Kuhlman Electric Corporation

34500 Volt Instrument Transformers

KUHLMAN ELECTRIC CORPORATION

A MEMBER OF THE ABB GROUP

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Dry type: 3022 NC 43 North • Pinetops, NC 27864 • Phone: +1 252 827-3212 • www.abb.com/mediumvoltage
Oil type: 101 Kuhlman Blvd • Versailles, Kentucky 40383 • Phone: +1 859 879-2999 • www.abb.com/highvoltage

SPOF–200 (DB) Voltage Transformer

Outdoor 34.5kV, 200kV BIL, Single & Dual Ratios (w/ Tertiary)
Oil-Filled, Wound Type, Metering/Relaying

34500 Volt
March 2008

application
The SPOF-200 (DB) outdoor voltage transformer is rated for use on 34,500 volt systems with 200kV BIL. Primary voltage ratios are available from 140:1 to 520:1 for use on 34,500 volt systems, at 60 Hertz (Hz). This oil-filled voltage transformer will operate with high accuracy for metering or relay applications.

mechanical description
The tank is a standard distribution transformer tank made of heavy gauge sheet steel with a seam welded bottom plate and a dome shaped cover. The tank is washed and coated with anticorrosive iron phosphate and then finished with a Munsel 70 Gray baked-on electrostatic polyester powder. The primary bushing(s) are high strength porcelain with tin plated bronze, eye bolt terminal(s) that accept #8 - #2 AWG conductors and are locked with silicon bronze locking hardware. The secondary terminals consist of a feed thru block with ¼"-20 copper studs and associated hardware located inside a removable terminal box with three (3) 1 ½" NPT conduit hubs. The ground terminal is a ½"-13 pad. The unit is fitted with a pressure relief valve.

accuracy performance
The SPOF-200 (DB) will operate with 0.3 Class accuracy for metering applications with burdens of 0, W, X, M, Y, Z and ZZ. Upon request, 0.15 metering accuracy is available for burdens of 0, W, X, M, Y and Z, as well as 0.3 ZZ. The transformer is accurate from 90% to 110% of rated primary voltage.

mounting
The SPOF is designed for mounting on poles or substation structures in an upright position with ANSI type "A" hanger brackets or optional mounting feet.

testing
The unit is individually tested per the IEEE C57.13 standard, including applied and induced voltage, accuracy and polarity. Additional tests include dissipation and partial discharge tests. Partial discharge testing is performed to guarantee the unit is free of partial discharge through 135% of the nominal system voltage.

options
The SPOF is available in single or double bushing models, with NEMA 4-hole Primary Terminal(s), Mounting Feet, a 5kV H_0 Bushing, Stainless Steel Tank, Oil Level Gauge, Oil Drain Valve, and/or -50°C oil. Contact factory for other needs.

ORDERING INFO FOR SPOF-200 (DB)

Ratio	Primary	Secondary	Catalog Number		Accuracy/ Burden
			1 Bushing	2 Bushing	
127/220:1:1	15240	120/69.3 & 120/69.3	G830220TA	--	0.3 0 to Z/ZZ
140/240:1:1	16800	120/70 & 120/70	G830240TA	--	0.3 0 to Z/ZZ
175/300:1:1	20125	115/67.08 & 115/67.08	G830300TA	G840300TA	0.3 0,W,X,M,Y,Z,ZZ
300/520:1:1	34500	115/66.4 & 115/66.4	--	G840520TA	0.3 0,W,X,M,Y,Z,ZZ

HIGH ACCURACY SPOF-200 (DB)

Catalog Number	Accuracy/ Burden
Add "AAEW" to the end of the std cat #	0.15 0 to Y/Z 0.15 0 to Y/Z 0.15 0 to Z, 0.3 ZZ 0.15 0 to Z, 0.3 ZZ

- Thermal Burden Rating (Typical): 5000VA.
- Overvoltage Rating: 1.1x cont., 1.9x 8 hours (single bushing designs).

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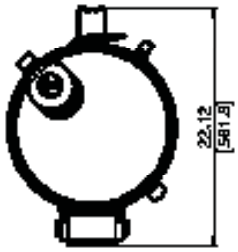
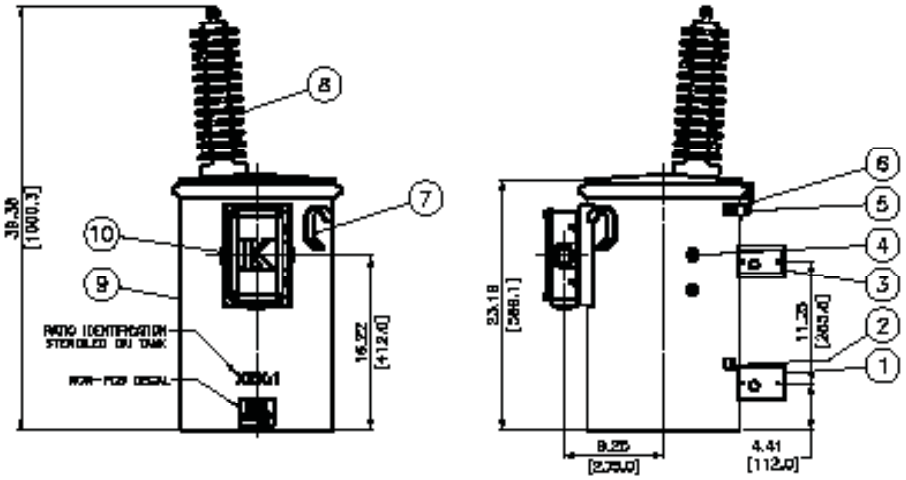
SPOF–200 (DB) Voltage Transformer

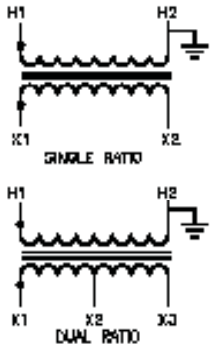


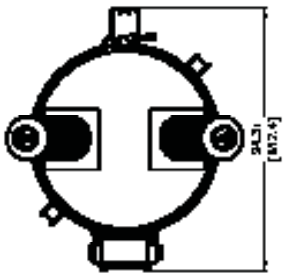
ITEM	DESCRIPTION	QTY
10	SEC. TERM. BOX W/3–1 1/2" NPT HUBS	1
9	16" DIA TANK	1
8	HV BUSHING, MUNSEL 70 GLAZE PORCELAIN	1
7	LIFT EARS	2
6	TANK COVER GROUNDED TO TANK	1
5	PRESSURE RELIEF VALVE	1
4	1/2–13 FLANGE FOR LIGHTNING ARRESTOR	4
3	BAR–CODED NAMEPLATE	1
2	1/2–13 GROUND PAD	1
1	HANGER BRACKETS	2

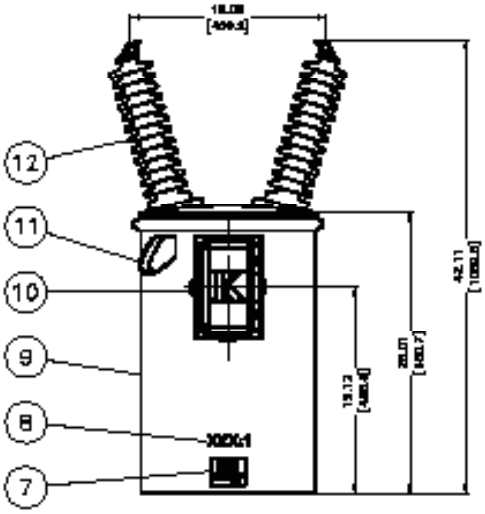
NOTES:
1. THREE WEATHERPROOF BLANKING PLUGS ARE FURNISHED IN THE TERMINAL BOX.
2. SECONDARY TERMINALS ARE 1/4–20 COPPER STUDS WITH LOCK WASHERS & HEX NUTS.
3. ALL DIMENSIONS ARE INCHES [mm].

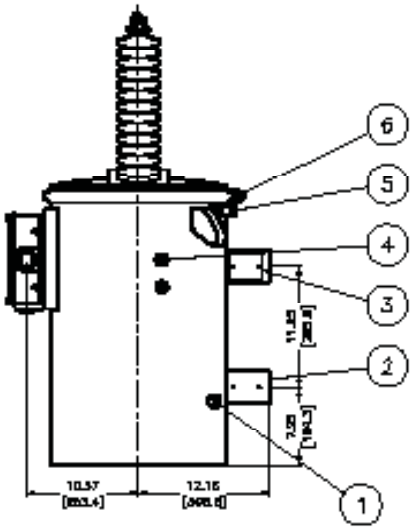
SPECIFICATIONS:
1. APPROX. NET WEIGHT ––258 LBS (116 kg).
2. APPROX. OIL–––––––––13 GAL (48 liters).
3. BUSHING CREEPAGE ––––30.40" (772mm) MIN
4. BUSHING STRIKE ––––––14.28" (363mm) MIN











NOTES:
1. THREE WEATHERPROOF BLANKING PLUGS ARE FURNISHED IN THE TERMINAL BOX.
2. SECONDARY TERMINALS ARE 1/4–20 COPPER STUDS WITH LOCK WASHERS & HEX NUTS.
3. ALL DIMENSIONS ARE INCHES [mm].

SPECIFICATIONS:
1. APPROX. NET WEIGHT ––320 LBS (145 kg).
2. APPROX. OIL–––––––––17 GAL (64 liters).
3. BUSHING CREEPAGE ––––30.40" (772mm) MIN
4. BUSHING STRIKE ––––––14.29" (363mm) MIN

ITEM	DESCRIPTION	QTY
12	HV BUSHING, MUNSEL 70 GLAZE PORCELAIN	2
11	LIFT EARS	2
10	SEC. TERM. BOX W/3–1 1/2" NPT HUBS	1
9	16" DIA TANK	1
8	RATIO IDENTIFICATION STENCILED ON TANK	1
7	NON–PCB DECAL	1
6	TANK COVER GROUNDED TO TANK	1
5	PRESSURE RELIEF VALVE	1
4	1/2–13 FLANGE FOR LIGHTNING ARRESTOR	4
3	BAR–CODED NAMEPLATE	1
2	HANGER BRACKETS	2
1	1/2–13 GROUND PAD	1

NOTE: OUTLINES ARE FOR REFERENCE ONLY. CONTACT FACTORY FOR ACTUAL DESIGN DRAWINGS.

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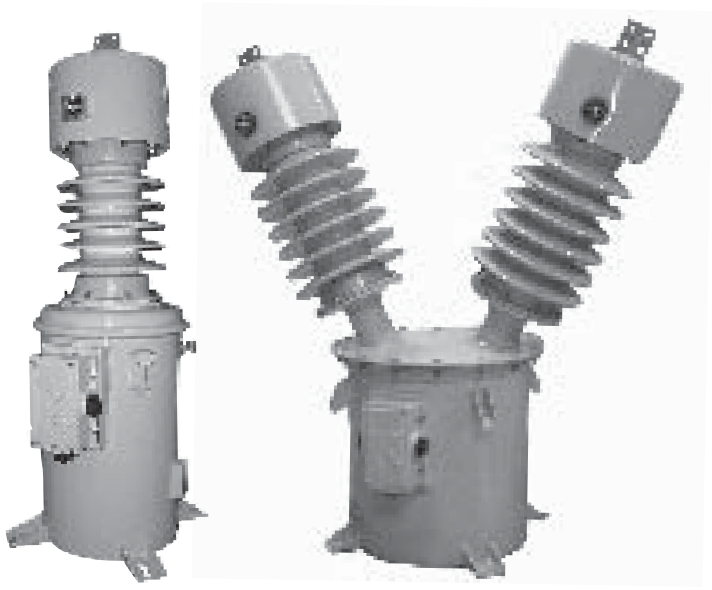
POF–200 (DB) Voltage Transformer

Outdoor 34.5kV, 200kV BIL, Single & Dual Ratios (w/ Tertiary)
Oil-Filled, Wound Type, Metering/Relaying

34500 Volt
March 2008

application

The POF-200 (DB) outdoor voltage transformer is rated for use on 34,500 volt systems with 200kV BIL. Primary voltage ratios are available from 140:1 to 520:1 for use on 34,500 volt systems, at 60 Hertz (Hz). This oil-filled instrument voltage transformer will operate with high accuracy for metering or relay applications.



mechanical description

The tank and expansion chambers are steel plate, pressure and vacuum tight and hermetically sealed at the factory to prevent breathing and oil contamination. Expansion chambers allow for the expansion/contraction of oil for temperature and load fluctuations. Tank components are washed and coated with anticorrosive iron phosphate and then finished with ANSI 70 Gray baked-on electrostatic polyester powder. The primary bushing(s) are ANSI 70 Gray, high strength porcelain with a high degree of stability for transportation and seismic withstand. The primary terminal(s) are stainless steel NEMA 4-hole pad(s). The secondary terminals are ¼"-20 copper studs with associated hardware located inside a removable terminal box with three (3) 1 ½" NPT conduit hubs. The ground terminal is a stainless steel NEMA 2-hole pad. The unit is fitted with a 5kV H_0 Bushing (for single bushing designs), pressure relief valve, oil level indicator, ¾" oil fill plug, and ½" drain valve.

accuracy performance

The POF-200 (DB) will operate with 0.3 Class accuracy for metering applications with burdens of 0, W, X, M, Y, Z and ZZ. Upon request, 0.15 Class metering accuracy is available with burdens of 0, W, X, M, Y and Z, as well as 0.3 ZZ. The transformer is accurate from 90% to 110% of rated primary voltage.

mounting

The POF is designed for mounting on substation structures with mounting feet in an upright position. Single bushing units can be mounted on poles with ANSI type "A" hanger brackets. NOTE: Must be installed per NESC electrical clearances.

testing

The unit is individually tested per the IEEE C57.13 standard, including applied and induced voltage, accuracy and polarity. Additional tests include dissipation and partial discharge tests. Partial discharge testing is performed to guarantee the unit is free of partial discharge through 135% of the nominal system voltage.

options

The POF is available in single or double bushing models, with Extra Creep Bushing(s), Polymer Bushing(s), Stainless Steel Tank, and/or -50°C oil. Contact factory for other needs.

ORDERING INFO FOR POF-200 (DB)

Ratio	Primary	Secondary	Catalog Number		Accuracy/ Burden
			1 Bushing	2 Bushing	
138/240:1:1	16560	120/69 & 120/69	***G710240TA**	--	0.3 0 to Z/ZZ
138/240:1:1	16560 or 28800	120/69 & 120/69 or 120 & 120	--	****G820240TA**	0.3 0,W,X,M,Y,Z
175/300:1:1	20125	115/67.08 & 115/67.08	G710300TA	G820300TA	0.3 0,W,X,M,Y,Z,ZZ
175/300:1:1:1	20125	(3) 115/67.08	TBD	TBD	0.3 0,W,X,M,Y,Z,ZZ
300/500:1:1	34500	115/69 & 115/69	--	G820500TA	0.3 0,W,X,M,Y,Z,ZZ
175/300:1 & 300/520:1	20125 or 34500	115/67.08 & 115 or 115 & 115/66.4	--	G820520TA	0.3 0,W,X,M,Y,Z 0.3 0,W,X,M,Y,Z,ZZ

HIGH ACCURACY POF-200 (DB)

Catalog Number	Accuracy/ Burden
Add "AAEW" to the end of the standard catalog number	0.15 0 to Y/Z
	0.15 0 to Y, 0.3 Z
	0.15 0 to Z, 0.3 ZZ
	0.15 0 to Z, 0.3 ZZ
	0.15 0 to Z, 0.3 ZZ
	0.15 0 to Y, 0.3 Z
	0.15 0 to Z, 0.3 ZZ

- Thermal Burden Rating (Typical): 5000VA. Dual primary units (4000VA L-G, 7000VA L-L).
- Overvoltage Rating: 1.1x cont., 1.9x 8 hours (single bushing desings).
- **IC Approval *(AE-0888), **(AE-0752).**

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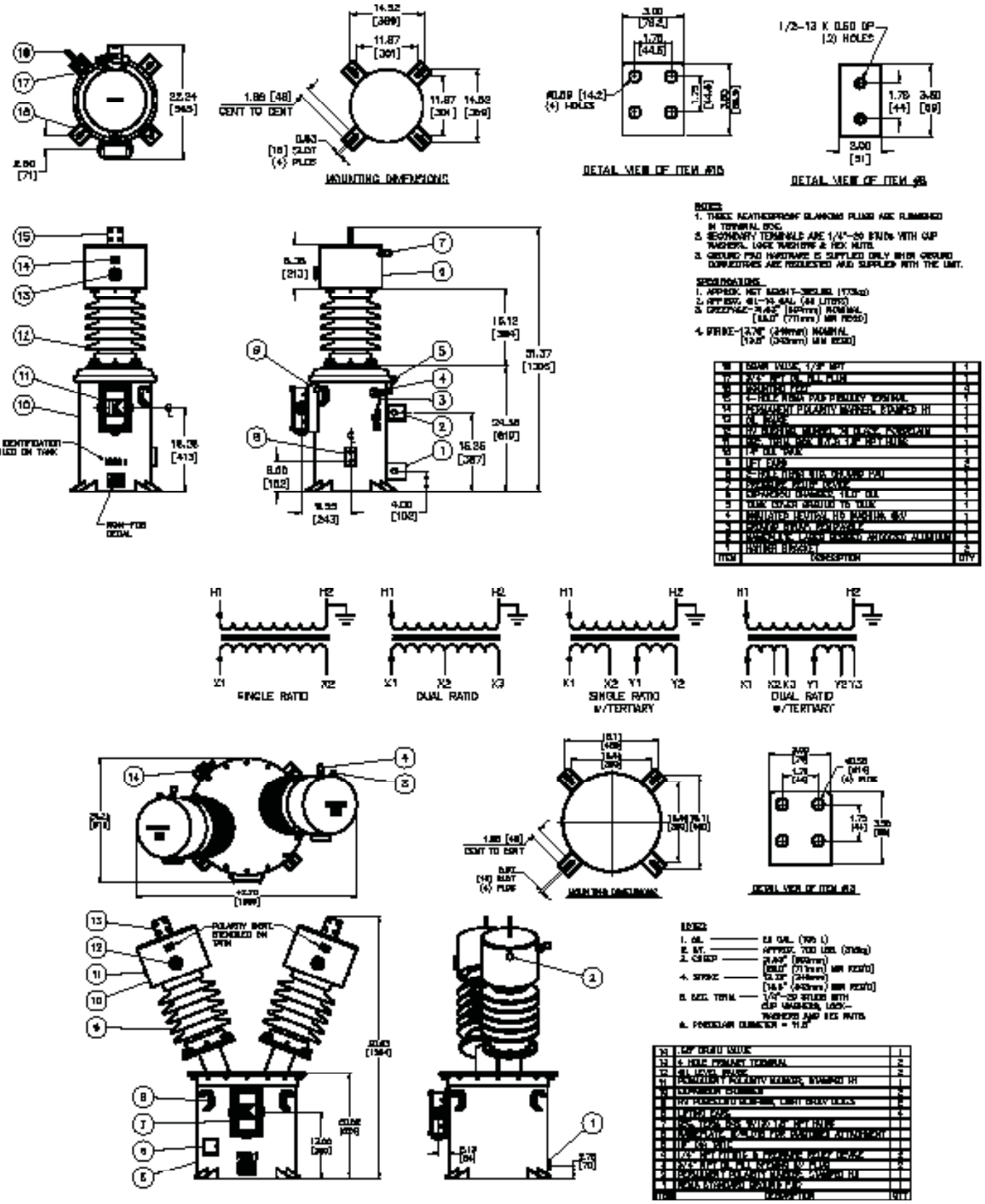
POF–200 (DB) Voltage Transformer



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LG(X)–34–879 Current Transformer

Outdoor 34.5kV, 200kV BIL, Single, Dual & Multi Ratios
Molded Resin, Window Type, Metering/Relaying

34500 Volt
March 2008

application

The LG(X)-34-879 outdoor, window-type current transformer is rated for use on 34,500 volt systems with 200kV BIL. Primary current ratios are available from 200:5 to 10,000:5 at 60 Hertz (Hz) with a Rating Factor of up to 4.0. This dry-type, solid-cast current transformer will operate with high accuracy for metering or relay applications.

mechanical description

The core and coil assembly is wound and encapsulated in a molded cast resin with a 4 ½" window porcelain primary bushing to provide high withstand capabilities. The high strength porcelain has a semi conductive interior with a pigtail lead to be connected to the primary conductor to equalize the voltage and prevent radio interference and corona. An optional primary bus bar with NEMA 4-hole pads can also be provided. The secondary terminals are ¼"-20 copper studs with associated hardware located inside a removable terminal box with two (2) 1" NPT conduit hubs.

accuracy performance

The LG-34-879 will operate with 0.3 Class accuracy for metering with burdens of B0.1 to B1.8 and up to C800 for some relay applications. The transformer is accurate through its Rating Factor, and can be used continuously to this level. The LGX-34-879 will operate with 0.15 Class high accuracy for metering applications with burdens of B0.1 up to B1.8. The transformer maintains 0.3 accuracy from 1% of I_{nom} through its Rating Factor, and can be used continuously to this level (for 0.15 accuracy range, see ratings specific to each ratio).

mounting

The LG is designed for mounting in the upright or underhung position with the tube horizontal, or in the cantilever position with the tube vertical. CAUTION: Do not mount in the cantilever position with the tube horizontal, the base plate can collapse. Mounting holes are punched in the aluminum base plate.

testing

The unit is individually tested per the IEEE C57.13 standard, including applied and induced voltage, accuracy and polarity. Partial discharge testing is performed to guarantee the unit is free of partial discharge through 120% of the nominal system voltage. The unit is tested above operating voltage for traces of corona. A "corona free" label is bonded to the completed transformer as a guarantee of trouble-free service.

options

The LG is available with a primary bus bar kit or conductive bird guards to prevent foreign objects from entering the porcelain window. The unit can be offered in single, dual or multiple core designs. Contact factory for other needs.

ORDERING INFO FOR LG-34-879

Ratio	Catalog Number	Accuracy/Burden		Rating Factor
		Metering	Relay	
200:5	G092015S159-1	0.3 B0.1	C150	2.0
300:5	G093015S209-1	0.3 B0.2	C200	2.0
400:5	G094015S309-1	0.3 B0.5	C300	2.0
600:5	G096015S409-1	0.3 B1.8	C400	2.0
800:5	G098015S609-1	0.3 B1.8	C600	2.0
1000:5	G091025S809-1	0.3 B1.8	C800	2.0
1200:5	G091225S809-1	0.3 B1.8	C800	2.0
1500:5	G091525S809-1	0.3 B1.8	C800	2.0
2000:5	G092025S809-1	0.3 B1.8	C800	2.0
2500:5	G092525S809-1	0.3 B1.8	C800	2.0
3000:5	G093025S809-1	0.3 B1.8	C800	1.5
4000:5	G094025S809-1	0.3 B1.8	C800	1.5
5000:5	G095025S809-1	0.3 B1.8	C800	1.5
6000:5	G096025S809-1	0.3 B1.8	C800	1.5
8000:5	G098025S809-1	0.3 B1.8	C800	1.25
10000:5	G091035S809-1	0.3 B1.8	C800	1.0
200/400:5	G092015D109-1	0.3 B0.5/B0.9	C100/C200	2.0/2.0
300/600:5	G093015D209-1	0.3 B0.5/B1.8	C200/C400	2.0/2.0
400/800:5	G094015D309-1	0.3 B0.9/B1.8	C300/C600	2.0/2.0
600/1200:5	G096015D409-1	0.3 B1.8/B1.8	C400/C800	2.0/2.0
1000/2000:5	G091025D409-1	0.3 B1.8/B1.8	C400/C800	2.0/2.0
1500/3000:5	G091525D809-1	0.3 B1.8/B1.8	C800/C800	2.0/1.5

HIGH ACCURACY LGX-34-879

Catalog Number	0.15/0.3 @ Burden	0.15/0.3 Acc Range	Rating Factor
--	--	--	--
--	--	--	--
G094015X050-1	B0.5/B0.9	400/4 to 1200A	3.0
G096015X090-1	B0.9/B1.8	600/6 to 2400A	4.0
G098015X090-1	B0.9/B1.8	800/8 to 3200A	4.0
G091025X180-1	B1.8	10 to 4000A	4.0
G091225X180-1	B1.8	12 to 4800A	4.0
G091525X180-1	B1.8	15 to 4500A	3.0
G092025X180-1	B1.8	20 to 4000A	2.0
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- Available in multi-ratio designs (full tap ratings same as single ratio above).
- 1 Second Thermal/Mechanical Rating: 80x full winding I_{nom} / Unlimited mechanical.
- Available with a primary bar kit (maximum 5500A). Change last digit of catalog from 1 to 3.

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LG(X)–34–879 Current Transformer

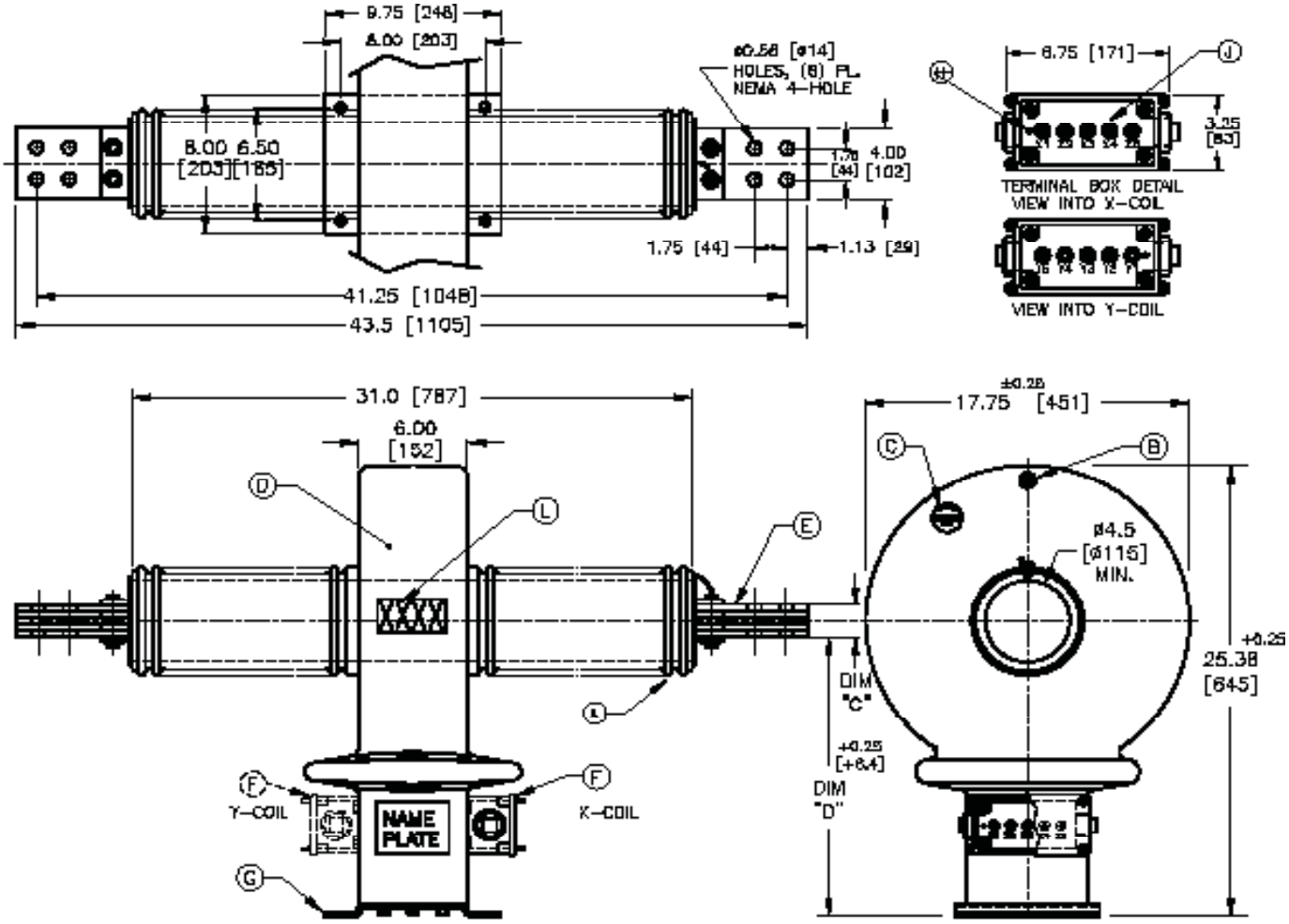


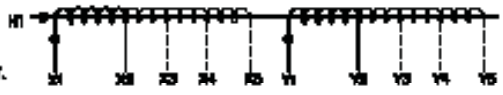
TABLE 1 — PRIMARY BARS

CATALOG NUMBER	MAX. CURRENT AMPERES	BARS	STACK THK DIM. "C"	HT to BASE DIM. "D"	WEIGHT LBS [KG]
424–0175–901	up to 1200 A	1	0.25 [6.4]	16.13 [410]	20 [9]
424–0175–902	1201 – 2500	2	0.75 [19]	15.88 [403]	37 [17]
424–0175–903	2501 – 5600	3	1.63 [41]	15.44 [392]	75 [34]

*CONDUCTIVE BIRD STOPPERS 123–0065–901 FOR PAIR

NOTES: DIMENSIONS IN INCHES [mm]

A. PORCELAIN TUBE, MUNSEL 7D "SKY GREY", INTERIOR IS METALIZED FOR CORONA AND R.I.V. CONTROL.
B. H1 POLARITY MARK IS PERMANENTLY ENGRAVED WHITE DOT.
C. "CORONA FREE" DECAL.
D. CONSTRUCTION: TRANSFORMER CORE/COIL ASSEMBLY IS ENCAPSULATED IN AN OUTDOOR RATED RESIN.
E. PRIMARY BARS ARE COPPER CDA 11000, ELECTRO–TIN FLASH PLATED, MOUNTED IN HIGH VOLTAGE SLEEVE, WITH PIGTAIL LEAD CONNECTED TO CONTROL CORONA AND R.I.V.
F. WEATHERTIGHT CONDUIT BOX WITH (2) 1" [25] NPT HUBS, STRAIGHT THRU, PROVIDED WITH BLANKING PLUGS. A COVER ATTACHED WITH (4) SEALING TYPE THUMB SCREWS.
G. PLAIN FINISH ALUMINUM BASE PLATE, 0.25 [6.4] THICK WITH (4) 0.56 [14.2] DIAMETER HOLES.
H. X1 POLARITY MARK IS PERMANENTLY ENGRAVED WHITE DOT.
J. SECONDARY TERMINALS ARE 1/4–20 STUDS WITH FLAT, LOCK & CUPPED WASHERS, SECURED WITH A HEX NUT. TIGHTEN TO COMPRESS LOCKWASHER ONLY – NOT TO EXCEED 50 in–lbf.
K. NAMEPLATE IS ANODIZED ALUMINUM, AFFIXED TO UNIT.
L. PRIMARY CURRENT DECAL, BOLD YELLOW CHAR 1.5 [38] HIGH.



ELECTRICAL SPECIFICATIONS:
- CREEPAGE: 29 [737]
- STRIKE (to BASE): 18 [457] TYP.

MECHANICAL SPECIFICATIONS:
- THE HIGH VOLTAGE SLEEVE AND ITS BAR ASSEMBLY IS NOT TO BE USED TO SUPPORT THE PRIMARY BUSWORK OR CONDUCTORS.
- MAXIMUM WEIGHT (w/o box):
  SINGLE CORE – 232 lbs [105 kg]
  DUAL CORE – 292 lbs [133 kg]

NOTE: OUTLINES ARE FOR REFERENCE ONLY. CONTACT FACTORY FOR ACTUAL DESIGN DRAWINGS.

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COF(CXM)–200 Current Transformer

Outdoor 34.5kV, 200kV BIL, Single, Dual & Multi Ratios
Oil-Filled, Wound Type, Metering/Relaying

34500 Volt
March 2008

application

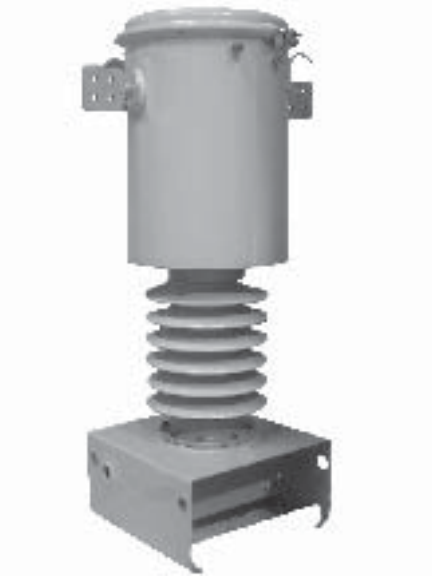
The COF(CXM)-200 outdoor current transformer is rated for use on 34,500 volt systems with 200kV BIL. Primary current ratios are available from 5:5 to 3000:5 at 60 Hertz (Hz) with a Rating Factor of up to 4.0 (3200A max). This oil-filled current transformer will operate with high accuracy for metering or relay applications.

mechanical description

The tank dome is fabricated from carbon or stainless steel, depending on current rating. The units are pressure and vacuum tight and hermetically sealed at the factory to prevent breathing and oil contamination. Tank components are washed and coated with anticorrosive iron phosphate and then finished with ANSI 70 Gray baked-on electrostatic polyester powder. The bushing is ANSI 70 Gray, high strength porcelain with a high degree of stability for transportation and seismic withstand. The primary terminals are tin plated aluminum, NEMA 4-hole pads for units rated ≥400A (copper for units rated ≥2000A) and NEMA 2-hole pads for units rated <400A. A bypass protector is provided for all units rated below 1200:5 to protect from transients. The secondary terminals are #10 slotted screws on a short circuiting terminal block located behind a removable cover in the CT base with three (3) 1 ½" NPT conduit hubs. The ground terminal is a stainless steel NEMA 2-hole pad. The unit is fitted with a pressure relief valve, oil level gauge, and ½" drain valve.

accuracy performance

The COF-200 will operate with 0.3 Class accuracy for metering applications with burdens of B0.1 to B1.8. The unit can be designed with relay accuracy up to C800. The transformer is accurate through its Rating Factor, and can be used continuously to this level. The CXM-200 will operate with 0.15 Class high accuracy for metering applications with burdens of B0.1 to B1.8. The transformer maintains 0.15 Class accuracy from 0.5% of I_{nom} through its Rating Factor, and can be used continuously to this level.



mounting

The COF(CXM) is designed for mounting on substations structures in an upright position with four mounting holes in the base.

testing

The unit is individually tested per the IEEE C57.13 standard, including applied and induced voltage, accuracy and polarity. Additional tests include dissipation and partial discharge tests. Partial discharge testing is performed to guarantee the unit is free of partial discharge through 135% of the nominal system voltage.

options

The COF(CXM) is available with an Extra Creep Bushing, Polymer Bushing, Stainless Steel Tank, 4kV spark gap and/or -50°C oil. The unit can be offered in single, dual or multiple core designs. Contact factory for other needs.

ORDERING INFO FOR COF-200

Ratio	Catalog Number*	Accuracy/ Burden	Rating Factor
5:5	G950005SA	0.3 B1.8	1.5
10:5	G950010SA	0.3 B1.8	1.5
⋮	⋮	⋮	⋮
150:5	G950150SA	0.3 B1.8	1.5
200:5	G950200SA	0.3 B1.8	1.5
⋮	⋮	⋮	⋮
3000:5	G953000SA	0.3 B1.8	1.0
5/10:5	G950010DA	0.3 B1.8/B1.8	2.0/1.5
10/20:5	G950020DA	0.3 B1.8/B1.8	2.0/1.5
⋮	⋮	⋮	⋮
100/200:5	G950200DA	0.3 B1.8/B1.8	2.0/1.5
150/300:5	G950300DA	0.3 B1.8/B1.8	2.0/1.5
⋮	⋮	⋮	⋮
1000/2000:5	G952000DA	0.3 B1.8/B1.8	2.0/1.5
1500/3000:5	G953000DA	0.3 B1.8/B1.8	2.0/1.0

HIGH ACCURACY CXM-200

Catalog Number	0.15 B1.8 Acc Range	Rating Factor
G890005SA	0.025 to 20A	4.0
G890010SA	0.05 to 40A	4.0
⋮	⋮	⋮
G890150SA	0.75 to 600A	4.0
G890200SA	1 to 800A	4.0
⋮	⋮	⋮
G893000SA	15 to 3200A	1.07
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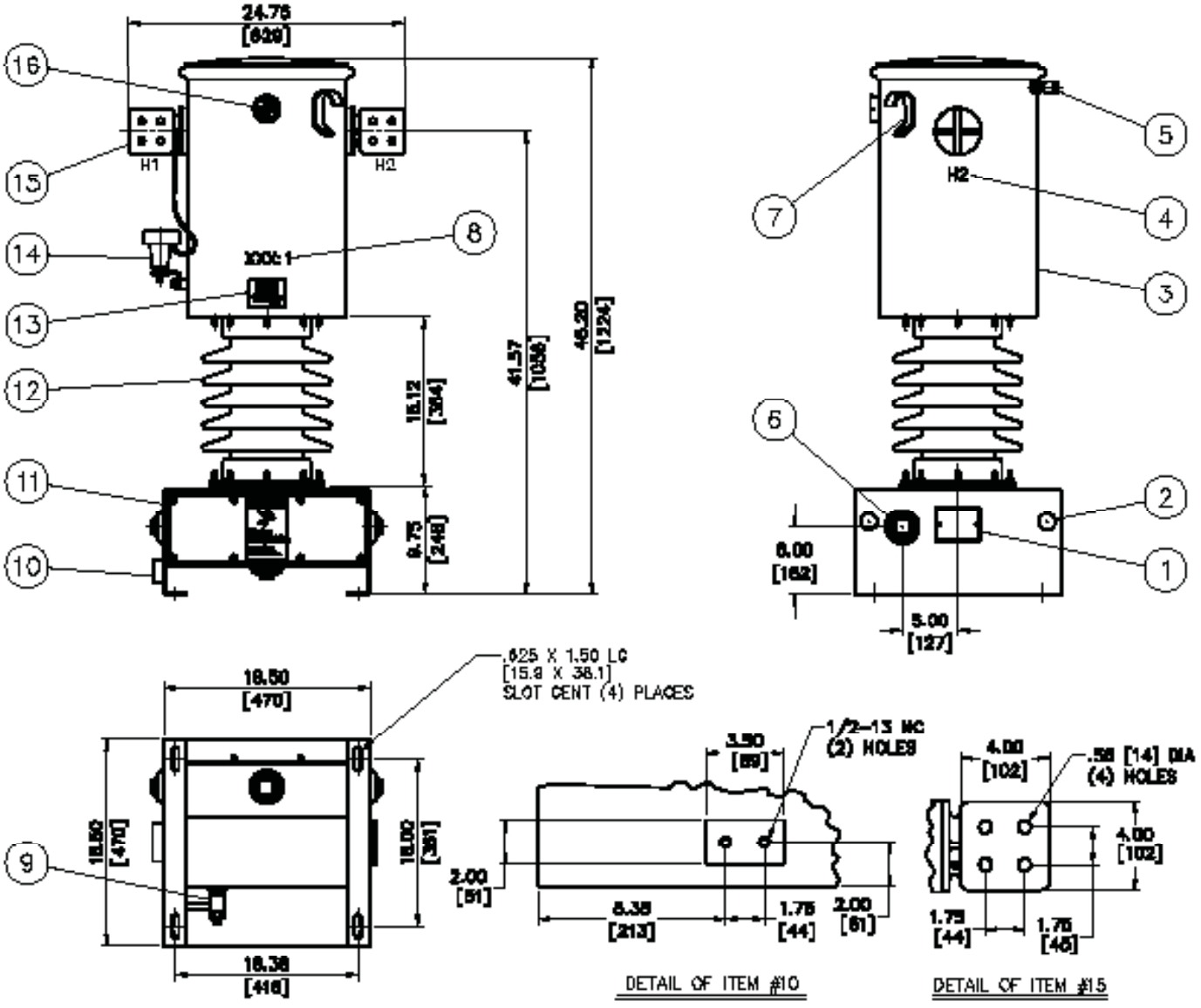
- Available in multi-ratio designs (full tap ratings same as single ratio above).
- 1 Second Thermal/Mechanical Rating: Single Ratio (150x I_{nom}), Dual Ratio (75x full winding I_{nom}), 144kA max.

* IC Approval AE-0600 Rev. 3 for 1200:5 MR.

Dry type: 3022 NC 43 North • Pinetops, NC 27864 • Phone: +1 252 827-3212 • www.abb.com/mediumvoltage
Oil type: 101 Kuhlman Blvd • Versailles, Kentucky 40383 • Phone: +1 859 879-2999 • www.abb.com/highvoltage

COF(CXM)–200 Current Transformer



ITEM	DESCRIPTION	QTY
16	OIL LEVEL GAUGE	1
15	TIN PLATED PRIMARY TERMINAL	2
14	BYPASS PROTECTOR	1
13	NON–PCB DECAL	1
12	PORCELAIN BUSHING, LIGHT GRAY GLAZE	1
11	SECONDARY TERMINAL COMPARTMENT	1
10	NEMA STD. GROUND PAD	1
9	1/2" DRAIN VALVE	1
8	RATIO IDENTIFICATION STENCIL	1
7	TANK LIFTING EAR	2
6	1–1/2" NPT CONDUIT HUBS	3
5	PRESSURE RELIEF VALVE	1
4	POLARITY MARKER STENCIL	2
3	14.0" DIA TANK	1
2	1.5 DIA LIFTING HOLES	4
1	BAR–CODED NAMEPLATE	1

NOTES:

1. ALL DIMENSIONS ARE INCHES WITH MILLIMETERS IN [ ]
2. SECONDARY TERMINALS TERMINATE TO A SHORT CIRCUITING TERMINAL BLOCK PENN UNION TYPE: 6000 SCS

SPECIFICATIONS

1. BUSHING CREEP = 31.63 [803] (28.00 [711] MIN REQ'D)
2. STRIKE DISTANCE = 13.75 [349] (13.5 [343] MIN REQ'D)
3. TOTAL WT: 450 lbs (204kg)
4. OIL VOLUME: 15 GALLONS (57 LITERS)

NOTE: OUTLINES ARE FOR REFERENCE ONLY. CONTACT FACTORY FOR ACTUAL DESIGN DRAWINGS.

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JS(JXM)–200 1 Ø Metering Unit

Outdoor 34.5kV, 200kV BIL, Single, Dual & Multi Ratios
Oil-Filled, Wound Type, 1Ø Metering

34500 Volt
March 2008

application

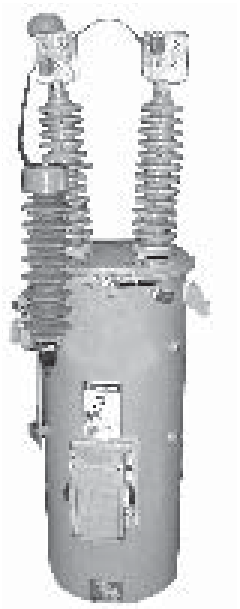
The JS(JXM)-200 outdoor single phase metering unit is rated for use on 34,500 volt systems with 200kV BIL. Primary current ratios are 5:5 to 1200:5 at 60 Hertz (Hz) with a Rating Factor of up to 4.0 (1200A max). Primary voltage ratios are available from 140:1 to 300:1 for use on 34,500 volt, Grd Y systems. This oil-filled metering unit will operate with high accuracy for metering applications.

mechanical description

The tank is a standard distribution transformer tank made of heavy gauge sheet steel with a seam welded bottom plate and a dome shaped cover. The tank is washed and coated with anticorrosive iron phosphate and then finished with an ANSI 70 Gray baked-on electrostatic polyester powder. The primary bushings are ANSI 70 Gray, high strength porcelain with a tin plated bronze, NEMA 1-hole primary terminal. NEMA 4-hole primary terminals are provided for units rated above 200A. A bypass protector is provided for all units rated below 1200:5 to protect from transients. A 5kV H_0 Bushing is included for power factor measurements and is connected to the tank ground, a tin plated bronze eyebolt. The secondary terminals consist of a feed thru block with ¼"-20 copper studs and associated hardware located inside a removable terminal box with three (3) 1 ½" NPT conduit hubs. The unit also includes a pressure relief valve.

accuracy performance

The JS-200 will operate, for the current transformer, with 0.3 Class accuracy for metering with burdens of B0.1 to B1.8. The CT is accurate through its Rating Factor, and can be used continuously to this level. The unit will operate, for the voltage transformer, with 0.3 Class accuracy for metering with burdens of 0, W, X, M, Y, Z and ZZ. The VT is accurate from 90% to 110% of rated primary voltage. The JXM-200 will operate, for the current transformer, with 0.15 Class accuracy for metering with burdens of B0.1 to B1.8. The CT maintains 0.15 Class accuracy from 0.5% of I_{nom} through its Rating Factor, and can be used continuously to this level. The unit will operate, for the voltage transformer, with 0.15 Class accuracy for metering with burdens of 0, W, X, M, Y and Z, as well as 0.3 ZZ. The VT is accurate from 90% to 110% of rated primary voltage.



mounting

The JS(JXM) is designed for mounting on poles or substation structures in an upright position with ANSI type "A" hanger brackets or optional mounting feet. NOTE: Must be installed per NESC electrical clearances.

testing

The unit is individually tested per the IEEE C57.13 standard, including applied and induced voltage, accuracy and polarity. Additional tests include dissipation and partial discharge tests. Partial discharge testing is performed to guarantee the unit is free of partial discharge through 135% of the nominal system voltage.

options

The JS(JXM) is available with Lighting Arrestors, NEMA 4-hole Primary Terminals, NEMA 2-hole Ground Pad, Mounting Feet, Stainless Steel Tank, 4kV Spark Gap, Oil Level Indicator, Oil Drain Valve, and/or -50°C oil. Contact factory for other needs.

ORDERING INFO FOR JS-200		
Voltage Ratings	**Ratio*** - 175:1	**Accuracy/Burden**
	Pri*:Sec - 20125:115	0.3 0,W,X,M,Y,Z,ZZ

HIGH ACCURACY JXM-200
Accuracy/Burden
0.15 0,W,X,M,Y,Z, 0.3 ZZ

Current Ratio	Catalog Number	Accuracy/ Burden	Rating Factor	Catalog Number	0.15 B1.8 Acc Range	Rating Factor
10:5	G80001S17EA	0.3 B1.8	1.5	G79001S17EA	0.05 to 40A	4.0
20:5	G80002S17EA	0.3 B1.8	1.5	G79002S17EA	0.1 to 80A	4.0
⋮	⋮	⋮	⋮	⋮	⋮	⋮
150:5	G80015S17EA	0.3 B1.8	1.5	G79015S17EA	0.75 to 600A	4.0
200:5	G80020S17EA	0.3 B1.8	1.5	G79020S17EA	1 to 800A	4.0
⋮	⋮	⋮	⋮	⋮	⋮	⋮
1000:5	G80100S17EA	0.3 B1.8	1.2	G79100S17EA	5 to 1200A	1.2
1200:5	G80120S17EA	0.3 B1.8	1.0	G79120S17EA	6 to 1200A	1.0
5/10:5	G80001D17EA	0.3 B1.8/B1.8	2.0/1.5	--	--	--
10/20:5	G80002D17EA	0.3 B1.8/B1.8	2.0/1.5	--	--	--
⋮	⋮	⋮	⋮	--	--	--
500/1000:5	G80100D17EA	0.3 B1.8/B1.8	2.0/1.2	--	--	--
600/1200:5	G80120D17EA	0.3 B1.8/B1.8	2.0/1.0	--	--	--

- Available in multi-ratio designs.
- Thermal Burden Rating (Typical): 4000VA. - Overvoltage Rating: 1.1x cont., 1.9x 8 hours.
- 1 Second Thermal/Mechanical Rating: Single Ratio (150x I_{nom}), Dual Ratio (75x full winding I_{nom}), 144kA max.

* Other Primary Voltage Ratings Available, contact factory.

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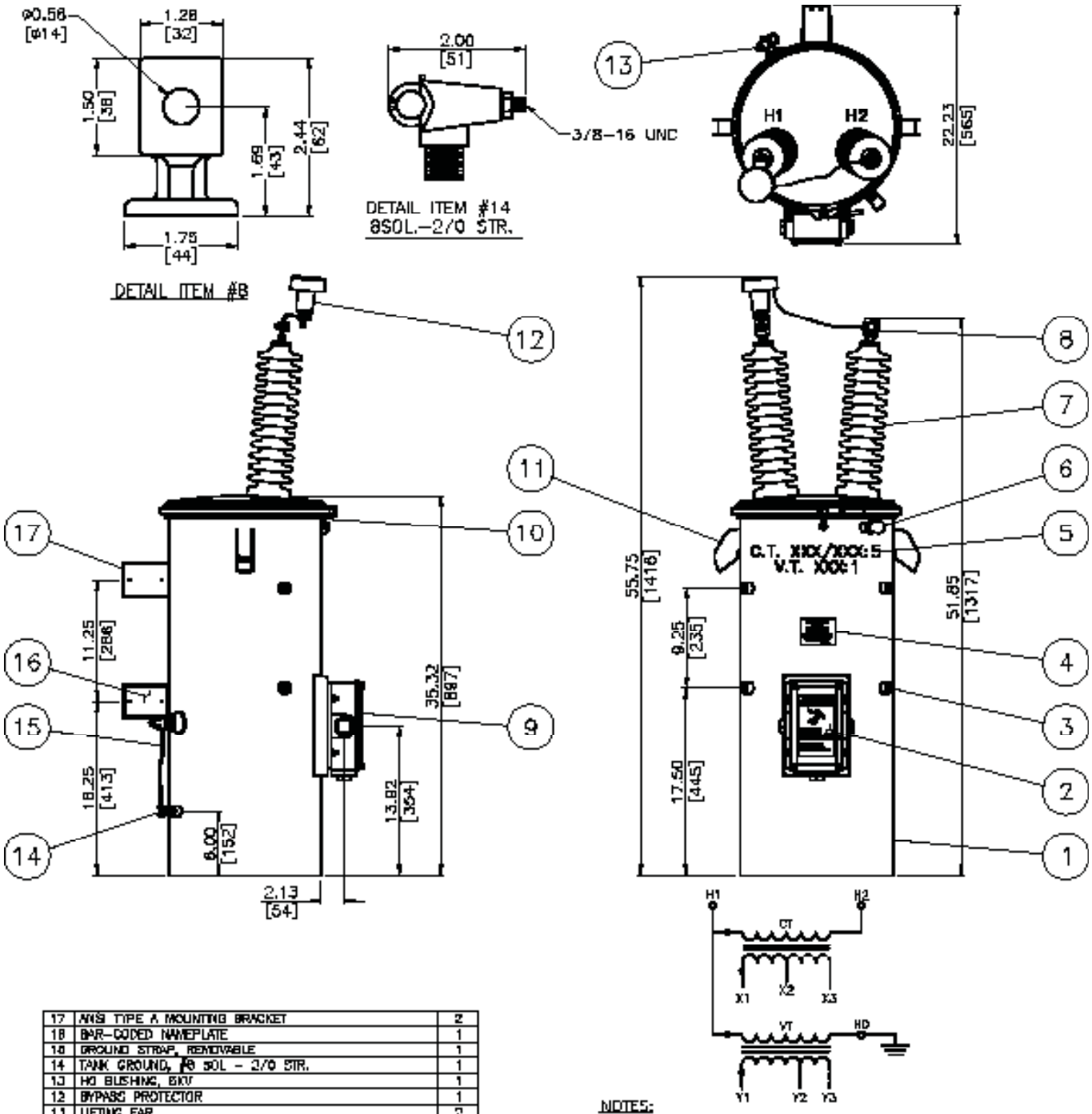
Oil type: 101 Kuhlman Blvd • Versailles, Kentucky 40383 • Phone: +1 859 879-2999 • www.abb.com/highvoltage

JS(JXM)–200 1 Ø Metering Unit



ITEM	DESCRIPTION	QTY
17	ANSI TYPE A MOUNTING BRACKET	2
16	BAR-CODED NAMEPLATE	1
15	GROUND STRAP, REMOVABLE	1
14	TANK GROUND, #8 SOL – 2/0 STR.	1
13	HG BUSHING, BKV	1
12	BYPASS PROTECTOR	1
11	LIFTING EAR	2
10	TANK COVER GROUND TO TANK	1
9	SECONDARY TERMINAL BOX W/3 1-1/2" NPT HUBS	1
8	1 HOLE PRIMARY TERMINAL, NEMA STD, TIN PLATED	2
7	HV BUSHING, MUNSEL 70 GLAZE PORCELAIN	2
6	PRESSURE RELIEF VALVE	1
5	RATIO IDENTIFICATION STENCIL	1
4	NON-PCB DECAL	1
3	LIGHTNING ARRESTOR MTG. LUGS, 1/2-13	4
2	HV WARNING DECAL	1
1	14.0" DIA TANK	1

NOTES:

1. THREE WEATHERPROOF BLANKING PLUGS ARE FURNISHED IN THE TERMINAL BOX.
2. SECONDARY TERMINALS ARE 1/4–20 COPPER STUDS WITH LOCK WASHERS & HEX NUTS.
3. ALL DIMENSIONS ARE INCHES WITH MILLIMETERS IN "[ ]".

SPECIFICATIONS:

1. APPROX. NET WEIGHT ---382 LBS (164 kg).
2. APPROX. OIL----------18 GAL (68 liters).
3. BUSHING CREEPAGE ---30.40" (772mm) MINIMUM
4. BUSHING STRIKE ------14.28" (363mm) MINIMUM

NOTE: OUTLINES ARE FOR REFERENCE ONLY. CONTACT FACTORY FOR ACTUAL DESIGN DRAWINGS.

Dry type: 3022 NC 43 North • Pinetops, NC 27864 • Phone: +1 252 827-3212 • www.abb.com/mediumvoltage
Oil type: 101 Kuhlman Blvd • Versailles, Kentucky 40383 • Phone: +1 859 879-2999 • www.abb.com/highvoltage

MVCT(MXM)–200 3 Ø Metering Unit

Outdoor 34.5kV, 200kV BIL, Single, Dual & Multi Ratios
Oil-Filled, Wound Type, 3Ø Metering

34500 Volt
March 2008

application

The MVCT(MXM)-200 outdoor three phase metering unit is rated for use on 34,5000 volt systems with 200kV BIL. Primary current ratios are 5:5 to 1200:5 for 60 Hertz (Hz) with a Rating Factor of up to 4.0 (1200A max). Primary voltage ratios are available from 140:1 to 520:1 for use on 34,500 volt systems. This oil-filled metering unit will operate with high accuracy for 2, 2 ½ or 3 element metering applications.

mechanical description

The unit is built of heavy walled steel construction similar to proven distribution and small power transformer construction and is strongly braced to withstand both electrical and mechanical stresses. The tank is washed and coated with anticorrosive iron phosphate and then finished with an ANSI 70 Gray baked-on electrostatic polyester powder. The primary bushings are ANSI 70 Gray, high strength porcelain with tin plated bronze, NEMA 4-hole primary terminals. The secondary terminals consist of a feed thru block with ¼"-20 copper studs and associated hardware located inside a terminal box with three (3) 1 ½" NPT conduit hubs. The ground terminal is a stainless steel NEMA 2-hole pad. The unit includes a pressure relief valve, CT by-pass protectors, 5kV H_0 Bushing (for 3P 4W designs), ½" oil drain valve, and a magnetic type oil level gauge which is easily read from a distance.

accuracy performance

The MVCT-200 will operate, for the current transformers, with 0.3 Class accuracy for metering with burdens of B0.1 to B1.8. The CT's are accurate through their Rating Factor, and can be used continuously to this level. The unit will operate, for the voltage transformers, with 0.3 Class accuracy for metering with burdens of 0, W, X, M, Y, Z and ZZ. The VT's are accurate from 90% to 110% of rated primary voltage. The MXM-200 will operate, for the current transformers, with 0.15 Class high accuracy for metering applications with burdens of B0.1 to B1.8. The transformer maintains 0.15 Class accuracy from 0.5% of I_{nom} through its Rating Factor, and can be used continuously to this level. The unit will operate, for the voltage transformers, with 0.15 Class accuracy for metering with burdens of 0, W, X, M, Y and Z, as well as 0.3 ZZ. The VT's are accurate from 90% to 110% of rated primary voltage.

mounting

The MVCT(MXM) is designed for overhead mounting on poles or substation structures in an upright position with ANSI type "C" hanger brackets or four mounting holes in the base. NOTE: Must be installed per NESC electrical clearances.

testing

The unit is individually tested per the IEEE C57.13 standard, including applied and induced voltage, accuracy and polarity. Additional tests include dissipation and partial discharge tests. Partial discharge testing is performed to guarantee the unit is free of partial discharge through 135% of the nominal system voltage.

options

The MVCT(MXM) is available with a Stainless Steel Tank, 4kV Spark Gaps and/or -50°C oil. Contact factory for other needs.

ORDERING INFO FOR MVCT-200		
Voltage	**Ratio*** - 175:1	**Accuracy/Burden**
Ratings	**Pri*:Sec** - 20125:115	0.3 0,W,X,M,Y,Z,ZZ

HIGH ACCURACY MXM-200
Accuracy/Burden
0.15 0,W,X,M,Y,Z, 0.3 ZZ

Current Ratio	Catalog Number (3P 4W)**	Accuracy/ Burden	Rating Factor
10:5	G88001S17CA	0.3 B1.8	1.5
20:5	G88002S17CA	0.3 B1.8	1.5
⋮	⋮	⋮	⋮
150:5	G88015S17CA	0.3 B1.8	1.5
200:5	G88020S17CA	0.3 B1.8	1.5
⋮	⋮	⋮	⋮
1000:5	G88100S17CA	0.3 B1.8	1.2
1200:5	G88120S17CA	0.3 B1.8	1.0
5/10:5	G88001D17CA	0.3 B1.8/B1.8	2.0/1.5
10/20:5	G88002D17CA	0.3 B1.8/B1.8	2.0/1.5
⋮	⋮	⋮	⋮
500/1000:5	G88100D17CA	0.3 B1.8/B1.8	2.0/1.2
600/1200:5	G88120D17CA	0.3 B1.8/B1.8	2.0/1.0

Catalog Number (3P 4W)	0.15 B1.8 Acc Range	Rating Factor
G86001S17CA	0.05 to 40A	4.0
G86002S17CA	0.1 to 80A	4.0
⋮	⋮	⋮
G86015S17CA	0.75 to 600A	4.0
G86020S17CA	1 to 800A	4.0
⋮	⋮	⋮
G86100S17CA	5 to 1200A	1.2
G86120S17CA	6 to 1200A	1.0
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- Available in multi-ratio designs.
- Thermal Burden Rating (Typical): 6000VA (2000VA/phase). - Overvoltage Rating: 1.1x cont., 1.9x 8 hours (3P 4W).
- 1 Second Thermal/Mechanical Rating: Single Ratio (150x I_{nom}), Dual Ratio (75x full winding I_{nom}), 144kA max.

* Other Primary Voltage Ratings Available, contact factory. ** For 3P 3W, change catalog digits "88" to "87".

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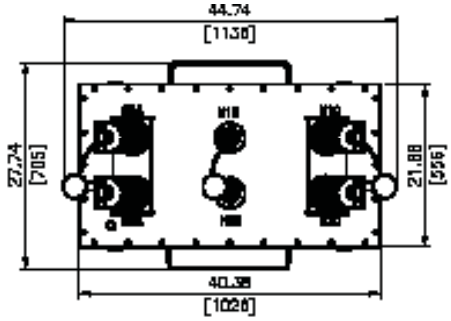
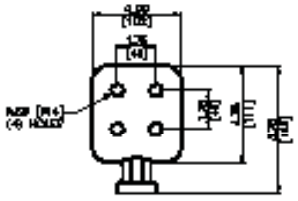
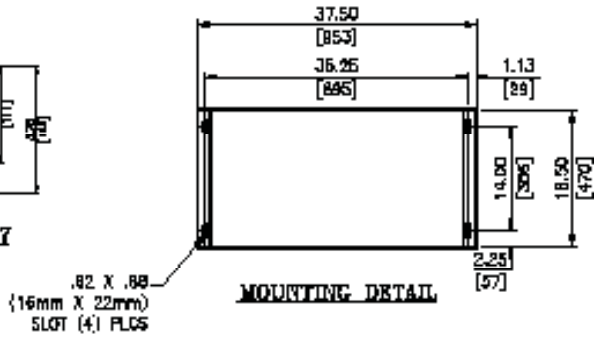
MVCT(MXM)–200 3 Ø Metering Unit



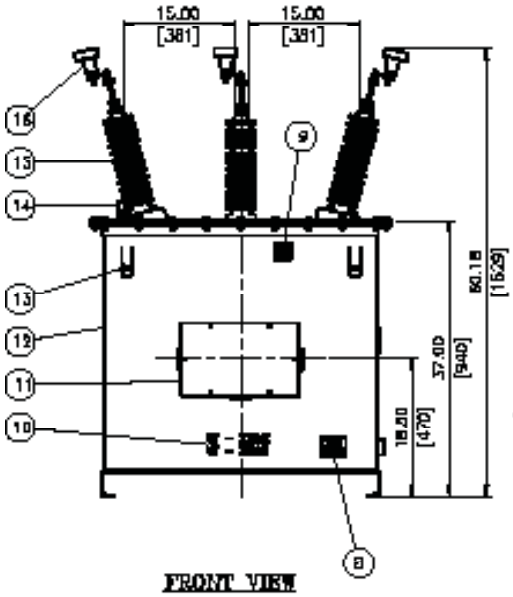
TOP VIEW



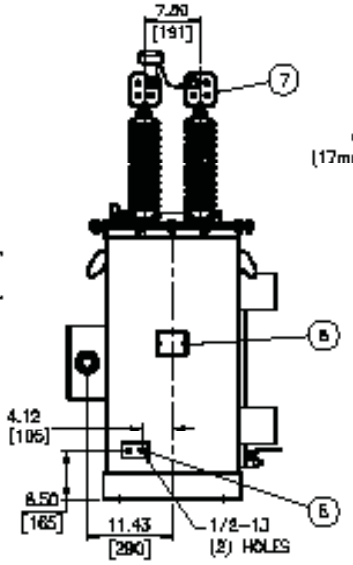
DETAIL OF ITEM #7



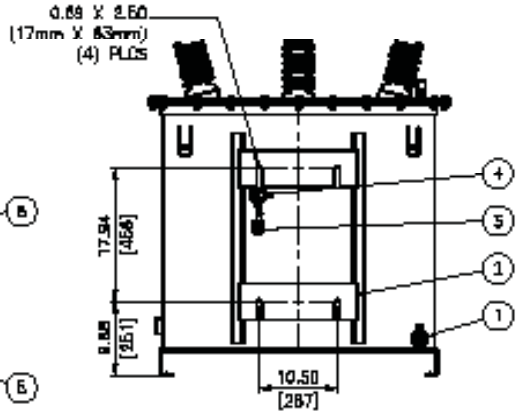
MOUNTING DETAIL



FRONT VIEW

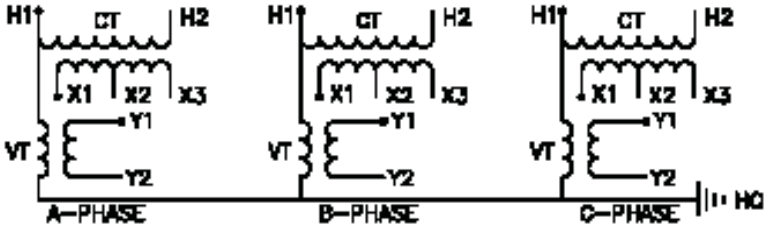


RIGHT SIDE VIEW



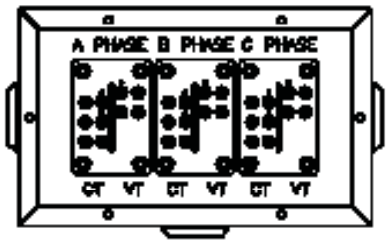
HANGER BRK DETAIL

ITEM	DESCRIPTION	QTY
16	BY PASS PROTECTOR	3
15	HV BUSHING–LIGHT GRAY GLAZE 200KV BIL	6
14	PRESSURE RELIEF DEVICE	1
13	LIFT EAR	4
12	TANK	1
11	SEC. TERM. BOX WITH THREE 1-1/2" NPT HUBS	1
10	CT/VT RATIO STENCIL	1
9	MAGNETIC OIL GAUGE	1
8	NON-PCB DECAL	1
7	4 HOLE PRIMARY TERMINAL NEMA STD. TIN PLATED	6
6	BAR CODED NAMEPLATE	1
5	NEMA TWO HOLE GROUND PAD	1
4	INSULATED NEUTRAL HD BUSHING, 5kV	1
3	GROUND STRAP, REMOVABLE	1
2	HANGER BRACKET, "L" TYPE	2
1	DRAIN VALVE, 1/2" NPT	1



NOTES:
1. THIS UNIT IS DESIGNED FOR POLE MOUNTED ARRANGEMENT, OR SITTING ON A PLATFORM WITH THE BASE BOLTED OR CLAMPED TO THE PLATFORM.
2. THREE WEATHERPROOF BLANKING PLUGS ARE FURNISHED IN THE TERMINAL BOX.
3. SECONDARY TERMINALS ARE 1/4–20 COPPER STUDS WITH LOCK WASHERS & HEX NUTS.
4. ALL DIMENSIONS ARE INCHES WITH MILLIMETERS IN [ ].

SPECIFICATIONS:
1. APPROX. NET WEIGHT————1400 lbs (635 kg)
2. APPROX. OIL ————————60 GAL (227 liters)
3. BUSHING CREEPAGE————30.40" (772 mm) MINIMUM
4. BUSHING STRIKE————14.29" (363 mm) MINIMUM
5. NBV ————————————34.5 KV
6. BIL ————————————200 KV
7. PHASE–PHASE CLEARANCE——15.00" (381 mm) ANSI REQ'D 13.00" (330 mm) MIN



TERMINAL BLOCK ARRANGEMENT
(FOR REFERENCE ONLY, SEE NAMEPLATE DRAWING)

NOTE: OUTLINES ARE FOR REFERENCE ONLY. CONTACT FACTORY FOR ACTUAL DESIGN DRAWINGS.

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