Safety Valve Reseat Pressure from Blowdown

Reseat (closing) pressure of a boiler safety valve from its set pressure and blowdown, and the margin to the working pressure so the valve closes tight.

Method: Definition of blowdown as a share of set pressure (gauge)

Input parameters

Unit system: SI

Parameter	Value	Unit
Set pressure	10.500	bar g
Blowdown, share of set pressure From the valve maker; the boiler code you follow limits it.	4.0000	%
Normal working pressure	9.5000	bar g

Calculated results

Parameter	Value	Unit
Reseat pressure	10.080	bar g
Reseat pressure minus working pressure	58.000	kPa
Working pressure as a share of set pressure (gauge)	90.476	%

Formula and method

$$p_r = p_s\,(1 - b) \qquad \Delta p = p_r - p_w \qquad \frac{p_w}{p_s}\ \ \text{(gauge pressures)}$$

Variables

p_s	set pressure (gauge)	Pa
b	blowdown, share of set pressure	–
p_w	normal working pressure (gauge)	Pa
p_r	reseat pressure (gauge)	Pa
Δp	reseat minus working pressure	Pa
p_w/p_s	working pressure as a share of set pressure	–

Method and standards

Blowdown is the difference between set and reseat pressure as a share of set pressure, on gauge pressure. The calculator does not size the valve; that is a code calculation.

Assumptions and limits

- Blowdown as stated by the valve maker; no accumulation or backpressure effects.

References

- Definition of blowdown as a share of set pressure (gauge)

Report details

Report reference	FCC-HNKH-NVG3 (the same inputs always give the same reference)
Generated	17 November 2026, 19:36 UTC
Calculator	Safety Valve Reseat Pressure from Blowdown
Method last reviewed	11 November 2026
Software release	FireCAD Calc, release of 17 November 2026
Release checks	3 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/boilers-power-plant/boilers/safety-valve-blowdown-pressure

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.