MAGNET-SCHULTZ

SOLENOIDS AND SOLUTIONS

QUALITY SINCE 1912

D.C. Small Shotbolt Lock Assembly

Spring to lock – Energize to lock
Stroke 8 mm
(Plug rectifier for A.C. supply

1

Product group

Type G HU Z 032/040

- According to VDE 0580 and ISO 9001 (conform with article 10 of direction 73/23/EEC – according to CENELEC memorandum no. 3 of March 1987).
- Spring to lock or energize to lock
- Integral spring and high endurance, maintenance–free bearings
- Small dimensions – Robust cylindrical construction Two Sizes – Six Arrangements)
- Neck body mounding
- Suitable for mounting and operation in any position
- Increasing force characteristic
- Available with interlock/indication switch unit (5 amp.) (Size ... 040 ... only)
- Plug–connectors available
  Z KC X for D.C. supply
  Z KC X with built–in rectifier for A.C. supply
- Coil with insulation to class F for voltages up to 250 Volts
- Protection classification – DIN VDE 0470/EN 60529
  Spade connectors (DIN 46247 IP 00
  Plug connector IP 40
- Shotbolt, ratchet and holding magnet locks available in other product groups
- For use on – machine tool guards, security doors and gate and general interlock applications in commerce and industry

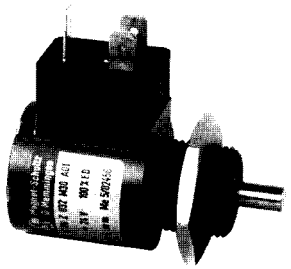

Fig. 2
Type G HU Z 032 M 30 A01
Spring to lock without switch

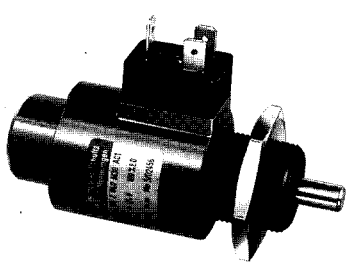

Fig. 2
Type G HU Z 040 N 30 A01
Spring to unlock without switch

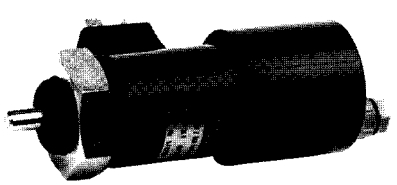

Fig. 3
Type G HU Z 040 M 30 A02
Spring to lock with switch

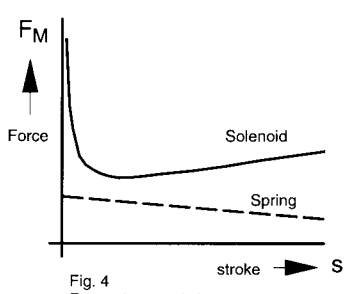

Fig. 4
Force characteristic

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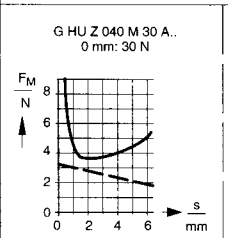
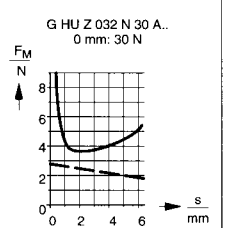
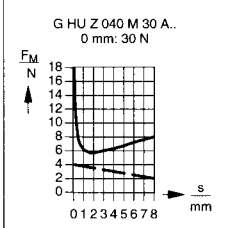
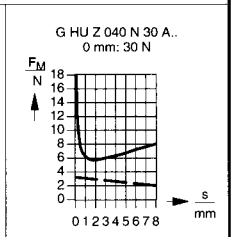
Performance table for type G HU Z shot–bolt 032, 040

max. rated voltage (U_N) 250 V

G HU Z	size	032	040
Duty rating (ED)	(%)	100	100
Stroke (s)	(mm)	6	8
Work rating (A_N)	(Ncm)	2,85	6,4
Power consumption (P_{20})	(W)	7,2	10,6
Ambient temperature (ϑ_{11})	(°C)	35	35
Frequency of operating (S_h max.)	(1/h)	30000	25000
Closing time (t_1)	(ms)	70	80
Opening time (t_2)	(ms)	40	50
Armature weight (m_A)	(kg)	0,03	0,07
Solenoid weight (m_M)	(kg)	ca. 0,25	ca. 0,45
Radial bolt load (max.) allowable (approx.)	static (N)	600	1500
	stroke (N)	4	8
Force–stroke characteristic Solenoid and spring Note: – 0 mm is completion of energized stroke		 	 

PERFORMANCE TABLE
Terms are explained in Technical Bulletin G XX & VDE 0580/35.

TABLE BASIS
24 V/100 % duty — Ambient temp. 35° C
Heat insulated base — Free air mounted
Horizontal working — Pull arrangement
Tolerance ±10 % (inherent & manufacture).

Conversion Factors
1 N = 0.102 kp ≈ 0,1 kp
1 Ncm = 0,102 kpcm ≈ 0,1 kpcm
1 kg = 2.2 lbs.
1 mm = 0.039 ins.
1 cmkp = 0.856 ins. lbs.

MAGNETIC FORCE (F_M)
is listed in HOT condition at 90 % of rated voltage (increase approx. 20 % at rated voltage). Adjust for armature weight.

POWER CONSUMPTION (P_{20})
is listed with a 20° C coil temperature (decrease/HOT).

DUTY RATING (ED %)
% of energized time per operation cycle: $\frac{t_{on}}{t_{on} + t_{off}}$ x 100.
Max. energized time/cycle:
100 % continuous: 40 % – 120 secs.; 25 % – 75 secs.; 15 % – 45 secs.; 5 % – 15 secs.

OPERATING TIMES (t_1/t_2)
are listed per cycle of operation in HOT condition at rated voltage with weight load of 70 % of Force (F_M) at and over rated stroke.

ARRANGEMENT
The standard arrangements are

G HU Z 032 M 30 A 01	– spring to lock without switch	D.C. plug Z KC X 209 B01 A.C. plug Z KC X 209 B01
G HU Z 032 N 30 A 01	– spring to unlock without switch	
G HU Z 040 M 30 A01	– spring to lock without switch	
G HU Z 040 N 30 A01	– spring to unlock without switch	
G HU Z 040 M30 A02	– spring to lock with switch	
G HU Z 040 N 30 A 02	– spring to unlock with switch	

LOCK–BOLT
Radial thrust to the bolt should be kept within the max allowable (see table above) so ensuring maximum reliability and operational life with a minimum of maintenance. Electronic control is available to give over–volt stroke with continuous duty hold. Over–voltage of 2 : 1 will give approx.
– 12 N at initiation of stroke (size ... 032)
– 20 N at initiation of stroke (size ... 040)

SWITCHES
Arrangement A02 (size 040 only) incorporates a switch, with normally open or closed contacts, suitable for interlock or the control of machinery (250 V A.C. 5–amp). Switches are factory set to operate
approx. 1 mm from locked position (G HU Z 040 M 30 A02) – spring to lock
approx. 3 mm from locked position (G HU Z 040 N 30 A02) – spring to unlock

MOUNTING
Threaded neck mounting with lock nut provides high rigidity. With additional lock nut adjustment is possible. shotbolts of other sizes and mounting arrangements are available with ratchet and holding magnet locks in product groups:
G HU Z 050/110, G FC, G TC A/W, G TC E, G DA, G DC, G MH, G MP.

SUPPLY VOLTAGE:
Standard supply voltages are: 12 V, 24 V, 97 V, 195 V, 205 V, 214 V D.C. (for rectified 110 V, 220 V, 230 V, 240 V 50/60 Hz A.C.).

PROTECTION
Paint (Trop) – Plating/sealed coil (Spec. Trop).

Dimension tables for type G HU Z shot–bolt 032, 040

A 01 M

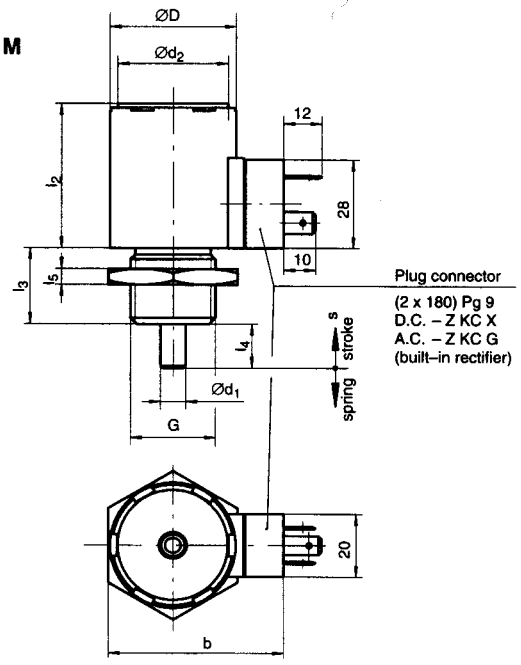


Fig. 5
Type G HU Z 032 M 30 A01
or G HU Z 040 M 30 A01
spring to lock, energize to unlock

A 01 N

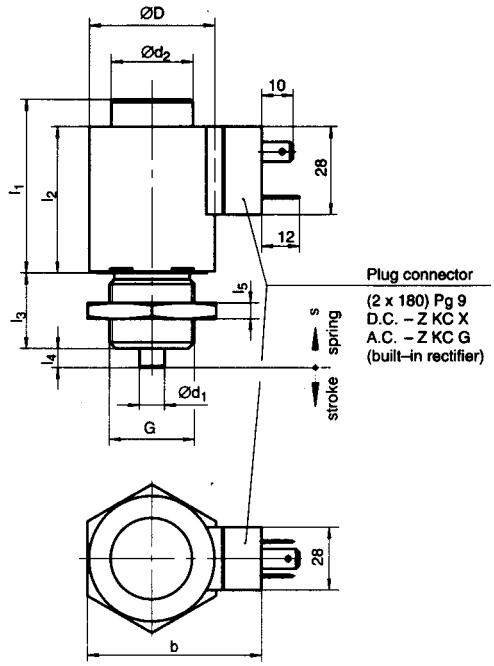


Fig. 6
Type G HU Z 032 N 30 A01
or G HU Z 040 N 30 A01
spring to unlock, energize to lock

Type / Dimension (mm)	d_1	d_2	D	b	G	l_1	l_2	l_3	l_4	l_5	s
G HU Z 032 M 30 A 01	6	28	32	47,5	M 22 X 1,5	/	33	18	12	5	6
G HU Z 032 N 30 A 01	6	20	32	47,5	M 22 X 1,5	44,5	33	18	6	5	6
G HU Z 040 M 30 A 01	8	35	40	55	M 27 X 1,5	/	45	24	14	5	8
G HU Z 040 N 30 A 01	8	26	40	55	M 27 X 1,5	58,5	45	24	6	5	8

A 02 M

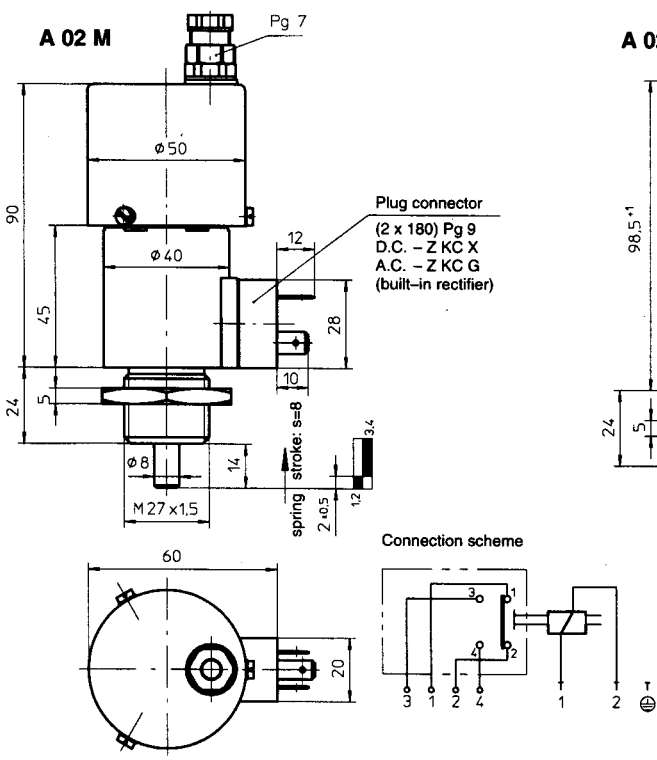


Fig. 7
Type G HU Z 040 M 30 A02
spring to lock, energize to unlock

A 02 N

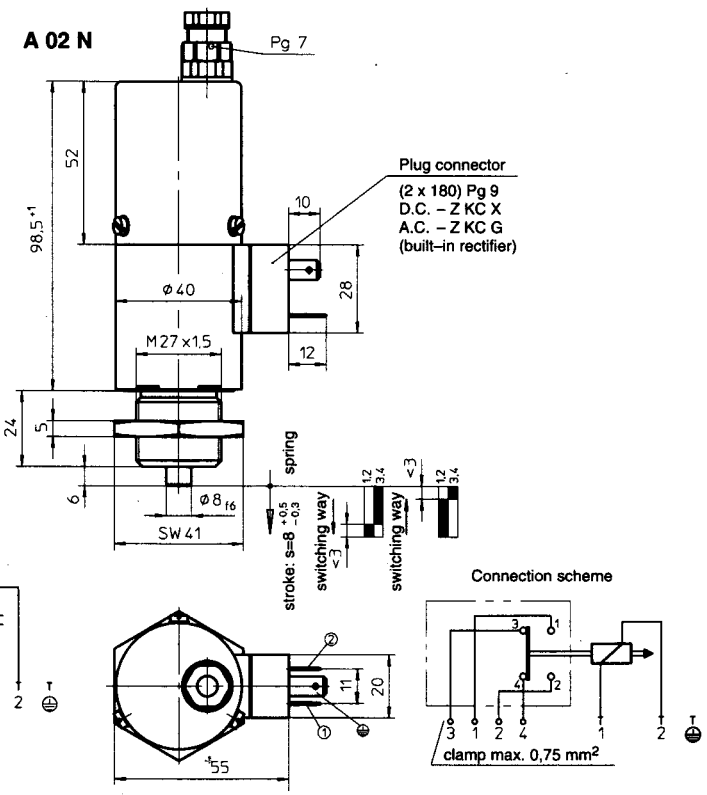
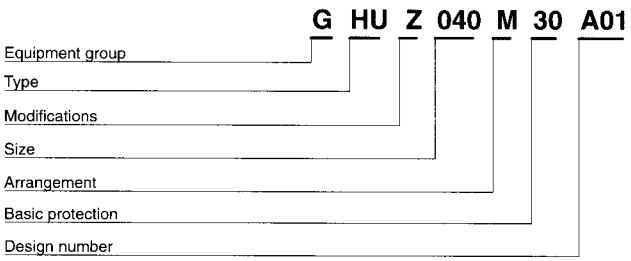


Fig. 8
Type G HU Z 040 N 30 A02
spring to unlock, energize to lock

Classification for type G HU Z shot–bolt 032 and 040

Type Code



Order Example

D.C. classification (Group 1.)		**– G**
Type		**– HU**
Modifications		**– Z**
Size	032 or 040	**– 040**
Arrangement	M – energize to unlock N – energize to lock	**– M**
Protection		**– 30**
Design		
	– without switch – A01 – *with switch – A02 *(Size 040 only)	**– A01**
Voltage (V)	– standards – page 2 –	**24 V**
Duty rating –		**100 %**
Special Protection if required	– tropical or special tropical	
Plug Connector if required: –		
	D.C. Z KB X 209 A.C. Z KB G 209 – Built–in Rectifier.	
Additional mounting locknut, if required		

SPECIAL
Special solenoids are available to meet the requirements of specific applications, such as short duty rating, high ambient temperature, special voltages etc., for which full operating, application and working conditions and environment should be specified in accordance with Technical Bulletin G XX.

INSTALLATION
Installation details are provided in Technical Bulletin GXX.