

# Self-operated Pressure Regulators

## Pressure Limiters (PL) with Pressure Element Type 2401



### Application

Pressure limitation in heat generators or heat exchangers by closing and locking a valve. Additional limitation of the energy supply when equipped with typetested control thermostat, safety thermostat or electromagnetic release device.

For limit signals from **1 bar** to **10 bar** · Valves **DN 15** to **DN 250**<sup>1)</sup> · **PN 16** to **PN 40** · Max. **350 °C**

### Note:

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



Pressure Limiters (PL) with a valve and Type 2401 Pressure Element operate without auxiliary energy. A spring mechanism closes and locks the valve when the pressure reaches the adjusted limit. It can only be reset and put back into operation with a suitable tool when the fault has been removed and the pressure has fallen below the limit.

### Versions

**Type 2401 Pressure Element** consisting of:

Housing with a spring mechanism · Pressure measuring element with limit adjustment · Connecting tube and Type 1N1 Strainer (connection G 3/8, PN 16)

Optionally available with:

Electric signal transmitter to indicate the plant state or an electromagnetic release device (Fig. 3) connected to a safety interlock circuit or a typetested control thermostat and/or safety thermostat

**Pressure limiters (PL)** (Figs. 1 to 3)

**Type 2111/2401** · Type 2111 Globe Valve for DN 15 to 50 and Type 2401 Pressure Element · Unbalanced · Flanged connections

**Type 2114/2401** · Type 2114 Globe Valve for DN 15 to 250<sup>1)</sup> and Type 2401 Pressure Element · Balanced · Flanged connections

**Type 2118/2401** · Type 2118 Three-way Valve for DN 15 to 50 and Type 2401 Pressure Element · Unbalanced · Flanged connections

**Type 2119/2401** · Type 2119 Three-way Valve for DN 15 to 150 and Type 2401 Pressure Element · Balanced<sup>2)</sup> · Flanged connections

**Temperature regulators, safety temperature limiters and pressure limiters (TR/STL/PL)** are available. Refer to Data Sheets T 2040 EN and T 2046 EN for details.

For details and technical data about the valves, refer to:

Data Sheet T 2111 EN - with Type 2111 Globe Valve

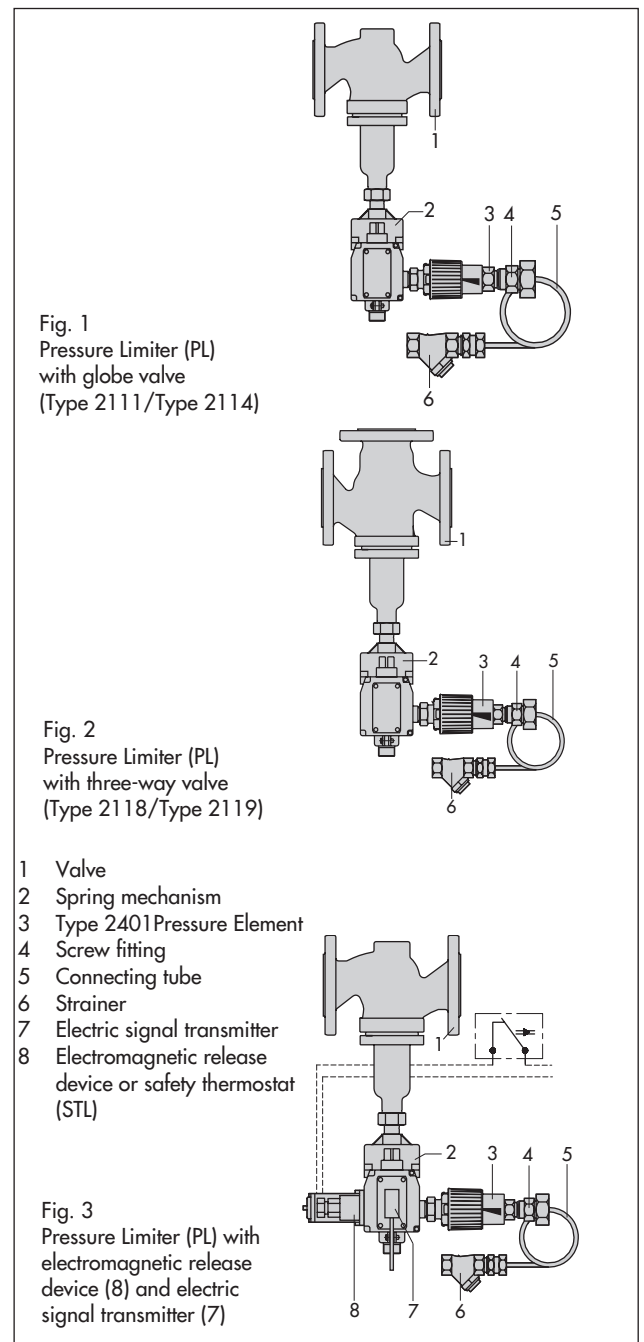
Data Sheet T 2121 EN - with Type 2114 Globe Valve

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

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

<sup>1)</sup> DN 200 and 250 on request

<sup>2)</sup> DN 15 to 25 unbalanced



### Principle of operation (Fig. 4)

The medium passes through the strainer (13) and the connecting tube (12) to an operating bellows. It is converted into a positioning force which is compared to the force of a spring.

This spring force is adjusted by the limit value adjustment (10).

If the actual pressure exceeds the limit value adjusted, the spring mechanism in the connecting element (8) is released. It moves the pin (6) and the plug stem (5) attached to it, closing and locking the valve.

It can only be reset and put back into operation with the appropriate tool (lever tool 1490-7399) when the pressure has fallen below the limit and the fault has been removed.

### Special versions

#### • Version with safety pressure element (SPE)

The safety pressure element has increased safety according to DIN 3340.

The valve closes and locks on reaching an adjusted limit value or when the pressure falls below 0.8 bar (gauge).

#### • Electric supplementary equipment

Additionally the connecting element (8) can be equipped with an electromagnetic release device and/or an electric signal transmitter on request.

**Electromagnetic release device** (Fig. 3) with a solenoid to connect to a safety interlock circuit. It is energized in normal operation. When the electric current is interrupted, the solenoid releases the spring mechanism, closing and locking the valve.

**Electric signal transmitter** to produce a signal for fault indication.

**Special  $K_{vs}$  coefficient** (reduced) in Types 2111/2401 and Type 2114/2401.

### Register number

The test markings of the typetested Type 2111, Type 2114, Type 2118 and Type 2119 Valves with a Type 2401 Pressure Element are available on request.

### Accessories

**Extension piece** to protect the connecting element from high temperatures <sup>1)</sup>

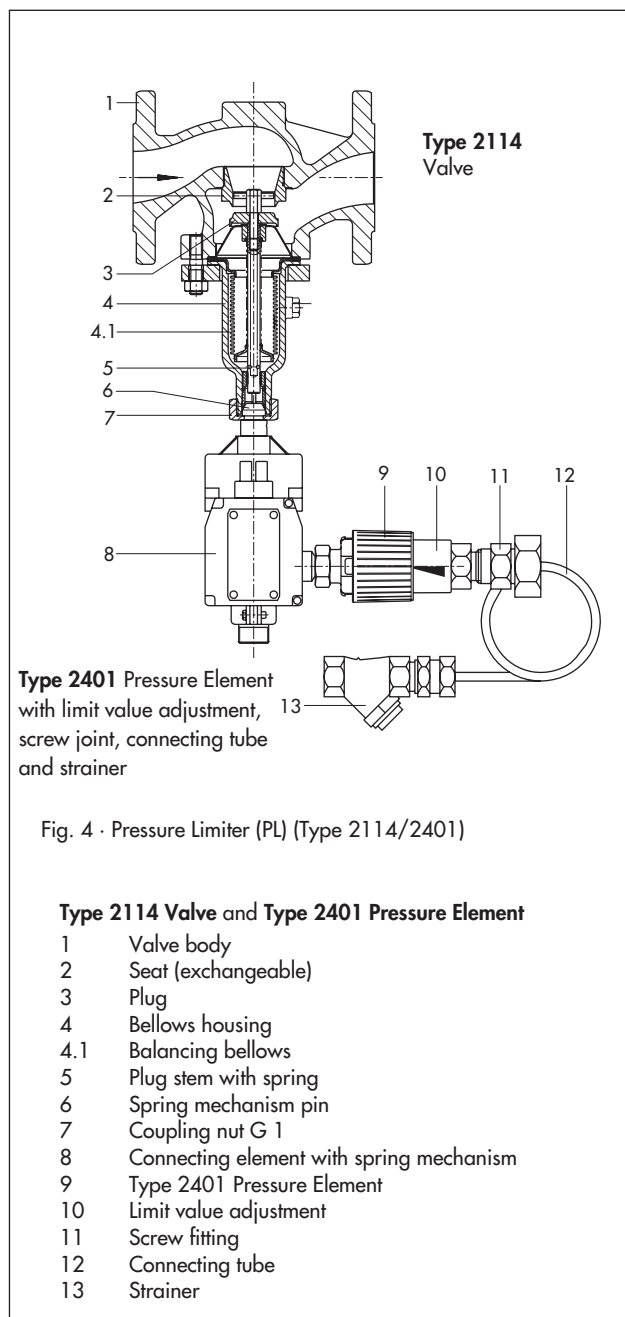
- Brass
- CrNi steel
- CrNi steel (with seal for water, oil)

### Distance piece

- Brass (for water, steam)
- CrNi steel (for water, oil)

**Double adapter Do 1** for the connection of a second thermostat

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



### Installation

- Only suitable for installation in horizontal pipelines
- The connecting element must hang downwards
- The flow direction must correspond with the arrow on the body
- The pressure measuring connection may be installed in any desired position
- The connecting tube must be routed such that it cannot be damaged.
- The permissible ambient temperature of 80 °C (60 °C with the electromagnetic release device) must not be exceeded.

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

Nominal size	DN	15	20	25	32	40	50	65	80	100	125	150	200 <sup>1)</sup>	250 <sup>1)</sup>
<b>Type 2111</b>	Refer to the data sheet indicated for more details on technical data and materials of the valve	Refer to Data Sheet T 2111 EN								-				
<b>Type 2114</b>		Refer to Data Sheet T 2121 EN												
<b>Type 2118</b>		Refer to Data Sheet T 2131 EN								-				
<b>Type 2119</b>		Refer to Data Sheet T 2133 EN											-	
Nominal pressure		PN 16 to PN 40												

<sup>1)</sup> On request

<b>Type 2401 Pressure Element</b>	
Adjustment range of the limit value	1 to 10 bar
Permissible operating pressure	10 bar
Permissible operating temperature	200 °C
Permissible ambient temperature with electromagnetic release device	Max. +80 °C Max. +60 °C
Switching cycles acc. to DIN 3440	500
Electromagnetic release device Power supply	230 V +5/-10 %, 50 Hz
Degree of protection	IP 54
Power consumption	31 VA
Electric signal transmitter Permissible load	230 V (AC), 10 A at resistive load
Connecting tube Length	Approx. 2 m
Strainer	Type 1NI, G 3/8, DN 16 (refer to Data Sheet T 1010 EN)

**Table 2 · Materials** · Material number according to DIN EN

<b>Type 2401 Pressure Element</b>	
Connecting element	GD AlSi 12 (230)
Connecting piece	Brass
Bellows	CuSn6F35
Screw joint	Brass
Connecting tube	Copper
Strainer	Brass

**Ordering text**

Pressure Limiter **Type 2111/2401**, **Type 2114/2401** or  
Pressure Limiter for mixing or diverting service

**Type 2118/2401** or **Type 2119/2401**

With Type ... Valve, body material ..., DN ... , PN ... ,

Optionally, limit value set to/lead-sealed at ... bar,

Optionally, accessories/special version

**Table 3 · Dimensions in mm and weights in kg**

Nominal size	DN	15	20	25	32	40	50	15	20	25	65	80	100	125	150	200 <sup>1)</sup>	250 <sup>1)</sup>
Valve		Type 2114			Type 2111/(2114)			Type 2111			Type 2114						
Length L		130	150	160	180	200	230	130	150	160	290	310	350	400	480	600	730
H1	Without extension piece	225			225 <sup>4)</sup> /152 <sup>5)</sup> /(225)			225 <sup>4)</sup> /82 <sup>5)</sup>			300	355	460	590	730		
	With extension piece	365			365 <sup>4)</sup> /- <sup>5)</sup> /(365)			365 <sup>4)</sup> /- <sup>5)</sup>			440	495	600	730	870		
Weight (body PN 16) <sup>3)</sup> approx. kg		5	5.5	6.5	13	13.5	16	4	4.5	5.5	27	32	40	70	113	255	300
Valve		Type 2119			Type 2118/2119			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 piece <sup>2)</sup>	235			88/245			78			320	355	395	500			
	With extension piece	375			-/385			-			460	495	535	640			
Weight (body PN 16) <sup>3)</sup> approx. kg		6	7	8.5	12.5/ 15	14.5/ 17	17/ 19	6	7	8.5	32	50	71	On request			
Total height H		H = H1 + 255															
<b>Type 2401 Pressure Element</b>																	
Weight, approx. kg		3.5															

- 1) On request
- 2) Type 2118: The use of an extension piece does not allow an increase in the max. permissible temperature
- 3) +15 % for PN 25/40
- 4) Type 2111, valve material 1.0619 and stainless steel
- 5) Type 2111, valve material EN-JS1049 and EN-JL1040

**Dimensions**

