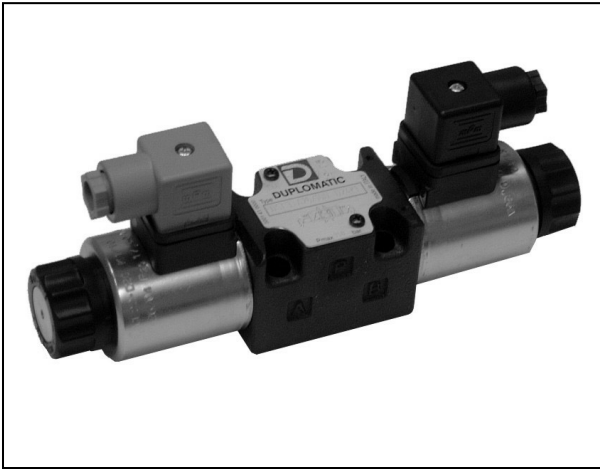




DIPLOMATIC
HYDRAULICS

83 210/105 ED



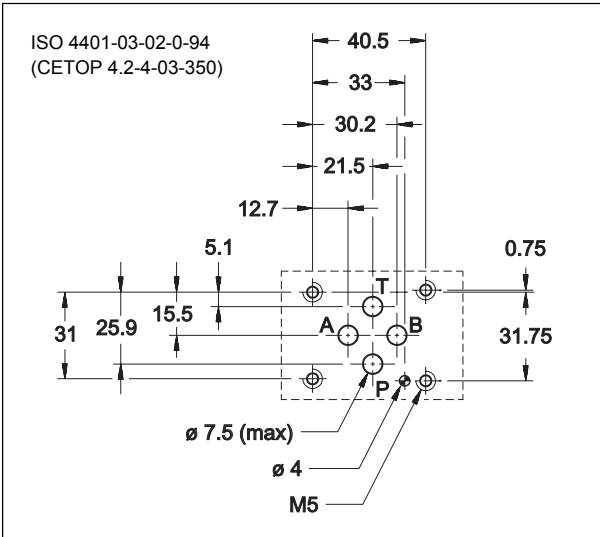
DSE3

DIRECTIONAL VALVE WITH PROPORTIONAL CONTROL SERIES 10

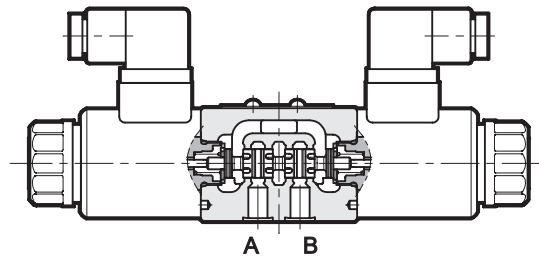
**SUBPLATE MOUNTING
ISO 4401-03 (CETOP 03)**

**p max 350 bar
Q max 40 l/min**

MOUNTING INTERFACE



OPERATING PRINCIPLE

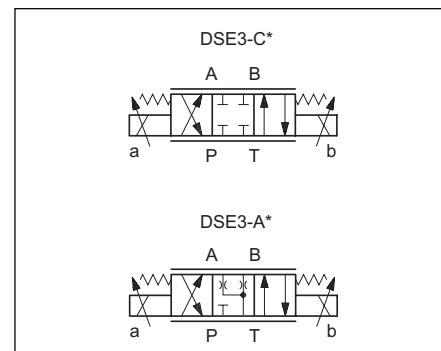


- The DSE3 valve is a directly operated directional control valve with electric proportional control and with ports in compliance with ISO 4401 standards (CETOP RP 121H).
- It is used for directional and speed control of the hydraulic actuators.
- Valve opening and hence flow rate can be modulated continuously in proportion to the current supplied to the solenoid.

- The valve can be controlled directly by a current control supply unit or by means of the relative electronic control units to exploit valve performance to the full (see par. 10).

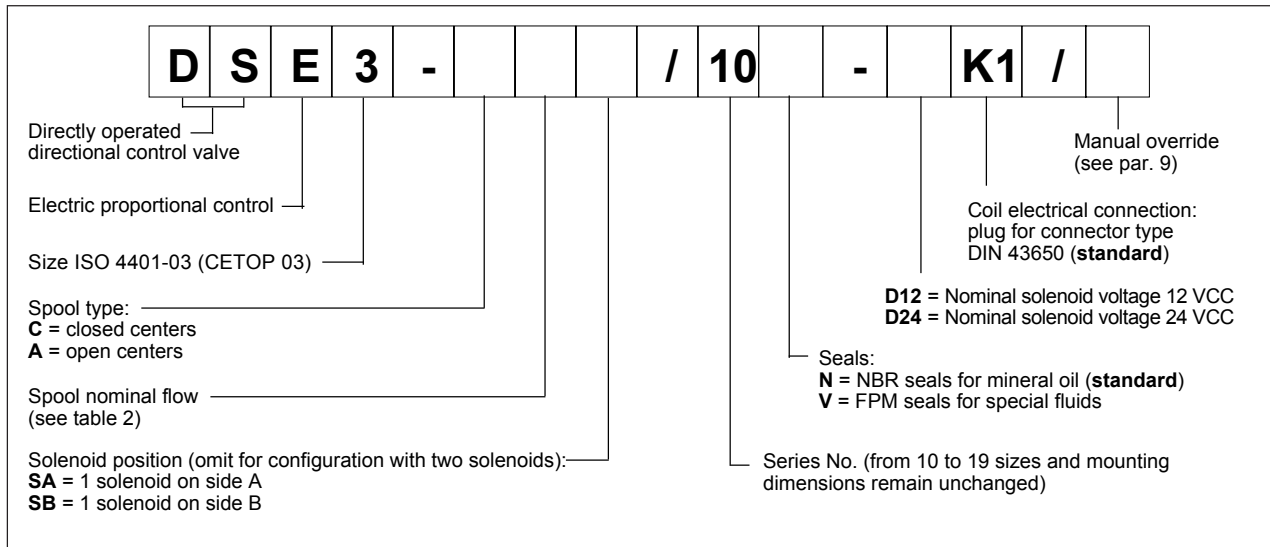
SPECIFICATIONS (obtained with mineral oil with viscosity of 36 cSt at 50°C in conjunction with the relative electronic control units)			
Maximum operating pressure - P-A-B ports	bar		350
-T port	bar		140
Maximum flow with Δp 10 bar P-T	l/min		4 - 8 - 16 - 26
Step response		see par. 8	
Hysteresis	% di Q max		< 6%
Repeatability	% di Q max		< \pm 1,5%
Electrical characteristics		see par. 7	
Ambient temperature range	°C		-10 / +50
Fluid temperature range	°C		-20 / +80
Fluid viscosity range	cSt		10 ÷ 400
Recommended viscosity	cSt		25
Fluid contamination degree		According to NAS 1638 class 7 ÷ 9	
Mass	single solenoid valve	kg	1,6
	double solenoid valve	kg	2

HYDRAULIC SYMBOLS (typical)

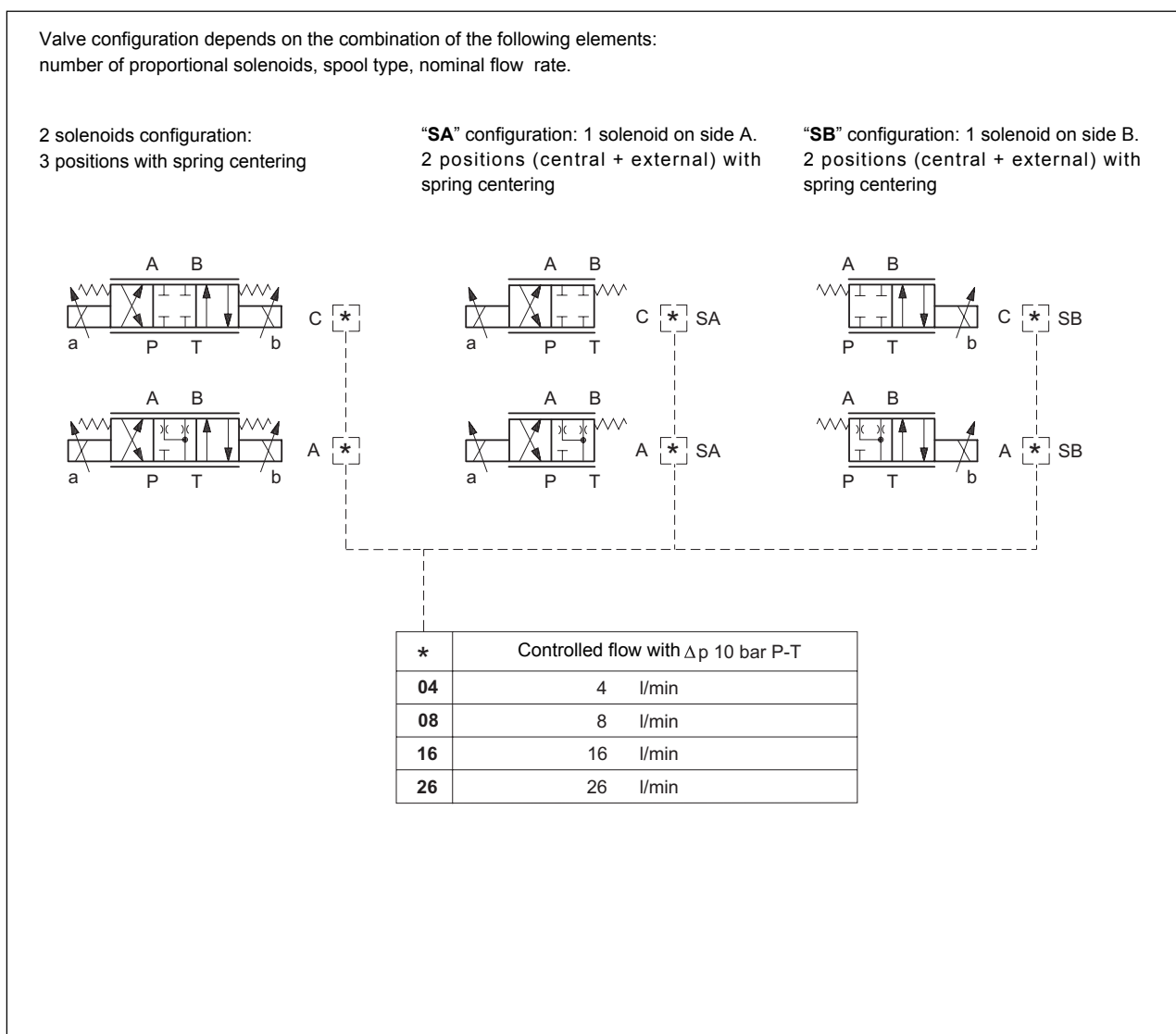




1 - IDENTIFICATION CODE



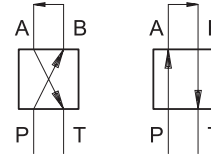
2 - CONFIGURATIONS



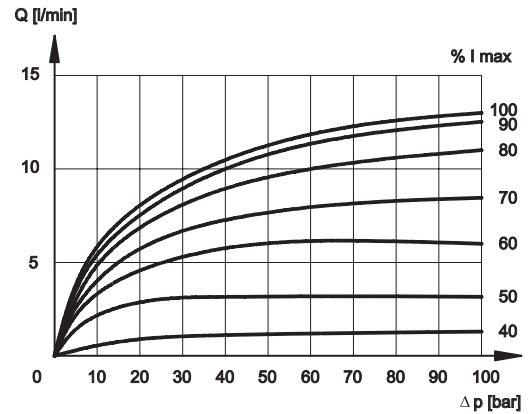
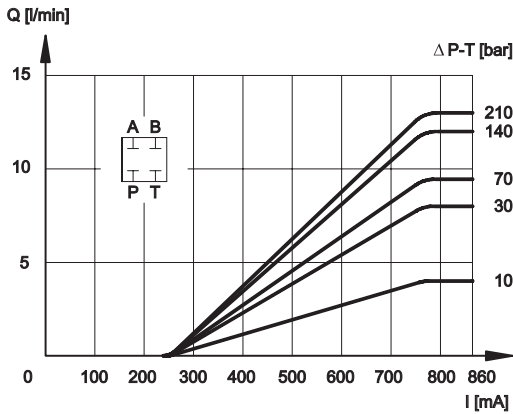


3 - CHARACTERISTIC CURVES (values measured with viscosity of 36 cSt at 50°C with valves connected to the relative electronic control units)

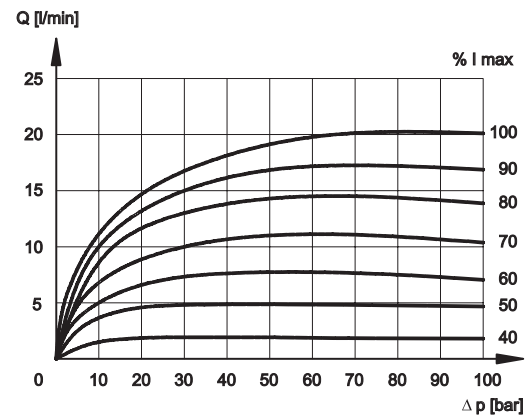
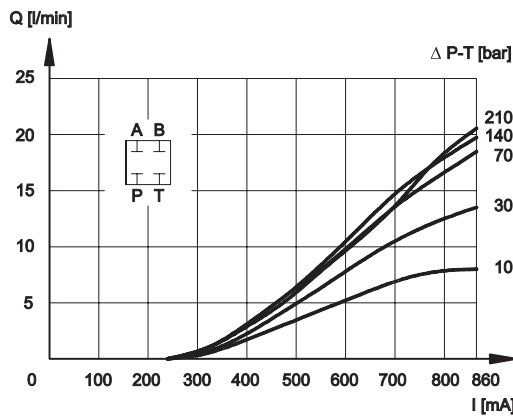
Typical constant flow rate control curves at Δp according to current supply to solenoid (D24 version, maximum current 860 mA), measured for the various spool types available. The reference Δp values are measured between ports P and T on the valve.



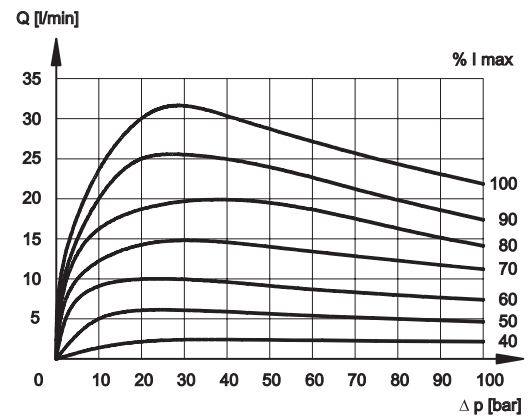
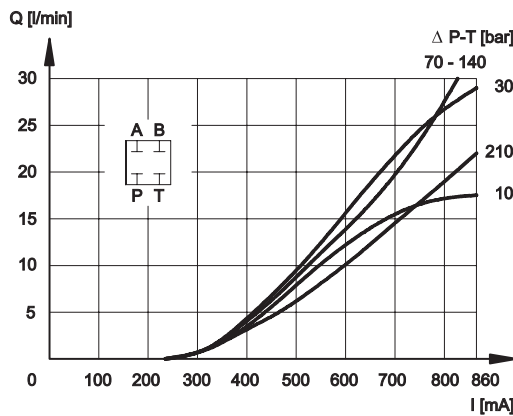
SPOOL TYPE C04



SPOOL TYPE C08

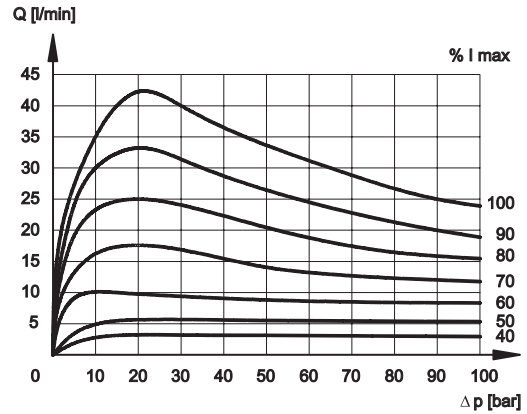
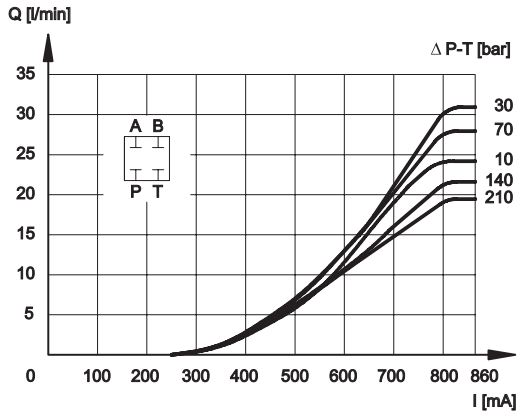


SPOOL TYPE C16

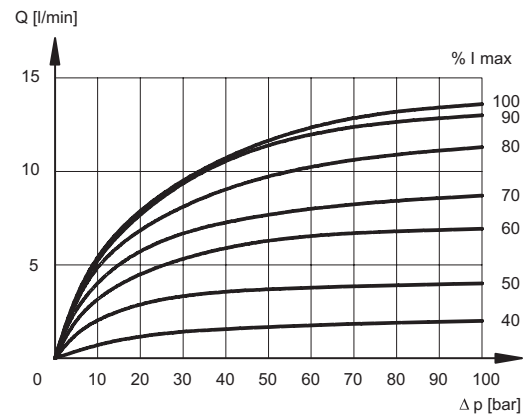
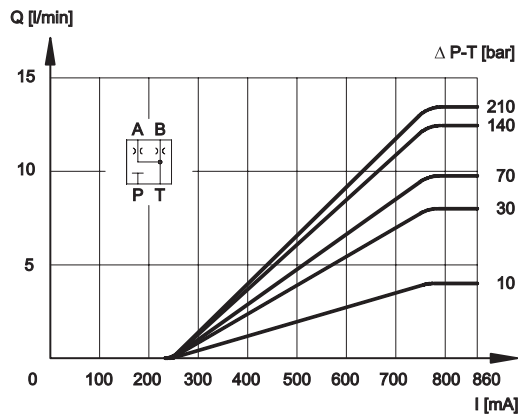




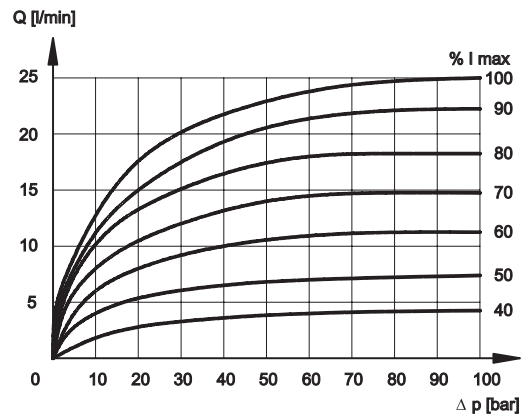
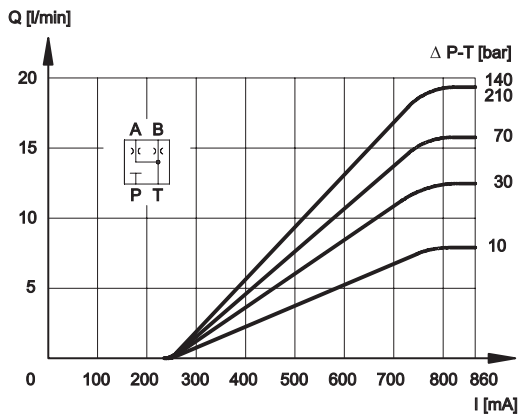
SPOOL TYPE C26



SPOOL TYPE A04

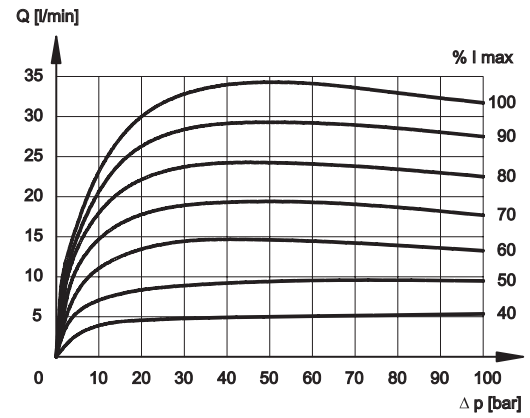
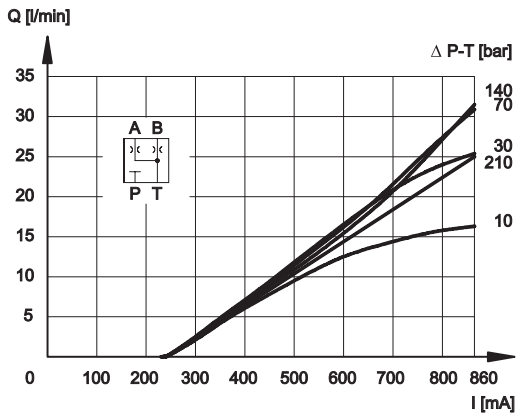


SPOOL TYPE A08

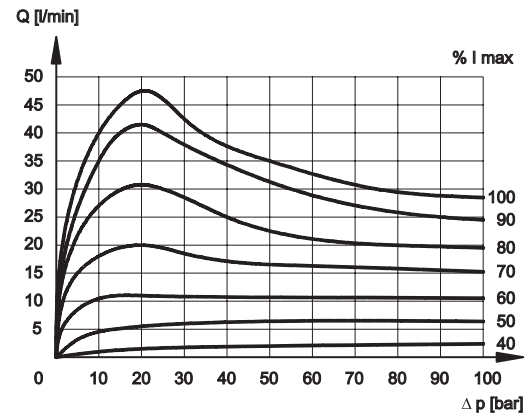
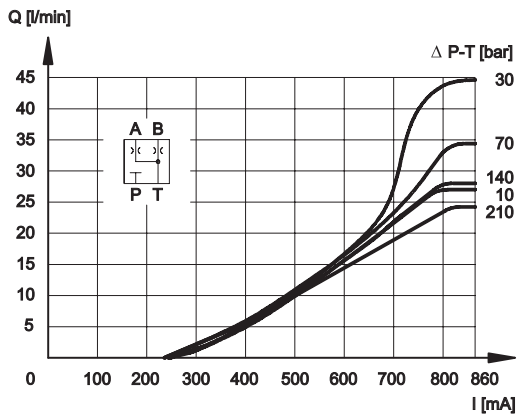




SPOOLTYPE A16



SPOOL TYPE A26





4 - HYDRAULIC FLUIDS

Use mineral oil-based hydraulic fluids HH, HL or HM type, according to ISO 6743-4.

For fluids HFDR (phosphate esters) use FPM seals (code V).

For use with other types of fluids such as HFA, HFB, HFC please consult our technical department.

Operation with fluid temperature exceeding 80°C causes premature deterioration of the quality of the fluid and seals.

The physical and chemical properties of the fluid must be maintained.

5 - ELECTRICAL CHARACTERISTICS

Proportional solenoid

The proportional solenoid comprises two parts: tube and coil.

The tube, screwed to the valve body, contains the armature which is designed to maintain friction to a minimum thereby reducing hysteresis.

The coil is mounted on the tube secured by means of a lock nut. It can be rotated through 360° depending on installation clearances.

NOMINAL VOLTAGE	VCC	12	24
COIL OPERATING VOLTAGE	VCC	9	20
RESISTANCE (at 20°C)	Ω	3,66	17,6
MAXIMUM CURRENT	A	1,88	0,86
DUTY CYCLE	100%		
ELECTROMAGNETIC COMPATIBILITY (EMC) - EMISSIONS EN 50081-1 - IMMUNITY EN 50082-2	in compliance with 89/336 CEE		
PROTECTION TO ATMOSPHERIC AGENTS (according to IEC 144 standards)	IP 65		

6 - STEP RESPONSE (measured with mineral oil with viscosity of 36 cSt at 50°C in conjunction with the relative electronic control units)

Step response is the time taken for the valve to reach 90% of the set pressure value following a step change of reference signal.

The table shows typical response times tested with spool type C16 and $\Delta p=30$ bar P-T.

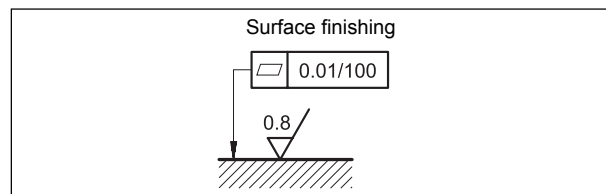
REFERENCE SIGNAL STEP	0→100%	100%→0
Step response [ms]		
DSE3-A* DSE3-C*	50	40

7 - INSTALLATION

DSE3 valves can be installed in any position without impairing correct operation.

Ensure that there is no air in the hydraulic circuit.

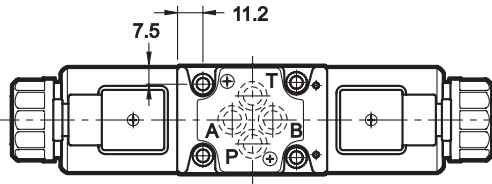
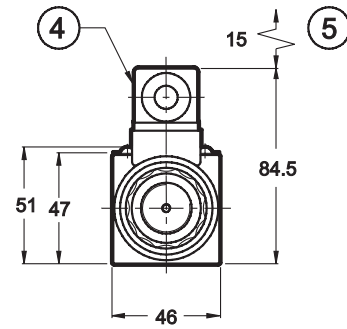
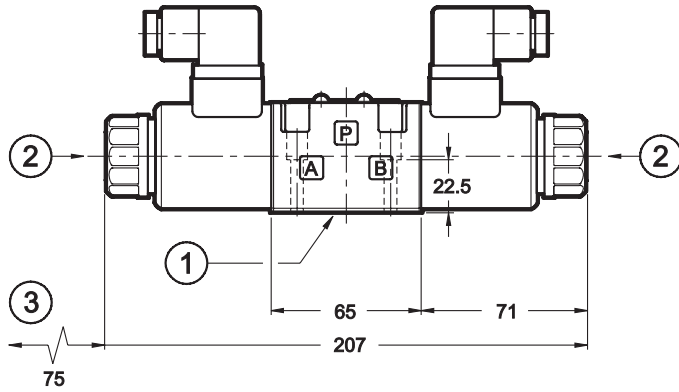
Valves are fixed by means of screws or tie rods on a flat surface with planarity and roughness equal to or better than those indicated in the relative symbols. If minimum values are not observed fluid can easily leak between the valve and support surface.



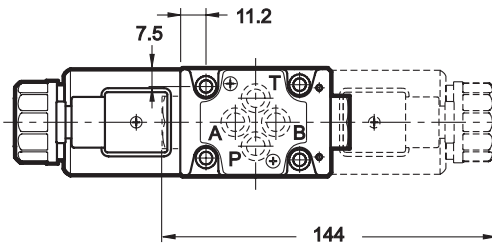
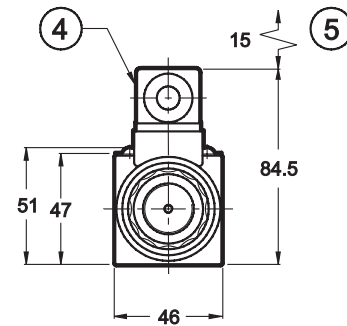
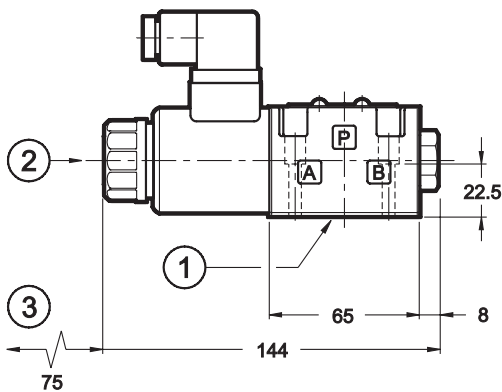


8 - OVERALL AND MOUNTING DIMENSIONS

DSE3-A*
DSE3-C*



DSE3-A*SA
DSE3-C*SA



A*SB and C*SB versions solenoid position

dimensions in mm

1	Mounting surface with sealing rings: 4 off OR type 2037 - 90 shore (9.25 x 1.78)
2	Standard manual override integrated in the solenoid tube (included in the supply) see par. 9
3	Coil removal space
4	DIN 43650 electric coil connector
5	Connector removal space

Fastening bolts: 4 bolts M5x30
Torque: 5 Nm



9 - MANUAL OVERRIDE

The standard valve has solenoids whose pin for the manual operation is integrated in the tube. The operation of this control must be executed with a suitable tool, minding not to damage the sliding surface.

Upon request, the CS version is available, with metal locking nut provided with a M4 screw and a blocking jamnut to allow the continuous and adjustable mechanical operations.

This version is sometimes used to allow the system operation even in case of damage to the electronic unit.

Another possible function of this control is the mechanical limiting of the spool outlet and consequently of the flow rate. In this case the manual override can only be used for double solenoid valves, having care of limiting the spool stroke by means of the screw which is placed opposite to the energised solenoid.

10 - ELECTRONIC CONTROL UNITS

DSE3 - ** SA (SB)


EPC-110 (for solenoids 24 Vcc)	plug version	(see cat. 89 110)
EPA-M110 (for solenoids 24 Vcc) EPA-M140 (for solenoids 12 Vcc)	rail mounting DIN EN 50022	(see cat. 89 220)
UEIK-11 (for solenoids 24 Vcc)	Eurocard type	(see cat. 89 300)

DSE3 - A* DSE3 - C*

EPA-M210 (for solenoids 24 Vcc) EPA-M240 (for solenoids 12 Vcc)	rail mounting DIN EN 50022	(see cat. 89 220)
UEIK-21 (for solenoids 24 Vcc)	Eurocard type	(see cat. 89 320)

11 - SUBPLATES (see cat. 51 000)

Type PMMD-AI3G ports on rear
Type PMMD-AL3G side ports
Port dimensions: P, T, A, B: 3/8" BSP

 DIPLOMATIC HYDRAULICS	DIPLOMATIC OLEODINAMICA SpA 20025 LEGNANO (MI) - P.le Bozzi, 1 / Via Edison Tel. 0331/472111 - Fax 0331/548328	
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DIPLOMATIC
HYDRAULICS

83 260/107 ED



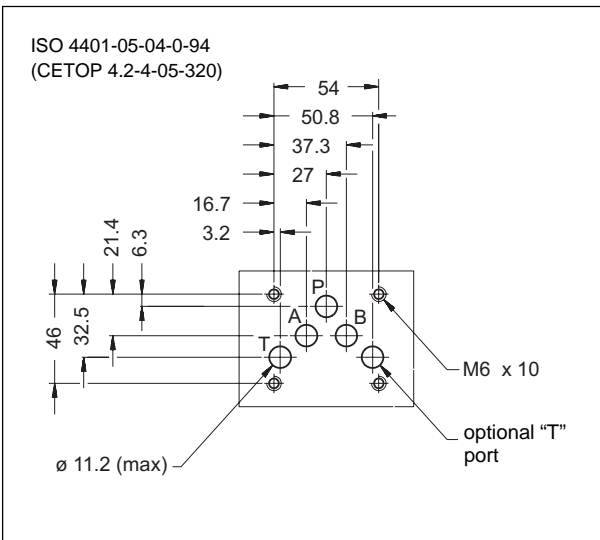
DSE5

DIRECTIONAL VALVE WITH PROPORTIONAL CONTROL SERIES 10

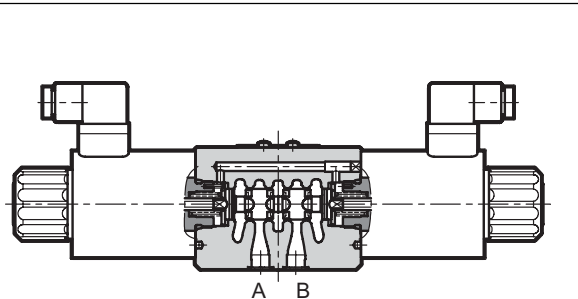
**SUBPLATE MOUNTING
ISO 4401-05 (CETOP 05)**

**p max 320 bar
Q max 90 l/min**

MOUNTING INTERFACE



OPERATING PRINCIPLE



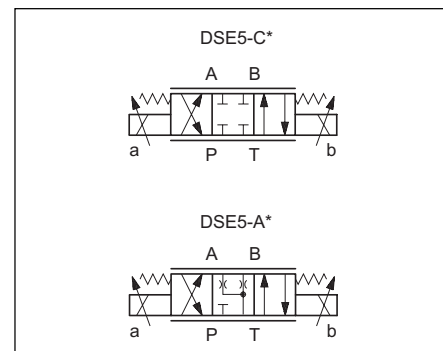
- The DSE5 valve is a directly operated directional control valve with electric proportional control and with ports in compliance with ISO 4401 standards (CETOP RP 121H).
- It is used for directional and speed control of the hydraulic actuators.

- Valve opening and hence flow rate can be modulated continuously in proportion to the current supplied to the solenoid.
- The valve can be controlled directly by a current control supply unit or by means of the relative electronic control units to exploit valve performance to the full (see par. 10).
- The DS5 valve is available in special version with Y external subplate drain port (see par. 9).

PERFORMANCES (obtained with mineral oil with viscosity of 36 cSt at 50°C in conjunction with the relative electronic control units)

Maximum operating pressure P - A - B ports	bar	320
T port		
standard version		210
version with Y port		320
Maximum flow with Δp 10 bar P-T	l/min	30 - 60
Step response	see par. 6	
Hysteresis	% di Q max	< 6%
Repeatability	% di Q max	< $\pm 1,5\%$
Electrical characteristics	see par. 5	
Ambient temperature range	°C	-10 / +50
Fluid temperature range	°C	-20 / +80
Fluid viscosity range	cSt	10 ÷ 400
Recommended viscosity	cSt	25
Fluid contamination degree	According to ISO 4406:1999 class 18/16/13	
Mass		
single solenoid valve	kg	4,4
double solenoid valve		5,9

HYDRAULIC SYMBOLS (typical)





1 - IDENTIFICATION CODE

D	S	E	5	-						/ 10	-		K1
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Directly operated directional control valve

Electric proportional control

Size ISO 4401-05 (CETOP 05)

Spool type:
C = closed centers
A = open centers

Spool nominal flow (see table 2)

Solenoid position (omit for configuration with two solenoids):
SA = 1 solenoid on side A
SB = 1 solenoid on side B

Coil electrical connection: plug for connector type DIN 43650 (**standard**)

D12 = Nominal solenoid voltage 12 VCC
D24 = Nominal solenoid voltage 24 VCC

Seals:
N = NBR seals for mineral oil (**standard**)
V = FPM seals for special fluids

Series No. (from 10 to 19 sizes and mounting dimensions remain unchanged)

2 - CONFIGURATIONS

Valve configuration depends on the combination of the following elements:
 number of proportional solenoids, spool type, nominal flow rate.

2 solenoids configuration:
3 positions with spring centering

"SA" configuration: 1 solenoid on side A.
2 positions (central + external) with spring centering

"SB" configuration: 1 solenoid on side B.
2 positions (central + external) with spring centering

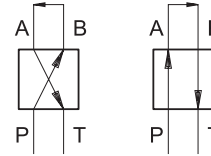
*	Controlled flow with Δp 10 bar P-T
30	30 l/min
60	60 l/min
60/30	60 (P-A) / 30 (B-T) l/min (see note)

NOTE: available only for 2 solenoids valves

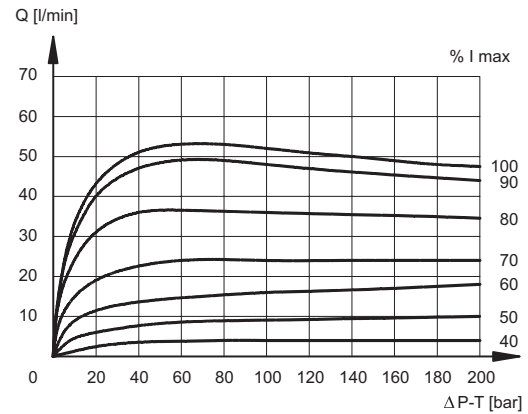
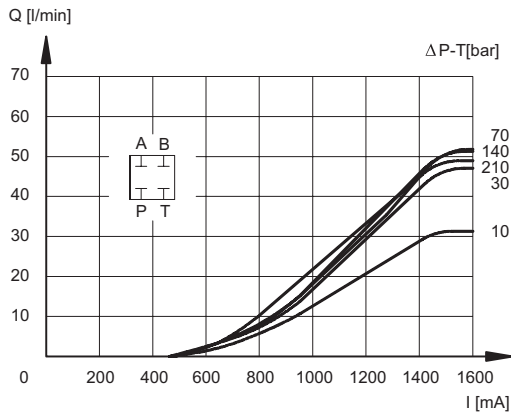


3 - CHARACTERISTIC CURVES (values measured with viscosity of 36 cSt at 50°C with valves connected to the relative electronic control units)

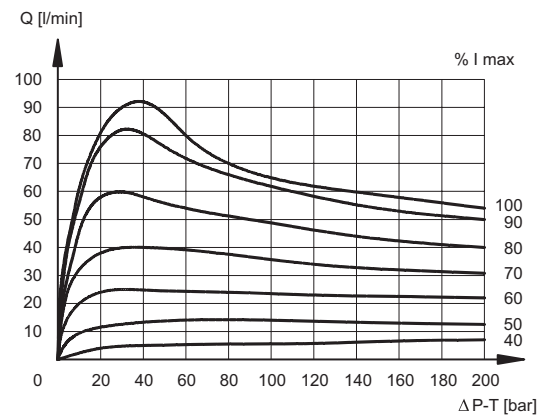
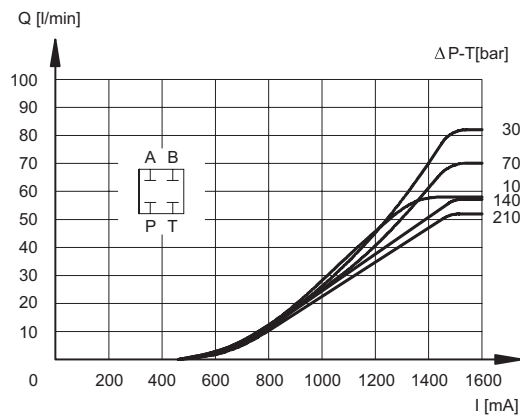
Typical constant flow rate control curves at Δp according to current supply to solenoid (D24 version, maximum current 1600 mA), measured for the various spool types available. The reference Δp values are measured between ports P and T on the valve.



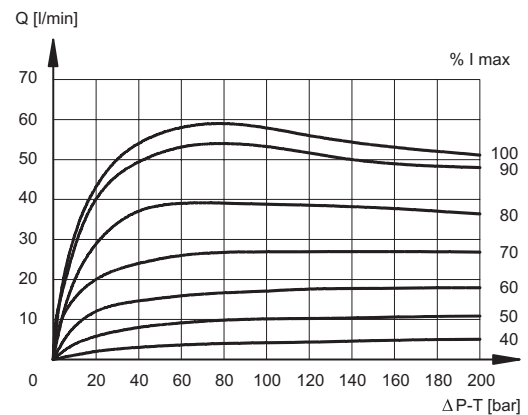
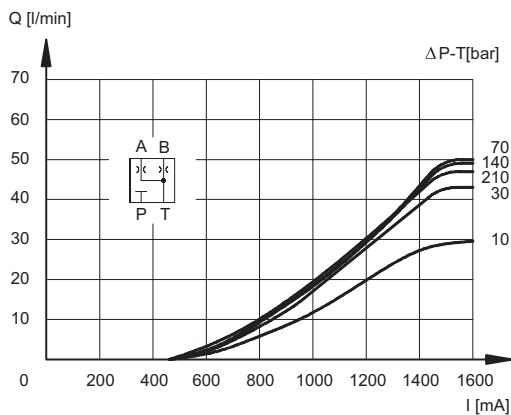
SPOOL TYPE C30



SPOOL TYPE C60



SPOOL TYPE A30

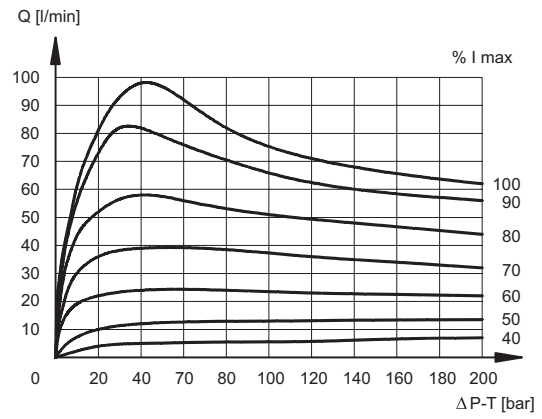
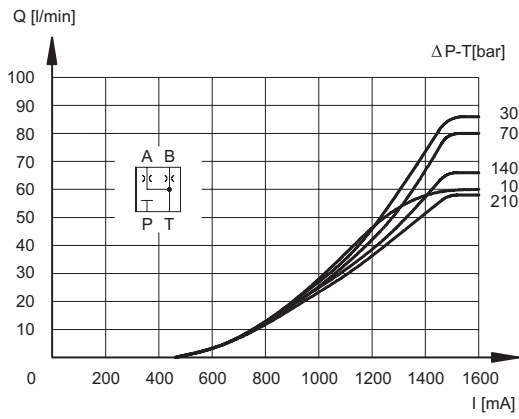




DSE5

SERIES 10

SPOOL TYPE A60





4 - HYDRAULIC FLUIDS

Use mineral oil-based hydraulic fluids HL or HM type, according to ISO 6743-4. For these fluids, use NBR seals (code N).
 For fluids HFDR type (phosphate esters) use FPM seals (code V).
 For the use of other fluid types such as HFA, HFB, HFC, please consult our technical department.
 Using fluids at temperatures higher than 80 °C causes a faster degradation of the fluid and of the seals characteristics.
 The fluid must be preserved in its physical and chemical characteristics.

5 - ELECTRICAL CHARACTERISTICS

Proportional solenoid

The proportional solenoid comprises two parts: tube and coil.

The tube, screwed to the valve body, contains the armature which is designed to maintain friction to a minimum thereby reducing hysteresis.

The coil is mounted on the tube secured by means of a lock nut. It can be rotated through 360° depending on installation clearances.

NOMINAL VOLTAGE	VCC	12	24
RESISTANCE (at 20°C)	Ω	3 - 3,4	8,65
MAXIMUM CURRENT	A	2,6	1,6
DUTY CYCLE		100%	
ELECTROMAGNETIC COMPATIBILITY (EMC) - EMISSIONS EN 50081-1 - IMMUNITY EN 50082-2	in compliance with 89/336 CEE		
PROTECTION TO ATMOSPHERIC AGENTS (according to IEC 144 standards)	IP 65		

6 - STEP RESPONSE (measured with mineral oil with viscosity of 36 cSt at 50°C in conjunction with the relative electronic control units)

Step response is the time taken for the valve to reach 90% of the set pressure value following a step change of reference signal.

The table shows typical response times tested with spool type C60 and $\Delta p=20$ bar P-T.

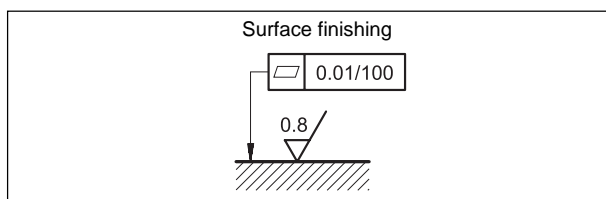
REFERENCE SIGNAL STEP	0→100%	100%→0
Step response [ms]		
DSE5-A* DSE5-C*	50	70

7 - INSTALLATION

DSE5 valves can be installed in any position without impairing correct operation.

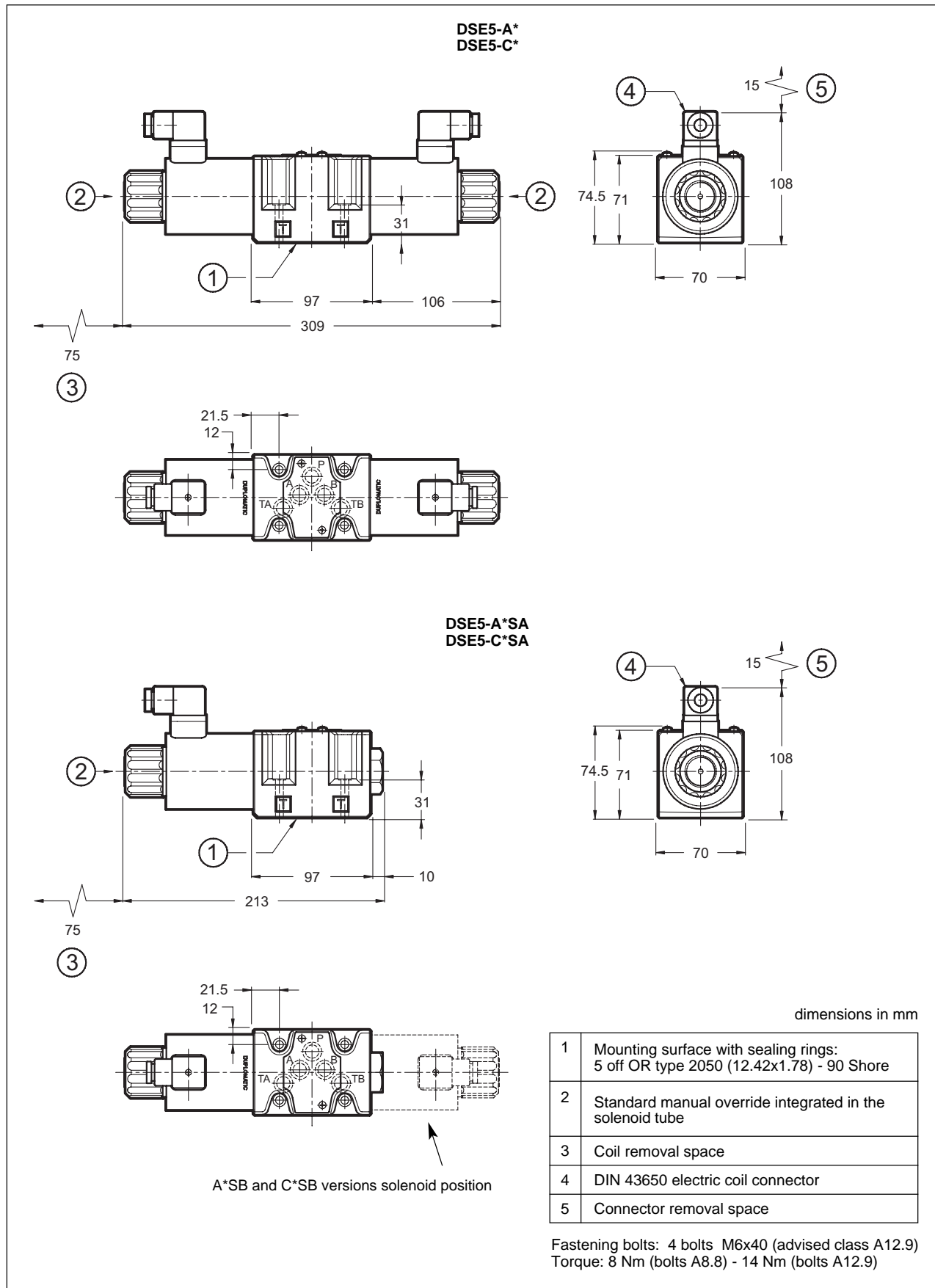
Ensure that there is no air in the hydraulic circuit.

Valves are fixed by means of screws or tie rods on a flat surface with planarity and roughness equal to or better than those indicated in the relative symbols. If minimum values are not observed fluid can easily leak between the valve and support surface.





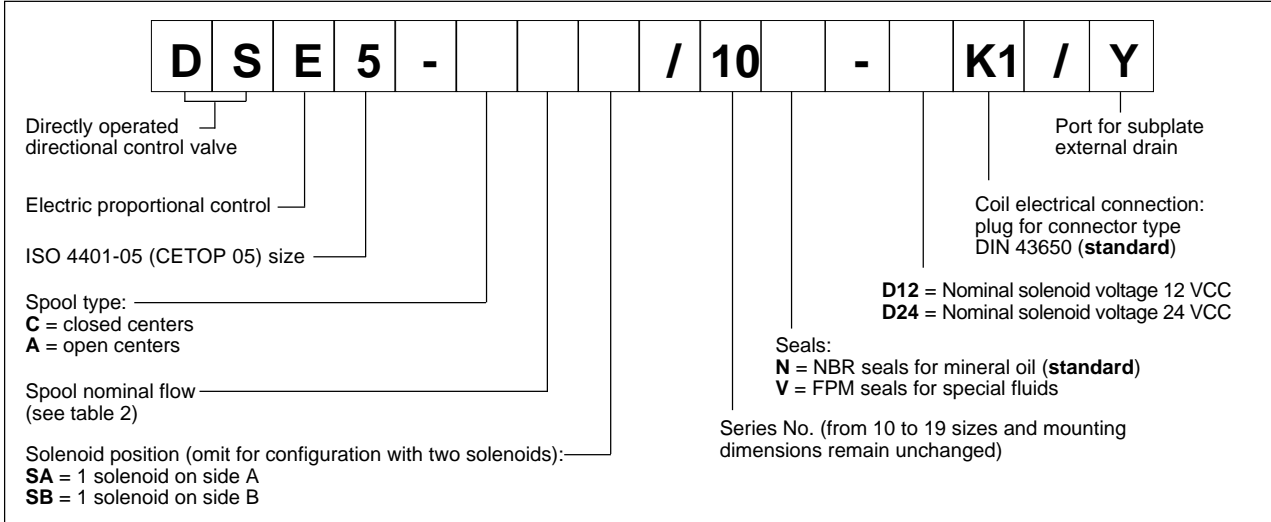
8 - OVERALL AND MOUNTING DIMENSIONS



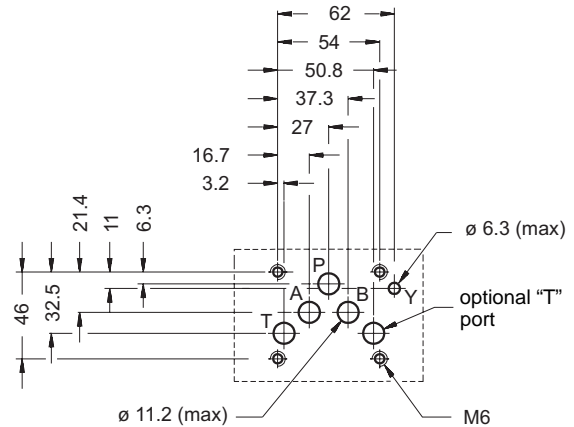


9 - SPECIAL VERSION WITH Y EXTERNAL SUBPLATE DRAIN PORT

Identification Code



This version allows the operation with pressures up to 320 bar on the valve T port.
 It is a drain port Y realized on the valve mounting interface in compliance with ISO 4401-05-05-0-94 (CETOP 4.2-4-R05). The Y port is connected with the solenoid chamber: in this way the tubes are not stressed by the pressure operating on the valve T port.





10 - ELECTRONIC CONTROL UNITS

DSE5 - ** SA (SB)

EDM-M132 (for solenoids 24 Vcc)	rail mounting	
EDM-M152 (for solenoids 12 Vcc)	DIN EN 50022	(see cat. 89 250)

DSE5 - A* DSE5 - C*

EDM-M232 (for solenoids 24 Vcc)	rail mounting	
EDM-M252 (for solenoids 12 Vcc)	DIN EN 50022	(see cat. 89 250)

11 - SUBPLATES (see cat. 51 000)

Type PMD4-AI4G with rear ports 1/2" BSP

Type PMD4-AL4G with side ports 1/2" BSP



DIPLOMATIC
HYDRAULICS

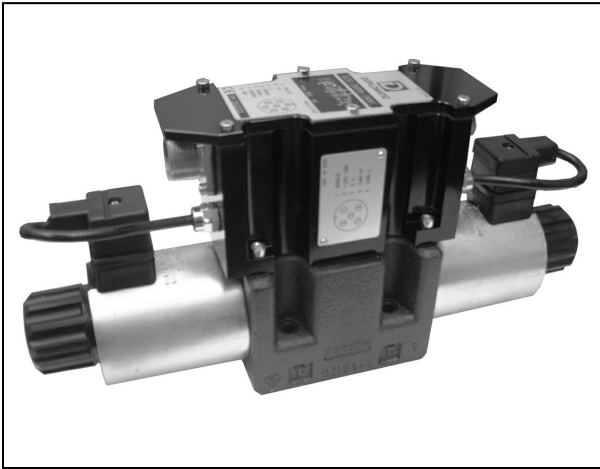
DIPLOMATIC OLEODINAMICA SpA

20025 LEGNANO (MI) - P.le Bozzi, 1 / Via Edison
Tel. 0331/472111 - Fax 0331/548328



DIPLOMATIC
HYDRAULICS

83 270/107 ED



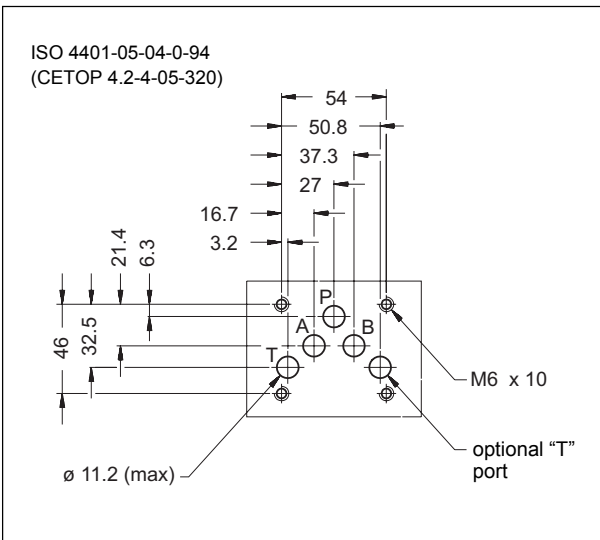
DSE5G

DIRECTIONAL VALVE WITH PROPORTIONAL CONTROL AND INTEGRATED ELECTRONICS SERIES 10

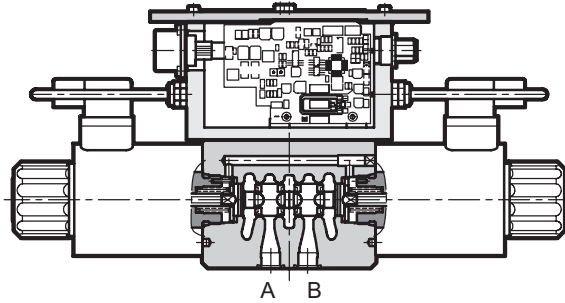
**SUBPLATE MOUNTING
ISO 4401-05 (CETOP 05)**

**p max 320 bar
Q max 90 l/min**

MOUNTING SURFACE



OPERATING PRINCIPLE

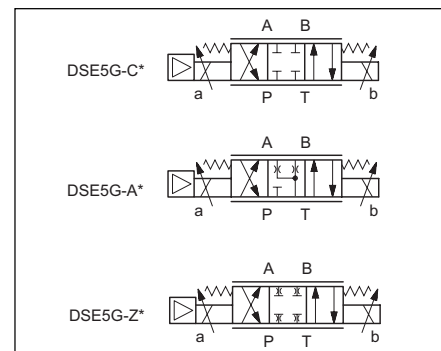


- The DSE5G is a direct operated directional valve with integrated electric proportional control and mounting interface in compliance with ISO 4401 (CETOP RP 121H) standards.
- It is normally used to control the positioning and the speed of hydraulic actuators.

- The valve opening and hence flow rate can be modulated continuously in proportion to the reference signal.
- The valve is controlled directly by an integrated digital amplifier (see par. 5).

PERFORMANCE RATINGS (obtained with mineral oil with viscosity of 36 cSt at 50°C and with digital integrated electronics)			
Max operating pressure	P-A-B ports	bar	320
	T port	bar	140
Nominal flow with Δp 10 bar P-T		l/min	30-60
Response times	see par. 4		
Hysteresis	% of Q max		< 3%
Repeatability	% of Q max		< $\pm 1\%$
Electrical characteristics	see par. 5		
Ambient temperature range	°C		-10 / +50
Fluid temperature range	°C		-20 / +80
Fluid viscosity range	cSt		10 ÷ 400
Recommended viscosity	cSt		25
Fluid contamination degree	According to ISO 4406:1999 class 18/16/13		
Mass	single solenoid valve	kg	5,1
	double solenoid valve	kg	6,6

HYDRAULIC SYMBOLS (typical)



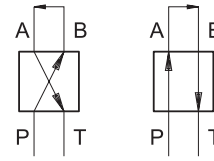


3 - CHARACTERISTIC CURVES (obtained with mineral oil with viscosity of 36 cSt at 50°C and with digital integrated electronics)

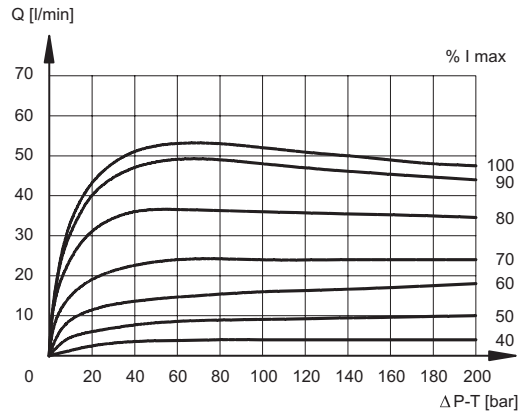
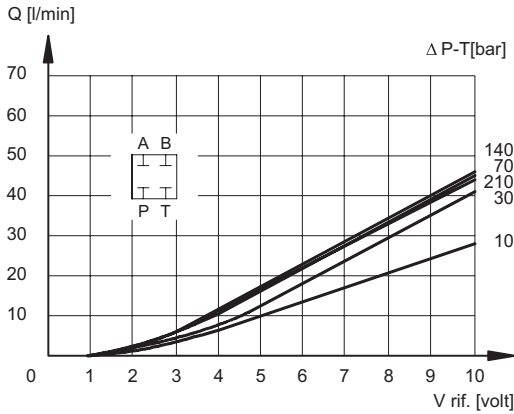
Typical flow rate curves at constant Δp related to the reference signal and measured for the available spools. The Δp values are measured between P and T valve ports.

The curves are obtained after linearization in factory of the characteristic curve through the digital amplifier. The linearization of the curve is performed with a constant Δp of 30 bar and by setting the value of flow start at 10% of the reference signal.

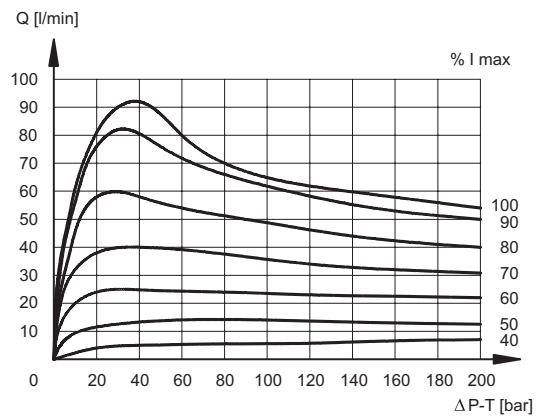
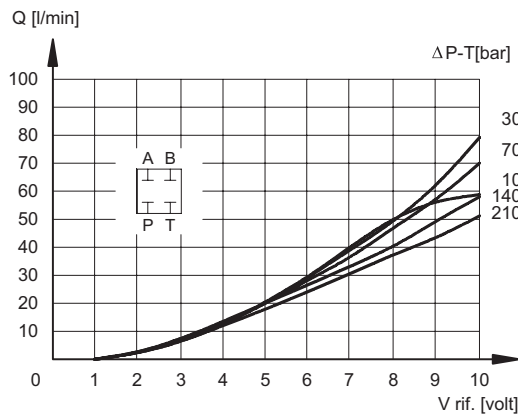
NOTE: for the zero overlap spool (Z), please refer to the characteristic curves of C type spool, considering that the starting flow rate value is approx. 150 mV.



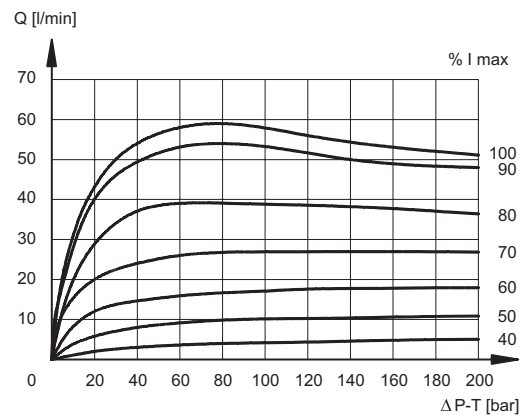
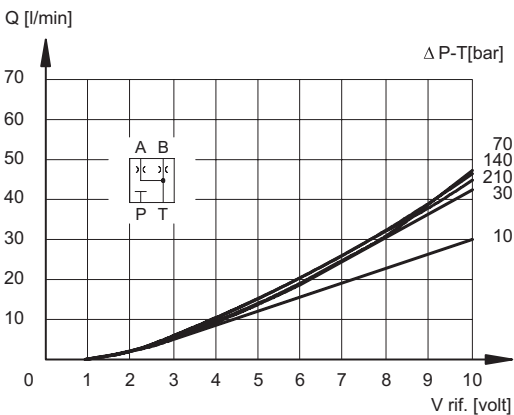
SPOOL TYPE C30



SPOOL TYPE C60



SPOOL TYPE A30

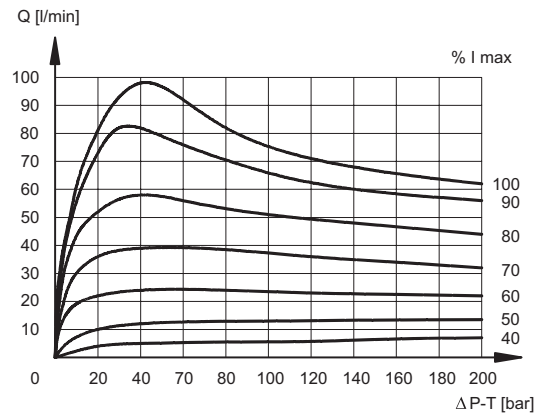
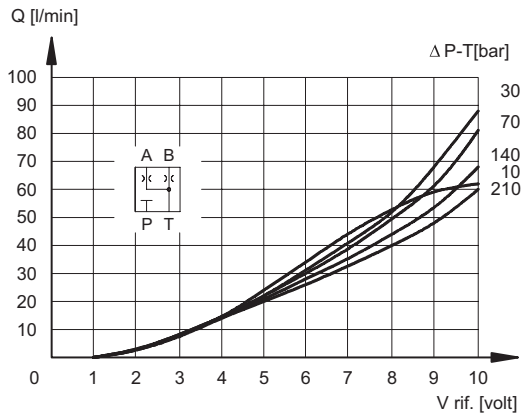




DSE5G

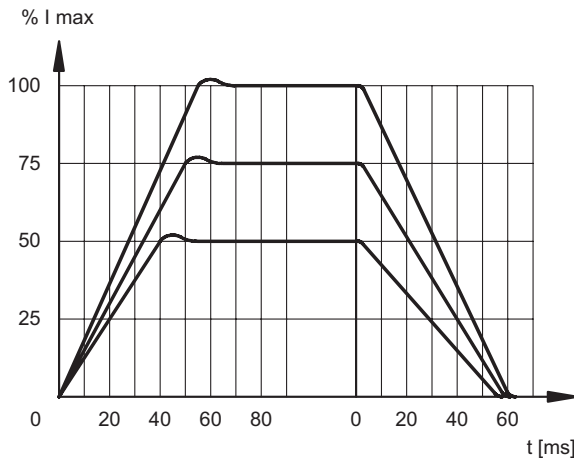
SERIES 10

SPOOL TYPE A60



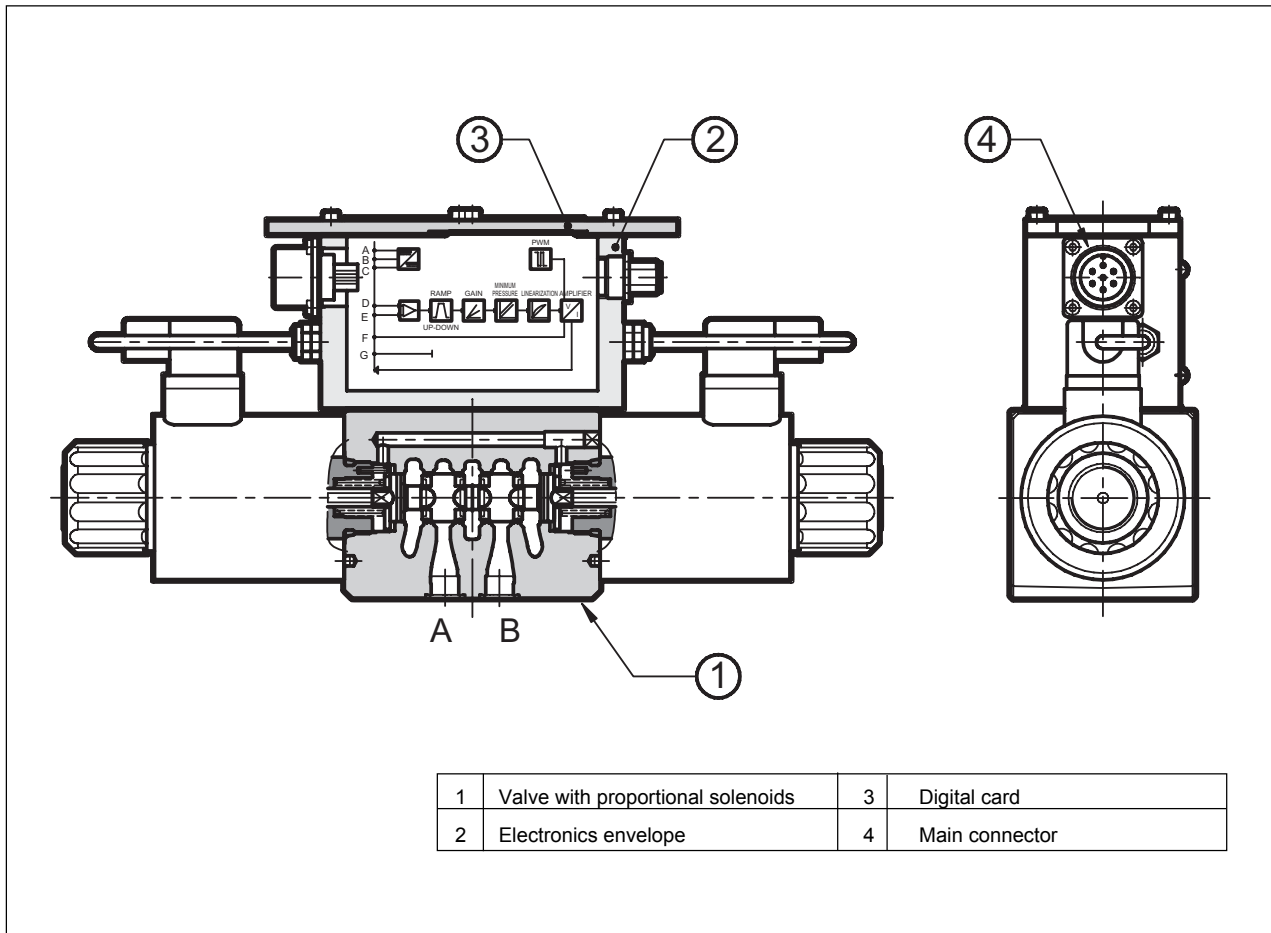


4 - RESPONSE TIMES (obtained with mineral oil with viscosity of 36 cSt at 50°C and with digital integrated electronics)





5.2 - Functional block diagram



5.3 - Electrical characteristics

NOMINAL VOLTAGE	VDC	24 VDC (from 19 to 35 VDC, ripple max 3 Vpp)
ABSORBED POWER	W	70
MAXIMUM CURRENT	A	2,60
DUTY CYCLE		100%
VOLTAGE SIGNAL (E0)	VDC	±10 (Impedence Ri > 50 KΩ)
CURRENT SIGNAL (E1)	mA	4±20 (Impedence Ri = 500 Ω)
ALARMS		Overload and electronics overheating
COMMUNICATION		Interface of the optoisolated industrial Field-bus type CAN-Bus ISO 11898
MAIN CONNECTOR		7 - pin MIL-C-5015-G (DIN 43563)
CAN-BUS CONNECTOR		M12-IEC 60947-5-2
ELECTROMAGNETIC COMPATIBILITY (EMC)		
EMISSIONS EN 50081-1		according to 89/336 CEE standards
IMMUNITY EN 50082-2		
PROTECTION AGAINST ATMOSPHERIC AGENTS		IP67 (IEC 144 standards)



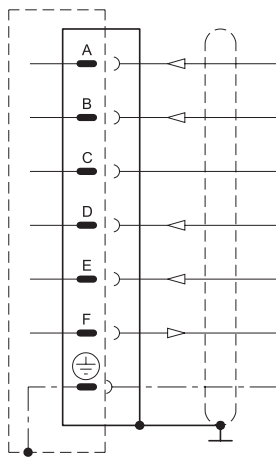
6 - OPERATING MODALITIES

The digital driver of DSE5G valve may be used with different functions and operating modalities, depending on the requested performances.

6.1 - Standard version with voltage reference signal (E0)

This is the most common version; it makes the valve completely interchangeable with the traditional proportional valves with analog type integrated electronics. The valve has only to be connected as indicated below. This version doesn't allow the setting of the valve parameters, for example the ramps must be performed in the PLC program, as well as the reference signal limit.

Standard connection scheme with voltage reference signal (E0)

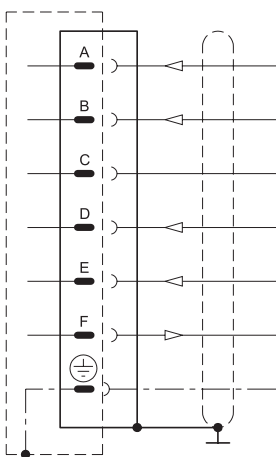


Pin	Values	Function	NOTES
A	24 VDC	Voltage	from 19 to 35 VDC (ripple max 3 Vpp) (see NOTE 3)
B	0 V	Power supply (zero)	0 V
C	----	Not used	----
D	± 10 V	Input rated command	Impedence $R_i > 50 \text{ k}\Omega$ (see NOTE 1)
E	0 V	Input rated command	----
F	± 10 V	Coil current	± 100% I_{MAX} (see NOTE 2)
PE	GND	Protective ground	----

6.2 - Standard version with current reference signal (E1)

This version has characteristics which are similar to the previous one, with the difference that in this case the reference signal is supplied in current 4 - 20 mA. With the 12 mA signal the valve is in central position, with the 20 mA signal the valve performs the configuration P-A and B-T, while with 4 mA the configuration is P-B and A-T. For "SA" single solenoid valves, with reference 20 mA to pin D, the valve full opening is P-B and A-T, while with 4 mA the valve is at rest. This configuration may be modified via software.

Standard connection scheme with current reference signal (E1)



Pin	Values	Function	NOTES
A	24 VDC	Voltage	from 19 to 35 VDC (ripple max 3 Vpp) (see NOTE 3)
B	0 V	Power supply (zero)	0 V
C	----	Not used	----
D	4 ÷ 20 mA	Input signal	Impedence $R_i = 500 \Omega$
E	0 V	Zero reference	----
F	± 10 V	Coil current	± 100% I_{MAX} (see NOTE 2)
PE	GND	Protective ground	----



NOTE 1: The input signal is differential type. For double solenoid valves, with positive reference signal connected to pin D, the valve opening is P - A and B - T. With zero reference signal the valve is in central position. For "SA" single solenoid valves, with positive reference to pin D, the valve opening is P-B and A-T. The spool stroke is proportional to $U_D - U_E$.

If only one input signal (single-end) is available, the pin B (0V power supply) and the pin E (0V reference signal) must be connected through a jumper and both connected to GND, electric panel side.

NOTE 2: read the test point pin F in relation to pin B (0V)

NOTE 3: preview on the Pin A (24 VDC) an external fuse for protecting electronics. Fuse characteristics: 5A/50V type fast.

NOTE for the wiring: connections must be made via the 7-pin plug mounted on the amplifier. Recommended cable sizes are 0,75 mm² for cables up to 20m and 1,00 mm² for cables up to 40m, for power supply. The signal cables must be 0,50 mm². A suitable cable would have 7 cores, a separate screen for the signal wires and an overall screen.

6.3 - Version with parameters set by means of CAN connector (version C)

This version enables the setting of some parameters of the valve, by connecting the CAN connector to a traditional computer.

To do this, it is necessary to order the interface device for USB port **CANPC-USB/10**, cod. 3898101001, with the relevant configuration software, the communication cable (L=3 meters) and an hardware converter for connecting the valve to the PC USB port.

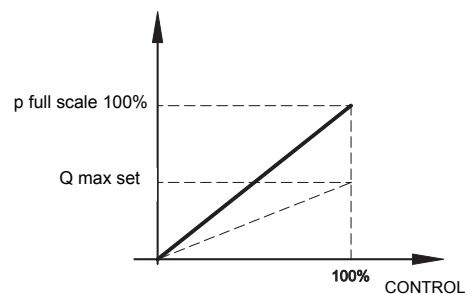
The parameters that can be set are described below:

Maximun current (Gain regulation)

Imax A and Imax B set the maximun current to the solenoid A corresponding to the positive value of the input reference. Con questo parametro è quindi possibile ridurre la portata della valvola con massimo riferimento.

Default value = 100% of full scale

Range: from 100% to 50% of full scale



PWM Frequency

Sets the PWM frequency, which is the pulsating frequency of the control current. The PWM decrease improves the valve accuracy, decreasing the regulation stability.

The PWM increase improves the regulation stability, causing a higher hysteresis.

Default value = 200 Hz

Range 50 ÷ 500 Hz

Ramps

Increase time of Ramp R1 - solenoid A: sets the current increase time for a variation from 0 to 100% of the input reference from zero to -10V.

Decrease time of Ramp R2 - solenoid A: sets the current decrease time for a variation from 100 to 0% of the input reference from -10V to zero.

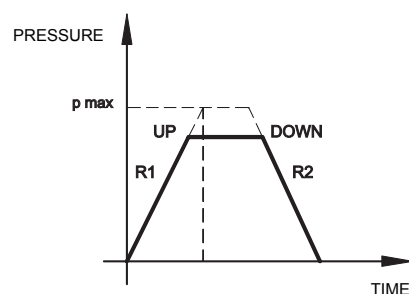
Increase time of Ramp R3 - solenoid B: sets the current increase time for a variation from 0 to 100% of the input reference from zero to +10V.

Decrease time of Ramp R4 - solenoid B: sets the current decrease time for a variation from 100 to 0% of the input reference from +10V to zero.

Min time = 0,001 sec

Max time = 40,000 sec

Default time = 0,001 sec.



Diagnostics

Provides several information parameters, such as:

- The electronic driver status (Working or Broken)
- The active regulation
- Input reference
- Current value



6.4 - Version with CAN-Bus interface (version C)

This version allows the valve piloting through the industrial field bus CAN-Open, according to ISO 11898 standards.

The CAN connector must be connected (see scheme) as a slave node of the CAN-Open bus, while the main connector is wired only for the power supply (pin A and B + earth)

The most important characteristics of a CAN - Open connection are:

- Parameter storage also in PLC
- Parameters setting in real-time (PDO communication)
- On-line valve diagnostics
- Easy wiring with the serial connection
- Communication program according to international standards

For detailed information on the CAN-Open communication software, see cat. 89 800.

CAN connector connection scheme

Pin	Values	Function
1	CAN_SHLD	Monitor
2	CAN +24VDC	BUS + 24 VDC (max 30 mA)
3	CAN 0 DC	BUS 0 VDC
4	CAN_H	BUS line (high signal)
5	CAN_L	BUS line (low signal)

N.B. : insert a 120 Ω resistance on pin 4 and pin 5 of the CAN connector when the valve is the closure knot of the CAN network.

7 - INSTALLATION

DSE5G valves can be installed in any position without impairing correct operation.

Ensure that there is no air in the hydraulic circuit.

Valves are fixed by means of screws or tie rods on a flat surface with planarity and roughness equal to or better than those indicated in the relative symbols. If minimum values are not observed, fluid can easily leak between the valve and support surface.

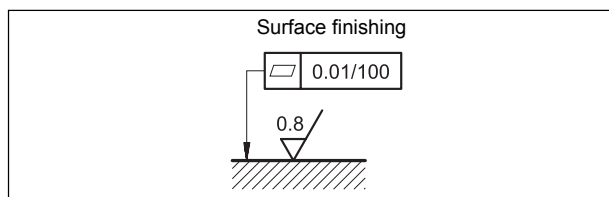
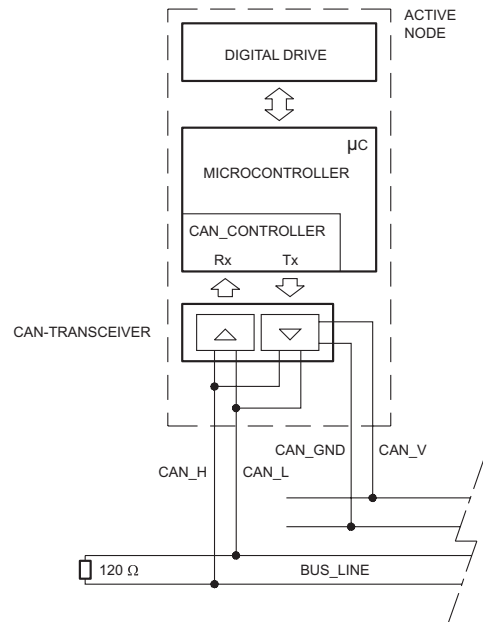
8 - HYDRAULIC FLUIDS

Use mineral oil-based hydraulic fluids HL or HM type, according to ISO 6743-4. For these fluids, use NBR seals (code N).

For fluids HFDR type (phosphate esters) use FPM seals (code V). For the use of other fluid types such as HFA, HFB, HFC, please consult our technical department.

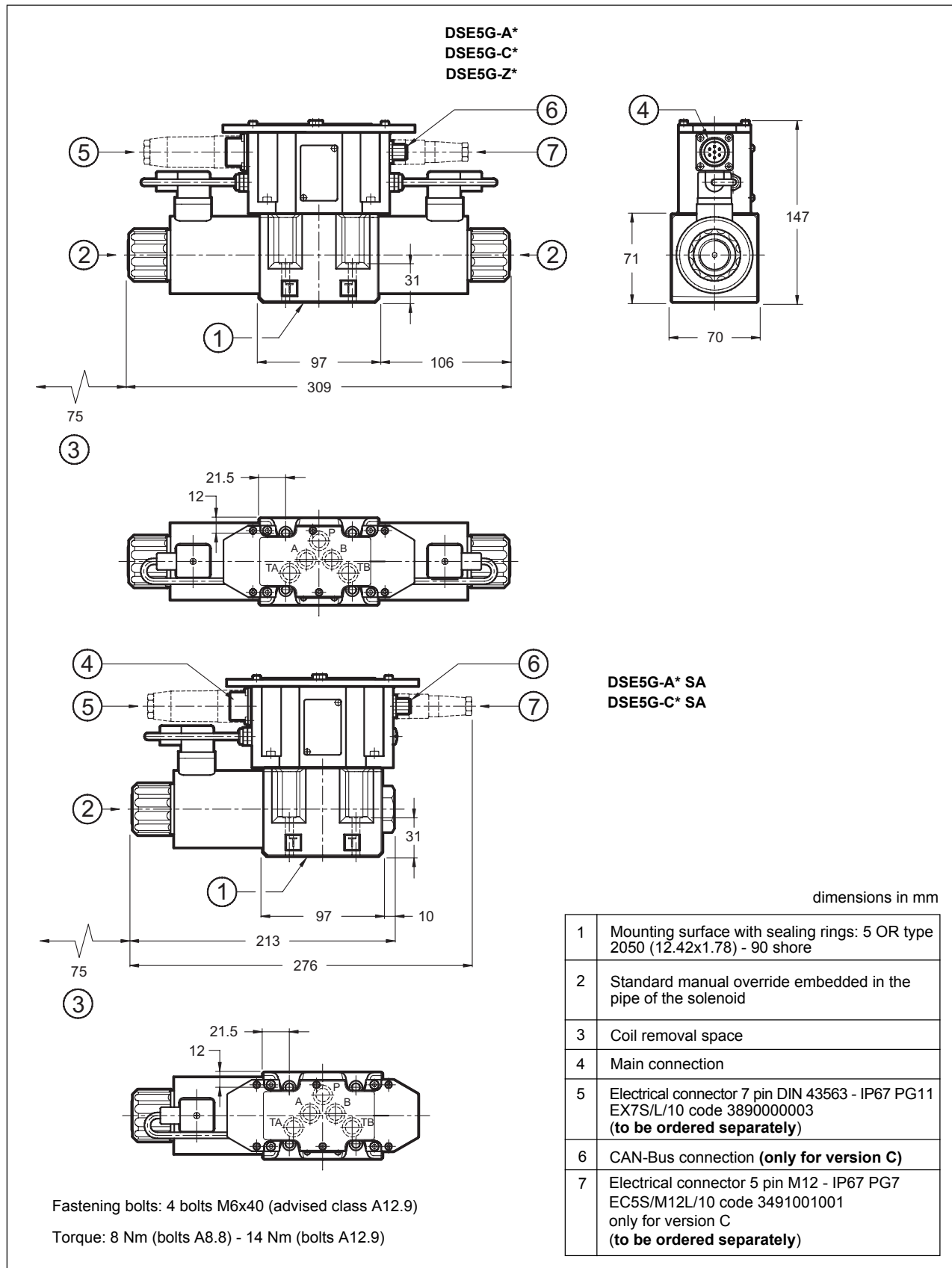
Using fluids at temperatures higher than 80 °C causes a faster degradation of the fluid and of the seals characteristics.

The fluid must be preserved in its physical and chemical characteristics.





9 - OVERALL AND MOUNTING DIMENSIONS





10 - SUBPLATES (See catalogue 51 000)

Type PMD4-AL4G rear ports 1/2" BSP
Type PMD4-AL4G side ports 1/2" BSP



DSE5G

SERIES 10



**DIPLOMATIC
HYDRAULICS**

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