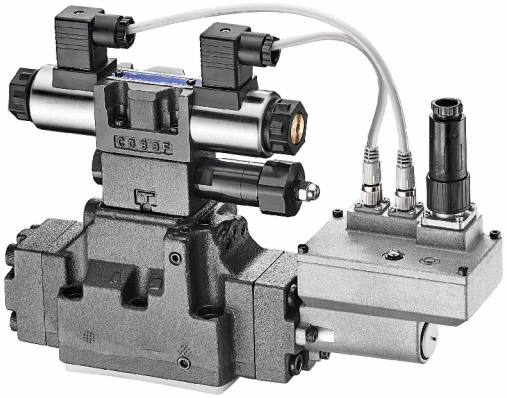
High precision feedback control achieved due to main vavle position sensor

OBE Type Proportional Electro-Hydraulic Directional and Flow Control Valves (with Main Valve Feedback Control)



Features

Simpler
- On-Board Electronics simplifies wiring
- Only with 24 V DC power supply and command signal input

High Accuracy
- Hysteresis : 0.5 % or less

Safety
- Fail-safe features ensure work safety and eliminate risks from electrical problems such as power outages etc

High Flow
- Significantly increased flow rate compared to current products

Specifications

Model Numbers			ECDFHG-04EH-150	ECDFHG-04EH-200	ECDFHG-06EH-350	ECDFHG-06EH-500
Rated Flow [ΔP=1 MPa (4-Way Valve)] ΔP = 0.5 MPa per Land		L/min	3C21(P→B, B→T) 3C22(P→A, A→T) : 120	3C2, 3C40 : 200	3C21(P→B, B→T) 3C22(P→A, A→T) : 230	3C2, 3C40 : 500
			3C2, 3C40 3C21(P→A, A→T) 3C22(P→B, B→T) : 150		3C2, 3C40 3C21(P→A, A→T) 3C22(P→B, B→T) : 350	
Max. Operating Pressure		MPa	35		31.5	
Pilot Pressure ★1		MPa	2.5 - 35		2.5 - 31.5	
Pilot Flow Rate★2		L/min	5.5		7.5	
Proof Pres. at Return Port ★3	External Drain T Port	MPa	31.5		25	
	External Drain Y Port	MPa	1 or less		1 or less	
	Internal Drain T&Y Port	MPa	1 or less			
Internal Leakage★4	Pilot Valve	L/min	1.2 or less			
	Main Valve	L/min	3C2, 3C21, 3C22 : 1.0 or less	3C2 : 1.4 or less	3C2, 3C21, 3C22 : 1.5 or less	3C40 : 2.0 or less
			3C40 : 1.4 or less	3C40 : 2.8 or less	3C40 : 2.0 or less	3C40 : 4.0 or less
Step Response (0 → 100%) ★5		ms	38		45	
Frequency Response ±25% Amplitude ★5	Phase: -90°	Hz	26		24	
	Gain: -3 dB	Hz	30		27	
Hysteresis			0.5% or less			
Repeatability			0.5% or less			
Power Supply			21.6 - 26.4 V DC Included Ripple			
Current		A	2 (Impulse Loud 3)			
Power Input		VA	75			
Coil Resistance at 20 ºC		Ω	4.6			
Input Signal			±10V, 4 - 20 mA, ±10 mA			
Electric Connection			6 + PE Connector [EN 175201 Part 804]			
Protection			Equivalent to IP64			
Approx. Mass		kg	13		21	

★1. Pilot pressure should be between 2.5 MPa and 35 MPa (04EH), 2.5 MPa and 31.5 MPa (06EH), and should exceed 60% of the actual supply pressure to main valve.
★2. Pilot flow is calculated with the above step response time at pilot pressure 3 MPa.
★3. Return pressure should be less than the actual supply pressure.
★4. This value is measured at a supply pressure of 14 MPa, pilot pressure of 14 MPa, and viscosity of 30 mm^2/s; it may vary depending on the actual circuit/operation conditions.
★5. This value is measured for each valve based a pilot pressure of 14 MPa; it may vary depending on the actual circuit/operation conditions.

Model number designation

ECDFHG	- 04	EH	- 150	- 3C2	- XY	- E	T	- C	- D	- 10
Series Number	Valve Size	Amplifier Type	Rated Flow L/min ΔP= 1 MPa (4-Way Valve)	Spool Type	Direction of Flow	Pilot Type	Drain Type	Fail-Safe Function	Input Signal/ Spool Travel Monitoring	Design Number
★ ECDFHG : Proportional Electro-Hydraulic Directional and Flow Control Valves (with Main Valve Feedback Control)	04	EH : OBE Type	150 : 150 L/min	3C2 3C40 3C21 3C22	XY : Meter-In/ Meter-Out	None : Internal Pilot E : External Pilot	None : External Drain T : Internal Drain	C : Neutral	D : Voltage Signal ± 10 V (PABT Flow with Positive Input) E : Current Signal 4 to 20 mA (PABT Flow with 12 to 20 mA Input) F : Current Signal ± 10 mA (PABT Flow with Positive Input)	10
			200 : 200 L/min	3C2 3C40						
	06		350 : 350 L/min	3C2 3C40 3C21 3C22						
			500 : 500 L/min	3C2 3C40						

★Phosphate ester type fluids are also supported. When phosphate ester type fluids are used, prefix "F-" to the model number because the special seals (fluororubber) are required to be used.

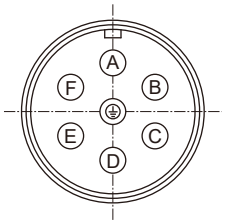
Details of the valve fail-safe functions

With reference to the information given below, select the option for the fail-safe function according to the use of applications. A separate safety circuit should be provided if the hydraulic actuator must be reliably held or stopped.

No.	Model Numbers	Fail-Safe Function★	
		Spool Position	Function
1	ECDFHG-＊EH-＊-3C2-XY-＊＊-C ECDFHG-＊EH-＊-3C21-XY-＊＊-C ECDFHG-＊EH-＊-3C22-XY-＊＊-C	Neutral	All Ports Blocked 
2	ECDFHG-＊EH-＊-3C40-XY-＊＊-C		A, B, T Connection 

★The fail-safe function's activation time depends on the electric and hydraulic conditions.

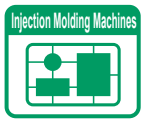
● Electrical specifications



Input Signal		Voltage Signal "D"	Current Signal "E"	Current Signal "F"
Pin A	Power Supply	24 V DC (21.6 - 26.4 V DC Included Ripple), 75 VA or more		
Pin B		0 V		
Pin C	Signal Common	COM（0 V）		
Pin D	Input (+)(Differential)★1	0 - ±10 V R_i ≧50 kΩ	4 - 20 mA R_i =200 Ω	0 - ±10 mA R_i =200 Ω
Pin E	Input (−)(Differential)★1			
Pin F	Spool Travel Monitoring	0 - ±10 V R_L ≧10 kΩ	4 - 20 mA R_L =100 - 500 Ω★2	0 - ±10 mA R_L =100 - 500 Ω★2
Pin ⏚	Protective Earth	—		

★1. Differential input signals can be used only for the valves with the voltage signal specifications of ±10V. (ECDFHG-＊EH-＊-D)
★2. The recommended load resistance is 200 Ω.

Applications (For Examples)



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