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**MT-PSTC-R7-3P-DMV-34MVA-GMV-HNS-LNS-A5-CBF-CZ-1ZZ-M1**

# 34 MVA Substation Power Transformer, Conservator Type - 11000V Delta Primary, 11000Y/6351 Grounded Wye Secondary - KNAN/KNAF - Grey - NEMA 4X

**Product ID: 316415**



**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-DMV-34MVA-GMV-HNS-LNS-A5-CBF-CZ-1ZZ-M1 Conservator Transformer**

**Transformer Type: Substation Power Transformer, Conservator Type**
**Transformer Configuration: Liquid Filled**
**Transformer Feed Type: N/A**
**Operation: Step-Down Operation (Not Approved for Step-Up)**
**Phase: Three Phase**
**Capacity: 34 MVA (34,000 KVA)**
**Vector Group: Dyn1**
**Primary Voltage: 11000V**
**Primary Voltage Switch: N/A**
**Primary Voltage Class: 15 kV Class**
**Primary Phasor: Delta**
**Primary BIL: 95 KV**
**Secondary Voltage: 11000Y/6351**
**Secondary Voltage Class: 15 kV Class**
**Secondary Phasor: Grounded Wye**
**Secondary BIL: 95 KV**
**Frequency: 50 Hz**
**Temperature Rise: 55/65°C**
**Insulation Rating: Class A Insulation**
**Cooling Class: KNAN/KNAF; Self-Cooled/Fan-Cooled**
**Forced Air (Fans): Included**
**Tap Changer: 5-Position Off-Load Tap Changer**
**Tap Qty: (2) FCAN Above Taps, (2) FCBN Below Taps**
**Tap %: 2.5%**
**Tap Changer Switch Rating: 15 kV, 95 kV BIL**
**Tap Changer Switch Location: HV Side**
**Impedance (Typical): 7%-10%, In Accordance with IEEE C57.12.10**

**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 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 & C227.5
Complies with CSA C802.1

**Primary Connection Type: Live Front**
**Primary Termination Arrangement: Inline**
**Primary Termination: NEMA H-Spade Terminals Enclosed with Throats**
**Primary Connection Qty: (3)**
**Primary Bushing Rating: 15 kV, 95 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**
**Secondary Termination Arrangement: Inline**
**Secondary Connections: NEMA H-Spade Terminals Enclosed with Throats**
**Secondary Connection Qty: (4)**
**Secondary Connection Supports: N/A**
**Secondary Over Current Protection (OCP): N/A**
**Secondary Neutral Connection: Included**
**Secondary Grounding Provisions: N/A**
**Metering Current Transformer (CT): N/A**
**Metering Panel: N/A**
**Auxiliary Control Panel: Included**
**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 Vegetable Natural Ester Fluid, Non-PCB Fluid**
**Fluid (Oil) Capacity*: TBD**
**Fluid (Oil) Weight*: TBD**
**Liquid Level Indicator: Analog Dial Gauge w/ (2) Dry Type Form C Auxiliary Contacts (1NO + 1NC) for Remote Alarm Trip for High & Low Levels**
**Temperature Indicator: Analog Dial Gauge w/ (2) Dry Type Form C Auxiliary Contacts (1NO + 1NC) for Remote Alarm Trip for High & Low Temps**
**Pressure/Vacuum Indicator: Analog Dial Gauge w/ (2) Dry Type Form C Auxiliary Contacts (1NO + 1NC) for Remote Alarm Trip**
**Pressure Relief Valve: Included**
**Gas Relay: Included, w/ Indicators for Light Gas and Heavy Gas, w/ (2) Dry Type Form C Auxiliary Contacts (1NO + 1NC) for Remote Alarm when pressure rises above in-field set pressure located in Aux Control Cabinet**
**Fault Indicator: Included, Buchholz Relay**
**Gas Sampler Valve: N/A**
**Fill Valve: N/A**
**Fill Valve Location: N/A**
**Drain Valve: N/A**
**Drain Valve Location: N/A**
**Space Heaters:** Included
**Winding Material: Copper**
**Ambient Temperature Rating: 40°C**
**Ambient Operating Temperature Range: -40°C to +40°C (-50°F to +104°F)**
**Sound Level: N/A**
**Elevation (Altitude): 3300ft (1000 meters) Above Sea Level**
**Core Material: Grain Oriented Silicon 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 Weatherproof, 304 Stainless Steel**
**Seismic Rating: N/A**
**Paint Type: Weatherproof and UV Resistant Epoxy Coating and Undercoating**
**Finish Color: ANSI 61 Grey**
**Mounting: Supporting Structures**
**Conduit Opening: N/A**

Complies with CSA C802-3

**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 4X Wiring Compartment, 304 Stainlesss Steel

**Efficiency %: N/A**
*Based on transformer operating at 50% of nameplate base kVA.*

**Load Losses Based on 75°C Reference Temp.**
**Off-Load Loss (in watts): 21800W, ±10% Tolerance**
**On-Load Loss (in watts): 120890W, ±10% Tolerance**
**Total Load Loss (in watts) at 100%: 142,690, ±10% Tolerance**

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

**Tank Cover Access Handhole: Included, Circular, 15.35" Min. DIA**
**Dimensions*: 157"W x 177"D x 165"H**
**Dry Weight (w/o Oil)*: TBD**
**Total Weight (Liquid Filled)*: 10,3620 LBS**
*Please note that numbers are approximate and subject to change

Contact us for special requirements
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**Fax: 1-903-498-3364**
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**The MT-PSTC-R7-3P-DMV-34MVA-GMV-HNS-LNS-A5-CBF-CZ-1ZZ-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 11000V Delta and a secondary voltage of three-phase 11000Y/6351 Grounded Wye. This system is rated for 34 MVA (34,000 KVA). 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 in voltage. There are no rapid rise relays or protection fuses present on the system.
The system features copper 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-PSTC-R7-3P-DMV-34MVA-GMV-HNS-LNS-A5-CBF-CZ-1ZZ-M1 has fans for forced air cooling. This non-sealed system features breathers for cooling when operating temperatures increase.
**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 34 MVA (34,000 KVA). 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-PSTC-R7-3P-DMV-34MVA-GMV-HNS-LNS-A5-CBF-CZ-1ZZ-M1 features biodegradable fluid (KNAN). 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% load conditions, which helps preserve the transformer's lifespan and performance.
**Gauges:** The following gauges are included with the system: liquid level indicator with two Dry Type Form C auxiliary contacts (1NO + 1NC) for remote alarm trip for high and low levels, temperature indicator with two Dry Type Form C auxiliary contacts (1NO + 1NC) for remote alarm trip for high and low temperatures and pressure/vacuum indicator with two Dry Type Form C auxiliary contacts (1NO + 1NC) for remote alarm trip. Standard liquid level, temperature and pressure/vacuum gauges are analog dial types.
**Fault Pressure Devices:** There is a Buchholz relay fault indicator 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 does not come with surge arresters on the primary

side.
**Load Break Switch:** The transformer is not equipped with a load break switch.
**Valves:** The MT-PSTC-R7-3P-DMV-34MVA-GMV-HNS-LNS-A5-CBF-CZ-1ZZ-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, 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-R7-3P-DMV-34MVA-GMV-HNS-LNS-A5-CBF-CZ-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)