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MT-PSTH-R7-3P-DMA-15MVA-GMR-HT-LNS-X6-CMF-CZ-2ZZ-M1

15/20-16.8/22.4 MVA Hermetically Sealed Substation Power Transformer, 34500V Delta Primary, 12470Y/7200 Grounded Wye Secondary - ONAN/ONAF, Mineral Oil, 55-65°C, Light Grey

Product ID: 316264



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-DMA-15MVA-GMR-HT-LNS-X6-CMF-CZ-2ZZ-M1 Hermetically Sealed Transformer

Transformer Type: Substation Power Transformer, Hermetically Sealed
Transformer Configuration: Liquid Filled
Transformer Feed Type: Radial Feed
Operation: Step-Down Operation (Not Approved for Step-Up)
Phase: Three Phase
Capacity (w/o Fans, @ 55/65°C): 15 MVA (15,000 KVA) / 16.8 MVA (16,800 KVA)
Capacity (w/ Fans, @ 55/65oC): 20 MVA (20,000 KVA) / 22.4 MVA (22,400 KVA)
Vector Group: Dyn1
Primary Voltage: 34500V
Primary Voltage Switch: N/A
Primary Voltage Class: 35 kV Class
Primary Phasor: Delta
Primary BIL: 200 KV
Secondary Voltage: 12470Y/7200
Secondary Voltage Class: 15 kV Class
Secondary Phasor: Grounded Wye
Secondary BIL: 110 KV
Frequency: 60 Hz
Temperature Rise: 55-65°C
Insulation Rating: Class A Insulation
Cooling Class: ONAN/ONAF
Forced Air (Fans): Included, 240V AC-3-Ph rating, NEMA type, totally enclosed (TEFC), and outdoor weatherproof, Cooling fan blades are one piece, dynamically balanced, heavy-duty galvanized metal.
Cooling Radiator: Included, (9) Has Upper And Lower Drain Plugs, ANSI #70 Light Grey, Contains Individual Shut-Off Valves, Interchangeable, Galvanized
HV Tap Changer: 5-Position De-Energized Tap Changer

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 CSA C802.1
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 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 IEEE Std 693-2018
Complies with CSA C50

HV Tap Qty: (2) FCAN Above Taps, (2) FCBN Below Taps
HV Tap %: 2.5%
HV Tap Changer Switch Rating: 35 KV, 200 kV BIL
HV Tap Changer Switch Location: H.V Side, Top Mounted
LV Tap Changer: 33-Position On-Load Tap Changer, RMV-II, Equipped with Beckwith M-2270B Adapter Panel (with Auto/Off/Manual toggle switch), M-2948 Tap Position Sensor, M-2025 current loop interface module, and M-0329 back- up LTC controller
LV Tap Qty: (16) FCAN Above Taps, (16) FCBN Below Taps
LV Tap %: 0.625%
LV Tap Changer Switch Rating: 15 KV, 95 kV BIL
LV Tap Changer Switch Location: L.V Side, Side Mounted
Impedance: 7.08% (@15,000 kVA)
Primary Connection Type: Live Front
Primary Termination Arrangement: Inline, Top Mounted
Primary Termination: Wet-process porcelain, homogenous, nonporous and free from cavities and flaws, w/ NEMA 4-Hole Pad connectors
Primary Bushing Qty: (3)
Primary Bushing Rating: 35 KV Class, 200 KV LIL, Porcelain
Primary Neutral Connection: N/A
Primary Surge Arrestors: Included, Station Class, Metal Oxid, Silicon Polymer Type Housing, ANSI #70 Light Grey
Primary Surge Arrestor Voltage Rating: 36 kV
Primary Surge Arrestor MCOV Rating: 29 kV
Primary Over Current Protection (OCP): N/A
Primary Over Current Protection Holder: N/A
Primary Bushing CT: Included, (2) Per Each Bushing, 600:5 Ratio, C800 Accuracy Class
Primary Grounding Provisions: Included, 2 NEMA 2-hole Ground Pads
Secondary Connection Type: Live Front
Secondary Termination Arrangement: Inline, Side Mounted w/ Air Terminal Chamber, Bottom Entry for 1000kcMIL cables, Lines up with the existing bus duct
Secondary Termination: Wet-process porcelain, homogenous, nonporous and free from cavities and flaws, w/ NEMA 4-Hole Pad connectors
Secondary Bushing Qty: (4)
Secondary Bushing Rating: 15 KV Class, 110 KV LIL
Secondary Neutral Connection: 15 KV Class, 110 KV BIL, Porcelain, ANSI #70 light Grey, Includes Visible Oil Level Indicator "Sight Glass", Oil-Filled Condenser Type
Secondary Surge Arrestors: Included, Station Class, Metal Oxid, Silicon Polymer Type Housing, ANSI #70 Light Grey
Secondary Surge Arrestor Voltage Rating: 10 kV
Secondary Surge Arrestor MCOV Rating: 8.4 kV
Secondary Over Current Protection (OCP): N/A
Secondary Bushing CT: Included, (2) Per Each Bushing, 1200:5 Ratio, C800 Accuracy Class
Secondary Neutral Bushing CT: Included, (1) 600:5 Ratio, C800 Accuracy Class
Secondary Grounding Provisions: Included, (2) NEMA 2-hole Ground Pads
Core Accessible Grounding Connection: Included
Metering Current Transformer (CT): N/A
Metering Panel: N/A
Auxiliary Control Panel: Included, Contains Power Sources: 240V AC-3-Ph , 125V DC
Heaters: 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)
Insulation Fluid: Mineral Oil, Inhibited, Type II, Non-PCB Fluid
Fluid (Oil) Capacity*: TBD
Fluid (Oil) Weight*: 18,298.37 lbs
Silica Gel Breather: N/A
Liquid Level Indicator: Included, w/ alarm contacts
Winding Temperature Indicator: Included, w/ alarm and trip contacts
Liquid Temperature Indicator: Included, w/ alarm and trip contacts
Pressure/Vacuum Gauge: Included, w/ alarm and trip contacts
Sudden Pressure Relay: Included, w/ trip contacts, w/ Seal-In Relay Qualitrol 909-300
Pressure Relief Device: Included, Qualitrol 208-60U
Fault Indicator: N/A
Gas Sampler Valve: Included

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

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

Efficiency %: 99.39%
Based on transformer operating at 50% of nameplate base kVA.

Load Losses Based on 75°C Reference Temp.

Off-Load Loss (in watts): 20,000W
On-Load Loss (in watts): 90,000W
Total Load Loss (in watts) at 100%: 110,000W

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

Total Load Loss (in watts) at 50%: 28,000W
Note: *Losses offered are typical only, not guaranteed*

Labeling:
Gas Caution
Externally Stenciled (Painted) KVA Rating
Externally Stenciled (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
Short-circuit Impedance Test
Insulation Resistance Test
Voltage Ratio Error Test
No-load Loss (Wattage) Test
Induced Voltage Withstand Test
Load Loss (Wattage) Test
Separate Source Voltage Withstand Test
Pressure Integrity Test
Additional test per NETA ATS 2021 Acceptance Testing

Fill Valve: Included
Fill Valve Location: Top Mounted
Drain Valve: Included, 2" Globe Type With 3/8" Sampling Valve (HJ DV1013-001)
Drain Valve Location: Bottom of Tank
Winding Material: Copper
Ambient Temperature Rating: 45°C
Ambient Operating Temperature Range: -40°C to +40°C
Sound Level: 67/68 Db
Elevation (Altitude): <3000ft (1000 meters) Above Sea Level
Salinity: Low

Pollution: Low-Medium

Core Material: Electrical Silicon Steel, Grain Oriented
Tank Material: Coated Steel
Cabinet Material: Coated Steel
Base Platform Material: Coated Steel

Hardware Material: Stainless 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
Seismic Rating: Zone 2
Paint Type: Weatherproof and UV Resistant Epoxy Coating and Undercoating
Finish Color: ANSI #70 Light Grey
Mounting: Supporting Structures
Conduit Opening: N/A
Tank Cover: Bolted
Tank: Sealed

Dimensions: 200.79"-W x 173.23"-D x 171.26"-H

Dry Weight (w/o Oil)*: TBD

Total Weight (Liquid Filled)*: 61,949.9 lbs

*Please note that numbers are approximate and subject to change

Specifications (SFRA, Oil test, functionality, grounding tests)

Design Tests:
Sound Level Test
Temperature Rise Test
Lightning Impulse 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
Contact us for special requirements

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The MT-PSTH-R7-3P-DMA-15MVA-GMR-HT-LNS-X6-CMF-CZ-2ZZ-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 34500V Delta and a secondary voltage of three-phase 12470Y/7200 Grounded Wye. This system is rated for 15 MVA (15,000 KVA) natural cooled, 20 MVA (20,000 KVA) fan cooled. We offer systems with loop or radial feed, as well as dead front or live front primary connections. The transformer features a 5-position off-load tap changer with two, +/- 2.5% taps above and two, +/- 2.5% taps below to allow small changes for voltage. There is a rapid rise relay 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-DMA-15MVA-GMR-HT-LNS-X6-CMF-CZ-2ZZ-M1 has fans for forced air cooling.
Temperature Rise: This unit features 55/65°C temperature rise for reduced heat waste, increased reliability and longer life. At 55°C temperature rise, the transformer offers 15 MVA (15,000 KVA) natural cooled, 20 MVA (20,000 KVA) fan cooled. At 65°C temperature rise, the transformer offers 16.8 MVA (16,800 KVA)

natural cooled, 22.4 MVA (22,400 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 outdoor areas.
Insulation Fluid: The MT-PSTH-R7-3P-DMA-15MVA-GMR-HT-LNS-X6-CMF-CZ-2ZZ-M1 features mineral oil Insulation fluid (ONAN/ONAF). We offer transformers with biodegradable or FR-3 fluids, if needed.
Gauges: The following gauges are included with the system: liquid level indicator, Fluid temperature indicator, Winding Temperature Indicator, pressure/vacuum indicator. Standard liquid level, temperature and pressure/vacuum gauges are analog dial types.
Fault Pressure Devices: There is a Rapid Pressure Rise Relay and Seal-In Relay on this unit.
Gas Relay: A gas relay with indicators for light gas and heavy gas is included with the transformer. The relay includes two Dry Type Form C auxiliary contacts (1NO + 1NC) for remote alarm when pressure rises above in-field set pressure located in auxiliary control cabinet.
Surge arresters: This system comes with surge arresters on both the primary and secondary sides.
Load Break Switch: The transformer is not equipped with a load break switch.
Valves: The MT-PSTH-R7-3P-DMA-15MVA-GMR-HT-LNS-X6-CMF-CZ-2ZZ-M1 is equipped with a pressure relief valve.
Protection Fuses: This transformer does not have bayonet protection fuses on the primary side. For units without protection fuses, upstream protection is provided. We recommend provisions for protection fuses when possible, as blown fuses may require more frequent oil changes.
Mount: This substation transformer is installed on supporting structures, such as the roof of the transformer main tank.
Benefits: The MT-PSTH-R7-3P-DMA-15MVA-GMR-HT-LNS-X6-CMF-CZ-2ZZ-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)