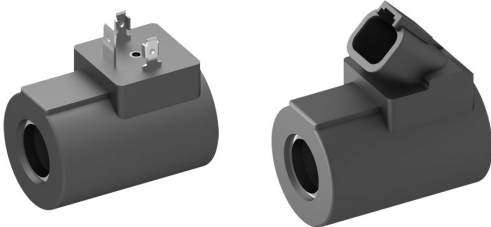


Coils for Solenoid Valves

Wide variety of connector types, power ratings and voltages
Series D36...



- Facilitates compact assemblies
- All common AC and DC voltages
- Power consumption 8 W, 17 W, 27/25 W
- Wide variety of connector types
- With optional protection diode
- Protection class IP 65 / IP 67 / IP 69K
- For core tube \varnothing 16 mm

1 Description

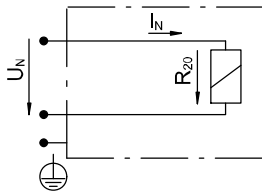
The slip-on coils can be replaced without opening the hydraulic envelope and can be positioned at any angle through 360°. When combined with the appropriate core tube, the coils produce an on/off solenoid function or a proportional solenoid function. Thanks to the wide variety of connector types and voltages, these coils are suitable for

widespread use in mobile and industrial applications. These coils are very adaptable in use, a benefit that is enhanced by various power ratings and an optional protection diode. The coil encapsulation and the plug base are glass-fibre reinforced thermoplastic.

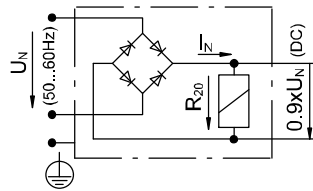
2 Symbol

Connector type to DIN EN

Direct current DC

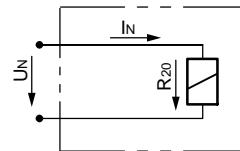


Alternating current AC

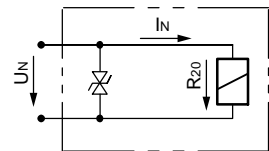


All connector types except DIN EN (DC)

Without protection diode



With bipolar protection diode



ATTENTION!

Protection of AC solenoid coils.
The rectifier built into the coil can be damaged by high voltage spikes.
To prevent AC coils from being destroyed, a mating connector with integral power varistor is recommended.



IMPORTANT!

For solenoid coils with integrated rectifier as well as for solenoid coils without protection diode and for solenoid coils with bipolar protection diode the two supply connections (U_N) can be interchanged. The earth connection is marked with ...



ATTENTION!

Coils with a bipolar protection diode:
To protect the diode in the coil against overvoltage and overcurrent the related data for this diodes must be observed!

3 Technical data

General characteristics	Description, value, unit
Designation	coil, D36
Design	slip-on, rotatable 360°
Mounting method	core tube, knurled nut
Ambient temperature range	-30 °C ... +50 °C
Coil weight	190 ... 230 g (dependent on type of connection)
Electrical characteristics	Description, value, unit
Electrical connection	<ul style="list-style-type: none"> - DIN EN 175301-803, 3-pole 2 P+E - Deutsch plug connection 45° DT04-2P - Junior Timer radial plug connection, 2-pole - Junior Timer axial plug connection, 2-pole - AMP Super Seal 1,5 / Metri-Pack 150, 2-pole - Kostal plug connection M27x1, 2-pole - flying leads, 2-pole
Insulation class to VDE 0580	H (180 °C)
Protection class to ISO 20 653 / EN 60 529	IP 65 / IP 67 / IP 69K, see "Ordering code" (with appropriate mating connector and proper fitting and sealing)
Relative duty cycle	100 %
Control current	see valve data sheet (proportional function)
Supply voltage tolerance	± 10 %
Supply voltages / power ratings:	
standard	12 V DC / 8 W, 17 W, 27 W
standard	24 V DC / 8 W, 17 W, 27 W
	26 V DC / 27 W
	28 V DC / 17 W, 27 W
	200 V DC / 25 W
standard	115 V AC (50...60 Hz) ¹⁾ / 17 VA, 25 VA
standard	230 V AC (50...60 Hz) ¹⁾ / 17 VA, 25 VA
More on request	see Coil resistance R
Bipolar protection diode	12 V DC: P6KE33CA 24, 26, 28 V DC: P6KE56CA
Nominal breakdown voltage of the bipolar protection diode	12 V DC: 33 V 24, 26, 28 V DC: 56 V
Max. allowed voltage peaks for 1 second and relative duty cycle ED = 0.4 %	12 V DC: 25 V 24, 26, 28 V DC: 43 V



IMPORTANT!:

¹⁾ supply voltages > 75 VDC or 50 VAC only possible with DIN EN 175301-803 connect.

Supply voltage: 12 V DC		8 W	17 W	27 W
Coil resistance R	- cold value at + 20 °C	18.0 Ω	8.6 Ω	5.8 Ω
	- cold value at - 30 °C	14.5 Ω	6.9 Ω	4.7 Ω
	- max. warm value	28.2 Ω	13.5 Ω	9.1 Ω
Inductance	parallel 120 Hz	204 mH	107 mH	62 mH
	serial 1000 Hz	51 mH	28 mH	16 mH

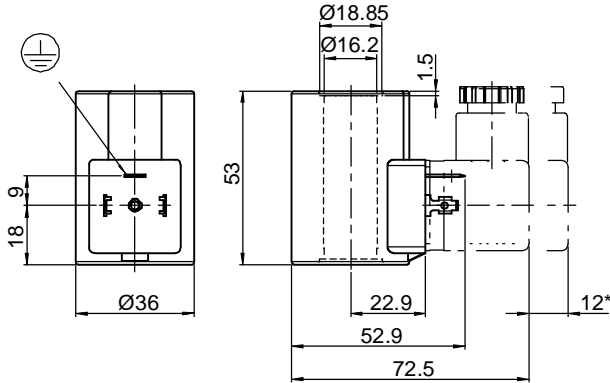
Measured at the core tube, non-operated, at 0.1 mA (rms) / 1 kHz

Supply voltage: 24 V DC		8 W	17 W	27 W
Coil resistance R	- cold value at + 20 °C	72.0 Ω	34.9 Ω	20.9 Ω
	- cold value at - 30 °C	58.0 Ω	28.1 Ω	16.8 Ω
	- max. warm value	112.7 Ω	54.6 Ω	32.7 Ω
Inductance <small>Measured at the core tube, non-operated, at 0.1 mA (rms) / 1 kHz</small>	parallel 120 Hz	765 mH	416 mH	246 mH
	serial 1000 Hz	193 mH	108 mH	62 mH
Supply voltage: 26 V DC		8 W	17 W	27 W
Coil resistance R	- cold value at + 20 °C	–	–	25.0 Ω
	- cold value at - 30 °C	–	–	20.1 Ω
	- max. warm value	–	–	39.1 Ω
Inductance <small>Measured at the core tube, non-operated, at 0.1 mA (rms) / 1 kHz</small>	parallel 120 Hz	–	–	292 mH
	serial 1000 Hz	–	–	74 mH
Supply voltage: 28 V DC		8 W	17 W	27 W
Coil resistance R	- cold value at + 20 °C	–	45.0 Ω	28.0 Ω
	- cold value at - 30 °C	–	36.2 Ω	22.5 Ω
	- max. warm value	–	70.4 Ω	43.8 Ω
Inductance <small>Measured at the core tube, non-operated, at 0.1 mA (rms) / 1 kHz</small>	parallel 120 Hz	–	558 mH	350 mH
	serial 1000 Hz	–	143 mH	91 mH
Supply voltage: 200 V DC		8 W	17 W	25 W
Coil resistance R	- cold value at + 20 °C	–	–	1710 Ω
	- cold value at - 30 °C	–	–	1377 Ω
	- max. warm value	–	–	2677 Ω
Inductance <small>Measured at the core tube, non-operated, at 0.1 mA (rms) / 1 kHz</small>	parallel 120 Hz	–	–	16'350 mH
	serial 1000 Hz	–	–	4'390 mH
Supply voltage: 115 V AC		8 VA	17 VA	25 VA
Coil resistance R	- cold value at + 20 °C	–	630 Ω	430 Ω
	- cold value at - 30 °C	–	507 Ω	346 Ω
	- max. warm value	–	986 Ω	673 Ω
Supply voltage: 230 V AC		8 VA	17 VA	25 VA
Coil resistance R	- cold value at + 20 °C	–	2520 Ω	1710 Ω
	- cold value at - 30 °C	–	2029 Ω	1377 Ω
	- max. warm value	–	3945 Ω	2677 Ω

4 Dimensions

Coil with DIN plug connection

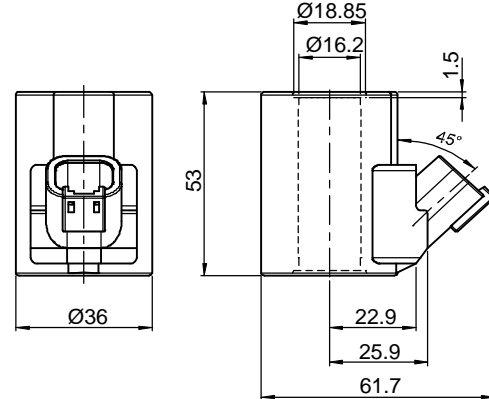
- Standard-Type (see Ordering code)



*Freiraum für Steckermontage / free space for plug assembly

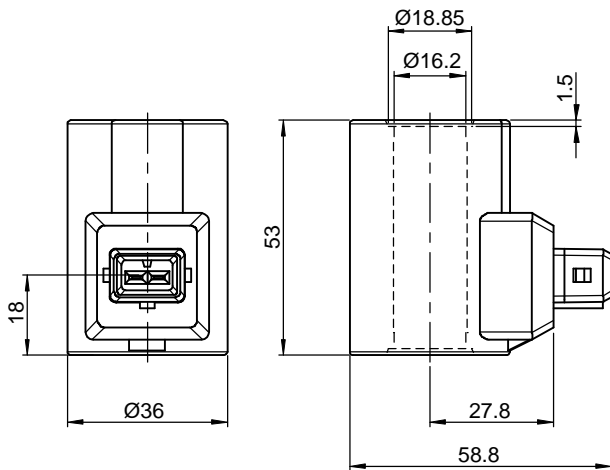
Coil with Deutsch DT04-2P plug connection

- Type D without quenching diode
- Type DT with quenching diode (see Ordering code)



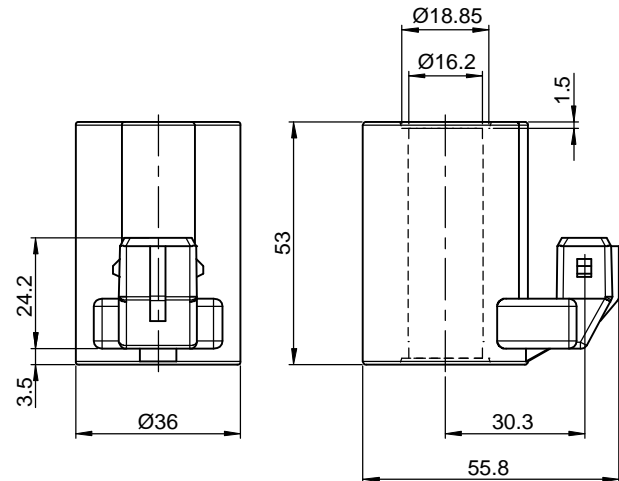
Coil with Junior Timer radial plug connection

- Type JT with quenching diode (see ordering code)



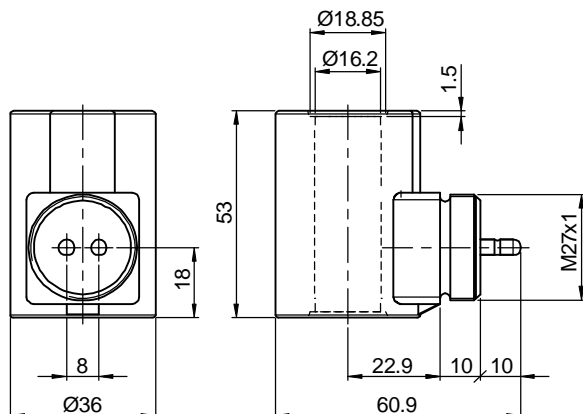
Coil with Junior Timer axial plug connection

- Type IT (see ordering code)



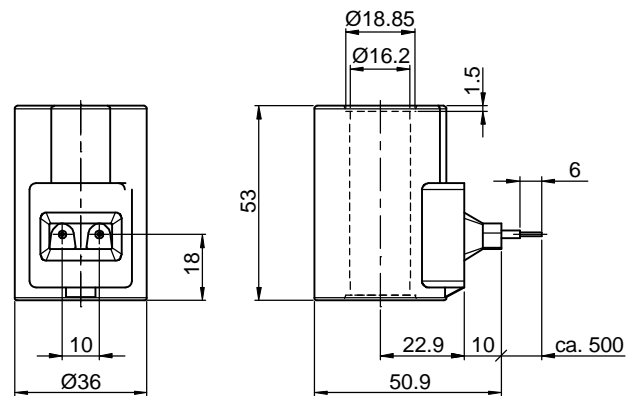
Coil with Kostal plug connection

- Type C (see ordering code)



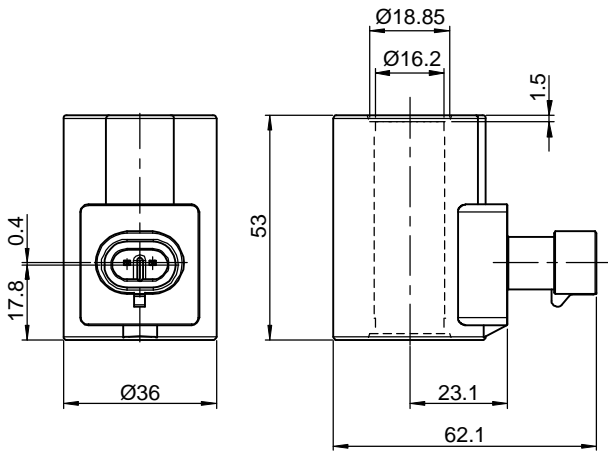
Coil with flying leads/
flexible wires 1mm²; insulation FEP (Teflon)

- Type F (see ordering code)



Coil with connection AMP Superseal/
Metri Pack 150, 2-pole

- Type S (see ordering code)



5 Installation information



Attention.

Because of the danger of overheating, the coil must only be operated when it is properly fitted on a valve. To prevent the ingress of water, both ends of the coil on the core tube must be properly sealed with O-rings.



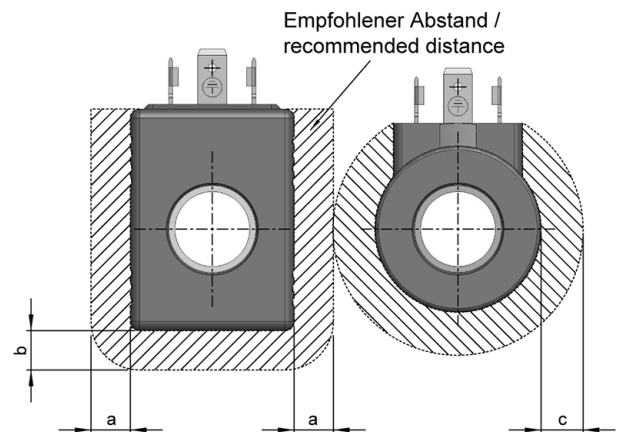
Attention.

To obtain the maximum performance, the position of the plug socket must be ensured when mounting the solenoid coil. The correct position can be found in the corresponding data sheet.

5.1 Minimum distance for solenoid coils

To ensure the specified performance data of the proportional valve is achieved, a minimum distance between the solenoid coils must be maintained when designing a sub-system (manifold block).

This information pertains to proportional valves that are equipped with these solenoid coils and are installed in the immediate proximity of a solenoid valve which is simultaneously energized.



Solenoid coil types:	36x48 zu 36x48		36x48 zu D36			D36 zu D36
Recommended distances (mm)	a	b	a	b	c	c
Aluminum block	7	4	2	4	8	8
Steel block	12	12	12	6	10	10

6 Ordering code

Ex. MAG-SP D36 24 D _ 27W

MAG-SP = coil

D36 = \varnothing 36 mm (external \varnothing)

... = voltage e.g. 24 (24 V)
see "Electrical characteristics" - supply voltage

D = current DC

A = current AC (only possible with DIN EN 175301-803 connect)

(blank) = standard plug connection to DIN EN (3-pole, 2 P+E)

C = Kostal plug connection (IP 65)

JT = Junior Timer radial plug connection (with protection diode, IP65)

IT = Junior Timer axial plug connection (with protection diode, IP65)

D = Deutsch plug connection 45° DT04-2P (IP67/69K)

DT = Deutsch plug connection 45° DT04-2P (with protection diode, IP67/69K)

S = AMP Superseal 1.5 (IP67) / Metri-Pack 150 (IP65) plug connection

F = flying leads (500 mm)

... = Nominal power consumption, see "Electrical characteristics"

} mating plug
not supplied

7 Related data sheets

Reference	Description
400-D-9010002	Technical hints and tips – solenoid coils