YORK®
Heating and Air Conditioning

TECHNICAL GUIDE

SPLIT-SYSTEM HEAT PUMPS

10 SEER – R-22

MODELS:

10 SEER 50 Hz R22

H*RA018S78 THRU H*RA036S78 (1 PH)

(1.5 THRU 3 NOMINAL TONS)

Due to continuous product improvement, specifications are subject to change without notice.

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DESCRIPTION

The HRA Series condensing unit is the outdoor part of a versatile system of air conditioning. It is designed to be custom matched with one of UPG's complete line of evaporator sections, each designed to serve a specific function. Matching Air Handlers are available for upflow, downflow or horizontal applications to provide a complete system. Electric Heaters are available if required. Add-On coils are available for use with upflow, downflow or horizontal furnaces and air handlers.

FEATURES

- **QUALITY CONDENSER COILS -** The coil is constructed of enhanced copper tube and aluminum fins.
- **COIL PROTECTION -** Coils are protected from damage by a polymer mesh applied between the coil face, and a PVC coated steel coil guard.
- **PROTECTED COMPRESSOR -** The compressor is internally protected against high pressure and temperature. This is accomplished by the simultaneous operation of high pressure relief valve and a temperature sensor which protects the compressor if undesirable operating conditions occur. A liquid line filter-drier further protects the compressor.
- **DURABLE FINISH -** Cabinet is made of pre-painted steel. The pre-treated flat galvanized steel provides a better paint to steel bond, which resists corrosion and rust creep. Special primer formulas and matted-textured finish insure less fading when exposed to sunlight.
- **LOWER INSTALLED COST -** Installation time and costs are reduced by easy power and control wiring connections. Discharge line heat exchanger knockouts are provided, if required. Available in sweat connect models only. The unit contains enough refrigerant for matching indoor coils and 15 feet of interconnecting piping. The small base dimension means less space is required on the ground or roof.
- **TOP DISCHARGE -** The warm air from the top mounted fan is blown up away from the structure and any landscaping. This allows compact location on multi-unit applications.
- **LOW OPERATING SOUND LEVEL -** The upward air flow carries the normal operating noise up away from the living area. The rigid top panel effectively isolates any motor sound. Isolator mounted compressor and the rippled fins of the condenser coil muffle the normal fan motor and compressor operating sounds.
- **LOW MAINTENANCE -** Long life permanently lubricated motor-bearings need no annual servicing.
- **EASY SERVICE ACCESS -** Fully exposed refrigerant connections, a single panel covering the electrical controls and the molex plug in the control box connecting the condenser fan, make for easy servicing of the unit.
- **SECURED SERVICE VALVES -** Secured re-usable service valves are provided on both the liquid and vapor sweat connections for ease of evacuating and charging.
- **FACTORY TESTED -** to verify system operation and control functioning before shipment.

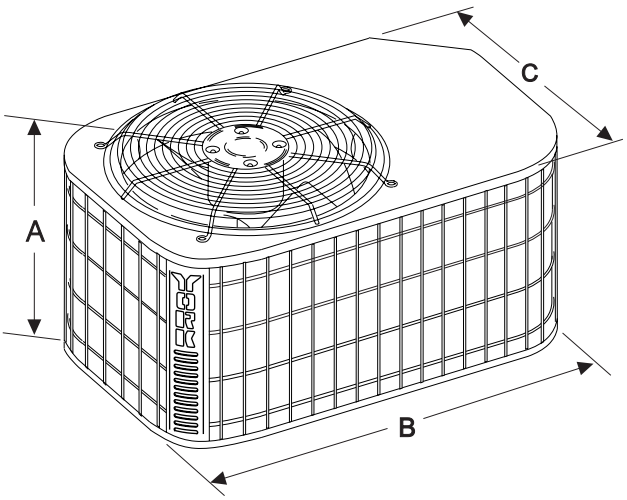
Physical and Electrical Data

Model		H1RA018S78	H1RA024S78	H1RA030S78	H1RA036S78
Unit Supply Voltage		220 - 240V, 1ϕ, 50Hz			
Normal Voltage Range [1]		207 to 253			
Minimum Circuit Ampacity		9.8	14.6	20.4	20.8
Max. Overcurrent Device Amps [2]		15	25	35	35
Compressor Type		Recip	Recip	Recip	Recip
Compressor Amps	Rated Load	7.4	11.3	15.2	15.5
	Locked Rotor	53	65	90	82
Crankcase Heater		No	No	No	No
Fan Motor Amps	Rated Load	.5	.5	1.8	1.8
Fan Diameter Inches		18	18	18	18
Fan Motor	Rated HP	1/12	1/12	1/4	1/4
	Nominal RPM	970	970	900	900
	Nominal CFM	1,650	1,650	2,350	2,350
Coil	Face Area Sq. Ft.	8.00	8.00	9.15	9.15
	Rows Deep	1	1	1	1
	Fin / Inches	14	14	16	16
Liquid Line Set OD (Field Installed)		3/8	3/8	3/8	3/8
Vapor Line Set OD (Field Installed)		3/4	3/4	3/4	3/4
Unit Charge (Lbs. - Oz.) [3]		3 - 13	3 - 14	3 - 12	4 - 11
Charge Per Foot, Oz.		0.66	0.66	0.68	0.68
Operating Weight Lbs.		118	123	135	137

1.Rated in accordance with ARI Standard 110, utilization range “A”.

2.Dual element fuses or HACR circuit breaker.

3.The Unit Charge is correct for the outdoor unit, matched indoor coil and 15 feet of refrigerant tubing. For tubing lengths other than 15 feet, add or subtract the amount of refrigerant, using the difference in length multiplied by the per foot value.



All dimensions are in inches. They are subject to change without notice. Certified dimensions will be provided upon request.

Unit Model	Dimensions (Inches)			Refrigerant Connection Service Valve Size	
	A[1]	B	C	Liquid	Vapor
018S78	17	35	23	3/8”	3/4”
024S78	17	35	23		
030S78	19	35	23		
036S78	19	35	23		

1.Including Fan Guard

COOLING CAPACITY - With Air Handler Coils

UNIT MODEL	AIR HANDLER			COIL MODEL	COOLING			
	MODEL	ELECTRIC HEAT KW	W		RATED CFM	NET MBH		KW
						TOTAL	SENS.	
1 PHASE HRA / FRP (SINGLE PHASE)								
H1RA018S78	F2RP024N93	5,7.5,10	18	–	650	18.1	12.9	1.86
H1RA024S78	F2RP024N93	5,7.5,10	18	–	850	23.4	16.8	2.87
H1RA030S78	F2RP036N93	5,7.5,10,15	21	–	1000	29.6	20.6	3.57
H1RA036S78	F2RP036N93	5,7.5,10,15	21	–	1250	34.3	25.6	3.86

Cooling MBH based on 80°F entering air temperature, 50% RH, and rated air flow.
KW includes compressor, outdoor fan and indoor blower motor watts. Add-on coils include 365 watts/1000 CFM for blower motor.

COOLING PERFORMANCE

MODEL	SUCT. T/P @ COMPR.		AIR TEMP ON CONDENSER							
			75°F		95°F		115°F		125°F	
	TEMP.	PSIG	MBH	KW	MBH	KW	MBH	KW	MBH	KW
H1RA018S78	35	61.5	13.1	1.36	13.1	1.36	10.6	1.46	9.3	1.52
	40	68.5	14.8	1.42	14.8	1.42	12.8	1.55	10.6	1.61
	45	76.0	16.5	1.48	16.5	1.48	13.7	1.62	12.2	1.69
	50	84.0	18.4	1.55	18.4	1.55	15.2	1.71	13.7	1.78
H1RA024S78	35	61.5	21.3	1.59	17.7	1.93	14.7	2.14	13.3	2.23
	40	68.5	24.1	1.68	20.1	2.04	16.7	2.27	15.1	2.38
	45	76.0	26.7	1.77	22.3	2.16	18.9	2.40	17.1	2.53
	50	84.0	29.6	1.85	24.9	2.27	21.1	2.55	19.4	2.67
H1RA030S78	35	61.5	28.0	2.31	24.4	2.65	20.1	2.86	18.0	2.96
	40	68.5	31.5	2.44	27.5	2.78	22.8	3.02	23.4	3.31
	45	76.0	35.1	2.52	30.7	2.91	25.9	3.17	23.4	3.48
	50	84.0	38.9	2.62	34.2	3.04	28.8	3.34	26.3	3.48
H1RA036S78	35	61.5	30.6	3.14	27.0	3.48	23.1	3.79	21.0	3.89
	40	68.5	34.4	3.28	30.4	3.64	26.1	3.98	23.7	4.10
	45	76.0	38.3	3.42	33.9	3.81	29.1	4.17	26.6	4.30
	50	84.0	38.9	2.62	34.2	3.04	28.8	3.34	26.3	3.48

1. For condensing unit only. Does not include effect of evaporator motor power or heat.
2. Performance based on 15°F superheat and 15°F sub-cooling at condensing unit.
   a. Increase capacity 1% for each 2°F increase in sub-cooling.
   b. Decrease capacity 1% for each 2°F decrease in sub-cooling.
3. Sub-cooling in excess of 20°F may result in excessively high condensing temperature with air on condenser above 115°F Maximum recommended condensing temperature is 140°F.

ACCESSORIES

Refer to Price Manual for specific model numbers.

Compressor Blanket - Designed to further reduce the normal operating sound.

Hard Start Kit (Single Phase Units) - provides required starting torque for use with thermal expansion valve.

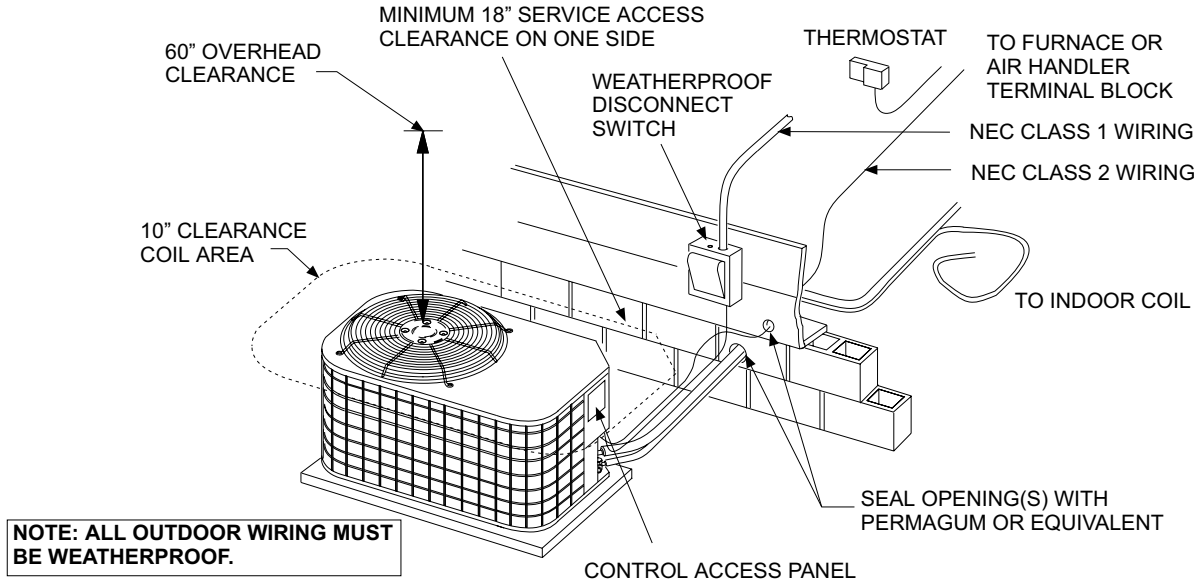
Outdoor Thermostat - 2TD06700124 - Consists of an adjustable outdoor thermostat and relay in a vented enclosure. It provides additional second stage control of the supplemental resistance heat.(Balance Point Control)

SOUND RATINGS

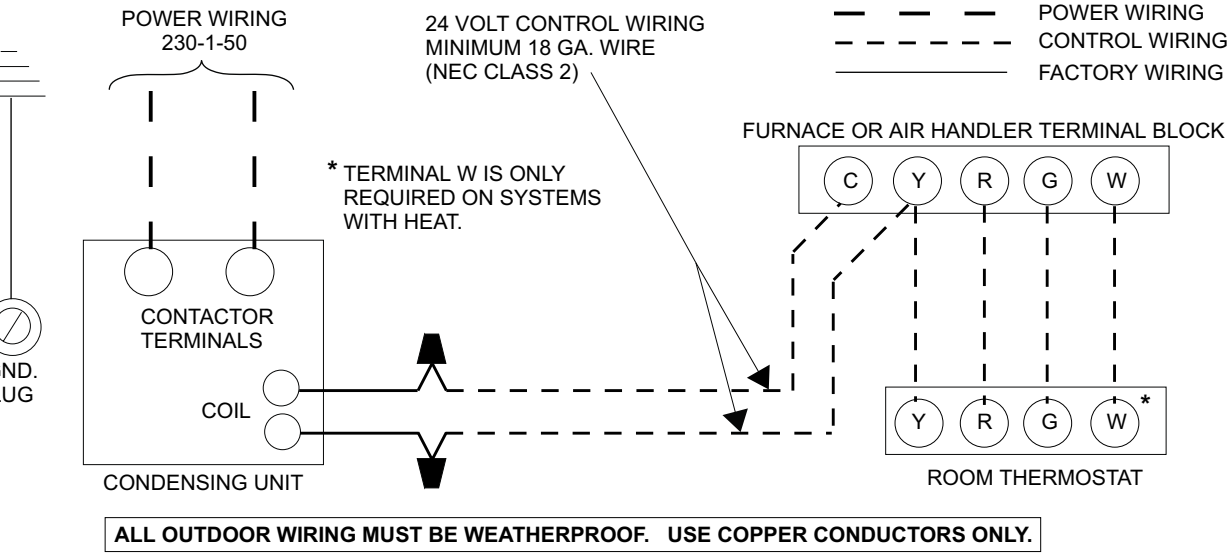
UNIT MODEL	(dBA)
018	76
024	78
030	82
036	82

* Rated in accordance with ARI 270-95 Standards.

TYPICAL INSTALLATION - H*RA018S78 THRU 036S78 (1 PH)



TYPICAL FIELD WIRING - 1 PH APPLICATION (018S78 - 036S78)



COOLING PERFORMANCE DATA										
AIR CONDITIONER MODEL NO.		**H1RA018S78A**								
INDOOR COIL MODEL NO.		**F2RP024**								
CONDENSING ENTERING AIR TEMPERATURE	IDCFM	500			650			800		
	ID DB (°F)	85	80	70	85	80	70	85	80	70
	ID WB (°F)	72	67	57	72	67	57	72	67	57
75	T.C.	18.3	18.1	16.5	18.4	18.2	17.2	18.4	18.3	17.8
	S.C.	10.6	10.8	10.5	11.0	11.6	11.9	11.4	12.4	13.3
	K.W	1.55	1.55	1.53	1.71	1.71	1.69	1.68	1.67	1.66
85	T.C.	17.8	17.2	15.4	18.0	17.5	16.1	18.2	17.8	16.8
	S.C.	10.6	10.7	10.2	11.3	11.7	11.6	12.0	12.8	13.1
	K.W	1.76	1.74	0.95	1.95	1.93	1.90	1.95	1.93	1.90
95	T.C.	17.3	16.3	14.2	17.6	16.8	15.0	17.9	17.3	15.8
	S.C.	10.6	10.5	9.8	11.6	11.8	11.4	12.5	13.1	12.9
	K.W	1.79	1.75	1.71	1.95	1.92	1.88	1.92	1.89	1.85
105	T.C.	16.0	14.7	12.6	16.5	15.3	13.3	17.0	15.9	14.1
	S.C.	10.0	10.0	9.2	11.4	11.4	10.7	12.7	12.8	12.2
	K.W	1.99	1.94	1.90	2.19	2.14	2.09	2.19	2.14	2.09
115	T.C.	14.6	13.1	11.0	15.3	13.8	11.7	16.0	14.4	12.3
	S.C.	9.4	9.5	8.5	11.2	11.0	10.0	12.9	12.5	11.5
	K.W	2.01	1.94	1.90	2.18	2.12	2.07	2.16	2.10	2.04
125	T.C.	13.0	11.1	9.3	13.7	11.6	9.9	14.3	12.1	10.4
	S.C.	9.4	8.5	7.8	11.1	10.0	9.2	12.7	11.5	10.6
	K.W	2.11	2.04	1.98	2.28	2.21	2.15	2.26	2.19	2.13
NOTE: ALL CAPACITIES ARE NET WITH INDOOR FAN HEAT ALREADY DEDUCTED AT 1250 BTUH/1000 CFM.										

Multipliers for determining the performance with other indoor sections.

NOTE: For dry bulb temperatures different than those listed (between 73-87°F), sensible capacity increases by 1060 BTUH per 1000 CFM per degree above the listed temperature and decreases by 1060 BTUH per 1000 CFM per degree below the listed temperature.

COOLING PERFORMANCE DATA										
AIR CONDITIONER MODEL NO.		**H1RA024S78A**								
INDOOR COIL MODEL NO.		**F2RP024**								
CONDENSER ENTERING AIR TEMPERATURE	IDCFM	650			850			1050		
	ID DB (°F)	85	80	70	85	80	70	85	80	70
	ID WB (°F)	72	67	57	72	67	57	72	67	57
75	T.C.	26.4	25.3	24.0	26.6	25.7	24.6	26.7	26.1	25.2
	S.C.	15.4	15.6	15.4	16.2	16.7	16.8	16.9	17.8	18.2
	K.W	2.15	2.11	2.08	2.17	2.13	2.10	2.18	2.15	2.12
85	T.C.	25.4	23.9	21.8	25.7	24.6	22.8	26.1	25.2	23.7
	S.C.	15.3	15.1	14.4	16.4	16.6	16.2	17.4	18.2	18.1
	K.W	2.31	2.26	1.16	2.33	2.28	2.23	2.36	2.31	2.26
95	T.C.	24.4	22.5	19.6	24.9	23.4	20.9	25.4	24.3	22.2
	S.C.	15.3	14.6	13.4	16.6	16.6	15.7	17.9	18.5	17.9
	K.W	2.47	2.40	2.31	2.50	2.44	2.35	2.53	2.47	2.39
105	T.C.	22.5	20.1	17.6	23.2	21.1	18.6	23.9	22.1	19.6
	S.C.	14.7	13.8	12.7	16.4	15.9	14.7	18.1	17.9	16.8
	K.W	2.62	2.53	2.44	2.66	2.57	2.47	2.70	2.61	2.51
115	T.C.	20.6	17.7	15.6	21.5	18.8	16.3	22.4	19.8	16.9
	S.C.	14.2	13.0	11.9	16.3	15.2	13.8	18.3	17.3	15.6
	K.W	2.76	2.65	2.56	2.81	2.70	2.59	2.86	2.74	2.62
125	T.C.	17.8	15.2	13.3	18.7	15.9	14.0	19.5	16.7	14.7
	S.C.	13.3	12.4	11.4	15.4	14.3	13.1	17.4	16.1	14.7
	K.W	2.89	2.78	2.69	2.94	2.82	2.72	2.99	2.85	2.75
NOTE: ALL CAPACITIES ARE NET WITH INDOOR FAN HEAT ALREADY DEDUCTED AT 1250 BTUH/1000 CFM.										

Multipliers for determining the performance with other indoor sections.

NOTE: For dry bulb temperatures different than those listed (between 73-87°F), sensible capacity increases by 1060 BTUH per 1000 CFM per degree above the listed temperature and decreases by 1060 BTUH per 1000 CFM per degree below the listed temperature.

COOLING PERFORMANCE DATA										
AIR CONDITIONER MODEL NO.		**H1RA030S78A**								
INDOOR COIL MODEL NO.		**F2RP036**								
CONDENSER ENTERING AIR TEMPERATURE	IDCFM	650			850			1050		
	ID DB (°F)	85	80	70	85	80	70	85	80	70
	ID WB (°F)	72	67	57	72	67	57	72	67	57
75	T.C.	26.4	25.3	24.0	26.6	25.7	24.6	26.7	26.1	25.2
	S.C.	15.4	15.6	15.4	16.2	16.7	16.8	16.9	17.8	18.2
	K.W	2.39	2.35	2.32	2.53	2.49	2.46	2.56	2.53	2.50
85	T.C.	25.4	23.9	21.8	25.7	24.6	22.8	26.1	25.2	23.7
	S.C.	15.3	15.1	14.4	16.4	16.6	16.2	17.4	18.2	18.1
	K.W	2.67	2.62	1.40	2.82	2.76	2.71	2.93	2.88	2.83
95	T.C.	24.4	22.5	19.6	24.9	23.4	20.9	25.4	24.3	22.2
	S.C.	15.3	14.6	13.4	16.6	16.6	15.7	17.9	18.5	17.9
	K.W	2.71	2.64	2.55	2.86	2.80	2.71	2.91	2.85	2.77
105	T.C.	22.5	20.1	17.6	23.2	21.1	18.6	23.9	22.1	19.6
	S.C.	14.7	13.8	12.7	16.4	15.9	14.7	18.1	17.9	16.8
	K.W	2.98	2.89	2.80	3.14	3.05	2.95	3.27	3.18	3.08
115	T.C.	20.6	17.7	15.6	21.5	18.8	16.3	22.4	19.8	16.9
	S.C.	14.2	13.0	11.9	16.3	15.2	13.8	18.3	17.3	15.6
	K.W	3.00	2.88	2.80	3.17	3.05	2.95	3.24	3.12	3.00
125	T.C.	17.8	15.2	13.3	18.7	15.9	14.0	19.5	16.7	14.7
	S.C.	13.3	12.4	11.4	15.4	14.3	13.1	17.4	16.1	14.7
	K.W	3.13	3.02	2.93	3.30	3.18	3.08	3.37	3.23	3.13
NOTE: ALL CAPACITIES ARE NET WITH INDOOR FAN HEAT ALREADY DEDUCTED AT 1250 BTUH/1000 CFM.										

Multipliers for determining the performance with other indoor sections.

NOTE: For dry bulb temperatures different than those listed (between 73-87°F), sensible capacity increases by 1060 BTUH per 1000 CFM per degree above the listed temperature and decreases by 1060 BTUH per 1000 CFM per degree below the listed temperature.

COOLING PERFORMANCE DATA										
AIR CONDITIONER MODEL NO.		**H1RA036S78A**								
INDOOR COIL MODEL NO.		**F2RP036**								
CONDENSER ENTERING AIR TEMPERATURE	IDCFM	1050			1250			1450		
	ID DB (°F)	85	80	70	85	80	70	85	80	70
	ID WB (°F)	72	67	57	72	67	57	72	67	57
75	T.C.	38.7	36.8	35.0	39.1	34.7	35.6	39.4	32.5	36.2
	S.C.	23.4	23.5	23.4	24.4	24.8	24.8	25.4	26.1	26.2
	K.W	3.30	3.25	3.21	3.59	3.54	3.50	3.48	3.43	3.39
85	T.C.	37.4	34.8	31.9	37.7	34.1	32.6	38.1	33.4	33.4
	S.C.	23.5	24.0	22.2	24.7	25.2	23.9	25.9	26.4	25.5
	K.W	3.74	3.65	1.95	4.06	4.00	3.90	4.00	3.94	3.84
95	T.C.	36.0	32.7	28.7	36.4	33.5	29.6	36.7	34.3	30.5
	S.C.	23.6	24.5	21.0	25.0	25.6	22.9	26.4	26.7	24.8
	K.W	3.80	3.67	3.51	4.09	3.99	3.83	3.99	3.92	3.76
105	T.C.	32.6	29.1	25.5	33.2	29.9	26.3	33.9	30.7	27.2
	S.C.	22.6	22.1	19.6	24.3	23.6	21.5	26.1	25.2	23.3
	K.W	4.17	4.00	3.85	4.53	4.36	4.21	4.49	4.32	4.17
115	T.C.	29.2	25.5	22.3	30.1	26.3	23.1	31.0	27.0	23.8
	S.C.	21.5	19.6	18.2	23.6	21.6	20.0	25.7	23.6	21.8
	K.W	4.16	3.95	3.81	4.50	4.27	4.12	4.45	4.19	4.04
125	T.C.	25.5	22.4	19.6	26.2	22.8	20.0	26.9	23.1	20.4
	S.C.	20.3	18.8	17.4	22.3	20.5	18.9	24.3	22.2	20.3
	K.W	4.29	4.12	3.99	4.65	4.43	4.29	4.61	4.35	4.20
NOTE: ALL CAPACITIES ARE NET WITH INDOOR FAN HEAT ALREADY DEDUCTED AT 1250 BTUH/1000 CFM.										

Multipliers for determining the performance with other indoor sections.

NOTE: For dry bulb temperatures different than those listed (between 73-87°F), sensible capacity increases by 1060 BTUH per 1000 CFM per degree above the listed temperature and decreases by 1060 BTUH per 1000 CFM per degree below the listed temperature.

339293-YTG-C-0208
Supersedes: 339293-YTG-B-0108

Unitary Product Group
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Norman OK 73069