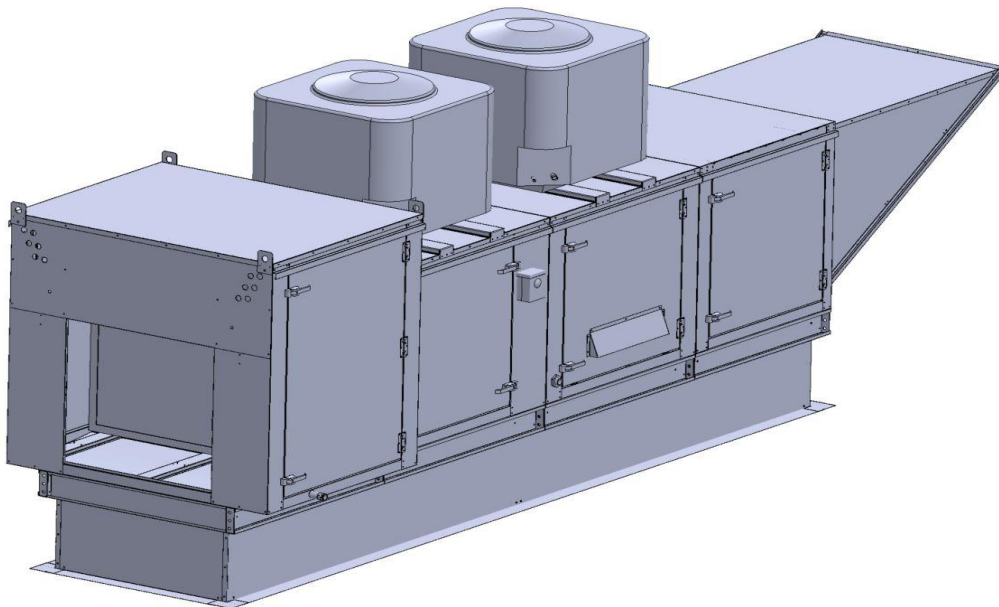


## Gas-Fired Tempered Make-Up Air Unit / DX

Model:

TK2-DX-3PH-FF

3-Phase, 208V, 3.00 HP, Belt driven with Motorized Damper and 15" Blower. MAX 3800 CFM's





TK2-500 Direct Fired MPU (1694 lbs./134 curb)

**Supply Motor:**

Model DTP0034, 3.000 HP, 3 Phase, 208 V, 60Hz, 9.5 FLA, ODP, Premium (E-Plus3) Eff.

**Supply Motor Pulleys:**

<u>Part Type</u>	<u>Qty</u>	<u>Browning #</u>	<u>Turns Out</u>
Belt	2	BX50	
Blower Pulley	1	2BK60H	
Bushing	1	H-1	
Motor Pulley	1	2VP42 x 1 1/8	4.0

**Burner:**

Min Output BTU: 18,000 BTU/Hr  
Max Output BTU: 550,000 BTU/Hr  
Size: 12" long  
Gas Type: Natural

**Supply Performance:**

Volume: 3800 cfm Volume Range: 2700-3800 cfm  
RPM: 1037  
TS: 4072 ft/min  
SP: 0.991" w.g.  
0.500" Ext. + 0.060" Int. + 0.431" Opt.  
BHP: 2.513

**Heating Schedule:**

Altitude: 0'  
Winter Entering Air Dry Bulb Temp: 0°F  
Temp Rise: 100°F  
Output BTU: 410400  
Input BTU: 446087  
BTUs BASED OFF STANDARD AIR DENSITY

**Cooling Schedule:**

DX Coil Entering Dry Bulb Temperature: 90°F  
DX Coil Entering Wet Bulb Temperature: 72°F  
DX Coil Leaving Dry Bulb Temperature: 76°F  
DX Coil Leaving Wet Bulb Temperature: 67°F  
DX Coil Total Capacity: 69.1 MBH  
DX Coil Sensible Capacity: 56.6 MBH  
DX Coil Latent Capacity: 12.5 MBH  
Temperature drop calculations are based on tested data.

**Supply Installation Information:**

Gas Inlet Pressure: 7 in. w.c. - 14 in. w.c.  
Insurance: No Insurance Requirement (ANSI)  
Unit Main Input: 13.1 Amps MCA, 20 Amps MOP, 208 V, 14 AWG Wire Min.  
Condenser #1: 21.4 Amps MCA, 30 Amps MOP, 208-230, 12 AWG Wire Min.  
Condenser #1: 11.2 Amps MCA, 20 Amps MOP, 208-230, 14 AWG Wire Min.  
Supply Unit Voltage: 3 phs 208 V 60Hz

**Construction Features**

Housing constructed of heavy duty G90 galvanized steel • Forward curved centrifugal blower wheel • Vibration isolation • Adjustable drive assemblies • Adjustable motor mount • Ball bearing motors • Heavy duty, pre-lubricated bearings rated for 200,000 hours of operation • Static resistant belts • Service doors on both sides • Horizontal & down discharge • Large intake area ensures low pressure drop across unit • Spring loaded profile plates automatically adjust for any airflow - no manual setting required! • Weatherproof safety disconnect switch • Modular design provides design flexibility • Fully insulated casing

**Blower:**

15" forward curved, centrifugal blower. Pillow Block ball bearings. Galvanized finish. 1" x 27-1/8" Shaft. 2000-7500 CFM. 1800 max. RPM. Used in heated and non-heated supply fans.

**Temp Control:**

RTC Solutions • 40-90°F Discharge Temp Control • Field Wired On/Off Start Command

**Intake:**

Sloped Filtered Intake for Size #2 Modular Heater. 26.813" Wide X 53.625" Long X 31.313" High. Includes 2" MV EZ Kleen Metal Mesh Filters.

**Filters:**

3x MV EZ Kleen Metal Mesh Filter. 20"x 25"x 2" Used for heater and supply fan intakes. (3416)

**Curb & Supports:**

RAIL - 6" Width X 31" Length X 20" Height  
ROOF CURB - 31" Wide X 79" Long X 20" High, Insulated. For the # 2 Modular Heater.

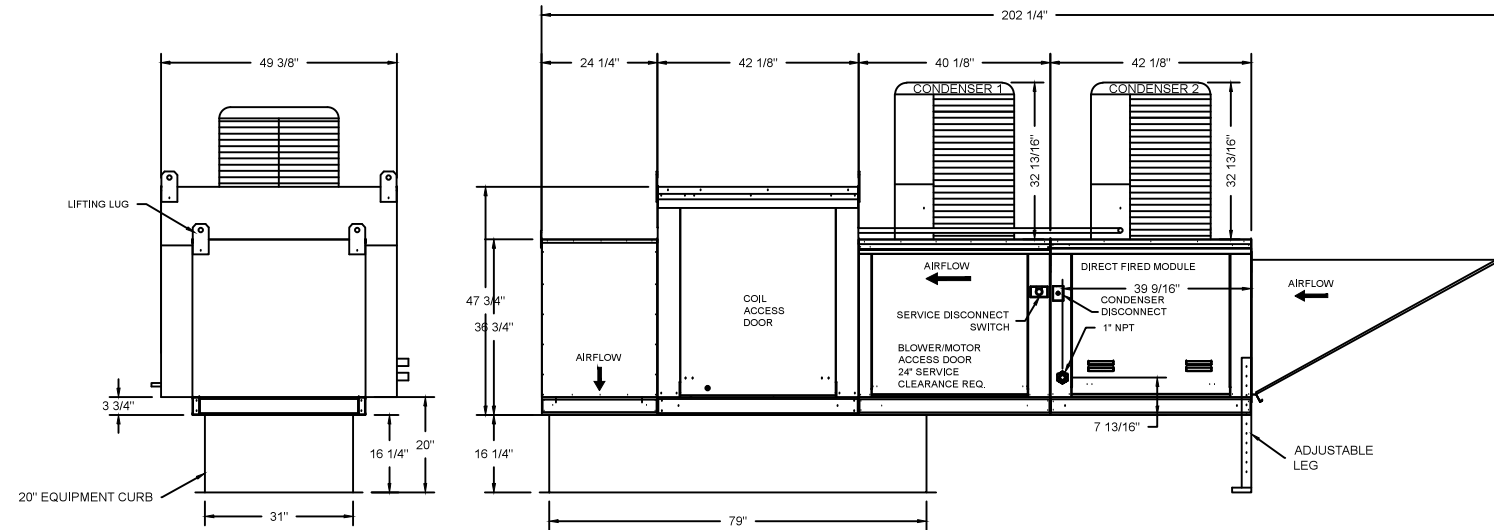
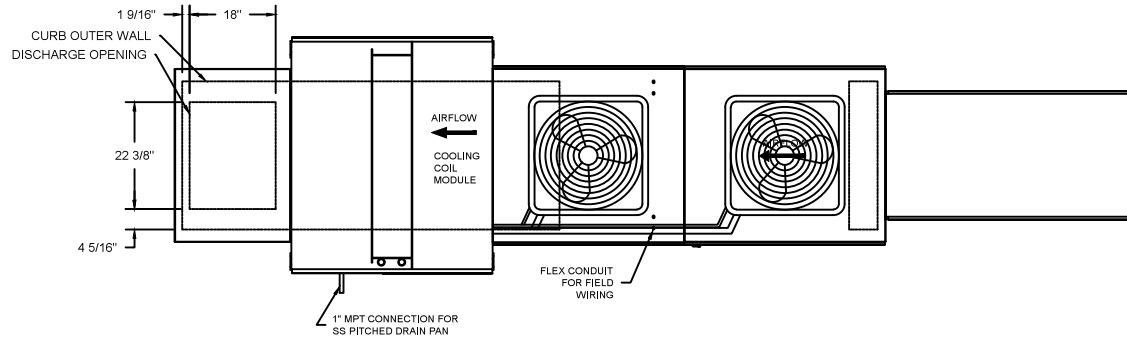
**Selected Options:**

- Motorized Back Draft Damper 22.75" X 24" for Size 2 Standard & Modular Heater Units w/Extended Shaft, Standard Galvanized Construction, 3/4" Rear Flange, Low Leakage, LF120S Actuator Included
- Low Fire Start. Allows the burner circuit to energize when the modulation control is in a low fire position.
- Gas Pressure Gauge, 0-35", 2.5" Diameter, 1/4" Thread Size
- Gas Pressure Gauge, -5 to +15 Inches Wc., 2.5" Diameter, 1/4" Thread Size
- DX Cooling Intake Air Thermostat and Relays Mounted in Unit - Set Point For Thermostat Should Be 85°F.
- 7.5 Ton, Dual Circuit (2.5/5) Modular Packaged Cooling Option for Size 2 Modular Packaged Unit. Includes Condenser, DX Coil, Filter/Dryer Kit, Thermal Expansion Valve, R410A Refrigerant, and Refrigerant Piping. (2,700 to 4,500 cfm) NOT BUILT WITH OPPOSITE SIDE CONTROLS OR OPPOSITE AIRFLOW DIRECTION. CONDENSERS REQUIRE SEPARATE 208V, 3 PHASE POWER SUPPLY UNLESS ORDERED WITH SINGLE POINT CONNECTION. Coil = 3EZ1101C
- Downturn Plenum for Size 2 Cooling Coil Module - Required for Down Discharge Cooling Coil Applications

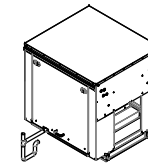
TK2 DIRECT FIRED HEATER WITH DX COOLING

1. DIRECT GAS FIRED HEATED MAKE UP AIR UNIT WITH 15" BLOWER
2. INTAKE HOOD WITH EZ FILTERS
3. DOWN DISCHARGE - AIR FLOW RIGHT -> LEFT
4. MOTORIZED BACK DRAFT DAMPER 22.75" X 24" FOR SIZE 2 STANDARD & MODULAR HEATER UNITS W/EXTENDED SHAFT, STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LOW LEAKAGE, LF120S ACTUATOR INCLUDED
5. LOW FIRE START - ALLOWS THE BURNER CIRCUIT TO ENERGIZE WHEN THE MODULATION CONTROL IS IN A LOW FIRE POSITION.
6. GAS PRESSURE GAUGE, 0-35", 2.5" DIAMETER, 1/4" THREAD SIZE
7. GAS PRESSURE GAUGE, -5 TO +15 INCHES WC., 2.5" DIAMETER, 1/4" THREAD SIZE
8. FULL CRATING FOR COMMERCIAL HEATERS FOR SHIPPING.
9. DX COOLING INTAKE AIR THERMOSTAT AND RELAYS MOUNTED IN UNIT - SET POINT FOR THERMOSTAT SHOULD BE 85°F.
10. 7.5 TON, DUAL CIRCUIT (2.5/5) MODULAR PACKAGED COOLING OPTION FOR SIZE 2 MODULAR PACKAGED UNIT. INCLUDES CONDENSER, DX COIL, FILTER/DRYER KIT, HARD START KIT, THERMAL EXPANSION VALVE, R410A REFRIGERANT, AND REFRIGERANT PIPING.
11. DOWNTURN PLENUM FOR SIZE 2 COOLING COIL MODULE - REQUIRED FOR DOWN DISCHARGE COOLING COIL APPLICATIONS
12. PROFILE PLATE CONFIGURATION FOR SIZE 2 DIRECT FIRED UNIT FOR LOW CFM APPLICATIONS.

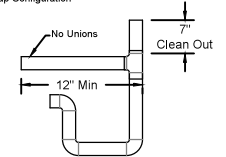
NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE UNLESS OTHERWISE SPECIFIED. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT.



Typical Drain Trap Install



Recommended Cooling Coil Drain Trap Configuration



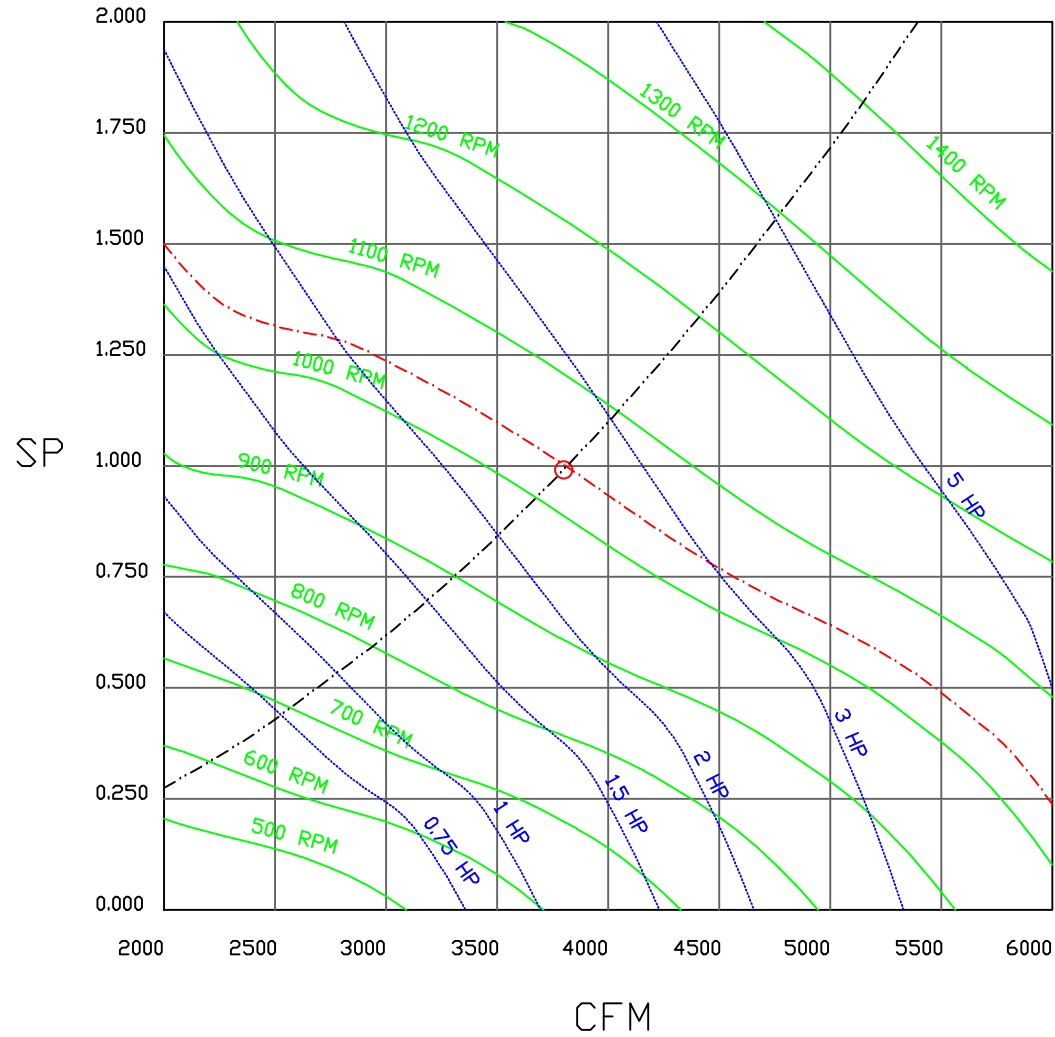
- Notes:
- 1) 1" diameter PVC Pipe only
  - 2) Use only low profile couplings
  - 3) Add clean out as shown

**NORTH AMERICAN KITCHEN SOLUTIONS INCORPORATED**

<b>JOB LOCATION</b>	
<b>DATE</b> 8/1/18	<b>JOB #</b>
<b>DWG #</b>	<b>DRAWN BY</b>
<b>REV.</b>	<b>SCALE</b>

(MPU 3800 3HP/3PH-208V) - HEATER PERFORMANCE CURVES.

3800 CFM, 0.991 SP @ 1037 RPM and 2.513 BHP at 0 feet and 100 deg F  
 \* Please note that these curves were adjusted for job specific temperature and altitude.



	<b>NORTH AMERICAN KITCHEN SOLUTIONS INCORPORATED</b>	<i>JOB</i>	
		<i>LOCATION</i>	
		<i>DATE</i> 8/27/2018	<i>JOB #</i>
		<i>DWG #</i>	<i>DRAWN BY</i>
		<i>REV.</i>	<i>SCALE</i> 3/8" = 1'-0"

# Modular Package Unit Wiring

JOB NAKS DIRECT FIRED MPU

DRAWING NUMBER

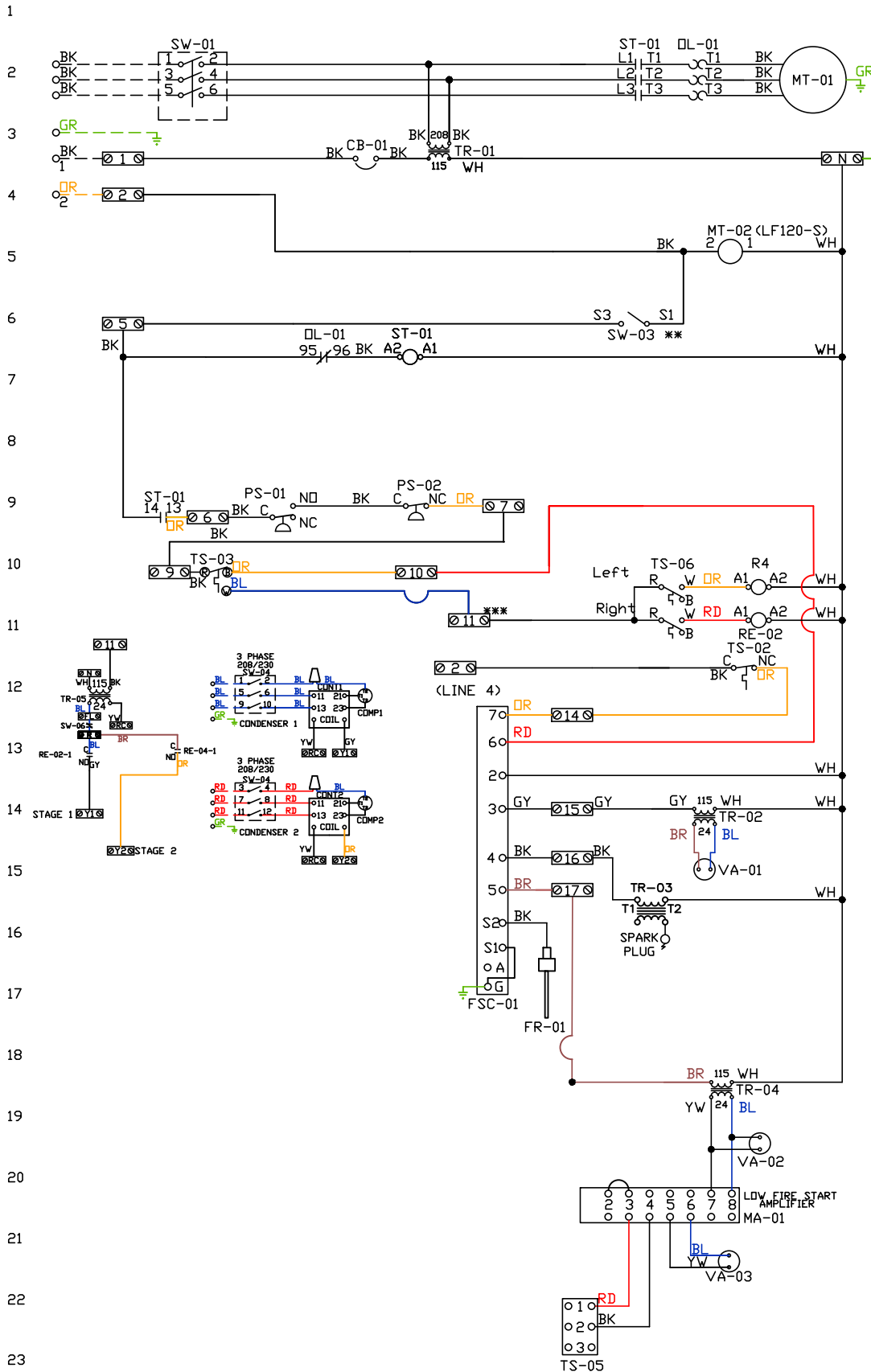
SHIP DATE

MODEL TK 1-4 Series

ATTENTION ELECTRICIAN!  
 DROP FOR DISCONNECT CONNECTION  
 IS FACTORY SUPPLIED  
 CONNECT POWER TO THE DROP

Installed Options  
 Field Wired Single Switch Control  
 Motorized Back Draft Damper

Discharge Temp. Control  
 Cooling Thermostat and Relay



Label	Component Identification Description	Location
CB-01	Circuit breaker (2amp)	[3]
FR-01	Flame rod	[16]
FSC-01	Fireeye FSC	[11-14]
MA-01	Modulating amplifier	[19]
MT-01	Supply motor	[2]
MT-02	Damper motor	[5]
DL-01	Supply motor overload	[2][7]
PS-01	Low AirFlow Switch	[9]
PS-02	High AirFlow Switch	[9]
RE-02	Stage 1 Heat/Cool Relay	[11][13]
RE-04	Stage 2 Cooling Relay	[11][13]
ST-01	Supply motor contactor	[2][7][9]
SW-01	Main disconnect switch	[2]
SW-03	Damper end unit switch	[4]
SW-04	40 Amp Rotary Disconnect	[12-14]
SW-06	Overflow Switch	[12-13]
TR-01	Power transformer(200v)	[12]
TR-02	Power transformer(20va)	[12]
TR-03	Ignition transformer	[14]
TR-04	Power transformer(20va)	[17]
TR-05	Cond Transformer(40va)	[12]
TS-02	High temp limit switch	[10]
TS-03	Intake Air Sensor	[10]
TS-05	Discharge Air Sensor	[21]
TS-06	Cooling Thermostat	[16]
VA-01	Pilot gas valve	[13]
VA-02	Main gas valve	[18]
VA-03	Modulating gas valve	[20]

SUPPLY	MOTOR INFO
CONTACTOR: 3HP-208V-3P-9.5FLA	
OVERLOAD: 100-K12D10	
	193-KC10

ELECTRICAL INFORMATION  
 MOTOR/CTRL CIRCUIT MCA: 13.1A  
 MOTOR/CTRL CIRCUIT MOP: 20A  
 COND1 MCA = 11.2A COND1 MOP = 20A  
 COND2 MCA = 21.4A COND2 MOP = 30A

NOTES  
 --- DENOTES FIELD WIRING  
 ——— DENOTES INTERNAL WIRING

\*\* TERMINALS S4 AND S6 USED ON NF & AF SERIES ACTUATORS  
 \*\*\* TERMINAL 11 PROVIDES COOLING CONNECTION

WIRE COLOR	SOCKET STYLE
BK-BLACK	ND 4 3
BL-BLUE	NC 2 1
BR - BROWN	CDL 8 7
DR - ORANGE	CDM 6 5
GY - GRAY	
GR - GREEN	
WH - WHITE	
PR - PURPLE	
RD - RED	
PK - PINK	

# Installation Wiring

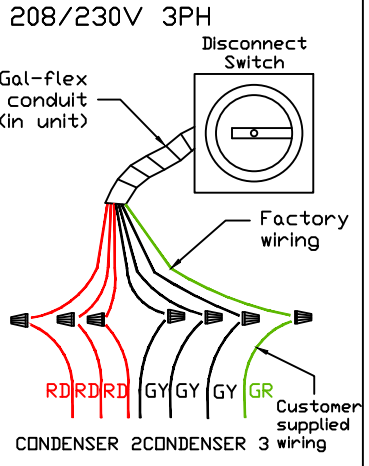
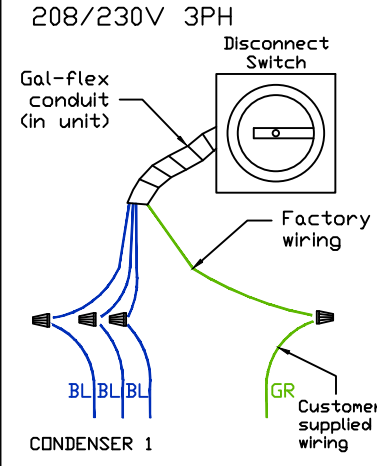
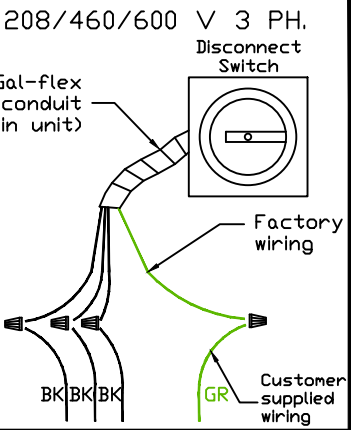
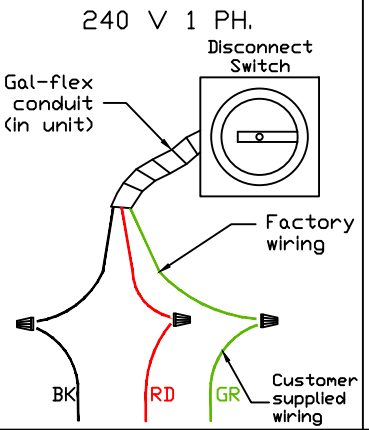
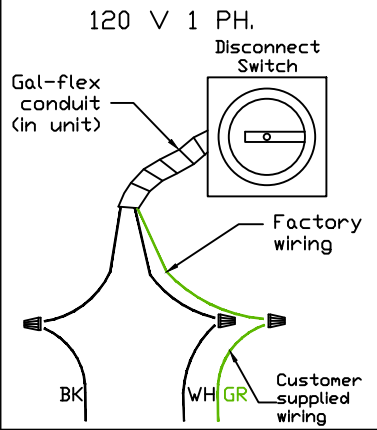
JOB NAKS Direct Fired MPU

DRAWING NUMBER

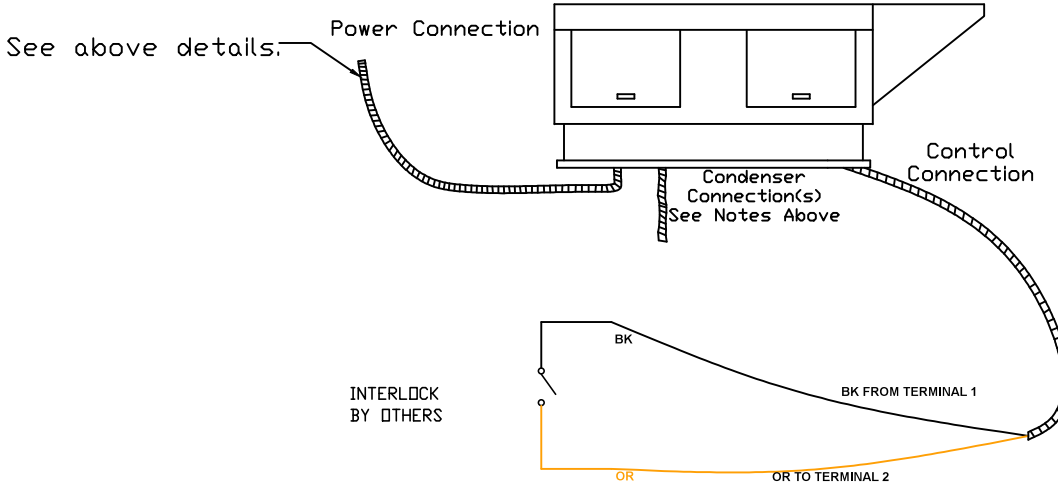
SHIP DATE

MODEL TK 1-4 Series

Installed Options



DO NOT CONNECT CONDENSER POWER DROPS TO KITCHEN CONTROL PACKAGE STARTERS OR VFDS



## NOTES

### WIRE COLOR

- BK - BLACK
- BL - BLUE
- BR - BROWN
- OR - ORANGE
- RD - RED
- WH - WHITE
- YW - YELLOW
- GR - GREEN
- GY - GRAY
- PR - PURPLE
- PK - PINK