

ENGINEERING  
TOMORROW

*Danfoss*

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](http://colibri.danfoss.com)

**3x** Faster

ETS Colibri® can be driven fully closed in approximately 3 seconds.

**4x** Lighter

Thanks to its unique compact design.

## Re-engineered for the next level

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

## Sight glass with moisture indicator

### Benefit:

- Easy confirmation of proper valve operation
- Fast trouble-shooting during system diagnostic
- Helps determine refrigerant flow direction in the system

## Balanced cage assembly

### Benefit:

- Ensures uniform and repeatable bi-flow performance capabilities
- Withstands higher Maximum Working Pressure Differential (MOPD) required for applications like reversible heat pumps using R410A

## Solenoid tight closing

### Benefit:

- Protects the compressor from liquid migration during stand-still

## Direct driven slider

### Benefit:

- Ensures precise control of superheat in all operating conditions

## Stepper motor

### Benefits:

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

## Laser welded joints

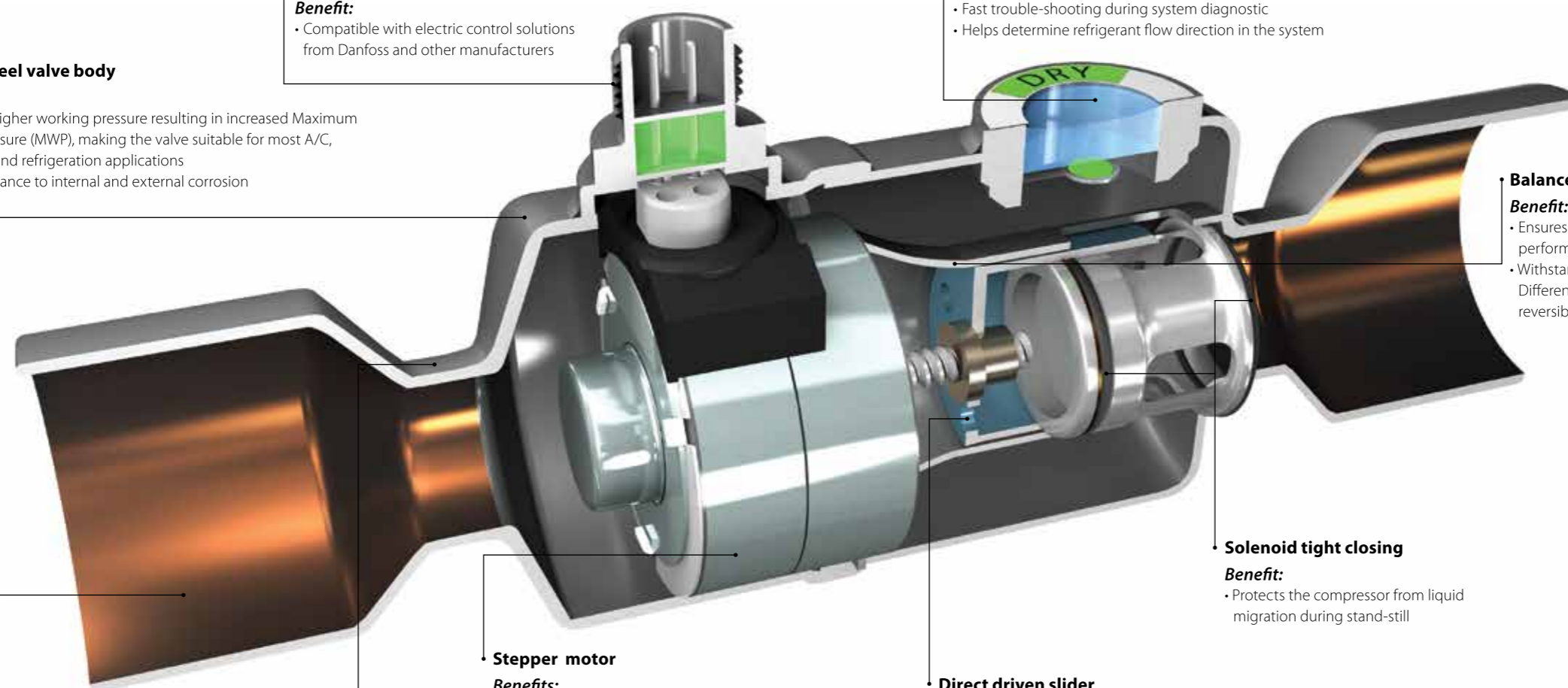
### Benefits:

- 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



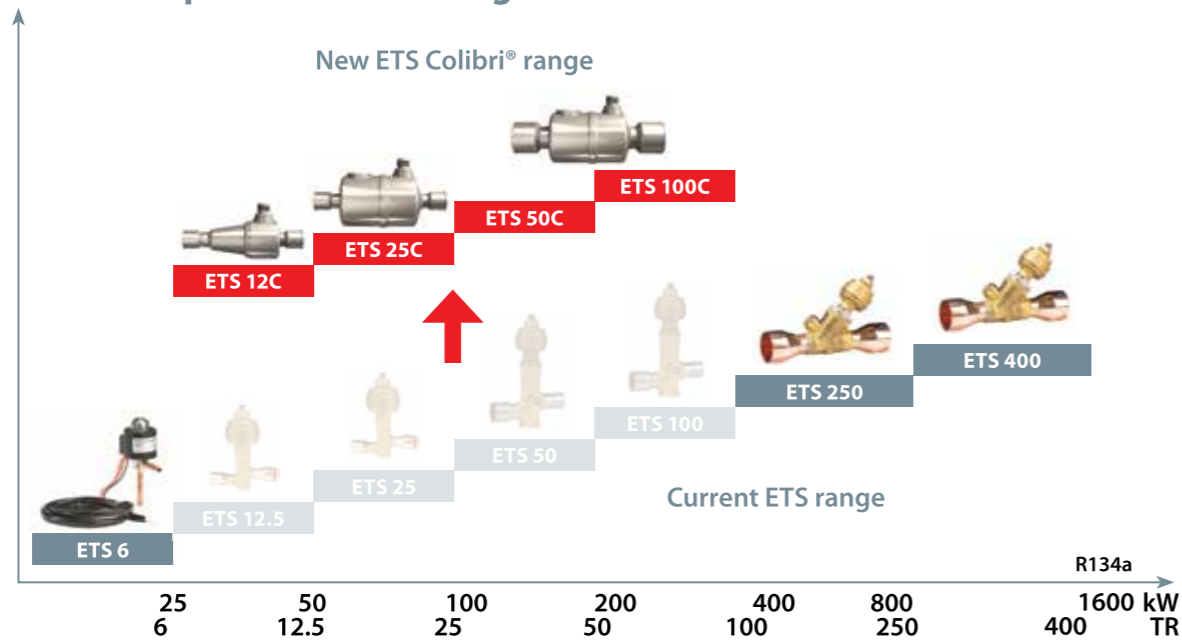
ETS Colibri® has been designed for precise liquid injection into evaporators for air-conditioning, heat pump and refrigeration applications. In addition, Colibri® valves are approved for oil-free operation, e.g. in systems with Danfoss Turbocor oil-free compressors.

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



**50** bar  
working pressure ensures compatibility with all of the most widely used refrigerants.

### Technical data

<b>Compatible refrigerants</b>	R410A, R407C, R404A, R507, R134a, R290 (for other refrigerants, contact your Danfoss representative)
<b>Refrigerant temperature range</b>	-40 °C to 70 °C (-40 °F to 158 °F)
<b>MOPD</b>	40 bar (588 psi)
<b>Max. working pressure (PS/MWP)</b>	50 bar (735 psig)
<b>Stepper motor type</b>	Bi-polar - permanent magnet
<b>Step mode</b>	2 phase full step, micro-stepping (recommended)
<b>Max. total power</b>	7.2 W
<b>Step rate</b>	100 to 200 steps/sec. (current control)
<b>Total steps</b>	ETS 12C - ETS 100C : 600
<b>Full travel time</b>	ETS 12C - ETS 100C : 3 – 6 sec.

ETS Colibri®.  
**Innovative** electric expansion  
valves for **best in class**  
air-conditioning, heat pump,  
and refrigeration systems.

Increased energy efficiency with uncompromised quality.

