Facilities Development Division *www.oshpd.ca.gov/fdd*
400 R Street. Suite 200, Sacramento, California 95811-6213 Phone (916) 440-8300 Fax (916) 654-2973

APPLICATION FOR PREAPPROVAL

SPECIAL SEISMIC CERTIFICATION OF EQUIPMENT AND COMPONENTS

For Office Use Only

APPLICATION NO.

OSP -0222-10

Check whether application is: NEW [ ] RENEWAL [X]

1.0

Technibus Inc.	Mike Baker
Manufacturer	*Manufacturer's Technical Representative*

1501 Raff Road S.W. Canton, Ohio 44710
Mailing Address

(330) 478-6395	mbaker@technibus.com
Telephone	*E-mail Address*

2.0

Metal Enclosed Bus Duct	600V, 5kV, and 15kV Bus Duct
Product Name	*Product Type*

600V, 5kV, and 15kV Product Line – Brand Labeled for GE, Square D, and Siemens – See Attachment
Product model No (List all unique product identification numbers and/or serial numbers)

General Description: Metal Enclosed Bus Duct consisting of an internally supported bus bar within a metal enclosure that is mounted either horizontally or vertically. Bus segments are combined and include horizontal/vertical elbows, phase-transpositions, expansion joints, tee-tap segments, fire-stops, heaters, and thermostats.

3.0

W.E. Gundy & Associates	*Travis Soppe, PE*
Applicant Company Name	*Contact Person*

124 S Broadway Ave, Boise, ID 83702
Mailing Address

(208) 342-5989	tsoppe@wegai.com
Telephone	*E-mail Address*

I hereby agree to reimburse the Office of Statewide Health Planning and Development for the actual costs incurred by the department for review.

Travis Soppe	10/22/2012
Signature of Applicant	*Date*

Vice President	W.E. Gundy & Associates, Inc.
Title	*Company Name*

Registered Design Professional Preparing the Report

4.0

W.E. Gundy & Associates, Inc.

Company Name

Travis Soppe, PE — *Contact Name*

C 77864 — *California License Number*

124 S Broadway Ave, Boise ID 83702

Mailing Address

(208) 342-5989 — *Telephone*

tsoppe@wegai.com — *E-mail Address*

California Licensed Structural Engineer Review and Acceptance of the Report

5.0

WRK Engineers

Company Name

Brian Knight, SE — *Contact Name*

S 4564 — *California License Number*

2300 Main Street, Vancouver, Washington 98660

Mailing Address

(360) 695-9731 — *Telephone*

brian@wrkengrs.com — *E-mail Address*

Anchorage Pre-Approval

6.0

☐ *Anchorage is pre-approved under OPA-*

(Separate application for anchorage pre-approval is required)

☒ Anchorage is not Pre-approved

Certification Method

70.

☐ *Testing in accordance with:* ☒ *ICC-ES AC-156* ☐ *Other (Please Specify):*

☐ *Analysis*

☐ *Experience data*

☐ *Combination of Testing, Analysis, and/or Experience Data (Please Specify):*

Testing Laboratory (if applicable)

8.0

Clark Dynamic Test Laboratory — *Company Name*

J.R. Antenucci, Test Manager — *Contact Name*

1801 Rout 51 South, Jefferson Hills, PA 15025

Mailing Address

(412) 387-1004 — *Telephone*

jrantenucci@clarktesting.com — E-mail:

9.0 ***Approval Parameters*** ☑

Design in accordance with ASCE 7-05 Chapter 13: ☒ Yes ☐ No

Design Basis of Equipment or Components (F_p/W_p) = 1.44

S_{DS} (Spectral response acceleration at short period) =2.0g

a_p (In-structure equipment or component amplification factor) =1.0

R_p (Equipment or component response modification factor) =2.5

I_p (Importance factor) = 1.5

z/h (Height factor ratio)=1.0

Equipment or Component fundamental period(s) =See Attachment A

Building period limits (if any) =None

Overall dimensions and weight (or range thereof) =See Attachment A

Equipment or Components @ grade designed in accordance with ASCE 7-05 Chapter 15: ☐ Yes ☒ No

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

S_{DS} (Spectral response acceleration at short period) =

S_1 (Spectral response acceleration at 1 second period) =

R (Response modification coefficient)=1.0

Ω_0 (System overstrength factor) =1.0

C_d (Deflection amplification factor) =1.0

I_p (Importance factor) =1.5

Height to Center of Gravity above base =

Equipment or Component fundamental period(s) = Sec

Overall dimensions and weight (or range thereof) =

Tank(s) designed in accordance with ASME BPVC, 2007: ☐ Yes ☒ No

10.0 ***List of attachments supporting the special seismic certification of equipment or components:***

☒ *Test Report* ☐ *Drawings* ☒ *Manufacturer's Catalog*

☐ *Calculations* ☒ *Others (Please Specify): Attachments*

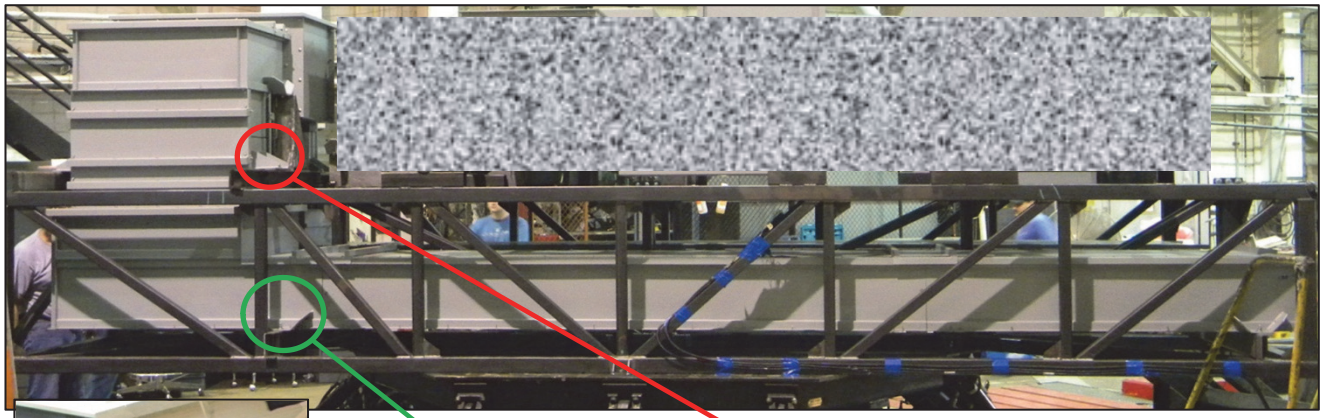
11.0 ***OSHPD Approval*** *(For Office Use Only)*

10/30/2012	**December 31, 2016**
Signature & Date	*Approval Expiration Date*
M. R. Karim, SHFR	S_{DS} (g) = **2.0** z/h = **1.0**
Name & Title	*Special Seismic Certification Valid Up to*

Condition of Approval (if any):

UUT 1-L	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Bottom mount (horizontal bus, green) with a 1/2" diameter bolt on each side of the duct and side mount (vertical bus, red) with a 1/2" diameter bolt on each side of the duct.



End View

Manufacturer: Technibus

Product Line: 600V, 5kV, and 15kV Metal Enclosed Bus Duct

Identification Number: 15-c-32

UUT Function: Transmission and Distribution of Electricity

UUT Description: 180" main span, horizontal-vertical transition elbow, 48" vertical mount section, vertical elbow section that ties into a juction box, S1/S2 shipping splits, heater monitoring box, 750w large ring heater, 12" strip heater 240v/150w, and 12" strip heater 415v/150w.

UUT Construction/Component Description: Enclosure is a combination of 14ga SS, 14ga STL, and 11ga STL, 3/8"x6" horizontal copper bus bar, expoxy insulation, polyester/porcelean bus bar supports spaced at 48" o.c., copper ground bar, S1/S2 shipping splits, termination box, heater monitoring box, ring heater, and 2 - 12" strip heaters.

UUT PROPERTIES

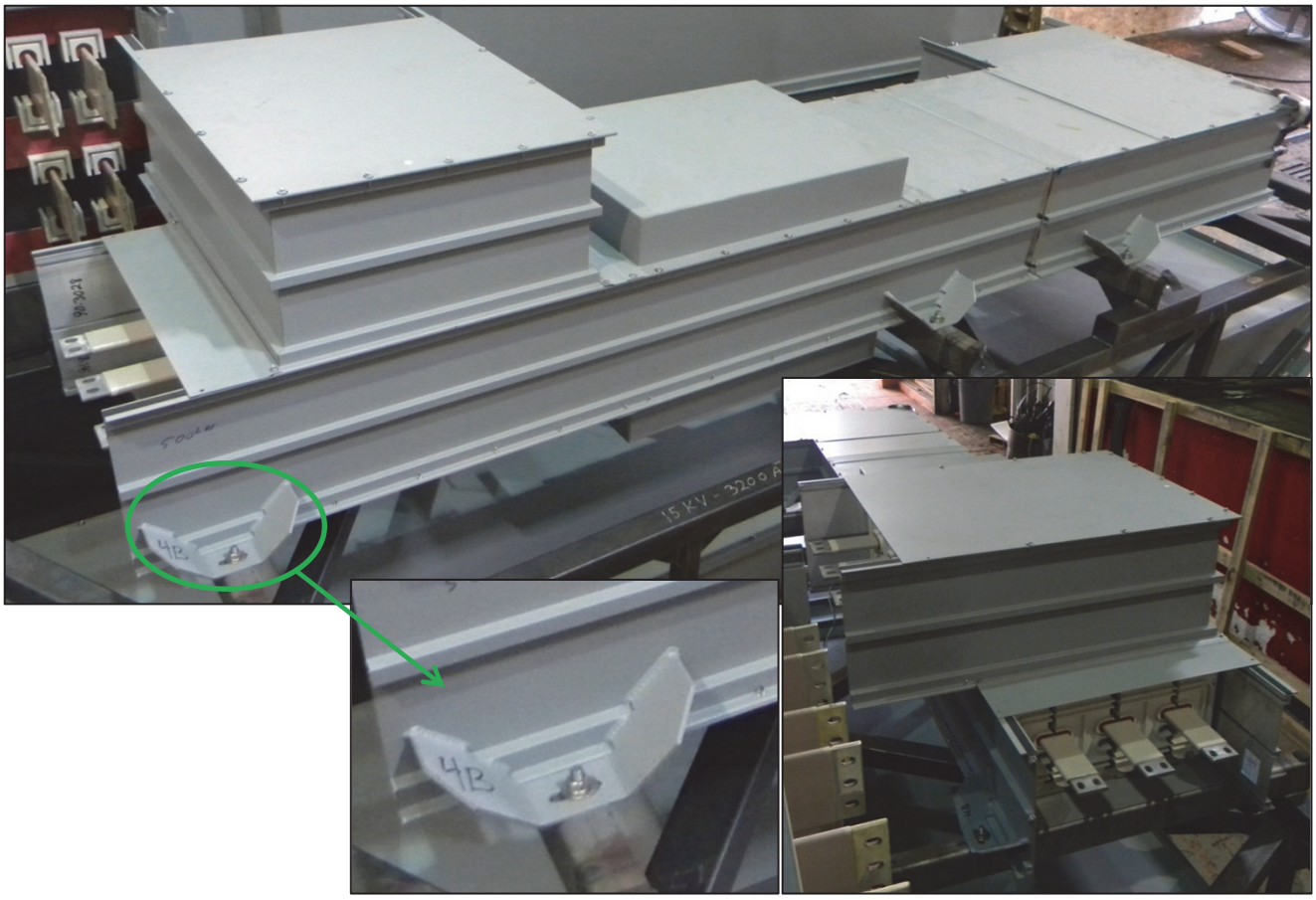
Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Duct Height	Duct Width	Total Duct Length	FB	SS	V
2,520	14.25	38	288	na	na	na

SEISMIC TEST PARAMETERS

Test Criteria	S_{DS}	z / h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
ICC-ES AC156 2010	2.0	1.0	1.5	3.2	2.4	1.33	0.53

UUT 1-U	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. Gundy & Associates, Inc. Structural & Earthquake Engineering

Mounting Details: Bottom mount (horizontal bus, green) with a 1/2" diameter bolt on each side of the duct.



Manufacturer: Technibus

Product Line: 600V, 5kV, and 15kV Metal Enclosed Bus Duct

Identification Number: 5-a-12

UUT Function: Transmission and Distribution of Electricity

UUT Description: (top picture from left to right) Tee-tap section, phase reversal section, 31" indoor expansion joint, horizontal elbow, and 1/2 hour firestop.

UUT Construction/Component Description: Enclosure constructed of Aluminum, 1/2"x3" horizontal aluminum bus bar, expoxy insulation, polyester bus bar supports spaced at 48" o.c..

UUT PROPERTIES

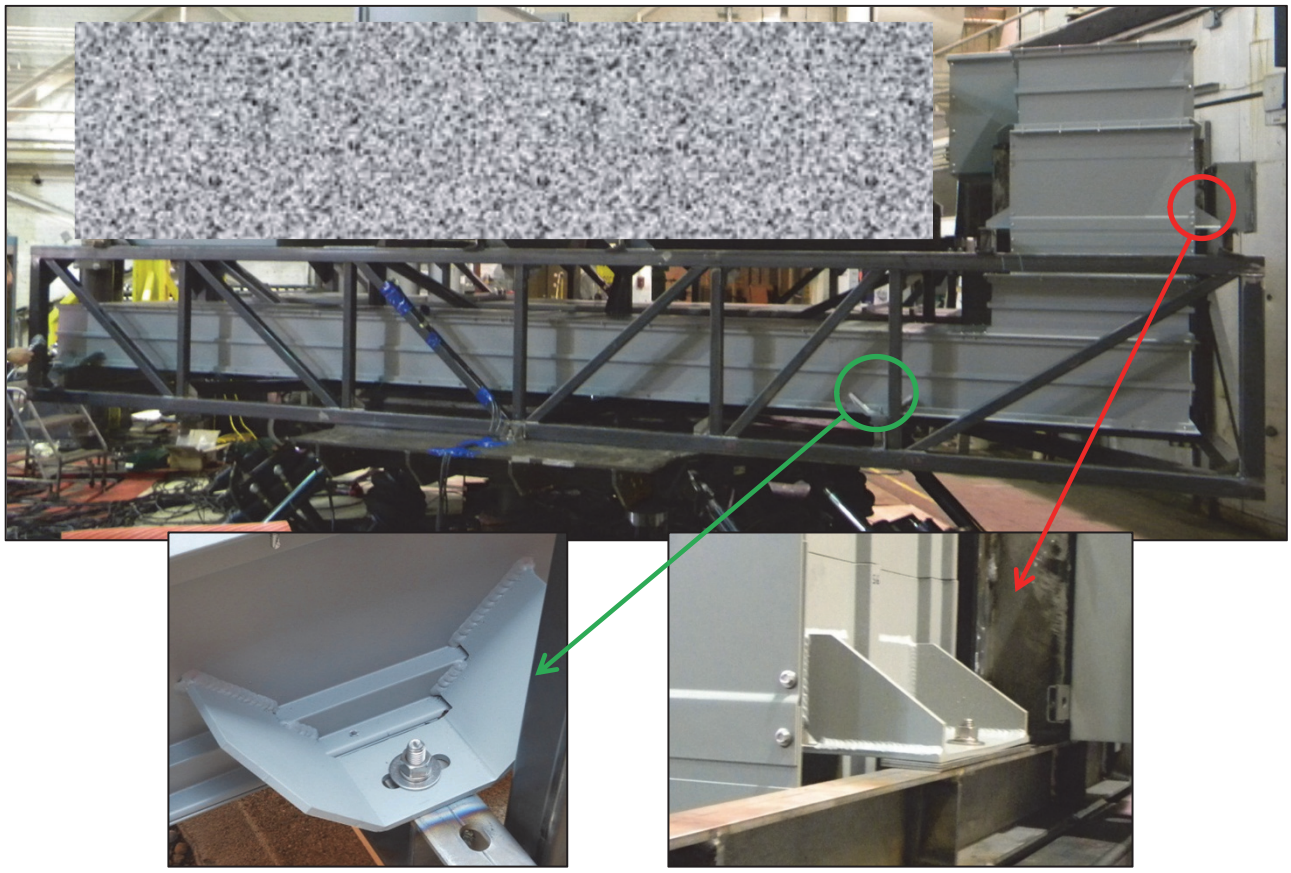
Weight (lb)	Dimensions			Natural Fequency (Hz)		
	Duct Height	Duct Width	Total Duct Length	FB	SS	V
460	14.25	27	204	na	na	na

SEISMIC TEST PARAMETERS

Test Criteria	S_{DS}	z / h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
ICC-ES AC156 2010	2.0	1.0	1.5	3.2	2.4	1.33	0.53

UUT 2-L	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. Gundy & Associates, Inc. Structural & Earthquake Engineering

Mounting Details: Bottom mount (horizontal bus, green) with a 1/2" diameter bolt on each side of the duct and side mount (vertical bus, red) with a 1/2" diameter bolt on each side of the duct.



Manufacturer: Technibus

Product Line: 600V, 5kV, and 15kV Metal Enclosed Bus Duct

Identification Number: 5-a-12

UUT Function: Transmission and Distribution of Electricity

UUT Description: 180" main horizontal span, horizontal-vertical transition elbow, 48" vertical mount section, vertical elbow section that ties into a juction box, S4/S5 shiping splits, adjustable thermostat, heater monitor box, 8" strip heater 240v/150w, and 8" strip heater 415v/250w.

UUT Construction/Component Description: Enclosure constructed of Aluminum, 1/2"x3" horizontal aluminum bus bar, expoxy insulation, polyester/porcelean bus bar supports spaced at 48" o.c., S4/S5 shipping splits, adjusutable thermostat, heater monitor box, and 2 - 8" strip heaters.

UUT PROPERTIES

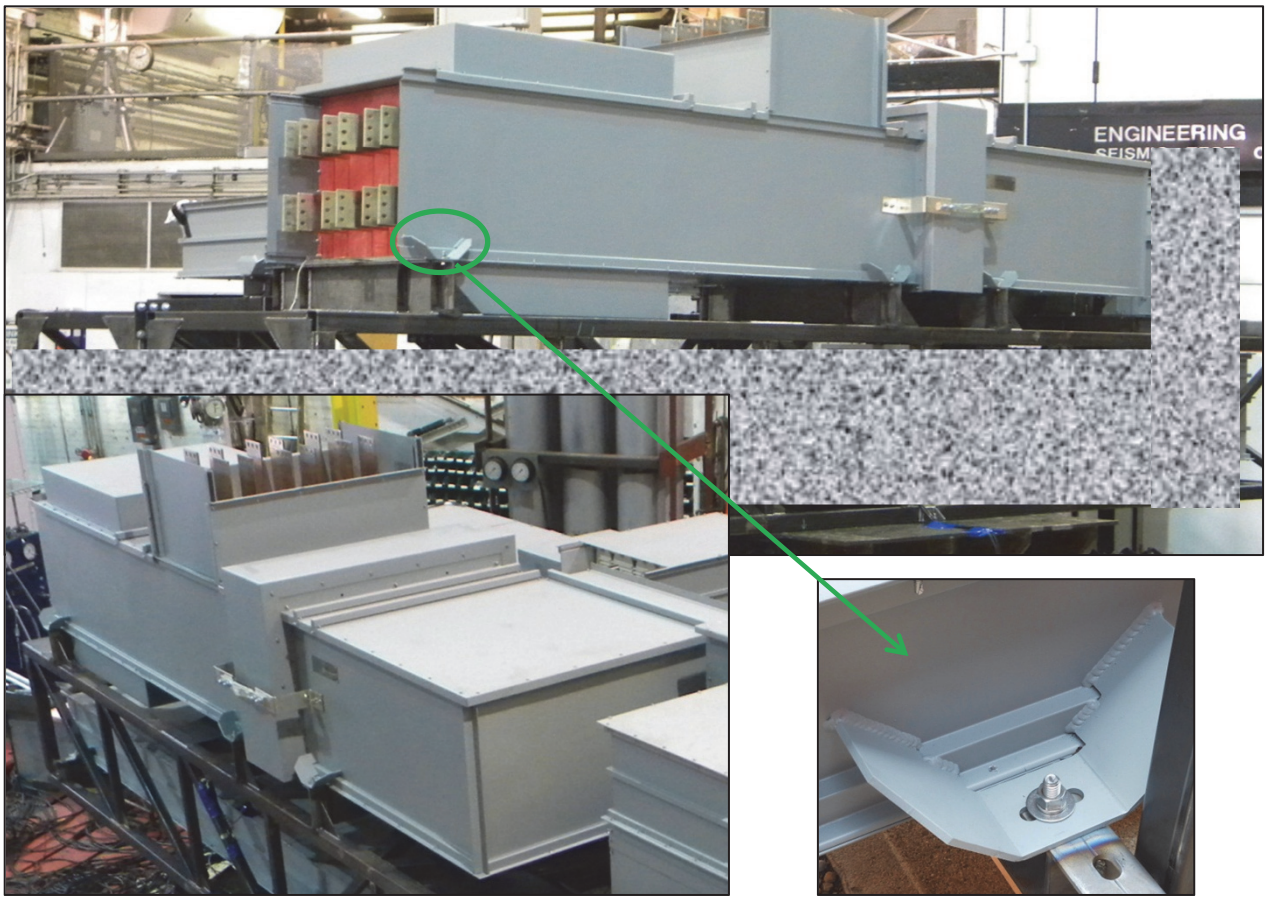
Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Duct Height	Duct Width	Total Duct Length	FB	SS	V
650	14.25	27	288	na	na	na

SEISMIC TEST PARAMETERS

Test Criteria	S_{DS}	z / h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
ICC-ES AC156 2010	2.0	1.0	1.5	3.2	2.4	1.33	0.53

UUT 2-U	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. Gundy & Associates, Inc. Structural & Earthquake Engineering

Mounting Details: Bottom mount (horizontal bus, green) with a 1/2" diameter bolt on each side of the duct.



Manufacturer: Technibus

Product Line: 600V, 5kV, and 15kV Metal Enclosed Bus Duct

Identification Number: 6-c-60

UUT Function: Transmission and Distribution of Electricity

UUT Description: (top picture from left to right) Phase reversal section, tee-tap section, 22" outdoor expansion joint, and horizontal elbow.

UUT Construction/Component Description: Enclosure constructed of 14ga SS, 3/8"x6" vertical copper bus bar, expoxy insulation, glastic/porcelean bus bar supports spaced at 18" o.c., and copper ground bus bar.

UUT PROPERTIES

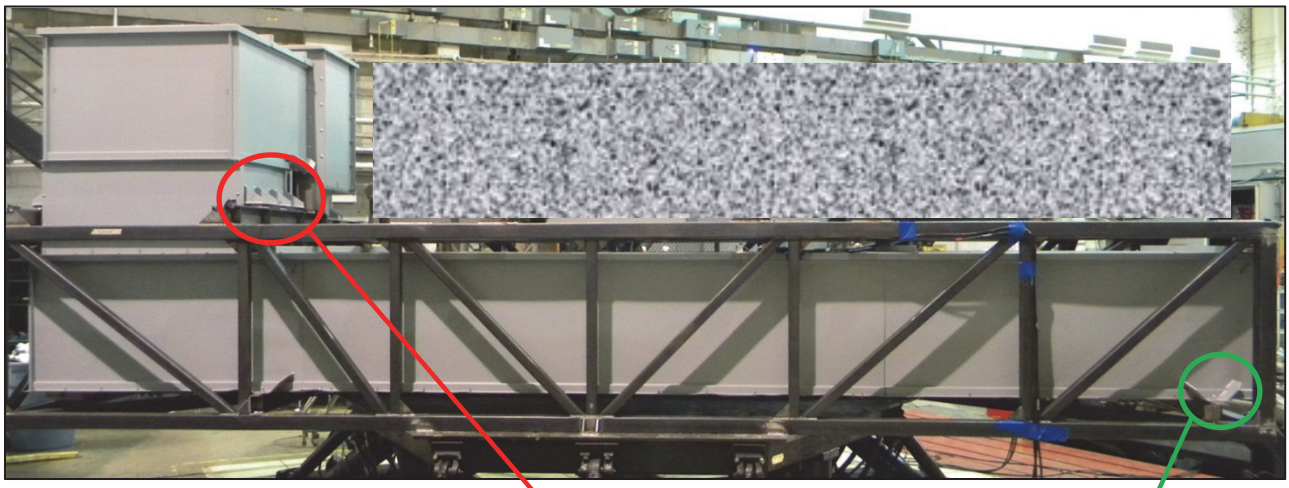
Weight (lb)	Dimensions			Natural Fequency (Hz)		
	Duct Height	Duct Width	Total Duct Length	FB	SS	V
4,410	28	42	294	na	na	na

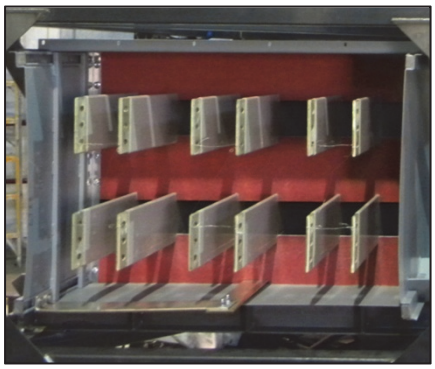
SEISMIC TEST PARAMETERS

Test Criteria	S_{DS}	z / h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
ICC-ES AC156 2010	2.0	1.0	1.5	3.2	2.4	1.33	0.53

UUT 3-L	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. Gundy & Associates, Inc. Structural & Earthquake Engineering

Mounting Details: Bottom mount (horizontal bus, green) with a 1/2" diameter bolt on each side of the duct and side mount (vertical bus, red) with a 1/2" diameter bolt on each side of the duct.





End View

Manufacturer: Technibus

Product Line: 600V, 5kV, and 15kV Metal Enclosed Bus Duct

Identification Number: 6-c-60 and 5/15-c-60

UUT Function: Transmission and Distribution of Electricity

UUT Description: 180" main horizontal span, 3 hour firestop, horizontal to vertical transition elbow, 48" vertical mount section, vertical elbow section that ties into a juction box, S1/S6 shipping splits, outdoor junction box, standard thermostat, large ring heater 750w.

UUT Construction/Component Description: Enclosure constructed of 14ga SS, 3/8"x6" vertical copper bus bar, expoxy insulation, glastic/porcelean bus bar supports spaced at 36" o.c., copper ground bus, S1/S6 shipping splits, standard thermostat, and a large ring heater.

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Duct Height	Duct Width	Total Duct Length	FB	SS	V
4,410	28	42	294	na	na	na

SEISMIC TEST PARAMETERS

Test Criteria	S_{DS}	z / h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
ICC-ES AC156 2010	2.0	1.0	1.5	3.2	2.4	1.33	0.53

UUT 3-U	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. Gundy & Associates, Inc. Structural & Earthquake Engineering

Mounting Details: Bottom mount (horizontal bus, green) with a 1/2" diameter bolt on each side of the duct.

Manufacturer: Technibus

Product Line: 600V, 5kV, and 15kV Metal Enclosed Bus Duct

Identification Number: 6-a-12

UUT Function: Transmission and Distribution of Electricity

UUT Description: (top picture from right to left) Phase reversal section, tee-tap section, 22" indoor expansion joint, horizontal elbow, and 1/2 hr firestop.

UUT Construction/Component Description: Enclosure constructed of Aluminum, 1/2"x3" vertical aluminum bus bar, expoxy insulation, glastic bus bar supports spaced at 9" o.c., and 1/2 hr firestop.

UUT PROPERTIES

Weight (lb)	Dimensions			Natural Fequency (Hz)		
	Duct Height	Duct Width	Total Duct Length	FB	SS	V
210	8.25	21	132	na	na	na

SEISMIC TEST PARAMETERS

Test Criteria	S_{DS}	z / h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
ICC-ES AC156 2010	2.0	1.0	1.5	3.2	2.4	1.33	0.53

UUT 4-L	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. Gundy & Associates, Inc. Structural & Earthquake Engineering

Mounting Details: Bottom mount (horizontal bus, green) with a 1/2" diameter bolt on each side of the duct and side mount (vertical bus, red) with a 1/2" diameter bolt on each side of the duct.

Manufacturer: Technibus

Product Line: 600V, 5kV, and 15kV Metal Enclosed Bus Duct

Identification Number: 6-a-12

UUT Function: Transmission and Distribution of Electricity

UUT Description: 180" main horizontal span, horizontal-vertical transition elbow, 48" vertical mount section, vertical elbow section that ties into a juction box, S3/S7 shipping splits, explosion proof thermostat, and a small ring heater 500w.

UUT Construction/Component Description: Enclosure constructed of Aluminum, 1/2"x3" vertical aluminum bus bar, expoxy insulation, glastic bus bar supports spaced at 9" o.c., S3/S7 shipping splits, exposion proof thermostat, and a small ring heater.

UUT PROPERTIES

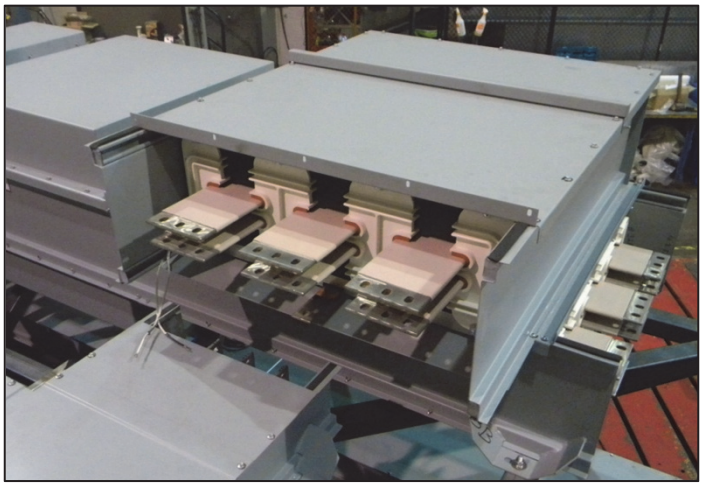
Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Duct Height	Duct Width	Total Duct Length	FB	SS	V
450	8.25	21	282	na	na	na

SEISMIC TEST PARAMETERS

Test Criteria	S_{DS}	z / h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
ICC-ES AC156 2010	2.0	1.0	1.5	3.2	2.4	1.33	0.53

UUT 4-U	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. Gundy & Associates, Inc. Structural & Earthquake Engineering

Mounting Details: Bottom mount (horizontal bus, green) with a 1/2" diameter bolt on each side of the duct.



Manufacturer: Technibus

Product Line: 600V, 5kV, and 15kV Metal Enclosed Bus Duct

Identification Number: 15-c-32

UUT Function: Transmission and Distribution of Electricity

UUT Description: (top picture from left to right) Tee-tap section, phase reversal section, 31" outdoor expansion joint, horizontal elbow.

UUT Construction/Component Description: Enclosure constructed of 14ga SS, 3/8"x6" horizontal copper bus bar, expoxy insulation, polyester bus bar supports spaced at 48" o.c..

UUT PROPERTIES

Weight (lb)	Dimensions			Natural Fequency (Hz)		
	Duct Height	Duct Width	Total Duct Length	FB	SS	V
1,995	14.25	36	228	na	na	na

SEISMIC TEST PARAMETERS

Test Criteria	S_{DS}	z / h	I_P	A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-V}
ICC-ES AC156 2010	2.0	1.0	1.5	3.2	2.4	1.33	0.53

TECHNIBUS METAL ENCLOSED 600V, 5kV, and 15kV
SEISMIC PRODUCT LINE SUMMARY
VERTICAL BUS BAR ORIENTATION

WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

Technibus Identification Number	Bus Material	Bus # and Size (in)	Bus Support Material	Bus Support Spacing (min-max)	Enclosure Material	Width	Depth	Duct Weight (lbs/ft) (min - max)	Representative UUT
6-a-12	AL	(3) 0.50x3	GPO3*/PORC	4" - 9"*	AL*/SS/STL	21"	8"	21* - 42	UUT 4-L, UUT 3-U
6-a-12 w/neutral	AL	(4) 0.50x3	GPO3/PORC	4" - 9"	AL/SS/STL	21"	8"	23 - 44	
6-c-12	CU	(3) 0.38x3	GPO3/PORC	5" - 8"	AL/SS/STL	21"	8"	29 - 50	
6-c-12 w/neutral	CU	(4) 0.38x3	GPO3/PORC	5" - 8"	AL/SS/STL	21"	8"	34 - 55	
6-a-16	AL	(3) 0.62x4	GPO3/PORC	7" - 14"	AL/SS/STL	21"	10"	26 - 48	
6-a-16 w/neutral	AL	(4) 0.62x4	GPO3/PORC	7" - 14"	AL/SS/STL	21"	10"	29 -51	
6-c-16	CU	(3) 0.50x3	GPO3/PORC	6" - 11"	AL/SS/STL	21"	8"	33 - 55	
6-c-16 w/neutral	CU	(4) 0.50x3	GPO3/PORC	6" - 11"	AL/SS/STL	21"	8"	39 - 61	
6-a-20	AL	(3) 0.62x6	GPO3/PORC	8" - 17"	AL/SS/STL	21"	14"	32 - 57	
6-a-20 w/neutral	AL	(4) 0.62x6	GPO3/PORC	8" - 17"	AL/SS/STL	21"	14"	36 - 41	
6-c-20	CU	(3) 0.62x4	GPO3/PORC	9" - 16"	AL/SS/STL	21"	10"	47 - 69	
6-c-20 w/neutral	CU	(4) 0.62x4	GPO3/PORC	9" - 16"	AL/SS/STL	21"	10"	56 - 78	
6-a-25	AL	(6) 0.38x6	GPO3/PORC	8" - 17"	AL/SS/STL	27"	14"	37 -65	
6-a-25 w/neutral	AL	(8) 0.38x6	GPO3/PORC	8" - 17"	AL/SS/STL	27"	14"	42 - 70	
6-c-25	CU	(3) 0.50x6	GPO3/PORC	8" - 15"	AL/SS/STL	21"	14"	54 - 79	
6-c-25 w/neutral	CU	(4) 0.50x6	GPO3/PORC	8" - 15"	AL/SS/STL	21"	14"	66 - 91	
6-a-32	AL	(6) 0.62x6	GPO3/PORC	14" - 28"	AL/SS/STL	27"	14"	47 - 76	
6-a-32 w/neutral	AL	(8) 0.62x6	GPO3/PORC	14" - 28"	AL/SS/STL	27"	14"	56 - 85	
6-c-32	CU	(6) 0.38x6	GPO3/PORC	10" - 19"	AL/SS/STL	27"	14"	75 - 104	
6-c-32 w/neutral	CU	(8) 0.38x6	GPO3/PORC	10" - 19"	AL/SS/STL	27"	14"	92 - 122	
6-c-40	CU	(6) 0.63x6	GPO3/PORC	24" - 42"	AL/SS/STL	36"	14"	111 - 138	
6-c-40 w/neutral	CU	(8) 0.63x6	GPO3/PORC	21" - 37"	AL/SS/STL	36"	14"	155 - 182	
5/15-c-40	CU	(6) 0.63x6	GPO3/PORC	30"	AL/SS/STL	36"	14"	125 - 163	
6-c-50	CU	(6) 0.50x8	GPO3/PORC	24" - 43"	AL/SS/STL	42"	24"	131 - 165	
6-c-50 w/neutral	CU	(8) 0.50x8	GPO3/PORC	22" - 39"	AL/SS/STL	42"	24"	160 - 194	
5/15-c-50	CU	(8) 0.50x8	GPO3/PORC	42"	AL/SS/STL	42"	24"	143 - 187	
5/15-c-60	CU	(12) 0.38x6	GPO3*/PORC*	36"* & 42"	AL/SS*/STL*	42"	28"	162 - 206*	UUT 3-L, UUT 2-U
6-c-60	CU	(12) 0.38x6	GPO3*/PORC*	18"* - 39"	AL/SS*/STL*	42"	28"	162 - 206*	UUT 3-L, UUT 2-U

General Notes:

1) Tested configuration consists of horizontal main span with support spacing ≤ 180", vertical main span with support spacing ≤ 48", horizontal elbow with support spacing ≤ 30", vertical transition elbow with support spacing ≤ 24", and phase-reversal and tee-tap sections supported on both sides.

2) See drawings X-023-0004-2, X-023-0014-2, X-023-0020-2, X-023-0021-2, and X-023-022-2 for cross section information.

3) Listed Duct weights represent the duct with an aluminum enclosure (low weight) and steel enclosure (high weight).

* Indicates the material of bus and enclosure, bus support spacing, and duct weight represented by the UUT.

TECHNIBUS METAL ENCLOSED 600V, 5kV, and 15kV
SEISMIC PRODUCT LINE SUMMARY
HORIZONTAL BUS BAR ORIENTATION

WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

Technibus Identification Number	Bus Material	Bus # and Size (in)	Bus Support Material	Bus Support Spacing (min-max)	Enclosure Material	Width	Depth	Duct Weight (lbs/ft) (min - max)	Representative UUT
5*/15-a-12	AL	(3) 0.50x3	POLY*/PORC*	20" - 48"*	AL*/SS/STL	27"	14"	30* - 61	UUT 2-L, UUT 1-U
5/15-UL-c-12	CU	(3) 0.38x3	POLY	24"	AL	27"	14"	34	
5/15-c-12	CU	(3) 0.25x3	POLY/PORC	20" - 48"	AL/SS/STL	27"	14"	34 - 65	
5/15-a-16	AL	(3) 0.62x4	POLY/PORC	23" - 48"	AL/SS/STL	30"	14"	34 - 68	
5/15-UL-c-16	CU	(3) 0.50x3	POLY	36"	AL	27"	14"	41	
5/15-c-16	CU	(3) 0.50x3	POLY/PORC	20" - 48"	AL/SS/STL	27"	14"	41 - 74	
5/15-a-20	AL	(3) 0.62x6	POLY/PORC	29" - 48"	AL/SS/STL	36"	14"	41 - 79	
5/15-UL-c-20	CU	(3) 0.62x4	POLY	39"	AL	30"	14"	55	
5/15-c-20	CU	(3) 0.62x4	POLY/PORC	23" - 48"	AL/SS/STL	30"	14"	55 - 89	
5/15-a-25	AL	(6) 0.62x4	POLY/PORC	46" - 48"	AL/SS/STL	30"	14"	44 - 77	
5/15-UL-c-25	CU	(3) 0.50x6	POLY	42"	AL	36"	14"	64	
5/15-c-25	CU	(3) 0.50x6	POLY/PORC	29" - 48"	AL/SS/STL	36"	14"	64 - 101	
5/15-a-32	AL	(6) 0.62x6	POLY/PORC	48"	AL/SS/STL	36"	14"	55 - 93	
5/15-UL-c-32	CU	(6) 0.38x6	POLY	48"	AL	36"	14"	85	
5/15*-c-32	CU	(6) 0.38x6	POLY*/PORC*	48"	AL/SS*/STL*	36"	14"	85 - 122*	UUT 1-L, UUT 4-U

General Notes:

1) Tested configuration consists of horizontal main span with support spacing ≤ 180", vertical main span with support spacing ≤ 48", horizontal elbow with support spacing ≤ 30", vertical transition elbow with support spacing ≤ 24", and phase-reversal and tee-tap sections supported on both sides.

2) See drawings X-027-001-2 and X-027-002-2 for cross section information.

3) Listed Duct weights represent the duct with an aluminum enclosure (low weight) and steel enclosure (high weight).

* Indicates the material of bus and enclosure, bus support spacing, and duct weight represented by the UUT.

TECHNIBUS METAL ENCLOSED 600V, 5kV, and 15kV
SEISMIC PRODUCT LINE SUMMARY
SUBASSEMBLY MATRIX

WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

Subassembly Type	Manufacturer	Item Number/Description	Representative UUT
Shiping Split - S1	Technibus	Bus hdwr ZP w/LK, Cover hdwr 316ss	UUT 1-L & UUT 3-L
Shiping Split - S2	Technibus	Bus hdwr 304ss w/LK, Cover hdwr tek screw	UUT 1-L
Shiping Split - S3	Technibus	Bus hdwr ZP w/Bell, Cover hdwr tek screw	UUT 2-L & UUT 4-L
Shiping Split - S4	Technibus	Bus hdwr 304ss w/Bell, Cover hdwr 304ss thru-bolt	UUT 2-L
Shiping Split - S5	Technibus	Bus hdwr 316ss w/Bell, Cover hdwr 300 series tek screw	UUT 2-L
Bus Split - S6	Technibus	Bus hdwr 304ss w/Bell	UUT 3-L
Shiping Split - S7	Technibus	Bus hdwr SBZ w/Bell, Cover hdwr 300 series tek screw	UUT 4-L
12" Strip Heater 240v/150w	Chromalox	OT-1225 129402	UUT 1-L
12" Strip Heater 415v/250w	Chromalox	PT-12VW 600002108	UUT 1-L
8" Strip Heater 240v/150w	Chromalox	OT-815 129349	UUT 2-L
8" Stip Heater 415v/250w	Chromalox	OT-827vw 275w 813290	UUT 2-L
Large Ring Heater 750w	Chromalox	A-70 792826	UUT 1-L & UUT 3-L
Small Ring Heater 500w	Chromalox	A-70 792825	UUT 4-L
Termination Box	Technibus	24 x 24 x 42 - AL/SS/STL - Assembly 4A5	UUT 1-L & 2-L
Termination Box	Technibus	24 x 36 x 48 - AL/SS/STL - Assembly 2A5	UUT 3-L & 4-L
Heater Monitor Box	Technibus	X-115-0001 - Heater remote thermistat & alarm	UUT 1-L & 2-L
Outdoor Junction Box	Technibus	2 x 4 x 4 14ga	UUT 3-L
Indoor Junction Box	Technibus	2 x 4 x 4 14ga	UUT 4-L
Standard Thermostat	Thermodisc	6OT21 202877	UUT 3-L
Explosion Proof Thermostat	Johnson Controls	A19AUC-3C	UUT 4-L
Adjustable Thermostat	Penn	A19ABC-24E	UUT 2-L
1/2 Hour Firestop	Technibus	1/2 HR rating - 2001 silicone RTV foam	UUT 3-U, UUT 1-U
3 Hour Firestop	Technibus	3 HR rating - 2001 silicone RTV foam	UUT 3-L
Expansion Joint	Technibus	Indoor 5kv - 1200amp	UUT 1-U
Expansion Joint	Technibus	Outdoor 600v - 6000amp	UUT 2-U
Expansion Joint	Technibus	Indoor 600v - 1200amp	UUT 3-U
Expansion Joint	Technibus	Outdoor 15v - 3200amp	UUT 4-U

TECHNIBUS METAL ENCLOSED 600V, 5kV, and 15kV
MULTIPLE LISTING / BRANDED PRODUCT LINE MATRIX
VERTICAL BUS BAR ORIENTATION

WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

Technibus Identification #	Square D Identification #	Siemens Identification #	GE Identification #	Representative UUT
6-a-12	SQD-6-a-12	SM-6-a-12	GE-6-a-12	UUT 4-L, UUT 3-U
6-a-12 w/neutral	SQD-6-a-12 w/neutral	SM-6-a-12 w/neutral	GE-6-a-12 w/neutral	
6-c-12	SQD-6-c-12	SM-6-c-12	GE-6-c-12	
6-c-12 w/neutral	SQD-6-c-12 w/neutral	SM-6-c-12 w/neutral	GE-6-c-12 w/neutral	
6-a-16	SQD-6-a-16	SM-6-a-16	GE-6-a-16	
6-a-16 w/neutral	SQD-6-a-16 w/neutral	SM-6-a-16 w/neutral	GE-6-a-16 w/neutral	
6-c-16	SQD-6-c-16	SM-6-c-16	GE-6-c-16	
6-c-16 w/neutral	SQD-6-c-16 w/neutral	SM-6-c-16 w/neutral	GE-6-c-16 w/neutral	
6-a-20	SQD-6-a-20	SM-6-a-20	GE-6-a-20	
6-a-20 w/neutral	SQD-6-a-20 w/neutral	SM-6-a-20 w/neutral	GE-6-a-20 w/neutral	
6-c-20	SQD-6-c-20	SM-6-c-20	GE-6-c-20	
6-c-20 w/neutral	SQD-6-c-20 w/neutral	SM-6-c-20 w/neutral	GE-6-c-20 w/neutral	
6-a-25	SQD-6-a-25	SM-6-a-25	GE-6-a-25	
6-a-25 w/neutral	SQD-6-a-25 w/neutral	SM-6-a-25 w/neutral	GE-6-a-25 w/neutral	
6-c-25	SQD-6-c-25	SM-6-c-25	GE-6-c-25	
6-c-25 w/neutral	SQD-6-c-25 w/neutral	SM-6-c-25 w/neutral	GE-6-c-25 w/neutral	
6-a-32	SQD-6-a-32	SM-6-a-32	GE-6-a-32	
6-a-32 w/neutral	SQD-6-a-32 w/neutral	SM-6-a-32 w/neutral	GE-6-a-32 w/neutral	
6-c-32	SQD-6-c-32	SM-6-c-32	GE-6-c-32	
6-c-32 w/neutral	SQD-6-c-32 w/neutral	SM-6-c-32 w/neutral	GE-6-c-32 w/neutral	
6-c-40	SQD-6-c-40	SM-6-c-40	GE-6-c-40	
6-c-40 w/neutral	SQD-6-c-40 w/neutral	SM-6-c-40 w/neutral	GE-6-c-40 w/neutral	
5/15-c-40	SQD-5/15-c-40	SM-5/15-c-40	GE-5/15-c-40	
6-c-50	SQD-6-c-50	SM-6-c-50	GE-6-c-50	
6-c-50 w/neutral	SQD-6-c-50 w/neutral	SM-6-c-50 w/neutral	GE-6-c-50 w/neutral	
5/15-c-50	SQD-5/15-c-50	SM-5/15-c-50	GE-5/15-c-50	
5/15-c-60	SQD-5/15-c-60	SM-5/15-c-60	GE-5/15-c-60	UUT 3-L, UUT 2-U
6-c-60	SQD-6-c-60	SM-6-c-60	GE-6-c-60	UUT 3-L, UUT 2-U

General Notes:

1) Tested configuration consists of horizontal main span with support spacing ≤ 180", vertical main span with support spacing ≤ 48", horizontal elbow with support spacing ≤ 30", vertical transition elbow with support spacing ≤ 24", and phase-reversal and tee-tap sections supported on both sides.

2) See drawings X-023-0004-2, X-023-0014-2, X-023-0020-2, X-023-0021-2, and X-023-022-2 for cross section information.

~~3) Listed Duct weights represent the duct with an aluminum enclosure (low weight) and steel enclosure (high weight).~~

~~* Indicates the material of bus and enclosure, bus support spacing, and duct weight represented by the UUT.~~

TECHNIBUS METAL ENCLOSED 600V, 5kV, and 15kV
MULTIPLE LISTING / BRANDED PRODUCT LINE MATRIX
HORIZONTAL BUS BAR ORIENTATION

Technibus Identification #	Square D Identification #	Siemens Identification #	GE Identification #	Representative UUT
5*/15-a-12	SQD-5*/15-a-12	SM-5*/15-a-12	GE-5*/15-a-12	UUT 2-L, UUT 1-U
5/15-UL-c-12	SQD-5/15-UL-c-12	SM-5/15-UL-c-12	GE-5/15-UL-c-12	
5/15-c-12	SQD-5/15-c-12	SM-5/15-c-12	GE-5/15-c-12	
5/15-a-16	SQD-5/15-a-16	SM-5/15-a-16	GE-5/15-a-16	
5/15-UL-c-16	SQD-5/15-UL-c-16	SM-5/15-UL-c-16	GE-5/15-UL-c-16	
5/15-c-16	SQD-5/15-c-16	SM-5/15-c-16	GE-5/15-c-16	
5/15-a-20	SQD-5/15-a-20	SM-5/15-a-20	GE-5/15-a-20	
5/15-UL-c-20	SQD-5/15-UL-c-20	SM-5/15-UL-c-20	GE-5/15-UL-c-20	
5/15-c-20	SQD-5/15-c-20	SM-5/15-c-20	GE-5/15-c-20	
5/15-a-25	SQD-5/15-a-25	SM-5/15-a-25	GE-5/15-a-25	
5/15-UL-c-25	SQD-5/15-UL-c-25	SM-5/15-UL-c-25	GE-5/15-UL-c-25	
5/15-c-25	SQD-5/15-c-25	SM-5/15-c-25	GE-5/15-c-25	
5/15-a-32	SQD-5/15-a-32	SM-5/15-a-32	GE-5/15-a-32	
5/15-UL-c-32	SQD-5/15-UL-c-32	SM-5/15-UL-c-32	GE-5/15-UL-c-32	
5/15*-c-32	SQD-5/15*-c-32	SM-5/15*-c-32	GE-5/15*-c-32	UUT 1-L, UUT 4-U

General Notes:

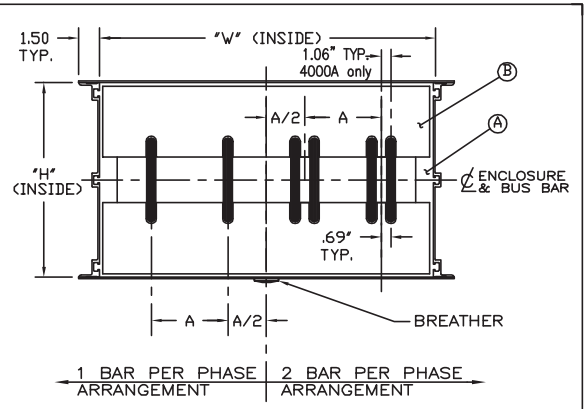
1) Tested configuration consists of horizontal main span with support spacing ≤ 180", vertical main span with support spacing ≤ 48", horizontal elbow with support spacing ≤ 30", vertical transition elbow with support spacing ≤ 24", and phase-reversal and tee-tap sections supported on both sides.

2) See drawings X-027-001-2 and X-027-002-2 for cross section information.

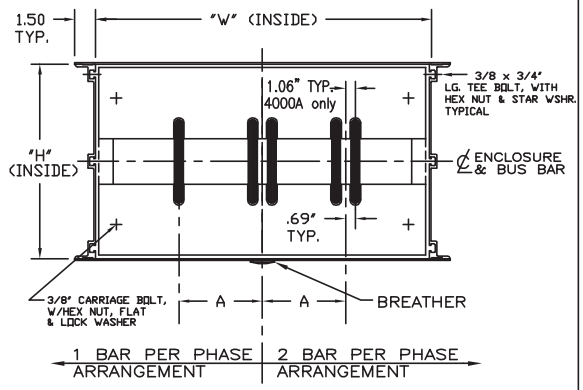
~~3) Listed Duct weights represent the duct with an aluminum enclosure (low weight) and steel enclosure (high weight).~~

~~* Indicates the material of bus and enclosure, bus support spacing, and duct weight represented by the UUT.~~

	AMPERES	BUS DESCRIPTION	"H"	"W"	"A"	MOMENTARY FAULT RATING KA RMS ASY: ASY → 87 / SYM → 65 / PEAK → 150	113 / 85 / 196	133 / 100 / 230	150 / 113 / 260	3-POLE WEIGHT PER FT (LBS.)	3-POLE TYPE: (A) SUPPORT BRACKET DWG. X-303-0002-1	(B) GLASTIC SUPPORT DWG. X-400-0002-2 HALF SUPT DWG. X-101-0028-2	(W) VAPOR BARRIER DWG. X-803-0007-2	FOAM CONTAINMENT CHANNEL DWG. X-101-0016-2	4-POLE WEIGHT PER FT (LBS.)	4-POLE TYPE: (A) SUPPORT BRACKET DWG. X-303-0002-1	(B) GLASTIC SUPPORT DWG. X-400-0002-2 HALF SUPT DWG. X-101-0028-2	(W) VAPOR BARRIER DWG. X-803-0007-2	FOAM CONTAINMENT CHANNEL DWG. X-101-0016-2
						SUPPORT SPACING					TYPE					TYPE			
COPPER	1200	(1) .38" X 3.00"	8"	18"	4.12"	8"	6"	5"	5"	29	1	1	1	11	34	1	10	10	11
	1600	(1) .50" X 3.00"	8"	18"		11"	8"	7"	6"	33	1	2	2	11	39	1	11	11	11
	2000	(1) .62" X 4.00"	10"	18"		16"	12"	10"	9"	47	2	4	3	11	56	2	13	12	11
	2500	(1) .50" X 6.00"	14"	18"		15"	11"	10"	8"	54	3	5	4	11	66	3	14	13	11
	3200	(2) .38" X 6.00"	14"	24"	5.50"	19"	14"	12"	10"	75	3	8	6	1	92	3	17	15	1
	4000	(2) .63" X 6.00"	14"	33"	10.00"	42"	32"	27"	24"	111	3	21	21	4					
	4000	(2) .63" X 6.00"	14"	33"	7.75"	37"	28"	24"	21"						155	3	22	22	4
ALUMINUM	1200	(1) .50" X 3.00"	8"	18"	4.12"	9"	7"	5"	4"	21	1	2	2	11	23	1	11	11	11
	1600	(1) .62" X 4.00"	10"	18"		14"	10"	8"	7"	26	2	4	3	11	29	2	13	12	11
	2000	(1) .62" X 6.00"	14"	18"		17"	13"	10"	8"	32	3	6	5	11	36	3	15	14	11
	2500	(2) .38" X 6.00"	14"	24"	5.50"	17"	12"	10"	8"	37	3	8	6	1	42	3	17	15	1
	3200	(2) .62" X 6.00"	14"	24"	5.50"	28"	21"	17"	14"	47	3	9	7	1	56	3	18	16	1



4-POLE CROSS SECTIONAL VIEW



3-POLE CROSS SECTIONAL VIEW

MICROFILMED

REV 10

REVISIONS NO	BY	DATE
1	JWL	5-18-98
ADDED SHEET 2		
2	RDM	3-6-03
REV. MOMENTARY FAULT RATING		
3	JWL	3-12-03
ADDED HALF SUP'T & CONT		
4	JWL	4-22-03
MINOR CHG'S		
5	JWL	5-20-04
REMOVED 5000A		
6	RCH	3-2-06
SHORT CIRCUIT SPACING		
7	JWL	11-7-07
REVISED 4000A		
8	JWL	12-10-07
ADDED 1.06 BAR SPACING		
9	JB	1-11-11
(CU) CHANGE FAULT RATING AND SUPPORT SPACING		
10	RDM	9-13-11
CHANGE WEIGHTS		

DRAWN BY: EOM/RDF
DATE: 11/30/93
SCALE: .125=1
CHK'D.
APP'D.

TECHNIBUS®
METAL ENCLOSED BUS SYSTEMS
1501 RAFF RD. SW.
CANTON, OHIO 44710

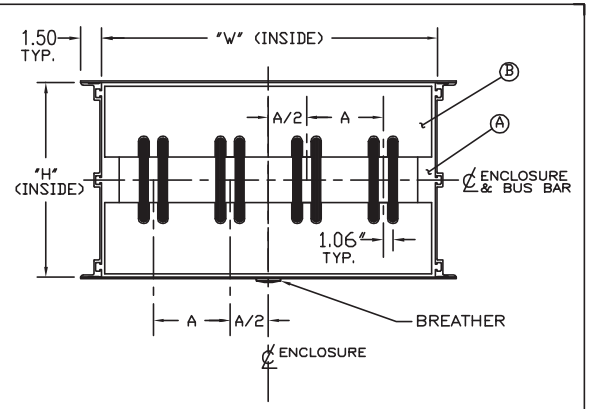
ORIGINAL PROJECT: SYSTEM NAME:

Tolerances: Unless otherwise noted, all tolerances shall be: ± .03

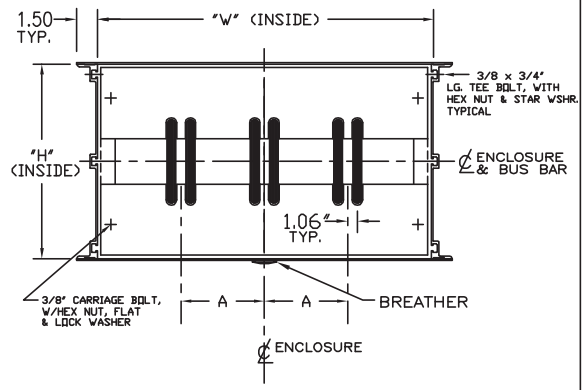
TITLE
600V. AC 1200 TO 4000A DUCT NON-VENTED
INDOOR/OUTDOOR 3 & 4P
CROSS SECTION (VERT. CONFIGURATION)
DWG. No. X-023-0004-2 SHT.1 OF 2

SEQ.	TYPE	EQP.	MFG.	F. I.	SIZE
X-023-0004-2					2

	AMPERES	BUS DESCRIPTION	"H"	"W"	"A"		MOMENTARY FAULT RATING KA RMS ASY: ASY	SYM	PEAK	WEIGHT PER FT (LBS.)	3-POLE TYPE: SUPPORT BRACKET Ⓐ DWG. X-403-0013-2	PLASTIC SUPPORT Ⓑ DWG. X-400-0002-2 HALF SUPT DWG. X-101-0028-2	VAPOR BARRIER Ⓦ DWG. X-803-0007-2		WEIGHT PER FT (LBS.)	4-POLE TYPE: SUPPORT BRACKET Ⓐ DWG. X-403-0013-2	PLASTIC SUPPORT Ⓑ DWG. X-400-0002-2 HALF SUPT DWG. X-101-0028-2	VAPOR BARRIER Ⓦ DWG. X-803-0007-2	
							87	113	133	150									
							65	85	100	113									
							150	196	230	260									
							SUPPORT SPACING												
COPPER	5000	(2) .50" X 8.00"	24"	39"	12"		43"	33"	28"	24"	131	3	19	19					
	5000	(2) .50" X 8.00"	24"	39"	10"		39"	30"	25"	22"					160	3	20	20	
ALUMINUM																			



4-POLE CROSS SECTIONAL VIEW



3-POLE CROSS SECTIONAL VIEW

REV 6

MICROFILMED

REVISIONS NO	BY	DATE
1	JWL	3/11/03 ADDED HALF SUP'T & CONT
2	RCH	3-2-06 SHORT CIRCUIT SPACING
3	JWL	11-7-07 REVISED ENCL & SPACING
4	JWL	12-10-07 REVISED BAR SPACING @ 1.06
5	JB	1-11-11 CHANGE FAULT RATING AND SUPPORT SPACING
6	RDM	9-13-11 CHANGE WEIGHTS

DRAWN BY: JWL
DATE: 5/11/98
SCALE: .125=1
CHK'D.
APP'D.

TECHNIBUS® METAL ENCLOSED BUS SYSTEMS

ORIGINAL PROJECT: SYSTEM NAME:

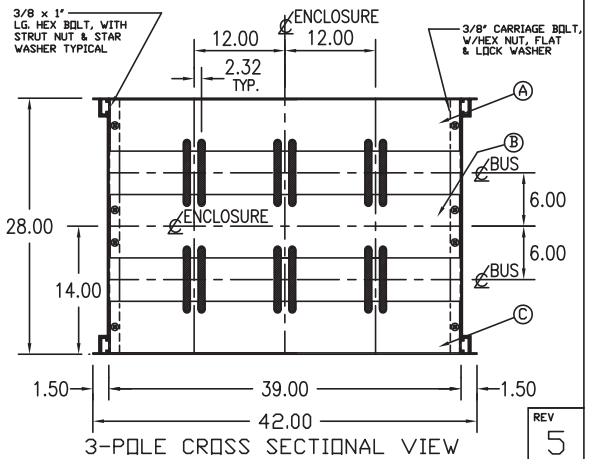
Tolerances: Unless otherwise noted, all tolerances shall be: ± .03

TITLE: 600V. 5000A AC BUSDUCT NON-VENTED INDOOR/OUTDOOR 3 & 4P CROSS SECTION (VERT. CONFIGURATION)

DWG. No. X-023-0004-2 SHT.2 OF 2

SEQ.	TYPE	EQP.	MFG.	F. I.	SIZE
X-023-0004-2					2

	AMPERES	BUS DESCRIPTION		MOMENTARY FAULT RATING KA RMS ASY				3-POLE WEIGHT PER FT (LBS.)	3-POLE TYPE (A) SUPPORT BRACKET DWG. X-304-0014-2	3-POLE TYPE (B) GLASTIC SUPPORT DWG. X-403-0009-2	3-POLE TYPE (C) GLASTIC SUPPORT DWG. X-403-0009-2	3-POLE TYPE (W) VAPOR BARRIER DWG. X-803-0009-2	4-POLE WEIGHT PER FT (LBS.)	4-POLE TYPE			
				ASY →	87	113	133	150									
				SYM →	65	85	100	113									
				PEAK →	150	196	230	260									
					SUPPORT SPACING												
COPPER	6000	(4) .38" X 6.00"		39"	30"	25"	18"	162	1	1	1	2					



3-POLE CROSS SECTIONAL VIEW

REV 5

MICROFILMED

REVISIONS NO	BY	DATE	
1	JWL	3/12/03	ADDED HALF ADDED CHN'L
2	RCH	3-2-06	SHORT CIRCUIT SPACING
3	JWL	11-12-07	REDESIGN PER 5KV DESIGN
4	JB	1-11-11	CHANGE FAULT RATING AND SUPPORT SPACING
5	RDM	9-13-11	CHANGE WEIGHTS

DRAWN BY: JWL
DATE: 5/21/98
SCALE: .125=1
CHK'D.
APP'D.

TECHNIBUS® METAL ENCLOSED BUS SYSTEMS

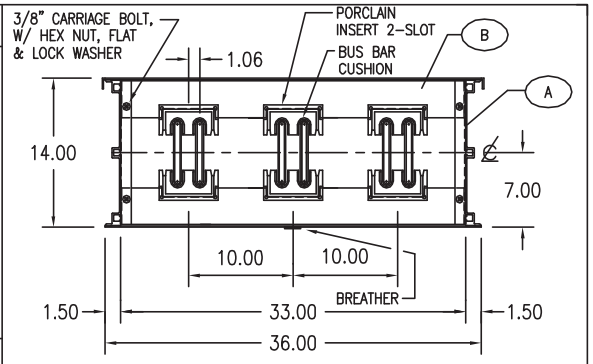
ORIGINAL PROJECT: SYSTEM NAME:

Tolerances: Unless otherwise noted, all tolerances shall be: ± .03

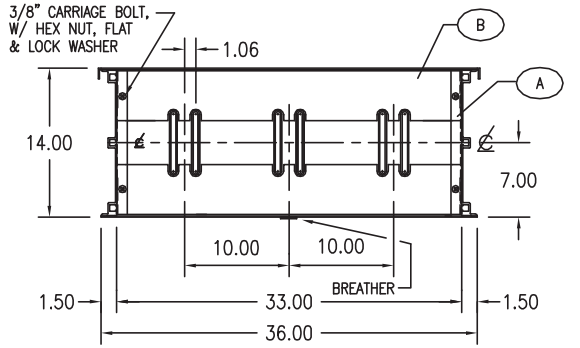
TITLE: 600V. 6000A AC BUSDUCT NON-VENTED INDOOR/OUTDOOR 3P CROSS SECTION (VERT. CONFIGURATION)
DWG. No. X-023-0014-2

SEQ.	TYPE	EQP.	MFG.	F. I.	SIZE
X-023-0014-2					2

	AMPERES	BUS DESCRIPTION	MOMENTARY FAULT RATING KA RMS ASY: 39 / 58 / 78				WEIGHT PER FT (LBS.)	5KV TYPE: SUPPORT BRACKET Ⓐ DWG. X-303-0002-1	GLASTIC SUPPORT Ⓑ DWG. X-403-0007-2	VAPOR BARRIER Ⓦ DWG. X-803-0002-2			WEIGHT PER FT (LBS.)	15KV TYPE: SUPPORT BRACKET Ⓐ DWG. X-303-0002-1	GLASTIC SUPPORT Ⓑ DWG. X-403-0010-2	VAPOR BARRIER Ⓦ DWG. X-803-0006-2	
		SYM →	25.81	38.71	51.61												
			SUPPORT SPACING														
COPPER	4000	(2) .63" X 6.00"	30"	30"	30"		125	3	1	13				3	1	13	



15KV CROSS SECTION



5KV CROSS SECTION

REV 8

MICROFILMED

REVISIONS NO	BY	DATE
1	JL	10/30/01
ADDED UL		
2	KK	3/20/03
CHANGED MOMENTARY		
3	JL	4/22/03
MINOR CHG'S		
4	RCH	3-2-06
SHORT CIRCUIT SPACING		
5	JWL	8-6-08
REVISED SUP'T TYPE NUMBER		
6	JAZ	10-20-08
REV'D MOMENTARY SUP'T SPACING PER UL SPEC		
7	JWL	9-22-09
CHANGED SUP'T TYPE NUMBER		
8	RDM	9-13-11
CHANGED WEIGHT		

DRAWN BY: JWL
DATE: 7/05/01
SCALE: .125=1
CHK'D.
APP'D.

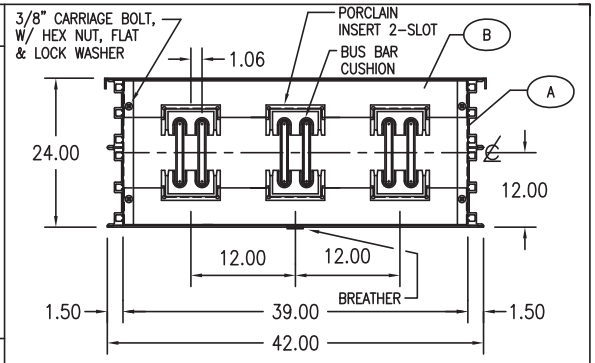
TECHNIBUS®
METAL ENCLOSED BUS SYSTEMS
1501 RAFF RD. SW.
CANTON, OHIO 44710

ORIGINAL PROJECT: SYSTEM NAME:

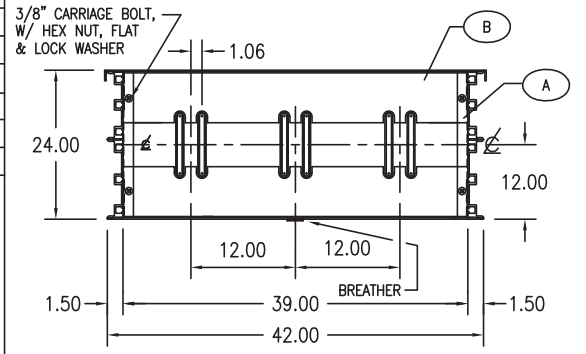
TITLE
5 & 15KV 4000A AC BUSDUCT NON-VENTED
INDOOR/OUTDOOR 3 PHASE
UL-CROSS SECTION
DWG. No. X-023-0020-2

SEQ.	TYPE	EQP.	MFG.	F. I.	SIZE
X-023-0020-2					2

			5KV						15KV					
			WEIGHT PER FT (LBS.)	SUPPORT BRACKET Ⓐ DWG. X-403-0013-2	GLASTIC SUPPORT Ⓑ DWG. X-403-0008-2	VAPOR BARRIER Ⓦ DWG. X-803-0002-2			WEIGHT PER FT (LBS.)	SUPPORT BRACKET Ⓐ DWG. X-403-0013-2	GLASTIC SUPPORT Ⓑ DWG. X-403-0011-2	VAPOR BARRIER Ⓦ DWG. X-803-0006-2	
		MOMENTARY FAULT RATING KA RMS ASY		TYPE				MOMENTARY FAULT RATING KA RMS ASY		TYPE				
		39 58 78												
	SYM→	25.81 38.71 51.61												
	AMPERES	BUS DESCRIPTION	SUPPORT SPACING					SUPPORT SPACING						
COPPER	5000	(2) .50" X 8.00"	42" 42" 42"	143	1	1	14	30" 30" 30"		1	1	12		



15KV CROSS SECTION



5KV CROSS SECTION

REV 5

MICROFILMED

REVISIONS			
NO	BY	DATE	
1	KK	3/20/03	REVISED FAULT RATINGS
2	JL	4/22/03	MINOR CHG'S
3	RCH	3-2-06	SHORT CIRCUIT SPACING
4	JAZ	10-20-08	REV'D MOMENTARY SUP'T SPACING PER UL SPEC
5	RDM	9-13-11	CHGD. WEIGHT

DRAWN BY: JWL
DATE: 7/05/01
SCALE: .125=1
CHK'D.
APP'D.

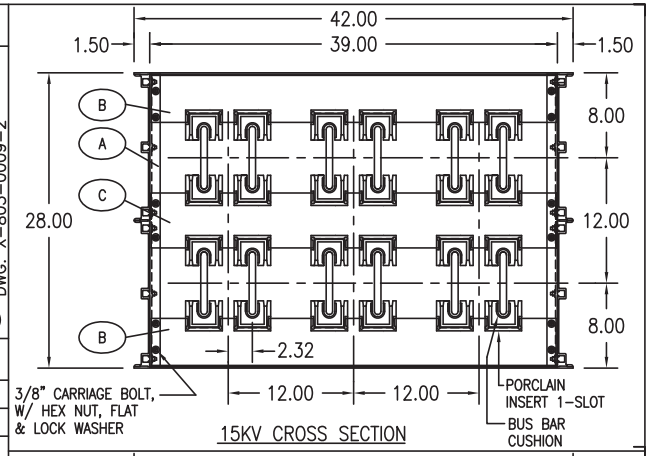
TECHNIBUS®
METAL ENCLOSED BUS SYSTEMS
1501 RAFF RD. SW.
CANTON, OHIO 44710

ORIGINAL PROJECT: SYSTEM NAME:

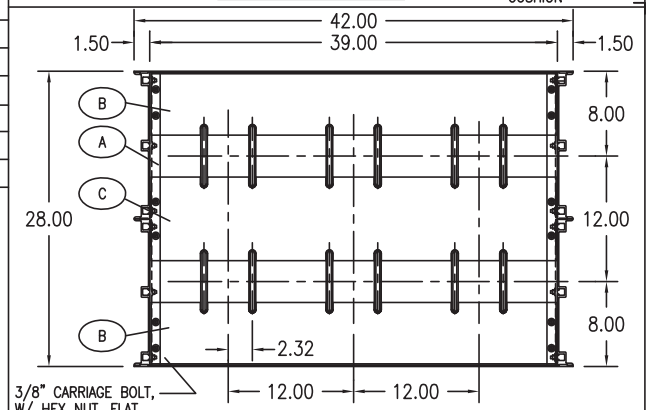
TITLE
5 & 15KV 5000A AC BUSDUCT NON-VENTED
INDOOR/OUTDOOR 3 PHASE
UL-CROSS SECTION
DWG. No. X-023-0021-2

SEQ.	TYPE	EQP.	MFG.	F. I.	SIZE
X-023-0021-2					2

			5KV						15KV					
			WEIGHT PER FT (LBS.)	SUPPORT BRACKET DWG. X-403-0014-2 (A)	GLASTIC SUPPORT DWG. X-403-0009-2/O (B)	GLASTIC SUPPORT DWG. X-403-0009-2/R (C)	VAPOR BARRIER DWG. X-803-0009-2 (W)		WEIGHT PER FT (LBS.)	SUPPORT BRACKET DWG. X-403-0014-2 (A)	GLASTIC SUPPORT DWG. X-403-0012-2/P (B)	GLASTIC SUPPORT DWG. X-403-0012-2/T (C)	VAPOR BARRIER DWG. X-803-0009-2 (W)	
				TYPE										
	AMPERES	BUS DESCRIPTION	MOMENTARY FAULT RATING KA RMS ASY: 58 / 78 / 102 — SYM: 25.81" / 38.71" / 51.61" — SUPPORT SPACING					MOMENTARY FAULT RATING KA RMS ASY — SUPPORT SPACING						
COPPER	6000	(4) .38" X 6.00"	42" / 42" / 42"	162	1	1	1	2	36" / 36" / 36"		1	1	1	1



15KV CROSS SECTION



5KV CROSS SECTION

REV 5

MICROFILMED

REVISIONS			
NO	BY	DATE	
1	KK	3/20/03	REVISED FAULT RATINGS
2	JL	4/22/03	MINOR CHG'S
3	RCH	3-2-06	SHORT CIRCUIT SPACING
4	JAZ	10-20-08	REV'D MOMENTARY SUP'T SPACING PER UL SPEC
5	RDM	9-13-11	CHGD. WEIGHT

DRAWN BY: JWL
DATE: 7/05/01
SCALE: .125=1
CHK'D.
APP'D.

TECHNIBUS®
METAL ENCLOSED BUS SYSTEMS
1501 RAFF RD. SW.
CANTON, OHIO 44710

ORIGINAL PROJECT: SYSTEM NAME:

TITLE
5 & 15KV 6000A AC BUSDUCT NON-VENTED
INDOOR/OUTDOOR 3 PHASE
UL-CROSS SECTION
DWG. No. X-023-0022-2

SEQ.	TYPE	EQP.	MFG.	F. I.	SIZE
X-023-0022-2					2

NOTE:
1200A, 1600A, 2000A, 2500A, 3000A COPPER BUS DUCT ON THIS DRAWING IS UL LISTED.

EPOXY INSULATION TEST 15KV TEST LEVEL .09
EPOXY INSULATION TEST 25KV TEST LEVEL .12
EPOXY INSULATION TEST 38KV TEST LEVEL .18

	AMPRES	FIG.	BUS DESCRIPTION	"D"	"H"	"W"	WT./FT.	SUPPORT SPACING 39 (25.81)	58 (38.71)	78 (51.61)	100 (64.52)	TYPE NUMBER (A) SUPPORT BRACKETS DWG. X-302-0002-2	(B) GLASTIC SUPPORT DWG. X-400-0001-4	(W) 5KV VAPOR BARR. DWG. X-803-0002-2	(D) BUS BAR CUSHION DWG. X-101-0023-1	(W) 15KV SILICONE FIRESTOP DWG. X-803-0006-2	EQUIPMENT TERMINATION DWG. X-109-0018-2	(C) SUPPORT BRACKETS DWG. X-101-0002-4	FOAM CONTAINMENT CHANNEL DWG. X-101-0016-2
COPPER	UL-1200	1	(1) 1/4 x 3	6.75	14	24	34	24	24	24		1		1	2	1	1		1
	UL-1600	1	(1) 1/2 x 3	6.62	14	24	41	36	36	36		1		1	1	1	5		1
	UL-2000	1	(1) 5/8 x 4	7.62	14	27	55	39	39	39		2		4	1	4	8		2
	UL-2500	1	(1) 1/2 x 6	9.62	14	33	64	42	42	42		4		5	1	5	6		4
	UL-3000	1	(2) 3/8 x 6	9.75	14	33	85	48	48	48		4		9	2	9	10		4
	4000	1	(2) 5/8 x 6	9.63	14	33	125	48	48	48	48	4		9	1	9	15		4
	5000	2	(2) 1/2 x 8	12.00	24	39	143	48	48	48	43			12	1	12	13	1	5
ALUMINUM	1200	1	(1) 1/2 x 3	6.62	14	24	30	48	44	31	20	1		1	1	1	5		1
	1600	1	(1) 5/8 x 4	7.62	14	27	34	48	48	36	23	2		4	1	4	8		2
	2000	1	(1) 5/8 x 6	9.62	14	33	41	48	48	46	29	4		5	1	5	9		4
	2500	1	(2) 5/8 x 4	7.62	14	27	44	48	48	48	46	2		7	1	7	14		2
	3000	1	(2) 5/8 x 6	9.62	14	33	55	48	48	48	48	4		9	1	9	15		4

ASM/PRT DWG NO.

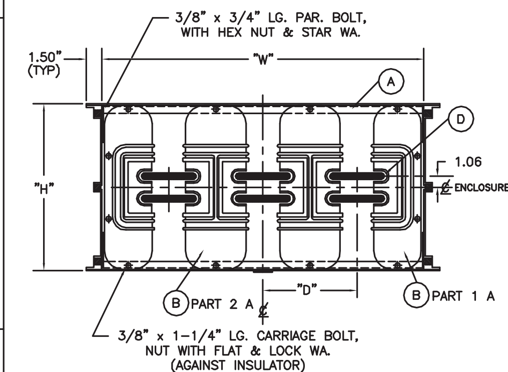
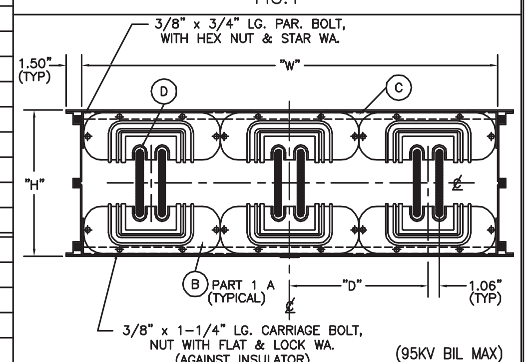


FIG.1



(95KV BIL MAX)

FIG.2

No.	BY	DATE	REVISION
9	RCH	3-10-06	SHORT CIRCUIT SPACING
7	JWL	3-12-03	ADDED CONTAINMENT BRACKET
6	RDM	3-06-03	ADDED BIL NOTE & CHGD LOGO
5	JL	10-29-01	ADDED 4000A & 5000A ALSO UL LABEL
4	KK	7-06-01	REVISED SUPPORT SPACING
3	KK	6-27-01	DELETED 4000A & 5000A INFO.
2	MAB	5-25-00	ADDED 5KV SILICONE VAPOR BARRIER
1	JWL	5-1-98	ADDED 5KV VAPOR BARRIER

No.	BY	DATE	REVISION
11	RDM	9-13-11	CHGD WEIGHTS
10	JAZ	10-20-08	CHGD MOMENTARY SPACING PER UL SPEC
8	RDM	3-19-03	CHGD MOMENTARY

MICROFILMED:
DRN/CHK: DPS
MATERIAL: N/A
DATE: 10/1/93
FINISH: N/A
SCALE: NTS
TITLE: 5 & 15 KV AC BUS DUCT NON-VENTED INDOOR & OUTDOOR 3P 3W CROSS SECTION POLYESTER INSULATORS
APP'D:
DRAWING No: X-027-0001-2
REV: 11

TECHNIBUS® METAL ENCLOSED BUS SYSTEMS
1501 Raff Road SW.
Canton, Ohio 44710

CAD FILE: AT806

NOTE:
1200A, 1600A, 2000A, 2500A, 3000A COPPER BUS DUCT ON THIS DRAWING IS UL LISTED.

EPOXY INSULATION TEST 15KV TEST LEVEL .09
EPOXY INSULATION TEST 25KV TEST LEVEL .12
EPOXY INSULATION TEST 38KV TEST LEVEL .18

								SUPPORT SPACING				ASM/PRT DWG NO. / TYPE NUMBER							
								25.81	38.71	51.61	64.52	(A) SUPPORT BRACKETS DWG. X-302-0002-2	(B) GLASTIC SUPPORT DWG. X-400-0001-4	(W) 5KV VAPOR BARR. DWG. X-803-0002-2	(D) BUS BAR CUSHION DWG. X-101-0023-1	(W) 15KV SILICONE FIRESTOP DWG. X-803-0006-2	EQUIPMENT TERMINATION DWG. X-109-0018-2	(C) SUPPORT BRACKETS DWG. X-101-0002-4	FOAM CONTAINMENT CHANNEL DWG. X-101-0016-2
	AMPRES	FIG.	BUS DESCRIPTION	"D"	"H"	"W"	WT./FT.	39	58	78	100								
COPPER	UL-1200	1	(1) 1/4 x 3	6.75	14	24	34	24	24	24		1		1	2	1	1		1
	UL-1600	1	(1) 1/2 x 3	6.62	14	24	41	36	36	36		1		1	1	1	5		1
	UL-2000	1	(1) 5/8 x 4	7.62	14	27	55	39	39	39		2		4	1	4	8		2
	UL-2500	1	(1) 1/2 x 6	9.62	14	33	64	42	42	42		4		5	1	5	6		4
	UL-3000	1	(2) 3/8 x 6	9.75	14	33	85	48	48	48		4		9	2	9	10		4
ALUMINUM	1200	1	(1) 1/2 x 3	6.62	14	24	30	48	44	31	20	1		1	1	1	5		1
	1600	1	(1) 5/8 x 4	7.62	14	27	34	48	48	36	23	2		4	1	4	8		2
	2000	1	(1) 5/8 x 6	9.62	14	33	41	48	48	46	29	4		5	1	5	9		4
	2500	1	(2) 5/8 x 4	7.62	14	27	44	48	48	48	46	2		7	1	7	14		2
	3000	1	(2) 5/8 x 6	9.62	14	33	55	48	48	48	48	4		9	1	9	15		4

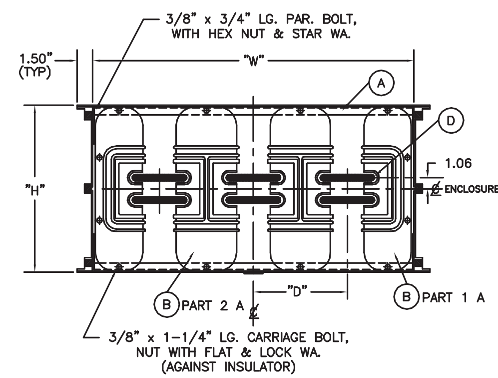


FIG.1

No.	BY	DATE	REVISION
9	RCH	3-10-06	SHORT CIRCUIT SPACING
7	JWL	3-12-03	ADDED CONTAINMENT BRACKET
6	RDM	3-06-03	ADDED BIL NOTE & CHGD LOGO
5	JL	10-29-01	ADDED 4000A & 5000A ALSO UL LABEL
4	KK	7-06-01	REVISED SUPPORT SPACING
3	KK	6-27-01	DELETED 4000A & 5000A INFO.
2	MAB	5-25-00	ADDED 5KV SILICONE VAPOR BARRIER
1	JWL	5-1-98	ADDED 5KV VAPOR BARRIER

No.	BY	DATE	REVISION
12	RDM	9-13-11	REMOVED 4000A AND 5000A
11	RDM	9-13-11	CHGD WEIGHTS
10	JAZ	10-20-08	CHGD MOMENTARY SPACING PER UL SPEC
8	RDM	3-19-03	CHGD MOMENTARY

MICROFILMED:

DRN/CHK: DPS	MATERIAL: N/A
DATE: 10/1/93	FINISH: N/A
SCALE: NTS	TITLE: 5 & 15 KV AC BUS DUCT NON-VENTED INDOOR & OUTDOOR 3P 3W CROSS SECTION POLYESTER INSULATORS
APP'D:	DRAWING No: X-027-0001-2 — REV: 12

TECHNIBUS®
METAL ENCLOSED BUS SYSTEMS
1501 Raff Road SW.
Canton, Ohio 44710

CAD FILE:AT806

NOTE:
1.) NONE OF THE BUS DISCRIBED BELOW IS UL LISTED.
2.) PORCELAIN INSULATORS WERE NOT CERTIFIED IN THESE ARRANGEMENTS.

	AMPRES	FIG.	BUS DESCRIPTION	"D"	"H"	"W"	WT./FT.	SUPPORT SPACING SYM → 25.81	38.71	51.61	64.52	ASM/PRT DWG NO. TYPE NUMBER (A) SUPPORT BRACKETS DWG. X-302-0002-2	(B) GLASTIC SUPPORT DWG. X-101-0002-4	(C) PORCELAIN SUPPORT DWG. X-101-0008-2	(D) BUS BAR CUSHION DWG. X-101-0023-1	(W) 5/15KV SILICONE BARR. DWG. X-803-0006-2	(FF) THRU TYPE PORCELAIN DWG. X-101-0009-2	FOAM CONTAINMENT CHANNEL DWG. X-101-0016-2
COPPER	1200	1	(1) 1/4 x 3	6.75	14	24	34	48	43	32	20	1			2	1	1	1
	1600	1	(1) 1/2 x 3	6.62	14	24	41	48	48	31	20	1			1	1	1	1
	2000	1	(1) 5/8 x 4	7.62	14	27	55	48	48	36	23	2			1	4	2	2
	2500	1	(1) 1/2 x 6	9.62	14	33	64	48	48	46	29	4			1	5	6	4
	3000	1	(2) 3/8 x 6	9.75	14	33	85	48	48	48	48	4			2	9	3	4
	4000	1	(2) 5/8 x 6	9.63	14	33	125	48	48	48	48	4			1	9	3	4
	5000	2	(2) 1/2 x 8	12.00	24	39	143	48	48	48	43		1		1	12	3	5
ALUMINUM	1200	1	(1) 1/2 x 3	6.62	14	24	30	48	44	31	20	1			1	1	1	1
	1600	1	(1) 5/8 x 4	7.62	14	27	34	48	48	36	23	2			1	4	2	2
	2000	1	(1) 5/8 x 6	9.62	14	33	41	48	48	46	29	4			1	5	6	4
	2500	1	(2) 5/8 x 4	7.62	14	27	44	48	48	48	46	2			1	7	5	2
	3000	1	(2) 5/8 x 6	9.62	14	33	55	48	48	48	48	4			1	9	3	4

MICROFILMED:

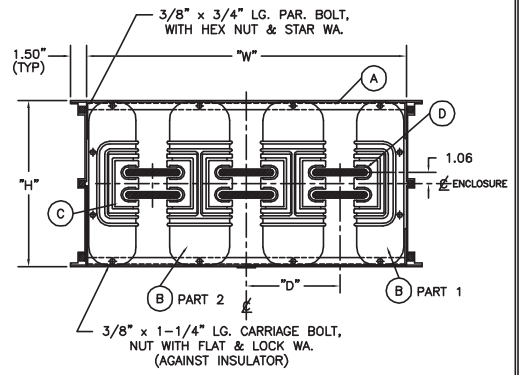
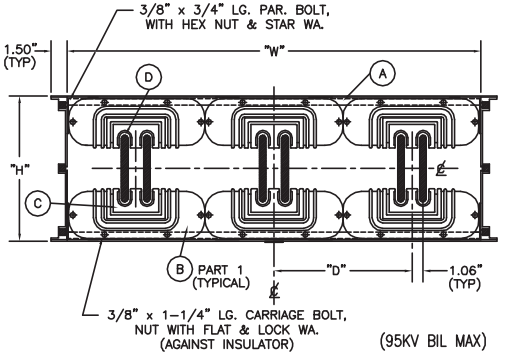


FIG.1



(95KV BIL MAX)

FIG.2

No.	BY	DATE	REVISION
7	RCH	3-2-06	SHORT CIRCUIT SPACING
6	JWL	4/22/03	MINOR CHG'S
5	RDM	3/6/03	ADDED BIL NOTE
4	JL	10/30/01	ADDED 4000A & 5000A INFO.
3	KK	7/06/01	REVISED SUPPORT SPACING
2	KK	6/27/01	DELETED 4000A & 5000A INFO.
1	JWL	12/4/00	REVISED VAPOR BARRIER

DRN/CHK: DPS	MATERIAL: N/A
DATE: 10/1/93	FINISH: N/A
SCALE: NTS	TITLE: 5 & 15 KV AC BUS DUCT NON-VENTED INDOOR & OUTDOOR 3P 3W CROSS SECTION PORCELAIN INSULATOR (NOT UL LISTED)
APP'D:	DRAWING No: X-027-0002-2 REV: 8

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METAL ENCLOSED BUS SYSTEMS
1501 Raff Road SW.
Canton, Ohio 44710

CAD FILE: ATB06