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MT-PSTH-R7-3P-DXA-18MVA-YMP-HT-LT-A6-CMFF-CZ-2ZZ-M1

18/20/22.5 MVA Hermetically Sealed Substation Power Transformer, 69000V Delta Primary, 13800Y/7967 Wye-N Secondary - ONAN/ONAF/ONAF, Mineral Oil - Light Grey

Product ID: 308744

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-DXA-18MVA-YMP-HT-LT-A6-CMFF-CZ-2ZZ-M1 Conservator 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^{O}C): 18 MVA (18,000 KVA)
Capacity (w/ Fans, Stage 1, @ 55/65oC): 20 MVA (20,000 KVA)
Capacity (w/ Fans, Stage 2, @ 55/65oC): 22.5 MVA (22,500 KVA)
Vector Group: Dyn11
Primary Voltage: 69000V
Primary Voltage Switch: N/A
Primary Voltage Class: 72 kV Class
Primary Phasor: Delta
Primary BIL: 350 KV
Secondary Voltage: 13800Y/7967
Secondary Voltage Class: 15 kV Class
Secondary Phasor: Wye-N
Secondary BIL: 110 KV
Frequency: 60 Hz
Temperature Rise: 55/65°C
Insulation Rating: Class A Insulation
Cooling Class: ONAN/ONAF/ONAF
Forced Air (Fans): Included, (12) Two-Stages, 240V AC-1Ph rating, POWERTECH KP0702

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 CSA C802-3
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

Cooling Radiator: Included, (9) Has Upper And Lower Drain Plugs, ANSI #70 Sky Grey, Contains Individual Shut-Off Valves, Interchangeable
H.V Tap Changer: 5-Position De-energized Tap Changer (DETC), SPECIALTY 40B04-5311-U-12
H.V Tap Qty: (2) FCAN Above Taps, (2) FCBN Below Taps
H.V Tap %: 2.5%
H.V Tap Changer Switch Rating: 69 KV, 350 BIL, 400A
H.V Tap Changer Switch Location: H.V Side, Top Mounted
L.V Tap Changer: n/a
L.V Tap Qty: N/A
L.V Tap %: N/A
L.V Tap Changer Switch Rating: N/A
L.V Tap Changer Switch Location: N/A
Impedance (@ 30 MVA): 7.95%
Primary Connection Type: Live Front
Primary Termination Arrangement: Inline, Top Mounted
Primary Termination: NEMA 4-Hole Pad connectors, (ABB, 1ZUA264101-BAB)
Primary Bushing Qty: (3)
Primary Bushing Rating: 69 KV Class, 350 KV BIL, 1200 A, Porcelain, ABB, T69Z0412AN
Primary Neutral Connection: N/A
Primary Surge Arrestors: Included, (3) Metal Oxide Polymer Housed Station Class, ANSI #70 Light Grey, Connected to stainless steel ground pad at the base of the transformer
Primary Surge Arrestor Voltage Rating: 54 KV
Primary Surge Arrestor MCOV Rating: 42 KV rms
Primary Over Current Protection (OCP): Included
Primary Bushing CT: N/A
Primary Over Current Protection Holder: N/A
Primary Grounding Provisions: N/A
Secondary Connection Type: Live Front
Secondary Termination Arrangement: Inline, Top Mounted
Secondary Termination: NEMA 4-Hole Pad connectors, (HJ, AS1728-010)
Secondary Bushing Qty: (4)
Secondary Bushing Rating: 15 KV Class, 110 KV BIL, 3140 A, Porcelain, ANSI #70 light Grey, Includes Visible Oil Level Indicator "Sight Glass", Oil-Filled Condenser Type
Secondary Neutral Connection: 25 KV Class, 110 KV BIL, Porcelain, ANSI #70 light Grey, Includes Visible Oil Level Indicator "Sight Glass", Oil-Filled Condenser Type
Secondary Over Current Protection (OCP): Included
Secondary Bushing CT: Included, (1) Per Each Phase (3000/2200/1500/1000/500:5 MR, C400 Relaying Accuracy Class, 100 VA Rating) & (1) mounted on X2 (3500:5 SR, 1.2B0.5 Class, 12.5 VA Rating)
Secondary Surge Arrestors: Included, (3) Metal Oxide Polymer Housed Station Class, ANSI #70 Light Grey, Connected to stainless steel ground pad at the base of the transformer
Secondary Surge Arrestor Voltage Rating: 15 KV
Secondary Surge Arrestor MCOV Rating: 9 KV
Secondary Grounding Provisions: Included, (3) Grounding Pads
Neutral Bushing CT: N/A
Metering Current Transformer (CT): Included
Metering Panel: Included
Auxiliary Control Panel : Included, Contains Power Sources 125 Vdc, 120/240 Vac-1Ph
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)
Current Total Harmonic Distortion: 5.0%
Insulation Fluid: Mineral Oil, Type II, Non-PCB Fluid
Fluid (Oil) Capacity*: TBD
Fluid (Oil) Weight*: TBD
Silica Gel Breather: N/A
Liquid Level Indicator: Included, ORTO, 0126A w/ 1 contact
Winding Temperature Indicator: Included, ORTO, 0291 3A3 w/ 3 contacts
Liquid Temperature Indicator: Included, ORTO, 0297 3A3 w/ 3 contacts
Thermal Well: Included, ORTO, 0872WL
Pressure/Vacuum Gauge: Included, With bleeder, (HL, HPG-2500), ±15 PSI
Rapid Rise Relay: Included, QUALITROL 900-003-02 w/ Seal-In-Relay QUALITROL 909-300-02
Pressure Relief Device: Included, ORTO, 0510 TC, 10 PSI, w/ 1 contact

Complies With IEEE Std 693-2018

Complies with CSA C50

Complies with CSA C88
Complies with CSA C88.1
Complies with CSA C88-16
Complies with CSA C227.4
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 %: TBD
Based on transformer operating at 50% of nameplate base kVA.
Load Losses Based on 75°C Reference Temp.
Off-Load Loss (in watts): TBD
On-Load Loss (in watts): 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 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

Transformer Monitor And I/O Processor: Included, Schweitzer SEL-2414 Transformer Monitor (P/N: 241421ABA913A3A0131), An SEL-2725S Ethernet Switch installed to network the SEL-2411 I/O Controller, SEL-2414 Transformer Monitor, and SEL-2411 Load Tap Changer Controller
Nitrogen Oil Preservation System: Included With A Nitrogen Tank And All Necessary Accessories, POWERTECH, KP1930, w/ 3 contacts
Pressure Reducer: Included, Three-Stage
Gas Relay: Included
Fault Indicator: N/A
Gas Sampler Valve: N/A
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: TBD
Winding Material: Copper
Ambient Temperature Rating: 40°C
Ambient Operating Temperature Range: -40°C to +40°C
Sound Level: N/A
Elevation (Altitude): 3300ft (1000 meters) Above Sea Level
Core Material: Silicon Steel, Grain Oriented
Tank Material: Mild Steel
Cabinet Material: Mild Steel
Base Platform Material: Mild 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 1
Paint Type: Weatherproof and UV Resistant Epoxy Coating and Undercoating
Finish Color: ANSI #61 Light Grey
Mounting: Supporting Structures
Conduit Opening: N/A
Tank Cover Access Handhole: Included
Dimensions: TBD
Dry Weight (w/o Oil)*: TBD
Total Weight (Liquid Filled)*: TBD
*Please note that numbers are approximate and subject to change

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-DXA-18MVA-YMP-HT-LT-A6-CMFF-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 69000V Delta and a secondary voltage of three-phase 13800Y/7967 Wye-N. This system is rated for 18 MVA (18,000 KVA) natural cooled, 20 MVA (20,000 KVA) first stage fan cooled and 22.5 MVA (22,500 KVA) second stage 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-DXA-18MVA-YMP-HT-LT-A6-CMFF-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 55/65°C temperature rise, the transformer offers 18 MVA (18,000 KVA) natural cooled, 20 MVA (20,000 KVA) first stage fan cooled and 22.5 MVA (22,500 KVA) second stage 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-DXA-18MVA-YMP-HT-LT-A6-CMFF-CZ-2ZZ-M1 features mineral oil Insulation fluid (ONAN/ONAF/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% load conditions, which helps preserve the transformer's lifespan and performance.
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-DXA-18MVA-YMP-HT-LT-A6-CMFF-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, up stream protection is provided. We recommend provisions for protection fuses when possible, as blown fuses may require more frequent oil changes.
Mount: This conservator substation installed on supporting structures, such as the roof of the transformer main tank.
Benefits: The MT-PSTH-R7-3P-DXA-18MVA-YMP-HT-LT-A6-CMFF-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.

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Frequently Asked Questions (FAQ)

Warranty: 24 Months.

Export Control Classification Number (ECCN): EAR99

Links (Click on the below items to view):

- **HigResPic1**
- **Video1**
- **ISO 9001 Certification**
- **Business Certificate**
- **Shipping Time Map**