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MT-PSTC-R7-3P-GXN-40MVA-GMA-HT-LS-X6-BMF-CZ-2Z2-M2

40/50 MVA Conservator Substation Transformer - 230000Y/133000 Grounded Wye Primary, 34500Y/19920V Grounded Wye Secondary, NEMA 4X Enclosure, ONAN/ONAF, Grey

Product ID: 339167

Please see last page for supporting documentation for this product (certificates, CAD files & drawings, IES files, wiring diagrams, etc).



Image: MT-PSTC-R7-3P-GXN-40MVA-GMA-HT-LS-X6-BMF-CZ-2Z2-M2

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-R7-3P-GXN-40MVA-GMA-HT-LS-X6-BMF-CZ-2Z2-M2 Conservator Transformer

Transformer Type: Power Transformer Substation, Conservator Type
Transformer Configuration: Liquid Filled Pad Mounted
Transformer Feed Type: Radial Feed
Operation: Step-Down Operation (Not Approved for Step-Up)
Phase: Three Phase
Capacity: 40 MVA (40,000 KVA) Natural Cooling / 50 MVA (50,000 KVA) Fan Cooling
Vector Group: YNyn0
Primary Voltage: 230000Y/133000
Primary Voltage Switch: N/A
Primary Voltage Class: 245 kV Class
Primary Phasor: Grounded Wye
Primary BIL: 1050 KV
Secondary Voltage: 34500Y/19920
Secondary Voltage Class: 35 kV Class
Secondary Phasor: Grounded Wye
Secondary BIL: 200 KV
Tertiary Voltage: N/A
Tertiary Voltage Class: N/A
Tertiary BIL: N/A

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 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 CSA C802.1
Complies with CSA C802-3
Complies with CSA C227.5

Frequency: 60 Hz
Temperature Rise: 65°C
Insulation Rating: Class E Insulation - 120°C, 248°F
Cooling Class: ONAN/ONAF; Self-Cooled/Fan Cooled
Forced Air (Fans): Included With Galvanized Fan Guards And Provided With One Piece Fan Blades
Tap Changer: 9-Position On-Load Tap Changer (Huaming), Motorized, w/ local manual operation capability, w/ Remote operation interface (RS-485), w/ Automatic voltage regulator (AVR) relay (Enclosed in an Indoor Cabinet)
Tap Qty: (4) FCAN Above Taps, (4) FCBN Below Taps
Tap %: 1.25%
Tap Changer Switch Rating: 2000-Amp, 245 kV, On-Load Rated
Tap Changer Switch Location: High Voltage (HV) [Left Side]
Impedance: 8.0-10.0%
Primary Connection Type: Live Front
Primary Termination Arrangement: Top Mounted Terminals
Primary Termination: Porcelain Bushings w/ NEMA Spade Terminals
Primary Connection Qty: (3) Primary Connections
Primary Bushing Rating: 245 kV Class, 1050 kV BIL
Primary Neutral Connection: Primary H0 Neutral Grounded to Tank via 1/2"-13 UNC Tapped Hole, 7/16" Deep Bung & Copper Ground Strap
Primary Surge Arrestors: Included
Primary Surge Arrestor Voltage Rating: 276 KV
Primary Surge Arrestor MCOV Rating: 220 KVrms
Primary Overcurrent Protection (OCP): N/A
Primary Overcurrent Protection Method: N/A
Primary Overcurrent Protection Holder: N/A
Primary Grounding Provisions: N/A
Secondary Connection Type: Live Front
Secondary Termination Arrangement: Side Mounted Terminals w/ NEMA Spade Terminals
Secondary Connections: Externally Clamped One-Piece Epoxy Bushings Copper Threaded Studs w/ NEMA Spade Terminals
Secondary Connection Qty: (4) Externally Clamped One-Piece Epoxy Bushings Copper Threaded Studs
Secondary Connection Supports: N/A
Secondary Overcurrent 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 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: N/A
Load Break Switch: Included 2-Position Load Break Switch
Load Break Switch Qty: (1)
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: Mineral Oil Insulating Fluid, Non-PCB Fluid
Fluid (Oil) Capacity*: TBD
Fluid (Oil) Weight*: 37,037 lbs
Liquid Level Indicator: Analog Dial Gauge
Liquid Temperature Indicator: Analog Dial Gauge
Winding Temperature Indicator: Analog Dial Gauge
Pressure/Vacuum Indicator: Analog Dial Gauge

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 CSA C50
Complies with CSA C88
Complies with CSA C88.1
Complies with CSA C88-16
Complies with CSA C227.4

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, Padlockable
NEMA 4X 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): 35,000W
Full Load Loss (in watts) at 100%: 180,000W
Total Load Loss (in watts) at 100%: 215,000W

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

Total Load Loss (in watts) at 50%: 54,000W
***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
Short-circuit Impedance Test

Pressure Relief Device: Included, Automatic Action
Fault Indicator: Included, Buchholz Relay
Nitrogen Blanket: Included
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: -40°C to +40°C (-50°F to +104°F)

Sound Level: 67 dBA

Elevation (Altitude): 6600ft (2000 meters) Above Sea Level
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 4X stainless, 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*: 277.6"-W, 191.7"-D, 214.6"-H
Dry Weight (w/o Oil)*: 89,706 lbs
Total Weight (Liquid Filled)*: 149,385 lbs
*Please note that numbers are approximate and subject to change

No-load Loss (Wattage) Test
Load Loss (Wattage) Test
Separate Source Voltage Withstand 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*

Special Orders - Special Requirements
Contact us for special requirements
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The MT-PSTC-R7-3P-GXN-40MVA-GMA-HT-LS-X6-BMF-CZ-2Z2-M2 Conservator 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 make 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 230000Y/133000 Grounded Wye and a secondary voltage of three-phase 34500Y/19920 Grounded Wye. This system is rated for 40 MVA (40,000 KVA) natural cooling and 50 MVA (50,000 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 9-position on-load tap changer with (4) +1.25% taps above and (4) -1.25% taps below to allow small changes in voltage.

The system features copper windings for high strength and thermal/electrical conductivity. This transformer consists of a rectangular coil and a 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-PSTC-R7-3P-GXN-40MVA-GMA-HT-LS-X6-BMF-CZ-2Z2-M2 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 40 MVA (40,000 KVA) natural cooling and 50 MVA (50,000 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-PSTC-R7-3P-GXN-40MVA-GMA-HT-LS-X6-BMF-CZ-2Z2-M2 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, fault indicator, and pressure/vacuum gauges. Standard liquid level, temperature, and pressure/vacuum gauges are analog, manual reading types. These gauges do not have alarm contacts.

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 has surge arresters on the primary side.

Load Break Switch: The transformer is equipped with a 2-position load break switch.

Valves: The MT-PSTC-R7-3P-GXN-40MVA-GMA-HT-LS-X6-BMF-CZ-2Z2-M2 is equipped with a pressure relief valve, fill valve, and drain valve with a sampler port.

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 conservator substation should be installed on supporting structures, such as the roof of the transformer main tank.

Benefits: The MT-PSTC-R7-3P-GXN-40MVA-GMA-HT-LS-X6-BMF-CZ-2Z2-M2 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)

There are no Faqs

Warranty: 24 Months.

Export Control Classification Number (ECCN): EAR99

Links (Click on the below items to view):

- **HigResPic1**(https://www.larsonelectronics.com/images/product/HigResPic1/339167.JPG)
- **Video1**(https://www.youtube.com/watch?v=4-JEyYeYcn8)
- **Video6**(https://www.youtube.com/watch?v=olihKUo24KU)
- **Video7**(https://www.youtube.com/watch?v=Yez7eCilgDE)
- **Video8**(https://www.youtube.com/watch?v=Ac5BDPSy964)
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- **Business Certificate**(https://www.larsonelectronics.com/images/pdfdocs/w9.PDF)
- **Shipping Time Map**(https://www.larsonelectronics.com/images/product/ShippingTimeMap/ShippingTimeMap.pdf)