






## Pneumatic control for decentralised automation of ELEMENT process valves

- Compact design
- Integrated pilot valve with manual override
- Integrated control air routing in the actuator
- Visual position indicator
- With ATEX II cat. 3G/D and cat. 2D/G approval

Product variants described in the data sheet may differ from the product presentation and description.

### Can be combined with

	<b>Type 2100</b> ▶ Pneumatically operated 2/2 way angle seat valve ELEMENT for decentralised automation
	<b>Type 2101</b> ▶ Pneumatically operated 2/2 way globe valve ELEMENT for decentralised automation
	<b>Type 2103</b> ▶ 2/2 way diaphragm valve with pneumatic stainless steel actuator (Type ELEMENT) for decentralised automation

### Type description

The pneumatic control unit Type 8690 is designed for decentralised automation of ELEMENT Type 21xx pneumatic process valves. Mechanical or inductive limit switches register the valve position. The integrated pilot valve controls single or double-acting actuators.

The design of the control unit and the actuator enables an internal control air routing without external tubings. Besides the electrical position feedback, the status of the device is shown directly on the pneumatic control unit itself.

The housing is easy to clean and features proven IP protection and chemically resistant materials for use in hygienic processing, in food, beverage and pharmaceutical industries. Focused on wash down applications, the IP protection of the housing is supported by a positive pressure inside the control head.

Combined with Bürkert ELEMENT actuators, the pneumatic actuating system enables spring chamber aeration that avoids actuator chamber contamination from the environment.

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## 1. General technical data

Product properties	
Dimensions	Detailed information can be found in chapter "3. Dimensions" on page 5.
Material	
Body	PPS
Seals	EPDM
Cover	PC
Commissioning	
Setting valve end positions	Manual
Manual override Pilot valve	Yes
Status display	
Display of device and valve status	Optical
Optical position indicator (mechanical)	Yes
Position sensor/Position feedback	
Position feedback	
Micro switch	1 or 2x Micro switch (24 V DC)
Initiator	1 or 2x Initiator 3 wire (24 V DC) 1 or 2x Initiator NAMUR (8 V DC) (ATEX II 2G Ex ia IIC T6)
Stroke range for linear actuators	
Valve spindle - Micro switch	7...28 mm
Valve spindle - Initiator	2...28 mm
Electrical data	
Operating voltage	
Pilot valve	24 V DC $\pm$ 10 %, residual ripple 10 % DC; power consumption 1 W
Micro switch	Max. 24 V DC, max. 2 A
Initiator	10...24 V DC, max. 100 mA ext. load per initiator
Protection class	3 acc. to DIN EN 61140
Power consumption	<1 W
Electrical connection	
Multipole	M12, 8 pin
Cable gland	M16 x 1.5 (cable $\varnothing$ 5...10 mm) with screw terminals for cable cross sections 0.14...1.5 mm <sup>2</sup>
Pneumatic data	
Control medium	
Dust content	Class 7 (<40 $\mu$ m particle size)
Particle density	Class 5 (<10 mg/m <sup>3</sup> )
Pressure dew point	Class 3 (<-20 °C)
Oil content	Class X (<25 mg/m <sup>3</sup> )
Air supply filter	
Mesh size	Exchangeable ~0.1 mm
Supply pressure	3...7 bar <sup>1)</sup>
Pilot air ports	Threaded connection G $\frac{1}{8}$ stainless steel or push-in connector (pipe $\varnothing$ 6 mm / $\frac{1}{4}$ " )
Actuating system	
Circuit function	Single and double-acting
Actuator series/size	Type 21xx, $\varnothing$ actuator 70/90/130 mm

**Approvals and certificates**

Protection class	3 acc. to DIN EN 61140
Conformity	EMC directive 2014/30/EU
Ignition protection	II 3D Ex tc IIIC T135 °C Dc II 3G Ex ec IIC T4 Gc II 2G Ex ia IIC T* Gb II 2D Ex ia IIIC T135 °C Db
UL	cULus certificate; E238179
ATEX	II 3D Ex tc IIIC T135 °C Dc II 3G Ex ec IIC T4 Gc Certificate; BVS 14 ATEX E 008 X II 2D Ex ia IIIC T135 °C II 2G Ex ia IIC T* Gb Certificate; BVS 14 ATEX E052 X
IECEX	Ex tc IIIC T135 °C Dc / Ex ec IIC T4 Gc Certificate; IECEX BVS 14.0009 X Ex ia IIIC T135 °C / Ex ia IIC T* Gb Certificate; IECEX BVS 14.0035 X
CCC (China Compulsory Certificate)	For devices with Ex approval

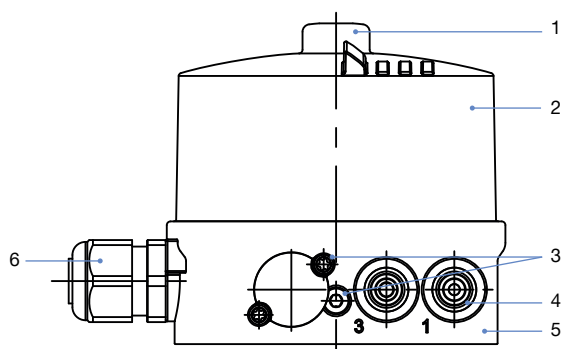
**Environment and installation****Installation and mechanical data**

Installation position	As required, preferably with actuator in upright position
Valve actuator (type, size)	ELEMENT Type 21xx (actuator size Ø 70/90/130 mm)
Adapter kits	Detailed information can be found in chapter <b>"Adapter kits"</b> on page 11.

**Operating conditions****Ambient temperature (max.)**

With pilot valve	-10...+55 °C
Without pilot valve	-20...+60 °C
Degree of protection	IP65/IP67 acc. to EN 60529, 4X acc. to NEMA 250 Standard
Operating altitude	Up to 2000 m above sea level

1.) The supply pressure must be 0.5...1 bar above the minimum required pilot pressure of the valve actuator.

**2. Materials****2.1. Material specifications**

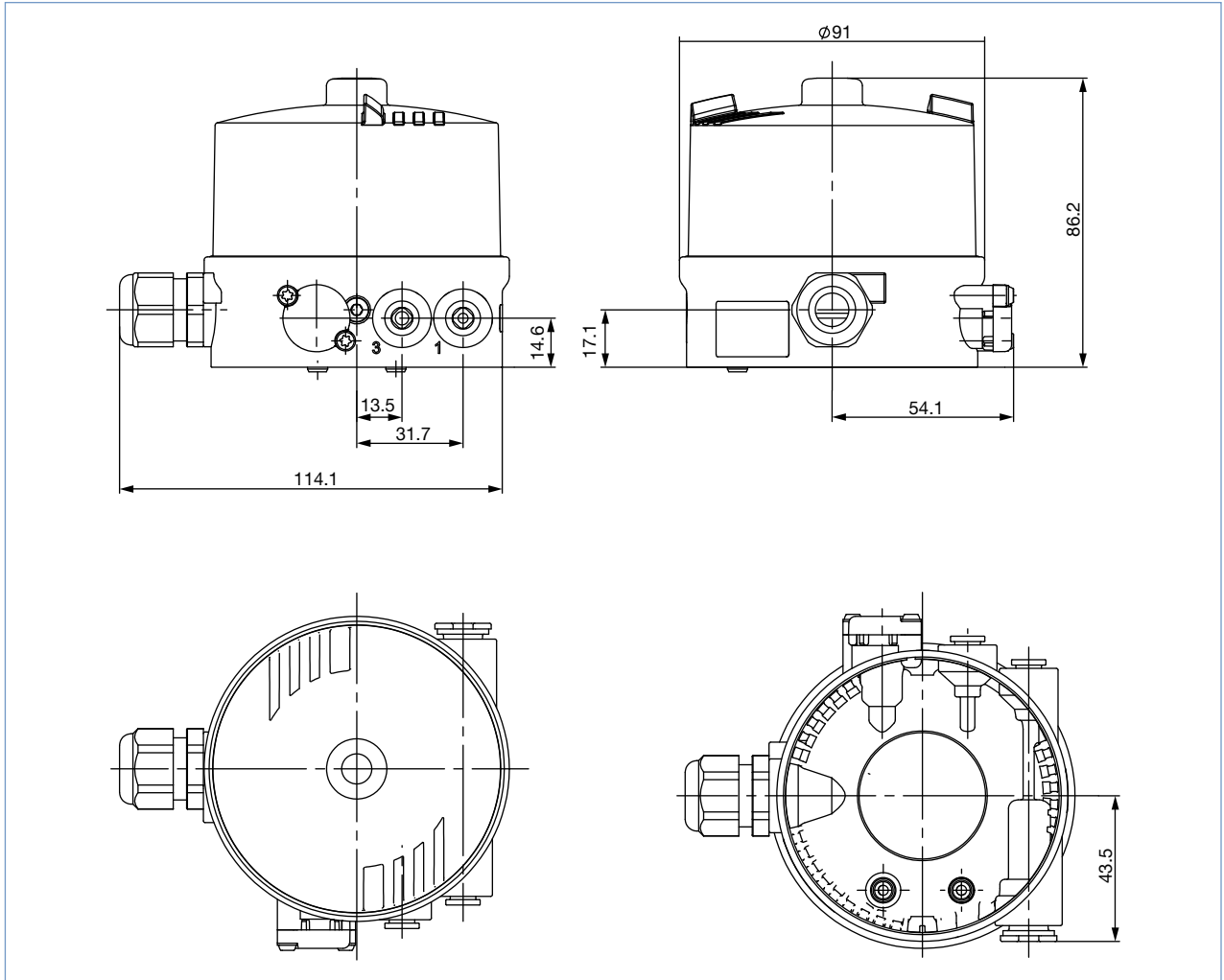
No.	Element	Material
1	Optical position indicator	PC
2	Seals	EPDM
3	Screws	Stainless steel
4	Push-in connector Threaded ports G 1/8	POM/Stainless steel Stainless steel
5	Basic housing	PPS
6	Cable gland, plug connector	PA M12 Stainless steel

### 3. Dimensions

#### 3.1. Mounting on process valve ELEMENT Type 21xx

**Note:**

Dimensions in mm



## 4. Device/Process connections

### 4.1. Electrical connections

#### Multipole connection

Circular plug M12, 8 pin																										
	<b>Plug configuration 24 V with micro switch</b>																									
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#### Cable gland connection

M16 x 1.5 (cable Ø 10 mm), screw terminals (1.5 mm <sup>2</sup> )																				
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Port configuration with 2-Wire-Initiator NAMUR			
	<b>Port configuration with 2 wire Initiator</b>		
	Pin	Assignment	Outer circuitry
	1	INI Top +	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Ex protection area</p> </div> <div style="width: 45%;"> <p>Non-explosive area</p> </div> </div>
	2	INI Top -	
	3	INI Bottom +	
	4	INI Bottom -	
5	Valve control +		
6	Valve control GND		
1.) (acc. to NAMUR recommendation ) also note the certificate of Fa. Turck KEMA 02 ATEX 1090X 2.) Signal from barriers see PTB 07 ATEX 2048			

## 5. Product installation

### 5.1. Combination options with pneumatic process valves

**Note:**

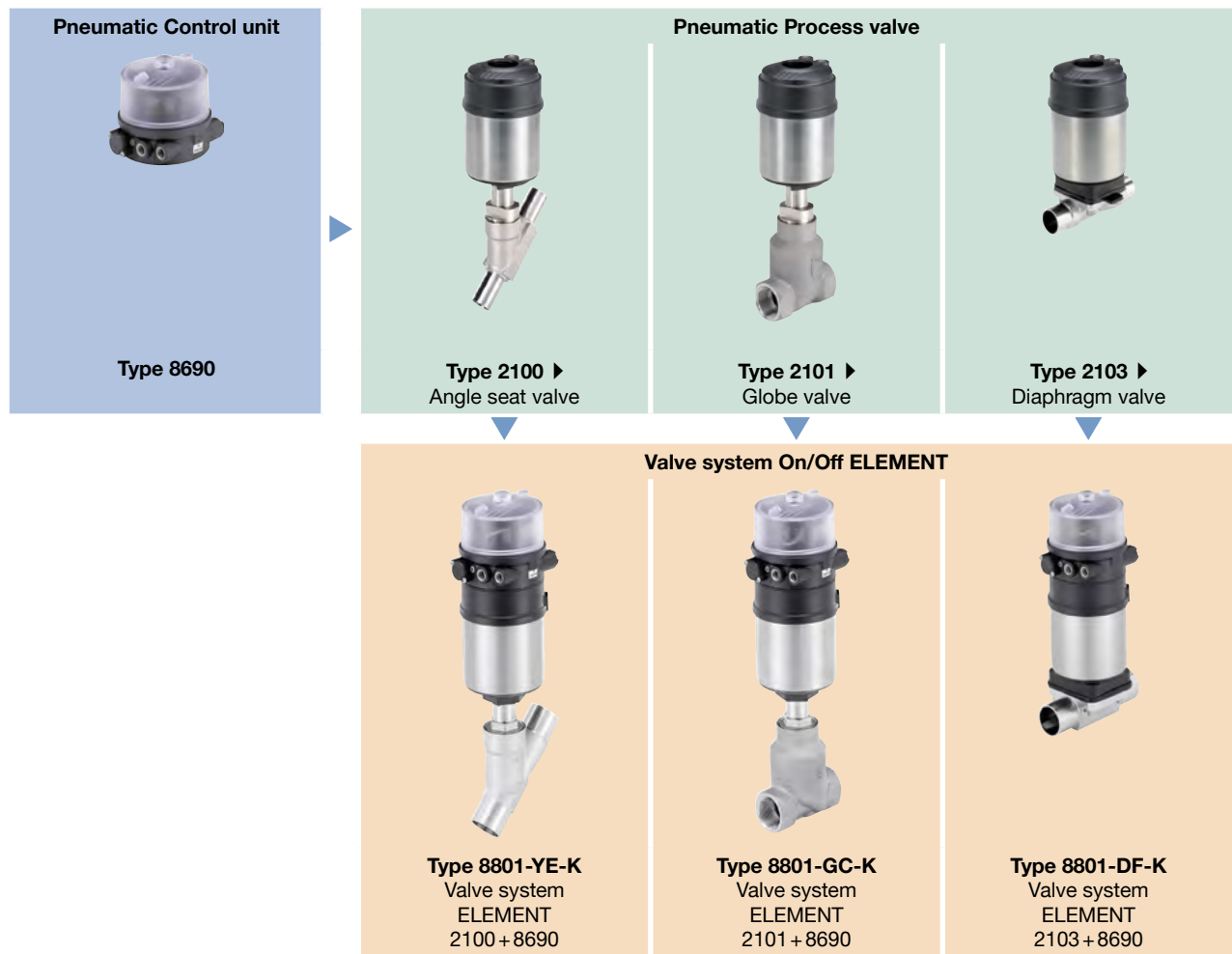
A decentralized, automated valve system consists of **pneumatic control unit Type 8690** and a **process valve ELEMENT Type 21xx**.

The following information is required to select a complete system:

- **Article no.** of the desired Control head **Type 8690**
- **Article no.** of the desired **process valve Type 21xx** (see separate data sheet **Type 2100 ▶**, **Type 2101 ▶**, **Type 2103 ▶**)

You order two components and receive a completely assembled and tested valve.

#### Example for decentralized automation of On/Off ELEMENT valve systems



1.) See data sheet **adaptations for third-party drives, KK01 ▶** or contact the appropriate Bürkert sales office.



## 6. Ordering information

### 6.1. Bürkert eShop – Easy ordering and quick delivery



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### 6.2. Bürkert product filter



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### 6.3. Ordering chart

Pneumatic control unit for decentralized automation of ELEMENT On/Off process valves Type 21xx

**Note:**

All non-ATEX versions are UL approved.

End position feedback			Electrical connection	Circuit function pilot valve system	Pilot air ports threaded ports	Article no.		
Inductive switch 24 V DC PNP	Inductive switch NAMUR 2-Leiter 8 V DC Ex ia IIC T6	Micro switch 24 V DC				Stand- ard	ATEX II Cat. 3G/ D, IECEx, CCC <sup>1)</sup>	ATEX II Cat. 2G/D
2	-	-	M12 plug connector	Single-acting	G 1/8	227222	264968	-
2	-	-		Double-acting	G 1/8	264939	264957	-
2	-	-		Without	G 1/8	227190	264949	-
2	-	-	Cable gland	Single-acting	G 1/8	227220	264967	-
2	-	-		Double-acting	G 1/8	264941	264956	-
2	-	-		Without	G 1/8	227189	264948	-
1	-	-	M12 plug connector	Single-acting	G 1/8	227218	264964	-
1	-	-		Double-acting	G 1/8	264940	264953	-
1	-	-		Without	G 1/8	265151	264945	-
1	-	-	Cable gland	Single-acting	G 1/8	227216	264963	-
1	-	-		Double-acting	G 1/8	264942	264952	-
1	-	-		Without	G 1/8	265154	264944	-
-	2	-		Single-acting	G 1/8	-	-	265143
-	2	-		Double-acting	G 1/8	-	-	265144
-	2	-		Without	G 1/8	-	-	265142
-	-	2	M12 plug connector	Single-acting	G 1/8	227234	-	-
-	-	1		Single-acting	G 1/8	227230	-	-
-	-	2	Cable gland	Single-acting	G 1/8	227232	-	-
-	-	2		Without	G 1/8	227195	-	-
Without end position feedback			Cable gland	Single-acting	G 1/8	225883	264961	-
				Double-acting	G 1/8	265156	265935	-

1.) CCC (China Compulsory Certificate) for device versions with Ex approval.

#### Further versions on request



**Additional**




Push-in connector Pilot air ports (pipe-Ø 6 mm / 1/4")

#### 6.4. Ordering chart accessories


##### Standard accessories


**Note:**

Must be order separately

Description	Article no.
M12 socket, 8 pin with 5 m cable for input and output signal	919267 
Silencer G 1/8	780779 
Silencer push-in connector	902662 

##### Adapter kits

Adapter kits for third-party actuators can be found in the data sheet **Adaptation for third-party actuators, KK01**  or contact the appropriate Bürkert sales office.

Description	Actuator size	Control function	Article no.
Adapter kit ELEMENT Types 21xx	Ø 70/90/130 mm	Universal	665720 

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