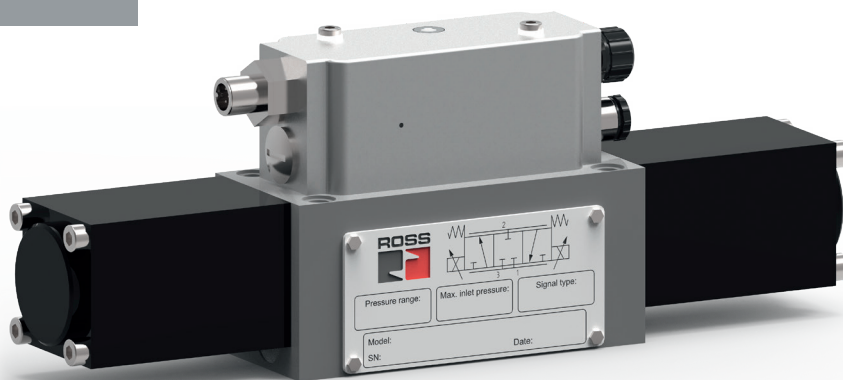
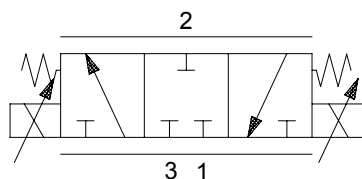


PV40

Proportional Pressure Control Valve

120P71

ROSS
a global family



Series ⁽¹⁾	120P71	
Function	3/3-Way (Permanent exhaust function at zero value)	
Medium	Compressed air or other neutral gases	
Orifice size	12 mm	
Nominal flow ⁽²⁾	3200 NL/min	
Max. inlet pressure	5 bar	
Ambient temperature	0 – 75 °C	
Enclosure rating	IP 65 (plugged)	
Materials	Valve body	Aluminum alloy, clear anodized
	Valve internals	Stainless steel
	Reset spring	Stainless steel
	Seals	FKM (Viton)
Actuator	Solenoid	Supply voltage 24 VDC Max. current consumption 1.6 A
Fluidic interface	Base mounted	

NOTE

When using other media (e.g. air) at temperatures below 4° C, make sure that these are free of water vapor to prevent formation of ice.

⁽¹⁾ Order number see Page .6

⁽²⁾ Inlet pressure = 7 bar (abs.),
Outlet pressure = 6 bar (abs.),
Opening degree = 100 %

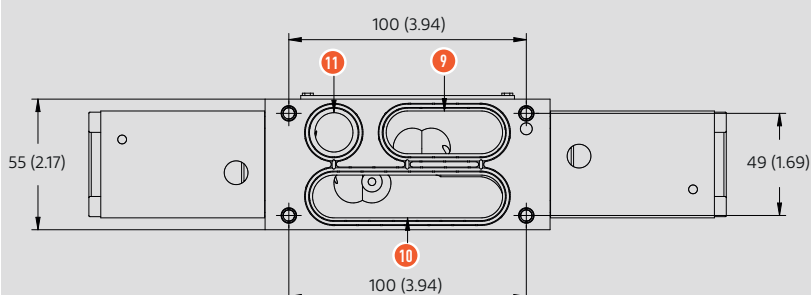
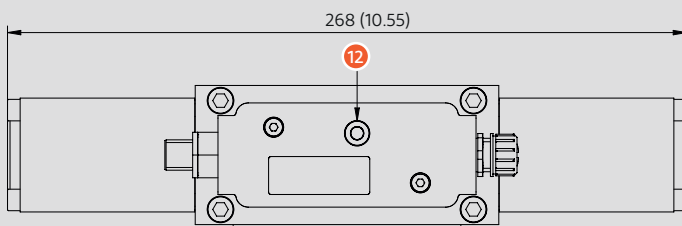
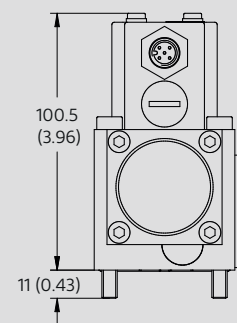
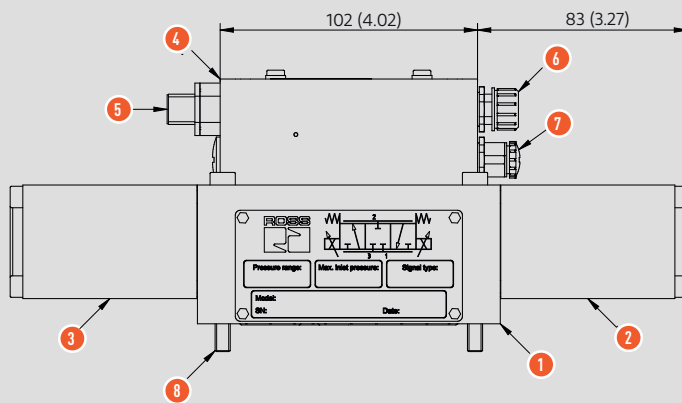
Standard conditions:
1013,25 mbar, 20°C,
0 % relative humidity

DESCRIPTION

The proportional pressure control valve was specifically developed for pneumatic systems which require rapid pressurization. The control valve is able to continuously pressurize as well as de-pressurize within the entire pressure range. Once the set value has been reached, the inlet poppet and exhaust poppet remain closed and there is no need for further pneumatic energy if the pressure in the downstream system remains stable.

The valve has been designed with a small hysteresis to produce accurate and repeatable actual values and to maintain an optimal degree of efficiency. The combination of a force balanced construction and our proven poppet technology provides excellent sealing properties and provides true shut-off characteristics.

COMPONENTS AND DIMENSIONS - MM (INCH)



COMPONENTS- DESCRIPTIONS

- 1 Valve body
- 2 Inlet solenoid
- 3 Outlet solenoid
- 4 Electrical housing
- 5 Electrical interface
- 6 Communication interface Input
- 7 Communication interface Output
- 8 Mounting screws (M6x65)
- 9 Port 1 (supply)
- 10 Port 2 (output)
- 11 Port 3 (exhaust)
- 12 LED (state signaling)

OPTIMUM OPERATING CONDITIONS

Inlet pressure	at least 2 bar and at least 0.5 bar above max. required operating pressure
Ambient temperature	15 – 50 °C
Supply voltage	24 VDC

PERFORMANCE CHARACTERISTICS ⁽¹⁾

Control speed ⁽²⁾	90 % of set value: approx. 100 ms 100 % of set value: approx. 200 ms
Control accuracy	± 0.01 bar
Repeatability	± 0.01 bar

⁽¹⁾ valid for Optimum
Operating Control

⁽²⁾ related to a 2.5 l volume

ELECTRICAL CONTROL

Once the supply voltage is applied a total exhaust is initiated and the valve is operational after approximately 2 seconds.

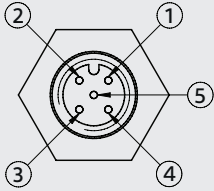
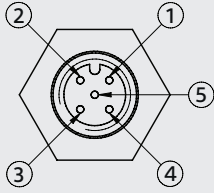
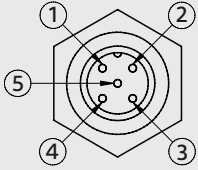
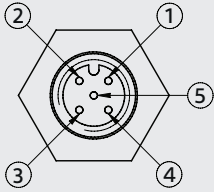
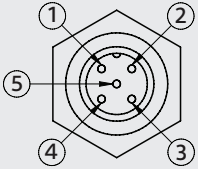
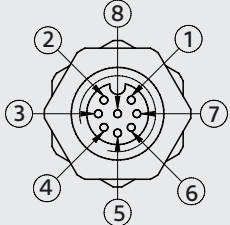
The electronics of the valve controls the pressure proportionally to the required set value across the full pressure range utilizing for example a 4 – 20 mA (depends on valve type) signal. A quick exhaust function can be achieved by supplying the minimum set value of 4 mA (depends on valve type).

At zero value (for example 4 mA, depends on valve type) the permanent exhaust function causes the exhaust poppet to remain open.

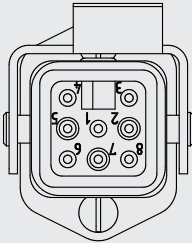
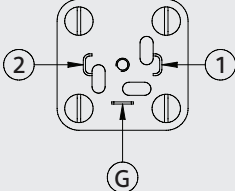
ELECTRICAL CHARACTERISTICS

Supply voltage	24 VDC ± 10%
Max. current consumption	1.6 A

ELECTRICAL CONNECTION AND PIN CONFIGURATION

M12M5	<ul style="list-style-type: none"> • 5-pin flange connector • M12X1 • A-coded • positionable 	PIN 1	+ 24 V	
		PIN 2	Set value +	
		PIN 3	0 V	
		PIN 4	Actual value +	
		PIN 5	PE	
M12D5	<ul style="list-style-type: none"> • 5-pin flange connector • M12X1 • A-coded • positionable 	PIN 1	+ 24 V	
		PIN 2	NC	
		PIN 3	0 V	
		PIN 4	NC	
		PIN 5	NC	
	<ul style="list-style-type: none"> • 5-pin flange coupling • M12X1 • A-coded • positionable 	PIN 1	Set value -	
		PIN 2	Set value +	
		PIN 3	Actual value +	
		PIN 4	NC	
		PIN 5	PE	
M12D5-PCAV	<ul style="list-style-type: none"> • 5-pin flange connector • M12X1 • A-coded • positionable 	PIN 1	+ 24 V	
		PIN 2	NC	
		PIN 3	0 V	
		PIN 4	NC	
		PIN 5	NC	
	<ul style="list-style-type: none"> • 5-pin flange coupling • M12X1 • A-coded • positionable 	PIN 1	NC	
		PIN 2	Set value +	
		PIN 3	Set value -	
		PIN 4	Actual value +	
		PIN 5	PE	
M12M8	<ul style="list-style-type: none"> • 8-pin flange connector • M12X1 • A-coded • positionable 	PIN 1	0 V	
		PIN 2	+ 24 V	
		PIN 3	Actual value +	
		PIN 4	Set value -	
		PIN 5	Set value +	
		PIN 6	NC	
		PIN 7	NC	
		PIN 8	PE	

ELECTRICAL CONNECTION AND PIN CONFIGURATION

WRMM8	• 8-poliger Wieland revos MINI connector	PIN 1	0 V	
		PIN 2	Set value -	
		PIN 3	Set value +	
		PIN 4	+ 24 V	
		PIN 5	Actual value -	
		PIN 6	Actual value +	
		PIN 7	NC	
		PIN 8	PE	
CPAM3	• 3-pin cable plug connector Form A3	PIN 1	+ 24 V	
		PIN 2	Set value +	
		PIN G	0 V	

COMMUNICATION INTERFACE

The *Proportional Pressure Control Valve* has a communication interface that can be used by the customer. Valves on a machine can be connected to each other and to the *Diagnostics Tablet for Proportional Pressure Control Valves* by a communication field bus. The tablet can be used to monitor and analyze the operation of valves, especially their pressure build-up process. Additionally, the tablet has a configurable monitoring function that records valve events continuously and logs them into a long-term log.

PROPORTIONAL PRESSURE CONTROL VALVE MODELS

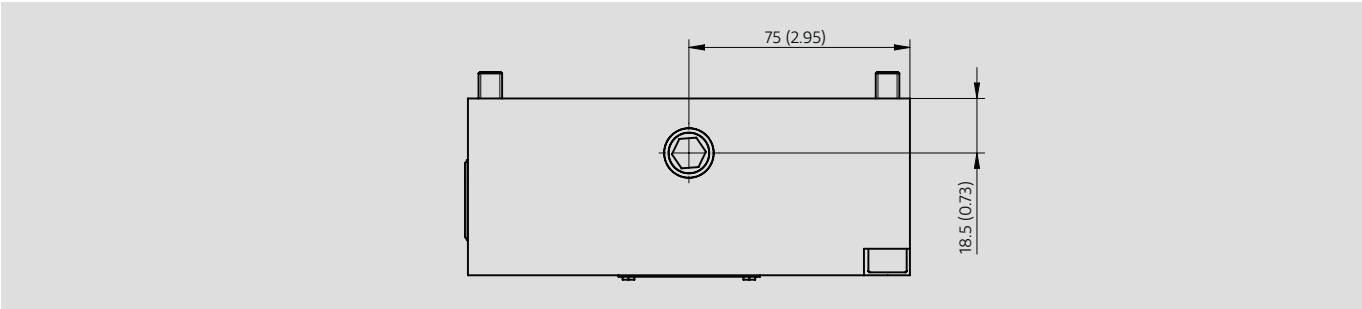
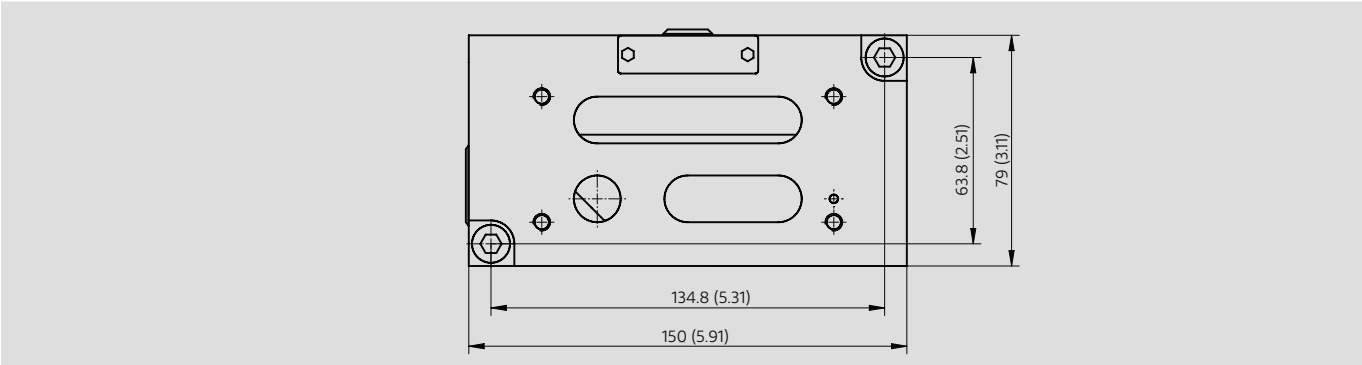
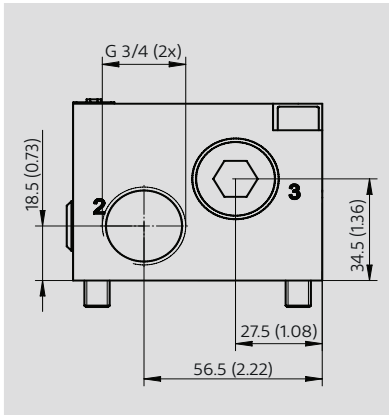
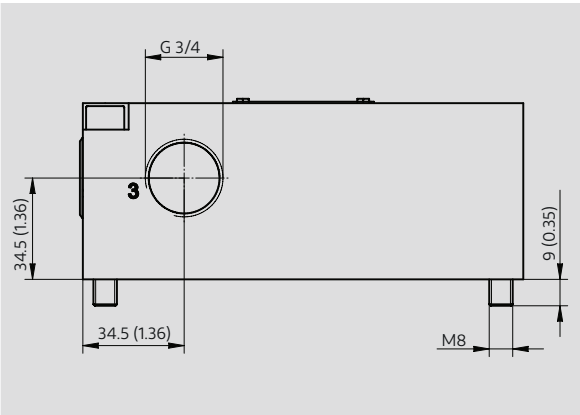
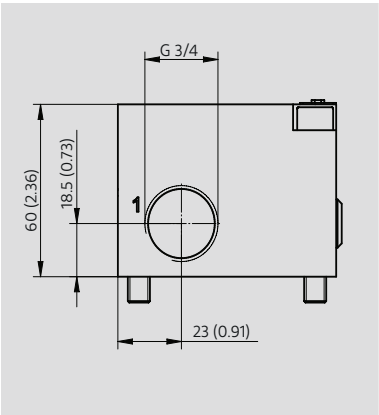
ORDER NUMBER	OPERATING PRESSURE	ELECTRICAL CONTROL	ELECTRICAL CONNECTION ⁽¹⁾
120P710000P	0–4.0 bar	4–20 mA	M12M5
120P710001P	0–3.5 bar	4–20 mA	M12M5
120P710002P	0–3.5 bar	0–10 V	M12D5
120P710003P	0–3.5 bar	4–20 mA	M12D5-PCAV
120P710004P	0–4.0 bar	4–20 mA	M12M8
120P710005P	0–3.9 bar	0–10 V	CPAM3
120P710007P	0–3.5 bar	4–20 mA	M12D5
120P710008P	0–4.0 bar	4–20 mA	WRMM8

⁽¹⁾ Please refer to *Electrical Connection and Pin Configuration*.

SUB-BASE MODELS AND DIMENSIONS – MM (INCH)

ORDER NUMBER	CONNECTION SIZE
120P190501	G 3/4

Other sub-bases on request.



ACCESSORIES

ORDER NUMBER	DESCRIPTION	NOTE
RESK4770.10	Diagnostics Tablet for Proportional Pressure Control Valves	For parameterization, analysis and monitoring of valves during regular operation.
RESK4771.10	Diagnostics and Test Unit for Proportional Pressure Control Valves	For parameterization, analysis and monitoring of valves during regular operation. Test function through own voltage and signal supply in combination with the test rig.
RESK4771.1	Test Rig for Proportional Pressure Control Valves	Test rig with test volume and pressure sensor.
On request	Adapter cable kit for <i>Diagnostics and Test Unit for Proportional Pressure Control Valves</i>	For electrical connection of the valve to the <i>Diagnostics and Test Unit</i> according to the valves electrical connection.
On request	Sub-base adapter for <i>Test Rig for Proportional Pressure Control Valves</i>	For mechanical adaptation of the valve with the test rig according to the pneumatic interface.
PROBUSKAB0050-M12B PROBUSKAB0100-M12B PROBUSKAB0200-M12B PROBUSKAB0300-M12B PROBUSKAB0500-M12B PROBUSKAB1000-M12B	0.5 m Field Bus Cable 1.0 m Field Bus Cable 2.0 m Field Bus Cable 3.0 m Field Bus Cable 5.0 m Field Bus Cable 10.0 m Field Bus Cable	For fieldbus cabling of valves via the communication interface and for connection to the <i>Diagnostics Tablet or Diagnostics and Test Unit</i> .
PROBUS-TERM-M12B	Field Bus Terminator	For field bus termination at the last valve of the field bus line.