

# CDC.3.\*.E...

## DIRECTIONAL CONTROL STACKABLE VALVE



Directional control stackable valve body is available in two different sizes:

G3/8" or 9/16-18UNF (SAE 6).

The operation of the directional valve is electrical. The centring is achieved by means of calibrated length springs which immediately reposition the spool in the neutral position when the electrical signal is shut off. 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 voltage. The electrical controls are equipped with an emergency manual control inserted in the tube.

The electrical supply connectors meet DIN 43650 ISO 4400 standards. On request, could be available the following coil connection variants: AMP Junior connections; flying leads connections, with or without integrated diode; Deutsch connections with bidirectional integrated diode.

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 β <sub>25</sub> ≥ 75
Weight with one DC solenoid	1,25 Kg
Weight with two DC solenoids	1,5 Kg

CDC.3.*.E...	
INDIVIDUAL VALVE	CH. XI PAGE 3
STACKABLE VALVES	CH. XI PAGE 4
"A09" DC COILS	CH. XI PAGE 8
"LE" VARIANTS	CH. XI PAGE 9
SCREWS AND STUDS	CH. XI PAGE 10
STANDARD CONNECTORS	CH. I PAGE 19

### ORDERING CODE

<b>CDC</b>	Directional control stackable valve
<b>3</b>	Size
<b>*</b>	Body type (tab. 1)
<b>E</b>	Electrical operator
<b>**</b>	Spool (tab.2) For series connection use spool 04 only
<b>*</b>	Mounting (tab.3)
<b>*</b>	Voltage (tab.4)
<b>**</b>	Variants (tab.5)
<b>1</b>	Serial No.

#### TAB.1 - BODY TYPE

<b>A</b>	Ports G3/8" parallel
<b>B</b>	Ports 9/16 - 18UNF parallel
<b>D*</b>	Ports G3/8" series
<b>E*</b>	Ports 9/16 - 18UNF series
<b>G</b>	Attachment style, parallel presetting for modular valves
<b>H*</b>	Attachment style, series presetting for modular valves

(\*) For series connection configuration see note below ordering code

#### TAB.4 - A09 - DC VOLTAGE

<b>L</b>	12V	
<b>M</b>	24V	
<b>N</b>	48V*	
<b>P</b>	110V*	
<b>Z</b>	102V*	
<b>X</b>	205V*	
<b>W</b>	Without DC coils	

\* Special voltage

• The AMP Junior coil and with the flying leads (with or without diode) coils are available in 12V or 24V DC voltage only.

• The Deutsch coil with bidirectional diode is available in 12V DC voltage only.

#### TAB.5 - VARIANTS TABLE

No variant	00
Viton	V1
Emergency button	E1
Rotary emergency button	P1
Rotary emergency button (180°)	P5
Solenoid valve without connectors	S1
First element for series connection	PT
Pilot light	X1
Rectifier	R1
Viton + Pilot light	VX
Viton + Rectifier	VR
Pilot light + Rectifier	XR
coils with flying leads (length 250 mm)	FL
coils with flying leads (length 130 mm) and integrated diode	LD
AMP Junior connection	AJ
Deutsch connection and bidr. diode	CX

Other variants relate to a special design

For series connection configuration, a special individual stackable valve CDC.3.\*.E.04.\*\*.PT.1 (A B or G parallel body type only, with spool 04 type, PT variant) must always be used as first element. For other individual stackable valve must use body D E or H connector series type with spool 04 only.

#### TAB.3 MOUNTING

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

(\*) **P1** and **P5** Emergency tightening torque **max. 6÷9 Nm / 0.6 ÷ 0.9 Kg** with CH n. 22

#### TAB.2 - STANDARD SPOOLS

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>	+		

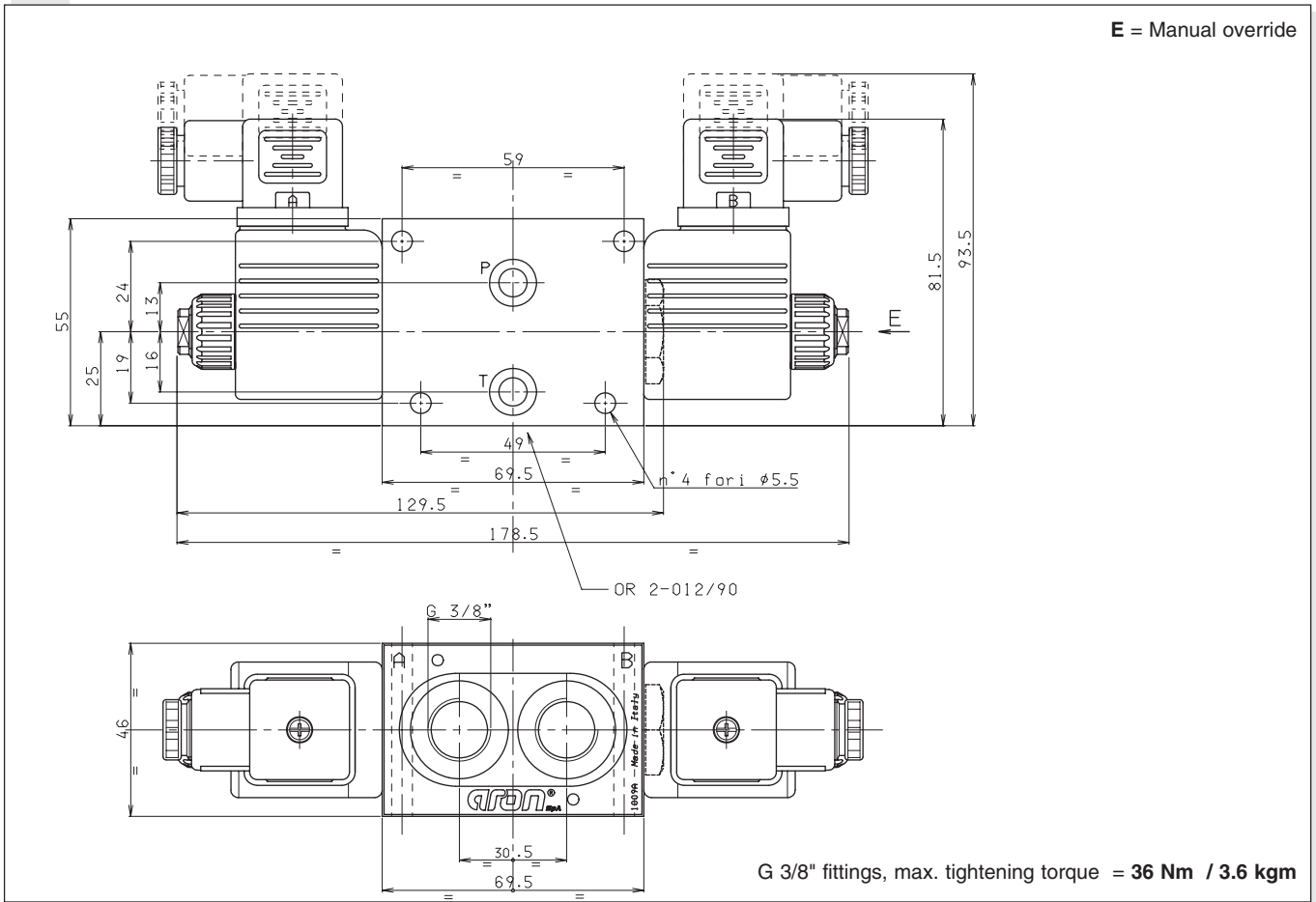
#### ONE SOLENOID, SIDE B "F" MOUNTING

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

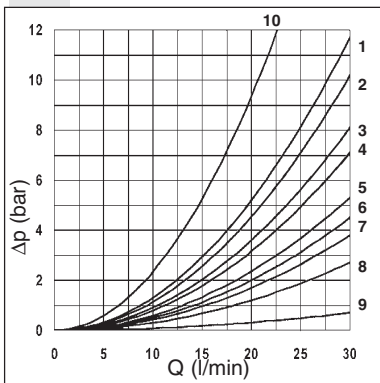
\* SPOOL WITH PRICE INCREASING

OVERALL DIMENSIONS

E = Manual override



PRESSURE DROPS  
DIRECTIONAL CONTROL STACKABLE VALVE



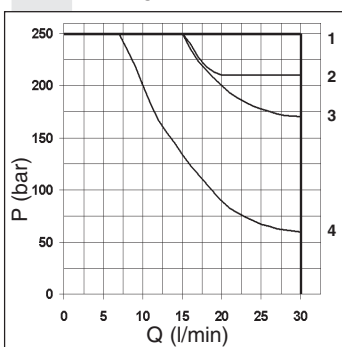
Spool type	Connections					
	P → A	P → B	A → T	B → T	P → T	P/ T passing
01	4	4	4	4	/	9
02 (p*)	7	7	6	6	7	9
02 (s*)	7	7	6	6	8	/
03	4	4	6	6	/	9
04 (p*)	2	2	1	1	5	9
04 (s*)	2	2	1	1	3	/
15-16 F	6	6	5	10	/	9
15-16 E	6	6	10	5	/	9

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°.

(p\*) Parallel connections  
(s\*) Series connections

LIMITS



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

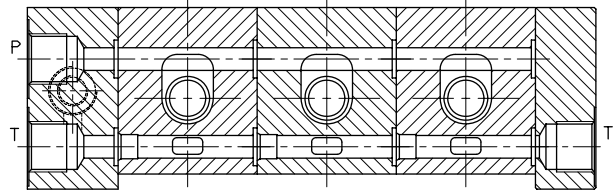
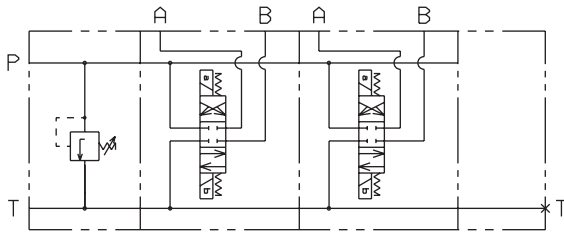
The tests have been carried out with solenoids at operating temperature and a voltage 10% less than rated voltage with a fluid temperature of 50 C°. The fluid used was a mineral oil with a viscosity of 46 mm<sup>2</sup>/s at 40 degrees C. The values in the diagram refer to tests carried out with the 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 16 used as 2 or 3 ways). The tests were carried out with a counter-pressure of 2 bar at T port.

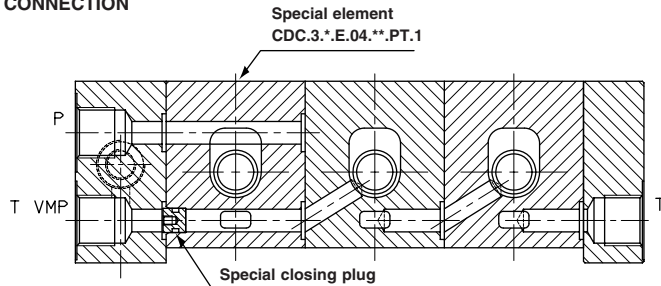
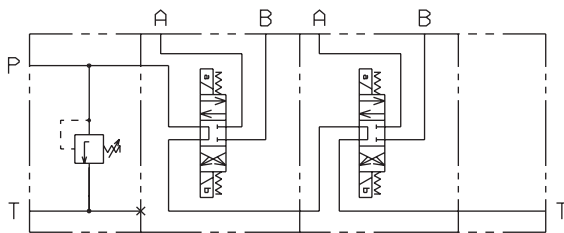
(4\*) = 15 and 16 spools used as 2 or 3 way, follow the curve n°4

## HYDRAULIC SYMBOLS AND INSTRUCTION OF CONNECTION

### PARALLEL CONNECTION



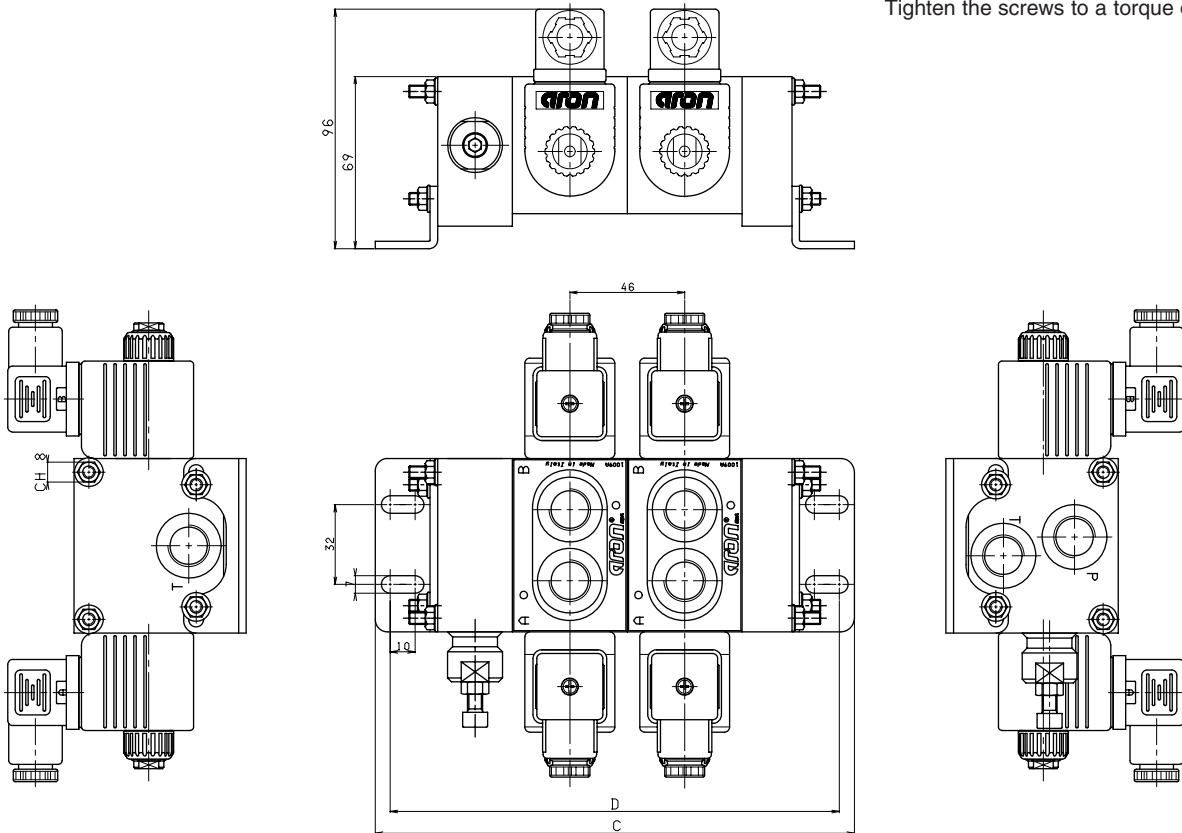
### SERIES CONNECTION



For series connection configuration, a special individual valve bank section (CDC.3\*.E.04.\*\*.PT.1) must always be used as first element (see ordering code)

## OVERALL DIMENSIONS

Tighten the screws to a torque of 5 Nm



No. ELEMENTS	FE02-FE INLET MODULE		FE 10 INLET MODULE	
	C	LENGTH (mm)	C	LENGTH (mm)
2	192	180	202	190
3	238	226	248	236
4	284	272	294	282
5	330	318	340	328
6	376	364	386	374

11