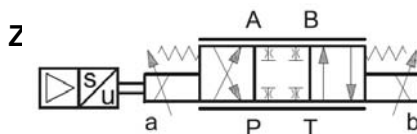
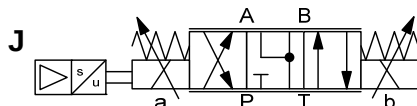
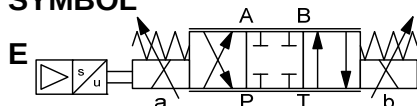


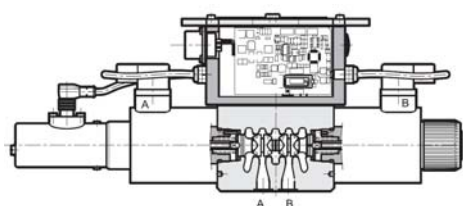


4/3-Proportional Solenoid Valve direct acting, with integrated Electronics and transducer Subplate to ISO4401 P4WRE 10

SYMBOL



**Up to 180 l/min
Up to 320 bar
FUNCTION**



The P4WRE10 is a direct acting solenoid valve which combines the directional control with the velocity control of the consumer.

The controlled nominal flow is proportional to the electrical input signal at the coil.

Analogue to his size the coil creates a force and moves the piston against the spring. Herewith the corresponding cross section diameters are opened which determines the flow rate in dependence of the pressure differential. The integrated digital electronics permits a better performance of the valve and function by

- shortened response times
- reduced hysteresis
- better repeat accuracy

FEATURES

- High flow rate due to optimized casted housing
- Small hysteresis by super finish of moving parts
- Long life cycle times by armature switching under oil
- Minimal wear by hardened and ground valve piston
- Simple exchangeability by international standardized hole pattern to ISO 4401
- Integrated digital amplifier and position transducer

SPECIFICATIONS

Operating pressure:

ports P,A,B max. 320 bar

port T max. 210 bar

Maximal flow:

180 l/min (ΔP 10 bar P->T)

Nominal flow:

50 l/min

75 l/min

70/35 = 70 l/min (P-A) 35 l/min (P-B)

(in % of Qmax) < 0,2 %

Hysteresis:

Repeat accuracy: (in % of Qmax)

< +/- 0,1 %

Media operating temp.range:

-20°C up to +80°C

Ambient temperature range:

-20°C up to +60°C

Hydraulic fluid:

Hydraulic fluid to DIN 51524 part 1 / 2

Viscosity range:

10 mm²/s up to 400mm²/s

Filtration:

Class 18/16/13 up to 19/17/14 according to ISO4406

Coil duty rating:

100% (continuous)

Supply voltage:

DC

Nominal current:

0,86 A bei 24V DC

Resistance at 20°C:

17,6 Ohm bei 24V DC

Electromagnetic compatibility: (EMC)

Emissions to EN 50081-1

compatibility to EN 50082-2

to Norm 89/336 CEE

IP65

IP rating:

Installation:

no orientation restrictions

Hint:

Vent system and valve before setting in motion

Hole pattern:

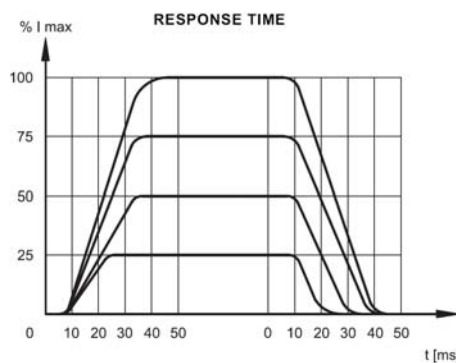
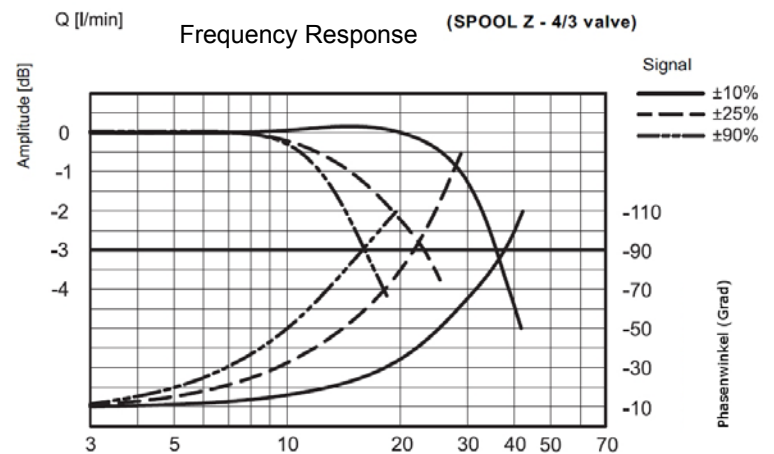
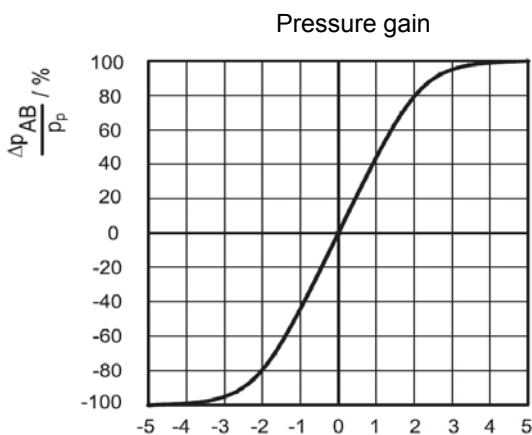
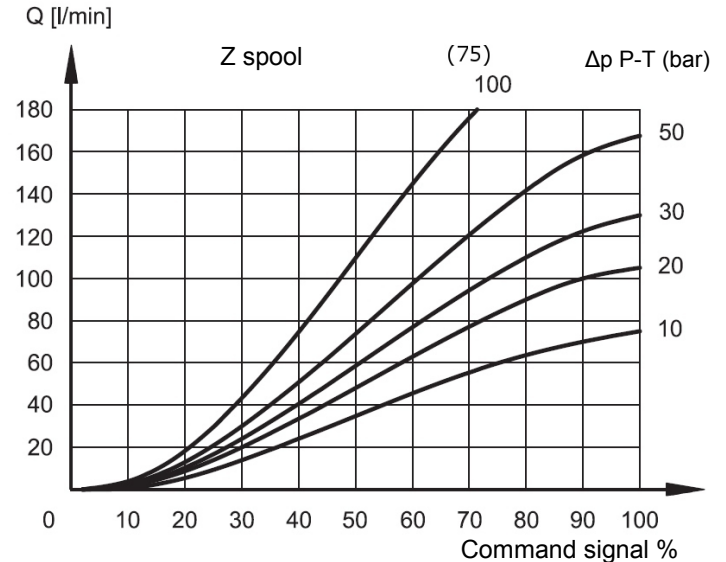
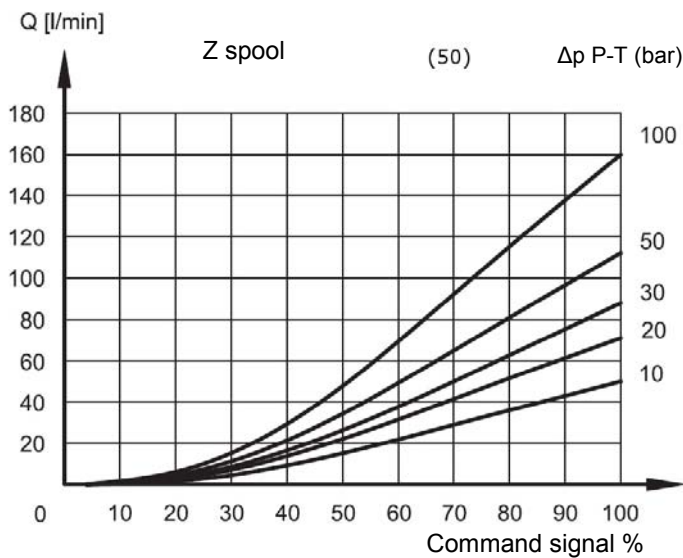
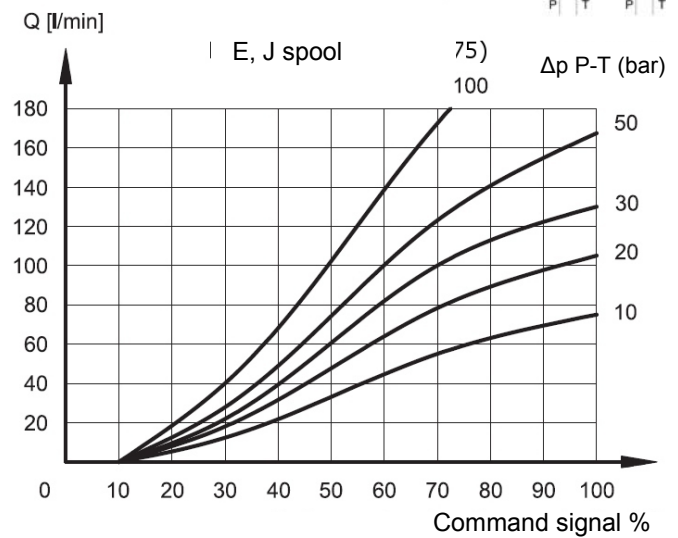
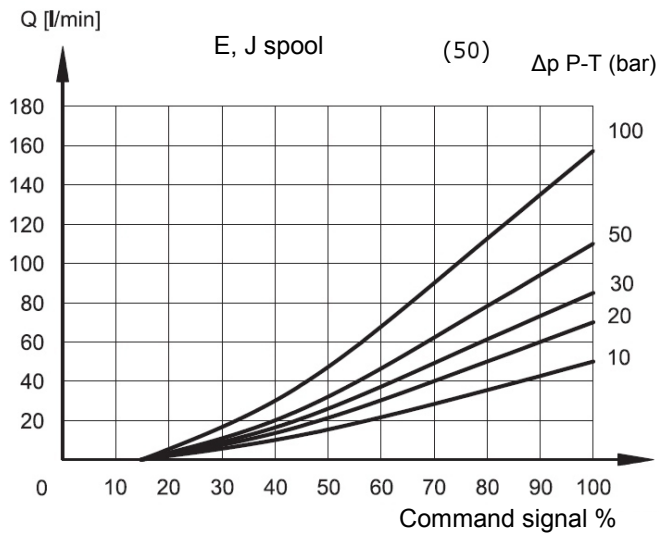
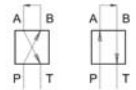
ISO4401-05-04-0-05

Weight:

7,1 kg

PERFORMANCE

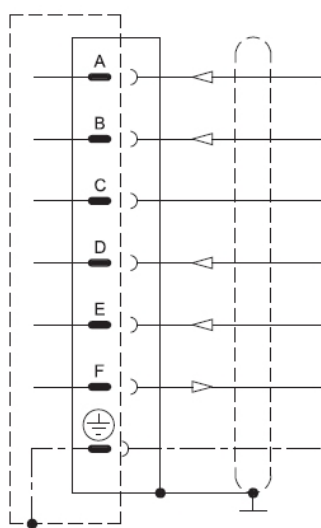
measured at $v = 33 \text{ mm}^2/\text{s}$ and $T_{\text{oil}} = 46^\circ \text{C}$ (The related Δp is measured between lines P and T of the valve)



Curve taken at 50% flow and $\Delta p \text{ 10 bar P} \rightarrow \text{T}$

Input signal E0

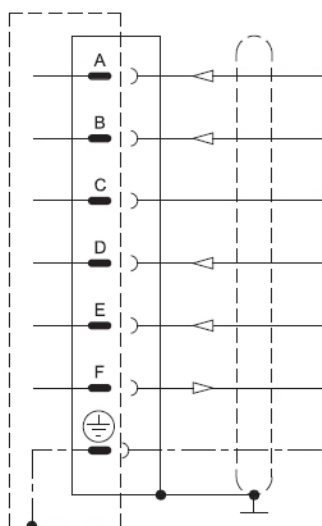
voltage signal



Pin	Values	Function	NOTES
A	24 V DC	Voltage	from 19 to 35 V DC (ripple max 3 Vpp) (see NOTE 1)
B	0 V	Power supply (zero)	0 V
C	24 V DC	Valve Enable	NOTE 2
D	± 10 V	Input signal analogue	Impedence $R_i > 50$ k Ω (see NOTE 3)
E	0 V	Ground analogue	---
F	6 - 10V o 2 - 6 -10V	Monitor feedback or Lin comm	see NOTE 4
PE	GND	Protective ground	---

Input signal E1

current signal



Pin	Values	Function	NOTES
A	24 V DC	Voltage	from 19 to 35 V DC (ripple max 3 Vpp) (see NOTE 1)
B	0 V	Power supply (zero)	0 V
C	24 V DC	Valve Enable	NOTE2
D	4 ÷ 20 mA	Input signal	Impedence $R_i > 500$ k Ω
E	0 V	Zero reference	---
F	6 - 10V o 2 - 6 -10V	Monitor point or Lin comm	see NOTE 4
PE	GND	Protective ground	---

NOTE 1: preview on the Pin A (24 VDC) an external fuse for protecting electronics. Fuse characteristics: 5A/50V type fast.

NOTE 2: preview 24V DC on the PIN C to activate the card power stage.

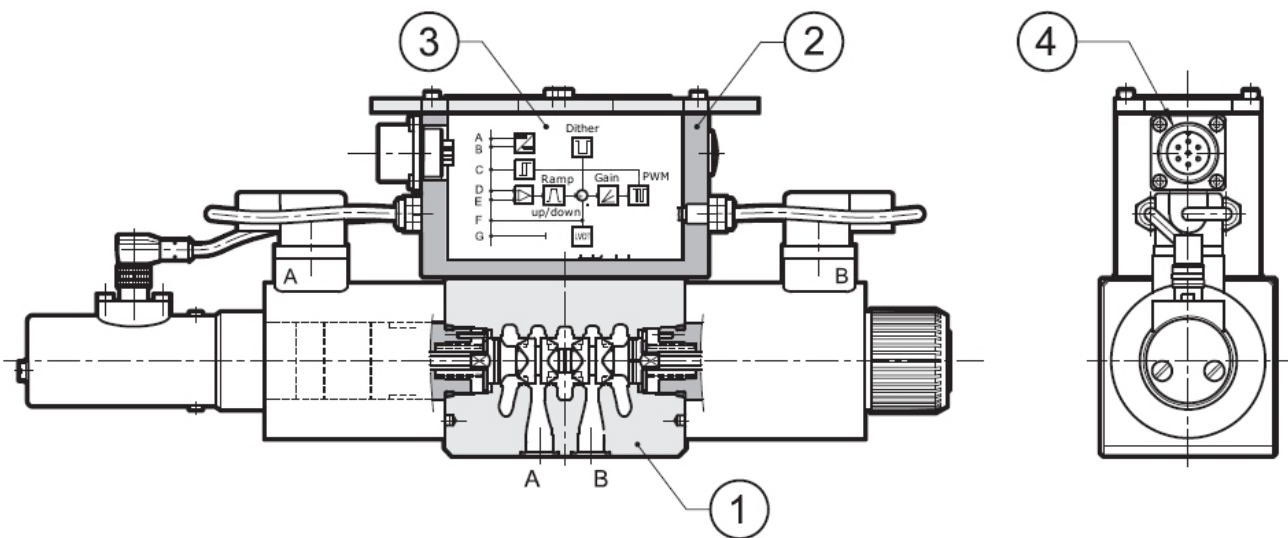
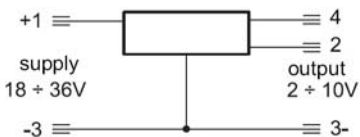
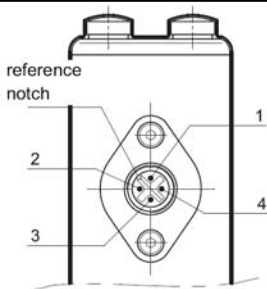
NOTE 3: The input signal is differential type on E0 version only. For double solenoid valves, with positive reference signal connected to pin D, the valve opening is P - A and B - T. With zero reference signal the valve is in central position. For "SA" single solenoid valves, with positive reference to pin D, the valve opening is P-B and A-T. The spool stroke is proportional to UD - UE. 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 4: This value changes, as shown in the table below. When MONITOR function is enabled and the card is enabled, read the test point pin F in relation to pin B (0V). When detect a failure or error of the sensor LVDT, the drive bring the valve back in central position and locks it. In this condition the pin F, referring to the pin B, indicates 0V DC output. To reset the fault, the card must be disabled and re-enable. When the card is disabled, the pin F referred to the pin B shows 2.7V DC output: this value is given by the voltage of the LIN bus communication and not by the MONITOR value.

ELECTRONICS

Position Transducer – Electrical connection

Pin 1	Supply 18 ÷ 36 V	Pin 8c
Pin 2	Outlet 0 ÷ 10 V	Pin 24a
Pin 3	0 V	Pin 22c
Pin 4	NC	NC



1	Valve with proportional coils	3	Digital card
2	Housing for Electronics	4	Main connector

- Power input:

Current draw:

Nominal voltage:

Coil duty rating:

Input signal E0:

Input signal E1:

Alert signals:

Communication:

Electronics port:

EMC EN61000-6-4:

EMC EN61000-6-4:

IP rating:
- 70 W

2,6 A max.

24 VDC (19-35VDC, ripple max.3Vpp)

100% (continuous)

voltage signal +/-10VDC (Impedance Ri >50 kOhm)

current signal 4-20mA (Impedance Ri =500 Ohm)

Overload and overheating of Electronics, LVDT sensor failure, cable break, power failure <4mA

LIN Bus Interface (optional on request)

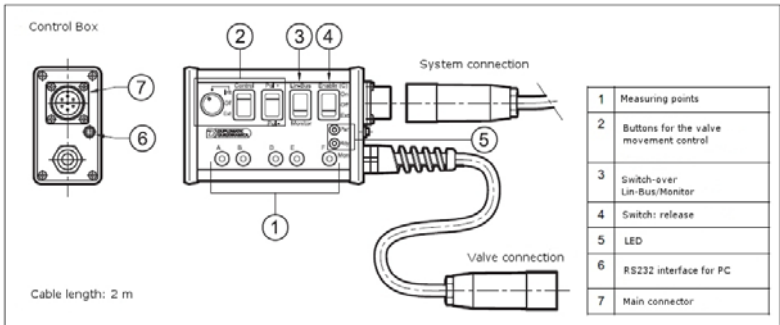
7-pin MIL-C-5015-G (DIN43563)

Corresponding 2004/108 CE Standard

Corresponding 2004/108 CE Standard

IP65 (CEI EN 60529 Standard)

Attention: to parameterize the OBE a control box is necessary (not in the standard scope of delivery)
Price on request



Standard models
on request

Part No.

MODEL CODE

P4WRE 10 E 50 D01- 24PG E0 /V

Name _____
Proportional solenoid valve
subplate with integr. Electronics

Nominal size _____
10

Symbol _____
E, J, Z

Nominal flow _____
50= 50 l/min
75 = 75 l/min
70/35 = 70 l/min (P-A), 35 l/min (P-B)

at $\Delta p = 10$
bar P-T

Type _____
D01 = Standard type with manual override

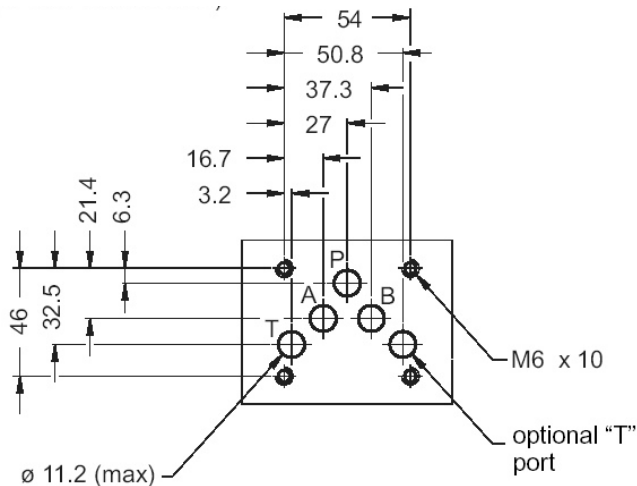
Nominal voltage _____
24= 24 V DC

Coil Connector _____
PG= DIN plug to EN175301-803 (for coil)

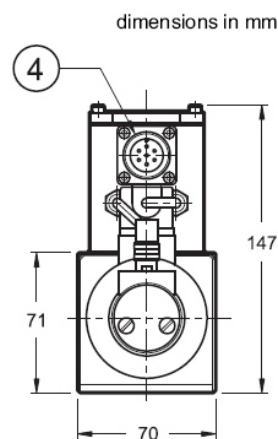
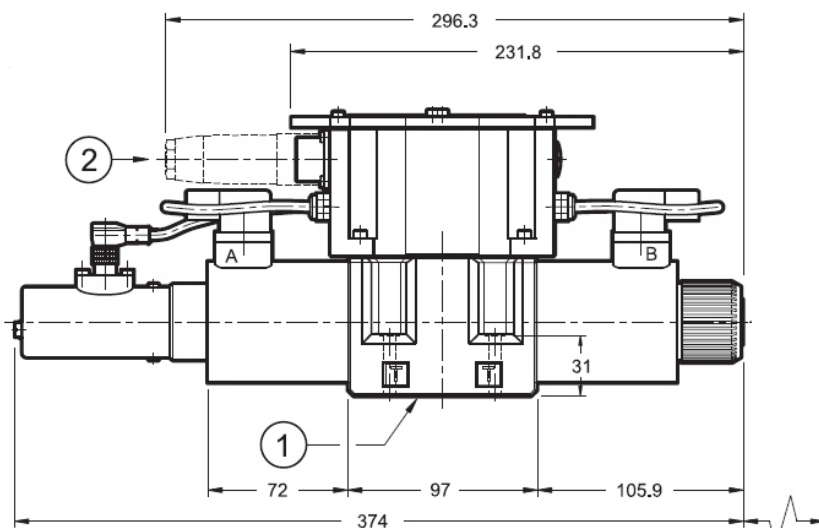
Input signal _____
E0= +/-10 V
E1= 4-20 mA

Seal material _____
V= FPM (Standard)
N= NBR (optional)

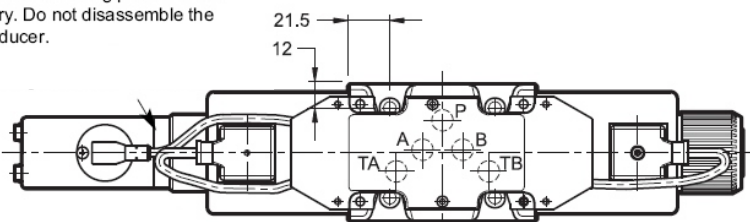
Hole pattern to ISO4401 05-04-0-05



DIMENSIONS



Adjustment sealing performed at
factory. Do not disassemble the
transducer.



- 1) Mounting plate with O-rings 5x 12,42 x 1,78 NBR 90 Shore
- 2) Plug 7 pin DIN 43563 – IP65 PG11 EX7/L/10
(not included in delivery Mat. 6080324)
- 3) Free space for mounting the coil
- 4) Main plug

Fastening screws: 4x M6 x 40 10.9, Torque 8 Nm +0,5 Nm or quality 12.9 14 Nm
All dimensions in mm. Fastening elements are not in the scope of delivery.

Annotation
The technical information in this
brochure are relating to the operating
conditions and applications.
At deviant applications and/or
operating conditions please contact
the technical dept.
Technical information are
subject to technical modifications.

HYDAC Fluidtechnik GmbH
Justus-von-Liebig-Str. 5
66280 Sulzbach / Saar
Tel.: 06897 / 509 -0
Fax: 06897 / 509 -598
Email: flutec@hydac.com