

# Electropneumatic positioner APIS

- ✓ HART protocol
- ✓ ATEX certificate  $\text{Ex II 2G Exia IIC T5/T6 Gb}$
- ✓ Simple in installation and programming
- ✓ Possibility of remote assembling of positioner
- ✓ Low air consumption
- ✓ Programmable speed of movement of the actuator's piston rod
- ✓ Position transmitter
- ✓ Possibility of manual controlling of position of actuator's piston rod

*one device for  
linear and rotational  
actuators*



## Technical data

Input signal (control)	4...20mA + Hart
Output signal (position transmitter)	4...20mA
Supply of position transmitter	10÷36 VDC (Ex 10÷30 VDC)
Supply pressure	140÷800 kPa
Pneumatic input signal (control actuator)	0...100% of supply pressure
Own air consumption	≤ 0,035 kg/h at supply voltage 140 kPa ≤ 0,015 kg/h at supply voltage 600 kPa ≥ 3,25 kg/h at supply voltage 140 kPa ≥ 13kg/h at supply voltage 800 kPa
Air mass stream on positioner output	
Actuator piston rod displacement range	10÷100 mm (for single-acting linear actuators) 80÷900 mm (for double-acting linear actuators) 0÷180° (for rotational actuators)
Actuator operation characteristics	linear
Positioner operation mode	normal or reversible
Positioner transducer mode	normal or reversible
Additional errors	< 0,05% / 100kPa
- from supply pressure changes	0,15% / 10°C – for temperature range -30°C÷+60°C
- from ambient temperature changes	0,25% / 10°C – for temperature range -40°C÷-30°C and +60°C÷+85°C
- from vibration in range:	
10...60Hz, amplitude < 0,35 mm	
60...500Hz, acceleration 5g	0,25%
Hysteresis	< 0,4%
Insensibility threshold	< 0,1%
Protection degree of positioner enclosure	IP 65 according to PN-EN 60529:2003
Operation position	any
Weight	1,8 kg

## Operating conditions

Working medium	air free of dust, oil, aggressive pollutants, solid particles bigger than 1.5 µm, such relative humidity not lower that dew point's temperature should not be lower than 10 °C with respect to ambient temperature (acc. to PN-EN 60654-2:1999).
Ambient temperature	
Execution without manometers and with stainless steel manometers:	-40°C÷+85°C
Executions with manometers in stainless steel	
Humidity of ambient air	< 95%
Allowable vibrations	acc. to PN-EN 60654-3: 1997; class VH6 amplitude < 0,35 mm acceleration ≤ 5g
10...60Hz,	
60...500Hz	

## Ordering procedure

APIS - X X X - DXX - RXX - IHE - TXX - PX - MX - WX - AX

### Intend use:

- for single-operating actuator..... 1
- for double-operating actuator..... 2
  
- for installation on actuator..... 0
- for installation outside actuator with
  - external position transmitter (potentiometer) – IP54 <sup>1)</sup>... 1
  - external position transmitter (potentiometer) – IP67 <sup>1)</sup>... 2
  - external position transmitter (magnetic) – IP67 <sup>1), 2)</sup>... 3
  - external position transmitter (potentiometer) – IP65 <sup>3)</sup>... 4

### Distance of positioner from actuator:

- ... m (0 ÷ 15 m)..... XX

### Execution:

- standard..... St
- intrinsically safe II 2G Exia IIC T6/T5 Gb..... EX

### Analog position transmitter:

- without position transmitter..... 00
- with output signal 4+20 mA <sup>4)</sup>..... 20

### Pneumatic connectors:

- connectors to brass pipes ø6 mm..... 1
- connectors to stainless steel pipes ø6 mm..... 2
- connectors to Polyethylene pipes ø6 mm..... 3
- connectors to brass pipes ø8 mm..... 4
- connectors to stainless steel pipes ø8 mm..... 5
- connectors to Polyethylene pipes ø8 mm..... 6
- connectors to Polyethylene pipes ø6 mm (ERMETO)..... 7
- other..... 8

### Manometers:

- with manometers in st. steel execution (Ø 40 mm, st. steel housing, glass window)..... 2
- with manometers in st. steel execution and st. steel wetted parts (Ø 40 mm, glass window)..... 3
- other..... 4

### Electrical entry:

- plastic packing gland (Ø 4 ÷ 9 mm cable)..... 1
- nicked brass packing gland (Ø 4 ÷ 9 mm cable)..... 2
- other..... 3

### Mounting kit:

- without mounting kit..... 0
- with mounting kit (code according to below table)..... 1

<sup>1)</sup> For double-operating linear actuator.

<sup>2)</sup> Not available with ATEX

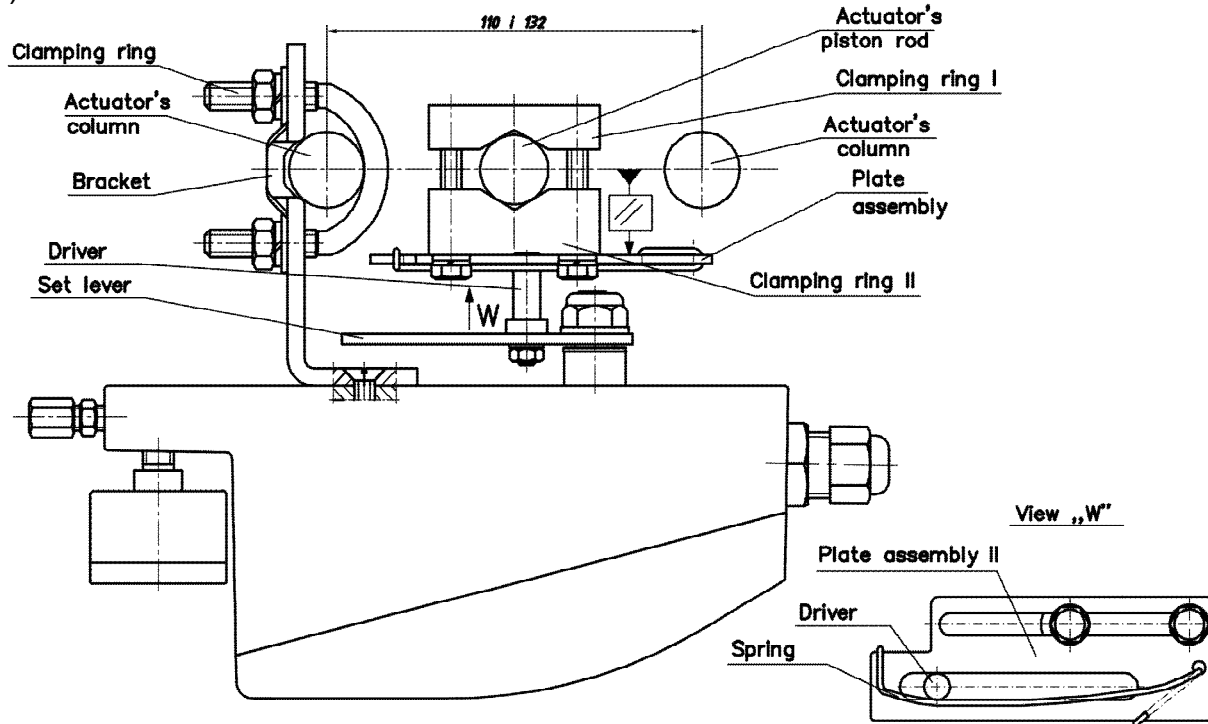
<sup>3)</sup> For single-operating linear diaphragm actuators and single and double-operating rotational actuators

<sup>4)</sup> The positioner can set reverse of analogue output signal (20...4 mA). The reverse function of the output signal is switched on programmatically by the user.

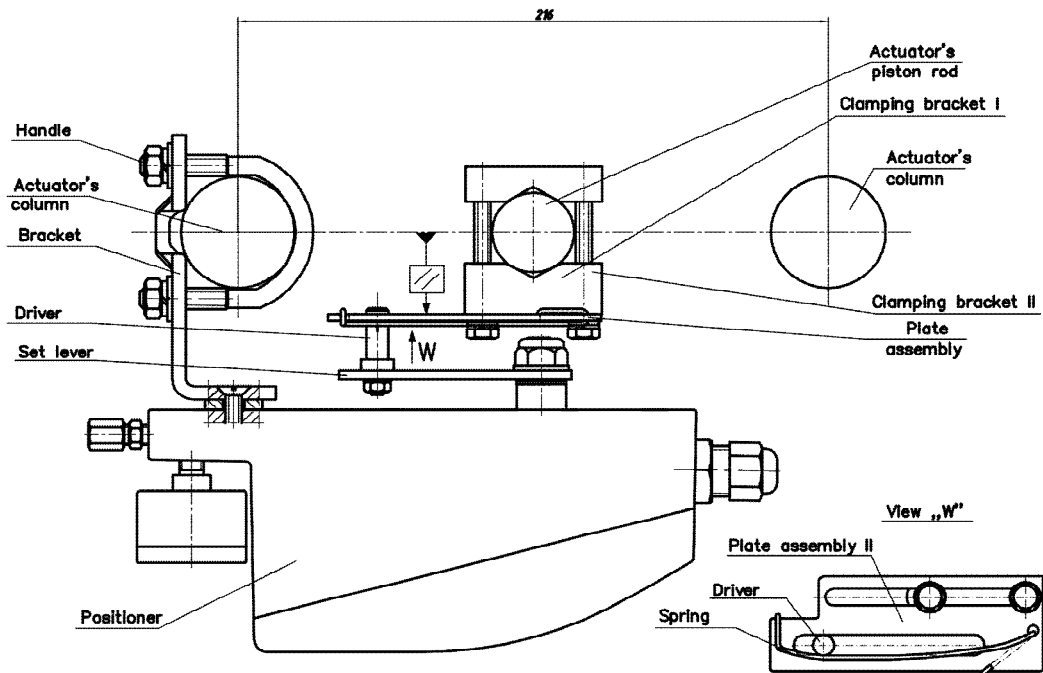
Mounting kit		Type of actuator
APIS-A000	For APIS-100	Type P or R, Polna S.A. (mounted on the columns)
APIS-A001		Type 37 or 38, Polna S.A. (yoke)
APIS-A002		Type P1 or R1, Polna S.A. (diaphragm multi-spring)
APIS-A003		Actuator acc. PN-EN 60534-6-1:2001 (Samson, Arca Regler)
APIS-A05X	For APIS-X00	Actuator acc. EN ISO 5211, DIN 3337, VDI/VDE 38450 Namur, (Air Torque, Ebro-Armaturen, EI-O-Matic)
APIS-AXXX	For APIS-201	Actuator acc. ISO 6431 (CNOMO Prema Kielce)
	-SS	Material: stainless steel
	-SO	Material: zinced steel

# Mounting set for electropneumatically positioner type APIS

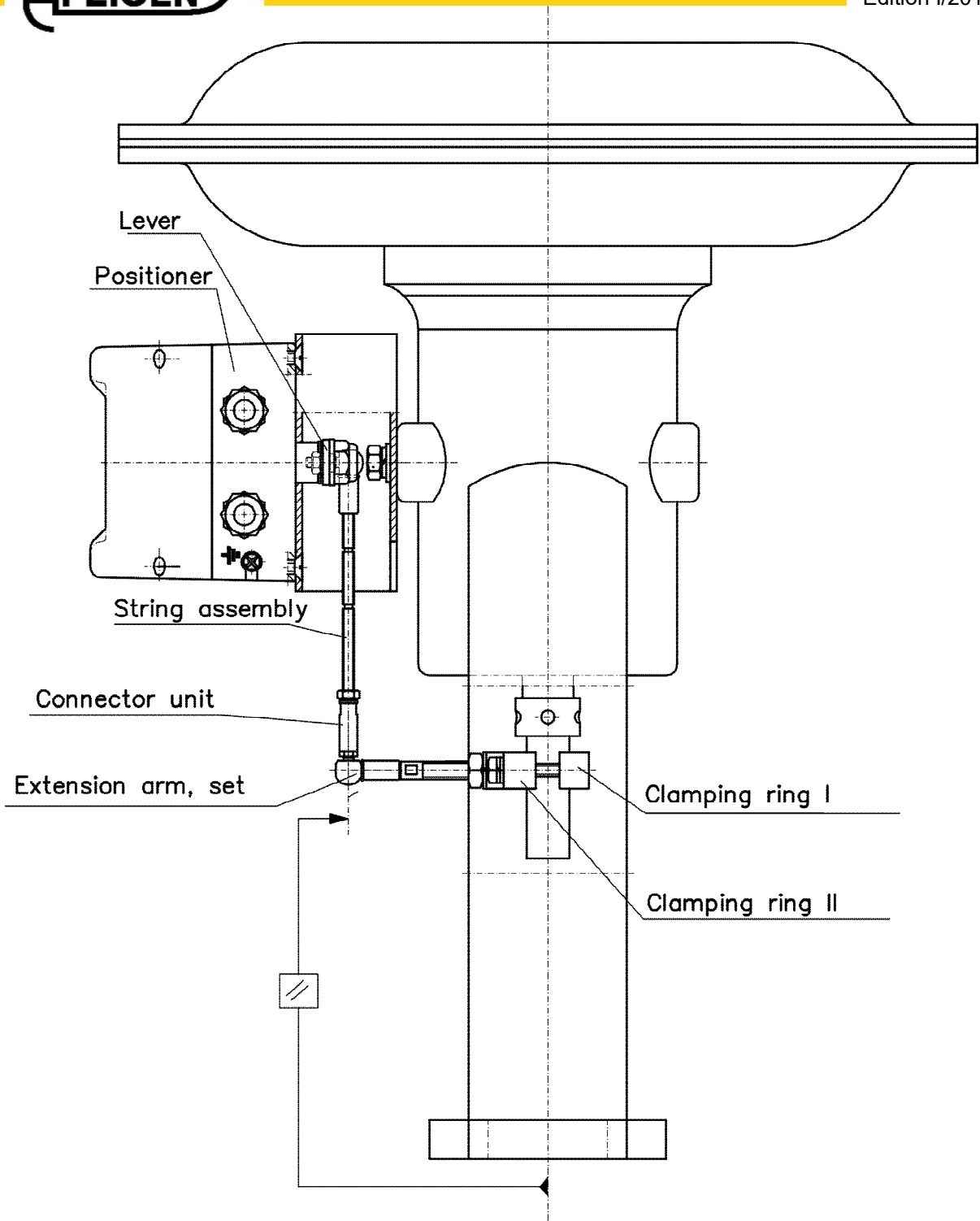
a)



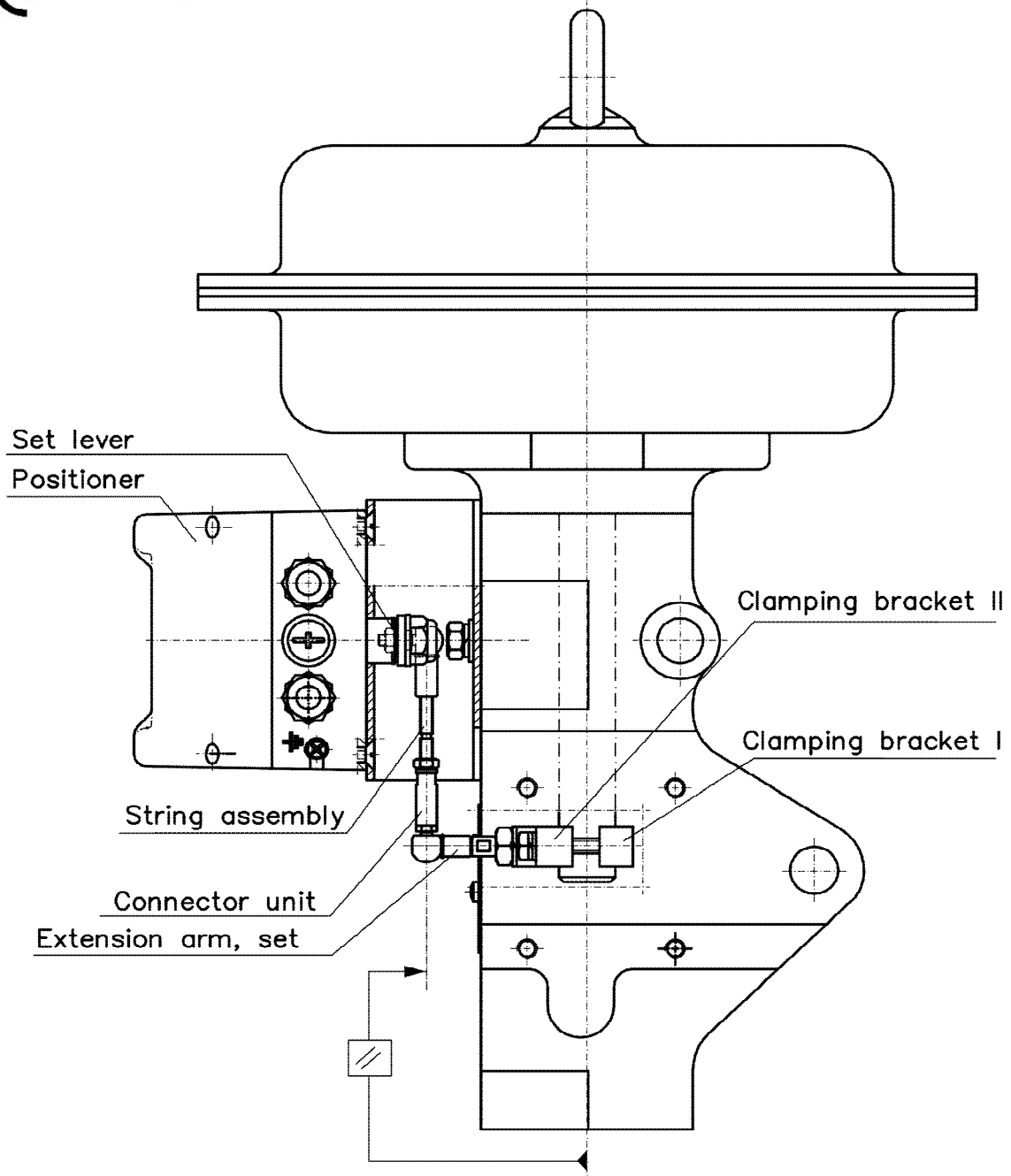
b)



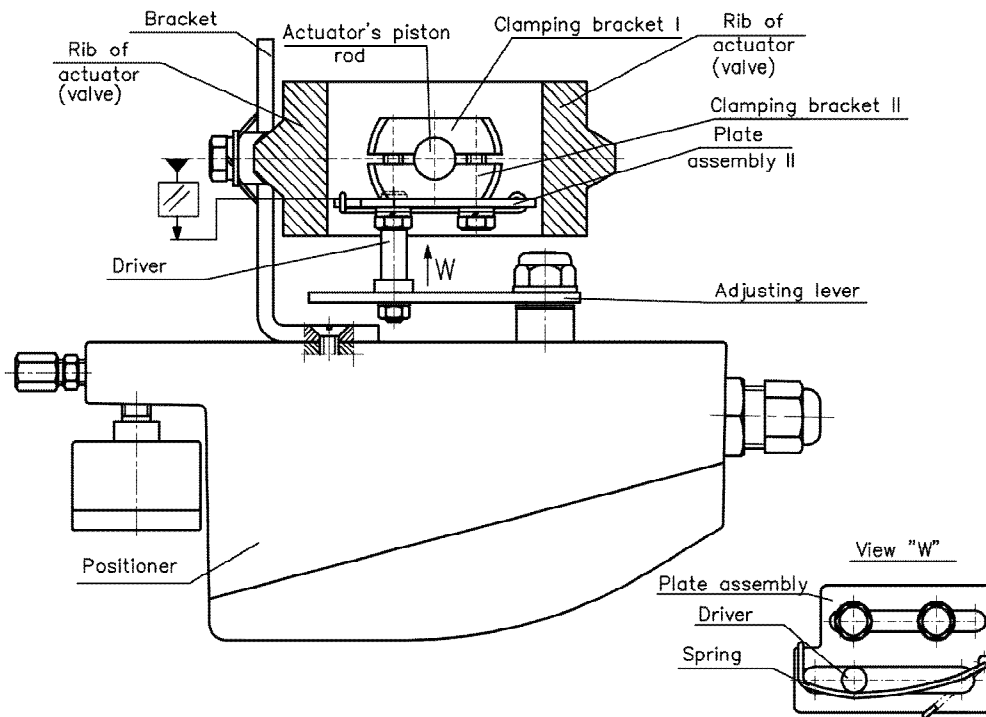
**Fig.1. Positioner type APIS-1X0-... with mounting kit APIS-A0000-SS(SO) (positioner mounted on column type actuator P or R by Polna Ltd company).**



**Fig.2. Positioner type APIS-1X0-... with mounting kit APIS-A0001-SS(SO) (positioner mounted on actuator type 37 or 38 Polna Ltd company)**

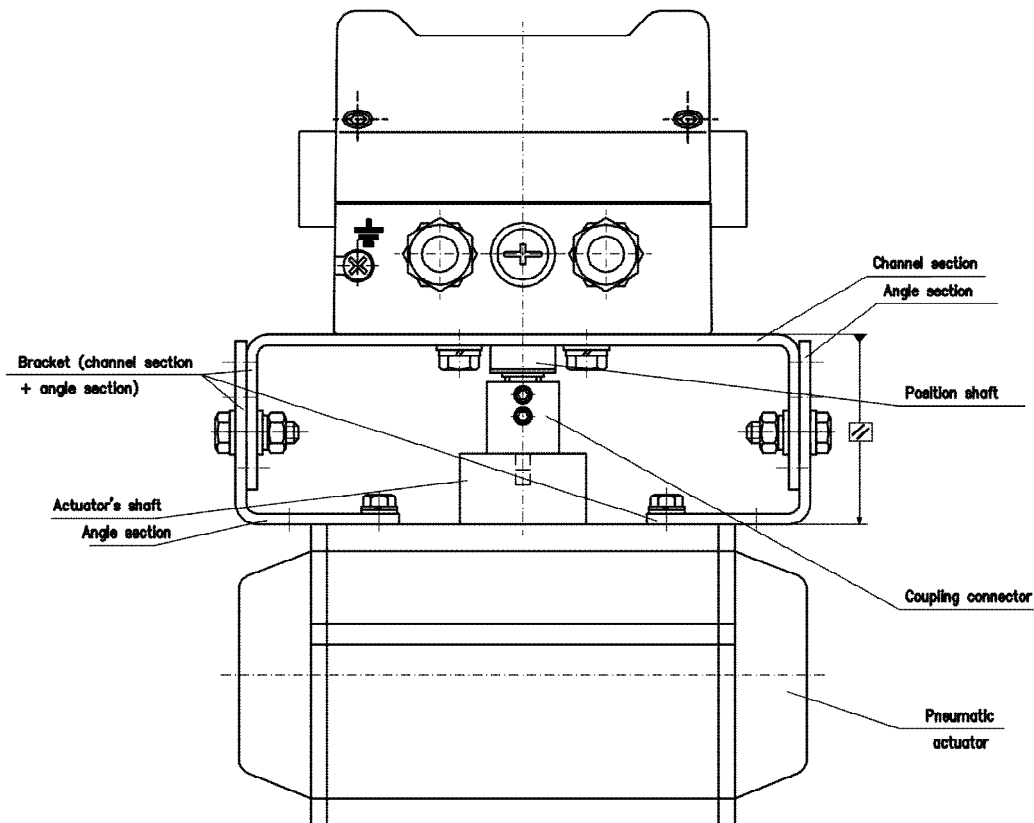


**Fig.3. Positioner type APIS-1X0-... with mounting kit APIS-A0002-SS(SO) (positioner mounted on actuator type P1 or R1 Polna S.A. Ltd company)**



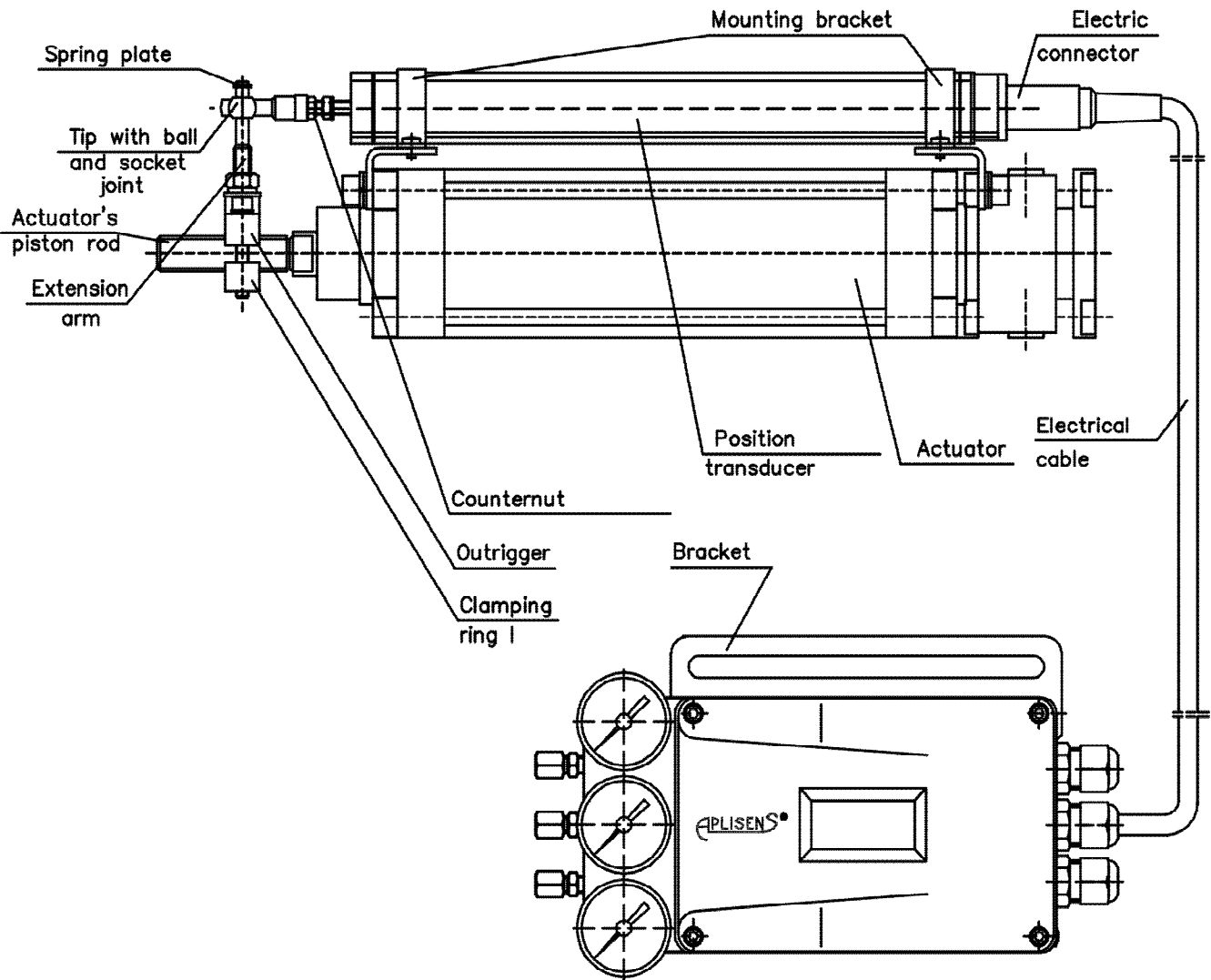
**Fig.4. Positioner type APIS-1X0-... with mounting kit APIS-A0003-SS(SO) (positioner mounted on actuator with control valve – in accordance with PN-EN 60534-6-1:2001 e.g. on actuator from Samson or Arca Regler company)**

**Positioner type APIS mounted on single or double acting actuators.**



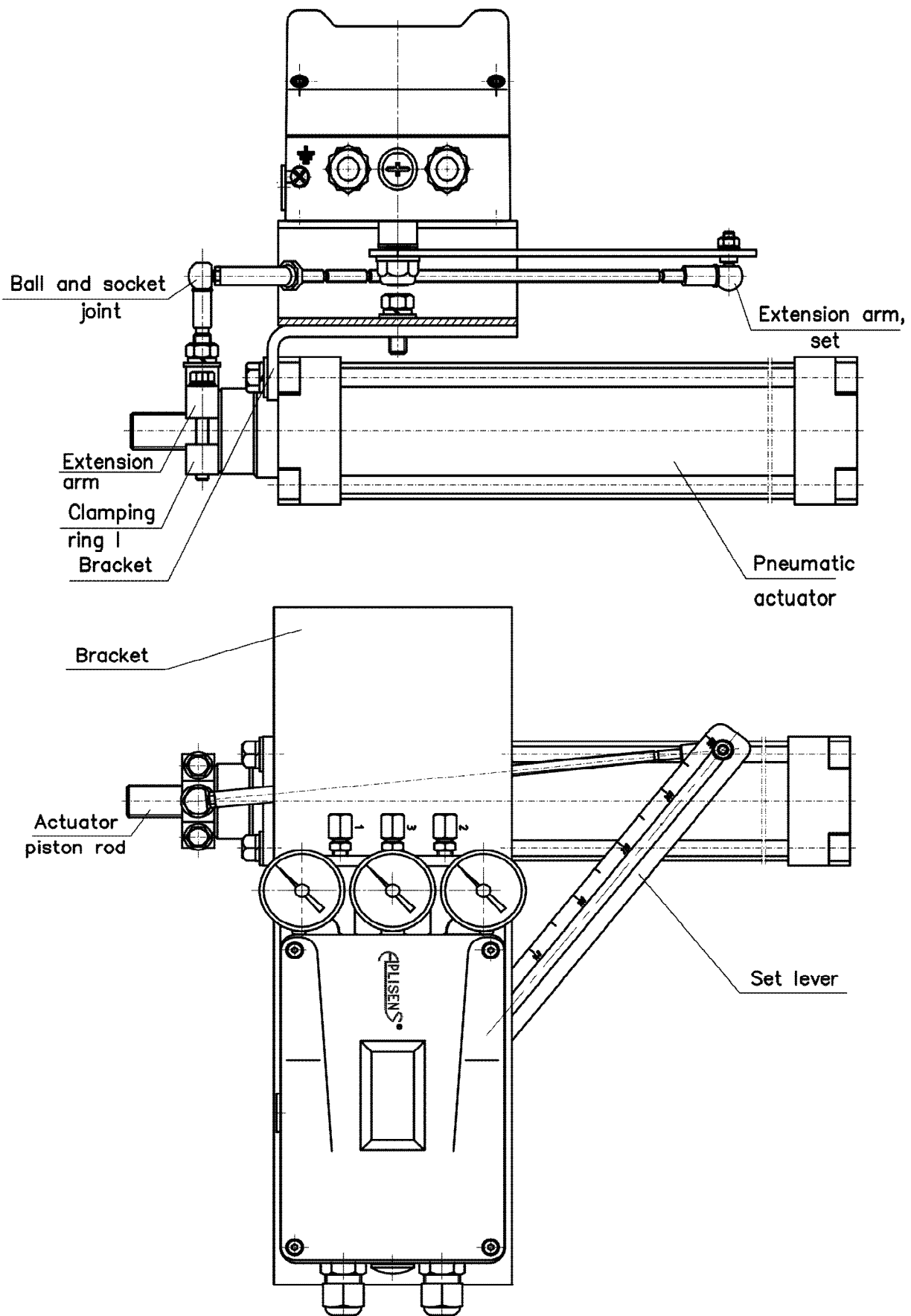
**Fig.5. Positioner type APIS-1X0-... i APIS-2X0-... with mounting kit APIS-A0050-SS(SO) (positioner mounted on actuator with accordance to EN ISO 5211, DIN 3337, VDI/VDE 38450 Namur e.g.: on Air Torque, Ebro-Armaturen, El-O-Matic actuator)**

**Positioner type APIS mounted outside of the double action piston actuator.**



**Fig.6. Positioner type APIS-2X1-... with mounting kit APIS-XXXXX-SS(SO)  
 (positioner mounted outside of the double action linear actuator  
 e.g.: CNOMO series actuator of PREMA Kielce company or in  
 accordance to ISO 6431 (PREMA Kielce or FESTO company actuators))**





**Fig. 7 Positioner type APIS-2X0-...with mounting kit APIS-XXXXX-SS(SO)  
 (positioner mounted on linear double action actuator  
 e.g.: CNOMO series actuators from PREMA Kielce company or with accordance  
 with ISO 6431 (PREMA Kielce or FESTO actuators))**



## Ordering information

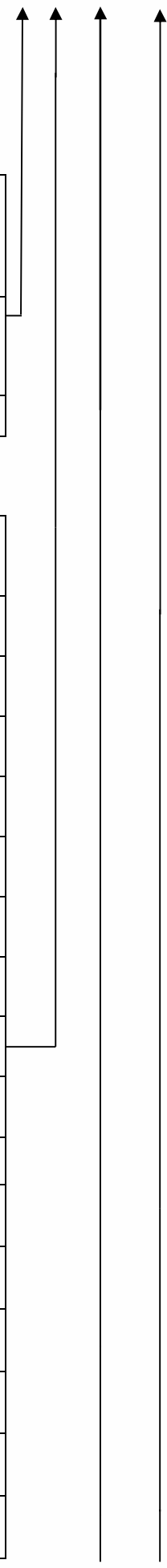
**APIS-A00XX-SX**

POSITIONER TYPE	SPECIFICATION AND THE TYPE OF THE PNEUMATIC ACTUATOR		
	ACTUATOR TYPE	ACTUATOR SPECIFICATION	
APIS-1X0-...	Linear diaphragm single acting actuator	<b>Actuator mounted on the columns</b> type P or R Polna S.A. company or type 5700 5333 Spirax Sarco company - for APIS-1X0-... see fig. 1. - for APIS-1X4-... see fig. 8 (TBD)	00
APIS-1X4-...			10
APIS-1X0-...		<b>Yoke type actuator</b> type 37 or 38 Polna Ltd. company - for APIS-1X0-... see fig. 2. - for APIS-1X1-... see fig. 9 (TBD)	01
APIS-1X4-...			11
APIS-1X0-...		<b>Multispring type actuator</b> type P1 or R1 Polna Ltd. company - for APIS-1X0-... see fig. 3. - for APIS-1X1-... see fig. 10 (TBD)	02
APIS-1X4-...			12
APIS-1X0-...		<b>According to PN- EN 60534-6-1:2001,</b> With actuator with regulation valve from: Samson company: - for APIS-1X0-... see fig. 4. - for APIS-1X1-... see fig. 11 (TBD)	03
APIS-1X4-...			13
APIS-1X0-...			40
APIS-1X4-...		Acc to customer specification	41
APIS-1X0-... APIS-2X0-...		<b>According to EN ISO 5211, DIN 3337, VDI/VDE 38450 Namur</b> e.g.: actuators from Air Torque, EL-O-Matic Ebro Armaturen companies - for APIS-1X0-... and APIS-2X0-...see fig. 5 - for APIS-1X4-... and APIS-2X4-...see fig. 12 (TBD)	50
APIS-1X4-... APIS-2X4-...		TBD	51
APIS-1X0-... APIS-2X0-...		According to customer specification	52
APIS-1X4-... APIS-2X4-...		According to customer specification	53
<b>Material assembly kit</b>			
Stainless steel			S
Galvanized carbon steel			O

### Ordering example:

Mounting set for positioner type APIS-1X0-... intended to use with linear diaphragm single acting actuator type P1 Polna Ltd, Company, made from galvanized carbon steel .  
Mounting set APIS-A0002-SO.

## Ordering information c.d.

**APIS-X XX XX-SX**


POSITIONER TYPE	SPECIFICATION AND THE TYPE OF THE PNEUMATIC ACTUATOR			
	ACTUATOR TYPE	ACTUATOR SPECIFICATION		
APIS-2X1-... APIS-2X2-...	Linear double action actuator	According to ISO 6431: E.g.: PREMA Kielce(Poland), Camozzi, Festo company -for APIS-2X1-...and APIS-2X2-... see fig. 6 -for APIS-2X0-... see fig. 7		A
		CNOMO series. PREMA KIELCE(Poland) company for - -- APIS-2X1-... - APIS-2X2-... see fig. 6 - for APIS-2X0-... see fig. 7		C
		Accordingly to customer specification		S
		Ø actuator piston (mm): Thread on the end of the piston rod: control pressure connection holes		
		Ø32 ISO 6431:M10x1,25: G1/8" CNOMO: M10: G1/8"	01	
		Ø40 ISO6431:M12x1,25: G1/4" CNOMO:M16x1,5: G1/4"	02	
		Ø50 ISO6431 i CNOMO M16x1,5: G1/4"	03	
		Ø63 ISO 6431:M16x1,5: G3/8" CNOMO:M20x1,5: G3/8"	04	
		Ø80 ISO6431 i CNOMO M20x1,5: G3/8"	05	
		Ø100 ISO 6431:M20x1,5: G1/2" CNOMO:M27x2:G1/2"	06	
		Ø125 ISO 6431 i CNOMO M27x2: G1/2"	07	
		Ø160 ISO 6431 i CNOMO M36x2: G3/4"	08	
		Ø200 ISO 6431 i CNOMO M36x2: G3/4"	09	
		Ø250 ISO 6431 i CNOMO M42x2: G1"	10	
Ø320 ISO 6431: M48x2: G1"	11			
APIS-2X0-...	Linear double action actuator	Ø63 ISO 6431:M16x1,5: G3/8" CNOMO: M20x1,5: G3/8"	12	
		Ø80 ISO 6431:M16x1,5: G3/8" CNOMO:M29x1,5: G3/8"	13	
		Ø100 ISO 6431: M20x1,5: G1/2" CNOMO: M27x2: G1/2"	14	
		Ø125 ISO 6431 i CNOMO M27x2: G1/2"	15	
		Ø160 ISO 6431 i CNOMO M36x2: G3/4"	16	
		Ø200 ISO 6431 i CNOMO M36x2: G3/4"	17	

APIS-2X1-...				Accordingly to customer specification	60
APIS-2X2-...					
APIS-2X0-...				Actuator stroke (mm)	
APIS-2X0-... APIS-2X1-... APIS-2X2-...				80	20
				100	21
				125	22
				150	23
				160	24
				200	25
				250	26
				300	27
APIS-2X1-... APIS-2X2-...				320	28
				400	29
				500	30
				600	31
APIS-2X1-...				Accordingly to customer specification	70
APIS-2X2-...					
APIS-2X0-...					
<b>Material assembly kit</b>					
Stainless steel					S
Galvanized carbon steel					O

#### Ordering specification example:

Mounting set for positioner type APIS-2X1-...intended for use with linear double acting piston actuator which comply to ISO 6431 standard (cylinder diameter 100mm, thread M20x1,5, attachment holes of the control pressure G1/2", actuator stroke 125mm), mounting set material: galvanized carbon steel.

#### Mounting kit APIS-A0622-SO