



APPLICATION FOR PREAPPROVAL SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS

For Office Use Only

APPLICATION NO.
OSP – 0137 – 10

Check whether application is: NEW RENEWAL

1.0 TRANE Tom Troyanek
Manufacturer *Manufacturer's Technical Representative*
3600 Pammel Creek Road, La Crosse, WI 54601
Mailing Address
(608) 787-3447 ttroyanek@trane.com
Telephone *E-mail Address*

2.0 TR200 Drives & Panels VARIABLE FREQUENCY DRIVES
Product Name *Product Type*
SEE ATTACHMENT 1
Product model No (List all unique product identification numbers and/or serial numbers)

General Description:

Rigid wall mounted drive for variable speed control of 3 phase induction motor with or without bypass backup.

3.0 EQUIPMENTANCHORAGE.COM JONATHAN ROBERSON, S.E.
Applicant Company Name *Contact Person*
5877 Pine Ave, Suite 210, Chino Hills, CA. 91709
Mailing Address
(909) 606-7622 jon@easeco.com
Telephone *E-mail Address*

I hereby agree to reimburse the Office of Statewide Health Planning and Development for the actual costs incurred by the department for review.

Signature of Applicant

July 6, 2012

Date

PRINCIPAL ENGINEER

Title

EQUIPMENTANCHORAGE.COM

Company Name



Registered Design Professional Preparing the Report

4.0

EQUIPMENTANCHORAGE.COM

Company Name

Jonathan Roberson, S.E.

S4197

Contact Name

California License Number

5877 Pine Ave, Suite 210, Chino Hills, CA. 91709

Mailing Address

909-606-7622

jon@easeco.com

Telephone

E-mail Address

California Licensed Structural Engineer Review and Acceptance of the Report

5.0

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Anchorage Pre-Approval

6.0

- Anchorage is pre-approved under OPA- (Separate application for anchorage pre-approval is required)
Anchorage is not Pre-approved

Certification Method

- Testing in accordance with: ICC-ES AC-156
Analysis
Experience data
Combination of Testing, Analysis, and/or Experience Data (Please Specify):

Testing Laboratory (if applicable)

8.0

Environmental Testing Laboratory, Inc.

Brady Richard

Company Name

Contact Name

11034 Indian Trail, Dallas, TX 75229-3513

Mailing Address

972-247-9657

brady@etldallas.com

Telephone

E-mail:



Approval Parameters

9.0

Design in accordance with ASCE 7-05 Chapter 13: Yes No

Design Basis of Equipment or Components (F_p/W_p) = **1.95g Compact Vertical Panels | 1.54g All Others**

S_{DS} (Spectral response acceleration at short period) = **2.60g Compact Vertical Panels | 2.05g All Others**

a_p (In-structure equipment or component amplification factor) = **2.5**

R_p (Equipment or component response modification factor) = **6.0**

I_p (Importance factor) = **1.5**

z/h (Height factor ratio) = **1.0**

Equipment or Component fundamental frequency(s) = **SEE ATTACHMENTS**

Building period limits (if any) = **NO LIMIT**

Overall dimensions and weight (or range thereof) = **SEE ATTACHMENTS**

Equipment or Components @ grade designed in accordance with ASCE 7-05 Chapter 15: Yes No

Design Basis of Equipment or Components (V/W) =

S_{DS} (Spectral response acceleration at short period) =

S_1 (Spectral response acceleration at 1 second period) =

R (Response modification coefficient) = 1.0

Ω_0 (System overstrength factor) = 1.0

C_d (Deflection amplification factor) = 1.0

I_p (Importance factor) = 1.5

Height to Center of Gravity above base =

Equipment or Component fundamental period(s) = Sec

Overall dimensions and weight (or range thereof) =

Tank(s) designed in accordance with ASME BPVC, 2007: Yes No

11.0 List of attachments supporting the special seismic certification of equipment or components:

- Test Report Drawings Manufacturer's Catalog
- Calculations Others (Please Specify): **ATTACHMENTS 1 & 2**

11.0 OSHPD Approval (For Office Use Only)

August 15, 2012

Signature & Date
Timothy J. Piland, SSE

Name & Title

December 31, 2016

Approval Expiration Date
 S_{DS} (g) = **See Section 9.0** z/h = **1.0**

Special Seismic Certification Valid Up to

Condition of Approval (if any):

APPLICATION FOR PREAPPROVAL
SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS

ATTACHMENT 1: TRANE TR200 DRIVE CHASSIS AND PANELS

TABLE 1: SEISMIC CERTIFIED COMPONENTS: PRODUCT SERIES & MODELS ^A

PRODUCT SERIES	DRIVE MODELS			NOTES
	DRIVE CHASSIS	CLASSIC PANEL	COMPACT VERTICAL PANEL	
Trane TR200 HVAC Drives	TR-200	T200	TR-200	Tables 2 & 3
<p>NOTES:</p> <p>A) Seismic Certification is limited to the models listed in this table possessing the physical, mechanical and electrical characteristics and product options presented in the tables noted.</p> <p>B) Identification: Labels are provided on both the panels and the drive chassis. The labels include a Type Code (T/C), Material Number, and a Serial Number (S/N):</p> <ul style="list-style-type: none"> a. Type Codes (T/C) are alphanumeric sequences that reflect physical, mechanical and electrical features and options present in the panel or drive. b. Material Numbers are alphanumeric sequences that are unique to a particular Type Code. c. Serial Numbers (S/N) are unique numbers assigned to a Material Number. <p>C) The conclusions and recommendations of this document are limited to the drive series and models produced by the UUT manufacturer.</p>				

APPLICATION FOR PREAPPROVAL

SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS

ATTACHMENT 1: TRANE TR200 DRIVE CHASSIS AND PANELS

TABLE 2: TRANE TR200 DRIVE CHASSIS & CLASSIC PANEL CONFIGURATION CHARACTERISTICS

PANEL SIZE	DRIVE ¹ HP RANGE	TIER ²	MAX. DIMENSIONS (IN.)			MAX WT (LBS.)	NOTES
			WIDTH	DEPTH	HEIGHT		
NEMA/UL TYPE 1 / TYPE 12 / TYPE 4X ENCLOSURES							
A2 Frame	0.33 - 5	1	3.5 to 5.2	8.1 to 8.7	13.4 to 19.1	30	
		2	7.6	8.3 to 8.8	31.7	40	
A3 Frame	1-10	1	5.1 to 5.3	8.1 to 8.7	10.6 to 19.1	30	
		2	7.6	7.7 to 8.8	31.7	40	UUT1 & UUT2
A5 Frame	0.5-10	1	9.5	8	16.5	35	
		2	19.2	8.6	18.9	55	
B1 Frame	7.5-25	1	9.5	10.2	18.9	65	
		2	19.1	10.8	21.5	85	
B2 Frame	14-50	1	9.5	10.2	25.6	79	
		2	19.1	10.9	28.2	105	
C1 Frame	20-75	1	12.1	12.2	26.8	100	
		2	24.4	12.7	29.9	145	
C2 Frame	40-125	1	14.6	13.2	30.3	130	
		2	29.3	13.8	33.5	221	UUT3
D1 Frame	50-250	1	16.5	15	47.6	220	
		2	33.1	15	47.6	420	
D2 Frame	250-550	1	16.5	15	62.6	320	
		2	33.1	15	62.6	660	UUT4
NEMA/UL TYPE 3R ENCLOSURES							
1	0.5HP - 10HP	N/A	28.8	11	30	225	
2	5HP - 25HP	N/A	31.1	12.25	38	300	
3	15HP - 40HP	N/A	31.1	12.25	38	300	UUT7
4	25HP - 75HP	N/A	38.5	16.5	47	360	UUT5 & UUT6
CERTIFIED ENCLOSURE	NEMA/UL Type 1 NEMA/UL Type 3R NEMA/UL Type 4X (identical to NEMA 12 enclosure with the addition of a protective spray-on coating). NEMA/UL Type 12						
CERTIFIED MOUNTING	Wall-mounted: fully supported by a building wall structure. NEMA 3R enclosures may either be surface-mounted to wall or mounted to 12 ga. Unistrut/ Power-Strut backing which is surface mounted to wall at the top and bottom of the unit. Strut backing shall project not more than 1 5/8" from the face of the wall. Mounting to or within an enclosure of a larger unit is beyond the scope of this seismic qualification.						
CERTIFIED SUB-ASSEMBLIES	<ul style="list-style-type: none"> Control Transformers: GE 600,575,460,380,230,208V Primary, 240,120,115,95V Secondary, 100 -500 VA Drive Fuses: Bussman 5-630 Amps Main fuses: Bussmann 2-600 Amps Circuit Breakers: See Table 4 Electronically Controlled Bypass (ECB) or Electro-Mechanical Bypass (EMB or 3MB for NEMA/UL Type 3R) with or w/o: Common Run/Stop for Drive and Bypass, Bypass Undervoltage protection, Automatic Bypass, Run Permissive in Bypass, and/or Firemode via Bypass None, 2 or 3 contactor Bypass circuit Line Reactors installed in NEMA 3R enclosures Main Disconnect Switch , Drive Disconnect Switch and/or Main Circuit Breaker Standard RFI filter A2 (H2*) A, B, C, D option cards 						
NOTES	<ol style="list-style-type: none"> Includes voltages of 200 - 240VAC Single or 3- Phase, 380 - 480VAC Single Phase, 380 - 500VAC 3- Phase, 525 - 600VAC 3 Phase (A, B & C Frames), 525-690VAC 3 phase (D Frames). See Figure 1: Classic Panel Tier Visual Identification UUT : Indicates that a test specimen matching these characteristics was tested 						

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SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS

ATTACHMENT 1: TRANE TR200 DRIVE CHASSIS AND PANELS

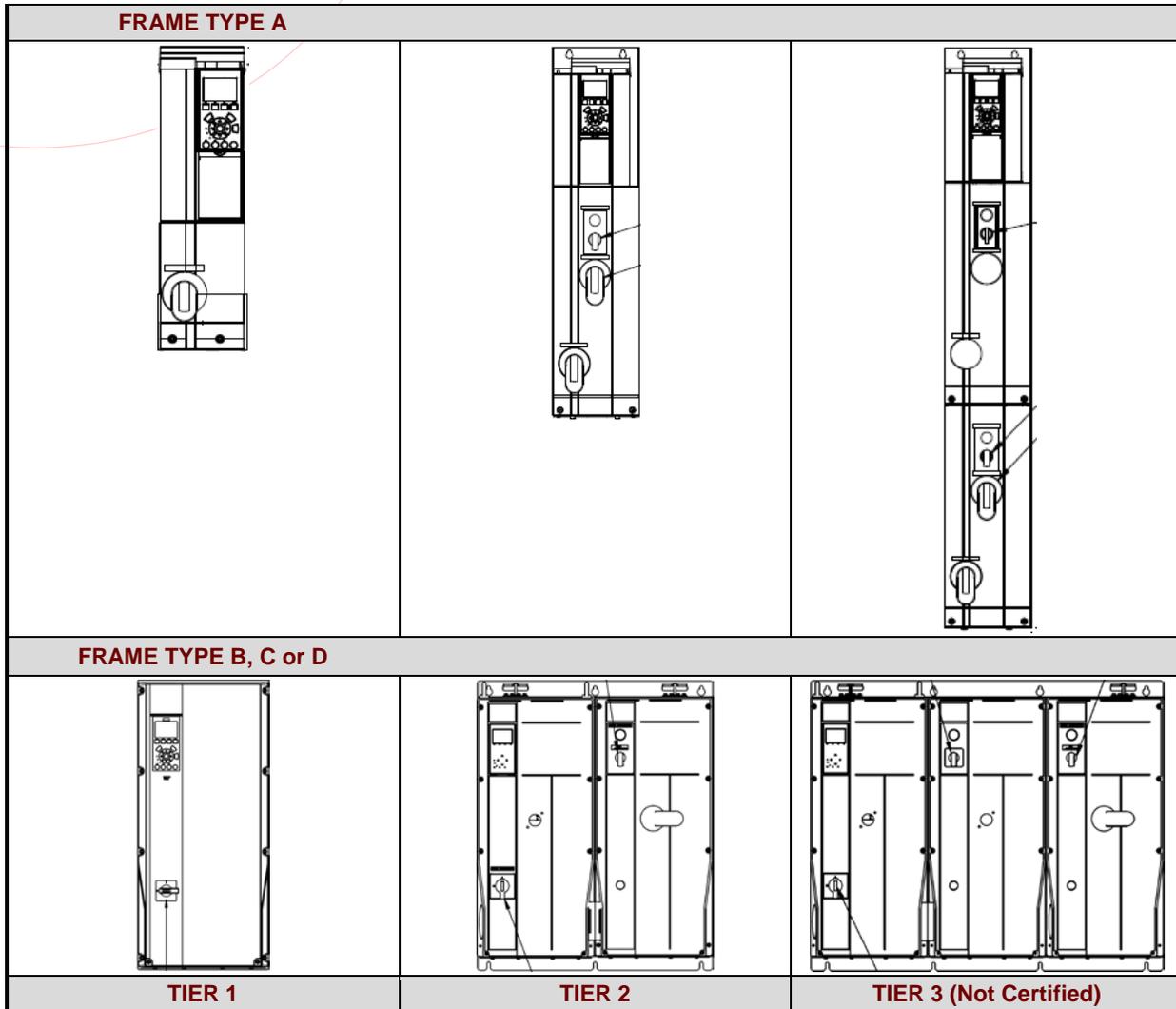


FIGURE 1: CLASSIC PANEL TIER VISUAL IDENTIFICATION

APPLICATION FOR PREAPPROVAL

SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS

ATTACHMENT 1: TRANE TR200 DRIVE CHASSIS AND PANELS

TABLE 3: TRANE TR-200 COMPACT VERTICAL PANEL CHARACTERISTICS

PANEL SIZE	DRIVE ¹ HP RANGE	TIER ²	MAX. DIMENSIONS (IN.)			MAX WT (LBS.)	NOTES
			WIDTH	DEPTH	HEIGHT		
B3 Frame	7.5 – 25	1	9.1	11.5	30.0	39	UUT A1
		2	9.2	16.0	41.8	90	UUT A2
B4 Frame	20 – 50	1	9.8	11.3	34.5	72	UUT A3
		2	9.8	17.7	43.3	112	
C3 Frame	25 – 75	1	12.7	14.8	39.6	112	
		2	12.7	18.0	54.4	180	
C4 Frame	40 - 125	1	15.2	14.8	45.8	170	
		2	15.2	18.1	59.7	268	UUT A4
CERTIFIED ENCLOSURE	IP21 / NEMA/UL Type 1 enclosures with carbon steel back panels. B3 Frames have carbon Steel stiffening elements and plastic drive cover. All other Frame sizes have extruded aluminum stiffening elements with carbon steel covers.						
CERTIFIED MOUNTING	Wall-mounted: fully supported by a building wall structure. Mounting to or within an enclosure of a larger unit is beyond the scope of this seismic qualification.						
CERTIFIED SUB-ASSEMBLIES	<ul style="list-style-type: none"> Control Transformers: GE 575,460,380,230,208V Primary 115,95V Secondary, 100 VA Drive Fuses: Bussman 35-250amp Main Fuses: Bussmann 30-250A Circuit Breakers: See Table 4 Control PCB: Electronically Controlled Bypass (ECB) or Electro-Mechanical Bypass (EMB) with or w/o: Common Run/Stop for Drive and Bypass, Bypass Undervoltage protection, Automatic Bypass, Run Permissive in Bypass, and/or Firemode via Bypass None or 3 contactor Bypass circuit Main Disconnect Switch or Main Circuit Breaker RFI filter Class A1/B (H1), A2 (H2) A, B, C option cards Local Control Panel 						
NOTES	<ol style="list-style-type: none"> Includes voltages of 200 - 208VAC, 200 - 240VAC, 380 - 480VAC, and 525 - 600VAC 3 Phase See Figure 2: Compact Vertical Panel Tier Visual Identification UUT : Indicates that a test specimen matching these characteristics was tested 						

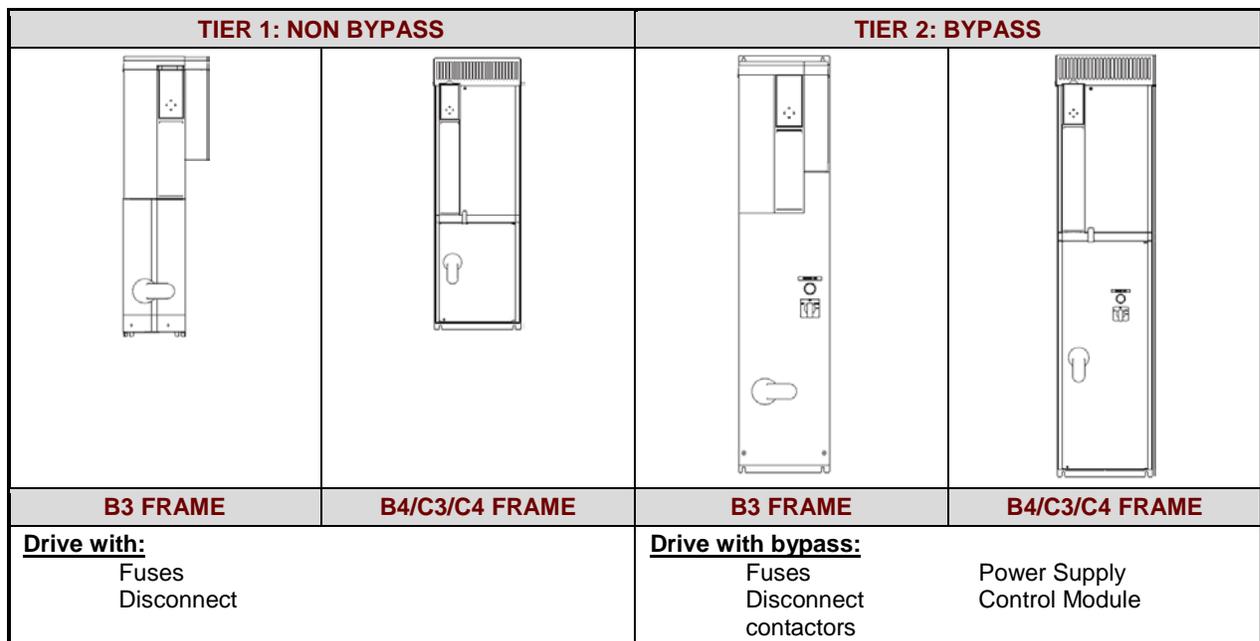


FIGURE 2: COMPACT VERTICAL PANEL TIER VISUAL IDENTIFICATION

APPLICATION FOR PREAPPROVAL
SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS

ATTACHMENT 1: TRANE TR200 DRIVE CHASSIS AND PANELS

TABLE 4: TRANE TR200 PANEL CIRCUIT BREAKERS

P/N	Amp Rating
176U5603- 176U5611	15-80
176U5613-176U5615	100-150
176U5617	200
177G3814-177G3819	30-100
174H7349-174H7352	125-250
174H7407	50
174H7482	125
174H8800	80
174N6850	200
34056400	25
34056500	30
34056600	40
34056700	50
34056800	60
34056900	70
34057000	80
34057200	100
34057300	125
34057400	150
34057600	200
34057800	250
34057900	400
34058000	600
34059900	800

APPLICATION FOR PREAPPROVAL SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS ATTACHMENT 2: TEST SPECIMEN SUMMARY

UUT-1: Classic Panel 10 Hp 460V drive panel w/ ECB control

- DESCRIPTION: A3 Frame Tier 2 NEMA 1 Enclosure with:
- Drive Fuses 30 Amp
 - Main Fuses 25 Amp
 - 3 contactor bypass,
 - Main Disconnect Switch with Main Fusing
 - Drive Disconnect Switch
 - Standard RFI Filter H2 / A2
 - Option A Card: BACNet
 - Option C Card: Electronically Controlled Bypass(ECB) control
 - Graphical Display

MOUNTING: Wall Mounted
DIMENSIONS: 7.63"(max)W x 8.75"(max)D x 31.74"(max)H
WEIGHT: 40 lbs.



UUT-2: Classic Panel 10 Hp 460V drive panel w/ EMB2 control

- DESCRIPTION: A3 Frame Tier 2 NEMA 1 Enclosure with:
- Drive Fuses 30 Amp
 - Main Fuses 25 Amp
 - 2 contactor bypass,
 - Electro-Mechanical Bypass (EMB) control
 - Main Circuit Breaker 176U5604 - 20Amp
 - Drive Disconnect Switch,
 - Drive Fusing,
 - Standard RFI Filter H2 / A2
 - Graphical Display

MOUNTING: Wall Mounted
DIMENSIONS: 7.63"(max)W x 8.75"(max)D x 31.74"(max)H
WEIGHT: 40 lbs.



UUT-3: Classic Panel 125Hp 460V panel

- DESCRIPTION: C2 Frame Tier 2 NEMA 1 Enclosure with:
- Drive Fuses 250 Amp
 - Main Fuses 250 Amp
 - Transformer 375 VA
 - 3 contactor bypass
 - Main Disconnect Switch with Main Fusing
 - Electro-Mechanical Bypass (EMB) control
 - Standard RFI Filter H2 / A2
 - Graphical Display

MOUNTING: Wall Mounted
DIMENSIONS: 29.3"(max)W x 29.5"(max)D x 33.5"(max)H
WEIGHT: 221 lbs.



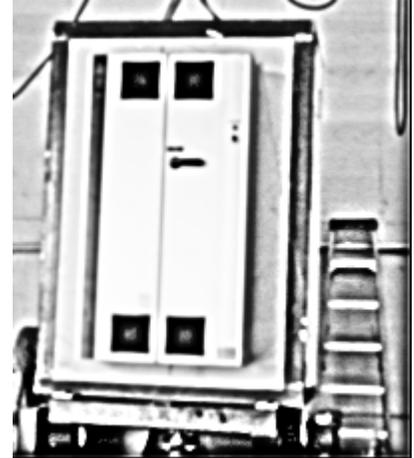
APPLICATION FOR PREAPPROVAL SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS ATTACHMENT 2: TEST SPECIMEN SUMMARY

UUT-4: Classic Panel 350Hp 460V

DESCRIPTION: D2 Frame Tier 2 NEMA 1 Enclosure with:

- Drive Fuses 600 Amp
- Transformer 500 VA
- 3 contactor bypass,
- Main Disconnect Switch with Main Fusing
- Electro-Mechanical Bypass (EMB) control
- Standard RFI Filter H2 / A2
- Graphical Display

MOUNTING: Wall Mounted
DIMENSIONS: 33"(max)W x 14.7"(max)D x 60.375"(max)H
WEIGHT: 660 lbs.



UUT-5: 75HP 460V Drives in NEMA 3R Enclosure

DESCRIPTION: NEMA 3R Enclosure with:

- Drive Fuses 150 Amp
- Main Fuses 150 Amp
- Transformer 375VA
- 3 contactor bypass,
- Main Disconnect Switch with Main Fusing
- Electro-Mechanical Bypass (EMB) control
- Standard RFI Filter H2 / A2
- Graphical Display

MOUNTING: Wall Mounted
DIMENSIONS: 38" W x 16.5" D x 47" H
WEIGHT: 360 lb.



UUT-6: 75HP 460V Drives in NEMA 3R Enclosure on Unistrut Backing

DESCRIPTION: NEMA 3R Enclosure with:

- Drive Fuses 150 Amp
- Main Fuses 150 Amp
- Transformer 375VA
- 3 contactor bypass,
- Main Disconnect Switch with Main Fusing
- Electro-Mechanical Bypass (EMB) control
- Standard RFI Filter H2 / A2
- Graphical Display

MOUNTING: Wall Mounted to Unistrut P1000 backing surface-mounted to wall at top & bottom of unit.
DIMENSIONS: 38" W x 16.5" D x 47" H
WEIGHT: 358 lb.



APPLICATION FOR PREAPPROVAL SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS ATTACHMENT 2: TEST SPECIMEN SUMMARY

UUT-7: 40HP 460V Drives in NEMA 3R Enclosure on Unistrut Backing

DESCRIPTION: NEMA 3R Enclosure with IP00 Drive:

- Drive Fuses 80 Amp
- Main Fuses 90 Amp
- Transformer 375VA
- 3 contactor bypass,
- Main Disconnect Switch
- 100KAIC
- Electro-Mechanical Bypass (EMB) control
- 3% Input Reactor
- Standard RFI Filter H2 / A2
- Graphical Display
- Option A Card: MCA-109 BACNet Top Entry
- Option B Card: MCB-109 Analog I/O
- Option D Card: MCB-107 24VDC Backup



MOUNTING: Wall Mounted to Unistrut P1000 backing surface- mounted to wall at top & bottom of unit.

DIMENSIONS: 38" W x 16.5" D x 47" H

WEIGHT: 250 lb.

APPLICATION FOR PREAPPROVAL SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS ATTACHMENT 2: TEST SPECIMEN SUMMARY

UUT- A1: Compact Vertical Non-Bypass Tier 1 Panel, 7.5 HP, 230 V (200 – 240V)

DESCRIPTION: B3 Frame Tier 1 Nema 1 Enclosure with:

- Drive Fuses: 50 amp
- RFI Filter H1 / A1/B
- Main Disconnect Switch
- Nema1 Enclosure
- Graphical Display

MOUNTING Wall

DIMENSIONS: 6.7" W x 10.3" D x 29.4" H

WEIGHT: 36.5 lbs



UUT-A2: Compact Vertical Bypass Panel, 25 HP, 460 V

DESCRIPTION: B3 Frame Tier 2 Nema 1 enclosure with:

- Drive Fuses: 60 amp
- Main Fuses: 50 amp
- 3 Contactor Bypass
- Standard RFI Filter H2 / A2
- Main Disconnect Switch
- Electro-Mechanical Bypass (EMB2) Control
- Graphical Display

MOUNTING Wall

DIMENSIONS: 9" W x 14" D x 40 1/4" H

WEIGHT: 81 lbs



UUT-A3: Compact Vertical Non Bypass Panel, 25 HP, 230 V (200 – 240 V)

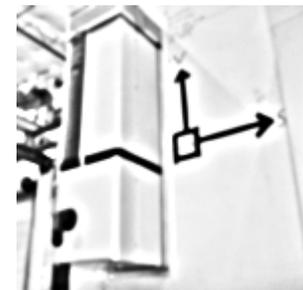
DESCRIPTION: B4 Frame Tier 1 Nema 1 Enclosure with:

- Drive Fuses: 80 amp, 300 V
- Main Disconnect Switch
- Standard RFI Filter H2 / A2
- Graphical Display

MOUNTING Wall

DIMENSIONS: 9" W x 9 3/8" D x 33 1/2" H

WEIGHT: 66 lbs



UUT-A4: Compact Vertical Bypass Panel, 125 HP, 460 V (380 – 480V), C4 Frame

DESCRIPTION: C4 Frame Tier 2 Nema 1 Enclosure with:

- Circuit Breaker: 174N6850 - 200 amp
- Drive Fuses: 250 amp
- 3 Contactor Bypass
- Option C Card: Electronically Controlled Bypass (ECB) control
- Transformer: 100VA
- Standard RFI Filter H2 / A2
- Graphical Display

MOUNTING Wall

DIMENSIONS: 14.5" W x 16 3/8" D x 58 1/2" H

WEIGHT: 234 lbs

