

# TYPE SOLENOID COILS

G

S

R<sup>®</sup>

## DC and AV solenoid coils



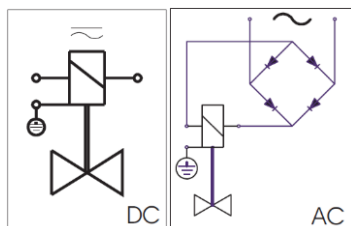
Matched to the appropriate solenoid system consisting of tube and plunger.

The electromagnetic coils convert the electrical energy into a mechanical stroke.

■ For all GSR solenoid valves

## TECHNICAL SPECIFICATIONS

Ambient temperature	Up to -55 °C / +70 °C Details see table on page 2- 3
Solenoid housing material	Plastic Powder-coated steel
Supply voltage	24V AC, 110V AC, 230V AC 12V DC, 24V DC Other supply voltages on request
Voltage tolerance	-10% / +10%
Power consumption	Details see table on page 2 - 3
Insulation class	H, F (nach DIN VDE 0580)
Protection class	IP65 according to DIN 60529 only in combination with the valve IP68 (external encapsulation) on req.
Duty factor	100% ED-VDE 0580
Connection type	Device plug acc. to EN 175301-803 Form A / ISO 4400 terminal box cable
Clamping range	Device plug: 4,5 - 11 mm Standard-coils: 5,0 - 10 mm Temp.-coils: 5,0 - 10 mm ATEX-coils: 6,5 - 9,0 mm
Wire cross-section	max. 1,5 mm <sup>2</sup>
Connection scheme	For AC/DC w/ integr. rectifier coils



All data are explicit for the coil. Different values may result in combination with a valve.

## FEATURES

- For actuation of all GSR solenoid valves
- Extended temperature range
- Explosion proof acc. 2014/34 / EU (ATEX)
- UL approval
- Design according to DIN VDE 0580

## CERTIFICATES



### Explosion proof acc. to 2014/34/EU (ATEX)

- The solenoid coils are only approved in combination with GSR valves.
- The code of the type examination certificate as well as the explosion protection marking can be found in the corresponding operating instructions.

## ORDERING CODE

Solenoid		Type	Voltage
K	0 5 1	0 1	9 0

05	Standard	18	.182	05	12 V DC
D5	Temp.	03	.032	10	24 V DC
R5	Temp.	01	.012	39	205 V DC
T5	Temp.	70	.702	56	24 V AC
S5	Term.box	80	.80..	75	110 V AC
		32	.32..	90	230 V AC
1	Standard	24	.24..	etc.	...
9	ATEX	etc.	...		

## TECHNICAL FEATURES

Standard coils for general applications

Type	Type code	Special voltage	P(B) W / VA	Device plug	Terminal box	T(A)	Insulation class*	Housing
.182	K05118..	X	6,8 / 11	X	-	-20°C/+50°C	H / F	Duroplastic
.032	K05103..	X	11 / 16	X	-	-20°C/+50°C	H / F	Duroplastic
.012	K05101..	X	18,5 / 24	X	-	-20°C/+50°C	H / F	Duroplastic
.692-NO	K05169..	X	25	X	-	-20°C/+50°C	H / F	Duroplastic
.702	K05170..	X	25	X	-	-20°C/+50°C	H / F	Duroplastic
.802	K05180..	X	24	X	-	-20°C/+50°C	H / F	Steel
S802	KS5180..	X	24	-	X	-55°C/+50°C	H	Steel
.322	K05132..	X	30	X	-	-20°C/+50°C	H / F	Steel
S322	KS5132..	X	30	-	X	-55°C/+50°C	H	Steel
.(S)242	K0(KS)5124..	X	46	-	X	-20(-40)°C/+50°C	H / F (H)	Steel
.(S)272	K0(KS)5127..	X	100	-	X	-20(-40)°C/+50°C	H / F (H)	Steel
.(S)352	K0(KS)5135..	X	150	-	X	-20(-40)°C/+50°C	H / F (H)	Steel
.402	K05140..	> 100V	250	-	X	-20°C/+50°C	H / F	Steel

The values in brackets refer to the "S" version

Solenoid coils for extended temperature range

Type	Type code	Special voltage	P(B) W / VA	Device plug	Terminal box	T(A)	Insulation class*	Housing
D182	KD5118..	-	6,8 / 11	X	-	-20°C/+70°C	H	Duroplastic
D012	KD5101..	-	18 / 24	X	-	-20°C/+70°C	H	Duroplastic
T012	KT5101..	X	18,5 / 24	X	-	-20°C/+50°C	H	Duroplastic
R802	KR5180..	X	18	X	-	-20°C/+50°C	H	Steel
T802	KT5180..	X	18	-	X	-40°C/+50°C	H	Steel
R322	KR5132..	X	21	X	-	-20°C/+50°C	H	Steel
T322	KT5132..	X	21	-	X	-40°C/+50°C	H	Steel
R242	KR5124..	X	44	-	X	-20°C/+50°C	H	Steel
T242	KT5124..	X	26	-	X	-40°C/+50°C	H	Steel
R272	KR5127..	X	60	-	X	-20°C/+50°C	H	Steel
T272	KT5127..	X	60	-	X	-40°C/+50°C	H	Steel
T352	KT5135..	X	80	-	X	-40°C/+50°C	H	Steel
T402	KT5140..	> 100V	180	-	X	-40°C/+50°C	H	Steel

P(B) = lift power (W at DC / VA at AC)

T(A) = max. ambient temperature

\* Insulation class for wire [H (180°C)] / total [F (155°C)]

## TECHNICAL FEATURES

### Explosion proof coils acc. to 2014/34/EU

Type	Type code	Special voltage	P(B) W / VA	Cable gland	Terminal box	T(A)	Insulation class*	Housing
Code: II 2G Ex mb IIC T4 Gb // II 2D Ex mb tb IIIC T130°C Db								
.178	K05917..	-	5,2 / 5,3	X	-	-20°C/+50°C	H / F	Thermoplastic
.148	K05914..	-	10 / 8,5	X	-	-20°C/+50°C	H / F	Thermoplastic
Code: II 2G Ex e mb IIC T4 Gb // II 2D Ex tb mb IIIC T130°C Db								
.048	K05904..	-	10	-	X	-40°C/+60°C	H / F	Thermoplastic
.808	K05980..	X	24	-	X	-55°C/+60°C	H	Steel
.328	K05932..	X	23	-	X	-55°C/+60°C	H	Steel
.248	K05924..	X	30	-	X	-55°C/+60°C	H	Steel
.278	K05927..	X	47	-	X	-55°C/+40°C	H	Steel
A278	K05927-..KL	X	47	-	X	-40°C/+70°C	H	Steel / Alum.
.358	K05935..	X	75	-	X	-55°C/+40°C	H	Steel

### Solenoid coils with UL-approval

Type	Type code	Special voltage	P(B) W / VA	Device plug	Terminal box	T(A)	Insulation class*	Housing
.182-UL	K05118..-UL	-	5,7 / 5,7	X	-	-20°C/+50°C	H / F	Duroplastic
.032-UL	K05103..-UL	-	12,3/16,8	X	-	-20°C/+50°C	H / F	Duroplastic
.012-UL	K05101..-UL	-	16,2 / 24	X	-	-20°C/+50°C	H / F	Duroplastic
.322-UL	K05132..-UL	X	30	-	X	-20°C/+35°C	H	Steel
.242-UL	K05124..-UL	X	46	-	X	-20°C/+35°C	H	Steel
.272-UL	K05127..-UL	X	100	-	X	-20°C/+35°C	H	Steel
.352-UL	K05135..-UL	X	150	-	X	-20°C/+35°C	H	Steel

P(B) = lift power (W at DC / VA at AC)

T(A) = max. ambient temperature

\* Insulation class for wire [H (180°C)] / total [F (155°C)]

# DIMENSIONS

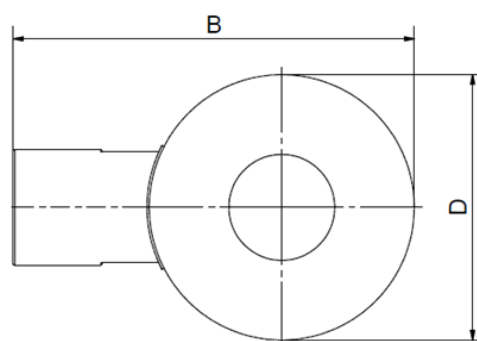
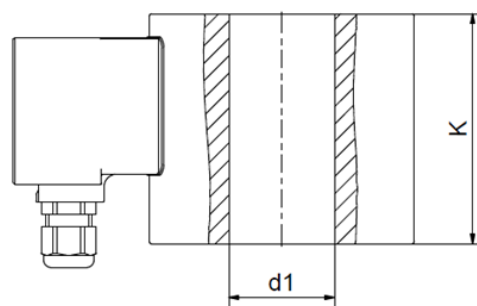
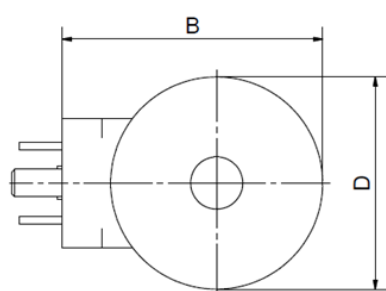
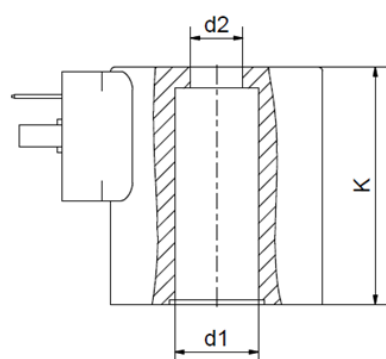
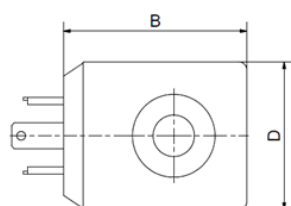
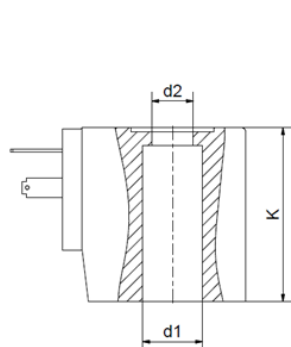


Fig. A

Fig. B

Fig. C

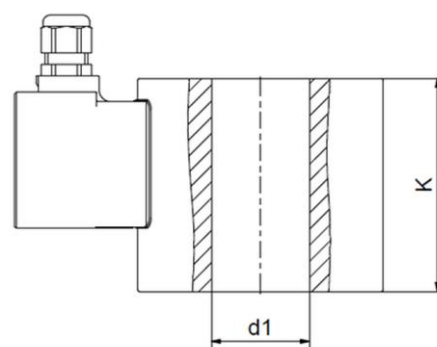
Standard solenoid coils and solenoid coils for extended temperature range

	.182 D182	.032	.012 D012/T012	.702 .692-NO	.802 R802	S802 T802	.322 R322	S322 T322
Figure	A	A	A	A	B	C *	B	C
D	30	30	36	36	49,0	49,0	63,0	63,0
d1	8,1	14,7	14,7	18,3	19,5	19,5	28,0	28,0
d2	8,0	10,1	10,1	12,1	12,1	12,1	28,0	28,0
B	35	39	45	54	60,0	99,2	86,0	114,1
K	29,5	42,0	42,0	54,0	55,0	55,0	59,0	59,0
kg	0,1	0,2	0,3	0,4	0,6	0,8	1,0	1,2

Standard solenoid coils and solenoid coils for extended temperature range

	.242 T(R,S)242	.272 T(R,S)272	.352 T(R,S)352	.402 T402
Figure	C	C	C	C
D	77,0	105,0	145,0	210,0
d1	37,0	42,0	60,5	106,1
d2	37,0	42,0	60,5	106,1
C	131,0	159,1	199,0	263,0
K	70,0	91,3	144,0	293,0
kg	1,9	4,7	13,0	50,0

\* In contrast to figure C, the cable connection points upwards



## DIMENSIONS

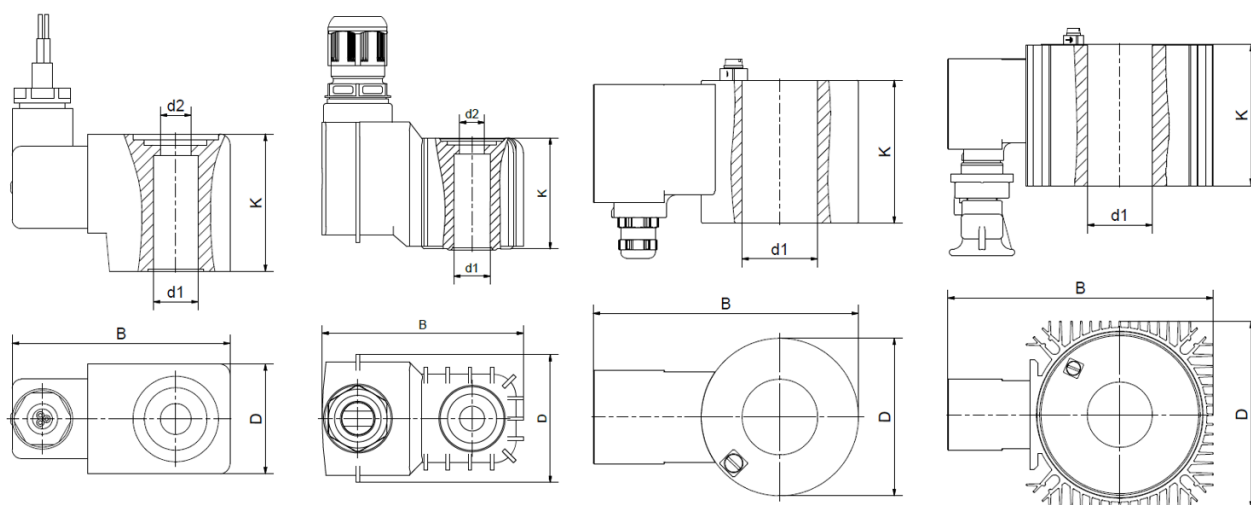


Figure A

Figure B

Figure C

Figure D

### Explosion proof solenoid coils

	.178	.148	.048	.808	.328	.248	.278	A278	.358
Figure	A	A	B	C	C	C	C	D	C
D	22	36,0	46,0	49,0	63,0	77,0	105,0	120,0	145,0
d1	8,1	14,7	14,7	19,5	28,0	37,0	42,0	42,0	60,5
d2	8,0	10,1	10,1	12,1	28,0	37,0	42,0	42,0	60,5
B	55,0	72,0	82,0	99,2	114,1	130,0	158,0	170,5	199,0
K	31,0	45,0	45,2	55,0	59,0	70,0	91,2	90,5	144,0
kg	0,4	0,3	0,3	0,8	1,2	1,9	4,7	5,1	13,0

### Solenoid coils with UL-approval

	.182-UL	.032-UL	.012-UL	.322-UL	.242-UL	.272-UL	.352-UL
Figure	A	A	A	C	C	C	C
D	30,0	30,0	36,0	63,0	77,0	105,0	145,0
d1	8,1	14,7	14,7	28,0	37,0	42,0	60,5
d2	8,0	10,1	10,1	28,0	37,0	42,0	60,5
B	47,5	57,7	57,7	114,1	130,0	158,0	199,0
K	29,5	42,0	42,0	59,0	69,8	91,3	144,0
kg	0,1	0,2	0,3	1,2	1,9	4,7	13,0

## INFORMATION

- It is imperative to observe the installation and safety instructions in our operating and service manuals.
- Required ordering information: valve type, function NC/NO, pressure range, connection, nominal width, medium, flow rate, medium and ambient temperatures, connection voltage.
- **Detailed production-specific drawings and other technical information will be made available when an order is placed**

## PLEASE NOTE

Pure DC coils with connector (1032, 1012, .702, .692, .802, .322) are supplied with a connector with an integrated rectifier for connection to AC voltage, which must be used. The coil voltage takes into account the voltage loss of the rectifier and thus deviates significantly from the supply voltage. When connected to 230V 50 / 60Hz, for example, the coil voltage would be 205V DC printed or marked on the coil.

- In order to avoid damage caused by incorrect supply voltages, the coil should only be put into operation if it is suitable according to the type plate imprint.
- DC coils with connector (.802, .322) for connection to AC voltage are supplied with a rectifier-plug, which is mandatory to use. The coil voltage takes into account the voltage loss of the rectifier and thus deviates significantly from the supply voltage. For example, if connected to 230V 50 / 60Hz, the coil voltage 205V DC would be printed or marked on the coil
- Surface temperatures of the magnet housings around 110 °C, up to an ambient temperature of 30 °C, are to be regarded as normal.
- Commissioning of DC coils only when assembled to the tube. Otherwise there is a risk of jamming, since all magnetizable materials are attracted.
- When commissioning for the first time after installation, make sure to hear a metallic noise when the plunger hit the iron core (applies to NC valves). Flush the tubing properly when this noise does not occur.
- The maximum IP protection is only achieved when the coil is mounted together with the O-rings on the top and bottom of the tube.
- Only fine-wire cables may be used as connecting cables. (No installation cables such as NYM-J 3x1.5!)
- Never operate AC solenoids unassembled (without valve)! This can destroy the coil. There is also a risk of burns.

## Heating and power of solenoid coils

The GSR default solenoid valves are designed for continuous operation (100% ED = power-on time) under normal operating conditions. The pulling force of a solenoid coil is basically influenced by three elements:

- The self-heating of the magnetic coil
- The medium temperature
- The ambient temperature

GSR solenoid coils are by default (non-ATEX) designed for a maximum ambient temperature of +35 °C. This specification applies for the maximum allowable operating pressure specified in the data sheet of the corresponding valve, 100% duty cycle and a medium temperature of +80 °C.

A higher ambient temperature is possible, when lower values are applied for the other influencing parameters. When the max. operation pressure and max. ambient temperature of +50 °C is given the medium temperature is not allowed to be higher than max. +50 °C. In addition to that, deviations from the default design temperature range are possible, e.g. when temperature coils or other constructive measures are used. Please contact the GSR headquarters to discuss the specific application.

More precise specifications and technical data with regard to the operating conditions can be found in the data sheets of the solenoid coils and the solenoid valve regarded. Please observe that the surface temperature of a permanently loaded coil can amount up to +120 °C, solely by the self-heating of the coil. The power consumption of our default solenoid valves was calculated to DIN VDE 05820 for a coil temperature of +20 °C.