

Blowdown valve for bleeding dirt and sludge



For steam boilers

Model 260



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.

Permitted pressures and temperatures according to DIN-2401. Sheet 2.

Flange connection: DN-20, 25, 32, 40 and 50 (DIN-2545).

Specifications

- Pushing the pedal downwards causes the drain section to open quickly and completely. The deposits collecting at the bottom 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 DIN-3230, Sheet 3, 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.

Model DN-20 and 25. (Pedal driven).

- By moving the blocking lever towards the emptying position, the opening blocks.
- With the blocking lever in the opposite direction to that of the passage, the valve is in manual drive.
- When the valve is being manually driven and with an interlocking gudgeon, it can be fixed in the continuous draining position for emptying the boiler.

Model DN-32, 40 and 50. (Pedal and flywheel driven).

- Rotating the flywheel towards (C) all the way round, locks the valve into the closed position.
- Driving the flywheel between the closed position (C) and the central buffer ("Clic") an emptying position is obtained, with the pedal, which is proportionate to the pitch section which we set.
- Rotating the flywheel towards (A), the valve stays open increasing progressively, the pitch section. When it will go no further towards (A), a maximum opening is obtained which facilitates the emptying of the boiler.

Nº. PIECE	PIECE	MATERIAL		
1	Body	Cast steel (DIN-1.0619 GS-C 25)		
2	Headstock	Cast steel (DIN-1.0619 GS-C 25)		
3	Spring press	Cast steel (DIN-1.0619 GS-C 25)		
4, 5	Bracket	Cast steel (DIN-1.0619 GS-C 25)		
6	Cap	Carbon steel (DIN-1.1191 Ck-45)		
7	Seating	Stainless steel (DIN-1.4028) (AISI-420)		
8	Axis	Stainless steel (DIN-1.4028) (AISI-420)		
9	Buffer axis	Carbon steel (DIN-1.1181 Ck-35)		
10	Leading axis	Carbon steel (DIN-1.1181 Ck-35)		
11	Removal coupling	Carbon steel (DIN-1.0308 ST-35)		
12, 29	Valve base	Carbon steel (DIN-1.0308 ST-35)		
13	Spring	Spring steel (DIN-1.0600 GRADE-B)		
14	Gland	Bronze (DIN-2.1096.03 GZ-Rg-5)		
15	Ring	Bronze (DIN-2.1096.03 GZ-Rg-5)		
16	Pedal	(1) (2)	Carbon steel (DIN-1.1141 Ck-15) Cast steel (DIN-1.0619 GS-C 25)	
17, 21, 27, 45, 46	Nut	Carbon steel (DIN-1.1141 Ck-15)		
18, 40	Gudgeon	Carbon steel (DIN-1.1141 Ck-15)		
19, 37, 38	Screw	Carbon steel (DIN-1.1191 Ck-45)		
20	Elastic gudgeon	Carbon steel (DIN-1.1231 Ck-67)		
22	Retene	E.P.D.M.		
23	Cover joint	Klingerit cardboard		
24, 25	Stud	Carbon steel (DIN-1.1181 Ck-35)		
26	Dowel	Carbon steel (DIN-1.1181 Ck-35)		
28	Valve base	Bronze (DIN-2.1096.03 GZ-Rg-5)		
30	Flywheel	Cast iron (DIN-0.6020 GG-20)		
31, 34	Buffer	Stainless steel (DIN-1.4028) (AISI-420)		
32	Buffer ring	Carbon steel (DIN-1.1141 Ck-15)		
33	Ring	Molybdenum chrome steel (DIN-1.7223 41CrMo4)		
35, 36, 39, 43, 44	Washer	Carbon steel (DIN-1.1141 Ck-15)		
41	Lever	Cast steel (DIN-1.0619 GS-C 25)		
42	Leading axis	Stainless steel (DIN-1.4028) (AISI-420)		
DN		25 to 50		
PN		40		
OPERATING CONDITIONS	PRESSURE IN bar	10	35	32
	MAXIMUM TEMP. IN °C	120	200	250

(1) For DN-20 and 25.
(2) For DN-32, 40 and 50.

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:

$$M \cdot A = S \cdot P$$

Where:

Q = Real steam production of the boiler. (Kg/h).

A = Water supply. (l/h).

M = Salinity of the water supply. (mg/l).

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

S = Desired salinity inside the boiler. (mg/l).

Q = Specific mass of water inside the boiler. (Kg/l).

p = Working pressure. (bar).

Example:

Q = 1.520 Kg/h.

M = 200 mg/l.

S = 4.000 mg/l.

Q = 1 Kg/l.

p = 3 bar.

The water to be bled compared to the steam produced is:

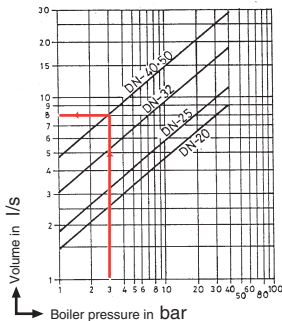
$$P = \frac{M}{(S-M) \cdot Q} \cdot Q$$

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

$$P = 80 \text{ l/h.}$$

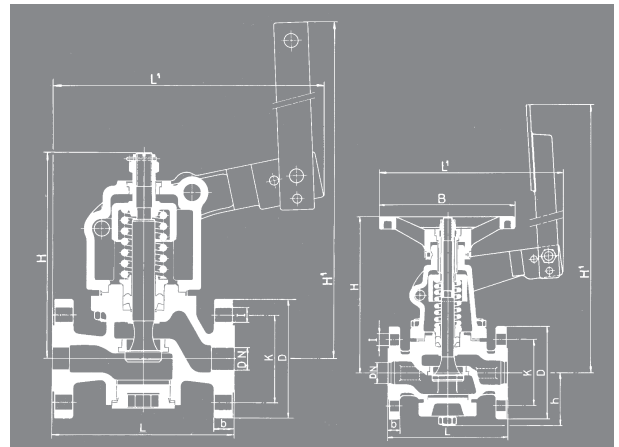
The quotient (P/C) tells us the intervals between bleeding processes and the duration of them (T) in seconds per hour.

$$C = 8 \text{ l/s.}$$



$$T = 10 \text{ s.}$$

-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.



DN	20	25	32	40	50
H	180	180	237	237	237
H ¹	438	438	464	464	464
h	—	—	78	80	86
L	150	160	180	200	230
L ¹	275	275	320	320	320
B	—	—	200	200	200
D	105	115	140	150	165
K	75	85	100	110	125
I	14	14	18	18	18
b	18	18	18	18	20
DRILLS N°.	4	4	4	4	4
WEIGHT IN Kgs.	11,12	12,13	20,20	20,22	22,14
CODE	2103-260.8344	2103-260.8104	2103-260.8144	2103-260.8124	2103-260.8204

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 brochure for Models 560 and 560-A).

* (See brochure for Models 460 and 260-A).

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