

DC Single-Acting Solenoid in Explosion-Proof Design ATEX + IECEx

1

Product group

G TC E

Function

- Increasing force vs. stroke characteristic
- Size 050, 100 in pull type and push type
Size 140 in push type

Construction

- Armature guided in maintenance free bearings.
High service life
- Insulation materials of the excitation winding correspond to thermal class F
- Electrical connection via terminal box
- Protection class according to DIN VDE/DIN EN 60529, when properly installed
 - Electrical part: IP 65
 - Functional part: IP 54
- Explosion protection:
 - Size 050: Ex II 2G Ex eb mb IIC T4 Gb
 Ex II 2D Ex tb IIIC T130°C Db
 - Size 100/140: Ex II 2G Ex eb mb IIC T5/T4 Gb
 Ex II 2D Ex tb IIIC T95°C/T130°C Db
- Flange mounting via three threaded bore holes or with additional flange

Application examples

- Application in explosive areas
(gas, dust, zones: 1.21, EPL: Gb, Db)
e.g. in chemical companies, refineries and tank plants

Options and accessories

- Version in higher protection class and for humid atmospheres
- Modifications and special designs
- Please contact us for application related solutions

Standards and approvals

- Design and testing according to DIN VDE 0580
- Production according to ISO 9001, DIN EN ISO/IEC 80079-34
- ATEX, IECEx



Fig. 1: Type G TC E 100 A GD A01

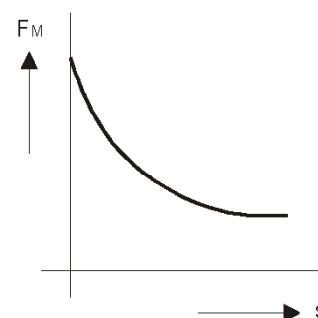


Fig. 2: Magnetic force vs. stroke characteristic

Technical Data of series

| | | G T C E ... A G D ... DC Types | | | G T C E ... A G D ... AC Types (with integrated rectifier) | |
|---|---|---|----------|----------|--|-------|
| Construction size | | 050 | 100 | 140 | 100 | |
| Design number | | A01/A02 | A01 | A01 | A10 | |
| Operating Mode | | S1 | S1 | S1 | S1 | |
| Stroke s | (mm) | Magnetic force F_M (N) | | | | |
| | 0 | 90 | 317 | 549 | 317 | |
| | 2 | 23 | 143 | 342 | 143 | |
| | 3 | 21 | 130 | 333 | 132 | |
| | 4 | 19 | 126 | 328 | 126 | |
| | 5 | 18 | 124 | 324 | 124 | |
| | 6 | 17 | 122 | 319 | 122 | |
| | 8 | 14 | 121 | 315 | 121 | |
| | 10 | 12 | 116 | 306 | 116 | |
| | 12 | | 113 | 299 | 113 | |
| | 15 | | 106 | 288 | 106 | |
| | 20 | | 96 | 266 | 96 | |
| | 25 | | 84 | 227 | 84 | |
| | 30 | | 67 | 189 | 67 | |
| | 35 | | | 153 | | |
| | 40 | | | 122 | | |
| Rated voltage | | === 24 V | === 24 V | === 24 V | 230 V / 50-60 Hz | |
| an adaptation of the exciter coil to a rated voltage of max. === 230 V is possible on request | | | | | | |
| Rated work A _N | | (Ncm) | 12 | 201 | 488 | 201 |
| Rated power P ₂₀ | | (W) | 14 | 52 | 87 | 51 |
| Max. reference temperature | | (°C) | 40 | 40 | 40 | 40 |
| Max. switching frequency S _n | | (1/h) | 15.000 | 5.700 | 3.400 | 5.700 |
| Actuation time t ₁ | | (ms) | 128 | 400 | 625 | 400 |
| Fall time t ₂ | | (ms) | 101 | 230 | 410 | 230 |
| Inductance L = π x R (π x 10 ⁻³) | Time constant π Armature in stroke start position | (ms) | 15 | 52 | 64 | 52 |
| | Armature in stroke end position | (ms) | 18 | 45 | 85 | 45 |
| Armature weight m _A | | (kg) | 0.14 | 1.25 | 1.85 | 1.25 |
| Solenoid weight m _M | | (kg) | 1.14 | 7.04 | 17.33 | 7.04 |
| Circuit diagram | | | | | | |

The times listed in above table refer to rated voltage, max. stroke, weight load of 70 % of rated magnetic force. These values may decrease considerably with higher load.

The magnetic force values stated in the table refer to 90% of the rated voltage and normal operating temperature. There may be deviations with other rated voltages. Due to natural dispersion, the magnetic force values may deviate by approx. 10% from the values indicated in the tables.

The normal operating temperature is based on:

- Mounting on heat conducting base
- Rated voltage === 24 V or 230 V/50 - 60 Hz (other voltages on request)
- Operating mode S1 (100 % ED)
- Reference temperature 40°C

- The user has to ensure by the activation that with a rated voltage
 - up to 30 V the disconnect-overvoltage of 480 V
 - up to 60 V the disconnect-overvoltage of 800 V
 - up to 110 V the disconnect-overvoltage of 1200 V
 - up to 250 V the disconnect-overvoltage of 1600 V will not be exceeded.

Dimension of series G TC E

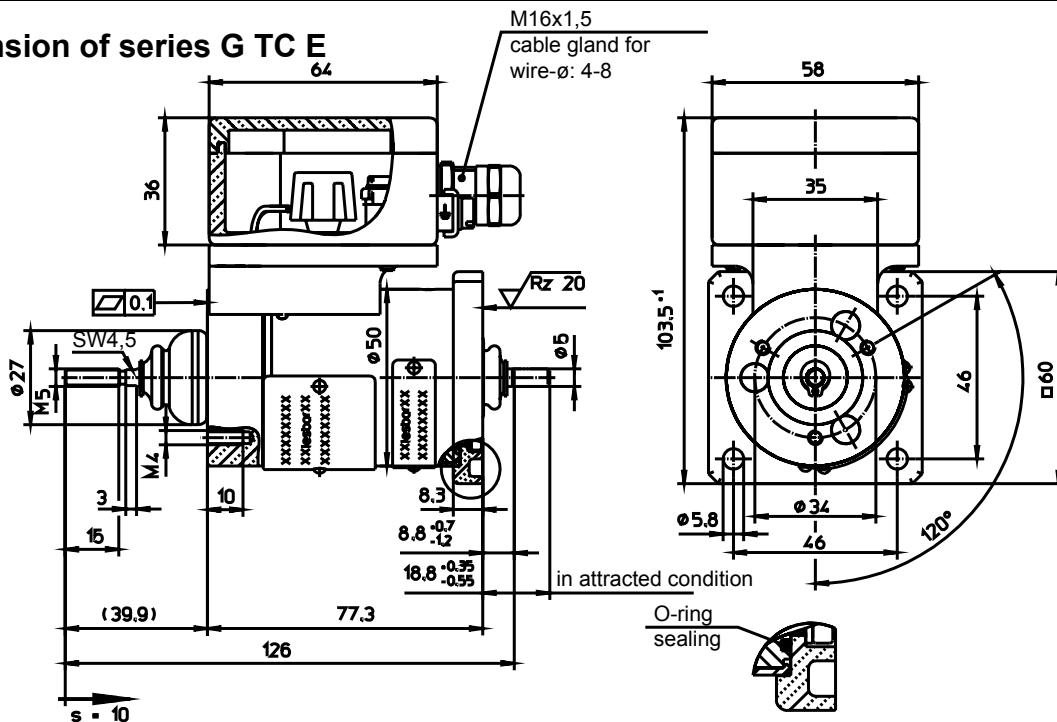


Fig. 3: Type G TC E 050 A GD A01

Torque of flange-fastening screws (M4): 2,3 Nm

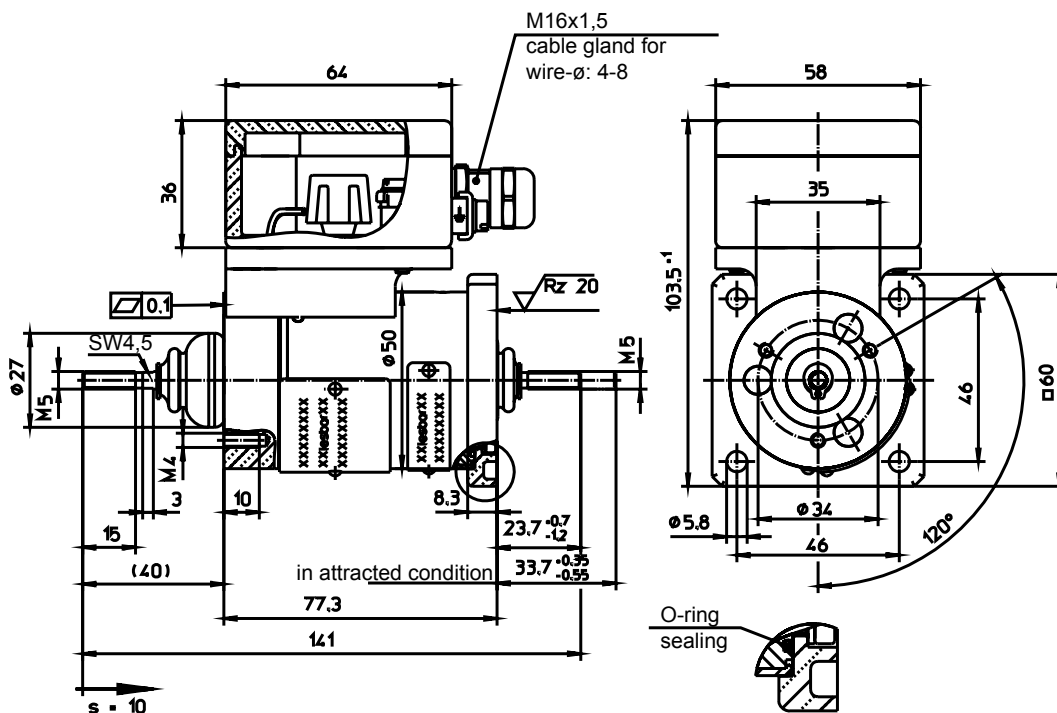



Fig. 4: Type G TC E 050 A GD A02

Torque of flange-fastening screws (M4): 2,3 Nm

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. Please also note the accompanying operating manual which will be delivered with each device. One copy of the CE declaration of conformity is attached to the shipment. Supplementary information concerning its duly assembly can be found also in -Technical Explanations, in the effective DIN VDE0580 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.

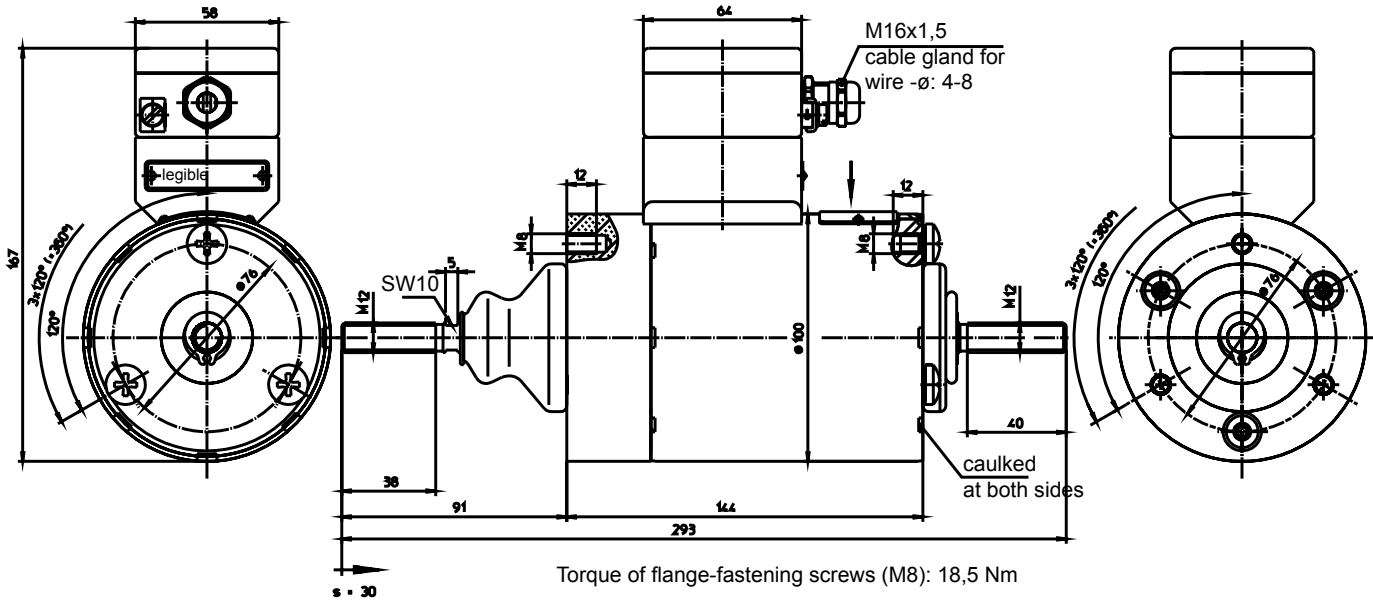


Fig. 5: Type G TC E 100 A GD A01 (DC) to Type G TC E 100 A GD A10 (AC)

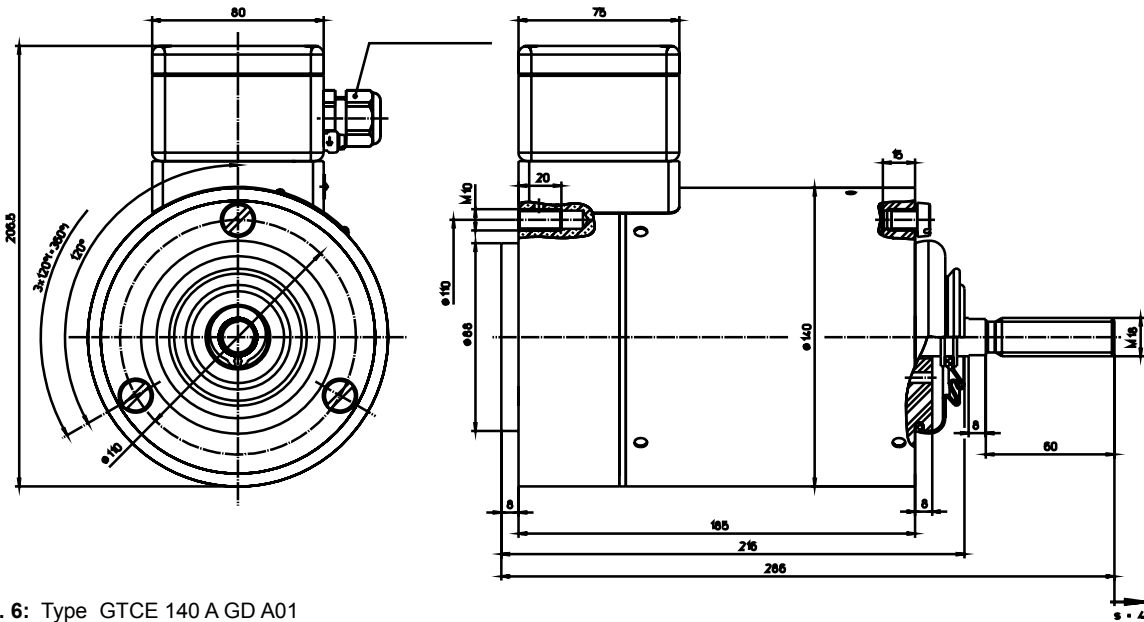


Fig. 6: Type GTCE 140 A GD A01

Torque of flange-fastening screws (M10): 36 Nm

Type code

| Designation | Size | Working mode | Type of current |
|--------------------|--------|-------------------------|-----------------|
| G TC E 050 AGD A01 | 50 mm | Pull-type | DC |
| G TC E 050 AGD A02 | | | DC |
| G TC E 100 AGD A01 | 100 mm | Pull-type and push-type | DC |
| G TC E 100 AGD A10 | | | AC |
| G TC E 140 AGD A01 | 140 mm | Push-type | DC |

Example

Type G TC E 100 A GD A01
Voltage = 24 V DC
Operating mode S1 (100 %)

Specials 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.