APPLICATION FOR OSHPD SPECIAL SEISMIC **CERTIFICATION PREAPPROVAL (OSP) APPLICATION #:** OSP - 0087 - 10 **OSHPD Special Seismic Certification Preapproval (OSP) Manufacturer Information** Manufacturer: Danfoss Manufacturer's Technical Representative: Nicholas Fowler Mailing Address: 8800 W. Bradley Road, Milwaukee, WI. 53224 Telephone: On File Email: On File **Product Information** Product Name: VLT Drives, P650 Panels & P656 Panels Product Type: Variable Frequency Drives Product Model Number: SEE ATTACHMENT 1 (List all unique product identification numbers and/or part numbers) General Description: Drive for variable speed control of 3 phase induction motor with or without bypass backup. Mounting Description: Rigid wall mounted. **Applicant Information** Applicant Company Name: EASE LLC. Contact Person: JONATHAN ROBERSON, S.E. Mailing Address: 5877 Pine Ave, Suite 210, Chino Hills, CA. 91709 Telephone: (909) 606-7622 Email: On File 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: 10/19/2016 Principal Engineer Company Name: EASE LLC.

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





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ATTACHMENT 1: SEISMIC CERTIFIED COMPONENTS

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TABLE 1: DANFOSS VLT DRIVE PRODUCTS [A]

		DRIVE MODELS		
PRODUCT LINE	DRIVE CHASSIS	TRADITIONAL PANEL (P650)	VERTICAL PANEL (P656)	NOTES
	FC101	N/A	N/A	Table 4
Danfoss VLT FC100 HVAC Drives	FC102 FC103	S102 S103	\$102 \$103	Table 2 (P650) Table 3 (P656)
Danfoss VLT FC200 AQUA Drives	FC202	S202	FC202	Table 2 (P650) Table 3 (P656)
Danfoss VLT FC300 INDUSTRIAL Drives	FC301 FC302 FC322	\$301 \$302 \$322	N/A \$302 \$322	Table 2 (P650) Table 3 (P656)

NOTES:

- 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 above.
- B) 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):
 - 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 project
 - c. Serial Numbers (S/N) are unique numbers assigned to a panel or drive

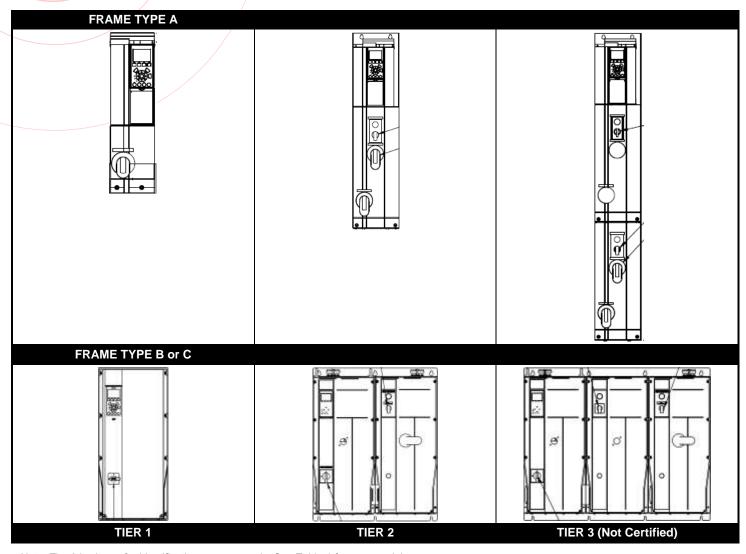
TABLE 2: DANFOSS VLT DRIVE CHASSIS & TRADITIONAL PANEL CONFIGURATION (P650) CHARACTERISTICS

PANEL	DRIVE [1]		MA	X. DIMENSIONS (I	N.) ^[3]	MAX WT					
SIZE	HP RANGE	TIER [2]	WIDTH	DEPTH	HEIGHT	(LBS.)	BASIS [4]				
NEMA/UL TYPE	1 / TYPE 12 / TYPE	4X ENCLOSURE	S				·				
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				
NEMA/U	NEMA/UL TYPE 3R ENCLOSURES										
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				
CERTIFIED ENCLOSURE	NEMA/UL Type 1 E 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										
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.										
NOTES	1. 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). 2. See Figure 1: Traditional Panel (P650) Tier Visual Identification 3. Depth dimension excludes door handle. Width of NEMA 3R enclosures excludes rain hoods. 4. BASIS: UUT#: Indicates that a test specimen matching these characteristics was tested as part of this testing program. 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.										

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

FIGURE 1: TRADITIONAL PANEL (P650) TIER VISUAL IDENTIFICATION

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TABLE 3: DANFOSS VLT DRIVE VERTICAL PANEL CONFIGURATION (P656) CHARACTERISTICS

PANEL	DRIVE [1]		MAX	MAX. DIMENSIONS (IN.)		MAX WT				
SIZE	HP RANGE	TIER [2]	WIDTH	DEPTH	HEIGHT	(LBS.)	BASIS [3]			
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 7 drive cover. All oth						Steel stiffening elements and plastic steel covers.			
MOUNTING	Wall-mounted: full	y supported b	y a building w	all structure.						
NOTES	Includes voltages of 200 - 208VAC, 200 - 240VAC, 380 - 480VAC, and 525 - 600VAC 3 Phase See Figure 2: Vertical Panel (P656) Tier Visual Identification BASIS:									

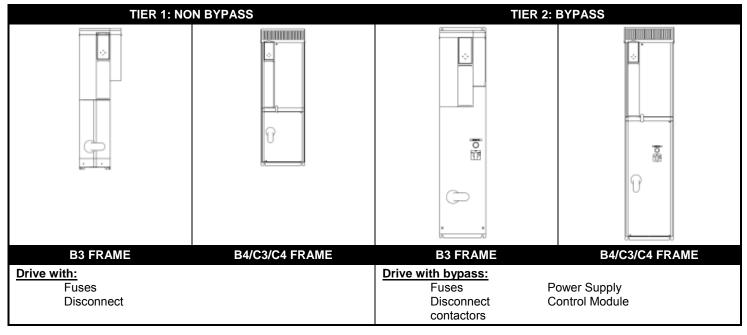


FIGURE 2: VERTICAL PANEL (P656) TIER VISUAL IDENTIFICATION

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TABLE 4: DANFOSS VLT BASIC (FC101) DRIVE CHASSIS CHARACTERISTICS

FRAME	DRIVE [1]	MAX. DIMENSIONS (IN.) [2]		MAX WT [3]						
SIZE	HP RANGE	WIDTH	DEPTH	HEIGHT	(LBS.)	BASIS ^[4]				
H1 Frame	0.33 – 2	3.2	6.8	11.5	6	UUT B1				
H2 Frame	3 – 5.4	3.8	7.7	12.7	9	INT				
H3 Frame	5 – 10	4.2	8.3	13.7	11	INT				
H4 Frame	7.5 – 20	5.6	9.7	14.8	17	INT				
H5 Frame	15 – 30	6.4	10.3	16.5	23	UUT B2				
H6 Frame	20 – 60	10.3	9.6	26.1	60	UUT B3				
H7 Frame	30 – 120	13.0	13.2	31.8	90	INT				
H8 Frame	50 – 125	15.4	13.2	37.2	124	UUT B4				
CERTIFIED ENCLOSURE	NEMA/UL Type 1 H1-H5 includes carbon steel mounting features, with plastic covers. H6-H8 includes carbon steel mounting features and sides and plastic covers.									
MOUNTING	Wall-mounted: full	y supported b	y a building wa	all structure.						
NOTES	Includes voltages of 200 - 208VAC, 200 - 240VAC, 380 - 480VAC, and 525 - 600VAC 3 Phase Dimensions and weight include NEMA / UL Type 1 Kit & door handle. Max. Wt. includes weight of NEMA 1 rain shield BASIS:									

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

TEST CRITERIA	S _{DS}	z/h	l _P	A _{FLX-H}	A_{RIG-H}	A _{FLX-V}	A_{RIG-V}
ICC-ES AC156	2.05	1.0	1.5	3.28	2.46	1.37	0.55

UUT-1: Traditional (P650) 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/ $(4) - \frac{1}{4}$ " 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: Traditonal (P650) 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/ $(4) - \frac{1}{4}$ " 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: Traditional (P650) 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) $-\frac{1}{4}$ " 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.

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







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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) – 1/4" 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/ $(4) - \frac{1}{4}$ " 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

Unit was full of content during test.

MOUNTING Wall Mounted w/ (4) - 1/4" 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.







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TABLE 2: SHAKE TABLÉ TEST PARAMETERS: UUT-A1 THROUGH UUT-A4

TEST CRITERIA	S _{DS}	z/h	lР	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A_{RIG-V}
ICC-ES AC156	2.6	1.0	1.5	4.16	3.12	1.74	0.70

UUT- A1: Vertical Non-Bypass (P656) 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.

Wall Mounted $w/(4) - \frac{1}{4}$ " 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

MOUNTING

Unit maintained structural integrity and remained functional per

manufacturer requirement after AC156 test.



UUT-A2: Vertical Bypass (P656) Panel, 25 HP, 460 V

DESCRIPTION: B3 Frame Tier 2 NEMA 1 enclosure with:

Drive Fuses: 60 ampMain Fuses: 50 amp3 Contactor Bypass

Standard RFI Filter H2 / A2Main Disconnect Switch

Electro-Mechanical Bypass (EMB2) Control

Graphical Display

Unit was full of content during test.

MOUNTING Wall Mounted w/ (4) – 1/4" 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: Vertical Non Bypass (P656) 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.

Wall Mounted w/ (4) – $\frac{1}{4}$ " TEK screws & standard washers (wide series)

to 16ga backing.

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

WEIGHT: 66 lbs

MOUNTING

Unit maintained structural integrity and remained functional per

manufacturer requirement after AC156 test.





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ATTACHMENT 2: TEST UNIT SUMMARY

UUT-A4: Vertical Bypass (P656) 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 amp3 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) – 1/4" 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.



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TABLE 3: SHAKE TABLÉ TEST PARAMETERS: UUT-B1 THROUGH UUT-B4

TEST CRITERIA	S _{DS}	z/h	l _P	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A_{RIG-V}
ICC-ES AC156	2.6	1.0	1.5	4.16	3.12	1.74	0.70

UUT- B1: H1 Frame 2 HP Drive

DESCRIPTION: Product Group: Danfoss

Product Line FC101-HVAC

Power Size 1.5KW

Voltage 380 to 480 VAC 3 Phase

Enclosure IP20 Open Chassis with NEMA 1 Enclosure Kit

RFI Filter H4 / A1

Display Local Control Panel Unit was full of content during test.

MOUNTING Wall Mounted w/ (4) – 1/4" TEK screws & standard washers (wide series)

to 16ga backing.

DIMENSIONS: 3.2" W X 6.81" D X 11.54" H

WEIGHT: 5 LBS

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

UUT-B2: H5 Frame VLT Basic 30 HP Drive

DESCRIPTION: Product Group: Danfoss

Product Line FC101-HVAC

Power Size 22 KW

Voltage 380 to 480 VAC 3 Phase

Enclosure IP20 Open Chassis with NEMA 1 Enclosure Kit

RFI Filter H4 / A1

Display Local Control Panel Unit was full of content during test.

MOUNTING Wall Mounted w/ (4) - 1/4" TEK screws & standard washers (wide series)

to 16ga backing.

DIMENSIONS: 6.34" W X 10.24" D X 16.46" H

WEIGHT: 22 LBS

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

UUT-B3: H6 Frame 50 HP Drive

DESCRIPTION: Product Group: Danfoss

Product Line FC101-HVAC

Power Size 37KW

Voltage 380 to 480 VAC 3 Phase

Enclosure IP20 Open Chassis with back plate & NEMA 1 Enclosure Kit

RFI Filter H3 / A1/B

Display Local Control Panel Unit was full of content during test.

MOUNTING Wall Mounted w/ (4) - 1/4" TEK screws & standard washers (wide series)

to 16ga backing.

DIMENSIONS: 10.24" W X 9.53" D X 26.1" H

WEIGHT: 54 LBS

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





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UUT-B4: H8 Frame 125 HP Drive

DESCRIPTION: Product Group: Danfoss

Product Line FC101-HVAC

Power Size 90 KW

Voltage 380 to 480 VAC 3 Phase

Enclosure IP20 Open Chassis with back plate & NEMA 1 Enclosure Kit

RFI Filter H4 / A²

Display Local Control Panel Unit was full of content during test.

MOUNTING Wall Mounted w/ (4) – 1/4" TEK screws & standard washers (wide series)

to 16ga backing.

DIMENSIONS: 15.35" W X 13.2" D X 37.13" H WEIGHT: 113 LBS + 11LB rain shield

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



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