

## Gas-Fired Tempered Make-Up Air Unit

Model:

TK2ECDD-3PH-FF

3-Phase, 460V, 5.00 HP, Direct Drive, ECM Motor with Motorized Damper and 22" Blower. MAX 5000 CFM's



TK2-500-22Z Direct Fired Direct Drive (822 lbs.)



Direct Gas Fired Heated Make Up Air Unit with 22" Direct Drive Fan

**Supply Motor:**

Model 163903/A01-ECM-60-480-22, 5.000 HP, 3 Phase, 460 V, 60Hz, 5.1 FLA, ODP-ECM (Open Drip Proof Electronically Commutated Motor)

**Burner:**

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

**Supply Performance:**

Volume Range: 2500-5000 cfm  
RPM: 1605  
TS: 9244 ft/min  
SP: 0.659" w.g.  
0.500" Ext. + 0.105" Int. + 0.054" Opt.  
BHP: 2.71

**Heating Schedule:**

Altitude: 0'  
Winter Entering Air Dry Bulb Temp: 0°F  
Temp Rise: 100°F  
Output BTU: 540000  
Input BTU: 586957  
BTUs BASED OFF STANDARD AIR DENSITY

**Supply Installation Information:**

Gas Inlet Pressure: 7 in. w.c. - 14 in. w.c.  
Insurance: No Insurance Requirement (ANSI)  
Unit Main Input: 6.9 Amps MCA, 15 Amps MOP, 460 V, 14 AWG Wire Min.  
Supply Unit Voltage: 3 phs 460 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:**

22 Inch Plenum Fan for size 2 MOD. Motor integral to Wheel. Max RPM = 1920.

**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)

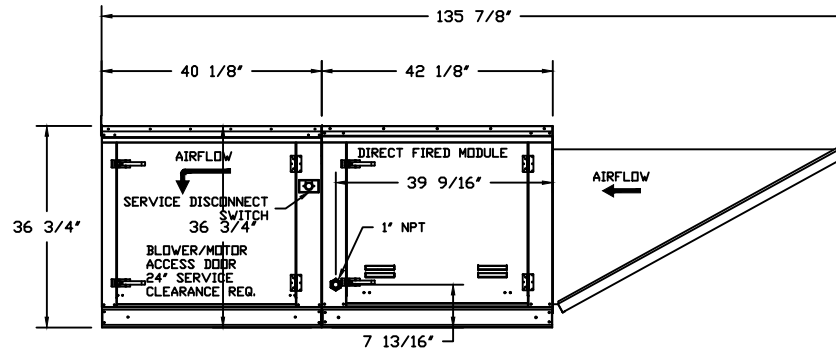
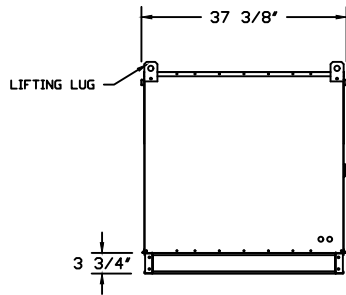
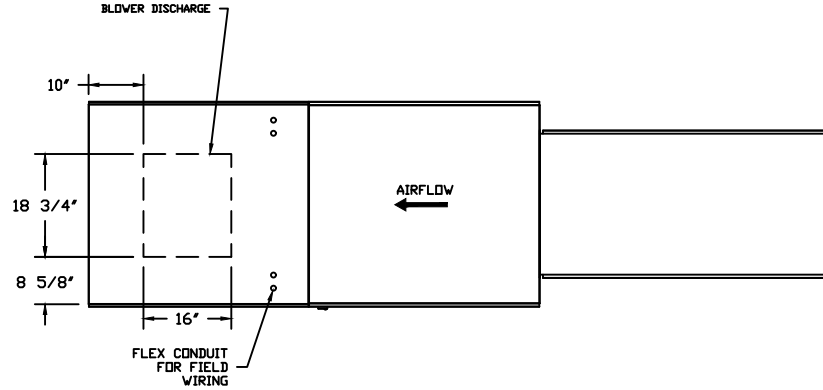
**Selected Options:**

- 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
- ECM Wiring Package and Manual or 0-10 VDC Control for Supply EC Ziehl Fans. RTC Controller

**TK2-D.500-22Z DIRECT FIRED HEATER**

1. DIRECT GAS FIRED HEATED MAKE UP AIR UNIT WITH 22" DIRECT DRIVE FAN
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. ECM WIRING PACKAGE AND MANUAL OR 0-10 VDC CONTROL FOR SUPPLY EC ZIEHL FANS. RTC CONTROLLER

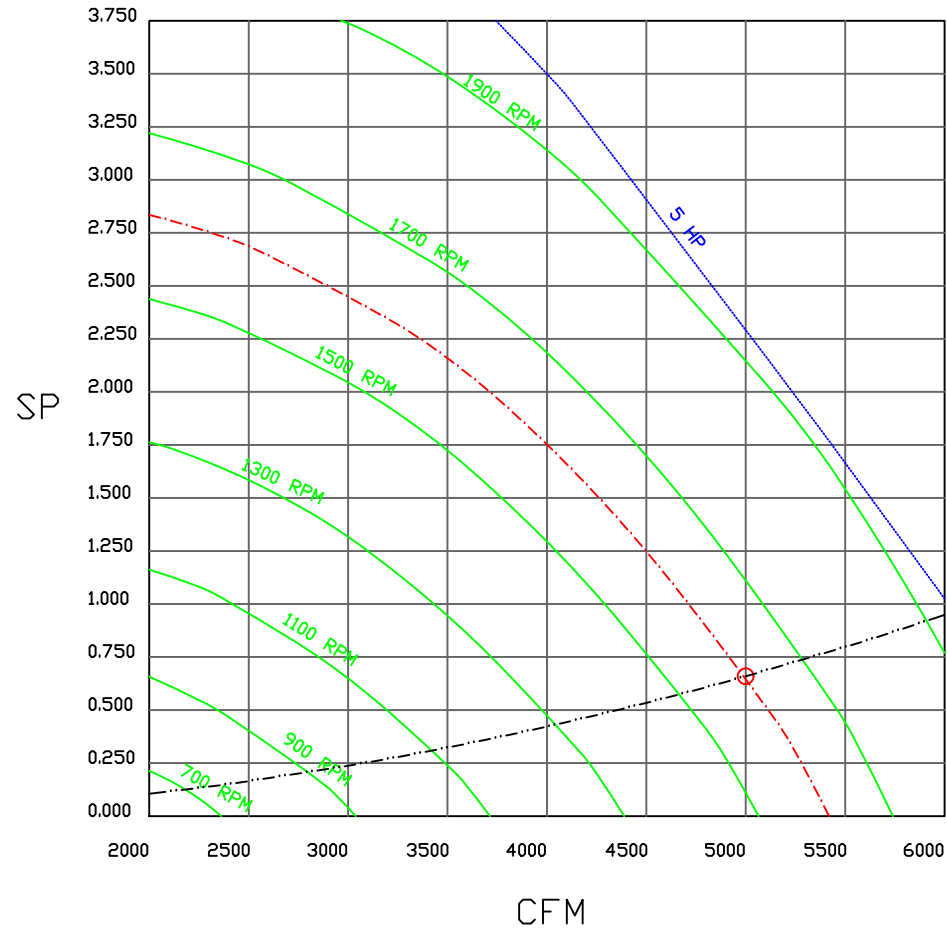
NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE UNLESS OTHERWISE SPECIFIED. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF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



JOB	
LOCATION	
DATE	JOB #
DWG #	DRAWN BY
REV.	SCALE 1/4" = 1'-0"

(5000 5HP/3PH-460V) - HEATER PERFORMANCE CURVES.

5000 CFM, 0.659 SP @ 1605 RPM and 2.71 BHP at 0 feet and 100 deg F  
 \* Please note that these curves were adjusted for job specific temperature and altitude.



JOB	
LOCATION	
DATE	JOB #
DWG #	DRAWN BY
REV.	SCALE 3/8" = 1'-0"

# Direct Fired Heater Wiring

JOB NAKS Direct Fired Direct Drive MUA

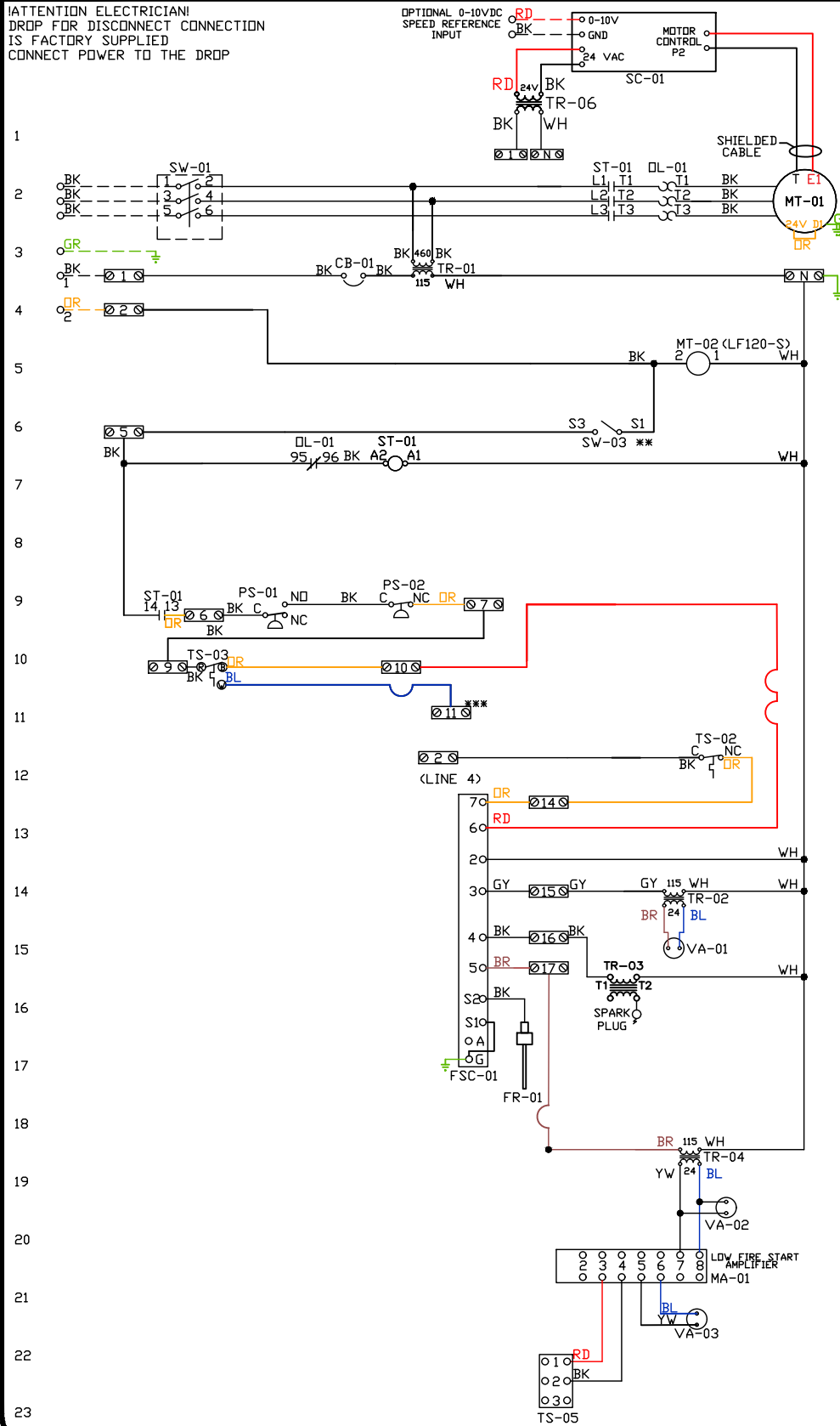
DRAWING NUMBER

SHIP DATE

MODEL TK 1-5 Series Direct Drive ECM

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

OPTIONAL 0-10VDC  
 SPEED REFERENCE  
 INPUT



Installed Options  
 Field Wired Single Switch Control  
 Motorized Back Draft Damper

Discharge Temp. Control

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	[2X7][9]
PS-01	Low Air-Flow Switch	[9]
PS-02	High Air-Flow Switch	[9]

SC-01	RTC-FSC-1	[1]
ST-01	Supply motor contactor	[2X7][9]
SW-01	Main disconnect switch	[2]
SW-03	Damper end limit switch	[4]
TR-01	Power transformer(200va)	[12]
TR-02	Power transformer(20va)	[12]
TR-03	Ignition transformer	[14]
TR-04	Power transformer(20va)	[17]
TR-06	24VAC 20VA Transformer	[1]
TS-02	High temp limit switch	[10]
TS-03	Intake Air Sensor	[10]
TS-05	Discharge Air Sensor	[21]

**MOTOR INFO**  
 SUPPLY: SHP-460V-3P-5.1FLA  
 CONTACTOR: 100-K09D10  
 OVERLOAD: 193-KB63

**ELECTRICAL INFORMATION**  
 MOTOR/CTRL CIRCUIT MCB: 6.9A  
 MOTOR/CTRL CIRCUIT MDP: 15A

**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	NO 4 1 3
BL - BLUE	NC 2 1 1
BR - BROWN	COM 8 7 7
DR - DRANGE	COM 6 1 5
FR - PURPLE	
GY - GRAY	
PK - PINK	
RD - RED	
WH - WHITE	
YV - YELLOW	
GR - GREEN	

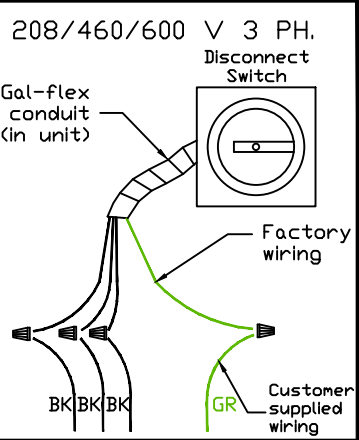
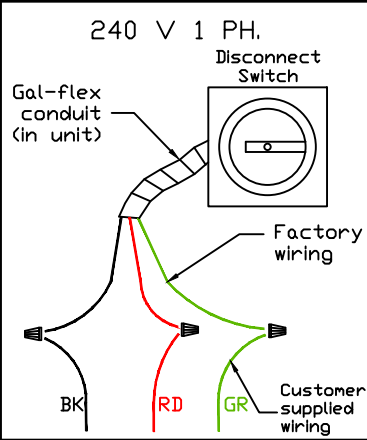
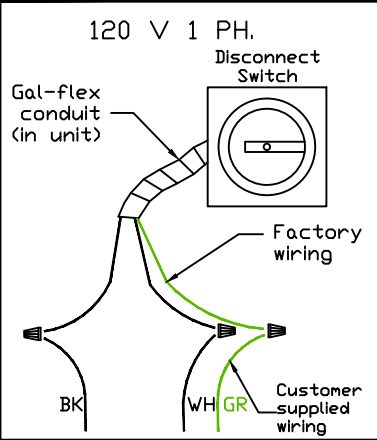
# Installation Wiring

JOB *NAKS Direct Fired MUA*

DRAWING NUMBER

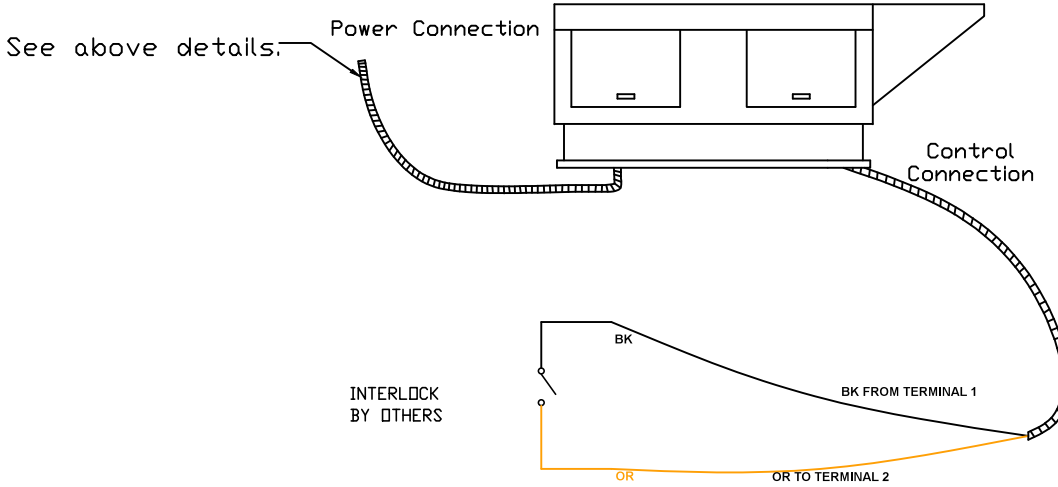
SHIP DATE

MODEL **TK 1-5 Series**



Installed Options

Field Wired On/Off Switch



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