



6.9

1 S P Q P S U J P O B M
E J S F D U J P O B M W B M W F T

5 Z Q F 8 3 & B O E 8 3 & &

NG 6 and 10
Up to 315 bar
Up to 180 L/min



\$ P O U F O U T

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' F B U V S F T

- Direct operated proportional directional valve with electrical position feedback
- Closed loop control of the direction and size of a flow
- Operation is by proportional solenoids with a central thread and removable coil
- For subplate mounting: Porting pattern conforms to ISO 4401
- Spring centred control spool
- Integrated electronics (OBE) with voltage input or current input (A1 resp. F1)
- 4WRE separate order: analogue module amplifier

'VODUJPO BOE DPOæ(HVSBUIJPOT

4WRE(E) are operated by proportional solenoids with central thread and removalbe coil. The solenoids are optionally controlled by either external electronics (type 4WRE) or by the integrated electronics (type 4WREE).

The valve basically consists of: Housing (1), Compression springs (2), Control spool (3), and Solenoid (4 and 5) with central thread, Solenoid(5) with position transducer and optional integrated control electronics (6).

In the de-energised condition the spool (3) is held in a mechanical centre position by the solenoid return springs (2).

– With the solenoids (4), de-energised, the control spool (3) is held in the central position by the compression springs (2).

– Direct operation of the control spool (3) by energising one of the proportional solenoids (4, 5) e.g. control of solenoid right, then movement of the control spool (3) to the left in proportion to the electrical input signal, and connection from P to A and B to T via orifice-like crosssections with progressive flow characteristics.

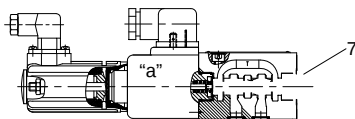
5ZQF 83& - 9

5ZQF 83&& - 9

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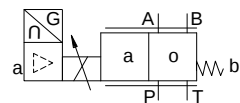
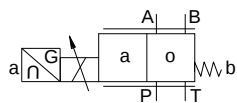
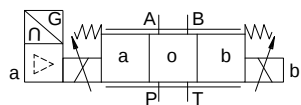
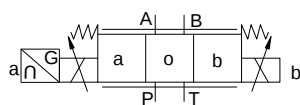
4WRE(E)...A-L2X the 2 switched position valves are however only fitted with solenoid "a".

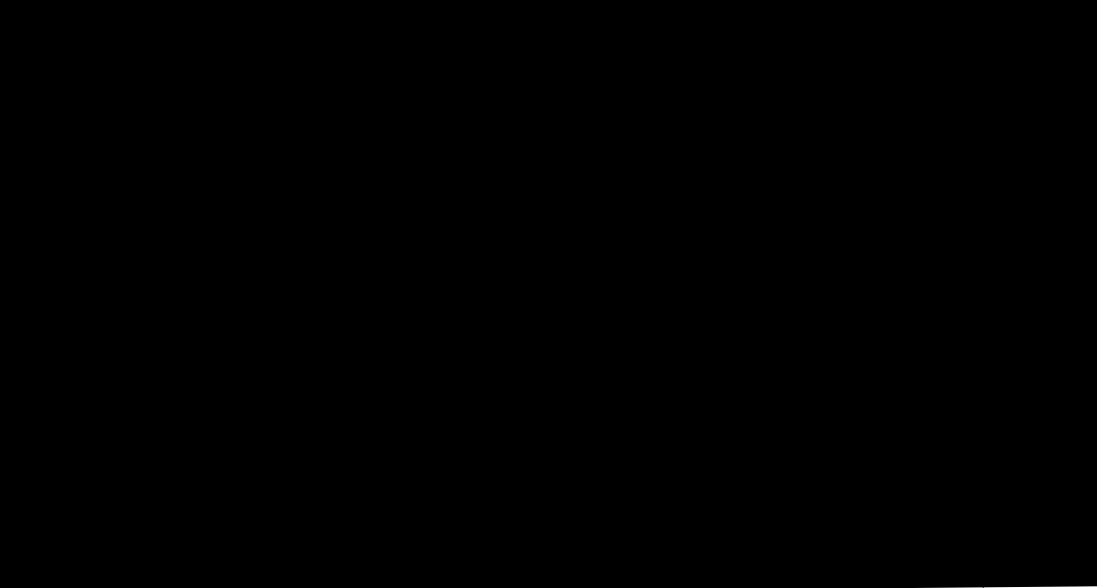
A plug (7) is fitted in place on the "b" proportional solenoid.



5ZQF 83& " - 9

5ZQF 83&& " - 9





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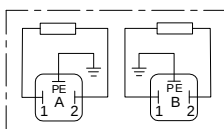
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&MFDUSJDBM DPOOFDUJ POT QMVH DPOOFDUP

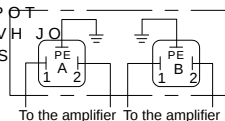
v'P SU Z Q F 83 & (without integrated electronics)

\$POOFDUJ POT PO UIF
DPNQPOFOU QMVH

Plug-in connector to DIN EN
175301-803 or ISO 4400



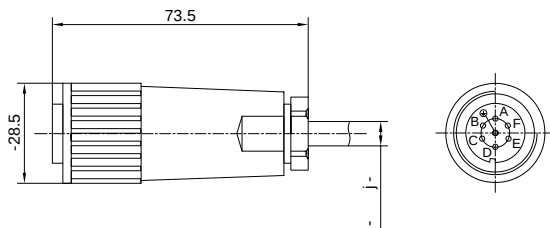
\$POOFDUJ POT
PO UIF QMVH JO
DPOOFDUPS



v'PS U Z Q F 83 & (with integrated electronics (OBE))

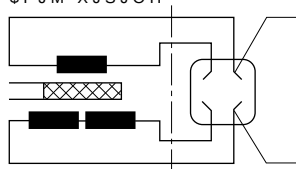
For pin allocation also
see block circuit diagram.

Plug-in connector to
DIN EN 175201-804



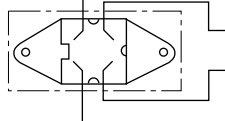
v*OEVDUJWF QPTJUJPO TFOTPS

\$PJM XJSJOH



5P UIF BNQM Jæ(FS)

DPOOFDU UP UIF QMVH



TJHOBM DPOOFDU
UP UIF HSPV
QXPFS DPOOFDU
UP UIF HSPV
4JHOBM
4VQMZ
5P UIF BNQM Jæ(FS)

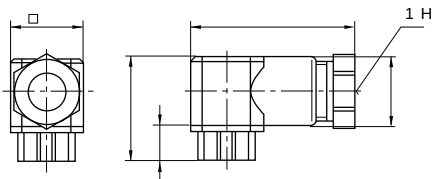
Plug connector 4 pin Pg7-G4W1F

\$POOFDUJOH DBCMFT

3 FDPNNF D Cables up to 50 m in length,

Please use a cable of type LiYCY 4 × 0.25 mm²

Connect the shield to the PE only on the supply side.



*OUFHSBUFE DPOUSPM FMFDUSPOJDT GPS UZQF 83
\$PNQPOFOU QMVH BMMPDUBUJPO

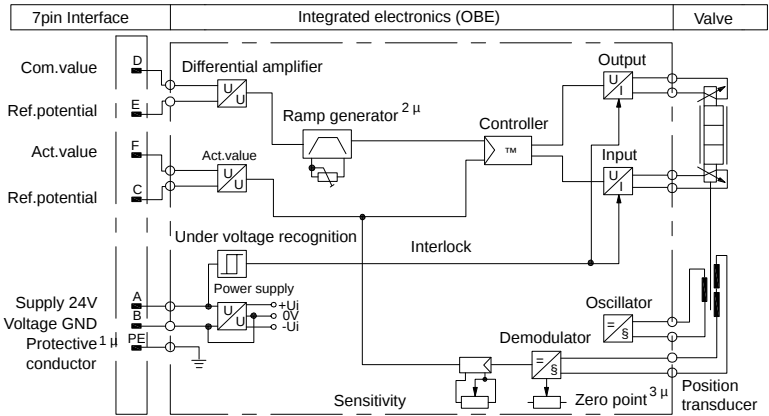
	Contact	Interface A1 signal	Interface F1 signal
Supply voltage	A	24 VDC(U(t)=19.4V to 35V), I _{max} =2A	
	B	0V	
Reference potential (actual value)	C	ref.contact F, Re>50KΩ	ref.contact F, Re<10Ω
Differential amplifier input	D	± 10V, Re>50KΩ	4 to 20mA, Re>100Ω
	E	Reference potential command value	
Measurement output (actual value)	F	± 10 V actual value (limiting load 5 mA)	4 to 20 mA actual value, load resistance max.300Ω
	PE	Connected with cooling body and valve housing	

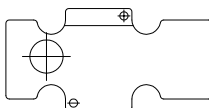
\$ P N N B O E W B M A positive command value 0 to +10V (or 12 to 20 mA) at D and the reference potential at E results in a fow from P to A and B to T.
A negative command value 0 to -10V (or 12 to 4 mA) at D and the reference potential at E results in a fow from P to B and A to T.
For a valve with 1 solenoid on side a (e.g. spool variants EA and WA) a positive command value at D and the referencepotential at E results in a fow from P to B and A to T.

" D U V B M W B M A positive actual value 0 to +10V (or 12 to 20mA) at F and the reference potential at C results in fow from P to A and B to T.
A negative actual value 0 to -10V (or 4 to 12mA) at F and the reference potential at C results in fow from P to B and A to T.
With valves with 1 solenoid, a positive actual valueat F and referencepotential at C results in fow from P to B and A to T.

\$ P O O F D U J P O P B M A Cable length: – up to 25 m cable length type LiCY 7 × 0.75 mm²
– up to 50 m cable length type LiCY 7 × 1.0 mm²
For outside diameter see plug-in connector sketch
Only connect screen to PE on the supply line.

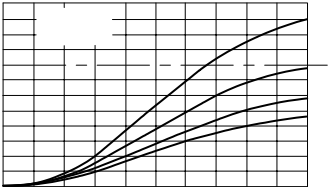
*OUFHSBUFE FMFDUSPOJDT 0#& GPS UZQF 83&&





\$IBSBDUFSJTUJD (measured with HP46, $i_{oil}=40 \pm 5$)

\$IBSBDUFSJTUJDDIVSWHFT, i_{oil}=40 ±5 , P=100bar)



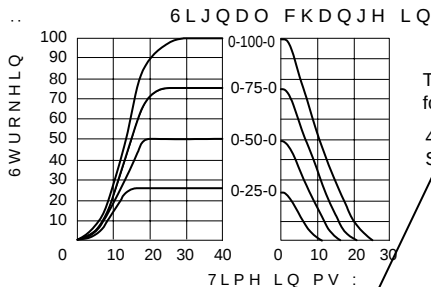
ûS EDU FRQVWDQW
ûS EDU FRQVWDQW
ûS EDU FRQVWDQW
ûS EDU FRQVWDQW
ûS EDU FRQVWDQW

ûS 9DOYH SUHVXXUH GLIIHUHQWLDO
(inlet pressure p_p minus load
pressure p_L minus return pressure p_r)

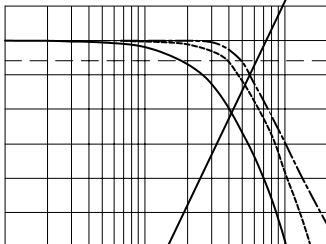
ûS EDU FRQVWDQW
ûS EDU FRQVWDQW
ûS EDU FRQVWDQW
ûS EDU FRQVWDQW
ûS EDU FRQVWDQW

ûS 9DOYH SUHVXXUH GLIIHUHQWLDO
(inlet pressure p_p minus load
pressure p_L minus return pressure p_r)

\$IBSBDUFSJTUJD DMSWFT measured with HEP6, $i_{oil}=40 \pm 5$, $P=100\text{bar}$)

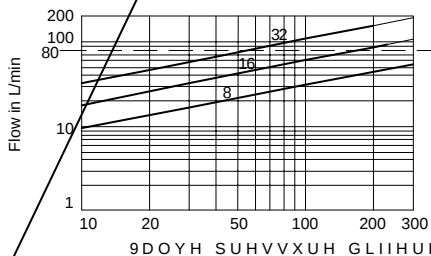


Transient function with a stepped form of electrical input signal
4/3 valve version,
Spool symbol "E"



Flow-pressure differential curve

Load function with maximum valve opening.
Nominal flows 8, 16 and 32 L/min.
Spool symbol "V"



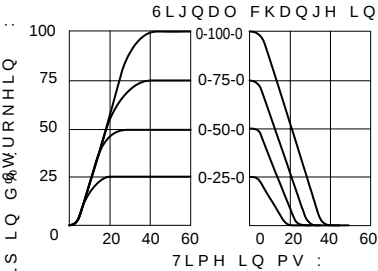
Max. permissible flow

3 : \$ % : 7
or
3 : % \$: 7

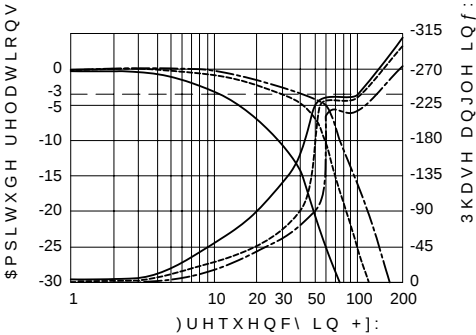
Take the maximum permissible flow of 80 L/min into account!

\$IBSBDUFSJTUJD DQVSWFT, i_{oil}=40 ±5 , P=100bar)

v 5ZQF 83&& /(



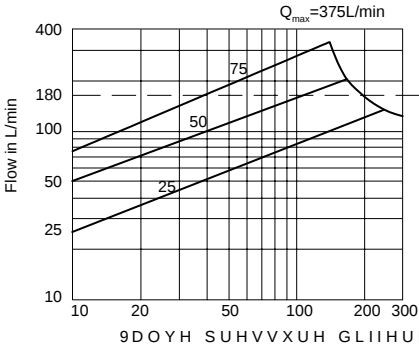
Transient function with a stepped form of electrical input signal
4/3 valve version,
Spool symbol "E"



Frequency response characteristic curves
4/3 valve version,
Spool symbol "V"

— Signal±10%
- - - Signal±25%
— Signal±100%

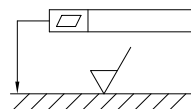
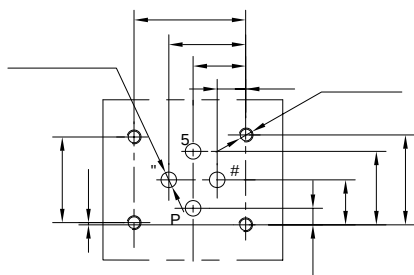
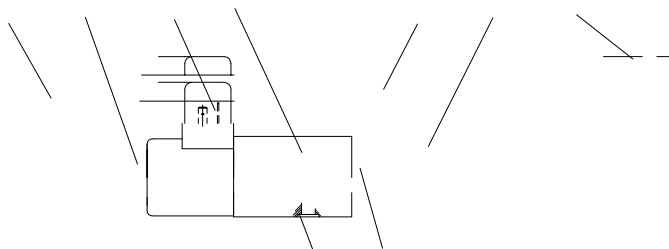
Flow-pressure differential curve
Load function with maximum valve opening.
Nominal flows 25, 50 and 75 L/min.
Spool symbol "V"



Max.permissible flow

3 : \$ % : 7
or
3 : % \$: 7

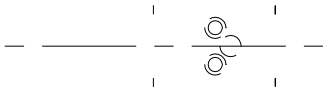
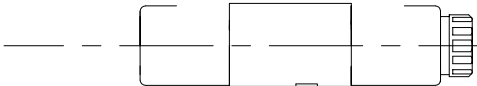
Take the maximum permissible flow
of 180 L/min into account!



6 O J U E J N F O T J P O T

(nominal dimensions in mm)

5 Z Q F 8 3 & & - 9



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Required surface finish of the
valve mounting surface

Installation Dimensions
Mounting surface

- 1 Valve housing
- 2 Proportional solenoid "a" with inductive position transducer
- 3 Proportional solenoid "b"
- 5 Name plate
- 6 Identical seal rings for ports A, B, P and T (R-ring 9.81 × 1.5 × 1.78 or O-ring 9.25 × 1.78)
- 7 Plug for valves with one solenoid (2 switching positions, versions EA or WA)
- 10 Plug-in connector
- 11 Integrated electronics (OBE)

7 B M W F N P V O U J O H T D S F X T

The following valve fixing screws are recommended:

- 4 S.H.C.S.ISO 4762 - M5 × 50-10.9
- 4 GB / T 70.1 - M5 × 50 - 10.9
- Tightening torque $M_A = 8.9 \text{ Nm} \pm 10\%$

