Safety Valve Capacity Share: Drum and Superheater

Share of required relieving capacity given by superheater and drum safety valves, checked against a minimum superheater share you enter.

Method: Capacity accounting (definitions); valve sizing; set pressures and the minimum shares are code matters entered by the user

Input parameters

Unit system: SI

Parameter	Value	Unit
Required relieving capacity (usually MCR)	100.00	t/h
Superheater valves' rated capacity	25.000	t/h
Drum valves' rated capacity	85.000	t/h
Minimum superheater share required (from your code)	20.000	%

Calculated results

Parameter	Value	Unit
Total installed capacity	110.00	t/h
Capacity over requirement	110.00	%
Superheater share of the required capacity	25.000	%

Formula and method

$$s_{SH} = \frac{\dot{m}_{SH}}{\dot{m}_r}, \quad \frac{\dot{m}_{SH} + \dot{m}_D}{\dot{m}_r} \geq 1$$

Variables

$\dot{m}_r$	Required relieving capacity (usually MCR)	kg/s
$\dot{m}_{SH}$	Superheater valves' rated capacity	kg/s
$\dot{m}_D$	Drum valves' rated capacity	kg/s
s_{min}	Minimum superheater share required (from your code)	-
$\dot{m}_t$	Total installed capacity	kg/s
$\dot{m}_t/\dot{m}_r$	Capacity over requirement	-
s_{SH}	Superheater share of the required capacity	-

Method and standards

Capacity accounting: the superheater share is the superheater valves' rated capacity over the required relieving capacity, and the total installed capacity is compared with the requirement. Boiler codes differ in how they state the superheater requirement (as a share of the required capacity, of the total valve capacity, or as a share the drum valves alone must meet): enter the minimum on the same definition, or convert it.

Assumptions and limits

- Rated capacities at the same conditions.
- Set pressures are not inputs: the calculator does not check that the superheater valves are set to lift before the drum valves. Check that against your code and the valve set pressures.

References

- Capacity accounting (definitions); valve sizing
- set pressures and the minimum shares are code matters entered by the user

Report details

Report reference	FCC-HCSR-2G5F (the same inputs always give the same reference)
Generated	17 November 2026, 19:50 UTC
Calculator	Safety Valve Capacity Share: Drum and Superheater
Method last reviewed	13 November 2026
Software release	FireCAD Calc, release of 17 November 2026
Release checks	2 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/boiler-pressure-parts/safety-valve-relief-share

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.