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MT-PSTC-R7-1P-GEHR-50MVA-GTA-HT-LT-D6-AMFF-CZ-2ZZ-M1

50/66.6/83.3 MVA Conservator Substation Transformer - 154000Y/88915 Grounded Wye Primary, 46000Y/26559 Grounded Wye Secondary - 12460V Delta Tertiary - ONAN/ONAF/ONAF, ANSI 70 Grey

Product ID: 343866

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



Image: MT-PSTC-R7-1P-GEHR-50MVA-GTA-HT-LT-D6-AMFF-CZ-2ZZ-M1

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-R7-1P-GEHR-50MVA-GTA-HT-LT-D6-AMFF-CZ-2ZZ-M1 Conservator Transformer

Transformer Type: Substation Power Transformer, Conservator Type, Cope Type, 3 Separate Windings
Transformer Configuration: Liquid Filled Pad Mounted
Transformer Feed Type: Radial Feed
Operation: Approved for Step-Down Operations
Phase: Single Phase
Capacity (w/o Fans): HV - 50 MVA (50,000 KVA), LV - 50 MVA (50,000 KVA), TV - 17.5 MVA (17,500 KVA)
Capacity (w/ 1st Stage Fans): HV - 66.6 MVA (66,600 KVA), LV - 66.6 MVA (66,600 KVA), TV - 23.3 MVA (23,300 KVA)
Capacity (w/ 2nd Stage Fans): HV - 83.3 MVA (83,300 KVA), LV - 83.3 MVA (83,300 KVA), TV - 29.16 MVA (29,160 KVA)
Vector Group: Ii0i0
Primary Voltage: 154000Y/88915
Primary Voltage Switch: N/A
Primary Voltage Class: 161 kV Class
Primary Phasor: Grounded Wye
Primary BIL: 750 kV
Primary Neutral BIL: 250 kV

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 C2.1-06
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 CSA C88-16
Complies with ANSI / IEEE 386

Secondary Voltage: 46000Y/26559
Secondary Voltage Class: 48 kV Class
Secondary Phasor: Grounded Wye
Secondary BIL: 250 kV
Secondary Neutral BIL: 250 kV
Tertiary Voltage: 12460V
Tertiary Voltage Class: 15 kV Class
Tertiary Phasor: Delta
Tertiary BIL: 150 kV
Tertiary Neutral BIL: 150 kV
Frequency: 60 Hz
Temperature Rise: Top Oil - 50°C, Winding Average - 55°C, Hottest - 68°C
Insulation Rating: Class E Insulation - 120°C, 248°F
Cooling Class: ONAN/ONAF/ONAF; Self-Cooled/Fan-Cooled
Forced Air (Fans): Included, 208Y/120 VAC, 60 Hz, 3Ph
HV Tap Changer: 5-Position De-energized Tap Changer
HV Tap Qty: (4) FCAN Above Taps
HV Tap %: 2.5% Taps
HV Tap Changer Switch Rating: 154 kV, OFF-Load Rated
HV Tap Changer Switch Location: High Voltage (HV)
TV Tap Changer: 3-Position De-energized Tap Changer
TV Tap Qty: (2) FCAN Above Taps
TV Tap %: 2.5% Taps
HV Tap Changer Switch Rating: 15 kV, OFF-Load Rated
Impedance: Between HV/LV - 8.9%, Between HV/TV ~ 5% @17.5 MVA, LV/TV ~ 1.8% @17.5 MVA
Primary Connection Type: Live Front
Primary Termination Arrangement: Top Mounted Terminals
Primary Termination: Porcelain Bushings, Condenser Type, Air Bushing
Primary Connection Qty: (2)
Primary Bushing Rating: 161 kV Class, 750 kV BIL
Primary Neutral Connection: Included
Primary Surge Arrestors: Included, Side Station Class
Primary Surge Arrestor Voltage Rating: 161 kV
Primary Surge Arrestor MCOV Rating: 144 kV
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): N/A
Primary Grounding Provisions: (1) NEMA Ground Bar attached to tank via (2) Welded Ground Bungs
Secondary Connection Type: Live Front
Secondary Termination Arrangement: Top Mounted Porcelain Bushings
Secondary Connections: Porcelain Bushings, Condenser Type, Air Bushing
Secondary Connection Qty: (2)
Secondary Line Bushing Rating: 46 kV Class, 250 kV BIL
Secondary Over Current Protection (OCP): N/A
Secondary Neutral Connection: Included
Secondary Neutral Bushing Rating: 46 kV Class, 250 kV BIL
Secondary Surge Arrestors: Included, Side Station Class
Secondary Surge Arrestor Voltage Rating: 115 kV
Secondary Surge Arrestor MCOV Rating: 46 kV
Secondary Current Transformer(s): Included, 1200/1000/800/600/400/200:5, (3) Per Each Bushing: (2) 4000:5 SR, Relaying, 2.5L800 Accuracy & (1) 1200:5 MR, Metering, 2.5L800 Accuracy, Accuracy top to bottom
Secondary Grounding Provisions: (1) NEMA Ground Bar attached to tank via (2) Welded Ground Bungs
Tertiary Connection Type: Live Front

Complies with ANSI / IEEE C2
Complies with ANSI / IEEE C37.47
Complies with ANSI Z535.4
Complies with CSA C50
Complies with ASTM D3487
Complies with ASTM D6871
Complies with NEMA 260-1996
Complies with 10 CFR Part 431
Complies with CSA C227.4 & C227.5
Complies with CSA C802.1
Complies with CSA C88
Complies with ANSI / IEEE C62.22
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:

Tertiary Termination Arrangement: Top Mounted Porcelain Bushings
Tertiary Termination: Porcelain Bushings, Condenser Type, Air Bushing
Tertiary Connection Qty: (2)
Tertiary Line Bushing Rating: 25 kV Class, 150 kV BIL
Tertiary Neutral Connection: Included
Tertiary Neutral Bushing Rating: 25 kV Class, 150 kV BIL
Teriary Surge Arrestors: Included, Side Station Class, 46 kV, 36.5 kV MCOV
Metering Current Transformer (CT): N/A
Metering Panel: N/A
Auxiliary Control Panel: Included, 208Y/120 VAC, 60 Hz, 3Ph / 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: Mineral Oil Insulating Fluid, Non-PCB Fluid
Fluid (Oil) Capacity*: 7,925 Gallons
Fluid (Oil) Weight*: 60,848 Lbs
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 +40°C
Sound Level: 71 dBA
Elevation (Altitude): < 3,300ft (< 1000 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 3R
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 Wiring Cabinet, Sealed Tank
Seismic Rating: Yes
Paint Type: Weatherproof and UV Resistant Epoxy Coating and Undercoating
Finish Color: ANSI 70 Sky Grey
Mounting: Pad Mounted
Conduit Opening: N/A
Tank Cover Access Handhole: N/A
Dimensions*: 169.3"-W x 185"-D x 239"-H
Dry Weight (w/o Oil)*: TBD
Total Weight (Liquid Filled)*: 189,600 lbs
*Please note that numbers are approximate and subject to change

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

Special Tests:
Temperature Rise Test
Lightning Impulse Level
Current Transformer Test
Dissolved Gas Analysis Test
Sweep Frequency Analysis 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
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Fax: 1-903-765-7664
E-mail: sales@larsonelectronics.com

The MT-PSTC-R7-1P-GEHR-50MVA-GTA-HT-LT-D6-AMFF-CZ-2ZZ-M1 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 154000Y/88915 Grounded Wye and a secondary voltage of three-phase 46000Y/26559 Grounded Wye. This system is rated for 50 MVA (50,000 KVA) [Natural Cooled] / 66.6 MVA (66,600 KVA) [1st Stage Fan Cooled] / 83.3 MVA (83,300 KVA) [2nd Stage Fan Cooled] and is approved for 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 on load tap changer with four, + 2.5% taps above to allow small changes in voltage. There are no rapid rise relays or protection fuses present on the system.

The MT-PSTC-R7-1P-GEHR-50MVA-GTA-HT-LT-D6-AMFF-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 50 MVA (50,000 KVA) [Natural Cooled] / 66.6 MVA (66,600 KVA) [1st Stage Fan Cooled] / 83.3 MVA (83,300 KVA) [2nd 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 electrical rooms, air conditioned spaces in buildings, underground vaults, and similar locations, in addition to outdoor areas.

Insulation Fluid: The MT-PSTC-R7-1P-GEHR-50MVA-GTA-HT-LT-D6-AMFF-CZ-2ZZ-M1 features mineral oil 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% 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 primary side.

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

Valves: The MT-PSTC-R7-1P-GEHR-50MVA-GTA-HT-LT-D6-AMFF-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, 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 transformer should be installed on supporting structures, such as the roof of the transformer main tank.

Benefits: The MT-PSTC-R7-1P-GEHR-50MVA-GTA-HT-LT-D6-AMFF-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)

There are no Faqs

Warranty: 24 Months.

Export Control Classification Number (ECCN): EAR99

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Links (Click on the below items to view):

- **Dimensional Drawing 2D**(https://www.larsonelectronics.com/images/product/DimensionalDrawing/343866.PDF)
- **Wiring Diagram**(https://www.larsonelectronics.com/images/product/WiringDiagram/343866.PDF)
- **HigResPic1**(https://www.larsonelectronics.com/images/product/HigResPic1/343866.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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