

## DANFOSS THERMOSTATIC EXPANSION VALVES

DANFOSS TYPE TUA(E), TUB(E), TUC(E), T(E)2, TDE, TDEB, TE, TXI 2, AKV

### Thermostatic Expansion Valves

Valve	Applications	Features	Models	Nominal Capacity Ranges in TR for Range N -40 to 50°F					Body Type	Pressure Equalization	Connections		
				R-12	R-22	R-410A	R-134A	R-404A/507			SAE X SAE	SAE X ODF	ODF X ODF
TUA(E)	Supermarket Cases Walk-In-Coolers Residential A/C Ice-Machines Heat Pump Transport Refrigeration Food Dispensers	Interchangeable orifice, Bi flow, Stainless Steel body/cap tube/bulb, Adjustable Superheat			0.17-4.50		0.13-3.50	0.13-3.50	Straightway	Internal/ External			1/4 X 3/8 1/4 X 1/2 3/8 X 3/8 3/8 X 1/2 1/2 X 5/8
TUB(E)	Supermarket Cases Walk-In-Coolers Residential A/C Commercial HVAC Ice-Machines Heat Pump Transport Refrigeration Food Dispensers	Bi flow, Stainless Steel body/cap tube/bulb, Adjustable Superheat			0.17-4.50		0.19-3.50	0.19-3.50	Angleway/ Straightway	Internal/ External			1/4 X 3/8 1/4 X 1/2 3/8 X 3/8 3/8 X 1/2
TUC(E)	Supermarket Cases Walk-In-Coolers Residential A/C Commercial HVAC Ice-Machines Heat Pump Transport Refrigeration Food Dispensers	Bi flow, Stainless Steel body/cap tube/bulb, Non-Adjustable Superheat			0.17-4.50		0.19-3.50	0.19-3.50	Angleway/ Straightway	Internal/ External			1/4 X 3/8 1/4 X 1/2 3/8 X 3/8 3/8 X 1/2
T(E)2	Supermarket Cases Walk-In-Coolers Residential A/C Ice-Machines Heat Pump Transport Refrigeration Food Dispensers	Interchangeable orifice, available with or w/o Maximum Operating Pressure (MOP), Adjustable Superheat		0.20-3.00	0.15-4.50		0.11-3.00	0.11-2.60	Angleway	Internal/ External	3/8 X 1/2	3/8 X 1/2	1/4 X 1/2 3/8 X 1/2
TDE	Commercial HVAC Heat Pump Transport Refrigeration	High capacity capability, Bi flow, available with or w/o Maximum Operating Pressure (MOP), adjustable superheat			3.0-7.5				Straightway	External			3/8 X 5/8 1/2 X 5/8 1/2 X 7/8 5/8 X 7/8
TDEB	Commercial HVAC Heat Pump Transport Refrigeration	Balanced Port, High capacity capability, Bi flow, available with or w/o MOP, Adjustable Superheat			7.5-40.0				Straightway	External			5/8 X 7/8 5/8 X 1-1/8 7/8 X 1-1/8 7/8 X 1-3/8 1-1/8 X 1-3/8
TE	Commercial HVAC Heat Pump Transport Refrigeration	Take a part valve, High capacity capability	TE 5 TE 12 TE 20 TE 55	2.0-8.0 3.0-12.0 12.0 20.0 50.0-85.0	3.0-4.5-18.0 30.0 33.0-55.0		3.7-11.2 4.7-15.0 18.0 41.0-62.0	3.7-10.3 4.2-13.4 16.5 37.0-56.0	Angleway/ Straightway Straightway Straightway	External External External External	1/2 X 5/8		1/2 X 5/8 1/2 X 7/8 5/8 X 7/8
AKV	Supermarket Cases Walk-In-Coolers Ice-Machines	Electronic expansion valves	AKV 10 AKV 15		0.3-5.7 7.2-29.0		0.2-4.4 6.0-24.0	0.2-4.8 5.6-22.2	Angleway Straightway Straightway	Internal Internal Internal			7/8 X 1-1/8
TR6	Residential A/C	Optimized for split system A/C & Heat Pump			1-6	3-5				Sensor & Transducer			3/8 X 1/2 1/2 X 5/8

Compressors,  
Chillers, Condensers

Motors

Electrical

Heating  
Components

Indoor Air  
Quality

Thermostats

Oils &  
Chemicals

Accessories, Supplies  
& Commodities

Tools &  
Instruments

Refrigeration

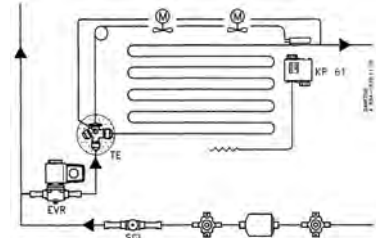
## DANFOSS THERMOSTATIC EXPANSION VALVES DANFOSS TYPE T2 & TE2

### UNIVERSAL TR 6 KIT FOR AIR CONDITIONING

Upgrade for energy savings

- Patented, internal check valve
- For Air Conditioning and heat pump systems
- A complete it – easily retrofit existing systems
- 3 connection options in every kit
  - o 3/8" x 3/8" ODF
  - o Chatleff
  - o Aeroquip
- Adjustable superheat
- Anti-hunt sensing bulb
- Stainless Steel power head, laser welded
- Stainless Steel cap tube resists vibration
- R-22 and R-410A versions

- Patented double contact bulb
  - Fast and easy to install
  - Good temperature transfer from pipe to bulb
- Valves for special temperature ranges can be supplied.  
5 ft. long capillary tube



#### Kit includes:

- Valve body with 3/8" x 3/8" ODF connections
- Built-in check valve for heat pumps
- Instructions
- Chatleff and Aeroquip adapters
- 35" foam insulating tape
- PATENTED easy secure copper bulb strap

Adjustable Superheat

Equilization line: 24" with flarenut:  
capillary tube: 31.5"

Connections: 3/8" x 3/8" ODF, Aeroquip and chatleff adapters supplied

#### FEATURES: Large temperature range

Equally applicable to freezing, refrigeration, and air conditioning applications.

Interchangeable orifice assembly

- Easier 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

#### ORDERING

Components with Flare x Flare Connections

Thermostatic element and valve body with bulb strap (without orifice and filter)

Refrigerant	Valve Type	Pressure Equalization <sup>1)</sup>	Capillary Tube (ft)	Connection Inlet x Outlet (in. x in.)	PART NO.					
					Range N –40 to +50° F		Range NM –40 to +25° F	Range NL –40 to +5° F	Range B –75 to –15° F	
					Without MOP	With MOP	With MOP	With MOP	Without MOP	With MOP
R-22	TX 2	Int.	5	3/8 x 1/2	068Z3206	068Z3208	068Z3224	068Z3226	068Z3207	068Z3228
	TEX 2	Ext.	5	3/8 x 1/2	068Z3209	068Z3211	068Z3225	068Z3227	068Z3210	068Z3229
R-134a	TN 2	Int.	5	3/8 x 1/2	068Z3346	068Z3347	068Z3393	068Z3369		
	TEN 2	Ext.	5	3/8 x 1/2	068Z3348	068Z3349	068Z3392	068Z3370		
R-404A/ R-507	TS 2	Int.	5	3/8 x 1/2	068Z3400	068Z3402	068Z3406	068Z3408	068Z3401	068Z3410
	TES 2	Ext.	5	3/8 x 1/2	068Z3403	068Z3405	068Z3407	068Z3409	068Z3404	068Z3411

Orifice Assembly with Filter

Rated capacity in nominal tons (TR)

PART NO	ORIFICE SIZE	R-22	Range N: –40 to +50° F				Range B: –75 to –15° F	
			R-407C	R-134A	R-404A/R-507	R-22	R-404A/R-507	
068-2002	0X	0.15	0.16	0.11	0.11	0.15	0.11	
068-2003	0	0.3	0.3	0.25	0.21	0.2	0.21	
068-2010	1	0.7	0.8	0.5	0.45	0.3	0.45	
068-2015	2	1	1.1	0.8	0.6	0.6	0.6	
068-2006	3	1.5	1.6	1.3	1.2	0.8	1	
068-2007	4	2.3	2.5	1.9	1.7	1.2	1.4	
068-2008	5	3	3.2	2.5	2.2	1.5	1.7	
068-2009	6	4.5	4.9	3	2.6	2	1.9	

Rated capacity is based on:

Evaporating temperature te = +40° F for range N and

te = –20° F for range B

Condensing temperature tc = +90° F

Refrigerant liquid temperature ahead of valve tl = +80° F

## DANFOSS THERMOSTATIC EXPANSION VALVES DANFOSS TYPE TUA/TUAE TUA-TUAE Range 1/6 to 4 1/2 TR (R-22)

### FEATURES



- Type TUA/TUAE is available with interchangeable orifice assembly and removable strainer in a straightway design.
- The valves are offered in rated capacities up to 4.5 TR (R-22) and can be used in a wide range of applications.
- The TUA/TUAE is made of stainless steel and therefore is especially well-suited to refrigeration systems where aggressive environments exist.
- The TUA/TUAE has been developed and designed especially for soldering into hermetic refrigeration systems.
- Removable Strainer- Suitable for use with new POE oils
- Maximum working pressure MWP=500 PSIG MWPR410A=615PSIG
- Bi-Flow operation, with flow in opposite direction, the rated capacity is reduced by up to 15%.
- TUAE Models (Except Orifice 9) can be used for Bi-Flow operation.

### Ordering

Thermostatic element and valve body with bulb strap (without orifice and filter)  
R-22, R-134a, R-404A, R-507

Refrigerant	Valve Type	Pressure Equalization1)	Capillary Tube (in)	CONNECTIONS ODF x ODF (in)	Range N .40—50 F w/o MOP	Range N -40-50F MOP 60 F	Range B -60 - 15F MOP .4 F
R-22	TUA	Int.	59	1/4 x 1/2	068U2234	068U2242	.
R-22	TUA	Int.	59	3/8 x 1/2	068U2235	068U2243	.
R-22	TUAE	Ext. 1/4 in.	59	1/4 x 1/2	068U2236	068U2244	.
R-22	TUAE	Ext. 1/4 in.	69	3/8 x 1/2	068U2237	068U2245	.
R-134a	TUA	Int.	59	1/4 x 1/2	068U2204	068U2212	.
R-134a	TUA	Int.	59	3/8 x 1/2	068U2205	068U2213	.
R-134a	TUAE	Ext. 1/4 in.	59	1/4 x 1/2	068U2206	068U2214	.
R-134a	TUAE	Ext. 1/4 in.	59	3/8 x 1/2	068U2207	068U2215	.
R-404A/ R-507	TUA	Int.	59	1/4 x 1/2	068U2284	068U2292	068U2316
R-404A/ R-507	TUA	Int.	59	3/8 x 1/2	068U2285	068U2293	068U2317
R-404A/ R-507	TUAE	Ext. 1/4 in.	59	1/4 x 1/2	068U2286	068U2294	068U2318
R-404A/ R-507	TUAE	Ext. 1/4 in.	59	3/8 x 1/2	068U2287	068U2295	068U2319

Orifice assembly with filter and gasket

### Rated capacity in tons nominal (TR)1)

ORIFICE NO.	RANGE N: -40 to 50°F				RANGE B: -60 to -15°F			PART NO.
	R-22	R-134a	R-404A	R-507	R-22	R-404A	R-507	
0	0.17	0.13	0.13	0.13	0.15	0.10	0.11	68U1030
1	0.25	0.19	0.19	0.19	0.19	0.14	0.15	68U1031
2	0.36	0.28	0.28	0.27	0.24	0.18	0.20	68U1032
3	0.50	0.39	0.39	0.38	0.34	0.25	0.28	68U1033
4	0.75	0.59	0.60	0.57	0.50	0.37	0.41	68U1034
5	1.00	0.78	0.79	0.76	0.66	0.50	0.55	68U1035
6	1.5	1.2	1.2	1.1	1.0	0.75	0.82	68U1036
7	2.0	1.6	1.6	1.5	1.3	1.0	1.1	68U1037
8	3.0	2.3	2.4	2.3	2.0	1.5	1.7	68U1038
9	4.5	3.5	3.5	3.4	2.9	2.2	2.4	68U1039

### 1) According to ARI 750-94.

Rated capacities for range N are based on:

Liquid temperature ahead of expansion valve  $t_l = 100^\circ \text{F}$

Evaporating temperature  $t_e = 40^\circ \text{F}$

Pressure drop across valve  $\Delta p = 60 \text{ psi}$  for R-134a

Pressure drop across valve  $\Delta p = 100 \text{ psi}$  for R-22,

R-404A and R-507.

Rated capacities for range B are based on:

Liquid temperature ahead of expansion valve  $t_l = 100^\circ \text{F}$

Evaporating temperature  $t_e = -40^\circ \text{F}$

Pressure drop across valve  $\Delta p = 100 \text{ psi}$  for R-134a

Pressure drop across valve  $\Delta p = 150 \text{ psi}$  for R-22, R-404A, R-507C and R-507.

### Spare Parts

Filter (24 pcs): 068U1706 (100 Mesh)

(24 pcs): 068U0016 (50 Mesh)

Gasket (24 pcs): 068U0015

**NOTE:** To secure tightness, the orifice

gasket must be changed each

time the orifice is disassembled.

### Metric conversions

1 psi = 0.07 bar

5/9 ( $t_1^\circ \text{F} - 32$ ) =  $t_2^\circ \text{C}$

1 ton = 3.5 kW

1 in. = 25.4 mm

## DANFOSS THERMOSTATIC EXPANSION VALVES DANFOSS TYPE TUB, TUBE

### INTRODUCTION

#### Type TUB Range 1/4 to 4 1/2 (R-22)

The TU series of thermostatic expansion valves is specifically developed for soldering into hermetic refrigeration systems. TU valves are offered in rated capacities up to 4.5 TR (R-22) and can be used in a wide range of applications. The TU is made of stainless steel and therefore is well-suited to refrigeration systems for aggressive environments and for the food industry.

#### TUB, TUBE

- Internal (TUB) or external (TUBE) equalization
- Fixed orifice and strainer
- Adjustable superheat
- Angleway body (optional)

#### Thermostatic charge options

In addition to the standard range, TU is also available with the following range options:

Range N: -40 to +50°F MOP +60°F

Range NM: -40 to +25°F MOP +32°F

Range B 1) -75 to -15°F

Range B 1) -75 to -15° MOP -4°F

1) TU valves for range B are not supplied for R-134a.

#### TUC, TUCE

- Internal (TUC) or external (TUCE) equalization
- Fixed orifice and strainer
- Fixed superheat
- Angleway body



### ORDERING

#### Angleway Valve Body with 2.6 ft. cap. tube and bulb strap 1) Range N: -40 to +50°F (without MOP)

Valve Type	Connec- tion Solder ODF inlet x outlet in.	Press. equal.	Orifice no. 2)	R-22		R-134a		R-404A/R-507		R-410A			
				Range N -40 to +50°F		Range N -40 to +50°F		Range N -40 to +50°F		Range N -40 to +50°F			
				Rated capacity TR 3)	Part No.	Rated capacity TR 3)	Part No.	Rated capacity TR 3)	Part No.	Rated capacity TR 3)	Part No.		
TUB	1/4 x 1/2	Int.	1	0.25	068U2057	0.19	068U2027	0.19	068U2094	0.40	068U1958		
			2	0.36	068U2058	0.28	068U2028	0.28	068U2095	0.60	068U1959		
			3	0.50	068U2059	0.39	068U2029	0.39	068U2096	0.80	068U1960		
			4	0.75	068U2060	0.59	068U2030	0.60	068U2097	1.30	068U1961		
			5	1.00	068U2061	0.78	068U2031	0.79	068U2098	1.70	068U1962		
			6	1.50	068U2062	1.20	068U2032	1.20	068U2099	2.50	068U1963		
			1	0.25	068U2157								
			2	0.36	068U2179								
	3		0.50	068U2180									
	4		0.75	068U2183									
	5		1.00	068U2181									
	6		1.50	068U2182									
	7		2.00	068U2063									
	8		3.00	068U2064									
	TUBE		1/4 x 1/2	Ext. 1/4 in. solder ODF	1					0.19	068U2103		
					2					0.28	068U2104		
3						0.39	068U2020	0.39	068U2105				
4		0.75			068U2070	0.59	068U2021	0.60	068U2106				
5		1.00			068U2071	0.78	068U2022	0.79	068U2107				
6		1.50			068U2072	1.20	068U2023	1.20	068U2108				
1		0.25			068U2159								
2		0.36			068U2160								
3		0.50	068U2161										
4		0.75	068U2162										
5		1.00	068U2163										
6		1.50	068U2164										
7		2.00	068U2073		1.60	068U2024	1.60	068U2109	3.40	068U1973			
8		3.00	068U2074		2.30	068U2025	2.40	068U2110	5.00	068U1974			
9		4.50	068U2075		3.50	068U2026	3.50	068U2111	7.50	068U1975			

1) The TUB series is also available with 5 ft. cap. tube. Please contact Danfoss for further information.

2) All TUB and TUBE valves with orifice #9 cannot be used for bi-flow operation.

3) According to ARI 750-01

Rated capacities for range N are based on:

Liquid temperature ahead of expansion valve  $t_1 = 100^\circ\text{F}$

Evaporating temperature  $t_e = 40^\circ\text{F}$

Pressure drop across valve  $\Delta p = 60$  psi for R-134a

Pressure drop across valve  $\Delta p = 100$  psi for R-22, R-404A, & R-507

Pressure drop across valve  $\Delta p = 160$  psi for R-410A

Metric conversions

1 psi = 0.07 bar

5/9 ( $t_1^\circ\text{F} - 32$ ) =  $t_2^\circ\text{C}$

1 ton = 3.5 kW

1 in. = 25.4 mm

# Refrigeration

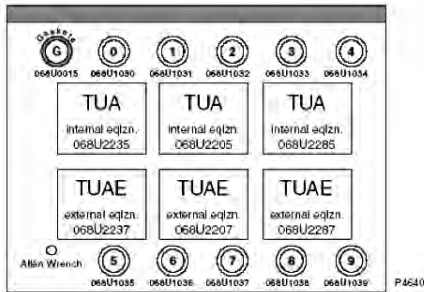
Compressors, Chillers, Condensers  
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 Refrigeration

## DANFOSS THERMOSTATIC EXPANSION VALVES DANFOSS MINIMIZER EXPANSION VALVE SERVICE KITS T2 and TE2

Selection Chart for Thermostatic Expansion Valves

Choose valve by refrigerant and style, then read down to the required capacity in tons and select orifice.

Flare Style Valves (Internally Equalized)		TF2 068Z3202	TY2 068Z3212	TX2 068Z3206	TN2 068Z3346	TS2 068Z3400	
Flare Style Valves (Externally Equalized)		TEF2 068Z3204	TEY2 068Z3215	TEX2 068Z3209	TEN2 068Z3348	TES2 068Z3403	
Sweat Style Valves (Internally Equalized)		TF2 068Z3280	TY2 068Z3282	TX2 068Z3281	TN2 068Z3383	TS2 068Z3414	
Sweat Style Valves (Externally Equalized)		TEF2 068Z3283	TEY2 068Z3285	TEX2 068Z3284	TEN2 068Z3385	TES2 068Z3415	
Orifice No.	Part No. (flare)	Part No. (sweat)	Nominal Capacity*				
0X	068-2002	068-2089			1/5	1/10	1/10
00	068-2003	068-2090	1/5	1/5	1/3	1/4	1/5
01	068-2010	068-2091	1/3	1/3	7/10	1/2	1/3
02	068-2015	068-2092	1/2	1/2	1	3/4	1/2
03	068-2006	068-2093	1	1	11/2	11/4	1
04	068-2007	068-2094	11/2	11/2	21/3	13/4	11/2
05	068-2008	068-2095	2	2	3	2 1/4	2
06	068-2009	068-2096	3	3	4 1/2	3	3



Solder adapters for Sweat Style valves:

068-2062 for 1/4" OD pipe

068-2060 for 3/8" OD pipe

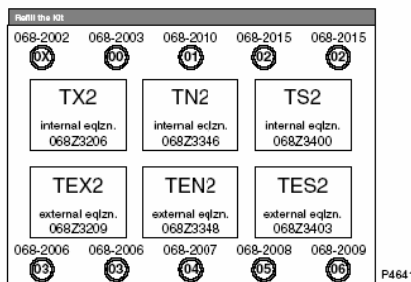
\* Valve capacity is rated at 40°F evaporating temperature, 90°F condensing temperature, and 80°F refrigerant temperature ahead of valve.

Capacity selection charts and a pressure-temperature slide rule are included in each kit. Create your own custom kits by ordering the case and your selection of valves separately.

Service Kit	Part No.
T2	00MMKBOX01
TUA	00MMKBOX02

Each case contains a valve capacity table.

This case does not come with valves and orifices.



# Refrigeration

Compressors, Chillers, Condensers  
 Motors  
 Electrical  
 Heating Components  
 Indoor Air Quality  
 Thermostats  
 Oils & Chemicals  
 Accessories, Supplies & Commodities  
 Tools & Instruments  
 Refrigeration

## DANFOSS MINIMIZER EXPANSION VALVE SERVICE KITS

### Minimizer-Sweat

*Select Valve Body and Orifice Size*

This Kit contains TU type expansion valves which have Sweat (ODF) connections

		R 22	R 134a	R 404A/R 507
Internally Equalized Valve Bodies		TUA 068U2235	TUA 068U2205	TUA 068U2285
Externally Equalized Valve Bodies		TUAE 068U2237	TUAE 068U2207	TUAE 068U2287
Part No.	Orifice size	Nominal Capacity (Tons) for -40 to +50°F Range		
068U1030	0	1/6	1/8	1/8
068U1031	1	1/4	1/5	1/5
068U1032	2	1/3	1/4	1/4
068U1033	3	1/2	1/3	1/3
068U1034	4	3/4	1/2	1/2
068U1035	5	1	3/4	3/4
068U1036	6	1 1/2	1	1
068U1037	7	2	1 1/2	1 1/2
068U1038	8	3	2	2 1/4
068U1039	9	4 1/2	3	3 1/2

### Minimizer-Flare

*Select Valve Body and Orifice Size.*

		R 22	R 134a	R 404A/R 507
Internally Equalized		TX2 068Z3206	TN2 068Z3346	TS2 068Z3400
Externally Equalized		TEX2 068Z3209	TEN2 068Z3348	TES2 068Z3403
Part No.	Orifice size	Nominal Capacity (Tons) for -40 to -10°F Range		
068-2002	0X	1/6	1/10	1/10
068-2003	00	1/3	1/4	1/5
068-2010	01	3/4	1/2	1/3
068-2015	02	1	3/4	1/2
068-2006	03	1-1/2	1-1/3	1
068-2007	04	2-1/3	1-3/4	1-1/2
068-2008	05	3	2-1/5	2
068-2009	06	4-1/2	3	3

# Refrigeration

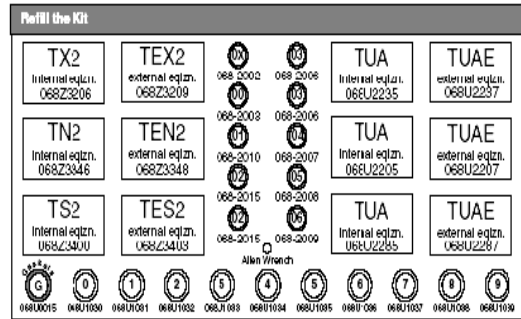
## DANFOSS MAXIMIZER KIT

### Ordering

### INTRODUCTION

Building on the success of the Minimizer Kit -- every TEV you need - both flare and sweat - in one convenient kit

- 12 valves and 20 orifices = 105 size combinations from 1/10 to 4 1/2 TR
- Cut out unnecessary supply house runs - the right valve is always on the truck
- Sweat valves have bi-metal connections - no wet wrap required
- Factory superheat setting - no adjustment after assembly
- Sizing and selection chart
- Durable fitted case
- Easy to refill



P4642

PART NO	PRODUCT
068Z3206	TX2
068Z3209	TEX2
068Z3346	TN2
068Z3348	TEN2
068Z3400	TS2
068Z3403	TES2
068-2002	T/E Orifice no. 0X
068-2003	T/E Orifice no. 00
068-2010	T/E Orifice no. 01
068-2015	T/E Orifice no. 02
068-2006	T/E Orifice no. 03

PART NO	PRODUCT
068-2007	T/E Orifice no. 04
068-2008	T/E Orifice no. 05
068-2009	T/E Orifice no. 06
068U0015	TU Metal Gasket
WRENCH	Allen Wrench
068U2235	TUA R 22
068U2237	TUAE R 22
068U2205	TUA R 134a
068U2207	TUAE R 134a
068U2285	TUA R 404A/507
068U2287	TUAE R 404A/507

PART NO	PRODUCT
068U1030	TU Orifice no. 0
068U1031	TU Orifice no. 1
068U1032	TU Orifice no. 2
068U1033	TU Orifice no. 3
068U1034	TU Orifice no. 4
068U1035	TU Orifice no. 5
068U1036	TU Orifice no. 6
068U1037	TU Orifice no. 7
068U1038	TU Orifice no. 8
068U1039	TU Orifice no. 9

### Orifice Selection-I

Select Valve Body and Orifice Size—Flare.

	R 22	R 134a	R 404A/R 507
Internally Equalized Valve Bodies	TX2 068Z3206	TN2 068Z3346	TS2 068Z3400
Externally Equalized Valve Bodies	TEX2 068Z3209	TEN2 068Z3348	TES2 068Z3403
Part No.	Orifice size	Nominal Capacity (Tons) for -40 to +50°F Range	
068-2002	0X	1/6	1/10
068-2003	00	1/3	1/5
068-2010	01	3/4	1/3
068-2015	02	1-1/2	1/2
068-2006	03	1-1/2	1
068-2007	04	2-1/3	1-1/2
068-2008	05	3	2
068-2009	06	4-1/2	3

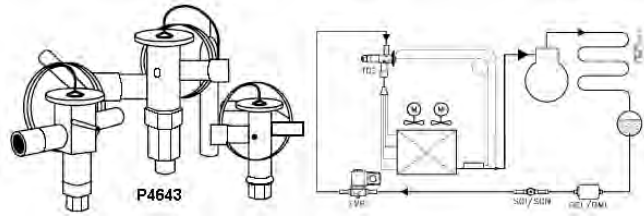
### Orifice Selection-II

Select Valve Body and Orifice Size—Sweat.

	R 22	R 134a	R 404A/R 507
Internally Equalized Valve Bodies	TUA 068U2235	TUA 068U2205	TUA 068U2285
Externally Equalized Valve Bodies	TUAE 068U2237	TUAE 068U2207	TUAE 068U2287
Part No	Orifice size	Nominal Capacity (Tons) for -40 to +50°F Range	
068U1030	0	1/6	1/8
068U1031	1	1/4	1/5
068U1032	2	1/3	1/4
068U1033	3	1/2	1/3
068U1034	4	3/4	1/2
068U1035	5	1	3/4
068U1036	6	1-1/2	1
068U1037	7	2	1-1/2
068U1038	8	3	2-1/4
068U1039	9	4-1/2	3-1/2

## DANFOSS TYPE TDE & TDEB (R22) TEV04

**INTRODUCTION**    TDE Range 3 – 7 1/2 TR  
                                  TDEB Range 8 – 40 TR



The TDE series of thermostatic expansion valves is designed for use in:

- Air conditioning systems
- Heat pumps
- Water chillers
- Refrigerated containers
- Traditional refrigeration systems

The TDE product programs consist of two hermetic valve designs:

- Single port (type TDE) and balanced port (type TDEB). Valve selection is determined by the application and the capacity required.

Single port version (type TDE)

- The single port's simplified construction is designed for use on systems with small capacities (3 to 7.5 TR R 22). Single port design is effective because in smaller capacities condensing pressure is negligible. Type TDE single port valves can also be used for bi-flow applications in the same capacity range.

Balanced port versions (type TDEB)

- The balanced port design has been developed for large capacity systems (greater than 8 to 40 TR) where fluctuating condensing pressures are present.
- The balanced port feature eliminates any influence by condensing pressure on the expansion valve function in the normal flow direction.
- The TDEB design is unique in that it also provides a balance function in the reverse flow direction making it ideal for use in bi-flow applications. All TDE valves are available with a selection of bulb charges with or without maximum operating pressure (MOP) function. Single and industrial pack quantities are available.

## DANFOSS TYPE TDE & TDEB (R22) TEV05

### IDENTIFICATION

Essential valve data is given on the element label.

TDEX = Type (X: refrigerant R 22)

8 TR = Rated capacity Qnom..in Tons of Refrigeration

28 kW = Rated capacity Qnom. in kW

R 22 = Refrigerant

-25/+10 °C = Evaporating temperature range (°C)

-15/+50 °F = Evaporating temperature range (°F)

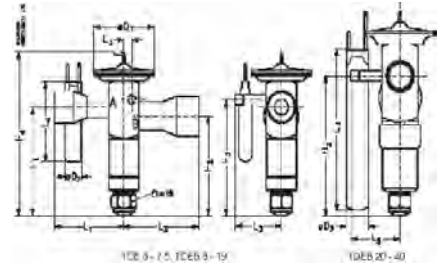
068H4112 = Code number

BP 15 = Bleed 15%

MOP 100 = Max. Operation Pressure PB 28 bar/

MWP 400 psig = Max. working pressure

288 = Date marking (week 28, 1998)

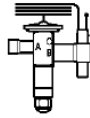


### DIMENSIONS and WEIGHT

Type	Connection ODF		Capillary Tube length	H1	H2	H3	H4	L1	L2	L3	L4	L5	ØD1	ØD2	Weight
	solder inlet	x outlet													
	in.	in.	ft	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs
TDE 3-7.5	3/8 × 5/8		5	2.78	2.54	2.93	4.61	1.61	1.73	1.52	2.44	0.20	1.77	0.55	0.90
	1/2 × 5/8		5	2.78	2.54	2.93	4.61	1.63	1.73	1.52	2.44	0.20	1.77	0.55	0.90
	1/2 × 7/8		5	2.78	2.54	2.93	4.61	1.63	2.32	1.52	2.44	0.20	1.77	0.55	0.90
	5/8 × 7/8		5	2.78	2.54	2.93	4.61	1.73	2.32	1.52	2.44	0.20	1.77	0.55	0.90
TDEB 8 - 19	5/8 × 7/8		5	3.35	3.07	3.58	5.39	1.83	2.42	1.61	2.44	0.28	2.09	0.55	1.30
	5/8 × 1-1/8		5	3.35	3.07	3.58	5.39	1.83	2.62	1.61	2.44	0.28	2.09	0.55	1.30
	7/8 × 1-1/8		5	3.35	3.07	3.58	5.39	2.42	2.62	1.61	2.44	0.28	2.09	0.55	1.30
TDEB 20 - 40-	7/8 × 1-1/8		10	4.31	3.64	4.31	6.69	2.50	2.70	1.71	4.96	0.39	2.36	0.75	2.40
	7/8 × 1-3/8		10	4.31	3.64	4.31	6.69	2.50	2.89	1.71	4.96	0.39	2.36	0.75	2.40
	1-1/8 × 1-3/8		10	4.31	3.64	4.31	6.69	2.70	2.89	1.71	4.96	0.39	2.36	0.75	2.40

# Refrigeration

## DANFOSS TYPE TDE & TDEB (R22)



Range K = -15 to 50°F with MOP 100 psig.

Metric conversions

1 psi = 0.07 bar

5/9 (t1°F - 32) = t2°C

1 ton = 3.5 kW

1 in. = 25.4 mm

### Ordering-I

Port Type	Type and rated capacity*TR	Connection solder ODF x ODF in	Part No
TDEX 3 - 7.5 Single port	TDEX 3	3/8 x 5/8	068H6200
TDEX 3 - 7.5 Single port	TDEX 3	1/2 x 5/8	068H6201
TDEX 3 - 7.5 Single port	TDEX 4	1/2 x 7/8	068H6202
TDEX 3 - 7.5 Single port	TDEX 6	1/2 x 5/8	068H6234
TDEX 3 - 7.5 Single port	TDEX 6	1/2 x 7/8	068H6203
TDEX 3 - 7.5 Single port	TDEX 6	5/8 x 7/8	068H6204
TDEX 3 - 7.5 Single port	TDEX 7.5	5/8 x 7/8	068H6205
TDEBX 20 - 40 Balanced port	TDEBX 20	7/8 x 1 1/8	068H7146
TDEBX 20 - 40 Balanced port	TDEBX 26	7/8 x 1 3/8	068H7148
TDEBX 20 - 40 Balanced port	TDEBX 30	7/8 x 1 3/8	068H7150
TDEBX 20 - 40 Balanced port	TDEBX 30	1 1/8 x 1 3/8	068H7152
TDEBX 20 - 40 Balanced port	TDEBX 40	1 1/8 x 1 3/8	068H7154
TDEBX 8 - 19 Balanced port	TDEBX 8	5/8 x 7/8	068H7130
TDEBX 8 - 19 Balanced port	TDEBX 11	5/8 x 7/8	068H7132
TDEBX 8 - 19 Balanced port	TDEBX 11	5/8 x 1 1/8	068H7134
TDEBX 8 - 19 Balanced port	TDEBX 12.5	5/8 x 7/8	068H7136
TDEBX 8 - 19 Balanced port	TDEBX 12.5	5/8 x 1 1/8	068H7138
TDEBX 8 - 19 Balanced port	TDEBX 16	5/8 x 1 1/8	068H7140
TDEBX 8 - 19 Balanced port	TDEBX 16	7/8 x 1 1/8	068H7142
TDEBX 8 - 19 Balanced port	TDEBX 19	7/8 x 1 1/8	068H7144

\* The rated capacity is based on:

Evaporating temperature te = 40°F Liquid temperature tl = 80°F Condensing temperature tc = 90°F

### Ordering-II

Range AC = 15 to 60°F with MOP 120 psig.

Port Type	Type and rated capacity*TR	Connection solder ODF x ODF in	Part No
TDEX 3 - 7.5 Single port	TDEX 3	3/8 x 5/8	068H6100
TDEX 3 - 7.5 Single port	TDEX 3	1/2 x 5/8	068H6101
TDEX 3 - 7.5 Single port	TDEX 4	1/2 x 7/8	068H6102
TDEX 3 - 7.5 Single port	TDEX 6	1/2 x 5/8	068H6134
TDEX 3 - 7.5 Single port	TDEX 6	1/2 x 7/8	068H6103
TDEX 3 - 7.5 Single port	TDEX 6	5/8 x 7/8	068H6104
TDEX 3 - 7.5 Single port	TDEX 7.5	5/8 x 7/8	068H6105
TDEBX 20 - 40 Balanced port	TDEBX 20	7/8 x 1 1/8	068H7116
TDEBX 20 - 40 Balanced port	TDEBX 26	7/8 x 1 3/8	068H7118
TDEBX 20 - 40 Balanced port	TDEBX 30	7/8 x 1 3/8	068H7120
TDEBX 20 - 40 Balanced port	TDEBX 30	1 1/8 x 1 3/8	068H7122
TDEBX 20 - 40 Balanced port	TDEBX 40	1 1/8 x 1 3/8	068H7124
TDEBX 8 - 19 Balanced port	TDEBX 8	5/8 x 7/8	068H7100
TDEBX 8 - 19 Balanced port	TDEBX 11	5/8 x 7/8	068H7102
TDEBX 8 - 19 Balanced port	TDEBX 11	5/8 x 1 1/8	068H7104
TDEBX 8 - 19 Balanced port	TDEBX 12.5	5/8 x 7/8	068H7106
TDEBX 8 - 19 Balanced port	TDEBX 12.5	5/8 x 1 1/8	068H7108
TDEBX 8 - 19 Balanced port	TDEBX 16	5/8 x 1 1/8	068H7110
TDEBX 8 - 19 Balanced port	TDEBX 16	7/8 x 1 1/8	068H7112
TDEBX 8 - 19 Balanced port	TDEBX 19	7/8 x 1 1/8	068H7114

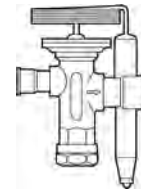
\* The rated capacity is based on:

Evaporating temperature te = 40°F

Liquid temperature tl = 80°F

Condensing temperature tc = 90°F

## DANFOSS THERMOSTATIC EXPANSION VALVES DANFOSS TYPE TRE10, TRE20, TRE40, AND TRE80



### INTRODUCTION

TRE thermostatic expansion valves have been designed and developed for soldering into air-conditioning and refrigeration systems. Their hermetic tight design meets environmental demands for today and the future. They can be used in systems ranging in capacity from 8 to 70 TR (R 22). The TRE design incorporates a forged brass body with the entire power element, including the capillary tube and bulb, fabricated from stainless steel. The straight through bimetal solder connections are formed from deep drawn stainless steel and copper. The valve incorporates a 2-way balanced port orifice making it ideal for biflow operation. External superheat adjustment is a standard feature on all TRE valves. For non-adjustable OEM versions, a setting assembly is available for field retrofit. Contact Danfoss for further information.

### FEATURES

Bimetal connections

- waterless soldering
- quicker installation times
- higher productivity

Developed for R 410A

- R 22, R 134a, R 410A, R 507 and other fluorinated refrigerants

Laser-welded power element

- longer diaphragm life
- high pressure tolerance and working pressure

Stainless steel power element, capillary tube and bulb

- high corrosion resistance
- high strength and vibration resistance
- fast installation: self-aligning bulb
- secures with one strap
- good thermal contact and transmission

Two-way balanced port/bi-flow function

- superheat unaffected by condensing pressure independent of flow direction
- one valve for heat pump service

Stainless steel double contact bulb

- straightforward and fast installation
- good thermal contact and heat transfer

Adjustable/non-adjustable version

- Setting spindle assembly can be retrofitted to non-adjustable version

### Valve options

#### Capillary tube length

In addition to the standard program, TRE valves are also available with the following options:  
Refrigerants - Range - MOP:

#### Connections

Contact Danfoss for information regarding different refrigerants and evaporator ranges.  
Internal bleed: 15%

TYPE	CAPILLARY TUBE LENGTH
TRE10	3 or 5 ft
TRE20	3.5 or 10 ft
TRE40	5 or 10 ft
TRE80	5 or 10 ft

TYPE	INLET ODF SOLDER	OUTLET ODF SOLDER
TRE10	1/2 -5/8 -7/8 in.	1/2 -5/8 -7/8 -1-1/8 in.
TRE20	5/8 -7/8 -1-1/8 in.	5/8 -7/8 -1-1/8 -1-3/8 in.
TRE40	7/8 -1-1/8 in.	7/8 -1-1/8 -1-3/8 in.
TRE80	1-1/8 -1-3/8 in.	1-1/8 -1-3/8 -1-5/8 in.

Equalizing connection 1/4" or 6 mm ODF on all types.  
Sizes in bold type are standard sizes.

**ORDERING** Valve and bulb strap are supplied in mutipack.  
The numbers supplied are as follows:

### Overview of product range

Capacity TR	Refrigerant		Range	MOP
	Type	Code		
8-70	R 22	X	K	60°F
8-70	R 22	X	N	
8-85	R 410A	L	K	60°F
8-85	R 410A	L	N	
5-56	R 134a	N	K	60°F
5-56	R 134a	N	N	

K: -15 up to +50

N: -40 up to +50

Type	Multipack
TRE 10	12 pcs
TRE 20	8 pcs
TRE 40	6 pcs
TRE 80	4 pcs

# Refrigeration

## DANFOSS THERMOSTATIC EXPANSION VALVES DANFOSS TYPE TRE10, TRE20, TRE40, AND TRE80 Ordering R22, R410A

REFRIGERANT	TYPE RATED CAPACITY Qnom 1) TR	RATED CAPACITY Qnom 1) TR	CONNECTION ODF SOLDER		RANGE	
			INLET (in)	OUTLET (in)	K -15°/+50°F MOP 60F-25°/+10°C MOP 15°C Part No	N -40°/+50°F-40°/+10°C Part No
R22	TRE10-8X	8	5/8	7/8	067L1021	067L1121
	TRE10-10X	10	5/8	7/8	067L1024	067L1124
	TRE20-10X	10	5/8	7/8	067L1075	067L1175
	TRE20-12.5X	12.5	5/8	7/8	067L1079	067L1179
	TRE20-15X	15	7/8	1 1/8	067L1084	067L1184
	TRE20-20X	20	7/8	1 1/8	067L1087	067L1187
	TRE20-20X	20	7/8	1 3/8	067L1088	067L1188
	TRE40-20X	20	7/8	1 1/8	--	--
	TRE40-20X	20	7/8	1 3/8	--	--
	TRE40-25X	25	7/8	1 3/8	067L3005	067L3105
	TRE40-25X	25	1 1/8	1 3/8	067L3006	067L3106
	TRE40-30X	30	1 1/8	1 3/8	067L3009	067L3109
	TRE40-40X	40	1 1/8	1 3/8	067L3012	067L3112
	TRE80-55X	55	1 1/8	1 3/8	067L3063	--
TRE80-70X	70	1 1/8	1 5/8	--	--	
R410A	TRE10-8L	8	5/8	5/8	067L1028	067L1128
	TRE10-8L	8	5/8	7/8	067L1029	067L1129
	TRE10-10L	10	5/8	5/8	067L1030	067L1130
	TRE10-10L	10	5/8	7/8	067L1031	067L1131
	TRE10-12.5L	12.5	5/8	5/8	067L1034	067L1134
	TRE10-12.5L	12.5	5/8	7/8	067L1035	067L1135
	TRE10-15L	15	7/8	7/8	067L1038	067L1138
	TRE10-15L	15	7/8	1 1/8	067L1039	067L1139
	TRE20-15L	15	7/8	7/8	067L1091	067L1191
	TRE20-15L	15	7/8	1 1/8	067L1092	067L1192
	TRE20-20L	20	7/8	7/8	067L1093	067L1193
	TRE20-20L	20	7/8	1 1/8	067L1094	067L1194
	TRE20-25L	25	7/8	1 1/8	067L1097	067L1197
	TRE20-25L	25	1 1/8	1 1/8	--	067L1199
	TRE40-25L	25	7/8	1 1/8	067L3015	067L3115
	TRE40-25L	25	1 1/8	1 3/8	067L3016	067L3116
	TRE40-30L	30	1 1/8	1 3/8	067L3019	067L3119
	TRE40-40L	40	1 1/8	1 3/8	067L3024	067L3124
	TRE40-55L	55	1 1/8	1 1/8	--	067L3127
	TRE80-55L	55	1 1/8	1 3/8	067L3070	067L3170
	TRE80-80L	80	1 1/8	1 3/8	067L3073	067L3173
	TRE80-80L	80	1 1/8	1 5/8	067L3074	067L3174
	TRE80-80L	80	1 3/8	1 3/8	067L3075	067L3175
	TRE80-100L	100	1 1/8	1 5/8	067L3078	067L3178
TRE80-100L	100	1 3/8	1 5/8	067L3079	067L3179	

Pressure equalization = 1/4" ODF

1) The rated capacity is based on ARI Standard 750-97

For connections, refrigerants, capillary tube lengths, etc. outside the standard program, see Valve options.

### R407C, R134a STANDARD PROGRAM

REFRIGERANT	TYPE RATED CAPACITY Qnom 1) TR	RATED CAPACITY Qnom 1) TR	CONNECTION ODF SOLDER		RANGE K	RANGE N
			Inlet	Outlet	-15°/+50°F MOP 60°F	-40°/+50°F -
					-25°/+10°C MOP 15°C	40°/+10°C
			in.	in.	Part No.	Part No.
R134a	TRE10-5N	5	5/8	7/8	067L1003	067L1103
	TRE10-7N	7	5/8	7/8	067L1006	067L1106
	TRE20-7N	7	5/8	7/8	067L1041	067L1141
	TRE20-9N	9	5/8	7/8	067L1045	067L1145
	TRE20-11N	11	7/8	1 1/8	067L1050	067L1150
	TRE20-14N	14	7/8	1 1/8	067L1053	067L1153
	TRE20-14N	14	7/8	1 3/8	067L1054	067L1154
	TRE40-14N	14	7/8	1 1/8	067L3043	067L3143
	TRE40-14N	14	7/8	1 3/8	067L3044	067L3144
	TRE40-16N	16	7/8	1 3/8	--	067L3147
	TRE40-16N	16	1 1/8	1 3/8	--	067L3148
TRE40-20N	20	1 1/8	1 3/8	067L3051	067L3151	
TRE40-25N	25	1 1/8	1 3/8	067L3054	067L3154	

Pressure equalization = 1/4" ODF

1) According to ARI 750 Rated capacities for Range N are based on:

Liquid temperature ahead of expansion valve t1 = 100°F

Evaporating temperature te = 40°F

Pressure drop across valve Δp = 60 psi for R134a

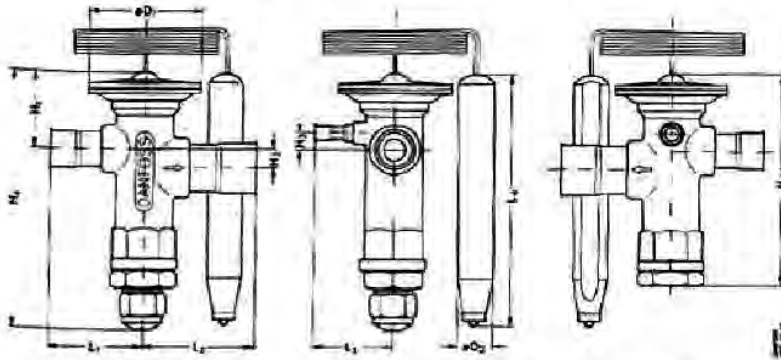
Pressure drop across valve Δp = 100 psi for R22, R404A, and R507

Pressure drop across valve Δp = 160 psi for R410A.

For connections, refrigerants, capillary tube lengths, etc. outside the standard program, see Valve options.

## DANFOSS THERMOSTATIC EXPANSION VALVES DANFOSS TYPE TRE10, TRE20, TRE40, AND TRE80 Ordering

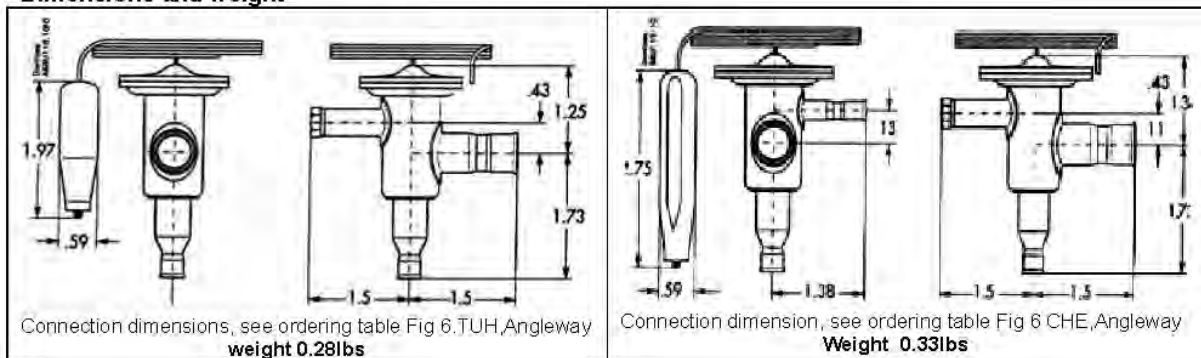
### Dimensions and weight



Type	Connection	Capillary Tube length ft	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	H <sub>4</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	Ø D <sub>1</sub>	Ø D <sub>2</sub>	Weight lbs
	ODF solder Inlet x outlet In.		In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	
TRE 10	1/2 x 1/2	4.92	1.25	0.90	0.20	4.09	1.59	1.59	1.36	2.78	1.77	0.59	0.86
	1/2 x 5/8							1.79					
	5/8 x 1/2							1.79					
	5/8 x 5/8							1.79					
	5/8 x 7/8							2.03					
	7/8 x 7/8							2.03					
7/8 x 1-1/8	2.31												
TRE 20	5/8 x 5/8	4.92	1.46	0.35	0.31	4.80	1.89	1.89	1.50	4.69	2.09	0.65	1.32
	5/8 x 7/8							2.13					
	7/8 x 7/8							2.13					
	7/8 x 1-1/8							2.40					
	7/8 x 1-3/8							2.80					
	1-1/8 x 7/8							2.40					
	1-1/8 x 1-1/8							2.40					
	1-1/8 x 1-3/8							2.80					
TRE 40	7/8 x 7/8	11.76	1.65	0.51	0.43	5.71	2.26	2.26	1.81	4.37	2.35	0.80	1.74
	7/8 x 1-1/8							2.54					
	7/8 x 1-3/8							2.93					
	1-1/8 x 1-1/8							2.54					
	1-1/8 x 1-3/8							2.93					
	1-1/8 x 1-5/8							3.25					
TRE 80	1-1/8 x 1-1/8	11.76	1.85	0.67	0.51	6.50	2.64	2.64	1.73	5.83	2.83	0.80	2.95
	1-1/8 x 1-3/8							3.03					
	1-1/8 x 1-5/8							3.35					
	1-3/8 x 1-3/8							3.03					
	1-3/8 x 1-5/8							3.35					

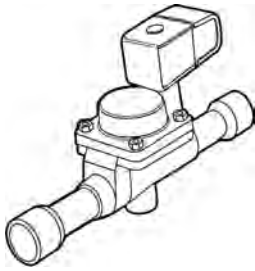
1) Fixed setting

### Thermostatic expansion valves, type TRE 10, TRE 20, TRE 40, and TRE 80 Dimensions and weight



# Refrigeration

## DANFOSS SOLENOID VALVES DSV01



### Ordering

Separate valve bodies, normally closed (NC)

### INTRODUCTION

EVR is a direct or servo operated solenoid valve for liquid, suction, and hot gas lines using fluorinated refrigerants. EVR valves are supplied as separate components; valve body and coil, if required, can be ordered separately.

### FEATURES

- A complete range of solenoid valves for refrigeration, freezing and air conditioning systems.
- Normally closed (NC) and normally open (NO) versions available.
- AC and DC coils are interchangeable on all valve body versions.
- Use with any fluorinated refrigerant.
- Designed for media temperatures up to 220° F.
- Flare connections up to 5/8".
- Solder connections up to 2-1/8".
- Solder versions have extended connections; there is no need to Dismantle the valve when soldering.

### APPROVALS

NOTE: These approvals are only recognized when one of the EVR series of solenoid valves found in this leaflet is combined with a GP general purpose coil.

- UL listed, file MH 7648.
- CSA certified, LR 52727.

TYPE	Rated capacity R22 (liquid) tons	Connection in	Port size in	Cv value gal/min	Part no. Valve body without coil type Flare		Part no. Valve body without coil type Sol- der ODF	
					With manual stem operation in.	Without manual stem operation in.	With manual stem operation in.	Without manual stem operation in
EVR 2	1.17	1/4	3/32	0.19	--	032F8058	--	032F7100
EVR 3	2.03	1/4	1/8	0.32	--	032F8106	--	032F7105
EVR 3	2.03	3/8	1/8	0.32	--	032F8115	--	032F1157
EVR 4	4.15	3/8	5/32	0.66	--	032F8087	--	032F7110
EVR 4	4.15	1/2	5/32	0.66	--	032F8089	--	032F7111
EVR 6	5.83	3/8	15/64	0.93	032F1185	032F8071	032F7116	032F7115
EVR 6	5.83	1/2	15/64	0.93	--	032F8078	--	032F1162
EVR 6	5.83	5/8	15/64	0.93	--	--	--	032F7117
EVR 6	5.83	5/8	15/64	0.93	--	--	--	032F7117
EVR 8	8.01	3/8	9/32	1.30	--	--	--	032F7120
EVR 8	8.01	1/2	9/32	1.30	--	032F7123	--	032F7121
EVR 8	8.01	5/8	9/32	1.30	--	--	--	032F7122
EVR 10	13.8	3/8	3/8	2.20	--	--	--	032F7125
EVR 10	13.8	1/2	3/8	2.20	032F1187	032F1165	032F1188	032F1166
EVR 10	13.8	5/8	3/8	2.20	--	--	--	032F1168
EVR 15	18.9	5/8	9/16	3.00	--	--	032F1172	032F1171
EVR 15	18.9	7/8	1/4	3.00	--	--	--	032F7130
EVR 18	24.6	7/8	19/32	3.90	--	--	032F1004	032F7135
EVR 18	24.6	1 1/8	19/32	3.90	--	--	--	--
EVR 20	36.4	7/8	7/8	5.80	--	--	032F1177	032F1176
EVR 20	36.4	1 1/8	7/8	5.80	--	--	032F2272	032F1178
EVR 22	43.7	1 1/8	9/16	6.90	--	--	--	032F7145
EVR 22	43.7	1 3/8	9/16	6.90	--	--	--	032F7146
EVR 25	72.8	1 1/8	1	12.00	--	--	032F1190	032F1189
EVR 25	72.8	1 3/8	1	12.00	--	--	032F1194	032F1193
EVR 32	116.5	1 5/8	7/8	18.00	--	--	042H1179	042H1178
EVR 40	182.0	1 5/8	1	29.00	--	--	042H1186	042H1185
EVR 40	182.0	2 1/8	1	29.00	--	--	042H1188	042H1187
EVR 40	182.0	2 1/8	1	29.00	--	--	042H1188	042H1187

Metric conversions 1 ton = 3.5 kW  
 1 psi = 0.07 bars 1 in. = 25.4 mm  
 5/9 (t1°F-32) = t2°C US gal/min = 8.6 m3/h

### Ordering-II

Separate valve bodies, normally open (NO)

TYPE	Rated capacity R22 (liquid) tons	Connection in	Port size in	Cv value gal/min	Solder ODF in
EVR 6	5.8	3/8	1/4	0.93	032F1164
EVR 10	13.8	1/2	3/8	2.20	032F1169
EVR 15	18.9	5/8	9/16	3.00	032F1174

Coils, see next page.

## DANFOSS TYPE EVR 2 TO 40 - SOLENOID VALVES

### GENERAL PURPOSE CLICK-ON COIL, TYPE GP



#### INTRODUCTION

General purpose Click-on coil, type GP sealed to protect against moisture, Easy click-on mounting system

#### Approvals:



Listed EVR MH7648



Conformity with LV D 73/23/EC with amendments EN 60730-2-8

#### TECHNICAL DATA

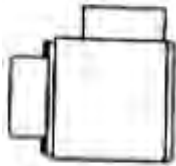
<b>Design</b>	In accordance with UL 429
<b>Power supply</b>	Alternating current (a.c) and direct current (d.c)
<b>Permissible voltage variation</b>	Alternating current (a.c) : +10 to - 15% Direct current (d.c) : +10 to -10
<b>Power consumption</b>	Alternating current (a.c) : Inrush; 49 VA; Holding; 28VA, 14W Direct current (d.c) ; 20 W
<b>Insulation of coil wire</b>	Class H according to IEC 85
<b>Connection</b>	Junction box or Conduit boss
<b>Enclosure, IEC 529</b>	Junction box NEMA 2 0- IP 12-32 Conduit boss NEMA 4 – IP 54
<b>Ambient temperature</b>	-40 to 140°F (-40 to + 50°C)

#### Cross reference list - GP Coils

Old Part No.	New Part No.
018Z7613	018F7683
018Z7612	018F7682
018Z7611	018F7681
018Z7603	018F7689
018Z7623	018F7693
018Z7622	018F7692
018Z7621	018F7691
018Z7625	018F7699

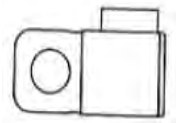
#### Ordering

Alternating Current(a.c)



Valve Type	Voltage V	Frequency Hz	PART NO.		Power Consumption
			Junction Box NEMA 2	Conduit Boss NEMA 4	
EVR	24	50/60	018F7683	018F7693	Holding: 14W 20 VA
EVM	110	50/60			
EVRA/T	120	60	018F7682	018F7692	Inrush: 49 V
EVRS/T	208-240	60			
AKV/A	230	50	018F7681	018F7691	

Direct Current (d.c)



Valve Type	Voltage V	Frequency Hz	PART NO.		Power Consumption
			Junction Box NEMA 2	Conduit Boss NEMA 4	
	120		018F7689	018F7699	20W

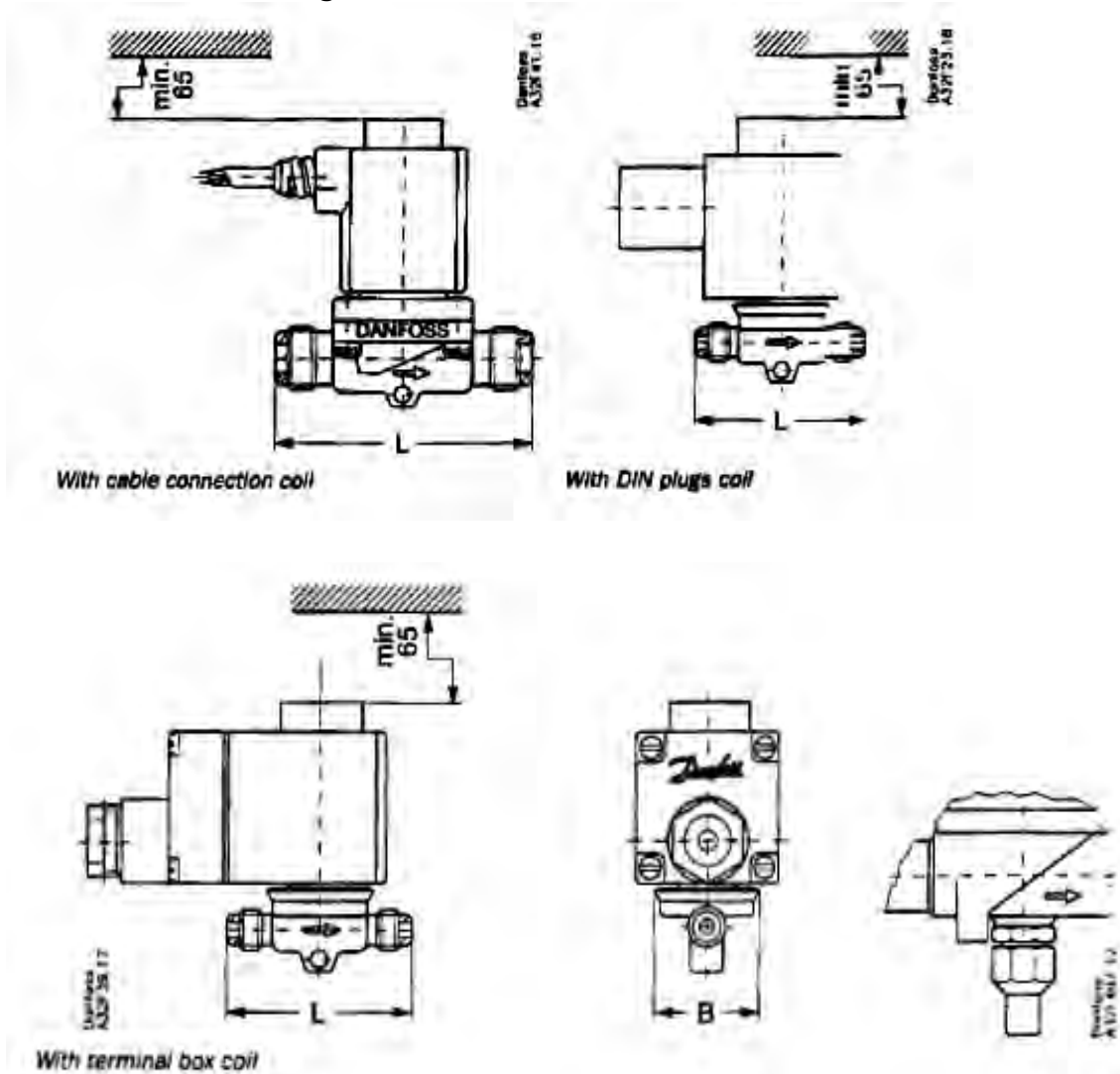
Compressors, Chillers, Condensers  
 Motors  
 Electrical  
 Heating Components  
 Indoor Air Quality  
 Thermostats  
 Oils & Chemicals  
 Accessories, Supplies & Commodities  
 Tools & Instruments  
 Refrigeration

## DANFOSS SOLENOID VALVES TYPE EVR 2 TO 40

EVR (NC) 2-15 FLARE CONNECTION

EVR (NC) 2 – 15 FLARE CONNECTION

### Dimensions and Weights



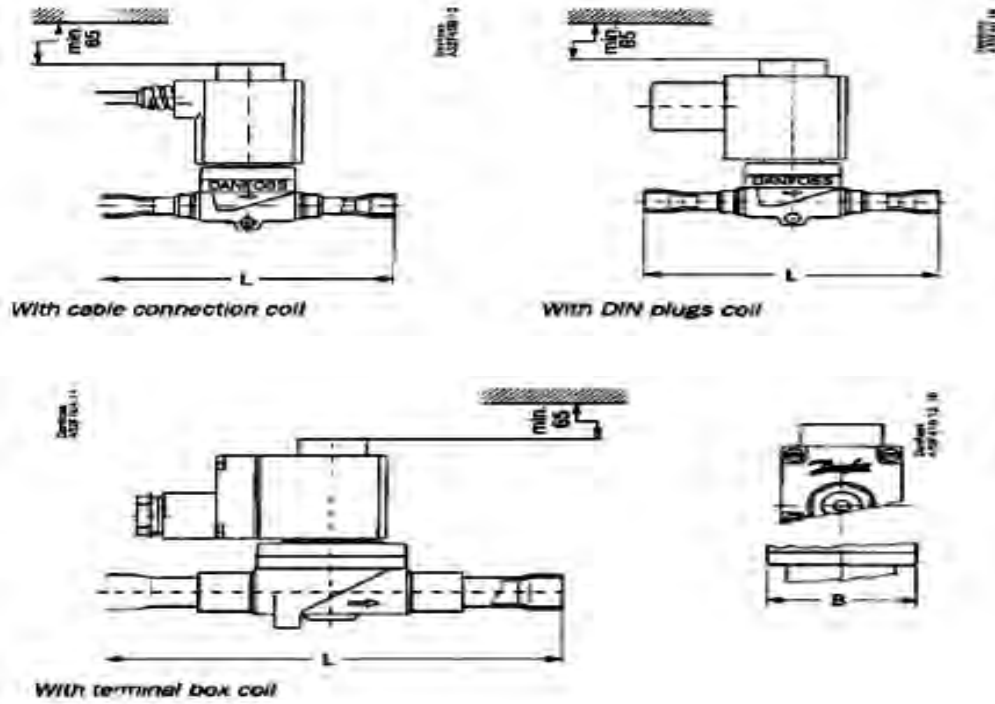
Type	Connection Flare	L	B	Weight with coil
	in.	in.	in.	lbs.
EVR 2	1/4	2.33	1.30	1.10
EVR 3	1/4	2.33	1.30	1.10
	3/8	2.50	1.30	1.10
EVR 6	3/8	2.75	1.50	1.33
	1/2	3.00	1.50	1.33
EVR 10	1/2	3.31	1.80	1.77
	5/8	3.65	1.80	1.77
EVR 15	5/8	4.10	2.25	2.20

## DANFOSS SOLENOID VALVES TYPE EVR 2 TO 40

EVR (NC) 2-15 FLARE CONNECTION

EVR (NC) 2 – 22 SOLDER CONNECTION

### Dimensions and Weights



Type	Connection Solder	L	B	Weight with coil
	in.	in.	in.	lbs.
EVR 2	1/4	4.00	1.30	1.10
EVR 3	1/4	4.00	1.30	1.30
	3/8	4.50	1.30	1.30
EVR 6	3/8	4.30	1.50	1.30
	1/2	5.00	1.50	1.30
EVR 10	1/2	5.00	1.80	1.60
	5/8	6.30	1.80	1.60
EVR 15	5/8	7.00	2.25	2.20
	7/8	7.00	2.25	2.20
EVR 20	7/8	7.50	2.90	3.30
	1-1/8	8.50	2.90	3.30
EVR 22	1-3/8	11.00	2.90	3.30

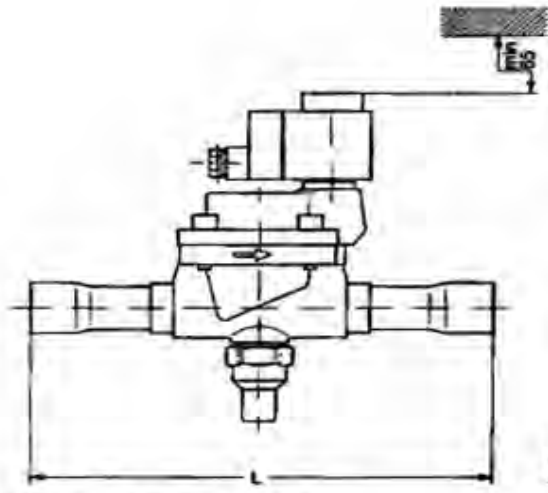
# Refrigeration

## DANFOSS SOLENOID VALVES TYPE EVR 2 TO 40

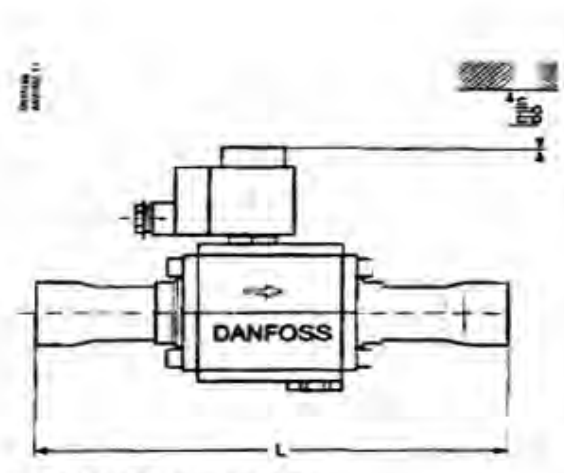
EVR (NC) 2-15 FLARE CONNECTION

EVR (NC) 25 – 40 SOLDER CONNECTION

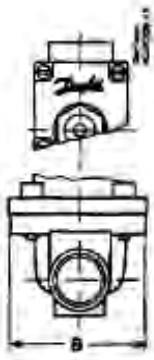
### Dimensions and Weights



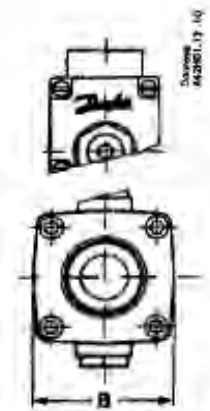
EVR 25 with terminal box coil



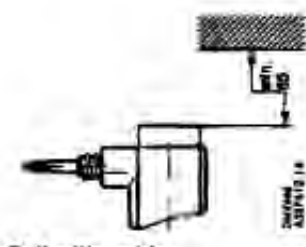
EVR 32 and 40 terminal box



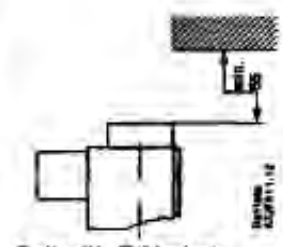
EVR 25



EVR 32 and 40



Coil with cable



Coil with DIN plugs

Type	Connection Solder	L	B	Weight with coil
	in.			
EVR 25	1-1/8	10.00	3.75	28.75
	1-3/8	11.00	3.75	29.35
EVR 32	1-3/8	11.00	3.15	32.00
	1-5/8	11.00	3.15	32.25
EVR 40	1-5/8	11.00	3.15	32.25
	2-1/8	11.00	3.15	32.25

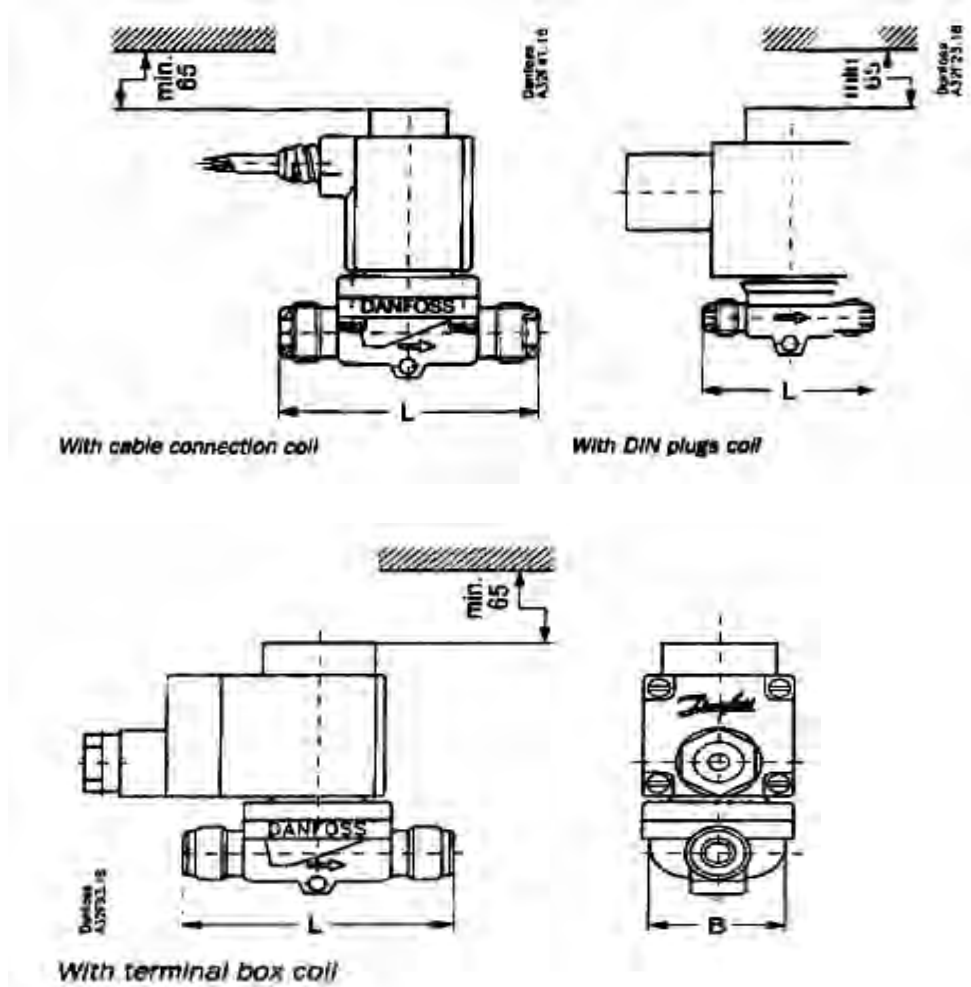
Compressors, Chillers, Condensers  
 Motors  
 Electrical  
 Heating Components  
 Indoor Air Quality  
 Thermostats  
 Oils & Chemicals  
 Accessories, Supplies & Commodities  
 Tools & Instruments  
 Refrigeration

## DANFOSS SOLENOID VALVES TYPE EVR 2 TO 40

### EVR (NC) 2-15 FLARE CONNECTION

### EVR (NC) 6 – 22 FLARE CONNECTION

### Dimensions and Weights



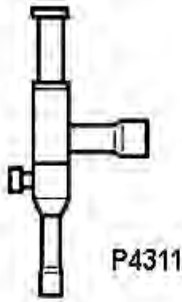
Type	L	B	Weight with coil
	in.	in.	lbs.
EVR 6	2.72	1.50	1.33
EVR 10	3.31	1.80	1.60
EVR 15	4.10	2.25	2.00

Type	L	B	Weight with coil
	in.	in.	lbs.
EVR 6	4.30	1.50	1.33
EVR 10	5.00	1.80	1.60
EVR 15	7.00	2.25	2.00
EVR 20	7.50	2.90	3.30
EVR 22	11.00	2.90	3.30

1) Applies to 7/8 in. connections. For 1-1/8 in. connections, L=8.43 in.

## DANFOSS EVAPORATOR PRESSURE REGULATORS

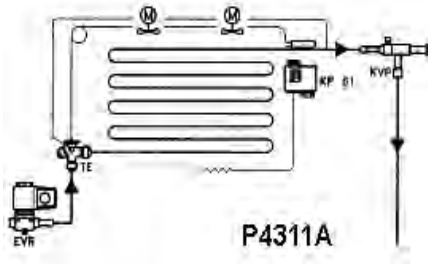
### ORDERING



P4311

### INTRODUCTION

KVP evaporator pressure regulators are mounted in the suction line of refrigeration and air conditioning systems. They are used to maintain a constant pressure corresponding to a constant temperature on the evaporator. They also protect against too low an evaporating pressure by throttling down when pressure falls below the set value. They are also used to differentiate the evaporating pressures in two or more evaporators in systems with one compressor.



P4311A

### APPROVALS

UL listed, file SA7200.  
CSA approved.

### ORDERING

TYPE	RATED CAPACITY*(Tons)			FLARE CONNECTION†		SOLDER CONNECTION	
	R22	R134a	R404A/R507	in	Part No	Part No	in ODF
KVP 12	1.3	0.9	1.2	1/2	034L0021	034L0023	1/2
KVP 15	1.3	0.9	1.2	5/8	034L0022	034L0029	5/8
KVP 22	1.3	0.9	1.2	--	--	034L0025	7/8
KVP 28	2.8	1.9	2.4	--	--	034L0026	1-1/8
KVP 35	2.8	1.9	2.4	--	--	034L0032	1-3/8

\*Rated capacity is based on:

Evaporating temperature  $t_e = 40^\circ \text{F}$

Condensing temperature  $t_c = 100^\circ \text{F}$

Pressure drop across regulator  $\Delta p = 2 \text{ psi}$

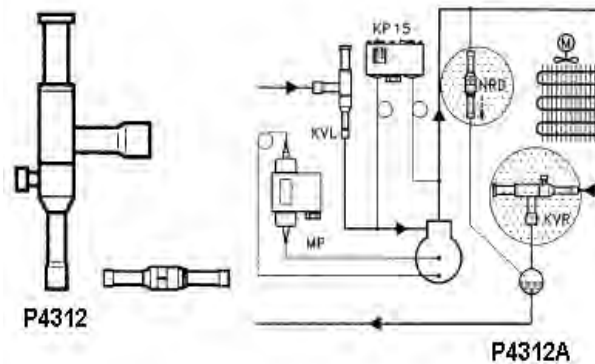
Offset (design evaporating pressure minus minimum allowable evaporator pressure) = 9 psi.

†KVP supplied without flare nuts.

**NOTE:** The connection dimensions chosen must not be too small, as gas velocities in excess of 130 ft/s at the inlet of the regulator can result in flow noise.

## DANFOSS EVAPORATOR PRESSURE REGULATORS CONDENSER PRESSURE REGULATORS

Ordering



KVR condenser regulators can be mounted in either the gas or liquid side of the condenser in refrigeration and air conditioning systems. They are used to maintain a constant and sufficiently high condensing pressure with systems using air-cooled condensers. They can also be used with valve types NRD or KVD to assure that adequate pressure is maintained on the receiver.



### ORDERING

TYPE	Rated Liquid Capacity <sup>1)</sup> (Evaporator Capacity) tons			Rated Hot Gas <sup>1)</sup> (Evaporator Capacity) tons			Flare Connection <sup>2)</sup>		SOLDER CONNECTION	
	R22	R134a	R404A/R507	R22	R134a	R404A/R507	in.	Part No	in.	Part No
KVR 12	12.7	11.8	8.2	4.13	3.03	3.27	1/2	034L0091	1/2	034L0093
KVR 15	12.7	11.8	8.2	4.13	3.03	3.27	5/8	034L0091	5/8	034L0097
KVR 22	12.7	11.8	8.2	4.13	3.03	3.27	--	--	7/8	034L0094
KVR 28	32.6	30.2	20.9	10.93	8.04	8.66	--	--	1 1/8	034L0095
KVR 35	32.6	30.2	20.9	10.93	8.04	8.66	--	--	1 3/8	034L0100

1) Rated capacity is based on:

Evaporating temperature  $t_e = 40^\circ \text{F}$

Condensing temperature  $t_c = 100^\circ \text{F}$

Pressure drop across valve  $\Delta p = 3 \text{ psi}$  for liquid capacity

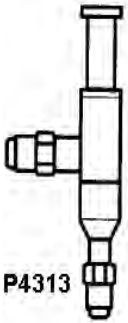
$\Delta p = 3 \text{ psi}$  for hot gas capacity

2) KVR are delivered without flare nuts.

NOTE: The connection dimensions chosen must not be too small, as gas velocities in excess of 130 ft/s at the inlet of the regulator can result in flow noise.

## DANFOSS HOT GAS BYPASS CAPACITY REGULATORS

### ORDERING



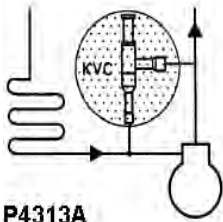
P4313

### INTRODUCTION

KVC capacity regulators are used to adapt compressor capacity to actual evaporator load by supplying a replacement capacity in form of hot/cool gas. It is installed in a bypass line between the high and low pressure sides of the refrigeration system and is designed for direct gas injection into the suction line.

### Approvals.

UL listed, file SA7200.  
CSA approved



P4313A

### ORDERING

TYPE	RATED CAPACITY*(Tons)			FLARE CONNECTION†		SOLDER CONNECTION	
	R22	R134a	R404A/R507	in	PART NO	in ODF	PART NO
KVC 12	2.14	1.36	2.02	1/2	034L0141	1/2	034L0143
KVC 15	4.17	2.65	3.93	5/8	034L0142	5/8	034L0147
KVC 22	5.35	3.41	5.04	--	--	7/8	034L0144

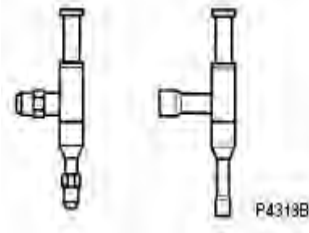
\*Rated capacity is based on:

Suction gas temperature  $t_s = 10^\circ \text{F}$   
 Liquid temperature  $t_l = 100^\circ \text{F}$   
 Offset  $\Delta p = 10 \text{ psi}$

†KVC are delivered without flare nuts.

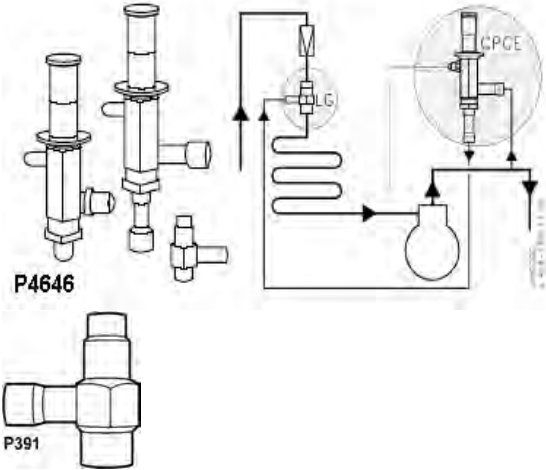
**NOTE:** The connection dimensions chosen must not be too small, as gas velocities in excess of 130 ft/s at the inlet of the regulator can result in flow noise. If the temperature in the discharge gas line is too high according to the compressor specifications, it is recommended to install a liquid injection valve in a bypass from the liquid line to the suction line.

- For CFC, HCFC, and HFC Refrigerants
- Regulating range: 3 to 85 PSIG. Factory setting -29 psig.



P4313B

## DANFOSS HOT GAS BYPASS CAPACITY REGULATORS TYPE CPCE/LG (LIQUID-GAS MIXERS)



### INTRODUCTION

CPCE capacity regulators are used to adapt compressor capacity to actual evaporator load. They are installed in a bypass line between the high and low pressure sides of the refrigeration system and is designed for hot gas injection into the evaporator just after the expansion valve. Liquid-gas mixer type LG can be used at the point of injection to assure a proper mixture

TYPE	EXPANSION VALVE (in) ODM	CONNECTION FOR		PART NO
		HOT-GAS (in) ODM	LIQUID DISTRIBUTOR (in) ODF	
LG 12/16	5/8	1/2	5/8	069G4001
LG 12/22	7/8	1/2	7/8	069G4002
LG 16/28	1 1/8	5/8	1 1/8	069G4003
LG 22/35	1 3/8	7/8	1 3/8	069G4004

### Ordering

Capacity regulator (Hot Gas capacity valve)



TYPE	CONNECTION		RATED CAPACITY <sup>1)</sup> tons			PART NO
	Flare in	SOLDER-ODF in	R22	R134a	R404A/R507	
CPCE 12	1/2	--	6.2	4.3	6.3	034N0081
CPCE 12	--	1/2	6.2	4.3	6.3	034N0082
CPCE 15	--	5/8	9.2	6.3	9.1	034N0083
CPCE 22	--	7/8	12.2	8.4	12.1	034N0084

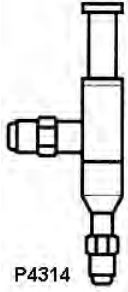
1) Rated capacity is based on:

Minimum suction temperature       $t_s = 15^\circ \text{F}$   
 Condensing temperature               $t_c = 100^\circ \text{F}$   
 Superheat of expansion valve         $\Delta t_s = 7^\circ \text{F}$

- Provides protection against too low an evaporator temperature.
- For use with CFC, HCFC, and HFC Refrigerants

## DANFOSS CRANKCASE PRESSURE REGULATORS

DCPR01




P4314

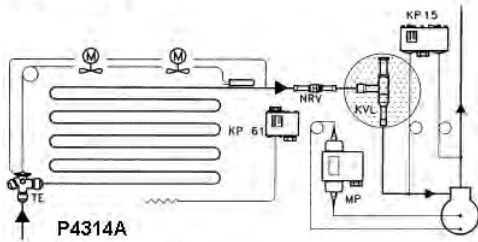
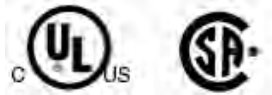
### INTRODUCTION

KVL crankcase pressure regulators are used to protect the compressor motor against overload experienced during startup after long off periods or just after defrost periods. They are installed in the suction line of refrigeration systems.

- For use with CFC, HCFC and HFC Refrigerants
- Refrigerants Range 3 to 85 PSIG  
(Factory Setting = 25 PSIG)

### APPROVALS

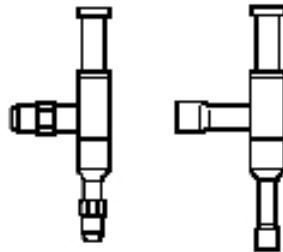
C  US listed, file SA7200.  
CSA approved.



P4314A

### TYPE KVL

Ordering



TYPE	Rated Capacity <sup>1)</sup> TR			Flare Connection <sup>2)</sup>		Solder Connection	
	R22	R134a	R404A/R507	in.	PART NO	in.	PART NO
KVL 12	0.34	0.22	0.28	1/2	034L0041	1/2	034L0043
KVL 15	0.34	0.22	0.28	5/8	034L0042	5/8	034L0049
KVL 22	0.34	0.22	0.28	--	--	7/8	034L0045
KVL 28	1.60	0.74	0.96	--	--	1 1/8	034L0046
KVL 35	1.60	0.74	0.96	--	--	1 3/8	034L0052

### Metric conversions

- 1 psi = 0.07 bar
- 5/9 (t<sup>1</sup>F - 32) = t<sup>2</sup>C
- 1 ton = 3.5 kW
- 1 in. = 25.4 mm

- 1) Rated capacity is based on:
- Maximum suction pressure ps = 70 psig
  - Suction temperature ts = 10° F
  - Condensing temperature tc = 100° F
  - Press. drop across regulator Δp = 2 psi

**Note:** The connection dimensions chosen must not be too small, as gas velocities in excess of 130 ft/s at the inlet of the regulator can result in flow noise.

Compressors,  
Chillers, Condensers

Motors

Electrical

Heating  
Components

Indoor Air  
Quality

Thermostats

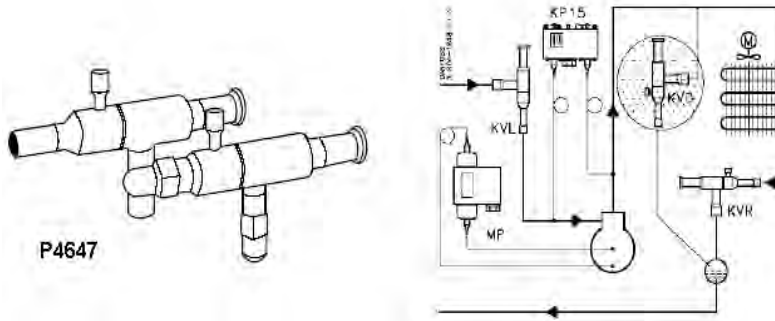
Oils &  
Chemicals

Accessories, Supplies  
& Commodities

Tools &  
Instruments

Refrigeration

## DANFOSS RECEIVER PRESSURE REGULATORS TYPE KVD

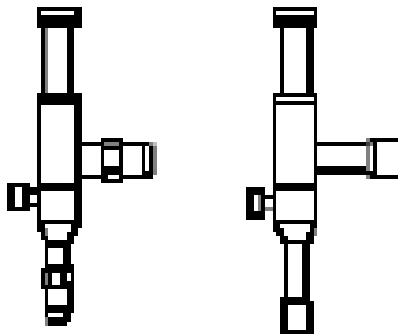


### INTRODUCTION

KVD is a modulating pressure regulator. It opens on falling receiver pressure and bypasses hot gas to maintain the receiver pressure at the regulator setting (adjustable). KVD and KVR form a regulating system, used to maintain constant and adequately high condensing and receiver pressure in systems with heat-recovery, and in refrigeration and air conditioning systems with air-cooled condensers.

- For use with CFC, HCFC and HFC Refrigerants.
- Regulating range 45 to 290 PSIG (Factory setting = 145 PSIG.)

### Ordering



Type	Flare connection <sup>1)</sup>		Solder connection	
	in.	PART NO	in.	PART NO
KVD 12	1/2	034L0171	1/2	034L0173
KVD 15	5/8	034L0172	5/8	034L0177

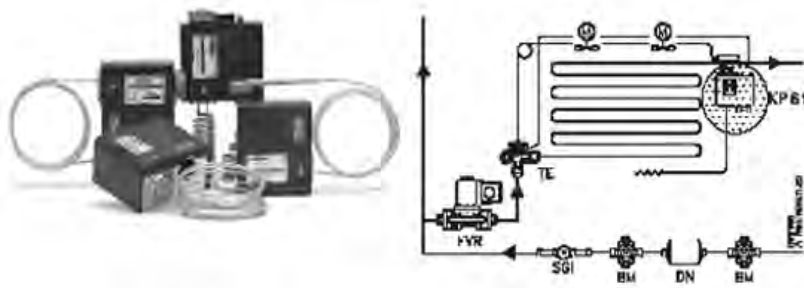
1) KVD supplied without flare nuts.

The size of connection must not be chosen too small since gas velocities of more than 40 m/s in the inlet can cause flow noise.

# Refrigeration

## DANFOSS REFRIGERATION THERMOSTATS, TYPE KPU

DT-TKPU



### INTRODUCTION

KPU thermostats are temperature-controlled electrical switches, which are applied for regulation and safety monitoring of refrigeration and air conditioning systems. KPU sensors are available with vapor charge or with adsorption charge. Thermostats with adsorption charge are widely used to give frost protection, while vapor charged sensors are used where small differential is required. All KPU temperature controls have a single pole double throw (SPDT) contact system. The position of the switch depends on the thermostat setting and the bulb temperature.

### FEATURES

- Wide temperature regulating range allows use in low, medium, and high temperature refrigeration application and air-conditioning systems
- SPDT switch allows NC or NO function option as well as alarm capability
- Automatic and manual reset versions available

### Approvals

UL listed for USA and Canada, file E31024

### TECHNICAL DATA

#### Ambient Temperature

-40 to 122°F, 175°F up to 2 hours.

#### Cable Entry

7/8" cable entry for 1/2" male pipe thread connection (conduit boss)

#### Maximum Wire Dimension

10 AWG

#### Enclosure

NEMA 1

#### Switch

SPDT - single pole double throw

#### Contact Load

Alternating current

FLA = 24 A @ 120 Vac      24 A @ 240 Vac

LRA = 144 A @ 120 Vac      144 A @ 240 Vac

#### Direct Current

12 W pilot duty @ 240 Vdc

#### Alternating Current (acc. to EN 60947)

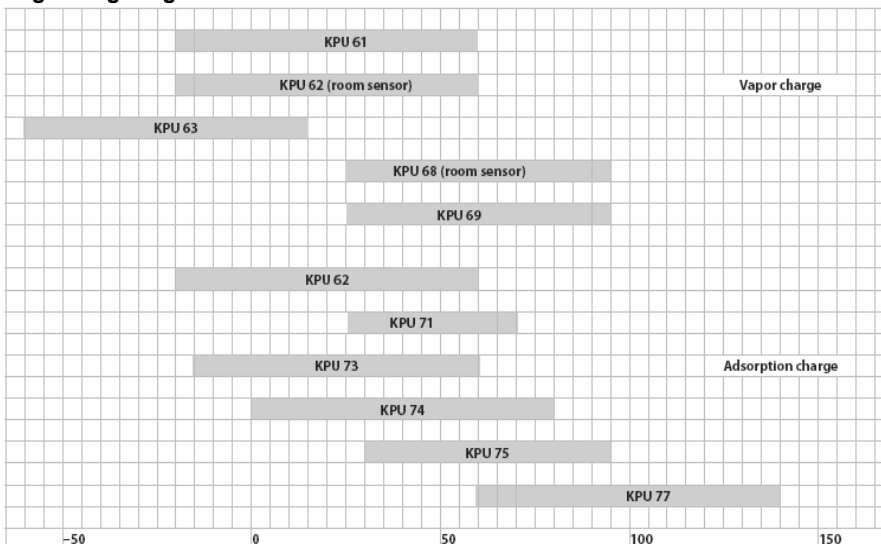
AC1: 16 A, 400 VA      AC3: 16 A, 400 VA

AC15: 10 A, 400V

#### Direct Current

DC 13: 12 W, 220 V control current

### Regulating ranges in °F



Compressors,  
Chillers, Condensers

Motors

Electrical

Heating  
Components

Indoor Air  
Quality

Thermostats

Oils &  
Chemicals

Accessories, Supplies  
& Commodities

Tools &  
Instruments

Refrigeration

## DANFOSS PRESSURE CONTROLS, TYPE KPU

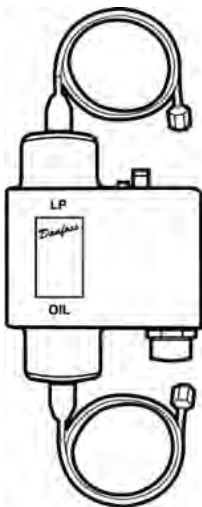
Pressure controls for fluorinated refrigerant

Ordering

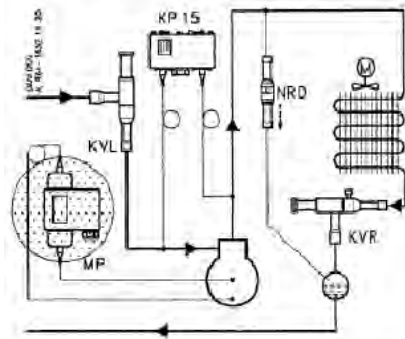
PRESSURE	Control type	Low pressure (LP)		High pressure (HP)		RESET		Contact type	PART NO	
		Range psig	Differential psi	Range psig	Differential psi	Low Pressure LP	High Pressure HP		1/4" male flare	3/8" cap Tube w 1/4" flare nut
Low	KPU 1	6 to 108	10 to 60	--	--	Auto	--	A	060-5231	060-5233
Low	KPU 1	6 to 108	10 to 60	--	--	Auto	--	B	060-5236	--
Low	KPU 1	28 to 100	10 fixed	--	--	Man.	--	A	060-5232	060-5234
Low	KPU 2	6 to 73	6 to 30	--	--	Auto	--	B	060-5237	060-5235
Low	KPU 2	6 to 73	6 to 30	--	--	Auto	--	A	060-5239	060-5240
Fan cycling	KPU 5	--	--	100 to 465	25 to 85	--	Auto	B	060-5241	060-5242
Dual	KPU 15	6 to 108	10 to 60	100 to 465	60 fixed	Auto	Auto	C	060-5247	060-5248
Dual	KPU 15	6 to 108	10 to 60	100 to 465	60 fixed	Auto	Man.	C	060-5249	060-5250

## DANFOSS OIL DIFFERENTIAL PRESSURE CONTROLS

DODPC01



P839



P839B

### INTRODUCTION

MP54 and MP55 oil differential pressure controls are used as safety switches to protect refrigeration compressors against low lubricating oil pressure. If the oil pressure fails, the control will stop the compressor after a predetermined time period has elapsed. MP54 and 55 are used in refrigerating systems using CFC, HCFC, HFC. MP 54 has a fixed differential pressure setting. It also incorporates a thermal time relay with a fixed release time setting. MP55 have adjustable differential pressure and are available with thermal time relay.

### APPROVALS

- UL listed, file E31024.
- CSA certified, LRA 6093.



## DANFOSS OIL DIFFERENTIAL PRESSURE CONTROLS ORDERING



PART NO	TYPE	DIFFERENTIAL RANGE (PSI)	TIME DELAY (SEC)	REGULATION RANGE LP SIDE IN HG TO PSIG)	PRESSURE CONNECTION		
					1/4 in Flare	36 in Capillary Tube	88 in Capillary Tube
060B200866	MP54	Fixed 6.0	45	29 in. to 170	Yes	--	--
060B205066	MP54	Fixed 6.0	45	29 in. to 170	-	Yes	--
060B205866	MP54	Fixed 6.0	60	29 in. to 170	--	--	Yes
060B205966	MP54	Fixed 6.0	60	29 in. to 170	--	Yes	--
060B210966	MP54	Fixed 6.0	120	29 in. to 170	Yes	--	--
060B200166	MP54	Fixed 9.0	60	29 in. to 170	Yes	--	--
060B205166	MP54	Fixed 9.0	60	29 in. to 170	--	Yes	--
060B200266	MP54	Fixed 9.0	90	29 in. to 170	Yes	--	--
060B200366	MP54	Fixed 9.0	120	29 in. to 170	Yes	--	--
060B205366	MP54	Fixed 9.0	120	29 in. to 170	--	Yes	--
060B215066	MP54	Fixed 13	45	29 in. to 170	Yes	--	--
060B205466	MP55	4.3 to 64	45	29 in. to 170	--	Yes	--
060B201266	MP55	4.3 to 64	60	29 in. to 170	Yes	--	--
060B200666	MP55	4.3 to 64	90	29 in. to 170	Yes	--	--
060B205666	MP55	4.3 to 64	90	29 in. to 170	--	Yes	--
060B200766	MP55	4.3 to 64	120	29 in. to 170	Yes	--	--
060B205766	MP55	4.3 to 64	120	29 in. to 170	--	Yes	--

Compressors,  
Chillers, Condensers

Motors

Electrical

Heating  
Components

Indoor Air  
Quality

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& Commodities

Tools &  
Instruments

Refrigeration

## DANFOSS SIGHT GLASSES

DSG01



### INTRODUCTION

Sight glasses are used to indicate:

1. The condition of the refrigerant in the plant liquid line.
2. The moisture content in the refrigerant.
3. The flow in the oil return line from the oil separator.

The SGI, SGN, SGR or SGRN can be used for CFC, HCFC and HFC refrigerants.

The SGI and SGN are fitted with an indicator which changes color to show the moisture content in the refrigerant.

The SGR is used to indicate the liquid level in a receiver or the oil level in a compressor crankcase.

The SGRN is a sight glass like SGR, but supplied with a moisture indicator.

The moisture indicators in the sight glasses are dirt repelling.

### APPROVALS

UL listed, file SA 652.

CSA Certified, LR 55874.

### TECHNICAL DATA

Refrigerants:

SGI/SGRI: CFC

SGN/SGRN: HFC and HCFC

Ambient Temperature:

-60° F → 175° F

Maximum Working Pressure:

SGI/SGN: 6 → 12:

MWP = 500 psig

SGI/SGN: 16s (solder):

MWP = 500 psig

SGI/SGN: 16 (flare):

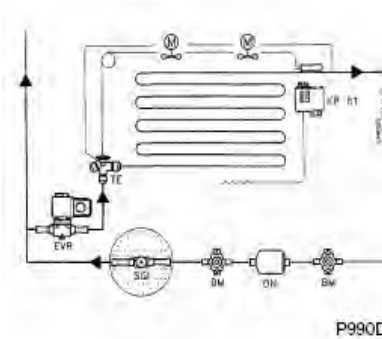
MWP = 400 psig

SGI/SGN 19 → 22:

MWP = 400 psig

SGR/SGRI/SGRN:

MWP = 500 psig



## DANFOSS SIGHT GLASSES, TYPES SGI, SGN, SGR, AND SGRN

### Ordering

SGI = CFC refrigerants

SGN = HFC, HCFC refrigerants

PART NO	TYPE	VERSION	Connection in	LENGTH (IN)	WEIGHT (LB)
014-0060	SGI 6	Flare ext. × ext.	1/4 × 1/4	2.65	0.25
014-0061	SGI 10	Flare ext. × ext.	3/8 × 3/8	3.25	0.5
014-0009	SGI 12	Flare ext. × ext.	1/2 × 1/2	3.5	0.75
014-0024	SGI 16	Flare ext. × ext.	5/8 × 5/8	4.1	1
PART NO	TYPE	VERSION	Connection in	LENGTH (IN)	WEIGHT (LB)
014-0063	SGI 6	Flare int. × ext. 1)	1/4 × 1/4	1.8	0.25
014-0064	SGI 10	Flare int. × ext. 1)	3/8 × 3/8	2.25	0.5
014-0065	SGI 12	Flare int. × ext. 1)	1/2 × 1/2	2.33	0.75
PART NO	TYPE	VERSION	Connection in	LENGTH (IN)	WEIGHT (LB)
014-0066	SGI 6s	ODF × ODF solder	1/4 × 1/4	4	0.25
014-0067	SGI 10s	ODF × ODF solder	3/8 × 3/8	4.7	0.25
014-0068	SGI 12s	ODF × ODF solder	1/2 × 1/2	5.75	0.5
014-0069	SGI 16s	ODF × ODF solder	5/8 × 5/8	5.75	0.5
014-0070	SGI 22s	ODF × ODF solder	7/8 × 7/8	6.82	0.5

## DANFOSS REFRIGERATION THERMOSTATS, TYPE KPU

### ORDERING

PART NO	CHARGE	TYPE	BULB TYPE	Range [°F]	DIFFERENTIAL At		Reset function	Capillary tube length [in]	Max bulb temp [°F]
					Lowest Temperature Setting °F	Highest Temperature Setting °F			
060L5201	Vapour (1)	KPU 61	A	-20 to 60	8 to 40	2.5 to 13	auto.	80	250
060L5202	Vapour (1)	KPU 61	A	-20 to 60	8 to 40	2.5 to 13	auto.	200	250
060L5203	Vapour (1)	KPU 61	B	-20 to 60	8 to 40	2.5 to 13	auto.	80	250
060L5204	Vapour (1)	KPU 61	B	-20 to 60	fixed 10	fixed 3.5	man. (3)	80	250
060L5205	Vapour (1)	KPU 61	B	-20 to 60	fixed 10	fixed 3.5	man. (3)	200	250
060L5206	Vapour (1)	KPU 62	C1	-20 to 60	8 to 40	2.5 to 13	auto.	room sensor	250
060L5210	Vapour (1)	KPU 61	B	-20 to 60	8 to 40	2.5 to 13	auto. (4)	80	250
060L5213	Vapour (1)	KPU 63	A	-60 to 15	18 to 125	5 to 15	auto.	80	250
060L5214	Vapour (1)	KPU 63	B	-60 to 15	18 to 125	5 to 15	auto.	80	250
060L5215	Vapour (1)	KPU 68	C1	25 to 95	8 to 45	3 to 13	auto.	room sensor	250
060L5217	Vapour (1)	KPU 69	B	25 to 95	8 to 45	3 to 13	auto.	80	250
060L5207	Adsorption (2)	KPU 62	C2	-20 to 60	9 to 36	3 to 14	auto. (4)	room sensor	175
060L5208	Adsorption (2)	KPU 73	E3	-15 to 60	6 to 18	5 to 50	auto.	80	175
060L5209	Adsorption (2)	KPU 73	E1	-15 to 60	22 to 125	15 to 45	auto.	80	175
060L5211	Adsorption (2)	KPU 73	E3	-15 to 60	fixed 6	fixed 6	man. (3)	80	175
060L5212	Adsorption (2)	KPU 73	D	-15 to 60	6 to 35	5 to 32	auto.	80	175
060L5218	Adsorption (2)	KPU 71	E2	25 to 70	5.5 to 18	4 to 6	auto.	80	175
060L5216	Adsorption (2)	KPU 71	E2	25 to 70	fixed 5	fixed 5	man. (3)	80	175
060L5219	Adsorption (2)	KPU 74	E1	0 to 80	9 to 35	9 to 35	auto.	80	175
060L5220	Adsorption (2)	KPU 74	E1	0 to 80	fixed 10	fixed 10	man. (3)	80	175
060L5221	Adsorption (2)	KPU 75	F	30 to 95	6 to 29	4.5 to 21.5	auto.	80	230
060L5222	Adsorption (2)	KPU 75	E2	30 to 95	6 to 30	4.5 to 22	auto.	80	230
060L5223	Adsorption (2)	KPU 77	E3	60 to 140	6 to 18	6.3 to 18	auto.	80	265

## DANFOSS SIGHT GLASSES, TYPES SGI, SGN, SGR, AND SGRN

### Ordering



PART NO	TYPE	VERSION	Connection in	LENGTH (IN)	WEIGHT (LB)
014-0119	SGI 10s	ODF x ODM solder	3/8 x 3/8	4	0.25



PART NO	TYPE	VERSION	Connection in	LENGTH (IN)	WEIGHT (LB)
014-0131	SGR 1/2	NPT	1/2 NPT	--	--



PART NO	TYPE	VERSION	Connection in	LENGTH (IN)	WEIGHT (LB)
014-0132	SGN 6	Flare ext. x ext.	1/4 x 1/4	2.65	0.25
014-0133	SGN 10	Flare ext. x ext.	3/8 x 3/8	3.25	0.5



PART NO	TYPE	VERSION	Connection in	LENGTH (IN)	WEIGHT (LB)
014-0137	SGN 6	Flare int. x ext. 1)	1/4 x 1/4	2.25	0.5
014-0138	SGN 10	Flare int. x ext. 1)	3/8 x 3/8	2.33	0.75
014-0139	SGN 12	Flare int. x ext. 1)	1/2 x 1/2	2.8	1



PART NO	TYPE	VERSION	Connection in	LENGTH (IN)	WEIGHT (LB)
014-0142	SGN 6s	ODF x ODF solder	1/4 x 1/4	3	1.33
014-0143	SGN 10s	ODF x ODF solder	3/8 x 3/8	4	0.25
014-0144	SGN 12s	ODF x ODF solder	1/2 x 1/2	4.7	0.25
014-0145	SGN 16s	ODF x ODF solder	5/8 x 5/8	5.75	0.5
014-0147	SGN 22s	ODF x ODF solder	7/8 x 7/8	6.82	0.5



PART NO	TYPE	VERSION	Connection in	LENGTH (IN)	WEIGHT (LB)
014-0152	SGN 10s	ODF x ODM solder	3/8 x 3/8	4.7	0.25
014-1092 (R410A)	SGH 10s	ODF x ODF solder	3/8 x 3/8	--	--
014-1096 (R410A)	SGH 22s	ODF x ODF solder	7/8 x 7/8	--	--
014-1098 (R410A)	SGH 22s	ODF x ODF solder	1-1/8 x 1-1/8	--	--
014-0154	SGN 16s	ODF x ODM solder	5/8 x 5/8	5.75	0.5
014-1091 (R410A)	SGH 12s	ODF x ODF solder	1/2 x 1/2	--	--

## DANFOSS SIGHT GLASSES, TYPES SGI, SGN, SGR, AND SGRN

### Ordering



PART NO	TYPE	VERSION	Connection in	LENGTH (IN)	WEIGHT (LB)
014-0006	SGRN	NPT	1/2 NPT	--	--

- 1) Can be screwed directly into the filter drier.
- 2) ISO 228/1.

Refrigerant	SGI						SGN					
	77°F			110°F			77°F			110°F		
	Green dry	Intermed. color	Yellow wet	Green dry	Intermed. color	Yellow wet	Green dry	Intermed. color	Yellow wet	Green dry	Intermed. color	Yellow wet
CFC	**SGI recommended											
R12	< 10	10 - 25	> 25	< 35	35 - 65	> 65						
R502	< 70	70 - 140	> 140	< 110	110 - 230	> 230	< 10	10 - 50	> 50	< 20	20 - 90	> 90
HCFC							**SGN recommended					
R22	< 150	150 - 300	> 300	< 250	250 - 500	> 500	< 30	30 - 120	> 120	< 50	50 - 200	> 200
R134a	< 130	130 - 270	> 270	< 210	210 - 430	> 430	< 30	30 - 100	> 100	< 45	45 - 170	> 170
R404A	< 90	90 - 170	> 170	< 125	125 - 250	> 250	< 20	20 - 70	> 70	< 25	25 - 100	> 100
R407C	< 170	170 - 350	> 350	< 280	280 - 560	> 560	< 30	30 - 140	> 140	< 60	60 - 225	> 225
R507	< 80	80 - 160	> 160	< 140	140 - 280	> 280	< 15	15 - 60	> 60	< 30	30 - 110	> 110

This chart indicates the moisture content in parts per million for both types of Danfoss sight glasses for the given refrigerants.

## DANFOSS CHECK VALVES TYPES NRV AND NR VH



### INTRODUCTION

NRV check valves can be used in liquid, suction, and hot gas lines in refrigeration and air conditioning systems using fluorinated refrigerants. They allow flow in only one direction and have a built-in damping piston that makes the valve suitable for installation in lines where pulsation can occur. They are available in both angleway and straightway versions.

NRVH check valves can be used in liquid and hot gas lines in refrigeration and air conditioning systems using fluorinated refrigerants. They are supplied with a stronger spring than type NRV ( $\Delta P = 4.3$  psi) and are especially suitable for installation in the discharge line of systems with compressors connected in parallel.

### FEATURES

Two Versions available

- Type NRV: Requires a minimum  $\Delta P$  of 0.6 to 1psi for 100% flow.
- Type NR VH: Includes a stronger spring that requires a minimum  $\Delta P$  of 4.3 psi for 100% flow.

Refrigerants:

CFC, HCFC and HFC

Temperature of medium:

-60 → +285°F

Maximum working pressure:

MWP = 400 psig

Maximum test pressure:

p' = 520 psig

### Ordering

NRV straightway, flare connection

PART NO	TYPE	Connection in	WEIGHT (LB)	PRESSURE DROP 2) ACROSS VALVE $\Delta p$ psi	Cv VALUE 3) gal/min	OVERALL LENGTH in
020-1040	NRV 6	1/4	0.2	1	0.65	2.21
020-1041	NRV 10	3/8	0.4	1	1.65	2.36
020-1042	NRV 12	1/2	0.4	0.7	2.37	2.72
020-1043	NRV 16	5/8	0.7	0.7	4.16	3.15
020-1044	NRV 19	3/4	0.9	0.7	5.78	3.47



NRV / NR VH straightway, solder connection

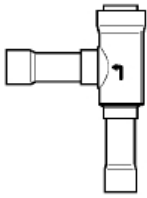
PART NO	TYPE	Connection in	WEIGHT (LB)	PRESSURE DROP 2) ACROSS VALVE $\Delta p$ psi	Cv VALUE 3) gal/min	OVERALL LENGTH in
020-1010	NRV 6s	1/4	0.2	1.0	0.65	3.62
020-1057	NRV 6s *	3/8	0.4	1.0	0.65	3.62
020-1069	NRVH 6s *	3/8	0.4	1.0	0.65	3.62
020-1011	NRV 10s	3/8	0.4	1.0	1.65	4.29
020-1046	NRVH 10s	3/8	0.4	4.3	1.65	4.29
020-1058	NRV 10s *	1/2	0.4	1.0	1.65	4.29
020-1070	NRVH 10s *	1/2	0.4	4.3	1.65	4.29
020-1012	NRV 12s	1/2	0.4	0.7	2.37	5.16
020-1039	NRVH 12s	1/2	0.4	4.3	2.37	5.16
020-1052	NRV 12s *	5/8	0.4	0.7	2.37	5.16
020-1064	NRVH 12s *	5/8	0.4	4.3	2.37	5.16
020-1018	NRV 16s	5/8	0.7	0.7	4.16	5.43
020-1038	NRVH 16s	5/8	0.7	4.3	4.16	5.43
020-1059	NRV 16s *	3/4	0.7	0.7	4.16	5.43
020-1071	NRVH 16s *	3/4	0.7	4.3	4.16	5.43
020-1019	NRV 19s	3/4	0.9	0.7	5.78	6.50
020-1023	NRVH 19s	3/4	0.9	4.3	5.78	6.50
020-1054	NRV 19s *	7/8	0.9	0.7	5.78	6.50
020-1066	NRVH 19s *	7/8	0.9	4.3	5.78	6.50



## DANFOSS CHECK VALVES

### TYPES NRV AND NRVH

#### Ordering



NRV / NRVH angleway, solder connection

PART NO	TYPE	Connection in	WEIGHT (LB)	PRESSURE DROP 2) ACROSS VALVE $\Delta p$ psi	Cv VALUE 3) gal/min
020-1020	NRV 22s	7/8	1.1	0.6	9.83
020-1032	NRVH 22s	7/8	1.1	4.3	9.83
020-1060	NRV 22s *	1 1/8	1.1	0.6	9.83
020-1072	NRVH 22s *	1 1/8	1.1	4.3	9.83
020-1021	NRV 28s	1 1/8	2.4	0.6	21.96
020-1029	NRVH 28s	1 1/8	2.4	4.3	21.96
020-1056	NRV 28s *	1 3/8	2.4	0.6	21.96
020-1068	NRVH 28s *	1 3/8	2.4	4.3	21.96
020-1026	NRV 35s	1 3/8	2.4	0.6	33.52
020-1034	NRVH 35s	1 3/8	2.4	4.3	33.52
020-1061	NRV 35s *	1 5/8	2.4	0.6	33.52
020-1073	NRVH 35s *	1 5/8	2.4	4.3	33.52

\* Oversize connections

- 2)  $\Delta p$  = the minimum pressure at which the valve is completely open.  
The NRVH with a stronger spring is used in the discharge line from compressors connected in parallel.
- 3) Cv value is the water flow in gal/min at a pressure drop across valve of 1 psi,  $\rho = 10$  lb/gal.

Metric Conversions

- 1 psi = 0.07 bar
- 1 in. = 25.4 mm
- US gal/min = 0.86 m<sup>3</sup>/h