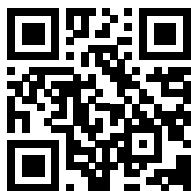


Service Parts Catalog

2025

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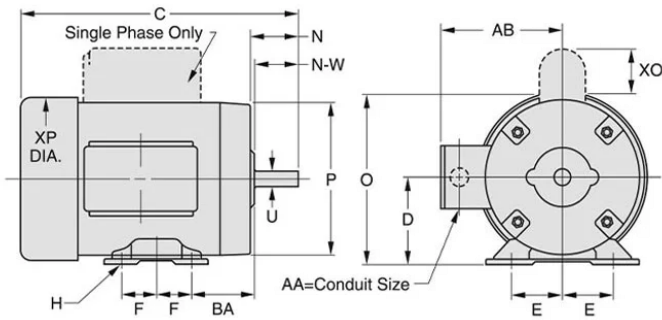


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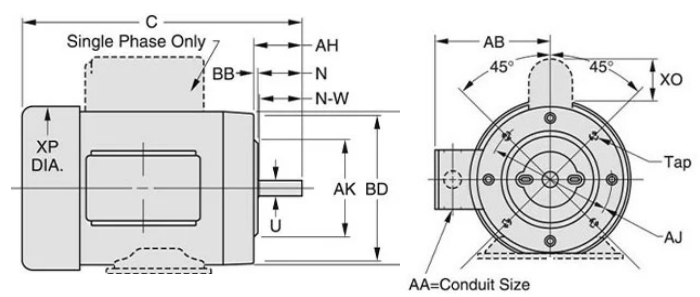
NEMA Motor Guide

NEMA (National Electrical Manufacturers Association) has a set of standards relating to electric motors that include design classes, frame sizes, enclosures, and configurations. This standardization allow motors to be more easily replaced, helping insure that motors with the same frame size from different manufacturers can be interchanged and fit within the same system design.

Rigid and Resilient Mount Motors



C-Face Motors



NEMA Frame	D	E	F	O	P	U	N-W	AA	AB	AK	BA	BD	XP	Tap	Key Size
42	2-5/8	1-3/4	27/32	5-1/16	4-7/8	3/8	1-1/8	3/8	4-1/2	3	2-1/6	4-7/8	5-1/8	1/4-20(4)	3/64 Flat
48	3	2-1/8	1-3/8	5-7/8	5-5/8	1/2	1-1/2	1/2	4-7/8	3	2-1/2	5	5-7/8	1/4-20(4)	3/64 Flat
56	3-1/2	2 7/16	1-1/2	6-7/8	6-5/8	5/8	1-7/8	1/2	5-3/8	4-1/2	2-3/4	6-1/2	7-1/4	3/8-16(4)	3/16
56H			2-1/2												
143T	3-1/2	2-3/4	2	6-7/8	6-5/8	7/8	2-1/4	3/4	6-3/8	4-1/2	2-1/4*	6 1/2	7-1/4	3/8-16(4)	3/16
145T			2-1/2												
182T	4-1/2	3 3/4	2-1/4	8-3/4	8-1/2	1-1/8	2-3/4	3/4	6-3/8	8-1/2	2-3/4*	8-7/8	9-1/8	1/2-13(4)	1/4
184T			2-3/4												
213T	5-1/4	4-1/4	2-3/4	10-5/8	9-3/4	1-3/8	3-3/8	3/4	8-3/8	8-1/2	3-1/2*	9	10-3/4	1/2-13(4)	5/16
215T			3-1/2												
254T	6-1/4	5	4-1/8	13	13	1-5/8	4	1-1/4	10-1/2	8-1/2	4-1/2*	10	13	1/2-13(4)	3/8
256T			5												
284T			4-3/4			1-7/8	4-5/8								1/2
284TS	7	5-1/2		14-1/2	13-3/8	1-5/8	3-1/4	1-1/2	11-7/8	10-1/2	4-3/4	11-1/4	14-1/2	1/2-13(4)	3/8
286T			5 1/2			1-7/8	4-5/8								1/2
286TS						1-5/8	3-1/4								3/8
324T			5-1/4			2-1/8	5-1/4								5/8
324TS	8	6-1/4		16-1/8	15-7/8	1-7/8	3-3/4	2	13	12-1/2	5-1/4	14	16-1/8	5/8-11(4)	1/2
326T			6			2-1/8	5-1/4								5/8
326TS						1-7/8	3-3/4								1/2
364T			5-5/8			2-3/8	5-7/8								5/8
364TS	9	7		18-3/8	17-7/8	1-7/8	3-3/4	3	14	12-1/2	5-7/8	14	18-3/8	5/8-11(8)	1/2
365T			6-1/8			2 3/8	5 7/8								5/8
365TS						1 7/8	3 3/4								1/2
404T			6-1/8			2-7/8	7-1/4								3/4
404TS	10	8		20	19-5/8	2-1/8	4-1/4	3	16	12-1/2	6-5/8	14	20	5/8-11(8)	1/2
405T			6-7/8			2-7/8	7-1/4								3/4
405TS						2-1/8	4-1/4								1/2
444T			7-1/4	21-3/4	21-3/8	3-3/8	8 1/2						21-1/2		7/8
444TS	11	9	7-1/4	21-3/4	21-3/8	2-3/8	4 3/4	3	20	16	7-1/2	18	21-1/2	5/8-11(8)	5/8
445T			8-1/4	21-3/4	21-3/8	3-3/8	8 1/2						21-1/2		7/8
445TS			8-1/4	21-3/4	21-3/8	2-3/8	4 3/4						21-1/2		5/8
447T			10	23	22-3/4	3-3/8	8-1/2								7/8
447TS	11	9	10	23	22-3/4	2-3/8	4-3/4	3	20	16	7-1/2	18	24	5/8-11(8)	5/8
449T			12-1/2	23	23-3/8	3-3/8	8-1/2								7/8
449TS			12-1/2	23	23-3/8	2-3/8	4-3/4								5/8

* NEMA C face motors with a rigid base have different BA dimensions in the following instances: 143TC & 145TC – 2-3/4" instead of 2-1/4", 182TC & 184TC – 3-1/2" instead of 2-3/4", 213TC & 215TC – 4-1/4" instead of 3-1/2", 254TC & 256TC – 4-3/4" instead of 4-1/4"

Letters following the frame size provide information about the motor's design, features, and modifications:

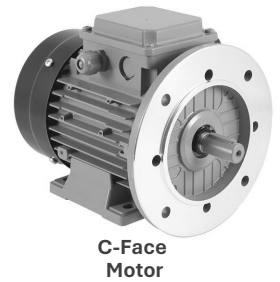
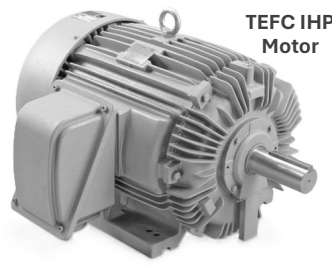
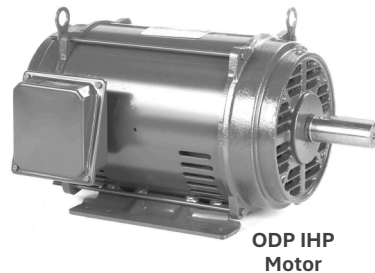
Letter	Description
C	C-flange mounted motor. There will be threaded holes on the face of the motor to mount the C-flange.
D	D-flange motor - flange has a larger outer diameter than the motor to allow bolts to pass through the back of the motor and attach to the flange
H	Base can be mounted in 56, 143T, or 145T dimensions
J	Found on 56 frame motors and indicate that the motor has a threaded shaft and standard 56C face
JM	Special pump shaft with a mechanical seal and a C-face

Letter	Description
JP	Special shaft with a packing seal and a C-face - used in pump applications
S	Shaft is shorter than the regular size. These shafts are for flexible coupling rather than belt drives.
T	Motor is from the frame size standardization from 1964 or later
U	Motor is from the frame size standardization from 1952 to 1964
Y	Indicates a special mounting configuration. The letter doesn't determine the configuration, but shows that it is not standard.
Z	Indicates a special shaft. The letter doesn't determine the difference, but does indicate that it is not standard.

Common Motor Definitions

Code	Enclosure Type
OAO	Open Air Over. The motor has vent openings in its shell or to allow air to pass over and cool the motor. Typically used in clean, dry, indoor environments, such as furnace blowers.
TEAO	Totally Enclosed Air Over. Dust-tight enclosure typically installed in the airstream. The air movement from the fan passes over the motor to provide cooling.
ODP	Open Drip Proof. Allows air to reach the windings for cooling, but prevents liquid from dripping vertically into the motor. Used in clean, dry, indoor locations.
TEFC	Totally Enclosed Fan Cooled. These motors are enclosed so that inside and outside air don't mix. An external fan attached to the shaft provides cooling. It blows external air across cooling fins on the outside of the motor. Extremely versatile - used on fans, pumps, compressors, and industrial belt drives.
TENV	Totally Enclosed Non Ventilated. Similar to TEFC, but there are no ventilation openings. It depends solely on convection cooling.
TEWD	Totally Enclosed Wash Down. Designed to withstand high-pressure wash downs, high humidity, and wet environments.
XP	Explosion Proof. Motor frame will not rupture or burst. They are enclosed in such a way to withstand an internal explosion.

Code	Description
C-Face	A C-Face motor has a flat surface on the shaft side. This allows for direct-coupling with equipment, while the weight of the motor is carried by the flange mounting.
FLA	Full Load Amps. Current (amps) drawn by a motor when operating at maximum load and voltage on motor nameplate. Important for wire size selection, starter or VFD selection.
Insulation	NEMA rating by max allowable operating temperature. Class A = 105°C, B = 130°, F = 155° and Class H = 180°C.
IHP	Integral Horsepower Motor. A motor rated one HP or larger at 1800 RPM, with a three digit frame (i.e. 143T)
LRA	Locked Rotor Amps. The highest current that the motor could ever draw. This is the expected current under starting conditions when full voltage is applied.
SF	Service Factor. A measure of the overload capacity built into a motor. A 1.15 SF means the motor can deliver 15% more than the rated horsepower without overheating.



Motor Accessories

Rain Slingers

Item #	Shaft Size	Diameter
SLG00052	1/2"	2-3/8"
SLG00056	1/2"	7"
SLG00032	5/8"	2-1/8"
SLG00123	5/8"	7"

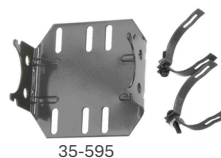


Motor Shaft Keys

Item #	Kit	Included Sizes
6101	Small Size Assortment	1/8" x 1/8" x 1-3/16" 3/16" x 3/16" x 1-3/16" 3/16" x 1/4" x 1-3/16" 1/4" x 1/4" x 1-3/4"
6102	Large Size Assortment	1/4" x 1/4" x 1-3/4" 5/16" x 5/16" x 3" 3/8" x 3/8" x 3"

Motor Mount Brackets

Item #	Description	Fits Frame Sizes
MB55	3-Leg Flex Mount	42 & 48 Frame
MB554	4-Leg Flex Mount	42 & 48 Frame 9" - 10" Bolt Diameter
5K002	4-Leg Welded	For Evergreen EM & VS Motors
35-595	Dual Shaft Base	6" Base for Evergreen DS & Dual Shaft Motors

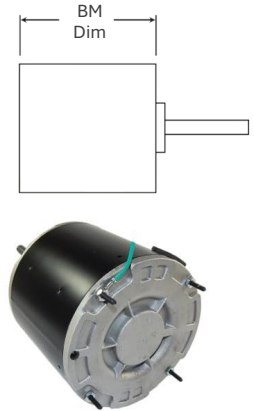


Condenser Fan Motors

Pro-E Series Dedicated Horsepower TEAO Motors

- 70°C Max Ambient
- Class F Insulation
- Electrically Reversible
- Lead-End OEM Mounting Holes (Trane / Rheem)
- Single Phase
- Auto Protector
- TEAO / Ball Bearing

Model	Horse Power	RPM	Voltage	# of Speeds	Rotation	Rated Amps	Frame Size	BM Length (w/o shaft)	Shaft Size	Cap. MFD	Lead Length
EM3403F	1/6	825	208-230/1	1	Reversible	1.0 - 1.1	48	4.19	1/2 x 6.0 Flat	5	36"
EM3727F	1/6	1075	208-230/1	1	Reversible	1.0 - 1.1	48	3.93	1/2 x 6.0 Flat	5	36"
EM3404F	1/4	825	208-230/1	1	Reversible	1.3 - 1.4	48	4.19	1/2 x 6.0 Flat	5	36"
EM3728F	1/4	1075	208-230/1	1	Reversible	1.8 - 2.0	48	4.19	1/2 x 6.0 Flat	5	36"
EM3405F	1/3	825	208-230/1	1	Reversible	1.6 - 1.8	48	5.19	1/2 x 6.0 Flat	7.5	36"
EM3729F	1/3	1075	208-230/1	1	Reversible	2.2 - 2.5	48	4.69	1/2 x 6.0 Flat	7.5	36"
EM3730F	1/2	1075	208-230/1	1	Reversible	3.0 - 3.5	48	5.19	1/2 x 6.0 Flat	10	36"
EM3746F	1/2	825	208-230/1	1	Reversible	2.2 - 2.5	48	5.69	1/2 x 6.0 Flat	10	36"
EM3731F	3/4	1075	208-230/1	1	Reversible	4.6 - 5.3	48	5.43	1/2 x 6.0 Flat	10	36"
EM3736F	1/4	1075	460/1	1	Reversible	1.0	48	4.69	1/2 x 6.0 Flat	7.5	36"
EM3737F	1/3	1075	460/1	1	Reversible	1.3	48	5.19	1/2 x 6.0 Flat	7.5	36"
EM3738F	1/2	1075	460/1	1	Reversible	1.5	48	5.69	1/2 x 6.0 Flat	10	36"
EM3739F	3/4	1075	460/1	1	Reversible	2.8	48	5.69	1/2 x 6.0 Flat	15	36"



Multi-Horsepower Condenser Fan Motors

Multi-Horsepower Motors can be wired to produce different horsepower. This reduces the number of motors needed for truck stock.

Pro E-Series TEAO Multi-Horsepower Motors

Model	Horse Power	RPM	Voltage	# of Speeds	Rotation	Rated Amps	Frame Size	BM Length (w/o shaft)	Shaft Size	Cap MFD	Lead Length
EM3458F	1/3 - 1/6	1075	208-230/1	1	Reversible	1.8 - 2.0	48	4.19	1/2 x 6.7 Flat	7.5	48"
EM3465F	1/3 - 1/5	1075	208-230/1	2	Reversible	2.6, 1.6	48	4.93	1/2 x 6.0 Flat	7.5, 5	36"
EM3468F	1/2 - 1/4	1075	208-230/1	2	Reversible	3.6, 1.7	48	5.19	1/2 x 6.0 Flat	12.5, 10	36"
EM3459F	1/3 - 1/8	825	208-230/1	1	Reversible	1.8 - 2.0	48	4.94	1/2 x 6.7 Flat	7.5	48"
EM3469F	1/3 - 1/5	825	208-230/1	2	Reversible	1.9, 1.2	48	5.19	1/2 x 6.0 Flat	10, 7.5	36"
EM3209F	1/3 - 1/8	825	460/1	1	Reversible	1.0	48	5.24	1/2 x 6.5 Flat	7.5	48"



RESCUE® TEAO Multi-Horsepower Motors

Model	Horse Power	RPM	Voltage	# of Speeds	Rotation	Rated Amps	Frame Size	BM Length (w/o shaft)	Shaft Size	Cap MFD	Lead Length
5462H	1/3 - 1/6	1075	208-230/1	2	Reversible	1.0 - 1.9	48	4.6	1/2 x 5.0	7.5	48"
5465H	1/2 - 1/5	1075	208-230/1	2	Reversible	1.3 - 3.0	48	5.3	1/2 x 5.0	10	48"
5482H	3/4 - 1/4	1075	208-230/1	2	Reversible	1.4 - 4.0	48	6.3	1/2 x 5.5	15	48"
5464H	1/3 - 1/6	825	208-230/1	2	Reversible	1.0 - 1.9	48	5.3	1/2 x 5.0	7.5	48"
5480H	1/2 - 1/6	1075	460/1	1	Reversible	0.5 - 1.3	48	5.6	1/2 x 5.5	10	48"
5481H	3/4 - 1/4	1075	460/1	1	Reversible	0.7 - 2.2	48	6.3	1/2 x 5.5	15	48"



Evergreen® OM Condenser TEAO Fan Motor

These high efficiency ECM motors are designed to replace induction motors (shaded pole or PSC) in shaft down or horizontal outdoor fan applications including include direct-drive fan propellers (axial fan blades) in A/C or heat pump systems.

- 1075 RPM (6-pole) replaces motors rated 1000-1100 RPM
- Mounts horizontal or vertical shaft-down (VSD) with belly band, extended clamp bolts, or OEM mounting holes
- 825 RPM (8-pole) replaces motors rated 800-850 RPM

Model	Horse Power	RPM	Voltage	Speed	Rotation	Rated Amps	Frame Size	BM Length (w/o shaft)	Shaft Size	Cap MFD	Lead Length
6303S	1/3 - 1/12	825 / 1075	208-230/1	Constant	Reversible	2.8	48	4.4	1/2 x 5.5	N/A	54"



Commercial Condenser Fan Motors

HeatMaster® Vertical Shaft Up Fan Canopy OAO Series



Model	Horse Power	RPM	Voltage	# of Speeds	Rotation	Rated Amps	Frame Size	BM Length (w/o shaft)	Shaft Size	Cap MFD
FC1086F	3/4	1075	208-230/460/1	1	Reversible	4.6 / 2.3	48	8.9	1/2 x 3.6 Flat *	20
FC1106F	1	1075	208-230/460/1	1	Reversible	6.4 / 2.3	48 **	9.6	5/8 x 4.1 Flat	25
FC1156F	1-1/2	1075	208-230/460/1	1	Reversible	7 / 3.5	48 **	10.1	5/8 x 4.1 Flat	25
FC3076F	3/4	1075	208-230/460/3	1	Reversible	4 / 2	48	9.1	5/8 x 4.1 Flat	-
FC3106F	1	1075	208-230/460/3	1	Reversible	5.6 / 2.8	48 **	9.6	5/8 x 4.1 Flat	-
FC3156F	1-1/2	1075	208-230/460/3	1	Reversible	5.6 / 2.9	48 **	9.6	5/8 x 4.1 Flat	-

* Includes 5/8" shaft adapter ** 1 & 1-1/2 HP motors ship with conversion kit for 56 frame applications

Juggernaut® Removable Rigid Base OAO Series



Model	Horse Power	RPM	Voltage	# of Speeds	Rotation	Rated Amps	Frame Size	Overall Length	Shaft Size
H1056AV1	3/4	1140	208-230/460/3	1	Reversible	3.2 / 1.6	56HZ	16.4	5/8 x 6
H1050AV1	1	1140	208-230/460/3	1	Reversible	4 / 2	56HZ	16.4	5/8 x 6
H1051AV1	1-1/2	1140	208-230/460/3	1	Reversible	6 / 3	56HZ	18.4	5/8 x 6

Blower Motors

Pro-E Series Dedicated Horsepower OAO Motors



Model	Horse Power	RPM	Voltage	# of Speeds	Rotation	Rated Amps	Frame Size	BM Length (w/o shaft)	Shaft Size	Cap MFD	Lead Length
EM3583	1/4	1075	115	3	Reversible	4.2 - 2.4 - 2.0	48	3.99	1/2 x 4.0 Flat	5	26"
EM3584	1/4	1075	208-230/1	3	Reversible	1.9 - 1.1 - 0.9	48	3.99	1/2 x 4.0 Flat	5	26"
EM3585	1/3	1075	115	3	Reversible	5.5 - 3.0 - 2.0	48	4.49	1/2 x 4.0 Flat	7.5	26"
EM3586	1/3	1075	208-230/1	3	Reversible	2.5 - 1.6 - 1.2	48	4.49	1/2 x 4.0 Flat	5	26"
EM3587	1/2	1075	115	3	Reversible	7.5 - 4.5 - 3.0	48	4.99	1/2 x 4.0 Flat	10	26"
EM3588	1/2	1075	208-230/1	3	Reversible	3.4 - 2.3 - 1.6	48	4.99	1/2 x 4.0 Flat	10	26"
EM3589	3/4	1075	115	3	Reversible	10.2 - 6.0 - 4.5	48	5.49	1/2 x 4.0 Flat	15	26"
EM3590	3/4	1075	208-230/1	3	Reversible	5.1 - 4.2 - 3.1	48	5.48	1/2 x 4.0 Flat	10	26"

Multi-Horsepower Blower Motors

Century Multi-Horsepower OAO Blower Motors



Model	Horse Power	RPM	Voltage	# of Speeds	Rotation	Rated Amps	Frame Size	BM Length (w/o shaft)	Shaft Size	Cap MFD	Lead Length
EM3463	1/2 - 1/6	1075	115	4	Reversible	7.0	48	4.93	1/2 x 4.5	10, 7.5, 5	38"
EM3464	1/2 - 1/6	1075	208-230/1	4	Reversible	3.9	48	4.99	1/2 x 4.5	10, 7.5, 5	38"
EM3466	3/4 - 1/5	1075	115	4	Reversible	9.1	48	4.93	1/2 x 4.5	10, 7.5, 5	38"
EM3467	3/4 - 1/5	1075	208-230/1	4	Reversible	3.9	48	4.93	1/2 x 4.5	10, 7.5, 5	38"

RESCUE® Multi-Horsepower OAO Blower Motors

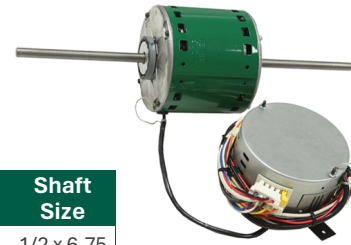


Model	Horse Power	RPM	Voltage	# of Speeds	Rotation	Rated Amps	Frame Size	BM Length (w/o shaft)	Shaft Size	Cap MFD	Lead Length
5460	1/2 - 1/6	1075	115	4	Reversible	7.3 - 2.8	48	5.3	1/2 x 4.5	10 - 7.5	36"
5461	1/2 - 1/6	1075	208-230/1	4	Reversible	3.6 - 1.3	48	5.3	1/2 x 4.5	10 - 5	36"
5470	3/4 - 1/5	1075	115	4	Reversible	8.1 - 3.1	48	6.1	1/2 x 5.5	20 - 10	36"
5471	3/4 - 1/5	1075	208-230/1	4	Reversible	4.1 - 1.7	48	6.1	1/2 x 5.5	20 - 10	36"
5469	1/3 - 1/8	825	208-230/1	4	Reversible	2.4 - 0.9	48	5.3	1/2 x 4.5	7.5	36"

Evergreen® DS Dual Shaft Motor

This motor replaces most permanent split capacitor (PSC) motors in modular building applications. It is designed to replace direct drive, dual shaft induction motors found in HVAC indoor fan coil / blower motor applications with forward curved (squirrel cage) blower wheels.

- Dual Rotation / Dual Voltage
- 6 kV surge protection
- Pedestal or belly band mount
- No capacitor required
- Connects directly to HVAC system controls
- No additional relays or wires needed



Model	Horse Power	RPM	Voltage	Speeds	Rotation	Rated Amps	Frame Size	BM Length (w/o shaft)	Shaft Size
6007DS	3/4 - 1/2 - 1/3	1070	120v - 240v/1	5	Dual	11.0 - 6.7	48	4.57	1/2 x 6.75

Variable Speed Blower Motors

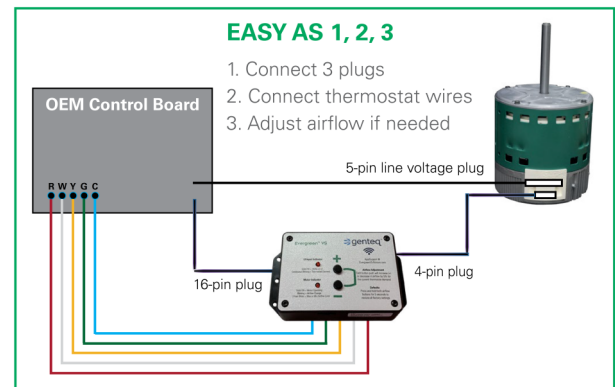
Evergreen® VS product line is a drop-in replacement for 16 and 4-pin variable speed motors (including models formerly branded GE by Regal Beloit™).. Designed to replace Genteq® constant airflow (variable speed) ECM indoor blower motors. Designed specifically to replace Genteq models 2.3, Eon®, and 3.0 motors.



- Pre-programmed
- 6kV surge protection
- Dual voltage
- Auto dual rotation

Evergreen® Variable Speed OAO Blower Motors

Model	Horse Power	RPM	Voltage	Rated Amps	Frame Size	BM Length (w/o shaft)	Shaft Size
6503VUI	1/3	1050	120 / 240	5.0 / 2.8	48	5.71	1/2 x 5
6505VUI	1/2	1050	120 / 240	7.7 / 4.3	48	6.21	1/2 x 5
6507VUI	3/4	1050	120 / 240	10.1 / 6.1	48	6.96	1/2 x 5
6510VUI	1	1050	120 / 240	12.8 / 7.4	48	7.71	1/2 x 5



Genteq® Model 3.0 Motor Replacement (4-Pin)

- The Evergreen VS motor is a direct replacement for the Genteq® model 3.0 motor.
- Plug-n-play (Connect OEM plugs...DONE).



Variable Speed 16-Pin Adapters

Item #	Works With	Notes
5K010V	GE Model 2.0, Genteq Model 2.3, & Eon Motors	Ships with Motor
5K015	Genteq® Model 2.5	Sold Separately



Genteq® Model 2.5 Motor Replacement (16-Pin)

- The Genteq® 16-4 pin adapter (#5K015) is required for this application.
- The 16-4 pin adapter is sold separately and is installed permanently with the motor.



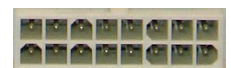
Evergreen® Reversing Adapter

Item #	Works With	Notes
5K016	All Evergreen® IM, EM, CM & VS Motors	Use this when the motor has been installed incorrectly and the rotation needs to be reversed manually

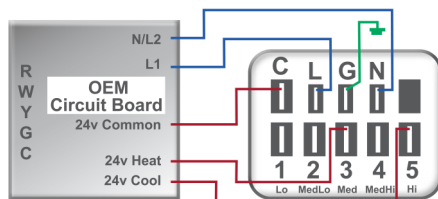


GE Model 2.0, Genteq Model 2.3, & Eon Motor Replacement (16-Pin)

- The Evergreen VS User Interface (#5K010V) is required, and is installed permanently with the motor.
- The 5K010V comes in the box with the motor, along with all needed wires and harnesses.



ECM Constant Torque Blower Motors



Evergreen® EM & CM Motors are drop-in replacements for constant torque ECM motors. With no programming requirements, it is pre-programmed for truck stock and ready to use out of the box.

- (5) 24 VAC speed taps (Low-High)
- Compatible with OEM harness
- PWM compatible (automatically recognized)
- Auto rotation sensing technology
- Soft start and off-ramp for quiet operation



Model	Horse Power	RPM	Voltage	# of Speeds	Rotation	Rated Amps	Frame Size	BM Length (w/o shaft)	Shaft Size	Lead Length
6203X	1/3	1050	115 / 208-230	5 / PWM	Reversible	4.1 / 2.8	48	5.74	1/2 x 5	42"
6205X	1/2	1050	115 / 208-230	5 / PWM	Reversible	6.4 / 4.1	48	5.99	1/2 x 5	42"
6207X	3/4	1050	115 / 208-230	5 / PWM	Reversible	8.4 / 6.0	48	6.49	1/2 x 5	42"
6210X	1	1050	115 / 208-230	5 / PWM	Reversible	12.2 / 9.0	48	7.53	1/2 x 5	42"
6703	1/3	1075	208-230 / 277	5 / PWM	Reversible	2.8	48	5.25	1/2 x 4	42"
6705	1/2	1075	208-230 / 277	5 / PWM	Reversible	4.1	48	5.75	1/2 x 4	42"
6707	3/4	1075	208-230 / 277	5 / PWM	Reversible	6.0	48	6.5	1/2 x 4	42"
6710	1	1075	208-230 / 277	5 / PWM	Reversible	7.6	48	7.25	1/2 x 4	42"
6405	1/2	1075	460v/1	5 / PWM	Reversible	2.1	48	6.61	1/2 x 4	42"
6407	3/4	1075	460v/1	5 / PWM	Reversible	3.1	48	7.36	1/2 x 4	42"
6410	1	1075	460v/1	5 / PWM	Reversible	4.0	48	8.11	1/2 x 4	42"

460v Single Phase Blower Motors



Model	Horse Power	RPM	Voltage	# of Speeds	Rotation	Rated Amps	Frame Size	BM Length (w/o shaft)	Shaft Size	Cap MFD	Lead Length
BDH1036	1/3 - 1/4	1075	460v/1	2	Reversible	1.2 - 0.86	48	4.5	1/2 x 6.5	7.5	27"
BDH1054	1/2 - 1/3	1625	460v/1	2	Reversible	1.4 - 1.3	48	4.75	1/2 x 6.5	7.5	27"
BDH1076	3/4 - 1/2	1075	460v/1	2	Reversible	2.2 - 1.1	48	5.13	1/2 x 6.5	15	27"
BDH1106	1	1100	460v/1	3	Reversible	3.2	48	5.5	1/2 x 4.5	15	36"

Three-Phase 56 Frame Blower Motors

ODP Rigid Base - 7/8" Shaft

Rigid Base is bolted, welded, or cast on the main motor frame.



Model	Horse Power	RPM	Voltage	# of Speeds	Rotation	Rated Amps	Frame Size	Overall Length	Shaft Size
7913VP	1-1/2	1725	208-230/460/3	1	Reversible	5.0 / 2.5	56HZ	12.4	7/8 x 2-5/16
7914P	2	1725	208-230/460/3	1	Reversible	7.6 - 7.7 / 3.9	56HZ	12.4	7/8 x 2-5/16
7915VP	3	1725	208-230/460/3	1	Reversible	9 / 4.5	56HZ	14.6	7/8 x 2-5/16

ODP Resilient Base - 5/8" Shaft

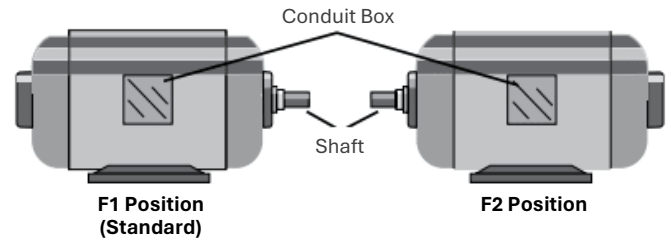
Resilient base has isolation between the mounting hubs and base to absorb vibrations and noise.

Model	Horse Power	RPM	Voltage	# of Speeds	Rotation	Rated Amps	Frame Size	Overall Length	Shaft Size
8489	3/4	1725	208-230/460/3	1	Reversible	2.9 / 1.5	56	10.3	5/8 x 1-7/8
8498	1	1725	208-230/460/3	1	Reversible	4.3 / 2.2	56H	11.3	5/8 x 1-7/8
8490P	1-1/2	1725	208-230/460/3	1	Reversible	5.2 / 2.6	56H	12.8	5/8 x 1-7/8
8493P	2	1725	208-230/460/3	1	Reversible	6.3 / 3.1	56H	12.8	5/8 x 1-7/8

ODP Integral Horsepower Motors

F1 versus F2 Conduit Box Position

Integral horsepower motors have an external conduit box. The F1 conduit box position is on the left side of the motor when facing the shaft. The F2 position is on the right side when facing the shaft. F1 is considered standard. Many IHP motors can be converted to F2 with a quick-ship supplier program.



F2 Ordering Example: Place “-F2” at the end of the Item

Item # D15P2D: Standard Stock 15hp ODP 1800 RPM F1 Motor

Item # D15P2D-**F2**: Special Order 15hp ODP 1800 RPM **F2** Motor

General Purpose Three Phase ODP NEMA Premium® Efficient

For use in pumps, fans, compressors, material handling and other general purpose applications

- Class F Insulation, Class B Rise At Service Factor
- Rolled Steel Frame 56-320, Cast Iron Frame 360-440
- NEMA® Design B Performance On 60 Hz Sine Wave Power
- F1 assembly on stock units; can be special-ordered as F2
- Suitable for use with Variable Frequency Drives:
 - Constant Torque: 4:1
 - Variable Torque: 10:1



HP	RPM	Voltage	Frame Size	Item #	Total Length	FLA
1.5	3600	208-230/460	143T	D32P1D	12.8	4.2 - 3.8 / 1.9
	1800	208-230/460	145T	D32P2D	12.8	4.4 - 4.2 / 2.1
	1200	208-230/460	182T	D32P3D	15.0	5.2 - 5.0 / 2.5
2	3600	208-230/460	145T	D2P1D	12.8	5.5 - 5.0 / 2.5
	1800	208-230/460	145T	D2P2D	12.8	5.9 - 5.5 / 2.8
	1200	208-230/460	184T	D2P3D	15.0	6.5 - 6.3 / 3.0
3	3600	208-230/460	145T	D3P1D	12.8	8.2 - 7.3 / 3.7
	1800	208-230/460	182T	D3P2D	15.0	8.4 - 7.8 / 3.9
	1200	208-230/460	213T	D3P3D	16.0	9.4 - 8.8 / 4.4
5	3600	208-230/460	182T	D5P1D	15.0	13.5 - 12.3 / 6.2
	1800	208-230/460	184T	D5P2D	15.0	13.8 - 13.0 / 6.5
	1200	208-230/460	215T	D5P3D	17.5	15.2 - 14.5 / 7.3
7.5	3600	208-230/460	184T	D7P1D	15.0	20.1 - 18.3 / 9.0
	1800	208-230/460	213T	D7P2D	16.0	20.2 - 18.5 / 9.3
	1200	208-230/460	254T	D7P3D	22.6	20.7 - 19.4 / 9.7
10	3600	208-230/460	213T	D10P1D	16.0	27.1 - 24.3 / 12.2
	1800	208-230/460	215T	D10P2D	17.5	26.3 - 23.8 / 11.9
	1200	208-230/460	256T	D10P3D	22.6	27.3 - 25.5 / 12.7
15	3600	208-230/460	215T	D15P1D	17.5	40 - 36 / 18.0
	1800	208-230/460	254T	D15P2D	22.6	41 - 37 / 18.3
	1200	208-230/460	284T	D15P3E	24.9	41 - 37 / 18.5
20	3600	208-230/460	254T	D20P1D	22.6	52 - 47 / 23.4
	1800	208-230/460	256T	D20P2D	22.6	54 - 49 / 24.4
	1200	208-230/460	286T	D20P3D	24.9	53 - 49 / 24.3

HP	RPM	Voltage	Frame Size	Item #	Total Length	FLA
25	3600	208-230/460	256T	D25P1D	22.6	63 - 57 / 28.3
	1800	208-230/460	284T	D25P2E	24.9	64 - 58 / 29
	1200	208-230/460	324T	D25P3D	27.3	65 - 59 / 29.4
30	1800	208-230/460	286T	D30P2D	24.9	77 - 69 / 34
	1800	575	286T	D30P2G	24.9	27.7
	1200	208-230/460	326T	D30P3D	27.3	78 - 70 / 35
	1200	575	326T	D30P3G	27.3	28
	1800	208-230/460	324T	D40P2D	27.3	102 - 91 / 46
40	1800	575	324T	D40P2G	27.3	37
	1200	230/460	364T	D40P3E	29.0	92 / 46
	1200	575	364T	D40P3G	28.7	37
	1800	208-230/460	326T	D50P2D	27.3	126 - 113 / 56
50	1800	575	326T	D50P2G	27.3	46
	1200	230/460	365T	D50P3E	30.0	115 / 57
	1200	575	365T	D50P3G	29.7	46
	1800	230/460	364T	D60P2E	29.0	138 / 69
60	1800	575	364T	D60P2G	29.0	55
	1200	230/460	404T	D60P3E	32.6	137 / 69
	1200	575	404T	D60P3G	32.6	55
	1800	230/460	365T	D75P2E	30.0	172 / 86
75	1800	575	365T	D75P2G	30.0	69
	1200	230/460	405T	D75P3E	34.0	172 / 86
	1200	575	405T	D75P3G	34.0	69
100	1800	230/460	404T	D100P2E	33.0	225 / 112
	1800	575	404T	D100P2G	33.0	90
	1200	230/460	444T	D100P3E	37.8	242 / 12
	1200	575	444T	D100P3G	37.8	98

TEFC Integral Horsepower Motors



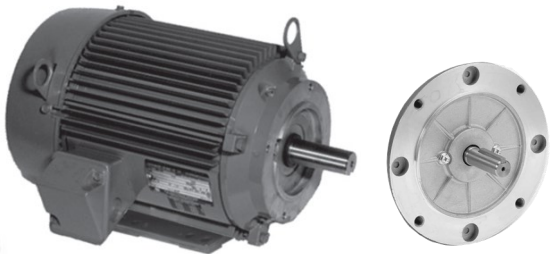
General Purpose Three Phase TEFC NEMA Premium® Efficient

For general industrial equipment including fans, blowers, compressors, and pumps

- F1 Assembly
- Shaft Slinger on Pulley End
- Class F Insulation, Class B Rise At Full Load
- NEMA® Design B Performance On 60 Hz Sine Wave Power
- F1 assembly on stock units; can be special-ordered as F2

HP	RPM	Voltage	Frame Size	Item #	Total Length	FLA
3	3600	208-230/460	182T	U3P1D	16.1	8.4 - 7.8 / 3.9
	1800	208-230/460	182T	U3P2D	16.5	8.4 - 7.8 / 3.9
	1200	208-230/460	213T	U3P3D	18.6	9.3 - 8.6 / 4.3
5	3600	208-230/460	184T	U5P1D	16.9	13.4 - 12.2 / 6.1
	1800	208-230/460	184T	U5P2E	17.3	13.6 - 12.3 / 6.2
	1200	208-230/460	215T	U5P3D	20.1	15 - 14 / 7
7.5	3600	208-230/460	213T	U7P1D	18.6	19.9 - 17.8 / 8.9
	1800	208-230/460	213T	U7P2D	18.6	20 - 18.2 / 9.1
	1200	208-230/460	254T	U7P3D	23.9	20.6 - 19 / 9.5
10	3600	208-230/460	215T	U10P1D	20.1	26.4 - 23.5 / 11.8
	1800	208-230/460	215T	U10P2D	20.1	26.5 - 23.9 / 12
	1200	208-230/460	256T	U10P3D	25.6	27.1 - 24.6 / 12.3

HP	RPM	Voltage	Frame Size	Item #	Total Length	FLA
15	3600	208-230/460	254T	U15P1D	23.9	39 - 35 / 17.5
	1800	208-230/460	254T	U15P2D	23.9	40 - 37 / 18.4
20	3600	208-230/460	256T	U20P1D	25.6	53 - 46 / 23.1
	3600	575	256T	U20P1G	26.1	18.5
	1800	208-230/460	256T	U20P2D	25.6	53 - 47 / 23.5
	1800	575	256T	U20P2G	26.1	19
25	3600	208-230/460	284T	U25P1D	28.7	65 - 57 / 28.4
	3600	575	284T	U25P1G	28.7	22.7
	1800	208-230/460	284T	U25P2D	28.3	65 - 59 / 29.3
	1800	575	284T	U25P2G	28.7	23.4
30	1800	208-230/460	286T	U30P2D	28.7	78 - 70 / 35
	1800	575	286T	U30P2G	28.7	28.1



C-Face Three Phase TEFC NEMA Premium® Efficient

For use in pumps, fans, compressors, and other general purpose applications. The flat surface on a C-face motor allows it to be directly coupled to equipment.

HP	RPM	Voltage	Frame Size	Item #	Total Length	FLA
1.5	1200	208-230/460	182TC	U32P3DC	16.2	4.8 - 4.7 / 2.3
	1200	575	182TC	U32P3GC	16.2	1.8
2	1200	208-230/460	184TC	U2P3DC	16.9	6.4 - 6.2 / 3.1
	1200	575	184TC	U2P3GC	16.2	2.5
3	3600	208-230/460	182TC	U3P1DC	16.2	8.4 - 7.8 / 3.9
	3600	575	182TC	U3P1GC	16.2	3.1
	1800	208-230/460	182TC	U3P2DC	16.2	8.4 - 7.8 / 3.9
5	1800	575	182TC	U3P2GC	16.2	3.2
	1200	208-230/460	213TC	U3P3DC	18.8	9.3 - 8.6 / 4.3
	3600	208-230/460	184TC	U5P1DC	16.2	13.4 - 12.2 / 6.1
	3600	575	184TC	U5P1GC	16.2	4.9
	1800	208-230/460	184TC	U5P2DC	16.9	13.6 - 12.3 / 6.2
	1800	575	184TC	U5P2GC	16.9	5
	1200	208-230/460	215TC	U5P3DC	20.3	15 - 14 / 7
10	1200	575	215TC	U5P3GC	20.3	5.6

HP	RPM	Voltage	Frame Size	Item #	Total Length	FLA
7.5	3600	208-230/460	213TC	U7P1DC	18.8	19.9 - 17.8 / 8.9
	3600	575	213TC	U7P1GC	18.8	7.5
	1800	208-230/460	213TC	U7P2DC	19.1	20 - 18.2 / 9.1
	1800	575	213TC	U7P2GC	18.8	7.2
	1200	208-230/460	254TC	U7P3DC	23.9	20.6 - 19 / 9.5
	1200	575	254TC	U7P3GC	24.0	7.6
10	3600	208-230/460	215TC	U10P1DC	20.3	26.4 - 23.5 / 11.8
	3600	575	215TC	U10P1GC	20.1	9.4
	1800	208-230/460	215TC	U10P2DC	20.3	26.5 - 23.9 / 12
15	1800	575	215TC	U10P2GC	20.3	9.6
	1200	208-230/460	256TC	U10P3DC	25.8	27.1 - 24.6 / 12.3
	3600	208-230/460	254TC	U15P1DC	24.0	39 - 35 / 17.5
	3600	575	254TC	U15P1GC	24.0	14.1
20	1800	208-230/460	254TC	U15P2DC	23.9	40 - 37 / 18.4
	3600	208-230/460	256TC	U20P1DC	25.6	53 - 46 / 23.1
	3600	575	256TC	U20P1GC	25.8	18.5
25	1800	208-230/460	256TC	U20P2DC	25.8	53 - 47 / 23.5
	3600	208-230/460	284TC	U25P1DC	28.3	65 - 57 / 28.4
25	1800	208-230/460	284TC	U25P2DC	28.3	65 - 59 / 29.3

Variable Frequency Drives (VFDs)

A **variable frequency drive (VFD)** is a motor controller that varies the frequency and voltage of the power supply, resulting in an adjustment of the motor speed. A VFD also has the capacity to control ramp-up and ramp-down of the motor during start or stop. They are commonly used to control the speed of pumps and HVAC fans/blowers, often leading to significant energy savings by only running the motor at the required speed. This results in:

- Energy savings and improve system efficiency
- Motor speed control for performance/comfort
- Lower noise levels, for example from fans and pumps
- Reduce mechanical stress to extend system lifetime

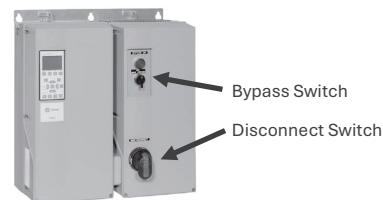
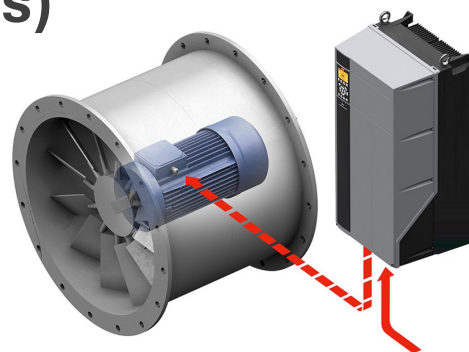
Bypass Drives include a bypass switch that allows the motor to run directly from the power line in case the VFD fails. For critical applications, this ensures uninterrupted operation even if the primary VFD fails. Bypass drives do however add cost and complexity.

Non-Bypass Drive do not have the bypass functionality. If the VFD fails, the motor it controls will stop.

Fused Disconnects are common with VFDs. The fusing provides protection to the sensitive electronics, and the disconnect allows the VFD to be isolated from the power source for maintenance and repairs.

NEMA 1 drive enclosures are for indoor use. They protect against dust, light, and indirect splashing.

NEMA 3R enclosures are for outdoor use. They protect against rain, sleet, snow, and ice formation.



Additional information, submittals, and schematics are available at www.TraneDrives.com

NEMA 1 Base Drives (no fusing or disconnect)

Voltage	Horse power	H	W	D	Danfoss #	Item #
200-240v/3	1.5	14.7"	3.5"	8.1"	131L1223	DRV00577
200-240v/3	2	14.7"	3.5"	8.1"	131L1365	DRV02060
200-240v/3	3	14.7"	3.5"	8.1"	131L1366	DRV02850
200-240v/3	5	14.7"	5.1"	8.1"	131L1369	DRV00903
200-240v/3	7.5	18.9"	9.5"	10.2"	131L1374	DRV00984
200-240v/3	10	18.9"	9.5"	10.2"	131L1373	DRV00990
200-240v/3	15	18.9"	9.5"	10.2"	131L1379	DRV00927
200-240v/3	20	25.4"	9.5"	10.2"	131L1375	DRV01701
200-240v/3	25	26.8"	12.1"	12.2"	131L1380	DRV01703
200-240v/3	30	26.8"	12.1"	12.2"	131L1383	DRV02897
200-240v/3	40	26.8"	12.1"	12.2"	131L1384	DRV01705
200-240v/3	50	30.3"	14.6"	13.2"	131L1388	DRV01209
200-240v/3	60	30.3"	14.6"	13.2"	131L1389	DRV02898

Voltage	Horse power	H	W	D	Danfoss #	Item #
460v/3	1.5	14.7"	3.5"	8.1"	131L1390	DRV00900
460v/3	2	14.7"	3.5"	8.1"	131L1393	DRV01875
460v/3	3	14.7"	3.5"	8.1"	131L1394	DRV00983
460v/3	5	14.7"	3.5"	8.1"	131L1397	DRV00618
460v/3	7.5	14.7"	5.1"	8.1"	131L1398	DRV00731
460v/3	10	14.7"	5.1"	8.1"	131L1401	DRV00732
460v/3	15	18.9"	9.5"	10.2"	131L1402	DRV00656
460v/3	20	18.9"	9.5"	10.2"	131L1406	DRV00649
460v/3	25	18.9"	9.5"	10.2"	131L1407	DRV00948
460v/3	30	25.4"	9.5"	10.2"	131L1409	DRV01594
460v/3	40	25.4"	9.5"	10.2"	131U9265	DRV02673
460v/3	50	26.8"	12.1"	12.2"	131L1413	DRV01080
460v/3	60	26.8"	12.1"	12.2"	131L1416	DRV01042
460v/3	75	26.8"	12.1"	12.2"	134N3924	DRV03778
460v/3	100	30.3"	14.6"	13.2"	131L1420	DRV00332
460v/3	125	30.3"	14.6"	13.2"	136F6406	DRV03779



NEMA 1 Drives with Fused Disconnect

Voltage	Horse power	H	W	D	Danfoss #	Item #
200-240v/3	1.5	19.1"	5.2"	9.3"	131L1503	DRV02900
200-240v/3	2	19.1"	5.2"	9.3"	131L1506	DRV01005
200-240v/3	3	19.1"	5.2"	9.3"	131L1507	DRV01608
200-240v/3	5	19.1"	5.2"	9.3"	131L1510	DRV01076
200-240v/3	7.5	18.9"	9.5"	12.1"	131L1731	DRV01474
200-240v/3	10	18.9"	9.5"	12.1"	131L1514	DRV01222
200-240v/3	15	25.6"	9.5"	12.1"	131L1515	DRV00940
200-240v/3	20	25.6"	9.5"	12.1"	131L1518	DRV01070
200-240v/3	25	26.8"	12.1"	14.1"	131L1519	DRV01908
200-240v/3	30	26.8"	12.1"	14.1"	131L1523	DRV02756
200-240v/3	40	30.3"	14.6"	14.1"	131L1524	DRV00346
200-240v/3	50	30.3"	14.6"	14.9"	131L1527	DRV02903
200-240v/3	60	30.3"	14.6"	14.9"	131L1528	DRV02904

Voltage	Horse power	H	W	D	Danfoss #	Item #
460v/3	1.5	19.1"	5.2"	9.3"	131L1530	DRV01034
460v/3	2	19.1"	5.2"	9.3"	131L1533	DRV01051
460v/3	3	19.1"	5.2"	9.3"	131L1534	CNT06398
460v/3	5	19.1"	5.2"	9.3"	131L1537	DRV00619
460v/3	7.5	19.1"	5.2"	9.6"	131L1538	DRV00967
460v/3	10	19.1"	5.2"	9.6"	131L1541	DRV00971
460v/3	15	18.9"	9.5"	12.1"	131L2159	DRV00591
460v/3	20	18.9"	9.5"	12.1"	131L1854	DRV01079
460v/3	25	18.9"	9.5"	12.1"	131L2163	DRV00924
460v/3	30	25.6"	9.5"	12.1"	131L2164	DRV00337
460v/3	40	25.6"	9.5"	12.1"	131L2167	DRV01025
460v/3	50	26.9"	12.1"	14.1"	131L2168	DRV00343
460v/3	60	26.9"	12.1"	14.1"	131L2171	DRV02905
460v/3	75	26.9"	12.1"	14.1"	131L2172	DRV01211
460v/3	100	30.2"	14.6"	14.9"	131L2175	DRV02906
460v/3	125	30.2"	14.6"	14.9"	131L2176	DRV02688



Variable Frequency Drives (VFDs)

NEMA 1 Bypass Drive with Fused Disconnect: 208v/3-Phase

Voltage	Horse power	Side-By-Side Style					Skinny Vertical Style				
		H	W	D	Danfoss #	Item #	H	W	D	Danfoss #	Item #
208v/3	1.5	-	-	-	-	-	31.8"	7.7"	9.8"	174Z4541	CNT09175
208v/3	2	-	-	-	-	-	31.8"	7.7"	9.8"	177U2484	CNT09177
208v/3	3	-	-	-	-	-	31.8"	7.7"	9.8"	174Z4543	CNT06211
208v/3	5	-	-	-	-	-	31.8"	7.7"	9.8"	174Z4544	CNT09153
208v/3	7.5	20.1"	19.1"	12.9"	174Z4545	CNT09159	41.8"	9.1"	16"	177U9375	CNT09193
208v/3	10	20.1"	19.1"	12.9"	174Z4546	CNT09180	41.8"	9.1"	16"	177U9421	CNT09178
208v/3	15	28.2"	19.1"	12.9"	174Z4547	CNT06449	41.8"	9.1"	16"	177U9013	CNT09151
208v/3	20	28.2"	19.1"	12.9"	174Z4548	CNT09154	43.3"	9.8"	17.7"	177U9065	CNT09194
208v/3	25	30.0"	24.4"	14.9"	174Z4549	CNT09182	54.4"	12.7"	18.0"	177U9115	CNT09195
208v/3	30	30.0"	24.4"	14.9"	174Z4550	CNT09168	54.4"	12.7"	18.0"	177U9163	CNT09196
208v/3	40	33.5"	29.3"	16.3"	174Z4551	CNT09156	54.4"	12.7"	18.0"	177U9211	CNT09197
208v/3	50	33.5"	29.3"	16.3"	174Z4552	CNT09184	59.7"	15.2"	18.0"	177U9259	CNT09198
208v/3	60	33.5"	29.3"	16.3"	174Z4553	CNT09185	59.7"	15.2"	18.0"	177U9303	CNT09199



Side-By-Side Style



Vertical Skinny Style

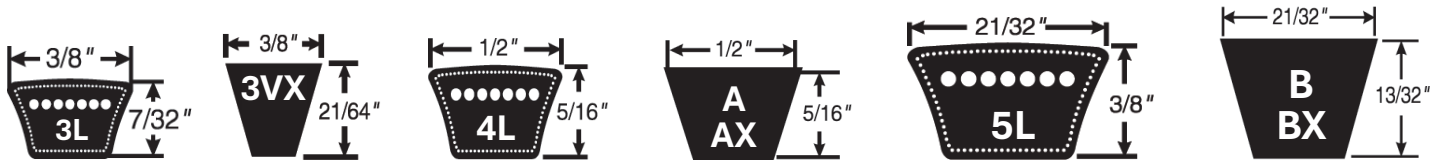
NEMA 1 Bypass Drive with Fused Disconnect: 230v/3-Phase

Voltage	Horse power	Side-By-Side Style					Skinny Vertical Style				
		H	W	D	Danfoss #	Item #	H	W	D	Danfoss #	Item #
240v/3	1.5	-	-	-	-	-	31.8"	7.7"	9.8"	174Z4555	CNT09186
240v/3	2	-	-	-	-	-	31.8"	7.7"	9.8"	174Z4556	CNT09161
240v/3	3	-	-	-	-	-	31.8"	7.7"	9.8"	174Z4557	CNT09187
240v/3	5	-	-	-	-	-	31.8"	7.7"	9.8"	174Z4558	CNT09274
240v/3	7.5	20.1"	19.1"	12.9"	174Z4559	CNT09275	41.8"	9.1"	16"	177U9382	CNT09200
240v/3	10	20.1"	19.1"	12.9"	174Z4560	CNT09272	41.8"	9.1"	16"	177U9429	CNT09201
240v/3	15	28.2"	19.1"	12.9"	174Z4561	CNT09273	41.8"	9.1"	16"	177U9020	CNT09202
240v/3	20	28.2"	19.1"	12.9"	174Z4562	CNT09270	43.3"	9.8"	17.7"	177U9073	CNT07404
240v/3	25	30.0"	24.4"	14.9"	174Z4563	CNT09276	43.3"	9.8"	17.7"	177U9122	CNT09203
240v/3	30	30.0"	24.4"	14.9"	174Z4564	CNT09188	54.4"	12.7"	18.0"	177U9170	CNT09204
240v/3	40	33.5"	29.3"	16.3"	174Z4565	CNT09166	54.4"	12.7"	18.0"	177U9218	CNT09205
240v/3	50	33.5"	29.3"	16.3"	174Z4566	CNT09189	59.7"	15.2"	18.0"	177U9266	CNT09206
240v/3	60	33.5"	29.3"	16.3"	174Z4567	CNT09190	59.7"	15.2"	18.0"	177U9310	CNT09207

NEMA 1 Bypass Drive with Fused Disconnect: 460v/3-Phase

Voltage	Horse power	Side-By-Side Style					Skinny Vertical Style				
		H	W	D	Danfoss #	Item #	H	W	D	Danfoss #	Item #
460v/3	1.5	-	-	-	-	-	31.8"	7.7"	9.8"	174Z4569	CNT09191
460v/3	2	-	-	-	-	-	31.8"	7.7"	9.8"	174Z4570	CNT09167
460v/3	3	-	-	-	-	-	31.8"	7.7"	9.8"	174Z4571	CNT09176
460v/3	5	-	-	-	-	-	31.8"	7.7"	9.8"	174Z4572	CNT09269
460v/3	7.5	-	-	-	-	-	31.8"	7.7"	9.8"	174Z4573	CNT06044
460v/3	10	-	-	-	-	-	31.8"	7.7"	9.8"	174Z4574	CNT06402
460v/3	15	20.1"	19.1"	12.9"	174Z4575	CNT06040	41.8"	9.1"	16"	177U9035	CNT07408
460v/3	20	20.1"	19.1"	12.9"	174Z4576	CNT05941	41.8"	9.1"	16"	177U9088	CNT07405
460v/3	25	20.1"	19.1"	12.9"	174Z4577	CNT05996	41.8"	9.1"	16"	177U9142	CNT07406
460v/3	30	28.2"	19.1"	12.9"	174Z4578	CNT06404	43.3"	9.8"	17.7"	177U9185	CNT09158
460v/3	40	28.2"	19.1"	12.9"	174Z4579	CNT06041	43.3"	9.8"	17.7"	177U9234	CNT09157
460v/3	50	30.0"	24.4"	14.9"	174Z4580	CNT09271	43.3"	9.8"	17.7"	177U9280	CNT09155
460v/3	60	30.0"	24.4"	14.9"	174Z4581	CNT09216	54.4"	12.7"	18.0"	177U9326	CNT09208
460v/3	75	30.0"	24.4"	14.9"	174Z4582	CNT03053	54.4"	12.7"	18.0"	177U9349	CNT09209
460v/3	100	33.5"	29.3"	16.3"	174Z4583	CNT09181	59.7"	15.2"	18.0"	177U9396	CNT09210
460v/3	125	33.5"	29.3"	16.3"	174Z4584	CNT09162	59.7"	15.2"	18.0"	177U9443	CNT09211

Belts



Fractional Horsepower (3L, 4L, 5L) are light-duty industrial v-belts, suited for applications of 1 HP or less.

Classic V-Belts (A, AX, B, BX, C, CX) are available smooth (A) or cogged (AX). Cogged belts are often preferred, since they can have increased efficiency and longer lifespan.

Narrow V-Belts (3VX, 5VX, 8VX) can deliver higher horsepower and torque compared to classic v-belts.

3L Fractional Horsepower Belts

Item #	O.D.	Item #	O.D.	Item #	O.D.	Item #	O.D.	Item #	O.D.
3L170	17"	3L220	22"	3L280	28"	3L320	32"	3L360	36"
3L180	18"	3L230	23"	3L290	29"	3L330	33"	3L370	37"
3L190	19"	3L240	24"	3L300	30"	3L340	34"	3L380	38"
3L200	20"	3L250	25"	3L310	31"	3L350	35"	3L390	39"
3L210	21"	3L260	26"						

4L Fractional H.P. Belts

Item #	O.D.	Item #	O.D.
4L170	17"	4L220	22"
4L180	18"	4L230	23"
4L190	19"	4L240	24"
4L200	20"	4L250	25"
4L210	21"		

AX Cogged Belts

Item #	O.D.	Item #	O.D.	Item #	O.D.	Item #	O.D.	Item #	O.D.	Item #	O.D.	Item #	O.D.	Item #	O.D.
AX21	23"	AX29	31"	AX37	39"	AX45	47"	AX52	54"	AX59	61"	AX66	68"	AX73	75"
AX22	24"	AX30	32"	AX38	40"	AX46	48"	AX53	55"	AX60	62"	AX67	69"	AX74	76"
AX23	25"	AX31	33"	AX39	41"	AX47	49"	AX54	56"	AX61	63"	AX68	70"	AX75	77"
AX24	26"	AX32	34"	AX40	42"	AX48	50"	AX55	57"	AX62	64"	AX69	71"	AX76	78"
AX25	27"	AX33	35"	AX41	43"	AX49	51"	AX56	58"	AX63	65"	AX70	72"	AX77	79"
AX26	28"	AX34	36"	AX42	44"	AX50	52"	AX57	59"	AX64	66"	AX71	73"	AX78	80"
AX27	29"	AX35	37"	AX43	45"	AX51	53"	AX58	60"	AX65	67"	AX72	74"	AX79	81"
AX28	30"	AX36	38"	AX44	46"										

BX Cogged Belts

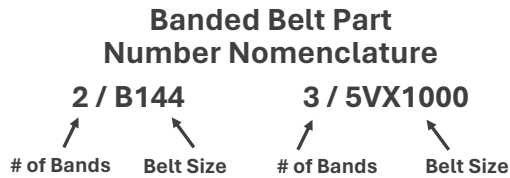
Item #	O.D.	Item #	O.D.	Item #	O.D.	Item #	O.D.	Item #	O.D.	Item #	O.D.	Item #	O.D.	Item #	O.D.
BX25	28"	BX36	39"	BX46	49"	BX56	59"	BX66	69"	BX76	79"	BX86	89"	BX96	99"
BX26	29"	BX37	40"	BX47	50"	BX57	60"	BX67	70"	BX77	80"	BX87	90"	BX97	100"
BX27	30"	BX38	41"	BX48	51"	BX58	61"	BX68	71"	BX78	81"	BX88	91"	BX98	101"
BX28	31"	BX39	42"	BX49	52"	BX59	62"	BX69	72"	BX79	82"	BX89	92"	BX99	102"
BX29	32"	BX40	43"	BX50	53"	BX60	63"	BX70	73"	BX80	83"	BX90	93"	BX100	103"
BX30	33"	BX41	44"	BX51	54"	BX61	64"	BX71	74"	BX81	84"	BX91	94"	BX103	106"
BX31	34"	BX42	45"	BX52	55"	BX62	65"	BX72	75"	BX82	85"	BX92	95"	BX106	109"
BX32	35"	BX43	46"	BX53	56"	BX63	66"	BX73	76"	BX83	86"	BX93	96"	BX112	115"
BX33	36"	BX44	47"	BX54	57"	BX64	67"	BX74	77"	BX84	87"	BX94	97"	BX116	119"
BX34	37"	BX45	48"	BX55	58"	BX65	68"	BX75	78"	BX85	88"	BX95	98"	BX120	123"
BX35	38"														

5VX Narrow Belts

Item #	O.D.	Item #	O.D.	Item #	O.D.	Item #	O.D.	Item #	O.D.	Item #	O.D.	Item #	O.D.
5VX450	45"	5VX540	54"	5VX610	61"	5VX690	69"	5VX800	80"	5VX880	88"	5VX960	96"
5VX470	47"	5VX560	56"	5VX630	63"	5VX710	71"	5VX830	83"	5VX900	90"	5V1000	100"
5VX490	49"	5VX580	58"	5VX650	65"	5VX730	73"	5VX840	84"	5VX930	93"	5VX1030	103"
5VX510	51"	5VX590	59"	5VX660	66"	5VX780	78"	5VX850	85"	5VX950	95"	5VX1060	106"
5VX530	53"	5VX600	60"	5VX680	68"							5VX1120	112"
												5VX1150	115"
												5VX1320	132"

Banded Belts

Banded Belts permanently join two or more belts to provide lateral rigidity and allow all of the strands to work together as one unit. This keeps the belts running in a straight line in the pulley grooves. This helps eliminates jumped, flipped, tangled or separated belts.



Sheaves

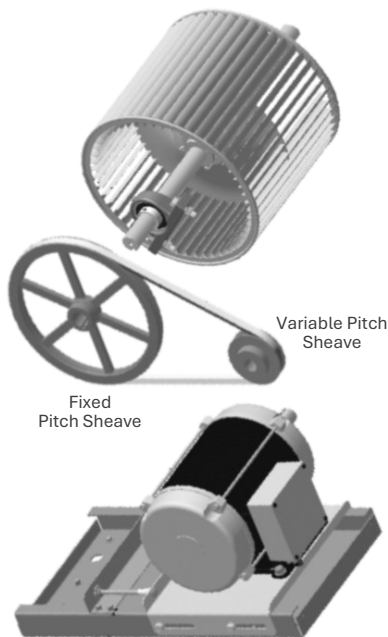
Variable Pitch Sheaves are adjustable belt pulleys. Their moveable discs allow for the use of different sized belts. Moving the discs also allows for speed control - when the discs are moved toward each other, the belt rides higher in the groove, increasing the pitch diameter and the driven speed. When the discs are moved away from each other, the reverse effect takes place, which decreases the driven speed.

One-Groove Variable Pitch Sheaves

Model #	O.D.	Item # By Bore (Shaft) Size				
		1/2"	5/8"	7/8"	1-1/8"	1-3/8"
1VP34	3-1/4"	SHE05379	SHE05938	SHE05380	-	-
1VP40	3-3/4"	SHE05381	SHE05382	SHE05939	-	-
1VP44	4-1/4"	-	SHE05383	SHE05385	SHE05386	-
1VP50	4-3/4"	-	SHE05387	SHE05388	SHE05389	-
1VP56	5-1/4"	-	-	SHE05390	SHE05391	-
1VP60	6"	-	-	SHE05377	SHE05392	-
1VP65	6-1/2"	-	-	-	SHE05393	SHE05927

Two-Groove Variable Pitch Sheaves

Model #	Outside Diameter	Item # By Bore (Shaft) Size			
		7/8"	1-1/8"	1-3/8"	1-5/8"
2VP42	4"	SHE05401	SHE05940	-	-
2VP50	4-3/4"	SHE05402	SHE05403	-	-
2VP62	6"	-	SHE05415	SHE05407	-
2VP75	7-1/2"	-	-	-	SHE05396



Fixed Pitch Sheaves & Bushings

Fixed Pitch Sheaves are not adjustable. Due to the consistent contact with the belt, they generally result in less wear and tear on the belt compared to variable pitch sheaves.

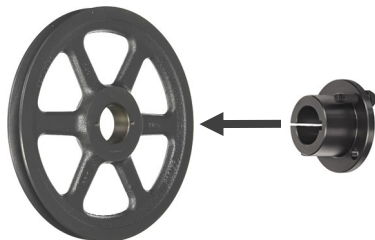
A **H-Bushing** matches the sheave to the correct shaft size.

Fixed Pitch Sheaves (No Hub)

Item #	O.D.	For Belts
PAK44H	4-1/4"	3L-4L-A
PAK49H	4-3/4"	3L-4L-A
PAK54H	5-1/4"	3L-4L-A
PAK59H	5-3/4"	3L-4L-A
PAK64H	6-1/4"	3L-4L-A
PAK69H	6-3/4"	3L-4L-A
PAK74H	7-1/4"	3L-4L-A
PAK79H	7-3/4"	3L-4L-A

H-Bushing

Item #	Bore Size
PH58	5/8"
PH34	3/4"
PH78	7/8"
PH1	1"
PH118	1-1/8"
PH114	1-1/4"
PH138	1-3/8"



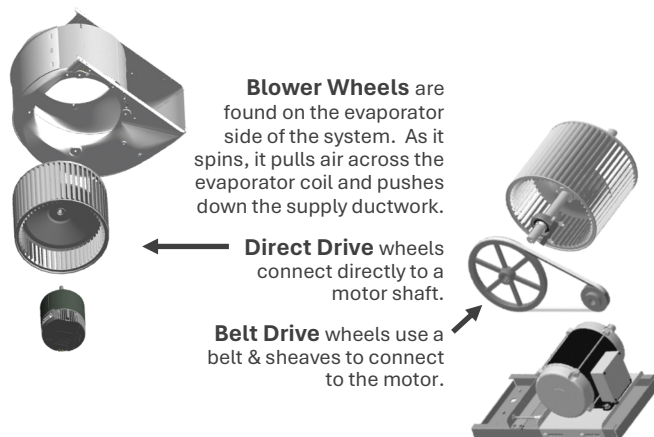
Item #	O.D.	Hub Size
SHE06354	5"	3/8"

Idler Pulleys
An idler pulley helps guide the drive belt, maintaining proper alignment or helping make turns, without applying any tension to the belt itself.

Wheels

Direct Drive Blower Wheels

Item #	Lau #	Diameter	Width	Hub Bore	Rotation	Center Disc	Drive Type
WHL00322	013332-01	9-1/2"	9-1/2"	1/2"	CW	Concave	Direct
WHL00702	013332-03	9-1/2"	9-1/2"	1/2"	CCW	Concave	Direct
WHL00740	013326-01	10-5/8"	6"	1/2"	CW	Convex	Direct
WHL00247	013325-01	10-5/8"	7-1/8"	1/2"	CW	Convex	Direct
WHL00496	013324-01	10-5/8"	8"	1/2"	CW	Convex	Direct
WHL00654	013317-01	10-5/8"	9-1/2"	1/2"	CW	Concave	Direct
WHL00502	013316-02	10-5/8"	10-5/8"	1/2"	CW	Concave	Direct
WHL02167	013316-06	10-5/8"	10-5/8"	1/2"	CCW	Concave	Direct
WHL03116	026941-11	11-5/8"	10-5/8"	1/2"	CW	Concave	Direct
WHL00325	026940-09	11-3/4"	9-1/2"	1/2"	CW	Convex	Direct
WHL02168		12"	12"	1/2"	CCW	Convex	Direct
WHL03718		12"	12"	1/2"	CCW	Convex	Direct



Belt Drive Blower Wheels

Item #	Lau #	Diameter	Width	Hub Bore	Rotation	Center Disc	Drive Type
FAN00031	008360-12	10-5/8"	10-5/8"	3/4"	Either	Double	Belt
WHL00323	008507-55	12-5/8"	9-1/2"	3/4"	Either	Double	Belt
FAN00147	008507-16	12-5/8"	9-1/2"	1"	Either	Double	Belt
WHL02204	008403-16	12-7/8"	12-5/8"	1"	Either	Double	Belt
FAN00662	009548-16	15"	9-1/2"	1"	Either	Double	Belt
WHL00625	008276-16	15"	15"	1"	Either	Double	Belt
WHL00619	008276-72	15"	15"	1-7/16"	Either	Double	Belt
WHL00626	008658-60	18"	18"	1-3/16"	Either	Double	Belt

Clockwise (CW) vs. Counterclockwise (CCW)

Look at the wheel from the side where the motor shaft enters (drive side). If the curved blades scoop in a circle that goes from left to right, it is CW. If it goes from right to left, it is CCW.

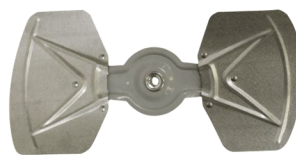


Fans (Propellers)

2 Blade Fans

Item #	Diameter	Degree Pitch	Rotation	Hub Size	# of Blades
FAN02136	14"	30°	CCW	1/2"	2 Blade
FAN04635	19"	28°	CCW	1/2"	2 Blade
FAN05567	22"	30°	CCW	1/2"	2 Blade
FAN03041	22"	22°	CCW	1/2"	2 Blade
FAN03042	22"	24°	CCW	1/2"	2 Blade
FAN03043	22"	30°	CCW	1/2"	2 Blade
FAN03657	23"	24°	CCW	1/2"	2 Blade
FAN04364	23"	28°	CCW	1/2"	2 Blade
FAN03995	24"	32°	CCW	1/2"	2 Blade
FAN04374	27"	29°	CCW	1/2"	2 Blade
FAN04231	28"	17°	CCW	1/2"	2 Blade
FAN03588	28"	22°	CCW	1/2"	2 Blade
FAN03590	28"	24°	CCW	1/2"	2 Blade
FAN04460	28"	25°	CCW	1/2"	2 Blade
FAN05525	28"	27°	CCW	1/2"	2 Blade
FAN03592	28"	28°	CCW	1/2"	2 Blade
FAN03847	28"	29°	CCW	1/2"	2 Blade
FAN03849	28"	30°	CCW	1/2"	2 Blade
FAN04206	31"	18°	CW	5/8"	2 Blade

The Condenser Propeller Fan is located within the outdoor condensing unit. This fan draws air across the condenser coils to remove heat from the refrigerant, allowing it to cool down and complete the cooling cycle.



Clockwise (CW) vs. Counterclockwise (CCW)

Look at the fan from the motor side (drive side) with a blade at the 12 o'clock position. If the raised edge of the blade is on the right side, it is CW. If it is on the left side, it is CCW.



Fans (Propellers)

3 Blade Fans

Item #	Diameter	Degree Pitch	Rotation	Hub Size	# of Blades
FAN01355	14"	26°	CCW	1/2"	3 Blade
FAN02765	18"	29°	CW	1/2"	3 Blade
FAN01354	18"	29°	CCW	1/2"	3 Blade
FAN01433	18"	34°	CCW	1/2"	3 Blade
FAN03161	19"	23°	CCW	1/2"	3 Blade
FAN03748	19"	31°	CCW	1/2"	3 Blade
FAN01251	20"	22°	CW	1/2"	3 Blade
FAN01252	20"	26°	CW	1/2"	3 Blade
FAN05568	22"	28°	CCW	1/2"	3 Blade
FAN03044	22"	24°	CCW	1/2"	3 Blade
FAN03045	22"	26°	CCW	1/2"	3 Blade
FAN01358	22"	31°	CCW	1/2"	3 Blade
FAN03502	22"	32°	CW	1/2"	3 Blade
FAN01214	22"	34°	CW	1/2"	3 Blade
FAN06718	23"	19°	CCW	1/2"	3 Blade
FAN06691	23"	21°	CCW	1/2"	3 Blade
FAN06690	23"	25°	CCW	1/2"	3 Blade
FAN01836	24"	24°	CW	1/2"	3 Blade
FAN01849	24"	28°	CW	1/2"	3 Blade

Item #	Diameter	Degree Pitch	Rotation	Hub Size	# of Blades
FAN01403	26"	20°	CCW	1/2"	3 Blade
FAN03769	26"	22°	CCW	1/2"	3 Blade
FAN02294	26"	24°	CW	1/2"	3 Blade
FAN02295	26"	24°	CCW	1/2"	3 Blade
FAN01531	26"	25°	CW	1/2"	3 Blade
FAN01567	26"	32°	CW	1/2"	3 Blade
FAN04600	28"	16°	CCW	1/2"	3 Blade
FAN04073	28"	18°	CCW	1/2"	3 Blade
FAN04074	28"	19°	CCW	1/2"	3 Blade
FAN04072	28"	20°	CCW	1/2"	3 Blade
FAN04368	28"	26°	CCW	1/2"	3 Blade
FAN03907	28"	30°	CCW	1/2"	3 Blade
FAN02777	26"	32°	CW	5/8"	3 Blade
FAN04077	30"	19°	CW	5/8"	3 Blade
FAN04078	30"	23°	CW	5/8"	3 Blade
FAN04083	30"	15°	CW	5/8"	3 Blade
FAN04082	30"	27°	CW	5/8"	3 Blade



4 & 5 Blade Fans

Item #	Diameter	Degree Pitch	Rotation	Hub Size	# of Blades
FAN01255	20"	28°	CW	1/2"	4 Blade
FAN03044	22"	24°	CCW	1/2"	4 Blade
FAN01025	22"	30°	CW	1/2"	4 Blade
FAN03159	26"	26°	CCW	1/2"	4 Blade
FAN03160	26"	28°	CCW	1/2"	4 Blade
FAN03162	26"	30°	CCW	1/2"	4 Blade
FAN01532	26"	32°	CW	1/2"	4 Blade
FAN01515	28"	29°	CW	1/2"	4 Blade

Item #	Diameter	Degree Pitch	Rotation	Hub Size	# of Blades
FAN01516	26"	29°	CW	5/8"	4 Blade
FAN02778	26"	32°	CW	5/8"	4 Blade
FAN02215	28"	29°	CW	5/8"	4 Blade
FAN02787	28"	29°	CW	5/8"	4 Blade
FAN02779	28"	29°	CW	5/8"	4 Blade
FAN02788	28"	29°	CCW	5/8"	4 Blade
FAN04573	28"	31°	CW	5/8"	4 Blade
FAN04574	28"	31°	CCW	5/8"	4 Blade
FAN02143	30"	31°	CW	5/8"	5 Blade



Perfect for blower wheel, protruding hub, and non-protruding hub fan blades:

- 5/8" steel center shaft
- 4 pull fingers
- Alignment tool included

Fans & Wheel Puller

Item #	Description
FPB100	Fan Blade Puller

Run Capacitors

Capacitors are energy storing devices - similar, yet simpler than a battery. They have “capacity” to hold a charge, then release it to help start or run a single-phase electric motor or compressor. A capacitor allows for the very quick release of electrical energy in a way that a battery cannot.

Run Capacitors are used to maintain a running torque for a compressor or motor. These continuous-duty capacitors remain in the circuit while the start capacitor drops out. **Dual Run Capacitors** are run capacitors often employed in condensers. One capacitor provides power to the compressor, while the second sends charge to the condenser motor.



Run Capacitors

MFD	VAC	Shape	Titan HD (USA) Item #	Titan PRO Item #	Trane SF OEM Item #
3	440	Oval	POCF3A	TOCF3	SFCAP3440
4	440	Oval	POCF4A	TOCF4	SFCAP4440
5	440	Oval	POCF5A	TOCF5	SFCAP5440
7.5	440	Oval	POCF7.5A	TOCF7.5	SFCAP075440
10	440	Oval	POCF10A	TOCF10	SFCAP10440
12.5	440	Oval	POCF12.5A	TOCF12.5	SFCAP125440
15	440	Oval	POCF15A	TOCF15	SFCAP15440
20	440	Oval	POCF20A	TOCF20	SFCAP20440
25	440	Round	PRCF25A	TRCF25	SFCAP25440R
30	440	Round	PRCF30A	TRCF30	SFCAP30440R

MFD	VAC	Shape	Titan HD (USA) Item #	Titan PRO Item #	Trane SF OEM Item #
35	440	Round	PRCF35A	TRCF35	SFCAP35440R
40	440	Round	PRCF40A	TRCF40	SFCAP40440R
45	440	Round	PRCF45A	TRCF45	SFCAP45440R
50	440	Round	PRCF50A	TRCF50	SFCAP50440R
55	440	Round	PRCF55A	TRCF55	SFCAP55440R
60	440	Round	PRCF60A	TRCF60	SFCAP60440R
70	440	Round	PRCF70A	TRCF70	SFCAP70440R
80	440	Round	PRCF80A	TRCF80	SFCAP80440R

Dual Run Capacitors (Round Shape)

MFD	VAC	Titan HD (USA) Item #	Titan PRO Item #	Trane SF OEM Item #
20 + 5	440	PRCFD205A	TRCFD205	SFCAP20D5440R
25 + 5	440	PRCFD255A	TRCFD255	SFCAP25D5440R
30 + 5	440	PRCFD305A	TRCFD305	SFCAP30D5440R
30 + 7.5	440	PRCFD3075A	TRCFD3075	SFCAP30D75440R
35 + 5	440	PRCFD355A	TRCFD355	SFCAP35D5440R
35 + 7.5	440	PRCFD3575A	TRCFD3575	SFCAP35D75440R
40 + 5	440	PRCFD405A	TRCFD405	SFCAP40D5440R
40 + 7.5	440	PRCFD4075A	TRCFD4075	SFCAP40D75440R
40 + 10	440	PRCFD4010A	TRCFD4010	SFCAP40D10440R
45 + 5	440	PRCFD455A	TRCFD455	SFCAP45D5440R
45 + 7.5	440	PRCFD4575A	TRCFD4575	SFCAP45D75440R
45 + 10	440	PRCFD4510A	TRCFD4510	SFCAP45D10440R

MFD	VAC	Titan HD (USA) Item #	Titan PRO Item #	Trane SF OEM Item #
50 + 5	440	PRCFD505A	TRCFD505	SFCAP50D5440R
50 + 7.5	440	PRCFD5075A	TRCFD5075	SFCAP50D75440R
50 + 10	440	PRCFD5010A	TRCFD5010	SFCAP50D10440R
55 + 5	440	PRCFD555A	TRCFD555	SFCAP55D5440R
55 + 7.5	440	PRCFD5575A	TRCFD5575	SFCAP55D75440R
55 + 10	440	PRCFD5510A	TRCFD5510	SFCAP55D10440R
60 + 5	440	PRCFD605A	TRCFD605	SFCAP60D5440R
60 + 7.5	440	PRCFD6075A	TRCFD6075	SFCAP60D75440R
60 + 10	440	PRCFD6010A	TRCFD6010	SFCAP60D10440R
70 + 5	440	PRCFD705A	TRCFD705	SFCAP70D5440R
70 + 7.5	440	PRCFD7075A	TRCFD7075	SFCAP70D75440R
70 + 10	440	PRCFD7010A	TRCFD7010	SFCAP70D10440R
80 + 5	440	PRCFD805A	TRCFD805	SFCAP80D5440R
80 + 7.5	440	PRCFD8075A	TRCFD8075	SFCAP80D75440R
80 + 10	440	PRCFD8010A	TRCFD8010	SFCAP80D10440R

Universal Run Capacitors

Turbo 200® universal capacitors eliminate the need to inventory more than 200 individual capacitors, single or dual value, up to 440V. Turbo 200® is the world's first universal line of multi-tapped, fluid-filled, metal can, motor-run capacitors.

- Made in the USA
- Rust free all brass terminals
- 5 Year Warranty

Item #	MFD	VAC	Type	Dimensions W x H
TURBO MINI	2.5 to 15	440	Single	1.75" x 2.8"
TURBO 200	up to 67.5 (single) up to 60 + 10 (dual)	440	Single or Dual	2.5" x 4.5"
TURBO 200X	up to 97.5 (single) Up to 80 + 15 (dual)	440	Single or Dual	2.5" x 5.75"



Universal Capacitor Mount

- Holds capacitor in place securely
- 2 screws and zip ties included in pack
- Comes with adhesive for mounting
- Plastic construction / 2-pack

Item #	Description
UCM	Universal Capacitor Mounting Bracket: 2-pack



Start Capacitors

Start Capacitors increase motor starting torque. They are designed for momentary, not continuous use. They stay energized long enough to rapidly bring the motor to 75% speed, and are then taken out of the circuit by a potential relay.



Item #	MFD	VAC	Packard #	MARS #
CPT01767	189 - 227	110 - 125	PMJ189	11015
CPT02326	100 - 123	330	PRMJ108	11063
CPT02327	135 - 162	330	PRMJ135	11092
CPT02328	189 - 227	330	PRMJ189	11068
CPT02329	216 - 259	330	PRMJ216	11069

Universal Potential Relay

The **Potential Relay** disconnects the start capacitor once the motor has come on. When the relay senses the back-electromotive-force (BEMF) from the motor's spinning rotor reach a certain level, the relay contacts open, disconnecting the start capacitor.

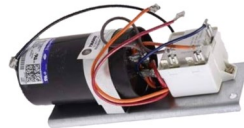
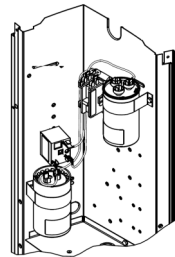


ICM's Universal Motor Starting Relay uses differential voltage sensing and a non-positional mounting configuration to offer a single replacement for all standard potential relays.

Item #	Input Voltage	Motor Power	Safety Time Out
UMSR-50B-LF	110v - 270v, Single-Phase	Up to 10 HP	1 second per 100 MFD

OEM Hard Start Kits

Trane OEM Hard Start Kits mount perfectly inside of the control box of the condenser. Please consult the Trane Residential & Light Commercial Handbook for application matchup.



Item #	MFD	VAC	Start Cap	Relay
BAYKSKT260	135 - 162	330	CPT02327	RLY03148
BAYKSKT263	100 - 123	330	CPT02326	RLY03339
BAYKSKT266	100 - 123	330	CPT02326	

Wholesale Hard Start Kits

OEM-Style Three-Wire Hard Start Kits consist of a start capacitor and potential that opens at a specified voltage across the start winding of the motor, effectively removing the start capacitor from the circuit. A third wire is necessary to connect to the common wire.

Two-Wire Hard Start Kits are connected in parallel with the run capacitor for PSC type compressors and there is no need for a third connection to common wire. This often makes installation quicker and simpler.

2-Wire Hard Start Kits

Brand	Item #	Application	Start Cap (330v)
	TES5	Universal	Selectable
	TQS1	1 - 3 Tons	189 - 227 uF
	TQS2	3.5 - 5 Tons	270 - 324 uF



3-Wire Hard Start Kits

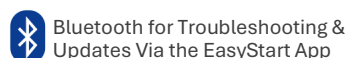
Brand	Item #	Application	Start Cap (330v)
	3W1	1 - 3 Tons	88 - 108 uF
	3W2	3.5 - 4.5 Tons	189 - 227 uF
	3W3	4 - 5 Tons	270 - 324 uF



Micro-Air EasyStart™ Soft Starter

Micro Air EasyStart™ delivers a 65-75% start current reduction as compared to a compressor's LRA (locked-rotor amperage). EasyStart allows a compressor to operate on a generator, inverter, or limited utility power when it would otherwise not have functioned.

- Superior to a hard start - quieter and smoother compressor start
- Eliminates blinking / dimming building lights at unit startup
- Reduces startup vibration that can cause leaks at braze joints
- Reduces startup heat load that damages compressor windings



Item #	For AC Size	Voltage	L	W	D
ASY-398-X1S-BL	Up to 72,000 BTU	100 - 250 / 1Ø	7.64"	3.58"	2.5"

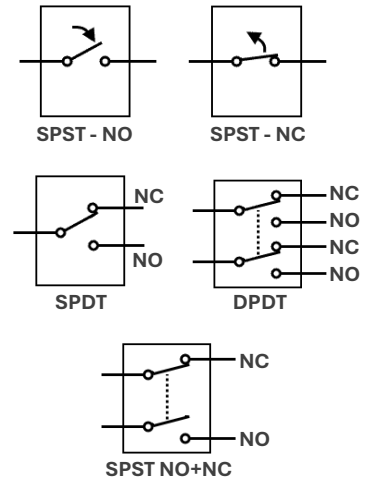
Relays

A **relay** is a switch that opens and closes electrical circuits using an electromagnet (coil). Relay coils come different voltages - 24v is the most popular, but 120v, 240v, and other voltages are available.

While many applications are the same voltage (24v signal to activate 24v devices), the relay allows different voltage components to work with each other. For example, a thermostat sends a 24v signal to the relay coil. That engages the coil, which switches a 120v or 240v HVAC component on and off.

Relay Nomenclature

Abbreviation	Stands For:	Description
Poles and Throws A switch pole describes the number of separate circuits the relay controls. A switch throw indicates the number of output connections the pole has. A Single Pole / Single Throw relay is the simplest relay.		
SPST - NO	Single Pole / Single Throw (normally open)	With no control current applied, the normally open relay switch is off. Once control current is received, it connects (closes) the power for the load.
SPST - NC	Single Pole / Single Throw (normally closed)	With no control current applied, the normally closed relay switch is on. Once control current is received, it disconnects (opens) the power to the load.
SPDT	Single Pole / Double Throw	A Single Pole / Double Throw relay has one input circuit, and two output circuits. One output is NO (off) and the other is NC (on). When the control current is received, the relay switches, turning the NO to on, and the NC to off.
DPDT	Double Pole / Double Throw	A Double Pole / Double Throw relay is the equivalent of (2) SPDT relays, but their switching is simultaneous. The two circuits are totally separate, allowing a DPDT relay to control two different voltage components.
SPST NO + NC	Single Pole / Single Throw Open + Closed	The SPST NO+NC has a normally closed load, and a separate normally open load. When the control current is received, the relay switches, turning the NO to on, and the NC to off.



General Purpose Switching Relays

Item #	Coil Voltage	Inductive FLA	Inductive LRA	Resistive Amps	Type
PR290Q	24v	8	25	16	SPST - NO
PR291Q	120v	8	25	16	
PR292Q	208 - 240v	8	25	16	
PR293Q	24v	8	18	8	SPDT
PR294Q	120v	8	18	8	
PR295Q	208 - 240v	8	18	8	



PR290Q
PR291Q
PR292Q



PR293Q
PR294Q
PR295Q

Heavy-Duty Fan Relays

These relays are used for switching heavier loads

Item #	Coil Voltage	FLA @ 125v	LRA @ 125v	FLA @ 250v	LRA @ 250v	Resistive Amps	Type
PR360	24v	12	60	8	48	18	SPST - NO
PR362	120v	12	60	8	48	18	
PR370	24v	12	60	8	48	18	SPDT
PR372	120v	12	60	8	48	18	
PR374	208 - 240v	12	60	8	48	18	
PR380	24v	12	60	8	48	18	SPST NO + NC
PR382	120v	12	60	8	48	18	
PR384	208 - 240v	12	60	8	48	18	



PR360
PR362



PR370
PR372
PR374



PR380
PR382
PR384

2-Pole Air Conditioning Switching Relays

Suited for use in vending machines, appliances, heating and air conditioning applications and general purpose switching. Fits fan control center receptacles.

Item #	Coil Voltage	FLA @ 125v	LRA @ 125v	FLA @ 250v	LRA @ 250v	Resistive Amps	Type
PR340	24v	12	60	6	35	18	DPDT
PR341	120v	12	60	6	35	18	
PR342	208 - 240v	12	60	6	35	18	

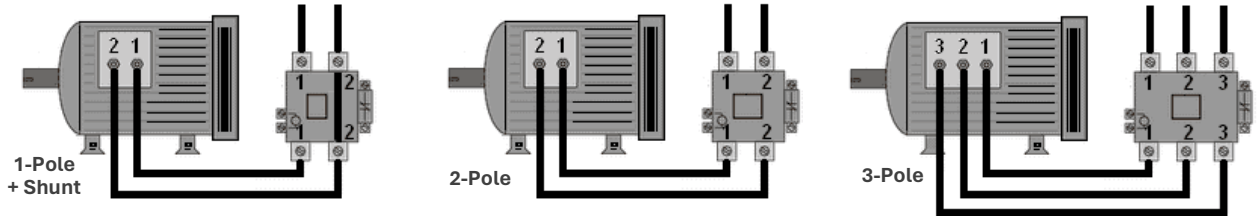


Contactors

A **Contactors** is a switch relay designed to handle heavier amp loads (typically compressors and motors). The contactor closes (makes) the electrical connection when a control signal (low or high voltage) is received, and opens (breaks) the connection when the signal ends.

One of the most common applications is a thermostat sending a 24v signal to a contactor to activate the condenser compressor.

Contactors can be **1-Pole + Shunt, 2-Pole, 3-Pole, or 4-pole**. The poles indicate the number of power wires that will be connected when the control signal is received. 1 and 2-pole contactors are typically used for single-phase devices (two power wires). The shunt in a 1-pole + shunt has a constant connection for the second wire. That circuit remains closed regardless of control signal (often used for crankcase heating). 3 and 4-pole contactors are often used for three-phase applications (three power wires).



# of Poles	Inductive Amps	Item #	Coil Voltage
1 + Shunt	30	C130A	24v
	40	C140A	24v
2-Pole	30	C230A	24v
		C230B	120v
		C230C	240v
	40	C240A	24v
		C240B	120v
		C240C	240v

# of Poles	Inductive Amps	Item #	Coil Voltage	Available Auxiliary
3-Pole	30	C330A	24v	AC3, P6S, P7S, MI1
		C330B	120v	AC3, P6S, P7S, MI1
		C330C	240v	AC3, P6S, P7S, MI1
	40	C340A	24v	AC3, P6S, P7S, MI1
		C340B	120v	AC3, P6S, P7S, MI1
		C340C	240v	AC3, P6S, P7S, MI1
	50	C350A	24v	P8S
		C350B	120v	P8S
		C350C	240v	P8S
	60	C360A	24v	P8S
		C360B	120v	P8S
		C360C	240v	P8S
	75	C375A	24v	P9S
		C375B	120v	P9S
		C375C	240v	P9S



Auxiliary Switches for Contactors

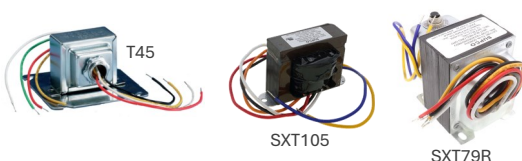
Auxiliary switches are referred to as a “latching relays.” This lower-amp relay is “latched” to the contactor - when the contactor is engaged, the auxiliary contact relay will be closed. When the contactor is not engaged, the auxiliary relay will be open. These relays are available in many configurations, including as a mechanical interlock between two contactors - only allowing one contactor to be engaged at any given time.



Contactors	SPDT Aux. Item #	DPDT Aux. Item #	NO/NC Aux. Item #	Interlock Item #
3-Pole 25 - 40 Amp	P6S	P7S	AC3	MI1
3-Pole 50 & 60 Amp	P8S	-	-	-
3-Pole 75 & 90 Amp	P9S	-	-	-

Transformers

A **transformer** increases or decreases the voltage going from the primary windings to the secondary windings. The most popular style in HVAC applications is a step-down transformer, where the main hi-voltage power feed is transformed down to a secondary lower voltage, used to run thermostats, sensors, valves, dampers and many other devices in an HVAC system.

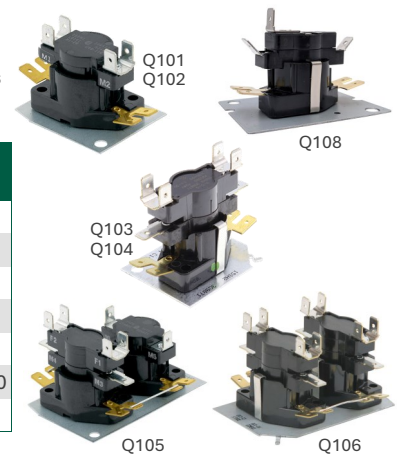


Item #	Output Power (Volt-Amps)	Primary (Input) Voltage	Secondary (Output) Voltage	Reset Breaker	Mount Style
T45	48va	120 / 208 / 240	2.5 / 8 / 12 / 16 / 24v	No	Multi Mount
SXT105	40va	120 / 208 / 240	24v	No	Foot Mount
PF27440	40va	277	24v	No	Foot Mount
SXT1650	50va	120 / 208 / 240 / 480	24v	Yes	Foot Mount
SXT79R	75va	120 / 208 / 240 / 480	24v	Yes	Foot Mount
SXT100R	100va	120 / 208 / 240 / 480	24v	Yes	Foot Mount

Heat Sequencers

Heat Sequencers prevent tripping the circuit breaker by not allowing all the heating elements to turn on at the same time. Voltage enters the sequencer and engages the first heating element. When the heating element becomes hot enough, a circuit in the sequencer opens, engaging the next element. Sequencers can also be used with the fan to ensure it only starts once the heat has reached sufficient temperature, preventing the blowing of cold air.

Item #	Cross Reference	Type	# of Timings	# of Switches	Timings On (seconds)				Timings Off (seconds)			
					M1	M3	M5	M7	M1	M3	M5	M7
Q101	24A34-1	SPST	1	1	1-20	—	—	—	40-110	—	—	—
Q102	24A34-2	SPST	1	1	—	—	30-90	—	—	—	1-30	—
Q103	24A34-3	DPDT	1	2	1-20	1-20	—	—	40-110	40-110	—	—
Q104	24A34-4	DPDT	1	2	—	—	30-90	30-90	—	—	1-30	1-30
Q105	24A34-5	DPDT-SPST	2	3	1-110	1-110	1-110	—	1-110	1-110	1-110	—
Q106	24A34-6	(2) DPDT	2	4	1-110	1-110	1-110	1-110	1-110	1-110	1-110	1-110
Q108	60000C0-27	SPDT	1	1	1-25	—	—	—	65-115	—	—	—



Fuse Links & Heater Re-String Kits

Fusible Links are a one-time use heat-sensitive safety device. It is designed to automatically open (break) the circuit when temperatures reach a dangerous level, helping prevent system damage and/or fire hazards.

Item #	Fusible Temp	Style	Pack Qty.
HFL-5257	257° F	Straight (Teardrop)	2 pk.
HFL-5258	257° F	Right Angle (Round)	2 pk.
HFL-5300	300° F	Straight (Teardrop)	2 pk.
HFL-5301	300° F	Right Angle (Round)	2 pk.
HFL-5333	333° F	Straight (Teardrop)	2 pk.



Item #	Fusible Temp	Style	Pack Qty.
HFL-4257	257° F	In-Line	4 pk.
HFL-4300	300° F	In-Line	4 pk.
HFL-4333	333° F	In-Line	4 pk.



Heater Restring Kits are used to repair a damaged heating element in an electric heater. They replace an the old, burnt-out heating wire with a new one, essentially "restringing" the element, instead of having to replace the entire heating assembly.

Item #	Coil Diameter	Watts @ 240v	Watts @ 208v	Watts @ 480v	Min Inches	Max Inches	Connection
KIT24500	3/8"	5000	3750	-	40"	130"	Bolt
KIT24500625	5/8"	5000	3750	-	25"	70"	Bolt
KIT48500	3/8"	-	-	5000	62"	176"	Bolt
KIT48500625	5/8"	-	-	5000	20"	66"	Bolt



Time Delays & Defrost Timers

Time Delays are used to help avoid damage to HVAC systems from short-cycling (rapid starting and stopping) by introducing a delay before starting or stopping the compressor or other components.

Delay on Break delays a unit from re-starting for a certain time once it has stopped (de-energized or broken).

Delay on Make timers delay unit startup for a certain amount of time once it is energized. Along with preventing short-cycling, this is helpful for staggering the startup of multiple units. Starting units in a staggered sequence can help avoid power surges, circuit breaker trips, and flickering lights.

Item #	Type	Adjustable Range	Input Voltage	Connection	Dry Contact
TD69	Delay On Make	6 Seconds to 8 Minutes	18v - 250v	6" Leads	N/A
TD73	Delay On Break	6 Seconds to 5 Minutes	18v - 250v	6" Leads	N/A
ICM-UFPT-5	Universal	Programmed on App	24v - 240v	1/4" Terminals	(1) 5a Output

The **ICM UFPT-5** Universal function programmable timer uses NFC technology. This allows the technician to change timer application on the fly using a smart phone. The app provides six different timer modes.



Defrost Timers are primarily used in refrigeration and low/medium temp systems. They are used to periodically turn off the compressor and evaporator fan motors, allowing the evaporator coils to defrost by melting any accumulated ice buildup.

Item #	Type	Adjustable Range	Input Voltage	Replaces
ICM550-ENC	Normal or Cycle	15 Minutes to 23.75 Hours	120v - 240v	Grasslin, Paragon, & Precision Timers



Pressure Switches



High Pressure Switches protect the system from damage by shutting off the equipment when the system refrigerant pressure reaches a dangerously high level. High pressure can damage components, including causing compressor burnout.

Low Pressure Switches are used to monitor refrigerant pressure and automatically shut off the compressor when the pressure drops below a safe level. This can help prevent liquid refrigerant slugging, that can damage a compressor.

Fan Cycling Switches are used to maintain proper head pressure. Cycling the condenser fan off when the pressure falls below a set point allows the system pressure to rise before turning the fan back on.

All switches have 1/4" 45° female flare fittings with a valve core depressor and 18" wire leads.

Fan Cycling Switches

Item #	Open PSI (Cut Out)	Close PSI (Cut In)	Voltage
SFC75120	75	120	24v - 240v
SFC110170	110	170	24v - 240v
SFC150225	150	225	24v - 240v
SFC200365	200	365	24v - 240v
SFC300400	300	400	24v - 240v

High Pressure Switches

Item #	Open PSI (Cut Out)	Close PSI (Cut In)	Voltage
SHP250150	250	150	24v - 240v
SHP350250	350	250	24v - 240v
SHP450250	400	300	24v - 240v
SHP600475	600	475	24v - 240v
SHP665565	665	565	24v - 240v

Low Pressure Switches

Item #	Open PSI (Cut Out)	Close PSI (Cut In)	Voltage
SLP1032	10	32	24v - 240v
SLP1535	15	35	24v - 240v
SLP2550	25	50	24v - 240v
SLP2565	25	65	24v - 240v
SLP5090	50	90	24v - 240v



The Adjustable Style RSS Series is factory-set to activate on pressure rise. In furnace applications, it proves air flow by sensing draft from the blower; allowing the ignition to start up, or shutting it down upon insufficient draft. IAQ products can also employ sensing switches to prove sufficient airflow for device activation.

Air Pressure Sensing Switch

Item #	Range in Inches of W.C.	Contact Type
RSS495011	0.25" to 1.0" w.c.	SPDT

Temperature Switches

Manual Roll-Out Switches



Item #	Open °F	Voltage	Disc Size	Close
SRL130	130° F	120/240	1/2"	Manual Reset Button
SRL135	135° F	120/240	1/2"	Manual Reset Button
SRL220	220° F	120/240	1/2"	Manual Reset Button
SRL230	230° F	120/240	1/2"	Manual Reset Button

Item #	Open °F	Voltage	Disc Size	Close
SRL240	240° F	120/240	1/2"	Manual Reset Button
SRL250	250° F	120/240	1/2"	Manual Reset Button
SRL260	260° F	120/240	1/2"	Manual Reset Button
SRL300	300° F	120/240	1/2"	Manual Reset Button
SRL350	350° F	120/240	1/2"	Manual Reset Button

Manual Roll-Out Switches have a bi-metal disc that senses the temperature and quickly separates the contacts. The roll-out switch activates (opens on temperature rise) when the furnace heats to a predetermined high temperature limit. Once the flame roll-out switch has been tripped, the furnace will turn off and remain off until the SRL switch reset button is pressed.

Adjustable Bi-Metal Limit Switches



Item #	Application	Reset	Action	Open / Close Temperature	Voltage	Disc Size
AT012	Temp Limit	Automatic	Open on Rise	135° to 175° F	120v / 240v	3/4"
AT013	Temp Limit	Automatic	Open on Rise	175° to 215° F	120v / 240v	3/4"
AT014	Temp Limit	Automatic	Open on Rise	210° to 250° F	120v / 240v	3/4"
AT015	Temp Limit	Automatic	Open on Rise	250° to 290° F	120v / 240v	3/4"
AT021	Fan Control	Automatic	Close on Rise	90° to 130° F	120v / 240v	3/4"
AT022	Fan Control	Automatic	Close on Rise	140° to 180° F	120v / 240v	3/4"

The AT series temperature controls feature adjustable fan or limit operation in a versatile 3/4" bimetal disc design. Typical applications include fan controls for heating products, and the ability to adjust calibrations makes it versatile for replacement applications.

Plenum Limit Thermostats



Item #	Open °F	Close °F
SWT01274	125°	90°
SWT01275	135°	105°
SWT01276	140°	110°
SWT01277	145°	115°

Item #	Open °F	Close °F
SWT01280	155°	125°
SWT01258	170°	140°
SWT01271	180°	150°
SWT01259	190°	160°

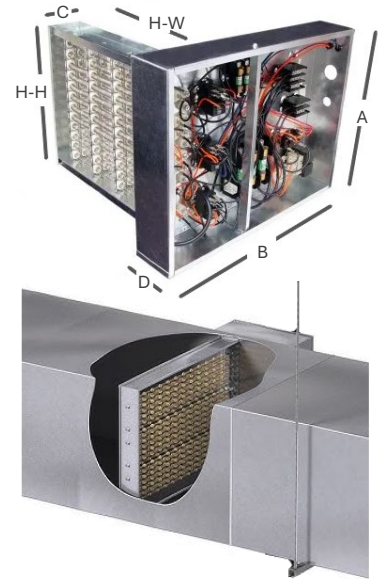
Item #	Open °F	Close °F
SWT01260	200°	170°
SWT01263	210°	180°
SWT01273	220°	190°
SWT01260	260°	230°

Plenum limit controls mount through the wall of a duct or furnace plenum, and turn the fan off when the trigger temperature is reached. They feature a large solid base to withstand high airflow.

Duct Heaters

Duct Heaters directly heat the air within the ductwork. They are often used to service areas further away from the main system heating source, or to provide isolated heat to certain zones within the larger system.

Item #	kW @ Volts	Phase	Amps	Duct Size Limits				Heater Dimensions						
				Width		Height		A	B	C	D	H-W	H-H	
Min.	Max.	Min.	Max.											
SL5A	4.8	240	1	20.0	8	16	8	12	9	11	3	4	7.5	7.25
SL5T	5.0	240	3	12.1	8	16	8	12	9	13	3	4	7.5	7.25
SL5TX	5.0	480	3	6.0	8	16	8	12	9	13	3	4	7.5	7.25
SL10A	9.6	240	1	40.0	12	20	8	14	9	12	3	4	11.5	7.25
SL10B	9.6	240	1	40.0	10	18	10	16	11	12	3	4	9.5	9.25
SL10T	9.9	240	3	23.9	12	20	8	14	9	12	3	4	11.5	7.25
SL10TX	10.0	480	3	12.0	12	20	8	14	9	13	3	4	11.5	7.25
SL15A	14.4	240	1	60.0	18	24	8	12	9	19	3	4	17.5	7.25
SL15B	14.4	240	1	60.0	15	22	10	14	11	18	3	4	14.5	9.25
SL15T	15.0	240	3	36.0	15	22	10	14	11	15	6	4	14.5	9.25
SL15TX	15.0	480	3	18.1	15	22	10	14	11	14	6	4	14.5	9.25
SL20A	19.2	240	1	80.0	16	22	10	14	11	20	6	4	15.5	9.25
SL20T	19.8	240	3	47.7	16	22	11	14	12	14	6	4	15.5	9.25
SL20TX	20.0	480	3	24.1	16	22	11	14	12	15	6	4	15.5	9.25



HD has access to a wide variety of auxiliary strip and custom-built duct heaters. Please consult your HD representative with your custom heater needs.

Ignitors & Flame Sensors

Ignitors

Item #	Brand	Type	Shape	Voltage	Application
SSN2000	Supco	Silicone Nitride	Round	120v	Universal - w/ 2 mounting brackets
Q3200U1004	Honeywell	Silicone Nitride	Round	120v	Universal - w/ 6 mounting brackets
IG4000	Supco	Silicone Carbide	Flat	120v	Universal - w/ 5 mounting brackets
IGN00152	Trane	Silicone Nitride	Flat	120v	Multiple OEM applications w/ Molex Plug
IGN00145	Trane	Silicone Nitride	Flat	80v	Multiple OEM applications w/ Molex Plug
KIT03033USA	Trane	Silicone Carbide	Flat	120v	Multiple Commercial OEM applications



A **Hot Surface Ignitor** (direct ignition) is a more efficient and modern alternative to a pilot light. It only uses electricity when needed to ignite the gas, where a pilot light burns gas continuously.

Flame Sensors

Item #	Style	Probe Length	Connection	Replaces
FLS010	Straight Rod	2.5"	1/4" Quick Connect	Goodman® 0130F00010
FLS013	Straight Rod	2.5"	Plug Adapter	Carrier® LH33WZ514
FLS014	45° Offset	2.5"	Plug Adapter	Carrier® LH680534
FLS201	90° Offset	2"	1/4" Quick Connect	Goodman® 10735201
FLS301	90° Offset	2.5"	1/4" Quick Connect	Rheem® 62-23543-01
FLS401	Straight Rod w/ 30" Lead	3"	1/4" Quick Connect	Universal
FLS52W29	Straight Rod	2.75"	1/4" Quick Connect	Lennox® 52W29
FLS51M14	90° Offset w/ Bracket	2.5"	1/4" Quick Connect	Lennox® 51M14
SEN01114	75° Offset	3"	1/4" Quick Connect	Trane OEM Component



If a flame is present, the **Flame Sensor** sends a signal to the control board allowing the gas valve to remain open. If no flame is detected, it shuts off the furnace to prevent gas from leaking into the space.

Gas Valves

Honeywell Universal Gas Valves

Item #	Opening Type	System Type	HIS & DSI	Pilot	Factory Set W.C.	Adjustable Range W.C.	Inlet / Outlet Size	LP Conversion Kit Included
VR8215S1503	Standard	Single Stage	Yes	No	3.5" WC	3.0" - 5.0"	1/2" x 1/2"	Yes
VR8215T1502	Slow	Single Stage	Yes	No	3.5" WC	3.0" - 5.0"	1/2" x 1/2"	Yes
VR8345M4302	Standard	Single Stage	Yes	Yes	3.5" WC	3.0" - 5.0"	3/4" x 3/4" + 1/2" x 1/2" reducers	Yes

White Rodgers OEM Gas Valves

Item #	Model #	Opening Type	System Type	HIS & DSI	Pilot	Vent Fitting	Factory Set W.C.	Adjustable Range W.C.	Inlet / Outlet Size
VAL09028	36J22-209	Fast	Single Stage	Yes	No	90° Elbow for 1/4" Hose			
VAL09033	36J22-223	Fast	Single Stage	Yes	No	5/16" Plugged	3.3" WC	2.5" - 5.0"	1/2" x 1/2"
VAL09029	36J24-205	Slow	Single Stage	Yes	No	5/16" Plugged			
VAL09030	36J54-201	Fast	Two Stage	Yes	No	5/16" Plugged	3.2" H / 1.4" L	2.5" - 5.0" H	1/2" x 1/2"
VAL09031	36J54-202	Fast	Two Stage	Yes	No	90° Elbow for 1/4" Hose		1.0" - 4.0" L	
VAL09034	36J54-209	Fast	Two Stage	Yes	No	5/16" Plugged	3.3" H / 1.8" L		

Furnace Boards

OEM Furnace Boards

Item #	Fits	Replaces
ICM282B	Carrier	<u>Carrier</u> : CEBD431012-01A, CEPL131012-01, HK42FZ004, HK42FZ007, HK42FZ008, HK42FZ009, HK42FZ011, HK42FZ013, HK42FZ016, HK42FZ034 and 325878-751
ICM2811	Goodman	<u>Goodman</u> : PCBBF110, PCBBF123, 0130F00005, PCBBF112, B18099-26 <u>White-Rodgers</u> : 50A55-743, 50A55-289, 50T55-289
ICM2813	Lennox	<u>Lennox</u> : 10M9301, 12L6901, 32M8801, 56L8401, 24L8501, 63K8901, 97L4801, 100925-01, 100925-03, 17W9201, 23W5101, 30W2501, 69M0801, 69M1501, 83M00 <u>White-Rodgers</u> : 50A65-120, 50A65-121, 50A62-120, 50A62-121, 50A62-820, 21D83M-843, 50A66-122, 50A66-123

ICM Universal Furnace Control

The **ICM2812-KIT** is a universal board only replacement for White-Rodgers 50M56U-843 and more than 200 competitive part numbers.

Part #	HSI Ignitor	Gas Valve	Inducer Draft Motor	Blower Motor
ICM2812-KIT	6a @ 120v	1.5a @ 24v	2.2FLA @ 120v	9.5FLA @ 120v

White-Rodgers Universal Furnace Controls

The White-Rodgers Hot Surface Ignition Universal Integrated Furnace Controls replaces over 700 OEM and competitive model numbers.

- LED indicators for installation and system troubleshooting
- Select models include a universal 120V nitride ignitor to allow replacement of 80V and 120V controls

Part #	Mfg. #	Replaces	Stages	Ignitor Voltage	Inducer Motor / Blower Motor	Blower Motor Speed Taps	Thermostat Inputs	Wiring Included?	Mounting
50M56X-843	50M56X-843	Carrier, Goodman, Lennox, Nordyne, Rheem, Trane, York	Single Stage	120 V*	PSC / PSC, ECMx	PSC: 2 / 3 speed ECMx: 2, 3, 4, 5, & 9 speeds	R, C, W, G, Y1, Y/Y2, DHUM	No	Flush Mount
CNT03740	50A55-843	Carrier, Goodman, Lennox, Trane, York	Single Stage	120 V	PSC / PSC	Heat, Cool	R, C, W, Y G	Yes	Flush Mount
CNT06412	21V51U-843	Goodman, Lennox, Trane, York	Two Stage	120 V*	PSC / Var. Speed	16-pin Interface	R, B/C, W1, W2, YLo, Y, G, O, DHUM	Yes	Standoff

* On 80 VAC applications use supplied 21D64-2 Universal Ignitor

R-22 / R407C Scroll Compressors

208-230v Single Phase - ODF Stub Tube Connection (R-22 / R407C)

Copeland #	Item #	Tons	BTU	Suction Line	Liquid Line	Run Cap	Wire Connection	Voltage
ZR16K5E-PFV-800	COM11572	1-1/4	15,500	3/4"	1/2"	30/440	Molded Plug	208-230v/1
ZR18K5E-PFV-800	COM11262	1-1/2	18,000	3/4"	1/2"	30/440	Molded Plug	208-230v/1
ZR21K5E-PFV-800	COM11263	1-3/4	21,000	3/4"	1/2"	35/440	Molded Plug	208-230v/1
ZR25K5E-PFV-800	COM11165	2	25,300	3/4"	1/2"	40/440	Molded Plug	208-230v/1
ZR28K5E-PFV-800	COM11264	2-1/2	28,400	3/4"	1/2"	45/440	Molded Plug	208-230v/1
ZR32K5E-PFV-800	COM11166	2-3/4	32,600	3/4"	1/2"	50/440	Molded Plug	208-230v/1
ZR38K5E-PFV-800	COM11167	3	38,000	7/8"	1/2"	55/440	Molded Plug	208-230v/1
ZR42K5E-PFV-800	COM11168	3-1/2	42,200	7/8"	1/2"	55/440	Molded Plug	208-230v/1
ZR48K5E-PFV-800	COM11169	4	48,200	7/8"	1/2"	60/440	Molded Plug	208-230v/1
ZR54K5E-PFV-800	COM11290	4-1/2	53,500	7/8"	1/2"	80/440	Molded Plug	208-230v/1
ZR57K3E-PFV-930	COM11170	4-3/4	55,500	7/8"	1/2"	80/440	Terminal Block	208-230v/1
ZR61K3E-PFV-930	COM11171	5	62,000	7/8"	1/2"	80/440	Terminal Block	208-230v/1
ZR68KCE-PFV-950	COM11293	5-1/2	69,500	7/8"	1/2"	80/440	Terminal Block	208-230v/1



208-230v Three Phase - ODF Stub Tube Connection (R-22 / R407C)

Copeland #	Item #	Tons	BTU	Suction Line	Liquid Line	Wire Connection	Voltage
ZR25K5E-TF5-800	COM11294	2	25,300	3/4"	1/2"	Molded Plug	208-230v/3
ZR28K5E-TF5-800	COM11295	2-1/2	28,400	3/4"	1/2"	Molded Plug	208-230v/3
ZR32K5E-TF5-800	COM11296	2-3/4	32,600	3/4"	1/2"	Molded Plug	208-230v/3
ZR38K5E-TF5-800	COM11297	3	38,000	7/8"	1/2"	Molded Plug	208-230v/3
ZR42K5E-TF5-800	COM11298	3-1/2	42,200	7/8"	1/2"	Molded Plug	208-230v/3
ZR48K5E-TF5-800	COM11172	4	48,200	7/8"	1/2"	Molded Plug	208-230v/3
ZR54K5E-TF5-800	COM11299	4-1/2	53,500	7/8"	1/2"	Molded Plug	208-230v/3
ZR57K3E-TF5-930	COM11173	4-3/4	58,500	7/8"	1/2"	Quick Connect	208-230v/3
ZR61K3E-TF5-930	COM11174	5	62,000	7/8"	1/2"	Quick Connect	208-230v/3
ZR68KCE-TF5-930	COM08728	5-1/2	68,500	7/8"	1/2"	Terminal Block	208-230v/3
ZR72KCE-TF5-950	COM11175	6	73,500	7/8"	1/2"	Terminal Block	208-230v/3
ZR81KCE-TF5-950	COM11586	6-1/2	81,100	7/8"	1/2"	Terminal Block	208-230v/3
ZR84KCE-TF5-950	COM11303	7	84,000	1-1/8"	7/8"	Terminal Block	208-230v/3
ZR94KCE-TF5-950	COM11176	8	94,000	1-1/8"	7/8"	Terminal Block	208-230v/3
ZR108KCE-TF5-950	COM08725	9	108,900	1-3/8"	7/8"	Terminal Block	208-230v/3
ZR125KCE-TF5-950	COM08727	10	129,000	1-3/8"	7/8"	Terminal Block	208-230v/3
ZR144KCE-TF5-950	COM11304	12	142,800	1-3/8"	7/8"	Terminal Block	208-230v/3
ZR160KCE-TE5-950	COM11600	13	160,000	1-3/8"	7/8"	Terminal Block	208-230v/3
ZR190KCE-TE5-950	COM11483	16	190,000	1-3/8"	7/8"	Terminal Block	208-230v/3
ZR250KCE-TEC-951	COM11486	20	250,000	1-5/8"	1-3/8"	Terminal Block	208-230v/3
ZR300KCE-TEC-951	COM11603	25	296,000	2-1/8"	1-3/8"	Terminal Block	208-230v/3



R-22 / R407C Scroll Compressors

208-230v Three Phase - Rotalock Connection (R-22 / R407C)

Copeland #	Item #	Tons	BTU	Suction Line	Liquid Line	Wire Connection	Voltage
ZR108KCE-TF5-965	COM13256	9	109000	1-3/4" ROT	1-1/4" ROT	Terminal Block	208-230v/3
ZR125KCE-TF5-965	COM13258	10	128000	1-3/4" ROT	1-1/4" ROT	Terminal Block	208-230v/3
ZR144KCE-TF5-965	COM13260	12	146000	1-3/4" ROT	1-1/4" ROT	Terminal Block	208-230v/3
ZR160KCE-TE5-965	COM13262	13	160000	1-3/4" ROT	1-1/4" ROT	Terminal Block	208-230v/3
ZR190KCE-TE5-965	COM13264	16	190000	1-3/4" ROT	1-1/4" ROT	Terminal Block	208-230v/3
ZR250KCE-TE5-965	COM13266	20	250000	2-1/4" ROT	1-3/4" ROT	Terminal Block	208-230v/3
ZR300KCE-TEC-965	COM11488	25	296000	2-19/32" ROT	1-3/4" ROT	Terminal Block	208-230v/3
ZR380KCE-TEC-965	COM11607	32	379000	2-1/4" ROT	1-3/4" ROT	Terminal Block	208-230v/3



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Troubleshooting for Copeland Products

460v Three Phase - ODF Stub Tube Connection (R-22 / R407C)

Copeland #	Item #	Tons	BTU	Suction Line	Liquid Line	Wire Connection	Voltage
ZR25K5E-TFD-800	COM11309	2	25300	3/4"	1/2"	Molded Plug	460/3
ZR28K5E-TFD-800	COM11310	2-1/2	28400	3/4"	1/2"	Molded Plug	460/3
ZR32K5E-TFD-800	COM11311	2-3/4	32600	3/4"	1/2"	Molded Plug	460/3
ZR38K5E-TFD-800	COM11312	3	38000	7/8"	1/2"	Molded Plug	460/3
ZR42K5E-TFD-800	COM11313	3-1/2	42200	7/8"	1/2"	Molded Plug	460/3
ZR48K5E-TFD-800	COM11177	4	48200	7/8"	1/2"	Molded Plug	460/3
ZR54K5E-TFD-800	COM10632	4-1/2	53500	7/8"	1/2"	Molded Plug	460/3
ZR57K3E-TFD-930	COM11178	4-3/4	58500	7/8"	1/2"	Quick Connect	460/3
ZR61K3E-TFD-930	COM11179	5	62000	7/8"	1/2"	Quick Connect	460/3
ZR68KCE-TFD-930	COM11180	5-1/2	68500	7/8"	1/2"	Terminal Block	460/3
ZR72KCE-TFD-950	COM11181	6	73500	7/8"	1/2"	Terminal Block	460/3
ZR81KCE-TFD-950	COM07364	6-1/2	81500	7/8"	1/2"	Terminal Block	460/3
ZR84KCE-TFD-950	COM10923	7	84000	1-1/8"	7/8"	Terminal Block	460/3
ZR94KCE-TFD-950	COM11182	8	94000	1-1/8"	7/8"	Terminal Block	460/3
ZR108KCE-TFD-950	COM11317	9	108700	1-3/8"	7/8"	Terminal Block	460/3
ZR125KCE-TFD-950	COM08734	10	126400	1-3/8"	7/8"	Terminal Block	460/3
ZR144KCE-TFD-950	COM11183	12	142800	1-3/8"	7/8"	Terminal Block	460/3
ZR160KCE-TED-950	COM11601	13	160000	1-3/8"	7/8"	Terminal Block	460/3
ZR190KCE-TED-950	COM11484	16	190000	1-3/8"	7/8"	Terminal Block	460/3
ZR250KCE-TED-951	COM11487	20	250000	1-5/8"	1-3/8"	Terminal Block	460/3
ZR300KCE-TED-951	COM11604	25	296,000	2-1/8"	1-3/8"	Terminal Block	460/3

460v Three Phase - Rotalock Connection (R-22 / R407C)

Copeland #	Item #	Tons	BTU	Suction Line	Liquid Line	Wire Connection	Voltage
ZR108KCE-TFD-965	COM13257	9	109000	1-3/4" ROT	1-1/4" ROT	Terminal Block	460/3
ZR125KCE-TFD-965	COM13259	10	128000	1-3/4" ROT	1-1/4" ROT	Terminal Block	460/3
ZR144KCE-TFD-965	COM13261	12	146000	1-3/4" ROT	1-1/4" ROT	Terminal Block	460/3
ZR160KCE-TED-965	COM13263	13	160000	1-3/4" ROT	1-1/4" ROT	Terminal Block	460/3
ZR190KCE-TED-965	COM13265	16	190000	1-3/4" ROT	1-1/4" ROT	Terminal Block	460/3
ZR250KCE-TED-965	COM13267	20	250000	2-1/4" ROT	1-3/4" ROT	Terminal Block	460/3
ZR300KCE-TED-965	COM11489	25	296000	2-19/32" ROT	1-3/4" ROT	Terminal Block	460/3
ZR380KCE-TED-965	COM11566	32	379000	2-1/4" ROT	1-3/4" ROT	Terminal Block	460/3

R410A Scroll Compressors

208-230v Single Phase - ODF Stub Tube Connection (R410A)

Copeland #	Item #	Tons	BTU	Suction Line	Liquid Line	Run Capacitor	Wire Connection	Voltage
ZP16K5E-PFV-830	COM11474	1-1/2	15500	3/4"	1/2"	30/440	Molded Plug	208-230v/1
ZP20K5E-PFV-830	COM09572	1-3/4	20000	3/4"	1/2"	35/440	Molded Plug	208-230v/1
ZP24K5E-PFV-830	COM09574	2	24000	3/4"	1/2"	40/440	Molded Plug	208-230v/1
ZP31K5E-PFV-830	COM10612	2-1/2	31100	3/4"	1/2"	45/440	Molded Plug	208-230v/1
ZP34K5E-PFV-830	COM09580	3	34500	3/4"	1/2"	45/440	Molded Plug	208-230v/1
ZP38K5E-PFV-830	COM11573	3-1/4	37800	3/4"	1/2"	45/440	Molded Plug	208-230v/1
ZP42K5E-PFV-830	COM11574	3-1/2	42000	7/8"	1/2"	70/440	Molded Plug	208-230v/1
ZP49K5E-PFV-830	COM11575	4	49400	7/8"	1/2"	70/440	Molded Plug	208-230v/1
ZP54K5E-PFV-830	COM10609	4-1/2	54000	7/8"	1/2"	80/440	Molded Plug	208-230v/1
ZP57K5E-PFV-830	COM11899	4-3/4	57000	7/8"	1/2"	80/440	Molded Plug	208-230v/1
ZP61K5E-PFV-830	COM11477	5	61500	7/8"	1/2"	80/440	Molded Plug	208-230v/1

208-230v Three Phase - ODF Stub Tube Connection (R410A)

Copeland #	Item #	Tons	BTU	Suction Line	Liquid Line	Wire Connection	Voltage
ZP25K5E-TF5-830	COM10613	2	25,200	3/4"	1/2"	Molded Plug	208-230v/3
ZP31K5E-TF5-830	COM10618	2-1/2	31,200	3/4"	1/2"	Molded Plug	208-230v/3
ZP34K5E-TF5-830	COM09581	3	34,600	7/8"	1/2"	Molded Plug	208-230v/3
ZP38K5E-TF5-830	COM11577	3-1/4	38,100	7/8"	1/2"	Molded Plug	208-230v/3
ZP42K5E-TF5-830	COM11578	3-1/2	41,900	7/8"	1/2"	Molded Plug	208-230v/3
ZP49K5E-TF5-830	COM11579	4	49,700	7/8"	1/2"	Molded Plug	208-230v/3
ZP54K5E-TF5-830	COM10603	4-1/2	54,300	7/8"	1/2"	Molded Plug	208-230v/3
ZP57K5E-TF5-830	COM10723	4-3/4	57,500	7/8"	1/2"	Terminal Block	208-230v/3
ZP61KCE-TF5-950	COM11478	5	61,500	7/8"	1/2"	Terminal Block	208-230v/3
ZP67KCE-TF5-950	COM09078	5-1/2	67000	7/8"	1/2"	Terminal Block	208-230v/3
ZP72KCE-TF5-950	COM11580	6	72,000	7/8"	1/2"	Terminal Block	208-230v/3
ZP76KCE-TF5-950	COM09635	6-1/2	77,000	7/8"	1/2"	Terminal Block	208-230v/3
ZP83KCE-TF5-950	COM09081	7	83,000	7/8"	1/2"	Terminal Block	208-230v/3
ZP90KCE-TF5-950	COM11581	7-1/2	90,500	1-1/8"	7/8"	Terminal Block	208-230v/3
ZP103KCE-TF5-950	COM08840	8-1/2	105,000	1-1/8"	7/8"	Terminal Block	208-230v/3
ZP120KCE-TF5-950	COM08831	10	123,000	1-1/8"	7/8"	Terminal Block	208-230v/3
ZP137K5E-TF5-950	COM08849	11-1/2	137,000	1-3/8"	7/8"	Terminal Block	208-230v/3
ZP154KCE-TE5-950	COM11801	13	155,000	1-3/8"	7/8"	Terminal Block	208-230v/3
ZP182KCE-TE5-950	COM11480	15	183,000	1-3/8"	7/8"	Terminal Block	208-230v/3
ZP235KCE-TEC-951	COM11481	20	235,000	1-5/8"	1-3/8"	Terminal Block	208-230v/3
ZP285KCE-TEC-951	COM11587	24	278,000	2-1/8"	1-3/8"	Terminal Block	208-230v/3
ZP295KCE-TEC-951	COM11588	25	294,000	1-5/8"	1-3/8"	Terminal Block	208-230v/3

208-230v Three Phase - Rotalock Connection (R410A)

Copeland #	Item #	Tons	BTU	Suction Line	Liquid Line	Wire Connection	Voltage
ZP154KCE-TE5-965	COM13248	13	155,000	1-3/4" ROT	1-1/4" ROT	Terminal Block	208-230v/3
ZP182KCE-TE5-965	COM13250	15	183,000	1-3/4" ROT	1-1/4" ROT	Terminal Block	208-230v/3
ZP285KCE-TEC-965	COM13254	24	278,000	2-1/4" ROT	1-3/4" ROT	Terminal Block	208-230v/3
ZP385KCE-TEC-966	COM10882	32	385,000	2-1/4" ROT	1-3/4" ROT	Terminal Block	208-230v/3



R410A Scroll Compressors

460v Three Phase - ODF Stub Tube Connection (R410A)

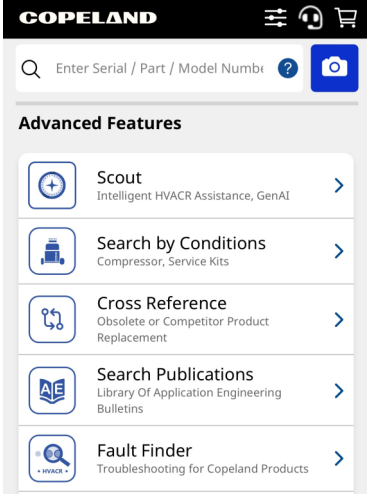
Copeland #	Item #	Tons	BTU	Suction Line	Liquid Line	Wire Connection	Voltage
ZP25K5E-TFD-830	COM10607	2	25,200	3/4"	1/2"	Molded Plug	460v/3
ZP31K5E-TFD-830	COM10605	2-1/2	31,200	3/4"	1/2"	Molded Plug	460v/3
ZP34K5E-TFD-830	COM09582	3	34,600	7/8"	1/2"	Molded Plug	460v/3
ZP38K5E-TFD-830	COM11582	3-1/4	38,100	7/8"	1/2"	Molded Plug	460v/3
ZP42K5E-TFD-830	COM11583	3-1/2	41,900	7/8"	1/2"	Molded Plug	460v/3
ZP49K5E-TFD-830	COM11584	4	49,700	7/8"	1/2"	Molded Plug	460v/3
ZP54K5E-TFD-830	COM10610	4-1/2	54,300	7/8"	1/2"	Molded Plug	460v/3
ZP57K5E-TFD-930	COM10595	4-3/4	57,500	7/8"	1/2"	Terminal Block	460v/3
ZP61K5E-TFD-930	COM11479	5	61,500	7/8"	1/2"	Terminal Block	460v/3
ZP67K5E-TFD-930	COM09079	5-1/2	67,000	7/8"	1/2"	Terminal Block	460v/3
ZP72KCE-TFD-950	COM11585	6	72,000	7/8"	1/2"	Terminal Block	460v/3
ZP72KCE-TFD-950	COM09636	6-1/2	77,000	7/8"	1/2"	Terminal Block	460v/3
ZP83KCE-TFD-950	COM09082	7	83,000	7/8"	1/2"	Terminal Block	460v/3
ZP90KCE-TFD-950	COM08991	7-1/2	90,500	7/8"	1/2"	Terminal Block	460v/3
ZP103KCE-TFD-950	COM08841	8-1/2	105,000	1-1/8"	7/8"	Terminal Block	460v/3
ZP120KCE-TFD-950	COM08844	10	123,000	1-1/8"	7/8"	Terminal Block	460v/3
ZP137KCE-TFD-950	COM08850	11-1/2	137,000	1-3/8"	7/8"	Terminal Block	460v/3
ZP154KCE-TFD-950	COM11804	13	155,000	1-3/8"	7/8"	Terminal Block	460v/3
ZP182KCE-TED-950	COM13863	15	183,000	1-3/8"	7/8"	Terminal Block	460v/3
ZP235KCE-TED-951	COM11589	20	235,000	1-5/8"	1-3/8"	Terminal Block	460v/3
ZP285KCE-TED-951	COM11590	23	278,000	2-1/8"	1-3/8"	Terminal Block	460v/3
ZP295KCE-TED-951	COM11591	25	294,000	1-5/8"	1-3/8"	Terminal Block	460v/3
ZP385KCE-TED-951	COM13980	32	385,000	1-5/8"	1-3/8"	Terminal Block	460v/3
ZP485KCE-TED-951	COM12638	40	480,000	1-5/8"	1-3/8"	Terminal Block	460v/3



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- Fault Finder**
Troubleshooting for Copeland Products

460v Three Phase - Rotalock Connection (R410A)

Copeland #	Item #	Tons	BTU	Suction Line	Liquid Line	Wire Connection	Voltage
ZP120KCE-TFD-965	COM13462	10	120,000	1-3/4" ROT	1-1/4" ROT	Terminal Block	460v/3
ZP154KCE-TED-965	COM13249	13	155,000	1-3/4" ROT	1-1/4" ROT	Terminal Block	460v/3
ZP182KCE-TED-965	COM11482	15	183,000	1-3/4" ROT	1-1/4" ROT	Terminal Block	460v/3
ZP235KCE-TED-965	COM13253	20	238,000	2-1/4" ROT	1-3/4" ROT	Terminal Block	460v/3
ZP285KCE-TED-965	COM13255	23	278,000	2-1/4" ROT	1-3/4" ROT	Terminal Block	460v/3
ZP296KCE-TED-966	COM13732	25	298,000	2-1/4" ROT	1-3/4" ROT	Terminal Block	460v/3
ZP385KCE-TED-966	COM11538	32	385,000	2-1/4" ROT	1-3/4" ROT	Terminal Block	460v/3

R410A Digital Scroll Compressors

Digital scroll compressors can modulate down to 10% of full load. Digital scrolls are suitable for a variety of applications, such as VAV applications, dedicated outside air units, units that typically used hot gas bypass for capacity control, and applications that require accurate control of temperature and humidity.

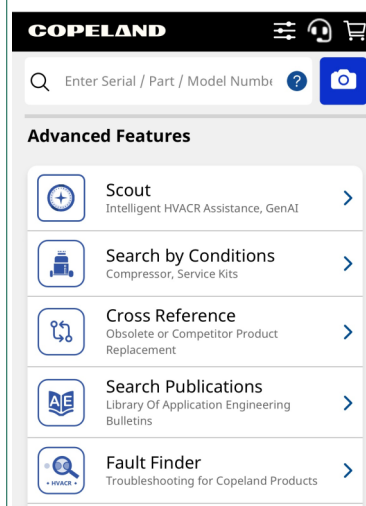
Tons	BTU	Copeland #	Item #	Suction Line	Liquid Line	Voltage
3	34,600	ZPD34K5E-PFV-830	COM11637	7/8" ODF	1/2" ODF	208-230/1
		ZPD34K5E-TF5-830	COM11628	7/8" ODF	1/2" ODF	208-230/3
		ZPD34K5E-TFD-830	COM11609	7/8" ODF	1/2" ODF	460/3
3.5	42,600	ZPD42K5E-PFV-830	COM11638	7/8" ODF	1/2" ODF	208-230/1
		ZPD42K5E-TF5-830	COM11629	7/8" ODF	1/2" ODF	208-230/3
		ZPD42K5E-TFD-830	COM11610	7/8" ODF	1/2" ODF	460/3
4.5	54,500	ZPD54K5E-PFV-830	COM11639	7/8" ODF	1/2" ODF	208-230/1
		ZPD54K5E-TF5-830	COM11630	7/8" ODF	1/2" ODF	208-230/3
		ZPD54K5E-TFD-830	COM11611	7/8" ODF	1/2" ODF	460/3
5	62,000	ZPD61KCE-TF5-830	COM11631	7/8" ODF	1/2" ODF	208-230/3
		ZPD61KCE-TFD-800	COM13742	7/8" ODF	1/2" ODF	460/3
6	71,500	ZPD72KCE-TF5-950	COM11632	7/8" ODF	1/2" ODF	208-230/3
		ZPD72KCE-TFD-950	COM11614	7/8" ODF	1/2" ODF	460/3
7	83,000	ZPD83KCE-TF5-950	COM11633	7/8" ODF	1/2" ODF	208-230/3
		ZPD83KCE-TFD-950	COM11615	7/8" ODF	1/2" ODF	460/3
8	90,100	ZPD91KCE-TF5-950	COM11634	7/8" ODF	3/4" ODF	208-230/3
		ZPD91KCE-TFD-950	COM11616	7/8" ODF	3/4" ODF	460/3
9	105,000	ZPD103KCE-TF5-950	COM11635	1-3/8" ODF	7/8" ODF	208-230/3
		ZPD103KCE-TFD-950	COM11617	1-3/8" ODF	7/8" ODF	460/3
10	120,000	ZPD120KCE-TF5-950	COM11790	1-3/8" ODF	7/8" ODF	208-230/3
		ZPD120KCE-TFD-950	COM11793	1-3/8" ODF	7/8" ODF	460/3
11	137,500	ZPD137KCE-TF5-950	COM11791	1-3/8" ODF	7/8" ODF	208-230/3
		ZPD137KCE-TFD-950	COM11794	1-3/8" ODF	7/8" ODF	460/3
13	155,000	ZPD154KCE-TE5-950	COM11792	1-3/8" ODF	7/8" ODF	208-230/3
		ZPD154KCE-TED-950	COM11795	1-3/8" ODF	7/8" ODF	460/3
15	182,000	ZPD182KCE-TE5-950	COM12156	1-3/8" ODF	7/8" ODF	208-230/3
		ZPD182KCE-TED-950	COM12157	1-3/8" ODF	7/8" ODF	460/3



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R410A Tandem Compressors

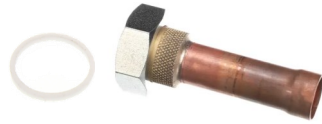
Tandem compressors offer part-load efficiency and increased modulation capabilities by running compressors individually or simultaneously.

These compressors are sold individually, not as a pair.

Tons	BTU	Copeland #	Item #	Suction Line	Liquid Line	Voltage
10	121,000	ZPT122KCE-TF5-950	COM11734	1-1/8" ODF	3/4" ODF	208-230/3
		ZPT122KCE-TFD-950	COM11735	1-1/8" ODF	3/4" ODF	460/3
11	133,000	ZPT134KCE-TF5-950	COM11736	1-1/8" ODF	3/4" ODF	208-230/3
		ZPT134KCE-TFD-950	COM11737	1-1/8" ODF	3/4" ODF	460/3
12	141,000	ZPT144KCE-TF5-950	COM11739	1-1/8" ODF	3/4" ODF	208-230/3
		ZPT144KCE-TFD-950	COM11740	1-1/8" ODF	3/4" ODF	460/3
13	164,000	ZPT166KCE-TF5-950	COM11742	1-1/8" ODF	3/4" ODF	208-230/3
		ZPT166KCE-TFD-950	COM11743	1-1/8" ODF	3/4" ODF	460/3
17	210,000	ZPT206KCE-TF5-950	COM11745	1-5/8" ODF	1-3/8" ODF	208-230/3
		ZPT206KCE-TFD-950	COM11746	1-5/8" ODF	1-3/8" ODF	460/3
20	240,000	ZPT240KCE-TF5-975	COM11643	1-5/8" ODF	1-3/8" ODF	208-230/3
		ZPT240KCE-TFD-975	COM11644	1-5/8" ODF	1-3/8" ODF	460/3
23	270,000	ZPT274KCE-TF5-950	COM11754	1-5/8" ODF	1-3/8" ODF	208-230/3
		ZPT274KCE-TFD-950	COM11755	1-5/8" ODF	1-3/8" ODF	460/3
40	464,000	ZPT470KCE-TEC-951	COM12510	2-5/8" ODF	1-5/8" ODF	208-230/3
		ZPT470KCE-TED-951	COM12509	2-5/8" ODF	1-5/8" ODF	460/3



Compressor Accessories



Trane® Rotalock Compressor Fittings

Rotalocks have a threaded fitting on one end, with a braze-in tube on the other. They allow for quick replacement or service of a compressor without having to cut the refrigerant lines. Teflon gaskets help avoid refrigerant leaks.

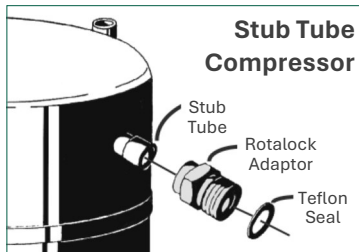
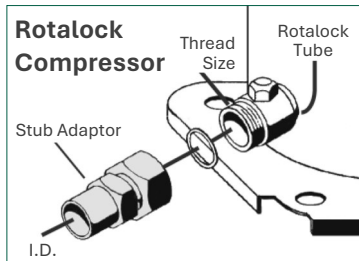
Replacement Gaskets

Item #	Fitting Size
GKT01532	1" / 14 Thread
GKT01533	1.25" / 12 Thread
GKT01534	1.75" / 12 Thread

Rotalock Compressor to Stub Tube Adaptor

Item #	Tube Size	Female Fitting
KIT01158	3/8"	1" - 14
KIT01159	1/2"	1" - 14
KIT01161	5/8"	1" - 14
KIT01162	1/2"	1.25" - 12

Item #	Tube Size	Female Fitting
KIT01163	5/8"	1.25" - 12
KIT01164	3/4"	1.25" - 12
KIT01165	7/8"	1.25" - 12
KIT01168	7/8"	1.75" - 12
KIT01170	1-1/8"	1.75" - 12



Copeland® Rotalock Compressor Fittings

Rotalock Compressor to Stub Tube Adapter

Copeland #	Item #	Tube Size	Rotalock Size
998-0034-12	KIT16851	1-5/8"	2.25" - 12
998-0034-11	KIT16850	1-3/8"	2.25" - 12
998-0034-13	KIT16849	1-3/8"	1.75" - 12
998-0034-09	KIT16848	1-1/8"	1.25" - 12

Stub Tube Compressor to Rotalock Adapter

Copeland #	Item #	Tube Size	Rotalock Size
998-0034-06	KIT16859	1-5/8"	2.25" - 12
998-0034-04	KIT16858	1-3/8"	1.75" - 12
998-0034-03	KIT16857	1-1/8"	1.75" - 12
998-0034-02	KIT16856	7/8"	1.25" - 12
998-0034-01	KIT16855	3/4"	1.25" - 12

Compressor Terminals

Item #	Wire Gauge	Pack Qty.
FCT12-250-3-S	12 - 8	15



Scroll Compressor Wire Harness & Plugs



Item #	Length	Wire Gauge	Application
WIR04816	6'	10ga. / 10ga. / 14ga.	Single-Phase
PLU01347	6'	10ga. / 10ga. / 10ga.	Single & Three Phase

QuikLug® Terminal Repair Kit

Easily attaches to damaged or corroded spade connectors, solving the problem of a compressor with pitted or corroded terminals.



Item #	Length	Wire Gauge
QT2812	2'	10 awg
QT2910	4'	12 awg

Compressor Sound Attenuator Blankets

These are specially designed covers made from sound-absorbing materials. They wrap around a compressor to significantly reduce the noise it generates by absorbing sound waves and dampening vibrations.



Item #	Fits
BAYSDEN001	Small Scrolls (up to 3 Tons)
BAYSDEN004	Large Scrolls (3.5 - 7.0 Tons) Up to 17" Tall & 7.3" Wide

Filter Driers

Liquid Line Filter Driers remove moisture and solid contaminants from the refrigerant. They act as a filter and drying agent to protect the system from damage caused by excessive moisture and debris.

Bi-Flow Driers are for heat pump systems, where refrigerant will flow in both directions.

Suction Line Filter Driers are typically used as a temporary solution after a compressor burnout, helping remove moisture and acid. Once cleanup is complete, they are often removed and replaced by a regular liquid line drier. They often have dual access ports to check pressure drop across the drier. A high pressure drop could indicate clogging or accumulated contaminants.



Wholesale Driers

Straight Cool - Liquid Line

Item #	Cubic Inches	Connection Type	Connection Size	Case Qty.
LLD083S	8cu.	ODF	3/8" x 3/8"	15
LLD163S	16cu.	ODF	3/8" x 3/8"	15
LLD164S	16cu.	ODF	1/2" x 1/2"	15
LLD165S	16cu.	ODF	5/8" x 5/8"	15
LLD305S	30cu.	ODF	5/8" x 5/8"	10
LLD306S	30cu.	ODF	3/4" x 3/4"	10
LLD307S	30cu.	ODF	7/8" x 7/8"	10



Suction Line

Item #	Cubic Inches	Connection Type	Connection Size	Access Ports
SSLD166S	16cu.	ODF	3/4" x 3/4"	Dual
SSLD167S	16cu.	ODF	7/8" x 7/8"	Dual
SSLD309S	30cu.	ODF	1-1/8" x 1-1/8"	Dual

Heat Pump (Bi-Flow) - Liquid Line

Item #	Cubic Inches	Connection Type	Connection Size	Case Qty.
HP083S	8cu.	ODF	3/8" x 3/8"	15
HP163S	16cu.	ODF	3/8" x 3/8"	15
HP164S	16cu.	ODF	1/2" x 1/2"	15

Press Tool Ready - Liquid Line

Type	Item #	Cubic Inches	Connection Type	Connection Size
Straight Cool	LLD-083-PZK	8cu.	ODM	3/8" x 3/8"
	LLD-163-PZK	16cu.	ODM	3/8" x 3/8"
	LLD-164-PZK	16cu.	ODM	1/2" x 1/2"
Heat Pump	BF-083-PZK	8cu.	ODM	3/8" x 3/8"
	BF-163-PZK	16cu.	ODM	3/8" x 3/8"

OEM Straight Cool Liquid Line Driers

Item #	Mfg. #	Cubic Inches	Connection Type	Connection Size
DHY01096	C-302-S	3cu.	ODF	1/4" x 1/4"
DHY01465	DCL032MF	3cu.	SAE MF	
DHY01466	DCL052	5cu.	SAE	
DHY01276	EK0325SMF	3cu.	ODF MF	5/16" x 5/16"
DHY01277	EK0525SMF	5cu.	ODF MF	
DHY01287	EK0825SMF	8cu.	ODF MF	
DHY01511	DCL082.5S	8cu.	ODF MF	
DHY01288	EK083/25S	8cu.	ODF	3/8" x 5/16"
DHY01469	DCL053S	5cu.	ODF	3/8" x 3/8"
DHY01454	DCL083S	8cu.	ODF	
DHY01104	C-083	8cu.	SAE	
DHY01472	DCL163S	16cu.	ODF	
DHY01119	C-163	16cu.	SAE	
DHY01464	DCL303S	30cu.	ODF	
DHY01475	DCL303	30cu.	SAE	
DHY01081	EK303R	30cu.	SAE	
DHY01468	DCL084/2.5S	8cu.	ODF	1/2" x 5/16"
DHY01456	DCL054/3S	5cu.	ODF	1/2" x 3/8"
DHY01453	DCL084/3S	8cu.	ODF	



Item #	Mfg. #	Cubic Inches	Connection Type	Connection Size
DHY01471	DCL084S	8cu.	ODF	1/2" x 1/2"
DHY01473	DCL164S	16cu.	ODF	
DHY01120	C-164	16cu.	SAE	
DHY01477	DCL304S	30cu.	ODF	
DHY01476	DCL304	30cu.	SAE	1/2" x 5/8"
DHY01483	DCL164/5S	16cu.	ODF	
DHY01470	DCL165/4S	16cu.	ODF	5/8" x 1/2"
DHY01501	DCL305/4S	30cu.	ODF	
DHY01486	DCL165S	16cu.	ODF	5/8" x 5/8"
DHY01121	C-165	16cu.	SAE	
DHY01480	DCL305S	30cu.	ODF	
DHY01129	C-305	30cu.	SAE	
DHY01131	C-415-S	41cu.	ODF	
DHY01137	C-415	41cu.	SAE	5/8" x 7/8"
DHY01484	DCL305/7S	30cu.	ODF	
DHY01286	C-167-S	16cu.	ODF	7/8" x 7/8"
DHY01481	DCL307S	30cu.	ODF	
DHY01485	DCL417S	41cu.	ODF	1-1/8" x 1-1/8"
DHY01134	C-419-S	41cu.	ODF	
DHY01482	DCL609S	60cu.	ODF	

OEM Heat Pump Liquid Line Driers

Charcoal Cleanup (Bi-Flow) - Liquid Line

Item #	Mfg. #	Cubic Inches	Connection Type	Size
DHY01330	HPC-303-S-HH	30cu.	ODF	3/8" x 3/8"
DHY01326	HPC-303-HH	30cu.	SAE	
DHY01245	HPC-164-S-HH	16cu.	ODF	1/2" x 1/2"
DHY01244	HPC-164-HH	16cu.	SAE	
DHY01330	HPC-304-S-HH	30cu.	ODF	
DHY01327	HPC-304-HH	30cu.	SAE	
DHY01185	HPC-165-S-HH	16cu.	ODF	5/8" x 5/8"
DHY01184	HPC-165-HH	16cu.	SAE	
DHY01329	HPC-305-S-HH	30cu.	ODF	
DHY01328	HPC-305-HH	30cu.	SAE	



Activated Charcoal driers will remove wax, resins, and lubricant break down materials that normal desiccants do not. They are often used after a compressor burnout to remove all types of contaminants.

Heat Pump (Bi-Flow) - Liquid Line

Item #	Mfg. #	Cubic Inches	Connection Type	Size
DHY01450	DCB053S	5cu.	ODF	3/8" x 3/8"
DHY01451	DCB083S	8cu.	ODF	
DHY01452	DCB163S	16cu.	ODF	
DHY01467	DCB164S	16cu.	ODF	1/2" x 1/2"
DHY01669	HPC-165-S	16cu.	ODF	5/8" x 5/8"
DHY01674	HPC-307-S	30cu.	ODF	7/8" x 7/8"



OEM Suction Line Driers

Compact Suction Driers

Item #	Cubic Inches	Access Ports	Connection Type	Size
SFD-13S5-VV	13cu.	Dual	ODF	5/8" x 5/8"
SFD-13S6-VV	13cu.	Dual	ODF	3/4" x 3/4"
SFD-13S7-VV	13cu.	Dual	ODF	7/8" x 7/8"
DHY00240	27cu.	Dual	ODF	
SFD-27S9-VV	27cu.	Dual	ODF	1-1/8" x 1-1/8"
DHY00242	54cu.	Dual	ODF	1-3/8" x 1-3/8"
DHY00243	54cu.	Dual	ODF	1-5/8" x 1-5/8"



Compact Suction Driers have a short length, allowing for easy installation, even on systems with restricted clearance.

Standard Suction Driers

Item #	Mfg. #	Cubic Inches	Access Ports	Connection Type	Size
DHY01459	DAS305SW	30cu.	Dual	ODF	5/8" x 5/8"
DHY01460	DAS166SW	16cu.	Dual	ODF	3/4" x 3/4"
DHY01478	DAS416SW	41cu.	Dual	ODF	
DHY01458	DAS167SW	16cu.	Dual	ODF	7/8" x 7/8"
DHY01461	DAS417SW	41cu.	Dual	ODF	
DHY01462	DAS419SW	41cu.	Dual	ODF	1-1/8" x 1-1/8"
FLR05797	ASF50S9-VV	50cu.	Dual	ODF	
FLR07124	ASF64S9-FM	64cu.	None	ODF	1-3/8" x 1-3/8"
DHY01463	DAS7511SW	75cu.	Dual	ODF	



Copper Service Driers

Item #	Diameter	Length	Connection Type	Size
MMS-200	1"	10"	ODF	1/4" - 5/16" - 3/8" Step Down
619	3/4"	8"	ODF	1/4" x Cap Tube w/ Access Port

Service Driers are used in smaller ACs, refrigeration, and appliances.



619



MMS-20

Specialty Driers

Copper Spun Driers

Item #	Mfg. #	Cubic Inches	Connection Type	Size
DHY00940	CU-163-S	16CU.	ODF	3/8" x 3/8"



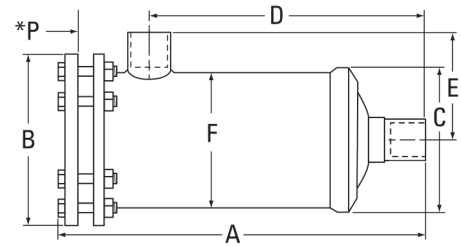
Copper Spun Driers provide corrosion resistance in marine and coastal applications.

Shells and Cores

Larger systems use permanently installed drier shells (the outer casing), that have replaceable internal filter cores. This allows easier system service - cores can be quickly changed without brazing in a new shell. Various types of cores are available for different applications - removal of moisture, acid, wax, oil, as well as other solid contaminants.

Liquid Line Shells (with Access Valve & 1/4" NPT Connection)

Item #	Model #	Line Size	# of Cores	Dimensions							Core Used
				A	B	C	D	E	F	*P	
DHY01145	C-485-T	5/8	1	9.2	6.0	5.0	5.9	3.5	4.8	7.5	Size 48 Cores
DHY01146	C-487-T	7/8	1	9.3	6.0	5.0	6.1	4.0	4.8	7.5	
DHY01147	C-489-T	1-1/8	1	9.5	6.0	5.0	6.3	4.2	4.8	7.5	
DHY01148	C-4811-T	1-3/8	1	9.6	6.0	5.0	6.4	4.3	4.8	7.5	
DHY01149	C-4813-T	1-5/8	1	9.6	6.0	5.0	6.4	4.3	4.8	7.5	
DHY01150	C-967-T	7/8	2	14.9	6.0	5.0	11.6	4.0	4.8	13.0	Size 48 Cores
DHY01151	C-969-T	1-1/8	2	15.0	6.0	5.0	11.8	4.2	4.8	13.0	
DHY01152	C-9611-T	1-3/8	2	15.1	6.0	5.0	11.9	4.3	4.8	13.0	
DHY01159	C-9613-T	1-5/8	2	15.1	6.0	5.0	11.9	4.3	4.8	13.0	
DHY01161	C-1449-T	1-1/8	3	20.6	6.0	5.0	17.5	4.2	4.8	18.6	Size 48 Cores
DHY01163	C-14411-T	1-3/8	3	20.7	6.0	5.0	17.5	4.3	4.8	18.6	
DHY01165	C-19211-T	1-3/8	4	26.2	6.0	5.0	23.0	4.3	4.8	18.6	Size 48 Cores
DHY01649	C-19213-T	1-5/8	4	26.2	6.0	5.0	23.0	4.3	4.8	24.3	



Suction Line Shells (with Access Valve & 1/4" NPT Connection)

Item #	Model #	Line Size	# of Cores	Dimensions							Core Used
				A	B	C	D	E	F	*P	
FLR06119	RSF-487-T	7/8	1	9.3	6.0	5.0	6.1	4.0	4.8	7.0	Size 48 Cores
FLR06120	RSF-489-T	1-1/8	1	9.5	6.0	5.0	6.3	4.2	4.8	7.0	
FLR06121	RSF-4811-T	1-3/8	1	9.6	6.0	5.0	6.4	4.3	4.8	7.0	
FLR06313	RSF-4813-T	1-5/8	1	9.6	6.0	5.0	6.4	4.3	4.8	7.0	
FLR06122	RSF-4817-T	2-1/8	1	14.9	6.0	5.0	5.8	4.4	4.8	7.0	
FLR06123	RSF-9617-T	2-1/8	2	15.0	6.0	5.0	11.4	4.4	4.8	13.0	Size 48 Cores
FLR06124	RSF-9621-T	2-5/8	2	15.1	6.0	5.0	11.1	5.2	4.8	13.0	



Maximum Desiccant Suction Line Shells

Item #	Model #	Line Size	# of Cores	Dimensions							Core Used
				A	B	C	D	E	F	*P	
DHY01168	C-30013-T	1-5/8	3	27.9	7.5	6.25	23.9	5.1	6.0	25.6	Size 100 Cores
DHY01171	C-30017-T	2-1/8	3	28.1	7.5	6.25	24.0	5.1	6.0	25.6	
DHY01173	C-40017-T	2-1/8	4	34.6	7.5	6.25	30.5	5.6	6.0	32.1	Size 100 Cores
DHY01174	C-40021-G	2-5/8	4	34.8	7.5	6.25	30.6	5.4	6.0	32.1	
DHY01176	C-40025-G	3-1/8	4	34.4	7.5	6.25	29.8	5.1	6.0	32.1	
DHY01178	C-40029-G	3-5/8	4	34.8	7.5	6.25	30.1	5.5	6.0	32.1	
DHY01180	C-40033-G	4-1/8	4	35.12	7.5	6.25	29.8	5.6	6.0	32.1	

* "P" Dimension is the pull space required to change the filter core(s)



Replacement Cores & Filters

Size	Item #	Type	Treats	Equivalents		
				Sporlan	Danfoss	Trane
Size 48 Cores	PCK-48	Standard Core	Moisture / Acid	RCA-48	48-DC	COR00240
	PCX-48	Hi-Capacity Core	Hi Moisture / Acid	RCW-48	48-DM	COR00241
	PCK-48HH	Charcoal Burnout Core	Wax / Acids / Sludge	RC-4864-HH	48-DA	COR00242
	ELM03572	Suction Filter Element	Low-Pressure Filter (used after cleanup)	RPE-48-BD	-	-
Size 100 Cores	COR00099	Standard Core	Moisture / Acid	RCA-100	-	-
	COR00100	Hi-Capacity Core	Hi Moisture / Acid	RCW-100	-	-
	COR00101	Charcoal Burnout Core	Wax / Acids / Sludge	RC-10098-HH	-	-
	FLR01560	Suction Filter Element	Low-Pressure Filter (used after cleanup)	RPE-100	-	-



ELM03572



FIL01560



PCK-48



COR00099





Accumulators

Accumulators store excess refrigerant during a heating or cooling cycle. This can help the system operate at its intended limits and reduces cycling time. Common in heat pumps, but they are also found in some ACs. They are usually located in the suction line, between the evaporator and the compressor.

Item #	Line Size	Height
ACC00169	7/8"	10"
ACC00168	7/8"	13.2"

Sight Glasses

Sight Glasses are typically installed after the filter drier in the liquid line. They are used to see the property changes of the refrigerant (liquid/vapor), and also to indicate whether the moisture content of the refrigerant is within an acceptable range.



Item #	Line Size (ODF)	Overall Length
PSG-2S	1/4"	4.7"
PSG-3S	3/8"	4.7"

Item #	Line Size (ODF)	Overall Length
PSG-4S	1/2"	4.9"
PSG-5S	5/8"	4.9"
PSG-7S	7/8"	6.3"

Item #	OEM #	Line Size (ODF)	Overall Length
GLS00832	SA-19S	1-1/8"	6.3"
GLS00919	SA-211	1-3/8"	8"
GLS00174	SA-213	1-5/8"	8"

Ball Valves

Ball Valves are often used to control the flow of water or refrigerant in an HVAC system. This allows for isolation of branches of the system for maintenance or repair. Standard ball valves have an ODF solder connection for brazing.



Item #	Connection Size (ODF)	Overall Length
EBVP-1020	1/4"	6.5"
EBVP-1030	3/8"	6.5"
EBVP-1040	1/2"	6.5"
EBVP-1050	5/8"	6.5"
EBVP-1060	3/4"	7.25"

Item #	Connection Size (ODF)	Overall Length
EBVP-1070	7/8"	7.25"
EBVP-1090	1-1/8"	8.5"
EBVP-1110	1-3/8"	9.25"
EBVP-1130	1-5/8"	10"
EBVP-1170	2-1/8"	11.4"

Press-Ready Ball Valves have a "street" tube size for crimping, not a ODF fitting size.



Item #	Connection Size (ODF)	Overall Length
EBVP-1023-PZK	1/4"	6.5"
EBVP-1033-PZK	3/8"	6.5"
EBVP-1043-PZK	1/2"	6.5"
EBVP-1053-PZK	5/8"	6.5"

Item #	Connection Size (ODF)	Overall Length
EBVP-1063-PZK	3/4"	7.25"
EBVP-1073-PZK	7/8"	7.25"
EBVP-1093-PZK	1-1/8"	8.5"
EBVP-1113-PZK	1-3/8"	9.25"

Ductless / VRF Ball Valves are used to isolate individual indoor units within the system. This allows complete shut-off of refrigerant flow to one zone, enabling a targeted maintenance repair without shutting down the entire system. They have male/female flare fittings to match typical ductless linesets, and includes a Schrader valve access port for system charging, pressure monitoring, and evacuation.

- Male Flare x Female Flare Swivel
- Schrader Access Port on Male Flare Side
- Rated to 900 PSI
- Insulation Included



Ductless / VRF Ball Valves

Item #	Line Size	Length
NBV14MSBOX	1/4"	6.2"
NBV38MSBOX	3/8"	6.3"
NBV12MSBOX	1/2"	6.5"
NBV58MSBOX	5/8"	6.7"

Access Valves & Service Fittings

Service valves provide a convenient access point to the refrigerant lines for servicing, pressure testing, and vacuuming.

Braze-In Line Valves

Item #	Size	Pack Qty.
CD8408	1/8"	6
CD8403	3/16"	6
CD8404	1/4"	6
CD8405	5/16"	6
CD8406	3/8"	6



Braze-In Tees

Item #	Size	Pack Qty.
CD8438	3/8"	2
CD8412	1/2"	2
CD8458	5/8"	2
CD8478	7/8"	2



Schrader Cores & Caps

Item #	Description	Pack Qty.
CD4460	Replacement Schrader Cores	25
CD2245	Replacement Valve Cap	6



Access Valve Adapters

Item #	Description	Pack Qty.
CD1414	1/4" Flare Access x 1/4" MPT, with Valve Core and Cap	2
CD1818	1/4" Flare Access x 1/8" MPT, with Valve Core and Cap	2



Access Valve Service Kit

Item #	Contents
CD9510SVK	CD5050 (1), CD3805 (1), CD9603 (1), CD9611 (1), CD8403 (3), CD8404 (3), CD8405 (3), CD8408 (3), CD3813 (1), CD2056 (1), CD2245 (6)



Flared Tee Connections

Item #	Description	Pack Qty.
CD9601	1/4" Male Flare x 1/4" Flare Nut with Depressor Tip x 1/4" Male Flare on the Branch with One Valve Core	2
CD9602	1/4" Male Flare with Valve Core x 1/4" Male Flare x 1/4" Female Flare Nut with Depressor Tip on the Branch	2
CD9603	All Brass 1/4" Female Flare Nut with Valve Core x 1/4" Male Flare x 1/4" Male Flare	2
CD9611	1/4" Male Flare Access x 1/4" Male Flare Nut with Depressor x 1/4" Flare Nut with Depressor on the Branch	2
CD9614	Forged Brass Tee, 1/4" MPT x 1/4" Male Flare x 1/4" Male Flare on Branch, One Cap and Valve Core	1



Core Tools

Item #	Type	Description
CD3800	Core Wrench	Core Wrench & Thread Chaser w/ (6) Cores
CD3813	Core Wrench	Brass Core Wrench - Holds (3) cores
CD2070	Core Depressor	1/4" Flare Thumbscrew Core Depressor
CD5050	Core Depressor	1/4" Flare Compact Core Depressor
CD2080	Core Depressor	5/16" Flare Thumbscrew Core Depressor
CD3930	Core Removal Tool	For 1/4" Flare Connections, with a 1/4" Male Side Access Port
CD3956	Core Removal Tool	For 5/16" Flare Connections, with a 1/4" Male Side Access Port



Refrigerant Locking Caps

Item #	Description	Pack Qty.
CD2290/2	1/4" Corrosion Resistant Locking Caps	2
CD2290/50	1/4" Corrosion Resistant Locking Caps	50
CD2295/2	5/16" Corrosion Resistant Locking Caps	2
CD3830	Multi-Bit Tool for All Industry Standard Locking Caps	



Refrigerant locking caps fit over refrigerant access valves. They help prevent refrigerant theft or tampering. The CD Valve cap opens with a standard valve core tool.



Refrigerant Line Vibration Eliminators

Refrigerant line vibration eliminators (absorbers) are used to reduce the transmission of vibrations from the compressor to the refrigerant piping. They are typically installed close the compressor in either the liquid or suction line. Vibration eliminators can reduce noise, as well as help prevent vibration-related damage.



- High grade stainless steel inner tube and outer braid
- TIG welded internals for greater strength
- Pressed braid retention collars for increased durability
- Solid copper connectors

Item #	Tubing Size (ID)	Overall Length	Working PSIG
VE-038	3/8"	10.3"	650
VE-012	1/2"	10.3"	650
VE-058	5/8"	10.3"	650
VE-034	3/4"	12.6"	650
VE-078	7/8"	12.6"	650

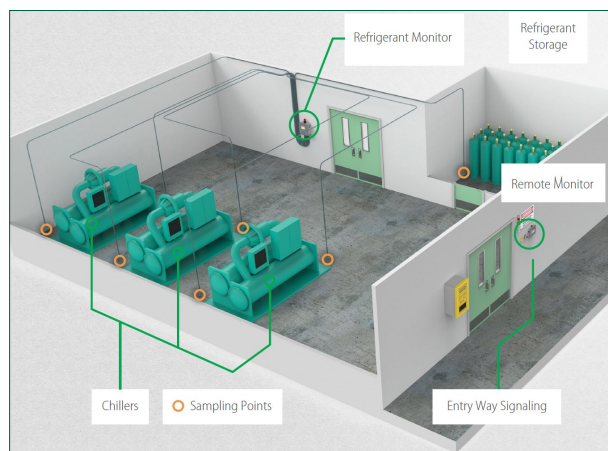
Item #	Tubing Size (ID)	Overall Length	Working PSIG
VE-118	1-1/8"	13.6"	650
VE-138	1-3/8"	15.8"	650
VE158	1-5/8"	17"	650
VE-218	2-1/8"	21.7"	650
VE-258	2-5/8"	24.6"	650

Refrigerant Monitors

Refrigerant Monitors are employed in chiller plants and other large mechanical rooms. They detect refrigerant leaks, and trigger audible and visual alarms to alert occupants. A refrigerant monitor is required for a building to be ASHRAE® 15 compliant.

- Integration to Building Automation Systems with native BACnet and Modbus®
- Stable through temperature and humidity fluctuations
- Industry leading 3-Year Standard Warranty
- Factory programmed to monitor up to 6 different refrigerants - R-134A, R-404A, R-410A, R-407C, R-123, R1233zd(E)
- Photoacoustic Infrared sensing technology provides continuous monitoring down to 1 ppm

Extended Refrigerant Library							
R-11	R-1234ze	R-21	R-236fa	R-407C	R-424A	R-449A	R-507A
R-12	R-125	R-22	R-32	R-407F	R-426A	R-452B	R-508B
R-123	R-134a	R-218	R-401A	R-410A	R-427A	R-454B	R-513A
R-1233zd(E)	R-143a	R-227ea	R-404A	R-422A	R-438A	R-455A	R-514A
R-1234yf	R-152a	R-23	R-407A	R-422D	R-448A	R-466A	R-515B



TruSense® Monitors

Item #	Description
RMWH0410	TruSense® Refrigerant Monitor - 4 Sampling Lines
RMWH0810	TruSense® Refrigerant Monitor - 8 Sampling Lines
RMWH01610	TruSense® Refrigerant Monitor - 16 Sampling Lines

Accessories

Item #	MSA #	Description
ALM00007	10186435	Remote Horn
ALM00019	10186427	External Alarm Silencing Station
ALM00020	10186426	External Alarm Activation Station

Calibration & Testing

Item #	MSA #	Description
TOL05064	10182184	Calibration Kit: Contains Regulator, Zero-Gas Scrubber, and Tubing
FLR01404	803873	Zero Gas Filter Scrubber
REG00618	710269	Calibration Regulator

Maintenance

Item #	MSA #	Description
FLR01882	711561	End of Line Filter
FLR01881	655533	In-Line Green Filter
FUS02537	10186428	2a / 250v Fuse

Calibration Gas Cylinders

Item #	Gas	PPM
TOL00175	Compressed Dry Nitrogen	-
TOL00171	CFC-11	30 PPM
TOL00196	CFC-113	30 PPM
TOL00173	HCFC-123	30 PPM
TOL00416	HCFC-123	50 PPM
TOL02848	HCFC-123	100 PPM
TOL00174	HFC-134A	30 PPM
TOL03901	HFC-134A	100 PPM
TOL00413	HFC-134A	990 PPM

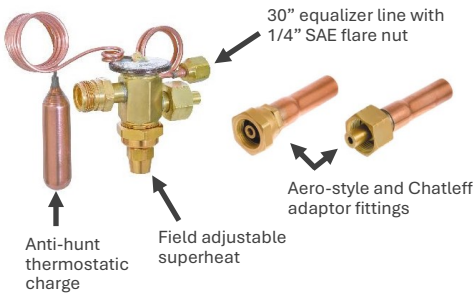
Item #	Gas	PPM
TOL00172	HCFC-22	30 PPM
TOL03216	HCFC-22	100 PPM
TOL00415	HCFC-22	990 PPM
TOL04038	R410A	100 PPM
TOL05685	R514A	30 PPM
TOL05684	R514A	100 PPM
TOL05524	R514A	1000 PPM

Expansion Valves

TXVs (thermostatic expansion valves) regulate the flow of refrigerant into the evaporator coil. They adjust refrigerant flow to maintain a balance between leaving refrigerant temperature and pressure. If the refrigerant leaving the evaporator is too warm and the pressure is low, the valve will open to allow more refrigerant in. If it's too cold, the valve will close to reduce the flow of refrigerant.

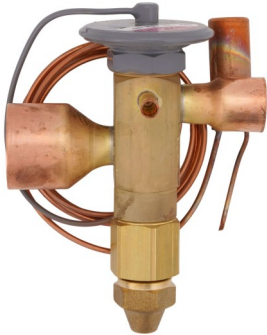
Sporlan Universal TEV Replacement Kit - Residential

Refrigerant	Capacity Range	Item Number	Valve Type	Valve Connections		Outlet Adaptor Kits
				Inlet	Outlet	
R-22	1-1/2 to 3 tons	044438-05	HXCAE-3-VX	Chatleff (M)	Chatleff (F)	-
		044438-04	HXCAE-3-VX	3/8" ODF	1/2" ODF	1/2" Chatleff & Aero-style
	3-1/2 to 5 tons	044448-03	HXCAE-5-VX	Chatleff (M)	Chatleff (F)	-
		044448-04	HXCAE-5-VX	3/8" ODF	1/2" ODF	1/2" Chatleff & Aero-style
R-410A	1-1/2 to 4 tons	044437-06	HXCAE-3-KX	Chatleff (M)	Chatleff (F)	-
		044437-07	HXCAE-3-KX	3/8" ODF	1/2" ODF	1/2" Chatleff & Aero-style
	4-1/2 to 6 tons	044477-07	HXCAE-6-KX	Chatleff (M)	Chatleff (F)	-
		044477-08	HXCAE-6-KX	3/8" ODF	1/2" ODF	1/2" Chatleff & Aero-style



R-22 Commercial TXVs - Adjustable Superheat Design

Item #	Valve Type	Tonnage	Inlet ODF	Outlet ODF	Capillary Tube Length
VAL04467	BBIVE-6-GA	6	3/8"	1/2"	30"
VAL08084	RCVE-6-GA	6	1/2"	5/8"	30"
VAL04911	HFES-8-HCA	8	1/2"	7/8"	60"
VAL04406	HFES-10-HCA	10	7/8"	1-1/8"	60"
VAL08205	OVE-15-GA	15	7/8"	1-1/8"	60"
VAL04407	HFES-15-HCA	15	7/8"	1-3/8"	60"
VAL08206	OVE-20-GA	20	7/8"	1-3/8"	60"
VAL07233	OVE-30-GA	30	1-1/8"	1-3/8"	60"
VAL07234	OVE-40-GA	40	1-1/8"	1-3/8"	60"



R410a Commercial TXVs - Adjustable Superheat Design

Item #	Valve Type	Tonnage	Inlet ODF	Outlet ODF	Capillary Tube Length
VAL09578	BBIZE-6-GA	6	1/2"	5/8"	60"
VAL09575	BBIZE-8-GA	8	1/2"	5/8"	60"
VAL08785	BBIZE-8-GA	8	1/2"	7/8"	60"
VAL09482	ERZE-12-1/2-GA	12.5	5/8"	7/8"	60"
VAL09483	ERZE-15-GA	15	5/8"	7/8"	60"
VAL09585	OZE-20-GA	20	7/8"	1-5/8"	60"
VAL10458	OZE-25-GA	25	5/8"	1-3/8"	60"
VAL09583	OZE-25-GA	25	7/8"	1-5/8"	60"
VAL09584	OZE-35-GA	35	7/8"	1-5/8"	60"
VAL10587	OZE-50-GA	50	1-1/8"	1-3/8"	60"
VAL10588	OZE-60-GA	60	1-1/8"	1-3/8"	60"



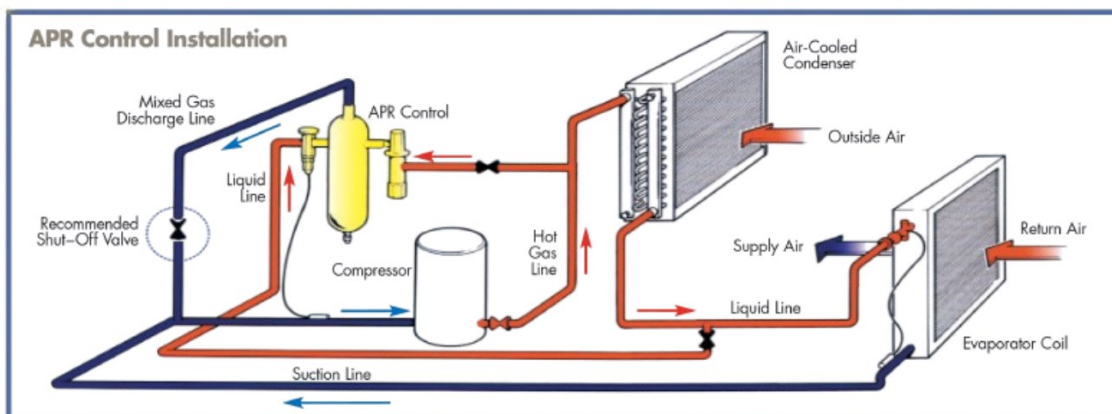
Rawal APR Control



The Rawal APR Control is an HVAC modulation solution. It can turn any Direct Expansion (DX) AC/HP unit into a modulating variable-capacity system - extending the cycle of operation and continuously matching capacity to changing load conditions. This helps reduce short cycling and extends compressor runtime, mitigating issues like:

- High humidity / low airflow
- System wear & tear from cycling
- Fluctuating temperatures
- Coil frosting & liquid slugging

Model #	Modulation Capacity	Dimensions			Connections			Application
		W	H	D	L	M	G	
APR-410-1	1.5 tons	8.5"	8"	4"	3/8"	5/8"	3/8"	G - Bottom Connection
APR-410-1R	1.5 tons	8.5"	8"	4"	3/8"	5/8"	1/2"	G - Side Connection
APR-410-2	2.5 tons	8.5"	8"	4"	3/8"	5/8"	3/8"	G - Bottom Connection
APR-410-2R	3 tons	7.5"	8"	4"	3/8"	5/8"	5/8"	G - Side Connection
APR-410-3	3.5 tons	8.5"	8"	4"	3/8"	5/8"	3/8"	G - Bottom Connection
APR-410-6	6.5 tons	9.5"	10"	4.5"	3/8"	5/8"	5/8"	G - Side Connection
APR-410-10	10 tons	12"	11"	5.5"	3/8"	7/8"	7/8"	G - Side Connection



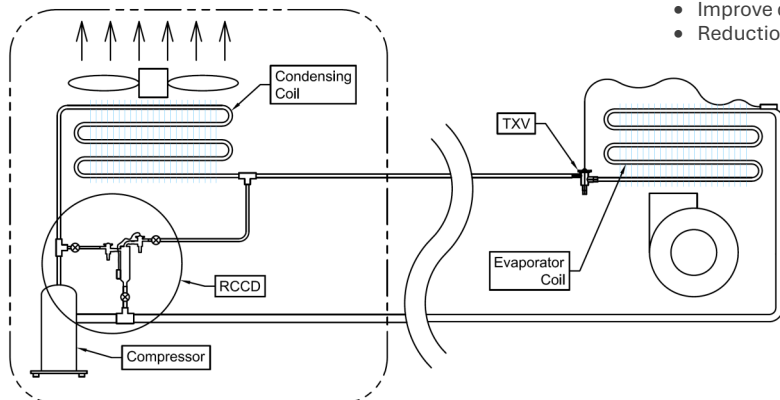
Multiple devices can be used on larger-tonnage commercial units.

All capacity control devices must be selected with engineering support.
Please contact you HD representative for assistance.

RCCD Capacity Control Device

RCCD stand for Refrigeration Capacity Control Device. It is a compact device comprised of hot gas bypass valve (HGBV), liquid injection valve, and a proprietary mixing chamber that eliminates the risk of compressor liquid slugging. The traditional air conditioner works at its design capacity only 3% of the time; the rest of the time it has excess capacity. This causes short run times, excessive compressor starts, and reduces the ability of the unit to control humidity.

- Extend run time under reduced load
- Improve dehumidification
- Reduction in short cycling
- Coated with Blygold PoluAl XT for extreme corrosion resistance



Model #	Nominal Bypass Capacity
RCCD-410-1	1.5 tons
RCCD-410-2	2.0 tons
RCCD-410-3	3.0 tons
RCCD-410-5	5.0 tons

Multi-Position Coils from

Product Features & Specifications

- Factory-installed TXV
- Ten-year limited warranty
- Heavy duty plastic drain pans
- Fully insulated foil-faced insulation
- Rifled aluminum tubing, enhanced aluminum fins
- Left-hand refrigerant and plumbing connections
- Upflow standard; downflow with field-installed kit
- Split access doors in front of cabinet for easy service access.
- AHRI certifiable with all brands of A/C and heat pump systems.

Item #	Tonnage	Coil Rows	Piping Liq.	Suct.	Orifice	Cabinet			Duct Opening		Cabinet
						W	H	D	H	D	
DE30A34-175L-482	1.5 - 2.5	Three	3/8"	3/4"	Non-Bleed TXV	17.5"	19.0"	21.5"	16"	20"	R410A
DE48C34-175L-482	2.0 - 4.0	Three	3/8"	7/8"	Non-Bleed TXV	17.5"	30.0"	21.5"	16"	20"	
DE48C34-210L-482	2.0 - 4.0	Three	3/8"	7/8"	Non-Bleed TXV	21.0"	30.0"	21.5"	19.5"	20"	
DE60B34-210L-482	4.0 - 5.0	Three	3/8"	7/8"	Non-Bleed TXV	21.0"	30.0"	21.5"	19.5"	20"	
DE60B44-210L-482	4.0 - 5.0	Four	3/8"	7/8"	Non-Bleed TXV	21.0"	30.0"	21.5"	19.5"	20"	
DE30A3J-175L-482	1.5 - 2.5	Three	3/8"	3/4"	Non-Bleed TXV	17.5"	19.0"	21.5"	16.0"	20.0"	R454B
DE48C3J-175L-482	2.0 - 4.0	Three	3/8"	7/8"	Non-Bleed TXV	17.5"	30.0"	21.5"	16.0"	20.0"	
DE48C3J-210L-482	2.0 - 4.0	Three	3/8"	7/8"	Non-Bleed TXV	21.0"	30.0"	21.5"	19.5"	20.0"	
DE60B3J-210L-482	4.0 - 5.0	Three	3/8"	7/8"	Non-Bleed TXV	21.0"	30.0"	21.5"	19.5"	20.0"	
DE60B4J-210L-482	4.0 - 5.0	Four	3/8"	7/8"	Non-Bleed TXV	21.0"	30.0"	21.5"	19.5"	20.0"	



Commercial Upflow Box Coils

Product Features & Specifications

- Factory-installed TXV
- Five-year limited warranty
- 3/4" condensate drain connection
- Fully insulated foil-faced insulation
- Powder-painted galvanized steel drain pans
- Rifled aluminum tubing, enhanced aluminum fins
- Dual circuit coils can be split top-to-bottom or interfaced



Item #	Tonnage	Coil Rows	Piping Liq.	Suct.	Orifice	Cabinet			Duct Opening		Refrig. Circuits	Refrigerant	
						W	H	D	H	D			
CC072B34-XXXL-000	6	Three	3/8"	7/8"	Non-Bleed TXV	36"	22"	21.5"	34.5"	20.0"	Single Circuit	R410A	
CC072C34-XXXL-000	6	Three	3/8"	1-1/8"	Non-Bleed TXV	42"	22"	21.5"	40.5"	20.0"			
CC090B34-XXXL-000	7.5	Three	1/2"	1-1/8"	Non-Bleed TXV	42"	22"	21.5"	40.5"	20.0"			
CC090C34-XXXL-000	7.5	Three	1/2"	1-1/8"	Non-Bleed TXV	48"	22"	21.5"	46.5"	20.0"			
CC120B34-XXXL-000	10	Three	1/2"	1-1/8"	Non-Bleed TXV	42"	22"	21.5"	40.5"	20.0"			
CC120C34-XXXL-000	10	Three	1/2"	1-1/8"	Non-Bleed TXV	48"	22"	21.5"	46.5"	20.0"			
CC072B44-XXXL-12*	6	Four	3/8"	7/8"	Non-Bleed TXV	36"	22"	21.5"	34.5"	20.0"	Dual Circuit		R410A
CC072C44-XXXL-12*	6	Four	3/8"	7/8"	Non-Bleed TXV	42"	22"	21.5"	40.5"	20.0"			
CC090B44-XXXL-12*	7.5	Four	1/2"	1-1/8"	Non-Bleed TXV	42"	22"	21.5"	40.5"	20.0"			
CC090C44-XXXL-12*	7.5	Four	1/2"	1-1/8"	Non-Bleed TXV	48"	22"	21.5"	46.5"	20.0"			
CC120B44-XXXL-12*	10	Four	1/2"	1-1/8"	Non-Bleed TXV	42"	22"	21.5"	40.5"	20.0"			
CC120C44-XXXL-12*	10	Four	1/2"	1-1/8"	Non-Bleed TXV	48"	22"	21.5"	46.5"	20.0"			
CC072B3J-XXXL-000	6	Three	3/8"	7/8"	Non-Bleed TXV	36.0"	22.0"	21.5"	34.5"	20.0"	Single Circuit	R454B	
CC072C3J-XXXL-000	6	Three	3/8"	1-1/8"	Non-Bleed TXV	42.0"	22.0"	21.5"	40.5"	20.0"			
CC090B3J-XXXL-000	7.5	Three	1/2"	1-1/8"	Non-Bleed TXV	42.0"	22.0"	21.5"	40.5"	20.0"			
CC090C3J-XXXL-000	7.5	Three	1/2"	1-1/8"	Non-Bleed TXV	48.0"	22.0"	21.5"	46.5"	20.0"			
CC120B3J-XXXL-000	10	Three	1/2"	1-1/8"	Non-Bleed TXV	42.0"	22.0"	21.5"	40.5"	20.0"			
CC120C3J-XXXL-000	10	Three	1/2"	1-1/8"	Non-Bleed TXV	48.0"	22.0"	21.5"	46.5"	20.0"			
CC072B4J-XXXL-12*	6	Four	3/8"	7/8"	Non-Bleed TXV	36.0"	22.0"	21.5"	34.5"	20.0"	Dual Circuit		R454B
CC072C4J-XXXL-12*	6	Four	3/8"	7/8"	Non-Bleed TXV	42.0"	22.0"	21.5"	40.5"	20.0"			
CC090B4J-XXXL-12*	7.5	Four	1/2"	1-1/8"	Non-Bleed TXV	42.0"	22.0"	21.5"	40.5"	20.0"			
CC090C4J-XXXL-12*	7.5	Four	1/2"	1-1/8"	Non-Bleed TXV	48.0"	22.0"	21.5"	46.5"	20.0"			
CC120B4J-XXXL-12*	10	Four	1/2"	1-1/8"	Non-Bleed TXV	42.0"	22.0"	21.5"	40.5"	20.0"			
CC120C4J-XXXL-12*	10	Four	1/2"	1-1/8"	Non-Bleed TXV	48.0"	22.0"	21.5"	46.5"	20.0"			



TRANE® Horizontal Slab Coils

Product Features & Specifications

- All aluminum coil
- Ten-year limited warranty with registration
- Factory-installed TXV
- Fully insulated foil-faced insulation



Item #	Tonnage	Piping Liq. Suct.	Orifice	Cabinet W H D	Duct Opening H D	Refrigerant
4PXFH001BC3HHA	1.5 - 3.0	3/8" 3/4"	Non-Bleed TXV	10" 23.5" 29.5"	21" 24"	R410A
4PXFH003BZ3HHA	1.5 - 3.0 *	3/8" 3/4"	Non-Bleed TXV	10" 23.5" 35.5"	21" 30"	
4PXFH004BC3HHA	2.0 - 3.5	3/8" 3/4"	Non-Bleed TXV	10" 23.5" 35.5"	21" 30"	
4PXFH005BZ3HHA	2.0 - 3.5 *	3/8" 7/8"	Non-Bleed TXV	10" 23.5" 35.5"	21" 30"	
4PXFH007BC3HHA	3.0 - 5.0	3/8" 7/8"	Non-Bleed TXV	10" 23.5" 35.5"	21" 30"	
4PXFH009BZ3HHA	3.0 - 5.0 *	3/8" 7/8"	Non-Bleed TXV	10" 29.5" 41.5"	27" 34"	R454B
5PXFH001AC3HHA	1.5 - 3.0	3/8" 3/4"	Non-Bleed TXV	10" 23.5" 29.5"	21" 24"	
5PXFH004AC3HHA	2.0 - 3.5	3/8" 3/4"	Non-Bleed TXV	10" 23.5" 35.5"	21" 30"	
5PXFH005AZ3HHA	2.0 - 3.5 *	3/8" 7/8"	Non-Bleed TXV	10" 23.5" 35.5"	21" 30"	
5PXFH007AC3HHA	3.0 - 5.0	3/8" 7/8"	Non-Bleed TXV	10" 23.5" 35.5"	21" 30"	
5PXFH009AZ3HHA	3.0 - 5.0 *	3/8" 7/8"	Non-Bleed TXV	10" 29.5" 41.5"	27" 34"	

* 4PXFH003BZ/005BZ/009BZ & 5PXFH005AZ/009AZ can be matched with variable speed outdoor units



Commercial Horizontal Slab Coils



Item #	Tons	Coil Rows	Piping Liq.	Suct.	Orifice	Cabinet W	H	D	Duct Opening H	D	Refrig. Circuits	Refrigerant	
BH13272+X4-TTB	6	Three	3/8"	7/8"	Non-Bleed TXV	41.5"	25.5"	10"	21"	36"	Single Circuit	R410A	
BH33272+X4-TTB	6	Three	3/8"	7/8"	Non-Bleed TXV	47.5"	25.5"	10"	21"	42"			
BH13290+X4-TTB	7.5	Three	3/8"	7/8"	Non-Bleed TXV	47.5"	25.5"	10"	21"	42"			
BH33290+X4-TTB	7.5	Three	3/8"	7/8"	Non-Bleed TXV	50.5"	25.5"	10"	21"	45"			
BH132120+X4-TTB	10	Three	3/8"	7/8"	Non-Bleed TXV	47.5"	25.5"	10"	21"	42"			
BH332120+X4-TTB	10	Three	3/8"	7/8"	Non-Bleed TXV	50.5"	25.5"	10"	21"	45"			
BH14072+X4-TTB	6	Four	3/8"	7/8"	Non-Bleed TXV	41.5"	25.5"	10"	21"	36"	Dual Circuit		R410A
BH34072+X4-TTB	6	Four	3/8"	7/8"	Non-Bleed TXV	47.5"	25.5"	10"	21"	42"			
BH14090+X4-TTB	7.5	Four	3/8"	7/8"	Non-Bleed TXV	47.5"	25.5"	10"	21"	42"			
BH34090+X4-TTB	7.5	Four	3/8"	7/8"	Non-Bleed TXV	50.5"	25.5"	10"	21"	45"			
BH140120+X4-TTB	10	Four	3/8"	7/8"	Non-Bleed TXV	47.5"	25.5"	10"	21"	42"			
BH340120+X4-TTB	10	Four	3/8"	7/8"	Non-Bleed TXV	50.5"	25.5"	10"	21"	45"			
BH13272+XJ-TTB	6	Three	3/8"	7/8"	Non-Bleed TXV	41.5"	25.5"	10"	21"	36"	Single Circuit	R454B	
BH33272+XJ-TTB	6	Three	3/8"	7/8"	Non-Bleed TXV	47.5"	25.5"	10"	21"	42"			
BH13290+XJ-TTB	7.5	Three	3/8"	7/8"	Non-Bleed TXV	47.5"	25.5"	10"	21"	42"			
BH33290+XJ-TTB	7.5	Three	3/8"	7/8"	Non-Bleed TXV	50.5"	25.5"	10"	21"	45"			
BH132120+XJ-TTB	10	Three	3/8"	7/8"	Non-Bleed TXV	47.5"	25.5"	10"	21"	42"			
BH332120+XJ-TTB	10	Three	3/8"	7/8"	Non-Bleed TXV	50.5"	25.5"	10"	21"	45"			
BH14072+XJ-TTB	6	Four	3/8"	7/8"	Non-Bleed TXV	41.5"	25.5"	10"	21"	36"	Dual Circuit		R454B
BH34072+XJ-TTB	6	Four	3/8"	7/8"	Non-Bleed TXV	47.5"	25.5"	10"	21"	42"			
BH14090+XJ-TTB	7.5	Four	3/8"	7/8"	Non-Bleed TXV	47.5"	25.5"	10"	21"	42"			
BH34090+XJ-TTB	7.5	Four	3/8"	7/8"	Non-Bleed TXV	50.5"	25.5"	10"	21"	45"			
BH140120+XJ-TTB	10	Four	3/8"	7/8"	Non-Bleed TXV	47.5"	25.5"	10"	21"	42"			
BH340120+XJ-TTB	10	Four	3/8"	7/8"	Non-Bleed TXV	50.5"	25.5"	10"	21"	45"			

Damper Actuators from BELIMO®

Fail Safe actuators return the valve or damper to a pre-set position in case of a power outage, while **Non-Fail Safe** actuators leave the valve or damper in place when power is lost.

Mechanical Fail Safe actuators typically use a spring to “return” the damper to a set position when power is lost. **Electronic Fail Safe** actuators use an onboard capacitor to store power to move the damper to the desired position.

Rotary actuators turns a shaft or valve, while **Linear** actuators push or pull a linkage in a straight line.

Fire and Smoke actuators help protect against the spread of fire and smoke through air ducts. They automatically move into their safety positions to keep the dampers closed during a fire.

On/Off/Floating Point (three position) actuators can be driven to fully open or fully closed, but will stop at its current position when the control signal stops.

2 to 10 VDC Proportional Control signals use a voltage range of between 2 and 10 volts. Increasing or decreasing the control signal voltage determines how much the damper opens or closes.

Belimo® MFT (Multi-Function Technology) provide multiple control options in each actuator. The standard programming for a MFT actuator is 2 to 10 VDC proportional control, however it can be programmed on site for many other options:

- VDC: Start: 0.5 to 30 VDC / Stop: 2.5 to 32 VDC
- Floating Point
- Pulse Width Modulation (PWM)
- On/Off



Non-Fail Safe Damper Actuators

These actuators are designed for use in a variety of HVAC damper applications. They can directly mount on standard damper shafts or jackshafts. Found in built-up or packaged air handlers, VAV terminal units, fan coil units, and unit ventilators.

Common Configurations

360 in-lb Models (GMB)

Item #	Voltage	Control Type
GMB24-3	24v	On-Off-Floating
GMB24-SR	24v	2 to10 VDC
GMB24-MFT	24v	Multi-Function

180 in-lb Models (AMB)

Item #	Voltage	Control Type
AMB24-3	24v	On-Off-Floating
AMB24-SR	24v	2 to10 VDC
AMB24-MFT	24v	Multi-Function

90 in-lb Models (NMB)

Item #	Voltage	Control Type
NMB24-3	24v	On-Off-Floating
NMB24-SR	24v	2 to10 VDC
NMB24-MFT	24v	Multi-Function

Model Nomenclature for Non-Fail Safe Actuators

Torque Rating	Speed	Version	Power Required	Control	Options
GM		B	24	- MFT -	
Non Fail-Safe Rotary	Non Fail-Safe Linear	24 = 24v 120 = 100v - 240v UP = 24v - 240v	1 = On/Off 3 = On/Off, Floating Point 3-P5 = On/Off, Floating Point w/5k Ω Feedback 3-P10 = On/Off, Floating Point w/10k Ω Feedback SR = 2 to10 VDC MFT = Multi-Function Technology IP = BACnet/IP, Modbus TCP MOD = BACnet MS/TP, Modbus RTU	T = Terminal Block S = w/ SPST Aux. Switch Blank = Cable Version N4 = NEMA 4/4X X...N4 Types Y = Heater Option	
PM = 1400 in-lb GM = 360 in-lb AM = 180 in-lb NM = 90 in-lb LM = 45 in-lb CM = 18 in-lb UM = 9 in-lb	AH = 100 lbf LH = 34 lbf	B = Basic X = Customized			
	Q = Quick Running C = Fast Running Blank = Normal Speed				



AMB24-3



AMB24-SR-T



AMB24-3-S



AMX24-SR-T N4



AHB24-SR-100

Fail Safe Damper Actuators

These actuators return to a safe, home position if the power supplied to the actuator is lost. Such actuators are often used on critical damper and valve applications that require protection from excessive temperatures or unsafe conditions that could cause equipment damage or other risks. Belimo® electronic fail-safe actuators enable user selection of fail position (0-100%) and delay unnecessary actuator movements during short brownout conditions, avoiding changes in the HVAC building automation system.

360 in-lb Electronic Models (GKB)

Item #	Voltage	Control Type
GKB24-3	24v	On-Off-Floating
GKB24-SR	24v	2 to10 VDC
GKB24-MFT	24v	Multi-Function

180 in-lb Mechanical Models (AFB)

Item #	Voltage	Control Type
AFB24	24v	On-Off
AFB24-SR	24v	2 to10 VDC
AFB24-MFT	24v	Multi-Function

Common Configurations

90 in-lb Mechanical Models (NFB)

Item #	Voltage	Control Type
NFB24	24v	On-Off
NFB24-SR	24v	2 to10 VDC
NFB24-MFT	24v	Multi-Function

Model Nomenclature for Mechanical Fail Safe Actuators



AFB24-MFT-S

Torque Rating	Speed	Version	Power Required	Control	Options
AF		B	24	MFT	S
Mechanical Fail Safe		24 = 24v 120 = 120v 230 = 230v UP = 24v - 240v B = Basic X = Customized		Blank = On/Off 3 = Floating Point SR = 2 to10 VDC IP = BACnet/IP, Modbus TCP ECON-R03 = 3k W NTC Type 10 Thermistor MFT = Multi-Function Technology MFT-20 = 6 to 9 V, 20 V Power Supply MOD = BACnet MS/TP, Modbus RTU	S = Built-in Aux. Switch N4 = NEMA 4/4X X...N4 Types H = Heater Option
EF = 270 in-lb AF = 180 in-lb NF = 90 in-lb LF = 35 in-lb TF = 22 in-lb					
		C = Fast Running L = Low Noise Blank = Normal Speed			

Model Nomenclature for Electronic Fail Safe Actuators



PKBUP-MFT-T

Torque Rating	Speed	Version	Power Required	Control	Options
PK		B	UP	MFT	T
Electronic Fail Safe		24 = 24v UP = 24v - 240v B = Basic X = Customized		1 = On/Off 3 = Floating Point SR = 2 to10 VDC IP = BACnet/IP, Modbus TCP MOD = BACnet MS/TP, Modbus RTU MFT = Multi-Function Technology	T = Terminal Block N4 = NEMA 4/4X X...N4 Types Y = Heater Option
PK = 1400 in-lb GK = 360 in-lb NK = 54 in-lb AHK = 100 lbf					
		Q = Quick Running Blank = Normal Speed			

Fire & Smoke Actuators

Common Configurations

180 in-lb Mechanical Models (FANF)

Item #	Voltage	Control Type
FSAF24A	24v	On-Off
FSAF24A-S	24v	On-Off w/ Aux. Switch

70 in-lb Mechanical Models (FSNF)

Item #	Voltage	Control Type
FSNF24 US	24v	On-Off
FSNF24-S US	24v	On-Off w/ Aux. Switch



FSAF230A

Model Nomenclature for Fire & Smoke Actuators

Fire & Smoke	Torque Rating	Actuator Type	Power Required	Generation	Control	Options
FS	N	F	24			S US
A = 180 in-lb N = 70 in-lb L = 30 in-lb T = 18 in-lb		F = Fail Safe FB = Fail-Safe, Modulating (180 lb only)	24 = 24v 120 = 120v 230 = 230v	Blank = Original A = New Gen.	Blank = On/Off SR = 2 to10 VDC * Only available w/ FSAFB24-SR	S = Built In Aux. Switches

Actuated Valves from BELIMO®

Chilled water systems rely on valves and actuators for regulating water temperature, flow rates, and pressure levels.

Characterized Control Valves (CCV) are used to regulate the flow of liquids. As they open and close they allow more or less flow. A precision disc and specially designed hole in the ball provides slow, precise flow control as the valve is opened.

2-Way CCV Valves are typically used for on/off isolation and proportional flow control.

3-Way CCV valves are often used for mixing, diverting, and switching.

Butterfly Valves are typically used for regulating high flow rates in larger diameter pipes in cooling towers, chillers, and air handling units.

Valve Flow Coefficient (Cv) is a valve's capacity for liquid to flow through it at fully open conditions. The Cv number is the volume of water in gallons per minute (GPM) that will flow through a valve (with a pressure drop of 1 psi across the valve and 60°F water).



2-Way & 3-Way CCV Valves & Actuators

2-Way & 3-Way Valves

Valve Size	Valve Cv	2-Way Item #	3-Way Item #
1/2"	0.3	B207	B307
	0.46	B208	B308
	0.8	B209	B309
	1.2	B210	B310
	1.9	B211	B311
	3	B212	B312
	4.7	B213	B313
	7.4	B214	-
3/4"	10	B215	B315
	16	B216*	B316*
	4.7	B217	B317
	7.4	B218	B318
	10	B219	-
	14	B220*	-
1"	19	-	B320
	24	B221*	B321*

Valve Size	Valve Cv	2-Way Item #	3-Way Item #
1"	7.4	B222	B322
	10	B223	B323
	19	B224	-
	30	B225*	B325*
1-1/4"	10	B229	-
	19	B230*	-
	10	-	B329
	19	-	B330
	25	B231	B331
	37	B232*	-
1-1/2"	19	B238	B338
	29	B239	B339
	37	B240*	B340
	46	-	B341

Valve Size	Valve Cv	2-Way Item #	3-Way Item #
2"	29	B248	B347
	37	-	B348
	46	B249	B349
	57	B250*	B350
	65	B251	-
	68	-	B351
	83	-	B352
	85	B252	-
2 1/2"	120	B253	-
	240	B254*	-

* Models without characterizing discs



Common 2-Way & 3-Way Valve Actuators

180 in-lb Models (ARB)

Item #	Voltage	Control Type
ARB24-3	24v	On-Off-Floating
ARB24-SR	24v	2 to 10 VDC
ARB24-MFT	24v	Multi-Function

45 in-lb Models (LRB)

Item #	Voltage	Control Type
LRB24-3	24v	On-Off-Floating
LRB24-SR	24v	2 to 10 VDC
LRB24-MFT	24v	Multi-Function



Valve & Actuator Combination Model Nomenclature

Valve	Trim Material	Actuator Type	Power Supply	Control	Options
B209		ARB	24	MFT	T
B2 = 2 Way B3 = 3 Way		Non-Fail Safe TR, LRB, LRX, LRQX NRB, NRX, NRQX ARB, ARX, ARQX Fail Safe TFRB, TFRX, LF AFRB, AFRX	24 = 24v 120 = 120v 230 = 230v UP = 24v - 240v	Blank = On/Off 3 = Floating Point SR = 2 to 10 VDC IP = BACnet/IP, Modbus TCP MFT = Multi-Function Technology	S = Auxiliary Switch T = Terminal Block N4 = NEMA 4/4X
Blank = Stainless Steel Ball & Stem B = Chrome Plated Brass Ball, Nickel Plated Stem					



2-Way Butterfly Valves & Actuators

Common Butterfly Actuators

360 in-lb Models (GRX)

Item #	Voltage	Control Type
GRX24-3	24v	On-Off-Floating
GRX120-3	120v	On-Off-Floating
GRX24-MFT	24v	Multi-Function



2-Way Valves

Size	Model #	Cv @ 90°	Cv @ 60°
4"	F6100HD	600	230
5"	F6125HD	1022	392
6"	F6150HD	1579	605
8"	F6200L	3136	1202
10"	F6250L	5340	2047
12"	F6300L	8250	3162



Valve
F6100

Trim Material
HD

Actuator Type
ARB

Power Supply
24

Control
MFT

Options
T

200

F6 = 2 Way
F7 = 3 Way

HD = Stainless Disc, Ductile Iron Body, EPDM Liner, 0% Leakage to 200 psi (<=6"), 150 psi (14"+)

L = Stainless Disc, Ductile Iron Body, EPDM Liner, 0% Leakage to 200 psid (8...12")

Non-Fail Safe

ARB, ARX, AMB, AMX
GMB, GMX, GRB, GRX
DRB, DRX, PRB, PRX, SY

Electronic Fail Safe

GKB, GKX, DKR, PKR

Spring Return

AFB, AFX, AFRB, AFRX

24 = 24v

120 = 120v

220 = 230v

UP = 24v - 240v

3-X1 = On/Off, Float

SR = 2 to 10 VDC

MFT = Multi-Function Technology

S = Auxiliary Switch

T = Terminal Block

N4 = NEMA 4/4X

200 = 8"

250 = 10"

Flow Controls



McDonnell & Miller



McDonnell & Miller flow switches are a replacement for common flow switches from Johnson/Penn, Potter/Taco, and Watts. They are typically used as a protective device to start or stop equipment when liquid flow in pipes is detected.

Item #	M&M #	Pipe Size	Enclosure Type	Max PSI	Flow Paddles Included
SWT00135	FS4-3	1" NPT	General Purpose	160	1", 2", 3", 6"
SWT00285	FS8-W	1" NPT	NEMA 4X Watertight	160	1", 2", 3", 6"
SWT00460	FS7-4	1-1/4" NPT	General Purpose	300	2" - 5" Trimmable
SWT00646	FS7-4W	1-1/4" NPT	NEMA 4X Watertight	300	2" - 5" Trimmable

ifm Effector flow switches monitor and control fluid flow in various applications. These switches are often used in chilled water piping to prevent damage due to inadequate or excessive flow.



- Adjustable outputs for monitoring flow and temperature
- Clearly visible multi-color LED bargraph display
- Signal output via potential-free relay contacts

Standard 1-Probe Kits



Item #	Control Mount Location	Enclosure Type	Kit Contents	Sensor Length
U40100	Remote Cabinet DIN Rail	General Purpose	1/2" NPT Probe & Clamp / 32' Connector Cable Remote Mount Control Monitor	8.5" (Minimum)
US0022	On Pipe Sensor	NEMA 4X Watertight	1/2" NPT Probe & Clamp / 32' Connector Cable Direct Mount Control Monitor	1/2" Insertion Depth)

Premium 2-Probe Kit

The ZH4370 Can be installed on pipes from 2" to 16", Units display temperature and a true flow value (0.1 to 6,150 GPM).



Item #	Power Supply Mount Location	Control Enclosure Type	Kit Contents	Sensor Length
ZH4370	Remote Cabinet DIN Rail	NEMA 4X Watertight	(2) Pipe Mount Flow Sensors with 8-1/2" Probe (1) Power Supply (2) 32' Cables	8"

Condenser Coil Cleaners

Brand	Item #	Size	Name	Type	Features
	4290-75	18 oz.	Nu-Blast	Solvent	No-Rinse No Residue
	4190-08	1 gal.	Cal-Green	Eco-Friendly	Suited for Microchannel
	4291-08	1 gal.	Nu-Brite	Alkaline	High Foaming
	4178-08	1 gal.	Foam-Brite	Alkaline	Ultra Foaming
	PRO-BLUE	1 gal.	MasterCare PRO-BLUE	Alkaline	High Foaming
	PRO-KLEEN	1 gal.	MasterCare PRO-KLEEN	Acid	Non- Hydrofluoric
	RT300G	1 gal.	Viper Brite	Alkaline	High Foaming
	RT310V	33 oz. Pouch	Venom Pack Brightener & Cleaner	Alkaline	Pure Concentrate



Evaporator Coil Cleaners

Brand	Item #	Size	Name	Type	Features
	4171-75	18 oz.	Evap Foam No Rinse	Alkaline	Self-Rinsing NSF Registered
	4168-08	1 gal.	Evap Pow'r-C	Metal-Safe Alkaline	No-Rinse
	4166-75	18 oz.	Evap Fresh No-Rinse	Germicidal Disinfectant	No-Rinse Cleaner & Deodorant
	4166-08	1 gal.			Kills 99.9% of Germs
	RT350G	1 gal.	Viper Evap+	Enzyme Cleaner	No-Rinse
	RT320V	36 oz. Pouch	Venom Pack Evaporator	Enzyme Cleaner	Pure Concentrate



Universal Coil Cleaners

Brand	Item #	Size	Name	Type	Features
	4371-88	1 gal.	Tri-Power HD	Detergent - Degreaser Deodorizer	Suited for Microchannel
	4186-24	1 qt.	Green Clean	All Purpose Cleaner	Biodegradable & Environmentally Friendly
	4186-08	1 gal.			
	4133-08	1 gal.	Cal-Brite Plus	Glycolic & Fluorosilicic Acid	Safer Alternative to Hydrofluoric Acids
	TRIPLE-D	1 gal.	MasterCare Triple-D®	Detergent - Degreaser Deodorizer	Suited for Microchannel
	RT375A	18 oz.	Viper Coil Cleaner	Detergent - Degreaser	No Rinse - Alum. Safe EPA / NSF Compliant
	RT390G	1 gal.	Viper Heavy Duty	Multipurpose Cleaner & Degreaser	No-Rinse
	RT340V	36 oz. Pouch	Venom Pack All Purpose	All Purpose Cleaner	Pure Concentrate



Ductless Coil Cleaners



Brand	Item #	Size	Name	Features
Item # 4151-18		Complete Care Mini Split Kit		
		Contains Below:		
	4371-75	19 oz.	(2) Tri-Pow'r® HD Aerosol	Detergent - Degreaser Deodorizer
	4185-95	2 pk.	(1) Gel Tabs Mini™	Slim-Profile Pan Tab for Ductless Units
	4150-01	50" Wide	(1) Clean Guard™ Maintenance Bag	For Ductless Heads up to 12,000 BTU
		5 gal.	(1) Nu-Calgon Service Bucket	For Rinse Collection
Reusable Replacement Bags		4150-01	50" Wide	Clean Guard™ Maintenance Bag
	4150-02	62" Wide	Clean Guard™ XL Maintenance Bag	For Ductless Heads from 12,000 to 18,000 BTU
	4150-03	Full & Mini	Clean Guard™ CC Maintenance Bag	For Ductless Cassette Units

Coil Protectants & Coatings



Brand	Item #	Size	Name	Type	Features
	4148-32	1 qt.	Cal-Shield	Molecular	Repels Water, Grease, Oil, Dirt, & Grime
	4148-08	1 gal.	Coil Protectant	Film Coating	
	4083-91	11 oz.	DuraCoil Aerosol	Gray Heresite Coating	Extends Coil Life in a Corrosive Environment
	80401	12 oz.	Modine GulfCoat®	Blue Water-Based Coating	Moisture Resistance, UV Protection, & Corrosion Resistance

Cal-Shield is a synergistic liquid designed for application on finned heating and cooling coils, where it forms a micro-thin or molecular film. Once Cal-Shield is applied to the cleaned coil, it forms a protective shield that helps the coil resist the depositing of dirt and grime so that moisture will "bead up" and run off.

Indoor Air Sanitizers & Odor Neutralizers

Bio-Fresh CD is a ready-to-use bacteriostat, fungistat and deodorizer based upon chlorine dioxide technology. It is recommended for control of bacteria, mold, mildew, fungi and yeast in IAQ applications. Its EPA registration includes application in HVACR ventilating equipment, including coils, condensate pans, filters and duct-work.



Brand	Item #	Size	Name	Type	Features
	4126-34	18 oz.	Bio-Fresh	Bacteriostat	For Fogging or Spraying
	4126-38	1 gal.	CD	Fungistat - Deodorizer	
	4693-0		Fogger Tool	Fogger w/ 48" hose to apply chemicals into ducts. Adjustable from 0 - 18 oz. per minute.	



ClenAir & CherryAir eliminates odors caused by smoke, mold, mildew, stale air, sewer gas, pets, and more. They are unique odor neutralizers, not a perfumes or cover-ups. Use one to two pounds for every 400 sq. ft.

Brand	ClenAir Original	CherryAir	Size
	6100-05	6101-05	1/2 lb.
	6100-20	6101-20	2 lb.

Ice Machine Cleaners & Sanitizers

Brand	Item #	Size	Name	Type	Features
	4287-34	16 oz.	Nickel-Safe Ice Machine Cleaner	Citric/Phosphoric Food-Grade Cleaner	Acceptable for Use in Manitowoc and other Nickel Applications
	4287-08	1 gal.			

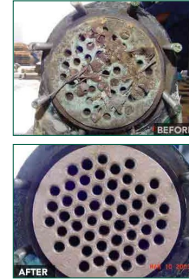


Descalers

Dynamic Descaler® is a non-toxic, biodegradable chemical that can dissolve approximately 1.5kg of calcium carbonate scale per gallon in concentrated form. It does not need to be heated during cleaning. Use it on:

- Heat Exchangers
- Condensers
- Boilers
- Furnaces
- Cooling Tower Fills
- Piping
- Vacuum Pumps
- Chillers
- Other Water-Cooled Equipment

Brand	Item #	Size	Features
	PD-DESCALER-5	5 gal.	Biodegradable w/ Corrosion Inhibitors & Powerful Detergents
	PD-DESCALER-55	55 gal.	



Glycols

Ethylene vs. Propylene: Ethylene glycol-based products are less viscous than propylene glycol-based products. Therefore, they can generally provide slightly better heat transfer efficiency and low temperature performance. However, in applications where toxicity is a concern, propylene glycol products are used because of their low acute oral toxicity.

Burst Protection vs. Freeze Protection: Burst protection is adequate if the system will remain dormant when the temperature is below the freezing point of the solution, and there is adequate space to accommodate the expansion of the ice/slush mixture while the system is inactive. Freeze protection is required where the system's solution must be pumpable at the lowest temperature and/or where there is no room in the system for expansion to accommodate an ice/slush formation.

Inhibited vs. Uninhibited Glycol: Glycol can degrade overtime leading to the formation of acids, which can damage systems and piping. Inhibitors are formulated to help prevent fouling and corrosion.

Name	Type	Concentration %	Color	Item #	Size
Freez-Therm®	Ethylene Glycol	96% With Inhibitors	Green/Yellow	4189-07	1 gal.
				4189-05	5 gal.
				4189-01	55 gal.
Freez-Kontr'l® 95/5	Propylene Glycol	95% With Inhibitors	Blue	4188-06	5 gal.
				4188-03	55 gal.
Freez-Kontr'l®	Propylene Glycol	70% With Inhibitors	Blue	4188-07	1 gal.
				4188-05	5 gal.
				4188-02	55 gal.
Freez-Kontr'l® 35	Propylene Glycol	35% With Inhibitors	Blue	4188-16	5 gal.
				4188-35	55 gal.



Drain Pan Repair

Brand	Item #	Size	Name	Type	Features
	641-14	14 oz.	Pan-Kote	Rubberized Coating	Dries in 20 to 30 minutes
	PANPATCH	1 gal.	Pan-Patch™ Two-Part Epoxy	Self-Leveling Epoxy	Pours Through Standing Water
	285987	4" x 5'	T-REX® Waterproof Flexible Repair Tape	Butyl-Based Adhesive	Can Be Used Underwater

Pan-Patch™ is a two-part, self-leveling epoxy that adheres to almost any surface, including metal, wood and concrete. It pours through standing water to permanently stop leaks or holes in drain pans. It also includes an anti-microbial additive to eliminate future mold growth.



641-14



285987



PANPATCH

Condensate Management



Drain Solve

Nu Line

Brand	Item #	Size	Name	Type	Features
	4165-24	1 qt.	Drain Solve	Pours Through Standing Water	Removes grease, hair and other organic matter
	4165-08	1 gal.	Drain Opener		
	97685	8 oz.	Nu Line Drain Line	Enzyme-Based	Removes slime buildup & keeps drain lines open
	97690	32 oz.	Maintenance Liquid	Alternative to Tabs	



Gel Tabs lock into place, and will not move and potentially block the drain. They are designed to completely dissolve at an even rate over 3 months. Multiple Gel Tabs can be combined to achieve the proper treatment for larger systems.



PanPads biocide tablets are enclosed plastic housing, sealed to an absorbent white filter pad. Water is absorbed by the pad and "wicked" to the tablet, resulting in the immediate, but controlled, release of the powerful biocide. EPA Registration #33427-4-65516.

Item #	Size	Name	Treats
4296-60	200 pk.	Pan-Treat® Tablets	2 Tablets per Ton
4185-95	2 pk.	Gel Tabs Mini™	1.5 Tons per Pack
4185-03	12 pk.	Gel Tabs™ Red	3 Tons per Tab
4185-04	200 pk.		
4185-05	6 pk.	Gel Tabs™ Blue	5 Tons per Tab
4185-06	100 pk.		
4296-24	1 pk.	PanPads-15	15 Tons per Pad
4296-45	1 pk.	PanPads-45	45 Tons per Pad

System Flushing

Rx11 Pressurized Starter Kits



4300-08

4300-10

Brand	Item #	Description	Contents
	4300-08	Rx11 Flush Starter Kit	Includes 1 lb. Can, Hose, Gun, & Valve 4300-09, 4300-52, 4300-51, 4300-89
	4300-10	Rx11 2+1 Kit	Includes (2) 2 lb. Cans & Valve (2) 4300-11 & (1) 4300-89

Rx11 Replacement Cannisters

Item #	Size
4300-09	1 lb. Cannister
4300-11	2 lb. Cannister
4300-15	13 lb. Cannister
4300-26	26 lb. Cannister



Rx11 Injection Tools



Item #	Description
4300-51	Gun Nozzle
4300-52	Flush Hose
4300-50	Cone Flush Tool
4300-89	Injection Valve



Pro-Flush uses industry-standard nitrogen to deliver flushing solvent. The Pro-Flush® Kit consists of a reusable injection tank, charging hose, injection tool assembly and one 8 oz can of Pro-Flush®.

Non-Pressurized Kits & Refills

Brand	Item #	Contents
	PF-KIT	Includes Reusable Tank, Hose, Nozzle, and 8oz. Solvent
	PF-16	16oz. Solvent Refills

System Rejuvenation



4057-55 4057-56

Nu-Calgon A/C Re-New reduces compressor friction (lowers amp draw), quiets noisy systems, extends system life, and resolves sticking valves. It blends with system oil, and aids oil return when retrofitting R-22 systems with new refrigerants.

Item #	Description	Installs with
4057-55	4 oz. Liquid Bottle	YJ-69562 Oil/Dye Injector
4057-56	4 oz. Connect Inject	4155-01 Connect Inject Tool

Acid Testing & Burnout Cleanup

Acid Tests

Brand	Item #	Description
	QT2000	QwikCheck® 2 Second Acid Test
	4320-W8	Phase III Refrigeration Oil Acid Test Kit



QwikCheck® Detects inorganic acid in 2-seconds, down to 1 part per million. The yellow to red color change shows the need for action. Works with all refrigerants & oils.



Phase III works with mineral oil, alkylbenzene, POE, and PVE oils. POE's with acidity less than 0.16 mg are acceptable and & cause no change in color. Phase III works in the presence of fluorescent dyes.

Acid Remediation Chemicals

Brand	Item #	Description	Installs with
	4301-02	2 oz. Liquid Bottle	YJ-69652 Oil/Dye Injector
	4301-05	3.8 oz. Pressurized Cannister	4300-89 Injection Valve
	4301-06	Connect Inject Rx Acid Scavenger	4155-01 Connect Inject Tool
	45004	2 oz. Liquid for Mineral Oil Systems	YJ-69652 Oil/Dye Injector
	45009	2 oz. Liquid for POE Systems	YJ-69652 Oil/Dye Injector

Rx-Acid Scavenger neutralizes acid after burnouts, or used during maintenance. Works with all oils - Treats up to one gallon of oil per dose.

Acid-Away® is compatible with all common compressors. Suited for preventative maintenance to avoid burnouts from acid buildup.



4301-02



4301-05



4301-06



45004



45009

UV Dyes & Dye Removers

Brand	Item #	Description	Size
	TR1108.K.01	Brilliant UV Dye Remover	34 oz.
	4050-51	EasyDye Connect Inject	.1 oz.
	4155-01	Connect Inject Tool	



Brilliant Remover cleaner removes any trace of leak detector dye, when sprayed directly on the dye.

EasyDye works with all refrigeration oils and systems. Treats up to 6 tons per tube.



Refrigerant Leak Detection

Brand	Item #	Size	Description
	4184-53	8 oz. w/ Dauber	Fluorescent Gas Leak Detector
	4184-24	1 Quart	
	4050-15		UV LED Flashlight & Glasses
	RT175B	8 oz. w/ Dauber	Big Blue Micro Leak Detector
	RT100S	32 oz.	
	RT100G	1 gal.	
	SNOOP	8 oz.	Leak Detector: 27° to 200°F Range
	SNOOP-1	1 gal.	

Fluorescent Gas Leak Detector has a high viscosity formula, that remains in contact with the applied surface for an extended period of time.



Find leaks with Nu-Calgon's UV flashlight and fluorescence enhancing glasses. For use with UV dyes and fluorescent gas leak detectors.

Big Blue – The only bubble solution capable of detecting gas leakage down to 0.65 ounces per year. Use on any gas, including Oxygen.



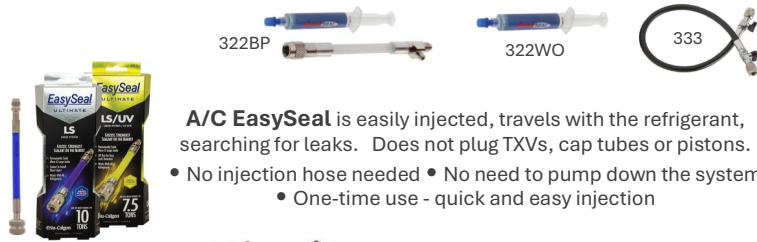
Snoop® Liquid Leak Detector - Find small, hard-to-reach leaks with Snoop®, featuring a flexible snoop tube and sustained bubbling action.



Refrigerant Leak Sealant

AC SmartSeal™ 3-in-1 product includes Sealant, Enhancer and UV Dye.

- No need to pump down R-410A units • Re-usable tool



A/C EasySeal is easily injected, travels with the refrigerant, searching for leaks. Does not plug TXVs, cap tubes or pistons.

- No injection hose needed • No need to pump down the system
- One-time use - quick and easy injection



Pro Charge refrigerant is pre-blended with UV dye & sealant, designed to service systems up to 6 tons. The UV dye & sealant does only activates at the source of the leak.

Internal Sealants

Brand	Item #	Description	Treats
COOLAIR PRODUCTS	322BP	Kit with Cartridge and Hose	Up to 6 Tons
	322WO	Quickshot Refill Cartridge	Up to 6 Tons
	333	Smart Adapter Hose Allows for injection without the use of manifold gauges	
Nu-Calgon	4050-08	EasySeal Ultimate Direct Inject	2 - 10 Tons
	4050-11	UV EasySeal Ultimate Direct Inject	2 - 7.5 Tons

Refrigerant with UV Dye & Sealant

Brand	Item #	Description	Size
PRO CHARGE	4019	R22 with UV Dye & Sealant	1.9 lbs.
	4125	R410A with UV Dye & Sealant	1.8 lbs.
	4507	Pro Charge Hose with Gauge	

Coil Repair

External Sealants



HS32050

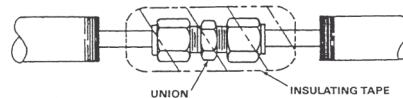


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Brand	Item #	Description	Features
HIGH SIDE CHEMICALS INC.	HS32050	PatchRite Instant HVAC/R Patch	Permanently seals holes in metals and rigid plastics Full cure in 20 minutes - Rated at 1800 psi Handles 200°F (93.3°C) continuous temperature
COOLAIR PRODUCTS	210	AC SmartSeal External	Effectively seals leaks up to 5mm and 825 psi. Applies to any material; Inert to all lubricants and refrigerants.

Aluminum Condenser Coil Repair Kits

Trane **Aluminum Coil Repair Kits** can both repair a leak at a transition joint, as well as within a spine-fin coil. These kits are to be used for repair of aluminum coils only. Use on copper coils can cause leaks even though properly installed.



Item #	Line Size
KIT08157	5/16"
KIT01146	3/8"

SolderWeld® Aluminum Repair Kits

Item	Type	Contents
SW-ACRTC	Aluminum Repair Tech Bag	(5) 8" Alloy Sol Rods • (5) 8" Alloy Cop Rod Alloy Sol Flux • Wire Brush • Red Rag



Flux

Item	Description	Size
SW-ASF1	Alloy Sol™ Flux Powdered Flux for Brazing Aluminum	1 oz. Jar
SW-MSF2	Multi Sol Liquid Flux™ for AL to AL, AL to CU, and Most Dissimilar Metals	.7 oz. Bottle



Copper-to-Aluminum Brazing Rods

Brand	Item #	Name	AL %	Application	Size
LucasMilhaupt	99088	Handy One®	22%	Aluminum-to-Copper & Aluminum-to-Aluminum	20" Rods 4 pk.
	SW-ALCU5.5	Al-Cop Braze™	22%	Aluminum-to-Copper Brazing	8" Rods 5 pk.
SOLDERWELD	SW-AS09305.5	Alloy Sol™	95%	Aluminum Repair and Joining Rod	8" Rods 5 pk.

Refrigerants

Legacy Refrigerants

Refrigerant	Type	Application	Lubricant	Item #	Size
R-11	CFC	Low Pressure Centrifugal Chillers	Mineral Oil or Alkylbenzene	R11-100#	100 lbs.
R-22	HCFC	Refrigeration, HVAC DX, Chillers	Mineral Oil or Alkylbenzene	R22-30#	30 lbs.
R-123	HCFC	Low Pressure Centrifugal Chillers	Mineral Oil or Alkylbenzene	R123-100#	100 lbs.
R-134A	HFC	Medium Temp Refrigeration, Chillers, Auto A/C	Polyolester	R134A-30#	30 lbs.
R-404A	HFC Blend	Low/Medium Temp Refrigeration	Polyolester	R404A-24#	24 lbs.
R-410A	HCFC Blend	Newer DX A/C systems	Polyolester	R410A-25#	25lbs.



R-22 Retrofit Alternatives

Refrigerant	Type	Features	Lubricant	Item #	Size
R407C	HFC Blend	Similar Capacity & Efficiency in AC Applications	Replace Mineral Oil with POE following manufacturer's guidelines	R407C-25#	25 lbs.
MO99 (R438A)	HFC Blend	Similar Capacity & Efficiency, no Oil Change	Mineral Oil, Alkylbenzene, and POE lubricants	MO99	25 lbs.



R-410a Replacements (No Retrofit)

Refrigerant	Type	Features	Lubricant	Item #	Size
R32	HFC (A2L Mildly Flammable)	Similar Capacity & Slightly Better Efficiency than R410a	POE	R32-20#	20 lbs.
R454B	HFC Blend (A2L Mildly Flammable)	Similar Performance to R410A, Lower GWP than R32	POE	R454B-20#	20 lbs.



Refrigeration Oils

Type	OEM Trane Item #	Size	Features / Formulation	Viscosity	Wholesale Equivalent	Systems Where Used
Mineral	OIL00042	1 gal.	Anti-Wear Additive	150 SUS / ISO 32	4303-07 3-CS	R-22
	OIL00045	1 gal.	Anti-Wear Additive	300 SUS / ISO 68	4304-07 4-CS	R-22
	OIL00015	1 gal.		300 SUS / ISO 68	4304-07 4-CS	R-12 & R-22
	OIL00022	2.5 gal.		300 SUS / ISO 68	4304-07 4-CS	R-11, R-12, R-123
	OIL00031	1 gal.		300 SUS / ISO 68	4304-07 4-CS	R-22
Polyolester	OIL00078	1 qt.	Anti-Wear Additive	150 SUS / ISO 32	4316-86 RL32HB	R-134a, R-404a, & R-407c
	OIL00080	1 gal.		150 SUS / ISO 32	4314-46 RL32H	R-410a
	OIL00037	1 gal.		300 SUS / ISO 68	4316-46 RL68H	R-134a & R-407c
	OIL00049	5 gal.		300 SUS / ISO 68		
	OIL00048	1 gal.		300 SUS / ISO 68	4316-46 RL68H	R-134a
	OIL00379	1 gal.	Icematic	500 SUS / ISO 100	N/A	R514a
	OIL00380					
	OIL00315	1 gal.	Solest	600 SUS / ISO 120	N/A	R134a & R513a
	OIL00317					



Item # YJ-77940



Max-Flow™ Oil Pump

Remove oil for recovery and conversion - Add oil to existing systems - Pumps against 200 psi pressure - Universal stopper automatically adjusts to all standard openings in 1, 2-1/2 and 5 gallon oil containers

Vacuum Pump Oil



Brand	Item #	Size	Type
NAVAC	VO1Q	1 qt.	Premium Mineral Vacuum Pump Oil
	VO1G	1 gal.	
Fieldpiece	OIL8X3	(3) 8 oz.	Fieldpiece Pump Oil. Fits VPX7, VP87 and VP67

Lubricants, Cleaners & Degreasers



Brand	Item #	Description	Size
Degreasers & Cleaners			
CRC	03120	CRC Heavy-Duty Degreaser II	15 oz.
	03130	CRC QD® Electrical Contact Cleaner	11 oz.
LOCTITE	135544	LOCTITE® Gasket Remover	18 oz.
Klean-Strip	GSL26	Klean-Strip™ Denatured Alcohol Solvent Cleaner	1 gal.

Penetrants

CRC	03020	CRC Knock'er Loose® Penetrating Solvent	13 oz.
WD-40	WD-40	49004 WD-40 General Purpose Lubricant / Penetrant	11 oz.

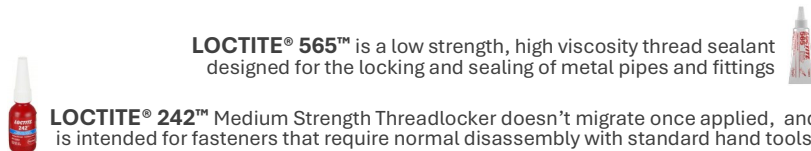
Lubricants

CRC	03160	Ultra Lite 3-36® Ultra Thin Non Staining Lubricant	11 oz.
	03005	3-36® Multi-Purpose Lubricant & Corrosion Inhibitor	11 oz.
	03282	SP-400 Long-Term Corrosion Inhibitor	10 oz.
LOCTITE	SL3190	Sta-Plex™ Extreme Pressure Premium Red Grease	14 oz. Tube
	199012	LOCTITE® LB 8150 Silver Grade Anti-Seize w/ Brush Top	8 oz.
Mobil	POLYREX EM	Mobil Polyrex™ EM Blue Grease	13.7 oz.
LINCOLN INDUSTRIAL	1134	Lincoln Heavy-Duty Pistol Grip Grease Gun	



Thread, Gasket, & O-Ring Sealants

LOCTITE® 565™ is a low strength, high viscosity thread sealant designed for the locking and sealing of metal pipes and fittings



LOCTITE® 242™ Medium Strength Threadlocker doesn't migrate once applied, and is intended for fasteners that require normal disassembly with standard hand tools.

LOCTITE® 515™ Flange Sealant is an industrial gasketing product for machined, rigid metal flanges. Provides a perfect seal with gaps up to 0.25 mm.



Silicone Grease is a heat sink compound, and a high dielectric moisture repellent for electrical components. Also used on water fixtures and vacuum connections.

Nylog prevents high pressure leaks on threaded connections by forming a hydraulic seal. It can also be used as a high tack assembly lube when installing shaft seals, o-rings, Schraeder valves, ball valves, unloaders or other components.



Leak Lock® is a resin-based, brushable paste that remains flexible. It can be applied to threaded joints, flanged joints, and gasket surfaces where a gas-tight seal is required.

Brand	Item #	Size	Description
LOCTITE	88551	50ml	LOCTITE® 565™ White Threadlocker
	135354	10ml	LOCTITE® 242™ Blue Liquid Threadlocker
	135479	50ml	LOCTITE® 515™ Flange Sealant
	88541	300ml	
CFC	RT910T	3oz.	Vacuum & Heat Sink Food Grade Silicone
	RT200RP	30 ml. 2 pk.	Nylog RED for CFC/HCFC Systems
	RT201BP	30 ml. 2 pk.	Nylog BLUE Sealant for all Systems
HIGHSIDE CHEMICALS INC.	HS10001	1.5 oz.	Leak Lock® Joint Sealing Compound
	HS10004	4 oz.	Leak Lock® Joint Sealing Compound

Miscellaneous Chemicals

Insulation Spray

Brand	Item #	Size
 Nu-Calgon	4297-76	14 oz.

Pipe-Dri aerosol insulation helps stop sweating and dripping on refrigeration linesets and other cold surfaces. Dries to a hard waterproof coating.



Wasp & Hornet Spray

 Enforcer	EWHIK16	16 oz.
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Enforcer Wasp & Hornet Killer shoots a 20-foot jet blast for instant knockdown of wasps, hornets, and yellow jackets.



General Purpose & Insulating Paints

Brand	Item #	Description	Size
 DiversiTech	V2404	Flat Black General Purpose Enamel Spray Paint	12 oz.
 CRC	18412	Zinc-It® Instant Cold Galvanize™ Coating	13 oz.

CRC Zinc-It® is a >93% pure zinc coating that protects ferrous metals from oxidizing. It creates a galvanic barrier between on the base metal to prevent the formation or spread of rust and corrosion.



Smoke Products

 Supco	ZS301A	#1A Candle - 4,000 cu. ft. of Smoke in 30 Seconds	1.5" x 1.5"
 QwikSmoke	QT2330	QwikSmoke™ Universal Smoke Alarm Test Gas	2.9 oz.



Smoke Candles produces a dense white smoke ideal for testing fans, checking for leaks in ductwork, and determining air flow patterns.

QwikSmoke® Universal Smoke Alarm Test Gas is designed for use with all smoke detectors; with and without functional test mode capability.



Batteries

Item #	Pack Qty.	Item #	Pack Qty.
BATTERY-C	6pk.	BATTERY-9V	6pk.
BATTERY-D	6pk.	BATTERY-AA	8pk.
		BATTERY-AAA	8pk.



Cleaning Products

Brand	Item #	Size	Name
 Kimberly-Clark	34790	126 pk.	WypAll® General Clean X60 Multi-Task Cleaning Cloths
 Nu-Calgon	4162-01	100 pk.	Dragon Towels: Lint-Free, Heavy-Duty Towels
	4185-75	75 ct.	Great Wipes Hand Towels - Pumice & Premoistened
 Permatex	25122	15 oz.	Fast Orange® - Pumice Hand Cleaner
 DiversiTech	DC-4128	4' x 12'	Canvas Drop Cloth
	DC-9128	9' x 12'	Canvas Drop Cloth
 Dottie	B42	50pk.	42gal. Heavy-Duty Contractor Cleanup Bags



34790



4162-01



4185-75



25122



DC-4128



B42

Shoe Covers from

Item #	Description	Features	Pack Qty.
C SB SC DB	ShuBee® Original Shoe Covers	Reinforced Mesh Construction	50 Pair (100 Covers)
C SB SC WP DB	ShuBee® Waterproof Shoe Covers	Waterproof	40 Pair (80 Covers)
C SB SC BEE 289	ShuBee® SuperBee® Shoe Covers	Waterproof with Tough Tread® technology	40 Pair (80 Covers)



Safety Supplies

Eye, Ear, Head & Respiratory Protection

Item #	Description
60159	Klein® Clear Lens Safety Glasses
60160	Klein® Gray Lens Safety Glasses
6054010	Klein® Foam Earplugs - 10pk.
604403	Klein® N95 Disposable Respirator - 3pk.
60105	Klein® Vented Hardhat with Headlight Slot (fits 56049 Headlamp)



Gloves

Item #	Size	Type
2337L	L	Black Nitrile Powder-Free Gloves - 100pk.
2337XL	XL	
2009	Univ.	Brown Jersey Gloves w/ PVC Gripper Dots
2038M	M	Touch Screen Gripper - Nylon/Spandex with Nitrile Palm Coating
2038L	L	
2038XL	XL	
125M	M	Flex Grip® Handyman™ Padded Palms & Touch Screen Fingertips
125L	L	
125XL	XL	



Knee & Back Protection

Item #	Size	Type
V231	Universal	Deluxe Foam Kneepads
V237	Universal	Swivel Cap Kneepads
302	8" x 18"	Industrial Kneeling Mat
5000M	M	Back Support Belt
5000L	L	Back Support Belt



MasterLock® Lockout / Tagout Kit

Item # 1457E410KA Contains:

Qty.	Description
1	Durable Lockout Toolbox
3	Zenex™ padlocks
1	Circuit Breaker Padlock
1	Lockout Hasp
1	Red Labeled Snap-On Lockout Hasp
3	Standard Circuit Breaker Lockouts
2	Tall / Wide Circuit Breaker Lockouts
1	Wall Switch Cover
12	"Do Not Operate" Safety Tags



Chemical Application Tools

Sprayers, Pumps, & Foggers

Item #	Size
BS-32	32 oz. Spray Bottle
1002	48 oz. Hand Held Compression Sprayer
2601	1 Gallon Wand Compression Sprayer
4774-0	Coil Gun w/ 5 Mix Ratio Settings
540-573	Hot/Cold Spray Nozzle
61238	50' Hot Water Hose
4693-0	Heavy-Duty Fogger w/ 48" Flexible Hose



Condensate Cleanout Tools

Brand	Item #	Size
RECTORSEAL	81980	LineShot™ CO ₂ Drain Clearing Tool (3/8" to 3/4" Lines)
	81981	LineShot™ 16g CO ₂ Refill Cartridges - 12pack
UNIWELO	40061	Sludge Blaster® (3/4" to 1" Pipes) 1/4" Service Hose Connection
Nu-Calgon	61308	A/C Drain Sucker Kit - Pressure or Suction Capability



LineShot™ clears drain lines with a burst of CO₂ from a 16g cartridge. It includes an fitting compatible with Schrader valves, and a tapered fitting for 3/8" - 3/4" drain openings.

Sludge Blaster® attaches to a standard 1/4" service hose. Pressure expands it inside the drain pipe, and blasts the sludge free. Pipe capacity: 3/4" to 1" I.D.

A/C Drain Sucker Kit clears clogs from inside using pressure, or at the end of drain line using suction. No need for CO₂ or nitrogen.

Chilled Water Tube Cleaning from **GOODWAY®**

RAM-4 - The Original Rotary Tube Cleaner

The fourth generation RAM-4 includes an array of interchangeable cleaning tools designed for a variety of situations. The cleaning tool safely and effectively scours debris away without damaging tube walls. A casing around the shaft feeds water to the rotating tool, flushing out deposits as they are loosened. Features:

- Stainless steel construction
- Quick connect threadless shaft manifold
- Integrated dolly
- Simultaneous water flush
- Foot switch activation
- Reversible shaft rotation

Item # GW-RAM-4-ID-60-R



Goodway Technologies offers the largest selection of complete maintenance and cleaning solutions

Tube Cleaning • Coil Cleaning • Cooling Tower Cleaning • Descaling Systems Duct Cleaning • Pressure Washing

Tube Brushes

Blue Nylon Blue Nylon Brushes

Threaded		
Size	Model	Part #
1/4"	GTC-211-1/4	BRU00202
3/8"	GTC-211-3/8	BRU00186
7/16"	GTC-211-7/16	BRU00205
1/2"	GTC-211-1/2	BRU00188
5/8"	GTC-211-5/8	BRU00169
9/16"	GTC-211-9/16	BRU00168
3/4"	GTC-211-3/4	BRU00171
7/8"	GTC-211-7/8	BRU00206
1"	GTC-211-1	BRU00189

Quick Connect		
Size	Model	Part #
7/16"	GTC-211Q-7/16	BRU00263
1/2"	GTC-211Q-1/2	BRU00260
5/8"	GTC-211Q-5/8	BRU00177
9/16"	GTC-211Q-9/16	BRU00176
3/4"	GTC-211Q-3/4	BRU00179
7/8"	GTC-211Q-7/8	BRU00264
1"	GTC-211Q-1	BRU00187

Blue Nylon Brushes

The most popular tube cleaning brushes. Recommended for removing soft deposits (mud, algae, etc.) in straight, ferrous, and nonferrous tubes.



Dual Diameter Spin Grit Brushes

Threaded		
Size	Model	Part #
1/2"	ESGB-050	BRU00193
5/8"	ESGB-062	BRU00184
3/4"	ESGB-075	BRU00194
1"	ESGB-100	BRU00190

Quick Connect		
Size	Model	Part #
1/2"	ESGB-Q-050	BRU00214
5/8"	ESGB-Q-062	BRU00215
3/4"	ESGB-Q-075	BRU00216
1"	ESGB-Q-100	BRU00217

Dual Diameter Spin Grit Brushes

For removing soft and light scale deposits in straight and internally enhanced tubes. The small diameter end cleans into the grooves, while the larger bristles clean the lands of the enhancement.



RAM4 Replacement Shafts

Shafts for Threaded Brushes

7/16" to 1/2" Tubes

Size	Model	Part #
25'	GTC-702-25	SHF02760
35'	GTC-702-35	SHF02761
45'	GTC-702-45	SHF02767

9/16" to 1" Tubes

Size	Model	Part #
25'	GTC-703-25	SHF02734
35'	GTC-703-35	SHF02735
45'	GTC-703-45	SHF02737

Shafts for Quick Connect Brushes

7/16" to 1/2" Tubes

Size	Model	Part #
25'	GTC-702Q-25	SHF02770
35'	GTC-702Q-35	SHF02771
45'	GTC-702Q-45	SHF02772

9/16" to 1" Tubes

Size	Model	Part #
25'	GTC-703Q-25	SHF02745
35'	GTC-703Q-35	SHF02746
45'	GTC-703Q-45	SHF02779



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