY FULL FLOW: 10% of P

BLOW DOWN: 10% of P

GAS DISCHARGE COEFFICIENT (K): 0.95

LIQUID DISCHARGE COEFFICIENT (K): 0.6

BODY MATERIAL: stainless steel AISI 316L

SEALING MATERIAL: Delrin (POM)

CONNECTIONS: 3/4" BSP ISO228

FLOW RATE: see Table 5.1d

WEIGHT: see Table 5.1d

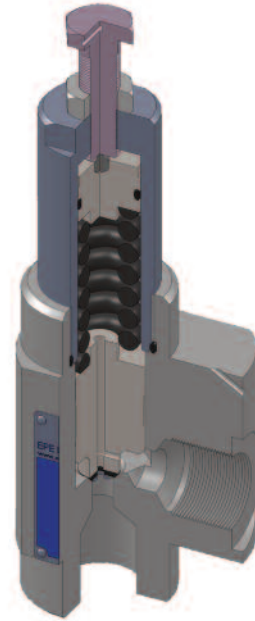
8.1.2 DESCRIPTION

The safety valves VS224 are designed and manufactured by Epe Italiana. They have soft seal and total lift. They have a high flow coefficient ($K = 0.95$) and are suitable for gas and liquids.

VS224 valves are safety devices as specified in Article 1, Section 2.1.3 of Directive 97/23/EC and are subject to Article 3, Section 1.4 of the same Directive.

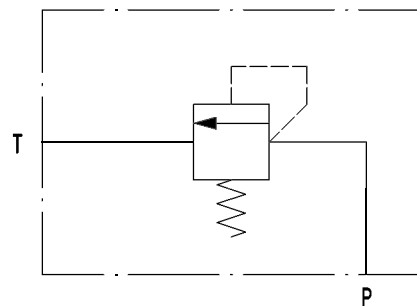
These valves are direct acting safety valves, used for protection against overpressure with respect to the operating conditions of the accumulators. They can be installed directly on the accumulator, through the appropriate use of adapters (see Cap.8.3) or on the safety block on the gas side (BC32G) or on joint on the gas side connection of the accumulator stations.

The valve opening is determined by the force exerted by the fluid under pressure on the poppet in contrast with the spring acting on the cut-off itself.



8.1a

8.1.3 HYDRAULIC SYMBOL



8.1b

8.1.4 CONSTRUCTION

Body: of stainless steel AISI316L, obtained by mechanical processing, in which are obtained the connections and the seal seat.

Poppet: obtained by mechanical processing from bar and provided with a seal, it ensures the necessary seal degree on the valve seat. The seal is made of DELRIN (POM), a material that, over the estimated useful life for the valve, maintains good strength and does not cause phenomena of poppet sticking on the seat. The poppet is well led and pushed by the spring.

Spring: it counteracts the pressure and the dynamic actions of the fluid and always ensures the closing of the valve after the discharge.

The coils of the spring, even when the poppet has reached its maximum lift, are never at pack.

The poppet has a mechanical lock and when it has reached it, the arrow of the spring does not exceed 85% of the maximum deviation.

Calibration system: threaded hexagon head screw which screws into the top of the valve by compressing the spring below. After the calibration, the position of the adjusting screw is kept unaltered by locking the counter nut and sealing the adjusting screw to the body.

8.1.5 CALIBRATION

All valves are calibrated on the working bench with atmospheric counter pressure. The repeatability error of calibration is less than 3% of P.

The leak test is performed according to API Standard 527: with air under water and up to a pressure equal to 97% of the calibration pressure verifying that, there's no beackages.

8.1.6 ORDER CODE

1	2	3	4	5
VS	224	T	X	/ 360

1	Series
Safety valves	= VS

2	Model
Model	= 224

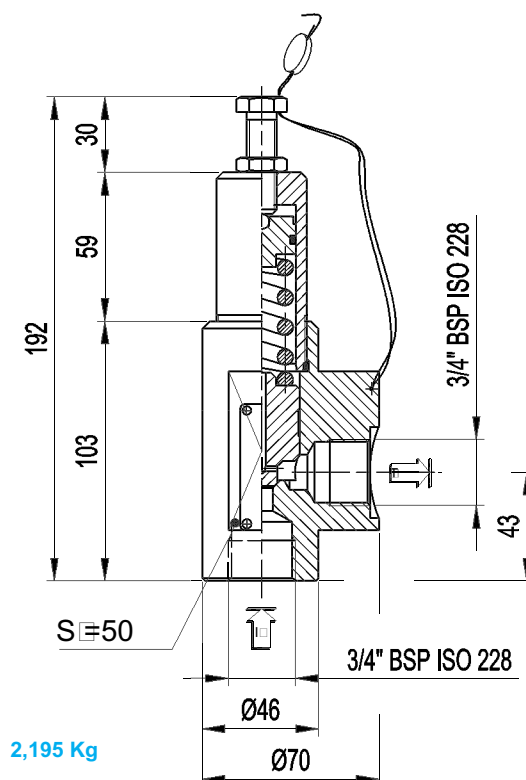
3	Sealing material
Delrin	= T

5	Pressure setting (P)
10 ÷ 360 bar	= upon request

4	Body material
Stainless steel AISI316L	= X

Special variants upon request

8.1.7 DIMENSIONS



8.1c

8.1.8 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 safety valves type VS or burst disk type DR (see Chap. 8.2). 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.

8.1.9 ACCESSORIES

Two-way shut-off valves, see Chap. 8.4

Three-way shut-off valves, see Chap. 8.5

Gas side dumpers, see Chap. 8.3

8.1.10 COMMISSIONING AND MAINTENANCE

Installing the valves

Regarding the installation of the safety valves, you should be kept in mind the following key points:

- the safety valves must be installed in the area that need to be protected from overpressure in the vertical position with the inlet connection facing down;
- the vessels, connected each other by appropriate piping with a diameter adapted by the Manufacturer and User and on which there weren't interposed interceptions, can be considered for the installation of the safety valves, as a single vessel;
- the connection between the valve and the equipment to be protected should be as short as possible and must not have a cross section smaller than the one of the valve inlet. In any case, the standard EN 13136:2001/A1: 2005 states that the pressure drop between the protected vessel and the safety valve, at flow rate of full discharge, should not exceed 3% of the pressure value P, including any accessory inserted on the line;
- the choice of the safety valve displacement should consider that the operation of the valve results in the discharge of the gas under pressure, if not sent directly to atmosphere.

Where there is a risk of causing direct damage to individuals who are nearby, you will have to provide a pipe for conveying the discharge, sized so as not to affect the operation of the valve.

Standard EN 13136:2001/A1: 2005 requires that this pipeline should not generate, at full capacity, a pressure higher than 10% of the value of the calibration pressure for conventional unbalanced valves.

Disassembly

Before removing the valve, make sure that the plant on which it is mounted is not under pressure and that there is no pressure within the valve.

Ordinary maintenance

Checking the seals of the shutter and the seat on the system at each opening of the valve or every 6 months of operation. Periodic retest

according to the related standards of the country of installation. In Italy, see the Ministerial Decree 329 dd. 12/01/2004: for fluids of the group 1: every 2 years you must carry out a functional test and every 10 years you must check the integrity; for fluids of the group 2, every 3 years, you must check the operation and every 10 years you must check the integrity.

8.1.11 SIZING

Calculation according to ISO 4126-6

$$\text{Equation } Q = C \cdot K_b \cdot \alpha \cdot A \cdot P \cdot \text{radp} \cdot (M/T \cdot Z)$$

Definitions

A = mm ²	Minimum cross sectional flow area
Q = Kg/h	Mass flow rate
P = bar abs	Relieving pressure (=barg + 1.013)
K =	Isentropic exponent
C =	Function of isentropic exponent (=2.401 for k=1)
A =	Discharge coefficient (0.95)
T = °K	Relieving temperature
Z =	Compressibility factor
M = Kg/Kmol	Molecular factor
Kb =	Capacity correction factor for subcritical flow
Pb = bar abs	Back pressure

Examples

Gas: Nitrogen N₂

PRESS. SETTING 330 BAR	
DN	9.5 mm
A	70
Pb	1.013 bar abs
Ps	330 bar g
P	331.013 bar abs
Ts	80°C
T	353°K
M	29
Z	1
C	2,703
A	0,95
Kb	1

Mass flow rate calculation **Q = 17,000 Kg/h**

PRESS. SETTING 360 BAR	
DN	9.5 mm
A	70
Pb	1.013 bar abs
Ps	330 bar g
P	331.013 bar abs
Ts	80°C
T	353°K
M	29
Z	1
C	2,703
A	0,95
Kb	1

Mass flow rate calculation $Q = 18,600 \text{ Kg/h}$

8.1.12 EXAMPLES OF SAFETY VALVE ASSEMBLY

Direct mounting on a bladder accumulator



Direct mounting on a piston accumulator with nipple of 3/4" BSP

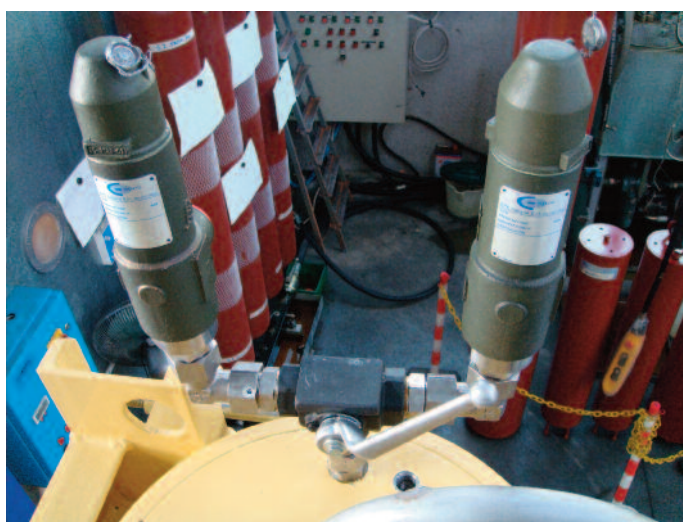


Mounting with shut-off 2-way valves (Chap. 8.4) to avoid discharging all the nitrogen in case of retest on the working bench or maintenance to the valve.



8.1f

Mounting with 3-ways shut-off valves (Chap. 8.5) to continue working safely with the second valve when it is necessary to remove the first for retesting on the working bench or maintenance.



8.1g

8.1d

8.1e

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8.2.1 TECHNICAL DATA

INTERNAL DIAMETER: 8 mm

INFLUX DIAMETER: 4

MAX OPERATING PRESSURE: 400 BAR

OVERPRESSURE: 0 + 10%

WORKING TEMPERATURE: -40°C +150°C

TESTING CERTIFICATE: CE/PED (97/23/EC)

CALIBRATION ERROR: <3%

OVERPRESSURE BY FULL FLOW: 10% of P

MATERIAL: stainless steel AISI 316L

MEDIUM: nitrogen (N2)

WEIGHT: see table 8.2c

8.2.2 DESCRIPTION

The BURST DISK is a safety device that can be mounted on the gas side of the bladder and piston accumulators.

Its function is to protect the accumulator from any excessive pressure that may exceed the maximum design limit of the accumulator itself causing damages to equipment and people.

The rupture of the disk is a drastic measure; in fact you will assist to the full release of all the contents of the accumulator (nitrogen).

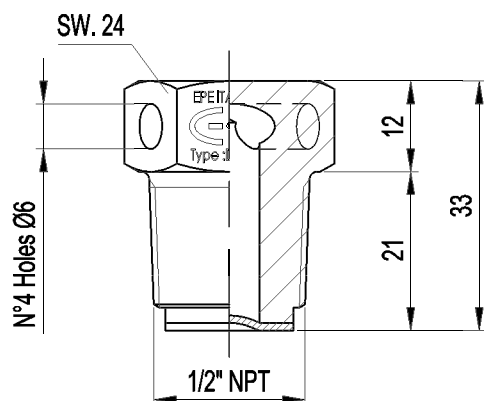
Reaction to end of overpressure: it does not close, and then the disk must be replaced.

The burst disk is composed of a properly drilled hexagonal cap in stainless steel AISI 316L on which it is brazed a calibrated and concave membrane, which will explode at the pre-set value. It can be installed in any position.

8.2.3 ORDER CODE

1	2	3
DR	8	/ 360
1 Series		3 Standard calibration
BURST DISK= DR		210 bar = 210 250 bar = 250 270 bar = 270 330 bar = 330 360 bar = 360
2 Size		
INTERNAL DIAM. 8 mm = 8		

8.2.4 DIMENSIONS

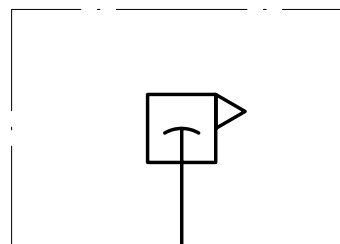


8.2c



8.2a

8.2.5 HYDRAULIC SYMBOL



8.2b

8.2.6 ACCESSORIES

For adapter, see Section 8.3

8.2.7 EUROPE MARKET

All burst disk cure the safety device Certification: CE/PED

Periodic check of calibration: is not required in accordance with Ministerial Decree No. 329.

8.2.8 SIZING

Mass flow for glass (Nitrogen)

Calculation according to ISO 4126-6

Equation 6c $Q = C \cdot K_b \cdot \alpha \cdot A \cdot P \cdot \text{radp} (M/T \cdot Z)$

Fixed setting (std)	210 bar = 210
	250 bar = 250
	270 bar = 270
	330 bar = 330
	360 bar = 360

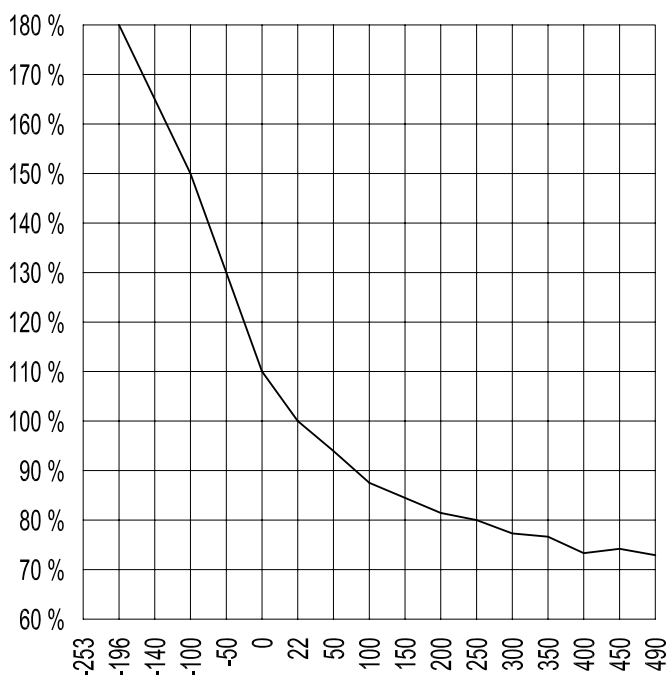
Definitions

A = mm ²	Minimum cross sectional flow area
Q = Kg/h	Mass flow rate
P = bar abs	Relieving pressure (=barg + 1.013)
K =	Isoentropic exponent
C =	Function of isoentropic exponent (=2.401 for k=1)
A =	Discharge coefficient (0.62 – 0.80)
T = °K	Relieving temperature
Z =	Compressibility factor
M = Kg/Kmol	Molecular factor
Kb =	Capacity correction factor for subcritical flow
Pb = bar abs	Back pressure

Calculation example

PRESS. SETTING 330 BAR	
DN	8 mm
A	50
Pb	1.013 bar abs
Ps	330 bar g
P	331.013 bar abs
Ts	80°C
T	353°K
M	29
Z	1
C	2,703
A	0,62
Kb	1

In the selection of the range of burst disk, it must be remembered that the nominal setting pressure has a tolerance 0 +10% and the burst pressure varies according to the temperature as shown below.



8.2d

8.2.9 FUSE DISK

Temperature fuses are "devices with a safety function" and are used to release the gas pressure by discharging the nitrogen completely when a rise in temperature reaches unacceptable levels (i.e. in the case of fire).

Permitted operation pressure: ≤ 500 bar

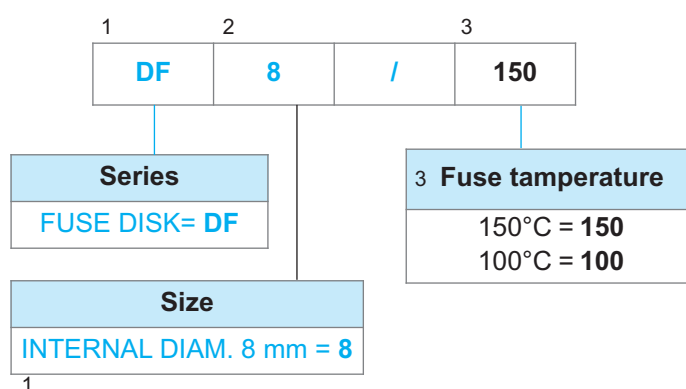
Temperature range: - 10 °C ... +80 °C

Melting point: Approx. 150°C

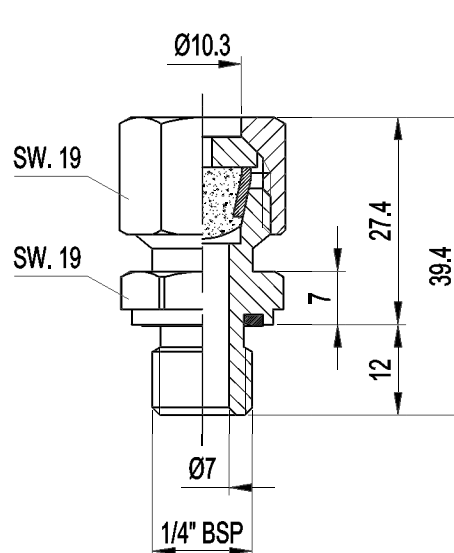
Installation:

Simple to retrofit by replacing the sealing cap with the temperature fuse.

8.2.10 ORDER CODE OF THE FUSE DISK



8.2.11 FUSE DISK DIMENSIONS



8.2e

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8.3.1 TECHNICAL DATA

INTERNAL DIAMETER: 10 mm

MAX OPERATING PRESSURE: 400 BAR

WORKING TEMPERATURE: -20 ÷ 80 °C ("P" version with NBR seals)
-10 ÷ 150°C("V" version with VITON seals)

SAFETY VALVE: see catalogue section 8.1

BURST DISK: see catalogue section 8.2

FUSE DISK: see catalogue section 8.2

MATERIAL:

- phosphated or
- galvanized carbon steel in compliance with Directive 2002/95/EC (RoHS) to resist to corrosion
- stainless steel AISI 316L
- nickel coating 25-40 µ

MEDIUM: nitrogen (N₂)

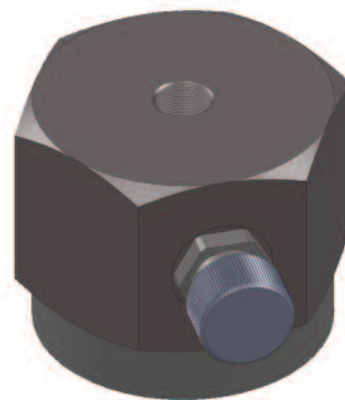
WEIGHT: see table 8.3c

8.3.2 ADVANTAGES

- compact design
- flexible connection options
- the accumulator can be charged with nitrogen using PC kit , directly via standard or special filling valve.

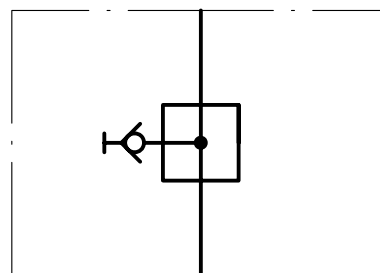
8.3.3 DESCRIPTION

The gas side adapters are blocks of various type, which is possible to mount on the gas side of an accumulator and which can be fit many pressure devices, charging equipment, gas safety valve, burst disk, fuse disk, needle valve, pressure gauge, minimess and other components. Special seal allows this adapter to be installed simply and securely in any position on all gas valves of the bladder accumulators. It's important to select the correct adapter based on the thread of the gas valve.



8.3a

8.3.4 HYDRAULIC SYMBOL



8.3b

8.3.5 MOUNTING

Before mounting a gas side supplied as individual item, you should fully discharge the nitrogen pressure inside the accumulator. The you should unscrew the existing pre-charge valve. External valve

Internal valve
Use a wrench with code B2508

Now make sure the seal is correctly fitted into its seat inside the adapter on the threaded side

In order to mount the adapter on the valve of the accumulator, screw the adapter on the gas valve body of the accumulator and tighten with torque 80+20Nm.

If necessary, connect the various connections.

Pre-charge the accumulator as shown in the manual of use and maintenance.

8.3.6 ORDER CODE

1	2	3	4	5	6	7		
TG	50	P4	V	-	1G2	-	C	P

1	Series
Gas side adapter	= TG

2	Gas valve dimension
M50X1.5 = 50	
M22X1.5 = 22	
7/8" UNF = 7/8	

3	Top central connection
1/2" NPT-F	= P4
3/4" BSP male	= G5M
1/2" BSP female	= G4
Burst disk set at xxx bar	= Rxxx
Safety valve set at xxx	= Gxxx
1/4" BSP female	= G2
Connection for pressure gauge of 1/4" BSP	= M000
Pressure gauge dia. 63 mm with full scale xxx	= Mxxx
Ball valve of 1/2" BSP	= B4
Needle valve of 1/4" BSP	= N2
Stainless steel needle valve of 1/4" BSP	= N2X
Stainless steel ball valve of 1/4" BSP	= B2X
Needle valve of 1/4" BSP + cap	= N2T
1/4" BSP Plug	= T2
1/2" BSP Plug	= T4
N°1 exclusion device at 90° with pressure gauge dia. 63 mm with full scale xxx	= ELMxxx

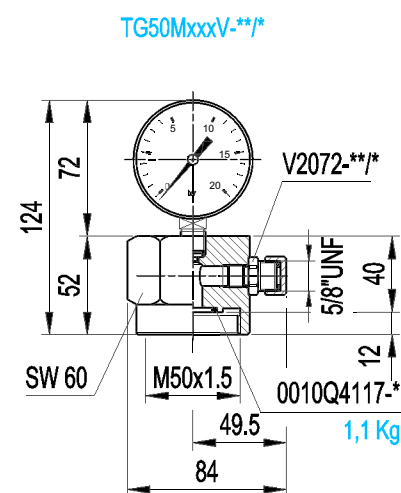
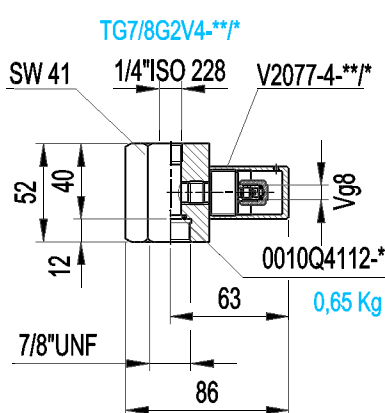
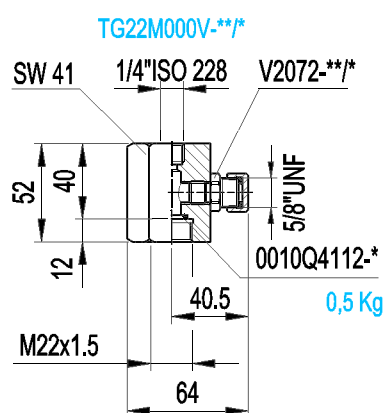
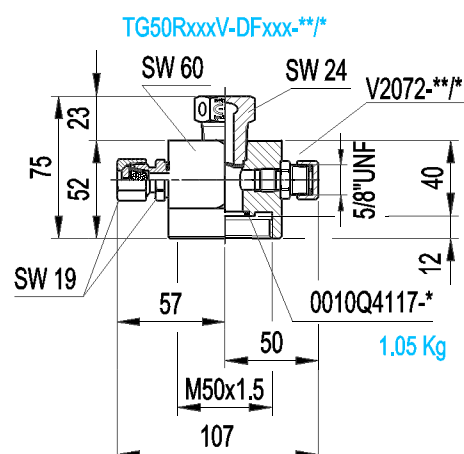
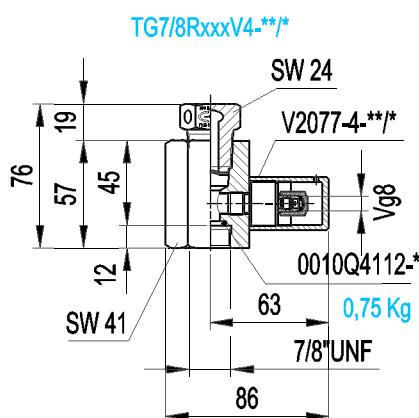
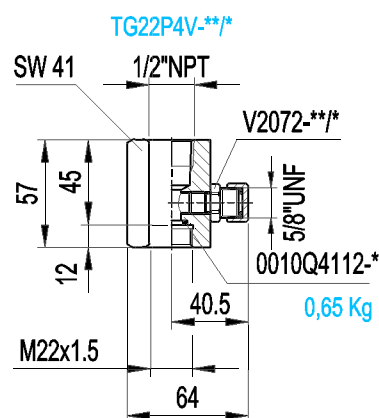
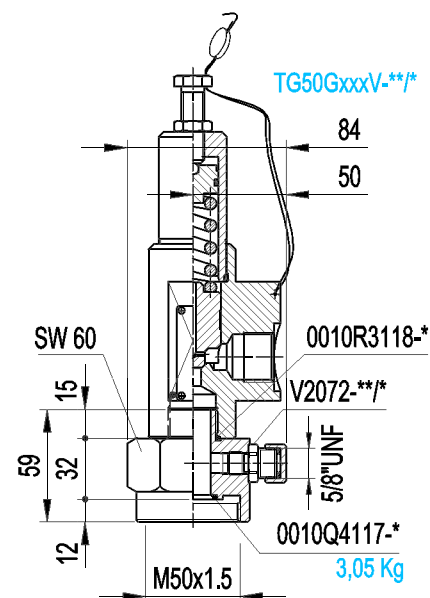
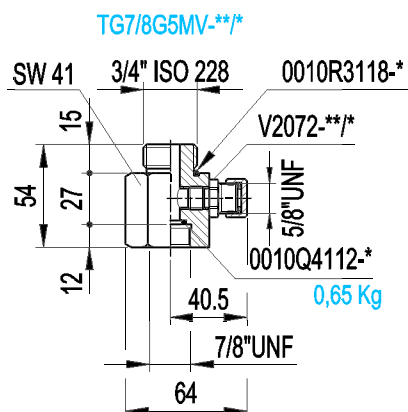
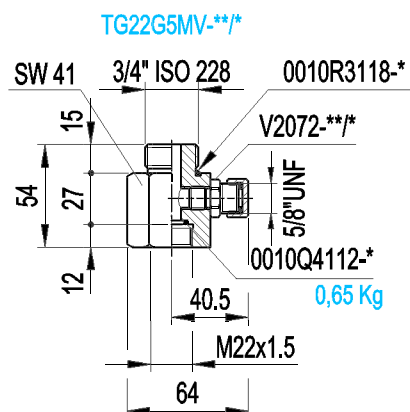
4	Pre-charge valve (Lateral)
Valve of 5/8" UNF	= V
Stainless steel valve of 5/8" UNF	= VX
Valve of 7/8" UNF	= V4
Valve of 1/4" BSP	= V2

7	Seals material
Nitrile NBR	= P
Viton FKM	= V

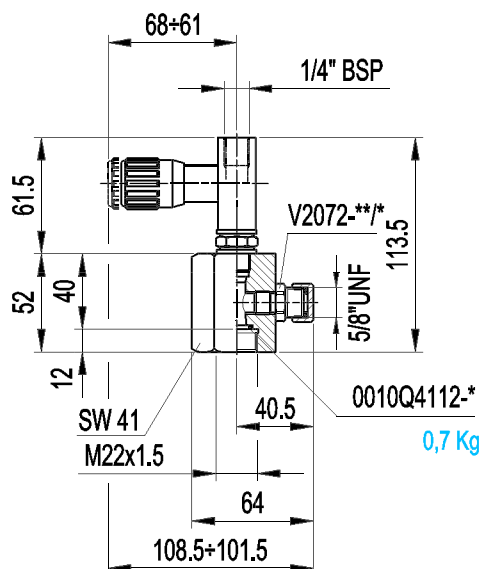
6	Material
Carbon steel	= C
Nickel carbon steel 25 μ	= N
Nickel carbon steel 40 μ	= M
Stainless steel AISI 316 L	= X

5	Eventually lateral connections
No. 2 of 1/4" BSP	= 2G2
No. 3 of 1/4" BSP	= 3G2
No. 1 exclusion device with pressure gauge dia. 63 mm with full scale xxx	= 1EMxxx
No. 1 exclusion device at 90° with pressure gauge dia. 63 mm with full scale xxx	= 1ELMxxx
No. 1 of 1/4" NPT-F	= 1P2
No. 2 of 1/4" NPT-F	= 2P2
No. 3 of 1/4" NPT-F	= 3P2
No. 1 needle valve of 1/4" BSP	= 1N2
No. 1 stainless steel ball valve of 1/4" BSP	= 1B2X
No. 1 needle valve of 1/4" BSP + cap	= 1N2T
Fuse disk at xxx°C	= DFxxx

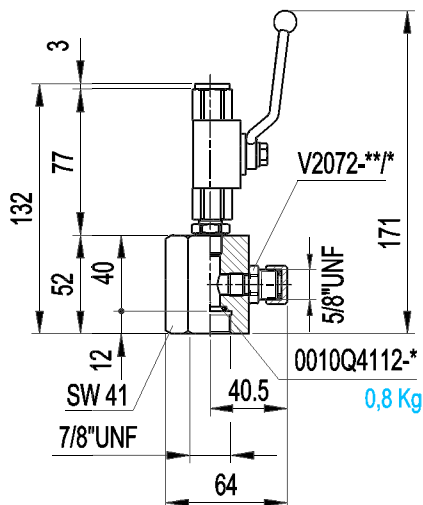
8.3.7 DIMENSIONS



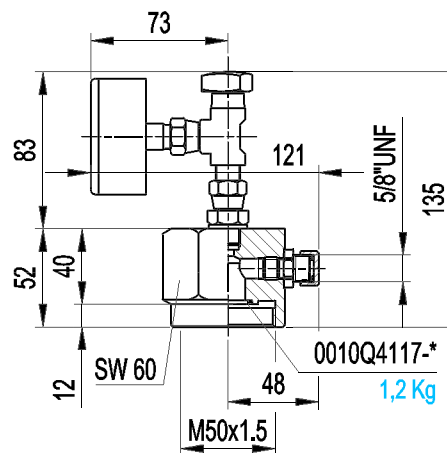
TG22N2V-**/*



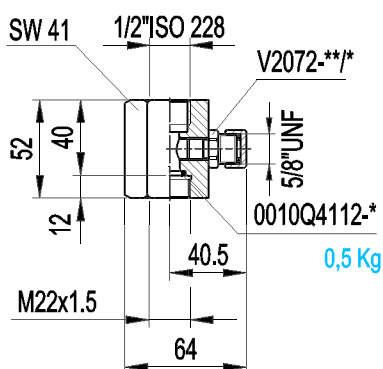
TG7/8B2XT4V-**/*



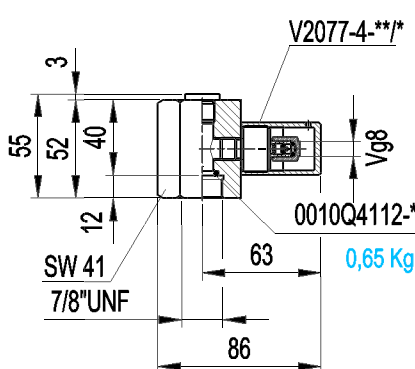
TG50ELMxxxV-**/*



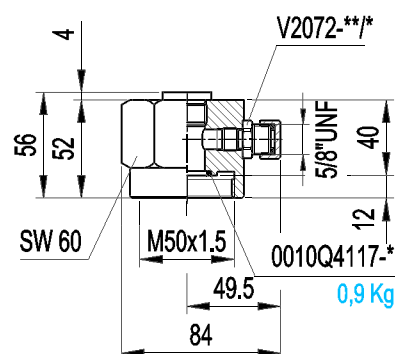
TG22G4V-**/*



TG7/8T2V4-**/*



TG50T4V-**/*



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8.4.1 TECHNICAL DATA

MAX OPERATING PRESSURE: 320 bar

MINIMUM DIAMETER: 19 mm

CONNECTIONS: 3/4 BSP UNI/ISO 228

WORKING TEMPERATURE: -20 ÷ 100

FLUID VISCOSITY RANGE: 10 ÷ 400 cSt

RECOMMENDED VISCOSITY: 36 cSt

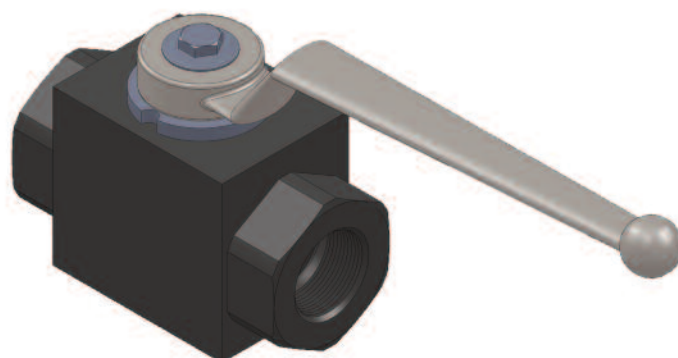
FLUID CONTAMINATION DEGREE:
class 20/18/15 according to ISO 4406/99

BODY MATERIAL: phosphated carbon steel

BALL: in chromed thick steel

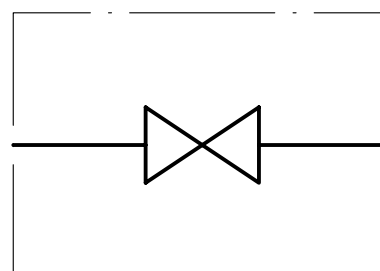
SEALS: polyacetal resin and NBR

LEVER: zinc-stamped



8.4a

8.4.4 HYDRAULIC SYMBOL



8.4b

8.4.2 DESCRIPTION

The two-way ball valve is used to detect the safety valve type VS224 and to remove it for periodic recalibration, without having to fully discharge all the nitrogen of accumulator / accumulator station. The ball of the valve is located between two pre-compressed seals provided with a floating system, so it is guaranteed a perfect seal at both low and high pressure.

8.4.3 ORDER CODE

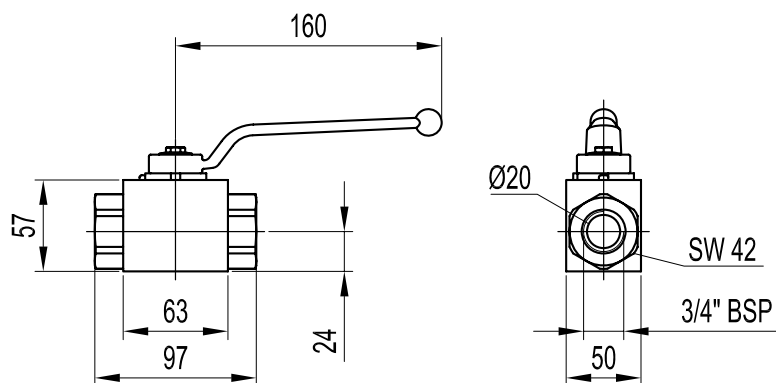
1	2	3
B2459	/	05 K

1	Series
	Shut off 2-way valves gas side = B2459

2	Size
	Connection of 3/4" BSP = 5

3	Variants
	Version with padlock = K
	Plumbing of the handle in one of two positions = PB

8.4.5 DIMENSION



8.4c

8.4.6 CHARACTERISTIC CURVES

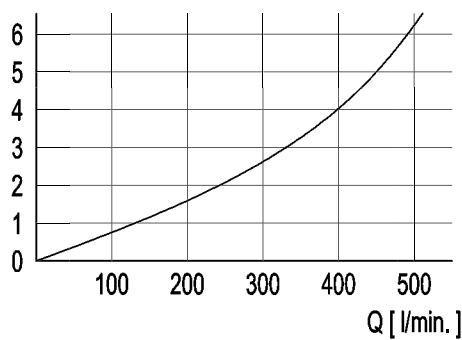
Measured with viscosity of 36 cSt at 50°C.

 ΔP Curves

Flow rate of shut off valve

B 2459

ΔP
[bar]



8.4d

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8.5.1 TECHNICAL DATA

MAX OPERATING PRESSURE: 320 bar

MINIMUM DIAMETER: 19 mm

CONNECTIONS: 3/4" BSP UNI/ISO 228

WORKING TEMPERATURE: -20 ÷ 100

FLUID VISCOSITY RANGE: 10 ÷ 400 cSt

RECOMMENDED VISCOSITY: 36 cSt

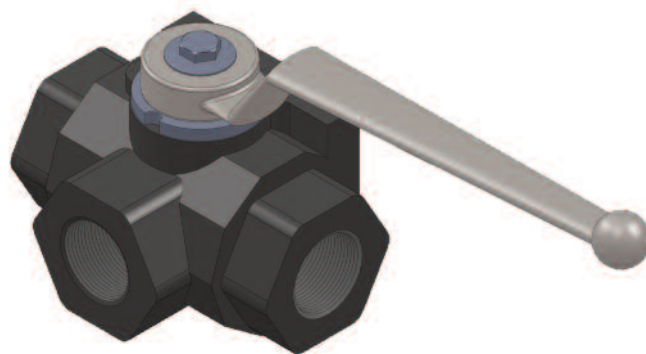
FLUID CONTAMINATION DEGREE:
class 20/18/15 according to ISO 4406/99

BODY MATERIAL: phosphated carbon steel

BALL: in chromed thick steel

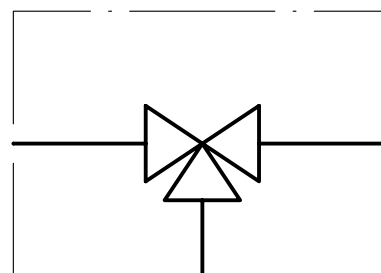
SEALS: polyacetal resin and NBR

LEVER: zinc-stamped



8.5a

8.5.4 HYDRAULIC SYMBOL



8.5b

8.5.2 DESCRIPTION

The three-way ball valve is used to mount two safety valves type VS224 and toggling the lever in a timely manner. You can also disassembly them once at a time for periodic recalibration, always having the system in safety, protected by at least one valve. In fact, the central transitory of the valve connects both valves with the sistem.

The ball of the valve is located between two pre-compressed seals with a floating system, so it is guaranteed a perfect seal at both low and high pressure.

8.5.3 ORDER CODE

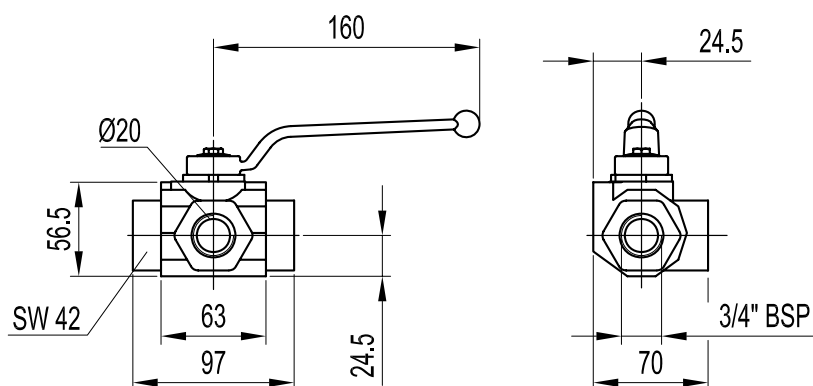
1	2	3
B2460	/	05 K

1	Series
	Shut off 3-way valves gas side = B2460

2	Size
	Connection of 3/4" BSP = 5

3	Variants
	Version with padlock = K
	Plumbing of the handle in one of two positions = PB

8.4.5 DIMENSION



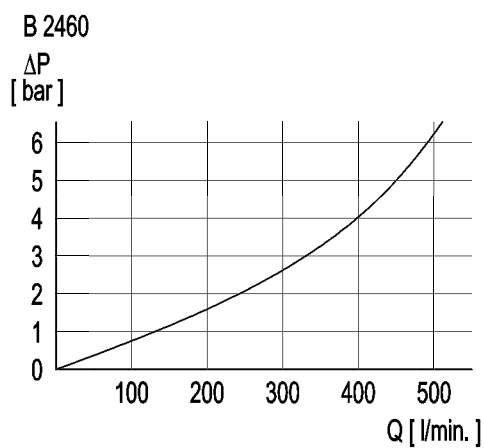
8.5c

8.5.6 CHARACTERISTIC CURVES

Measured with viscosity of 36 cSt at 50°C.

ΔP Curves

Flow rate of shut off valve



8.5d

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8.6.1 TECHNICAL DATA

INTERNAL DIAMETER: 32 mm

MAX OPERATING PRESSURE: 400 BAR

WORKING TEMPERATURE:

-20 ÷ 80 °C ("P" version with NBR seals)

-10 ÷ 150°C("V" version with VITON seals)

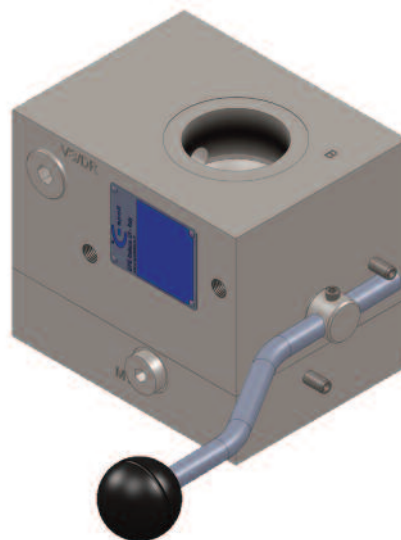
SAFETY VALVE: see catalogue section 8.1

BURST FUSE DISK: see catalogue section 8.2

MATERIAL:

- phosphated or
- galvanized carbon steel in compliance with Directive 2002/95/EC (RoHS) to resist to corrosion.
- stainless steel AISI 316L
- nickel coating 25-40 μ

WEIGHT: see table 8.6c

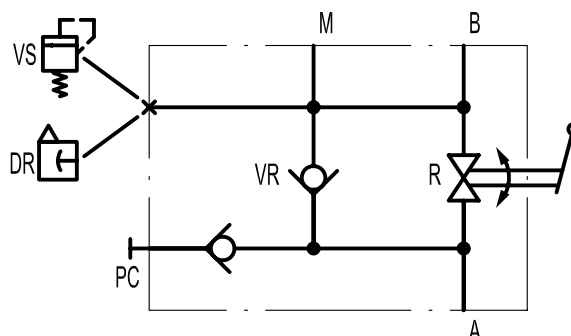


8.6a

8.6.2 DESCRIPTION

Accumulator charging and shut-off safety block type BC is used in order to make safer and more practical the connection of one or more additional nitrogen cylinders with a bladder (transfer version "AST") or a piston accumulator. It includes the filling valve to charge and test the pre-charge of the accumulator through pre-loading set PC (see catalogue Section 10). In addition, it allows the additional nitrogen cylinders to be shut-off from the (bladder or piston) accumulator. The check valve guarantees the nitrogen passage from the accumulator to the cylinders even when the ball valve is closed. It is possible to connect directly a safety valve or a burst/fuse disk. Also it has two connections for pressure gauge / pressure transmitter / pressure plugs Minimes or needle-valve. When the shut-off valve remains open during the operation in order to assure the free nitrogen flow between cylinders and accumulator and vice versa, it should be closed only for a check or for the accumulator maintenance or for use the accumulator as pump for filling the cylinders/accumulation station.

8.6.3 HYDRAULIC SYMBOL

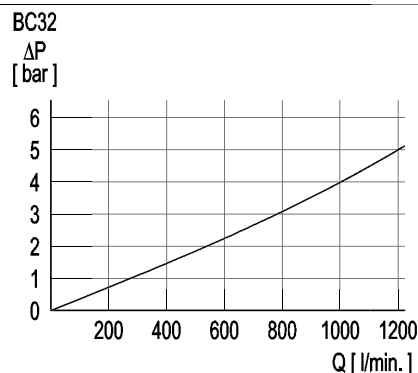


8.6b

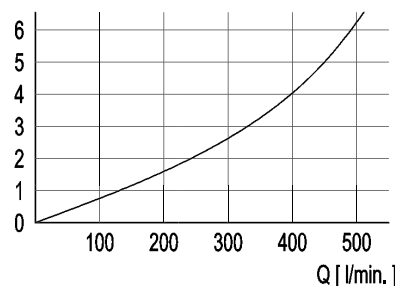
8.6.4 CHARACTERISTIC CURVES

ΔP Curves

Flow rate from A to B and viceversa



Flow rate from to A and B close to VR

BC32 non-return valve
ΔP
[bar]


8.5d

8.6d

8.6.5 ORDER CODE

1	2	3	4	5	6	7	8	9	10
BC	32	R	210	G8	G8	V	8	-	C P

1	Series
	Charging and shut-off safety block = BC

2	Internal nominal diameter
	32mm = 32

3	Safety accessory
	Connection 1/2" NPT-F (with a plastic cap) = A
	Fuse disk = F
	Safety valve type VS224TX = G
	Burst disk = R
	Connection 1/2" NPT-F with closing cap) = T

4	Calibration of the safety valve
	See Section 8.1 or 8.2 = 5 ÷ 360

5	Accumulator side connection
	1"1/2 BSP ISO 228 = G8

10	Seals material
	Nitrile NBR = P
	Viton FKM = V

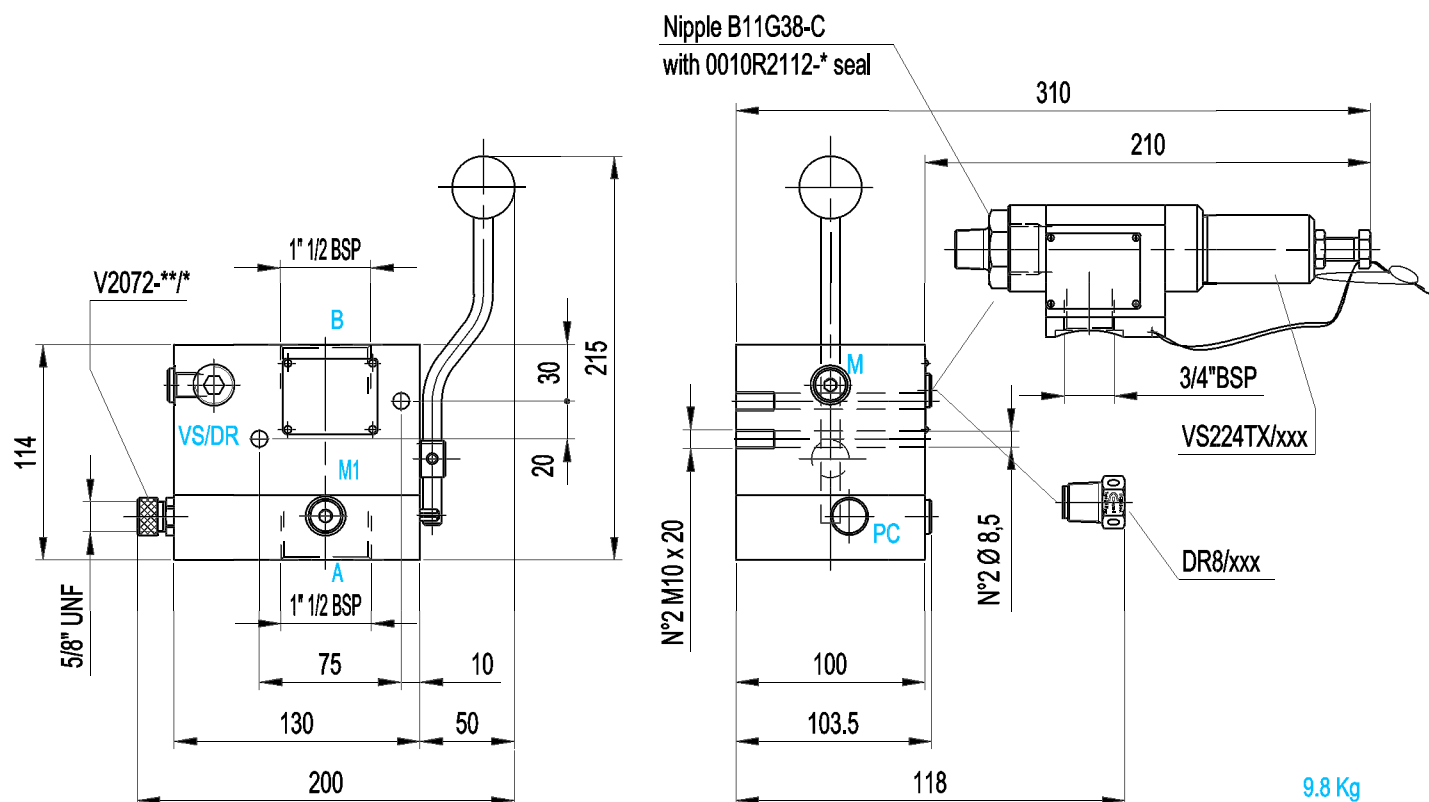
9	Body Material
	Carbon steel = C
	Nickel 25 μ = N
	Nickel 40 μ = M
	Stainless steel AISI 316 L = X

8	Certifications
	97/23/EC = 8
	TR (Russia) = 1
	Passport (Ukraine) = 11

7	Filling valve
	5/8" UNF (std) = V
	5/8" in stainless steel = VX
	7/8" UNF = V4
	1/4" BSP = V2

6	Bottle side connection
	1"1/2 BSP ISO 228 = G8

8.6.6 DIMENSIONS

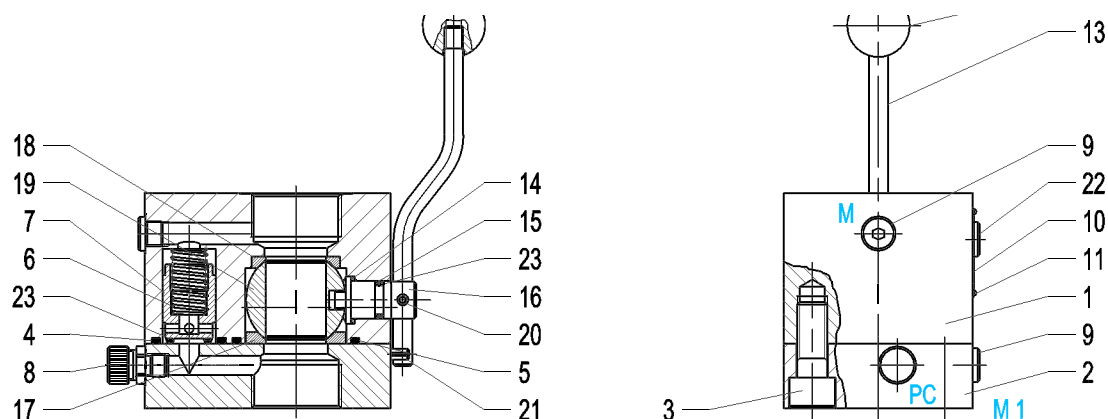


9.8 Kg

8.6e

M = 1/4" BSP
M1 = 1/4" BSP
VS/DR = 1/2" NPT
A = 1" 1/2 BSP Accumulator connection
B = 1" 1/2 BSP Bottle connection
PC = 5/8" UNF

8.6.7 SPARE PARTS CODES



8.6f

8.6f

Item	Description	Q.ty	Order code
1	Safety block BC32	1	Not supplied as spare part
2	Plate of closing	1	
3	Hex, socket head cap screws M16x40 UNI5931	6	0022VTCEIM16x40-C2
4	"O" ring	1	0010R4131 - *
5	"O" ring	1	0010R0164 - *
6	Spring	1	B10149 - X
7	Nozzle	1	B11637 - CP
8	Standard gas valve assembly	1	V 2072 - ** / *
9	Plug with rubber seals 1/4" BSP	2	0031TG2-CP
10	Plate for block	1	B11024 - 6 - A
11	Hammer rivet	4	0029R1,9x5-C
12	Knob M10	1	0055P5,35-M10-EA
13	Handle	1	B10482 - C
14	Seal for pin	1	B10487 - D
15	"O" ring	1	0010R0119 - *
16	Pin	1	B10480R - C
17	Gasket for ball 52.7x6	1	0013913815-RN
18	Gasket for ball 46.5x6	1	0013G913813-RN
19	Ball DN32	1	0052S907344-RN
20	Set screw M6x8 UNI 5927-67	1	0022VSTEIM6x8-CZ
21	Spring pins 6x26 UNI 6873	2	0023E6x26-C
22	Plug 1/2" NPT	1	0031TP4
23	Antiextrusion ring Parbak	1	0011P8113 - *
Gasket sets		1	B2371-* { 0010R4131-* 0010R0164-* B10487-D 0010R0119-* 0010P8113-*
Ball sets		1	B2135-* { 0013913815-RN 0013G913813-RN 0052S907344-RN

* Gasket material

** Component material

8.6g

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