



TN2000 Series Pneumatic Piston Actuators for DN15 to DN100 Spira-trol™ Series Control Valves

Description

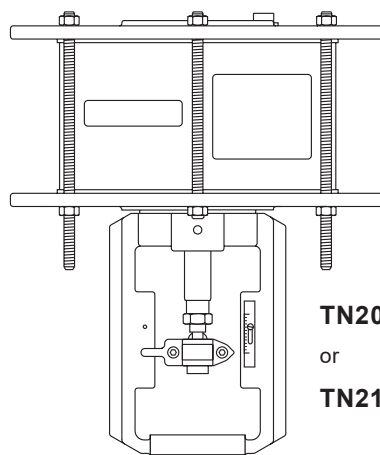
The TN2000 series pneumatic piston actuators are designed for use with DN15 to DN100 Spira-trol™ control valves. There are three versions available: Single-acting (with spring), Double-acting (with spring) and Double-acting (no spring) for matching the requirements of valves at various differential pressures and in a variety of applications.

Technical data

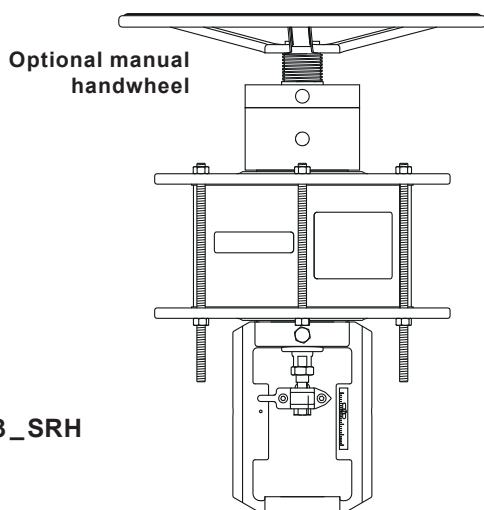
Temperature range	-15 °C to +110 °C (5 °F to 230 °F)		
Maximum operating inlet pressure	TN203_	10 bar g	(145 psi g)
	TN2153 DE/DR		
	TN2150 DR/DE	5 bar g	(72 psi g)
	TN215N DA		
	TN2153 SR/SE	8 bar g	(116 psi g)
	TN2150 SE/SE	7 bar g	(101 psi g)
Air supply connection	¼" or ⅜" screwed NPT		
Actuator travel	TN203_	30 mm	
	TN215_	50 mm	

Available types

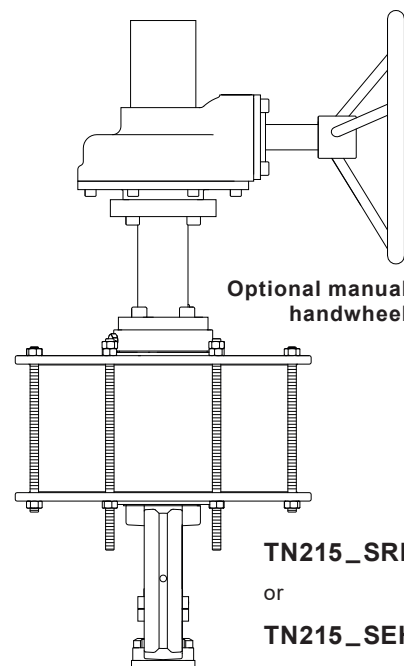
- SE** = Single-acting, springs-extend
- SR** = Single-acting, springs-retract
- DE** = Double-acting, springs assisted (extend)
- DR** = Double-acting, springs assisted (retract)
- DA** = Double-acting, no springs



TN203_SE
 or
TN215_SE



TN203_SRH



TN215_SRH
 or
TN215_SEH

Please see the 'TN2000 series selection guide' (page 2) to fully understand the product nomenclature quoted throughout this document.

Actuator data:

Actuator range	Travel	Thrust	Acting pressure 0 mm	Acting pressure 20 mm	Acting pressure 30 mm	Acting pressure 50 mm
TN2030 and variants	30 mm	2.5 kN 562 lbf	0.79 bar 11.50 psi	1.47 bar 21.31 psi	1.81 bar 26.24 psi	
TN2033 and variants	30 mm	6 kN 1 349 lbf	1.89 bar 27.40 psi	4.19 bar 60.80 psi	5.34 bar 77.49 psi	
TN2150 and variants	50 mm	3.6 kN 809 lbf	0.46 bar 6.70 psi	1.12 bar 16.27 psi	1.45 bar 21.06 psi	2.11 bar 30.64 psi
TN2153 and variants	50 mm	14 kN 3 147 lbf	1.95 bar 28.30 psi	2.73 bar 39.58 psi	3.12 bar 45.23 psi	3.90 bar 56.54 psi

Caution: Those pressure ranges are estimated and directly related to the springs precision ($\pm 10\%$).

Furthermore, the working pressure with the valve coupled can be a little bit upper because of the friction inside of it.

TN2000 series selection guide:

Type	TN
Series	2 = 2 000 series
Actuator size	0 = 324 cm ²
	1 = 729 cm ²
Actuator travel	3 = 30 mm (only on TN20__)
	5 = 50 mm (only on TN21__)
Spring rating	0 = Soft springs for use with an IP converter or balanced
	3 = Standard springs
	N = No springs
Action	SE = Spring-extend
	SR = Spring-retract
	DA = Double-acting
	DE = Double-acting, spring assisted (extend)
	DR = Double-acting, spring assisted (retract)
Yoke type	Blank = Yoke type Ø34 mm (for the K and L Spira-trol™ control valve series DN15 to DN50)
	B = Yoke type Ø50 mm (for the J Spira-trol control valves DN15 to DN50)
	C = Yoke type Ø50 (for all other control valves DN65 to DN100)
Optional manual override	H = Handwheel (only available when a pneumatic piston actuator with springs has been selected)

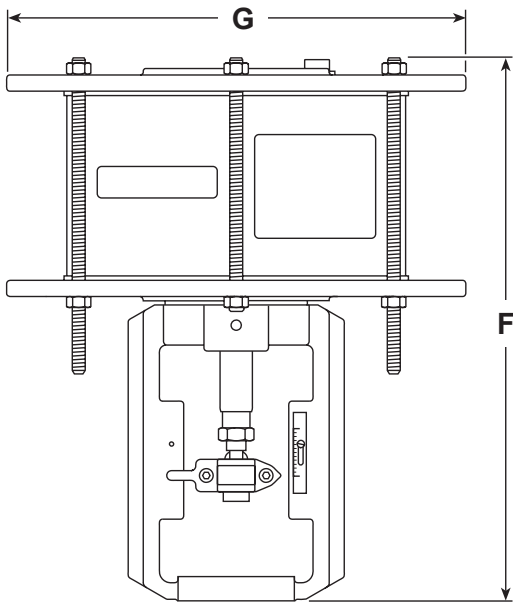
Selection example:

TN	2	0	3	3	SE	B	H
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How to order

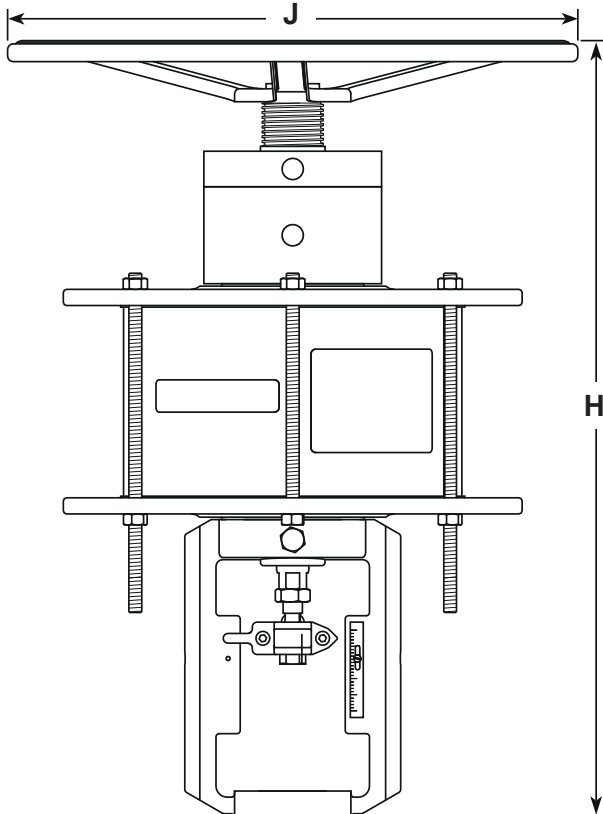
Example: 1 off Spirax Sarco TN2033SEH pneumatic piston actuator.

Dimensions/weights
(approximate) in mm and kg

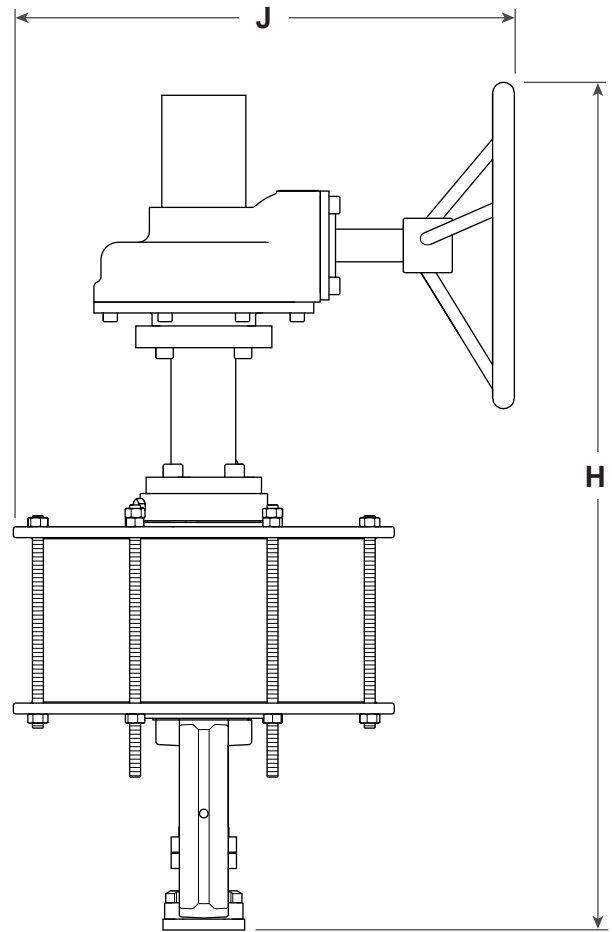


TN203_E or TN215_E

Actuator range	F	G	H	J	Weight	
					Actuator	With handwheel
TN203_E and variants	334	284	478	350	18	+5
TN203_R and variants	334	284	478	350	18	+6
TN203DA and variants	334	284				
TN215_E and variants	369	405	771	460	37	+23
TN215_R and variants	369	405	771	460	37	+23
TN215DA and variants	369	405				



TN203_RH

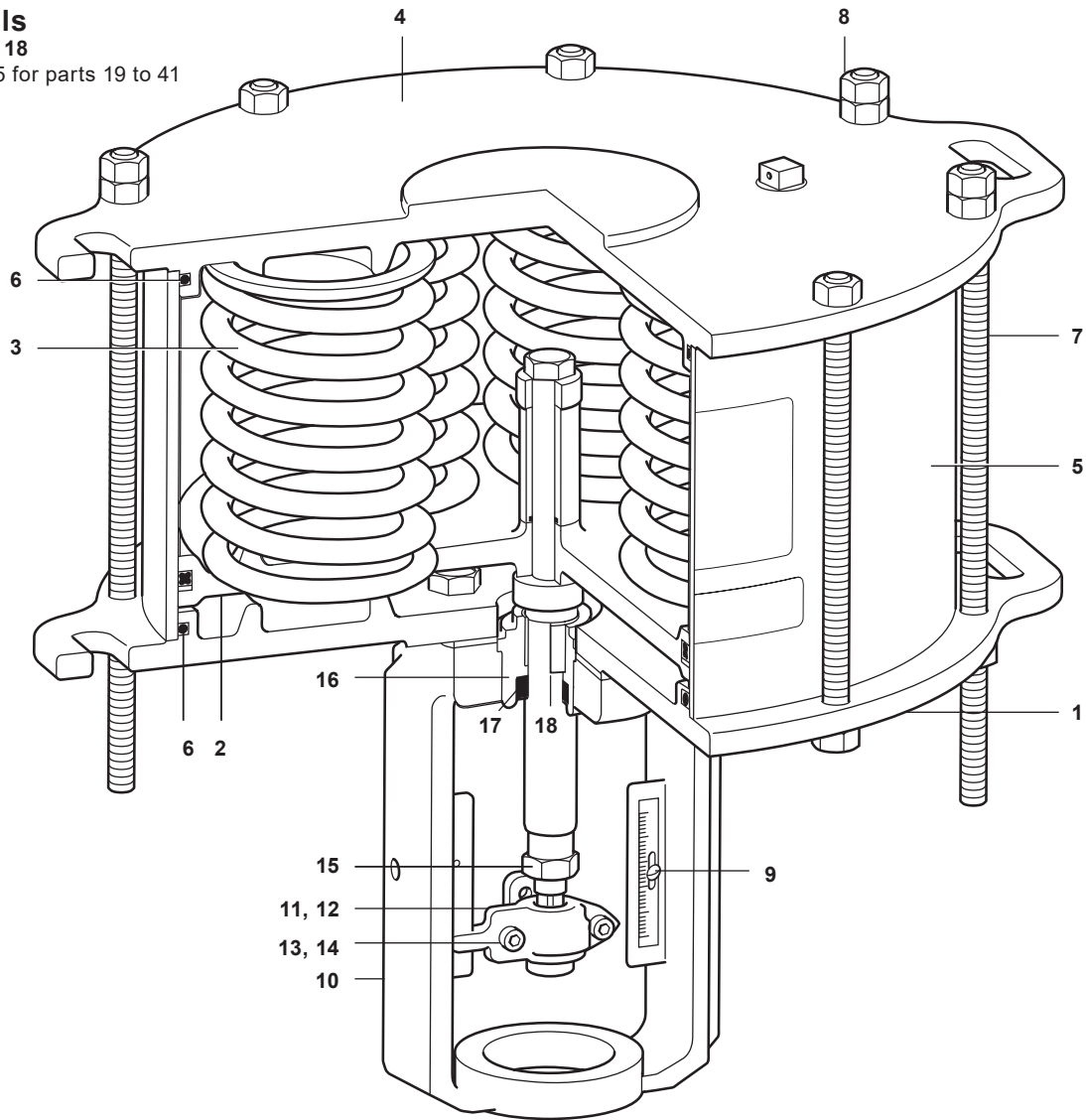


TN215_RH or TN215_EH

Materials

Parts 1 to 18

See page 5 for parts 19 to 41



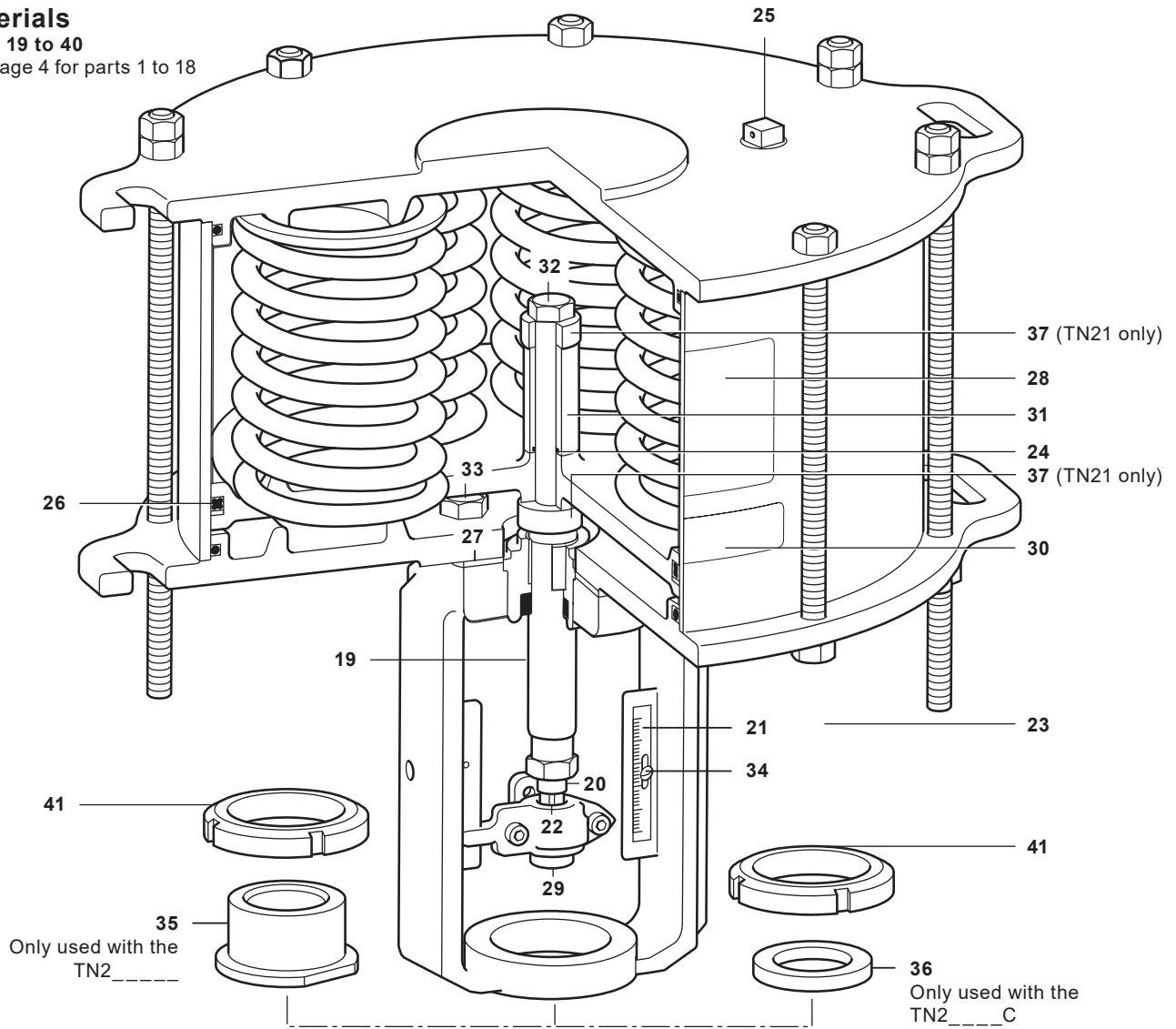
No.	Part	Material
1	Lower cylinder end cap	SG iron EN 1563 EN-GJS-400-15 : 5.3106
2	Piston	SG iron
3	Spring	Chrome vanadium steel
4	Upper cylinder end cap	SG iron EN 1563 EN-GJS-400-15 : 5.3106
5	Cylinder	Composite tube
6	'O' ring	Nitrile NBR 70 SH
7	Threaded bar	M8 Carbon steel (plated)
8	Nut	M8 Carbon steel (plated)
9	Screw slotted pan head	M2.5 x 12 Carbon steel (plated)

No.	Part	Material
10	Yoke	SG iron EN 1563 EN-GJS-400-15:5.3106
11	Front clamp	Stainless steel 304
12	Rear clamp	Stainless steel 304
13	Nut	M5 Carbon steel (plated)
14	Formed hex. screw	M5 x 16 Carbon steel (plated)
15	Nut	M12 Carbon steel (plated)
16	Bearing and seal insert	Carbon steel (plated)
17	Rod seal wiper	Ø20 Polyurethane
18	DU plain bearing	Ø20 PTFE/steel composite

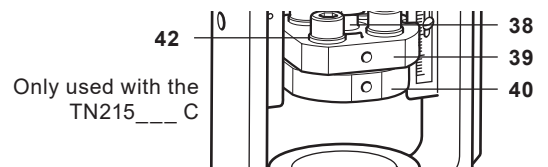
Materials

Parts 19 to 40

See page 4 for parts 1 to 18



No.	Part	Material
19	Spindle	Stainless steel BS.970.431.S29
20	Connector	Stainless steel BS.970.431.S29
21	Scale	Stainless steel BS.1449.304.S16
22	Collar	Carbon steel (plated)
23	Threaded bar	M8 Long Carbon steel (plated)
24	'O' ring	11.6 x 2.4 Nitrile NBR 70 SH
25	Vent plug	3/8" NPT Polyamid 6.6
26	'X' ring	Nitrile NBR 70 SH
27	Gasket	Graphite seal
28	Label blank (Compressed spring warning)	Adhesive paper
29	Adaptor	Stainless steel
30	Label blank	Adhesive paper
31	Sleeve	Carbon steel (plated)
32	Formed hex. screw	M12 Carbon steel (plated)



No.	Part	Material
33	Formed hex. screw	M12 x 25 Carbon steel (plated)
34	Nut	M2.5 Carbon steel (plated)
35	Yoke adapter	Stainless steel AISI 420
36	Yoke sleeve	Stainless steel AISI 304
37	Spindle sleeve (TN21 only)	Carbon steel (plated)
38	Connector DA	Stainless steel
39	Upper clamp DA	Stainless steel
40	Adaptor DA	Stainless steel
41	Thin valve nut	Carbon steel (plated)
42	Grower washer M10	Stainless steel

Spare parts

The spare parts available are common across the range of actuators detailed in this document. No other parts are available as spares.

Available spares

'O' ring kit	See the Materials illustration on pages 4 and 5 for item identification	6, 17, 24 and 26
Travel indicator kit	See the Materials illustration on pages 4 and 5 for item identification	9, 21 and 34
Spring kit	See the Materials illustration on page 4 for item identification	3
Handwheel	EH kit	A
	RH kit	B

How to order spares

Always order spares by using the description given in the column headed 'Available spares' and state the actuator model.

Example:

1 - 'O' ring kit for a Spirax Sarco TN2033EB pneumatic piston actuator.

