

spirax/sarco

PN 4000 Series Fail Open Pneumatic Actuators

Description

A range of compact linear actuators having 5 diaphragm sizes for matching the requirements of 1/2" to 4" SPIRA-TROL 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. A manual hand wheel is available for PN4300, PN4400 and PN4500 series actuators with spring ranges 3-15 psi.

Valve type	Valve Size	Actuator travel
L and K Series	1/2" to 2"	.75" (20 mm)
L and K Series	2-1/2" to 4"	1.25" (30 mm)

Technical Data

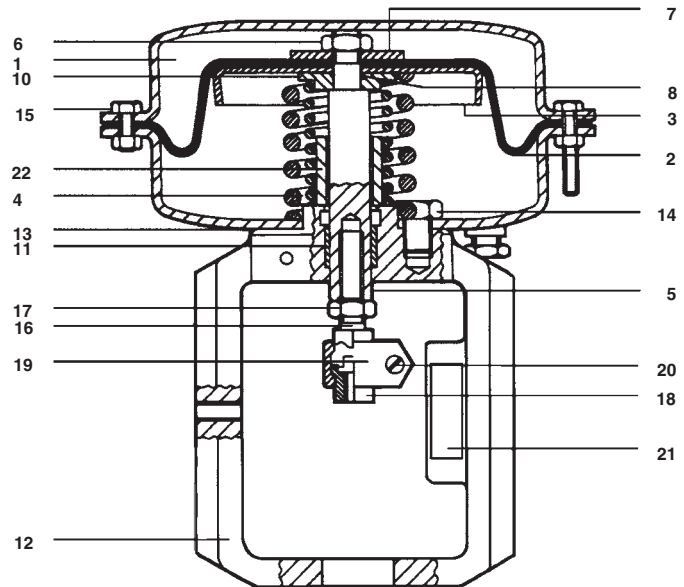
Temperature Range	14°F to 390°F (-20°C to 100°C)	
Maximum Operating Pressure	PN 4200/PN 4300	90 psi
	PN 4400	60 psi
	PN 4500/PN 4600	45 psi

Spring Ranges

Actuator Types	Spring Range psi	Travel
PN 4220	3 (6) to 15 (18) psi	.75" (20 mm)
PN 4320		
PN 4420		
PN 4520		
PN 4620		
PN 4430	3 (6) to 15 (18) psi	1.25" (30 mm)
PN 4530		
PN 4630		
PN 4630		

Air Supply Connection

PN 4000 series, 1/4" NPT



PN 4220 Shown

Construction 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	Locknut	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	Yoke	Cast Iron
13	Gasket	Non Asbestos Fiber
14	Fixing Screws	Steel
15	Housing Bolts and Nuts	Steel
16	Top Adaptor	Steel
17	Locknut	Steel
18	Bottom adaptor	Steel
19	Connectors	Stainless Steel
20	Connector Bolts and Nuts	Stainless steel
21	Travel Indicator	Aluminum
22	Spacer	Plastic

* A spring guide is provided on larger sizes.

PN 4000 Series Fail Open Pneumatic Actuators

Differential Pressures SPIRA-TROL Valves

Valve Size	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	
Travel mm	20 mm (.75")						30 mm (1.25")			
Standard Cvs	4.7	7.4	11.7	18.7	29	42	74	117	187	

PN4000 Series Actuators

Maximum differential pressures for modulating duties only
KE, LE, KEA and LEA with PTFE or Graphite stem seal

Actuator	Spring range	Operating Air Pressure (bar)	Max Air Pressure (bar)	Maximum differential pressures																	
				1/2"		3/4"		1"		1-1/4"		1-1/2"		2"		2-1/2"		3"		4"	
				PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite
PN4220	3 - 15	1	6	145	-	116	-	73	-	58	-	29	-	15	-	-	-	-	-	-	-
PN4220	3 - 15	2	6	580	580	580	580	537	421	421	319	174	145	131	102	-	-	-	-	-	-
PN4220	3 - 15	3	6	580	580	580	580	580	580	580	580	377	334	261	232	-	-	-	-	-	-
PN4220	3 - 15	6	6	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4320	3 - 15	1	6	348	131	276	102	189	73	145	58	58	15	44	15	-	-	-	-	-	-
PN4320	3 - 15	2	6	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4320	3 - 15	6	6	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4420	3 - 15	1	4	566	348	450	276	305	189	232	145	102	58	-	44	-	-	-	-	-	-
PN4420	3 - 15	4	4	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4430	3 - 15	1	4	-	-	-	-	-	-	-	-	-	-	-	-	44	15	29	-	15	-
PN4430	3 - 15	2	4	-	-	-	-	-	-	-	-	-	-	-	-	218	189	145	116	87	73
PN4430	3 - 15	3	4	-	-	-	-	-	-	-	-	-	-	-	-	450	421	290	261	174	160
PN4430	3 - 15	4	4	-	-	-	-	-	-	-	-	-	-	-	-	580	580	435	406	261	261
PN4520	3 - 15	1	3	580	580	580	580	450	334	348	261	160	116	102	87	-	-	-	-	-	-
PN4520	3 - 15	2	3	580	580	580	580	580	580	580	580	580	580	580	551	-	-	-	-	-	-
PN4520	3 - 15	3	3	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4530	3 - 15	1	3	-	-	-	-	-	-	-	-	-	-	-	-	58	29	44	15	29	15
PN4530	3 - 15	2	3	-	-	-	-	-	-	-	-	-	-	-	-	319	305	203	189	131	116
PN4530	3 - 15	3	3	-	-	-	-	-	-	-	-	-	-	-	-	493	464	319	290	189	189
PN4620	3 - 15	1	3	580	580	580	580	580	537	508	421	218	174	160	131	-	-	-	-	-	-
PN4620	3 - 15	2	3	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4620	3 - 15	3	3	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4630	3 - 15	1	3	-	-	-	-	-	-	-	-	-	-	-	-	87	58	58	44	29	29
PN4630	3 - 15	2	3	-	-	-	-	-	-	-	-	-	-	-	-	450	435	290	276	174	174
PN4630	3 - 15	3	3	-	-	-	-	-	-	-	-	-	-	-	-	580	580	435	421	276	261

KE, LE, KEA and LEA with Bellows (PTFE or Graphite stem seal)

Actuator	Spring range	Operating Air Pressure (bar)	Max Air Pressure (bar)	Maximum differential pressures																	
				1/2"		3/4"		1"		1-1/4"		1-1/2"		2"		2-1/2"		3"		4"	
				PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite
PN4220	3 - 15	3	6	580	580	580	580	537	421	421	319	174	145	131	102	-	-	-	-	-	-
PN4220	3 - 15	6	6	580	580	580	580	580	580	580	580	580	580	537	508	-	-	-	-	-	-
PN4320	3 - 15	2	6	580	580	580	580	522	406	406	305	174	131	116	102	-	-	-	-	-	-
PN4320	3 - 15	6	6	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4420	3 - 15	4	4	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4430	3 - 15	1	4	-	-	-	-	-	-	-	-	-	-	-	-	116	87	73	58	44	29
PN4430	3 - 15	2	4	-	-	-	-	-	-	-	-	-	-	-	-	334	305	218	203	131	131
PN4430	3 - 15	3	4	-	-	-	-	-	-	-	-	-	-	-	-	566	537	363	348	218	218
PN4520	3 - 15	1	3	580	580	580	580	580	580	580	580	580	580	450	421	-	-	-	-	-	-
PN4520	3 - 15	2	3	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4530	3 - 15	1	3	-	-	-	-	-	-	-	-	-	-	-	-	218	189	145	116	87	73
PN4530	3 - 15	2	3	-	-	-	-	-	-	-	-	-	-	-	-	377	363	247	232	145	145
PN4620	3 - 15	1	3	145	-	116	-	73	-	58	-	29	-	15	-	-	-	-	-	-	-
PN4620	3 - 15	2	3	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4620	3 - 15	3	3	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4630	3 - 15	2	3	-	-	-	-	-	-	-	-	-	-	-	-	348	319	218	203	145	131
PN4630	3 - 15	3	3	-	-	-	-	-	-	-	-	-	-	-	-	580	551	363	348	232	218

Maximum differential pressures for Class IV shut off
KE, LE, KEA and LEA with PTFE or Graphite stem seal

Actuator	Spring range	Operating Air Pressure (bar)	Max Air Pressure (bar)	Maximum differential pressures																	
				1/2"		3/4"		1"		1-1/4"		1-1/2"		2"		2-1/2"		3"		4"	
				PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite
PN4220	3 - 15	1	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
PN4220	3 - 15	2	6	580	580	580	435	377	261	305	203	102	58	58	29	-	-	-	-	-	
PN4220	3 - 15	3	6	580	580	580	580	580	580	580	580	290	261	203	174	-	-	-	-	-	
PN4220	3 - 15	6	6	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	
PN4320	3 - 15	1	6	131	-	87	-	29	-	29	-	-	-	-	-	-	-	-	-	-	
PN4320	3 - 15	2	6	580	580	580	580	580	580	580	580	290	247	189	174	-	-	-	-	-	
PN4320	3 - 15	6	6	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	
PN4420	3 - 15	1	4	348	131	247	87	145	29	116	29	29	-	-	-	-	-	-	-	-	
PN4420	3 - 15	4	4	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	
PN4430	3 - 15	1	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
PN4430	3 - 15	2	4	-	-	-	-	-	-	-	-	-	-	-	-	174	145	102	87	58	44
PN4430	3 - 15	3	4	-	-	-	-	-	-	-	-	-	-	-	-	392	363	247	232	145	131
PN4430	3 - 15	4	4	-	-	-	-	-	-	-	-	-	-	-	-	580	580	392	377	232	232
PN4520	3 - 15	1	3	580	421	493	319	290	189	232	145	73	44	44	15	-	-	-	-	-	-
PN4520	3 - 15	2	3	580	580	580	580	580	580	580	580	580	580	522	493	-	-	-	-	-	-
PN4520	3 - 15	3	3	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4530	3 - 15	1	3	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	-	-	-
PN4530	3 - 15	2	3	-	-	-	-	-	-	-	-	-	-	-	-	276	247	174	145	102	87
PN4530	3 - 15	3	3	-	-	-	-	-	-	-	-	-	-	-	-	435	421	276	261	160	160
PN4620	3 - 15	1	3	580	580	580	580	493	377	392	305	145	102	87	58	-	-	-	-	-	-
PN4620	3 - 15	2	3	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4620	3 - 15	3	3	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4630	3 - 15	1	3	-	-	-	-	-	-	-	-	-	-	-	-	44	15	15	-	-	-
PN4630	3 - 15	2	3	-	-	-	-	-	-	-	-	-	-	-	-	406	421	247	232	145	145
PN4630	3 - 15	3	3	-	-	-	-	-	-	-	-	-	-	-	-	580	580	406	377	247	232

KE, LE, KEA and LEA with Bellows (PTFE or Graphite stem seal)

Actuator	Spring range	Operating Air Pressure (bar)	Max Air Pressure (bar)	Maximum differential pressures																	
				1/2"		3/4"		1"		1-1/4"		1-1/2"		2"		2-1/2"		3"		4"	
				PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite
PN4220	3 - 15	3	6	580	580	580	435	377	261	276	189	87	44	44	29	-	-	-	-	-	-
PN4220	3 - 15	6	6	580	580	580	580	580	580	580	580	580	580	464	435	-	-	-	-	-	-
PN4320	3 - 15	2	6	580	537	580	406	363	247	261	174	87	44	44	15	-	-	-	-	-	-
PN4320	3 - 15	6	6	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4420	3 - 15	4	4	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4430	3 - 15	2	4	-	-	-	-	-	-	-	-	-	-	-	-	58	29	29	15	15	-
PN4430	3 - 15	3	4	-	-	-	-	-	-	-	-	-	-	-	-	276	247	174	145	102	87
PN4430	3 - 15	4	4	-	-	-	-	-	-	-	-	-	-	-	-	508	479	319	290	189	174
PN4520	3 - 15	2	3	580	580	580	580	580	580	580	580	537	493	363	334	-	-	-	-	-	-
PN4520	3 - 15	3	3	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4530	3 - 15	2	3	-	-	-	-	-	-	-	-	-	-	-	-	160	131	87	73	44	44
PN4530	3 - 15	3	3	-	-	-	-	-	-	-	-	-	-	-	-	319	305	203	174	116	102
PN4620	3 - 15	2	3	580	580	580	580	580	580	580	580	580	580	580	566	-	-	-	-	-	-
PN4620	3 - 15	3	3	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4630	3 - 15	2	3	-	-	-	-	-	-	-	-	-	-	-	-	290	261	174	160	102	87
PN4630	3 - 15	3	3	-	-	-	-	-	-	-	-	-	-	-	-	522	493	319	305	189	15

Control Valves

Linear Actuators

Maximum differential pressures for Class VI shut off (PTFE (G) seat seal only)
KE, LE, KEA and LEA with PTFE or Graphite stem seal

Actuator	Spring range	Operating Air Pressure (bar)	Max Air Pressure (bar)	Maximum differential pressures																	
				1/2"		3/4"		1"		1-1/4"		1-1/2"		2"		2-1/2"		3"		4"	
				PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite
PN4220	3 - 15	1	6	145	-	116	-	73	-	58	-	29	-	15	#VALUE	-	-	-	-	-	-
PN4220	3 - 15	2	6	580	580	580	580	537	421	406	319	174	145	131	102	-	-	-	-	-	-
PN4220	3 - 15	3	6	580	580	580	580	580	580	580	580	363	334	261	232	-	-	-	-	-	-
PN4220	3 - 15	6	6	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4320	3 - 15	1	6	348	131	276	102	189	73	145	58	29	44	15	-	-	-	-	-	-	-
PN4320	3 - 15	2	6	580	580	580	580	580	580	580	580	363	319	261	232	-	-	-	-	-	-
PN4320	3 - 15	6	6	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4420	3 - 15	1	4	551	334	435	276	290	174	232	145	102	58	73	44	-	-	-	-	-	-
PN4420	3 - 15	4	4	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4430	3 - 15	1	4	-	-	-	-	-	-	-	-	-	-	-	-	29	15	29	-	15	-
PN4430	3 - 15	2	4	-	-	-	-	-	-	-	-	-	-	-	-	218	189	145	116	87	73
PN4430	3 - 15	3	4	-	-	-	-	-	-	-	-	-	-	-	-	435	421	276	261	174	160
PN4430	3 - 15	4	4	-	-	-	-	-	-	-	-	-	-	-	-	580	580	421	406	261	261
PN4520	3 - 15	1	3	580	580	580	508	450	334	348	261	145	116	102	73	-	-	-	-	-	-
PN4520	3 - 15	2	3	580	580	580	580	580	580	580	580	580	580	580	551	-	-	-	-	-	-
PN4520	3 - 15	3	3	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4530	3 - 15	1	3	-	-	-	-	-	-	-	-	-	-	-	-	58	29	44	15	29	15
PN4530	3 - 15	2	3	-	-	-	-	-	-	-	-	-	-	-	-	319	290	203	189	131	131
PN4530	3 - 15	3	3	-	-	-	-	-	-	-	-	-	-	-	-	493	464	319	290	189	189
PN4620	3 - 15	1	3	580	580	580	580	580	537	493	406	218	174	160	131	-	-	-	-	-	-
PN4620	3 - 15	2	3	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4620	3 - 15	3	3	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4630	3 - 15	1	3	-	-	-	-	-	-	-	-	-	-	-	-	87	58	58	44	29	29
PN4630	3 - 15	2	3	-	-	-	-	-	-	-	-	-	-	-	-	450	421	290	276	174	174
PN4630	3 - 15	3	3	-	-	-	-	-	-	-	-	-	-	-	-	580	580	435	421	276	261

KE, LE, KEA and LEA with Bellows (PTFE stem seal or Graphite stem seal)

Actuator	Spring range	Operating Air Pressure (bar)	Max Air Pressure (bar)	Maximum differential pressures																	
				1/2"		3/4"		1"		1-1/4"		1-1/2"		2"		2-1/2"		3"		4"	
				PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite	PTFE	Graphite
PN4220	3 - 15	3	6	580	580	580	580	537	421	406	319	174	145	131	102	-	-	-	-	-	-
PN4220	3 - 15	6	6	580	580	580	580	580	580	580	580	580	580	537	508	-	-	-	-	-	-
PN4320	3 - 15	2	6	580	580	580	580	508	392	392	305	174	131	116	87	-	-	-	-	-	-
PN4320	3 - 15	6	6	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4420	3 - 15	4	4	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4430	3 - 15	2	4	-	-	-	-	-	-	-	-	-	-	-	-	116	87	73	58	44	29
PN4430	3 - 15	3	4	-	-	-	-	-	-	-	-	-	-	-	-	334	305	218	203	131	116
PN4430	3 - 15	4	4	-	-	-	-	-	-	-	-	-	-	-	-	566	537	363	348	218	218
PN4520	3 - 15	2	3	580	580	580	580	580	580	580	580	580	580	435	421	-	-	-	-	-	-
PN4520	3 - 15	3	3	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4530	3 - 15	2	3	-	-	-	-	-	-	-	-	-	-	-	-	218	189	131	116	87	73
PN4530	3 - 15	3	3	-	-	-	-	-	-	-	-	-	-	-	-	377	348	247	232	145	145
PN4620	3 - 15	1	3	145	-	116	-	73	-	58	-	29	-	15	-	-	-	-	-	-	-
PN4620	3 - 15	2	3	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4620	3 - 15	3	3	580	580	580	580	580	580	580	580	580	580	580	580	-	-	-	-	-	-
PN4630	3 - 15	2	3	-	-	-	-	-	-	-	-	-	-	-	-	348	319	218	203	131	131
PN4630	3 - 15	3	3	-	-	-	-	-	-	-	-	-	-	-	-	580	551	363	348	232	218

Installation

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

Spare Parts

Information regarding spare parts available is given on TIS 1.517.

Dimensions (nominal) in inches and millimeters

Actuator	E	F	Weight
PN 4220 Series	8.2 (209)	9.5 (240)	15.4 lb (7.2 kg)
PN 4300 Series	11.2 (285)	10.4 (264)	24.2 lb (11.2 kg)
PN 4420 Series	13.2 (336)	10.4 (263)	44 lb (20.0 kg)
PN 4430 Series	13.2 (336)	12.8 (328)	44 lb (20.0 kg)
PN 4520 Series	15.9 (405)	11.6 (294)	48.5 lb (22.6 kg)
PN 4530 Series	15.9 (405)	14.4 (367)	48.5 lb (22.6 kg)
PN 4620 Series	18.3 (465)	15.7 (400)	83.7 lb (38.0 kg)
PN 4630 Series	18.3 (465)	15.7 (400)	83.7 lb (38.0 kg)

How to Order

1 PN 4320 pneumatic actuator

Note: Actuator code should be suffixed 'H' where a handwheel is required, i.e. PN 4320H

Reduced capacity (C_v s) valves

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

*For product compatibility with 2-1/2", 3" and 4"

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

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

