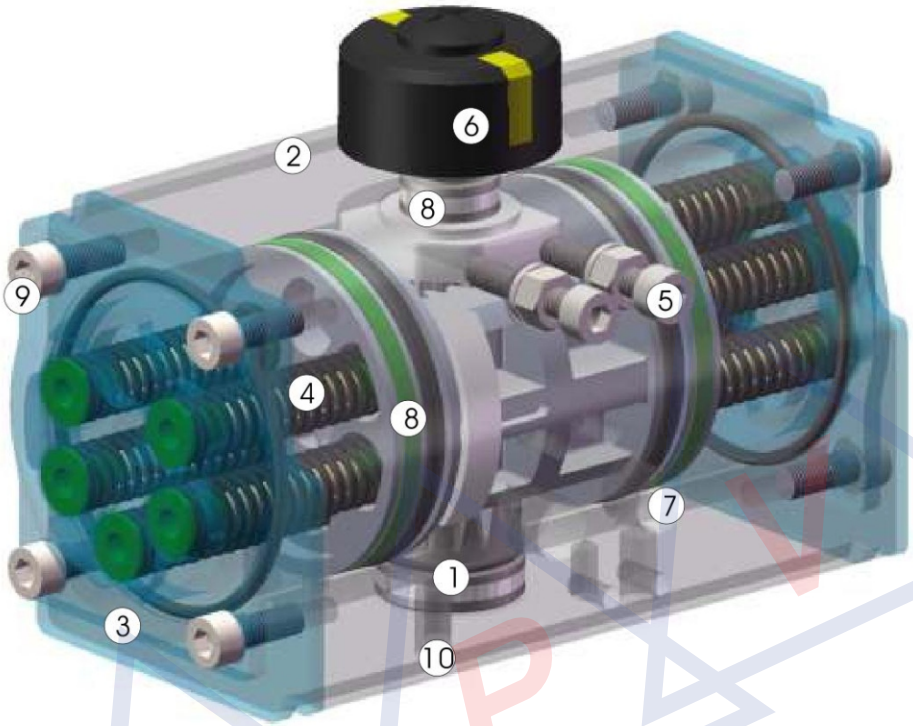
Pneuinatic Actuator
BT Series

02-438-1634-7 @npvupvc info@npvequipment.co.th www.npv.co.th

Description And Model Preparation ATD/ATS40-400

BTD / BTS Series Of New Valve Pneumatic Actuator



BTD/BTS new rack and pinion pneumatic actuator by the zhejiang KST company combines the latest technology at home and abroad, through the three-dimensional model of innovation and optimization of CAD design, beautiful shape compact, modern styling; and adopt practical new materials, new processes, so that the product quality, more reliable; more standard selection of more affordable; products fully meet the latest international standards, technical specifications, to meet current and future needs.

①Dual piston rack and pinion design of symmetric structures, rapid and smooth movement, high precision, high output power by a simple change in the direction of the piston assembly positions available anti-rotation.

②High quality extruded aluminum alloy cylinder block, by precision machining the hole and the external surface of hard anodized (anodic oxidation under special circumstances + Teflon coating), longer life, low friction coefficient.

③Integrated design, all the double acting and single-function actuator models have the same cylinder and end caps, easily removed by installing a spring or spring to change the mode of action.

④Combined pre-spring break Hean whole group, whether in the assembly process or use on-site in both convenient and safe to install or change the

⑤The external side of the two single independent adjustment screw has been number of springs. installed in the valve for the actuator is precisely to facilitate, control valve open and valve closed position, For the whole trip conditioned office is also configured in two cover a longer adjustment screws.

⑥Multi-position indicator, on-site visual instructions, consistent with VDI/VDE3845, NAMUR standard slot, the output can be installed and all the accessories, such as limit switch box, electric positioner, position sensor (Pepperl and Fuchs, Turck).

⑦Gas source interface line NAMURstandard, direct safety plaquesNAMUR standard solenoid valve.

⑧Rack on the back of the composite bearing and piston guide ring and the output shaft bearings to prevent metal on metal friction and increasing lubrication, so a low friction, long life.

⑨All fasteners are stainless steel, long-term corrosion resistance.

⑩Connection part of the line with new international standard ISO5211, DIN3337 (F03-F25) makes products with interchangeable, versatile.

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Model preparation

BT-160 S-K10 F10/12 P27-90-B-A

⑨. Corrosion Resistance Grade: A,B

⑧. Ambient Temp.: Standard-B, Low Temp.: D, High Temp.: G

⑦. Rotation Angle：0°~90°,0°~120°,0°~180°,3 Position，0°~45°~90°

⑥. Shaft Size Code: P-Star Square, H-Parallel Opposite Hole, W Two Key Hole

⑤. Connection: ISO5211 Standard, Flange Size, F03-F25, Star Square, 9-55

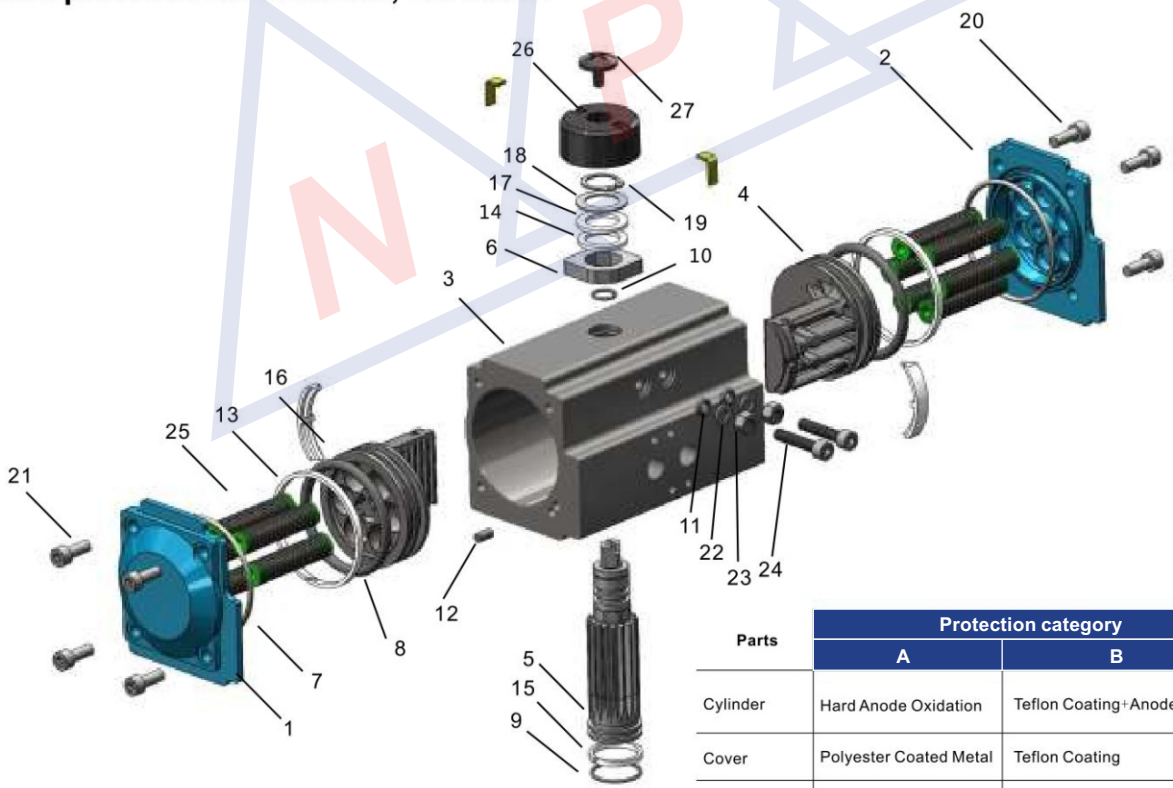
④. Spring QTY: K5/K6/K7/K8/K9/K10/K11/K12/K13/K14/K15/K16, Not Available for Double Acting

③. Type: D-Double Acting, S-Spring Return

②. Cylinder Size: 40~400

①. BT Series Pneumatic Actuator

Components And Materials, Corrosion



Parts	Protection category	
	A	B
Cylinder	Hard Anode Oxidation	Teflon Coating+Anode Sclerosis
Cover	Polyester Coated Metal	Teflon Coating
Output shaft	Carbon Steel Electroless Nickel Plating	Electroless Nickel Plating Or Stainless Steel
Use Occasion	General Situation	General Occasions Or Low Concentrations Of Acidic Environment

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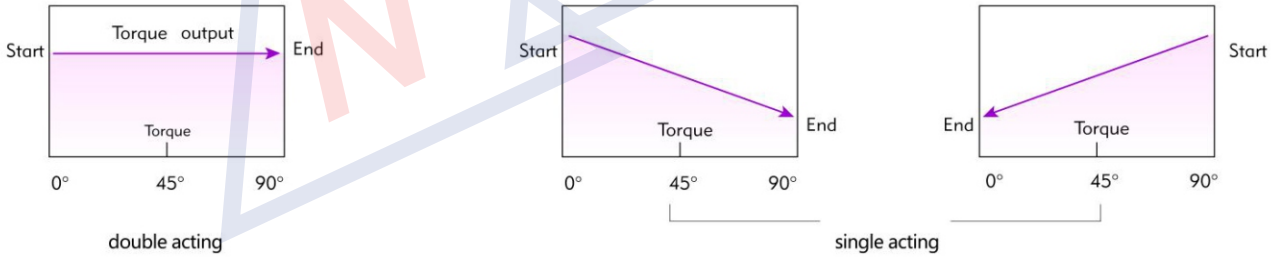
Part Number	Each number	Part Name	Standard Materials	Selected Materials
01	1	Left Cover	Aluminum Die Casting	Stainless steel
02	1	Right Cover	Aluminum Die Casting	Stainless steel
03	1	body	Aluminum extrusion	Stainless steel
04	2	Piston	Aluminum Die Casting	----
05	1	Output shaft	Carbon Steel	Stainless steel
06	1	Stainless steel / Cast iron	Carbon Steel	----
07 *	2	O-ring (cover)	NBR	Fluorine or silicone rubber
08 *	2	O-ring (Piston)	NBR	Fluorine or silicone rubber
09 *	1	O-ring (output shaft bottom)	NBR	Fluorine or silicone rubber
10 *	1	O-ring (output shaft at the top)	NBR	Fluorine or silicone rubber
11 *	2	O-ring (adjusting screw)	NBR	Fluorine or silicone rubber
12 *	2	Plug (Cylinder)	NBR	Fluorine or silicone rubber
13 *	2	Bearing (Piston)	POM	----
14 *	1	Bearing (output shaft at the top)	POM	----
15 *	1	Bearing (output shaft bottom)	POM	----
16 *	1	Guide with Bearing (Piston back)	POM	----
17 *	2	Thrust bearings (output shaft)	POM	----
18	2	Gasket (output shaft)	Stainless steel	----
19	1	Flexible file ring	Spring steel	----
20	8	Cover bolt	Stainless steel	----
21	8	Cover Gasket	Stainless steel	----
22	2	Gasket	Stainless steel	----
23	2	Nut	Stainless steel	----
24	2	Adjustment bolt	Stainless steel	----
25	5–16	Spring Components	Alloy spring steel	----
26	1	Position indicator	POM	----
27	1	Screw of indicator	POM	----

Torque Diagram

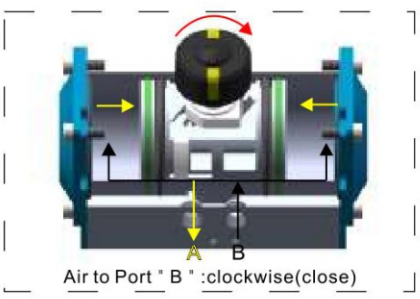


Double Acting Operation

Selection of double acting actuators
The suggested safety factor for duble acting actuators under normal working conditions is 20%-30%

Example:
- The torque needed by valve=100 N.m
- The torque considered safety factor 100×（1+30%）=130 N.m
- Air Supply=5 Bar

According to double acting torque table, we can choose the minimum modle is BT-105D.



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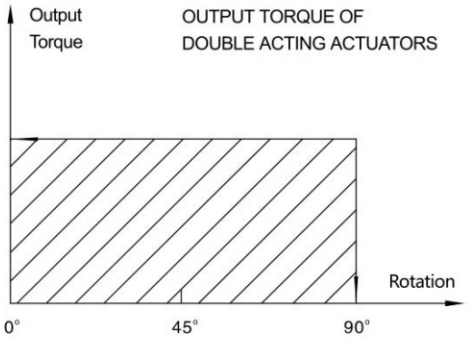
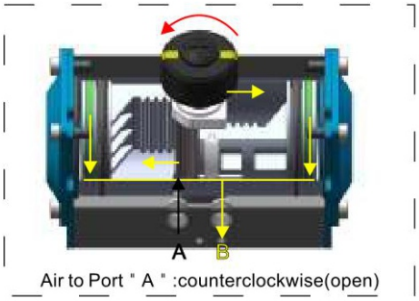




Air to Port " A " :counterclockwise(open)

* Pistons must be inverted to reverse actuator rotation

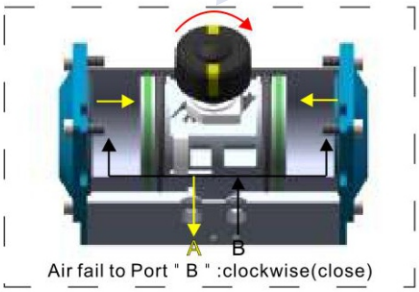
Spring Return Operation

Selection of single action actuators
Under normal operating conditions, a single actuator to consider the role of the safety factor of 30% -50%.

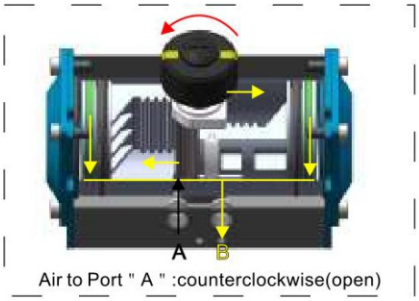
For example:
Valve required torque = 100N.m
Safety torque = 100 x (1 +30%) = 130N.m
according to single acting actuator output torque table, we can find AT-145S K10
Torque following
Implementation process 0° = 216.8N.m air
Implementation process 90° = 175.8N.m air
Spring stroke 0° = 172N.m
Spring stroke 90° = 258N.m

output Torque bigger than all our needs

Note:
Single action during the spring return actuators, actuator B hole ventilation does not affect actuator output torque.instead it`s helpful of sping return



Air fail to Port " B " :clockwise(close)



Air to Port " A " :counterclockwise(open)

* Spring force makes the actuator clokwise when the air is exhausted at port " A "
* When air fail to counterclockwise is required, the pistons must be inverted

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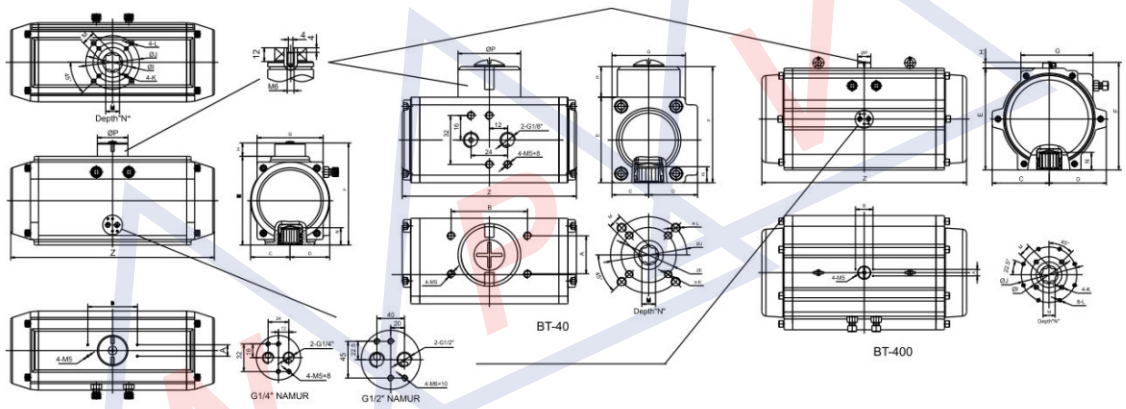
Double Acting Actuator Output Torque(Nm)

Air Pressure / Model	Air Suooly pressure(Unit Bar)								
	3bar	3.5bar	4bar	4.5bar	5bar	5.5bar	6bar	7bar	8bar
BT- 40D	5.7	6.7	7.6	8.6	9.5	10.5	11.4	13.3	15.2
BT- 52D	12.0	14.0	16.0	18.0	20.0	22.0	24.0	28.0	32.0
BT- 63D	21.0	24.5	28.0	31.5	35.0	38.5	42.0	49.0	56.0
BT- 75D	30.0	35.0	40.0	45.0	50.0	55.0	60.0	70.0	80.0
BT- 83D	45.7	53.3	61.0	68.6	76.2	83.8	91.4	106.7	121.9
BT- 92D	67.4	78.7	89.9	101.2	112.4	123.6	134.9	157.4	179.8
BT-105D	97.6	113.9	130.2	146.4	162.7	179.0	195.2	227.8	260.3
BT-125D	152.2	177.6	203.0	228.3	253.7	279.1	304.4	355.2	405.9
BT-140D	260.3	303.7	347.0	390.4	433.8	477.2	520.6	607.3	694.1
BT-160D	396.6	462.7	528.8	594.9	661.0	727.1	793.2	925.4	1057.6
BT-190D	639.3	745.9	852.4	959.0	1065.5	1172.1	1278.6	1491.7	1704.8
BT-210D	781.0	911.2	1041.4	1171.5	1301.7	1431.9	1562.0	1822.4	2082.7
BT-240D	1147.6	1338.8	1530.1	1721.3	1912.6	2103.9	2295.1	2677.6	3060.2
BT-270D	1742.9	2033.4	2323.8	2614.3	2904.8	3195.3	3485.8	4066.7	4647.7
BT-300D	2390.8	2789.3	3187.8	3586.2	3984.7	4383.2	4781.6	5578.6	6375.5
BT- 350D	3580	4176	4773	5369	5966	6563	7159	8352	9546
BT- 400D	5100	5950	6800	7650	8500	9350	10200	11900	13600

Dimensional Drawing



BT-52,BT-63,BT-75,BT-83,BT-92,BT-105,BT-125,BT-140
BT-140,BT-160,BT-190,BT-210,BT-240,BT-270,BT-300,BT-350

Dimension

Unit (mm)

Model	A	B	C	D	E	F	G	H	I	I-1	J	J-1	K	L	M	N	P	Z	Air
BT-40	25	50	24	32	56	76	48	20	36	F03	50	F05	M5×8	M6×10	9	10	42	110	1/8"
BT-52	30	80	30	42.5	72.4	92.4	50.5	20	36	F03	50	F05	M5×8	M6×10	11	14	42	150	1/4"
BT-63	30	80	36	47	88.5	108.5	69.5	20	50	F05	70	F07	M6×10	M8×13	14	18	42	171	1/4"
BT-75	30	80	42.5	53	100	120	78	20	50	F05	70	F07	M6×10	M8×13	14	18	42	186	1/4"
BT-83	30	80	46.5	57	109.5	129.5	86	20	50	F05	70	F07	M6×10	M8×13	17	21	42	206	1/4"
BT-92	30	80	50	58	117	137	90	20	50	F05	70	F07	M6×10	M8×13	17	21	42	265	1/4"
BT-105	30	80	57.5	64	135	155	104.5	20	70	F07	102	F10	M8×13	M10×16	22	26	42	272	1/4"
BT-125	30	80	67.5	74.5	157	187	120.5	30	70	F07	102	F10	M8×13	M10×16	22	26	62	304	1/4"
BT-140	30	80	75.5	75.5	174	204	125	30	102	F10	125	F12	M10×16	M12×20	27	32	62	395	1/4"
BT-160	30	130	87	87	198	228	143	30	102	F10	125	F12	M10×16	M12×20	27	32	80	462	1/4"
BT-190	30	130	103	103	232	262	172	30			140	F14		M16×25	36	40	80	552	1/4"
BT-210	30	130	113	113	257	287	194	30			140	F14		M16×25	36	40	80	556	1/4"
BT-240	30	130	130	130	292	322	230	30			165	F16		M20×30	46	50	80	630	1/4"
BT-270	30	130	147	147	331	361	253	30			165	F16		M20×30	46	50	80	750	1/2"
BT-300	30	130	161	172	354	384	290	30			165	F16		M20×30	46	50	90	772	1/2"
BT-350	30	130	190	190	410	440	334	30	165	F16	254	F25	M20×30	8-M16×25	46	50	90	860	1/2"
BT-400	30	130	262	262	466	496	330	30	165	F16	254	F25	M20×30	8-M16×25	55	72	90	938	1/2"

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Single Acting Actuator Output Torque(Nm)

Model	Spring Qty	Air pressure: 2.5 bar 0° Start	2.5 bar 90° End	3.0 bar 0° Start	3.0 bar 90° End	3.5 bar 0° Start	3.5 bar 90° End	4.0 bar 0° Start	4.0 bar 90° End	4.5 bar 0° Start	4.5 bar 90° End	5.0 bar 0° Start	5.0 bar 90° End	5.5 bar 0° Start	5.5 bar 90° End	6.0 bar 0° Start	6.0 bar 90° End	7.0 bar 0° Start	7.0 bar 90° End	8.0 bar 0° Start	8.0 bar 90° End	Spring Torque 0° Start	Spring Torque 90° End
BT-52S	5	5.7	3.8	7.7	5.8	9.7	7.8	11.7	9.8	13.7	11.8	15.7	13.8									6.2	4.3
	6	5	2.6	7	4.6	9	6.6	11	8.6	13	10.6	15	12.6	17	14.6							7.4	5
	7			6.1	3.4	8.1	5.4	10.1	7.4	12.1	9.4	14.1	11.4	16.1	13.4	18.1	13.4					8.6	5.9
	8					7.3	4.1	9.3	6.1	11.3	8.1	13.3	10.1	15.3	12.1	17.3	12.1	21.3	18.1			9.9	6.7
	9							8.4	4.9	10.4	6.9	12.4	8.9	14.4	10.9	16.4	10.9	20.4	16.9	24.4	20.9	11.1	7.6
	10									9.5	5.6	11.5	7.6	13.5	9.6	15.5	9.6	19.5	15.6	23.5	19.6	12.4	8.5
	11											10.7	6.4	12.7	8.4	14.7	8.4	18.7	14.4	22.7	18.4	13.6	9.3
	12													11.8	7.2	13.8	7.2	17.8	13.2	21.8	17.2	14.8	10.2
BT-63S	5	10.7	7.1	14.2	10.6	17.7	14.1	21.2	17.6	24.7	21.1	28.2	24.6									10.4	6.8
	6	9.3	5	12.8	8.5	16.3	12	19.8	15.5	23.3	19	26.8	22.5	30.3	26							12.5	8.2
	7			11.4	6.4	14.9	9.9	18.4	13.4	21.9	16.9	25.4	20.4	28.9	23.9	32.4	23.9					14.6	9.6
	8					13.6	7.8	17.1	11.3	20.6	14.8	24.1	18.3	27.6	21.8	31.1	21.8	38.1	32.3			16.7	10.9
	9							15.7	9.2	19.2	12.7	22.7	16.2	26.2	19.7	29.7	19.7	36.7	30.2	43.7	37.2	18.8	12.3
	10									17.8	10.6	21.3	14.1	24.8	17.6	28.3	17.6	35.3	28.1	42.3	35.1	20.9	13.7
	11											20	12.1	23.5	15.6	27	15.6	34	26.1	41	33.1	22.9	15
	12													22.1	13.5	25.6	13.5	32.6	24	39.6	31	25	16.4
BT-75S	5	14.5	10.5	19.5	15.5	24.5	20.5	29.5	25.5	34.5	30.5	39.5	35.5									14.5	10.5
	6	12.3	7.6	17.3	12.6	22.3	17.6	27.3	22.6	32.3	27.6	37.3	32.6	42.3	37.6							17.4	12.7
	7			15.2	9.7	20.2	14.7	25.2	19.7	30.2	24.7	35.2	29.7	40.2	34.7	45.2	34.7					20.3	14.8
	8					18.1	11.8	23.1	16.8	28.1	21.8	33.1	26.8	38.1	31.8	43.1	31.8	53.1	46.8			23.2	16.9
	9							21	13.9	26	18.9	31	23.9	36	28.9	41	28.9	51	43.9	61	53.9	26.1	19
	10									23.9	16	28.9	21	33.9	26	38.9	26	48.9	41	58.9	51	29	21.1
	11											26.8	18.1	31.8	23.1	36.8	23.1	46.8	38.1	56.8	48.1	31.9	23.2
	12													29.7	20.3	34.7	20.3	44.7	35.3	54.7	45.3	34.7	25.3
BT-83S	5	22.2	15	29.9	22.7	37.5	30.3	45.2	38	52.8	45.6	60.4	53.2									23	15.8
	6	19.0	10.4	26.7	18.1	34.3	25.7	42	33.4	49.6	41	57.2	48.6	64.8	56.2							27.6	19
	7			23.6	13.5	31.2	21.1	38.9	28.8	46.5	36.4	54.1	44	61.7	51.6	69.3	51.6					32.2	22.1
	8					28	16.5	35.7	24.2	43.3	31.8	50.9	39.4	58.5	47	66.1	47	81.4	69.9			36.8	25.3
	9							32.5	19.6	40.1	27.2	47.7	34.8	55.3	42.4	62.9	42.4	78.2	65.3	93.4	80.5	41.4	28.5
	10									37	22.6	44.6	30.2	52.2	37.8	59.8	37.8	75.1	60.7	90.3	75.9	46	31.6
	11											41.4	25.6	49	33.2	56.6	33.2	71.9	56.1	87.1	71.3	50.6	34.8
	12													45.8	28.6	53.4	28.6	68.7	51.5	83.9	66.7	55.2	38
BT-92S	5	32.8	21.7	44.1	33	55.4	44.3	66.6	55.5	77.9	66.8	89.1	78									34.4	23.3
	6	28.1	14.9	39.4	26.2	50.7	37.5	61.9	48.7	73.2	60	84.4	71.2	95.6	82.4							41.2	28
	7			34.7	19.3	46	30.6	57.2	41.8	68.5	53.1	79.7	64.3	90.9	75.5	102.2	75.5					48.1	32.7
	8					41.4	23.7	52.6	34.9	63.9	46.2	75.1	57.4	86.3	68.6	97.6	68.6	120.1	102.4			55	37.3
	9							47.9	28	59.2	39.3	70.4	50.5	81.6	61.7	92.9	61.7	115.4	95.5	137.8	117.9	61.9	42
	10									54.5	32.5	65.7	43.7	76.9	54.9	88.2	54.9	110.7	88.7	133.1	111.1	68.7	46.7
	11											61	36.8	72.2	48	83.5	48	106	81.8	128.4	104.2	75.6	51.4
	12													67.6	41.1	78.9	41.1	101.4	74.9	123.8	97.3	82.5	56
BT-105S	5	49.7	32.1	66	48.4	82.3	64.7	98.6	81	114.8	97.2	131.1	113.5									49.2	31.6
	6	43.3	22.2	59.6	38.5	75.9	54.8	92.2	71.1	108.4	87.3	124.7	103.6	141	119.9							59.1	38
	7			53.3	28.7	69.6	45	85.9	61.3	102.1	77.5	118.4	93.8	134.7	110.1	150.9	110.1					68.9	44.3
	8					63.3	35.2	79.6	51.5	95.8	67.7	112.1	84	128.4	100.3	144.6	100.3	177.2	149.1			78.7	50.6
	9							73.3	41.6	89.5	57.8	105.8	74.1	122.1	90.4	138.3	90.4	170.9	139.2	203.4	171.7	88.6	56.9
	10									83.1	48	99.4	64.3	115.7	80.6	131.9	80.6	164.5	129.4	197	161.9	98.4	63.3
	11											93.1	54.7	109.4	71	125.6	71	158.2	119.8	190.7	152.3	108	69.6
	12													103.1	61	119.3	61	151.9	109.8	184.4	142.3	118	75.9
BT-125S	5	74.8	47.8	100.2	73.2	125.6	98.6	151	124	176.3	149.3	201.7	174.7									79	52
	6	63.8	32.8	89.2	58.2	114.6	83.6	140	109	165.3	134.3	190.7	159.7	216.1	185.1							94	63
	7			79.2	42.2	104.6	67.6	130	93	155.3	118.3	180.7	143.7	206.1	169.1	231.4	169.1					110	73
	8					93.6	52.6	119	78	144.3	103.3	169.7	128.7	195.1	154.1	220.4	154.1	271.2	230.2			125	84
	9							109	62	134.3	87.3	159.7	112.7	185.1	138.1	210.4	138.1	261.2	214.2	311.9	264.9	141	94
	10									123.3	71.3	148.7	96.7	174.1	122.1	199.4	122.1	250.2	198.2	300.9	248.9	157	105
	11											138.7	80.7	164.1	106.1	189.4	106.1	240.2	182.2	290.9	232.9	173	115
	12													154.1	91.1	179.4	91.1	230.2	167.2	280.9	217.9	188	125
BT-140S	5	130.9	87.9	174.3	131.3	217.7	174.7	261	218	304.4	261.4	347.8	304.8									129	86
	6	113.9	61.9	157.3	105.3	200.7	148.7	244	192	287.4	235.4	330.8	278.8	374.2	322.2							155	103
	7			140.3	79.3	183.7	122.7	227	166	270.4	209.4	313.8	252.8	357.2	296.2	400.6	296.2					181	120
	8					166.7	97.7	210	141	253.4	184.4	296.8	227.8	340.2	271.2	383.6	271.2	470.3	401.3			206	137
	9							192	115	235.4	158.4	278.8	201.8	322.2	245.2	365.6	245.2	452.3	375.3	539.1	462.1	232	155
	10									218.4	132.4	261.8	175.8	305.2	219.2	348.6	219.2	435.3	349.3	522.1	436.1	258	172
	11											244.8	149.8	288.2	193.2	331.6	193.2	418.3	323.3	505.1	410.1	284	189
	12													271.2	167.2	314.6	167.2	401.3	297.3	488.1	384.1	310	206
BT-160S	5	190.5	122.5	256.6	188.6	322.7	254.7	388.8	320.8	454.9	386.9	521	453									208	140
	6	162.5	80.5	228.6	146.6	294.7	212.7	360.8	278.8	426.9	344.9	493	411	559.1	477.1							250	168
	7			200.6	104.6	266.7	170.7	332.8	236.8	398.9	302.9	465	369	531.1	435.1	597.2	435.1					292	196
	8					239.7	129.7	305.8	195.8	371.9	261.9	438	328	504.1	394.1	570.2	394.1	702.4	592.4			333	223
	9							277.8	153.8	343.9	219.9	410	286	476.1	352.1	542.2	352.1	674.4	550.4	806.6	682.6	375	251
	10									315.9	177.9	382	244	448.1	310.1	514.2	310.1	646.4	508.4	778.6	640.6	417	279
	11											354	203	420.1	269.1	486.2	269.1	618.4	467.4	750.6	599.6	458	307
	12													392.1	227.1	458.2	227.1	590.4	425.4	722.6	557.6	500	335
BT-190S	5	333	224	440	331	546	437	653	544	759	650	866	757									309	200
	6	293	162	400	269	506	375	613	482	719	588	826	695	933	802							371	240
	7			360	207	466	313	573	420	679	526	786	633	893	740	999	740					433	280
	8					426	251	533	358	639	464	746	571	853	678	959	678	1172	997			495	320
	9							493	296	599	402	706	509	813	616	919	616	1132	935	1346	1149	557	360
	10									559	341	666	448	773	555	879	555	1092	874	1306	1088	618	400
	11											626	386	733	493	839	493	1052	812	1266	1026	680	440
	12													693	431	799	431	1012	750	1226	964	742	480
BT-210S	5	376	271	506	401	636	531	767	662	897	792	1027	922									380	275
	6	321	195	451	325	581	455	712	586	842	716	972	846	1102	976							456	330
	7			396	249	526	379	657	510	787	640	917	770	1047	900	1177	900					532	385
	8					471	303	602	434	732	564	862	694	992	824	1122	824	1383	1215			608	440
	9							547	358	677	488	807	618	937	748	1067	748	1328	1139	1588	1399	684	495
	10									622	412	752	542	882	672	1012	672	1273	1063	1533	1323	760	550
	11											697	466	827	596	957	596	1218	987	1478	1247	836	605
	12													772	520	902	520	1163	911	1423	1171	912	660
BT-240S	5	547	403	738	594	929	785	1120	976	1312	1168	1503	1359									554	410
	6	465	292	656	483	847	674	1038	865	1230	1057	1421	1248	1612	1439							665	492
	7			573	373	764	564	955	755	1147	947	1338	1138	1529	1329	1721	1329					775	575
	8					683	453	874	644	1066	836	1257	1027	1448	1218	1640	1218	2022	1792			886	656
	9							791	532	983	724	1174	915	1365	1106	1557	1106	1939	1680	2322	2063	998	739
	10									901	614	1092	805	1283	996	1475	996	1857	1570	2240	1953	1108	821
	11											1010	694	1201	885	1393	885	1775	1459	2158	1842	1219	903
	12													1119	774	1311	774	1693	1348	2076	1731	1330	985
BT-270S	5	892	665	1183	956	1473	1246	1764	1537	2054	1827	2345	2118									787	560
	6	780	509	1071	800	1361	1090	1652	1381	1942	1671	2233	1962	2523	2252							943	672
	7			960	642	1250	932	1541	1223	1831	1513	2122	1804	2412	2094	2703	2094					1101	783
	8					1138	775	1429	1066	1719	1356	2010	1647	2300	1937	2591	1937	3172	2809			1258	895
	9							1317	908	1607	1198	1898	1489	2188	1779	2479	1779	3060	2651	3641	3232	1416	1007
	10									1495	1042	1786	1333	2076	1623	2367	1623	2948	2495	3529	3076	1572	1119
	11											1674	1175	1964	1465	2255	1465	2836	2337	3417	2918	1730	1231
	12													1853	1308	2144	1308	2725	2180	3306	2761	1887	1342
BT-300S	5	1263	932	1661	1330	2060	1729	2458	2127	2857	2526	3255	2924									1061	730
	6	1117	720	1515	1118	1914	1517	2312	1915	2711	2314	3109	2712	3508	3111							1273	876
	7			1369	906	1768	1305	2166	1703	2565	2102	2963	2500	3362	2899	3760	2899					1485	1022
	8					1622	1093	2020	1491	2419	1890	2817	2288	3216	2687	3614	2687	4411	3882			1697	1168
	9							1874	1279	2273	1678	2671	2076	3070	2475	3468	2475	4265	3670	5062	4467	1909	1314
	10									2127	1465	2525	1863	2924	2262	3322	2262	4119	3457	4916	4254	2122	1460
	11											2379	1651	2778	2050	3176	2050	3973	3245	4770	4042	2334	1606
	12													2632	1838	3030	1838	3827	3033	4624	3830	2546	1752

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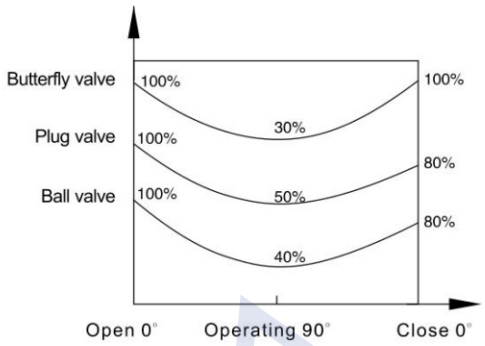
Single Acting Actuator Output Torque(Nm)

Model	Air pressure Spring Qty	Spring Torque 2.5 bar 0° Start	2.5 bar 90° End	3.0 bar 0° Start	3.0 bar 90° End	3.5 bar 0° Start	3.5 bar 90° End	4.0 bar 0° Start	4.0 bar 90° End	4.5 bar 0° Start	4.5 bar 90° End	5.0 bar 0° Start	5.0 bar 90° End	5.5 bar 0° Start	5.5 bar 90° End	6.0 bar 0° Start	6.0 bar 90° End	7.0 bar 0° Start	7.0 bar 90° End	8.0 bar 0° Start	8.0 bar 90° End	Spring Torque 0° Start	Spring Torque 90° End
BT-350S	5	1810	1281	2407	1878	3003	2474	3600	3071	4196	3667	4793	4264									1702	1173
	6	1575	940	2172	1537	2768	2133	3365	2730	3961	3326	4558	3923	5155	4520							2043	1408
	7			1938	1197	2534	1793	3131	2390	3727	2986	4324	3583	4921	4180	5517	4180					2383	1642
	8					2299	1452	2896	2049	3492	2645	4089	3242	4686	3839	5282	3839	6475	5628			2724	1877
	9							2661	1709	3257	2305	3854	2902	4451	3499	5047	3499	6240	5288	7434	6482	3064	2112
	10									3023	1964	3620	2561	4217	3158	4813	3158	6006	4947	7200	6141	3405	2346
	11											3385	2221	3982	2818	4578	2818	5771	4607	6965	5801	3745	2581
	12													3747	2477	4343	2477	5536	4266	6730	5460	4086	2816
BT-400S	7	2413	1370	3263	2220	4113	3070	4963	3920	5813	4770	6663	5620									2880	1837
	8	2150	958	3000	1808	3850	2658	4700	3508	5550	4358	6400	5208	7250	6058							3292	2100
	9	1888	547	2738	1397	3588	2247	4438	3097	5288	3947	6138	4797	6988	5647	7838	5647					3703	2362
	10	1626	135	2476	985	3326	1835	4176	2685	5026	3535	5876	4385	6726	5235	7576	5235	9276	7785			4115	2624
	11			2213	574	3063	1424	3913	2274	4763	3124	5613	3974	6463	4824	7313	4824	9013	7374	10713	9074	4526	2887
	12					2801	1012	3651	1862	4501	2712	5351	3562	6201	4412	7051	4412	8751	6962	10451	8662	4938	3149
	13							3388	1451	4238	2301	5088	3151	5938	4001	6788	4001	8488	6551	10188	8251	5349	3412
	14									3976	1889	4826	2739	5676	3589	6526	3589	8226	6139	9926	7839	5761	3674
	15											4563	2328	5413	3178	6263	3178	7963	5728	9663	7428	6172	3937
	16													5151	2766	6001	2766	7701	5316	9401	7016	6584	4199

Sizing information and How to order



For example:
Butterfly of the original maximum torque = 80N.m
Opened torque 80 × 30% = 24N.m
Air pressure = 5Bar
We can choose BT-125SK10

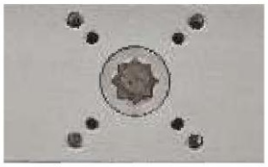
Air travel 0° = 148N.m> 80N.m
Air travel 90° = 96.7N.m> 24N.m
Spring stroke 90° = 157N.m> 24N.m
Spring stroke 0° = 105N.m> 80N.m
The above figures show opening meet of the butterfly valve

Operating type (Double acting and spring return)

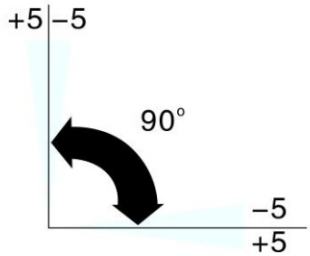
Air supply connection is designed in accordance with NAMUR Standard to install solenoid valves.

The Namur drive pinion and the Namur top mounting connection permit direct installation of accessories such as limitswitch box and positioner.

Bottom mounting connection is designed in accordance with ISO5211、DIN3337standards for direct mounting with valve gear boxes or mounting brackets.



Operating conditions:



1.Operating media
Dry or lubricated air, or the non-corrosive gases
The maximum particle diameter must less than 30 μm
2.Air supply pressure
The minximum supply pressure is 2.5 Bar
The maximum supply pressure is 8 Bar
3.Operating temperature
Standard：-20℃~+80℃
Low temperature：-40℃%~+80℃
High temperature：-15℃~+150℃
4.Travel adjustment
Have adjustment range of ±5° for the rotation at 0°and 90°
5.Application
Either indoor or outdoor

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Air Consumption

Model	Max.Pressure	Rotation Angle	Temp.	Lap No.For Each 1 Degree Stroke	Diameter	Cylinder Volume Close	Cylinder Volume Open	Open/Close Time Close	Open/Close Time Open	Weight	
BT-52S	Lubrication or dry of compressed air 8bar	(0°–90°) ± 5° or full itinerary 0°–90°	B(normal) NBR O–ring –20–+80℃ G(High Temperature) Viton O–ring –15–+150℃ D(Low Temperature) Silicone O–ring –40+80℃	1/6	52	0.1	0.2	DA 0.6 SR 2.0	DA 0.6 SR 0.5	DA 1.30 SR 1.42	... 0.0095
BT-63S				1/6	63	0.2	0.3	DA 0.7 SR 2.0	DA 0.7 SR 1.0	DA 2.05 SR 2.25	... 0.0135
BT-75S				1/5	75	0.3	0.5	DA 0.8 SR 2.0	DA 0.7 SR 1.0	DA 2.65 SR 2.95	... 0.0210
BT-83S				1/5	83	0.5	0.8	DA 0.9 SR 2.5	DA 0.8 SR 1.0	DA 3.30 SR 3.70	... 0.0365
BT-92S				1/5	92	0.7	1.1	DA 1.0 SR 3.0	DA 1.0 SR 1.0	DA 4.55 SR 5.30	... 0.0600
BT-105S				1/4	105	1.2	1.8	DA 1.5 SR 3.0	DA 1.5 SR 1.0	DA 5.80 SR 6.70	... 0.0730
BT-125S				1/4	125	1.5	2.3	DA 2.0 SR 4.0	DA 2.0 SR 1.0	DA 8.95 SR 10.35	... 0.1100
BT-140S				1/4	140	2.4	3.8	DA 2.5 SR 4.0	DA 2.5 SR 1.0	DA 13.35 SR 15.35	... 0.1865
BT-160S				1/4	160	3.1	4.9	DA 4.0 SR 4.0	DA 3.0 SR 1.5	DA 19.20 SR 23.10	... 0.2695
BT-190S				1/4	190	4.5	7.3	DA 5.0 SR 5.0	DA 4.0 SR 3.0	DA 31.05 SR 36.80	... 0.4792
BT-210S				1/4	210	6.8	11.2	DA 5.0 SR 6.0	DA 5.0 SR 3.0	DA 39.00 SR 45.50	... 0.5001
BT-240S				1/4	240	10	15.2	DA 6.0 SR 12	DA 6.0 SR 4.0	DA 53.00 SR 64.00	... 0.9167
BT-270S				1/4	270	14.5	21.4	DA 8.0 SR 15	DA 8.0 SR 6.0	DA 76.00 SR 95.20	... 1.6000
BT-300S				1/4	300	23.8	29.7	DA 12 SR 18	DA 12 SR 8.0	DA 100.0 SR 128.2	... 2.3500
BT-350S				1/4	350	35.1	46	DA 14 SR 20	DA 14 SR 10	DA 186.0 SR 216.0	... 2.5001
BT-400S				1/4	400	52.6	56	DA 15 SR 25	DA 15 SR 12	DA 243.0 SR 279.0	... 3.0001

Air consumption rest with Supply. Air volume and Action cycle times,expressions

L/Min=Air volume(Air volume Opening+Air volume closing)×[(Air Supply(Kpa)+101.3)÷101.3]×Action cycle times(/min)

Common aults and inspection, troubleshooting

Failure phenomenon	Inspection Items	Solution
Pneumatic valve can not move	1. When solenoid valve is normal, coil is burned or not, or whether solenoid valve core is blocked by foreign matter.	Solenoid valve replacement, replacement coils, remove stolen property.
	2. Test the pneumatic actuator seperately with air supply, check whether sealing ring and cylinder is damaged.	Replace a bad ring and cylinder.
	3. Impurities in the valve blocks the valve core.	Remove impurities, replace damaged parts.
	4. The handle is in manual position.	change the handle to pneumatic position
Slow motion, crawling	1. Air supply pressure is not enough.	The increase of gas supply pressure (0.4-0.7Mpa)
	2. Output torque of pneumatic actuator is too small.	Increase the pneumatic actuator Production.
	3. Valve coil or other valve components are too tight.	Re-assembly adjustments.
	4. Air supply pipe is pluged and flow is too small.	Exclude plug, replace the filter cartridge.
Reply devices without signal	1. Short circuit or disconnection of power occurs.	Maintenance of power lines.
	2. Cam position inside the switch box is not accurate.	Adjust the cam to the correct location
	3. Micro switches is damaged.	Replacement Micro Switch

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