



Industrial strength fiberglass enclosures that "fit" and protect where others don't!



Stahlin Non-Metallic Enclosures introduces its new family of DuraBoxx™ high-quality, cost-effective fiberglass enclosures.

Highlighted by a rugged industrial design, chemical and corrosion resistance, plus watertight performance, DuraBoxx Enclosures specialize as natural problem solvers in shallow depth areas. They "fit" and protect where other enclosures don't!

DuraBoxx Enclosures are manufactured to international standard specifications from fiberglass-reinforced polyester produced using UV stabilized sheet molding compound and hot compression-molded to a smooth, light gray surface. Eight smaller sizes are available in NEMA 6P as enclosures with opaque screw-down covers, completely assembled and ready for installation. Three larger sizes provide NEMA 4X in screw cover. Corresponding IEC international ratings will apply.

DuraBoxx Enclosures meet NEMA/UL type 1, 3, 3S, 12, 4X, 6 and 6P ratings. Our carefully developed, halogen-free formulation conforms to UL 746C standards.

DuraBoxx products, featuring eleven sizes of flush-sided enclosures, are designed to protect their contents over many years of uncompromising service in harsh environments. A quick look at the rugged construction design of DuraBoxx reveals how and why:

- Solid construction fiberglass reinforced polyester with a screw held cover and base.
- Mated cover and base with small raised edge to center a mating groove in the cover.
- Foamed-in channel polyurethane gasket.
- Smooth edged mating of cover to base.
- No cover overhang, no sidewall obstruction.
- All cover securing hardware functions outside of the sealing lip of the enclosure.
- Cover screws are made of stainless steel to maintain the corrosion resistant integrity.
- Captive screws in cover.
- Designed for direct to wall mounting or with use of external mounting feet.
- Unobstructed sidewalls for easy conduit entry. There are no ribs or molded channels to obstruct fittings and connectors mounted from the outside.
- A square wall design allows for close proximity mounting to other enclosures or mounted obstacles.

The DuraBoxx line is a straightforward design in both appearance and functionality. It is equally at home as an industrial MRO housing and a sleek OEM designer box. Its attention to detail and utility, however, make a perfect product for construction, utility and MRO facilities for use as an interconnect or junction box.

Stahlin DuraBoxx Enclosures use common lengths and widths, but also offer shallow profiles such as the 16x16x5, 16x10x5, 14x14x4 and a 7x11x4. The large but shallow sizes of DuraBoxx are ideal where narrow spaces must be accommodated. The entire product is universally suitable for use as junction boxes, pushbutton control centers, and housings for both electrical and electronic applications. DuraBoxx also meets the needs of industrial applications such as pump control, metering, conveying, weighing, grinding and mixing.

DuraBoxx Configurations

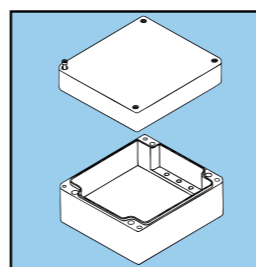


DL Series



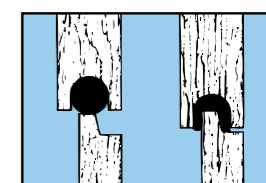
D Series

BODY



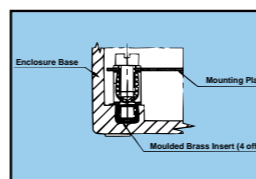
Fiberglass reinforced polyester body with unobstructed sidewalls. No protrusions. Flush fitting cover fastened by captive lid screws. Stainless steel cover screws are slightly recessed to form continuous smooth surface.

GASKET



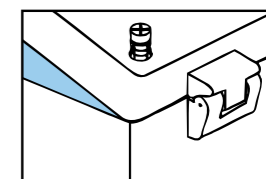
Poured polyurethane gasket formed in a cover groove is mated with a raised edge on base to form a "tongue and groove" system in which the gasket is held captive in a recessed groove of the cover. The gasket returns to its original form when the cover is lifted off. This concept assures that the gasket in the cover is always making contact with the tongue along the base. The result of this construction is a full watertight, corrosion resistant, construction.

INTERNAL MOUNTING



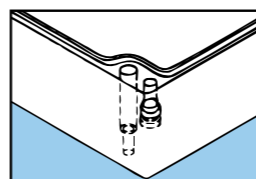
Molded-in brass inserts are strategically located to accept a corresponding galvanized steel back panel.

COVER HINGING



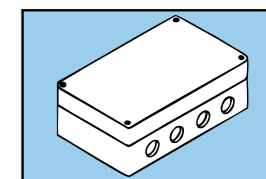
A polyamide external hinge pair is available as an accessory from Stahlin. Hinges provide for a 200 degree angle opening. Hinges are designed to keep the cover captive and assist in the cover opening. However, four cover screws are still necessary to maintain the enclosure rating.

ENCLOSURE MOUNTING



The enclosure is formed with hollow wells outside of the gasket seal that accept a direct-to-wall mounting screw. The screw head, in turn, is protected by the closure of the cover.
A kit of four polyamide mounting feet is available as an accessory. The offset mounting feet allow for top and bottom, or side fixing of the enclosure.

MODIFICATIONS



All aspects of Stahlin's ModRight® Program apply to the DuraBoxx Enclosures including: painting, silk screening, decals, custom hole drilling and special assembly. Windows can be installed but will not carry UL/cUL certifications.



Product Features & Benefits

Product Features

Fiberglass Reinforced Polyester

Smooth, Unobstructed Sides

Recessed Cover Screws

Direct to Wall Mounting

Up to NEMA/UL 6P and IEC IP68 Rating

Poured in Place Polyurethane Gasket

Tongue in Groove Design

Ease of DIN Rail Mount

Low Profile Sizes

Industry Efficient Dimensions

Rugged Design

Flush Body Design

External Hinge Capability

Captive Cover Screws

Brass Inserts in all Fixing Positions

Product Benefits

Maximum strength, light weight, maximum protection against aggressive environments.

No obstruction for conduit and hubs or side mounted hardware. Reduces mounting conflicts.

Minimizes conflicts with cover mounted components. Cosmetically pleasing appearance.

Simplified mounting system No interference with extended feet or hard to reach screws.

Maximum security of the enclosure.
Maximum protection of the contents.

Excellent compression recovery. Exceptional life.
Positive seal between cover and base.

Holds gasket solidly in place. Maintains maximum seal through even compression.

Allows quick change of assembly. Easy addition of new rail and components.

Attractive slim line design. Minimizes excess depth for larger size enclosures.

Unique profile dimensions solve unusual space application problems in process control industries, car wash systems and many other MRO applications.

Heavy duty applications coupled with corrosion resistance make DuraBoxx products an ideal solution for unique industry requirements.

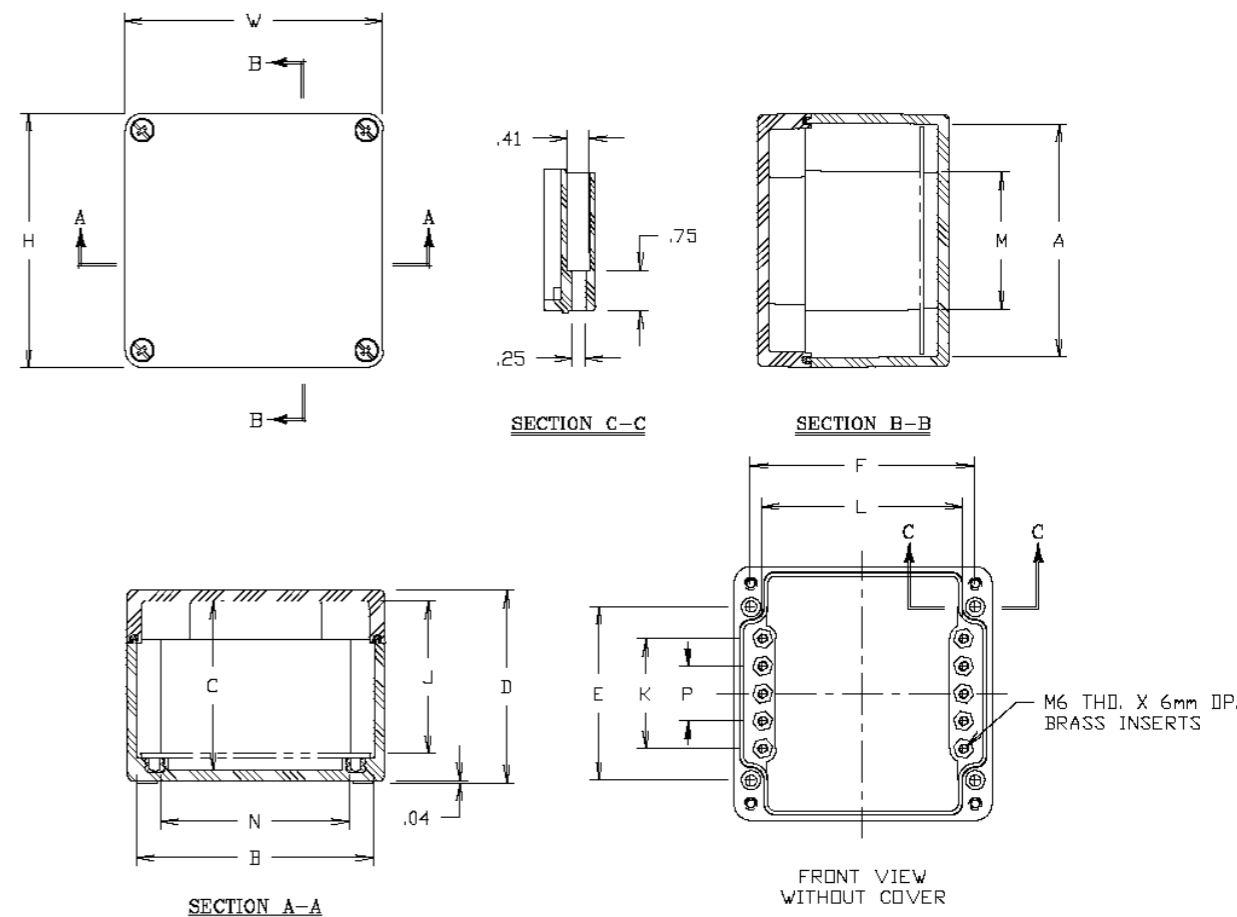
Smooth continuous edge between cover and base minimizes mounting space requirements and provides a commercially pleasing look.

Converts screw cover to hinge cover while preserving full sealing integrity of the enclosure.

Cover can be removed without losing or misplacing the cover screws.

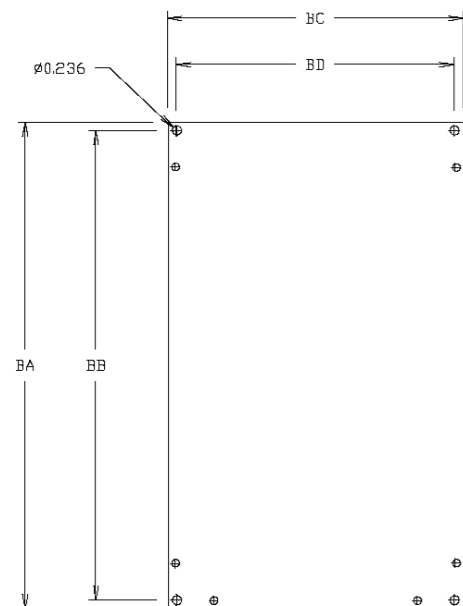
All hardware screws down into metal surfaces insuring strength and integrity over life of the enclosure.

DuraBoxx D Series Specifications



DuraBoxx D Series Enclosures

ENCL. MODEL NO.	OVERALL H X W X D	INSIDE A X B X C	MOUNTING E X F	J	K	L	M	N	P	ENCL. WEIGHT	PANEL NO.
D554W	4.72 x 4.80 x 3.58 (120 x 122 x 91)	4.33 x 4.41 x 3.15 (110 x 112 x 80)	3.23 x 4.17 (82 x 106)	2.83 (72)	2.05 (52)	3.74 (95)	2.56 (65)	3.50 (89)	N/A	1.7 LB	D554BP
D594W	4.72 x 8.66 x 3.58 (120 x 220 x 91)	4.33 x 8.27 x 3.15 (110 x 210 x 80)	3.23 x 8.03 (82 x 204)	2.83 (72)	2.05 (52)	7.60 (193)	2.56 (65)	7.36 (187)	N/A	2.5 LB	D594BP
D774W	6.30 x 6.30 x 3.58 (160 x 160 x 91)	5.79 x 5.79 x 3.11 (147 x 147 x 79)	4.33 x 5.51 (110 x 140)	2.81 (71)	2.99 (76)	5.20 (132)	3.50 (89)	4.68 (119)	N/A	2.8 LB	D774BP
D7114W	6.30 x 10.24 x 3.58 (160 x 260 x 91)	5.79 x 9.72 x 3.11 (147 x 247 x 79)	4.33 x 9.45 (110 x 240)	2.81 (71)	2.99 (76)	9.13 (232)	3.50 (89)	8.62 (219)	N/A	3.8 LB	D7114BP
D10105W	9.84 x 10.04 x 4.76 (250 x 255 x 121)	9.29 x 9.49 x 4.29 (236 x 241 x 109)	7.87 x 9.25 (200 x 235)	3.99 (101)	3.94 (100)	8.94 (227)	7.05 (179)	8.43 (214)	N/A	6.4 LB	D10105BP
D10165W	9.84 x 15.75 x 4.76 (250 x 400 x 121)	9.29 x 15.20 x 4.29 (236 x 386 x 109)	7.87 x 14.96 (200 x 380)	3.99 (101)	3.94 (100)	14.65 (327)	7.05 (179)	14.13 (359)	N/A	8.8 LB	D10165BP
D14144W	14.17 x 14.17 x 3.58 (360 x 360 x 91)	13.66 x 13.66 x 3.11 (347 x 347 x 79)	12.20 x 13.39 (310 x 340)	2.51 (71)	5.31 (135)	13.07 (332)	11.38 (289)	12.56 (319)	2.68 (68)	8.0 LB	D14144BP
D16165W	15.94 x 15.75 x 4.76 (405 x 400 x 121)	15.39 x 15.20 x 4.29 (391 x 386 x 109)	13.98 x 14.96 (355 x 380)	3.99 (101)	9.84 (250)	15.12 (384)	13.62 (346)	14.13 (359)	N/A	11.0 LB	D16165BP



DuraBoxx DL Series Polyamide Hinge Accessory

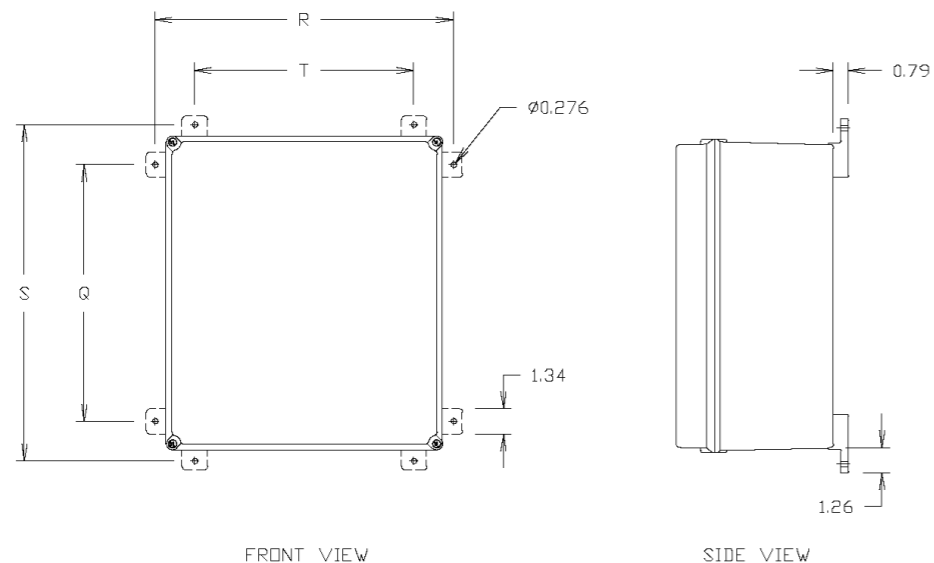
USED WITH MODEL NO.	HINGE KIT NO.	NO. OF HINGES
DL18127W	DLHingeKit1	2
DL18168W	DLHingeKit2	2
DL24168W	DLHingeKit3	3

Note: Hinge Kits are field installable or as a modification.

DuraBoxx DL Series Back Panel Dimensions

BACK PANEL MODEL NO.	BA	BB	BC	BD	# OF HOLES
DL18127BP	13.94 (354)	13.46 (342)	8.46 (215)	7.95 (202)	4
DL18168BP	14.80 (376)	14.25 (362)	12.83 (326)	12.24 (311)	4
DL24168BP	21.89 (556)	21.34 (542)	14.84 (377)	14.21 (361)	4

Caution: Metric units are for reference; do not convert.



DuraBoxx DL Series Optional Mounting

USED WITH MODEL NO.	MOUNTING Q X R	MOUNTING S X T	MTG FOOT KIT NO.
DL18127W	12.66 x 11.34 (321 x 288)	N/A	DLMTGKIT
DL18168W	13.53 x 15.73 (344 x 400)	17.70 x 11.56 (450 x 294)	DLMTGKIT
DL24168W	20.63 x 17.70 (524 x 450)	24.80 x 13.53 (630 x 344)	DLMTGKIT

DuraBoxx Specifications

DuraBoxx D Series Industry Standards & Ratings

STANDARD	FILE NO.	ENCLOSURE RATING
UL/cUL 50/508	E64358	1, 3, 3S, 4X, 6, 6P, 12
NEMA 250	N/A	1, 3, 3S, 4X, 6, 6P, 12
IEC 529	N/A	IP66, IP67, IP68
MODELS AFFECTED		
D554W, D594W, D774W, D10105W, D10165W, D14144W, D16165W		
Above enclosure ratings not affected by addition of polyamide hinge.		

DuraBoxx DL Series Industry Standards & Ratings

STANDARD	FILE NO.	ENCLOSURE RATING
UL/cUL 50/508	E64358	1, 3, 3S, 4X, 12
NEMA 250	N/A	1, 3, 3S, 4X, 12
IEC 529	N/A	IP66
MODELS AFFECTED		
DL18127W, DL18168W, DL24168W		
All above versions maintain a type 4X/IP66 rating when hinge is installed.		

Technical Data

Material	Glass Reinforced Polyester UL 746C Recognized Plastic Material
Impact Resistance	>7Nm
Flammability	94-V0 /Self Extinguishing
Electrical Insulation	Fully Insulated
Dielectric Strength	>10 Kv/mm
Water absorption	Max 0.7% (ASTM D570)
Toxicity	Halogen Free
Surface Resistance	>1012 ohm (DIN 53482)
Color	Glacier Gray

All sizes are currently available from stock. Please note that enclosures ordered in a hinged cover configuration constitute a factory modification and may take up to five working days to be shipped.





Application

The products in this catalog are designed for electrical and electronic enclosure applications in commercial or industrial locations that are classified as non-hazardous. Information on the classification of hazardous and non-hazardous locations appears at the end of this section.

The enclosure products in this publication should be applied, installed and used only by qualified engineers, technicians or electricians knowledgeable of the standards, laws, regulations and ordinances associated with the respective application. The information in this section has been condensed from several references and is provided for guidance in selecting the appropriate enclosure for an application. The original reference must be consulted for detailed information.

Industry Standards

The following information is provided with permission of the respective organizations to assist in the selection of an enclosure:

Enclosure Ratings

CSA, IEC, NEMA and UL use rating classifications that establish performance requirements for enclosures. CSA, NEMA and UL are the recognized organizations and standards in North America, while IEC standards fulfill a similar function in Europe and other parts of the world.

In North America, both UL and CSA are accredited by the Standard Council of Canada (SCC) as certification organizations and testing organizations. With its SCC accreditation, UL is able to evaluate products for use in Canada. Approved products carry CUL mark. Both UL (CUL) and CSA perform follow-up services to assure that manufacturers continue to comply with material and process specifications.

The CE Mark signifies that a product complies with all European Union directives and applicable health, safety, environmental and consumer protection standards. The mark promotes free trade into and within the EU. The CE mark is not applied to empty enclosures because they are considered inactive parts of the final equipment assembly. The equipment integrator is responsible for compliance with EU directives and standards.

The IEC rating system uses different evaluation criteria with more classifications than the UL and CSA standards. Because the classification ratings differ, equating IEC classifications with NEMA Type ratings can be controversial and depends on individual interpretation of ratings.

NEMA publishes a standard for ratings and testing, but does not test or list enclosures. The NEMA enclosure ratings are the standard reference for enclosures in this publication, and regardless of type, all enclosures provide protection to personnel against incidental contact with the enclosed equipment. To assist in the proper selection of an enclosure, the NEMA types are differentiated by the environmental conditions as listed below:

NEMA 1 Indoor use to provide a degree of protection against falling dirt.

NEMA 3 Indoor or outdoor use to provide a degree of protection against falling dirt, rain, sleet, snow and windblown dust; and that will be undamaged by the external formation of ice on the enclosure.

NEMA 3R Indoor or outdoor use to provide a degree of protection against falling dirt, rain, sleet and snow; and that will be undamaged by the external formation of ice on the enclosure.

NEMA 4 Indoor or outdoor use to provide a degree of protection against falling dirt, rain, sleet, snow, windblown dust, splashing water, hose-directed water; and that will be undamaged by the external formation of ice on the enclosure.

NEMA 4X Indoor or outdoor use to provide a degree of protection against falling dirt, rain, sleet, snow, windblown dust, splashing water, hose-directed water and corrosion; and that will be undamaged by the external formation of ice on the enclosure.

NEMA 6 Indoor or outdoor use to provide a degree of protection against falling dirt; hose-directed water and the entry of water during occasional temporary submersion at a limited depth; and will be undamaged by the external formation of ice on the enclosure.

NEMA 6P Indoor or outdoor use to provide a degree of protection against falling dirt; hose-directed water and the entry of water during prolonged submersion at a limited depth; and will be undamaged by the external formation of ice on the enclosure.

NEMA 12 Indoor use to provide a degree of protection against falling dirt; circulating dust, lint, fibers and flyings; and dripping and light splashing of liquids.

NEMA 13 Indoor use to provide a degree of protection against falling dirt; circulating dust, lint, fibers and flyings; and spraying, splashing and seepage of water, oil and non-corrosive coolants.

Reference Documents and Sources

NEMA Standards Publication 250, Enclosures for Electrical Equipment (1000 Volts Maximum) and NEMA Standards Publication ICS6, Enclosures for Industrial Controls and Systems.

National Electrical Manufacturers Association
1300 North 17th ST, Suite 1847
Rosslyn, VA 22209

CSA Standard C22.2 No. 14 Industrial Control Equipment for Use in Ordinary (Non-Hazardous) Locations; CSA Standard C22.2 No. 40 Cut-Out, Junction and Pull Boxes; and CSA Standard 22.2 No. 94 Special Purpose Enclosures
Canadian Standards Association
178 Rexdale Blvd.
Etobicoke, Ontario, Canada M9W 1R3

UL 50 Enclosures for Electrical Equipment; UL 94 Tests for Flammability of Plastic Materials for Parts in Devices and Appliances; UL 508 Industrial Control Equipment; UL 870 Wireways, Auxiliary Gutters and Associated Fittings; and UL 746C Polymeric Materials - Use in Electrical Equipment Evaluations

Underwriters Laboratories
333 Pfingsten Road
Northbrook, IL 60062-2096
Underwriters Laboratories of Canada
7 Crouse Road
Scarborough, Ontario, Canada M1R 3A9

IEC 529 Classification of Degrees of Protection Provided by Enclosures
IEC 204 Electrical Equipment of Industrial Machines
International Electrotechnical Commission
1 Rue de Varembei
CH-1211
Geneva 20, Switzerland

ANSI Z55.1 Gray Finishes for Industrial Apparatus and Equipment
American National Standards Institute
1430 Broadway
New York, NY 10018

Comparison of Enclosure Types for Non-hazardous Locations. Table with columns for enclosure types (1, 3, 3R, 4, 4X, 6, 6P, 12, 13) and rows for environmental conditions (Incidental Contact, Indoor/Outdoor, Falling Dirt, etc.).

*External operating mechanisms are not required to be operable when the enclosure is ice covered

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Information for Comparison of IEC and CSA/NEMA/UL/CUL Ratings

NEMA 250 and UL 50 specify requirements and tests for the degree of protection against entry as well as environmental conditions such as falling dirt, ice, corrosion, oil and coolants whereas IEC 529 does not have such requirements. Different rating requirements make comparison difficult and disagreements are common.

The IEC designation consists of the letters IP followed by two numerals. The first number indicates the degree of protection provided by the enclosure with respect to persons and solid foreign objects entering the enclosure. The second number indicates the degree of protection provided by the enclosure with respect to the harmful ingress of water.

Caution is necessary when attempting to equate IEC and NEMA enclosure ratings because an exact equivalence is not possible.

The data contained in the following table is provided for information and this table must only be used to apply NEMA ratings to IEC designators; it should not be used inversely. The cross-reference is based on engineering judgment and is not approved by the standards organizations.

Specifications for Stahlin Fiberglass Enclosure Back Panel Construction Materials

Fiberglass

Enclosures are molded under heat and pressure with fiberglass reinforced polyester resin to produce superior chemical resistance in corrosive applications. The glass fiber reinforcement increases enclosure strength to withstand physical loads such as unexpected impacts or additional tensile loads.

Carbon Steel

A low carbon, rolled steel produced by passing bar stock through a set of rolls.

Stainless Steel

A highly corrosion resistant iron alloy containing between 12% and 25% chromium. The addition of nickel produces the Stainless Steel 3000 series. For superior corrosion resistance Stahlin utilizes both Type 304 and 316L Stainless Steel, which are non-magnetic. Type 316L, a low carbon Stainless steel, is harder and more corrosion resistant and is an excellent material for marine applications.

Aluminum

A lightweight metal that quickly forms a natural oxide layer to resist corrosion. Stahlin fabricates back panels from Type 5052 Aluminum, the highest strength non-heat treatable aluminum alloy recommended for marine applications.

Enclosure Selection Guidelines

The enclosure selection process includes the following five considerations:

1. Examination of the Application

Industrial applications usually require strong and durable mechanical enclosures. Electronic and communication applications are more diverse, but space and security are usually more dominant considerations.

2. Environmental Protection

The environment where the equipment will be located (i.e.outdoors, factory floor, office, laboratory, chemical plant, etc.) establishes the degree of protection required. The NEMA enclosure ratings provide the information needed to select an enclosure rating.

The application environment is also a significant factor in specifying the enclosure material. Fiberglass is usually considered for more corrosive applications. Electromagnetic interference (EMI) and radio frequency interference (RFI) are additional environmental factors, which impact enclosure material selection and specification.

3. Space Requirements

Space requirements include size and equipment arrangement as well as aesthetics. Accessory items such as windows, back panels, swingout panels, wiring terminals, EMI/RFI shielding and thermal control equipment also influence size and appearance.

4. Climate Control

In electronic enclosure applications heat dissipation may be an important issue because technology advances continue to reduce component size. Smaller components increase heat generation by placing more components in the same enclosure volume. In some applications heaters may be required to prevent condensation.

5. Security

The monetary value of equipment placed within enclosures has increased. Unauthorized access and operation of equipment can jeopardize the safety of personnel. Enclosure security can be enhanced by the selection of hinges, latches, locks and fasteners.

The five steps in the enclosure selection process are not new, but numerous design options are available to meet a diversity of needs in each area. In addition many enclosures in this catalog can be modified to meet unique application requirements in a specific environment.

Selecting an Enclosure

The Selection Guidelines and the Enclosure Selection Guide are designed to help select a Stahlin Enclosure that is best suited for your application. Before using the Enclosure Selection Guide, the first three steps in the selection process must be completed. The application, environmental and space requirements depend on the sensitivity and criticality of the equipment, its size, and operation. Once these parameters are established the first three steps are quickly and easily completed. An Enclosure Selection Checklist and supplemental information are provided in the Technical Section to help select the enclosure. Chemical resistance, equipment weight capacities and other helpful design information are also included in the Technical Section.

The Technical Section contains information to determine the need for climate control in fiberglass enclosures and aids for specifying climate control when it is required. Information on fasteners, latches and locks for security is found in the Accessories Section.

Assignment of IP Designations to NEMA Type Enclosure Ratings

Table with 14 columns for NEMA Enclosure Type (1, 2, 3, 3R, 3S, 4, 4X, 5, 6, 6P, 12, 12K, 13) and 9 rows for IP First Character (IP0 to IP6) and IP Second Character (IP0 to IP8). Shaded cells indicate compliance.

A = A shaded block in the "A" column indicates that the NEMA Enclosure Type exceeds the requirements for the respective IEC 60529 IP First Character Designation. The IP First Character Designation is the protection against access to hazardous parts and solid foreign objects. B = A shaded block in the "B" column indicates that the NEMA Enclosure Type exceeds the requirements for the respective IEC 60529 IP Second Character Designation. The IP Second Character Designation is the protection against the ingress of water.

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Installation

Enclosures must be mounted to structures that support the weight and sustain all other forces that the enclosure and its associated equipment may impose. Before any circuits are energized, all electrical and mechanical clearances must be checked to confirm that the equipment functions safely and properly. Assemblers and installers should consult with manufacturers and observe all regulatory procedures and practices to assure electrical and mechanical conformance in each application.

Classification of Hazardous Atmospheres

The NEC classifies areas according to the nature, likelihood and extent of ignitable flammable hazards that could exist where electrical equipment is installed. The intent of area classification is to prevent fires and explosions that could be caused by electrical equipment serving as an ignition source (arc, spark, high temperature, etc.).

The NEC divides the atmospheric explosion hazards into three classes. Considerable skill and judgment must be applied when

deciding to what degree an area contains hazardous concentrations of vapors, combustible dusts or ignitable fibers and flyings. Factors such as temperature, barometric pressure, humidity, ventilation, quantity of release, distance from the source, etc. must all be evaluated.

An abbreviated summary of the NEC classifications appears in the table below. For detailed information on specific atmospheres, refer to the NEC, Articles 501-505 and 511-517. For a more complete list of flammable liquids, gases and solids; refer to NFPA 497A and NFPA 497B, Classification of Gases, Vapors and Dusts for Electrical Equipment in Hazardous (Classified) Locations.

IEC methodology was added to the 1996 NEC in Article 505. The IEC uses area classifications similar to the NEC, but with different terms, groupings, descriptors and temperature range. Article 505 defines only Class I areas; however, the divisions and groupings are different as shown in the following tables:

SUMMARY OF HAZARDOUS ATMOSPHERES

Table with 4 columns: Class, Division, Group, Typical Atmosphere, Ignition Temperatures. Rows include Class I (Flammable Gases, Vapors, Flammable and Combustible Liquids), Class II (Combustible Dusts), and Class III (Ignitable fibers and flyings).

IEC Group I is for underground mines and is not covered by the NEC. Group IIC combines NEC Groups A and B making the requirements for acetylene the same as for hydrogen and other highly flammable gases. The IEC divides NEC Division 1 into Zone 0 and Zone 1. In Zone 0 the hazard is present at all times or for long periods of time. In Zone 1 the hazard is present during normal conditions, including repair and maintenance activities or leakage, or where operations or processes could result in the release of a flammable mixture or cause a simultaneous failure of electrical equipment.

The IEC divides NEC Division 1 in two parts, IEC Zone 0 and Zone 1. The definition is essentially the same as NEC Division 1, except that the most dangerous application, Zone 0, has been separated. This separation allows IEC Zone 1 use with lesser means in NEC Division 1, which also covers Zone 0.

CAUTION: These methodologies are mutually exclusive and should not be mixed and matched. Equipment approved for the NEC classifications may be used in the equivalent IEC area, but not vice versa. NEC Article 500-3 requires that the area classification, wiring and equipment selection be under the supervision of a qualified Registered Professional Engineer.

Enclosure ratings for hazardous locations include:

NEMA 7 Enclosures constructed for indoor use in hazardous locations classified as Class I, Division 1, Groups A, B, C or D as defined in NFPA 70.

NEMA 8 Enclosures constructed for either indoor or outdoor use in hazardous locations classified as Class I, Division 1, Groups A, B, C and D as defined in NFPA 70.

NEMA 9 Enclosures constructed for indoor use in hazardous locations classified as Class II, Division 1, Groups E, F or G as defined in NFPA 70.

NEMA 10 Enclosures constructed to meet the requirements of the Mine Safety and Health Administration, 30 C. F. R., Part 18.

National Electrical Code (NEC)

Articles 501-505 and 511-517.

National Fire Protection Association (NFPA)

Batterymarch Park Quincy, MA 02269

COMPARISON OF DIVISIONS WITH ZONES

Table comparing NEC Division and IEC Zone. Rows: 1, 1, 2, Non-hazardous.

COMPARISON OF GROUPS

Table comparing NEC Group and IEC Group. Rows: A, B, C, D.

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