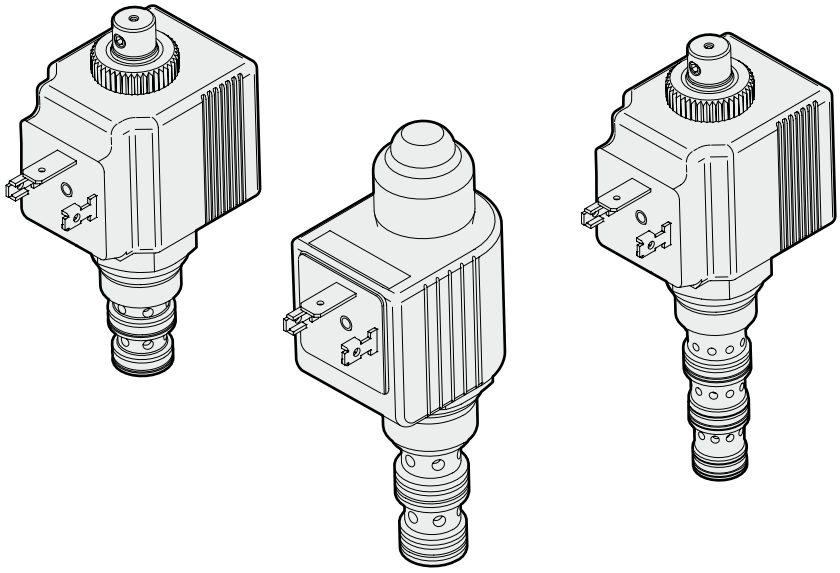
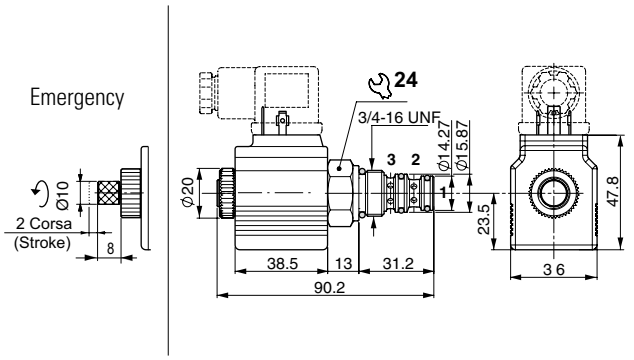
9

SOLENOID VALVES 3-4 WAY



SOLENOID VALVES 3-WAY/2-POSITION



00012026	Spare seals kit

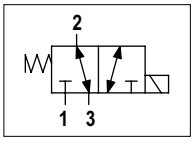
Connector to be ordered separately, see sect. 18

The electric valve is a 3-way 2-position directional electrically controlled valve.
Slight leakage is tolerated for this type of valve.
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. The plunger is in tempered and ground steel.

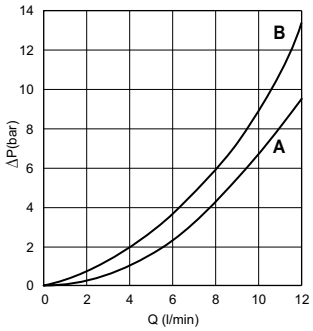
HYDRAULIC FEATURES

Max. opening pressure	210 bar
Max. Flow	12 l/min
Max. excitation frequency	2 Hz
Duty cycle	100% ED
Hydraulic fluid	DIN 51524 Mineral oils
Fluid viscosity	10 ÷ 500 mm^2/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 connector used)	IP 65
Weight	0.30 kg
Cartridge tightening torque	25 ÷ 30 Nm
Coil ring nut tightening torque	7 Nm
Cavity (3/4 - 16 UNF)	CD018005 (See section 15)

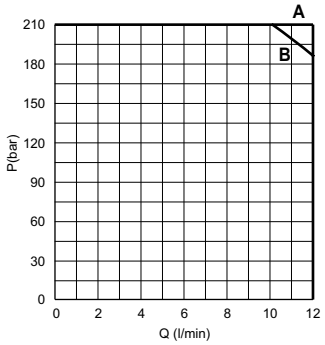
HYDRAULIC SYMBOL



PRESSURE DROPS



LIMIT OF USE



Flow	Pressure drops	Limit of use
1 → 2	A	A
2 → 1	A	A
2 → 3	B	B
3 → 2	B	B
	Curve	

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^2/s at 40°C.

ORDERING CODE

C3V	04	22	1C	C	*	*	**	2

- Series: **C3V** = Solenoid valve 3 way / 2 positions
- Size: **04** = 3/4 - 16 UNF
- Coil: **22** = 22W (C36)
- Schema: **1C** = Hydraulic schema
- Seat type: **C** = Seat
- Version: **S** = Without emergency; **E** = With emergency
- Voltage:

DC 22W (C36)	
L = 12 VDC	**2** = 21.6 VDC RAC (*2*)
M = 24 VDC	**Z** = 102 VDC RAC (*3*)
N = 48 VDC	**X** = 205 VDC RAC (*4*)
	W = Without coil (*5*)

Coils technical data, see sect. 17

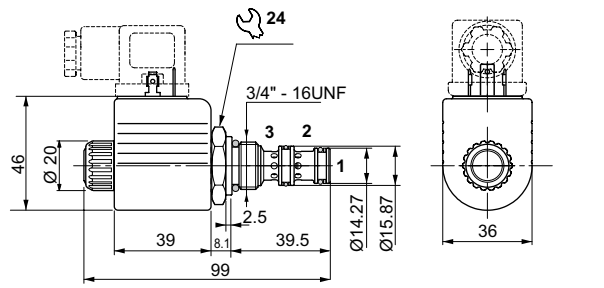
- Variants: **00** = No variants; **FK** = With flying leads 600 mm (*1*); **AJ** = AMP Junior connection (*1*)

Connector to be ordered separately, see sect. 18

- **2** = Serial No.

(*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

SOLENOID VALVES 3-WAY/2-POSITION



00012027	Spare seals kit

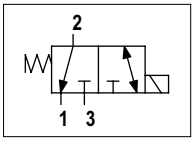
Connector to be ordered separately, see sect. 18

The electric valve is a 3-way 2-position directional electrically controlled valve.
Slight leakage is tolerated for this type of valve.
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 phosphate steel. The plunger is in tempered and ground steel.

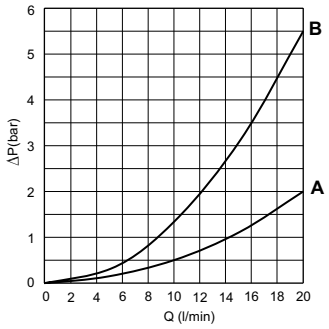
HYDRAULIC FEATURES

Max. opening pressure	250 bar
Max. Flow	20 l/min
Max. excitation frequency	2 Hz
Duty cycle	100% ED
Hydraulic fluid	DIN 51524 Mineral oils
Fluid viscosity	10 ÷ 500 mm^2/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 connector used)	IP 65
Weight	0.30 kg
Cartridge tightening torque	25 ÷ 30 Nm
Coil ring nut tightening torque	4.5 Nm
Cavity (3/4 - 16 UNF)	CD018003 (See section 15)

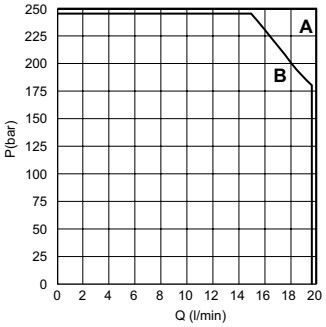
HYDRAULIC SYMBOL



PRESSURE DROPS



LIMIT OF USE



Flow	Pressure drops	Limit of use
2 → 1	A	A
2 → 3	B	A
3 → 2	B	B
	Curve	

The tests were carried out with the 27W 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^2/s at 40°C.

ORDERING CODE

C3V	04	27	1D	D	S	*	**	2
Series	Size	Coil	Schema	Seat type	Version	Voltage	Variants	

C3V = Solenoid valve 3 way / 2 positions

04 = 3/4 - 16 UNF

27 = 27W (A09)

1D = Hydraulic schema

D = Seat

S = Without emergency

2 = Serial No.

00 = No variants
FL = Coil with flying leads (250 mm) (*1*)
LD = Coil with flying leads (130 mm) and integrated diode (*1*)
AJ = AMP Junior coil (*1*)
CX = Deutsch coil and integrated diode (*1*)

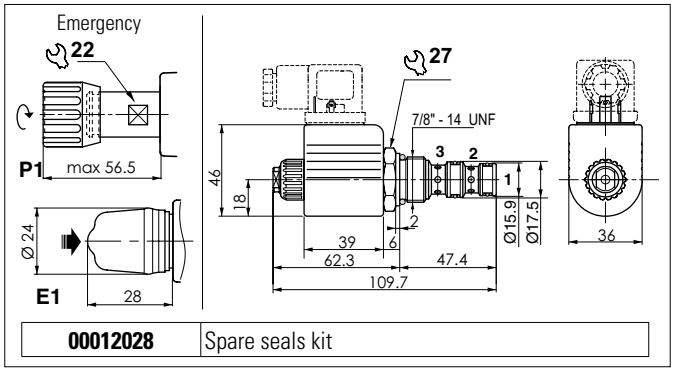
Connector to be ordered separately, see sect. 18

DC 27W (A09)	
L = 12 VDC	**Z** = 102 VDC RAC (*2*)
M = 24 VDC	**X** = 205 VDC RAC (*3*)
N = 48 VDC	**W** = Without coil (*4*)
P = 110 VDC	

Coils technical data, see sect. 17

(*1*) Only voltages 12 VDC - 24 VDC
(*2*) With rectifier: 115 VAC/50Hz - 120 VAC/60Hz
(*3*) With rectifier: 230 VAC/50Hz - 240 VAC/60Hz
(*4*) Performance are guaranteed only using valves completed with BFP coil

SOLENOID VALVES 3 WAY 2 POSITIONS

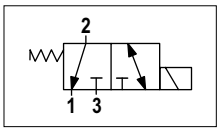


00012028	Spare seals kit

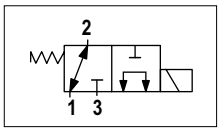
Connector to be ordered separately, see sect. 18

The electric valve is a 3-way 2-position directional electrically controlled valve.
Slight leakage is tolerated for this type of valve.
Available in 2 layouts.
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. The plunger is in tempered and ground steel.

SPOOL HYDRAULIC SCHEME



1D

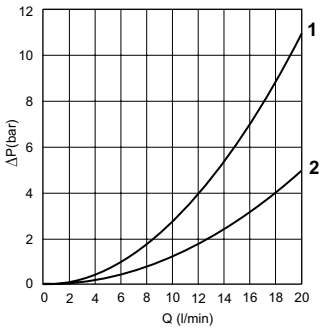


1E

HYDRAULIC FEATURES

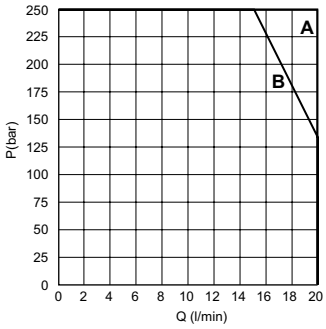
Max. opening pressure	250 bar
Max. Flow	20 l/min
Max. excitation frequency	2 Hz
Duty cycle	100% ED
Hydraulic fluid	DIN 51524 Mineral oils
Fluid viscosity	10 ÷ 500 mm^2/s
Fluid temperature	-25°C ÷ 75°C
Ambient temperature	-25°C ÷ 60°C
Max. contamin. level class with filter	ISO 4406:1999 - class 19/17/14
Type of protection (in relation to the connector used)	IP 65
Weight	0.37 kg
Cartridge tightening torque	45 ÷ 50 Nm
Emergency P1 tightening torque	6 ÷ 9 Nm
Coil ring nut tightening torque	4.5 Nm
Cavity (3/4 - 16 UNF)	CD019006 (See section 15)

PRESSURE DROPS



Spool type	Connections (pressure drops)					
	2→1	2→3	1→2	1→3	3→1	3→2
1D	2	1	—	—	—	1
1E	2	—	2	1	1	—
	Curve No.					

LIMIT OF USE



Spool type	Connections (limits of use)					
	2→1	2→3	1→2	1→3	3→1	3→2
1D	A	A	—	—	—	B
1E	A	—	B	B	A	—
	Curve No.					

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^2/s at 40°C.

ORDERING CODE

C3V | 03 | ** | E | * | * | ** | 1

- Series: **C3V** = Solenoid valve 3 way / 2 positions
- Coil: **03** = 27W Coil (A09)
- Spool: ** = See "Spool scheme"
- Seat type: **E** = Seat
- Connection type:
  - **H** = Hirschmann coil
  - **A** = AMP Junior coil (*1*)
  - **F** = Coil with flying leads (250 mm) (*1*)
  - **I** = Coil with flying leads (130 mm) and integrated diode (*1*)
  - **D** = Deutsch coil and integrated diode (*1*)
- Voltage:
  - **DC 27W (A09)**
    - **L** = 12 VDC
    - **M** = 24 VDC
    - **N** = 48 VDC
    - **P** = 110 VDC
    - **Z** = 102 VDC RAC (*2*)
    - **X** = 205 VDC RAC (*3*)
    - **W** = Without coil (*4*)

Coils technical data, see sect. 17

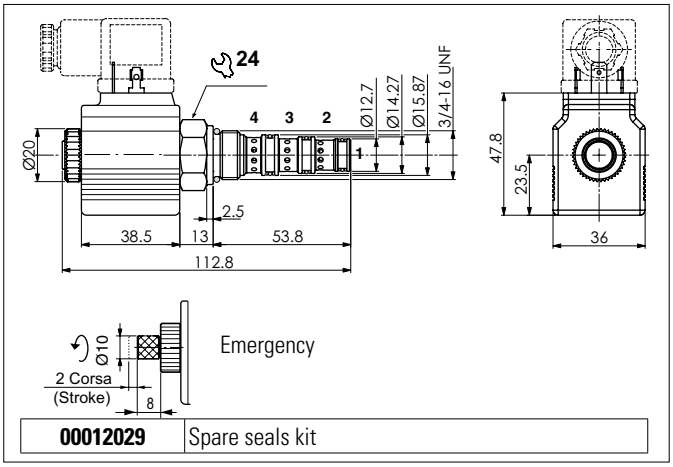
- Variants:
  - **00** = No variants
  - **E1** = Emergency button
  - **P1** = Rotary emergency button

Connector to be ordered separately, see sect. 18

- **1 =** Serial No.

(*1*) Only voltages 12 VDC - 24 VDC
(*2*) With rectifier: 115 VAC/50Hz - 120 VAC/60Hz
(*3*) With rectifier: 230 VAC/50Hz - 240 VAC/60Hz
(*4*) Performance are guaranteed only using valves completed with BFP coil

SOLENOID VALVES 4 WAY 2 POSITIONS



00012029	Spare seals kit

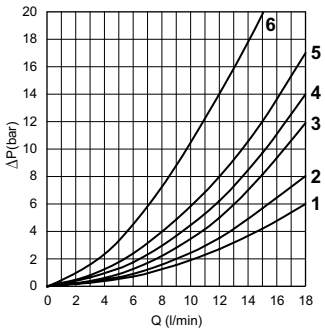
Connector to be ordered separately, see sect. 18

The electric valve is a 4-way 2-position directional electrically controlled valve.
Slight leakage is tolerated for this type of valve.
Available in 5 layouts.
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. The plunger is in tempered and ground steel.

HYDRAULIC FEATURES

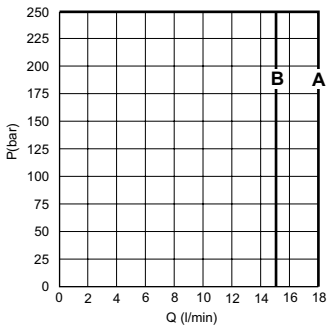
Max. opening pressure	250 bar
Max. Flow	18 l/min
Max. excitation frequency	2 Hz
Duty cycle	100% ED
Hydraulic fluid	DIN 51524 Mineral oils
Fluid viscosity	10 ÷ 500 mm²/s
Fluid temperature	-25°C ÷ 75°C
Ambient temperature	-25°C ÷ 60°C
Max. contamin. level class with filter	ISO 4406:1999 - class 19/17/14
Type of protection (in relation to the connector used)	IP 65
Weight	0.34 kg
Cartridge tightening torque	25 ÷ 30 Nm
Emergency P1 tightening torque	7 Nm
Cavity (3/4 - 16 UNF)	CD018001 (See section 15)

PRESSURE DROPS



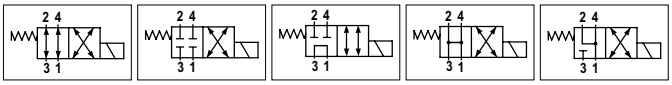
Spool type	Connections (pressure drops)				
	3→1	3→2	3→4	2→1	4→1
D	—	5	5	3	3
C	—	—	4	3	—
A	2	6	—	—	3
H	2	—	4	1	—
Y	—	—	5	3	3
	Curve No.				

LIMIT OF USE



Spool type	Limits of use - inlet flow port 3	
	Pressure in 2	Pressure in 4
D	A	A
C	A	A
A	B	B
H	—	A
Y	—	A
	Curve No.	

SPOOL SCHEME



The tests were carried out with the solenoids 22W 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 mm²/s at 40°C.

ORDERING CODE

C4V	04	22	*	2	F	*	*	**	1

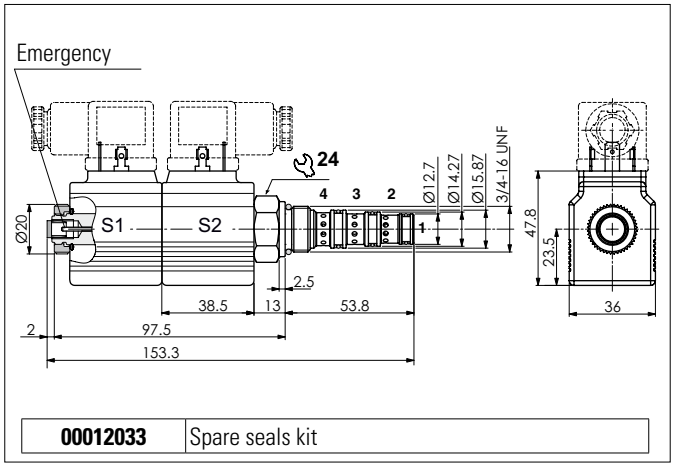
- **C3V** = Solenoid valve 4 way / 2 positions (Series)
- **04** = 3/4 - 16 UNF (Size)
- **22** = 22 W (C36) (Coil)
- * = See "Spool scheme" (Spool)
- **2** = Position number
- **F** = Seat (Seat type)
- Voltage:
  - **DC 22W (C36)**
    - **L** = 12 VDC
    - **M** = 24 VDC
    - **N** = 48 VDC
    - **2** = 21.6 VDC RAC (*2*)
    - **Z** = 102 VDC RAC (*3*)
    - **X** = 205 VDC RAC (*4*)
    - **W** = Without coil (*5*)

  Coils technical data, see sect. 17
- Variants:
  - **00** = No variants
  - **FK** = Flying 600 mm (*1*)
  - **AJ** = AMP Junior connection (*1*)

  Connector to be ordered separately, see sect. 18
- **1 =** Serial No.
- **S** = Without emergency
- **E** = With emergency

(*1*) Only voltages 12 VDC - 24 VDC
(*2*) With rectifier: 24VAC/50-60Hz
(*3*) With rectifier: 115Vac/50Hz - 120Vac/60Hz
(*4*) With rectifier: 230Vac/50Hz - 240Vac/60Hz
(*5*) Performance are guaranteed only using valves completed with BFP coil

SOLENOID VALVES 4 WAY 3 POSITIONS



00012033	Spare seals kit

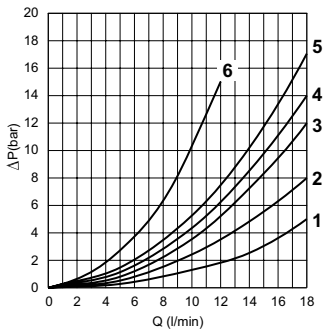
Connector to be ordered separately, see sect. 18

The electric valve is a 4-way 3-position directional electrically controlled valve.
Slight leakage is tolerated for this type of valve.
Available in 4 layouts.
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. The plunger is in tempered and ground steel.

HYDRAULIC FEATURES

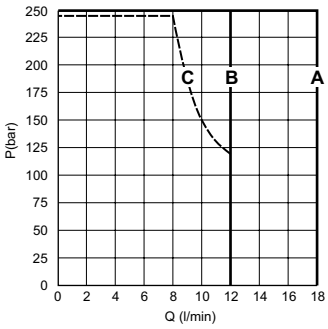
Max. opening pressure	250 bar
Max. Flow	18 l/min
Max. excitation frequency	2 Hz
Duty cycle	100% ED
Hydraulic fluid	DIN 51524 Mineral oils
Fluid viscosity	10 ÷ 500 mm²/s
Fluid temperature	-25°C ÷ 75°C
Ambient temperature	-25°C ÷ 60°C
Max. contamin. level class with filter	ISO 4406:1999 - class 19/17/14
Type of protection (in relation to the connector used)	IP 65
Weight	0.34 kg
Cartridge tightening torque	25 ÷ 30 Nm
Emergency P1 tightening torque	7 Nm
Cavity (3/4 - 16 UNF)	CD018001 (See section 15)

PRESSURE DROPS



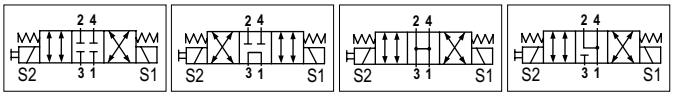
Spool type	Connections (pressure drops)				
	3→1	3→2	3→4	2→1	4→1
C	—	4	4	3	3
A	2	6	6	4	4
H	2	2	2	1	1
Y	—	5	5	3	3
	Curve				

LIMIT OF USE



Spool type	Connections (limits of use)				
	3→1	3→2	3→4	2→1	4→1
C	—	A	A	A	B
A	B	B	B	B	C
H	A	A	A	A	A
Y	—	A	A	A	A
	Curve				

SPOOL SCHEME



C* A* H* Y*

The tests were carried out with the solenoids 22W 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 mm²'/s at 40°C.

ORDERING CODE

C4V	04	22	*	3	F	E	*	**	1

Series: **C3V** = Solenoid valve 4 way / 2 positions

Size: **04** = 3/4 - 16 UNF

Coil: **22** = 22 W (C36)

Spool: ***** = See "Spool scheme"

3 = Position number

Seat type: **F** = Seat

E = With push emergency

Variants: **1 =** Serial No.

00 = No variants
FK = Flying 600 mm (*1*)
AJ = AMP Junior connection (*1*)

Connector to be ordered separately, see sect. 18

Voltage — **DC 22W (C36)**

L = 12 VDC
M = 24 VDC
N = 48 VDC
2 = 21.6 VDC RAC (*2*)
Z = 102 VDC RAC (*3*)
X = 205 VDC RAC (*4*)
W = Without coil (*5*)

Coils technical data, see sect. 17

(*1*) Only voltages 12 VDC - 24 VDC
(*2*) With rectifier: 24VAC/50-60Hz
(*3*) With rectifier: 115Vac/50Hz - 120Vac/60Hz
(*4*) With rectifier: 230Vac/50Hz - 240Vac/60Hz
(*5*) Performance are guaranteed only using valves completed with BFP coil