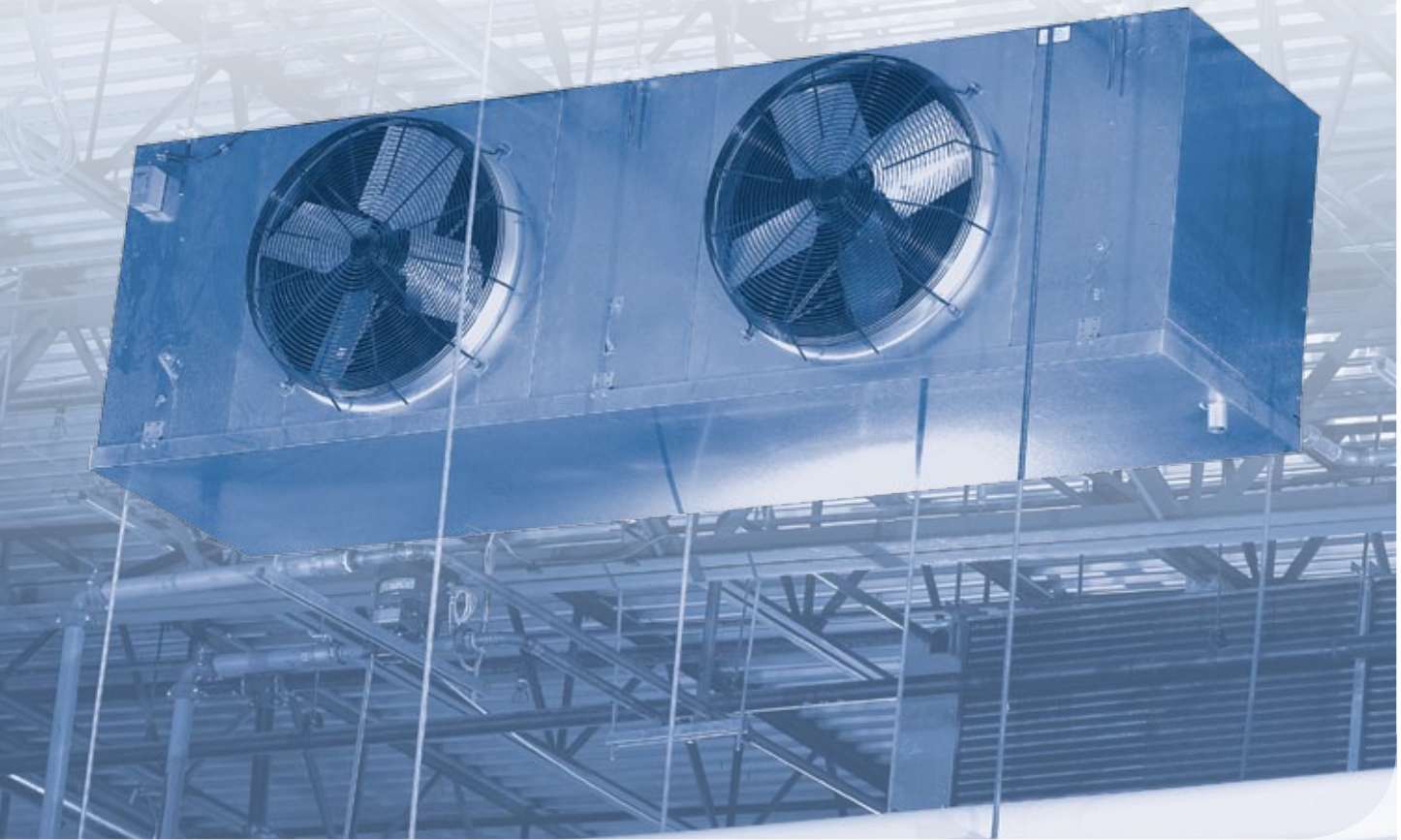




MS Series

UNIT COOLERS

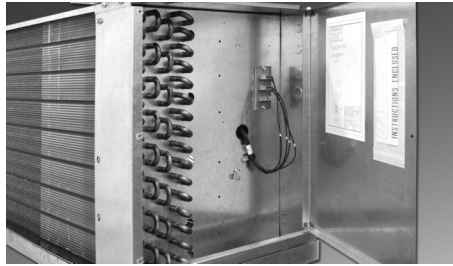
Technical Bulletin



Products that provide lasting solutions.

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 accommodate increased air flow for medium refrigeration applications. A galvanized steel cabinet provides long lasting durability and strength under most conditions. The MS Series is built for performance with increased BTUH capacities and heavy-duty construction for your every refrigeration need.

- Medium profile, galvanized steel cabinet.
- 20" 1 to 4 fans.
- 15,000 to 113,170 BTUH @10°TD.
- 4, 6, or 7 fins per inch air defrost.
- 4, 5, or 6 fins per inch electric (EL) or hot gas (HG) defrost.
- 1/2 h.p. ball-bearing motors totally enclosed, internal overload protection with automatic reset, permanently lubricated.
- 230V, 1 or 3, 460V-3, 575V-3 electric defrost models.
- 115V, 230V, 1 or 3, 460V-3, 575V-3 air and gas defrost models.
- Fan delay and defrost termination thermostat.
- Terminal block.
- Heater safety thermostat on electric defrost.

Optional Features and Accessories

- Long throw adapters (stainless steel or galvanized).*
- Insulated drain pans.
- 230/1 or 460/1 electric defrost pan heaters.
- Additional 2% for 575volt room thermostat.*
- Mounted thermostatic expansion valve.
- Liquid line solenoid valve.*
- Suction/liquid heat exchanger.*
- Stucco aluminum or stainless steel housing.
- Painted housing.
- Stainless steel housing.
- Stainless steel drain pan.
- Glycol circuiting.
- Heat reclaim circuiting.
- Copper fins.
- Coated coils – epoxy or phenolic.
- Export crating.
- Mounted NEMA 4x non-fused disconnect.
- Adj. defrost termination control.
- Face split coil.

* Shipped loose.

MS Series Unit Coolers

Ordering Information

Specify When Ordering All Models

- Complete model number.
- Refrigerant R22, R404A, or R507.
- Room temperature.
- Saturated suction temperature.
- Liquid refrigerant temperature.
- Motor and heater voltage.
- Optional features.
- Optional accessories.

Model Key

MS 2 6 A - 367 - C K K

Unit Type

MS = Super Cooler

Number of Fans

Fin Spacing

4 FPI 6 FPI
5 FPI 7 FPI

Type of Defrost

A = Air Defrost
B = Brine
D = Electric with No Pan Heat
E = Electric with Electric Pan
G = 3 Pipe Hot Gas with Hot Gas Drain Pan
H = 3 Pipe Hot Gas with Electric Drain Pan
K = 2 Pipe Kool Gas with Kool Gas Drain Pan
P = 2 Pipe Kool Gas with Electric Drain Pan
R = Heat Reclaim

BTU/h in Hundreds (00)

Heater Voltage

A = 208-230/1/60
H = 460/1/60
K = 208-230/3/60
M = 460/3/60
P = 575/3/60

Motor Voltage

A = 208-230/1/60
B = 115/1/60
H = 460/1/60
K = 208-230/3/60
M = 460/3/60
P = 575/3/60
U = 380/3/50 (not UL)

Motor Type

A = Shaded Pole Motors
B = PSC Motors
C = 3 Phase Motors



MS Series Unit Coolers

Air Defrost Medium Profile

MEDIUM TEMPERATURE

MODEL	CAP. (BTUH) @ 10° TD +20 SST	AIR FLOW (CFM)	REFRIGERATION CONNECTIONS				DIMENSIONS (IN)			SHIPPING WGT. (LBS)
			LIQUID	SUCTION	NO. OF HANGERS	REFRIG CHARGE	L	W	H	
MS14A-150	15,020	4,200	5/8	1-1/8	4	5	57.000	26.625	26.250	142
MS14A-190	19,030	4,120	5/8	1-1/8	4	7	57.000	26.625	26.250	153
MS14A-225	22,470	4,000	5/8	1-1/8	4	8	57.000	26.625	26.250	171
MS14A-249	24,910	3,920	7/8	1-1/8	4	10	57.000	26.625	26.250	184
MS16A-184	18,360	4,120	5/8	1-1/8	4	5	57.000	26.625	26.250	151
MS16A-229	22,940	4,040	5/8	1-1/8	4	7	57.000	26.625	26.250	164
MS16A-260	26,010	3,940	5/8	1-1/8	4	8	57.000	26.625	26.250	182
MS16A-281	28,100	3,850	7/8	1-1/8	4	10	57.000	26.625	26.250	197
MS17A-199	19,880	4,080	5/8	1-1/8	4	5	57.000	26.625	26.250	161
MS17A-246	24,590	4,000	5/8	1-1/8	4	7	57.000	26.625	26.250	174
MS17A-275	27,500	3,900	5/8	1-1/8	4	8	57.000	26.625	26.250	194
MS17A-295	29,540	3,800	7/8	1-1/8	4	10	57.000	26.625	26.250	209
MS24A-300	30,040	8,400	7/8	1-3/8	6	10	102.000	26.625	26.250	247
MS24A-381	38,050	8,240	7/8	1-3/8	6	13	102.000	26.625	26.250	272
MS24A-450	44,950	8,000	7/8	1-3/8	6	15	102.000	26.625	26.250	301
MS24A-498	49,820	7,840	7/8	1-3/8	6	18	102.000	26.625	26.250	326
MS26A-367	36,710	8,240	7/8	1-3/8	6	10	102.000	26.625	26.250	269
MS26A-459	45,880	8,080	7/8	1-3/8	6	13	102.000	26.625	26.250	297
MS26A-520	52,030	7,880	7/8	1-3/8	6	15	102.000	26.625	26.250	328
MS26A-562	56,190	7,700	7/8	1-3/8	6	18	102.000	26.625	26.250	355
MS27A-398	39,760	8,160	7/8	1-3/8	6	10	102.000	26.625	26.250	309
MS27A-492	49,180	8,000	7/8	1-3/8	6	13	102.000	26.625	26.250	342
MS27A-550	55,000	7,800	7/8	1-3/8	6	15	102.000	26.625	26.250	370
MS27A-591	59,080	7,600	7/8	1-3/8	6	18	102.000	26.625	26.250	419
MS34A-524	52,400	12,135	7/8	1-5/8	8	16	129.000	26.625	26.250	369
MS34A-623	62,250	11,505	7/8	1-5/8	8	20	129.000	26.625	26.250	402
MS34A-708	70,820	11,325	1-3/8	1-5/8	8	23	129.000	26.625	26.250	433
MS36A-626	62,610	11,895	7/8	1-5/8	8	16	129.000	26.625	26.250	402
MS36A-712	71,180	11,040	7/8	1-5/8	8	20	129.000	26.625	26.250	438
MS36A-806	80,620	10,995	1-3/8	1-5/8	8	26	129.000	26.625	26.250	472
MS37A-663	66,340	11,700	7/8	1-5/8	8	16	129.000	26.625	26.250	419
MS37A-755	75,540	10,995	7/8	1-5/8	8	20	129.000	26.625	26.250	456
MS37A-849	84,870	10,905	1-3/8	1-5/8	8	23	129.000	26.625	26.250	492
MS44A-699	69,870	16,180	1-3/8	2-1/8	10	21	168.000	26.625	26.250	493
MS44A-830	83,000	15,340	1-3/8	2-1/8	10	26	168.000	26.625	26.250	528
MS44A-944	94,430	15,100	1-3/8	2-1/8	10	31	168.000	26.625	26.250	578
MS46A-835	83,480	15,860	1-3/8	2-1/8	10	21	168.000	26.625	26.250	538
MS46A-949	94,900	14,720	1-3/8	2-1/8	10	26	168.000	26.625	26.250	576
MS46A-1075	107,490	14,660	1-3/8	2-1/8	10	31	168.000	26.625	26.250	630
MS47A-885	88,450	15,600	1-3/8	2-1/8	10	21	168.000	26.625	26.250	560
MS47A-1007	100,720	14,660	1-3/8	2-1/8	10	26	168.000	26.625	26.250	600
MS47A-1132	113,170	14,540	1-3/8	2-1/8	10	31	168.000	26.625	26.250	656

MS Series Unit Coolers

Electric Defrost Medium Profile

LOW TEMPERATURE

MODEL	CAP. (BTUH) @ 10° TD		AIR FLOW (CFM)	REFRIGERATION CONNECTIONS				DIMENSIONS (IN)			SHIPPING WGT. (LBS)
	-20 SST	+20 SST		LIQUID	SUCTION	NO. OF HANGERS	REFRIG CHARGE	L	W	H	
MS14E-162	16,180	19,030	4,120	5/8	1-1/8	4	7	57.00	26.625	26.25	174
MS14E-212	21,170	24,910	3,920	7/8	1-1/8	4	10	57.00	26.625	26.25	208
MS15E-178	17,790	20,930	4,060	5/8	1-1/8	4	7	57.00	26.625	26.25	186
MS15E-223	22,260	26,190	3,890	7/8	1-1/8	4	10	57.00	26.625	26.25	221
MS16E-195	19,500	22,940	4,040	5/8	1-1/8	4	7	57.00	26.625	26.25	198
MS16E-239	23,890	28,100	3,850	7/8	1-1/8	4	10	57.00	26.625	26.25	236
MS24E-323	32,340	38,050	8,240	7/8	1-3/8	6	13	102.00	26.625	26.25	297
MS24E-424	42,350	49,820	7,840	7/8	1-3/8	6	18	102.00	26.625	26.25	357
MS25E-356	35,580	41,860	8,120	7/8	1-3/8	6	13	102.00	26.625	26.25	317
MS25E-444	44,450	52,290	7,780	7/8	1-3/8	6	18	102.00	26.625	26.25	381
MS26E-390	39,000	45,880	8,080	7/8	1-3/8	6	13	102.00	26.625	26.25	337
MS26E-478	47,760	56,190	7,700	7/8	1-3/8	6	18	102.00	26.625	26.25	406
MS34E-445	44,540	52,400	12,135	7/8	1-5/8	8	16	129.00	26.625	26.25	398
MS34E-602	60,200	70,820	11,325	1-3/8	1-5/8	8	23	129.00	26.625	26.25	470
MS35E-502	50,180	59,030	12,015	7/8	1-5/8	8	16	129.00	26.625	26.25	425
MS35E-643	64,330	75,680	11,205	1-3/8	1-5/8	8	23	129.00	26.625	26.25	502
MS36E-532	53,220	62,610	11,895	7/8	1-5/8	8	16	129.00	26.625	26.25	452
MS36E-685	68,530	80,620	10,995	1-3/8	1-5/8	8	23	129.00	26.625	26.25	534
MS44E-594	59,390	69,870	16,180	1-3/8	2-1/8	10	21	168.00	26.625	26.25	541
MS44E-803	80,270	94,430	15,100	1-3/8	2-1/8	10	31	168.00	26.625	26.25	616
MS45E-669	66,900	78,710	16,020	1-3/8	2-1/8	10	21	168.00	26.625	26.25	578
MS45E-858	85,770	100,910	14,940	1-3/8	2-1/8	10	31	168.00	26.625	26.25	658
MS46E-710	70,960	83,480	15,860	1-3/8	2-1/8	10	21	168.00	26.625	26.25	615
MS46E-914	91,370	107,490	14,660	1-3/8	2-1/8	10	31	168.00	26.625	26.25	700

NOTE: Ratings apply for D or E electric defrost.

4 MS SERIES UNIT COOLERS

Specifications subject to change without notice.

MS Series Unit Coolers

Hot Gas Defrost Medium Profile

LOW TEMPERATURE

MODEL	CAP. (BTUH) @ 10° TD		AIR FLOW (CFM)	REFRIGERATION CONNECTIONS					DIMENSIONS (IN)			SHIPPING WGT. (LBS)
	-20 SST	+20 SST		LIQUID	SUCTION	HG	NO. OF HANGERS	REFRIG CHARGE	L	W	H	
MS14()-162	16,180	19,030	4,120	5/8	1-2/8	1/2	4	7	57.00	26.625	26.25	174
MS14()-212	21,170	24,910	3,920	7/8	1-1/8	1/2	4	10	57.00	26.625	26.25	208
MS15()-178	17,790	20,930	4,060	5/8	1-1/8	1/2	4	7	57.00	26.625	26.25	186
MS15()-223	22,260	26,190	3,890	7/8	1-1/8	1/2	4	10	57.00	26.625	26.25	221
MS16()-195	19,500	22,940	4,040	5/8	1-1/8	1/2	4	7	57.00	26.625	26.25	198
MS16()-239	23,890	28,100	3,850	7/8	1-1/8	1/2	4	10	57.00	26.625	26.25	236
MS24()-323	32,340	38,050	8,240	7/8	1-3/8	1/2	6	13	102.00	26.625	26.25	297
MS24()-424	42,350	49,820	7,840	7/8	1-3/8	7/8	6	18	102.00	26.625	26.25	357
MS25()-356	35,580	41,860	8,120	7/8	1-3/8	1/2	6	13	102.00	26.625	26.25	317
MS25()-444	44,450	52,290	7,780	7/8	1-3/8	7/8	6	18	102.00	26.625	26.25	381
MS26()-390	39,000	45,880	8,080	7/8	1-3/8	1/2	6	13	102.00	26.625	26.25	337
MS26()-478	47,760	56,190	7,700	7/8	1-3/8	7/8	6	18	102.00	26.625	26.25	406
MS34()-445	44,540	52,400	12,135	7/8	1-5/8	7/8	8	16	129.00	26.625	26.25	398
MS34()-602	60,200	70,820	11,325	1-3/8	1-5/8	7/8	8	23	129.00	26.625	26.25	470
MS35()-502	50,180	59,030	12,015	7/8	1-5/8	7/8	8	16	129.00	26.625	26.25	425
MS35()-643	64,330	75,680	11,205	1-3/8	1-5/8	7/8	8	23	129.00	26.625	26.25	502
MS36()-532	53,220	62,610	11,895	7/8	1-5/8	7/8	8	16	129.00	26.625	26.25	452
MS36()-685	68,530	80,620	10,995	1-3/8	1-5/8	7/8	8	23	129.00	26.625	26.25	534
MS44()-594	59,390	69,870	16,180	1-3/8	2-1/8	7/8	10	21	168.00	26.625	26.25	541
MS44()-803	80,270	94,430	15,100	1-3/8	2-1/8	7/8	10	31	168.00	26.625	26.25	616
MS45()-669	66,900	78,710	16,020	1-3/8	2-1/8	7/8	10	21	168.00	26.625	26.25	578
MS45()-858	85,770	100,910	14,940	1-3/8	2-1/8	7/8	10	31	168.00	26.625	26.25	658
MS46()-710	70,960	83,480	15,860	1-3/8	2-1/8	7/8	10	21	168.00	26.625	26.25	615
MS46()-914	91,370	107,490	14,660	1-3/8	2-1/8	7/8	10	31	168.00	26.625	26.25	700

MS Series Unit Coolers

Electric Defrost (D) Heater Data

LOW TEMPERATURE						
MODEL	230/3/60		460/3/60		575/3/60	
	AMPS	KW	AMPS	KW	AMPS	KW
1 FAN – 162, 178, 195	9.91	4.04	5.07	4.04	4.42	4.40
1 FAN – 212, 223, 239	12.68	5.05	6.34	5.05	5.52	5.50
2 FAN – 323, 356, 390	20.28	8.08	10.14	8.08	8.84	8.80
2 FAN – 424, 444	25.35	10.10	12.68	10.10	11.05	11.10
3 FAN – 445, 502, 532	25.81	10.28	12.90	10.28	11.25	11.20
3 FAN – 602, 643, 685	32.26	12.85	16.13	12.85	14.06	14.00
4 FAN – 594, 669, 710	35.02	13.95	17.51	13.95	15.26	15.20
4 FAN – 803, 858, 914	43.78*	17.44*	21.89	17.44	19.08	19.00

*Two circuits. Amount shown in chart is total kW and Amps.

NOTE: Information required for complete product Model Key – Motor Type, Voltage Code, Heater Voltage Code. Refer to Model Key on page 2.

Electric Defrost with Electric Drain Pan (E) Data

LOW TEMPERATURE						
MODEL	230/3/60		460/3/60		575/3/60	
	AMPS	KW	AMPS	KW	AMPS	KW
1 FAN – 162, 178, 195	12.68	5.05	6.34	5.05	5.52	5.50
1 FAN – 212, 223, 239	15.21	6.60	7.61	6.60	6.63	6.60
2 FAN – 323, 356, 390	25.35	10.10	12.68	10.10	11.05	11.00
2 FAN – 424, 444	30.42	12.12	15.21	12.12	13.35	13.20
3 FAN – 445, 502, 532	32.26	12.85	16.13	12.85	14.08	14.00
3 FAN – 602, 643, 685	38.71	15.42	19.34	15.42	16.87	16.80
4 FAN – 594, 669, 710	43.78	17.44	21.89	17.44	17.51	19.00
4 FAN – 803, 858, 914	52.54*	20.92*	26.21	20.90	21.01	22.80

*Two circuits with 10.46kW and 26.26 Amps each. Amount shown in chart is total kW and Amps.

NOTE: Information required for complete product Model Key – Motor Type, Voltage Code, Heater Voltage Code. Refer to Model Key on page 2.

6 MS SERIES UNIT COOLERS

Specifications subject to change without notice.

MS Series Unit Coolers

Hot Gas Defrost Drain Pan (H,P) Data

LOW TEMPERATURE						
MODEL	230/3/60		460/3/60		575/3/60	
	AMPS	KW	AMPS	KW	AMPS	KW
1 FAN – 162, 178, 195, 212, 223, 239	4.39	1.01	2.19	1.01	1.91	1.10
2 FAN – 323, 356, 390, 424, 444	8.78	2.02	4.39	2.02	3.82	2.20
3 FAN – 445, 502, 532, 602, 643, 685	11.73	2.57	5.58	2.57	4.86	2.80
4 FAN – 594, 669, 710, 803, 858, 914	15.16	3.49	7.58	3.48	6.60	3.80

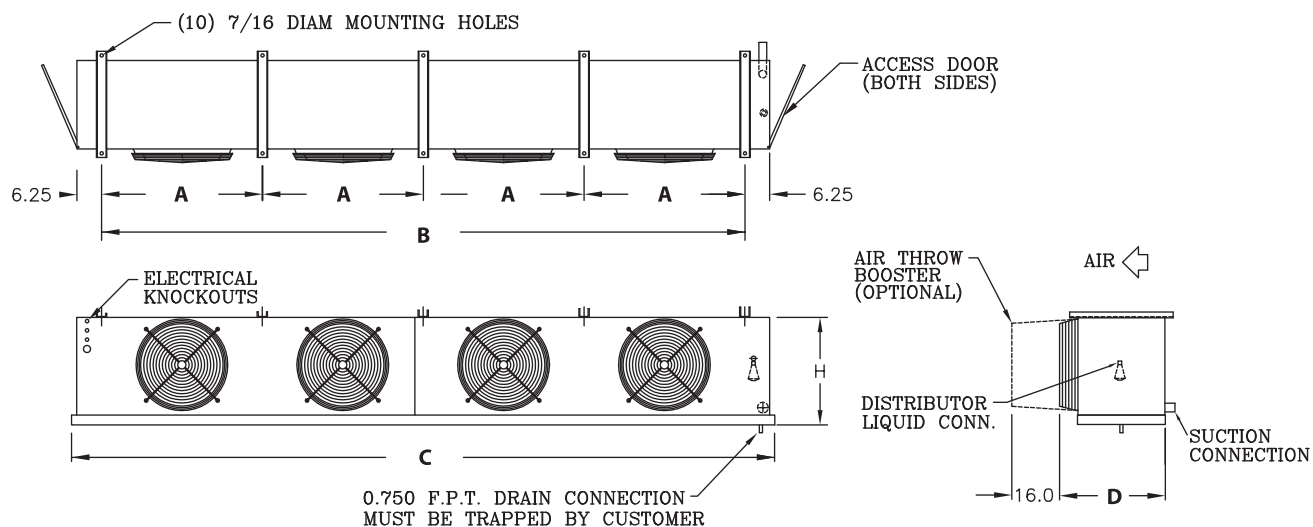
Amount shown in chart is total kW and Amps.
 NOTE: Information required for complete product Model Key – Motor Type, Voltage Code, Heater Voltage Code.
 Refer to Model Key on page 2.

Replacement Parts

DESCRIPTION	PART #	DESCRIPTION	PART #
MOTOR 115-230/1/60	4410161	FAN BLADE	4780659
MOTOR 208-230/460/3/60	4410170	FAN GUARD	4914788
MOTOR 575/3/60	4410173	LONG THROW ADAPTER	4916470
MOTOR MOUNT RING (1 Phase)	4914983		
MOTOR MOUNT RING (3 Phase)	4910148		

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	15.32
2 FAN	45.00	90.00	102.00	15.32
3 FAN	39.00	117.00	129.00	15.32
4 FAN	39.00	156.00	168.00	15.32

Note: Dimensions in inches.

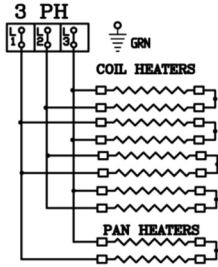
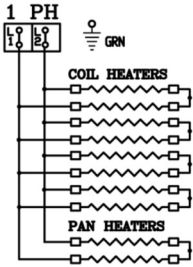
MS Series Unit Coolers

Wiring Diagram

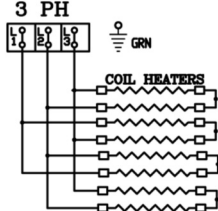
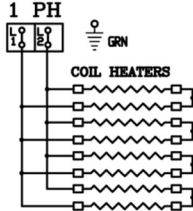
1 FAN

WIRING DIAGRAMS

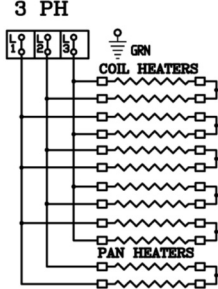
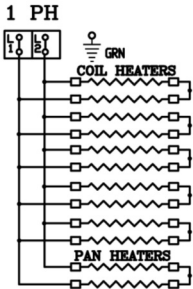
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MS14*-162, MS15*-178, MS16*-195



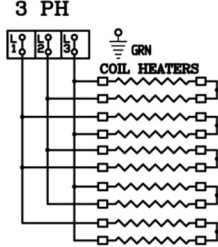
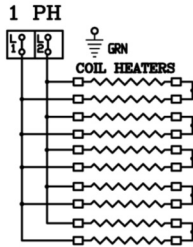
ELECTRICAL DEFROST COIL (D)
MS14*-162, MS15*-178, MS16*-195



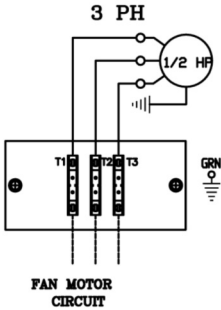
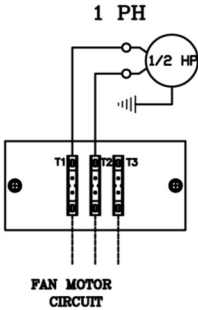
ELECTRICAL DEFROST UNIT (E)
MS14*-212, MS15*-223, MS16*-239



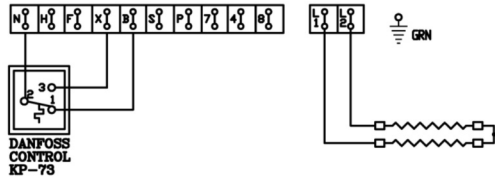
ELECTRICAL DEFROST COIL (D)
MS14*-212, MS15*-223, MS16*-239



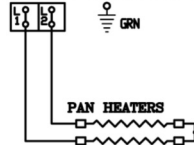
FAN MOTORS
AIR DEFROST (A)
GAS DEFROST (K,G)



2 PIPE HOT GAS DEFROST
W/ELECTRICAL DEFROST DRAIN PAN (P)

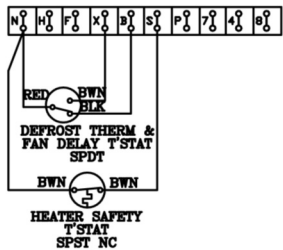


3 PIPE HOT GAS DEFROST
W/ELECTRICAL DEFROST DRAIN PAN (H)

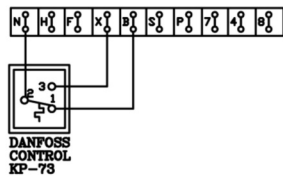


CONTROL DIAGRAMS

STANDARD



OPTIONAL



MS Series Unit Coolers

Wiring Diagram

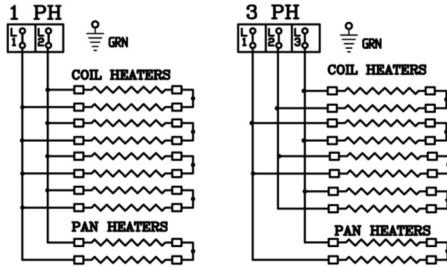
2 FAN

WIRING DIAGRAMS

CONTROL DIAGRAMS

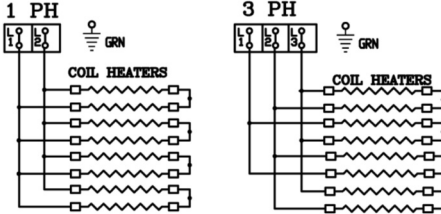
ELECTRICAL DEFROST UNIT (E)

MS24*-323, MS25*-356, MS26*-390



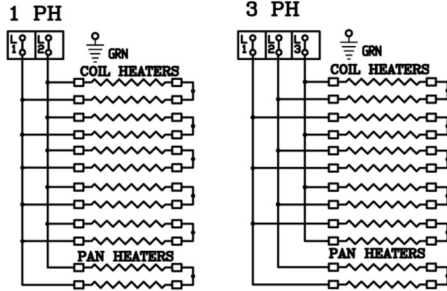
ELECTRICAL DEFROST COIL (D)

MS24*-323, MS25*-356, MS26*-390



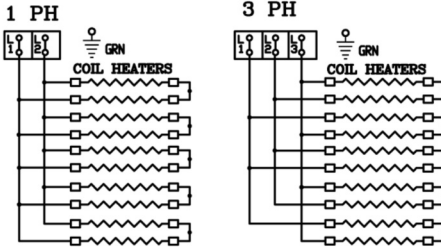
ELECTRICAL DEFROST UNIT (E)

MS24*-424, MS25*-444, MS26*-478

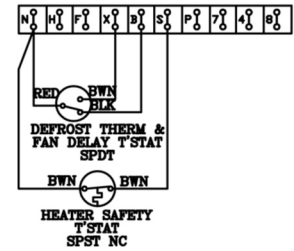


ELECTRICAL DEFROST COIL (D)

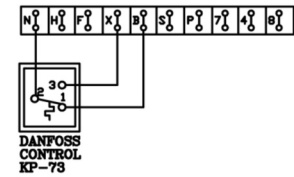
MS24*-424, MS25*-444, MS26*-478



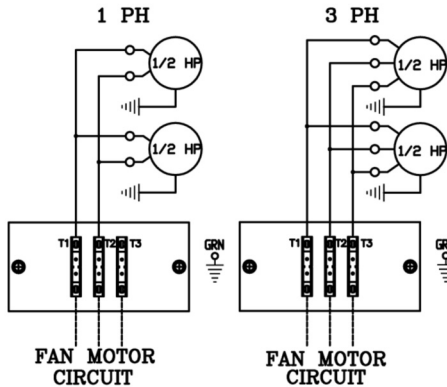
STANDARD



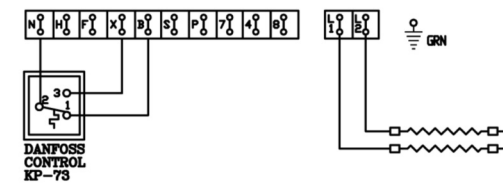
OPTIONAL



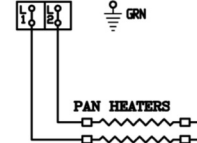
FAN MOTORS AIR DEFROST (A) GAS DEFROST (K,G)



2 PIPE HOT GAS DEFROST W/ELECTRICAL DEFROST DRAIN PAN (P)



3 PIPE HOT GAS DEFROST W/ELECTRICAL DEFROST DRAIN PAN (H)



NOTE: TERMINAL BLOCKS INSIDE UNIT

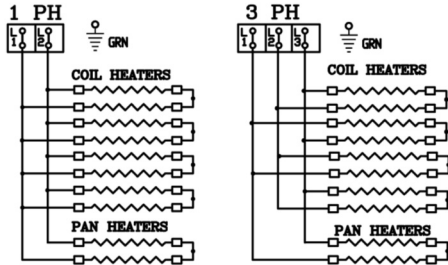
MS Series Unit Coolers

Wiring Diagram

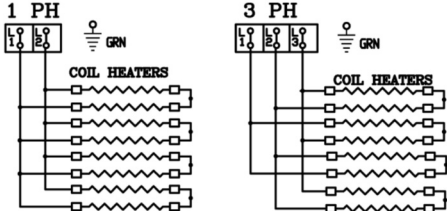
3 FAN

WIRING DIAGRAMS

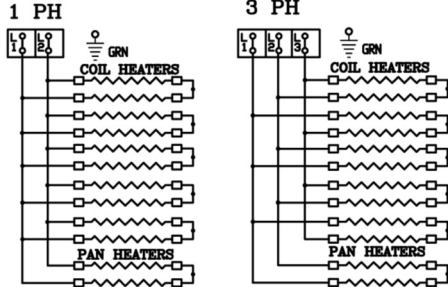
ELECTRICAL DEFROST UNIT (E)
MS34*-445, MS35*-502, MS36*-532



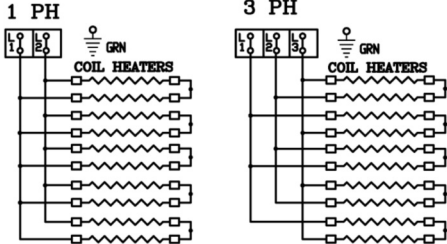
ELECTRICAL DEFROST COIL (D)
MS34*-445, MS35*-502, MS36*-532



ELECTRICAL DEFROST UNIT (E)
MS34*-602, MS35*-643, MS36*-685

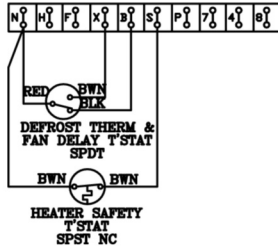


ELECTRICAL DEFROST COIL (D)
MS34*-602, MS35*-643, MS36*-685

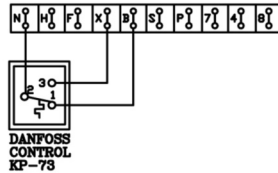


CONTROL DIAGRAMS

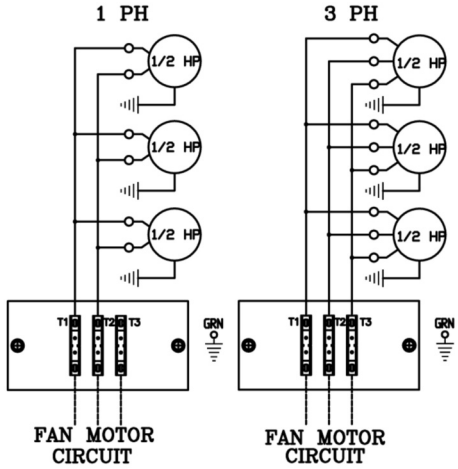
STANDARD



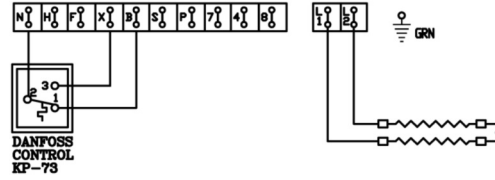
OPTIONAL



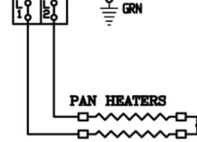
FAN MOTORS AIR DEFROST (A) GAS DEFROST (K,G)



2 PIPE HOT GAS DEFROST W/ELECTRICAL DEFROST DRAIN PAN (P)



3 PIPE HOT GAS DEFROST W/ELECTRICAL DEFROST DRAIN PAN (H)



NOTE: TERMINAL BLOCKS INSIDE UNIT

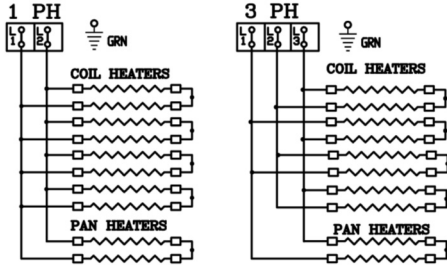
MS Series Unit Coolers

Wiring Diagram

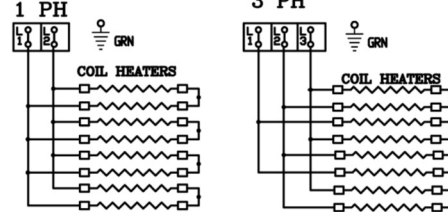
4 FAN

WIRING DIAGRAMS

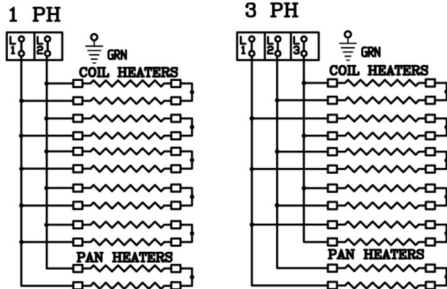
ELECTRICAL DEFROST UNIT (E)
MS44*-594, MS45*-669, MS46*-71



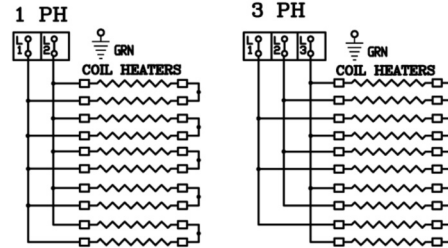
ELECTRICAL DEFROST COIL (D)
MS44*-594, MS45*-669, MS46*-71



ELECTRICAL DEFROST UNIT (E)
MS44*-803, MS45*-858, MS46*-914

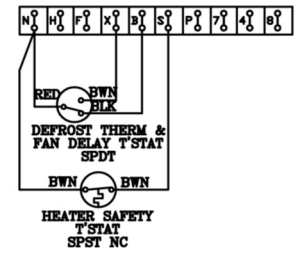


ELECTRICAL DEFROST COIL (D)
MS44*-803, MS45*-858, MS46*-914

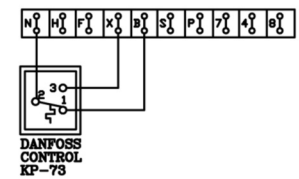


CONTROL DIAGRAMS

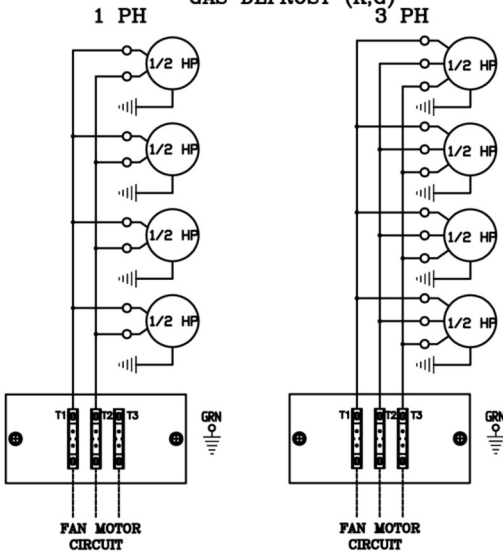
STANDARD



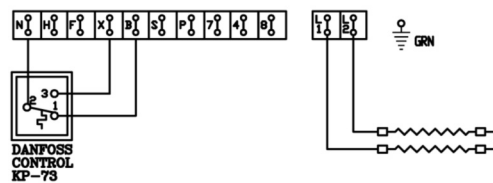
OPTIONAL



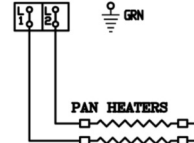
FAN MOTORS AIR DEFROST (A) GAS DEFROST (K,G)



2 PIPE HOT GAS DEFROST W/ELECTRICAL DEFROST DRAIN PAN (P)



3 PIPE HOT GAS DEFROST W/ELECTRICAL DEFROST DRAIN PAN (H)



NOTE: TERMINAL BLOCKS INSIDE UNIT



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