



Hammond Power  
Solutions Inc.

Your First Source for Transformers



# MARINE DUTY TRANSFORMERS





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*We are committed to serving our customers guided by our focus on quality and service.*

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.



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## HPS MARINE DUTY TRANSFORMERS

HPS offers a marine duty option on most product lines: HPS Sentinel Series, HPS Synergy Series, HPS Centurion 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



HPS TITAN  
Series

### FEATURES

- Copper or Aluminum windings
- Dry-type convection cooled
- Standard NEMA taps
- 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: NEMA 2 or NEMA 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

- NEMA 4, 4X and 12 enclosures
- Vibration mounts
- Additional primary taps
- Electrostatic shielding
- Sealed coils (VT polyester resin)
- Hot service or standby heaters
- DNV, BV, Lloyds





# MARINE DUTY TRANSFORMERS

## TRANSFORMER DESIGN FEATURES

**Core Design** - Cores are manufactured from the highest quality steel laminations using the most advanced construction techniques. All cores are protected by appropriate method for the an application.

**Coil Design** - Primary and Secondary coil construction are coaxial with ample cooling ducts. All coils are pressure impregnated with additional amounts of a VT polyester resin to provide a higher than standard layer of protection.

**Optional VPI Epoxy** - Each coil follows a carefully controlled eight stage manufacturing process which produces excellent strength against short circuit forces and superior protection against harsh environments.

**Steel Components** - All steel parts (frames, base channels, brackets, rods, etc.) are either coated or plated to meet UL50 salt spray requirements. All hardware (bolts, nuts, washers, etc.) is fully protected in stainless steel or equivalent finish.

**Insulation** - 220°C, 200°C, or 180°C insulation system available.

**Temperature Rise** - 150°C, 115°C or 80°C temperature rise available.

**Enclosures** - Indoor (below deck) enclosures are type NEMA 2 or NEMA 3R and are painted with a UL50 rated finish. Outdoor (above deck) enclosures are type NEMA 3R, NEMA 4, NEMA 4X or NEMA 12 and are also painted with a UL50 rated finish. Other enclosures, stainless steel or UV protection is available upon request.

**Special Applications** - HPS lines of outstanding marine duty transformers offer unparalleled reliability and performance for the most difficult marine applications. Contact HPS quotation department for your specific application needs.

**Drive Duty Applications** - Thermal Factor (K-rated for harmonics) and Multipulse technology designs for shipboard, drilling and propulsion - AC & DC Drive applications are available. Consult factory on drive design and configuration coordination.



## 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), NEMA 250 and UL 50.

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

**NEMA 2** - This is a general purpose 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.

**NEMA 3R** - This is a general purpose 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).

**NEMA 4** - This is a general purpose 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.

**NEMA 4X** - This is a general purpose 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.

**NEMA 12** - This is a general purpose 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.



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