Larson Electronics LLC
9419 E US HWY 175, Kemp, TX 75143
Phone: 800.369.6671

www.LarsonElectronics.com
Email: sales@LarsonElectronics.com
Fax: 903.498.3364

MT-PSTH-R7-3P-DMB-10MVA-GNF-HT-LNS-A6-CBF-AZ-1ZZ-M1

10-11.2/12.5-14 MVA Hermetically Sealed Substation Transformer - 33560V Delta Primary, 4160Y/2400 Grounded Wye Secondary - Aluminum, KNAN/KNAF, Grey, NEMA 4

Product ID: 316343



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-DMB-10MVA-GNF-HT-LNS-A6-CBF-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
Polarity: Subtractive
Phase: Three Phase
Capacity (w/o Fans, @55/65 °C): 10 MVA (10000 KVA) / 11.2 MVA (11200 KVA)
Capacity (w/ Fans, @55/65 °C): 12.5 MVA (12500 KVA) / 14 MVA (14000 KVA)
Vector Group: Dyn1
Primary Voltage: 33560V
Primary Voltage Switch: N/A
Primary Voltage Class: 35 kV Class
Primary Phasor: Delta
Primary BIL: 200 kV
Secondary Voltage: 4160Y/2400
Secondary Voltage Class: 5 kV Class
Secondary Phasor: Grounded Wye
Secondary Line BIL: 60 kV
Secondary Neutral BIL: 60 kV
Frequency: 60 HZ
Temperature Rise: 55/65°C
Insulation Rating: Class E Insulation - 120°C, 248°F
Cooling Class: KNAN/KNAF; Self-Cooled/Fan-Cooled
Forced Air (Fans): Included, 230V, 1Ph, 60 Hz
HV Tap Changer: 5-Position De-energized Tap Changer
HV Tap Qty: (2) FCBN Below Taps, (2) FCAN Above Taps
HV Tap %: 2.5%

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 CSA C802.1
Complies with ANSI / IEEE C57 12.29
Complies with ANSI / IEEE C57 12.34
Complies with CSA C227.5
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 NEMA 260-1996
Complies with ASTM D3487
Complies with ASTM D6871
Complies with CSA C802-3
Complies with 10 CFR Part 431
Complies with CSA C2.1-06
Complies with CSA C50
Complies with CSA C88
Complies with CSA C88.1

HV Tap Changer Switch Rating: 35 kV, 200 kV BIL
HV Tap Changer Switch Location: HV Side

LV Tap Changer: 33-Position On-Load Tap Changer

LV Tap Qty: (16) FCBN Below Taps, (16) FCAN Above Taps

LV Tap %: 0..625%

LV Tap Changer Switch Rating: 5 kV, 60 kV BIL

LV Tap Changer Switch Location: LV Side

Impedance (@ 10 MVA): 11.5%
Primary Connection Type: Live Front
Primary Termination Arrangement: Top Mounted Terminals
Primary Termination: Porcelain Bushings

Primary Termination Type: Insulated Power Cable

Primary Connection Qty: (3) Primary Connections
Primary Bushing Rating: 35 kV Class, 200 kV BIL, 1.38 inch/kV (L-G) Min. Creepage Distance
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 Current Transformer(s): Included, (1) Per Each Bushing, 600/5A MR, C400 Accuracy Class
Primary Grounding Provisions: N/A

Secondary Connection Type: Live Front

Secondary Termination Arrangement: Side Mounted, Enclosed In ATC, Bottom Out/Entry
Secondary Connections: Porcelain Bushings

Secondary Termination Type: Nonsegregated Bus Duct

Secondary Connection Qty: (4)
Secondary Connection Supports: N/A
Secondary Over Current Protection (OCP): N/A
Secondary Neutral Connection: Included
Secondary Neutral Termination Type: Insulated Wire to External HRG
Secondary Grounding Provisions: (1) NEMA Ground Bar Attached to Tank via (2) Welded Ground Bungs
Secondary Line Current Transformer(s): Included, (1) Hot Spot CT
Secondary Neutral Current Transformer(s): Included, (1) 600/5A MR, C200 Accuracy Class
Neutral Grounding Resistance: Included, Insulated wire 8, 300A, 2.4 kV, 10 seconds, Cover Mounted, w/ CT 300/5A SR, C550 Accuracy Class
Metering Current Transformer (CT): N/A
Metering Panel: N/A
Auxiliary Control Panel: Included, 240/120VAC 1-phase 3-wire / 125VDC
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: Biodegradable Natural Ester Fluid, Non-PCB
Fluid (Oil) Capacity*: TBD
Fluid (Oil) Weight*: TBD
Oil Level Indicator: Analog Dial Gauge
Resistance Temperature Detector (RTD): Included, For remote Indication (includes 4-20 mA transducer)
Oil Temperature Indicator: Analog Dial Gauge
Winding Temperature Indicator: Analog Dial Gauge
Pressure/Vacuum Indicator: Analog Dial Gauge
Pressure Relief Device: Included, Automatic Action
Sudden Pressure Relay: Included
Oil Preservation System: Gas (Nitrogen) Blanketed Automatic Gas Seal System
Transformer Monitor: Included, SEL-2414
Fault Indicator: N/A
Gas Detector Relay: Included
Fill Valve: N/A
Fill Valve Location: N/A

Complies with CSA C88-16
Complies with CSA C227.4

Features

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
Hot Stick Included, HV Door Mount

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

Load Losses Based on 85°C Reference Temp.

Average No Load Loss (in watts): TBD

Average 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 Measurement Tests
Ratio Tests
Polarity and Phase Relation Tests
No Load Losses & Excit Current (100%,110%)
Impedance Voltage & Load Loss
Operation Tests of all Devices
Dissolved Gas Analysis O
Winding Insulation Resistance
Lightning Impulse DO (1red, 2chop, 2full)
Core Insulation Resistance
Insulation Power Factor/Cap Tests
Low Freq Control, VT, CT Tests
Low Frequency (Applied & Induced Potential)
Switching Impulse (phase to ground)

Oil Drain Valve: 1" NPT Port w/ 5/8" NPT Sampler Valve
Drain Valve Location: Front Compartment
Winding Material: Aluminum

Ambient Temperature Rating: 40°C

Ambient Operating Temperature Range: -29°C to +40°C

Sound Level: 68 dBA, Complies to NEMA TR-1, At Base Rating
Elevation (Altitude): 3300ft (1000 meters) Above Sea Level

Wind Speed: 114 mph

Seismic Ratings: D Soil Class, 1.25 Importance Factor, 0.069 Spectral Response Acceleration, Short Period (Ss), 0.04 Spectral Response Acceleration, 1 sec. period (S1), 1.6 Short Period Site Coefficient (Fa), 2.4 Long Period Site Coefficient at 1.0 s period (Fv), 0.074 Design, 5% damped, Spectral Response Acc. at short periods (SDS), 0.064 Design, 5% damped, Spectral Response Acc. at 1 sec. periods (SD1), 12 Long Period Transition Period (TL), Category A Seismic Design
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 Weatherproof Wiring 316 Stainless Steel Cabinet, Sealed Tank
Paint Type: Weatherproof and UV Resistant Epoxy Coating and Undercoating
Finish Color: ANSI 61 Grey
Mounting: Skid Type Base w/ Lifting Lugs
Conduit Opening: N/A
Tank Cover Access Handhole: N/A

Dimensions*: 157"-W x 112"-D x 129.5"-H

Dry Weight (w/o Oil)*: 21605 lbs

Total Weight (Liquid Filled)*: 40785 lbs

*Please note that numbers are approximate and subject to change

Leak Tests
Lifting and Moving Devices
Pressure Tests
Sweep Frequency Response Analyzer Test (SFRA with oil)
Sweep Frequency Response Analyzer Test (SFRA without oil)
Bushing Power Factor Tests

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

Toll Free: 1-800-369-6671

Intl: 1-903-270-1187

Fax: 1-903-498-3364

E-mail: sales@larsonelectronics.com

The MT-PSTH-R7-3P-DMB-10MVA-GNF-HT-LNS-A6-CBF-AZ-1ZZ-M1 Hermetically Sealed Substation 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 make 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 33560V Delta and a secondary voltage of three-phase 4160Y/2400 Grounded Wye. This system carries the following rating: 10 MVA (10000 KVA) [Natural Cooled] / 12.5 MVA (12500 KVA) [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. There are no load break switches, rapid rise relays, or protection fuses present on the system.

The system features aluminum windings for high strength and thermal/electrical conductivity. This transformer consists of a 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-DMB-10MVA-GNF-HT-LNS-A6-CBF-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 40°C ambient temperature rating and a 55/65°C temperature rise for reduced heat waste, increased reliability, and longer life. At 55°C temperature rise, the transformer offers 10 MVA (10000 KVA) [Natural Cooled] / 12.5 MVA (12500 KVA) [Fan Cooled]. At 65°C temperature rise,

the transformer offers 11.2 MVA (11200 KVA) [Natural Cooled] / 14 MVA (14000 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-DMB-10MVA-GNF-HT-LNS-A6-CBF-AZ-1ZZ-M1 features biodegradable cooling fluid (KNAN/KNAF).
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.
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 is a rapid rise relay 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 on the primary side. 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-DMB-10MVA-GNF-HT-LNS-A6-CBF-AZ-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, upstream protection is provided. We recommend provisions for protection fuses when possible, as blown fuses may require more frequent oil changes.
Terminal Connections: The primary terminal connections are located on the top of the transformer and secondary terminal connections are located on the side of the transformer enclosed in an air terminal chamber. We can configure the location to be top located or side 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-DMB-10MVA-GNF-HT-LNS-A6-CBF-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.

Frequently Asked Questions (FAQ)