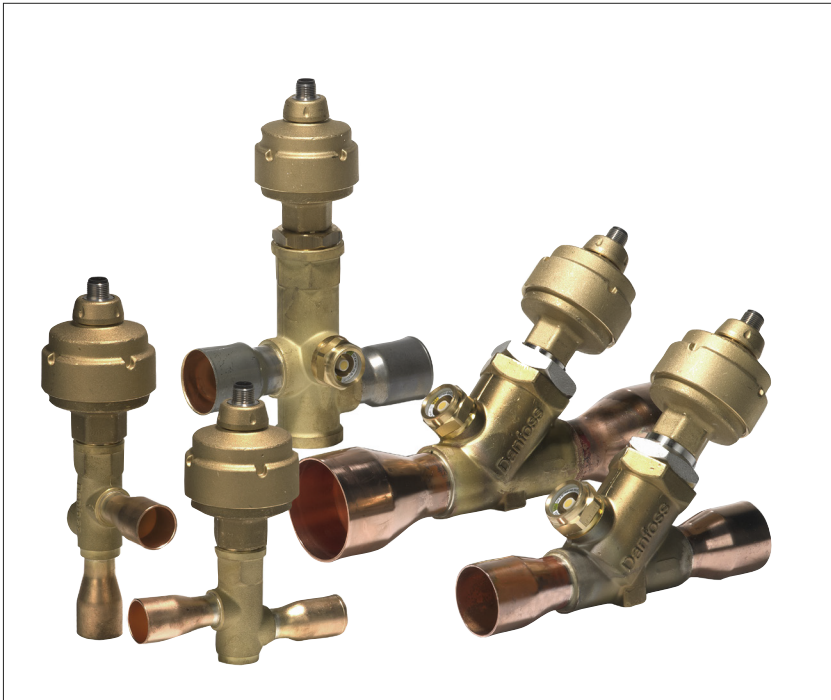


Data sheet

Electric expansion valve

Type ETS 12.5 - ETS 400



ETS is a series of electric expansion valves for precise liquid injection in evaporators for air conditioning and refrigeration applications.

The valve piston and linear positioning design is fully balanced, providing bi-flow feature as well as solenoid tight shut-off function in both flow directions.

The valve design uses bi-polar drive providing very precise flow regulation.

ETS valves are compatible with electronic control solutions from Danfoss and other manufacturers.

Features

- Precise positioning for optimal control of liquid injection.
- Wide range for all common refrigerants.
- ETS 250, ETS 400 provides 34 bar / 493 psig.
- All ETS can be operated with flow in both directions and are solenoid tight.
- ETS 50 to ETS 400 have a balanced design.
- ETS 50 and ETS 100 feature improved process and productivity due to waterless brazing i.e. soldering without wet cloth for cooling.
- Special ETS 250 and ETS 400 available for oil free applications.
- ETS 50 – ETS 400 are all designed with built-in sight glass with moisture indicator.
- Internal and external corrosion resistant design.
- Low power consumption.
- Cable and connector assemblies as accessories.
- Danfoss EKE 1A, EKE 1B, EKE 1C, MCX061V, MCX152V are examples of Danfoss controllers with drivers matching the ETS needs.
- For manual operation and service of ETS valves an AST-g service driver is available.

ЮГОВ -Проект

інженерно-виробниче підприємство

Офіційний дистриб'ютор
Danfoss в Україні



ugov.ua

Approvals

Technical data

NOTE:
Technical data also applicable for ETS 250 and ETS 400 oil free version.

| | |
|---------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Compatible refrigerants | Wide range for all common refrigerants R1234ze, R134A, R22, R404A, R407A, R407C, R407F, R410A, R422B, R422D, R438A, R448A, R449A, R450A, R452A, R507, R513A and other refrigerants. Special valves for R744 (CO2) are available. For other refrigerants, please contact your local Danfoss representative. |
| Refrigerant oil | All mineral oils and ester oils and special ETS 250 and ETS 400 support oil free applications |
| Comply with P.E.D. | Yes |
| Max. opening pressure differential (MOPD) normal flow | 33 bar (478.6 psi) |
| Max. opening pressure differential (MOPD) reverse flow | ETS 12.5, ETS 25, ETS 50, ETS 100: 33 bar (478.6 psi) ETS 250, ETS 400: 10 bar (145 psi) |
| Max. working pressure (PS/MWP) | ETS 12.5, ETS 25, ETS 50, ETS 100: 45.5 bar (660 psig) ETS 250, ETS 400: 34 bar (493 psig) |
| Inlet fluid temperature | -40 °C – 65 °C (-40 °F – 149 °F). For higher temperature valve, please contact Danfoss. |
| Ambient temperature | -40 °C – 60 °C (-40 °F – 140 °F) |
| Material of Construction | ETS 50, ETS 100: Body and AST enclosure in brass, connections in bi-metal (stainless steel/copper). ETS 12.5, ETS 25, ETS 250, ETS 400: Body and AST enclosure in brass, connections in copper. |
| Motor enclosure | IP67 |
| Stepper motor type | Bi-polar - permanent magnet. |
| Step mode | 2 phase full step. |
| Phase resistance | 52 Ω ±10% |
| Phase inductance | 85 mH |
| Step angle | 7.5° (motor), 0.9° (lead screw), Gearing ration 8.5:1. (38/13) ² :1 |
| Nominal voltage | Constant voltage drive: 12 V dc -4% – 15%, 150 steps/sec. |
| Phase current | Using chopper drive: 100 mA RMS -4% – 15% |
| Holding current | Constant voltage drive: Depends on application. Chopper drive: full current allowed (100% duty cycle) |
| Max. total power | Voltage / current drive: 5.5 / 1.3 W (UL: NEC class 2) |
| Step rate | Constant voltage drive: 150 steps/sec. Chopper current drive: 0 – 300 steps/sec. 300 recommended |
| Total steps | ETS 12.5, ETS 25, ETS 50: 2625 [160 / -0] steps ETS 100: 3530 [160 / -0] steps ETS 250, ETS 400: 3810 [160 / -0] steps |
| Full travel time | ETS 12.5, ETS 25, ETS 50: 17 / 8.5 sec. (voltage / current) ETS 100: 23 / 11.5 sec. (voltage / current) ETS 250, ETS 400: 25.4 / 12.7 sec. (voltage / current) |
| Lifting height | ETS 12.5, ETS 25, ETS 50: 13 mm (0.5 in.) ETS 100: 16 mm (0.6 in.) ETS 250, ETS 400: 17.2 mm (0.7 in.) |
| Reference position | Overdriving against the full close position |
| Electrical connection | M12 connector |
| Compatible Danfoss controllers | Danfoss EKE 1A, EKE 1B, EKE 1C, MCX061V, MCX152V and more |

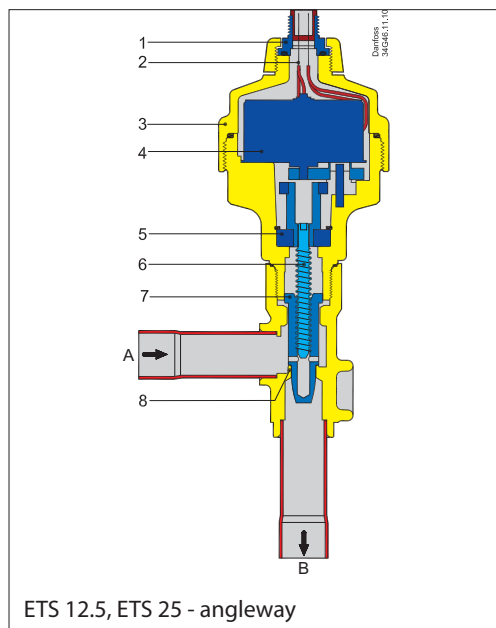
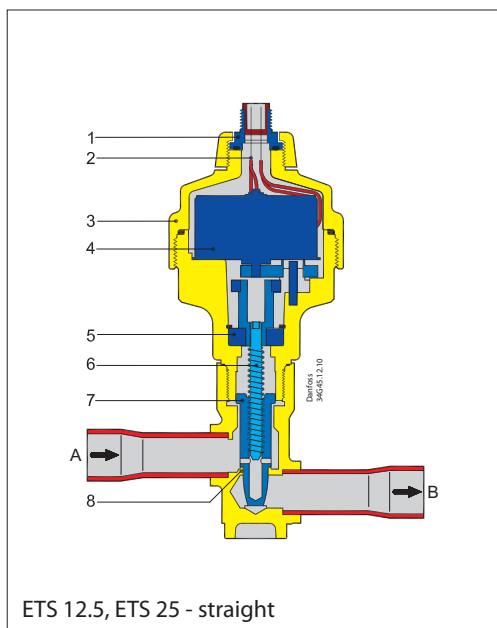
NOTE:
Full life time of standard ETS can only be ensured if oil is present in the system.
Oil free applications: Special ETS 250 and ETS 400 are available for higher capacity and use ETS Colibri for smaller capacity.

Data sheet | Electric expansion valve, type ETS 12.5 – ETS 400

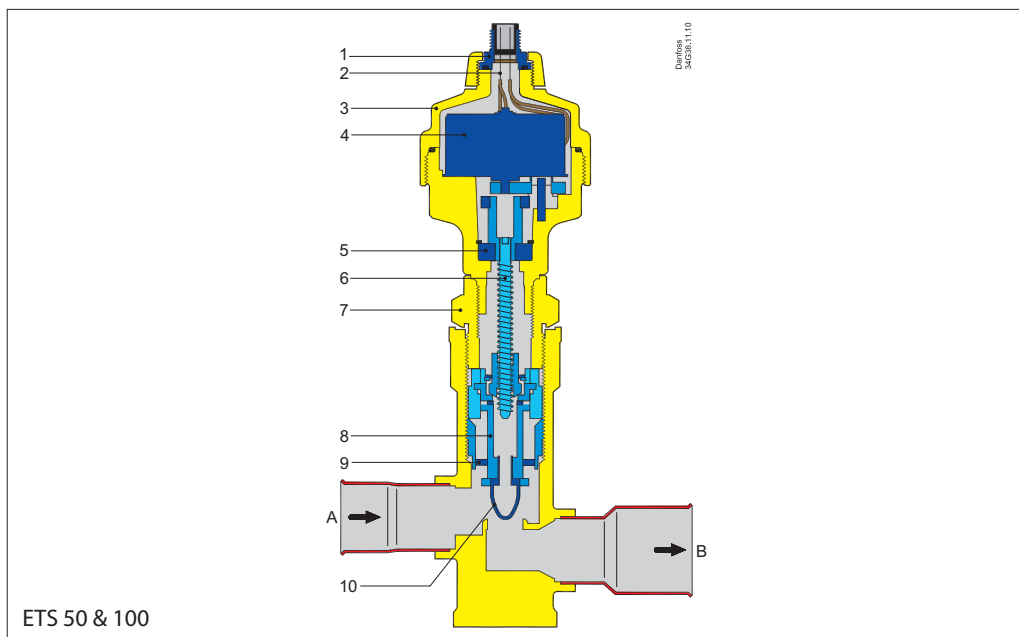
Design

⚠ Note:
Flow direction from A to B refers to the normal flow

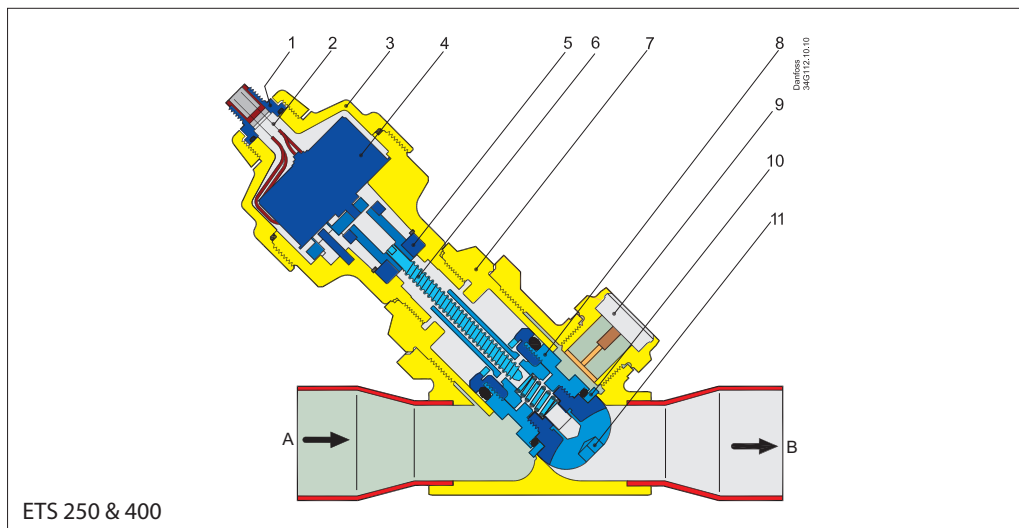
1. M12 connection
2. Glass seal
3. AST motor housing
4. Stepper motor
5. Bearing
6. Spindle
7. Cone and lead nut
8. Valve seat



1. M12 connector
2. Glass seal
3. AST motor housing
4. Stepper motor
5. Bearing
6. Spindle
7. Top Nut
8. Valve piston
9. Valve seat
10. Valve cone



1. M12 connector
2. Glass seal
3. AST motor housing
4. Stepper motor
5. Bearing
6. Spindle
7. Top Nut
8. Valve piston
9. Sight glass with indicator
10. Valve seat
11. Valve cone



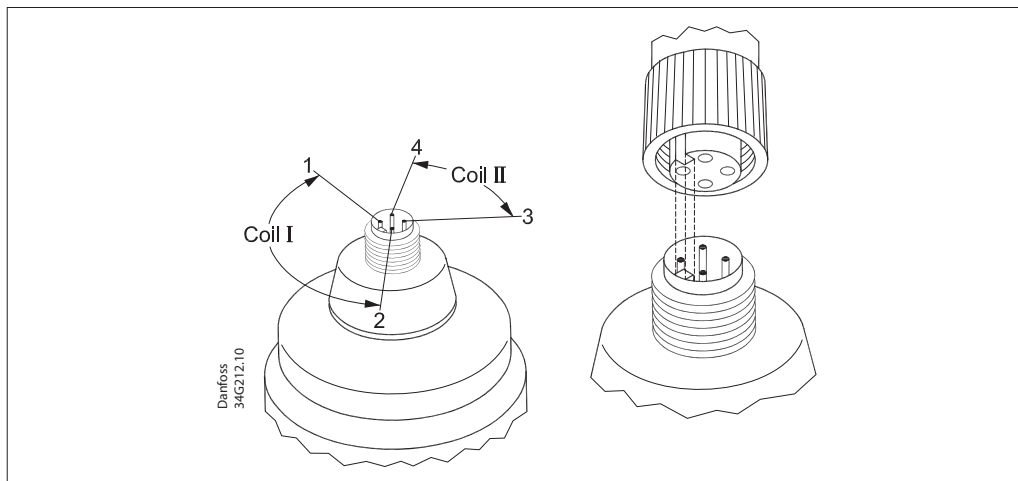
Data sheet | Electric expansion valve, type ETS 12.5 – ETS 400

Sight glass and indicator

ETS 50, ETS 100, ETS 250 and ETS 400 are equipped with sight glass with moisture indicator. The physical position of the piston in the valve can be checked through the sight glass. It also helps to determine the flow direction of the refrigerant in the system (ETS 50 and ETS 100).

Insufficient sub cooling can produce flash gas which is visible through the sight glass. The moisture indicator in the sight glass indicates dry or wet state of the refrigerant by changing its colour.

Electrical wiring



⚠ Note:
Electrical check of stepper motor and wiring: Coil I = 52 ohm, coil II = 52 ohm

Stepper motor switch sequence

| | STEP | Coil I | | Coil II | | |
|-------------|------|--------|-------|---------|-------|-------------|
| | | Red | Green | White | Black | |
| ↑ CLOSING ↑ | 1 | + | - | + | - | ↓ OPENING ↓ |
| | 2 | + | - | - | + | |
| | 3 | - | + | - | + | |
| | 4 | - | + | + | - | |
| | 1 | + | - | + | - | |

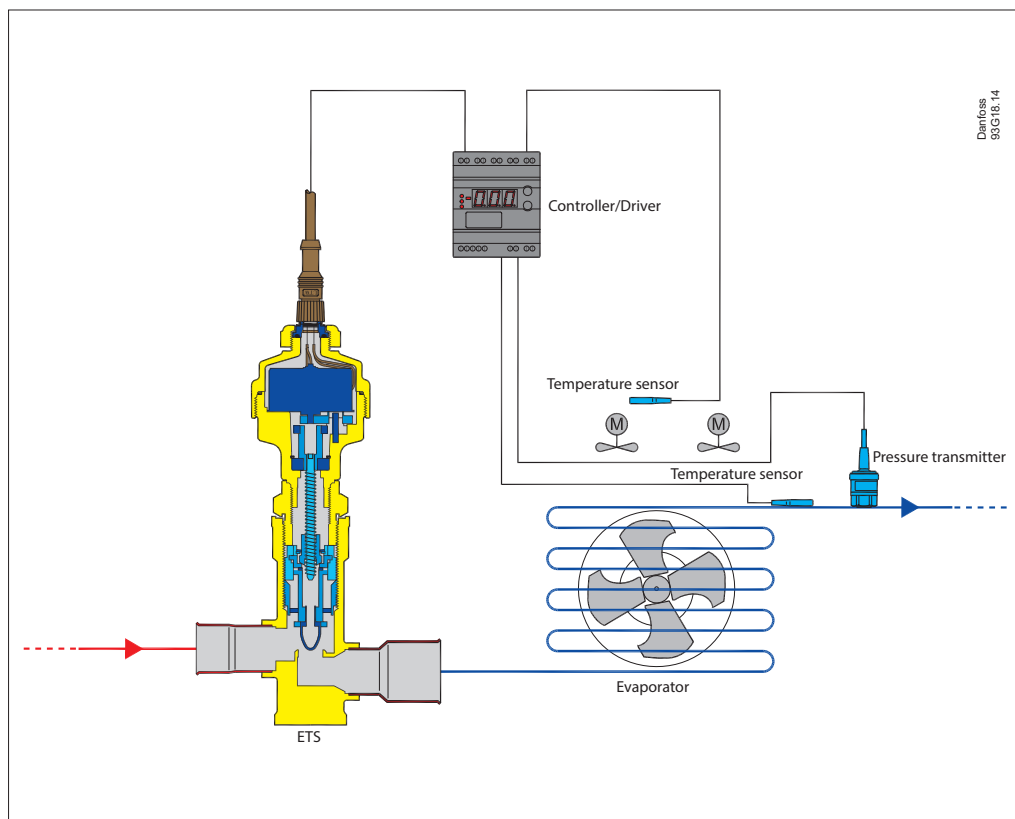
If the controller driving the ETS valve is from another manufacturer than Danfoss or a custom design, the following points must be considered in order to overcome potential step loss.

a. To ensure total closing of the valve, the controller should have a function to overdrive the valve in the closing direction. It is recommended to overdrive ten percent of the full step range at appropriate intervals.

b. The amount of lost steps may increase as a function of the amount of changes of the opening degree. Such designed controller should be able to compensate the lost steps after a defined number of changes in opening degree.

⚠ Warning:
At power failure the ETS valve will remain in the opening position it has at the moment of power failure, unless a safety device in the form of a battery backup is installed.

Valve application



Valve operation

The ETS valves operate modulating by electronically controlled activation of the AST stepper motor. The motor is a type 2-phase bi-polar, which stays in position, unless power pulses from a driver initiate the two discrete sets of motor stator windings for rotation in either directions.

The direction of the rotation of the spindle depends on the phase relationship of the power pulses. This is decisive for the travel of the piston.

The motor is operating the spindle, whose rotating movements are transformed into linear motion by the transmission in the cage assembly.

The AST motor housing has a glass sealed M12 connection as standard, which can be connected with customized cable and plug/socket combinations.

The piston design inside the ETS valve is pressure balanced, giving identical bi-flow performance capabilities and nearby identical maximum capacities.

Closing the valve by overdriving, ensures that the reference number in steps is always correct.

Operating the ETS series requires a controller with either 12 V DC voltage drive (5.5 W) or using chopper current drive (100 mA RMS).

⚠ Note:
Depending on the type of controller or driver, there will be limitations in cable length between valve actuator and driver.

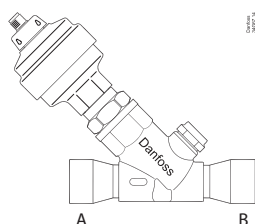
Both the actual cable length, the level of EMC emission on the location and driver circuit has an impact on the actual distortion of the current to the actuator motor.

In order to increase max. cable length considerably, install a 10 mH filter type Danfoss AKA 211 on the four power terminals.

Please contact Danfoss for further information how and when to apply this countermeasure in cases with questionable cable length.


CoolSelector2®

For easy and precise selection of valve, use Danfoss' CoolSelector2® software. You can find the ETS valves on the group, "Electronic expansion valves".
You can download it from <http://coolselector.danfoss.com>

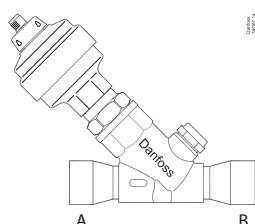
**ETS 250, ETS 400
Valve incl. actuator**


| Type | Rated capacity ¹⁾ | | | | | | | | | |
|----------------|------------------------------|------|-------|------|------|------|-------|------|-------|------|
| | R410A | | R407C | | R22 | | R134a | | R404A | |
| | [kW] | [TR] | [kW] | [TR] | [kW] | [TR] | [kW] | [TR] | [kW] | [TR] |
| ETS 250 | - | - | 1212 | 349 | 1106 | 319 | 874 | 252 | 828 | 239 |
| ETS 400 | - | - | 1933 | 556 | 1764 | 509 | 1394 | 402 | 1320 | 381 |

| Connection | | |
|-------------------|---------|------------------|
| ODF × ODF (A × B) | | Code no. |
| [in.] | [mm] | Single pack |
| 1 1/8 × 1 1/8 | 28 × 28 | 034G2600 |
| 1 3/8 × 1 3/8 | 35 × 35 | 034G2601 |
| 1 5/8 × 1 5/8 | - | 034G2602 |
| - | 42 × 42 | 034G2611* |
| 2 1/8 × 2 1/8 | - | 034G2624 |
| 1 5/8 × 1 5/8 | - | 034G3500 |
| 2 1/8 × 2 1/8 | 54 × 54 | 034G3501 |

¹⁾ The Rated capacity is based on:
Evaporating temperature t_e: 5 °C / 40 °F
Liquid temperature t_l: 28 °C / 82 °F
Condensing temperature t_c: 32 °C / 90 °F
Full stroke opening in normal flow direction

ETS 250 and ETS 400 have integrated sight glass except 034G2611.

**ETS for oil free applications
Valve incl. actuator**


| Type | Rated capacity ¹⁾ | | | | | | | | | |
|-------------------------|------------------------------|------|-------|------|------|------|-------|------|-------|------|
| | R410A | | R407C | | R22 | | R134a | | R404A | |
| | [kW] | [TR] | [kW] | [TR] | [kW] | [TR] | [kW] | [TR] | [kW] | [TR] |
| Oil free ETS 250 | - | - | 1212 | 349 | 1106 | 319 | 874 | 252 | 828 | 239 |
| Oil free ETS 400 | - | - | 1933 | 556 | 1764 | 509 | 1394 | 402 | 1320 | 381 |

| Connection | | |
|-------------------|---------|-----------------|
| ODF × ODF (A × B) | | Code no. |
| [in.] | [mm] | Single pack |
| 1 3/8 × 1 3/8 | 35 × 35 | 034G2625 |
| 1 5/8 × 1 5/8 | - | 034G2626 |
| 1 5/8 × 1 5/8 | - | 034G3514 |
| 2 1/8 × 2 1/8 | 54 × 54 | 034G3515 |

¹⁾ The Rated capacity is based on:
Evaporating temperature t_e: 5 °C / 40 °F
Liquid temperature t_l: 28 °C / 82 °F
Condensing temperature t_c: 32 °C / 90 °F
Full stroke opening in normal flow direction

ETS 250 and ETS 400 have integrated sight glass

For smaller capacities of ETS oil free valves see ETS Colibri

Spare parts
Cone/piston for ETS 12.5 / ETS 25

| Items | Description | Quantity | Code no. |
|-------|-----------------------------------------|----------|-----------------|
| | | [pcs] | |
| | Cone/piston for ETS 12.5 + metal gasket | 1 | 034G2345 |
| | Cone/piston for ETS 25 + metal gasket | 1 | 034G2346 |

Actuator with integrated M12 connection

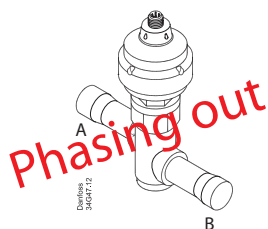
| Items | Description | Quantity | Code no. |
|-------|-----------------------------------------------------------------------------------------------------------------------|----------|------------------|
| | | [pcs] | |
| | Actuator with integrated M12 with Ceramic bearing (incl. metal gasket) for ETS 12.5, ETS 25 | 1 | 034G2088 |
| | Actuator with integrated M12 with ceramic bearing (incl. metal gasket) for ETS 25B, ETS 50, ETS 100, ETS 250, ETS 400 | 1 | 034G2087* |
| | Metal Gasket | 1 | 034G2344 |

*For oil free spare parts of ETS 250 and ETS 400. Please contact Danfoss.



Note:
ETS valve type ETS 12.5, ETS 25, ETS 50 and ETS 100 are currently in process of being phased-out, Please select ETS Colibri sizes 12C-100C as a replacement.
For further information see: Colibri.danfoss.com

Ordering
ETS 12.5, ETS 25
Valve incl. actuator



| Type | Rated capacity ¹⁾ | | | | | | | | | |
|----------|------------------------------|------|-------|------|------|------|-------|------|-------|------|
| | R410A | | R407C | | R22 | | R134a | | R404A | |
| | [kW] | [TR] | [kW] | [TR] | [kW] | [TR] | [kW] | [TR] | [kW] | [TR] |
| ETS 12.5 | 70 | 20 | 63 | 18 | 57 | 16 | 45 | 13 | 43 | 12 |
| ETS 25 | 144 | 41 | 129 | 37 | 117 | 34 | 93 | 27 | 88 | 25 |

| Connection | | |
|-------------------|---------|--------------------------|
| ODF × ODF (A × B) | | Code no. |
| [in.] | [mm] | Straight way Single Pack |
| ½ × ½ | – | 034G4209 |
| – | 12 × 12 | 034G4208 |
| 5/8 × 5/8 | 16 × 16 | 034G4210 |
| 7/8 × 7/8 | 22 × 22 | 034G4211 |
| ½ × ½ | – | 034G4201 |
| – | 12 × 12 | 034G4200 |
| 5/8 × 5/8 | 16 × 16 | 034G4202 |
| 7/8 × 7/8 | 22 × 22 | 034G4203 |

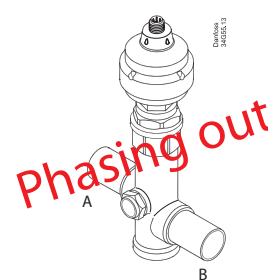
ETS 12.5 and ETS 25 do not feature sight glass

| Type | Rated capacity ¹⁾ | | | | | | | | | |
|----------|------------------------------|------|-------|------|------|------|-------|------|-------|------|
| | R410A | | R407C | | R22 | | R134a | | R404A | |
| | [kW] | [TR] | [kW] | [TR] | [kW] | [TR] | [kW] | [TR] | [kW] | [TR] |
| ETS 12.5 | 70 | 20 | 63 | 18 | 57 | 16 | 45 | 13 | 43 | 12 |
| ETS 25 | 144 | 41 | 129 | 37 | 117 | 34 | 93 | 27 | 88 | 25 |

| Connection | | |
|-------------------|---------|-----------------------|
| ODF × ODF (A × B) | | Code no. |
| [in.] | [mm] | Angle way Single Pack |
| ½ × ½ | – | 034G4213 |
| – | 12 × 12 | 034G4212 |
| 5/8 × 5/8 | 16 × 16 | 034G4214 |
| 7/8 × 7/8 | 22 × 22 | 034G4215 |
| ½ × ½ | – | 034G4205 |
| – | 12 × 12 | 034G4204 |
| 5/8 × 5/8 | 16 × 16 | 034G4206 |
| 7/8 × 7/8 | 22 × 22 | 034G4207 |

ETS 12.5 and ETS 25 do not feature sight glass

ETS 50, ETS 100
Valve incl. actuator

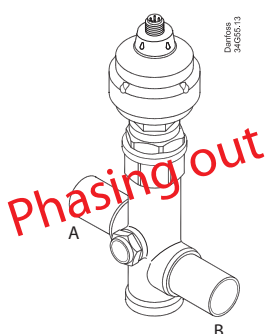


| Type | Rated capacity ¹⁾ | | | | | | | | | |
|---------|------------------------------|-------|-------|-------|-------|-------|-------|------|-------|------|
| | R410A | | R407C | | R22 | | R134a | | R404A | |
| | [kW] | [TR] | [kW] | [TR] | [kW] | [TR] | [kW] | [TR] | [kW] | [TR] |
| ETS 50 | 262.3 | 75.7 | 240.5 | 69.1 | 215 | 62 | 170 | 48.9 | 161.4 | 46.3 |
| ETS 100 | 488.4 | 140.9 | 447.8 | 128.7 | 400.4 | 115.4 | 316.5 | 91.2 | 300.5 | 86.6 |

| Connection | | |
|-------------------|---------|-------------|
| ODF × ODF (A × B) | | Code no. |
| [in.] | [mm] | Single pack |
| 7/8 × 7/8 | 22 × 22 | 034G1708 |
| 7/8 × 1 1/8 | 22 × 28 | 034G1705 |
| 1 1/8 × 1 1/8 | 28 × 28 | 034G1706 |
| 1 1/8 × 1 3/8 | 28 × 35 | 034G1704 |
| 1 1/8 × 1 1/8 | 28 × 28 | 034G0507 |
| 1 1/8 × 1 3/8 | 28 × 35 | 034G0501 |
| 1 3/8 × 1 3/8 | 35 × 35 | 034G0508 |
| 1 5/8 × 1 5/8 | – | 034G0505 |

ETS 50 and ETS 100 have integrated sight glass

ETS for R744 Applications



| Type | Connection | |
|----------|-------------------------|----------------------|
| | ODF × ODF (A × B) [in.] | Code no. Single pack |
| ETS 12.5 | 7/8 × 7/8 in | 034G4220 |
| ETS 25 | 7/8 × 7/8 in | 034G4219 |
| ETS 50 | 1 1/8 × 1 1/8 in | 034G1714 |
| ETS 100 | 1 1/8 × 1 1/8 in | 034G0515 |

ETS 50 and ETS 100 have integrated sight glass

ETS for R744 can be used as loading/unloading valve

ETS for R744 Applications (PS/MWP = 45.5 bar / 660 psig)

For capacities, please contact Danfoss.

Data sheet | Electric expansion valve, type ETS 12.5 – ETS 400

Accessories: M12 angle cable

M12 angle female connector is intended for use with a standard M12 male connector, available on stepper motor valves.
This cable is designed to offer high flexibility and small outer diameters with tensile strength. The angle way M12 cable consist of paired, twisted wires, which decreases mutual influence between signals transmitted along the cable and reduces influence of external sources of interference. The cables thus provides a higher degree of protection against lost steps compared to other cables.

Approvals



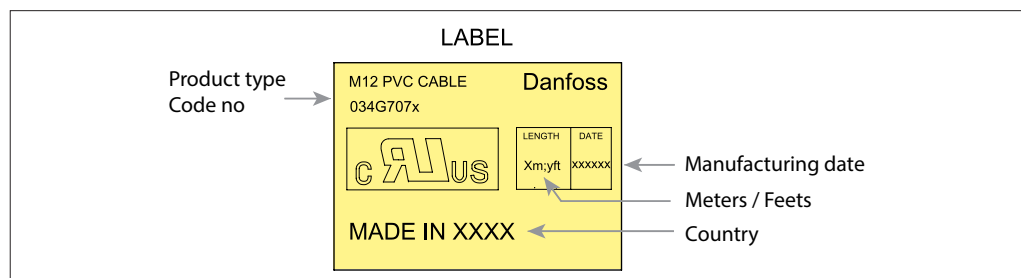
Specification

| | |
|-----------------------------|----------------------------------------------------------|
| Jacket | PVC - black |
| Cable outer sheath | Oil - resistant |
| Water proof rating | IP 67 |
| Operating temperature range | -40 – +80 °C |
| Wire type | Twisted pair, cross section 20 AWG / 0.5 mm ² |
| Cable outer diameter | 7.0 mm |
| Minimum bending radius | 10 x cable diameter |
| Cable combustibility / test | Flame retardant / VW-1 / CSA FT - 1 |
| M12 standard | EN 61076-2-101 |
| Reference standard | UL style 2464 and DIN VDE 0812 |
| LVD directive | 2014/35/EU |

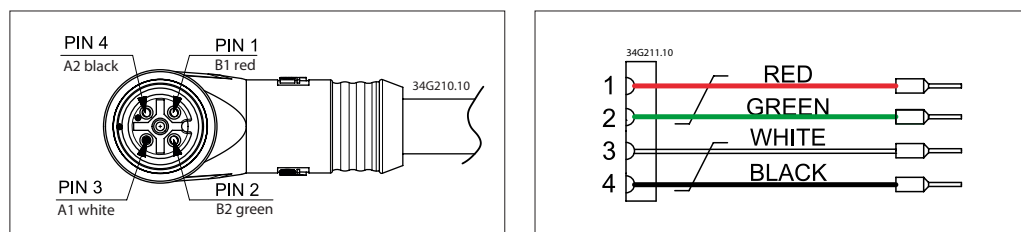
Ordering

| Cable | Cable length (L) | Insulation | Packing format | Code no. |
|-------------|----------------------------|------------|----------------|----------|
| PVC - black | 2 + 0.089 m / 6.6 + 0.3 ft | SR-PVC | Single pack | 034G7073 |
| | 8 + 0.3 m / 26.2 + 1 ft | SR-PVC | Single pack | 034G7074 |

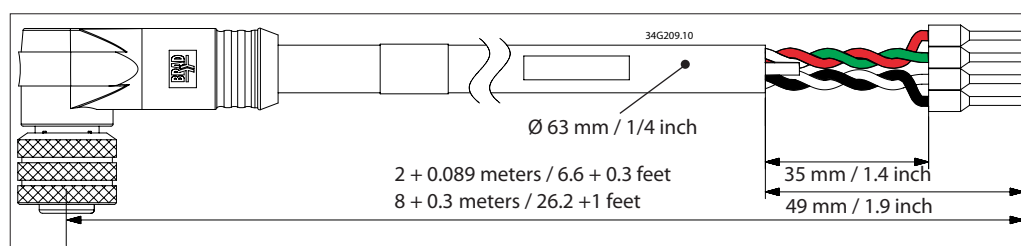
Identification



Connections



Dimensions



Data sheet | Electric expansion valve, type ETS 12.5 – ETS 400

Valve sizing

For optimum performance, it is important to correct the evaporator capacity. Selection is also dependent on an acceptable pressure drop across the valve. The evaporator capacity must be corrected if sub cooling deviates from 4K / 7.2 °F. In order to select the correct size of ETS you will need the following information:

Refrigerant: R410A, R407C, R404A, R507, R134a, R22, R1234ze

- Evaporator capacity Q_e in [kW] or [TR]
- Evaporating temperature t_e in [°C] or [°F]
- Condensing temperature t_c in [°C] or [°F]
- Max. acceptable pressure drop in the ETS valve in [bar] or [psi] Δp
- Sub cooling Δt_{sub}
- Connection size

Valve selection

Example

When selecting the valve it may be necessary to apply a correction factor to the actual evaporator capacity. This correction factor is required when system conditions are different from table conditions. Selection also depends on having an acceptable pressure drop across the valve. The following example illustrates correct selection of the valve.

Refrigerant: R410A

- Evaporator capacity: $Q_e = 500 \text{ kW} / 143 \text{ TR}$
- Condensing temperature: $t_c = 25 \text{ °C} / 77 \text{ °F}$
- Condensing pressure: $p_c = 23 \text{ bar} / 330 \text{ psig}$
- Evaporating temperature: $t_e = +10 \text{ °C} / 50 \text{ °F}$
- Evaporating pressure: $p_e = 9.8 \text{ bar} / 142 \text{ psig}$
- Liquid Line Loss: $p_l = 0.5 \text{ bar}$ (estimate)
- Max. Pressure drop in the valve:
 $\Delta p = p_c - p_l - p_e = 23 - 0.5 - 9.8 = 12.7 \text{ bar} / 184 \text{ psi}$
- Connection size: $1\frac{1}{8} \times 1\frac{1}{8} \text{ in.}$

Step 1

Determine the correction factor for sub cooling Δt_{sub} .

From the correction factors table (see below) a sub cooling of 15K / 27 °F, R410A corresponds to a factor of 1.15.

Correction factors for sub cooling Δt_{sub} .

| Connection factor | Δt_{sub} | | | | | | | | | |
|-------------------|------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 4 K | 10 K | 15 K | 20 K | 25 K | 30 K | 35 K | 40 K | 45 K | 50 K |
| | 7.2 °F | 18 °F | 27 °F | 36 °F | 45 °F | 54 °F | 63 °F | 72 °F | 81 °F | 90 °F |
| R22 | 1.00 | 1.06 | 1.1 | 1.15 | 1.20 | 1.25 | 1.30 | 1.35 | 1.39 | 1.44 |
| R410A | 1.00 | 1.00 | 1.15 | 1.21 | 1.27 | 1.33 | 1.39 | 1.45 | 1.50 | 1.56 |
| R407C | 1.00 | 1.08 | 1.14 | 1.21 | 1.27 | 1.33 | 1.39 | 1.45 | 1.51 | 1.57 |
| R134a | 1.00 | 1.08 | 1.13 | 1.19 | 1.25 | 1.31 | 1.37 | 1.42 | 1.48 | 1.54 |
| R404A/R507 | 1.00 | 1.10 | 1.20 | 1.29 | 1.37 | 1.46 | 1.54 | 1.63 | 1.70 | 1.78 |

Step 2

Corrected evaporator capacity is

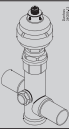
$$Q_e (\text{Corrected}) = 500 \text{ kW} / 1.15 = 435 \text{ kW} (124 \text{ TR})$$

Step 3

Now select the appropriate capacity table, R410A, and choose the column for an evaporating temperature of $t_e = 10 \text{ °C} / 50 \text{ °F}$.

Using the corrected evaporator capacity, select a valve that provides an equivalent or greater capacity at an acceptable pressure drop across the valve of 12.7 bar / 184 psi.

ETS 100 delivers 503.8 kW / 143 TR at 14 bar which is slightly higher than 12.7 bar / 184 psi pressure drop across the valve. Based on the required connection size of $1\frac{1}{8} \text{ in.}$, the ETS 100 is the proper selection for this example.

|  | t_e [°C] | Rated capacity [kW] in the normal flow direction | | | | | | | | | | | | | | | |
|-------------------------------------------------------------------------------------|------------|--------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|---------|-------|-------|-------|-------|-------|-------|-------|
| | | ETS 50 | | | | | | | | ETS 100 | | | | | | | |
| | | Pressure drop Δp [bar] | | | | | | | | | | | | | | | |
| | | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 |
| R410A | -40 | 173.7 | 224.6 | 255.1 | 275.5 | 289.5 | 299.2 | 305.7 | 309.6 | 323.5 | 418.1 | 475.0 | 512.9 | 539.1 | 557.2 | 569.2 | 576.4 |
| | -30 | 169.3 | 220.8 | 252.3 | 273.5 | 288.3 | 298.6 | 305.7 | 310.1 | 315.2 | 411.2 | 469.7 | 509.2 | 536.8 | 556.1 | 569.2 | 577.5 |
| | -20 | 163.3 | 214.9 | 246.8 | 268.6 | 284.1 | 295.0 | 302.5 | 307.4 | 304.0 | 400.1 | 459.6 | 500.2 | 528.9 | 549.2 | 563.3 | 572.4 |
| | -10 | 155.9 | 206.8 | 238.8 | 260.9 | 276.6 | 287.9 | 295.8 | 301.0 | 290.3 | 385.0 | 444.6 | 485.7 | 515.1 | 536.1 | 550.8 | 560.5 |
| | 10 | 137.5 | 184.5 | 214.8 | 236.1 | 251.5 | 262.7 | 270.6 | 275.8 | 256.0 | 343.5 | 399.0 | 439.6 | 469.2 | 489.1 | 503.8 | 513.6 |

Step 4

ETS 100, $1\frac{1}{8} \times 1\frac{1}{8} \text{ in.}$ connection size:

Single pack code no. 034G0507.

Note:

For easy and precise selection of valve, use Danfoss' CoolSelector software. You can download it from <http://www.danfoss.com/businessareas/refrigerationandairconditioning/product+selection+tools+details/coolselector.htm>

Data sheet | Electric expansion valve, type ETS 12.5 – ETS 400

Correction for subcooling

 Δt_{sub}

The evaporator capacities used must be corrected if subcooling deviates from 4 K / 7.2 °F.

The corrected capacity can be obtained by dividing the required evaporator capacity by the correction factor. Selections can then be made from the tables below.

| Correction factor | Δt_{sub} | | | | | | | | | |
|---------------------|------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 4 K | 10 K | 15 K | 20 K | 25 K | 30 K | 35 K | 40 K | 45 K | 50 K |
| | 7.2 °F | 18 °F | 27 °F | 36 °F | 45 °F | 54 °F | 63 °F | 72 °F | 81 °F | 90 °F |
| R22 | 1.00 | 1.06 | 1.11 | 1.15 | 1.20 | 1.25 | 1.30 | 1.35 | 1.39 | 1.44 |
| R410A | 1.00 | 1.08 | 1.15 | 1.21 | 1.27 | 1.33 | 1.39 | 1.45 | 1.50 | 1.56 |
| R407C | 1.00 | 1.08 | 1.14 | 1.21 | 1.27 | 1.33 | 1.39 | 1.45 | 1.51 | 1.57 |
| R134a | 1.00 | 1.08 | 1.13 | 1.19 | 1.25 | 1.31 | 1.37 | 1.42 | 1.48 | 1.54 |
| R404A / R507 | 1.00 | 1.10 | 1.20 | 1.29 | 1.37 | 1.46 | 1.54 | 1.63 | 1.70 | 1.78 |

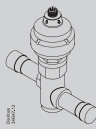


Note:

Insufficient subcooling can produce flash gas.

Rated Capacity [kW]

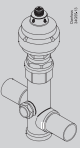
SI units

|  | t_e [°C] | Rated capacity [kW] in the normal flow direction | | | | | | | | | | | | | | | |
|-----------------------------------------------------------------------------------|---------------|--------------------------------------------------|------|------|------|------|------|------|------|--------|-------|-------|-------|-------|-------|-------|-------|
| | | ETS 12.5 | | | | | | | | ETS 25 | | | | | | | |
| | | Pressure drop Δp [bar] | | | | | | | | | | | | | | | |
| | | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 |
| R410A | -40 | 46.4 | 60.0 | 68.1 | 73.5 | 77.3 | 79.9 | 81.6 | 82.6 | 95.3 | 123.2 | 140.0 | 151.1 | 158.8 | 164.1 | 167.7 | 169.8 |
| | -30 | 45.2 | 59.0 | 67.3 | 73.0 | 76.9 | 79.7 | 81.6 | 82.7 | 92.9 | 121.2 | 138.4 | 150.0 | 158.1 | 163.8 | 167.7 | 170.1 |
| | -20 | 43.6 | 57.4 | 65.9 | 71.7 | 75.8 | 78.7 | 80.7 | 82.0 | 89.6 | 117.9 | 135.4 | 147.4 | 155.8 | 161.8 | 165.9 | 168.6 |
| | -10 | 41.6 | 55.2 | 63.7 | 69.6 | 73.8 | 76.8 | 78.9 | 80.3 | 85.5 | 113.5 | 131.0 | 143.1 | 151.7 | 157.9 | 162.2 | 165.0 |
| | -5 | 40.5 | 53.9 | 62.4 | 68.3 | 72.5 | 75.5 | 77.6 | 79.0 | 83.3 | 110.8 | 128.2 | 140.3 | 149.0 | 155.2 | 159.6 | 162.5 |
| | 10 | 36.7 | 49.2 | 57.3 | 63.0 | 67.1 | 70.1 | 72.2 | 73.5 | 75.4 | 101.2 | 117.8 | 129.5 | 137.9 | 144.0 | 148.3 | 151.2 |
| R407C | -40 | 42.1 | 52.8 | 58.6 | 62.0 | 63.9 | 64.9 | 65.0 | 64.6 | 86.5 | 108.5 | 120.5 | 127.5 | 131.4 | 133.3 | 133.6 | 132.7 |
| | -30 | 41.9 | 53.0 | 59.2 | 63.0 | 65.2 | 66.3 | 66.7 | 66.4 | 86.0 | 109.0 | 121.7 | 129.4 | 133.9 | 136.3 | 137.1 | 136.6 |
| | -20 | 41.2 | 52.8 | 59.3 | 63.4 | 65.8 | 67.2 | 67.8 | 67.8 | 84.7 | 108.5 | 121.9 | 130.2 | 135.3 | 138.2 | 139.4 | 139.3 |
| | -10 | 40.2 | 52.0 | 58.8 | 63.1 | 65.9 | 67.5 | 68.3 | 68.4 | 82.6 | 106.9 | 120.9 | 129.8 | 135.4 | 138.7 | 140.3 | 140.6 |
| | -5 | 39.6 | 51.4 | 58.4 | 62.8 | 65.6 | 67.3 | 68.2 | 68.4 | 81.3 | 105.7 | 120.0 | 129.0 | 134.9 | 138.4 | 140.2 | 140.6 |
| | 10 | 37.1 | 48.9 | 56.0 | 60.6 | 63.7 | 65.5 | 66.7 | 67.1 | 76.3 | 100.5 | 115.0 | 124.6 | 130.9 | 134.8 | 137.1 | 138.0 |
| R22 | -40 | 40.2 | 51.3 | 57.9 | 62.1 | 65.0 | 66.9 | 68.0 | 68.6 | 82.6 | 105.5 | 118.9 | 127.7 | 133.6 | 137.5 | 139.8 | 141.1 |
| | -30 | 39.8 | 51.3 | 58.1 | 62.6 | 65.7 | 67.7 | 69.1 | 69.8 | 81.8 | 105.4 | 119.4 | 128.7 | 135.0 | 139.2 | 142.0 | 143.5 |
| | -20 | 39.1 | 50.8 | 57.9 | 62.6 | 65.9 | 68.1 | 69.6 | 70.4 | 80.3 | 104.4 | 118.9 | 128.7 | 135.4 | 140.0 | 143.0 | 144.8 |
| | -10 | 38.0 | 49.9 | 57.1 | 62.1 | 65.5 | 67.9 | 69.5 | 70.5 | 78.1 | 102.5 | 117.4 | 127.5 | 134.6 | 139.5 | 142.8 | 144.9 |
| | -5 | 37.4 | 49.3 | 56.6 | 61.6 | 65.1 | 67.5 | 69.2 | 70.2 | 76.9 | 101.2 | 116.3 | 126.5 | 133.7 | 138.8 | 142.2 | 144.4 |
| | 10 | 35.2 | 46.8 | 54.1 | 59.2 | 62.9 | 65.4 | 67.2 | 68.4 | 72.3 | 96.2 | 111.3 | 121.7 | 129.2 | 134.5 | 138.2 | 140.6 |
| R134a | -40 | 35.6 | 43.2 | 46.8 | 48.5 | 49.0 | 48.6 | 47.7 | 46.3 | 73.1 | 88.8 | 96.3 | 99.7 | 100.7 | 100.0 | 98.0 | 95.1 |
| | -30 | 35.8 | 44.0 | 48.0 | 50.0 | 50.7 | 50.6 | 49.9 | 48.6 | 73.5 | 90.4 | 98.6 | 102.7 | 104.2 | 104.0 | 102.5 | 99.9 |
| | -20 | 35.6 | 44.3 | 48.8 | 51.1 | 52.1 | 52.2 | 51.7 | 50.6 | 73.3 | 91.1 | 100.2 | 105.0 | 107.0 | 107.3 | 106.2 | 104.0 |
| | -10 | 35.2 | 44.3 | 49.1 | 51.7 | 53.0 | 53.3 | 53.0 | 52.1 | 72.3 | 91.0 | 100.9 | 106.2 | 108.8 | 109.6 | 108.9 | 107.1 |
| | -5 | 34.8 | 44.1 | 49.0 | 51.8 | 53.2 | 53.7 | 53.4 | 52.6 | 71.6 | 90.6 | 100.8 | 106.4 | 109.3 | 110.3 | 109.8 | 108.2 |
| | 10 | 33.3 | 42.8 | 48.1 | 51.2 | 53.0 | 53.7 | 53.8 | 53.2 | 68.3 | 88.0 | 98.9 | 105.3 | 108.9 | 110.4 | 110.5 | 109.4 |
| R404A | -40 | 31.9 | 39.6 | 43.4 | 45.2 | 45.9 | 45.8 | 45.0 | 43.8 | 65.7 | 81.4 | 89.2 | 93.0 | 94.3 | 94.0 | 92.5 | 90.0 |
| | -30 | 31.5 | 39.5 | 43.6 | 45.8 | 46.7 | 46.7 | 46.2 | 45.1 | 64.7 | 81.2 | 89.7 | 94.0 | 95.9 | 96.1 | 94.9 | 92.8 |
| | -20 | 30.7 | 39.0 | 43.3 | 45.7 | 46.9 | 47.1 | 46.8 | 45.9 | 63.0 | 80.1 | 89.1 | 94.0 | 96.3 | 96.9 | 96.1 | 94.3 |
| | -10 | 29.5 | 37.9 | 42.5 | 45.1 | 46.4 | 46.9 | 46.7 | 45.9 | 60.7 | 78.0 | 87.4 | 92.7 | 95.4 | 96.3 | 95.9 | 94.4 |
| | -5 | 28.9 | 37.3 | 41.9 | 44.6 | 46.0 | 46.5 | 46.3 | 45.6 | 59.4 | 76.6 | 86.1 | 91.6 | 94.5 | 95.5 | 95.2 | 93.8 |
| | 10 | 26.5 | 34.6 | 39.2 | 41.9 | 43.5 | 44.1 | 44.1 | 43.5 | 54.4 | 71.0 | 80.5 | 86.2 | 89.3 | 90.6 | 90.6 | 89.4 |

Data sheet | Electric expansion valve, type ETS 12.5 – ETS 400

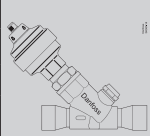
Rated Capacity [kW]

SI units

|  | t _e [°C] | Rated capacity [kW] in the normal flow direction | | | | | | | | | | | | | | | |
|-----------------------------------------------------------------------------------|------------------------|--------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|---------|-------|-------|-------|-------|-------|-------|-------|
| | | ETS 50 | | | | | | | | ETS 100 | | | | | | | |
| | | Pressure drop Δp [bar] | | | | | | | | | | | | | | | |
| | | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 |
| R410A | -40 | 173.7 | 224.6 | 255.1 | 275.5 | 289.5 | 299.2 | 305.7 | 309.6 | 323.5 | 418.1 | 475.0 | 512.9 | 539.1 | 557.2 | 569.2 | 576.4 |
| | -30 | 169.3 | 220.8 | 252.3 | 273.5 | 288.3 | 298.6 | 305.7 | 310.1 | 315.2 | 411.2 | 469.7 | 509.2 | 536.8 | 556.1 | 569.2 | 577.5 |
| | -20 | 163.3 | 214.9 | 246.8 | 268.6 | 284.1 | 295.0 | 302.5 | 307.4 | 304.0 | 400.1 | 459.6 | 500.2 | 528.9 | 549.2 | 563.3 | 572.4 |
| | -10 | 155.9 | 206.8 | 238.8 | 260.9 | 276.6 | 287.9 | 295.8 | 301.0 | 290.3 | 385.0 | 444.6 | 485.7 | 515.1 | 536.1 | 550.8 | 560.5 |
| | -5 | 151.7 | 202.0 | 233.7 | 255.8 | 271.6 | 283.0 | 291.0 | 296.4 | 282.5 | 376.0 | 435.2 | 476.3 | 505.8 | 527.0 | 541.9 | 551.8 |
| | 10 | 137.5 | 184.5 | 214.8 | 236.1 | 251.5 | 262.7 | 270.6 | 275.8 | 256.0 | 343.5 | 399.9 | 439.6 | 468.3 | 489.1 | 503.8 | 513.6 |
| R407C | -40 | 158.5 | 199.3 | 222.0 | 235.6 | 243.8 | 248.1 | 249.7 | 249.1 | 295.1 | 371.2 | 413.3 | 438.7 | 453.9 | 462.0 | 464.9 | 463.8 |
| | -30 | 157.6 | 200.3 | 224.4 | 239.3 | 248.5 | 253.7 | 256.1 | 256.2 | 293.5 | 373.0 | 417.8 | 445.5 | 462.6 | 472.5 | 476.9 | 477.1 |
| | -20 | 155.3 | 199.5 | 224.9 | 241.0 | 251.2 | 257.3 | 260.5 | 261.3 | 289.2 | 371.5 | 418.8 | 448.7 | 467.7 | 479.2 | 485.1 | 486.6 |
| | -10 | 151.7 | 196.8 | 223.3 | 240.4 | 251.5 | 258.5 | 262.5 | 263.9 | 282.4 | 366.4 | 415.9 | 447.6 | 468.4 | 481.4 | 488.7 | 491.4 |
| | -5 | 149.4 | 194.7 | 221.7 | 239.2 | 250.8 | 258.1 | 262.4 | 264.2 | 278.1 | 362.6 | 412.8 | 445.4 | 466.9 | 480.6 | 488.6 | 491.9 |
| | 10 | 140.7 | 185.7 | 213.2 | 231.6 | 244.0 | 252.3 | 257.4 | 259.9 | 261.9 | 345.7 | 397.0 | 431.2 | 454.4 | 469.8 | 479.2 | 483.9 |
| R22 | -40 | 151.5 | 193.5 | 218.1 | 234.2 | 245.1 | 252.2 | 256.6 | 258.8 | 282.1 | 360.2 | 406.2 | 436.2 | 456.3 | 469.6 | 477.7 | 481.9 |
| | -30 | 149.9 | 193.2 | 218.9 | 236.0 | 247.6 | 255.4 | 260.4 | 263.1 | 279.1 | 359.7 | 407.6 | 439.4 | 460.9 | 475.5 | 484.8 | 489.9 |
| | -20 | 147.1 | 191.3 | 218.0 | 235.9 | 248.2 | 256.6 | 262.2 | 265.5 | 273.9 | 356.2 | 405.9 | 439.2 | 462.1 | 477.9 | 488.2 | 494.3 |
| | -10 | 143.2 | 187.8 | 215.2 | 233.8 | 246.7 | 255.7 | 261.8 | 265.6 | 266.6 | 349.7 | 400.8 | 435.3 | 459.4 | 476.2 | 487.5 | 494.5 |
| | -5 | 140.8 | 185.5 | 213.1 | 231.9 | 245.1 | 254.4 | 260.7 | 264.6 | 262.3 | 345.4 | 396.8 | 431.8 | 456.4 | 473.7 | 485.4 | 492.8 |
| | 10 | 132.4 | 176.2 | 203.9 | 223.0 | 236.7 | 246.5 | 253.2 | 257.6 | 246.5 | 328.1 | 379.6 | 415.3 | 440.8 | 458.9 | 471.5 | 479.7 |
| R134a | -40 | 133.1 | 161.8 | 175.4 | 181.6 | 183.4 | 182.1 | 178.6 | 173.3 | 247.8 | 301.3 | 326.6 | 338.2 | 341.5 | 339.1 | 332.5 | 322.6 |
| | -30 | 133.9 | 164.7 | 179.7 | 187.1 | 189.9 | 189.5 | 186.7 | 182.1 | 249.3 | 306.6 | 334.6 | 348.5 | 353.6 | 352.8 | 347.6 | 339.0 |
| | -20 | 133.4 | 166.1 | 182.6 | 191.2 | 195.0 | 195.4 | 193.4 | 189.5 | 248.4 | 309.2 | 340.0 | 356.0 | 363.1 | 363.9 | 360.1 | 352.8 |
| | -10 | 131.7 | 165.9 | 183.7 | 193.5 | 198.3 | 199.6 | 198.3 | 195.1 | 245.2 | 308.8 | 342.1 | 360.3 | 369.2 | 371.6 | 369.3 | 363.3 |
| | -5 | 130.3 | 165.1 | 183.6 | 193.9 | 199.2 | 200.9 | 200.0 | 197.1 | 242.6 | 307.4 | 341.9 | 361.1 | 370.8 | 374.1 | 372.4 | 367.0 |
| | 10 | 124.5 | 160.3 | 180.2 | 191.9 | 198.3 | 201.2 | 201.3 | 199.3 | 231.8 | 298.5 | 335.5 | 357.2 | 369.3 | 374.6 | 374.8 | 371.1 |
| R404A | -40 | 119.8 | 148.6 | 162.8 | 169.8 | 172.3 | 171.9 | 169.2 | 164.7 | 223.0 | 276.6 | 303.1 | 316.1 | 320.9 | 320.0 | 315.0 | 306.7 |
| | -30 | 118.0 | 148.2 | 163.7 | 171.7 | 175.2 | 175.6 | 173.6 | 169.8 | 219.7 | 276.0 | 304.7 | 319.7 | 326.2 | 326.9 | 323.2 | 316.1 |
| | -20 | 115.0 | 146.1 | 162.6 | 171.6 | 176.0 | 177.1 | 175.7 | 172.5 | 214.0 | 272.1 | 302.8 | 319.6 | 327.6 | 329.7 | 327.2 | 321.3 |
| | -10 | 110.8 | 142.3 | 159.5 | 169.3 | 174.4 | 176.1 | 175.4 | 172.7 | 206.3 | 265.0 | 297.1 | 315.2 | 324.6 | 327.9 | 326.6 | 321.5 |
| | -5 | 108.3 | 139.8 | 157.2 | 167.3 | 172.6 | 174.6 | 174.1 | 171.7 | 201.7 | 260.3 | 292.7 | 311.4 | 321.4 | 325.1 | 324.2 | 319.7 |
| | 10 | 99.4 | 129.7 | 147.1 | 157.5 | 163.3 | 165.8 | 165.8 | 163.7 | 185.0 | 241.6 | 273.9 | 293.2 | 304.0 | 308.7 | 308.6 | 304.8 |

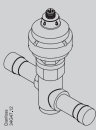
The capacities stated in the tables are for the normal flow direction. For ETS 50 and 100 specifically, the capacity in reverse flow direction varies between 90% and 125% of the capacity in normal flow direction.

Rated Capacity [kW]
SI units

|  | t_e [°C] | Rated capacity [kW] in the normal flow direction | | | | | | | | | | | | | | | |
|-----------------------------------------------------------------------------------|---------------|--------------------------------------------------|------|------|------|------|------|------|------|---------|------|------|------|------|------|------|------|
| | | ETS 250 | | | | | | | | ETS 400 | | | | | | | |
| | | Pressure drop Δp [bar] | | | | | | | | | | | | | | | |
| | | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 |
| R407C | -40 | 811 | 1017 | 1129 | 1195 | 1232 | 1249 | 1252 | 1244 | 1294 | 1622 | 1801 | 1905 | 1964 | 1992 | 1997 | 1984 |
| | -30 | 806 | 1022 | 1141 | 1213 | 1255 | 1277 | 1284 | 1280 | 1286 | 1629 | 1820 | 1934 | 2002 | 2037 | 2049 | 2041 |
| | -20 | 794 | 1017 | 1143 | 1220 | 1268 | 1295 | 1306 | 1305 | 1266 | 1621 | 1823 | 1947 | 2023 | 2065 | 2083 | 2082 |
| | -10 | 774 | 1002 | 1133 | 1216 | 1269 | 1300 | 1315 | 1317 | 1235 | 1598 | 1808 | 1940 | 2024 | 2073 | 2097 | 2101 |
| | -5 | 762 | 990 | 1124 | 1209 | 1264 | 1297 | 1314 | 1318 | 1215 | 1580 | 1793 | 1929 | 2016 | 2068 | 2095 | 2102 |
| | 10 | 715 | 941 | 1078 | 1167 | 1226 | 1264 | 1285 | 1293 | 1141 | 1502 | 1719 | 1862 | 1956 | 2016 | 2049 | 2062 |
| R22 | -40 | 779 | 995 | 1122 | 1205 | 1261 | 1297 | 1320 | 1331 | 1243 | 1587 | 1790 | 1922 | 2011 | 2069 | 2105 | 2123 |
| | -30 | 771 | 994 | 1126 | 1214 | 1273 | 1314 | 1339 | 1353 | 1230 | 1585 | 1796 | 1936 | 2031 | 2095 | 2136 | 2159 |
| | -20 | 757 | 984 | 1121 | 1213 | 1277 | 1320 | 1349 | 1366 | 1207 | 1569 | 1789 | 1935 | 2036 | 2106 | 2151 | 2178 |
| | -10 | 737 | 966 | 1107 | 1202 | 1269 | 1315 | 1347 | 1366 | 1175 | 1541 | 1766 | 1918 | 2024 | 2098 | 2148 | 2179 |
| | -5 | 724 | 954 | 1096 | 1193 | 1261 | 1309 | 1341 | 1361 | 1156 | 1522 | 1748 | 1903 | 2011 | 2087 | 2139 | 2171 |
| | 10 | 681 | 906 | 1049 | 1147 | 1218 | 1268 | 1303 | 1325 | 1086 | 1446 | 1673 | 1830 | 1942 | 2022 | 2078 | 2114 |
| R134a | -40 | 684 | 832 | 902 | 934 | 943 | 937 | 919 | 891 | 1092 | 1328 | 1439 | 1490 | 1505 | 1494 | 1465 | 1422 |
| | -30 | 688 | 847 | 924 | 963 | 977 | 975 | 960 | 937 | 1098 | 1351 | 1474 | 1535 | 1558 | 1555 | 1532 | 1494 |
| | -20 | 686 | 854 | 939 | 983 | 1003 | 1005 | 995 | 975 | 1094 | 1362 | 1498 | 1569 | 1600 | 1603 | 1587 | 1555 |
| | -10 | 677 | 853 | 945 | 995 | 1020 | 1027 | 1020 | 1003 | 1080 | 1360 | 1507 | 1587 | 1627 | 1637 | 1627 | 1600 |
| | -5 | 670 | 849 | 944 | 997 | 1024 | 1033 | 1029 | 1014 | 1069 | 1354 | 1506 | 1591 | 1634 | 1648 | 1641 | 1617 |
| | 10 | 640 | 824 | 927 | 987 | 1020 | 1035 | 1035 | 1025 | 1021 | 1315 | 1478 | 1574 | 1627 | 1650 | 1651 | 1635 |
| R404A | -40 | 615 | 763 | 836 | 871 | 884 | 881 | 867 | 844 | 981 | 1217 | 1333 | 1390 | 1410 | 1406 | 1383 | 1346 |
| | -30 | 606 | 761 | 840 | 881 | 899 | 900 | 890 | 870 | 967 | 1214 | 1340 | 1406 | 1434 | 1436 | 1419 | 1387 |
| | -20 | 591 | 750 | 835 | 881 | 903 | 908 | 901 | 884 | 942 | 1197 | 1332 | 1405 | 1440 | 1448 | 1437 | 1410 |
| | -10 | 569 | 731 | 819 | 869 | 894 | 903 | 899 | 884 | 908 | 1166 | 1306 | 1386 | 1426 | 1440 | 1433 | 1411 |
| | -5 | 556 | 718 | 807 | 858 | 885 | 895 | 892 | 879 | 887 | 1145 | 1287 | 1369 | 1412 | 1428 | 1423 | 1402 |
| | 10 | 510 | 666 | 755 | 807 | 837 | 849 | 849 | 838 | 814 | 1062 | 1204 | 1288 | 1335 | 1355 | 1354 | 1336 |

Rated Capacity [TR]
(TR = ton of refrigeration)

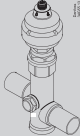
US units

|  | t_e [°F] | Rated capacity [TR] in the normal flow direction | | | | | | | | | | | | | | | |
|-----------------------------------------------------------------------------------|---------------|--------------------------------------------------|------|------|------|------|------|------|------|--------|------|------|------|------|------|------|------|
| | | ETS 12.5 | | | | | | | | ETS 25 | | | | | | | |
| | | Pressure drop Δp [psi] | | | | | | | | | | | | | | | |
| | | 40 | 60 | 80 | 100 | 125 | 150 | 175 | 200 | 40 | 60 | 80 | 100 | 125 | 150 | 175 | 200 |
| R410A | -40 | 14.9 | 17.2 | 18.9 | 20.1 | 21.3 | 22.1 | 22.7 | 23.2 | 30.7 | 35.5 | 38.8 | 41.4 | 43.7 | 45.5 | 46.7 | 47.6 |
| | -20 | 14.6 | 16.9 | 18.6 | 19.9 | 21.1 | 22.0 | 22.7 | 23.1 | 29.9 | 34.8 | 38.3 | 40.9 | 43.4 | 45.2 | 46.6 | 47.6 |
| | 0 | 14.0 | 16.4 | 18.1 | 19.4 | 20.7 | 21.6 | 22.3 | 22.8 | 28.8 | 33.7 | 37.2 | 39.9 | 42.5 | 44.4 | 45.9 | 46.9 |
| | 20 | 13.3 | 15.7 | 17.4 | 18.7 | 20.0 | 20.9 | 21.6 | 22.2 | 27.4 | 32.2 | 35.7 | 38.4 | 41.0 | 43.0 | 44.5 | 45.5 |
| | 40 | 12.5 | 14.7 | 16.4 | 17.7 | 18.9 | 19.9 | 20.6 | 21.1 | 25.7 | 30.3 | 33.7 | 36.4 | 38.9 | 40.9 | 42.3 | 43.4 |
| | 50 | 12.0 | 14.2 | 15.8 | 17.1 | 18.3 | 19.2 | 19.9 | 20.5 | 24.7 | 29.2 | 32.5 | 35.1 | 37.6 | 39.6 | 41.0 | 42.1 |
| R407C | -40 | 13.4 | 15.2 | 16.3 | 17.2 | 17.8 | 18.2 | 18.4 | 18.5 | 27.5 | 31.2 | 33.6 | 35.3 | 36.7 | 37.5 | 37.9 | 38.0 |
| | -20 | 13.4 | 15.2 | 16.5 | 17.4 | 18.2 | 18.6 | 18.9 | 19.0 | 27.5 | 31.3 | 33.9 | 35.8 | 37.3 | 38.3 | 38.8 | 39.1 |
| | 0 | 13.2 | 15.1 | 16.5 | 17.4 | 18.3 | 18.8 | 19.2 | 19.3 | 27.1 | 31.1 | 33.9 | 35.9 | 37.6 | 38.7 | 39.4 | 39.7 |
| | 20 | 12.8 | 14.8 | 16.3 | 17.3 | 18.2 | 18.8 | 19.2 | 19.4 | 26.4 | 30.5 | 33.4 | 35.5 | 37.4 | 38.6 | 39.4 | 39.9 |
| | 40 | 12.4 | 14.4 | 15.8 | 16.9 | 17.8 | 18.5 | 18.9 | 19.2 | 25.4 | 29.5 | 32.5 | 34.7 | 36.6 | 38.0 | 38.9 | 39.4 |
| | 50 | 12.1 | 14.1 | 15.5 | 16.6 | 17.5 | 18.2 | 18.7 | 18.9 | 24.8 | 28.9 | 31.9 | 34.1 | 36.1 | 37.4 | 38.4 | 38.9 |
| R22 | -40 | 12.9 | 14.8 | 16.1 | 17.1 | 18.0 | 18.6 | 19.0 | 19.3 | 26.5 | 30.3 | 33.1 | 35.1 | 36.9 | 38.2 | 39.1 | 39.7 |
| | -20 | 12.8 | 14.7 | 16.1 | 17.2 | 18.1 | 18.8 | 19.3 | 19.6 | 26.3 | 30.3 | 33.1 | 35.3 | 37.2 | 38.7 | 39.7 | 40.4 |
| | 0 | 12.6 | 14.6 | 16.0 | 17.1 | 18.1 | 18.8 | 19.4 | 19.8 | 25.8 | 29.9 | 32.9 | 35.1 | 37.2 | 38.7 | 39.8 | 40.6 |
| | 20 | 12.2 | 14.2 | 15.7 | 16.8 | 17.9 | 18.7 | 19.3 | 19.7 | 25.1 | 29.3 | 32.3 | 34.6 | 36.8 | 38.4 | 39.6 | 40.4 |
| | 40 | 11.7 | 13.8 | 15.3 | 16.4 | 17.5 | 18.3 | 18.9 | 19.3 | 24.1 | 28.3 | 31.4 | 33.7 | 35.9 | 37.6 | 38.9 | 39.7 |
| | 50 | 11.5 | 13.5 | 15.0 | 16.1 | 17.2 | 18.0 | 18.6 | 19.1 | 23.6 | 27.7 | 30.8 | 33.1 | 35.4 | 37.4 | 38.3 | 39.2 |
| R134a | -40 | 11.2 | 12.4 | 13.1 | 13.6 | 13.9 | 13.9 | 13.8 | 13.6 | 22.9 | 25.5 | 27.0 | 27.9 | 28.5 | 28.6 | 28.4 | 27.9 |
| | -20 | 11.3 | 12.6 | 13.5 | 14.0 | 14.3 | 14.5 | 14.5 | 14.3 | 23.2 | 26.0 | 27.7 | 28.8 | 29.5 | 29.8 | 29.7 | 29.3 |
| | 0 | 11.3 | 12.7 | 13.7 | 14.3 | 14.7 | 14.9 | 14.9 | 14.8 | 23.2 | 26.2 | 28.1 | 29.3 | 30.2 | 30.6 | 30.7 | 30.4 |
| | 20 | 11.2 | 12.7 | 13.7 | 14.4 | 14.9 | 15.1 | 15.2 | 15.2 | 22.9 | 26.1 | 28.1 | 29.5 | 30.6 | 31.1 | 31.3 | 31.2 |
| | 40 | 10.9 | 12.5 | 13.5 | 14.3 | 14.8 | 15.2 | 15.3 | 15.3 | 22.4 | 25.6 | 27.8 | 29.3 | 30.5 | 31.2 | 31.5 | 31.5 |
| | 50 | 10.7 | 12.3 | 13.4 | 14.1 | 14.8 | 15.3 | 15.1 | 15.3 | 22.0 | 25.3 | 27.5 | 29.1 | 30.3 | 31.1 | 31.4 | 31.4 |
| R404A | -40 | 10.1 | 11.4 | 12.1 | 12.6 | 12.9 | 13.1 | 13.0 | 12.8 | 20.8 | 23.4 | 25.0 | 25.9 | 26.6 | 26.8 | 26.7 | 26.4 |
| | -20 | 10.0 | 11.3 | 12.2 | 12.7 | 13.1 | 13.3 | 13.3 | 13.2 | 20.6 | 23.3 | 25.0 | 26.2 | 27.0 | 27.3 | 27.4 | 27.1 |
| | 0 | 9.8 | 11.1 | 12.0 | 12.6 | 13.1 | 13.4 | 13.4 | 13.3 | 20.0 | 22.9 | 24.8 | 26.0 | 27.0 | 27.4 | 27.5 | 27.4 |
| | 20 | 9.4 | 10.8 | 11.7 | 12.4 | 12.9 | 13.2 | 13.3 | 13.2 | 19.3 | 22.2 | 24.1 | 25.4 | 26.5 | 27.0 | 27.3 | 27.2 |
| | 40 | 8.9 | 10.3 | 11.2 | 11.9 | 12.4 | 12.7 | 12.9 | 12.8 | 18.2 | 21.1 | 23.0 | 24.4 | 25.5 | 26.1 | 26.4 | 26.4 |
| | 50 | 8.6 | 9.9 | 10.9 | 11.5 | 12.1 | 12.4 | 12.5 | 12.5 | 17.6 | 20.4 | 22.4 | 23.7 | 24.9 | 25.5 | 25.8 | 25.8 |

Data sheet | Electric expansion valve, type ETS 12.5 – ETS 400

Rated Capacity [TR]
(TR = ton of refrigeration)

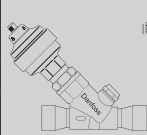
US units

|  | t _e [°F] | Rated capacity [TR] in the normal flow direction | | | | | | | | | | | | | | | |
|-----------------------------------------------------------------------------------|------------------------|--------------------------------------------------|------|------|------|------|------|------|------|---------|-------|-------|-------|-------|-------|-------|-------|
| | | ETS 50 | | | | | | | | ETS 100 | | | | | | | |
| | | Pressure drop Δp [psi] | | | | | | | | | | | | | | | |
| | | 40 | 60 | 80 | 100 | 125 | 150 | 175 | 200 | 40 | 60 | 80 | 100 | 125 | 150 | 175 | 200 |
| R410A | -40 | 55.9 | 64.6 | 70.8 | 75.4 | 79.7 | 82.9 | 85.2 | 86.8 | 104.2 | 120.3 | 131.8 | 140.4 | 148.5 | 154.4 | 158.6 | 161.6 |
| | -20 | 54.6 | 63.4 | 69.8 | 74.6 | 79.1 | 82.5 | 85.0 | 86.7 | 101.6 | 118.0 | 129.9 | 138.9 | 147.4 | 153.6 | 158.2 | 161.5 |
| | 0 | 52.6 | 61.4 | 67.9 | 72.8 | 77.5 | 81.0 | 83.6 | 85.5 | 97.8 | 114.3 | 126.4 | 135.6 | 144.3 | 150.9 | 155.7 | 159.2 |
| | 20 | 49.9 | 58.7 | 65.1 | 70.1 | 74.8 | 78.4 | 81.1 | 83.1 | 93.0 | 109.2 | 121.2 | 130.4 | 139.3 | 146.0 | 151.0 | 154.6 |
| | 40 | 46.8 | 55.2 | 61.4 | 66.3 | 71.0 | 74.6 | 77.2 | 79.2 | 87.1 | 102.7 | 114.4 | 123.5 | 132.2 | 138.8 | 143.8 | 147.5 |
| | 50 | 45.0 | 53.2 | 59.3 | 64.1 | 68.7 | 72.2 | 74.8 | 76.8 | 83.8 | 99.0 | 110.4 | 119.3 | 127.8 | 134.4 | 139.3 | 142.9 |
| R407C | -40 | 50.4 | 57.3 | 61.9 | 65.1 | 67.9 | 69.6 | 70.6 | 71.0 | 93.9 | 106.6 | 115.2 | 121.2 | 126.4 | 129.6 | 131.5 | 132.2 |
| | -20 | 50.4 | 57.6 | 62.5 | 66.0 | 69.1 | 71.1 | 72.4 | 73.0 | 93.8 | 107.2 | 116.4 | 122.9 | 128.7 | 132.4 | 134.7 | 135.9 |
| | 0 | 49.7 | 57.2 | 62.5 | 66.3 | 69.6 | 71.9 | 73.4 | 74.2 | 92.6 | 106.6 | 116.3 | 123.4 | 129.6 | 133.9 | 136.6 | 138.2 |
| | 20 | 48.5 | 56.2 | 61.7 | 65.7 | 69.3 | 71.8 | 73.5 | 74.6 | 90.4 | 104.7 | 114.9 | 122.3 | 129.1 | 133.8 | 136.9 | 138.8 |
| | 40 | 46.8 | 54.6 | 60.1 | 64.3 | 68.1 | 70.8 | 72.7 | 73.9 | 87.1 | 101.6 | 111.9 | 119.7 | 126.8 | 131.8 | 135.3 | 137.5 |
| | 50 | 45.7 | 53.5 | 59.0 | 63.2 | 67.1 | 69.9 | 71.8 | 73.1 | 85.2 | 99.5 | 109.9 | 117.7 | 125.0 | 130.1 | 133.7 | 136.1 |
| R22 | -40 | 48.5 | 55.6 | 60.6 | 64.3 | 67.7 | 70.1 | 71.8 | 72.9 | 90.3 | 103.6 | 112.9 | 119.8 | 126.1 | 130.5 | 133.7 | 135.7 |
| | -20 | 48.1 | 55.5 | 60.8 | 64.7 | 68.3 | 70.9 | 72.8 | 74.0 | 89.6 | 103.4 | 113.1 | 120.4 | 127.2 | 132.0 | 135.5 | 137.8 |
| | 0 | 47.3 | 54.9 | 60.3 | 64.4 | 68.2 | 71.0 | 73.1 | 74.5 | 88.1 | 102.2 | 112.3 | 119.9 | 127.1 | 132.3 | 136.0 | 138.7 |
| | 20 | 46.0 | 53.6 | 59.2 | 63.5 | 67.5 | 70.4 | 72.6 | 74.1 | 85.6 | 99.9 | 110.3 | 118.1 | 125.6 | 131.1 | 135.1 | 138.0 |
| | 40 | 44.2 | 51.9 | 57.5 | 61.8 | 65.9 | 68.9 | 71.2 | 72.9 | 82.3 | 96.6 | 107.0 | 115.0 | 122.7 | 128.4 | 132.6 | 135.7 |
| | 50 | 43.2 | 50.8 | 56.4 | 60.7 | 64.8 | 67.9 | 70.2 | 71.9 | 80.4 | 94.5 | 104.9 | 112.9 | 120.6 | 126.4 | 130.7 | 133.8 |
| R134a | -40 | 41.8 | 46.4 | 49.2 | 50.9 | 51.9 | 52.2 | 51.8 | 50.9 | 77.7 | 86.4 | 91.6 | 94.7 | 96.7 | 97.1 | 96.4 | 94.8 |
| | -20 | 42.3 | 47.3 | 50.4 | 52.4 | 53.8 | 54.2 | 54.1 | 53.4 | 78.7 | 88.1 | 93.9 | 97.6 | 100.1 | 101.0 | 100.7 | 99.5 |
| | 0 | 42.3 | 47.7 | 51.1 | 53.4 | 55.1 | 55.8 | 55.9 | 55.5 | 78.7 | 88.8 | 95.2 | 99.4 | 102.5 | 103.9 | 104.1 | 103.3 |
| | 20 | 41.8 | 47.5 | 51.3 | 53.8 | 55.7 | 56.7 | 57.0 | 56.8 | 77.8 | 88.5 | 95.4 | 100.1 | 103.7 | 105.6 | 106.2 | 105.8 |
| | 40 | 40.8 | 46.7 | 50.7 | 53.4 | 55.6 | 56.9 | 57.4 | 57.4 | 75.9 | 87.0 | 94.4 | 99.5 | 103.6 | 105.9 | 106.9 | 106.8 |
| | 50 | 40.1 | 46.1 | 50.1 | 53.0 | 55.3 | 56.6 | 57.2 | 57.3 | 74.6 | 85.8 | 93.4 | 98.6 | 102.9 | 105.4 | 106.6 | 106.7 |
| R404A | -40 | 37.9 | 42.6 | 45.6 | 47.4 | 48.6 | 49.0 | 48.9 | 48.2 | 70.6 | 79.4 | 84.8 | 88.2 | 90.5 | 91.3 | 91.0 | 89.8 |
| | -20 | 37.5 | 42.5 | 45.7 | 47.8 | 49.3 | 50.0 | 50.0 | 49.6 | 69.9 | 79.2 | 85.1 | 89.0 | 91.8 | 93.0 | 93.1 | 92.3 |
| | 0 | 36.6 | 41.8 | 45.2 | 47.5 | 49.2 | 50.1 | 50.4 | 50.1 | 68.1 | 77.8 | 84.2 | 88.4 | 91.7 | 93.3 | 93.8 | 93.3 |
| | 20 | 35.2 | 40.5 | 44.0 | 46.4 | 48.4 | 49.4 | 49.8 | 49.7 | 65.5 | 75.3 | 81.9 | 86.4 | 90.1 | 92.0 | 92.8 | 92.6 |
| | 40 | 33.3 | 38.5 | 42.1 | 44.6 | 46.6 | 47.8 | 48.3 | 48.3 | 62.0 | 71.7 | 78.4 | 83.0 | 86.8 | 89.0 | 90.0 | 89.9 |
| | 50 | 32.2 | 37.3 | 40.9 | 43.4 | 45.4 | 46.6 | 47.2 | 47.2 | 59.9 | 69.5 | 76.1 | 80.7 | 84.6 | 86.8 | 87.8 | 87.8 |

The capacities stated in the tables are for the normal flow direction. For ETS 50 and 100 specifically, the capacity in reverse flow direction varies between 90% and 125% of the capacity in normal flow direction.

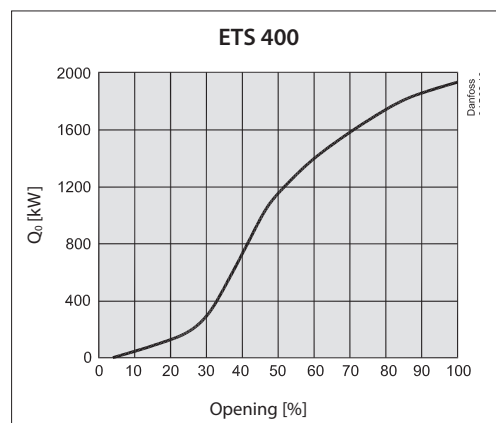
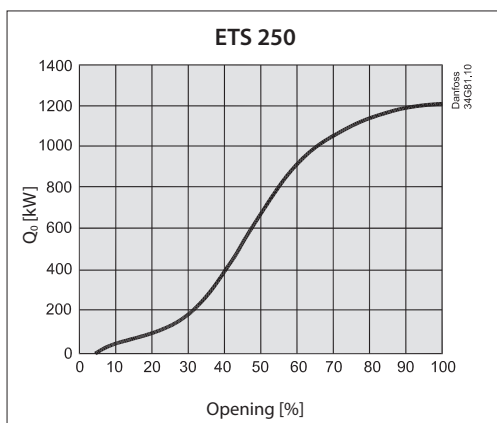
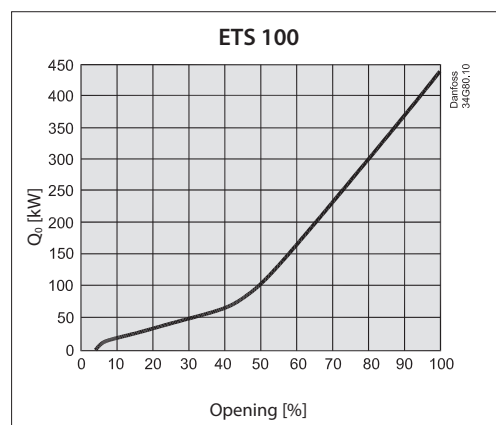
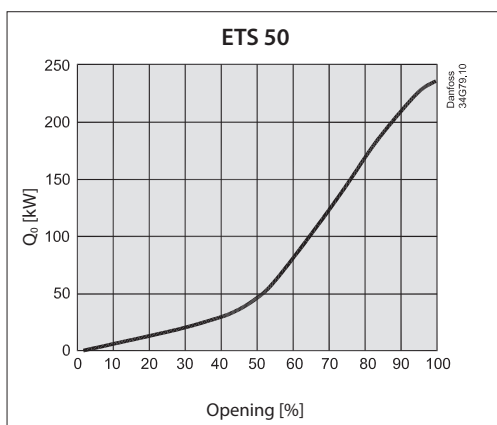
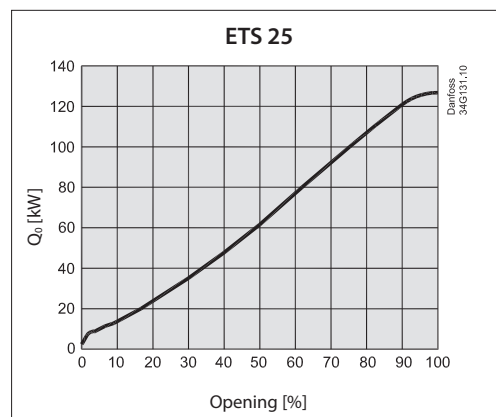
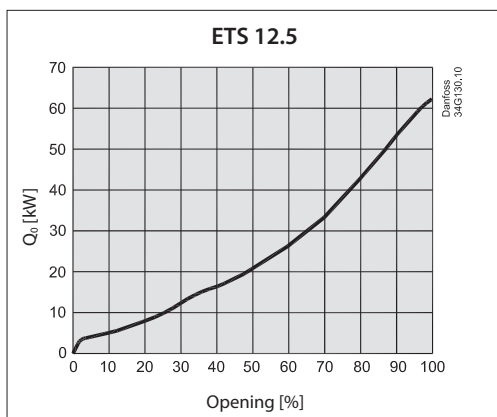
Data sheet | Electric expansion valve, type ETS 12.5 – ETS 400
Rated Capacity [TR]
 (TR = ton of refrigeration)

US units

|  | t_e [°F] | Rated capacity [TR] in the normal flow direction | | | | | | | | | | | | | | | |
|-----------------------------------------------------------------------------------|---------------|--------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|---------|-----|-----|-----|-----|-----|-----|-----|
| | | ETS 250 | | | | | | | | ETS 400 | | | | | | | |
| | | Pressure drop Δp [psi] | | | | | | | | | | | | | | | |
| | | 40 | 60 | 80 | 100 | 125 | 150 | 175 | 200 | 40 | 60 | 80 | 100 | 125 | 150 | 175 | 200 |
| R407C | -40 | 258 | 292 | 315 | 331 | 344 | 351 | 355 | 356 | 411 | 466 | 502 | 527 | 548 | 561 | 567 | 568 |
| | -20 | 257 | 293 | 318 | 335 | 350 | 359 | 364 | 366 | 410 | 468 | 507 | 535 | 558 | 573 | 581 | 584 |
| | 0 | 254 | 292 | 317 | 336 | 352 | 363 | 369 | 372 | 405 | 465 | 506 | 536 | 562 | 579 | 589 | 594 |
| | 20 | 247 | 286 | 313 | 333 | 350 | 362 | 369 | 374 | 395 | 456 | 499 | 531 | 559 | 577 | 589 | 596 |
| | 40 | 238 | 277 | 305 | 325 | 343 | 356 | 364 | 369 | 380 | 442 | 486 | 518 | 548 | 568 | 581 | 589 |
| | 50 | 232 | 271 | 299 | 319 | 338 | 351 | 360 | 365 | 371 | 432 | 476 | 509 | 539 | 560 | 574 | 582 |
| R22 | -40 | 250 | 286 | 312 | 331 | 348 | 361 | 369 | 375 | 398 | 456 | 497 | 528 | 556 | 575 | 589 | 598 |
| | -20 | 248 | 286 | 313 | 333 | 351 | 365 | 374 | 381 | 395 | 455 | 499 | 531 | 560 | 582 | 597 | 607 |
| | 0 | 243 | 282 | 310 | 331 | 351 | 365 | 376 | 383 | 388 | 450 | 495 | 528 | 560 | 583 | 599 | 611 |
| | 20 | 236 | 276 | 305 | 326 | 347 | 362 | 373 | 381 | 377 | 440 | 486 | 521 | 553 | 578 | 595 | 608 |
| | 40 | 227 | 267 | 296 | 318 | 339 | 355 | 366 | 375 | 363 | 425 | 471 | 507 | 540 | 566 | 584 | 598 |
| | 50 | 222 | 261 | 290 | 312 | 333 | 349 | 361 | 370 | 354 | 416 | 462 | 498 | 531 | 557 | 576 | 590 |
| R134a | -40 | 215 | 239 | 253 | 262 | 267 | 268 | 266 | 262 | 342 | 381 | 404 | 417 | 426 | 428 | 425 | 418 |
| | -20 | 217 | 243 | 259 | 269 | 276 | 279 | 278 | 275 | 347 | 388 | 414 | 430 | 441 | 445 | 444 | 439 |
| | 0 | 217 | 245 | 263 | 275 | 283 | 287 | 288 | 285 | 347 | 391 | 420 | 438 | 452 | 458 | 459 | 455 |
| | 20 | 215 | 244 | 264 | 276 | 286 | 292 | 293 | 292 | 343 | 390 | 420 | 441 | 457 | 465 | 468 | 466 |
| | 40 | 210 | 240 | 261 | 275 | 286 | 292 | 295 | 295 | 334 | 383 | 416 | 438 | 456 | 466 | 471 | 470 |
| | 50 | 206 | 237 | 258 | 272 | 284 | 291 | 294 | 295 | 329 | 378 | 411 | 434 | 453 | 464 | 469 | 470 |
| R404A | -40 | 195 | 219 | 234 | 243 | 249 | 252 | 251 | 247 | 311 | 349 | 373 | 388 | 398 | 401 | 400 | 394 |
| | -20 | 193 | 218 | 235 | 245 | 253 | 256 | 256 | 254 | 307 | 348 | 374 | 391 | 403 | 409 | 409 | 405 |
| | 0 | 188 | 215 | 232 | 244 | 253 | 257 | 258 | 257 | 300 | 342 | 370 | 389 | 403 | 410 | 412 | 410 |
| | 20 | 181 | 208 | 226 | 238 | 248 | 253 | 256 | 255 | 288 | 331 | 360 | 380 | 396 | 404 | 408 | 406 |
| | 40 | 171 | 198 | 216 | 229 | 239 | 245 | 248 | 247 | 273 | 315 | 344 | 365 | 381 | 391 | 395 | 395 |
| | 50 | 165 | 192 | 210 | 222 | 233 | 239 | 242 | 242 | 263 | 306 | 334 | 355 | 371 | 381 | 385 | 385 |

Data sheet | Electric expansion valve, type ETS 12.5 – ETS 400

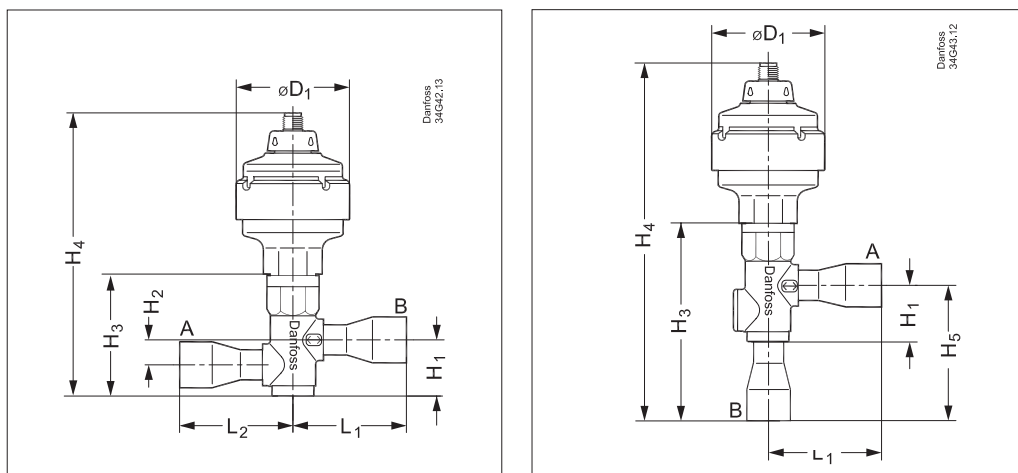
Capacity
Normal flow direction



Capacity based on: R407C
 $T_e = 5\text{ }^\circ\text{C} / 41\text{ }^\circ\text{F}$
 $T_c = 32\text{ }^\circ\text{C} / 89.6\text{ }^\circ\text{F}$
 $T_l = 28\text{ }^\circ\text{C} / 82.4\text{ }^\circ\text{F}$

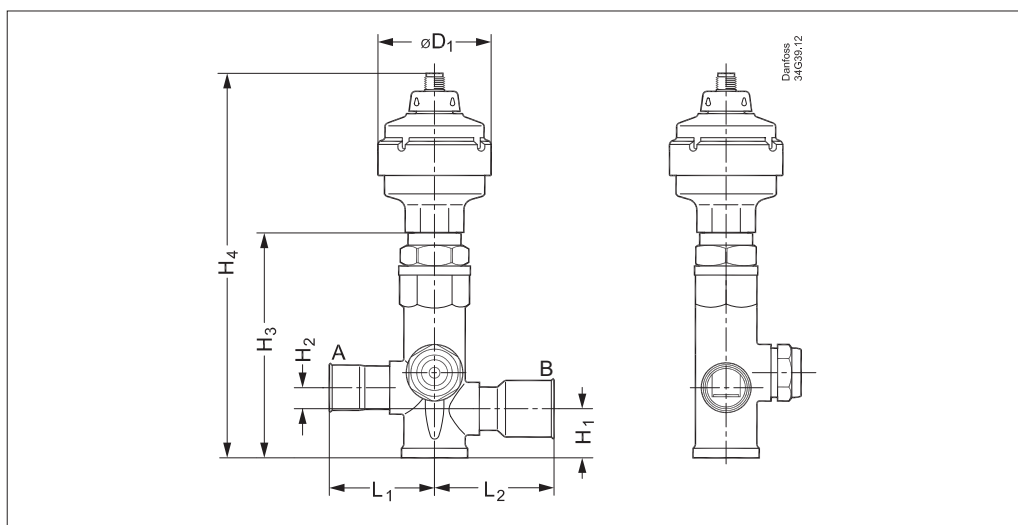
Data sheet | Electric expansion valve, type ETS 12.5 – ETS 400

Dimensions and weights for ETS 12.5 and ETS 25



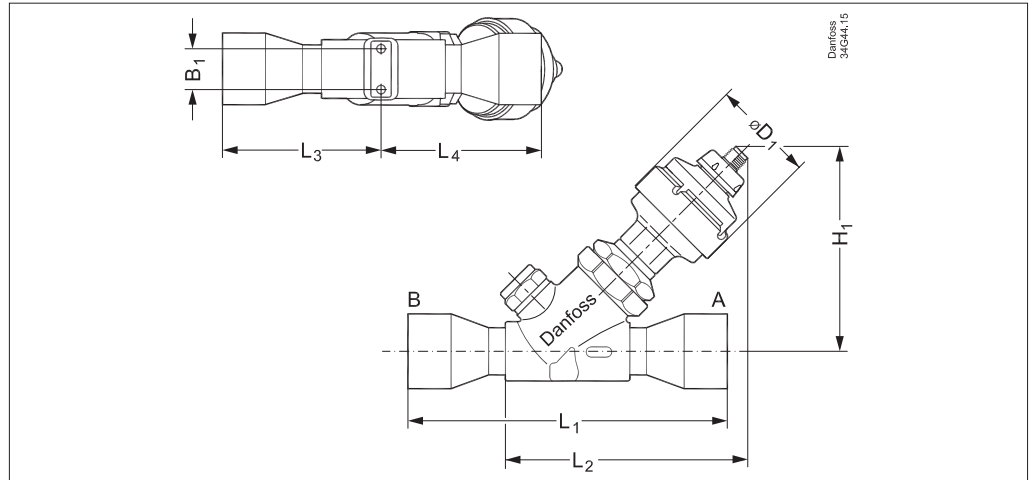
| Type | Connections | | H ₁ | | H ₂ | | H ₃ | | H ₄ | | H ₅ | | L ₁ | | L ₂ | | øD ₁ | | Net weight | |
|--------------------------|-------------------|---------|----------------|------|----------------|------|----------------|------|----------------|------|----------------|------|----------------|------|----------------|------|-----------------|------|------------|-------|
| | ODF × ODF (A × B) | | [in.] | [mm] | [in.] | [mm] | [in.] | [mm] | [in.] | [mm] | [in.] | [mm] | [in.] | [mm] | [in.] | [mm] | [in.] | [mm] | [kg] | [lb.] |
| | [in.] | [mm] | | | | | | | | | | | | | | | | | | |
| ETS 12.5 and 25 straight | 1/2 × 1/2 | 12 × 12 | 1.2 | 30 | 0.5 | 13 | 2.5 | 64 | 5.9 | 150 | - | - | 2.4 | 60 | 2.4 | 60 | 2.4 | 60 | 0.7 | 1.5 |
| | 5/8 × 5/8 | 16 × 16 | 1.2 | 30 | 0.5 | 13 | 2.5 | 64 | 5.9 | 150 | - | - | 2.4 | 60 | 2.4 | 60 | 2.4 | 60 | 0.7 | 1.5 |
| | 7/8 × 7/8 | 22 × 22 | 1.2 | 30 | 0.5 | 13 | 2.5 | 64 | 5.9 | 150 | - | - | 2.4 | 60 | 2.4 | 60 | 2.4 | 60 | 0.7 | 1.5 |
| ETS 12.5 and 25 angle | 1/2 × 1/2 | 12 × 12 | 1.2 | 30 | - | - | 2.5 | 64 | 7.6 | 194 | 2.9 | 74 | 2.4 | 60 | - | - | 2.4 | 60 | 0.7 | 1.5 |
| | 5/8 × 5/8 | 16 × 16 | 1.2 | 30 | - | - | 2.5 | 64 | 7.6 | 194 | 2.9 | 74 | 2.4 | 60 | - | - | 2.4 | 60 | 0.7 | 1.5 |
| | 7/8 × 7/8 | 22 × 22 | 1.2 | 30 | - | - | 2.5 | 64 | 7.6 | 194 | 2.9 | 74 | 2.4 | 60 | - | - | 2.4 | 60 | 0.7 | 1.5 |

Dimensions and weights for ETS 50 and ETS 100



| Type | Connections | | H ₁ | | H ₂ | | H ₃ | | H ₄ | | L ₁ | | L ₂ | | øD ₁ | | Net weight | |
|---------|-------------------|---------|----------------|------|----------------|------|----------------|-------|----------------|-------|----------------|------|----------------|------|-----------------|------|------------|-------|
| | ODF × ODF (A × B) | | [in.] | [mm] | [in.] | [mm] | [in.] | [mm] | [in.] | [mm] | [in.] | [mm] | [in.] | [mm] | [in.] | [mm] | [kg] | [lb.] |
| | [in.] | [mm] | | | | | | | | | | | | | | | | |
| ETS 50 | 7/8 × 7/8 | 22 × 22 | 1.0 | 26.2 | 0.5 | 13.0 | 4.7 | 118.0 | 8.1 | 205.0 | 2.2 | 56.0 | 2.2 | 56.0 | 2.4 | 60.0 | 1.5 | 3.3 |
| | 7/8 × 1 1/8 | 22 × 28 | 1.0 | 26.2 | 0.5 | 13.0 | 4.7 | 118.0 | 8.1 | 205.0 | 2.2 | 56.0 | 2.5 | 63.0 | 2.4 | 60.0 | 1.5 | 3.3 |
| | 1 1/8 × 1 1/8 | 28 × 28 | 1.0 | 26.2 | 0.5 | 13.0 | 4.7 | 118.0 | 8.1 | 205.0 | 2.5 | 63.0 | 2.5 | 63.0 | 2.4 | 60.0 | 1.5 | 3.3 |
| | 1 1/8 × 1 3/8 | 28 × 35 | 1.0 | 26.2 | 0.5 | 13.0 | 4.7 | 118.0 | 8.1 | 205.0 | 2.5 | 63.0 | 2.9 | 74.0 | 2.4 | 60.0 | 1.5 | 3.3 |
| ETS 100 | 1 1/8 × 1 1/8 | 28 × 28 | 1.2 | 30.0 | 0.7 | 17.0 | 5.0 | 127.0 | 8.4 | 214.0 | 2.6 | 66.0 | 2.6 | 66.0 | 2.4 | 60.0 | 1.7 | 3.7 |
| | 1 1/8 × 1 3/8 | 28 × 35 | 1.2 | 30.0 | 0.7 | 17.0 | 5.0 | 127.0 | 8.4 | 214.0 | 2.6 | 66.0 | 3.0 | 76.0 | 2.4 | 60.0 | 1.7 | 3.7 |
| | 1 3/8 × 1 3/8 | 35 × 35 | 1.2 | 30.0 | 0.7 | 17.0 | 5.0 | 127.0 | 8.4 | 214.0 | 3.0 | 76.0 | 3.0 | 76.0 | 2.4 | 60.0 | 1.7 | 3.7 |
| | 1 5/8 × 1 5/8 | - | 1.2 | 30.0 | 0.7 | 17.0 | 5.0 | 127.0 | 8.4 | 214.0 | 3.3 | 84.0 | 3.3 | 84.0 | 2.4 | 60.0 | 1.7 | 3.7 |

**Dimensions and weights for
ETS 250 and ETS 400**



| Type | Connections | | H ₁ | | L ₁ | | L ₂ | | L ₃ | | L ₄ | | øD ₁ | | B ₁ | | Net weight | |
|---------|---------------------------------------------------------------|---------|----------------|-------|----------------|-------|----------------|-------|----------------|-------|----------------|-------|-----------------|------|----------------|------|------------|-------|
| | ODF × ODF (A × B) | | [in.] | [mm] | [in.] | [mm] | [in.] | [mm] | [in.] | [mm] | [in.] | [mm] | [in.] | [mm] | [in.] | [mm] | [kg] | [lb.] |
| | [in.] | [mm] | | | | | | | | | | | | | | | | |
| ETS 250 | 1 ¹ / ₈ × 1 ¹ / ₈ | 28 × 28 | 4.7 | 120.0 | 6.7 | 168.5 | 5.6 | 143.0 | 3.3 | 83.0 | 3.4 | 85.5 | 2.4 | 60.0 | 0.95 | 24.0 | 1.9 | 4.2 |
| | 1 ³ / ₈ × 1 ³ / ₈ | 35 × 35 | 4.7 | 120.0 | 7.0 | 178.5 | 5.6 | 143.0 | 3.5 | 88.0 | 3.6 | 90.5 | 2.4 | 60.0 | 0.95 | 24.0 | 1.9 | 4.2 |
| | 1 ⁵ / ₈ × 1 ⁵ / ₈ | – | 4.7 | 120.0 | 7.4 | 188.5 | 5.6 | 143.0 | 3.7 | 93.0 | 3.8 | 95.5 | 2.4 | 60.0 | 0.95 | 24.0 | 1.9 | 4.2 |
| | – | 42 × 42 | 4.7 | 120.0 | 7.4 | 188.5 | 5.6 | 143.0 | 3.7 | 93.0 | 3.8 | 95.5 | 2.4 | 60.0 | 0.95 | 24.0 | 1.9 | – |
| ETS 400 | 2 ¹ / ₈ × 2 ¹ / ₈ | – | 4.7 | 120.0 | 8.1 | 204.0 | 5.6 | 143.0 | 4.0 | 101.0 | 4.1 | 103.0 | 2.4 | 60.0 | 0.95 | 24.0 | 1.9 | 4.2 |
| | 1 ⁵ / ₈ × 1 ⁵ / ₈ | – | 4.8 | 121.0 | 8.0 | 203.0 | 5.7 | 144.5 | 3.9 | 99.0 | 4.1 | 104.0 | 2.4 | 60.0 | 0.95 | 24.0 | 2.2 | 4.9 |
| | 2 ¹ / ₈ × 2 ¹ / ₈ | 54 × 54 | 4.8 | 121.0 | 9.6 | 243.0 | 5.7 | 144.5 | 4.7 | 119.0 | 4.9 | 124.0 | 2.4 | 60.0 | 0.95 | 24.0 | 2.2 | 4.9 |

Related products

| EKE 1A, EKE 1B, EKE 1C | EKS 221, ACCPBT, AKS 11/AKS 12 | AKS 32R, AKS 33, NSK | AST-G |
|------------------------|--------------------------------|----------------------|-------------------------------------|
| | | | |
| Superheat controller | Temperature sensor | Pressure transmitter | Service driver Code no. 034G0013 |

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One of the obligations in REACH is to inform customers about presence of Candidate list substances if any, we hereby inform you about one substance on the candidate list: A moist indicator in the sight glass contains a paper which is impregnated with Cobalt Dichloride (CAS no: 7646-79-9) in a concentration above 0.1% w/w.
- Avoid skin contact with the paper - Do not inhale the dust from the paper - The paper must be disposed as hazardous waste.

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