ENGINEERING
TOMORROW

Quick Select Guide—2019/2020

Products and technologies for all your application needs, today and **tomorrow**

REFRIGERATION & AIR CONDITIONING COMPONENTS

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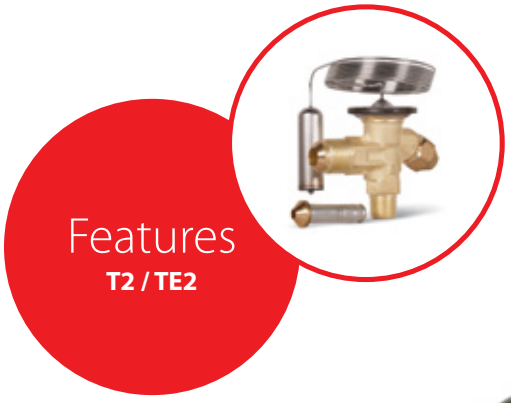
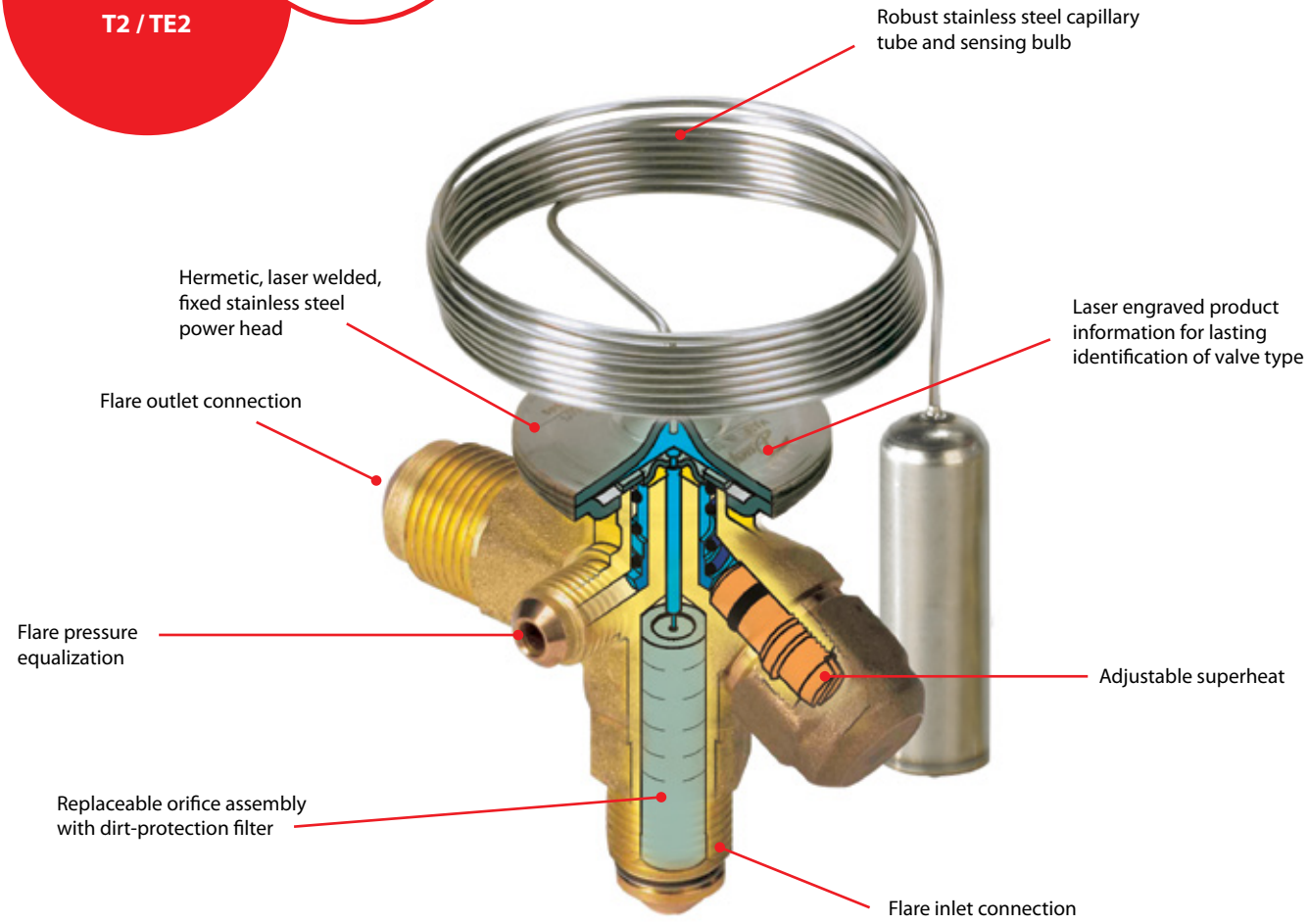
T2 / TE2 - Thermostatic Expansion Valves

Danfoss T2/TE2 brass body thermostatic expansion valves feature flare inlet and outlet connections. By pairing one valve body with one of eight replaceable orifices, a contractor can satisfy applications from –40 °F to +50 °F and from ⅛ to 5 ¾ tons capacity (see capacity chart for specifics).





Facts

Applications:

- Traditional refrigeration
- Self-contained refrigerators
- Transport refrigeration
- Supermarket refrigeration

- Temperature range: –40 °F to +50 °F
- Capacity range: ⅛ to 5 ¾ tons (varies by refrigerant)
- Refrigerants: R-22, R-407C, R-134a, R-404A
- Functional valve consists of valve body and orifice
- Flare/solder adaptor available

Product Selection

1. Select Valve Body

Equalization	R-22	R-407C	R-404A	R-134a
Internal	068Z3206		068Z3400	068Z3346
External	068Z3209		068Z3403	068Z3348

All valves above have ⅜ in. × ½ in. flare connections and are designed for evaporator temperatures –40 °F to +50 °F (N charge).
Other variations available, please contact your local Danfoss authorized wholesaler.

2. Select Orifice

T2/TE2 valve capacities are based on the installed orifice.
To select the correct size, use one of the two methods below:

A. System characteristics: Select the orifice using appropriate refrigerant, evaporator temperature, and system capacity.

OR

B. Nominal capacity of the installed valve: Use the nominal capacity of the originally installed valve and match with the nominal capacity in chart (3rd column from left).

Technical data and ordering

T2 and TE2 (IF EXACT CAPACITY CANNOT BE FOUND, USE NEXT LARGER ORIFICE)

R-22 / R-407C			Evaporator temperature (°F)									
Orifice size	Danfoss Code No.	Nominal capacity of installed valve[1] (tons)	–40	–30	–20	–10	0	10	20	30	40	50
			Rated capacity[2] (tons)									
0X	068-2002	¼	⅕	¼	¼	¼	¼	¼	¼	¼	¼	¼
00	068-2003	½	¼	⅓	⅓	⅓	⅓	⅓	½	½	½	½
01	068-2010	1	⅓	⅓	½	½	½	¾	¾	¾	1	1
02	068-2015	1 ⅓	⅓	½	½	¾	¾	1	1	1 ¼	1 ⅓	1 ⅓
03	068-2006	2 ⅓	¾	¾	1	1	1 ⅓	1 ½	1 ¾	2	2 ¼	2 ⅓
04	068-2007	3 ⅓	1	1	1 ½	1 ¾	2	2 ⅓	2 ¾	3	3 ½	3 ½
05	068-2008	5	1 ⅓	1 ¾	2	2 ⅓	2 ¾	3	3 ¾	4 ¼	4 ¾	5
06	068-2009	5 ½	1 ½	2	2 ⅓	2 ¾	3	3 ¾	4 ⅓	5	5 ½	5 ¾

R-404A			Evaporator temperature (°F)									
Orifice size	Danfoss Code No.	Nominal capacity of installed valve[1] (tons)	–40	–30	–20	–10	0	10	20	30	40	50
			Rated capacity[2] (tons)									
0X	068-2002	⅛	⅛	⅛	⅛	⅛	⅛	⅕	⅕	⅕	⅕	⅛
00	068-2003	⅓	⅕	⅕	¼	¼	⅓	⅓	⅓	⅓	⅓	⅓
01	068-2010	¾	¼	⅓	⅓	⅓	½	½	½	¾	¾	¾
02	068-2015	1	¼	⅓	⅓	½	½	¾	¾	1	1	1
03	068-2006	1 ¾	½	½	¾	¾	1	1 ⅓	1 ½	1 ¾	1 ¾	1 ¾
04	068-2007	2 ¾	¾	¾	1	1 ⅓	1 ½	2	2 ⅓	2 ½	3	3
05	068-2008	3 ¾	1	1	1 ½	1 ¾	2	2 ½	3	3 ½	3 ¾	4
06	068-2009	4 ½	1	1 ⅓	1 ¾	2	2 ½	3	3 ¾	4	4 ½	4 ½

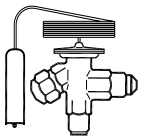
R-134a			Evaporator temperature (°F)									
Orifice size	Danfoss Code No.	Nominal capacity of installed valve[1] (tons)	–40	–30	–20	–10	0	10	20	30	40	50
			Rated capacity[2] (tons)									
0X	068-2002	⅕	⅛	⅛	⅙	⅙	⅙	⅕	⅕	⅕	⅕	⅕
00	068-2003	⅓	⅛	⅙	⅕	⅕	¼	¼	¼	⅓	⅓	⅓
01	068-2010	½	⅕	¼	¼	⅓	⅓	⅓	½	½	½	½
02	068-2015	¾	¼	¼	⅓	⅓	⅓	½	½	½	¾	¾
03	068-2006	1 ½	⅓	⅓	½	½	¾	¾	1	1	1 ¼	1 ⅓
04	068-2007	1 ¾	½	½	¾	¾	1	1 ¼	1 ⅓	1 ½	1 ¾	2
05	068-2008	2 ⅓	¾	¾	1	1	1 ⅓	1 ½	1 ¾	2	2 ⅓	2 ½
06	068-2009	3	¾	1	1¼	1 ⅓	1 ½	2	2 ¼	2 ½	2 ¾	3

All capacity data is in accordance to ARI 750-2007 except where noted.
[1] Nominal capacity based on condensing temperature of 100 °F, an evaporator temperature of 40 °F, liquid temperature of 98 °F ahead of the valve.
[2] Capacity based on condensing temperature of 95 °F and a vapor free liquid temperature of 88 °F ahead of the expansion valve.

Selection and Installation Instructions

1. Select Valve Body

Select the valve body based on refrigerant and need for internal or external equalization using the table on the previous page under “Select Valve Body.”

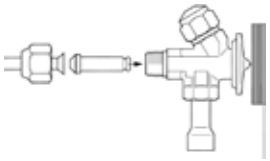


2. Select Orifice

T2/TE2 valve capacities are based on the installed orifice.
To select the correct size orifice, use one of the two methods using the “Select Orifice” section on the previous page.

3. Assemble Valve and Install into System

1. Slide the orifice into the valve body and secure using liquid line flare nut
2. Attach evaporator inlet or distributor assembly to valve outlet flare nut
3. Tighten both flare nuts
   - Specification for inlet is 26–33 ft.-lbs
   - Specification for outlet is 37–52 ft.-lbs
4. Secure sensing bulb with enclosed bulb strap to suction line. Bulb should be located between 1:00 and 4:00 on the tube, and the strap should be tight enough that no bulb movement is possible.
5. Wrap included insulation tape beginning one inch before the bulb and overlapping each wrap, finishing one inch beyond the bulb on the other end.



4. Adjust Superheat

1. Remove the cap
2. Make superheat adjustments ¼ turn at a time (¼ turn ≈ 1.75 °F).
   - Turning clockwise increases superheat.
   - Turning counter-clockwise decreases superheat.
3. Reinstall the cap

Easy to carry kits for truck stock	
All T2/TE2 valve bodies and orifice featured on the next page and a hex key for superheat adjustment.	**068Z7100**
Both TUA/TUAE valve bodies and orifices and T2/TE2 and orifices plus gaskets for TUA/TUAE and a hex key for superheat adjustment.	**068U7001**

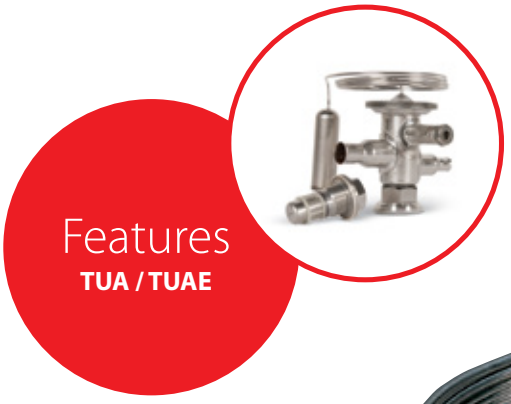
Kits are plastic cases with foam inserts, all valves and orifices, and instructions for selection and installation of the valves. Empty kits and foam available available upon request.

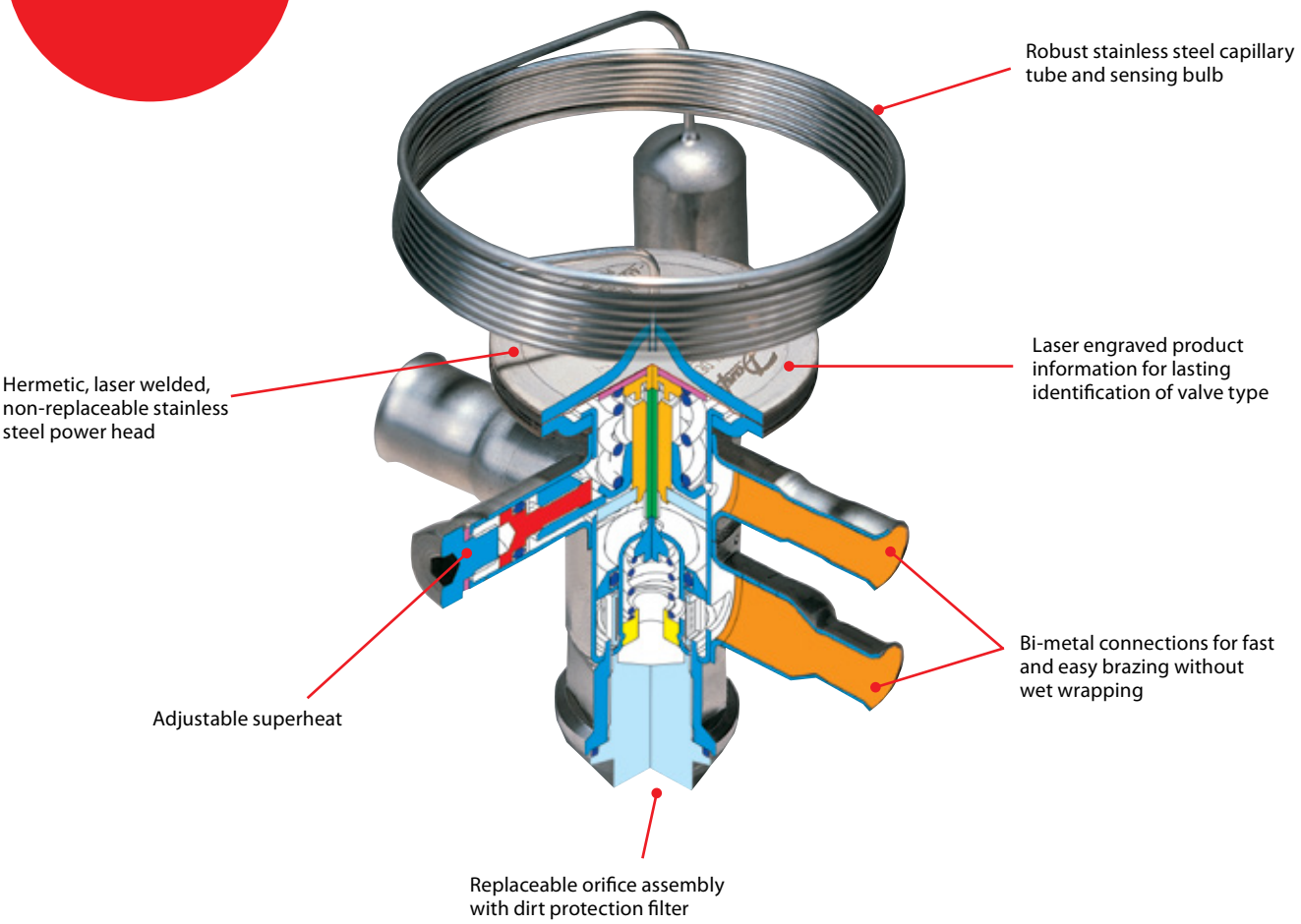
Spare Parts and Accessories

Description	Danfoss Code No.
Bulb strap	**068U3507**

TUA / TUAE - Thermostatic Expansion Valves

Danfoss TUA/TUAE stainless steel thermostatic expansion valves feature solder inlet and outlet connections. By pairing one valve body with one of ten replaceable orifices, a contractor can satisfy applications from –40 °F to + 50 °F and up to 4 ½ tons capacity (see capacity chart for specifics).





Facts

Applications:

- Traditional refrigeration
- Self-contained refrigerators
- Transport refrigeration
- Supermarket refrigeration

- Temperature range: –40 °F to +50 °F
- Capacity range: 1/30 to 4 ½ tons (varies by refrigerant)
- Refrigerants: R-22, R-407C, R-134a, R-404A
- Functional valve consists of valve body and orifice

Scan the QR Code for a video with more information on the TUA valve features and installation or visit http://bit.ly/TUAinstall

Product Selection

1. Select Valve Body

Equalization	R-22	R-407C	R-404A	R-134a
Internal	068U2235		068U2285	068U2205
External	068U2237		068U2287	068U2207

All valves above have ⅜ in. × ½ in. solder ODF connections and are designed for evaporator temperatures –40 °F to +50 °F (N charge). Other variations available, please contact your local Danfoss authorized wholesaler.

2. Select Orifice

TUA/TUAE valve capacities are based on the installed orifice.
To select the correct size, use one of the two methods below:

A. System characteristics: Select the orifice using appropriate refrigerant, evaporator temperature, and system capacity.
OR
B. Nominal capacity of the installed valve: Use the nominal capacity of the originally installed valve and match with the nominal capacity in chart (3rd column from left).

Technical data and ordering

TUA and TUAE (IF EXACT CAPACITY CANNOT BE FOUND, USE NEXT LARGER ORIFICE)

R-22 / R-407C			Evaporator temperature (°F)									
Orifice size	Danfoss Code No.	Nominal capacity of installed valve[1] (tons)	–40	–30	–20	–10	0	10	20	30	40	50
			Rated capacity[2] (tons)									
0	068U1030	1/6	1/15	1/15	1/15	1/10	1/8	1/8	1/6	1/6	1/6	1/5
1	068U1031	1/5	1/10	1/8	1/8	1/6	1/6	1/5	1/5	1/5	1/4	1/4
2	068U1032	1/4	1/10	1/8	1/8	1/6	1/5	1/4	1/4	1/4	1/3	1/3
3	068U1033	1/3	1/8	1/6	1/5	1/4	1/4	1/3	1/3	1/3	1/3	1/3
4	068U1034	1/2	1/4	1/4	1/4	1/3	1/3	1/2	1/2	1/2	3/4	3/4
5	068U1035	3/4	1/3	1/3	1/3	1/2	1/2	3/4	3/4	3/4	1	1
6	068U1036	1 1/2	1/2	1/2	1/2	3/4	3/4	1	1 1/4	1 1/3	1 1/2	1 1/2
7	068U1037	2	1/2	3/4	3/4	1	1	1 1/3	1 1/2	1 3/4	2	2
8	068U1038	2 3/4	1	1	1 1/3	1 1/2	1 3/4	2	2 1/3	2 1/2	3	3
9	068U1039	4	1 1/3	1 1/2	1 3/4	2	2 1/2	2 3/4	3 1/4	3 1/2	4	4 1/2

R-404A			Evaporator temperature (°F)									
Orifice size	Danfoss Code No.	Nominal capacity of installed valve[1] (tons)	–40	–30	–20	–10	0	10	20	30	40	50
			Rated capacity[2] (tons)									
0	068U1030	1/8	1/20	1/20	1/15	1/15	1/10	1/10	1/8	1/8	1/8	1/8
1	068U1031	1/5	1/15	1/15	1/10	1/8	1/8	1/6	1/6	1/5	1/5	1/5
2	068U1032	1/4	1/15	1/15	1/10	1/8	1/6	1/5	1/5	1/4	1/4	1/4
3	068U1033	1/3	1/10	1/8	1/8	1/6	1/5	1/4	1/4	1/3	1/3	1/3
4	068U1034	1/2	1/6	1/5	1/4	1/4	1/3	1/3	1/2	1/2	1/2	1/2
5	068U1035	3/4	1/5	1/4	1/3	1/3	1/2	1/2	1/2	3/4	3/4	3/4
6	068U1036	1 1/4	1/3	1/3	1/2	1/2	3/4	3/4	1	1	1	1 1/3
7	068U1037	1 1/2	1/3	1/2	1/2	3/4	1	1	1 1/3	1 1/2	1 1/2	1 3/4
8	068U1038	2 1/3	1/2	3/4	1	1	1 1/3	1 1/2	2	2	2 1/3	2 1/2
9	068U1039	3 1/3	3/4	1	1 1/3	1 1/2	2	2 1/4	2 1/2	3	3 1/2	3 3/4

R-134a			Evaporator temperature (°F)									
Orifice size	Danfoss Code No.	Nominal capacity of installed valve[1] (tons)	–40	–30	–20	–10	0	10	20	30	40	50
			Rated capacity[2] (tons)									
0	068U1030	1/8	1/30	1/20	1/20	1/20	1/15	1/15	1/10	1/10	1/8	1/8
1	068U1031	1/6	1/20	1/15	1/15	1/10	1/10	1/8	1/8	1/6	1/6	1/5
2	068U1032	1/5	1/15	1/15	1/15	1/10	1/8	1/6	1/6	1/5	1/5	1/5
3	068U1033	1/4	1/15	1/10	1/8	1/8	1/6	1/5	1/5	1/4	1/4	1/4
4	068U1034	1/3	1/8	1/6	1/5	1/5	1/4	1/4	1/3	1/3	1/3	1/2
5	068U1035	1/2	1/5	1/5	1/4	1/4	1/3	1/3	1/2	1/2	1/2	1/2
6	068U1036	3/4	1/4	1/4	1/3	1/3	1/2	1/2	3/4	3/4	1	1
7	068U1037	1 1/4	1/3	1/3	1/2	1/2	3/4	3/4	1	1	1 1/4	1 1/2
8	068U1038	1 3/4	1/2	1/2	3/4	3/4	1	1 1/4	1 1/2	1 3/4	2	2
9	068U1039	2 1/2	3/4	1	1	1 1/3	1 1/2	1 3/4	2	2 1/3	2 3/4	3

All capacity data is in accordance to ARI 750-2007 except where noted.
[1] Nominal capacity based on condensing temperature of 100 °F, a vapor free liquid temperature of 98 °F ahead of the expansion valve and an evaporator temperature of 40 °F.
[2] Capacity based on condensing temperature of 95 °F and a vapor free liquid temperature of 85 °F ahead of the expansion valve.

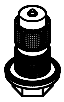
Selection and Installation Instructions

1. Select Valve Body

Select the valve body based on refrigerant and need for internal or external equalization using the table on the previous page under "Select Valve Body."

2. Select Orifice

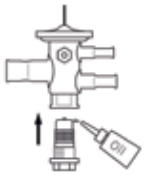
1. Select one of ten orifices using the "Select Orifice" section on the previous page.
2. Prior to installing into system, verify that only mesh portions of the screen cover the orifice inlet.



3. Assemble Valve

1. Place one drop of refrigerant oil between the screen cage and the pushpin.
2. Verify that the metal gasket is seated on the base of the orifice.
3. Tighten orifice into valve (specification is 26–30 ft.-lbs.). In addition to eliminating leaks, proper torquing insures proper superheat control.

► Replace the metal washer/gasket that is mounted at the base of the orifice every time you change the orifice assembly or remove it from the valve body.



4. Braze Valve into System

1. Clean and insert copper tubing into appropriate connection on valve.
2. Direct torch at copper tubing until it begins to color (10–15 seconds).
3. Briefly direct torch on valve connection (2–5 seconds).
4. Apply brazing alloy until it flows.

Do not try to fill the ridge. Attempts to do so may clog the connector.

► Sweat connections using any common brazing alloy (minimum 5% silver, recommended 15% silver). As internal connector surface is copper, connections are copper to copper, and there is no need for use of high content silver solder or flux.

► *NO WET WRAP REQUIRED*

5. Secure sensing bulb with enclosed bulb strap to suction line. Bulb should be located between 1:00 and 4:00 on the tube, and the strap should be tight enough that no bulb movement is possible.
6. Wrap included insulation tape beginning one inch before the bulb and overlapping each wrap, finishing one inch beyond the bulb on the other end.

5. Adjust Superheat

1. Remove the cap with a 5⁄32 inch hex key.
2. Make superheat adjustments ¼ turn at a time (¼ turn ≈ 1 °F).
   - Turning clockwise increases superheat.
   - Turning counter-clockwise decreases superheat.
3. Reinstall the cap.

► Expansion valves on low temperature systems may require minor adjustment as the factory setting is for medium temperature systems.

Easy to carry kits for truck stock	
All TUA/TUAE valve bodies and orifice featured on the next page and a hex key for superheat adjustment.	**068U7000**
Both TUA/TUAE valve bodies and orifices and T2/TE2 and orifices plus gaskets for TUA/TUAE and a hex key for superheat adjustment.	**068U7001**

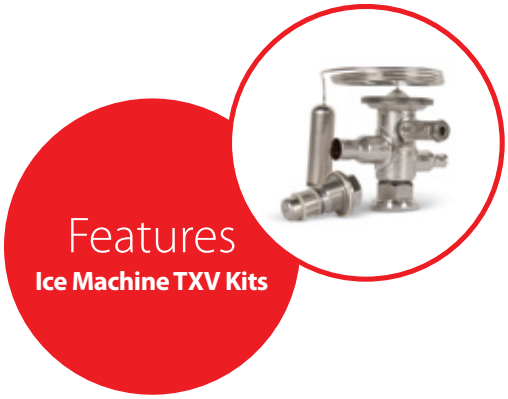
Kits are plastic cases with foam inserts, all valves and orifices, and instructions for selection and installation of the valves. Empty kits and foam available available upon request.

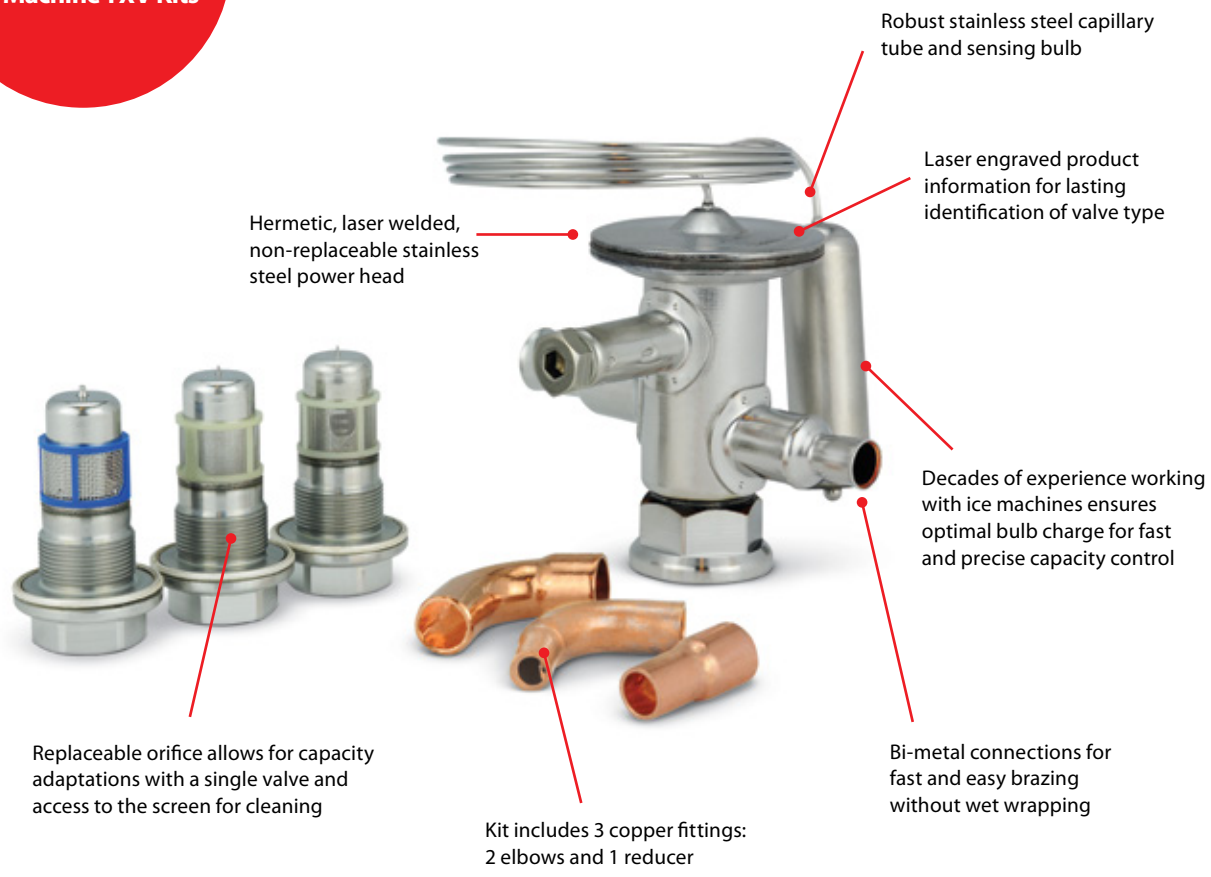
Spare Parts and Accessories

Description	Danfoss Code No.
Bulb strap	**068U3507**
Metal Gasket (24 pcs)	**068U0015**
Filter for orifices 0–4 (clear, 24 pcs)	**068U1706**
Filter for orifices 5–9 (blue, 24 pcs)	**068U0016**

TUA - Thermostatic Expansion Valves for Ice Machines

These kits are designed with contractors in mind to help save time and money by providing a universal valve that can easily be adapted to replace most OEM specific TXVs. Two kits are available, each with a valve body and a selection of three orifice sizes, copper fittings (two elbows and one reducer), a patented bulb strap, and insulation tape.





Facts

Applications:

- Ice machines

- Ice machine capacity: 75 to 2300 pounds per day
- Two kits available

- Each kit contains:
  - Exchangeable orifice thermostatic expansion valve
  - Selection of (3) orifice sizes
  - Copper fittings (2 elbows and 1 reducer)
  - Copper bulb strap
  - Insulation tape
  - Installation guide

Selection and installation instructions

1. Determine the type of machine (cube, flake, or nugget), output of the machine in pounds of ice per 24 hours, and the number of expansion devices installed.
2. Divide the output in pounds of ice by the number of expansion valves.
3. Use the appropriate selection table below under Technical data and ordering to determine the correct orifice size for the ice output per expansion valve.
4. Adhere to start up and performance measurements as specified in the Instructions included with the kit.

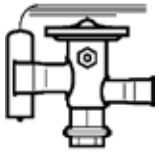
After the new valve is installed and the machine is back in operation, it is important to verify appropriate superheat performance. Cube ice machines typically start cycles with high superheat, which decreases as a harvest cycle approaches.

A properly sized and adjusted valve will assure adequate capacity during all phases of the freeze cycle and positive superheat through the cycle. As the valve nears the end of the freeze cycle it is imperative that you accurately measure the evaporator superheat.

1. Inspect the ice for sufficient production.
2. Inspect the suction line just before the compressor for any frost that could indicate liquid flooding.
3. Measure superheat at the end of the freeze cycle.
4. If superheat is between 10 °F and 18 °F, ice is forming appropriately, and there is no sign of liquid flooding, the installation is complete.
5. If superheat is below 10 °F, increase superheat.
6. If superheat is above 18 °F, decrease superheat.
7. If after adjusting superheat you still see too low superheat or liquid flooding, please install the next smaller orifice and repeat this process.
8. If after adjusting superheat you still see too high superheat or insufficient ice formation, please install the next larger orifice and repeat this process.

If superheat adjustment is necessary, follow these steps:

1. Remove the cap with a 5⁄32 inch hex key.
2. Make superheat adjustments ¼ turn at a time (¼ turn ≈ 1 °F).
   - Turning clockwise increases superheat.
   - Turning counter-clockwise decreases superheat.
3. Reinstall the cap.



Technical data and ordering

TUA for Ice Machines

Machine Size	Estimated orifice size	lbs. of ice/24 hrs. per valve		Danfoss Code No.
		Cuber	Flaker/Nugget	
small	1	75–150	75–200	**068U4900**[1]
	3	151–350	201–500	
	5	351–600	501–950	
large	7	601–1200	951–1650	**068U4901**[2]
	8	1201–1800	1651–2300	

Ice machine kits contain valve, (3) orifices in corresponding tables, (2) elbow fittings, (1) reducer, copper bulb strap, insulation tape, and instructions.

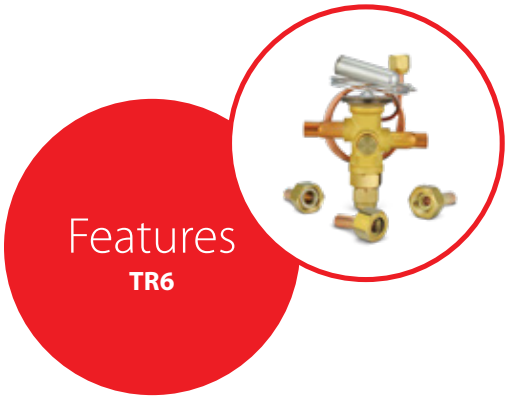
[1]Valve in 068U4900 kit above has straightway ¼ in. × ⅜ in. ODF connections

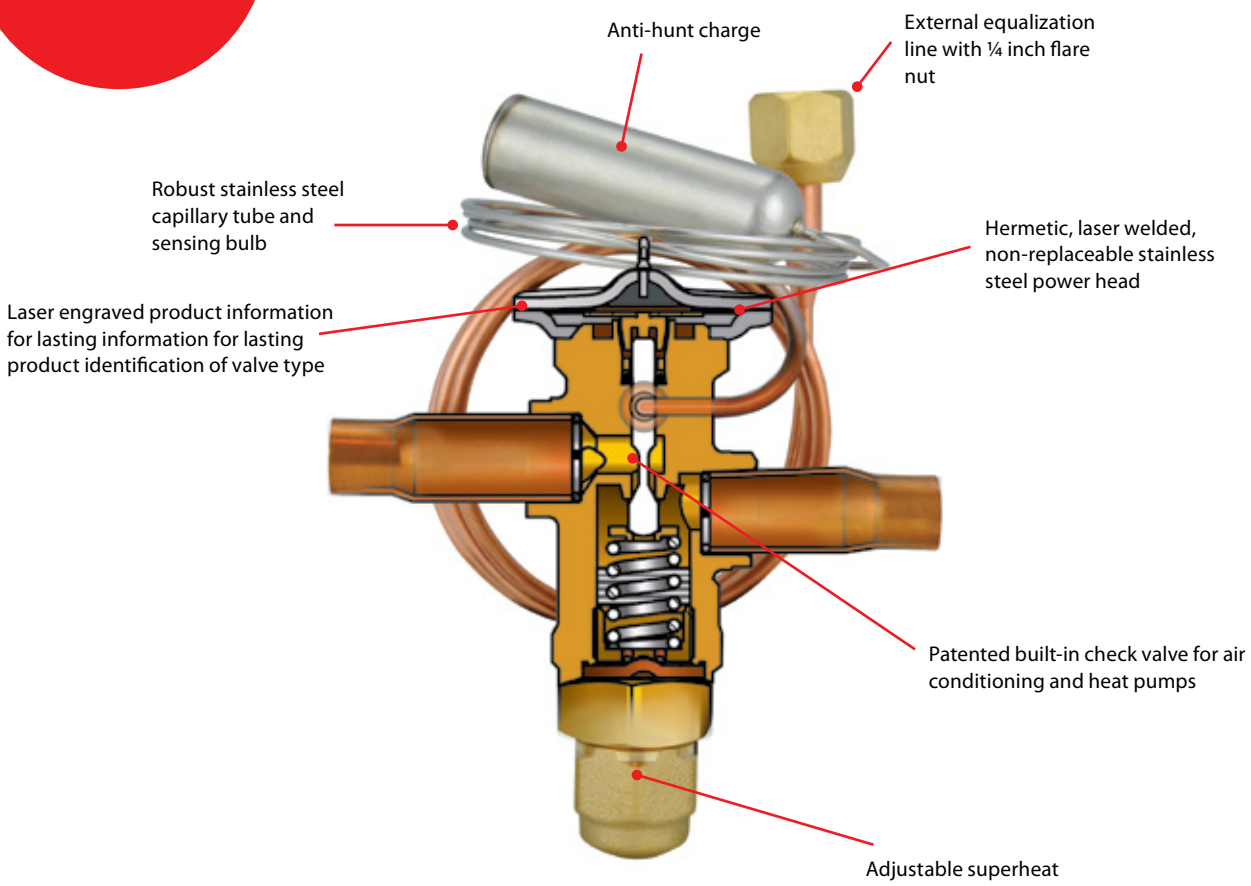
[2]Valve in 068U4901 kit above has straightway ⅜ in. × ½ in. ODF connections

Scan the QR Code for a video with more information on the TUA ice machine kits or visit http://bit.ly/TUAicekit

TR6 - Thermostatic Expansion Valve Kits

Danfoss TR6 kits include a valve, Aeroquip, Chatleff, and ⅜ inch flare fittings for evaporator connections, insulating tape, a bulb strap and instructions for easy installation in the field. All valves have a balanced port design which reduces the influence from varying condensing pressures. The valves feature a built-in a check valve for heat pump applications and an anti-hunt bulb charge, optimized for residential A/C requirements.





Facts

Applications:

- Residential air conditioning
- Rooftops
- Heat pumps
- Light commercial air conditioning

- Refrigerants: R-22, R-407C, R-410A
- Capacity range: 1 ½ to 6 Tons
- Temperature range: 14 °F to 59 °F

- Kits Include:
  - Thermostatic Expansion Valve
  - Aeroquip, Chatleff, ⅜ inch flare fittings
  - Insulating tape
  - Bulb strap
  - Installation guide

Technical data and ordering

TR6

Refrigerant		System capacity (tons)	Solder ODF connection (in.)	Temperature range (°F)	Danfoss Code No.[1]
R-410A		1 ½–3	⅜ × ⅜	14 to 59	**067L5955**
		3 ½–4			**067L5956**
		4 ½–5			**067L5957**
R-22	R-407C	1 ½–2			**067L5856**
		2 ½–3			**067L5857**
		3 ½–4			**067L5858**
		5–6			**067L5859**

[1]The valve kits listed above are standard aftermarket valves and are built with straightway connections, internal check valve, 24 in. equalization line with ¼ in. flare nut, fixed orifice, and adjustable superheat spindle.

Easy to carry kits for truck stock	
All (3) R-410A TR6 valve kit (pictured left)	**067L7000**
All (4) R-22/R-407C TR6 valve kits	**067L7001**

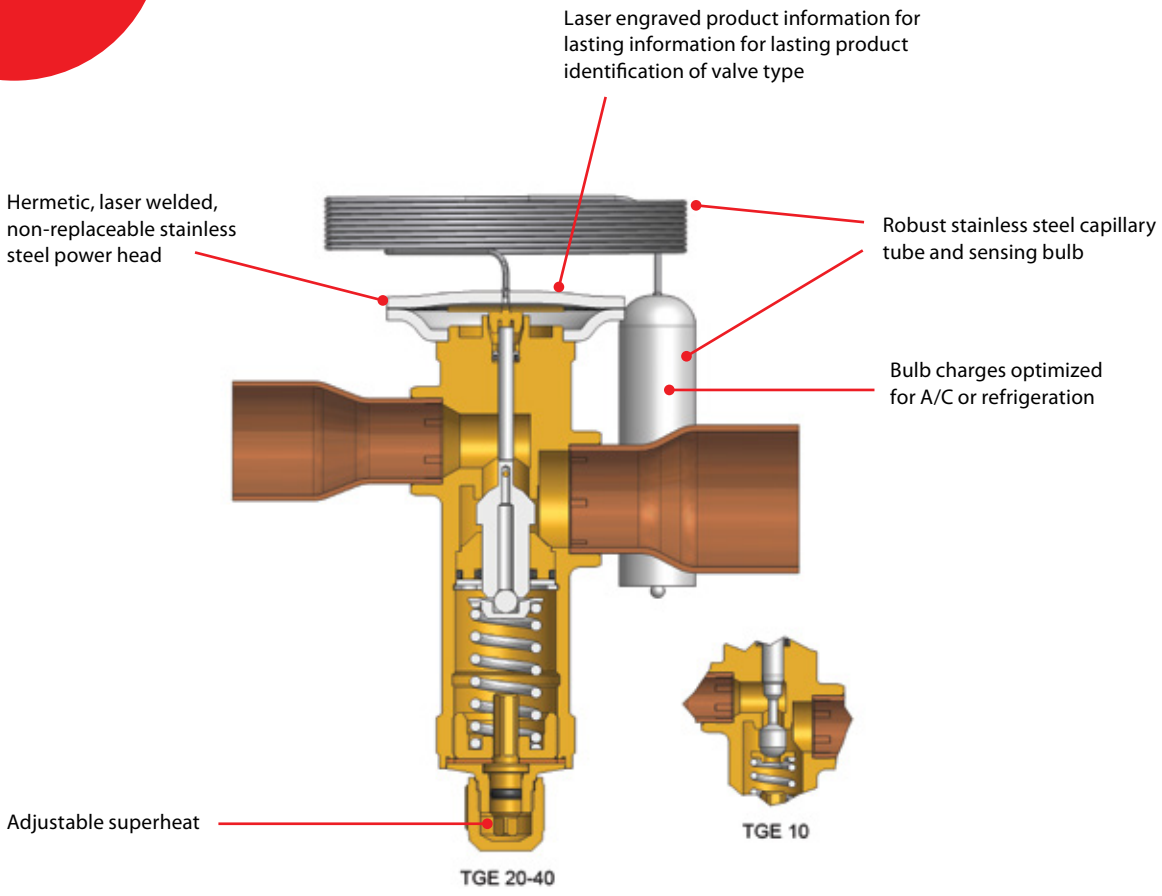
Spare Parts and Accessories

Description	Danfoss Code No.
Bulb strap	**068U3507**
Fitting ⅜ in. ODM × Chatleff	**119F3965**
Fitting ⅜ in. ODM × Aeroquip	**119F3966**

Scan the QR Code for a video with more information on TR6 valve features or visit http://bit.ly/TR6Features

TGE - Thermostatic Expansion Valves

Danfoss TGE thermostatic expansion valves are designed for commercial air conditioning and refrigeration. They feature a balanced port design which reduces the influence from varying condensing pressures. The air conditioning valves in this catalog feature an anti-hunt charge optimized for A/C applications and the refrigeration valves are designed for stable operation across a wide temperature range.



Facts

Applications:

- Traditional refrigeration
- Residential air conditioning
- Rooftops
- Commercial air conditioning
- Chillers

- Refrigerants: R-22, R-407C, R-410A, R-404A, R-507A, R-134a
- Capacity range: 9 to 46 tons (varies by refrigerant)

- Temperature range:
  - Refrigeration Valves: –40 °F to +50 °F
  - Air Conditioning Valves: –22 °F to +60 °F
- Balanced port

Technical data and ordering

TGE

Danfoss Type	Competitor Model Numbers		Nominal capacity (tons)[3]	Solder ODF connection (in.)	Danfoss Code No.
R-22, MAH charge[1]		**R-407C, MAH charge[1]**			
TGEX 10	SVE-5, EVRE-5	HFES-5H	6	½ × ⅝	**067N9403**
TGEX 10	SVE-5, EVRE-5	HFES-5H	6	½ × ⅞	**067N9404**
TGEX 10	SVE-6, EVRE-6		7 ½	⅝ × ⅞	**067N9406**
TGEX 10	SVE-6, EVRE-6		7 ½	⅝ × 1 ⅛	**067N9483**
TGEX 10	SVE-8, SVE-10, EBSVE 8, EVRE 8, EVRE 10	HFES-8H, HFES-10H, TRAE-10H	11	⅝ × ⅞	**067N9407**
TGEX 20	EBSVE 11, EVRE 12		12	⅝ × ⅞	**067N9409**
TGEX 20	EBSVE15, OVE 15	HFES-15H, TRAE-15H	15	⅝ × 1 ⅛	**067N9411**
TGEX 20	EBSVE15, OVE 15	HFES-15H, TRAE-15H	15	⅞ × 1 ⅛	**067N9412**
TGEX 20			18	⅞ × 1 ⅛	**067N9413**
TGEX 40	EBSVE 20, OVE 20	HFES-20H, TRAE 20H	26	⅞ × 1 ⅜	**067N9415**
TGEX 40	OVE 30	TRAE 30H	30	1 ⅛ × 1 ⅜	**067N9418**
TGEX 40	OVE 40	TRAE 40H	38	2 ⅛ × 1 ⅜	**067N9419**
R-410A, MAH charge[1]					
TGEL 10	ERZE-8		9	⅝ × ⅞	**067N9206**
TGEL 10	ERZE-12.5	TFES-12Z	13	⅝ × ⅞	**067N9207**
TGEL 20	ERZE-15	TFES-16Z	15	⅝ × ⅞	**067N9209**
TGEL 20	ERZE-15	TFES-16Z	15	⅝ × 1 ⅛	**067N9210**
TGEL 20	OZE-20		23	⅞ × 1 ⅛	**067N9213**
TGEL 20	OZE-20		23	1 ⅛ × 1 ⅛	**067N9284**
TGEL 40	OZE-25		31	⅞ × 1 ⅛	**067N9285**
TGEL 40	OZE-25		31	⅞ × 1 ⅜	**067N9215**
TGEL 40	OZE-35		35	1 ⅛ × 1 ⅜	**067N9218**
TGEL 40			46	1 ⅛ × 1 ⅜	**067N9219**
R-134a, N charge[2]					
TGEN 10	SJE-5, SJE-6, EBSJE-5	HFES-6M	7	⅝ × 1 ⅛	**067N5158**
TGEN 20	EBSJE-7	HFES-7.5M	8	⅝ × ⅞	**067N5159**
TGEN 20	EBSJE-12, OJE-12	HFES-11M	12	⅞ × 1 ⅛	**067N5163**
TGEN 40	OJE-16	HFES-14M, TRAE-13M, TRAE-14M	17	1 ⅛ × 1 ⅛	**067N5254**
TGEN 40			20	1 ⅛ × 1 ⅛	**067N5255**
TGEN 40	OJE-23	TRAE-22M	25	1 ⅛ × 1 ⅜	**067N5169**
R-404A, N charge[2]		**R-507A, N charge[2]**			
TGES 10	SSE-3	HFES-3.5S	4	½ × ⅞	**067N6151**
TGES 10	SSE-4	HFES-5S	5	½ × ⅞	**067N6166**
TGES 10	SSE-4	HFES-5S	5	⅝ × ⅞	**067N6150**
TGES 10	SSE-6, SSE-7, EBSSE-6	HFES-7S	7 ½	⅝ × ⅞	**067N6154**
TGES 20	EBSSE-7.5	TRAE-8S	9	⅝ × ⅞	**067N6158**
TGES 20	EBSSE-10, OSE-9	HFES-10S	11	⅝ × ⅞	**067N6188**
TGES 20	EBSSE-10, OSE-9	HFES-10S	11	⅝ × 1 ⅛	**067N6155**
TGES 20	EBSSE-10, OSE-9	HFES-10S	11	⅞ × 1 ⅛	**067N6181**
TGES 20	EBSSE-13, OSE-12	HFES-13S, TRAE-12S	13	⅞ × 1 ⅛	**067N6162**
TGES 20	OSE-21	TRAE-20S	21	1 ⅛ × 1 ⅜	**067N6186**

[1] MAH charge: –22 °F to 60 °F, Maximum operating temperature = 300 °F

[2] N charge: –40 °F to 50 °F, Maximum operating temperature = 210 °F

[3] Nominal capacity based on ARI standard: Evaporating temperature = 40 °F, Liquid temperature = 98 °F, Condensing temperature = 100 °F

Spare Parts and Accessories

Description	Danfoss Code No.
Bulb strap	**067N0557**

ERC 213 - Electronic Temperature Control

The ERC 213 is designed to meet the needs of today's refrigeration technician. Its universal fit, easy setup, and capacity to work with any common temperature sensor make it the obvious choice when replacing an electronic temperature control.

Features
ERC 213

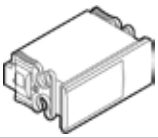
Compatible with all common temperature sensors

Kitted with two temperature sensors

Easy to install (attachment clips included)

Quick five-step set up process

Technical data and ordering



ERC 213

Voltage	Applications	Danfoss Code No.
115V 50/60 Hz	Compressor or solenoid for pump down, defrost, and fan	**080G3411**
220V 50/60 Hz		**080G3412**

Scan the QR Code for a step-by-step set up video or visit http://bit.ly/ERC213_video

Spare Parts and Accessories

Description	Danfoss Code No.
EKA183B Programming Key, ERC 21X	**080G9741**
Sensor EKS 221 NT 10K 3.5m cable	**084N3210**

Facts

Applications:
- Traditional refrigeration
- Walk-ins
- Chillers

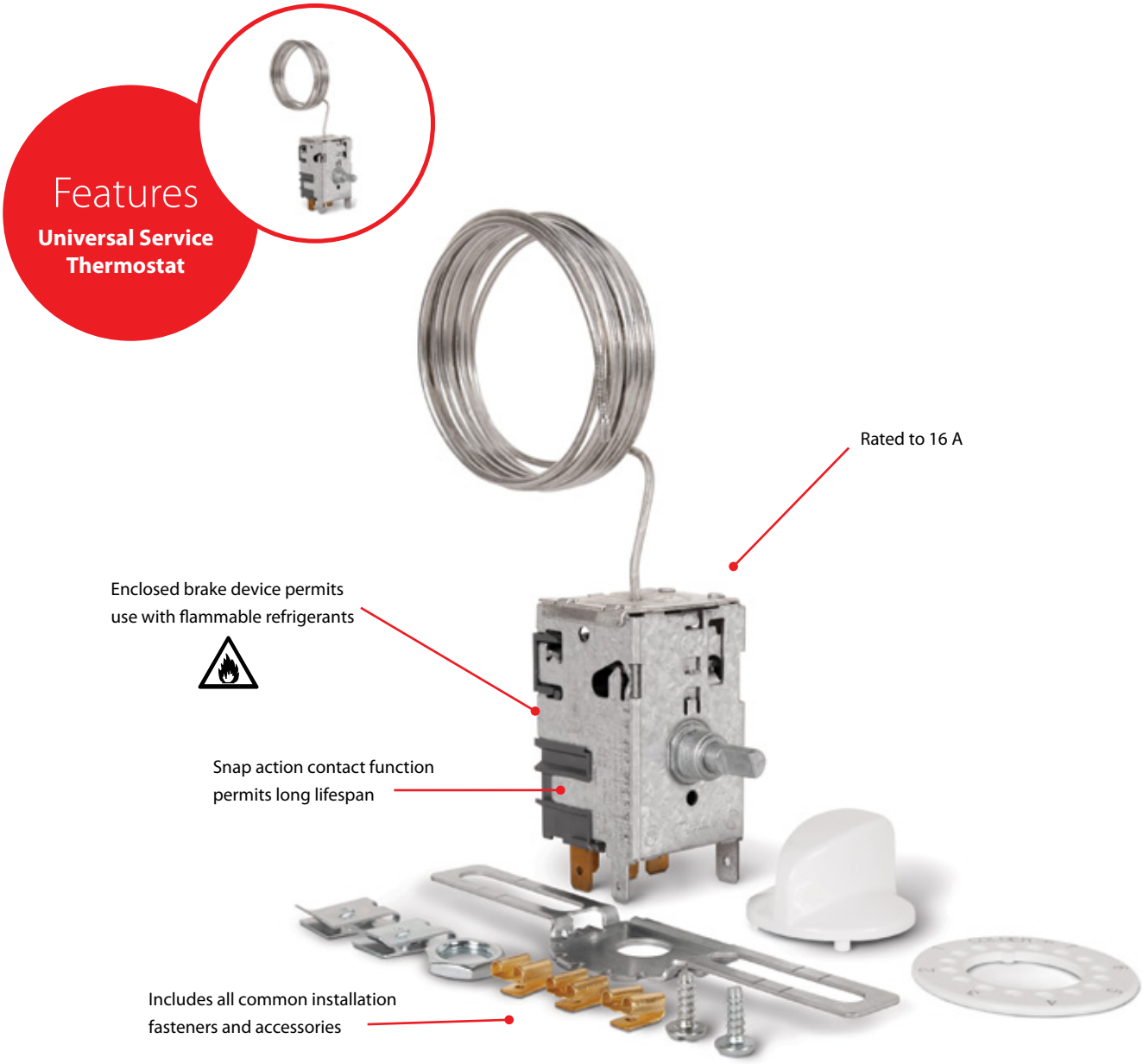
- Controls:
  - defrost
  - fan
  - compressor/solenoid for pump down

- Temperature range:
  - operating conditions: 14 °F to 131 °F
  - storage conditions: –40 °F to 158 °F

- 4 inputs:
  - 2 analog
  - 1 analog/digital
  - 1 digital

Universal Service Thermostat

Danfoss universal service thermostats are kitted with all the necessary accessories for standard applications, ensuring a quick and easy installation. Thanks to the integrated enclosed brake device, these controls can be safely used in isobutene or propane refrigeration systems.



Facts

Applications:

- Traditional refrigeration
- Self-contained refrigerators
- Reach-ins
- Bottle coolers
- Under counter refrigerators

- Eight kit options
- Fixed cut-in and constant differential options available
- Enclosed brake device permits use with flammable refrigerants
- Contact Load: 16 A (120V)

- Kit includes:
  - Thermostat
  - Mounting bracket
  - Adjustment knob
  - Fasteners

Technical data and ordering

Universal Service Thermostat

Application	Operation mode	Temperature Range (°F)			Sensor type	Capillary tube length (in.)	Competitor Model No.	Danfoss Code No.
		Warm pos. cut-in/cut-out	Middle pos. cut-in/cut-out	Cold pos. cut-in/cut-out				
Refrigerator	Constant Cut-in	38/28	38/19	38/9	Coiled Bulb	39	A12-1506 A12-710 A12-711	**077Z7010**
Refrigerator	Constant Cut-in	41/29.5	41/23.5	41/17	Straight Sensor	84	A12-700 A12-701 A12-1560 A12-712	**077Z7011**
Refrigerator/ Freezer	Adaptable Constant Differential	36/26	21.5/9	3/–14	Straight Sensor	42	A30-180 A30-182 A30-184 A30-185	**077Z7012**
Refrigerator/ Freezer	Adaptable Constant Differential	36/26	21.5/9	3/–14	Straight Sensor	84	A30-181 A30-183 A30-260 A30-263	**077Z7013**
Low Temp. Freezer	Adaptable Constant Differential	16.5/7	4.0/–7.5	–11/–25.5	Straight Sensor	84	A30-301 A30-307	**077Z7014**
Low Temp. Freezer	Adaptable Constant Differential	9.5/3	–3/–11	–18.5/–29	Straight Sensor	42	A30-310 A30-311 A30-313	**077Z7015**
Low Temp. Freezer	Adaptable Constant Differential	9.5/3	–3/–11	–18.5/–29	Straight Sensor	84	A30-308 A30-314	**077Z7016**
Refrigerator	Adaptable Constant Differential	47/36.5	37.5/25.0	25.5/10.0	Straight Sensor	66	A22-391 A22-1112	**077Z7017**

All controls feature an enclosed brake device to permit use with flamable refrigerants and are kitted with adjustment knob, installation fasteners, and mounting bracket.

Contact Load		120V	240V
	Full Load Amps	16A	8A
	Locked Rotor Amps	96A	40A

KPU 19 - Thermostats

The KPU 19 thermostats are designed for easy installation and service with bottom and rear knockouts, differential adjustment dial, a tamper-resistant design, and a robust thermoplastic housing.

Features
KPU 19

Facts

Applications:

- Traditional refrigeration
- Air conditioning
- Ventilating systems
- Heating systems

- Ambient temperature: –30 °F to +158 °F (bulb sensor); –30 °F to +140 °F (room sensor)
- Switch: Single pole changeover switch (SPDT) and single pole non-changeover switch (SPST)
- Enclosure: NEMA 1
- Cable entry: ⅞ inch cable entry for ½ inch male pipe thread connection (conduit boss) or similar screwed cable entry

Technical data and ordering

KPU 19 Thermostats

KPU Series	Bulb type	Range (°F)	Contact/ Reset	Capillary tube length (in.)	Maximum bulb temperature (°F)	Competitor part no.	Danfoss Type	Danfoss Code No.
KPU 19	Remote bulb	–30 to 80	SPDT/Auto	120	140	A19ABC-24C A19ABC-37C A19ABC-74C A19AAC-4C A19AAF-20C	KPU19	**060L2150**[1]
KPU 19		–30 to 80	SPST/Auto	80	140	A19AAD-5C A19ABA-40C A19AAD-12C	KPU19	**060L2151**[1]
KPU 19	Room bulb	–30 to 80	SPDT/Auto	Room sensor	140	A19BBC-2C A19BAB-3C A19BAC-1C A19BAF-1C	KPU19	**060L2152**

[1] As 060L1250 is SPDT, 060L2150 can replace competitor parts crossed to both 060L2150 and 060L2151.

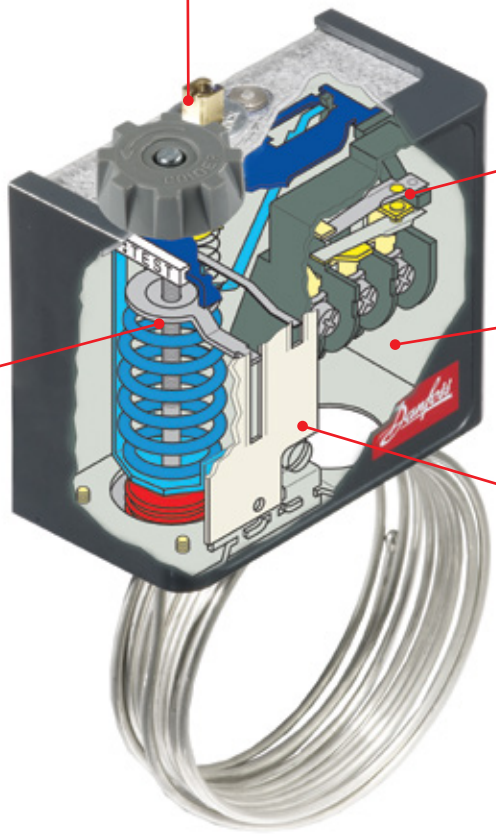
Contact Load	Resistive load		0.5~16A/120V AC 0.5~8A/240V AC
	Inductive load	Full load	0.5~16A/120V AC 0.5~8A/240V AC
		Locked rotor	96A/120V AC 48A/240V AC
	Pilot duty		125VA/240V DC

Scan the QR Code for a video of a KPU 19 temperature control replacement or visit http://bit.ly/KPU19_video

KPU 60/70 - Thermostats

KPU 60/70 thermostats are designed to be technician-friendly by functioning as easy and direct replacements for most controls on the market and feature snap-action switches, highly visible contrast scales, fingertip tests, and are easily adjustable using a standard refrigeration wrench.

Features
KPU 60/70



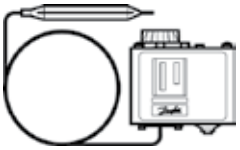
Facts

Applications:

- Traditional refrigeration
- Air conditioning
- Ventilating systems
- Heating systems

- Ambient temperature: –40 °F to +122 °F (175 °F for maximum 2 hours)
- Switch: Single pole changeover switch (SPDT)
- Enclosure: NEMA 1
- Cable entry: ⅞ inch cable entry for ½ inch male pipe thread connection (conduit boss) or similar screwed cable entry

Technical data and ordering



KPU 60/70 Thermostats

Danfoss Type	Bulb type	Range (°F)	Contact/ Reset	Capillary tube length (in.)	Differential		Maximum bulb temperature (°F)	Competitor part no.	Danfoss Code No.
					at lowest temp. setting	at highest temp. setting			
KPU 61	Straight capillary tube[1]	–20 to 60	SPDT/Auto	80	10 to 40	2.5 to 13	250	O10-1416 O10-1010 O16-111 O10-1419	**060L5201**
KPU 61	Remote air coil[1]	–20 to 60	SPDT/Auto	80	8 to 40	2.5 to 13	250	O10-1408 O10-1409 O10-1473 O16-104 O10-1410	**060L5203**
KPU 62	Room sensor[1]	–20 to 60	SPDT/Auto	Room sensor	10 to 40	2.5 to 13	250	O10-1072 O10-1418 O16-594 O60-101	**060L5206**
KPU 68	Room sensor[1]	25 to 95	SPDT/Auto	Room sensor	8 to 45	3 to 13	250	O10-1802 O16-595 O10-301 O16-165	**060L5215**
KPU 73	Remote bulb[2]	–15 to 60	SPDT/Auto	80	6.5 to 32	5 to 50	175	O60-100 O60-120	**060L5208**
KPU 71	Remote bulb[2]	25 to 70	SPDT/Auto	80	5.5 to 18	4 to 16	175		**060L5218**
KPU 77	Remote bulb[2]	60 to 140	SPDT/Auto	80	6 to 18	6.3 to 18	265	O60-200 A19AAF-12C A19AAB-4C A19ABB-2C A19ABB-7C	**060L5223**

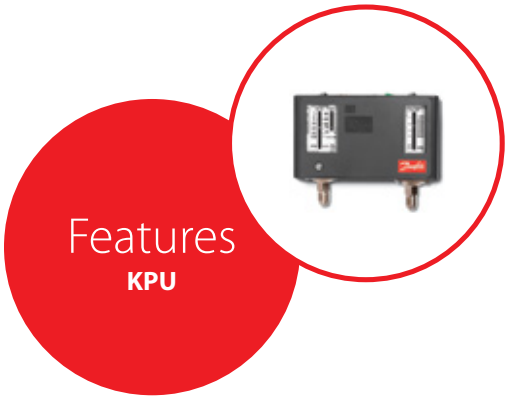
[1] Bulb must be installed in colder position than thermostat housing and capillary tube.
[2] Temperature variations in excess of 70 °F between sensing bulb, housing, and capillary tube will influence scale accuracy.

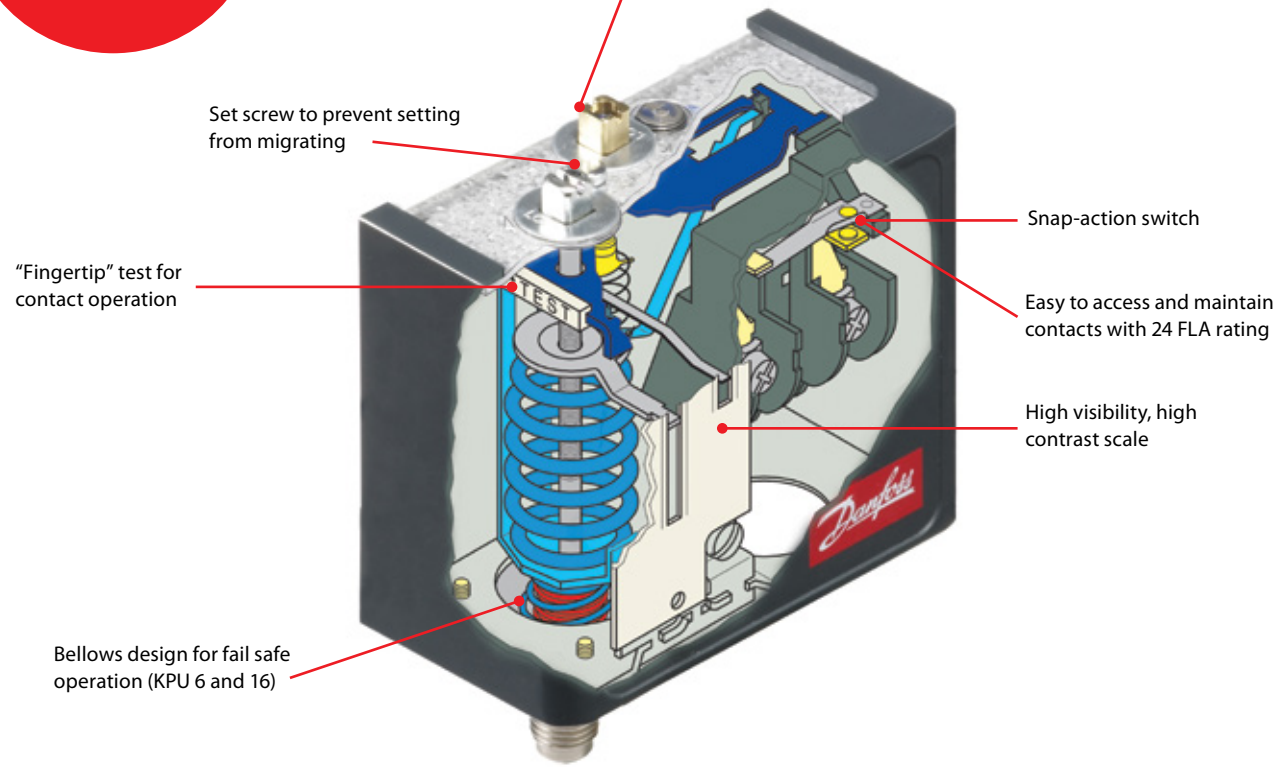
Contact Load	Resistive load		24A/120V AC 24A/240V AC
	Inductive load	Full load	24A/120V AC 24A/240V AC
		Locked rotor	144A/120V AC 144A/240V AC
	Pilot duty		12W/120V DC

Scan the QR Code for a video of a KPU 60/70 temperature control replacement or visit http://bit.ly/KPU6070_video

KPU - Pressure Switches

KPU pressure switches are designed to be contractor friendly and used in refrigeration and air-conditioning systems to protect the systems from excessively low suction or too high discharge pressure. They can also be applied to start and stop compressors and the fans of air-cooled condensers. KPU pressure switches, in single and dual versions, cover a comprehensive range of applications and are designed for use with fluorinated and non-aggressive refrigerants. Most KPU pressure controls can be used with R-410A systems.





Facts

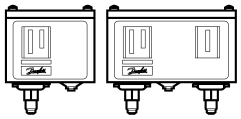
Applications:

- Commercial air conditioning
- Commercial refrigeration
- Supermarket Refrigeration
- Food processing and storage

- Product Types
  - Low Pressure
  - High Pressure
  - Dual Pressure
- Maximum working/test pressure
  - LP controls: 245/290 psig
  - HP controls: 505/505 psig
  - KPU 6 and 16 on HP side: 675/675 psig

- Refrigerants: R-22, R-134a, R-404A, R-407A, R-407C, R-407F, R-422B, R-422D, R-438A, R-448A, R-449A, R-450A, R-452A, R-507A, R-513A, R-410A (only KPU 1, 2, 6, 16)
- Ambient temperature: –40 to +150 °F (175 °F for max. 2 hours)
- Enclosure: NEMA 1
- Cable entry: ⅞ inch cable entry for ½ inch male pipe thread connection (conduit boss) or similar screwed cable entry
- Pressure connection: ¼ inch M flare or 36 inch capillary tube with ¼ inch flare nut
- KPU 6W, 6B, and 16B feature "dual bellows" on high pressure side to prevent leaks in the case of a bellows rupture

Technical data and ordering



KPU Pressure Switches

Danfoss Type	Pressure	Reset	Contact system	Range (in. Hg/psig)	Differential (psig)	Max. working pressure (psig)	Competitor part no.[1]	Danfoss Code No.	
								¼ in. M flare	36 in. capillary tubes with ¼ in. flare nuts
KPU 1	Low	Automatic	SPDT	6 to 108	10.2 to 58	250	O10-1483 P70AB-2C	**060-5231**	**060-5233**
KPU 2	Low	Automatic	SPST (NO)	6 to 73	6 to 30	250	O10-1402 P70AB-12C P170AB-12C	**060-5237**	**060-5235**
KPU 2	Low	Automatic	SPDT	6 to 73	6 to 30	250		**060-5239**	**060-5240**
KPU1B	Low	Manual	SPDT	28 to 100	10.2	250		**060-5232**	**060-5234**
KPU 5	Fan cycling	Automatic	SPST (NO)	100 to 465	26.1 to 87	510	O10-2054 P70AA-118C	**060-5241**	**060-5242**
KPU 6W[2]	High	Automatic	SPDT	100 to 600	58 to 145	675	O16-108 P170CA-400C P70CA-3C	**060-5243**	**060-5245**
KPU 6B[2]	High	Manual	SPDT	100 to 600	60	675	P70DA-1C	**060-5244**	**060-5246**

KPU Dual Pressure Switches

Danfoss Type	Low pressure side		High pressure side		Rest		Contact system (LP/HP)	Max. working pressure (low/high side) (psig)	Competitor part no.[1]	Danfoss Code No.	
	Range (in. Hg/psig)	Differential (psig)	Range (psig)	Differential (psig)	Low pressure side	High pressure side				¼ in. M flare	36 in. capillary tubes with ¼ flare nuts
KPU 15	6 to 108	10 to 60	100 to 465	60	Automatic	Automatic	SPST (NO/NC)	250/510	O12-1549 P170LB-1C	**060-5247**	**060-5248**
KPU 15B	6 to 108	10 to 60	100 to 465		Automatic	Manual	SPST (NO/NC)	250/510	P70LB-1C P70MA-1C	**060-5249**	**060-5250**
KPU 16B	6 to 108	10 to 60	100 to 600		Convertible[3]	Convertible[3]	SPDT/ SPST (NO)	250/675	O12-4834 P170LB-1C P70LB-1C P70MA-1C	**060-5253**	**060-5254**

[1] Competitor part no. equipped with capillary tube for all but P170LB-1C which has flare connections.

[2] KPU 6 and the high pressure side of KPU 16 are designed with fail-safe double bellows.

[3] Convertible reset controls can be adjusted for either automatic or manual reset. Adjust reset setting to match product being replaced.

All controls are supplied with universal mounting bracket and mounting screws.

Ambient tempature: –40 °F to +122 °F (175 °F for maximum 2 hours).

KPU 1, 2, 6, 16 suitable for all HFC refrigerants, including R-410A.

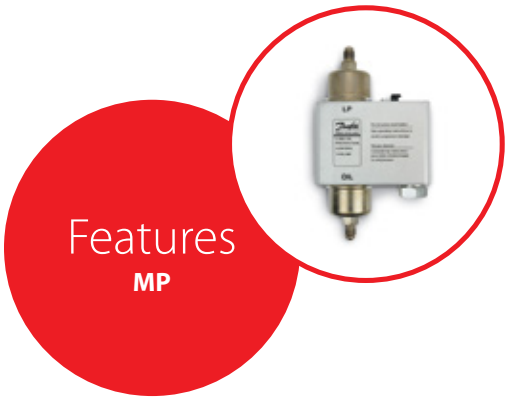
	120/240 VAC
Alternating Current	
Motor Full Load Amps (FLA)	24
Locked Rotor Amps (LRA)	144
Direct Current	240 V DC: 12W pilot duty

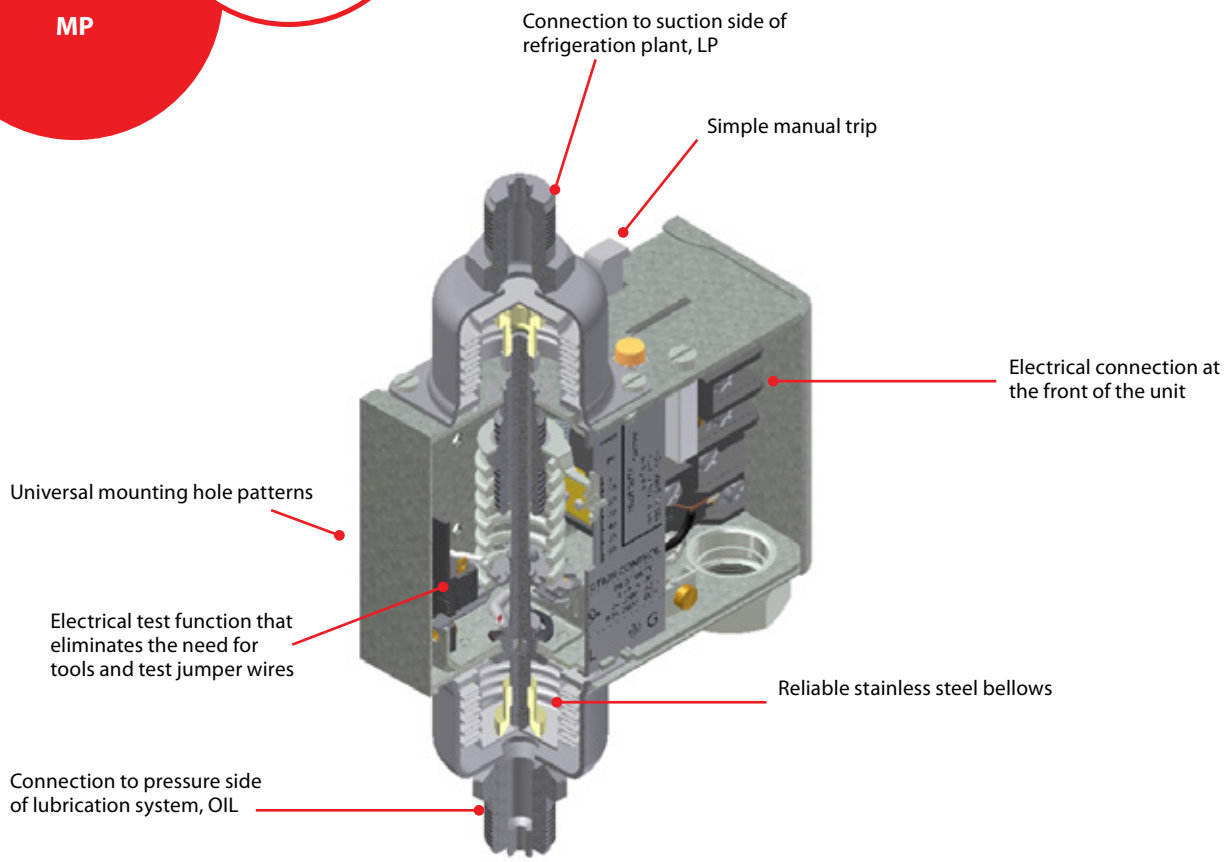
Spare Parts and Accessories

Description	Type(s) applied to	Danfoss Code No.
Capillary tube; 39 in. with ¼ in. flare coupling nuts on each end	KPU with ¼ in. M flare	**060-017166**

MP - Differential Pressure Switch / Lube Oil Protection Switch

MP 54 and MP 55 oil differential pressure switches are used to protect refrigeration compressors against low oil pressure. These switches are compatible with HCFC and non-flammable HFC refrigerants.





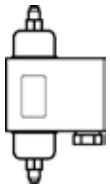
Facts

Applications:

- Commercial refrigeration
- Commercial air conditioning
- Supermarket Refrigeration
- Food processing and storage

- Product Types
  - Fixed Differential (MP 54)
  - Adjustable Differential (MP 55)
- Refrigerants: HCFC and non-flammable HFC refrigerants
- Max working/test pressure: 245 psig/320 psig
- Ambient temperature: The time relay is temperature-compensated in the range –40 °F to +140 °F
- Enclosure: ~NEMA 1
- Cable entry: Integral ½ inch female NPSM swivel cable connector for ½ inch male pipe thread connector.
- Pressure connection: ¼ inch M flare or 36 inch capillary tube with ¼ inch flare nut

Technical data and ordering



MP - Differential Pressure Control / Lube Oil Protection Control

Danfoss Type	Control differential Δp (psig)	LP side Regulation range (in. Hg/psig)	Time relay delay time seconds	Competitor Code Nos.	Danfoss Code No.	Competitor Code Nos.	Danfoss Code No.
				¼ in. M flare		36 in. capillary tubes with ¼ in. flare nuts	
MP54	6	29 to 175	45	P145NCA/B-82C	**060B200866**	P45NCA-82C 3321-009	**060B205066**
	9	29 to 175	90	3321-001	**060B200266**		
	9	29 to 175	120	P145NCA/B-12C P31-5827 3321-001	**060B200366**[2]	P45NCA-12C P30-5826 3321-010	**060B205366**[2]
MP55	4.3 to 65	29 to 175	45			P288AA-18/2C P30-3601 3321-014/5[3]	**060B205466**
	4.3 to 65	29 to 175	60	P128AA-2C	**060B201266**[1]		
	4.3 to 65	29 to 175	120	P128AA-17C	**060B200766**	P28AA-17C P28NA-5C P30-3801 3321-014/5[3]	**060B205766**

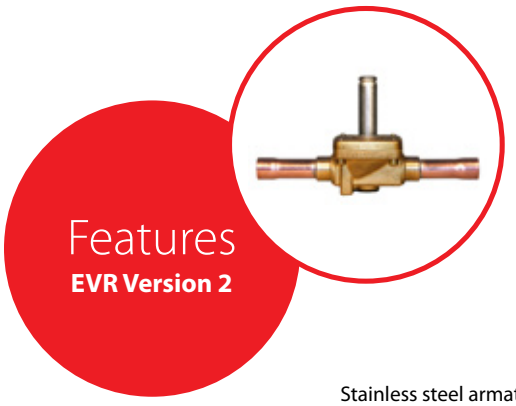
[1] With glow lamp that remains on during normal operation of compressor.
Note: When time delay is energized which also means that min. permissible oil pressure (differential Δp) is reached, light goes out.
[2] Three-wire hook-up with jumper that is provided in the box with control.
[3] The 3321 series controls feature adjustable delay and fixed differential. The differential for 3321-014 controls is set at 15 psig and 3321-015 is at 30 psig. Select control with appropriate delay time.

Spare Parts and Accessories

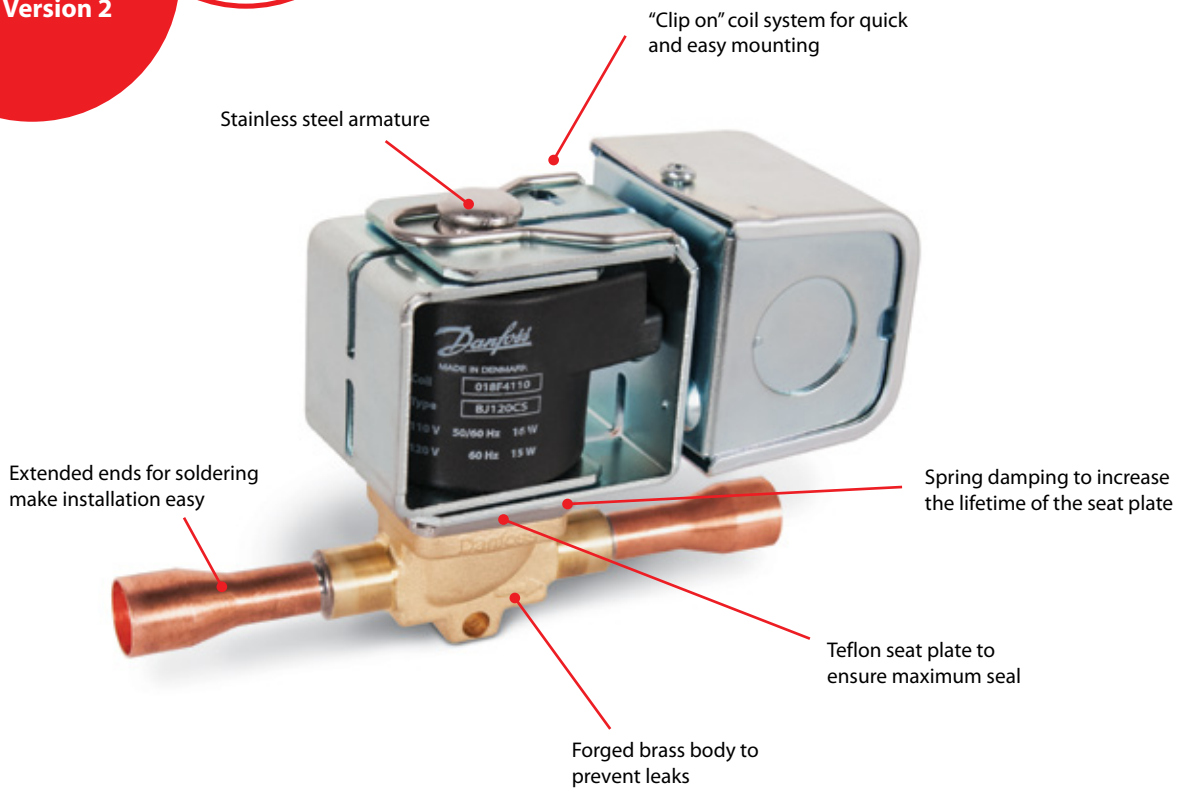
Description	Type(s) applied to	Danfoss Code No.
Capillary tube; 39 in. with ¼ in. flare coupling nuts on each end	MP with ¼ in. M flare	**060-017166**

EVR Version 2 - Solenoid Valves

EVR Version 2 solenoid valves are direct or servo-operated solenoid valves for liquid, suction, and hot gas lines. They are suitable for all refrigeration, freezing, and air conditioning applications and are compatible with fluorinated refrigerants. The valves can be delivered as normally open or closed as well as with or without manual operation.



Features
EVR Version 2



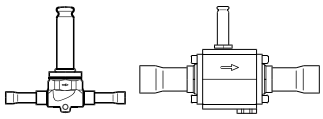
Facts

Applications:

- Traditional refrigeration
- Freezers
- Air conditioning units
- Commercial refrigeration
- Supermarket Refrigeration

- Refrigerants: Use with any fluorinated refrigerant
- Maximum working pressure:
  - EVR 2–EVR 8: 655 psig
  - EVR 10: 655 psig
  - EVR 15–EVR 40: 655 psig
- Temperature range: –40 °F to +220 °F
- Connections:
  - Flare connections up to ⅝ inch
  - Solder connections up to 2 ⅛ inch
- Available in normally open and normally closed
- Available with or without manual stem
- Coil available with junction box (NEMA 2) and conduit boss (NEMA 4)

Technical data and ordering



EVR Version 2 Solenoid valves

Danfoss Type	Rated capacity (liquid tons)			Solder ODF connection (in.)	Port size (in.)	Max. working pressure (psig)	Danfoss Code No.[1]	
	R-22 / R-407C	R-134a	R-404A / R-507A				with manual stem	without manual stem
EVR 3	1.66	1.54	1.07	¼	⅛	655		**032F1206**
EVR 3	1.66	1.54	1.07	⅜	⅛	655		**032F1204**
EVR 6	5.47	5.07	3.51	⅜	15⁄64	655	**032L7116**	**032L7115**
EVR 6	5.47	5.07	3.51	½	15⁄64	655	**032L7144**	**032L1209**
EVR 8	6.52	6.03	4.18	½	5⁄16	655	**032L7148**	**032L7121**
EVR 10	11.50	10.64	7.38	⅝	⅜	655	**032L7149**	**032L1214**
EVR 15	17.71	16.39	11.37	⅝	9⁄16	655		**032L1228**
EVR 18	23.18	21.46	14.88	⅞	19⁄32	655	**032L1004**	
EVR 20	36.76	34.04	23.60	⅞	⅞	655	**032L1254**	**032L1240**
EVR 22	41.93	38.82	26.92	1 ⅛	15⁄16	655	**032L7137**	**032L7145**
EVR 25	60.19	55.72	38.64	1 ⅜	1	655	**032L2207**	**032L2208**
EVR 32	102.85	95.23	66.03	1 ⅝	⅞	655	**032L1103**	**032L1104**

[1] Valve body is normally closed (NC) and excludes coil. Additional code nos. available in Coolselector or contact Danfoss.

Coils for Solenoid Valves

Voltage (V)	Freqency (Hz)	Power consumption (W)	Danfoss Type (junction box)[2]	Length of wire (in.)	Danfoss Code no.	Danfoss Type (conduit boss)[3]	Length of wire (in.)	Danfoss Code No.
24	50/60	14	BJ024CS	7	**018F4100**	BX024CS	18	**018F4102**
110	50/60	16	BJ120CS	7	**018F4110**	BX120CS	18	**018F4112**
120	60	15						
208–240	60	14	BJ240CS	7	**018F4120**	BX240CS	18	**018F4122**
230	50	17						

[2] Enclosure rating for BJ coils is NEMA 2 ~ IP 12-32 [3] Enclosure rating for BX coils is NEMA 4 ~ IP 54

Dual Voltage/Dual Frequency Coil

Coil Type	Voltage (V)	Freqency (Hz)	Power consumption (W)	Danfoss Type (junction box)[4]	Length of wire (in.)	Danfoss Code no.	Danfoss Type (conduit boss)[5]	Length of wire (in.)	Danfoss Code No.
EVR	110	50	12	BT240CS	7	**018F4180**	BU240CS	7	**018F4181**
	110-120	60							
	230	50							
	208-240	60							

[4] Enclosure rating for BT coils is NEMA 2 ~ IP 12-32 [5] Enclosure rating for BU coils is NEMA 4 ~ IP 54

Spare Parts and Accessories

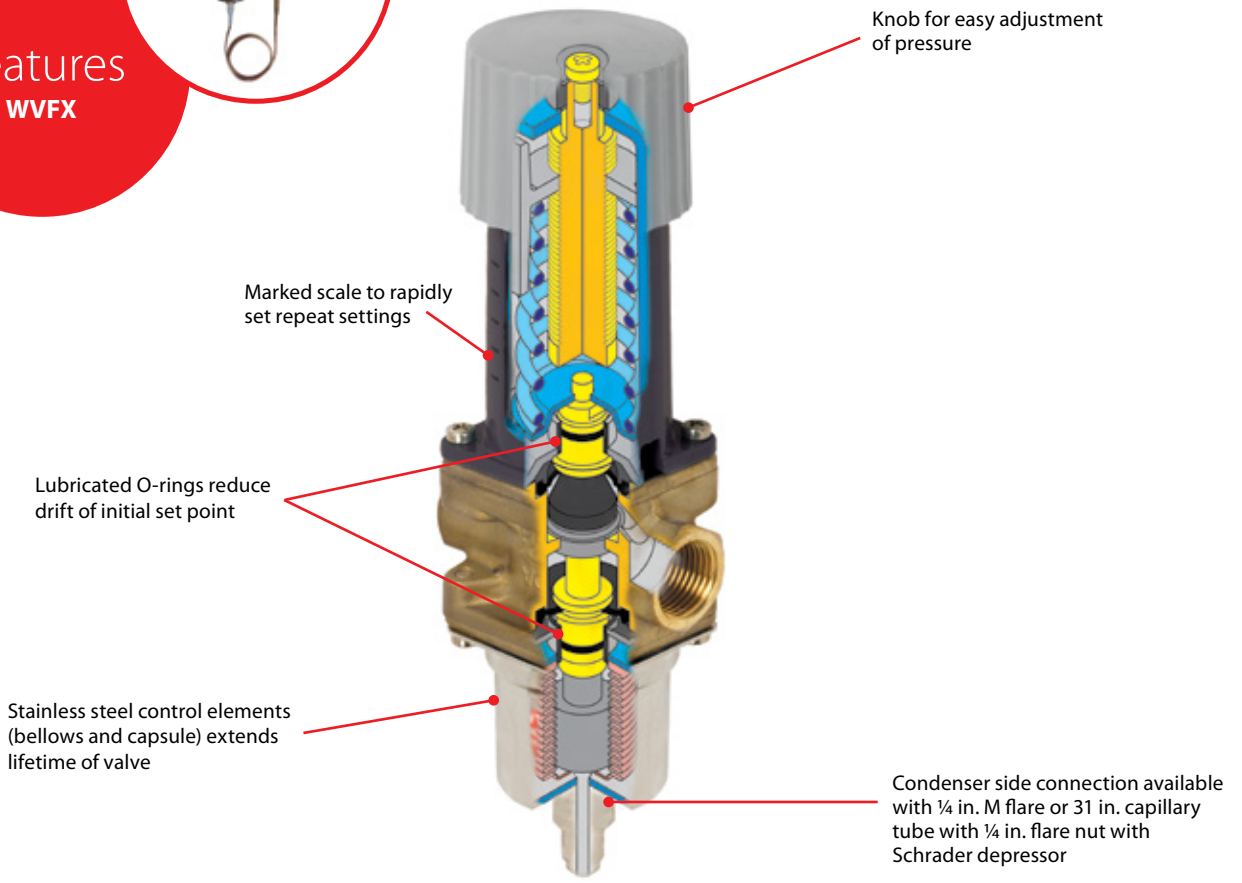
Description	Version(s) applied to	Type(s) applied to	Danfoss Code No.
Permanent magnet coil for servicing and testing	1, 2	all	**018F0091**
Service kit (NC); O-ring, (4) screws, armature assembly, rubber gasket, compression spring	1, 2	EVR 3	**032F0181**
Seal kit; O-ring for armature tube, rubber gasket, O-ring for steel cover, support ring	1	EVR 6, 8	**032F8165**
Service kit (NC); diaphragm, O-ring for armature tube, (4) screws T20, (4) screws T15, armature assembly, rubber gasket, O-ring for steel cover, support ring, compression spring	1	EVR 6, 8	**032F8166**
Seal kit; O-ring, rubber gasket, support ring	2	EVR 6, 8	**032L0548**
Service kit (NC); diaphragm, O-ring, (4) screws, armature assembly, rubber gasket, support ring, compression ring	2	EVR 6, 8	**032L0550**
Service kit (NC); diaphragm assembly, O-ring, (4) screws, armature assembly, rubber gasket, compression spring	1	EVR 10	**032F0185**
Service kit (NC); diaphragm, O-ring, (4) screws, armature assembly, rubber gasket, support ring, compression ring	2	EVR 10	**032L0552**
Seal kit; O-ring for armature tube, (3) rubber gasket (1 ea. for EVR 10, 15, 20) (4) refrigeration gasket (2 ea. For EVR 15, 20)	1	EVR 10, 15, 20	**032F8196**
Service kit (NC); diaphragm, O-ring, (4) screws, armature assembly, rubber gasket, (2) refrigeration gasket (flange connections), compression ring	2	EVR 15, 18, 20, 22	**032L0554**
Service kit (NC); diaphragm assembly, O-ring, (4) screws, armature assembly, rubber gasket, refrigeration gasket, compression spring	1	EVR 15, 18	**032F0187**
Service kit (NC); diaphragm assembly, O-ring, (4) screws, armature assembly, rubber gasket, refrigeration gasket, compression spring	1	EVR 20, 22	**032F0189**
Manual spindle	1	EVR 20, 22	**032F0193**
Seal kit; (2) Al. gasket, (3) O-rings, rubber gasket	1, 2	EVR 25	**032F2326**
Piston service kit; (2) O-ring, compression spring, piston assembly, insert block, rubber gasket, piston ring	1, 2	EVR 25	**032F3236**
Piston service kit; (4) O-rings, Al. gasket, piston assembly, insert block, gasket, piston ring, compression spring, refrigeration gasket	1, 2	EVR 32	**042H0172**
Pilot service kit; (2) Al. gaskets, O-ring, orifice, armature tube assembly, armature, armature assembly, compression spring	1, 2	EVR 25, 32	**042H0165**
Seal kit; (3) O-rings, (2) Al. gaskets	1, 2	EVR 32	**032F2327**

To determine the version of EVR, read the code number engraved on the armature. Codes beginning with 032F, 032G and 042H are V1; codes beginning with 032L are V2. Kits for types not included in catalog may be available; contact Danfoss for more information.

WVFX - Pressure Controlled Water Valves

Pressure controlled water valves type WVFX are used for regulating the flow of water in refrigeration systems with water cooled condensers. Water valves regulate water flow and thereby maintain constant condensing pressure. At shut-down, cooling water flow is shut off automatically. WVFX valves are designed as wide-range, general purpose water valves, and are particularly popular among contractor customers.

Features
WVFX



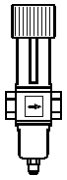
Facts

Applications:

- Refrigeration systems with water-cooled condensers

- Refrigerants: HCFC and HFC
- Connections
  - Water side: ⅜ inch to 1 inch (NPT)
  - Condenser side: ¼ inch M flare or 31 inch capillary tube with ¼ inch flare nut with Schrader depressor
- Max working/test pressure
  - Water side: 380/420 psig or 655/870 psig
  - Condenser side: 230/350 psig
- No need for power—self acting
- Opens on rising condensing pressure
- Insensitive to dirt

Technical data and ordering



WVFX - Pressure Controlled Water Valves

Danfoss Type	Competitor Part No.	Connection		Range (psig)	Condenser side		Water side		Flow coefficient, Cv valve (gal/min)	Danfoss Code No.
		Water side (NPT)	Condenser side		Maximum working pressure (psig)	Maximum test pressure (psig)	Maximum working pressure (psig)	Maximum test pressure (psig)		
WVFX 10	V46AA-1C[1]	⅜	¼ in. M flare	60 to 333	380	420	230	350	1.6	**003N5006**
WVFX 10	V46AA-1C	⅜	31 in. capillary tube with ¼ in. flare nut [2]						1.6	**003N5025**
WVFX 15	V46AB-1C[1]	½	¼ in. M flare						2.2	**003N6006**
WVFX 15	V46AB-1C	½	31 in. capillary tube with ¼ in. flare nut [2]						2.2	**003N6025**
WVFX 20	V46AC-1C[1]	¾	¼ in. M flare						3.9	**003N7006**
WVFX 20	V46AC-1C	¾	31 in. capillary tube with ¼ in. flare nut [2]						3.9	**003N7025**
WVFX 25	V46AD-1C[1]	1	¼ in. M flare						6.4	**003N8006**
WVFX 25	V46AD-1C	1	31 in. capillary tube with ¼ in. flare nut [2]						6.4	**003N8025**

[1] Competitor valve equipped with capillary tube as in code no. directly below. Else, see below for capillary tube spare part (code no. 060-017166) to attach to this code no.
[2] Schrader depressor installed at end of capillary tube.
Length of valve from top of knob to bottom of control element is 8.07 in. for WVFX 10, 15, 20, and 8.46 in. for WVFX 25.
Temperature range: –13 to +265 °F
Maximum differential pressure: 145 psig

WVFX – Pressure Controlled Water Valves for High Pressure Refrigerants

Danfoss Type	Competitor Part No.	Connection		Range (psig)	Condenser side		Water side		Flow coefficient, Cv valve (gal/min)	Danfoss Code No.
		Water side (NPT)	Condenser side		Maximum working pressure (psig)	Maximum test pressure (psig)	Maximum working pressure (psig)	Maximum test pressure (psig)		
WVFX 10	V246GA1-001C	⅜	¼ in· M flare	218 to 420	655	870	232	348	1.6	**003N1810**
WVFX 15	V246GB1-001C	½							2.2	**003N2810**
WVFX 20	V246GC1-001C	¾							3.9	**003N3810**
WVFX 25	V246GD1-001C	1							6.4	**003N4810**

Temperature range: –13 to 265 °F
Maximum differential pressure: 145 psig

Spare Parts and Accessories

Description	Type(s) applied to	Danfoss Code No.
Rebuild kit; valve disc, (2) O-rings, (8) screws, (2) diaphragms, grease, and key	WVFX 10,15	**003N4006**
Rebuild kit; valve disc, (2) O-rings, (8) screws, (2) diaphragms, grease, and key	WVFX 20	**003N4007**
Rebuild kit; valve disc, (2) O-rings, (8) screws, (2) diaphragms, grease, and key	WVFX 25	**003N4008**
Capillary tube; 39 in. (1m) with ¼ in. (6mm) flare coupling nuts on each end	WVFX with ¼ M flare	**060-017166**
Bracket for WVFX 10–25	all	**003N0388**

KVP/KVL/KVR/NRD/KVC/CPCE - Pressure Regulators

Danfoss has a variety of pressure regulators to control the low and high pressure sides and efficient function of a refrigeration system under varying load conditions.

Pressure regulators include:

- Evaporator Pressure Regulator (KVP)
- Crankcase Pressure Regulator (KVL)
- Condensing Pressure Regulator (KVR)
- Differential Pressure Regulator (NRD)
- Hot Gas Bypass Valves (KVC/CPCE)

KVP/KVL/KVR/ NRD/KVC/CPCE

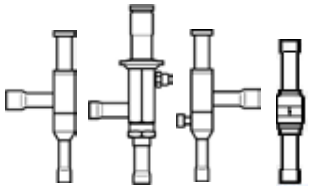
Facts

- All valves available for use with any CFC, HCFC, or HFC refrigerant, except R-410A
- Very stable and accurate pressure regulation
- Hermetic brazed construction 100% leak tested
- Available with flare and ODF solder connections
- Stainless steel bellows for extended lifetime
- Built-in valve seat dampening design
- Pressure regulation side

  KVP/KVR—opens on a rising pressure

  KVC/KVL—opens on a falling pressure

Technical data and ordering



KVP/KVL/KVR/NRD/KVC/CPCE - Pressure Regulators

Application	Danfoss Type	Rated capacity (tons)				Solder ODF connection (in.)	Setting range (psig)	Factory setting (psig)	Maximum working pressure (psig)	Maximum test pressure (psig)	Minimum temp. of medium (°F)	Maximum temp of medium (°F)	Danfoss Code No.
		R-22	R-134a	R-404A	R-407C								
Evaporating Pressure Regulator	KVP 12	1.30	0.90	1.20	1.20	½	0 to 80	29	260	286	–50	265	**034L0023**
	KVP 15	1.30	0.90	1.20	1.20	⅝	0 to 80	29	260	286	–50	265	**034L0029**
	KVP 22	1.30	0.90	1.20	1.20	⅞	0 to 80	29	260	286	–50	265	**034L0025**
	KVP 28	2.80	1.90	2.40	2.60	1 ⅛	0 to 80	29	260	286	–50	265	**034L0026**
	KVP 35	2.80	1.90	2.40	2.60	1 ⅜	0 to 80	29	260	286	–50	265	**034L0032**
Crankcase Pressure Regulator	KVL 12	1.20	0.80	1.00	1.10	½	3 to 87	29	260	286	–75	266	**034L0043**
	KVL 15	1.20	0.80	1.00	1.10	⅝	3 to 87	29	260	286	–75	266	**034L0049**
	KVL 22	1.20	0.80	1.00	1.10	⅞	3 to 87	29	260	286	–75	266	**034L0045**
	KVL 28	4.10	2.60	3.40	3.80	1 ⅛	3 to 87	29	260	286	–75	266	**034L0046**
	KVL 35	4.10	2.60	3.40	3.80	1 ⅜	3 to 87	29	260	286	–75	266	**034L0052**
Condensing Pressure Regulator	KVR 12	Liquid: 12.70 Hot gas: 4.13	Liquid: 11.80 Hot gas: 3.03	Liquid: 8.20 Hot gas: 3.27	Liquid: 13.80 Hot gas: 4.50	½	73 to 254	145	406	450	–50	266	**034L0093**
	KVR 15	Liquid: 12.70 Hot gas: 4.13	Liquid: 11.80 Hot gas: 3.03	Liquid: 8.20 Hot gas: 3.27	Liquid: 13.80 Hot gas: 4.50	⅝	73 to 254	145	406	450	–50	266	**034L0097**
	KVR 22	Liquid: 12.70 Hot gas: 4.13	Liquid: 11.80 Hot gas: 3.03	Liquid: 8.20 Hot gas: 3.27	Liquid: 13.80 Hot gas: 4.50	⅞	73 to 254	145	406	450	–50	266	**034L0094**
	KVR 28	Liquid: 32.60 Hot gas: 10.93	Liquid: 30.20 Hot gas: 8.04	Liquid: 20.90 Hot gas: 8.66	Liquid: 35.50 Hot gas: 11.91	1 ⅛	73 to 254	145	406	450	–50	266	**034L0095**
	KVR 35	Liquid: 32.60 Hot gas: 10.93	Liquid: 30.20 Hot gas: 8.04	Liquid: 20.90 Hot gas: 8.66	Liquid: 35.50 Hot gas: 11.91	1 ⅜	73 to 254	145	406	450	–50	266	**034L0100**
Differential Pressure Regulator	NRD 12s[1]					½	73 to 254	145	667	870	–50	266	**020-1132**
Hot Gas Bypass	KVC 12	2.14	1.36	2.02	2.31	½	3 to 87	29	406	450	–50	266	**034L0143**
	KVC 15	4.17	2.65	3.93	4.50	⅝	3 to 87	29	406	450	–50	266	**034L0147**
	KVC 22	5.35	3.41	5.04	5.78	⅞	3 to 87	29	406	450	–50	266	**034L0144**
	CPCE 12	6.20	4.30	6.30	6.70	½	0 to 87	5.8	406	450	–58	285	**034N0082**
	CPCE 15	9.20	6.30	9.10	9.90	⅝	0 to 87	5.8	406	450	–58	285	**034N0083**
	CPCE 22	12.20	8.40	12.10	12.20	⅞	0 to 87	5.8	406	450	–58	285	**034N0084**

[1] NRD generally used in conjunction with a KVR to regulate the condensing pressure.

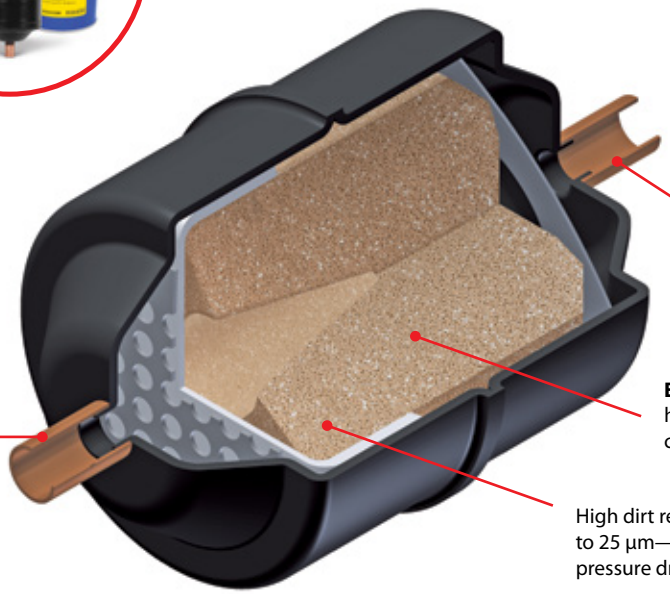
Spare Parts and Accessories

Description	Type(s) applied to	Danfoss Code No.
Schrader valve	all KVP, KVR	**034L0006**

DCL/DCB/DAS/DCR - Filter Driers

Danfoss filter driers function as simple drop-in replacements for most driers sold in the aftermarket or installed on equipment by manufacturers. All Danfoss filter driers are constructed with a solid core design to maximize moisture removal while minimizing pressure drop. These driers use a mixture of molecular sieve and activated alumina to both adsorb system moisture and capture acid and prevent solid contaminants from entering the system.

Features
DCL/DCB/DAS/DCR



Solid copper inlet connection

Eliminator® core for the highest possible drying capacity

Solid copper outlet connection

High dirt retention—down to 25 µm—with minimal pressure drop

Nomenclature / Model No.

D A S 16 4 s VV

Filter drier

Solid Core
A: Core with 30% molecular sieve/ 70% activated alumina (burn-out)
C: Core with 80% molecular sieve/ 20% activated alumina
M: Core with 100% molecular sieve

Application
B: Bi-flow
L: Liquid line
S: Suction line

Size (volume)
1.5: 1.5 in.^{3}
03: 3 in.^{3}
05: 5 in.^{3}
08: 8 in.^{3}
16: 16 in.^{3}
30: 30 in.^{3}
41: 41 in.^{3}
60: 60 in.^{3}
75: 75 in.^{3}

Connection
(filter connection in ⅛ in. increments)
2/CAP: ¼ in. inlet x cap tube outlet
2: ¼ in.
2.5: 5/16 in.
3: ⅜ in.
4: ½ in.
5: ⅝ in.
6: ¾ in.
7: ⅞ in.
9: 1 ⅛ in.

Connection type
(blank): Flare connection
s: Solder connection

Access valves

	Inlet	Outlet
(blank)	none	none
V	Schrader valve	none
VV	Schrader valve	Schrader valve

Technical data and ordering

DCL/DCB Liquid Line/Bi-flow Filter Driers

Danfoss Type	Connection (in.)	Max. working pressure (psig)	Drying capacity (lbs. of refrigerant)[2]								Liquid capacity (tons)[2]				Danfoss Code No.
			R-134a		R-404A		R-22		R-410A		R-134a	R-404A	R-22	R-410A	
			75 °F	125 °F	75 °F	125 °F	75 °F	125 °F	75 °F	125 °F					
DCL 1.52/2.8mms	¼ solder	667	5.10	4.60	5.30	5.10	5.10	4.60	4.60	4.20	0.80	0.50	0.90	0.80	**023Z8255**
DCL 032s	¼ solder	667	8.50	8.00	9.10	8.70	8.60	8.00	7.80	7.20	1.90	1.42	2.12	2.11	**023Z5013**[1]
DCL 032	¼ flare	667	8.50	8.00	9.10	8.70	8.60	8.00	7.80	7.20	1.90	1.42	2.12	2.11	**023Z5000**[1]
DCL 052s	¼ solder	667	13.60	12.80	14.60	13.80	13.80	12.70	12.40	11.40	2.18	1.60	2.40	2.37	**023Z5018**
DCL 052	¼ flare	667	13.60	12.80	14.60	13.80	13.80	12.70	12.40	11.40	2.18	1.60	2.40	2.37	**023Z5002**
DCL 053s	⅜ solder	667	13.60	12.80	14.60	13.80	13.80	12.70	12.40	11.40	3.66	2.79	4.10	4.15	**023Z5019**
DCL 053	⅜ flare	667	13.60	12.80	14.60	13.80	13.80	12.70	12.40	11.40	3.66	2.79	4.10	4.15	**023Z5003**
DCL 082s	¼ solder	667	21.70	20.50	23.30	22.10	22.00	20.30	19.80	18.20	2.18	1.55	2.37	2.28	**023Z5022**
DCL 082	¼ flare	667	21.70	20.50	23.30	22.10	22.00	20.30	19.80	18.20	2.18	1.55	2.37	2.28	**023Z5004**
DCL 083s	⅜ solder	667	21.70	20.50	23.30	22.10	22.00	20.30	19.80	18.20	4.03	3.12	4.56	4.65	**023Z5023**
DCL 084s	½ solder	667	21.70	20.50	23.30	22.10	22.00	20.30	19.80	18.20	8.14	6.07	9.03	8.99	**023Z5026**
DCL 084	½ flare	667	21.70	20.50	23.30	22.10	22.00	20.30	19.80	18.20	8.14	6.07	9.03	8.99	**023Z5006**
DCL 162	¼ flare	667	47.70	45.10	51.30	48.60	48.30	44.70	43.50	40.10	2.18	1.54	2.36	2.28	**023Z5007**
DCL 163s	⅜ solder	667	47.70	45.10	51.30	48.60	48.30	44.70	43.50	40.10	4.64	3.18	4.95	4.67	**023Z5029**
DCL 163	⅜ flare	667	47.70	45.10	51.30	48.60	48.30	44.70	43.50	40.10	4.64	3.18	4.95	4.67	**023Z5008**
DCL 164s	½ solder	667	47.70	45.10	51.30	48.60	48.30	44.70	43.50	40.10	9.15	6.69	10.07	9.90	**023Z5032**
DCL 165s	⅝ solder	667	47.70	45.10	51.30	48.60	48.30	44.70	43.50	40.10	12.69	10.41	14.74	15.59	**023Z5033**
DCL 165	⅝ flare	667	47.70	45.10	51.30	48.60	48.30	44.70	43.50	40.10	12.69	10.41	14.74	15.59	**023Z5010**
DCL 303s	⅜ solder	667	100.50	95.00	108.00	102.40	101.80	94.10	91.60	84.40	4.46	3.00	4.72	4.40	**023Z0030**
DCL 303	⅜ flare	667	100.50	95.00	108.00	102.40	101.80	94.10	91.60	84.40	4.46	3.00	4.72	4.40	**023Z0012**
DCL 304s	½ solder	667	100.50	95.00	108.00	102.40	101.80	94.10	91.60	84.40	9.24	7.11	10.41	10.58	**023Z0031**
DCL 304	½ flare	667	100.50	95.00	108.00	102.40	101.80	94.10	91.60	84.40	9.24	7.11	10.41	10.58	**023Z0013**
DCL 305s	⅝ solder	667	100.50	95.00	108.00	102.40	101.80	94.10	91.60	84.40	13.00	10.51	14.99	15.72	**023Z0032**
DCL 305	⅝ flare	667	100.50	95.00	108.00	102.40	101.80	94.10	91.60	84.40	13.00	10.51	14.99	15.72	**023Z0014**
DCL 307s	⅞ solder	667	100.50	95.00	108.00	102.40	101.80	94.10	91.60	84.40	18.27	15.34	21.44	23.05	**023Z0034**
DCL 415s	⅝ solder	667	139.50	131.90	150.00	142.20	141.30	130.70	127.30	117.30	15.78	11.9	17.61	17.66	**023Z0105**
DCL 417s	⅞ solder	500	139.50	131.90	150.00	142.20	141.30	130.70	127.30	117.30	18.98	16.01	22.32	24.08	**023Z0106**
DCL 607s	⅞ solder	667	200.90	189.90	216.00	204.80	203.50	188.20	183.30	168.90	19.93	19.94	25.16	30.71	**023Z0036**
DCB 083s	⅜ solder	667	15.60	14.70	16.70	15.80	15.60	14.50	14.10	13.00	2.10	1.50	2.30	2.30	**023Z1433**
DCB 163s	⅜ solder	667	29.30	27.70	31.50	29.90	29.70	27.50	26.80	24.60	5.10	3.70	5.70	5.70	**023Z1437**
DCB 164s	½ solder	667	29.30	27.70	31.50	29.90	29.70	27.50	26.80	24.60	8.00	5.70	9.10	9.10	**023Z1436**
DCB 165s	⅝ solder	667	29.30	27.70	31.50	29.90	29.70	27.50	26.80	24.60	10.60	8.30	11.40	11.40	**023Z1435**

[1] Wire mesh in filter drier outlet.

DAS Suction Line Filter Driers

Danfoss Type	Connection (in.)	Max. working pressure (psig)	Rated capacity (tons)[2]			Acid capacity (oz.)	Danfoss Code No.
			R-134a	R-404A	R-22 / R-410A		
DAS 164sVV	½ solder	500	1.70	2.40	6.30	0.30	**023Z1009**
DAS 165sVV	⅝ solder		2.70	3.70	4.30	0.30	**023Z1010**
DAS 166sVV	¾ solder		3.40	4.90	5.70	0.30	**023Z1011**
DAS 167sVV	⅞ solder		3.90	5.40	6.30	0.30	**023Z1012**
DAS 306sVV	¾ solder		4.00	5.40	6.30	0.64	**023Z1014**
DAS 307sVV	⅞ solder		4.60	6.30	7.40	0.64	**023Z1015**
DAS 309sVV	1⅛ solder		5.70	7.70	8.90	0.64	**023Z1016**
DAS 419sVV	1⅛ solder		6.30	8.60	10.00	0.86	**023Z1018**

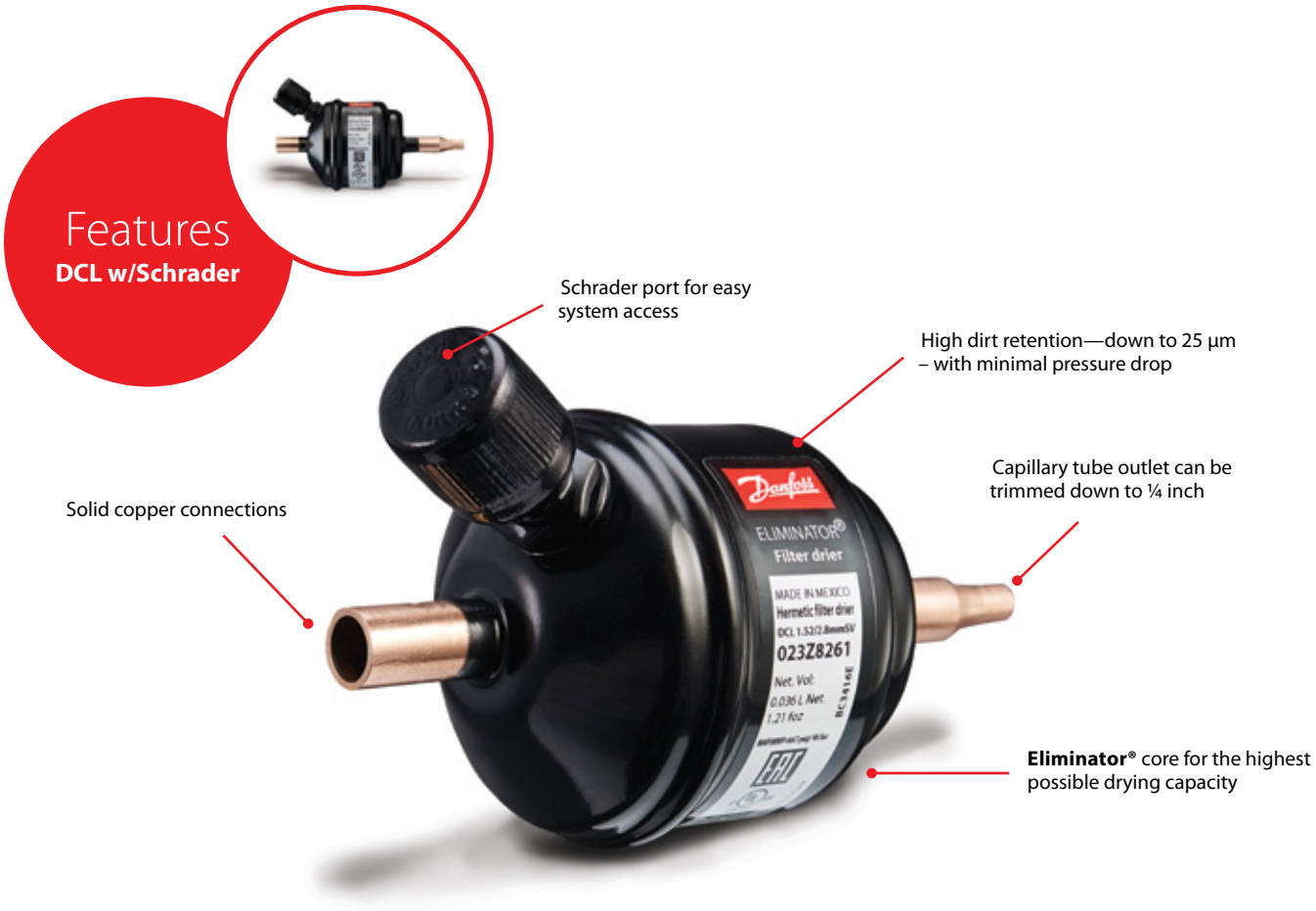
[2] For rated capacities for R-290, R-600, R-448A, R-449A, R-452A, and other HFO, HC, HFC, and HCFC refrigerants not listed, see Coolselector or contact Danfoss.

DCR Filter Drier Cores

Danfoss Type	Material	Danfoss Code No.
DCR core insert, type 48-DM solid core	100% molecular sieve	**023U1392**
DCR core insert, type 48-DC solid core	80% molecular sieve & 20% activated alumina	**023U4381**
DCR core insert, type 48-DA solid core	30% molecular sieve & 70% activated alumina	**023U5381**
DCR core insert, type 48-F strainer		**023U1921**

DCL with Schrader valve - Filter Driers

The Danfoss capillary tube filter driers include a Schrader valve, making servicing the system easy and convenient, and convertible outlet for fitting on capillary tube or ¼ inch system connection. Thanks to the solid core, Danfoss ELIMINATOR® filter driers offer exceptional drying capacity to protect the system against harmful acids and moisture.



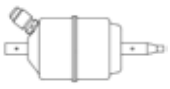
Facts

Applications:

- Traditional refrigeration
- Air conditioning units
- Transport refrigeration

- Connections:
  - Inlet: ¼ inch solder and ¼ inch service port
  - Outlet: Capillary tube outlet can be trimmed down to ¼ inch
- Refrigerants: R-22, R-32, R-134a, R-404A, R-410A, R-407C/F, R-23, R-1234yf, R-1234ze, R-452A, R-444B, R-449A, R-448A, R-450A, R-507. For other refrigerants, please contact Danfoss.
- Available with 1.5, 3, and 5 cubic inch solid core volumes
- 80% molecular sieve and 20% activated alumina core

Technical data and ordering

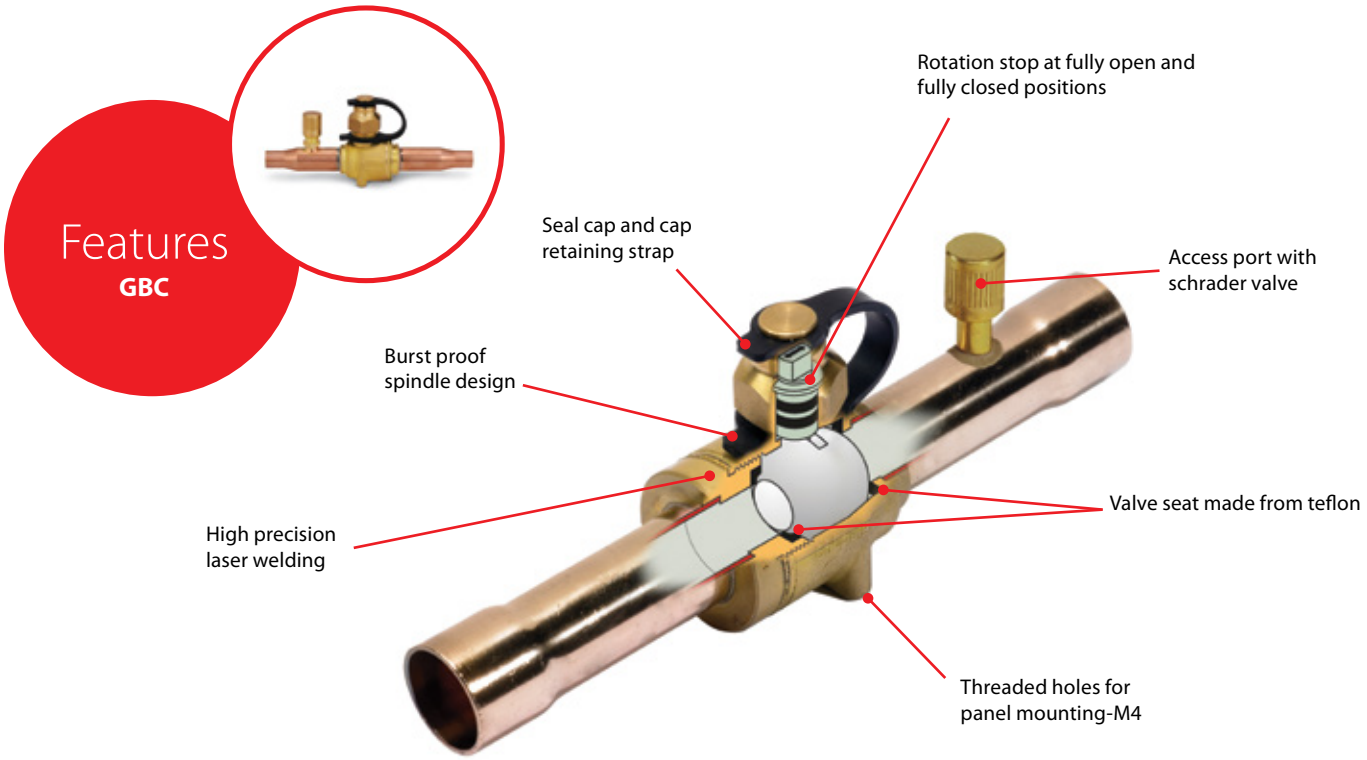


DCL with Schrader valve - Filter Drier

Danfoss Type	Connection inlet (in.)/ outlet	Max. working pressure (psig)	Drying capacity (lbs. of refrigerant)										Liquid capacity (tons)					Danfoss Code No.
			R-134a		R-404A		R-22		R-407C		R-410A		R-134a	R-404C	R-22	R-407C	R-410A	
			75 °F	125 °F	75 °F	125 °F	75 °F	125 °F	75 °F	125 °F	75 °F	125 °F						
DCL 1.52/ CAPsV	¼/capillary tube	667	5.2	4.8	5.5	5.2	5.3	4.9	5.1	4.7	4.7	4.2	1.0	0.7	1.1	1.0	1.0	**023Z8261**
DCL 032/ CAPsV	¼/capillary tube	667	8.4	7.7	8.8	8.3	8.5	7.8	8.2	7.6	7.6	6.8	1.2	0.8	1.3	1.2	1.2	**023Z5174**
DCL 052/ CAPsV	¼/capillary tube	667	13.5	12.4	14.1	13.4	13.6	12.5	13.1	12.1	12.3	10.9	1.2	0.8	1.3	1.2	1.2	**023Z5181**

GBC V2 - Ball Valves

Danfoss GBC ball valves are manually operated shut-off valves suitable for bi-directional flow. The design, weld, and choice of the sealing material enable these ball valves to meet the most demanding requirements.



Product Selection

Danfoss Type	Solder ODF connection (in.)	Flow Coefficient, C_v value (gal/min)	Working pressure (psig)	Test pressure (psig)	Danfoss Code No.
GBC 6s	¼	2.27	650	940	**009L8050**
GBC 10s	⅜	6.57		940	**009L8051**
GBC 12s	½	12.23		940	**009L8052**
GBC 16s	⅝	16.31		940	**009L8053**
GBC 18s	¾	23.61		940	**009L8054**
GBC 22s	⅞	32.56		940	**009L8065**
GBC 28s	1 ⅛	60.05		940	**009L8066**
GBC 35s	1 ⅜	93.51		940	**009L8067**
GBC 42s	1 ⅝	139.96		940	**009L8068**
GBC 54s	2 ⅛	260.05		940	**009L8059**
GBC 67s	2 ⅝	358.36		725	**009L8069**

All valves listed in table above are Full Port.

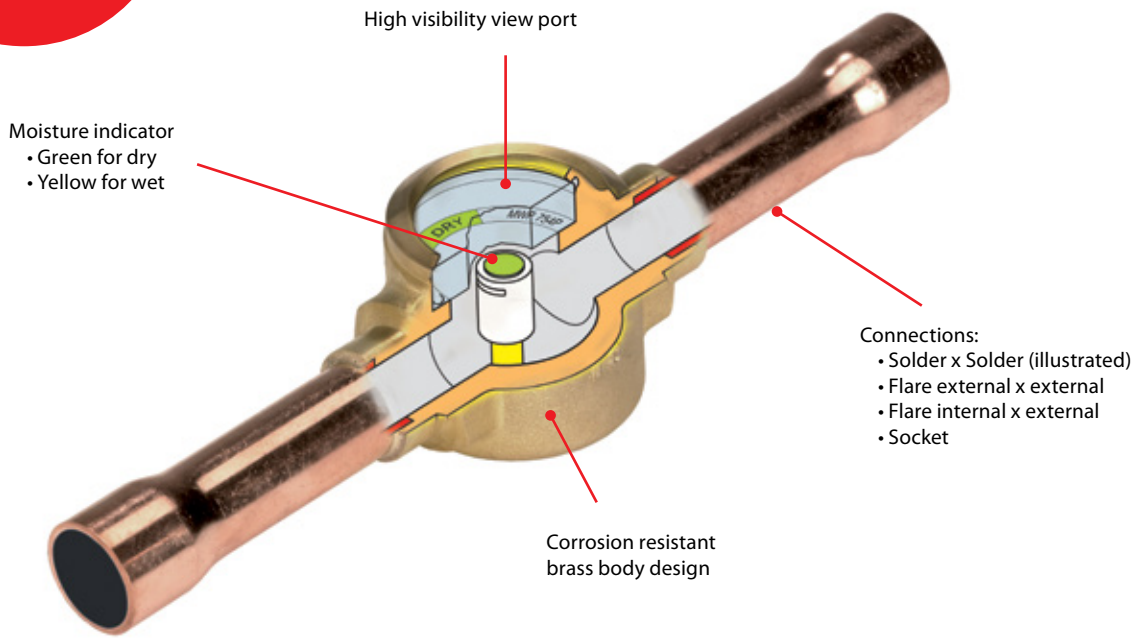
Spare Parts and Accessories

Danfoss Type	Material	Danfoss Code No.
Ball valve service kit	GBC 6, 10, 12, 16, 18, 22	**009G7012**
Ball valve service kit	GBC 28, 35	**009G7014**
Ball valve service kit	GBC 42, 54, 67	**009G7016**
Ball valve replacement cap	GBC 6, 10, 12, 16, 18, 22	**009G7210**
Ball valve replacement cap	GBC 28, 35	**009G7211**
Ball valve replacement cap	GBC 42, 54, 67	**009G7212**

Codes listed above are for GBC V1; for GBC V2 spare parts and accessories, contact Danfoss.

SGP - Sight Glasses

Danfoss sight glasses are designed to accurately indicate the presence of moisture in refrigeration and air-conditioning systems. When system moisture content rises above permissible levels, the "dry/green" indicator will change to yellow indicating a "wet" system. The indication of dangerous moisture levels is essential in helping prevent the formation of harmful acids which are detrimental to the system.



Product Selection

Danfoss Type	Version	Connection (in.)	Ambient temperature (°F)	Maximum working pressure (psig)	Danfoss Code No.
SGP 6 N	Flare int. x ext.[1]	¼ x ¼	–60 to 175	750	**014L0171**
SGP 10 N		⅜ x ⅜			**014L0172**
SGP 12 N		½ x ½			**014L0173**
SGP 6s N	ODF x ODF solder	¼ x ¼			**014L0181**
SGP 10s N		⅜ x ⅜			**014L0182**
SGP 12s N		½ x ½			**014L0183**
SGP 16s N		⅝ x ⅝			**014L0145**
SGP 22s N		⅞ x ⅞			**014L0186**
SGP ½ RN	NPT	½			**014L0006**

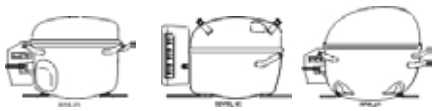
[1] Can be screwed directly onto Danfoss filter drier.

Light Commercial Compressors

Specially optimized for use in mobile, household, and light commercial applications, these hermetic reciprocating compressors provide high cooling capacity in an energy-saving design. Compressors are available for R-134a and R-404A.

Features
Light Commercial Compressors

Technical data and ordering

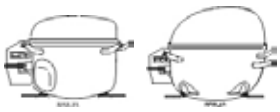


Light Commercial Compressors
Low temperature

	Voltage/Phase/ Frequency	Horsepower rating (HP)[1]	HS/LS torque	Application	OLD Danfoss Model No.	NEW Danfoss Model No.	Cooling capacity (Btu/h)[2]			NEW Danfoss Single Packed Code No.[3]
							LBP evaporator temperature (°F)			
							–31	–13	5	
R-134a	110/1/60	½	HS	Freezer	TL4G	B38H5L	143	201	473	**123B8110**
	115/1/60	⅓	HS	Freezer	NF5.5X	GUY60NRb	341	629	1,078	**123B1301**
	115/1/60	¼	HS	Freezer	SC12G	GL99ADa	429	861	1,474	**123B1161**
	115/1/60	¼	HS	Freezer	NF7FX	GUY80NRb	409	812	1,459	**123B1303**
	115/1/60	⅓	HS	Freezer	SC15FTX	GPY12RDa	698	1,353	2,369	**123B1580**
	115/1/60	⅓	HS	Freezer	SC18G	GP14FE	698	1,353	2,369	**123B1163**
	220–240/1/60	⅓	HS	Freezer	SC18G SC21G	GPY14NGa	726	1,387	2,415	**123B1313**
	115/1/60	⅓	HS	Freezer	SC15G	GP14FE	500	1,122	2,003	**123B1163**
	115/1/60	⅜	HS	Freezer	NF11FX	GLY12NRa	698	1,353	2,369	**123B1304**
R-404A	115/1/60	⅛	HS	Freezer	TFS4.5CLX	ML60FR	459	883	1,435	**123B2143**
	115/1/60	⅛	HS	Freezer	TF4CLX	ML45FR	391	723	1,197	**123B2160**
	115/1/60	⅕	HS	Freezer	NF5.5CLX	MLY60LDa	665	1,194	1,903	**123B2144**
	115/1/60	¼	HS	Freezer	NF7CLX SC10CL	ML80FR	751	1,364	2,219	**123B2146**
	115/1/60	⅜	HS	Freezer	SC12CLX.2	MPT12LD	1,379	2,371	3,760	**123B2152**
	115/1/60	½	HS	Freezer	SC15CLX.2	MPT14LD	1,570	2,716	4,356	**123B2155**
	208–230/1/60	¾	HS	Freezer	SC18CLX.2	MX21FG	1,732	3,387	5,658	**123B2131**
	208–230/1/60	¾	HS	Freezer	—	MS26FFv	1,862	4,186	7,123	**123B2157**
	200–230/1/ 50–60	¾	HS	Freezer	SC18CLX.2	MX21FGa	1,732	3,387	5,658	**123B2186**
	208–230/1/60	1	HS	Freezer	—	MS34FFv	2,396	5,603	10,028	**123B2174**

[1] Horsepower ratings are nominal. Danfoss recommends sizing compressors based on cooling capacity requirements.
[2] Capacity at ASHRAE conditions below. For other conditions and/or speeds, check Coolselector or contact Danfoss.
[3] Code no. contains compressor and required electrical and non-electrical accessories. For standard code no., change "B" to "F."
Full range of models (refrigerant, capacity, and voltage codes) available. Check Coolselector or contact Danfoss.

Technical data and ordering



Light Commercial Compressors
Medium temperature

	Voltage/Phase/ Frequency	Horsepower rating (HP)[1]	HS/LS torque	Application	OLD Danfoss Model No.	NEW Danfoss Model No.	Cooling capacity (Btu/h)[2] MBP evaporator temperature (°F) 5	23	45	NEW Danfoss Single Packed Code No.[3]
R-134a	110–115/1/60	⅛	LS	Cooler	TL4G	B38G5L	511	869	1,440	**123B8126**
	200–230/1/ 50/60	⅛	HS	Cooler	FR8.5G	GL80TG	932	1,580	2,647	**123B1528**
	115/1/60	⅛	HS	Cooler	NF7FX	GLY80RDa	1,123	1,881	3,174	**123B1572**
	115/1/60	⅛	HS	Cooler	NF5.5FX	GL80TE	932	1,580	2,647	**123B1575**
	115/1/60	⅓	HS	Cooler	SC12G	GPY12RDa	1,799	2,889	4,682	**123B1580**
	115/1/60	⅓	HS	Cooler	NF11FX	GLY12RRa	1,105	2,500	4,143	**123B1601**
	115/1/60	½	HS	Cooler	SC15G	GPY14RDa	1,932	3,302	5,821	**123B1584**
	115/1/60	½	HS	Cooler	SC18G	GPY16RDa	2,301	3,765	6,190	**123B1588**
	220–240/1/ 50/60	½	HS	Cooler	SC15GH	GP16TG	2,436	3,777	6,190	**123B1714**
	208–230/1/60	⅝	HS	Cooler	—	GX23TG	2,970	4,965	8,253	**123B1548**
	208–230/1/60	¾	HS	Cooler	—	GS26TGv	3,091	5,736	9,920	**123B1550**
	208–230/1/60	⅞	HS	Cooler	—	GS30TGv	3,451	6,575	11,825	**123B1553**
	208–230/1/60	1	HS	Cooler	—	GS34TFv	4,678	8,156	13,571	**123B1590**
R-404A	115/1/60	¼	HS	Cooler	NF5.5CLX	MLY60RDa	1,620	2,487	3,869	**123B2527**
	115/1/60	⅜	HS	Cooler	NF7CLX SC10CL	MLY80RDa	2,144	3,340	5,277	**123B2530**
	115/1/60	½	HS	Cooler	SC12MLX	MLT12RR	2,918	4,384	6,690	**123B2542**
	230/1/60	½	HS	Cooler	SC15MLX.2	MPT14RF	3,686	5,502	8,571	**123B2543**
	208–230/1/60	⅞	HS	Cooler	—	MX18TGa	4,322	6,810	10,817	**123B2541**
	115/1/60	⅞	HS	Cooler	SC18MLX	MX18TE	4,322	6,810	10,817	**123B2545**
	208–230/1/60	1	HS	Cooler	—	MX21TGa	4,801	7,546	12,003	**123B2714**

[1] Horsepower ratings are nominal. Danfoss recommends sizing compressors based on cooling capacity requirements.
[2] Capacity at ASHRAE conditions below. For other conditions and/or speeds, check Coolselector or contact Danfoss.
[3] Code no. contains compressor and required electrical and non-electrical accessories. For standard code no., change "B" to "F."
Full range of models (refrigerant, capacity, and voltage codes) available. Check Coolselector or contact Danfoss.

Full range of models (refrigerant, capacity and voltage codes) available. Check Coolselector or contact Danfoss.

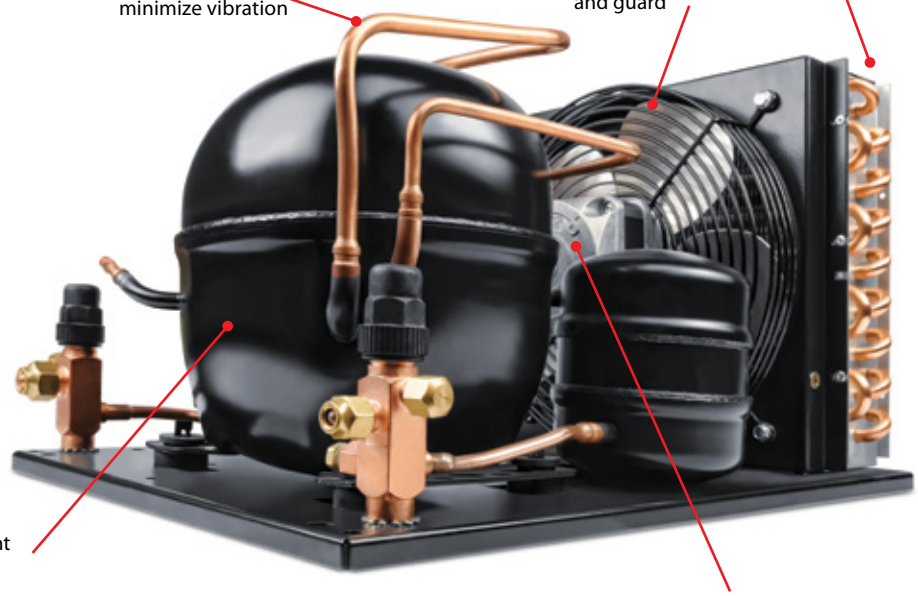
Test conditions	ASHRAE (LBP)	ASHRAE (MBP)
Condensing temperature	131 °F	131 °F
Evaporator temperature	–10 °F	45 °F
Ambient and suction gas temperature	90 °F	95 °F
Liquid temperature	90 °F	115 °F

Scan the QR Code for a video of a light commercial replacement or visit http://bit.ly/LightInstall

Optyma™ - Condensing Units

Danfoss Optyma™ line of light commercial condensing units is available with sizes ranging from ⅛ hp to 13 ½ hp for low and medium temperature applications for R-404A and R-134a. Its contractor-friendly design makes Optyma easy to install, quiet, and efficient.

Features
Optyma™



Nomenclature / Model No.

	Application	Design	Refrigerant	Condenser size	HP rating	Certification	Version	Electrical code
OP-	H	N	U	M	0300	U	WG000	Q

Application:
L: low
H: medium / high
U: universal low / medium / high

Design:
C: air cooled condenser, single fan, recip
J: air cooled condenser, slim design, recip
G: air cooled condenser, twin fan, recip
N: air cooled condenser, slim design, scroll
R: air cooled condenser, twin fan, scroll

Refrigerant:
G: R-134a
H: R-404A/R-507A/R-452A
M: R-22 relacement
Z: R-404A/R-507A/R-134a
U: R-404A/R-134a/R-507A/R-22
X: R-448A/R-449A/R-404A/R-507A/R-134a/R-452A/R-22
Y: R-448A/R-449A/R-404A/R-507A/R-452A

Condenser size:
C: fin and tube condenser size 110 °F ambient
M: microchannel condenser size 115 °F ambient

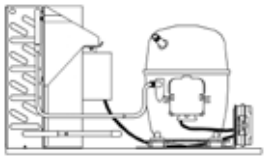
HP rating:
HP rating in hundreths of HP,
i.e.: 0033 = ⅓ HP, 0100 = 1 HP

Certification:
R: UL recognized
U: UL listed

Version:
WA: power cord
WB: power cord, receiver
WC: BX, receiver
WD: BX, receiver, low pressure control
WE: BX, receiver, dual pressure control, fan cycling control, larger than 3 HP dual fan units use KPU fan cycling control
WF: WE and filter drier, sight glass, solenoid valve with coil
WG: BX, receiver, dual pressure control, fan speed controller, defrost timer, outdoor enclosure (MBP)
WH: BX, receiver, dual pressure control, fan speed controller, defrost timer, outdoor enclosure, suction accumulator (LBP)
WJ: BX, receiver, dual pressure control, fan cycling control, larger than 3 HP dual fan units use KPU fan cycling control, filter drier, and sight glass

Electrical code:
B: compressor & fan(s), 115V, 1ph, 60 Hz
N: compressor & fan(s), 230V, 1ph, 60 Hz
Q: compressor 208-230V, 3ph, 60 Hz fan(s) 230V, 1ph, 60 Hz
R: compressor 460V, 3ph, 60 Hz fan(s) 460V, 1ph, 60 Hz

Technical data and ordering



Optyma™ - Condensing Units (1/3)

R-134a			Ambient temperature (°F)	Capacity range in btu/h at evaporating temperature (°F)									
Competitor Model Nos.	Danfoss Model No.	Danfoss Code No.		0	5	10	15	20	25	30	35	40	45
AEA3425 M2FH0020 M2FH0024	UCGC0020RWA000B	**114N2017**	90	1050	1200	1350	1500	1700	1850	2050	2250	2450	2700
			95	1000	1150	1300	1450	1600	1800	2000	2200	2400	2600
			100	950	1100	1250	1400	1550	1750	1900	2100	2300	2500
			110	900	100	1150	1300	1450	1600	1800	1950	2150	2350
AEA4430 M2FH0026	UCGC0025RWB000B	**114N2019**	90	1250	1400	1600	1750	1950	2150	2400	2600	2850	3100
			95	1200	1350	1550	1700	1900	2100	2300	2500	2750	3000
			100	1150	1300	1450	1650	1800	2000	2200	2450	2650	2900
			110	1050	1200	1350	1550	1700	1900	2050	2250	2450	2700
AEA4440 AEA4448 M2FHA033	HCGC0033RWB000B	**114N2022**	90		2050	2300	2550	2850	3100	3450	3750	4100	4450
			95		1950	2200	2450	2750	3000	3300	2650	3950	4300
			100		1900	2100	2350	2600	2900	3200	3500	3800	4150
			110		1750	1950	2200	2450	2700	2950	3250	3550	3850
AKA4460 AKA7437 M2FH0049	UCGC0050RWC000B	**114N2023**	90	2350	2700	3050	3450	3800	4250	4700	5150	5650	6150
			95	2300	2600	2950	3300	3700	4100	4500	4950	5400	5900
			100	2200	2500	2800	3200	3550	3950	4350	4750	5200	5650
			110	2000	2300	2600	2900	3250	3600	4000	4400	4800	5200
	HCGC0055UWC000B	**114N2026**	90		2900	3300	3800	4300	4850	5450	6100	6700	7350
			95		2800	3200	3650	4150	4650	5250	5850	6450	7050
			100		2650	3050	3500	3950	4500	5050	5600	6150	6750
			110				3250	3700	4150	4700			
AJA4492 AJA7465 FTAHA074 FTAHA075 FTAHB074 FTAMA074 FTAMA075	HCGC0075UWC000B HCGC0075UWC000N	**114N2027** **114N2028**	90		4350	4850	5550	6250	7150	8050	9100	10100	11200
			95		1400	4700	5350	6100	6950	7850	8800	9800	10850
			100		3900	4500	5150	5900	6750	7600	8550	9500	10450
			110				4850	5600	6400	7250	8100		
AJA4512 FTAHA100 FTAHA101	HCGC0100UWD000N	**114N2029**	90		6800	7450	8200	9050	9950	10950	12000	13050	14200
			95		6300	7000	7750	8550	9450	10400	11450	12450	13550
			100			6550	7300	8100	8950	9900	10900	11850	12900
			110				6500	7250	8100	9000			

[1] Ambient temperature = 90 °F, Return gas = 65 °F, Subcooling = 5 °F

Full range of models (refrigerants, capacities, and voltage codes), spare parts, and more available at http://bit.ly/NAMCUCatalog.
Check Coolselector or contact Danfoss.

Scan the QR Code for a video of an Optyma condensing unit replacement or visit http://bit.ly/CUinstall

Optyma™ - Condensing Units (2/3)

R-404A MBP/ R-507 MBP			Ambient temperature (°F)	Capacity range in btu/h at evaporating temperature (°F)									
Competitor Model Nos.	Danfoss Model No.	Danfoss Code No.		0	5	10	15	20	25	30	35	40	45
AEA9415 M4FH0022	UCHC0020RWA000B	114N2316	90	1000	1100	1250	1400	1500	1650	1800	2000	2150	2300
			95	950	1050	1200	1300	1450	1600	1750	1900	2050	2200
			100	900	1000	1100	1250	1350	1500	1650	1800		
			110	800	900	1000	1150	1250	1400	1500			
AEA9422 M4FH0025	UCHC0025RWB000B	114N2318	90	1650	1850	2050	2250	2450	2650	2900	3150	3400	3650
			95	1600	1750	1950	2150	2350	2550	2800	3000	3250	3500
			100	1500	1650	1850	2050	2250	2450	2650	2900	3100	3350
			110	1350	1550	1700	1850	2050	2250				
AKA9429 M4FHA036	UCHC0033RWB000B	114N2321	90	2050	2250	2500	2750	300	3250	3550	3850	4100	4450
			95	1950	2150	2400	2600	2850	3100	3400	3650	3950	4250
				1850	2050	2250	2500	2700	2950	3200	3500	3750	4050
			110	1650	1850	2050							
AKA9440 M4FH0050	UCHC0050RWB000B	114N2324	90	2450	2750	3100	3400	3750	4100	4500	4900	5250	5700
	UCHC0050UWC000N	114N2325	95	2300	2600	2900	3200	3550	3850	4250	4600	4950	5350
			100	2100	2400	2700	3000	3300	3600	3950	4300	4650	5000
			110	1850	2100	2350	2600	2850	3150				
	UCHC0075UWB000B	114N2330	90	4400	4950	5500	6150	6800	7500	8250	9000	9800	10650
	UCHC0075UWC000N	114N2331	95	4150	4700	5250	5850	6500	7200	7900	8650	9400	10250
			100	3900	4450	5000	5600	6200	6850	7550	8300	9050	9850
			110	3500	4000	4550	5100	5700	6350	7000			
AJA7480 FJAMA100 FJAMA101 FJAMA106 FJAFA100	HCHC0100UWD000N	114N2332	90		5900	6650	7450	8200	9000	9850	10650	11450	12300
			95		5600	6350	7100	7800	8600	9350	10150	10950	11750
			100			6000	6700	7400	8150	8900	9650	10400	11150
			110				6100	6750	7400	8100	8800		
AWA7512 FJAMA125 FJAMA126 FJAMA150	HCZC0150UWJ300N	114N3601	90	6456	7565	8744	9989	11300	12670	14100	15590	17120	18700
	HCZC0150UWJ300Q	114N3602	95	6049	7115	8245	9438	10690	12000	13370	14780	16240	17750
	HCZC0150UWJ300R	114N3603	100	5636	6657	7739	8879	10080	11320	12620	13970	15360	16790
			110	4796	5727	6710	7742	8822	9949	11120	12330	13580	
AWA7515 VJAF017H FJAMA200	HCZC0200UWJ300N	114N3604	90	9102	10430	11830	13320	14880	16510	18210	19960	21750	23590
	HCZC0200UWJ300Q	114N3605	95	8639	9903	11240	12660	14140	15690	17290	18950	20650	22380
	HCZC0200UWJ300R	114N3606	100	8153	9357	10630	11970	13380	14840	16360	17920	19520	21160
			110	7122	8202	9339	10530	11780	13080	14420	15800	17210	
VJAF025H	HCZC0250UWJ300N	114N3607	90	12030	13580	15210	16910	18680	20500	22380	24310	26270	28260
	HCZC0250UWJ300Q	114N3608	95	11450	12930	14490	16110	17790	19520	21310	23130	24980	26870
	HCZC0250UWJ300R	114N3609	100	10850	12270	13750	15290	16880	18530	20210	21930	23680	25450
			110	9601	10880	12220	13600	15020	16480	17970	19490	21040	
	HCZC0275UWJ300N	114N3610	90	14630	16600	18670	20820	23050	25350	27690	30080	32500	34930
	HCZC0275UWJ300Q	114N3611	95	13820	15710	17690	19740	21860	24050	26280	28540	30830	33130
	HCZC0275UWJ300R	114N3612	100	13020	14830	16710	18660	20680	22750	24860	27000	29160	31330
			110	11420	13050	14750	16500	18310	20150	22030	23930	25850	
	HCZC0300UWJ300N	114N3614	90	16570	18750	21030	23390	25810	28300	30830	33380	35950	38520
	HCZC0300UWJ300Q	114N3615	95	15690	17770	19940	22180	24490	26850	29240	31660	34090	36510
	HCZC0300UWJ300R	114N3616	100	14810	16790	18850	20980	23170	25400	27660	29940	32230	34510
			110	13060	14840	16690	18590	20530	22510	24520	26540	28550	
	HGZC0400UWJ300N	114N3617	90	21920	24920	28110	31480	35020	38720	42580	46590	50730	54980
	HGZC0400UWJ300Q	114N3618	95	20700	23590	26650	29880	33270	36820	40510	44330	48280	52330
	HGZC0400UWJ300R	114N3619	100	19460	22240	25170	28260	31490	34880	38390	42040	45790	49650
			110	16930	19460	22130	24930	27860	30920	34100	37380	40760	
AVA7523 FJAMA300 VJAF030H FJAMA325	HGZC0500UWJ300N	114N3621	90	27120	30680	34420	38340	42410	46630	50980	55440	59980	64600
	HGZC0500UWJ300Q	114N3622	95	25590	29000	32580	36310	40200	44210	48350	52580	56900	61280
	HGZC0500UWJ300R	114N3623	100	24060	27310	30720	34270	37970	41780	45700	49720	53810	57960
			110	20960	23900	26970	30170	33480	36890	40390	43980	47620	
VJAF035Z VJA035H	HGZC0700UWJ300Q	114N3626	90	35740	40120	44750	49600	54670	59940	65380	70990	76730	82580
	HGZC0700UWJ300R	114N3627	95	33900	38090	42500	47120	51940	56950	62120	67440	72890	78440
			100	32050	36030	40220	44610	49190	53940	58840	63880	69030	74280
			110	28300	31880	35630	39550	43630	47860	52220	56700	61280	
FJAMB400 VJAF040Z VJAF040H FJAMB500 VJAF050Z	HGZC0900UWJ300Q	114N3628	90	42040	47770	53850	60260	67010	74070	81430	89080	97000	105200
	HGZC0900UWJ300R	114N3629	95	39600	45090	50900	57030	63470	70210	77230	84520	92050	99810
			100	37170	42410	47960	53800	59940	66350	73030	79950	87110	94470
			110	32310	37070	42080	47350	52870	58630	64620	70820	77230	
FJAH100Z	HGZC1000UWJ300Q	114N3631	90	54530	61150	68150	75520	83250	91320	99710	108400	117400	126600
	HGZC1000UWJ300R	114N3632	95	51610	57960	64660	71710	79080	86780	94770	103000	111600	120300
			100	48670	54740	61140	67860	74880	82210	89800	97660	105700	114000
			110	42730	48240	54030	60090	66410	72990	79800	86830	94050	
CJDM1000	HGZC1200UWJ300Q	114N3633	90	63760	71270	79200	87530	96260	105400	114800	124500	134500	144800
	HGZC1200UWJ300R	114N3634	95	60420	67610	75180	83140	91470	100100	109100	118400	127900	137600
			100	57050	63900	71130	78710	86630	94860	103400	112200	121200	130400
			110	50220	56410	62920	69730	76830	84210	91840	99690	107700	
FJAH120Z FJAM130Z	HGZC1350UWJ300Q	114N3636	90	69060	77000	85380	94170	103400	112900	122900	133100	143600	154300
	HGZC1350UWJ300R	114N3637	95	65440	73050	81060	89460	98240	107400	116800	126500	136500	146700
			100	61830	69100	76740	84750	93100	101800	110800	120000	129500	139100
			110	54600	61180	68080	75300	82810	90600	98630	106900	115300	

[1]Ambient temperature = 90 °F, Return gas = 65 °F, Subcooling = 5 °F

Full range of models (refrigerants, capacities, and voltages codes), spare parts, and more available at http://bit.ly/NAMCUCatalog. Check Coolselector or contact Danfoss.

Optyma™ - Condensing Units (3/3)

R-404A LBP/ R-507 LBP			Ambient temperature (°F)	Capacity range in btu/h at evaporating temperature (°F)										
Competitor Model Nos.	Danfoss Model No.	Danfoss Code No.		–40	–35	–30	–25	–20	–15	–10	–5	0	5	10
	UCHC0020RWA000B	**114N2316**	90	350	400	450	550	600	700	800	900	1000	1100	1250
			95	300	350	450	500	550	650	750	850	950	1050	1200
			100	300	350	400	450	550	600	700	800	900	1000	1100
			110	250	300	350	400	500	550	650	700	800	900	
AEA2410	UCHC0025RWB000B	**114N2318**	90	600	700	800	900	1050	1200	1350	1500	1650	1850	2050
			95	550	650	750	900	1000	1150	1250	1400	1600	1750	1950
			100	550	600	700	850	950	1050	1200	1350	1500	1650	1850
			110	450	550	650	750	850	950	1100	1250	1350	1550	1700
AEA2413 M4FL0033	UCHC0033RWB000B	**114N2321**	90	750	850	1000	1100	1300	1450	1650	1800	2050	2250	2500
			95	700	800	950	1050	1200	1400	1550	1750	1950	2150	2400
			100	650	750	850	1000	1150	1300	1450	1650	1850	2050	2250
			110	550	650	750	900	1000	1150	1350	1500			
AKA2422 M4FL0040	UCHC0050RWB000B UCHC0050UWC000N	**114N2324 114N2325**	90			1100	1300	1500	1700	1900	2150	2400	2700	2950
			95			1000	1200	1400	1600	1850	2050	2300	2550	2850
			100			900	1100	1300	1500	1750	1950	2200	2450	2700
			110			750	950	1150	1350	1550	1750	2000	2250	2500
	LCHC0050RWB000B	**114N2389**	90	1050	1250	1450	1700	1950	220	2500	2800	3150	3450	3850
			95	950	1150	1350	1600	1850	2100	2400	2650	3000	3300	3650
			100	850	1050	1250	1500	1700	2000	2250	2500	2800	3150	3450
			110	700	900	1100	1300	1500	1750	2000	2300	2550	2850	3150
AJA2429 M4FL0051	LCHC0060UWC000B LCHC0060UWC000N	**114N2335 114N2336**	90	1350	1550	1850	2100	2400	2700	3050	3400	3800	4200	4600
			95	1250	1450	1700	1950	2250	2550	2900	3200	3600	3950	4350
			100	1150	1350	1600	1850	2100	2400	2700	3050	3400	3750	4100
			110	950	1150	1400	1600	1850	2150	2400	2700	3050	3350	
M4FL0067 FJAFA075	LCHC0075UWC000B LCHC0075UWC000N	**114N2337 114N2338**	90	1450	1800	2150	2550	2950	3400	3900	4400	4950	5550	6200
			95	1400	1750	2100	2450	2900	3350	3800	4300	4850	5450	6100
			100		1650	2000	2400	2800	3250	3750	4250	4800	5350	6000
			110						3100	3600	4100	4650	5200	
AWA2448 FJALA100 FJALA101 FJALA103 FJALA102	LCHC0100UWD000N	**114N2339**	90	1700	2250	2800	3400	4000	4650	5350	6000	6800	7550	8400
			95	1550	2100	2650	3200	3850	4500	5150	5850	6600	7400	8250
			100		1900	2500	3050	3650	4300	5000	5700	6450	7250	8100
			110						4000	4700	5400	6150	7000	
	LCZC0151UWF300N LCZC0151UWF300Q LCZC0151UWF300R	**114N6725 114N6726 114N6727**	90	2900	3650	4450	5250	6200	7150	8200	9250	10400	11600	12850
			95	2650	3350	4100	4900	5750	6700	7700	8650	9750	10900	12050
			100	2400	3050	3800	4550	5350	6250	7150	8100	9100	10200	11300
			110	1900	2500	3150	3800	4550	5350	6150	7000	7900	8800	9800
AWA2479 AWA2490 AVA2510 FJALB200 FJALA225	LCZC0200UWF300N LCZC0201UWF300Q LCZC0201UWF300R	**114N6729 114N6730 114N6731**	90	4950	5950	7000	8050	9250	10450	11750	13050	14400	15800	17200
			95	4600	5500	6550	7550	8650	9850	11050	12250	13550	14850	16200
			100	4250	5150	6100	7050	8100	9200	10350	11500	12700	13950	15200
			110	3600	4400	5250	6100	7050	8050	9050	10050	11100	12200	13300
AVA2512 AVA2515 VJAL025V FJALB301 VJAL035Z	LCZC0301UWF300N LCZC0301UWF300Q LCZC0301UWF300R	**114N6733 114N6734 114N6735**	90	6100	7600	9250	10900	12700	14600	16550	18400	20350	22300	24250
			95	5650	7050	8600	10200	11900	13650	15450	17200	19050	20850	22650
			100	5150	6500	8000	9450	11050	12700	14400	16050	17750	19400	21050
			110	4150	5400	6700	8000	9400	10800	12250	13650	15100	16550	17900
VJAL040Z VJAL050Z	LGZC0400UWF300N LGZC0401UWF300Q LGZC0401UWF300R	**114N6737 114N6738 114N6739**	90	8900	10950	13100	15350	17850	20500	23250	26050	29000	32100	35300
			95	8150	10100	12200	14350	16750	19250	21900	24550	27400	30300	33300
			100	7450	9300	11300	13400	15650	18050	20550	23050	25750	28500	31350
			110	6000	7750	9550	11400	13450	15600	17850	20100	22500	24950	27450
CJDL0600	LGZC0600UWF300Q LGZC0600UWF300R	**114N6741 114N6742**	90	14100	16950	20100	23300	26850	30550	34500	38450	42650	47050	51500
			95	12850	15600	18600	21650	25050	28600	32300	36050	40050	44200	48400
			100	11600	14250	17100	20050	23250	26600	30150	33650	37450	41300	45300
			110	9100	11500	14100	16700	19600	22600	25750	28850	32200	35600	39050
CPDK0600	LGZC0751UWF300Q LGZC0750UWF300R	**114N6744 114N6745**	90	19050	22600	26400	30250	34450	38800	43300	47700	52350	57050	61700
			95	17650	21050	24650	28300	32250	36400	40600	44750	49100	53450	57850
			100	16300	19500	22900	26400	30100	33950	37900	41800	45850	49900	53950
			110	13550	16400	19450	22500	25750	29100	32550	35850	39350	42800	46200

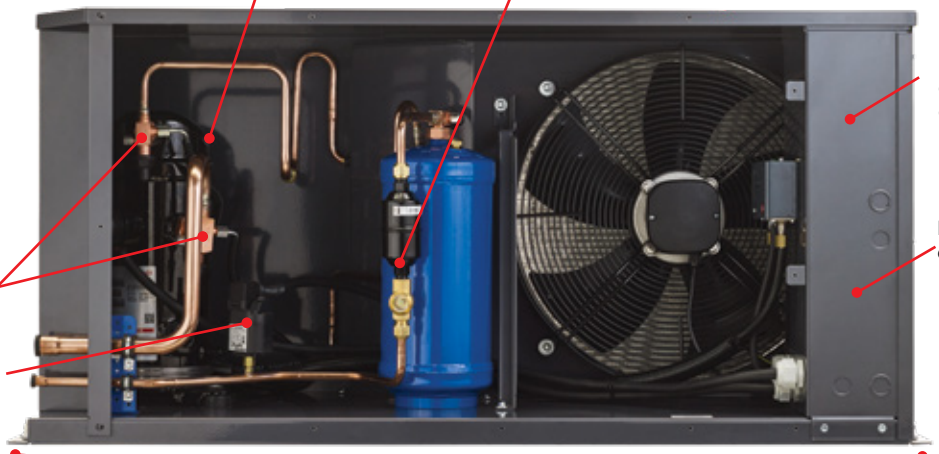
[1] Ambient temperature = 90 °F, Return gas = 65 °F, Subcooling = 5 °F

Full range of models (refrigerants, capacities, and voltage codes), spare parts, and more available at http://bit.ly/NAMCUCatalog.
Check Coolselector or contact Danfoss.

Optyma™ Slim - Outdoor Condensing Units

The Danfoss Optyma™ Slim line of outdoor condensing units range in size from 1 to 10 hp for low and medium temperature applications for R-134a, R-404a, and R-507. With a contractor-friendly, open design the Optyma Slim is easy to install and service. Equipped with high quality Danfoss components, it provides reliable and efficient performance.

Features
Optyma™ Slim



Nomenclature / Model No.

	Application	Design	Refrigerant	Condenser size	HP rating	Certification	Version	Electrical code
OP-	H	N	U	M	0300	U	WG000	Q

Application:
L: low
H: medium / high
U: universal low / medium / high

Design:
C: air cooled condenser, single fan, recip
J: air cooled condenser, slim design, recip
G: air cooled condenser, twin fan, recip
N: air cooled condenser, slim design, scroll
R: air cooled condenser, twin fan, scroll

Refrigerant:
G: R-134a
H: R-404A/R-507A/R-452A
M: R-22 relacement
Z: R-404A/R-507A/R-134a
U: R-404A/R-134a/R-507A/R-22
X: R-448A/R-449A/R-404A/R-507A/R-134a/R-452A/R-22
Y: R-448A/R-449A/R-404A/R-507A/R-452A

Condenser size:
C: fin and tube condenser size 110 °F ambient
M: microchannel condenser size 115 °F ambient

HP rating:
HP rating in hundreths of HP,
i.e.: 0033 = ⅓ HP, 0100 = 1 HP

Certification:
R: UL recognized
U: UL listed

Version:
WA: power cord
WB: power cord, receiver
WC: BX, receiver
WD: BX, receiver, low pressure control
WE: BX, receiver, dual pressure control, fan cycling control, larger than 3 HP dual fan units use KPU fan cycling control
WF: WE and filter drier, sight glass, solenoid valve with coil
WG: BX, receiver, dual pressure control, fan speed controller, defrost timer, outdoor enclosure (MBP)
WH: BX, receiver, dual pressure control, fan speed controller, defrost timer, outdoor enclosure, suction accumulator (LBP)
WJ: BX, receiver, dual pressure control, fan cycling control, larger than 3 HP dual fan units use KPU fan cycling control, filter drier, and sight glass

Electrical code:
B: compressor & fan(s), 115V, 1ph, 60 Hz
N: compressor & fan(s), 230V, 1ph, 60 Hz
Q: compressor 208-230V, 3ph, 60 Hz fan(s) 230V, 1ph, 60 Hz
R: compressor 460V, 3ph, 60 Hz fan(s) 460V, 1ph, 60 Hz

Technical data and ordering

Optyma™ Slim - Outdoor Condensing Units (1/7)

R-448A MBP/ R-449A MBP		Ambient temperature (°F)	Capacity range in btu/h at evaporating temperature (°F)							AWEF[1] rating
Danfoss Model No.	Danfoss Code No.		10	15	20	25	30	35	40	
HJXM0150UWG000N HJXM0150UWG000Q	**114N3485** **114N3486**	90	8365	9639	11000	12440	13960	15560	17240	8.38 9.39
		95	7883	9109	10410	11800	13260	14800	16420	
		100	7413	8590	9843	11170	12580	14060	15610	
		110		7587	8736	9956	11240	12600	14020	
		115		7104	8202	9366	10600	11890	13250	
HNXM0200UWG000N HNXM0200UWG000Q	**114N3487** **114N3488**	90	13280	14850	16540	18340	20270	22330	24520	9.00 9.38
		95	12830	14350	15970	17720	19580	21570	23690	
		100	12380	13840	15410	17090	18890	20810	22850	
		110		12820	14270	15830	17490	19270	21170	
		115		12300	13700	15190	16790	18500	20320	
HNXM0250UWG000N HNXM0250UWG000Q	**114N3489** **114N3490**	90	17220	19160	21230	23450	25810	28310	30960	9.18 9.61
		95	16630	18500	20490	22620	24890	27310	29860	
		100	16030	17820	19740	21790	23970	26280	28740	
		110		16440	18200	20070	22070	24190	26450	
		115		15740	17410	19190	21100	23130	25280	
HNXM0300UWG000N HNXM0300UWG000Q	**114N3491** **114N3492**	90	18200	20240	22430	24770	27260	29910	32710	9.61 9.29
		95	17560	19530	21640	23890	26290	28840	31540	
		100	16920	18810	20830	23000	25300	27760	30360	
		110		17330	19180	21160	23280	25530	27930	
		115		16580	18340	20230	22240	24400	26690	
HNXM0350UWG000N HNXM0350UWG000Q	**114N3493** **114N3494**	90	23480	26130	28960	32000	35230	38670	42320	9.99 10.64
		95	22680	25220	27950	30870	33980	37290	40800	
		100	21850	24290	26910	29700	32690	35860	39240	
		110		22350	24730	27280	30000	32900	35990	
		115		21350	23600	26020	28610	31370	34320	
HNXM0400UWG000N HNXM0400UWG000Q	**114N3495** **114N3496**	90	27880	30990	34310	37860	41640	45650	49900	10.14 10.60
		95	26940	29940	33140	36560	40210	44080	48180	
		100	25970	28850	31940	35230	38730	42460	46410	
		110		26600	29430	32450	35680	39110	42750	
		115		25430	28130	31010	34100	37380	40870	
HRXM0500UWG000N HRXM0500UWG000Q	**114N3497** **114N3498**	90	32800	36510	40500	44790	49390	54310	59560	9.49 10.03
		95	31640	35210	39060	43210	47650	52410	57480	
		100	30460	33890	37600	41600	45880	50470	55370	
		110		31200	34610	38290	42240	46480	51020	
		115		29820	33080	36590	40380	44440	48800	
HRXM0600UWG000Q	**114N3499**	90	39170	43670	48500	53680	59210	65110	71370	10.04
		95	37760	42100	46770	51780	57130	62840	68910	
		100	36330	40520	45030	49870	55040	60560	66440	
		110		37350	41520	46010	50820	55950	61430	
		115		35740	39750	44060	48680	53630	58910	
HRXM0700UWG000Q	**114N3500**	90	43020	47860	53040	58560	64430	70660	77250	10.17
		95	41410	46090	51090	56420	62090	68100	74470	
		100	39770	44280	49090	54230	59700	65500	71640	
		110		40550	44990	49730	54780	60140	65830	
		115		38640	42890	47420	52250	57400	62850	
HNXM0750UWG000Q	**114N3501**	90	52200	58100	64460	71280	78590	86390	94710	10.80
		95	50450	56150	62290	68880	75950	83500	91550	
		100	48670	54170	60090	66450	71270	80560	88340	
		110		50120	55590	61480	67790	74560	81780	
		115		48060	53300	58940	6500	71490	78440	
HRXM1000UWG000Q	**114N3502**	90	63520	70950	78930	87460	96570	106300	116600	10.22
		95	61010	68210	75940	84220	93060	102500	112500	
		100	58430	65400	72880	80890	89450	98570	108300	
		110		59570	66530	76990	81980	90500	99580	
		115		56550	63240	70420	78120	86330	95090	

[1]Annual Walk-in Energy Factor
Full range of models (refrigerants, capacities, and voltage codes), spare parts, and more available at http://bit.ly/NAMCUCatalog.
Check Coolselector or contract Danfoss.

Optyma™ Slim - Outdoor Condensing Units (2/7)

R-134a MBP		Ambient temperature (°F)	Capacity range in btu/h at evaporating temperature (°F)							AWEF[1] rating
Danfoss Model No.	Danfoss Code No.		10	15	20	25	30	35	40	
HJXM0150UWG000N HJXM0150UWG000Q	**114N3485** **114N3486**	90	5200	6050	6950	7950	9100	10350	11700	8.10 8.81
		95	4900	5700	6600	7600	8700	9900	11200	
		100	4600	5400	6250	7200	8250	9450	10750	
		110		4750	5550	6450	7450	8550	9750	
		115		4400	5200	6050	7000	8100	9250	
HNXM0200UWG000N HNXM0200UWG000Q	**114N3487** **114N3488**	90	8700	9900	11200	12600	14100	15750	17450	8.12 8.94
		95	8450	9600	10900	12300	13750	15350	17000	
		100	8200	9350	10600	11950	13400	14950	16550	
		110		8750	9950	11200	12600	14050	15650	
		115		8450	9600	10850	12200	13650	15150	
HNXM0250UWG000N HNXM0250UWG000Q	**114N3489** **114N3490**	90	11050	12600	14250	16000	17900	19900	22050	8.06 9.27
		95	10700	12200	13850	15550	17400	19400	21500	
		100	10350	11850	13400	15100	16900	17750	19700	
		110		11050	12550	14200	15900	17750	19700	
		115		10650	12100	13700	15400	17150	19050	
HNXM0300UWG000N HNXM0300UWG000Q	**114N3491** **114N3492**	90	11700	13350	15100	17000	18950	21100	23300	8.26 9.49
		95	11300	12950	14700	16550	18500	20500	22700	
		100	10950	12550	14250	16050	17950	20000	22100	
		110		11700	13350	15100	16900	18800	20850	
		115		11250	12850	14550	16350	18200	20150	
HNXM0350UWG000N HNXM0350UWG000Q	**114N3493** **114N3494**	90	14700	16700	18900	21250	23800	26550	29400	8.55 10.41
		95	14250	16200	18400	20700	23200	25850	28650	
		100	13800	15750	17850	20100	22550	25150	17900	
		110		14700	16700	18900	21200	23700	26300	
		115		14150	16150	18250	20550	22950	25500	
HNXM0400UWG000N HNXM0400UWG000Q	**114N3495** **114N3496**	90	17550	19950	22550	25350	28350	31500	34900	9.06 10.48
		95	17000	19350	21900	24650	27600	30700	34000	
		100	16450	18750	21250	23950	26800	29850	33100	
		110		17500	19900	22500	25200	28100	31150	
		115		16850	19200	21700	24350	27200	30150	
HRXM0500UWG000N HRXM0500UWG000Q	**114N3497** **114N3498**	90	20800	23600	26700	30050	33650	37500	41600	9.73 10.88
		95	20200	22950	25950	29250	32750	36550	40550	
		100	19600	22250	25200	28400	31850	35550	39500	
		110		20900	23700	26700	30000	33500	37250	
		115		20200	22900	25850	29000	32450	36050	
HRXM0600UWG000Q	**114N3499**	90	25500	28850	32550	36500	40700	45200	50000	11.09
		95	24650	27900	31500	35350	39450	43850	48500	
		100	23750	26950	30400	34150	38200	42450	47000	
		110		24900	28200	31750	35550	39550	43850	
		115		23900	27050	30500	34150	38100	42250	
HRXM0700UWG000Q	**114N3500**	90	27000	30500	34350	38450	42850	47500	52450	11.03
		95	26100	29500	33250	37250	41550	46100	50900	
		100	25150	28500	32150	36000	40200	44600	49300	
		110		26450	29850	33500	37450	41600	46050	
		115		25400	28650	32200	36000	40100	44350	
HNXM0750UWG000Q	**114N3501**	90	32750	37000	41600	16500	51750	57350	63300	9.74
		95	31800	35900	40350	45150	50300	55750	61550	
		100	30800	34800	39150	43800	48750	54100	59750	
		110		32550	36600	41000	45700	50700	56050	
		115		31400	35350	39550	44100	48950	54150	
HRXM1000UWG000Q	**114N3502**	90	41900	47100	52750	58900	65500	72500	79950	9.85
		95	40650	45700	51250	57250	63650	70500	77750	
		100	39300	44250	49650	55500	61800	68450	75450	
		110		41250	46400	51950	57900	64150	70800	
		115		39700	44700	50100	55850	61950	68400	

[1]Annual Walk-in Energy Factor
Full range of models (refrigerants, capacities, and voltage codes), spare parts, and more available at http://bit.ly/NAMCUCatalog.
Check Coolselector or contact Danfoss.

Optyma™ Slim - Outdoor Condensing Units (3/7)

R-404A MBP/ R-507MBP		Ambient temperature (°F)	Capacity range in btu/h at evaporating temperature (°F)								AWEF[1] rating
Danfoss Model No.	Danfoss Code No.		10	15	20	25	30	35	40	45	
HJXM0150UWG000N HJXM0150UWG000Q	**114N3485** **114N3486**	90	8900	10200	11550	13000	14450	16050	17650	19300	7.48 7.48
		95	8400	9650	10950	12300	13750	15200	16750	18350	
		100	7900	9100	10350	11650	13000	14400	15850	17350	
		110		7950	9050	10250	11450	12750	14050	15400	
		115		7350	8400	9550	10700	11900	13150	14400	
HNXM0200UWG000N HNXM0200UWG000Q	**114N3487** **114N3488**	90	14550	16100	17750	19450	21300	23200	25250	27350	10.02 10.00
		95	13900	15400	16950	18600	20350	22200	24150	26200	
		100	13250	14650	16150	17750	19400	21150	23000	24950	
		110		13150	14500	15950	17450	19050	20750	22500	
		115		12350	13650	15000	16450	17950	19550	21250	
HNXM0250UWG000N HNXM0250UWG000Q	**114N3489** **114N3490**	90	18900	20750	22700	24750	26900	29200	31550	34050	9.83 10.11
		95	18100	19850	21700	23700	25750	27950	30250	32650	
		100	17250	18950	20750	22650	24600	26700	28900	31250	
		110		17100	18750	20450	22300	24200	26200	28350	
		115		16150	17700	19350	21100	22900	24850	26900	
HNXM0300UWG000N HNXM0300UWG000Q	**114N3491** **114N3492**	90	20000	21950	24000	26150	28400	30800	33250	35800	9.66 10.01
		95	19150	21000	23000	25050	27250	29500	31900	34350	
		100	18250	20050	21950	23950	26050	28200	30500	32850	
		110		18100	19850	21650	23550	25550	27650	29850	
		115		17100	18750	20500	22300	24250	26250	28350	
HNXM0350UWG000N HNXM0350UWG000Q	**114N3493** **114N3494**	90	25550	28150	30850	33750	36750	39950	43250	46700	10.67 10.92
		95	24500	26950	29600	32350	35250	38300	41500	44800	
		100	23450	25800	28300	30900	33700	36650	39700	42900	
		110		23300	25600	28000	30550	33250	36050	39000	
		115		22050	24250	26550	28950	31500	34200	37000	
HNXM0400UWG000N HNXM0400UWG000Q	**114N3495** **114N3496**	90	29500	32400	35500	38750	42150	45750	49450	53350	9.89 10.84
		95	28250	31050	34000	37100	40400	43800	47400	51150	
		100	26950	29650	32450	32450	38600	41900	45300	48900	
		110		26750	29300	32050	34900	37900	41050	44350	
		115		25250	27700	30250	33000	35900	38900	42050	
HRXM0500UWG000N HRXM0500UWG000Q	**114N3497** **114N3498**	90	36100	39700	43500	47500	51700	56150	60850	65750	10.47 11.43
		95	34650	38100	41750	45600	49650	53900	58350	63050	
		100	33200	36500	39950	43650	47500	51550	55850	60350	
		110		33050	36250	39600	43100	46800	50700	54850	
		115		31300	34300	37500	40850	44400	48100	52000	
HRXM0600UWG000Q	**114N3499**	90	42700	46900	51350	56000	60900	66050	71400	76950	11.28
		95	40900	44950	49200	53650	58350	63250	68400	73750	
		100	39100	42900	47000	51250	55750	60450	65400	70550	
		110		38750	42450	46300	50400	54750	59250	63950	
		115		36550	40100	43800	47700	51800	56100	60650	
HRXM0700UWG000Q	**114N3500**	90	46100	50600	55350	60300	65500	70950	76550	82400	11.02
		95	44150	48450	52950	57750	62700	67900	73300	78850	
		100	42100	46200	50550	55100	59850	64800	69950	75300	
		110		41600	45500	49600	53950	58450	63150	68050	
		115		39150	42900	46800	50900	55200	59650	64350	
HNXM0750UWG000Q	**114N3501**	90	56650	62650	68950	75550	82450	89650	97200	105000	10.59
		95	53850	59600	65600	71900	78500	85350	92500	99950	
		100	51000	56450	62200	68200	74450	80950	87750	94850	
		110		49950	55100	60450	66050	71850	77950	84250	
		115		46600	51400	56450	61700	67200	72900	78850	
HRXM1000UWG000Q	**114N3502**	90	72050	78900	86200	93800	101900	110300	119000	128100	10.13
		95	68900	75400	82300	89550	97150	105100	113500	122100	
		100	65650	71850	78350	85200	92400	99950	107800	116000	
		110		64400	70200	76250	82600	89300	96300	103600	
		115		60600	66000	71650	77600	83850	90400	97250	

[1]Annual Walk-in Energy Factor
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Check Coolselector or contact Danfoss.

Optyma™ Slim - Outdoor Condensing Units (4/7)

R-452A MBP		Ambient temperature (°F)	Capacity range in btu/h at evaporating temperature (°F)							
Danfoss Model No.	Danfoss Code No.		10	15	20	25	30	35	40	45
HJZM0150UWG000N HJZM0150UWG000Q	**114N3485** **114N3486**	90	8505	9622	10800	12040	13330	14680	16070	17510
		95	8004	9070	10190	11370	12610	13890	15220	16590
		100	7505	8521	9591	10710	11880	13100	14360	15670
		110		7431	8394	9403	10460	11550	12680	13850
		115		6892	7803	8756	9750	10780	11850	12950
HNXM0200UWG000N HNXM0200UWG000Q	**114N3487** **114N3488**	90	13810	15250	16780	18420	20150	21970	23900	25920
		95	13280	14650	16110	17670	19320	21070	22910	24840
		100	12740	14040	15440	16920	18490	20150	21910	23760
		110		12820	14060	15380	16800	18300	19880	21560
		115		12200	13360	14610	15940	17360	18860	3268
HNXM0250UWG000N HNXM0250UWG000Q	**114N3489** **114N3490**	90	17370	19120	20960	22910	24960	27110	29350	31690
		95	16680	18350	20110	21960	23920	25960	28110	30340
		100	15980	17560	19240	21000	22860	24810	26850	28980
		110		15970	17460	19040	20700	22450	24290	26220
		115		15150	16550	18040	19610	21260	23000	24840
HNXM0300UWG000N HNXM0300UWG000Q	**114N3491** **114N3492**	90	18160	20040	22020	24110	26310	28610	31020	33540
		95	17370	19160	21060	23060	25160	27370	29680	32090
		100	16560	18270	20080	21980	23990	26100	28310	30620
		110		16430	18050	19770	21590	23510	25520	27640
		115		15480	17020	18640	20360	22180	24100	26130
HNXM0350UWG000N HNXM0350UWG000Q	**114N3493** **114N3494**	90	23120	25480	27990	30670	33500	36490	39640	42940
		95	22190	24430	26820	29370	32070	34920	37930	41080
		100	21240	23360	25630	28040	30610	33320	36190	39200
		110		21180	23190	25340	27630	30060	32640	35370
		115		20070	21950	23960	26110	28400	30840	33430
HNXM0400UWG000N HNXM0400UWG000Q	**114N3495** **114N3496**	90	27830	30670	33680	36870	40230	43760	47460	51330
		95	26680	29390	32270	35310	38530	41910	45460	49170
		100	25510	28090	30830	33740	36800	40030	43420	46980
		110		25440	27900	30520	33280	36210	39300	42550
		115		24100	26420	28880	31500	34280	37220	40320
HRXM0500UWG000N HRXM0500UWG000Q	**114N3497** **114N3498**	90	34390	38080	42050	46280	50800	55590	60660	66020
		95	33110	36640	40430	44490	48820	53410	58280	63430
		100	31810	35180	38800	42670	46800	51200	55860	60800
		110		32190	35440	38940	42680	46670	50910	55420
		115		30660	33740	37040	40580	44360	48390	52680
HRXM0600UWG000Q	**114N3499**	90	42010	46400	51100	56110	61440	67100	73080	79380
		95	40390	44590	49080	53880	58980	64390	70110	76160
		100	38740	42740	47030	51600	56470	61630	67110	72890
		110		38970	42820	46940	51330	56010	60980	66240
		115		37040	40670	44560	48710	53510	57860	62870
HRXM0700UWG000Q	**114N3500**	90	46100	51010	56250	61830	67760	74040	80670	87650
		95	44250	48950	53980	59340	65030	71060	77430	84140
		100	42360	46850	51660	56790	62240	68010	74120	80570
		110		42530	46880	51530	56490	61750	67340	73250
		115		40310	44430	48840	53540	58550	63870	69510
HNXM0750UWG000Q	**114N3501**	90	54930	60880	67240	74020	81230	88880	96960	105500
		95	52730	58460	64580	71100	78040	85400	93190	101400
		100	50480	55970	61840	68110	74770	81840	89330	97250
		110		50830	56190	61920	68020	74510	81390	88680
		115		48170	53280	58730	64540	70740	77320	84300
HRXM1000UWG000Q	**114N3502**	90	69150	76590	84500	92870	101700	111100	120900	131100
		95	66410	73560	81150	89190	97700	106700	116100	126000
		100	63590	70450	77720	85430	93590	102200	111200	120700
		110		64010	70640	77670	85100	92960	101200	110000
		115		60700	66990	73670	80740	88220	96120	104500

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Check Coolselector or contact Danfoss.

Optyma™ Slim - Outdoor Condensing Units (5/7)

R-448A LBP/ R-449A LBP		Ambient temperature (°F)	Capacity range in btu/h at evaporating temperature (°F)					
Danfoss Model No.	Danfoss Code No.		-25	-20	-15	-10	-5	0
LNYM0400UWH000Q	**114N3503**	90	11580	13150	14880	16760	18820	21060
		95	11290	12810	14480	16300	18290	20450
		100	10980	12450	14070	15830	17750	19830
		110			13210	14840	16630	18560
		115						
LNYM0500UWH000Q	**114N3504**	90	14140	16010	18070	20330	22820	25530
		95	13810	15620	17610	19780	22170	24770
		100	13470	15220	17140	19230	21510	24010
		110			16140	18070	20170	22450
		115						
LRYM0600UWH000Q	**114N3506**	90	17060	19350	21880	24650	27700	31030
		95	16660	18880	21320	24000	26930	30140
		100	16240	18380	20740	23330	26150	29230
		110			19520	21910	24510	27350
		115						
LRYM0800UWH000Q	**114N3507**	90	20880	23590	26560	29800	33330	37170
		95	20380	23010	25890	29020	32430	36130
		100	19860	22410	25190	28220	31500	35070
		110			23700	26510	29560	32860
		115						

Full range of models (refrigerants, capacities, and voltage codes), spare parts, and more available at http://bit.ly/NAMCUCatalog.
Check Coolselector or contract Danfoss.

Optyma™ Slim - Outdoor Condensing Units (6/7)

R-404A LBP/ R-507LBP		Ambient temperature (°F)	Capacity range in btu/h at evaporating temperature (°F)					
Danfoss Model No.	Danfoss Code No.		–25	–20	–15	–10	–5	0
LJHM0150UWH000N LJHM0150UWH000Q	**114N3508** **114N3509**	90	5450	6400	7450	8500	9650	10850
		95		6000	6950	8000	9050	10200
		100		5600	6500	7450	8500	9550
		110				6450	7350	8300
		115					6750	7650
LJHM0200UWH000N LJHM0200UWH000Q	**114N3518** **114N3511**	90	8400	9600	10900	12250	13650	15100
		95		9050	10250	11550	12850	14200
		100		8500	9650	10850	12100	13400
		110				9500	10650	11750
		115					9900	10950
LNYM0400UWH000Q	**114N3503**	90	13800	15500	17300	19300	21350	23550
		95		14900	16650	18550	20500	22600
		100		14300	16000	17750	19650	21600
		110				16150	17850	19600
		115					16900	18550
LNYM0500UWH000Q	**114N3504**	90	16600	18650	20900	23250	25850	28550
		95		17950	20050	22350	24800	27400
		100		17200	19250	21400	23700	26150
		110				19450	21500	23700
		115					20350	22450
LRYM0600UWH000Q	**114N3506**	90	20050	22550	25250	28200	31350	34750
		95		21700	24300	27100	30100	33350
		100		20850	23300	26000	28850	31900
		110				23650	26250	28950
		115					24900	27450
LRYM0800UWH000Q	**114N3507**	90	24650	27650	30950	34450	38250	42250
		95		26600	29750	33100	36650	40500
		100		25500	28500	31700	35100	38700
		110				28800	31800	35050
		115					30150	33150

Full range of models (refrigerants, capacities, and voltage codes), spare parts, and more available at http://bit.ly/NAMCUCatalog.
Check Coolselector or contact Danfoss.

Optyma™ Slim - Outdoor Condensing Units (7/7)

R-452A LBP		Ambient temperature (°F)	Capacity range in btu/h at evaporating temperature (°F)					
Danfoss Model No.	Danfoss Code No.		-20	-15	-10	-5	0	5
LJHM0150UWH000N LJHM0150UWH000Q	**114N3508** **114N3509**	90	5531	6318	7148	8013	8905	9816
		95		5920	6701	7515	8354	9211
		100			6257	7020	7806	8608
		110				6040	6721	7418
		115					6188	6832
LJHM0200UWH000N LJHM0200UWH000Q	**114N3518** **114N3511**	90	7928	9000	10110	11240	12390	13550
		95		8455	9507	10580	11670	12760
		100			8910	9926	10950	11980
		110				8630	9537	10440
		115					8838	9682
LNYM0400UWH000Q	**114N3503**	90	12600	14060	15600	17230	18940	20730
		95		13450	14920	16470	18100	19810
		100			14230	15700	17250	18870
		110				14130	15520	16970
		115					14640	16010
LNYM0500UWH000Q	**114N3504**	90	15680	17460	19360	21360	23480	25710
		95		16700	18510	20420	22440	24570
		100			17650	19470	21390	23420
		110				17540	19270	21090
		115					18200	19940
LRYM0600UWH000Q	**114N3506**	90	18670	20790	23040	25430	27960	30610
		95		19920	22070	24340	26740	29270
		100			21080	23240	25510	27900
		110				20960	23000	25130
		115					21720	23740
LRYM0800UWH000Q	**114N3507**	90	5218	5475	5749	6037	6340	6654
		95		5659	5938	6233	6543	6867
		100			6141	6441	6758	7090
		110				6900	7228	7574
		115					7486	7838

Full range of models (refrigerants, capacities, and voltages codes), spare parts, and more available at http://bit.ly/NAMCUCatalog.
Check Coolselector or contact Danfoss.

Scan the QR Code for the full range of condensing units or visit http://bit.ly/NAMCUCatalog

MT/MTZ - Medium/High Temperature Reciprocating Compressors

Known for their legendary durability, Maneurop® reciprocating compressors from Danfoss cover a wide range of operating conditions. Maneurop MT and MTZ series hermetic reciprocating compressors are designed for high and medium temperature applications. These compressors have a large internal free volume that protects against the risk of liquid hammering when liquid refrigerant enters the compressor.

MT/MTZ Reciprocating Compressors

Nomenclature / Model No.

MT Z 64 HM 4 B VE

Compressor type
MT: medium and high temperature reciprocating compressor

Refrigerant & oil
Blank: R-22, mineral oil
Z: R-134a, R-404A, R-407A/C/F, R-452A*, R-448A*, R449A*, R507A, POE oil (*not available for all model numbers)

Nominal Capacity
In thousand Btu/h at 60 Hz, ARI Conditions

Displacement code
(in^3/rev)

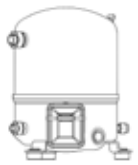
JA: 1.84 **HL:** 5.87
JC: 2.33 **HM:** 6.57
JE: 2.93 **HN:** 7.38
JF: 3.29 **HP:** 8.29
JG: 3.69 **HS:** 10.45
JH: 4.14 **HU:** 13.15
HJ: 4.65 **HV:** 14.76
HK: 5.23 **HW:** 16.57

Motor voltage code
1: 208-230 V / 1 ph / 60 Hz
3: 200-230 V / 3 ph / 60 Hz
4: 380-400 V / 3 ph / 50 Hz
460 V / 3 ph / 60 Hz
5: 230 V / 1 ph / 50 Hz
6: 230 V / 3 ph / 50 Hz
7: 500 V / 3 ph / 50 Hz
575 V / 3 ph / 60 Hz
9: 380 V / 3 ph / 60 Hz

Evolution index

Oil equalization port and sight glass

Technical data and ordering



MT/MTZ -Medium/High Temperature Reciprocating Compressors

Nominal capacity (Btu/h)[2]			Connection type Rotolock (in.)	Connection with supplied sleeve (in. ODF)	No. of cylinders	Weight (lbs.)	208–230/1/60		200–230/3/60		460/3/60	
R-22[3]	R-134a[3]	R-404A[4] R-507A[4]					Danfoss Model No.[1]	Danfoss Code No.	Danfoss Model No.[1]	Danfoss Code No.	Danfoss Model No.[1]	Danfoss Code No.
15903			1 × 1	½ × ⅜	1	46	MT18JA1*VE	**MT18-1VI**	MT18JA3*VE	**MT18-3VI**	MT18JA4*VE	**MT18-4VI**
21975			1 × 1[5]	½ × ⅜[5]	1	46	MT22JC1*VE	**MT22-1VI**[5]	MT22JC3*VE	**MT22-3VI**	MT22JC4*VE	**MT22-4VI**
30231			1 × 1[5]	½ × ⅜[5]	1	51	MT28JE1*VE	**MT28-1VI**[5]	MT28JE3*VE	**MT28-3VI**	MT28JE4*VE	**MT28-4VI**
33044			1 ¼ × 1	⅝ × ½	1	53	MT32JF1*VE	**MT32-1VI**	MT32JF3*VE	**MT32-3VI**	MT32JF4*VE	**MT32-4VI**
37992			1 ¼ × 1	⅝ × ½	1	55	MT36JG1*VE	**MT36-1VI**	MT36JG3*VE	**MT36-3VI**	MT36JG4*VE	**MT36-4VI**
42930			1 ¼ × 1	⅝ × ½	1	57	MT40JH1*VE	**MT40-1VI**	MT40JH3*VE	**MT40-3VI**	MT40JH4*VE	**MT40-4VI**
43999			1 ¾ × 1 ¼	⅞ × ¾	2	82	MT44HJ1*VE	**MT44-1VI**	MT44HJ3*VE	**MT44-3VI**	MT44HJ4*VE	**MT44-4VI**
50160			1 ¾ × 1 ¼	⅞ × ¾	2	82	MT50HK1*VE	**MT50-1VI**	MT50HK3*VE	**MT50-3VI**	MT50HK4*VE	**MT50-4VI**
56420			1 ¾ × 1 ¼	⅞ × ¾	2	86	MT56HL1*VE	**MT56-1VI**	MT56HL3*VE	**MT56-3VI**	MT56HL4*VE	**MT56-4VI**
64366			1 ¾ × 1 ¼	⅞ × ¾	2	86	MT64HM1*VE	**MT64-1VI**	MT64HM3*VE	**MT64-3VI**	MT64HM4*VE	**MT64-4VI**
74561			1 ¾ × 1 ¼	⅞ × ¾	2	88			MT72HN3*VE	**MT72-3VI**	MT72HN4*VE	**MT72-4VI**
84977			1 ¾ × 1 ¼	1 ⅛ × ¾	2	88			MT80HP3*VE	**MT80-3VI**	MT80HP4*VE	**MT80-4VI**
95898			1 ¾ × 1 ¼	1 ⅛ × ¾	4	132			MT100HS3*VE	**MT100-3VI**	MT100HS4*VE	**MT100-4VI**
124678			1 ¾ × 1 ¼	1 ⅛ × ¾	4	141			MT125HU3*VE	**MT125-3VI**	MT125HU4*VE	**MT125-4VI**
140697			1 ¾ × 1 ¼	1 ⅛ × ¾	4	148			MT144HV3*VE	**MT144-3VI**	MT144HV4*VE	**MT144-4VI**
156820			1 ¾ × 1 ¼	1 ⅛ × ¾	4	152			MT160HW3*VE	**MT160-3VI**	MT160HW4*VE	**MT160-4VI**
	11200	8980	1 × 1	½ × ⅜	1	46	MTZ18JA1*VE	**MTZ18-1VI**	MTZ18JA3*VE	**MTZ18-3VI**	MTZ18JA4*VE	**MTZ18-4VI**
	14849	12306	1 × 1[5]	½ × ⅜[5]	1	46	MTZ22JC1*VE	**MTZ22-1VI**[5]	MTZ22JC3*VE	**MTZ22-3VI**	MTZ22JC4*VE	**MTZ22-4VI**
	19276	15986	1 × 1[5]	½ × ⅜[5]	1	51	MTZ28JE1*VE	**MTZ28-1VI**[5]	MTZ28JE3*VE	**MTZ28-3VI**	MTZ28JE4*VE	**MTZ28-4VI**
	20949	17480	1 ¼ × 1	⅝ × ½	1	53	MTZ32JF1*VE	**MTZ32-1VI**	MTZ32JF3*VE	**MTZ32-3VI**	MTZ32JF4*VE	**MTZ32-4VI**
	24482	20189	1 ¼ × 1	⅝ × ½	1	55	MTZ36JG1*VE	**MTZ36-1VI**	MTZ36JG3*VE	**MTZ36-3VI**	MTZ36JG4*VE	**MTZ36-4VI**
	27864	23031	1 ¼ × 1	⅝ × ½	1	57	MTZ40JH1*VE	**MTZ40-1VI**	MTZ40JH3*VE	**MTZ40-3VI**	MTZ40JH4*VE	**MTZ40-4VI**
	30110	24323	1 ¾ × 1 ¼	⅞ × ¾	2	82	MTZ44HJ1*VE	**MTZ44-1VI**	MTZ44HJ3*VE	**MTZ44-3VI**	MTZ44HJ4*VE	**MTZ44-4VI**
	34538	28590	1 ¾ × 1 ¼	⅞ × ¾	2	82	MTZ50HK1*VE	**MTZ50-1VI**	MTZ50HK3*VE	**MTZ50-3VI**	MTZ50HK4*VE	**MTZ50-4VI**
	38881	32451	1 ¾ × 1 ¼	⅞ × ¾	2	86					MTZ56HL4*VE	**MTZ56-4VI**
	44404	36056	1 ¾ × 1 ¼	⅞ × ¾	2	86	MTZ64HM1*VE	**MTZ64-1VI**	MTZ64HM3*VE	**MTZ64-3VI**	MTZ64HM4*VE	**MTZ64-4VI**
	50000	40894	1 ¾ × 1 ¼	⅞ × ¾	2	88			MTZ72HN3*VE	**MTZ72-3VI**	MTZ72HN4*VE	**MTZ72-4VI**
	56336	46521	1 ¾ × 1 ¼	1 ⅛ × ¾	2	88			MTZ80HP3*VE	**MTZ80-3VI**	MTZ80HP4*VE	**MTZ80-4VI**
	63963	52953	1 ¾ × 1 ¼	1 ⅛ × ¾	4	132			MTZ100HS3*VE	**MTZ100-3VI**	MTZ100HS4*VE	**MTZ100-4VI**
	78906	68297	1 ¾ × 1 ¼	1 ⅛ × ¾	4	141			MTZ125HU3*VE	**MTZ125-3VI**	MTZ125HU4*VE	**MTZ125-4VI**
	96936	80472	1 ¾ × 1 ¼	1 ⅛ × ¾	4	148			MTZ144HV3*VE	**MTZ144-3VI**	MTZ144HV4*VE	**MTZ144-4VI**
	107631	87421	1 ¾ × 1 ¼	1 ⅛ × ¾	4	152			MTZ160HW3*VE	**MTZ160-3VI**	MTZ160HW4*VE	**MTZ160-4VI**

[1] These compressor models have threaded sight glass and ⅜ in. flare oil equalization line.
[2] To determine the nominal capacity for R-407A/C/F, R-452A, R-448A, R-449A, check Coolselector or visit our Online Datasheet Generator at www.danfoss.com/odsg.
[3] Evaporator temperature = 45 °F, condensing temperature = 130 °F, superheat = 20 °F, subcooling = 15 °F
[4] Evaporator temperature = 20 °F, condensing temperature = 120 °F, superheat = 20 °F, subcooling = 0 °F
[5] Actual connection for MT and MTZ 22–28 (208–230/1/60) is rotolock 1 ¼ in. × 1 in. and connection with supplied sleeve is ⅝ in. × ½ in. ODF.
Capacitor values and relays for 1 phase compressors are available on page 62.

Spare Parts and Accessories

Description	Type(s) applied to	Danfoss Code No.
Belt type crankcase heater; 54W, 230V	MT(Z) 018–040	**7773106**
Belt type crankcase heater; 65W, 110V	MT(Z) 044–081	**7773109**
Belt type crankcase heater; 65W, 230V		**7773107**
Belt type crankcase heater; 65W, 400V		**7773117**
Belt type crankcase heater; 65W, 460V		**120Z0466**
Belt type crankcase heater; 75W, 110V	MT(Z) 100–160	**7773110**
Belt type crankcase heater; 75W, 230V		**7773108**
Belt type crankcase heater; 75W, 400V		**7773118**
Belt type crankcase heater; 75W, 460V		**120Z0464**
PTC heater	all	**PTC**
Mounting kit—1 and 2 cylinder compressors	MT(Z) 18–81	**8156001**
Mounting kit—4 cylinder compressors	MT(Z) 100–160	**8156007**
Mineral oil, 160P; 2 liter can	all MT	**7754001**
Mineral oil, 160P; 5 liter can	all MT	**7754002**
POE lubricant, 160PZ; 1 liter can	all MTZ	**120Z0638**
Oil sight glass and gasket	all	**8156019**
Terminal box; include cover and clamp	MT(Z) 18–44 for 208–230/1/60 18–72 for 200–230/3/60 18–80 for 460/3/60	**8156134**
Terminal box; include cover and clamp	MT(Z) 50–64 for 208–230/1/60 80–160 for 200–230/3/60 100–160 for 460/3/60	**8156135**
Blue spray paint	all	**8154001**
Gasket Set; 1 of each size gasket for the MT(Z) line	all—need 2 for: MT(Z)18 for 208–230 and 460 MT(Z)22–28 for 208–230/3 and 460	**8156009**
Rotolock Service Valve Set (no gaskets) Suction and Discharge	MT(Z)18 for 208–230 and 460 MT(Z)22–28 for 208–230/3 and 460	**7703004**
Rotolock Service Valve Set (no gaskets) Suction and Discharge	MT(Z) 22–40 for 208–230/1 MT(Z) 32–40 for 208–230/3 and 460	**7703005**
Rotolock Service Valve Set (no gaskets) Suction and Discharge	MT(Z) 44–64 for 208–230/1 MT(Z) 44–72 for 208–230/3 and 460	**7703006**
Rotolock Service Valve Set (no gaskets) Suction and Discharge	MT(Z) 80–160 for 208–230/3 and 460	**7703009**
Solder Sleeve P02 (1 ¾ in. rotolock, 1 ⅛ in. ODF)	Suction: MT(Z) 80–160 for 208–230/3 and 460	**8153004**
Solder Sleeve P06 (1 in. rotolock, ½ in. ODF)	Suction: MT(Z) 18 for 208–230/1 MT(Z) 18–28 for 208–230/3 and460 Discharge: MT(Z) 22–40 for 208–230/1 MT(Z) 32–40 for 208–230/3 and 460	**8153007**
Solder Sleeve P04 (1 ¼ in. rotolock, ¾ in. ODF)	Discharge: MT(Z) 44–64 for 208–230/1 MT(Z) 44–160 for 208–230/3 and 460	**8153008**
Solder Sleeve P01 (1 in. rotolock, ⅜ in. ODF)	Discharge: MT(Z) 18 for 208–230/1 MT(Z) 18–28 for 208–230/3 and 460	**8153010**
Solder Sleeve P09 (1 ¼ in. rotolock, ⅝ in. ODF)	Suction: MT(Z) 22–40 for 208–230/1 MT(Z) 32–40 for 208–230/8 and 460	**8153011**
Solder Sleeve P02 (1 ¾ in. rotolock, ⅞ in. ODF)	Suction: MT(Z) 44–64 for 208–230/1 MT(Z) 44–72 for 208–230/3 and 460	**8153013**
Rotolock Nut, 1 in.	Suction: MT(Z) 18 for 208–230/1 MT(Z) 18–28 for 208–230/3 and 460 Discharge: MT(Z) 18–40 for 208–230/1 MT(Z) 18–40 for 208–230/3 and 460	**8153122**
Rotolock Nut, 1 ¼ in.	Suction: MT(Z) 22–40 for 208–230/1 MT(Z) 32–40 for 208–230/3 and 460 Discharge: MT(Z) 44–64 for 208–230/1 MT(Z) 44–160 for 208–230/3 and 460	**8153123**
Rotolock Nut, 1 ¾ in.	Suction: MT(Z) 44–64 for 208–230/1 MT(Z) 44–160 for 208–230/3 and 460	**8153124**

NTZ - Low Temperature Reciprocating Compressors

The Maneurop® NTZ series of reciprocating compressors from Danfoss Commercial Compressors are designed for low evaporating temperature applications with refrigerants R-404A, R-452A, and R-507A. The NTZ series is optimized at –30 °F with an extended evaporating temperature range from –50 °F to +15 °F. NTZ compressors have a large internal free volume that protects against the risk of liquid hammering when liquid refrigerant enters the compressor.

NTZ Reciprocating Compressors

Nomenclature / Model No.

NT Z 048 A 4 L R1 A

- **NT** — Compressor type
  NT: low temperature reciprocating compressor
- **Z** — Refrigerant & oil
  Z: R-404A, R-452A*, R507A, POE oil
  (*Evolution B only)
- **048** — Displacement (cm^3/rev)
- **A** — UL index indicator
- **4** — Motor voltage code
  1: 208-230 V / 1 ph / 60 Hz
  3: 200-230 V / 3 ph / 60 Hz
  4: 380-400 V / 3 ph / 50 Hz
  460 V / 3 ph / 60 Hz
  5: 230 V / 1 ph / 50 Hz
  9: 380 V / 3 ph / 60 Hz
- **L** — Motor Protection
  L: Internal motor protection
- **R1** — Equipment version
  R1: Rotolock connections, oil equalization, sight glass
- **A** — Evolution index

Technical data and ordering

NTZ - Low Temperature Reciprocating Compressors

Connection type Rotolock (in.)	Connection with supplied sleeve (in. ODF)	No. of cylinders	Weight (lbs.)	208–230/1/60			200–230/3/60			460/3/60		
				Danfoss Model No.	Nominal capacity[1] (Btu/h)	Danfoss Code No.[2]	Danfoss Model No.	Nominal capacity[1] (Btu/h)	Danfoss Code No.[2]	Danfoss Model No.	Nominal capacity[1] (Btu/h)	Danfoss Code No.[2]
1 ¼ × 1	⅝ × ½	1	46	NTZ048A1LR1A	4547	**120F0072**	NTZ048A3LR1A	4490	**120F0026**	NTZ048A4LR1B	4490	**120F0226**
1 ¼ × 1	⅝ × ½	1	51	NTZ068A1LR1A	6649	**120F0073**	NTZ068A3LR1A	7518	**120F0027**	NTZ068A4LR1B	7518	**120F0230**
1 ¾ × 1 ¼	⅞ × ¾	2	77	NTZ096A1LR1A	9155	**120F0074**	NTZ096A3LR1A	9110	**120F0028**	NTZ096A4LR1B	9110	**120F0234**
1 ¾ × 1 ¼	⅞ × ¾	2	77	NTZ108A1LR1A	10805	**120F0075**	NTZ108A3LR1A	10536	**120F0029**	NTZ108A4LR1B	10536	**120F0238**
1 ¾ × 1 ¼	1 ⅛ × ¾	2	77	NTZ136A1LR1A	13901	**120F0076**	NTZ136A3LR1A	13901	**120F0030**	NTZ136A4LR1B	13901	**120F0236**
1 ¾ × 1 ¼	1 ⅛ × ¾	4	137				NTZ215A3LR1A	21461	**120F0031**	NTZ215A4LR1B	21461	**120F0240**
1 ¾ × 1 ¼	1 ⅛ × ¾	4	141				NTZ271A3LR1A	29788	**120F0032**	NTZ271A4LR1B	29788	**120F0242**

[1] Evaporating temperature = –25 °F, condensing temperature = 105 °F, superheat = 20 °F, subcooling = 0 °F.
[2] Single compressor, threaded sight glass, ⅜ in. oil equalization connection.
Capacitor values and relays for 1 phase compressors are available on page 62.

Spare Parts and Accessories

Description	Type(s) applied to	Danfoss Code No.
Belt type crankcase heater; 54W, 230V	NTZ04–068	**7773106**
Belt type crankcase heater; 65W, 110V	NTZ096–136	**7773109**
Belt type crankcase heater; 65W, 230V		**7773107**
Belt type crankcase heater; 65W, 400V		**7773117**
Belt type crankcase heater; 65W, 460V		**120Z0466**
Belt type crankcase heater; 75W, 110V	NTZ215–271	**7773110**
Belt type crankcase heater; 75W, 230V		**7773108**
Belt type crankcase heater; 75W, 400V		**7773118**
Belt type crankcase heater; 75W, 460V		**120Z0464**
PTC heater	all	**PTC**
Mounting kit—1 and 2 cylinder compressors	NTZ048–136	**8156001**
Mounting kit—4 cylinder compressors	NTZ215–271	**8156007**
Oil sight glass and gasket	all	**8156019**
Terminal box; include cover and clamp	NTZ048–136 (except 136–1)	**8156134**
Terminal box; include cover and clamp	NTZ136–1, NTZ215–271	**8156135**
Blue spray paint	all	**8154001**
Rotolock Service Valve Set (no gaskets) Suction and Discharge	NTZ048–068	**7703005**
Rotolock Service Valve Set (no gaskets) Suction and Discharge	NTZ096–108	**7703006**
Rotolock Service Valve Set (no gaskets) Suction and Discharge	NTZ136–271	**7703009**
Solder Sleeve P02 (1 ¾ in. rotolock, 1 ⅛ in. ODF)	all	**8153004**
Solder Sleeve P06 (1 in. rotolock, ½ in. ODF)	Discharge: all	**8153007**
Solder Sleeve P04 (1 ¼ in. rotolock, ¾ in. ODF)	Discharge: all	**8153008**
Solder Sleeve P01 (1 in. rotolock, ⅜ in. ODF)	Discharge: all	**8153010**
Solder Sleeve P09 (1 ¼ in. rotolock, ⅝ in. ODF)	Suction: all	**8153011**
Solder Sleeve P02 (1 ¾ in. rotolock, ⅞ in. ODF)	Suction:all	**8153013**
Rotolock Nut, 1 in.	Discharge: all	**8153122**
Rotolock Nut, 1 ¼ in.	Discharge: all	**8153123**
Rotolock Nut, 1 ¾ in.	Suction: all	**8153124**

H Series - Residential and Light Commercial Scroll Compressors

Danfoss Residential and Light Commercial Air Conditioning Scroll Compressors install quickly and easily and feature a design that minimizes internal parts, decreasing the overall weight and significantly reducing noise during operation. With a bolt pattern and liquid and suction line connections that line up with those of other major scroll compressor manufacturers, Danfoss scroll compressors can be used to replace compressors made by nearly any company.

H Series Scroll Compressors

Models with spade terminals include wire harness

H R M 025 U 1 L P 6 A

Application
H: high temperature / air conditioning

Family
C: light commercial scroll
R: residential scroll (new platform)
L: light commercial scroll (new platform)

Refrigerant & oil
M: R-22, AB or PVE oil*
P: R-22 and R-407C, PVE oil
H: R-410A, PVE oil
J: R-410A, PVE oil

Nominal capacity
In thousand Btu/h at 60 Hz, ARI conditions

Model variation
T: design optimized for 45 °F / 130 °F
U: design optimized for 45 °F / 100 °F

Motor voltage code
1: 208-230 V / 1ph / 60 Hz
2: 200-220 V / 3 ph / 50Hz & 208–230 V /3 ph / 60 Hz
4: 380-400 V /3 ph / 50 Hz & 460 V / 3 ph / 60 Hz
5: 220-240 V / 1 ph / 50 Hz
7: 500 V / 3 ph / 50 Hz & 575 V / 3 ph / 60 Hz
9: 380 V / 3 ph / 60 Hz

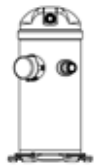
Motor protection
L: internal motor protection

Tubing and electrical connections
P: brazed connections, spade terminals
C: brazed connections, screw terminals

Other features
6: none
7: threaded oil sight glass
8: brazed oil and gas equalization connections

Evolution index (only for H*M models)
Blank: AB oil
A: PVE oil

Technical data and ordering

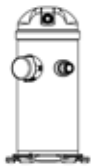


H Series - Residential and Light Commercial Scroll Compressors (R-22/R-407C)

Refrigerant		Motor Voltage	Tons (approx.)	Competitor Model No.	Solder ODF connection (in.)	Weight (lbs.)	OLD Danfoss Model	NEW Danfoss Model	
							Danfoss Model No.	Danfoss Model No.	Danfoss Code No.
R-22	R-407C	1: 200–230V/1/60Hz	2	ZR25K-PFV	¾ × ½	73	HRM025T1LP6	HRP025T1LP6	**120U3307**[1]
			2 ½	ZR28K*-PFV ZR32K*-PFV	¾ × ½	75	HRM032U1LP6	HRM032U1LP6A	**120U3308**[1]
			3	ZR34K*-PFV ZR36K*-PFV	¾ × ½	75	HRM038U1LP6	HRM038U1LP6A	**120U3309**[1]
			3 ½	ZR40K*-PFV ZR42K*-PFV	¾ × ½	75	HRM040U1LP6 HRM042U1LP6	HRP042T1LP6	**120U3310**[1]
			4	ZR47K*-PFV	⅞ × ½	77	HRM047U1LP6	HRM047U1LP6A	**120U3311**[1]
			4 ½	ZR54K*-TF5	⅞ × ½	97	HRM054U1LP6	HRM054U1LP6A	**120U3312**[1]
			5	ZR57K*-PFV ZR61K*-PFV	⅞ × ½	97	HRM060U1LP6	HRP060T1LP6	**120U3313**[1]
		2: 200–220V/3/50Hz & 208–230V/3/60Hz	3 ½	ZR42K*-TF5	¾ × ½	75	HRM042U2LP6	HRM042U2LP6A	**120U3314**[1]
			4	ZR47K*-TF5	⅞ × ½	71	HRM047U2LP6	HRP047T2LP6	**120U3315**[1]
			4 ½	ZR54K*-TF5	⅞ × ½	93	HRM054U2LP6	HRM054U2LP6A	**120U3316**[1]
			5	ZR57K*-TF5 ZR61K*-TF5	⅞ × ½	93	HRM060U2LP6	HRP060T2LP6	**120U3317**[1]
			5 ½		⅞ × ½	85		HLM068T2LC6A	**120U3276**
			6	ZR72K*-TF5	⅞ × ½	95	HLM072T2LC6 HLM075T2LC6	HLP075T2LC6	**120U3098**
			7	ZR81KC-TF5	⅞ × ¾	91	HLM081T2LC6	HLP081T2LC6	**120U1916**
			8	ZR94KC-TF5	1 ⅛ × ⅞	108	HCM094T2LC6	HCP094T2LC6	**120U0906**
			10	ZR125KC-TF5 ZR12M3*-TWC	1 ⅛ × ⅞	106	HCM120T2LC6	HCP120T2LC6	**120U0766**
		4: 380–415V/3/50Hz & 460V/3/60Hz	4	ZR47K*-TFD	⅞ × ½	82	HRM047U4LP6	HRP047T4LP6	**120U3318**[2]
			4 ½	ZR54K*-TFD	⅞ × ½	89	HRM054U4LP6	HRP054T4LP6	**120U3319**[2]
			5	ZR57K*-TFD ZR61K*-TFD	⅞ × ½	88	HRM058U4LP6 HRM060U4LP6	HRP060T4LP6	**120U3320**[2]
			5 ½		⅞ × ½	86		HLP068T4LC6	**120U2014**
			6	ZR72K*-TFD	⅞ × ½	58	HLM072T4LC6 HLM075T4LC6	HLP075T4LC6	**120U1766**
			7	ZR81KC-TFD	⅞ × ¾	94	HLM078T4LC6 HLM081T4LC6	HLP081T4LC6	**120U1781**
			8	ZR94KC-TFD	1 ⅛ × ⅞	101	HCM094T4LC6	HCP094T4LC6	**120U0601**
			9	ZR108KC-TFD ZR11M3-TWD	1 ⅛ × ⅞	108	HCM109T4LC6	HCP109T4LC6	**120U0376**
			10	ZR12M3-TWD	1 ⅛ × ⅞	109	HCM120T4LC6	HCP120T4LC6	**120U0401**

[1] Compressor comes kitted with wire harness (Danfoss Code No. 120Z5056)
[2] Compressor comes kitted with wire harness (Danfoss Code No. 120Z5057)
Additional models may be available upon request.
Full range of models (refrigerants, tons, and voltage codes) available. Check Coolselector or visit our Online Datasheet Generator at www.danfoss.com/odsg.
Capacitor values and relays for 1 phase compressors are available on pages 62.

Technical data and ordering



H Series - Residential and Light Commercial Scroll Compressors (R-410A)

Refrigerant	Motor Voltage	Tons (approx.)	Competitor Model No.	Solder ODF connection (in.)	Weight (lbs.)	OLD Danfoss Model	NEW Danfoss Model	
						Danfoss Model No.	Danfoss Model No.	Danfoss Code No.
R-410A	1: 200–230V/1/60Hz	2 ½	ZP29K*E-PFV ZP31K*E-PFV ZP32K*E-PFV	¾ × ½	70	HRH032U1LP6	HRH032U1LP6	**120U3321**[1]
		3	ZP36K*E-PFV	¾ × ½	94	HRH038U1LP6	HRH036U1LP6	**120U3322**[1]
		3 ¼	ZP41K*E-PFV	⅞ × ½	73	HRH040U1LP6	HRH040U1LP6	**120U3323**[1]
		3 ¾	ZP44K*E-PFV	⅞ × ½	99		HRH044U1LP6	**120U3324**[1]
		4	ZP49K*E-PFV	⅞ × ½	79	HRH048U1LP6	HRH048U1LP6	**120U3325**[1]
		4 ½	ZP51K*E-PFV	⅞ × ½	82		HRH051U1LP6	**120U3326**[1]
		5	ZP61K*E-PFV	⅞ × ½	90	HLH061T1LP6	HLH061T1LP6	**120U3327**[1]
	2: 200–220/3/50Hz & 208–230V/3/60Hz	3 ¼	ZP36K*E-TF5 ZP38K*E-TF5 ZP41K*E-TF5	⅞ × ½	77	HRH040U2LP6	HRH040U2LP6	**120U3328**[1]
		3 ¾	ZP44K*E-TF5	⅞ × ½	89		HRH044U2LP6	**120U3329**[1]
		4	ZP51K*E-TF5	⅞ × ½	85		HRH051U2LP6	**120U3330**[1]
		5		⅞ × ½	90	HLH061T2LC6	HLH061T2LC6	**120U2062**
		5 ½	ZP67KCE-TF5	⅞ × ½	89	HLH068T2LC6	HLH068T2LC6	**120U1481**
		6	ZP72KCE-TF5	⅞ × ½	96	HLJ072T2LC6	HLJ072T2LC6	**120U1486**
		7	ZP83KCE-TF5	⅞ × ½	96	HLJ083T2LC6	HLJ083T2LC6	**120U1491**
		7 ½	ZP90KCE-TF5	1 ⅛ × ⅞	102	HCJ090T2LC6	HCJ090T2LC6	**120U2307**
		8 ½	ZP103KCE-TF5	1 ⅛ × ⅞	104	HCJ105T2LC6	HCJ105T2LC6	**120U2327**
		10	ZP120KCE-TF5	1 ⅛ × ⅞	106	HCJ120T2LC6	HCJ120T2LC6	**120U2347**
	4: 380–415V/3/50Hz & 460V/3/60Hz	3 ¼	ZP36K*E-TFD ZP38K*E-TFD ZP41K*E-TFD	⅞ × ½	77	HRH036U4LP6 HRH038U4LP6 HRH040U4LP6	HRH040U4LP6	**120U3331**[2]
		3 ¾	ZP44K*E-TFD	⅞ × ½	77		HRH044U4LP6	**120U3332**[2]
		4	ZP51K*E-TFD	⅞ × ½	87		HRH051U4LP6	**120U3333**[2]
		5	ZP61KCE-TFD	⅞ × ½	96	HLH061T4LC6	HLH061T4LC6	**120U2052**
		5 ½	ZP67KCE-TFD	⅞ × ½	96	HLH068T4LC6	HLH068T4LC6	**120U1391**
		6	ZP72KCE-TFD	⅞ × ½	97	HLJ072T4LC6	HLJ072T4LC6	**120U1396**
		7	ZP83KCE-TFD	⅞ × ½	93	HLJ083T4LC6	HLJ083T4LC6	**120U1401**
		7 ½	ZP90K*E-TFD	1 ⅛ × ⅞	109	HCJ090T4LC6	HCJ090T4LC6	**120U2302**
		8 ½	ZP104KCE-TFD	1 ⅛ × ⅞	109	HCJ105T4LC6	HCJ105T4LC6	**120U2322**
		10	ZP120K*E-TFD	1 ⅛ × ⅞	164	HCJ120T4LC6	HCJ120T4LC6	**120U2342**

[1] Compressor comes kitted with wire harness (Danfoss Code No. 120Z5056)
[2] Compressor comes kitted with wire harness (Danfoss Code No. 120Z5057)
Additional models may be available upon request.
Full range of models (refrigerants, tons, and voltage codes) available. Check Coolselector or visit our Online Datasheet Generator at www.danfoss.com/odsg.
Capacitor values and relays for 1 phase compressors are available on page 62.

Spare Parts and Accessories

Description	Type(s) applied to	Danfoss Code No.
Terminal cover, spade terminals (round)	all	**120Z5015**
Terminal cover, screw terminals (square)		**120Z5018**
Mounting kit for 1 compressor: 4 grommets, 4 sleeves, 4 bolts, 4 washers		**120Z5064**
PVE lubricant, 210HV (FVC68D); 1 liter can	all	**120Z5034**
Wire harness; 5 feet, for 200–230V scroll compressor	models with spade terminals	**120Z5056**
Wire harness; 5 feet, for 380–575V scroll compressor	models with spade terminals	**120Z5057**
Belt type crankcase heater: 40W, 230V	HRM032-047, HRH031-040	**120Z0055**
Belt type crankcase heater: 40W, 400V		**120Z0056**
Belt type crankcase heater: 50W, 230V	HRM048-060, HLM068-075, HRM044-056, HLH061-068, HLJ072-075	**120Z0057**
Belt type crankcase heater: 50W, 400V		**120Z0058**
Belt type crankcase heater: 65W, 230V	HLM078-081, HCM094-120, HLJ083, HCJ090-120	**120Z0059**
Belt type crankcase heater: 65W, 400V		**120Z0060**
Belt type crankcase heater: 70W, 230V		**120Z5040**
Belt type crankcase heater: 70W, 400/440V		**120Z5041**

S Series - Light Commercial and Commercial Scroll Compressors

Danfoss Performer® Universal Scroll Compressors are designed to serve as quick, easy replacements for most commercial air conditioning scroll compressors. These compressors come with a bolt pattern, suction and discharge lines, and performance characteristics that match up directly with some competitors' products.

S Series Scroll Compressors

Nomenclature / Model No.

SM 115 S 4 Q C
DSH 090 A 4 AL C

Refrigerant & oil
SM: R-22, mineral oil
SY: R-22, R-407C, R-134a, POE oil
SZ: R-407C, R-134a, R-404A / R-507A, POE oil
DSH: R-410A, POE oil

Nominal Capacity
In thousand Btu/h at 60 Hz, ARI Conditions

UL index

Motor voltage code
3: 200-230 V / 3 ph / 60 Hz
4: 380-400 V / 3 ph / 50 Hz & 460 V / 3 ph / 60 Hz
6: 230 V / 3 ph / 50 Hz
7: 500 V / 3 ph / 50 Hz & 575 V / 3 ph / 60 Hz
9: 380 V / 3 ph / 60 Hz

Evolution index

Version (for SM, SY, SZ)	Motor protection module	Connection	Module voltage	Applies to
V	Internal overload protector	brazed		084, 090, 100, 110, 120, 148, 161
A		brazed		112, 124, 147
C	Internal thermostat	brazed		115, 125, 160, 175, 185
Q		brazed		
R		rotolock		
P	Electronic protection module	brazed	24V AC	
X		brazed	230V	
S		rotolock	24V AC	
Y		rotolock	230V	
CA		brazed	24V AC	240, 300, 380
CB		brazed	115/230V	
PA		rotolock	24V AC	
PB		rotolock	115/230V	
AC	contact OEM			

Version (for SH)	Motor protection module	Connection	Module voltage	Applies to
AL	Internal overload protector	brazed		090, 105, 120, 140, 161, 175, 184
AA	Electronic protection module	brazed	24V AC	240, 295, 300, 380, 485
AB		brazed	115/230V	
AB		brazed	230V	180
AC	contact OEM			

Technical data and ordering

S Series - Scroll Compressors

Nominal tonnage	Voltage/ Phase/ Frequency	Competitor Part Nos.[1]		Net weight (lbs.)	Connection size/type (suction x discharge)	Solder sleeve adapter set for Rotolock connectors	R-22		R-407C	
							Danfoss Model No.	Danfoss Code No.[2]	Danfoss Model No.	Danfoss Code No.[2]
7 ½	200-230/3/60		ZR94KC-TF5	143	1 ⅜ x ¾ Brazed	**7765005**	SM090S3VC	**SM090-3VI**	SZ090S3VC	**SZ090-3VI**
	460/3/60 400/3/50		ZR94KC-TFD				SM090S4VC	**SM090-4VI**	SZ090S4VC	**SZ090-4VI**
9 ⅓	200-230/3/60	CSHA-093R-0*00 or 0A	ZR108KC-TF5 ZR11M3-TWC	172	1 ⅜ x ⅞ Brazed	**120Z0405**	SM115S3QC	**SM115-3QAI**	SZ115S3QC	**SZ115-3QAI**
	460/3/60 400/3/50	CSHA-093K-0*00 or 0A	ZR108KC-TFD ZR11M3-TWD				SM115S4QC	**SM115-4QAI**	SZ115S4QC	**SZ115-4QAI**
10	200-230/3/60	CSHA-100R-0*00 or 0A	ZR125KC-TF5 ZR12M3-TWC				SM125S3QC	**SM125-3QAI**	SZ125S3QC	**SZ125-3QAI**
	460/3/60 400/3/50	CSHA-100K-0*00 or 0A	ZR125KC-TFD ZR12M3-TWD				SM125S4QC	**SM125-4QAI**	SZ125S4QC	**SZ125-4QAI**
12 ½	200-230/3/60	CSHA-125R-0*00 or 0A	ZR16M3-TWC	198	1 ⅝ x 1 ⅛ Brazed	**7765028**	SM160T3CC	**SM160-3CBI**	SZ160T3CC	**SZ160-3CBI**
	460/3/60 400/3/50	CSHA-125K-0*00 or 0A	ZR16M3-TWD				SM160T4CC	**SM160-4CBI**	SZ160T4CC	**SZ160-4CBI**
14	200-230/3/60	CSHA-140R-0*00 or 0A		220			SM175S3QC	**SM175-3QAI**	SZ175S3QC	**SZ175-3QAI**
	460/3/60 400/3/50	CSHA-140K-0*00 or 0A					SM175S4QC	**SM175-4QAI**	SZ175S4QC	**SZ175-4QAI**
15	200-230/3/60	CSHA-150R-0*00 or 0A	ZR190KC-TW5 ZR19M3-TWC				SM185S3QC	**SM185-3QAI**	SZ185S3QC	**SZ185-3QAI**
	460/3/60 400/3/50	CSHA-150K-0*00 or 0A	ZR190KC-TWD ZR19M3-TWD				SM185S4QC	**SM185-4QAI**	SZ185S4QC	**SZ185-4QAI**

[1] Competitor Model Nos. beginning "ZR" may have different footprint, suction, discharge or height compared to Danfoss Model No.
[2] Code Nos. ending "QAI" include threaded sight glass, ⅜ in. flare SAE oil equalization connection, brazed suction and discharge connections and mounting bracket. Code Nos. ending "VI" and "CBI" have threaded sight glass, ⅜ in. flare SAE oil equalization connection and brazed suction and discharge connections. Use compressor beginning with SM when system will use R-22; use compressor beginning with SZ when retrofitting system to R-407C. For additional information, see Danfoss Literature No. DKRCC.PE.000.H1.02 (http://bit.ly/RefrigerantRetrofits)
Full range of models (refrigerants, tons, and voltage codes) available. Check Coolselector or visit our Online Datasheet Generator at www.danfoss.com/odsg.

Spare Parts and Accessories

Description	Type(s) applied to	Danfoss Code No.
Solder sleeve adapter set (1 ¾ in. rotolock, 1 ⅛ in. ODF), (1 ¼ in. rotolock, ⅞ in. ODF)	SH090	**120Z0125**
Solder sleeve adapter set (1 ¾ in. rotolock, 1 ⅜ in. ODF), (1 ¼ in. rotolock, ⅞ in. ODF) *diameter restrictor	SM115, 125, 160, DSH105, 120, 140, 161, 184	**7765006**
Solder sleeve adapter set (1 ¾ in. rotolock, 1 ⅜ in. ODF), (1 ¼ in. rotolock, ⅞ in. ODF)	SM115, 125, SZ115, 125, DSH105, 120, 140, 161, 184	**120Z0405**
Solder sleeve adapter set (2 ¾ in. rotolock, 1 ⅝ in. ODF), (1 ¾ rotolock, ⅞ in. ODF)	SM160, 175, 185, SZ160, 175, 185, DSH240, 295, 380, 381	**7765028**
Motor protection module, 24V AC	SM115, 125, 160, 185	**120Z0584**
Electrical module 115/230V	DSH 240, 295, 380	**120Z0585**
Belt type crankcase heater; 65W, 460V	SM115, 125, 160, DSH090, 105, 120, 140, 161, 175, 184	**120Z0466**
Belt type crankcase heater; 65W, 110V		**7773109**
Belt type crankcase heater; 65W, 230V		**7773107**
Belt type crankcase heater; 65W, 400V		**7773117**
Belt type crankcase heater; 65W, 400V		**120Z0039**
Belt type crankcase heater; 75W, 110V	SM175, 185, DSH240, 295	**7773110**
Belt type crankcase heater, 75W, 230V		**7773108**
Belt type crankcase heater, 75W, 400V		**7773118**
Belt type crankcase heater, 75W, 460V		**120Z0464**
Belt type crankcase heater, 130W, 110V	DSH380	**7773121**
Belt type crankcase heater, 130W, 230V		**7773122**
Belt type crankcase heater, 130W, 400V		**7773123**
Service kit for terminal box; includes cover, clamp, terminal block connector	DSH090, 105, 120, 140, 161	**8156135**
Terminal box, including cover	SM115, 125, 160, 175, 185	**8156139**
Terminal box cover	DSH140–3, 161–3, 184, 175	**120Z0413**
Terminal box, including cover	DSH240, 295, 380	**120Z0458**
Oil sight glass with gaskets	SM090, 115, 125, 160, 175, 185	**8156019**
Mounting kit for 1 compressor: 4 grommets, 4 sleeves, 4 bolts, 4 washers	SM115–185	**8156138**
Mounting kit for 1 compressor: 4 grommets, 4 sleeves, 4 bolts, 4 washers	DSH090, 105, 120, 140, 161, 175, 184	**120Z0066**
Mounting kit for 1 compressor: 4 rigid grommets, 4 sleeves, 4 bolts, 4 washers	DSH240, 295, 380	**7777045**
Mineral oil, 160P; 2 liter can	all SM, SZ	**7754001**
Mineral oil, 160P; 5 liter can	all SM, SZ	**7754002**
Blue spray paint	all	**8154001**
Oil equalization adaptor. To connect ⅞ in. tube on 22mm oil sight glass connection; includes (1) 22mm to ⅞ in., (2) gaskets.	all SM, SZ, DSH	**120Z0164**
Oil equalization adaptor. To connect ½ in. tube on 22mm oil sight glass connection; includes (1) 22mm to ½ in., (2) gaskets.	all SM, SZ, DSH	**120Z0165**
Oil equalization adaptor kit for trio mounting; oil fittings, gasket and adaptors (copper pipes not included)	SM 160, 185	**7773112**

DSH Series - Light Commercial and Commercial Scroll Compressors with Intermediate Discharge Valves

Refrigerant	Nominal tonnage	Voltage/ phase/ frequency	Competitor model no.[1]		Motor protection	Net weight (lbs.)	Solder ODF connection (in.)	Solder sleeve adaptor set to Rotolock connections	OLD Danfoss Model No.	OLD Danfoss Code No.[2]	NEW Danfoss Model No.[3]	NEW Danfoss Code No.[2]
R-410A	7½	200–230/3/60	CSHD-089J CSHD-092J	ZP90KCE-TF5 ZP91KCE-TF5	Internal Overload Protector	128	1 ⅛ × ⅞	**120Z0125**	SH090A3AL*	120H0001	DSH090A3ALA	**120H1180**
		460/3/60	CSHD-089K CSHD-092K	ZP90KCE-TFD					SH090A4AL*	120H0003	DSH090A4ALB	**120H1182**
	8¾	200–230/3/60	CSHD-105J	ZP103KCE-TF5		142	1 ⅜ × ⅞	**120Z0405**	SH105A3AL*	120H0209	DSH105A3ALA	**120H1188**
		460/3/60	CSHD-105K	ZP103KCE-TFD					SH105A4AL*	120H0211	DSH105A4ALB	**120H1190**
	10	200–230/3/60	CSHD-125J	ZP120KCE-TF5					SH120A3AL*	120H0011	DSH120A3ALA	**120H1196**
		460/3/60	CSHD-125K	ZP120KCE-TFD					SH120A4AL*	120H0013	DSH120A4ALB	**120H1198**
	11⅓	200–230/3/60	CSHD-142J	ZP137KCE-TF5		148			SH140A3AL*	120H0199	DSH140A3ALA	**120H1204**
		460/3/60	CSHD-142K	ZP137KCE-TFD					SH140A4AL*	120H0201	DSH140A4ALB	**120H1206**
	13½	200–230/3/60	CSHD-161J	ZP154KCE-TF5		152			SH161A3AL*	120H0021	DSH161A3ALA	**120H1212**
		460/3/60	CSHD-161K	ZP154KCE-TFD					SH161A4AL*	120H0023	DSH161A4ALB	**120H1214**
	15	200–230/3/60	CSHD-183J	ZP182KCE-TF5		159			SH184A3AL*	120H0359	DSH184A3ALA	**120H1220**
		460/3/60	CSHD-183K	ZP182KCE-TFD					SH184A4AL*	120H0361	DSH184A4ALB	**120H1222**
	20	200–230/3/60	CSHN-176J	ZP236KCE-TW5[2]	24V AC 115/230V	238	1 ⅝ × 1 ⅛	**7765028**	SH240A3AA* SH240A3AB*	120H0289 120H0297	DSH240A3AAB DSH240A3ABB	**120H1159** **120H1161**
		460/3/60	CSHN-176K	ZP236KCE-TWD[2]	24V AC 115/230V				SH240A4AA* SH240A4AB*	120H0291 120H0299	DSH240A4AAB DSH240A4ABB	**120H1119** **120H1121**
	25	200–230/3/60	CSHN-250J	ZP295KCE-TW5[2]	24V AC 115/230V	245			SH295A3AA* SH295A3AB*	120H0851 120H0853	DSH295A3AAB DSH295A3ABB	**120H1163** **120H1165**
		460/3/60	CSHN-250K	ZP295KCE-TWD[2]	24V AC 115/230V				SH295A4AA* SH295A4AB*	120H0825 120H0827	DSH295A4AAB DSH295A4ABB	**120H1123** **120H1125**
	30	200–230/3/60	CSHN-315J	ZP385KCE-TW5[2]	24V AC 115/230V	355			SH380A3AA* SH380A3AB*	120H0151 120H0152	DSH381A3AAA DSH381A3ABA	**120H1167** **120H1169**
		460/3/60	CSHN-315K	ZP385KCE-TWD[2]	24V AC 115/230V				SH380A4AA* SH380A4AB*	120H0253 120H0255	DSH381A4AAA DSH381A4ABA	**120H1127** **120H1129**
	40	200–230/3/60			24V AC 115/230V	386	1 ⅝ × 1 ⅜				DSH485A3AAA	**120H1105**
		460/3/60			24V AC 115/230V						DSH485A4AAB DSH485A4ABB	**120H1131** **120H1133**

[1] Competitor Model Nos. beginning "ZP" may have different footprint, suction, discharge or height compared to Danfoss Model No.
[2] Control voltage of external motor protection module must be checked before crossing to Danfoss Model No with 24V ac or 115/230V motor protection module.
[3] Intermediate Discharge Valves (IDVs) are mechanical valves that improve the partload efficiency of air conditioning systems. The new Danfoss scroll range with IDVs is backward compatible with existing Danfoss scrolls to reduce complexity and save time during installation.
Full range of models (refrigerant, tons, and voltage codes) available. Check Coolselector or visit our Online Datasheet Generator at www.danfoss.com/odsg.
Visit http://bit.ly/DSHappguide for the application guideline.

Capacitors and Relays

Danfoss Models	Start capacitor (µF)	Start capacitor voltage (V)	Run capacitor (µF)	Run capacitor voltage (V)	Start relay Model No.	Start relay Code No.
MT/MTZ18 JA-1	100	330	25	440	RVA 6AMKL (Electrica)	**8173022**
MT/MTZ22 JC-1	100	330	45	440		
MT/MTZ28 JE-1	135	330	50	440		
MT/MTZ32 JF-1	100	330	45	440		
MT/MTZ36 JG-1	100	330	45	440		
MT/MTZ40 JH-1	100	330	55	440		
MT/MTZ44 HJ-1	135	330	45	440		
MT/MTZ50 HK-1	135	330	45	440		
MT/MTZ56 HL-1	200	330	55	440		
MT/MTZ64 HM-1	235	330	55	440		
NTZ048A1LR1A	100	330	25	440	RVA 6AMKL (Electrica)	**8173022**
NTZ068A1LR1A	135	330	50	440		
NTZ096A1LR1A	135	330	45	440		
NTZ108A1LR1A	135	330	45	440		
NTZ136A1LR1A	135	330	45	440		
HRM025	145–175	330	45	370	RVA 2ACKO (Electrica)	**120Z0396**
HRM032-034	145–175	250	45	370	RVA 2ACKO (Electrica)	**120Z0396**
HRM038	88–108	330	55	370	RVA 2ABKO (Electrica)	**120Z0397**
HRM040-045	88–108	330	60	370	RVA 2ABKO (Electrica)	**120Z0397**
HRM047	88–108	250	60	370	RVA 2ABKO (Electrica)	**120Z0397**
HRM048	161–193	250	60	370	RVA 2ABKO (Electrica)	**120Z0397**
HRM051-054	161–193	250	70	370	RVA 2ABKO (Electrica)	**120Z0397**
HRM058T1-060T1	88–108	250	55	440	RVA A4IKL (Electrica)	**120Z0398**
HRM058U1-060U1, HLM068-081	189–227	330	80	370	RVA 2ABKO (Electrica)	**120Z0397**
HRP051	161–193	250	70	370	RVA 2ABKO (Electrica)	**120Z0397**
HLP068-081	189–227	330	80	370	RVA 2ABKO (Electrica)	**120Z0397**
HRH031	145–175	250	45	370	RVA 2ACKO (Electrica)	**120Z0396**
HRH032-034	88–108	330	50	370	RVA 2ABKO (Electrica)	**120Z0397**
HRH036	88–108	330	55	370	RVA 9CKO (Electrica)	**120Z0393**
HRH038-040	88–108	330	60	370	RVA 2ABKO (Electrica)	**120Z0397**
HRH041-051	161–193	250	70	370	RVA 2ABKO (Electrica)	**120Z0397**
HRH054-056, HLH068, HLJ072-083	189–227	330	80	370	RVA 2ABKO (Electrica)	**120Z0397**

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AZURE® Digi-Motor®

3.3" Commercial Refrigeration Evaporator Fan Motor

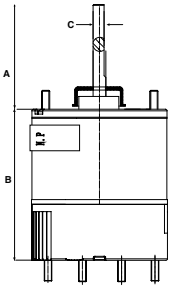
Ball Bearing

3.3 inch dia.

Azure® is an electronically controlled 3.3" motor (ECM) that replaces all 1/15 - 1/25 HP, 115/230V, and 1550/600 RPM commercial refrigeration evaporator fan motors for walk in cooler/freezer applications. For 1550 RPM, this motor connects easily to the fan controller via a standard Lyall plug. For 2-speed applications, the Lyall plug can be removed and the motor can be wired directly to a separate 2-speed control module using the included second speed tap for 600 RPM. Motor rotation is set using a simple jumper wire. Azure® is rated for 115V or 230V with nothing to set; plug it in to either voltage and it adapts to the correct voltage.

Specifications:

- Operating temperature range: -40° to 131°F
- Multi horsepower, self adjusting from 1/15 to 1/25HP
- Reversible rotation
- Auto voltage select (115/230V)
- High efficiency ECM technology
- No capacitor required
- UL Recognized



MARS NO.	HP	VOLTS	RPM	SPEEDS	ROTATION	DIMENSIONS		
						A	B	C
10850	1/15 - 1/25	115/230	1550	1	Rev	2.5	3.74	5/16
10852	1/15 - 1/25	115/230	1550[1]	1 or 2[2]	CCWLE[3]	2.5	3.74	5/16
10853	1/15 - 1/25	115/230	1550	1	CWLE	2.5	3.74	5/16
10854	1/15 - 1/25	115/230	1550	1	CCWLE	2.5	3.74	5/16

[1] 1550 default; adjustable 600-2000 RPM with optional wireless programmer kit (MARS No. 08505)

[2] 2-speeds attainable with optional wireless programmer (MARS No. 08505) and optional thermistor kit (MARS No. 08515)

[3] CCWLE default; reversible with optional wireless programmer (MARS No. 08505)

AZURE® Digi-Motor®

Commercial Refrigeration Watt (Reach-In) Motor

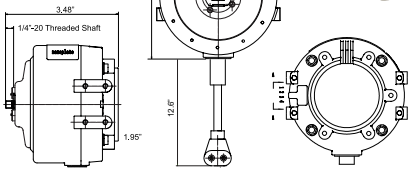
Ball Bearing

MARS ECM watt motor is a Drop in replacement for most OEM / ECM / PSC and standard shaded pole commercial refrigeration evaporator and condenser fan motors. Capable of replacing most 1550 RPM case motors 4 - 25W for reach-in cooler/freezer applications.

The microprocessor sets power output to match the fan load ensuring correct CFM and maximum efficiency in every installation. Automatically senses and adapts to the system voltage (115/230V). MARS No. 10891 - Wirelessly Programmable. Download Azure® Programmer App to your smart phone/tablet.

Specifications:

- Submersible - IP67
- Operating temperature range: -40° to 131°F
- Self adjusting from 4 to 25 Watts
- 15501 RPM
- CWLE3 Rotation
- Auto Voltage Select (115/230V)
- High efficiency ECM technology: 68%
- Estimated Energy Savings: $33/year ($46/year total)[2]
- 90° Angle Lyall Plug
- Water Resistant: Yes
- UL Recognized



MARS NO.	WATTS OUTPUT	VOLTS	RPM	ROTATION	LEAD LENGTH
10891	4 - 25	115/230	15501	CWLE3	13"

Power Consumption		
Fan Load	Standard Motor Power Consumption	Azure® Power Consumption
4 W	28 W	6 W
9 W	47 W	14 W
16 W	77 W	30 W

[1] 1550 default; adjustable 600-2000 RPM with optional wireless programmer kit (MARS No. 08505)

[2] Estimated energy savings based on replacement of a 9W shaded pole evaporator fan motor with Azure® at $0.11/kWh. $33 savings is based solely on the reduction of power consumption. An additional savings of approximately 40% will result from the reduction of the refrigeration load due to Azure®'s lower operating temperature.

[3] CWLE default; reversible with optional wireless programmer kit (MARS No.08505)

Accessories for Azure® Digi-Motor®

MARS NO.	DESCRIPTION
08505	Wireless Programmer Kit; Requires Azure Programmer App and Smart Device (sold separately) for 10891/10852
08515	Thermistor Kit for 2-Speed Operation (2/PK) for 10852; Controls up to 5 Motors

MARS 3.3" Commercial Refrigeration Multi-Horsepower Motors

These motors replace hundreds of OEM shaded pole evaporator fan motors found in Bohn, Nutone, Chandler, Larkin, Kramer, Climate Control, McQuay, Heatcraft and reduce truck stock costs.

These PSC type motors deliver more power and lower amp draw compared to shaded pole.

Features:

- Sleeve bearing, single speed
- Mounting - extended thru-bolt with nuts
- Low temp lubricant
- Capacitor included
- Open ventilation

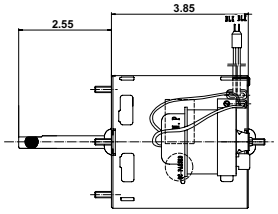
Specifications:

- Class "B" insulation
- 60 Hz
- Thermal overload protected

Replaces 12 Motor Ratings:

1/12HP	CW or CCW	115V or 230V
1/15HP	CW or CCW	115V or 230V
1/20HP	CW or CCW	115V or 230V

01125



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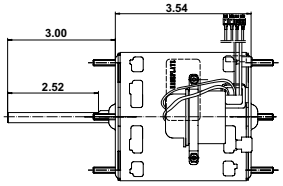
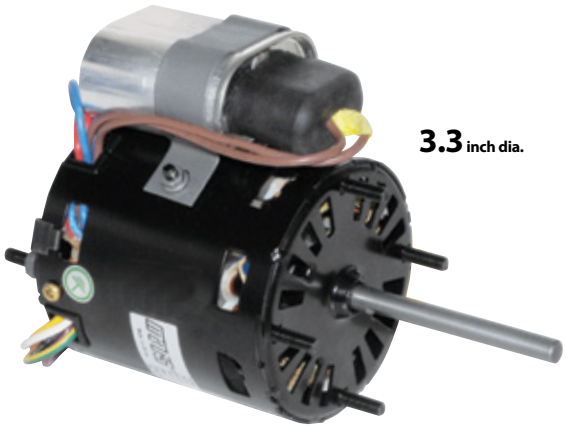




1550 RPM

MARS NO.	HP	VOLTS	ROT	AMPS	CAP INCLUDED	SHAFT LENGTH AND DIAMETER
01125	1/12, 1/15, 1/18	208-230	CW LE	0.56/0.50	4 MFD 370V	2.55 x 5/16
01127	1/12, 1/15, 1/20	115/230	REV	1.1/0.60	7.5 MFD 370V	3.00 x 5/16

Unit Bearing Motors

DESCRIPTION	MARS NO	JARD NO
4 WATTS 115 CW 1550 CAST IRON	**05211**	15211
4 WATTS 115 CCW 1550 CAST IRON	**05212**	15212
4 WATTS 115 CW 1550 ALUMINUM	**05213**	15213
4 WATTS 230 CW 1550 CAST IRON	**05221**	15221
4 WATTS 230 CCW 1550 CAST IRON	**05222**	15222
6 WATTS 115 CW 1550 CAST IRON	**05311**	15311
6 WATTS 115 CCW 1550 CAST IRON	**05312**	15312
9 WATTS 115 CW 1550 CAST IRON	**05411**	15411
9 WATTS 115 CCW 1550 CAST IRON	**05412**	15412
9 WATTS 230 CW 1550 CAST IRON	**05421**	15421
9 WATTS 230 CCW 1550 CAST IRON	**05422**	15422
50W 230V CW 1500 RPM CAST IRON	**05521**	15521
16WATTS 115 CW 1550 CAST IRON	**05811**	15811
16WATTS 115 CCW 1550 CAST IRON	**05812**	15812
16WATTS 230 CW 1550 CAST IRON	**05821**	15821
16WATTS 230 CCW 1550 CAST IRON	**05822**	15822

MARS 51 Frame Unit Bearing Cast Iron Motors

JARD Unit Bearing Cast Iron Motors

MARS 51 Frame Unit Bearing Aluminum Motors

MARS 780 Definite Purpose Contactors

MARS 780 - 1 pole with shunt and 2 pole contactors are designed for demanding applications. The enclosed body design provides quiet operation and improved durability by reducing the intrusion of dust and dirt. Silver-cadmium oxide contacts provide increased contact life when switching inductive loads.

Features:

- Enclosed body and coil – standard cover
- Push to test button
- Quad quick connects
- Box lugs - large window arch design
- Screw terminals and or box lugs available on 30 amp
- Coils - class F insulation
- UL File E96705

61720

61755

1 Pole with Shunt 30 - 40 Amps

MARS NO.	FURNAS NO.	FLA	LOCKED ROTOR AMPS		NON INDUCTIVE AMPS	COIL VOLTS	TERMINATION
			240V	277V			
61320	45EG10AJA, 45CG10AJA, 45DG10AJA					24	
61321	45EG10AFA, 45CG10AFA, 45DG10AFA					120	
61322	45EG10AGA, 45CG10AGA, 45DG10AGA	30	180	180	40	208-240	Screw Type
61323	45EG10ALA, 45CG10ALA, 45DG10ALA					277	
61324	45EG10AHA, 45CG10AHA, 45DG10AHA					480	
61720	45EG10AJAL					24	
61721	45EG10AFAL					120	
61722	45EG10AGAL	30	180	180	40	208-240	Box Lug
61723	45EG10ALAL					277	
61724	45EG10AHAL					480	
61730	45GG10AJAL, 45FG10AJA, 45GG10AJA					24	
61731	45GG10AFAL, 45FG10AFA, 45GG10AFA					120	
61732	45GG10AGAL, 45FG10AGA, 45GG10AGA	40	240	240	50	208-240	Box Lug
61733	45GG10ALAL, 45FG10ALA, 45GG10ALA					277	
61734	45GG10AHAL, 45FG10AHA, 45GG10AHA					480	

2 Pole 30 - 40 Amps

MARS NO.	FURNAS NO.	FLA	LOCKED ROTOR AMPS			NON INDUC-TIVE AMPS	COIL VOLTS	TERMINATION
			240V	480V	600V			
61345	45EG20AJ, 45CG20AJ, 45DG20AJ						24	
61346	45EG20AF, 45CG20AF, 45DG20AF						120	
61347	45EG20AG, 45CG20AG, 45DG20AG	30	180	150	120	40	208-240	Screw Type
61348	45EG20AL, 45CG20AL, 45DG20AL						277	
61349	45EG20AH, 45CG20AH, 45DG20AH						480	
61745	45EG20AJL						24	
61746	45EG20AFL						120	
61747	45EG20AGL	30	180	150	120	40	208-240	Box Lug
61748	45EG20ALL						277	
61749	45EG20AHL						480	
61755	45GG20AJL, 45FG20AJ, 45GG20AJ						24	
61756	45GG20AFL, 45FG20AF, 45GG20AF						120	
61757	45GG20AGL, 45FG20AG, 45GG20AG	40	240	200	160	50	208-240	Box Lug
61758	45GG20ALL, 45FG20AL, 45GG20AL						277	
61759	45GG20AHL, 45FG20AH, 45GG20AH						480	

MARS 780 Definite Purpose Contactors

MARS 780 - 2 pole "Large Body" contactors feature a 2 pole configuration in a 3 pole body for increased durability in demanding applications.

Features:

- Large arch window box lugs
- Recessed push to test button
- Accepts MARS 780 and Furnas auxiliary switches
- Use standard MARS 780 replacement coils
- Dual QC coil terminals plus screw terminal for easy termination and jumper arrangements
- Coils - class F insulation
- UL File E96705

61425

2 Pole - Large Body 30 - 40 Amp

MARS NO.	FURNAS NO.	FLA	LOCKED ROTOR AMPS			NON INDUCTIVE AMPS	COIL VOLTS	HORSEPOWER		TERMINATION
			240V	480V	600V			1 PH 240V	3 PH 240V	
61425	42BF15AJ, 42AF15AJ	30	180	150	120	40	24	3 HP	7.5 HP	Box Lug
61426	42BF15AF, 42AF15AF						120			
61427	42BF15AG, 42AF15AG						208-240			
61428	42BF15AL, 42AF15AL						277			
61440	42CF15AJ	40	240	200	160	50	24	5 HP	10 HP	Box Lug
61441	42CF15AF						120			
61442	42CF15AG						208-240			
61443	42CF15AL						277			

MARS 780 – 3 Pole Contactors

MARS 780 - 3 pole contactors are designed for demanding applications. The enclosed body design provides quiet operation and improved durability by reducing the intrusion of dust and dirt. Side attachment rails for auxiliary switches (30-60 amp contactors) allow attachment of MARS 780 or Furnas auxiliary switches. Silver-cadmium oxide contacts provide increased contact life when switching inductive loads.

61445

Features:

- Large arch window box lugs
- SEMS screws or box lugs available on 30 amp contactors
- Recessed push to test button (not on 75 and 90 amp contactors)
- Enclosed body design
- Accepts MARS 780 and Furnas auxiliary switches
- Use standard MARS 780 replacement coils
- Dual QC coil terminals plus screw terminal for easy termination and jumper arrangements
- Coils - class F insulation • 600 volt rating • Foot print compatible
- UL File E96705

3 Pole 30 - 90 Amp

* For 25 Amp Contactors - Use 30 Amp in Place of 25 Amp

MARS NO.	FURNAS NO.	FLA	LOCKED ROTOR AMPS			NON INDUCTIVE AMPS	COIL VOLTS	HORSEPOWER				TERMINATION
			240V	480V	600V			1 PH	3 PH			
								240V	240V	480V	600V	
61430*	42BF35AJ						24					
61431*	42BF35AF						120					
61432*	42BF35AG	30	180	150	120	40	208-240	3 HP	7.5 HP	10 HP	15 HP	Screw Type
61433*	42BF35AL						277					
61434*	42BF35AH						480					
61750	-						24					
61751	-						120					
61752	-	30	180	150	120	40	208-240	3 HP	7.5 HP	10 HP	15 HP	Box Lug
61753	-						277					
61754	-						480					
61445	42CF35AJ						24					
61446	42CF35AF						120					
61447	42CF35AG	40	240	200	160	50	208-240	5 HP	10 HP	15 HP	20 HP	Box Lug
61448	42CF35AL						277					
61449	42CF35AH						480					
61460	42DF35AJ						24					
61461	42DF35AF						120					
61462	42DF35AG	50	300	250	200	63	208-240	5 HP	15 HP	20 HP	25 HP	Box Lug
61463	42DF35AL						277					
61464	42DF35AH						480					
61470	42EF35AJ						24					
61471	42EF35AF						120					
61472	42EF35AG	60	360	300	240	75	208-240	7.5 HP	20 HP	25 HP	30 HP	Box Lug
61473	42EF35AL						277					
61474	42EF35AH						480					
61480	42FE35AJ106						24					
61481	42FE35AF106						120					
61482	42FE35AG106	75	450	375	300	94	208-240	15 HP	25 HP	40 HP	40 HP	Box Lug
61483	42FE35AL106						277					
61484	42FE35AH106						480					
61490	42GE35AJ106						24					
61491	42GE35AF106						120					
61492	42GE35AG106	90	540	450	360	120	208-240	15 HP	30 HP	50 HP	50 HP	Box Lug
61493	42GE35AL106						277					
61494	42GE35AH106						480					

Run Capacitors - MARS USA / MARS / JARD

MARS USA

- Product of USA
- OEM Grade
- Meets Tecumseh H-115 and EIA-456 Standards
- 5 Year Warranty
- UL/CSA

MARS

- Product of North America
- Compact Size
- UL/CSA

JARD

- Product of North America
- Low Cost General Replacements
- UL/CSA

Description	JARD No.	MARS Blue Box No	USA No.
370 V Oval Single Section			
2 MFD	12902	12002	14002
3 MFD	12903	12003	14003
4 MFD	12904	12004	14004
5 MFD	12905	12005	14005
6 MFD	12906	12006	14006
7.5 MFD	12907	12007	14007
10 MFD	12908	12008	14008
12.5 MFD	12909	12009	14009
15 MFD	12910	12010	14010
17.5 MFD	12912	12012	14012
20 MFD	12914	12014	14014
25 MFD	12915	12015	14015
30 MFD	12917	12017	14017
35 MFD	12918	12018	14018
40 MFD	12921	12021	14021
45 MFD	12923	12023	14023
50 MFD	12925	12025	14025
55 MFD	12924	12024	–
60 MFD	12987	12087	–
65 MFD	12988	12011	–
70 MFD	12989	12089	14089
80 MFD	12990	12090	14090
370 V Round Single Section			
2 MFD	12992	12092	–
3 MFD	12993	12093	–
4 MFD	12994	12094	–
5 MFD	12995	12095	–
6 MFD	12996	12096	–
7.5 MFD	12997	12097	–
10 MFD	12998	12098	14098
12.5MFD	12999	12099	–

Description	JARD No.	MARS Blue Box No	USA No.
15 MFD	12710	12210	14210
16 MFD	12911	12211	–
17.5 MFD	12712	12212	14212
20 MFD	12714	12214	14214
25 MFD	12715	12215	14215
30 MFD	12717	12217	14217
35 MFD	12718	12218	14218
40 MFD	12721	12221	14821
45 MFD	12723	12223	14823
50 MFD	12725	12225	14225
55 MFD	12726	12226	14226
60 MFD	12727	12227	14227
65 MFD	12828	12128	–
70 MFD	12729	12229	14229
80 MFD	12899	12199	14199
100 MFD	12916	12116	–
370 V Oval Dual Section			
15/3 MFD	12841	12141	–
15/4 MFD	12956	12056	–
15/5 MFD	12957	12057	–
15/10 MFD	12958	12058	–
17.5/4 MFD	12959	12059	–
17.5/5 MFD	12960	12060	–
20/3 MFD	12961	12061	–
20/4 MFD	12962	12062	–
20/5 MFD	12963	12063	–
20/10 MFD	12864	12064	–
20/15 MFD	12964	12164	–
25/3 MFD	12842	12142	–
25/4 MFD	12965	12065	–
25/5 MFD	12966	12066	14066
25/7.5 MFD	12843	12143	–

Description	JARD No.	MARS Blue Box No	USA No.
25/8 MFD	12832	12131	–
25/10 MFD	12867	12167	–
25/15 MFD	12833	12133	–
30/3 MFD	12844	12144	–
30/4 MFD	12845	12145	–
30/5 MFD	12969	12069	14069
30/7.5 MFD	12846	12146	–
30/10 MFD	12847	12147	–
35/3 MFD	12848	12148	–
35/4 MFD	12971	12071	–
35/5 MFD	12972	12072	14072
35/7.5 MFD	12849	12149	–
35/10 MFD	12850	12150	–
40/3 MFD	12851	12151	–
40/4 MFD	12858	12158	–
40/5 MFD	12871	12171	14171
40/7.5 MFD	12852	12152	–
40/10 MFD	12834	12134	–
45/3 MFD	–	12173	–
45/5 MFD	12874	12174	14174
45/7.5 MFD	12853	12153	–
45/10 MFD	12836	12136	–
45/15 MFD	12837	12137	–
50/5 MFD	12838	12138	–
55/5 MFD	12854	12154	–
55/7.5 MFD	12855	12155	–
60/5 MFD	12839	12139	–
60/7.5 MFD	12856	12156	–
60/10 MFD	12857	12157	–
65/5 MFD	12859	12159	–
80/5 MFD	12863	12163	–
80/7.5 MFD	12817	12123	–

Run Capacitors - MARS USA / MARS / JARD

Description	JARD No.	MARS Blue Box No	USA No.
370 V Round Dual Section			
15/3 MFD	12701	12121	–
15/4 MFD	12702	12122	–
15/5 MFD	12703	12203	–
15/10 MFD	12704	12204	–
17.5/4 MFD	12705	12205	–
17.5/5 MFD	12706	12206	–
20/4 MFD	12707	12207	–
20/5 MFD	12760	12260	14260
20/7.5 MFD	12716	12016	–
20/10 MFD	12708	12208	–
20/15 MFD	12709	12209	–
25/3 MFD	12711	12242	–
25/4 MFD	12875	12175	–
25/5MFD	12761	12261	14261
25/7.5MFD	12762	12262	–
25/10 MFD	12713	12213	–
30/3 MFD	12720	12244	–
30/4 MFD	12763	12263	–
30/5 MFD	12764	12264	14264
30/7.5 MFD	12724	12224	–
30/10 MFD	12728	12228	–
30/15 MFD	12939	12039	–
35/3 MFD	12730	12082	–
35/4 MFD	12731	12231	–
35/5 MFD	12766	12266	14266
35/7.5 MFD	12735	12235	–
35/10 MFD	12738	12238	–
40/3 MFD	12739	12074	–
40/4 MFD	12767	12267	–
40/5 MFD	12878	12178	14178
40/7.5 MFD	12768	12268	14268
40/10 MFD	12746	12246	–
45/3 MFD	12747	12073	–
45/4 MFD	12947	12247	–
45/5 MFD	12769	12269	14269
45/7.5 MFD	12749	12249	14249
45/10 MFD	12750	12250	–
50/3 MFD	12753	12075	–
50/5 MFD	12755	12191	14191
50/7.5 MFD	12825	12192	14192
50/10 MFD	12757	12239	14239
55/5 MFD	12893	12193	14193
55/7.5MFD	12894	12194	14194
55/10 MFD	12967	12067	–
60/3 MFD	12976	12076	–
60/5 MFD	12895	12195	14195
60/7.5 MFD	12896	12196	14196
60/10 MFD	12865	12265	–
65/5 MFD	12742	12042	–
70/5 MFD	12953	12053	–
70/7.5 MFD	12954	12054	14054
70/10 MFD	12955	12055	–
75/5 MFD	12744	12044	–
75/7.5 MFD	12946	12046	–
75/10 MFD	12984	12084	–
80/5 MFD	12897	12197	14197
80/7.5MFD	12819	12198	14198
80/10 MFD	12824	12201	14201
80/12.5 MFD	12722	12202	–
85/5 MFD	12829	12129	–
85/7.5 MFD	12756	12230	–
85/10 MFD	12922	12222	–
440/370V Oval Single Section			
2 MFD	12926	12026	–
2.5 MFD	12919	12019	–
3 MFD	12927	12027	14027
4 MFD	12928	12028	14028
5 MFD	12929	12029	14029
6 MFD	12930	12030	14030
7.5 MFD	12931	12031	14031
10 MFD	12932	12032	14032
12.5 MFD	12933	12033	14033
15 MFD	12934	12034	14034
17.5 MFD	12936	12036	–
20 MFD	12937	12037	14037
25 MFD	12940	12040	14040
30 MFD	12941	12041	14041
35 MFD	12943	12043	14043
40 MFD	12945	12045	14045
45 MFD	12948	12048	14048
50 MFD	12949	12049	14049
55 MFD	12950	12050	14050
60 MFD	12951	12051	14051
65 MFD	12952	12052	–
70 MFD	12830	12130	–
75 MFD	12831	12135	–
80 MFD	12840	12140	14140
440/370V Round Single Section			
2 MFD	12802	12102	–
3 MFD	12803	12103	–
4 MFD	12804	12104	–
5 MFD	12805	12105	14105
6 MFD	12806	12106	–
7.5MFD	12807	12107	14107
10 MFD	12732	12232	14232
12.5 MFD	12733	12233	–
15 MFD	12734	12234	14234
17.5 MFD	12736	12236	–
20 MFD	12737	12237	14237
25 MFD	12740	12240	14240
30 MFD	12741	12241	14241
35 MFD	12743	12243	14243
40 MFD	12745	12245	14245
45 MFD	12748	12248	14248
50 MFD	12751	12251	14251
55 MFD	12752	12252	14252
60 MFD	12754	12254	14254
65 MFD	12657	12357	–
70 MFD	12758	12258	14258
80 MFD	12759	12259	14259
90 MFD	12868	12068	–
440/370V Oval Dual Section			
5/5 MFD	12660	12360	–
10/5 MFD	12765	12165	–
10/10 MFD	12970	12170	–
15/4 MFD	12770	12270	–
15/5 MFD	12771	12271	–
15/10 MFD	12777	12177	–
20/5 MFD	12880	12180	–
20/15 MFD	12983	12083	–
25/5 MFD	12884	12184	14184
25/7.5 MFD	12882	12182	–
25/10 MFD	12883	12183	–
25/15 MFD	12886	12186	–
30/4 MFD	12881	12181	–
30/5 MFD	12887	12187	14187
30/7.5 MFD	12982	12038	–
30/10 MFD	12835	12035	–
35/3 MFD	12985	12085	–
35/4 MFD	12879	12179	–
35/5 MFD	12885	12185	14185
35/7.5 MFD	12888	12188	14188
35/8.5 MFD	12876	12176	–
35/10 MFD	12772	12272	–
40/3 MFD	12877	12080	–
40/5 MFD	12986	12086	14086
40/7.5 MFD	12889	12189	14189
40/10MFD	12773	12273	–

Run Capacitors - MARS USA / MARS / JARD

Description	JARD No.	MARS Blue Box No	USA No.
45/5 MFD	12890	12190	14190
45/7.5 MFD	12774	12274	–
50/5 MFD	12808	12108	–
50/7.5 MFD	12913	12013	–
55/5 MFD	12775	12275	–
55/10 MFD	12822	12276	–
60/5 MFD	12809	12109	–
60/7.5 MFD	12776	12110	–
65/10 MFD	12810	12101	–
80/5 MFD	12815	12297	14297
80/7.5 MFD	12898	12298	14298
440/370V Round Dual Section			
10/5 MFD	12811	12111	–
15/5 MFD	12818	12118	–
15/10 MFD	12656	12356	–
17.5/5 MFD	12650	12350	–
20/5 MFD	12780	12115	–
20/7.5 MFD	12654	12354	–
20/10 MFD	12651	12351	–
20/15 MFD	12812	12112	–
25/3 MFD	12653	12353	14353
25/4 MFD	12655	12355	–
25/5 MFD	12778	12278	14278
25/7.5 MFD	12779	12279	14279
25/10 MFD	12813	12113	–
25/15 MFD	12814	12114	–
30/3 MFD	12826	12126	14126

Description	JARD No.	MARS Blue Box No	USA No.
30/4 MFD	12820	12120	–
30/5 MFD	12781	12281	14281
30/7.5 MFD	12782	12282	14282
30/10 MFD	12652	12352	–
35/3 MFD	12977	12077	14077
35/4 MFD	12870	12070	14070
35/5 MFD	12783	12283	14283
35/6 MFD	12719	12119	–
35/7.5 MFD	12784	12284	14284
35/10 MFD	12797	12091	14091
40/3 MFD	12978	12078	14078
40/4 MFD	12785	12285	–
40/5 MFD	12786	12286	14286
40/6 MFD	12920	12220	–
40/7.5 MFD	12787	12287	14287
40/10 MFD	12798	12088	14088
45/3 MFD	12979	12079	14079
45/4 MFD	12891	12219	–
45/5 MFD	12788	12288	14288
45/6 MFD	12827	12127	–
45/7.5MFD	12789	12289	14289
45/10 MFD	12872	12172	14172
50/5 MFD	12790	12290	14290
50/7.5 MFD	12791	12291	14291
50/10 MFD	12892	12124	14124
50/12.5 MFD	12719	12253	–

Description	JARD No.	MARS Blue Box No	USA No.
55/5 MFD	12792	12292	14292
55/7.5 MFD	12793	12293	14293
55/10 MFD	12799	12299	14299
60/3 MFD	12860	12160	–
60/5 MFD	12794	12294	14294
60/7.5 MFD	12795	12295	14295
60/10 MFD	12796	12296	14296
60/12.5 MFD	12861	12161	–
65/5 MFD	12642	12358	14358
65/7.5 MFD	12659	12359	14359
65/10 MFD	12862	12162	14162
70/5 MFD	12823	12255	14255
70/7.5 MFD	12866	12166	14166
70/10 MFD	12869	12169	14169
75/5 MFD	12968	12168	–
75/7.5 MFD	12901	12125	–
75/10 MFD	12935	12047	–
80/5 MFD	12801	12257	14257
80/7.5 MFD	12816	12216	14216
80/10 MFD	12821	12117	14117
85/5 MFD	12938	12022	–
85/7.5 MFD	12942	12020	–
85/10 MFD	12944	12001	–

Motor Start Capacitors

Electrolytic Capacitors for Motor Starting Applications

Features:

- The largest assortment of replacements in the industry
- Smallest dimensions for general replacements
- Hermetically sealed black Bakelite case permanently protects the capacitor from oil, dirt, grease or moisture
- New and improved terminal construction capable of withstanding increased heat. This terminal will generate less heat when applied under severe hot humid environment
- 50/60 Hz
- UL/ULc

Description (mfd)	JARD	MARS
115/125 V		
21-25	11902	11002
25-30	11903	11003
30-36	11904	11004
36-43	11905	11005
43-56	11906	11006
56-72	11907	11007
72-88	11908	11008
88-107	11909	11009
108-130	11910	11010
124-155	11912	11112
130-156	11911	11011
145-174	11913	11013
161-193	11914	11014
189-227	11915	11015
200-240	11916	11016
216-259	11917	11017
233-291	11918	11018
270-324	11919	11019
300-360	11920	11020
324-388	11921	11021
340-408	11922	11022
378-438	11923	11023
400-480	11924	11024
430-516	11971	11071
460-552	11925	11025
540-648	11926	11026
590-708	11927	11027
645-774	11947	11047
708-850	11928	11028
815-970	11972	11072
829-995	11929	11029
850-1020	11973	11073
1000-1200	11930	11030
1290-1548	11974	11074

Description (mfd)	JARD	MARS
165 V		
72-88	11975	11075
88-107	11976	11076
108-130	11977	11077
124-149	11931	11031
145-174	11932	11032
161-193	11933	11033
189-227	11934	11034
216-259	11978	11078
233-292	11935	11035
270-324	11936	11036
340-408	11979	11079
378-455	11980	11080
400-480	11994	11037
540-648	11981	11081
710-852	11982	11082
810-972	11983	11083
220/250 V		
21-25	11938	11038
25-30	11939	11039
30-36	11940	11040
36-43	11941	11041
43-56	11942	11042
56-70	11943	11043
59-71	11984	11084
64-77	11937	11137
72-88	11944	11044
88-107	11945	11045
108-130	11946	11046
124-155	11948	11148
145-175	11949	11049
161-193	11950	11050
189-227	11951	11051
216-259	11952	11052

Description (mfd)	JARD	MARS
233-292	11953	11053
270-324	11954	11054
280-336	11985	11085
320-384	11986	11086
340-408	11987	11087
378-454	11988	11088
400-480	11989	11089
430-516	11990	11090
630-756	11991	11091
330 V		
21-25	11955	11055
25-30	11956	11056
30-36	11957	11057
36-43	11958	11058
43-56	11959	11059
56-67	11995	11060
72-88	11961	11061
88-108	11962	11062
108-130	11963	11063
124-156	11965	11165
130-156	11964	11064
135-162	11992	11092
145-174	11966	11066
161-193	11967	11067
189-227	11968	11068
216-259	11969	11069
270-324	11970	11070
300-360	11993	11093

Compressor Heaters

TUTCO™ Compressor Heaters for A/C and Refrigeration

Features:

- Corrosion resistant exterior
- High temperature silicone rubber element and insulated leads
- 30" leads
- Wattage for each model matches compressor requirements
- Completely moisture proof
- Installs quickly and easily
- Nominal power consumption
- UL & CSA Listed

32601

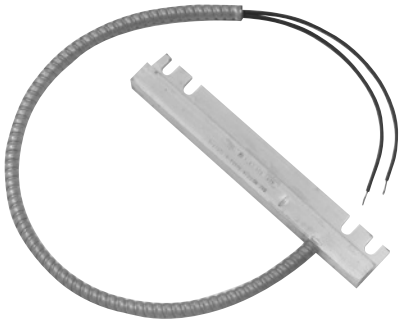
Application Reference Chart for TUTCO™ Compressor Heaters

Manufacturer	Model	MARS No.
Aspera	H	32605-32608
Aspera	J	32609-32611
Bendix/Westinghouse	A	32613-32616
Bendix/Westinghouse	C, D	32601-32604
Bendix/Westinghouse	E	32605-32608
Bristol/Sundstrand	H10A, H21A, H2EA, H22A	32605-32608
Bristol/Sundstrand	H10B, H20B, H21B, H22B	32613-32616
Bristol/Sundstrand	H10G, H20G, H21G, H22GN2NG-144	32617-32620
Carrier	6A25, 26, 28, 29, 6A35, 38, 45, 48	32605-32608
Carrier	6A88	32617-32620
Carrier/Carlysle	6R	32626
Carlysle	W (70-88)	32601-32604
Copeland	BR	32633-32635
Copeland	CR	32605-32608
Copeland	JR	32629-32630
Copeland	RR, SR	32613-32616
Copeland	VR	32621-32624
Copeland	Y	32601-32604
Fedders/Chrysler	3009	32617-32620
Fedders/Chrysler	2870908	32631
Hitachi	1500FH4-H	32617-32620
Hitachi	305FH2-HE, 402FH2-HE, 505FH2-HE	32613-32616
Hitachi	753FH3-H, 1001FH4-H	32601-32604
Sanyo	CR15F, CR20F, CR33F	32631
Tecumseh	AB, AW	32613, 32616
Tecumseh	AH	32605-32608
Tecumseh	AJ	32609-32611
Tecumseh	AK	32629-32630
Tecumseh	B, C, CL, AG, AV	32601-32604
Tecumseh	FE, FB	32617-32620
Trane	D4340/7669	32609-32611
Trane	D4340/7670	32621-32624
Trane	D4350/689, D4359/690	32605-32608
Westinghouse	CD072, CD090	32605-32608
Westinghouse	CD072, CD090	32621-32624

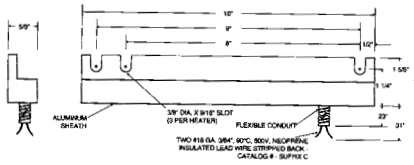
MARS NO.	DESCRIPTION	VOLTS	WATTS	INCHES		SHAPE
				MIN.	MAX	
32601	CH-100	240		30 3/16	37	OVL
32604	CH-100-3	480		30 3/16	37	
32605	CH-101	240	54	27 7/16	34 1/4	OVL
32608	CH-101-3	480		27 7/16	34 1/4	
32609	CH-102	240		25 3/4	32 9/16	
32610	CH-102-1	208	60	25 3/4	32 9/16	OVL
32611	CH-102-2	120		25 3/4	32 9/16	
32613	CH-103	240	45	24 3/4	31 9/16	OVL
32617	CH-104	240		41 1/2	48 5/16	
32618	CH-104-1	208	75	41 1/2	48 5/16	RND
32619	CH-104-2	120		41 1/2	48 5/16	
32620	CH-104-3	480		41 1/2	48 5/16	
32621	CH-105	240	50	32 1/2	39 5/16	RND
32624	CH-105-3	480		32 1/2	39 5/16	
32626	CH-115-2	120	40	30 3/16	37	RND
32629	CH-135	240	45	20 5/16	27 1/8	OVL
32630	CH-135-2	120		20 5/16	27 1/8	
32631	CH-197	240	25	13 3/4	20 9/16	RND
32633	CH-202	240		33 3/4	36 3/4	
32634	CH-202-2	120	70	33 3/4	36 3/4	RND
32635	CH-202-3	480		33 3/4	36 3/4	

Crankcase Heaters

Universal Replacement Crankcase Heaters for Copeland

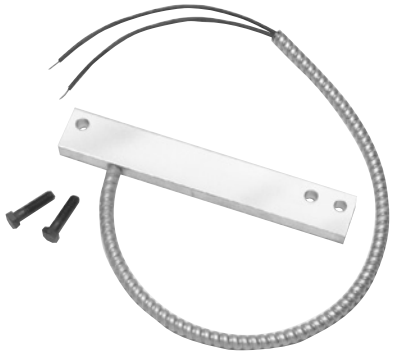


32491



MARS NO.	COPELAND NO.	WATTS	VOLTS	HEATER LENGTH IN.	CAN REPLACE	ACCESSORIES
32491	018-0034-01	65	240	10	4R,6R,6T,9R,9T,9W,E,MW 3A,3R,LA,MR,NR,EA, ER,LW,MD	2 bolts
32492	018-0034-02	65	480	10	E,9R,9W,MW,3A,3R,LA,M, NR,EA,ER,LW,MD	2 bolts

Direct Replacement Crankcase Heaters for Copeland



32416

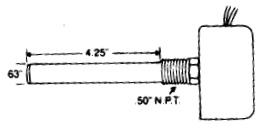


Figure 1

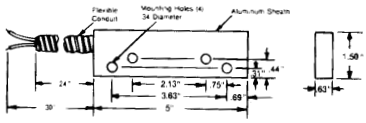


Figure 2

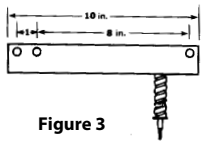


Figure 3

Crankcase Heaters for Copeland

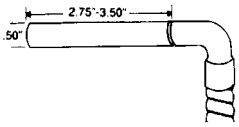
NOTE: All heaters requiring clips or brackets are packaged with the appropriate clips or brackets required.

MARS NO.	COPELAND NO.	WATTS	VOLTS	HEATER LENGTH IN.	FIGURE	COMPRESSOR MODEL	ACCESS.
32408	518-0002-01	100	480	4.25	1	4R, 6R, 6T, 4D, 6D	-
32409	518-0002-02	100	240	4.25	1	4R,6R,6T,4D,6D	-
32410	518-0002-03	100	120	4.25	1	4R, 6R, 6T, 4D, 6D	-
32416	518-0009-01	65	240	10.00	3	E,9R,9W,MW,3A, 3R,LA,MR,NR	2 bolts
32431	018-0021-04	200	120	3.50	2	6RJ, 4RV, 4RR	2 bolts

Crankcase Heaters

Direct Replacement Crankcase Heaters for Carrier

Figure 1



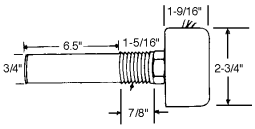
32452

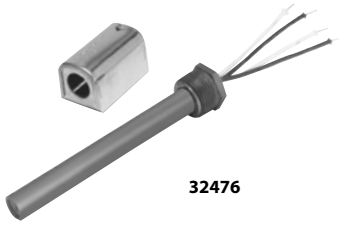
Crankcase Heaters for Carrier

MARS NO.	CARRIER NO.	WATTS	VOLTS	HEATER LENGTH IN.	LEAD LENGTH IN.	FIGURE	COMPRESSOR MODEL
32452	HT36DL172	125	120	2.75	25	1	
32472	HT36FL379	125	120	2.75	60	1	EM:06DM: 306B:50EQ
32474	HT36FL479	125	240	2.75	68	1	EM:06DM: 30HR:30HS

One-On-One™ Crankcase Heaters

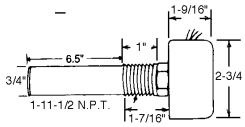
Figure 2





32476

Figure 3

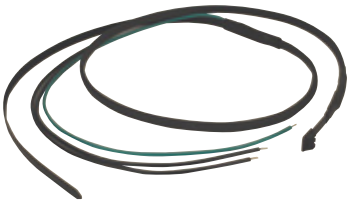


MARS NO.	OEM	OEM NO.	WATTS	VOLTS	LENGTH	DIA.	FIGURE
32476	Trane	661A-13881-12-4-C	75	115/230	6 1/2"	3/4"	2
32478	Trane	X13140729-01	140	115/230	11"	3/4"	3

Self Regulating Crankcase Heaters

MARS self-regulating crankcase heaters are designed for use with refrigeration compressors up to 5HP and 40 inches in circumference. These heating cables provide peak heat during cold periods and reduced heat when the air temperature rises and should not be used in non-hazardous areas.

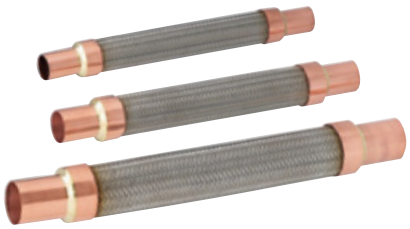
- Cold length: 30"
- Heat cable length: 50"



MARS NO.	TYPE	WATTS	VOLTS
70970	Self Regulating	32W @ 50°F • 60W @ 0°F	120
70971	Self Regulating	32W @ 50°F • 60W @ 0°F	240

Stainless Steel Vibration Absorbers

- 100% Copper connections
- Hose and copper braze welded
- Each unit dehydrated and vacuum tested
- Units individually packaged in poly bags and corrugate boxes
- UL, cUL, and CE



MARS NO.	DESCRIPTION
52329	1/4" Vibration Absorber
52330	3/8" Vibration Absorber
52331	1/2" Vibration Absorber
52332	5/8" Vibration Absorber
52333	3/4" Vibration Absorber
52334	7/8" Vibration Absorber
52335	1-1/8" Vibration Absorber
52336	1-3/8" Vibration Absorber
52337	1-5/8" Vibration Absorber
52338	2-1/8" Vibration Absorber
52339	2-5/8" Vibration Absorber
52340	3-1/8" Vibration Absorber

MARS Start Assist

MARS AllStart™ Hard Start Device

32708

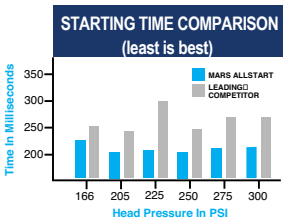
The MARS AllStart™ is a two wire hard start device designed to provide maximum starting torque for single phase PSC and CSIR compressors up through 10HP. The MARS AllStart™ recycles instantly for maximum convenience on troublesome hard start jobs.

Independent testing has determined that the MARS AllStart™ provides more starting torque than other competitive models, and this results in quicker starts. Test results on a range of head pressures from 166 to 300 PSI indicate that the MARS AllStart™ started the test compressor in an average of 21.7% less time than the leading competitor! More available starting torque means less time to get problem compressors started.

MARS offers the largest assortment of refrigeration and air conditioning compressor starting components. When the proper starting relay and capacitor combination is a must, they are available from MARS. When getting a problem compressor started in the field "NOW" is the job, rely on the new MARS AllStart.™

Features:

- Maximum starting torque!
- More than 20% faster starts!
- Easy two wire installation
- Recycles instantly
- Individually packaged with wiring instructions



SUPPLIER	PART NO.	MARS REPLACEMENT
KICKSTART	TO5	**32708**
SUPCO	SPP8	**32708**
WATSCO	WSX-1	**32708**

MARS NO.	MODEL NO.	H.P.	VOLT MAX
32708	AllStart	1/2 to 10	115-277V

MARS Combination Starters

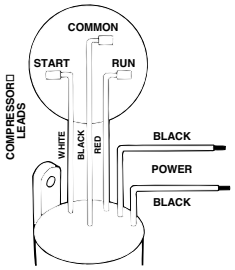
32741

The MCS is a combination start relay, start capacitor, and motor overload. It is designed to replace those components on a 115 volt single phase refrigeration compressor installed on a capillary tube system.

The MCS is factory wired and comes with a connection diagram on the product label for maximum convenience.

Features:

- Maximum starting torque!
- More than 20% faster starts!
- Easy two wire installation
- Recycles instantly
- Individually packaged with wiring instructions



SUPPLIER	PART NO.	MARS REPLACEMENT
GEMLINE	HS 410 HS 810	**32741** **32781**
ROBERTSHAW	600-410 600-810	**32741** **32781**
SUPCO	RCO 410 RCO 810	**32741** **32781**

MARS NO.	MODEL NO.	H.P.	VOLT MAX
32741	MCS 41	1/4 TO 1/3	115V
32781	MCS 81	1/12 to 1/5	115V

MARS Motor Torque Multiplier

32701

32702

The MARS MTX 100, MTX 200 and MTX 300 motor torque multipliers feature a combination PTC solid state device, and start capacitor in one compact unit.

The MTX 100 is designed for use on PSC motors and compressors up to 5HP, 277V maximum; the MTX 200 is designed for use on PSC motors and compressors up to 10HP, 277V maximum; and the MARS MTX 300 is designed for use on PSC motors & compressors from 1-1/2 up to 10HP, 115-230V. These units are easily installed by connecting the two leads from the MTX unit to the motor run capacitor terminals.

Features:

- Totally solid state integrated design
- Fast, easy two wire installation
- Three mounting options; clip, screw, or capacitor bracket
- Individually packaged

SUPPLIER	PART NO.	MARS REPLACEMENT
GEMLINE	HS 600 HS 650	**32701** **32702**
ROBERTSHAW	600-052 600-057	**32701** **32702**
SUPCO	SPP5 SPP6	**32701** **32702**

MARS NO.	MODEL NO.	H.P.	VOLT MAX
32701	100	1/2 to 5	277V
32702	200	1/2 to 10	277V

MARS Start Assist

MARS Hard Start Kits

MARS 3 Wire Hard Start Kits provide the additional starting torque required for quicker compressor starts in systems using higher pressure refrigerants. Improved starting performance extends compressor life and minimizes potential refrigerant contamination due to overheated compressor windings. MARS Hard Start Kits also improve system life and performance by reducing undue overload stress on contactors and run capacitors.
If your system is slow to start, MARS has a Hard Start Kit to fit your application.

Features:

- Start relay made in the USA and approved by all compressor manufacturers.
- Start capacitor made in Mexico
- 30% faster starts
- 3 wire design ensures proper "drop-out"
- Extends life of compressor
- Kit contains mounting hardware

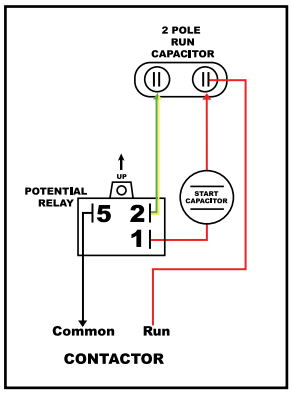
32715

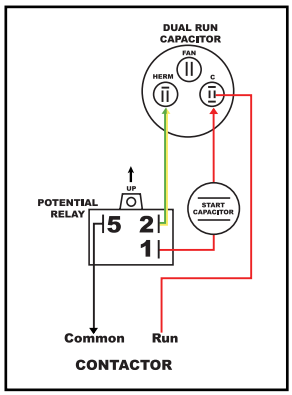
32716

MARS NO.	5-2-1 (CPS)	Supco	Packard (2 wire)	Diversitech (2 wire)
32715	CSR U1	3W1	TQS1	HSK5
32716	CSR U2	3W2	TQS2	HSK1
32717	CSR U3	3W3	–	–

MARS NO.	VOLTS	DESCRIPTION
32715	208-230/240	3 Wire Hard Start 1 to 3 Ton
32716	208-230/240	3 Wire Hard Start 3.5 to 5 Ton
32717	208-230/240	3 Wire Hard Start 4 to 5 Ton

32717





MARS Potential Relays

MARS Universal Replacement

The MARS refrigeration potential relay service kit has become an industry standard since its introduction over fifty years ago. Its long-term reliability and easy replacement have been the key to its success. The wide calibration ranges and the universal bracket make the MARS potential relay service kit a must on every service truck.

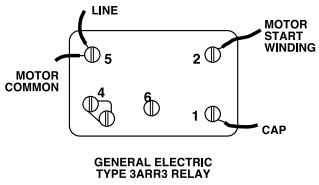
Features:

- Genuine MARS relays replace thousands of O.E.M. models
- Non-positional
- Wide range of selectivity
- QC-6 Kit included with each relay to convert screw-on to push-on
- Instructions and wiring diagram included in each relay
- Universal break-off bracket on each relay. Simply snap-off parts not needed
- The six most popular relays available in a service kit—19001 MARS 6 PAK—complete cross reference guide included in each kit
- UL and CSA listings available

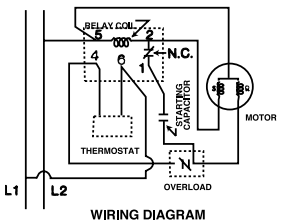
19002

19001

93001



GENERAL ELECTRIC TYPE 3ARR3 RELAY



WIRING DIAGRAM

Calibration Specifications

MARS NO.	MARS MODEL NO.	CONTINUOUS COIL VOLTAGE	PICK-UP		DROP-OUT MAX
			MIN.	MAX	
19001	*MARS 6 PAK*	—	—	—	—
19002	*MARS 63*	*170*	*139*	*153*	*55*
19003	*MARS 64*	*395*	*260*	*275*	*120*
19004	*MARS 65*	*332*	*168*	*182*	*90*
19005	*MARS 66*	*395*	*215*	*225*	*120*
19006	*MARS 67*	*420*	*295*	*315*	*125*
19007	*MARS 68*	*502*	*325*	*345*	*135*
19008*	*MARS 69*	*336*	*180*	*195*	*105*
19009*	*MARS 70*	*253*	*285*	*305*	*77*
19010*	*MARS 71*	*420*	*212*	*232*	*121*
93001	*QC-6*				

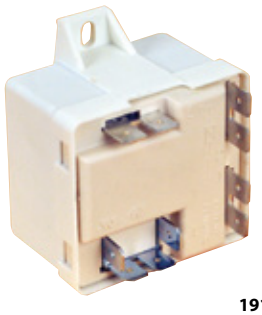
*Not included in 19001 MARS 6-Pak

MARS HVAC Potential Relays

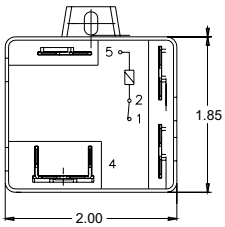
MARS series relays are manufactured for the HVAC industry. These relays meet all requirements for original equipment relays.

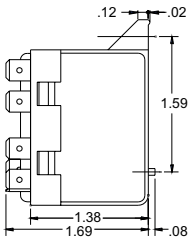
Features:

- 50/60 Hz
- cULus
- Contact rating 35 amp, 400 VAC
- Operating position tab up
- Instructions and wiring diagram included in each relay
- Class "B" insulation

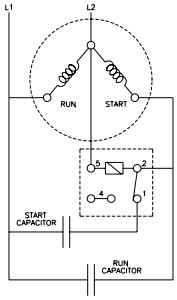


19163





WIRING DIAGRAM



Calibration Specifications

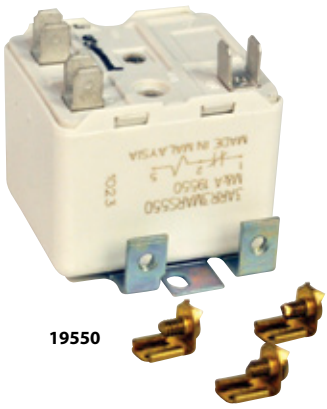
MARS NO.	MARS MODEL NO	CONTINUOUS COIL VOLTAGE	PICK-UP VOLTAGE	DROP-OUT VOLTAGE
19163	MARS 163	168	140-153	20-45
19164	MARS 164	420	242-272	60-121
19165	MARS 165	332	171-184	40-90
19166	MARS 166	420	204-233	60-121
19167	MARS 167	420	300-328	60-121
19168	MARS 168	502	314-342	60-135
19169	MARS 169	332	180-193	40-90
19170	MARS 170	253	285-305	35-77
19171	MARS 171	420	204-233	60-121

Note: If used on 50 Hz, the PU will be about 13% lower

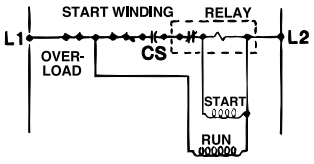
MARS Relays & Potential Relays

For Submersible Pump Applications

The MARS 550 and 551 relays were specifically developed for submersible pump and other motor starting applications in high moisture environments. Because the control panels for these are often located in areas of high humidity, the components on them must resist the effects of moisture. Chrome plating on the core and armature and the relatively small area of contact eliminates armature sticking due to organic contaminants which was the number one cause of relay failure.



19550



Features:

- Used on F.E. Meyers, Franklin Electric, Jacuzzi, Red Jacket, Sta-Rite, and Tait
- 2 relays replace over 25 O.E.M. relays
- Universal break-off bracket on each relay. Simply snap off parts not needed
- UL and CSA listings available

MARS NO.	MARS MODEL NO.	CONTINUOUS COIL VOLTAGE	PICK-UP		DROP-OUT	
			MIN.	MAX	MIN.	MAX
19550	MARS 550	130	111	134	15	40
19551	MARS 551	332	244	270	40	90

MARS NO.	G.E. NO.	USED BY
16104	3ARR3J3G3	Barnes [Burks, Decator] & Myers

MANUF.	OEM NO.	GE CAT. NO.	MARS NO.
F.E. Myers	13178-A	3ARR3D7J4	19550
	13179-A	3ARR3D3V4	19551
	13180-A	3ARR3D3A4	19551
	17891-A	3ARR3EA3A4	19551
	17890-A	3ARR3EA3V4	19551
	17889-A	3ARR3EA7J4	19550
Franklin Electric	155031-101	3ARR3J7J4	19550
	155031-102	3ARR3J9V4	19551
	155031-104	3ARR3J2P3	19550
	155031-103	3ARR3J9U4	19551
	155031-105	3ARR3J7M1	19550

MANUF	OEM NO.	GE CAT. NO.	MARS NO.
Jacuzzi	23-1308-26	3ARR3EA9V5	19551
	23-1308-00	3ARR3EA7J5	19550
	23-1308-18	3ARR3EA7BB5	19550
	23-1308-34	3ARR3EA5U5	19551
	23-1308-42	3ARR3EA7M5	19550
	23-1308-49	3ARR3EA5C5	19551
Red Jacket	71-69	3ARR3EA7M5	19550
	71-70	3ARR3EA5B5	19551
	71-47	3ARR3J3V2	19551
Sta-Rite	U18-325	3ARR3J3V3	19551
	U18-665	3ARR3J3A3	19551
	U18-810	3ARR3J2P3	19550
	U18-811	3ARR3J5V3	19551
Tait	A124P2	3ARR3EA5A5	19551
	A124P1	3ARR3EA7K5	19550

One-On-One™ Direct Replacement Potential Relays

The relays are exact replacements for Bristol & Copeland applications. They conform to specifications and in most cases are the one-on-one™ replacement relay used by the manufacturer.

Other relays available on special order. Contact your local wholesaler or MARS Customer Service.

16028

BRISTOL	MARS
650058	16028
650971	16083

COPELAND	MARS
040-0001-00	16086
040-0001-01	16093
040-0001-04	16085
040-0001-12	16098
040-0001-17	16095
040-0001-19	16089
040-0001-20	16023
040-0001-25	16035
040-0001-26	16022

COPELAND	MARS
040-0001-34	16099
040-0001-35	16090
040-0001-48	16093
040-0001-50	16085
040-0001-53	16095
040-0001-54	16089
040-0001-55	16023
040-0001-59	16090
040-0001-60	16091
040-0001-61	16086
040-0001-62	16035

COPELAND	MARS
040-0001-64	16098
040-0001-68	16099
040-0001-71	16116
040-0001-74	16122
040-0001-78	16121
040-0001-79	16152
040-0001-89	

Universal Replacement

Quick Reference Relay Selection Chart For General Electric Relays

1. Determine the General Electric model number of the Relay to be replaced the "FORM" and "GROUP"

		One number plus 1 or 2 Letters	1 or 2 Letters	
EXAMPLE:	**3ARR3***	**A**	**3B**	**3**
	Basic Type	**FORM**	**GROUP**	**Non-Positional**

Cross Reference Information

WR/RBM NO.	MARS NO.
90-1	**19002**
90-2	**19009**
90-3	**19004**
90-4	**19003**
90-5	**19006**
90-6	**19006**
90-7	**19004**
90-8	**19003**
90-9	**19007**
90-10	**19008**
90-11	**19003**
90-12	**19007**
90-13	**19005**
90-14	**19003**
90-15	**19006**
90-16	**19007**
90-17	**19002**
90-18	**19008**
90-19	**19006**
90-20	**19007**
90-21	**19002**
90-22	**19003**
90-23	**19007**
90-24	**19008**

WRRBM NO.	MARS NO.
90-25	19006
90-26	19008
90-27	19005
90-40	19004
90-41	19008
90-63	19002
90-64	19003
90-65	19004
90-66	19005
90-67	19006
90-68	19007
90-69	19001

TECUM. NO.	MARS NO.
82777	19002
82778	19004
82779	19008
82781	19010
82783	19003
82784	19009
82785	19006
82787	19007

2.Locate in the following table the Relay GROUP and select the corresponding MARS Replacement Relay from the kit.

19002 MARS 63 replaces Relay GROUPS 2J; 2K; 2L; 2M; 5N; 7J; 7K; 7L: 7M; 7N; 8L; 8M; 8N

19003 MARS 64 replaces Relay GROUPS 3A; 3B; 3AV; 3AU; 4A; 4B; 6A; 6B; 6AV; 10A; 10B; 10AU; 10AV

19004 MARS 65 replaces Relay GROUPS 3P; 3R; 3AP; 5P; 5R; 5S; 5T; 22S

19005 MARS 66 replaces Relay GROUPS 3U; 3V; 3AT; 6U; 6V; 6W

19006 MARS 67 replaces Relay GROUPS 3C; 3D; 3AA; 4C; 4D; 4BK; 6C; 6D; 6AA; 10C; 10D; 26A; 26B; 26C; 26D

19007 MARS 68 replaces Relay GROUPS 3E; 3F; 3AB; 3AC; 4E; 4F; 4G; 6E; 6F; 6G; 10H; 10AB; 10AC; 26E; 26F; 26G; 26H; 27E; 27F; 27G

19008 MARS 69 replaces Relay GROUPS 3S; 3T; 10S; 10T; 25S; 25T; 10AS

19009 MARS 70 replaces Relay GROUPS 5B; 5C; 5D; 5AA; 8B; 8C; 8D

19010 MARS 71 replaces Relay GROUPS 6TV; 6TW; 10V

3. Install relay in accordance with instructions in MARS Replacement Kit

NOTES

NOTES

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