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MT-PSTC-ATX-R7-3P-DEXO-12MVA-GMD-HT-LT-X6-BBF-CZ-2ZZ-M1

12/16 MVA Conservator Substation Autotransformer- 220000V Delta Primary, 27600Y/16000 Grounded Wye Secondary - KNAN/KNAF, Grey

Product ID: 310547



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-PSTC-ATX-R7-3P-DEXO-12MVA-GMD-HT-LT-X6-BBF-CZ-2ZZ-M1 Conservator Transformer

Transformer Type: Substation Power Autotransformer, Conservator Type
Transformer Configuration: Liquid Filled Pad Mounted
Transformer Feed Type: Radial Feed
Operation: Approved for Step-Up and Step-Down Operations
Phase: Three Phase
Capacity (w/o Fans): 12 MVA (12,000 KVA)
Capacity (w/ Fans): 16 MVA (16000 KVA)
Vector Group: Dyn11
Primary Voltage: 220000V
Primary Voltage Switch: N/A
Primary Voltage Class: 242 kV Class
Primary Phasor: Delta
Primary Rated Power-Frequency Withstand Voltage: 460 kV
Primary BIL: 650 kV
Secondary Voltage: 27600Y/16000
Secondary Voltage Class: 29.5 kV Class
Secondary Phasor: Grounded Wye
Secondary Rated Power-Frequency Withstand Voltage: 95 kV
Secondary BIL: 200 kV
Frequency: 60 Hz (-3/+1.7 Hz)
Short Circuit Current: 16 kA (3 sec.)
Temperature Rise: 65°C
Insulation Rating: Class E Insulation - 120°C, 248°F
Cooling Class: KNAN/KNAF; Self-Cooled/Fan-Cooled
Forced Air (Fans): Included, 230/115 VAC, 60 Hz
Tap Changer: 9-Position Off-Load Tap Changer
Tap Qty: (4) FCAN Above Taps, (4) 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 CSA C88-16
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 CSA C227.4 & C227.5
Complies with ANSI / IEEE C62.22
Complies with ANSI / IEEE 386
Complies with ANSI / IEEE C2
Complies with ANSI / IEEE C37.47
Complies with CSA C802.1
Complies with ANSI Z535.4
Complies with ASTM D3487
Complies with CSA C802-3
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 %: 2.5% Taps
Tap Changer Switch Rating: 220 kV, Off-Load Rated
Tap Changer Switch Location: High Voltage (HV) [Left Side]
Impedance (Typical): 7.0% - 10.0%
Primary Connection Type: Live Front
Primary Termination Arrangement: Top Mounted Terminals
Primary Termination: Porcelain Wet Processed Bushings
Primary Connection Qty: (3)
Primary Bushing Rating: 220 kV Class, 650 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 in Terminal Box
Secondary Termination Arrangement: Top Mounted Porcelain Bushings
Secondary Connections: Porcelain Wet Processed Bushings
Secondary Connection Qty: (4)
Secondary Connection Supports: N/A
Secondary Over Current Protection (OCP): N/A
Secondary Neutral Connection: Secondary X0 Neutral Grounded to Tank via 1/2"-13 UNC Tapped Hole, 7/16" Deep Bung & Copper Ground Strap
Secondary Surge Arrestors: Included, Line discharge class: 3, Height: max. 24.5", Creepage distance: 61.5", Nominal discharge current: 10 kA, 109.9 kV (residual voltage at 10 kA, 8/20 µs), Rated short circuit current (pressure relief): 63 kA

Secondary Surge Arrestor Voltage Rating: 45 kV

Secondary Surge Arrestor MCOV Rating: 36.5 kV

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: Included, 120VAC, 60Hz, 1-Ph / 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)
Pulse Drive Rating: N/A
Insulation Fluid: Biodegradable Insulating Fluid - Non-PCB Fluid
Fluid (Oil) Capacity*: TBD
Fluid (Oil) Weight*: TBD
Liquid Level Indicator: Analog Dial Gauge, w/ Alarm and Trip Contacts
Liquid Temperature Indicator: Analog Dial Gauge, w/ Alarm and Trip Contacts
Winding Temperature Indicator: Analog Dial Gauge, w/ Alarm and Trip Contacts
Pressure/Vacuum Indicator: Analog Dial Gauge, w/ Alarm and Trip Contacts
Pressure Relief Device: Included, Automatic Action
Fault Indicator: Included, Buchholz Relay
Gas Sampler Valve: Included, Schrader Valve
Fill Valve: 1" NPT Port w/ Removable Bolt Plug
Fill Valve Location: Front Compartment
Drain Valve: 1" NPT Port w/ 5/8" NPT Sampler Valve
Drain Valve Location: Front Compartment
Winding Material: Copper
Ambient Temperature Rating: 40°C
Ambient Operating Temperature Range: -20°C to +50°C

Sound Level: 71 dBA

Elevation (Altitude): < 4922 ft. (< 1500 m) Above Sea Level
Core Material: Grain Oriented Silicon Steel
Tank Material: Coated Steel
Cabinet Material: Coated Steel
Base Platform Material: Coated Steel

Control Box Material/Rating: Stainless Steel, NEMA 3

Portability: Lifting lugs, provisions for jacking under base, w/ base construction suitable for using rollers or skidding

Complies with CSA C88.1

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): TBD
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 Test
Insulation Resistance Test
Voltage Ratio Error Test
Separate Source Voltage Withstand Test
Short-circuit Impedance Test
No-load Loss (Wattage) Test
Load Loss (Wattage) Test
Induced 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

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: ANSI 61 Grey
Mounting: Pad Mounted
Conduit Opening: N/A
Tank Cover Access Handhole: N/A
Dimensions*: TBD
Dry Weight (w/o Oil)*: TBD
Total Weight (Liquid Filled)*: TBD
*Please note that numbers are approximate and subject to change

Special Orders - Special Requirements
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The MT-PSTC-ATX-R7-3P-DEXO-12MVA-GMD-HT-LT-X6-BBF-CZ-2ZZ-M1 Conservator Substation Autotransformer 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 220000V Delta and a secondary voltage of three-phase 27600Y/16000 Grounded Wye. This system is rated for 12 MVA (12,000 KVA) (Natural Cooling) / 16 MVA (16,000 KVA) (Fan Cooling) and is approved for step up or step down operations. We offer systems with loop or radial feed, as well as dead front or live front primary connections. This transformer features a 5-position off load tap changer with four, +/- 2.5% taps above and four, +/- 2.5% taps below to allow small changes for voltage. There are no rapid rise relays or protection fuses present on the system.

The MT-PSTC-ATX-R7-3P-DEXO-12MVA-GMD-HT-LT-X6-BBF-CZ-2ZZ-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 12 MVA (12,000 KVA) (Natural Cooling) / 16 MVA (16,000 KVA) (Fan Cooling). 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-PSTC-ATX-R7-3P-DEXO-12MVA-GMD-HT-LT-X6-BBF-CZ-2ZZ-M1 features biodegradable fluid (KNAN/KNAF). We offer transformers with FR-3 fluid, 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, fault indicator, and pressure/vacuum gauges. Standard liquid level, temperature, and pressure/vacuum gauges are analog, manual reading types.

Fault Pressure Devices: There is a Buchholz relay fault indicator on this unit.

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 comes with surge arresters on the secondary side.

Load Break Switch: The transformer is not equipped with a load break switch.

Valves: The MT-PSTC-ATX-R7-3P-DEXO-12MVA-GMD-HT-LT-X6-BBF-CZ-2ZZ-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 conservator substation autotransformer should be installed on supporting structures, such as the roof of the transformer main tank.
Benefits: The MT-PSTC-ATX-R7-3P-DEXO-12MVA-GMD-HT-LT-X6-BBF-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)