



DOE / NRCAN Model Information Inside

MS Series

UNIT COOLERS

Technical Bulletin: MSUC_015_032723



Products that provide lasting solutions.

MS Series Unit Coolers

DOE Evaporator Compliant Matrix

	MS	
	DUAL SPEED MOTORS	VARIABLE SPEED MOTORS
DEFROST TYPE		
Air		
Glide Refrigerants*	-	X
Non-Glide Refrigerants**	-	X
CO₂		
Coolers	N/A	N/A
Freezers	N/A	N/A
Electric		
Glide Refrigerants*		
Coolers	-	X
Freezers	-	X
Non-Glide Refrigerants**		
Coolers	-	X
Freezers	-	X
CO₂		
Coolers	N/A	N/A
Freezers	N/A	N/A
Hot Gas		
Glide Refrigerants*		
Coolers	-	X
Freezers	-	X
Non-Glide Refrigerants**		
Coolers	-	X
Freezers	-	X
VOLTAGES / PHASE (All 60 HZ)		
115/1	X	X
208-230/1	X	X
208-230/3	X ²	X ²
460/1	-	-
460/3	-	-
575/3	-	-
FAN CONTROLS		
RT-3*** - T-Stat	-	-
RT-4*** - T-Stat with 0 to 10 V Power Supply	X ¹	-
R24V - Relay if Remote Board	-	-
R24P**** - Relay If Remote Board	X ¹	-
VC4P - JC450 plus Amplifier	-	-
AMP1***** - Amplifier for Remote Controller	-	-
VC4 - JC450 Loose	-	X ¹
VC4A, VC4B - JC450 Mounted with Transformer	-	X ¹
KE2 Therm	-	X ¹
Expansion Valves		
TEV	-	X ³
Sporlan Stepper Valve	-	X ³
Control Boards		
KE2 OEM Board	-	X
Sensors		
Air Defrost - 3 Temp Sensors (1 Room, 2 Coils)	-	X ⁴
Positive Defrost - 3 Temp Sensors (1 Room, 2 Coils)	-	X ⁴
Options		
Remote Display (Stays within Six Feet of Board)	-	X ⁵
Edge Manager (for Remote Wifi Access and Data Logging)	-	X ⁵
8 or 16 Port Switch (Inter-Connecting Multiple Boards)	-	X ⁵

X - Available

* Glide Refrigerants (R-407A, R-407F, R-448A, R-449A, refer to I/O Manual for others). Models in tables with "*" are not tied to this note.

** Non-Glide Refrigerants (R-404A, R-507A, refer to I/O Manual for others)

*** Room T-Stat needs to be separate from T-Stat controlling motors

**** Includes 10 V power supply for driving fans to low speed

***** Amplifier works with a maximum of six motors

¹ Only one control may be selected

² Only on multiple fan units wired for 3 phase operation

³ Choose only one type of expansion valve

⁴ Choose only one based upon either air or positive defrost requirements

⁵ More than one option can be chosen



DOE / NRCAN -

The MS Series of evaporators are designed for long life with testing and options to meet efficiency required by DOE and NRCAN regulations.

MS Series Unit Coolers

Medium Profile Units for Medium Size Walk-In Coolers and Freezers

Access Panel

Hinged panel cover provides easy access to electrical connections.

Hinged Drain Pan

Hinged drain pan easily drops down for quick service.



The MS Series Unit Coolers have a medium profile to provide increased air flow for warehouse refrigeration applications. The MS Series is built for performance with increased BTU/H capacities and heavy-duty construction to meet your refrigeration requirements.

Standard Features

- Ruggedly constructed cabinets are installed pulled against the ceiling or with hanger rods sloped towards the drain connection on the end of the unit.
- Efficient draw-thru design with 20" diameter fan blades provide air throw of 60 feet.
- High efficiency 1/2 horsepower motors operate fans at 1140 RPM.
- Wide capacity range with coils with 4, 5, 6, or 7 fins per inch.
- Air defrost models for rooms operating above 34° F.
- Electric and hot gas defrost models for colder rooms and freezers.
- Mill galvanized drain pan and fan cabinet.
- Coated, corrosion-resistant wire fan guards.
- Drain pan and fan cabinet end panels are hinged for easy access and cleaning.
- Factory-wired fans and defrost controls to convenient terminal strips for field connections.
- Adjustable defrost termination and fan delay thermostat installed with electric defrost.
- Coil constructed of heavy-wall copper tube and rippled full collar aluminum fins.
- Optimized circuiting for HFC and HFO refrigerants.
- Sealed and pressurized from the factory.

Optional Features and Accessories

- Variable Speed EC fan motors in 115/1/60 and 208/1/60.
- Installed thermostat and controller options for simple dual speed or variable speed fan control.
- Hot gas defrost models available with gas or electric pan heat.
- Coils circuited for fluids operating as a secondary coolant or heat reclaim.
- Installed mechanical or electronic expansion valves.
- Liquid line solenoid valve installed or ship loose.
- Painted white or black housing and drain pans.
- Stainless-steel housing and drain pans in place of galvanized steel.
- Insulated drain pan.
- Copper fins or coil coating from Electrofin or Heresite.
- Long throw adapters increase air throw to 100 feet.

Ordering Information

(Specify when ordering all models)

- Complete model number including refrigerant
- Room temperature
- Saturated suction temperature
- Liquid refrigerant temperature
- Optional features
- Optional accessories

MS Series Unit Coolers

Model Key

MS A 2 6 E - 0390 T C K K

Unit Type

MS - Super Cooler



DOE Application

D - DOE and NRCan
A - Non-Regulated

Number of Fans

Fin Spacing

4, 5, 6, 7 FPI

Type of Defrost

A - Air Defrost
E - Electric Defrost w/Electric Pan Heat
G - 3 Pipe Hot Gas w/Gas Pan Heat
H - 3 Pipe Hot Gas w/Electric Pan Heat
K - 2 Pipe Kool Gas w/Gas Pan Heat
P - 2 Pipe Kool Gas w/Electric Pan Heat
R - Heat Reclaim



* Contact Application Engineering for quoting.

** Inverter suitable motor for K, M, P, and U voltages.

*** Single phase motor available in motor voltage: 115/1/60, 208-230/1/60, and 208-230/3/60 (with two or more fans).

DOE or NRCan applications use Variable Speed motors with Dual Speed or Variable Speed control.

**** 'N' Stock Units are for non-glide or glide refrigerants (consult I/O manual for complete refrigerant listing).

***** 'G' Stock Units are for glide refrigerants only (consult I/O manual for complete refrigerant listing).

Heater Voltage

A - 208-230/1/60 O - 575/1/60
H - 460/1/60 P - 575/3/60
K - 208-230/3/60 U - 380/3/50
L - 380/3/60* A, O, and H available
M - 460/3/60 only for P&H defrost

Motor Voltage

A - 208-230/1/60 M - 460/3/60
B - 115/1/60 P - 575/3/60
K - 208-230/3/60 U - 380/3/50
L - 380/3/60*

Motor Type

C - 3 Phase Motors**
V - Variable Speed EC***
D - Variable Speed EC, Dual Speed Control***

Refrigerant

N - Stock Unit****	G - Stock Unit*****
S - R-404A	Q - R-407A T - R-448A
P - R-507A	F - R-407F R - R-449A

B - Glycol / Brine

BTU/H in Hundreds (00)



DOE / NRCan -

Indicates evaporator models that have an AWEF rating published which meets the efficiency requirements of the US Department of Energy and Natural Resources Canada regulations. These specific regulations are for evaporators manufactured after July 10th, 2020, applied in refrigerated spaces 3000 square feet or less, and held at 55° F room temperature or colder. Not covered in this regulation are unit coolers using secondary refrigerant like glycol.

Hussmann/Krack will ship DOE / NRCan compliant evaporator coil units for regulated/covered applications to meet and adhere with government labeling requirements. **Please note that compliance is at the time of manufacture and responsibility of the OEM.**

The DOE / NRCan compliant evaporators will utilize Dual Speed or Variable Speed EC motors. Controls for these options may be factory installed or field supplied.

Both the Dual Speed and Variable Speed EC motors have default prevention programming. In the event of a control loss input (OV), the motors will run at full speed.

MS Series Unit Coolers

Air Defrost Medium Profile

AIR DEFROST

MODEL	Cooler AWEF by Refrigerant and Motor				CAPACITY (BTU/H) @ 10° F TD +25° F EVAP	AIR FLOW (CFM)	REFRIGERATION CONNECTIONS		REF CHARGE (LBS)	DIMENSIONS (IN)			SHIP WGT (LBS)
	[G] Stock Unit**, [Q] R-407A, [F] R-407F, [T] R-448A, [R] R-449A		[N] Stock Unit***, [S] R-404A, [P] R-507A				LIQ	SUCT		L	W	H	
	{D}ual Speed	{V}variable Speed	{D}ual Speed	{V}variable Speed									
MS*14A-0150[] { }	NA	9.00	NA	9.00	15,020	4,200	5/8"	1-1/8"	5	57.00	26.63	26.30	142
MS*14A-0190[] { }	NA	9.00	NA	9.00	19,030	4,120	5/8"	1-1/8"	7	57.00	26.63	26.30	153
MS*14A-0225[] { }	NA	9.00	NA	9.00	22,470	4,000	5/8"	1-1/8"	8	57.00	26.63	26.30	171
MS*14A-0249[] { }	NA	9.00	NA	9.00	24,910	3,920	5/8"	1-1/8"	10	57.00	26.63	26.30	184
MS*16A-0184[] { }	NA	9.00	NA	9.00	18,360	4,120	5/8"	1-1/8"	5	57.00	26.63	26.30	151
MS*16A-0229[] { }	NA	9.00	NA	9.00	22,940	4,040	5/8"	1-1/8"	7	57.00	26.63	26.30	164
MS*16A-0260[] { }	NA	9.00	NA	9.00	26,010	3,940	5/8"	1-1/8"	8	57.00	26.63	26.30	182
MS*16A-0281[] { }	NA	9.00	NA	9.00	28,100	3,850	5/8"	1-1/8"	10	57.00	26.63	26.30	197
MS*17A-0199[] { }	NA	9.00	NA	9.00	19,880	4,080	5/8"	1-1/8"	5	57.00	26.63	26.30	161
MS*17A-0246[] { }	NA	9.00	NA	9.00	24,590	4,000	5/8"	1-1/8"	7	57.00	26.63	26.30	174
MS*17A-0275[] { }	NA	9.00	NA	9.00	27,500	3,900	5/8"	1-1/8"	8	57.00	26.63	26.30	194
MS*17A-0295[] { }	NA	9.00	NA	9.00	29,540	3,800	7/8"	1-1/8"	10	57.00	26.63	26.30	209
MS*24A-0300[] { }	NA	9.00	NA	9.00	30,040	8,400	7/8"	1-3/8"	10	102.00	26.63	26.30	247
MS*24A-0381[] { }	NA	9.00	NA	9.00	38,050	8,240	7/8"	1-3/8"	13	102.00	26.63	26.30	272
MS*24A-0450[] { }	NA	9.00	NA	9.00	44,950	8,000	7/8"	1-3/8"	15	102.00	26.63	26.30	301
MS*24A-0498[] { }	NA	9.00	NA	9.00	49,820	7,840	7/8"	1-3/8"	18	102.00	26.63	26.30	326
MS*26A-0367[] { }	NA	9.00	NA	9.00	36,710	8,240	7/8"	1-3/8"	10	102.00	26.63	26.30	269
MS*26A-0459[] { }	NA	9.00	NA	9.00	45,880	8,080	7/8"	1-3/8"	13	102.00	26.63	26.30	297
MS*26A-0520[] { }	NA	9.00	NA	9.00	52,030	7,880	7/8"	1-3/8"	15	102.00	26.63	26.30	328
MS*26A-0562[] { }	NA	9.00	NA	9.00	56,190	7,700	7/8"	1-3/8"	18	102.00	26.63	26.30	355
MS*27A-0398[] { }	NA	9.00	NA	9.00	39,760	8,160	7/8"	1-3/8"	10	102.00	26.63	26.30	309
MS*27A-0492[] { }	NA	9.00	NA	9.00	49,180	8,000	7/8"	1-3/8"	13	102.00	26.63	26.30	342
MS*27A-0550[] { }	NA	9.00	NA	9.00	55,000	7,800	7/8"	1-3/8"	15	102.00	26.63	26.30	370
MS*27A-0591[] { }	NA	9.00	NA	9.00	59,080	7,600	7/8"	1-3/8"	18	102.00	26.63	26.30	419
MS*34A-0524[] { }	NA	9.00	NA	9.00	52,400	12,135	7/8"	1-5/8"	16	129.00	26.63	26.30	369
MS*34A-0623[] { }	NA	9.00	NA	9.00	62,250	11,505	7/8"	1-5/8"	20	129.00	26.63	26.30	402
MS*34A-0708[] { }	NA	9.00	NA	9.00	70,820	11,325	1-3/8"	1-5/8"	23	129.00	26.63	26.30	433
MS*36A-0626[] { }	NA	9.00	NA	9.00	62,610	11,895	7/8"	1-5/8"	16	129.00	26.63	26.30	402
MS*36A-0712[] { }	NA	9.00	NA	9.00	71,180	11,040	7/8"	1-5/8"	20	129.00	26.63	26.30	438
MS*36A-0806[] { }	NA	9.00	NA	9.00	80,620	10,995	1-3/8"	1-5/8"	26	129.00	26.63	26.30	472
MS*37A-0663[] { }	NA	9.00	NA	9.00	66,340	11,700	7/8"	1-5/8"	16	129.00	26.63	26.30	419
MS*37A-0755[] { }	NA	9.00	NA	9.00	75,540	10,995	7/8"	1-5/8"	20	129.00	26.63	26.30	456
MS*37A-0849[] { }	NA	9.00	NA	9.00	84,870	10,905	1-3/8"	1-5/8"	23	129.00	26.63	26.30	492
MS*44A-0699[] { }	NA	9.00	NA	9.00	69,870	16,180	1-3/8"	2-1/8"	21	168.00	26.63	26.30	493
MS*44A-0830[] { }	NA	9.00	NA	9.00	83,000	15,340	1-3/8"	2-1/8"	26	168.00	26.63	26.30	528
MS*44A-0944[] { }	NA	9.00	NA	9.00	94,430	15,100	1-3/8"	2-1/8"	31	168.00	26.63	26.30	578
MS*46A-0835[] { }	NA	9.00	NA	9.00	83,480	15,860	1-3/8"	2-1/8"	21	168.00	26.63	26.30	538
MS*46A-0949[] { }	NA	9.00	NA	9.00	94,900	14,720	1-3/8"	2-1/8"	26	168.00	26.63	26.30	576
MS*46A-1075[] { }	NA	9.00	NA	9.00	107,490	14,660	1-3/8"	2-1/8"	31	168.00	26.63	26.30	630
MS*47A-0885[] { }	NA	9.00	NA	9.00	88,450	15,600	1-3/8"	2-1/8"	21	168.00	26.63	26.30	560
MS*47A-1007[] { }	NA	9.00	NA	9.00	100,720	14,660	1-3/8"	2-1/8"	26	168.00	26.63	26.30	600
MS*47A-1132[] { }	NA	9.00	NA	9.00	113,170	14,540	1-3/8"	2-1/8"	31	168.00	26.63	26.30	656

* For motor code and refrigerant, use "D" when AWEF rating is shown and "A" for non-regulated applications or where AWEF is NA. De-rate capacity 12% for 50 Hertz operation with 3 phase motors only. [] Location for the refrigerant letter code. { } 3 phase motor C is standard for non-regulated applications, include "V" for Variable Speed EC control or "D" when Dual Speed control of the variable speed motor will be from a fixed 10 V signal.

** G Stock Units are for glide refrigerants only (consult I/O manual for complete refrigerant listing).

*** N Stock Units are for non-glide or glide refrigerants (consult I/O manual for complete refrigerant listing).

EXAMPLE FULL MODEL:

MSD36A-0712TVK is DOE / NRCan application with R-448A, Variable Speed EC motor and 208/3/60 power.

 Key Point -

Krack evaporator capacities shown are with **midpoint** evaporating temperature to offer a consistent capacity for selection when using different refrigerants and match other Krack and Hussmann equipment.

MS Series Unit Coolers

Electric Defrost Medium Profile

ELECTRIC DEFROST

MODEL	AWEF by Refrigerant, Motor, and Application								CAPACITY (BTU/H) @ 10° F TD -20° F EVAP	CAPACITY (BTU/H) @ 10° F TD +20° F EVAP	AIR FLOW (CFM)	REFRIGERATION CONNECTIONS		REF CHARGE (LBS)	DIMENSIONS (IN)			SHIP WGT (LBS)
	[G] Stock Unit**, [Q] R-407A, [F] R-407F, [T] R-448A, [R] R-449A				[N] Stock Unit***, [S] R-404A, [P] R-507A							LIQ	SUCT		L	W	H	
	{D}ual Speed		{V}ariable Speed		{D}ual Speed		{V}ariable Speed											
	Freezer	Cooler	Freezer	Cooler	Freezer	Cooler	Freezer	Cooler										
MS*14E-0162[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	16,180	19,030	4,120	5/8"	1-1/8"	7	57.00	26.63	26.25	174
MS*14E-0212[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	21,170	24,910	3,920	7/8"	1-1/8"	10	57.00	26.63	26.25	208
MS*15E-0178[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	17,790	20,930	4,060	5/8"	1-1/8"	7	57.00	26.63	26.25	186
MS*15E-0223[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	22,260	26,190	3,890	7/8"	1-1/8"	10	57.00	26.63	26.25	221
MS*16E-0195[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	19,500	22,940	4,040	5/8"	1-1/8"	7	57.00	26.63	26.25	198
MS*16E-0239[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	23,890	28,100	3,850	7/8"	1-1/8"	10	57.00	26.63	26.25	236
MS*24E-0323[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	32,340	38,050	8,240	7/8"	1-3/8"	13	102.00	26.63	26.25	297
MS*24E-0424[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	42,350	49,820	7,840	7/8"	1-3/8"	18	102.00	26.63	26.25	357
MS*25E-0356[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	35,580	41,860	8,120	7/8"	1-3/8"	13	102.00	26.63	26.25	317
MS*25E-0444[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	44,450	52,290	7,780	7/8"	1-3/8"	18	102.00	26.63	26.25	381
MS*26E-0390[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	39,000	45,880	8,080	7/8"	1-3/8"	13	102.00	26.63	26.25	337
MS*26E-0478[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	47,760	56,190	7,700	7/8"	1-3/8"	18	102.00	26.63	26.25	406
MS*34E-0445[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	44,540	52,400	12,135	7/8"	1-5/8"	16	129.00	26.63	26.25	398
MS*34E-0602[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	60,200	70,820	11,325	1-3/8"	1-5/8"	23	129.00	26.63	26.25	470
MS*35E-0502[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	50,180	59,030	12,015	7/8"	1-5/8"	16	129.00	26.63	26.25	425
MS*35E-0643[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	64,330	75,680	11,205	1-3/8"	1-5/8"	23	129.00	26.63	26.25	502
MS*36E-0532[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	53,220	62,610	11,895	7/8"	1-5/8"	16	129.00	26.63	26.25	452
MS*36E-0685[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	68,530	80,620	10,995	1-3/8"	1-5/8"	23	129.00	26.63	26.25	534
MS*44E-0594[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	59,390	69,870	16,180	1-3/8"	2-1/8"	21	168.00	26.63	26.25	541
MS*44E-0803[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	80,270	94,430	15,100	1-3/8"	2-1/8"	31	168.00	26.63	26.25	616
MS*45E-0669[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	66,900	78,710	16,020	1-3/8"	2-1/8"	21	168.00	26.63	26.25	578
MS*45E-0858[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	85,770	100,910	14,940	1-3/8"	2-1/8"	31	168.00	26.63	26.25	658
MS*46E-0710[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	70,960	83,480	15,860	1-3/8"	2-1/8"	21	168.00	26.63	26.25	615
MS*46E-0914[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	91,370	107,490	14,660	1-3/8"	2-1/8"	31	168.00	26.63	26.25	700

* For motor code and refrigerant, use "D" when AWEF rating is shown and "A" for non-regulated applications or where AWEF is NA.

De-rate capacity 12% for 50 Hertz operation with 3 phase motors only. [] Location for the refrigerant letter code. { } 3 phase motor C is standard for non-regulated applications, include "V" for Variable Speed EC control or "D" when Dual Speed control of the variable speed motor will be from a fixed 10 V signal.

** G Stock Units are for glide refrigerants only (consult I/O manual for complete refrigerant listing).

*** N Stock Units are for non-glide or glide refrigerants (consult I/O manual for complete refrigerant listing).

EXAMPLE FULL MODEL:

MSD36E-0532QDKK is DOE / NRCan with R-407A, Variable Speed EC motor with two speed control and 208/3/60 power for fans and defrost.

Key Point -

Krack evaporator capacities shown are with **midpoint** evaporating temperature to offer a consistent capacity for selection when using different refrigerants and match other Krack and Hussmann equipment.

MS Series Unit Coolers

Hot Gas Defrost Medium Profile

MEDIUM / LOW TEMPERATURE

MODEL	AWEF by Refrigerant, Motor, and Application								CAPACITY (BTU/H) @ 10° F TD -20° F EVAP	CAPACITY (BTU/H) @ 10° F TD +20° F EVAP	AIR FLOW (CFM)	REFRIGERATION CONNECTIONS		REF CHARGE (LBS)	DIMENSIONS (IN)			SHIP WGT (LBS)
	[G] Stock Unit**, [Q] R-407A, [F] R-407F, [T] R-448A, [R] R-449A				[N] Stock Unit***, [S] R-404A, [P] R-507A							LIQ	SUCT		L	W	H	
	{D}ual Speed		{V}ariable Speed		{D}ual Speed		{V}ariable Speed											
	Freezer	Cooler	Freezer	Cooler	Freezer	Cooler	Freezer	Cooler										
MS*14(-)-0162[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	16,180	19,030	4,120	5/8"	1-1/8"	7	57.00	26.63	26.25	174
MS*14(-)-0212[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	21,170	24,910	3,920	7/8"	1-1/8"	10	57.00	26.63	26.25	208
MS*15(-)-0178[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	17,790	20,930	4,060	5/8"	1-1/8"	7	57.00	26.63	26.25	186
MS*15(-)-0223[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	22,260	26,190	3,890	7/8"	1-1/8"	10	57.00	26.63	26.25	221
MS*16(-)-0195[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	19,500	22,940	4,040	5/8"	1-1/8"	7	57.00	26.63	26.25	198
MS*16(-)-0239[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	23,890	28,100	3,850	7/8"	1-1/8"	10	57.00	26.63	26.25	236
MS*24(-)-0323[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	32,340	38,050	8,240	7/8"	1-3/8"	13	102.00	26.63	26.25	297
MS*24(-)-0424[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	42,350	49,820	7,840	7/8"	1-3/8"	18	102.00	26.63	26.25	357
MS*25(-)-0356[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	35,580	41,860	8,120	7/8"	1-3/8"	13	102.00	26.63	26.25	317
MS*25(-)-0444[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	44,450	52,290	7,780	7/8"	1-3/8"	18	102.00	26.63	26.25	381
MS*26(-)-0390[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	39,000	45,880	8,080	7/8"	1-3/8"	13	102.00	26.63	26.25	337
MS*26(-)-0478[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	47,760	56,190	7,700	7/8"	1-3/8"	18	102.00	26.63	26.25	406
MS*34(-)-0445[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	44,540	52,400	12,135	7/8"	1-5/8"	16	129.00	26.63	26.25	398
MS*34(-)-0602[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	60,200	70,820	11,325	1-3/8"	1-5/8"	23	129.00	26.63	26.25	470
MS*35(-)-0502[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	50,180	59,030	12,015	7/8"	1-5/8"	16	129.00	26.63	26.25	425
MS*35(-)-0643[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	64,330	75,680	11,205	1-3/8"	1-5/8"	23	129.00	26.63	26.25	502
MS*36(-)-0532[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	53,220	62,610	11,895	7/8"	1-5/8"	16	129.00	26.63	26.25	452
MS*36(-)-0685[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	68,530	80,620	10,995	1-3/8"	1-5/8"	23	129.00	26.63	26.25	534
MS*44(-)-0594[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	59,390	69,870	16,180	1-3/8"	2-1/8"	21	168.00	26.63	26.25	541
MS*44(-)-0803[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	80,270	94,430	15,100	1-3/8"	2-1/8"	31	168.00	26.63	26.25	616
MS*45(-)-0669[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	66,900	78,710	16,020	1-3/8"	2-1/8"	21	168.00	26.63	26.25	578
MS*45(-)-0858[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	85,770	100,910	14,940	1-3/8"	2-1/8"	31	168.00	26.63	26.25	658
MS*46(-)-0710[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	70,960	83,480	15,860	1-3/8"	2-1/8"	21	168.00	26.63	26.25	615
MS*46(-)-0914[]{ }	NA	NA	4.15	9.00	NA	NA	4.15	9.00	91,370	107,490	14,660	1-3/8"	2-1/8"	31	168.00	26.63	26.25	700

* For motor code and refrigerant, use "D" when AWEF rating is shown and "A" for non-regulated applications or where AWEF is NA. De-rate capacity 12% for 50 Hertz operation with 3 phase motors only. [] Gas defrost type K, H, G, or P. See definition below. [] Location for the refrigerant letter code. { } Variable Speed EC motor is standard, include "V" for Variable Speed control or "D" when Dual Speed control from 10 V signal will be applied.

** G Stock Units are for glide refrigerants only (consult I/O manual for complete refrigerant listing).

*** N Stock Units are for non-glide or glide refrigerants (consult I/O manual for complete refrigerant listing).

EXAMPLE FULL MODEL:

MSD36P-0685QDAA is for DOE / NRCan application with R-407A, Variable Speed EC motor with dual speed control and includes the additional letters A for 208 V single phase power.

Available Gas Defrost Types

- (H) - HGE 3 Pipe Hot Gas with Electric Pan Heat. No defrost termination or fan delay.
- (G) - HGG 3 Pipe Hot Gas with Gas Pan Heat. No defrost termination or fan delay.
- (P) - KGE 2 Pipe Kool Gas with Electric Pan Heat.
- (K) - KGG 2 Pipe Kool Gas with Gas Pan Heat.



Crack evaporator capacities shown are with **midpoint** evaporating temperature to offer a consistent capacity for selection when using different refrigerants and match other Crack and Hussmann equipment.

MS Series Unit Coolers

Fan Motor Data

MOTOR OPTIONS															
MS MODEL	3 PHASE MOTORS								VARIABLE SPEED EC						
	208/3/60		380/3/50		460/3/60		575/3/60		115/1/60		208/1/60		208/3/60		
	AMPS	WATTS	AMPS	WATTS	AMPS	WATTS	AMPS	WATTS	AMPS	WATTS	AMPS	WATTS	AMPS	WATTS	
1 FAN	2.0	489	1.1	300	1.0	493	0.8	484	7.0	455	4.0	442	NA	NA	
2 FAN	4.0	978	2.2	600	2.0	986	1.6	968	14.0	910	8.0	884	7.0	884	
3 FAN	6.0	1467	3.3	900	3.0	1479	2.4	1452	21.0	1365	12.0	1326	7.0	1326	
4 FAN	8.0	1956	4.4	1200	4.0	1972	3.2	1936	28.0	1820	16.0	1768	10.6	1768	

Variable Speed EC Motors, motor codes "V" or "D" when using Dual Speed control, will use 0-10 V speed signal with 0 V or no signal full speed. Refer to complete Model Key on page 3.

Key Point -

EC motors will operate Variable Speed with a 0-10 V signal or Dual Speed by providing a 10 V signal for minimum speed operation. Operation will be the same as a single speed motor without a control signal.

MS Series Unit Coolers

Electric Defrost (E) Heater Data

MODEL	230/3/60		380/3/50		460/3/60		575/3/60	
	AMPS	KW	AMPS	KW	AMPS	KW	AMPS	KW
1 FAN – 162, 178, 195	15.2	5.1	6.3	3.5	7.6	5.1	6.0	5.1
1 FAN – 212, 223, 239	15.2	6.1	6.3	4.1	7.6	6.1	6.0	6.1
2 FAN – 323, 356, 390	30.4	10.1	12.6	6.9	15.2	10.1	14.0	11.0
2 FAN – 424, 444, 478	30.4	12.1	12.6	8.3	15.2	12.1	14.0	14.0
3 FAN – 445, 502, 532	38.7	12.9	16.0	8.8	19.4	12.9	16.8	14.0
3 FAN – 602, 643, 685	38.7	15.4	16.0	10.5	19.4	15.4	16.8	16.8
4 FAN – 594, 669, 710	(2) 26.3	10.5 & 6.9	21.7	11.9	26.3	17.4	22.9	18.9
4 FAN – 803, 858, 914	(2) 26.3	(2)10.5	21.7	14.3	26.3	20.9	22.9	22.7

Electrical information for electric defrost type "E".
Refer to complete Model Key on page 3.

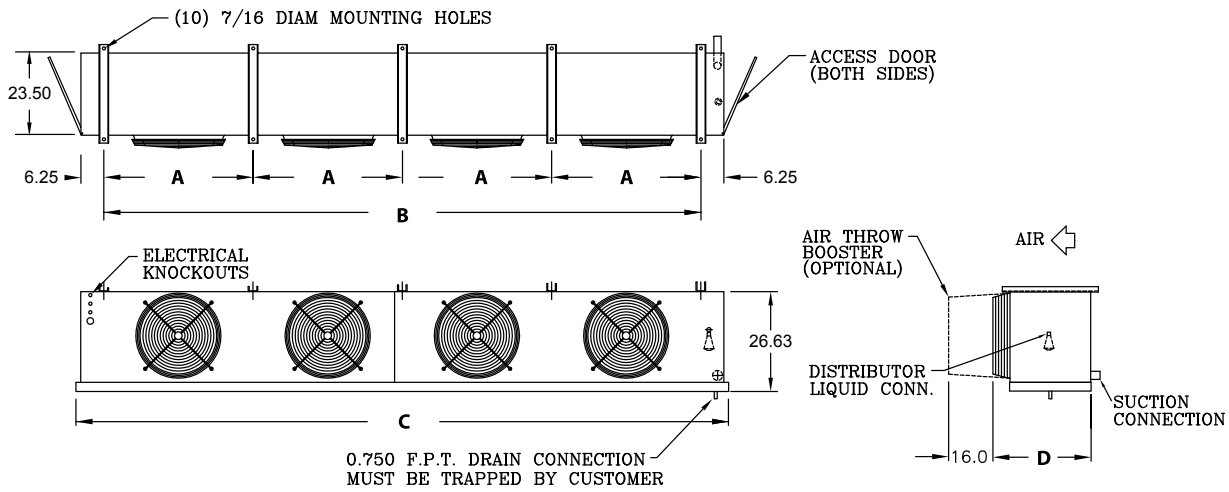
Hot Gas Defrost (H, P) Heater Data

MODEL	230/1/60		380/1/50		460/1/60		575/1/60	
	AMPS	KW	AMPS	KW	AMPS	KW	AMPS	KW
1 FAN – 162, 178, 195, 212, 223, 239	4.4	1.0	1.8	0.7	2.2	1.0	1.8	1.0
2 FAN – 323, 356, 390, 424, 444, 478	8.8	2.0	3.6	1.4	4.4	2.0	3.8	2.2
3 FAN – 445, 502, 532, 602, 643, 685	11.2	2.6	4.6	1.8	5.6	2.6	4.9	2.8
4 FAN – 594, 669, 710, 803, 858, 914	15.2	3.5	6.3	2.4	7.6	3.5	6.6	3.8

Electrical information for pan heaters on defrost type "P" and "H".
Refer to complete Model Key on page 3.

MS Series Unit Coolers

Dimensional Data



Note: Allow 15" clearance between rear of coil and wall for maximum efficiency and minimum noise level.
12" left side clearance allows for optimum access to electrical connections.

UNIT DIMENSIONS

SIZE	A	B	C	D
1 FAN	45.00	45.00	57.00	26.25
2 FAN	45.00	90.00	102.00	26.25
3 FAN	39.00	117.00	129.00	26.25
4 FAN	39.00	156.00	168.00	26.25

Note: Dimensions in inches.

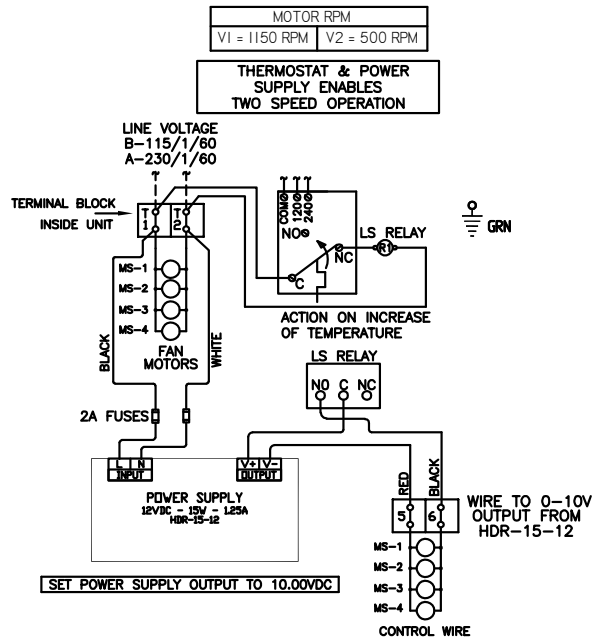
MS Series Unit Coolers

Wiring Diagram

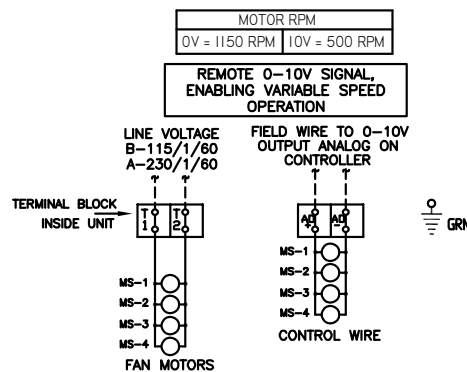
1 PHASE MOTOR WIRING

Air Defrost (A), Electric Defrost (E), Gas Defrost (K, G, H, P)

Motor Code D



Motor Code V

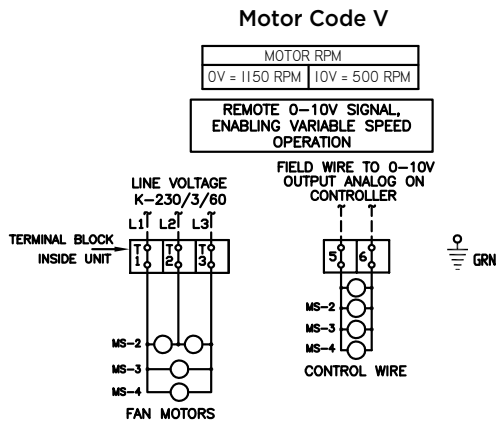
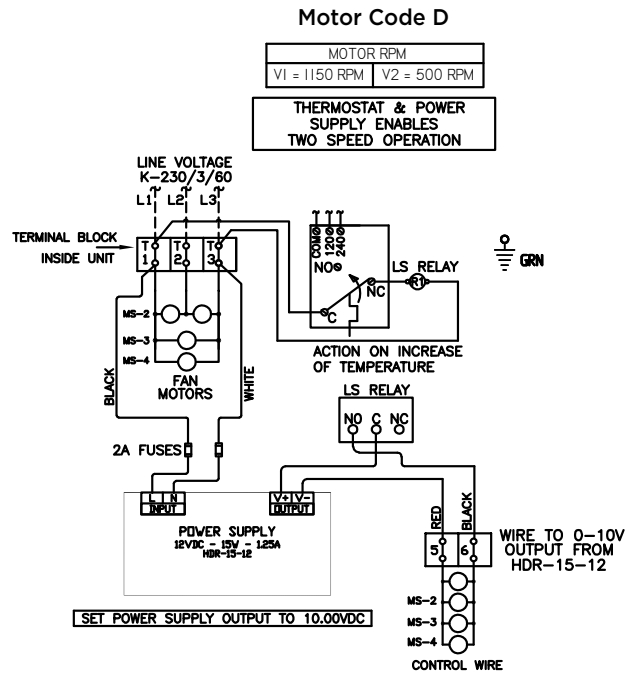
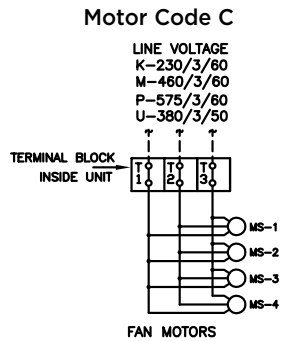


MS Series Unit Coolers

Wiring Diagram

3 PHASE MOTOR WIRING

Air Defrost (A), Electric Defrost (E), Gas Defrost (K, G, H, P)



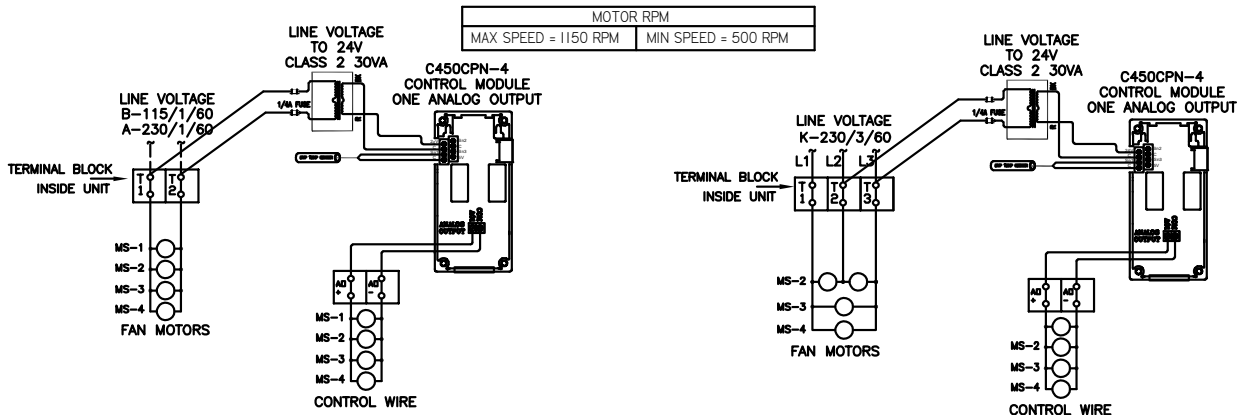
MS Series Unit Coolers

Wiring Diagram

VARIABLE SPEED EC MOTOR WIRING

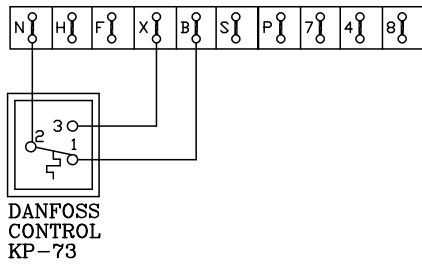
Installed with System 450 Controller

Motor Code V

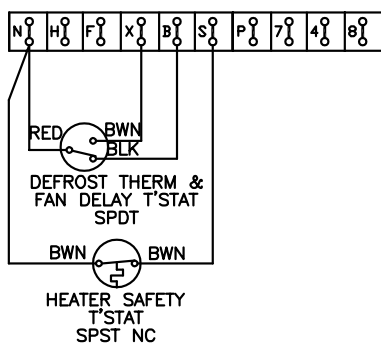


DEFROST TERMINATION CONTROL WIRING

Standard

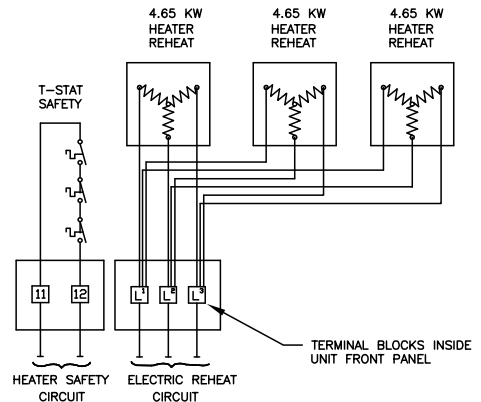


Optional



RE-HEAT WIRING

Optional

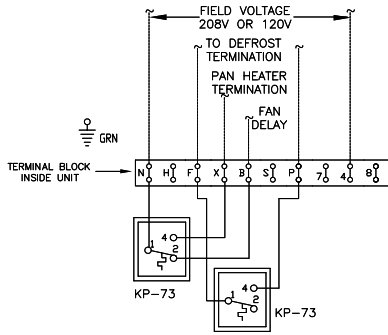


MS Series Unit Coolers

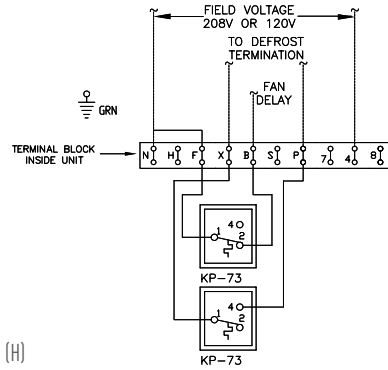
Wiring Diagram

GAS DEFROST SETUP

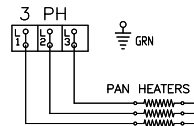
H and P Defrost Control Wiring -
Gas Defrost with Electric Drain Pan Heater



G and K Defrost Control Wiring -
Gas Defrost with Gas Drain Pan Heater



3 Pipe Hot Gas Defrost
with Electric Defrost Drain Pan (H)





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