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**MT-PSTH-R7-3P-DMC-390KVA-YNG.K-HNS-LNS-X5-AM-AZ-1ZZ-M1**

# 390 KVA Hermetically Sealed Substation Transformer - 33000V Delta Primary, 3300Y/1905 x 400Y/231 Wye-N Secondary - ONAN, RAL 7033

**Product ID: 311017**

**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-DMC-390KVA-YNG.K-HNS-LNS-X5-AM-AZ-1ZZ-M1 Hermetically Sealed Transformer**

**Transformer Type: Substation Power Transformer, Hermetically Sealed**
**Transformer Configuration: Liquid Filled Pad Mounted**
**Transformer Feed Type: Radial Feed**
**Operation: Approved for Step-Up and Step-Down Operations**
**Phase: Three Phase**
**Capacity: 390 KVA**
**Vector Group: Dyn11yn11**
**Primary Voltage: 33000V**
**Primary Voltage Switch: N/A**
**Primary Voltage Class: 35 kV Class**
**Primary Phasor: Delta**
**Primary BIL: 150 kV**
**Secondary Voltage: 3300Y/1905 x 400Y/231**
**Secondary Voltage Switch:** Included
**Secondary Voltage Class: 5 kV Class**
**Secondary Phasor: Wye-N**
**Secondary BIL: 60 kV**
**Frequency: 50 Hz**
**Temperature Rise: 55°C**
**Insulation Rating: Class A Insulation**
**Cooling Class: ONAN; Self-Cooled**
**Forced Air (Fans): None**
**Tap Changer: 6-Position Off-Load Tap Changer**
**Tap Qty: (3) FCAN Above Taps, (2) FCBN Below Taps**

**Ratings**

Meets/Exceeds DOE 2016 Efficiency Ratings
Meets/Exceeds CSA Efficiency Ratings
Complies with ANSI / IEEE C57.12.00
Complies with ANSI / IEEE C57 12.28
Complies with ANSI / IEEE C57 12.29
Complies with ANSI / IEEE C57 12.34
Complies with ANSI / IEEE C57 12.35
Complies with ANSI / IEEE C57.12.70
Complies with ANSI / IEEE C57.12.110
Complies with ANSI / IEEE C57.12.131
Complies with ANSI / IEEE C62.11
Complies with ANSI / IEEE C62.22
Complies with ANSI / IEEE 386
Complies with CSA C227.4 & C227.5
Complies with ANSI / IEEE C2
Complies with ANSI / IEEE C37.47
Complies with ANSI Z535.4
Complies with ASTM D3487
Complies with ASTM D6871
Complies with NEMA 260-1996
Complies with 10 CFR Part 431
Complies with CSA C2.1-06
Complies with CSA C50
Complies with CSA C88

**Tap %: 4.5455% Taps**
**Tap Changer Switch Rating: 35 kV, Off-Load Rated**
**Tap Changer Switch Location: High Voltage (HV) [Left Side]**
**Impedance (Typical): 4% (±10%)**
**Primary Connection Type: Live Front**
**Primary Termination Arrangement: Side Mounted Terminals with IP 55 terminal box**
**Primary Termination: Porcelain Bushings**
**Primary Connection Qty: (3) Primary Connections**
**Primary Bushing Rating: 35 kV Class, 150 kV BIL**
**Primary Neutral Connection: N/A**
**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 with IP 55 terminal box**
**Secondary Connections: Porcelain Bushings**
**Secondary Connection Qty: (4), Neutral brought out**
**Secondary Connection Supports: N/A**
**Secondary Over Current Protection (OCP): N/A**
**Secondary Neutral Connection: N/A**
**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 : N/A**
**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: Mineral Oil**
**Fluid (Oil) Capacity*: TBD**
**Fluid (Oil) Weight*: TBD**
**Oil Level Indicator: Analog Dial Gauge with two contacts (Alarm/Trip)**
**Oil Temperature Indicator: Analog Dial Gauge with two contacts (Alarm/Trip)**
**Pressure/Vacuum Indicator: Analog Dial Gauge with two contacts (Alarm/Trip)**
**Pressure Relief Device: Included, Automatic Action**
**Fault Indicator: N/A**
**Gas Sampler Valve: N/A**
**Fill Valve: Yes**
**Fill Valve Location: -**
**Oil Drain Valve: 1" NPT Port w/ 2 5/8" NPT Sampler Valves**
**Drain Valve Location: Front Compartment**
**Winding Material: Aluminum**
**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 3R Weatherproof Wiring Cabinet, Sealed Tank**
**Seismic Rating: Yes**
**Paint Type: Weatherproof and UV Resistant Epoxy Coating and Undercoating**
**Finish Color: RAL 7033 C3-M**
**Mounting: Skid Type Base w/ Lifting Lugs**
**Conduit Opening: N/A**

Complies with CSA C88.1
Complies with CSA C88-16
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 %: 98.00%**
*Based on transformer operating at 50% of nameplate base kVA.*

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

**No Load Loss (in watts): 750W ±15%**
**Full Load Loss (in watts) at 100%: 4000W ±15%**
**Total Load Loss (in watts) at 100%: 4750W ±15%**

**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
Load Loss (Wattage) Test
Induced Voltage Withstand Test
Separate Source 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***

**Special Orders - Special Requirements**

**Tank Cover Access Handhole: N/A**
**Dimensions*: 39.4"-W, 57.1"-D, 76.8"-H**
**Dry Weight (w/o Oil)*: TBD**
**Total Weight (Liquid Filled)*: 6,129 lbs**
*Please note that numbers are approximate and subject to change

Contact us for special requirements
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**The MT-PSTH-R7-3P-DMC-390KVA-YNG.K-HNS-LNS-X5-AM-AZ-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 33000V Delta and a secondary voltage of three-phase 3300Y/1905 x 400Y/231 Wye-N. This system carries the following ratings: 390 KVA. 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 MT-PSTH-R7-3P-DMC-390KVA-YNG.K-HNS-LNS-X5-AM-AZ-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 50°C ambient temperature rating and a 55°C temperature rise for reduced heat waste, increased reliability, and longer life. At 65°C temperature rise, the transformer offers 390 KVA. 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-DMC-390KVA-YNG.K-HNS-LNS-X5-AM-AZ-1ZZ-M1 features mineral oil (ONAN).
**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. These gauges do not have alarm contacts except the oil level gauge which has two contacts (alarm/trip).
**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 does not come with surge arresters on the primary or secondary sides. Designed for over-voltage and transient voltage protection, the components prevent damage caused by lightning, internal switching or voltage surges. We can offer models without high elbow surge arresters that have mounting provisions for customer-provided surge arresters.
**Load Breaker Switch:** The transformer is not equipped with a load breaker switch.
**Valves:** The MT-PSTH-R7-3P-DMC-390KVA-YNG.K-HNS-LNS-X5-AM-AZ-1ZZ-M1 is equipped with an oil drain valve, two oil sampling valves, 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-DMC-390KVA-YNG.K-HNS-LNS-X5-AM-AZ-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

Links (Click on the below items to view):

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- **ISO 9001 Certification**
- **Business Certificate**
- **Shipping Time Map**