

Enclosures

HPS has enclosures available for harsh marine duty environments. The selection of the appropriate enclosure is vital for long term reliability of the equipment and facility.

HPS enclosures are designed and approved in accordance with specifications CSA 22.2 No. 47 (General Purpose), CSA 22.2 No. 94 (Specialty Enclosures) and UL 50.

The following is a list of marine duty enclosures available and a brief description of their applications:

- Type 2** - A ventilated enclosure constructed for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt and to provide a degree of protection against dripping and light splashing of liquids (optional sprinkler hoods are available). Also available in a non-ventilated version.
- Type 3R** - A ventilated enclosure constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, rain, sleet, snow; and that will be undamaged by the external formation of ice on the enclosure (also available in a non-ventilated version).

- Type 4** - A non-ventilated enclosure constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, rain, sleet, snow, windblown dust, splashing water, and hose-directed water; and that will be undamaged by the external formation of ice on the enclosure. Note: not submersible.
- Type 4X** - A non-ventilated enclosure constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt, rain, sleet, snow, windblown dust, splashing water, and hose-directed water and corrosion; and that will be undamaged by the external formation of ice on the enclosure. Note not submersible.

- Type 12** - A non-ventilated enclosure constructed (without knockouts) for indoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment; to provide a degree of protection against falling dirt; against circulating dust, lint fibers, and flyings; and against dripping and light splashing of liquids. Note not water tight.



CANADA



UNITED STATES



INDIA

CANADA
Hammond Power Solutions
595 Southgate Drive
Guelph, Ontario N1G 3W6
Tel: (519) 822-2441
Fax: (519) 822-9701
Toll Free: 1-888-798-8882
sales@hammondpowersolutions.com

INDIA
Hammond Power Solutions Pvt.
D. No. 5-2/222/IP/B, II-Floor, Icon Plaza,
Allwyn X-Roads, Miyapur, Hyderabad - 500 049
Tel: 040-23813593, 23812291
Fax: 040-23706741
marketing-india@hammondpowersolutions.com

UNITED STATES
Hammond Power Solutions
1100 Lake Street
Baraboo, Wisconsin 53913-2866
Tel: (608) 356-3921
Fax: (608) 355-7623
Toll Free: 1-866-705-4684
sales@hammondpowersolutions.com

EUROPE (Sales Office)
Hammond Power Solutions SpA
Tel: +49 (152) 08800468
sales@hpseurope.eu



Type 3R Enclosure



Type 4 Enclosure

Distributed by:



Marine Duty
Solutions

Marine Duty Solutions

Our offering of single-phase and three-phase marine duty transformers has been developed utilizing over 90 years of commercial and marine experience in magnetic transformer design.

Our ABS type approved product lines have been engineered to meet the unique requirements of marine applications including:

- Commercial and Pleasure Ships
- Offshore oil rigs
- Tankers
- Near shore
- Other harsh marine environments



Superior Quality & Service

- Experienced customer service and technical support personnel are available to answer your questions immediately. Our commitment to customer service means you will be an informed, relaxed and satisfied customer.
- Superior quality has been the standard since our inception. We build value and quality into every HPS product.
- We emphasize our “Value Added Engineering” whereby our design staff will interface with your team to produce the optimum transformer.
- Over 90 years of service means our customers have come to rely on our products and services. Our stability and integrity as a supplier are paramount, particularly in an industry environment where demands must be resolved quickly. Our leading design capabilities places us among the best in the industry. Our extensive quality testing means our products will exceed your expectations.
- All HPS facilities have implemented quality management systems based on ISO 9001:2000 with the Guelph facility having certification to that quality standard.

HPS Marine Duty Transformers

HPS offers a marine duty option on most product lines: HPS Sentinel Series, Dry-Type Power Transformers, and is standard on our HPS Titan Series.

HPS dry-type marine duty transformers with three phase ratings up to 25MVA, 34.5kV and single phase to 5MVA, feature the newest technology and manufacturing processes.

ABS Type Approval:
Manufacturing Assessment Certificate No.: 04-M0523208-X
PDA Certificate No.: 04-HS435190-PDA

Features

- Copper or Aluminum windings
- Dry-type convection cooled
- 150°C, 115°C or 80°C temperature rise available
- 220°C, 200°C or 180°C insulation system available
- VPI Impregnation for salt environment
- Fungus resistant
- Braced for marine applications
- Enclosures: Type 2 or Type 3R (per ABS requirements)
- Stainless steel hardware (on units over 1000 kVA)
- UV protection for outdoor enclosures
- UL50 frames, channels etc.
- CSA, UL and ABS approval (Lloyd’s Register and DNV approval available upon request)

Available Options

- Type 4, 4X and 12 enclosures
- Vibration mounts
- Additional primary taps
- Electrostatic shielding
- Hot service or standby heaters
- DNV, BV, Lloyds

HPS PRODUCTS

HPS Encapsulated Transformers for Harsh and Hazardous Locations

HPS Titan N® encapsulated transformers are used in installations where safety is your priority, efficiency is a concern and the environment, location and application are key.

HPS Titan N® series has been designed to operate in harsh environments/hazardous locations where dangerous gases, liquids, dust, etc., could lead to serious consequences. Typical applications include institutional, commercial, industrial, petrochemical, marine, mining, etc.

HPS Titan N® series transformers are UL Listed for “Class 1, Division 2, Groups A, B, C, D and Class I, Zone 2, Group IIC, T3 Hazardous Locations” and are ABS Type Approved for “Marine Duty Service and Offshore Applications – Electrical Distribution and Propulsion”. And with a North American Temperature Classification of T3C/T3A, the HPS Titan N® series will remain cool under load.

Compliance & Approvals

- ANSI/ISA 12.12.10 - File No. E258346 (Class 1, Division 2, Groups A, B, C, D and Class 1, Zone 2, Group IIC, T3 Hazardous Locations) - T3C/T3A Temperature Classification
- UL 5085-1 and UL5085-2 Listed - File No. E258346
- ABS Type Approval (Marine Duty Service and Offshore Applications certified)



HPS Autotransformers and Distribution Transformers

HPS offers three phase autotransformers that are available for applications where voltage adjustments are necessary in a distribution system. They are frequently used as an economical alternative to three phase general purpose distribution transformers to adjust the supply voltage to match specific load requirements when load isolation from the supply line is not required. Autotransformers can be used as either a step-up or step-down transformer.



HPS offers diverse lines of energy efficient low voltage distribution transformers. They can be designed for use in applications with high harmonic current, in either a step-up or step-down format.

One of the challenges in addressing marine and offshore applications that are often remote generation locations is to ensure the equipment is rugged enough to withstand the seismic and moisture extremes as well as the damaging effects of lightning. HPS has the experience delivering these custom quality products to OEM’s operators on a worldwide basis.

Compliance & Approvals

- UL Listed (File: E112313)
- CSA Certified (File: LR3902)



HPS Medium Voltage (Power) Transformers

HPS has decades of experience designing medium voltage power transformers for the difficult applications and environments found the in the marine and offshore applications. HPS offers a wide range of dry-type VPI (HPS Millennium) and Cast Coil (HPS EnduraCoil™) products. Dry-type transformers offer several advantages over oil transformers including lower fire risk, fewer environmental contamination concerns, proven insulation systems for high ambient temperatures and lower installation and maintenance costs.

- ISO 9001:2008 manufacturing and engineering processes
- Global VPI approval performance levels including: UL, CSA, IEC, ABS, DNV, BV, and Lloyds
- Global Cast Resin approval performance levels including: UL, CSA and IEC



Compliance & Approvals

HPS medium voltage transformers are CSA certified and UL Listed to the following standards:

- CSA C22.2 No. 47
- CSA C9-02
- UL 1562



Compliant to the following industry standards:

- IEEE-C57.12.01
- IEEE-C57.12.51
- IEEE-C57.12.70
- IEEE-C57.12.91
- DOE 10 CFR Part 431: 2016
- NRCAN SOR/2018-201
- IEC 60076 (upon request)
- California OSHPD