

## DC high efficiency reverse solenoids

# 1

Product group

## G TU W

- According to DIN VDE 0580
- Linear force vs. stroke characteristic
- Push and pull type
- Armature guided in maintenance-free bearings. Long service life.
- Exciter coils correspond to insulation class F
- Electrical connection and protection class with duly executed installation:
  - Plug connection by plug connector Z KB according to DIN EN 175301-803  
Cable gland (4x 90-degree rotatable)  
Protection class according to DIN VDE 0470-1/  
DIN EN 60529 – IP 54
  - Terminal box with cable gland (4x 90-degree rotatable)  
Protection class according to DIN VDE 0470-1/  
DIN EN 60529 – IP 54
- Fastening with three tapped holes at the front sides
- Modifications and special designs on request
- Application examples:  
Machine tools, packing machines, textile machinery, control technology



Fig. 1: Type G TU W 070 T43 A01

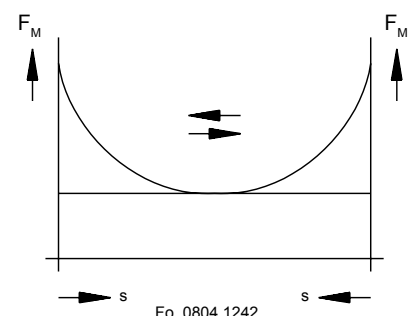


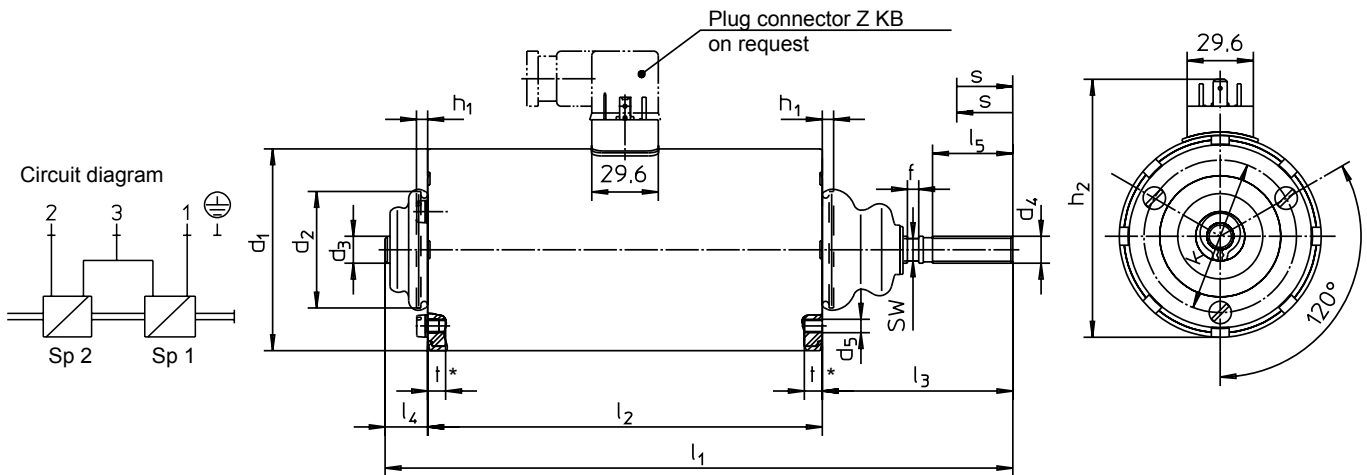
Fig. 2: force vs. stroke characteristic for reverse solenoids G TU W



### Technical data

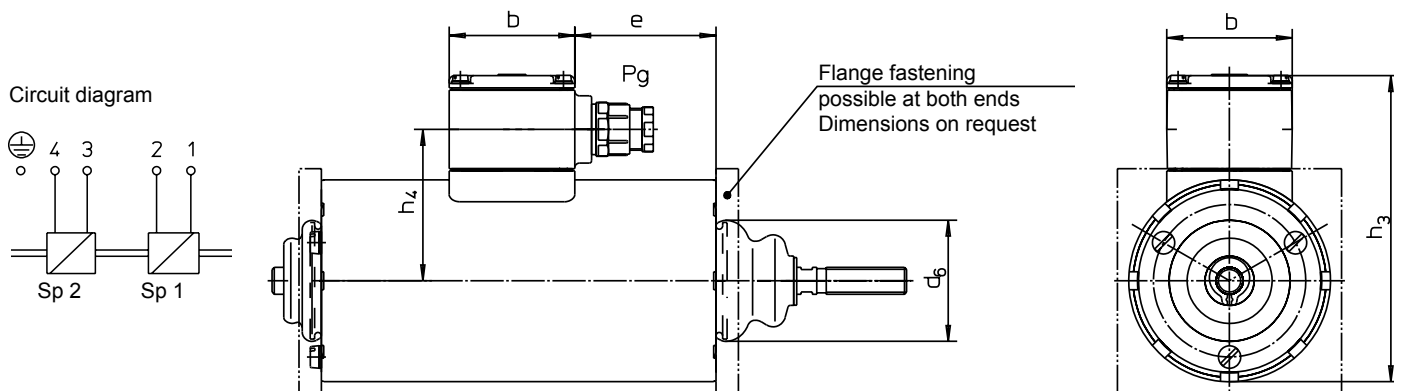
<b>G T U W</b>	<b>40</b>					<b>50</b>				
Operating mode	S1 100%	S3 40%	S3 25%	S3 15%	S3 5%	S1 100%	S3 40%	S3 25%	S3 15%	S3 5%
Stroke s (mm)	8					10				
Holding force (N)	47	83	103	128	190	117	183	204	262	350
Magnetic force $F_M$ (N)	12,4	21	26	31,5	54,5	20,4	35	41	57	97
Rated work $A_N$ (Ncm)	9,9	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 $\tau$										
Inductance										
$L = \tau \times R$ Armature in stroke start position (ms)		7					11			
$(\tau \times 10^{-3})$ 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		
<b>G T U W</b>	<b>60</b>					<b>70</b>				
Operating mode	S1 100%	S3 40%	S3 25%	S3 15%	S3 5%	S1 100%	S3 40%	S3 25%	S3 15%	S3 5%
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 $\tau$										
Inductance										
$L = \tau \times R$ Armature in stroke start position (ms)			15					20		
$(\tau \times 10^{-3})$ 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		
<b>G T U W</b>	<b>80</b>					<b>90</b>				
Operating mode	S1 100%	S3 40%	S3 25%	S3 15%	S3 5%	S1 100%	S3 40%	S3 25%	S3 15%	S3 5%
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 $\tau$										
Inductance										
$L = \tau \times R$ Armature in stroke start position (ms)			25					31		
$(\tau \times 10^{-3})$ 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		

## 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

G TU W													
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 <sub>4</sub>	38,5	43,5	48,5	57,5	62,5	67,5
d <sub>1</sub>	40	50	60	70	80	90	k	30	34	45	52	62	68
d <sub>2</sub>	22	25	32	38	42	52	l <sub>1</sub>	134	156	181	210	233	278
d <sub>3</sub>	5	5	6	8	10	12	l <sub>2</sub>	85	104	124	142	148	176
d <sub>4</sub>	M5	M5	M6	M8	M10	M12	l <sub>3</sub>	37	40	45	54	70	85
d <sub>5</sub>	M3	M4	M5	M5	M6	M6	l <sub>4</sub>	12	12	12	14	15	17
d <sub>6</sub>	24	27	34	40	44	54	l <sub>5</sub>	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 <sub>1</sub>	4	4	4	5	5	5	sw	4,5	4,5	5	7	9	10
h <sub>2</sub>	51,5	61,5	71,5	81,5	91,5	101,5	Pg	11	11	11	11	11	11
h <sub>3</sub>	75	85	95	116,5	126,5	136,5	M <sub>g</sub> (in Mn)	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.

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:

- Designs with flange and terminal box: assembly on poorly heat conducting base.  
Designs without flange and without terminal box: assembly on heat conductive base.
- Rated voltage  $\approx 24$  V
- Duty cycle S1-S3 5%
- 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.

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.

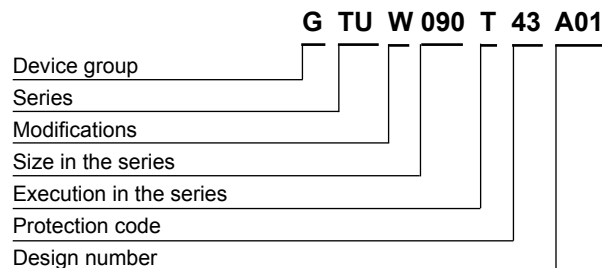
**Please make sure that the described devices are suitable for your application. Supplementary information concerning its duly assembly can be found also in the -Technical Explanation, in the effective DIN VDE 0580 as well as in the relevant specifications.**

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

#### Note on the RoHS Directive

The devices presented in this document do not fall into the scope of RoHS Directive and to our knowledge they do not become part of products which fall into this scope. In case of surfaces zinc coating with yellow chromating and zinc iron with black chromating separate agreements are necessary for applications within the scope of RoHS.

## Type code



## Order example

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

## Special designs

Please do not hesitate to ask us for application-oriented problem solutions. 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.