



Hammond Power
Solutions Inc.

1.2kV Class Drive Isolation Transformer Typical Specification

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1 GENERAL

1.1 SCOPE

- A This section defines dry-type enclosed and ventilated low voltage low loss transformers designed constructed and to supply power to DC or variable speed AC.
- B Optional: Output Transformer suitable for input power from a variable speed AC drive. Such transformers have additional design features to withstand harmonics.

1.2 RELATED DOCUMENTS

- A Drawing and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section

1.3 REFERENCES

- A ANSI C57.12.01/NEMA ST-20 Dry-Type Transformer For General Applications
- B IEEE C57.110-1998
- C UL 1561, CSA C9 & CA 22.2 No. 47.

1.4 SUBMITALS

- A Submit shop drawing and product data for approval and final documentation in the quantities listed according to the Conditions of the contract. Customer name, customer location and customer order number shall identify all transmittals.
- B Product Data including kVA rating, average winding temperature rise, detailed enclosure dimensions, primary & secondary nominal voltages, primary voltage taps, no load & full load losses, impedances, unit weight, warranty.
 - i Percentage regulation at 35% & 100% load at 80% & 100% power factor.

1.5 STORAGE AND HANDLING

- A Store and handle in strict compliance with manufacturer's instructions and recommendations. Protect from potential damage from weather and construction operations. Store so condensation will not form on or in the transformer housing and if necessary, apply temporary heat where required to obtain suitable service conditions.
- B Handle transformer using proper equipment for lifting and handling, use when necessary lifting eye and/or brackets provided for that purpose.

1.6 WARRANTY

- A The transformer shall carry a 10 year limited warranty.
(For details, refer to the manufacturers published warranty)

2 PRODUCTS

2.1 GENERAL CONSTRUCTION:

- A Transformer rated 15kVA and larger, ventilated type. All three phase transformers shall be constructed with three coils and a single core. The primary side of each transformer shall, if applicable, be provided with taps that meet or exceed NEMA standards. Transformer windings shall be designed suitable for 150% overload for 60 seconds OR 200% overload for 30 seconds, once every hour. Three-phase, common core construction. Convection air cooled.
- B Transformers shall be designed, constructed and rated in accordance with UL, CSA, and NEMA standards. If shipping to Europe, transformer will also have to be manufactured in accordance to CE standards and carry a CE mark.

2.2 VOLTAGE AND kVA REQUIREMENTS:

- A Primary Voltage: [208][230][460][480][575][other] Volts
- B Secondary Voltage: [230][240][400][460][480][575][other] Volts

- C kVA Rating: [20][27][34][40][51][63][75][93][118][145][175] [220][275][330][440][550][660]
[other] kVA
- D System Frequency: 60 [50] [other] Hertz

2.3 KEY REQUIREMENTS:

- A Typical impedance at 60Hz: 4% to 6.5%.
- B Nameplate Rating: Linear load, 60Hz.

2.4 BASIC REQUIREMENTS:

- A Insulation Class: 220°C system [200][other]
- B Temperature Rise: 150°C [130°C][115°C][80°C][other]
- C Taps: [1 x ± 5% (1FCAN, 1FCBN)][2 x ± 2.5% (2FCAN, 2FCBN)][2 x +2.5%, 4 x -2.5% (2FCAN, 4FCBN)][2 x - 5% (2FCBN)][none][other]
- D Transformer core construction: high grade non-aging, fully processed silicon steel laminations or better.
- E Coil conductors: aluminum [copper] windings, with terminations brazed, welded or bolted.
- F Impregnation: vacuum impregnated core & coils.
- G Inrush current: 10 times full load rating (max.)
- H Sound level: 3dB below NEMA ST-20..
- I Enclosure: ventilated, Type 3R [Type 3RE][other].
- J Enclosure Finish: ANSI 61 Grey suitable for UL50 outdoor applications [other].
- K Transformers shall terminate in mounting pads. Bring out primary and secondary terminations to terminals on the same side of the transformer mounted on separate insulated support. Provide mechanical lugs on primary, secondary and neutral for customer terminations. Mounting lugs will be included on all aluminum and copper units up to and including 270 amp ratings. Contractors shall provide all necessary lugs not already provided with transformer.
- L Anti-vibration pads/isolators shall be used between the transformer core and coil and the enclosure.
- M UL listed, CSA approved, [CE Mark]
- N Built to NEMA ST-20 and in accordance with all applicable UL, CSA and ANSI/IEEE standards.
- O Ground core & coil assembly to enclosure with a flexible copper grounding strap or equivalent.
- P Thermostat: Over-temperature switches wired to internal terminal strip.
- Q Mounting:
- i Ventilated units up to 750 lbs.: Suitable for wall, floor or ceiling mounting (drip plate required).
 - ii Ventilated units over 750 lbs.: Suitable for floor mounting only.

OPTIONS:

- Electrostatic Shielding
- Vibration Isolators
- Low Sound [-5 dB][-8 dB]
- Enclosures: [Type 4][Type 4X][Type 12] other
- Strip Heaters
- Marine Duty (meet ABS requirements)
- SPD (Surge Protection Device)
- Manufacturer has the ability to guarantee EMF levels as low as 10mG on the enclosure top and four sides from a distance of 1 meter for most units and kVA ranges. (Contact manufacturer for details on pricing and availability.)

2.5 ACCEPTABLE PRODUCT AND MANUFACTURER:

- A ***HPS Drive Isolation*** transformer, by: Hammond Power Solutions Inc. (Canada: 1-888-798-8882 / U.S.: 1-866-705-4684).
- B Substitutions are permitted, subject to meeting all requirements of this specification and also having written approval by engineering 10 days prior to bid closing.

3 EXECUTION

3.1 INSTALLATION

- A The installing contractor shall install the HPS Drive Isolation Transformer per the manufacturer's recommended installation practices as found in the installation, operation and maintenance manual and comply with all applicable codes.
- B Make sure that the transformer is level.
- C Check for damage and loose connections.
- D Mount transformer to comply with all applicable codes.
- E Install optional vibration isolation pads between transformer enclosure and the mounting surface.
- F Install seismic restraint where indicated on the drawing.
- G Coordinate all work in this section with all work of other sections.
- H Prior to energizing transformer, verify secondary voltages and if necessary adjust secondary taps.