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spirax sarco

TI-P357-13
CH Issue 7

PN4000 Series Spring Retract Pneumatic Actuators (for LE or LEA Valves)

Description

A range of compact linear actuators having 5 diaphragm sizes for matching the requirements of different valves at various differential pressures. Each actuator is fitted with a mechanical stroke indicator and incorporates a semi-rolling diaphragm which gives good linearity over the operating stroke. For precise valve positioning on modulating applications and when using higher pressure spring range actuators a positioner must be used.

A manual handwheel is available as an optional extra for the PN4300, PN4400, PN4500 and PN4600 series actuators. These actuators are designed to operate with 2-port LE or LEA valves as detailed below.

Actuator type	Valve type	Valve size
20 mm travel	LE and LEA series	DN15 - 50
30 mm travel	LE and LEA series	DN65 - 100

Available types

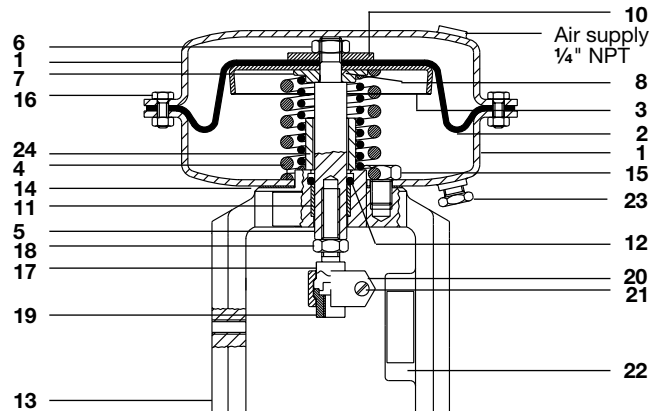
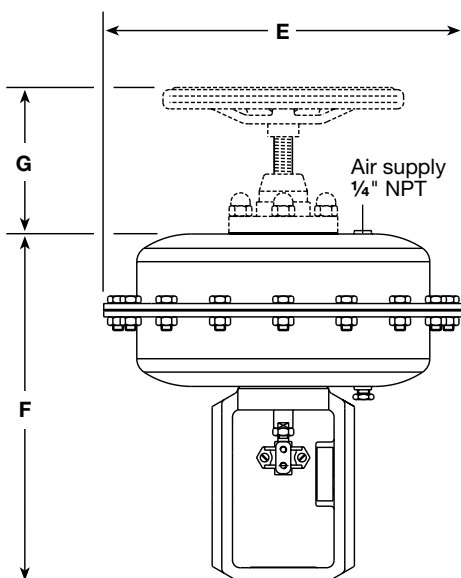
Spring retract spindle, multi-spring yoke mounted actuators
PN4200, PN4300, PN4400, PN4500, and PN4600 series.

Spring ranges

Actuator type	Spring range	Travel
PN4220, PN4320, P4420, PN4520, PN4620	0.2 to 1 bar	20 mm
PN4430, PN4530, PN4630	0.2 to 1 bar	30 mm

Technical data

Temperature range	-20°C to 100°C	
	PN4200 and PN4300	6 bar
Maximum operating pressure	PN4400	4 bar
	PN4500 and PN4600	2.5 bar



Materials

No.	Part	Material
1	Diaphragm housing	Pressed steel
2	Diaphragm	Reinforced nitrile rubber
3	Diaphragm plate	Pressed steel
4	Springs	Spring steel
5	Spindle	Stainless steel
6	Lock-nut	Stainless steel
7	Spacer	Zinc plated steel
8	'O' ring	Rubber
9	Spring guide	Zinc plated steel
10	Diaphragm clamp	Zinc plated steel
11	Bearing	Bronze
12	'V' ring	Rubber
13	Yoke	Cast iron
14	Gasket	Non asbestos fibre
15	Fixing screws	Steel
16	Housing bolts and nuts	Steel
17	Top adaptor	Steel
18	Lock-nut	Steel
19	Bottom adaptor	Steel
20	Connectors	Stainless steel
21	Connectors bolts and nuts	Stainless steel
22	Travel indicator	Aluminium
23	Cap (with vent hole)	Nickel plated brass
24	Spacer	Zinc plated steel

Dimensions / weights (approximate) in mm and kg

Actuator	E	F	G	Weight	Weight with handwheel
PN4200 series	209	240	-	7.2	-
PN4300 series	285	264	137	11.2	13.4
PN4420 series	336	263	137	20.0	22.2
PN4430 series	336	328	177	20.0	23.8
PN4520 series	405	294	137	22.6	26.4
PN4530 series	405	367	177	22.6	26.4
PN4620 series	465	400	-	38.0	-
PN4630 series	465	400	-	38.0	-

Differential pressures for LE and LEA valves and PN4000 series actuators

Note: Differential pressures do not apply where the valve has been fitted with high temperature graphite stem sealing, contact Spirax Sarco for further details.

LE and LEA valves

Valve size	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100
Travel mm	20						30		
Kvs	0.4 to 4	6.3	10	16	25	36	63	100	160

PN4000 series actuators (spring retract spindle)

Actuator	Spring range		Minimum air pressure	Positioner required*	Maximum differential pressure (bar)								
	Closed	Open			16.0	9.4	4.7	2.1	-	-	-	-	-
PN4220	1	0.2	1.2	Optional	16.0	9.4	4.7	2.1	-	-	-	-	-
	1	0.2	2	Yes	16.0	16.0	16.0	15.7	9.0	5.3	-	-	-
	1	0.2	3	Yes	16.0	16.0	16.0	16.0	16.0	11.7	-	-	-
	1	0.2	4 - 6	yes	16.0	16.0	16.0	16.0	16.0	16.0	-	-	-
PN4320	1	0.2	1.2	Optional	16.0	16.0	11.7	5.7	3.0	1.6	-	-	-
	1	0.2	2	Yes	16.0	16.0	16.0	16.0	16.0	12.0	-	-	-
	1	0.2	3 - 6	Yes	16.0	16.0	16.0	16.0	16.0	16.0	-	-	-
PN4420	1	0.2	1.2	Optional	-	-	16.0	8.3	4.6	2.6	-	-	-
	1	0.2	2 - 4	Yes	-	-	16.0	16.0	16.0	16.0	-	-	-
PN4430	1	0.2	1.2	Optional	-	-	-	-	-	-	1.0	-	-
	1	0.2	2	Yes	-	-	-	-	-	-	9.7	6.2	3.8
	1	0.2	3	Yes	-	-	-	-	-	-	16.0	13.4	8.4
	1	0.2	4	Yes	-	-	-	-	-	-	16.0	16.0	13.0
PN4520	1	0.2	1.2	Optional	-	-	-	14.2	8.1	4.8	-	-	-
	1	0.2	2	Yes	-	-	-	16.0	16.0	16.0	-	-	-
	1	0.2	2.5	Yes	-	-	-	16.0	16.0	16.0	-	-	-
PN4530	1	0.2	1.2	Yes	-	-	-	-	-	-	2.3	-	-
	1	0.2	2	Yes	-	-	-	-	-	-	16.0	10.6	6.6
	1	0.2	2.5	Yes	-	-	-	-	-	-	16.0	16.0	10.3
PN4620	1	0.2	1.2	Optional	-	-	-	-	10.5	6.2	-	-	-
	1	0.2	2	Yes	-	-	-	-	16.0	16.0	-	-	-
	1	0.2	2.5	Yes	-	-	-	-	16.0	16.0	-	-	-
PN4630	1	0.2	1.2	Optional	-	-	-	-	-	-	3.2	1.9	1.0
	1	0.2	2	Yes	-	-	-	-	-	-	16.0	13.5	8.5
	1	0.2	2.5	Yes	-	-	-	-	-	-	16.0	16.0	13.2

* Applies to modulating duty only.

Reduced capacity (Kvs) valves

For valves having reduced capacity Kvs trims differential pressures should be selected from the above chart using the actual Kvs value column and not the valve size column.

* For product compatibility with DN65, DN80, and DN100:

Valves having 30 mm travel actuators must be selected for all trim options.

For valves having 20 mm travel with reduced Kvs trims, it is recommended that a positioner be used to obtain the desired travel.

Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions supplied with the product.

Installation note

Actuators should be mounted on LE or LEA valves with the stem in a vertical position. An optional manual handwheel is available for the PN4300, PN4400, PN4500 and PN4600 series actuators. Actuators fitted with manual handwheels are designated with suffix 'H' i.e. PN4320H.

Disposal

This product is recyclable. No ecological hazard is anticipated with the disposal of this product, providing due care is taken.

How to order

Example: 1 off Spirax Sarco PN4320 pneumatic actuator.

Note: Actuator code should be suffixed 'H' where a handwheel is required i.e. PN4320H.

Spare parts

Information regarding available spare parts is given on TI-P357-14.