Proportional Solenoids for Hydraulics

4
Product group

G RC Y 037, 045, 063

- According to DIN VDE 0580
- Armature space pressure tight
  Nominal operating pressure (dynamic)
- Magnetic force vs stroke graph horizontal within proportional control range
- To a large extent proportional behaviour between force and current
- Small hysteresis through precise armature bearing
- Quick response times
- Push type
- Mounting via central thread
- Simple exchange of the solenoid body without opening the hydraulic circuit
- Insulation materials of the excitation winding correspond to thermal class F
  (H available on request)
- Electrical connection and protection class when properly installed:
  - Plug connection by spade connectors according to DIN 46 247
    Protection class according to DIN VDE 0470/ EN 60 529 – IP00
  - Plug connection via plug connector according to DIN EN 175 301-803
    Screwed cable glands (4 x 90° positions)
    Protection class according to DIN VDE 0470/ DIN EN 60529 – IP 65
- Manual override
- Modifications and special designs, also with transducer, on request
- Application examples:
  In particular proportional actuator in hydraulic control chains and control loops

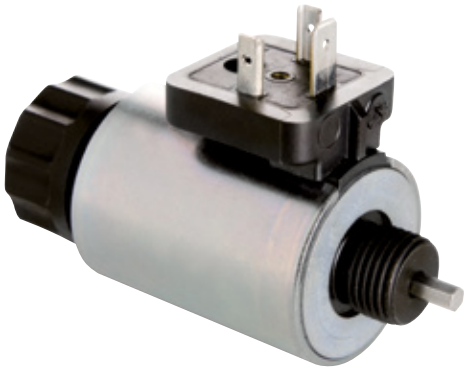


Fig. 1: G RC Y 037 N54 A01

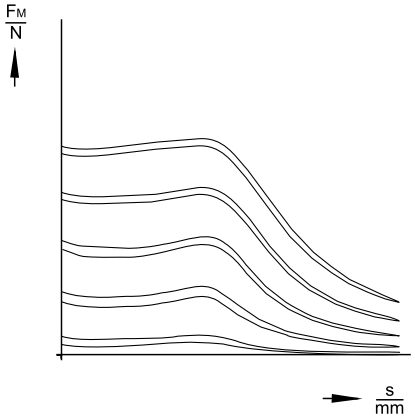


Fig. 2: Magnetic force vs. stroke characteristic

QUALITY
SINCE 1912

Technical data

G RC Y ... N54 A01			037	045	063
Duty rating ED			S1 (100 %)	S1 (100 %)	S1 (100 %)
Reference temperature $\vartheta 11$		(°C)	50	50	50
Overall stroke s		(mm)	4 +0,5	6 +1	8 +1
Working stroke s_W		(mm)	2	3	4
The indicated working stroke s_W is an approximate value. Owing to tolerances that occur, we recommend a stable operating range between		(mm)	0,5 - 1,5	0,5 - 2,5	0,5 - 3,5
Idle stroke s_L		(mm)	2	3	4
Nominal operating pressure (dynamic)		(bar)	250	210	210
Rated magnetic force F_{MN}		(N)	47	53,5	112
Rated magnetic force H_{FN} dynamic		(%)	≈ 4	≈ 4	≈ 5
Measured with measuring speed		(mm/min)	20	30	40
Rated current hysteresis H_{IN}		(%)	< 3	< 3	< 4
Rated linearity deviation L_N		(%)	≈ 2	≈ 2	≈ 2
Armature weight m_A		(kg)	0,04	0,05	0,16
Solenoid weight m_M		(kg)	0,41	0,57	1,57
Rated voltage U_N		(V)	24	24	24
Rated resistance R_{20}		(Ω)	13	14	7,38
Rated current I_N		(A)	0,94	0,96	1,70
Maximum current I_G		(A)	0,94	0,96	1,70
Linearity current I_L		(A)	≈ 0,20	≈ 0,22	≈ 0,32
Response current I_A		(A)	≈ 0,04	≈ 0,034	≈ 0,12
Rated power $P_N = I_N^2 \times R_{20}$		(W)	11,5	12,9	21,0
Maximum power $P_G = I_G^2 \times R_W$		(W)	17,3	19,5	32,2
The maximum power requires mounting on a hydraulic valve Base plate with the following minimum dimensions	hydraulic valve	(mm)	46 x 46 x 66	46 x 46 x 66	67 x 67 x 82
	base plate	(mm)	66 x 46 x 30	66 x 46 x 30	102 x 115 x 30
Linearity power $P_L = I_L^2 \cdot R_{20}$		(W)	0,5	0,7	0,76
Response power $P_A = I_A^2 \cdot R_{20}$		(W)	0,02	0,016	0,1

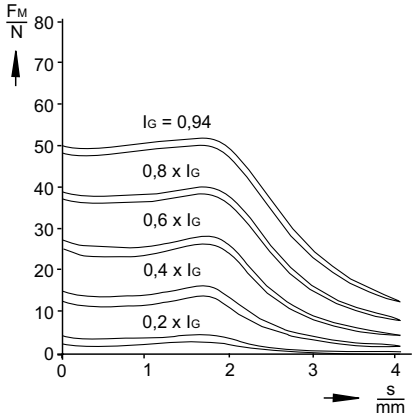


Fig. 3: Magnetic force v stroke graph size 037

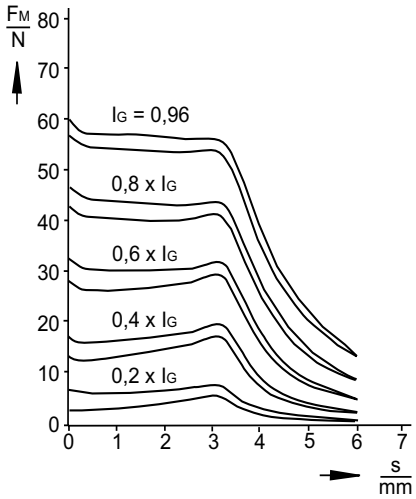


Fig. 4: Magnetic force v stroke graph size 045

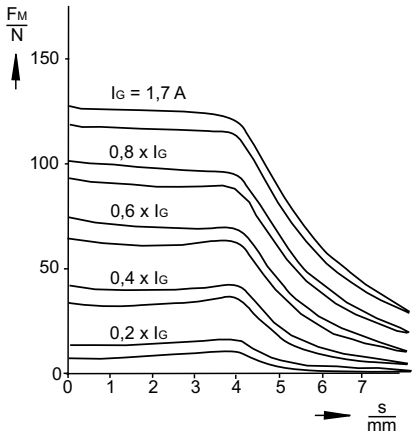


Fig. 5: Magnetic force v stroke graph size 063

For deviations from the indicated operating conditions regarding reference temperature, operating mode, rated voltage and dimensions of hydraulic slide and base plate, adaptions of the exciter coil might be necessary which result in modifications of the magnetic force.

The indicated technical data refer to an A.C. power supply with bridge rectifier. The coil winding can be adjusted to other current and resistance values on request.

Owing to natural dispersion magnetic-force values may deviate by ± 5% from the listed values.

On request, armature space can be deaerated and pushrod can be adjusted.

Solenoid interior and armature bearing are resistant to all neutral fluids that are commonly used in hydraulics.

Please contact us if you intend to use other operating media.

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

According to our current state of knowledge the devices pictured in this document do not contain any substances in concentration values or applications for which putting into circulation with products manufactured from them is prohibited in accordance to RoHS.

Please make sure that the described devices are suitable for your application. 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.

The devices with DIN connector comply with protection class 1.

Please note that for the proper electrical installation, a protective conductor connection at tube resp. valve has to be ensured.

Dimensional drawing and Connection geometry

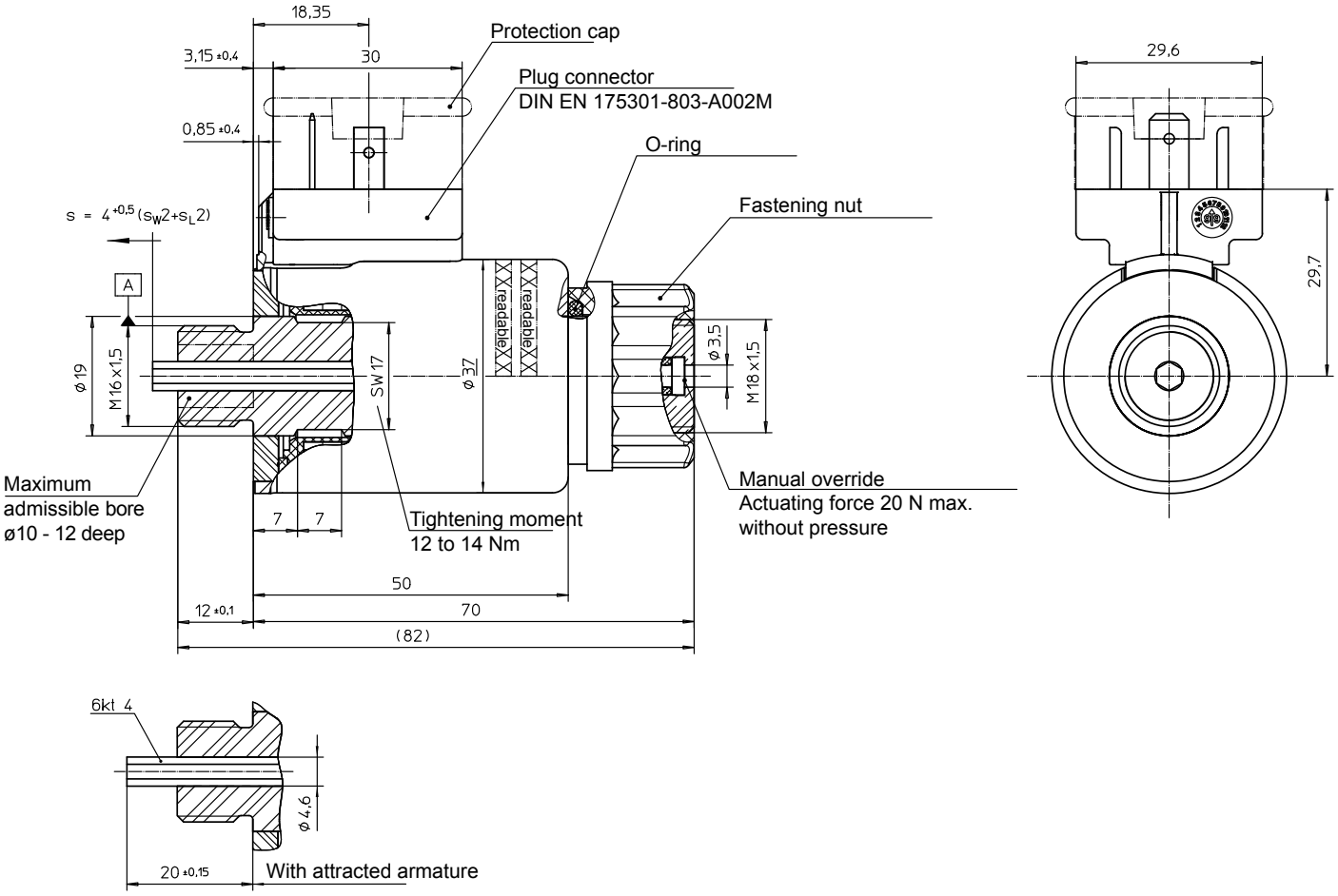


Fig. 6: Dimensional drawing to Type G RC Y 037 N54 A01

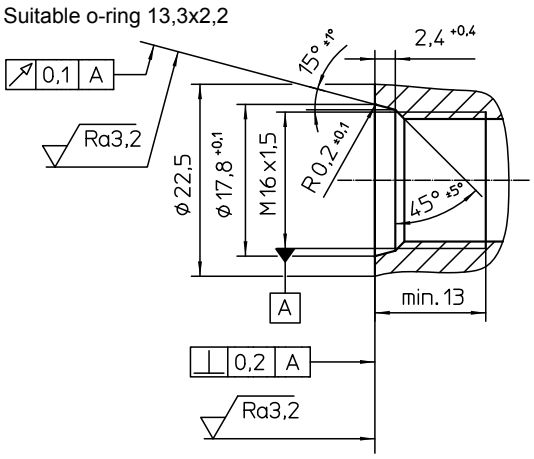


Fig. 7: Connection geometry to Type G RC Y 037 N54 A01

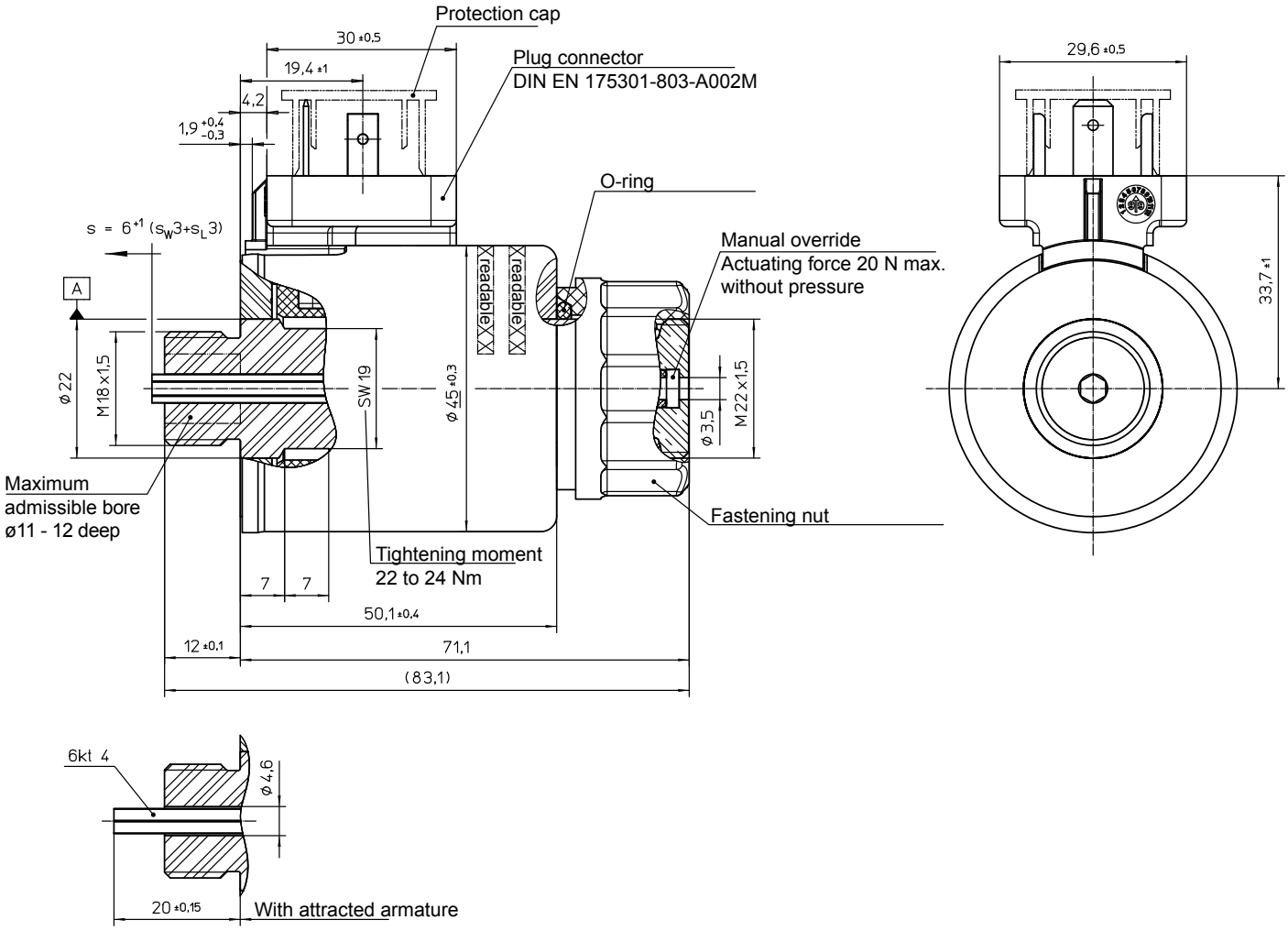


Fig. 8: Dimensional drawing to Type G RC Y 045 N54 A01

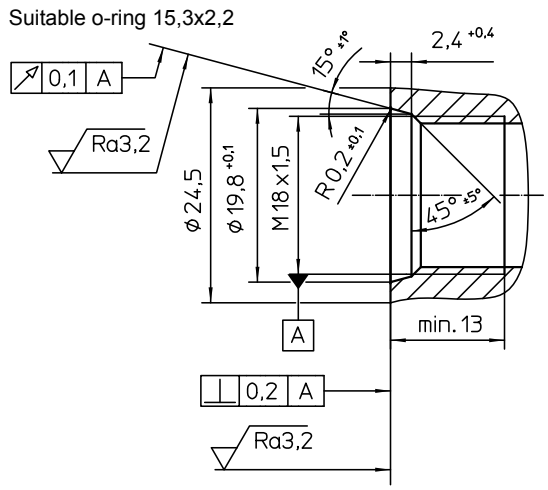


Fig. 9: Connection geometry to Type G RC Y 045 N54 A01

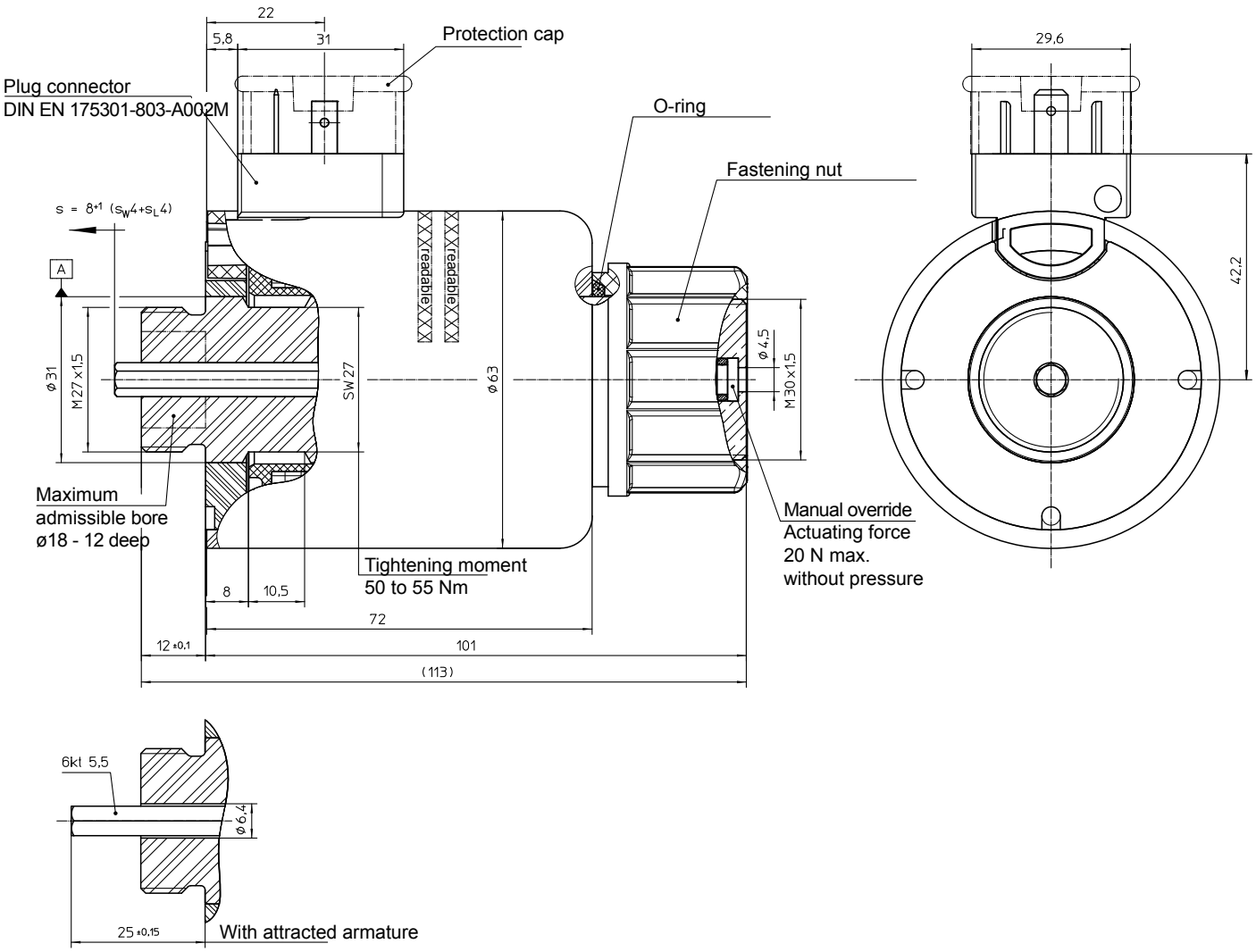


Fig. 10: Dimensional drawing to Type G RC Y 063 N54 A01

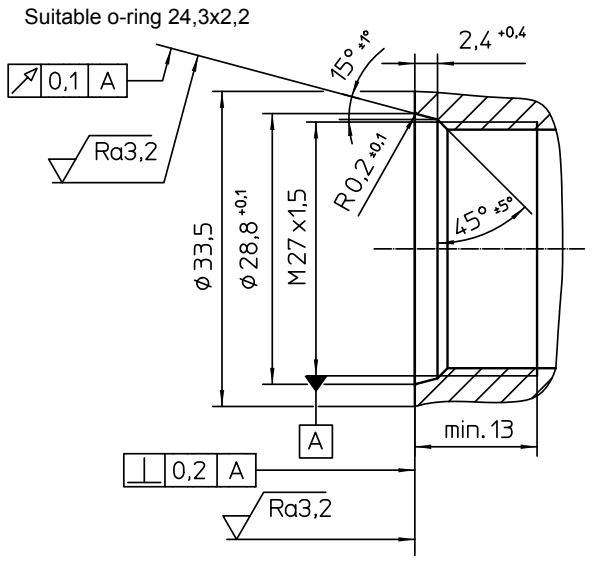
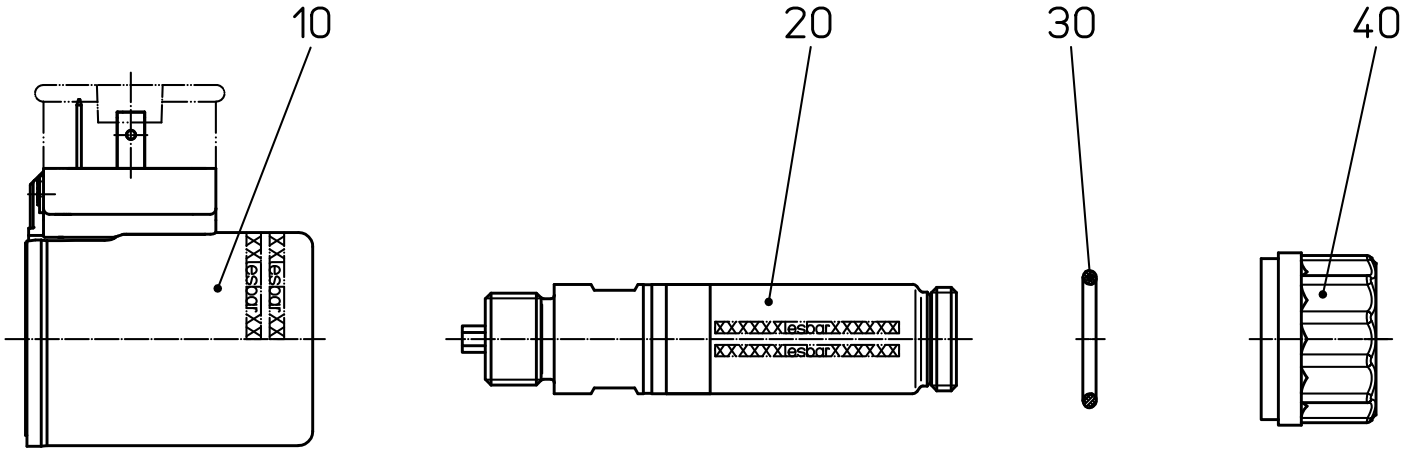


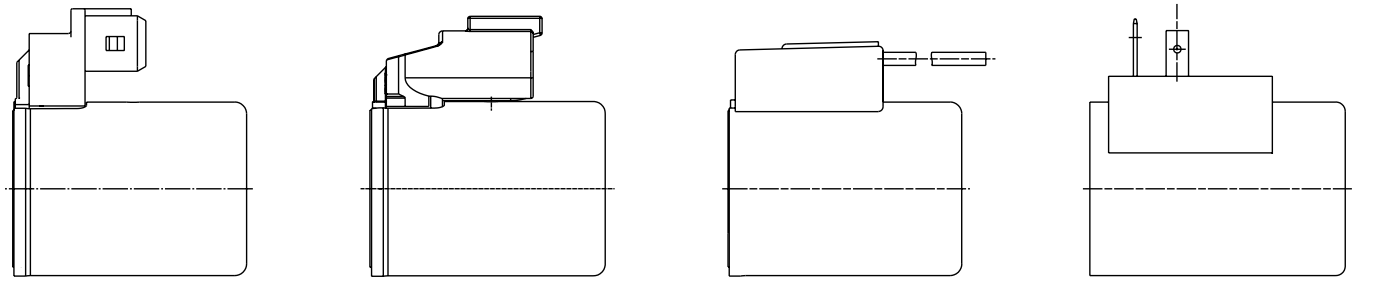
Fig. 11: Connection geometry to Type G RC Y 063 N54 A01

Single components – delivery only as complete device, single parts on request



Baugröße	Pos.	Benennung	Sach-Nr.	
037	10	Magnetic body	FHMG037925428	
	20	Tube	FHTP037926098	
	30	O-ring	781754	19 x 2,5 NBR 70 Shore A
	40	Fastening nut	472793	suitable socket wrench SW26 (12 kt DIN 3124) tightening torque 5^{+1} Nm
045	10	Magnetic body	FHMG045926433	
	20	Tube	FHTP045923681	
	30	O-ring	781744	22 x 2,5 NBR 70 Shore A
	40	Fastening nut	472778	suitable socket wrench SW30 (12 kt DIN 3124) tightening torque 6^{+1} Nm
063	10	Magnetic body	FHMG063924585	
	20	Tube	FHTP063923683	
	30	O-ring	781755	31 x 2,5 NBR 70 Shore A
	40	Fastening nut	472794	suitable socket wrench SW38 (12 kt DIN 3124) tightening torque 6^{+1} Nm

Further variations for the electrical connection on request and explosion-proof executions according to ATEX



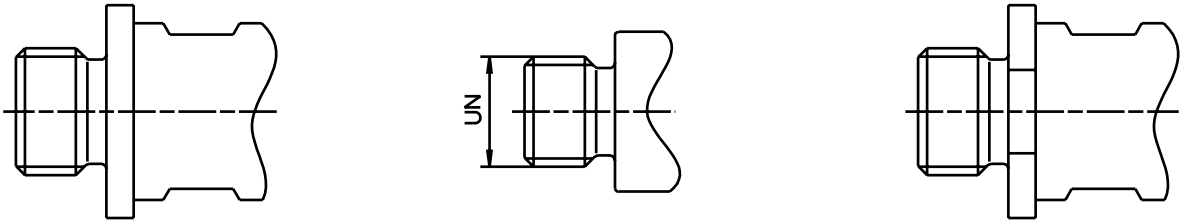
2-pole
AMP-Junior-Timer

2-pole
Deutsch DT04-2P

cable

plug connector
DIN 43650 with bridge rectifier

Connection variations for tube centre thread



bigger thread
with collar

UN-thread
(also UNF, UNEF, etc.)

bigger thread with
hexagonal collar

Type code

Type	Size = ø	Data
G RC Y 037 N54 A01	37 mm	See table page 2
G RC Y 045 N54 A01	45 mm	
G RC Y 063 N54 A01	63 mm	

Example

Type	G RC Y 037 N54 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.