



aerospace  
climate control  
electromechanical  
filtration  
fluid & gas handling  
hydraulics  
pneumatics  
process control  
sealing & shielding



# Electric Distributor Expansion Valve

for Air Conditioning and Heat Pump Applications

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ENGINEERING YOUR SUCCESS.

# Electric Distributor Expansion Valve (OEM Only)

for Air Conditioning and Heat Pump Applications



The Sporlan EDEV (Electric Distributor Expansion Valve) is a cartridge EEV with an integrated refrigerant distributor. The directly coupled EEV and distributor provides more benefits than just a compact and robust package. By modulating refrigerant expansion directly into a distributor, there is no opportunity for refrigerant stratification, eliminating the need for a secondary pressure drop (such as a distributor orifice or venturi). Sporlan’s EDEV achieves **superior distribution and maintains high velocity flow across all load conditions**, resulting in higher system efficiency.

Designed with the requirements of air conditioning and heat pump applications in mind, the EDEV features an internal (wet) unipolar stepper motor that provides up to **320% more resolution than competing designs**. Currently available with two port sizes, it is possible to cover a product line up to 6T (21 kW) with only one or two expansion valves. And without the need to size a distributor orifice, SKU proliferation and development time are dramatically reduced.

Featuring up to 300% more corrosion resistance than competing designs, the Sporlan EDEV is perfect for indoor or outdoor installation. This protection level includes an industry standard, removable M12 connection (A-coded), which is rated IP67. The Sporlan cable is offered standard with a JST XARP-05V connector.

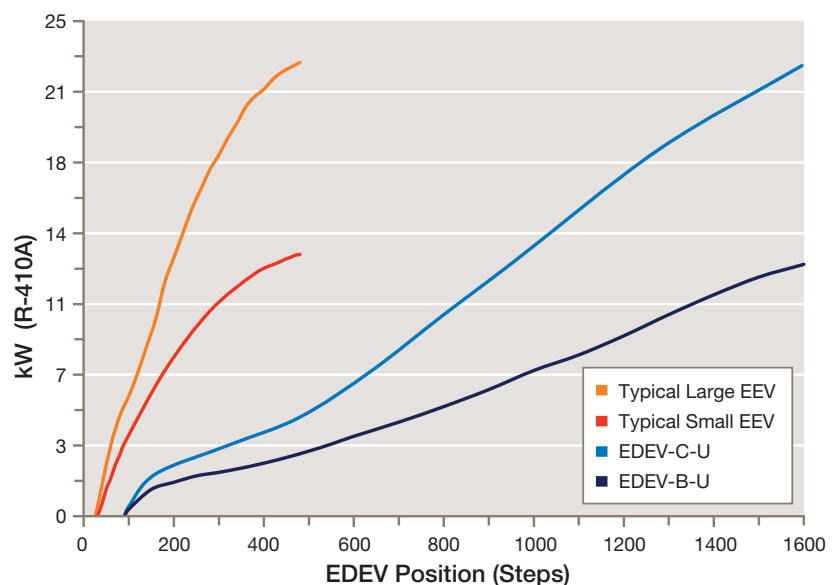


Figure 1 - EDEV Flow Curve Capacity  
(EDEV capacity does not include the effect of distributor tubes.)

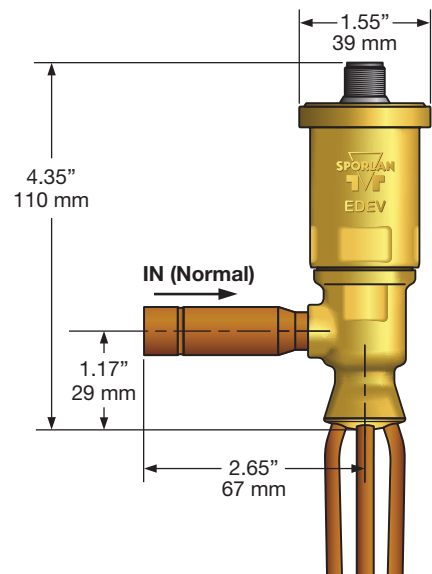
To further reduce package size and eliminate multiple braze joints, the EDEV is suitable for bi-flow applications, which make it perfect for air to water heat pump systems as well, the Sporlan EDEV can be **mounted in any position, with no mounting orientation restrictions**, and no concerns about refrigerant hammering or protective coverings. And with two-wrench installation of the EEV, the risk of overheating during brazing is eliminated, the required skill set for service contractors is reduced, and it is now possible to clean the check valve of any foreign debris.

Available in typical **brass/copper construction**, the Sporlan EDEV is **available in all aluminum construction** as well. It has never been easier to integrate an aluminum evaporator with an expansion device, as the distributor can be brazed in controlled conditions, and the EEV can be installed and serviced without the use of a torch, eliminating the risk associated with hand brazing aluminum.

Be sure to ask us about our advanced superheat control algorithms and controls!

## Dimensions

Figure 2



## Specifications

### Motor Type

Permanent magnet  
unipolar wet motor

### Compatible Refrigerant

All common HCFC and  
HFC refrigerants, including  
R-410A

### Compatible Oil

All common mineral,  
polyester and alkylbenzene  
oils

### Supply Voltage

12 volts DC +/-10%

### Cable Type

IP67 removable M12  
connection (A-coded)

### Phase Resistance

100 ohms +/- 10%

### Stepping Current

120 mA / winding

### Holding Current

Not recommended

### Number of Steps

1600 half steps  
800 full steps (with bipolar  
controller)

### Step Rate

200/second

### Full Stroke Transit Time

8 seconds (unipolar)

4 seconds (bipolar)

### Initialization

2500 steps closing (unipolar)

1250 steps closing (bipolar)

### Overdriving

Recommend one 10% over-  
drive closed per day (over-  
driving open not permitted)

### MRP / MWP (PS)

700 psig (48 bar)

### MOPD both directions

580 psid (40 bar)

### Maximum Internal Leakage

300 cc/min @ 100 psid  
(6.9 bar) dry air

### Maximum External Leak- age

.10 oz/yr at 300 psig  
(2.8 gram/yr @ 20 bar)

### Fluid Temperature Range

-40°F to 155°F (-40°C to  
68°C)

### Ambient Temperature Range

-40°F to 140°F (-40°C to  
60°C)

### Installation Maximum Temperature

250°F (60°C) for 15 minutes

### Relative Humidity

0-100% (Condensing)

### Mounting Orientation

No restrictions

### Flow Direction

Side Inlet ( Bi-flow)  
Internal check valve available

### Materials of Construction

Brass body with copper  
connections or all aluminum

### Number of Circuits

3/16" - 2 to 9

1/4" - 2 to 8

### Circuit Tube Lengths

Up to 36" (91.44 cm)

### Minimum Order Quantity

500 Valves

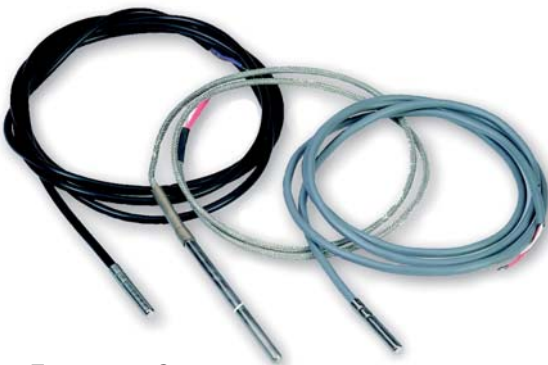
# Ordering Instructions / Nomenclature

EDEV	EEV				DISTRIBUTOR CIRCUITS			CABLE	
	B C		U	1/4" ODF	2 to 9 2 to 8	3/16" 1/4"	≤36"	1/4" Bell	5' - J Less Cable
Valve Family	Valve Model B or C	Bi-Flow "Omit" Optional with Check Valve "C"	Unipolar Step Motor	Inlet Connection Size - Inches (1/4, 3/8, 1/2) and Fitting Type	Number	Diameter	Length	End Bell - Inches Optional (1/4, 5/16, 3/8)	Cable Length with JST XARP-05V Connector

## Accessories



AC & Heat Pump Super Heat Controller



Temperature Sensor



M12 Cable



Pressure Transducer







# Parker's Motion & Control Technologies

At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further info call 00800 27 27 5374



## Aerospace Key Markets

Aftermarket services  
Commercial transports  
Engines  
General & business aviation  
Helicopters  
Launch vehicles  
Military aircraft  
Missiles  
Power generation  
Regional transports  
Unmanned aerial vehicles

## Key Products

Control systems & actuation products  
Engine systems & components  
Fluid conveyance systems & components  
Fluid metering, delivery & atomization devices  
Fuel systems & components  
Fuel tank inerting systems  
Hydraulic systems & components  
Thermal management  
Wheels & brakes



## Climate Control Key Markets

Agriculture  
Air conditioning  
Construction Machinery  
Food & beverage  
Industrial machinery  
Life sciences  
Oil & gas  
Precision cooling  
Process  
Refrigeration  
Transportation

## Key Products

Accumulators  
Advanced actuators  
CO<sub>2</sub> controls  
Electronic controllers  
Filter driers  
Hand shut-off valves  
Heat exchangers  
Hose & fittings  
Pressure regulating valves  
Refrigerant distributors  
Safety relief valves  
Smart pumps  
Solenoid valves  
Thermostatic expansion valves



## Electromechanical Key Markets

Aerospace  
Factory automation  
Life science & medical  
Machine tools  
Packaging machinery  
Paper machinery  
Plastics machinery & converting  
Primary metals  
Semiconductor & electronics  
Textile  
Wire & cable

## Key Products

AC/DC drives & systems  
Electric actuators, gantry robots & slides  
Electrohydraulic actuation systems  
Electromechanical actuation systems  
Human machine interface  
Linear motors  
Stepper motors, servo motors, drives & controls  
Structural extrusions



## Filtration Key Markets

Aerospace  
Food & beverage  
Industrial plant & equipment  
Life sciences  
Marine  
Mobile equipment  
Oil & gas  
Power generation & renewable energy  
Process  
Transportation  
Water Purification

## Key Products

Analytical gas generators  
Compressed air filters & dryers  
Engine air, coolant, fuel & oil filtration systems  
Fluid condition monitoring systems  
Hydraulic & lubrication filters  
Hydrogen, nitrogen & zero air generators  
Instrumentation filters  
Membrane & fiber filters  
Microfiltration  
Sterile air filtration  
Water desalination & purification filters & system



## Fluid & Gas Handling

### Key Markets

Aerial lift  
Agriculture  
Bulk chemical handling  
Construction machinery  
Food & beverage  
Fuel & gas delivery  
Industrial machinery  
Life sciences  
Marine  
Mining  
Mobile  
Oil & gas  
Renewable energy  
Transportation

### Key Products

Check valves  
Connectors for low pressure fluid conveyance  
Deep sea umbilicals  
Diagnostic equipment  
Hose couplings  
Industrial hose  
Mooring systems & power cables  
PTFE hose & tubing  
Quick couplings  
Rubber & thermoplastic hose  
Tube fittings & adapters  
Tubing & plastic fittings



## Hydraulics

### Key Markets

Aerial lift  
Agriculture  
Alternative energy  
Construction machinery  
Forestry  
Industrial machinery  
Machine tools  
Marine  
Material handling  
Mining  
Oil & gas  
Power generation  
Refuse vehicles  
Renewable energy  
Truck hydraulics  
Turf equipment

### Key Products

Accumulators  
Cartridge valves  
Electrohydraulic actuators  
Human machine interfaces  
Hybrid drives  
Hydraulic cylinders  
Hydraulic motors & pumps  
Hydraulic systems  
Hydraulic valves & controls  
Hydrostatic steering  
Integrated hydraulic circuits  
Power take-offs  
Power units  
Rotary actuators  
Sensors



## Pneumatics

### Key Markets

Aerospace  
Conveyor & material handling  
Factory automation  
Life science & medical  
Machine tools  
Packaging machinery  
Transportation & automotive

### Key Products

Air preparation  
Brass fittings & valves  
Manifolds  
Pneumatic accessories  
Pneumatic actuators & grippers  
Pneumatic valves & controls  
Quick disconnects  
Rotary actuators  
Rubber & thermoplastic hose & couplings  
Structural extrusions  
Thermoplastic tubing & fittings  
Vacuum generators, cups & sensors



## Process Control

### Key Markets

Alternative fuels  
Biopharmaceuticals  
Chemical & refining  
Food & beverage  
Marine & shipbuilding  
Medical & dental  
Microelectronics  
Nuclear Power  
Offshore oil exploration  
Oil & gas  
Pharmaceuticals  
Power generation  
Pulp & paper  
Steel  
Water/wastewater

### Key Products

Analytical Instruments  
Analytical sample conditioning products & systems  
Chemical injection fittings & valves  
Fluoropolymer chemical delivery fittings, valves & pumps  
High purity gas delivery fittings, valves, regulators & digital flow controllers  
Industrial mass flow meters/ controllers  
Permanent no-weld tube fittings  
Precision industrial regulators & flow controllers  
Process control double block & bleeds  
Process control fittings, valves, regulators & manifold valves



## Sealing & Shielding

### Key Markets

Aerospace  
Chemical processing  
Consumer  
Fluid power  
General industrial  
Information technology  
Life sciences  
Microelectronics  
Military  
Oil & gas  
Power generation  
Renewable energy  
Telecommunications  
Transportation

### Key Products

Dynamic seals  
Elastomeric o-rings  
Electro-medical instrument design & assembly  
EMI shielding  
Extruded & precision-cut, fabricated elastomeric seals  
High temperature metal seals  
Homogeneous & inserted elastomeric shapes  
Medical device fabrication & assembly  
Metal & plastic retained composite seals  
Shielded optical windows  
Silicone tubing & extrusions  
Thermal management  
Vibration dampening

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