Proportional Solenoids for Hydraulics

4
Product group

G RF ... B01

- According to DIN VDE 0580
- Armature space pressure tight,
  nominal operating pressure 210 bar
  nominal pressure 350 bar
- Also suitable for dry operation
- Magnetic force vs stroke graph horizontal within proportional control range to slightly decreasing
- To a large extent proportional behaviour between force and current
- Minimum hysteresis due to special precision armature bearings
- Quick response times
- Push type
- Insulation materials of the excitation winding correspond to thermal class F
- Electrical connection and protection class when properly installed:
  - Plug connection by spade connectors according to DIN 46247
    Protection class according to DIN VDE 0470/ DIN EN 60529 – IP 00
  - Plug connection via plug connector type Z KB G according to DIN 43650
    Cable gland (4x 90-degree rotatable)
    Protection class according to DIN VDE 0470/ DIN EN 60529 – IP 54
- Fastening with 4 screws
- Manual override
- Sealing between solenoid and valve by o-ring
- Please contact us for application related solutions
- Application examples:
  In particular proportional actuator in pneumatic and hydraulic control chains and control loops

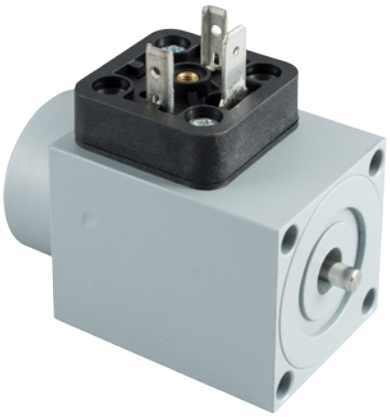


Fig. 1: Type G RF Y 035 F20 B01

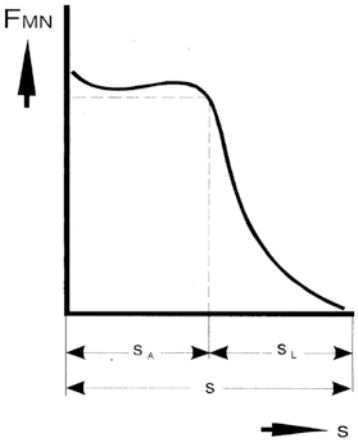


Fig. 2: force vs. stroke characteristic

Technical data

G RF Y ... F20 B01			035	045	060
Operating mode			S1 (100 %)	S1 (100 %)	S1 (100 %)
Reference temperature ϑ_{11}		(°C)	50	50	50
Total stroke s		(mm)	4 ±0,3	6 ±0,3	8 ±0,4
Working stroke s_W		(mm)	2	3	4
The indicated working stroke s_W is a standard value. Due to the occurring tolerances we recommend a stable working area between		(mm)	0,5 - 1,5	0,5 - 2,5	0,5 - 3,5
Idle stroke s_L		(mm)	2	3	4
Rated force F_{MN}		(N)	50	65	145
Static rated force hysteresis H_{FN}		(%)	≈ 1,2	≈ 1,7	≈ 1,9
Dynamic rated current hysteresis H_{FN}		(%)	≈ 2	≈ 3	≈ 3,5
Measured with measurement speed		(mm/min)	20	30	40
Rated current hysteresis H_{IN}		(%)	< 2,5	< 2,5	< 4
Rated linearity deviation L_N		(%)	2	2	2
Armature weight m_A		(kg)	0,03	0,06	0,14
Solenoid weight m_M		(kg)	0,43	0,75	1,75
Rated resistance R_{20}		(Ω)	24,6	21	16,7
Rated current I_N		(A)	0,68	0,81	1,11
Limit current I_G		(A)	0,68	0,81	1,11
Linearity current I_L		(A)	0,14	0,15	0,15
Response current I_A		(A)	0,05	0,02	0,05
Rated power $P_N = I_N^2 \times R_{20}$		(W)	11,4	13,8	21
Limit power $P_G = I_G^2 \times R_W$		(W)	17,4	20,8	31
The limit power requires the mounting on a hydraulic slide with base plate having the minimum dimensions:	hydraulic slide	(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	112 x 115 x 30
Linearity power $P_L = I_L^2 \cdot R_{20}$		(W)	0,48	0,47	0,38
Response power $P_A = I_A^2 \cdot R_{20}$		(W)	0,06	0,0084	0,042

Rated voltage ⎓ 24 V. For actuation as e.g. by electronic servo amplifier an adaptation of the rated voltage has to be respected.

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

The indicated technical data refer to an AC power supply via bridge rectifier. An adaptation of the coil winding to other current and resistance values is possible on request.

Due to natural dispersion the force values may deviate by ± 5% from the values indicated in the tables.

The internal space of the solenoid and the bearing of the armature are resistant against all neutral fluids used commonly in hydraulic application. Please contact us, if you 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*.

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.

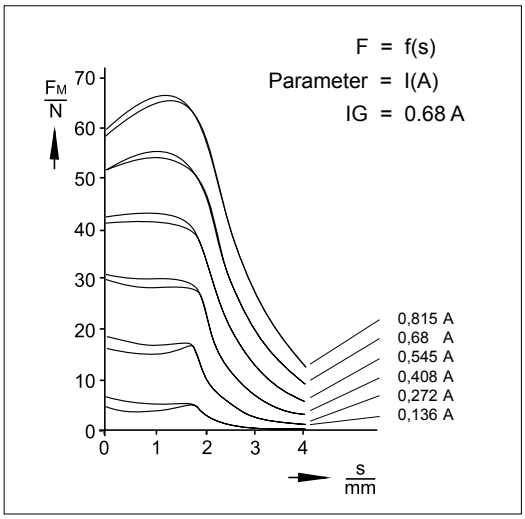


Fig. 3: Force vs. stroke characteristic Type G RF Y 035 F20 B01

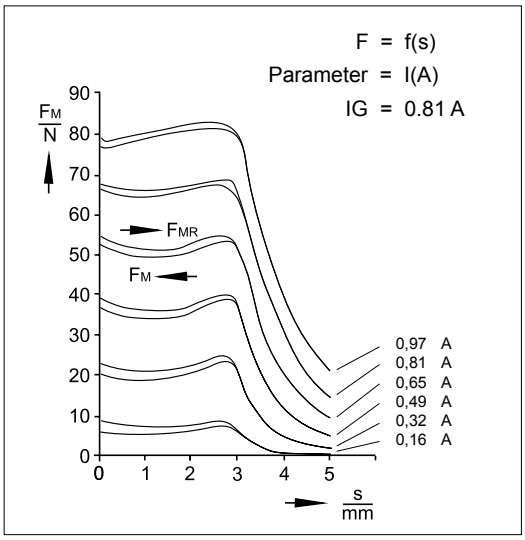


Fig. 6: Force vs. stroke characteristic Type G RF Y 045 F20 B01

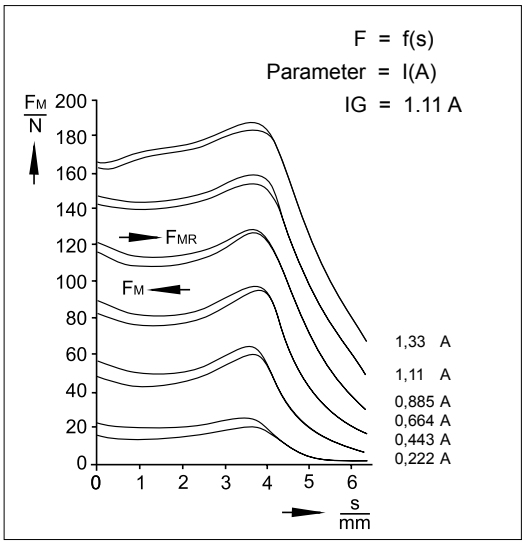


Fig. 4: Force vs. stroke characteristic Type G RF Y 060 F20 B01

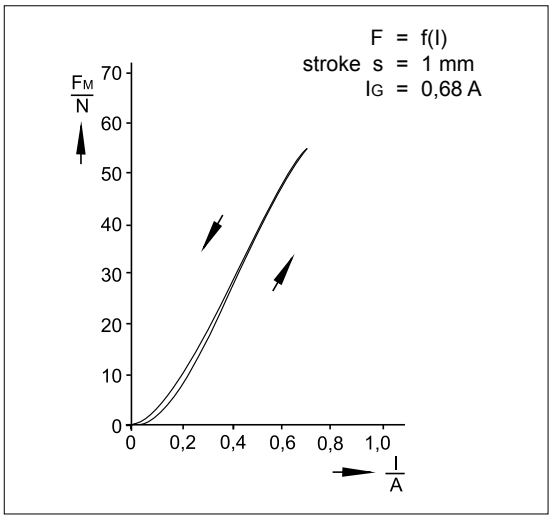


Fig. 4: Force vs. stroke characteristic with constant stroke
Type G RF Y 035 F20 B01

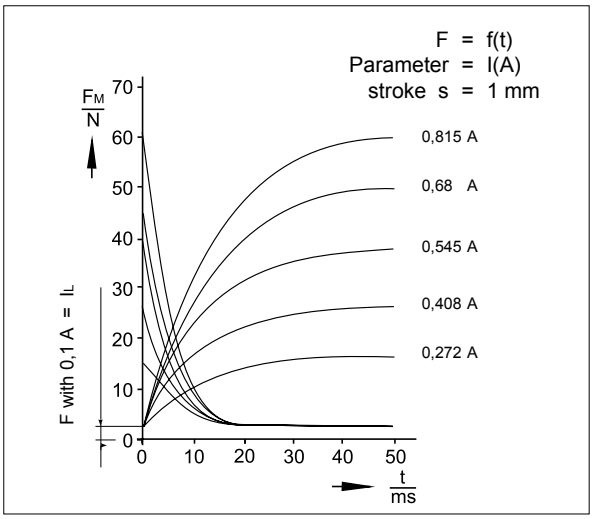


Fig. 5: Force increase and decrease depending on the time
Type G RF Y 035 F20 B01

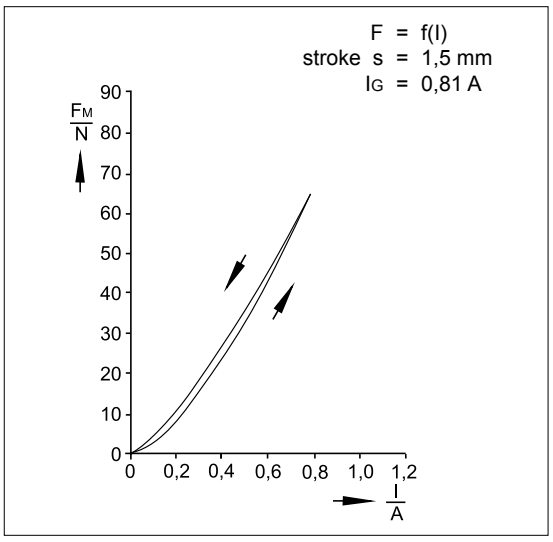


Fig. 7: Force vs. stroke characteristic with constant stroke
Typ G RF Y 045 F20 B01

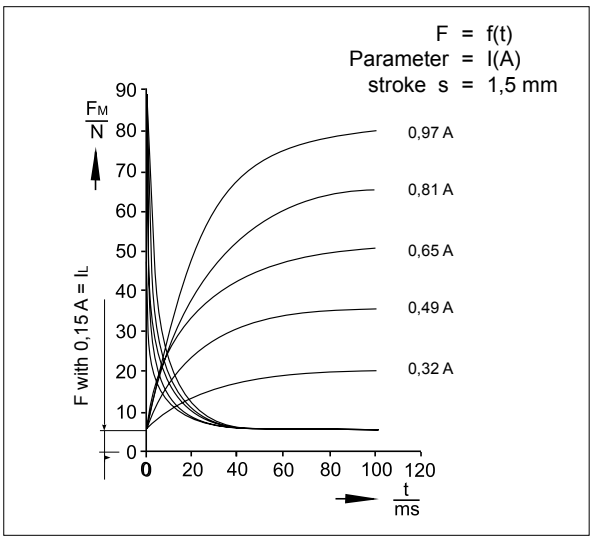


Fig. 8: Force increase and decrease depending on the time
Type G RF Y 045 F20 B01

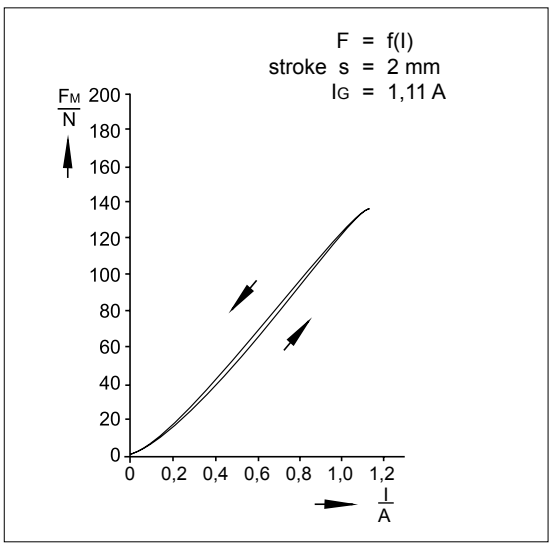


Bild 10: Force vs. stroke characteristic with constant stroke
Typ G RF Y 060 F20 B01

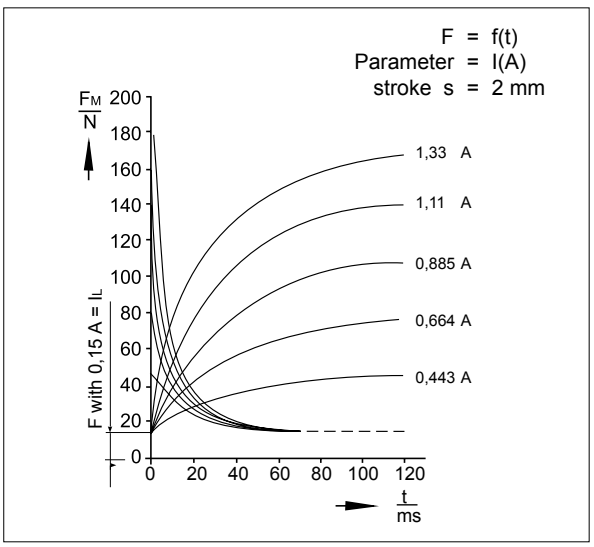


Bild 11: Force increase and decrease depending on the time
Type G RF Y 060 F20 B01

Dimensional drawings

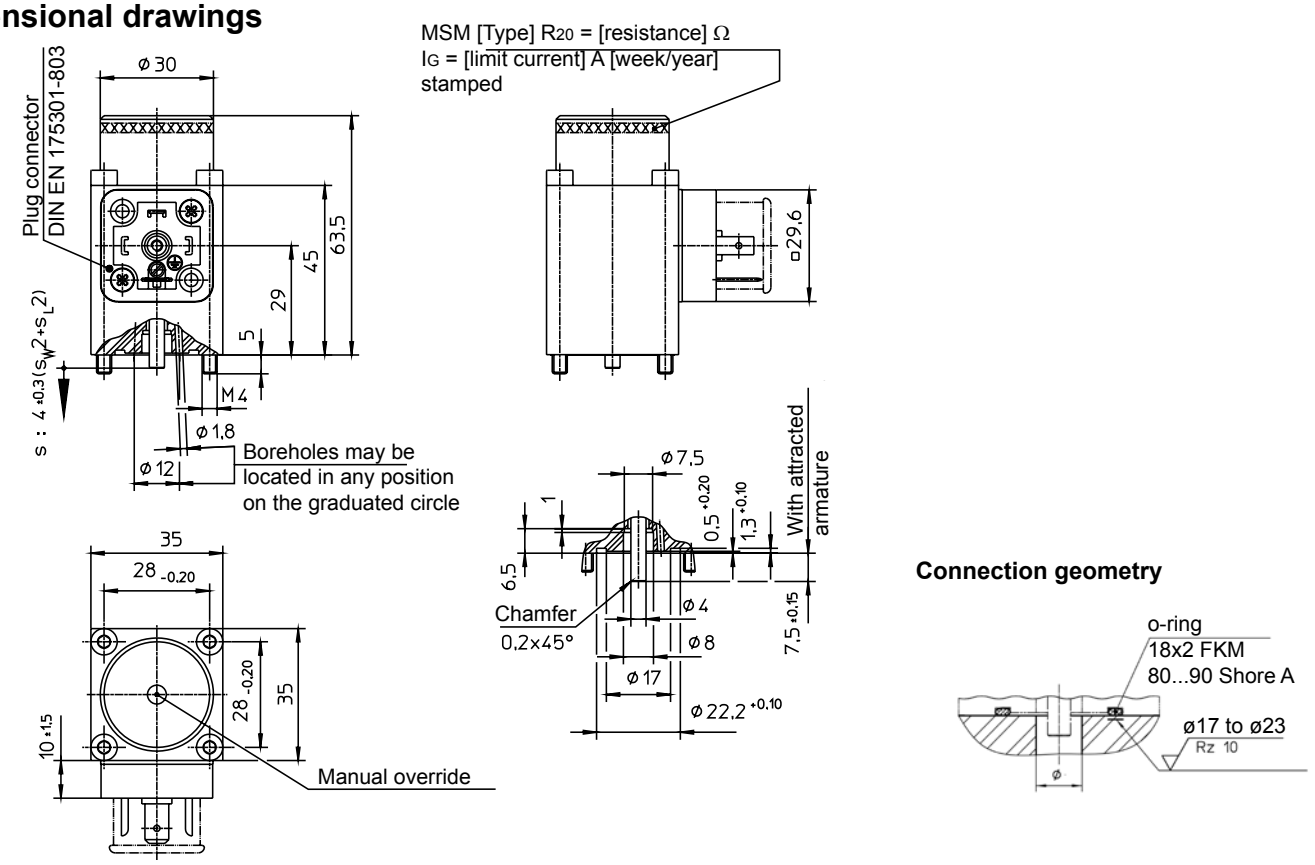


Fig. 12: Type G RF Y 035 F20 B01

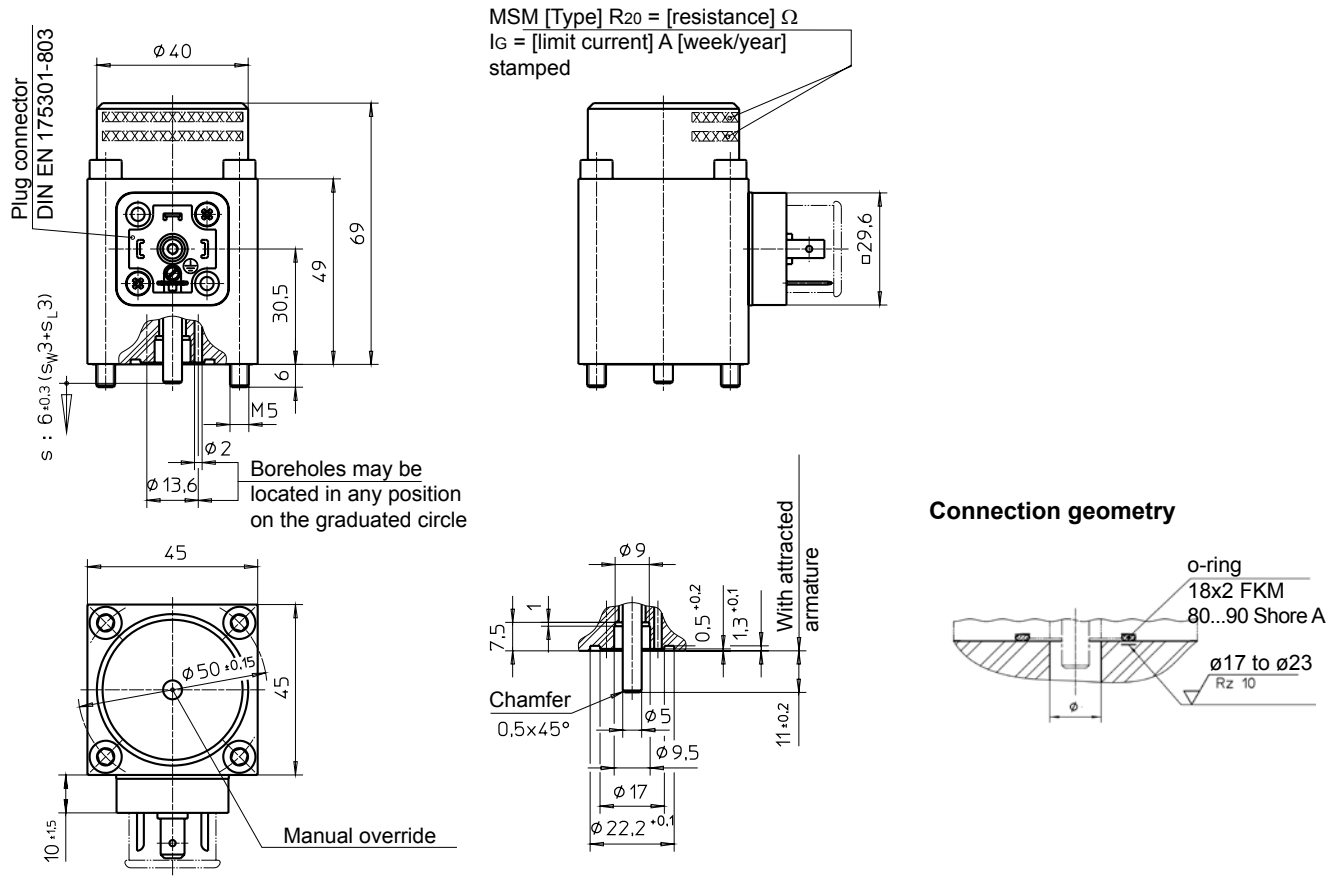


Fig. 13: Type G RF Y 045 F20 B01

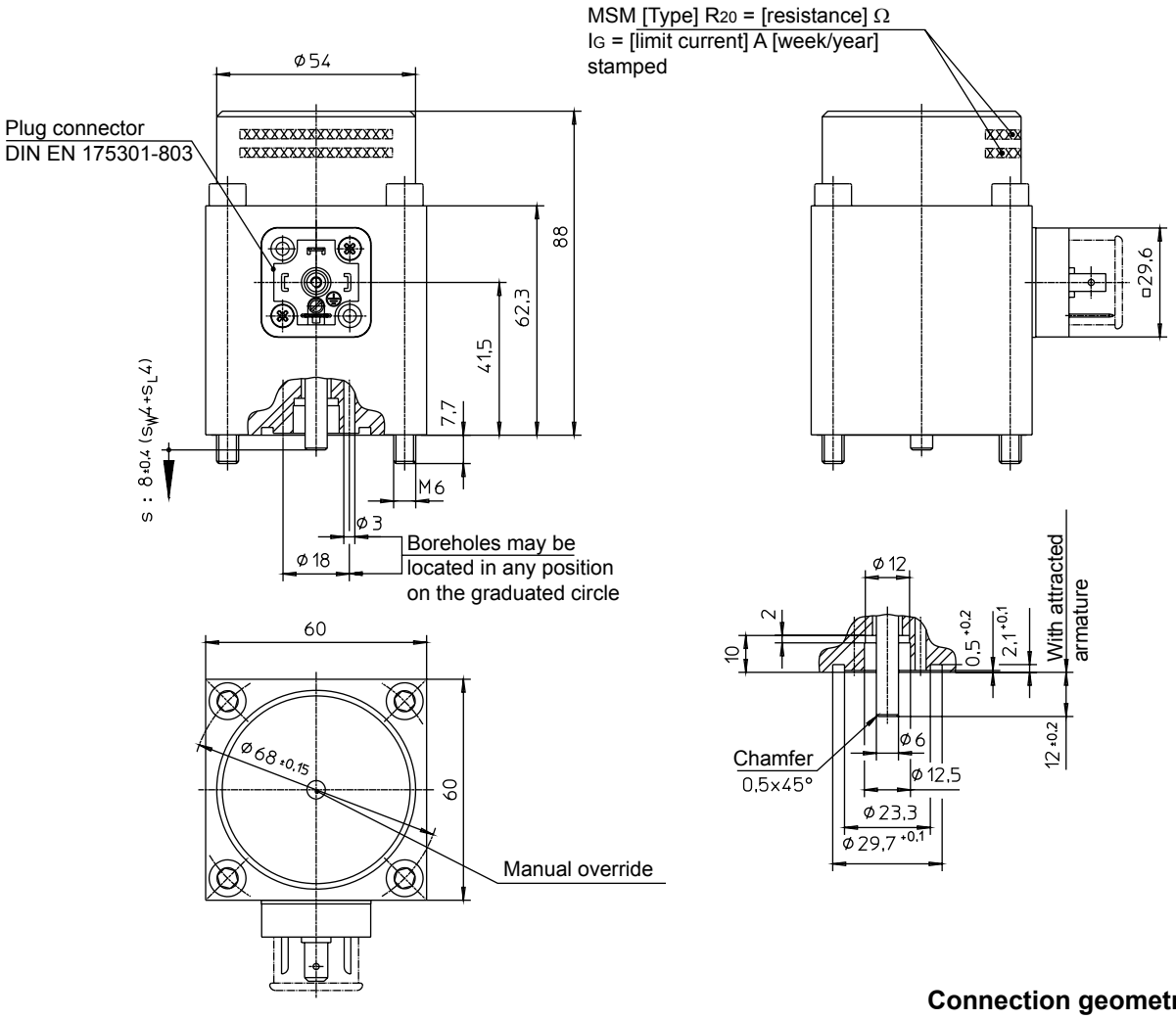
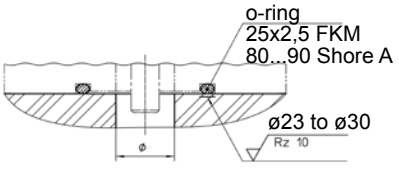


Fig. 14: Type G RF Y 060 F20 B01

Connection geometry



Typenschlüssel

G	RF	Y	045	F	20	B01
Gerätegruppe						
	Baureihe (Grundform)					
		Abwandlungen				
			Größe innerhalb einer Baureihe			
				Baureihenausführung		
					Kennzeichen für Schutzart	
						Zählbegriff

Bestellbeispiel

Typ	G RF Y 045 F20 B01
Spannung	⎓ 24 V DC
Betriebsart	S1 (100 %)

Sonderausführungen

Gerne helfen wir Ihnen bei der Lösung Ihrer anwendungsbezogenen Aufgabenstellung. Es beschleunigt eine zuverlässige Lösungsfindung, wenn Sie uns möglichst genaue Angaben über die Einsatzbedingungen in Übereinstimmung mit den einschlägigen -Technischen Erläuterungen zur Verfügung stellen.

Bitte fordern Sie bei Bedarf die Unterstützung unseres zuständigen Technischen Büros an.