



Order # 3697308 - NAKS DD TK-USBI Utility Sets

Fan #11 TK-USBI-24DD-RM (718 lbs.)
Tag: 6000 5hp/3ph-VFD

Direct Drive Exhaust Only Unit With 24.750" Steel Wheel. Utility Set Exhaust Fan w/ 2" Grease Drain. Clockwise Rotation When Looking At Inlet.

Exhaust Motor:

Model DTP0056, 5.000 HP, 3 Phs, 208 V, 60Hz, 15.8 FLA, ODP, Premium (E-Plus3) Eff.

Exhaust Performance:

Volume: 6000 cfm
RPM: 1116
TS: 7231 ft/min
SP: 1.500" w.g.
BHP: 3.639
Discharge Velocity: 1988 FPM
Altitude: 0'
Ambient Temp: 70°F

Exhaust Installation Information:

Unit Main Input: 19.8 Amps MCA, 35 Amps MOP, 208 V, 12 AWG Wire Min.
Exhaust Unit Voltage: 3 phs 208 V 60Hz



Construction Features

Use with General Ventilation (UL705) and for Restaurant Duty (UL762) • Vented Motor Cover and Continuously Sealed Housing for added weather protection • Scroll and Motor Compartment Connected for added Structure • Easily Accessible Clean Out Door and Motor Access from 3 Sides • Standard 2" Grease Drain • Standard Emergency Disconnect Switch • Standard Heat Slinger and Heavy Duty Pillow Block Bearings for Belt Drive option • Standard Shaft Seal for Belt Drive option • Standard Pivot Plates for easy Belt Adjustment • Double Groove Pulleys standard for 2 HP and Above Motors • Discharge Outlet Flanges Available on All Sizes • Temperature Ratings - Aluminum Wheel, 350 degrees F •

Selected Options:

- BI24 - 24" High Discharge Extension Assembly.
- BI - Discharge Orientation - Vertical Upper Left - CW Looking At Inlet.
- BI24 - 24" Flanged Grease Duct Connection.
- Grease Cup for Utility Sets. Option for Utility Sets.
- VAV (Variable-Air-Volume) Wiring Package for Commercial Fans. Manual Speed Control Variable Frequency Drive Included
- Exhaust Variable Frequency Drive - 5 HP Max., 200/240 V, Three Phase, 16.5 A Max., NEMA 1 Enclosure, (Default Shipped Loose for Field Installation) PART NEEDS PROGRAMMING
- VFD factory mounted and wired in unit control vestibule.

EXHAUST FAN INFORMATION

FAN UNIT NO.	TAG	FAN UNIT MODEL #	CFM	ESP.	RPM	H.P.	B.H.P.	Ø	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS.)
1	6000 5hp/3ph-VFD	TK-USBI-24DD-RM	6000	1.500	1116	5.000	3.6390	3	208	15.8	1988 FPM	718

FAN OPTIONS

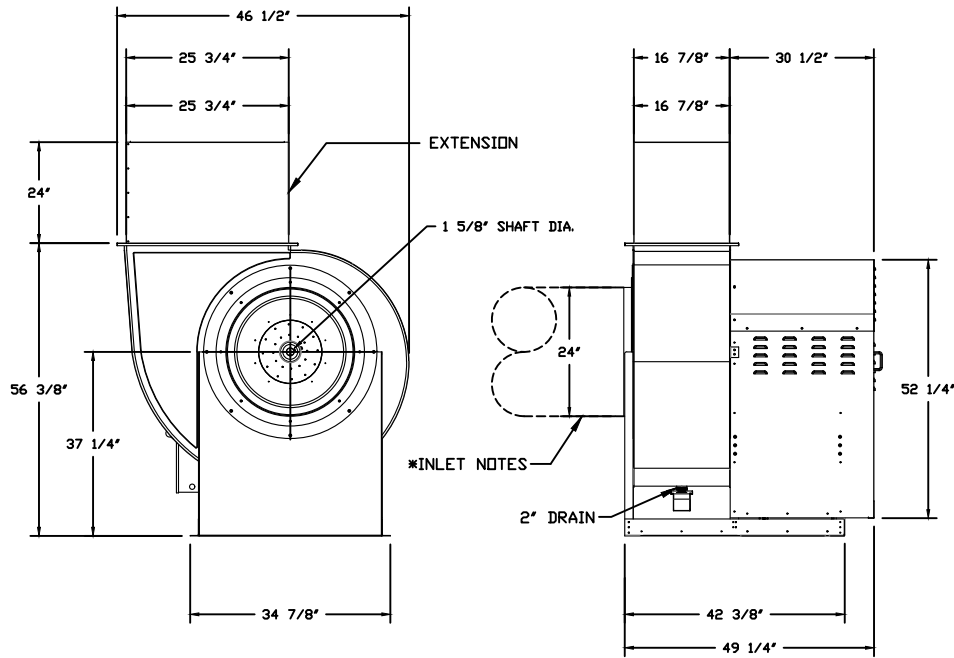
FAN UNIT NO.	TAG	OPTION (Qty. - Descr.)
1	6000 5hp/3ph-VFD	1 - BI24 - 24' Discharge Extension.
		1 - BI - Discharge Orientation Vertical Upper Left - CW Inlet Side.
		1 - BI24 - Inlet Connection Standard 24' Flanged Grease Duct.
		1 - Utility Set Grease Cup
		1 - VAV Package w/ Manual Control (VFD Included)
		1 - VFD factory mounted and wired in Exhaust Fan.

FAN ACCESSORIES

FAN UNIT NO.	TAG	EXHAUST		
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT
1	6000 5hp/3ph-VFD	YES		

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

(6000 5HP/3PH-VFD) - TK-USBI-24DD-RM EXHAUST FAN



FEATURES:

- ROOF MOUNTED FANS
- UL705
- UL762 AND ULC-S645 (RESTAURANT MODEL)
- HIGH HEAT OPERATION DIRECT DRIVE 350°F (176°C)
- HIGH HEAT OPERATION BELT DRIVE 350°F (176°C)
- HEAT SLINGER
- WEATHERPROOF DISCONNECT
- GREASE CLASSIFICATION TESTING
- 2" DRAIN
- MOTOR WEATHER COVER
- FULLY SEALED SCROLL HOUSING
- SCROLL ACCESS DOOR
- FLANGE 1 1/4" - 11 THRU 20.
- FLANGE 2" - 24 THRU 36.

OPTIONS

- BI24 - 24" DISCHARGE EXTENSION.
- BI - DISCHARGE ORIENTATION VERTICAL UPPER LEFT - CW INLET SIDE.
- BI24 - INLET CONNECTION STANDARD 24" FLANGED GREASE DUCT.
- UTILITY SET GREASE CUP.
- VAV PACKAGE W/ MANUAL CONTROL (VFD INCLUDED).
- VFD FACTORY MOUNTED AND WIRED IN EXHAUST FAN.

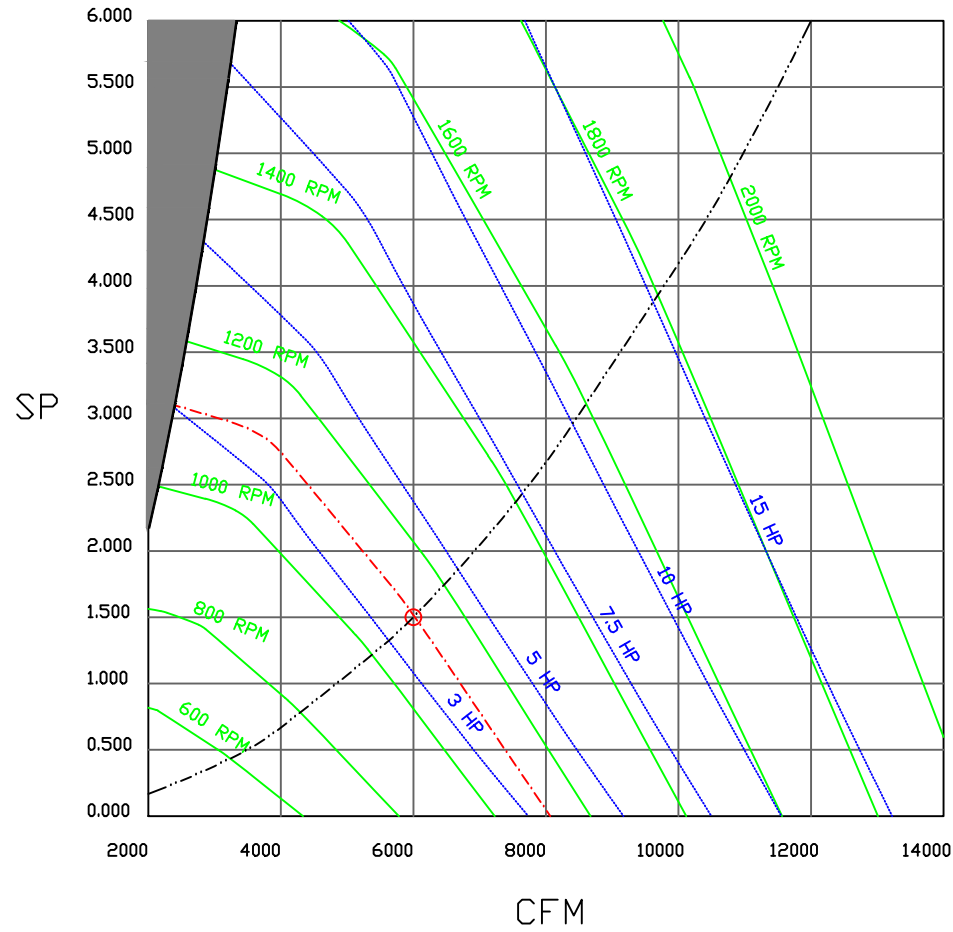
NORMAL TEMPERATURE TEST DIRECT DRIVE
 EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 350°F (176°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

*** INLET NOTES:**
 LENGTH OF THE STRAIGHT DUCT ON THE INLET TO BE 3 TIMES THE EQUIVALENT DUCT DIAMETER BEFORE CONNECTING TO ANY FITTINGS SUCH AS ELBOWS TO AVOID SYSTEM EFFECT.

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

<6000 5hp/3ph-VFD> - EXHAUST PERFORMANCE CURVES.

6000 CFM, 1.5 SP @ 1116 RPM and 3.639 BHP at 0 feet and 70 deg F
 * Please note that these curves were adjusted for Job specific temperature and altitude.



JOB	
LOCATION	
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Exhaust Fan Wiring

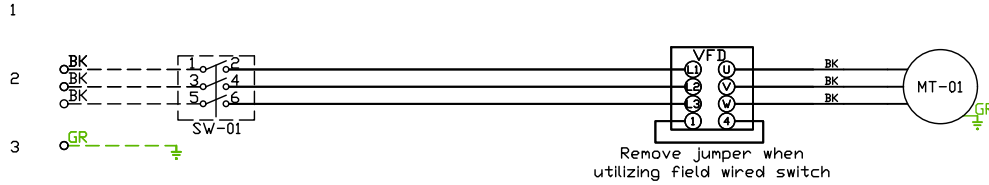
JOB NAKS DD TK-USBI Utility Sets

DRAWING NUMBER Fan Wiring Schem

SHIP DATE

MODEL TK-USBI-24DD-RM

Installed Options



Component Identification		
Label	Description	Location
MT-01	Fan Motor	[2]
MT-02	Damper Motor	[2]
SW-01	Main disconnect switch	[2]

MOTOR INFO
 EXHAUST 5HP-208V-3P-15.8FLA
 VFD PART: ESV402N02TXB

ELECTRICAL INFORMATION
 MOTOR/CTRL MCA: 19.8A
 MOTOR/CTRL MDP: 35A

NOTES
 - - - - DENOTES FIELD WIRING
 _____ DENOTES INTERNAL WIRING

WIRE COLOR

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

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VFD Wiring

JOB NAKS DD TK-USBI Utility Sets

DRAWING NUMBER VFD Schem

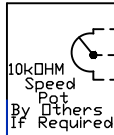
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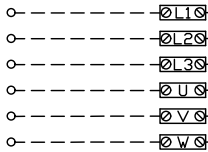
SMV SERIES VARIABLE FREQUENCY DRIVE

Installed Options
Manual Control

TERMINAL	FUNCTION
1	Digital Input(Start/Stop)
2	Analog Common
5	Analog Input: 0-10 VDC
6	Internal DC Supply for Speed Pot: +10 VDC
25	Analog Input: 4-20 mA
30	Analog Output
4	Digital Reference/Common
11	Internal DC Supply for External Devices
13A	Digital Input: Configurable with P121
13B	Digital Input: Configurable with P122
13C	Digital Input: Configurable with P123
14	Digital Output: Configurable with P142
30	Analog Output: Configurable with P150...P155
16	Relay Output: Configurable with P140
17	
PE	Ground Terminal
L1	3 Phase Input or Single Phase Input
L2	3 Phase Input or Single Phase Input
L3 (N)	3 Phase input (Neutral for 120v)
U	3 Phase AC Motor
V	3 Phase AC Motor
W	3 Phase AC Motor



NOT USED FOR EXHAUST FANS
OR NON-HEATED SUPPLY FANS
BURNER CIRCUIT CONTACT



TERMINAL BLOCKS
LOCATED IN HEATER UNIT
(IF SINGLE PHASE INPUT, UNIT MAY
NOT CONTAIN ALL TERMINAL BLOCKS)

EXHAUST FANS AND NON-HEATED
UNITS DO NOT HAVE TERMINALS

All external control wires to motor speed control should be 16-20 AWG shielded multiconductor cables and must not be run in the same conduit or raceway with any high power wiring. Ground Shielded Cable at the drive chassis ONLY.

PG. 11 OF THE DRIVE MANUAL DESCRIBES THE PROPER
INSTALLATION PROCEDURE

PG. 19 OF THE DRIVE MANUAL DESCRIBES THE PROGRAMMING
PROCEDURE OF THE DRIVE

PG. 23 OF THE DRIVE MANUAL DESCRIBES THE PARAMETER
SETTINGS OF THE DRIVE

NOTE: THE DEFAULT PASSWORD FROM THE FACTORY REQUIRED
TO PROGRAM THE DRIVE IS '225'.

SUPPLY DRIVE PARAMETER SETTINGS*

EPH PROGRAM: VAV_MAKUSE LG_HP EPH IF >= 15HP)
P100 (Start Source) = 01 (Terminal Strip)
P102 = ##Minimum Frequency (Hz)
P103 = ##Maximum Frequency (Hz)
(P103 is based on max wheel RPM)
P110 (Start Method) = 03 (Auto Re-start)
P140 (Form A [NO] Relay) = 01 (Run)
P144 (Relay Inversion) = 00 (None)
P166 (Carrier Frequency) = 00 (4 kHz)
P171 (Current Limit) = 150 (% of Max I)

Adjust manually on all drives
P107 - 00 (IF 120 or 208 VAC)
or 01 (IF 230, 480 or 575 VAC)
P108 - Motor FLA x 100 / Drive Output Rating
P165 (Base Voltage) = Set to Motor Voltage
(Preset@230V) P165 FOR STANDARD DRIVE ONLY
P167 (Base Frequency) = Calculated Per Fan
FOR KB PCU ONLY: P300 = 0

When Speed POT is Required the Following
Parameters Must be Set:
P101 (Reference Source) = 01 (0-10 VDC)
P160 (Speed @ 0 VDC Signal) = Min Frequency
P161 (Speed @ 10 VDC Signal) = Max Frequency

IT MAY BE REQUIRED TO FULLY POWER DOWN THE DRIVE
AND TURN BACK ON IN ORDER TO INITIATE NEW
PARAMETER SETTINGS.

##Min. and Max. Frequency Settings override all
other Preset speeds/Parameters.

GENERAL NOTES

Component Identification

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