

RE 58 038/04.99

## Proportional pressure reducing valve Type FTDRE 4 K

Nominal size 4

Series 1X

Maximum control pressure 18 / 30 bar

Maximum operating pressure 210 bar

Flow 5 L/min at  $\Delta p = 7$  bar



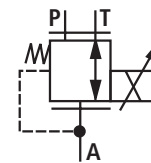
F 95 013

Type FTDRE 4 K1X/30A...C4V

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### Symbol



### Ordering details

FTDRE	4	K	1X/	A		V	*
Proportional pressure reducing valve, non standardised design, electrical actuation							Further details in clear text (special versions on request)
Nominal size 4	= 4					V =	FKM seals (for compatible pressure fluids see technical data on page 2)
Cartridge valve		= K				<b>C2 =</b>	<b>Electrical connections</b> Terminal with plug type SS 2P (ITT-Cannon), with hand override
Series 10 to 19 (10 to 19: unchanged installation and connection dimensions)			= 1X			<b>C4 =</b> <sup>1)</sup>	Plug, 2-pin, type Junior Timer (AMP)
Max. settable pressure at port A							
18 bar			= 18				
30 bar			= 30				
Solenoid wet (switches in the pressure fluid)				= A			
Nominal voltage 12 V					= G12		
Nominal voltage 24 V					= G24		

<sup>1)</sup> The hand override can only be actuated after the plug has been removed.



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## Function, section

The proportional pressure reducing valve type FTDRE 4 K... reduces the pressure in port A in proportion to the solenoid current. It operates virtually independently from the pressure in port P.

The valve is suitable for the control of directional valves and hydraulic cylinders, particularly those in the mobile and automotive technology sectors.

The hydraulic pressure in port A acts on the spool (1) against the solenoid force.

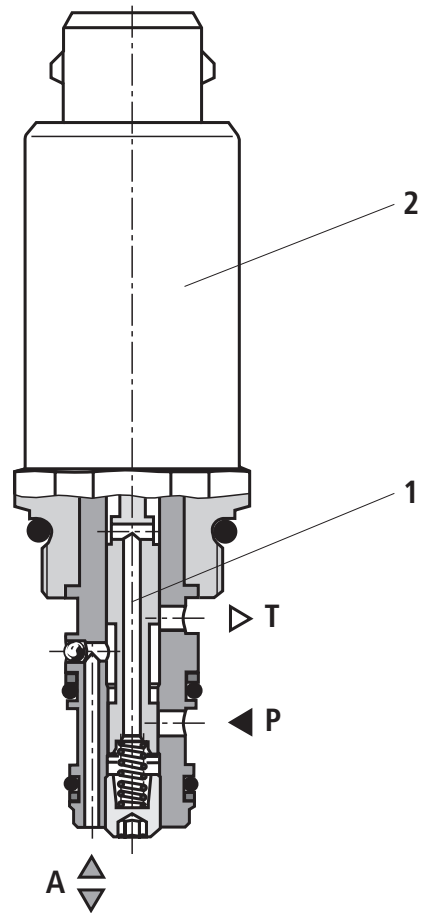
With the proportional solenoid (2) de-energised port P is closed and port A is connected to tank T.

The valve can be supplied with the nominal voltages of 12 V and 24 V. Operation is only permissible with a suitable amplifier (see technical data).

### ⚠ Note!

For mains operation an isolating transformer with separated windings is required.

For optimum operation the solenoid must be filled with the pressure fluid (also see technical data "Installation").



## Technical data (for applications outside these parameters please consult us!)

### General

Weight	kg	approx. 0.19
Installation		optional, preferably with the electrical connection hanging downwards, (when the valve is horizontally mounted or if the electrical connection is pointing upwards then a minimum back pressure $p_T$ has to be created to ensure that the valve stays full of oil)
Ambient temperature range	°C	- 30 to + 120
Solenoid surface protection		coating to DIN 50 961-Fe/Zn 10C
Salt spray test to DIN 50 021	h	144

## Technical data (for applications outside these parameters please consult us!)

### Hydraulic

Control pressure ( $p_A$ ) at port A		see tolerance band on page 4
Input pressure ( $p_P$ )	bar	$\leq 210$
Back pressure (pressure $p_T$ at port T)	bar	zero pressure (valve pressure tight up to 30 bar) attention: back pressure $p_T$ increases the set pressure $p_A$ , even with current $I = 0$
Flow details valid for BP Dexron II and + 80 °C		
– Flow ( $\Delta p = 7$ bar)	L/min	$\geq 5$
– Max. leakage flow at port T at $p_P = 210$ bar and control current $I = 0$	cm <sup>3</sup> /min	$\leq 150$
– Max. control flow at $p_P = 210$ bar, $q_{VA} = 0$ and control current $I = I_{max}$	cm <sup>3</sup> /min	$\leq 400$
Stepped response with control current alteration (for test set-up see page 4)	$t_{on}$ $t_{off}$	max. 40 ms max. 20 ms
Pressure fluid		mineral oils to DIN 51 524, ATF Dexron II, Fiat Tutela Multi F
Pressure fluid temperature range	°C	– 30 to + 80
Degree of contamination		maximum permissible degree of contamination of the pressure fluid is to NAS 1638 class 9. We, therefore, recommend a filter with a minimum retention rate of $\beta_{10} \geq 75$ .

### Electrical

Voltage type		DC
Amplifier nominal voltage	V	12                      24
Max. control current	A	1.8                      0.8
Coil resistance (20 °C)	$\Omega$	2.4                      12
Duty (with amplifier)	%	100
Electrical connection		see ordering details
Protection to DIN 40 050, part 9	– Solenoid – Electrical connection	IP 6K5 IP 6K5
Chopper frequency (recommended) <sup>1)</sup>	Hz	200
Possible control electronics in plug-in amplifier housing <sup>2)</sup> (separate order)		FTE 0011 (see RE 58 011); FTE 0012 (see RE 58 012); FTE 0015 (see RE 58 015); FTE 0016 (see RE 58 016); FTE 0018 (see RE 58 018); FTE 0019 (see RE 58 019)
Possible control electronics as carrier rail module <sup>2)</sup> (separate order)		VT 11008, VT 11009, VT 11017 and VT 11018 (see RE 29 762) Power supply modules:     VT 11005 (12 V, see RE 29 732) VT 11006 (24 V, see RE 29 729)

<sup>1)</sup> The chopper frequency must be suited to the application. Please take the application temperature into account.

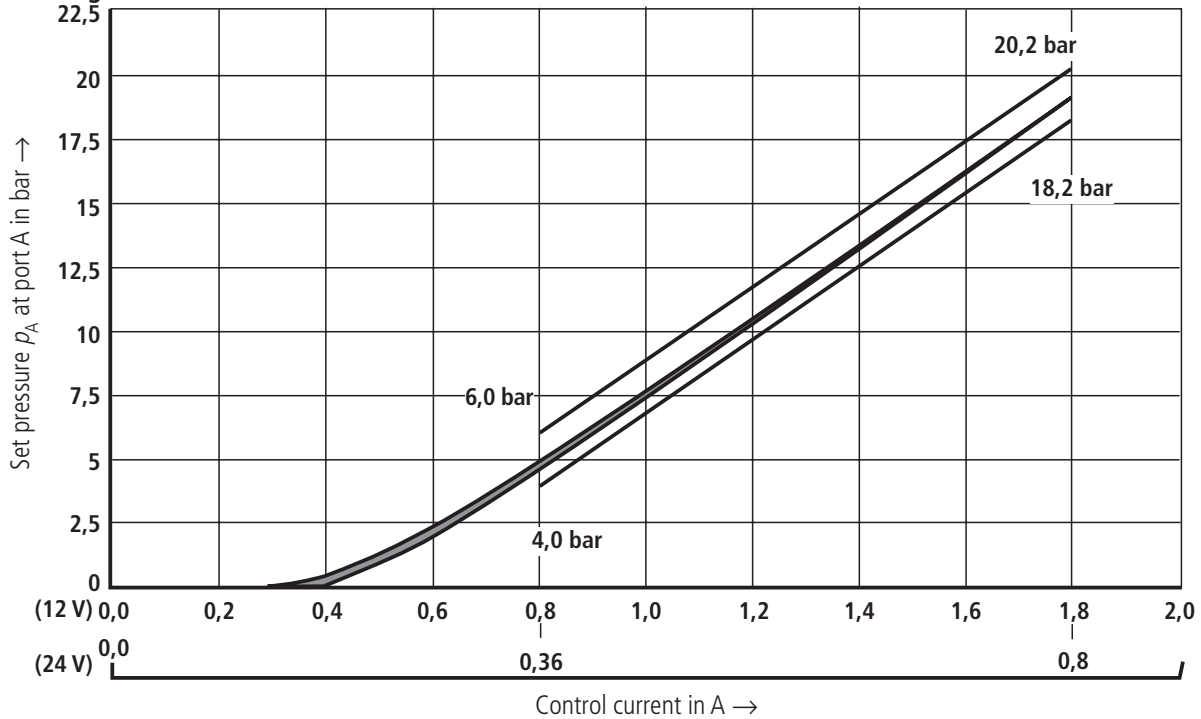
<sup>2)</sup> The above mentioned control electronics type FTE... can be optionally operated with 12 V and 24 V. Thus the 12 V valve type may always be used independent from the supply voltage. When using the above mentioned control electronics types VT... the voltage must be considered.

#### Note:

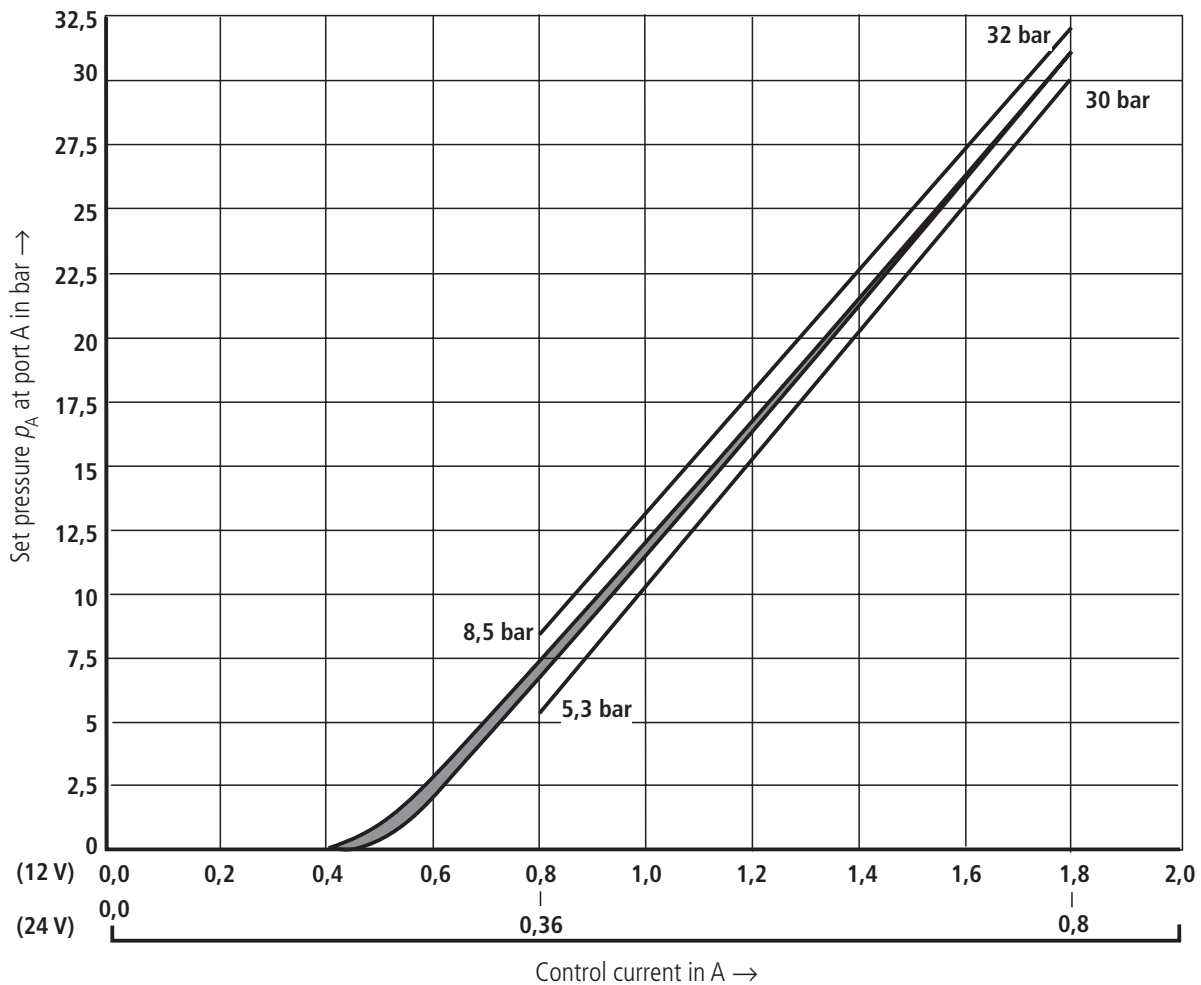
For technical details (e.g. frequency response) on request.

# Characteristic curves with tolerance band

Pressure stage 18 bar

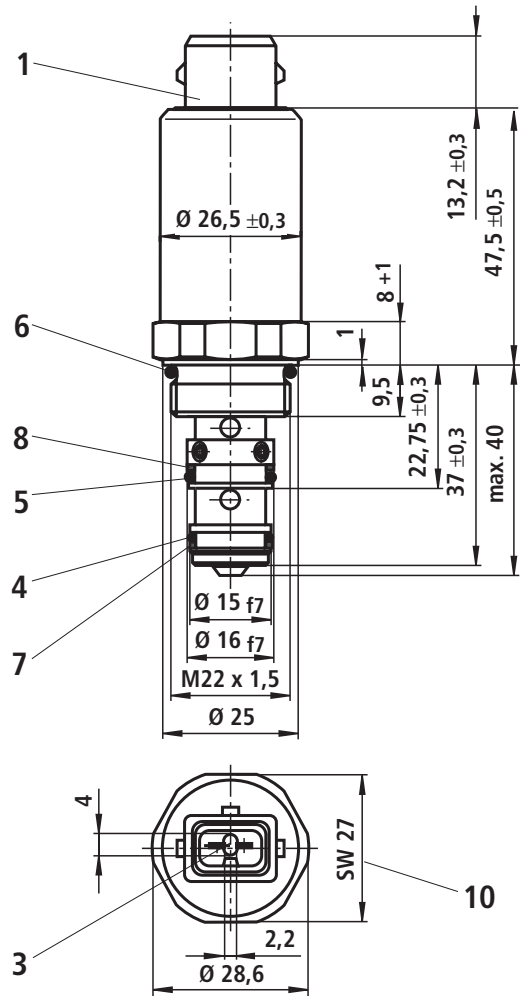
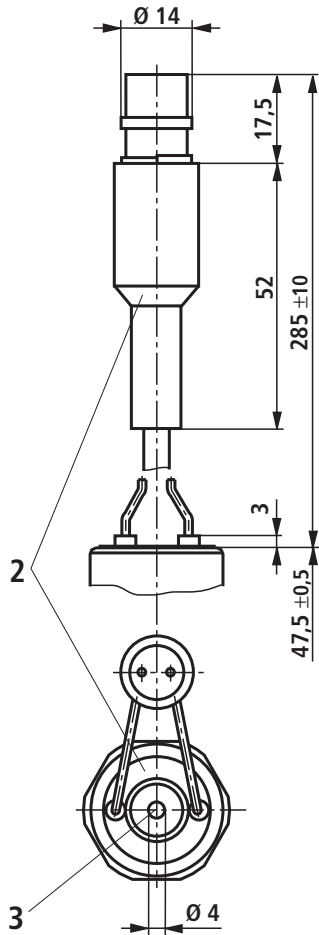


Pressure stage 30 bar

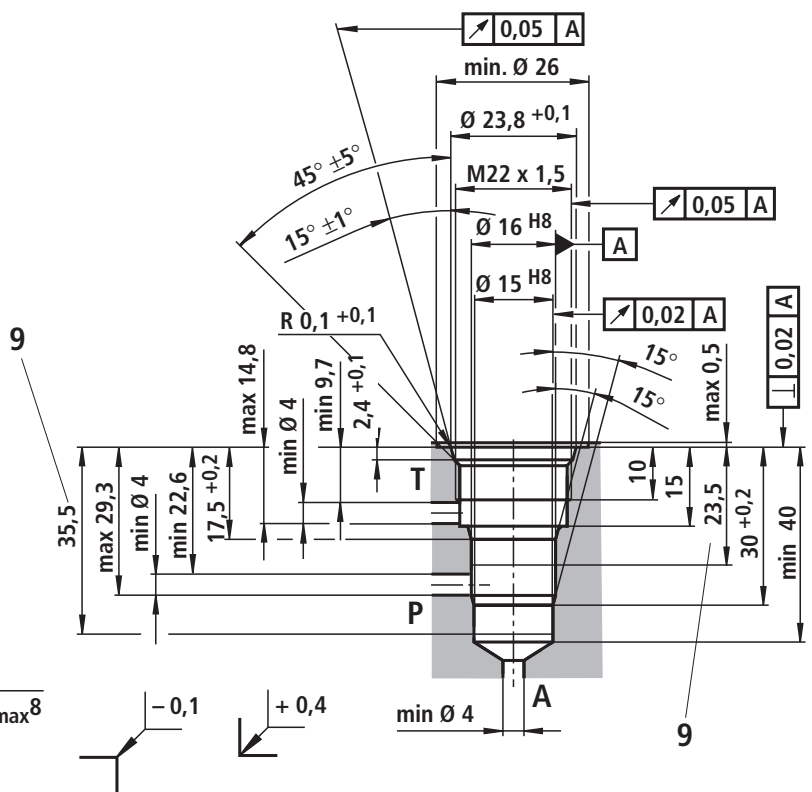


Amplifier:	FTE 0011	Test medium:	BP Dexron II
Chopper frequency:	$f_c = 200$ Hz	Test temperature:	$\vartheta = 50$ °C
Installation position during testing:	horizontal	Dead volume at port A:	$V = 135$ mL
Inlet pressure:	$p_p = 50$ bar	Hysteresis:	max. 5 %

**Unit dimensions** (Dimensions in mm)



- 1 Version **C4**  
2-pin plug, type Junior Timer (AMP)
- 2 Version **C2**  
Terminal (AWG 18) with  
2-pin plug, type SS 2P (ITT-Cannon)
- 3 Hand override  
With version **C4** the hand override can only  
be actuated after the plug has been removed.
- 4 O-ring 12 x 1.5 (FKM)
- 5 O-ring 12.42 x 1.78 (FKM)
- 6 O-ring 19.4 x 2.1 (FKM)
- 7 Back-up ring 16 x 13.4 x 1
- 8 Back-up ring 15 x 12.8 x 1
- 9 Minimum depth of fit
- 10 Spanner flat 27A/F,  $M_A = 12 \text{ Nm} + 5 \text{ Nm}$



Required surface finish in the areas  
of fit and chamfer

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