

**NIDEC MOTOR CORPORATION**

8050 WEST FLORISSANT AVE.  
ST. LOUIS, MO 63136



**DATE:** 4/17/2015

**P.O. NO.:** H109215  
**Order/Line NO.:** 20142629 SO 100

**TO:** Flowserve  
PO Box 668  
Hastings, NE, 68901  
**ATTN:** KYLE OAKESON

**Model Number:** NA  
**Catalog Number:**  
Titan VHS TEFC  
CONF,MOTOR,TITAN VHS TEFC

**REVISIONS:**  
(NONE)

**MARKS:** TAG: PMP-03

**ALL DOCUMENTS HEREIN ARE CONSIDERED CERTIFIED BY NIDEC MOTOR CORPORATION.  
THANK YOU FOR YOUR ORDER AND THE OPPORTUNITY TO SERVE YOU.**

**Features:**

HOLD PRODUCTION  
Horsepower ..... 00250.00~00000.00 ~ KW: 186.5  
Enclosure ..... TEFC  
Poles ..... 04~00 ~ RPM: 1800~0  
Frame Size ..... 449~TP  
Phase/Frequency/Voltage.. 3~060~460 ~ Random Wound  
Service Factor ..... 1.15  
Insulation Class ..... Class "F" ~ VPI-2000  
Altitude In Feet (Max) .. 3300 Ft.(1000 M)  
Ambient In Degree C (Max) +50 C  
Efficiency Class ..... Premium Efficiency  
Application ..... Vertical Centrifugal Pump  
Customer Part Number ....  
Base Diameter (Inches) ..... 24.5  
Coupling Size ..... 1-1/2" Bore, 3/8" Key  
NRR/SRC/Bolted Coupling ..... Non-Reverse Ratchet  
Steady Bushing ..... Steady Bushing  
Pricebook Thrust Value (lbs).. 8800  
Customer Down Thrust (lbs) ... 8645  
Customer Shutoff Thrust (lbs).  
Up Thrust (lbs) .....  
Inverter Duty Rating:  
Load Type (Base Hz & Below) .. Variable Torque  
Speed Range (Base Hz & Below). 10:1  
Temperature Rise (Sine Wave): "B" Rise @ 1.0 SF (Resist)  
NEMA Design ..... B  
KVA Code Letter ..... "G"  
Starting Method ..... Direct-On-Line Start  
Duty Cycle ..... Continuous Duty  
Power Factor (Uncorrected): 89.4 %  
Load Inertia (lb-ft<sup>2</sup>): NEMA ~ NEMA Inertia: 1017.00 ~ 1.00  
Number Of Starts Per Hour: NEMA  
Motor Type Code ..... JUCEI  
Rotor Inertia (LB-FT<sup>2</sup>) ..... 120. LB-FT<sup>2</sup>  
Qty. of Bearings PE (Shaft) 1  
Qty. of Bearings SE (OPP) 2  
Bearing Number PE (Shaft) 95BC02J3  
Bearing Number SE (OPP) 130BT02

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**Accessories:**

60,000 Hours L-10 Bearing Life  
Inpro MGS Ground Seal (STD)  
Brass Drain - Lower Bracket  
Corro-Duty w/IEEE-841 Features  
Counter CW Rotation FODE  
175 % Extra High Thrust  
Ground Lug In Conduit Box  
Grounding Pad On Frame  
Insul. Bearings- Both Brackets  
230V S.H. Operated At 115V  
Special Balance  
Synthetic Lubrication  
Use AFBMA Num. Instead of SKF  
Brg RTD-100 Ohm,3 Ld TCR.00385  
Both Bearings  
Winding RTD's-100 Ohm,3 Lead  
.  
Q-1 Accessory Outlet Box ~ Opposite Side of Main O/B  
3/4" NPT Conduit Opening  
One Box with Terminal Board  
Robertshaw 365A8 Vib. Switch  
Q-1 Upper/Short End Bracket  
Std. Mounting Position  
No Vib Detect On Lower/PE Brk  
Test Requirements:  
IEEE841+ Enhanced No Load Test  
Complete Initial Test-Unwit.

**USE THE DATA PROVIDED BELOW TO SELECT THE APPROPRIATE DIMENSION PRINT**

<b>Horsepower</b>	250
<b>Pole(s)</b>	04
<b>Voltage(s)</b>	460
<b>Frame Size</b>	449TP
<b>Outlet Box AF</b>	8.06
<b>Outlet Box AA</b>	3.50
<b>Accessory Outlet Box DM</b>	0.75

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EFFECTIVE:  
**18-MAR-15**

# DIMENSION PRINT

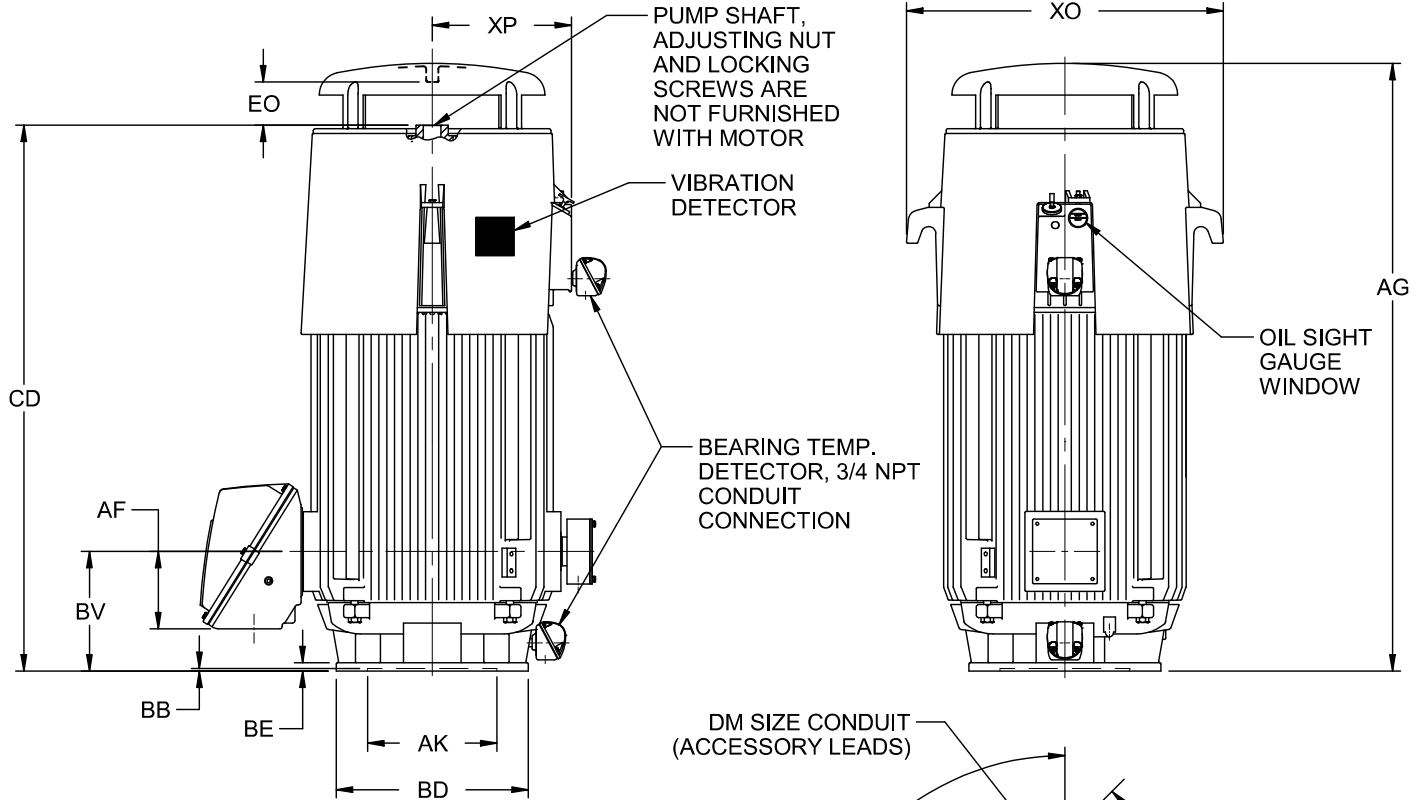
## TOTALLY ENCLOSED FAN COOLED

PRINT:  
**09-1818-08**

SUPERSEDES:  
**06-MAY-13**

FRAME: 449  
BASIC TYPE: JU

SHEET:  
**1 OF 1**



ALL DIMENSIONS ARE IN INCHES

FRAME	BD MAX
449TP	24.50
449TPH	20.00

P <sup>2</sup>	AG	AJ	AK +.005	BB MIN	BE	BF
26.25	63.31	14.750	13.500	.25	.88	.69

BU	BV	CD	EO	XO	XP
180°	12.50	56.88	4.50	33.00	14.50

HP	VOLTS	AB	AC	AF	AA	DM
ALL	460	24.00	18.50	8.06	2 NPT	3/4 NPT
ALL	2300				2 1/2 NPT	1 NPT
ALL	4000	25.00	19.50	10.00	3 NPT	1 1/4 NPT
					3 1/2 NPT	1 1/2 NPT
					4 NPT	

- 1: ALL ROUGH DIMENSIONS MAY VARY BY .25"/6MM DUE TO CASTING AND/OR FABRICATION VARIATIONS.
- 2: LARGEST MOTOR WIDTH.
- 3: CONDUIT OPENINGS MAY BE LOCATED IN STEPS OF 90 DEGREES. STANDARD AS SHOWN WITH CONDUIT OPENING DOWN.

TOLERANCES	
FACE RUNOUT	.007 T.I.R.
PERMISSIBLE ECCENTRICITY OF MOUNTING RABBET	.007 T.I.R.
MAXIMUM SHAFT ENDPLAY	.010

09-1818/F

**Nidec Motor Corporation**  
St. Louis, Missouri

INFORMATION DISCLOSED ON THIS DOCUMENT IS CONSIDERED PROPRIETARY AND SHALL NOT BE REPRODUCED OR DISCLOSED WITHOUT WRITTEN CONSENT OF NIDEC MOTOR CORPORATION



ISSUED BY  
**R. KING**  
APPROVED BY  
**P. ALLGEYER**

IHP\_DP\_NMCA (MAR-2011) SOLIDEDGE

# NAMEPLATE DATA

CATALOG NUMBER				NAMEPLATE PART #:	422707-006		
MODEL		FR	449TP	TYPE	JUCEI	ENCL	TEFC
SHAFT END BRG		95BC02J3 - QTY 1		OPP END BRG		130BT02 - QTY 2	
PH	3	MAX AMB	50 C	ID#	(ref: Order#: 20142629, Type: SO, Line#: 100)		
INSUL CLASS	F	Asm. Pos.			DUTY	CONT	
HP	250	RPM	1785	HP		RPM	
VOLTS	460			VOLTS			
FL AMPS	277.0			FL AMPS			
SF AMPS	320.0			SF AMPS			
SF	1.15	DESIGN	B	CODE	G	SF	
NEMA NOM EFFICIENCY	95.4	NOM PF	89.4	KiloWatt	186.5	NEMA NOM EFFICIENCY	
GUARANTEED EFFICIENCY	94.5	MAX KVAR		HZ	60	GUARANTEED EFFICIENCY	

**HAZARDOUS LOCATION DATA (IF APPLICABLE):**

DIVISION		CLASS I		GROUP I	
TEMP CODE		CLASS II		GROUP II	

**VFD DATA (IF APPLICABLE):**

VOLTS	460		
AMPS	290.9		
TORQUE 1	735.7LB-FT	TORQUE 2	
VFD LOAD TYPE 1	VT/PWM	VFD LOAD TYPE 2	
VFD HERTZ RANGE 1	6-60	VFD HERTZ RANGE 2	
VFD SPEED RANGE 1	180-1800	VFD SPEED RANGE 2	
SERVICE FACTOR	1.00	FL SLIP	
NO. POLES		MAGNETIZING AMPS	
VECTOR MAX RPM		Encoder PPR	
Radians/ Seconds		Encoder Volts	

**TEAO DATA (IF APPLICABLE):**

HP (AIR OVER)		HP (AIR OVER M/S)		RPM (AIR OVER)		RPM (AIR OVER M/S)	
FPM AIR VELOCITY		FPM AIR VELOCITY M/S		FPM AIR VELOCITY SEC			

**ADDITIONAL NAMEPLATE DATA:**

Decal / Plate	WD=499495	Customer PN	
Notes		Non Rev Ratchet	NRR
Max Temp Rise	70C RISE/RES@1.00SF	OPP/Upper Oil Cap	22 QT/20.8 L
Thermal (WDG)	OVER TEMP PROT 2	SHAFT/Lower Oil Cap	GREASE
Altitude			
Regulatory Notes		Regulatory Compliance	
COS		Marine Duty	
Balance	0.08 IN/SEC	Arctic Duty	
3/4 Load Eff.	94.5	Inrush Limit	
Motor Weight (LBS)	3700	Direction of Rotation	
Sound Level		Special Note 1	
Vertical Thrust (LBS)	8800	Special Note 2	
Thrust Percentage	175% EHT	Special Note 3	
Bearing Life	60K	Special Note 4	
Starting Method		Special Note 5	
Number of Starts		Special Note 6	
200/208V 60Hz Max Amps		SH Max. Temp.	MAX SH TEMP=208 C
190V 50 hz Max Amps		SH Voltage	SH VOLTS=115V
380V 50 Hz Max Amps		SH Watts	SH WATTS=288W
NEMA Inertia		Load Inertia	
Sumpheater Voltage		Sumpheater Wattage	
Special Accessory Note 1	BEARING SET POINTS	Special Accessory Note 16	MEETS INTENT IEEE841
Special Accessory Note 2	ALARM= 120C	Special Accessory Note 17	AFFIX N/P 915592
Special Accessory Note 3	SHUTDOWN= 130C	Special Accessory Note 18	
Special Accessory Note 4		Special Accessory Note 19	
Special Accessory Note 5		Special Accessory Note 20	
Special Accessory Note 6		Special Accessory Note 21	
Special Accessory Note 7		Special Accessory Note 22	
Special Accessory Note 8		Special Accessory Note 23	
Special Accessory Note 9		Special Accessory Note 24	WINDING SET POINTS
Special Accessory Note 10		Special Accessory Note 25	ALARM= 160C
Special Accessory Note 11		Special Accessory Note 26	SHUTDOWN= 165C
Special Accessory Note 12		Special Accessory Note 27	AFFIX N/P 839471
Special Accessory Note 13	SPECIAL WINDING	Special Accessory Note 28	
Special Accessory Note 14	CONTACT USEM PRIOR	Special Accessory Note 29	
Special Accessory Note 15	TO REWINDING, CALL	Special Accessory Note 30	

**NIDEC MOTOR CORPORATION  
ST. LOUIS, MO**



TYPICAL NAMEPLATE DATA  
ACTUAL MOTOR NAMEPLATE LAYOUT MAY VARY  
SOME FIELDS MAY BE OMITTED

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## MOTOR PERFORMANCE

MODEL NO.	CATALOG NO.	PHASE	TYPE	FRAME
NA	NA	3	JUCEI	449TP

ORDER NO.	20142629	LINE NO.	100
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MPI:		92211
HP:		250
POLES:		4
VOLTS:		460
HZ:		60
SERVICE FACTOR:		1.15
EFFICIENCY (%):		
	S.F.	94.6
	FULL	94.5
	3/4	94.5
	1/2	93.3
	1/4	88.7
POWER FACTOR (%):		
	S.F.	88.9
	FULL	89.4
	3/4	89.3
	1/2	86.5
	1/4	74.6
	NO LOAD	13.1
	LOCKED ROTOR	20.1
AMPS:		
	S.F.	320
	FULL	277
	3/4	208
	1/2	145
	1/4	88
	NO LOAD	52.7
	LOCKED ROTOR	1825
NEMA CODE LETTER		G
NEMA DESIGN LETTER		B
FULL LOAD RPM		1785
NEMA NOMINAL EFFICIENCY (%)		95.4
GUARANTEED EFFICIENCY (%)		94.5
MAX KVAR		35.7
AMBIENT (°C)		50
ALTITUDE (FASL)		3300
SAFE STALL TIME-HOT (SEC)		29
SOUND PRESSURE (DBA @ 1M)		90
TORQUES:		
	BREAKDOWN{% F.L.}	175
	LOCKED ROTOR{% F.L.}	80
	FULL LOAD{LB-FT}	735.7

NEMA Nominal and Guaranteed Efficiencies are up to 3,300 feet above sea level and 25 ° C ambient

The Above Data Is Typical, Sinewave Power Unless Noted Otherwise

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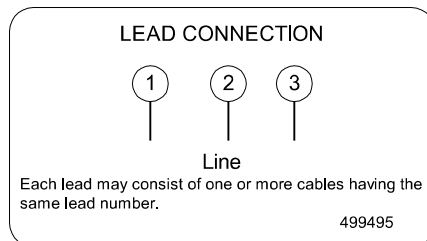
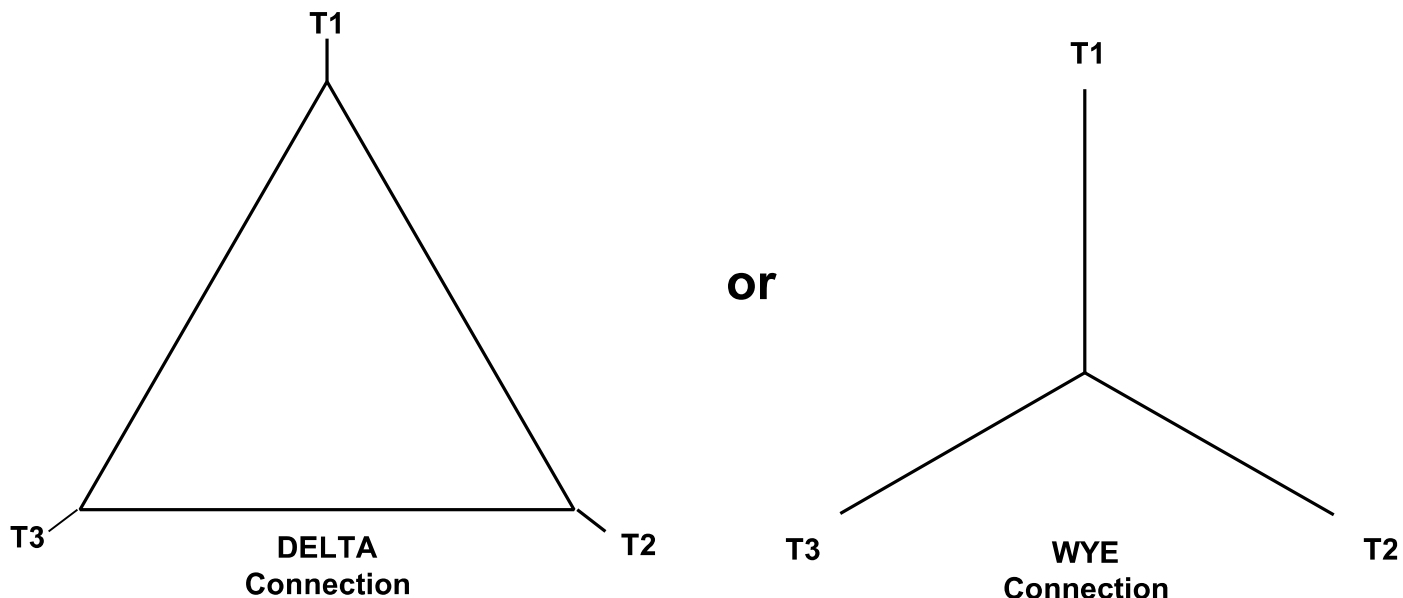


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499495

### Motor Wiring Diagram



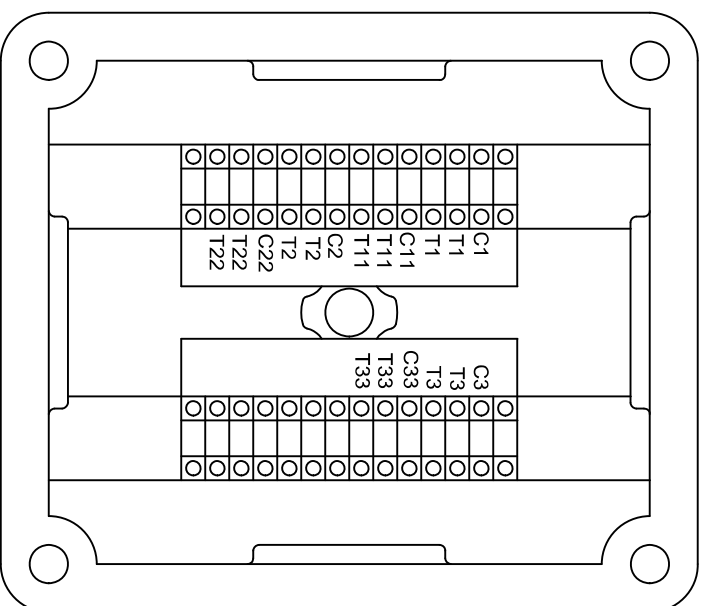
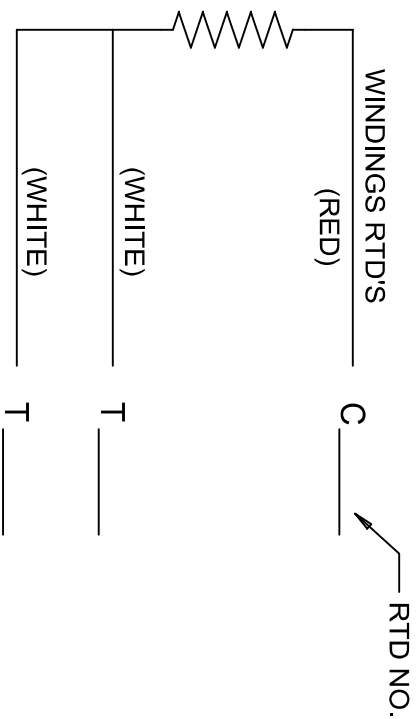
To reverse direction of rotation interchange connections L1 and L2.

Each lead may be comprised of one or more cables.  
Each cable will be marked with the appropriate lead number.

WINDING RTD'S

1. THERE ARE QTY-6 RESISTANCE TYPE TEMPERATURE DETECTORS (RTD) INSTALLED IN THE STATOR WINDING, 2 PER PHASE. REFER TO NAMEPLATE ATTACHED TO THE MOTOR ADJACENT TO ACCESSORY OUTLET BOX FOR RATING THE RTD'S
2. DETECTORS ARE INSTALLED IN PHASES AS SHOWN.

PHASE	A	B	C
RTD NO.	1,11	2,22	3,33



REVISION DESCRIPTION FOR: <b>MISC</b>	SCALE: <b>NONE</b>	UNITS: <b>IN</b>	TITLE: <b>CUSTOMER CONNECTION DIAGRAM</b>
<b>STL0211 - UPDATED FORMAT.</b>	TOLERANCES ON DIMENSIONS (UNLESS OTHERWISE SPECIFIED)		ISSUED BY: <b>R. KING</b>
	<b>INCHES</b>	<b>mm</b>	
MATERIAL: <b>---</b>	ANGLES: <b>X° = ±1°</b>		REV: <b>D</b>
MUST BE COMPLIANT TO ROHS DIRECTIVE EU 2002/95/IEC AND REGULATION EC 1907/2006 (REACH) AS AMENDED			REVISION DATE: <b>23-FEB-11</b>
			SHEET NUMBER: <b>1 OF 1</b>
			DWG SIZE: <b>A</b>

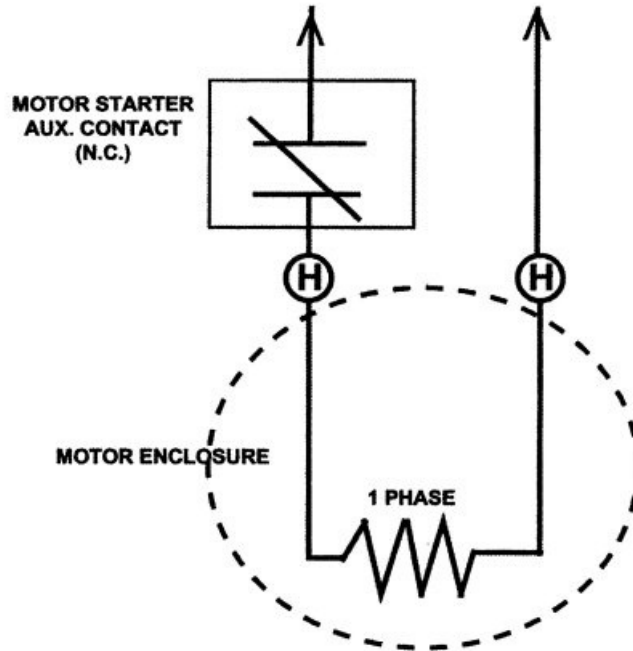




970798

# SPACE HEATER CONNECTION DIAGRAM

SPACE HEATER LEADS MAY BE LOCATED IN EITHER THE MAIN OUTLET BOX  
OR IF SO EQUIPPED, AN AUXILIARY BOX



THIS EQUIPMENT IS SUPPLIED WITH ANTI-  
CONDENSATION HEATERS. HEATERS  
SHOULD BE ENERGIZED WHEN EQUIPMENT  
IS NOT OPERATING TO PROTECT UNIT BY  
PREVENTING INTERNAL CONDENSATION.  
CONNECT THE "H" OR HEATER  
LEADS TO

115V VOLTS	288W WATTS RATING
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**SPACE HEATER NAMEPLATE (ON MOTOR)**

Revision: 7/30/2008  
Mike Cullen

BEARING RTD'S

1. THERE ARE QTY-1 OR 2 (3 LEAD) BEARING RTD'S INSTALLED,  
ONE PER BEARING.

A = UPPER/ODE (OPPOSITE DRIVE END)  
B = LOWER/DE (DRIVE END)

BEARING RTD'S

(RED)

UPPER/ODE    LOWER/DE

A1

B1

(WHITE)

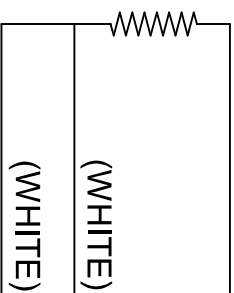
A2

B2

(WHITE)

A2

B2



ACCESSORY LISTING

QTY 1 OR 2 BEARING RTD'S (3 LEAD)

REVISION DESCRIPTION FOR: <b>MISC</b>
STL0211 - UPDATED FORMAT.
MATERIAL:

SCALE	<b>NONE</b>	UNITS	<b>IN</b>
TOLERANCES ON DIMENSIONS (UNLESS OTHERWISE SPECIFIED)			
	<u>INCHES</u>		<u>mm</u>
	ANGLES	X° =	±1°

TITLE	<b>CUSTOMER CONNECTION DIAGRAM</b>	
ISSUED BY	R. KING	APPROVED BY
CODE		C. CADE
DWG NO.	<b>0338312</b>	

REVISION DATE	<b>24-FEB-11</b>
REV	<b>C</b>
SHEET NUMBER	<b>1 OF 1</b>
DWG SIZE	<b>A</b>