FORGED STAINLESS STEEL

"S" Series

Stainless rack and pinion actuators

Air Torque catalogue SS-E-01

Corrosion resistant rack and pinion actuators with a forged stainless steel body in A182 F316 / EN 10088-3 1.4401, for butterfly, ball and plug valves in harsh environments.

- Forged A182 F316 / 1.4401 stainless steel body
- Double acting and spring return versions
- Polished finish available for pharma and food
- Nine sizes, SB AT054U to SB AT654



2,859 Nm	9	F04–F16	1.4401
DA TORQUE AT 8 BAR	SIZES	ISO 5211 FLANGE	BODY · F316

Applications & features.

CORROSIVE AND SANITARY ENVIRONMENTS

Chemical processing · Pulp and paper · Pharmaceutical · Marine and offshore · Food and beverage · Sanitary · Cosmetics

Compact, unique design
Shape avoids cavities and corrosive deposit build-up; identical body and end caps for DA and SR, field conversion by adding or removing spring cartridges.

Two independent travel stops
Adjustment -5° to +5° in the closed position and +5° to -5° in the open position.

Bearings, guides and spring cartridges
Bearings on pistons and racks; piston guides prevent shaft blowout; preloaded spring cartridges in high grade coated steel.

Dual piston rack and pinion
Compact, symmetric mounting, high cycle life and fast operation; reverse rotation by inverting the pistons. Pistons anodised.

Universal anti-blowout drive shaft
Integral drive shaft with double square as standard.

Full compliance
ISO 5211, DIN 3337 and VDI/VDE 3845 (NAMUR air connections only for SB AT054U to SB AT404). Marked with a serial number for full traceability.

Main options. 1. Polished surface for sanitary and pharmaceutical applications · 2. Stainless steel pistons and springs · 3. 100% travel stop adjustment.

Dimensions.

MM · METRIC

Dimension	SB AT054U	SB AT104	SB AT204	SB AT254	SB AT304	SB AT404	SB AT454	SB AT554	SB AT654
A	141	159	211	248	268	345	412	492	630
B	69	85	102	115	127	157	177	220.5	298.5
C (approx.)	75	86	99	114	128	159	210	250	335
F	80	80	80	80	80	80	80	130	130
G	30	30	30	30	30	30	30	30	30
N	11	11	17	17	17	27	27	36	36
P	20	20	20	20	20	30	30	50	50
T ISO 228*	1/8"	1/8"	1/8"	1/8"	1/4"	1/4"	1/4"	1/4"	3/8"
Ø Z1	37	37	37	37	37	51	60	68	104
ISO flange	F04	F05	F05 + F07	F05 + F07	F07 + F10	F07 + F10	F10 + F12	F14	F16
Q	42	50	50	50	70	70	102	140	165
Q1	-	-	70	70	102	102	125	-	-
W	M5	M6	M6	M6	M8	M8	M10	M16	M20
W1	-	-	M8	M8	M10	M10	M12	-	-
Optional ISO flange	F03	-	-	-	-	-	-	F10 + F12	-
CH x l min. D	9x11	11x12	14x16	17x19	17x19	22x24	27x29	27x29	36x39
CH x l min. DS	11x12	14x16	17x19	-	22x24	27x29	-	36x39	46x49

* NPT (ANSI B1-20-1) threads available on request only for models SB AT054U ÷ SB AT404. Top detail: 4x4 top square; M6x12 / M5x8 accessory threads. Bottom view to ISO 5211 with double, single parallel or single diagonal square.

Technical data.

D = DOUBLE ACTING · S = SPRING RETURN

Data	SB AT054U D / S	SB AT104 D / S	SB AT204 D / S	SB AT254 D / S	SB AT304 D / S	SB AT404 D / S	SB AT454 D / S	SB AT554 D / S	SB AT654 D / S
Opening time (s) (A)	0.2 / 0.25	0.25 / 0.3	0.3 / 0.4	0.4 / 0.5	0.5 / 0.7	0.9 / 1.2	1.2 / 1.5	2 / 2.4	3.5 / 4.1
Closing time (s) (A)	0.2 / 0.3	0.3 / 0.35	0.35 / 0.5	0.5 / 0.6	0.6 / 0.9	1.1 / 1.4	1.4 / 1.8	2.2 / 2.8	4 / 4.6
Air volume opening (L)	0.09	0.16	0.31	0.51	0.71	1.54	2.41	4.26	10
Air volume closing (L)	0.15	0.26	0.49	0.78	1.11	2.34	3.78	6.89	15.2
Approx. weight (kg)	2.7 / 2.9	3.8 / 4.0	6.0 / 6.4	8.8 / 9.4	12.3 / 13.3	22.6 / 24.5	34.6 / 37.7	58 / 65	135 / 150

(A) Test conditions: room temperature, 90° stroke, 5.5 bar (79.75 psi) clean air, no external load; solenoid valve 4 mm orifice / Qn 400 L/min, 8 mm pipe (SB AT054U ÷ SB AT454) or 11 mm orifice / Qn 6000 L/min, 11 mm pipe (SB AT554 ÷ SB AT654).

Double acting torque.

NM AT SUPPLY PRESSURE

Model	2.5 bar	3 bar	3.5 bar	4 bar	4.2 bar	4.5 bar	5 bar	5.5 bar	6 bar	7 bar	8 bar
SB AT054U D	8.3	10.0	11.6	13.3	14.0	15.0	16.6	18.3	19.9	23.3	26.6
SB AT104 D	14.7	17.6	20.5	23.5	24.6	26.4	29.3	32.2	35.2	41.0	46.9
SB AT204 D	29.1	34.9	40.7	46.5	48.9	52.4	58.2	64.0	69.8	81.4	93.1
SB AT254 D	45.8	54.9	64.1	73.2	76.9	82.4	91.5	100.7	109.8	128.1	146.4
SB AT304 D	66.5	79.8	93.1	106	112	120	133	146	160	186	213
SB AT404 D	138	166	194	222	233	249	277	305	332	388	443
SB AT454 D	217	261	304	348	365	391	435	478	522	609	696
SB AT554 D	383	459	536	613	643	686	766	842	919	1072	1225
SB AT654 D	893	1072	1251	1430	1501	1608	1787	1966	2144	2502	2859

Ordering code.

EXAMPLE: – SB AT254 S 12 F05+F07 – 14 DS HT

00 R50: 50% travel stop limitation (45° up to 90°) · R100: 100% travel stop limitation (0° up to 90°)

1 SB: standard material and finish with ENP coating · SC: standard material and finish, no ENP · SCP: standard material, polished, no ENP

2 90° rotation standard (AT054U to AT654); other rotation on request

3 D = double acting · S = spring return

4 AT054U: spring set S1–S8 · AT104 to AT654: number of springs 05 to 12

5 ISO 5211 flange

6 Y: with spigot

7 Square dimensions (see catalogue table)

8 Standard seals -40 °C to +80 °C · HT -15 °C to +150 °C · LLT -55 °C to +80 °C

9 ST / STR / LF / LFR assembly (rotation and indication at air failure)

10 Further requested options

Spring return torque.

NM · AIR STROKE AND SPRING STROKE

Model	Spring set	2.5 bar		3 bar		3.5 bar		4 bar		4.2 bar		4.5 bar		5 bar		5.5 bar		6 bar		7 bar		8 bar		Spring stroke	
		Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End	Start	End
SB AT054U	S 1	**5.0**	**3.0**	7	4.7	8	6.3	10.0	8	9.4	8.3	11.7	9.6	13.3	11.3									**5.3**	**3.3**
	S 2	4	1.9	**6.0**	**3.6**	7.7	5.3	9.3	6.9	9	7.4	11.0	8.6	12.7	10.2	14.3	11.9							**6.4**	**4.0**
	S 3			5.3	2.5	**7.0**	**4.2**	8.7	5.8	8.2	6.6	10.3	7.5	12.0	9.2	13.7	10.8	15.3	12.5					**7.4**	**4.6**
	S 4					6.3	3	**8.0**	**5**	**7.6**	**5.8**	9.7	6.4	11.3	8.1	13.0	9.8	14.7	11.4	18.0	14.7			**8.5**	**5.3**
	S 5							7.3	3.7	7.0	4.9	**9.0**	**5.4**	10.7	7.0	12.3	8.7	14.0	10	17.3	13.7	20.6	17.0	**9.6**	**5.9**
	S 6											8.4	4.3	**10.0**	**6.0**	11.7	7.6	13.3	9.3	16.7	12.6	20.0	16	**10.6**	**6.6**
	S 7													9.4	4.9	**11**	**6.6**	13	8.2	16.0	11.6	19.3	14.9	**11.7**	**7.3**
	S 8															10.4	6	**12.0**	**7.2**	15.3	10.5	18.7	13.8	**12.8**	**7.9**
SB AT104	S 05	**9.1**	**6.2**	12	9.2	15	12.1	17.9	15	19.1	16.2	20.8	17.9	23.8	20.9									**8.4**	**5.5**
	S 06	8	4.5	**10.9**	**7.5**	13.9	10.4	16.8	13.3	18	14.5	19.7	16.3	22.7	19.2	25.6	22.1							**10.1**	**6.7**
	S 07			9.8	5.8	**12.8**	**8.7**	15.7	11.6	16.9	12.8	18.6	14.6	21.5	17.5	24.5	20.4	27.4	23.4					**11.8**	**7.8**
	S 08					11.6	7	**14.6**	**10**	**15.7**	**11.1**	17.5	12.9	20.4	15.8	23.4	18.7	26.3	21.7	32.2	27.5			**13.5**	**8.9**
	S 09							13.5	8.3	14.6	9.4	**16.4**	**11.2**	19.3	14.1	22.3	17.1	25.2	20	31.1	25.9	36.9	31.7	**15.2**	**10**
	S 10											15.3	9.5	**18.2**	**12.4**	21.1	15.4	24.1	18.3	29.9	24.2	35.8	30	**16.9**	**11.1**
	S 11													17.1	10.8	**20**	**13.7**	23	16.6	28.8	22.5	34.7	28.3	**18.6**	**12.2**
	S 12															18.9	12	**21.9**	**14.9**	27.7	20.8	33.6	26.7	**20.2**	**13.3**
SB AT204	S 05	**18**	**11.8**	23.8	17.6	29.7	23.4	35.5	29.2	37.8	31.6	41.3	35	47.1	40.9									**17.3**	**11.1**
	S 06	15.8	8.3	**21.6**	**14.1**	27.5	19.9	33.3	25.8	35.6	28.1	39.1	31.6	44.9	37.4	50.7	43.2							**21**	**13.3**
	S 07			19.4	10.7	**25.2**	**16.5**	31.1	22.3	33.4	24.6	36.9	28.1	42.7	33.9	48.5	39.8	54.3	45.6					**24.2**	**15.5**
	S 08					23	13	**28.8**	**18.8**	**31.2**	**21.2**	34.7	24.7	40.5	30.5	46.3	36.3	52.1	42.1	63.7	53.7			**27.7**	**17.7**
	S 09							26.6	15.4	29	17.7	**32.5**	**21.2**	38.3	27	44.1	32.8	49.9	38.6	61.5	50.3	73.2	61.9	**31**	**19.9**
	S 10											30.2	17.7	**36.1**	**23.6**	41.9	29.4	47.7	35.2	59.3	46.8	71	58.5	**34.6**	**22.1**
	S 11													33.8	20.1	**39.7**	**25.9**	45.5	31.7	57.1	43.4	68.7	55	**38.1**	**24.3**
	S 12															37.5	22.4	**43.3**	**28.3**	54.9	39.9	66.5	51.5	**41.5**	**26.5**
SB AT254	S 05	**27.4**	**16.9**	36.6	26	45.7	35.2	54.9	44.3	58.5	48	64	53.5	73.2	62.6									**28.9**	**18.3**
	S 06	23.8	11.1	**32.9**	**20.3**	42.1	29.4	51.2	38.6	54.9	42.2	60.4	47.7	69.5	56.9	78.7	66							**34.7**	**22**
	S 07			29.2	14.5	**38.4**	**23.6**	47.5	32.8	51.2	36.4	56.7	41.9	65.8	51.1	75	60.2	84.2	69.4					**40.4**	**25.7**
	S 08					34.7	17.9	**43.9**	**27**	**47.5**	**30.7**	53	36.2	62.2	45.3	71.3	54.5	80.5	63.6	98.8	81.9			**46.2**	**29.3**
	S 09							40.2	21.2	43.9	24.9	**49.4**	**30.4**	58.5	39.5	67.7	49	76.8	57.8	95.1	76.1	113	94.5	**52**	**33**
	S 10											45.7	24.6	**54.8**	**33.8**	64	42.9	73.1	52.1	91.5	70.4	110	88.7	**57.8**	**36.7**
	S 11													51.2	28	**60.3**	**37.1**	69.5	46.3	87.8	64.6	106	82.9	**63.5**	**40.3**
	S 12															56.7	31.4	**65.8**	**40.5**	84.1	58.8	102	77.1	**69.3**	**44**
SB AT304	S 05	**41.1**	**27.1**	54.4	40.4	67.7	53.7	81	67	86.3	72.3	94.3	80.3	108	93.6									**39.4**	**25.3**
	S 06	36.1	19.2	**49.4**	**32.5**	62.7	45.8	76	59.1	81.3	64.4	89.3	72.4	103	85.7	116	99							**47.3**	**30.4**
	S 07			44.3	24.6	**57.6**	**37.9**	70.9	51.2	76.2	56.5	84.2	64.5	97	77.8	111	91.1	124	104					**55.1**	**35.5**
	S 08					52.5	30	**65.8**	**43.3**	**71.1**	**48.7**	79.1	56.6	92.4	69.9	106	83.2	119.0	96.5	146	123			**63**	**40.5**
	S 09							60.8	35.5	66.1	40.8	**74.0**	**48.8**	87.3	62.1	101	75.3	113.9	88.6	141	115	167	142	**70.9**	**45.6**
	S 10											69	40.9	**82.3**	**54.2**	95.6	67.5	109	80.8	135	107	162	134	**78.8**	**50.7**
	S 11													77.2	46.3	**90.5**	**59.6**	104	72.9	130	99	157	126	**86.7**	**55.7**
	S 12															85.4	51.7	**99**	**65**	125	92	152	118	**94.5**	**60.8**
SB AT404	S 05	**86**	**56.1**	114	83.8	141	111	169	139	180	150	197	167	224	195									**82.4**	**52.5**
	S 06	75.5	39.6	**103**	**67.3**	131	95.0	159	123	170	134	186	150	214	178	242	206							**98.9**	**63**
	S 07			92.7	50.8	**120**	**78.5**	148	106	159	117	176	134	203	162	231	189	259	217					**115**	**73.5**
	S 08					110	62	**138**	**89.7**	**149**	**101**	165	117	193	145	221	173	248	201	304	256			**132**	**84**
	S 09							127	73.3	138	84.3	**155**	**101**	182	129	210	156	238	184	293	239	349	295	**148**	**94.5**
	S 10											144	84.5	**172**	**112**	200	140	227	168	283	223	338	278	**165**	**105**
	S 11													161	95.7	**189**	**123**	217	151	272	206	328	262	**181**	**116**
	S 12															179	107	**206**	**135**	262	190	317	245	**198**	**126**
SB AT454	S 05	**135**	**89**	179	132	222	176	265	219	283	236	309	262	352	306									**129**	**82.4**
	S 06	119	63	**162**	**106**	206	149.7	249	193	266	211	293	237	336	280	379	324							**155**	**99**
	S 07			146	80	**189**	**124**	233	167	250	185	276	211	320	254	363	298	406	341					**180**	**115**
	S 08					173	98	**216**	**142**	**233**	**159**	260	185	303	229	347	272	390	316	477	403			**206**	**132**
	S 09							200	116	217	133	**243**	**159**	287	203	330	246	374	290	460	377	547	464	**232**	**148**
	S 10											227	134	**270**	**177**	314	221	357	264	444	351	531	438	**258**	**165**
	S 11													254	151	**297**	**195**	341	238	428	325	515	412	**283**	**181**
	S 12															281	169	**324**	**213**	411	299	498	386	**309**	**198**
SB AT554	S 05	**225**	**146**	301	223	378	299	455	376	485	406	531	452	608	529									**237**	**158**
	S 06	193	99	**270**	**175**	346	252	423	329	454	359	500	405	576	482	653	558							**284**	**190**
	S 07			238	128	**315**	**205**	391	281	422	312	468	358	544	434	621	511	698	587					**332**	**221**
	S 08					283	157	**360**	**234**	**390**	**264**	436	310	513	387	589	464	666	540	819	693			**379**	**253**
	S 09							328	186	359	217	**405**	**263**	481	340	558	416	634	493	788	646	941	799	**426**	**285**
	S 10											373	216	**450**	**292**	526	369	603	445	756	599	909	752	**474**	**316**
	S 11													418	245	**495**	**321**	571	398	724	551	877	704	**521**	**348**
	S 12															463	274	**540**	**351**	693	504	846	657	**568**	**379**
SB AT654	S 05	**533**	**146**	712	551	890	730	1069	908	1141	980	1248	1087	1426	1266									**521**	**360**
	S 06	461	268	**640**	**447**	818	625	997	804	1068	876	1176	983	1354	1162	1533	1340							**625**	**433**
	S 07			568	343	**746**	**521**	925	700	996	771	1104	879	1282	1057	1461	1236	1640	1415					**730**	**505**
	S 08					674	417	**853**	**596**	**924**	**667**	1032	774	1210	953	1389	1132	1568	1310	1925	1668			**834**	**577**
	S 09							781	491	852	563	**959**	**670**	1138	849	1317	1028	1495	1206	1853	1564	2210	1921	**938**	**649**
	S 10											887	566	**1066**	**745**	1245	923	1423	1102	1781	1459	2138	1817	**1042**	**721**
	S 11													994	640	**1173**	**819**	1351	998	1709	1355	2066	1713	**1146**	**793**
	S 12															1101	715	**1279**	**894**	1637	1251	1994	1608	**1251**	**865**

Air stroke values are the output torque available to operate the valve when port 2 is pressurised. For SB AT054U the set number is the spring set configuration, not spring quantity. Highlighted figures are bold in the source.

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