ENGINEERING
TOMORROW

Installation guide

Colibri® Electric Expansion Valves

Type ETS 12C, ETS 24C, ETS 25C, ETS 50C, ETS 100C



034R9806

034R9806

English

Refrigerants : R410A, R404A, R507, R134a, R407A, R407B, R407C, R407F, R32, R290, R1234ze, R1234yf, R449A, R449B, R452A, R1270, R600, R600a, R22, R23, R227, R417A, R444B, R447A, R448A, R454B, R422A, R422D, R427A, R502, R513A, R413A, R438A, R450A, R455B, R454C, R454A, R452B and *L40

**R-number allocation by ASHRAE is pending*

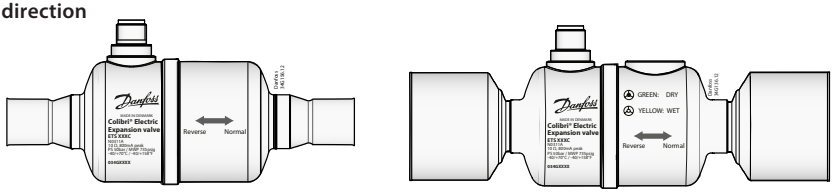
Allowable ambient temperature:	**Fluid temperature:**	**Max. working pressure:**
Min. -40 °C / -40 °F Max. 70 °C / 158 °F	Min. -40 °C / -40 °F Max. 70 °C / 158 °F	50 bar(g) / 725 psi(g)

Stepper motor type:	**Phase current:**	**Coil resistance:**	**Total steps:**
Bipolar	800 mA peak / 600 mA RMS	10 Ω (20 °C / 68 °F)	600 full steps

Do not connect directly to AC/DC power source.
Connect valve to appropriate controller/driver only.

ETS Colibri® valves are delivered in open position, ready for brazing.
An AST –g service driver is available for manual operation / service of ETS C valve.

Flow direction

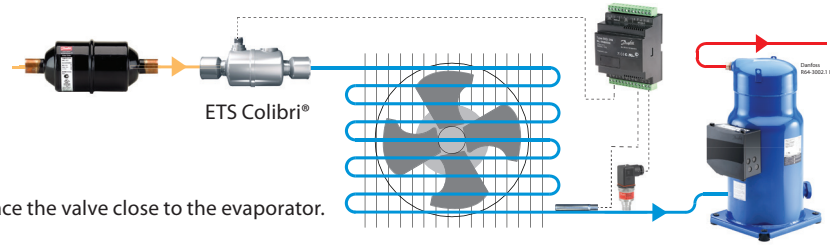


Bi-flow

Reverse flow ◁⟷▷ Normal flow

(Using sight glass for flash gas detection - ETS 25C to ETS 100C)

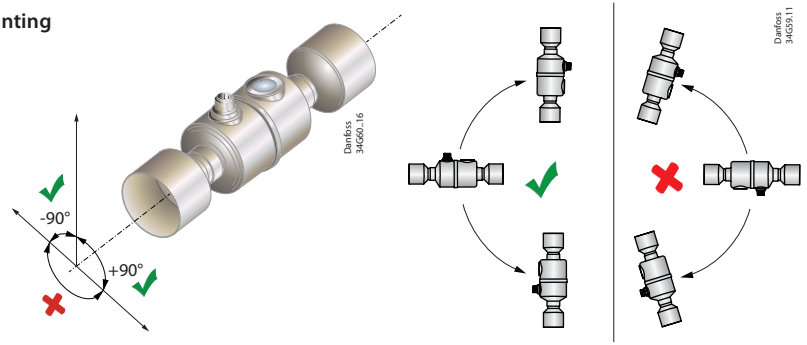
Application



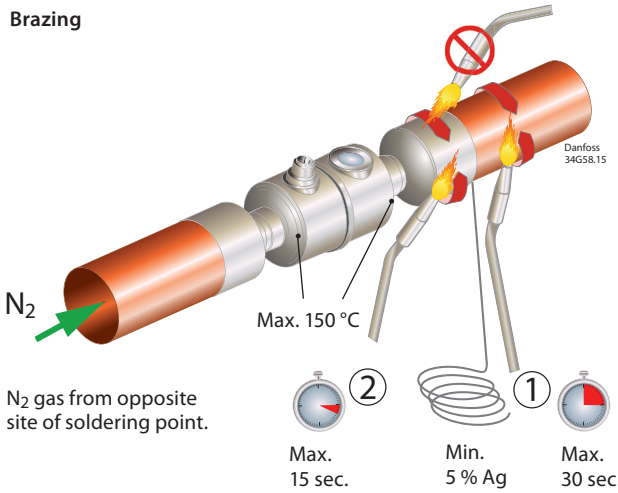
Place the valve close to the evaporator.

It is recommended to use Danfoss filter drier before the expansion valve or a strainer for particles of 150 micron or smaller.

Mounting



Brazing



N_2 gas from opposite site of soldering point.

Max. 15 sec.

Min. 5 % Ag

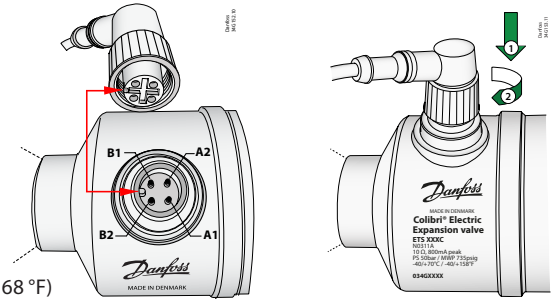
Max. 30 sec.

Recommendation

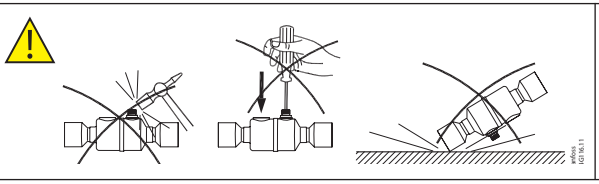
ETS 12C - ETS 24C
Solder nozzle 2 - 4 mm
($^1/_{15}$ in. - $^1/_8$ in.)

ETS 25C - ETS 50C - ETS 100C
Solder nozzle 6 - 9 mm
($^1/_4$ in. - $^3/_8$ in.)

M12 Connection



Motor coil resistance check.
Coil A = Coil B = 10 Ω (20 °C / 68 °F)



Installation video

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German **French**

Kältemittel / Fluides: R410A, R404A, R507, R134a, R407A, R407B, R407C, R407F, R32, R290, R1234ze, R1234yf, R449A, R449B, R452A, R1270, R600, R600a, R22, R23, R227, R417A, R444B, R447A, R448A, R454B, R422A, R422D, R427A, R502, R513A, R413A, R438A, R450A, R455B, R454C, R454A, R452B and *L40

**R-number allocation by ASHRAE is pending*

Umgebungstemperatur: **Température ambiante:** Min. -40 °C, Max. 70 °C	**Kältemitteltemperatur:** **Température du fluide:** Min. -40 °C, Max. 70 °C	**Max. Betriebsdruck:** **Pression de service max.:** 50 bar(g)

Schrittmotortyp: **Type de moteur pas à pas:** Bipolar	**Stromaufnahme:** **Courant de phase:** 800 mA Peak (600 mA RMS)	**Widerstand, Spule:** **Résistance de la bobine:** 10 Ω (20 °C)	**Max. Schritte:** **Nombre de pas total:** 600 full steps

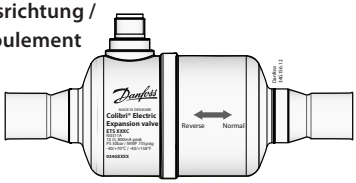
Bitte das ETS nicht direkt mit einer Spannungsquelle verbinden. Schließen Sie das Ventil nur an geeignete Regler/ Steuergeräte an.

Ne pas raccorder directement le moteur à une alimentation ac. / dc. Raccorder la vanne au régulateur approprié.

Ventile werden in offener Position geliefert, bereit zum Löten. Für den manuellen Betrieb / Wartung von ETS C Ventilen, ist ein AST -g-Servicemodul als Zubehör erhältlich.

Les vannes sont livrées en position ouverte, prêtes pour le brasage.
Un pilote d'entretien AST-g est disponible pour manœuvrer les vannes ETS C.

Durchflussrichtung /
Sens d'écoulement



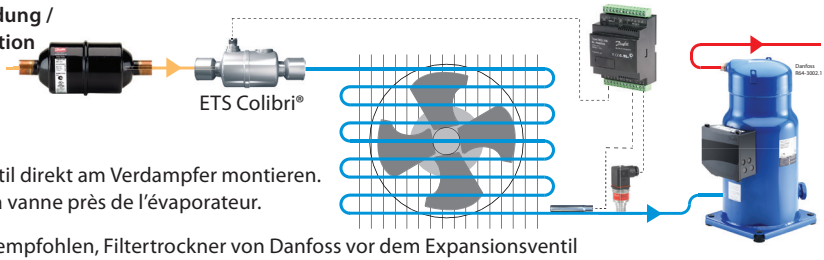


Bi-flow /
Bi-directionnel

Reverse flow

Normaler Durchfluss
(**ETS 25C und ETS 100C** mit Schauglas für Flashgas Erkennung)
Sens normal
(**ETS 25C pour ETS 100C** - à l'aide du voyant de détection de gaz flash)

Anwendung /
Application

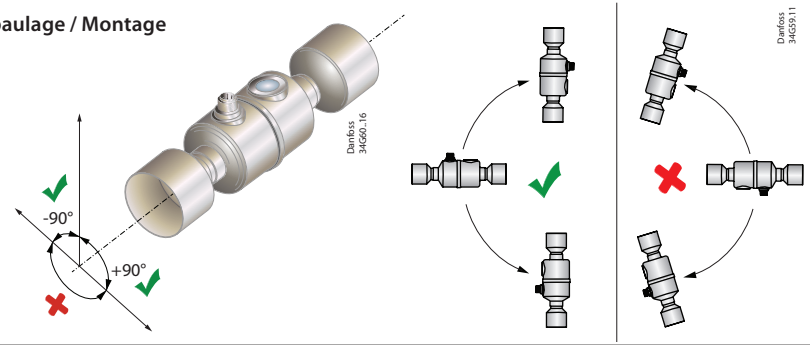


Das Ventil direkt am Verdampfer montieren.
Placez la vanne près de l'évaporateur.

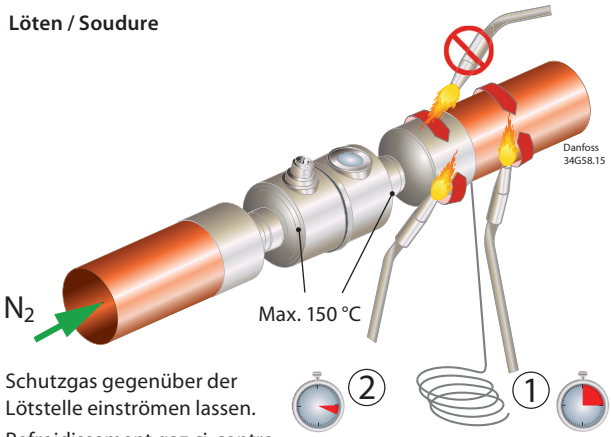
Es wird empfohlen, Filtertrockner von Danfoss vor dem Expansionsventil oder einem Filter für Partikel von 150 µm oder kleiner ist.

Il est recommandé d'utiliser un filtre déshydrateur Danfoss avant la vanne de détente, ou un filtre à particules de 150 microns ou moins.

Einbaulage / Montage



Löten / Soudure



Schutzgas gegenüber der Lötstelle einströmen lassen.

Refroidissement gaz ci-contre site de point de soudure.

Max. 15 sec.

Min. 5 % Ag

Max. 30 sec.

Empfehlung / Recommendation

ETS 12C - ETS 24C
Brennerdüse 2 - 4 mm
buse de brasage 2 - 4 mm

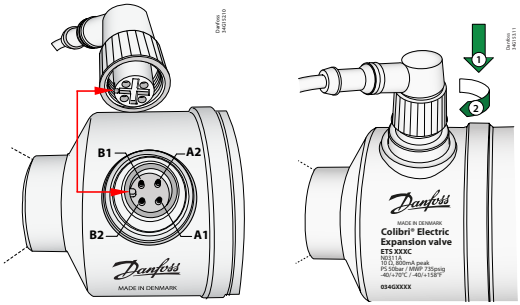
ETS 25C - ETS 50C - ETS 100C
Brennerdüse 6 - 9 mm
buse de brasage 6 - 9 mm

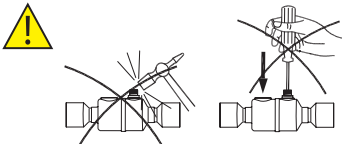
M12 Connection / M12 Raccordement

Wicklungswiderstand prüfen.
Vérification de la résistance de la bobine du moteur.

Wicklung A = Wicklung B = 10 Ω (20 °C)

Bobine A = Bobine B = 10 Ω (20 °C)





Installation Video

Installation vidéo

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Spanish 汉语

Refrigerantes / 制冷剂适用:R410A, R404A, R507, R134a, R407A, R407B, R407C, R407F, R32, R290, R1234ze, R1234yf, R449A, R449B, R452A, R1270, R600, R600a, R22, R23, R227, R417A, R444B, R447A, R448A, R454B, R422A, R422D, R427A, R502, R513A, R413A, R438A, R450A, R455B, R454C, R454A, R452B and *L40

**R-number allocation by ASHRAE is pending*

Temperatura ambiente permisible: 允许运行的环境温度: Min. -40 °C / Max. 70 °C	**Temperatura líquido:** 流体温度: Min. -40 °C / Max. 70 °C	**Presión de trabajo máx.:** 最大工作压力: 50 bar(g)

Tipo de motor a pasos: 步进电机形式: Bipolar 双极	**Intensidad:** 相电流: 800 mA Pico/peak (600 mA RMS)	**Resistencia:** 电阻: 10 Ω (20 °C)	**Número de pasos total:** 总步数: 600 full steps / 600 步

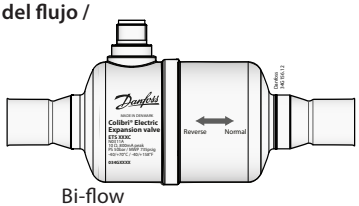
No aplicar tensión directamente a la válvula. Conectar la válvula a un controlador/driver adecuado.

请仅将阀门连接于合适的控制器/驱动器，勿直接与交流或直流电源连接。

Las válvulas se entregan abiertas listas para soldar. Existe un driver de servicio AST-g para la operación manual y servicio de las válvulas ETS Colibrí

交付时阀门处于全开状态,再进行焊接
一切就绪，准备铜焊. 提供AST -g手操器用于ETS C 电子膨胀阀的手动操作和维修.

Dirección del flujo /
流向



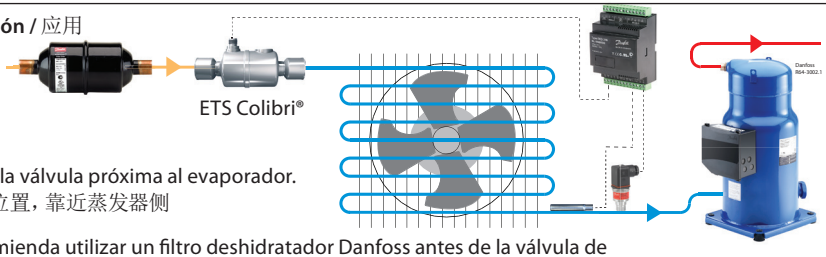


Bi-flow
双向流

Flujo reversible
反向流动方向

Flujo normal
(ETS 25C a ETS 100C incorpora un visor de líquido para detector flash-gas)
正常流动方向（视液镜，用于闪发气体检测 - ETS 25C 和 ETS 100C）

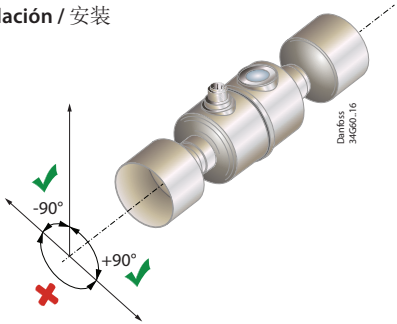
Aplicación / 应用

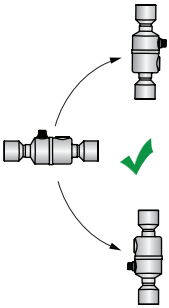


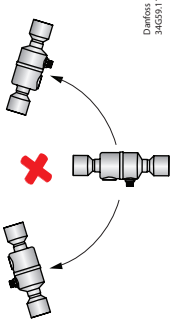
Colocar la válvula próxima al evaporador.
阀关闭位置，靠近蒸发器侧

Se recomienda utilizar un filtro deshidratador Danfoss antes de la válvula de expansión o un filtro para partículas de 150 micras o menores.
建议在膨胀阀前使用丹佛斯干燥过滤器或使用过滤目数小于等于150微米的过滤网

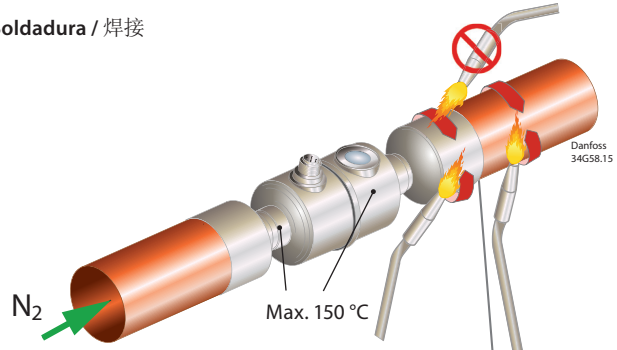
Instalación / 安装







Soldadura / 焊接



Corriente de N_2 desde el lado opuesto a la soldadura.
气体冷却对面的焊点（氮气保护）



Max. 15 sec. | Min. 5 % Ag | Max. 30 sec.

Recomendación/
推荐

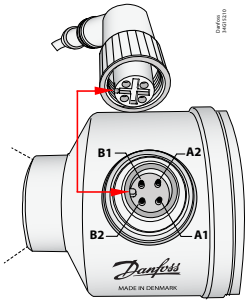
ETS 12C - ETS 24C
boquilla soplete 2 - 4 mm
钎焊嘴 2 - 4 mm

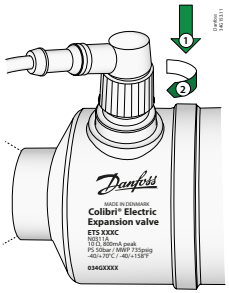
ETS 25C - ETS 50C - ETS 100C
boquilla soplete 6 - 9 mm
钎焊嘴 6 - 9 mm

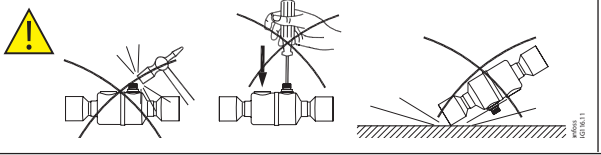
M12 Conexión / M12 链接

Verificar la resistencia de la bobina del motor.
Bobina A = Bobina B = 10 Ω (20 °C)

电机线圈电阻检查
在20℃时，线圈A=线圈B=10Ω







Instalación vídeo
安装
视频