



OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION

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

OFFICE USE ONLY

APPLICATION #: OSP – 0363 – 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: DANFOSS

Manufacturer's Technical Representative: Steve Gmeinder

Mailing Address: 8800 W. Bradley Road, Milwaukee, WI. 53224

Telephone: (414) 355-8800 Email: On File

Product Information

Product Name: PHD Panels

Product Type: Variable Frequency Drive panels

Product Model Number: See Attachment 1, Table 1

(List all unique product identification numbers and/or part numbers)

General Description: NEMA 1/12/3R rated carbon steel enclosures housing Danfoss VLT drives with additional tuned filter elements to mitigate harmonics.

Mounting Description: Rigid base mounted & wall mounted

Applicant Information

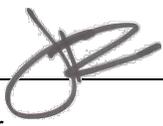
Applicant Company Name: EASE Co.

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, 2013.

Signature of Applicant:  Date: September 30, 2013

Title: Principal Engineer Company Name: EASE Co.

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

STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY
OSH-FD-759 (REV 6/14/13)



osHPD

Page 1 of 3



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

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

Company Name: EASE Co.

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.

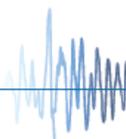
Contact Name: Brady Richard

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

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

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

STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY
OSH-FD-759 (REV 6/14/13)



osHPD

Page 2 of 3



**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
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) = 1.875

S_{DS} (Design spectral response acceleration at short period, g) = 2.6

a_p (In-structure equipment or component amplification factor) = 1

R_p (Equipment or component response modification factor) = 2.5

Ω_0 (System overstrength factor) = 2.5

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 / Table 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) = _____

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, 2010: 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, 2019

Signature:  Date: February 14, 2014

Print Name: Timothy J. Piland Title: SSE

Special Seismic Certification Valid Up to : S_{DS} (g) = 2.6 z/h = 1

Condition of Approval (if applicable): _____



ATTACHMENT 1: SEISMIC CERTIFIED COMPONENTS

TABLE 1: DANFOSS PHD PANELS

Manufacturer	DANFOSS DRIVES								
Product Line	PHD PANELS								
Type Code	PHD#02... ^[2]								
PHD PANEL SIZE	DRIVE			APPROX. DIMENSIONS (IN.) ^[3]			MAX. WT. (LB.)	MOUNT	BASIS ^[1]
	HP	VAC	BYPASS	W	D	H			
Panel 1	25	480	3C	28.3	22.5	44.3	322	Wall	UUT-1
	1.5 – 25	480 / 600	N0, 3C	28.3	22.5	44.3	322	Wall	INT
Panel 2	1.5 – 25	480 / 600	3C, SS	38.3	23.5	55.3	390	Wall	INT
	25	480	SS	34.3	20.9	55.3	369	Wall	UUT-2
	30 – 75	480 / 600	N0, 3C	38.3	23.5	55.3	598	Wall	INT
	75	480	3C	38.3	23.5	55.3	598	Wall	UUT-3
Panel 3	75	480	SS	42.0	23.0	75.1	862	Floor	UUT-4
	30 – 75	480 / 600	SS	43.8	25.5	75.1	862	Floor	INT
	100 – 125	480 / 600	N0				957	Floor	INT
Panel 4	100 – 125	480 / 600	3C, SS	51.8	25.5	87.1	1256	Floor	INT
Panel 5	150 – 250	480	N0	45.8	38.4	79.1	1647	Floor	INT
	150 – 200	600							
Panel 6	150 – 250	480	3C, SS	64.8	38.4	87.1	1980	Floor	INT
	150 – 200	600							
Panel 7	300 – 450	480	N0	54.6	44.4	93.1	2361	Floor	INT
	250 – 400	600							
Panel 8	300 – 450	480	N0	51.0	33.0	97.1	2351	Floor	INT
	250 – 400	600							
Panel 9	300 – 450	480	3C, SS	91.6	44.4	93.1	3169	Floor	INT
	250 – 400	600							
Panel 10	500 – 600	480	N0	81.6	44.7	97.1	3412	Floor	INT
	450 – 650	600							
Panel 11	500 – 600	480	3C, SS	118.8	44.7	97.1	4225	Floor	INT
	450 – 650	600							
	600	480	3C	118.8	44.7	97.1	4225	Floor	UUT-5
Enclosure	11 ga. (floor mounted) / 14 ga. (wall mounted) carbon steel. NEMA/UL rated 1 / 12 / 3R.								
Mounting	RIGID BASE (FLOOR) MOUNTED: a free-standing, base mounted condition with the component rigidly attached to a supporting structure and no lateral support above the base. WALL MOUNTED: component is fully supported vertically and laterally by a building wall or partition.								
Notes	<ol style="list-style-type: none"> BASIS: <ul style="list-style-type: none"> UUT#: Indicates that a test specimen matching these characteristics was tested. INT (Interpolate or Extrapolate): 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. Type Code defines the configuration of the PhD Panel. Each alphanumeric character defines a configurable option in the panel. For a complete listing of the Type Code characters recognized and accepted by this report, see Figure 1. Dimensions listed for untested panels are for NEMA 3R enclosures. In most cases the dimensions of NEMA 1/12 enclosures will be smaller. The difference is the extent of the rain hood found on NEMA 3R versions. 								

ATTACHMENT 1: SEISMIC CERTIFIED COMPONENTS

ATTACHMENT PAGE | 3 OF 3

FIGURE1: CERTIFIED DRIVE TYPE CODES (continued)

Character	Parameter	Allowed Value	Description
26	A Options	J	BACNet (109)
		L	Profinet SRT (120)
		N	Ethernet IP (121)
		Q	Modbus
27	B Options	X	No B Option
		0	Analog I/O (109)
		2	Thermistor Card (112)
		4	Sensor Input (114)
		K	General Purpose I/O (101)
		P	Relay Card (105)
28	C Options	Y	Extended Cascade Control
		X	No C Option
29	D Options	5	Cascade Control
		X	No Option
30-31	Reserved for Future Use	0	24VDC Backup
		XX	None (Reserved for Future Use)

FOR REFERENCE ONLY

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}
CBC 2013	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: 25HP 3C BYPASS

Description: **Standard Components**
 25 HP AQUA Drive
 480 V 3-Phase
 NEMA 3R Enclosure
 3 Contactor Bypass
 Main Fused Disconnect
 Class A2 Input RFI Filter
 Brake Chopper
 Option Card A (Profinet SRT)
 Option Card B (Analog I/O (109))

Mounting: Wall mounted using (6) – 3/8" dia. bolts

Dimensions: W (in.) D (in.) H (in.)
 28.3 22.5 44.3

Weight: 322 lbs.

Resonance X-Axis Y-Axis Z-Axis
Frequencies: --- --- ---

Typecode PHD202025T4E3R3CMXNX2CBL050 P/N: 177X0194

Additional Components
 Option Card C(Cascade Control)
 24V DC Backup
 XT Circuit Breaker
 dv/dt Filter
 Additional 1.5HP HVAC (for add'l option cards)
 Class A1 Input RFI Filter
 Comm. Card A (LonWorks)
 Option Card B (Relay Card)



UUT-2: 25HP SS BYPASS

Description: **Standard Components**
 25 HP HVAC Drive
 480 V 3-Phase
 NEMA 1 Enclosure
 Soft Start Bypass
 Main Fused Disconnect

Mounting: Wall mounted using (8) – 3/8" dia. bolts

Dimensions: W (in.) D (in.) H (in.)
 34.3 20.9 55.3

Weight: 369 lbs.

Resonance X-Axis Y-Axis Z-Axis
Frequencies: --- --- ---

Typecode PHD102025T4E01SSMXNX2CBQKX0 P/N: 177X0881

Additional Components
 Class A2 Input RFI Filter
 Brake Chopper
 Option Card A (Modbus TCP)
 Option Card B (Gen Purpose I/O)
 24V DC Backup



UUT-3: 75HP 3C BYPASS

Description: **Standard Components**
 75 HP AQUA Drive
 480 V 3-Phase
 NEMA 3R Enclosure
 3 Contactor Bypass
 Main Circuit Breaker
 Class A1 Input RFI Filter
 Brake Chopper

Mounting: Wall mounted using (8) – 3/8" dia. bolts

Dimensions: W (in.) D (in.) H (in.)
 38.3 23.5 55.3

Weight: 598 lbs.

Resonance X-Axis Y-Axis Z-Axis
Frequencies: --- --- ---

Typecode PHD202075T4E3R3CCXNX1CB0P50 P/N: 177X0195

Additional Components
 Option Card A (Profibus DPV1)
 Option Card B Relay Card)
 Option Card C (Cascade Control)
 24V DC Backup
 dv/dt Filter
 XT Circuit Breaker



ATTACHMENT 2: TEST SPECIMEN SUMMARY

UUT-4: 75HP SS BYPASS

<i>Description:</i>	Standard Components	Additional Components
	75 HP AQUA Drive 480 V 3-Phase NEMA 12 Enclosure Soft Starter Bypass Main Circuit Breaker dv/dt Filter Class A1 Input RFI Filter Brake Chopper Option Card A (Profibus DPV1) Option Card B (Gen Purpose I/O) Option Card C (Cascade Control) 24V DC Backup	XT Circuit Breaker 75HP Contactor for 3C Bypass 75HP Overload for 3C Bypass Additional 3HP AQUA (for add'l card options) Class A2 Input RFI Filter Option Card A (Device net) Option Card B (Sensor Input)
<i>Mounting:</i>	Rigid base mount w/ (6) – 5/8" dia. bolts + (2) – 1/2" dia. Bolts	
<i>Dimensions:</i>	W (in.) D (in.) H (in.)	
	42 23 75.1	
<i>Weight:</i>	862 lbs.	
<i>Resonance</i>	X-Axis Y-Axis Z-Axis	
<i>Frequencies:</i>	11.9 16.0 29.9	
<i>Typecode</i>	PHD202075T4E12SSCDNX1CBQP50	P/N: 177X0200



UUT-5: 600HP SS BYPASS

<i>Description:</i>	Standard Components	Additional Components
	600 HP HVAC Drive 480 V 3-Phase NEMA 3R Enclosure Softstart Bypass Circuit Breaker dv/dt Output Filter Brake Chopper 24V DC Backup Option Card A (BACNet) Option Card B (Gen. Purpose I/O) Class A2 Input RFI Filter	650HP Overload for 3C Bypass Additional 1.5 Aqua Drive (for additional option cards) Class A1 Input RFI Filter Option Card A (Ethernet) Option Card B (Relay) Option Card C (Cascade Control)
<i>Mounting:</i>	Rigid base mount w/ (15) – 5/8" dia. bolts	
<i>Dimensions:</i>	W (in.) D (in.) H (in.)	
	118.8 44.7 97.1	
<i>Weight:</i>	4225 lbs.	
<i>Resonance</i>	X-Axis Y-Axis Z-Axis	
<i>Frequencies:</i>	5.8 7.5 11.3	
<i>Typecode</i>	PHD102600T4E3RSSCDNX2CBJKX0	P/N: 177X0880

