



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

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

OFFICE USE ONLY

APPLICATION #: **OSP – 0348**

OSHPD Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Reliable Sprinkler

Manufacturer's Technical Representative: Juan Jimenez, Senior Product Development Engineer

Mailing Address: 1470 Smith Grove Road, Liberty, SC, 29657

Telephone: (864) 843-5247

Email: jjimenez@reliablesprinkler.com

Product Information

Product Name: Reliable Sprinkler Integrated Fire Protection System Control Panels

Product Type: Integrated Fire Protection System Control Panels

Product Model Number: See attached

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

General Description: The units are enclosures with the following subcomponents: compressor, solenoid valve, switches, system side control valve, pneumatic devices, control panel, and other miscellaneous items. Seismic enhancements made to the test units and modifications required to address the anomalies observed during the tests shall be incorporated into the production units

Mounting Description: All units are rigid base mounted.

Applicant Information

Applicant Company Name: The VMC Group

Contact Person: John Giuliano

Mailing Address: 113 Main Street, Bloomingdale, NJ 07403

Telephone: (973) 838-1780

Email: john.giuliano@thevmcgroup.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: 9/12/19

Title: President

Company Name: The VMC Group

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





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

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

Company Name: The VMC Group

Name: Kenneth Tarlow California License Number: S-2851

Mailing Address: 113 Main Street, Bloomingdale, NJ 07403

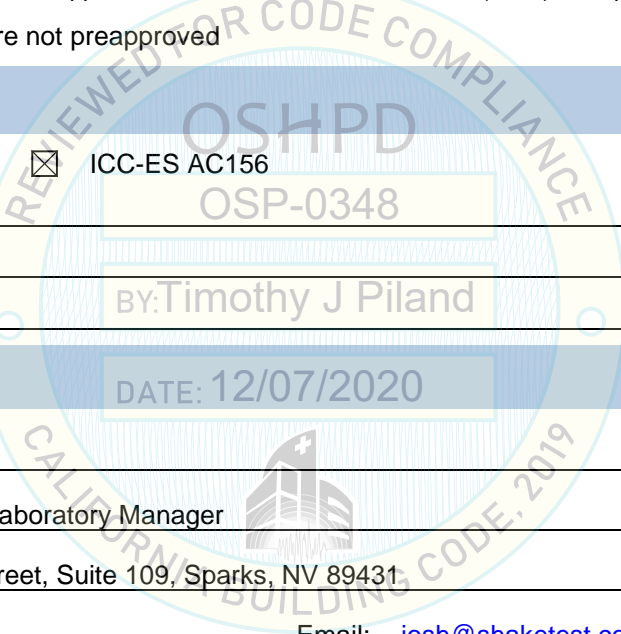
Telephone: (973) 838-1780 Email: ken.tarlow@thvmcgroup.com

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: DCL Labs

Contact Name: Josh Sailer, Laboratory Manager

Mailing Address: 1315 Greg Street, Suite 109, Sparks, NV 89431

Telephone: (775) 358-5085 Email: josh@shaketest.com

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Seismic Parameters

Design in accordance with ASCE 7-16 Chapter 13: [X] Yes [] No

Design Basis of Equipment or Components (Fp/Wp) = 1.88

Sds (Design spectral response acceleration at short period, g) = 2.50

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

Rp (Equipment or component response modification factor) = 6.0

Omega_0 (System overstrength factor) = 2.0

Ip (Importance factor) = 1.5

z/h (Height factor ratio) = 1

Equipment or Component Natural Frequencies (Hz) = See attachment

Overall dimensions and weight (or range thereof) = See attachment

Equipment or Components @ grade designed in accordance with ASCE 7-16 Chapter 15: [] Yes [X] No

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

Sds (Design spectral response acceleration at short period, g) =

Sd1 (Design spectral response acceleration at 1 second period, g) =

R (Response modification coefficient) =

Omega_0 (System overstrength factor) =

Cd (Deflection amplification factor) =

Ip (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 [X] No

List of Attachments Supporting Special Seismic Certification

[X] Test Report(s) [X] Drawings [] Calculations [X] Manufacturer's Catalog

[] Other(s) (Please Specify):

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

Signature: [Signature] Date: December 7, 2020

Print Name: Timothy J. Piland Title: SSE

Special Seismic Certification Valid Up to: Sds (g) = 2.50 z/h = 1

Condition of Approval (if applicable):



Table 1 - Certified Components

Manufacturer: Reliable Sprinkler
Certified Level: S_{DS} = 2.50g, z/h=1.0



Model Number	Valve Type	Max. Dimensions (in)			Max. Weight (lb)	Mounting	Unit	
		Depth	Width	Height				
DDX DryPaK 2"	Deluge	27	25	70	565	Rigid Base Mounted	Extrapolated	
DDX DryPaK 2.5"	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX DryPaK 3"	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX PrePaK 2" with Type D Double Interlock Preaction	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX PrePaK 2.5" with Type D Double Interlock Preaction	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX 3" PrePaK with Type D Double Interlock Preaction	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX 2" PrePaK with Type F Double Interlock Preaction	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX 2.5" PrePaK with Type F Double Interlock Preaction	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX 3" PrePaK with Type F Double Interlock Preaction	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX 2" PrePaK with Wet Pilot	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX 2.5" PrePaK with Wet Pilot	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX 3" PrePaK with Wet Pilot	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX 2" PrePaK with Dry Pilot	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX 2.5" PrePaK with Dry Pilot	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX 3" PrePaK with Dry Pilot	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX 2" PrePaK with Electric Actuation	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX 2.5" PrePaK with Electric Actuation Pilot	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX 3" PrePaK with Electric Actuation Pilot	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX 2" PrePaK with Single Interlock Wet Pilot	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX 2.5" PrePaK with Single Interlock Wet Pilot	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX 3" PrePaK with Single Interlock Wet Pilot	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX 2" PrePaK with Single Interlock Dry Pilot	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX 2.5" PrePaK with Single Interlock Dry Pilot	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX 3" PrePaK with Single Interlock Dry Pilot	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX 2" PrePaK with Double Interlock Type PL	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX 2.5" PrePaK with Double Interlock Type PL	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX 3" PrePaK with Double Interlock Type PL	Deluge	27	25	70		Rigid Base Mounted	Extrapolated	
DDX 4" DryPaK	Deluge	27	25	70		670	Rigid Base Mounted	Extrapolated
DDX 4" PrePaK with Type D Double Interlock Preaction	Deluge	27	25	70			Rigid Base Mounted	Extrapolated
DDX 4" PrePaK with Type F Double Interlock Preaction	Deluge	27	25	70			Rigid Base Mounted	UUT1
DDX 4" PrePaK with Wet Pilot	Deluge	27	25	70			Rigid Base Mounted	Interpolated
DDX 4" PrePaK with Dry Pilot	Deluge	27	25	70			Rigid Base Mounted	Interpolated
DDX 4" PrePaK with Electric Actuation Pilot	Deluge	27	25	70			Rigid Base Mounted	Interpolated
DDX 4" PrePaK with Single Interlock Wet Pilot	Deluge	27	25	70	Rigid Base Mounted		Interpolated	
DDX 4" PrePaK with Single Interlock Dry Pilot	Deluge	27	25	70	Rigid Base Mounted		Interpolated	
DDX 4" PrePaK with Double Interlock Type PL	Deluge	27	25	70	Rigid Base Mounted	Interpolated		

Note: Type F Double Interlock Preaction is the most complex configuration, other configurations are depopulated
 Table 1 Continued on following page.

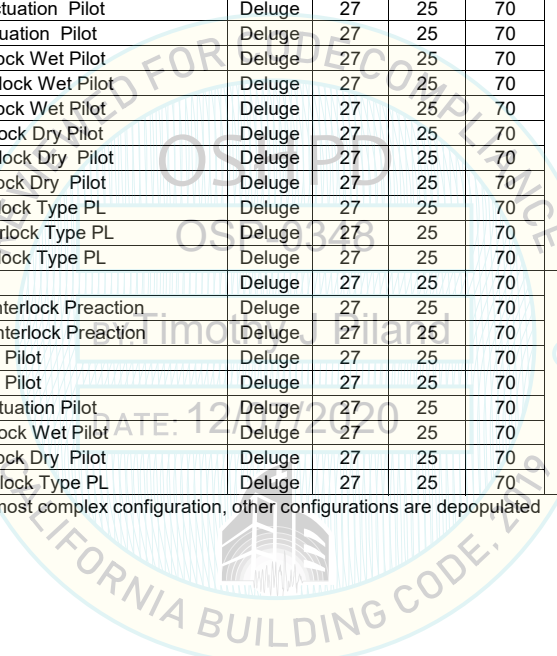


Table 1 Continued - Certified Components

Manufacturer: Reliable Sprinkler

Certified Level: S_{DS} = 2.50g, z/h=1.0



Model Number	Valve Type	Max. Dimensions (in)			Max. Weight (lb)	Mounting	Unit	
		Depth	Width	Height				
DDX 2" DryPaK with N2-Blast	Deluge	32	30	74	890	Rigid Base Mounted	Interpolated	
DDX 2.5" DryPaK with N2-Blast	Deluge	32	30	74		Rigid Base Mounted	Interpolated	
DDX 3" DryPaK with N2-Blast	Deluge	32	30	74		Rigid Base Mounted	Interpolated	
DDX 4" DryPaK with N2-Blast	Deluge	32	30	74		Rigid Base Mounted	Interpolated	
DDX 2" PrePaK with Type D Double Interlock Preaction and N2-Blast	Deluge	32	30	74		Rigid Base Mounted	Interpolated	
DDX 2.5" PrePaK with Type D Double Interlock Preaction and N2-Blast	Deluge	32	30	74		Rigid Base Mounted	Interpolated	
DDX 3" PrePaK with Type D Double Interlock Preaction and N2-Blast	Deluge	32	30	74		Rigid Base Mounted	Interpolated	
DDX 4" PrePaK with Type D Double Interlock Preaction and N2-Blast	Deluge	32	30	74		Rigid Base Mounted	Interpolated	
DDX 2" PrePaK with Type F Double Interlock Preaction and N2-Blast	Deluge	32	30	74		Rigid Base Mounted	Interpolated	
DDX 2.5" PrePaK with Type F Double Interlock Preaction and N2-Blast	Deluge	32	30	74		Rigid Base Mounted	Interpolated	
DDX 3" PrePaK with Type F Double Interlock Preaction and N2-Blast	Deluge	32	30	74		Rigid Base Mounted	Interpolated	
DDX 4" PrePaK with Type F Double Interlock Preaction and N2-Blast	Deluge	32	30	74		Rigid Base Mounted	UUT 2	
DDX 6" DryPaK	Deluge	32	30	74		1100	Rigid Base Mounted	Interpolated
DDX 8" DryPaK	Deluge	32	30	74			Rigid Base Mounted	Interpolated
DDX 6" PrePaK with Type D Double Interlock Preaction	Deluge	32	30	74	Rigid Base Mounted		Interpolated	
DDX 8" PrePaK with Type D Double Interlock Preaction	Deluge	32	30	74	Rigid Base Mounted		Interpolated	
DDX 6" PrePaK with Type F Double Interlock Preaction	Deluge	32	30	74	Rigid Base Mounted		Interpolated	
DDX 6" PrePaK with Wet Pilot	Deluge	32	30	74	Rigid Base Mounted		Interpolated	
DDX 8" PrePaK with Wet Pilot	Deluge	32	30	74	Rigid Base Mounted		Interpolated	
DDX 6" PrePaK with Dry Pilot	Deluge	32	30	74	Rigid Base Mounted		Interpolated	
DDX 8" PrePaK with Dry Pilot	Deluge	32	30	74	Rigid Base Mounted		Interpolated	
DDX 6" PrePaK with Electric Actuation Pilot	Deluge	32	30	74	Rigid Base Mounted		Interpolated	
DDX 8" PrePaK with Electric Actuation Pilot	Deluge	32	30	74	Rigid Base Mounted		Interpolated	
DDX 6" PrePaK with Single Interlock Wet Pilot	Deluge	32	30	74	Rigid Base Mounted		Interpolated	
DDX 8" PrePaK with Single Interlock Wet Pilot	Deluge	32	30	74	Rigid Base Mounted		Interpolated	
DDX 6" PrePaK with Single Interlock Dry Pilot	Deluge	32	30	74	Rigid Base Mounted		Interpolated	
DDX 8" PrePaK with Single Interlock Dry Pilot	Deluge	32	30	74	Rigid Base Mounted		Interpolated	
DDX 6" PrePaK with Double Interlock Type PL	Deluge	32	30	74	Rigid Base Mounted		Interpolated	
DDX 8" PrePaK with Double Interlock Type PL	Deluge	32	30	74	Rigid Base Mounted		Interpolated	
DDX 8" PrePaK with Type F Double Interlock Preaction	Deluge	32	30	74	Rigid Base Mounted		UUT 3	

Note: Type F Double Interlock Preaction is the most complex configuration, other configurations are depopulated

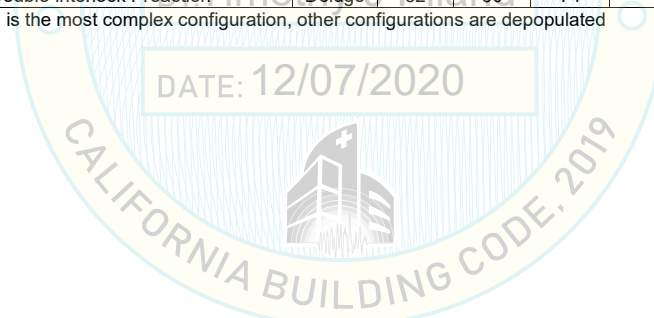


Table 2 - Certified Subcomponents

Mounting: Rigid base mount

Certified Level: $S_{DS} = 2.50g$, $z/h=1.0$



Subcomponent [Manufacturer]	Model Number	Description	Material	Approximate Weight (lb)	Unit
Enclosure [Reliable Sprinkler]	9802012B	25W x 27D x 70H	Carbon Steel	556	UUT 1
	9802014A	30W x 31D x 74H	Carbon Steel	757	UUT 3
	98030014	30W x 31D x 74H	Carbon Steel	757	UUT 2
Compressor [General Air]	6702001013	1/2HP 115VAC	Carbon Steel / Aluminum / Nylon	45	UUT 1
	6702001014	1/2HP 220VAC		45	Interpolated
	6702001015	1HP 115VAC		60	Interpolated
	6702001016	1HP 220VAC		60	Interpolated
	6702001018	1-1/2HP 220VAC		110	Interpolated
	6702001017	1-1/2HP 115VAC		110	UUT 2
Solenoid Valve [Skinner]	6871020030	175 psi	Brass	2	UUT 1,2,3
Switches [Porter]	6990019313	System Pressure Switch	Die Cast / Nylon	1	UUT 1,2,3
	6990006382	Alarm Pressure Switch			UUT 1,2,3
System Side Control Valve [Reliable Sprinkler]	6501200021	2" System Side Control Valve	Ductile Iron	20	Extrapolated
	6501200023	2.5" System Side Control Valve		20	Extrapolated
	6501200025	3" System Side Control Valve		22	Extrapolated
	6501200026	4" System Side Control Valve		28	UUT 1,2
	6501200027	6" System Side Control Valve		47	Interpolated
	6501200028	8" System Side Control Valve		70	UUT 3
Pneumatic Devices [Reliable Sprinkler]	6704030024	NS-ASAM (Nitrogen Supply with Outo Switchover and Monitoring)	Galvanized Carbon Steel / Brass	15	UUT 3
	6304030200	Nitrogen Supply	Galvanized Carbon Steel / Brass	7	UUT 1
	501200003	Desiccant Dryer	Carbon Steel	7	UUT 1
Control Panel [Porter]	6611772015	Kit, Control Panel, PFC-4410-RC	Carbon Steel	30	UUT 1,2,3
	6501200040	Kit, No Control Panel	Carbon Steel	4	Extrapolated*
Misc [Reliable Sprinkler]	78653000	Manual Solenoid Release	Galvanized Carbon Steel / Brass	2	UUT 1,2,3
	98840237	Water Control Valve	Brass	2	UUT 1,2
	98840109	Alarm Line Valve	Brass	2	UUT 1,2
	6304001110	Pressure Maintenance Device w/ Rapid Fill	Galvanized Carbon Steel / Brass	4	UUT 1,2
	6516000006	B1 Accelerator Kit	Galvanized Carbon Steel / Brass	10	UUT 1,2,3

Note: *Extrapolated controller is depopulated version of the tested controller.

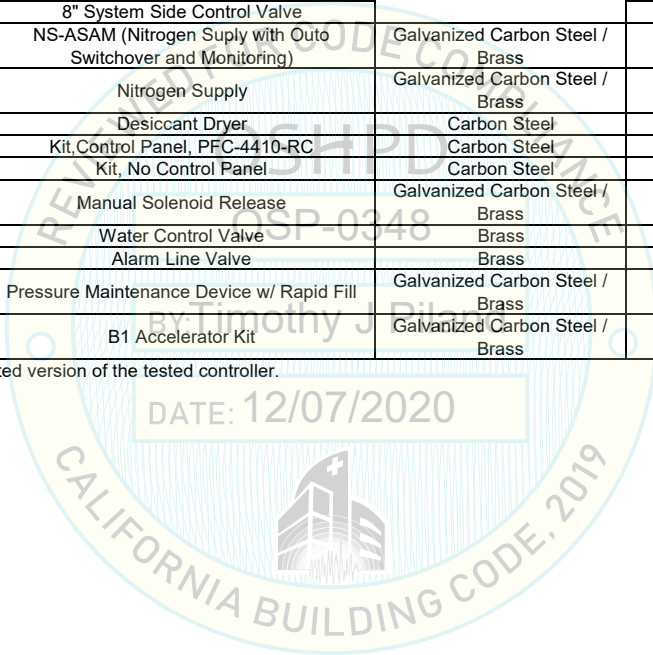


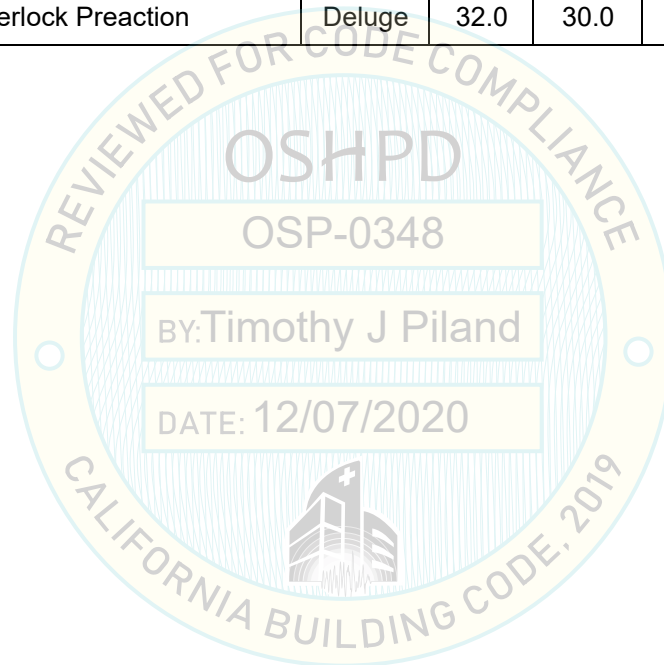
Table 3 - Tested Units


Manufacturer: Reliable Sprinkler

Certified Level: S_{DS} = 2.50g, z/h=1.0



Model Number	Valve Type	Dimensions (in)			Weight (lb)	Mounting	Unit
		Depth	Width	Height			
DDX 4" PrePaK with Type F Double Interlock Preaction	Deluge	27.0	25.0	70.0	670	Rigid Base Mounted	UUT 1
DDX 4" PrePaK with N2-Blast and Type F Double Interlock Preaction	Deluge	32.0	30.0	74.0	890	Rigid Base Mounted	UUT 2
DDX 8" PrePaK with Type F Double Interlock Preaction	Deluge	32.0	30.0	74.0	1100	Rigid Base Mounted	UUT 3



UUT 2	
Unit Under Test (UUT)	
Summary Sheet	

Manufacturer:	Reliable Sprinkler
Product Line:	Integrated Fire Protection Systems
Model Number:	DDX 4" PrePaK with N2-Blast and Type F Double Interlock Preation

Product Construction Summary:
Cabinet is constructed of painted carbon steel.

Options / Component Summary:
The UUT is comprised of components including the following: An enclosure, compressor, solenoid valve, switches, system side control valve, pneumatic devices, control panel, and other miscellaneous items.

UUT Properties

Test Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)
890	32.0	30.0	74.0	8.0	14.5	>33.3

Seismic Test Parameters


Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2016	ICC-ES AC156	2.50	1.00	1.50	4.00	3.00	1.67	0.67

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained.

Unit Mounting Description:



UUT 2 was rigid base mounted to the shake table interface plate with (6) ½" diameter, grade 5 bolts and washers. In addition to the bolts and washers, (2) 29" x 7" x ¼" A36 steel plates with through holes were used to add material to the UUT mounting. The bolts were spaced at 11" on center lengthwise and 22" on center widthwise.

UUT 3	
Unit Under Test (UUT)	
Summary Sheet	

Manufacturer:	Reliable Sprinkler
Product Line:	Integrated Fire Protection Systems
Model Number:	DDX 8" PrePaK with Type F Double Interlock Preaction

Product Construction Summary:
Cabinet is constructed of painted carbon steel.

Options / Component Summary:
The UUT is comprised of components including the following: An enclosure, compressor, solenoid valve, switches, system side control valve, pneumatic devices, control panel, and other miscellaneous items.

UUT Properties

Test Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back (X)	Side-Side (Y)	Vertical (Z)
1,100	32.0	30.0	74.0	7.5	10.5	>33.3

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2016	ICC-ES AC156	2.50	1.00	1.50	4.00	3.00	1.67	0.67

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained.



UUT 3 was rigid base mounted to the shake table interface plate with (6) ½" diameter, grade 5 bolts and washers. In addition to the bolts and washers, (2) 29"x7"x¼" A36 steel plates with through bolts were used to add material to the UUT mounting. The bolts were spaced 11" on center lengthwise and 22" on center widthwise.