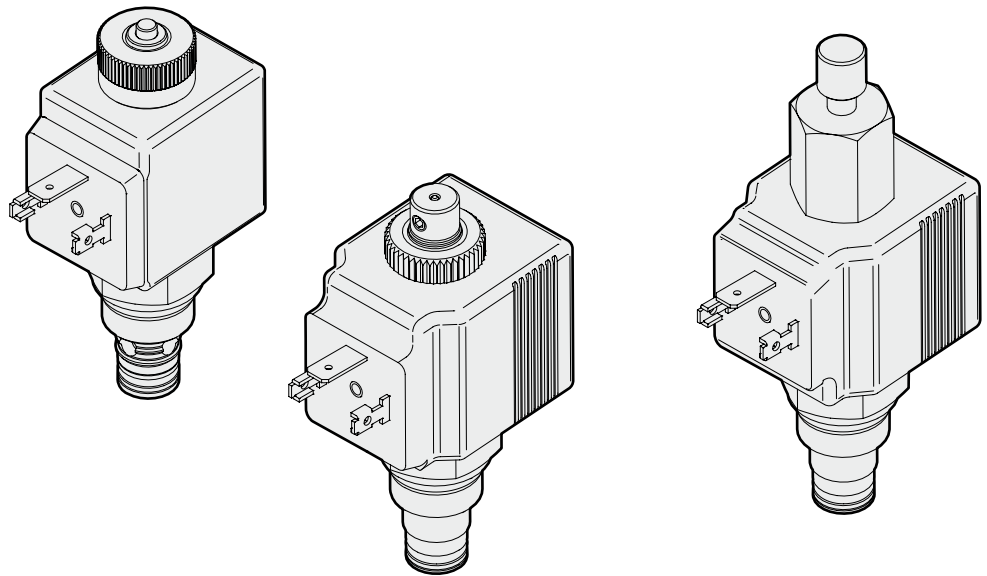


## SOLENOID VALVES 2-WAY



## PILOTED OPERATED SOLENOID VALVE

Emergency (NC)

2.7 Corsa  
(Stroke) 8

**CRP 04 18..**  
18W coil version  
Cavity type "A"

Variants

**19**

3.5 Corsa  
(Stroke) 38.2 max

**P3(NA)**

**P4(NA)** 29.5

Emergency (NA)  
Emergency (NA)

Emergency

**CRP 04 22NC..**  
22W coil version  
Cavity type "A"

2.1 Corsa  
(Stroke) 8

Reduction for cavity type "B"

**V89B30000** Spare code

**00012023** Spare seals kit

Connector to be ordered separately, see sect. 18

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

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.

Normally closed valves can work with DC or AC coils.

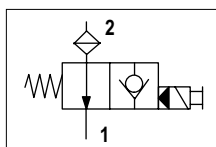
Normally open valves work with DC coils whereas RAC coils with a connector and incorporated rectifier must be used for AC applications.

The NC valve sleeve is in galvanised steel and the NA valve sleeve with nikel coated.

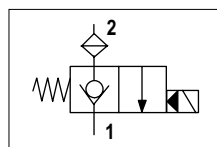
### FEATURES

Max. pressure	300 bar (NA) 280 bar (NC)
Max. Flow	20 l/min (CRP418NC) 40 l/min (CRP422NC-CRP418NA)
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)	0.27 kg (...18) - 0.35 kg (...22)
Cartridge tightening torque	25 ÷ 30 Nm
Coil ring nut tightening torque	7 Nm
Emergency tightening torque	
Cavity standard "A" (3/4 - 16 UNF)	CD018006 - CD018009 (See section 15)
Cavity with reduction "B" (3/4 - 16 UNF)	CD018012 (See section 15)

### HYDRAULIC SYMBOLS



Normally open

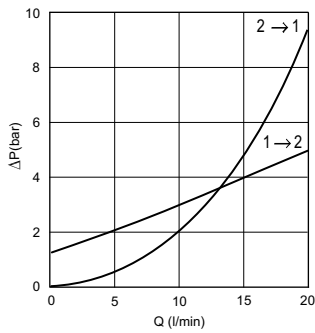


Normally closed

## PRESSURE DROPS

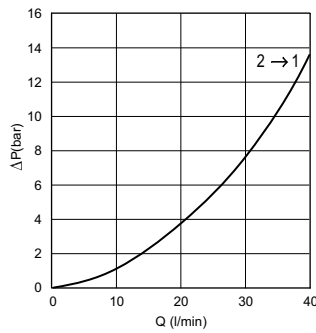
## LIMITS OF USE

**CRP 04 18NC.**

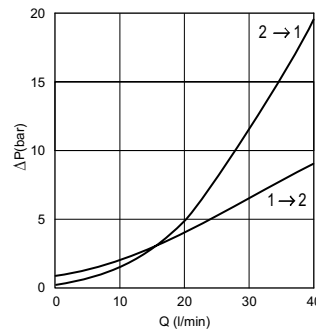


1 → 2 Only with coil not energized

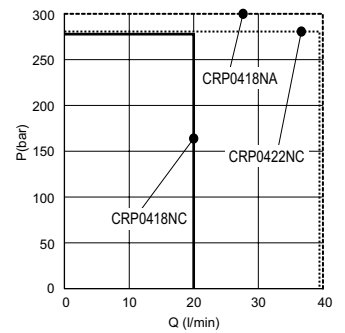
**CRP 04 18NA.**



**CRP 04 22NC.**



1 → 2 Only with coil not energized



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>**</b>	<b>**</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>**</b>	<b>2</b>
Series	Size	Coil		Version		Voltage		Variants
<b>CRP</b> = Piloted solenoid valve	<b>04</b> = 3/4 - 16 UNF	<b>18</b> = 18W dc (NA-NC) - C30 <b>22</b> = 22W dc (NC) - C36	<b>NA</b> = Normally open <b>NC</b> = Normally closed	<b>A</b> = Standard - Ø 12.7 mm <b>B</b> = With reduction - Ø 15.9 mm	<b>S</b> = Without emergency (NC) <b>E</b> = With emergency (NA-NC)			<b>2</b> = Serial No.
								<b>00</b> = No variants <b>P4</b> = Push bott.emerg. (.NA) <b>P3</b> = Rotary emerg. (.NA) <b>SF</b> = Without cartridge filter <b>FK</b> = With flying leads 600 mm (1) <b>AJ</b> = AMP Junior connection (2) <b>CX</b> = Deutsch connection with bidirectional diode (3)
								<b>DC 18W/22W (C30-C36)</b> <b>L</b> = 12 VDC <b>M</b> = 24 VDC <b>N</b> = 48 VDC <b>2</b> = 21.6 VDC RAC (4) <b>Z</b> = 102 VDC RAC (5) <b>X</b> = 205 VDC RAC (6) <b>W</b> = Without coil (7)
								<b>AC 18W (C30)</b> <b>A</b> = 24 VAC 50 Hz <b>J</b> = 115 VAC 50 Hz <b>I</b> = 230 VAC 50 Hz <b>F</b> = 24 VAC 60 Hz <b>C</b> = 110 VAC 60 Hz <b>D</b> = 220 VAC 60 Hz <b>K</b> = Without coil (7)

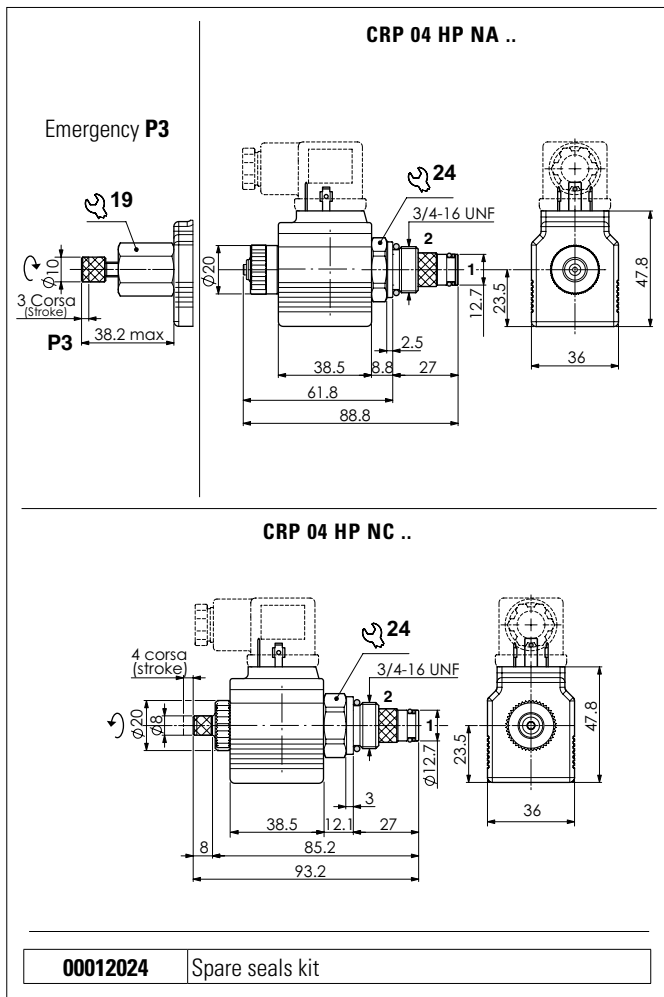
Connector to be ordered separately, see sect. 18

Coils technical data, see sect. 17

(1) Only voltages 12 VDC - 24 VDC  
 (2) Only voltages 12 VDC - 24 VDC and coil 22W  
 (3) Only voltages 12 VDC - 24 VDC and coil 18W  
 (4) With rectifier: 24 VAC/50-60Hz

(5) With rectifier: 115 VAC/50Hz - 120VAC/60Hz  
 (6) With rectifier: 230 VAC/50Hz - 240VAC/60Hz  
 (7) Performance are guaranteed only using valves completed with BFP coil

## 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.

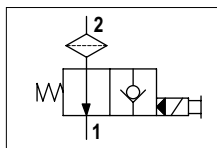
The valves work with DC coils whereas RAC coils with a connector with incorporated rectifier must be used for AC applications.

The sleeve is in galvanised steel.

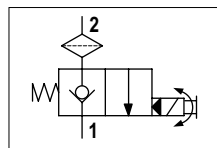
### FEATURES

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 - CD018009 (See section 15)

### HYDRAULIC SYMBOLS



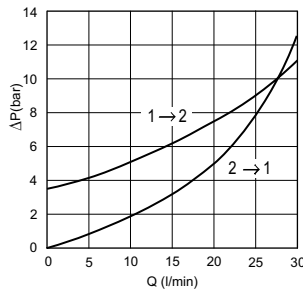
Normally open



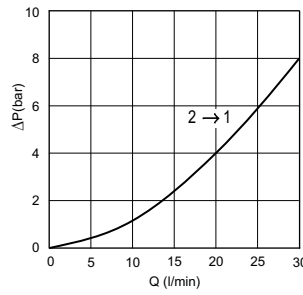
Normally closed

## PRESSURE DROPS

**CRP 04 HP NC.**

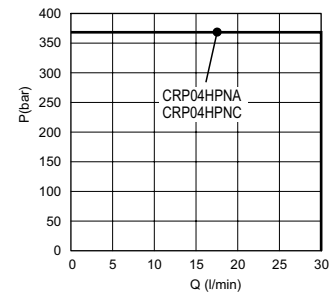


**CRP 04 HP NA.**



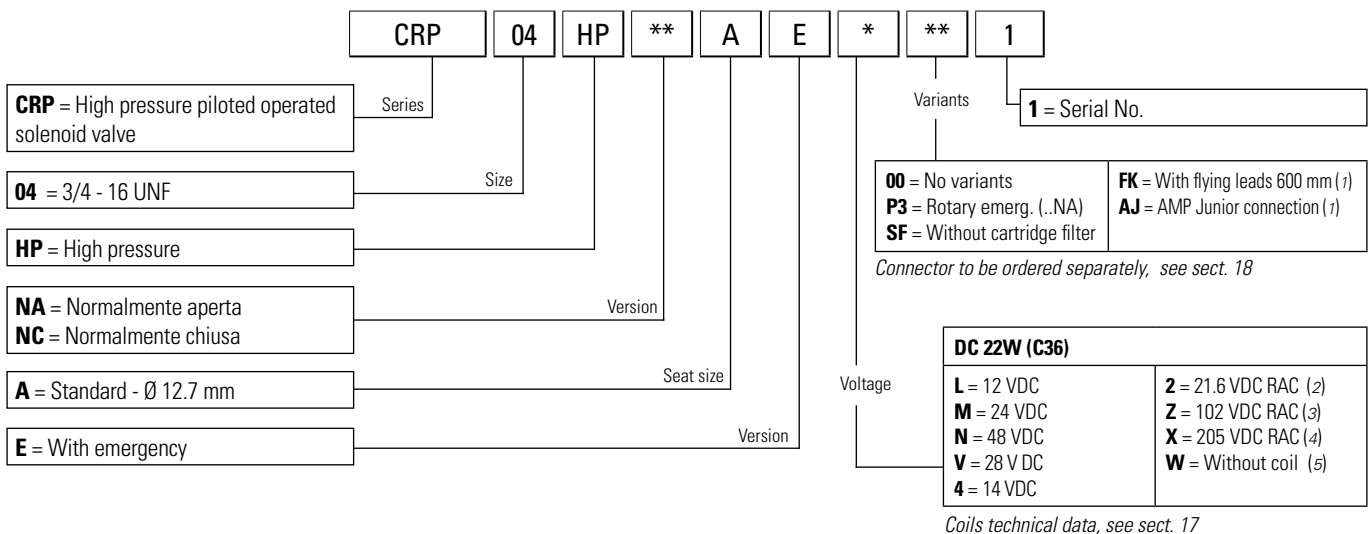
**1 → 2** Only with coil not energized

## 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



(1) Only voltages 12 VDC - 24 VDC

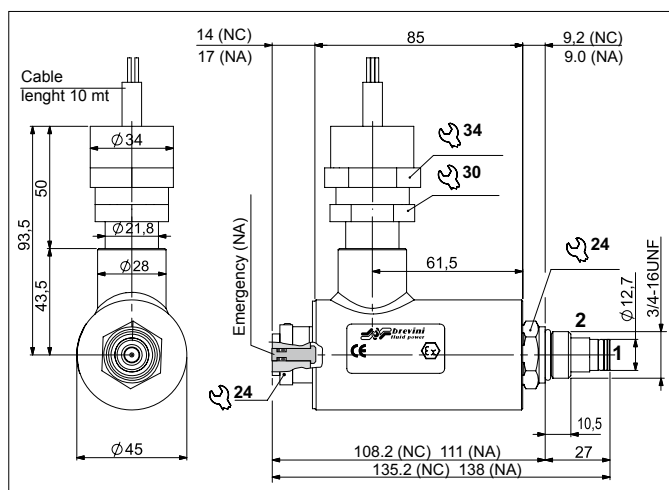
(2) With rectifier: 24 VAC/50-60Hz

(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

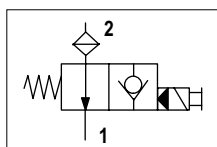
The valves work with the coils in DC.

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.

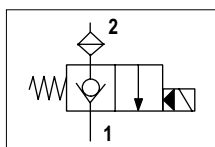
Operating intermittence: ED100% if the room temperature does not exceed 40 ° C. Degree of protection: IP67 according to EN 60529.

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



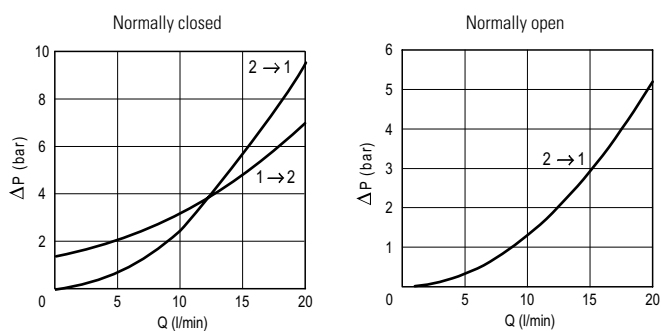
Normally closed

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

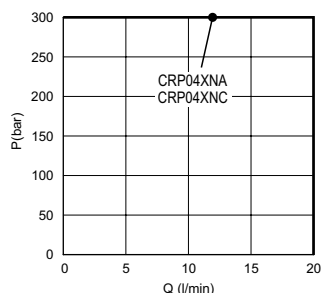


1 → 2 Only with coil not energized

## 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

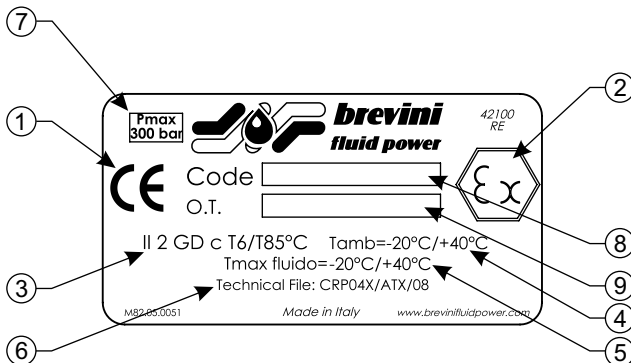


The tests were carried out with the solenoids at operating temperature, with a supply voltage 10% below nominal value and with a 40°C fluid temperature. The fluid used is a mineral oil with viscosity of 46 mm<sup>2</sup>/s at 40°C.

## REGISTERED MARK AND IDENTIFICATION PLATE

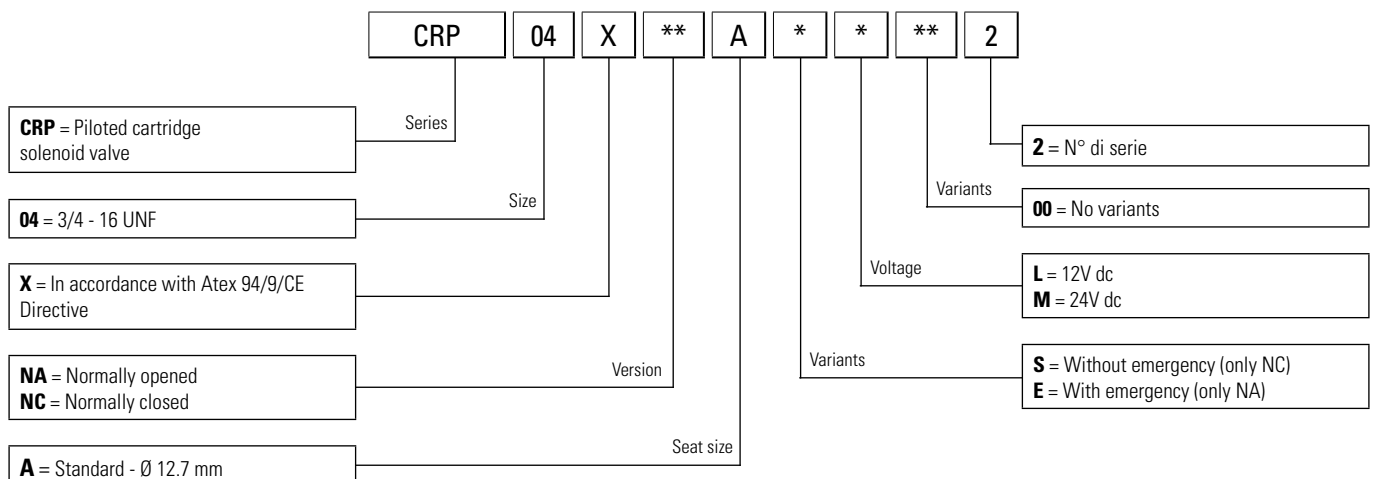
Every moduls are supply with its "Identification Plate" and with the "Declaration of Conformity" in accordance with the 94/4/CE Atex Directive.

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



1	CE	In accordance with Europe Directive
2	Ex	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.

## DIRECT OPERATED SOLENOID VALVE

Variants

**CRD 04 18 NC ...**  
18W coil version

Variants

**CRD 04 22 NC ...**  
22W coil version

Variants

**CRD 04 NC ...**  
30W coil version

Flux	Force (F)
2 → 1	10N
1 → 2	10 + (2,5 x p) N

**p** = used pressure (bar)

Reduction for cavity type "B"

**V89B30000** Spare code

**\* Max. pressure with reduction:**  
Unidirectional 2 → 1 = 300 bar  
Bidirectional 2 → 1 and 1 → 2 = 210 bar

**00012025** Spare seals kit

The direct acting, normally closed 2-way 2 position bi-directional electric control valve releases pressure and enables fluid to flow through the valve in both directions.

The bi-directional tapered poppet is in tempered and ground steel.

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

CRD0418NC - CRD0422NC: nickel-plated steel sleeve.  
CRD04NC: phosphate-coating steel sleeve.

### FEATURES

Max. pressure - see note (*)	CRD 04 22 NC = 300 bar CRD 04 18 NC = 210 bar CRD 04 NC = 250 bar
Max. Flow	CRD 04 22 NC /18 NC = 15 l/min CRD 04 NC = 30 l/min
Max. excitation frequency	2 Hz
Duty cycle	100% ED
Max. Leakage (0 ÷ 20 drops/min)	0 ÷ 1 cm <sup>3</sup> /min
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)	CRD 04 18 NC = 0.27 kg CRD 04 22 NC = 0.35 kg CRD 04 NC = 0.63 kg
Cartridge tightening torque	25 ÷ 30 Nm
Coil ring nut tightening torque Emergency tightening torque	7 Nm
Cavity standard "A" (3/4 - 16 UNF)	CD018006 - CD018009 (See section 15)
Cavity with reduction "B" (3/4 - 16 UNF)	CD018012 (See section 15)

### HYDRAULIC SYMBOLS

Connector to be ordered separately, see sect. 18

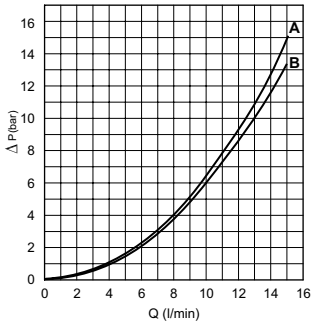
IE/CRD04/002/2012      CAT: BFP/VCAR Page: 76      SHEET: 1/2      SOLENOID VALVES - 2-WAY      8



## PRESSURE DROPS

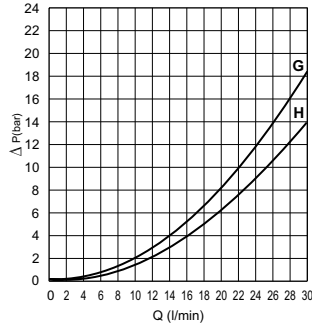
### 18W / 22W

A = 2 → 1  
B = 1 → 2



### 30W

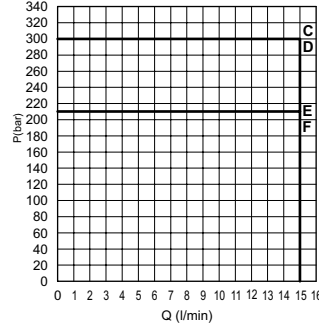
G = 2 → 1  
H = 1 → 2



## LIMITS OF USE

### 22W

C = 2 → 1  
D = 1 → 2

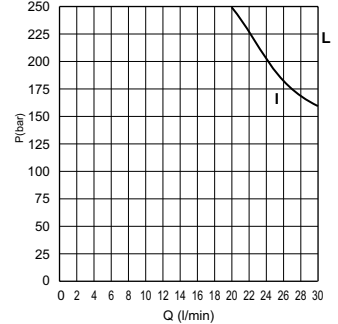


### 18W

E = 2 → 1  
F = 1 → 2

### 30W

I = 2 → 1  
L = 1 → 2



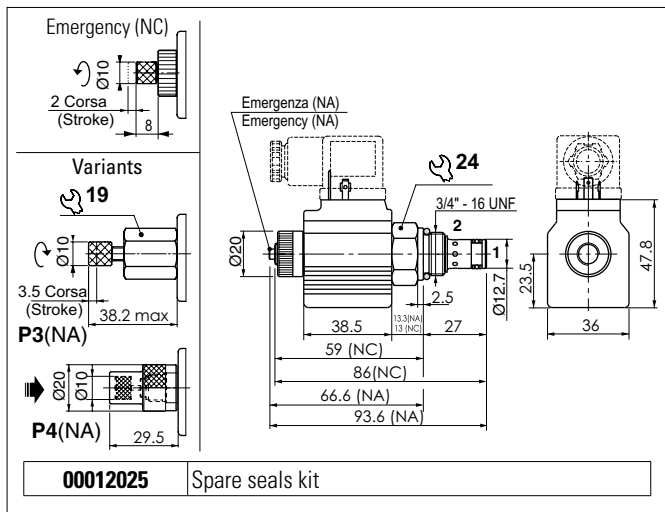
The tests were carried out with the solenoids at operating temperature, with a supply voltage 10% below nominal value and with a 40°C fluid temperature. The fluid used is a mineral oil with viscosity of 46 mm<sup>2</sup>/s at 40°C.

## ORDERING CODE

<b>CRD</b>	<b>04</b>	<b>**</b>	<b>NC</b>	<b>*</b>	<b>*</b>	<b>*</b>	<b>**</b>	<b>*</b>
Series	Size	Coil	Version	Seat size	Version	Voltage	Variants	Serial No.
<b>CRD</b> = Direct operated solenoid valve	<b>04</b> = 3/4 - 16 UNF	<b>18</b> = 18W (C30) <b>22</b> = 22W (C36) <b>00</b> = Without coil (4) <b>Omit for 30W version (D12)</b>	<b>NC</b> = Normally closed	<b>A</b> = Standard - Ø 12.7 mm <b>B</b> = With reduction - Ø 15.9 mm	<b>E</b> = With emergency <b>Omit for 30W version (D12)</b>	<b>DC 18W/22W (C30-C36)</b> <b>L</b> = 12 VDC <b>M</b> = 24 VDC <b>N</b> = 48 VDC <b>2</b> = 21.6 VDC RAC (4) <b>Z</b> = 102 VDC RAC (5) <b>X</b> = 205 VDC RAC (6) <b>W</b> = Without coil (7)	<b>00</b> = No variants <b>E1</b> = Manual emerg. (30W) <b>P1</b> = Rotary emerg. (30W) <b>P3</b> = Rotary emerg. (18W/22W) <b>P4</b> = Push button emerg. <b>FY</b> = Emerg. P3+FH (18W/22W) <b>FH</b> = Cartridge filter <b>PJ</b> = FH + P4 emerg. <b>FK</b> = With flying leads 600 mm (1) <b>AJ</b> = AMP Junior connection (2) <b>CX</b> = Deutsch connection with bidirectional diode (3)	<b>2</b> = Serial No. CRD 04 18 NC.. CRD 04 22 NC.. CRD 04 00 NC.. <b>1</b> = Serial No. CRD 04 NC..
						<i>Connector to be ordered separately, see sect. 18</i>		
						<b>DC 30W (D12)</b> <b>L</b> = 12 VDC <b>M</b> = 24 VDC <b>W</b> = Without coil (7)		
						<i>Coils technical data, see sect. 17</i>		

(1) Only voltages 12 VDC - 24 VDC and coils 18W/22W  
 (2) Only voltages 12 VDC - 24 VDC and coil 22W  
 (3) Only voltages 12 VDC - 24 VDC and coil 18W  
 (4) With rectifier: 24 VAC/50-60Hz  
 (5) With rectifier: 115 VAC/50Hz - 120 VAC/60Hz  
 (6) With rectifier: 230 VAC/50Hz - 240 VAC/60Hz  
 (7) Performance are guaranteed only using valves completed with BFP coil

## SOLENOID VALVES 2 WAY 2 POSITIONS



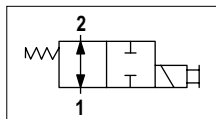
Connector to be ordered separately, see sect. 18

The electric valve is a 2-way 2-position bidirectional electrically controlled valve.  
Slight leakage is tolerated for this type of valve.  
Available in normally open (NA) or normally closed (NC) versions.  
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 (C2V0422NC..) or nickel-plated (C2V0422NA..). The plunger is in tempered and ground steel.

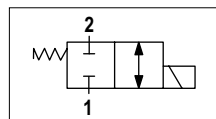
### FEATURES

Max. pressure	250 bar
Max. Flow	12 l/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
Type of protection (in relation to the connection used)	IP65
Weight (with coil)	0.30 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

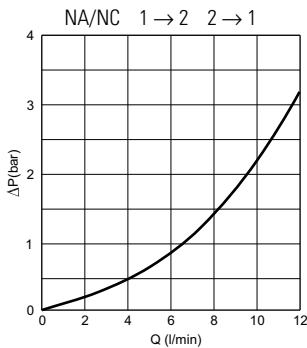


Normally open

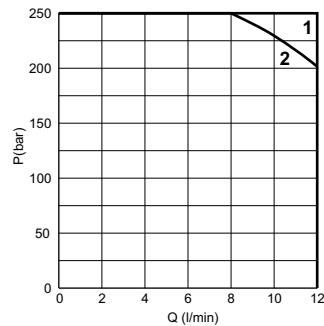


Normally closed

### PRESSURE DROPS



### LIMIT OF USE



### Limits of use

Flow	C2V04 NA	C2V04 NC
1 → 2	Curve 2	Curve 1
2 → 1	Curve 1	Curve 1

The tests were carried out with the 22W 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>C2V</b> = Solenoid valve 3 way / 2 positions	Series	<b>04</b> = 3/4 - 16 UNF	Size	<b>22</b> = 22W (C36)	Coil	<b>**</b>	Version	<b>A</b> = Ø 12.7 mm (standard)	Seat	<b>*</b>	Emergency	<b>*</b>	<b>00</b> = No variants	Emergency	<b>2</b> = Serial No.
<b>NC</b> = Normally closed <b>NA</b> = Normally open													<b>P3</b> = Rotary emerg.(..NA) <b>P4</b> = Push butt. emerg.(..NA)		
<b>E</b> = With emergency (NA - NC) <b>S</b> = Without emergency (NC)													<b>DC 22W (C36)</b>		
													<b>L</b> = 12 VDC <b>M</b> = 24 VDC <b>N</b> = 48 VDC		<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)

Connector to be ordered separately, see sect. 18

Coils technical data, see sect. 17

(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