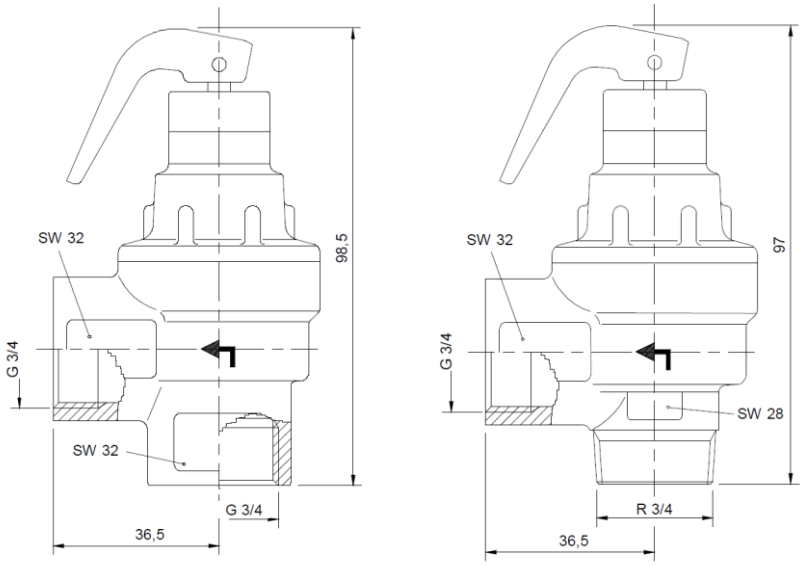
EV METALVÆRK A/S

Project:

Safety Valves type 8720; part no. 432217-XXX and 432218-9XX.



Title:

User manual for Safety Valves type 8720; part no. 432217-XXX and 432218-9XX.

Document No.:	Page
P27-0002	**1** of **11**

4	Sec 4 and 9 revised	2021-11-30	BBF	
3	Revised according to new PED-agreement	2020-11-04	BBF	
2	DOC revised	2019-09-09	BBF	
1	Added note on external forces and DOC revised	2018-08-28	BBF	
0	Document issued	2017-01-09	BBF	
Rev.	Purpose of issue	Date	Prepared by	Re-viewed by

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Statement of Limited Liability

Extreme care should be exercised when installing, operating or servicing this equipment. It should be installed, operated or serviced only by qualified personnel with knowledge and training in the handling and maintenance of such equipment.

EV METALVÆRK A/S disclaims all product liability risks arising from the use or servicing of the system where our product is built in. **EV METALVÆRK A/S** has no way of controlling the use of this equipment or of choosing the personnel to operate it, therefore, **EV METALVÆRK A/S** cannot take steps to comply with laws pertaining to product liability, including laws which impose a duty to warn the user of any dangers involved in operating this equipment. Acceptance of the system by the customer shall be conclusively deemed to include a covenant by the customer to defend, indemnify, and hold **EV METALVÆRK A/S** harmless from all product liability claims arising from the use or servicing of the system where our product is built in.

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Table of contents:

1. Safety: ... 3

2. Product description: ... 4

3. Product Identification: ... 5

4. Intended use: ... 6

5. Restrictions: ... 7

6. Technical data: ... 7

7. Installation: ... 8

8. Operating instructions: ... 8

9. Maintenance: ... 9

10. Disposal: ... 9

11. Compliance with directives: ... 10

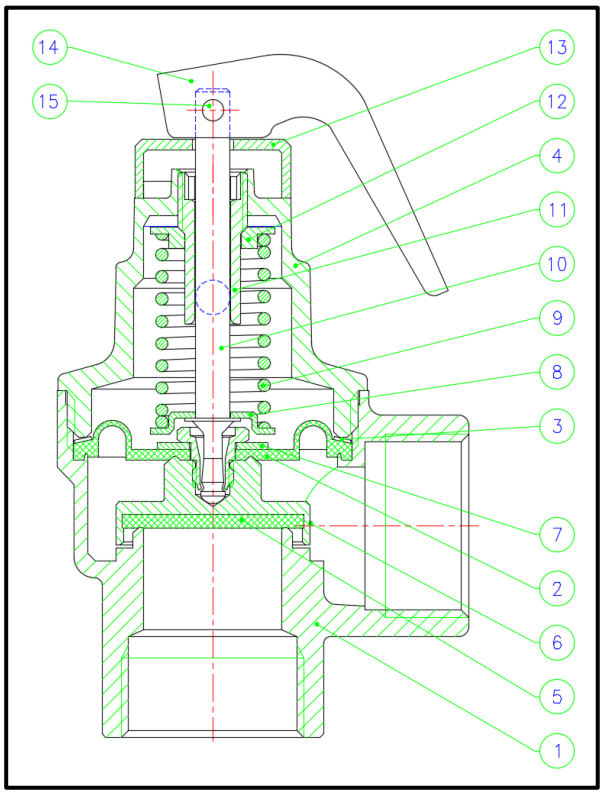
1. Safety:

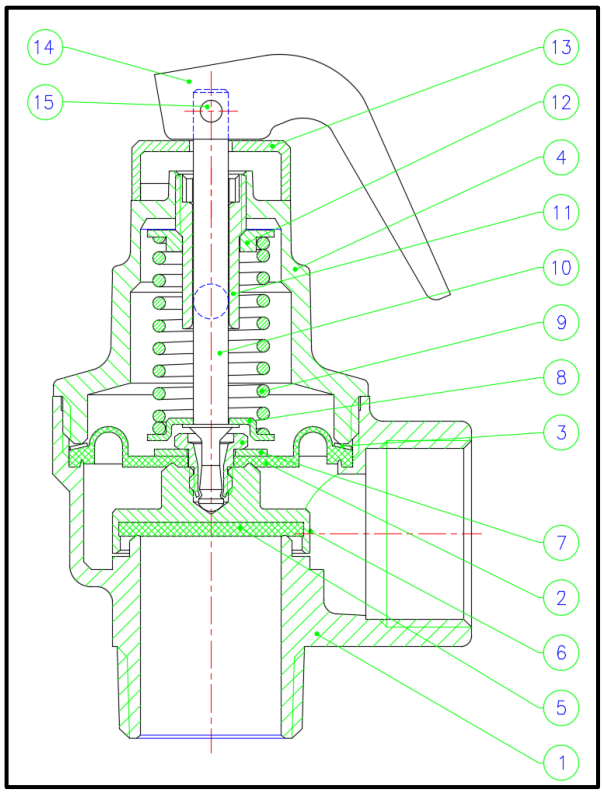
This manual is intended for the designer/user who install the safety valves in to systems operating with air, water or steam.

The user should read and understand this manual before installing the safety valves. Failure to follow the instructions and safety precautions in this manual can result in serious injury or death.

2. Product description:

Safety valve type 8720 part no. 432217-XXX and 432218-9XX are angle type direct working safety valves for air, steam and water with opening pressure up to 1,5 bar.





Part No 432217-XXX

Outlet connection: G3/4 ISO 228/1

Inlet connection: G3/4 ISO 228/1

Part No 432218-9XX

Outlet connection: G3/4 ISO 228/1

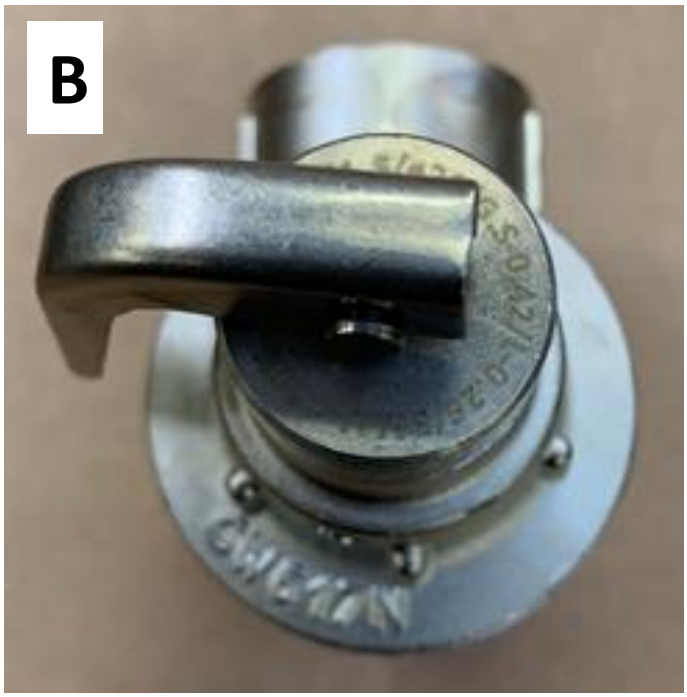
Inlet connection: R3/4 ISO7/1 - shortened

Pos.	Part	Material	Exposed to fluid?
1	Valve body	CuZn40Pb2 (CW617N)	Yes
2	Membrane	EPDM	Yes
3	Washer	St. 1203	No
4	Top piece	CuZn40Pb2 (CW617N)	No
5	Seat gasket	EPDM	Yes
6	Cone	CuZn39Pb3 (CW614N)	Yes
7	Washer	CuZn39Pb3 (CW614N)	No
8	Lower spring support	CuZn39Pb3 (CW614N)	No
9	Spring	1.4310	No
10	Piston	CuZn39Pb3 (CW614N)	No
11	Adjustment screw	CuZn39Pb3 (CW614N)	No
12	Upper spring support	CuZn39Pb3 (CW614N)	No
13	Top cover	CuZn39Pb3 (CW614N)	No
14	Lever (lifting arm)	CuZn37 (CW508L)	No
15	Rivet	Al	No

Position 1, 2, 12 and 13 are nickle plated.

3. Product Identification:

The safety vales are permanently marked on the side and top cover.



Marking A:

Marking on side of valve:	V8720:	Type of valve
	¾":	Dimension of inlet thread
	04/11/20:	Date for pressure test (November 4 year 2020).
	CW617N:	Material of valve body
	Arrow:	Flow direction.

Marking B:

Marking on top cover according to ISO4126-1:

ISO4126-1/X.X/ø20/G,S-Y.YY/L-Z.ZZ/5mm-110%

Where,

ISO4126-1 =	Reference to ISO4126-1.
X.X =	Set pressure in bar.
ø20 =	Smallest flow diameter
G,S-Y.YY =	Certified de-rated coefficient of discharge for gas and steam.
L-Z.ZZ =	Certified de-rated coefficient of discharge for water.
5mm-110% =	Minimum lift at 110% set pressure.

Marking C:

Marking on side of valve:	CE 0200:	Identification of notified body
	EV DN20:	Manufacturers mark (EV Metalværk A/S) and dimension.
	Arrow:	Flow direction.

4. Intended use:

Safety valves type 8720, part no. 432218-XXX and 432217-9XX are intended as safety valves in systems in hazard category SEP, I and II according to PED (2014/68/EU) and operating with gas, water and steam (fluid group 2 according to 2014/68/EU) such as boilers and cookers.

Set pressure:	from 0,75 bar to 1,5 bar	
Maximum external pressure:	0 bar, external pressure not allowed.	
Back pressure:	0 bar, back pressure not allowed.	
Temperature:	Water:	-10 °C to 90 °C
	Steam and gas:	-10 °C to 130 °C

Note:
The set pressure is the pressure were the valve starts to open. An overpressure of 10% or 0,1 bar, whichever is greater, can be expected when the safety valve is at its full capacity.

5. Restrictions:

The valves should only be used as safety valves in systems in hazard category SEP, I and II according to PED (2014/68/EU) and operating with group 2 fluids according to 2014/68/EU (gas, water and steam).

The valves must not be subjected to loads or functional demands exceeding those of section 6 of this manual. External forces from inlet or discharge pipe are not allowed.

6. Technical data:

Type: Spring loaded, direct working safety valve.

Dimensions: app. 98 x 60 x 40 mm

Smallest flow diameter: 20 mm

Temperature: Water: -10 °C to 90 °C

Steam and gas: -10 °C to 130 °C

Set pressure and certified de-rated coefficient of discharge (see EN ISO 4126-1):

	Set pressure [bar]	Certified de-rated coefficient of discharge (K_{dr})
Steam/gases	0,75	0,40
	1,00	0,41
	1,20	0,41
	1,30	0,42
	1,50	0,42
Fluid (Water)	1,00	0,26
	1,20	0,26
	1,30	0,26
	1,50	0,26

Maximum capacity for saturated, superheated or supercritical steam at critical flow calculated according to EN ISO 4126-7.

Set pressure [bar(g)]	Certified de-rated coefficient of discharge (K_{dr})	Capacity [kg/hour]	Enthalpy of vaporization [MJ/kg]	Power*) [kW]
0,75	0,40	129	2,21	79
1,00	0,41	151	2,20	92
1,20	0,41	166	2,19	101
1,30	0,42	177	2,18	107
1,50	0,42	193	2,18	117

*) Power is the actual added energy without any efficiency factor.

Maximum capacity for water calculated according to EN ISO 4126-7.

Set pressure [bar(g)]	Certified de-rated coefficient of discharge (K_{dr})	Capacity [kg/hour]	Capacity [l/min]
1,00	0,26	4156	69
1,20	0,26	4553	76
1,30	0,26	4739	79
1,50	0,26	5091	85

7. Installation:

Protect the valve from dust/dirt during transport, storage and installation.

Only trained personnel may install the valves.

WARNING

Make sure the system and components have been depressurized before any installation work is made on the components.

If possible, the valve should be mounted with the inlet vertically downwards. If the inlet is horizontal, the discharge opening must point downwards.

All connecting piping must be clean and free from rust and welding slag.

It must be ensured that no sealing materials enter the valve. Flax or hemp should be avoided.

Mounting torque must not exceed 50 Nm.

The inlet pipe must have at least same I.D. as the valve, and be as short as possible, max. 1 m. in order to avoid dirt accumulation. No part of the pipe must be horizontal or descending towards the safety valve.

No valves or fittings are allowed on the inlet pipe.

A discharge pipe, if fitted, must have at least same I.D. as the valve. If the pipe is longer than 100 mm, or after bends, the pipe must be 1 dimension larger; if the length is more than 0,5m, 2 dimensions larger. Maximum length including bends is 2 m.

The discharge pipe must descend from the valve, so that condensation is drained away.

Before the system is taken into operation, the valve shall be activated by the lifting arm.

The valve is factory adjusted to the required set pressure. Attempts at opening or mechanically changing the valve will result in both approval and guarantee being void.

8. Operating instructions:

Under normal operating conditions the lifting arm should be activated at least once monthly.

If the valve is leaking at pressures below the set pressure, it is probably caused by foreign matter in the seat. Repairs must only be carried out by EV METALVÆRK A/S or a workshop authorized by EV METALVÆRK A/S.

The valve is factory adjusted to the required set pressure. Attempts at opening or mechanically changing the valve will result in both approval and guarantee being void.

9. Maintenance:

Warning:

Make sure the system and components have been depressurized before any maintenance or service work is made on the components.

Note

- Only trained personnel may maintain the valves.
- Only use original spare parts. Use of wrong or faulty spare parts might result in damages, malfunction or total failure.
- No modifications may be made to the valves without the written permission from EV METALVÆRK A/S. Repairs must only be carried out by EV METALVÆRK A/S or a workshop authorized by EV METALVÆRK A/S.
- The valve is factory adjusted to the required set pressure. Attempts at opening or mechanically changing the valve will result in both approval and guarantee being void.

Maintenance activities:

- Activate the lifting arm (Should be activated at least once monthly) and the valve should open.
- Check the lifting arm and top cap can move freely when the lifting arm is not activated.
- Check tightness of inlet and outlet connections.
- Check outlet from valve, outlet must be free. Blocked outlet might result in malfunction.
- Check marking and labeling is legible. Illegible marking and labeling must be replaced.

If the valve is leaking at pressures below the set pressure, it is probably caused by foreign matter in the seat.

The frequency of the maintenance activities depends on the service conditions.

10. Disposal:

Warning:

Make sure the system and components have been depressurized before dismantling.

At the end of its service life the valves should be disposed in accordance with national legislation.

Metallic and plastic parts can be re-cycled.

11. Compliance with directives:

Safety valves type 8720, part no. 432218-XXX and 432217-9XX comply with the Pressure Equipment Directive 2014/68/EC. Conformity assessment according to module A2 of the directive by FORCE Certification A/S, Park Alle 345, DK-2605 Brøndby.

EV METALVÆRK A/S

EU Declaration of Conformity (DoC)

We,

EV METALVÆRK A/S
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www.evmetal.dk

hereby declare that the following products:

Normal safety valves, type 432217 and 432218-9

Nominal bore	DN20, G3/4, R3/4
Classified for	Air and water.
Max. working pressure and temperature	Steam and gas.: -10°C to 130°C Water.....: -10°C to 90°C Pressure...: 0,75 bar to 1,5 bar

fulfils all of the relevant requirements of:
Pressure Equipment directive 2014/68/EC

Conformity assessment procedure applied:	Modul A2
Category:	II
Notified body:	FORCE Certification A/S, Park Alle 345, DK-2605 Brøndby
Notified body number:	0200
Notified body approval number:	0200-PED-09108
The following standard has been applied:	EN ISO 4126-1:2016

Signature:

31/10-2020
Date

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Erling Tofting – Technical manager, EV METALVÆRK A/S.

Document No. DOC SV rev. 4

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