Larson Electronics LLC
9419 E US HWY 175, Kemp, TX 75143
Phone: 800.369.6671

www.LarsonElectronics.com
Email: sales@LarsonElectronics.com
Fax: 903.765.7664

MT-PSTC-R7-3P-DKC-20MVA-GMV-HS-LNS-E5-AM-CZ-1ZZ-M1

20 MVA Conservator Substation Transformer - 30000V Delta Primary, 11000Y/6351 Grounded Wye Secondary - ONAN Cooling - Avocado Green

Product ID: 326807

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



Image: MT-PSTC-R7-3P-DKC-20MVA-GMV-HS-LNS-E5-AM-CZ-1ZZ-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-DKC-20MVA-GMV-HS-LNS-E5-AM-CZ-1ZZ-M1 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: 20 MVA (20,000 KVA)
Vector Group: Dyn11
Primary Voltage: 30000V
Primary Voltage Switch: N/A
Primary Voltage Class: 35 kV Class
Primary Phasor: Delta
Primary BIL: 170 KV
Primary Rated Short Duration Power Frequency Voltage: 50 kV
Primary Short-time Withstand RMS Current (3-Sec.): 8 kA
Secondary Voltage: 11000Y/6351
Secondary Voltage Class: 15 kV Class
Secondary Phasor: Grounded Wye
Secondary BIL: 95 KV
Secondary Rated Short Duration Power Frequency Voltage: 28 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 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 ASTM D3487
Complies with CSA C2.1-06
Complies with ANSI / IEEE 386
Complies with ANSI / IEEE C2
Complies with ANSI / IEEE C37.47
Complies with ANSI Z535.4
Complies with NEMA 260-1996

Secondary Short-time Withstand RMS Current (3-Sec.): 6 kA
Frequency: 50 Hz
Oil Temperature Rise: 50°C
Winding Temperature Rise: 55°C
Core Temperature Rise: 55°C
Insulation Rating: Class A Insulation
Cooling Class: ONAN; Self-Cooled
Forced Air (Fans): None
Radiators: Included, Hot Dip Galvanized
Tap Changer: On-Load, Automatic (Vacuum Type)
Tap Qty: 17 positions total (± 1.25 % × 8 steps)
Tap %: 1.25 % per step
Tap Changer Switch Rating: 600-Amp, 25 kV
Tap Changer Switch Location: High Voltage (HV) [Left Side]
Impedance: 10 % ± 10 %
Primary Connection Type: Live Front
Primary Termination Arrangement: Side Mounted Terminals In Terminal Box
Primary Termination: Porcelain Bushings w/ NEMA Spade Terminals
Primary Connection Qty: (3) Primary Connections
Primary Bushing Rating: 25 kV Class, 170 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: Side Mounted Terminals In Terminal Box
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 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 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: 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, Class 3 - 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
Pressure Relief Device: Included, Automatic Action
Gas And Oil Actuated Relay: Included

Complies with 10 CFR Part 431
Complies with ASTM D6871
Complies with CSA C227.4
Complies with CSA C88-16
Complies with CSA C88.1
Complies with CSA C88
Complies with CSA C802.1
Complies with CSA C802-3
Complies with CSA C227.5
Complies with CSA C50

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 %: 98.72 %
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
Short-circuit Impedance Test
No-load Loss (Wattage) Test
Load Loss (Wattage) Test
Induced Voltage Withstand Test

Fault Indicator: Included, Buchholz Relay, (1) For main tank & (1) For OLTC Tank, Double Float Type, w/ (1) set of alarm contacts & (1) set of trip contacts
Silica Gel Breather: 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
Maximum Humidity: 100%
Ambient Temperature Rating: 50°C
Ambient Operating Temperature Range: -40°C to +50°C
Sound Level: ≤71 dBA
Elevation (Altitude): 3300ft (1000 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 3R, Weatherproof Wiring Cabinet, Sealed Tank
Seismic Rating: Yes
Paint Type: Weatherproof and UV Resistant Epoxy Coating and Undercoating
Finish Color: Avocado Green
Mounting: Pad Mounted
Conduit Opening: Bottom Entry
Tank Cover Access Handhole: N/A
Dimensions*: 200" x 100" x 100"
Dry Weight (w/o Oil)*: 70,000 Lbs
Total Weight (Liquid Filled)*: TBD
*Please note that numbers are approximate and subject to change

Pressure Integrity Test
Separate Source Voltage Withstand Test
Sweep Frequency Analysis Test

Shipping:
Shipped on pallet on open flatbed
Pallet Skid Facing Outward Sides of Truck
Palletized on Wooden Pallet w/ Skid Pockets
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
Toll Free: 1-800-369-6671
Intl: 1-903-270-1187
Fax: 1-903-765-7664
E-mail: sales@larsonelectronics.com

The MT-PSTC-R7-3P-DKC-20MVA-GMV-HS-LNS-E5-AM-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 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 30000V Delta and a secondary voltage of three-phase 11000Y/6351 Grounded Wye. This system is rated for 20 MVA (20,000 KVA). We offer systems with loop or radial feed, as well as dead front or live front primary connections. This transformer features a 17-position On-Load Tap Changer (OLTC) with ± 1.25 % voltage regulation per step, providing a total adjustment range of ± 10 %.

The system features Copper windings for high strength and thermal/electrical conductivity. This transformer consists of 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-DKC-20MVA-GMV-HS-LNS-E5-AM-CZ-1ZZ-M1 does not have fans for forced air cooling. This non-sealed system features breathers for cooling when operating temperatures increase.

Temperature Rise: This unit features 55°C temperature rise for reduced heat waste, increased reliability and longer life. At 55°C temperature rise, the transformer offers 20 MVA (20,000 KVA). 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-DKC-20MVA-GMV-HS-LNS-E5-AM-CZ-1ZZ-M1 features mineral oil fluid (ONAN). 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 and pressure/vacuum gauges. Standard liquid level, temperature and pressure/vacuum gauges are analog, manual reading types.

Fault Pressure Devices: There are no fault pressure devices on the unit. Fault pressure devices are used to detect high rates of pressure rise within the tank.

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 doesn't come with surge arresters on the primary or secondary sides. Designed for over-voltage and transient voltage protection, the components prevent damage caused by lightning, internal switching or voltage surges. We can offer models without high elbow surge arresters that have mounting provisions for customer-provided surge arresters.

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

Valves: The MT-PSTC-R7-3P-DKC-20MVA-GMV-HS-LNS-E5-AM-CZ-1ZZ-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 should be installed on supporting structures, such as the roof of the transformer main tank.

Benefits: The MT-PSTC-R7-3P-DKC-20MVA-GMV-HS-LNS-E5-AM-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.

Larson Electronics LLC
9419 E US HWY 175, Kemp, TX 75143
Phone: 800.369.6671

www.LarsonElectronics.com
Email: sales@LarsonElectronics.com
Fax: 903.765.7664

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):

- **Operations Manual**(https://www.larsonelectronics.com/images/product/Manual/326807.PDF)
- **HigResPic1**(https://www.larsonelectronics.com/images/product/HigResPic1/326807.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)
- **ISO 9001 Certification**(http://larsonelectronics.com/images/pdfdocs/ISO9001.PDF)
- **Business Certificate**(https://www.larsonelectronics.com/images/pdfdocs/w9.PDF)
- **Shipping Time Map**(https://www.larsonelectronics.com/images/product/ShippingTimeMap/ShippingTimeMap.pdf)