

**AZZ-CALVERT  
ISOLATED PHASE BUS DATA SHEET**

<b>CUSTOMER:</b>	SIGDO KOPPERS	<b>DATE:</b>	25-Apr-08
<b>RFQ NO.:</b>	CENTRAL QUENTEROS	<b>QUOTE NO.:</b>	QI-11063R3
<b>QUOTE BY:</b>	Scott Fleming	<b>FILE NAME:</b>	QI-11063R311

  

GENERATOR/TRANSFORMER UNIT	1	
BUS RUN	1	

  

**A. BUS DESIGN PARAMETERS:**

		English	Metric
1 Maximum Rated Voltage	kiloVolts	17	17
2 Maximum Operating Voltage	kiloVolts	15	15
3 Rated Continuous Current	Amps	7000	7000
4 Basic Impulse Level	kiloVolts	125	125
5 Momentary Current Rating	kAMP-asyM	154	154
6 Momentary Current Rating	kAMP-Peak	260	260
7 Short Time Current Rating	kAMP-sym	100	100
8 Short Time Current Duration	Seconds	1	1
9 System Frequency	Hertz	50	50

  

**B. ENVIROMENTAL PARAMETERS:**

1 Ambient Temperature	Deg-C	40	40
2 Max Allowable Conductor Temp Rise	Deg-C	65	65
3 Max Allowable Conductor Operating Temp	Deg-C	105	105
4 Max Allowable Enclosure Temp Rise	Deg-C	40	40
5 Max Allowable Enclosure Operating Temp	Deg-C	80	80
6 Elevation Above Sea Level	Feet /meters	3280	999.76
7 Solar Station nearest Site		None Applicable	
8 Solar Rerate Temperature	Degrees	77.0F / 25.0C	

  

**C. CONDUCTOR DATA:**

1 Bus Catalog Number		27EAEGB-3	
2 Conductor Material		Extruded Alum. Tube	
3 Conductor Diameter	Inches/mm	8	203.2
4 Conductor Thickness	Inches/mm	0.5	12.7
5 Conductor Cross Sectional Area	SqIn/Sqmm	11.78	7600.61
6 Conductor Weight	Lbs/Ft -kg/m	13.80	20.54
7 Conductor Conductivity	%IACS	0.595	0.595
8 Conductor Emissivity Factor		0.9	0.9
9 Resistivity @ 20C	Microhms/Ft-M	13.6898	44.91
10 Temperature Coefficient of Resistance		0.0040	0.0040
11 D.C.Resistance @20-C	Microhms/Ft-M	1.1620	3.8124
12 D.C.Resistance @105 C	Microhms/Ft-M	1.5571	5.1086
13 Skin Effect Factor @105 C		1.0643	1.0643
14 A.C.Resistance @105 C	Microhms/Ft-M	1.6573	5.4373
15 Conductor to Enclosure Clearance	Inches/mm	8.875	225.4250
16 Base Expansion Temperature	Degree-C	0	0
17 Pitch Circumference	Inches/mm	23.5619	598.4735

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<b>D. ENCLOSURE DATA:</b>			
1 Enclosure Material			Rolled Alum.
2 Enclosure Diameter	Inches/mm	26.125	663.575
3 Enclosure Thickness	Inches/mm	0.1875	4.7625
4 Enclosure Cross-Sectional Area	SqIn/Sqmm	15.28	9857.04
5 Enclosure Weight	Lbs/Ft -kg/m	17.90	26.64
6 Enclosure Conductivity	%IACS	0.57	0.57
7 Enclosure Internal Emissivity Factor		0.9	0.9
8 Enclosure External Emissivity Factor		0.8	0.8
9 Temperature Coefficient of Resistance		0.004	0.004
10 Ratio Enclosure Current to Conductor Current		0.95	0.95
11 Pitch Circumference	Inches/mm	81.4851	2069.7207

  

<b>E. INSULATOR DATA:</b>			
1 Insulator Type			Porcelain Post
2 Insulator Arrangement			Three/Location
3 Recommended Phase-Phase Centers	Inches/mm	39.1875	995.3625
4 Proposed Phase-Phase Centers	Inches/mm	39.1875	995.3625
5 Momentary Short Circuit Force	Lbs/Ft-Kg/M	147.20	219.05
6 Insulator Cantilever Strength	Lbs/kg	2462.87	1117.14
7 Max Spacing due to Insul. Strength	Feet/Meters	38.91	11.86
8 Proposed Insulator Spacing	Feet/Meters	24	7.32

  

<b>F. CALCULATED VALUES:</b>			
1 Max Curent - Bus without Solar Consideration	Amperes		7182
2 Rated Continuous Current	Amperes		7000
3 Cond. Temp Rise @ Rated Current	Deg-C		62.22
4 Cond. Oper. Temp @ Rated Current	Deg-C		102.22
5 Conductor Temp after Short Time Fault Current	Deg-C		104.32
6 Cond. DC Resistance @ 20Deg-C	Microhms/Ft-M	1.1620	3.8124
7 Cond. DC Resistance@ Oper. Temp	Microhms/Ft-M	1.5442	5.0662
8 Skin Effect Factor	Rac/Rdc		1.0655
9 Cond. AC Resistance @ Oper. Temp	Microhms/Ft-M	1.6453	5.3979
10 Conductor Losses @ Rated Current	Watts/Ft-M	80.62	264.4987
11 Enclosure Temp Rise @ Rated Current	Deg-C		26.28
12 Enclosure Oper. Temp @ Rated Current	Deg-C		66.28
13 Enclosure Temp after Short Time Current	Deg-C		67.39
14 Enclosure Losses @ Rated Current	Watts/Ft-M	49.05	160.9237
15 Total I-square x R Losses	Watts/Ft-M	129.67	425.4224
16 Internal Air Temperature @ 7182 Amperes	Deg-C		79.92
17 Inductance	Microhenries,		0.07214
18 Inductive Reactance	Microhms/Ft-M	22.65324	74.3207
19 Inductive Volt Drop	Volt/Ft-M	0.15865	0.5205
20 Capacitance	Picofarads/Ft-M	14.4856	47.5243
21 Impedance	Microhms/Ft-M	22.7129	74.5165
22 Metal Weight	Lbs/Ft -kg/m	31.71	47.19
23 Cond. Expansion from 0 to 102 Degrees C	In/Ft-mm/M	0.02879	0.2229
24 Encl. Expansion from 0 to 66 Degrees C	In/Ft-mm/M	0.01860	0.1440

Dimension	Symbol	Inches	millimeters
Conductor Diameter =	D =	8	203.2
Conductor Thickness =	T =	0.5	12.7
Enclosure Diameter =	D1 =	26.13	663.575
Enclosure Thickness =	T1 =	0.188	4.7625
Phase to Phase Centers =	P1 =	39.19	995.363
Overall Width of 3-Phase Assembl =	OW =	104.5	2654.3
Maximum Insulator Spacing =	IS3 =	288	7315.2
Number Insulators Per Location =	NI =	3	

Bus Catalog Number = 27EAEGB-3      27EAEGB-3

Conductor Termination = 10 750kcmil Rope Lay

Enclosure Expan & Earth Quake = 10 750kcmil Rope Lay

