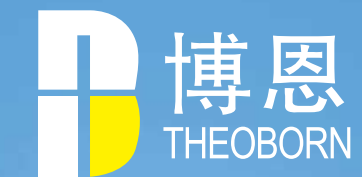


Consider People as the Boat,
With Seriousness as the Helm,
And Wisdom as the Sail.



THEOBORN AUTO-CONTROL

TBNII Series Pneumatic Actuator



Zhejiang Theoborn Auto-Control Valves Co., Ltd.
ADD: No. 119, 4th Road, 3rd Avenue, Binhai Industrial Zone, Wenzhou city
Postal Code: 325025
Tel: +86-577-86378000 / 86830000
FAX: +86-577-86887882
E-mail: juen@theoborn.com
www.theoborn.com

Theoborn factory reserves the right to change technical
characteristics without prior notice

Zhejiang Theoborn Auto-control Valves Co., Ltd.
www.theoborn.com



Company Profile

Zhejiang Theoborn Auto-Control Valves Co., Ltd. is dedicated to manufacturing pneumatic actuators and electric actuators.

Our products fundamentally transform the complex traditional use of valves, incorporating high technology into the control process, greatly improving the efficiency of valve usage, significantly reducing control costs, and generating considerable profits for enterprises.

Our company is located in Wenzhou City, which has a long history of manufacturing valves and actuators. Drawing on our manufacturing experience, supported by advanced production techniques, and guided by innovative thinking and a serious spirit, Theoborn strives to integrate wisdom, aims to produce the best products, and is committed to benefiting humanity.

Theoborn employees believe that "consider people as the boat, with seriousness as the helm, and wisdom as the sail." We believe that professional technology, along with sincere service, will win customers' trust and build lasting relationships.



TBN II

SERIES PNEUMATIC ACTUATOR



Power & Energy
• Electricity/Transportation
• Petroleum/Chemical
• New energy



Industry & Machinery
• Mining/Building Materials
• Water/Purification
• Artificial intelligence



Buildings & homes
• Office buildings
• Public environment
• Infrastructure





1. Extruded aluminum body, with internal and external hard-anodized corrosion protection, featuring a precision-honed cylinder surface for extended service life and reduced friction coefficient.

2. Dual-piston rack-and-pinion design for compact construction, symmetric mounting positions, high cycle life, and fast operation. Field-reversible rotation is achieved by piston inversion.

3. One-piece gear output shaft, nickel-plated for long service life. Customizable dimensions and optional stainless steel materials available.

4. Die-cast aluminum alloy end caps, epoxy-coated for high anti-corrosion performance. Custom color options or PTFE coating available.

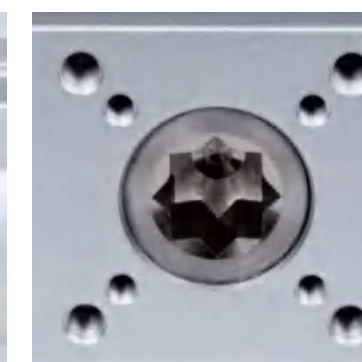
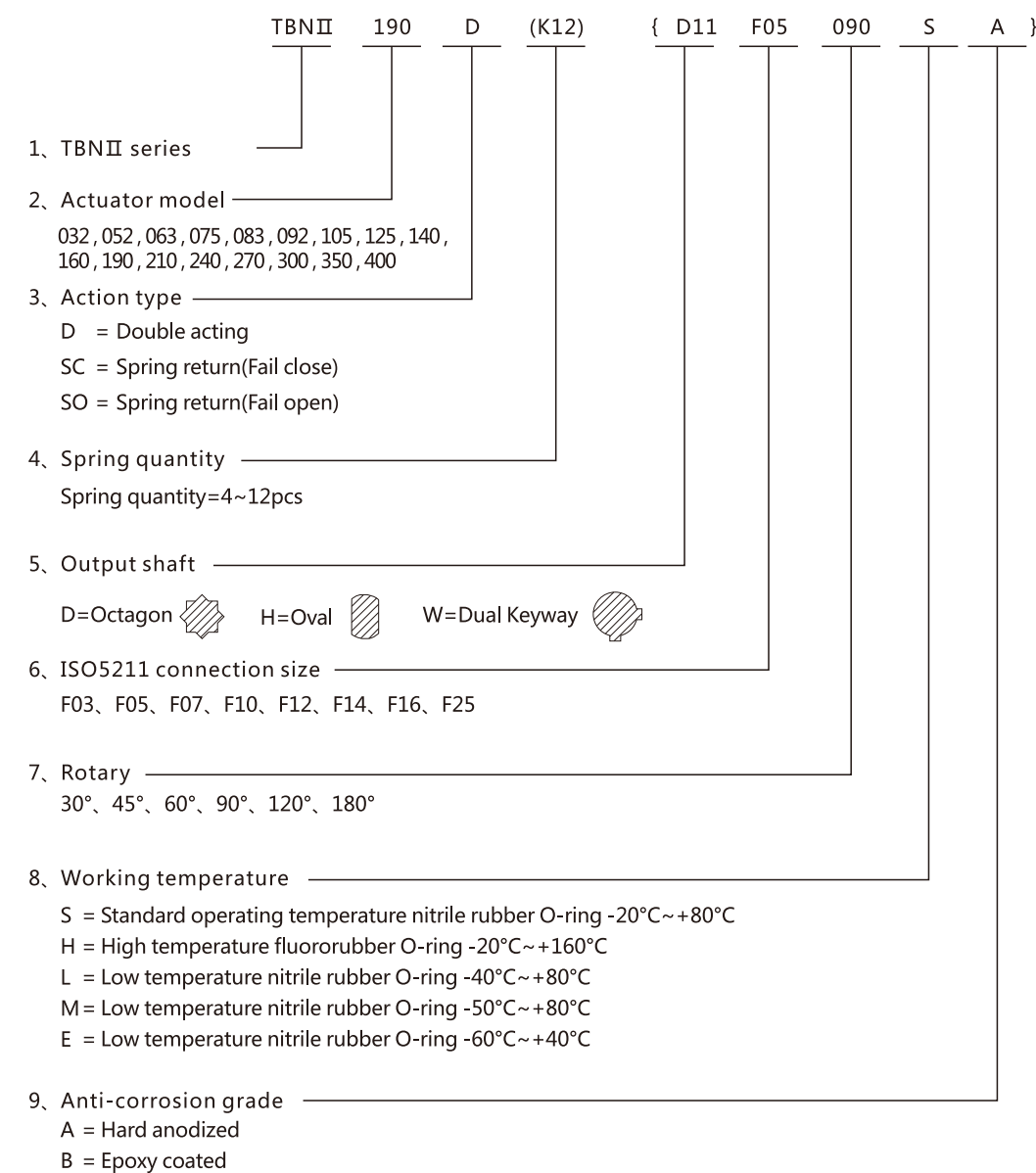
5. Two independent external travel stop adjustments, allowing precise $\pm 5^\circ$ adjustment in both open and close positions for accurate valve alignment.

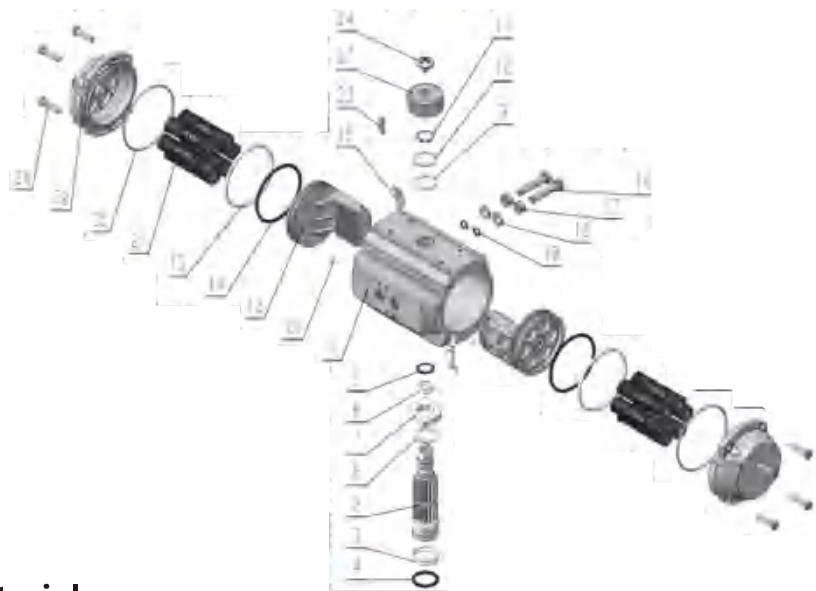
6. Premium-grade bearings and seals for low friction, high cycle life, and wide operating temperature ranges.

7. Modular pre-loaded spring cartridge design with coated springs, ensuring versatility, enhanced safety, and corrosion resistance.

8. Stainless steel fasteners (internal/external) for long-term corrosion resistance.

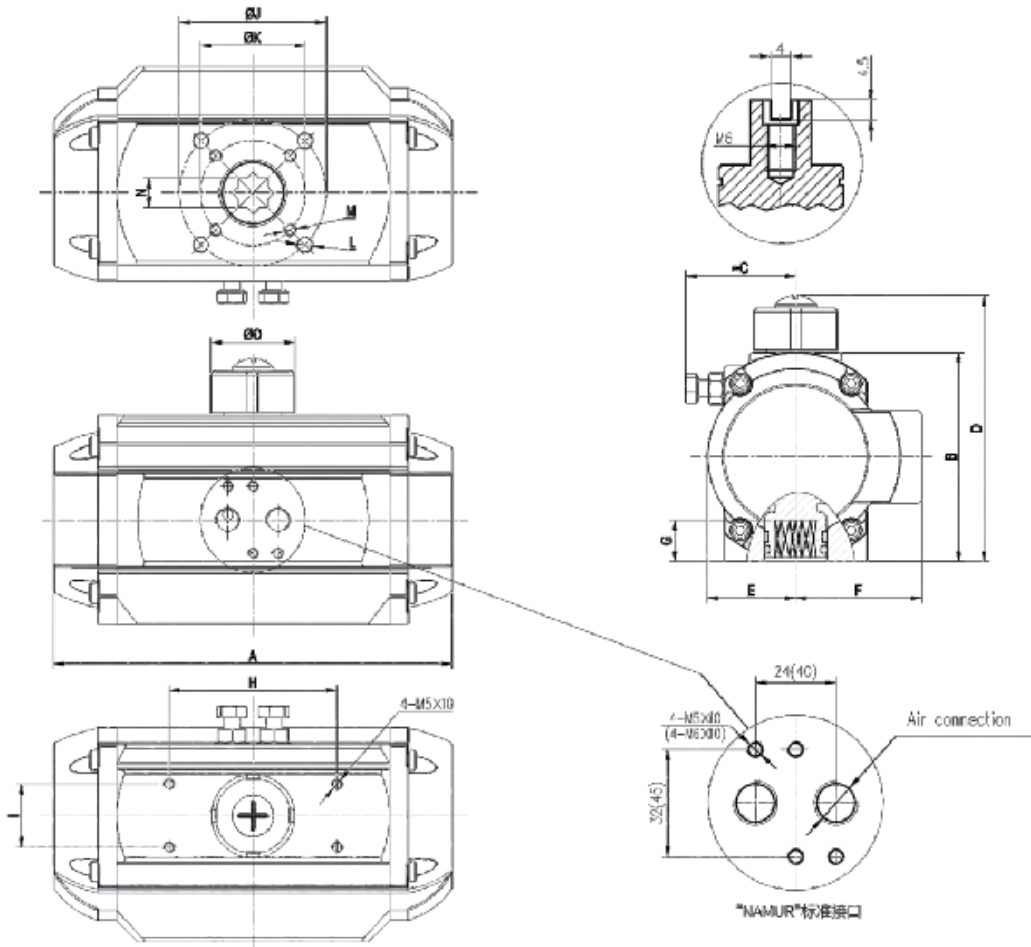
9. Compliance with ISO 5211, DIN 3337, and VDI/VDE 3845 NAMUR standards, ensuring full product interchangeability and easy mounting of solenoids, limit switches, and accessories.





Parts and Materials

NO.	Description	Qty	Material	Material
1	Body	1	Aluminium Alloy	Anodized Oxidation
2	Pinion	1	Alloy Steel	Nickel Plated
3	Bearing(Lower Pinion)	1	POM	
4	O-Ring(Lower Pinion)	1	NBR	
5	O-Ring(Top Pinion)	1	NBR	
6	Bearing(Top Pinion)	1	POM	
7	Spacer	1	Alloy Steel	
8	Thrust Bearing Pinion	1	POM	
9	Thrust Bearing Pinion	1	POM	
10	Thrust Washer(Pinion)	1	Stainless Steel	
11	Spring Clip	1	Stainless Steel	
12	Piston	2	Alloy Steel	Hard Anodized
13	Guide Ring(Piston)	2	POM	
14	O-Ring(Piston)	2	NBR	
15	Bearing Ring(Piston)	2	POM	
16	Adjusting Screw	2	Stainless Steel	
17	Adjusting Nut	2	Stainless Steel	
18	Washer(Adjusting Screw)	2	Stainless Steel	
19	O-Ring(Adjusting Screw)	2	NBR	
20	Plug	2	NBR	
21	Spring	4~12	Spring steel	Zinc Phosphate Coated
22	End Cap	2	Alloy Steel	Epoxy Coated
23	Adjusting Screw(End Cap)	2	Stainless Steel	
24	Adjusting Nut(End Cap)	2	Stainless Steel	
25	O-Ring(End Cap)	2	NBR	
26	Bolts(End Cap)	8	Stainless Steel	
27	Indicator	1	Engineering Plastics	
28	Nut(Indicator)	1	Engineering Plastics	



Model	A(90°)	B	C	D	E	F	G	H	I	J	K	L	M	N	O	Air
TBNII032	111	46	52	66	21	31	14	50	25	/	F03Φ36	/	M5X8	9	40	G1/8
TBNII052	154	74	45	99	30	47	14	80	30	F05Φ50	F03Φ36	M6X11	M5X10	11	40	G1/4
TBNII063	173	88	50	113	36	54	18	80	30	F07Φ70	F05Φ50	M8X14	M6X11	14	40	G1/4
TBNII075	190	100	55	125	42	60	20	80	30	F07Φ70	F05Φ50	M8X14	M6X11	14	40	G1/4
TBNII083	208	109	60	134	46	65	20	80	30	F07Φ70	F05Φ50	M8X14	M6X11	17	40	G1/4
TBNII092	254	120	70	145	51	70	22	80	30	F07Φ70	F05Φ50	M8X14	M6X11	17	40	G1/4
TBNII105	282	135	70	160	58	76	24	80	30	F10Φ102	F07Φ70	M10X18	M8X14	22	40	G1/4
TBNII125	312	155	80	182	68	87	28	80	30	F10Φ102	F07Φ70	M10X18	M8X14	22	65	G1/4
TBNII140	381	178	95	205	76	96	32	80	30	F12Φ125	F10Φ102	M12X22	M10X18	27	65	G1/4
TBNII160	426	197	100	224	87	107	34	80	30	F12Φ125	F10Φ102	M12X22	M10X18	27	65	G1/4
TBNII190	484	235	125	275	103	126	40	130	30	F14Φ140	/	M16X23	/	36	78	G1/4
TBNII210	532	260	130	300	113	137	40	130	30	F14Φ140	/	M16X25	/	36	78	G1/4
TBNII240	610	292	145	330	146	158	50	130	30	F16Φ165	/	M20X28	/	46	78	G1/2(1/4)
TBNII270	704	330	170	370	165	175	57	130	30	F16Φ165	/	M20X28	/	46	78	G1/2
TBNII300	780	350	308	380	162	174	50	130	30	F16Φ165	/	M20X25	/	46	80	G1/2
TBNII350	918	410	362	440	190	195	50	130	30	F25Φ254	F16Φ165	M16X24	M20X25	55	80	G1/2
TBNII400	938	460	446	494	260	260	60	130	30	F25Φ254	F16Φ165	M16X24	M20X25	55	80	G1/2

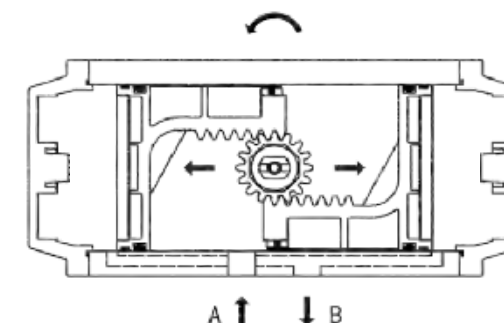
Output Torque of Air Supply (N.m) ±10%												Output Torque of Spring	
Air Source Pressure (bar)		3		4		5		6		7			
Model	Spring quantity	0° Starting point	90° End point	0° Starting point	90° End point	0° Starting point	90° End point	0° Starting point	90° End point	0° Starting point	90° End point	0° End point	90° Starting point
TBN II 052S	5	8.2	5.6	12.1	9.4							3.7	6.0
	6	7.4	4.4	11.4	8.2							4.4	7.1
	7	6.7	3.2	10.6	7.0							5.2	8.3
	8			9.9	5.9	13.9	9.7					5.9	9.5
	9			9.2	4.7	13.1	8.5					6.6	10.7
	10			8.4	3.5	12.4	7.3	16.3	11.2			7.4	11.9
	11					11.6	6.1	15.6	10.0	19.6	13.8	8.1	13.1
TBN II 063S	12					10.9	4.9	14.9	8.8	18.8	12.6	8.9	14.3
	5	14.2	9.9	21.2	16.7							6.7	10.5
	6	12.9	7.8	19.9	14.6							8.1	12.6
	7	11.5	5.7	18.5	12.5	25.5	19.3					9.4	14.7
	8			17.2	10.4	24.1	17.2	31.1	23.9			10.8	16.8
	9			15.8	8.3	22.8	15.1	29.8	21.9			12.1	18.9
	10			14.5	6.2	21.5	13.0	28.4	19.8	35.4	26.5	13.4	21.0
TBN II 075S	11			13.1	4.1	20.1	10.9	27.1	17.7	34.1	24.4	14.8	23.1
	12					18.8	8.8	25.7	15.6	32.7	22.3	16.1	25.2
	5	19.3	14.6	29.2	24.2							10.3	14.2
	6	17.2	11.8	27.1	21.4							12.4	17.0
	7	15.2	8.9	25.0	18.5							14.4	19.9
	8			23.0	15.7	32.8	25.3					16.5	22.7
	9			20.9	12.8	30.8	22.4					18.5	25.5
TBN II 083S	10			18.9	10.0	28.7	19.6	38.6	29.2			20.6	28.4
	11					26.7	16.8	36.5	26.4	46.4	36.0	22.7	31.2
	12					24.6	13.9	34.5	23.5	44.3	33.1	24.7	34.1
	5	27.9	20.4	42.0	34.1							14.4	20.8
	6	25.0	16.2	39.2	30.0							17.3	25.0
	7	22.1	12.1	36.3	25.8							20.2	29.1
	8			33.4	21.6	47.5	35.4					23.1	33.3
TBN II 092S	9			30.5	17.5	44.6	31.2					26.0	37.4
	10			27.6	13.3	41.7	27.1	55.9	40.8			28.9	41.6
	11					38.8	22.9	53.0	36.6	67.1	50.4	31.8	45.7
	12					36.0	18.7	50.1	32.5	64.2	46.2	34.7	49.9
	5	45.1	32.9	67.4	54.6							22.0	32.3
	6	40.7	26.4	63.0	48.2							26.4	38.8
	7	36.3	20.0	58.6	41.7							30.8	45.2
TBN II 105S	8			54.2	35.2	76.6	57.0					35.2	51.7
	9			49.8	28.8	72.2	50.5					39.6	58.2
	10			45.4	22.3	67.8	44.1	90.1	65.8			44.0	64.6
	11					63.4	37.6	85.7	59.3	108.1	81.1	48.4	71.1
	12					59.0	31.1	81.3	52.9	103.7	74.6	52.8	77.6
	5	64.9	47	97.3	78.5							32.2	47.4
	6	58.5	37.5	90.9	69.0							38.6	56.9
TBN II 125S	7	52.1	28.0	84.4	59.5							45.1	66.4
	8			78.0	50.0	110.4	81.5					51.5	75.9
	9			71.6	40.5	103.9	72.0					57.9	85.4
	10			65.1	31.0	97.5	62.5	129.9	94.0			64.4	94.8
	11					91.0	53.0	123.4	84.5	155.9	116.0	70.8	104.3
	12					84.6	43.5	117.0	75.0	149.4	106.5	77.3	113.8
	5	100.1	74.8	150.5	123.9							51.3	72.3
TBN II 140S	6	89.8	60.4	140.3	109.4							61.6	86.8
	7	79.5	45.9	130.0	94.9							71.9	101.2
	8			119.7	80.5	170.2	129.5					82.1	115.7
	9			109.5	66.0	159.9	115.1					92.4	130.1
	10			99.2	51.6	149.7	100.6	200.2	149.6			102.6	144.6
	11					139.4	86.1	189.9	135.2	240.4	184.2	112.9	159.1
	12					129.2	71.7	179.6	120.7	230.1	169.8	123.2	173.5
TBN II 160S	5	158.1	116.4	237.3	193.4							79.3	114.8
	6	142.3	93.4	221.4	170.5							95.2	137.8
	7	126.4	70.4	205.6	147.5							111.1	160.7
	8			189.7	124.5	268.8	201.6					126.9	183.7
	9			173.8	101.6	253.0	178.6					142.8	206.7
	10			158.0	78.6	237.1	155.7	316.3	232.7			158.7	229.6
	11					221.2	132.7	300.4	209.8	379.6	286.8	174.5	252.6
TBN II 180S	12					205.4	109.8	284.5	186.8	363.7	263.9	190.4	275.5
	5	356.4	267.1	536.6	442.7								
	6	319.5	215.2	499.8	390.8								
	7	282.7	163.3	462.9	338.9								
	8			426.0	287.0	606.3	462.5						
	9			389.2	235.0	569.4	410.6						
	10			352.3	183.1	532.5	358.7	712.8	534.3				
TBN II 210S	11					495.7	306.8	675.9	482.3	856.2	657.9	405.6	571.1
	12					458.8	254.9	639.0	430.4	819.3	606.0	442.4	623.0
	5	746	572	1126	944								
	6	667	464	1047	835								
	7	587	355	968	727								
	8			889	618	1269	990						
	9			809	510	1190	881						
TBN II 240S	10			730	402	1111	773	1492	1144				
	11					1032	665	1412	1036	1793	1407	872	1193
	12					952	556	1333	928	1714	1299	951	1301
	5	1156	852										
	6	1041	633	1897	1388								
	7	925	515	1503	1079								
	8			1388	911	1966	1476						
TBN II 270S	9			1272	742	1850	1307						
	10			1157	574	1735	1139	2313	1703				
	11					1619	970	2197	1535	2775	2099	1156	1685
	12					1503	802	2082	1366	2660	1931	1272	1853
	5	1303	866										
	6	1141	633	1897	1388								
	7	981	399	1736	1154	2492	1910						
TBN II 300S	8			1576	921	2331	1676						
	9			1416	688	2171	1443						
	10					1394	861	1899	1352	2404	1842	1129	1591
	11					1278	700	1779	1216	2259	1696	1272	1853
	12												
	5	1844	1145										
	6	1629	927	2556	1965								
TBN II 350S	7	1415	717	2232	1641								
	8			2008	1337	3016	2264						
	9			1793	1055	2751	2064						
	10			1578	817	2498	1861	3366	2569				
	11					2262	1407	3159	2396	3888	2991	1511	2211
	12					2047	1168	2944	2177	3679	2830	1696	2451
	5	2297	1499										
TBN II 400S	6	2039	1241	2876	2177								
	7	1824	1027	2661	1962								
	8			2446	1664	3432	2633						
	9			2231	1425	3217	2416						
	10					3002	2191	4204	3203				
	11					2787	1976	3989	3018	4679	3678	2141	3141
	12					2572	1757	3774	2803	4464	3463	2326	3421
TBN II 450S	5	2525	1213										
	6	2236	760	3848	2372								
	7	1947	308	3559	1920	5171	3531						
	8			3270	1467	4882	3079	6493	4691				
	9					4594	2626	6205	4238	7816	5849	2858	4481
	10												
	11												
TBN II 500S	12												
	5	3037	1949										
	6	2748	1660	4516	3217								
	7	2459	1371	4301	2932								
	8			4086	2717	5493	4081						
	9			3871	2502	5							

Unit: Nm ±10%

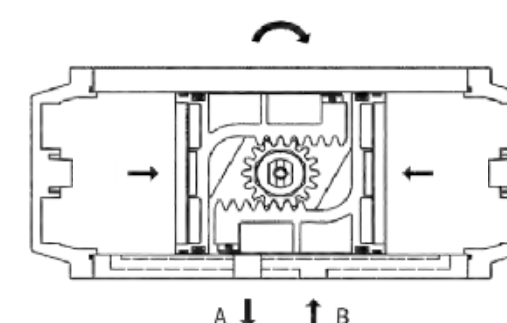
Model	(Bar) Air Pressure							Opening Volume(L)	Closing Volume(L)	Weight(kg)	Single Spring Weight(kg)
	2	3	4	5	6	7	8				
TBNII032D	2.7	4.2	5.8	7.4	9	10.5	11.8	0.04	0.04	0.59	/
TBNII052D	7.9	11.9	15.9	19.9	23.8	27.8	31.7	0.09	0.17	1.27	0.01
TBNII063D	14	21	28	35	42	49	55.9	0.16	0.28	1.89	0.02
TBNII075D	19.8	29.7	39.6	49.5	59.4	69.2	79.1	0.26	0.44	2.38	0.03
TBNII083D	28.3	42.5	56.6	70.7	84.9	99	113.2	0.31	0.60	2.94	0.04
TBNII092D	44.7	67.1	89.5	118.9	134.2	156.6	179	0.50	0.89	4.41	0.06
TBNII105D	64.8	97.1	129.5	161.9	194.3	226.7	259	0.70	1.30	5.87	0.09
TBNII125D	101	151.4	201.9	252.4	302.9	353.4	403.8	1.30	2.10	8.28	0.14
TBNII140D	158.3	237.5	316.6	395.8	474.9	554.1	633.2	2.00	3.20	13.10	0.21
TBNII160D	225	338	451	564	677	790	902	3.00	4.80	16.54	0.33
TBNII190D	361	541	721	901	1082	1262	1442	4.80	8.20	28.50	0.72
TBNII210D	518	777	1036	1295	1554	1813	2072	6.60	10.40	38.20	0.90
TBNII240D	761	1142	1523	1903	2284	2665	3045	10.50	16.70	50.00	1.45
TBNII270D	1156	1734	2312	2891	3469	4047	4625	14.80	24.10	77.00	1.65
TBNII300D	1511	2266	3021	3777	4532	5288	6043	23.80	29.70	100.60	2.30
TBNII350D	2262	3393	4524	5655	6785	7917	9048	35.10	46.30	160.00	4.10
TBNII400D	3223	4835	6447	8059	9670	11282	12894	52.60	56.00	197.30	3.81



■ Dual action

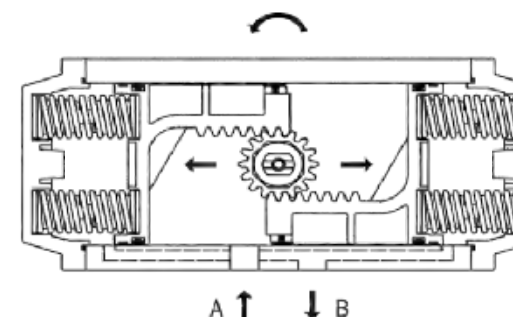


Air from Port A forces the pistons outwards, causing the springs to compress, the pinion turns counter-clockwise to open the valve while air is being exhausted from Port B.

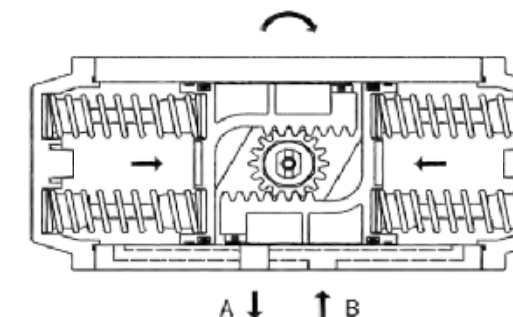


Air from Port B forces the pistons inwards, causing the springs to compress, the pinion turns clockwise to close the valve while air is being exhausted from Port A.

■ Spring return (FC)

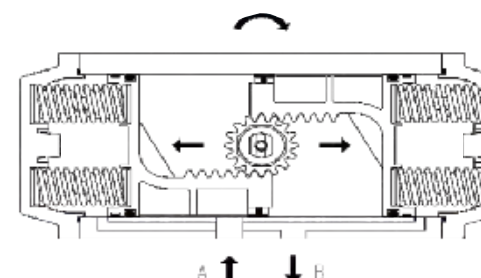


Air from Port A forces the pistons outwards, causing the springs to compress, the pinion turns counter-clockwise to open the valve while air is being exhausted from Port B.

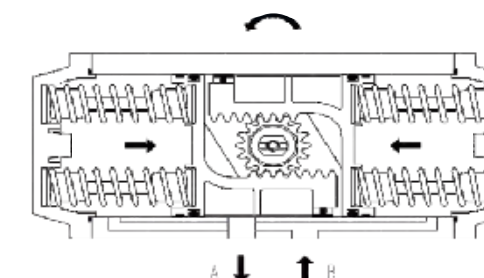


In case of air or power disruption, the rebound of springs forces the pistons inwards, the pinion turns clockwise to close the valve while air is being exhausted from Port A. Air from Port B can accelerate the close of the valve.

■ Spring return (F0)



Air from Port A forces the pistons outwards, causing the springs to compress, the pinion turns clockwise to close the valve while air is being exhausted from Port B.



In case of air or power disruption, the rebound of springs forces the pistons inwards, the pinion turns counter-clockwise to open the valve while air is being exhausted from Port A. Air from Port B can accelerate the open of the valve.