General Description

Series D1FC (NG06) direct operated, proportional directional control valve with digital onboard electronics and position feedback provides high dynamics combined with high flow.

The LVDT is completely integrated into the housing and therefore, it does not require an exposed cable connection. Thus an unintended disconnection is unlikely.

The digital onboard electronics is situated in a robust metal housing, which allows the usage in rough environmental conditions. The nominal values are factory set. The cable connection to a serial RS-232 interface is available as accessory.

Features

- Progressive flow characteristics for sensitive adjustment.
- Low hysteresis.
- High dynamics.
- High flow capacity.
- Compact size.
Proportional Directional Control Valves  
Series D1FC

**Ordering Information**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Flow LPM (GPM) at Δp 5 Bar (72.5 PSI) per metering edge</th>
</tr>
</thead>
<tbody>
<tr>
<td>E01F</td>
<td></td>
<td>10 (2.6)</td>
</tr>
<tr>
<td>E01H</td>
<td></td>
<td>20 (5.3)</td>
</tr>
<tr>
<td>E01K</td>
<td></td>
<td>30 (7.9)</td>
</tr>
<tr>
<td>E02F</td>
<td></td>
<td>10 (2.6)</td>
</tr>
<tr>
<td>E02H</td>
<td></td>
<td>20 (5.3)</td>
</tr>
<tr>
<td>E02K</td>
<td></td>
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</tr>
<tr>
<td>B31F</td>
<td></td>
<td>5 / 10 (1.3 / 2.6)</td>
</tr>
<tr>
<td>B31H</td>
<td></td>
<td>10 / 20 (2.6 / 5.3)</td>
</tr>
<tr>
<td>B31K</td>
<td></td>
<td>15 / 30 (4.0 / 7.9)</td>
</tr>
<tr>
<td>B32F</td>
<td></td>
<td>5 / 10 (1.3 / 2.6)</td>
</tr>
<tr>
<td>B32H</td>
<td></td>
<td>10 / 20 (2.6 / 5.3)</td>
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</tr>
</tbody>
</table>

**Code** | **Signal** | **Function** |
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>0...±10V</td>
<td>P -&gt; A</td>
</tr>
<tr>
<td>E</td>
<td>0...±20mA</td>
<td>P -&gt; A</td>
</tr>
<tr>
<td>S</td>
<td>4...20mA</td>
<td>P -&gt; A</td>
</tr>
</tbody>
</table>

**Function**

- **B**: 0...±10V
- **E**: 0...±20mA
- **S**: 4...20mA

**Overlapping**

- **Code**: 0
- **Description**: 6+PE acc. EN175201-804
- **Code**: 5
- **Description**: 11+PE acc. EN175201-804
- **Code**: 7
- **Description**: 6+PE + Enable acc. EN175201-804

**Code** | **Description** |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DIN NG6 CETOP 3 NFPA D03</td>
</tr>
</tbody>
</table>

**Directional Control Valve**

**Spool**

- **Flow Control**
- **High Response**
- **Spool Type**
- **Spool Position**
- **Drain Port Y Plugged**
- **Seal**
- **Input Signal**
- **Electronic Options**
- **Spool/Body Design**

**Series**

- **Design**
- **Not Required** when ordering.

**Bolt Kit**

- **BK209**: (4) 10-24x1.25 SHCS
- **BK375**: (4) M5x30

**Weight**

- **D1FC**: 3.4 kg (7.5 lbs.)

**Parametrizing cable OBE => RS-232**

Item no. 40982923

* Needs to be removed at tank pressure >35 Bar (507.5 PSI).
Proportional Directional Control Valves
Series D1FC

Specifications

General
Design
Direct operated proportional DC valve
Actuation
Proportional solenoid
Size
NG6 / CETOP 3 / NFPA D03
Mounting Interface
DIN 24340 / ISO 4401 / CETOP RP121 / NFPA
Mounting Position
Unrestricted
Ambient Temperature Range
-20...+60 (-4°F...+122°F)
MTTF Value
150 Years
Vibration Resistance
10 Sinus 5 Hz acc. IEC 68-2-6
30 Random noise 20 to 2000 Hz acc. IEC 68-2-36
15 Shock acc. IEC 68-2-27

Hydraulic
Maximum Operating Pressure
Internal Ports P, A, B: 350 Bar (5075 PSI); port T: max. 35 Bar (508 PSI)
External Drain 210 Bar (3045 PSI); port Y: max. 35 Bar (508 PSI)
Maximum Pressure Drop PABT / PBAT
350 Bar (5075 PSI)
Fluid
Hydraulic oil as per DIN 51524...51535, other on request
Fluid Temperature
-20...+60 (-4°F...+140°F); Nitrile -25...+60 (-13°F ...+140°F)
Viscosity
Permitted
20...400 (93...1854 SSU)
Recommended
30...80 (139...371 SSU)
Filtration
ISO Class 4406 (1999) 18 / 16 / 13
Nominal Flow at \( \Delta p = 5 \text{ Bar (72.5 PSI)} \) per control edge
10 / 20 / 30 LPM (2.6 / 5.3 / 7.9 GPM)
Leakage at 100 Bar (1450 PSI)
<60 (3.7 cu.in.)
Opening point
set to 10 command signal (see performance curves)

Static / Dynamic
Step Response at 100% Stroke
20 [ms]
Hysteresis
< 0.1 [%]
Temperature Drift
< 0.01 [%/K]

Electrical
Duty Ratio
100 [%]
Protection Class
IP65 in accordance with EN 60529 (plugged and mounted)
Supply Voltage / Ripple
18...30, electric shut-off at <17, ripple < 5% eff., surge free
Current Consumption Maximum
2.0 [A]
Pre-Fusing Medium Lag
2.5 [A]
Input Signal
Code B Voltage
+10...0...-10 , ripple < 0.01% eff., surge free, 0...+10 V P→A
Impedance
100 [kOhm]
Code S Current
4...12...20, ripple < 0.01% eff., surge free, 12...20 mA P→A
Impedance
3.6 mA = enable off, > 3.8 mA = enable on acc. NAMUR NE43
200 [Ohm]
Code E Current
+20...0...-20, ripple < 0.01% eff., surge free, 0...+20 mA P→A
Impedance
200 [Ohm]
Differential Input Maximum
Code 0 / 7
30V for terminal D and E against PE (terminal G)
11V for terminal D and E against 0V (terminal B)
Code 5
30V for terminal 4 and 5 against PE (terminal W)
11V for terminal 4 and 5 against 0V (terminal 2)
Adjustment Ranges
Minimum
0...50 [%]
Maximum
50...100 [%]
Ramp
0...32.5 [s]
Parametrizing Interface
RS-232, parametrizing connection 5 pole
Enable Signal
Code 5 / 7
5...30 [V]
Diagnostic Signal
+10...0...-10 / +12.5 error detection, rated maximum 5 mA
EMC
EN 61000-6-2, EN 61000-6-4
Electrical Connection
Code 0 / 7
6 + PE acc. to EN 175201-804
Code 5
11 + PE acc. to EN 175201-804
Wiring Minimum
7 x 1.0 (AWG16) overall braid shield
Wiring Length Maximum
50 (164 ft.)

1) If valves with onboard electronics are used in safety-related parts of control systems, in case the safety function is requested, the valve electronics voltage supply is to be switched off by a suitable switching element with sufficient reliability.

2) Flow rate for different \( \Delta p \) per control edge: \( Q = Q_{\text{nom}} \cdot \sqrt{\frac{\Delta p}{\Delta p_{\text{nom}}}} \)

3) Measured with load 210 Bar (3045 PSI) pressure drop; two control edges.
Functional limits
25%, 50%, 75% and 100% command signal (symmetric flow).
At asymmetric flow a reduced flow limit has to be considered.

All characteristic curves measured with HLP46 at 50 °C.
**Code 0**
6 + PE acc. EN 175201-804

- Command: 0...±10 V
- 0...±20 mA
- 4...12...20 mA
- Diagnostic spool stroke: 0...±10 V

**Code 5**
11 + PE acc. EN 175201-804

- Command: 0...±10 V
- 0...±20 mA
- 4...12...20 mA
- Diagnostic spool stroke: 0...±10 V

**Code 7**
6 + PE acc. EN 175201-804 + Enable

- Command: 0...±10 V
- 0...±20 mA
- 4...12...20 mA
- Diagnostic spool stroke: 0...±10 V

- Enable: +5...30 V
ProPxD Interface Program

The ProPxD software allows quick and easy setting of the digital valve electronics. Individual parameters as well as complete settings can be viewed, changed and saved via the comfortable user interface. Parameter sets saved in the non-volatile memory can be loaded to other valves of the same type or printed out for documentation purposes.

Features

- Simple editing of all parameters.
- Storage and loading of optimized parameter adjustments.
- Executable with all Windows® operating systems from Windows® 95 upwards.
- Communication between PC and electronics via serial interface RS-232.

The valve electronics cannot be connected to a PC with a standard USB cable – this can result in damages of PC and/or valve electronics.

Simple to use interface program. Download free of charge www.parker.com/euro_hcd → Services → downloads

The parametrizing cable may be ordered under item no. 40982923.
Dimensions

Inch equivalents for millimeter dimensions are shown in (**)

<table>
<thead>
<tr>
<th>Surface Finish</th>
<th>Kit</th>
<th>Seal Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="icon" alt="R root 6.3" /> <img src="icon" alt="6.01/100" /></td>
<td>BK375</td>
<td>Nitrile: SK-D1FC</td>
</tr>
<tr>
<td></td>
<td>BK209</td>
<td>Fluorocarbon: SK-D1FC-V</td>
</tr>
</tbody>
</table>

Remove and use Y Port if tank pressure > 35 Bar (507 PSI)
WARNING – USER RESPONSIBILITY

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SAFETY GUIDE

For safety information, see Safety Guide SG HY14-1000 at www.parker.com/safety or call 1-800-CParker.