EMERSON Climate Technologies

Application Engineering

Copeland®

BULLETIN

AE4-1336

DISCUS™ OPTIMIZED MEDIUM TEMPERATURE MODELS BULLETIN

February 2006

INDEX **PAGE**

1. Introduction

Discus™ optimized models are specifically designed for medium temperature refrigeration applications. The motors and protection systems are designed for a smaller medium temperature operating envelope such that the Maximum Continuous Current (MCC) values are lower than the traditional dual purpose models that could be used in both A/C applications and medium temperature refrigeration applications, see **Figure 1**. This allows smaller system electrical equipment to be used in these medium temperature refrigeration applications.

2. Optimized Model Envelope

Figure 1 shows the approved optimized medium temperature envelope.

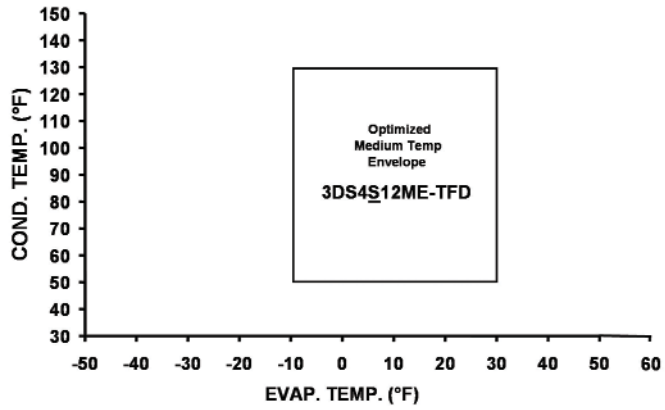


Figure 1

2.1 Low Condensing Temperature

Optimized medium temperature models are approved to operate at condensing temperatures down to 50°F. Refer to AE Bulletin 4-1334 for further details.

3. Approved Models

All optimized medium temperature Discus models will be designated by an 'S' in the 5th character of the model name, example 3DS4S12ME-TFD. See **Figure 1**.

4. Approved Refrigerants

Optimized Med. Temp. Model	HFC-404A	HFC-507	HCFC-22
3DS**	Approved	Approved	Approved
4DS**	Approved	Approved	NOT Approved

If other approvals are required, please contact your application engineer.

5. Compressor Unloading

5.1 3D Moduload®

The effectiveness of Moduload is dependent on operating conditions. Care should be exercised to ensure the compressor stays within the approved unloaded regions, see **Figures 2a and 2b**. In addition, a minimum pressure differential of 60 to 70 psi (4.2 to 4.9 Kg/cm2) is required between suction and discharge pressures. Because of this, Moduload applications should be limited to where the discharge pressure never falls below a pressure corresponding to 70 psi (4.9 Kg/cm2) above suction pressure.

Figures 2a and 2b show the restrictions for the optimized medium temperature envelopes when using Moduload. The crosshatched areas are restricted areas where Moduload is not approved to operate. Operation in these restricted areas will result in chattering of the Moduload plunger due to improper pressure differential. For complete Moduload information, refer to Application Bulletin 21-1278.

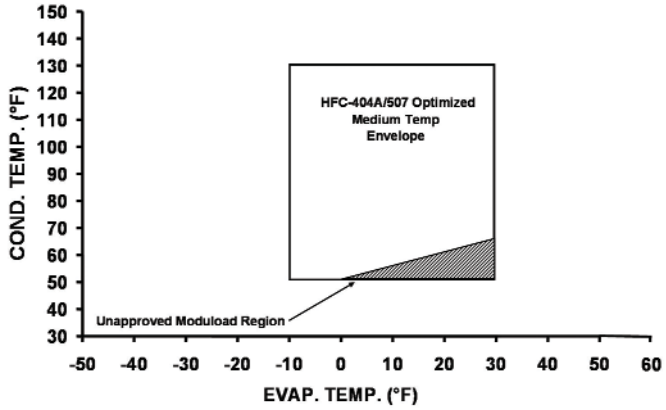


Figure 2a

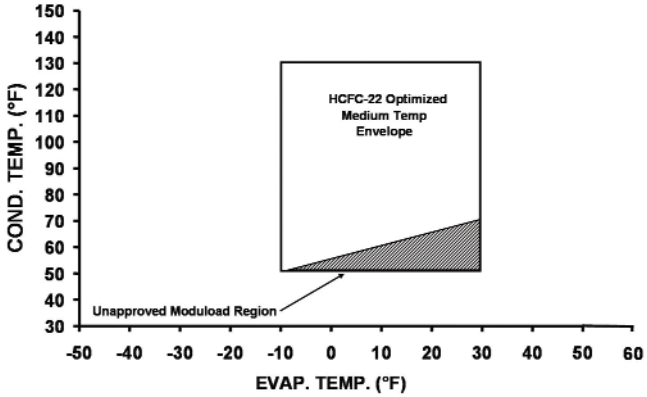


Figure 2b

5.2 4D Blocked Suction

For blocked suction unloading, 4D, there are no envelope restrictions. For complete blocked suction unloading information, refer to Application Bulletin 21-1216.

6. General Guidelines

The Discus optimized medium temperature models were developed so that smaller system electrical components could be used in medium temperature refrigeration applications. Please reference Online Product Information (OPI) for the electrical ratings of these compressors (OPI can be found at https://www.emersonclimatecustomer.com). Copeland calculates Rated Load Amps (RLA) by dividing MCC by 1.4. Per Underwriters Laboratories (UL), RLA may be calculated by dividing MCC by 1.56. Copeland strongly recommends using the 1.4 factor for contactor selection (refer to AE Bulletin 10-1244 for further details). For selecting breaker and wire sizes, if the 1.56 factor is used, ensure that a sufficient margin of safety is available over the component rating.

All other relevant application guidelines apply.

EMERSON
Climate Technologies

Marketing

B U L L E T I N

NO: 34-05

DATE: 11/17/05

TO: **EMERSON CLIMATE TECHNOLOGIES WHOLESALERS**
-EXECUTIVES
-PRODUCT MANAGERS
-COPELAND TECHNICAL SPECIALISTS
-BRANCH MANGERS

FROM: SALES & MARKETING

SUBJECT: **DISCUS NOMENCLATURE CHANGE INFORMATION**

Effective Jan 2, 2006, Certified Copeland Discus™ aftermarket products will change nomenclature on all models, with the exception of 8D compressors, moving from horsepower to a BTU capacity nomenclature. The nameplate on the compressor is the only change; size, performance, and service parts remain the same.

Throughout 2006, OEM's will also be in transition as they work to changeover their systems and UL requirements.

The decision to change nomenclature was the result of extensive work with OEMs and end-users over the past two years to reduce the applied cost of refrigeration systems. By rating the compressor in BTU's, OEM's have conveyed they are able to design refrigeration systems with specifications that closer match the needs of the application and reduce system component applied cost.

Additionally, in responding to a changing market Copeland will launch new medium temperature application models designed specifically to cover only medium temperature applications. Look for these new models and more information in early 2006.

To reduce the impact of this change we will supply the following to assist in the communication to your branches:

1) Cross-reference file showing the old vs. new models - (Attachment)
2) Nomenclature change showing old vs. new - (Attachment)
3) Copeland Specialist Training Communication Tools - (Future communication)

Distribution Services, 1675 W. Campbell Road, Sidney, OH 45365 PH 937-498-3011
DistributionServices@EmersonClimate.com

Nomenclature Example:

	Existing Model	Future Model
High Temp	3DS3**A**150E-TFD	3DS3**R17M**E-TFD
Med Temp	3DS3**A**150E-TFD	3DS3**S12M**E-TFD
Low Temp	3DS3**A**100E-TFD	3DS3**F46K**E-TFD

The new nomenclature uses the fifth digit character to signify the operating envelope of the compressor and the rating point for the capacity designation (the next 3 digits). Currently, the fifth digit designates the delta reed design (**A**).

R = 45 evap/130 condensing (dual envelope - high & medium temp)
S = 20 evap/120 condensing (medium temp models - After Jan 2006)
F = -25 evap/105 condensing (low temp)

The sixth and seventh characters now signify capacity in BTU/hr instead of horsepower, with the eighth character acting as a multiplier. Reference example below:

17**M** = 17 x 10,000 = 170,000 BTU/hr
46**K** = 46 x 1,000 = 46,000 BTU/hr

Distribution Center Transition Plan

We request that all Discus models you order after January 2nd have the new nomenclaturemodels designated on your purchase order. Our plan is to have Customer Service contact you to ask your permission to change your order back to the old nomenclature model as we deplete our inventory.

If we continue to receive orders for old nomenclature models we will change your order to the new nomenclature if we do not have inventory of the old nomenclature model available. If this happens, your packing slip and advance shipping notice (ASN) will be your notification of the change.

We expect this transition to be complete within several weeks and appreciate your cooperation during this time.

Contact Customer Service (317-968-4299) or your Distribution Service Field Sales Manager if you have any questions or concerns.

Attachments (2)

DISCUS COMPRESSORS CROSS REFERENCE	
Current Model	**New Nomenclature Model**
2DA3-0500-TFC-800	2DA3R58K0-TFC-800
2DA3-0500-TFD-800	2DA3R58K0-TFD-800
2DA3-0600-TFC-800	2DA3F23KE-TFC-800
2DA3-0600-TFD-800	2DA3F23KE-TFD-800
2DA3-0600-TFE-800	2DA3F23KE-TFE-800
2DA3-060E-TFC-800	2DA3F23KE-TFC-800
2DA3-060E-TFD-800	2DA3F23KE-TFD-800
2DA3-060E-TFE-800	2DA3F23KE-TFE-800
2DA3-0750-TFC-800	2DA3R89KE-TFC-800
2DA3-0750-TFD-800	2DA3R89KE-TFD-800
2DA3-0750-TFE-800	2DA3R89KE-TFE-800
2DA3-075E-TFC-800	2DA3R89KE-TFC-800
2DA3-075E-TFD-800	2DA3R89KE-TFD-800
2DA3-075E-TFE-800	2DA3R89KE-TFE-800
2DB3-0500-TFC-800	2DB3R61K0-TFC-800
2DB3-0500-TFD-800	2DB3R61K0-TFD-800
2DB3-0600-TFC-800	2DB3F25KE-TFC-800
2DB3-0600-TFD-800	2DB3F25KE-TFD-800
2DB3-060E-TFC-800	2DB3F25KE-TFC-800
2DB3-060E-TFD-800	2DB3F25KE-TFD-800
2DC3-0500-CFB-800	2DC3R53K0-CFB-800
2DC3-0500-TFC-800	2DC3R53KE-TFC-800
2DC3-0500-TFD-800	2DC3R53KE-TFD-800
2DC3-050E-TFC-800	2DC3R53KE-TFC-800
2DC3-050E-TFD-800	2DC3R53KE-TFD-800
2DD3-0500-TFC-800	2DD3R63KE-TFC-800
2DD3-0500-TFD-800	2DD3R63KE-TFD-800
2DD3-050E-TFC-800	2DD3R63KE-TFC-800
2DD3-050E-TFD-800	2DD3R63KE-TFD-800
2DF3-0300-CFB-800	2DF3F16KE-CFB-800
2DF3-0300-TFC-800	2DF3F16KE-TFC-800
2DF3-0300-TFD-800	2DF3F16KE-TFD-800
2DF3-030E-CFB-800	2DF3F16KE-CFB-800
2DF3-030E-TFC-800	2DF3F16KE-TFC-800
2DF3-030E-TFD-800	2DF3F16KE-TFD-800
2DL3-0400-TFC-800	2DL3F20KE-TFC-800
2DL3-0400-TFD-800	2DL3F20KE-TFD-800
2DL3-040E-TFC-800	2DL3F20KE-TFC-800
2DL3-040E-TFD-800	2DL3F20KE-TFD-800
2DL3-0750-TFC-800	2DL3R78KE-TFC-800
2DL3-0750-TFD-800	2DL3R78KE-TFD-800
2DL3-075E-TFC-800	2DL3R78KE-TFC-800
2DL3-075E-TFD-800	2DL3R78KE-TFD-800
3DA3A0500-TFC-800	3DAF18K0-TFC-800
3DA3A0500-TFD-800	3DAF18K0-TFD-800
3DA3A0600-TFC-800	3DA3F28K0-TFC-800
3DA3A0600-TFD-800	3DA3F28K0-TFD-800
3DA3A060E-TFC-800	3DA3F28KE-TFC-800
3DA3A060E-TFD-800	3DA3F28KE-TFD-800
3DA3A0750-TFC-800	3DA3R10M0-TFC-800
3DA3A0750-TFD-800	3DA3R10M0-TFD-800
3DA3A075E-TFC-800	3DA3R10ME-TFC-800
3DA3A075E-TFD-800	3DA3R10ME-TFD-800
3DB3A0500-TFC-800	3DB3F22K0-TFC-800
3DB3A0500-TFD-800	3DB3F22K0-TFD-800
3DB3A0750-TFC-800	3DB3F33K0-TFC-800

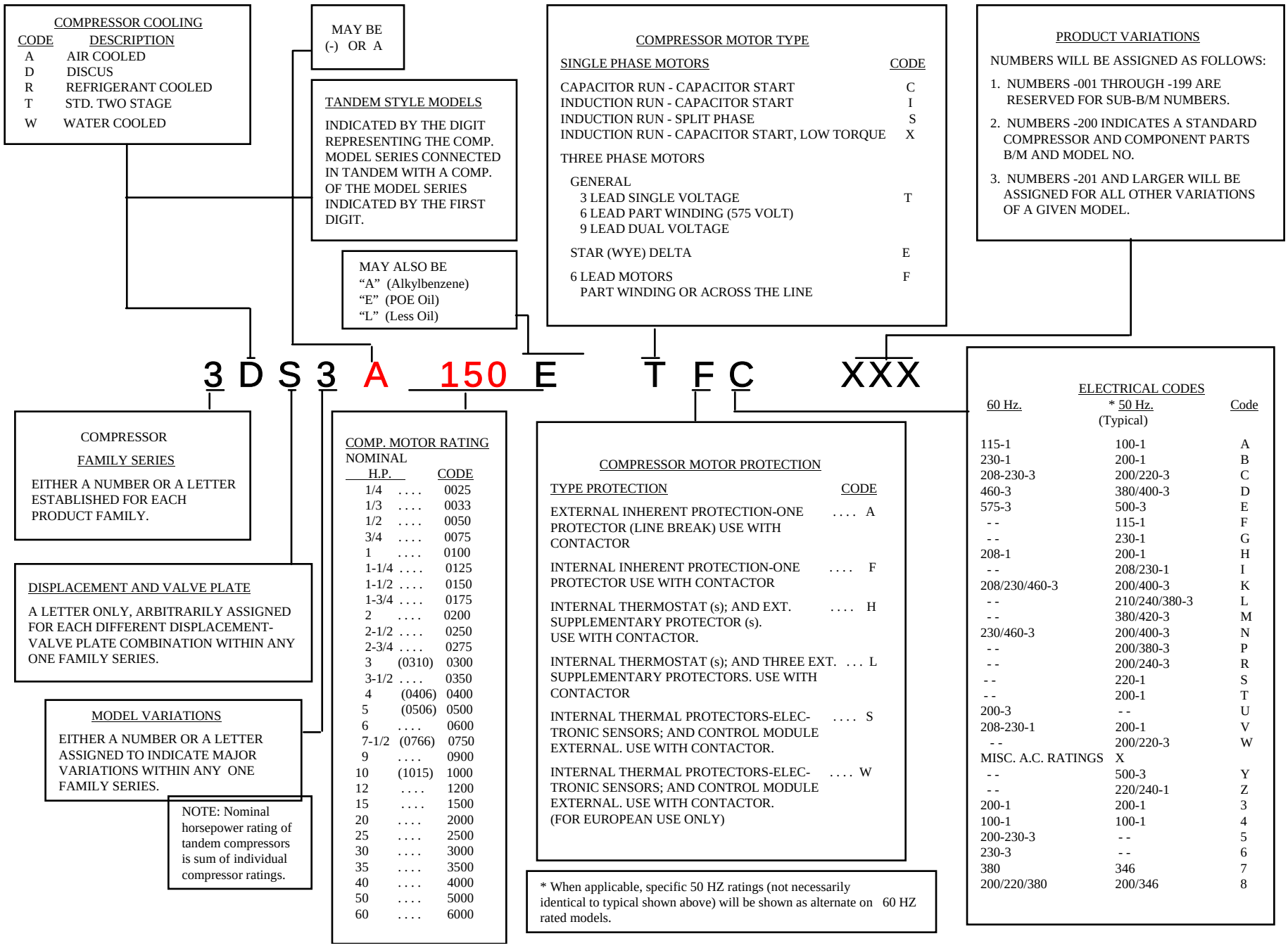
Current Model	New Nomenclature Model
3DB3A0750-TFD-800	3DB3F33K0-TFD-800
3DB3A075E-TFC-800	3DB3F33KE-TFC-800
3DB3A075E-TFD-800	3DB3F33KE-TFD-800
3DB3A1000-TFC-800	3DB3R12M0-TFC-800
3DB3A1000-TFD-800	3DB3R12M0-TFD-800
3DB3A100E-TFC-800	3DB3R12ME-TFC-800
3DB3A100E-TFD-800	3DB3R12ME-TFD-800
3DE3A0750-TFC-800	3DE3R10M0-TFC-800
3DE3A0750-TFD-800	3DE3R10M0-TFD-800
3DE3A075E-TFC-800	3DE3R10ME-TFC-800
3DE3A075E-TFD-800	3DE3R10ME-TFD-800
3DEHA075E-TFC-800	3DEHR10ME-TFC-800
3DEHA075E-TFD-800	3DEHR10ME-TFD-800
3DF3A0750-TFC-800	3DF3F26K0-TFC-800
3DF3A0750-TFD-800	3DF3F26K0-TFD-800
3DF3A0900-TFC-800	3DF3F40K0-TFC-800
3DF3A0900-TFD-800	3DF3F40K0-TFD-800
3DF3A090E-TFC-800	3DF3F40KE-TFC-800
3DF3A090E-TFD-800	3DF3F40KE-TFD-800
3DF3A1200-TFD-800	3DF3R15M0-TFD-800
3DF3A120E-TFC-800	3DF3R15ME-TFC-800
3DF3A120E-TFD-800	3DF3R15ME-TFD-800
3DF4A120E-TFC-800	3DF4R15ME-TFC-800
3DF4A120E-TFD-800	3DF4R15ME-TFD-800
3DG3A0900-TFC-800	3DG3F40K0-TFC-800
3DG3A0900-TFD-800	3DG3F40K0-TFD-800
3DG3A090E-TFC-800	3DG3F40KE-TFC-800
3DG3A090E-TFD-800	3DG3F40KE-TFD-800
3DGHA090E-TFC-800	3DH3F40KE-TFC-800
3DGHA090E-TFD-800	3DH3F40KE-TFD-800
3DH3A0600-TFC-800	3DH3F28K0-TFC-800
3DH3A0600-TFD-800	3DH3F28K0-TFD-800
3DH3A060E-TFC-800	3DH3F28KE-TFC-800
3DH3A060E-TFD-800	3DH3F28KE-TFD-800
3DHHA060E-TFC-800	3DHHF28KE-TFC-800
3DHHA060E-TFD-800	3DHHF28KE-TFD-800
3DJ3A0750-TFC-800	3DJ3F33K0-TFC-800
3DJ3A0750-TFD-800	3DJ3F33K0-TFD-800
3DJ3A075E-TFC-800	3DJ3F33KE-TFC-800
3DJHA075E-TFC-800	3DJHF33KE-TFC-800
3DJHA075E-TFD-800	3DJHF33KE-TFD-800
3DK3A1200-TFC-800	3DK3R15M0-TFC-800
3DK3A1200-TFD-800	3DK3R15M0-TFD-800
3DK3A120E-TFC-800	3DK3R15ME-TFC-800
3DK3A120E-TFD-800	3DK3R15ME-TFD-800
3DKHA120E-TFC-800	3DKHR15ME-TFC-800
3DKHA120E-TFD-800	3DKHR15ME-TFD-800
3DP3A1000-TFC-800	3DP3R12M0-TFC-800
3DP3A1000-TFD-800	3DP3R12M0-TFD-800
3DP3A100E-TFC-800	3DP3R12ME-TFC-800
3DP3A100E-TFD-800	3DP3R12ME-TFD-800
3DPHA100E-TFC-800	3DPHR12ME-TFC-800
3DPHA100E-TFD-800	3DPHR12ME-TFD-800
3DR3A1000-TFC-800	3DR3F46K0-TFC-800
3DR3A1000-TFD-800	3DR3F46K0-TFD-800
3DR3A100E-TFC-800	3DR3F46KE-TFC-800
3DR3A100E-TFD-800	3DR3F46KE-TFD-800

Current Model	New Nomenclature Model
3DRHA100E-TFC-800	3DRHF46KE-TFC-800
3DRHA100E-TFD-800	3DRHF46KE-TFD-800
3DS3A0750-TFC-800	3DS3F30K0-TFC-800
3DS3A0750-TFD-800	3DS3F30K0-TFD-800
3DS3A1000-TFC-800	3DS3F46K0-TFC-800
3DS3A1000-TFD-800	3DS3F46K0-TFD-800
3DS3A100E-TFC-800	3DS3F46KE-TFC-800
3DS3A100E-TFD-800	3DS3F46KE-TFD-800
3DS3A1500-TFC-800	3DS3R17M0-TFC-800
3DS3A1500-TFD-800	3DS3R17M0-TFD-800
3DS3A150E-TFC-800	3DS3R17ME-TFC-800
3DS3A150E-TFD-800	3DS3R17ME-TFD-800
3DT3A1000-TFC-800	3DT3R11M0-TFC-800
3DT3A1000-TFD-800	3DT3R11M0-TFD-800
3DT3A1500-TFC-800	3DT3R17M0-TFC-800
3DT3A1500-TFD-800	3DT3R17M0-TFD-800
3DT3A150E-TFC-800	3DT3R17ME-TFC-800
3DT3A150E-TFD-800	3DT3R17ME-TFD-800
3DTHA150E-TFC-800	3DTHR17ME-TFC-800
3DTHA150E-TFD-800	3DTHR17ME-TFD-800
4DA3-100E-TSK-800	4DA3R12ME-TSK-800
4DA3A100E-TSK-800	4DA3R12ME-TSK-800
4DA3-101E-TSK-800	4DA3F47KE-TSK-800
4DA3A101E-TSK-800	4DA3F47KE-TSK-800
4DA3A1000-FSD-800	4DA3R12M0-FSD-800
4DA3A2000-TSK-800	4DE3R18M0-TSK-800
4DA3A200E-TSK-800	4DE3R18ME-TSK-800
4DB3A2200-FSD-800	4DB3R20M0-FSD-800
4DB3A2200-TSK-800	4DC3R20M0-TSK-800
4DC3A2200-FSD-800	4DC3R20M0-FSD-800
4DC3A2200-TSE-800	4DC3R20M0-TSE-800
4DC3A2200-TSK-800	4DC3R20M0-TSK-800
4DE3-2000-TSK-800	4DE3R18M0-TSK-800
4DE3-200E-TSK-800	4DE3R18ME-TSK-800
4DE3A100E-TSK-800	4DE3R12ME-TSK-800
4DE3A2000-FSD-800	4DE3R18M0-FSD-800
4DE3A2000-TSK-800	4DE3R18M0-TSK-800
4DE3A200E-TSK-800	4DE3R18ME-TSK-800
4DH3-150E-TSK-800	4DH3R16ME-TSK-800
4DH3-250E-TSK-800	4DK3R22ME-TSK-800
4DH3A150E-TSK-800	4DH3R16ME-TSK-800
4DH3A250E-TSK-800	4DK3R22ME-TSK-800
4DJ3A270E-TSK-800	4DJ3R28ME-TSK-800
4DJ3A3000-TSK-800	4DJ3R28M0-TSK-800
4DK3-150E-TSK-800	4DK3R16ME-TSK-800
4DK3-2500-FSD-800	4DK3R22M0-FSD-800
4DK3-2500-TSK-800	4DK3R22M0-TSK-800
4DK3A150E-TSK-800	4DK3R16ME-TSK-800
4DK3A2500-FSD-800	4DK3R22M0-FSD-800
4DK3A2500-TSK-800	4DK3R22M0-TSK-800
4DK3A250E-TSK-800	4DK3R22ME-TSK-800
4DL3-150E-TSK-800	4DL3F63KE-TSK-800
4DL3A150E-TSK-800	4DL3F63KE-TSK-800
4DN3-101E-TSK-800	4DN3F47KE-TSK-800
4DN3A101E-TSK-800	4DN3F47KE-TSK-800
4DP3-150E-TSK-800	4DP3F63KE-TSK-800
4DP3A150E-TSK-800	4DP3F63KE-TSK-800

Current Model	New Nomenclature Model
4DP8-150E-TSK-804	4DP8F63KE-TSK-800
4DR3-3000-FSD-800	4DR3R28M0-FSD-800
4DR3-3000-TSK-800	4DR3R28M0-TSK-800
4DR3-300E-TSK-800	4DR3R28ME-TSK-800
4DR3A200E-TSK-800	4DR3R19ME-TSK-800
4DR3A3000-FSD-800	4DR3R28M0-FSD-800
4DR3A3000-TSK-800	4DR3R28M0-TSK-800
4DR3A300E-TSK-800	4DR3R28ME-TSK-800
4DS3-220E-TSK-800	4DS3F76KE-TSK-800
4DS3A220E-TSK-800	4DS3F76KE-TSK-800
4DT1A2200-TSK-800	4DS3F76K0-TSK-800
4DT3-220E-TSK-800	4DT3F76KE-TSK-800
4DT3A220E-TSK-800	4DT3F76KE-TSK-800
6DB3A3000-TSK-800	6DY3R32M0-TSK-800
6DC3-270E-TSK-800	6DC3F93KE-TSK-800
6DC3A270E-TSK-800	6DC3F93KE-TSK-800
6DD3-270E-TSK-800	6DD3F93KE-TSK-800
6DD3A270E-TSK-800	6DD3F93KE-TSK-800
6DE3-300E-TSK-800	6DE3F11ME-TSK-800
6DE3A3000-TSK-800	6DE3F11M0-TSK-800
6DE3A300E-TSK-800	6DE3F11ME-TSK-800
6DF3-300E-TSK-800	6DF3F11ME-TSK-800
6DF3A3000-TSK-800	6DF3F11M0-TSK-800
6DF3A300E-TSK-800	6DF3F11ME-TSK-800
6DG3A3500-FSD-800	6DG3R37M0-FSD-800
6DG3A3500-FSU-800	6DN3R37M0-FSU-800
6DG3A3500-TSN-800	6DN3R37ME-TSN-800
6DG3A350E-TSN-800	6DN3R37ME-TSN-800
6DH3-200E-TSK-800	6DH3R23ME-TSK-800
6DH3A200E-TSK-800	6DH3R23ME-TSK-800
6DH3A3500-FSD-800	6DP3R35M0-FSD-800
6DH3A350E-TSK-800	6DP3R35ME-TSK-800
6DK3-200E-TSK-800	6DK3R23ME-TSK-800
6DK3A3500-TSK-800	6DP3R35M0-TSK-800
6DK3A350E-TSK-800	6DP3R35ME-TSK-800
6DL3-270E-TSK-800	6DL3F93KE-TSK-800
6DL3A270E-TSK-800	6DL3F93KE-TSK-800
6DM3A3500-FSD-800	6DN3R37M0-FSD-800
6DM3A3500-FSU-800	6DN3R37M0-FSU-800
6DM3A3500-TSN-800	6DN3R37M0-TSN-800
6DN3A3500-FSD-800	6DN3R37M0-FSD-800
6DN3A3500-FSU-800	6DN3R37M0-FSU-800
6DN3A3500-TSN-800	6DN3R37ME-TSN-800
6DN3A350E-TSN-800	6DN3R37ME-TSN-800
6DP3-200E-TSK-800	6DP3R23ME-TSK-800
6DP3-3500-FSD-800	6DP3R35M0-FSD-800
6DP3-3500-TSK-800	6DP3R35M0-TSK-800
6DP3-350E-FSD-800	6DP3R35ME-FSD-800
6DP3-350E-TSK-800	6DP3R35ME-TSK-800
6DP3A200E-TSK-800	6DP3R23ME-TSK-800
6DP3A3500-FSD-800	6DP3R35M0-FSD-800
6DP3A3500-TSK-800	6DP3R35M0-TSK-800
6DP3A350E-FSD-800	6DP3R35ME-FSD-800
6DP3A350E-TSK-800	6DP3R35ME-TSK-800
6DR3-300E-TSK-800	6DR3R28ME-TSK-800
6DR3-400E-FSD-800	6DS3A40ME-FSD-800
6DR3A300E-TSK-800	6DR3R28ME-TSK-800

Current Model	New Nomenclature Model
6DR3A400E-FSD-800	6DR3A40ME-FSD-800
6DR3A400E-FSU-800	6DR3A40ME-FSU-800
6DR3A400E-TSN-800	6DR340ME-TSN-800
6DS1A4000-FSD-800	6DS3A40M0-FSD-800
6DS1A4000-TSN-800	6DS3R40M0-TSN-800
6DS3-300E-TSK-800	6DS3R28ME-TSK-800
6DS3-4000-FSD-800	6DS3R40M0-FSD-800
6DS3-4000-FSU-800	6DS3R40M0-FSU-800
6DS3-4000-TSN-800	6DS3R40M0-TSN-800
6DS3-400E-TSN-800	6DS3R40ME-TSN-800
6DS3A300E-TSK-800	6DS3R28ME-TSK-800
6DS3A4000-FSD-800	6DS3R40M0-FSD-800
6DS3A4000-FSU-800	6DS3R40M0-FSU-800
6DS3A4000-TSN-800	6DS3R40M0-TSN-800
6DS3A400E-TSN-800	6DS3R40ME-TSN-800
6DT3-300E-FSD-800	6DT3F11ME-FSD-800
6DT3-300E-TSK-800	6DT3F11ME-TSK-800
6DT3A3000-FSD-800	6DT3F11ME-FSD-800
6DT3A3000-TSK-800	6DT3F11ME-TSK-800
6DT3A300E-FSD-800	6DT3F11ME-FSD-800
6DT3A300E-TSK-800	6DT3F11ME-TSK-800
6DW3A3000-FSD-800	6DY3R32M0-FSD-800
6DW3A3000-TSK-800	6DY3R32M0-TSK-800
6DY3A3000-FSD-800	6DY3R32M0-FSD-800
6DY3A3000-TSK-800	6DY3R32M0-TSK-800
6DY3A300E-TSK-800	6DY3R32ME-TSK-800

COPELAMETIC® COMPRESSOR MODEL NUMBER NOMENCLATURE OLD



DISCUS® COMPRESSOR MODEL NUMBER NOMENCLATURE

NEW