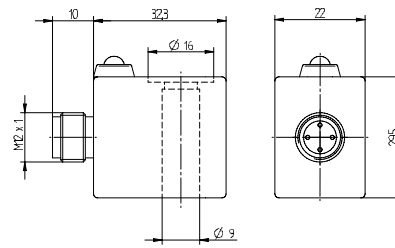
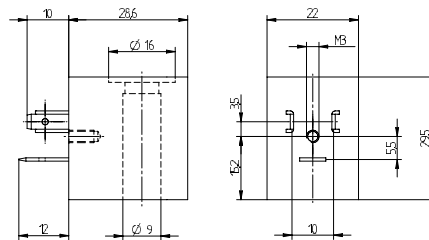


7 Coils and Connectors

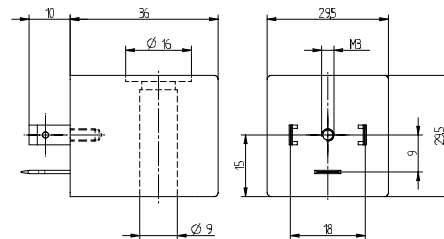
MA 22 D M12/MA 22 DIN/MA 30/ST 22 M12



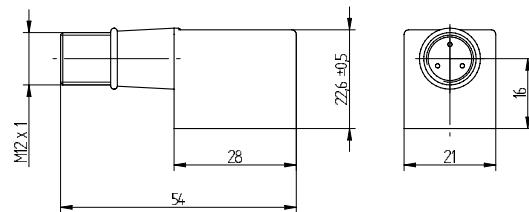
MA 22 D M 12x1



MA 22 DIN



MA 30



ST 22 M12

Coils for solenoid valves of type MH and MNH.

MA 22 D M12x1

Housing made from Epoxy. Isolation class F.
Wire class H.
Connection M12x1 according to DIN EN 60947-5-2.
Coil with yellow LED.

MA 22 DIN

Housing made from heat resistant thermoplastic polyester material 30% glass filled. Isolation class F.
Wire class H.
Form B according to EN 175301-803. Equipped with appropriate connector, solenoid offers IP 65.

MA 30

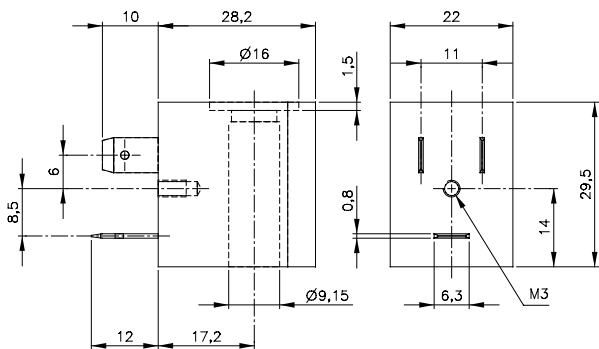
Housing made from heat resistant thermoplastic polyester material 30% glass filled. Isolation class F.
Wire class H.
Form A according to EN 17301-803. Equipped with appropriate connector, solenoid offers IP 65.

ST 22 M12

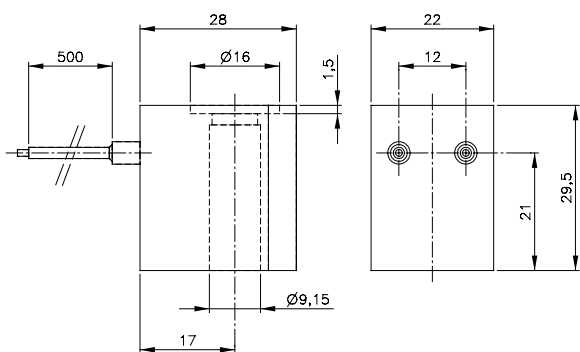
Connector with M12 x 1 connection which can be used with the standard Hafner MA 22 coils.
Connector is without LED in order to be more flexible regarding different voltages.

AC-coils can be operated at 50 Hz and 60 Hz.

Type	Voltage	Tolerance	Ampere Max.	Power	LED	Connection
MA 22 D 24DC M12	24 V=	±10 %	175 mA	4,2 W	yellow	M12x1
ST 22 M12	0 - 250 V		4 A		no	Industrial B - M12x1
MA 22 24DC DIN		±10 %	110 mA	2,6 W		Form B - EN 175301-803
MA 22 230AC DIN	230 V~	±10 %	26 mA	6 VA		Form B - EN 175301-803
MA 30 24DC	24 V~	±10 %	83 mA	2 W		Form A - EN 175301-803
MA 30 110AC	110 V~	±10 %	27 mA	3 VA		Form A - EN 175301-803
MA 30 230AC	230 V~	±10 %	13 mA	3 VA		Form A - EN 175301-803



MA 22/MA 22 D/MA 22 U



MA 22 L



22 mm wide coils for solenoid valves of MH-type, 22 mm, 30 mm and 40 mm wide.

MA 22

Housing made from heat resistant thermoplastic polyester material 30 % glass filled. Interface industryform B (DIN / ISO 436 50), connectors are displayed on page 7.3. Equipped with appropriate connector, solenoid offers IP 65. Isolation class F. Wire class H.

MA 22 L (Flying leads version)

Housing made from heat resistant thermoplastic polyester material with 30 % glass filled. Standard cable length of 500 mm, others are available on request. The coils are not grounded, please take national safety regulations into consideration! Isolation class F. Wire class H.

MA 22 D (Epoxy version)

Housing made from Epoxy, interface industryform B (DIN/ISO 436 50). Isolation class F. Wire class H. Equipped with connector ST 22 and ST 222 V (please refer to page 7.3) solenoid system offers IP 65. Equipped with connector ST 22 L 500 and additional O-rings the system offers IP 67.

MA 22 U

Same as MA 22 but with UL-certification.



AC-coils can be operated at 50 Hz and 60 Hz.

Type	Voltage	Tolerance	Ampere	Power cons.	Connection
MA 22 12 DC	12 V=	±10 %	250 mA	3 W	Industryform B (DIN 436 50)
MA 22 24DC	24 V=	±10 %	125 mA	3 W	Industryform B (DIN 436 50)
MA 22 L700 24DC	24 V=	±10 %	125 mA	3 W	Flying leads 700 mm long
MA 22 48DC	48 V=	±10 %	62 mA	3 W	Industryform B (DIN 436 50)
MA 22 220DC	220 V=	±10 %	14 mA	3 W	Industryform B (DIN 436 50)
MA 22 24AC	24 V~	±10 %	200 mA	5 VA	Industryform B (DIN 436 50)
MA 22 110AC	110 V~	±10 %	45 mA	5 VA	Industryform B (DIN 436 50)
MA 22 L500 110AC	110 V~	±10 %	45 mA	5 VA	Flying leads 500 mm long
MA 22 230AC	230 V~	±10 %	22 mA	5 VA	Industryform B (DIN 436 50)
MA 22 L500 230AC	230 V~	±10 %	22 mA	5 VA	Flying leads 500 mm long
MA 22 D 24DC	24 V=	±10 %	125 mA	3 W	Industryform B (DIN 436 50)
MA 22 D 24AC	24 V=	±10 %	200 mA	5 VA	Industryform B (DIN 436 50)
MA 22 D 230AC	230 V~	±10 %	22 mA	5 VA	Industryform B (DIN 436 50)
MA 22 U 24DC	24 V=	±10 %	125 mA	3 W	Industryform B (DIN 436 50)
MA 22 U 24AC	24 V=	±10 %	200 mA	5 VA	Industryform B (DIN 436 50)
MA 22 U 110AC	110 V~	±10 %	45 mA	5 VA	Industryform B (DIN 436 50)
MA 22 U 230AC	230 V~	±10 %	22 mA	5 VA	Industryform B (DIN 436 50)

ST 16/ST 22/ ST 22 L 5000/ST 222 V __ L 1500 ST 22 Ex/ST 30 Ex nA/ST 30 Ex ia



Connectors as accessories for Hafner valves.

Type ST 16 and ST 22

Using the enclosed flat seal and fastening screw and nut appropriately the system reaches protection class IP 65 in accordance to IEC 60 529.

Type ST 22 L 5000/ST 222 V __ L 1500

In combination with MA 22 D, using the enclosed flat seal, adding 2 O-rings at the top of the solenoid system and fastening screw and nut appropriately the system reaches protection class IP 67 in accordance to IEC 60 529.

Type ST 22 Ex

Connector to be used in combination with MA 22 Ex nA. Connector is classified for zone 2 and 22 cat. IIG/D. Includes flat seal.

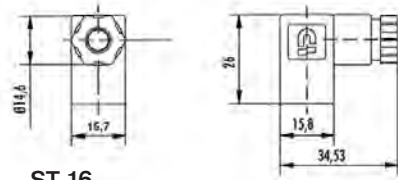
Type ST 30 Ex ia

Connector to be used in combination with MA 30 Ex ia. Connector is classified for zone 21, cat. IID. Can also be used in combination with intrinsically safe coils in zone 1 (cat. IIG). Includes flat silicon seal.

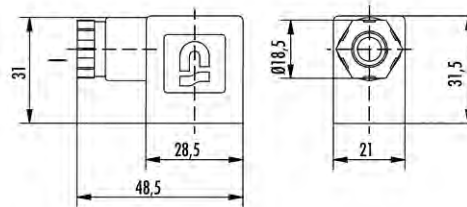
Type ST 30 Ex nA

Connector to be used in combination with MA 30 Ex na. Connector is classified for zone 2 and 22, cat. IIIG and IIID. Includes profiled NBR seal.

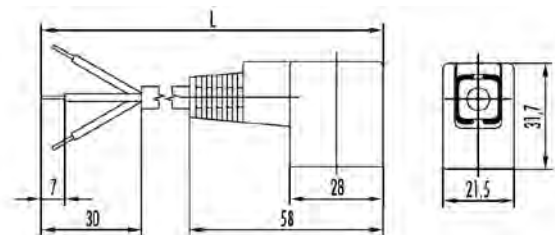
Other connectors are available on request.



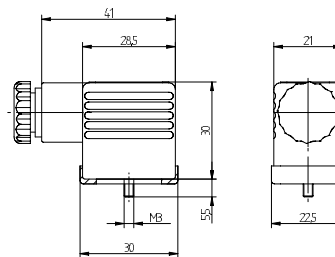
ST 16



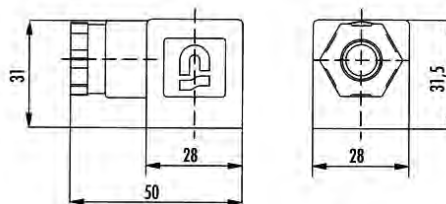
ST 22



ST 22 L 5000/ ST 222 V __ L 1500



ST 22 Ex



ST 30 Ex nA/ ST 30 Ex ia

Type	Form	LED	VAR	Operat. voltage	Max. current	Cable diameter	Cable length [mm]	Cable material
ST 16	C, ISO 15219	no	no	0 - 250 V	6 A	5 - 6,5 mm		
ST 162 V 24	C, ISO 15219	red	yes	24 V ± 10 %	6 A	5 - 6,5 mm		
ST 162 V 230	C, ISO 15219	red	yes	230 V ± 10 %	6 A	5 - 6,5 mm		
ST 22	Industrial	no	no	0 - 250 V	10 A	6 - 8 mm		
ST 222 V 24	Industrial	red	yes	24 V ± 10 %	10 A	6 - 8 mm		
ST 222 V 230	Industrial	red	yes	230 V ± 10 %	10 A	6 - 8 mm		
ST 22 L 5000	Industrial	no	no	0 - 250 V	6 A	6,5 mm	5.000	PVC
ST 222 V 24 L 1500	Industrial	red	yes	24 V ± 10 %	6 A	6,5 mm	1.500	PUR
ST 222 V110 L1500	Industrial	red	yes	110 V ± 10 %	6 A	6,5 mm	1.500	PVC
ST 222 V230 L1500	Industrial	red	yes	230 V ± 10 %	6 A	6,5 mm	1.500	PVC
ST 22 Ex	Industrial	no	no	0 - 250 V	10 A	6 - 8 mm		
ST 30 Ex ia	A, ISO 4400	no	no	0 - 250 V	10 A	6 - 8 mm		
ST 30 Ex nA	A, ISO 4400	no	no	0 - 250 V	10 A	4 - 8 mm		