

Automatic
valves

Actuators

Accessories

bar

Pneumatic actuators

The Original! - Technics of the top class.

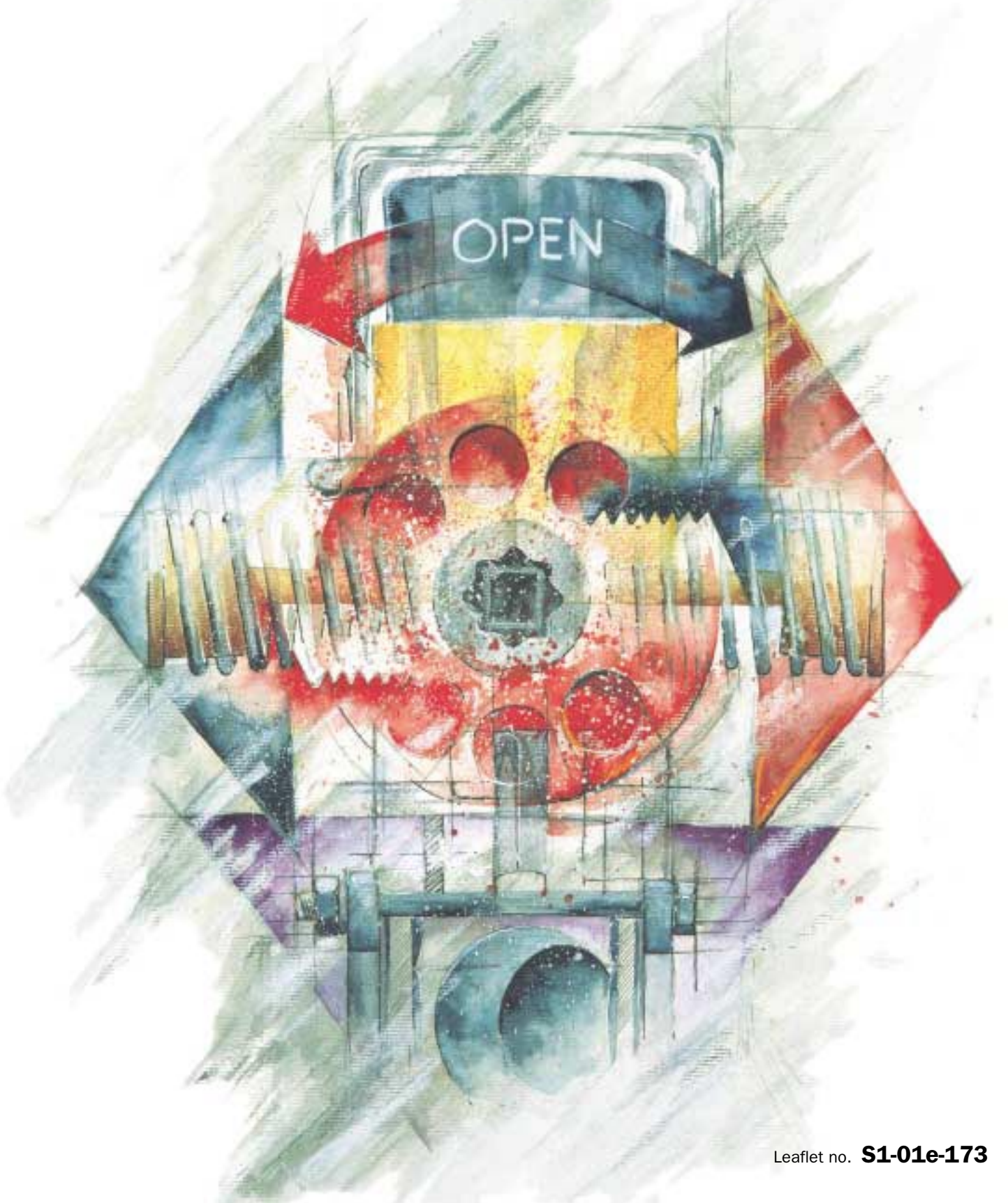


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Advantages and your benefits



Advantages

- Identical size of single- and double-acting actuators

- Standard pivoting angle end adjustment from +5° to –5°

Option: limit adjustment for both pivoting directions (opened **and** closed position)

- Superior wear resistance through slide bearing of all moving parts

- All components are corrosion protected

- **bar safety springs** provide excellent safety conditions

- 16 sizes

- Various ISO flange shapes per size

- Anti-blow-out shafts

- 90°, 120°, 180° and 240° actuators

Your benefits

- Distributors have a reduced capital lockup, because they have to store only double-acting actuators. Single acting actuators can be manufactured **by simple installation of springs**.
- Safe and easy handling through because of preloaded springs.

- Sealing wear of butterfly valve is minimized
- Positively influenced switching characteristics of butterfly valve
- At ball valves, turbulences are avoided

- Actuator is completely maintenance-free
- Long service life (up to 1 million switching cycles)

- Universally usable with any operating condition

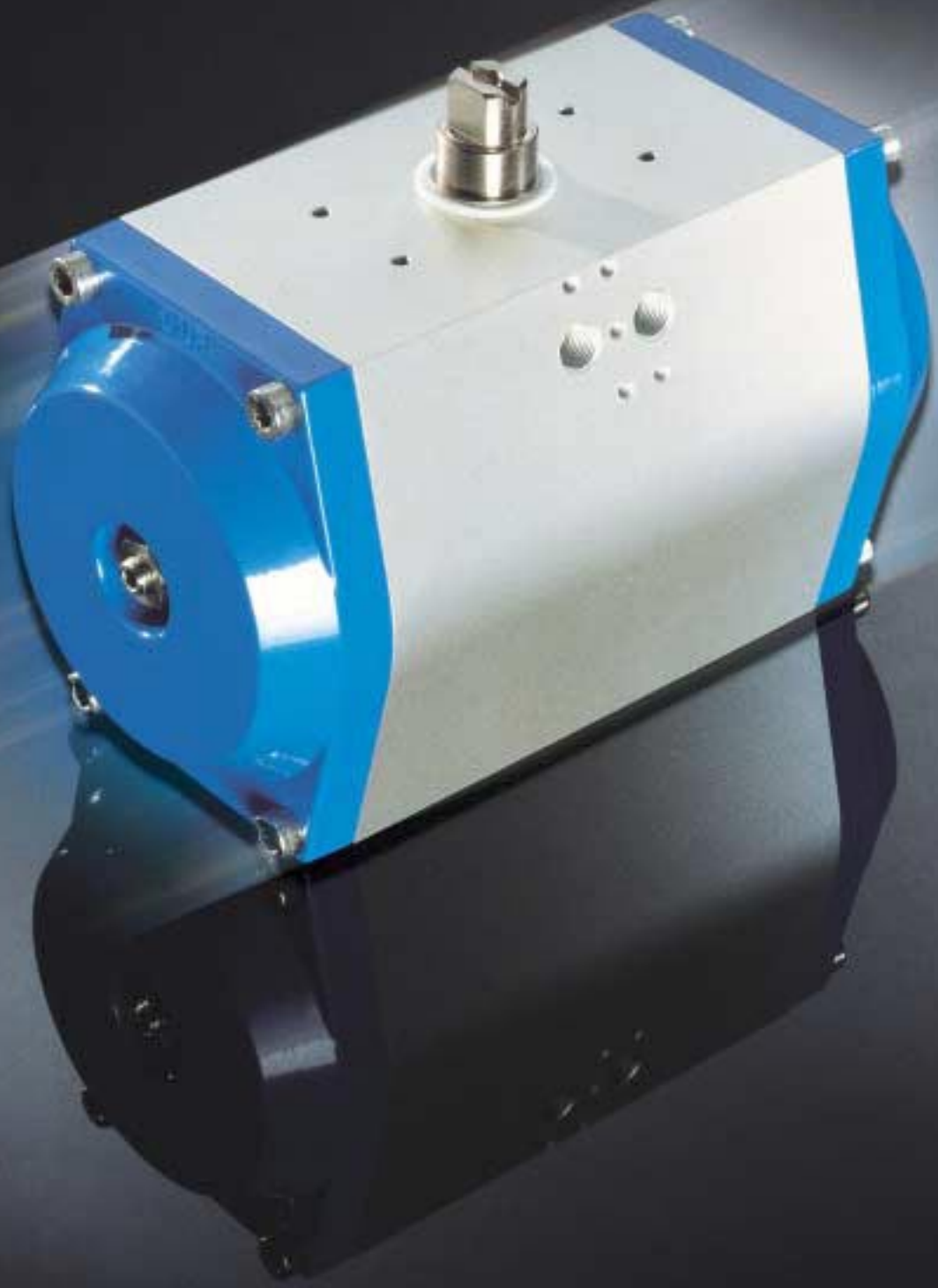
- Reduced cost of service and maintenance
- No risk of accident

- Cost saving through accurate assignment of required torque of the valve

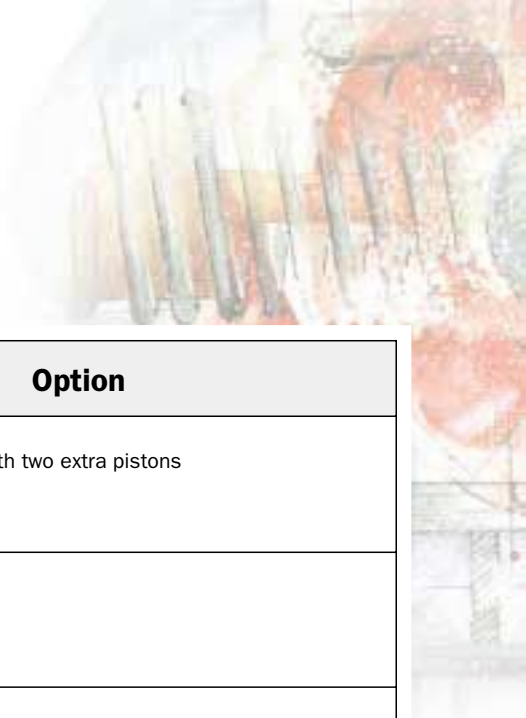
- Cost saving through flexible automation of valves

- No risk of accident

- Covering a wide application range

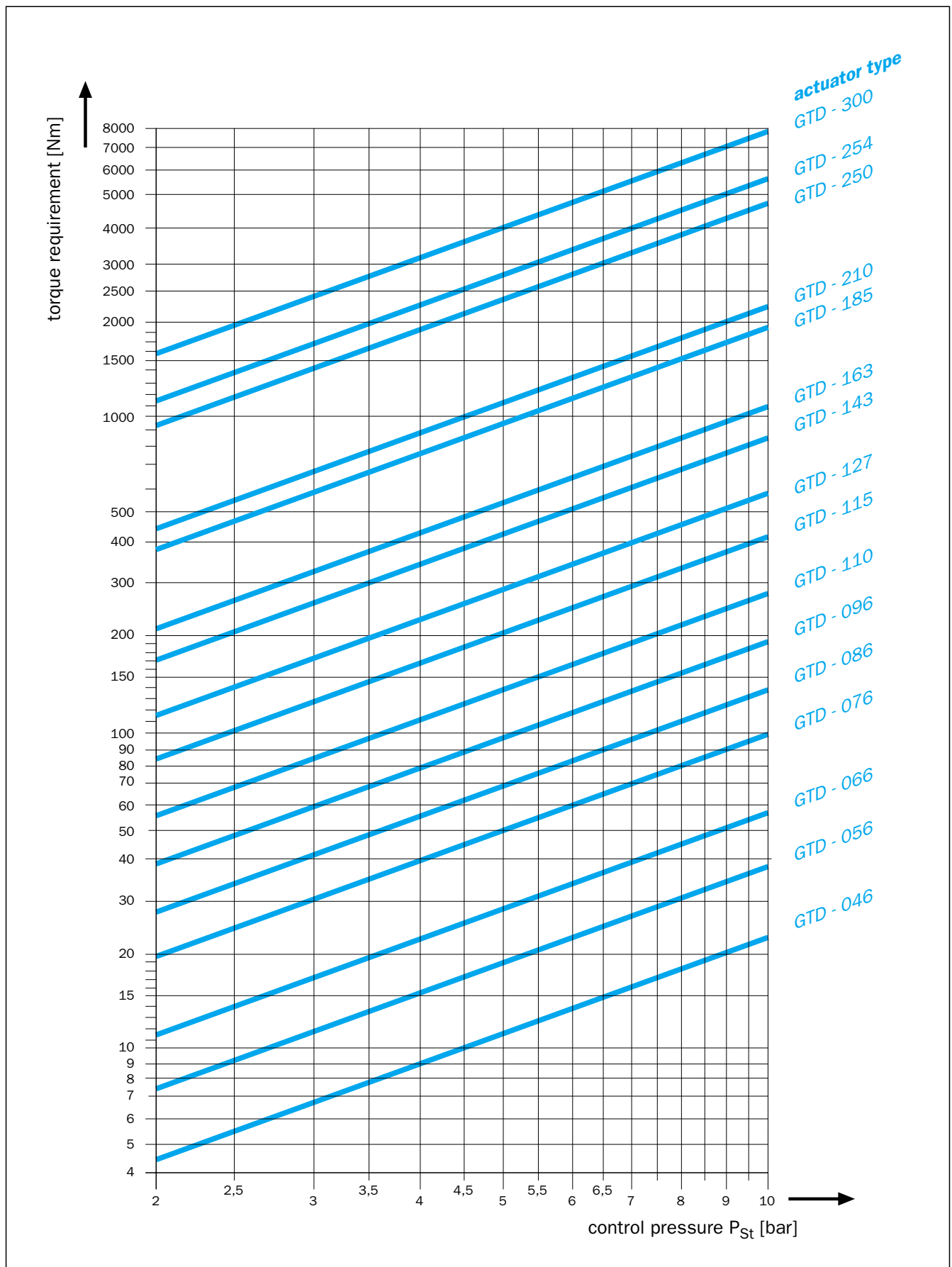


Technical data

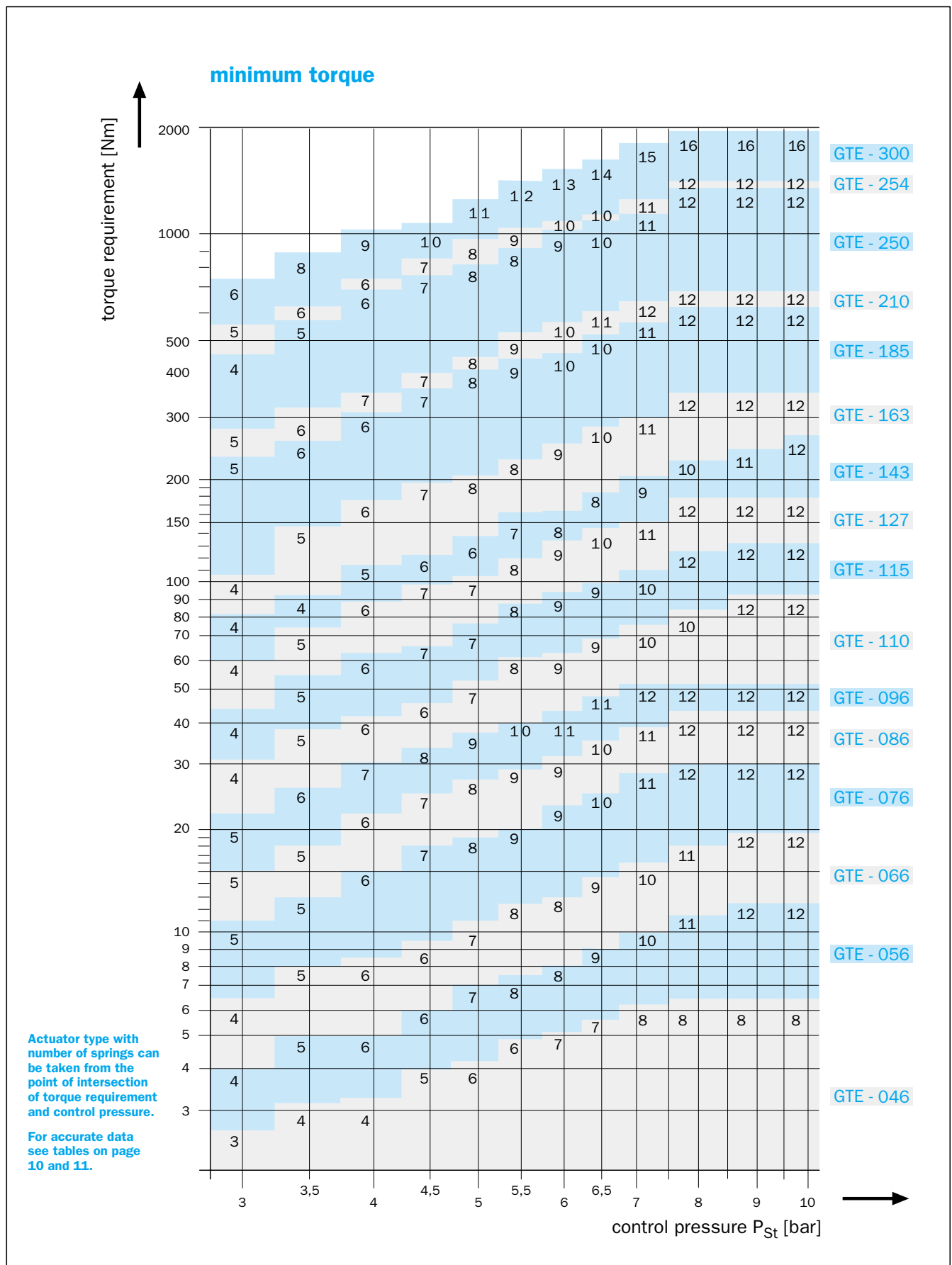


Standard version		Option
System design	Pneumatic twin piston actuator type GTD = double-acting type GTE = single-acting (spring return)	3 position actuators with two extra pistons
Construction features	Rack-and-pinion technique with self-centering piston guidance in casing; single-acting: with bar safety springs	
Installation position	Random	
Standards	<p>Interface actuator/valve: Four or eight female threads in the casing acc. to DIN EN ISO 5211.</p> <p>Interface actuator/control valve: Acc. to NAMUR or VDI/VDE 3845</p> <p>Interface actuator/signal units: Acc. to VDI/VDE 3845 (NAMUR)</p>	<p>Option: alternative fastening and fitting dimensions</p> <p>Option: shaft with inner double-D</p>
Materials	<p>Casing: anodized aluminium alloy</p> <p>Caps: aluminium alloy epoxy coated, type GTD/GTE-046: plastics, epoxy lacquered</p> <p>Piston/toothed rack: aluminium alloy, type GTD/GTE-046 + 056: plastics</p> <p>Shaft: steel, hard nickel plated</p> <p>Gaskets: NBR (buna N)</p> <p>Bearings: easy sliding plastics</p>	<p>Casing: surface treated with epoxy resin</p> <p>Chemical version: double acting: type GCD single acting: type GCE Casing: hard coated, PTFE-impregnated Shaft: stainless steel AISI 303; on request AISI 316</p> <p>Stainless steel version: see data sheet ETD/ETE</p> <p>Shaft: stainless steel</p> <p>Gaskets: FKM (Viton)</p>
Ambient-temperature	- 20 to + 95° C	- 40 to + 160° C
Nominal pivoting angle	Double-acting: 90°, 120°, 180°, 240° Single-acting: 90° Adjustable nominal pivoting angle from + 5 to - 5° GTD/GTE-046 not adjustable	Alternative pivoting angles (e. g. 135°) Limit adjustment for both pivoting directions, type BE 3 position actuators: 0°-90°-180°, 0°-120°-240° 3 position actuators with spring-centered central position
Torques	3 to 8000 Nm (see diagrams on page 6 + 7, torque tables on page 9 to 11)	
Control pressure	2 to 10 bar (GTD/GTE-046 2 to 8 bar)	1 to 16 bar upon request
Control medium/quality	Filtered air; minimum requirements of DIN ISO 8573-1/class 4 apply for residual oil, dust and water content	Can be operated with other non-aggressive, gaseous or fluid media upon request

Type selection diagram for double-acting actuators (GTD)



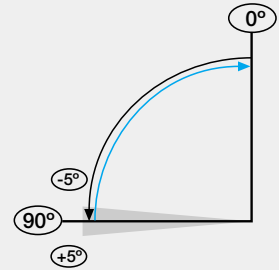
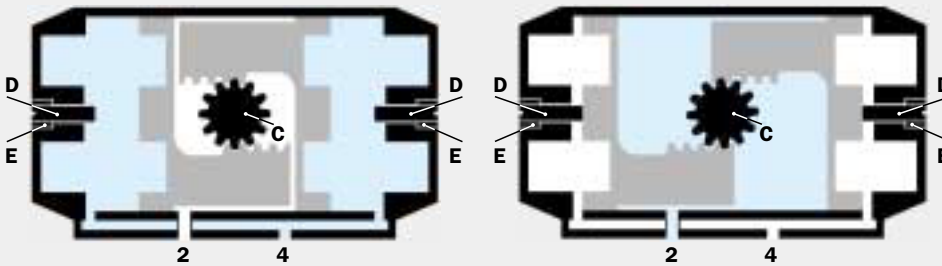
Type selection diagram for single-acting actuators (GTE)



Functions

Standard type

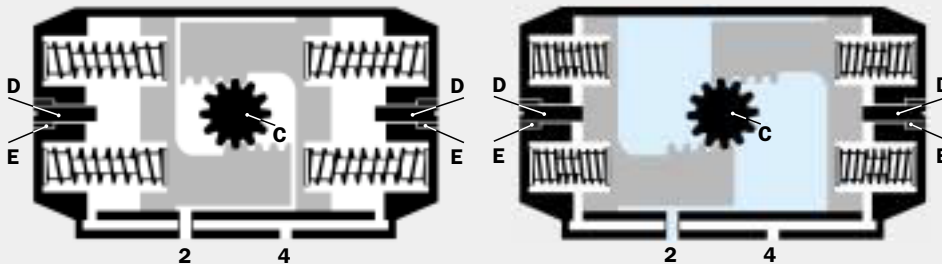
double-acting



Double-acting function:

If the two outer chambers are pressurized via connection '4', the pistons will move to each other into base position (0°). The force of the two pistons is transferred to pinion 'C' via the toothed racks. If connection '2' is pressurized and '4' depressurized, then the pistons move away from each other into the 90° position. In this position, the pivoting angle can be adjusted in depressurized condition by $\pm 5^\circ$ via the two limit position adjustment screws. Lock with locknut 'E'.

single-acting

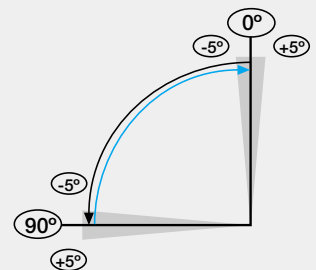
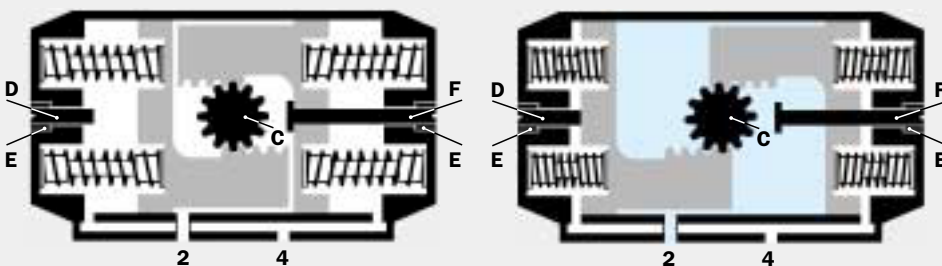


Single-acting function

In the single-acting version, the pistons are pushed back into base position by springs, when connection '2' is depressurized. The number of springs can be adapted to working conditions (2 to 16 pieces).

Type "BE" with adjustment of position "open" and "closed" (not for actuator types GTE-046 + 056)







single-acting



Type "BE" features a double limit stop.

Using screw "D" for 90° position and screw "F" for 0° position, you can adjust these two positions by $\pm 5^\circ$ independent from each other. (Preferably used for spring-closing butterfly valves and spring-opening ball valves).

Mounting variations

2/2 way valve	pinion type	mode of operation	mounting variant	2/2 way valve	pinion type	mode of operation	mounting variant		
 butterfly valve	 double-D	double-acting air "closed + open"	D	 ball valve and plug valve	 double-D	double-acting air "closed + open"	A		
		single-acting spring force "closed"	A *			single-acting spring force "closed"	A		
		single-acting spring force "open"	D			single-acting spring force "open"	D *		
	 octagon	double-acting	H		 octagon	double-acting air "open + closed"	F		
		single-acting spring force "closed"	F *			single-acting spring force "closed"	F		
		single-acting spring force "open"	H			single-acting spring force "open"	H *		
	* We recommend type "BE"				* We recommend type "BE"				

Torques of double-acting actuators type GTD [Nm]

actuator type	control pressure Pst [bar]													
	2 bar	2,5 bar	3 bar	3,5 bar	4 bar	4,5 bar	5 bar	5,5 bar	6 bar	6,5 bar	7 bar	8 bar	9 bar	10 bar
GTD-046	5	6	7	8	9	10	11	13	14	15	16	18	20	23
GTD-056	8	10	12	14	16	18	19	21	23	25	27	31	35	39
GTD-066	11	14	17	20	23	26	29	31	34	37	40	46	51	57
GTD-076	20	25	30	35	40	45	50	55	60	65	70	80	90	100
GTD-086	28	35	42	49	56	63	70	77	84	91	98	112	126	140
GTD-096	40	49	59	69	79	89	99	109	119	129	138	158	178	198
GTD-110	56	70	85	99	113	127	141	155	169	183	197	225	254	282
GTD-115	85	106	127	148	169	190	211	232	254	275	296	338	380	423
GTD-127	118	147	176	206	235	265	294	323	353	382	412	470	529	588
GTD-143	176	220	264	308	352	396	440	484	528	572	616	704	792	880
GTD-163	226	282	338	395	451	508	564	620	677	733	790	902	1015	1128
GTD-185	395	493	592	691	789	888	987	1085	1184	1283	1381	1579	1776	1974
GTD-210	474	592	711	829	948	1066	1185	1303	1421	1540	1658	1895	2132	2369
GTD-250	915	1144	1373	1602	1831	2059	2288	2517	2746	2975	3203	3661	4119	4576
GTD-254	1144	1430	1716	2002	2288	2574	2860	3146	3432	3718	4004	4576	5149	5721
GTD-300	1564	1955	2345	2736	3127	3518	3909	4300	4691	5082	5473	6254	7036	7818

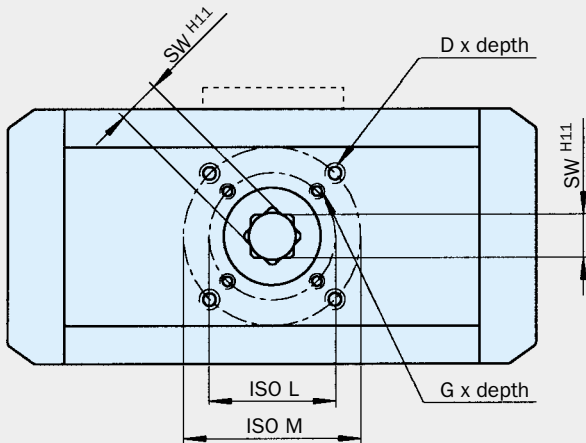
Torques of single-acting actuators type GTE [Nm]



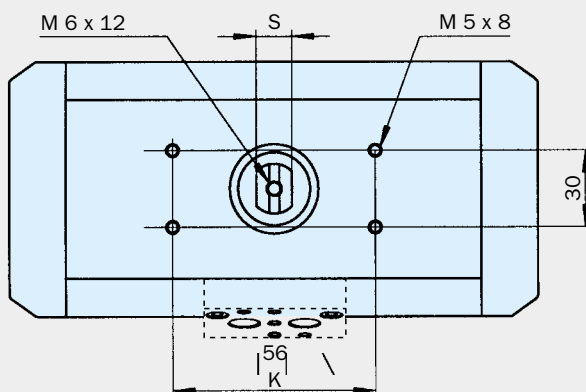
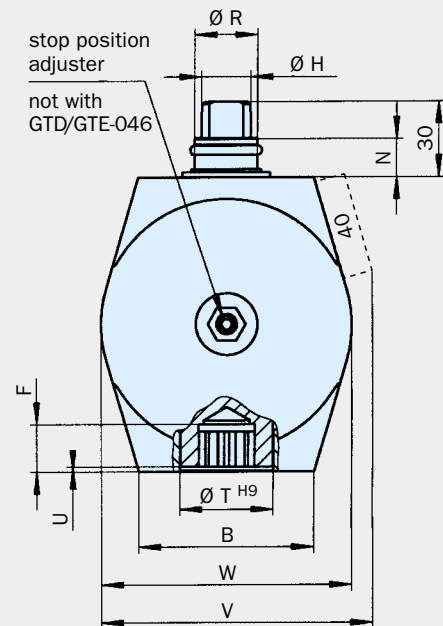
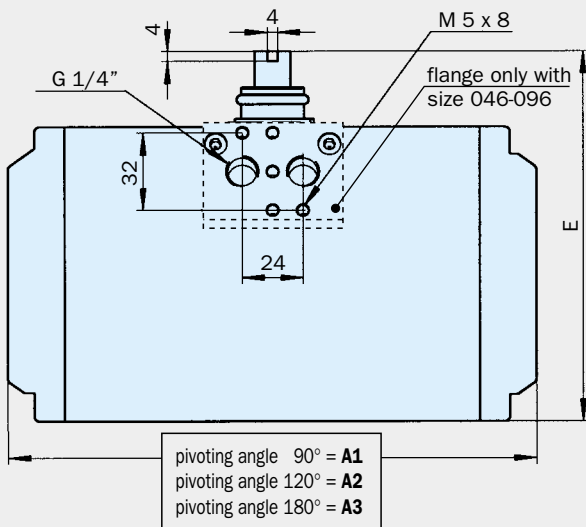
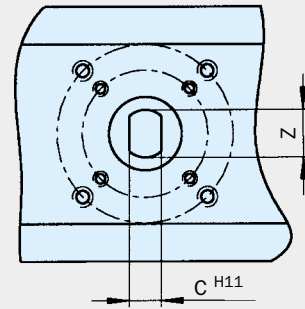
control pressure	minimum torque at (detailed torque data - maximum torques can be taken)					control pressure P_{St} min. and actuator type with number of springs from related data sheets or from actuator calculator programm "easy-bar" – available upon request)						
	3 bar	3,5 bar	4 bar	4,5 bar	5 bar	5,5 bar	6 bar	6,5 bar	7 bar	8 bar	9 bar	10 bar
min. torque [Nm]	2,5	3,2	3,3	4,0	4,2	4,9	5,2	5,7	6,3	6,5	6,5	6,5
actuator with number of springs	GTE-046/90-03	GTE-046/90-04	GTE-046/90-04	GTE-046/90-05	GTE-046/90-06	GTE-046/90-06	GTE-046/90-07	GTE-046/90-07	GTE-046/90-08	GTE-046/90-08	GTE-046/90-08	GTE-046/90-08
min. torque [Nm]	4,0	5,0	5,0	6,0	7,0	7,5	8,0	9,0	10,0	11,5	12,5	12,5
actuator with number of springs	GTE-056/90-04	GTE-056/90-05	GTE-056/90-06	GTE-056/90-06	GTE-056/90-07	GTE-056/90-08	GTE-056/90-08	GTE-056/90-09	GTE-056/90-10	GTE-056/90-11	GTE-056/90-12	GTE-056/90-12
min. torque [Nm]	6,5	8,0	8,5	9,5	11,0	12,5	13,0	14,5	16,0	18,0	19,5	19,5
actuator with number of springs	GTE-066/90-04	GTE-066/90-05	GTE-066/90-06	GTE-066/90-06	GTE-066/90-07	GTE-066/90-08	GTE-066/90-08	GTE-066/90-09	GTE-066/90-10	GTE-066/90-11	GTE-066/90-12	GTE-066/90-12
min. torque [Nm]	11	13	15	18	19	20	23	25	28	30	30	30
actuator with number of springs	GTE-076/90-05	GTE-076/90-05	GTE-076/90-06	GTE-076/90-07	GTE-076/90-08	GTE-076/90-09	GTE-076/90-09	GTE-076/90-10	GTE-076/90-11	GTE-076/90-12	GTE-076/90-12	GTE-076/90-12
min. torque [Nm]	15	18	22	25	27	29	32	36	39	43	43	43
actuator with number of springs	GTE-086/90-05	GTE-086/90-05	GTE-086/90-06	GTE-086/90-07	GTE-086/90-08	GTE-086/90-09	GTE-086/90-09	GTE-086/90-10	GTE-086/90-11	GTE-086/90-12	GTE-086/90-12	GTE-086/90-12
min. torque [Nm]	22	26	30	34	37	40	43	48	52	52	52	52
actuator with number of springs	GTE-096/90-05	GTE-096/90-06	GTE-096/90-07	GTE-096/90-08	GTE-096/90-09	GTE-096/90-10	GTE-096/90-11	GTE-096/90-11	GTE-096/90-12	GTE-096/90-12	GTE-096/90-12	GTE-096/90-12
min. torque [Nm]	31	38	42	46	53	61	63	69	76	84	92	92
actuator with number of springs	GTE-110/90-04	GTE-110/90-05	GTE-110/90-06	GTE-110/90-06	GTE-110/90-07	GTE-110/90-08	GTE-110/90-09	GTE-110/90-09	GTE-110/90-10	GTE-110/90-10	GTE-110/90-12	GTE-110/90-12
min. torque [Nm]	44	55	63	66	77	88	94	99	110	126	132	132
actuator with number of springs	GTE-115/90-04	GTE-115/90-05	GTE-115/90-06	GTE-115/90-07	GTE-115/90-07	GTE-115/90-08	GTE-115/90-09	GTE-115/90-09	GTE-115/90-10	GTE-115/90-12	GTE-115/90-12	GTE-115/90-12
min. torque [Nm]	60	74	89	98	104	119	134	145	150	179	179	179
actuator with number of springs	GTE-127/90-04	GTE-127/90-05	GTE-127/90-06	GTE-127/90-07	GTE-127/90-07	GTE-127/90-08	GTE-127/90-09	GTE-127/90-10	GTE-127/90-11	GTE-127/90-12	GTE-127/90-12	GTE-127/90-12
min. torque [Nm]	81	92	115	121	138	161	162	184	204	230	253	276
actuator with number of springs	GTE-143/90-04	GTE-143/90-04	GTE-143/90-05	GTE-143/90-06	GTE-143/90-06	GTE-143/90-07	GTE-143/90-08	GTE-143/90-08	GTE-143/90-09	GTE-143/90-10	GTE-143/90-11	GTE-143/90-12
min. torque [Nm]	117	147	176	196	208	235	264	289	300	352	352	352
actuator with number of springs	GTE-163/90-04	GTE-163/90-05	GTE-163/90-06	GTE-163/90-07	GTE-163/90-08	GTE-163/90-08	GTE-163/90-09	GTE-163/90-10	GTE-163/90-11	GTE-163/90-12	GTE-163/90-12	GTE-163/90-12
min. torque [Nm]	238	266	310	361	413	448	476	516	568	619	619	619
actuator with number of springs	GTE-185/90-05	GTE-185/90-06	GTE-185/90-06	GTE-185/90-07	GTE-185/90-08	GTE-185/90-09	GTE-185/90-10	GTE-185/90-10	GTE-185/90-11	GTE-185/90-12	GTE-185/90-12	GTE-185/90-12
min. torque [Nm]	286	319	353	401	459	516	571	605	638	688	688	688
actuator with number of springs	GTE-210/90-05	GTE-210/90-06	GTE-210/90-07	GTE-210/90-07	GTE-210/90-08	GTE-210/90-09	GTE-210/90-10	GTE-210/90-11	GTE-210/90-12	GTE-210/90-12	GTE-210/90-12	GTE-210/90-12
min. torque [Nm]	462	578	694	772	817	925	1040	1135	1180	1387	1387	1387
actuator with number of springs	GTE-250/90-04	GTE-250/90-05	GTE-250/90-06	GTE-250/90-07	GTE-250/90-08	GTE-250/90-08	GTE-250/90-09	GTE-250/90-10	GTE-250/90-11	GTE-250/90-12	GTE-250/90-12	GTE-250/90-12
min. torque [Nm]	567	623	739	862	985	1077	1133	1231	1354	1477	1477	1477
actuator with number of springs	GTE-254/90-05	GTE-254/90-06	GTE-254/90-06	GTE-254/90-07	GTE-254/90-08	GTE-254/90-09	GTE-254/90-10	GTE-254/90-10	GTE-254/90-11	GTE-254/90-12	GTE-254/90-12	GTE-254/90-12
min. torque [Nm]	739	897	1058	1219	1354	1478	1601	1724	1847	1970	1970	1970
actuator with number of springs	GTE-300/90-06	GTE-300/90-08	GTE-300/90-09	GTE-300/90-10	GTE-300/90-11	GTE-300/90-12	GTE-300/90-13	GTE-300/90-14	GTE-300/90-15	GTE-300/90-16	GTE-300/90-16	GTE-300/90-16

Dimensional drawing

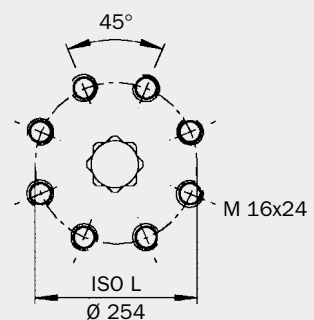
version with female square
ISO 5211



version with double-D
acc. to ISO 5211



flange size with type
of size GTD/GTE-300



Weights, Air Consumption, Dimensions

double-acting actuators

type GTD	weight [kg]			volume/double stroke [liters]		
	90°	120°	180°	90°	120°	180°
046	0,65	–	–	0,15	0,17	0,28
056	0,90	1,10	1,30	0,25	0,28	0,46
066	1,45	1,70	2,00	0,40	0,45	0,74
076	2,10	2,46	2,90	0,60	0,68	1,12
086	2,50	2,95	3,50	0,88	1,00	1,63
096	3,40	4,00	4,60	1,20	1,35	2,25
110	5,20	6,10	7,20	1,90	2,15	3,52
115	7,10	8,00	9,70	2,70	3,05	5,00
127	9,00	10,00	12,50	3,65	4,10	6,80
143	14,40	–	–	5,50	–	–
163	16,40	18,80	26,00	7,00	8,00	13,00
185	27,95	–	–	12,50	–	–
210	31,80	37,40	49,20	15,00	17,00	21,50
250	55,50	66,50	79,00	27,00	31,50	41,00
254	69,20	77,00	–	32,00	38,00	–
300	92,00	–	–	46,00	–	–

single-acting actuators

type GTE	weight [kg]		volume/double stroke [liters]	
	90°	90°	90°	90°
046-08	0,73	–	0,10	–
056-12	1,00	–	0,13	–
066-12	1,62	–	0,21	–
076-12	2,45	–	0,32	–
086-12	2,95	–	0,45	–
096-12	4,00	–	0,62	–
110-12	6,20	–	0,98	–
115-12	8,35	–	1,40	–
127-12	10,70	–	2,00	–
143-12	18,10	–	2,86	–
163-12	20,10	–	3,80	–
185-12	37,75	–	6,50	–
210-12	39,60	–	8,00	–
250-12	70,60	–	14,00	–
254-12	84,30	–	17,00	–
300-16	115,00	–	25,00	–

actuator dimensions

type of actuator	A1	A2	A3 (not for GTE)	B	C ^{H11} x depth	D x depth	E	F	G x depth	Ø H	K	L M		N	Ø R	S	□ SW ^{H11}	T ^{H9}	U	V	W	Z
												flange code	flange code									
GTD / GTE -046	119	–	–	46	9x12	M 6 x 9	95	10	M 5 x 8	12	80	36 F03	42 F04	16	12	10	9	23,8	2	69	53	12,1
GTD / GTE -056	127	146	191	50	11x19	M 6 x 9	104	18	M 5 x 8	12	80	36 F03	50 F05	16	12	10	14	23,8	2	72	59	14,1
GTD / GTE -066	140	158	203	60	11x19	M 8 x 12	118	18	M 6 x 9	12	80	50 F05	70 F07	16	12	10	14	25,3	2	82	70	14,1
GTD / GTE -076	161	183	237	65	11x19	M 8 x 12	130	19	M 6 x 9	14	80	50 F05	70 F07	16	18	10	17	29,3	2	94	83	14,1
GTD / GTE -086	182	207	270	65	14x25	M 8 x 12	138	19	M 6 x 9	14	80	50 F05	70 F07	16	18	10	17	32,3	2	100	91	18,1
GTD / GTE -096	209	239	310	70	17x30	M 8 x 12	147	19	M 6 x 9	19,5	80	50 F05	70 F07	16	25	14	17	37,3	2	108	100	22,2
GTD / GTE -110	222	252	323	90	17x30	M 10 x 15	170	25	M 8 x 12	19,5	80	70 F07	102 F10	16	25	14	22	40,3	2,5	–	120	22,2
GTD / GTE -115	292	–	426	90	17x30	M 10 x 15	170	25	M 8 x 12	28	80	70 F07	102 F10	16	40	20	22	53,3	2,5	–	120	22,2
GTD / GTE -127	298	348	448	103	22x39	M 10 x 15	190	25	M 8 x 12	28	80	70 F07	102 F10	16	40	20	22	53,3	3	–	137	28,2
GTD / GTE -143	337	–	–	110	22x39	M 12 x 18	228	27	M 10 x 15	28	130	102 F10	125 F12	16	40	20	27	53,3	3	–	172	28,2
GTD / GTE -163	377	439	565	110	27x48	M 12 x 18	228	27	M 10 x 15	36	130	102 F10	125 F12	11	45	28	27	66,3	3	–	172	36,2
GTD / GTE -185	420	–	–	135	27x48	–	285	40	M 16 x 24	36	130	140 F14	–	11	45	28	36	66,3	4	–	224	36,2
GTD / GTE -210	462	538	690	135	36x64	–	285	40	M 16 x 24	40	130	140 F14	–	11	60	32	36	79,3	4	–	224	48,2
GTD / GTE -250	603	705	905	160	46x82	–	332	50	M 20 x 28	40	130	165 F16	–	11	60	32	46	105,3	4	–	272	60,2
GTD / GTE -254	683	809	–	160	46x82	–	332	50	M 20 x 28	40	130	165 F16	–	11	60	32	46	134	4	–	272	60,2
GTD / GTE -300	683	–	–	160	–	–	415	62	M 16 x 24	40	130	254 F25	–	11	74	32	55	134	5	–	360	–

Order Information

G T E	0 6 6	/	0 9 0	-	0 8	-	Z 11	-	A	-	BE
G T D	0 6 6	/	0 9 0	-	-	-	V 14	-	F	-	-
function E = single-acting D = double-acting	type		pivoting angle (90°, 120°, 180°)		number of springs		shaft-version Z = double-D (with dimension) V = octagon		mounting version		double limit stop

When ordering parts, please indicate the related part number to be found in the price list.

By high regulating speed of the valve inadmissible strong brake forces can conduct on the actuator.
Remedy: Throttling of the exhaust air or choosing of a bigger size of actuator type.

Spare parts for standard and double limit stop version

1 = Seeger circlip ring	13 = O-ring
2 = Washer	14 = Upper sliding ring
3 = O-ring	15 = Lower sliding ring
4 = Piston guidance ring	16 = Spring
5 = Piston	17 = O-ring
6 = Cap gasket	18 = Cap nut
7 = Cap	19 = Set screw
8 = Cap screw	20 = Piston stopper rod
9 = Guidance segment	21 = O-ring
10 = Casing	22 = Guide bush
11 = Shaft	23 = Seeger circlip ring
12 = O-ring	

Spare Part Kits

Spare kit no. 1
Sealing set,
comprising: ③ ⑥ ⑫ ⑬ ⑰ ⑳

Spare kit no. 2
Guide part set,
comprising: ④ ⑨ ⑭ ⑮

Spare kit no. 3
Cap, complete,
comprising: ⑥ ⑦ ⑧ ⑰ ⑱ ⑲
not with size 046: ④ ⑨ ⑰ ⑱ ⑲

Spare kit no. 4
Piston, complete,
comprising: ③ ④ ⑤ ⑨
not with size 056: ④ ⑨

Spare kit no. 4-BE
Piston, complete, BE-Version (left)
comprising: ③ ④ ⑤ ⑨
Piston, complete, BE-Version (right)
comprising: ③ ④ ⑤a ⑨ ⑲ ⑲ ⑲ ⑲ ⑲
not with size 046-96: ⑲

Spare kit no. 5
Shaft, complete,
comprising: ① ② ⑪ ⑫ ⑬ ⑭ ⑮

bar gets up *motion*. Automatically! Automatically in good hands with bar.

Automatic-valves



Pneumatic actuators



Accessories



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bar GmbH
Auf der Hohl 1
53547 Dattenberg/Germany

Phone +49 26 44 - 96 07-0
Fax +49 26 44 - 96 07 35
www.bar-gmbh.com · **Email:** sales@bar-gmbh.de

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