Revolutionary **ETS Colibri®** valves
Engineered to give you maximum **flexibility** and **dependability**

ETS Colibri® brings to the market one of a kind, uniquely designed electric expansion valve.

**Innovative Design**
Compact, hermetic and in-line valve design driven by stepper motor technology.

colibri.danfoss.com
ETS Colibri® is the most innovative and uniquely designed electric expansion valve in the market.

Danfoss has a proud heritage of over 30 years in designing and producing electric expansion valves. During this time, we’ve dedicated all our experience to perfecting our products – giving you the most reliable and innovative valves in the market.

Today, ETS Colibri® is a result of our dedication and passion for engineering, built around uncompromised quality and performance. Its focus on energy efficiency ensues from placing great attention to our customers’ needs.
**Compact, hermetic and in-line design**

- **Compact design**: Easily fits anywhere in the system
- **Lightweight body**: No extra support necessary in your system to avoid tubing cracks caused by vibration
- **In-line design**: Flexibility to install the valve in almost any plane
- **Hermetic**: Uncompromised integrity of internal components and fewer leak points in the system result in reduced refrigerant loss potential and fewer service calls

- **Stainless steel valve body**
  - Benefits:
    - Withstands higher working pressure resulting in increased Maximum Working Pressure (MWP), making the valve suitable for most A/C, heat pump, and refrigeration applications
    - Ensures resistance to internal and external corrosion

- **M12 electrical connector**
  - Benefit:
    - Compatible with electric control solutions from Danfoss and other manufacturers

- **Laser welded joints**
  - Benefit:
    - 100% leak tested – no risk of external leakage

- **Bi-metal connectors (stainless steel outside with copper inside)**
  - Benefits:
    - Same brazing alloy as copper to copper, just much faster installation time
    - Eliminates the need to wet wrap the valve
    - Significantly reduces the risk of valve damage due to overheating during installation

- **Sight glass with moisture indicator**
  - Benefits:
    - Easy confirmation of proper valve operation
    - Fast trouble-shooting during system diagnostic
    - Helps determine refrigerant flow direction in the system

- **Stepper motor**
  - Benefits:
    - Precise flow control
    - Design simplicity: fewer opportunities for failures to occur resulting in higher reliability

- **Solenoid tight closing**
  - Benefit:
    - Protects the compressor from liquid migration during stand-still

- **Balanced cage assembly**
  - Benefits:
    - Ensures uniform and repeatable bi-flow performance capabilities
    - Withstands higher Maximum Working Pressure Differential (MWP) required for applications like reversible heat pumps using R410A

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ETS Colibri® has been designed for precise liquid injection into evaporators for air-conditioning, heat pump and refrigeration applications. In addition, Colibri® valves are approved for oil-free operation, e.g. in systems with Danfoss Turbocor® oil-free compressors.

Thanks to its unique design, the Colibri® range can also be used as suction modulating valves in applications such as transportation and food retail.

The benefits of its linear opening and closing characteristics:
• Simpler control scheme allows for faster software development
• Faster reaction time at start-up leads to a low chance of starving the compressor

Electric expansion valves range

![New ETS Colibri® range](image)

![Current ETS range](image)

Technical data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compatible refrigerants</td>
<td>R410A, R407C, R404A, R507, R134a, R290 (for other refrigerants, contact your Danfoss representative)</td>
</tr>
<tr>
<td>Refrigerant temperature range</td>
<td>–40 °C to 70 °C (–40 °F to 158 °F)</td>
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<tr>
<td>MOPD</td>
<td>40 bar (588 psi)</td>
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<tr>
<td>Max. working pressure (PS/MWP)</td>
<td>50 bar (735 psig)</td>
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<tr>
<td>Stepper motor type</td>
<td>Bi-polar - permanent magnet</td>
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<tr>
<td>Step mode</td>
<td>2 phase full step, micro-stepping (recommended)</td>
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<tr>
<td>Max. total power</td>
<td>7.2 W</td>
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<tr>
<td>Step rate</td>
<td>160 steps/sec. recommended (current control)</td>
</tr>
<tr>
<td>Total steps</td>
<td>600</td>
</tr>
<tr>
<td>Full travel time</td>
<td>3.75 sec. at recommended step rate</td>
</tr>
</tbody>
</table>
ETS Colibri®. Innovative electric expansion valves for best in class air-conditioning, heat pump, and refrigeration systems.

Increased energy efficiency with uncompromised quality.