

SPA-R Pneumatic Actuators are suitable for easy, modular installation onto process control components such as Butterfly Valves, Cylindrical Plug Valves, Ball Valves or as operating device applied on automated Reactor Sampling Systems.

Modular Design

Actuators are available as double-acting or single-acting with spring return (fail safe close or fail safe open). Upon request, the actuators can be mounted onto valves as complete units, i.e. with solenoid valve, limit switch box or electro-pneumatic positioner, incl. all required mounting parts.



Standard Actuator
with visual position indicator

Main Features

- Robust design, body/cover made of cast aluminum, reliable function by proven rack and pinion construction
Option: actuators with stainless steel bodies
- Smooth surface finish of the cylinder bore (Ra 0.4-0.6 microns) for increased life span of actuator
- Excellent corrosion protection of the actuator, resistant to salt spray for up to 500 hours
- Easy replaceable guide pads made of materials with low coefficient of friction
- Actuators with at least two bolt circles acc. to ISO 5211 for direct mounting onto valves
- NAMUR interface for easy installation of limit switch boxes and solenoid pilot valves
- Visual position indicator as integrated standard item
- Special actuators, for extreme temperatures and any environmental conditions, upon specified request

 **Conformity acc. to European Machinery Directive 2014/68/EU**

Options



Actuator Unit On-Off
with limit switch box and solenoid valve



Actuator Control Unit
with E/P positioner

Operating Data

- Air Supply: filtered air (dry or lubricated)
- Air Pressure: min. 1 bar (14.2 psi) up to 8 bar (116 psi)
- Torque Range: 20 up to 10'025 Nm (88'720 in-lbs) at 6 bar (87 psi) air pressure
- Operating Angle: 90°
- Stroke Adjustment: ±5°
- Lubrication: permanent lubrication (for min. 1 million cycles)
- Temp. Range: -20°C bis +80°C
- Installation Pos.: user-defined

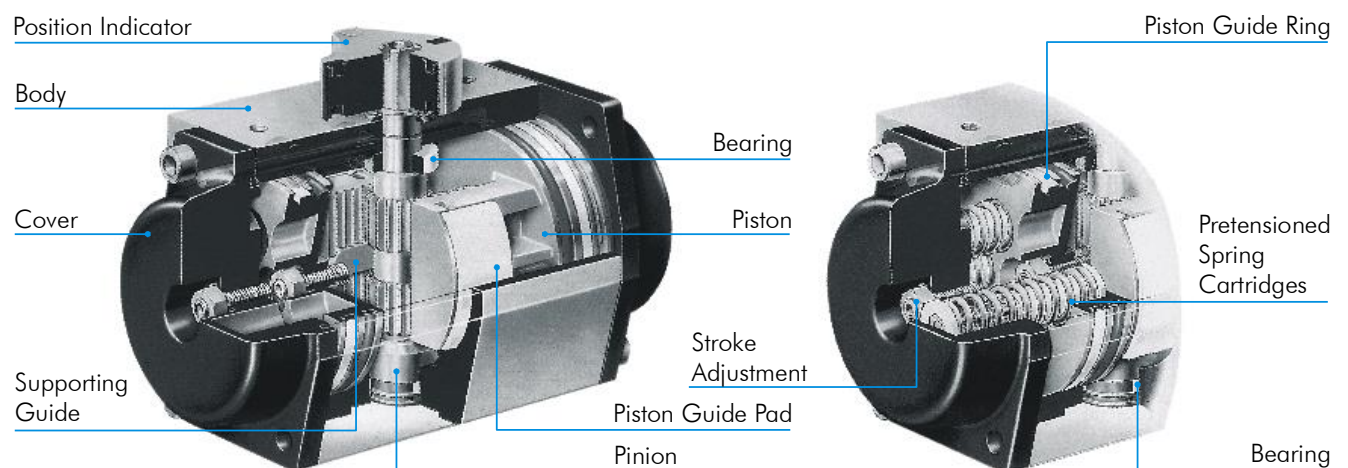
Testing

- 100% function- and tightness testing on electronic testing bench guarantees the reliable function of the pneumatic actuators

Technical Data (lbs = kg x 2.2)

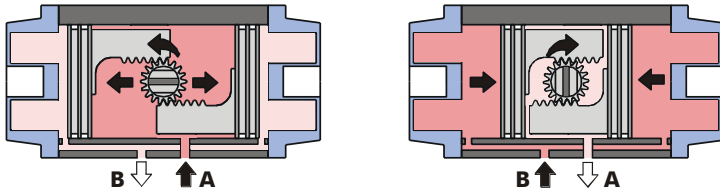
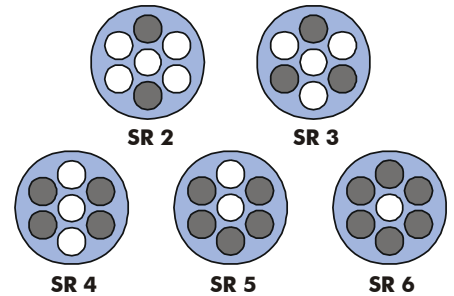
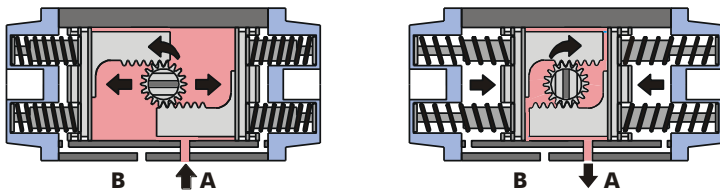
TR Type		050	063	075	085	100	115	125	160	200	270	330	420
Air Volume (dm ³)	DA	0.23	0.45	0.61	0.98	1.8	2.8	3.7	8.0	14.2	32.2	62.8	131.0
	SR	-	-	-	-	-	-	-	-	-	-	-	-
Opening Time (sec)	DA	0.6	0.6	0.6	0.6	0.8	0.9	1.1	1.3	3.6	4.5	5.0	8.0
	SR	0.6	0.7	0.7	0.7	1.1	1.2	1.3	2.1	4.6	6.0	6.5	10.0
Closing Time (sec)	DA	0.6	0.7	0.7	0.9	0.9	1.1	1.1	1.6	4.6	4.5	5.0	9.0
	SR	0.6	0.9	1.0	1.3	1.3	1.6	2.1	2.6	6.1	6.0	6.5	11.0
Weight (kg)	DA	1.07	1.6	2.9	4.2	5.8	9.2	11.9	20.5	43.0	94.0	105.0	210
	SR	1.2	1.8	3.37	4.83	6.82	10.3	14.2	24.9	53.0	113.0	144.6	279

Construction of Actuator

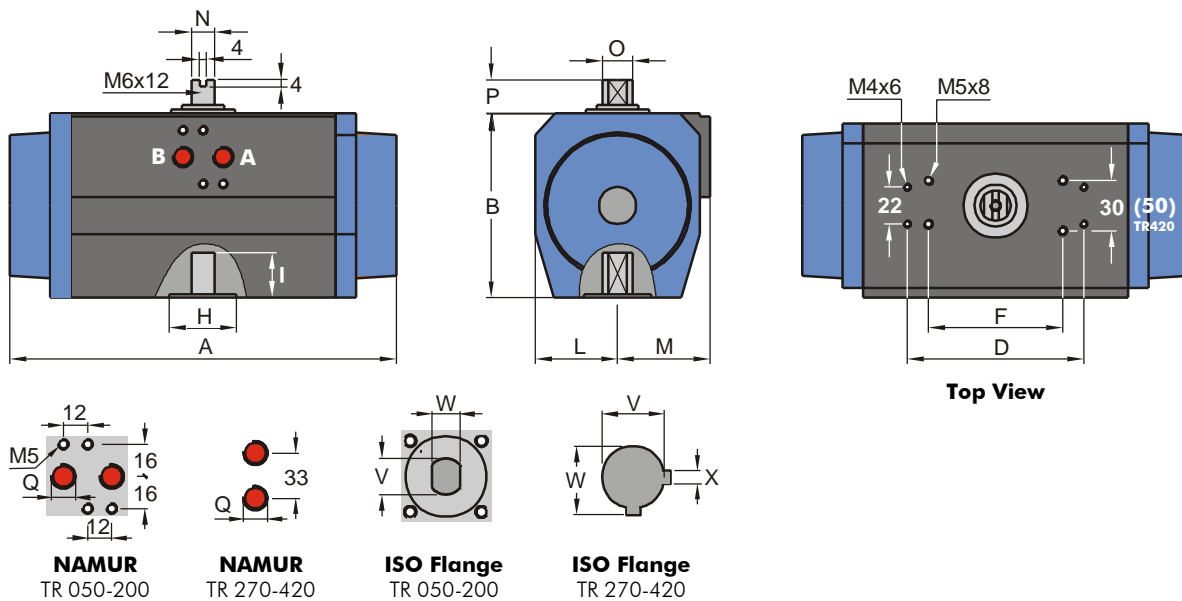


Assembly

of compl. actuators incl. options and accessories
acc. to data sheet
Mounting Options, Specification

Modes of Operation
DA: double-acting

SR: single-acting

Arrangement of Spring Cartridges

- Do **not** open actuator under pressure!
- Spring cartridges release automatically during removal of covers!

Dimensions in mm


TR Type	A	B	D	F	H	I	L	M	N	O	ISO	P	Q	V	W	X
050	138	67	-	80	25	13	33.5	41.5	8	12	F03/05	20	1/8"	14.2	11	-
063	152	83	-	80	25	16	38	48	8	12	F03/05	20	1/4"	14.2	11	-
075	205	100	105	80	35	20.5	42.5	51.5	14	18	F05/07	20	1/4"	18.2	14	-
085	228	110	105	80	40	23.5	49	55	14	18	F05/07	20	1/4"	18.2	14	-
100	274	125	105	80	55	28.5	55	65	14	18	F05-10	20	1/4"	24.2	17	-
115	308	142	139	130	55	28.5	64	68	27	36	F07/10	30	1/4"	24.2	17	-
125	362	155	139	130	55	41	69.5	71.5	27	36	F07/10	30	1/4"	30.2	22	-
160	462	196	139	130	75	51	88	88	27	36	F10/12	50	1/4"	40.2	27	-
200	575	240	139	130	85	51	110	110	32	42	F10/12	50	1/4"	40.2	27	-
270	685	332	-	130	104	62	166	166	55	80	F14	50	1/2"	50	53.8	14
330	850	414	-	130	130	84	190	210	55	80	F16	50	1/2"	60	64.4	18
420	934	534	-	200	200	94	249	272	55	80	F25	80	1/2"	70	74.9	20

DA: double-acting Torque values in Nm (in-lbs = Nm x 8.86) (psi = bar/0.0689)

Type TR	Air Supply in bar									
	1	2	3	4	5	6	7	8	9	10
050	3.0	6.1	9.2	12.3	15.4	18.5	21.5	24.6	27.7	30.8
063	5.5	11.0	16.5	22.0	27.5	33.0	38.5	44.0	49.5	55.0
075	11.7	23.4	35.1	46.8	58.5	70.2	81.9	93.6	105.3	117.0
085	17.8	35.6	53.4	71.2	89.0	106.9	124.7	142.4	160.3	178.1
100	27.7	55.4	89.2	110.9	138.6	166.4	194.1	221.8	249.5	277.3
115	45.7	91.5	137.2	183.0	228.7	274.5	320.2	366.0	411.7	457.5
125	60.1	120.3	180.5	240.7	300.9	361.1	421.2	481.4	541.6	601.8
160	118.3	236.7	355.0	473.4	591.7	710.1	828.4	946.8	1'065.1	1'183.5
200	221.8	443.7	665.6	887.5	1'109.4	1'333.3	1'553.1	1'775.0	1'996.9	2'218.8
270	539.2	1'078.4	1'617.6	2'156.8	2'696.0	3'235.2	3'774.4	4'313.6	4'852.8	5'392.0
330	911.5	1'823.0	2'734.0	3'646.0	4'558.0	5'469.0	6'385.0	7'292.0	8'204.0	9'115.0
420	1'671	3'342	5'013	6'684	8'354	10'025	11'696	13'367	-	-

SR: single-acting Torque values in Nm

Type TR	Spring Cartr./ Side	Air Supply in bar												Spring Torque	
		3		4		5		6		7		8		90°	0°
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°		
050	3	5.7	3.5	8.9	6.6	12.0	9.6	15.1	12.7	18.1	15.7	21.2	18.8	5.7	3.5
	4			7.7	4.7	10.8	7.7	13.9	10.8	16.9	13.8	20.0	16.9	7.7	4.7
	5					9.6	5.8	12.7	8.9	15.7	11.9	18.8	15.0	9.6	5.8
	6					8.4	3.9	11.5	7.0	14.5	10.0	17.6	13.1	11.5	7.0
063	3	9.4	6.3	14.9	11.7	20.4	17.2	25.9	22.7	31.4	28.2	36.9	33.7	10.2	7.2
	4			12.3	8.3	17.8	13.8	23.3	19.3	28.8	24.8	34.3	30.3	13.7	9.7
	5					15.4	10.4	20.9	15.9	26.4	21.4	31.9	26.9	17.1	12.1
	6					13.0	7.0	18.5	12.5	24.0	18.0	29.5	23.5	20.5	14.5
075	3	22.5	12.6	34.2	24.4	46.0	36.1	57.7	47.8	69.4	59.5	81.1	71.2	22.5	12.6
	4			30.0	16.9	41.8	28.6	53.5	40.3	65.2	52.0	76.9	63.7	30.0	16.9
	5					37.6	21.1	49.3	32.8	61.0	44.5	72.7	56.2	37.6	21.1
	6					33.4	13.6	45.1	25.3	56.8	37.0	68.5	48.7	45.1	25.3
085	3	34.5	18.9	52.4	36.7	70.2	54.5	88.0	72.3	105.8	90.1	123.6	107.9	34.5	18.9
	4			46.1	25.2	63.9	43.0	81.7	60.8	99.5	78.6	117.3	96.4	46.1	25.2
	5					57.6	31.5	75.4	49.3	93.2	67.1	111.0	84.9	57.6	31.5
	6					51.5	20.0	69.1	37.8	86.9	55.6	104.7	73.4	69.1	37.8
100	3	53.2	30.0	80.9	57.7	108.7	85.4	136.4	113.1	164.1	140.8	191.8	168.5	53.2	30.0
	4			70.9	40.0	98.7	67.7	126.4	95.4	154.1	123.1	181.8	150.8	70.9	40.0
	5					88.7	50.0	116.4	77.7	144.1	105.4	171.8	133.1	88.7	50.0
	6					78.7	32.2	106.4	60.0	134.1	87.7	161.8	115.4	106.4	60.0
115	3	84.3	53.0	130.0	98.8	175.8	144.5	221.6	190.3	267.3	236.0	313.0	281.7	84.3	53.0
	4			112.3	70.7	158.1	116.4	203.9	162.2	249.6	207.9	295.3	253.6	112.3	70.7
	5					140.4	88.3	186.2	134.1	231.9	179.8	277.6	225.5	140.4	88.3
	6					122.7	60.2	168.5	106.0	214.2	151.7	259.9	197.4	168.5	106.0
125	3	116.8	63.7	177.0	123.9	237.3	184.1	297.5	244.2	357.6	304.3	417.7	364.4	116.8	63.7
	4			155.7	85.0	216.0	145.2	276.2	205.3	336.3	265.4	396.4	325.5	155.7	85.0
	5					194.7	106.3	254.9	166.4	315.0	226.5	375.1	286.6	194.7	106.3
	6					173.4	74.1	233.6	127.5	293.7	187.6	353.8	247.7	233.6	127.5

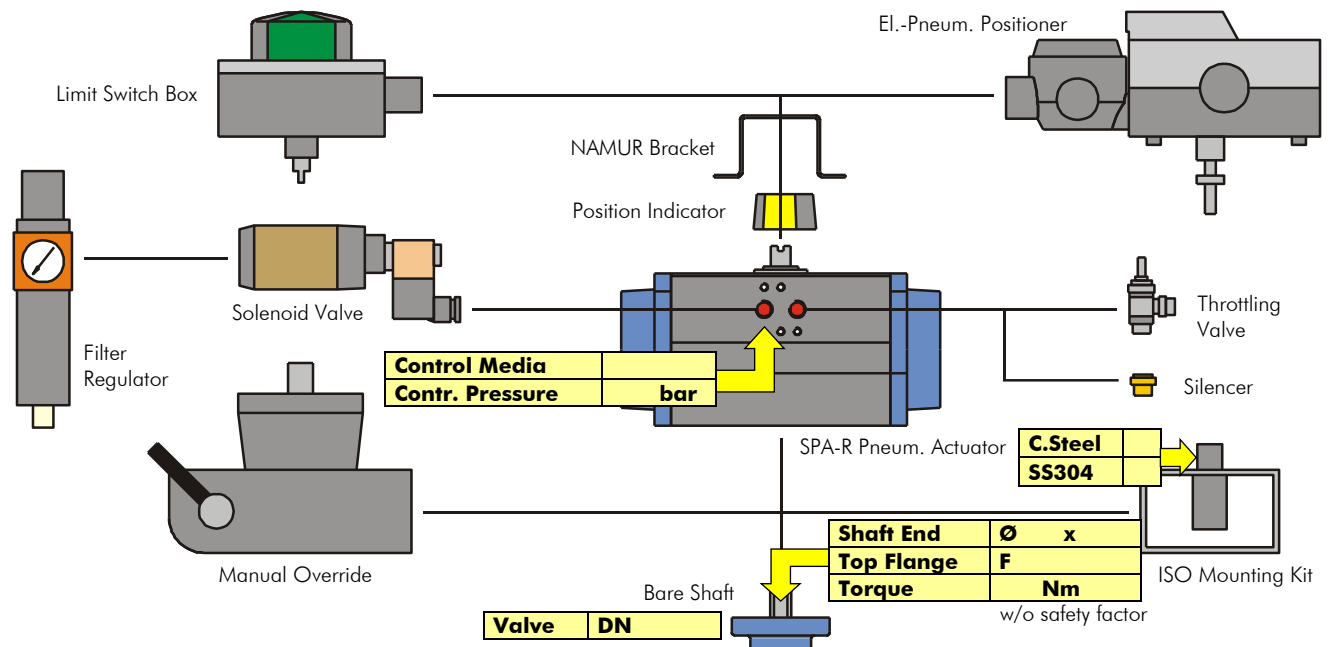
SR: single-acting Torque values in Nm

Type TR	Spring Contr./ Side	Air Supply in bar												Spring Torque	
		3		4		5		6		7		8		90°	0°
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°		
160	3	222.4	132.6	340.7	251.0	459.1	369.3	577.4	487.6	695.7	605.9	814.0	724.2	222.4	132.6
	4			296.5	176.9	414.9	295.2	533.2	413.5	651.5	531.8	769.8	650.1	296.5	176.9
	5					370.7	221.1	489.0	339.4	607.3	457.7	725.6	576.0	370.7	221.1
	6					326.5	147.0	444.8	265.3	563.1	383.6	681.4	501.9	444.8	265.3
200	3	423.6	242.0	644.7	463.8	867.4	685.8	1089.0	907.7	1311.0	1130.0	1533.0	1351.0	423.6	242.0
	4			564.8	322.6	786.7	544.6	1008.0	766.5	1230.0	988.4	1452.0	1209.0	564.8	322.6
	5					706.0	403.4	927.9	625.3	1150.0	847.2	1372.0	1068.0	706.0	403.4
	6					625.3	262.2	847.2	484.1	1069.0	706.0	1291.0	927.0	847.2	484.1
270	3	912.5	705.1	1451.7	1244.3	1990.9	1783.5	2530.1	2322.7	3069.3	2861.9	3608.5	3401.1	912.5	705.1
	4			1216.7	940.2	1755.9	1479.4	2295.1	2018.6	2834.3	2557.8	3373.5	3097.0	1216.6	940.1
	5					1520.9	1175.5	2060.1	1714.4	2599.3	2144.4	3138.5	2792.8	1520.8	1175.1
	6					1285.8	871.0	1825.0	1410.2	2364.2	1953.6	2903.4	2488.6	1825.0	1410.2
330	3	1626.5	1108.5	2538.2	2020.1	3450.8	2931.8	4361.5	3843.4	5273.1	4755.1	6184.8	5666.8	1626.5	1108.5
	4			2168.3	1477.3	3080.0	2389.0	3992.6	3301.6	4903.3	4212.3	5815.0	5123.9	2168.3	1477.3
	5					2711.2	1847.1	3622.8	2759.8	4534.5	3670.4	5445.1	4582.1	2711.2	1847.1
	6					2341.3	1305.3	3253.0	2216.9	4165.7	3128.6	5076.3	4040.3	3253.0	2216.9
420	3	2999.0	2014.0	4670.0	3685.0	6340.0	5356.0	8011.0	7026.0	9682.0	8697.0	11353	10368	2999.5	2014.5
	4			3998.0	2685.0	5669.0	4356.0	7340.0	6027.0	9011.0	7698.0	10682	9369	3998.3	2685.3
	5					4998.0	3356.0	6669.0	5027.0	8340.0	6698.0	10010	8369	4998.2	3356.1
	6					4327.0	2357.0	5997.0	4028.0	7668.0	5698.0	9339	7369	5997.0	4028.9

 Values in column 0° indicate the maximum available starting torque by means of air supply through connection **A**.

Values in column 90° indicate the minimum available end torque if air supply fails.

Specification

Mounting Options


Project-/Customer Data	Inquiry/Date:	Ref. SF
Company:	Contact Person:	Phone:
Address:	Function:	Fax:
ZIP/Place:	Department:	E-mail:

Cycle Time	Limit Switch Box	Pilot Valve	Positioner	Ex Class
Min. ___ sec	<input type="checkbox"/> 1 Switch	<input type="checkbox"/> zero-current OFF Type: _____	<input type="checkbox"/> 4 – 20 mA	required
Max. ___ sec	<input type="checkbox"/> 2 Switches	<input type="checkbox"/> zero-current ON Voltage _____	<input type="checkbox"/> 0.2 – 1.0 bar	_____

Specification of a complete Quarter Turn Actuator SPA-R Series

Type **Spring Cartridges**
SPA-R - [] - [] - [] - [] - [] - [] - [] - []

Mode of Operation	
DA	double-acting
FC	single-acting (spring to close)
FO	single-acting (spring to open)

Actuator Options			
LS	Limit Switch Box (Micro)	EP	El.-Pneum. Positioner
LSe	Limit Switch Box (Micro Ex)	EPe	El.-Pneum. Positioner Ex
PS	Limit Switch Box (Proximity)	PP	Pneum. Positioner
PSe	Limit Switch Box (Proximity Ex)		

Accessories	
Na	NAMUR Bracket or Mounting Kit
SV3	Solenoid Valve 3/2-Way
SV3e	Solenoid Valve 3/2-Way Ex
SV5	Solenoid Valve 5/2-3/2-Way
SV5e	Solenoid Valve 5/2-3/2-Way Ex
Hh	Stroke Limiter/Manual Override
Ad	Adapter (comb. with el. pos. indicator)
Vs	Piping Stainless Steel
Dr	Throttling Valve
Sc	Silencer
Fr	Filter Regulator incl. Pressure Gauge
Ia	ISO Mounting Kit