

# DSE5G

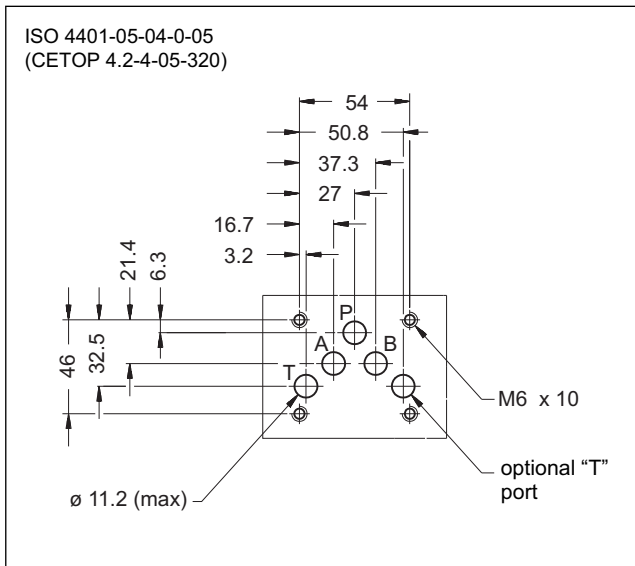
## DIRECTIONAL VALVE WITH PROPORTIONAL CONTROL AND INTEGRATED ELECTRONICS

### SERIES 31

**SUBPLATE MOUNTING  
ISO 4401-05**

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

#### MOUNTING SURFACE

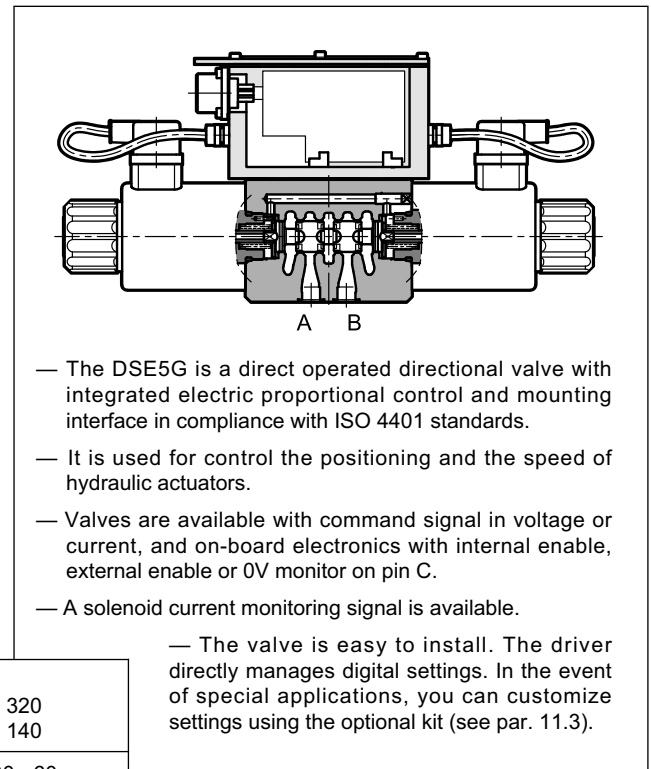


#### PERFORMANCES

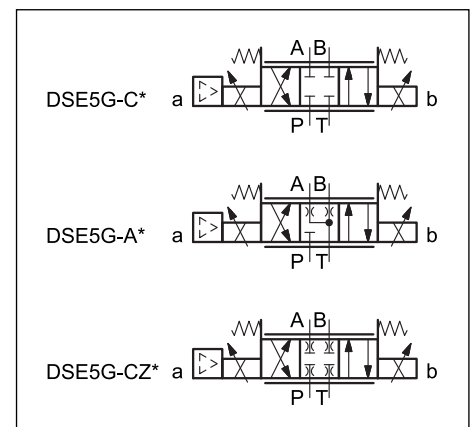
(obtained with mineral oil with viscosity of 36 cSt at 50°C and p = 140 bar)

Maximum operating pressure: - P - A - B ports - T port	bar	320 140
Maximum flow with Δp 10 bar P-T	l/min	30 - 60
Response times	see paragraph 7	
Hysteresis	% of Q max	< 3%
Repeatability	% of Q max	< ±1%
Electrical characteristics	see paragraph 3	
Ambient temperature range	°C	-20 / +60
Fluid temperature range	°C	-20 / +80
Fluid viscosity range	cSt	10 ÷ 400
Fluid contamination degree	According to ISO 4406:1999 class 18/16/13	
Recommended viscosity	cSt	25
Mass: single solenoid valve double solenoid valve	kg	5,1 6,6

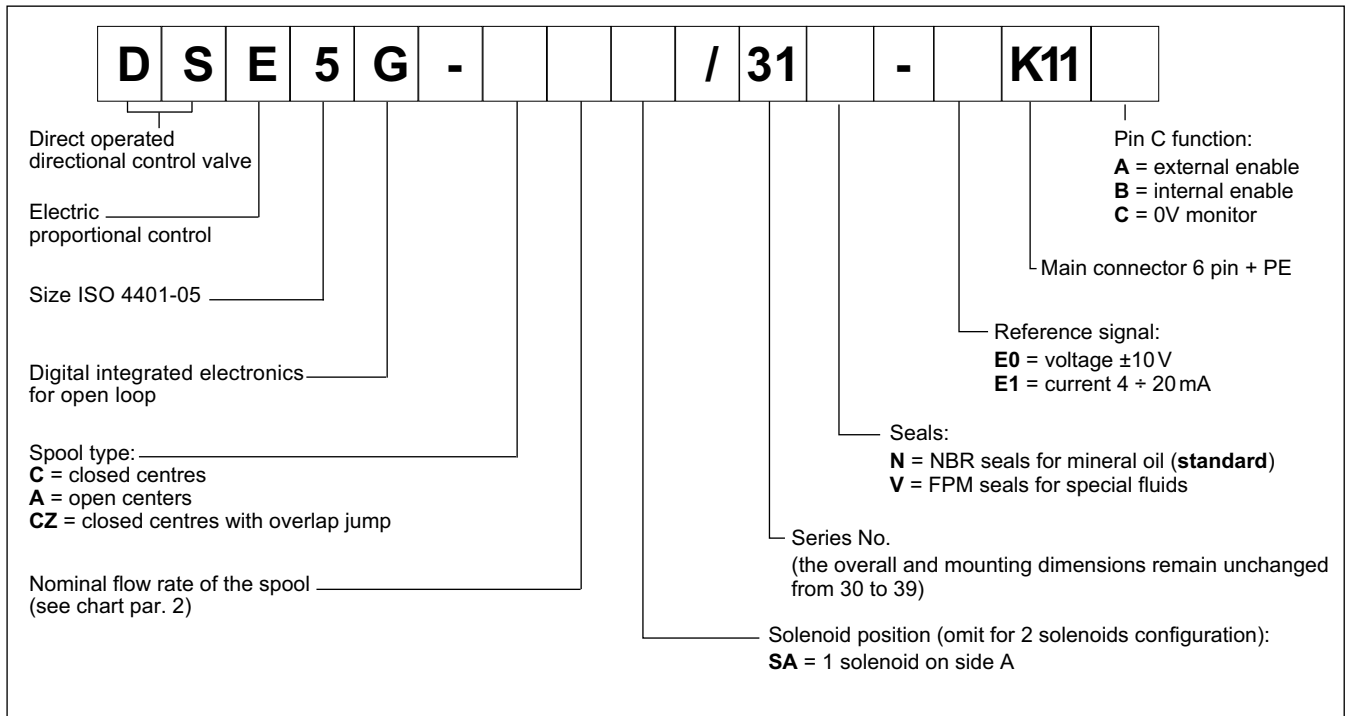
#### OPERATING PRINCIPLE



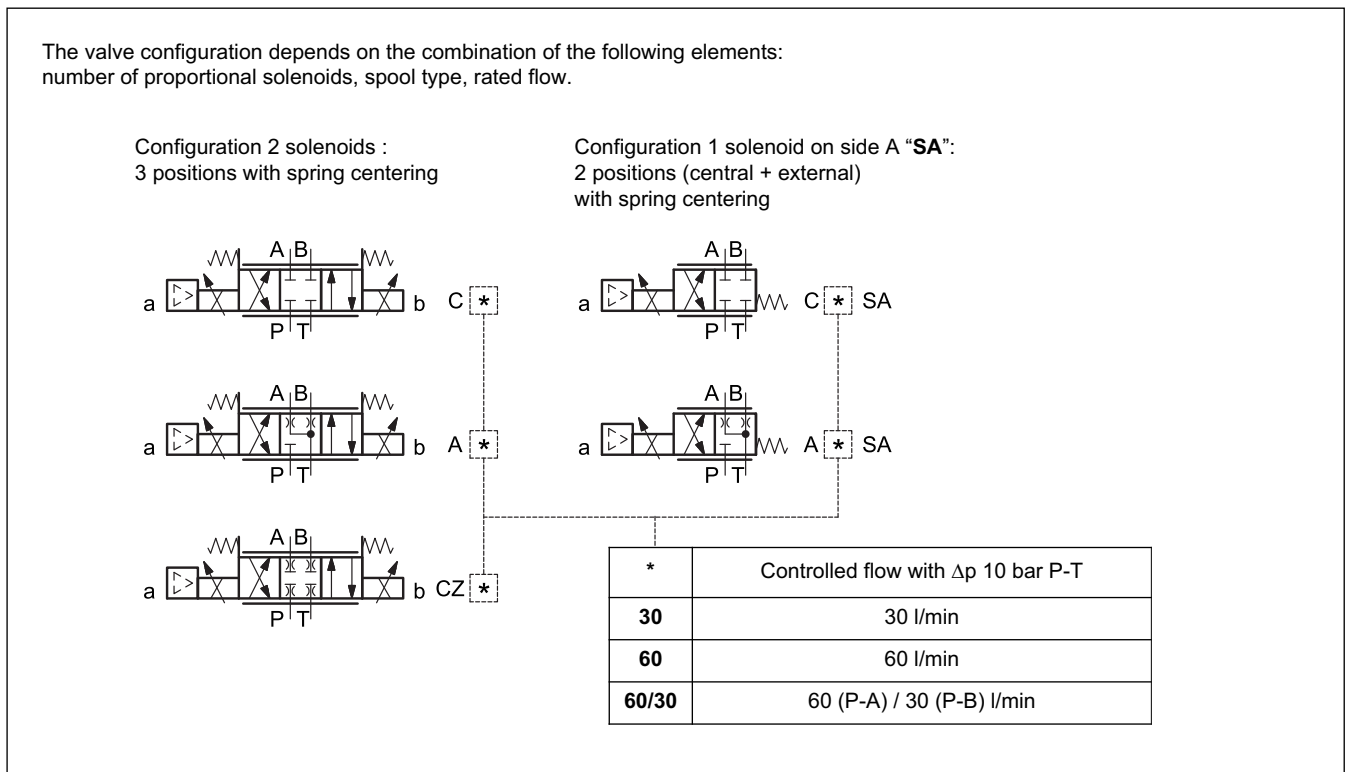
#### HYDRAULIC SYMBOLS (typical)



## 1 - IDENTIFICATION CODE



## 2 - CONFIGURATION



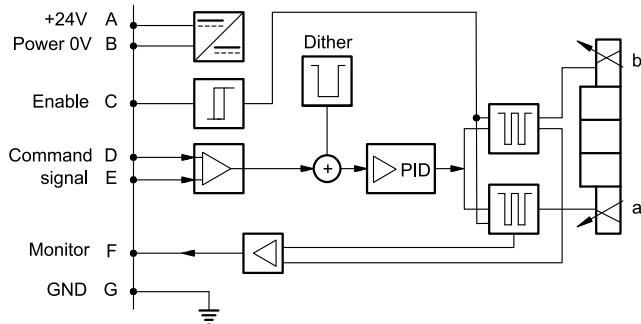
## 3 - ELECTRICAL CHARACTERISTICS

### 3.1 - Electrical on board electronics

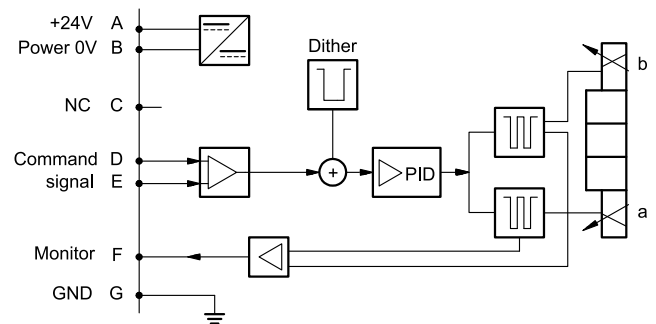
Duty cycle		100% (continuous operation)
Protection class according to EN 60529		IP65 / IP67
Supply voltage	V DC	24 (from 19 to 35 VDC), ripple max 3 Vpp
Power consumption	VA	40
Maximum solenoid current	A	2.8
Fuse protection, external		3A
Command signals: voltage (E0) current (E1)	V DC mA	$\pm 10$ (Impedance $R_i > 11$ kOhm) $4 \div 20$ (Impedance $R_i = 58$ Ohm)
Monitor signals (current to solenoid): voltage (E0) current (E1)	V DC mA	$\pm 10$ (Impedance $R_o > 1$ kOhm) $4 \div 20$ (Impedance $R_o = 500$ Ohm)
Managed breakdowns		Overload and electronics overheating, cable breakdown, supply voltage failure
Communication		LIN-bus Interface (with the optional kit)
Connection		7 - pin MIL-C-5015-G (DIN-EN 175201-804)
Electromagnetic compatibility (EMC) emissions EN 61000-6-4 immunity EN 61000-6-2		According to 2014/30/EU standards

### 3.2 - On-board electronics diagrams

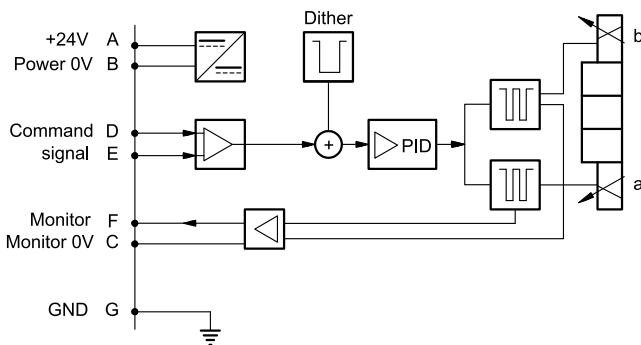
**VERSION A - External Enable**



**VERSION B - Internal Enable**

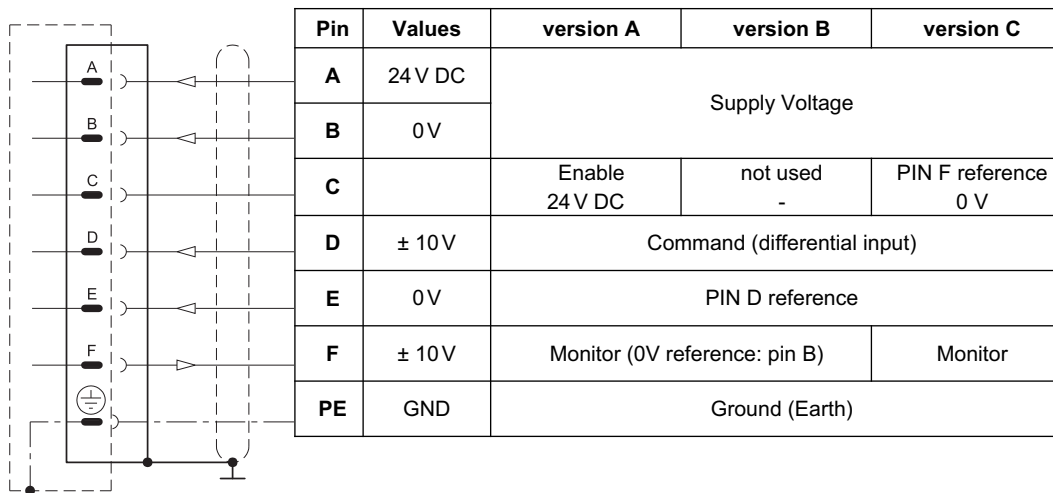
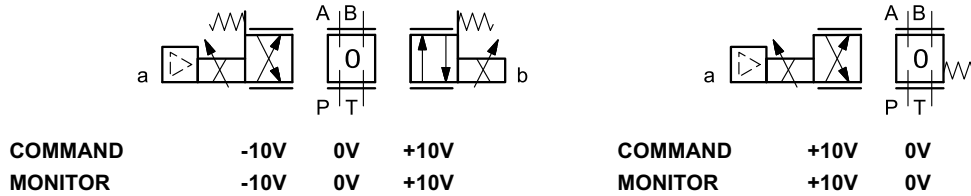


**VERSION C - 0V Monitor**



## 4 - VERSIONS WITH VOLTAGE COMMAND (E0)

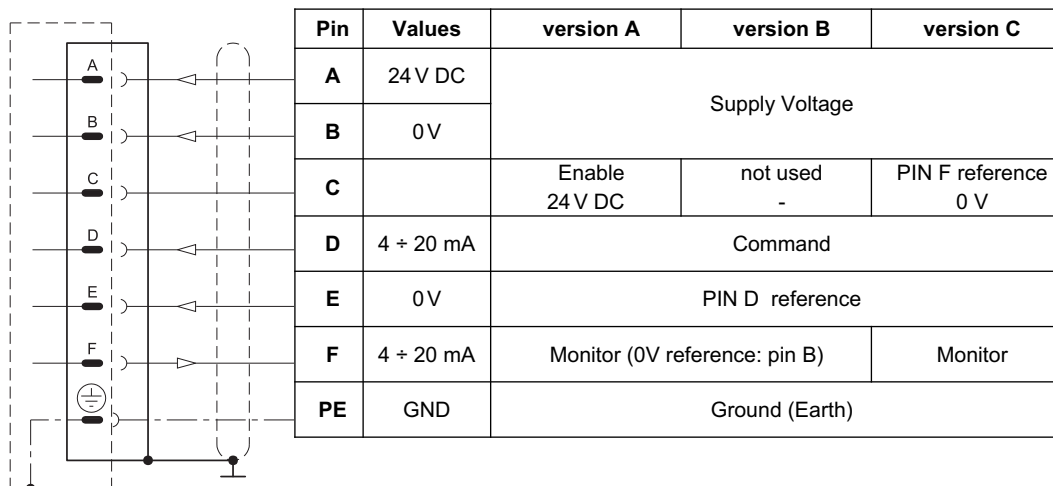
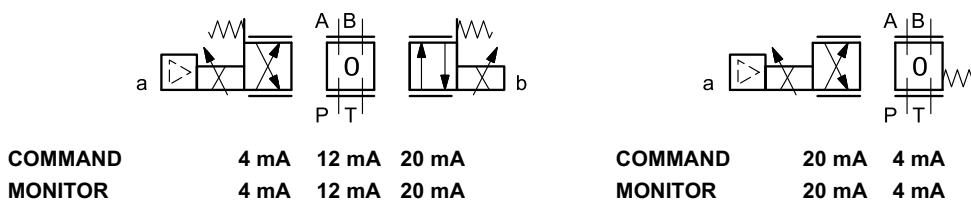
The reference signal is between -10V and +10V on double solenoid valves, and 0 + 10V on single solenoid valves SA. The monitor feature of versions B and C becomes available with a delay of 0,5 sec from the power-on of the card.



## 5 - VERSIONS WITH CURRENT COMMAND (E1)

The reference signal is supplied in current 4 ÷ 20 mA. If the current for command is lower, the card shows a breakdown cable error. To reset the error is sufficient to restore the signal.

The monitor feature of versions B and C becomes available with a delay of 0,5 sec from the power-on of the card.



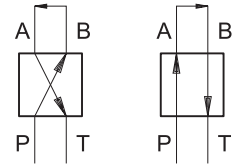
### 6 - CHARACTERISTIC CURVES

(obtained with mineral oil with viscosity of 36 cSt at 50°C and  $p = 140$  bar)

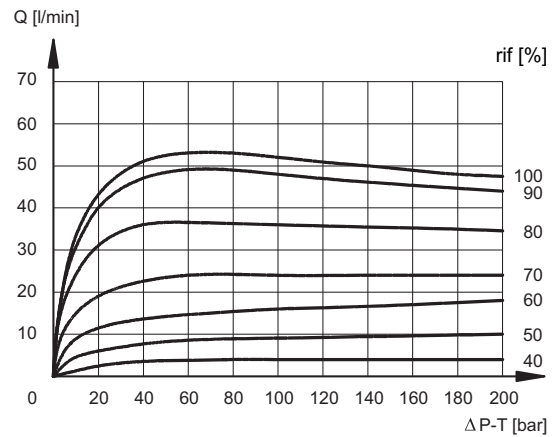
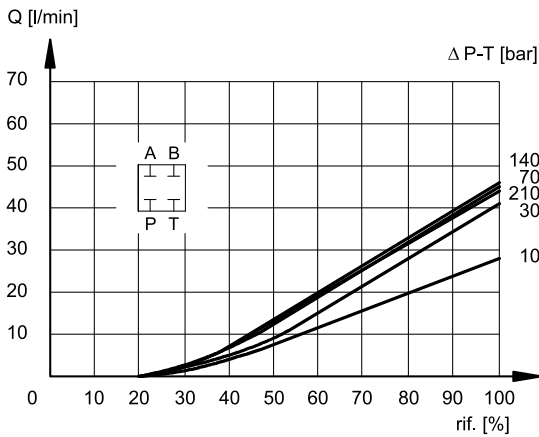
Typical flow rate curves at constant  $\Delta p$  related to the reference signal and measured for the available spools.

The curves are obtained with a constant meter-in with  $\Delta p$  of 5 bar and by setting the value of flow start at 20% of the reference signal.

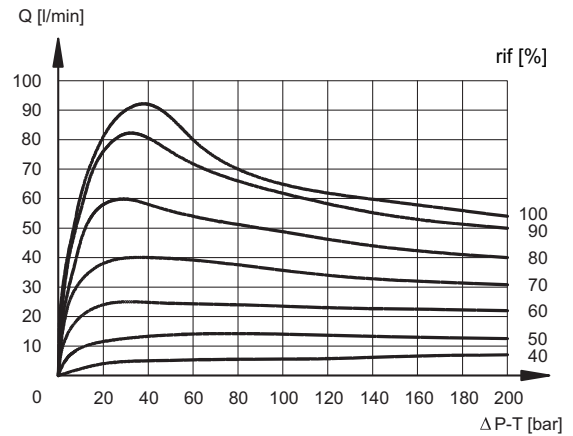
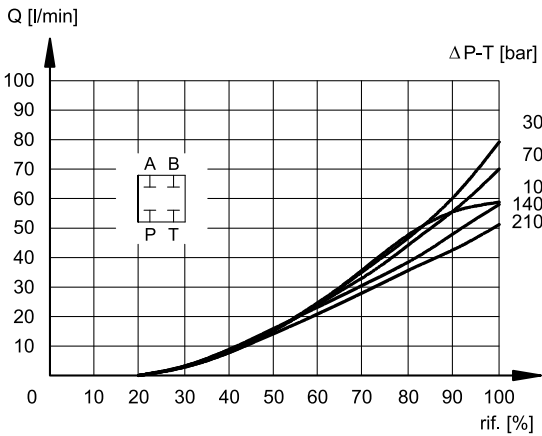
**NOTE:** for spools with overlap jump (Z), please refer to the characteristic curves of spools C type, considering that the starting flow rate value is approx. 150 mV.



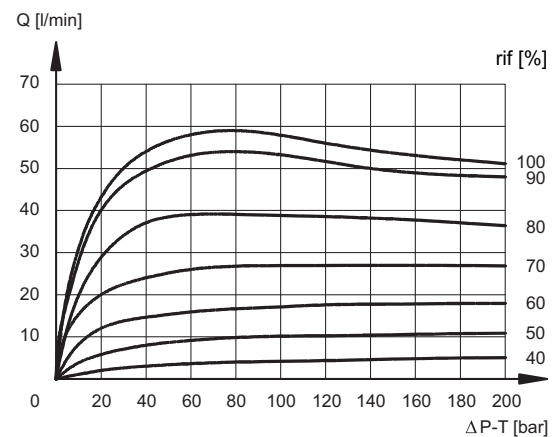
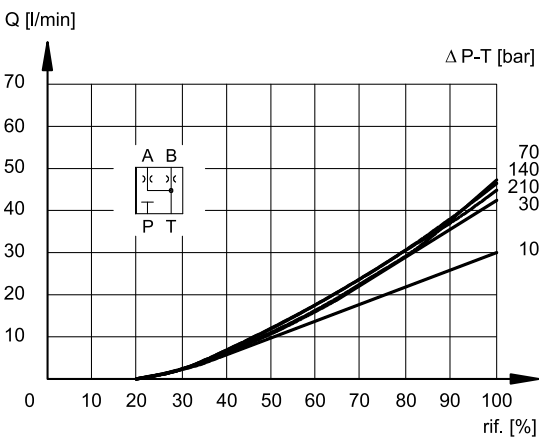
#### SPOOL TYPE C30



#### SPOOL TYPE C60

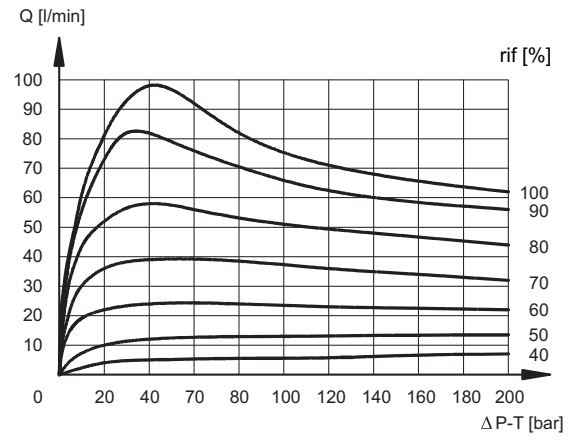
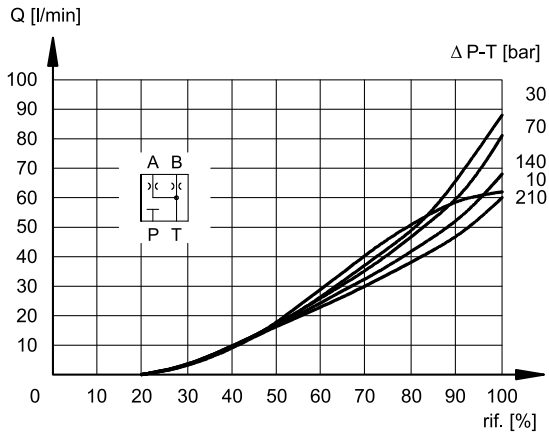


#### SPOOL TYPE A30



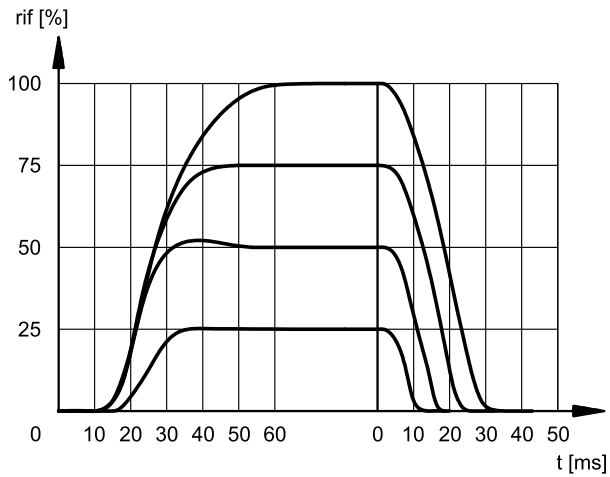


### SPOOL TYPE A60

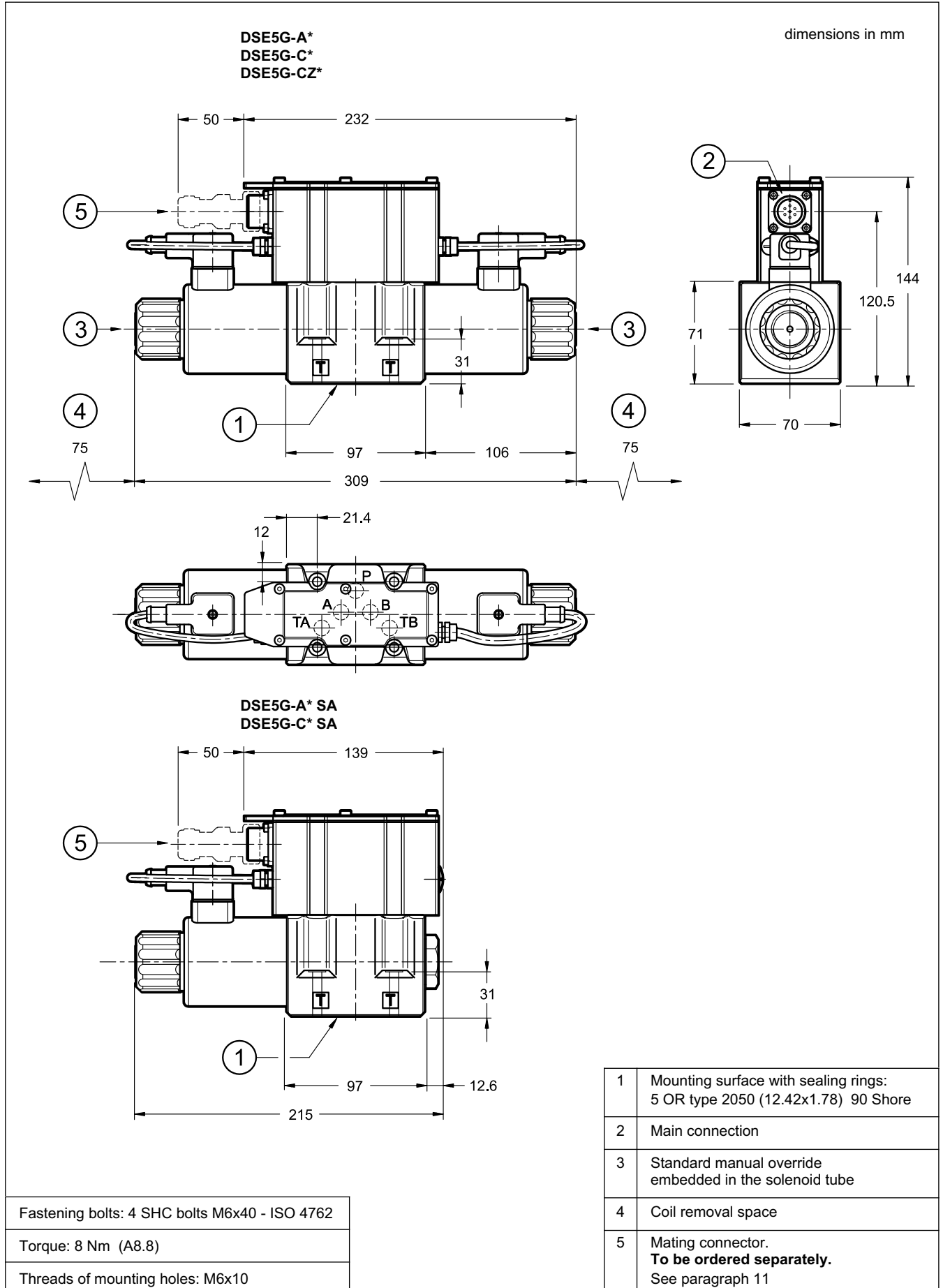


### 7 - RESPONSE TIMES

(obtained with mineral oil with viscosity of 36 cSt at 50°C and  $p = 140$  bar)



## 8 - OVERALL AND MOUNTING DIMENSIONS





## 9 - HYDRAULIC FLUIDS

Use mineral oil-based hydraulic fluids HL or HM type, according to ISO 6743-4. For these fluids, use NBR seals. For fluids HFDR type (phosphate esters) use FPM seals (code V). For the use of other kinds of fluid 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.

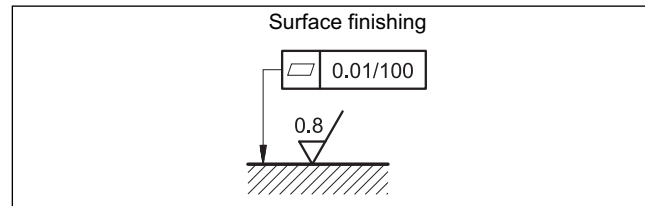
The fluid must be preserved in its physical and chemical characteristics.

## 10 - 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.



## 11 - ACCESSORIES

(to be ordered separately)

### 11.1 - Mating connector

These valves have a plug for 7-pin mating connector, that is placed on the box of the integral motion control.

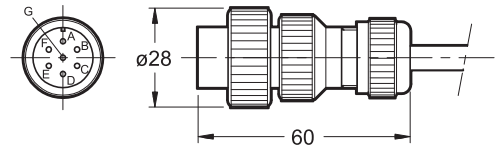


So as to avoid electromagnetic troubles and comply with the electromagnetic compatibility regulation EMC, it is recommended the use of a metal connector.

If a plastic connector is used, make sure that the protection characteristics IP and EMC of the valve are guaranteed.

Duplomatic offers a metal cable connector type MIL-C-5015-G (EN 175201-804).

name: **EX7S/L/10** code **3890000003**



### 11.2 - Connection cables size

Power supply:

- up to 20 m cable length : 1,0 mm<sup>2</sup>
- up to 40 m cable length : 1,5 mm<sup>2</sup>

Signal: 0,50 mm<sup>2</sup>

A suitable cable would have 7 isolated conductors, a separate screen for the signal wires and an overall screen.

### 11.3 - Kit for start-up LINPC-USB

Device for service start-up and diagnostic, see catalogue 89850.

## 12 - SUBPLATES

(see catalogue 51 000)

PMD4-AI4G rear ports 3/4" BSP
PMD4-AL4G side ports 1/2" BSP



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