



TERREBONNE PARISH
CONSOLIDATED GOVERNMENT

P.O. BOX 2768 • HOUMA, LOUISIANA 70361
985-868-5050 • WWW.TPCG.ORG



February 13, 2023

Sent Via: Email, Central Auction House & TPCG Website

To All Bidders,

RE: Addendum #1 for Bid 23-WHSE-11 Purchase of New/Unused Transformers for Warehouse Inventory

This letter is considered Addendum #1 for the above referenced bid. Any changes, deletions, and/or additions made by addenda shall take precedence over information in the original document. This addendum is to inform you of the following:

- The bid opening date for the above referenced is moved to March 1, 2023
 - The bid place and time remain the same
- Add the following sheets (pages 17-35) to include the specifications for this bid

If you have already submitted your bid through Central Auction House (CAH), you must return to your submittal to acknowledge this addendum. If you have not submitted your bid, you will be prompted to acknowledge any addenda during the submittal process. **Failure by a Bidder to acknowledge each individual addendum shall render your company's bid as non-responsive.** If you should have any questions or require additional information do not hesitate to contact me 985-580-7272.

Sincerely,

Gina Bergeron

A handwritten signature in cursive script, appearing to read "Gina Bergeron".

Purchasing Division
Terrebonne Parish Consolidated Government

gmb/

cc:
Parish Administration/ File Copy
Sharon Ellis, Purchasing Manager
Kandace Mauldin, Chief Financial Officer
Council Reading File
Bid File

**DETAILED SPECIFICATIONS
FOR
THREE PHASE DISTRIBUTION TRANSFORMER – PAD MOUNT**

I. GENERAL

These specifications are intended to describe a transformer which will perform the functions described in these specifications and will be designed and constructed in accordance with the generally accepted engineering, manufacturing and operating practices observed in the electric utility industry. These transformers shall meet all requirements of the latest applicable American National Standard Institute (ANSI), American Society of Testing and Materials (ASTM), Institute of Electrical and Electronic Engineers (IEEE), and the National Electrical Manufacturers Association (NEMA) standards. These transformers shall be three-phase, 60 hertz, oil filled, self-cooled, compartmental, pad mount type distribution transformers, rated from 150kVA through 2,000kVA. The transformer oil must not contain PCBs.

II. RATINGS

These transformers shall be rated at 13,800GRDY/7,970 volts on the primary side. The BIL shall be 95kV on the primary side and 30kV on the secondary side. Transformer kVA ratings shall be 150, 300, 500, 750, and 1,000 for the 120/240, 208/120-volt class and 300, 500, 750, 1,000, 1,200, 1,500, and 2,000 for the 480/277-volt class as noted on the bid. KVA ratings are continuous and based on not exceeding either a 65-degree Centigrade average winding temperature rise, or an 80-degree Centigrade hot spot temperature rise above a 40-degree Centigrade ambient temperature. Transformer impedance shall be 5.75% ($\pm 10\%$) for sizes 750 to 2,000 kVA. (Not specified for 75 to 500 kVA).

III. CONSTRUCTION

These transformers shall be provided with a five (5) legged wound core. Stacked cores will not be accepted. All transformers are to have four (4) 2-1/2" high voltage taps, 2 above and 2 below rated voltage. The tap changer shall be externally operable. A dead front design shall be utilized. The transformer tank and door(s) shall be of a tamper resistant design as per the latest Western Underground Committee Guide. The unit shall be suitable for mounting on a pad with no additional protective housing. There shall be no exposed screws, bolts, or other fastening devices, which may be externally removed. There shall be no opening through which foreign objects such as sticks, rods or wires might be inserted to contact live parts.

The termination compartment shall be divided into two sections that are separated by a metal barrier. The low voltage section shall be on the right side when facing the transformer. The transformer must be capable of being padlocked and it must have a recessed captive one-half inch (1/2") penta-head bolt to further secure the unit. The tank shall be fabricated from a minimum of 12-gauge steel and the door(s) from 14-gauge, minimum. The door(s) must be easily removable, but only in the completely open position.

Construction of the unit shall be such that it can be lifted, skidded, and slid into place on the mounting pad without disturbing the entrance cables. The unit shall be provided with externally welded or bolted lifting flanges, so arranged to provide a balanced total transformer lift.

All transformers shall have a pressure relief valve that is rated for 15 PSI with a flow rate of 50 SCFM minimum as specified by ANSI. The valve shall vent into the terminating compartment. The valve shall have a retained pop-off cap to indicate that the valve has operated. The valve shall be a Beta 1750K-5 or equivalent. The transformer tank shall have two (2) one-half inch (1/2") tapped ground pads that are welded to the tank with a continuous seam. The pads shall be located below the high and low voltage bushings. Standard eyebolt grounding lugs shall be provided with the pads.

All three phase transformers shall have a one inch (1") drain valve with a built-in sampling device.

IV. BUSHINGS

The primary side of the transformer shall have six (6) 15kV load break, universal bushing wells and bushing inserts installed in a loop feed design. One-piece bushing wells/inserts are not acceptable. The bushing inserts must be compatible with either RTE or Elastimold load break elbow terminators. A terminator-parking stand shall be included between the high voltage bushings. Staggered required on low voltage bushing for three phase transformers.

The secondary side of the transformer shall have four (4) 600-volt bushings. The bushing shall consist of an epoxy insulator that is bolted to the tank front or a notched epoxy insulator that is held in place by a keyed, spade type connector, which extends from the tank. The bushings can be changed out without entering the tank. The bushings shall be made of tin-plated copper pads.

V. TAPS

All transformers shall have four (4) 2 1/2" high voltage taps, two (2) above and (2) below rated voltage. The tap changer shall be externally operable.

VI. PAINTING

All transformers shall be painted a Munsell green color in strict accordance with the latest Edison Electric Institute (EEI) guidelines for pad-mounted equipment. The contractor shall submit certification that these specifications have been met, upon request.

VII. FUSING

A bayonet type transformer fuse shall be included. This fuse shall be externally removed. A drip shield shall be provided directly beneath the bayonet to prevent oil from falling on high voltage terminations. The transformer shall be fused with the appropriate fuse link.

VIII. DIMENSIONS

The minimum secondary compartment cable opening shall be 24" wide by 19" deep. For other dimensions, see the attached diagram.

IX. IDENTIFICATION

All transformers shall have the kVA size, in three-inch (3") letters, located on the front of the transformer door. Safety labels shall be affixed to the transformer in accordance with the latest NEMA specifications. The transformer shall have a nameplate in accordance with the ANSI/IEEE located on the inside compartment area that is visible when the compartment has all cables in place. The attached transformer warning label should also be affixed to the transformer prior to delivery.

Terminal designation shall be as defined by ANSI and shall be marked on the transformer tank.

X. TESTING

Routine tests on all transformers shall be conducted as specified in ANSI/IEEE Standard C57.12.90-1993. Dielectric and impulse tests must be conducted as specified by ANSI/IEEE. A certified copy of actual test values shall be submitted on the transformer before shipment to: **Terrebonne Parish Consolidated Government, Attn. Electric Distribution Superintendent, 301 Plant Road, Houma, Louisiana 70363.**

Test data shall include, but not necessarily be restricted to the following:

No load losses; Full load losses; Regulation at 100% power factor; Regulation at 80% power factor; Percent resistance; Percent impedance; Top oil temperature rise at full load.

XI. SHIPPING

Transformers shall be shipped on individual pallets and secured with a banding strap connected to the lifting lugs. **Transformers shall be "side loaded" on flatbed truck or trailer. The flatbed truck or trailer shall permit unloading from sides and back. Box trailers shall be permitted; however, the vendor shall make provisions to conveniently place the transformers at the rear of the box trailer to allow customer unloading with forklift.**

XII. WARRANTY

The manufacturer's warranty shall apply for one (1) year. The effective period of warranty shall commence when the purchaser installs the transformer, but the period from the time of receipt by the purchaser to the commencement of the warranty shall not exceed six (6) months.

XIII. DATA

Bidders shall provide the following upon request:

Manufacturer's specifications: detailed description and drawings, which shall include dimensions, size, capacity, weight, etc.; Guaranteed Test Data; Guaranteed Performance Data sheets.

XIV. GUARANTEED PERFORMANCE DATA

Bidders shall be required to submit all the Guaranteed Performance Data, for transformers they bid, as described below upon request.

GUARANTEED PERFORMANCE DATA (DESCRIPTION):

1. No load losses (watts) per transformer at rated voltage.

2. Total losses (watts) per transformer at rated voltage and current to 85 degrees Centigrade (total temperature).
3. Regulation at 100% power factor (%).
4. Regulation at 80% power factor (%).
5. Full load resistance on rated kVA base (%) corrected to 85 degrees C.
6. Full load reactance on rate kVA base (%).
7. Full load impedance on rated kVA base (%).
8. Temperature guarantee based on full load and ambient air temperature of 100 degrees F.
9. Net weight (lbs.)
10. Shipping weight (lbs.)
11. Exciting current at rated voltage (amps).

TABLE 1
Three Phase Transformer Bay-o-net Fusing Chart

Transformer Size (kVA)	13.2 Fuse Catalog Number	24.9 kV Fuse Catalog Number	Manufacturer
150	4000358C08	4000358C05	RTE
300	4000358C10	4000358C10	RTE
500	4000385C12	4000358C10	RTE
750	4000358C14	4000358C12	RTE
1,000	4000358C14	4000358C12	RTE
1,200	4000358C14	4000358C12	RTE
1,500	4000358C16	4000358C12	RTE
2,000	4000358C16	N/A	RTE

NOTE: Alternate manufacturers must be truly equivalent to be acceptable

**DETAILED SPECIFICATIONS
FOR
SINGLE PHASE DISTRIBUTION TRANSFORMER – PAD MOUNT**

I. GENERAL

These specifications are intended to describe a transformer which will perform the functions described in these specifications and will be designed and constructed in accordance with the generally accepted engineering, manufacturing and operating practices observed in the electric utility industry. These transformers shall meet all requirements of the latest applicable American National Standard Institute (ANSI), American Society of Testing and Materials (ASTM), Institute of Electrical and Electronic Engineers (IEEE), and the National Electrical Manufacturers Association (NEMA) standards. These transformers shall be single-phase, 60 hertz, oil filled, self-cooled, and compartmental, pad mount type distribution transformers, rated from 50kVA through 250kVA. The transformer oil must not contain PCBs.

II.RATINGS

These transformers shall be rated at 13,800 GRDY/7970 volts on the primary side 240/120 volts on the secondary side. The BIL shall be 95kV on the primary side and 30kV on the secondary side.

Transformer KVA ratings shall be 50, 75, 100, 167, and 250 or as noted on the bid. KVA ratings are continuous and based on not exceeding either a 65-degree Centigrade average winding temperature rise, or an 80-degree Centigrade hot spot temperature rise above a 40-degree Centigrade ambient temperature. Maximum transformer impedance shall be 2.7%.

III. CONSTRUCTION

These transformers shall be a dead front design. The transformer tank and door(s) shall be of a tamper resistant design as per the latest Western Underground Committee Guide. The unit shall be suitable for mounting on a pad with no additional protective housing. There shall be no exposed screws, bolts, or other fastening devices, which may be externally removed. There shall be no opening through which foreign objects such as sticks, rods or wires might be inserted to contact live parts.

The transformer must be capable of being padlocked and it must have a recessed captive one-half inch (1/2") penta-head bolt to further secure the unit. The tank shall be fabricated from a minimum of 12-gauge steel and the door(s) from 14-gauge, minimum. The door(s) must be easily removable, but only in the completely open position. Construction of the unit shall be such that it can be lifted, skidded and slid into place on the mounting pad without disturbing the entrance cables. The unit shall be provided with externally welded or bolted lifting flanges, so arranged to provide a balanced total transformer lift.

All transformers shall have a pressure relief valve that is rated for 15 p.s.i. with a flow rate of 50 SCFM minimum as specified by ANSI. The valve shall vent into the terminating compartment. The valve shall have a retained pop-off cap to indicate that the valve has operated. The valve shall be a Beta 1750K-5 or equivalent. The transformer tank shall have two (2) one-half inch (1/2") tapped ground pads that are welded to the tank with a continuous seam. The pads shall be located below the high and low voltage bushings. Standard eyebolt grounding lugs shall be provided with the pads.

IV. BUSHINGS

The primary side of the transformer shall have two (2) 15kV load break, universal bushing wells and bushing inserts installed in a loop feed design. One-piece bushing wells/inserts are not acceptable. The bushing inserts must be compatible with either RTE or Elastimold load break elbow terminators. A terminator-parking stand shall be included between the high voltage bushings.

The secondary side of the transformer shall have three (3) 600-volt bushings. The bushing shall consist of an epoxy insulator that is bolted to the tank front or a notched epoxy insulator that is held in place by a keyed, threaded stud which extends from the tank. A lock nut shall be provided on each secondary stud. Either a 5/8" or a 1" diameter stud is required. The stud shall be copper with a maximum 1.75" optimum stud protrusion. There shall be a minimum of 11-3/8" clearance between the end of the secondary stud and the transformer door in the closed position.

See attached drawing for bushing positioning and spacing.

V. TAPS

All transformers shall have four (4) 2 1/2" high voltage taps, two (2) above and two (2) below rated voltage 13,800/7970. The tap changer shall be externally operable.

VI. PAINTING

All transformers shall be painted a Munsell green color in strict accordance with the latest Edison Electric Institute (EEI) guidelines for pad-mounted equipment. The contractor shall submit certification that these specifications have been met, upon request.

VII.FUSING

A bayonet type transformer fuse shall be included. This fuse shall be externally removed. A drip shield shall be provided directly beneath the bayonet to prevent oil from falling on high voltage terminations. The transformer shall be fused with the appropriate fuse link as shown on Table 1.

VIII.DIMENSIONS

The total outside front width shall be 36" maximum. The transformer depth shall be a maximum of 38" for 25-75 kVA sizes and 42" for 100-250 kVA sizes (167 kVA and below radiator fins not acceptable). The termination compartment shall be a minimum of 15" deep. The base sill flange shall be ¾ inch minimum to 1-1/2 inches maximum from the outside walls.

IX.IDENTIFICATION

All transformers shall have the kVA size, in three-inch (3") letters, located on the front of the transformer door. Safety labels shall be affixed to the transformer in accordance with the latest NEMA specifications. The transformer shall have a nameplate in accordance with the ANSI/IEEE located on the inside compartment area that is visible when the compartment has all cables in place. Terminal designation shall be as defined by ANSI and shall be marked on the transformer tank. The attached transformer warning label should also be affixed to the transformer prior to delivery.

X.TESTING

Routine tests on all transformers shall be conducted as specified in ANSI/IEEE Standard C57.12.90-1993. Dielectric and impulse tests must be conducted as specified by ANSI/IEEE. A certified copy of actual test values shall be submitted on the transformer before shipment to: **Terrebonne Parish Consolidated Government, Attn. Electric Distribution Superintendent, 301 Plant Road, Houma, Louisiana 70363.** Test data shall include, but not necessarily be restricted to the following:

No load losses; Full load losses; Regulation at 100% power factor; Regulation at 80% power factor; Percent resistance; Percent impedance; Top oil temperature rise at full load.

XI. SHIPPING

Transformers shall be shipped on individual pallets and secured with a banding strap connected to the lifting lugs. **Transformers shall be "side loaded" on flat bed truck or trailer. The flat bed truck or trailer shall permit unloading from sides and back. Box trailers shall be permitted; however, the vendor shall make provisions to conveniently place the transformers at the rear of the box trailer to allow customer unloading with forklift.**

XII. WARRANTY

The manufacturer’s warranty shall apply for one (1) year. The effective period of warranty shall commence when the purchaser installs the transformer, but the period from the time of receipt by the purchaser to the commencement of the warranty shall not exceed six (6) months.

XIII.DATA

Bidders shall provide the following upon request:

Manufacturer’s specifications: detailed description and drawings, which shall include dimensions, size, capacity, weight, etc.; Guaranteed Test Data; Guaranteed Performance Data sheets.

XIV. GUARANTEED PERFORMANCE DATA

Bidders shall be required to submit all the Guaranteed Performance Data, for transformers they bid, as described below upon request

GUARANTEED PERFORMANCE DATA (DESCRIPTION)

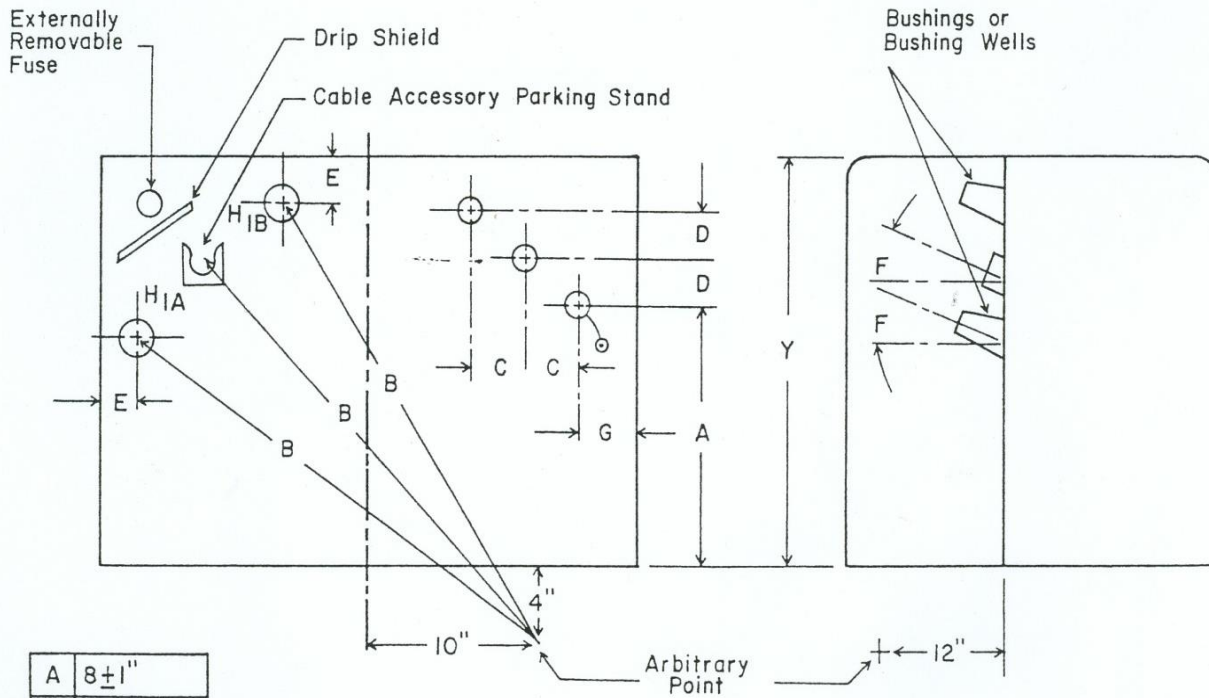
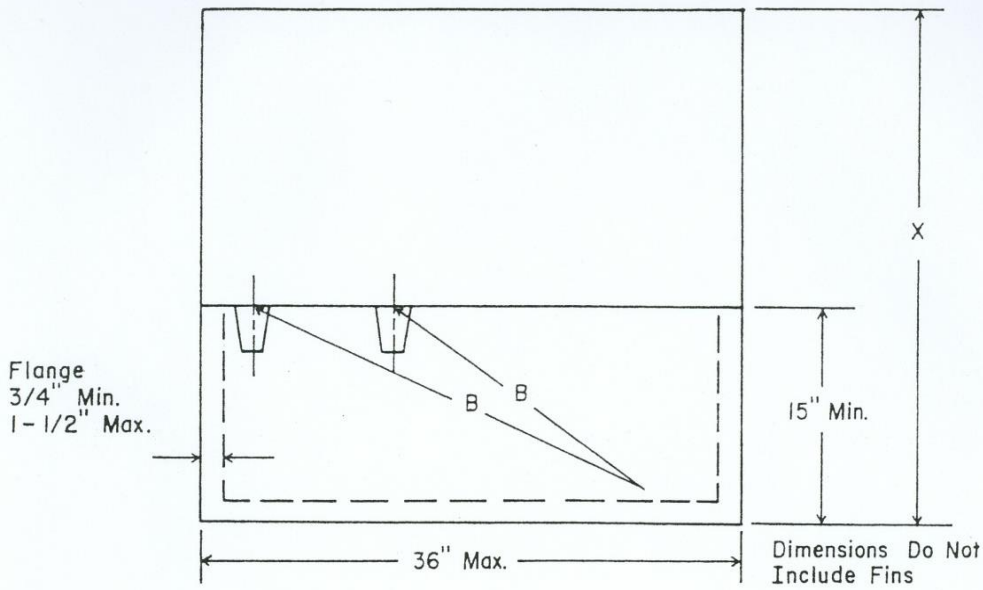
1. No load losses (watts) per transformer at rated voltage.
2. Total losses (watts) per transformer at rated voltage and current to 85 degrees Centigrade (total temperature).
3. Regulation at 100% power factor (%).
4. Regulation at 80% power factor (%).
5. Full load resistance on rated kVA base (%) corrected to 85 degrees C.
6. Full load reactance on rate kVA base (%).
7. Full load impedance on rated kVA base (%).
8. Temperature guarantee based on full load and ambient air temperature of 100 degrees F.
9. Net weight (lbs.)
10. Shipping weight (lbs.)
11. Exciting current at rated voltage (amps).

TABLE 1
Single Phase Transformer Bay-o-net Fusing Chart

Transformer Size (kVA)	13.8 Fuse Catalog Number	24.9 kV Fuse Catalog Number	Manufacturer
50	4000358C08	4003528C05	RTE
75	4000358C08		RTE
100	4000358C10	4000358C08	RTE
167	4000358C12	4000358C10	RTE
250	4000385C14	N/A	RTE

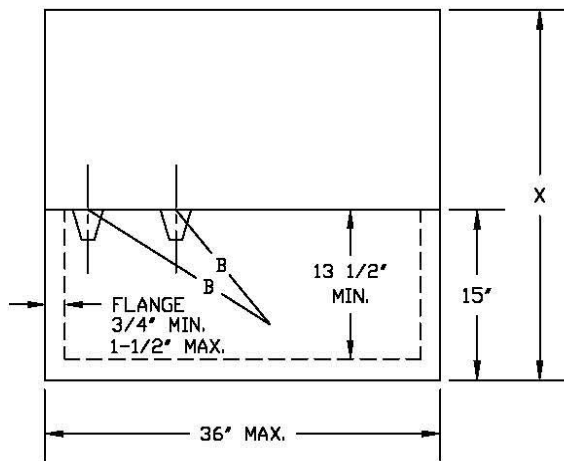
NOTE: Alternate manufacturers must be truly equivalent to be acceptable

SINGLE PHASE PADMOUNT
TRANSFORMER SPECIFICATIONS



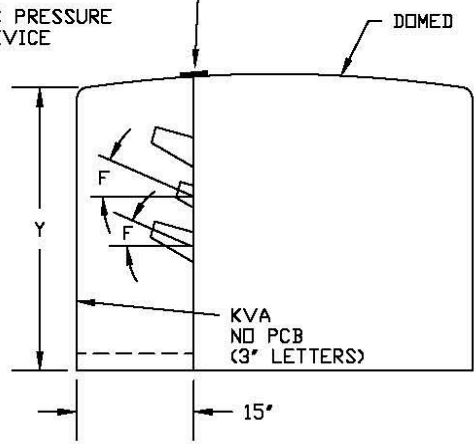
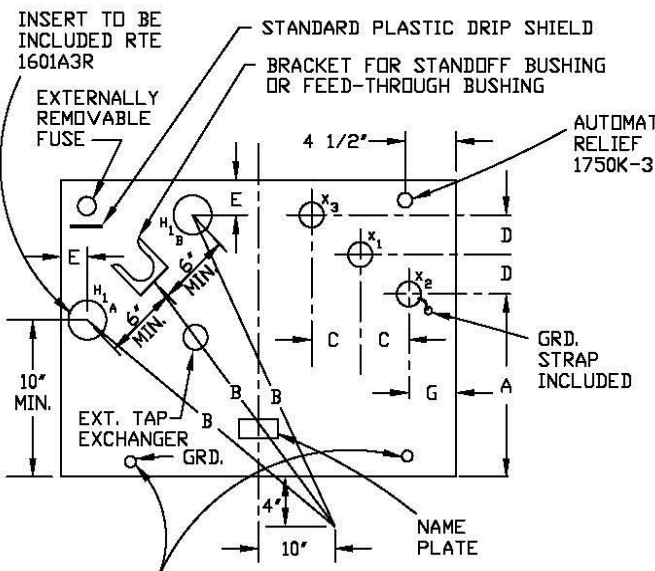
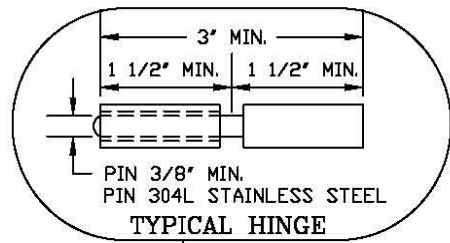
A	8 ± 1"
B	29 1/2 ± 1"
C	2" Min.
D	5 ± 1"
E	3 1/4" Min.
F	12 1/2"
G	3 1/2" Min.

	25 - 75 KVA	100 - 167 KVA
X	38" Max.	42" Max.
Y	24" Max.	32" Max.



A	9-1/2" ± 1"
B	29-1/2" ± 1/8"
C	2" MIN.
D	5" ± 1"
E	3-1/2" MIN.
F	12-1/2"
G	5-1/2" MIN.

	25-100 KVA	167 KVA & ABOVE
X	38" MAX.	42" MAX.
Y	26" MAX.	32" MAX.

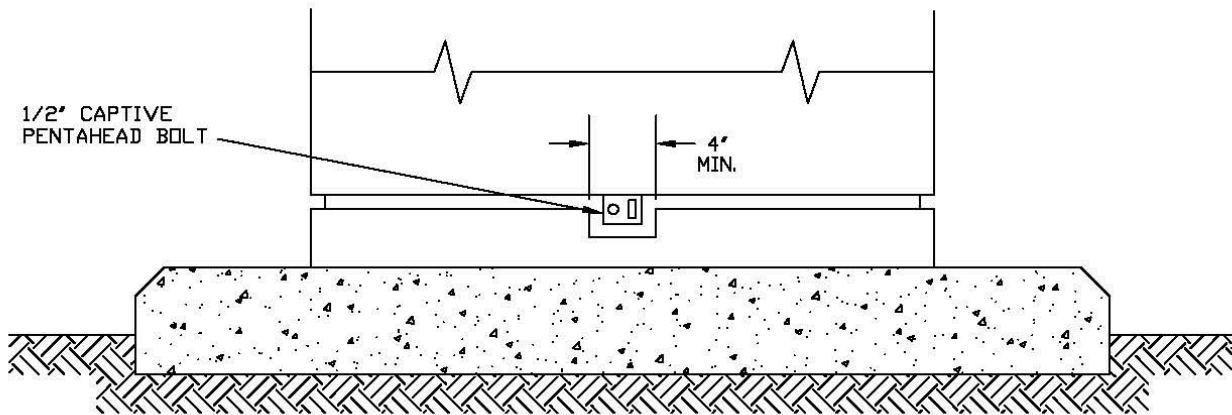


5/16" EYE BOLT
8 SOLID -2 STRAND
INCLUDED
PENN UNION
TYPE HGSE020

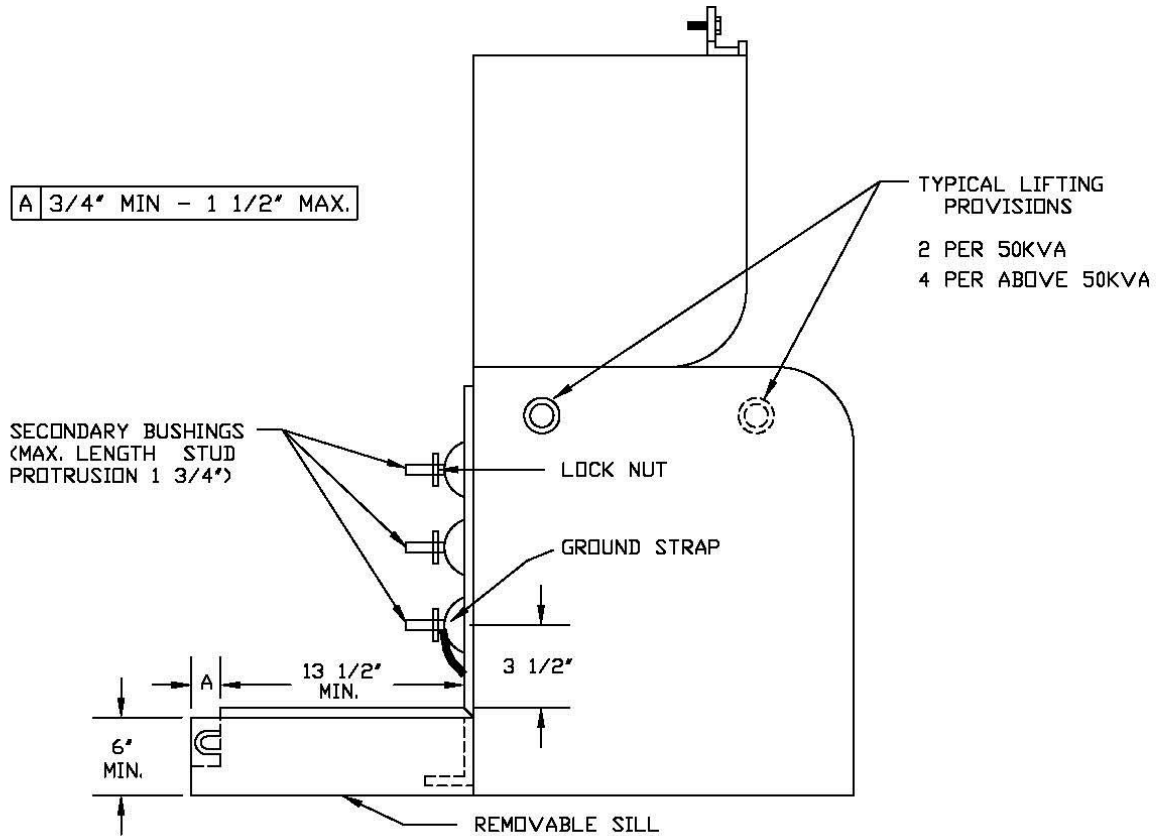
**SPECIFICATION T.P.C.G.
SINGLE PHASE DEAD FRONT 15KV
PADMOUNT 25 - 250 KVA
DRWG. 1 OF 3**

TERREBONNE PARISH CONSOLIDATED GOVERNMENT

DATE: 1-11-1994	REVISED DATE: 7-31-2019	CHK. BY: DNT	APP. BY:
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A 3/4" MIN - 1 1/2" MAX.

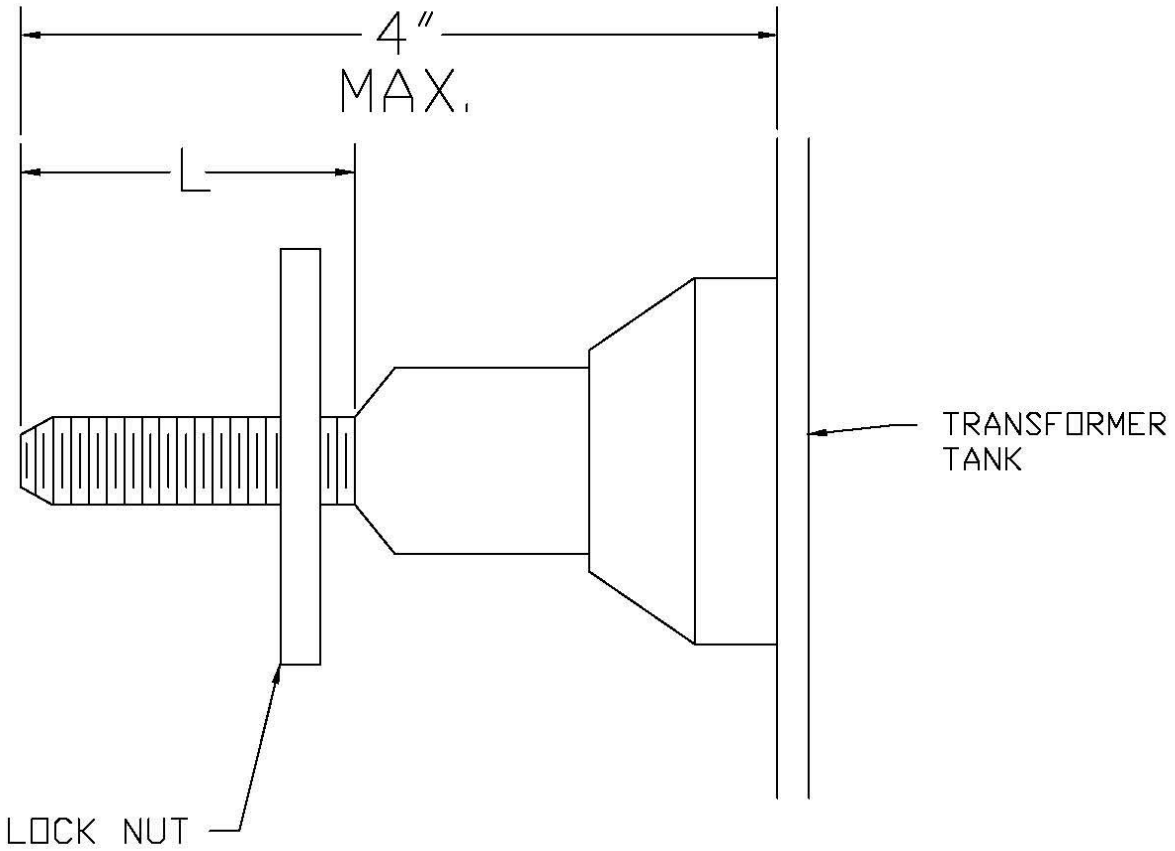


**SPECIFICATION T.P.C.G.
SINGLE PHASE DEAD FRONT 15KV
PADMOUNT 25 - 250 KVA
DRWG. 2 OF 3**

TERREBONNE PARISH CONSOLIDATED GOVERNMENT

DATE: 1-11-1994	REVISED DATE: 7-31-2019	CHK. BY: DNT	APP. BY:
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KVA	THREAD SIZE	MAX. L
25-75	0.625-11UNC-2A	1.75
100-167	1.000-14UNC-2A	1.75



LOW VOLTAGE COPPER STUD
TERMINAL DETAILS

SPECIFICATION T.P.C.G.
SINGLE PHASE DEAD FRONT 15KV
PADMOUNT 25 - 250 KVA
DRWG. 3 OF 3

TERREBONNE PARISH CONSOLIDATED GOVERNMENT

DATE: 1-11-1994	REVISED DATE: 7-31-2019	CHK. BY: DNT	APP. BY:
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**DETAILED SPECIFICATIONS
FOR
SINGLE PHASE DISTRIBUTION TRANSFORMER – POLE MOUNT**

I. GENERAL

These specifications are intended to describe a transformer which will perform the functions described in these specifications and will be designed and constructed in accordance with the generally accepted engineering, manufacturing and operating practices observed in the electric utility industry. These transformers shall meet all requirements of the latest applicable American National Standard Institute (ANSI), American Society of Testing and Materials (ASTM), Institute of Electrical and Electronic Engineers (IEEE), and the National Electrical Manufacturers Association (NEMA) standards. These transformers shall be single-phase, 60 hertz, oil filled, self-cooled, overhead type distribution transformers, rated from 15kVA through 167kVA. The transformer oil must not contain PCBs.

II. RATINGS

These transformers shall be rated at 13,800/7970 volts on the primary side and either (A) 120/240 volts, (B) 240/480 volts, (C) 277 volts, or (D) 208/120 on the secondary side. The BIL shall be 95kV on the primary side and 30kV on the secondary side. Transformer kVA ratings shall be 15, 25, 50, 75, 100, 167 and 250. KVA ratings are continuous and based on not exceeding either a 65-degree Centigrade average winding temperature rise, or an 80-degree Centigrade hot spot temperature rise above a 40-degree Centigrade ambient temperature. Maximum transformer impedance shall be 2.7%.

III. SIZE LIMITATIONS

The transformers shall be limited in size as follows:

SIZE	WEIGHT (lbs)	HEIGHT	TANK DIAMETER
25 kVA	450	39"	23"
50 kVA	750	47"	25"
75 kVA	1025	49"	33"
100 kVA	1175	49"	36"
167 kVA	1475	52"	39"
250 KVA	2055	46"	26"

IV. PAINTING

All transformers shall be thoroughly cleaned and painted with rust resistant primary coat and a finishing topcoat. The tank exterior shall be light gray in color with a minimum coating of 3 mils. The interior shall have at least a 1-mil primer coating from the top of the tank to at least the low oil level. The latest ANSI specifications for transforming painting must be followed.

V. BUSHINGS

The transformers shall have bushings as per ANSI. There shall be two (2) high voltage bushings mounted on the top cover and three (3) low voltage bushings mounted on the side (except as noted in

the ANSI specification). The primary bushing shall be light gray colored porcelain. There shall be provisions for connecting the low voltage side for straight 120-volt operation on the 120/240-volt type secondary. In the event only single bushing transformers are available from stock, the purchaser reserves the right to accept these. The secondary eyebolt connection for 100 kVA and larger transformers shall be able to accommodate 4/0 AWG to 500 MCM wire.

VI. TAPS

All transformers shall have four (4) 2 ½" high voltage taps, two (2) above and two (2) below rated voltage. The tap changer shall be externally operable.

VII. ACCESSORIES

All transformers shall be supplied with a pressure relief valve. All valves shall be rated at 15 p.s.i. with a flow rate of 50 SCFM minimum. The valve shall be provided with a red cap, which will pop off to indicate the valve has operated. The cap will be retained by a short length of chain connected to the valve to prevent loss. The pressure relief valve shall be a Beta 1712K-1 or equivalent.

Each transformer shall have a tank-grounding lug attached to it. An eyebolt grounding connector is preferred. The tank cover shall be electrically grounded to the tank.

Each transformer will have two (2) lifting lugs and two (2) NEMA mounting brackets.

Each transformer shall have a nameplate attached to it in accordance with ANSI/IEEE standards. The kVA size shall be indicated on the transformer tank with three-inch (3") numbers that will be visible from the ground. The secondary voltage shall be indicated on the transformer tank with 3" number directly below the kVA size. Each transformer shall have a sticker on the tank indicating that it is non-PCB.

For all pole-mounted transformers the following shall be provided.

1.) Mounting lugs for distribution class surge arresters shall be supplied for each high voltage bushing. Lugs shall be two (2) ½" 13 NC tapped holes, 7/16" deep, spaced vertically center-to-center. Center to center lug spacing shall be 2-1/2". Top lug shall be 4" from upper tank lip. Threads shall be protected by a corrosion resistant flanged cup pressed into the threaded opening.

2.) A 10kv distribution class surge arrester shall be mounted on the lugs specified above. The arrester shall be mounted on the H1 primary side. The same insulator cap, suitable for protecting the terminals from wildlife, shall be mounted over the surge arrester's high voltage terminal and the transformer's H1 primary insulator bushing. Approved surge arresters are as follows:

Cooper Power Systems – catalogue number UNS10050A1A1A1A

Joslyn – catalogue number ZNP-010-000100

Ohio Brass – catalogue number 217259-7314

Other surge arresters may be provided on the following conditions.

a.) The surge arrester must be truly equal.

- b.) The surge arrester must be approved by the Material Standards Committee prior to bid opening.

Approved insulator caps are as follows:

Custom Plastics – catalogue number CPWP275

Howard Industries – catalogue number 2163

Other insulator caps may be provided on the following conditions.

- a.) The insulator cap must be truly equal.
- b.) The insulator cap must be approved by the Material Standards Committee prior to bid opening.

3.) A jumper wire(s) shall be supplied and connected as follows:

- a.) **The wire(s) shall be #4 AWG solid copper with 110 mils high-density polyethylene insulation (Transformer Riser Wire).** The wire(s) shall be designed for use as high voltage transformer leads.
- b.) A connection is to be made with said wire from the transformer high voltage terminal (H1) to the surge arrester's high voltage terminal.
- c.) An additional length of said wire is to extend 72" from the surge arrester high voltage connection. This wire is to be used as a jumper to the circuit phase wire when the transformer is installed. The insulation shall be stripped on the free end a distance suitable for attaching to cutout. The wire(s) and surge arrester shall be secured suitable for shipping.
- d.) **No eye or spade terminals will be accepted. Wire is to be connected directly.**

VIII. TESTING

Routine tests on all transformers shall be conducted as specified in ANSI/IEEE Standard C57.12.90-1993. Dielectric and impulse tests must be conducted as specified by ANSI/IEEE. A certified copy of actual test values shall be submitted on the transformer before shipment to: **Terrebonne Parish Consolidated Government, Attn. Electric Distribution Superintendent, 301 Plant Road, Houma, Louisiana 70363.**

Test data shall include, but not necessarily be restricted to the following:

No load losses; Full load losses; Regulation at 100% power factor; Regulation at 80% power factor; Percent resistance; Percent impedance; Top oil temperature rise at full load.

IX. SHIPPING

Transformers shall be shipped on individual pallets and secured with a banding strap connected to the lifting lugs. Transformers shall be "side loaded" on flatbed truck or trailer. The flatbed truck or trailer shall permit unloading from sides and back. **Box trailers shall be permitted; however, the vendor shall make provisions to conveniently place the transformers at the rear of the box trailer to allow customer unloading with forklift.**

X. WARRANTY

The manufacturer's warranty shall apply for one (1) year. However, the effective period of warranty shall commence when the purchaser installs the transformer, but the period from the time of receipt by the purchaser to the commencement of the warranty shall not exceed six (6) months.

XI. DATA

Bidders shall include the following upon request.

Manufacturer’s specifications: detailed description and drawings, which shall include dimensions, size, capacity, weight, etc.; Guaranteed Test Data; Guaranteed Performance Data sheets.

XII. GUARANTEED PERFORMANCE DATA

Bidders shall be required to submit all the Guaranteed Performance Data, for the transformers they bid, as described below upon request.

GUARANTEED PERFORMANCE DATA (DESCRIPTION)

1. No load losses (watts) per transformer at rated voltage.
2. Total losses (watts) per transformer at rated voltage and current to 85 degrees Centigrade (total temperature).
3. Regulation at 100% power factor (%).
4. Regulation at 80% power factor (%).
5. Full load resistance on rated kVA base (%) corrected to 85 degrees C.
6. Full load reactance on rate kVA base (%).
7. Full load impedance on rated kVA base (%).
8. Temperature guarantee based on full load and ambient air temperature of 100 degrees F.
9. Net weight (lbs.)
10. Shipping weight (lbs.)
11. Distance from the front of the tank to the hanger, depth (in.).
12. Diameter of the tank (in.).
13. Overall height, to the top of the bushings (in.).

**DETAILED SPECIFICATIONS
FOR
SINGLE PHASE DISTRIBUTION TRANSFORMER – POLE MOUNT**

I. GENERAL

These specifications are intended to describe a transformer which will perform the functions described in these specifications and will be designed and constructed in accordance with the generally accepted engineering, manufacturing and operating practices observed in the electric utility industry. These transformers shall meet all requirements of the latest applicable American National Standard Institute (ANSI), American Society of Testing and Materials (ASTM), Institute of Electrical and Electronic Engineers (IEEE), and the National Electrical Manufacturers Association (NEMA) standards. These transformers shall be single-phase, 60 hertz, oil filled, self-cooled, overhead type distribution transformers, rated from 15kVA through 25kVA. The transformer oil must not contain PCBs. All transformers are to be Additive Polarity.

II. RATINGS

These transformers shall be rated at 19920/34500 volts on the primary side and 120/240 volts on the secondary side. The BIL shall be 150 kV on the primary side and 30kV on the secondary side. Transformer kVA ratings shall be 15 thru 25. KVA ratings are continuous and based on not exceeding either a 65-degree Centigrade average winding temperature rise, or an 80-degree Centigrade hot spot temperature rise above a 40-degree Centigrade ambient temperature. Maximum transformer impedance shall be 2.7%.

III. SIZE LIMITATIONS

The transformers shall be limited in size as follows:

SIZE	WEIGHT (lbs)	HEIGHT	TANK DIAMETER
15 kVA	450	39"	23"
25 kVA	450	39"	23"

IV. PAINTING

All transformers shall be thoroughly cleaned and painted with rust resistant primary coat and a finishing topcoat. The tank exterior shall be light gray in color with a minimum coating of 3 mils. The interior shall have at least a 1-mil primer coating from the top of the tank to at least the low oil level. The latest ANSI specifications for transforming painting must be followed.

XIII. BUSHINGS

The transformers shall have bushings as per ANSI. There shall be two (2) high voltage bushings mounted on the top cover and three (3) low voltage bushings mounted on the side (except as noted in the ANSI specification). The primary bushing shall be light gray colored porcelain. There shall be provisions for connecting the low voltage side for straight 120-volt operation on the 120/240-volt type secondary. In the event only single bushing transformers are available from stock, the purchaser reserves the right to accept these.

XIV. TAPS

All transformers shall have four (4) 2 ½" high voltage taps, two (2) above and two (2) below rated voltage. The tap changer shall be externally operable.

XV. ACCESSORIES

All transformers shall be supplied with a pressure relief valve. All valves shall be rated at 15 p.s.i. with a flow rate of 50 SCFM minimum. The valve shall be provided with a red cap, which will pop off to indicate the valve has operated. The cap will be retained by a short length of chain connected to the valve to prevent loss. The pressure relief valve shall be a Beta 1712K-1 or equivalent.

Each transformer shall have a tank-grounding lug attached to it. An eyebolt grounding connector is preferred. The tank cover shall be electrically grounded to the tank.

Each transformer will have two (2) lifting lugs and two (2) NEMA mounting brackets.

Each transformer shall have a nameplate attached to it in accordance with ANSI/IEEE standards. The kVA size shall be indicated on the transformer tank with three-inch (3") numbers that will be visible from the ground. The secondary voltage shall be indicated on the transformer tank with 3" number directly below the kVA size. Each transformer shall have a sticker on the tank indicating that it is non-PCB.

For all pole-mounted transformers the following shall be provided.

4.) Mounting lugs for distribution class surge arresters shall be supplied for each high voltage bushing. Lugs shall be two (2) ½" 13 NC tapped holes, 7/16" deep, spaced vertically center-to-center. Center to center lug spacing shall be 2-1/2". Top lug shall be 4" from upper tank lip. Threads shall be protected by a corrosion resistant flanged cup pressed into the threaded opening.

5.) A 27kv distribution class surge arrester shall be mounted on the lugs specified above. The arrester shall be mounted on the H1 primary side. The same insulator cap, suitable for protecting the terminals from wildlife, shall be mounted over the surge arrester's high voltage terminal and the transformer's H1 primary insulator bushing. Approved surge arresters are as follows:

Joslyn – catalogue number ZNP-027-000100

Other surge arresters may be provided on the following conditions.

a.) The surge arrester must be truly equal.

b.) The surge arrester must be approved by the Material Standards Committee.

Approved insulator caps are as follows:

Custom Plastics – catalogue number CPWP275

Howard Industries – catalogue number 2163

Other insulator caps may be provided on the following conditions.

c.) The insulator cap must be truly equal.

d.) The insulator cap must be approved by the Material Standards Committee.

6.) A jumper wire(s) shall be supplied and connected as follows:

e.) **The wire(s) shall be #4 AWG solid copper with 110 mils high-density polyethylene insulation (Transformer Riser Wire).** The wire(s) shall be designed for use as high voltage transformer leads.

f.) A connection is to be made with said wire from the transformer high voltage terminal (H1) to the surge arrester's high voltage terminal.

g.) An additional length of said wire is to extend 72" from the surge arrester high voltage connection. This wire is to be used as a jumper to the circuit phase wire when the transformer is installed. The insulation shall be stripped on the free end a distance suitable for attaching to cutout. The wire(s) and surge arrester shall be secured suitable for shipping.

h.) **No eye or spade terminals will be accepted. Wire is to be connected directly.**

XVI. TESTING

Routine tests on all transformers shall be conducted as specified in ANSI/IEEE Standard C57.12.90-1993. Dielectric and impulse tests must be conducted as specified by ANSI/IEEE. A certified copy of actual test values shall be submitted on the transformer before shipment to: **Terrebonne Parish Consolidated Government, Attn. Electric Distribution Superintendent, 301 Plant Road, Houma, Louisiana 70363.**

Test data shall include, but not necessarily be restricted to the following:

No load losses; Full load losses; Regulation at 100% power factor; Regulation at 80% power factor; Percent resistance; Percent impedance; Top oil temperature rise at full load.

XVII. SHIPPING

Transformers shall be shipped on individual pallets and secured with a banding strap connected to the lifting lugs. Transformers shall be "side loaded" on flatbed truck or trailer. The flatbed truck or trailer shall permit unloading from sides and back. **Box trailers shall be permitted; however, the vendor shall make provisions to conveniently place the transformers at the rear of the box trailer to allow customer unloading with forklift.**

XVIII. WARRANTY

The manufacturer's warranty shall apply for one (1) year. However, the effective period of warranty shall commence when the purchaser installs the transformer, but the period from the time of receipt by the purchaser to the commencement of the warranty shall not exceed six (6) months.

XIX. DATA

Bidders shall provide the following upon request:

Manufacturer's specifications: Detailed description and drawings, which shall include dimensions, size, capacity, weight, etc.; Guaranteed Test Data; Guaranteed Performance Data sheets.

XX. GUARANTEED PERFORMANCE DATA

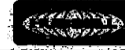
Bidders shall be required to submit all the Guaranteed Performance Data for the transformers they bid as described below upon request.

GUARANTEED PERFORMANCE DATA (DESCRIPTION)

1. No load losses (watts) per transformer at rated voltage.
2. Total losses (watts) per transformer at rated voltage and current to 85 degrees Centigrade (total temperature).
3. Regulation at 100% power factor (%).
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11. Distance from the front of the tank to the hanger, depth (in.).
12. Diameter of the tank (in.).
13. Overall height, to the top of the bushings (in.)

P1222032 MD

29-500



Powerglass® Primary Voltage Sectionalizing Cabinets

**TABLE 1
Sizing Chart**

Model No.	Old Model No.	Width at Top	Overall Height	Depth at Top	Width at Base	Depth at Base	Suggested Depth Below Grade	Weight
Single Phase								
P1322039WD	SPM-320-31-WG-DF3	22	32-3/8	20	33	33	12	70
P1322038WD	SPM-320-37-WG-DF3	32	38-3/4	20	44	35	20	90
P1322043WD	SPM-320-41-WG-DF3	32	38-3/4	24	44	38	20	110
P1322048WD	SPM-320-47-WG-DF3	32	48-3/8	20	45	38	24	105
P1422532WD	SPM-420-31-WG-DF3 (a)	42	31-1/2	25	53	42	13	105
P1422542WD	SPM-420-41-WG-DF3 (a)	42	41-1/2	25	55	45	23	145
P1422550WD	SPM-420-47-WG-DF3 (a)	42	48-1/2	25	55	47	31	175
Three Phase								
P3542541WD	SPM-540-36-WG-DF3	54	41	25	66	42	22	130
P3543141WD	SPM-540-36-6D-WG-DF3	54	41	31	66	48	22	145
P3542549WD	SPM-540-47-WG-DF3	54	48-1/2	25	68	45	31	160
P3543149WD	SPM-540-47-6D-WG-DF3	54	48-1/2	31	68	51	31	180
P3542555WD	SPM-540-53-WG-DF3	54	55-1/2	25	69	47	37	200
P3543155WD	SPM-540-53-6D-WG-DF3	54	55-1/2	31	69	53	37	215
P3673149WD	SPM-670-36-WG-DF3 (b)	67	45	31	80	45	27	205
P3673155WD	SPM-670-47-WG-DF3 (b)	67	55	31	82	50	36	220
P3673161WD	SPM-670-53-WG-DF3 (b)	67	61	31	83	52	42	240

Figure 6.
Low profile - minimum 18" above grade.

Standards

Structural Standards - Minimum structural standards of the finished laminate shall be as follows:

Tensile Strength;	
ASTM D-638	8,180
Flexural Properties;	
ASTM D-790	6,040
Tangent Modulus of Elasticity	407.3
Compressive Strength;	
ASTM D-695	19,350
Water Absorption;	
ASTM D570-59aT	5%
Charpy Impact Test;	
ASTM D-256	3.0
Impact Resistance;	
ASTM D-244	37.5
Flammability Tests;	
ASTM D-635	Self Extinguishing
Ultraviolet Protection	Nominal
.014" Gelcoat	

- (a) 36 kV single phase switching pedestal for Elastimold junctions
 (b) 36 kV three phase switching pedestal for Elastimold junctions.
 Note:
 1) For 35 kV applications, please change the no.'s. to P1422531500, P1422541500 and P1422549500 or P3673146500, P3673155500 or P3673161500 if RTE™ junctions are to be used.
 2) If variations in any of these dimensions are desired, please contact factory.
 3) Willow green "W" part numbers illustrated.

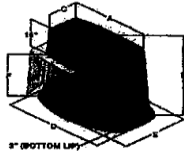


Figure 5.
See above table.

SPECIFICATIONS

Pedestals

The fiberglass pedestal shall be constructed to meet or exceed requirements of ANSI C 57.12.28 Standards for Pad-mounted Equipment Enclosure Integrity, an attachment to ANSI C 37.72. Conforms to REA requirements.

Raw Material

A. Resins - Resins shall be thermo-

setting, medium reactivity, rigid fire resistant polyester containing a maximum monomer content of 42% and a maximum of 1% Thixotropic additive.

B. Glass Fiber - Glass fiber reinforcement shall be K filament type E Borosilicate glass having high performance chrome-complex or silane finish compatible with polyester resin.

C. Gelcoat - Exterior surface coating shall be ultraviolet light stabilized, weather resistant, polyester base containing fade resistant color pigments, and such inert extenders as are appropriate to maintain total pigment volume concentration less than 20%.

D. Interior Coating - Interior laminate coating when required shall be a pigmented heat resistant high gloss polyester base surfacing sealer.

E. Other material - Organic peroxide catalysts and promoters appropriate to the resin type shall be used as necessary to provide thorough cure.

Construction

A. Construction details and overall dimensions shall be in accordance with the drawings.

B. All exterior gelcoat shall be applied to produce a cured film of .014" plus or minus 0.005" in thickness.

Distribution of glass reinforcement shall be uniform except that in areas of stress concentration where local reinforcement shall be required.

C. All parts shall be molded in one piece. No wood reinforcement shall be used.

D. Latching provisions shall result in snug fit of top to bottom, with means provided for padlock and pent bolt. All door and exterior hardware shall be constructed of 304 stainless steel, 6061-T6 aluminum, and/or ABD bronze casting.