DIAPHRAGM MULTI-SPRING PNEUMATIC ACTUATORS **TYPE P3/R3**

APPLICATION AREA:

Multi-spring diaphragm pneumatic actuators type P3/R3 are applied to control operation of control valves and other positioning elements in industrial automatic systems.
They are manufactured in following variants:

- direct action (air - advances the steam) - type P3,
- reverse action (air - retracts the steam) - type R3,
- direct action, with handwheel - type P3N,
- reverse action, with handwheel - type R3N.

FEATURES

- optional direct installation of electro-pneumatic positioners type A781 by CONTROLMATICA,
- completely reversible action, option to change spring range w/o extra parts,
- rigid structure of cast yoke,
- wide range of available forces,
- linear dependence of stem movement from control pressure, due to application of diaphragm with constant effective area,
- various spring ranges achieved by changing the number of springs and/or changing position of spacer elements,
- optional installation of top mounted handwheel, and various accessories, both integrated and additional,
- no external connections with impulse tubes between positioner and actuator, neither for P3 nor for R3 type. This eliminates need for impulse tubes in various materials adapted to working environment, as well as mechanic damages of connections during transport,
- reduction in number of possible leak points,
- no-pressure (spring) chamber of actuator supplied with air lost in positioner, which protects the interior of actuator against chemically aggressive media and mechanic contaminants in the ambient atmosphere,
- direct installation of positioner on actuator as per PN-EN 60534-6-1 (NAMUR) ensures rigidity of connection and secures sealing of impulse ducts,
- high strength, accuracy and reliability of operation.

TECHNICAL SPECIFICATION

- input signal range:	20...100 kPa; 40...120 kPa; 60...140 kPa	- 3 springs
	40..200 kPa; 80...240 kPa; 120...280 kPa	- 6 springs
	180...380 kPa	- 12 springs
- max. supply pressure:	up to 450 kPa	
- working temperature:	- 40...+80°C	
- relative humidity:	max. 98%	

Diaphragm effective area	Stroke	Spring range
[cm^2]	[mm]	[kPa]
250	20	1...6
400		
630	20; 38	1...7

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CHARACTERISTICS OF POSITIONER TYPE A 781

- analog electro-pneumatic positioner,
- available in ATEX certified spark-proof execution,
- normal and reverse action (switched using solenoid current direction switch),
- division of input signals,
- linear characteristics,
- high vibration resistance,
- power booster accelerating operation,
- low air consumption,
- execution with/without manometers.

TECHNICAL SPECIFICATIONS OF POSITIONER:

– input signal	- full:	4…20 [mA]; 0…20 [mA];
	- half:	4…12 [mA]; 12…20 [mA]; 0…10 [mA]; 10…20 [mA]
– supply pressure		140…250 kPa or 250…600 kPa,
– hysteresis		0,5 %,
– dead zone		0,05 %,
– explosion proof properties		II 2G EExia IIC T6/T5/T4
– ambient temperature		
with manometers		- 40…+ 80°C
w/o manometers		- 25…+ 65°C

PRODUCT CODE

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Type:

- direct action:	**P3**
- reverse action:	**R3**
- direct action, with handwheel:	**P3N**
- reverse action, with handwheel:	**R3N**

Size:

	250
	400
	630

Spring range [kPa]:

20…100	**1**
40…200	**2**
40…120	**3**
80…240	**4**
60…140	**5**
120…280	**6**
180…380	**7**

Stroke [mm]:

	20
	38

Marking example:
Reverse action pneumatic actuator with handwheel, size 400, stroke 20 mm, spring range 40…200 kPa:

R3N - 400 - 20 - 2

Note: Characteristic of the adjusting unit should be specified in a descriptive manner.

Revision: P3/R3/08/2007
Valid until the next revision.