

DC high efficiency reverse solenoids

1

Product group

G TU W

Function

- Horizontal magnetic force vs. stroke characteristic
- Push and pull type

Construction

- Robust closed cylindrical design
- Fastening with 3 frontal threaded holes
- 6 sizes \varnothing (mm) 40, 50, 60, 70, 80, 90
- Armature guided in maintenance free bearings. High service life
- Insulation materials of the excitation winding correspond to thermal class F
- Electrical connection via connector plug type Z KB according to DIN EN 175301-803 or terminal box with cable gland (4 x 90° turnable)
- Protection class according to DIN VDE/DIN EN 60529 when properly installed: IP54

Application examples

- Tooling machines, packing machines, textile machines
- Measuring and control technology

Options

- Please contact us for application related solutions

Standards

- Design and testing according to DIN VDE 0580
- Quality management to ISO 9001



Fig. 1: Type G TU W 070 T43 A01

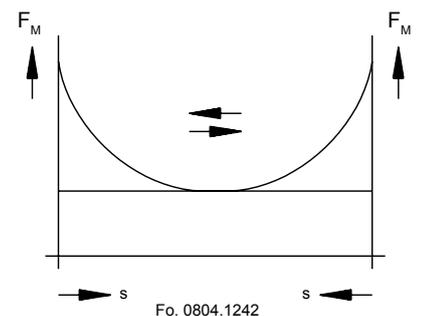


Fig. 2: force vs. stroke characteristic for reverse solenoids G TU W

Technical data

G TU W	40					50				
Operating mode	S1 100%	S3 40%	S3 25%	S3 15%	S3 5%	S1 100%	S3 40%	S3 25%	S3 15%	S3 5% ¹⁾
Stroke s (mm)	8					10				
Holding force (N)	47	83	103	128	190	117	183	204	262	350
Magnetic force F_M (N)	12,4	21	26	31,5	54,5	20,4	35	41	57	97
Rated work A_N (Ncm)	9,9	16,8	20,8	25,2	43,6	20,4	35	41	57	97
Rated power P_{20} (W)	16,5	41	66	98	262	21,2	53	60	144	335
Operating frequency S_h (1/h)	30000	16000	10000	6000	2000	27000	13000	8000	5000	1900
Actuation time t_1 (ms)	120	85	75	70	70	130	110	106	100	91
Fall time t_2 (ms)	120	85	75	70	70	130	110	106	100	91
Time constant τ										
Inductance $L = \tau \times R$ ($\tau \times 10^{-3}$)										
Armature in stroke start position (ms)	7					11				
Armature in stroke end position (ms)	5					9				
Armature weight m_A (kg)	0,13					0,2				
Solenoid weight m_M (kg)	0,75					1,3				

G TU W	60					70				
Operating mode	S1 100%	S3 40%	S3 25%	S3 15%	S3 5% ¹⁾	S1 100%	S3 40%	S3 25%	S3 15%	S3 5% ¹⁾
Stroke s (mm)	12					15				
Holding force (N)	200	300	365	410	595	236	450	485	580	765
Magnetic force F_M (N)	45,5	67	82	96	162	52	84	105	130	195
Rated work A_N (Ncm)	54,6	80,4	98	115	194	78	126	158	195	293
Rated power P_{20} (W)	35	77	106	148	550	32,5	85	142	230	500
Operating frequency S_h (1/h)	19000	9500	6000	4000	1600	16000	85000	5500	3600	1400
Actuation time t_1 (ms)	185	145	140	126	108	215	165	160	145	120
Fall time t_2 (ms)	185	145	140	126	108	215	165	160	145	120
Time constant τ										
Inductance $L = \tau \times R$ ($\tau \times 10^{-3}$)										
Armature in stroke start position (ms)	15					20				
Armature in stroke end position (ms)	13					18				
Armature weight m_A (kg)	0,35					0,5				
Solenoid weight m_M (kg)	2,25					3,5				

G TU W	80					90				
Operating mode	S1 100%	S3 40%	S3 25%	S3 15%	S3 5% ¹⁾	S1 100%	S3 40%	S3 25%	S3 15% ¹⁾	S3 5% ¹⁾
Stroke s (mm)	20					25				
Holding force (N)	340	535	630	725	850	307	520	630	765	1080
Magnetic force F_M (N)	55	87	110	135	194	73,5	124	145	173	276
Rated work A_N (Ncm)	110	174	220	270	388	184	310	362	433	690
Rated power P_{20} (W)	45	102	159	250	590	52	131	202	318	824
Operating frequency S_h (1/h)	14500	7500	4500	3200	1300	11000	5500	4000	2600	1100
Actuation time t_1 (ms)	240	190	180	160	130	310	240	220	195	155
Fall time t_2 (ms)	240	190	180	160	130	310	240	220	195	155
Time constant τ										
Inductance $L = \tau \times R$ ($\tau \times 10^{-3}$)										
Armature in stroke start position (ms)	25					31				
Armature in stroke end position (ms)	23					30				
Armature weight m_A (kg)	0,67					0,8				
Solenoid weight m_M (kg)	4,7					7,4				

¹⁾ Not available for version with device plug in nominal voltage 24 V due to max. current load of 10 A.

Dimensional drawings

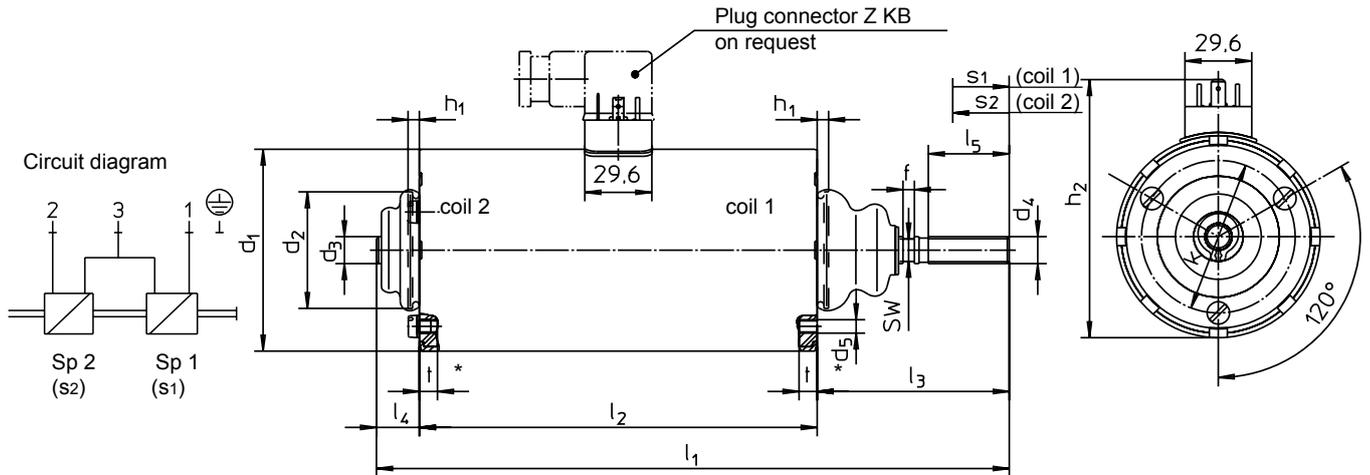


Fig. 3: Type G TU W 040 T 43 A01 to G TU W 090 T 43 A01

Tightening moment M_A of the fastening screw for the flange: see table

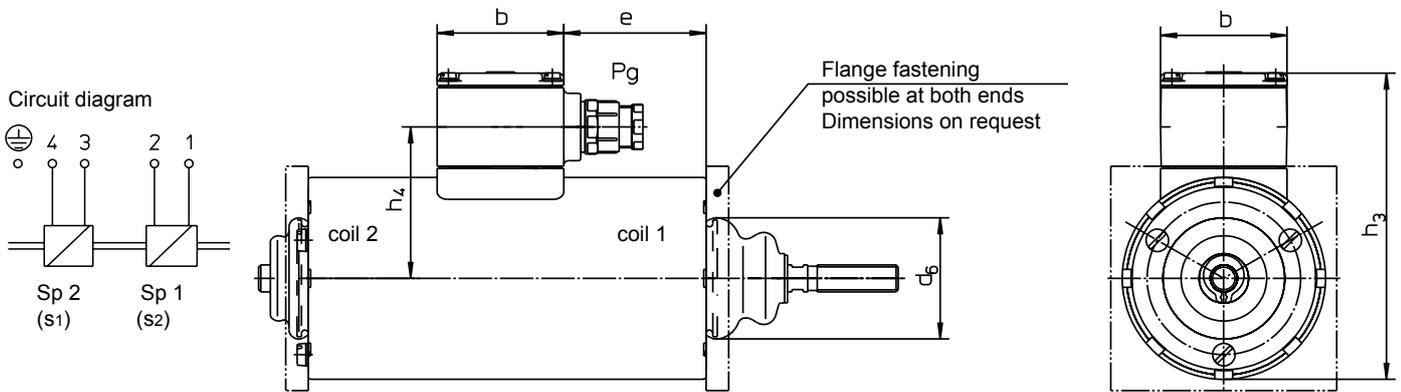


Fig. 4: Type G TU W 040 T 43 A02 to G TU W 090 T 43 A02

GTUW													
Size	40	50	60	70	80	90	Size	40	50	60	70	80	90
Dim.	Dimensions in mm						Dim.	Dimensions in mm					
b	40	40	40	56	56	56	h_4	38,5	43,5	48,5	57,5	62,5	67,5
d_1	40	50	60	70	80	90	k	30	34	45	52	62	68
d_2	22	25	32	38	42	52	l_1	134	156	181	210	233	278
d_3	5	5	6	8	10	12	l_2	85	104	124	142	148	176
d_4	M5	M5	M6	M8	M10	M12	l_3	37	40	45	54	70	85
d_5	M3	M4	M5	M5	M6	M6	l_4	12	12	12	14	15	17
d_6	24	27	34	40	44	54	l_5	15	15	18	20	30	40
e	25,5	35	45	46	49	63	s	8	10	12	15	20	25
f	3	3	4	5	5	5	t^*	4	5	6	6	8	8
h_1	4	4	4	5	5	5	sw	4,5	4,5	5	7	9	10
h_2	51,5	61,5	71,5	81,5	91,5	101,5	Pg	11	11	11	11	11	11
h_3	75	85	95	116,5	126,5	136,5	M_q (inMn)	1,6	2,3	4,4	4,4	7,7	7,7

* We cannot exceed the thread depth t , this could damage the coil.

Rated voltage \approx 24 V, the exciter coil can be adjusted to a rated voltage of max. \approx 250 V on request.

Standard values for voltage and operating mode: 24 V, S1 (100%).

The force values indicated in the tables refer to series G TU W...T43 A01 at 90% of the rated voltage ($U_N = \approx$ 24 V, for other voltages deviations of magnetic force may occur) and to normal operating temperature.

Due to natural dispersion the force values may deviate by \pm 10% from the values indicated in the tables.

The normal operating temperature is based on:

- a) Designs with flange and terminal box: assembly on poorly heat conducting base.
Designs without flange and without terminal box: assembly on heat conductive base.
- b) Rated voltage \approx 24 V
- c) Duty cycle S1-S3 5%
- d) Reference temperature 35 °C

For connection with plug connector Z KB X and Z KB G please note the max. continuous current of the connector.

Current load of device plug

For the versions with device plug (G TU W ...T43 A01) please note that the maximum permissible rated current is 10 A.

The rated current is calculated from the rated voltage and the the nominal power P_{20} listed in the table on page 2:

Example:

Rated voltage: 12V
Rated power GTUW 090 5%ED: 824W
Calculation of the rated current:

$$I_{20} = \frac{P_{20}}{U_N} = \frac{824W}{12V} = 68,66 \text{ A}$$

In this case the permissible current for the device connector is exceeded, a version with terminal box must be used.

Type code

Example	G TU W	090	T43 A01	Designation	Permissible duty cycle for nominal voltage 24V for version ... T43 A01 (with device plug)				
Type	G TU W				100	40	25	15	5
Construction size = main diameter (mm)	040				X	X	X	X	X
	050				X	X	X	X	
	060				X	X	X	X	
	070				X	X	X	X	
	080				X	X	X	X	
	090				X	X	X		
Code for execution & protection class			T43 A01	Connector plug					
			T43 A02	Terminal box					

Order example

Type G TU W 090 T43 A01
Voltage \approx 24 V DC
Operating mode S1 (100 %)

Information and remarks concerning European directives can be taken from the correspondent information sheet which is available under *Produktinfo.Magnet-Schultz.com*.

Please make sure that the described devices are suitable for your application. Our offers for these devices are based on the assumption of maximal 8 in an FMEA severity table, i. e. in case of malfunction of the device model as offered, there is, amongst others, no jeopardy of life or limb. Supplementary information concerning its proper installation can be taken also from the  -Technical Explanation, the effective DIN VDE0580 as well as the relevant specifications.

This part list is a document for technically qualified personnel.

The present publication is for informational purposes only and shall not be construed as mandatory illustration of the products unless otherwise confirmed expressively.

Specials designs

Please do not hesitate to ask for our assistance with the solution of your application-oriented task. In order to find rapidly a reliable solution we need complete details about your application conditions. The details should be specified as precisely as possible in accordance with the relevant  -Technical Explanations.

If necessary, please request the support of our corresponding technical office.