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

3x Faster

ETS Colibri® can be driven fully closed in less than 4 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.

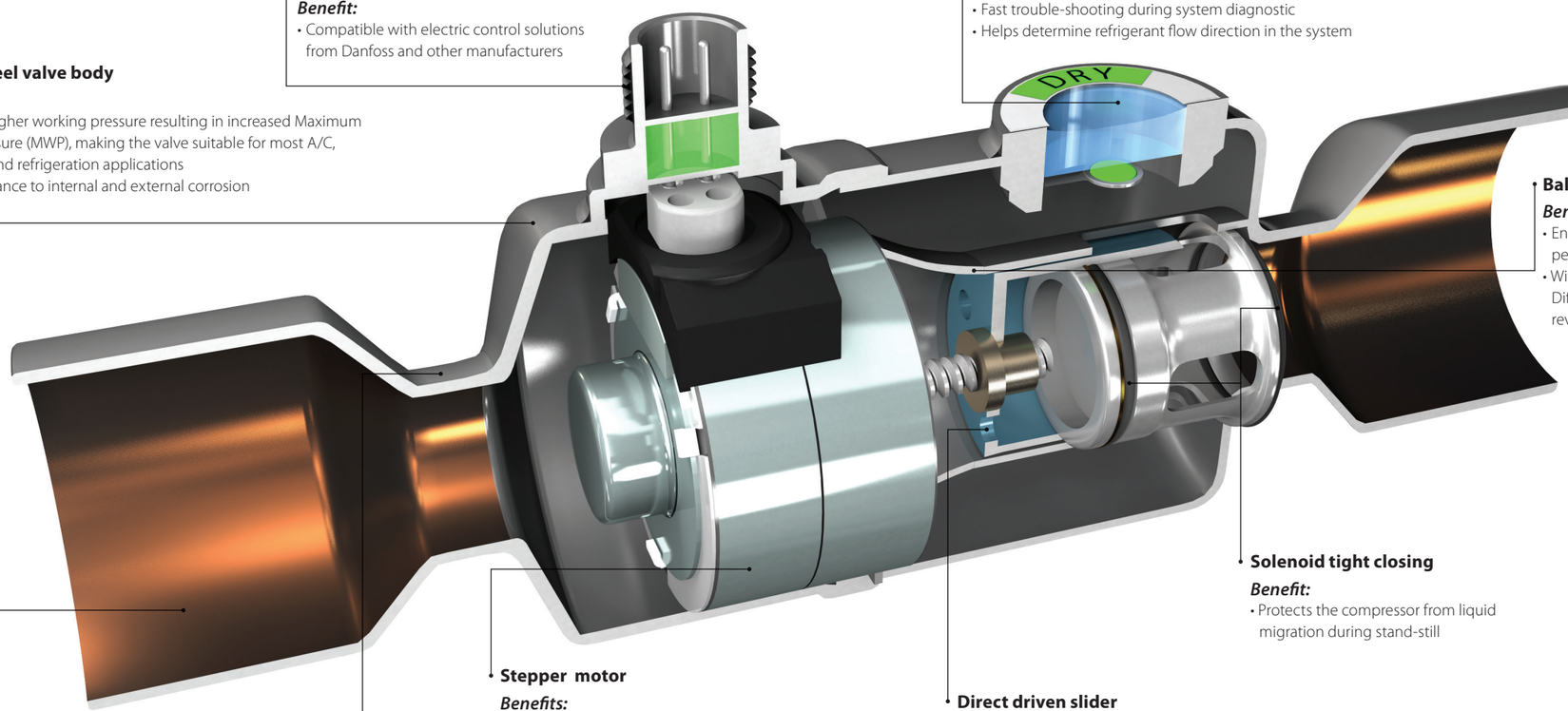
Today, ETS Colibri® is a result of our dedication and passion for engineering, built around uncompromised quality and performance. Its focus on energy efficiency ensues from placing great attention to our customers' needs.

ETS 12C – ETS 24C

ETS 25C – ETS 50C – ETS 100C

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



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

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

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

Balanced cage assembly
Benefits:
- 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

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

Direct driven slider
Benefit:
- Ensures precise control of superheat in all operating conditions

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

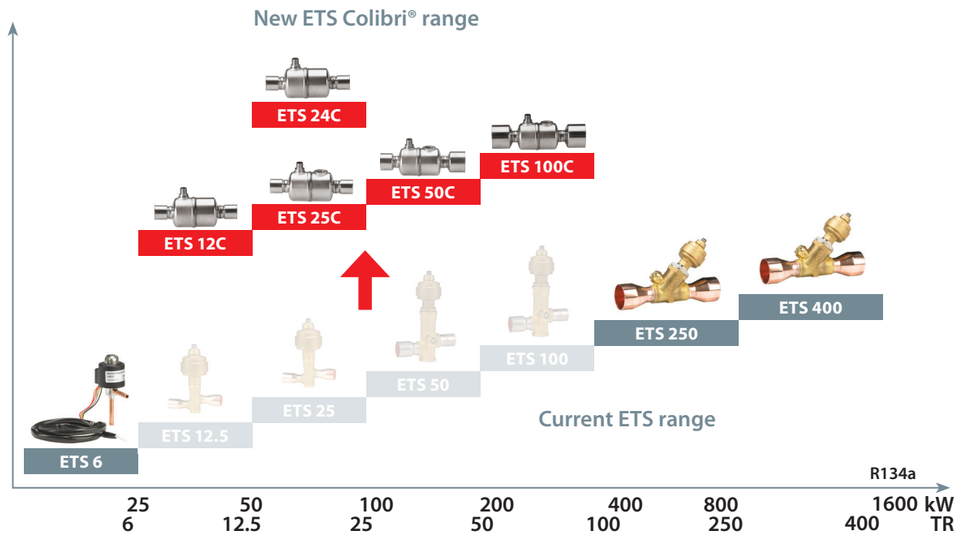
Laser welded joints
Benefit:
- 100% leak tested – no risk of external leakage

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



Technical data

Compatible refrigerants	**R410A, R407C, R404A, R507, R134a, R290 (for other refrigerants, contact your Danfoss representative)**
Refrigerant temperature range	–40 °C to 70 °C (–40 °F to 158 °F)
MOPD	40 bar (588 psi)
Max. working pressure (PS/MWP)	50 bar (735 psig)
Stepper motor type	Bi-polar - permanent magnet
Step mode	2 phase full step, micro-stepping (recommended)
Max. total power	7.2 W
Step rate	160 steps/sec. recommended (current control)
Total steps	600
Full travel time	3.75 sec. at recommended step rate

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

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

Increased energy efficiency with uncompromised quality.

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