APPLICATION FOR HCAI SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0293

HCAI Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: Yaskawa

Manufacturer's Technical Representative: John Cairo

Mailing Address: 2121 Norman Drive South, Waukegan, IL 60085

Telephone: (847) 887-7089 Email: john_cairo@yaskawa.com

Product Information

Product Name: Industrial Control Panels

Product Type: Variable Frequency Drives and Starters

Product Model Number: A1000 & Z1000 Series VFD's

General Description: Variable Frequency Drives that can be constructed of plastic or carbon steel. Seismic

Mounting Description: Rigid or flexible, Wall Mounted

Tested Seismic Enhancements: Seismic enhancements made to the test units and/or modifications required to address anomalies during the tests shall be incorporated into the production units.

Applicant Information

Applicant Company Name: The VMC Group

Contact Person: John Giuliano

Mailing Address: 113 Main St, Bloomingdale, NJ 07403

Telephone: (973) 838-1780 Email: john.giuliano@thevmcgroup.com

Title: President

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

Company Name: THE VMC GROUP

Name: Kenneth Tarlow California License Number: S2851

Mailing Address: 980 9th Street, 16th Floor, Sacramento, CA 95814

Telephone: (832) 627-2214 Email: ken.tarlow@thevmcgroup.com

Certification Method

☐ GR-63-Core ☒ ICC-ES AC156 ☐ IEEE 344 ☐ IEEE 693 ☐ NEBS 3

☐ Other (Please Specify):

Testing Laboratory

Company Name: CLARK TESTING LABORATORY, INC.

Contact Person: Devon Lohr

Mailing Address: 1801 Route 51, Jefferson Hills PA 15025

Telephone: (412) 387-1001 Email: dkohr@clarktesting.com

Company Name: UNIVERSITY OF CALIFORNIA, BERKELEY (PEER)

Contact Person: Amarnath Kasalanti

Mailing Address: 1301 S. 46th Street, Building 420,, Richmond CA 94804

Telephone: (510) 665-3409 Email: amarnath1@berkeley.edu

Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 4.50 (Flexible) & 1.5 (Rigid)

S_{DS} (Design spectral response acceleration at short period, g) = 2.0

a_p (Amplification factor) = 2.5

R_p (Response modification factor) = 2.0 (Flexible) & 6.0 (Rigid)

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 1

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment

HCAI Approval (For Office Use Only) - Approval Expires on 09/28/2028

Date: 9/28/2022

Name: Mohammad Karim Title: Supervisor, Health Facilities

Special Seismic Certification Valid Up to: S_{DS} (g) = 2.0 z/h = 1

Condition of Approval (if applicable):

Table 1 - A1000 Series Standard VFDs (Industrial AC Drives)

Standard Drive Model	Output Current Rating	Nominal HP	Rated Input Voltage	NEMA Rating	Standard Drive Frame Size	Standard Drive Material	Max Length [in]	Max Width [in]	Max Height [in]	Max Weight [lb]	Mounting Method	UUT
CIMR-AU2A	0360	150	208V	Type 1	12	Carbon Steel	14	24	46	232	Rigid and Flexible Wall Mount	UUT-3A, UUT-3B
CIMR-AU2A	0360	150	208V	Type 1	12		14	23	46	238		Interpolated
CIMR-AU2A	0415	175	208V	Type 1	12		14	23	46	240		Interpolated
CIMR-AU4A	0250	200	480V	Type 1	12		14	23	46	233		Interpolated
CIMR-AU4A	0296	250	480V	Type 1	12		14	23	46	246		Interpolated
CIMR-AU4A	0362	300	480V	Type 1	12		14	23	46	257		Interpolated
CIMR-AU5A	0192	200	600V	Type 1	12		14	23	46	233		Interpolated
CIMR-AU5A	0242	250	600V	Type 1	12		14	23	46	235		Interpolated
CIMR-AU4A	0414	350	480V	Type 1	13		15	24	48	292		Interpolated
CIMR-AU4A	0515	400 & 450	480V	Type 1	14		15	30	61	504		Interpolated
CIMR-AU4A	0675	500 & 600	480V	Type 1	14		15	30	61	515		Interpolated
CIMR-AU4A	0675	500 & 600	480V	Type 1	14		15	31	62	516		UUT-4A, UUT-4B

Table 2 - Z1000 Series Standard VFDs (Commercial HVAC Drives)

Standard Drive Model	Output Current Rating	Nominal HP	Rated Input Voltage	NEMA Rating	Standard Drive Frame Size	Standard Drive Material	Max Length [in]	Max Width [in]	Max Height [in]	Max Weight [lb]	Mounting Method	UUT
CIMR-ZU2A	0011	3	208V	Type 1	1	Plastic	9	5	14	12	Rigid and Flexible Wall Mount	Extrapolated
CIMR-ZU2A	0017	5	208V	Type 1	1		9	5	14	13		Extrapolated
CIMR-ZU4A	0005	3	480V	Type 1	1		9	5	14	5		Extrapolated
CIMR-ZU4A	0008	5	480V	Type 1	1		9	5	14	8		Extrapolated
CIMR-ZU4A	0011	7.5	480V	Type 1	1		9	5	14	11		Extrapolated
CIMR-ZU2A	0024	7.5	208V	Type 1	2		9	5	14	16		Extrapolated
CIMR-ZU2A	0031	10	208V	Type 1	2		9	5	14	17		Extrapolated
CIMR-ZU4A	0014	10	480V	Type 1	2		9	5	14	16		Extrapolated
CIMR-ZU4A	0021	15	480V	Type 1	2		9	5	14	17		Extrapolated
CIMR-ZU4A	0027	20	480V	Type 1	2		9	5	14	19		Extrapolated
CIMR-ZU2A	0046	15	208V	Type 1	3		9	8	20	26		Extrapolated
CIMR-ZU2A	0059	20	208V	Type 1	3		9	8	20	29		Extrapolated
CIMR-ZU4A	0034	25	480V	Type 1	3		9	8	20	29		Internal to UUT-7A, UUT-7B
CIMR-ZU4A	0040	30	480V	Type 1	3		9	8	20	29		Interpolated
CIMR-ZU4A	0052	40	480V	Type 1	3		9	8	20	29		Interpolated
CIMR-ZU2A	0075	25	208V	Type 1	4		11	10	21	59		Interpolated
CIMR-ZU2A	0088	30	208V	Type 1	4		11	10	21	62		Interpolated
CIMR-ZU2A	0114	40	208V	Type 1	4		11	10	21	64		Internal to UUT-1A, UUT-1B
CIMR-ZU4A	0052	40	480V	Type 1	4		11	10	21	59		Interpolated
CIMR-ZU4A	0065	50	480V	Type 1	4		11	10	21	64		Interpolated
CIMR-ZU4A	0077	60	480V	Type 1	4		11	10	21	68		Interpolated
CIMR-ZU4A	0096	75	480V	Type 1	4		11	10	21	70		Interpolated
CIMR-ZU4A	0124	100	480V	Type 1	5		12	10	28	101		Internal to UUT-2A, UUT-2B, UUT-9A, **UUT-9**B
CIMR-ZU2A	0143	50	208V	Type 1	6		16	13	31	143		Interpolated
CIMR-ZU2A	0169	60	208V	Type 1	6		16	13	31	150		Interpolated
CIMR-ZU2A	0211	75	208V	Type 1	6		16	13	31	154		Interpolated
CIMR-ZU2A	0273	100	208V	Type 1	6		16	13	31	161		Interpolated
CIMR-ZU4A	0156	125	480V	Type 1	6		16	13	31	161		Interpolated
CIMR-ZU4A	0180	150	480V	Type 1	6		16	13	31	167		Internal to UUT-5A, **UUT**-5B
CIMR-ZU4A	0240	200	480V	Type 1	6	Carbon Steel	16	13	31	174		Internal to UUT-6A, UUT-6B
CIMR-ZU4A	0302	250	480V	Type 1	7		19	18	41	286		Interpolated
CIMR-AU2A	0360	150	208V	Type 1	12		14	24	46	232		UUT-3A, UUT-3B(1)
CIMR-ZU2A	0343	125	208V	Type 1	8		14	23	46	238		Interpolated
CIMR-ZU2A	0396	150	208V	Type 1	8		14	23	46	238		Interpolated
CIMR-ZU4A	0361	300	480V	Type 1	8		14	23	46	257		Interpolated
CIMR-ZU4A	0414	350	480V	Type 1	9		15	24	48	292		Interpolated
CIMR-ZU4A	0480	400	480V	Type 1	10		15	30	61	504		Interpolated
CIMR-ZU4A	0515	450	480V	Type 1	10		15	30	61	504		Interpolated
CIMR-ZU4A	0590	500	480V	Type 1	10		15	30	61	515		Interpolated
CIMR-AU4A	0675	500 & 600	480V	Type 1	14		15	31	62	516		UUT-4A, UUT-4B(1)

Note:

1) Commercial Drives (Z1000 Series) are physically identical to Industrial Drives (A1000 Series) with the only differences being rating and labeling

Table 3 - Z1000 Series Bypass VFDs (Commercial HVAC Drives)

Model Number Designation			Output Current Rating	Nominal HP	Rated Input Voltage	NEMA Rating	Cabinet		Drive Material	Max Length [in]	Max Width [in]	Max Height [in]	Max Weight [lb]	Mounting Method	UUT
Drive Base Model	Power Option	Control Option					Size	Material							
Z1B1D002	PXX	TXX	2.4	0.5	208V	Type 1	W1	Plastic	Plastic	13	7	42	70	Rigid and Flexible Wall Mount	Extrapolated
Z1B1D003	PXX	TXX	3.5	0.75	208V	Type 1	W1			13	7	42	70		Extrapolated
Z1B1D004	PXX	TXX	4.6	1	208V	Type 1	W1			13	7	42	70		Extrapolated
Z1B1D007	PXX	TXX	7.5	2	208V	Type 1	W1			13	7	42	70		Extrapolated
Z1B1D010	PXX	TXX	10.6	3	208V	Type 1	W1			13	7	42	70		Extrapolated
Z1B1D016	PXX	TXX	16.7	5	208V	Type 1	W1			13	7	42	70		Extrapolated
Z1B1B001	PXX	TXX	1.1, 1.6	0.5, 0.75	480V	Type 1	W1			13	7	42	70		Extrapolated
Z1B1B002	PXX	TXX	2.1	1	480V	Type 1	W1			13	7	42	70		Extrapolated
Z1B1B003	PXX	TXX	3.4	2	480V	Type 1	W1			13	7	42	70		Extrapolated
Z1B1B004	PXX	TXX	4.8	3	480V	Type 1	W1			13	7	42	70		Extrapolated
Z1B1B007	PXX	TXX	7.6	5	480V	Type 1	W1			13	7	42	70		Extrapolated
Z1B1B011	PXX	TXX	11.0	7.5	480V	Type 1	W1			13	7	42	70		Extrapolated
Z1B1D024	PXX	TXX	24.2	7.5	208V	Type 1	W2			13	7	45	80		Extrapolated
Z1B1D030	PXX	TXX	30.8	10	208V	Type 1	W2			13	7	45	80		Extrapolated
Z1B1B014	PXX	TXX	14.0	10	480V	Type 1	W2			13	7	45	80		Extrapolated
Z1B1B021	PXX	TXX	21.0	15	480V	Type 1	W2			13	7	45	80		Extrapolated
Z1B1B027	PXX	TXX	27.0	20	480V	Type 1	W2			13	7	45	80		Extrapolated
Z1B1D046	PXX	TXX	46.2	15	208V	Type 1	W3			13	10	48	90		Extrapolated
Z1B1D059	PXX	TXX	59.4	20	208V	Type 1	W3			13	10	48	90		Extrapolated
Z1B1B034	PMG	TD	34.0	25	480V	Type 1	W3			13	10	48	70		UUT-7A, UUT-7B
Z1B1B034	PXX	TXX	34.0	25	480V	Type 1	W3			13	10	48	90		Interpolated
Z1B1B040	PXX	TXX	40.0	30	480V	Type 1	W3			13	10	48	90		Interpolated
Z1B1B052	PXX	TXX	52.0	40	480V	Type 1	W3			13	10	48	90		Interpolated
Z1B1D074	PXX	TXX	74.8	25	208V	Type 1	W4			14	13	53	160		Interpolated
Z1B1D088	PXX	TXX	88.0	30	208V	Type 1	W5	Carbon Steel		16	26	43	280		Interpolated
Z1B1D114	PMB	TD	114.0	40	208V	Type 1	W5			16	26	43	205		UUT-1A, UUT-1B
Z1B1D114	PXX	TXX	114.0	40	208V	Type 1	W5			16	26	43	280		Interpolated
Z1B1B052	PXX	TXX	52.0	40	480V	Type 1	W4			14	13	53	160		Interpolated
Z1B1B065	PXX	TXX	65.0	50	480V	Type 1	W4			14	13	53	160		Interpolated
Z1B1B077	PXX	TXX	77.0	60	480V	Type 1	W4			14	13	53	160		Interpolated
Z1B1B096	PXX	TXX	96.0	75	480V	Type 1	W5			16	26	43	280		Interpolated
Z1B1B124	PMB	TD	124.0	100	480V	Type 1	W5		Carbon Steel	16	26	43	243		UUT-2A, UUT-2B
Z1B1B124	PXX	TXX	124.0	100	480V	Type 1	W5			16	26	43	280		Interpolated
Z1B1D143	PXX	TXX	143.0	50	208V	Type 1	W6			19	28	49	380		Interpolated
Z1B1D169	PXX	TXX	169.0	60	208V	Type 1	W6			19	28	49	380		Interpolated
Z1B1B156	PXX	TXX	156.0	125	480V	Type 1	W6			19	28	49	380		Interpolated
Z1B1B180	PXX	TXX	180.0	150	480V	Type 1	W6			19	28	49	380		Interpolated
Z1B1B180	PMG	TD	180.0	150	480V	Type 1	W6			19	28	49	380		UUT-5A, UUT-5B
Z1B3B124	PXX	TXX	124.0	100	480V	Type 3R	W4			21	39	51	520		Interpolated
Z1B3B124	PFK23	TDM	124.0	100	480V		W4			21	39	51	520		UUT-9A, UUT-9B

Notes

1) The difference between Z1C1B034 and tested Z1B1D034 (UUT-7A, UUT-7B) is that Z1C1B034 does not have the bypass contactor and related wiring.
2) The difference between Z1C1D114 and tested Z1B1D114 (UUT-1A, UUT-1B) is that Z1C1D114 does not have the bypass contator and related wiring.
The Z1C1D114 is also installed in a smaller cabinet (W4).
3) The difference between Z1C1D124 and tested Z1B1D124 (UUT-2A, UUT-2B) is that Z1C1B124 does not have the bypass contactor and related wiring.
4) The difference between Z1C1B180 and tested Z1B1B180 (UUT-5A, UUT-5B) is that Z1C1B180 does not have the bypass contator and related circuitry.

Table 4 - Z1000 Series Configured VFDs (Commercial HVAC Drives)

Model Number Designation			Output Current Rating	Nominal HP	Rated Input Voltage	NEMA Rating	Cabinet		Drive Material	Max Length [in]	Max Width [in]	Max Height [in]	Max Weight [lb]	Mounting Method	UUT
Drive Base Model	Power Option	Control Option					Size	Material							
Z1C1D002	PXXX	TXX	2.4	0.5	208V	Type 1	W1	Plastic	Plastic	13	7	42	65	Rigid and Flexible Wall Mount	Extrapolated
Z1C1D003	PXXX	TXX	3.5	0.75	208V	Type 1	W1			13	7	42	65		Extrapolated
Z1C1D004	PXXX	TXX	4.6	1	208V	Type 1	W1			13	7	42	65		Extrapolated
Z1C1D007	PXXX	TXX	7.5	2	208V	Type 1	W1			13	7	42	65		Extrapolated
Z1C1D010	PXXX	TXX	10.6	3	208V	Type 1	W1			13	7	42	65		Extrapolated
Z1C1D016	PXXX	TXX	16.7	5	208V	Type 1	W1			13	7	42	65		Extrapolated
Z1C1B001	PXXX	TXX	1.1, 1.6	0.5, 0.75	480V	Type 1	W1			13	7	42	65		Extrapolated
Z1C1B002	PXXX	TXX	2.1	1	480V	Type 1	W1			13	7	42	65		Extrapolated
Z1C1B003	PXXX	TXX	3.4	2	480V	Type 1	W1			13	7	42	65		Extrapolated
Z1C1B004	PXXX	TXX	4.8	3	480V	Type 1	W1			13	7	42	65		Extrapolated
Z1C1B007	PXXX	TXX	7.6	5	480V	Type 1	W1			13	7	42	65		Extrapolated
Z1C1B011	PXXX	TXX	11.0	7.5	480V	Type 1	W1			13	7	42	65		Extrapolated
Z1C1D024	PXXX	TXX	24.2	7.5	208V	Type 1	W2			13	7	45	75		Extrapolated
Z1C1D030	PXXX	TXX	30.8	10	208V	Type 1	W2			13	7	45	75		Extrapolated
Z1C1B014	PXXX	TXX	14.0	10	480V	Type 1	W2			13	7	45	75		Extrapolated
Z1C1B021	PXXX	TXX	21.0	15	480V	Type 1	W2			13	7	45	75		Extrapolated
Z1C1B027	PXXX	TXX	27.0	20	480V	Type 1	W2			13	7	45	75		Extrapolated
Z1C1D046	PXXX	TXX	46.2	15	208V	Type 1	W3			13	10	48	85		Extrapolated
Z1C1D059	PXXX	TXX	59.4	20	208V	Type 1	W3			13	10	48	85		Extrapolated
Z1C1B034	PXXX	TXX	34.0	25	480V	Type 1	W3			13	10	48	85		Extrapolated
Z1B1B034	PMG	TD	34.0	25	480V	Type 1	W3			13	10	48	70		UUT-7A, UUT-7B(1)
Z1C1B040	PXXX	TXX	40.0	30	480V	Type 1	W3			13	10	48	85		Interpolated
Z1C1B052	PXXX	TXX	52.0	40	480V	Type 1	W3			13	10	48	85		Interpolated
Z1C1D074	PXXX	TXX	74.8	25	208V	Type 1	W4			14	13	53	160		Interpolated
Z1C1D088	PXXX	TXX	88.0	30	208V	Type 1	W4			14	13	53	160		Interpolated
Z1C1D114	PXXX	TXX	114.0	40	208V	Type 1	W4			14	13	53	160		Interpolated
Z1C1B052	PXXX	TXX	52.0	40	480V	Type 1	W4			14	13	53	160		Interpolated
Z1C1B065	PXXX	TXX	65.0	50	480V	Type 1	W4			14	13	53	160		Interpolated
Z1C1B077	PXXX	TXX	77.0	60	480V	Type 1	W4			14	13	53	160		Interpolated
Z1C1B096	PXXX	TXX	96.0	75	480V	Type 1	W4			14	13	53	180		Interpolated
Z1B1D114	PMB	TD	114.0	40	208V	Type 1	W5	Carbon Steel	Carbon Steel	16	26	43	205		UUT-1A, UUT-1B(2)
Z1C1B124	PXXX	TXX	124.0	100	480V	Type 1	W5			16	26	43	240		Interpolated
Z1B1B124	PMB	TD	124.0	100	480V	Type 1	W5			16	26	43	243		UUT-2A, UUT-2B(3)
Z1C1D143	PXXX	TXX	143.0	50	208V	Type 1	W6			19	28	49	385		Interpolated
Z1C1D169	PXXX	TXX	169.0	60	208V	Type 1	W6			19	28	49	385		Interpolated
Z1C1D211	PXXX	TXX	211.0	75	208V	Type 1	W6			19	28	49	385		Interpolated
Z1C1D273	PXXX	TXX	273.0	100	208V	Type 1	W6			19	28	49	420		Interpolated
Z1C1B156	PXXX	TXX	156.0	125	480V	Type 1	W6			19	28	49	385		Interpolated
Z1C1B180	PXXX	TXX	180.0	150	480V	Type 1	W6			19	28	49	385		Interpolated
Z1B1B180	PMG	TD	180.0	150	480V	Type 1	W6			19	28	49	380		UUT-5A, UUT-5B(4)
Z1C1B240	PXXX	TXX	240.0	200	480V	Type 1	W6			19	28	49	420		Interpolated
Z1C1B240	PMG	TL	240.0	200	480V	Type 1	W6			19	28	49	420		UUT-6A, UUT-6B

Notes

1) The difference between Z1C1B034 and tested Z1B1D034 (UUT-7A, UUT-7B) is that Z1C1B034 does not have the bypass contactor and related wiring.
2) The difference between Z1C1D114 and tested Z1B1D114 (UUT-1A, UUT-1B) is that Z1C1D114 does not have the bypass contator and related wiring. The Z1C1D114 is also installed in a smaller cabinet (W4).
3) The difference between Z1C1D124 and tested Z1B1D124 (UUT-2A, UUT-2B) is that Z1C1B124 does not have the bypass contactor and related wiring.
4) The difference between Z1C1B180 and tested Z1B1B180 (UUT-5A, UUT-5B) is that Z1C1B180 does not have the bypass contator and related circuitry.

Table 5 - Certified Subcomponents: Current Transformers

Manufacturer	Model	Rating [Amps]	Weight [lb]	UUT
Dent Instruments	CT-HSC-020-U	20	< 1	UUT-5A, UUT- 5B
Dent Instruments	CT-HSC-050-U	50	< 1	Interpolated
Dent Instruments	CT-HMC-0100-U	100	< 1	UUT-7A, UUT- 7B
Dent Instruments	CT-HMC-0200-U	200	< 1	Interpolated
Dent Instruments	CT-SCM-0400-U	400	< 1	UUT-5A, UUT- 5B

Table 6 - Certified Subcomponents: Circuit Breakers

Manufacturer	Model	Rating [Amps]	Weight [lb]	UUT
Schneider	HLL36015	15	5	Extrapolated
Schneider	HLL36020	20	5	Extrapolated
Schneider	HLL36025	25	5	Extrapolated
Schneider	HLL36035	35	5	Extrapolated
Schneider	HLL36040	40	5	Extrapolated
Schneider	HLL36050	50	5	Extrapolated
Schneider	HLL36060	60	5	Extrapolated
Schneider	HLL36070	70	5	UUT-7A, UUT- 7B
Schneider	HLL36080	80	5	Interpolated
Schneider	HLL36100	100	5	Interpolated
Schneider	HLL36110	110	5	Interpolated
Schneider	HLL36150	150	5	Interpolated
Schneider	HLL36150M74	150	5	UUT-1A, UUT- 1B
Schneider	JLL36175	175	5	Interpolated
Schneider	JLL36250M75	250	7	UUT-2A, UUT- 2B, UUT- 5A, UUT- 5B
Schneider	JLM36250M75	250	7	Interpolated
Schneider	LJM36400U31X	400	15	Interpolated
Schneider	LLM36400U31X	400	14	Interpolated
Schneider	LLM36400U31X	400	14	UUT-6A, UUT-6B

Table 7 - Certified Subcomponents: Drive I/O & Bypass Contactors

Manufacturer	Model	Rating [Amps]	Weight [lb]	UUT
Schneider	LC1D09G7	25	<1	UUT-5A, UUT-5B
Schneider	LC1D12G7	25	<1	Interpolated
Schneider	LC1D18G7	32	<1	Interpolated
Schneider	LC1D25G7	40	<1	Interpolated
Schneider	LC1D32G7	50	<1	Interpolated
Schneider	LC1D40AG7	60	3	UUT-7A, UUT-7B
Schneider	LC1D50AG7	70	3	Interpolated
Schneider	LC1D65AG7	80	3	Interpolated
Schneider	LC1D80G7	110	4	Interpolated
Schneider	LC1D115G7	160	6	Interpolated
Schneider	LC1D150G7	160	6	UUT-1A, UUT-1B, UUT-2A, UUT-2B, UUT-5A, UUT-5B
Schneider	LC1F185G7	200	10	Interpolated
Schneider	LC1F265G7	285	16	UUT-9A, UUT-9B

Table 8 - Certified Subcomponents: Bypass Control Board

Manufacturer	Model	Weight [lb]	UUT
Yaskawa	UTC00046X (where X denotes number 0 through 9)	<1	UUT-1A, UUT-1B, UUT-2A, UUT-2B, UUT-5A, UUT-5B, UUT-6A, UUT-6B, UUT-7A, UUT-7B, UUT-9A, UUT-9B

Table 9 - Certified Subcomponents: Bypass Power Supply

Manufacturer	Model	Rating [Watts]	Weight [lb]	UUT
XP POWER	VCT40US05	40	<1	UUT-1A, UUT-1B, UUT-2A, UUT-2B, UUT-5A, UUT-5B, UUT-9A, UUT-9B

Table 10 - Certified Subcomponents: Overload Relays

Manufacturer	Model	Weight [lb]	UUT
Schneider	LRD06	<1	UUT-6A, UUT-6B
Schneider	LRD07	<1	Interpolated
Schneider	LRD1508	<1	Interpolated
Schneider	LRD1510	<1	Interpolated
Schneider	LRD1512	<1	Interpolated
Schneider	LRD1516	<1	Interpolated
Schneider	LRD1521	<1	Interpolated
Schneider	LR9-F7575	3	Interpolated
Schneider	LRD06	<1	Interpolated
Schneider	LRD1522	<1	Interpolated
Schneider	LRD1532	<1	Interpolated
Schneider	LRD340L	<1	UUT-7A, UUT-7B
Schneider	LRD365L	<1	Interpolated
Schneider	LRD350L	<1	Interpolated
Schneider	LR2D3563	1	Interpolated
Schneider	LR9-F5567	1	Interpolated
Schneider	LR9-F5569	1	UUT-1A, UUT-1B, UUT-2A, UUT-2B, UUT-9A, UUT-9B
Schneider	LR9-F5571	1	UUT-5A, UUT-5B
Schneider	LR9-F7575	3	Extrapolated

Table 11 - Certified Subcomponents: Control Transformers

Manufacturer	Model	Rating [VA]	Weight [lb]	UUT
Schneider	TF100D3	100	4	Extrapolated
Schneider	TF100D1	100	4	UUT-6A, UUT-6B
Schneider	TF150D3	150	5	UUT-1A, UUT-1B
Schneider	TF150D1	150	5	UUT-2A, UUT-2B
Schneider	TF300D3	300	9	Interpolated
Schneider	TF300D1	300	9	UUT-5A, UUT-5B
Schneider	TF500D3	500	12	Interpolated
Schneider	TF750D1	750	17	UUT9A, UUT-9B

Table 12 - Certified Subcomponents: Cabinet Cooling Fans

Manufacturer	Model	Rating [CFM]	Weight [lb]	UUT
NMB	4715FS-12T-B50 (4" dia., 5 blade, plastic fan, 14.4W motor, alum casing)	80	1	UUT-1A, UUT-1B, UUT-2A, UUT-2B
NMB	5915PC-12T-B30-A00 (6" dia., 5 blade, plastic fan, 32.0W motor, alum casing)	200	2	UUT-5A, UUT-5B, UUT-6A, UUT-6B

Table 13 - Certified Subcomponents: Drive Input Fuses

Manufacturer	Model	Rating [Amps]	Weight [lb]	UUT
Bussmann	LPJ-2SP	2	<1	UUT-5A, UUT-5B
Bussmann	LPJ-2 1/2SP	2.5	<1	Interpolated
Bussmann	LPJ-3 1/2SP	3.5	<1	Interpolated
Bussmann	LPJ-5SP	5	<1	Interpolated
Bussmann	LPJ-7SP	7	<1	Interpolated
Bussmann	LPJ-10SP	10	<1	Interpolated
Bussmann	LPJ-12SP	12	<1	Interpolated
Bussmann	LPJ-15SP	15	<1	Interpolated
Bussmann	LPJ-20SP	20	<1	Interpolated
Bussmann	LPJ-25SP	25	<1	Interpolated
Bussmann	LPJ-30SP	30	<1	Interpolated
Bussmann	LPJ-35SP	35	<1	Interpolated
Bussmann	LPJ-40SP	40	<1	Interpolated
Bussmann	LPJ-45SP	45	<1	Interpolated
Bussmann	LPJ-50SP	50	<1	Interpolated
Bussmann	LPJ-60SP	60	<1	Interpolated
Bussmann	LPJ-70SP	70	<1	Interpolated
Bussmann	LPJ-80SP	80	<1	Interpolated
Bussmann	LPJ-90SP	90	<1	Interpolated
Bussmann	LPJ-110SP	110	<1	Interpolated
Bussmann	LPJ-150SP	150	<1	Interpolated
Bussmann	LPJ-175SP	175	<1	UUT-1A, UUT-1B, UUT-2A, UUT-2B

Table 14 - Certified Subcomponents: Input Line Reactor

Manufacturer	Model	Rating [Amps]	Weight [lb]	UUT
MTE	RLW-01P603	1.6	2	UUT-6A, UUT-6B
MTE	RLW-02P103	2.1	2	Interpolated
MTE	RLW-03P401	3.4	2	Interpolated
MTE	RLW-03P403	3.4	2	Interpolated
MTE	RLW-04P801	4.8	2	Interpolated
MTE	RLW-04P803	4.8	2	Interpolated
MTE	RLW-07P601	7.6	2	Interpolated
MTE	RLW-07P603	7.6	3	Interpolated
MTE	RLW-001101	11	3	Interpolated
MTE	RLW-001103	11	4	Interpolated
MTE	RLW-001403	14	4	Interpolated
MTE	RLW-002101	21	4	Interpolated
MTE	RLW-002103	21	7	Interpolated
MTE	RLW-002801	28	5	Interpolated
MTE	RLW-002803	28	10	Interpolated
MTE	RLW-003501	35	10	Interpolated
MTE	RLW-003503	35	13	Interpolated
MTE	RLW-004603	46	17	Interpolated
MTE	RLW-005501	55	18	Interpolated
MTE	RLW-006503	65	22	Interpolated
MTE	RLW-008301	83	19	Interpolated
MTE	RLW-008303	83	26	Interpolated
MTE	RLW-010401	104	22	Interpolated
MTE	RLW-010403	104	28	Interpolated
MTE	RLW-013001	130	26	Interpolated
MTE	RLW-013002	130	37	Interpolated
MTE	RLW-016001	160	34	Interpolated
MTE	RLW-016003	160	49	Interpolated
MTE	RLW-020001	200	34	Interpolated
MTE	RLW-020003	200	49	Interpolated
MTE	RLW-025001	250	35	Interpolated
MTE	RLW-025003	250	55	UUT-6A, UUT-6B
MTE	RLW-020005	200	75	Interpolated
MTE	RLW-032203	322	76	Interpolated
MTE	RLW-041401	414	78	UUT-9A, UUT-9B

Table 15 - Certified Subcomponents: Drive Input Fuses

Manufacturer	Model	Rating [Amps]	Weight [lb]	UUT
Bussmann	FWH-40B	40	<1	UUT-5A, UUT-5B
Bussmann	FWH-45B	45	<1	Interpolated
Bussmann	FWH-50B	50	<1	Interpolated
Bussmann	FWH-60B	60	<1	Interpolated
Bussmann	FWH-80B	80	<1	Interpolated
Bussmann	FWH-100B	100	<1	Interpolated
Bussmann	FWH-125B	125	<1	Interpolated
Bussmann	FWH-150B	150	<1	Interpolated
Bussmann	FWH-175B	175	<1	Interpolated
Bussmann	FWH-200B	200	<1	Interpolated
Bussmann	FWH-225A	225	<1	Interpolated
Bussmann	FWH-250A	250	<1	UUT-1A, UUT-1B, UUT-2A, UUT-2B, UUT-9A, UUT-9B
Bussmann	FWH-275A	275	<1	Interpolated
Bussmann	FWH-300A	300	<1	Interpolated
Bussmann	FWH-350A	350	<1	Interpolated
Bussmann	FWH-400A	400	<1	UUT-6A, UUT-6B
Bussmann	FWH-450A	450	1	UUT-9A, UUT-9B

Table 16 - Certified Subcomponents: Noise Filter

Manufacturer	Model	Weight [lb]	UUT
MTE	M-1786	4	UUT-1A, UUT-1B, UUT-2A, UUT-2B, UUT-6A, UUT-6B

Table 17 - Certified Subcomponents: Lonworks

Manufacturer	Model	Weight [lb]	UUT
YASKAWA	SI-W3	<1	UUT-1A, UUT-1B, UUT-2A, UUT-2B, UUT-6A, UUT-6B

Table 18 - Certified Subcomponents: Ethernet, UUT-IP

Manufacturer	Model	Weight [lb]	UUT
YASKAWA	SI-EN3	<1	UUT-1A, UUT-1B, UUT-2A, UUT-2B, UUT-5A, UUT-5B

Table 19 - Certified Subcomponents: Terminal & Power Distribution Blocks

Manufacturer	Model	Rating [Amps]	Weight [lb]	UUT
Cooper Bussman	NDN63-WH-UL	65	<1	UUT-5A, UUT-5B
Cooper Bussman	NDN111-WH-UL	90	<1	Interpolated
Cooper Bussman	14002-3	115	<1	UUT-5A, UUT-5B
Cooper Bussman	PDB370-3	175	3	Interpolated
Cooper Bussman	16280-3	175	<1	Interpolated
Cooper Bussman	1BS102	400	<1	Interpolated
Cooper Bussman	1BS104	600	2	UUT-9A, UUT-9B
Marathon Special Projects	EPBAD21	115	<1	UUT-9A, UUT-9B
Marathon Special Projects	1421572	150	<1	Interpolated
Marathon Special Projects	1323572	175	<1	UUT-5A, UUT-5B
Marathon Special Projects	1333126	310	1	Interpolated
Marathon Special Projects	1333320	510	2	UUT-5A, UUT-5B
Marathon Special Projects	1453301	760	5	UUT-6A, UUT-6B
Mersen	MPDB63153	175	<1	UUT-9A, UUT-9B
Mersen	MPDB67001	310	<1	Interpolated
Mersen	MPDB67523	460	2	Interpolated
Mersen	MPDB69093	760	4	UUT-9A, UUT-9B
Phoenix	3044102	30	<1	UUT-9A, UUT-9B

Table 20 - Certified Subcomponents: Disconnect Switches

Manufacturer	Model	Rating [Amps]	Weight [lb]	UUT
Schneider	V0	20	<1	UUT-9A, UUT-9B
Schneider	V3	45	1	UUT-7A, UUT-7B
Schneider	V4	63	1	Interpolated
Schneider	V5	100	2	Interpolated
Schneider	V6	115	2	Interpolated
Schneider	HLL36000S15	150	4	Interpolated
Schneider	JLL36000S17	175	5	Interpolated
Schneider	JGL36000S17	175	5	UUT-1A, UUT-1B, UUT-2A, UUT-2B
Schneider	JLM36000S25	250	5	Interpolated
Schneider	JLL36000S25	250	5	UUT-5A, UUT-5B
Schneider	JGF36000S25	250	5	Interpolated
Schneider	JGL36000S25	250	5	Interpolated
Schneider	LLM36000S40X	400	5	Interpolated
Schneider	LLM36400U31X	400	13	UUT-6A, UUT-6B

Table 21 - Model Number Designation for A1000 Drives

CIMR-A U 2 A 0001 F A A

AC Drive

	No.	Series
UUT-03 / 04	A	A1000 Series

	No.	Region Code
UUT-03 / 04	U	USA

	No.	Voltage Class
UUT-03	2	3-phase, 200-240 Vac
UUT-04	4	3-phase, 380-480 Vac
Extrapolated	5	3-phase, 500-600 Vac

	No.	Customized Specifications
UUT-03 / 04	A	Standard (Six Pulse)

Design Revision

No.	Environmental Specifications	
A	Standard	UUT-03 / 04

	No.	Enclosure Type
Extrapolated	A	IP00
UUT-03 / 04	F	NEMA Type 1

No.	Output Current Code (A)	
As Listed On Table 1		UUT-03 / 04

Table 22 - Model Number Designation for Z1000 Drives

CIMR-Z U 2 A 0021 F A A

AC Drive

	No.	Series
UUT-01 / 02 / 03 / 04 / 05 / 06 / 07	Z	Z1000 Series

	No.	Region Code
UUT-01 / 02 / 03 / 04 / 05 / 06 / 07	U	USA

	No.	Voltage Class
UUT-01 / 03	2	3-phase, 200-240 Vac
UUT-02 / 04 / 05 / 06 / 07	4	3-phase, 380-480 Vac

	No.	Customized Specifications
UUT-01 /02 /03 / 04 / 05 / 06 / 07	A	Standard Model

Design Revision

No.	Environmental Specifications	
A	Standard	UUT-01 / 02 / 03 / 04 / 05 / 06 / 07

	No.	Enclosure Type
Extrapolated	A	IP00
UUT-01 / 02 / 03 / 04 / 05 / 06 / 07	F	IP20/NEMA Type 1

No.	Output Current Code (A)	
As Listed On Table 2		UUT-01 / 02 / 03 / 04 / 05 / 06 / 07

Table 23 - Model Number Designation for Z1000 Bypass,

BASE NUMBER				OPTIONS	
				POWER	CONTROL
Z1B	1	B	040	P	T

Z1000 Bypass

Enclosure

UUT-01 / 02 / 05 / 07	1	NEMA 1
UUT-09	3	NEMA 3R

Voltage

UUT-01	D	209V
UUT-02 / 05 / 07 / 09	B	480V

Current

As Listed On Table 3

T Control Options

W	Custom Nameplate	Choose one or None	
D	Ethernet/IP	Choose one or None	UUT-01 / 02 / 05
L	LonWorks		UUT-01 / 02 / 05
M	Window		UUT-09

P Power Options

M	Cicuit Breaker	Choose One or None	UUT-01 / 02 / 05 / 07
G	Drive Service Switch	Choose One or None	UUT-05 / 07
B	3 Contactor Bypass		UUT-01 / 02 / 05 / 07
F	Input Fuses	Choose One or None	UUT-09
R	Input Reactor		UUT-09
2	Surge Supressor	Choose None, Any or All	UUT-09
3	Space Heater		UUT-09

Table 24 - Model Number Designation for Z1000 Configured

BASE NUMBER				OPITONS	
				POWER	CONTROL
Z1C	3	B	040	P	T

Z1000 Configured

Enclosure

UUT-01 / 02 / 05 / 06 / 07	1	NEMA 1

Voltage

UUT-01	D	209V
UUT-02 / 05 / 06 / 07	B	480V

Current

As Listed On Table 4

T Control Options

W	Custom Nameplate	Choose one or None	
D	Ethernet/IP	Choose one or None	UUT-01 / 02 / 06
L	LonWorks		UUT-01 / 02 / 05

P Power Options

Extrapolated	C	Circuit Breaker 65k	Choose one or None
UUT-01 / 02 / 05 / 06 / 07	M	Circuit Breaker 100K	
UUT-01 / 02 / 05	F	Input Fuse	Choose one or None
UUT-06	R	Input Reactor 3%	
UUT-01 / 02 / 06	N	Noise Filter	
UUT-01 / 02 / 05 / 06 / 07	G	Input Disconnect Switch	
UUT-01 / 02 / 05 / 07	B	Input Drive Contactor	

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-01A

Clark Test Report: EL:10068

Model Line	Model Number	Manufacturer
Z1000	Z1B1D114 (SN: 4W1232978730001)	Yaskawa

Product Construction Summary

Carbon Steel NEMA 1 Enclosure
Design Change Requirement: (4) 1/4"-20 bolts and nuts added to the door to secure it from opening

Options / Subcomponent Summary

Circuit Breaker-150A; Drive I/O Contactor-160A; Bypass Contactor-160A; Power Supply-40W; Overload Relay- 114A,208V; Control Transformer-150VA; Cabinet Cooling Fans-80CFM; Drive Input Fuses-175A & 250A; Disconnect Switch-175A

UUT Properties

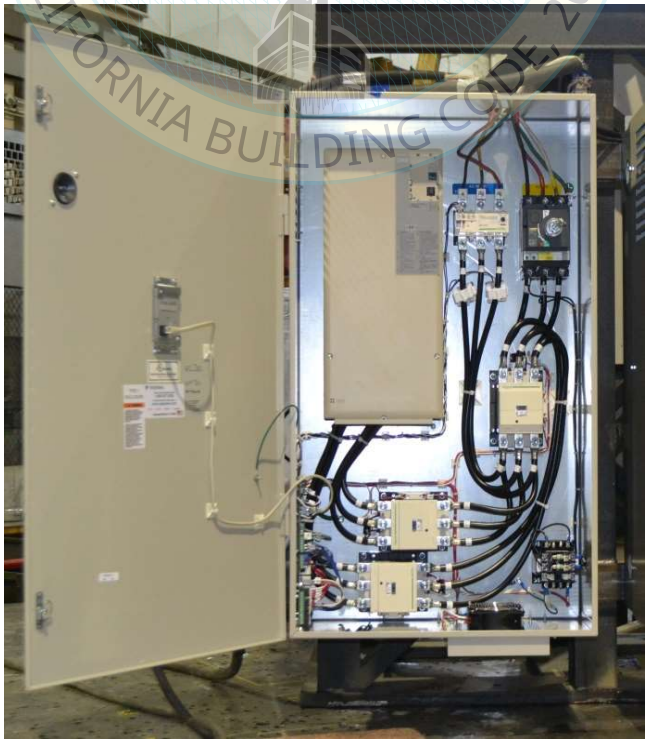
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
205	16	26	43	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2019	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.34	0.54

Test Mounting Details

UUT-01A was wall-mounted to the fixture using qty (4) 1/2"-13 Grade 5 bolts in the manufacturer-provided holes. The wall fixture was rigidly mounted to the shake table using qty (12) 3" welds, 1/4" wide.



All units were filled with contents and maintained structural integrity and functionality

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-01B

Clark Test Report: EL:10068

Model Line	Model Number	Manufacturer
Z1000	Z1B1D114 (SN: 4W1232978730001)	Yaskawa

Product Construction Summary

Carbon Steel NEMA 1 Enclosure
Design Change Requirement: (4) 1/4"-20 bolts and nuts added to the door to secure it from opening

Options / Subcomponent Summary

Circuit Breaker-150A; Drive I/O Contactor-160A; Bypass Contactor-160A; Power Supply-40W; Overload Relay- 114A,208V; Control Transformer-150VA; Cabinet Cooling Fans-80CFM; Drive Input Fuses-175A & 250A; Disconnect Switch-175A

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
205	16	26	43	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2019	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.34	0.54

Test Mounting Details

UUT-01B was wall-mounted to the fixture using qty (4) 1/2"-13 Grade 5 bolts in the manufacturer-provided holes. The wall fixture was mounted on qty (4) VMC-Manufactured AWMR-R-1 spring isolators using qty (3) 1/2"-13 Grade 5 bolts per isolator. Each isolator was attached to the fixture using qty (2) 4" welds, 1/4" wide.

All units were filled with contents and maintained structural integrity and functionality

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-02A

Clark Test Report: EL:10068

Model Line	Model Number	Manufacturer
Z1000	Z1B1B124 (SN: 4W1232978740001)	Yaskawa

Product Construction Summary

Carbon Steel NEMA 1 Enclosure
Design Change Requirement: (4) 1/4"-20 bolts and nuts added to the door to secure it from opening

Options / Subcomponent Summary

Circuit Breaker-250A; Drive I/O Contactor-160A; Bypass Contactor-160A; Power Supply-40W; Overload Relay- 124A,480V; Control Transformer-150VA; Cabinet Cooling Fans-80CFM; Drive Input Fuses-175A & 250A; Disconnect Switch-175A

UUT Properties

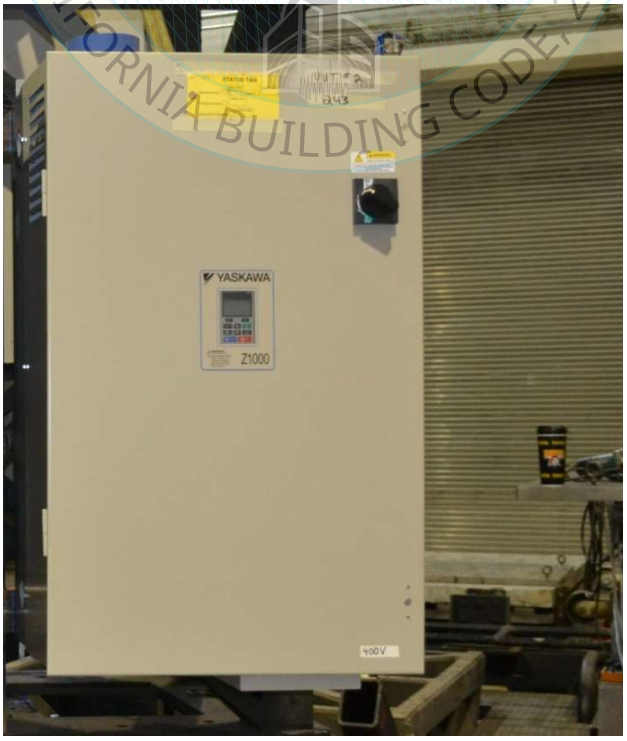
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
243	16	26	43	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2019	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.34	0.54

Test Mounting Details

UUT-02A was wall-mounted to the fixture using qty (4) 1/2"-13 Grade 5 bolts in the manufacturer-provided holes. The wall fixture was rigidly mounted to the shake table using qty (12) 3" welds, 1/4" wide.



All units were filled with contents and maintained structural integrity and functionality

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-02B

Clark Test Report: EL:10068

Model Line	Model Number	Manufacturer
Z1000	Z1B1B124 (SN: 4W1232978740001)	Yaskawa

Product Construction Summary

Carbon Steel NEMA 1 Enclosure
Design Change Requirement: (4) 1/4"-20 bolts and nuts added to the door to secure it from opening

Options / Subcomponent Summary

Circuit Breaker-250A; Drive I/O Contactor-160A; Bypass Contactor-160A; Power Supply-40W; Overload Relay- 124A,480V; Control Transformer-150VA; Cabinet Cooling Fans-80CFM; Drive Input Fuses-175A & 250A; Disconnect Switch-175A

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
243	16	26	43	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2019	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.34	0.54

Test Mounting Details

UUT-02B was wall-mounted to the fixture using qty (4) 1/2"-13 Grade 5 bolts in the manufacturer-provided holes. The wall fixture was mounted on qty (4) VMC-Manufactured AWMR-R-1 spring isolators using qty (3) 1/2"-13 Grade 5 bolts per isolator. Each isolator was attached to the fixture using qty (2) 4" welds, 1/4" wide.

All units were filled with contents and maintained structural integrity and functionality

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-03A

Clark Test Report: EL:10068

Model Line	Model Number	Manufacturer
A1000	CIMR-AU2A (360 Amp Output) (SN: 1W1072566870001)	Yaskawa

Product Construction Summary

Carbon Steel NEMA 1 Enclosure

Options / Subcomponent Summary

Cabinet Cooling Fan-NMB; (6) Insolated Gate Bipolar Transistor-630V,400A; (6) Diode- 800 V 150 A; Contactor 532A

UUT Properties

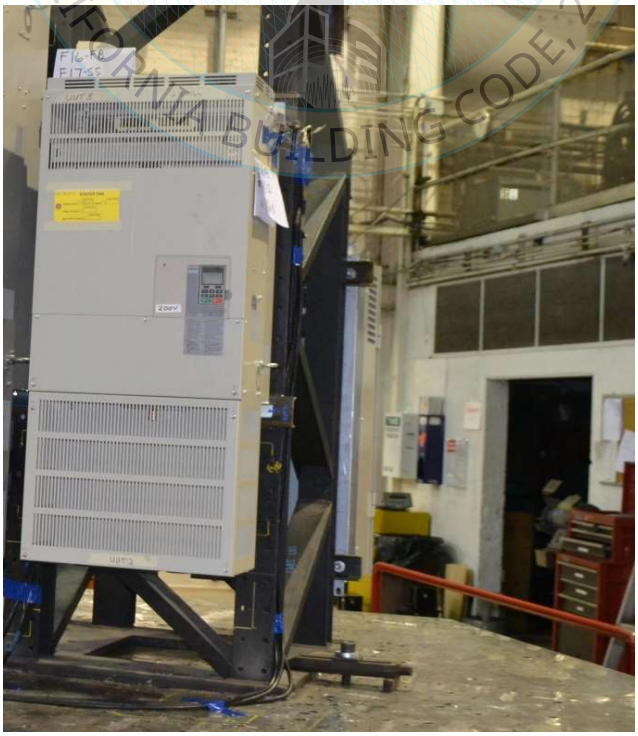
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
232	14	24	46	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2019	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.34	0.54

Test Mounting Details

UUT-03A was wall-mounted to the fixture using qty (4) 1/2"-13 Grade 5 bolts in the manufacturer-provided holes. The wall fixture was rigidly mounted to the shake table using qty (12) 3" welds, 1/4" wide.



All units were filled with contents and maintained structural integrity and functionality

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-03B

Clark Test Report: EL:10068

Model Line	Model Number	Manufacturer
A1000	CIMR-AU2A (360 Amp Output) (SN: 1W1072566870001)	Yaskawa

Product Construction Summary

Carbon Steel NEMA 1 Enclosure

Options / Subcomponent Summary

Cabinet Cooling Fan-NMB; (6) Insolated Gate Bipolar Transistor-630V,400A; (6) Diode- 800 V 150 A; Contactor 532A

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
232	14	24	46	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2019	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.34	0.54

Test Mounting Details

UUT-03B was wall-mounted to the fixture using qty (4) 1/2"-13 Grade 5 bolts in the manufacturer-provided holes. The wall fixture was mounted on qty (4) VMC-Manufactured AWMR-R-1 spring isolators using qty (3) 1/2"-13 Grade 5 bolts per isolator. Each isolator was attached to the fixture using qty (2) 4" welds, 1/4" wide.

All units were filled with contents and maintained structural integrity and functionality

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-04A

Clark Test Report: EL:10068

Model Line	Model Number	Manufacturer
A1000	CIMR-ZU4A (675 Amp Output) (SN: J0118G275210001)	Yaskawa

Product Construction Summary

Carbon Steel NEMA 1 Enclosure

Options / Subcomponent Summary

Cabinet Cooling Fan-NMB; (6) Insolated Gate Bipolar Transistor-630V,400A; (6) Diode- 800 V 150 A; Contactor 532A, DC24V

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
516	15	31	62	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2019	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.34	0.54

Test Mounting Details

UUT-04A was wall-mounted to the fixture using qty (6) 1/2"-13 Grade 5 bolts in the manufacturer-provided holes. The wall fixture was rigidly mounted to the shake table using qty (12) 3" welds, 1/4" wide.

All units were filled with contents and maintained structural integrity and functionality

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-04B

Clark Test Report: EL:10068

Model Line	Model Number	Manufacturer
A1000	CIMR-ZU4A (675 Amp Output) (SN: J0118G275210001)	Yaskawa

Product Construction Summary

Carbon Steel NEMA 1 Enclosure

Options / Subcomponent Summary

Cabinet Cooling Fan-NMB; (6) Insolated Gate Bipolar Transistor-630V,400A; (6) Diode- 800 V 150 A; Contactor 532A, DC24V

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
516	15	31	62	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2019	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.34	0.54

Test Mounting Details

UUT-04B was wall-mounted to the fixture using qty (6) 1/2"-13 Grade 5 bolts in the manufacturer-provided holes. The wall fixture was mounted on qty (4) VMC-Manufactured AWMR-R-1 spring isolators using qty (3) 1/2"-13 Grade 5 bolts per isolator. Each isolator was attached to the fixture using qty (2) 4" welds, 1/4" wide.

All units were filled with contents and maintained structural integrity and functionality

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-05A

PEER Test Report: STI-2013-16

Model Line	Model Number	Manufacturer
Z1000	Z1B1B180	Yaskawa

Product Construction Summary

Carbon Steel NEMA 1 Enclosure

Options / Subcomponent Summary

Current Transformer-20A & 400A; Circuit Breaker-250A; Drive I/O Contactor-25A &400A; Bypass Contactor-25A; Power Supply-40W; Overload Relay-Schneider; Control Transformer-300VA; Cabinet Cooling Fans-200CFM;
Drive Input Fuses-2A & 40A; Disconnect Switch-250A; Terminal & Power Distribution Blocks-65A, 115A, 175A, & 510A

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
380	19	28	49	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2019	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.34	0.54

Test Mounting Details

UUT-05A was wall-mounted to the fixture using qty (4) 1/2" Grade 8 bolts in the manufacturer-provided holes. The wall fixture was rigidly mounted to the base plates using qty (6) 1" Grade 8 bolts. The base plate was attached to the shake table using qty (9) high-strength rods with a minimum diameter of 1".

All units were filled with contents and maintained structural integrity and functionality

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-05B

PEER Test Report: STI-2013-16

Model Line	Model Number	Manufacturer
Z1000	Z1B1B180	Yaskawa

Product Construction Summary

Carbon Steel NEMA 1 Enclosure

Options / Subcomponent Summary

Current Transformer-20A & 400A; Circuit Breaker-250A; Drive I/O Contactor-25A &400A; Bypass Contactor-25A; Power Supply-40W; Overload Relay-Schneider; Control Transformer-300VA; Cabinet Cooling Fans-200CFM;
Drive Input Fuses-2A & 40A; Disconnect Switch-250A; Terminal & Power Distribution Blocks-65A, 115A, 175A, & 510A

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
380	19	28	49	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2019	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.34	0.54

Test Mounting Details

UUT-05B was wall-mounted to the fixture using qty (4) 1/2" Grade 8 bolts in the manufacturer-provided holes. The wall fixture was mounted on qty (6) VMC-Manufactured MSSH-1E spring isolators using each mount's 3/4" diameter adjusting bolt. Each isolator was attached to the base plate using qty (4) 3/4" Grade 8 bolts. The base plate was attached to the shake table using qty (9) high-strength rods with a minimum diameter of 1".

All units were filled with contents and maintained structural integrity and functionality

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-06A

PEER Test Report: STI-2013-16

Model Line	Model Number	Manufacturer
Z1000	Z1C1B240	Yaskawa

Product Construction Summary

Carbon Steel NEMA 1 Enclosure

Options / Subcomponent Summary

Disconnect Breaker: 400 A; Cooling Fan: 200 CFM; Drive Input Fuses: 400 A; Input Line Reactors-1.6A & 250A; Control Transformer-100VA; Terminal & Power Distribution Blocks-760A; Disconnect Switch-400A

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
420	19	28	49	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2019	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.34	0.54

Test Mounting Details

UUT-06A was wall-mounted to the fixture using qty (4) 1/2" Grade 8 bolts in the manufacturer-provided holes. The wall fixture was rigidly mounted to the base plates using qty (6) 1" Grade 8 bolts. The base plate was attached to the shake table using qty (9) high-strength rods with a minimum diameter of 1".

All units were filled with contents and maintained structural integrity and functionality

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-06B

PEER Test Report: STI-2013-16

Model Line	Model Number	Manufacturer
Z1000	Z1C1B240	Yaskawa

Product Construction Summary

Carbon Steel NEMA 1 Enclosure

Options / Subcomponent Summary

Disconnect Breaker: 400 A; Cooling Fan: 200 CFM; Drive Input Fuses: 400 A; Input Line Reactors-1.6A & 250A; Control Transformer-100VA; Terminal & Power Distribution Blocks-760A; Disconnect Switch-400A

UUT Properties

Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
420	19	28	49	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2019	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.34	0.54

Test Mounting Details

UUT-06B was wall-mounted to the fixture using qty (4) 1/2" Grade 8 bolts in the manufacturer-provided holes. The wall fixture was mounted on qty (6) VMC-Manufactured MSSH-1E spring isolators using each mount's 3/4" diameter adjusting bolt. Each isolator was attached to the base plate using qty (4) 3/4" Grade 8 bolts. The base plate was attached to the shake table using qty (9) high-strength rods with a minimum diameter of 1".

All units were filled with contents and maintained structural integrity and functionality

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-07A

PEER Test Report: STI-2013-16

Model Line	Model Number	Manufacturer
Z1000	Z1B1B034	Yaskawa

Product Construction Summary

Plastic NEMA 1 Enclosure

Options / Subcomponent Summary

Current Transformer-100A; Circuit Breaker-70A; Drive I/O Contactor-60A; Bypass Contactor-6A; Overload Relay-Schneider; Disconnet Switches-45A

UUT Properties

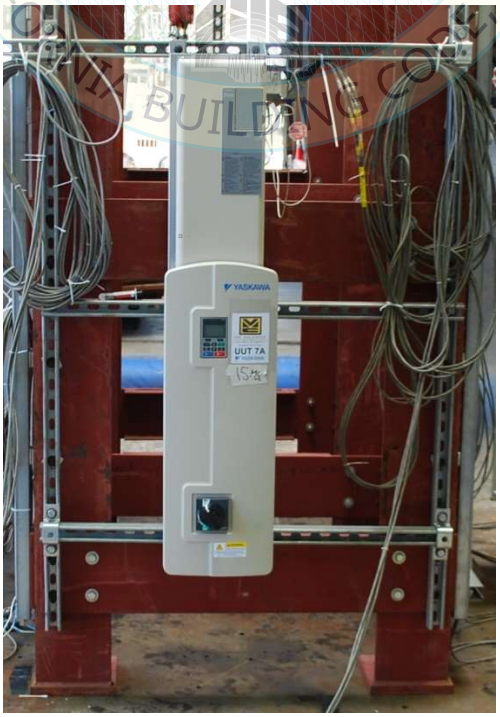
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
70	13	10	48	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2019	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.34	0.54

Test Mounting Details

UUT-07A was wall-mounted to the fixture using qty (4) 3/8" Grade 8 bolts in the manufacturer-provided holes. The wall fixture was rigidly mounted to the base plates using qty (6) 1" Grade 8 bolts. The base plate was attached to the shake table using qty (9) high-strength rods with a minimum diameter of 1".



All units were filled with contents and maintained structural integrity and functionality

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-07B

PEER Test Report: STI-2013-16

Model Line	Model Number	Manufacturer
Z1000	Z1B1B034	Yaskawa

Product Construction Summary

Plastic NEMA 1 Enclosure

Options / Subcomponent Summary

Current Transformer-100A; Circuit Breaker-70A; Drive I/O Contactor-60A; Bypass Contactor-6A; Overload Relay-Schneider; Disconnet Switches-45A

UUT Properties

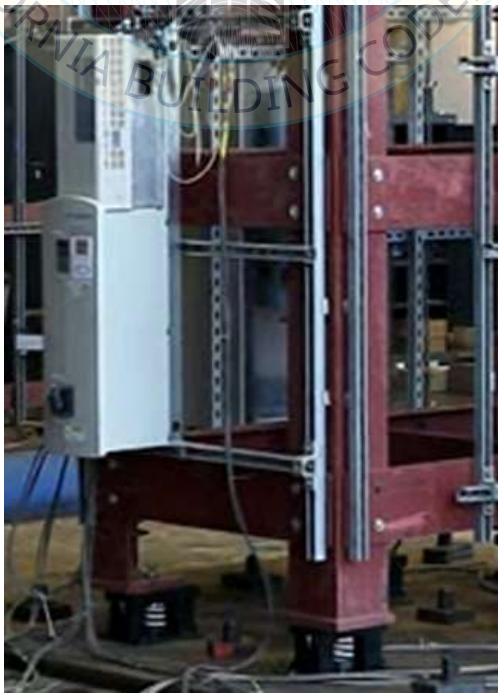
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
70	13	10	48	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2019	ICC-ES AC156	2.0	1.0	1.5	3.20	2.40	1.34	0.54

Test Mounting Details

UUT-07B was wall-mounted to the fixture using qty (4) 3/8" Grade 8 bolts in the manufacturer-provided holes. The wall fixture was mounted on qty (6) VMC-Manufactured MSSH-1E spring isolators using each mount's 3/4" diameter adjusting bolt. Each isolator was attached to the base plate using qty (4) 3/4" Grade 8 bolts. The base plate was attached to the shake table using qty (9) high-strength rods with a minimum diameter of 1".



All units were filled with contents and maintained structural integrity and functionality

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-09A

DCL Test Report: 97462-1503

Model Line	Model Number	Manufacturer
Z1000	Z1B3B124	Yaskawa

Product Construction Summary

Carbon Steel Enclosure

Options / Subcomponent Summary

Bypass Drive-CIMR-ZU4A0124; Contactors: LC1F265; Bypass Control Board: UTC00046X; Bypass Power Supply: VCT40US05; Overload Relays: LR9-F5569; Control Transformers: TF1500D1; Power Fuses: FWH-450A, JTD2, JTD400, AJT-350, AJT-450; Reactors: RLW-041401; Terminal & Power Distribution Blocks: 1BS104, EPBAD21, MPDB63153, MPDB69093, 3044102; Disconnect Switches: V0; Space Heater: D-AH4001B; Lightning Arrestor: S50A480V3D; Keypad Viewing Window: AWDH1612N4; Speed Pot: URSN0008

UUT Properties

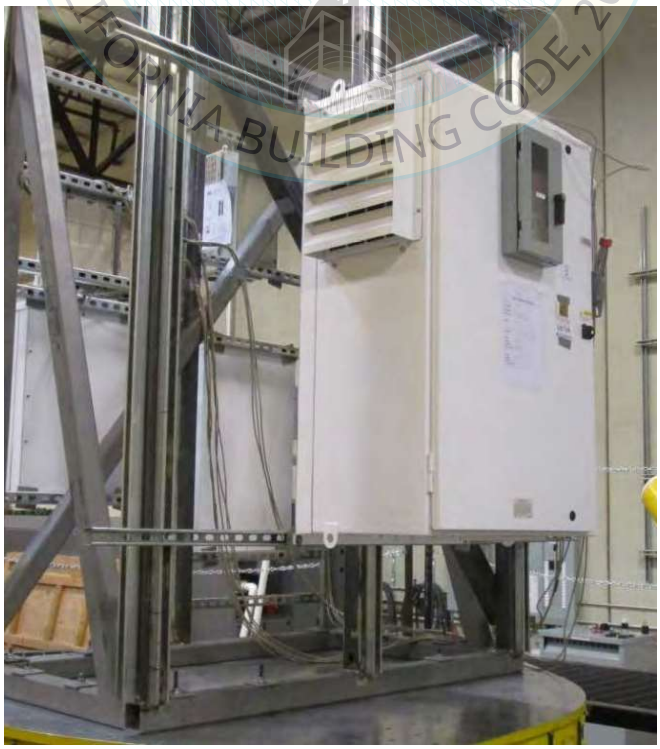
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
520	21.4	39.0	51.1	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2019	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.34	0.54

Test Mounting Details

UUT-08a was wall-mounted to the DCL wall fixture using (4) 3/8" diameter bolts, Grade 8. The wall fixture was attached directly to the shake table



All units were filled with contents and maintained structural integrity and functionality

UNIT UNDER TEST (UUT)
Summary Sheet

UUT-09B

DCL Test Report: 97462-1503

Model Line	Model Number	Manufacturer
Z1000	Z1B3B124	Yaskawa

Product Construction Summary

Carbon Steel Enclosure

Options / Subcomponent Summary

Bypass Drive-CIMR-ZU4A0124; Contactors: LC1F265; Bypass Control Board: UTC00046X; Bypass Power Supply: VCT40US05; Overload Relays: LR9-F5569; Control Transformers: TF1500D1; Power Fuses: FWH-450A, JTD2, JTD400, AJT-350, AJT-450; Reactors: RLW-041401; Terminal & Power Distribution Blocks: 1BS104, EPBAD21, MPDB63153, MPDB69093, 3044102; Disconnect Switches: V0; Space Heater: D-AH4001B; Lightning Arrestor: S50A480V3D; Keypad Viewing Window: AWDH1612N4; Speed Pot: URSN0008

UUT Properties

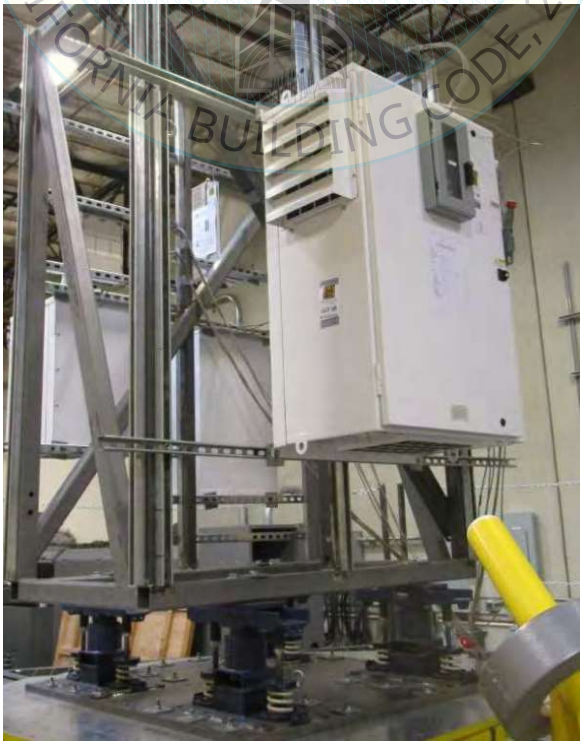
Weight [lbs]	Dimensions [in]			Lowest Nat. Freq. [Hz]		
	Length	Width	Height	F-B	S-S	V
520	21.4	39.0	51.1	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S_{DS}	z/h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
CBC 2019	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.34	0.54

Test Mounting Details

UUT-08b was wall-mounted to the DCL wall fixture using (4) 3/8" diameter bolts, Grade 8. The wall fixture was attached to the shake table using (4) spring isolators.



All units were filled with contents and maintained structural integrity and functionality