

# PNEUMATIC ACTUATOR EB-SYS, SINGLE-ACTING



EB-SYS single-acting pneumatic actuators are available in either "spring opens" and "spring closes" versions.

## TECHNICAL DATA

Torque:	35 - 3590 Nm
Limit of travel:	exactly adjustable between $-8^{\circ}/+3^{\circ}$
Limit switches and solenoid valve mounting:	VDI / VDE 3845
Supply pressure:	min. 2,5 bar, max. 8 bar
Supply quality:	Filtered compressed air dry or lubricated. The pressure condensation point in accordance with (ISO 8573-1:2010, Class3) has to be $\geq -20^{\circ}\text{C}$ or $10^{\circ}\text{C}$ under ambient temperature. The maximum particle size in accordance with (ISO 8573-1:2010, Class 5) should not exceed $40\ \mu\text{m}$ . For cycles $\geq 4$ /min please lubricate.
Temperature range:	$-20^{\circ}\text{C}$ to $+80^{\circ}\text{C}$ (standard) $-40^{\circ}\text{C}$ to $+80^{\circ}\text{C}$ (low temperature) $-15^{\circ}\text{C}$ to $+120^{\circ}\text{C}$ (high temperature)
Valve interface:	EN ISO 5211
Actuator cylinder:	Anodized aluminium, Other coatings upon request.

## FEATURES

- Maintenance-free
- Suitable for all  $\frac{1}{4}$  turn valves
- Blow-out proofed shaft
- Torques in agreement with EN ISO 5211
- Optical position indicator with integrated operator for limit switches
- All fasteners made of stainless steel
- SIL 2 (SIL 3 as redundant system) acc. to IEC 61508

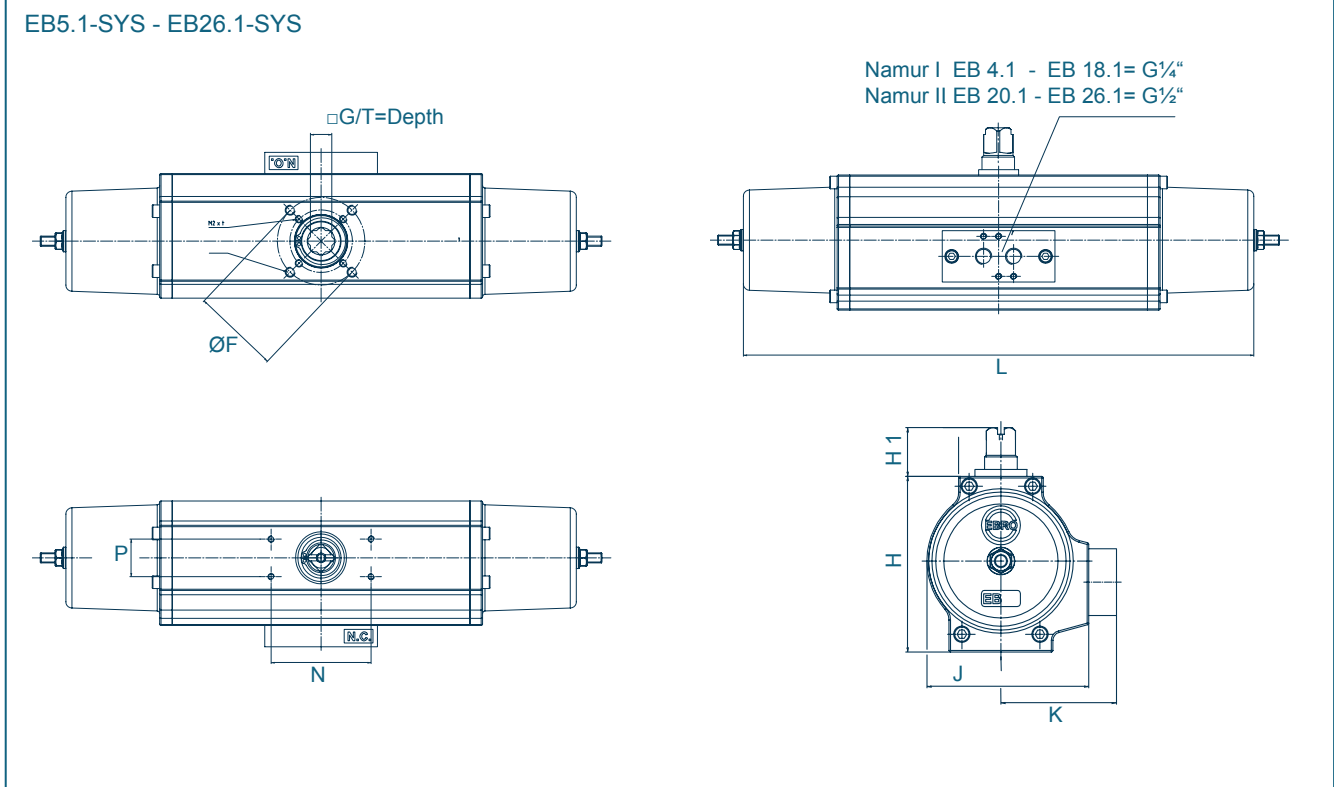
## KEY BENEFITS

- High opening- and closing- torques provided by scotch-yoke concept
- Ideal sliding properties provided by low friction multiple piston guides
- Operational safety and long service life assured by precise machining of parts
- Spring cartridges ensure safe and easy maintenance without special tools
- ATEX: EX II 2 GD c Tx



The EBRO Speed Control block allows the adjustment of closing/opening times up to 60 sec. (depending on actuator size). It can be mounted directly onto the actuator.

# PNEUMATIC ACTUATOR EB-SYS, SINGLE-ACTING



Type	ØF	G	Dimensions [mm]								Weight [kg]
			H	H1	J	K	L	N	P	T	
EB 5.1	F04/05*	10/11/12/14	77	30	72	57	280	80	30	13/16	2,4
EB 6.1	F04/05/07*	11/12/14/16/17	91	30	88	65	351	80	30	19	4,3
EB 8.1	F05/07/10	12/14/16/17/22	108	30	100	71	408	80	30	19	6,3
EB 9.1	F07/10	14/16/17/22	120	30	113	78	476	80	30	24	9,3
EB 10.1	F07/10	14/16/17/22	129	30	122	82	557	80	30	24	12,5
EB 12.1	F10/12	17/22/24/27	156	30	145	93	661	80	30	29	21,1
EB 14.1	<b>F12/16/25**</b>	<b>36</b>	189	30	148	102	697	80	30	38	32,8
EB 16.1	<b>F12/16/25**</b>	<b>46</b>	212	30	150	102	856	80	30	48	48,0
EB 18.1	<b>F12/16/25**</b>	<b>46</b>	243	30	196	103	902	80	30	48	63,7
EB 20.1	<b>F12/16/25**</b>	<b>46</b>	272	30	234	120	1027	80	30	48	94,3
EB 22.1	<b>F16/25**</b>	<b>55</b>	283	30	244	125	1127	80	30	59	114,9
EB26.1	<b>F16/25**</b>	<b>55</b>	350	30	336	168	1472	80	30	59	228,6

\* F04/F05 no combined flange available (Standard = **BOLD**)

\*\* F25 up to 4,000 Nm transferable

## CLOSING TIME\* AND AIR CONSUMPTION

Type	EB 5.1	EB 6.1	EB 8.1	EB 9.1	EB 10.1	EB 12.1	EB 14.1	EB 16.1	EB 18.1	EB 20.1	EB 22.1	EB 26.1
Closing time EB-SYS in sec.*	0,15	0,20	0,45	0,48	0,50	0,70	<1,5	<1,5	<1,5	<1,5	<2,0	<2,0
Filling volume Standard liter/stroke at 1 atm.**	0,27	0,56	0,89	1,40	1,95	3,37	4,52	6,49	10,00	13,64	17,50	36,20

\* closing times with unthrottled air exhaust and air supply, 6 bar control pressure at no load operation

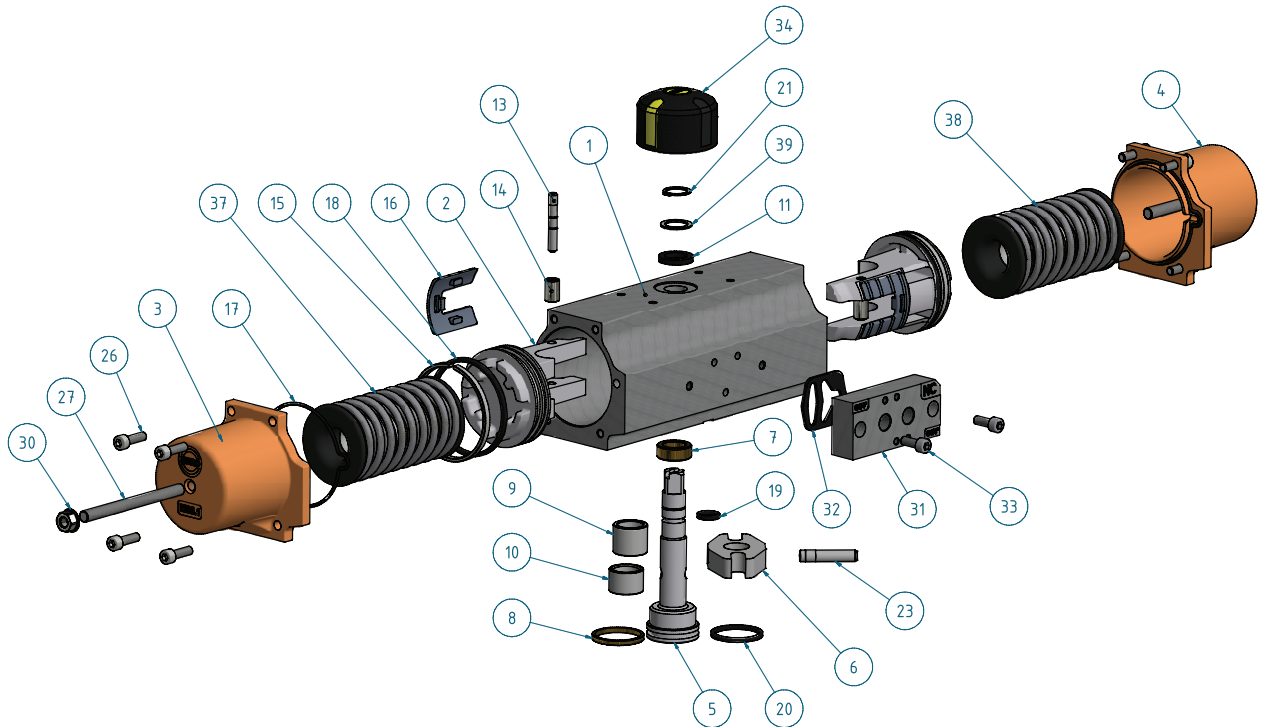
Subject to change without notice

\*\* air consumption = filling volume x control pressure

Closing-/ opening times can be adjusted up to 60 sec. by using the EBRO speed control block (depending on type of actuator).

# PNEUMATIC ACTUATOR EB-SYS, SINGLE-ACTING

Only for EB-SYS (4.1 - 12.1)



## COMPONENT PARTS

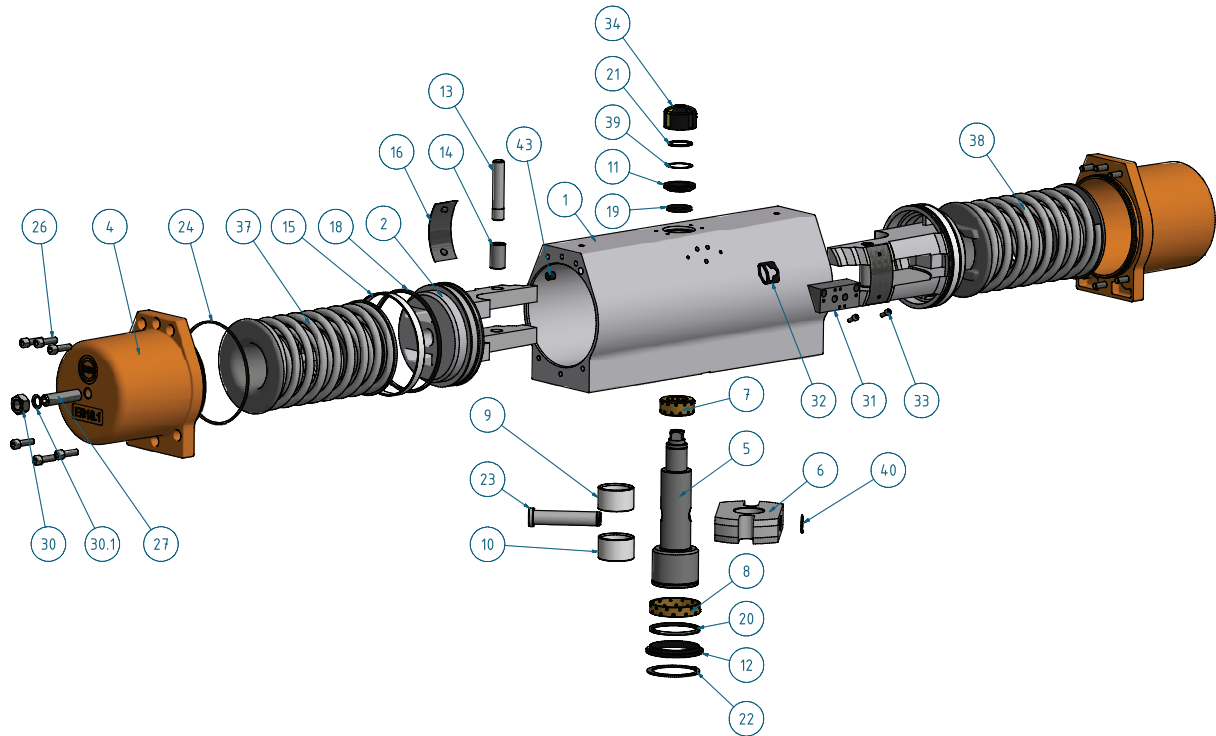
Pt.	Description	Qty.	Material	Pt.	Description	Qty.	Material
1	Actuator cylinder	1	EN AW 6063 - T6	18D	Piston O-Ring	2	NBR 70
2	Piston	2	EN AC 46000	19D	O-Ring, upper shaft	1	NBR 70
3	End cover L SYS	1	EN AC 46000	20D	O-Ring, lower shaft	1	NBR 70
4	End cover R SYS	1	EN AC 46000	21D	Safety ring	1	1.1248
5	Drive shaft	1	1.7131	23	Bolt	1	1.7225
6	Yoke	1	1.7131 / Sint - D30	26	Hex. socket screw	8	A2 - 70
7	Upper shaft bearing	1	Sint - B50	27	Stroke adjusting screw	2	A2 - 70
8	Lower shaft bearing	1	Sint - B50	30	Seal nut	2	A2 - 70
9	Upper piston bearing	1	Technical polymer	31	Valve connection plate	1	EN AC 46000
10	Lower piston bearing	1	Technical polymer	32D	Shaped gasket	1	NBR 70
11	Washer bearing	1	Technical polymer	33	Hex. socket screw	2	A2 - 70
13	Piston bolt	2	1.7131	34	Position indicator	1	techn. Polymer
14	Roller	2	1.3505	37	Spring package	1	FD SiCr / A2
15	Guide band	2	Technical polymer	38	Spring package	1	FD SiCr / A2
16	Slidepad	2	Technical polymer	39	Washer	1	A2
17D	End cover sealing	2	NBR 70				

The spare parts marked with D are integrated in the standard seal set.

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# PNEUMATIC ACTUATOR EB-SYS, SINGLE-ACTING

Only for EB-SYS (14.1 - 26.1)



## COMPONENT PARTS

Pt.	Description	Qty.	Material	Pt.	Description	Qty.	Material
1	Actuator cylinder	1	EN AW 6063 - T6	21D	Upper safety ring	1	1.1248
2	Piston	2	EN AC 46000	22D	Lower safety ring	1	1.1248
4	End cover SYS	2	EN AC 46000	23	swing bolt	1	1.7225
5	Drive shaft	1	1.7131	24D	Cover O-ring	2	NBR 70
6	Yoke	1	1.7131	26	Hex. socket screw	8/16	A2 - 70
7	Upper shaft bearing	1	Ms & Graphit	27	Stroke adjusting screw	2	A2 - 70
8	Lower shaft bearing	1	Ms & Graphit	30	Seal nut	2	A2 - 70
9	Upper piston bearing	1	technical polymer	30.1	O - Ring	2	NBR 70
10	Lower piston bearing	1	technical polymer	31	Valve connection plate	1	EN AC 46000
11	Upper washer bearing	1	technical polymer	32D	Shaped gasket	1	NBR 70
12	Lower washer bearing	1	technical polymer	33	Hex. socket screw	2	A2 - 70
13	Piston bolt	2	1.7131	34	Position indicator	1	technical polymer
14	Roller	2	1.3505	37	Spring package	1	FD SiCr / A2
15	Guide band	2	technical polymer	38	Spring package	1	FD SiCr / A2
16	Slidepad	2	technical polymer	39	Washer	1	A2
18D	Piston O-Ring	2	NBR 70	40	Safety ring	1	1.1248
19D	O-Ring, upper shaft	1	NBR 70	43	sealing plugs	2	NBR 70
20D	O-Ring, lower shaft	1	NBR 70				

The spare parts marked with D are integrated in the standard seal set.

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# PNEUMATIC ACTUATOR EB-SYS, SINGLE-ACTING (SPRING CLOSE)

## ACTUATOR TORQUE

Type	Spring -package	Spring		Eff. air torque in Nm at control pressure															
		Md in Nm		2,5 bar		3 bar		4 bar		5 bar		5,5 bar		6 bar		7 bar		8 bar	
		0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°
EB 5.1 SYS25	VI	12	20	20	12	26	18	39	31	51	43	58	50	64	56	77	69	89	81
EB 5.1 SYS30	V	17	27			21	11	34	24	46	36	53	43	59	49	72	62	84	74
EB 5.1 SYS40	IV	22	35					29	16	41	28	48	35	54	41	67	54	79	66
EB 5.1 SYS50	III	27	44							36	19	43	26	49	32	62	45	74	57
EB 5.1 SYS55	II	30	49									40	21	46	27	59	40	71	52
EB 5.1 SYS60	I	35	58											41	18	54	31	66	43
EB 6.1 SYS25	VI	27	45	38	20	51	33	77	59	103	85	116	98	129	111	155	137	181	163
EB 6.1 SYS30	V	35	57			43	21	69	47	95	73	108	86	121	99	147	125	173	151
EB 6.1 SYS40	IV	45	74					59	30	85	56	98	69	111	82	137	108	163	134
EB 6.1 SYS50	III	55	90							75	40	88	53	101	66	127	92	153	118
EB 6.1 SYS55	II	63	102									80	41	93	54	119	80	145	106
EB 6.1 SYS60	I	73	119											83	37	109	63	135	89
EB 8.1 SYS25	VI	40	67	64	37	85	58	127	100	168	141	189	162	210	183	252	225	293	266
EB 8.1 SYS30	V	48	82			77	43	119	85	160	126	181	147	202	168	244	210	285	251
EB 8.1 SYS40	IV	65	111					102	56	143	97	164	118	185	139	227	181	268	222
EB 8.1 SYS50	III	82	140							126	68	147	89	168	110	210	152	251	193
EB 8.1 SYS55	II	90	152									139	77	160	98	202	140	243	181
EB 8.1 SYS60	I	107	181											143	69	188	111	226	152
EB 9.1 SYS25	VI	55	100	102	57	134	89	197	152	260	215	291	246	323	278	386	341	449	404
EB 9.1 SYS30	V	69	127			120	62	183	125	246	188	277	219	309	251	372	314	438	377
EB 9.1 SYS40	IV	89	153					163	99	226	162	257	193	289	225	352	288	415	351
EB 9.1 SYS50	III	97	178							218	137	249	168	281	200	344	263	407	326
EB 9.1 SYS55	II	113	206									233	140	265	172	328	235	391	298
EB 9.1 SYS60	I	143	261											235	117	298	180	361	243
EB 10.1 SYS25	VI	89	151	132	70	176	114	264	202	353	291	397	335	441	379	529	467	618	556
EB 10.1 SYS30	V	107	182			158	83	246	171	335	260	379	304	423	348	511	436	600	525
EB 10.1 SYS40	IV	145	231					208	122	297	211	341	255	385	299	473	387	562	476
EB 10.1 SYS50	III	182	279							260	163	304	207	348	251	436	339	525	428
EB 10.1 SYS55	II	198	322									258	164	332	208	420	296	509	385
EB 10.1 SYS60	I	236	370											294	160	382	248	471	337
EB 12.1 SYS25	VI	155	224	226	139	302	233	455	386	607	538	684	615	760	691	912	843	1065	978
EB 12.1 SYS30	V	185	309			272	148	425	301	577	453	654	530	730	606	882	758	1035	911
EB 12.1 SYS40	IV	241	392					369	218	521	370	598	447	674	523	826	675	979	828
EB 12.1 SYS50	III	296	475							466	287	543	364	619	440	771	592	924	745
EB 12.1 SYS55	II	333	546									506	293	582	369	734	521	887	674
EB 12.1 SYS60	I	389	630											526	285	678	437	831	590
EB14.1 SYS25	VI	199	312	358	245	469	356	692	579	915	802	1026	913	1138	1025	1361	1248	1583	1470
EB14.1 SYS30	V	257	401			411	267	634	490	857	713	968	824	1080	936	1303	1159	1525	1381
EB14.1 SYS40	IV	314	491					577	400	800	623	911	734	1023	846	1246	1069	1468	1291
EB14.1 SYS50	III	356	557							758	557	869	668	981	780	1204	1003	1426	1225
EB14.1 SYS55	II	413	647									812	578	924	690	1147	913	1369	1135
EB14.1 SYS60	I	516	798											821	539	1044	762	1266	984
EB16.1 SYS25	VI	343	513	499	329	668	498	1005	835	1342	1172	1511	1340	1679	1509	2016	1846	2353	2183
EB16.1 SYS30	V	433	648			578	363	915	700	1252	1037	1421	1205	1589	1374	1926	1711	2263	2048
EB16.1 SYS40	IV	523	782					825	566	1162	903	1331	1071	1499	1240	1836	1577	2173	1914
EB16.1 SYS50	III	604	904							1081	781	1250	949	1418	1118	1755	1455	2092	1792
EB16.1 SYS55	II	694	1039									1160	814	1328	983	1665	1320	2002	1657
EB16.1 SYS60	I	869	1263											1153	759	1490	1096	1827	1433
EB18.1 SYS25	VI	371	623	727	475	946	694	1385	1133	1824	1572	2044	1792	2263	2011	2702	2450	3141	2889
EB18.1 SYS30	V	476	803			841	514	1280	953	1719	1392	1939	1612	2158	1831	2597	2270	3036	2709
EB18.1 SYS40	IV	581	979					1175	777	1614	1216	1834	1436	2053	1655	2492	2094	2931	2533
EB18.1 SYS50	III	661	1112							1534	1083	1754	1303	1973	1522	2412	1961	2851	2400
EB18.1 SYS55	II	766	1290									1649	1125	1868	1344	2307	1783	2746	222
EB18.1 SYS60	I	951	1602											1683	1032	2122	1471	2561	1910
EB20.1 SYS25	VI	550	894	991	647	1300	956	1916	1572	2532	2188	2841	2497	3150	2806	3766	3422	4382	4038
EB20.1 SYS30	V	705	1139			1145	711	1761	1327	2377	1943	2686	2252	2995	2561	3611	3177	4227	3793
EB20.1 SYS40	IV	860	1384					1606	1082	2222	1698	2531	2007	2840	2316	3456	2932	4072	3548
EB20.1 SYS50	III	979	1586							2103	1496	2412	1805	2721	2114	3337	2730	3953	3346
EB20.1 SYS55	II	1134	1831									2257	1560	2566	1869	3182	2485	3798	3101
EB20.1 SYS60	I	1410	2278											2290	1422	2906	2038	3522	2654
EB22.1 SYS25	VI	712	1106	1413	1019	1838	1444	2688	2294	3538	3144	3963	3569	4388	3994	5238	4844	6088	5694
EB22.1 SYS30	V	950	1477			1600	1073	2450	1923	3300	2773	3725	3198	4150	3623	5000	4473	5850	5323
EB22.1 SYS40	IV	1188	1849					2212	1551	3062	2401	3487	2826	3912	3251	4762	4101	5612	4951
EB22.1 SYS50	III	1306	2030							2944	2220	3369	2645	3794	3070	4644	3920	5494	4770
EB22.1 SYS55	II	1544	2402									3131	2273	3556	2698	4406	3548	5256	4398
EB22.1 SYS60	I	1900	2955											3200	2145	4050	2995	4900	3845
EB26.1 SYS25	VI	1478	2640	2592	1430	3406	2244	5034	3872	6662	5500	7476	6314	8290	7218	9918	8756	11546	10384
EB26.1 SYS30	V	1795	3168			3089	1716	4717	3344	6345	4972	7159	5786	7973	6600	9601	8228	11229	9856
EB26.1 SYS40	IV	2112	3696					4400	2816	6028	4444	6842	5258	7656	6072	9284	7700	10912	9328
EB26.1 SYS50	III	2534	4488							5606	3652	6420	4466	7234	5280	8862	6908	10490	8536
EB26.1 SYS55	II	2851	5016									6103	3938	6917	4752	8545	6380	10173	8008
EB26.1 SYS60	I	3590	6336											6178	3432	7806	5060	9434	6688

# PNEUMATIC ACTUATOR EB-SYS, SINGLE-ACTING (SPRING OPEN)

## ACTUATOR TORQUE

Type	Spring -package	Spring Md in Nm		Eff. air torque in Nm at control pressure									
		0°	90°	4 bar		5 bar		6 bar		7 bar		8 bar	
				0°	90°	0°	90°	0°	90°	0°	90°	0°	90°
EB 5.1 SYS25	VI	20	12	31	39	43	51	56	64	69	77	81	89
EB 5.1 SYS30	V	27	17			36	46	49	59	62	72	74	84
EB 5.1 SYS40	IV	35	22					41	54	54	67	66	79
EB 6.1 SYS25	VI	45	27	59	77	85	103	111	129	137	155	163	181
EB 6.1 SYS30	V	57	35			73	95	99	121	125	147	151	173
EB 6.1 SYS40	IV	74	45					82	111	108	137	134	163
EB 8.1 SYS25	VI	67	40	100	127	141	168	183	210	225	252	266	293
EB 8.1 SYS30	V	82	48			126	160	168	202	210	244	251	285
EB 8.1 SYS40	IV	111	65					139	185	181	227	222	268
EB 9.1 SYS25	VI	100	55	152	197	215	260	278	323	341	386	404	449
EB 9.1 SYS30	V	127	69			188	246	251	309	314	372	377	438
EB 9.1 SYS40	IV	153	89					225	289	288	352	351	415
EB 10.1 SYS25	VI	151	89	202	264	291	353	379	441	467	529	556	618
EB 10.1 SYS30	V	182	107			260	335	348	423	436	511	525	600
EB 10.1 SYS40	IV	231	145					299	385	387	473	476	562
EB 12.1 SYS25	VI	224	155	386	455	538	607	691	760	843	912	978	1065
EB 12.1 SYS30	V	309	185			453	577	606	730	758	882	911	1035
EB 12.1 SYS40	IV	392	241					523	674	675	826	828	979
EB14.1 SYS25	VI	312	199	579	692	802	915	1025	1138	1248	1361	1470	1583
EB14.1 SYS30	V	401	257			713	857	936	1080	1159	1303	1381	1525
EB14.1 SYS40	IV	491	314					846	1023	1069	1246	1291	1468
EB16.1 SYS25	VI	513	343	835	1005	1172	1342	1509	1679	1846	2016	2183	2353
EB16.1 SYS30	V	648	433			1037	1252	1374	1589	1711	1926	2048	2263
EB16.1 SYS40	IV	782	523					1240	1499	1577	1836	1914	2173
EB18.1 SYS25	VI	623	371	1133	1385	1572	1824	2011	2263	2450	2702	2889	3141
EB18.1 SYS30	V	803	476			1392	1719	1831	2158	2270	2597	2709	3036
EB18.1 SYS40	IV	979	581					1655	2053	2094	2492	2533	2931
EB20.1 SYS25	VI	894	550	1572	1916	2188	2532	2806	3150	3422	3766	4038	4382
EB20.1 SYS30	V	1139	705			1943	2377	2561	2995	3177	3611	3793	4227
EB20.1 SYS40	IV	1384	860					2316	2840	2932	3456	3548	4072
EB22.1 SYS25	VI	1106	712	2294	2688	3144	3538	3994	4388	4844	5238	5694	6088
EB22.1 SYS30	V	1477	950			2773	3300	3623	4150	4473	5000	5323	5850
EB22.1 SYS40	IV	1849	1188					3251	3912	4101	4762	4951	5612
EB26.1 SYS25	VI	2640	1478	3872	5034	5500	6662	7218	8290	8756	9918	10384	11546
EB26.1 SYS30	V	3168	1795			4972	6345	6600	7973	8228	9601	9856	11229
EB26.1 SYS40	IV	3696	2112					6072	7656	7700	9284	9328	10912