



**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION  
FACILITIES DEVELOPMENT DIVISION**

**APPLICATION FOR HCAI SPECIAL SEISMIC  
CERTIFICATION PREAPPROVAL (OSP)**

OFFICE USE ONLY

**APPLICATION #: OSP-0137**

**HCAI Special Seismic Certification Preapproval (OSP)**

Type:  New  Renewal

**Manufacturer Information**

Manufacturer: TRANE

Manufacturer's Technical Representative: Joe Donikowski

Mailing Address: 800 Beaty St, Davidson, NC 28036

Telephone: (704) 572-7113

Email: Joseph.Donikowski@Trane.com

**Product Information**

Product Name: Industrial Control Panels

Product Type: Variable Frequency Drives and Starters

Product Model Number: TR200 Drives & Panels

General Description: Drive for variable speed control of 3 phase induction motor with or without bypass backup. See Attachment 1.

Mounting Description: Rigid, Wall Mounted

Tested Seismic Enhancements: None

**Applicant Information**

Applicant Company Name: EASE LLC.

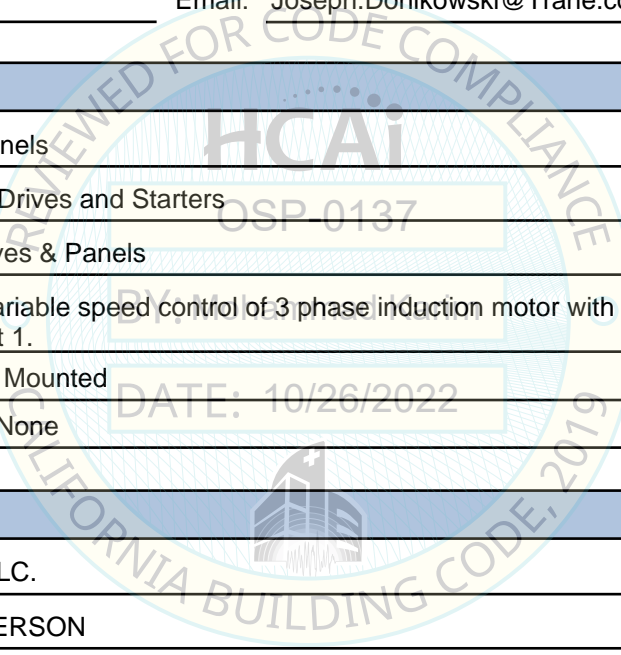
Contact Person: JONATHAN ROBERSON

Mailing Address: 5877 Pine Ave Suite 210, Chino Hills, CA 91709

Telephone: (909) 606-7622

Email: j.roberson@easeco.com

Title: PRINCIPAL ENGINEER





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**California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)**

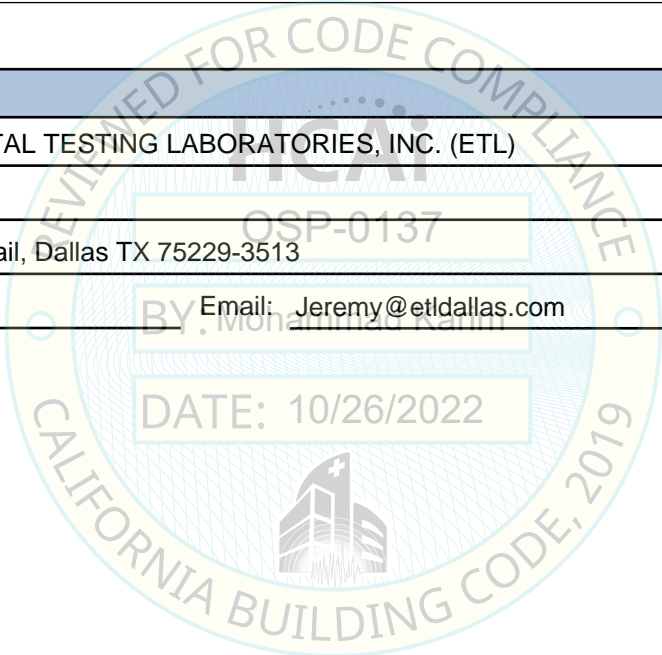
Company Name: EASE LLC  
Name: Jonathan Roberson California License Number: S4197  
Mailing Address: 5877 Pine Ave., Suite 210, Chino Hills, CA 91709  
Telephone: (951) 295-1892 Email: jon@EASECo.com

**Certification Method**

GR-63-Core       ICC-ES AC156       IEEE 344       IEEE 693       NEBS 3  
 Other (Please Specify): \_\_\_\_\_

**Testing Laboratory**

Company Name: ENVIRONMENTAL TESTING LABORATORIES, INC. (ETL)  
Contact Person: Jeremy Lange  
Mailing Address: 11034 Indian Trail, Dallas TX 75229-3513  
Telephone: (972) 247-9657 Email: Jeremy@etldallas.com





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**Seismic Parameters**

Design Basis of Equipment or Components ( $F_p/W_p$ ) = 1.95g Table 3 | 1.19g Table 2, Attachment 1

SDS (Design spectral response acceleration at short period, g) = 2.60 Table 3 | 1.58 Table 2, Attachment 1

$a_p$  (Amplification factor) = 2½

$R_p$  (Response modification factor) = 6

$\Omega_0$  (System overstrength factor) = 2.0

$I_p$  (Importance factor) = 1.5

$z/h$  (Height ratio factor) = 1

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment

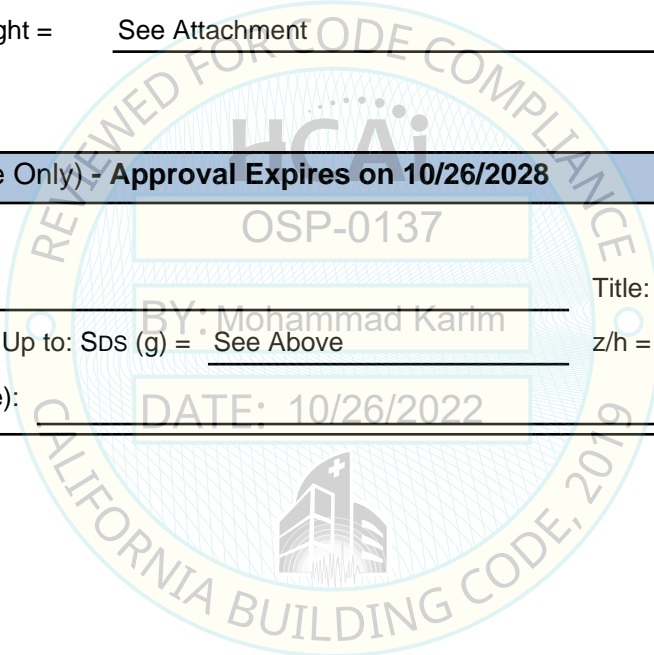
**HCAI Approval (For Office Use Only) - Approval Expires on 10/26/2028**

Date: 10/26/2022

Name: Mohammad Karim Title: Supervisor, Health Facilities

Special Seismic Certification Valid Up to: SDS (g) = See Above  $z/h$  = 1

Condition of Approval (if applicable): DATE: 10/26/2022



**ATTACHMENT 1: SEISMIC CERTIFIED COMPONENTS**

**TABLE 1: TRANE TR200 DRIVE PRODUCTS <sup>A</sup>**

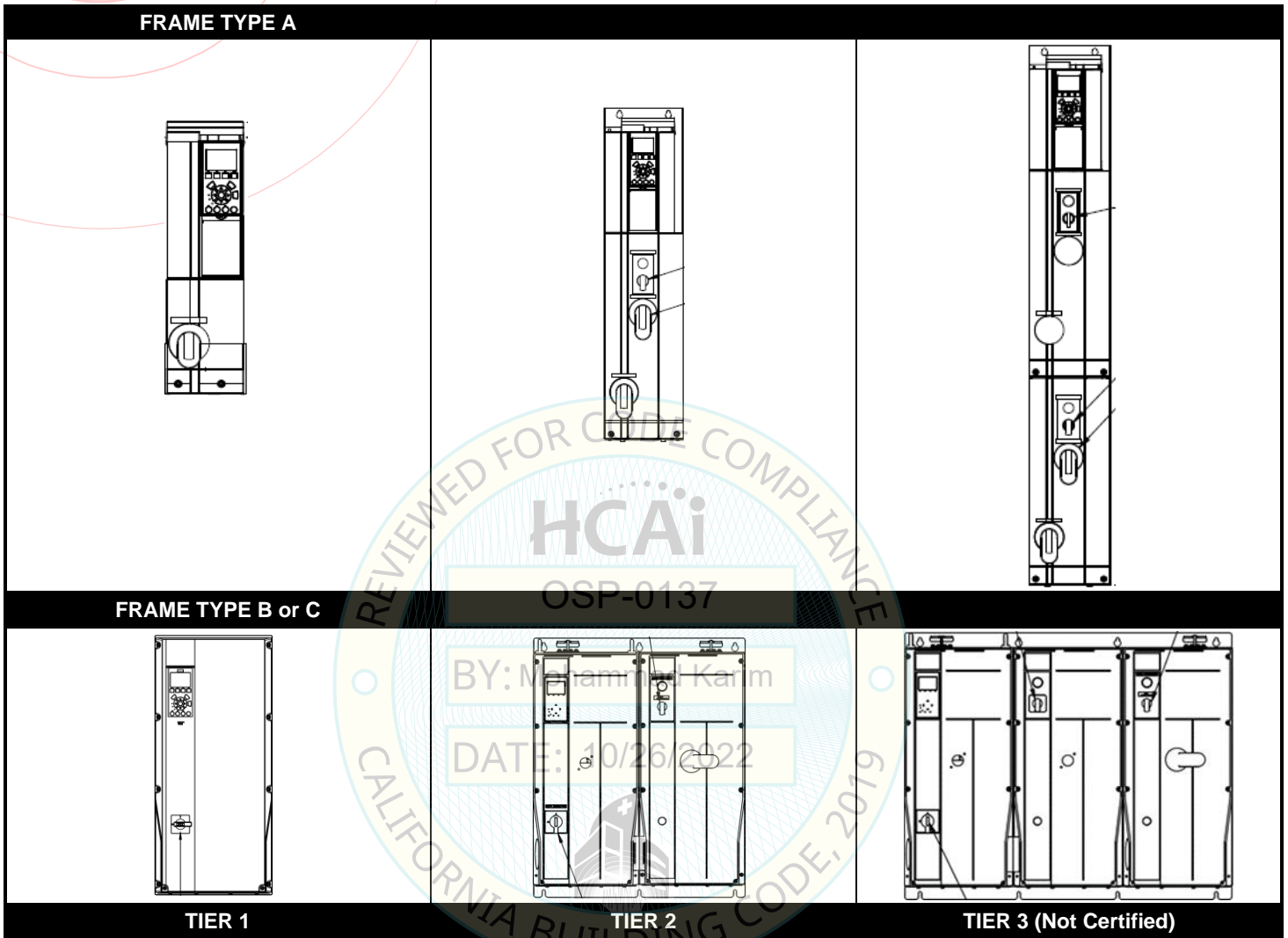
PRODUCT LINE	DRIVE MODELS		
	DRIVE CHASSIS	CLASSIC PANEL	COMPACT VERTICAL PANEL
Trane TR200 HVAC Drives	TR-200 See Table 2	T200 See Table 2	TR-200 See Table 3

NOTES:

- 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 above.
- Identification: Labels are provided on both the panels and the drive chassis. The labels include a Typecode (T/C), Material Number, and a Serial Number (S/N):
  - Type Codes (T/C) are alphanumeric sequences that reflect physical, mechanical and electrical features and options present in the panel or drive.
  - Material Numbers are alphanumeric sequences that are unique to a project.
- Serial Numbers (S/N) are unique numbers assigned to a panel or drive.

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

PANEL SIZE	DRIVE <sup>[1]</sup> HP RANGE	TIER <sup>[2]</sup>	MAX. DIMENSIONS (IN.) <sup>[3]</sup>			MAX WT (LBS.)	BASIS <sup>[4]</sup>
			WIDTH	DEPTH	HEIGHT		
<b>NEMA/UL TYPE 1 / TYPE 12 / TYPE 4X ENCLOSURES</b>							
A2 Frame	0.33 - 5	1	3.5 to 5.2	8.1 to 8.7	13.4 to 19.1	30	INT
		2	7.6	8.3 to 8.8	31.7	40	INT
A3 Frame	1-10	1	5.1 to 5.3	8.1 to 8.7	10.6 to 19.1	30	INT
		2	7.6	8.3 to 8.8	31.7	40	UUT1 & UUT2
A5 Frame	0.5-10	1	9.5	8	16.5	35	INT
		2	19.2	8.6	18.9	55	INT
B1 Frame	7.5-25	1	9.5	10.2	18.9	65	INT
		2	19.1	10.8	21.5	85	INT
B2 Frame	14-50	1	9.5	10.2	25.6	79	INT
		2	19.1	10.9	28.2	105	INT
C1 Frame	20-75	1	12.1	12.2	26.8	100	INT
		2	24.4	12.7	29.9	145	INT
C2 Frame	40-125	1	14.6	13.2	30.3	130	INT
		2	29.3	13.8	33.5	221	UUT3
<b>NEMA/UL TYPE 3R ENCLOSURES</b>							
1	0.5HP - 10HP	N/A	28.8	11	30	225	INT
2	5HP - 25HP	N/A	31.1	12.25	38	300	INT
3	15HP - 40HP	N/A	31.1	12.25	38	300	UUT7
4	25HP - 75HP	N/A	38.2	15.6	47.1	360	UUT5 & UUT6
<b>CERTIFIED ENCLOSURE</b>	NEMA/UL Type 1 NEMA/UL Type 3R (NEMA 3R Drive are identical to NEMA 12 Drive except for addition of 6mm diameter weep hole at bottom.) NEMA/UL Type 4X (identical to NEMA 12 enclosure with the addition of a protective spray-on coating). NEMA/UL Type 12						
<b>MOUNTING</b>	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.						
<b>NOTES</b>	<ol style="list-style-type: none"> <li>Includes voltages of 200 - 240VAC Single or 3- Phase, 380 - 480VAC Single Phase, 380 - 500VAC 3- Phase, 525 - 600VAC 3 Phase (A, B &amp; C Frames), 525-690VAC 3 phase (D Frames).</li> <li>See Figure 1: Traditional Panel (P650) Tier Visual Identification</li> <li>Depth dimension excludes door handle. Width of NEMA 3R enclosures excludes rain hoods.</li> <li><b>BASIS:</b> <ul style="list-style-type: none"> <li>UUT#: Indicates that a test specimen matching these characteristics was tested as part of this testing program.</li> <li>INT (Interpolate/Extrapolate): indicates a model that was not specifically tested, and by which seismic certification is established through evaluation of testing of other, similar models in the product line.</li> </ul> </li> </ol>						



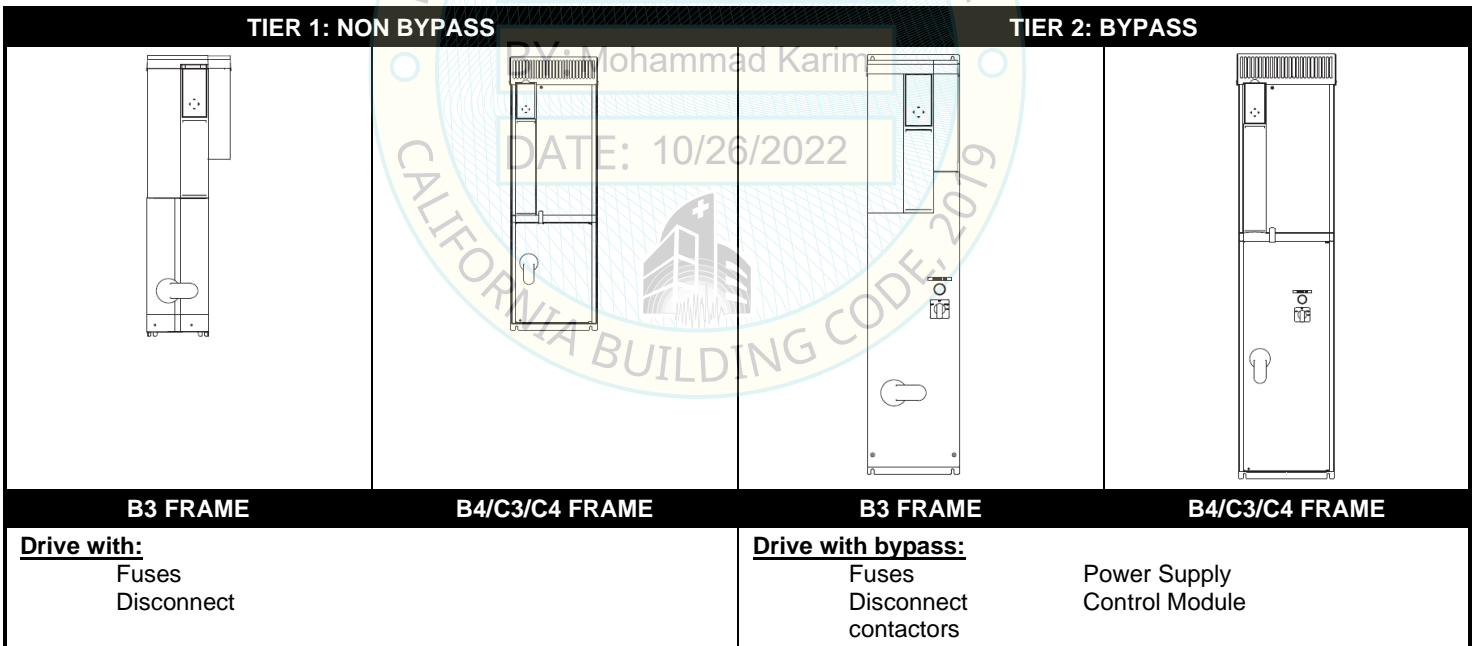
Note: Tier 3 is shown for identification purposes only. See Table 1 for approved tiers.

**FIGURE 1: CLASSIC PANEL TIER VISUAL IDENTIFICATION**

**ATTACHMENT 1: SEISMIC CERTIFIED COMPONENTS**

**TABLE 3: TRANE TR-200 COMPACT VERTICAL PANEL CHARACTERISTICS**

PANEL SIZE	DRIVE <sup>[1]</sup> HP RANGE	TIER <sup>[2]</sup>	MAX. DIMENSIONS (IN.)			MAX WT (LBS.)	BASIS <sup>[3]</sup>
			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	INT
C3 Frame	25 – 75	1	12.7	14.8	39.6	112	INT
		2	12.7	18.0	54.4	180	INT
C4 Frame	40 - 125	1	15.2	14.8	45.8	170	INT
		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.						
MOUNTING	Wall-mounted: fully supported by a building wall structure.						
NOTES	<ol style="list-style-type: none"> <li>Includes voltages of 200 - 208VAC, 200 - 240VAC, 380 - 480VAC, and 525 - 600VAC 3 Phase</li> <li>See Figure 2: Compact Vertical Panel Tier Visual Identification</li> <li>BASIS: <ul style="list-style-type: none"> <li>UUT#: Indicates that a test specimen matching these characteristics was tested as part of this testing program.</li> <li>INT (Interpolate/Extrapolate): indicates a model that was not specifically tested, and by which seismic certification is established through evaluation of testing of other, similar models in the product line.</li> </ul> </li> </ol>						



**FIGURE 2: COMPACT VERTICAL PANEL TIER VISUAL IDENTIFICATION**

**ATTACHMENT 2: TEST UNIT SUMMARY**

**TABLE 1: SHAKE TABLE TEST PARAMETERS: UUT-1 THROUGH UUT-7**

TEST CRITERIA	Sds	z/h	Ip	AFLX-H	ARIG-H	AFLX-V	ARIG-V
ICC-ES AC156	2.05	1.0	1.5	3.28	2.46	1.37	0.55

**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

Unit was full of content during test.

**MOUNTING:** Wall Mounted w/ (4) – ¼” TEK screws & standard washers (wide series) to 16ga backing.

**DIMENSIONS:** 8.3”(max)W x 8.75”(max)D x 31.74”(max)H

**WEIGHT:** 40 lbs.

Unit maintained structural integrity and remained functional per manufacturer requirement after AC156 test.



**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

Unit was full of content during test.

**MOUNTING:** Wall Mounted w/ (4) – ¼” TEK screws & standard washers (wide series) to 16ga backing.

**DIMENSIONS:** 7.63”(max)W x 8.75”(max)D x 31.74”(max)H

**WEIGHT:** 40 lbs.

Unit maintained structural integrity and remained functional per manufacturer requirement after AC156 test.



**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

Unit was full of content during test.

**MOUNTING:** Wall Mounted w/ (6) – ¼” TEK screws & standard washers (wide series) to 16ga backing.

**DIMENSIONS:** 29.3”(max)W x 13.8”(max)D x 33.5”(max)H

**WEIGHT:** 221 lbs.

Unit maintained structural integrity and remained functional per manufacturer requirement after AC156 test.



**ATTACHMENT 2: TEST UNIT SUMMARY**

**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

Unit was full of content during test.

**MOUNTING:** Wall Mounted w/ (4) – ¼” TEK screws & standard washers (wide series) though integral mounting flange to 12ga backing.

**DIMENSIONS:** 38.2” W x 15.6” D x 47.1” H

**WEIGHT:** 360 lb.  
Unit maintained structural integrity and remained functional per manufacturer requirement after AC156 test.



**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

Unit was full of content during test.

**MOUNTING:** Wall Mounted w/ (4) – ¼” hex head bolts, standard washers (wide series) though integral mounting flange to Unistrut channel nuts installed in Unistrut P1000.

**DIMENSIONS:** 38.2” W x 15.6” D x 47.1” H

**WEIGHT:** 358 lb.  
Unit maintained structural integrity and remained functional per manufacturer requirement after AC156 test.



**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 w/ (4) – ¼” hex head bolts, standard washers (wide series) though integral mounting flange to Unistrut channel nuts installed in Unistrut P1000.

**DIMENSIONS:** 31.1” W x 12.25” D x 38” H

**WEIGHT:** 250 lb.  
Unit maintained structural integrity and remained functional per manufacturer requirement after AC156 test.





**ATTACHMENT 2: TEST UNIT 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

Unit was full of content during test.

MOUNTING Wall Mounted w/ (4) – ¼” TEK screws & standard washers (wide series) to 16ga backing.

DIMENSIONS: 9.1” W x 11.5” D x 30.0” H

WEIGHT: 36.5 lbs

Unit maintained structural integrity and remained functional per manufacturer requirement after AC156 test.



**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

Unit was full of content during test.

MOUNTING Wall Mounted w/ (4) – ¼” TEK screws & standard washers (wide series) to 16ga backing.

DIMENSIONS: 9.2” W x 16” D x 41.8” H

WEIGHT: 81 lbs

Unit maintained structural integrity and remained functional per manufacturer requirement after AC156 test.



**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

Unit was full of content during test.

MOUNTING Wall Mounted w/ (4) – ¼” TEK screws & standard washers (wide series) to 16ga backing.

DIMENSIONS: 9.8” W x 11.3” D x 34.5” H

WEIGHT: 66 lbs

Unit maintained structural integrity and remained functional per manufacturer requirement after AC156 test.



**ATTACHMENT 2: TEST UNIT SUMMARY**

**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



Unit was full of content during test.

MOUNTING Wall Mounted w/ (4) – ¼" TEK screws & standard washers (wide series) to 16ga backing.

DIMENSIONS: 15.2" W x 18.1" D x 59.7" H

WEIGHT: 234 lbs

Unit maintained structural integrity and remained functional per manufacturer requirement after AC156 test.

