

Process Control Solutions: Type 7150 · Type 7151 · Type 7152

For temperature, pressure or flow control

Application

For temperature, pressure or flow control of a downstream (steam) plant

Process control solutions upgrade the actual control valve (pneumatic, electric or self-operated) in a functional unit. They are one of the smallest and most compact solutions engineered from modular components for industrial plants.

Special features

- Plug-and-play solution or component package
- Compact unit for a specific control task

Various versions can be selected depending on the requirements and process medium:

Version for pressure

Type 7150 Pressure Control System to reduce the network pressure usually with varying pipe sizes. A safety valve is used to protect the system. Depending on the requirements, pneumatic control valves or self-operated regulators are used as standard.

Version for temperature

Type 7151 Temperature Control System to control the temperature of a heat exchanger. Depending on the requirements, pneumatic or electric control valves are used as standard. A self-operated regulator can be installed upstream of the actual control valve to handle high pressure drops. The overpressure protection of an upstream component (e.g. heat exchanger) can be integrated.

Version for flow rate

Type 7152 Flow Control System to control the flow rate in the plant. Depending on the requirements, pneumatic or electric control valves are used as standard.

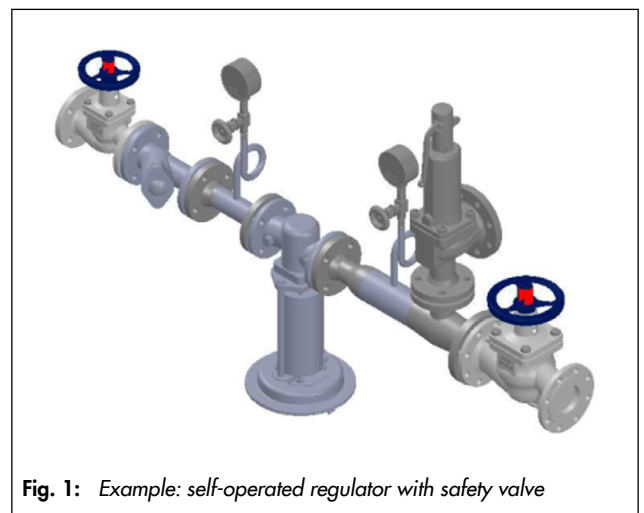


Fig. 1: Example: self-operated regulator with safety valve

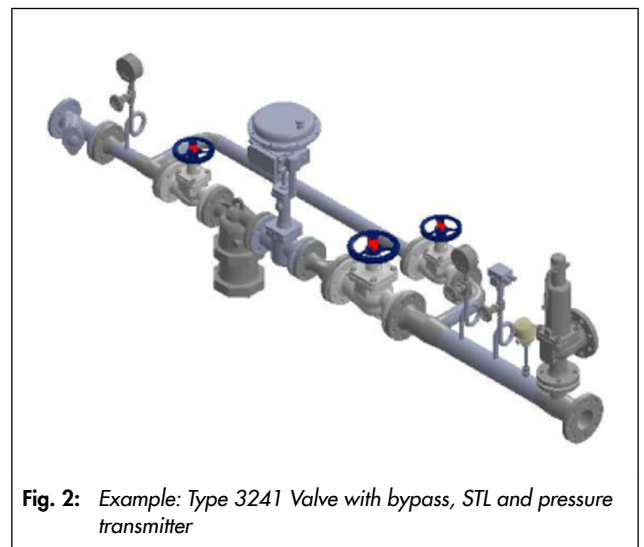


Fig. 2: Example: Type 3241 Valve with bypass, STL and pressure transmitter

Options

A **bypass** can be installed around the control valve to increase the availability. The pressure reduction or flow control can be adjusted manually using an attenuation plate or a hand-operated shut-off valve with throttle plug.

Valve examples:

Control valve

- e.g. SAMSON Type 3241, Type 3251, Type 3321, Type 3595, SAMSON SED Type 584, SAMSON VETEC Maxifluss rotary plug valve

Self-operated regulators

- e.g. SAMSON Type 41-23, Type 44-1 B, Type 3332

Condensate removal in steam networks:

A condensate removal unit can be installed at the inlet of the control loop to prevent steam hammering and protect the control loop during start-up. A condensate removal unit must be installed if the process control solution is installed in lowest part of the pipeline.

When saturated steam is used in the system, we recommend installing a steam dryer to increase the service life of the control valves and improve the steam quality (see Fig. 3).

Execution and sizing:

The control system must be sized properly taking into account all of the installed components and their arrangement in the loop.

Sample applications:

	Type 7150	Type 7151	Type 7152
Extraction of low-pressure steam from a medium-pressure network (without cooling)	•	–	–
Steam transfer stations for transfer to a factory or plant	•	–	–
Heating of all kinds of heat exchangers	–	•	–
Heating of extruders	–	•	•
Flow control to steam foodstuffs	–	•	•
Heating during vulcanization of tires	•	•	•

Table 1: *Technical data*

Steam control system	Type 7150 Pressure control system	Type 7151 Temperature control system	Type 7152 Flow control
Valve sizes	DN 15 to 300 (larger valve sizes on request)	DN 15 to 150	
Pressure rating	PN 16 to 100 (higher pressure ratings on request)	PN 16 to 40	
Standards	DIN · ASME		DIN
Customer specifications	Partly	No	
FDA-compliant sealing materials	Partly		
With SIL data	Partly		
Control valves	SAMSON Group		
Actuator	Pneumatic or self-operated	Electric or pneumatic	

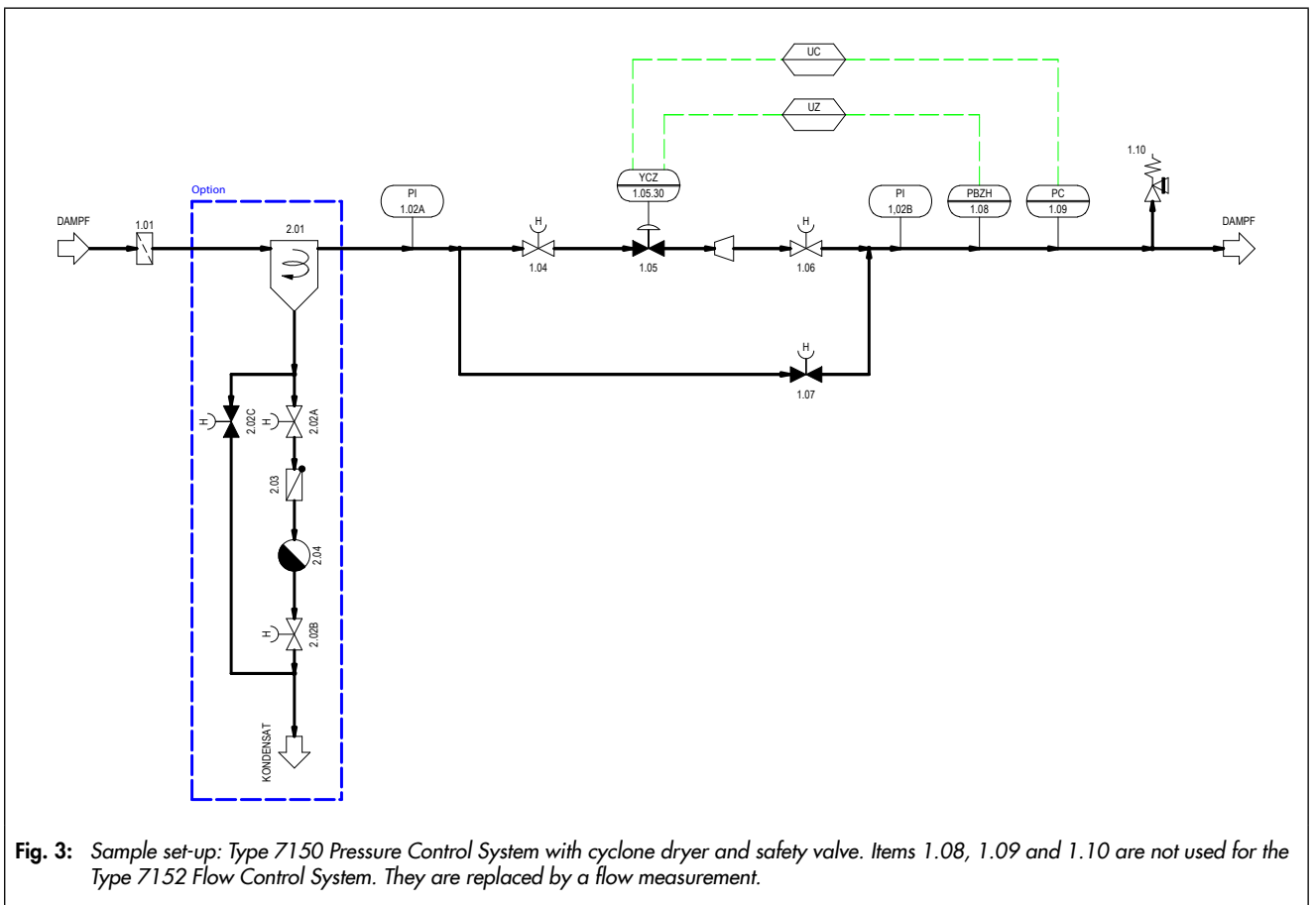


Fig. 3: Sample set-up: Type 7150 Pressure Control System with cyclone dryer and safety valve. Items 1.08, 1.09 and 1.10 are not used for the Type 7152 Flow Control System. They are replaced by a flow measurement.

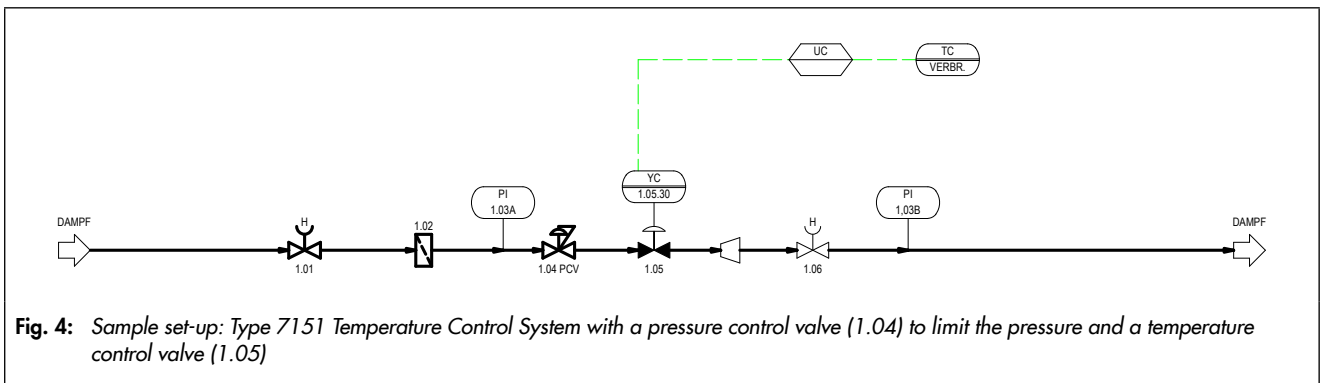


Fig. 4: Sample set-up: Type 7151 Temperature Control System with a pressure control valve (1.04) to limit the pressure and a temperature control valve (1.05)



RFQ Form for Types 7150, 7151 and 7152 Control Systems

Customer data		
Company		
Address		
Name		
Phone number		
E-mail		
Send your inquiry to your regional SAMSON contact or e-mail it to ► systems-de@samsongroup.com.		
Operating data		
Application	Chemical industry Pharmaceutical industry	Food industry General industry
Pressure specifications	Absolute	Relative
Process medium	Steam	
Inlet data	DN = p ₁ = ṁ ₃ =	PN = t ₁ =
Outlet data	DN = p ₂ =	PN = t ₂ =
Available energy supply	Instrument air Voltage	P _{air} = U =
Scope of delivery		
Pressure control	Standard version: see sample application in Fig. 3	
Temperature control	Standard version: see sample application in Fig. 4	
Flow control	Standard version: see sample application in Fig. 3	
Control version	Pneumatic	Electric Self-operated regulator ¹⁾
Pipeline	P235GH 1.4301	1.4571 Without (parts provided by the customer)
Valve material	Cast iron Spheroidal graphite iron	Cast steel Stainless steel
Open loop control	Without Measuring and control housing including SAMSON TROVIS 6495 Standard switching cabinet S7-1200/7" TFT touch screen	
Options	With bypass With cyclone dryer With SPL With STL With additional on/off valve at the inlet With safety valve: pressure adjusted to =	With condensate removal unit With pressure transmitter With temperature transmitter Without hand-operated shut-off valve at the outlet
Notes		

¹⁾ Can be additionally selected for Type 7151. Cannot be combined with Type 7152.