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## MT-PSTC-R7-3P-GXK-60MVA-GMA-HS-LS-A6-BMF-CZ-2ZZ-M1

# 60/80/100 MVA Conservator Substation Transformer - 138000Y/79674 Grounded Wye Primary, 34500Y/19920 Grounded Wye Secondary - 13800V Delta Tertiary Windings, ONAN/ONAF/ONAF, Light Grey

**Product ID: 335363**

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



Image: MT-PSTC-R7-3P-GXK-60MVA-GMA-HS-LS-A6-BMF-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-R7-3P-GXK-60MVA-GMA-HS-LS-A6-BMF-CZ-2ZZ-M1 Conservator Substation Transformer | Ratings |
|---|---|
| **Transformer Type:** Substation Power Transformer, Conservator Type | Meets/Exceeds DOE 2016 Efficiency Ratings |
| **Transformer Configuration:** Liquid Filled Pad Mounted | Meets/Exceeds CSA Efficiency Ratings |
| **Transformer Feed Type:** Radial Feed | Complies with ANSI / IEEE C57.12.00 |
| **Operation:** Approved for Step-Up and Step-Down Operations | Complies with ANSI / IEEE C57 12.28 |
| **Phase:** Three Phase | Complies with ANSI / IEEE C57 12.29 |
| **Capacity (w/o Fans):** 60 MVA (60000 KVA) | Complies with ANSI / IEEE C57 12.34 |
| **Capacity (w/ 1st Stage Fans):** 80 MVA (80000 KVA) | Complies with ANSI / IEEE C57.12.131 |
| **Capacity (w/ 2nd Stage Fans):** 100 MVA (100000 KVA) | Complies with CSA C88.1 |
| **Vector Group:** YNyn0(d1) | Complies with ANSI / IEEE C57 12.35 |
| **Primary Voltage:** 138000Y/79674 | Complies with ANSI / IEEE C57.12.70 |
| **Primary Voltage Switch:** N/A | Complies with ANSI / IEEE C57.12.110 |
| **Primary Voltage Class:** 145 kV Class | Complies with CSA C227.4 & CSA C227.5 |
| **Primary Phasor:** Grounded Wye | Complies with ANSI / IEEE C62.11 |
| **Primary Line BIL:** 650 kV | Complies with ANSI / IEEE C62.22 |
| **Primary Neutral BIL:** 350 kV | Complies with NEMA 260-1996 |
| **Primary Short-Circuit Current (symmetrical):** 31.5 kA | Complies with CSA C2.1-06 |
| **Secondary Voltage:** 34500Y/19920 | Complies with ANSI / IEEE 386 |
| **Secondary Voltage Class:** 35 kV Class | Complies with ANSI / IEEE C2 |

**Secondary Phasor:** Grounded Wye
**Secondary BIL:** 200 kV
**Secondary Short-Circuit Current (symmetrical):** 25 kA
**Tertiary Winding:** 13800V Delta
**Frequency:** 60 HZ
**Temperature Rise:** 65°C
**Insulation Rating:** Class OA/FA Insulation System
**Cooling Class:** ONAN/ONAF/ONAF; Self and fan Cooled
**Forced Air (Fans):** Included, Dual Stage Fans
**Radiators:** Included, Multiple Panel Radiators
**Tap Changer:** De-Energized Tap Changer (DETC)
**Tap Qty:** (2) Above, (2) Below + Neutral
**Tap %:** 2.5% Per Tap (±10% Total Range)
**Tap Changer Switch Rating:** 138 kV, De-Energized
**Tap Changer Switch Location:** HV Side
**Impedance (@ ONAF1):** 10% ± 7.5%
**Primary Connection Type:** Live Front
**Primary Termination Arrangement:** Side Mounted Terminals
**Primary Termination:** Porcelain Bushings
**Primary Connection Qty:** (3) Phase + (1) Neutral Hot Stick Included, HV Door Mount
**Primary Bushing Rating:** 145 kV Class, 650 kV BIL
**Primary Neutral Connection:** Included
**Primary Current Transformer:** Included, Multi-Ratio, C800 Accuracy Class
**Primary Surge Arrestors:** Included
**Primary Surge Arrestor Voltage Rating:** 120 kV Class
**Primary Surge Arrestor MCOV Rating:** 98 kV
**Primary Overcurrent Protection (OCP):** External (Substation Breaker Protected)
**Primary Overcurrent Protection Method:** Protective Relay Controlled High-Voltage Circuit Breaker
**Primary Overcurrent Protection Holder:** N/A
**Primary Grounding Provisions:** NEMA Ground Pads/Welded Bungs
**Secondary Connection Type:** Live Front
**Secondary Termination Arrangement:** Side Mounted Porcelain Bushings
**Secondary Connections:** Porcelain Bushings
**Secondary Connection Qty:** (3) Phase + (1) Neutral
**Secondary Connection Supports:** N/A
**Secondary Surge Arrestors:** Included
**Secondary Surge Arrestor Voltage Rating:** 30 kV Class
**Secondary Over Current Protection (OCP):** External (Switchgear Breaker Protected)
**Secondary Neutral Connection:** Included
**Secondary Current Transformer:** Included, (2) Per Each Phase, 38 kV, 3000:5 MR, C800 Accuracy Class, 2.0 Rating Factor
**Secondary Grounding Provisions:** NEMA Ground Pads/Welded Bungs
**Metering Current Transformer (CT):** N/A
**Metering Panel:** N/A
**Auxiliary Control Panel:** 480Y/277V AC 3PH, 125V DC
**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:** Appropriate For Use With 6-Pulse Drive Equipment On Secondary Side
**Insulation Fluid:** Mineral Oil, Non-PCB
**Fluid (Oil) Capacity*:** TBD
**Fluid (Oil) Weight*:** TBD
**Oil Level Indicator:** Analog Dial Gauge with an alarm contact
**Oil Temperature Indicator:** Analog Dial Gauge with an alarm contact

Complies with ANSI / IEEE C37.47
Complies with ANSI Z535.4
Complies with 10 CFR Part 431
Complies with CSA C88
Complies with ASTM D3487
Complies with ASTM D6871
Complies with CSA C802.1
Complies with CSA C802-3
Complies with CSA C50
Complies with CSA C88-16

**Features**

Hot Stick Included, HV Door Mount
Penta-head Bolt Entry Assembly
High-Fire Point Insulating Fluid
NEMA 3R Wiring Compartment
Non-PCB Insulating Fluid
Tamper Proof Housing
Hinged Front Compartment Doors, Pad Lockable

**Efficiency %:** ≥ 99.69%
*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

**Pressure/Vacuum Indicator:** Analog Dial Gauge with an alarm contact
**Pressure Relief Device:** Included, Automatic Action
**Fault Indicator:** N/A
**Gas Sampler Valve:** N/A
**Fill Valve:** N/A
**Fill Valve Location:** N/A
**Oil Drain Valve:** 2" globe-type with 3/8" sampling 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 (ONAF):** 76 dBA

**Elevation (Altitude):** 3300ft (1000 meters) Above Sea Level
**Core Material/Type:** Grain Oriented Steel/Columns
**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:** Outdoor Substation 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:** Light Grey
**Mounting:** Skid Type Base w/ Lifting Lugs
**Conduit Opening:** N/A
**Tank Cover Access Handhole:** N/A
**Dimensions*:** 311.02" x 220.47" x 240.16"
**Dry Weight (w/o Oil)*:** 187,392.7 lbs
**Total Weight (Liquid Filled)*:** 274,564.29 lbs
*Please note that numbers are approximate and subject to change

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**
Contact us for special requirements
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**The MT-PSTC-R7-3P-GXK-60MVA-GMA-HS-LS-A6-BMF-CZ-2ZZ-M1 Conservator Substation Transformer from Larson Electronics offers powerful, reliable, and efficient power distribution in indoor or 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 air tight transformer does not have doors and must be installed in a contained or protected area away from public access.**

***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 138000Y/79674 Grounded Wye and a secondary voltage of three-phase 34500Y/19920 Grounded Wye, along with a 13,800V Delta tertiary winding. This system carries the following ratings: 60 MVA (60000 KVA) [Natural Cooled] / 80 MVA (80000 KVA) [1st Stage Fan Cooled] / 100 MVA (100000 KVA) [2nd Stage Fan Cooled]. The unit has a primary radial feed and live front primary connections. We also offer systems with loop feed and dead front primary connections. This transformer features a de-energized tap changer with ±10% adjustment in 2.5% increments to allow voltage regulation under de-energized conditions. There are no load break switches or protection fuses present on the system, as protection is handled by external substation breakers and relay systems.

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).

**Temperature Rise:** This unit features a 40°C ambient temperature rating and a 65°C temperature rise for reduced heat waste, increased reliability, and longer life. At 65°C temperature rise, the transformer offers 60 MVA (60000 KVA) [Natural Cooled] / 80 MVA (80000 KVA) [1st Stage Fan Cooled] / 100 MVA (100000 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 substations, industrial facilities, outdoor installations and similar locations.

**Insulation Fluid:** The MT-PSTC-R7-3P-GXK-60MVA-GMA-HS-LS-A6-BMF-CZ-2ZZ-M1 features mineral oil insulating fluid (ONAN/ONAF/ONAF).

**Gauges:** The following gauges are included with the system: oil level indicator, oil thermometer, and pressure/vacuum gauge. Standard oil level indicator, oil thermometer, and pressure/vacuum gauges are analog, manual reading types.

**Fault Pressure Devices:** The unit includes a pressure relief device to protect against internal overpressure conditions.

**Rapid Rise Relay:** This unit may be equipped with a sudden pressure/rapid rise relay for detecting rapid internal faults and pressure increases.

**Surge arresters:** This system is equipped with primary and secondary surge arresters for over-voltage and transient voltage protection. These components help prevent damage caused by lightning, internal switching, or voltage surges.

**Load Breaker Switch:** The transformer is not equipped with a load breaker switch.

**Valves:** The MT-PSTC-R7-3P-GXK-60MVA-GMA-HS-LS-A6-BMF-CZ-2ZZ-M1 is equipped with an oil drain valve, an oil sampling valve, and 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.

**Terminal Connections:** The primary and secondary terminal connections are located on the side of the transformer via porcelain bushings. We can configure the location to be top located or side located for both the high voltage and low voltage sides.

**Mount:** This hermetically sealed transformer is equipped with a skid type base with lifting lugs.

**Benefits:** The MT-PSTC-R7-3P-GXK-60MVA-GMA-HS-LS-A6-BMF-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

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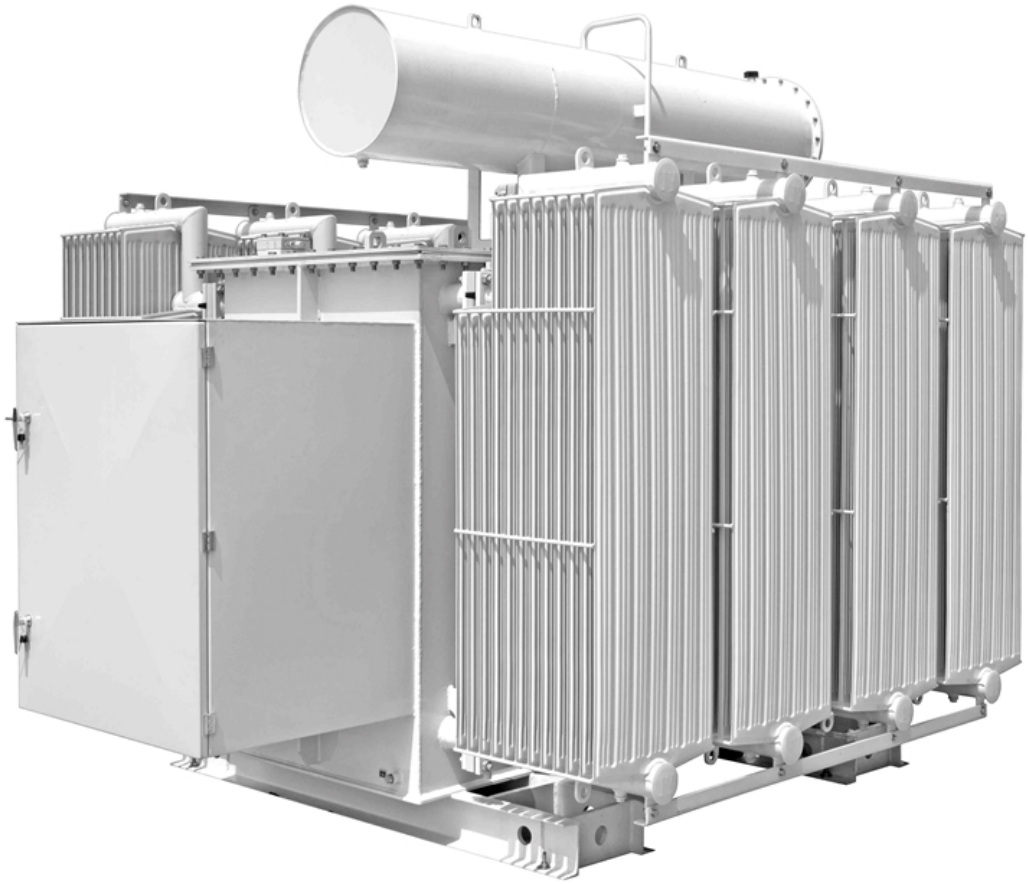


Image: MT-PSTC-R7-3P-GXK-60MVA-GMA-HS-LS-A6-BMF-CZ-2ZZ-M1



Image: MT-PSTC-R7-3P-GXK-60MVA-GMA-HS-LS-A6-BMF-CZ-2ZZ-M1

**Export Control Classification Number (ECCN):** EAR99

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