

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



Application

Safety temperature limitation of the energy supply for heat generators or heat exchangers by closing and locking a valve. Additional pressure limitation if equipped with Type 2401 Pressure Element.

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

Note

Tested devices are available for installations according to DIN 4753.

Details on application of the safety temperature limiters: Information Sheet ▶ T 2040.



Safety temperature limiters (STL), consisting of a valve and Type 2212 Safety Thermostat, operate without auxiliary energy and are designed for extended safety according 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 remedied.

Version

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 50 and Type 2212 Thermostat · Unbalanced · Flanged connection

Type 2422/2212 · With Type 2422 Globe Valve for DN 15 to 150 and Type 2212 Thermostat · Balanced · Flanged connection

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

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

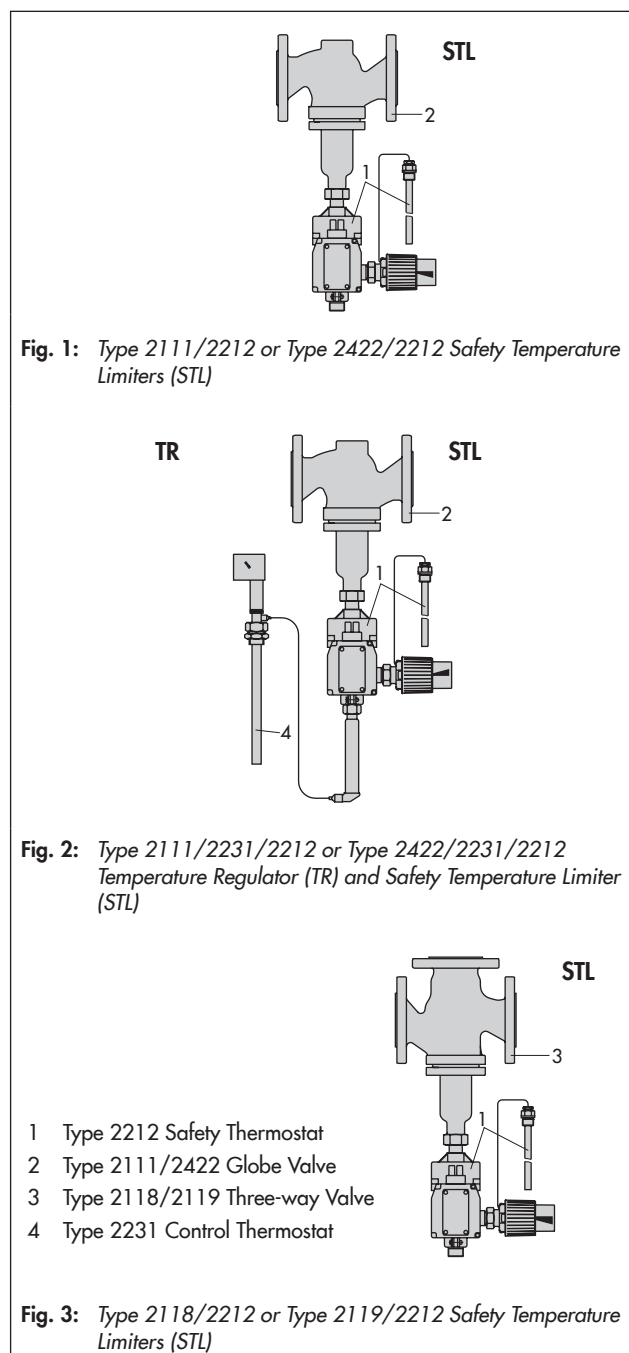
Temperature regulators and safety temperature limiters (TR/STL) (Fig. 2) consist of one of the above mentioned devices Type ... /2212 and a type-tested Type 2231 Control Thermostat, for example:

Type 2422/2231/2212 · With Type 2422 Valve · Type 2231 Control Thermostat and Type 2212 Safety Thermostat

Special versions

- With electric signal transmitter for remote transmission of the plant state
- Special K_{VS} coefficient (reduced) with Type 2422/2212, Type 2111/2212
- With Type 2401 Pressure Element
- 10 m capillary tube (not type-tested)

¹⁾ DN 15 to 25: unbalanced



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

A typetested Type 2232 to 2235 Control Thermostat can be used in place of the Type 2231 Control Thermostats.

Details on valves and control thermostats can be found in:

Data Sheet ► T 2111 with Type 2111 Globe Valve

Data Sheet ► T 2121 with Type 2422 Globe Valve

Data Sheet ► T 2131 with Type 2118 Three-way Valve

Data Sheet ► T 2133 with Type 2119 Three-way Valve

Electric signal transmitter (special version)

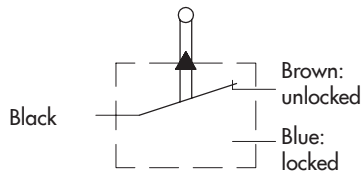


Fig. 4: Wiring diagram for the electric signal transmitter

Principle of operation

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

The temperature of the measured medium creates a pressure in the sensor (9) which is proportional to the measured temperature. This pressure is transferred to an operating bellows through a capillary tube (10) where it is converted into a positioning force and compared to the force of the set point spring.

The spring force depends on the limit value adjustment (11). If the measured temperature exceeds the adjusted limit, the spring mechanism in the connecting element (8) is triggered, moving the pin (6) and the plug stem (5) connected to it. The valve closes and the position is automatically locked.

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

Type 2422 Valve		Safety thermostat	
1	Valve body	6	Pin of operating element
2	Seat (exchangeable)	7	Coupling nut G 1
3	Plug	8	Connecting element with spring mechanism
4	Bellows housing	9	Temperature sensor with thermowell
4.1	Metal bellows	10	Capillary tube
5	Plug stem with spring	11	Type 2212; limit value adjustment
		12	Connection for control thermostat

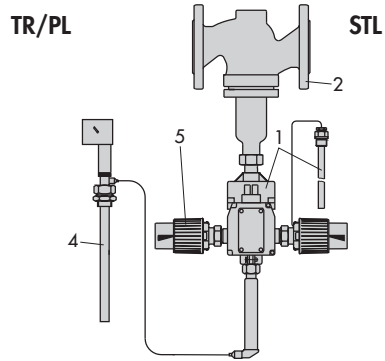


Fig. 5: Type 2111/2231/2212 or Type 2422/2231/2212 Temperature Regulator (TR) and Safety Temperature Limiter (STL) with Type 2401 Pressure Element

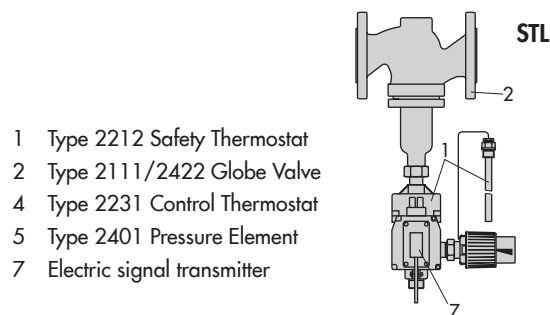


Fig. 6: Type 2111/2212 Safety Temperature Limiter (STL) or Type 2422/2212 with electric signal transmitter

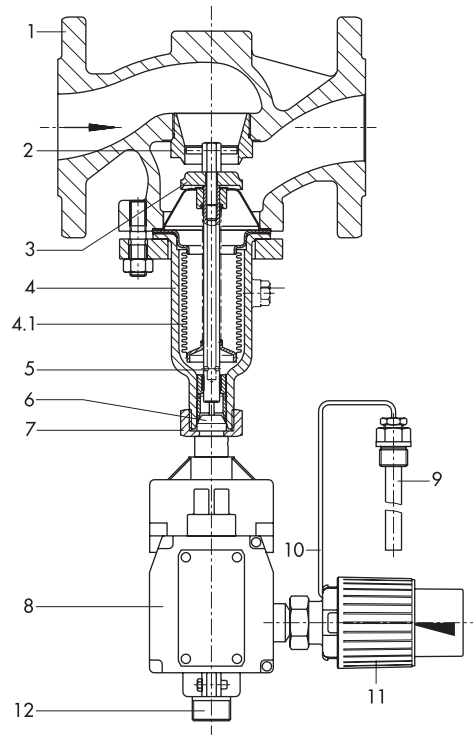


Fig. 7: Type 2422/2212 Safety Temperature Limiter (STL)

Installation

– Valve

The valves must be installed in horizontal pipelines. The direction of flow must correspond with the arrow on the valve body and the connecting element must be suspended downward.

– Capillary tube

The capillary tube must be run in such a way that the ambient temperature range cannot be exceeded, any large deviations in ambient temperature cannot occur and that the tube cannot be damaged. The smallest permissible bending radius is 50 mm.

– Temperature sensor

The temperature sensor may be installed in any position. Its entire length must be immersed in the medium. Select a place of installation where overheating and noticeable idle times will not occur.

Only the combination of the same kind of materials is permitted, e.g. a stainless steel heat exchanger with thermowells made of stainless steel 1.4571.

Special installation regulations according to VdTÜV:

Install the regulator only in combination with an upstream strainer (e.g. Type 2 NI in Data Sheet ▶ T 1015).

Only use the thermowells delivered by the manufacturer.

Accessories

– **Extension piece** to protect the connecting element against excessively high temperatures (see details in the associated data sheet).

When a Type 2118 Valve is combined with a Type 2212 Safety Thermostat, note that an extension piece does **not** permit a higher max. permissible temperature of 150 °C. When a Type 2111 Valve (body of cast iron, spheroidal graphite iron or red brass) is combined with a Type 2212 Safety Thermostat, an extension piece is required for temperatures above 150 °C.

– **Separating piece** made of brass or CrNi steel

– **Thermowell** of CrNiMo steel

Register number of devices tested according to DIN EN 14597:

The test marks for the type test of the Type 2111, Type 2422, Type 2118 and Type 2119 Valves with Type 2212 Safety Thermostat, with Type 2231, Type 2232, Type 2233, Type 2234 and Type 2235 Control Thermostats as well as Type 2401 Pressure Element are available on request.

Table 1: Technical data · All pressure stated as gauge pressure in bar

Valves	Types 2111, 2422, 2118 and 2119												
	Connection size	DN	15	20	25	32	40	50	65	80	100	125	150
Type 2111	More details on the technical data for valves and control thermostats can be found in the specified data sheets.	Data Sheet ▶ T 2111								–			
Type 2422		Data Sheet ▶ T 2121											
Type 2118		Data Sheet ▶ T 2131								–			
Type 2119		Data Sheet ▶ T 2133											
Pressure rating	PN 16 to 40												
Type 2212 Safety Thermostat for STL	Size 50 ¹⁾						Size 150 ¹⁾						
Adjustable limit value range	10 to 95 °C · 20 to 120 °C · 40 to 170 °C												
Max. perm. ambient temperature	+80 °C												
Min. permissible sensor temperature ²⁾ At an ambient temperature of 0 °C	Smallest adjustable limit temperature of the selected limit range												
Min. permissible temperature of the STL including sensor during plant shutdown ²⁾ with Limit value range 10 to 95 °C Limit value range 20 to 120 °C Limit value range 40 to 170 °C	–10 °C 0 °C 10 °C												
Max. permissible temperature at sensor	50 K above the adjusted limit												
Capillary tube length	5 m (10 m as special version) ³⁾												
Nominal pressure with G ½ thermowell	PN 40												
Electric signal transmitter Max. load at 230 V (AC)	10 A with resistive load												
Compliance	CE · EAC												

¹⁾ Size 50: Type 2212 for valve DN 15 to 50 | Size 150: Type 2212 for valve DN 65 to 150

²⁾ The STL is triggered when the temperature falls below the specified temperature

³⁾ Not type tested

Table 2: Materials · Material numbers according to DIN EN

Type 2212 Safety Thermostat for STL		
Version	Standard version	Special version
Connecting element	GD AlSi 12 (230) · Connecting piece 1.4104	–
Sensor	Only with thermowell and conductive plate	
Thermowell	Copper SF-Cu F20	Stainless steel 1.4571
Capillary tube	Copper SF-Cu F20	–

Ordering text

Type .../2212 Safety Temperature Limiter

PN ..., DN ...

K_{VS} ..., body material ...

With **Type 2212 Safety Temperature Thermostat**, limit value range ... °C, limit adjusted to ... °C (standard 90 or 110 °C)

Optionally, accessories ...

Optionally, special version

Temperature Regulators with Safety Temperature Limiters

Type .../2231/2212

PN ..., DN ..., K_{VS} ...

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 adjusted to ... °C

(standard 90 or 110 °C)

Optionally, accessories ...

Optionally, special version

Dimensions (see Table 3)

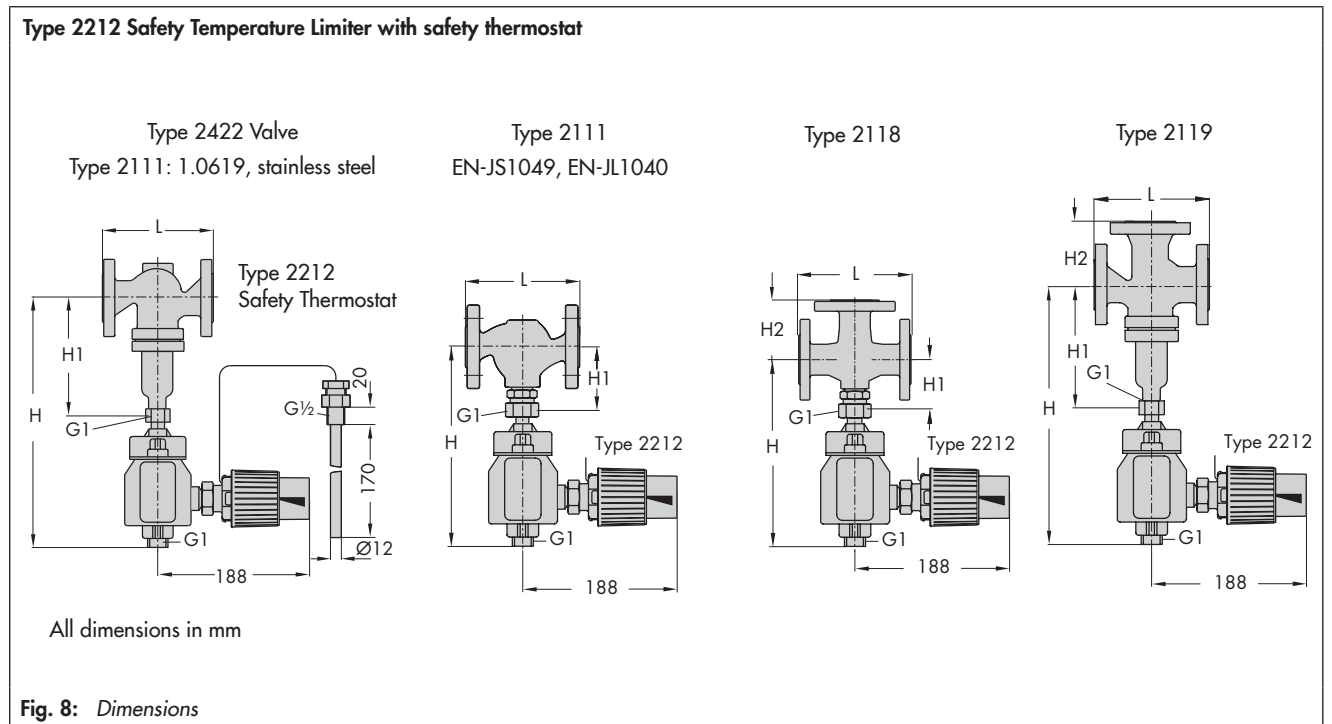


Table 3: Dimensions in mm and weights

Connection size	15	20	25	32	40	50	15	20	25	65	80	100	125	150	
Valve	Type 2422			Type 2111/ (Type 2422)			Type 2111			Type 2422					
Length L	130	150	160	180	200	230	130	150	160	290	310	350	400	480	
H1 Without Extension With piece ⁵⁾	225			225 ³⁾ /152 ⁴⁾ /(225)			225 ³⁾ /82 ⁴⁾			300	355	460	590		
	365			365 ³⁾ /- ⁴⁾ /(365)			365 ³⁾ /- ⁴⁾			440	495	600	730		
Weight (PN 16 body) ³⁾ , approx.	5 kg	5.5 kg	6.5 kg	13 kg	13.5 kg	16 kg	4 kg	4.5 kg	5.5 kg	27 kg	32 kg	40 kg	70 kg	113 kg	
Valve	Type 2119			Type 2118/Type 2119			Type 2118			Type 2119					
Length L	130	150	160	180	200	230	130	150	160	290	310	350	400	480	
H2	70	80	85	100	105	120	70	80	85	130	140	150	200	210	
H1 Without Extension With piece ¹⁾	235			88/245			78			320	355	395	500		
	375			- /385			-			460	495	535	640		
Weight (PN 16 body) ²⁾ , approx.	6 kg	7 kg	8.5 kg	12.5/ 15 kg	14.5/ 17 kg	17/ 19 kg	5 kg	6.5 kg	8 kg	32 kg	50 kg	71 kg	On request		
Total height H Type ... /2212 STL							H = H1 + 255								
TR/STL							H = H1 + 545								
Type 2212 Safety Thermostat															
Weight, approx.	3.5 kg														

¹⁾ Type 2118: an extension piece does not permit a higher max. permissible temperature

²⁾ +15 % for PN 25/40

³⁾ Type 2111, valve material 1.0619 and stainless steel

⁴⁾ Type 2111, valve material EN-JS1049 and EN-JL-1040

⁵⁾ Type 2111: In combination with a body of cast iron, spheroidal graphite iron or red brass and a Type 2212 Safety Thermostat, an extension piece is required for temperatures above 150 °C

Specifications subject to change without notice



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