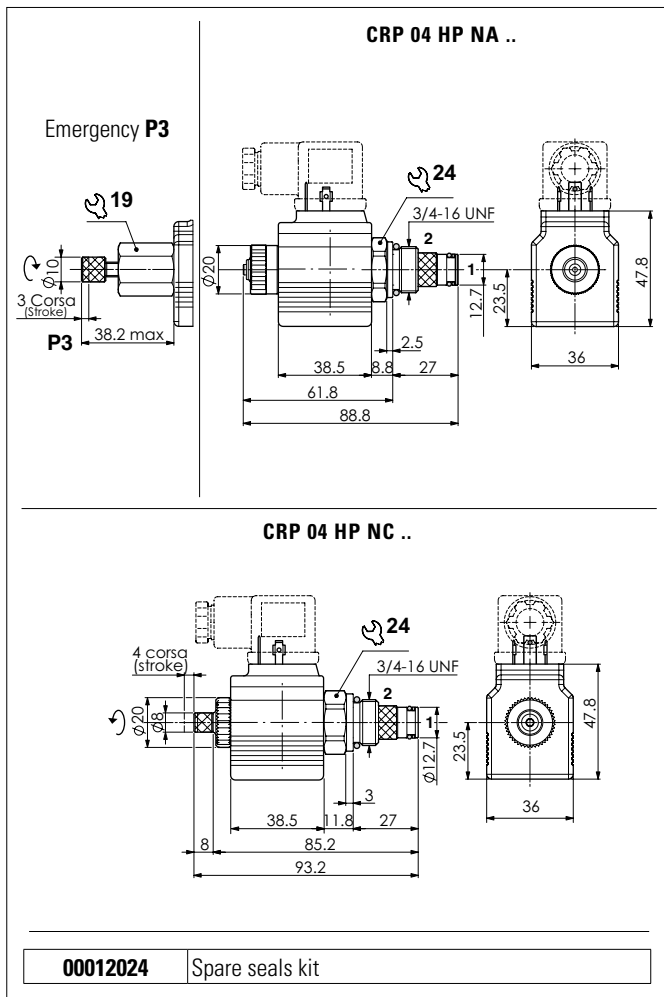


## HIGH PRESSURE PILOTED OPERATED SOLENOID VALVE



Connector to be ordered separately, see sect. 18

The pilot-operated electric 2-way 2-position directional valve is controlled electrically. For high pressures.

The tapered poppet is in tempered and ground steel.

Available in normally open (NA) or normally closed (NC) versions.

- NA, free passage from 2 to 1 with de-energised coil.
- NC, free passage from 2 to 1 with energised coil or from 1 to 2 with de-energised coil.

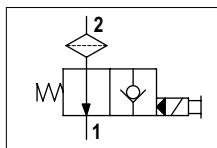
The valves work with DC coils whereas RAC coils with a connector with incorporated rectifier must be used for AC applications.

The sleeve is in galvanised steel.

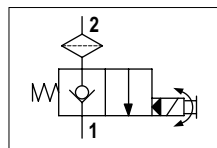
### FEATURES

Max. pressure	370 bar
Max. Flow	30 l/min
Max. Leakage (0 ÷ 10 drops/min)	0 ÷ 0.5 cm <sup>3</sup> /min
Max. excitation frequency	2 Hz
Duty cycle	100% ED
Hydraulic fluids	DIN 51524 Mineral oils
Fluid viscosity	10 ÷ 500 mm <sup>2</sup> /s
Fluid temperature	-25°C ÷ 75°C
Ambient temperature	-25°C ÷ 60°C
Max. contamin. level class with filter	ISO 4406:1999 - class 19/17/14
Cartridge filter	280µm
Type of protection (in relation to the connection used)	IP65
Weight (with coil)	0.35 kg
Cartridge tightening torque	25 ÷ 30 Nm
Coil ring nut tightening torque	7 Nm
Cavity (3/4 - 16 UNF)	CD018006 (See section 15)

### HYDRAULIC SYMBOLS



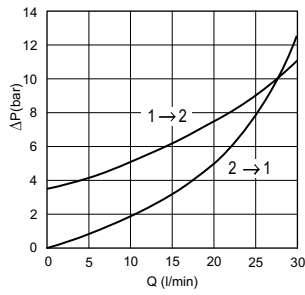
Normally open



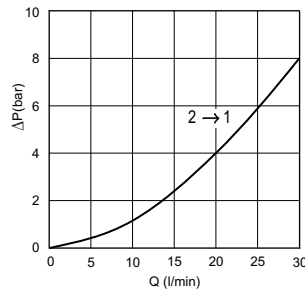
Normally closed

## PRESSURE DROPS

**CRP 04 HP NC.**

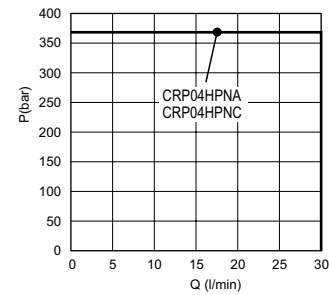


**CRP 04 HP NA.**



**1 → 2** Only with coil not energised

## LIMITS OF USE



The tests were carried out with the solenoids at operating temperature, with a supply voltage 10% below nominal value and with a 40°C fluid temperature. The fluid used is a mineral oil with viscosity of 46 mm<sup>2</sup>/s at 40°C.

## ORDERING CODE

<b>CRP</b>	<b>04</b>	<b>HP</b>	<b>**</b>	<b>A</b>	<b>E</b>	<b>*</b>	<b>**</b>	<b>1</b>
Series	Size	Version	Version	Seat size	Version	Voltage	Variants	Serial No.
<b>CRP</b> = High pressure piloted operated solenoid valve	<b>04</b> = 3/4 - 16 UNF	<b>HP</b> = High pressure	<b>NA</b> = Normally open <b>NC</b> = Normally closed	<b>A</b> = Standard - Ø 12.7 mm	<b>E</b> = With emergency	<b>L</b> = 12 VDC <b>M</b> = 24 VDC <b>N</b> = 48 VDC <b>V</b> = 28 V DC <b>4</b> = 14 VDC	<b>00</b> = No variants <b>P3</b> = Rotary emerg. (...NA) <b>SF</b> = Without cartridge filter	<b>1</b> = Serial No. <b>FK</b> = With flying leads 600 mm (1) <b>AJ</b> = AMP Junior connection (1)
							<b>DC 22W (C36)</b>	
							<b>2</b> = 21.6 VDC RAC (2) <b>Z</b> = 102 VDC RAC (3) <b>X</b> = 205 VDC RAC (4) <b>W</b> = Without coil (5)	
<i>Connector to be ordered separately, see sect. 18</i>								
<i>Coils technical data, see sect. 17</i>								

(1) Only voltages 12 VDC - 24 VDC

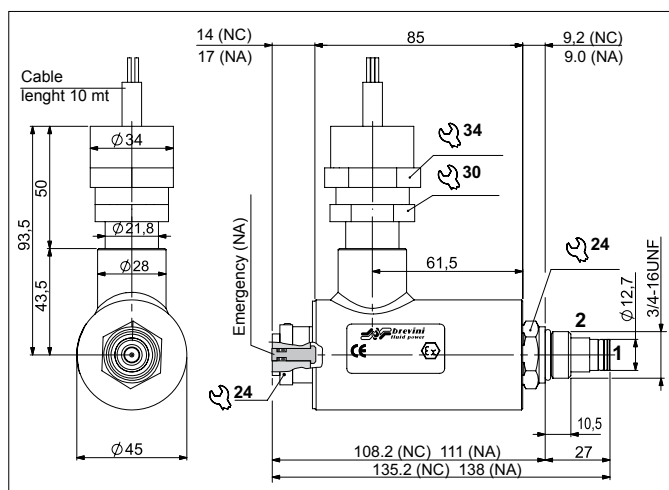
(2) With rectifier: 24 VAC/50-60Hz

(3) With rectifier: 115 VAC/50Hz - 120 VAC/60Hz

(4) With rectifier: 230 VAC/50Hz - 240 VAC/60Hz

(5) Performance are guaranteed only using valves completed with BFP coil

## VALVES IN ACCORDANCE WITH ATEX 94/9/CE DIRECTIVE



The CRP04X series of valves are electrically-controlled, 2-way / 2-position directional valves, available in 12V and 24V versions.

The "2" to "1" seal is guaranteed by a tapered shutter.

Available in normally open (NA) or normally closed (NC) versions.

- NA, free passage (from "2" to "1") with de-energised coil
- NC, free passage (from "2" to "1") with energised coil or "1" to "2" with de-energised coil

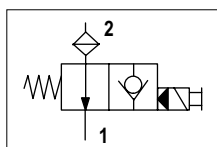
The valves work with the coils in DC.

These coils have separate certification marking II 2 GD Ex d IIC T6/T85°C. The coils are supplied with a three-pole lead whose wires have a section of at least 1.5 mm<sup>2</sup>, length 10 mt.

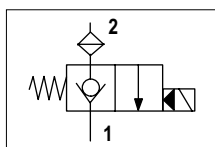
Operating intermittence: ED100% if the room temperature does not exceed 40 °C. Degree of protection: IP67 according to EN 60529.

Supply voltage: must not exceed +5% / -10% of the nominal value. The sleeves are made of steel with galvanised surface protection (NC) or burnishing and nichel-plating (NA).

## HYDRAULIC SYMBOLS



Normally open



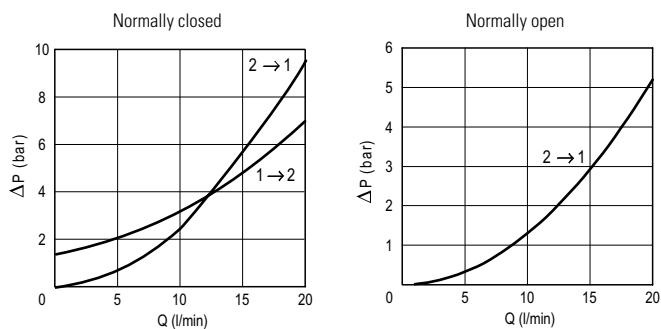
Normally closed

The CRP04X series of valves are Group II equipment, for use in areas classed for the presence of gas (category 2 G) and combustible dust (category 2 D). They are designed and manufactured according to the ATEX 94/9/EC directive, according to European standards: EN 1127-1, EN 13463-1, EN 13463-5.

The fluids used are hydraulic fluids for oil-pressure applications, such as: mineral oils, water-glycol solutions, biocompatible oils, etc.. whose viscosity ranges between 10 and 500 mm<sup>2</sup> / s.

The coil used for the CRP04X series is certified for a room temperature range of -20 °C / + 40 °C; it is used with fluid temperatures up to +40 °C.

## PRESSURE DROPS

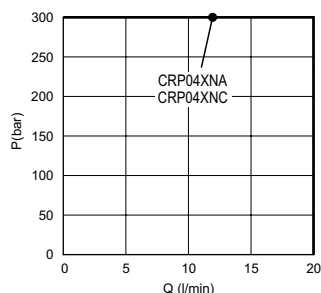


1 → 2 Only with coil not energised

## FEATURES

Max. pressure	300 bar
Max. Flow	20 l/min
Max. Leakage (0 ÷ 10 drops/min)	0 ÷ 0.5 cm <sup>3</sup> /min
Max. excitation frequency	2 Hz
Duty cycle	100% ED
Hydraulic fluids	DIN 51524 Mineral oils
Fluid viscosity	10 ÷ 500 mm <sup>2</sup> /s
Fluid temperature	-20 ÷ +40 °C
Ambient temperature	-20 ÷ +40 °C
Max. contamin. level class with filter	ISO 4406:1999 - class 19/17/14
Cartridge filter	280µm
Coil power	7 W
Supply tolerance	-5 ÷ +10 %
Type of protection (in relation to the connection used)	IP67
Weight (with coil)	1.29 kg
Cartridge tightening torque	25 ÷ 30 Nm (2.5 ÷ 3 kgm)
Coil ring nut tightening torque	6 Nm (0.6 kgm)
Cavity (3/4 - 16 UNF)	CD018006

## LIMITS OF USE

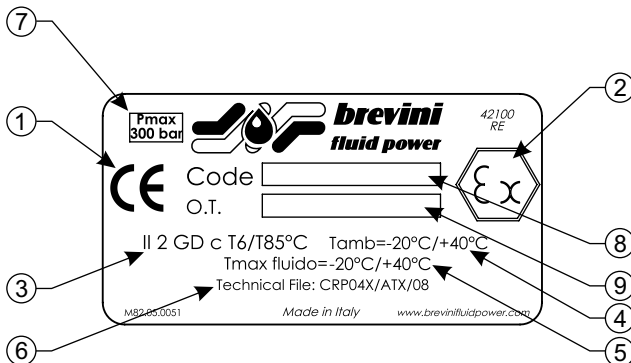


The tests were carried out with the solenoids at operating temperature, with a supply voltage 10% below nominal value and with a 40°C fluid temperature. The fluid used is a mineral oil with viscosity of 46 mm<sup>2</sup>/s at 40°C.

## REGISTERED MARK AND IDENTIFICATION PLATE

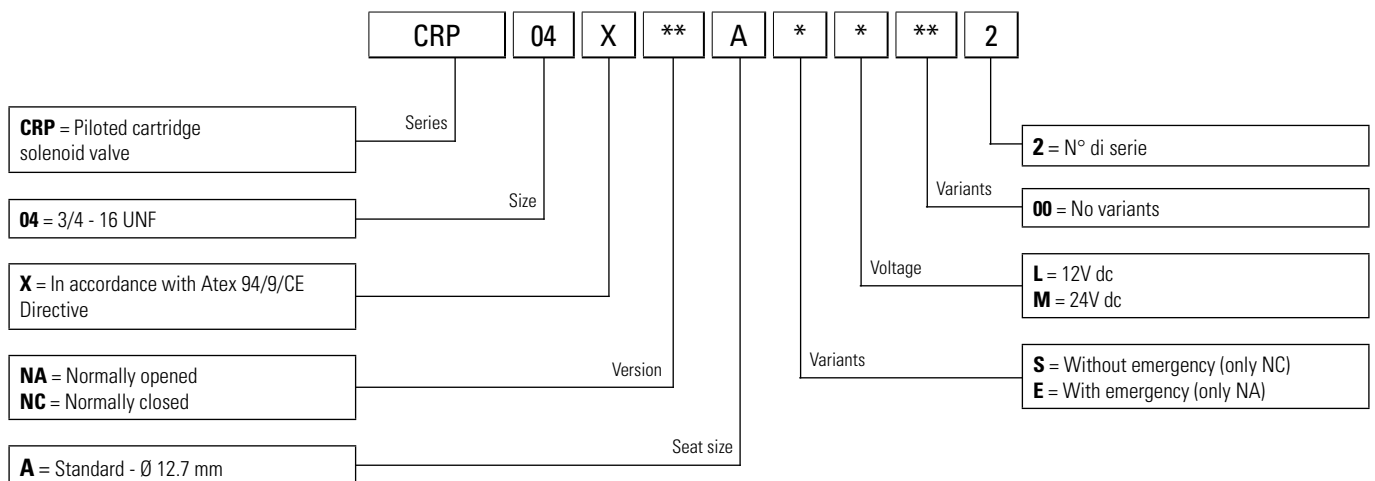
Every moduls are supply with its "Identification Plate" and with the "Declaration of Conformity" in accordance with the 94/4/CE Atex Directive.

The identification plate shows the most important technical performance and constructive specifications so it has to be always integral and visible.



1		In accordance with Europe Directive
2		In accordance with Atex 94/9/CE Directive
3	II 2 GD c T6/T85°C	Explosive atmosphere which is comprised of gas, vapours or mist
4	Tamb = -20°C ÷ +40°C	Operating ambient temperature
5	Tmax fluid = -20°C ÷ +40°C	Operating fluid temperature
6	CRP04X/ATX/08	Reference of the Technical issue put down at the Notifying Body
7	P max = 300 bar	Max. operating pressure
8	Code	Orediering code (10 characters printed)
9	O.T.	Technical ordering code (printed)

## ORDERING CODE



## SAFETY INSTRUCTIONS

Carefully read everything reported in the instruction sheet attached to the valves, before installation. All maintenance operations must be performed according to the manual.

The CRP04X series valves must be installed and maintained in compliance with plant and maintenance regulations for environments classified against the risk of explosion because of presence of gas (for example: EN 60079-14, EN 60079-17 or other national regulations/standards).

The valves must be connected to earth using the special anti-loosening and anti-rotation connection element.

For all safety aspects tied to the use of the coil see the relative use and maintenance instructions. The electrical appliances/components must not be opened when live.

The user must periodically control, depending on the conditions of use and the substances used, the presence of deposits, cleaning, wear and correct functioning of the valves.

**All installation and maintenance interventions must be performed by qualified staff.**

## INSTRUCTIONS FOR A CORRECT INSTALLATION

**Carry out wiring of the solenoids according to the user instructions of the relative coils (a copy is always supplied with each solenoid).**

- The valves must be connected to earth using the special anti-loosening and anti-

rotation connection element.

- When mounting the valve onto the base (manifold) ensure not to damage the OR sealing rings on the surface.
- For the aspects tied to the installation of the solenoids, see the relative safety instructions. The electrical components must not be opened when live.
- If it is necessary to loosen the ring nuts on the external ends of the coil to opportunely position the cable-holders, they must be tightened again to the respective tightening torques.

## INSTRUCTIONS FOR A CORRECT USE AND MAINTENANCE

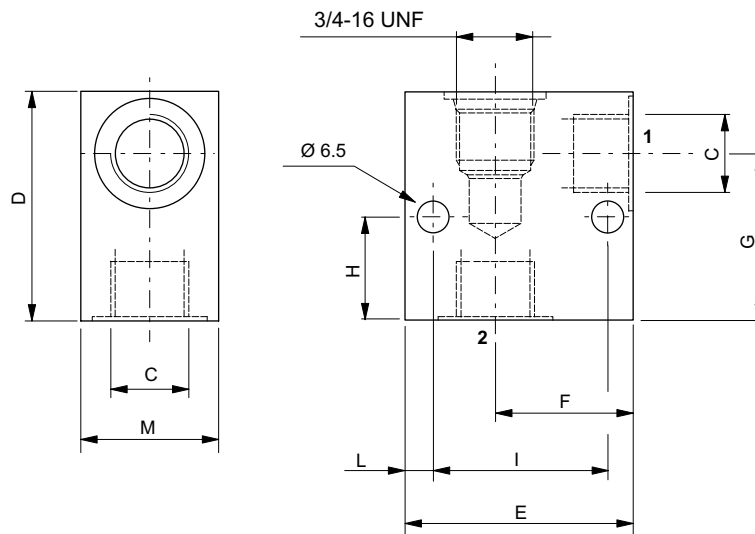
### USE

- Respect functional limits indicated in the technical features section and those, where restrictive, indicated in the solenoid safety instructions.
- The oil used must be within the types envisioned by the manufacturer and its contamination level must be maintained within the indicated limits.

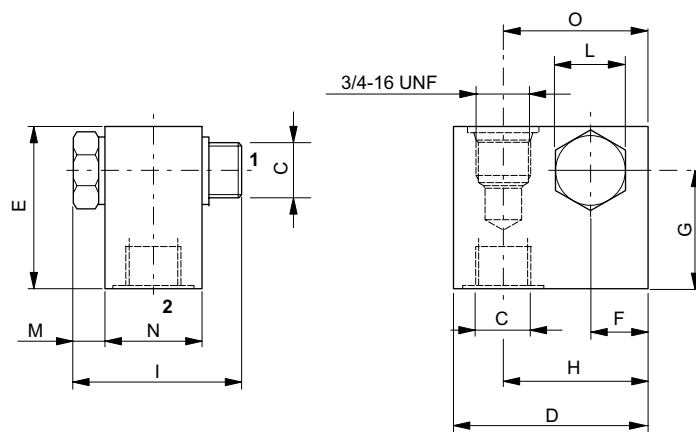
### MAINTENANCE

- The user must periodically control, depending on the conditions of use and the substances used, the presence of deposits, cleaning, wear and correct functioning of the valves.
- If the OR sealing rings are damaged, only replace them with those specifically supplied by the manufacturer.

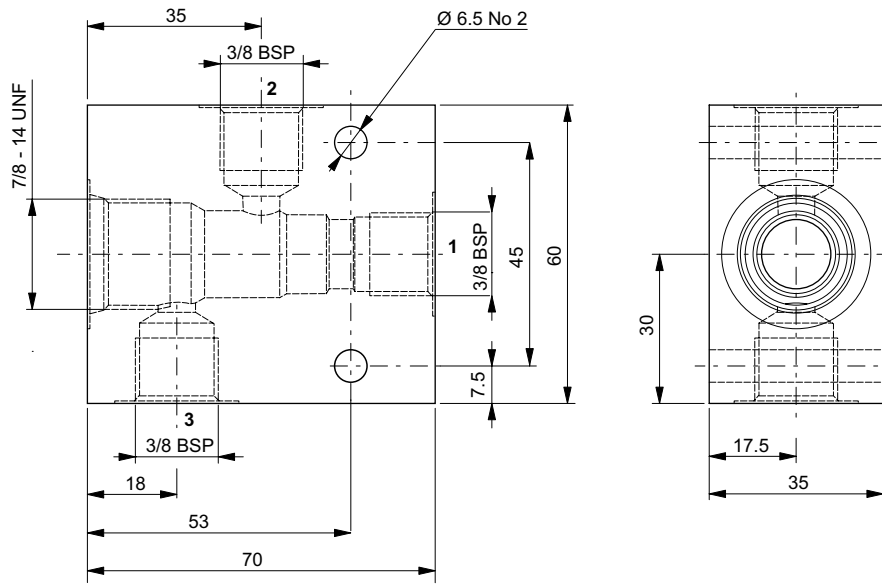




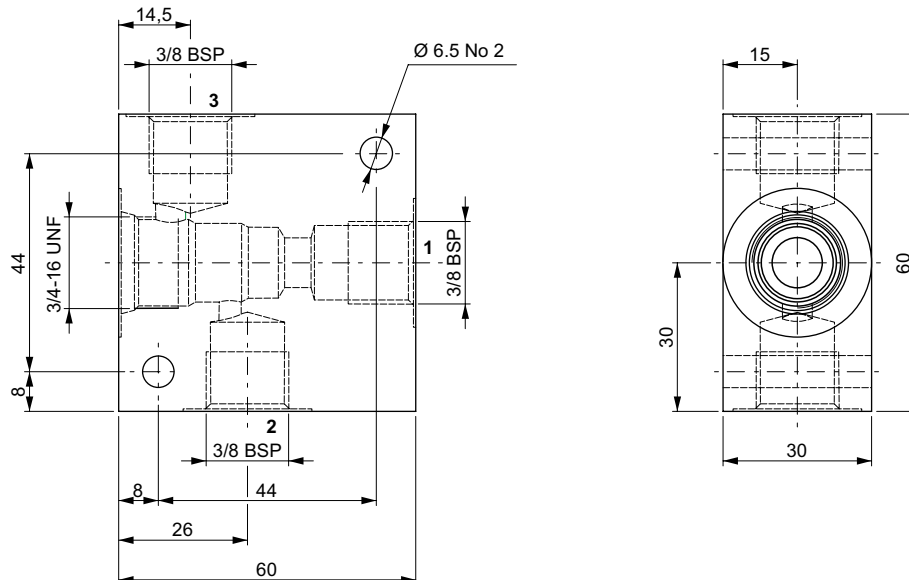
Code	C	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	L (mm)	M (mm)	Material	Cavity
F07100013	1/4 BSP	46	50	30,5	33	18	38	6	30	Alluminio EN AW 2011	CD018006
M18400061	3/8 BSP	55	60	38	41,25	25	45	7,5	30		
M18400071	1/2 BSP	60	60	35	41	6	48	6	40		



Code	C	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)	L (mm)	M (mm)	N (mm)	O (mm)	Material	Cavity
17030532	3/8 BSP	50	50	16	32	35	51	22	9	30	34,5	Alluminium EN AW 2011	CD018006
V10500034	1/4 BSP	40	46	11	31	26	49	19	8	30	26		



Code	Material	Cavity
M10850319	Alluminium - EN AW 2011	CD019006

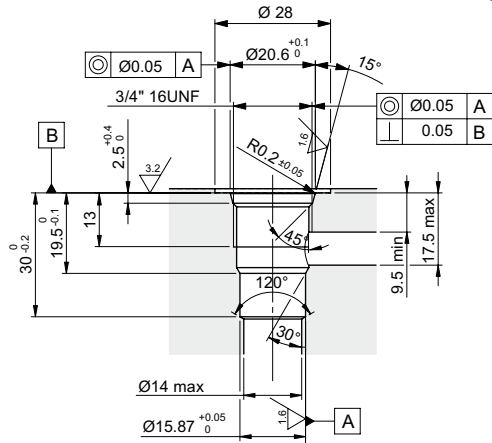


Code	Material	Cavity
M10850206	Alluminium - EN AW 2011	CD018005



**CD018012**

**3/4 16UNF**

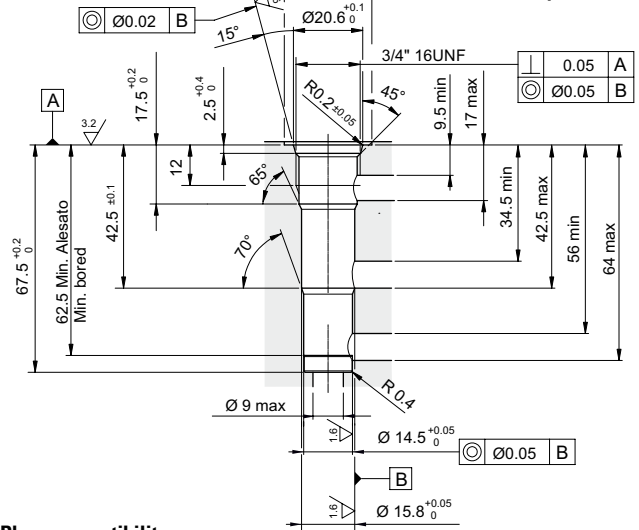


**Plugs compatibility:**

R78200A19	20001700	20001900		
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**CD018013**

**3/4 16UNF**

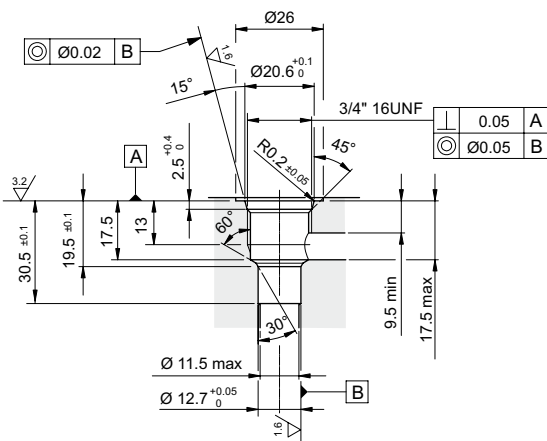


**Plugs compatibility:**

R78150100				
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**CD018014**

**3/4 16UNF**

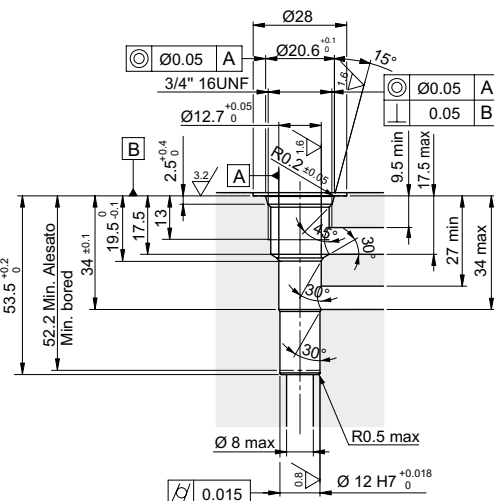


**Plugs compatibility:**

20001900	20001700	20003800	20009400	20018000
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**CD018015**

**3/4 16UNF**

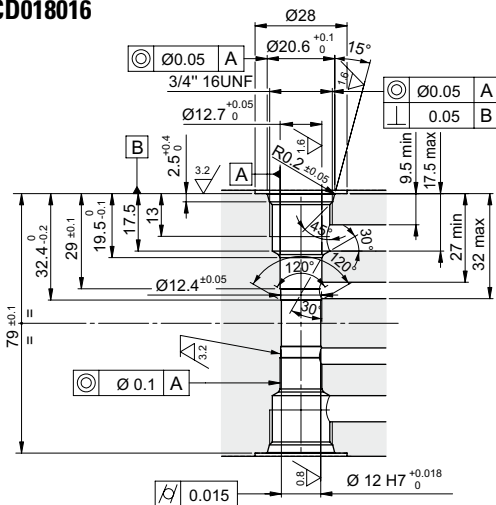


**Plugs compatibility:**

20018000	20001700	20001900	20003800	20009400
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**CD018016**

**3/4 16UNF**

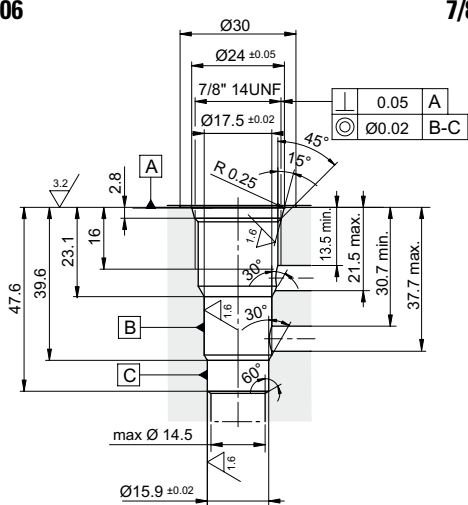


**Plugs compatibility:**

20018000	20001700	20001900	20003800	20009400
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**CD019006**

**7/8 14UNF**

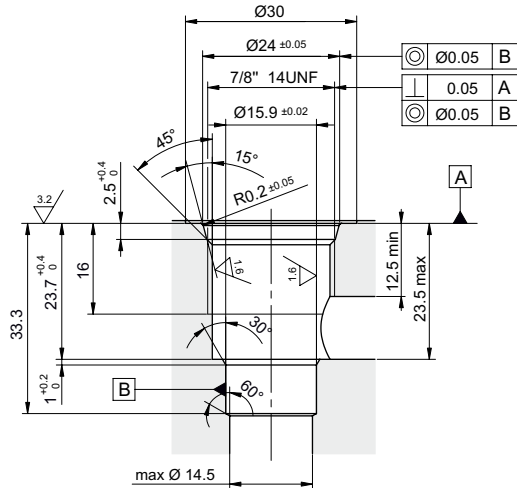


**Plugs compatibility:**

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**CD019007**

**7/8 14UNF**

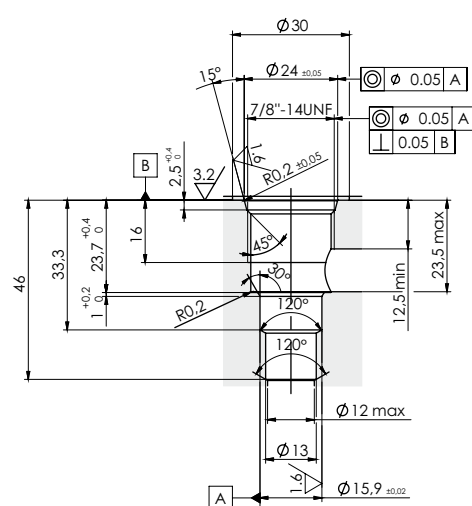


**Plugs compatibility:**

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**CD019011**

**7/8 14UNF**

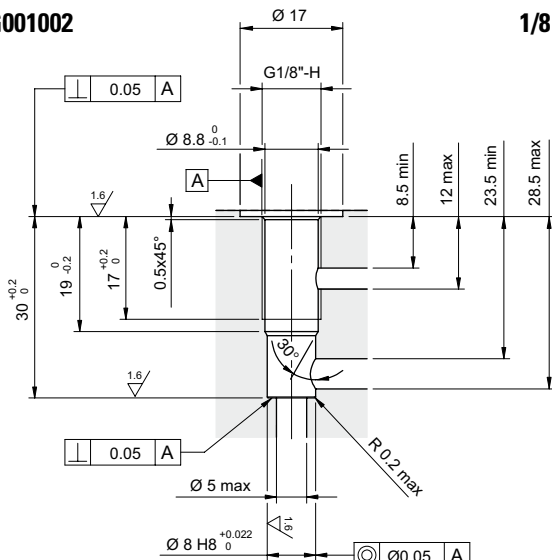


**Plugs compatibility:**

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**CG001002**

**1/8 BSP**

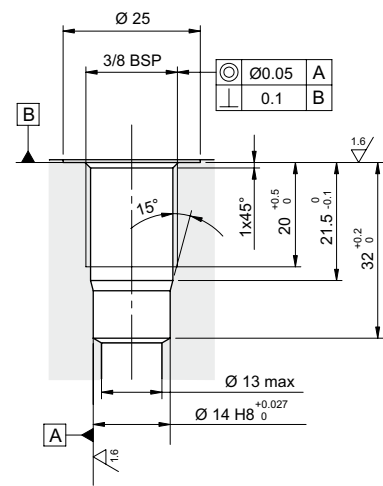


**Plugs compatibility:**

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**CG003004**

**3/8 BSP**

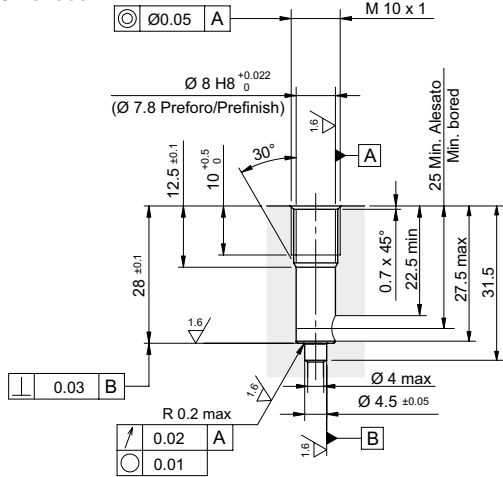


**Plugs compatibility:**

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**CN019002**

**M10X1**

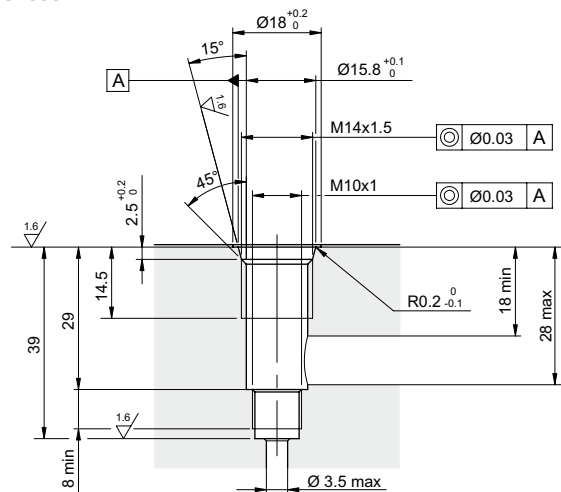


**Plugs compatibility:**

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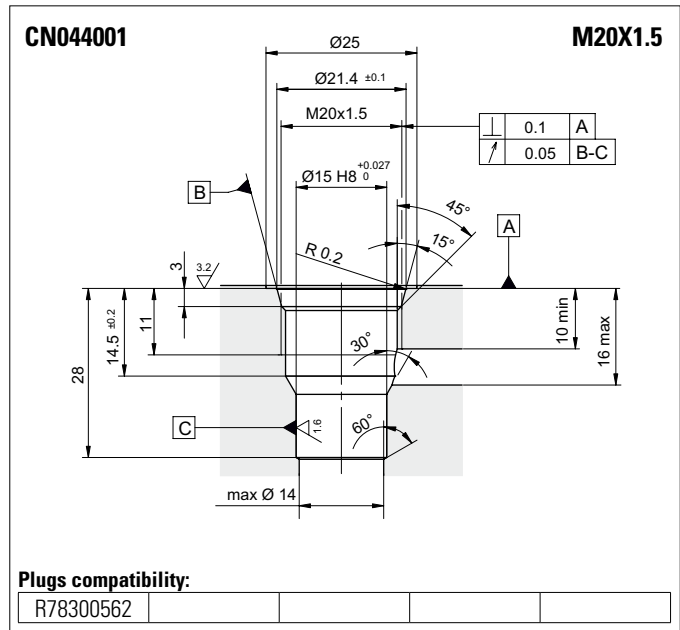
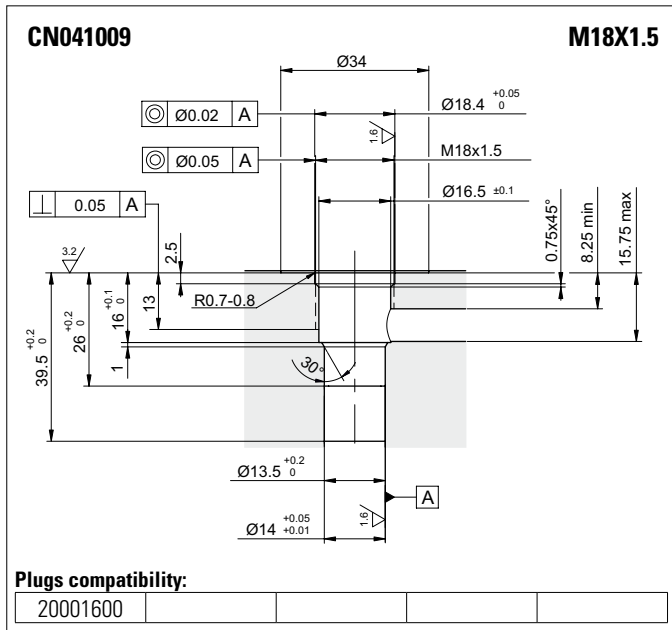
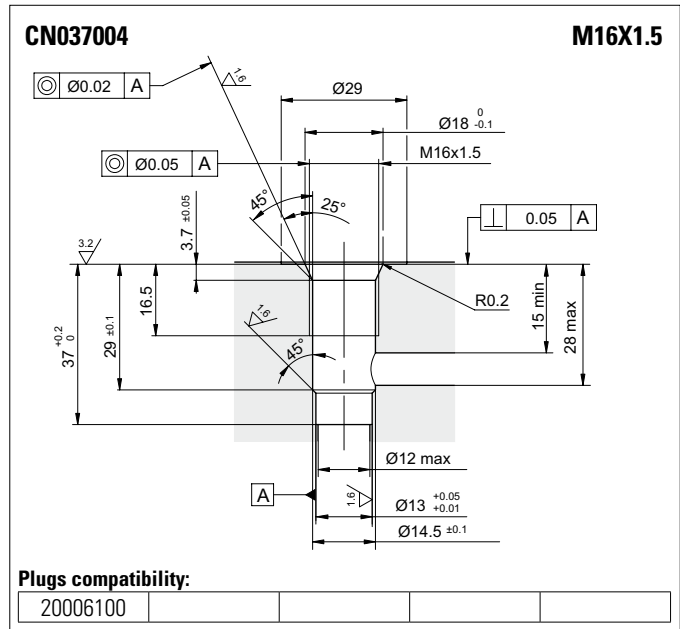
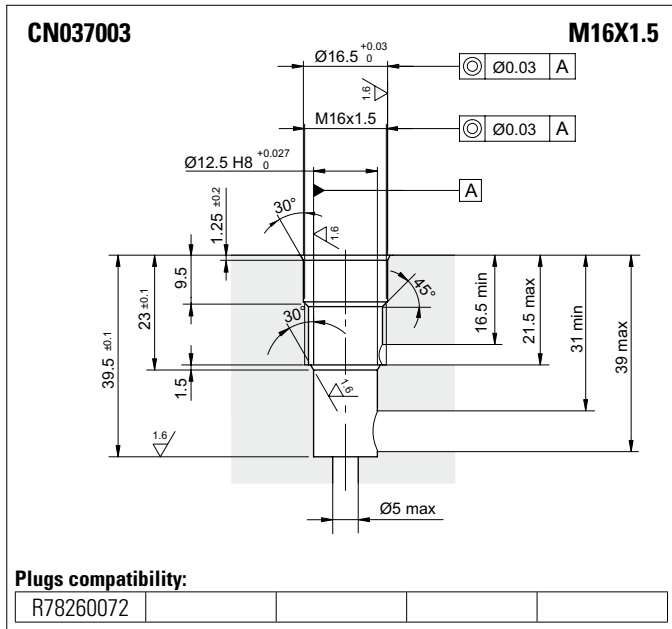
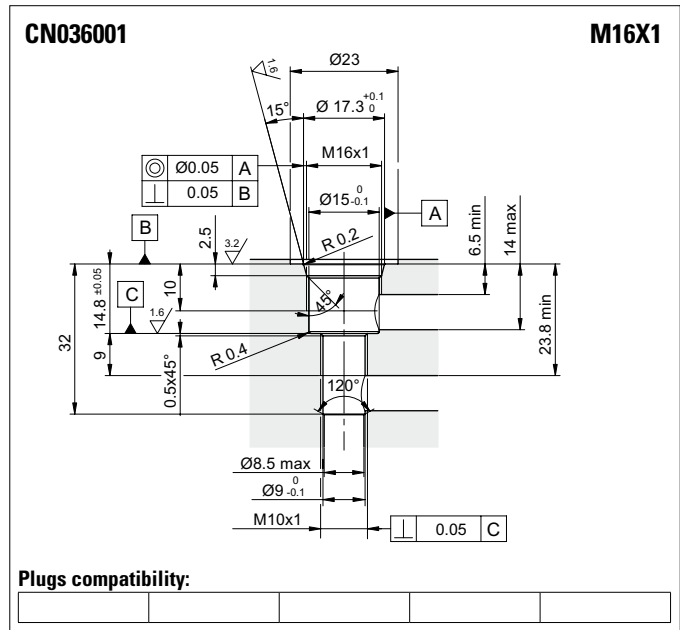
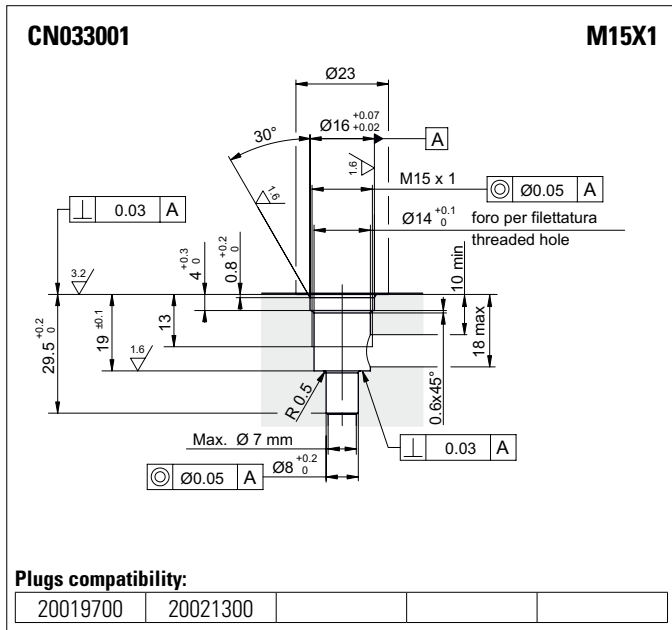
**CN032005**

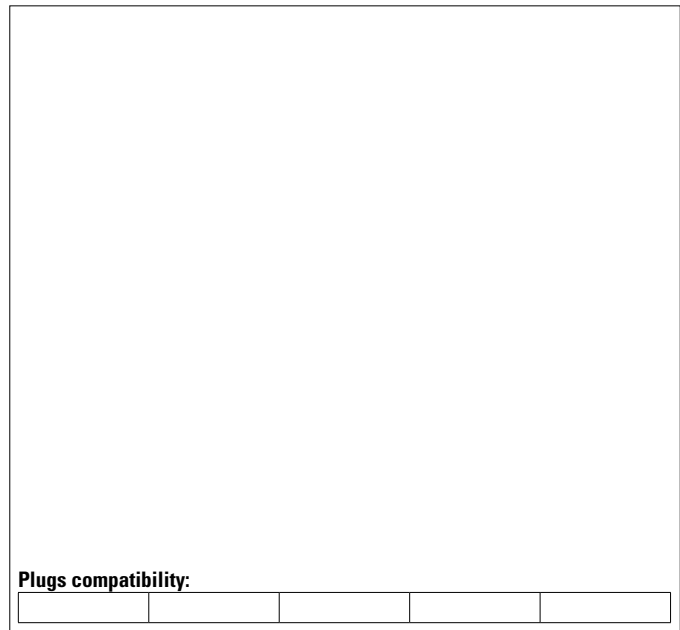
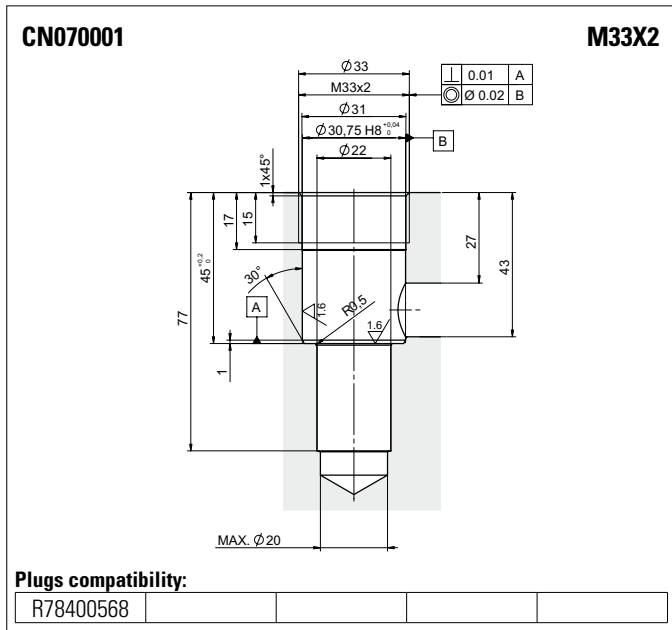
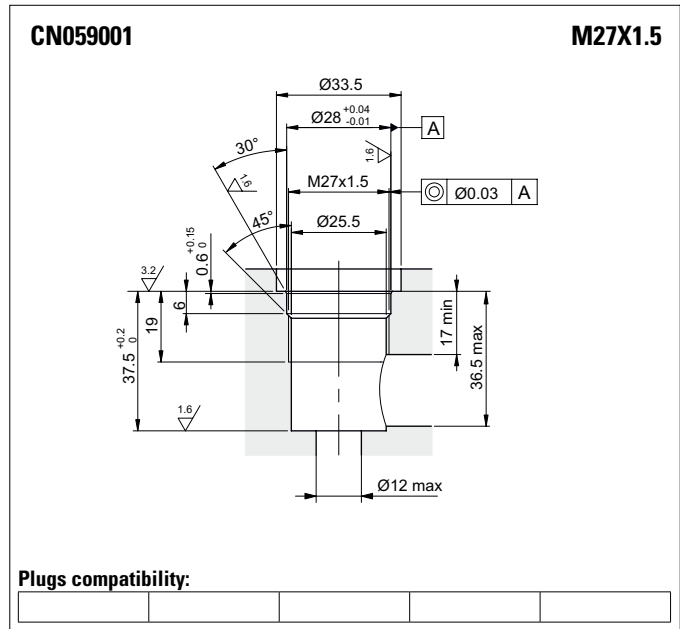
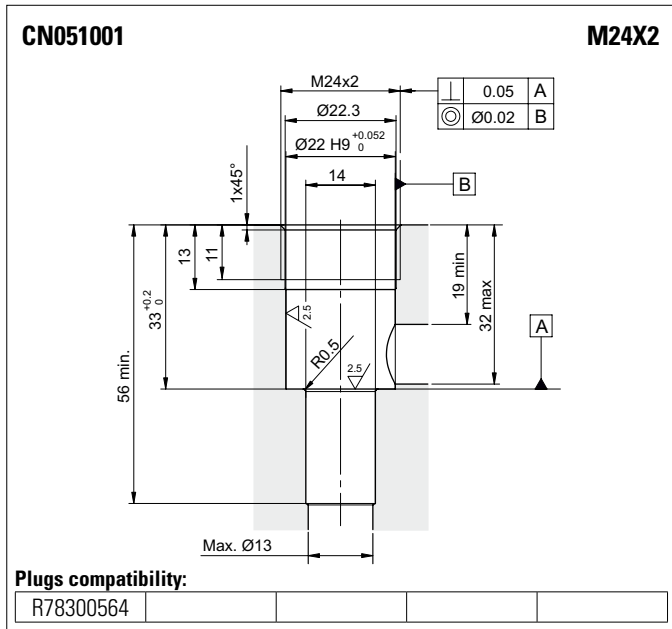
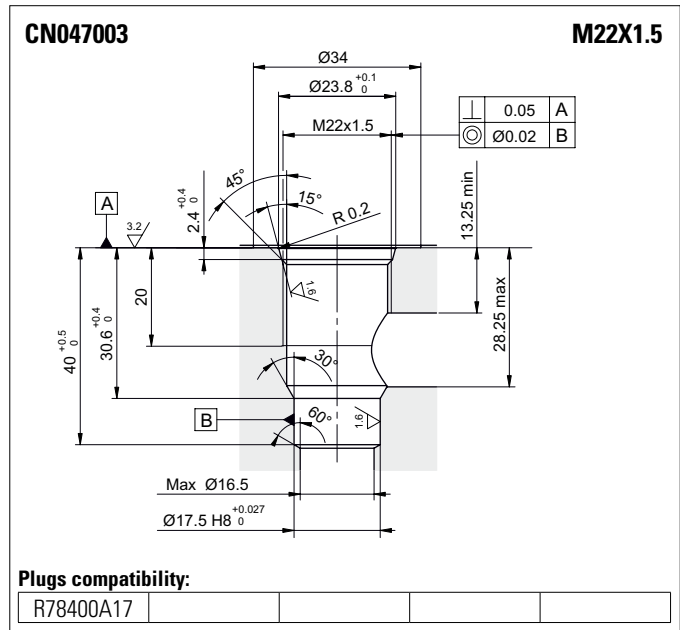
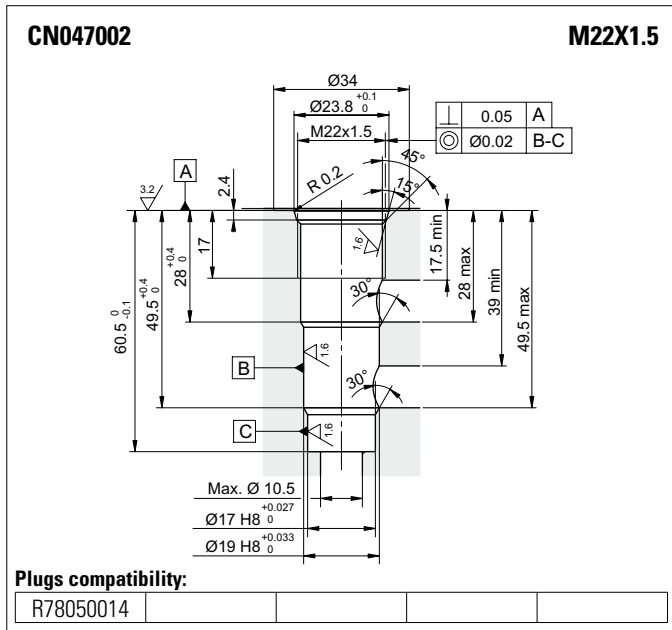
**M14X1.5**

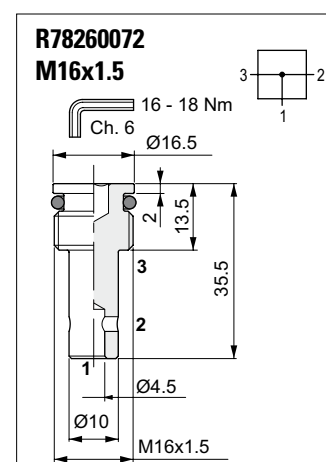
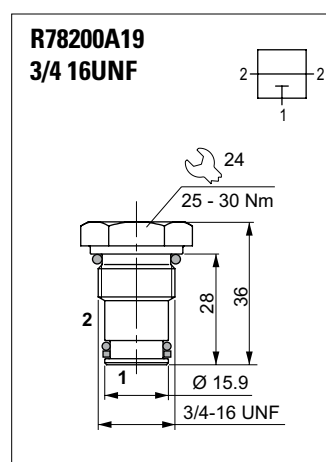
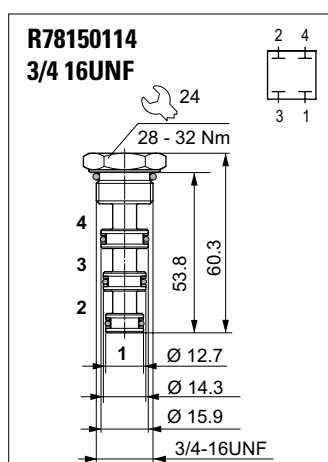
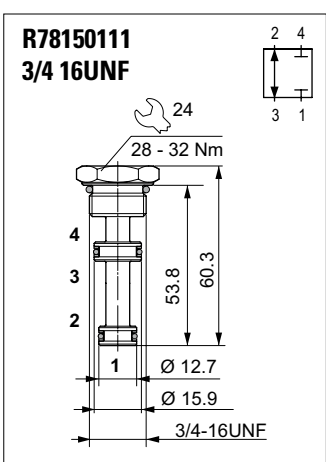
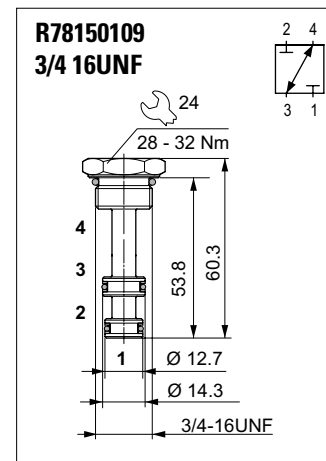
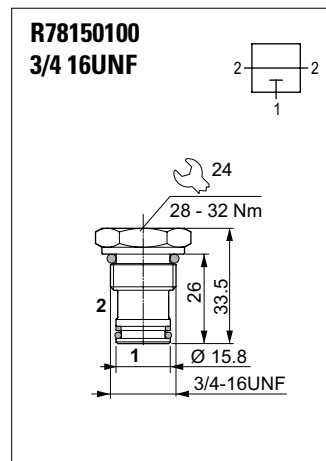
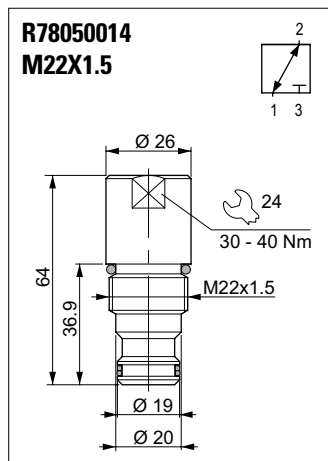
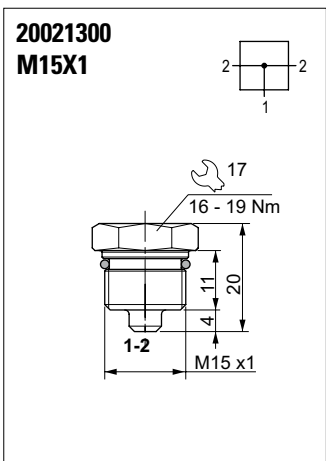
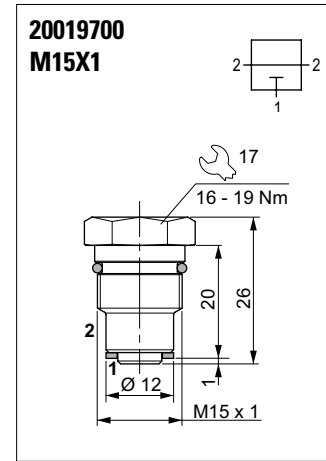
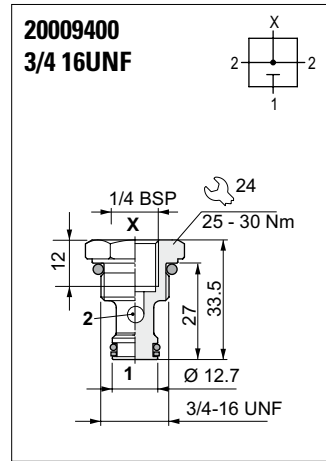
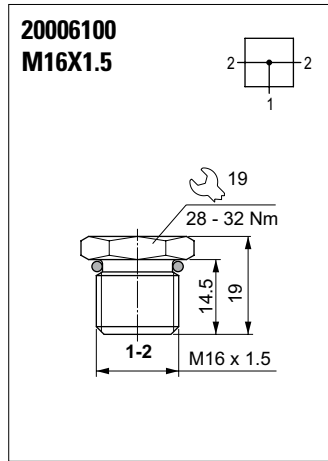
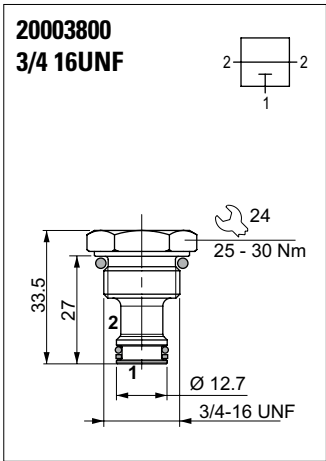
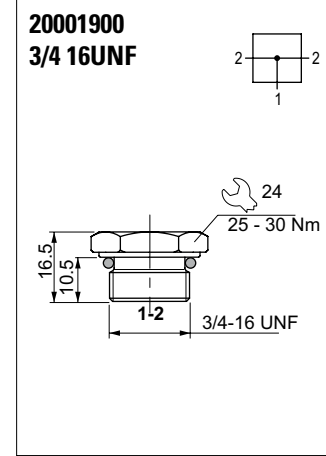
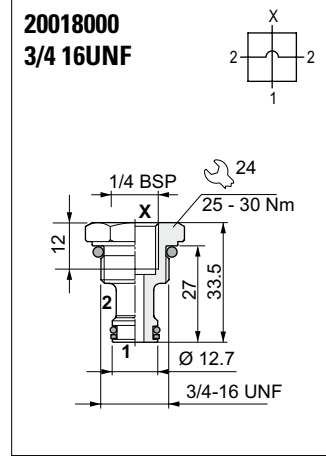
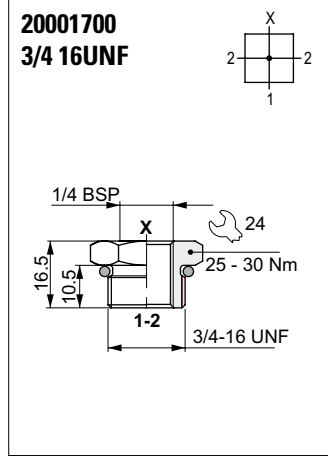
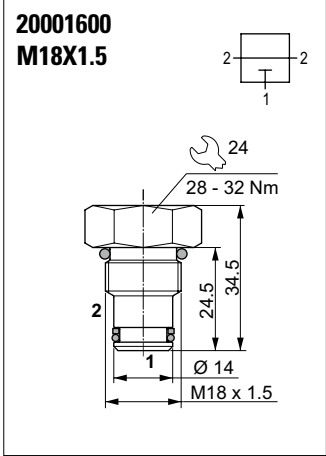


**Plugs compatibility:**

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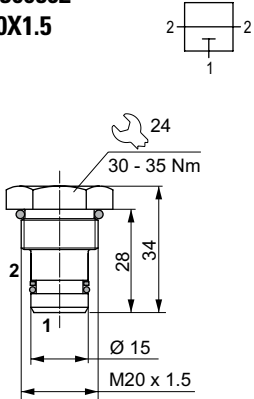
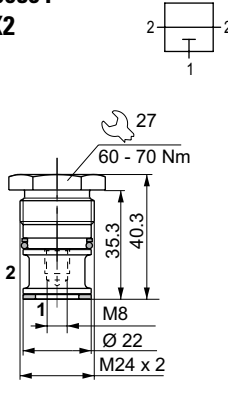
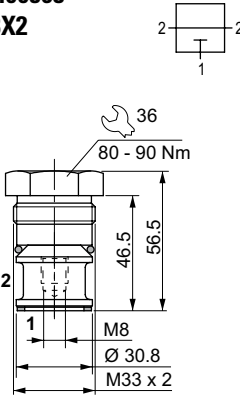
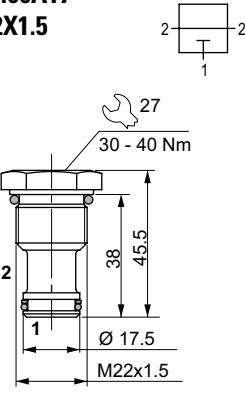








# STANDARD PLUGS

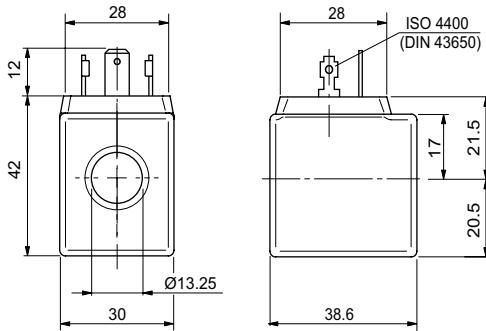
<p><b>R78300562</b> <b>M20X1.5</b></p> 	<p><b>R78300564</b> <b>M24X2</b></p> 	<p><b>R78400568</b> <b>M33X2</b></p> 	<p><b>R78400A17</b> <b>M22X1.5</b></p> 

## C30 - COILS 18W

Type of protection	IP 65
Number of cycle	18000/h
Supply tolerance	±10%
Ambient temperature	-30°C ÷ 60°C

Duty cycle	100% ED
Insulation class wire	H
Weight	0.141 kg

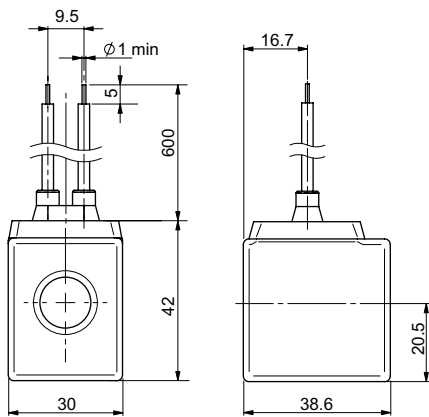
### Standard (Hirschmann ISO 4400 DIN43650)



Coil		Max winding temperature (1)	Rated power	Resistance ±7% (2)	Spare code
Code	Voltage				
L	12 VDC	135 °C	18 W	7.7 Ω	M14000001
M	24 VDC	135 °C	18 W	31 Ω	M14000002
N	48 VDC	135 °C	18 W	116 Ω	M14000003
2	21.6 VDC	135 °C	18 W	27 Ω	M14000009
Z	102 VDC (3)	120 °C	18 W	578 Ω	M14000006
X	205 VDC (3)	120 °C	18 W	2627 Ω	M14000007
A	24 VAC/50 Hz	125 °C	35 VA	5.3 Ω	M14001002
J	115 VAC/50 Hz (3)	125 °C	35 VA	108 Ω	M14001004
I	230 VAC/50 Hz (3)	125 °C	35 VA	438 Ω	M14001005
F	24 VAC/60 Hz	125 °C	35 VA	3.8 Ω	M14001012
C	110 VAC/60 Hz (3)	125 °C	35 VA	92 Ω	M14001014
D	220 VAC/60 Hz (3)	125 °C	35 VA	375 Ω	M14001015

(1) Ambient temperature 25 °C - (2) Ambient temperature 20 °C

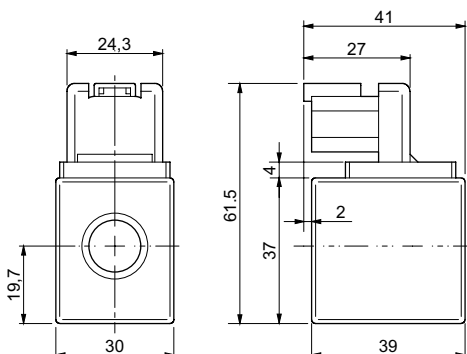
(3) The european low voltage directive is applied to electronical equipments used at a nominal voltages between 50 and 1000 VAC or 75 and 1500 VDC. In conformity with the low directive each part of the manifold or the subplate on which the valve is mounted should be connected to a protective earth with a resistance less than 0.1 ohms.



### With wires (variant FK)

Coil		Max winding temperature (1)	Rated power	Resistance ±7% (2)	Spare code
Code	Voltage				
L	12 VDC	135 °C	18 W	7.7 Ω	M14000101
M	24 VDC	135 °C	18 W	31 Ω	M14000102

(1) Ambient temperature 25 °C - (2) Ambient temperature 20 °C



### DEUTSCH and bidirectional integrated diode (variant CX)

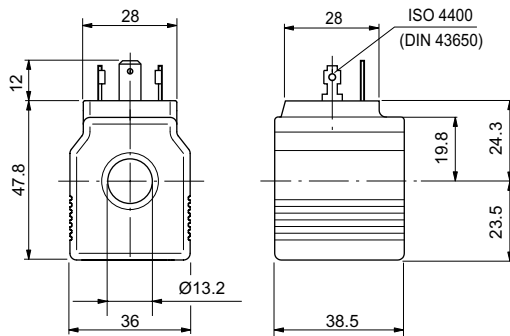
Coil		Max winding temperature (1)	Rated power	Resistance ±7% (2)	Spare code
Code	Voltage				
L	12 VDC	135 °C	18 W	7.7 Ω	M14760001
M	24 VDC	135 °C	18 W	31 Ω	M14760002

(1) Ambient temperature 25 °C - (2) Ambient temperature 20 °C

## C36 - COILS 22W

Type of protection	IP 65
Number of cycle	18000/h
Supply tolerance	±10%
Ambient temperature	-30°C ÷ 60°C

Duty cycle	100% ED
Insulation class wire	H
Weight	0.2 kg

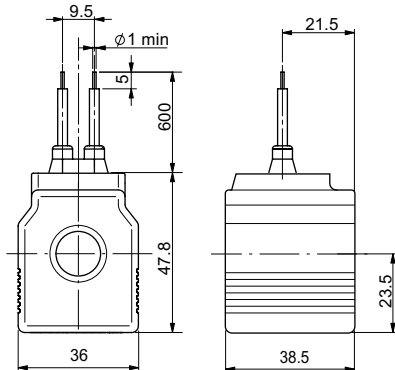


### Standard (Hirschmann ISO 4400 DIN43650)

Coil		Max winding temperature (1)	Rated power	Resistance ±7% (2)	Spare code
Code	Voltage				
<b>L</b>	12 VDC	135 °C	22 W	6.3 Ω	M14040001
<b>4</b>	14 VDC	135 °C	22 W	8.9 Ω	M14040009
<b>M</b>	24 VDC	135 °C	22 W	25.6 Ω	M14040002
<b>V</b>	28 VDC	135 °C	22 W	32.8 Ω	M14040008
<b>N</b>	48 VDC	135 °C	22 W	102 Ω	M14040003
<b>2</b>	21.6 VDC	135 °C	22 W	20.2 Ω	M14040000
<b>Z</b>	102 VDC (3)	135 °C	22 W	467.85 Ω	M14040006
<b>X</b>	205 VDC (3)	135 °C	22 W	1954 Ω	M14040007

(1) Ambient temperature 25 °C - (2) Ambient temperature 20 °C

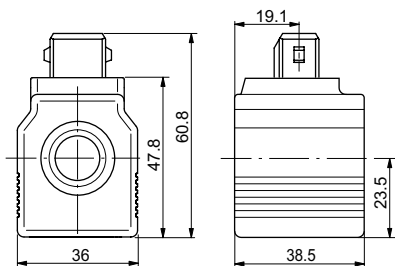
(3) The european low voltage directive is applied to electronical equipments used at a nominal voltages between 50 and 1000 VAC or 75 and 1500 VDC. In conformity with the low directive each part of the manifold or the subplate on which the valve is mounted should be connected to a protective earth with a resistance less than 0.1 ohms.



### With wires (variant FK)

Coil		Max winding temperature (1)	Rated power	Resistance ±7% (2)	Spare code
Code	Voltage				
<b>L</b>	12 VDC	135 °C	22 W	6.3 Ω	M14040101
<b>4</b>	14 VDC	135 °C	22 W	8.9 Ω	M14040109
<b>M</b>	24 VDC	135 °C	22 W	25.6 Ω	M14040102
<b>V</b>	28 VDC	135 °C	22 W	32.8 Ω	M14040108

(1) Ambient temperature 25 °C - (2) Ambient temperature 20 °C



### AMP Junior (variant AJ)

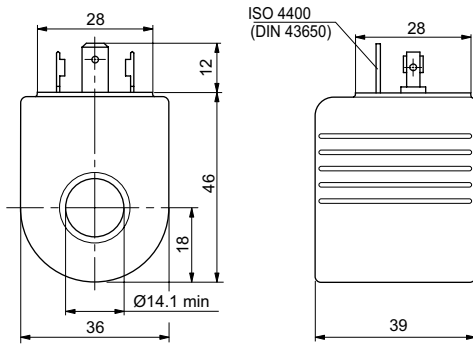
Coil		Max winding temperature (1)	Rated power	Resistance ±7% (2)	Spare code
Code	Voltage				
<b>L</b>	12 VDC	135 °C	22 W	6.3 Ω	M14730001
<b>M</b>	24 VDC	135 °C	22 W	25.6 Ω	M14730002

(1) Ambient temperature 25 °C - (2) Ambient temperature 20 °C

## A09 - COILS 27W

Type of protection	IP 65
Number of cycle	18000/h
Supply tolerance	±10%
Ambient temperature	-30°C ÷ 60°C

Duty cycle	100% ED
Insulation class wire	H
Weight	0.215 kg

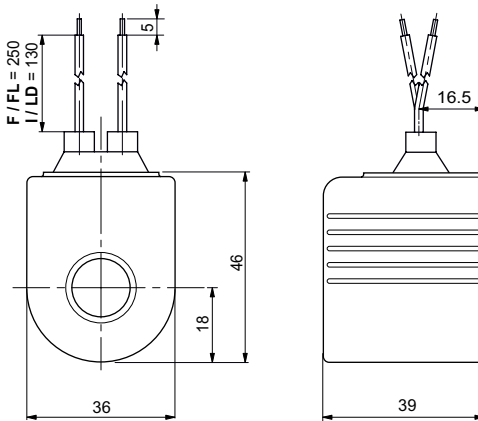


### Hirschmann ISO 4400 DIN43650 (connection H)

Coil		Max winding temperature (1)	Rated power	Resistance ±7% (2)	Spare code
Code	Voltage				
<b>L</b>	12 VDC	123 °C	27 W	5.3 Ω	M14310001
<b>M</b>	24 VDC	123 °C	27 W	21.3 Ω	M14310002
<b>N</b>	48 VDC	123 °C	27 W	85.3 Ω	M14310003
<b>Z</b>	102 VDC (3)	123 °C	27 W	392 Ω	M14310008
<b>P</b>	110 VDC (3)	123 °C	27 W	448 Ω	M14310005
<b>X</b>	205 VDC (3)	123 °C	27 W	1577 Ω	M14310009

(1) Ambient temperature 25 °C - (2) Ambient temperature 20 °C

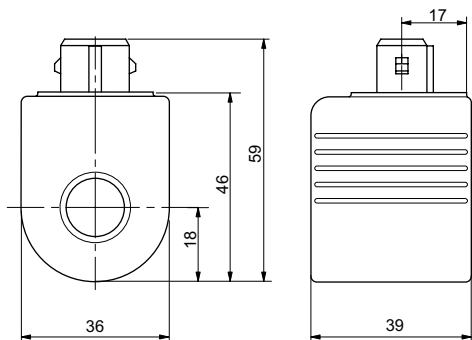
(3) The european low voltage directive is applied to electronical equipments used at a nominal voltages between 50 and 1000 VAC or 75 and 1500 VDC. In conformity with the low directive each part of the manifold or the subplate on which the valve is mounted should be connected to a protective earth with a resistance less than 0.1 ohms.



### With wires and integrated bidirectional diode (connection F-I / variants FL-LD)

Bobina		Wires (mm)	Max winding temperature (1)	Rated power	Resistance ±7% (2)	Spare code
Codice	Tensione					
<b>L</b>	12 VDC	F = 250	123 °C	27 W	5.3 Ω	M14070011
<b>M</b>	24 VDC	F = 250	123 °C	27 W	21.3 Ω	M14070012
<b>L</b>	12 VDC	I = 130	123 °C	27 W	5.3 Ω	M14330001
<b>M</b>	24 VDC	I = 130	123 °C	27 W	21.3 Ω	M14330002

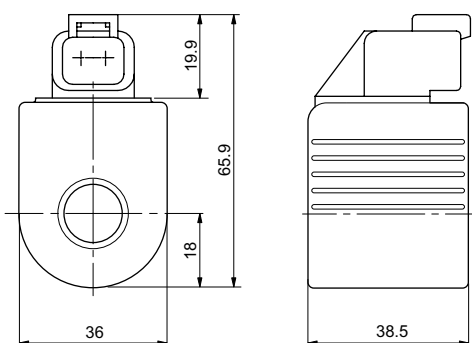
(1) Ambient temperature 25 °C - (2) Ambient temperature 20 °C



### AMP Junior (connection A / variant AJ)

Coil		Max winding temperature (1)	Rated power	Resistance ±7% (2)	Spare code
Code	Voltage				
<b>L</b>	12 VDC	123 °C	27 W	5.3 Ω	M14320001
<b>M</b>	24 VDC	123 °C	27 W	21.3 Ω	M14320002

(1) Ambient temperature 25 °C - (2) Ambient temperature 20 °C



### Deutsch + bidirectional diode - DT04-2P (connection D / variant CX)

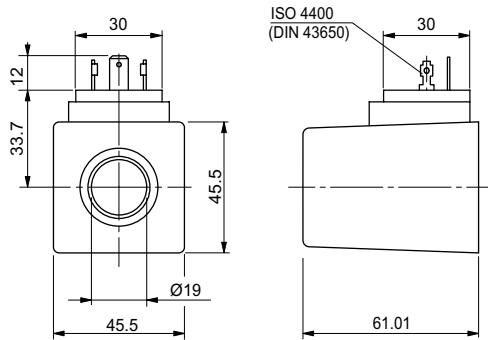
Coil		Max winding temperature (1)	Rated power	Resistance ±7% (2)	Spare code
Code	Voltage				
<b>L</b>	12 VDC	123 °C	27 W	5.3 Ω	M14340001
<b>M</b>	24 VDC	123 °C	27 W	21.3 Ω	M14340002

(1) Ambient temperature 25 °C - (2) Ambient temperature 20 °C

## D12 - COILS 30W

Type of protection	IP 65
Number of cycle	18000/h
Supply tolerance	±10%
Ambient temperature	-30°C ÷ 60°C

Duty cycle	100% ED
Insulation class wire	H
Weight	0.2 kg



### Standard (Hirschmann ISO 4400 DIN43650)

Coil		Max winding temperature (1)	Rated power	Resistance ±7% (2)	Spare code
Code	Voltage				
<b>L</b>	12 VDC	108 °C	30 W	4.7 Ω	M14100010
<b>M</b>	24 VDC	108 °C	30 W	18.8 Ω	M14100011

(1) Ambient temperature 25 °C - (2) Ambient temperature 20 °C