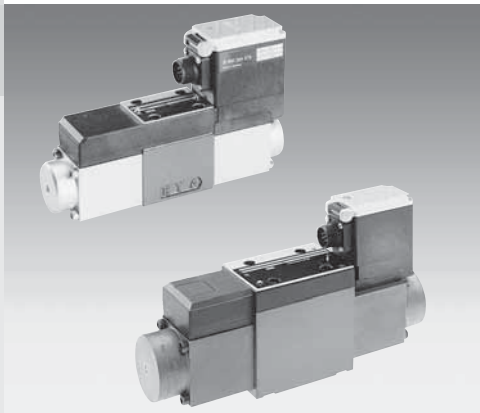
Rexroth
Bosch Group

4/3 proportional directional control valve, without position control, with on-board electronics (OBE)

RE 29051/01.06 1/18
Replaces: 09.05

Type 4WRBAE..E../..W..



Nominal size (NG) 6, 10
Unit series 2X
Maximum working pressure P, A, B 315 bar, T 250 bar
Nominal flow rate Q_{nom} 18...32 l/min (NG6), 35...65 l/min (NG10)

Overview of Contents

Features

- Directly controlled NG6 and NG10 valves with positive overlap and on-board electronics
- Actuated on both sides, standard symbols E, W
- Adjustable by means of the setpoint in the on-board electronics, see Characteristic Curves
- Valves are preset at the factory, ramp is set to minimum ramp time and overlap (Q_{min} at 0.8 V) to Q_{nom} at 8 V
- For subplate attachment, mounting hole configuration NG6 to ISO 4401-03-02-0-94, NG10 to ISO 4401-05-04-0-94
- Subplates as per catalog sheet, RE 45053 for NG6, RE 45055 for NG10 (order separately)
- Plug-in connector to DIN 43563-AM6, see catalog sheet RE 08008 (order separately)
- Data for the on-board trigger electronics
  - Complies with CE, EMC directives EN 61000-6-2: 2002-08 and EN 61000-6-3: 2002-08
  - $U_B = 24\ V_{nom}$ DC
  - Electrical connection 6P+PE
  - Signal actuation
    - Standard 0...±10 V (A1)
    - Version 2...12...20 mA (F1)
  - Valve curves calibrated at the factory

Ordering data

4WRBA	E		–	J	–	2X	/	G24	N9	K31	/		M	*

Further information in plain text

M = NBR seals, suitable for mineral oils (HL, HLP) to DIN 51524

Interface for trigger electronics
A1 = Setpoint input 0... ± 10 V
F1 = Setpoint input 4...20 mA

K31 = **Electrical connection without** plug-in connector, with unit plug to DIN 43563-AM6
Order plug-in connector separately

N9 = **Manual auxiliary override** (covered)

G24 = **Voltage supply of trigger electronics** +24 V DC

2X = **Unit series** (installation and connection dimensions unchanged)

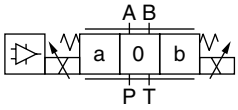
J = Step response / deadband compensation

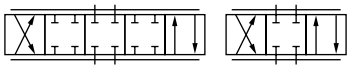
4/3 proportional directional control valve, without position control

With on-board electronics **= E**

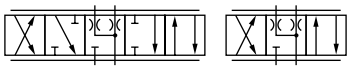
NG6 **= 6**
NG10 **= 10**

Symbols
4/3-way version





= E



= W, W1

Nominal flow rate (Δp = 5 bar per edge)

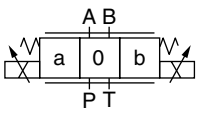
NG6
18 l/min **= 18**
32 l/min **= 32**
NG10
35 l/min **= 35**
65 l/min **= 65**

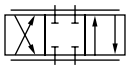
Preferred types

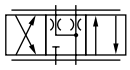
NG6 Solenoid 2.5 A		**NG10 Solenoid 2.5 A**	
Type	**Material Number**	**Type**	**Material Number**
4WRBAE6E18J–2X/G24N9K31/A1M	0 811 404 151	4WRBAE10E35J–2X/G24N9K31/A1M	0 811 404 852
4WRBAE6E32J–2X/G24N9K31/A1M	0 811 404 150	4WRBAE10E65J–2X/G24N9K31/A1M	0 811 404 850
4WRBAE6E18J–2X/G24N9K31/F1M	0 811 404 154	4WRBAE10W35J–2X/G24N9K31/A1M	0 811 404 853
4WRBAE6W18J–2X/G24N9K31/A1M	0 811 404 153	4WRBAE10W65J–2X/G24N9K31/A1M	0 811 404 851
4WRBAE6W32J–2X/G24N9K31/A1M	0 811 404 152	4WRBAE10W1–65J–2X/G24N9K31/A1M	0 811 404 854

Symbols

Actuation: **..E..** **..W.., ..W1..**







Function, sectional diagram

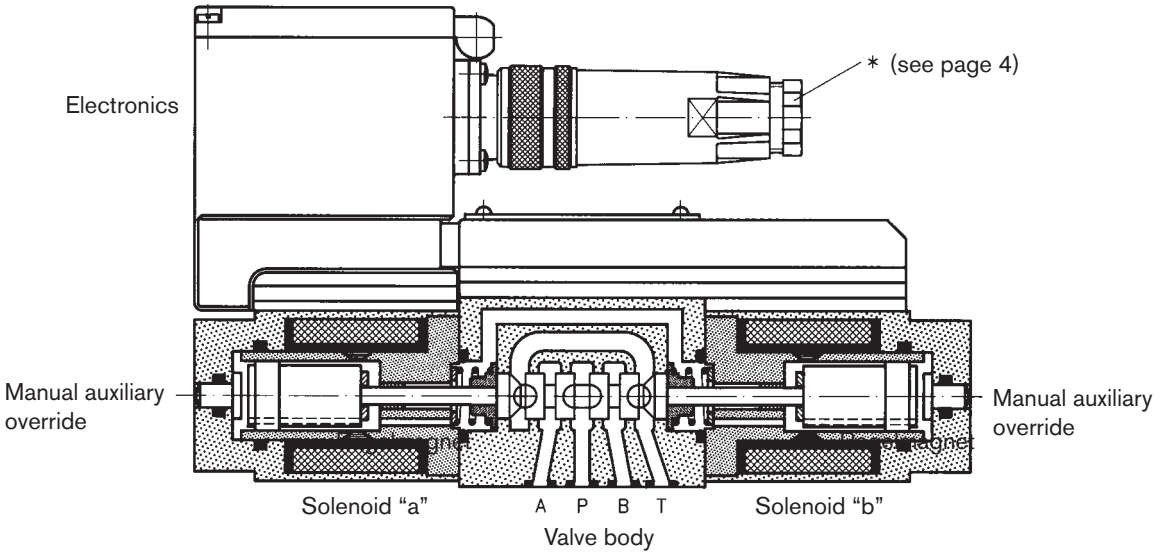
General

Directly operated type 4WRBAE 4/3 proportional directional control valves without position control, with on-board electronics, are available in nominal sizes 6 and 10. Hysteresis is < 6 % for the NG6 and < 8 % for the NG10. The valve electronics are integrated and are preset during valve testing. The operating limits are largely determined by the available magnetic force, see characteristic curves.

Basic principle

To adjust the oil flow rate, a setpoint is set in the valve electronics. Based on the polarity and magnitude of this setpoint, the electronics control the solenoid coil “a” or “b” with the appropriate amount of magnetic force. The proportional solenoid converts the current to a mechanical force, with which an armature plunger acts on a spool to push against the spring. If the magnetic force and the spring force are the same, this produces a spool position in conformity with the spring characteristic curve. If the drop in pressure is minimal (< 30 bar) the throttling function takes effect, if the pressure drop is greater, the operating limits (see characteristic curves) must be observed.
The pressure drop at the valve is reliably limited by the use of an external pressure compensator with shuttle valve.

NG6



NG10