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TOMORROW

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## T 2 / TE 2 - Thermostatic expansion valves

T 2 / TE 2 thermostatic expansion valves are used for liquid injection into evaporators on both refrigeration and air conditioning systems using fluorinated refrigerants e.g. R407C / R22, R134a, R404A / R507, R407C, R407F and R407A.

T 2 / TE 2 valves are supplied as a parts programme, with separate thermostatic element/valve body and orifice assembly. Available as angleway valves with flare x flare or flare x solder connections, with internal and external equalisation.

### Features T 2 / TE 2



#### Laser-welded power element in stainless steel

- long diaphragm life
- high pressure tolerance and working pressure
- high corrosion resistance

#### Stainless steel capillary tube and bulb:

- high corrosion resistance
- high strength and vibration resistance

Flare or solder outlet

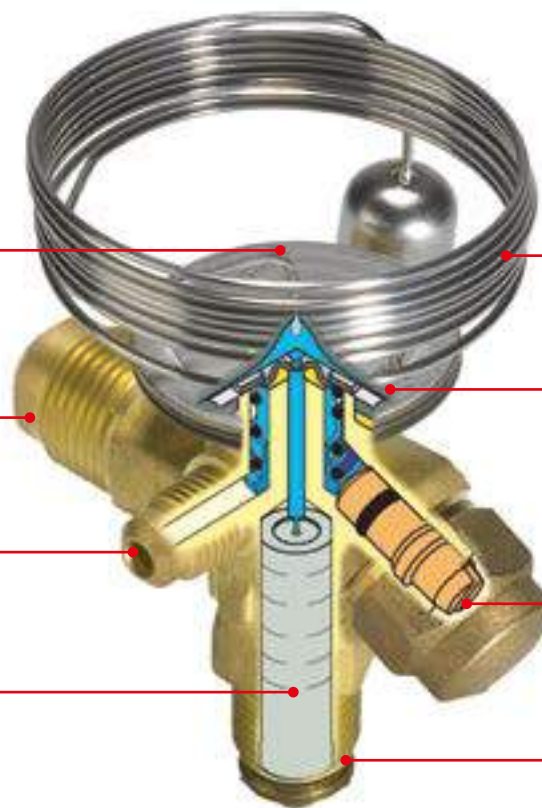
Laser-engraved label

Flare or solder pressure equalization

Easy adjustment of superheat setting

Interchangeable orifice assembly with dirt protection strainer

Flare inlet  
Solder adaptor available as an option



### Facts

#### Applications:

- Traditional refrigeration
- Heat pump systems
- Air conditioning units
- Liquid coolers
- Transport refrigeration

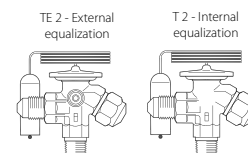
- Large temperature range
- Equally applicable to freezing, refrigeration and air conditioning applications
- Interchangeable orifice assembly
  - easy stocking
  - easy capacity matching
  - better service

- Can be supplied with MOP (Max. Operating Pressure)
- Protects the compressor motor against excessive evaporating pressure during normal operation
- Valves for special temperature ranges and refrigerants can be supplied
- Flare / solder adaptor can be supplied

# Technical data and ordering



Thermostatic element + Orifice



## T 2 / TE 2

### Thermostatic element with bulb strap (flare x flare)

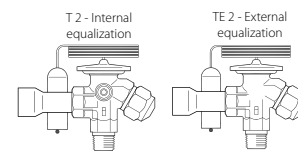
Refrigerant	Type	Range [°C]	Range [°F]	MOP [°C]	MOP [°F]	Pressure equalization Flare [in]	Connection flare inlet × outlet		Code no.
							[in]	[mm]	
R22/R407C	TX 2	-40 – 10	-40 – 50	–	–	–	3/8 × 1/2	10 × 12	068Z3206
	TX 2	-40 – 10	-40 – 50	15	60	–	3/8 × 1/2	10 × 12	068Z3208
	TX 2	-40 – -5	-40 – 25	0	32	–	3/8 × 1/2	10 × 12	068Z3224
	TX 2	-40 – -15	-40 – 5	-10	14	–	3/8 × 1/2	10 × 12	068Z3226
	TX 2	-60 – -25	-75 – -15	–	–	–	3/8 × 1/2	10 × 12	068Z3207
	TX 2	-60 – -25	-75 – -15	-20	-5	–	3/8 × 1/2	10 × 12	068Z3228
	TEX 2	-40 – 10	-40 – 50	–	–	1/4	3/8 × 1/2	10 × 12	068Z3209
	TEX 2	-40 – 10	-40 – 50	15	60	1/4	3/8 × 1/2	10 × 12	068Z3211
	TEX 2	-40 – -5	-40 – 25	0	32	1/4	3/8 × 1/2	10 × 12	068Z3225
	TEX 2	-40 – -15	-40 – 5	-10	14	1/4	3/8 × 1/2	10 × 12	068Z3227
	TEX 2	-60 – -25	-75 – -15	–	–	1/4	3/8 × 1/2	10 × 12	068Z3210
R407C	TZ 2	-40 – 10	-40 – 50	–	–	–	3/8 × 1/2	10 × 12	068Z3496
	TZ 2	-40 – 10	-40 – 50	15	60	–	3/8 × 1/2	10 × 12	068Z3516
	TEZ 2	-40 – 10	-40 – 50	–	–	1/4	3/8 × 1/2	10 × 12	068Z3501
	TEZ 2	-40 – 10	-40 – 50	15	60	1/4	3/8 × 1/2	10 × 12	068Z3517
R134a	TN 2	-40 – 10	-40 – 50	–	–	–	3/8 × 1/2	10 × 12	068Z3346
	TN 2	-40 – 10	-40 – 50	15	60	–	3/8 × 1/2	10 × 12	068Z3347
	TN 2	-40 – -5	-40 – 25	0	32	–	3/8 × 1/2	10 × 12	068Z3393
	TN 2	-40 – -15	-40 – 5	-10	14	–	3/8 × 1/2	10 × 12	068Z3369
	TEN 2	-40 – 10	-40 – 50	–	–	1/4	3/8 × 1/2	10 × 12	068Z3348
	TEN 2	-40 – 10	-40 – 50	15	60	1/4	3/8 × 1/2	10 × 12	068Z3349
	TEN 2	-40 – -5	-40 – 25	0	32	1/4	3/8 × 1/2	10 × 12	068Z3392
R404A/R507	TS 2	-40 – 10	-40 – 50	–	–	–	3/8 × 1/2	10 × 12	068Z3400
	TS 2	-40 – 10	-40 – 50	15	60	–	3/8 × 1/2	10 × 12	068Z3402
	TS 2	-40 – -5	-40 – 25	0	32	–	3/8 × 1/2	10 × 12	068Z3406
	TS 2	-40 – -15	-40 – 5	-10	14	–	3/8 × 1/2	10 × 12	068Z3408
	TS 2	-60 – -25	-75 – -15	–	–	–	3/8 × 1/2	10 × 12	068Z3401
	TS 2	-60 – -25	-75 – -15	-20	-5	–	3/8 × 1/2	10 × 12	068Z3410
	TES 2	-40 – 10	-40 – 50	–	–	1/4	3/8 × 1/2	10 × 12	068Z3403
	TES 2	-40 – 10	-40 – 50	15	60	1/4	3/8 × 1/2	10 × 12	068Z3405
	TES 2	-40 – -5	-40 – 25	0	32	1/4	3/8 × 1/2	10 × 12	068Z3407
	TES 2	-40 – -15	-40 – 5	-10	14	1/4	3/8 × 1/2	10 × 12	068Z3409
	TES 2	-60 – -25	-75 – -15	–	–	1/4	3/8 × 1/2	10 × 12	068Z3404
R407F/R407A	T2	-40 – 10	-40 – 50	–	–	–	3/8 × 1/2	10 × 12	068Z3715
	TE2	-40 – 10	-40 – 50	–	–	1/4	3/8 × 1/2	10 × 12	068Z3714

Capillary tube: 1.5 m / 59 in

# Technical data and ordering

## T 2 / TE 2

Thermostatic element with bulb strap (flare x solder)



Refrigerant	Type	Range [°C]	Range [°F]	MOP [°C]	MOP [°F]	Pressure equalization solder		Connection inlet (Flare) x outlet (Solder)		Code no.
						[in]	[mm]	[in]	[mm]	
R22/R407C	TX 2	-40 – 10	-40 – 50	–	–	–	–	3/8 x 1/2	–	068Z3281
	TX 2	-40 – 10	-40 – 50	–	–	–	–	–	10 x 12	068Z3302
	TX 2	-40 – 10	-40 – 50	15	60	–	–	3/8 x 1/2	–	068Z3287
	TX 2	-40 – 10	-40 – 50	15	60	–	–	–	10 x 12	068Z3308
	TX 2	-60 – -25	-75 – -15	–	–	–	–	3/8 x 1/2	–	068Z3357
	TX 2	-60 – -25	-75 – -15	–	–	–	–	–	10 x 12	068Z3361
	TEX 2	-40 – 10	-40 – 50	–	–	1/4	–	3/8 x 1/2	–	068Z3284
	TEX 2	-40 – 10	-40 – 50	–	–	–	6	–	10 x 12	068Z3305
	TEX 2	-40 – 10	-40 – 50	15	60	1/4	–	3/8 x 1/2	–	068Z3290
	TEX 2	-40 – 10	-40 – 50	15	60	–	6	–	10 x 12	068Z3311
	TEX 2	-40 – -15	-40 – -5	-10	-15	–	6	–	10 x 12	068Z3367
	TEX 2	-60 – -25	-75 – -15	–	–	1/4	–	3/8 x 1/2	–	068Z3359
TEX 2	-60 – -25	-75 – -15	–	–	–	6	–	10 x 12	068Z3363	
R407C	TZ 2	-40 – 10	-40 – 50	–	–	–	–	–	10 x 12	068Z3502
	TZ 2	-40 – 10	-40 – 50	15	60	–	–	3/8 x 1/2	–	068Z3329
	TZ 2	-40 – 10	-40 – 50	15	60	–	–	–	10 x 12	068Z3514
	TEZ 2	-40 – 10	-40 – 50	–	–	1/4	–	3/8 x 1/2	–	068Z3446
	TEZ 2	-40 – 10	-40 – 50	–	–	–	6	–	10 x 12	068Z3503
	TEZ 2	-40 – 10	-40 – 50	15	60	1/4	–	3/8 x 1/2	–	068Z3447
R134a	TEZ 2	-40 – 10	-40 – 50	15	60	–	6	–	10 x 12	068Z3515
	TN 2	-40 – 10	-40 – 50	–	–	–	–	3/8 x 1/2	–	068Z3383
	TN 2	-40 – 10	-40 – 50	–	–	–	–	–	10 x 12	068Z3384
	TN 2	-40 – 10	-40 – 50	15	60	–	–	3/8 x 1/2	–	068Z3387
	TN 2	-40 – 10	-40 – 50	15	60	–	–	–	10 x 12	068Z3388
	TEN 2	-40 – 10	-40 – 50	–	–	1/4	–	3/8 x 1/2	–	068Z3385
	TEN 2	-40 – 10	-40 – 50	–	–	–	6	–	10 x 12	068Z3386
R404A/R507	TEN 2	-40 – 10	-40 – 50	15	60	1/4	–	3/8 x 1/2	–	068Z3389
	TEN 2	-40 – 10	-40 – 50	15	60	–	6	–	10 x 12	068Z3390
	TS 2	-40 – 10	-40 – 50	–	–	–	–	3/8 x 1/2	–	068Z3414
	TS 2	-40 – 10	-40 – 50	–	–	–	–	–	10 x 12	068Z3435
	TS 2	-40 – 10	-40 – 50	15	60	–	–	3/8 x 1/2	–	068Z3416
	TS 2	-40 – 10	-40 – 50	15	60	–	–	–	10x12	068Z3423
	TS 2	-40 – -15	-40 – -5	-10	-15	–	–	3/8 x 1/2	–	068Z3429
	TS 2	-40 – -15	-40 – -5	-10	-15	–	–	–	10x12	068Z3436
	TS 2	-60 – -25	-75 – -15	–	–	–	–	3/8 x 1/2	–	068Z3418
	TS 2	-60 – -25	-75 – -15	–	–	–	–	–	10 x 12	068Z3425
	TS 2	-60 – -25	-75 – -15	-20	-5	–	–	3/8 x 1/2	–	068Z3420
	TS 2	-60 – -25	-75 – -15	-20	-5	–	–	–	10 x 12	068Z3427
	TES 2	-40 – 10	-40 – 50	–	–	1/4	–	3/8 x 1/2	–	068Z3415
	TES 2	-40 – 10	-40 – 50	–	–	–	6	–	10 x 12	068Z3422
	TES 2	-40 – 10	-40 – 50	15	60	1/4	–	3/8 x 1/2	–	068Z3417
	TES 2	-40 – 10	-40 – 50	15	60	–	6	–	10x12	068Z3424
	TES 2	-40 – -15	-40 – -5	-10	-15	1/4	–	3/8 x 1/2	–	068Z3430
	TES 2	-40 – -15	-40 – -5	-10	-15	–	6	–	10x12	068Z3437
TES 2	-60 – -25	-75 – -15	–	–	1/4	–	3/8 x 1/2	–	068Z3419	
TES 2	-60 – -25	-75 – -15	–	–	–	6	–	10 x 12	068Z3426	
TES 2	-60 – -25	-75 – -15	-20	-5	1/4	–	3/8 x 1/2	–	068Z3421	
TES 2	-60 – -25	-75 – -15	-20	-5	–	6	–	10 x 12	068Z3428	
R407F/R407A	T2	-40 – 10	-40 – 50	–	–	–	–	3/8 x 1/2	–	068Z3716
	TE2	-40 – 10	-40 – 50	–	–	1/4	–	3/8 x 1/2	–	068Z3713

For R407C plants, please select valves from the dedicated R407C program

Capillary tube: 1.5 m / 59 in

## Technical data and ordering

### T 2 / TE 2

Orifice assembly for flare version

Range: -40 – 10 °C / -40 – 50 °F



Type	Orifice	R134a		R404A/R507		R407C		R407F		R407A		R22		Code no.
		[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	
T 2 / TE 2	0X	0.68	0.19	0.64	0.18	0.92	0.26	1.0	0.3	0.9	0.2	0.90	0.25	068-2002
	00	1.2	0.34	1.3	0.37	1.8	0.51	2.0	0.6	1.7	0.5	1.8	0.51	068-2003
	01	2.1	0.59	2.6	0.75	3.5	1.0	3.9	1.1	3.4	1.0	3.5	0.99	068-2010
	02	2.5	0.73	3.7	1.1	4.8	1.4	5.4	1.5	4.7	1.3	4.7	1.3	068-2015
	03	4.3	1.2	6.3	1.8	8.1	2.3	9.2	2.6	8.0	2.3	8.0	2.3	068-2006
	04	6.4	1.8	9.9	2.8	12.4	3.5	14.3	4.1	12.4	3.5	12.1	3.5	068-2007
	05	8.4	2.3	13.0	3.7	16.5	4.7	19.0	5.4	16.3	4.6	16.7	4.8	068-2008
	06	10.1	2.9	15.5	4.4	19.7	5.6	22.9	6.5	19.6	5.6	19.7	5.6	068-2009

The rated capacity is based on:

Evaporating temperature  $t_e = 4.4\text{ °C} / 40\text{ °F}$

Condensing temperature  $t_c = 38\text{ °C} / 100\text{ °F}$

Refrigerant temperature ahead of valve  $t_i = 37\text{ °C} / 98\text{ °F}$

### T 2 / TE 2

Orifice assembly for solder adapter version

Range: -40 – 10 °C / -40 – 50 °F



Type	Orifice	R134a		R404A/R507		R407C		R407F		R407A		R22		Code no.
		[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	
T 2 / TE 2	0X	0.68	0.19	0.64	0.18	0.92	0.26	1.0	0.3	0.9	0.2	0.90	0.25	068-2089
	00	1.2	0.34	1.3	0.37	1.8	0.51	2.0	0.6	1.7	0.5	1.8	0.51	068-2090
	01	2.1	0.59	2.6	0.75	3.5	1.0	3.9	1.1	3.4	1.0	3.5	0.99	068-2091
	02	2.5	0.73	3.7	1.1	4.8	1.4	5.4	1.5	4.7	1.3	4.7	1.3	068-2092
	03	4.3	1.2	6.3	1.8	8.1	2.3	9.2	2.6	8.0	2.3	8.0	2.3	068-2093
	04	6.4	1.8	9.9	2.8	12.4	3.5	14.3	4.1	12.4	3.5	12.1	3.5	068-2094
	05	8.4	2.3	13.0	3.7	16.5	4.7	19.0	5.4	16.3	4.6	16.7	4.8	068-2095
	06	10.1	2.9	15.5	4.4	19.7	5.6	22.9	6.5	19.6	5.6	19.7	5.6	068-2096

The rated capacity is based on:

Evaporating temperature  $t_e = 4.4\text{ °C} / 40\text{ °F}$

Condensing temperature  $t_c = 38\text{ °C} / 100\text{ °F}$

Refrigerant temperature ahead of valve  $t_i = 37\text{ °C} / 98\text{ °F}$

### Solder adaptor without orifice assembly



Connection – ODF solder	Code no.
1/4 in	068-2062
6 mm	068-2063
6 mm	068-4101 <sup>1)</sup>
3/8 in	068-2060
10 mm	068-2061
10 mm	068-4100 <sup>1)</sup>

<sup>1)</sup> Including filter.

### Filter as accessories



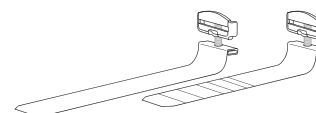
Filter type	Code no.
For flare connection	068-0003
For solder adaptor	068-0015

The solder adaptor is for use with thermostatic expansion valves T 2 and TE 2.

When the solder adaptor is fitted correctly it meets the sealing requirements of DIN 8964. The flare orifice in T 2 and TE 2 can be used with a solder adaptor when the orifice filter is replaced with a specific filter intended for solder adaptors. Only in this way the sealing requirements of DIN 8964 can be fulfilled.

Solder adaptors for filter driers (FSA) must not be used on the T 2 inlet.

### Bulb strap as accessories



Type	Length [mm]	Max. diameter of suction line		Code no.
		[in]	[mm]	
T 2 / TE 2	110 mm	1 1/8	28	068U3507
Accessories	190 mm	2	50	068U3508



## TE 5 – TE 55, Thermostatic expansion valves

TE 5 – TE 55 thermostatic expansion valves regulate the injection of refrigerant liquid into evaporators for medium sized plants. Injection is controlled by the refrigerant superheat. Therefore the valves are especially suitable for liquid injection in “dry” evaporators where the superheat at the evaporator outlet should

always be kept constant. TE 5 – TE 55 valves are supplied as parts programme, built up of three main components - thermostatic element, orifice assembly, and valve body with connections, and have external pressure equalization. Refrigerants: R22, R134a, R404A, R507, R407A, R407F and R407C.

### Features TE 5 - TE 55



#### Laser-welded power element in stainless steel

- longer diaphragm life
- high pressure tolerance and working pressure
- high corrosion resistance

To ensure long operating life, the valve cone and seat are made of a special alloy with particularly good wear qualities

#### Stainless steel capillary tube and bulb

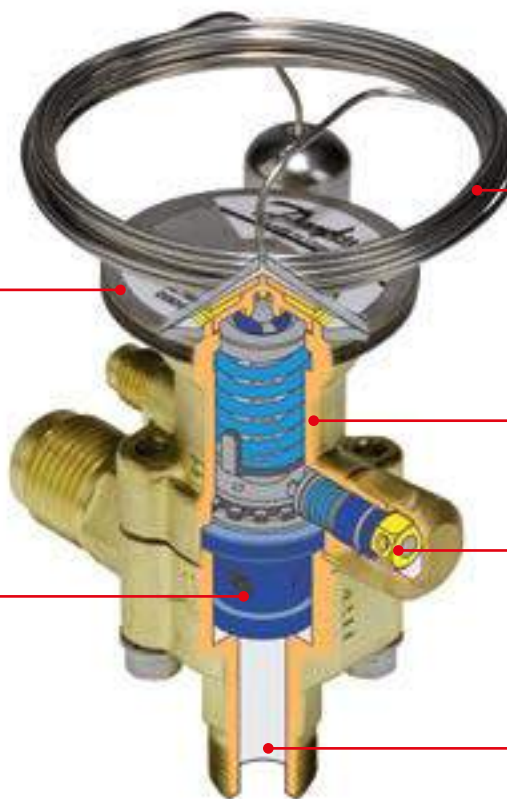
- high corrosion resistance
- high strength and vibration resistance

Large parts programme ensures minimal stocks

Easy adjustment of superheat setting

#### More connection possibilities

- solder x solder
- flare x flare
- flanges
- straightway or angleway



## Facts

#### Applications:

- Traditional refrigeration
- Air conditioning units
- Water chillers

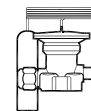
- Interchangeable orifice assembly designed for:
  - easy assembly and mounting
  - optimised capacity matching
  - balanced port (TE 55 only)
- Large temperature range: -60 – 10 °C / -75 – 50 °F

- Available with MOP (Max. Operating Pressure)
- Wide capacity range
- Refrigerants: R22, R134a, R404A, R507, R407A, R407F and R407C
- Maximum Working Pressure PS / MWP: 28 bar / 400 psig

## Technical data and ordering



Thermostatic element + Orifice + Valve body



### TE 5 – TE 55, R407C

#### Thermostatic element – including bulb strap

Type	Range [°C]	Range [°F]	MOP [°C]	MOP [°F]	Ext. pressure equalization		Capillary tube		Code no.
					[in]	[mm]	[m]	[in]	
TEZ 5	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3278
	-40 – 10	-40 – 50	15	60	1/4	6	3	118	067B3277
TEZ 12	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3366
	-40 – 10	-40 – 50	15	60	1/4	6	3	118	067B3367
TEZ 20	-40 – 10	-40 – 50	–	–	1/4	6	5	196	067B3371
	-40 – 10	-40 – 50	15	60	1/4	6	5	196	067B3372
TEZ 55	-40 – 10	-40 – 50	–	–	1/4	6	5	196	067G3240
	-40 – 10	-40 – 50	15	60	1/4	6	5	196	067G3241

For R407C plants, please select valves from the dedicated R407C program.

### TE 5 – TE 55, R134a

#### Thermostatic element – including bulb strap

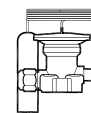
Type	Range [°C]	Range [°F]	MOP [°C]	MOP [°F]	Ext. pressure equalization		Capillary tube		Code no.
					[in]	[mm]	[m]	[in]	
TEN 5	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3297
	-40 – 10	-40 – 50	15	60	1/4	6	3	118	067B3298
TEN 12	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3232
	-40 – 10	-40 – 50	15	60	1/4	6	3	118	067B3233
TEN 20	-40 – 10	-40 – 50	0	32	1/4	6	5	196	067B3363
	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3292
TEN 55	-40 – 10	-40 – 50	15	60	1/4	6	3	118	067B3293
	-40 – 10	-40 – 50	0	32	1/4	6	5	196	067B3370
TEN 55	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067G3222
	-40 – 10	-40 – 50	15	60	1/4	6	3	118	067G3223
	-40 – 10	-40 – 50	0	32	1/4	6	5	196	067G3230

### TE 5 – TE 55, R404A/R507

#### Thermostatic element – including bulb strap

Type	Range [°C]	Range [°F]	MOP [°C]	MOP [°F]	Ext. pressure equalization		Capillary tube		Code no.
					[in]	[mm]	[m]	[in]	
TES 5	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3342
	-40 – 5	-40 – 25	0	32	1/4	6	3	118	067B3357
	-40 – 15	-40 – 5	-10	15	1/4	6	3	118	067B3358
	-60 – 25	-75 – -15	–	–	1/4	6	3	118	067B3344
	-60 – 25	-75 – -15	-20	-5	1/4	6	3	118	067B3343
TES 12	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3347
	-40 – 5	-40 – 25	0	32	1/4	6	3	118	067B3345
	-40 – 15	-40 – 5	-10	15	1/4	6	3	118	067B3348
	-60 – 25	-75 – -15	-20	-5	1/4	6	3	118	067B3349
	-40 – 10	-40 – 50	–	–	1/4	6	5	196	067B3346
TES 20	-60 – 25	-75 – -15	-20	-5	1/4	6	5	196	067B3350
	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3352
	-40 – 5	-40 – 25	0	32	1/4	6	3	118	067B3351
	-40 – 15	-40 – 5	-10	15	1/4	6	3	118	067B3353
	-60 – 25	-75 – -15	-20	-5	1/4	6	3	118	067B3354
TES 55	-40 – 10	-40 – 50	–	–	1/4	6	5	196	067B3356
	-60 – 25	-75 – -15	-20	-5	1/4	6	5	196	067B3355
	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067G3302
	-40 – 5	-40 – 25	0	32	1/4	6	3	118	067G3303
	-40 – 15	-40 – 5	-10	15	1/4	6	3	118	067G3304
TES 55	-60 – 25	-75 – -15	-20	-5	1/4	6	3	118	067G3305
	-40 – 10	-40 – 50	–	–	1/4	6	5	196	067G3301
	-60 – 25	-75 – -15	-20	-5	1/4	6	5	196	067G3306

# Technical data and ordering



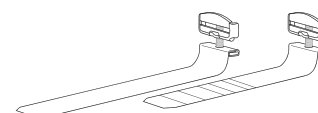
## TE 5 – TE 55, R22/R407C

### Thermostatic element - including bulb strap

Type	Range [°C]	Range [°F]	MOP [°C]	MOP [°F]	Ext. pressure equalization		Capillary tube		Code no.
					[in]	[mm]	[m]	[in]	
TEX 5	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3250
	-40 – 10	-40 – 50	15	60	1/4	6	3	118	067B3267
	-40 – -5	-40 – 25	0	32	1/4	6	3	118	067B3249
	-40 – -15	-40 – 5	-10	-15	1/4	6	3	118	067B3253
	-60 – -25	-75 – -15	–	–	1/4	6	3	118	067B3263
	-60 – -25	-75 – -15	-20	-5	1/4	6	3	118	067B3251
TEX 12	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3210
	-40 – 10	-40 – 50	15	60	1/4	6	3	118	067B3227
	-40 – -5	-40 – 25	0	32	1/4	6	3	118	067B3207
	-40 – -15	-40 – 5	-10	-15	1/4	6	3	118	067B3213
	-60 – -25	-75 – -15	-20	-5	1/4	6	3	118	067B3211
	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3209
TEX 20	-60 – -25	-75 – -15	-20	-5	1/4	6	3	118	067B3212
	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3274
	-40 – 10	-40 – 50	15	60	1/4	6	3	118	067B3286
	-40 – -5	-40 – 25	0	32	1/4	6	3	118	067B3273
	-40 – -15	-40 – 5	-10	-15	1/4	6	3	118	067B3275
	-60 – -25	-75 – -15	-20	-5	1/4	6	3	118	067B3276
TEX 55	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3290
	-60 – -25	-75 – -15	-20	-5	1/4	6	3	118	067B3287
	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067G3205
	-40 – 10	-40 – 50	15	60	1/4	6	3	118	067G3220
	-40 – -5	-40 – 25	0	32	1/4	6	3	118	067G3206
	-60 – -25	-75 – -15	-20	-5	1/4	6	3	118	067G3207
	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067G3209
	-60 – -25	-75 – -15	-20	-5	1/4	6	3	118	067G3217

For R407C plants, please select valves from the dedicated R407C program.

### Bulb strap (delivered with the element)



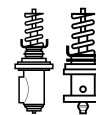
Type	Length		Max. diameter of suction line		Code no.
	[mm]	[in]	[in]	[mm]	
TE 20 / TE 55	350	13.77	3 1/8	78	067N0559

## TE 5 – TE 55, R407F/R407A

### Thermostatic element - including bulb strap

Type	Range [°C]	Range [°F]	MOP [°C]	MOP [°F]	Ext. pressure equalization		Capillary tube		Code no.
					[in]	[mm]	[m]	[in]	
TE 5	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3501
	-40 – 10	-40 – 50	–	–	1/4 (ODF solder)	6 (ODF solder)	3	118	067B3504
	-40 – -5	-40 – 25	0	32	1/4	6	3	118	067B3502
	-40 – -15	-40 – 25	-10	15	1/4	6	3	118	067B3503
TE 12	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3532
	-40 – -5	-40 – 25	0	32	1/4	6	3	118	067B3531
	-40 – -15	-40 – 25	-10	15	1/4	6	3	118	067B3533
TE 20	-40 – 10	-40 – 50	–	–	1/4	6	3	118	067B3561
	-40 – -5	-40 – 25	0	32	1/4	6	3	118	067B3560
	-40 – -15	-40 – 25	-10	15	1/4	6	3	118	067B3562

## Technical data and ordering



### TE 5 – TE 55

Orifice assembly

Rated capacity. Range: -40 – 10 °C / -40 – 50 °F

Type	Orifice	R407F		R407A		R134a		R404A/R507		R407C		R22		Code no.
		[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	
TE5	0.5	11.1	3.14	10.3	2.92	6.68	1.9	8.17	2.32	10.7	3.04	10.4	2.96	067B2788
	1	20.3	5.76	18.8	5.35	12.2	3.47	14.9	4.24	19.6	5.57	19.1	5.43	067B2789
	2	28.1	8.00	25.9	7.37	17.0	4.83	20.5	5.83	27.2	7.73	26.3	7.48	067B2790
	3	35.8	10.2	33.3	9.48	21.8	6.2	26.3	7.48	34.8	9.9	33.8	9.61	067B2791
TE12	4	49.0	13.9	45.3	12.9	29.7	8.45	35.7	10.2	47.4	13.5	46.0	13.1	067B2792
	5	71.0	20.3	56.0	16.1	37.7	10.7	50	14.4	55	15.9	57	16.3	067B2708
	6	95.0	27.1	75.0	21.4	50	14.2	64	18.2	73	21	76	21.7	067B2709
TE20	7	115	32.7	96.0	27.5	65	18.7	81	23.1	94	26.8	97	27.8	067B2710
	8	141	40.0	126	36.0	77	22.1	87	24.8	118	33.6	128	36.4	067B2771
TE55 <sup>1)</sup>	9	161	45.9	148	42.1	92	26.2	102	29	136	38.7	150	42.7	067B2773
	9B	124	35.3	112	31.8	77	21.9	84	24.1	112	38.1	113	32.1	067G2705
TE 55	10	173	49.1	166	47.4	111	31.6	128	36.4	161	45.8	169	48.1	067G2701
	11	188	53.0	181	52.0	122	34.7	138	39.2	175	49.8	184	52	067G2704
	12	207	59.0	199	57.0	134	38.1	152	43.2	191	54	202	57	067G2707
	13	250	71.0	242	69.0	166	47.2	182	51	232	66	245	69	067G2710

The rated capacity is based on:

Evaporating temperature  $t_e = 4.4\text{ °C} / 40\text{ °F}$

Condensing temperature  $t_c = 38\text{ °C} / 100\text{ °F}$

Liquid temperature  $t_l = 37\text{ °C} / 98\text{ °F}$

<sup>1)</sup> For specifications, please contact Danfoss.

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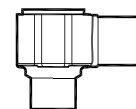
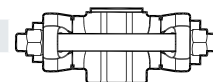
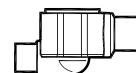
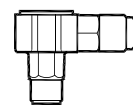
# Technical data and ordering

## TE 5 – TE 55

### Valve body

Type	Version	Connection Type	Connection inlet × outlet		Code no.
			[in]	[mm]	
TE 5	Flare angleway	–	1/2 × 5/8	12 × 16	067B4013
	Solder angleway	ODF × ODF	1/2 × 5/8	–	067B4009
	Solder angleway	ODF × ODF	1/2 × 7/8	–	067B4010
	Solder angleway	ODF × ODF	5/8 × 7/8	–	067B4011
	Solder angleway	ODF × ODM	7/8 × 1 1/8	–	067B4034
	Solder angleway	ODF × ODF	–	12 × 16	067B4004
	Solder angleway	ODF × ODF	–	12 × 22	067B4005
	Solder angleway	ODF × ODF	–	16 × 22	067B4012
	Solder angleway	ODF × ODM	–	22 × 28	067B4037
	Solder straightway	ODF × ODF	1/2 × 5/8	–	067B4007
	Solder straightway	ODF × ODF	1/2 × 7/8	–	067B4008
	Solder straightway	ODF × ODF	5/8 × 7/8	–	067B4032
	Solder straightway	ODF × ODM	7/8 × 1 1/8	–	067B4033
	Solder straightway	ODF × ODF	–	12 × 16	067B4002
	Solder straightway	ODF × ODF	–	12 × 22	067B4003
	Solder straightway	ODF × ODF	–	16 × 22	067B4035
	Solder straightway	ODF × ODM	–	22 × 28	067B4036
	TE 12	Solder angleway	ODF × ODM	7/8 × 1 1/8	–
Solder angleway		ODF × ODM	–	22 × 28	067B4017
Solder straightway		ODF × ODF	5/8 × 7/8	–	067B4020
Solder straightway		ODF × ODM	7/8 × 1 1/8	–	067B4021
Solder straightway		ODF × ODM	–	16 × 22	067B4016
Solder flanges		ODF × ODF	5/8 × 7/8	22 × 25	067B4025
Solder flanges		ODF × ODF	7/8 × 1	22 × 28	067B4026
Solder flanges		ODF × ODF	–	22 × 28	067B4027
TE 20	Solder angleway	ODF × ODM	7/8 × 1 1/8	22 × 28	067B4023
	Solder angleway	ODF × ODM	7/8 × 1 1/8	–	067B4017
	Solder straightway	ODF × ODM	7/8 × 1 1/8	–	067B4021
	Solder straightway	ODF × ODM	–	22 × 28	067B4016
TE 55	Solder angleway	ODM × ODM	1 1/8 × 1 3/8	28 × 35	067G4004
	Solder angleway	ODM × ODM	1 1/8 × 1 3/8	28 × 35	067G4002
	Solder straightway	ODM × ODM	1 1/8 × 1 3/8	28 × 35	067G4003
	Solder straightway	ODM × ODM	1 1/8 × 1 3/8	28 × 35	067G4001

ODF = internal diameter  
ODM = External diameter

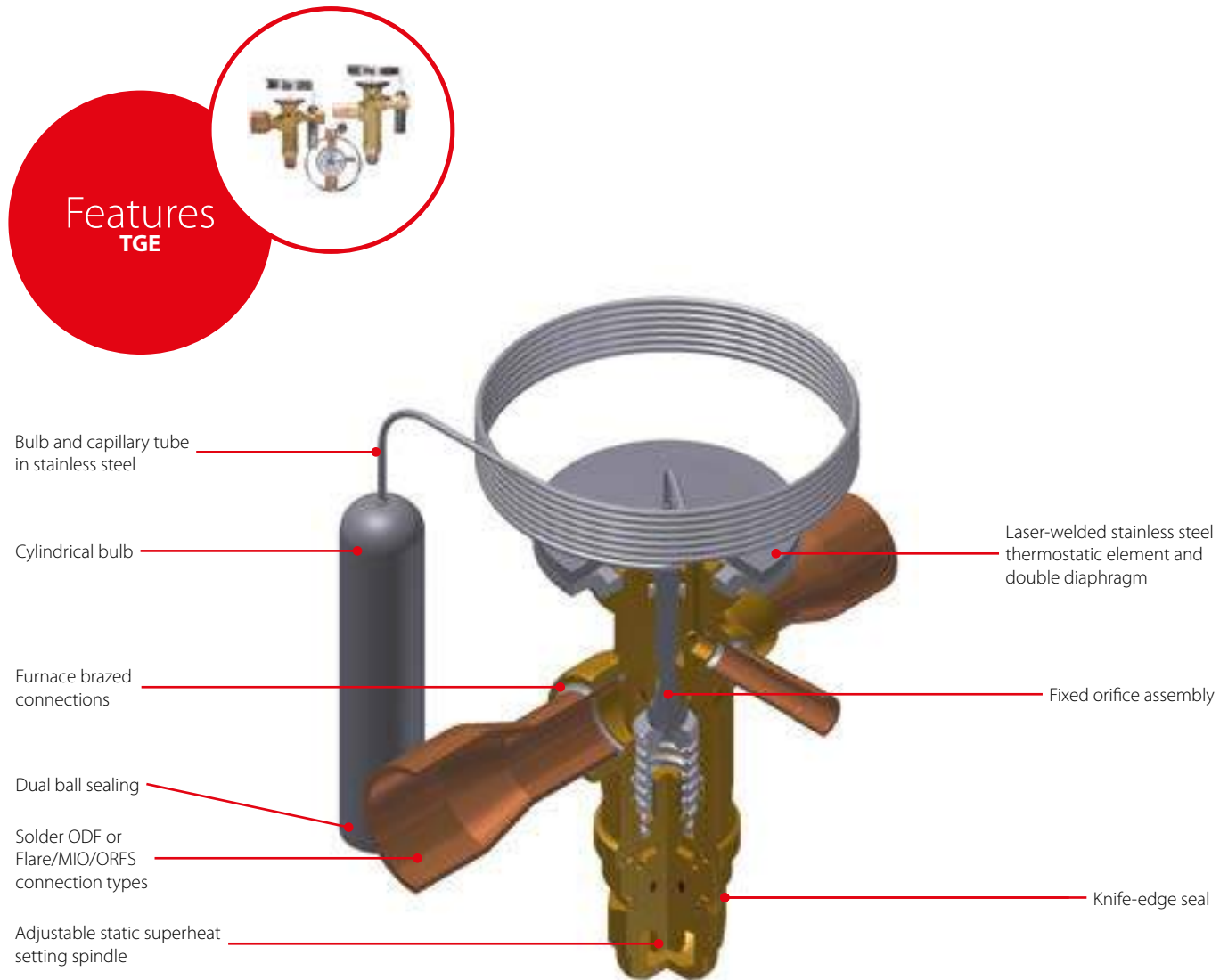




# TGE - Thermostatic expansion valves

TGE is an innovatively designed series of thermostatic expansion valves for fluorinated refrigerants. TGE has copper connections upgraded for high-pressure applications with hermetically tight soldering, and is available with a wide variety

of connection types such as solder, flare, MIO, and ORFS, and a wide variety of connection sizes. TGE is available in versions for R134a, R404A, R507, R407C, R22, R410A, R32 and R290.



## Facts

### Applications:

- Air conditioning systems
- Heat pumps, water chillers
- Refrigerated containers
- Traditional refrigeration systems and others

- Hermetic TXV for R134a, R404A, R507, R407C, R22, R410A, R32 and R290
- Head pressure independent
- Version with MOP (Max. Operating Pressure)
- Straightway flow
- Balanced port (BP)
- Low hysteresis
- Max. working pressure PS / MWP: 46 bar / 667 psig
- Long lifetime for heat pump application

- Cylindrical bulb design with upgraded bulb strap
- Biflow with expansion in both directions
- Adjustable superheat setting
- Laser welded, stainless steel power element/capillary tube
- Available with many different connection types (solder, flare, MIO, ORFS)
- Capacity range: 12 – 182 kW / 3.5 – 52 TR R410A
- Versions with or without bleed function
- Compliance with ATEX hazard zone 2

## Technical data and ordering

### TGE - R22/R407C

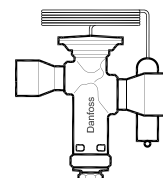
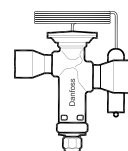
Thermostatic expansion valve with bulb strap

Range: -40 – 10 °C / -40 – 50 °F

Type	Orifice no.	Nominal capacity Q <sub>nom.1</sub> )		Solder connection ODF × ODF		Ext. pressure equalization		Capillary tube length		Code no.
		[kW]	[TR]	[in]	[mm]	[in]	[mm]	[m]	[in]	
TGEX 10	3	10	3	3/8 × 5/8	–	1/4	6	1.5	59	067N2150
	3	10	3	1/2 × 5/8	–	1/4	6	1.5	59	067N2151
	3	10	3	–	12 × 16	1/4	6	1.5	59	067N2191
	4	14	4	1/2 × 7/8	–	1/4	6	1.5	59	067N2152
	4	14	4	–	12 × 22	1/4	6	1.5	59	067N2192
	6	20	6	1/2 × 5/8	–	1/4	6	1.5	59	067N2153
	6	20	6	1/2 × 7/8	–	1/4	6	1.5	59	067N2154
	6	20	6	5/8 × 7/8	–	1/4	6	1.5	59	067N2155
	6	20	6	–	12 × 16	1/4	6	1.5	59	067N2193
	6	20	6	–	12 × 22	1/4	6	1.5	59	067N2194
	6	20	6	–	16 × 22	1/4	6	1.5	59	067N2195
	8	27	7.5	5/8 × 7/8	–	1/4	6	1.5	59	067N2156
	8	27	7.5	–	16 × 22	1/4	6	1.5	59	067N2196
	11	38	11	5/8 × 7/8	–	1/4	6	1.5	59	067N2157
	11	38	11	5/8 × 1 1/8	–	1/4	6	1.5	59	067N2158
11	38	11	–	16 × 22	1/4	6	1.5	59	067N2197	
11	38	11	–	16 × 28	1/4	6	1.5	59	067N2198	
TGEX 20	12.5	43	12	5/8 × 7/8	–	1/4	6	1.5	59	067N2159
	12.5	43	12	5/8 × 1 1/8	–	1/4	6	1.5	59	067N2160
	16	54	15	5/8 × 1 1/8	–	1/4	6	1.5	59	067N2161
	16	54	15	7/8 × 1 1/8	–	1/4	6	1.5	59	067N2162
	20	63	18	7/8 × 1 1/8	–	1/4	6	1.5	59	067N2163
	20	63	18	7/8 × 1 3/8	–	1/4	6	1.5	59	067N2164
	12.5	43	12	–	16 × 22	1/4	6	1.5	59	067N2199
	12.5	43	12	–	16 × 28	1/4	6	1.5	59	067N2200
	16	54	15	–	16 × 28	1/4	6	1.5	59	067N2201
	20	63	18	–	22 × 28	1/4	6	1.5	59	067N2203
TGEX 40	26	92	26	7/8 × 1 3/8	–	1/4	6	3.0	118	067N2165
	26	92	26	1 1/8 × 1 3/8	–	1/4	6	3.0	118	067N2166
	26	92	26	–	22 × 35	1/4	6	3.0	118	067N2205
	26	92	26	–	28 × 35	1/4	6	3.0	118	067N2206
	30	104	30	7/8 × 1 3/8	–	1/4	6	3.0	118	067N2167
	30	104	30	1 1/8 × 1 3/8	–	1/4	6	3.0	118	067N2168
	30	104	30	–	22 × 35	1/4	6	3.0	118	067N2207
	40	134	38	1 1/8 × 1 3/8	–	1/4	6	3.0	118	067N2169

<sup>1)</sup> The rated capacity is based on:  
 Evaporating temperature t<sub>e</sub> = 4.4 °C / 40 °F  
 Condensing temperature t<sub>c</sub> = 38 °C / 100 °F  
 Liquid temperature t<sub>l</sub> = 37 °C / 98 °F  
 Opening superheat OS = 4 K / 7.2 °F

For R407C plants, please select valves from the dedicated R407C program.



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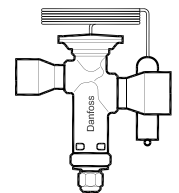
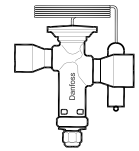
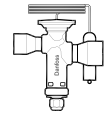
# Technical data and ordering

## TGE - R407C/R22

Thermostatic expansion valve with bulb strap

Range: - 25 – 10 °C / -15 – 50 °F with MOP 100 psig / 6.9 bar abs

Type	Orifice no.	Nominal capacity Q <sub>nom.</sub> <sup>1)</sup>		External pressure equalization, Solder ODF		Solder connection ODF × ODF		Capillary tube length		Code no.
		[kW]	[TR]	[in]	[mm]	[in]	[mm]	[m]	[in]	
TGEX 10	3	10	3	1/4	6	3/8 × 5/8	–	1.5	59	067N2000
	3	10	3	1/4	6	1/2 × 5/8	–	1.5	59	067N2001
	3	10	3	1/4	6	–	10 × 16	1.5	59	067N2040
	3	10	3	1/4	6	–	12 × 16	1.5	59	067N2041
	4	14	4	1/4	6	1/2 × 7/8	–	1.5	59	067N2002
	6	20	6	1/4	6	1/2 × 5/8	–	1.5	59	067N2003
	6	20	6	1/4	6	1/2 × 7/8	–	1.5	59	067N2004
	6	20	6	1/4	6	5/8 × 7/8	–	1.5	59	067N2005
	6	20	6	1/4	6	–	12 × 22	1.5	59	067N2044
	6	20	6	1/4	6	–	16 × 22	1.5	59	067N2045
	8	27	7.5	1/4	6	5/8 × 7/8	–	1.5	59	067N2006
	8	27	7.5	1/4	6	–	16 × 22	1.5	59	067N2046
TGEX 20	11	38	11	1/4	6	5/8 × 7/8	–	1.5	59	067N2007
	11	38	11	1/4	6	5/8 × 1 1/8	–	1.5	59	067N2008
	11	38	11	1/4	6	–	16 × 28	1.5	59	067N2048
	12.5	43	12	1/4	6	5/8 × 7/8	–	1.5	59	067N2009
	12.5	43	12	1/4	6	5/8 × 1 1/8	–	1.5	59	067N2010
	12.5	43	12	1/4	6	–	16 × 22	1.5	59	067N2049
	12.5	43	12	1/4	6	–	16 × 28	1.5	59	067N2050
	16	54	15	1/4	6	5/8 × 1 1/8	–	1.5	59	067N2011
	16	54	15	1/4	6	7/8 × 1 1/8	–	1.5	59	067N2012
	16	54	15	1/4	6	–	16 × 28	1.5	59	067N2051
	16	54	15	1/4	6	–	22 × 28	1.5	59	067N2052
	TGEX 40	20	63	18	1/4	6	7/8 × 1 1/8	–	1.5	59
20		63	18	1/4	6	7/8 × 1 3/8	–	1.5	59	067N2014
26		92	26	1/4	6	7/8 × 1 3/8	–	3.0	118	067N2015
26		92	26	1/4	6	1 1/8 × 1 3/8	–	3.0	118	067N2016
30		104	30	1/4	6	7/8 × 1 3/8	–	3.0	118	067N2017
30		104	30	1/4	6	1 1/8 × 1 3/8	–	3.0	118	067N2018
40		134	38	1/4	6	1 1/8 × 1 3/8	–	3.0	118	067N2019
30		104	30	1/4	6	–	22 × 35	3.0	118	067N2057



<sup>1)</sup> The rated capacity is based on:  
 Evaporating temperature  $t_e = 4.4 \text{ °C} / 40 \text{ °F}$   
 Condensing temperature  $t_c = 38 \text{ °C} / 100 \text{ °F}$   
 Liquid temperature  $t_l = 37 \text{ °C} / 98 \text{ °F}$   
 Opening superheat OS = 4 K / 7.2 °F

For R407C plants, please select valves from the dedicated R407C program.

## Technical data and ordering

### TGE - R22/R407C

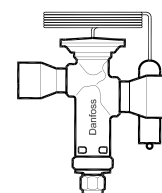
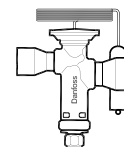
Thermostatic expansion valve with bulb strap

Range MAH = -30 – 15 °C / -22 – 60 °F

Type	Orifice no.	Nominal capacity $Q_{nom.}^{1)}$		Solder connection ODF × ODF [in]	Ext. pressure equalization		Capillary tube length		Code no.
		[kW]	[TR]		[in]	[mm]	[m]	[in]	
TGEX 10	3	10	3	$\frac{3}{8} \times \frac{5}{8}$	$\frac{1}{4}$	6	1.5	59	067N9400
	4	14	4	$\frac{1}{8} \times \frac{7}{8}$	$\frac{1}{4}$	6	1.5	59	067N9402
	6	20	6	$\frac{1}{2} \times \frac{5}{8}$	$\frac{1}{4}$	6	1.5	59	067N9403
	6	20	6	$\frac{1}{2} \times \frac{7}{8}$	$\frac{1}{4}$	6	1.5	59	067N9404
	6	20	6	$\frac{5}{8} \times 1 \frac{1}{8}$	$\frac{1}{4}$	6	1.5	59	067N9482
	8	27	7.50	$\frac{5}{8} \times \frac{7}{8}$	$\frac{1}{4}$	6	1.5	59	067N9406
	8	27	7.50	$\frac{5}{8} \times \frac{7}{8}$	$\frac{1}{4}$	6	1.5	59	067N9483
	11	38	11	$\frac{5}{8} \times 1 \frac{1}{8}$	$\frac{1}{4}$	6	1.5	59	067N9407
TGEX 20	12.5	43	12	$\frac{5}{8} \times \frac{7}{8}$	$\frac{1}{4}$	6	1.5	59	067N9409
	16	54	15	$\frac{5}{8} \times 1 \frac{1}{8}$	$\frac{1}{4}$	6	1.5	59	067N9411
	16	54	15	$\frac{7}{8} \times 1 \frac{1}{8}$	$\frac{1}{4}$	6	1.5	59	067N9412
	20	63	18	$\frac{7}{8} \times 1 \frac{3}{8}$	$\frac{1}{4}$	6	1.5	59	067N9413
TGEX 40	26	92	26	$\frac{7}{8} \times 1 \frac{3}{8}$	$\frac{1}{4}$	6	3.0	118	067N9415
	30	104	30	$1 \frac{1}{8} \times 1 \frac{3}{8}$	$\frac{1}{4}$	6	3.0	118	067N9418
	40	134	38	$1 \frac{1}{8} \times 1 \frac{3}{8}$	$\frac{1}{4}$	6	3.0	118	067N9419

<sup>1)</sup> The rated capacity is based on:  
 Evaporating temperature  $t_e = 4.4 \text{ °C} / 40 \text{ °F}$   
 Condensing temperature  $t_c = 38 \text{ °C} / 100 \text{ °F}$   
 Liquid temperature  $t_l = 37 \text{ °C} / 98 \text{ °F}$   
 Opening superheat  $OS = 4 \text{ K} / 7.2 \text{ °F}$

For R407C plants, please select valves from the dedicated R407C program.



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# Technical data and ordering

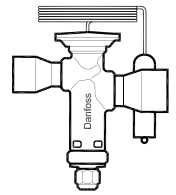
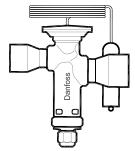
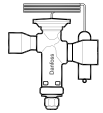
## TGE - R134a

Thermostatic expansion valve with bulb strap

Range: -40 – 10 °C / -40 – 50 °F

Type	Orifice no.	Nominal capacity Q <sub>nom.</sub> <sup>1)</sup>		External pressure equalization, Solder ODF		Solder connection ODF × ODF		Capillary tube length		Code no.
		[kW]	[TR]	[in]	[mm]	[in]	[mm]	[m]	[in]	
TGEN 10	3	6	1.5	1/4	6	3/8 × 5/8	–	1.5	59	067N5150
	3	6	1.5	1/4	6	–	10 × 16	1.5	59	067N5190
	3	6	1.5	1/4	6	–	12 × 16	1.5	59	067N5191
	4	8	2.5	1/4	6	1/2 × 7/8	–	1.5	59	067N5152
	4	8	2.5	1/4	6	–	12 × 22	1.5	59	067N5192
	6	12	3.5	1/4	6	1/2 × 5/8	–	1.5	59	067N5153
	6	12	3.5	1/4	6	1/2 × 7/8	–	1.5	59	067N5154
	6	12	3.5	1/4	6	–	12 × 16	1.5	59	067N5193
	6	12	3.5	1/4	6	–	16 × 22	1.5	59	067N5195
	8	17	4.5	1/4	6	5/8 × 7/8	–	1.5	59	067N5156
	8	17	4.5	1/4	6	–	16 × 22	1.5	59	067N5196
	11	24	7	1/4	6	5/8 × 7/8	–	1.5	59	067N5157
11	24	7	1/4	6	5/8 × 1 1/8	–	1.5	59	067N5158	
11	24	7	1/4	6	–	16 × 22	1.5	59	067N5197	
TGEN 20	12.5	29	8	1/4	6	5/8 × 7/8	–	1.5	59	067N5159
	12.5	29	8	1/4	6	5/8 × 1 1/8	–	1.5	59	067N5160
	16	37	10	1/4	6	5/8 × 1 1/8	–	1.5	59	067N5161
	16	37	10	1/4	6	7/8 × 1 1/8	–	1.5	59	067N5162
	20	44	12	1/4	6	7/8 × 1 1/8	–	1.5	59	067N5163
TGEN 40	26	61	17	1/4	6	7/8 × 1 3/8	–	3.0	118	067N5165
	26	61	17	1/4	6	1 1/8 × 1 3/8	–	3.0	118	067N5166
	26	61	17	1/4	6	1 1/8 × 1 1/8	–	3.0	118	067N5254
	30	70	20	1/4	6	1 1/8 × 1 1/8	–	3.0	118	067N5255
	30	70	20	1/4	6	7/8 × 1 3/8	–	3.0	118	067N5167
	30	70	20	1/4	6	1 1/8 × 1 3/8	–	3.0	118	067N5168
	30	70	20	1/4	6	–	28 × 35	3.0	118	067N5208
40	87	25	1/4	6	1 1/8 × 1 3/8	–	3.0	118	067N5169	

<sup>1)</sup> The rated capacity is based on:  
 Evaporating temperature t<sub>e</sub> = 4.4 °C / 40 °F  
 Condensing temperature t<sub>c</sub> = 38 °C / 100 °F  
 Liquid temperature t<sub>l</sub> = 37 °C / 98 °F  
 Opening superheat OS = 4 K / 7.2 °F



## Technical data and ordering

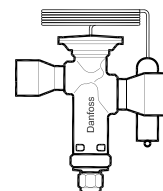
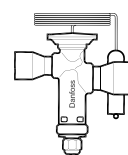
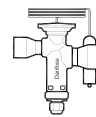
### TGE - R134a

Thermostatic expansion valve with bulb strap

Range: -25 – 10 °C / -15 – 50 °F with MOP 55 psig / 5 bar abs

Type	Orifice no.	Nominal capacity $Q_{nom.}^{1)}$		External pressure equalization, Solder ODF		Solder connection ODF × ODF		Capillary tube length		Code no.
		[kW]	[TR]	[in]	[mm]	[in]	[mm]	[m]	[in]	
TGEN 10	3	6	1.5	1/4	6	3/8 × 5/8	–	1.5	59	067N5000
	4	8	2.5	1/4	6	1/2 × 5/8	–	1.5	59	067N5002
	6	12	3.5	1/4	6	1/2 × 5/8	–	1.5	59	067N5003
	6	12	3.5	1/4	6	1/2 × 7/8	–	1.5	59	067N5004
	6	12	3.5	1/4	6	5/8 × 7/8	–	1.5	59	067N5005
	6	12	3.5	1/4	6	–	12 × 16	1.5	59	067N5043
	8	17	4.5	1/4	6	5/8 × 7/8	–	1.5	59	067N5006
	8	17	4.5	1/4	6	–	16 × 22	1.5	59	067N5046
	11	24	7	1/4	6	5/8 × 7/8	–	1.5	59	067N5007
	11	24	7	1/4	6	5/8 × 17/8	–	1.5	59	067N5008
	11	24	7	1/4	6	–	16 × 22	1.5	59	067N5047
11	24	7	1/4	6	–	16 × 28	1.5	59	067N5048	
TGEN 20	12.5	29	8	1/4	6	5/8 × 7/8	–	1.5	59	067N5009
	12.5	29	8	1/4	6	5/8 × 1 1/8	–	1.5	59	067N5010
	16	37	10	1/4	6	5/8 × 1 1/8	–	1.5	59	067N5011
	20	44	12	1/4	6	7/8 × 1 1/8	–	1.5	59	067N5013
	20	44	12	1/4	6	–	22 × 28	1.5	59	067N5053
TGEN 40	26	61	17	1/4	6	7/8 × 1 3/8	–	3.0	118	067N5015
	26	61	17	1/4	6	–	22 × 35	3.0	118	067N5055
	30	70	20	1/4	6	7/8 × 1 3/8	–	3.0	118	067N5017
	30	70	20	1/4	6	1 1/8 × 1 3/8	–	3.0	118	067N5018
	30	70	20	1/4	6	–	22 × 35	3.0	118	067N5057
	40	87	25	1/4	6	1 1/8 × 1 3/8	–	3.0	118	067N5019
40	87	25	1/4	6	–	28 × 35	3.0	118	067N5060	

<sup>1)</sup> The rated capacity is based on:  
 Evaporating temperature  $t_e = 4.4\text{ °C} / 40\text{ °F}$   
 Condensing temperature  $t_c = 38\text{ °C} / 100\text{ °F}$   
 Liquid temperature  $t_l = 37\text{ °C} / 98\text{ °F}$   
 Opening superheat OS = 4 K / 7.2 °F



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# Technical data and ordering

## TGE - R134a

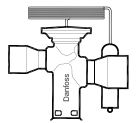
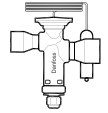
Thermostatic expansion valve with bulb strap

Range: -40 – 10 °C / -40 – 50 °F

Type	Orifice no.	Nominal capacity Q <sub>nom.</sub> <sup>1)</sup>		Ext. pressure equalization [in]	[in] version Connection Thread [in]	Capillary tube length		Code no.
		[kW]	[TR]			[m]	[in]	
TGEN 10	3	6	1.5	1/4 MIO	1/2 × 5/8 × 1/4 MIO	1.5	59	067N7150
	4	8	2.5	1/4 MIO	1/2 × 5/8 × 1/4 MIO	1.5	59	067N7152
	4	8	2.5	1/4 Flare	3/8 × 3/8 MIO × 1/4 F	1.5	59	067N7153
	4	8	2.5	1/4 Flare	3/8 × 1/2 × 1/4 F	1.5	59	067N7154
	6	12	3.5	1/4 Flare	3/8 × 5/8 × 1/4 F	1.5	59	067N7157
	6	12	3.5	1/4 Flare	3/8 × 1/2 MIO × 1/4 F	1.5	59	067N7158
	6	12	3.5	1/4 Flare	3/8 × 1/2 × 1/4 F	1.5	59	067N7160
	8	17	4.5	1/4 MIO	1/2 × 5/8 × 1/4 MIO	1.5	59	067N7161
	8	17	4.5	1/4 Flare	1/2 × 5/8 × 1/4 F	1.5	59	067N7163
	8	17	4.5	1/4 Flare	3/8 × 1/2 MIO × 1/4 F	1.5	59	067N7164
	8	17	4.5	1/4 MIO	5/8 × 3/4 × 1/4 MIO	1.5	59	067N7165
TGEN 20	11	24	7	1/4 MIO	5/8 × 3/4 × 1/4 MIO	1.5	59	067N7166
	12.5	29	8	1/4 MIO	5/8 × 3/4 × 1/4 MIO	1.5	59	067N7167
	16	37	10	1/4 Flare	5/8 × 3/4 × 1/4 Flare	1.5	59	067N7168

<sup>1)</sup> The rated capacity is based on:  
 Evaporating temperature  $t_e = 4.4\text{ °C} / 40\text{ °F}$   
 Condensing temperature  $t_c = 38\text{ °C} / 100\text{ °F}$   
 Liquid temperature  $t_l = 37\text{ °C} / 98\text{ °F}$   
 Opening superheat OS = 4 K / 7.2 °F

MIO: Male inserts O-ring



## TGE - R134a

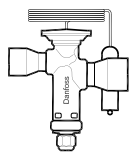
Thermostatic expansion valve with bulb strap

Range: -25 – 10 °C / -15 – 50 °F with MOP 55 psig / 5 bar abs

Type	Orifice no.	Nominal capacity Q <sub>nom.</sub> <sup>1)</sup>		Ext. pressure equalization [in]	[in] version Connection Thread [in]	Capillary tube length		Code no.
		[kW]	[TR]			[m]	[in]	
TGEN 10	4	8	2.5	1/4 Flare	3/8 × 1/2 × 1/4 F	1.5	59	067N7000
	6	12	3.5	1/4 Flare	3/8 × 1/2 × 1/4 F	1.5	59	067N7003
	6	12	3.5	1/4 Flare	1/2 × 3/8 × v F	1.5	59	067N7004
	8	17	4.5	1/4 Flare	1/2 × 3/8 × 1/4 F	1.5	59	067N7008
	8	17	4.5	1/4 Flare	5/8 × 3/4 × 1/4 F	1.5	59	067N7013
	11	24	7	1/4 Flare	5/8 × 3/4 × 1/4 F	1.5	59	067N7016
	12.5	29	8	1/4 Flare	5/8 × 3/4 × 1/4 F	1.5	59	067N7018
	16	37	10	1/4 Flare	5/8 × 3/4 × 1/4 F	1.5	59	067N7020
	20	44	12	1/4 Flare	5/8 × 3/4 × 1/4 F	1.5	59	067N7021
	4	8	2.5	1/4 MIO	1/2 × 5/8 × 1/4 MIO	1.5	59	067N7002
	8	17	4.5	1/4 MIO	1/2 × 5/8 × 1/4 MIO	1.5	59	067N7010
TGEN 20	8	17	4.5	1/4 MIO	5/8 × 3/4 × 1/4 MIO	1.5	59	067N7012
	11	24	7	1/4 MIO	5/8 × 3/4 × 1/4 MIO	1.5	59	067N7015
	12.5	29	8	1/4 MIO	5/8 × 3/4 × 1/4 MIO	1.5	59	067N7017
	16	37	10	1/4 MIO	5/8 × 3/4 × 1/4 MIO	1.5	59	067N7019

<sup>1)</sup> The rated capacity is based on:  
 Evaporating temperature  $t_e = 4.4\text{ °C} / 40\text{ °F}$   
 Condensing temperature  $t_c = 38\text{ °C} / 100\text{ °F}$   
 Liquid temperature  $t_l = 37\text{ °C} / 98\text{ °F}$   
 Opening superheat OS = 4 K / 7.2 °F

MIO: Male inserts O-ring.



## Technical data and ordering

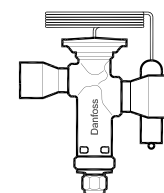
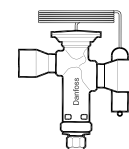
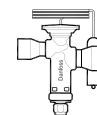
### TGE - R407C

Thermostatic expansion valve with bulb strap

Range: -40 – 10 °C / -40 – 50 °F

Type	Orifice no.	Nominal capacity $Q_{nom. 1)}$		External pressure equalization		Solder connection ODF × ODF		Capillary tube length		Code no.
		[kW]	[TR]	[in]	[mm]	[in]	[mm]	[m]	[in]	
TGEZ 10	3	9	2.5	1/4	6	1/2 × 5/8	–	1.5	59	067N4151
	3	9	2.5	1/4	6	–	10 × 16	1.5	59	067N4190
	3	9	2.5	1/4	6	–	12 × 16	1.5	59	067N4191
	4	13	3.5	1/4	6	1/2 × 7/8	–	1.5	59	067N4152
	4	13	3.5	1/4	6	–	12 × 22	1.5	59	067N4192
	6	19	5	1/4	6	1/2 × 5/8	–	1.5	59	067N4153
	6	19	5	1/4	6	1/2 × 7/8	–	1.5	59	067N4154
	6	19	5	1/4	6	5/8 × 7/8	–	1.5	59	067N4155
	6	19	5	1/4	6	–	12 × 16	1.5	59	067N4193
	6	19	5	1/4	6	–	12 × 22	1.5	59	067N4194
	6	19	5	1/4	6	–	16 × 22	1.5	59	067N4195
	8	25	7	1/4	6	5/8 × 7/8	–	1.5	59	067N4156
	8	25	7	1/4	6	–	16 × 22	1.5	59	067N4196
	11	36	10	1/4	6	5/8 × 7/8	–	1.5	59	067N4157
11	36	10	1/4	6	5/8 × 1 1/8	–	1.5	59	067N4158	
11	36	10	1/4	6	–	16 × 22	1.5	59	067N4197	
TGEZ 20	12.5	42	12	1/4	6	5/8 × 7/8	–	1.5	59	067N4159
	12.5	42	12	1/4	6	5/8 × 1 1/8	–	1.5	59	067N4160
	12.5	42	12	1/4	6	–	16 × 22	1.5	59	067N4199
	12.5	42	12	1/4	6	–	16 × 28	1.5	59	067N4200
	16	53	15	1/4	6	5/8 × 1 1/8	–	1.5	59	067N4161
	16	53	15	1/4	6	7/8 × 1 1/8	–	1.5	59	067N4162
	16	53	15	1/4	6	–	22 × 28	1.5	59	067N4202
	20	62	18	1/4	6	7/8 × 1 1/8	–	1.5	59	067N4163
	20	62	18	1/4	6	–	22 × 28	1.5	59	067N4203
	20	62	18	1/4	6	–	22 × 35	1.5	59	067N4204
TGEZ 40	26	84	24	1/4	6	7/8 × 3/8	–	3.0	118	067N4165
	26	84	24	1/4	6	1 1/8 × 1 3/8	–	3.0	118	067N4166
	26	84	24	1/4	6	–	28 × 35	3.0	118	067N4206
	30	95	27	1/4	6	7/8 × 1 3/8	–	3.0	118	067N4167
	30	95	27	1/4	6	1 1/8 × 1 3/8	–	3.0	118	067N4168
	30	95	27	1/4	6	–	28 × 35	3.0	118	067N4208
	40	121	34	1/4	6	1 1/8 × 1 3/8	–	3.0	118	067N4169
	40	121	34	1/4	6	–	28 × 35	3.0	118	067N4209

<sup>1)</sup> The rated capacity is based on:  
 Evaporating temperature  $t_e = 4.4\text{ °C} / 40\text{ °F}$   
 Condensing temperature  $t_c = 38\text{ °C} / 100\text{ °F}$   
 Liquid temperature  $t_l = 37\text{ °C} / 98\text{ °F}$   
 Opening superheat  $OS = 4\text{ K} / 7.2\text{ °F}$



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# Technical data and ordering

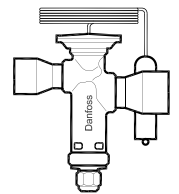
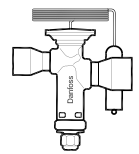
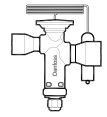
## TGE - R407C

Thermostatic expansion valve with bulb strap

Range: -25 – 10 °C / -15 – 50 °F with MOP 95 psig / 6.6 bar abs

Type	Orifice no.	Nominal capacity Q <sub>nom.</sub> <sup>1)</sup>		Ext. pressure equalization		Solder connection ODF × ODF		Capillary tube length		Code no.
		[kW]	[TR]	[in]	[mm]	[in]	[mm]	[m]	[in]	
TGEZ 10	3	9	2.5	1/4	6	3/8 × 5/8	–	1.5	59	067N4000
	3	9	2.5	1/4	6	–	12 × 16	1.5	59	067N4041
	4	13	3.5	1/4	6	1/2 × 7/8	–	1.5	59	067N4002
	6	19	5	1/4	6	1/2 × 5/8	–	1.5	59	067N4003
	6	19	5	1/4	6	1/2 × 7/8	–	1.5	59	067N4004
	6	19	5	1/4	6	5/8 × 7/8	–	1.5	59	067N4005
	6	19	5	1/4	6	–	12 × 16	1.5	59	067N4043
	8	25	7	1/4	6	5/8 × 7/8	–	1.5	59	067N4006
	8	25	7	1/4	6	–	16 × 22	1.5	59	067N4046
	11	36	10	1/4	6	5/8 × 7/8	–	1.5	59	067N4007
	11	36	10	1/4	6	5/8 × 1 1/8	–	1.5	59	067N4008
11	36	10	1/4	6	–	16 × 22	1.5	59	067N4047	
TGEZ 20	12.5	42	12	1/4	6	5/8 × 7/8	–	1.5	59	067N4009
	12.5	42	12	1/4	6	5/8 × 1 1/8	–	1.5	59	067N4010
	12.5	42	12	1/4	6	–	16 × 22	1.5	59	067N4049
	16	53	15	1/4	6	5/8 × 1 1/8	–	1.5	59	067N4011
	16	53	15	1/4	6	7/8 × 1 1/8	–	1.5	59	067N4012
	20	62	18	1/4	6	7/8 × 1 1/8	–	1.5	59	067N4013
	20	62	18	1/4	6	7/8 × 1 3/8	–	1.5	59	067N4014
	20	62	18	1/4	6	–	22 × 28	1.5	59	067N4053
TGEZ 40	26	84	24	1/4	6	7/8 × 1 3/8	–	3.0	118	067N4015
	30	95	27	1/4	6	7/8 × 1 3/8	–	3.0	118	067N4017
	30	95	27	1/4	6	1 1/8 × 1 3/8	–	3.0	118	067N4018
	40	121	34	1/4	6	1 1/8 × 1 3/8	–	3.0	118	067N4019

<sup>1)</sup> The rated capacity is based on:  
 Evaporating temperature  $t_e = 4.4\text{ °C} / 40\text{ °F}$   
 Condensing temperature  $t_c = 38\text{ °C} / 100\text{ °F}$   
 Liquid temperature  $t_l = 37\text{ °C} / 98\text{ °F}$   
 Opening superheat  $OS = 4\text{ K} / 7.2\text{ °F}$



## Technical data and ordering



Only solder versions, connection size smaller than 25 mm / 7/8 in are approved for flammable refrigerants.

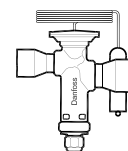
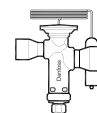
### TGE - R410A / R32

Thermostatic expansion valve with bulb strap

Range: -40 – 10 °C / -40 – 50 °F

Type	Orifice no.	Nominal capacity $Q_{nom. 1)}$				Ext. pressure equalization		Solder connection ODF × ODF		Capillary tube length		Code no.
		R410A		R32		[in]	[mm]	[in]	[mm]	[m]	[in]	
		[kW]	[TR]	[kW]	[TR]							
TGEL 10	3	12	3.5	18	5	1/4	6	3/8 × 5/8	–	1.5	59	067N3150
	3	12	3.5	18	5	1/4	6	1/2 × 5/8	–	1.5	59	067N3151
	4	16	4.5	24	7	1/4	6	1/2 × 7/8	–	1.5	59	067N3152
	4	16	4.5	24	7	1/4	6	–	12 × 22	1.5	59	067N3192
	6	24	6.5	35	10	1/4	6	1/2 × 5/8	–	1.5	59	067N3153
	6	24	6.5	35	10	1/4	6	1/2 × 7/8	–	1.5	59	067N3154
	6	24	6.5	35	10	1/4	6	5/8 × 7/8	–	1.5	59	067N3155
	6	24	6.5	35	10	1/4	6	–	12 × 22	1.5	59	067N3194
	6	24	6.5	35	10	1/4	6	–	16 × 22	1.5	59	067N3195
	8	32	9	47	13	1/4	6	5/8 × 7/8	–	1.5	59	067N3156
	8	32	9	47	13	1/4	6	–	16 × 22	1.5	59	067N3196
	11	45	13	68	19	1/4	6	5/8 × 7/8	–	1.5	59	067N3157
	11	45	13	68	19	1/4	6	–	16 × 22	1.5	59	067N3197
TGEL 20	12.5	54	15	81	23	1/4	6	5/8 × 7/8	–	1.5	59	067N3159

<sup>1)</sup> The rated capacity is based on:  
 Evaporating temperature  $t_e = 4.4\text{ °C} / 40\text{ °F}$   
 Condensing temperature  $t_c = 38\text{ °C} / 100\text{ °F}$   
 Liquid temperature  $t_l = 37\text{ °C} / 98\text{ °F}$   
 Opening superheat OS = 4 K / 7.2 °F



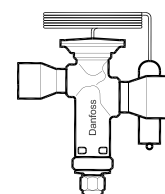
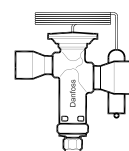
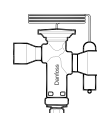
### TGE - R410A

Thermostatic expansion valve with bulb strap

Range: -40 – 10 °C / -40 – 50 °F

Type	Orifice no.	Nominal capacity $Q_{nom. 1)}$		Ext. pressure equalization		Solder connection ODF × ODF		Capillary tube length		Code no.
		[kW]	[TR]	[in]	[mm]	[in]	[mm]	[m]	[in]	
TGEL 10	11	45	13	1/4	6	5/8 × 1 1/8	–	1.5	59	067N3158
TGEL 20	12.5	54	15	1/4	6	5/8 × 1 1/8	–	1.5	59	067N3160
	16	68	19	1/4	6	5/8 × 1 1/8	–	1.5	59	067N3161
	16	68	19	1/4	6	7/8 × 1 1/8	–	1.5	59	067N3162
	16	68	19	1/4	6	–	22 × 28	1.5	59	067N3202
	20	79	23	1/4	6	7/8 × 1 1/8	–	1.5	59	067N3163
	20	79	23	1/4	6	7/8 × 1 3/8	–	1.5	59	067N3164
	20	79	23	1/4	6	–	22 × 28	1.5	59	067N3203
TGEL 40	26	110	31	1/4	6	7/8 × 1 3/8	–	3.0	118	067N3165
	26	110	31	1/4	6	1 1/8 × 1 3/8	–	3.0	118	067N3166
	26	110	31	1/4	6	–	22 × 35	3.0	118	067N3205
	30	125	35	1/4	6	1 1/8 × 1 3/8	–	3.0	118	067N3168
	40	161	46	1/4	6	1 1/8 × 1 3/8	–	3.0	118	067N3169

<sup>1)</sup> The rated capacity is based on:  
 Evaporating temperature  $t_e = 4.4\text{ °C} / 40\text{ °F}$   
 Condensing temperature  $t_c = 38\text{ °C} / 100\text{ °F}$   
 Liquid temperature  $t_l = 37\text{ °C} / 98\text{ °F}$   
 Opening superheat OS = 4 K / 7.2 °F





# Technical data and ordering

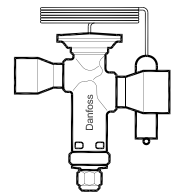
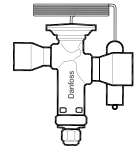
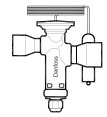
## TGE - R410A

Thermostatic expansion valve with bulb strap

Range: -25 – 10 °C / -15 – 50 °F with MOP 165 psig / 11.5 bar abs

Type	Orifice no.	Nominal capacity Q <sub>nom.</sub> <sup>1)</sup>		Ext. pressure equalization		Solder connection ODF × ODF		Capillary tube length		Code no.
		[kW]	[TR]	[in]	[mm]	[in]	[mm]	[m]	[in]	
TGEL 10	3	12	3.5	1/4	6	3/8 × 5/8	–	1.5	59	067N3000
	3	12	3.5	1/4	6	1/2 × 5/8	–	1.5	59	067N3001
	4	16	4.5	1/4	6	1/2 × 7/8	–	1.5	59	067N3002
	6	24	6.5	1/4	6	1/2 × 5/8	–	1.5	59	067N3003
	6	24	6.5	1/4	6	5/8 × 7/8	–	1.5	59	067N3005
	8	32	9	1/4	6	5/8 × 7/8	–	1.5	59	067N3006
	11	45	13	1/4	6	5/8 × 7/8	–	1.5	59	067N3007
TGEL 20	11	45	13	1/4	6	5/8 × 1 1/8	–	1.5	59	067N3008
	12.5	54	15	1/4	6	5/8 × 7/8	–	1.5	59	067N3009
	12.5	54	15	1/4	6	5/8 × 1 1/8	–	1.5	59	067N3010
	12.5	54	15	1/4	6	–	16 × 22	1.5	59	067N3049
	16	68	19	1/4	6	5/8 × 1 1/8	–	1.5	59	067N3011
	16	68	19	1/4	6	7/8 × 1 1/8	–	1.5	59	067N3012
	20	79	23	1/4	6	7/8 × 1 1/8	–	1.5	59	067N3013
TGEL 40	20	79	23	1/4	6	7/8 × 1 3/8	–	1.5	59	067N3014
	26	110	31	1/4	6	7/8 × 1 3/8	–	3.0	118	067N3015
	26	110	31	1/4	6	1 1/8 × 1 3/8	–	3.0	118	067N3016
	30	125	35	1/4	6	1 1/8 × 1 3/8	–	3.0	118	067N3018
	40	161	46	1/4	6	1 1/8 × 1 3/8	–	3.0	118	067N3019

<sup>1)</sup> The rated capacity is based on:  
 Evaporating temperature  $t_e = 4.4 \text{ °C} / 40 \text{ °F}$   
 Condensing temperature  $t_c = 38 \text{ °C} / 100 \text{ °F}$   
 Liquid temperature  $t_l = 37 \text{ °C} / 98 \text{ °F}$   
 Opening superheat OS = 4 K / 7.2 °F



## Technical data and ordering

### TGE - R410A

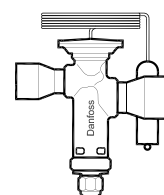
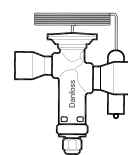
Thermostatic expansion valve with bulb strap

Range MAH: -30 – 15 °C / -22 – 60 °F

Type	Orifice no.	Nominal capacity $Q_{nom. 1)}$		Ext. pressure equalization		Solder connection ODF × ODF		Capillary tube length		Code no.
		[kW]	[TR]	[in]	[mm]	[in]	[mm]	[m]	[in]	
TGEL 10	3	12	3.5	1/4	6	3/8 × 5/8	–	1.5	59	067N9205
	3	12	3.5	1/4	6	1/2 × 5/8	–	1.5	59	067N9201
	3	12	3.5	1/4	6	–	10 × 16	1.5	59	067N9245
	3	12	3.5	1/4	6	–	12 × 16	1.5	59	067N9241
	4	16	4.5	1/4	6	1/2 × 7/8	–	1.5	59	067N9202
	4	16	4.5	1/4	6	–	12 × 22	1.5	59	067N9242
	6	24	6.5	1/4	6	1/2 × 5/8	–	1.5	59	067N9203
	6	24	6.5	1/4	6	5/8 × 5/8	–	1.5	59	067N9200
	6	24	6.5	1/4	6	–	12 × 16	1.5	59	067N9243
	6	24	6.5	1/4	6	–	12 × 22	1.5	59	067N9244
	6	24	6.5	1/4	6	–	16 × 22	1.5	59	067N9240
	8	32	9	1/4	6	5/8 × 7/8	–	1.5	59	067N9206
	8	32	9	1/4	6	–	16 × 22	1.5	59	067N9246
	9	37	11	1/4	6	5/8 × 7/8	–	1.5	59	067N9287
	11	45	13	1/4	6	5/8 × 7/8	–	1.5	59	067N9207
11	45	13	1/4	6	5/8 × 1 1/8	–	1.5	59	067N9208	
11	45	13	1/4	6	–	16 × 22	1.5	59	067N9247	
11	45	13	1/4	6	–	16 × 28	1.5	59	067N9248	
TGEL 20	12.5	54	15	1/4	6	5/8 × 7/8	–	1.5	59	067N9209
	12.5	54	15	1/4	6	7/8 × 1 1/8	–	1.5	59	067N9283
	12.5	54	15	1/4	6	5/8 × 1 1/8	–	1.5	59	067N9210
	12.5	54	15	1/4	6	–	16 × 22	1.5	59	067N9249
	12.5	54	15	1/4	6	–	16 × 28	1.5	59	067N9250
	16	68	19	1/4	6	5/8 × 1 1/8	–	1.5	59	067N9211
	16	68	19	1/4	6	7/8 × 1 1/8	–	1.5	59	067N9212
	16	68	19	1/4	6	–	16 × 28	1.5	59	067N9251
	16	68	19	1/4	6	–	22 × 28	1.5	59	067N9252
	20	79	23	1/4	6	7/8 × 1 1/8	–	1.5	59	067N9213
	20	79	23	1/4	6	1 1/8 × 1 1/8	–	1.5	59	067N9284
	20	79	23	1/4	6	7/8 × 1 3/8	–	1.5	59	067N9214
20	79	23	1/4	6	–	22 × 28	1.5	59	067N9253	
20	79	23	1/4	6	–	22 × 35	1.5	59	067N9254	
21	91	26	1/4	6	7/8 × 1 1/8	–	1.5	59	067N9288 <sup>2)</sup>	
TGEL 40	26	110	31	1/4	6	7/8 × 1 3/8	–	3.0	118	067N9215
	26	110	31	1/4	6	7/8 × 1 1/8	–	3.0	118	067N9285
	26	110	31	1/4	6	1 1/8 × 1 3/8	–	3.0	118	067N9216
	26	110	31	1/4	6	–	22 × 35	3.0	118	067N9255
	26	110	31	1/4	6	–	28 × 35	3.0	118	067N9256
	30	125	35	1/4	6	7/8 × 1 3/8	–	3.0	118	067N9217
	30	125	35	1/4	6	1 1/8 × 1 3/8	–	3.0	118	067N9218
	30	125	35	1/4	6	–	22 × 35	3.0	118	067N9257
	30	125	35	1/4	6	–	28 × 35	3.0	118	067N9258
	40	161	46	1/4	6	1 1/8 × 1 3/8	–	3.0	118	067N9219
40	161	46	1/4	6	–	28 × 35	3.0	118	067N9259	

<sup>1)</sup> The rated capacity is based on:  
 Evaporating temperature  $t_e = 4.4 \text{ °C} / 40 \text{ °F}$   
 Condensing temperature  $t_c = 38 \text{ °C} / 100 \text{ °F}$   
 Liquid temperature  $t_l = 37 \text{ °C} / 98 \text{ °F}$   
 Opening superheat OS = 4 K / 7.2 °F

<sup>2)</sup> Contact Danfoss for more information.



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# Technical data and ordering

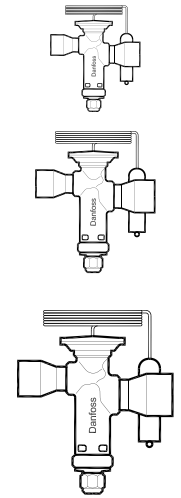
## TGE - R404A/R507

Thermostatic expansion valve with bulb strap  
Range: -40 – 10 °C / -40 – 50 °F

Type	Orifice no.	Nominal capacity Q <sub>nom.</sub> 1)		Ext. pressure equalization		Solder connection ODF × ODF [in]	Capillary tube length		Code no.
		[kW]	[TR]	[in]	[mm]		[m]	[in]	
TGES 10	6	14	4	1/4	6	1/2 × 7/8	1.5	59	067N6151
	8	18	5	1/4	6	1/2 × 7/8	1.5	59	067N6166
	8	18	5	1/4	6	5/8 × 7/8	1.5	59	067N6150
	11	26	7.50	1/4	6	5/8 × 7/8	1.5	59	067N6154
TGES 20	12.5	31	9	1/4	6	5/8 × 7/8	1.5	59	067N6158
	16	39	11	1/4	6	1 5/8 × 1 3/8	1.5	59	067N6188
	16	39	11	1/4	6	5/8 × 1 1/8	1.5	59	067N6155
	16	39	11	1/4	6	7/8 × 1 1/8	1.5	59	067N6181
TGES 40	20	45	13	1/4	6	7/8 × 1 1/8	1.5	59	067N6162
	30	72	21	1/4	6	1 1/8 × 1 3/8	3.0	118	067N6186

1) The rated capacity is based on:  
Evaporating temperature t<sub>e</sub> = 4.4 °C / 40 °F  
Condensing temperature t<sub>c</sub> = 38 °C / 100 °F  
Liquid temperature t<sub>l</sub> = 37 °C / 98 °F  
Opening superheat OS = 4 K / 7.2 °F

 Only solder versions, connection size smaller than 25 mm / 7/8 in are approved for flammable refrigerants.

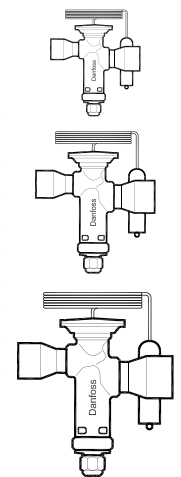


## TGE - R290

Thermostatic expansion valve with bulb strap  
Range: -40 – 10 °C / -40 – 50 °F

Valve type	Orifice no.	Nominal capacity Q <sub>nom.</sub> 1)		Ext. pressure equalization		Solder connection ODF × ODF [in]	Capillary tube length		Code no.
		[kW]	[TR]	[in]	[mm]		[m]	[in]	
TGE 10	6	19	5	1/4	6	5/8 × 7/8	1.5	59	067N9100
	8	25	7	1/4	6	5/8 × 7/8	1.5	59	067N9101
	11	36	10	1/4	6	5/8 × 7/8	1.5	59	067N9103
TGE 20	12.5	44	12	1/4	6	5/8 × 7/8	1.5	59	067N9104
	20	63	18	1/4	6	7/8 × 7/8	1.5	59	067N9106
TGE 40	30	106	30	1/4	6	7/8 × 7/8	3.0	118	067N9108

1) The rated capacity is based on:  
Evaporating temperature t<sub>e</sub> = 4.4 °C / 40 °F  
Condensing temperature t<sub>c</sub> = 38 °C / 100 °F  
Liquid temperature t<sub>l</sub> = 37 °C / 98 °F  
Opening superheat OS = 4 K / 7.2 °F

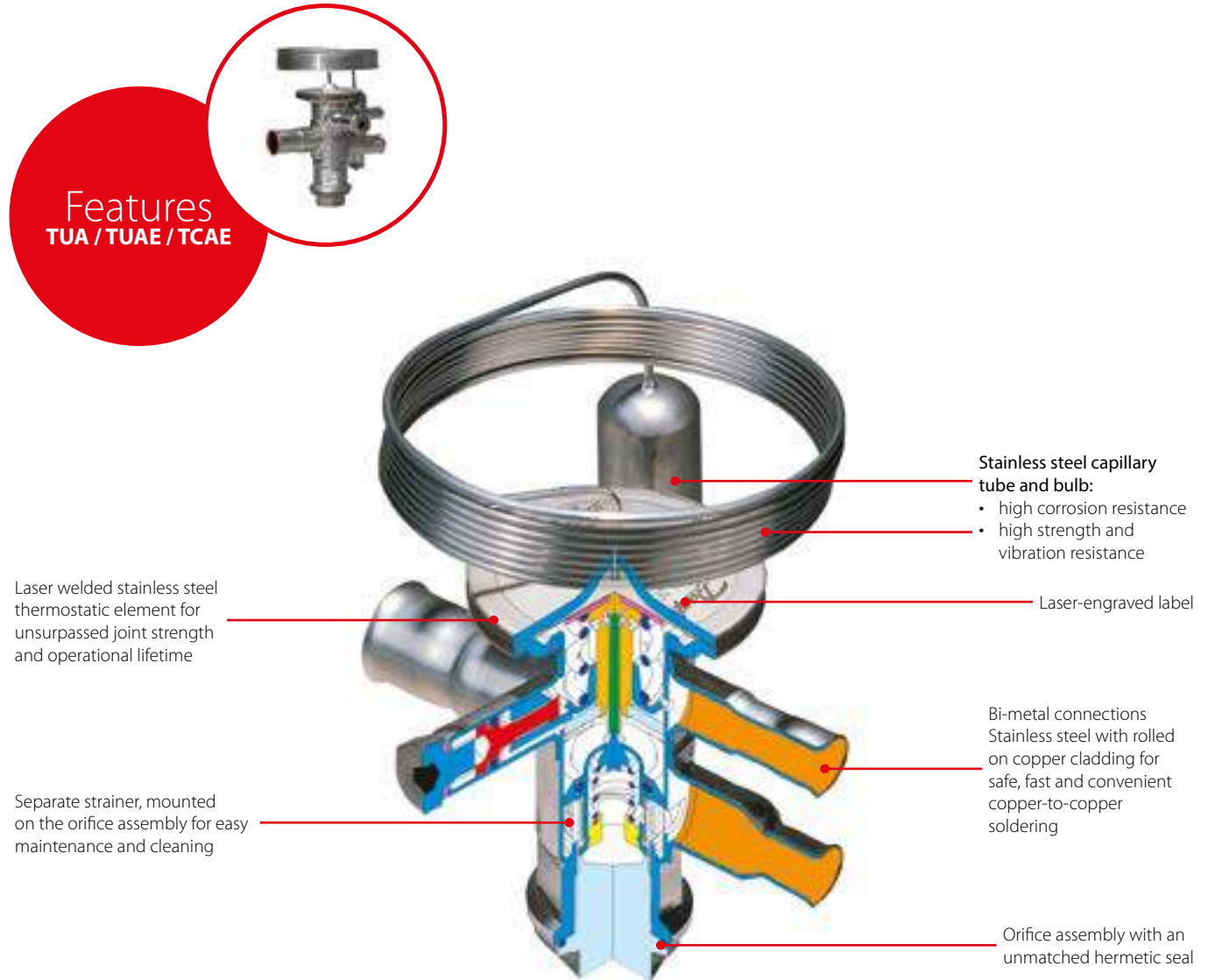




# TUA / TUAE / TCAE - Thermostatic expansion valves

TUA / TUAE / TCAE stainless steel thermostatic expansion valves are used for liquid injection into evaporators on both refrigeration and air conditioning systems using fluorinated refrigerants e.g. R134a, R404A, R407C, R22, R507 and R410A. TUA / TUAE / TCAE valves are compact in design, light weight and have steel/copper bi-metal connections

for fast soldering. TUA / TUAE / TCAE valves are supplied as parts programme, with separate thermostatic element/valve body, and orifice assembly. TUA has internal equalization, TUAE / TCAE external equalization. TUA / TUAE / TCAE are straightway valves, and have adjustable superheat setting.



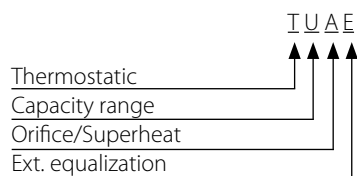
## Facts

### Applications:

- Traditional refrigeration
- Heat pump systems
- Air conditioning units
- Liquid coolers
- Ice cube machines
- Transport refrigeration

- The use of stainless steel makes the valves light and strong
- Bi-metal connections for safe, fast and convenient soldering
- Stainless steel capillary tube for superior strength and ductility
- Allen key superheat setting screw is convenient and space-saving compared to the standard screwdriver adjustment used in most conventional valves
- Can be supplied with MOP (Max. Operating Pressure)  
Protects the compressor motor against excessive evaporating pressure during normal operation
- Valves for special temperature ranges can be supplied
- 4 K / 7.2 °F opening superheat
- Bi-flow function (TUAE: only orifice 1 – 8, TCAE: Only orifice 1 and 2)

## Technical data



### Orifice/Superheat

	Interchangeable	Adjustable
A	YES	YES
B	NO	YES
C	NO	NO

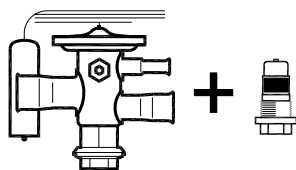
N = -40 °C - 10 °C / -40 - 50 °F

NM = -40 °C - -5 °C MOP 0 °C / -40 - 25 °F MOP 32 °F

NL = -40 °C - -15 °C with MOP - 10 °C / -40 - 5 °F MOP 14 °F

B = -60 °C - -25 °C / -75 - -15 °F

TUA  
TUAE  
TCAE



Thermostatic valve + Orifice

TUB  
TUBE  
TUC  
TUCE  
TCBE  
TCCE



Thermostatic valve including Orifice

Valve types **TUB / TUBE / TUC / TUCE** and **TCBE / TCCE** can be replaced by **TUA / TUAE** and **TCAE** types

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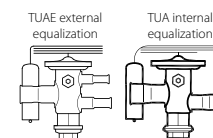
17

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# Technical data and ordering



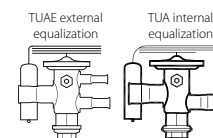
## TUA / TUAE - Solder

Thermostatic element with bulb strap

Refrigerant	Type	Range [°C]	Range [°F]	MOP [°C]	MOP [°F]	Ext. pressure equalization		Solder connections inlet × outlet		Code no.
						[in]	[mm]	[in]	[mm]	
R407C / R22	TUA	-40 – 10	-40 – 50	–	–	1/4	6	1/4 × 1/2	–	068U2234
	TUA	-40 – 10	-40 – 50	–	–	1/4	6	–	6 × 12	068U2230
	TUA	-40 – 10	-40 – 50	–	–	1/4	6	3/8 × 1/2	–	068U2235
	TUA	-40 – 10	-40 – 50	–	–	1/4	6	–	10 × 12	068U2231
	TUA	-40 – 10	-40 – 50	15	60	1/4	6	1/4 × 1/2	–	068U2212
	TUA	-40 – 10	-40 – 50	15	60	1/4	6	–	6 × 12	068U2208
	TUA	-40 – 10	-40 – 50	15	60	1/4	6	3/8 × 1/2	–	068U2213
	TUAE	-40 – 10	-40 – 50	–	–	1/4	6	1/4 × 1/2	–	068U2236
	TUAE	-40 – 10	-40 – 50	–	–	1/4	6	3/8 × 1/2	–	068U2237
	TUAE	-40 – 10	-40 – 50	–	–	1/4	6	–	10 × 12	068U2233
	TUAE	-40 – 10	-40 – 50	15	60	1/4	6	3/8 × 1/2	–	068U2245
TUAE	-40 – 10	-40 – 50	15	60	1/4	6	–	10 × 12	068U2241	
R134a	TUA	-40 – 10	-40 – 50	–	–	1/4	6	1/4 × 1/2	–	068U2204
	TUA	-40 – 10	-40 – 50	–	–	1/4	6	–	6 × 12	068U2200
	TUA	-40 – 10	-40 – 50	–	–	1/4	6	3/8 × 1/2	–	068U2205
	TUA	-40 – 10	-40 – 50	–	–	1/4	6	–	10 × 12	068U2201
	TUA	-40 – 10	-40 – 50	15	60	1/4	6	1/4 × 1/2	–	068U2292
	TUA	-40 – 10	-40 – 50	15	60	1/4	6	3/8 × 1/2	–	068U2293
	TUAE	-40 – 10	-40 – 50	–	–	1/4	6	1/4 × 1/2	–	068U2206
	TUAE	-40 – 10	-40 – 50	–	–	1/4	6	–	6 × 12	068U2202
	TUAE	-40 – 10	-40 – 50	–	–	1/4	6	3/8 × 1/2	–	068U2207
	TUAE	-40 – 10	-40 – 50	–	–	1/4	6	–	10 × 12	068U2203
	TUAE	-40 – 10	-40 – 50	15	60	1/4	6	1/4 × 1/2	–	068U2214
TUAE	-40 – 10	-40 – 50	15	60	1/4	6	3/8 × 1/2	–	068U2215	
TUAE	-40 – 10	-40 – 50	15	60	1/4	6	–	10 × 12	068U2211	
R404A/R507	TUA	-40 – 10	-40 – 50	–	–	1/4	6	1/4 × 1/2	–	068U2284
	TUA	-40 – 10	-40 – 50	–	–	1/4	6	–	6 × 12	068U2280
	TUA	-40 – 10	-40 – 50	–	–	1/4	6	3/8 × 1/2	–	068U2285
	TUA	-40 – 10	-40 – 50	–	–	1/4	6	–	10 × 12	068U2281
	TUA	-60 – -25	-75 – -15	–	–	1/4	6	1/4 × 1/2	–	068U2308
	TUA	-60 – -25	-75 – -15	–	–	1/4	6	3/8 × 1/2	–	068U2309
	TUA	-40 – -5	-40 – 25	0	32	1/4	6	1/4 × 1/2	–	068U2300
	TUA	-40 – -5	-40 – 25	0	32	1/4	6	–	6 × 12	068U2296
	TUA	-40 – 10	-40 – 50	15	60	1/4	6	1/4 × 1/2	–	068U2332
	TUA	-40 – 10	-40 – 50	15	60	1/4	6	3/8 × 1/2	–	068U2333
	TUA	-60 – -25	-75 – -15	-20	-5	1/4	6	1/4 × 1/2	–	068U2316
	TUA	-60 – -25	-75 – -15	-20	-5	1/4	6	–	6 × 12	068U2312
	TUA	-60 – -25	-75 – -15	-20	-5	1/4	6	3/8 × 1/2	–	068U2317
	TUAE	-40 – 10	-40 – 50	–	–	1/4	6	1/4 × 1/2	–	068U2286
	TUAE	-40 – 10	-40 – 50	–	–	1/4	6	–	6 × 12	068U2282
	TUAE	-40 – 10	-40 – 50	–	–	1/4	6	3/8 × 1/2	–	068U2287
	TUAE	-40 – 10	-40 – 50	–	–	1/4	6	–	10 × 12	068U2283
	TUAE	-40 – 10	-40 – 50	15	60	1/4	6	3/8 × 1/2	–	068U2295
	TUAE	-40 – -5	-40 – 25	0	32	1/4	6	3/8 × 1/2	–	068U2303
	TUAE	-40 – -5	-40 – 25	0	32	1/4	6	–	10 × 12	068U2299
TUAE	-60 – -25	-75 – -15	-20	-5	1/4	6	1/4 × 1/2	–	068U2318	
TUAE	-60 – -25	-75 – -15	-20	-5	1/4	6	3/8 × 1/2	–	068U2319	
TUAE	-60 – -25	-75 – -15	-20	-5	1/4	6	–	10 × 12	068U2315	

Capillary tube: 1.5 m / 59 in

# Technical data and ordering



## TUA / TUAE - Solder

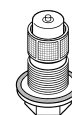
### Thermostatic element with bulb strap

Refrigerant	Type	Range [°C]	Range [°F]	MOP [°C]	MOP [°F]	Ext. pressure equalization		Solder connections inlet x outlet		Code no.
						[in]	[mm]	[in]	[mm]	
R407C	TUA	-50 - 10	-50 - 50	-	-	1/4	6	1/4 x 1/2	-	068U2324
	TUA	-50 - 10	-50 - 50	-	-	1/4	6	-	6 x 12	068U2320
	TUA	-50 - 10	-50 - 50	-	-	1/4	6	3/8 x 1/2	-	068U2325
	TUA	-50 - 10	-50 - 50	-	-	1/4	6	-	10 x 12	068U2321
	TUAE	-50 - 10	-50 - 50	-	-	1/4	6	1/4 x 1/2	-	068U2326
	TUAE	-50 - 10	-50 - 50	-	-	1/4	6	-	6 x 12	068U2322
	TUAE	-50 - 10	-50 - 50	-	-	1/4	6	3/8 x 1/2	-	068U2327
	TUAE	-50 - 10	-50 - 50	-	-	1/4	6	-	10 x 12	068U2323
	TUAE	-50 - 10	-50 - 50	15	60	1/4	6	-	6 x 12	068U2330
	TUAE	-50 - 10	-50 - 50	15	60	1/4	6	3/8 x 1/2	-	068U2335
R410A	TUA	-50 - 10	-50 - 50	-	-	1/4	6	3/8 x 1/2	-	068U2414
	TUAE	-50 - 10	-50 - 50	-	-	1/4	6	3/8 x 1/2	-	068U1714
	TUAE	-50 - 10	-50 - 50	-	-	1/4	6	-	10 x 12	068U2780
R404A/R507	TUA	-50 - 10	-50 - 50	-	-	1/4	6	1/4 x 1/2	-	068U2308
	TUA	-50 - 10	-50 - 50	-	-	1/4	6	3/8 x 1/2	-	068U2309
	TUA	-60 - -25	-75 - -15	-20	-5	1/4	6	1/4 x 1/2	-	068U2316
	TUA	-60 - -25	-75 - -15	-20	-5	1/4	6	-	6 x 12	068U2312
	TUA	-60 - -25	-75 - -15	-20	-5	1/4	6	3/8 x 1/2	-	068U2317
	TUAE	-60 - -25	-75 - -15	-20	-5	1/4	6	1/4 x 1/2	-	068U2318
	TUAE	-60 - -25	-75 - -15	-20	-5	1/4	6	3/8 x 1/2	-	068U2319
TUAE	-60 - -25	-75 - -15	-20	-5	1/4	6	-	10 x 12	068U2315	

Capillary tube: 1.5 m / 59 in

## TUA / TUAE

### Orifice assembly with filter and gasket



Valve	Orifice no.	Bleed [%]	R134a		R404A/R507		R407C		R22		R410A		Code no.
			[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	
TUA / TUAE	0	-	0.42	0.12	0.48	0.14	0.66	0.19	0.63	0.18	0.99	0.28	068U1030
	1	-	0.61	0.18	0.71	0.20	0.94	0.27	0.92	0.26	1.3	0.38	068U1031
	1	15	0.61	0.18	0.71	0.20	0.94	0.27	0.92	0.26	1.3	0.38	068U1131
	2	-	0.72	0.21	0.87	0.25	1.1	0.32	1.1	0.32	1.7	0.48	068U1032
	2	15	0.72	0.21	0.87	0.25	1.1	0.32	1.1	0.32	1.7	0.48	068U1132
	3	-	0.94	0.27	1.1	0.32	1.5	0.42	1.4	0.41	2.1	0.60	068U1033
	3	15	0.94	0.27	1.1	0.32	1.5	0.42	1.4	0.41	2.1	0.60	068U1133
	4	-	1.6	0.46	2.0	0.57	2.5	0.72	2.5	0.72	4.1	1.2	068U1034
	4	15	1.6	0.46	2.0	0.57	2.5	0.72	2.5	0.72	4.1	1.2	068U1134
	5	-	2.1	0.61	2.7	0.76	3.4	0.96	3.4	0.96	5.3	1.5	068U1035
	5	15	2.1	0.61	2.7	0.76	3.4	0.96	3.4	0.96	5.3	1.5	068U1135
	6	-	3.4	0.95	4.2	1.1	5.3	1.5	5.3	1.5	8.5	2.4	068U1036
	6	15	3.4	0.95	4.2	1.1	5.3	1.5	5.3	1.5	8.5	2.4	068U1136
	7	-	4.4	1.3	5.6	1.6	7.0	2.0	7.0	2.0	11.2	3.2	068U1037
	7	15	4.4	1.3	5.6	1.6	7.0	2.0	7.0	2.0	11.2	3.2	068U1137
	8	-	6.5	1.9	8.0	2.3	10.2	2.9	10.1	2.9	15.8	4.5	068U1038
	8	15	6.5	1.9	8.0	2.3	10.2	2.9	10.1	2.9	15.8	4.5	068U1138
	9 <sup>1)</sup>	-	9.0	2.6	11.3	3.2	14.0	4.0	14.1	4.0	23.1	6.6	068U1039
9 <sup>1)</sup>	15	9.0	2.6	11.3	3.2	14.0	4.0	14.1	4.0	23.1	6.6	068U1139	

The rated capacity is based on:

Evaporating temperature  $t_e = 4.4\text{ °C} / 40\text{ °F}$

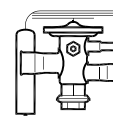
Liquid temperature  $t_l = 37\text{ °C} / 98\text{ °F}$

Condensing temperature  $t_c = 38\text{ °C} / 100\text{ °F}$

<sup>1)</sup> TUAE with orifice no. 9 cannot be used for Biflow operation.



# Technical data and ordering



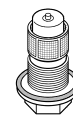
## TCAE

Thermostatic element, with bulb strap

Refrigerant	Type	Range [°C]	Range [°F]	MOP [°C]	MOP [°F]	Ext. pressure equalization		Solder connection inlet x outlet		Code no.
						[in]	[mm]	[in]	[mm]	
R407C/R22	TCAE	-40 – 10	-40 – 50	–	–	1/4	6	3/8 x 5/8	–	068U4280
	TCAE	-40 – 10	-40 – 50	–	–	1/4	6	1/2 x 5/8	–	068U4281
	TCAE	-40 – 10	-40 – 50	15	59	1/4	6	1/2 x 5/8	–	068U4283
	TCAE	-40 – 10	-40 – 50	0	32	1/4	6	–	12 x 16	068U4291
R134a	TCAE	-40 – 10	-40 – 50	–	–	1/4	6	3/8 x 5/8	–	068U4292
	TCAE	-40 – 10	-40 – 50	–	–	1/4	6	1/2 x 5/8	–	068U4293
	TCAE	-40 – 10	-40 – 50	–	–	1/4	6	–	10 x 16	068U4296
	TCAE	-40 – 10	-40 – 50	–	–	1/4	6	–	12 x 16	068U4297
	TCAE	-40 – 10	-40 – 50	15	59	1/4	6	1/2 x 5/8	–	068U4295
	TCAE	-40 – 10	-40 – 50	15	59	1/4	6	–	12 x 16	068U4299
R404A/R507	TCAE	-40 – 10	-40 – 50	–	–	1/4	6	3/8 x 5/8	–	068U4304
	TCAE	-40 – 10	-40 – 50	–	–	1/4	6	1/2 x 5/8	–	068U4305
	TCAE	-40 – 10	-40 – 50	–	–	1/4	6	–	10 x 16	068U4308
	TCAE	-40 – 10	-40 – 50	–	–	1/4	6	–	12 x 16	068U4309
R404A/R507	TCAE	-40 – 10	-40 – 50	15	59	1/4	6	1/2 x 5/8	–	068U4307
	TCAE	-40 – 10	-40 – 50	15	59	1/4	6	–	10 x 16	068U4310
	TCAE	-40 – -5	-40 – 25	0	32	1/4	6	1/2 x 5/8	–	068U4313
	TCAE	-40 – -5	-40 – 25	0	32	1/4	6	–	10 x 16	068U4314
	TCAE	-40 – -5	-40 – 25	0	32	1/4	6	–	12 x 16	068U4315
	TCAE	-60 – -25	-75 – -15	–	–	1/4	6	1/2 x 5/8	–	068U4317
	TCAE	-60 – -25	-75 – -15	–	–	1/4	6	–	12 x 16	068U4321
	TCAE	-60 – -25	-75 – -15	-20	68	1/4	6	1/2 x 5/8	–	068U4319
R407C	TCAE	-40 – 10	-40 – 50	–	–	1/4	6	3/8 x 5/8	–	068U4324
	TCAE	-40 – 10	-40 – 50	–	–	1/4	6	1/2 x 5/8	–	068U4325
	TCAE	-40 – 10	-40 – 50	–	–	1/4	6	–	10 x 16	068U4328
	TCAE	-40 – 10	-40 – 50	–	–	1/4	6	–	12 x 16	068U4329
	TCAE	-40 – 10	-40 – 50	15	59	1/4	6	3/8 x 5/8	–	068U4326
	TCAE	-40 – 10	-40 – 50	15	59	1/4	6	1/2 x 5/8	–	068U4327
	TCAE	-40 – 10	-40 – 50	15	59	1/4	6	–	12 x 16	068U4331
	TCAE	-40 – 10	-40 – 50	–	–	1/4	6	–	12 x 16	068U4332
R410A	TCAE	-40 – 10	-40 – 50	–	–	1/4	6	3/8 x 5/8	–	068U4336
	TCAE	-40 – 10	-40 – 50	–	–	1/4	6	1/2 x 5/8	–	068U4337
	TCAE	-40 – 10	-40 – 50	–	–	1/4	6	–	12 x 16	068U4341
	TCAE	-40 – 10	-40 – 50	15	59	1/4	6	1/2 x 5/8	–	068U4339
	TCAE	-40 – 10	-40 – 50	15	59	1/4	6	–	12 x 16	068U4343

Capillary tube: 1.5 m / 59 in

## Technical data and ordering



### TCAE

#### Orifice assembly with filter and gasket

Type	Orifice no.	Bleed [%]	R134a		R404A/R507		R407C		R22		R410A		Code no.
			[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	
TCAE	1	–	13.0	3.7	13.0	3.7	17.8	5.1	18.3	5.2	21.2	6.0	068U4100
	1	15	13.0	3.7	13.0	3.7	17.8	5.1	18.3	5.2	21.2	6.0	068U4097
	2	–	14.9	4.3	15.1	4.3	20.4	5.8	21.2	6.0	24.5	7.0	068U4101
	2	15	14.9	4.3	15.1	4.3	20.4	5.8	21.2	6.0	24.5	7.0	068U4098
	3 <sup>1)</sup>	–	18.6	5.3	18.9	5.4	25.2	7.2	26.7	7.6	30.6	8.7	068U4102
	3 <sup>1)</sup>	15	18.6	5.3	18.9	5.4	25.2	7.2	26.7	7.6	30.6	8.7	068U4099

The rated capacity is based on:

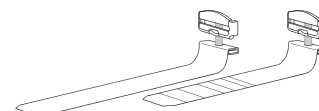
Evaporating temperature,  $t_e = 4.4\text{ °C} / 40\text{ °F}$

Liquid temperature,  $t_l = 37\text{ °C} / 98\text{ °F}$

Condensing temperature,  $t_c = 38\text{ °C} / 100\text{ °F}$

<sup>1)</sup> TCAE with orifice no. 3 cannot be used for Biflow operation.

#### Bulb strap (delivered with the valve) and accessories

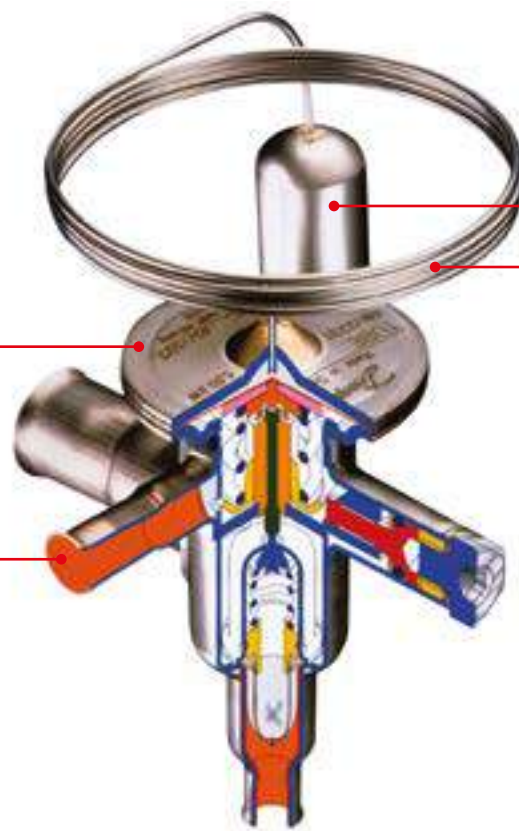


Type	Length		Max. diameter of suction line		Code no.
	[mm]	[in]	[mm]	[in]	
TCAE	110	4 <sup>5</sup> / <sub>16</sub>	28	1 <sup>1</sup> / <sub>8</sub>	068U3507
Accessories	190	7 <sup>3</sup> / <sub>8</sub>	50	2	068U3508

# TUB / TUBE / TCBE - Thermostatic expansion valves

TUB / TUBE / TCBE stainless steel thermostatic expansion valves are used for liquid injection into evaporators on both refrigeration and air conditioning systems using fluorinated refrigerants e.g. R134a, R404A, R407C, R22, R507 and R410A.

TUB / TUBE / TCBE valves are compact in design, light weight and have steel/copper bi-metal connections for fast soldering. TUB has internal equalization, TUBE / TCBE external equalization. TUB / TUBE and TCBE are available in straightway or angleway versions, have a fixed orifice and adjustable superheat.



Laser welded stainless steel thermostatic element for unsurpassed joint strength and operational lifetime

Bi-metal connections  
Stainless steel with rolled on copper cladding for safe, fast and convenient copper-to-copper soldering

Stainless steel capillary tube and bulb:

- high corrosion resistance
- high strength and vibration resistance

## Facts

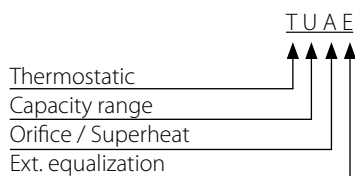
### Applications:

- Traditional refrigeration
- Heat pump systems
- Air conditioning units
- Liquid coolers
- Ice cube machines
- Transport refrigeration

- The use of stainless steel makes the valves light and strong
- Bi-metal connections for safe, fast and convenient soldering
- Stainless steel capillary tube for superior strength and ductility
- Allen key superheat setting screw is convenient and space-saving compared to the standard screwdriver adjustment used in most conventional valves

- Can be supplied with MOP (Max. Operating Pressure) - protects the compressor motor against excessive evaporating pressure during normal operation
- Valves for special temperature ranges can be supplied
- 4 K / 7.2 °F opening superheat
- Bi-flow function
- Can be supplied as non adjustable OEM versions

## Technical data



### Orifice/Superheat

	Interchangeable	Adjustable
A	YES	YES
B	NO	YES
C	NO	NO

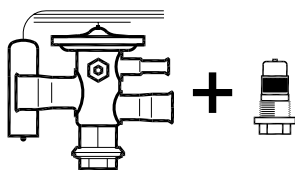
Range N = -40 – 10 °C / -40 – 50 °F

Range NM = -40 – -5 °C with MOP / -40 – 25 °F with MOP

Range NL = -40 – -15 °C with MOP / -40 °C – 5 °F with MOP

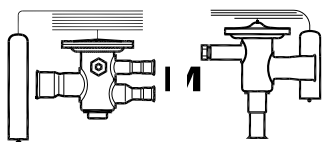
Range B = -60 – -25 °C with MOP / -75 – -15 °F with MOP

TUA  
TUA E  
TCAE



Thermostatic valve + Orifice

TUB  
TUBE  
TUC  
TUCE  
TCBE  
TCCE



Thermostatic valve including Orifice

Valve types **TUB / TUBE / TUC / TUCE** and **TCBE / TCCE** can be replaced by **TUA / TUA E** and **TCAE** types.

02

03

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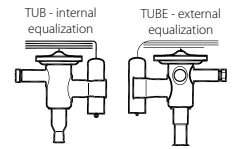
17

18

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20

# Technical data and ordering



## TUB / TUBE

Thermostatic element, angle way, with bulb strap

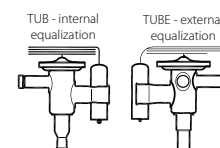
Refrigerant	Type	Orifice no. <sup>2)</sup>	Range [°C]	Range [°F]	Rated capacity $Q_{nom.}$ <sup>1)</sup>		Ext. pressure equalization		Connection inlet x outlet		Code no.
					[kW]	[TR]	[in]	[mm]	[in]	[mm]	
R22/R407C	TUB	1	-40 – 10	-40 – 50	0.92	0.26	1/4	6	1/4 x 1/2	–	068U2057
	TUB	2	-40 – 10	-40 – 50	1.1	0.32	1/4	6	1/4 x 1/2	–	068U2058
	TUB	3	-40 – 10	-40 – 50	1.4	0.41	1/4	6	1/4 x 1/2	–	068U2059
	TUB	4	-40 – 10	-40 – 50	2.5	0.72	1/4	6	1/4 x 1/2	–	068U2060
	TUB	5	-40 – 10	-40 – 50	3.4	0.96	1/4	6	1/4 x 1/2	–	068U2061
	TUB	6	-40 – 10	-40 – 50	5.3	1.5	1/4	6	1/4 x 1/2	–	068U2062
	TUB	7	-40 – 10	-40 – 50	7.0	2.0	1/4	6	3/8 x 1/2	–	068U2063
	TUB	8	-40 – 10	-40 – 50	10.1	2.9	1/4	6	3/8 x 1/2	–	068U2064
	TUBE	5	-40 – 10	-40 – 50	3.4	0.96	1/4	6	1/4 x 1/2	–	068U2071
	TUBE	6	-40 – 10	-40 – 50	5.3	1.5	1/4	6	1/4 x 1/2	–	068U2072
	TUBE	7	-40 – 10	-40 – 50	7.0	2.0	1/4	6	3/8 x 1/2	–	068U2073
	TUBE	8	-40 – 10	-40 – 50	10.1	2.9	1/4	6	3/8 x 1/2	–	068U2074
TUBE	9	-40 – 10	-40 – 50	14.1	4.0	1/4	6	3/8 x 1/2	–	068U2075	
R407C	TUB	1	-40 – 10	-40 – 50	0.94	0.27	1/4	6	–	6 x 12	068U1901
	TUB	3	-40 – 10	-40 – 50	1.5	0.42	1/4	6	–	6 x 12	068U1903
	TUB	4	-40 – 10	-40 – 50	2.5	0.72	1/4	6	–	6 x 12	068U1904
	TUB	5	-40 – 10	-40 – 50	3.4	0.96	1/4	6	–	6 x 12	068U1905
	TUB	6	-40 – 10	-40 – 50	5.3	1.5	1/4	6	–	6 x 12	068U1906
	TUB	7	-40 – 10	-40 – 50	7.0	2.0	1/4	6	–	10 x 12	068U1907
	TUB	8	-40 – 10	-40 – 50	10.2	2.9	1/4	6	–	10 x 12	068U1908
	TUB	9	-40 – 10	-40 – 50	14.0	4.0	1/4	6	–	10 x 12	068U1909
	TUBE	2	-40 – 10	-40 – 50	1.1	0.32	1/4	6	–	6 x 12	068U1912
	TUBE	3	-40 – 10	-40 – 50	1.5	0.42	1/4	6	–	6 x 12	068U1913
	TUBE	4	-40 – 10	-40 – 50	2.5	0.72	1/4	6	–	6 x 12	068U1914
	TUBE	5	-40 – 10	-40 – 50	3.4	0.96	1/4	6	1/4 x 1/2	–	068U1935
	TUBE	5	-40 – 10	-40 – 50	3.4	0.96	1/4	6	–	6 x 12	068U1915
	TUBE	6	-40 – 10	-40 – 50	5.3	1.5	1/4	6	1/4 x 1/2	–	068U1936
	TUBE	6	-40 – 10	-40 – 50	5.3	1.5	1/4	6	–	6 x 12	068U1916
	TUBE	7	-40 – 10	-40 – 50	7.0	2.0	1/4	6	3/8 x 1/2	–	068U1937
	TUBE	7	-40 – 10	-40 – 50	7.0	2.0	1/4	6	–	10 x 12	068U1917
	TUBE	8	-40 – 10	-40 – 50	10.2	2.9	1/4	6	3/8 x 1/2	–	068U1938
	TUBE	8	-40 – 10	-40 – 50	10.2	2.9	1/4	6	–	10 x 12	068U1918
	TUBE	9	-40 – 10	-40 – 50	14.0	4.0	1/4	6	3/8 x 1/2	–	068U1939
TUBE	9	-40 – 10	-40 – 50	14.0	4.0	1/4	6	–	10 x 12	068U1919	
R410A	TUB	1	-40 – 10	-40 – 50	1.34	0.38	1/4	6	1/4 x 1/2	–	068U1958
	TUB	2	-40 – 10	-40 – 50	1.7	0.48	1/4	6	1/4 x 1/2	–	068U1959
	TUB	3	-40 – 10	-40 – 50	2.1	0.60	1/4	6	1/4 x 1/2	–	068U1960
	TUB	4	-40 – 10	-40 – 50	4.1	1.2	1/4	6	1/4 x 1/2	–	068U1961
	TUB	5	-40 – 10	-40 – 50	5.3	1.5	1/4	6	1/4 x 1/2	–	068U1962
	TUB	6	-40 – 10	-40 – 50	8.5	2.4	1/4	6	1/4 x 1/2	–	068U1963
	TUBE	7	-40 – 10	-40 – 50	11.2	3.2	1/4	6	3/8 x 1/2	–	068U1973
	TUBE	8	-40 – 10	-40 – 50	15.8	4.5	1/4	6	3/8 x 1/2	–	068U1974
	TUBE	9	-40 – 10	-40 – 50	23.1	6.6	1/4	6	3/8 x 1/2	–	068U1975

<sup>1)</sup> The rated capacity is based on:  
 Evaporating temperature:  $t_e = 4.4\text{ °C} / 40\text{ °F}$   
 Condensing temperature:  $t_c = 38\text{ °C} / 100\text{ °F}$   
 Liquid temperature:  $t_l = 37\text{ °C} / 98\text{ °F}$

<sup>2)</sup> TUBE with orifice 0 and 9 and all TUB (internal pressure equalization) cannot be used for biflow operation.

For R407C plants, please select valves from the dedicated R407C program.

# Technical data and ordering



## TUB / TUBE

### Thermostatic element, angle way, with bulb strap

Refrigerant	Type	Orifice no. <sup>2)</sup>	Range [°C]	Range [°F]	Rated capacity Q <sub>nom.1)</sub>		Ext. pressure equalization		Connection inlet × outlet		Code no.
					[kW]	[TR]	[in]	[mm]	[in]	[mm]	
R134a	TUB	0	-40 - 10	-40 - 50	0.42	0.12	1/4	6	1/4 × 1/2	-	068U2660
	TUB	1	-40 - 10	-40 - 50	0.61	0.17	1/4	6	1/4 × 1/2	-	068U2027
	TUB	1	-40 - 10	-40 - 50	0.61	0.17	1/4	6	-	6 × 12	068U2000
	TUB	2	-40 - 10	-40 - 50	0.72	0.20	1/4	6	1/4 × 1/2	-	068U2028
	TUB	2	-40 - 10	-40 - 50	0.72	0.20	1/4	6	-	6 × 12	068U2001
	TUB	3	-40 - 10	-40 - 50	0.95	0.27	1/4	6	1/4 × 1/2	-	068U2029
	TUB	3	-40 - 10	-40 - 50	0.95	0.27	1/4	6	-	6 × 12	068U2002
	TUB	4	-40 - 10	-40 - 50	1.6	0.46	1/4	6	1/4 × 1/2	-	068U2030
	TUB	4	-40 - 10	-40 - 50	1.6	0.46	1/4	6	-	6 × 12	068U2003
	TUB	5	-40 - 10	-40 - 50	2.1	0.61	1/4	6	1/4 × 1/2	-	068U2031
	TUB	5	-40 - 10	-40 - 50	2.1	0.61	1/4	6	-	6 × 12	068U2004
	TUB	6	-40 - 10	-40 - 50	3.4	0.95	1/4	6	1/4 × 1/2	-	068U2032
	TUB	6	-40 - 10	-40 - 50	3.4	0.95	1/4	6	-	6 × 12	068U2005
	TUBE	1	-40 - 10	-40 - 50	0.61	0.17	1/4	6	-	6 × 12	068U2009
	TUBE	2	-40 - 10	-40 - 50	0.72	0.20	1/4	6	-	6 × 12	068U2010
	TUBE	3	-40 - 10	-40 - 50	0.95	0.27	1/4	6	1/4 × 1/2	-	068U2020
	TUBE	3	-40 - 10	-40 - 50	0.95	0.27	1/4	6	-	6 × 12	068U2011
	TUBE	4	-40 - 10	-40 - 50	1.6	0.46	1/4	6	1/4 × 1/2	-	068U2021
	TUBE	4	-40 - 10	-40 - 50	1.6	0.46	1/4	6	-	6 × 12	068U2012
	TUBE	5	-40 - 10	-40 - 50	2.1	0.61	1/4	6	1/4 × 1/2	-	068U2022
	TUBE	5	-40 - 10	-40 - 50	2.1	0.61	1/4	6	-	6 × 12	068U2013
	TUBE	6	-40 - 10	-40 - 50	3.4	0.95	1/4	6	1/4 × 1/2	-	068U2023
	TUBE	6	-40 - 10	-40 - 50	3.4	0.95	1/4	6	-	6 × 12	068U2014
	TUBE	7	-40 - 10	-40 - 50	4.4	1.3	1/4	6	3/8 × 1/2	-	068U2024
TUBE	7	-40 - 10	-40 - 50	4.4	1.3	1/4	6	-	10 × 12	068U2015	
TUBE	8	-40 - 10	-40 - 50	6.5	1.9	1/4	6	3/8 × 1/2	-	068U2025	
TUBE	8	-40 - 10	-40 - 50	6.5	1.9	1/4	6	-	10 × 12	068U2016	
TUBE	9	-40 - 10	-40 - 50	9.0	2.6	1/4	6	3/8 × 1/2	-	068U2026	
TUBE	9	-40 - 10	-40 - 50	9.0	2.6	1/4	6	-	10 × 12	068U2017	
R404A/ R507	TUB	1	-40 - 10	-40 - 50	0.71	0.20	1/4	6	1/4 × 1/2	-	068U2094
	TUB	1	-40 - 10	-40 - 50	0.71	0.20	1/4	6	-	6 × 12	068U2076
	TUB	2	-40 - 10	-40 - 50	0.87	0.25	1/4	6	1/4 × 1/2	-	068U2095
	TUB	2	-40 - 10	-40 - 50	0.87	0.25	1/4	6	-	6 × 12	068U2077
	TUB	3	-40 - 10	-40 - 50	1.1	0.32	1/4	6	1/4 × 1/2	-	068U2096
	TUB	3	-40 - 10	-40 - 50	1.1	0.32	1/4	6	-	6 × 12	068U2078
	TUB	4	-40 - 10	-40 - 50	2.0	0.57	1/4	6	1/4 × 1/2	-	068U2097
	TUB	4	-40 - 10	-40 - 50	2.0	0.57	1/4	6	-	6 × 12	068U2079
	TUB	5	-40 - 10	-40 - 50	2.7	0.76	1/4	6	1/4 × 1/2	-	068U2098
	TUB	5	-40 - 10	-40 - 50	2.7	0.76	1/4	6	-	6 × 12	068U2080
	TUB	6	-40 - 10	-40 - 50	4.2	1.2	1/4	6	1/4 × 1/2	-	068U2099
	TUBE	1	-40 - 10	-40 - 50	0.71	0.20	1/4	6	1/4 × 1/2	-	068U2103
	TUBE	2	-40 - 10	-40 - 50	0.87	0.25	1/4	6	1/4 × 1/2	-	068U2104
	TUBE	2	-40 - 10	-40 - 50	0.87	0.25	1/4	6	-	6 × 12	068U2086
	TUBE	3	-40 - 10	-40 - 50	1.1	0.32	1/4	6	1/4 × 1/2	-	068U2105
	TUBE	3	-40 - 10	-40 - 50	1.1	0.32	1/4	6	-	6 × 12	068U2087
	TUBE	4	-40 - 10	-40 - 50	2.0	0.57	1/4	6	1/4 × 1/2	-	068U2106
	TUBE	4	-40 - 10	-40 - 50	2.0	0.57	1/4	6	-	6 × 12	068U2088
	TUBE	5	-40 - 10	-40 - 50	2.7	0.76	1/4	6	1/4 × 1/2	-	068U2107
	TUBE	5	-40 - 10	-40 - 50	2.7	0.76	1/4	6	-	6 × 12	068U2089
	TUBE	6	-40 - 10	-40 - 50	4.2	1.2	1/4	6	1/4 × 1/2	-	068U2108
	TUBE	6	-40 - 10	-40 - 50	4.2	1.2	1/4	6	-	6 × 12	068U2090
	TUBE	7	-40 - 10	-40 - 50	5.6	1.6	1/4	6	3/8 × 1/2	-	068U2109
	TUBE	7	-40 - 10	-40 - 50	5.6	1.6	1/4	6	-	10 × 12	068U2091
TUBE	8	-40 - 10	-40 - 50	8.0	2.3	1/4	6	3/8 × 1/2	-	068U2110	
TUBE	8	-40 - 10	-40 - 50	8.0	2.3	1/4	6	-	10 × 12	068U2092	
TUBE	9	-40 - 10	-40 - 50	11.3	3.2	1/4	6	3/8 × 1/2	-	068U2111	
TUBE	9	-40 - 10	-40 - 50	11.3	3.2	1/4	6	-	10 × 12	068U2093	

<sup>1)</sup> The rated capacity is based on:  
 Evaporating temperature, t<sub>e</sub> = 4.4 °C / 40 °F  
 Liquid temperature, t<sub>l</sub> = 37 °C / 98 °F  
 Condensing temperature, t<sub>c</sub> = 38 °C / 100 °F

<sup>2)</sup> TUBE with orifice 0 and 9 and all TUB (internal pressure equalization) cannot be used for biflow operation.

Capillary tube: 0.8 m / 31 in

# Technical data and ordering



## TCBE

Thermostatic element, Straight way, with bulb strap

Refrigerant	Type	Orifice no.	Range [°C]	Range [°F]	MOP [°C]	MOP [°F]	Rated capacity Q <sub>nom.1</sub> )		Pressure equalization		Connection inlet × outlet		Code no.
							[kW]	[TR]	[in]	[mm]	[in]	[mm]	
R22/R407C	TCBE	1	-40 – 10	-40 – 50	–	–	18.3	5.2	1/4	6	1/2 × 5/8	–	068U4201
	TCBE	1	-40 – 10	-40 – 50	15	60	18.3	5.2	1/4	6	3/8 × 5/8	–	068U4204
	TCBE	1	-40 – 10	-40 – 50	15	60	18.3	5.2	1/4	6	1/2 × 5/8	–	068U4205
	TCBE	1	-40 – 10	-40 – 50	15	60	18.3	5.2	1/4	6	–	10 × 16	068U4213
	TCBE	2	-40 – 10	-40 – 50	–	–	21.2	6.0	1/4	6	1/2 × 5/8	–	068U4202
	TCBE	3	-40 – 10	-40 – 50	15	60	26.7	7.6	1/4	6	1/2 × 5/8	–	068U4207
R134a	TCBE	1	-40 – 10	-40 – 50	–	–	13	3.7	1/4	6	1/2 × 5/8	–	068U4217
	TCBE	1	-40 – 10	-40 – 50	–	–	13	3.7	1/4	6	–	12 × 16	068U4241
	TCBE	2	-40 – 10	-40 – 50	–	–	14.9	4.3	1/4	6	1/2 × 5/8	–	068U4218
	TCBE	2	-40 – 10	-40 – 50	–	–	15.1	4.3	1/4	6	–	12 × 16	068U4242
	TCBE	3	-40 – 10	-40 – 50	–	–	18.6	5.3	1/4	6	1/2 × 5/8	–	068U4219
	TCBE	3	-40 – 10	-40 – 50	–	–	19.8	5.4	1/4	6	–	12 × 16	068U4243
R404A/ R507	TCBE	1	-40 – 10	-40 – 50	–	–	13	3.7	1/4	6	–	12 × 16	068U4241
	TCBE	1	-40 – 10	-40 – 50	15	60	13	3.7	1/4	6	–	10 × 16	068U4244
	TCBE	2	-40 – 10	-40 – 50	–	–	15.1	4.3	1/4	6	1/2 × 5/8	–	068U4234
	TCBE	2	-40 – 10	-40 – 50	–	–	15.1	4.3	1/4	6	–	12 × 16	068U4242
	TCBE	2	-40 – 10	-40 – 50	15	60	15.1	4.3	1/4	6	–	12 × 16	068U4246
	TCBE	3	-40 – 10	-40 – 50	–	–	19.8	5.4	1/4	6	1/2 × 5/8	–	068U4235
	TCBE	3	-40 – 10	-40 – 50	–	–	19.8	5.4	1/4	6	–	12 × 16	068U4243
	TCBE	3	-40 – 10	-40 – 50	15	60	19.8	5.4	1/4	6	–	12 × 16	068U4247
R407C	TCBE	1	-40 – 10	-40 – 50	–	–	17.8	5.1	1/4	6	3/8 × 5/8	–	068U4248
	TCBE	1	-40 – 10	-40 – 50	–	–	17.8	5.1	1/4	6	1/2 × 5/8	–	068U4249
	TCBE	1	-40 – 10	-40 – 50	15	60	17.8	5.1	1/4	6	1/2 × 5/8	–	068U4253
	TCBE	1	-40 – 10	-40 – 50	–	–	17.8	5.1	1/4	6	–	10 × 16	068U4256
	TCBE	1	-40 – 10	-40 – 50	–	–	17.8	5.1	1/4	6	–	12 × 16	068U4257
	TCBE	1	-40 – 10	-40 – 50	15	60	17.8	5.1	1/4	6	–	10 × 16	068U4260
	TCBE	1	-40 – 10	-40 – 50	15	60	17.8	5.1	1/4	6	–	12 × 16	068U4261
	TCBE	2	-40 – 10	-40 – 50	–	–	20.4	5.8	1/4	6	1/2 × 5/8	–	068U4250
	TCBE	2	-40 – 10	-40 – 50	15	60	20.4	5.8	1/4	6	1/2 × 5/8	–	068U4254
	TCBE	2	-40 – 10	-40 – 50	–	–	20.4	5.8	1/4	6	–	12 × 16	068U4258
	TCBE	2	-40 – 10	-40 – 50	15	60	20.4	5.8	1/4	6	–	12 × 16	068U4262
	TCBE	3	-40 – 10	-40 – 50	–	–	25.2	7.2	1/4	6	1/2 × 5/8	–	068U4251
	TCBE	3	-40 – 10	-40 – 50	–	–	25.2	7.2	1/4	6	–	12 × 16	068U4259
	TCBE	3	-40 – 10	-40 – 50	15	60	25.2	7.2	1/4	6	–	12 × 16	068U4263
R410A	TCBE	1	-40 – 10	-40 – 50	–	–	21.2	6	1/4	6	3/8 × 5/8	–	068U4264
	TCBE	1	-40 – 10	-40 – 50	–	–	21.2	6	1/4	6	1/2 × 5/8	–	068U4265
	TCBE	1	-40 – 10	-40 – 50	–	–	21.2	6	1/4	6	–	10 × 16	068U4260
	TCBE	1	-40 – 10	-40 – 50	–	–	21.2	6	1/4	6	–	12 × 16	068U4273
	TCBE	2	-40 – 10	-40 – 50	–	–	24.5	7	1/4	6	1/2 × 5/8	–	068U4266
	TCBE	2	-40 – 10	-40 – 50	15	–	24.5	7	1/4	6	1/2 × 5/8	–	068U4270
	TCBE	2	-40 – 10	-40 – 50	–	–	24.5	7	1/4	6	–	12 × 16	068U4274
	TCBE	3	-40 – 10	-40 – 50	–	–	30.6	8.7	1/4	6	1/2 × 5/8	–	068U4267
	TCBE	3	-40 – 10	-40 – 50	–	–	30.6	8.7	1/4	6	–	12 × 16	068U4275
	TCBE	3	-40 – 10	-40 – 50	15	–	30.6	8.7	1/4	6	–	12 × 16	068U4279

<sup>1)</sup> The rated capacity is based on:  
 Evaporating temperature, t<sub>e</sub> = 4.4 °C / 40 °F  
 Liquid temperature, t<sub>l</sub> = 37 °C / 98 °F  
 Condensing temperature, t<sub>c</sub> = 38 °C / 100 °F

Capillary tube: 0.8 m / 31 in



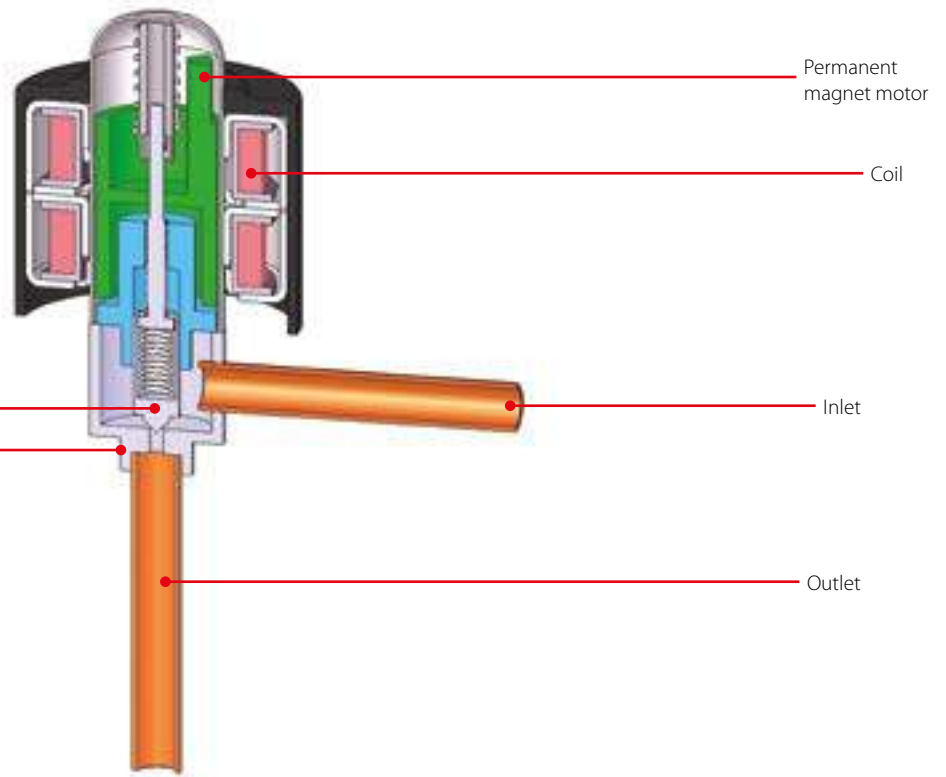


# ETS 6 - Electric expansion valve

ETS 6 are compact and lightweight electric expansion valves for all common refrigerants: R410A, R407C, R404A, R134a, R22. Bi-flow operation is possible for heat pump systems.

The valve operation is by means of a unipolar motor, which can be controlled by a number of controllers from Danfoss or third party vendors.

With a Danfoss EKD 316 and EIM 336 (current drivers) and an AKS sensor, an accuracy better than  $\pm 0.5$  K can be obtained.



Cross section diagram of ETS 6 series  
 \* Refers to refrigerant flow in cooling mode

## Facts

### Applications:

- Heat pumps
- Modular air-cooled chillers
- VRF
- Multi split
- Inverter mini split
- Bus air conditioning
- IT cooling

- Precision flow control
- Proven know-how and high reliability
- Power saving design that enables energy efficiency
- Compact and lightweight hermetic design with removable coil

- Bi-flow operation for reversible systems
- ETS 6 are designed for: R410A, R407C, R404A, R507, R134a, R22 and other refrigerants, for other refrigerants, please contact your local Danfoss representative
- Controller: Danfoss supplies electronic controller (EKD 316), temperature sensors and transmitters

## Technical data and ordering

### ETS 6

#### Technical data

Maximum working pressure	47 bar / 681 psig
Compatible refrigerants	R410A, R407C, R404A, R507, R134a, R22. For other refrigerants, please contact your local Danfoss representative.
Refrigerant oil	All mineral oils and ester oils (to lubricate ETS 6 valve)
Ambient temperature	-30 – 70 °C / -22 – 158 °F
Fluid temperature	-30 – 70 °C / -22 – 158 °F
Durability	- Tested for 60 Million total pulses supplied to the valve during partially open valve, which is comparable to 150.000 cycles if the valve is operated between 100 to 300 pulses open - Tested for 30.000 full stroke cycles including 20 pulse overdrive at each closure
Ambient humidity	95% RH or less
Modulation	Permanent magnet type direct operating stepper motor
Excitation method	1 – 2 phase
Electrical connection	JST XHP-6 and JST XHP-5
Excitation speed	min 30 pps (pulses per second) to max. 90 pps, recommended 31.3 pps
Operating range	0 – 480 pulses, no holding power required (NOTE: do not apply more than 520 pulses)
Full motion transit time	e.g. 16 second at 30 pps, 6 second at 80 pps
Installation position	With coil on the upper side and the valve / coil assembly within $\pm 15^\circ$ of the vertical axis.
Liquid line solenoid valve	If a liquid line solenoid valve is used, it must be installed in such a way that it does not create liquid hammering in the ETS 6 valve.
Max. coil winding temperature	115 °C / 239 °F
Approvals	CE, UL, RoHS, CQC

### ETS 6 - Valve excl. coil

#### Valve ordering

Type	Orifice no.	Nominal Capacity [kW]					Connection (solder)		Valve tube configuration	MWP [bar]	MOPD [bar]	Max. Reverse Pressure <sup>1)</sup> [bar]	Flow direction charact.	Code no.
		R22	R134a	R404A / R507	R407C	R410A	A [mm]	B [mm]						
ETS 6 – 10	10	2.6	2	1.8	2.7	3.1	7.94	7.94	90°	47	35	35	Bi-flow	034G5005
ETS 6 – 14	14	5.8	4.5	4.1	5.9	6.8	7.94	7.94	90°	47	35	20	Bi-flow	034G5015
ETS 6 – 18	18	10.3	8.1	7.3	10.6	12.1	6.35	6.35	90°	47	35	28	Bi-flow	034G5026
ETS 6 – 25	25	19.6	15.3	13.8	20.1	23	7.94	7.94	90°	47	35	22	Bi-flow	034G5035
ETS 6 – 32	32	28.8	22.5	20.3	29.6	33.9	7.94	7.94	90°	47	28	12 <sup>2)</sup>	Bi-flow	034G5055
ETS 6 – 40	40	39.1	30.6	27.6	40.2	46	7.94	7.94	90°	47	21	7	Bi-flow	034G5065

The Rated capacity is based on:

Evaporating temperature  $t_e$ : 5 °C, Condensing temperature  $t_c$ : 38 °C, Subcooling  $t_{sub}$ : 0 K, Superheat SH: 0 K

<sup>1)</sup> Max. Reverse Pressure = Pressure at which the valve can still close tightly in reverse direction.

<sup>2)</sup> Please contact Danfoss if higher maximum reverse pressure valve is required.

### ETS 6 - Valve excl. coil

#### Valve ordering

Type	Orifice no.	Nominal Capacity [TR]					Connection (solder)		Valve tube configuration	MWP [psig]	MOPD [psig]	Max. Reverse Pressure <sup>1)</sup> [psig]	Flow direction charact.	Code no.
		R22	R134a	R404A / R507	R407C	R410A	A [in]	B [in]						
ETS 6 – 10	10	0.74	0.57	0.51	0.77	0.88	7.94	7.94	90°	681	507	507	Bi-flow	034G5005
ETS 6 – 14	14	1.65	1.28	1.16	1.68	1.93	7.94	7.94	90°	681	507	290	Bi-flow	034G5015
ETS 6 – 18	18	2.93	2.30	2.07	3.01	3.44	6.35	6.35	90°	681	507	406	Bi-flow	034G5026
ETS 6 – 25	25	5.57	4.35	3.92	5.72	6.54	7.94	7.94	90°	681	507	319	Bi-flow	034G5035
ETS 6 – 32	32	8.19	6.40	5.77	8.42	9.64	7.94	7.94	90°	681	406	174 <sup>2)</sup>	Bi-flow	034G5055
ETS 6 – 40	40	11.12	8.70	7.85	11.43	13.08	7.94	7.94	90°	681	305	102	Bi-flow	034G5065

The Rated capacity is based on:

Evaporating temperature  $t_e$ : 41 °F, Condensing temperature  $t_c$ : 100 °F, Subcooling  $t_{sub}$ : 32 °F, Superheat SH: 32 °F

<sup>1)</sup> Max. Reverse Pressure = Pressure at which the valve can still close tightly in reverse direction.

Please contact Danfoss if higher maximum reverse pressure valve is required.

### Coil for ETS 6

#### Ordering

Model No.	Voltage (current)	Enclosure	Insulation		Cable length [m]	Connector	Code no.
			class				
<b>Coil ordering for ETS 6, Single pack</b>							
ETS 6 Coil	12 V DC (0.26A / phase)	IP66	Class "E" (UL Class 105 (A))		0.7	JST XHP-6	034G5105
	12 V DC (0.26A / phase)	IP66	Class "E" (UL Class 105 (A))		0.7	JST XHP-5	034G5115
	12 V DC (0.26A / phase)	IP66	Class "E" (UL Class 105 (A))		1.5	JST XHP-5	034G5145
	12 V DC (0.26A / phase)	IP66	Class "E" (UL Class 105 (A))		3.0	JST XHP-5	034G5135

#### Related products

Electronic control

Type EKD 316 and EIM 336 (current drivers)

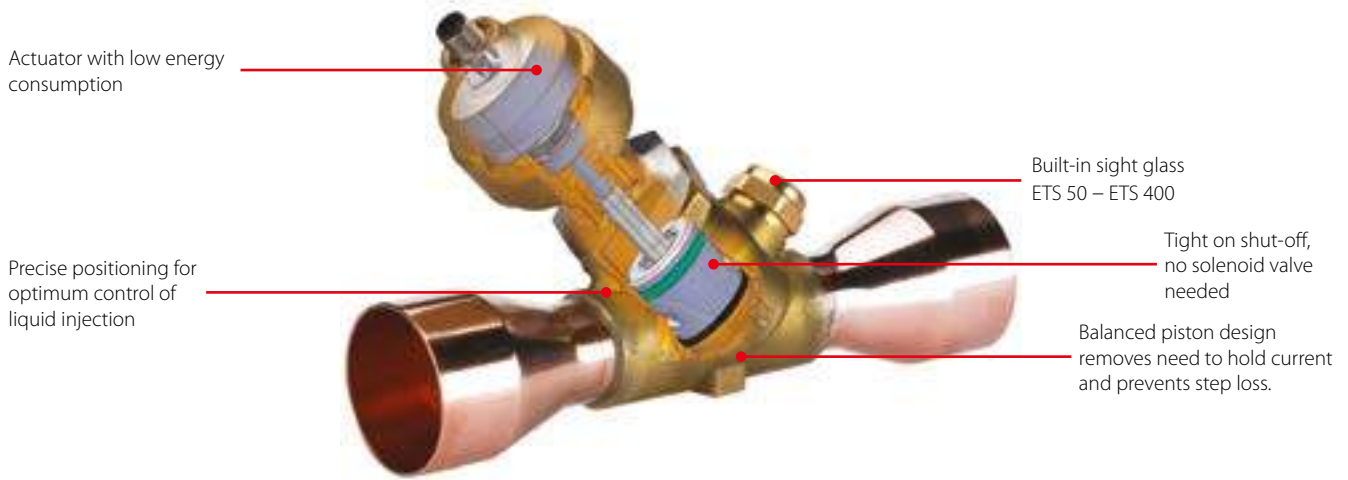
Temperature sensors and pressure transmitters

Type AKS

# ETS 12.5 – ETS 400 - Electric expansion valves

ETS 12.5 - ETS 400 are 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 function in both flow directions.

ETS valves are operated with a current or voltage driver such as Danfoss Controllers EKC 316A, EKC 312 or EKD 316. ETS valve is compatible with all common refrigerant such as R410A, R407C, R404A, R134a, R22 and R507. Special ETS versions for systems with R744 (CO<sub>2</sub>) are available.



## Facts

### Applications:

- Heat pumps
- Refrigeration
- Air conditioning
- Chillers
- ETS 50 and ETS 100 feature improved process and productivity due to waterless brazing i.e. soldering without wet cloth for cooling
- ETS 50 to ETS 400 are all designed with built-in sight glass with moisture indicator
- Internal and external corrosion resistant design
- ETS valve is compatible with all common refrigerant such as R410A, R407C, R404A, R134a, R22 and R507 Special ETS versions for systems with R744 (CO<sub>2</sub>) are available
- Precise positioning for optimum control of liquid injection
- ETS 12.5, ETS 25, ETS 50, ETS 100 provide working pressure of 45.5 bar / 660 psig and ETS 250, ETS 400 provide 34 bar / 493 psig
- EKC 316A and EKD 316 are examples of Danfoss controllers with drivers matching ETS requirements
- Equipped with M12 connector for cable connection (cable and connector assemblies as accessories)
- Balanced design (ETS 12.5 – ETS 400) providing bi-flow operation as well as solenoid tight shut-off function in both flow directions
- Lower energy consumption

## Technical data and ordering

### ETS 12.5 – ETS 400

#### Technical data

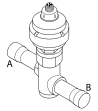
Compatible refrigerants	R410A, R407C, R404A, R507, R134a, R22 and other refrigerants (special valves for R744 (CO <sub>2</sub> ) are available) For other refrigerants, please contact your local Danfoss representative
Refrigerant oil	All mineral oils and ester oils Full life time of ETS can only be ensured if oil is present in the system
PED compliance	Yes
MOPD normal flow	33 bar / 479 psig
MOPD reverse flow	ETS 12.5, ETS 25, ETS 50, ETS 100: 33 bar / 479 psig ETS 250, ETS 400: 10 bar / 145 psig
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
Refrigerant temperature range	-40 – 65 °C / -40 – 150 °F
Ambient temperature	-40 – 60 °C / -40 – 150 °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 250, ETS 400: Body and AST enclosure in brass, connections in copper

### ETS 12.5 – ETS 400

#### Electrical data

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
Holding current	Depends on application. Full current allowed (100% duty cycle)
Step angle	7.5° (motor) 0.9° (lead screw) Gearing ratio 8.5:1
Nominal voltage	(Constant voltage drive) 12 V DC -4% / 15%, 150 steps / second
Phase current	(Using chopper drive) 100 mA RMS -4% / 15%
Max. total power	Voltage / current drive: 5.5 / 1.3 W (UL: NEC class 2)
Step rate	150 steps / sec (constant voltage drive) 0-300 steps / sec 300 recommended (chopper current drive)
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 seconds (voltage / current) ETS 100                                        23 / 11.5 seconds (voltage / current) ETS 250 and ETS 400                    25.4 / 12.7 seconds (voltage / current)
Lifting height	ETS 12.5, ETS 25, ETS 50                16 mm / 0.63 in ETS 100                                        16 mm / 0.63 in ETS 250 and ETS 400                    17.2 mm / 0.68 in
Reference position	Overdriving against the full close position
Electrical connection	M12 connector

# Technical data and ordering



## ETS 12.5 / ETS 25 - Valve included actuator (without sight glass)

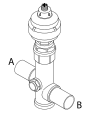
### Ordering

Type	Rated capacity <sup>1)</sup>										Connection		
	R410A		R407C		R22		R134a		R404A		ODF × ODF (A × B)		Code no.
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[in]	[mm]	
<b>Straightway, Single pack</b>													
ETS 12.5	70	20	63	18	57	16	45	13	43	12	1/2 × 1/2	–	034G4209
	70	20	63	18	57	16	45	13	43	12	–	12 × 12	034G4208
	70	20	63	18	57	16	45	13	43	12	5/8 × 5/8	16 × 16	034G4210
	70	20	63	18	57	16	45	13	43	12	7/8 × 7/8	22 × 22	034G4211
ETS 25	144	41	129	37	117	34	93	27	88	25	1/2 × 1/2	–	034G4201
	144	41	129	37	117	34	93	27	88	25	–	12 × 12	034G4200
	144	41	129	37	117	34	93	27	88	25	5/8 × 5/8	16 × 16	034G4202
	144	41	129	37	117	34	93	27	88	25	7/8 × 7/8	22 × 22	034G4203
<b>Angleway, Single pack</b>													
ETS 12.5	70	20	63	18	57	16	45	13	43	12	1/2 × 1/2	–	034G4213
	70	20	63	18	57	16	45	13	43	12	–	12 × 12	034G4212
	70	20	63	18	57	16	45	13	43	12	5/8 × 5/8	16 × 16	034G4214
	70	20	63	18	57	16	45	13	43	12	7/8 × 7/8	22 × 22	034G4215
ETS 25	144	41	129	37	117	34	93	27	88	25	1/2 × 1/2	–	034G4205
	144	41	129	37	117	34	93	27	88	25	–	12 × 12	034G4204
	144	41	129	37	117	34	93	27	88	25	5/8 × 5/8	16 × 16	034G4206
	144	41	129	37	117	34	93	27	88	25	7/8 × 7/8	22 × 22	034G4207

<sup>1)</sup> The rated capacity is based on:  
 Evaporating temperature  $t_e$ : 5 °C / 41 °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 50 / ETS 100 - Valve included actuator (with sight glass)

### Ordering

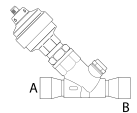


Type	Rated capacity <sup>1)</sup>										Connection		
	R410A		R407C		R22		R134a		R404A		ODF × ODF (A × B)		Code no.
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[in]	[mm]	
ETS 50	262	75	240	69	215	62	170	48	161	46	7/8 × 7/8	22 × 22	034G1708
	262	75	240	69	215	62	170	48	161	46	7/8 × 1 1/8	22 × 28	034G1705
	262	75	240	69	215	62	170	48	161	46	1 1/8 × 1 1/8	28 × 28	034G1706
	262	75	240	69	215	62	170	48	161	46	1 1/8 × 1 3/8	28 × 35	034G1704
ETS 100	488	140	447	128	400	115	316	91	300	86	1 1/8 × 1 1/8	28 × 28	034G0507
	488	140	447	128	400	115	316	91	300	86	1 1/8 × 1 3/8	28 × 35	034G0501
	488	140	447	128	400	115	316	91	300	86	1 3/8 × 1 3/8	35 × 35	034G0508
	488	140	447	128	400	115	316	91	300	86	1 5/8 × 1 5/8	–	034G0505

<sup>1)</sup> The rated capacity is based on:  
 Evaporating temperature  $t_e$ : 5 °C / 41 °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 / ETS 400 - Valve included actuator (with sight glass)

### Ordering



Type	Rated capacity <sup>1)</sup>								Connection		
	R407C		R22		R134a		R404A		ODF × ODF (A × B)		Code no.
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[in]	[mm]	
ETS 250	1212	349	1106	319	874	252	828	239	1 1/8 × 1 1/8	28 × 28	034G2600
	1212	349	1106	319	874	252	828	239	1 3/8 × 1 3/8	35 × 35	034G2601
	1212	349	1106	319	874	252	828	239	1 5/8 × 1 5/8	–	034G2602
	1212	349	1106	319	874	252	828	239	–	42 × 42	034G2611
ETS 400	1933	556	1764	509	1394	402	1320	381	1 5/8 × 1 5/8	–	034G3500
	1933	556	1764	509	1394	402	1320	381	2 1/8 × 2 1/8	54 × 54	034G3501

<sup>1)</sup> The rated capacity is based on:  
 Evaporating temperature  $t_e$ : 5 °C / 41 °F  
 Liquid temperature  $t_l$ : 28 °C / 82 °F  
 Condensing temperature  $t_c$ : 32 °C / 90 °F  
 Full stroke opening in normal flow direction.

## Technical data and ordering

### ETS for R744 (CO<sub>2</sub>)

#### Ordering

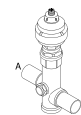
Type	Connection		Code no. Single pack
	ODF × ODF (A × B) [in]		
ETS 12.5	7/8 × 7/8		034G4220
ETS 25	7/8 × 7/8		034G4219
ETS 50	1 1/8 × 1 1/8		034G1714
ETS 100	1 1/8 × 1 1/8		034G0515

ETS 50 and ETS 100 have integrated sight glass.

ETS for R744 can be used for expansion as well as gas bypass.

ETS for R744 applications (PS / MWP 45.5 bar / 660 psig).

For capacities please contact Danfoss.



### M12 Female - Connector Cable

#### Ordering

Cable quality	Temperature range [°C] / [°F]	Cable length (L)		Design	Code no.
		[m]	[ft]		
<b>Single pack</b>					
Jacket: PVC	-50 – 80 / -58 – 176	2	6.6	M12 actuator connector to 4 flying wires for driver connection	034G2201
	-50 – 80 / -58 – 176	8	26.2		034G2200
Jacket: CPE	-40 – 80 / -40 – 176	2	6.6		034G2202
	-40 – 80 / -40 – 176	3	9.8		034G2203
	-40 – 80 / -40 – 176	5	16.4		034G2205
	-40 – 80 / -40 – 176	5	16.4		034G2205
<b>Industrial pack (20 pcs)</b>					
Jacket: PVC	-50 – 80 / -58 – 176	2	6.6	M12 actuator connector to 4 flying wires for driver connection	034G2330
	-50 – 80 / -58 – 176	8	26.2		034G2323
Jacket: CPE	-40 – 80 / -40 – 176	2	6.6		034G2331
	-40 – 80 / -40 – 176	2	6.6		034G2331

#### Accessory

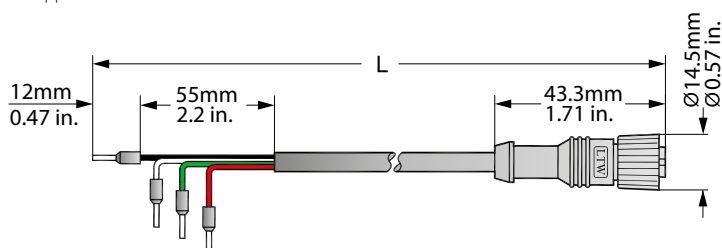
Type	Description	Type designation	Code no.
			Multi pack (20 pcs)
Cable	Cable filter for ETS valve	AKA 211	084B2238

#### Cable specifications

Type	Jacket	Colour	UV resistant	Insulation	Connection 4 wires		Outer diameter		M12 connector	Special
					[mm <sup>2</sup> ]	[AWG]	[mm]	[in]		
PVC cables	Half Matt PVC	Black	Yes	SR-PVC	0.33	22	5.0	13/64	PU (polyurethane)	UL VW-1
CPE cables	CPE	Gray	Yes	EPR	0.5	20	6.3	1/4	PU (polyurethane)	Resistant to gear oil, diesel oil, ethylene glycol, propylene glycol



CPE cables are recommended for outdoor application.



1. Red
2. Green
3. White
4. Black

#### Related products

Electronic control

Type EKC 316A, EKC 312 or EKD 316

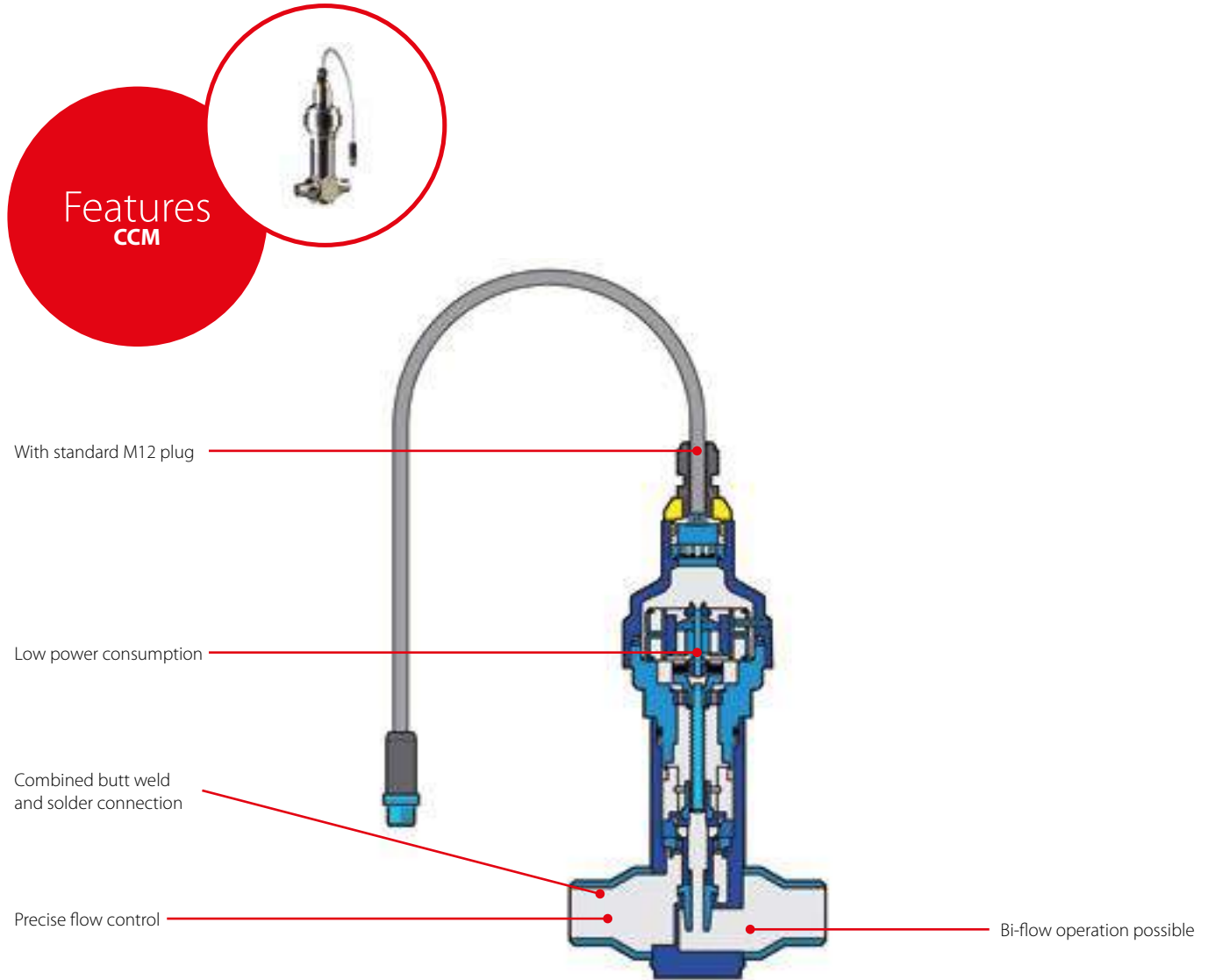
Temperature sensors and pressure transmitters

Type AKS

# CCM - Electric expansion valve

CCM are electric expansion valves designed specifically for operation in R744 (CO<sub>2</sub>) systems with working pressures of up to 90 bar / 1305 psig and an MOPD up to 50 bar / 725 psig. CCM functions both as an expansion valve, and as a gas bypass valve with back-pressure regulation in subcritical applications.

The pressure rating allows for operation in environments where system standby capability is required without the need for auxiliary cooling systems during servicing or power outages.



## Facts

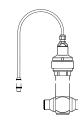
### Application:

- Gas bypass in a transcritical R744 booster system
- Liquid expansion for R744, R744 cascades or R744 evaporators

- Up to 90 bar / 1305 psig working pressure to accommodate R744 system pressures during standstill conditions
- Precise positioning for optimal control of intermediate pressures in transcritical R744 systems or liquid injection in heat exchangers
- Possibility of bi-flow operation
- MOPD up to 50 bar / 725 psig

- Combined stainless steel butt weld / solder connections for installation in copper piped systems (K65 alloy or standard) as well as steel piped systems
- Standard M12 connector for simple and flexible connection to the motor driver
- For manual operation and service of the CCM, an AST-g service driver is available
- UL recognised

## Technical data and ordering



### CCM

#### Technical data

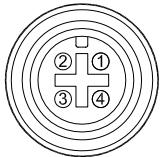
Parameter	CCM
Compatibility	R744 (CO <sub>2</sub> )
MOPD	50 bar / 725 psig
Max. working pressure (PS / MWP)	90 bar / 1305 psig
Refrigerant temperature range	-40 – 60 °C / -40 – 140 °F
Ambient temperature	-40 – 60 °C / -40 – 140 °F
Material specification	Stainless steel

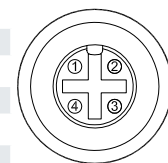
### CCM

#### Electrical data

Parameter	CCM
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
Holding current	Depends on application Full current allowed (100% duty cycle)
Step angle	7.5° (motor) 0.9° (lead screw) Gearing ratio 8.5:1
Nominal voltage	(Constant voltage drive) 12 V DC -4% / 15%, 150 steps / second
Phase current	(Using chopper drive) 100 mA RMS -4% / 15%
Max. total power	Voltage / current drive: 5.5 / 1.3 W (UL: NEC class 2)
Step rate	150 steps / second. (constant voltage drive) 0–300 steps / second. 300 recommended (chopper current drive)
Total steps	CCM 10, CCM 20, CCM 30 2625 (160 / 0) steps CCM 40 3530 (160 / 0) steps
Full travel time	CCM 10, CCM 20, CCM 30 17 / 8.5 second. (voltage / current) CCM 40 23 / 11.5 second. (voltage / current)
Lifting height	CCM 10, CCM 20, CCM 30 13 mm / 0.51 in CCM 40 16 mm / 0.63 in
Reference position	Overdriving against the full close position
Electrical connection	4 wire 0.5 mm <sup>2</sup> / 20 AWG, 0.3 m / 12 in long cable
Total stroke	13 mm / 16 mm / 0.51 in / 0.63 in

#### Stepper motor switch sequence:

CCM			Connector
	4	Black	4
	3	White	3
	2	Green	2
	1	Red	1
	Connection 1	Wire colour	Connection 2
		Pin out	



#### Stepper motor switch sequence:

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

↓ OPENING ↓



# Technical data and ordering

## Valve included actuator

### Ordering

Type	Connections (Combi)		K <sub>v</sub> value <sup>2)</sup> [m <sup>3</sup> /h]	C <sub>v</sub> value <sup>2)</sup> [gpm]	Code no. single pack
	Weld <sup>1)</sup> [in]	Solder ODF × ODF [in]			
CCM 10	1/2 × 1/2	5/8 × 5/8	0.7	0.81	027H7188
CCM 20	3/4 × 3/4	7/8 × 7/8	1.6	1.87	027H7187
CCM 30	1 × 1	1 1/8 × 1 1/8	2.4	2.78	027H7186
CCM 40	1 × 1	1 1/8 × 1 1/8	4.2	4.87	027H7185

<sup>1)</sup> OD according to EN 10220.

<sup>2)</sup> The K<sub>v</sub> / C<sub>v</sub> value is the water flow in [m<sup>3</sup>/h] / [gpm] at a pressure drop across the valve of 1 bar. p = 1000 kg/m<sup>3</sup> / 62.4 lb/ft<sup>3</sup>.

### Accessories

Type	Description	Code no.
	Cable with M12 connector - 8 meter / 26.2 ft.	034G2323
AST-G	Manual valve driver for service	034G0013

### Spare parts

Type	Description	Code no.
AST	Actuator for CCM R744 valve	027H7184
	O-ring spare part kit for CCM / CCMT (2 O-rings)	027H7230

### Related products

Electronic control

Type EKD 316

Temperature sensors and pressure transmitters

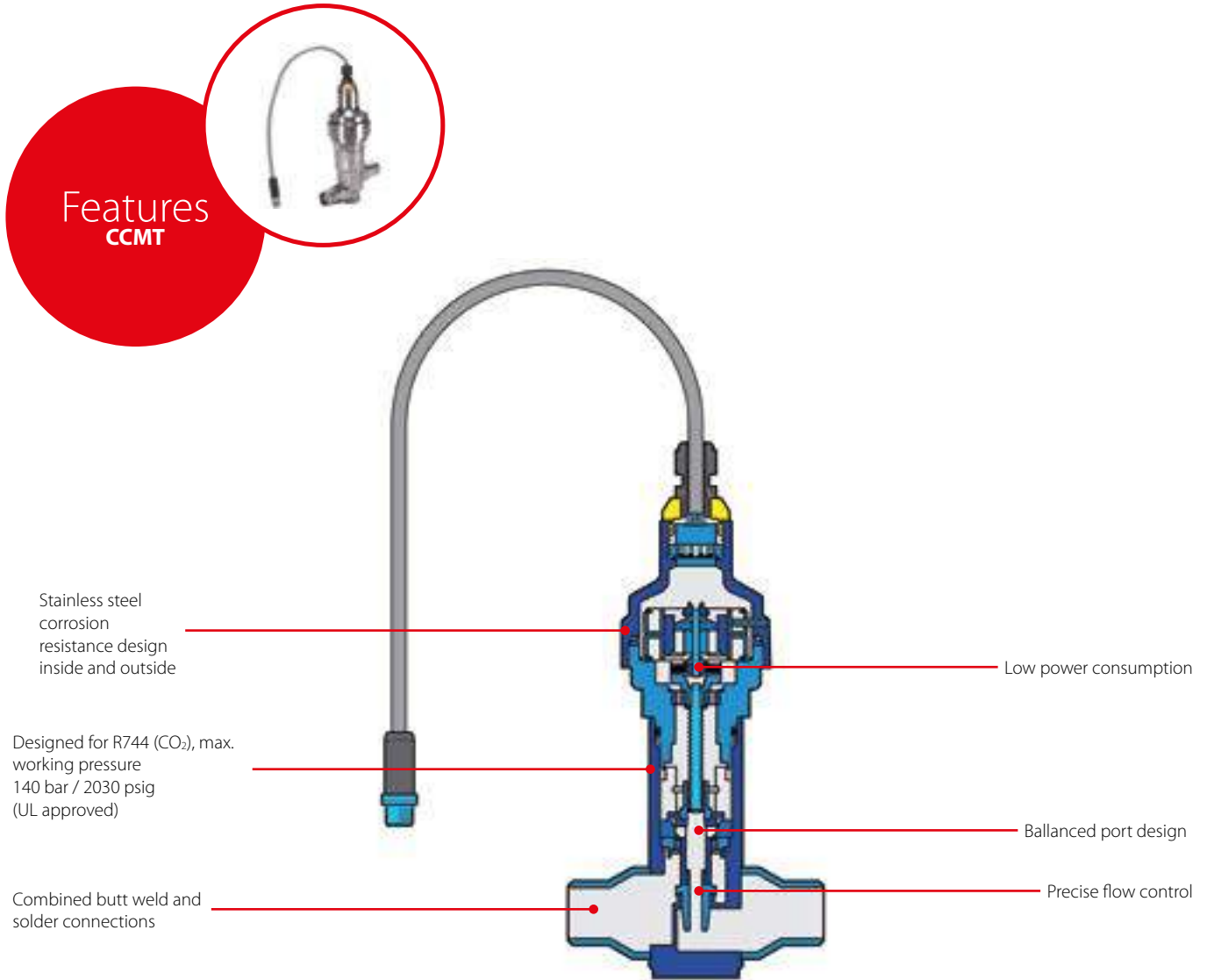
Type AKS



# CCMT - Electric expansion valve

CCMT are electric expansion valves designed specifically for operation in R744 (CO<sub>2</sub>) systems. CCMT is used as an expansion valve, as a pressure regulator for the gas cooler or as a gas bypass valve with back-pressure regulation in transcritical or subcritical applications.

Designed for R744 systems with maximum working pressure of 140 bar / 2031 psig. Applicable to R744 (CO<sub>2</sub>) and other common refrigerants. CCMT is compatible with oil types PAG, POE and PVE.



## Facts

### Application:

- High pressure valve
- Gas bypass in a transcritical R744 booster system
- Liquid expansion for R744, R744 cascades or R744 evaporators

- Designed for R744 systems with maximum working pressure of 140 bar
- UL approved
- Applicable to R744 and other common refrigerants. The CCMT is compatible with the oil types PAG, POE and PVE
- Regulating cone ensures optimum regulating accuracy, particularly at part load
- Patented cone and balance design
- The PEEK seat provides excellent valve tightness and robustness
- Combined butt weld and sold connections

- Top part with built-in strainer
- MOPD up to 90 bar / 1305 psi
- Standard M12 connector for simple and flexible connection to the motor drive
- Low weight and compact design
- Easy to service
- Insert easily taken out by removing top part
- For manual operation and service of the CCMT an AST-g service driver is available

## Technical data and ordering

### CCMT

#### Technical data

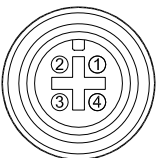
Parameter	CCMT
Compatibility	R744 (CO <sub>2</sub> ) and other refrigerants Not applicable for flammable refrigerants and Ammonia
MOPD	90 bar / 1305 psig
Max. working pressure (PS / MWP)	140 bar
Refrigerant temperature range	-40 – 60 °C / -40 – 140 °F
Ambient temperature	-40 – 60 °C / -40 – 140 °F
PED compliance	Fluid group 1 / Article 3, paragraph 3
Material specification	Stainless steel
Step angle	7.5° (motor) 0.9° (lead screw) Gearing ratio 8.5:1
Step rate	max. 150 steps / second (constant voltage drive) max. 300 steps / second (chopper current drive)
Total steps	CCMT 2, CCMT 4, CCMT 8: 1100 [80 / 0] steps
Total stroke	4.8 mm / 3/16 in
Full travel time	CCMT 2, CCMT 4, CCMT 8: 5 second at 220 steps / second
Reference position	Overdriving against the full close position
Approval	CE, UL, RoHS

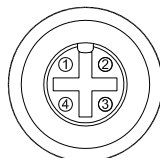
### CCMT

#### Electrical data

Parameter	CCMT
Stepper motor type	Bi-polar - permanent magnet
Motor enclosure	IP67
Step mode	2 phase full step
Phase resistance	52 Ω ± 10%
Phase inductance	85 mH
Holding current	Depends on application Full current allowed (100% duty cycle)
Nominal voltage	(Constant voltage drive) 12 V DC -4% / 15%, 150 steps / second
Phase current	(Using chopper drive) 100 mA RMS -4% / 15%
Max. total power	Voltage / current drive: 5.5 / 1.3 W (UL: NEC class 2)
Electrical connection	4 wire 0.5 mm <sup>2</sup> , 0.3 m / 1 ft long cable

#### Stepper motor switch sequence:

CCMT			Connector
	4	Black	4
	3	White	3
	2	Green	2
	1	Red	1
	Connection 1	Wire colour	Connection 2
		Pin out	



#### Stepper motor switch sequence:

STEP	Coil I		Coil II	
	Red	Green	White	Black
1	+	-	+	-
2	+	-	-	+
3	-	+	-	+
4	-	+	+	-
1	+	-	+	-

↑ CLOSING ↑

↓ OPENING ↓

# Technical data and ordering

## Valve incl. actuator

### Ordering

Type	Connections (Combi)		K <sub>v</sub> value <sup>2)</sup> [m <sup>3</sup> /h]	C <sub>v</sub> value <sup>2)</sup> [gpm]	Max. working pressure		Code no.
	Weld <sup>1)</sup> [in]	Solder ODF × ODF [in]			[bar]	[psig]	
<b>Standard</b>							
CCMT 2	1/2 × 1/2	5/8 × 5/8	0.17	0.20	140	2030	027H7200
CCMT 4	1/2 × 1/2	5/8 × 5/8	0.45	0.52	140	2030	027H7201
CCMT 8	1/2 × 1/2	5/8 × 5/8	0.80	0.93	140	2030	027H7202

<sup>1)</sup> OD according to EN 10220.

<sup>2)</sup> The K<sub>v</sub> / C<sub>v</sub> value is the water flow in [m<sup>3</sup>/h] / [gpm] at a pressure drop across the valve of 1 bar. p = 1000 kg/m<sup>3</sup> / 62.4 lb/ft<sup>3</sup>.

### Accessories

Type	Description	Code no.
	Cable with M12 connector - 8 meter / 26.2 ft.	034G2323
AST-G	Manual valve driver for service	034G0013
EKD 316	Controller / driver	084B8040
EKA 164A	Display	084B8563
AKA 211	Cable filter	084B2238

### Spareparts

Type	Description	Code no.
	O-ring spare part kit for CCM / CCMT (2 O-rings)	027H7230

### Related products

#### Electronic control

Type EKD 316

Temperature sensors and pressure transmitters

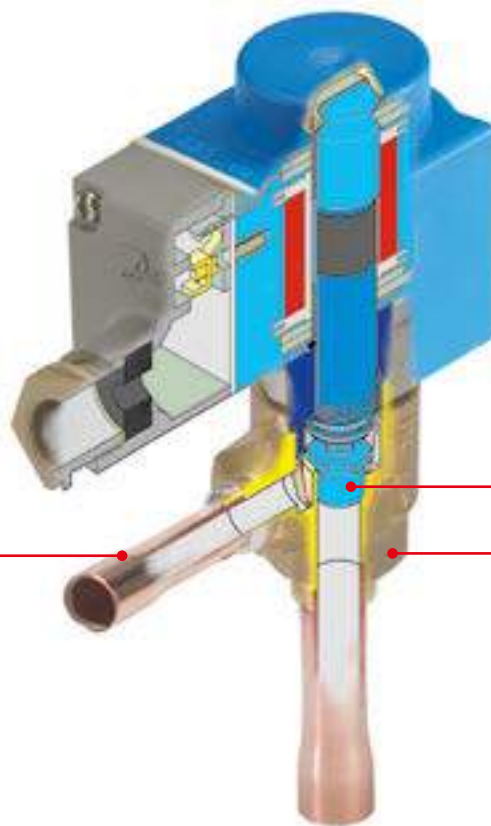
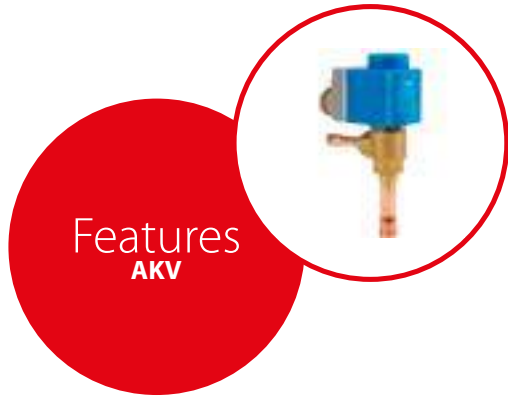
Type AKS



# AKV - Electric expansion valve

AKV are electrically operated expansion valves designed for refrigeration plants. The AKV valves are designed for use with a controller from Danfoss' range of ADAP-KOOL® controllers.

The AKV valves are supplied as a parts programme with separate valve body and coil (with terminal box, cable or DIN plug). AKV has an exchangeable orifice. Refrigerants: R744, R22 / R407C, R404A / R507, R410A, R134a, R407A, R23.



Available with ODF solder connections (AKV 15 and AKV 20 – straightway, AKV 10 angleway)

The orifice assembly is replaceable

Both expansion valve and solenoid valve

## Facts

### Applications:

- Traditional refrigeration
- Cold rooms
- Water chillers

- The AKV valves are supplied as a parts programme, as follows:
  - separate valve incl. exchangeable orifice
  - separate coil
- The valve requires no adjustment
- The AKV 10 valves cover a capacity range from 0.6 – 14 kW / 0.17 – 3.98 TR (404A / R507) and are divided into 7 capacity ranges
- The AKV 15 valves cover a capacity range from 14 – 85 kW / 3.98 – 24.1 TR (404A / R507) and are divided into 4 capacity ranges

- The AKV 20 valves cover a capacity range from 56 – 530 kW / 15.9 – 150 TR (404A / R507) and are divided into 5 capacity ranges
- The AKV valves can be used for the following refrigerants: R744, R22 / R407C, R404A / R507, R410A, R134a, R407A, R23. For other refrigerants, please contact Danfoss

# Technical data and ordering

## AKV

### Technical data

Valve type	AKV 10	AKV 15	AKV 20
Tolerance of coil voltage	10% / -15%	10% / -15%	10% / -15%
Enclosure to IEC 529	IP67	IP67	IP67
Working principle	PWM	PWM	PWM
Recommended period of time	6 Seconds	6 Seconds	6 Seconds
Capacity (404A / R507)	0.6 – 14 kW / 0.17 – 3.98 TR	14 – 85 kW / 3.98 – 24.1 TR	56 – 530 kW / 15.9 – 150 TR
Regulation range (Capacity range)	10 – 100%	10 – 100%	10 – 100%
Connection	Solder	Solder	Solder or weld
Evaporating temperature	-50 – 60 °C / -58 – 140 °F	-50 – 60 °C / -58 – 140 °F	-40 – 60 °C / -40 – 140 °F
Ambient temperature	-50 – 50 °C / -58 – 120 °F	-40 – 120 °F / -40 – 50 °C	-40 – 120 °F / -40 – 50 °C
Leak of valve seat	<0.02% of K <sub>v</sub> value / C <sub>v</sub> value	<0.02% of K <sub>v</sub> value / C <sub>v</sub> value	<0.02% of K <sub>v</sub> value / C <sub>v</sub> value
MOPD	18 bar / 260 psig	22 bar / 318 psig	18 bar / 260 psig
Filter, replaceable	Internal 100 µm	External 100 µm	External 100 µm
Max. working pressure	AKV 10 – 1 – 6 PS / MWP = 52 bar g / 754 psig AKV 10 – 7 PS / MWP = 42 bar g / 610 psig	AKV 15 – 1,2,3 PS / MWP = 42 bar g / 610 psig AKV 15 – 4 PS / MWP = 28 bar g / 400 psig	PS / MWP = 28 bar g / 400 psig

### Ordering

#### AKV 10 - Valve excluded coil

Valve type	Rated capacity <sup>1)</sup>								K <sub>v</sub> value	C <sub>v</sub> value	Connections	
	R22 / R407C		R134a		R404A / R507		R407C				Inlet × outlet [in]	Code no.
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]				
<b>Solder ODF [in]</b>												
AKV 10 – 1	1.0	0.28	0.9	0.25	0.8	0.22	1.1	0.31	0.01	0.01	3/8 × 1/2	068F1161
AKV 10 – 2	1.6	0.45	1.4	0.39	1.3	0.36	1.7	0.48	0.01	0.02	3/8 × 1/2	068F1164
AKV 10 – 3	2.6	0.73	2.1	0.59	2.0	0.56	2.5	0.71	0.02	0.02	3/8 × 1/2	068F1167
AKV 10 – 4	4.1	1.16	3.4	0.96	3.1	0.88	4.0	1.13	0.04	0.05	3/8 × 1/2	068F1170
AKV 10 – 5	6.4	1.81	5.3	1.50	4.9	1.39	6.4	1.81	0.06	0.07	3/8 × 1/2	068F1173
AKV 10 – 6	10.2	2.90	8.5	2.41	7.8	2.21	10.1	2.87	0.11	0.13	3/8 × 1/2	068F1176
AKV 10 – 7	16.3	4.63	13.5	3.83	12.5	3.55	17.0	4.83	0.20	0.20	3/8 × 1/2	068F1179
<b>Solder ODF [mm]</b>												
AKV 10 – 1	1.0	0.28	0.9	0.25	0.8	0.22	1.1	0.31	0.01	0.01	10 × 12	068F1162
AKV 10 – 2	1.6	0.45	1.4	0.39	1.3	0.36	1.7	0.48	0.01	0.02	10 × 12	068F1165
AKV 10 – 3	2.6	0.73	2.1	0.59	2.0	0.56	2.5	0.71	0.02	0.02	10 × 12	068F1168
AKV 10 – 4	4.1	1.16	3.4	0.96	3.1	0.88	4.0	1.13	0.04	0.05	10 × 12	068F1171
AKV 10 – 5	6.4	1.81	5.3	1.50	4.9	1.39	6.4	1.81	0.06	0.07	10 × 12	068F1174
AKV 10 – 6	10.2	2.90	8.5	2.41	7.8	2.21	10.1	2.87	0.11	0.13	10 × 12	068F1177
AKV 10 – 7	16.3	4.63	13.5	3.83	12.5	3.55	17.0	4.83	0.20	0.24	12 × 16	068F1180

#### AKV 15 - Valve excluded coil

<b>Solder ODF [in]</b>												
AKV 15 – 1	25.5	7.25	21.2	6.02	19.6	5.57	25.2	7.16	0.25	0.28	3/4 × 3/4	068F5000
AKV 15 – 2	40.8	11.6	33.8	9.61	31.4	8.92	40.4	11.4	0.40	0.46	3/4 × 3/4	068F5005
AKV 15 – 3	64	18.2	53	15.1	49.4	14.0	63	18.1	0.63	0.72	7/8 × 7/8	068F5010
AKV 15 – 4	102	29.0	84	24.0	78	22.2	101	28.7	1.0	1.15	1 1/8 × 1 1/8	068F5015
<b>Solder ODF [mm]</b>												
AKV 15 – 1	25.5	7.25	21.2	6.02	19.6	5.57	25.2	7.16	0.25	0.28	18 × 18	068F5001
AKV 15 – 2	40.8	11.6	33.8	9.61	31.4	8.92	40.4	11.4	0.40	0.46	18 × 18	068F5006
AKV 15 – 3	64	18.2	53	15.1	49.4	14.0	63	18.1	0.63	0.72	22 × 22	068F5010
AKV 15 – 4	102	29.0	84	24.0	78	22.2	101	28.7	1.0	1.15	28 × 28	068F5016

#### AKV 20 - Valve excluded coil

<b>Solder ODF [in]</b>												
AKV 20 – 1	102	29.0	84	24.0	78	22.2	101	28.7	1.0	1.15	1 3/8 × 1 3/8	042H2020
AKV 20 – 2	163	46.3	135	38.3	125	35.5	170	48.3	1.6	1.85	1 3/8 × 1 3/8	042H2022
AKV 20 – 3	255	72	212	60	196	55	252	71	2.5	2.89	1 5/8 × 1 5/8	042H2024
AKV 20 – 4	408	116	338	96	314	89	404	114	4.0	4.62	2 1/8 × 2 1/8	042H2027
AKV 20 – 5	643	182	533	151	494	140	637	181	6.3	7.28	2 1/8 × 2 1/8	042H2029
<b>Solder ODF [mm]</b>												
AKV 20 – 1	102	29.0	84	24.0	78	22.2	101	28.7	1.0	1.15	35 × 35	042H2020
AKV 20 – 2	163	46.3	135	38.3	125	35.5	170	48.3	1.6	1.85	35 × 35	042H2022
AKV 20 – 3	255	72	212	60	196	55	252	71	2.5	2.89	42 × 42	042H2025
AKV 20 – 4	408	116	338	96	314	89	404	114	4.0	4.62	54 × 54	042H2027
AKV 20 – 5	643	182	533	151	494	140	637	181	6.3	7.28	54 × 54	042H2029
<b>Weld [in]</b>												
AKV 20 – 1	102	29.0	84.6	24.0	78	22.2	101	28.7	1.0	1.15	1 1/4 × 1 1/4	042H2021
AKV 20 – 2	163	46.3	135	38.3	125	35.5	170	48.3	1.6	1.85	1 1/4 × 1 1/4	042H2023
AKV 20 – 3	255	72	212	60	196	55	252	71	2.5	2.89	1 1/4 × 1 1/4	042H2026
AKV 20 – 4	408	116	338	96	314	89	404	114	4.0	4.62	1 1/2 × 1 1/2	042H2028
AKV 20 – 5	643	182	533	151	494	140	637	181	6.3	7.28	2 × 2	042H2030

<sup>1)</sup> The Rated capacity is based on:

Evaporating temperature t<sub>e</sub>: 5 °C / 41 °F

Liquid temperature t<sub>l</sub>: 28 °C / 82 °F

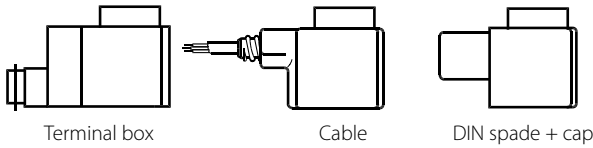
Condensing temperature t<sub>c</sub>: 32 °C / 90 °F



# Technical data and ordering

## Coils for AKV valves

### Ordering



	Connection	Valve size and orifice no.						Code no.
		AKV 10-1 AKV 10-2 AKV 10-3 AKV 10-4 AKV 10-5	AKV 10-6	AKV 10-7	AKV 15-1 AKV 15-2 AKV 15-3 AKV 15-4	AKV 20-1 AKV 20-2 AKV 20-3	AKV 20-4 AKV 20-5	
DC coils								
220 V DC 20 W, standard	Terminal box	+	+	+	+	+	+	018F6851
100 V DC 18 W, special	Terminal box	+	+	+	+	+	+	018F6780
230 V DC 18 W, special	Terminal box	+	+	+	+	+	+	018F6781 <sup>1)</sup>
	DIN spade + cap	+	+	+	+	+	+	018F6991 <sup>1)</sup>
230 V DC 18 W, special	2.5 m / 8.2 ft cable	+	+	+	+	+	+	018F6288 <sup>1)</sup>
	4.0 m / 13.0 ft cable	+	+	+	+	+	+	018F6278 <sup>1)</sup>
	8.0 m / 26.0 ft cable	+	+	+	+	+	+	018F6279 <sup>1)</sup>

<sup>1)</sup> Recommended for commercial refrigeration plant.

	Connection	Valve size and orifice no.						Code no.
		AKV 10-1 AKV 10-2 AKV 10-3 AKV 10-4 AKV 10-5	AKV 10-6	AKV 10-7	AKV 15-1 AKV 15-2 AKV 15-3 AKV 15-4	AKV 20-1 AKV 20-2 AKV 20-3	AKV 20-4 AKV 20-5	
AC coils								
240 V AC 10 W, 50 Hz	Terminal box	+	+	-	+	-	-	018F6702
	DIN spade + cap	+	+	-	+	-	-	018F6177
240 V AC 10 W, 60 Hz	Terminal box	+	+	-	+	-	-	018F6713
240 V AC 12 W, 50 Hz	Terminal box	+	+	+	+	+	-	018F6802
230 V AC 10 W, 50 Hz	Terminal box	+	+	-	+	-	-	018F6701
	DIN spade + cap	+	+	-	+	-	-	018F6176
230 V AC 10 W, 60 Hz	Terminal box	+	+	-	+	-	-	018F6714
	DIN spade + cap	+	+	-	+	-	-	018F6189
230 V AC 10 W, 50 / 60 Hz	Terminal box	+	+	-	+	-	-	018F6732
	DIN spade + cap	+	+	-	+	-	-	018F6193
230 V AC 12 W, 50 Hz	Terminal box	+	+	-	+	+	-	018F6801
230 V AC 12 W, 60 Hz	Terminal box	+	+	-	+	+	-	018F6814
230 V AC 20 W, 50 Hz	Terminal box	+	+	+	+	+	+	018F6905
115 V AC 10 W, 50 Hz	Terminal box	+	+	-	+	-	-	018F6711
115 V AC 10 W, 60 Hz	Terminal box	+	+	-	+	-	-	018F6710
	DIN spade + cap	+	+	-	+	-	-	018F6185
110 V AC 12 W, 50 Hz	Terminal box	+	+	-	+	+	-	018F6811
110 V AC 12 W, 60 Hz	Terminal box	+	+	-	+	+	-	018F6813
24 V AC 10 W, 50 Hz	Terminal box	+	-	-	+	-	-	018F6707
	DIN spade + cap	+	-	-	+	-	-	018F6182
24 V AC 10 W, 60 Hz	Terminal box	-	-	-	+	-	-	018F6715
24 V AC 12 W, 50 Hz	Terminal box	+	-	-	+	+	+	018F6807
24 V AC 12 W, 60 Hz	Terminal box	+	-	-	+	+	+	018F6815
24 V AC 20 W, 50 Hz	Terminal box	+	+	+	+	+	+	018F6901
24 V AC 20 W, 60 Hz	Terminal box	+	+	+	+	+	+	018F6902

## Related products

Electric suction modulating valves

Type AK-CC 550 / EKC 315 / EKC 414A

Temperature sensors and pressure transmitters

Type AKS



## AKVH - Electric expansion valve

AKVH are electrically operated expansion valves designed for refrigeration plants using R744 refrigerant. The AKVH valves are designed for use with a controller from Danfoss range of ADAP- KOOL® controllers. The AKVH valves are supplied as a parts programme with separate valve body and coil with electronic controller, for lower valve noise

level and power consumption, higher valve MOPD, and longer valve lifetime.

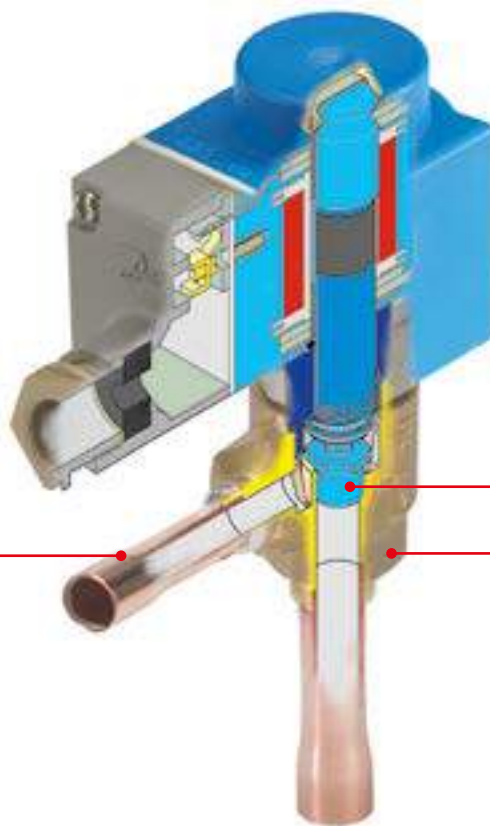
AKVH has an exchangeable orifice.

The AKVH 10 valves cover a capacity ranges:

0.4 – 11 kW / 0.11 – 3.12 TR in refrigeration applications

0.8 – 22 kW / 0.82 – 6.26 TR in freezing applications

### Features AKVH



Available with ODF solder connections in angleway

The orifice assembly is replaceable

Both expansion valve and solenoid valve

### Facts

#### Applications:

- Traditional refrigeration using R744 (CO<sub>2</sub>) as refrigerant
- Cold rooms
- Water chillers

- The AKV valves are supplied as a parts programme, as follows:
  - separate valve incl. exchangeable orifice
  - separate coil
- The valve requires no adjustment
- Coil with electronic coil controller for lower valve noise level, energy saving, higher valve MOPD and longer valve lifetime

- The AKVH 10 valve covers a capacity range from 0.4 – 11 kW / 0.11 – 3.13 TR (refrigeration) and 0.8 – 22 kW / 0.23 – 6.26 TR (for freezing) and is divided into 7 capacity ranges
- The AKVH is used for R744 (CO<sub>2</sub>) refrigerant

## Technical data and ordering

### AKVH

#### Technical data

Valve type	AKVH 10
Tolerance of coil voltage	10 / -15%
Enclosure to IEC 529	IP67
Working principle	PWM
Recommended period of time	6 seconds
Capacity (R744)	0.4 – 11 kW / 0.11 – 3.13 TR
Freezing capacity (R744)	0.8 – 22 kW / 0.23 – 6.26 TR
Regulation range (Capacity range)	10 – 100%
Connection	Solder
Evaporating temperature	-60 – 60 °C / -76 – 140 °F
Ambient temperature	-50 – 50 °C / -58 – 120 °F
Leak of valve seat	<0.02% of K <sub>v</sub> value / C <sub>v</sub> value
MOPD	35 bar / 505 psig
Filter, replaceable	Internal 100 µm
Max. working pressure	AKVH10-0 to 6 PS = 90 barg / 1305 psig <sup>3)</sup>

<sup>1)</sup> Refrigeration

<sup>2)</sup> Freezing

<sup>3)</sup> 90 barg under stand still conditions, but under normal operating conditions, there must be liquid to the inlet of the valve.

### Coil with electronic coil controller

#### Technical data

Noise level	Minimum 5 dB
Soft start	Yes
Nominal voltage	208 – 240 V AC 50 / 60 Hz
Power	4 W
Ambient temperature	During operation: -20 – 55 °C / -4 – 131 °F
Enclosure to IEC 529	IP67
Wire dimension	1 – 1.5 mm <sup>2</sup> / 16 AWG
Approvals	CE: Low voltage and EMC directives
Neutral, phase and earth in socket	Yes



Coil must only be used together with electronic coil controller.

Tolerance of supply voltage: 10 – -15%.

### AKVH 10 - Valve excl. coil

#### Rated capacity and Ordering

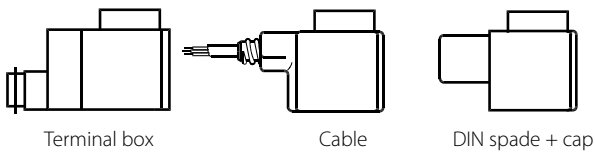
Valve type / orifice no.	Rated capacity (R744)				K <sub>v</sub> value <sup>1)</sup>	C <sub>v</sub> value <sup>1)</sup>	Code no.
	[kW]	[TR]	[kW]	[TR]			
	Refrigeration		Freezing		[m <sup>3</sup> /h]	[gpm]	
Connections, Solder ODF, Single pack 1 valve each, 3/8 × 1/2 [inch.]							
AKVH 10 – 0	0.4	0.1	0.8	0.2	0.003	0.132	068F4078
AKVH 10 – 1	1.1	0.3	2.2	0.6	0.010	0.044	068F4079
AKVH 10 – 2	1.7	0.5	3.5	1.0	0.017	0.074	068F4080
AKVH 10 – 3	2.6	0.7	5.4	1.5	0.025	0.110	068F4081
AKVH 10 – 4	4.3	1.2	8.7	2.5	0.046	0.202	068F4082
AKVH 10 – 5	6.7	1.9	13.6	3.8	0.064	0.282	068F4083
AKVH 10 – 6	10.7	3.0	21.7	6.1	0.114	0.502	068F4084
Connections, Solder ODF, Single pack 1 valve each, 10 × 12 [mm]							
AKVH 10 – 0	0.4	0.1	0.8	0.2	0.003	0.132	068F4088
AKVH 10 – 1	1.1	0.3	2.2	0.6	0.010	0.044	068F4089
AKVH 10 – 2	1.7	0.5	3.5	1.0	0.017	0.074	068F4090
AKVH 10 – 3	2.6	0.7	5.4	1.5	0.025	0.110	068F4091
AKVH 10 – 4	4.3	1.2	8.7	2.5	0.046	0.202	068F4092
AKVH 10 – 5	6.7	1.9	13.6	3.8	0.064	0.282	068F4093
AKVH 10 – 6	10.7	3.0	21.7	6.1	0.114	0.502	068F4094

<sup>1)</sup> The K<sub>v</sub>/C<sub>v</sub> value is the water flow in [m<sup>3</sup>/h] / [gph] at a pressure drop across valve of 1 bar / 14.5 psi.

# Technical data and ordering

## Coils for AKVH valves

### Ordering



Valve size and orifice no.			
18 bar		35 bar <sup>2)</sup>	
AKVH 10 - 1	AKVH 10 - 6	AKVH 10 - 0	AKVH 10 - 6
AKVH 10 - 2		AKVH 10 - 1	
AKVH 10 - 3		AKVH 10 - 2	
AKVH 10 - 4		AKVH 10 - 3	
AKVH 10 - 5		AKVH 10 - 4	

DC coils	Connection					Code no.
220 V DC 20 W, standard	Terminal box	+	+	+	+	018F6851
100 V DC 18 W, special	Terminal box	+	+	+	-	018F6780
230 V DC 18 W, special	Terminal box	+	+	+	-	018F6781 <sup>1)</sup>
	DIN spade + cap	+	+	+	-	018F6991 <sup>1)</sup>
230 V DC 18 W, special	2.5 m / 8.2 ft cable	+	+	+	-	018F6288 <sup>1)</sup>
	4.0 m / 13.0 ft cable	+	+	+	-	018F6278 <sup>1)</sup>
	8.0 m / 26.0 ft cable	+	+	+	-	018F6279 <sup>1)</sup>
AC coils	Connection					Code no.
115 V AC 10 W, 50 Hz	Terminal box	+	+	-	-	018F6711
115 V AC 10 W, 60 Hz	Terminal box	+	+	-	-	018F6710
	DIN spade + cap	+	+	-	-	018F6185
110 V AC 12 W, 50 Hz	Terminal box	+	+	+	-	018F6811
110 V AC 12 W, 60 Hz	Terminal box	+	+	-	-	018F6813
24 V AC 10 W, 50 Hz	Terminal box	+	-	-	-	018F6707
	DIN spade + cap	+	-	-	-	018F6182
24 V AC 12 W, 50 Hz	Terminal box	+	-	-	-	018F6807
24 V AC 12 W, 60 Hz	Terminal box	+	-	-	-	018F6815
24 V AC 20 W, 50 Hz	Terminal box	+	+	+	+	018F6901
24 V AC 20 W, 60 Hz	Terminal box	+	+	+	+	018F6902

<sup>1)</sup> Recommended for commercial refrigeration plant.

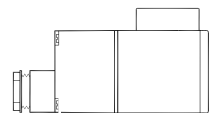
<sup>2)</sup> If operated consistently at or near MOPD, the service interval will decrease.



For voltage supply of 208 - 240 V AC always use coil with electronic coil

## EEC - Coil with electronic coil controller

### Ordering



AC coil	18 bar		35 bar <sup>2)</sup>		Code no.
208 - 240 VAC, 50 / 60 Hz, 4 W	+	+	+	+	018F6783

Coil with electronic coil controller type EEC is delivered as multipack.

<sup>1)</sup> If operated consistently at or near MOPD, the service interval will decrease.

## AKVH 10 - Spare parts

### Ordering

Orifice no.	Contents	Code no.
0	4 pc. orifice - 4 pc. gasket	068F5283
1	4 pc. orifice - 4 pc. gasket	068F5283
2	4 pc. orifice - 4 pc. gasket	068F5283
3	4 pc. orifice - 4 pc. gasket	068F5283
4	3 pc. orifice - 3 pc. gasket	068F5284
5	3 pc. orifice - 3 pc. gasket	068F5284
6	3 pc. orifice - 3 pc. gasket	068F5284

## Capacities

### R744

Valve type	Capacity in [kW] with pressure drop across valve $\Delta p$ [bar] <sup>1)</sup>								
	2	4	6	8	10	12	14	16	18
AKVH 10 - 0	0.33	0.44	0.53	0.59	0.65	0.70	0.73	0.76	0.78
AKVH 10 - 1	0.9	1.2	1.5	1.6	1.8	1.9	2.0	2.1	2.1
AKVH 10 - 2	1.4	2.0	2.3	2.6	2.8	3.1	3.2	3.3	3.4
AKVH 10 - 3	2.2	3.1	3.7	4.1	4.4	4.8	5.0	5.2	5.4
AKVH 10 - 4	3.6	4.9	5.8	6.5	7.1	7.7	8.0	8.3	8.5
AKVH 10 - 5	5.6	7.7	9.2	10.2	11.1	12.0	12.6	13.0	13.5
AKVH 10 - 6	9.0	12.3	14.6	16.3	17.6	19.1	20.0	20.8	21.5

### R744

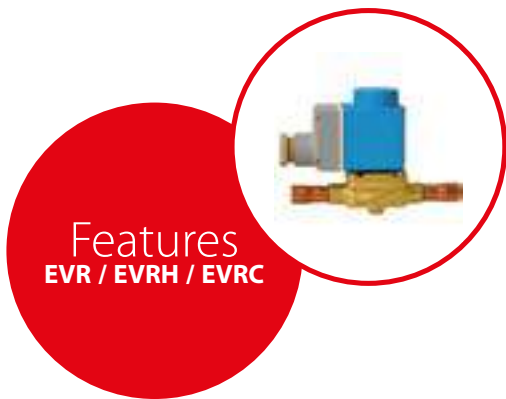
Valve type	Capacity in [kW] with pressure drop across valve $\Delta p$ [bar] <sup>1)</sup>								
	20	22	24	26	28	30	32	34	35
AKVH 10 - 0	0.80	0.81	0.82	0.84	0.85	0.85	0.86	0.87	0.87
AKVH 10 - 1	2.2	2.2	2.3	2.3	2.3	2.4	2.4	2.4	2.4
AKVH 10 - 2	3.5	3.6	3.7	3.7	3.8	3.8	3.8	3.8	3.8
AKVH 10 - 3	5.5	5.6	5.7	5.8	5.9	5.9	6.0	6.0	6.0
AKVH 10 - 4	8.8	8.9	9.1	9.3	9.4	9.5	9.5	9.6	9.6
AKVH 10 - 5	13.8	14.1	14.4	14.6	14.8	14.9	15.0	15.0	15.0
AKVH 10 - 6	22.0	22.4	22.9	23.3	23.5	23.7	23.9	23.9	24.0

<sup>1)</sup> Rated capacities are based on:  
 Subcooling:  $t_{sub}=4\text{ K}$   
 Evaporating temperature:  $t_e=-25\text{ °C}$   
 Superheating:  $t_{sup}=5\text{ K}$

# EVR / EVRH / EVRC - Solenoid valves

EVR / EVRH solenoid valves are direct or servo-operated solenoid valves for liquid, suction and hot gas lines. They are suitable for condensing units and power packs in all refrigeration, freezing and air conditioning applications and are compatible with fluorinated refrigerants R22 / R407C, R404A / R507, R410A, R134a and R407C. Versions are also available for high pressure refrigerants such as R410A and R744 (CO<sub>2</sub>) with a max working pressure of 45 bar g. EVR 2 – EVR 20 with solder connections and without manual stem are suitable for the flammable refrigerants R32, R290, R600 and R600a.

The valves can be delivered as normally open or normally closed valves and with or without manual operation. EVR valves are available with flare, solder or flange connections. EVRC is a servo operated solenoid valve for use in liquid lines in refrigeration plant. EVRC allows flow in both directions and can therefore be used in liquid lines in refrigeration plant with hot gas or gas defrost. During the refrigeration period EVRC works as a normal solenoid valve, while during the defrost it allows the condensed liquid to return to the liquid manifold.

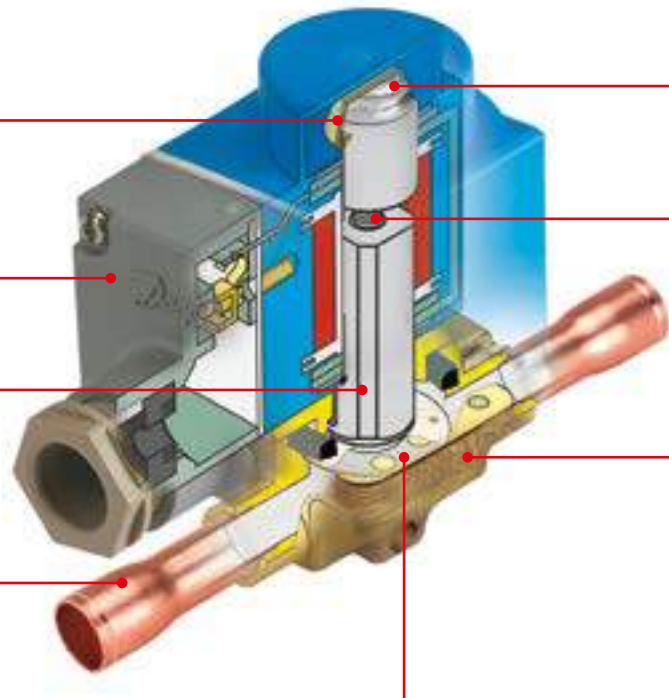


"Clip on" coil system for quick and easy mounting

Coil with terminal box, 1 m cable or DIN plug

Stainless steel armature

Extended ends for soldering make installation easy



Drawn stainless steel tube with internal armature top for maximum external tightness

Spring damping to increase the lifetime of the seat plate

Forged brass body for maximum external tightness

Teflon seat plate with cardan effect to secure maximum internal tightness

## Facts

### Application:

- Traditional refrigeration
- Heat pump systems
- Air conditioning units
- Liquid coolers
- Transport refrigeration

- Complete programme of valves and coils for every application
- Wide range of coils for AC and DC
- Wide range of connection types and sizes
- Normally open or normally closed
- With or without manual operation
- High reliability and durability due to maximum internal and external tightness
- Can be used for all fluorinated refrigerants (CFC, HCFC and HFC)
- Temperature range: -40 – 105 °C / -40 – 221 °F

- Max. working pressure (PS / MWP): 32 bar / 460 psi (EVR 2 / EVR 6: 45.2 bar / 655 psi EVR 10: 35 bar / 500 psi EVR 15 / EVR 40: 32 bar / 460 psi EVRH 10 / EVRH 40: 45.2 bar / 655 psi)
- MOPD up to 25 bar / 365 psi with 12 W AC coil
- 100% test of functionality, internal / external leakage and electrical characteristics

# Technical data and ordering

## EVR

### Technical data

Type	Opening differential pressure with standard coil $\Delta p$ [bar]			Temperature of medium [°C]	
	Min.	Max. (= MOPD) liquid <sup>1)</sup>			
		10 W AC	12 W AC		20 W DC
EVR 2	0.00	25	–	18	-40 – 105
EVR 3	0.00	21	25	18	-40 – 105
EVR 6	0.05	21	25	18	-40 – 105
EVR 6 NO	0.05	21	21	21	-40 – 105
EVR 10	0.05	21	25	18	-40 – 105
EVR 10 NO	0.05	21	21	21	-40 – 105
EVR 15	0.05	21	25	18	-40 – 105
EVR 15 NO	0.05	21	21	21	-40 – 105
EVR 20 with AC coil	0.05	21	25	13	-40 – 105
EVR 20 with DC coil	0.05	–	–	16	-40 – 105
EVR 20 NO	0.05	19	19	19	-40 – 105
EVR 22	0.05	21	25	13	-40 – 105
EVR 22 NO	0.05	19	19	19	-40 – 105
EVR 25 <sup>2)</sup>	0.20	21	25	18	-40 – 105
EVR 32 <sup>2)</sup>	0.20	21	25	18	-40 – 105
EVR 40 <sup>2)</sup>	0.20	21	25	18	-40 – 105

<sup>1)</sup> MOPD (Max. Opening Pressure Differential) for media in gas form is approx. 1 bar greater.

<sup>2)</sup> Min. diff. pressure 0.07 bar is needed to stay open.



# Technical data and capacities

## EVR

### Rated capacity [kW] – Liquid

Type	R22 / R407C	R134a	R404A / R507	R32	R290	R600	R600a
EVR 2	3.22	2.98	2.18	4.51	3.58	4.06	3.61
EVR 3	5.43	5.02	3.68	7.61	6.05	6.84	6.09
EVR 6	16.09	14.89	10.9	22.55	17.91	20.28	18.04
EVR 10	38.22	35.36	25.88	53.55	42.54	48.15	42.84
EVR 15	52.3	48.38	35.41	73.28	58.22	65.89	58.62
EVR 20	100.57	93.04	68.1	140.92	111.96	126.72	112.74
EVR 22	120.68	111.65	81.72	–	–	–	–
EVR 25	152.42	141.01	103.21	–	–	–	–
EVR 32	243.83	225.57	165.11	–	–	–	–
EVR 40	380.9	352.39	257.92	–	–	–	–

### Rated capacity [kW] – Suction vapour

Type	R22 / R407C	R134a	R404A / R507	R32	R290	R600	R600a
EVR 2	0.35	0.26	0.31	0.57	0.44	0.2	0.24
EVR 3	0.6	0.44	0.52	0.96	0.74	0.34	0.41
EVR 6	1.8	1.3	1.6	2.86	2.18	0.99	1.21
EVR 10	4.3	3.1	3.9	6.79	5.18	2.36	2.86
EVR 15	5.9	4.2	5.3	9.29	7.09	3.23	3.92
EVR 20	11.4	8.1	10.2	17.87	13.64	6.21	7.53
EVR 22	13.7	9.7	12.2	–	–	–	–
EVR 25	22.8	16.3	20.4	–	–	–	–
EVR 32	36.5	26.1	32.6	–	–	–	–
EVR 40	57	40.8	51	–	–	–	–

### Rated capacity [kW] – Hot gas

Type	R22 / R407C	R134a	R404A / R507	R32	R290	R600	R600a
EVR 2	1.48	1.17	1.21	2.32	1.64	0.88	0.99
EVR 3	2.49	1.98	2.03	3.91	2.77	1.48	1.68
EVR 6	7.4	5.86	6.02	11.58	8.2	4.39	4.97
EVR 10	17.5	13.9	14.3	27.5	19.48	10.43	11.82
EVR 15	24	19	19.6	37.63	26.66	14.27	16.17
EVR 20	46.2	36.6	37.7	72.37	51.26	27.44	31.09
EVR 22	55.4	43.9	45.2	–	–	–	–
EVR 25	92.3	73.2	75.3	–	–	–	–
EVR 32	148	117	120	–	–	–	–
EVR 40	231	183	188	–	–	–	–

Rated liquid and suction vapour capacity is based on:  
 evaporating temperature  $t_e = -10\text{ °C} / 50\text{ °F}$   
 liquid temperature ahead of valve  $t_l = 25\text{ °C} / 77\text{ °F}$   
 pressure drop in valve  $\Delta p = 0.15\text{ bar} / 2.18\text{ psi}$

Rated hot gas capacity is based on:  
 condensing temperature  $t_c = 40\text{ °C} / 104\text{ °F}$   
 pressure drop across valve  $\Delta p = 0.8\text{ bar} / 11.6\text{ psi}$   
 hot gas temperature  $t_h = 65\text{ °C} / 149\text{ °F}$   
 subcooling of refrigerant  $\Delta t_{sub} = 4\text{ K}$

# Technical data and capacities

## EVRH

### Rated capacity [kW]

Type	Liquid	Suction vapour	Hot gas
	R410A <sup>1)</sup>	R410A	R410A
EVRH 10	36.92	5.31	20.97
EVRH 15	50.52	7.27	28.69
EVRH 20	97.15	13.98	55.51
EVRH 25	194.31	27.96	110.35
EVRH 32	310.89	44.74	176.55
EVRH 40	485.77	69.90	275.86

<sup>1)</sup> Calculated values.

Rated liquid and suction vapour is based on evaporating temperature  $t_e = -10\text{ }^\circ\text{C} / 50\text{ }^\circ\text{F}$ , liquid temperature ahead of valve  $t_l = 25\text{ }^\circ\text{C} / 77\text{ }^\circ\text{F}$ , pressure drop in valve  $\Delta p = 0.15\text{ bar} / 2.18\text{ psi}$ . Rated hot gas capacity is based on condensing temperature  $t_c = 40\text{ }^\circ\text{C} / 104\text{ }^\circ\text{F}$ , pressure drop across valve  $\Delta p = 0.8\text{ bar} / 11.6\text{ psi}$ , hot gas temperature  $t_h = 25\text{ }^\circ\text{C} / 77\text{ }^\circ\text{F}$ , and subcooling of refrigerant  $\Delta t_{sub} = 4\text{ K}$ .

## EVRC

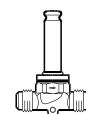
### Rated capacity [kW]

Type	Rated capacity with normal flow direction <sup>1)</sup> [kW]				Opening differential pressure with standard coil $\Delta p$ [bar]			
	R22/R407C	R134A	R507	R407C	Min.	Max. (= MOPD) liquid		
						10 W AC	12 W AC	20 W DC
EVRC 10	38.2	35.3	26.7	35.9	0.05	21	25	18
EVRC 15	52.3	48.3	36.5	49.2	0.05	21	25	18
EVRC 20	94.6	87.2	66.1	88.9	0.05	21	25	13

<sup>1)</sup> Rated capacity is based on evaporating temperature  $t_e = -10\text{ }^\circ\text{C} / 50\text{ }^\circ\text{F}$ , liquid temperature ahead of valve  $t_l = 25\text{ }^\circ\text{C} / 77\text{ }^\circ\text{F}$ , and pressure drop across valve  $\Delta p = 0.15\text{ bar} / 2.18\text{ psi}$ .

## EVR flare connections, Normally Closed (NC) - separate valve bodies

### Ordering



Type	Current type	Connection size		Manual operation	Max. working pressure		$K_v$ value [m <sup>3</sup> /h]	$C_v$ value [gal/min]	Code no.
		[mm]	[in]		[bar]	[psi]			
EVR 2	AC	6	1/4	No	45.2	655	0.16	0.19	032F8056
EVR 3	AC / DC	6	1/4	No	45.2	655	0.27	0.32	032F8107
	AC / DC	10	3/8	No	45.2	655	0.27	0.32	032F8116
EVR 6	AC / DC	10	3/8	No	45.2	655	0.80	0.92	032F8072
	AC / DC	12	1/2	No	45.2	655	0.80	0.92	032F8079
EVR 10	AC / DC	12	1/2	No	35	500	1.9	2.2	032F8095
	AC / DC	16	5/8	No	35	500	1.9	2.2	032F8098
EVR 15	AC / DC	16	5/8	No	32	460	2.6	3.0	032F8101
	AC / DC	16	5/8	Yes	32	460	2.6	3.0	032F8100

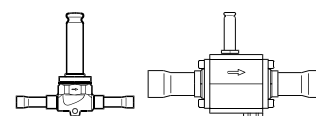
## EVR flare connections, Normally Open (NO) - separate valve bodies

### Ordering

Type	Current type	Connection size		Manual operation	Max. working pressure		$K_v$ value [m <sup>3</sup> /h]	$C_v$ value [gal/min]	Code no.
		[in]	[mm]		[bar]	[psi]			
EVR 6	AC / DC	3/8	10	No	45.2	655	0.80	0.92	032F8085
EVR 10	AC / DC	1/2	12	No	35	500	1.9	2.2	032F8090

# Technical data and ordering

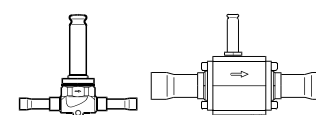
## EVR solder connections, Normally Closed (NC) - separate valve bodies



### Ordering

Type	Current type	Connection size		Manual operation	Max. working pressure		K <sub>v</sub> value [m <sup>3</sup> /h]	C <sub>v</sub> value [gal/min]	Code no.
		[mm]	[in]		[bar]	[psi]			
EVR 2	AC	-	1/4	No	45.2	655	0.16	0.19	032F1201
	AC	6	-	No	45.2	655	0.16	0.19	032F1202
EVR 3	AC / DC	-	1/4	No	45.2	655	0.27	0.32	032F1206
	AC / DC	-	3/8	No	45.2	655	0.27	0.32	032F1204
	AC / DC	6	-	No	45.2	655	0.27	0.32	032F1207
EVR 6	AC / DC	10	-	No	45.2	655	0.27	0.32	032F1208
	AC / DC	-	1/2	No	45.2	655	0.80	0.92	032F1209
	AC / DC	-	3/8	No	45.2	655	0.80	0.92	032F1212
EVR 10	AC / DC	10	-	No	45.2	655	0.80	0.92	032F1213
	AC / DC	-	1/2	No	45.2	655	0.80	0.92	032F1236
	AC / DC	12	-	No	35	500	1.9	2.2	032F1217
EVR 15	AC / DC	12	-	No	35	500	1.9	2.2	032F1218
	AC / DC	16	5/8	No	35	500	1.9	2.2	032F1214
	AC / DC	22	7/8	No	32	460	2.6	3.0	032F1225
EVR 20	AC / DC	16	-	Yes	32	460	2.6	3.0	032F1227
	AC / DC	16	5/8	No	32	460	2.6	3.0	032F1228
	AC	22	7/8	No	32	460	5.0	5.8	032F1240
EVR 25	AC	-	7/8	Yes	32	460	5.0	5.8	032F1254
	AC	-	1 1/8	No	32	460	5.0	5.8	032F1244
	AC	28	-	No	32	460	5.0	5.8	032F1245
	DC	22	7/8	No	32	460	5.0	5.8	032F1264
	DC	-	7/8	Yes	32	460	5.0	5.8	032F1274
EVR 22	AC	35	1 3/8	No	32	460	6.0	6.9	032F3267
EVR 32	AC / DC	-	1 1/8	Yes	32	460	10.0	11.6	032F2200
	AC / DC	-	1 1/8	No	32	460	10.0	11.6	032F2201
	AC / DC	28	-	Yes	32	460	10.0	11.6	032F2205
	AC / DC	28	-	No	32	460	10.0	11.6	032F2206
	AC / DC	-	1 3/8	Yes	32	460	10.0	11.6	032F2207
	AC / DC	-	1 3/8	No	32	460	10.0	11.6	032F2208
EVR 40	AC / DC	-	1 5/8	Yes	32	460	16.0	18.5	042H1103
	AC / DC	-	1 5/8	No	32	460	16.0	18.5	042H1104
	AC / DC	35	-	Yes	32	460	16.0	18.5	042H1105
	AC / DC	35	-	No	32	460	16.0	18.5	042H1106
	AC / DC	42	-	Yes	32	460	16.0	18.5	042H1107
	AC / DC	42	-	No	32	460	16.0	18.5	042H1108
EVR 40	AC / DC	-	1 5/8	Yes	32	460	25.0	28.9	042H1109
	AC / DC	-	1 5/8	No	32	460	25.0	28.9	042H1110
	AC / DC	-	2 1/8	Yes	32	460	25.0	28.9	042H1111
	AC / DC	-	2 1/8	No	32	460	25.0	28.9	042H1112
	AC / DC	42	-	Yes	32	460	25.0	28.9	042H1113
	AC / DC	42	-	No	32	460	25.0	28.9	042H1114

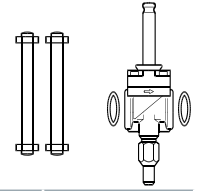
## EVR solder connections, Normally Open (NO) - separate valve bodies



### Ordering

Type	Current type	Connection size		Manual operation	Max. working pressure		K <sub>v</sub> value [m <sup>3</sup> /h]	C <sub>v</sub> value [gal/min]	Code no.
		[mm]	[in]		[bar]	[psi]			
EVR 6	AC / DC	-	3/8	No	45.2	655	0.80	0.92	032F1290
	AC / DC	10	-	No	45.2	655	0.80	0.92	032F1295
EVR 10	AC / DC	-	1/2	No	35	500	1.9	2.2	032F1291
	AC / DC	12	-	No	35	500	1.9	2.2	032F1296
EVR 15	AC / DC	16	-	No	32	460	2.6	3.0	032F1299
	AC / DC	-	7/8	No	32	460	2.6	3.0	032F3270
EVR 20	AC / DC	-	7/8	No	32	460	5.0	5.8	032F1260
	AC / DC	-	1 1/8	No	32	460	5.0	5.8	032F1269
	AC / DC	28	-	No	32	460	5.0	5.8	032F1279
EVR 22	AC	-	1 3/8	No	32	460	6.0	6.9	032F3268

# Technical data and ordering



## EVR flange connection, Normally Closed (NC)

### Ordering

Type	Current type	Connection	Manual operation	Code no. Valve body + gaskets + bolts; without coil and flanges
EVR 15	AC / DC	Flanges	yes	032F1234
	AC / DC	Flanges	no	032F1224
EVR 20	AC	Flanges	yes	032F1253
	AC	Flanges	no	032F1243
	DC	Flanges	yes	032F1273

## EVR- Flange sets

### Ordering

Type	Connection size		Connection type			Code no.
	[mm]	[in]	Solder		Weld [in]	
			[mm]	[in]		
EVR 15	-	1/2	-	-	yes	027N1115
	-	5/8	-	yes	-	027L1117
	16	-	yes	-	-	027L1116
	-	3/4	-	-	yes	027N1120
	-	7/8	-	yes	-	027L1123
	22	-	yes	-	-	027L1122
EVR 20	-	3/4	-	-	yes	027N1220
	-	7/8	-	yes	-	027L1223
	22	-	yes	-	-	027L1222
	-	1	-	-	yes	027N1225
	-	1 1/8	-	yes	-	027L1229
	28	-	yes	-	-	027L1228

#### Example:

EVR 15 without manual operation - code no. **032F1224**. - 1/2 in weld flange set. - code no. **027N1115**. - + coil with terminal box, 220 V, 50 Hz, - code no. **018F6701**.  
See separate data sheet for coils.

## EVR

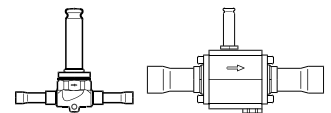
### Accessories – Ordering

Description	Code no.
Mounting bracket for EVR 2, EVR 3, EVR 6 and EVR 10	032F0197
Strainer FA for direct mounting	See "FA"

## EVRH – Normally closed (NC)

### Soldering ODF without manual stem – separate valve bodies

### Ordering

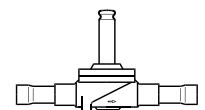


Type	Current type	Connection size		Manual operation	Max. working pressure		K <sub>v</sub> value [m <sup>3</sup> /h]	C <sub>v</sub> value [gal/min]	Code no.
		[mm]	[in]		[bar]	[psi]			
EVRH 10	AC / DC	-	1/2	No	45.2	655	1.9	2.2	032G1054
	AC / DC	12	-	No	45.2	655	1.9	2.2	032G1055
EVRH 15	AC / DC	16	5/8	No	45.2	655	2.6	3.0	032G1056
EVRH 20	AC	22	7/8	No	45.2	655	5.0	5.8	032G1057
	DC	22	7/8	No	45.2	655	5.0	5.8	032G1058
EVRH 25	AC / DC	-	1 1/8	No	45.2	655	10.0	11.6	032G1059
EVRH 32	AC / DC	35	-	No	45.2	655	16.0	18.5	032G1081
EVRH 40	AC / DC	-	1 5/8	No	45	650	25.0	28.9	032G1062

## EVRC – Normally closed (NC)

### Soldering ODF without manual stem – separate valve bodies

### Ordering



Type	Required current type	Connection Solder		Max. working pressure		K <sub>v</sub> value [m <sup>3</sup> /h]		C <sub>v</sub> value [gal/min]		Code no.
		[mm]	[in]	[bar]	[psi]	Flow in arrow direction	Flow against arrow direction	Flow in arrow direction	Flow against arrow direction	
EVRC 10	AC DC	-	1/2	35	500	1.9	1.1	2.2	1.3	032F1216
EVRC 15		16	5/8	32	460	2.6	1.2	3.0	1.4	032F1255
EVRC 20		22	7/8	32	460	5.0	4.7	5.8	5.4	032F1258

# Technical data and ordering

## EVR, UL listed

### Technical data

Type	Opening differential pressure $\Delta p$ [PSI]			Medium Temperature [°F]	Maximum working pressure MWP [psig]
	Min.	Max. (= MOPD) liquid <sup>1)</sup>			
		AC	DC		
EVR 2	0.0	350	260	-40 – 220	665
EVR 3	0.0	300	260	-40 – 220	665
EVR 4	0.7	300	260	-40 – 220	665
EVR 6	0.7	300	260	-40 – 220	665
EVR 6 NO	0.7	300	300	-40 – 220	665
EVR 8	0.7	300	260	-40 – 220	665
EVR 10	0.7	300	260	-40 – 220	500
EVR 10 NO	0.7	300	300	-40 – 220	500
EVR 15	0.7	300	260	-40 – 220	460
EVR 15 NO	0.7	300	300	-40 – 220	460
EVR 18	0.7	300	260	-40 – 220	460
EVR 20	0.7	300	190	-40 – 220	460
EVR 20	0.7	275	190	-40 – 220	460
EVR 22	0.7	275	190	-40 – 220	460
EVR 25	1.0	300	260	-40 – 220	460
EVR 32	1.0	300	260	-40 – 220	460
EVR 40	1.0	300	260	-40 – 220	460

<sup>1)</sup> MOPD (Max. Opening Pressure Differential) for media in gas form is approx. 14 psi greater.

# Technical data and capacities

## EVR, UL listed

### Rated capacity [TR] - Liquid

Type	R22 / R407C	R134a	R404A / R507
EVR 2	1.17	0.89	0.80
EVR 3	2.03	1.55	1.40
EVR 4	4.15	3.16	2.86
EVR 6	5.83	4.43	4.01
EVR 8	8.01	6.09	5.52
EVR 10	13.8	10.5	9.53
EVR 15	18.9	14.4	13.0
EVR 18	24.6	18.7	17.0
EVR 20	36.4	27.7	25.1
EVR 22	43.7	33.3	30.1
EVR 25	72.8	55.4	50.2
EVR 32	116.5	88.7	80.3
EVR 40	182.0	138.5	125.4

### Rated capacity [TR] - Suction vapour

Type	R22 / R407C	R134a	R404A / R507
EVR 2	0.10	0.07	0.09
EVR 3	0.17	0.13	0.15
EVR 4	0.34	0.26	0.30
EVR 6	0.48	0.37	0.43
EVR 8	0.66	0.51	0.58
EVR 10	1.15	0.88	1.01
EVR 15	1.57	1.20	1.38
EVR 18	2.04	1.56	1.80
EVR 20	3.02	2.31	2.66
EVR 22	3.62	2.78	3.19
EVR 25	6.04	4.63	5.32
EVR 32	9.66	7.40	8.51
EVR 40	16.1	11.6	13.3

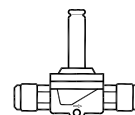
### Rated capacity [TR] - Hot gas

Type	R22 / R407C	R134a	R404A / R507
EVR 2	0.22	0.18	0.17
EVR 3	0.38	0.31	0.30
EVR 4	0.77	0.63	0.62
EVR 6	1.08	0.88	0.87
EVR 8	1.49	1.21	1.19
EVR 10	2.57	2.10	2.06
EVR 15	3.52	2.87	2.82
EVR 18	4.57	3.73	3.67
EVR 20	6.76	5.51	5.43
EVR 22	8.11	6.62	6.52
EVR 25	13.5	11.0	10.9
EVR 32	21.6	17.7	17.4
EVR 40	33.8	27.6	27.2

<sup>1)</sup> Rated liquid and suction vapor capacity are based on:  
 Evaporating temperature  $t_e = 40\text{ }^\circ\text{F}$   
 Liquid temperature ahead of valve  $t_l = 100\text{ }^\circ\text{F}$   
 Pressure drop  $\Delta p$  across valve  
 - with liquid  $\Delta p = 3\text{ psi}$   
 - with suction vapor  $\Delta p = 1\text{ psi}$  (EVR 25, 32, 40 = 2 psi)

# Technical data and ordering

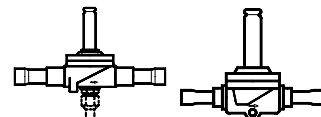
## EVR flare connections, Normally Closed (NC) - separate valve bodies, UL listed



### Ordering

Type	Connection [in]	Port size [in]	Manual stem	C <sub>v</sub> value [gal/min]	Code nos. valve body excl. coil
EVR 3	1/4	1/8	No	0.32	032F8106
EVR 3	3/8	1/8	No	0.32	032F8115
EVR 6	3/8	15/64	No	0.93	032F8071

## EVR solder ODF connections, Normally Closed (NC) - separate valve bodies, UL listed



### Ordering

Type	Connection [in]	Port size [in]	Manual stem	C <sub>v</sub> value [gal/min]	Code nos. valve body excl. coil
EVR 2	1/4	3/32	No	0.19	032F7100
EVR 3	1/4	1/8	No	0.32	032F7105
	3/8	1/8	No	0.32	032F1157
EVR 4	3/8	5/32	No	0.66	032F7110
EVR 6	3/8	15/64	No	0.93	032F7115
	3/8	15/64	Yes	0.93	032F7116
	1/2	15/64	No	0.93	032F1162
	1/2	15/64	No	0.93	032F7144
	5/8	15/64	No	0.93	032F7117
EVR 8	1/2	5/16	No	1.3	032F7121
	1/2	5/16	Yes	1.3	032F7148
	5/8	5/16	No	1.3	032F7122
EVR 10	3/8	3/8	No	2.2	032F7125
	1/2	3/8	No	2.2	032F1166
	1/2	3/8	Yes	2.2	032F1188
	5/8	3/8	No	2.2	032F1168
	5/8	3/8	Yes	2.2	032F7149
EVR 15	5/8	9/16	No	3.0	032F1171
	5/8	9/16	Yes	3.0	032F1172
	7/8	9/16	No	3.0	032F7130
EVR 18	7/8	19/32	Yes	3.9	032F1004
EVR 20	7/8	7/8	No	5.8	032F1176
	7/8	7/8	Yes	5.8	032F1177
EVR 22	1 1/8	15/16	No	6.9	032F7145
	1 1/8	15/16	Yes	6.9	032F7137
	1 3/8	15/16	No	6.9	032F7146

### Metric conversions

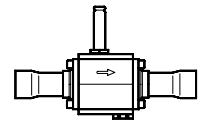
1 psi = 0.07 bar  
 $\frac{5}{9}(t_1 - 32) = t_2$  °C

1 TR = 3.5 kW  
 1 in = 25.4 mm

US gal/min = 0.86 m<sup>3</sup>/h

01  
02  
**03**  
04  
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**EVR solder ODF connections, Normally Closed (NC) - separate valve bodies, UL listed**



Ordering

Type	Connection [in]	Port size [in]	Manual stem	C <sub>v</sub> value [gal/min]	Code nos. valve body excl. coil
EVR 25	1 <sup>1</sup> / <sub>8</sub>	1	No	12.0	032F1189
	1 <sup>1</sup> / <sub>8</sub>	1	Yes	12.0	032F1190
	1 <sup>3</sup> / <sub>8</sub>	1	No	12.0	032F1193
	1 <sup>3</sup> / <sub>8</sub>	1	Yes	12.0	032F1194
EVR 32	1 <sup>3</sup> / <sub>8</sub>	7 <sup>7</sup> / <sub>8</sub>	No	18.0	042H1176
	1 <sup>3</sup> / <sub>8</sub>	7 <sup>7</sup> / <sub>8</sub>	Yes	18.0	042H1177
	1 <sup>5</sup> / <sub>8</sub>	7 <sup>7</sup> / <sub>8</sub>	No	18.0	042H1178
	1 <sup>5</sup> / <sub>8</sub>	7 <sup>7</sup> / <sub>8</sub>	Yes	18.0	042H1179
	2 <sup>1</sup> / <sub>8</sub>	7 <sup>7</sup> / <sub>8</sub>	No	18.0	042H1180
	2 <sup>1</sup> / <sub>8</sub>	7 <sup>7</sup> / <sub>8</sub>	Yes	18.0	042H1181
EVR 40	2 <sup>1</sup> / <sub>8</sub>	1	Yes	29.0	042H1188

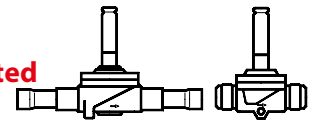
**Metric conversions**

1 psi = 0.07 bar  
 $\frac{5}{9}(t_1 - 32) = t_2$  °C

1 TR = 3.5 kW  
 1 in = 25.4 mm

US gal/min = 0.86 m<sup>3</sup>/h

**EVR solder ODF connections, Normally Open (NO) - separate valve bodies, UL listed**



Ordering

Type	Connection [in]	Port size [in]	C <sub>v</sub> value [gal/min]	Code nos. valve body excl. coil
EVR 6	3 <sup>3</sup> / <sub>8</sub>	1 <sup>1</sup> / <sub>4</sub>	0.93	032F1164
EVR 10	1 <sup>1</sup> / <sub>2</sub>	3 <sup>3</sup> / <sub>8</sub>	2.2	032F1169
EVR 15	5 <sup>5</sup> / <sub>8</sub>	9 <sup>9</sup> / <sub>16</sub>	3.0	032F1174

**Metric conversions**

1 psi = 0.07 bar  
 $\frac{5}{9}(t_1 - 32) = t_2$  °C

1 TR = 3.5 kW  
 1 in = 25.4 mm

US gal/min = 0.86 m<sup>3</sup>/h

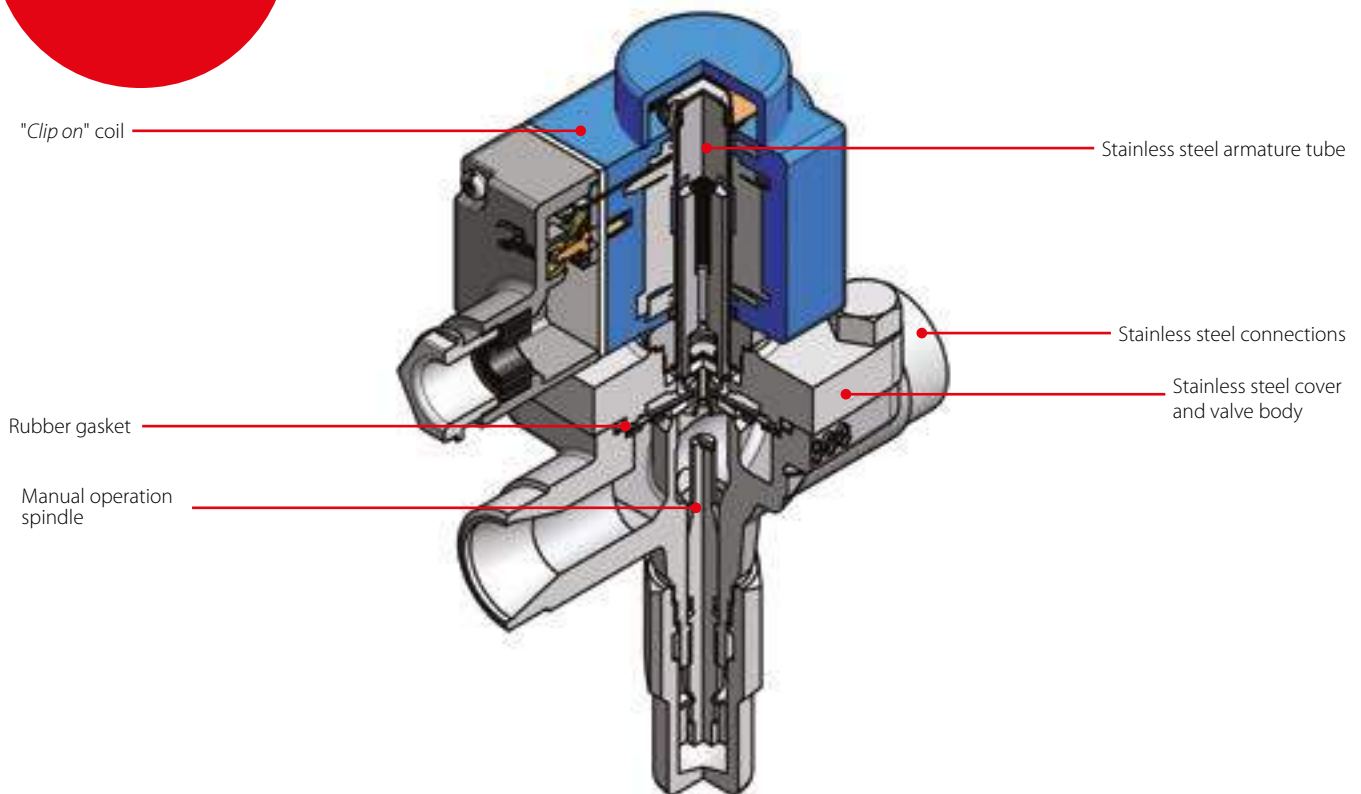


## EVRS / EVRST - Solenoid valves

EVRS and EVRST solenoid valves are made in stainless steel. EVRS 3 is direct operated, EVRS 10 / EVRS 15 / EVRS 20 are servo operated. EVRST 10 / EVRST 15 / EVRST 20 are forced servo operated valves. EVRS and EVRST are used in liquid, suction, hot gas and oil return lines with HCFC, HFC, R717 (Ammonia) or R744 (CO<sub>2</sub>) refrigerants.

EVRS and EVRST are supplied as a parts programme, i.e. separate valve, body and coil. EVRS / EVRST 10, EVRS / EVRST 15, EVRS / EVRST 20 are equipped with spindle for manual opening.

### Features EVRS / EVRST



### Facts

- Stainless steel valve body and connections
- Max. working pressure 50 bar (suitable for CO<sub>2</sub> subcritical)
- Applicable to HCFC, HFC, R717 (Ammonia) and R744 (CO<sub>2</sub>)
- MOPD up to 38 bar with 20 watt AC coil
- Wide choice of AC and DC coils
- Designed for temperatures of media up to 105 °C
- Manual system on EVRS 10 / EVRS 15 / EVRS 20 and EVRST 10 / EVRST 15 / EVRST 20

# Technical data and ordering

## EVRS / EVRST solenoid valves, Normally closed (NC)

### Technical data

Type	Opening differential pressure $\Delta p$ [bar]					K <sub>v</sub> value <sup>2)</sup> [m <sup>3</sup> /h]	Max. working pressure PS [bar]
	Min. [bar]	Max. (MOPD) liquid <sup>1)</sup> [bar]					
		10 W AC	12 W AC	20 W AC	20 W DC		
EVRS 3	0.0	21	25	38	14	0.23	50.0
EVRS 10	0.05	21	25	38	18	1.5	50.0
EVRST 10	0.0	14	21	38	16	1.5	50.0
EVRS 15	0.05	21	25	38	18	2.7	50.0
EVRST 15	0.0	14	21	38	18	2.7	50.0
EVRS 20	0.05	21	25	38	13	4.5	50.0
EVRST 20	0.0	14	21	38	13	4.5	50.0

<sup>1)</sup> MOPD for media in gas form is approx. 1 bar greater.

<sup>2)</sup> The K<sub>v</sub> value is the water flow in [m<sup>3</sup>/h] with a pressure drop across the valve of 1 bar,  $\rho = 1000 \text{ kg/m}^3$ .

## EVRS / EVRST solenoid valves, Normally Closed (NC)

### Technical data

Type	Rated capacity <sup>1)</sup> [kW]														
	Liquid					Suction vapour					Hot gas <sup>2)</sup>				
	R717	R22	R134a	R404A/R507	R410A	R717	R22	R134a	R404A/R507	R410A	R717	R22	R134a	R404A/R507	R410A
EVRS 3	21.8	4.6	4.3	3.2	4.5	–	–	–	–	–	6.5	2.1	1.7	1.7	2.3
EVRS / EVRST 10	142.0	30.2	27.8	21.1	29.7	9.0	3.4	2.5	3.1	4.3	42.6	13.9	11.0	11.3	14.9
EVRS / EVRST 15	256.0	54.4	50.1	38.0	53.5	16.1	6.2	4.4	5.5	7.7	76.7	24.9	19.8	20.3	26.7
EVRS / EVRST 20	426.0	90.6	83.5	63.3	89.1	26.9	10.3	7.3	9.2	12.0	128.0	41.5	32.9	33.9	44.5

<sup>1)</sup> Rated liquid and suction vapour capacity is based on evaporating temperature  $t_e = -10 \text{ }^\circ\text{C}$ , liquid temperature ahead of valve  $t_l = 25 \text{ }^\circ\text{C}$ , and pressure drop across valve  $\Delta p = 0.15 \text{ bar}$ .

<sup>2)</sup> Rated hot gas capacity is based on condensing temperature  $t_c = 40 \text{ }^\circ\text{C}$ , pressure drop across valve  $\Delta p = 0.8 \text{ bar}$ , hot gas temperature  $t_h = 60 \text{ }^\circ\text{C}$ , and subcooling of refrigerant  $\Delta t_{\text{sub}} = 4 \text{ K}$ .

## EVRS / EVRST solenoid valves, Normally Closed (NC)

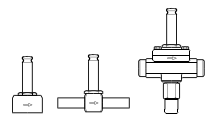
### Technical data

Type	R 744 Rated capacity [kW] <sup>1)</sup>	
	Liquid	Suction
EVRS 3	6.65	–
EVRS / EVRST 10	43.3	6.9
EVRS / EVRST 15	78.0	12.4
EVRS / EVRST 20	130.0	20.7

<sup>1)</sup> Rated liquid and suction vapour capacity is based on evaporating temperature  $t_e = -40 \text{ }^\circ\text{C}$ , liquid temperature ahead of the valve  $t_l = -8 \text{ }^\circ\text{C}$  and pressure drop across the valve  $\Delta p = 0.15 \text{ bar}$ .

## EVRS / EVRST solenoid valves, Normally Closed (NC)

### Ordering

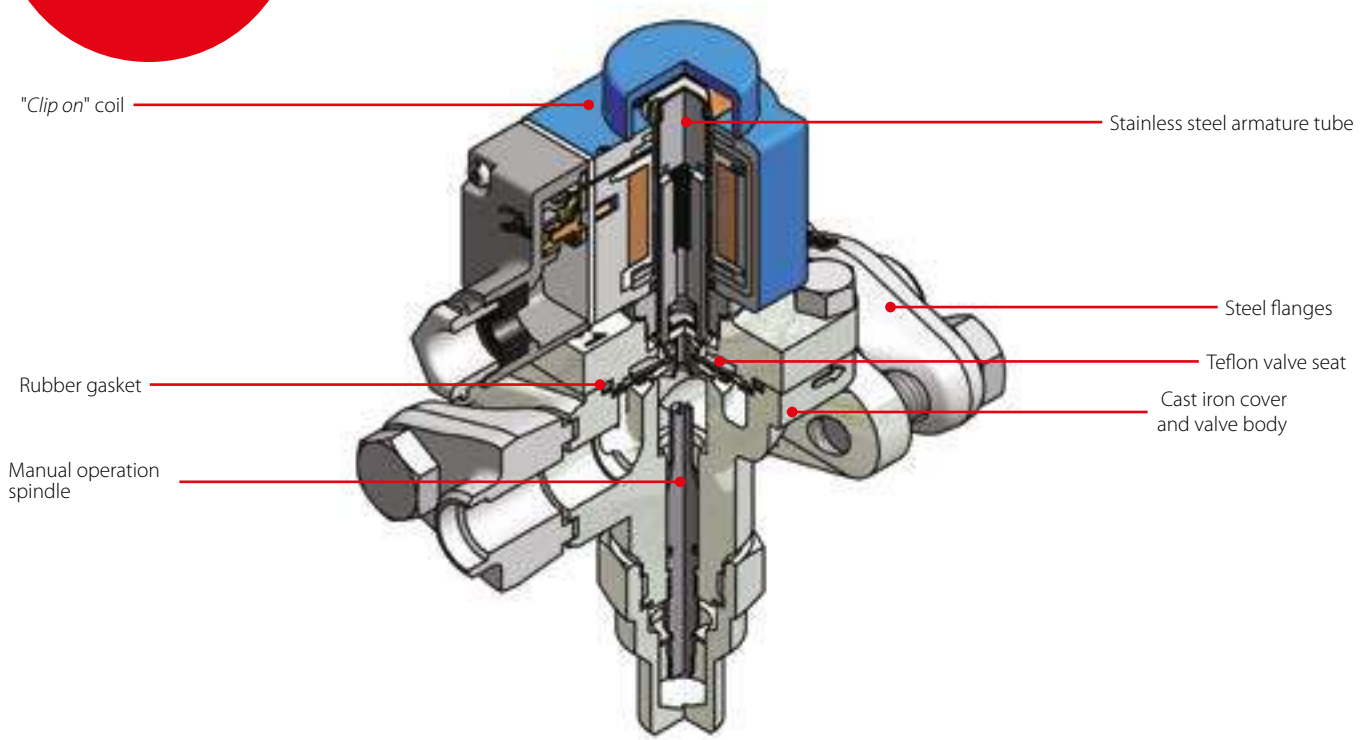


Type	Max. working pressure PS [bar g]	Connection		Manual stem [with / without]	Code no.
		Weld [in]	Pipe thread ISO 228/1		
EVRS 3	50	$\frac{3}{8}$	–	without	032F3080
EVRS 3	50	–	G $\frac{1}{4}$	without	032F3081
EVRS 10	50	$\frac{1}{2}$	–	with	032F3082
EVRST 10	50	$\frac{1}{2}$	–	with	032F3083
EVRS 15	50	$\frac{3}{4}$	–	with	032F3084
EVRST 15	50	$\frac{3}{4}$	–	with	032F3085
EVRS 20	50	1	–	with	032F5437
EVRST 20	50	1	–	with	032F5438

# EVRA / EVRAT - Solenoid valves

EVRA and EVRAT are solenoid valves for liquid, suction and hot gas lines with HCFC, HFC or R717 (Ammonia). EVRA is a direct or servo operated valve, EVRAT is an assisted lift, servo operated valve. EVRA valves are supplied complete or as a parts programme, i.e. valve body, coil and flanges can be ordered separately. EVRAT is specially designed to open – and stay open – at a pressure drop of 0 bar.

The EVRAT solenoid valve is thus suitable for use in all plants where the required opening differential pressure is 0 bar. EVRAT is available as a parts programme, i.e. separate valve body, flanges and coil. EVRAT 10 / EVRAT 15 / EVRAT 20 all have a spindle for manual operation.



## Facts

- EVRA and EVRAT valves are applicable to HCFC, HFC and R717 (Ammonia)
- EVRA and EVRAT valves use a teflon gasket which ensures great tightness across the valve seat
- EVRA valves have a low pressure drop
- EVRAT valves have a minimum opening differential pressure of 0 (zero)
- EVRA and EVRAT valve range can be used with the wide range of standard Danfoss coils
- Strainer type FA can be mounted directly on the valve body except for EVRA 32 / EVRA 40
- EVRA 3 – EVRA 25 and EVRAT 10 / EVRAT 20 valves offer a wide range of flange connection dimensions in accordance with connection standards DIN, ANSI, SOC, Solder and FPT, and a wide range of connection types
  - Butt welding DIN (DIN 2448)
  - Butt welding ANSI (ANSI B36.10 schedule 80) (3/8 – 1 1/2 in valve sizes)
- Butt welding ANSI (ANSI B36.10 schedule 40) (2 in valve sizes)
- Socket welding ANSI (ANSI B 16.11)
- Solder connection DIN (DIN 2856)
- Solder connection ANSI (ANSI B 16.22)
- FPT internal thread, NPT (ANSI / ASME B 1.20.1)
- EVRA 32 and EVRA 40 are supplied with integrated flanges for either:
  - Welding DIN (DIN 2448)
  - Welding ANSI (ANSI B 36.10)

# Technical data and ordering

## EVRA / EVRAT Solenoid valves, Normally Closed (NC) - separate valve bodies

### Technical data

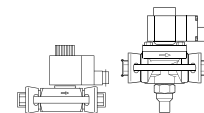
Type	Opening differential pressure with standard coil $\Delta p$ [bar]			Temperature of medium [°C]	Max. working pressure PS [bar]	$K_v$ value <sup>1)</sup> [m <sup>3</sup> /h]	
	Min. [bar]	Max. (=MOPD) liquid <sup>2)</sup> [bar]					
		10 W AC	12 W AC				20 W DC
EVRA 3	0.00	21	25	14	-40 – 105	42	0.23
EVRA 10	0.05	21	25	18	-40 – 105	42	1.5
EVRAT 10	0.00	14	21	16	-40 – 105	42	1.5
EVRA 15	0.05	21	25	18	-40 – 105	42	2.7
EVRAT 15	0.00	14	21	16	-40 – 105	42	2.7
EVRA 20	0.05	21	25	13	-40 – 105	42	4.5
EVRAT 20	0.00	14	21	13	-40 – 105	42	4.5
EVRA 25	0.20	21	25	14	-40 – 105	42	10.0
EVRA 32	0.20	21	25	14	-40 – 105	42	16.0
EVRA 40	0.20	21	25	14	-40 – 105	42	25.0

<sup>1)</sup> The  $K_v$  value is the water flow in [m<sup>3</sup>/h] with a pressure drop across the valve of 1 bar,  $\rho = 1000 \text{ kg/m}^3$ .

<sup>2)</sup> MOPD for media in gas form is approx. 1 bar greater.

## EVRA / EVRAT Solenoid valves, Normally Closed (NC) - separate valve bodies

### Ordering complete valves without flanges



Type	Connection	Manual stem	Coil	Code no. <sup>1)</sup>
		[with / without]		
EVRA 3	See table "Flange set"	without	10 W coil with 1 m cable	032F3102xx *)
	See table "Flange set"	without	10 W coil with terminal box	032F3103xx *)
EVRA 10	See table "Flange set"	without	10 W coil with terminal box	032F6208xx *)
	See table "Flange set"	with	10 W coil with 1 m cable	032F6212xx *)
EVRA 15	See table "Flange set"	with	10 W coil with terminal box	032F6213xx *)
	See table "Flange set"	with	10 W coil with 1 m cable	032F6217xx *)
EVRA 20	See table "Flange set"	with	10 W coil with terminal box	032F6213xx *)
	See table "Flange set"	with	10 W coil with 1 m cable	032F6222xx *)
EVRA 20	See table "Flange set"	with	10 W coil with 1 m cable	032F6222xx *)
	See table "Flange set"	with	10 W coil with terminal box	032F6223xx *)

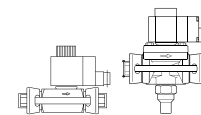
<sup>1)</sup> Valve body with gaskets, bolts and 10 W AC coil. Please specify code no., voltage and frequency.

<sup>\*)</sup> Voltage and frequency are given in the form of an appendix number, see table "Appendix numbers".

### Appendix numbers

Voltage [V]	Frequency [Hz]	Energy consumption [W]	Appendix no.
12	50	10	15
24	50	10	16
42	50	10	17
48	50	10	18
115	50	10	22
220 – 230	50	10	31
240	50	10	33
380 – 400	50	10	37
420	50	10	38
24	60	10	14
115	60	10	20
220	60	10	29
240	60	10	30
110	50/60	10	21
220 – 230	50/60	10	32

# Technical data and ordering



## EVRA / EVRAT

### Ordering separate valve bodies

Type	Connection	Manual stem	Required coil type	Code no.
		[with / without]		
EVRA 3	See table "Flange set"	without	AC / DC	032F3050
EVRA 10	See table "Flange set"	without	AC / DC	032F6211
	See table "Flange set"	with	AC / DC	032F6210
EVRAT 10	See table "Flange set"	with	AC / DC	032F6214
EVRA 15	See table "Flange set"	with	AC / DC	032F6215
EVRAT 15	See table "Flange set"	with	AC / DC	032F6216
EVRA 20	See table "Flange set"	with	AC	032F6220
	See table "Flange set"	with	AC / DC	032F6221
EVRAT 20	See table "Flange set"	with	AC / DC	032F6219
EVRA 25	See table "Flange set"	without	AC / DC	032F6226
	See table "Flange set"	with	AC / DC	032F6225

## EVRA

### Ordering separate valve bodies with butt weld connections

Type	Connection		Code no.
	DIN [in]	ANSI [in]	
EVRA 32	1 1/4	–	042H1126
	1 1/2	–	042H1131
	–	1 1/4	042H1140
	–	1 1/2	042H1141
EVRA 40	1 1/2	–	042H1128
	2	–	042H1132
	–	1 1/2	042H1142
	–	2	042H1143

## EVRA / EVRAT, tongue flange set

### Ordering

Type	Description	Connection size		Code no.
		[mm]	[in]	
EVRA 3 / EVRA 10 / EVRA 15 EVRAT 10 / EVRAT 15	Butt welding DIN (2448)	10	3/8	027N1112
	Butt welding DIN (2448)	15	1/2	027N1115
	Butt welding DIN (2448)	20	3/4	027N1120
	Butt welding ANSI (B 36.10)	10	3/8	027N2020
	Butt welding ANSI (B 36.10)	15	1/2	027N2021
	Butt welding ANSI (B 36.10)	20	3/4	027N2022
	Socket welding ANSI (B 16.11)	10	3/8	027N2010
	Socket welding ANSI (B 16.11)	15	1/2	027N2011
	Solder DIN (2856)	16	–	027L1116
	Solder DIN (2856)	22	–	027L1122
	Solder ANSI (B 16.22)	–	5/8	027L1117
	Solder ANSI (B 16.22)	–	7/8	027L1123
	FPT internal thread, NPT (ANSI / ASME B 1.20.1)	10	3/8	027G1005
	FPT internal thread, NPT (ANSI / ASME B 1.20.1)	15	1/2	027G1006
EVRA 20 / EVRA 25 / EVRAT 20	Butt welding DIN (2448)	20	3/4	027N1220
	Butt welding DIN (2448)	25	1	027N1225
	Butt welding DIN (2448)	32	1 1/4	027N1230
	Butt welding ANSI (B 36.10)	20	3/4	027N3031
	Butt welding ANSI (B 36.10)	25	1	027N3032
	Butt welding ANSI (B 36.10)	32	1 1/4	027N3033
	Socket welding ANSI (B 16.11)	20	3/4	027N2001
	Socket welding ANSI (B 16.11)	25	1	027N2002
	Soldering DIN (2856)	22	–	027L1222
	Soldering DIN (2856)	28	–	027L1228
	Soldering ANSI (B 16.22)	–	7/8	027L1223
	Soldering ANSI (B 16.22)	–	1 1/8	027L1229
	FPT internal thread, NPT (ANSI / ASME B 1.20.1)	20	3/4	027G1001
	FPT internal thread, NPT (ANSI / ASME B 1.20.1)	25	1	027G1002

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## ICF EVRAT - FA + solenoid valve

Based on advanced technology the ICF EVRAT retrofit valve incorporates three functions in one housing, which can replace the widely used direct coupled FA + EVRAT, as a drop-in solution.

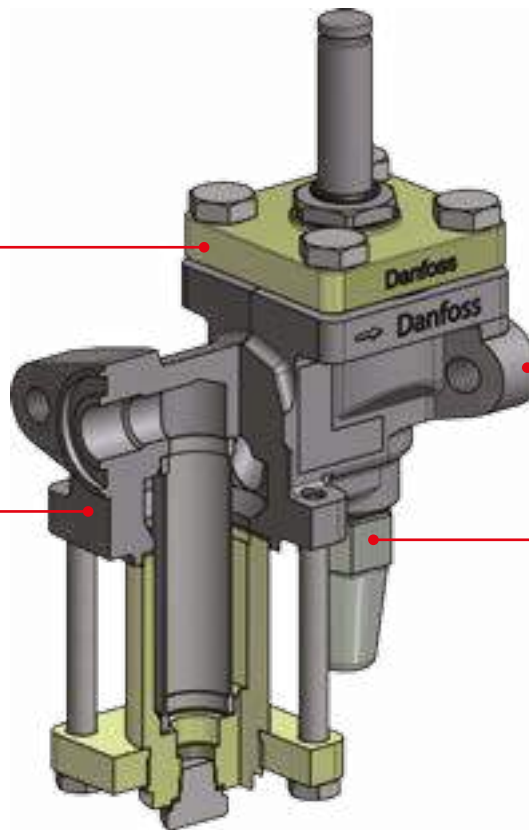
The two function modules - solenoid valve and manual opener are identical to the function modules in the ICF 20 valve station concept thus facilitating logistics and service.

### Features ICF EVRAT



Solenoid valve module

Filter module  
ICFF 15



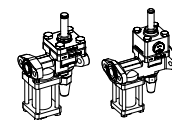
Flange connections

Manual opening  
module ICFO 20

### Facts

- Applicable to HCFC, non flammable HFC and R717 (Ammonia)  
The use of ICF EVRAT with flammable hydrocarbons is not recommended
- Designed for industrial refrigeration applications for a maximum working pressure of 42 bar / 610 psig
- Low temperature steel housing
- Low weight and compact design
- The solenoid valve ICFE 20 is designed to open - and stay open at a pressure drop of 0 bar thus suitable for lines with low pressure drop
- UL approved

# Technical data and ordering



## ICF EVRAT

### Technical data

<b>Refrigerants</b>	Applicable to HCFC, non flammable HFC and R717 (Ammonia). The use of ICF EVRAT with flammable hydrocarbons is not recommended
<b>Temperature range</b>	-40 – 105 °C / -40 – 221 °F
<b>Pressure range</b>	The ICF EVRAT is designed for a max. working pressure of 42 bar g / 610 psig
<b>Ambient temperature</b>	-30 °C – 50 °C / -22 °F – 122 °F
<b>Surface protection</b>	The external surface is zinc-TLP treated to provide corrosion protection according to EN ISO 2081:2009 Additional on-site corrosion protection is recommended

### Ordering

ICF EVRAT valves are intended as drop-in replacement valves.

To identify the correct code number simply select the same size as the replaced valve.

Type	Solenoid	K <sub>v</sub> value [m³/h]	C <sub>v</sub> value [US gal/min]	Code no.
ICF 15 EVRAT	ICFE 20	2.4	2.8	027L4517
ICF 20 EVRAT	ICFE 20	3.0	3.5	027L4518
ICF 20 EVRAT	ICFE 20H	3.7	4.3	027L4519



## Solenoid coils

The coils are specially designed to operate in the aggressive environment of high humidity and temperature fluctuations that you find in most refrigeration systems.

The Clip-on fastening system ensures a faultless installation and makes the coils easy to mount and dismount. A Danfoss Clip-on coil can be mounted without any tools at all, and it is simple to dismount the coil by means of a screwdriver.

The Clip-on coils are available for the entire range of Danfoss solenoid valves for refrigeration, freezing and air conditioning purposes.

### Features Solenoid coils



Clip-on system for easy and fast mounting and demounting

Terminal box, DIN plug or cable for flexible electrical installation

Many voltage and frequency combinations for flexible installation worldwide

Many power versions for high MOPD performance on different valve types

### Facts

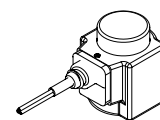
- Encapsulated coils with long operating life, even under extreme conditions.
- Standard coils for AC or DC
- Standard coils available with 3-core cable, terminal box or DIN plugs.
- Standard coils from 12 V to 420 V, 50, 60 or 50 / 60 Hz.
- Coil version for max. opening differential pressure (MOPD) of up to 38 bar.
- Coils can be fitted without the use of tools.
- ATEX approved coil version for use in EX zone 2

# Technical data and ordering

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## Solenoid coil with 1m 3 - core cable IP67



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### Ordering

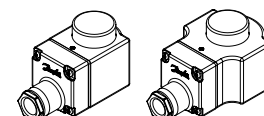
Coil type	Valve type	Power consumption	Frequency [Hz]	Voltage [V] AC	Voltage [V] DC	Code no.
BF	EVR 2 – EVR 40 (NC) EVR 6 – EVR 22 (NO) EVRH 10 – EVRH 40 EVRC EVRA EVRAT EVR5 / EVRST EVM (NC)	Holding: 10 W 21 VA Inrush: 44 VA	50	24	–	018F6257
			50	220 / 230	–	018F6251
			50	240	–	018F6252
			50	380 / 400	–	018F6253
			60	24	–	018F6265
			60	115	–	018F6260
			60	220	–	018F6264
			50/60	110	–	018F6280
			50/60	220 / 230	–	018F6282

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## Solenoid coil with terminal box IP67



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### Ordering

Coil type	Valve type	Power consumption	Frequency [Hz]	Voltage [V] AC	Voltage [V] DC	Code no.
BE	EVR 2 – EVR 40 (NC) EVR 6 – EVR 22 (NO) EVRH 10 – EVRH 40 EVRC EVRA EVRAT EVR5 / EVRST EVM (NC)	Holding: 10 W 21 VA Inrush: 44 VA	50	12	–	018F6706
			50	24	–	018F6707
			50	42	–	018F6708
			50	48	–	018F6709
			50	115	–	018F6711
			50	220 / 230	–	018F6701
			50	240	–	018F6702
			50	380 / 400	–	018F6703
			50	420	–	018F6704
			60	24	–	018F6715
			60	115	–	018F6710
			60	220	–	018F6714
			60	240	–	018F6713
			50 / 60	110	–	018F6730
			50 / 60	220 / 230	–	018F6732
BG	EVR 3 – EVR 40 EVRC EVRA EVRAT EVR5 / EVRST EVM (NC / NO)	Holding: 12 W 26 VA Inrush: 55 VA	50	24	–	018F6807
			50	48	–	018F6809
			50	110	–	018F6811
			50	220 / 230	–	018F6801
			50	240	–	018F6802
			50	380 / 400	–	018F6803
			60	24	–	018F6815
			60	110	–	018F6813
			60	220	–	018F6814
	EVR 2 – EVR 15 (NC) EVR 25 – EVR 40 (NC/NO) EVR 6 – EVR 15 (NO) EVRC 10 – EVRC 15 EVRA 3 – EVRA 15 (NC) EVRA 25 – EVRA 40 (NC) EVRAT 10 – EVRAT 15 (NC) EVR5 / EVRST 3 – EVRS 15 EVM (NC / NO)	20 W	–	–	12	018F6856
			–	–	24	018F6857
			–	–	48	018F6859
			–	–	110	018F6860
			–	–	115	018F6861
EVR 20 – EVR 22 (NC / NO) EVRC 20 EVRA 20 EVRAT 20 EVRST 20	20 W	–	–	12	018F6886	
		–	–	24	018F6887	
		–	–	48	018F6889	
		–	–	110	018F6890	
		–	–	220	018F6881	

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See "Opening differential pressure" under "Technical data" for the valve concerned.

When replacing a coil with terminal box, it is sufficient to change the coil unit itself. Therefore, order coil with DIN plugs and protective cap.

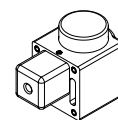
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# Technical data and ordering

## Solenoid coil with DIN spade and protection cap IP20



### Ordering

Coil type	Valve type	Power consumption	Frequency [Hz]	Voltage [V] AC	Voltage [V] DC	Code no.
BE	EVR 2 – EVR 40 (NC) EVR 6 – EVR 22 (NO) EVRH 10 – EVRH 40 EVRC EVRA EVRAT EVRS / EVRST EVM (NC)	Holding: 10 W 21 VA Inrush: 44 VA	50	24	–	018F6182
			50	220 / 230	–	018F6176
			50	240	–	018F6177
			50	420	–	018F6179
			60	115	–	018F6185
			60	220	–	018F6189
			50/60	110	–	018F6192
			50/60	220 / 230	–	018F6193

## Solenoid coil with DIN spade IP00\*)



### Ordering

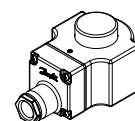
Coil type	Valve type	Power consumption	Frequency [Hz]	Voltage [V] AC	Voltage [V] DC	Code no.
BB	EVR 2 – EVR 40 (NC) EVR 6 – EVR 22 (NO) EVRH 10 – EVRH 40 EVRC EVRA EVRAT EVRS / EVRST EVM (NC)	Holding: 10 W 21 VA Inrush: 44 VA	50	24	–	018F7358
			50	115	–	018F7361
			50	220 / 230	–	018F7351
			50	240	–	018F7352
			50 / 60	110	–	018F7360
			50 / 60	220 / 230	–	018F7363

See "Opening differential pressure" under "Technical data" for the valve concerned.

When replacing a coil with terminal box, it is sufficient to change the coil unit itself. Therefore, order coil with DIN plugs and protective cap.

\*) Can only be used with DIN plug.

## Special solenoid coil with terminal box IP67

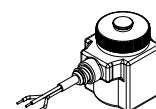


### Ordering

Coil type	Valve type	Power consumption	Frequency [Hz]	Voltage [V] AC	Voltage [V] DC	Code no.
BN	EVR 2 – EVR 40 (NC) EVR 6 – EVR 22 (NO) EVRH 4 – EVR 40 EVRC / EVRA / EVRAT / EVRS / EVRST / EVM (NC)	Holding: 20 W 45 VA Inrush: 65 VA	50	24	–	018F6901 <sup>1)</sup>
			60	24	–	018F6902 <sup>1)</sup>
			50	230	–	018F6905 <sup>1)</sup>

<sup>1)</sup> Recommended use for EVRH with high MOPD (38 bar).

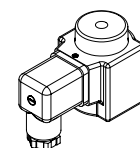
## Solenoid coils with ATEX (Zone 2) approval IP65



### Ordering

Coil type	Coil for valve type	Power consumption	Frequency [Hz]	Voltage [V] AC	Code no.
					With 1 m cable
BV	EVR 2 – EVR 40 (NC) EVR 6 – EVR 22 (NO) EVRC EVRA / EVRAT EVRS / EVRST EVM (NC / NO)	Holding: 11 W 21 VA Inrush: 44 VA	50	24	018Z6120
			50	110	018Z6121
			50	230	018Z6122
			50	240	018Z6123
			60	24	018Z6125
			60	230	018Z6127

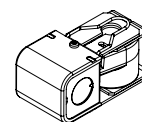
## Coil with DIN plug



### Ordering

Terminal box	With built-in light emitting indicator diode for solenoid valves (only for AC)	018Z0089
DIN plug	Enclosure IP65, EN 175301-803A	042N0156

# Technical data and ordering



## BJ coils - Junction box NEMA 2 ~ (UL listed) IP12 – IP32

### Ordering

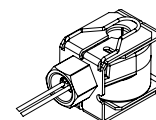
Coil type	Valve type	Power consumption [W]	Frequency [Hz]	Voltage [V] AC	Wire length		Code no.
					[in]	[cm]	
BJ	AKV / EVR EVRH / EVRA EVRAT / EVRS EVRST / EVM EV220B 6-50 EV210B	14	50 / 60	24	7	18	018F4100
		16 15	50 / 60 60	110 120	7	18	018F4110
		14 17	60 50	208 – 240 230	7	18	018F4120
	AKVH / EVRH	16	60	120	7	18	018F4130
		16	60	208	7	18	018F4132
		16	60	240	7	18	018F4134

Permissible voltage variation  
 Alternating current (AC):  
 50 Hz and 60 Hz: -10% – 15%  
 50/60 Hz: +/- 10%

Insulation of coil wire  
 Class H according to IEC 85  
 Enclosure: IEC 60529  
 Ambient temperature:  
 -40 – 50 °C / -40 – 122 °F

## BX coils - Conduit boss NEMA 4 ~ (UL listed) IP54

### Ordering



Coil type	Valve type	Power consumption [W]	Frequency [Hz]	Voltage [V] AC	Wire length		Code no.	
					[in]	[cm]		
BX	AKV / EVR EVRH / EVRA EVRAT / EVRS EVRST / EVM EV220B 6-50 EV210B EV215B EV225B EV250B	14	50 / 60	24	18	46	018F4102	
		14	50 / 60	24	71	180	018F4103	
		14	50 / 60	24	98	250	018F4104	
		16 15	50 / 60 60	110 120	18	46	018F4112	
					36	91	018F4113	
					71	180	018F4114	
		14 17	60 50	208 – 240 230	98	250	018F4115	
					18	46	018F4122	
					98	250	018F4123	
		AKVH / EVRH	16	60	120	98	250	018F4131
			16	60	208	98	250	018F4133
			16	60	240	98	250	018F4135

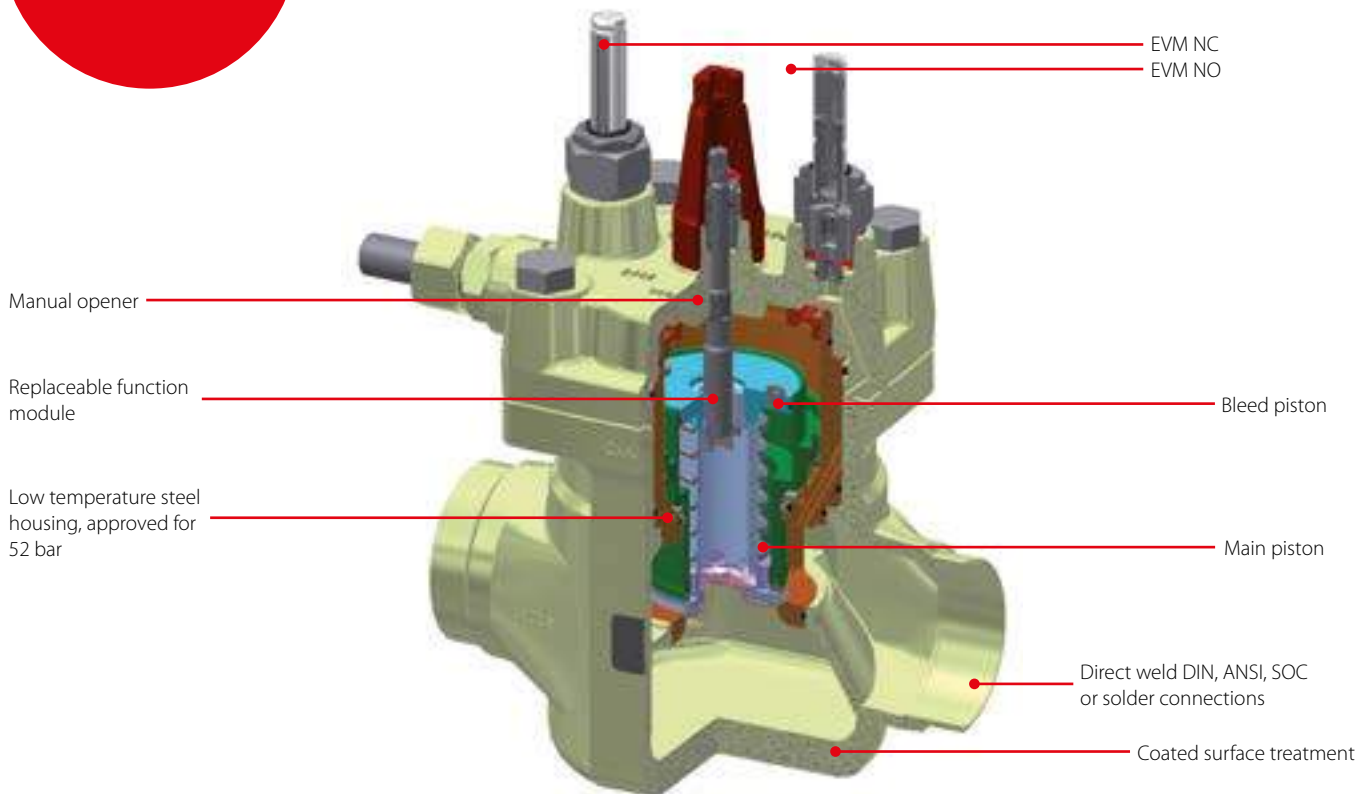
Permissible voltage variation  
 Alternating current (AC):  
 50 Hz and 60 Hz: -10% – 15%  
 50/60 Hz: +/- 10%

Insulation of coil wire  
 Class H according to IEC 85  
 Enclosure: IEC 60529  
 Ambient temperature:  
 -40 – 50 °C / -40 – 122 °F

## ICLX, 2-step solenoid valve

ICLX 2-step solenoid valves are used in suction lines for opening against a high differential pressure, e.g. after hot gas defrost in large industrial refrigeration systems with ammonia, fluorinated refrigerants or CO<sub>2</sub>. ICLX can be used in chemical and petro-chemical applications. ICLX servo valves belong to the ICV (Industrial Control Valve) family. The ICLX valve is factory configured to open in 2 steps. By following a simple procedure the valve can be configured to open in 1 step only.

In 2-step configuration, step 1 opens to approx. 10% of the capacity after the pilot solenoid valves are energised. Step 2 opens automatically when the pressure differential across the valve has decreased to approx. 1.25 bar / 18 psig. The ICLX servo valve is based on five main components: Valve body, top cover, function module and 2 pilot solenoid valves. The top cover and function module are factory-assembled.



### Facts

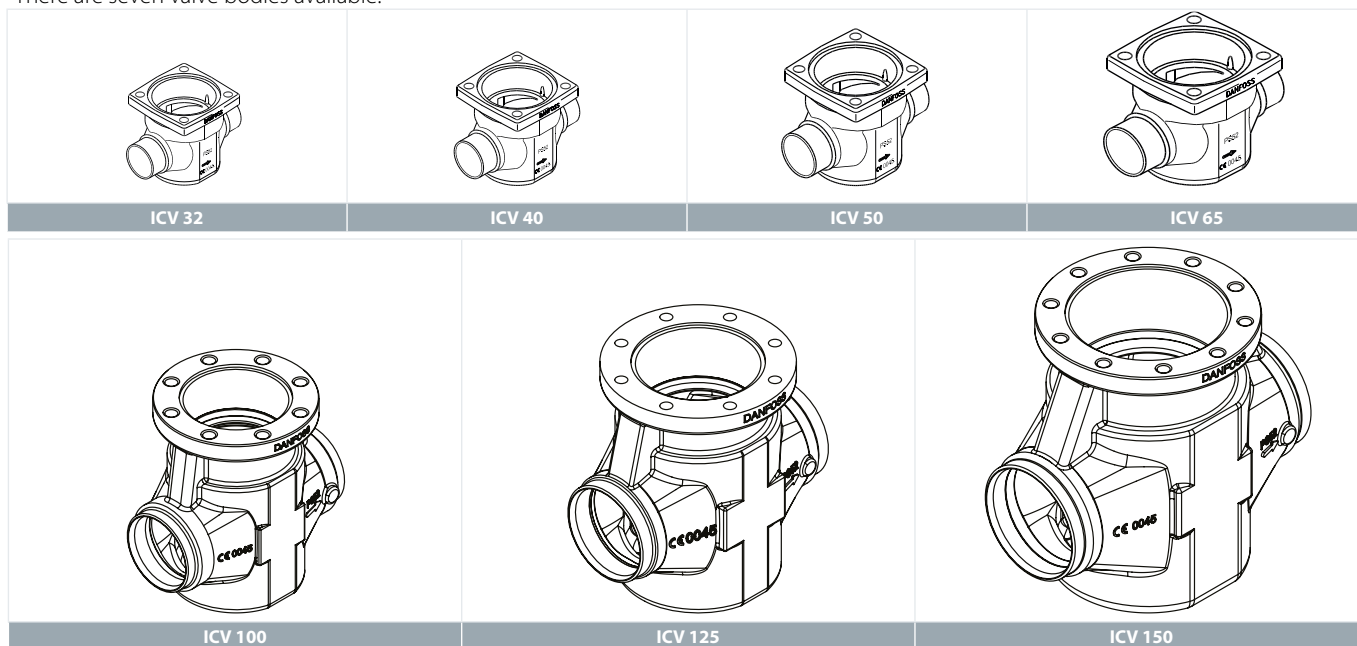
- Designed for industrial refrigeration applications for a maximum working pressure of 52 bar / 754 psig
- Modular concept
  - Each valve body is available with several different connection types and sizes
  - Valve overhaul is performed by replacing the function module
  - Possible to convert ICLX servo to ICM motor valve
- Low weight and compact design
- Low temperature steel body
- Direct coupled connections
- Connection types include butt weld, socket weld, solder and threaded connections
- Easy change from 2 to 1 step opening
- Manual operating spindle
- Only one signal needed to control both EVM NC and EVM NO coils
- Refrigerants:
  - Applicable to all common refrigerants including R717 and R744 (CO<sub>2</sub>) and non-corrosive gases / liquids. Use with flammable hydrocarbons is not recommended; please contact Danfoss
- Temperature range:
  - 60 – 120 °C / -76 – 248 °F
- Surface protection
  - The external surface is zinc-plated to provide good corrosion protection

## The ICLX concept

The ICLX concept has been developed on a modular principle. This makes it possible to combine function modules and top covers with valve bodies, which are available in many different sizes and with a variety of connection options.

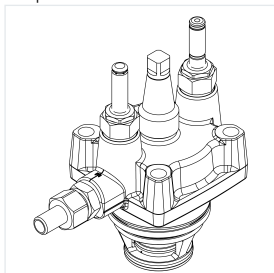
### The valve body

There are seven valve bodies available.



### Top / function module

Top covers are fitted with external connector, EVM NC and EVM NO pilots and a complete function module.



#### Coils

Both coils to be IP67.

EVM NC: 10 W AC (or higher) for MOPD up to 21 bar - EVM NC: 20W AC for MOPD 21–40 bar.

EVM NO: 10 W AC (or higher).

Valve bodies in the sizes ICV 32–ICV 65 are available with a range of nominal through oversized connection sizes and types. ICV 100–ICV 150 are available in butt-weld DIN and butt-weld ANSI nominal sizes.

D	A	SOC	SD	SA
Butt-weld DIN	Butt-weld ANSI	Socket weld ANSI	Solder DIN	Solder ANSI

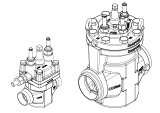
### Capacities

	ICLX 32	ICLX 40	ICLX 50	ICLX 65	ICLX 100	ICLX 125	ICLX 150
K <sub>v</sub> value [m <sup>3</sup> /h]	22	29	47	82	151	225	390
C <sub>v</sub> value [US gal/min]	25.5	33.6	54.5	95	175	261	452

# Ordering

## ICLX

Ordering factory assembled valve including external connector, EVM NC and EVM NO pilot

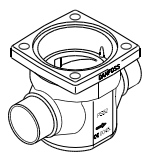


Type	Available connections		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICLX 32	1 ¼	32	Butt weld, EN 10220	D	027H3040
	1 ¼	32	Butt weld, ANSI (B 36.10)	A	027H3041
	1 ¼	32	Socket weld, ANSI (B 16.11)	SOC	027H3042
ICLX 40	1 ½	40	Butt weld, EN 10220	D	027H4040
	1 ½	40	Butt weld, ANSI (B 36.10)	A	027H4041
	1 ½	40	Socket weld, ANSI (B 16.11)	SOC	027H4042
ICLX 50	2	50	Butt weld, EN 10220	D	027H5040
	2	50	Butt weld, ANSI (B 36.10)	A	027H5041
	2	50	Socket weld, ANSI (B 16.11)	SOC	027H5042
ICLX 65	2 ½	65	Butt weld, EN 10220	D	027H6040
	2 ½	65	Butt weld, ANSI (B 36.10)	A	027H6041
	2 ½	65	Socket weld, ANSI (B 16.11)	SOC	027H6042
ICLX 80	3	80	Butt weld, EN 10220	D	027H8040
	3	80	Butt weld, ANSI (B 36.10)	A	027H8042
ICLX 100	4	100	Butt weld, EN 10220	D	027H7147
	4	100	Butt weld, ANSI (B 36.10)	A	027H7148
ICLX 125	5	125	Butt weld, EN 10220	D	027H7157
	5	125	Butt weld, ANSI (B 36.10)	A	027H7158
ICLX 150	6	150	Butt weld, EN 10220	D	027H7167
	6	150	Butt weld, ANSI (B 36.10)	A	027H7168

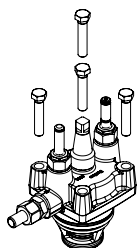
# Ordering

Ordering from the parts programme (valve body + top / function module)

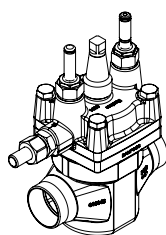
Example:



+



=

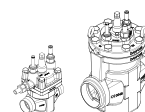


Valve body 50 D (2 in)  
**027H5120**  
Table I

Top / function module  
ICLX 50  
**027H5204**  
Table II

## ICLX 32

ICV 32 Valve body



Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 32	1 1/4	32	Butt weld, EN 10220	D	027H3120
	1 1/4	32	Butt weld, ANSI (B 36.10)	A	027H3121
	1 1/4	32	Socket weld, ANSI (B 16.11)	SOC	027H3122
	1 3/8	35	Solder connection, DIN (2856)	SD	027H3123
	1 1/2	40	Butt weld, EN 10220	D	027H3125
	1 1/2	40	Butt weld, ANSI (B 36.10)	A	027H3126
	1 5/8	42	Solder connection, ANSI (B 16.22)	SA	027H3127
1 5/8	42	Solder connection, DIN (2856)	SD	027H3128	

ICLX 32 top / function module <sup>1)</sup>

Type	Code no.
ICLX 32	027H3204

## ICLX 40

ICV 40 Valve body

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 40	1 1/2	40	Butt weld, EN 10220	D	027H4120
	1 1/2	40	Butt weld, ANSI (B 36.10)	A	027H4121
	1 1/2	40	Socket weld, ANSI (B 16.11)	SOC	027H4122
	1 5/8	42	Solder connection, ANSI (B 16.22)	SA	027H4124
	1 5/8	42	Solder connection, DIN (2856)	SD	027H4123
	2	50	Solder connection, DIN (2856)	D	027H4126
	2	50	Butt weld, ANSI (B 36.10)	A	027H4127

ICLX 40 top/function module <sup>1)</sup>

Type	Code no.
ICLX 40	027H4204

## ICLX 50

ICV 50 Valve body

Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 50	2	50	Butt weld, EN 10220	D	027H5120
	2	50	Butt weld, ANSI (B 36.10)	A	027H5121
	2	50	Socket weld, ANSI (B 16.11)	SOC	027H5122
	2 1/8	54	Solder connection, DIN (2856)	SD	027H5123
	2 1/2	65	Butt weld, EN 10220	D	027H5124
	2 1/2	65	Butt weld, ANSI (B 36.10)	A	027H5125

ICLX 50 top / function module <sup>1)</sup>

Type	Code no.
ICLX 50	027H5204

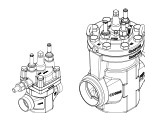
<sup>1)</sup> Top / function module includes external connector, EVM N C and EVM N O pilots, gaskets and O-rings.



# Ordering

## ICLX 65

### ICV 65 Valve body



Type	Connection size		Connection type	Connection designation	Code no.
	[in]	[mm]			
ICV 65	2 1/2	65	Butt weld, EN 10220	D	027H6120
	2 1/2	65	Butt weld, ANSI (B 36.10)	A	027H6121
	2 1/2	65	Socket weld, ANSI (B 16.11)	SOC	027H6123
	2 5/8	67	Solder connection, ANSI (B 16.22)	SA	027H6125
	3	76	Solder connection, DIN (2856)	SD	027H6124
	3	80	Butt weld, EN 10220	D	027H6126
	3	80	Butt weld, ANSI (B 36.10)	A	027H6127

### ICLX 65 top / function module <sup>1)</sup>

Type	Code no.
ICLX 65	027H6204

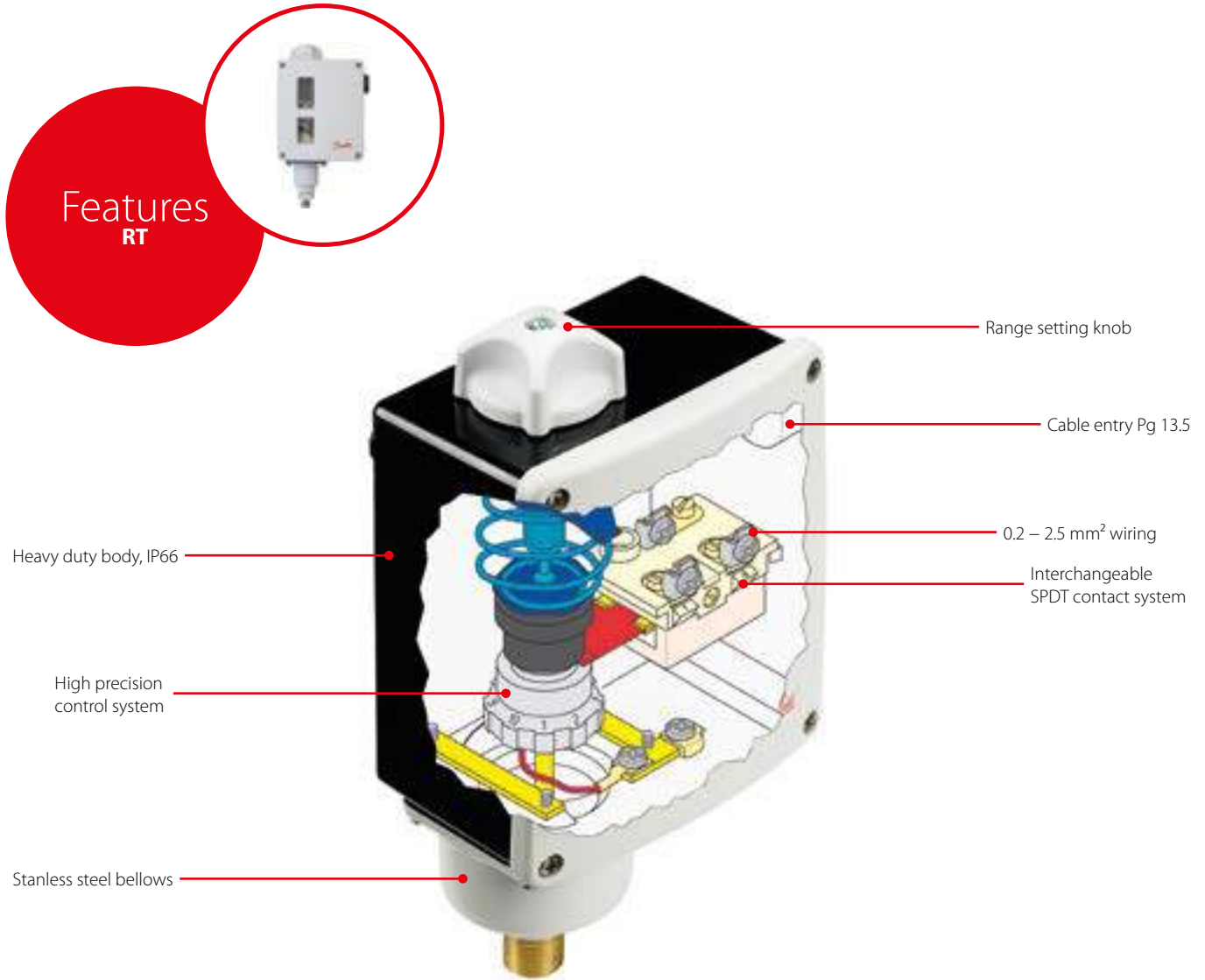
<sup>1)</sup> Top / function module includes external connector, EVM N C and EVM N O pilots, gaskets and O-rings.



# RT - Pressure switch

RT pressure switches contain a pressure operated single-pole changeover contact, the position of which depends on the pressure in the inlet connection and the set scale value. The RT series includes pressure switches for general applications within industrial and maritime refrigeration, as well as differential

pressure switches for neutral zone regulation, and special pressure switches with gold-plated contact surfaces for PLC applications. Versions of RT are available for R717, HCFC and non-flammable HFC refrigerants.



## Facts

### Application:

- General applications within industrial and marine refrigeration
- Pressure switches for fluorinated refrigerants and R717 (NH<sub>3</sub>)
- Wide regulating range
- Suitable for both alternating and direct current (AC and DC)
- Interchangeable contact system
- Special versions with gold plated contact surfaces for PLC applications
- Versions for neutral zone regulation
- High stability and accuracy
- Long operating life time
- Enclosure: IP66 to EN 60529 / IEC 60529, except for versions with ext. reset which are IP54
- Insulation 400 V
- Ambient temperature: -50 – 70 °C for housing
- Cable connection: Pg 13.5
- Cable diameter: 6 – 14 mm

# Technical data and ordering

## RT pressure switches for HCFC and non-flammable HFC refrigerants

### Ordering

Type	Pressure	Regulation range [bar]	Differential Δp [bar]	Reset	Max. working pressure [bar]	Max. test pressure [bar]	Connection type	Code no.
RT 1	Low	-0.8 – 5	0.5 – 1.6	Auto	22	25	1/4 in / 6 mm flare	017-524566
	Low	-0.8 – 5	0.5	Man. (Min.)	22	25	1/4 in / 6 mm flare	017-524666
RT 200	Low	0.2 – 6	0.25 – 1.2	Auto	22	25	G 3/8 A <sup>1)</sup>	017-523766
RT 117L	High	10 – 30	1 – 4	Auto	42	47	G 3/8 A <sup>1)</sup>	017-529566

<sup>1)</sup> G ext. thread, ISO 228-1

## RT safety pressure switches for R717 (NH<sub>3</sub>), HCFC and non-flammable HFC refrigerants

### Ordering

Type	Pressure	Regulation range [bar]	Differential Δp [bar]	Reset	Max. working pressure [bar]	Max. test pressure [bar]	Connection type	Code no.
RT 1A	Low	-0.8 – 5	0.5 – 1.6	Auto	22	25	1/4 in / 6 mm flare	017-501966
	Low	-0.8 – 5	0.5 – 1.6	Auto	22	25	G 3/8 A <sup>1)</sup>	017-500166
	Low	-0.8 – 5	0.5	Man. (Min.)	22	25	1/4 in / 6 mm flare	017-502766
	Low	-0.8 – 5	0.5	Man. (Min.)	22	25	G 3/8 A <sup>1)</sup>	017-500266
	Low	-0.8 – 5	1.3 – 2.4	Auto	22	25	G 3/8 A <sup>1)</sup>	017-500766
RT 5A	High	4 – 17	1.2 – 4	Auto	22	25	1/4 in / 6 mm flare	017-505266
	High	4 – 17	1.2 – 4	Auto	22	25	G 3/8 A <sup>1)</sup>	017-504666
	High	4 – 17	1.3	Man. (Max.)	22	25	1/4 in / 6 mm flare	017-506166
	High	4 – 17	1.3	Man. (Max.)	22	25	G 3/8 A <sup>1)</sup>	017-504766

<sup>1)</sup> G external thread, ISO 228-1

## RT safety pressure switches with adjustable neutral zone for R717 (NH<sub>3</sub>)\*, HCFC and non-flammable HFC refrigerants

### Ordering

Type	Pressure	Regulation range [bar]	Mechanical differential Δp [bar]	Neutral zone Δp [bar]	Max. working pressure [bar]	Max. test pressure [bar]	Connection type	Code no.
RT 1AL	Low	-0.8 – 5	0.2	0.2 – 0.9	22	25	cutting ring ø6 mm	017L001666
	Low	-0.8 – 5	0.2	0.2 – 0.9	22	25	G 3/8 A <sup>1)</sup> + weld nipple ø6.5 / 10 mm	017L003366
RT 200L	Low	0.2 – 6	0.25	0.25 – 0.7	22	25	G 3/8 A <sup>1)</sup> + weld nipple ø6.5 / 10 mm	017L003266
RT 5AL	High	4 – 17	0.35	0.35 – 1.4	22	25	cutting ring ø6 mm	017L001766 <sup>2)</sup>
	High	4 – 17	0.35	0.35 – 1.4	22	25	G 3/8 A <sup>1)</sup> + weld nipple ø6.5 / 10 mm	017L004066 <sup>2)</sup>
RT 117L	High	10 – 30	1	1 – 3	42	47	G 3/8 A <sup>1)</sup> + weld nipple ø6.5 / 10 mm	017L004266 <sup>2)</sup>

<sup>1)</sup> G external thread, ISO 228-1

<sup>2)</sup> Without nipple

<sup>3)</sup> Only types with letter A are suitable for R717.

## RT differential pressure switches for R 717(NH<sub>3</sub>)\*, HCFC and non-flammable HFC refrigerants

### Ordering

Type	Regulation range [bar]	Mechanical differential Δp [bar]	Operating range for LP bellows [bar]	Max. working pressure [bar]	Max. test pressure [bar]	Connection type	Code no.
RT 260A	0.5 – 4	0.3	-1 – 18	22	25	cutting ring ø6 mm	017D001466
	0.5 – 4	0.3	-1 – 18	22	25	G 3/8 A <sup>1)</sup> + weld nipple ø6.5 / 10 mm	017D002166
	0.5 – 4	0.3	-1 – 18	22	25	G 3/8 A <sup>1)</sup> + weld nipple ø6.5 / 10 mm	017D002266 <sup>2)</sup>
	0.5 – 6	0.5	-1 – 36	42	47	cutting ring ø6 mm	017D001566
	0.5 – 6	0.5	-1 – 36	42	47	G 3/8 A <sup>1)</sup> + weld nipple ø6.5 / 10 mm	017D002366
	1.5 – 11	0.5	-1 – 31	42	47	cutting ring ø6 mm	017D001666
	1.5 – 11	0.5	-1 – 31	42	47	G 3/8 A <sup>1)</sup> + weld nipple ø6.5 / 10 mm	017D002466
RT 262A	0.1 – 1.5	0.1	-1 – 9	11	13	cutting ring ø6 mm	017D001366
	0.1 – 1.5	0.1	-1 – 9	11	13	G 3/8 A <sup>1)</sup> + weld nipple ø6.5 / 10 mm	017D002566
RT 265 <sup>3)</sup>	1 – 6	0.5	-1 – 36	42	47	G 3/8 A <sup>1)</sup> + weld nipple ø6.5 / 10 mm	017D007266

<sup>1)</sup> G external thread, ISO 228-1

<sup>2)</sup> Manual reset

<sup>3)</sup> Filter monitor: Alarm Δp = 0.8 bar, cut-out Δp = 1 bar (factory setting)

<sup>4)</sup> Only types with letter A are suitable for R717.

## Technical data and ordering

### RT differential pressure switches with adjustable neutral zone for R 717(NH<sub>3</sub>), HCFC and non-flammable HFC refrigerants

#### Ordering

Type	Regulation range [bar]	Mechanical differential Δp [bar]	Adjustable Neutral zone [bar]	Operating range for LP bellows [bar]	Max. working pressure [bar]	Max. test pressure [bar]	Connection type	Code no.
RT 262 AL	0.1 – 1.5	0.1	1 – 0.33	-1 – 9	11	13	G <sup>1</sup> / <sub>2</sub> A <sup>1)</sup> + weld nipple ø6.5 / 10 mm	017D004366

<sup>1)</sup> G external thread, ISO 228-1

### RT safety pressure switches with EN 12263 approval and CE marked according to PED, Pressure Equipment Directive

#### Ordering

Type	Pressure	Regulation range [bar]	Differential (fixed) Δp [bar]	Reset	Max. working pressure [bar]	Max. test pressure [bar]	Connection type	Code no.
RT 6W <sup>2)</sup>	High	5 – 25	3	Auto	28 <sup>4)</sup>	38	1/4 in / 6 mm flare	017-503166
RT 6B <sup>2)</sup>	High	10 – 28	1	Man. (Max.)	28 <sup>4)</sup>	38	1/4 in / 6 mm flare	017-503466
RT 6S <sup>2)</sup>	High	10 – 28	1	Man. (Max.)	28 <sup>4)</sup>	38	1/4 in / 6 mm flare	017-507566
RT30AW <sup>3)</sup>	High	1 – 10	0.8	Auto	22	25	G <sup>1</sup> / <sub>2</sub> A <sup>1)</sup>	017-518766
RT30AB <sup>3)</sup>	High	1 – 10	0.4	Man. (Max.)	22	25	G <sup>1</sup> / <sub>2</sub> A <sup>1)</sup>	017-518866
RT30AS <sup>3)</sup>	High	1 – 10	0.4	Man. (Max.)	22	25	G <sup>1</sup> / <sub>2</sub> A <sup>1)</sup>	017-518966
RT6AW <sup>3)</sup>	High	5 – 25	3	Auto	28 <sup>4)</sup>	38	cutting ring ø6 mm	017-513166
	High	5 – 25	3	Auto	28 <sup>4)</sup>	38	G <sup>3</sup> / <sub>8</sub> A <sup>1)</sup> + weld nipple ø6.5 / 10 mm	017-503266
RT6AB <sup>3)</sup>	High	10 – 28	1.5	Man. (Max.)	28 <sup>4)</sup>	38	cutting ring ø6 mm	017-513366
	High	10 – 28	1.5	Man. (Max.)	28 <sup>4)</sup>	38	G <sup>3</sup> / <sub>8</sub> A <sup>1)</sup> + weld nipple ø6.5 / 10 mm	017-503566
RT6AS <sup>3)</sup>	High	10 – 28	1.5	Man. (Max.)	28 <sup>4)</sup>	38	cutting ring ø6 mm	017-514666
	High	10 – 28	1.5	Man. (Max.)	28 <sup>4)</sup>	38	G <sup>3</sup> / <sub>8</sub> A <sup>1)</sup> + weld nipple ø6.5 / 10 mm	017-507666

<sup>1)</sup> G external thread, ISO 228-1

<sup>2)</sup> Pressure controls for fluorinated refrigerants

<sup>3)</sup> Pressure controls for HCFC and non-flammable HFC refrigerants

<sup>4)</sup> Max. working pressure acc. to PED is limited to 28 bar. If the unit is going to be used outside PED regulation, then MWP may be increased to 34 bar.

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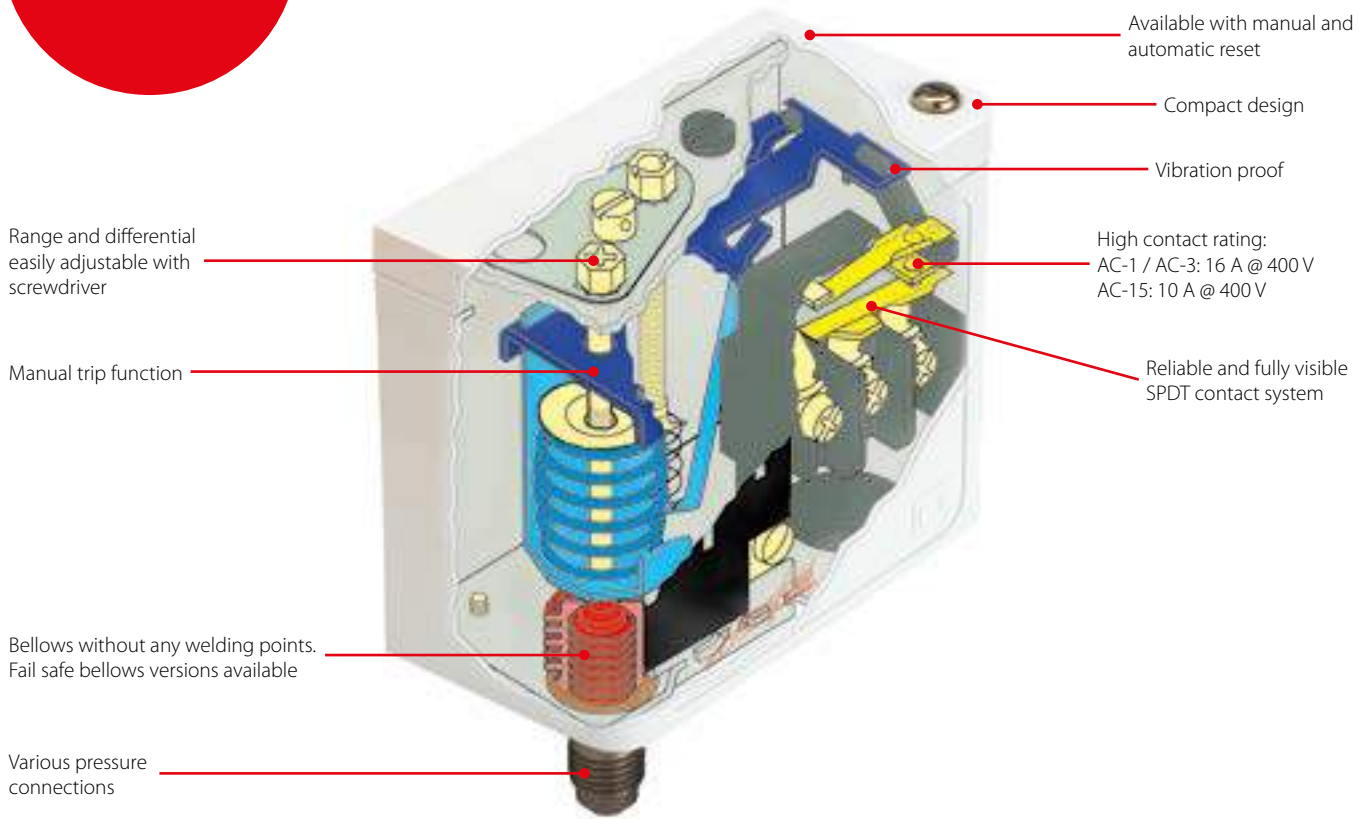
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# KP - Pressure switch

KP pressure switches are designed to protect refrigeration systems from excessively high discharge pressures, excessively low suction pressures, to start / stop compressors or to operate fans of aircooled condensers.

The enhanced contact system for 16 A makes it possible to operate electrical motors up to 2 kW directly, without the use of contactors. KP pressure switches are available in IP30 and IP44 enclosures. Versions of KP are available for applications with HCFC and non-flammable HFC refrigerants, ammonia or hydrocarbons.



## Facts

Application: Food Retail, Heavy Commercial Refrigeration, Light Commercial Refrigeration, Commercial Air Conditioning, Food Processing and Storage.

- Easy to handle compact design with large and visible scale plates
- Vibration and shock resistant
- Accurate and reliable compressor operation due to excellent electro-mechanical function
- High reliability both electrically and mechanically-a KP switch can be connected directly to a single-phase AC motor of up to approximately 2 kW

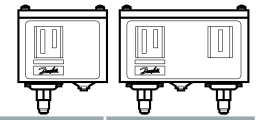
or installed in the control circuit of DC motors and large AC motors

- Easy to install electrical connection which also facilitates rack mounting
- Bellows without any welding points, which makes them stress free and completely tight
- Wide range of approvals - Danfoss offers a wide range of approval suited for specific applications and geographical markets
- The KP pressure switches can be used for all HCFC and non-flammable HFC refrigerants
- The KP-A pressure switches can be used

for R717 and all above refrigerants

- The KP-E pressure switches can be used for HC, HCFC and HFC refrigerants
- Available with flare, solder or capillary tube connections
- Pressure switches PED 97 / 23 / EC approved available
- Wide pressure ranges  
The programme covers working ranges: -0.9 – 46.5 bar / -1.3 – 674 psi
- Versions with IP30 enclosure rating can be updated to IP44 or IP55 enclosure rating using top plate (IP44) or IP55 enclosure (IP55), available as accessories

# Technical data and ordering



## KP pressure switches for HCFC and non-flammable HFC refrigerants

### Ordering

Type	Pressure	Low pressure (LP)		High pressure (HP)		Reset		Contact System	Connection type	Code no.
		Regulating range [bar]	Differential $\Delta p$ [bar]	Regulating range [bar]	Differential $\Delta p$ [bar]	Low pressure LP	High pressure HP			
KP 1	Low	-0.2 – 7.5	0.7 – 4.0	–	–	Auto	–	SPDT	1/4 in / 6 mm flare	060-110166 <sup>3)</sup>
	Low	-0.2 – 7.5	0.7 – 4.0	–	–	Auto	–	SPDT	1/4 in / ODF solder	060-111266 <sup>3)</sup>
	Low	-0.2 – 7.5	0.7 – 4.0	–	–	Auto	–	SPDT	6 mm / ODF solder	060-111066 <sup>3)</sup>
	Low	-0.2 – 7.5	0.7 – 4.0	–	–	Auto	–	SPDT	1/4 in / 6 mm flare	060-114166 <sup>1) 3)</sup>
	Low	-0.9 – 7.0	0.7	–	–	Man. (Min.)	–	SPDT	1/4 in / 6 mm flare	060-1110366
	Low	-0.9 – 7.0	0.7	–	–	Man. (Min.)	–	SPDT	1/4 in / ODF solder	060-1111166
KP 2	Low	-0.2 – 5.0	0.4 – 1.5	–	–	Auto	–	SPDT	1/4 in / 6 mm flare	060-112066 <sup>3)</sup>
	Low	-0.2 – 5.0	0.4 – 1.5	–	–	Auto	–	SPDT	6 mm / ODF solder	060-112366 <sup>3)</sup>
KP 5	High	–	–	8 – 32	1.8 – 6.0	–	Auto	SPDT	1/4 in / 6 mm flare	060-117166 <sup>3)</sup>
	High	–	–	8 – 32	1.8 – 6.0	–	Auto	SPDT	1/4 in / ODF solder	060-117966 <sup>3)</sup>
	High	–	–	8 – 32	1.8 – 6.0	–	Auto	SPDT	6 mm / ODF solder	060-117766 <sup>3)</sup>
	High	–	–	8 – 32	3	–	Man. (Max.)	SPDT	1/4 in / 6 mm flare	060-117366
KP 15	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Auto	SPDT+LP signal	1/4 in / 6 mm flare	060-124166 <sup>3)</sup>
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Auto	SPDT+LP signal	1/4 in / ODF solder	060-125466 <sup>3)</sup>
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Man. (Max.)	SPDT+LP signal	1/4 in / 6 mm flare	060-124366
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Man. (Max.)	SPDT+LP signal	1/4 in / 6 mm flare	060-114866 <sup>1)</sup>
	Dual	-0.9 – 7.0	0.7	8 – 32	4	Man. (Min.)	Man. (Max.)	SPDT+LP signal	1/4 in / 6 mm flare	060-124566
	Dual	-0.9 – 7.0	0.7	8 – 32	4	Conv. <sup>2)</sup>	Conv. <sup>2)</sup>	SPDT+LP signal	1/4 in / 6 mm flare	060-126166
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Auto	SPDT+LP and HP signal	1/4 in / 6 mm flare	060-126566 <sup>3)</sup>
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Auto	SPDT+LP and HP signal	1/4 in / ODF solder	060-129966 <sup>3)</sup>
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Man. (Max.)	SPDT+LP and HP signal	1/4 in / 6 mm flare	060-126466
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Man. (Max.)	SPDT+LP and HP signal	1/4 in / ODF solder	060-128466
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Conv. <sup>2)</sup>	Conv. <sup>2)</sup>	SPDT+LP and HP signal	1/4 in / 6 mm flare	060-115466 <sup>3)</sup>
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Conv. <sup>2)</sup>	Conv. <sup>2)</sup>	SPDT+LP and HP signal	1/4 in / ODF solder	060-001066 <sup>3)</sup>
Dual	-0.9 – 7.0	0.7	8 – 32	4	Conv. <sup>2)</sup>	Conv. <sup>2)</sup>	SPDT+LP and HP signal	1/4 in / 6 mm flare	060-122066	
KP 6W <sup>4)</sup>	High	–	–	8 – 42	4 – 10	–	Auto	SPDT	1/4 in / 6 mm flare	060-519066 <sup>3)</sup>
KP 6B <sup>4)</sup>	High	–	–	8 – 42	4	–	Man. (Max.)	SPDT	1/4 in / 6 mm flare	060-519166
KP 7W <sup>4)</sup>	High	–	–	8 – 32	4 – 10	–	Auto	SPDT	1/4 in / 6 mm flare	060-119066 <sup>3)</sup>
	High	–	–	8 – 32	4 – 10	–	Auto	SPDT	6 mm / ODF solder	060-120366 <sup>3)</sup>
KP 7B <sup>4)</sup>	High	–	–	8 – 32	4	–	Man. (Max.)	SPDT	1/4 in / 6 mm flare	060-119166
KP 7S <sup>4)</sup>	High	–	–	8 – 32	4	–	Man. (Max.)	SPDT	1/4 in / 6 mm flare	060-119266 <sup>3)</sup>
KP 7BS <sup>4)</sup>	Dual	–	–	8 – 32	4	–	Man. (Max.)	SPST	1/4 in / 6 mm flare	060-120066
KP 17W <sup>4)</sup>	Dual	0.2 – 7.5	0.7 – 4	8 – 32	4	Auto	Auto	SPDT+LP and HP signal	1/4 in / 6 mm flare	060-127566 <sup>3)</sup>
	Dual	0.2 – 7.5	0.7 – 4	8 – 32	4	Auto	Auto	SPDT+LP and HP signal	6 mm / ODF solder	060-127666 <sup>3)</sup>
KP 17W <sup>4)</sup>	Dual	0.2 – 7.5	0.7 – 4	8 – 32	4	Auto	Auto	SPDT+LP signal	1/4 in / 6 mm flare	060-126766 <sup>3)</sup>
KP 17B <sup>4)</sup>	Dual	0.2 – 7.5	0.7 – 4	8 – 32	4	Auto	Man. (Max.)	SPDT	1/4 in / 6 mm flare	060-126866
	Dual	0.2 – 7.5	0.7 – 4	8 – 32	4	Auto	Man. (Max.)	SPDT	6 mm / ODF solder	060-127466
KP 17WB <sup>4)</sup>	Dual	0.2 – 7.5	0.7 – 4	8 – 32	4	Auto	Conv. <sup>2)</sup>	SPDT+LP and HP signal	1/4 in / 6 mm flare	060-539766 <sup>3) 5)</sup>

<sup>1)</sup> Pressure switches with gold-plated contacts

<sup>2)</sup> Conv.: optional automatic or manual reset

<sup>3)</sup> Enclosure IP44

<sup>4)</sup> W = PSH (pressure switch), B = PZH (pressure switch with ext. reset), S = PZHH (pressure switch with int. reset)

<sup>5)</sup> Factory setting: LP side: range = 1 bar  $P_s$ , diff. = 1 bar; HP side: range = 18 bar  $P_s$ , diff. = 4 bar fixed



# Technical data and ordering

## KP pressure switches for R717, HCFC and non-flammable HFC refrigerants

### Ordering

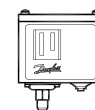
Type	Pressure	Low pressure (LP)		High pressure (HP)		Reset		Contact System	Connection type	Code no.
		Regulating range [bar]	Differential $\Delta p$ [bar]	Regulating range [bar]	Differential $\Delta p$ [bar]	Low pressure LP	High pressure HP			
KP 1A	Low	-0.2 – 7.5	0.7 – 4.0	–	–	Auto	–	SPDT	M10 x 0.75	060-116266
	Low	-0.2 – 7.5	0.7 – 4.0	–	–	Auto	–	SPDT	1 m cap. tube with M10 x 0.75	060-116066 <sup>2)</sup>
	Low	-0.9 – 7.0	0.7	–	–	Man. (Min.)	–	SPDT	1 m cap. tube with M10 x 0.75	060-116166
KP 5A	High	–	–	8 – 32	1.8 – 6.0	–	Auto	SPDT	1 m cap. tube with M10 x 0.75	060-123066 <sup>2)</sup>
	High	–	–	8 – 32	3	–	Man. (Max.)	SPDT	M10 x 0.75	060-115366
	High	–	–	8 – 32	3	–	Man. (Max.)	SPDT	1 m cap. tube with M10 x 0.75	060-123166
KP 15A	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Auto	SPDT+LP and HP signal	M10 x 0.75	060-129566
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Auto	SPDT+LP and HP signal	1 m cap. tube with M10 x 0.75	060-129366 <sup>2)</sup>
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Man. (Max.)	SPDT+LP and HP signal	M10 x 0.75	060-129666
	Dual	-0.2 – 7.5	0.7 – 4.0	8 – 32	4	Auto	Man. (Max.)	SPDT+LP and HP signal	1 m cap. tube with M10 x 0.75	060-129466
	Dual	-0.9 – 7.0	0.7	8 – 32	4	Conv. <sup>1)</sup>	Conv. <sup>1)</sup>	SPDT+LP signal	1 m cap. tube with M10 x 0.75	060-128366
KP 7ABS	Dual	–	–	8 – 32	Fixed 4	Man. (Max.)	Man. (Max.)	SPST	1 m cap. tube with M10 x 0.75	060-120566

<sup>1)</sup> Conv.: optional automatic or manual reset

<sup>2)</sup> Enclosure IP44

## KP pressure switches for HCFC, HFC and HC refrigerants

### Ordering



Type	Pressure	Low pressure (LP)		High pressure (HP)		Reset		Contact System	Function *)	Code no.
		Regulating range [bar]	Differential $\Delta p$ [bar]	Regulating range [bar]	Differential $\Delta p$ [bar]	Low pressure LP	High pressure HP			Connection ¼ in ODF solder
KP 1E	Low	-0.2 – 7.5	0.7 – 4.0	–	–	Auto	–	SPDT	PSL	060-530066
KP 1E	Low	-0.9 – 7.0	0.7	–	–	Man. (Min.)	–	SPDT	PZL	060-530266
KP 7EW	High	–	–	8 – 32	1.8 – 6.0	–	Auto	SPDT	PSH	060-530466
KP 7EB	High	–	–	8 – 32	4	–	Man. (Max.)	SPDT	PZH	060-530666

\*) PSL, PZL, PSH, PZH according to EN12266: 1998