

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 250¹⁾** · **PN 16 to PN 40** · **Max. 350 °C**

Conversion of valve sizing coefficients

$$C_v \text{ (in US gallons/min)} = 1.17 \cdot K_{vs} \text{ (in m}^3\text{/h)}$$

$$K_{vs} \text{ (in m}^3\text{/h)} = 0.86 \cdot C_v \text{ (in US gallons/min)}$$

Note

For details on the application of safety temperature limiters, see Information Sheet T 2040 EN.



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 consists of a housing with a spring mechanism, a pressure measuring element with limit adjustment, connecting tube and Type 1N1 Strainer (G 3/8, PN 16). An electric signal transmitter which produces a signal for fault indication, an electromagnetic release device (Fig. 3) connected to a safety interlock circuit or a typetested control thermostat and/or safety thermostat are available as options.

Pressure Limiters (PL) (Figs. 1 to 3)

Type 2111/2401 · With Type 2111 Globe Valve for DN 15 to DN 50 and Type 2401 Pressure Element · unbalanced · with flanges

Type 2114/2401 · With Type 2114 Globe Valve for DN 15 to DN 250¹⁾ and Type 2401 Pressure Element · balanced · with flanges

Type 2118/2401 · With Type 2118 Three-way Valve for DN 15 to DN 50 and Type 2401 Pressure Element · unbalanced · with flanges

Type 2119/2401 · With Type 2119 Three-way valve for DN 15 to DN 150 and Type 2401 Pressure Element · balanced²⁾ · with flanges

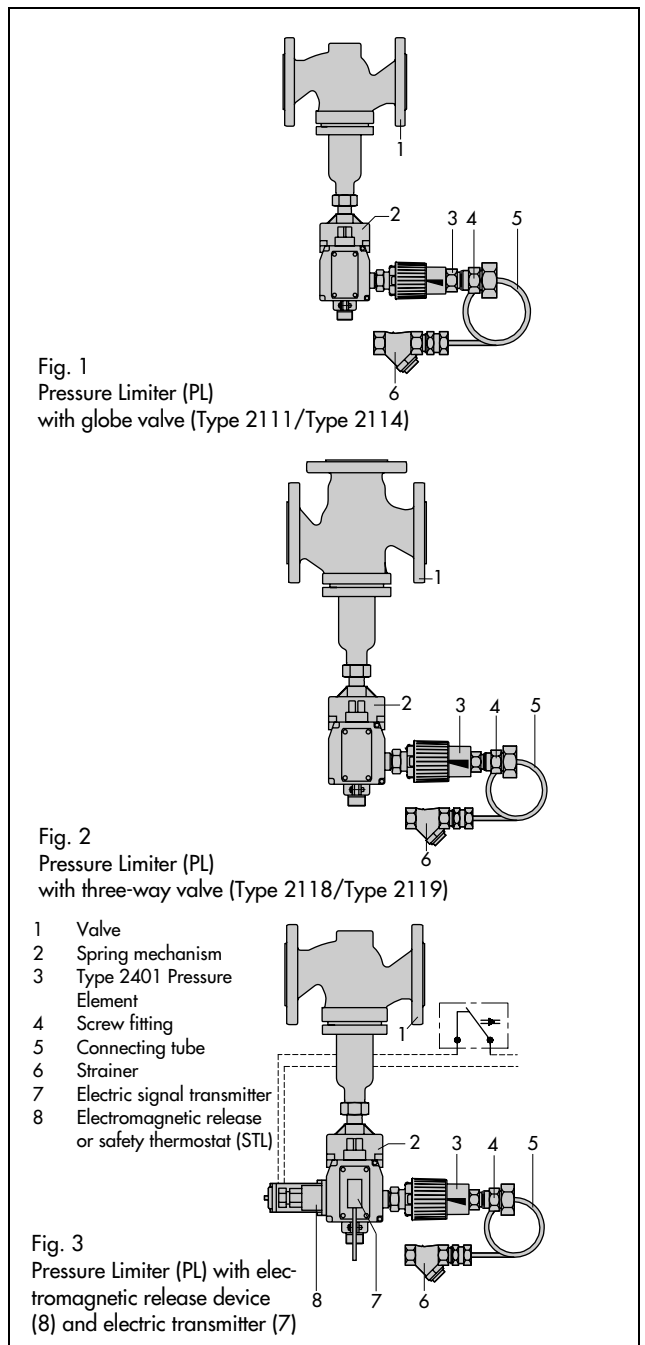
Temperature regulators, safety temperature limiters and pressure limiters (TR/STL/PL) are available. Refer to Data Sheets T 2040 EN and T 2046 EN for details.

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

¹⁾ DN 200 and DN 250 on request

²⁾ 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 Kvs** (reduced) in Types 2111/2401 and Type 2114/2401.

Register number

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

Accessories

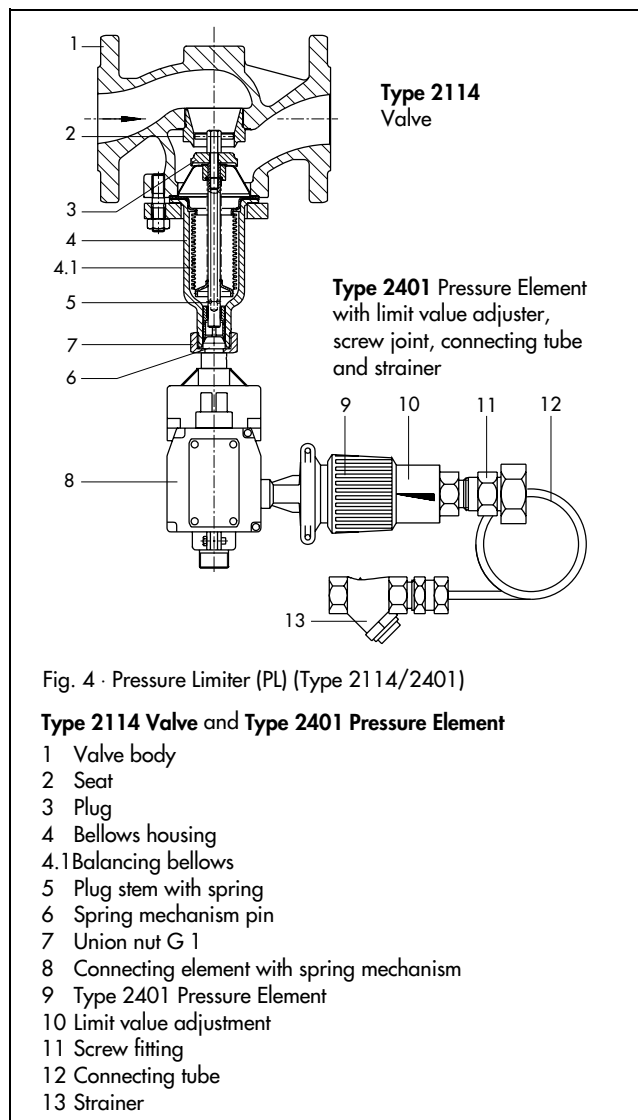
Extension piece to protect the connecting element from high temperatures

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

Distance piece

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

Double adapter Do1 for the connection of a second thermostat



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.

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

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

Valve size	DN	15	20	25	32	40	50	65	80	100	125	150	200 ¹⁾	250 ¹⁾
Type 2111	Refer to the Data Sheet indicated for more details on the technical data and materials of the valves.	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												

¹⁾ Only Type 2114, available on request

Type 2401 Pressure Element	
Adjustment range of limit value	1 to 10 bar
Permissible operating pressure	10 bar
Permissible operating temperature	200 °C
Permissible ambient temperature	Max. +80 °C, with electromagnetic release device: 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~, 10 A at resistive load
Connecting tube	Length approx. 2 m
Strainer	Type 1NI, G 3/8, DN 16 (see Data Sheet T 1010 EN)

Table 2 · Materials (Material number according to DIN EN)

Type 2401 Pressure Element	
Connecting element	GD AISi12 (230)
Connecting piece	Brass
Bellows	CuSn6F35
Screw joint	Brass
Connecting tube	Copper
Strainer	Brass

Ordering text

Type 2111/2401, **Type 2114/2401** Pressure Limiter or
Type 2118/2401 or **Type 2119/2401** Pressure Limiter
for mixing or diverting service

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

Options: limit value set to/lead sealed to ... bar

Optional accessories ... / special versions

Table 3 · Dimensions in mm and weights

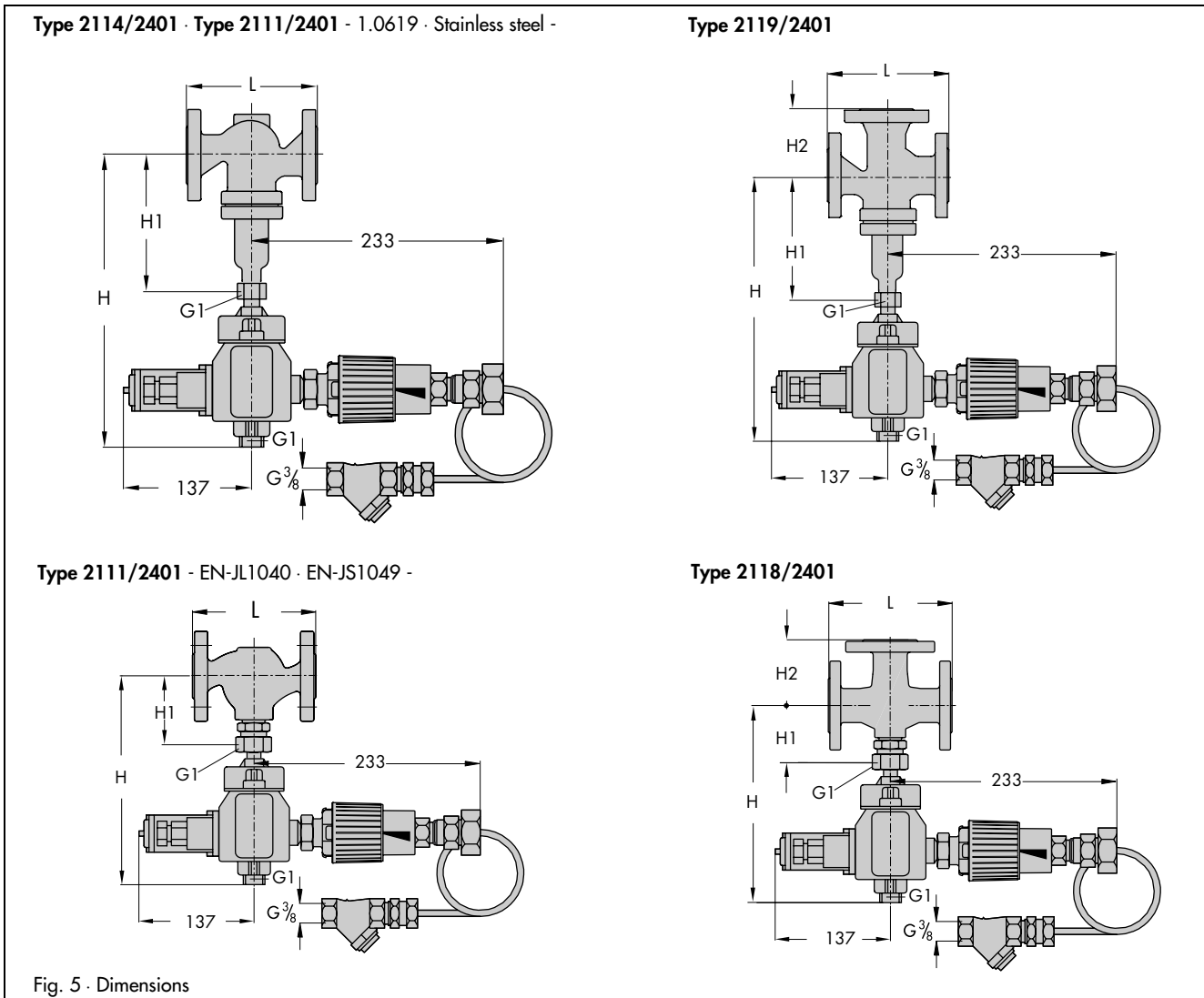
Valve size	DN	15	20	25	32	40	50	15	20	25	65	80	100	125	150	200 ¹⁾	250 ¹⁾
Valve		Type 2114			Type 2111/ (Type 2114)			Type 2111			Type 2114						
Length L		130	150	160	180	200	230	130	150	160	290	310	350	400	480	600	730
H1	without extension piece	225			225 ⁴⁾ /152 ⁵⁾ /(225)			225 ⁴⁾ /82 ⁵⁾			300	355	460	590	730		
	with extension piece	365			365 ⁴⁾ /- ⁵⁾ /(365)			365 ⁴⁾ /- ⁵⁾			440	495	600	730	870		
Weight (body PN 16) ³⁾ 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/ 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	190	210		
H1	without extension piece ²⁾	235			88/245			78			320	355	395	500	-		
	with extension piece ²⁾	375			-/385			-			460	495	535	640			
Weight (body PN 16) ³⁾ 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															
Type 2401 Pressure Element																	
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. perm. 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 in mm



Specifications subject to change without notice.

