

Self-operated Temperature Regulators Safety Temperature Limiters (STL) with Safety Thermostat Type 2212



Application

Safety temperature limitation of the energy supplied to heat generators or heat exchangers by closing and locking the valve. Additional pressure limitation when equipped with a pressure limiter (PL) or an electromagnetic release device.

For limit signals from **10 to 170 °C** · With valves in sizes **DN 15 to DN 150** · **PN 16 to PN 40** · **Max. 350 °C**

Note

Typetested devices are available for installations acc. to DIN 4753.

Refer to Information Sheet T 2040 EN for details on application of the safety temperature limiters.



Safety temperature limiters (STL) with a valve and a Type 2212 Safety Thermostat operate without auxiliary energy and are designed for "Extended Safety" acc. to DIN EN 14597. The valve is closed and locked by a spring mechanism when the temperature reaches a limit, when the capillary tube ruptures or there is a leak in the sensor system. The limiters can only be reset and put back into operation with a tool after the temperature has fallen below the limit and the fault has been removed.

Versions

The **Type 2212** Safety Thermostat consists of a temperature sensor (only with thermowell), capillary tube and an operating element with spring mechanism and limit value adjuster.

Type 2111/2212 · With Type 2111 Globe Valve for DN 15 to DN 50 and Type 2212 Thermostat · Unbalanced · With flanges

Type 2114/2212 · With Type 2114 Globe Valve for DN 15 to DN 150 and Type 2212 Thermostat · Balanced · With flanges

Type 2118/2212 · With Type 2118 Three-way Valve for DN 15 to 50 and Type 2212 Thermostat · Unbalanced · With flanges

Type 2119/2212 · With Type 2119 Three-way Valve for DN 15 to 150 and Type 2212 Thermostat · Balanced ¹⁾ · With flanges

Temperature regulators and safety temperature limiters (TR/STL) (Fig. 2) consist of one of the above mentioned instruments Type ... /2212 and a typetested Type 2231 Control Thermostat, for example:

Type 2114/2231/2212 · With Type 2114 Valve, Type 2231 Control Thermostat and Type 2212 Safety Thermostat.

Special versions

Optionally with an electric signal transmitter (7) for fault indication and/or an electromagnetic release device (6) with a solenoid for connection to a safety interlock circuit (Fig. 5) or with a Type 2401 Pressure Element for limits from 1 to 10 bar.

Temperature regulators, safety temperature limiters and pressure limiters (TR/STL/PL) acc. to Fig. 4 consist of one of the above mentioned devices and a Type 2401 Pressure Limiter.

The Type 2231 Control Thermostat can be replaced by a typetested Type 2232 to Type 2235 Control Thermostat.

Details and technical data can be found in the Data Sheets:

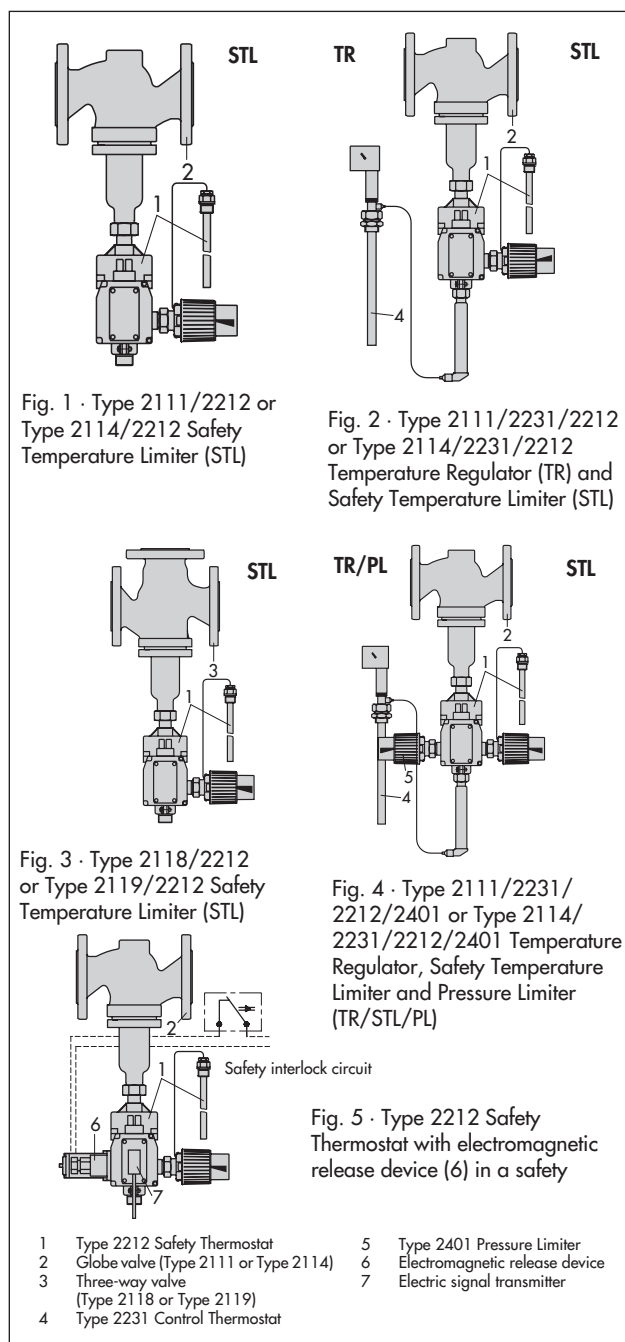
Data Sheet T 2111 EN - With Type 2111 Globe Valve

Data Sheet T 2121 EN - With Type 2114 Globe Valve

Data Sheet T 2131 EN - With Type 2118 Three-way Valve

Data Sheet T 2133 EN - With Type 2119 Three-way Valve

¹⁾ DN 15 to DN 25: Unbalanced



Principle of operation (Fig. 6)

The safety temperature limiters (STL) are equipped with a temperature sensor which operates according to the adsorption principle.

The medium temperature produces a pressure in the sensor (9) that corresponds to the actual temperature. This pressure is transmitted through the capillary tube (10) to a positioning bellows, converted into a positioning force and compared with the force of a positioning spring.

The spring force is adjusted at the limit value adjuster (11). If the actual temperature exceeds the adjusted limit, the spring mechanism in the operating element (8) releases and moves the pin (6) as well as the plug stem (5). The spring mechanism closes and locks the valve.

The valve can only be unlocked and put back into operation with a special tool, after the temperature has fallen below the limit value and the fault has been removed.

Installation

• Valve

The valves are to be installed in horizontal pipelines. The direction of medium flow through the valve must match the arrow on the body. The operating element of the thermostat must be suspended downwards.

• Capillary tube

The capillary tube must be laid in such a way that it is not exposed to large temperature fluctuations and cannot be damaged. The ambient temperature should not exceed the permissible limits. The smallest permissible bending radius is 50 mm.

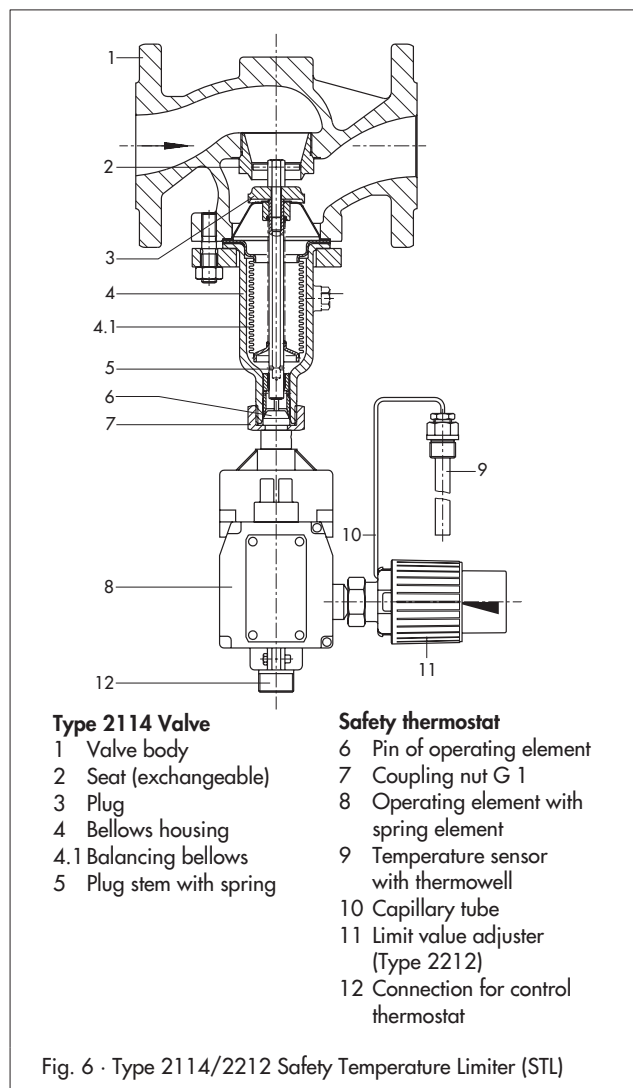
• Temperature sensor

The temperature sensor may be installed in any desired position. Its whole length must be immersed in the medium to be controlled. It should be installed in a location where overheating or considerable idle times cannot occur.

Only the same kind of materials should be combined, for example thermowells of stainless steel 1.4571 can be installed into heat exchangers of stainless steel.

Special installation regulations according to VdTÜV

The valve may be only used with a strainer (e.g. Type 2NI acc. to Data Sheet T 1015 EN) installed upstream of the valve inlet. Only use SAMSON thermowells.



Accessories

- **Extension piece** to protect the operating element against excessive temperatures ¹⁾ (see specifications in associated data sheet)
- **Distance piece** made of brass or CrNi steel
- **Thermowell** made of CrNiMo steel

Special version

- An additional electromagnetic release device and/or electric signal transmitter for remote transmission of the plant state can be attached to the operating element (8).
- Special Kvs coefficient (reduced) for Type 2114/2212 or Type 2111/2212.
- With Type 2401 Pressure Limiter (PL)
- Capillary tube of either 10 or 15 m (not typetested).

Register numbers of devices tested acc. to DIN EN 14597

Test marks assigned in the typetest to the Type 2212 Safety Thermostat with Type 2111, Type 2114, Type 2118 and Type 2119 Valves and Type 2231, Type 2232, Type 2233, Type 2234 and Type 2235 Control Thermostats as well as Type 2401 Pressure Limiter are available on request.

¹⁾ Type 2118: The use of an extension piece does not allow an increase in the maximum permissible temperature.

Table 1 · Technical data · All pressures in bar (gauge)

Valves		15	20	25	32	40	50	65	80	100	125	150	
Nominal size	DN												
Type 2111	Further details on technical data of valves and control thermostats can be found in the data sheets listed.	See Data Sheet T 2111 EN						-					
Type 2114		See Data Sheet T 2121 EN											
Type 2118		See Data Sheet T 2131 EN						-					
Type 2119		See Data Sheet T 2133 EN											
Nominal pressure		PN 16 to PN 40											
Type 2212 Safety Thermostat for STL				Size 50				Size 150					
Adjustable range of limit value				10 to 90 °C · 20 to 120 °C · 30 to 170 °C									
Permissible ambient temperature with electromagnetic release device				-20 to +80 °C -20 to +60 °C									
Permissible temperature at sensor				Max. 20 K above adjusted set point									
Capillary tube length				5 m (special version 10 m or 15 m) ¹⁾									
Permissible pressure at sensor with thermowell G 1/2				PN 40									
Electromagnetic release device				Power supply: 230 V~ +5/-10 %, 50 Hz									
Degree of protection				IP 54									
Power consumption				31 VA (100 % ED)									
Electric signal transmitter				Permissible load: 230 V~, 10 A at ohmic load									

¹⁾ Not type tested

Table 2 · Materials · Material numbers according to DIN EN

Type 2213 Safety Thermostat for STL				
		Standard version		Special version
Operating element		GD AlSi 12 (230) · Connection piece 1.4104		-
Sensor		Only with thermowell and conducting sheet		
Thermowell		Copper SF-Cu F20		Stainless steel 1.4571
Capillary tube		Copper SF-Cu F20		-
G 1	Immersion tube	Nickel-plated bronze		Nickel-plated copper
	Threaded nipple	Nickel-plated brass		
				Stainless steel 1.4571

Ordering text

Safety Temperature Limiter Type .../2212

Nominal pressure PN ..., nominal size DN
K_{vs} coefficient ..., body material ...

With **Type 2212 Safety Thermostat**
limit value range ... °C
limit value adjusted ... °C (normal 90 or 110 °C)
Optional accessories ...
Optional special version ...

Temperature Regulator with Safety Temperature Limiter Type .../2231/2212

Nominal pressure PN ..., nominal size DN ...,
K_{vs} coefficient ...,
body material ...

With **Type 2231 Thermostat**, capillary tube ... m,
set point range ... °C
and

Type 2212 Safety Thermostat, capillary tube ... m,
limit value range ... °C
limit value adjusted ... °C (normal 90 or 110 °C)
Optional accessories ...
Optional special version ...

