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Product ID: 306344

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



Image:

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-53MVA-GMA-HT-LT-X6-BMFF-CZ-2ZZ-M1 Conservator Transformer

Transformer Type: Substation Power Transformer, Conservator Type
Transformer Configuration: Liquid Filled
Transformer Feed Type: Radial Feed
Operation: Step-Down Operation (Not Approved for Step-Up)
Phase: Three Phase
Capacity (w/o Fans): 53 MVA (53,000 KVA)
Capacity (w/ Fans, Stage 2): 70.5 MVA (70,500 KVA)
Capacity (w/ Fans, Stage 2): 88 MVA (88,000 KVA)
Vector Group: YNyn0d1
Primary Voltage: 230000Y/132791
Primary Voltage Switch: N/A
Primary Voltage Class: 235 kV Class
Primary Phasor: Grounded Wye
Primary Line BIL: 900 KV
Primary Neutral BIL: 200 KV
Secondary Voltage: 34500Y/19920
Secondary Voltage Class: 35 kV Class
Secondary Phasor: Grounded Wye
Secondary Line BIL: 200 KV
Secondary Neutral BIL: 200 KV
Tertiary winding: Included, 13800V, Delta, 15 KV Class, 95 KV BIL
Frequency: 60 Hz
Temperature Rise: 65°C

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 386
Complies with ANSI / IEEE C2
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 CSA C227.4
Complies with ANSI / IEEE C37.47
Complies with ANSI Z535.4
Complies with CSA C88-16
Complies with CSA C88.1
Complies with CSA C88
Complies with CSA C50
Complies with ASTM D3487
Complies with ASTM D6871

Insulation Rating: Class A Insulation
Cooling Class: ONAN/ONAF/ONAF
Forced Air (Fans): Included, (12) , Two-Stages, Totally Enclosed, Individually Protected Type, Fan Blades Of One-Piece Cast aluminum, Galvanized Fan Guards, Type: FS26-A10389-6
Cooling Radiator: Included, (9), Every One Has (2) 3" Upper And Lower Butterfly Valves (VIAT), ANSI #70 Sky Grey
H.V Tap Changer: 33-Position Load Tap Changer (LTC), ABB, Type: VUCGRN 380-450 C
H.V Tap Qty: (16) FCAN Above Taps, (16) FCBN Below Taps
H.V Tap %: 0.625%
H.V Tap Changer Switch Rating: 235 KV
H.V Tap Changer Switch Location: H.V Side, Top Mounted
L.V Tap Changer: N/A
L.V Tap Qty: N/A
L.V Tap %: N/A
L.V Tap Changer Switch Rating: N/A
L.V Tap Changer Switch Location: N/A
Impedance (Typical, At 53 MVA, 230kV, 34.5kV): 7.14%
Primary Connection Type: Live Front
Primary Termination Arrangement: Inline, Top Mounted
Primary Connector: (3) DELTA Type: EHPM59C12-1-4N4-E
Primary Bushing Qty: (4)
Primary Bushing Rating: 345 KV Class, 1300 KV BIL, 800 Amp, Porcelain, ANSI #70 Sky Grey, Type: POC1300G0800Y11
Primary Neutral Bushing: Included, 34.5 KV Class, 200 KV BIL, 1200 Amp, Porcelain, ANSI #70 Sky Grey, Type: B-89393-70
Primary Neutral Connection: (1) DELTA Type: PM59C12-1-4N4-E
Primary Surge Arrestors: Included, (3) Type: EVP015200-3001, with Grounding Cooper Busbar 3" x 0.25", W/ Support
Primary Surge Arrestor Voltage Rating: N/A
Primary Surge Arrestor MCOV Rating: N/A
Primary Over Current Protection (OCP): N/A
Primary Bushing CT: Included, (1) Per Each Phase,600:5 Ratio MR, C400 Accuracy Class
Primary Over Current Protection Holder: N/A
Primary Grounding Provisions: Included, (2) Grounding Cooper Busbars 3" x 0.25"
Primary Neutral Bushing CT: Included, (1) 600:5 Ratio MR, C400 Accuracy Class
Secondary Connection Type: Live Front
Secondary Termination Arrangement: Inline, Top Mounted
Secondary Connector: (3) DELTA Type: PM60C12-1-422-M1-E
Secondary Bushing Qty: (4)
Secondary Bushing Rating: 34.5 KV Class, 200 KV BIL, 3000 Amp, Porcelain, ANSI #70 Sky Grey, Type: B-88833-70
Secondary Neutral Bushing: Included, 34.5 KV Class, 200 KV BIL, 3000 Amp, Porcelain, ANSI #70 Sky Grey, Type: B-88833-70
Secondary Neutral Connection: (1) DELTA Type: PM60C12-1-422-M1-E
Secondary Over Current Protection (OCP): N/A
Secondary Bushing CT: Included, (2) Per Each Phase; (1200:5 Ratio MR, C400 Accuracy Class) & (1200:600 Ratio, 0.3-B1.8 Metering Accuracy)
Secondary Surge Arrestors: Included, (3) Type: EVP002900-3001, with Grounding Cooper Busbar 3" x 0.25", W/ Support
Secondary Surge Arrestor Voltage Rating: N/A
Secondary Surge Arrestor MCOV Rating: N/A
Secondary Grounding Provisions: Included, (2) Grounding Cooper Busbars 3" x 0.25"
Secondary Neutral Bushing CT: Included, (1) 600:5 Ratio MR, C400 Accuracy Class
Metering Current Transformer (CT): Included
Current Transformer Junction Box: Included, (9) 1929 T APG
Metering Panel: Included
Auxiliary Control Panel : Included, Contains Power Sources 48 Vdc, 240 Vac-1Ph For

Complies with NEMA 260-1996
Complies with 10 CFR Part 431
Complies with CSA C2.1-06
Complies with CSA C227.5
Complies with CSA C802-3
Complies with CSA C802.1

Features

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

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): TBD
On-Load Loss (in watts): 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:

Control Cabinet Heater And 120/240 Vac-1Ph For Cooling Equipment

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 Fluid - Non-PCB Fluid
Fluid (Oil) Capacity*: 9220 Gallons
Fluid (Oil) Weight*: 68487 lbs
Liquid Level Indicator: Included, (1) For Main Tank, QUALITROL Type: LLG042-00389664, (1) For LTC, QUALITROL Type: LLG042-00389751
Winding Temperature Indicator: Included Thermometer, (2) QUALITROL Type: TR6000B-00375721 CS-54750
Liquid Temperature Indicator: Included Thermometer, (1) QUALITROL Type: TR6000B-00380871
Ambient Temperature Indicator: Included, (1) RTD Type: 103-049-01 CS-53362
Pressure/Vacuum Indicator: Included, With Scale Range Of Plus Or Minus 10 PSI
Rapid Rise Relay: Included, (1) QUALITROL Type: 900-009-03 CS-40869, W/ (1) 1/2" Globe Type Valve
Pressure Relief Device: Included, (2) For Main Tank, QUALITROL Type: XPRD00-00244203, (1) For LTC, QUALITROL Type: XPRD00-00027730
Rubber Bag For Main Tank: Included, (1)
Thermal Plate: Included, (2) 0872 WWLM-V
Fall Protection Support: Included, (2)
Gas Relay: Included
Conservator Tank: Included, (1), w/ (1) 2" Globe Type Drain Valve, United Brass & (1) 3/4" Globe Type Equalizer Valve, United Brass
Fault Indicator: Included, (1) Buchholz Relay For Main Tank COMEM Type: 1RCBRI1N5, (1) Buchholz Relay For LTC ABB Type: IZSC003527
DEHYDRATER Breather: Included, (1) For Main Tank MESSKO Type: 686-2EAB42NJZZNNJ06N & (1) For LTC MESSKO Type: 686-1EAB42NNDZNNN08N
Gas Sampler Valve: N/A
Fill Valve: Included, (2) 2", Globe Type, United Brass For Main Tank And LTC
Fill Valve Location: Top Mounted
Drain Valve: Included, (1) 2" , W/ Sampling Port 3/8", Globe Type, United Brass
Drain Valve Location:
Winding Material: Copper
Ambient Temperature Rating: 40°C
Ambient Operating Temperature Range: -40°C to +45°C
Sound Level: N/A
Elevation (Altitude): 3300ft (1000 meters) Above Sea Level
Core Material: Silicon Steel, Grain Oriented
Tank Material: Steel
Cabinet Material: Steel
Base Platform Material: Steel
Hardware Material: Stainless 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
Seismic Rating: N/A
Paint Type: Weatherproof and UV Resistant Epoxy Coating and Undercoating
Finish Color: ANSI #70 Sky Grey
Mounting: Supporting Structures
Conduit Opening: Bottom
Tank Cover Access Handhole: Included

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

Contact us for special requirements
Toll Free: 1-800-369-6671
Intl: 1-903-270-1187

Dimensions*: TBD
Weight*: 243,650 Lbs
*Please note that numbers are approximate and subject to change

Fax: 1-903-765-7664
E-mail: sales@larsonelectronics.com

The MT-PSTC-R7-3P-GXN-53MVA-GMA-HT-LT-X6-BMFF-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 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 230000Y132791 Grounded Wye and a secondary voltage of three-phase 34500Y/19920V Wye-N. This system is rated for 53 MVA (53,000 KVA) natural cooled, 70.5 MVA (70,500 KVA) first stage fan cooled and 88 MVA (88,000 KVA) second stage fan cooled. We offer systems with loop or radial feed, as well as dead front or live front primary connections. The transformer features a 33-position off-load tap changer with sixteen, +/- 0.625% taps above and sixteen, +/- 0.625% taps below to allow small changes for voltage. There is a rapid rise relay present on the system.

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-GXN-53MVA-GMA-HT-LT-X6-BMFF-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 53 MVA (53,000 KVA) natural cooled, 70.5 MVA (70,500 KVA) first stage fan cooled and 88 MVA (88,000 KVA) second 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 outdoor areas.

Insulation Fluid: The MT-PSTC-R7-3P-GXN-53MVA-GMA-HT-LT-X6-BMFF-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% load conditions, which helps preserve the transformer's lifespan and performance.

Gauges: The following gauges are included with the system: liquid level indicator, Fluid temperature indicator, Winding Temperature Indicator, pressure/vacuum indicator. 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 comes with surge arresters on both the primary and secondary sides.

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

Valves: The MT-PSTC-R7-3P-GXN-53MVA-GMA-HT-LT-X6-BMFF-CZ-2ZZ-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, 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 installed on supporting structures, such as the roof of the transformer main tank.

Benefits: The MT-PSTC-R7-3P-GXN-53MVA-GMA-HT-LT-X6-BMFF-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

Product ID: 306344

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/306344.PDF)
- **Operations Manual**(https://www.larsonelectronics.com//images/product/Manual/306344.PDF)
- **HigResPic1**(https://www.larsonelectronics.com//images/product/HigResPic1/306344.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)