



WESTERN POWER PRODUCTS



Enclosures

Designers and Manufacturers of Rustguard Enclosures, Primary Sectionalizing Cabinets, Secondary Pedestals and Pole Line Hardware

Powerglass® Enclosures

K-SEC 300

Electrical Apparatus

DESCRIPTION

Applications

Western Power Products offers Powerglass® enclosures for freedom from rust and corrosion in any environment.

No maintenance. Complete absence of ferrous material means every Powerglass enclosure is totally rust free, impervious to attack under any environmental conditions, unaffected by fertilizer spray, salt air, or chemicals. Standard Willow Green finish blends easily with its surroundings. Ultraviolet rays do not affect the structural integrity of the enclosure. UV stabilized gelcoat provides a lifetime finish.

Durable. Powerglass resistance to impact reduces costs resulting from repair or replacement of dented or damaged enclosures. The aesthetically pleasing unit keeps its appearance year after year.

Safety first. Impact resistance means intrusion resistance. Unauthorized entry into enclosures is obstructed by specially designed door and vent openings. Non-conductive characteristics of fiberglass further reduce accident potential on the outside from problems within.

Fire retardant. Powerglass will not support combustion.

Easy to install. The lightweight, one-piece design permits easy installation. No field assembly required.

Accessibility for service. Removable

door provides access for routine service and maintenance. Remove the lightweight, one-piece assembly, and gain unobstructed access to equipment inside. Switchgear is mounted on free-standing frames, completely independent of the enclosure.



Figure 1. Powerglass Enclosure NE412000.

Design flexibility. A wide range of sizes and modifications for doors, vents, special colors, base extensions, foam insulation and more are readily available. You specify the enclosure to meet your requirements without squeezing equipment into a set of fixed dimensions.

Industry standards. Powerglass enclosures conform to ANSI and REA requirements.

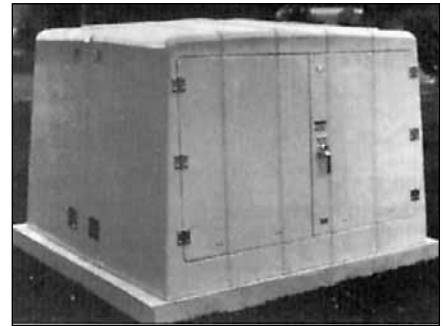


Figure 2. Powerglass Enclosure NE824000.

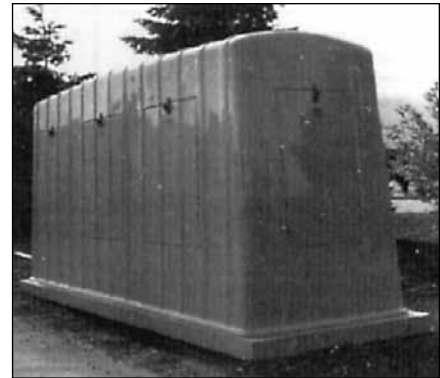
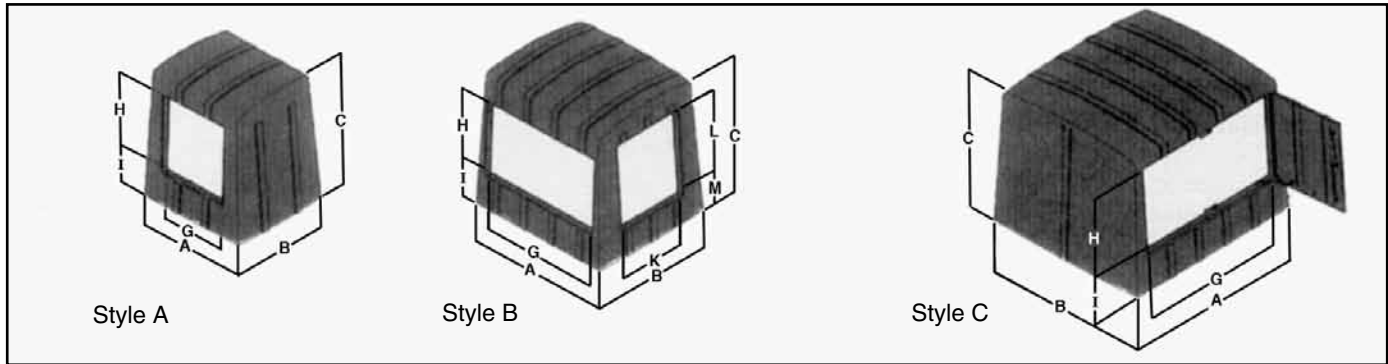


Figure 3. Powerglass Enclosure NE180700.



Powerglass® Enclosures

WESTERN POWER PRODUCTS



BASE MODEL NUMBERS

TABLE 1 (The number in parenthesis is the old model number)

Description	NE291000 (29-1) STYLE A	NE361000 (36-1) STYLE A	NE601000 (60-1) STYLE A	NE791000 (79-1) STYLE A	NE342000 (34-2) STYLE A	NE412000 (41-2) STYLE A	NE422000 (42-2) STYLE A	NE442000 (44-2) STYLE A	NE542000 (54-2) STYLE A	NE562000 (56-2) STYLE A	NE602000 (60-2) STYLE A	NE712000 (71-2) STYLE A	NE722000 (72-2) STYLE A	NE842000 (84-2) STYLE A	NE713000 (71-3) STYLE B	NE843000 (84-3) STYLE B
A. Front Width	28-1/2	36	60	79-3/4	34	41-1/4	43-3/4	43-3/4	52-1/2	53-3/4	60	71	71-1/2	83-1/2	71	83-1/2
B. Side Width	19-1/2	26-1/2	34-1/2	32	34	43-1/2	44-1/2	64-1/2	49	72-1/2	34-1/2	60	48-1/4	68-1/2	60	68-1/2
C. Overall Height	32-1/2	54-1/2	42-1/2	56-1/2	43	42-1/4	54	54-1/4	60	60	42-1/2	64-3/4	46	70	64-3/4	70
D. Cube Front	19-1/2	26-1/4	51-1/2	68-1/2	24-3/4	31-1/2	33-1/2	33-3/4	41-1/2	42-1/2	51-1/2	58-1/2	63	71-1/2	58-1/2	71-1/2
E. Cube Side	12	19-1/2	28-1/2	24	24-1/4	34-1/4	34-1/2	54-1/4	37-1/2	61-3/4	27	49-1/2	40	59	49-1/2	59
F. Cube Height	30	51-1/2	40-1/4	54-1/2	40	49-3/4	49-3/4	50-1/4	54-1/4	55	40-1/4	61	44	65-1/4	61	65-1/4
G. Door Width	15	21	46	55	19-1/2	27-3/4	29-1/2	29-1/2	36-1/2	36-1/2	46	55	55	60	55	60
H. Door Height	18-1/2	36-1/4	26	32-1/2	25-1/2	25	34-1/4	34	34	34	26	32-1/2	32-1/2	41	32-1/2	41
I. Pad to Clear Opening	8	9-3/4	8-1/2	15	8-1/4	7-1/2	7-1/2	8-3/4	15-3/4	15-3/4	8-1/2	15-3/4	6	15	15-3/4	15
No. of Anchor Bolts	4	4	4	4	4	4	4	4	4	4	4	4	4	6	4	6
N. Front Bolts C-C	18	24	30	58	21	30	30	30	36-1/2	36	30	45	45	32-1/2	45	32-1/2
O. Side Bolts C-C	14-1/2	22	30	27	28-1/2	37-1/2	39	59	42-1/2	66-1/2	30	54-1/2	44-1/2	64	54-1/2	64
P. Front Edge of Pad	4-3/4	5	5	4	5-3/4	5-1/4	4-1/2	4-1/2	4-3/4	4-3/4	5	4-1/4	3-3/4	4	4-1/4	4
Q. Side Edge of Pad	7-1/2	9	18	11	9-1/2	9	9	9	11	12	18	15	15-1/2	11-1/2	15	11-1/2
Shipping Weight (lbs.)	60	120	180	260	130	170	180	300	250	375	180	400	300	590	400	590

¹ NE13000 (K) Side Door Width=3 3/4"; (L) Side Door Height=38"; (M) Pad to Clear Side Opening=14 1/4"
*Suffix on these numbers indicates base extension available in 3" increments up to 12.

² NE843000 (K) Side Door Width=32"; (L) Side Door Height=40 3/4"; (M) Pad to Clear Side Opening=14 3/4"

Note: numbers designate nominal length and number of doors, i.e., Number 904000 is approximately 90" long with 4 doors.

POWERGLASS ENCLOSURES

Features

Locking Systems. Standard for lift-off doors includes cast bronze hasp pivot arm and block with 1/2" diameter hole for padlock.

DF-3 applications include captive 1/2" diameter stainless steel penta bolt in addition to standard locking system above.

DF-1 applications are same as DF-3 except with additional secure inner door.

Lift-off doors are standard except for NE824000 and NE101400 which utilize split hinged doors.

Louver Assembly: Two types of louver assemblies are available.



Figure 4.
1/2" Locking Systems.

SAMPLE: Powerglass Enclosures Catalog Logic (example: NE412000WA6QJAV)

Item	1,2	3,4,5,6,7,8	9	10
Equipment Enclosures	Model Number			
NE (Equipment Enclosures)	291000 (29-1)* 542000 (54-2)* 712000 (71-2)* 842000 (84-2)* 101412 (101-4-12)* 904000 (90-4)* 135600 (135-6)*			
	Colors			
	A (Safety Orange) B (Brownstone) D (Desert Tan) E (Earth Brown) M (Munsell Green) W (Willow Green)			
	Lock			
	A (Standard Lock (non-electrical applications)) B (DF1- Penta-bolt, padlock, & inner doors (live-front applications)) C (DF1.5- Penta-bolt, padlock, & inner doors (live components only)) D (DF3- Penta-bolt, padlock, dead-front applications) E (DF4- Hex-bolt, padlock, dead-front applications)			
	Options			
	F (fans) G (Gravity Louver) H (w/Heat & A/C) I (Insulated) L (Lighting) P (Powered Louver) R (Rain Cape)			
	Options			
	0 (No Vents) 1 (Type 1) 2 (Type 2) 5 (Fused) 6 (Metered) 7 (Generator)	0 (none) JA (Standard) CW (Cable Well) MX (Muffler Package)		

(* denotes old model no.)



WESTERN POWER PRODUCTS

Powerglass® Enclosures

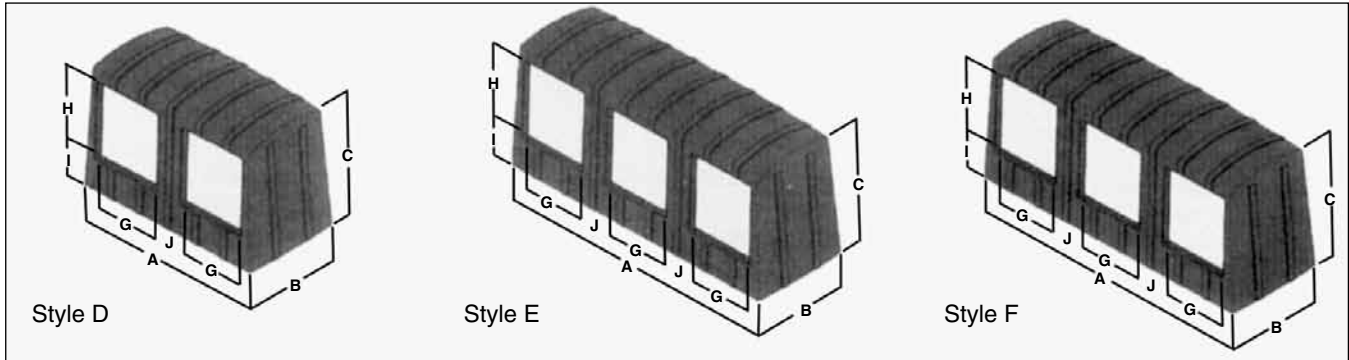


TABLE 2

BASE MODEL NUMBERS

(The number in parenthesis is the old model number)

Description	NE824000 (82-4) STYLE C	NE824300 (82-4-3) STYLE C	NE824600 (82-4-6) STYLE C	NE824900 (82-4-9) STYLE C	NE824120 (82-4-12) STYLE C	NE101400 (101-4) STYLE C	NE101430 (101-4-3) STYLE C	NE101460 (101-4-6) STYLE C	NE101490 (101-4-9) STYLE C	NE101412 (101-4-12) STYLE C	NE904000 (90-4) STYLE D	NE135600 (135-6) STYLE E	NE180700 (180-7) STYLE F
A. Front Width	82	82-1/4	82-3/4	83	83-1/4	102-3/4	103	103-1/3	103-3/4	104	91	137	182-1/2
B. Side Width	74-1/2	74-3/4	75-1/4	75-1/2	75-3/4	89-3/4	90	90-1/4	90-3/4	91	48	48	55-3/4
C. Overall Height	51-3/4	54-3/4	57-3/4	60-3/4	63-3/4	65-1/4	68-1/4	71-1/4	74-1/4	77-1/4	59-1/2	59-3/4	83-1/2
D. Cube Front	72-1/4	72-1/4	72-1/4	72-1/4	72-1/4	90-1/4	90-1/4	90-1/4	90-1/4	90-1/4	81	125	166
E. Cube Side	65	65	65	65	65	79-1/2	79-1/2	79-1/2	79-1/2	79-1/2	36-1/2	37-1/2	44-1/2
F. Cube Height	48-1/2	51-1/2	54-1/2	57-1/2	60-1/2	59-3/4	62-3/4	65-3/4	68-3/4	71-3/4	55	55-3/4	76-3/4
G. Door Width	66-1/2	66-1/2	66-1/2	66-1/2	66-1/2	81-1/2	81-1/2	81-1/2	81-1/2	81-1/2	29-1/2	29-1/2	31
H. Door Height	38	38	38	38	38	48-3/4	48-3/4	48-3/4	48-3/4	48-3/4	34	34	38-1/2
I. Pad to Clear Opening	4	7	10	13	16	3	6	9	12	15	15-1/2	15-1/2	22-1/2
J. Space Between Door Opening											15-1/2	15-1/2	22-1/2
No. of Anchor Bolts	6	6	6	6	6	6	6	6	6	6	6	6	10
N. Front Bolts C-C	25	25	25	25	25	30	30	30	30	30	30	45	39-1/2
O. Side Bolts C-C	67	67	67	67	67	83	83	83	83	83	42-1/2	42	50-1/4
P. Front Edge of Pad	6	6	6	6	6	5-1/2	5-1/2	5-1/2	5-1/2	5-1/2	4-3/4	5	6
Q. Side Edge of Pad	18-1/2	18-1/2	18-1/2	18-1/2	18-1/2	24	24	24	24	24	17	25	16
Shipping Weight (lbs.)	625	640	655	675	690	961	984	1007	1031	1054	410	650	1200

³ NE180700 (K) Side Door Width= 21"; (L) Side Door Height=38"; (M) Pad to Clear Side Opening=23 1/4"
 Note: numbers designate nominal length and number of doors, i.e., Number 904000 is approximately 90" long with 4 doors.

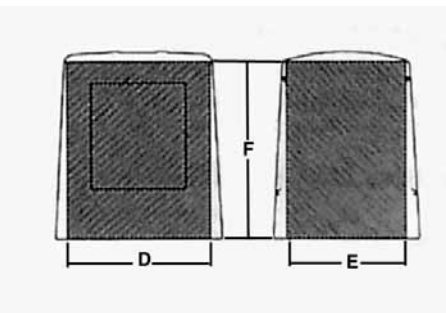


Figure 5. Cube size dimensions represent the dimensions of maximum internal cube space available for each unit.

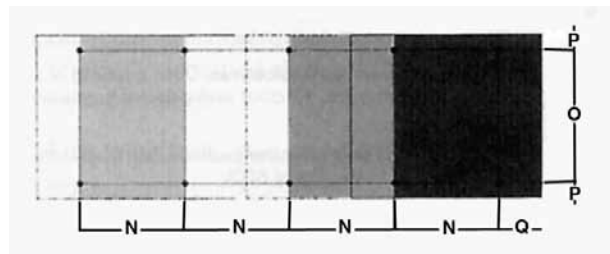


Figure 6. Pad and anchor bolt dimensions. Recommended anchor bolts to be 5/8" diameter, extending 1-1/2" minimum above pad. Cable entrance should be provided as required.

Here are just a few of the hundreds of installations protected by Powerglass enclosures.

- High voltage distribution equipment, including switchgear, transformers, primary metering, and capacitors.

- Generator sets
- Wastewater treatment systems
- Weather sampling stations
- Seismograph stations
- Remote radio repeaters
- Marina power stations
- Telecommunications



WESTERN POWER PRODUCTS

SPECIFICATIONS- POWERGLASS ENCLOSURES

Scope

The fiberglass enclosure 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.

Raw Material

A. Resins - Resins shall be thermosetting, 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 Materials - Organic peroxide catalysts and promoters appropriate to the resin type shall be used as necessary to provide thorough cure.

Standards

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

Tensile Strength; ASTM D-638	8,180
Flexural Properties; ASTM-D790	6,040
Tangent Modules 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

B. Visual Standards - Visual standards of the finished laminate shall conform to Table 5 - Visual Acceptance Criteria -ASTM C-582.

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 inch plus or minus 0.005 inch in thickness. Distribution of glass reinforcement shall be uniform except that in areas of stress concentration where local reinforcement shall be required.

C. All enclosures shall be molded in one piece, including base and door frames. No sectional parts may be bolted, cemented or riveted. Female molds shall be employed to produce high sheen, smooth and uniform exterior surfaces.

D. Doors shall be of identical material and construction as enclosures. Door latching provisions shall result in snug fit of door to frame, with means provided on each door for padlock. All door and exterior hardware shall be constructed of 304 stainless steel and/or ABD bronze casting.

E. Doors with penta bolt locks that permit unlatching only after the padlock has been removed shall be provided on the enclosure when it contains equipment energized in excess of 600V.

F. Ventilators shall be of size, number, and locations as specified to allow proper transfer of air through the enclosure. Perforated screens of 304 stainless steel shall be backed with suitable internal baffles to resist entrance of foreign objects.

G. Inner doors, where required, shall be constructed of fiberglass reinforced polyester, NEMA grade GPO-3. The barrier is to be secured in place behind the outer door with a "Danger-High Voltage" warning sign attached.



WESTERN POWER PRODUCTS



K-SEC 300

WALK-IN ENCLOSURES

Durable, long-lasting Powerglass walk-in enclosures are used for generator, control, and a wide range of other protective housing applications.

Engineered packages can be designed, providing a complete system to fit your requirements

Additional doors can be added to each corner or expansion section. Special access panels can be provided as required.

Units are expandable in 5' increments in one direction, and comes in two heights – 9'6" and 10'9". Example – Model WI102009 is 10' wide x 20' long x 9'6" high.

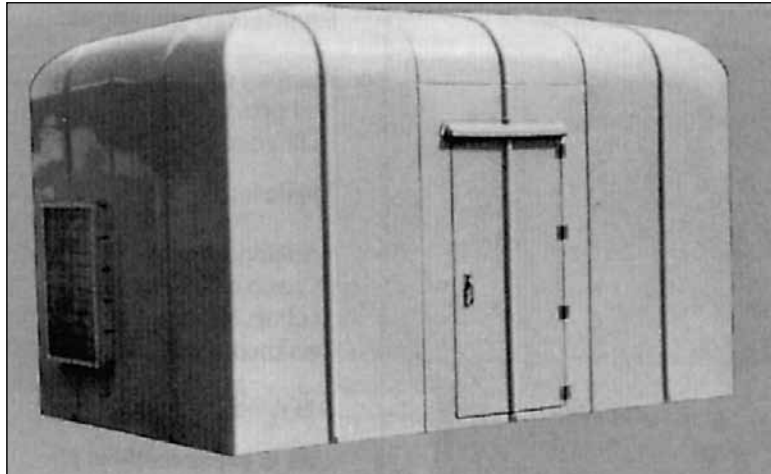


Figure 8.
WI101510 – walk-in enclosures.



Figure 7.
WI101509 engine generator enclosure including 100 kV generator set, skid base, foam insulation, lighting, fire alarm, lowers, fuel tank, etc.

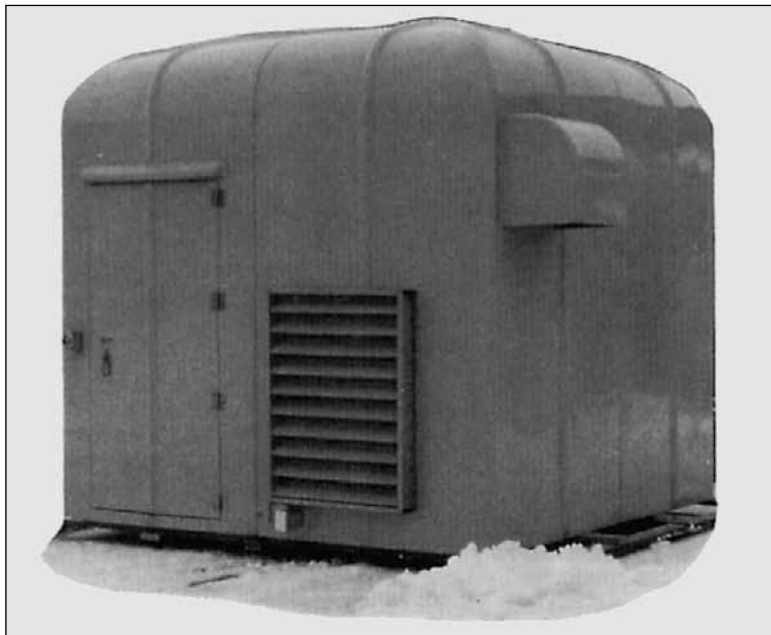


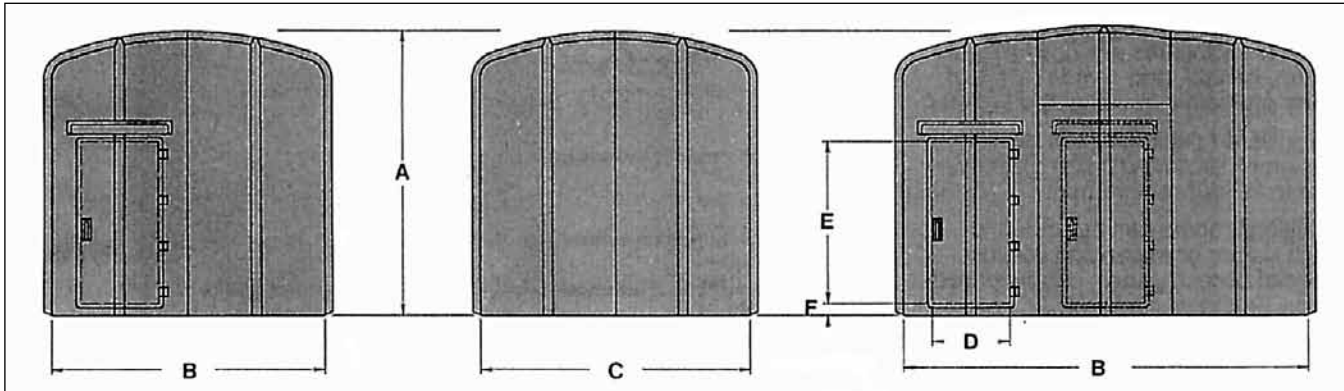
Figure 9.
WI101010 – with hooded vent and motorized/louver

Applications

- Engine generator enclosures
- Substation control houses
- Relay/control panel housings
- HV/transformer/LV unit substation housings
- Antennae housings
- Remote central office telephone equipment

- Metalclad lineup housings
- Wastewater treatment systems

Powerglass® Enclosures



OPTIONS

- Lighting
- Fans
- Heaters
- Air Conditioners
- Viewing Windows
- Skid Bases
- Gasketed Doors
- Special Door Openings
- Thermal/Acoustic Insulation
- Special Shelving
- Filter Louvers
- Special Vent Hoods
- Explosion Proof Equipment

DESIGN FEATURES

Unit was designed to withstand 120 mph winds, and heavy ice and snow loadings without special reinforcement.

Specially designed ribs add additional strength to flat surfaces.

Lifting points in roof allow unit to be removed in one piece.

Unit can be shipped in one piece, or knocked down in sections for field assembly.

TABLE 3

DIMENSIONAL DATA (The number in parenthesis is the old model number)

Dimensional Data	W1101010 (1010-10)	W1101009 (1010-9)	W1101510 (1015-10)	W1101509 (1015-9)
(A) Overall Height	129"	114"	129"	114"
(B) Overall Width	122"	122"	182"	182"
(C) Overall Depth	122"	122"	122"	122"
(D) Door - Clear Opening Width	35"	35"	35"	35"
(E) Door - Clear Opening Height	73.5"	73.5"	73.5"	73.5"
(F) Pad to Door Opening	5.5"	5.5"	5.5"	5.5"
Weight	1300#	1210#	1900#	1800#

(Multiple door locations available. All units are expandable in 5' increments in one direction. Contact factory for details.)

SPECIFICATIONS

Scope

This specification is intended to identify and set minimum standards for these qualities of material and workmanship needed in reinforced plastic laminates for extended exterior service.

Raw Material

A. Resins - Resins shall be thermosetting, 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 materials - Organic peroxide catalysts and promoters appropriate to the resin type shall be used as necessary to provide thorough cure.



WESTERN POWER PRODUCTS



Standards

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

Tensile Strength; ASTM D-638	8,180
Flexural Properties; ASTM-D790	6,040
Tangent Modules 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	

B. Visual Standards - Visual standards of the finished laminate shall conform to Table 5 - ASTM C-582.

Construction

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

B. All exterior gelcoat shall be applied to produce a cured film of .014 inch plus or minus 0.005 inch in thickness. Distribution of glass reinforcement shall be uniform except that in areas of stress concentration where local reinforcement shall be required.

C. All sections shall be molded in one piece, including base. Female molds shall be employed to produce high sheen, smooth and uniform exterior surfaces. Foam core sandwich construction shall not be used.

D. To assemble enclosure, sections may be bolted or cemented at the factory or at job-site.

E. Doors shall be of identical material and construction as enclosures. Door latching provisions shall result in snug fit of door to frame, with means provided on each door for padlock. All door and exterior hardware shall be constructed of non-ferrous materials.

F. Ventilators shall be as specified to allow proper transfer of air through the enclosure.