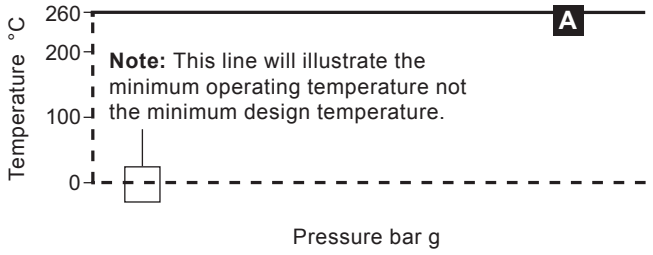
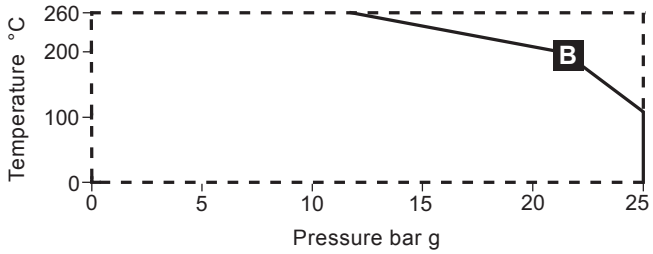
Pressure / Temperature Limits for Safety Valves

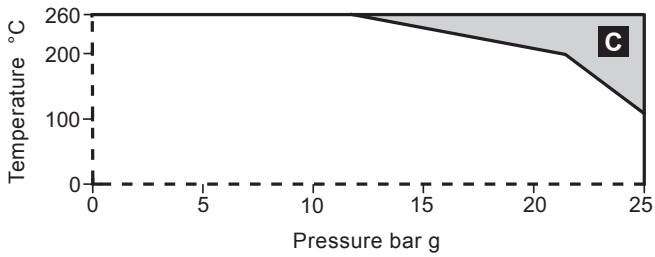
Safety valve Technical Information sheets (TIs) contain a 'Pressure / temperature limits' diagram. This diagram indicates the envelope of the product(s) at the full range of pressures and temperatures. Note: The construction of this diagram and a typical example (no specific product) is displayed below:



A Is the maximum design temperature the body of the product can be raised to permanently, at a given pressure.

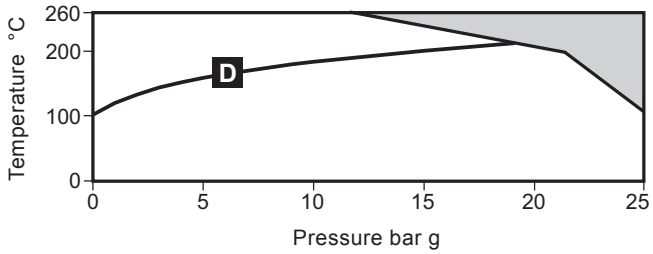


B Is the maximum design pressure that the combined body and end connections of the product can withstand at a given temperature. It is a function of the PN rating and body design / material.



C Is a prohibited area and the product **must not** be used in this region and will be worded:

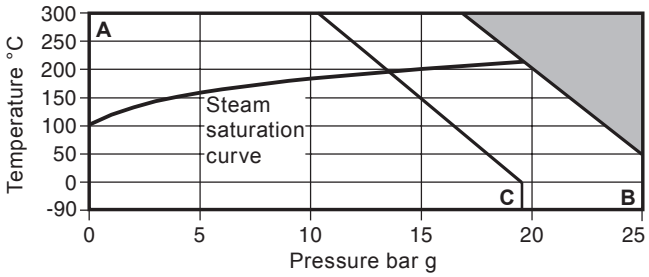
The product **must not** be used in this region.



D The steam saturation curve is added (where relevant) to enable users to easily find the specific operating points, e.g. 10 bar g saturated steam @ 185 °C, 10 bar g steam with 20 °C superheat or 10 bar g / 250 °C steam.

Typical 'Pressure / temperature limits' diagram and table for a safety valve:

Pressure / temperature limits
Please contact: Spirax Sarco, when so required, for relevant details regarding the maximum allowable limits that the body can withstand.



The product **must not** be used in this region.

A - B Flanged PN25.

A - C Flanged ANSI 150.

Note: For hygienic / sanitary clamp ends the maximum pressure / temperature may be restricted by the gasket or sanitary clamp used. Please consult Spirax Sarco.

Body design conditions			PN25
Set pressure range	Maximum	DN15 - DN32	18 bar g
		DN40 - DN50	14 bar g
	Minimum		0.3 bar g
Temperature	Metal seat	Minimum	-90 °C
		Maximum	+300 °C
	Nitrile seat	Minimum	-30 °C
		Maximum	+120 °C
	EPDM seat	Minimum	-50 °C
		Maximum	+150 °C
	Viton seat	Minimum	-20 °C
		Maximum	+200 °C
Performance data	Overpressure	Steam	5%
		Gas, liquid	10%
	Blowdown limits	Steam, gas, liquid	10%
	Derated coefficient of discharge values	Steam, gas	0.71
		Liquid	0.52

Designed for a maximum inlet cold hydraulic test pressure of 37.5 bar g
Note: If a test gag is fitted, test pressure must not exceed 25 bar g

For further 'Pressure / temperature limits' diagram and table layouts, see TI-S24-41, pages 4 and 5.