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**MT-PSTH-R7-3P-DEXR-20MVA-GRU-HT-LT-A5-BMF-CZ-1ZZ-M1**

# 20/25 MVA Hermetically Sealed Substation Transformer - 150000V Delta Primary, 15000Y/8660 Grounded Wye Secondary - ONAN/ONAF, Light Grey

**Product ID: 311580**



**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-DEXR-20MVA-GRU-HT-LT-A5-BMF-CZ-1ZZ-M1 Substation Transformer**

**Transformer Type:** Substation Power Transformer, Hermetically Sealed Type
**Transformer Configuration:** Liquid Filled Pad Mounted
**Phase: Three Phase**
**Transformer Feed Type:** Radial Feed
**Capacity (w/o Fans): 20 MVA (20,000 KVA)**
**Capacity (w/ Fans):** 25 MVA (25,000 KVA)
**Primary Voltage: 150000V**
**Primary Voltage Class:** 172 kV
**Primary BIL:** 450 kV
**Primary Phasor:** Delta
**Secondary Voltage: 15000Y/8660**
**Secondary Voltage Class:** 15 kV
**Secondary BIL:** 110 kV
**Secondary Phasor:** Delta
**Vector Group:** Dyn1
**Frequency: 50 Hz**
**Temperature Rise: 65°C**
**Forced Air (Fans): Included**
**Radiator:** Included, Removable Cold Rolled Steel
**Tap Changer:** 5-Position De-Energized Tap Changer
**Tap Qty:** (2) FCAN Above Taps, (2) FCBN Below Taps
**Tap %:** 2.5% Taps
**Impedance (Typical):** 5.0-7.5%

**Ratings**

Listed for United States and Canada

**Primary Connection Type: Live Front**
**Primary Termination Arrangement:** Top Mounted Porcelain Bushings
**Primary Connection:** NEMA H-Spade Terminals
**Primary Connection Qty:** (3) Primary Connections
**Primary Bushing Rating:** 172 kV Class, 450 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:** Top Mounted Porcelain Bushings
**Secondary Connections:** NEMA H-Spade Terminals
**Secondary Connection Qty:** (4)
**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
**Insulation Fluid:** Mineral Oil Insulating Fluid - Non-PCB Fluid
**Fluid Capacity: TBD**
**Cooling Class: ONAN/ONAF**
**Liquid Preservation System:** Included, Sealed Tank Per IEEE C57.12.10
**Liquid Level Gauge: Included, Magnetic Type w/ Contacts**
**Liquid Temperature Gauge: Included, Analog Type**
**Pressure/Vacuum Gauge: Included, Analog Type**
**Fault Pressure Device: None**
**Pressure Relief Valve: Included, w/ Contacts**
**Fill Valve: Included**
**Drain Valve w/ Sampler Port: Included**
**Rapid Rise Relay: None**
**Load Break Switch: N/A**
**Winding Material: Copper**
**No Load Loss: +/- 12,331W**
**Full Load Loss: +/- 38,902W**
**Ambient Temperature Rating: -**
**Sound Level: TBD**
**Cabinet Type: No Doors**
**Paint Type: Light Grey**
**Mounting: Pad Mounted**
**Conduit Opening: N/A**
**Dimensions: TBD**
**Weight: TBD**

**Special Orders - Special Requirements**
Contact us for special requirements
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**The MT-PSTH-R7-3P-DEXR-20MVA-GRU-HT-LT-A5-BMF-CZ-1ZZ-M1 Hermetically Sealed Substation Transformer from Larson Electronics offers powerful, reliable and efficient power distribution in 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 transformer ensures extra space for storing oil and is equipped with breathers to facilitate air flow. The conservator transformer should be installed on supporting structures.**
***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 150000V Delta and a secondary voltage of three-phase 15000Y/8660. This system is rated for 20 MVA (20,000 KVA) [Natural Cooled] / 25 MVA (25,000

KVA) [Fan Cooled]. We offer systems with loop or radial feed, as well as dead front or live 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 rapid rise relays and 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-DEXR-20MVA-GRU-HT-LT-A5-BMF-CZ-1ZZ-M1 has fans for forced air cooling. This non-sealed system features breathers for cooling when operating temperatures increase.
**Temperature Rise:** This unit features 65°C temperature rise for reduced heat waste, increased reliability and longer life. At 65°C temperature rise, the transformer offers 20 MVA (20,000 KVA) [Natural Cooled] / 25 MVA (25,000 KVA) [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-DEXR-20MVA-GRU-HT-LT-A5-BMF-CZ-1ZZ-M1 features mineral oil fluid (ONAN/ONAF). We offer transformers with biodegradable or FR-3 fluids, if needed.
**Biodegradable Fluid:** Biodegradable cooling fluid (vegetable oil) has a higher heat capacity compared to mineral oil, making the liquid safer to use and more reliable during operations. Vegetable oil has a higher flash point and fire point than mineral oil, hydrocarbon oil, silicone oil and synthetic ester. This cooling fluid is also non-toxic and can tolerate higher breakdown voltages than mineral oil. When operating at high temperatures, biodegradable cooling liquid sustains up to 120% loan conditions, which helps preserve the transformer's lifespan and performance.
**Gauges:** The following gauges are included with the system: liquid level, temperature and pressure/vacuum gauges. Standard liquid level, temperature 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 doesn't come with surge arresters. Surge arresters are 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 load breaker switches.
**Valves:** The MT-PSTH-R7-3P-DEXR-20MVA-GRU-HT-LT-A5-BMF-CZ-1ZZ-M1 is equipped with a pressure relief valve, fill valve and drain valve with sampler port.
**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.
**Mount:** This substation transformer should be installed on supporting structures, such as the roof of the transformer main tank.
**Benefits:** The MT-PSTH-R7-3P-DEXR-20MVA-GRU-HT-LT-A5-BMF-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.

# Frequently Asked Questions (FAQ)