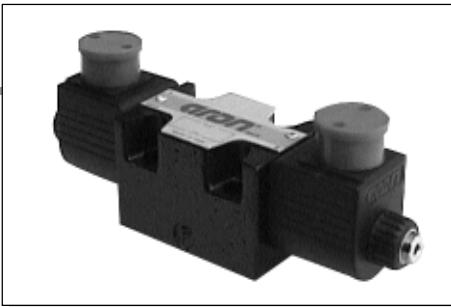


## ADC.3... DIRECTIONAL CONTROL VALVES CETOP 3

### SOLENOID OPERATED WITH REDUCED OVERALL SIZE



1



#### ADC.3.E...

A09 DC COIL

CH. I PAGE 7

STANDARD CONNECTORS

CH. I PAGE 21

The ARON NG6 directional control valves are designed for subplate mounting with an interface in accordance with CETOP RP 121 H-4.2.4.R03 and /or UNI ISO 4401 - AC - 05 - 4 - A standards.

The use of solenoids with wet armatures allows an extremely safe construction completely dispensing with the need for dynamic seal. The solenoid tube is screwed directly onto the valve casting whilst the coil is kept in position by a ring nut.

The operation of the directional valve is electrical. The centering is achieved by means of calibrated length springs which, once the impulse is over, immediately reposition the spool in the neutral position. To improve the valve performance, different springs are used for each spool.

The solenoids, constructed with a protection class of IP65 in accordance with BS 5490 standards, are available in direct current form and different voltages. The electrical controls are equipped with an emergency manual control inserted in the tube.

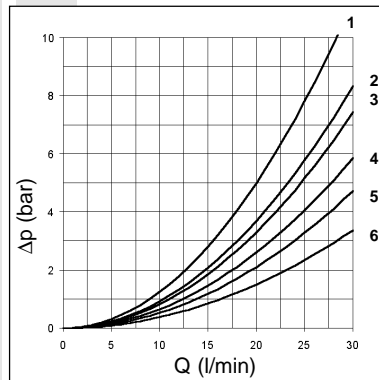
The ADC.3 valve uses shorter solenoids than the standard AD.3.E to reduce the overall dimensions.

The solenoid coils are normally arranged for DIN 43650 ISO 4400 type connectors (standard version); is available on request these variant solenoid: with AMP Junior connections, with AMP junior, solenoid with flying leads or solenoid with flying leads and integrated diode.

The recommended fluids are hydraulic mineral based oils in accordance with DIN 51524 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/T	250 bar
Max flow	30 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	1,25 Kg
Weight with two DC solenoids	1,5 Kg

#### PRESSURE DROPS



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

Curve 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 Q<sub>1</sub> that is used.

1

ORDERING CODE

<b>ADC</b>	Directional valve
<b>3</b>	CETOP 3/NG6
<b>E</b>	Electrical operator
<b>**</b>	Spool (tables at the side)
<b>*</b>	Mounting (table 1)
<b>*</b>	Voltage (table 2)
<b>**</b>	Variants (table 3)
<b>1</b>	Serial No.

TAB.1 - MOUNTING

STANDARD	
<b>C</b>	
<b>E</b>	
<b>F</b>	
SPECIALS (WITH PRICE INCREASING)	
<b>G</b>	
<b>H</b>	

TAB.2 - A09 COIL (27 W)

DC VOLTAGES	
<b>L</b>	12V
<b>M</b>	24V
<b>N</b>	48V*
<b>P</b>	110V*
<b>R</b>	98V*
<b>S</b>	196V*
<b>W</b>	Without DC coils

110Vac/50Hz  
120Vac/60Hz  
with rectifier

220Vac/50Hz  
240Vac/60Hz  
with rectifier

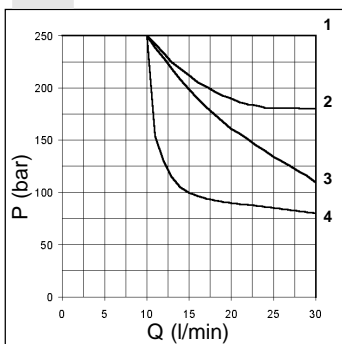
Voltage codes are not stamped on the plate, they are readable on the coils.  
\* Special voltages

TAB.3 - VARIANTS

VARIANT	CODE
No variant	00
Viton	V1
Pilot light	X1
Rectifier	R1
Emergency button	E1
Rotary emergency button	P1
Solenoid valve without connectors	S1
Cable gland "PG 11"	C1
Viton + Pilot light	VX
Viton + Rectifier	VR
Pilot light + Rectifier	XR
AMP Junior solenoid	AJ
Solenoid with flying leads (250 mm)	FL
Solenoid with flying leads (150 mm) and integrated diode	LD

Other variants relate to a special design

LIMIT OF USE



Spool type	n° curve
01	2
02	1
03	3
04	3
15-16	1(4*)

(4\*) = 15 and 16 spools used as 2 or 3 way, follow the curve n°4

The tests have been carried out with solenoids at a temperature of 50 C° and a voltage 10% less than rated voltage with a fluid temperature of 50 C°. The fluid used was a mineral oil with a viscosity of 46 mm<sup>2</sup>/s at 40 degrees C. The values in the diagram refer to tests carried out with the oil flow in two directions simultaneously (e.g. from P to A and at the same time B to T).

In the cases where valves 4/2 and 4/3 are used with the flow in one direction only, the limits of use could have variations which may even be negative (See curve No 4 and Spool No 15-16). The tests were carried out with a counter-pressure of 2 bar at T port.

STANDARD SPOOL

TWO SOLENOIDS, SPRING CENTERED "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

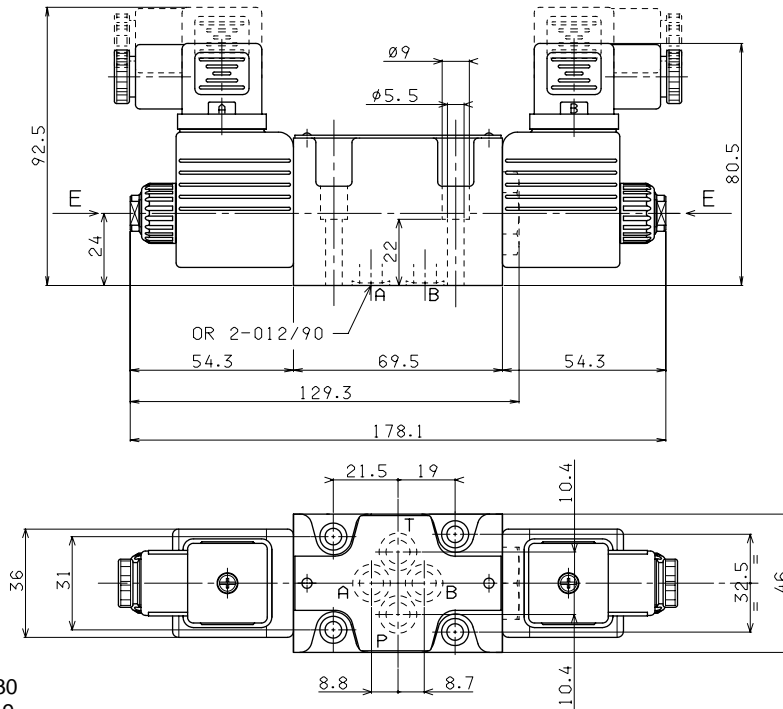
Spool type	Covering	Transient position
<b>01</b>	+	
<b>02</b>	-	
<b>03</b>	+	
<b>04*</b>	-	
<b>15</b>	-	
<b>16</b>	+	

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>	+	

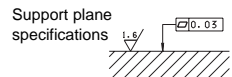
\* SPOOLS WITH PRICE INCREASING

OVERALL DIMENSIONS



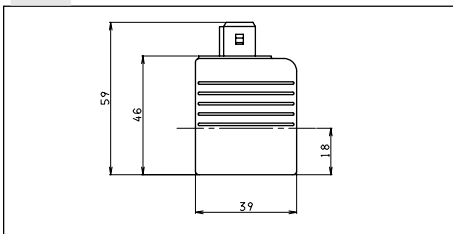
E = Manual override

Fixing screws UNI 5931 M5x30  
with material specification 12.9  
Tightening torque 5 ÷ 6 Nm / 0.5 ÷ 0.6 Kgm

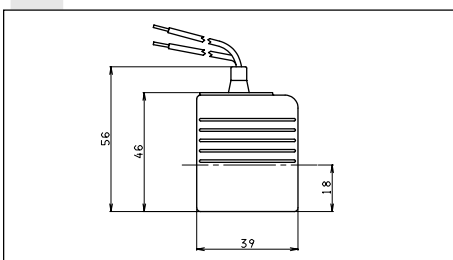


DC COILS A09

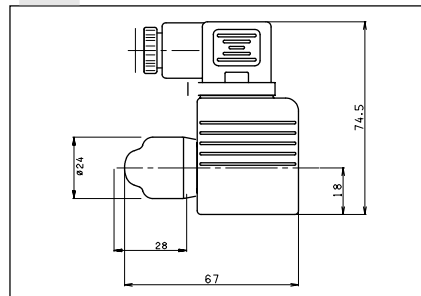
COIL WITH AMP JUNIOR



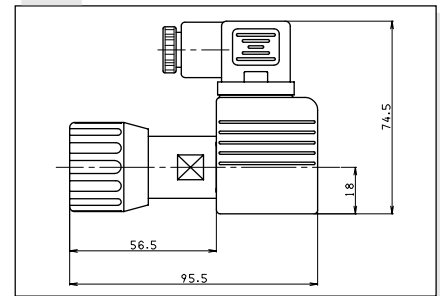
COIL WITH FLYING LEADS,  
AND WITH INTEGRATED DIODE VERSION



E1 VARIANT WITH MAN. EMERGENCY



P1 VARIANT WITH ROT. EMERGENCY



Type of protection (in relation to connector used)	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	0,215 Kg

VOLTAGE (V)	MAX WINDING TEMPERATURE (AMBIENT TEMPERATURE 25°C)	RATED POWER (W)	RESISTANCE AT 20°C (OHM) ±7%
12V	123°C	27	5.3
24V	123°C	27	21.3
48V*	123°C	27	85.3
98V*	123°C	27	355
110V*	123°C	27	448
196V*	123°C	27	1422

\* Special voltages