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ISO 9001

# spirax sarco

TI-P320-57  
CH Issue 2

## PN1000 Series Spring Extend Pneumatic Actuators

(for LE / LEA and KE/KEA Valves DN65 - DN100)

### Description

A range of single spring linear actuators having 2 diaphragm sizes for matching the requirements of different valves at various differential pressures. Each actuator is fitted with a combined mechanical stroke indicator and anti-rotation guard. The actuators are designed for easy conversion from spring extend to spring retract, and vice versa, without the need for special tools.

### Available types

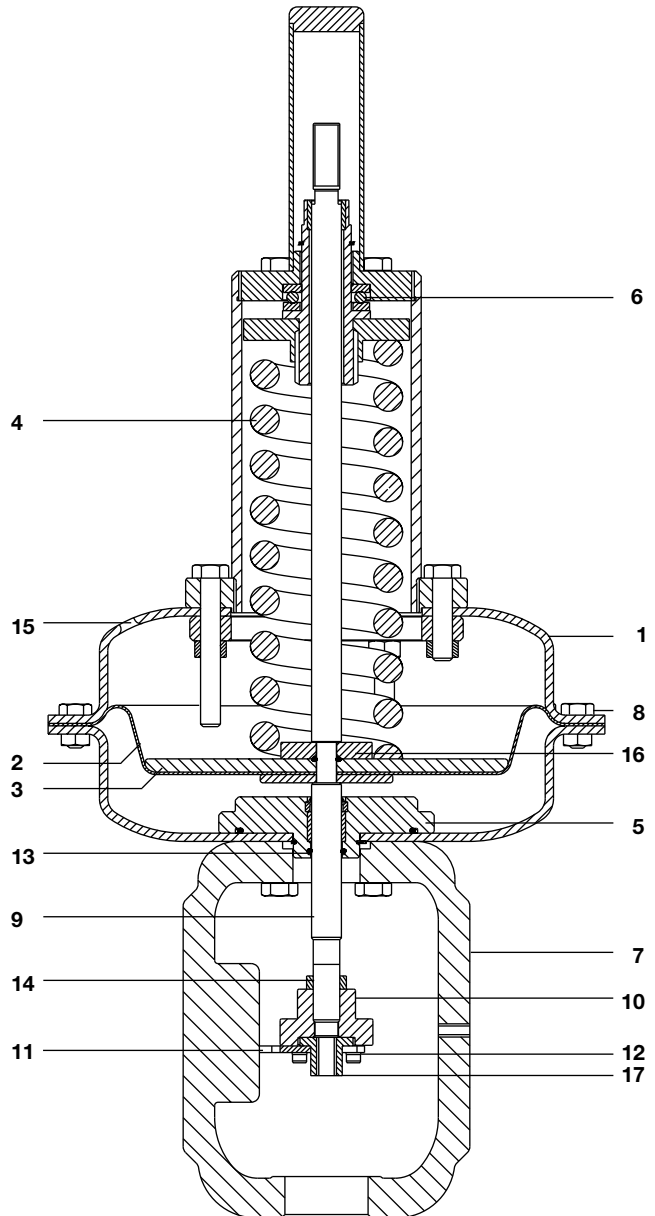
Spring extend spindle actuators:  
PN1500 and PN1600 series.

### Technical data

Temperature range	-20°C to +110°C (-4°F to +230°F)	
Maximum operating pressure	4.5 bar	(65 psi)
Air supply connection	PN1500 and PN1600	1/4" NPT

### Materials

No. Part	Material
1 Diaphragm housing	Carbon steel
2 Diaphragm	Reinforced nitrile rubber
3 Diaphragm plate	Stainless steel
4 Spring	Spring steel
5 Spindle guide	Bronze
6 DU bearing	Hardened steel
7 Yoke	Cast steel
8 Housing securing nuts and bolts	Zinc plated steel
9 Spindle	Stainless steel
10 Connector	Zinc plated steel
11 Travel indicator	Stainless steel
12 Lock plate	Zinc plated steel
13 'O' ring	Nitrile rubber
14 Lock-nut	Zinc plated steel
15 Cap with vent hole	Nickel plated brass
16 Spring location washer	Zinc plated steel
17 Valve spindle adapter	Stainless steel



## Differential pressures for LE/LEA and KE/KEA series valves and PN1000 series actuators (spring extend)

**Note:** The differential pressures stated in the tables below are limited by the maximum operating pressures of the selected control valve. In certain circumstances with a reduced  $K_{VS}$  value, or where reduced valve stroke is acceptable, it may be possible to increase the maximum differential pressure above that shown in the table by special setting of the actuator. Please consult Spirax Sarco.

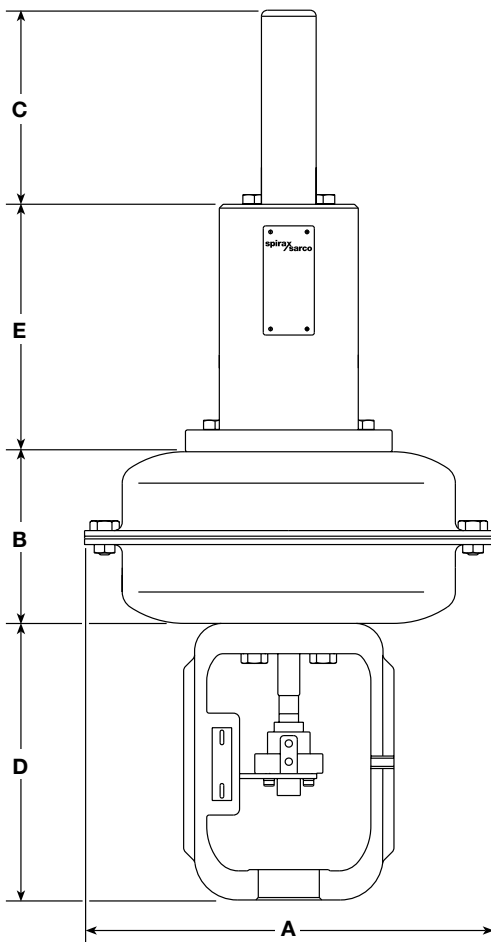
LE, LEA, KE and KEA valve size	DN65				DN80				DN100			
Travel mm	30	20	20	20	30	30	20	20	30	30	30	20
Valve seat sizes	Full $K_{VS}$	Reduced $K_{VS}$			Full $K_{VS}$	Reduced $K_{VS}$			Full $K_{VS}$	Reduced $K_{VS}$		
		No 1	No 2	No 3		No 1	No 2	No 3		No 1	No 2	No 3

Differential pressures shown apply to valves with standard PTFE stem seals or bellows sealed stems with either metal-to-metal or PTFE soft seat.

Actuator model	Travel	Spring range	Positioner required	Maximum differential pressure (bar)											
				PN1523A3	20 mm	2.0 - 4.0	Yes	-	50.0	50.0	50.0	-	-	50.0	50.0
PN1533A3	30 mm	2.0 - 4.0	Yes	38.6	-	-	-	25.0	38.6	-	-	15.6	25.0	38.6	-
PN1633A4	30 mm	2.0 - 4.0	Yes	50.0	-	-	-	36.9	50.0	-	-	23.2	36.9	50.0	-

Differential pressures shown below apply to valves with high temperature graphite (H) stem seals and metal-to-metal seats.

Actuator model	Travel	Spring range	Positioner required	Maximum differential pressure (bar)											
				PN1523A3	20 mm	2.0 - 4.0	Yes	-	50.0	50.0	50.0	-	-	50.0	50.0
PN1533A3	30 mm	2.0 - 4.0	Yes	38.4	-	-	-	24.9	38.4	-	-	15.5	24.9	38.4	-
PN1633A4	30 mm	2.0 - 4.0	Yes	50.0	-	-	-	36.8	50.0	-	-	23.1	36.8	50.0	-



### Installation

Actuators should be mounted on the valve with the stem in a vertical position. Installation and Maintenance Instructions are supplied with the product.

### Spare parts

Information regarding available spare parts is given on TI-P320-54.

### PN1000 series actuator selection table

Selection should be made in conjunction with the differential pressure chart shown above and the following code:

Actuation	PN = Pneumatic	<b>PN</b>
Actuator action	1 = Spring to extend	<b>1</b>
Diaphragm size	5 6	<b>5</b>
Actuator travel	2 = 20 mm (3/4") 3 = 30 mm (1 3/16")	<b>2</b>
Spring range	3 = 2.0 to 4.0 bar (30 to 60 psi)	<b>3</b>
Yoke type	A = Type A for valve sizes: DN65 - 100 (2 1/2" to 4")	<b>A</b>
Spring-holder size	3 = Type 3 4 = Type 4	<b>3</b>
		<b>PN 1 5 2 3 A 3</b>

### How to order

**Example:** 1 off Spirax Sarco PN1523A3 actuator, set to 2.0 to 4.0 bar.

### Dimensions / weights approximate in mm (inches) and kg (pounds)

Actuator	Actuator diaphragm			D Actuator yoke Type A	E Actuator spring holder	Weight
	A	B	C			
PN1500	405 (16")	180 (7")	160 (6 1/4")	231 (9")	Type 3 204 (8")	55 (121)
PN1600	465 (18 5/16")	180 (7")	160 (6 1/4")	231 (9")	Type 4 270 (10 1/2")	70 (154)