



**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION**

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

OFFICE USE ONLY

APPLICATION #: **OSP – 0333**

OSHPD Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: **TRANE**

Manufacturer's Technical Representative: Tom Troyanek

Mailing Address: 3600 Pammel Creek Road, La Crosse, WI 54601

Telephone: (608) 787-3447

Email: ttroyanek@trane.com

Product Information

Product Name: **TR200 Drives & Panels**

Product Type: Variable Frequency Drives

Product Model Number: D1h, D2h, D5h, D6h, D7h & D8h frame sizes. See attachments for additional information.
(List all unique product identification numbers and/or part numbers)

General Description: Variable frequency drives for the control of induction motors.

Mounting Description: Rigid base mounted, rigid wall mounted and rigid wall/floor mounted. See attachments.

Applicant Information

Applicant Company Name: **EASE**


Contact Person: Jonathan Roberson, S.E.

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

Telephone: (909) 606-7622

Email: j.roberson@easeco.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2016.

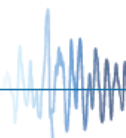
Signature of Applicant: 

Date: October 1, 2019

Title: Principal Structural Engineer

Company Name: **EASE**

"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs"





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

Company Name: EASE

Name: Jonathan Roberson, S.E. California License Number: S4197

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

Telephone: (909) 606-7622 Email: j.roberson@easeco.com

Supports and Attachments Preapproval

- Supports and attachments are preapproved under OPM- _____
(Separate application for OSHPD Preapproval of Manufacturer's Certification (OPM) of Supports and attachments is required)
- Supports and attachments are not preapproved

Certification Method

- Testing in accordance with: ICC-ES AC156
 Other (Please Specify): _____

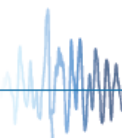
Testing Laboratory

Company Name: Environmental Testing Laboratory, Inc.

Contact Name: Brady Richard

Mailing Address: 11034 Indian Trail, Dallas, TX. 75229-3513

Telephone: (972) 247-9657 Email: brady@etldallas.com





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FACILITIES DEVELOPMENT DIVISION**

Seismic Parameters

Design in accordance with ASCE 7-10 Chapter 13: Yes No

Design Basis of Equipment or Components (F_p/W_p) = 1.95g

S_{DS} (Design spectral response acceleration at short period, g) = 2.60

a_p (In-structure equipment or component amplification factor) = 2½

R_p (Equipment or component response modification factor) = 6

Ω_0 (System overstrength factor) = 2

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1

Equipment or Component Natural Frequencies (Hz) = See Attachment 2

Overall dimensions and weight (or range thereof) = See Attachment 1

Equipment or Components @ grade designed in accordance with ASCE 7-10 Chapter 15: Yes No

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

S_{DS} (Design spectral response acceleration at short period, g) = _____

S_{D1} (Design spectral response acceleration at 1 second period, g) = _____

R (Response modification coefficient) = _____

Ω_0 (System overstrength factor) = By: Timothy J Piland

C_d (Deflection amplification factor) = _____

I_p (Importance factor) = 1.5

Height to Center of Gravity above base = _____

Equipment or Component Natural Frequencies (Hz) = _____

Overall dimensions and weight (or range thereof) = _____

Tank(s) designed in accordance with ASME BPVC, 2015: Yes No

List of Attachments Supporting Special Seismic Certification

Test Report(s) Drawings Calculations Manufacturer's Catalog

Other(s) (Please Specify): Attachments 1 & 2

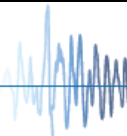
OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2025

Signature: Date: March 15, 2021

Print Name: Timothy J. Piland Title: SSE

Special Seismic Certification Valid Up to: S_{DS} (g) = 2.60 z/h = 1

Condition of Approval (if applicable): _____



ATTACHMENT 1: SEISMIC CERTIFIED COMPONENTS

TABLE 1: TRANE TR200 DRIVE & CLASSIC PANEL CHARACTERISTICS

Product Line	REVISED D-FRAME DRIVE MODEL TRANE TR200 Drives			BASE DRIVE MODEL TR-200			CLASSIC PANEL T200		
FRAME SIZE	DRIVE ^[1] HP RANGE	DRIVE / PANEL ^[2]	TYPE CODE ^[3]	MAX. DIMENSIONS (IN.)			MAX WT (LBS.)	MOUNT	BASIS ^[4]
				WIDTH	DEPTH	HEIGHT			
D1h	75 – 250	Drive	TR-200*	12.8	14.9	35.5	165	Wall	UUT-1
		Tier 2	T200*	29.7	16.4	47.6	420	Wall	INT
		Tier 3	T200*	46.3	16.4	47.6	585	Wall	INT
D2h	250 – 450	Drive	TR-200*	16.5	14.9	43.6	283	Wall	INT
		Tier 2	T200*	33.5	16.4	62.6	630	Wall	INT
		Tier 3	T200*	50.1	16.4	62.6	1070	Wall	UUT-3
D5h	75 – 250	Drive / Tier 1	TR-200*	12.8	15.0	52.1	219	Wall	INT
D6h	250 – 450	Drive / Tier 1	TR-200*	12.8	15.0	65.6	290	Wall	UUT-2
DRIVES WITH PEDESTAL BASE									
D1h	75 – 250	Drive / Tier 1	TR-200*	12.8	14.9	51.2	176	Floor	UUT-4
								Wall/Floor	UUT-5
D2h	250 – 450	Drive / Tier 1	TR-200*	16.5	14.9	59.3	300	Wall/Floor	INT
D5h	75 – 250	Drive / Tier 1	TR-200*	12.8	15.0	60.0	255	Wall/Floor	INT
D6h	250 – 450	Drive / Tier 1	TR-200*	12.8	15.0	73.4	301	Wall/Floor	INT
D7h	75 – 250	Drive / Tier 1	TR-200*	16.5	15.1	77.9	407	Wall/Floor	INT
D8h	250 – 450	Drive / Tier 1	TR-200*	16.5	15.8	89.9	540	Wall/Floor	UUT-6
Enclosure	IP 21 / UL Type 1 / NEMA Type 1 IP 54 / UL Type 12 / NEMA Type 12 Carbon steel back panel with extruded aluminum sides and front cover.								
Mounting	<p><u>Floor (Rigid Base)</u>: a free-standing, base mounted condition with the component rigidly attached to a supporting structure and no lateral support above the base.</p> <p><u>Wall/Floor</u>: component is rigidly attached to a supporting structure at its base, with additional lateral restraint at the top anchoring the component to an adjacent wall or other supporting structure.</p> <p><u>Wall</u>: fully supported by a building wall structure.</p>								
Certified Sub-Assemblies	<ul style="list-style-type: none"> Control Transformers: GE 575,460 Primary 120V Secondary Drive Fuses: Bussmann 315-800 Amps Main fuses: Bussmann 200-600 Amps Circuit Breakers: See Table 2 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 Main Disconnect Switch, Drive Disconnect Switch and/or Main Circuit Breaker Brake IGBT Safe Stop RFI filter Class A1 & A2 A, B, C, D option cards 								
Notes	<ol style="list-style-type: none"> Includes voltages of 380-690VAC 3 phase See Figure 1: Classic Panel Tier Visual Identification Identification: Type Codes (T/C) are alphanumeric sequences which uniquely identifies the configuration of the unit. In the Table above, "*" indicates a variable defined as follows: <ul style="list-style-type: none"> Certified drive Type Codes are listed in Figure 2. Certified panel Type Codes are listed in Figure 3. Basis: <ul style="list-style-type: none"> UUT#: Indicates that a test specimen matching these characteristics was tested. INT (Interpolate): indicates a model that was not specifically tested, and by which seismic qualification was established through evaluation of testing of other, similar models in the product line. 								

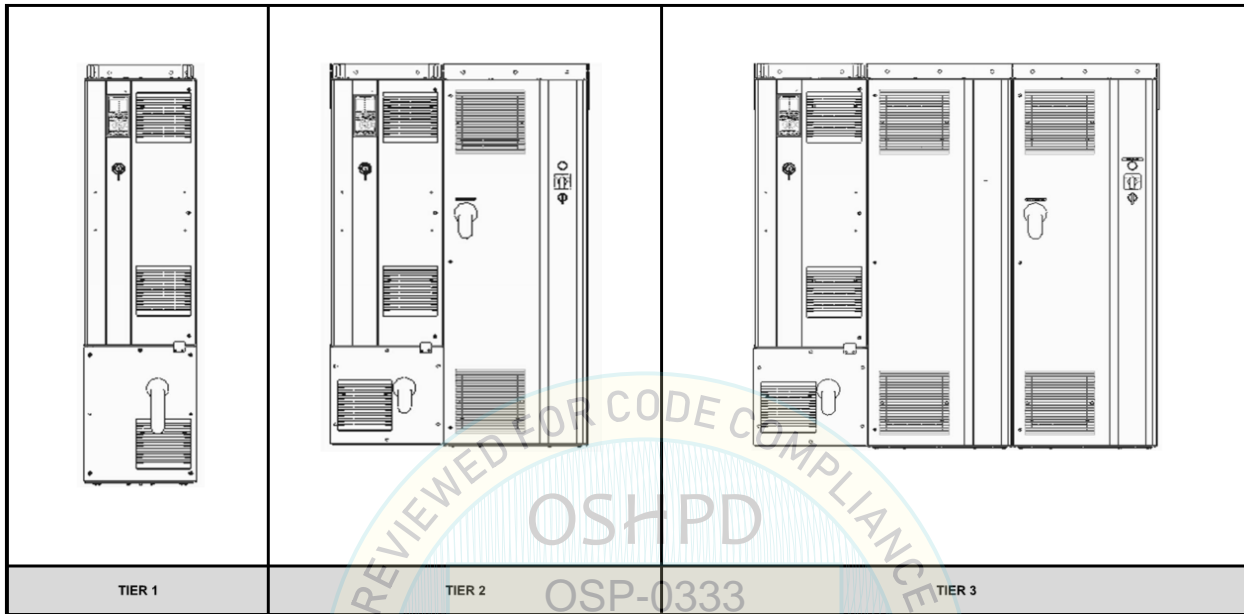


FIGURE 1: CLASSIC PANEL TIER VISUAL IDENTIFICATION

BY: Timothy J Piland

DATE: 03/15/2021

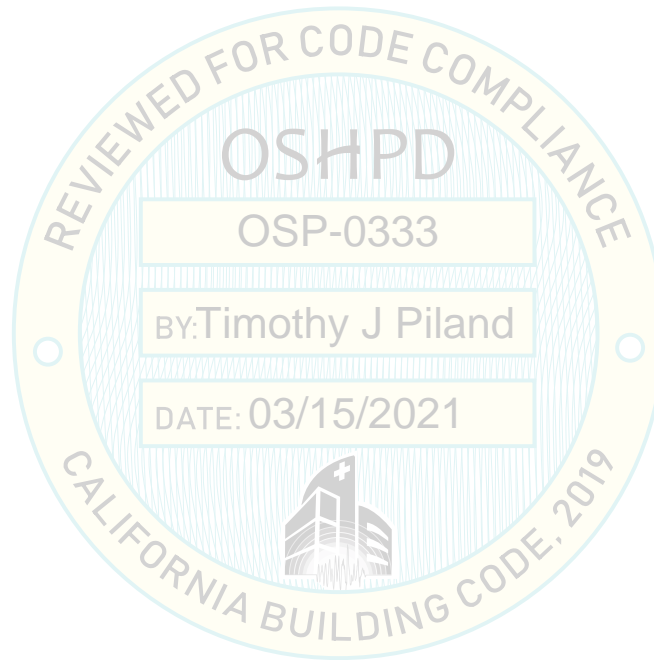
TABLE 2: TRANE TR200 DRIVE CIRCUIT BREAKERS

Drive Manufacturer P/N	Amp Rating
34057800	250
34057900	400
34058000	600
34059900	800
177G5088	320
177G5089	400
177G5090	480
177G5091	600
177G5092	800

ATTACHMENT 1: SEISMIC CERTIFIED COMPONENTS

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Character	Parameter	Allowed Value	Description
31-32	Application	BX	No application option
		B0	Analog I/O Option MCB 109
		B2	PTC Thermistor Card MCB 112
		B4	Sensor Input Card MCB 114
		B5	Programmable I/O Option Module MCB 115
		BK	General Purpose MCB 101
		BP	MCB 105 Relay Expansion
		BW	Real Time Clock MCB 116
33-34	Motion Control	CX	No motion control option
35	Extended Relay	X	No selection
36-37	Motion Software	XX	No software option
38-39	Control Power Backup Input	DX	No DC input installed
		D0	24 V DC Supply Option MCB 107



ATTACHMENT 1: SEISMIC CERTIFIED COMPONENTS

Character	Parameter	Allowed Value	Description
34	Options A	X	No Option
		4	DeviceNet MCA 104
		J	BACNet MCA 109
		Q	Modbus TCP
		G	Lon Works MCA 108
		L	Profinet MCA 120
		N	Ethernet/IP MCA 121
		0	Profibus DP V1
		Q	Modbus MCA 122
		T	3000 Converter (FC302only)
		U	5000 Converter (FC302only)
		6	CanOpen (FC302 only)
		8	EtherCAT (FC302 only)
35	Options B	X	No Option
		0	Analog I/O MCB 109
		2	PTC Thermistor Card
		4	Sensor Input Card
		K	General Purpose I/O MCB 101
		P	Relay Card MCB 105
		R	CL Encoder
		U	CL Resolver
		Y	Extended Cascade Control
Z	Safety PLC Interface		
36	Options C1	X	No Selection
		4	SyncPos
37	Options C2	5	Advanced Control
		X	No Selection
38-39	Options C3	R	Extended Relay Card
		XX	No software option
		10	Synchro. Control
		11	Positioning Control
40	Options D	12	Center Winder
		X	No option
		0	Interface for 24V dc MCB 107

ATTACHMENT 2: TEST SPECIMEN SUMMARY

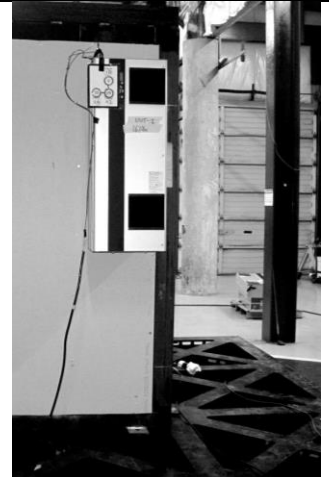
TABLE 1: SHAKE TABLE TEST PARAMETERS

BUILDING CODE	TEST CRITERIA	S _{ds}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
IBC 2015 / CBC 2016	ICC-ES AC156	2.6	1.0	1.5	4.16	3.12	1.74	0.70

All test specimens below maintained structural integrity and functionality at the conclusion of all testing.

UUT-1: D1h FRAME DRIVE

<i>Description:</i>	132 kW / 200 HP Three-phase 380-600 VAC IP 21 /Type 1 enclosure RFI Class A1 No Brake IGBT Graphical Local Control Panel	Coated PCB Fuses Standard Cable Entries Option Card : -MCA 121 Ethernet IP -MCB 101 General Purpose I/O -MCO 351 Positioning control
<i>Mounting:</i>	Wall mounted w/ (4) - 1/4" self-tapping screws w/ 1 - 1/4" OD fender washers	
<i>Dimensions:</i>	W (in.) D (in.) H (in.)	
	12.8 14.5 33.2	
<i>Weight:</i>	161 lbs.	
<i>Resonance</i>	X-Axis Y-Axis Z-Axis	
<i>Frequencies:</i>	--- --- ---	
<i>Identification</i>	P/N: 134H0949	



UUT-2: D6h FRAME DRIVE

<i>Description:</i>	132 kW / 200 HP Three-phase 525-690 VAC IP 54 /Type 12 enclosure RFI Class A2 Brake IGBT Graphical Local Control Panel Heater	Coated PCB Mains Disconnect, contactor and fuse Standard Cable Entries Option Card : -MCA 121 Ethernet IP -MCB 101 General Purpose I/O -MCO 351 Positioning control
<i>Mounting:</i>	Wall mounted w/ (4) - 1/4" self-tapping screws w/ 1 - 1/4" OD fender washers	
<i>Dimensions:</i>	W (in.) D (in.) H (in.)	
	12.8 14.625 63.6	
<i>Weight:</i>	286.5 lbs.	
<i>Resonance</i>	X-Axis Y-Axis Z-Axis	
<i>Frequencies:</i>	--- --- ---	
<i>Identification:</i>	P/N:134H0931	



UUT-3: D2h FRAME TIER 3 PANEL

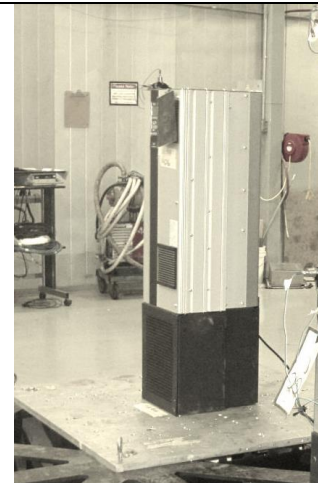
<i>Description:</i>	250 kW / 350 HP Three-phase 380-480 VAC IP 54 /Type 12 enclosure (Drive) Type 1 enclosure (Panel) RFI Class A2 No Brake IGBT Graphical Local Control Panel Line Reactor Output dV/dt Filter	Coated PCB Fuses Standard Cable Entries 2 Contactor Bypass Main Circuit Breaker Drive Disconnect Switch Drive Fusing EMB 2 Package Standard RFI
<i>Mounting:</i>	Wall mounted using (16) - 1/4" self-tapping screws w/ 1 - 1/4" OD Fender washers	
<i>Dimensions:</i>	W (in.) D (in.) H (in.)	
	49.7 14.6 61.125	
<i>Weight:</i>	1070 lbs.	
<i>Resonance</i>	X-Axis Y-Axis Z-Axis	
<i>Frequencies:</i>	--- --- ---	
<i>Identification:</i>	P/N: 131Z8887	



ATTACHMENT 2: TEST SPECIMEN SUMMARY

UUT-4: D1h FRAME DRIVE

<i>Description:</i>	132 kW / 200 HP Three-phase 525-690 VAC IP 21 /Type 1 enclosure RFI Class A2 No Brake IGBT Graphical Local Control Panel Pedestal base	Coated PCB Fuses Standard Cable Entries Option Card : -MCA 121 Ethernet IP -MCB 101 General Purpose I/O -MCO 351 Positioning control
<i>Mounting:</i>	Rigid Base (Floor) Mounted using (4) 1/2" Grade 5 Allen Head Cap Screws w/ washers	
<i>Dimensions:</i>	W (in.) D (in.) H (in.)	
	12.8 14.5 48.9	
<i>Weight:</i>	142 lbs.	
<i>Resonance</i>	X-Axis Y-Axis Z-Axis	
<i>Frequencies:</i>	15.6 15.4 12. 8	
<i>Identification:</i>	P/N:134H0952	



UUT-5: D1h FRAME DRIVE

<i>Description:</i>	132 kW / 200 HP Three-phase 525-690 VAC IP 54 /Type 12 enclosure RFI Class A2 Brake IGBT Graphical Local Control Pane Pedestal Base	Coated PCB Fuses Standard Cable Entries Option Card : -MCA 121 Ethernet IP -MCB 101 General Purpose I/O -MCO 351 Positioning control
<i>Mounting:</i>	Wall/Floor mounted using (4) - 3/8 " Bolts to the floor and (4) - 1/4" self-tapping screws at top anchor point.	
<i>Dimensions:</i>	W (in.) D (in.) H (in.)	
	12.75 14.5 48.875	
<i>Weight:</i>	142 lbs.	
<i>Resonance</i>	X-Axis Y-Axis Z-Axis	
<i>Frequencies:</i>	--- --- ---	
<i>Identification:</i>	P/N:134H0950	



UUT-6: D8h FRAME DRIVE

<i>Description:</i>	250 kW / 350 HP Three-phase 380-500 VAC IP 54 /Type 12 enclosure RFI Class A1 Brake IGBT Graphical Local Control Panel Heater	Coated PCB Mains Disconnect, contactor and fuse Standard Cable Entries Option Card : -MCA 121 Ethernet IP -MCB 101 General Purpose I/O -MCO 351 Positioning control
<i>Mounting:</i>	Wall/Floor mounted using (4) - 3/8" gr 8 bolts to floor plate and (2) - 1/4" self-tapping screws at top anchor point.	
<i>Dimensions:</i>	W (in.) D (in.) H (in.)	
	16.6 14.625 80.25	
<i>Weight:</i>	540 lbs.	
<i>Resonance</i>	X-Axis Y-Axis Z-Axis	
<i>Frequencies:</i>	--- --- ---	
<i>Identification:</i>	P/N: 134H0930	

