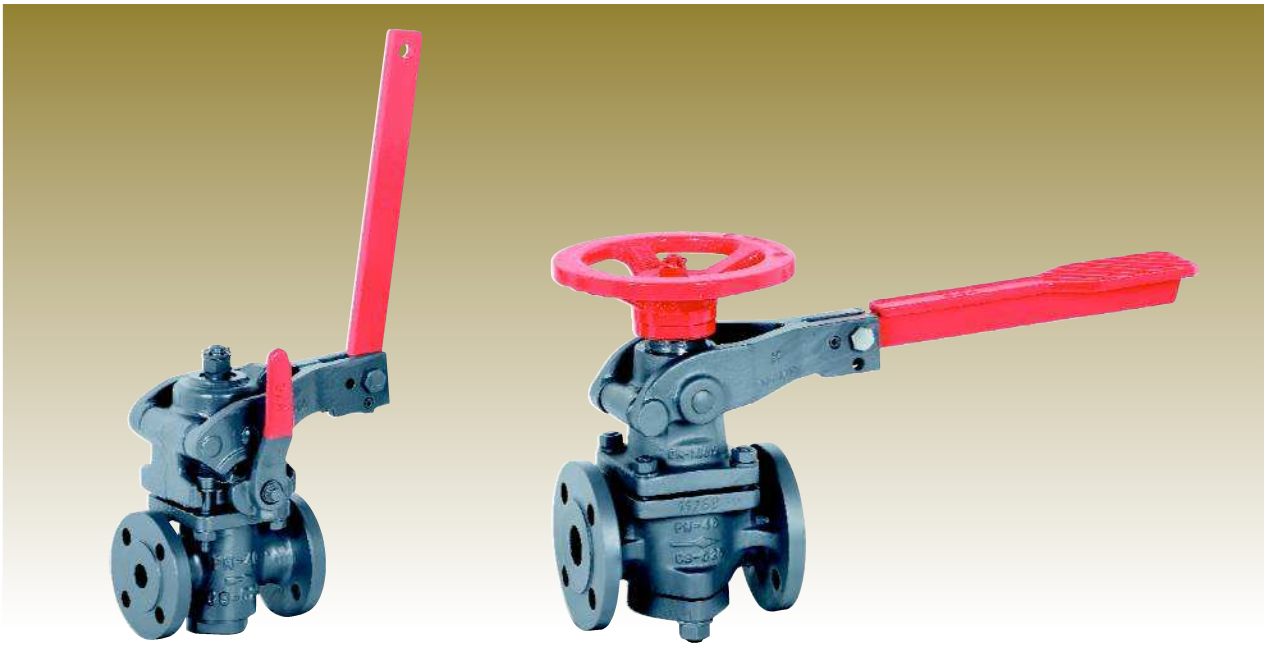
Blowdown valve for bleeding dirt and sludge

For steam boilers Model 260

EN



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.

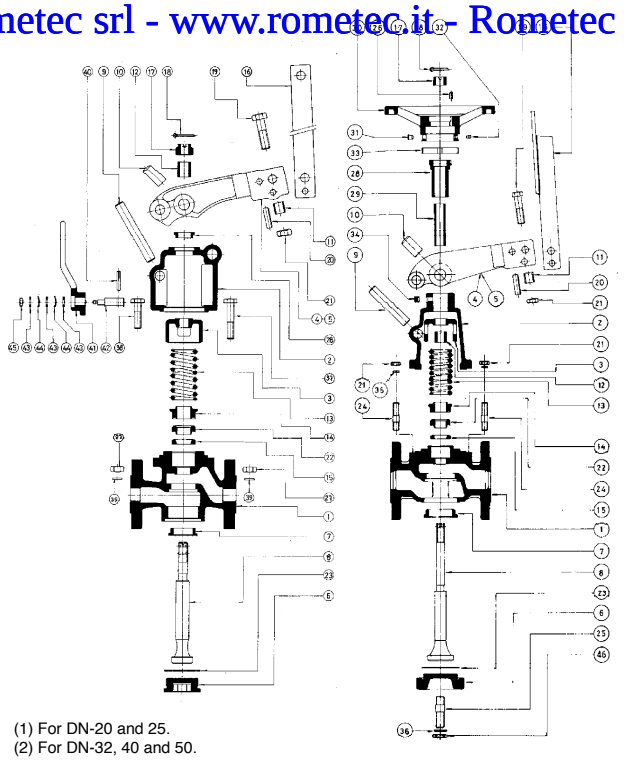
Nominal pressure: PN-40.
Flange connection: DN-20, 25, 32, 40 and 50 (EN-1092-1).

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.

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.



(1) For DN-20 and 25.
(2) For DN-32, 40 and 50.
(3) For DN-32 a 50 Cast steel (EN-1.0037 S235JR).

N°. PIECE	PIECE		MATERIAL
1	Body		Cast steel (EN-1.0619)
2	Headstock		Nodular iron (EN-5.3106)
3	Spring press		Nodular iron (EN-5.3106)
4, 5	Bracket		Nodular iron (EN-5.3106)
6	Cap	(3)	Carbon steel (EN-1.1191)
7	Seating		Stainless steel (EN-1.4028)
8	Axis		Stainless steel (EN-1.4028)
9	Buffer axis		Carbon steel (EN-1.1181)
10	Leading axis		Carbon steel (EN-1.1181)
11	Removal coupling		Carbon steel (DIN-1.0308)
12, 29	Valve base		Carbon steel (DIN-1.0308)
13	Spring		Spring steel (EN-10270-SH)
14	Gland		Bronze (EN-CC491K-GZ)
15	Ring		Bronze (EN-CC491K-GZ)
16	Pedal	(1)	Carbon steel (EN-1.1141)
		(2)	Nodular iron (EN-5.3106
17, 21, 27, 45, 46	Nut		Carbon steel (EN-1.1141)
18, 40	Gudgeon		Carbon steel (EN-1.1141)
19, 37, 38	Screw		Carbon steel (EN-1.1191)
20	Elastic gudgeon		Carbon steel (EN-1.1231)
22	Retene		E.P.D.M.
23	Cover joint		PTFE (Topchem)
24, 25	Stud		Carbon steel (EN-1.1181)
26	Dowel		Carbon steel (EN-1.1181)
28	Valve base		Bronze (EN-CC491K-GZ)
30	Flywheel		Cast iron (EN-5.1300)
31, 34	Buffer		Stainless steel (EN-1.4028)
32	Buffer ring		Carbon steel (EN-1.1141)
33	Ring		Molybdenum chrome steel (EN-1.7223)
35, 36, 39, 43, 44	Washer		Carbon steel (EN-1.1141)
41	Lever		Nodular iron (EN-5.3106
42	Leading axis		Stainless steel (EN-1.4028)

	DN	25 to 50		
	PN	40		
OPERATING CONDITIONS	PRESSURE IN bar	10	35	32
	MAXIMUM TEMP. IN °C	120	200	250

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:

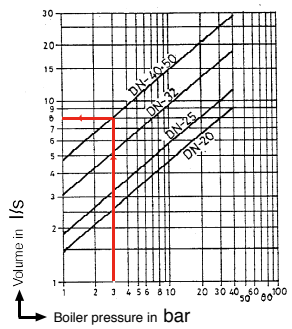
Q = Real steam production of the boiler. (Kg/h).
A = Water supply. (l/h).
M = Salinity of the water supply. (mg/l).
P = Water extracted in the bleeding process. (l/h).
S = Desired salinity inside the boiler. (mg/l).
ϱ = Specific mass of water inside the boiler. (Kg/l).
p = Working pressure. (bar).

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

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

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

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

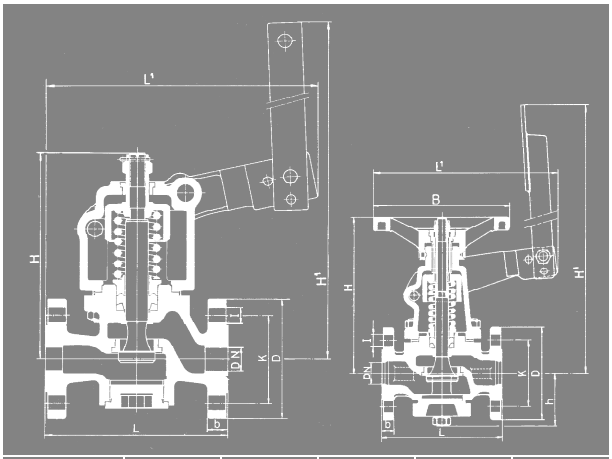


Example:
Q = 1.520 Kg/h.
M = 200 mg/l.
S = 4.000 mg/l.
ϱ = 1 Kg/l.
p = 3 bar.

P = 80 l/h.

C = 8 l/s.

T = 10 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
H¹	438	438	464	464	464
h	—	—	78	80	86
L	150	160	180	200	230
L¹	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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