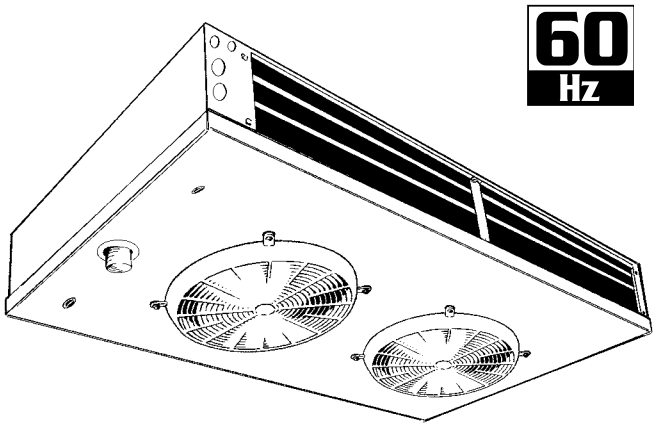
TTL TWO-WAY LOW PROFILE EVAPORATORS

PRODUCT DATA & INSTALLATION

MEDIUM AND LOW TEMPERATURE APPLICATIONS
-10°F (*-23.3 °C*) AND ABOVE

AIR OR ELECTRIC DEFROST

ELECTRICAL:
115/1/60, 208-230/1/60



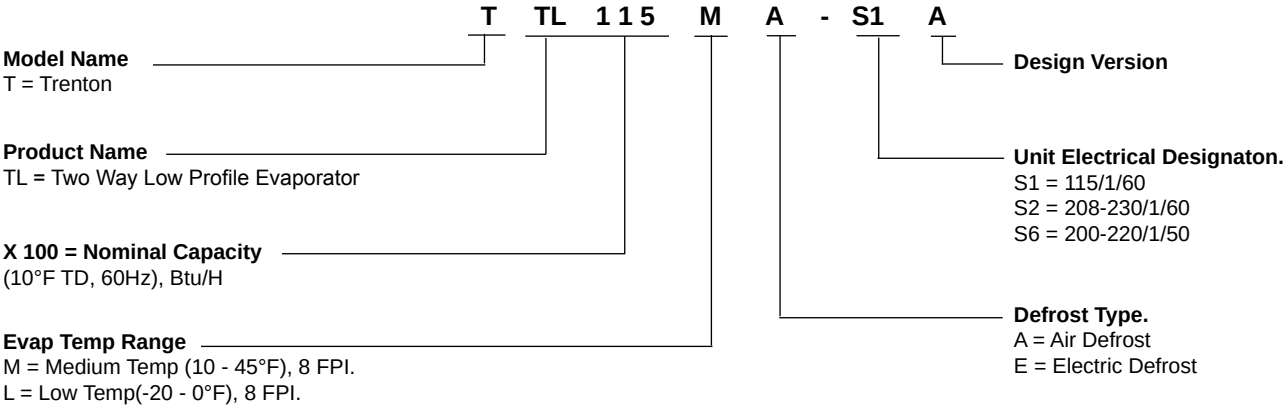
INCLUDES RATINGS FOR LOW GWP REFRIGERANTS

Bulletin T30-TTL-PDI-5
1087831

Questions about this product?
Email: evaps@t-rp.com
Call: 1-844-893-3222 x520

CONTENTS

NOMENCLATURE



STANDARD FEATURES

- Compatable with Low GWP Refrigerants
- Low height compact size maximizes useable storage space
- Dual refrigeration coils and two-way air distribution reduces air velocities to minimize product dehydration.
- Air enters through fan and discharges two ways out of each coil side.
- Rugged heavy duty motor mount reduces vibration and noise.
- Electric defrost models include factory installed defrost termination and fan delay thermostat.
- NSF approved “flush to ceiling mount”
- Refrigerants R407A, R407C, R404A/R507, R22 and R134a.
- Internally enhanced tube

OPTIONAL FEATURES

- PSC Motors available on all models
- EC Motors available for Medium Temperature models 032, 038, 060, 077 & 115 and Low Temperature models 028, 033, 052, 066 & 099

TTL CAPACITY DATA - ALL MODELS 60Hz

MEDIUM TEMPERATURE MODELS - CAPACITY *

Medium Temp. Models			TTL010M	TTL015M	TTL020M	TTL025M	TTL032M	TTL038M	TTL060M	TTL077M	TTL115M
Number of Fans			1	1	1	1	1	1	2	2	3
Capacity BTUH *(WATTS)*	Evap Temp. 25°F *(-4°C)*	R407A	*900 (264)*	*1380 (404)*	*1900 (557)*	*2380 (696)*	*3040 (891)*	*3600 (1058)*	*5700 (1670)*	*7300 (2144)*	*10900 (3202)*
		R407C	*860 (250)*	*1305 (383)*	*1800 (527)*	*2250 (660)*	*2880 (844)*	*3420 (1003)*	*5400 (1582)*	*6900 (2031)*	*10400 (3033)*
		R404A R507	*950 (278)*	*1450 (425)*	*2000 (586)*	*2500 (733)*	*3200 (938)*	*3800 (1114)*	*6000 (1758)*	*7700 (2257)*	*11500 (3370)*
		R22	*900 (264)*	*1380 (404)*	*1900 (557)*	*2380 (696)*	*3000 (891)*	*3600 (1058)*	*5700 (1670)*	*7300 (2144)*	*10900 (3202)*
		R134a	*855 (250)*	*1305 (383)*	*1800 (527)*	*2250 (660)*	*2880 (844)*	*3420 (1003)*	*5400 (1582)*	*6930 (2031)*	*10350 (3033)*
Air Flow	CFM *(L/s)*		130 *(61.4)*	180 *(85.0)*	237 *(112)*	270 *(127)*	440 *(208)*	440 *(208)*	928 *(438)*	807 *(381)*	1242 *(586)*
Refrigerant ** Charge R407A	Lbs *(Kg)*		0.4 *(0.18)*	0.5 *(0.23)*	0.7 *(0.32)*	0.8 *(0.36)*	0.9 *(0.41)*	1.2 *(0.55)*	1.4 *(0.64)*	2.3 *(1.05)*	3.4 *(1.55)*

LOW TEMPERATURE MODELS - CAPACITY *

Low Temp. Models			TTL009L	TTL013L	TTL017L	TTL021L	TTL028L	TTL033L	TTL052L	TTL066L	TTL099L
Number of Fans			1	1	1	1	1	1	2	2	3
Capacity BTUH *(WATTS)*	Evap Temp. -20°F *(-28.9°C)*	R407A	*810 (237)*	*1190 (348)*	*1620 (473)*	*2000 (584)*	*2660 (780)*	*3100 (919)*	*4900 (1448)*	*6300 (1837)*	*9400 (2756)*
		R407C	*770 (224)*	*1125 (329)*	*1530 (448)*	*1890 (554)*	*2520 (739)*	*2970 (870)*	*4700 (1372)*	*6000 (1741)*	*8900 (2611)*
		R404A R507	*850 (249)*	*1250 (366)*	*1700 (498)*	*2100 (615)*	*2800 (821)*	*3300 (967)*	*5200 (1524)*	*6600 (1934)*	*9900 (2901)*
		R22	*810 (237)*	*1190 (348)*	*1620 (473)*	*2000 (584)*	*2700 (780)*	*3100 (919)*	*4900 (1448)*	*6300 (1837)*	*9400 (2756)*
		R134a	*765 (224)*	*1125 (329)*	*1530 (448)*	*1890 (554)*	*2520 (739)*	*2970 (870)*	*4680 (1372)*	*5940 (1741)*	*8910 (2611)*
Air Flow	CFM *(L/s)*		130 *(61.4)*	180 *(85.0)*	237 *(112)*	270 *(127)*	440 *(208)*	440 *(208)*	928 *(438)*	807 *(381)*	1242 *(586)*
Refrigerant ** Charge R407A	Lbs *(Kg)*		0.4 *(0.18)*	0.5 *(0.23)*	0.7 *(0.32)*	0.8 *(0.36)*	0.9 *(0.41)*	1.2 *(0.55)*	1.4 *(0.64)*	2.3 *(1.05)*	3.4 *(1.55)*

*** Derate capacity by 5% when using EC Motors**

Capacities rated using 10°F *(5.6°C)* TD & 100°F *(38°C)* liquid temperature.
Capacities at other TD within a range of 8 to 15 °F *(4.4 to 8.3°C)* are directly proportional to TD, or use formula: Capacity = Rated capacity ÷ 10 x TD.
For capacities at TD outside of range 8 to 15 °F *(4.4 to 8.3°C)*, or liquid temperature lower than 75°F *(24°)*, consult factory.
Capacities for R407A and R407C are based on mean temperature. Mean temperature is the average temperature between the saturated suction temperature and the temperature feeding the evaporator. For dew point ratings, consult factory.

*** CAPACITY CORRECTION FACTORS FOR LOW TEMPERATURE UNITS**

SATURATED SUCTION TEMPERATURE °F *(°C)*	0 *(-17.8)*	-10 *(23.3)*	-20 *(-28.9)*
FACTOR	1.06	1.03	1.0

NO CORRECTION FACTOR REQUIRED FOR MEDIUM TEMP. UNITS

**** REFRIGERANT CHARGE CONVERSION FACTORS**

R407C	R404A	R507	R22	R134a
0.99	0.92	0.93	1.02	1.03

ELECTRICAL DATA
115/1/60

AIR DEFROST

MODEL	No. of FANS	FAN MOTOR(S) - SHADED POLE (STANDARD)				FAN MOTOR(S)- PSC (OPTIONAL)				FAN MOTOR(S)- EC (OPTIONAL)			
		TOTAL MOTOR FLA	M.C.A.	M.O.P	WATTS	TOTAL MOTOR FLA	M.C.A.	M.O.P	WATTS	TOTAL MOTOR FLA	M.C.A.	M.O.P	WATTS
TTL010MA-S1A	1	1.2	1.5	15	70	0.65	0.81	15	60	-	-	-	-
TTL015MA-S1A	1	1.2	1.5	15	70	0.65	0.81	15	60	-	-	-	-
TTL020MA-S1A	1	1.2	1.5	15	70	0.65	0.81	15	60	-	-	-	-
TTL025MA-S1A	1	1.2	1.5	15	70	0.65	0.81	15	60	-	-	-	-
TTL032MA-S1A	1	1.2	1.5	15	70	0.65	0.81	15	60	0.60	0.75	15	30
TTL038MA-S1A	1	1.2	1.5	15	70	0.65	0.81	15	60	0.60	0.75	15	30
TTL060MA-S1A	2	2.4	2.7	15	140	1.30	1.46	15	120	1.20	1.35	15	60
TTL077MA-S1A	2	2.4	2.7	15	140	1.30	1.46	15	120	1.20	1.35	15	60
TTL115MA-S1A	3	3.6	3.9	15	210	1.95	2.11	15	180	1.80	1.95	15	90

ELECTRIC DEFROST

MODEL	No. of FANS	FAN MOTOR(S) - SHADED POLE (STANDARD)				FAN MOTOR(S)- PSC (OPTIONAL)				FAN MOTOR(S)- EC (OPTIONAL)				DEFROST HEATERS			
		TOTAL MOTOR FLA	M.C.A.	M.O.P	WATTS	TOTAL MOTOR FLA	M.C.A.	M.O.P	WATTS	TOTAL MOTOR FLA	M.C.A.	M.O.P	WATTS	TOTAL WATTS	TOTAL AMPS	M.C.A.	M.O.P
TTL010ME-S1A	1	1.2	1.5	15	70	0.65	0.81	15	60	-	-	-	-	206	1.8	2.2	15
TTL015ME-S1A	1	1.2	1.5	15	70	0.65	0.81	15	60	-	-	-	-	530	4.6	5.8	15
TTL020ME-S1A	1	1.2	1.5	15	70	0.65	0.81	15	60	-	-	-	-	530	4.6	5.8	15
TTL025ME-S1A	1	1.2	1.5	15	70	0.65	0.81	15	60	-	-	-	-	530	4.6	5.8	15
TTL032ME-S1A	1	1.2	1.5	15	70	0.65	0.81	15	60	0.60	0.75	15	30	750	6.5	8.2	15
TTL038ME-S1A	1	1.2	1.5	15	70	0.65	0.81	15	60	0.60	0.75	15	30	750	6.5	8.2	15
TTL060ME-S1A	2	2.4	2.7	15	140	1.30	1.46	15	120	1.20	1.35	15	60	1100	9.6	12.0	15
TTL077ME-S1A	2	2.4	2.7	15	140	1.30	1.46	15	120	1.20	1.35	15	60	1540	13.4	16.8	20
TTL115ME-S1A	3	3.6	3.9	15	210	1.95	2.11	15	180	1.80	1.95	15	90	2270	19.7	24.6	25
TTL009LE-S1A	1	1.2	1.5	15	70	0.65	0.81	15	60	-	-	-	-	206	1.8	2.2	15
TTL013LE-S1A	1	1.2	1.5	15	70	0.65	0.81	15	60	-	-	-	-	530	4.6	5.8	15
TTL017LE-S1A	1	1.2	1.5	15	70	0.65	0.81	15	60	-	-	-	-	530	4.6	5.8	15
TTL021LE-S1A	1	1.2	1.5	15	70	0.65	0.81	15	60	-	-	-	-	530	4.6	5.8	15
TTL028LE-S1A	1	1.2	1.5	15	70	0.65	0.81	15	60	0.60	0.75	15	30	750	6.5	8.2	15
TTL033LE-S1A	1	1.2	1.5	15	70	0.65	0.81	15	60	0.60	0.75	15	30	750	6.5	8.2	15
TTL052LE-S1A	2	2.4	2.7	15	140	1.30	1.46	15	120	1.20	1.35	15	60	1100	9.6	12.0	15
TTL066LE-S1A	2	2.4	2.7	15	140	1.30	1.46	15	120	1.20	1.35	15	60	1540	13.4	16.8	20
TTL099LE-S1A	3	3.6	3.9	15	210	1.95	2.11	15	180	1.80	1.95	15	90	2270	19.7	24.6	25

ELECTRICAL DATA
208-230/1/60

AIR DEFROST

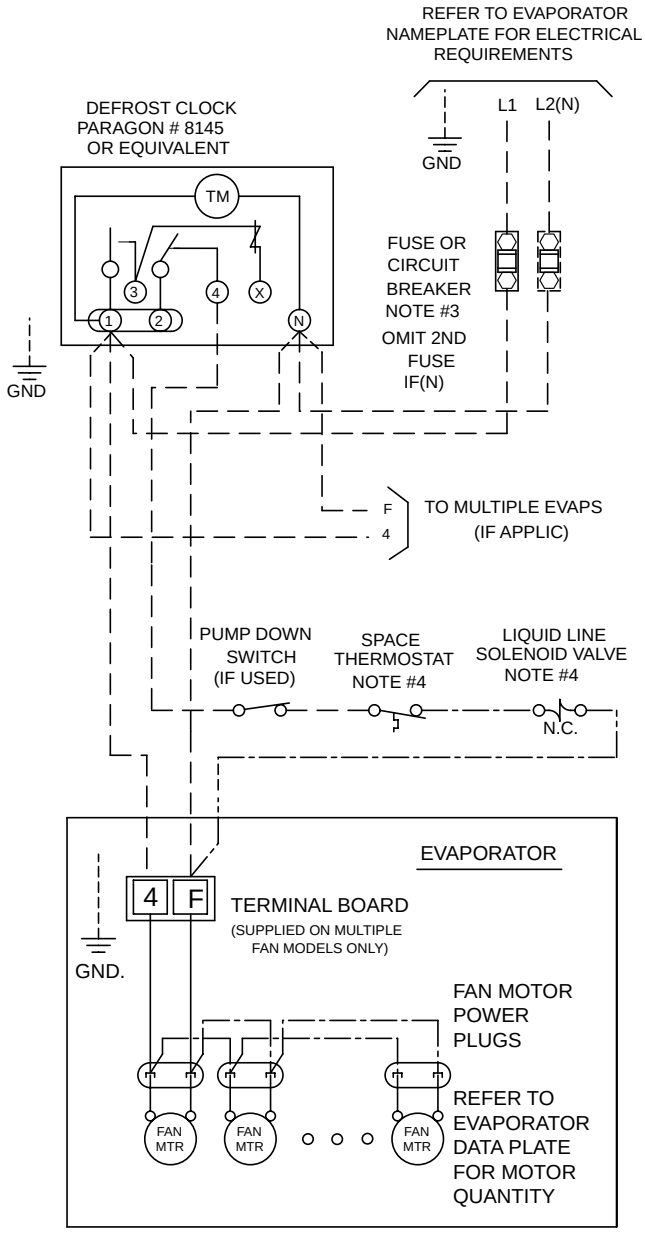
MODEL	No. of FANS	FAN MOTOR(S) - SHADED POLE(STANDARD)				FAN MOTOR(S)- PSC (OPTIONAL)				FAN MOTOR(S)- EC (OPTIONAL)			
		TOTAL MOTOR FLA	M.C.A.	M.O.P	WATTS	TOTAL MOTOR FLA	M.C.A.	M.O.P	WATTS	TOTAL MOTOR FLA	M.C.A.	M.O.P	WATTS
TTL010MA-S2A	1	0.7	0.9	15	60	0.24	0.30	15	50	-	-	-	-
TTL015MA-S2A	1	0.7	0.9	15	60	0.24	0.30	15	50	-	-	-	-
TTL020MA-S2A	1	0.7	0.9	15	60	0.24	0.30	15	50	-	-	-	-
TTL025MA-S2A	1	0.7	0.9	15	60	0.24	0.30	15	50	-	-	-	-
TTL032MA-S2A	1	0.7	0.9	15	60	0.24	0.30	15	50	0.30	0.40	15	30
TTL038MA-S2A	1	0.7	0.9	15	60	0.24	0.30	15	50	0.30	0.40	15	30
TTL060MA-S2A	2	1.4	1.6	15	120	0.48	0.54	15	100	0.60	0.70	15	60
TTL077MA-S2A	2	1.4	1.6	15	120	0.48	0.54	15	100	0.60	0.70	15	60
TTL115MA-S2A	3	2.1	2.3	15	180	0.72	0.78	15	150	0.90	1.00	15	90

ELECTRIC DEFROST

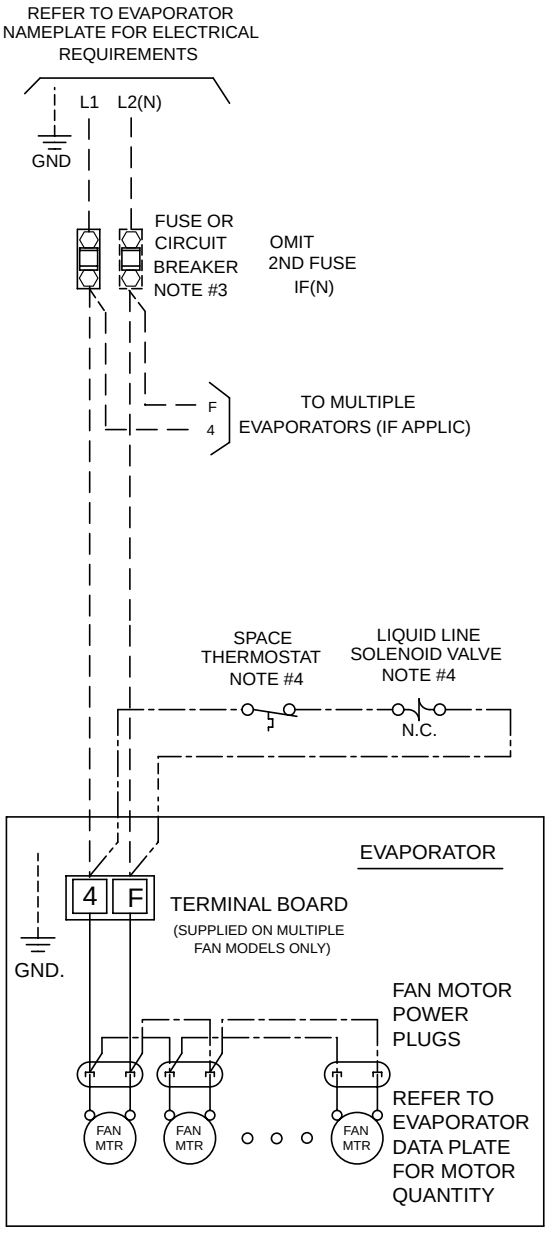
MODEL	No. of FANS	FAN MOTOR(S) - SHADED POLE(STANDARD)				FAN MOTOR(S)- PSC (OPTIONAL)				FAN MOTOR(S)- EC (OPTIONAL)				DEFROST HEATERS			
		TOTAL MOTOR FLA	M.C.A.	M.O.P	WATTS	TOTAL MOTOR FLA	M.C.A.	M.O.P	WATTS	TOTAL MOTOR FLA	M.C.A.	M.O.P	WATTS	TOTAL WATTS	TOTAL AMPS	M.C.A.	M.O.P
TTL010ME-S2A	1	0.7	0.9	15	60	0.24	0.30	15	50	-	-	-	-	206	0.9	1.1	15
TTL015ME-S2A	1	0.7	0.9	15	60	0.24	0.30	15	50	-	-	-	-	530	2.3	2.9	15
TTL020ME-S2A	1	0.7	0.9	15	60	0.24	0.30	15	50	-	-	-	-	530	2.3	2.9	15
TTL025ME-S2A	1	0.7	0.9	15	60	0.24	0.30	15	50	-	-	-	-	530	2.3	2.9	15
TTL032ME-S2A	1	0.7	0.9	15	60	0.24	0.30	15	50	0.30	0.40	15	30	750	3.3	4.1	15
TTL038ME-S2A	1	0.7	0.9	15	60	0.24	0.30	15	50	0.30	0.40	15	30	750	3.3	4.1	15
TTL060ME-S2A	2	1.4	1.6	15	120	0.48	0.54	15	100	0.60	0.70	15	60	1100	4.8	6.0	15
TTL077ME-S2A	2	1.4	1.6	15	120	0.48	0.54	15	100	0.60	0.70	15	60	1540	6.7	8.4	15
TTL115ME-S2A	3	2.1	2.3	15	180	0.72	0.78	15	150	0.90	1.00	15	90	2270	9.9	12.4	15
TTL009LE-S2A	1	0.7	0.9	15	60	0.24	0.30	15	50	-	-	-	-	206	0.9	1.1	15
TTL013LE-S2A	1	0.7	0.9	15	60	0.24	0.30	15	50	-	-	-	-	530	2.3	2.9	15
TTL017LE-S2A	1	0.7	0.9	15	60	0.24	0.30	15	50	-	-	-	-	530	2.3	2.9	15
TTL021LE-S2A	1	0.7	0.9	15	60	0.24	0.30	15	50	-	-	-	-	530	2.3	2.9	15
TTL028LE-S2A	1	0.7	0.9	15	60	0.24	0.30	15	50	0.30	0.40	15	30	750	3.3	4.1	15
TTL033LE-S2A	1	0.7	0.9	15	60	0.24	0.30	15	50	0.30	0.40	15	30	750	3.3	4.1	15
TTL052LE-S2A	2	1.4	1.6	15	120	0.48	0.54	15	100	0.60	0.70	15	60	1100	4.8	6.0	15
TTL066LE-S2A	2	1.4	1.6	15	120	0.48	0.54	15	100	0.60	0.70	15	60	1540	6.7	8.4	15
TTL099LE-S2A	3	2.1	2.3	15	180	0.72	0.78	15	150	0.90	1.00	15	90	2270	9.9	12.4	15

WIRING DIAGRAM
AIR DEFROST - ALL VOLTAGES

WITH DEFROST TIME CLOCK



WITHOUT DEFROST TIME CLOCK



NOTES

1). USE COPPER CONDUCTORS ONLY

2). USE 75°C WIRE (OR HIGHER)

3). OVERCURRENT PROTECTION FOR EVAPORATOR FAN MOTORS AND DEFROST HEATERS MUST NOT EXCEED MAXIMUM VALUE SHOWN ON EVAPORATOR NAMEPLATE.

4). MAY BE FACTORY INSTALLED-MOUNTED AND WIRED ON EVAPORATOR .

1-TL AD 03/08

TERMINALS

○ -COMPONENT TERMINAL

□ -TERMINAL BLOCK TERMINAL

CONDUCTORS/WIRING

——————— FACTORY WIRING

– – – – – – – WIRING BY OTHERS

—·—·—·—·— OPTIONAL FACTORY OR BY OTHERS

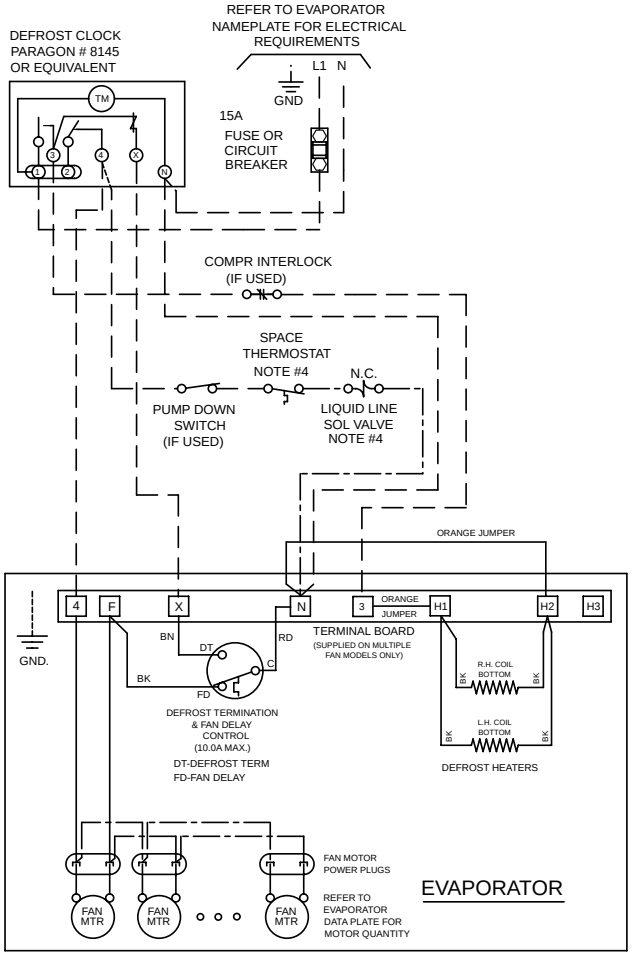
ALL FIELD WIRING MUST BE DONE IN COMPLIANCE WITH ALL APPLICABLE LOCAL AND NATIONAL CODES.

TTL

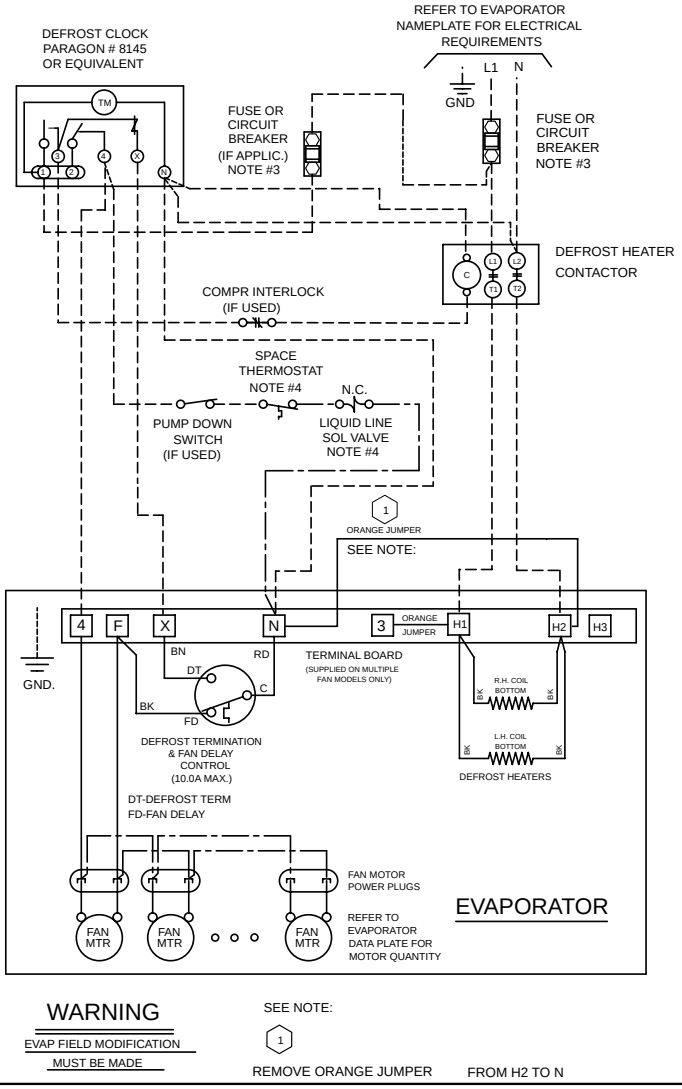
WIRING DIAGRAM
ELECTRIC DEFROST - 115V

60Hz

FOR ALL MODELS WITHOUT DEFROST HEATER CONTACTOR
USING MAXIMUM 15A HEATER OVERCURRENT PROTECTION



FOR ALL MODELS USING DEFROST HEATER CONTACTOR



WARNING

EVAP FIELD MODIFICATION
MUST BE MADE

SEE NOTE:

1

REMOVE ORANGE JUMPER FROM H2 TO N

NOTES

1). USE COPPER CONDUCTORS ONLY

2). USE 75°C WIRE (OR HIGHER)

3). OVERCURRENT PROTECTION FOR EVAPORATOR FAN MOTORS AND DEFROST HEATERS MUST NOT EXCEED MAXIMUM VALUE SHOWN ON EVAPORATOR NAMEPLATE.

4.) MAY BE FACTORY INSTALLED-MOUNTED AND WIRED ON EVAPORATOR

TERMINALS

O -COMPONENT TERMINAL

□ -TERMINAL BLOCK TERMINAL

CONDUCTORS/WIRING

——————— FACTORY WIRING

- — — — — — — WIRING BY OTHERS

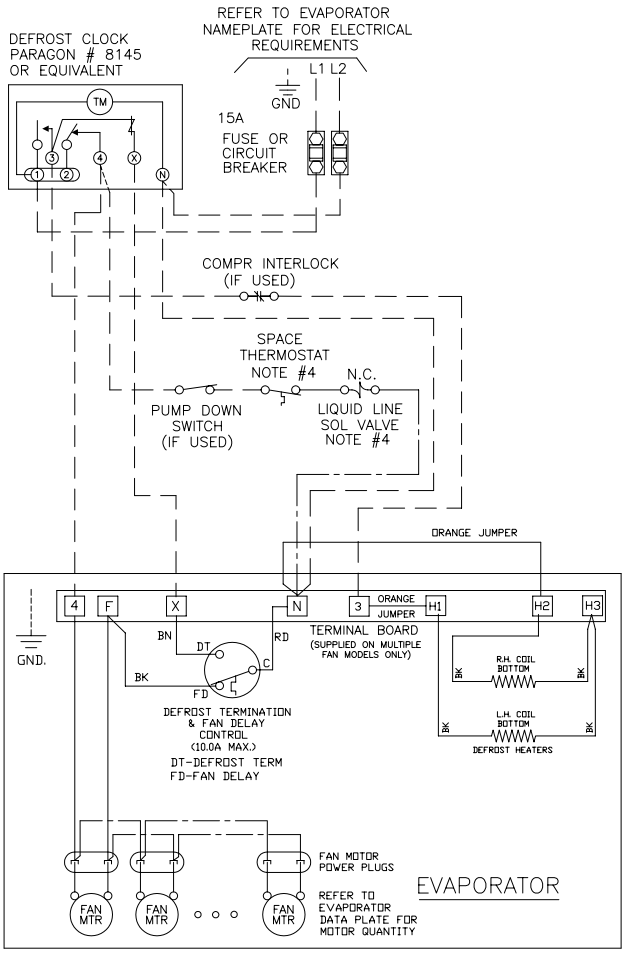
—·——·——·—— OPTIONAL FACTORY OR BY OTHERS

ALL FIELD WIRING MUST BE DONE IN COMPLIANCE WITH ALL APPLICABLE LOCAL AND NATIONAL CODES.

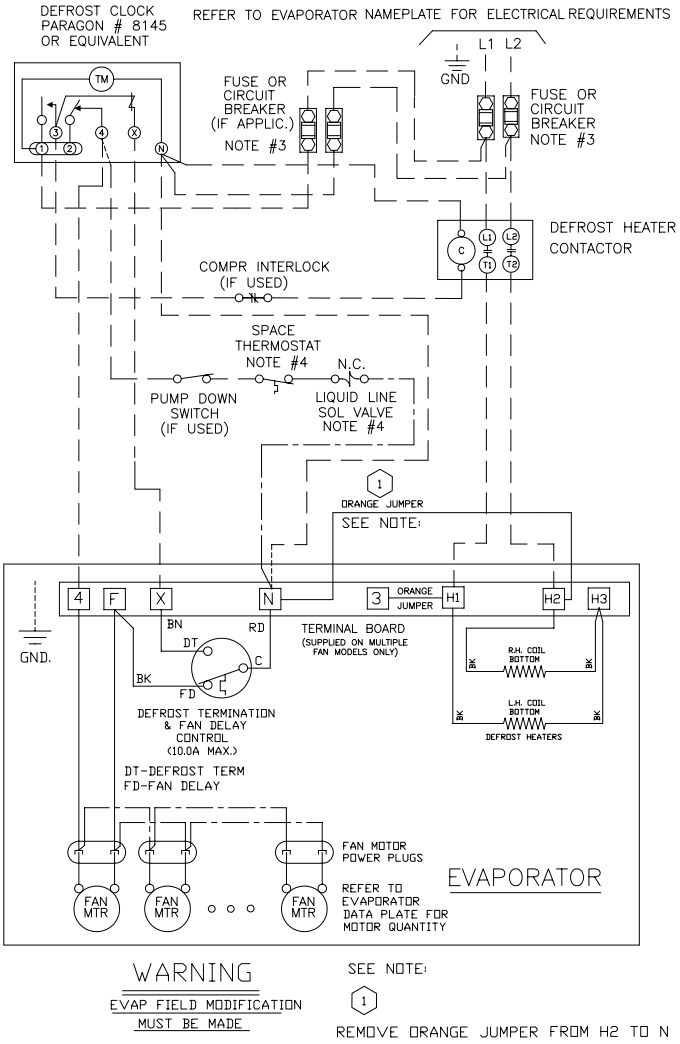
2-TL ED1 03/08

WIRING DIAGRAM
ELECTRIC DEFROST - 230V

FOR ALL MODELS WITHOUT DEFROST HEATER CONTACTOR
USING MAXIMUM 15A HEATER OVERCURRENT PROTECTION



FOR ALL MODELS USING DEFROST HEATER CONTACTOR



NOTES

1). USE COPPER CONDUCTORS ONLY

2). USE 75°C WIRE (OR HIGHER)

3). OVERCURRENT PROTECTION FOR EVAPORATOR FAN MOTORS AND DEFROST HEATERS MUST NOT EXCEED MAXIMUM VALUE SHOWN ON EVAPORATOR NAMEPLATE.

4.) MAY BE FACTORY INSTALLED-MOUNTED AND WIRED ON EVAPORATOR

TERMINALS

○ -COMPONENT TERMINAL

□ -TERMINAL BLOCK TERMINAL

CONDUCTORS/WIRING

———————— FACTORY WIRING

– – – – – – – – WIRING BY OTHERS

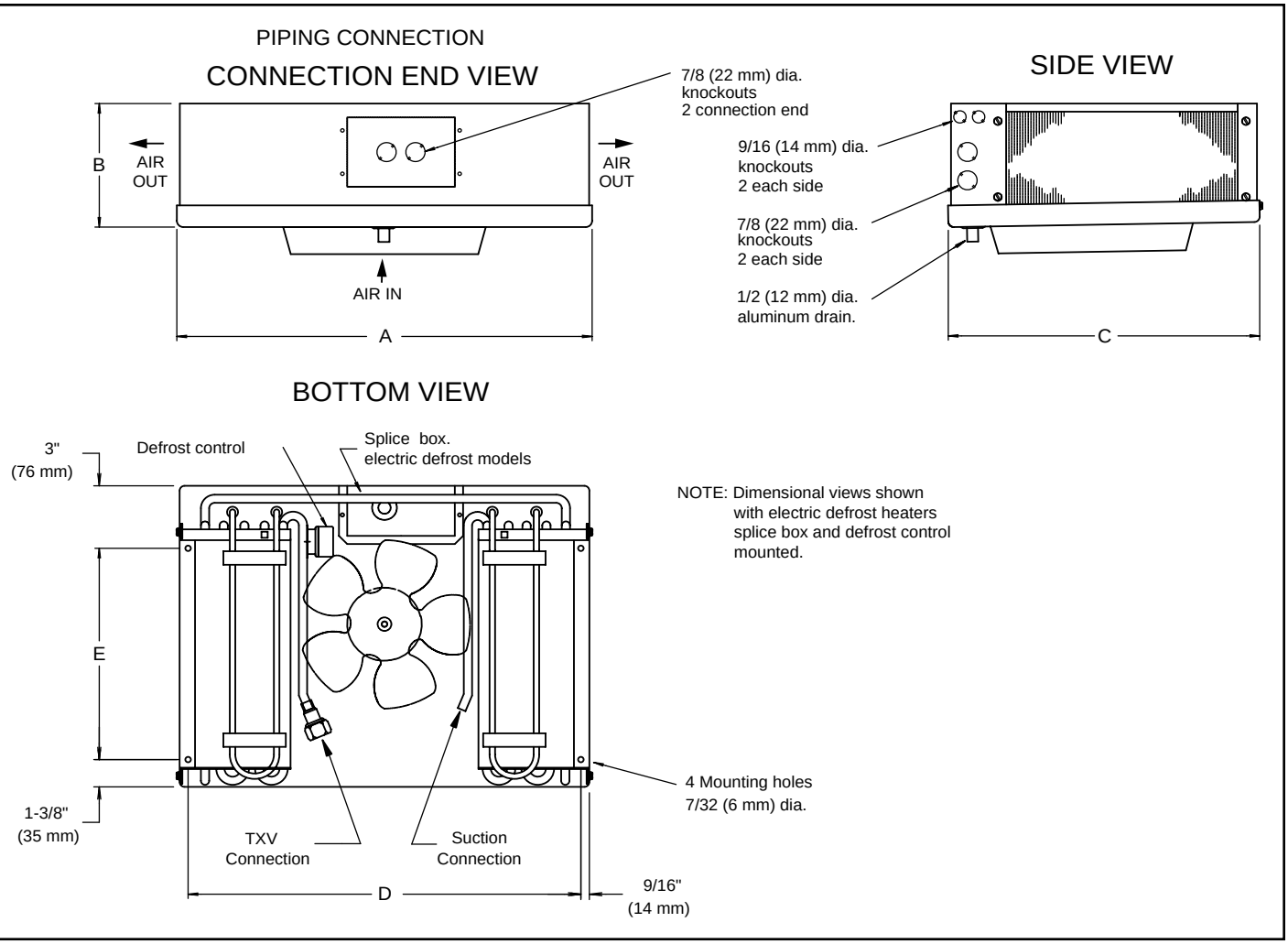
—·—·—·—·— OPTIONAL FACTORY OR BY OTHERS

ALL FIELD WIRING MUST BE DONE IN COMPLIANCE WITH ALL APPLICABLE LOCAL AND NATIONAL CODES.

3-TL ED2 02/13

DIMENSIONAL DATA - 1 FAN

Inches *(mm)*

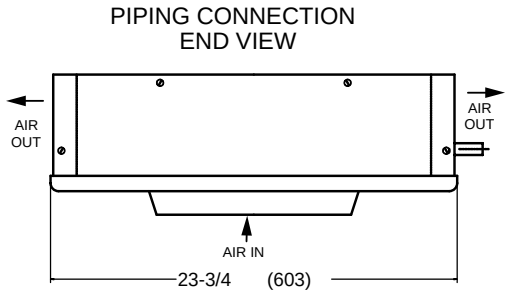


MODEL	Suc. Conn.	TXV	A		B		C		D		E		APPROX. WEIGHT	
	(ID) Sweat	Inlet Size	Inches	*mm*	Inches	*mm*	Inches	*mm*	Inches	*mm*	Inches	*mm*	Lbs.	*Kgs*
TTL 010M*	3/8	1/2" Flare	18 7/8	*479*	4 1/2	*114*	14 1/8	*359*	17 3/4	*451*	9 3/4	*248*	11.6	*5.3*
TTL 015M*	3/8	1/2" Flare	18 7/8	*479*	4 1/2	*114*	14 1/8	*359*	17 3/4	*451*	9 3/4	*248*	12.6	*5.7*
TTL 020M*	3/8	1/2" Flare	18 7/8	*479*	5 1/2	*140*	14 1/8	*359*	17 3/4	*451*	9 3/4	*248*	13.7	*6.2*
TTL 025M*	3/8	1/2" Flare	18 7/8	*479*	5 1/2	*140*	14 1/8	*359*	17 3/4	*451*	9 3/4	*248*	14.7	*6.7*
TTL 032M*	3/8	1/2" ODS	21 7/8	*556*	5 1/2	*140*	19 1/8	*486*	20 3/4	*527*	14 3/4	*375*	18.9	*8.6*
TTL 038M*	3/8	1/2" ODS	21 7/8	*556*	5 1/2	*140*	19 1/8	*486*	20 3/4	*527*	14 3/4	*375*	20.0	*9.1*
TTL 009LE	3/8	1/2" Flare	18 7/8	*479*	4 1/2	*114*	14 1/8	*359*	17 3/4	*451*	9 3/4	*248*	11.6	*5.3*
TTL 013LE	3/8	1/2" Flare	18 7/8	*479*	4 1/2	*114*	14 1/8	*359*	17 3/4	*451*	9 3/4	*248*	12.6	*5.7*
TTL 017LE	3/8	1/2" ODS	18 7/8	*479*	5 1/2	*140*	14 1/8	*359*	17 3/4	*451*	9 3/4	*248*	13.7	*6.2*
TTL 021LE	3/8	1/2" ODS	18 7/8	*479*	5 1/2	*140*	14 1/8	*359*	17 3/4	*451*	9 3/4	*248*	14.7	*6.7*
TTL 028LE	1/2	1/2" ODS	21 7/8	*556*	5 1/2	*140*	19 1/8	*486*	20 3/4	*527*	14 3/4	*375*	18.9	*8.6*
TTL 033LE	1/2	1/2" ODS	21 7/8	*556*	5 1/2	*140*	19 1/8	*486*	20 3/4	*527*	14 3/4	*375*	20.0	*9.1*

*** - A (AIR DEFROST) OR E (ELECTRIC DEFROST)**

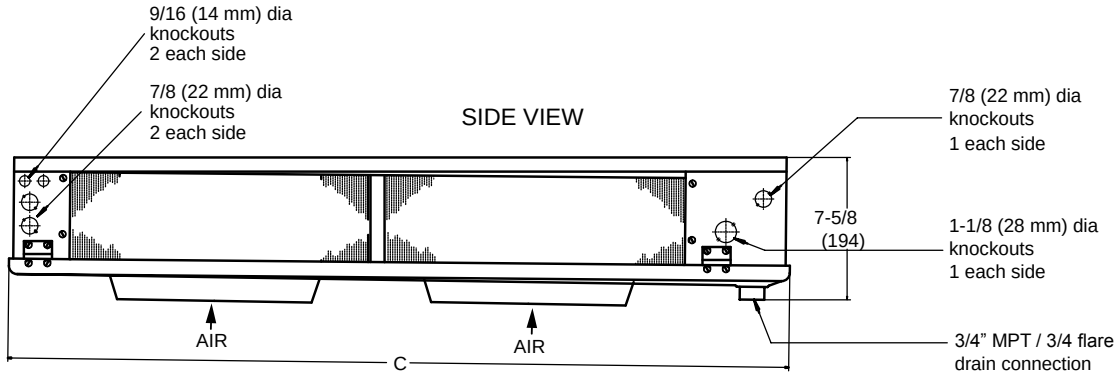
DIMENSIONAL DATA - 2 & 3 FAN

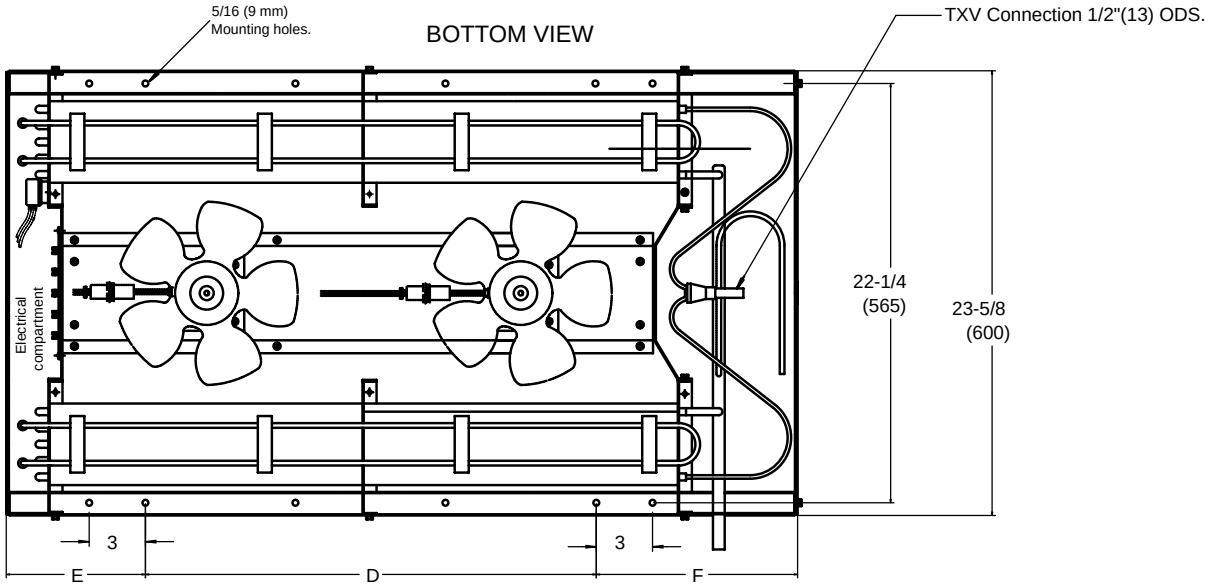
Inches *(mm)*



NOTES: 1). Electric defrost views shown. Air defrost models have identical dimensioning.

2). Electrical connection end is opposite the piping end on multiple fan models.





MODEL	Suc. Conn.	TXV	C		D		E		F		APPROX. WEIGHT	
	(ID) Sweat	Inlet Size	Inches	*mm*	Inches	*mm*	Inches	*mm*	Inches	*mm*	Lbs.	*Kgs*
TTL 060M	1/2	1/2" ODS	42 3/4	*1086*	4 holes @ 8"	*203*	7 11/16	*195*	10 15/16	*278*	37.8	*17.1*
TTL 077M	5/8	1/2" ODS	42 3/4	*1086*	4 holes @ 8"	*203*	7 11/16	*195*	10 15/16	*278*	39.9	*18.1*
TTL 115M	5/8	1/2" ODS	59 1/2	*1511*	6 holes @ 8"	*203*	8	*203*	11 7/16	*291*	59.9	*27.2*
TTL 052LE	5/8	1/2" ODS	42 3/4	*1086*	4 holes @ 8"	*203*	7 11/16	*195*	10 15/16	*278*	37.8	*17.1*
TTL 066LE	5/8	1/2" ODS	42 3/4	*1086*	4 holes @ 8"	*203*	7 11/16	*195*	10 15/16	*278*	39.9	*18.1*
TTL 099LE	7/8	1/2" ODS	59 1/2	*1511*	6 holes @ 8"	*203*	8	*203*	11 7/16	*291*	59.9	*27.2*

NOZZLE SELECTIONS
(FACTORY INSTALLED)

For all applications and refrigerants

Model	Nozzle
TTL010MA/ME	NA
TTL015MA/ME	NA
TTL020MA/ME	NA
TTL025MA/ME	NA
TTL032MA/ME	L-1/4
TTL038MA/ME	L-1/3
TTL060MA/ME	L-1/2
TTL077MA/ME	L-3/4
TTL115MA/ME	L-1

Model	Nozzle
TTL009LE	NA
TTL013LE	NA
TTL017LE	L-1/4
TTL021LE	L-1/3
TTL028LE	L-1/2
TTL033LE	L-1/2
TTL052LE	L-1
TTL066LE	L-1
TTL099LE	L-1 1/2

RECOMMENDED EXPANSION VALVE SELECTION
MEDIUM TEMPERATURE MODELS

SPORLAN

MODEL	TD	R404A R507	R407A R407C R22
TTL010M	10	EGS-1/8-C	EGV-1/5-C
	15		
TTL015M	10	EGS-1/6-C	EGV-1/5-C
	15		
TTL020M	10	EGS-1/6-C	EGV-1/5-C
	15	EGS-1/6-C	EGV-1/3-C
TTL025M	10	EGS-1/6-C	EGV-1/5-C
	15		EGV-1/3-C
TTL032M	10	SBFSE-AA-C	SBFVE-AAA-C
	15		SBFVE-AA-C
TTL038M	10	SBFSE-AA-C	SBFVE-AAA-C
	15	SBFSE-A-C	SBFVE-AA-C
TTL060M	10	SBFSE-A-C	SBFVE-AA-C
	15		
TTL077M	10	SBFSE-A-C	SBFVE-AA-C
	15		SBFVE-A-C
TTL115M	10	SBFSE-A-C	SBFVE-A-C
	15	SBFSE-B-C	

For medium temp. R-507, refrigerant designation changes from 'S' to 'P'.

ALCO

MODEL	TD	R404A R507	R407A R407C R22
TTL010M	10	HF-1/8-SC	HF-1/4-HC
	15		
TTL015M	10	HF-1/8-SC	HF-1/4-HC
	15		
TTL020M	10	HF-1/8-SC	HF-1/4-HC
	15	HF-1/4-SC	
TTL025M	10	HF-1/4-SC	HF-1/4-HC
	15		
TTL032M	10	HFESC-1/4-SC	HFESC-1/4-HC
	15	HFESC-1/2-SC	HFESC-1/2-HC
TTL038M	10	HFESC-1/4-SC	HFESC-1/2-HC
	15	HFESC-1/2-SC	
TTL060M	10	HFESC-1/2-SC	HFESC-1/2-HC
	15	HFESC-1-SC	HFESC-1-HC
TTL077M	10	HFESC-1/2-SC	HFESC-1-HC
	15	HFESC-1-SC	
TTL115M	10	HFESC-1-SC	HFESC-1-HC
	15	HFESC-1 1/4-SC	HFESC-1 1/2-HC

ALL TXV Selections based on 90-100°F liquid.

DANFOSS

MODEL	TD	R404A R507	R407A R407C R22
TTL010M	10	TUA-R404A-0-N	TUA-R22-0-N
	15	TUA-R404A-1-N	
TTL015M	10	TUA-R404A-1-N	TUA-R22-0-N
	15	TUA-R404A-2-N	TUA-R22-1-N
TTL020M	10	TUA-R404A-2-N	TUA-R22-1-N
	15	TUAE-R404A-3-N	TUAE-R22-2-N
TTL025M	10	TUA-R404A-2-N	TUA-R22-1-N
	15	TUAE-R404A-3-N	TUAE-R22-2-N
TTL032M	10	TUAE-R404A-3-N	TUAE-R22-2-N
	15	TUAE-R404A-4-N	TUAE-R22-3-N
TTL038M	10	TUAE-R404A-3-N	TUAE-R22-3-N
	15	TUAE-R404A-4-N	TUAE-R22-4-N
TTL060M	10	TUAE-R404A-5-N	TUAE-R22-4-N
	15	TUAE-R404A-6-N	TUAE-R22-5-N
TTL077M	10	TUAE-R404A-5-N	TUAE-R22-5-N
	15	TUAE-R404A-6-N	TUAE-R22-6-N
TTL115M	10	TUAE-R404A-6-N	TUAE-R22-6-N
	15	TUAE-R404A-8-N	TUAE-R22-7-N

TTL RECOMMENDED EXPANSION VALVE SELECTION - MEDIUM TEMPERATURE MODELS 60Hz

SPORLAN - R407A

R407A		TTL009L		TTL013L		TTL017L		TTL021L		TTL028L	
		BTUH	VALVE #	BTUH	VALVE #	BTUH	VALVE #	BTUH	VALVE #	BTUH	VALVE #
EVAP TEMP. °F	0	865	EGV-1/5-C	1,273	EGV-1/5-C	1,729	EGVE-1/5-C	2,138	SBFVE-AAA-C	2,850	SBFVE-AAA-C
	-10	836	EGV-1/5-Z	1,235	EGV-1/5-Z	1,682	SBFVE-AAA-Z	2,071	SBFVE-AAA-Z	2,765	SBFVE-AAA-Z
	-15	827		1,216		1,644		2,033		2,717	
	-20	808		1,188		1,615		1,995		2,660	

R407A		TTL033L		TTL052L		TTL066L		TTL099L	
		BTUH	VALVE #	BTUH	VALVE	BTUH	VALVE #	BTUH	VALVE #
EVAP TEMP. °F	0	3,354	SBFVE-AAA-C	5,282	SBFVE-AA-C	6,707	SBFVE-AA-C	10,061	SBFVE-A-C
	-10	3,259	SBFVE-AA-Z	5,140	SBFVE-AA-Z	6,517	SBFVE-AA-Z	9,785	SBFVE-A-Z
	-15	3,202		5,035		6,394		9,595	
	-20	3,135		4,940		6,270		9,405	

Selections based on 90-100°F liquid.
For R407A valves operating below 0F, the pressure limiting charge 'ZP40' may be substituted for the 'Z' charge.
R407A derated by .95 factor

SPORLAN - R404A

R404A R507		TTL009L		TTL013L		TTL017L		TTL021L		TTL028L	
		BTUH	VALVE #	BTUH	VALVE #	BTUH	VALVE #	BTUH	VALVE #	BTUH	VALVE #
EVAP TEMP. °F	0	910	EGS-1/8-C	1,340	EGS-1/8-C	1,820	SBFSE-AAA-C	2,250	SBFSE-AAA-C	3,000	SBFSE-AA-C
	-10	880	EGS-1/8-Z	1,300	EGS-1/8-Z	1,770	SBFSE-AAA-Z	2,180	SBFSE-AAA-Z	2,910	SBFSE-AA-Z
	-15	870		1,280		1,730		2,140		2,860	
	-20	850		1,250		1,700		2,100		2,800	

R404A R507		TTL033L		TTL052L		TTL066L		TTL099L	
		BTUH	VALVE #	BTUH	VALVE	BTUH	VALVE #	BTUH	VALVE #
EVAP TEMP. °F	0	3,530	SBFSE-AA-C	5,560	SBFSE-AA-C	7,060	SBFSE-A-C	10,590	SBFSE-A-C
	-10	3,430	SBFSE-AA-Z	5,410	SBFSE-A-Z	6,860	SBFSE-A-Z	10,300	SBFSE-A-Z
	-15	3,370		5,300		6,730		10,100	
	-20	3,300		5,200		6,600		9,900	

Selections based on 90-100°F liquid.
For medium temp. R-507, refrigerant designation changes from 'S' to 'P'.
For R404A/R507 valves operating below 0F, the pressure limiting charge 'ZP' may be substituted for the 'Z' charge.

INSPECTION

Careful inspection of all parts when received for loss or damage in transit is very important - Remember, you, the consignee, must make any claim necessary against the transportation company. Shipping damage or missing parts, when discovered at the outset, will prevent later unnecessary and costly delays.
Electrical characteristics should also be checked at this time to ensure that they are as ordered.

APPLICATION

Two-Way evaporators are designed for use in coolers and freezers such as reach in boxes, display cases, back bars, walk-in rooms and any other cooler applications where a low velocity, uniform air flow is required. The compact and low height unit provides maximum useable product storage space.
At room temperatures above 34°F (***1.1°C***) and evaporating temperatures no lower than 27°F (***-2.8°C***) the air flowing through the coil will accomplish the defrost (Air Defrost).
At room temperatures 34°F and below (to -10°F) positive defrosting is required (Electric defrost). These will require the use of:
1. *Time Clock* (to initiate and terminate the defrost cycle),
2. *Defrost termination thermostat* (to prevent unnecessary prolonged heating and steaming of the coil once all the frost and ice has melted). And if a freezer,
3. *Fan delay thermostat* (to prevent evaporator fans starting up right away and blowing water on to the fan blades, guards and floor).
This evaporator coil must not be exposed to any abnormal environments (acidic or caustic) that can result in coil corrosion and leaks. Consult factory for optional baked on phenolic protective coatings.
These evaporators are for use primarily on R407A, R407C, R404A/R507, R22 and R134a refrigerants and their approved alternatives / replacements.

INSTALLATION

The installation and start up of evaporators should only be performed by qualified refrigeration mechanics. This equipment should be installed in accordance with all applicable codes, ordinances, and local by-laws.

LOCATION

The evaporator is designed to be mounted to the ceiling of the box or cabinet. Refrigeration piping and electrical connections are routed to the rear sides (through the knock-outs). The unit must be mounted to a level ceiling to ensure complete drainage from the condensate pan to the drain fitting. Refer to the dimensional drawings for the drain fitting and mounting location details.
On freezer applications it is important that warm, humid infiltrated air is ***not drawn directly towards the evaporator*****.** Keeping the evaporator away from the door, using strip curtains, and using door switches to lock out and de-energize the liquid solenoid valve are all effective methods to minimize any unnecessary frost build -up of the fan guard. (Air enters the fan and discharges out each side of the coil).

TXV SELECTION (thermostatic expansion valve)

For normal operating conditions refer to the TXV selection chart. When selecting valves ensure they are sized to meet the capacity at the actual evaporating temperature, liquid temperature and operating TD of the system . All these conditions can greatly affect the size and selection. Consult the factory or valve manufacturer for assistance. All models that use a distributor (larger models) must use a nozzle. Smaller models do not have distributors or nozzles.
The TXV superheat setting should NOT be initially adjusted . After the room has reached or is close to the required operating temperature the TXV superheat should then be checked and only adjusted if necessary. Refer to Section on SYSTEM CHECK.
To avoid overheating the valve or distributor wrap a wet cloth around the valve diaphragm and body.

MOUNTING

Mounting brackets with 7/32 - 5/16” diameter holes are provided for flush mounting to the ceiling.
Ensure the evaporator is located correctly with the air flowing in the two desired directions. Avoid discharging the air directly on to glass doors or door openings.
After mounting the coil ***check the slope*** of the drain pan with a level. If the ceiling is not level the drain pan slope may not be correct which can result in defrosting (ice-up) problems.

INSTALLATION INSTRUCTIONS (CONT'D)

DRAIN LINE

The drain line should be run from the drain connection, sloping at least 4" vertical drop for every foot of horizontal distance . A trap outside the room will allow proper draining throughout the line. Connection should be made to proper drainage facilities that comply with local codes and regulations.

In freezers, to prevent drain line freeze up problems, the line must be heated and insulated. A heat input of 20 W per foot in a 0°F room and 30 W per foot in a -20°F room is usually satisfactory. Once the line has been completed , double check the slope in the drain pan to ensure proper drainage (prevention of ice build-up on pan).

PIPING

Refrigerant line sizes are important and are not necessarily the same size as the connections at the condensing unit or evaporator. If in doubt refer to a recognized source. (Manufacturer's Engineering Manual, Ashrae Manuals, etc.)

WIRING

Wire system in accordance with local codes and regulations. A 36" cord is provided for single fan air defrost models (AD). Multiple fans have a junction terminal box for conduit connections.

When fan delay thermostats are installed the fans may not start up until the coil temperature reaches approximately 26°F. On initial start up it may be necessary to bypass (jumper) this control temporarily until the coil is cold enough.

SYSTEM CHECK

Before Start Up:

1. Ensure wiring is in accordance with codes.
2. Refrigerant lines are properly sized and routed.
3. Thorough leak check, evacuation and dehydration has been performed.
4. Drain line has been checked for free flow.

After Start Up:

1. Fan has been checked for correct air flow and no obstructions.
2. Expansion valve superheat has been checked for proper operation. (Superheat of the coil should be around 5 to 6°F for a 10°F TD.)

MAINTENANCE

The unit should be periodically inspected for any dirt or build up on the fin surface and cleaned if necessary with a soft whisk or brush.

The fan motor is permanently lubricated and should not require service.

SERVICE PARTS

FOR SERVICE PARTS LOOK-UP:
visit: http://www.t-rp.com/serv_parts.htm
email: parts@t-rp.com
call: 1-844-893-3222 x501

FINISHED GOODS WARRANTY

The terms and conditions as described below in the General Warranty Policy cover all products manufactured by National Refrigeration.

GENERAL WARRANTY POLICY

Subject to the terms and conditions hereof, the Company warrants all Products, including Service Parts, manufactured by the Company to be free of defects in material or workmanship, under normal use and application for a period of one (1) year from the original date of installation, or eighteen (18) months from the date of shipment from the Company, whichever occurs first. Any replacement part(s) so supplied will be warranted for the balance of the product's original warranty. The part(s) to be replaced must be made available in exchange for the replacement part(s) and reasonable proof of the original installation date of the product must be presented in order to establish the effective date of the warranty, failing which, the effective date will be based upon the date of manufacture plus thirty (30) days. Any labour, material, refrigerant, transportation, freight or other charges incurred in connection with the performance of this warranty will be the responsibility of the owner at the current rates and prices then in effect. This warranty may be transferred to a subsequent owner of the product.

THIS WARRANTY DOES NOT COVER

(a) Damages caused by accident, abuse, negligence, misuse, riot, fire, flood, or Acts of God (b) damages caused by operating the product in a corrosive atmosphere (c) damages caused by any unauthorized alteration or repair of the system affecting the product's reliability or performance (d) damages caused by improper matching or application of the product or the product's components (e) damages caused by failing to provide routine and proper maintenance or service to the product (f) expenses incurred for the erecting, disconnecting, or dismantling the product (g) parts used in connection with normal maintenance, such as filters or belts (h) products no longer at the site of the original installation (i) products installed or operated other than in accordance with the printed instructions, with the local installation or building codes and with good trade practices (j) products lost or stolen.

No one is authorized to change this WARRANTY or to create for or on behalf of the Company any other obligation or liability in connection with the Product(s). There is no other representation, warranty or condition in any respect, expressed or implied, made by or binding upon the Company other than the above or as provided by provincial or state law and which cannot be limited or excluded by such law, nor will we be liable in any way for incidental, consequential, or special damages however caused.

The provisions of this additional written warranty are in addition to and not a modification of or subtraction from the statutory warranties and other rights and remedies provided by Federal, Provincial or State laws.

PROJECT INFORMATION

System	
Model Number	Date of Start-Up
Serial Number	Service Contractor
Refrigerant	Phone

“AS BUILT” SERVICE PARTS LIST

Service Parts List
Label
To Be Attached
HERE

NATIONAL REFRIGERATION &
AIR CONDITIONING CANADA CORP.
159 Roy Blvd.
Brantford Ontario Canada N3R 7K1
PHONE: (519) 751-0444 800-463-9517
FAX (519) 753-1140 www.t-rp.com