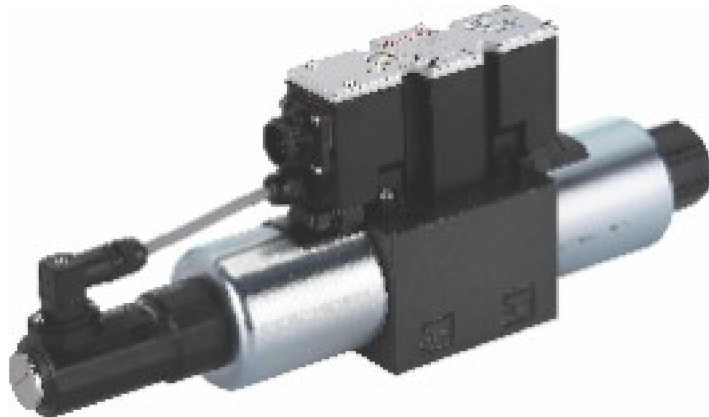


**Extra Quick Response Type
valves direct operated
4/3-way proportional directional
with electrical position feedback
with integrated electronics (OBE)**



Type DPGEE 6/10 (D03/D05)



Ordering details

DPGEE					D24			N
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With integrated electronics (OBE)

Nominal size 6 (D03) = 6
Nominal size 10 (D05) = 10

Spool symbols

= 3C2

= 3C40

N = NBR seals

Electronic interfaces A1 or B1
For DPGEE
A1 = Command value input ± 10 V
B1 = Command value input 4 to 20 mA

Electrical connections
For DPGEE:
No code = without DIN type DF31
DF31 = plug-in connector – separate order

D24 = Power supply voltage 24 VDC

Nominal flow at a valve pressure differential $\Delta p = 10$ bar [145 psi]

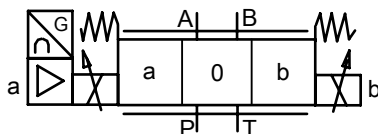
	Nominal size 6 / D03
16 =	16 l/min [4.2 gpm]
32 =	32 l/min [8.4 gpm]
	Nominal size 10 / D05
50 =	50 l/min [13.2 gpm]
75 =	75 l/min [19.8 gpm]

Note:

For spools 3C40 there is, in the neutral position, a connection between A to T and B to T with approx. 3 % of the relevant nominal cross-section.

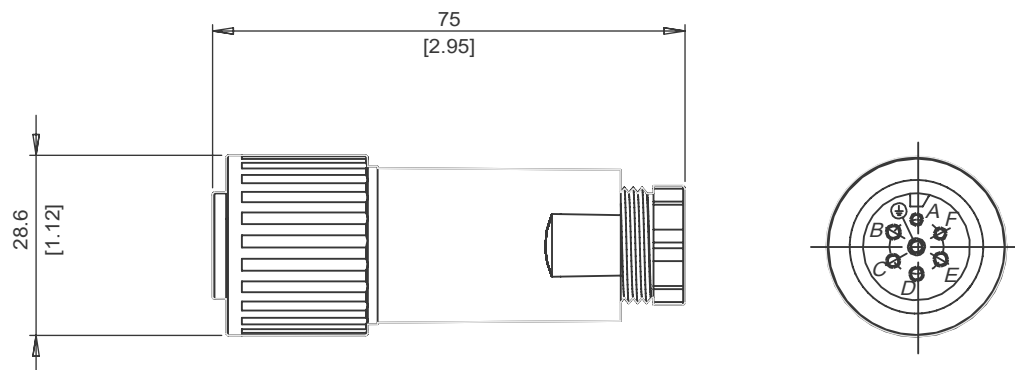
Symbols

Proportional directional valves with integrated electronics
Type DPGEE-3C2, 3C40



Technical data

General					
Nominal size		6 (D03)		10 (D05)	
Installation		optional, preferably horizontal			
Storage temperature range		°C [°F]			-20 [-4], +80 [176]
Ambient temperature range		°C [°F]			-20 [-4], +50 [122]
Weight		kg [lbs]		2.4	6.5
Hydraulic (measured with HLP46, $\vartheta_{oil} = 40\text{ °C} \pm 5\text{ °C}$ and $p=100\text{ bar}$)					
Max. operating pressure	Ports A, B, P	bar [psi]	315 [4568]		
	Port T	bar [psi]	210 [3045]		
Nominal flow $q_{V_{nom}}$ at $\Delta p = 10\text{ bar}$		l/min [gpm]	16 [4.22], 32 [8.45]		50 [13.20], 75 [19.81]
Max. permissible flow		l/min [gpm]	80 [21.13]		180 [47.55]
Pressure fluid		mineral oil (HL, HLP) to DIN 51524			
Pressure fluid temperature range		°C [°F]	-20 [-4] to +80 [176] (preferably +40 [104] to +50 [122])		
Viscosity range		mm²/s [SUS]	20 [100] to 380 [1700] (preferably 30 [141] to 46 [212])		
Max. permissible degree of pressure fluid contamination cleanliness class to ISO 4406 ©		class 17 / 15 / 12			
Hysteresis		%	≤ 0.1		
Reversal span		%	≤ 0.05		
Response sensitivity		%	≤ 0.05		
Zero point displacement with changes to the pressure fluid temperature and operating temperature	% / 10K		0.15		
	% / 100 bar		0.1		
Electical					
Nominal size		6 (D03)		10 (D05)	
Voltage type		DC			
Command value signal	Voltage input „A1“	V	±10		
	Current input „B1“	mA	4 to 20		
Solenoid coil resistance	Cold value at 20 °C	Ω	2.7	3.7	
	Max. warm value	Ω	4.05	5.55	
Duty		%	100		
Max. coil temperature		°C [°F]	150 [302]		
Electrical connection		plug-in connector DIN type DF31			
Control electronics					
Supply voltage	Nominal voltage	VDC	24		
	Lower limiting value	V	19.4		
	Upper limiting value	V	35		
Amplifier current consumption	I_{max}	A	<2		
	Max. impulse current	A	3		



Component plug allocation	Contact	Interface A1 signal	Interface B1 signal
Supply voltage	A	24 VDC ($u(t) = 19.4$ to 35 V); $I_{\max} = 2$ A	
	B	0 V	
Reference potential actual value	C	Ref. contact F; $R_e > 50$ k Ω	Ref. contact F; $R_e < 10$ Ω
Differential amplifier input	D	± 10 V command value; $R_e > 50$ k Ω	4 to 20 mA command value; $R_e > 100$ Ω
	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. 300 Ω
	PE	connected with cooling body and valve housing	

Com. value: A positive command value 0 to +10 V (or 12 to 20 mA) at D and the reference potential at E results in a flow

Com. value: from P to A and B to T.

Com. value: A negative command value 0 to -10 V (or 12 to 4 mA) at D and the reference potential at E results in a flow

Com. value: from P to B and A to T.

Com. value: For a valve with 1 solenoid on side a (e.g. spool variants 2B2B and 2B40B) a positive command value 0 to

Com. value: +10 V or 4 to 20 mA) at D and the reference potential at E results in a flow from P to B and A to T.

Actual value: Actual value 0 to +10 V resp. 12 to 20 mA at F and the reference potential at C results in flow from P to A

Actual value: and B to T, 0 to -10 V resp. 12 to 4 mA results in flow from P to B and A to T.

Actual value: For a valve with 1 solenoid results 4 to 20 mA at F and the reference potential at C results in flow from P to

Actual value: B and A to T.

Connection cable: Recommendation: – up to 25 m cable length type LiYCY 7 x 0.75 mm²

Connection cable: Recommendation: – up to 50 m cable length type LiYCY 7 x 1.0 mm²

Connection cable: Recommendation: For outside diameter see plug-in connector sketch

Connection cable: Recommendation: Only connect screen to PE on the supply line.

DETAIL FOR P/N:

DF31



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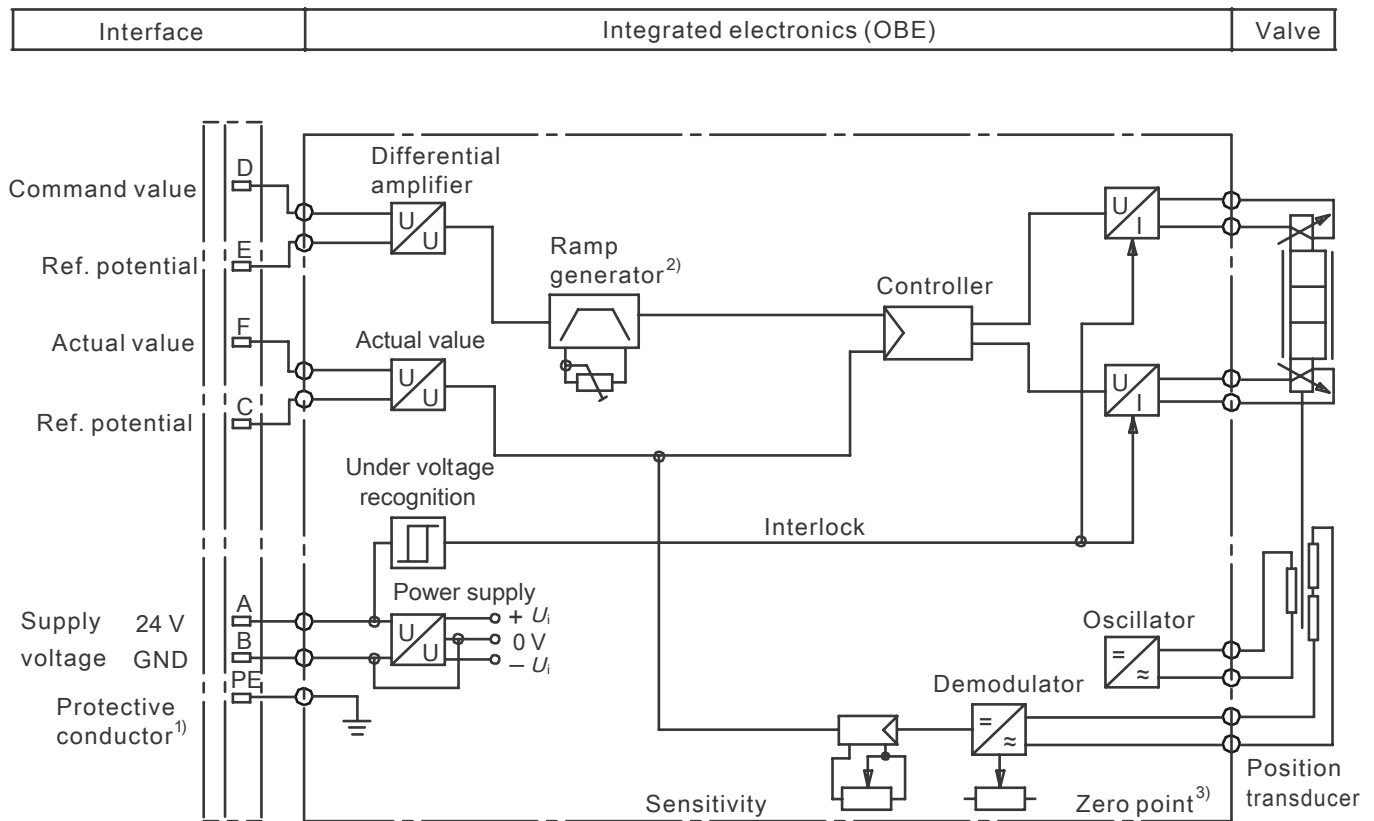
sales@hyvair.com

SCALE: NTS

UNITS: mm [in]

Integrated electronics (OBE) for type DPGEE

Block circuit diagram / connection allocation

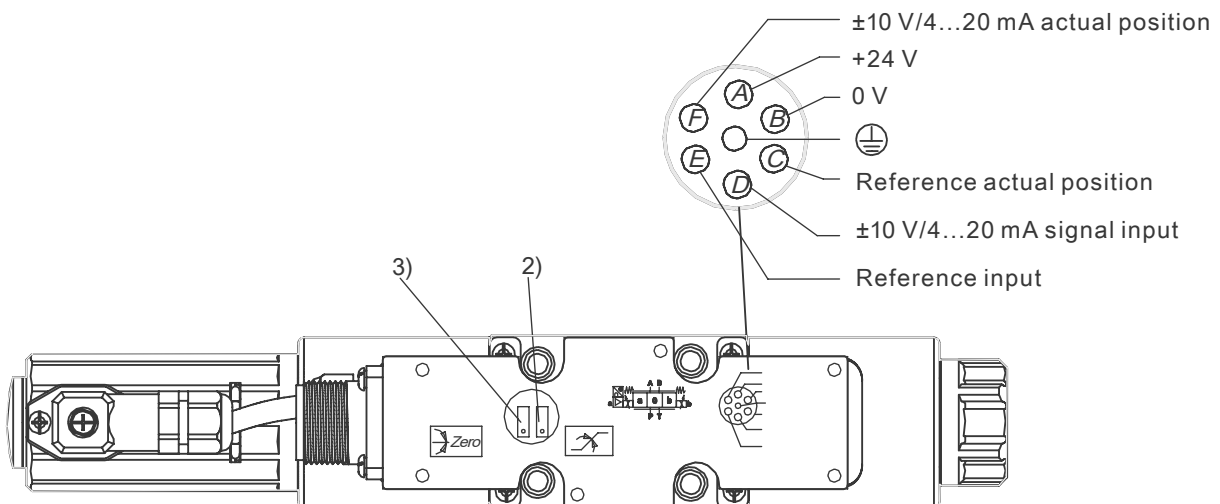


Note: Electrical signals processed by control electronics (e.g. actual value) must not be used for switching off safety relevant machine functions!

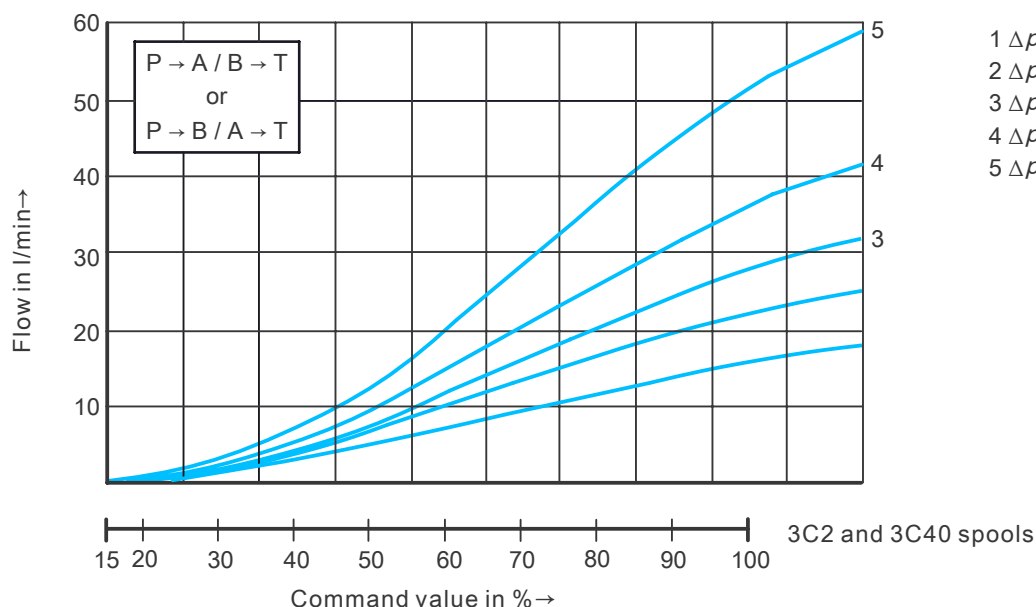
¹⁾ The protective conductor (PE) is connected to the cooling body and the valve housing!

²⁾ The ramp is externally adjustable from 0 to 2.5 s; the same applies for T_{up} and T_{down}

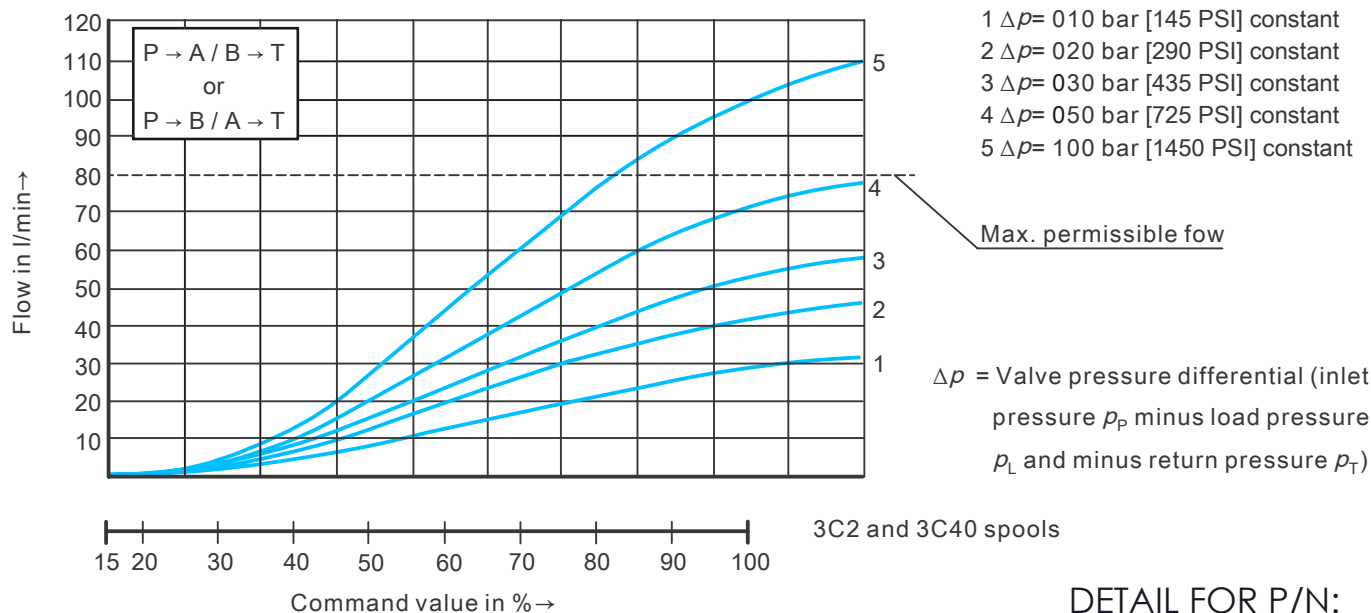
³⁾ Zero point is externally adjustable



16 l/min [4.2 gpm] nominal flow at a 10 bar [145] valve pressure differential



32 l/min [8.4 gpm] nominal flow at a 10 bar [145] valve pressure differential



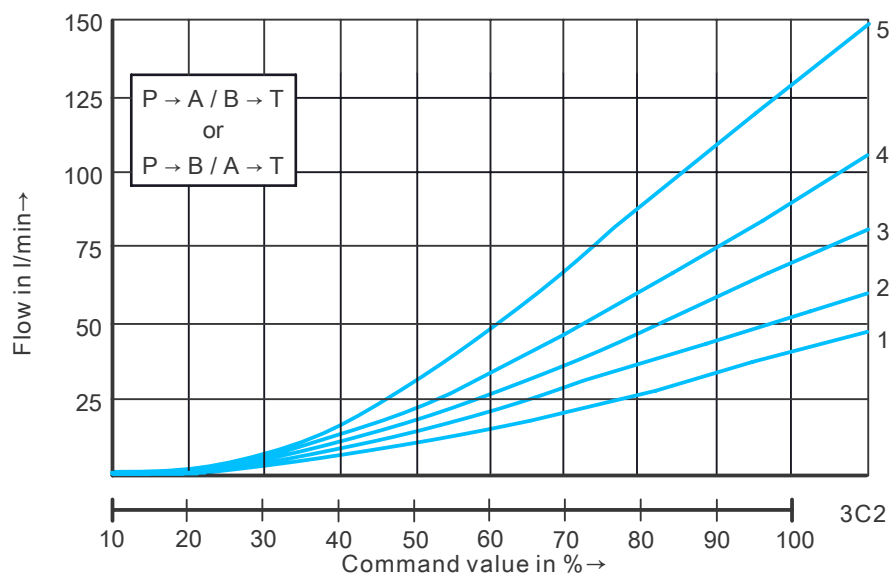
DETAIL FOR P/N:

DPGEE-6-3C*-**-D24-*1-N



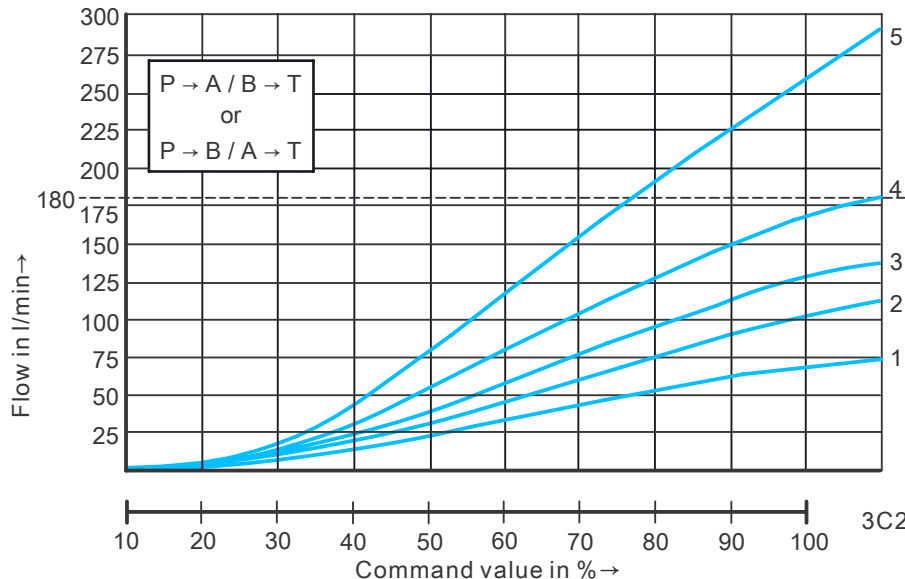
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SCALE: NTS

50 l/min [13.2 gpm] nominal flow at a 10 bar [145] valve pressure differential



- 1 $\Delta p = 010$ bar [145 PSI] constant
- 2 $\Delta p = 020$ bar [290 PSI] constant
- 3 $\Delta p = 030$ bar [435 PSI] constant
- 4 $\Delta p = 050$ bar [725 PSI] constant
- 5 $\Delta p = 100$ bar [1450 PSI] constant

75 l/min [19.8 gpm] nominal flow at a 10 bar [145] valve pressure differential



Max. permissible flow

- 1 $\Delta p = 010$ bar [145 PSI] constant
- 2 $\Delta p = 020$ bar [290 PSI] constant
- 3 $\Delta p = 030$ bar [435 PSI] constant
- 4 $\Delta p = 050$ bar [725 PSI] constant
- 5 $\Delta p = 100$ bar [1450 PSI] constant

$\Delta p =$ Valve pressure differential (inlet pressure p_p minus load pressure p_L and minus return pressure p_T)



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SCALE: 1:1 UNITS: INCH [mm]

DETAIL FOR P/N:
DPGEE-10-3C*-**-D24-*1-N

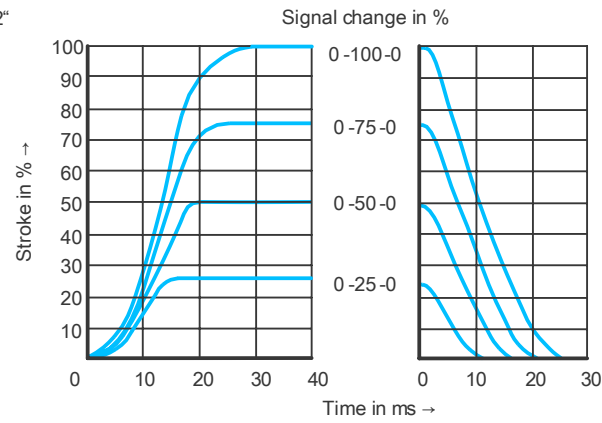
Transient function with a stepped form of electrical input signal for type DPGEE

(measured with HLP46, $\vartheta_{oil} = 40\text{ °C} \pm 5\text{ °C}$ and $p_s = 10\text{ bar}$)

NS 6/ D03

4/3 valve version

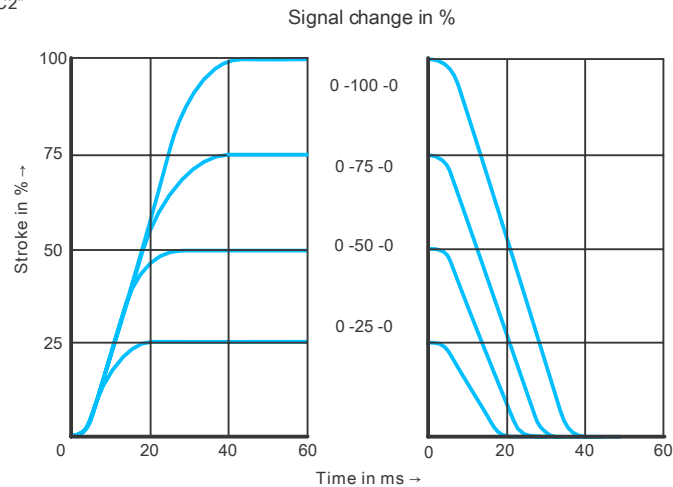
Spool symbol "3C2"



NS 10 / D05

4/3 valve version

Spool symbol "3C2"



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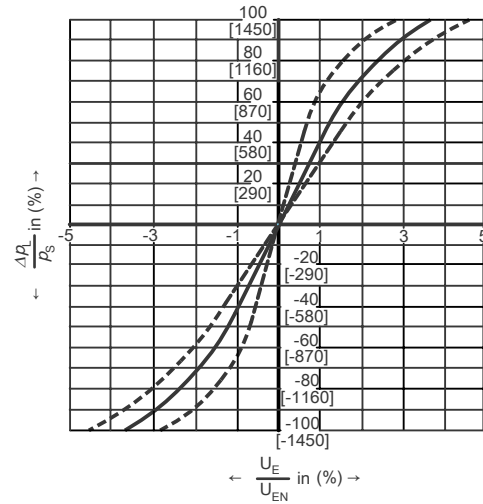
UNITS: INCH [mm]

DETAIL FOR P/N:
DPGEE-6-3C*--D24-*1-N**
DPGEE-10-3C*--D24-*1-N**

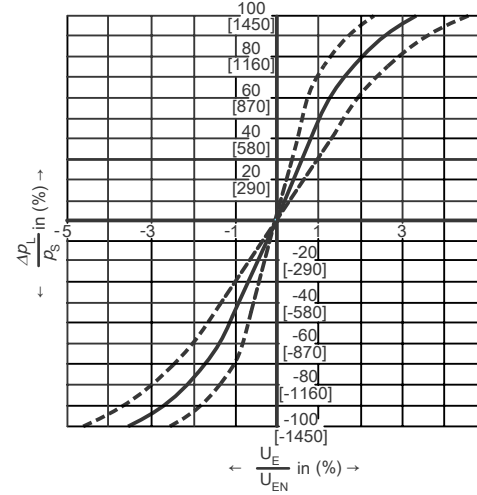
Characteristic curves for type DPGEE (measured with HLP46, $\vartheta_{oil} = 40\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$) NS 6 (D03) and 10 (D05)

Pressure-signal-characteristic curves (3C2 spool), $p_s = 100\text{ bar}$ [1450 PSI]

Nominal size 6 (D03)

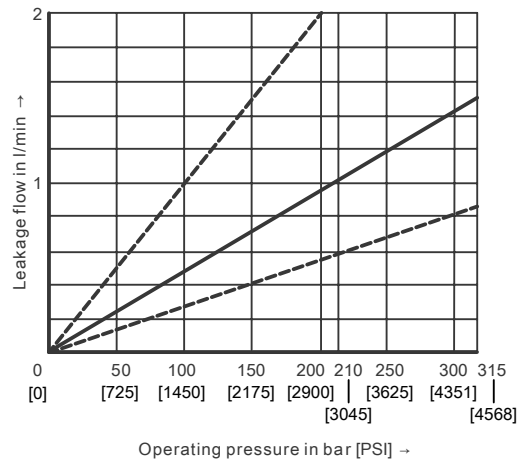


Nominal size 10 (D05)

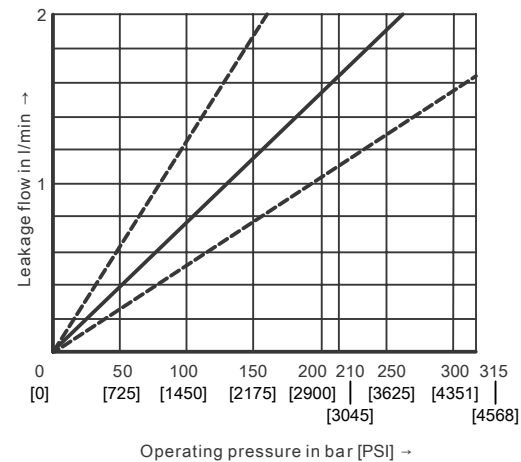


Leakage flow with the spool in the central position

Type DPGEE 6 V32 / 8.4 GPM



Type DPGEE 10 V75 / 19.8 GPM



DETAIL FOR P/N:

DPGEE-6-3C*--D24-*1-N**

DPGEE-10-3C*--D24-*1-N**

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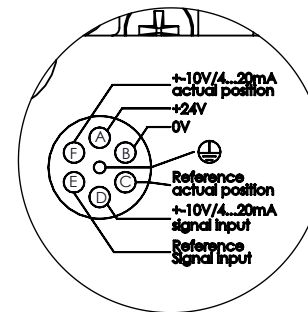
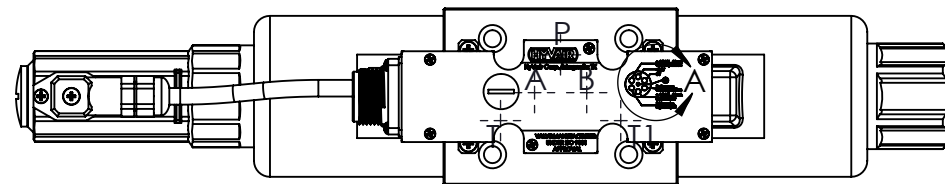
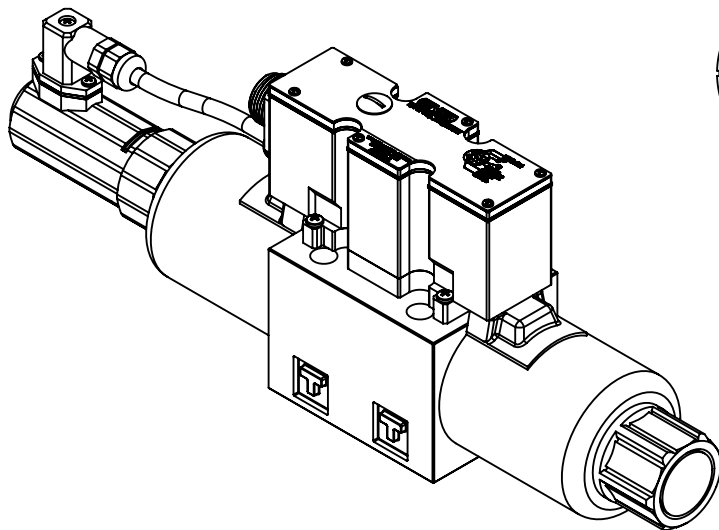
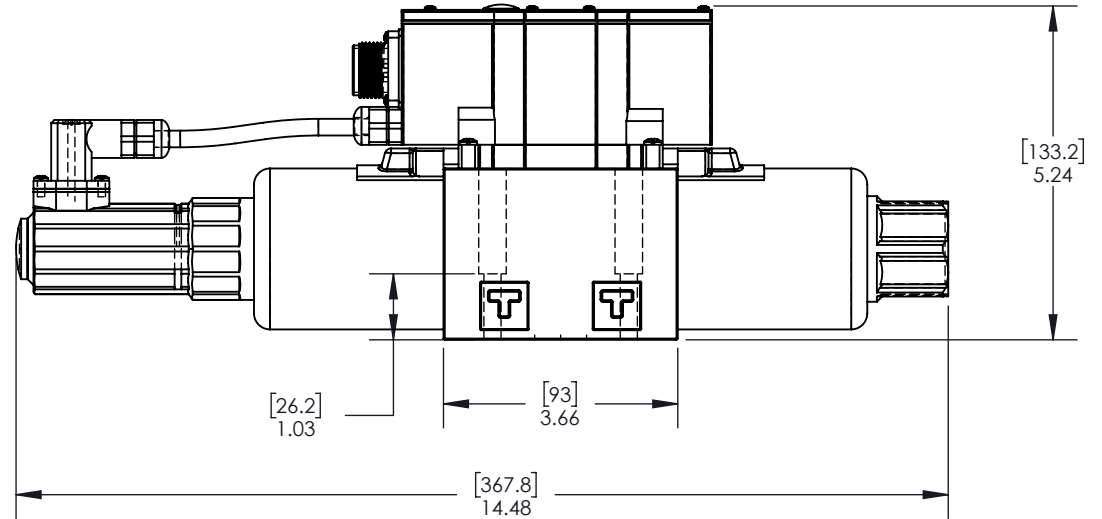
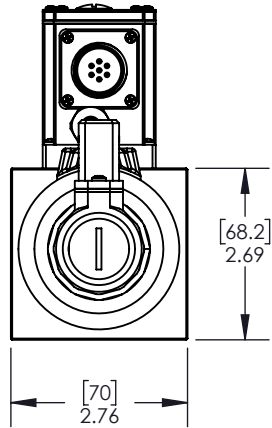
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SCALE: 1:1.4 UNITS: INCH [mm]



DETAIL A
SCALE 4 : 3

DETAIL FOR P/N:
DPGEE-10-*.*.*
(D05)



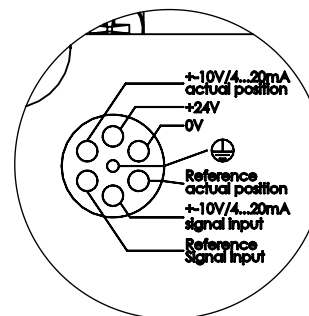
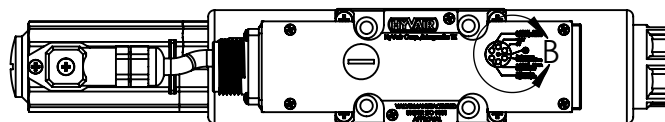
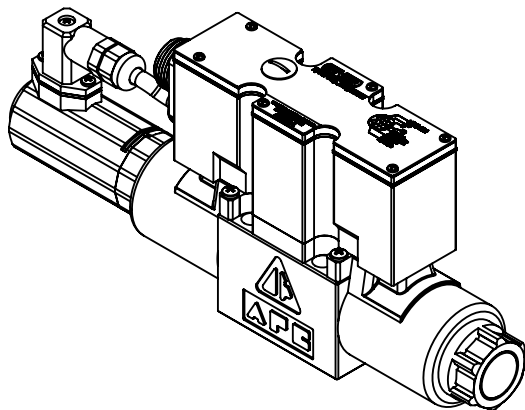
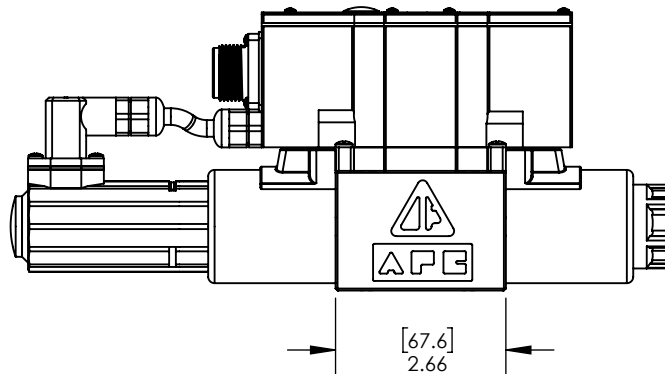
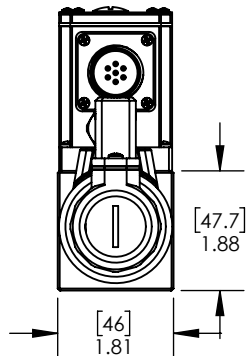
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SCALE: 1:3 UNITS: INCH [mm]



DETAIL B
SCALE 4 : 3

DETAIL FOR P/N:
DPGEE-6--B1**
(D03)

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SCALE: 1:3 | UNITS: INCH [mm]