

## Proportional Solenoids for Hydraulic Application with Inductive Transducer

# 4

Product group

## G RC Y ... A62

### Proportional Solenoid

- To VDE 0580
- Pressure-tight armature space, rated pressure 350 bar static nominal working pressure 210 bar
- To a large extent proportional behaviour between force and current
- Small hysteresis through precise armature bearing
- Quick floating times
- Coil winding to insulation classification F (H available on request)
- Electrical connection and protection class if mounted properly:
  - Connection with sockets to DIN 46 247  
Protection to DIN VDE 0470/EN 60 529 – IP 00
  - Connection with plug connector to DIN 43 650  
Screwed cable glands (4 x 90° positions)  
Protection to DIN VDE 0470/EN 60 529 – IP 65

### Inductive Transducer

- Limiting frequency 500 Hz
- Suitable for dry and pressure-tight applications
- Pressure-tight tube, designed for 350 bar static pressure
- Mounting via threaded pins on intermediale nut
- Electrical connection and protection class if mounted properly:
  - Connection via assembling plug connector  
round plug M12x1, 4-pole
  - Protection class to DIN VDE 0470 / EN 60529 – IP 65
- Electronic zero-point adjustment external
- EMC: To EMC guideline 89/336/EWG



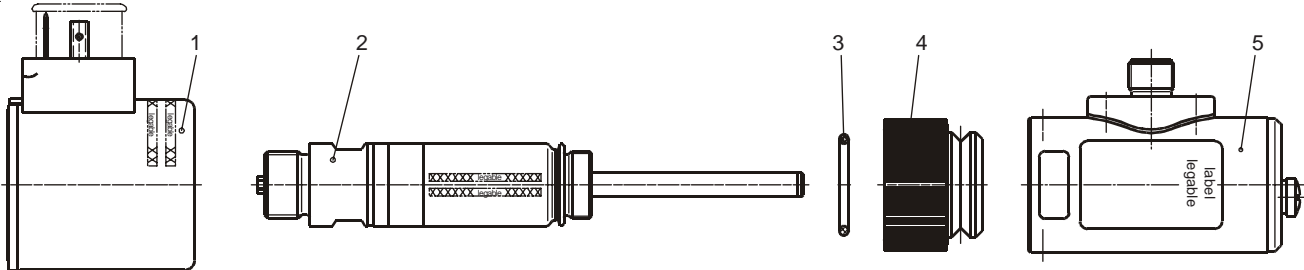
Fig. 1: G RC Y 037 N54 A62

### Application examples

Particularly used as proportional actuator in hydraulic control chains and control circuits.



## Single Components



cons. No.	Quantities	Description
1	1	magnetic body for 12 or 24 V DC
2	1	tube
3	1	round seal 19 x 2.5 70 Sh-A NBR
4	1	intermediate nut
5	1	transducer

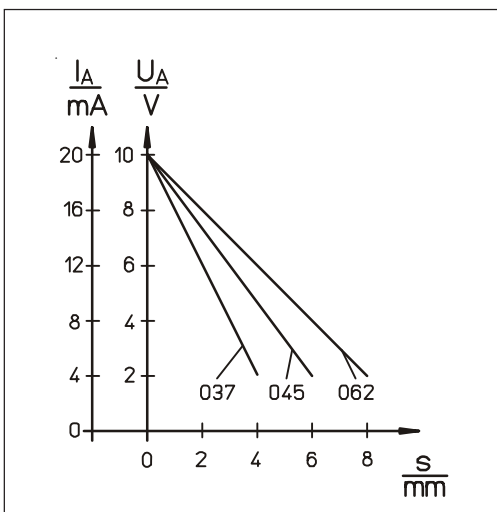


Fig. 2: Current-Voltage-Diagram of transducer

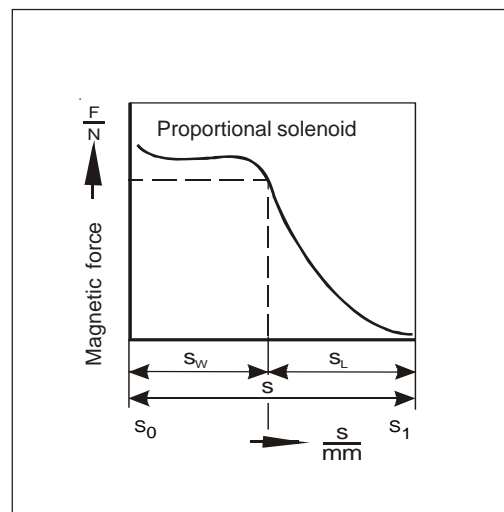
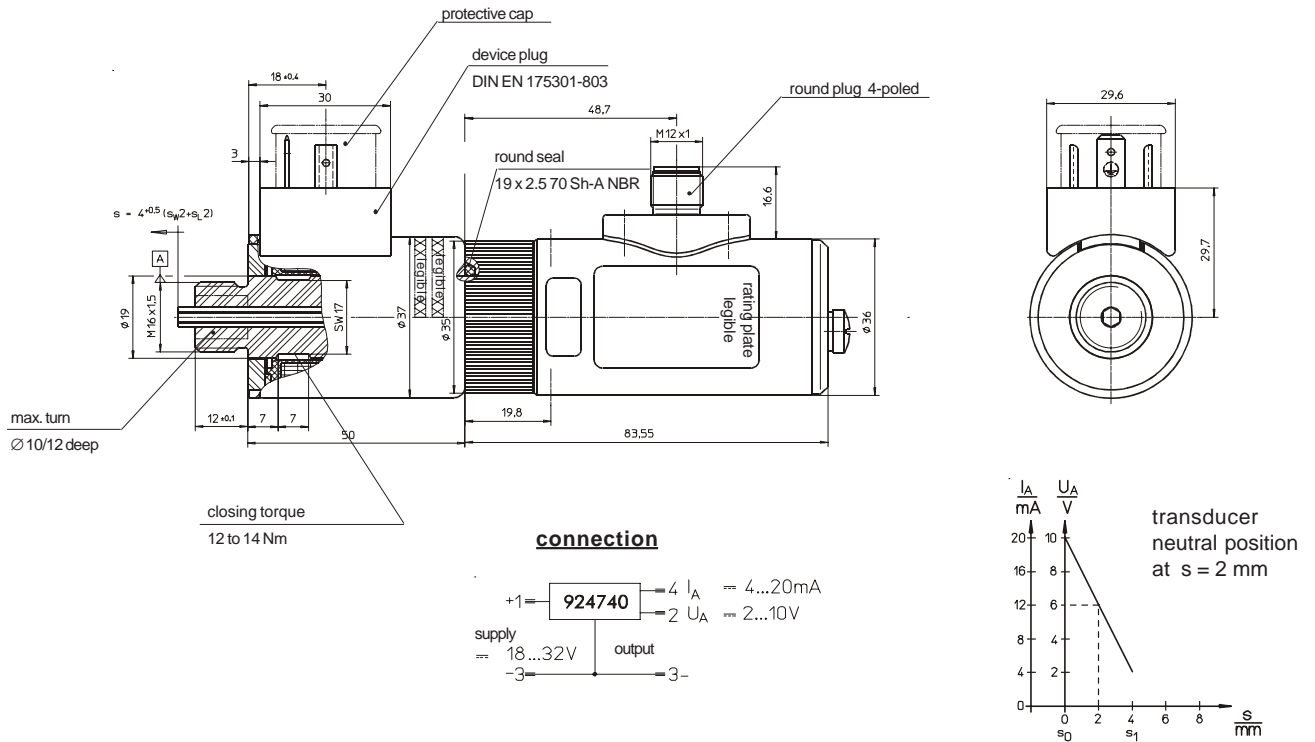
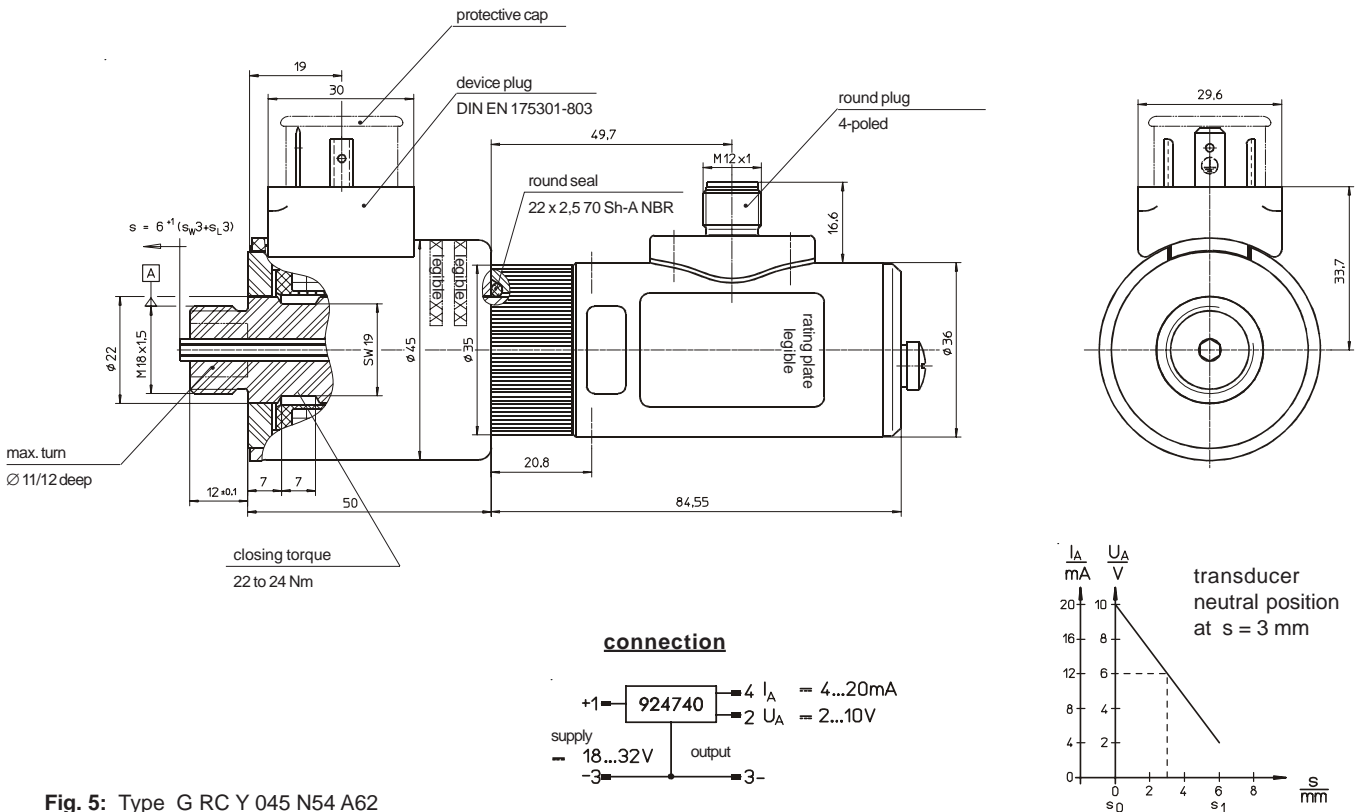


Fig. 3: magnetic force / stroke characteristic

**Drawings**



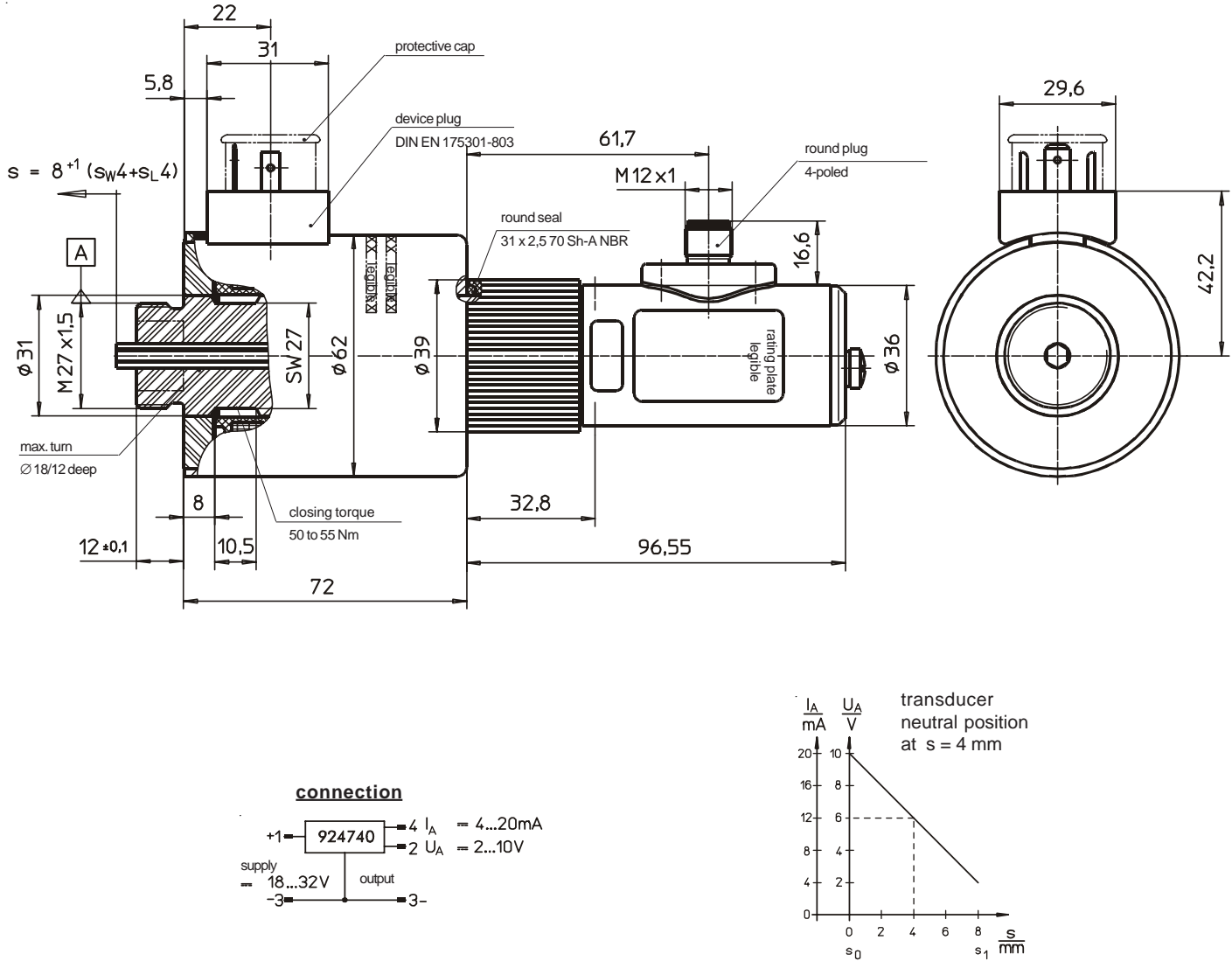
**Fig. 4:** Type G RC Y 037 N54 A62



**Fig. 5:** Type G RC Y 045 N54 A62



**Drawing**

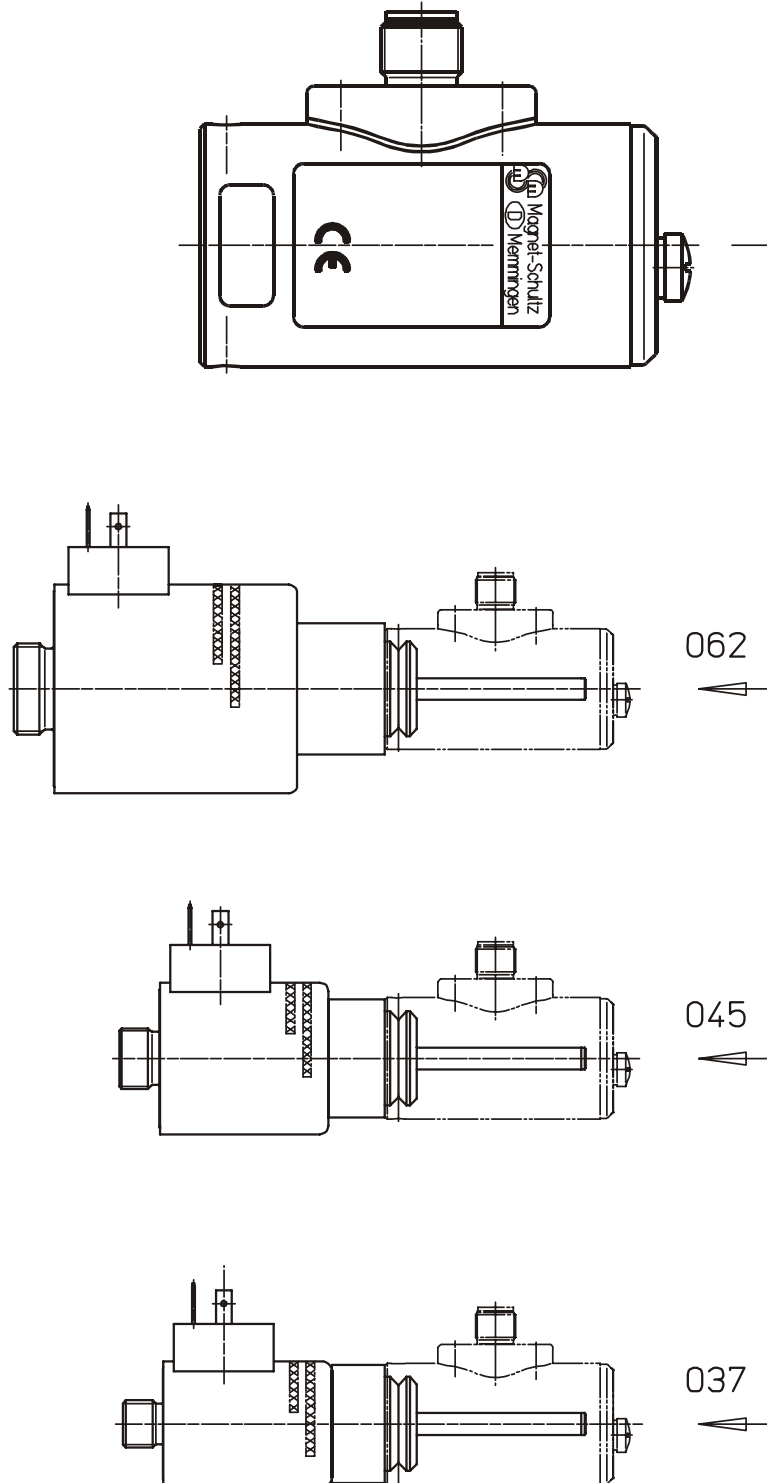


**Fig. 6:** Type G RC Y 062 N54 A62

The solenoids shown are not ready-to-use devices in the sense of DIN VDE 0580. The general requirements and protective measures to be taken by the user, are included in DIN VDE 0580. The use of the shown devices in safety relevant applications need always the written agreement of MSM.



### Combination sensor module with different solenoid sizes



**Sensitivity**

The Sensitivity is the change in the output signal  $\Delta U$  with reference to the change in the measuring path  $\Delta s$  (indicated in V/mm, or

$\frac{\text{mA}}{\text{mm}}$ , resp. ).

$$\text{Sensitivity} = \frac{\Delta U}{\Delta s}$$

**Linearity error**

The linearity error indicates the deviation in per cent of the output signal from the ideal graph.

$$\text{deviation}_{\text{Lin}} = \frac{(U_{\text{actual}} - U_{\text{nominal}})}{U_{\text{voltage stroke}}} \times 100 \%$$

**Temperature drift**

Temperature drift indicates the deviation in per cent of the output signal per degree of temperature change (shown in % / °K).

$$\text{deviation}_{\text{Temp.}} = \frac{(U_{\text{Temp}} - U_{20^\circ \text{C}})}{U_{\text{voltage stroke}} \times \Delta \vartheta} \times 100 \%$$

For voltage values U, also current values I can be put in.

**Note to the technical harmonisation guidelines within the EU:**

The device has been EMC tested and conforms with the regulations of EU guideline 89/336/EEG.

On request, conformance with standards can be confirmed.

High-voltage test: Short-circuited connector pins against housing to DIN VDE 0580.



## Technical Data inductive Transducer

<b>G RC Y ... N54 A62</b>		<b>037</b>	<b>045</b>	<b>062</b>
Measuring path	(mm)	±2	±3	± 4
Supply voltage	( V)		24 ± 10 %	
Current consumption	(mA)		< 60	
Sensitivity	(V/mm)	2	1.33	1
	(mA/mm)	4	2.66	2
Output voltage	( V)		10 ... 2	
Output current	(mA)		20 ... 4	
Linearity tolerance	(%)		± 1	
Top limiting frequency (3 dB)	(Hz)		typ. 500	
Reference temperature range	(°C)		-20 ... + 75	
Temperature drift	(% / K)		typ. 0.05	
Load on output voltage	(kΩ)		> 5 (kurzschlußfest)	
Load on output current	(Ω)		< 500	
Declaration of conformity (EMC)		DC 00	DC 00	DC 00
Offset	(mm)	± 0,5	± 0.75	± 1

## Technical data for proportional solenoids see pamphlet G RC Y 037, 045, 062.

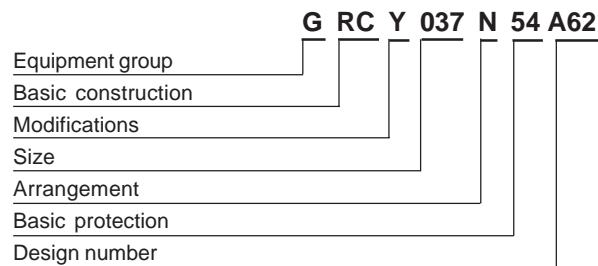
The rated voltage of the proportional solenoids is 24 V DC. If power is e.g. supplied via an electronic automatic volume control amplifier, the rated voltage has to be adjusted accordingly.

The different sensitivities are achieved via different core lengths in the solenoid tube!

Advantage: One sensor module for all three sizes.




## Type code



## Order Example

Type	G RC Y 037 N54 A62
Voltage	 24 V DC
Operating mode	S1 (100 %)

## Specials

Special designs, AC-design and modifications are available on request for which full application conditions should be specified in accordance with our -Technical Explanations.