

# Electro-hydraulic converters ECV85 Series

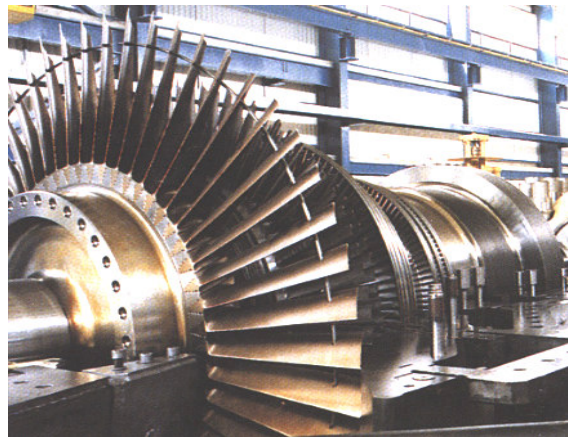
## for modulated control oil pressure applications

ABB ECV85 Series features direct or reverse control electro-hydraulic converters designed for modulated oil pressures in various operating ranges.

Although ECV85 Series converters operate within a relatively low pressure range, they require no setting or adjustment whatsoever, while at the same time ensuring reliable and continuous performance under any operating conditions.

### Features and Benefits

- Highly reliable performance
- No need for setting or adjustments
- Designed to fit a modulated oil pressure transmitter
- Sturdy design
- Reduced maintenance requirement.
- Suitable for new and retrofit



**APPLICATION**

ECV85 Series converters are used as a current/pressure transducers to drive hydraulic servo actuators and provide a regulated pressure directly or inversely proportional to the control current. The regulation is optimized for a wide range of flow rate. The flow limitation is inside the converter for types D and R and outside for types D2 and D3, typically by means of calibrated orifices.

The swing-disk positions itself under the action of the force exerted by the solenoid, proportional to the control current, and of the opposing force due to the pressure of the oil, thereby regulating the flow rate.

The pressure drop across the calibrated orifice, which is function of the oil flow discharged, determines the oil pressure under the swing disk thus regulating the output oil pressure.

In the event of null current, the pressure drops below the minimum of the regulating range.

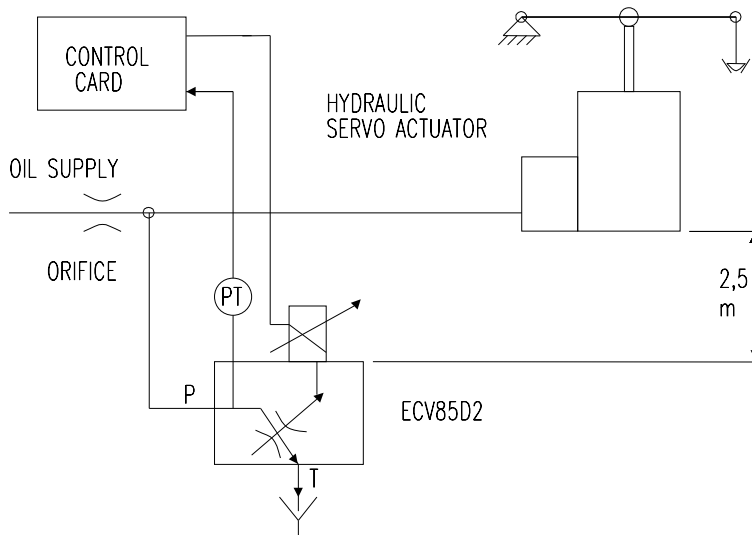
**DESCRIPTION**

From the structural point of view, an ECV85 Series converter consists of a manifold fitted with a solenoid, a valve seat, pipe connections, as well as connections for the control instruments. The resulting structure is compact and easy to install and reduces connecting pipes to a minimum.

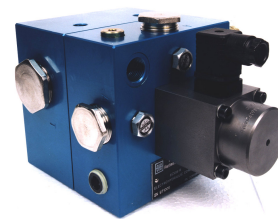
**INSTALLATION**

An ECV85 Series converter is normally used in a closed loop system, in which case the feedback is obtained by means of a modulated oil pressure signal provided by a transducer fitted directly onto the casing of the converter. When the converter is fitted with a pressure transmitter all the static errors (non-linearity, hysteresis, insensitivity) are cancelled without impairing dynamic performance.

ECV85D2 converter typical flow diagram



ECV85D  
directly proportional converter  
modulated oil pressure range  
0.8 ÷ 3.8 bar



ECV85R  
inversely proportional converter  
modulated oil pressure range  
0.9 ÷ 4.2 bar



ECV85D2  
directly proportional converter  
modulated oil pressure range  
0.8 ÷ 5.0 bar

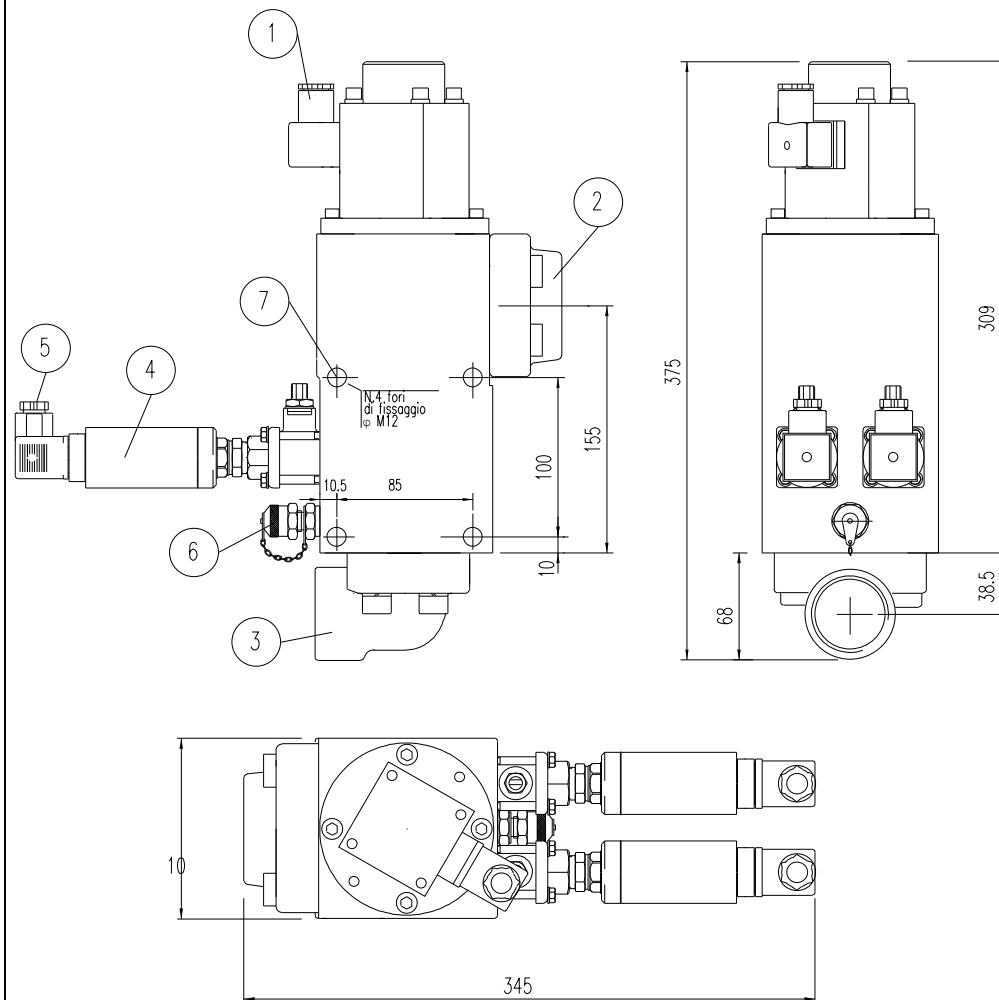
**DATA SHEET**

Converters	ECV85D	ECV85D2	ECV85D3	ECV85R
Input pressure	6 ÷ 15 bar	N/A	N/A	6 ÷ 15 bar
Modulated oil pressure range	0.8 ÷ 3.8 bar	0.8 ÷ 5.0 bar	1 ÷ 10 bar	0.9 ÷ 4.2 bar
Current range (*)	0 ÷ 700 mA	0 ÷ 1100 mA	0 ÷ 1100 mA	0 ÷ 1100 mA
Maximum regulated flow rate	18 l/min	70 l/min	50 l/min	60 l/min
Oil filtration	< 75 µm abs			
Pressure transmitter	4 ÷ 20 mA two wires (0 ÷ 10 bar)			
Non linearity (open loop)	< 2%	< 2%	< 2%	< 4%
Average hysteresis (open loop)	< 2.5 % max	< 3 % max	< 3 % max	< 2.5 % max
Hysteresis (closed loop)	0			
Insensitivity (open loop)	< 0.4%			
Insensitivity (closed loop)	0			
Short term drift (open loop)	< 0.05%	< 0.05%	< 0.05%	< 0.2%
Short term drift (closed loop)	0			
Long term drift (open loop, 30 to 50 °C)	< 2%			
Long term drift (closed loop, 30 to 50 °C)	0.1% / year			
Ambient operating temperature	-25 ÷ +70 °C			
Overall dimensions D/W/H (mm)	164/156/205	345/110/375	345/110/375	145/145/331.5

**NOTE:**

(\*) The driving current signal must have a superimposed dither of about 10-15% @ 75 Hz.

### ECV85D2 Outline Drawing



- 1) Solenoid supply connector
- 2) Oil discharge
- 3) Modulated oil
- 4) Pressure transmitter
- 5) Pressure transmitter connectors
- 6) Fast lock for SMA-3 flexible pipe for inlet pressure meter
- 7) Mounting holes

## **Global Lifecycle – Service and Support**

### **Lifecycle support**

ABB service and support throughout the lifetime of a plant ensures continuous operational efficiency. Support begins with installation and commissioning. It continues through the supply of spare parts and repairs. ABB support also comes into play when you are considering migration to a new system. ABB ensures long-term and predictable lifecycle support of products and systems through our lifecycle policy (active, classic, limited and obsolete phases). Our plans offer support for a minimum of 10 years after the active phase.

### **Evolution through enhancement**

New generations of software and system components provide increased operating efficiency, lower cost and extended system life. ABB offers low-risk migration and upgrade strategies for a broad range of products and systems. We can assure maximum return on your investment, while enhancing your equipment availability and performance. Our customized upgrade planning, implementation and follow-up services ensure long-term benefits, and continued asset effectiveness.



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