



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

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

OFFICE USE ONLY

APPLICATION #: OSP – 0489 – 10

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

Type:  New  Renewal

**Manufacturer Information**

Manufacturer: Thermo Fisher Scientific

Manufacturer's Technical Representative: Nathan Lang

Mailing Address: 25 Nimble Hill Road, Newington, NH 03801

Telephone: (603) 403-6130 Email: Nathan.lang@thermofisher.com

**Product Information**

Product Name: Recirculating Chiller ThermoFlex 5000

Product Type: Recirculating Chiller

Product Model Number: 1417922160230001 w/ Seismic Kit #095139  
(List all unique product identification numbers and/or part numbers)

General Description: Recirculating chiller

Mounting Description: Rigidly floor mounted

**Applicant Information**

Applicant Company Name: Product EHS Consulting

Contact Person: Steven Brody

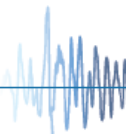
Mailing Address: 19 Red Sox Lane, Raymond, NH 03077

Telephone: (603) 244 1460 Email: Stevenb@productehsconsulting.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 31, 2016

Title: Owner/Manager Company Name: Product EHS Consulting LLC





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

Company Name: Forell/Elsesser Engineers, Inc.

Name: Marco Scanu, SE California License Number: S4454

Mailing Address: 160 Pine St., 6<sup>th</sup> Flr., San Francisco, CA 94111

Telephone: (415) 837-0700 Email: m.scanu@forell.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): \_\_\_\_\_

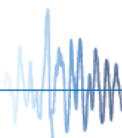
**Testing Laboratory**

Company Name: National Technical Systems

Contact Name: Tom Boonarkat

Mailing Address: 7800 Highway 20 West, Huntsville, AL 35806

Telephone: (256) 837-4411 Email: Tom.Boonarkat@nts.com





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**Seismic Parameters**

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

Design Basis of Equipment or Components ( $F_p/W_p$ ) = 2.12

$S_{DS}$  (Design spectral response acceleration at short period, g) = 2.83

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

$R_p$  (Equipment or component response modification factor) = 6

$\Omega_0$  (System overstrength factor) = 2.0

$I_p$  (Importance factor) = 1.5

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

Equipment or Component Natural Frequencies (Hz) = See attachment, UUT Summary Sheets

Overall dimensions and weight (or range thereof) = See attachment, Certified Products Table

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) = \_\_\_\_\_

$\Omega_0$  (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, 2015:  Yes  No

**List of Attachments Supporting Special Seismic Certification**

Test Report(s)  Drawings  Calculations  Manufacturer's Catalog

Other(s) (Please Specify): Certified Products Table, Certified Subcomponents Table, UUT Summary Sheets

**OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2022**

Signature:  Date: February 7, 2017

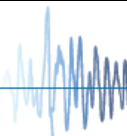
Print Name: Ali Sumer Title: DSE

Special Seismic Certification Valid Up to :  $S_{DS}$  (g) = 2.83  $z/h$  = 1.0

Condition of Approval (if applicable): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



**Thermo Fisher Scientific - Recirculating Chiller ThermoFlex 5000****Certified Product Table**

Unit	Width	Depth	Height	Weight	Construction Material	Model Number	Test Status
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**Recirculating Chiller ThermoFlex 5000**

ThermoFlex 5000	19.3 in	30.9 in	38.9 in	303 lbs	Carbon Steel	1417922160230001 w/ Seismic Kit #095139	UUT1
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**Notes**

1. Enclosure is NEMA Type 1 rated
2. Floor mounted
3. 60 Hz voltage (US): 200-230 VAC
4. 50 Hz voltage: 200/230 VAC
5. Seismic Tie Down Kit (Part #095139): (2) 12ga carbon steel angles at each corner w/ (1) 5/16" bolt between ea. angle.

OSP APPLICATION  
 Thermo Fisher Scientific – Recirculating Chiller ThermoFlex 5000  
 UUT Summary Sheet

Date: 2/7/2017

**Test Report PR050997-TR-16 – UUT 1**

Recirculating Chiller ThermoFlex 5000

Model number 1417922160230001

Carbon Steel

38.9" H x 19.3" W x 30.9"D, 303 lbs

Floor mounted using:

(4) - 3/8" grade 5 bolts torqued to 35 ft-lbs in double-angle brackets (Seismic Tie Down Kit #095139)



Building Code	Test Criteria	S <sub>DS</sub> (g)	z/h	I <sub>p</sub>	Horizontal		Vertical	
					A <sub>FLX-H</sub> (g)	A <sub>RIG-H</sub> (g)	A <sub>FLX-V</sub> (g)	A <sub>RIG-V</sub> (g)
CBC 2016	ICC-ES AC 156	2.83	1.0	1.5	4.53	3.52	1.96	0.78
<b>Natural Frequencies (Hz)</b>			<b>Test Results</b>					
<b>F-B</b>	<b>S-S</b>	<b>V</b>	The UUT maintained structural integrity and functionality after the AC156 test. UUT full of contents during testing.					
7.2	8.5	n/a						