GTD/GTE

The pneumatic quarter-turn actuator

Experienced engineering of the top class

GTD/GTE-049–098

from GTD/GTE-110

Advantages of the bar-actuator

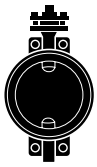
Your benefits

• Identical size of single- and double-acting actuators	• Reduced capital lockup: store only of the double-acting actuators, single-acting actuators can be manufactured by simple installation of springs • safe and easy handling because of preloaded springs
• Standard pivoting angle end adjustment from +5° to -5° Option: limit adjustment for both pivoting directions (opened and closed position)	• Sealing wear of butterfly valve is minimized • Positively influenced switching characteristics of butterfly valve • At ball valves, turbulences are avoided
• Superior wear resistance through slide bearing of all moving parts	• actuator is completely maintenance-free • long service life (up to 1 million switching cycles)
• All components are corrosion protected	• Universally usable with any operating condition
• bar safety springs provide excellent safety conditions	• reduced cost of service and maintenance • no risk of accident
• 18 sizes	• cost saving through accurate assignment of required torque of the valve
• Various ISO flange shapes per size	• cost saving through flexible automation of valves
• Anti-blow-out shafts	• no risk of accident
• 90°, 120° and 180° actuators	• 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 pinions
Construction features	Rack-and-pinion technique with self-centering piston guidance in casing single-acting: with bar safety springs	
Installation position	Random	
Standards	**Interface actuator / signal unit:** acc. VDI/VDE 3845 (NAMUR) **Interface actuator / control valve:** acc. NAMUR i.e. VDI/VDE 3845 **Interface actuator / valve:** 4 i.e. 8 internal threads in actuator casing acc. EN ISO 5211	Option: Alternative fastening and fitting dimensions Option: Shaft with inner double-D acc. EN ISO 5211
Materials	**Casing:** anodized aluminium alloy **Caps:** aluminium alloy epoxy-coated (type GTD/GTE-049: plastics, epoxy lacquered) **Piston/ toothed rack:** aluminium alloy (type GTE/ GTE-049 + 058: plastics) **Shaft:** steel, hard nickel plated **Gaskets:** NBR **Bearings:** easy sliding plastics	**Casing:** surface treated with epoxy resin **Chemical version:** Double acting: Type GCD Single acting: type GCE **Casing:** hard coated, PTFE-impregnated **Shaft:** stainless steel AISI 303, on request AISI 316 **Shaft:** stainless steel **Gaskets:** FKM
Ambient temperature	-50 bis +70 °C	bis +160 °C
Normal pivoting angle	Double-acting: 90°, 120°, 180° Single-acting: 90° Adjustable nominal pivoting angle from +5 to -5° GTD/GTE-049 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 13.000 Nm (see diagrams on page 4, torque tables pages 6-10)	
Control pressure	2 to 10 bar (GTD/GTE-350 + -400, 2 to 8 bar)	
Control medium / quality	Filtered air, in respect of remaining oil content, dust and water minimum acc. to DIN ISO 8573-1, class 4	Also upon request: other non-aggressive gaseous or liquid mediums

Mounting variations

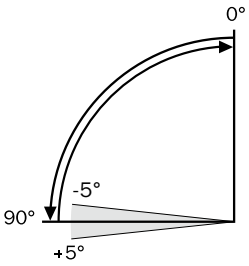
2/2 way valve	Pinion type	Mode of operation	Mounting variant
Butterfly valve 	Double-D	Double-acting air “closed + open”	D
		Single-acting spring force “closed”	A*
		Single-acting spring force “open”	D
	Octagon	Double-acting	H
		Single-acting spring force “closed”	F*
		Single-acting spring force “open”	H
	* We recommend type “BE”		

2/2 way valve	Pinion type	Mode of operation	Mounting variant
Ball valve and plug valve 	Double-D	Double-acting air “closed + open”	A
		Single-acting spring force “closed”	A
		Single-acting spring force “open”	D*
	Octagon	Double-acting air “open + closed”	F
		Single-acting spring force “closed”	F
		Single-acting spring force “open”	H*
	* We recommend type “BE”		

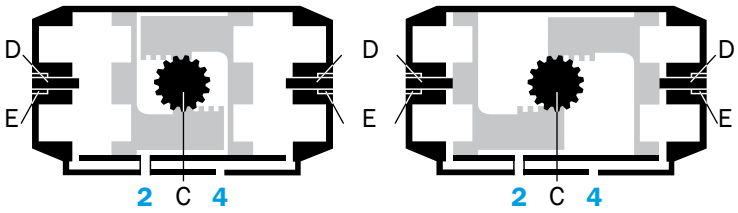
Torque for double-acting actuators type GTD [Nm]

Actuator type	Control pressure Pst [bar]													
	2	2,5	3	3,5	4	4,5	5	5,5	6	6,5	7	8	9	10
GTD-049	5	6	7	8	9	10	11	13	14	15	16	18	20	23
GTD-058	8	10	12	14	16	18	19	21	23	25	27	31	35	39
GTD-068	11	14	17	20	23	26	29	31	34	37	40	46	51	57
GTD-078	20	25	30	35	40	45	50	55	60	65	70	80	90	100
GTD-088	28	35	42	49	56	63	70	77	84	91	98	112	126	140
GTD-098	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
GTD-350	2285	2856	3428	3999	4570	5141	5713	6284	6855	7426	7998	9140		
GTD-400	3256	4069	4883	5698	6511	7325	8139	8953	9767	10580	11394	13022		

Standard type



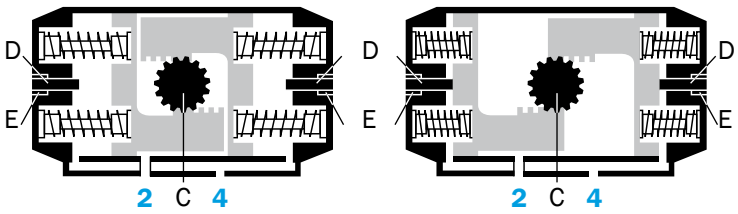
Double-acting function:



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 ± 5° via the two limit position adjustment screws. Lock with locknut “E”.

Single-acting function:

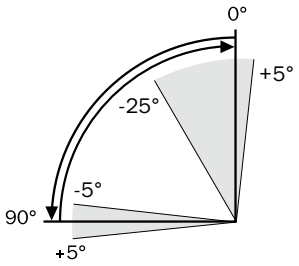


Single-acting function:

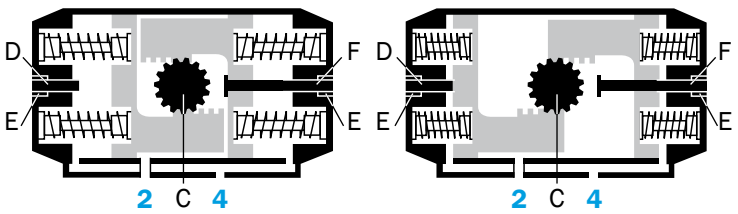
In the single-acting version, the pistons are pushed back into base position by springs, when connection “2” is depressurized. The number of springs can be adapted to working conditions (2 to 16 pieces).

Type “BE”

With adjustment of position “open” and “closed”
(not for actuator types GTE-049 + 058)



Single-acting function:



Type “BE” features a double limit stop. Using screw “D” for 90° position, you can adjust these two positions independent from each other.
(Preferably used for spring-closing butterfly valves and spring-opening ball valves.)

Torques of single-acting actuators type GTE [Nm]

Type	No. of springs	Spring force Md_F [Nm]		Pneumatic applied torque MdN [Nm] at minimum control pressure PST [bar]																											
				2		2,5		3		3,5		4		4,5		5		5,5		6		6,5		7		8		9		10	
		min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
GTE-049	1	1	1	3	4	5	5	6	6	7	7	8	9	9	10	11	11	12	12	13	13	14	15	15	16	18	18	33	21	22	23
	2	2	3	2	3	3	4	5	5	6	7	7	8	8	9	9	10	11	11	12	13	13	14	14	15	16	17	19	20	21	22
	3	2	4	1	2	2	3	3	5	5	6	6	7	7	8	8	9	9	11	10	12	12	13	13	14	15	17	18	19	20	21
	4	3	5			1	3	2	4	3	5	4	6	6	7	7	9	8	10	9	11	10	12	12	13	14	16	16	18	19	20
	5	4	6					1	3	2	4	3	5	4	7	6	8	7	9	8	10	9	11	10	12	13	15	15	17	17	20
	6	5	8									2	5	3	6	4	7	5	8	7	9	8	10	9	12	11	14	14	16	16	19
	7	6	9											2	5	3	6	4	7	5	8	7	10	8	11	10	13	13	16	15	18
	8	7	10													2	5	3	6	4	8	5	9	7	10	9	12	11	15	14	17
GTE-058	1	1	2	6	7	8	9	10	11	12	13	14	15	16	16	18	18	20	20	22	22	24	24	26	26	29	30	33	34	37	38
	2	2	3	4	6	6	8	8	10	10	12	12	14	14	15	16	17	18	19	20	21	22	23	24	25	28	29	32	33	36	37
	3	3	5	3	5	5	7	7	9	8	11	10	12	12	14	14	16	16	18	18	20	20	22	22	24	26	28	30	32	34	36
	4	4	7	1	4	3	6	5	8	7	9	9	11	11	13	13	15	15	17	16	19	18	21	20	23	24	27	28	31	32	35
	5	5	9			1	5	3	6	5	8	7	10	9	12	11	14	13	16	15	18	17	20	19	22	23	26	26	30	30	34
	6	6	10					1	5	3	7	5	9	7	11	9	13	11	15	13	17	15	19	17	21	21	25	25	29	29	33
	7	7	12					0	4	2	6	4	8	5	10	7	12	9	14	11	16	13	18	15	20	19	24	23	28	27	32
	8	8	14							0	5	2	7	4	9	6	11	8	13	10	15	12	17	13	19	17	23	21	27	25	31
	9	9	16									0	6	2	8	4	10	6	12	8	14	10	16	12	18	16	22	20	26	23	30
	10	10	17											0	7	2	9	4	11	6	13	8	15	10	17	14	21	18	25	22	29
	11	11	19													1	8	2	10	4	12	6	14	8	16	12	20	16	24	20	28
	12	13	21															1	9	3	11	5	13	7	15	10	19	14	23	18	26
GTE-068	1	2	2	9	10	12	13	15	15	18	18	20	21	23	24	26	27	29	30	32	33	35	35	38	38	43	44	49	50	55	55
	2	3	5	7	8	10	11	12	14	15	17	18	20	21	22	24	25	27	28	30	31	32	34	35	37	41	42	47	48	52	54
	3	5	7	4	7	7	9	10	12	13	15	16	18	19	21	21	24	24	26	27	29	30	32	33	35	39	41	44	46	50	52
	4	7	9	2	5	5	8	8	11	11	13	13	16	16	19	19	22	22	25	25	28	28	31	31	33	36	39	42	45	48	51
	5	8	12	0	3	3	6	5	9	8	12	11	15	14	18	17	20	20	23	23	26	25	29	28	32	34	37	40	43	45	49
	6	10	14			0	4	3	7	6	10	9	13	12	16	14	19	17	22	20	24	23	27	26	30	32	36	37	42	43	47
	7	11	16					1	6	4	9	6	11	9	14	12	17	15	20	18	23	21	26	24	29	29	34	35	40	41	46
	8	13	19							1	7	4	10	7	13	10	15	13	18	15	21	18	24	21	27	27	33	33	38	38	44
	9	15	21									2	8	5	11	7	14	10	17	13	20	16	22	19	25	25	31	30	37	36	42
	10	16	23											2	9	5	12	8	15	11	18	14	21	16	24	22	29	28	35	34	41
	11	18	26											0	8	3	11	6	13	8	16	11	19	14	22	20	28	26	33	31	39
	12	20	28													0	9	3	12	6	15	9	18	12	20	17	26	23	32	29	37
GTE-078	1	3	4	16	17	21	22	26	27	31	32	36	37	41	42	46	47	51	52	56	57	61	62	66	67	76	77	86	87	96	97
	2	5	8	12	15	17	20	22	25	27	30	32	35	37	40	42	45	47	50	52	55	57	60	62	65	72	75	82	85	92	95
	3	8	12	8	12	13	17	18	22	23	27	28	32	33	37	38	42	43	47	48	52	53	57	58	62	68	72	78	82	88	92
	4	10	15	5	10	10	15	15	20	20	25	25	30	30	35	35	40	40	45	45	50	50	55	55	60	65	70	75	80	85	90
	5	13	19	1	7	6	12	11	17	16	22	21	27	26	32	31	37	36	42	41	47	46	52	51	57	61	67	71	77	81	87
	6	15	23			2	10	7	15	12	20	17	25	22	30	27	35	32	40	37	45	42	50	47	55	57	65	67	75	77	85
	7	18	27					3	12	8	17	13	22	18	27	23	32	28	37	33	42	38	47	43	52	53	62	63	72	73	82
	8	20	31						10	4	15	9	20	14	25	19	30	24	35	29	40	34	45	39	50	49	60	59	70	69	80
	9	23	35							0	12	5	17	10	22	15	27	20	32	25	37	30	42	35	47	45	57	55	67	65	77
	10	25	38									2	15	7	20	12	25	17	30	22	35	27	40	32	45	42	55	52	65	62	75
	11	28	42											3	17	8	22	13	27	18	32	23	37	28	42	38	52	48	62	58	72
	12	30	46													4	20	9	25	14	30	19	35	24	40	34	50	44	60	54	70

bar

Type	No. of springs	Spring force Md_F [Nm]		Pneumatic applied torque MdN [Nm] at minimum control pressure PST [bar]																											
				2		2,5		3		3,5		4		4,5		5		5,5		6		6,5		7		8		9		10	
		min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
GTE-088	1	4	5	23	24	30	31	37	38	44	45	51	52	58	59	65	66	72	73	79	80	86	87	93	94	107	108	121	122	135	136
	2	7	11	17	21	24	28	31	35	38	42	45	49	52	56	59	63	66	70	73	77	80	84	87	91	101	105	115	119	129	133
	3	11	16	12	17	19	24	26	31	33	38	40	45	47	52	54	59	61	66	68	73	75	80	82	87	96	101	110	115	124	129
	4	14	21	7	14	14	21	21	28	28	35	35	42	42	49	49	56	56	63	63	70	70	77	77	84	91	98	105	112	119	126
	5	18	27	1	10	8	17	15	24	22	31	29	38	36	45	43	52	50	59	57	66	64	73	71	80	85	94	99	108	113	122
	6	22	32			3	13	10	20	17	27	24	34	31	41	38	48	45	55	52	62	59	69	66	76	80	90	94	104	108	118
	7	25	37					5	17	12	24	19	31	26	38	33	45	40	52	47	59	54	66	61	73	75	87	89	101	103	115
	8	29	43							6	20	13	27	20	34	27	41	34	48	41	55	48	62	55	69	69	83	83	97	97	111
	9	32	48							1	17	8	24	15	31	22	38	29	45	36	52	43	59	50	66	64	80	78	94	92	108
	10	36	53									3	20	10	27	17	34	24	41	31	48	38	55	45	62	59	76	73	90	87	104
	11	40	59											4	23	11	30	18	37	25	44	32	51	39	58	53	72	67	86	81	100
	12	43	64													6	27	13	34	20	41	27	48	34	55	48	69	62	83	76	97
GTE-098	1	4	7	33	35	43	45	52	55	62	65	72	75	82	85	92	95	102	104	112	114	122	124	132	134	151	154	171	174	191	193
	2	9	14	26	31	36	41	46	51	55	61	65	70	75	80	85	90	95	100	105	110	115	120	125	130	144	150	164	169	184	189
	3	13	21	19	27	29	36	39	46	48	56	58	66	68	76	78	86	88	96	98	106	108	116	118	125	137	145	157	165	177	185
	4	17	28	12	22	22	32	32	42	42	52	51	62	61	72	71	82	81	91	91	101	101	111	111	121	131	141	150	161	170	180
	5	22	35	5	18	15	28	25	38	35	47	45	57	54	67	64	77	74	87	84	97	94	107	104	117	124	137	143	156	163	176
	6	26	42			8	23	18	33	28	43	38	53	47	63	57	73	67	83	77	93	87	102	97	112	117	132	137	152	156	172
	7	30	48					11	29	21	39	31	49	41	59	50	68	60	78	70	88	80	98	90	108	110	128	130	148	149	167
	8	35	55							14	34	24	44	34	54	44	64	53	74	63	84	73	94	83	104	103	123	123	143	142	163
	9	39	62									17	40	27	50	37	60	47	70	56	80	66	89	76	99	96	119	116	139	136	159
	10	43	69									10	36	20	46	30	55	40	65	49	75	59	85	69	95	89	115	109	135	129	154
	11	48	76											13	41	23	51	33	61	43	71	52	81	62	91	82	110	102	130	122	150
	12	52	83													16	47	26	57	36	67	46	76	55	86	75	106	95	126	115	146
GTE-110	1	8	12	45	49	59	63	73	77	87	91	101	105	115	119	129	133	143	147	157	161	171	176	186	190	214	218	242	246	270	274
	2	15	24	33	41	47	55	61	69	75	83	89	97	103	112	117	126	131	140	146	154	160	168	174	182	202	210	230	238	258	267
	3	23	35	21	33	35	48	49	62	63	76	77	90	92	104	106	118	120	132	134	146	148	160	162	174	190	203	218	231	247	259
	4	31	47	9	26	23	40	38	54	52	68	66	82	80	96	94	110	108	124	122	139	136	153	150	167	178	195	207	223	235	251
	5	38	59			12	32	26	46	40	60	54	75	68	89	82	103	96	117	110	131	124	145	139	159	167	187	195	215	223	244
	6	46	71			0	25	14	39	28	53	42	67	56	81	70	95	84	109	99	123	113	137	127	151	155	180	183	208	211	236
	7	53	82					2	31	16	45	30	59	45	73	59	87	73	102	87	116	101	130	115	144	143	172	171	200	200	228
	8	61	94							5	38	19	52	33	66	47	80	61	94	75	108	89	122	103	136	131	164	160	193	188	221
	9	69	106									7	44	21	58	35	72	49	86	63	100	77	114	92	129	120	157	148	185	176	213
	10	76	118											9	50	23	65	37	79	52	93	66	107	80	121	108	149	136	177	164	205
	11	84	129													12	57	26	71	40	85	54	99	68	113	96	141	124	170	153	198
	12	92	141													0	49	14	63	28	78	42	92	56	106	84	134	113	162	141	190
GTE-115	1	11	18	67	74	88	95	109	116	130	137	151	158	173	179	194	200	215	221	236	243	257	264	278	285	320	327	363	369	405	412
	2	22	35	49	62	70	84	91	105	113	126	134	147	155	168	176	189	197	210	218	232	239	253	261	274	303	316	345	358	387	401
	3	33	53	31	51	53	73	74	94	95	115	116	136	137	157	158	178	179	199	201	221	222	242	243	263	285	305	327	347	370	390
	4	44	71	14	40	35	62	56	83	77	104	98	125	119	146	141	167	162	188	183	209	204	231	225	252	267	294	310	336	352	379
	5	55	88			17	51	38	72	60	93	81	114	102	135	123	156	144	177	165	198	186	220	207	241	250	283	292	325	334	368
	6	66	106					21	61	42	82	63	103	84	124	105	145	126	166	148	187	169	209	190	230	232	272	274	314	317	357
	7	77	124					3	50	24	71	45	92	66	113	88	134	109	155	130	176	151	198	172	219	214	261	257	303	299	345
	8	88	141							6	60	28	81	49	102	70	123	91	144	112	165	133	186	154	208	197	250	239	292	281	334
	9	99	159									10	70	31	91	52	112	73	133	94	154	116	175	137	197	179	239	221	281	264	323
	10	110	177											13	80	35	101	56	122	77	143	98	164	119	186	161	228	204	270	246	312
	11	121	195													17	90	38	111	59	132	80	153	101	175	144	217	186	259	228	301
	12	132	212															20	100	41	121	63	142	84	163	126	206	168	248	211	290

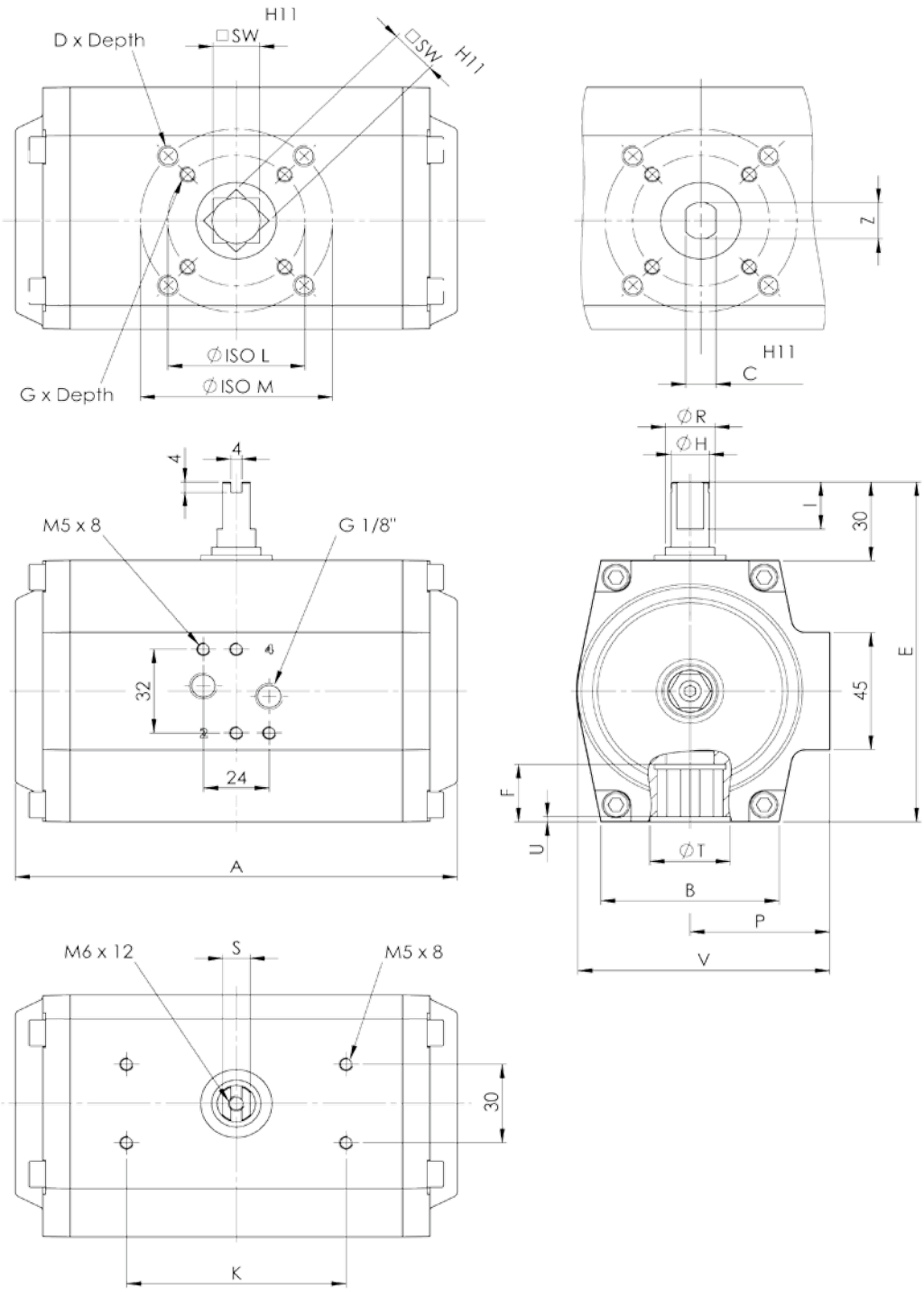
Type	No. of springs	Spring force Md_F [Nm]		Pneumatic applied torque MdN [Nm] at minimum control pressure PST [bar]																											
				2		2,5		3		3,5		4		4,5		5		5,5		6		6,5		7		8		9		10	
		min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
GTE-127	1	15	24	94	103	123	132	153	162	182	191	211	220	241	250	270	279	300	309	329	338	358	367	388	397	447	456	505	514	564	573
	2	30	48	70	88	100	117	129	147	158	176	188	205	217	235	247	264	276	294	305	323	335	352	364	382	423	441	482	499	541	558
	3	45	71	46	73	76	102	105	132	135	161	164	191	193	220	223	249	252	279	282	308	311	338	340	367	399	426	458	485	517	543
	4	60	95	23	58	52	88	81	117	111	146	140	176	170	205	199	235	228	264	258	293	287	323	317	352	375	411	434	470	493	529
	5	74	119			28	73	58	102	87	131	116	161	146	190	175	220	205	249	234	278	263	308	293	337	352	396	410	455	469	514
	6	89	143			5	58	34	87	63	117	93	146	122	175	152	205	181	234	210	264	240	293	269	322	328	381	387	440	446	499
	7	104	166					10	72	40	102	69	131	98	160	128	190	157	219	187	249	216	278	245	307	304	366	363	425	422	484
	8	119	190							16	87	45	116	75	146	104	175	133	204	163	234	192	263	222	293	280	351	339	410	398	469
	9	134	214									21	101	51	131	80	160	110	190	139	219	168	248	198	278	257	337	315	395	374	454
	10	149	238											27	116	57	145	86	175	115	204	145	233	174	263	233	322	292	380	351	439
	11	164	261											3	101	33	130	62	160	92	189	121	219	150	248	209	307	268	366	327	424
	12	179	285													9	116	38	145	68	174	97	204	127	233	185	292	244	351	303	410
GTE-143	1	24	34	151	162	197	208	244	255	290	301	337	348	383	394	430	441	466	496	523	534	569	580	616	627	709	720	802	813	895	906
	2	48	69	116	137	162	184	209	230	255	277	302	323	348	370	395	416	451	472	488	509	534	556	581	602	674	695	767	788	860	881
	3	72	103	81	113	127	159	174	206	220	252	267	299	318	345	370	392	415	447	453	485	499	531	546	578	639	671	732	764	825	857
	4	90	138	46	88	92	134	139	181	185	228	232	274	278	321	325	367	380	423	418	460	464	507	511	553	604	646	697	739	790	832
	5	120	172	10	63	57	110	103	156	150	203	196	249	243	296	289	342	345	398	382	435	429	482	475	528	568	621	651	714	754	807
	6	144	207			23	86	68	132	115	178	161	225	208	271	254	318	310	374	347	411	394	457	440	504	533	597	626	690	719	783
	7	168	241					33	107	80	154	126	200	173	247	219	293	275	349	312	386	359	433	405	479	498	572	591	665	684	756
	8	192	276							45	129	91	176	137	222	184	269	240	325	277	362	323	408	370	455	463	548	556	641	649	734
	9	210	310							11	105	56	151	102	198	149	244	205	300	242	337	288	384	335	430	428	523	521	616	614	709
	10	240	344									21	127	67	173	114	220	170	276	207	313	253	359	300	406	393	499	486	592	579	685
	11	264	379											33	149	79	195	134	251	172	288	218	335	265	381	358	474	451	567	544	660
	12	288	413													43	171	99	227	136	264	183	310	229	357	322	450	415	543	508	636
GTE-163	1	29	44	181	196	238	253	294	309	350	365	407	422	463	478	520	535	576	591	632	647	689	704	745	760	858	873	971	986	1084	1099
	2	59	89	137	167	193	223	249	280	306	336	362	393	419	449	475	505	531	562	588	618	644	675	701	731	813	844	926	957	1039	1069
	3	88	133	92	138	149	194	205	250	261	307	318	363	374	420	431	476	487	532	543	589	600	645	656	702	769	814	882	927	995	1040
	4	117	178	48	108	104	165	161	221	217	277	273	334	330	390	386	447	443	503	499	559	555	616	612	672	725	785	837	898	950	1011
	5	147	222	3	79	60	135	116	192	172	248	229	304	285	361	342	417	398	474	454	530	511	586	567	643	680	756	793	868	906	981
	6	176	267			15	106	72	162	128	219	184	275	241	332	297	388	354	444	410	501	466	557	523	614	636	726	748	839	861	952
	7	205	311					27	133	84	189	140	246	196	302	253	359	309	415	366	471	422	528	478	584	591	697	704	810	817	923
	8	235	356							39	160	95	216	152	273	208	329	265	386	321	442	377	498	434	555	547	668	659	780	772	893
	9	264	400									51	187	107	244	164	300	220	356	277	413	333	469	389	526	502	638	615	751	728	864
	10	293	445									7	158	63	214	119	271	176	327	232	383	289	440	345	496	458	609	571	722	683	835
	11	323	489											18	185	75	241	131	298	188	354	244	410	300	467	413	580	526	692	639	805
	12	352	534													30	212	87	268	143	325	200	381	256	438	369	550	482	663	594	776
GTE-185	1	52	71	324	343	423	442	521	540	620	639	719	738	817	836	916	935	1015	1034	1113	1132	1212	1231	1311	1330	1508	1527	1705	1725	1903	1922
	2	103	142	253	291	352	390	450	489	549	587	648	686	746	785	845	884	944	982	1042	1081	1141	1180	1240	1278	1437	1476	1634	1673	1832	1870
	3	155	213	182	240	281	339	380	437	478	536	577	635	676	733	774	832	873	931	972	1029	1070	1128	1169	1227	1366	1424	1564	1621	1761	1819
	4	206	283	111	188	210	287	309	386	407	484	506	583	605	682	703	780	802	879	901	978	999	1076	1098	1175	1295	1372	1493	1570	1690	1767
	5	258	354	40	137	139	235	238	334	337	433	435	531	534	630	633	729	731	827	830	926	929	1025	1027	1123	1225	1321	1422	1518	1619	1715
	6	310	425			68	184	167	282	266	381	364	480	463	578	562	677	660	776	759	874	858	973	956	1072	1154	1269	1351	1466	1548	1664
	7	361	496					96	231	195	329	294	428	392	527	491	625	590	724	688	823	787	921	886	1020	1083	1217	1280	1415	1478	1612
	8	413	567					25	179	124	278	223	376	321	475	420	574	519	672	617	771	716	870	815	969	1012	1166	1209	1363	1407	1561
	9	465	638							53	226	152	325	251	424	349	522	448	621	547	720	645	818	744	917	941	1114	1139	1312	1336	1509
	10	516	708									81	273	180	372	278	471	377	569	476	668	574	767	673	865	870	1063	1068	1260	1265	1457
	11	568	779									10	222	109	320	207	419	306	518	405	616	504	715	602	814	800	1011	997	1208	1194	1406
	12	619	850											38	269	137	367	235	466	334	565	433	663	531	762	729	959	926	1157	1123	1354

bar

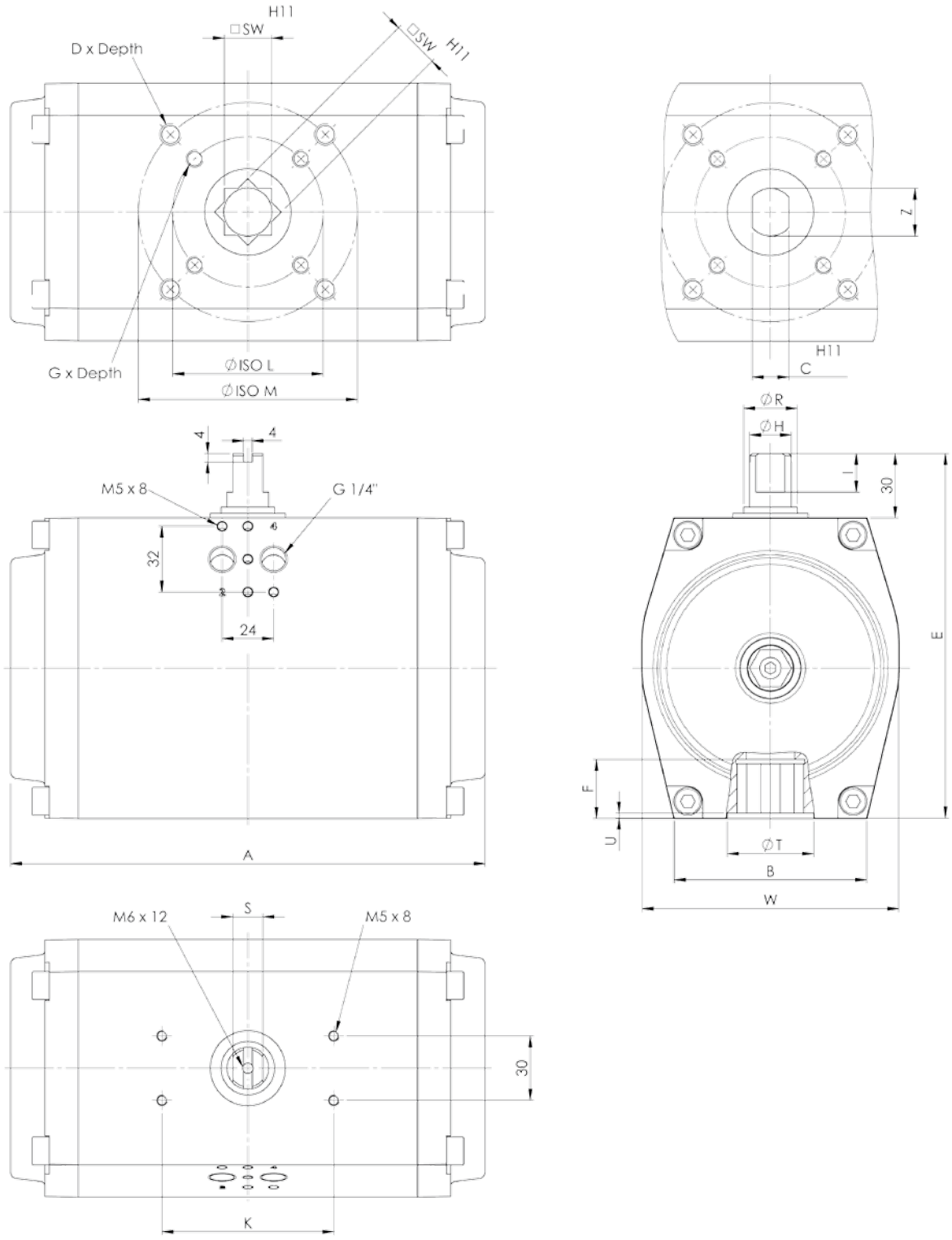
Type	No. of springs	Spring force Md_F [Nm]		Pneumatic applied torque MdN [Nm] at minimum control pressure PST [bar]																											
				2		2,5		3		3,5		4		4,5		5		5,5		6		6,5		7		8		9		10	
		min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
GTE-210	1	57	85	389	416	507	535	626	653	744	772	863	890	981	1009	1100	1127	1218	1246	1336	1364	1455	1483	1573	1601	1810	1838	2047	2075	2284	2312
	2	115	170	304	359	422	478	541	596	659	715	778	833	896	951	1015	1070	1133	1188	1251	1307	1370	1425	1488	1544	1725	1781	1962	2017	2199	2254
	3	172	255	219	302	337	420	456	539	574	657	693	776	811	894	930	1013	1048	1131	1166	1249	1285	1368	1403	1486	1640	1723	1877	1960	2114	2197
	4	229	340	134	245	252	363	371	481	489	600	608	718	726	837	845	955	963	1074	1081	1192	1200	1311	1318	1429	1555	1666	1792	1903	2029	2140
	5	287	425	49	187	167	306	286	424	404	543	523	661	641	779	760	898	878	1016	996	1135	1115	1253	1233	1372	1470	1609	1707	1845	1944	2082
	6	344	510			82	248	201	367	319	485	438	604	556	722	675	841	793	959	911	1077	1030	1196	1148	1314	1385	1551	1622	1788	1859	2025
	7	401	595					116	309	234	428	353	546	471	665	590	783	708	902	826	1020	945	1139	1063	1257	1300	1494	1537	1731	1774	1968
	8	459	680					31	252	149	371	268	489	386	607	505	726	623	844	741	963	860	1081	978	1200	1215	1437	1452	1674	1689	1910
	9	516	765							64	313	183	432	301	550	420	669	538	787	656	905	775	1024	893	1142	1130	1379	1367	1616	1604	1853
	10	573	850									98	374	216	493	335	611	453	730	571	848	690	967	808	1085	1045	1322	1282	1559	1519	1796
	11	631	935									13	317	131	435	250	554	368	672	486	791	605	909	723	1028	960	1265	1197	1502	1434	1738
	12	688	1020											46	378	165	497	283	615	401	734	520	852	638	970	875	1207	1112	1444	1349	1681
GTE-250	1	116	184	731	800	960	1029	1189	1257	1418	1486	1647	1715	1875	1944	2104	2173	2333	2401	2562	2630	2791	2859	3020	3088	3477	3546	3935	4003	4392	4461
	2	231	368	547	684	776	913	1005	1142	1234	1371	1463	1599	1692	1828	1920	2057	2149	2286	2378	2515	2607	2743	2836	2972	3293	3430	3751	3888	4209	4345
	3	347	552	364	569	592	797	821	1026	1050	1255	1279	1484	1508	1713	1736	1941	1965	2170	2194	2399	2423	2628	2652	2857	3109	3314	3567	3772	4025	4230
	4	462	736	180	453	408	682	637	911	866	1139	1095	1368	1324	1597	1553	1826	1781	2055	2010	2284	2239	2512	2468	2741	2925	3199	3383	3656	3841	4114
	5	578	920			225	566	453	795	682	1024	911	1253	1140	1481	1369	1710	1597	1939	1826	2168	2055	2397	2284	2626	2742	3083	3199	3541	3657	3998
	6	694	1104			41	451	269	679	498	908	727	1137	956	1366	1185	1595	1414	1824	1642	2052	1871	2281	2100	2510	2558	2968	3015	3425	3473	3883
	7	809	1287					86	564	314	793	543	1021	772	1250	1001	1479	1230	1708	1458	1937	1687	2166	1916	2394	2374	2852	2831	3310	3289	3767
	8	925	1471							130	677	359	906	588	1135	817	1364	1046	1592	1275	1821	1503	2050	1732	2279	2190	2736	2647	3194	3105	3652
	9	1040	1655									175	790	404	1019	633	1248	862	1477	1091	1706	1319	1934	1548	2163	2006	2621	2464	3079	2921	3536
	10	1156	1839											220	904	449	1132	678	1361	907	1590	1135	1819	1364	2048	1822	2505	2280	2963	2737	3421
	11	1271	2023											36	788	265	1017	494	1246	723	1474	952	1703	1180	1932	1638	2390	2096	2847	2553	3305
	12	1387	2207													81	901	310	1130	539	1359	768	1588	996	1816	1454	2274	1912	2732	2369	3189
GTE-254	1	123	230	914	1021	1200	1307	1486	1593	1772	1879	2058	2165	2344	2451	2630	2737	2916	3023	3202	3309	3488	3595	3775	3881	4347	4453	4919	5025	5491	5598
	2	246	460	684	898	970	1184	1256	1470	1542	1756	1828	2042	2114	2328	2400	2614	2686	2900	2973	3186	3259	3472	3545	3758	4117	4330	4689	4902	5261	5474
	3	369	690	454	775	740	1061	1026	1347	1312	1633	1598	1919	1885	2205	2171	2491	2457	2777	2743	3063	3029	3349	3315	3635	3887	4207	4459	4779	5031	5351
	4	492	920	224	652	510	938	797	1224	1083	1510	1369	1796	1655	2082	1941	2368	2227	2654	2513	2940	2799	3226	3085	3512	3657	4084	4229	4656	4801	5228
	5	615	1150			281	815	567	1101	853	1387	1139	1673	1425	1959	1711	2245	1997	2531	2283	2817	2569	3103	2855	3389	3427	3961	3999	4533	4571	5105
	6	739	1380			51	692	337	978	623	1264	909	1550	1195	1836	1481	2122	1767	2408	2053	2694	2339	2980	2625	3266	3197	3838	3769	4410	4341	4982
	7	862	1609					107	855	393	1141	679	1427	965	1713	1251	1999	1537	2285	1823	2571	2109	2857	2395	3143	2967	3715	3539	4287	4111	4859
	8	985	1839							163	1018	449	1304	735	1590	1021	1876	1307	2162	1593	2448	1879	2734	2165	3020	2737	3592	3309	4164	3881	4736
	9	1108	2069									219	1180	505	1467	791	1753	1077	2039	1363	2325	1649	2611	1935	2897	2507	3469	3079	4041	3651	4613
	10	1231	2299											275	1343	561	1629	847	1915	1133	2202	1419	2488	1705	2774	2277	3346	2849	3918	3421	4490
	11	1354	2529											45	1220	331	1506	617	1792	903	2078	1189	2364	1475	2651	2047	3223	2619	3795	3192	4367
	12	1477	2759													101	1383	387	1669	673	1955	959	2241	1245	2527	1817	3099	2390	3672	2962	4244

Type	No. of springs	Spring force Md_F [Nm]		Pneumatic applied torque MdN [Nm] at minimum control pressure PST [bar]																											
				2		2,5		3		3,5		4		4,5		5		5,5		6		6,5		7		8		9		10	
		min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
GTE-300	1	123	230	1334	1440	1725	1831	2115	2222	2506	2613	2897	3004	3288	3395	3679	3786	4070	4177	4461	4568	4852	4959	5243	5349	6024	6131	6806	6913	7588	7695
	2	246	460	1104	1317	1495	1708	1886	2099	2276	2490	2667	2881	3058	3272	3449	3663	3840	4054	4231	4445	4622	4835	5013	5226	5795	6008	6576	6790	7358	7572
	3	369	690	874	1194	1265	1585	1656	1976	2046	2367	2437	2758	2828	3149	3219	3540	3610	3931	4001	4321	4392	4712	4783	5103	5565	5885	6346	6667	7128	7449
	4	493	920	644	1071	1035	1462	1426	1853	1817	2244	2207	2635	2598	3026	2989	3417	3380	3807	3771	4198	4162	4589	4553	4980	5335	5762	6116	6544	6898	7326
	5	616	1150	414	948	805	1339	1196	1730	1587	2121	1978	2512	2368	2902	2759	3293	3150	3684	3541	4075	3932	4466	4323	4857	5105	5639	5887	6421	6668	7202
	6	739	1380	184	825	575	1216	966	1607	1357	1998	1748	2388	2138	2779	2529	3170	2920	3561	3311	3952	3702	4343	4093	4734	4875	5516	5657	6297	6438	7079
	7	862	1610			345	1093	736	1484	1127	1874	1518	2265	1909	2656	2299	3047	2690	3438	3081	3829	3472	4220	3863	4611	4645	5393	5427	6174	6208	6956
	8	985	1840			115	970	506	1360	897	1751	1288	2142	1679	2533	2070	2924	2460	3315	2851	3706	3242	4097	3633	4488	4415	5269	5197	6051	5979	6833
	9	1108	2069					276	1237	667	1628	1058	2019	1449	2410	1840	2801	2230	3192	2621	3583	3012	3974	3403	4364	4185	5146	4967	5928	5749	6710
	10	1231	2299					46	1114	437	1505	828	1896	1219	2287	1610	2678	2001	3069	2391	3460	2782	3850	3173	4241	3955	5023	4737	5805	5519	6587
	11	1354	2529							207	1382	598	1773	989	2164	1380	2555	1771	2946	2161	3336	2552	3727	2943	4118	3725	4900	4507	5682	5289	6464
	12	1478	2759									368	1650	759	2041	1150	2432	1541	2822	1932	3213	2322	3604	2713	3995	3495	4777	4277	5559	5059	6341
	13	1601	2989									138	1527	529	1917	920	2308	1311	2699	1702	3090	2093	3481	2483	3872	3265	4654	4047	5436	4829	6217
	14	1724	3219											299	1794	690	2185	1081	2576	1472	2967	1863	3358	2253	3749	3035	4531	3817	5312	4599	6094
	15	1847	3449											69	1671	460	2062	851	2453	1242	2844	1633	3235	2024	3626	2805	4408	3587	5189	4369	5971
	16	1970	3679													230	1939	621	2330	1012	2721	1403	3112	1794	3503	2575	4284	3357	5066	4139	5848
GTE-350	4	938	1361			1495	1918	2067	2490																						
	5	1173	1702			1154	1683	1726	2255																						
	6	1408	2043					1385	2020	1956	2591																				
	7	1640	2383					1045	1788	1616	2359	2187	2930																		
	8	1877	2714							1285	2122	1856	2693	2427	3264																
	9	2112	3064									1506	2458	2077	3029	2649	3601														
	10	2346	3405											1736	2795	2308	3367	2879	3938												
	11	2581	3745													1968	3132	2539	3703	3110	4274	3369	4630								
	12	2816	4086															2198	3468	2769	4039	3000	4376	3912	5182	5054	6324				
GTE-400	7	1837	2880			1190	2233	2004	3047																						
	8	2100	3292			778	1970	1592	2784	2406	3598																				
	9	2362	3703					1181	2522	1995	3336	2809	4150																		
	10	2624	4115							1583	3074	2397	3888	3211	4702																
	11	2887	4526									1986	3625	2800	4439	3614	5253														
	12	3149	4938											2388	4177	3202	4991	4016	5805												
	13	3412	5349													2791	4728	3605	5542	4419	6356										
	14	3674	5761															3193	5280	4007	6094	4341	6602	5635	7722						
	15	3937	6584																	3596	5831	3896	6317	5224	7459	6852	9087				
	16	4199	6584																			4468	6683	4812	7197	6440	8825				

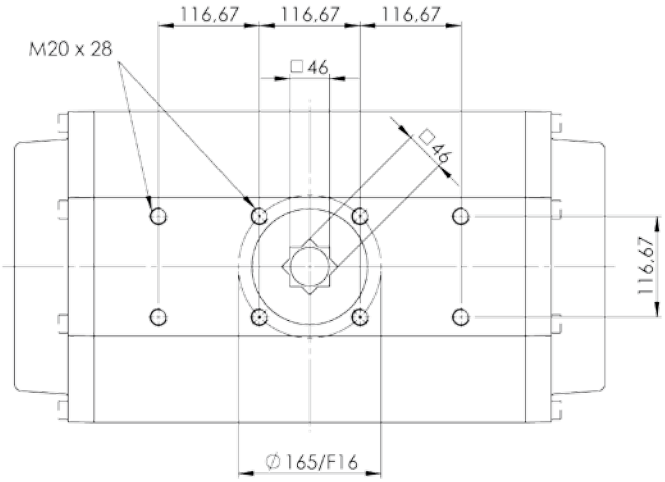
Dimensioned drawing for GTD/GTE-049-098

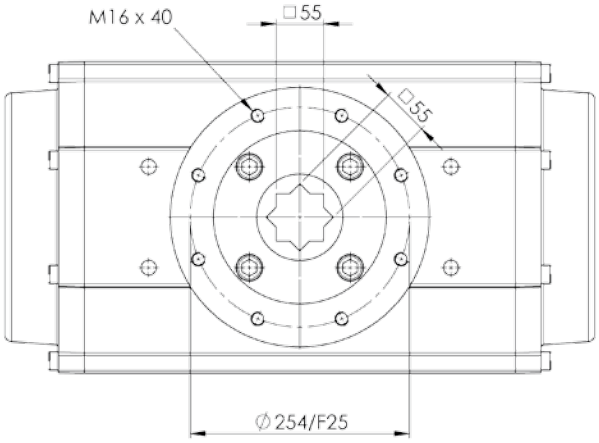


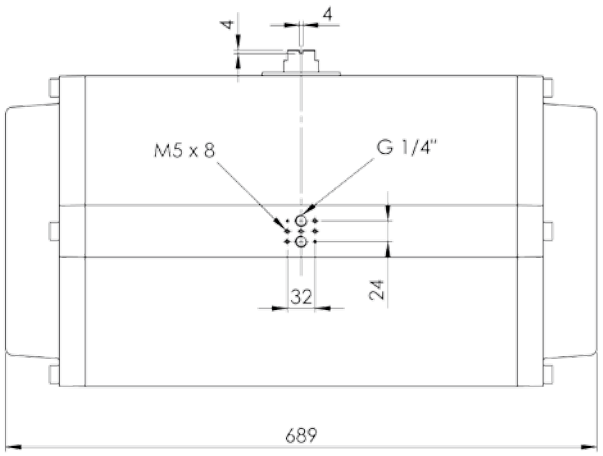
Dimensioned drawing for GTD/GTE-110-254

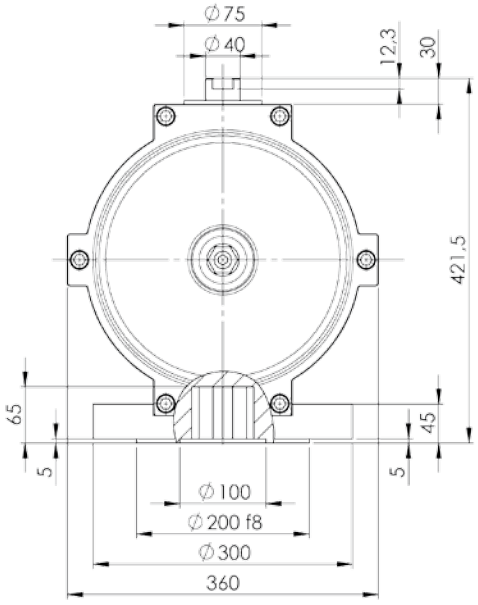


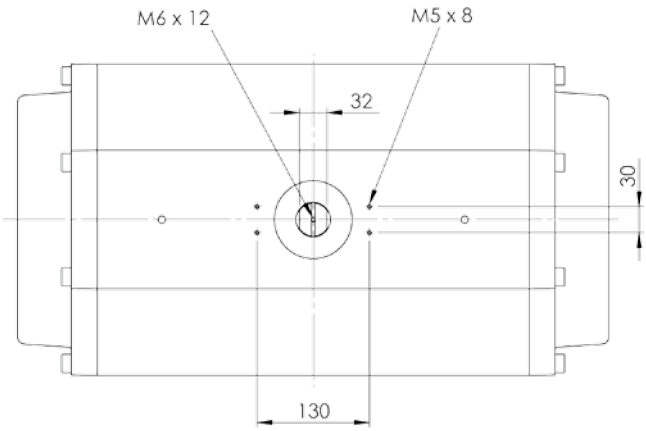
Dimensioned drawing for GTD/GTE-300



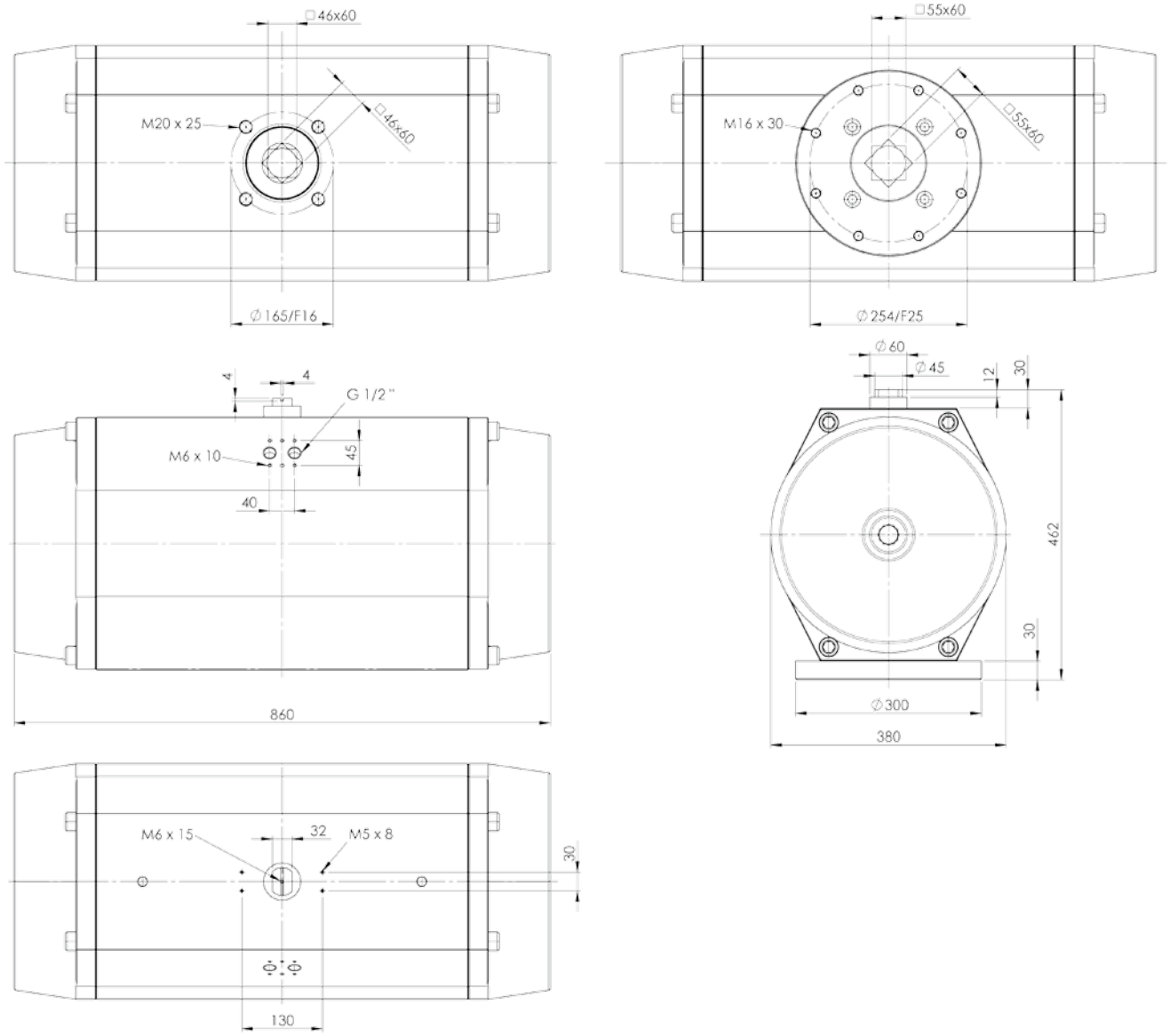








Dimensioned drawing for GTD/GTE-350



Dimensioned drawing for GTD/GTE-400

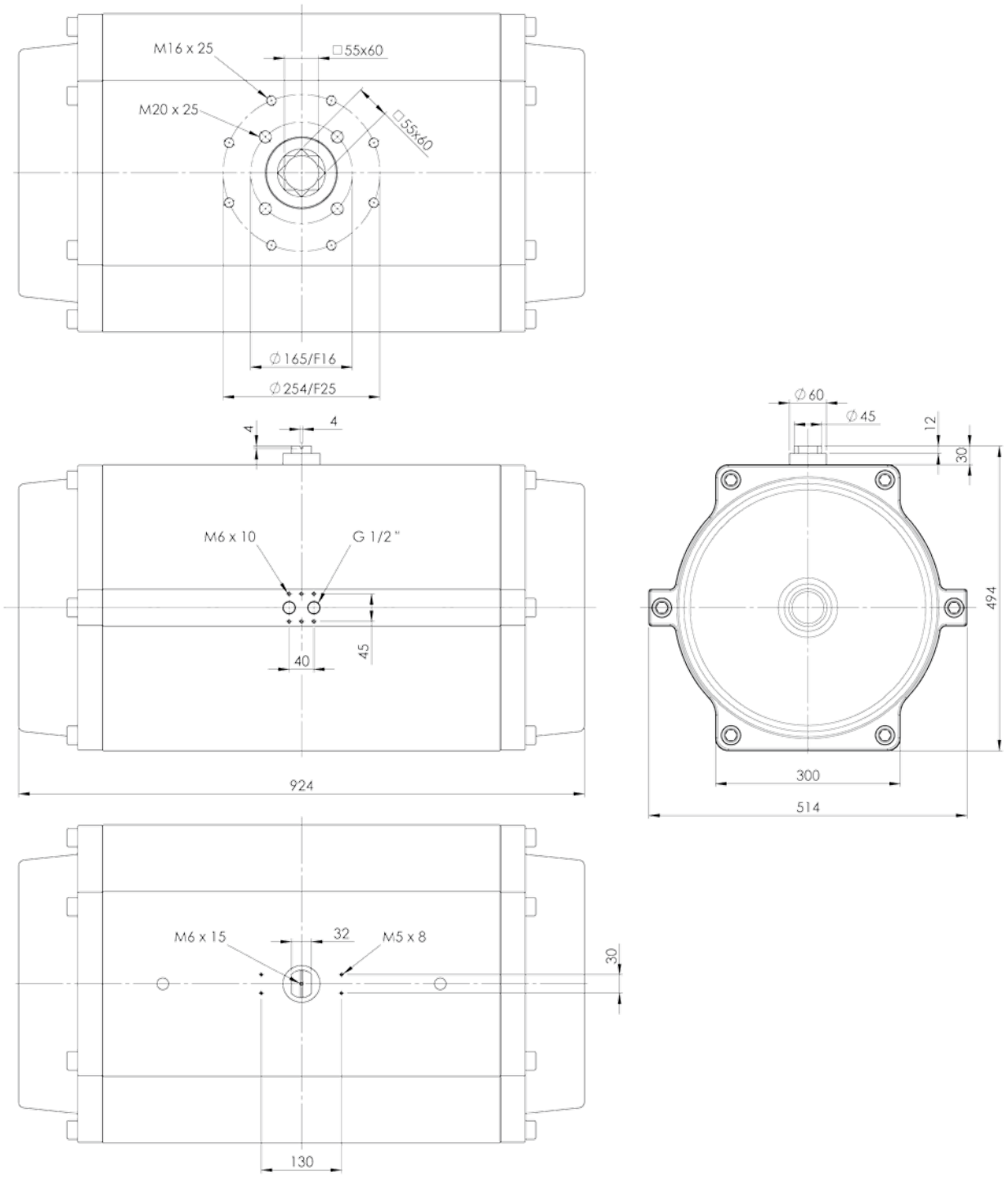


Table of dimensions

Actuator type	A1=90°	A2=120°	A3=180°	B	CxDepth	DxDepth	E	F	GxDepth	H	I
GTD/GTE-049	116	-	-	46	9x12	M6x10	95	13	M5x8	14	18
GTD/GTE-058	133	151	195	50	11x19	M6x10	104	18	M5x8	14	18
GTD/GTE-068	137	155	200	60	11x19	M8x13	118	20	M6x10	14	18
GTD/GTE-078	161	183	237	65	11x19	M8x13	130	20	M6x10	14	18
GTD/GTE-088	180	205	268	67	14x25	M8x13	138	20	M6x10	14	18
GTD/GTE-098	209	239	310	70	17x30	M8x13	147	21	M6x10	19,5	18
GTD/GTE-110	221	251	322	90	17x30	M10x16	170	25,5	M8x13	19,5	18
GTD/GTE-115	291	341	421	90	17x30	M10x16	170	36	M8x13	28	18
GTD/GTE-127	301	353	453	103	22x39	M10x16	190	36	M8x13	28	18
GTD/GTE-143	337	-	-	110	22x39	M12x20	228	33	M10x16	28	18
GTD/GTE-163	379	444	570	110	27x48	M12x20	228	39	M10x16	36	17
GTD/GTE-185	422	-	-	135	27x48	-	285	41	M16x25	36	17
GTD/GTE-210	468	544	696	135	36x64	-	285	40	M16x25	40	12,3
GTD/GTE-250	609	711	911	160	46x82	-	332	50	M20x28	40	12,3
GTD/GTE-254	689	815	-	160	46x82	-	332	50	M20x28	40	12,3
GTD-300	Dimensions of these actuator types are mentioned at the corresponding dimensioned drawings on pages 13 – 15.										
GTD-350											
GTD-400											

Weights and air consumption – double-acting actuators type GTD

Type GTD	weights (kg)			volume/double-stroke (L)		
	90°	**120°**	**180°**	**90°**	**120°**	**180°**
049	0,60	-	-	0,18	-	-
058	0,90	1,10	1,30	0,25	0,28	0,46
068	1,45	1,70	2,00	0,40	0,45	0,74
078	2,10	2,46	2,90	0,60	0,68	1,12
088	2,50	2,95	3,50	0,88	1,00	1,63
098	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	12,42	-	-	4,60	-	-
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-F16	92,00	-	-	46,00	-	-
300-F25	99,00	-	-	46,00	-	-
350-F16	186,50	-	-	81,40	-	-
350-F25	191,50	-	-	81,40	-	-
400	289,00	-	-	88,60	-	-

K	ISO L	ISO M	P	R	S	SW	T	U	V	W	Z
80	ø36 / F03	ø50 / F05	35	14	10	9	25,3	2	61,5		12,1
80	ø36 / F03	ø50 / F05	39	14	10	14	25,3	2	68,5		14,1
80	ø50 / F05	ø70 / F07	44,5	14	10	14	25,3	2	80		14,1
80	ø50 / F05	ø70 / F07	51	18	10	17	29,3	2	92,5		14,1
80	ø50 / F05	ø70 / F07	54	18	10	17	32,3	2	99,5		18,1
80	ø50 / F05	ø70 / F07	60	25	14	17	37,3	2	110,5		22,2
80	ø70 / F07	ø102 / F10	-	25	14	22	40,3	2,5	-	120	22,2
80	ø70 / F07	ø102 / F10	-	40	20	22	53,3	2,5	-	120	22,2
80	ø70 / F07	ø102 / F10	-	40	20	22	53,3	3	-	137	28,2
130	ø102 / F10	ø125 / F12	-	40	20	27	53,3	3	-	172	28,2
130	ø102 / F10	ø125 / F12	-	45	28	27	66,3	3	-	172	36,2
130	ø140 / F14	-	-	45	28	36	66,3	4	-	224	36,2
130	ø140 / F14	-	-	60	32	36	79,3	4	-	224	48,2
130	ø165 / F16	-	-	75	32	46	105,3	4	-	272	60,2
130	ø165 / F16	-	-	75	32	46	134	4	-	272	60,2

Weights and air consumption – single-acting actuators type GTE

Type GTE	weights (kg)	volume/double-stroke (L)
	90°	90°
049-08	0,66	0,10
058-12	1,00	0,13
068-12	1,62	0,21
078-12	2,45	0,32
088-12	2,95	0,45
098-12	4,00	0,62
110-12	6,20	0,98
115-12	8,35	1,40
127-12	10,70	2,00
143-12	15,78	2,50
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-F16-12	107,10	25,00
300-F25-12	114,00	25,00
350-F16-12	234,40	35,10
350-F25-12	239,40	35,10
400-16	360,40	52,60

Ordering code

G	T	E	-	0	6	8	/	0	9	0	-	0	8	-	Z11	-	A	-	BE
G	T	D	-	0	6	8	/	0	9	0	-	–		-	V14	-	F	-	–

Function
E = single-acting
D = double-acting

Type

pivoting angle
(90°, 120°, 180°)

number of springs

pinion model
Z = double-D (with dimension)
V = octagon

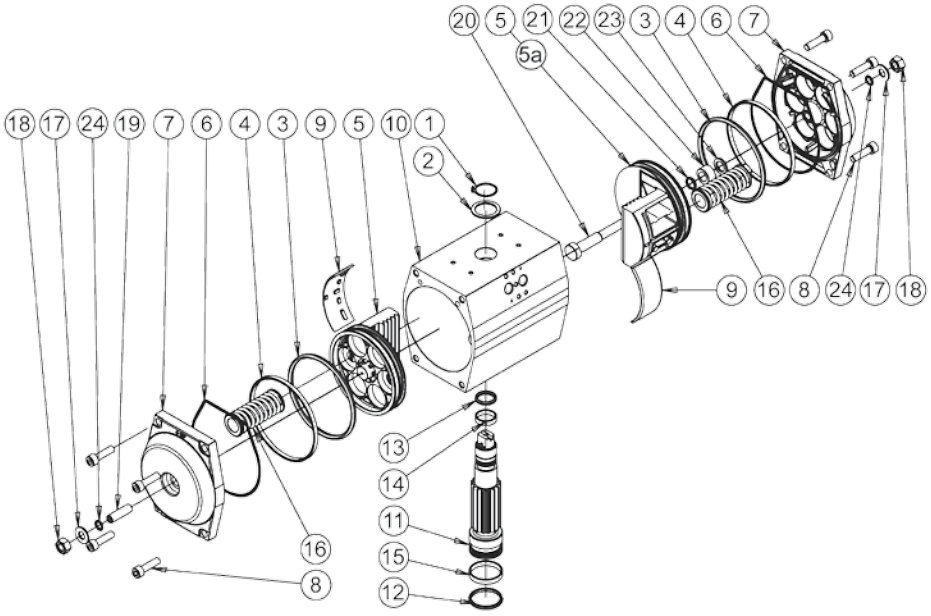
mounting version

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
2 Washer
3 O-ring
4 piston guidance ring
5 piston
6 cap gasket
7 cap
8 cap screw
9 guidance segment
10 casing
11 pinion
12 O-ring
13 O-ring
14 upper sliding ring
15 lower sliding ring
16 spring
17 O-ring
18 cap nut
19 set screw
20 piston stopper rod
21 O-ring
22 guide bush
23 seeger circlip ring
24 washer

Spare part kits

Spare part kit no. 1
Sealing set,
comprising (3) (6) (12) (13) (17) (21)

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

Spare part kit no. 3
Cap complete,
comprising (6) (7) (8) (17) (18) (19) (24)
for size 049 comprising: (17) (18) (19)

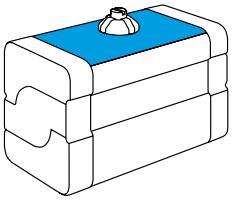
Spare part kit no. 4
Piston complete,
comprising (3) (4) (5) (9)

Spare part kit no. 4-BE
Piston complete, BE-version (left),
comprising (3) (4) (5) (9)
Piston complete, BE-version (right),
comprising (3) (4) (5a) (9) (20) (21) (22) (23)

Spare part kit no. 5
Pinion complete,
comprising (1) (2) (11) (12) (13) (14) (15)

Interfaces

The pneumatic actuator type GTD/GTE possesses interfaces according to all standards. This feature enables combinations with the following products from our extensive range as well as all other commercially available positioners, solenoid valves and valve fittings.

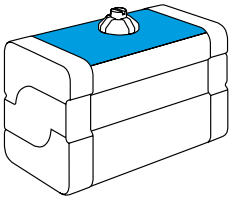


Interface
actuator/signal unit
Acc. to VDI/VDE 3845

bar-switchcontrol

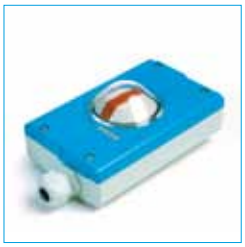
bar-miniswitch

bar-switchmaster

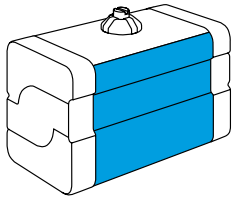


Interface
actuator/signal unit
with mounting brackets

bar-positurn2



bar-posiswitch

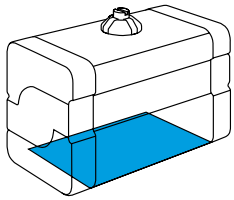


Interface
actuator/control valve
acc. to VDI/VDE 3845 Namur

bar-Solenoid valve

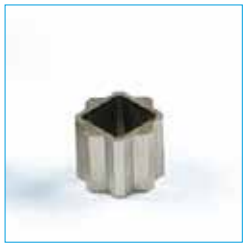
Multibar (pressure booster)

Throttle plate



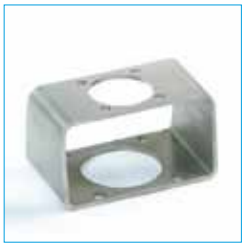
Interface
actuator/valve
Acc. to EN ISO 5211

Manual override



Reductions

Adapters



Mounting brackets

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