



## CETOP 5/NG10

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## INTRODUCTION

The ARON directional control valves NG10 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), and can be used in all fields on account of their excellent capacity and pressure specifications.

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.

Great care has been taken in the design and the production of the ducts and the improvement of the spools has allowed relatively high flow rates to be accommodated with minimal pressure drops ( $\Delta p$ ). The operation of the directional valves can be electrical, pneumatic, oleodynamic, mechanical or lever operated.

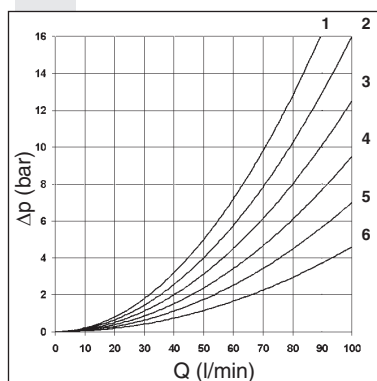
The centring position is achieved by means of calibrated length springs which, once the action of impulse is over, return the spool to the centre or end travel position.

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.

All types of electrical controls can be fitted, on request, with different types of manual emergency controls. The electrical supply takes place through connectors meeting DIN 43650 ISO 4400 standards; connectors are also available with built in rectifier or pilot lights.

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,  $B_{25} \geq 75$ .

## PRESSURE DROPS



The diagram at the side show 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  $Q_1$  that is used.

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
05	3	3	5	5	
06	2	2	5	5	
66	2	2	5	5	
07		1	5		
10	3	3	5	5	
11	4			5	
	Curve No.				

Spool type	Connections				
	P→A	P→B	A→T	B→T	P→T
22		4	5		
14	3	3	6	6	2
15	2	2	4	5	
16	2	2	4	5	
17	3	3			
19	3	3	4	5	
20	3	3	4	5	
21	3	3			
28	3	3	6	6	2
	Curve No.				

# 1

## ORDERING CODE

<b>AD</b>	Directional valve
<b>5</b>	CETOP 5/NG10
<b>*</b>	Type of operator (tab.1)
<b>**</b>	Spools (see tables on Ch. I • 35)
<b>*</b>	Mounting type (tab. 2)
<b>*</b>	Voltage / Specification (tab. 3)
<b>**</b>	Variants (tab. 4)
<b>2</b>	Serial No.

## TAB.1 - TYPE OF OPERATOR

<b>E</b>	Electrical
<b>D</b>	Direct mechanical
<b>O</b>	Oleo-pneumatic
<b>L</b>	Lever

## TAB.2 - MOUNTING

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

• **Mounting type D** is only for valves with detent

• In case of **mounting D** with detent a maximum supply time of 2 sec is needed (only for AC coils).

• The springs for the version with detent (mounting **D**) are different from those for standard versions.

## TAB.3 - VOLTAGE / SPECIFICATION

Operator	Voltage Specs.	Description	Note
<b>E</b>	<b>A</b>	24V/50Hz	AC Voltage ** (Technical data see page I • 40)
	<b>B</b>	48V/50Hz*	
	<b>J</b>	115V/50Hz - 120V/60Hz	
	<b>Y</b>	230V/50Hz - 240V/60Hz	
	<b>E</b>	240V/50Hz*	
	<b>F</b>	24V/60Hz*	
	<b>K</b>	Without AC coils	DC Voltage ** (Technical data see page I • 40)
	<b>L</b>	12V	
	<b>M</b>	24V	
	<b>N</b>	48V*	
	<b>P</b>	110V*	
	<b>Z</b>	102V* 115Vac/50Hz 120Vac/60Hz with rectifier	
<b>D</b>	<b>X</b>	205V* 230Vac/50Hz 240Vac/60Hz with rectifier	
	<b>W</b>	Without DC coils	
<b>D</b>	<b>Z</b>	standard	—
<b>O</b>	<b>Z</b>	standard	—
<b>L</b>	<b>Z</b>	valve with lever	—
	<b>X</b>	valve without lever	—

\* Special voltage

\*\* Voltage codes are not stamped on the plate, their are readable on the coils.

## TAB.4 - VARIANTS

VARIANT	CODE	PAGE
No variant (without connectors)	S1(*)	
Viton	SV(*)	
Emergency button	ES(*)	Ch. I • 40
Preset for microswitch - (E/F/G/H only) see below note ◇	MS(*)	Ch. I • 36 - Ch. I • 39
Rotary emergency button	P2(*)	Ch. I • 40
Marine version (AD.5.O..)	H1	
Preset for microswitch + Viton	MV	
Spool movement speed control (VDC only) with ø 0.5 mm diameter orifice	5S(*)	Ch. I • 37
Spool movement speed control (VDC only) with ø 0.6 mm diameter orifice	6S(*)	Ch. I • 37
Spool movement speed control (VDC only) with ø 0.7 mm diameter orifice	7S(*)	Ch. I • 37
Spool movement speed control (VDC only) with ø 0.8 mm diameter orifice	8S(*)	Ch. I • 37
External draining solenoid (electrically operated only)	S5(*)	Ch. I • 37
Microswitch+ Detent (for lever operation)	MD	
Detent for lever control	D1	

◇ = Maximum counter-pressure on T port: 4 bar - Microswitch type AM1107 code V79000001 can be ordered separately.

◆ = Variant codes stamped on the plate

(\*) Coils with Hirschmann connection supplied without connectors. The connectors can be ordered separately, Ch. I page 20.