Continuous desalting valve

For steam boilers

Mode 560

VYC

EN ASME/ANSI

The continuous desalting valve is used to empty an adjustable quantity of water from the steam boiler, removing:

• Organic matter and mineral salts in solution. (Calcium, magnesium, sodium, potassium, iron, bicarbonate ions, chlorides, sulphates, nitrates,...etc.).

• Solid materials in suspension. (Sand, clay, metal residues, rock residues, organic matter, ...etc.).

The continuous bleeding process prevents:

• Damage caused by erosion and perforation, entailing the following high costs:

— Direct: Replacement or repair of materials.
— Indirect: Stoppages, product losses, ...etc.

• Danger of boiler explosion.

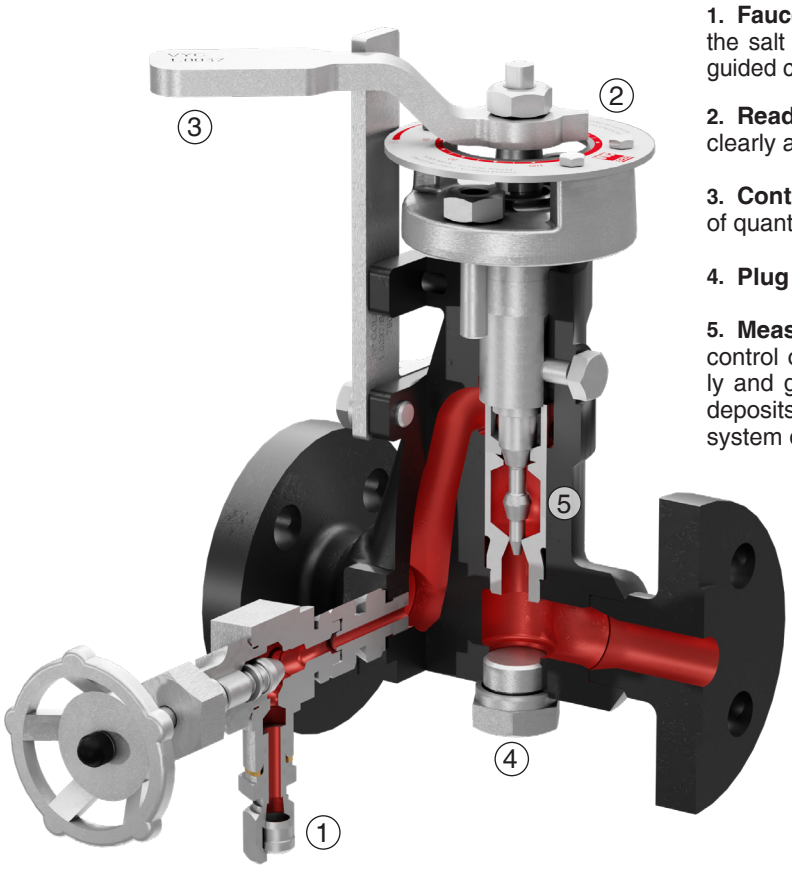
and reduces:

• Incrustations and sediments caused by precipitation of calcium and magnesium salts, which obstruct thermic transmission and which cause unnecessary and excessive fuel consumption.

• Foam formation caused by excessive saline concentration, with its corresponding drag.

Specifications

— Consists of Faucet for taking samples and Measuring nozzle in one single unit.



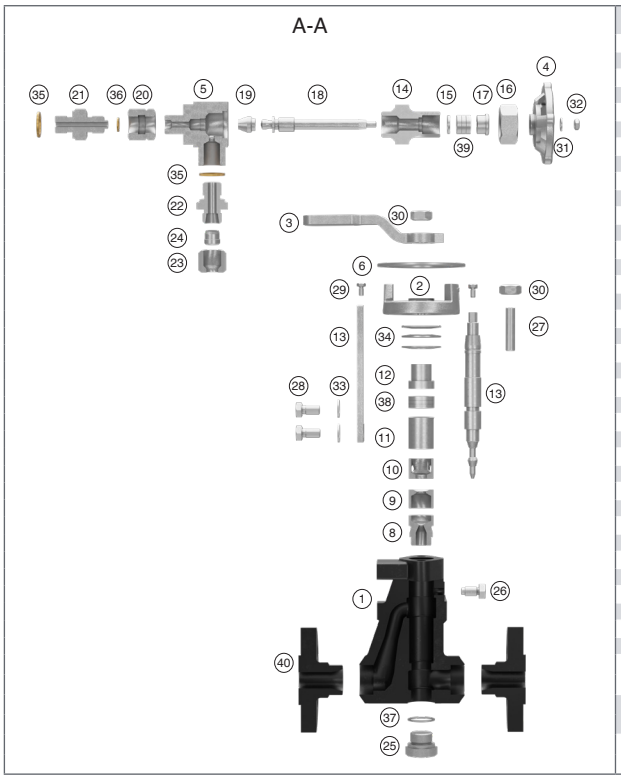
1. **Faucet for taking samples:** Makes process of analysing the salt concentration of boiler water easier. Possibility of guided connection for pipes with a Ø of 6/8 mm.

2. **Reader plate:** Allows bleeding positions to be seen clearly and concisely, even from some distance away.

3. **Control lever:** For precise and progressive adjusting of quantities to be bled.

4. **Plug for draining the measuring nozzle.**

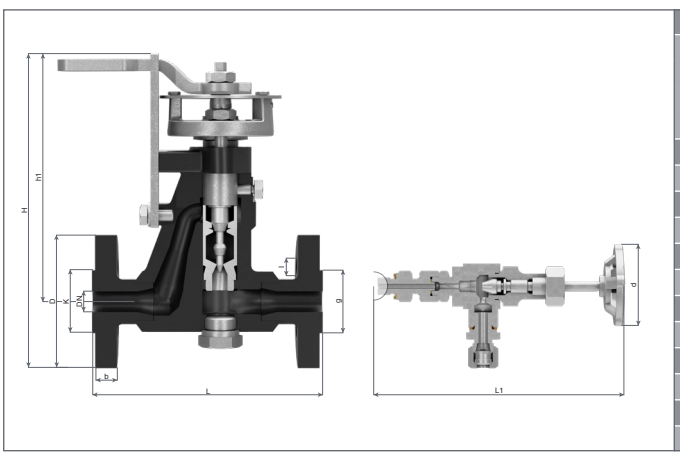
5. **Measuring nozzle:** Acts as a valve, measuring and control organ. The water under pressure expands silently and gradually into it. Thus, dirt, incrustations and salt deposits are removed. Due to this gradual expansion, the system does not suffer erosion.



N°. PIECE	PIECE	MATERIAL
1	Body	Cast steel (EN-1.0619)
2	Gland body	Carbon steel (EN-1.1191)
3	Control lever	Carbon steel (EN-1.0037)
4	Flywheel	Aluminium (EN-AC-44200)
5	Sample-taking faucet body	Stainless steel (EN-1.4008)
6	Reader plate	Aluminium
7	Lever lock	Carbon steel (EN-1.0037)
8	Measuring nozzle seating	Stainless steel (EN-1.4028)
9,10	Measuring nozzle cap	Stainless steel (EN-1.4028)
11	Measuring nozzle endless nut	Stainless steel (EN-1.4028)
12,17	Gland	Carbon steel (EN-1.1191)
13	Measuring nozzle shaft	Stainless steel (EN-1.4028)
14	Sample-taking faucet gland body	Carbon steel (EN-1.1191)
15	Sample-taking faucet gland washer	Stainless steel (EN-1.4401)
16	Gland nut	Carbon steel (EN-1.1191)
18	Sample-taking faucet shaft	Stainless steel (EN-1.4401)
19	Seal	Stainless steel (EN-1.4401)
20	Sample-taking faucet connection nut	Carbon steel (EN-1.1191)
21	Sample-taking faucet connection	Carbon steel (EN-1.1191)
22	Adapter	Carbon steel (EN-1.0308)
23	Adapter nut	Carbon steel (EN-1.0308)
24	Cutting ring	Carbon steel (EN-1.0308)
25	Draining plug	Carbon steel (EN-1.1191)
26,28	Screw	Carbon steel (EN-1.1191)
27	Stud	Carbon steel (EN-1.1181)
29	Screw	Stainless steel (EN-1.4401)
30	Nut	Carbon steel (EN-1.1141)
31	Washer	Stainless steel (EN-1.4401)
32	Nut	Stainless steel (EN-1.4401)
33	Washer	Carbon steel (EN-1.1141)
34	Disc spring	Vanadium chrome steel (EN-1.8159)
35, 36, 37	Joint	Copper
38, 39	Seal	Graphite
40	Flange	Carbon steel (EN-1.0460)
	DN	15 to 25 (EN, ANSI)
	PN	40

OPERATING CONDITIONS PN-40 EN 1092-1	PRESSURE IN bar	40	37,1	33,3	30,4
	MAX. TEMP. IN °C	RT	100	200	250
OPERATING CONDITIONS 150# ASME B16.5	PRESSURE IN bar	19,2	17,7	13,8	12,1
	MAX. TEMP. IN °C	50	100	200	250
OPERATING CONDITIONS 300# ASME B16.5	PRESSURE IN bar	40	37,4	33,6	30,7
	MAX. TEMP. IN °C	50	100	200	250

RT: Room teperature (-10°C to 50°C)



DN	15			20			25		
CONNECTIONS	I- Flanges PN-40 EN 1092-1								
	II- Flanges class 150 lbs ASME/ANSI B 16.5								
	III- Flanges class 300 lbs ASME/ANSI B 16.5								
	I	II	III	I	II	III	I	II	III
H	222	219	222	227	224	232	232	229	237
h1	174			174			174		
L	150			150			150		
L1	167			167			167		
d	60			60			60		
D	95	90	95	105	100	115	115	110	125
K	65,00	60,30	66,70	75,00	69,90	82,60	85,00	79,40	88,90
l	14,00	15,90	15,90	14,00	15,90	19,10	14,00	15,90	19,10
b	16,00	11,20	14,30	18,00	12,70	15,90	18,00	14,30	17,50
DRILLS N°.	4			4			4		
WEIGHT IN Kgs.	5,20	4,63	5,09	5,78	5,03	5,85	6,34	5,66	6,63
CODE 2102-560.	8024	80240	80243	8344	83440	83443	8104	81040	81043

Installation

a) Make a by-pass with some kind of drilling pipe, leading out from inside the steam chamber at 30÷50 mm. below the minimum water level.

b) Connect this by-pass to the continuous desalting valve, which can be installed in any position.

c) Convey the water coming out of the valve to the outlet.

When the bleeding percentage is high, the heat can be overcome using an exchanger.

Using the calibrated scale, the lever allows exact adjustment of the measuring nozzle. We shall set the lever at the position that allows us to remove a volume of water (P) at a differential pressure. Differential pressure = Working pressure - (Back pressure + Load losses).

Automatic continuous purge (servo-driven) is achieved with setting values from 0 to 35.

Position 100, with manual actuation, corresponds to the fully open nozzle section and allows a complete purge in a short time. In this case, the flow rate is approximately twice as high as that of the 35% value on the scale.

Operation, efficiency and emptying

To establish the boiler's salinity, the quantity of salts extracted per unit of time must be equal to that of the water supply in this same period.

What can be expressed: $S \cdot A = C \cdot P$

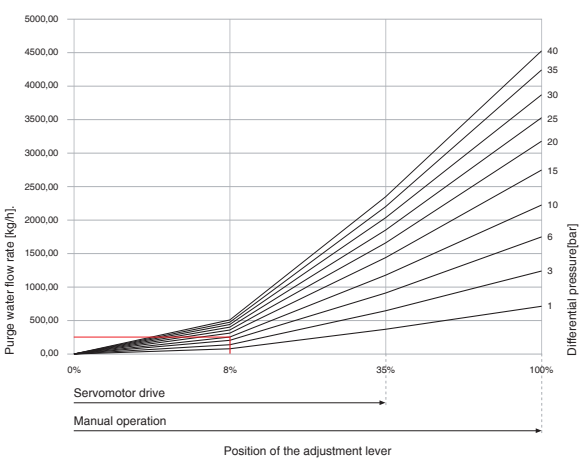
R = Real steam production of the boiler (kg/h)
A = Feed water (kg/h)
P = Amount of water extracted in the bleeding process (kg/h)
S = Conductivity of the water supply (µS/cm)
C = Desired conductivity inside the boiler (µS/cm)

The effect is achieved when the salts are removed continuously and without movement in order to prevent uncontrolled water losses from the boiler.

The amount of water extracted in the bleeding process: $P = \frac{R \cdot S}{C - S}$

Example:
Δp = 10 bar
R = 1850 kg/h
S = 800 µS/cm
C = 6200 µS/cm
P = 274 kg/h

Of which approximately 10% by means of sludge and sludge purge (Mod. 660, 660-A or 460) and the rest by means of salt purge (Mod 560 or 560-A).Water to be evacuated through the valve continuous salt drain valve ~ 250 kg/h.



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 Model 560-A). • (See brochure Model 660, 660-A, and 460).

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