

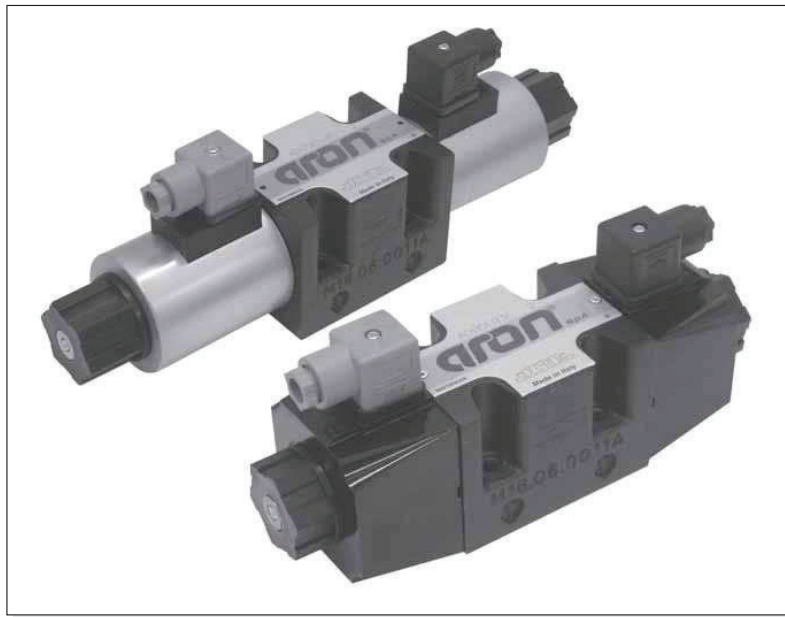
**SOLENOID VALVES**

Global solution and hydraulic components

**INDUSTRIAL**

**MACHINERY**

## ADB.5... DIRECTIONAL CONTROL SOLENOID VALVES CETOP 5



**brevini**  
fluid power  
Division of Brevini Group

**aron**

42100 Reggio Emilia (Italy)  
1, Via Natta 1 (Z.I. Mancasale)

Phone (+39) 0522.50.58  
Fax. (+39) 0522.50.58.56

Web pages [www.aron.it](http://www.aron.it)  
E-mail: [uff.com@aron.it](mailto:uff.com@aron.it)  
[uff.tecnico@aron.it](mailto:uff.tecnico@aron.it)



## ADB.5.E... DIRECTIONAL CONTROL VALVES CETOP 5

SOLENOID OPERATED - FOR INDUSTRIAL MACHINERY

ADB.5.E...	
LIMITS OF USE	PAGE 9
OVERALL DIMENSIONS	PAGE 9
B16 DC COIL	PAGE 10
C16 AC COIL	PAGE 10
STANDARD CONNECTORS	PAGE 10

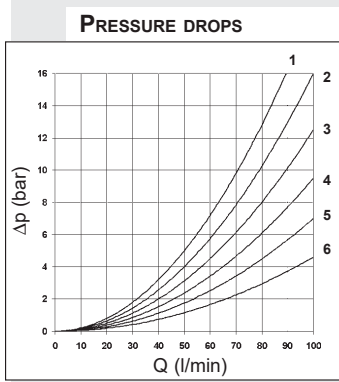
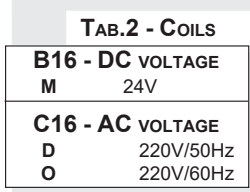
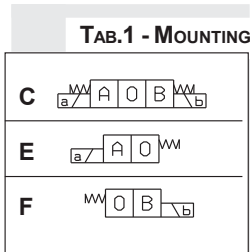
The ARON directional control valves NG10 has been designed for subplate mounting with an interface in accordance with UNI ISO 4401 - 05 - 04 - 0 - 94 standard (ex CETOP R 35 H 4.2-4-05). The use of solenoids with wet armatures means that the construction is extremely functional and safe completely dispensing with need for dynamic seals. The solenoid dust cover is screwed directly onto the valve casing whilst the coil is kept in position by a ring nut. The operation of the directional valves is in electrical way. The centring position is achieved by means of calibrated length springs which, once the action of impulse is over, return the spool to the centre or end travel position.

The solenoids constructed with protection class in accordance with DIN 40050 standards are available in either direct current (IP65) or alternating current (IP66) with different voltage and frequencies. The electrical supply takes place through connectors meeting DIN 43650 ISO 4400 standards. The valves are designed for use with DIN 51524 standard hydraulic mineral oils and it is recommended that filters should be fitted to ensure a maximum contamination level of class 10 in accordance with NAS 1638,  $\beta_{25} \geq 75$ .

Max. pressure ports P/A/B	350 bar
Max. pressure port T (DC voltage)	160 bar
Max. pressure port T (AC voltage)	100 bar
Max flow	100 l/min
Max excitation frequency	3 Hz
Duty cycle	100% ED
Fluid viscosity	10 + 500 mm <sup>2</sup> /s
Fluid temperature	-25°C + 75°C
Ambient temperature	-25°C + 60°C
Max contamination level	class 10 in accordance with NAS 1638 with filter $\beta_{25} \geq 75$
Weight with one DC solenoid	4,17 Kg
Weight with two DC solenoids	5,62 Kg
Weight with one AC solenoid	3,59 Kg
Weight with two AC solenoids	4,46 Kg

**ORDERING CODE**

<b>ADB</b>	Directional valve
<b>5</b>	CETOP 5/NG10
<b>E</b>	Electrical operator
<b>**</b>	Spool (tables at the side) The spool n.15 is available for DC voltage only.
<b>*</b>	Mounting (table 1)
<b>*</b>	Voltage (table 2)
<b>**</b>	Variants: <b>00</b> = No variants <b>S1</b> = Solenoid valve without connectors
<b>1</b>	Serial No.



The diagram at the side shows the pressure drop curves for spools during normal usage. The fluid used is a mineral oil with a viscosity of 46 mm<sup>2</sup>/s at 40 C°, the tests have been carried out at a fluid temperature of 40 C°. For higher flow rates than those in the diagram, the losses will be those expressed by the following formula:

$$\Delta p_1 = \Delta p \times (Q_1/Q)^2$$

where  $\Delta p$  will be the value for the losses for a specific flow rate Q which can be obtained from the diagram,  $\Delta p_1$  will be the value of the losses for the flow rate Q1 that is used.

**SPOOLS** \* PRICE INCREASING

**TWO SOLENOIDS, SPRING CENTRED "C" MOUNTING**

Spool type		Covering	Transient position
<b>01</b>		+	
<b>02</b>		-	
<b>03</b>		+	
<b>04*</b>		-	

**ONE SOLENOID, SIDE A "E" MOUNTING**

Spool type		Covering	Transient position
<b>01</b>		+	
<b>02</b>		-	
<b>03</b>		+	
<b>04*</b>		-	
<b>15</b>		-	
<b>16</b>		+	

**ONE SOLENOID, SIDE B "F" MOUNTING**

Spool type		Covering	Transient position
<b>01</b>		+	
<b>02</b>		-	
<b>03</b>		+	
<b>04*</b>		-	
<b>15</b>		-	
<b>16</b>		+	

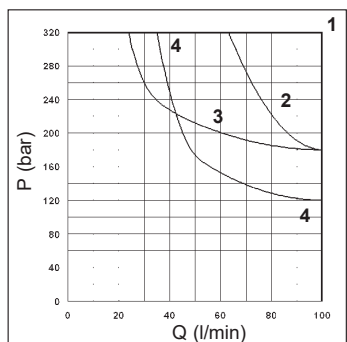
Spool type	Connections				
	P→A	P→B	A→T	B→T	P→T
01	2	2	5	5	
02	3	3	6	6	3
03	2	2	6	6	
04	3	3	4	4	1
15	2	2	4	5	
16	2	2	4	5	

Curve No.

ADB.5.E... DIRECTIONAL CONTROL VALVES CETOP 5 - FOR INDUSTRIAL MACHINERY 

LIMITI DI IMPIEGO

DIRECT CURRENT SOLENOIDS (DC)

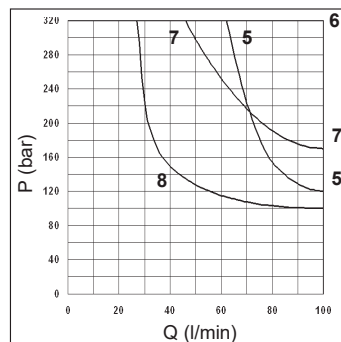


Spool type	Solenoids	
	DC	AC
01	1	5
02	1	6
03	2	7
04	4	8
15	3	(*)
16	1	6
	Curves	

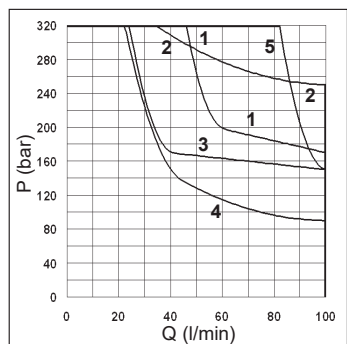
(\*) With AC voltage the spool number 15 is not available.

For limit of use in AC voltage at 220V/60Hz see diagram below.

ALTERNATING CURRENT SOLENOIDS (AC)



LIMITS OF USE FOR AC VOLTAGE 220V/60Hz ONLY



Spool type	Solenoid
	220V/60Hz-AC
01	1
02	2
03	3
04	4
16	5
	Curve

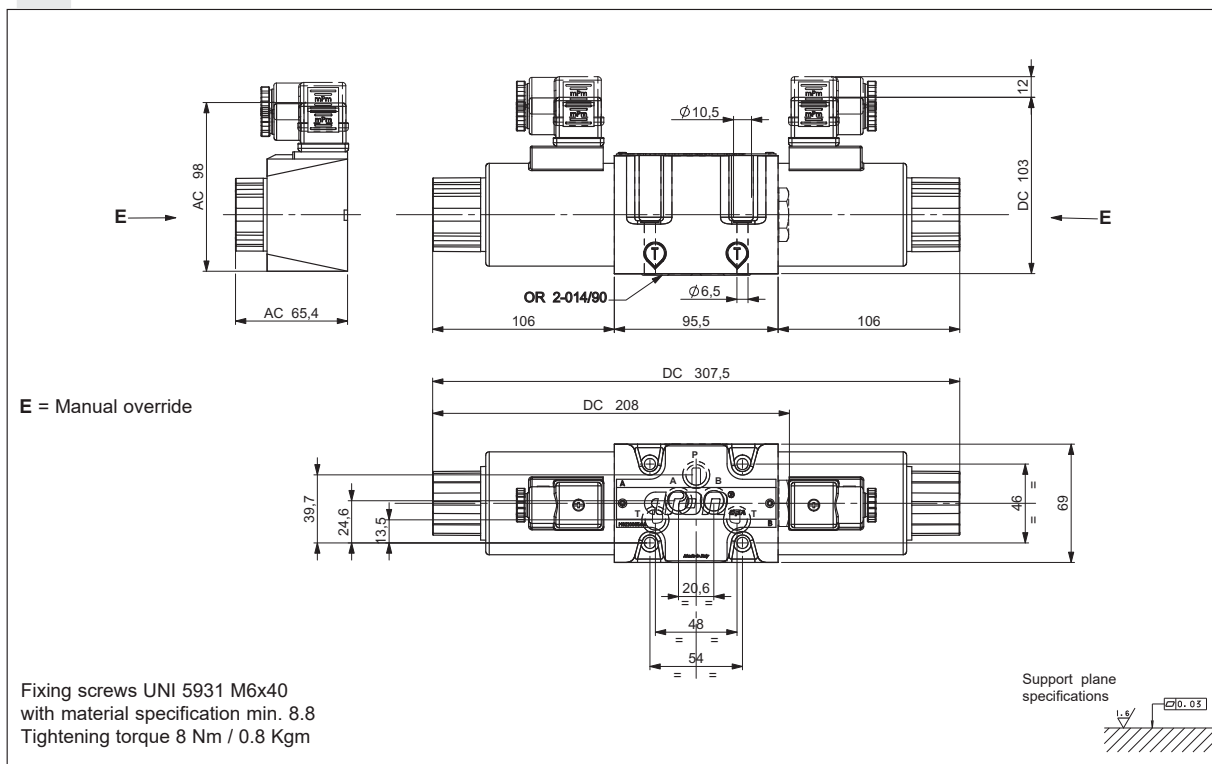
The tests have been carried out with solenoids at operating temperature and a voltage 10% less than rated voltage with a fluid temperature of 40°C. The fluid used was a mineral oil with a viscosity of 46 mm<sup>2</sup>/s at 40°C. The values in the diagram refer to tests carried out with the oil flow in two directions simultaneously T = 2 bar (e.g. from P to A and the same time B to P). **In the cases where valves 4/2 and 4/3 were used with the flow in one direction only, the limits of use could have variations which may even be negative.**

Rest time: the values are indicative and depend on the following parameters: hydraulic circuit, fluid used and variations in hydraulic scales (pressure P, flow Q, temperature T).

Direct current : Energizing 40 + 60 ms.  
De-energizing 80 + 140 ms.

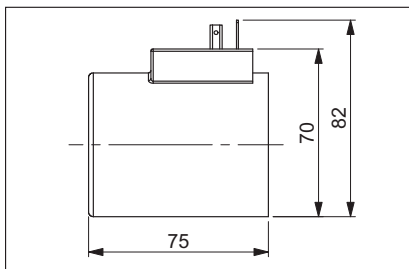
Alternating current: Energizing 12 + 18 ms.  
De-energizing 15 + 30 ms.

OVERALL DIMENSIONS





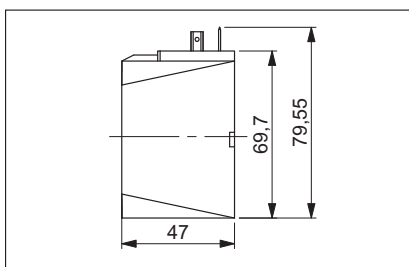
**DC COILS TYPE B16 FOR ADB.5...**



Type of protection	IP 65
Number of cycle	18.000/h
Supply tolerance	±10%
Ambient temperature	-30°C ÷ 60°C
Duty cycle	100% ED
Insulation class	H
Weight (coil)	0,924 Kg
Weight (solenoid)	1,484 Kg
Rated power	33W
Max. winding temperature (Ambient temperature at 25°C) for 24V coil	90°C
Resistance at 20°C for 24 voltage coil	17.5 Ohm (±10 %)
ETB16 - 00/2005/e	



**AC COILS TYPE C16 FOR ADB.5...**



Type of protection	IP 65
Number of cycle	18.000/h
Supply tolerance	±10%
Ambient temperature	-30°C ÷ 60°C
Duty cycle	100% ED
Insulation class	H
Weight (coil)	0,661 Kg
Weight (solenoid)	0,908 Kg

VOLTAGE (V)	MAX. WINDING TEMPERATURE (AMBIENT TEMPERATURE 25°C)	RATED POWER (VA)	RESISTANCE AT 20°C (OHM) ± 10%
220V/50Hz	105°C	≤ 90	29.6
220V/60Hz	110°C	≤ 90	22.2
ETC16 - 00/2005/e			



**CONNECTORS DIRECTIONAL CONTROL VALVES  
IN ACCORDANCE WITH DIN 43650 / ISO 4400**



CONNECTOR	ORDERING CODE	CODE
<b>STANDARD (IP65)</b>		
Grey (side A)	V86.05.0004	No variant
Black (side B)	V86.05.0002	No variant
ETCNTADB - 00/2005/e		

*Incorrect use of the products described in this catalogue may cause harm to personnel and equipment. The technical information given for each product in this catalogue may be subject to variation, and the manufacturer reserves the right to make constructional modifications without giving prior notice. Each product presented, its data, features and technical specifications must therefore be examined and checked by members of the user's staff (possessing suitable technical knowledge) taking into consideration the intended use of product. The user must, in particular, assess the operating conditions of each product in relation to the application that he intends to use it for, analysing the data, features and technical specifications in view of the proposed applications, and ensuring that, in use in the product, all of the conditions relating to the safety of personnel and equipment, also in the event of breakdown, are respected.*