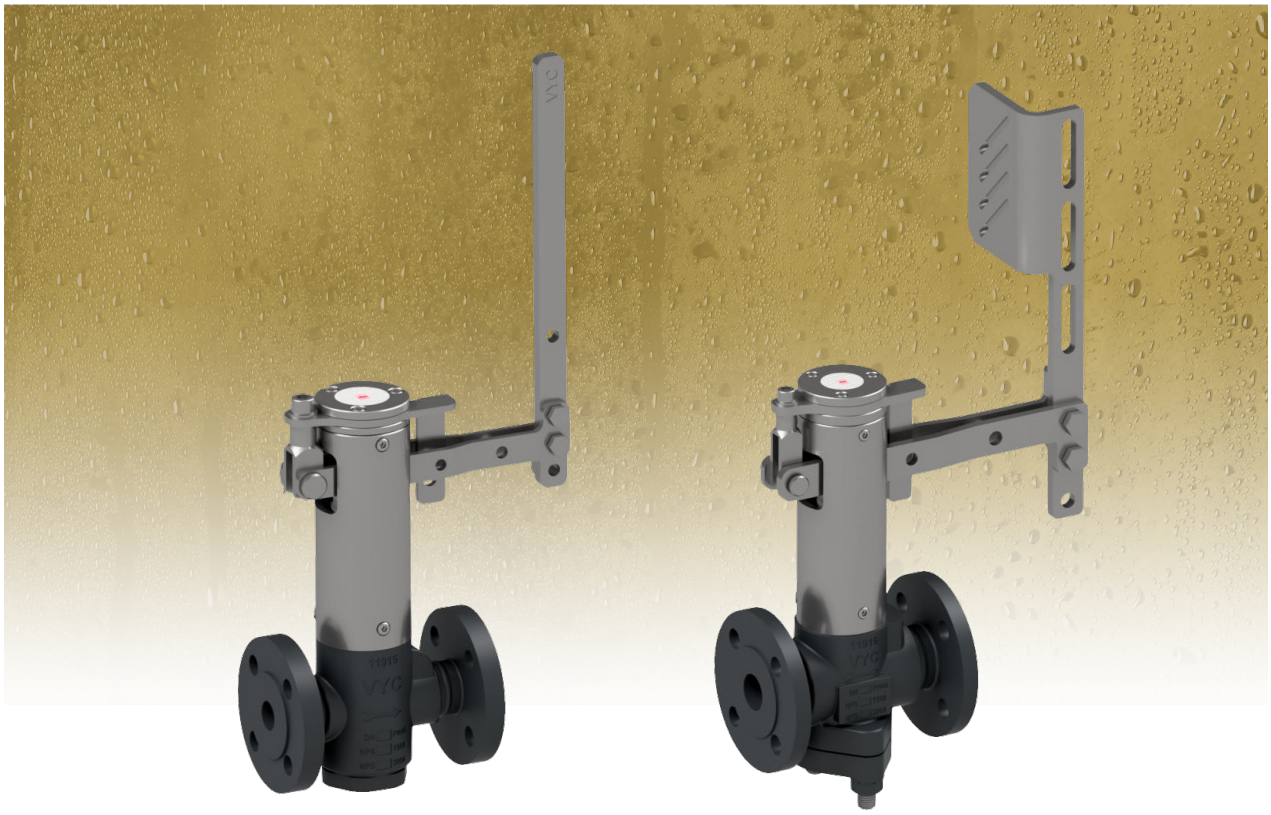
Blowdown valve for bleeding dirt and sludge

For steam boilers **Model 660**

EN ASME/ANSI



DN-20 and 25 **DN-32,40 and 50**

The water in the boiler contains salts, which are built up by the continuous evaporation. If these salts are not eliminated, bubbles and foam are formed when the density of the water increases.

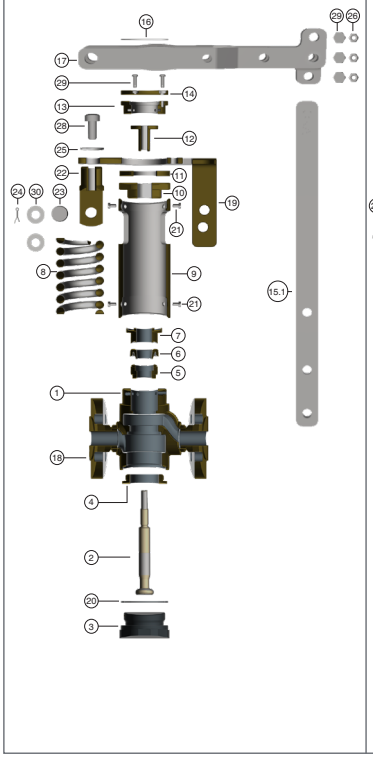
To prevent these lime deposits forming, the water supply must be suitably treated, with the result that certain salts are changed producing impurities which form sludge and encrusted deposits which then adhere to the sides or the bottom of the boiler and to the combustion tubes, together with particles of dirt, remains of electrodes, carbonic acid, oxygen, etc. This leads to a high level of rust which may:

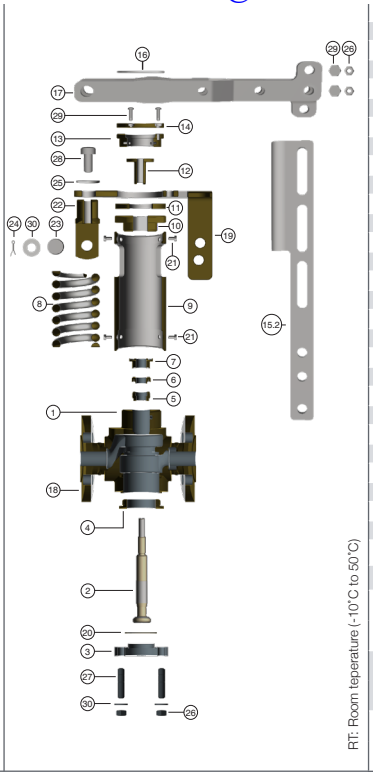
- Destroy the metal plate of the boiler, causing high maintenance costs.
- Produce thermic voltages, causing cracks in the metal plate and soldering cord.
- Notably slow down thermic transmission, meaning an unnecessary and excessive consumption of fuel.

Nominal pressure: PN-40.
Flange connection: DN-20, 25, 32, 40 and 50 (EN-1092-1).
Flange connection: ASME/ANSI B16.5: NPS-3/4, 1”, 1 1/4”, 1 1/2”, and 2”.

Specifications

— Pushing the pedal downwards causes the drain section to open quickly and completely. The deposits collecting at the botton of the boiler, are disturbed and sucked up by the sudden air intake which carries them out.
— Instant closing device, preventing irrevocable losses of water and pressure.
— Seating and closing axis treated and balanced, so that a degree of tightness, even higher than the level required by EN 12266-1, is obtained.
— Coupling of the closing axis is self-tightening and maintenance free.
— To solve problems of space, the pedal can be positioned vertically or horizontally and also it is possible to rotate the headstock with the leaver/pedal 360°.

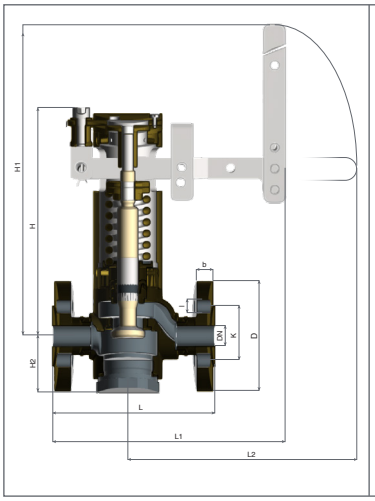


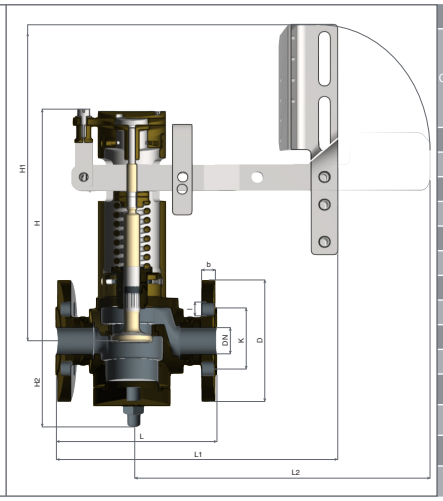


1	Body	Carbon steel (EN-1.0619)
2	Axis	Stainless steel (EN-1.4028)
3	Purge plug	Carbon steel (EN-1.1191)
4	Seating	Stainless steel (EN-1.4028)
5	Body ring	Bronze (EN-CC491K-GZ)
6	Retene	E.P.D.M.
7	Gland	Bronze (EN-CC491K-GZ)
8	Spring	Spring steel (EN-10270-1-SH)
9	Headstock	Carbon steel (EN-1.0580)
10	Spring press	Carbon steel (EN-1.1191)
11	Spring press nut	Carbon steel (EN-1.1191)
12	Lid guide	Carbon steel (EN-1.1191)
13	Headstock lid	Carbon steel (EN-1.1191)
14	Lid disc	Carbon steel (EN-1.1191)
15.1	Lever	Carbon steel (EN-1.0037)
15.2	Pedal	Carbon steel (EN-1.0037)
16	Plate	Stainless steel (EN-1.4401)
17	Lever arm	Carbon steel (EN-1.0037)
18	Flange	Carbon steel (EN-1.0460)
19	Bracket	Carbon steel (EN-1.0037)
20	Purge plug gasket	PTFE+Car.Silicone
21, 28, 29	Screw	Carbon steel(EN-1.1191)
22	Bracket	Carbon steel
23	Bolt	Carbon steel (EN-1.0718)
24	Split pin	Carbon steel (EN-1.1141)
25, 30	Washer	Carbon steel (EN-1.1141)
26	Nut	Carbon steel (EN-1.1141)
27	Stud	Carbon steel (EN-1.1181)

RT: Room teperature (-10°C to 50°C)

DN		25 to 50			
PN		40			
OPERATING CONDITIONS PN-40 EN 1092-1	PRESSURE IN bar	40	37,1	33,3	30,4
	MAXIMUM TEMP. IN °C	RT	100	200	250
OPERATING CONDITIONS 150# ASME B16.5	PRESSURE IN bar	19,6	17,7	13,8	12,1
	MAXIMUM TEMP. IN °C	-29° to 38°	100	200	250
OPERATING CONDITIONS 300# ASME B16.5	PRESSURE IN bar	40	37,4	33,6	30,7
	MAXIMUM TEMP. IN °C	RT	100	200	250





DN	20			25			32			40			50		
CONNECTIONS	I - Flanges PN-40 EN 1092-1														
	II - Flanges class 150 lbs ASME B16.5														
	III - Flanges class 300 lbs ASME B16.6														
	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
H	218,00			218,00			269,50			269,50			269,50		
H1	429,00			429,00			425,00			425,00			425,00		
H2	54,00			54,00			106,00			106,00			106,00		
L	150,00			160,00			180,00			200,00			230,00		
L1	216,00			220,00			346,00			361,00			376,00		
L2	385,00			385,00			451,00			451,00			451,00		
D	105	100	115	115	110	125	140	115	135	150	125	155	165	150	165
K	75,00	69,90	82,60	85,00	79,40	88,90	100,00	88,90	98,40	110,00	98,40	114,30	125,00	120,70	127,00
I	14,00	15,90	19,10	14,00	15,90	19,10	18,00	15,90	19,10	18,00	15,90	22,20	18,00	19,10	19,10
b	18,00	12,70	15,90	18,00	14,30	17,50	18,00	15,90	19,10	18,00	17,50	20,70	20,00	19,10	22,30
DRILLS Nº	4			4			4			4			4		8
WEIGHT IN Kgs.	7,00			7,50			15,00			16,00			18,00		
CODE 2103-660.	8344	83442	83443	8104	81042	81043	8144	81442	81443	8124	81242	81243	8204	82042	82043
Kv VALUES [m3/h]	7,30			7,30			18,30			18,30			18,30		

Efficiency and Emptying

Bleeding processes should coincide as far as possible with moments when the water is at rest or at minimum steam extraction, so that the deposits are collected at the bottom of the boiler. Carry out bleeding process at least every 8 hours. The effective duration is estimated to be 3 ÷ 4 seconds although we recommend you keep to the following mathematical model: To establish the salinity of the water, the quantity of salts extracted per unit of time must be equal to that of the water supply in this same period. Which can be expressed:

$$S \cdot A = C \cdot P$$

Water supply conductivity [µS/cm] · Water supply [l/h] =
Desired conductivity inside the boiler [µS/cm] · Water extracted in the bleeding process [l/h]

Where:
R = Real steam production of the boiler (kg/h)
A = Water supply (l/h)
P = Water extracted in the bleeding process (l/h)
S = Water supply conductivity (µS/cm)
C = Desired conductivity inside the boiler (µS/cm)

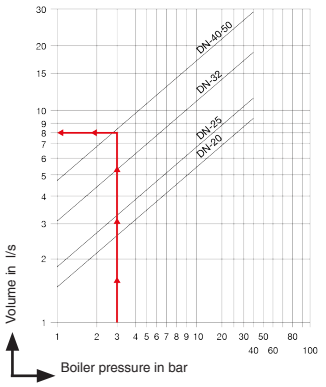
Water extracted in the bleeding process:

$$P = \frac{R \cdot S}{C - S}$$

Example:
R = 1520 kg/h
S = 200 µS/cm
C = 4000 µS/cm
P = 80 l/h

For the DN the volume (q) in l/s can be calculated as shown in the diagram.

The quotient (P/q) tells us the intervals between bleeding processes and the duration of them (T) in seconds per hour.



Example:

Water extracted in the bleeding process (P) = 80 l/h

Pressure in the boiler (p) = 3 bar

Volume (q) = 8 l/s

T = 10s.

- The boiler will bleed itself for 10 seconds every hour.
- If the bleeding time is of 3 seconds = 3 bleeding every hour. The interval between bleeding should be of 20 minutes.

The combination of the Continuous desalting valve* and the Blowdown valve for bleeding dirt and sludge• is essential for optimizing the boiler's efficiency, and include its maximum security and availability.

Neither of them can be replaced with others not designed for this specific application. Their moderate cost is depreciated in the short term.

*(See brochrues for models 560 and 560-A).
•(See brochures for models 460, and 660-A).

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