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**MT-PSTH-R7-3P-GNF-1.5MVA-YE-HNS-LNS-A6-DFF-CZ-1ZZ-M1**

# 1.5 / 7.725 MVA Hermetically Sealed Substation Transformer - 4160Y/2400 Grounded Wye Primary, 480Y/277 Wye-N Secondary - KNAN/KNAF, Light Grey, NEMA 4

**Product ID: 309609**

**Please see last page for supporting documentation for this product(certificates, CAD files & drawings, IES files, wiring diagrams, etc).**



**Larson Electronics LLC manufactures a wide variety of products, including custom built to spec designs. The pictures displayed for this unit are a general representation of form factor for the product line and may not accurately represent this exact configuration in every detail due to custom builds and changes between similar products in our standard catalog. The specifics for this configuration are listed in the specification table and supporting documentation (CAD files, Dimensional Drawing, Name Plate Diagram, Wiring Diagram, etc.). This means that specific details (receptacles, plugs, wires, connections, mounting brackets, external finishes, etc.) may not be accurately represented in images vs specifications. Please review specifications and do not order based solely on images.**

| MT-PSTH-R7-3P-GNF-1.5MVA-YE-HNS-LNS-A6-DFF-CZ-1ZZ-M1 Hermetically Sealed Transformer | Ratings |
|---|---|
| **Transformer Type: Substation Power Transformer, Hermetically Sealed** | Meets/Exceeds DOE 2016 Efficiency Ratings |
| **Transformer Configuration: Liquid Filled Pad Mounted** | Meets/Exceeds CSA Efficiency Ratings |
| **Transformer Feed Type: Radial Feed** | Complies with ANSI / IEEE C57.12.00 |
| **Operation: Approved for Step-Up and Step-Down Operations** | Complies with ANSI / IEEE C57 12.28 |
| **Phase: Three Phase** | Complies with ANSI / IEEE C57 12.29 |
| **Capacity: 1500 KVA w/o Fans, 1725 KVA w/ Fans** | Complies with ANSI / IEEE C57 12.35 |
| **Vector Group: YNyn0** | Complies with ANSI / IEEE C57.12.70 |
| **Primary Voltage: 4160Y/2400** | Complies with ANSI / IEEE C57.12.110 |
| **Primary Voltage Switch: N/A** | Complies with ANSI / IEEE C57.12.131 |
| **Primary Voltage Class: 5 kV Class** | Complies with ANSI / IEEE C62.11 |
| **Primary Phasor: Grounded Wye** | Complies with ANSI / IEEE C62.22 |
| **Primary BIL: 60 kV** | Complies with ANSI / IEEE 386 |
| **Secondary Voltage: 480Y/277** | Complies with ANSI / IEEE C2 |
| **Secondary Voltage Class: 1.2 kV Class** | Complies with ANSI / IEEE C37.47 |
| **Secondary Phasor: Wye-N** | Complies with ANSI Z535.4 |
| **Secondary BIL: 30 kV** | Complies with ASTM D3487 |
| **Frequency: 60 HZ** | Complies with ASTM D6871 |
| **Temperature Rise: 75°C** | Complies with NEMA 260-1996 |
| **Insulation Rating: Class E Insulation - 120°C, 248°F** | Complies with 10 CFR Part 431 |
| **Cooling Class: KNAN/KNAF; Fan-Cooled** | Complies with CSA C2.1-06 |
| **Forced Air (Fans): Included, 120V, 1-Phase** | Complies with CSA C50 |
| **Radiators:** Included, Corrugate Type Cooling Fins | |
| **Tap Changer: 5-Position Off-Load Tap Changer** | Complies with CSA C88 |

**Tap Qty: (2) FCAN Above Taps, (2) FCBN Below Taps**
**Tap %: 2.5% Taps**
**Tap Changer Switch Rating: 5 kV, 600A, 60kV BIL, Off-Load Rated**
**Tap Changer Switch Location: High Voltage (HV) [Left Side]**
**Impedance (Typical): 5.75%**
**Primary Connection Type: Live Front**
**Primary Termination Arrangement: Side Mounted Terminals w/ Air Terminal Chamber to Ground**
**Primary Termination: Epoxy 4-Hole Spade Bushings**
**Primary Connection Qty: (3) Primary Connections**
**Primary Bushing Rating: 5 kV Class, 60 kV BIL**
**Primary Neutral Connection: Epoxy 4-Hole Spade Bushing**
**Primary Surge Arrestors: N/A**
**Primary Surge Arrestor Voltage Rating: N/A**
**Primary Surge Arrestor MCOV Rating: N/A**
**Primary Over Current Protection (OCP): N/A**
**Primary Over Current Protection Method: N/A**
**Primary Over Current Protection Holder: N/A**
**Primary Grounding Provisions: N/A**
**Secondary Connection Type: Live Front**
**Secondary Termination Arrangement: Side Mounted Terminals w/ Air Terminal Chamber to Ground**
**Secondary Connections: Integral Copper 6-Hole Spade Bushings**
**Secondary Connection Qty: (3)**
**Secondary Connection Supports: N/A**
**Secondary Over Current Protection (OCP): N/A**
**Secondary Neutral Connection: Integral Copper 6-Hole Spade Bushing**
**Secondary Grounding Provisions: (1) NEMA Ground Bar Attached to Tank via (2) Welded Ground Bungs**
**Metering Current Transformer (CT): N/A**
**Metering Panel: N/A**
**Auxiliary Control Panel : Included, for fan control**
**Load Break Switch: N/A**
**Load Break Switch Qty: N/A**
**Load Break Switch Rating: N/A**
**Load Break Switch Location: N/A**
**Efficiency Standard(s): Meets ANSI/IEEE Standards**
**K-Factor Rating (Harmonic Mitigation): K-1 (Standard)**
**Pulse Drive Rating: Appropriate For Use With 6-Pulse Drive Equipment On Secondary Side**
**Insulation Fluid: Enviro-Temp FR-3, Non-PCB Fluid**
**Fluid (Oil) Capacity*: TBD**
**Fluid (Oil) Weight*: TBD**
**Oil Level Indicator: Analog Dial Gauge, with alarm contacts**
**Oil Temperature Indicator: Analog Dial Gauge, with alarm contacts**
**Pressure/Vacuum Indicator: Analog Dial Gauge, with alarm contacts**
**Pressure Relief Device: Included, Cover Mounted Automatic Action with alarm contacts, 10 PSI, 5000 SCFM**
**Nitrogen Blanket:** Included, w/ Purge Valve
**Fault Indicator: N/A**
**Gas Sampler Valve: N/A**
**Fill Valve: N/A**
**Fill Valve Location: N/A**
**Oil Drain Valve: 1" NPT Port w/ 3/8" NPT Sampler Valve, Globe Type**
**Drain Valve Location: Front Compartment**
**Purge Valve:** Included, (2) w/ ¼" Hose Adapters
**Winding Material: Copper**
**Ambient Temperature Rating: 40°C**
**Ambient Operating Temperature Range: -40°C to +40°C (-50°F to +104°F)**
**Sound Level: 67 dBA**
**Elevation (Altitude): 3300ft (1000 meters) Above Sea Level**
**Core Material: Grain Oriented Steel**
**Tank Material: Coated Steel**
**Cabinet Material: Coated Steel**
**Base Platform Material: Coated Steel**
**Portability: Lifting Lugs, Provisions for Jacking Under Base, w/ Base Construction Suitable for Using Rollers or Skidding**
**Housing Type: Metal Casing Liquid Filled Transformer**
**Enclosure Rating: NEMA 4 (Mild Steel)Weatherproof Wiring Cabinet, Sealed Tank**

Complies with CSA C88.1
Complies with CSA C88-16
Complies with CSA C227.4
Complies with CSA C227.5
Complies with CSA C802-3
Complies with CSA C802.1

**Features**

Hot Stick Included, HV Door Mount
Penta-head Bolt Entry Assembly
High-Fire Point Insulating Fluid
Non-PCB Insulating Fluid
Tamper Proof Housing
Hinged Front Compartment Doors, Pad Lockable
NEMA 3R Wiring Compartment

**Efficiency %: Comply With DOE 2016 Standard**
*Based on transformer operating at 50% of nameplate base kVA.*

**Load Losses Based on 85°C Reference Temp.**

**No Load Loss (in watts): TBD**
**Full Load Loss (in watts) at 100%: TBD**
**Total Load Loss (in watts) at 100%: TBD**

**Total Losses at 55°C LL Temp.& 20°C NL Temp.**

**Total Load Loss (in watts) at 50%: TBD**

***Note: Losses offered are typical only, not guaranteed***

**Labeling:**

Externally Stencilled (Painted) KVA Rating
Externally Stencilled (Painted) Voltage Rating
External Non-PCB Label
External Warning & Danger Label
External Barcode Label
Internal Busing & Accessory Labeling
Stainless Steel Riveted Nameplate

**Factory Tests:**

Winding Resistance Test
Insulation Resistance Test
Voltage Ratio Error Test
Short-circuit Impedance Test
No-load Loss (Wattage) Test
Separate Source Voltage Withstand Test
Load Loss (Wattage) Test
Induced Voltage Withstand Test
Pressure Integrity Test

**Shipping:**

Shipped on pallet on open flatbed
Palletized on Wooden Pallet w/ Skid Pockets
Pallet Skid Facing Outward Sides of Truck
***Note: Crated shipping in lieu of palletizing can be done upon request for an additional fee***

**Seismic Rating: Yes**

**Paint Type: Weatherproof and UV Resistant Epoxy Coating and Undercoating**

**Finish Color: Munsell 8.3G 6.10/0.54 Light Grey (ANSI 61)**

**Mounting: Skid Type Base w/ Lifting Lugs**

**Conduit Opening: N/A**

**Tank Cover Access Handhole: N/A**

**Dimensions*: -**

**Dry Weight (w/o Oil)*: -**

**Total Weight (Liquid Filled)*: -**

*Please note that numbers are approximate and subject to change

**Special Orders - Special Requirements**

Contact us for special requirements

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**The MT-PSTH-R7-3P-GNF-1.5MVA-YE-HNS-LNS-A6-DFF-CZ-1ZZ-M1 Hermetically Sealed Transformer from Larson Electronics offers powerful, reliable, and efficient power distribution in indoor or outdoor locations. The low operating costs, low heat emissions, and low cost of ownership makes this transformer ideal for a wide range of applications and businesses. This air tight transformer does not have doors and must be installed in a contained or protected area away from public access.**

***PLEASE NOTE: ANY FREE SHIPPING OFFERS DO NOT APPLY TO POWER DISTRIBUTION PANELS, TRANSFORMERS, OR SUBSTATIONS****

**Transformer Features:** The industrial transformer features a primary voltage of three-phase 4160Y/2400 Grounded Wye and a secondary voltage of three-phase 480Y/277 Wye-N. This system carries the following ratings: 1.5 MVA (Natural Cooled) and 1.725 MVA (Fan Cooled). The unit has a primary radial feed and live front primary connections. We also offer systems with loop feed and dead front primary connections. This transformer features a 5-position tap changer with two, +/- 2.5% taps above and two, +/- 2.5% taps below to allow small changes for voltage. There are no load break switches, rapid rise relays, or protection fuses present on the system.

The system features copper windings for high strength and thermal/electrical conductivity. This transformer consists of rectangular coil and five-legged wound core design with three coils and four core loops (this is for three-phase transformers only; single-phase units have one coil and two core loops).

The MT-PSTH-R7-3P-GNF-1.5MVA-YE-HNS-LNS-A6-DFF-CZ-1ZZ-M1 is completely sealed and features air tight construction. Designed for long-term performance, the transformer is maintenance free.

**Temperature Rise:** This unit features a 75°C temperature rise for reduced heat waste, increased reliability, and longer life. At 75°C temperature rise, the transformer offers 1.5 MVA (Natural Cooled) and 1.725 MVA (Fan Cooled). The transformer meets standard efficiency requirements. The combination of low temperature rise, and high efficiency makes this unit suitable for use in electrical rooms, air-conditioned spaces in buildings, underground vaults and similar locations, in addition to outdoor areas.

**Insulation Fluid:** The MT-PSTH-R7-3P-GNF-1.5MVA-YE-HNS-LNS-A6-DFF-CZ-1ZZ-M1 transformer features enviro-temp FR-3 cooling fluid (KNAN/KNAF) with a capacity of 2207 gallons. We offer transformers with mineral oil and biodegradable fluids, if needed.

**Gauges:** The following gauges are included with the system: oil level indicator, oil thermometer, and pressure/vacuum gauge. Standard oil level indicator, oil thermometer, and pressure/vacuum gauges are analog, manual reading types.

**Fault Pressure Devices:** There are no fault pressure devices on the unit. Fault pressure devices are used to detect high rates of pressure rise within the tank.

**Rapid Rise Relay:** There are no rapid rise relays on the unit. This safety component is designed for protection when a rapid increase in tank pressure occurs. The relay is suitable for detecting sudden pressure fluctuations above predetermined safe limits.

**Surge arresters:** This system do not have surge arresters on the primary and secondary side.

**Load Breaker Switch:** The transformer is not equipped with a load breaker switch.

**Valves:** The MT-PSTH-R7-3P-GNF-1.5MVA-YE-HNS-LNS-A6-DFF-CZ-1ZZ-M1 is equipped with an oil drain valve, an oil sampling valve, and a pressure relief valve.
**Protection Fuses:** This transformer does not have bayonet protection fuses on the primary side. For units without protection fuses, up stream protection is provided. We recommend provisions for protection fuses when possible, as blown fuses may require more frequent oil changes.
**Terminal Connections:** The primary and secondary terminal connections are located on the side of the transformer. We can configure the location to be top located or top located for both the high voltage and low voltage sides.
**Mount:** This hermetically sealed transformer is equipped with a skid type base with lifting lugs.
**Benefits:** The MT-PSTH-R7-3P-GNF-1.5MVA-YE-HNS-LNS-A6-DFF-CZ-1ZZ-M1 transformer offers many benefits to consumers. This transformer provides owners with significant energy savings, as well as offering environmental benefits. Higher efficiency not only extends the life of the transformer, but also turns into cost savings for owners in the form of lower energy bills and decreased cost of ownership.
**Applications:** General purposes, industrial sites, electrical rooms, underground vaults, manufacturing facilities, steel plants, offshore, commercial, military, processing plants, electric power distribution, utilities, and more.
Larson Electronics is a manufacturer and as such can build stationary and portable transformer systems to your specifications. Although we carry several models of power distribution transformer systems, we can deliver custom ordered units almost as quickly as our prebuilt units. If this model does not meet your needs, please contact us at 1-800-369-6671 or sales@larsonelectronics.com to discuss your specific requirements.

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# Frequently Asked Questions (FAQ)

**Export Control Classification Number (ECCN):** EAR99

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