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Product ID: 315058

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-ATX-R7-3P-GEXD-420MVA-GXK-HT-LS-X6-BMFF-CZ-2ZZ-M1 Conservator Transformer

Transformer Type: Power Autotransformer 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 (w/o Fans): 420 MVA (420,000 KVA)
Capacity (w/ Fans, Stage 1): 560 MVA (560,000 KVA)
Capacity (w/ Fans, Stage 2): 700 MVA (700,000 KVA)
Vector Group: YNyn0
Primary Voltage: 345000Y/200000
Primary Voltage Switch: N/A
Primary Line Voltage Class: 362 kV Class
Primary Neutral Voltage Class: 35 kV Class
Primary Phasor: Grounded Wye
Primary Line BIL: 1050 KV
Primary Neutral BIL: 200 KV
Secondary Voltage: 138000Y/79675
Secondary Line Voltage Class: 138 kV Class
Secondary Neutral Voltage Class: 35 kV Class
Secondary Phasor: Grounded Wye
Secondary Line BIL: 650 KV
Secondary Neutral BIL: 200 KV
Frequency: 60 Hz

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 C802-3
Complies with CSA C227.4 & C227.5
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 CSA C88-16
Complies with ANSI / IEEE C62.11
Complies with ANSI / IEEE C62.22
Complies with CSA C802.1
Complies with ANSI / IEEE 386
Complies with ANSI / IEEE C2
Complies with CSA C88.1
Complies with ANSI / IEEE C37.47
Complies with ANSI Z535.4
Complies with CSA C88
Complies with ASTM D3487

Temperature Rise: 65°C
Insulation Rating: Class E Insulation - 120°C, 248°F
Cooling Class: ONAN/ONAF/ONAF; Self-Cooled/Fan-Cooled
Forced Air (Fans): Included, Two-Stage Fan Cooling, 480 VAC, 3-Ph
Tap Changer: 33-position Load Tap Changer, Vacuum Type
Tap Qty: (16) FCAN Above Taps, (16) FCAN Above Taps
Tap %: 0.625%
Tap Changer Switch Rating: 170 kV, ON-Load Rated
Tap Changer Switch Location: High Voltage (HV), Max, Height is 84 inches above the surface of the transformer's concrete pad
Impedance: 10.5%
Primary Connection Type: Live Front
Primary Termination Arrangement: Top Mounted Terminals
Primary Termination: ANSI transformer-breaker interchangeable type for cover mounting; oil-filled; porcelain clad; light gray glaze (ANSI-70 light gray color); with liquid level indicators; with NEMA four-hole terminals
Primary Connection Qty: (3) Primary Connections
Primary Bushing Rating: 362 kV Class, 1300 kV BIL, 2000A Cont. Rating
Primary Neutral Connection: Included, ANSI transformer-breaker interchangeable type bushings for cover mounting; oil-filled; porcelain clad; light gray glaze (ANSI-70 light gray color); with liquid level indicators; 145kV class; 650kV BIL; 3000 amp minimum, with facilities for making power factor tests
Primary Surge Arrestors: Included, Station Class, Metal-oxide Varistor Type
Primary Surge Arrestor Voltage Rating: 258 kV
Primary Surge Arrestor MCOV Rating: 209 kV
Primary Over Current Protection (OCP): N/A
Primary Over Current Protection Method: N/A
Primary Over Current Protection Holder: N/A
Primary Line Bushing Current Transformers: Included, (2) For Each Bushing, C800 Accuracy Class, 2000:5 MR, 2.0 RF, (1) For Each Bushing, 0.3% Accuracy Class, 1200:5 MR, 2.0 RF
Primary Neutral Bushing Current Transformers: Included, (2) C800 Accuracy Class, 3000:5 MR, 2.0 RF
Primary Grounding Provisions: N/A
Secondary Connection Type: Live Front
Secondary Termination Arrangement: Side Mounted Terminals
Secondary Termination: ANSI transformer-breaker interchangeable type for cover mounting; oil-filled; porcelain clad; light gray glaze (ANSI-70 light gray color); with liquid level indicators; with NEMA four-hole terminals
Secondary Connection Qty: (3) Secondary Connections
Secondary Bushing Rating: 145 kV Class, 650 kV BIL, 3000A Cont. Rating
Secondary Neutral Connection: Included, ANSI transformer-breaker interchangeable type bushings for cover mounting; oil-filled; porcelain clad; light gray glaze (ANSI-70 light gray color); with liquid level indicators; 145kV class; 650kV BIL; 3000 amp minimum, with facilities for making power factor tests
Secondary Connection Supports: N/A
Secondary Over Current Protection (OCP): N/A
Secondary Line Bushing Current Transformers: Included, (2) For Each Bushing, C800 Accuracy Class, 3000:5 MR, 2.0 RF, (1) For Each Bushing, 0.3% Accuracy Class, 3000:5 MR, 2.0 RF
Secondary Neutral Bushing Current Transformers: Included, (2) C800 Accuracy Class, 3000:5 MR, 2.0 RF
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 : Included
Load Break Switch: N/A

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

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

Efficiency %: > 99.797%

Based on transformer operating at 50% of nameplate base kVA.

Load Losses Based on 85°C Reference Temp.

No Load Loss (in watts): 265,000W
Full Load Loss (in watts) at 100%: 870,000W
Total Load Loss (in watts) at 100%: 1,135,000W

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

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, Type II, Non-PCB Fluid
Fluid (Oil) Capacity*: 29,587 Gallons
Fluid (Oil) Weight*: 222,666.89 lbs
Liquid Level Indicator: Analog Dial Gauge, w/ Contacts
Liquid Temperature Indicator: Analog Dial Gauge, w/ Contacts
Winding Temperature Indicator: Analog Dial Gauge, w/ Contacts
Pressure/Vacuum Indicator: Analog Dial Gauge, w/ Contacts
Pressure Relief Device: Included, Automatic Action, Qualitrol XPRD
Fault Indicator: Included, Buchholz Relay
Seal-In Relay: Included, Qualitrol #909-300-1), 125V DC Rated
Gas Monitoring System: Included, Morgan Schaffer Calisto 5
On-line Dissolved Gas in Oil Valves: Included, (2) 2", NPT threaded IPS, gate type. One valve is below the oil level, close to the transformer top and on the transformer wall. The second valve is at 4 ft from the transformer bottom and on the same side as the on-line dissolved gas in oil top valve
Gas Sampler Valve: Included, Schrader Valve
Fill Valve: 2", NPT threaded IPS, gate type valve with malleable iron pipe plug for the main tank, 1.5", NPT threaded IPS, gate type valve, with malleable iron pipe plug for the OLTC compartment
Fill Valve Location: Front Compartment
Drain Valve: (1) 2" and (1) 1.5", NPT threaded IPS, gate type drain valve with sampling device and malleable iron plug for the main tank and for the OLTC compartment respectively
Drain Valve Location: Front Compartment
Winding Material: Copper
Ambient Temperature Rating: 40°C
Ambient Operating Temperature Range: -30°C to +50°C (-20°F to +120°F)
Sound Level: 75 dBA (With all fans running, 105% of rated voltage)
Elevation (Altitude): 640ft Above Sea Level
Seismic Rating: Zone 1
Wind Speed Rating: 90 mph
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 Wiring Cabinet, Sealed Tank
Paint Type: Weatherproof and UV Resistant Epoxy Coating and Undercoating
Finish Color: Munsell™ 5BG 7.0/0.4 Light Grey (ANSI #70)
Internal Paint Color: White
Mounting: Pad Mounted
Conduit Opening: N/A
Tank Cover Access Handhole & Manhole: Included
Dimensions*: 543.3"-W x 381.89"-D x 408.34"-H
Dry Weight (w/o Oil)*: 659182.16 lbs
Total Weight (Liquid Filled)*: 881,849.05 lbs
*Please note that numbers are approximate and subject to change

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
Induced Voltage Withstand Test
Short-circuit Impedance Test
No-load Loss (Wattage) Test
Load Loss (Wattage) 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*

Spare Parts:
Three primary voltage bushings
Three secondary voltage bushings
One complete itemized set of gaskets
One fan motor assembly

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-ATX-R7-3P-GEXD-420MVA-GXK-HT-LS-X6-BMFF-CZ-2ZZ-M1 Conservator

Substation Autotransformer 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 230000Y/133000 Grounded Wye and a secondary voltage of three-phase 23000V Delta. This system is rated for 420 MVA (420,000 KVA) [Natural Cooled] / 560 MVA (560,000 KVA) [First Stage Fan Cooled] / 700 MVA (700,000 KVA) [Second Stage Fan Cooled]. We offer systems with loop or radial feed, as well as dead front or live front primary connections. This transformer features a 33-position load tap changer with sixteen, + 5/8% taps above and sixteen, - 5/8% taps below to allow small changes for voltage.

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-ATX-R7-3P-GEXD-420MVA-GXK-HT-LS-X6-BMFF-CZ-2ZZ-M1 has fans for forced air cooling.

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 420 MVA (420,000 KVA) [Natural Cooled] / 560 MVA (560,000 KVA) [First Stage Fan Cooled] / 700 MVA (700,000 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 electrical rooms, air conditioned spaces in buildings, underground vaults, and similar locations, in addition to outdoor areas.

Insulation Fluid: The MT-PSTC-ATX-R7-3P-GEXD-420MVA-GXK-HT-LS-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% 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. These gauges do not have alarm contacts.

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 both the primary and secondary sides.

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

Valves: The MT-PSTC-ATX-R7-3P-GEXD-420MVA-GXK-HT-LS-X6-BMFF-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-ATX-R7-3P-GEXD-420MVA-GXK-HT-LS-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

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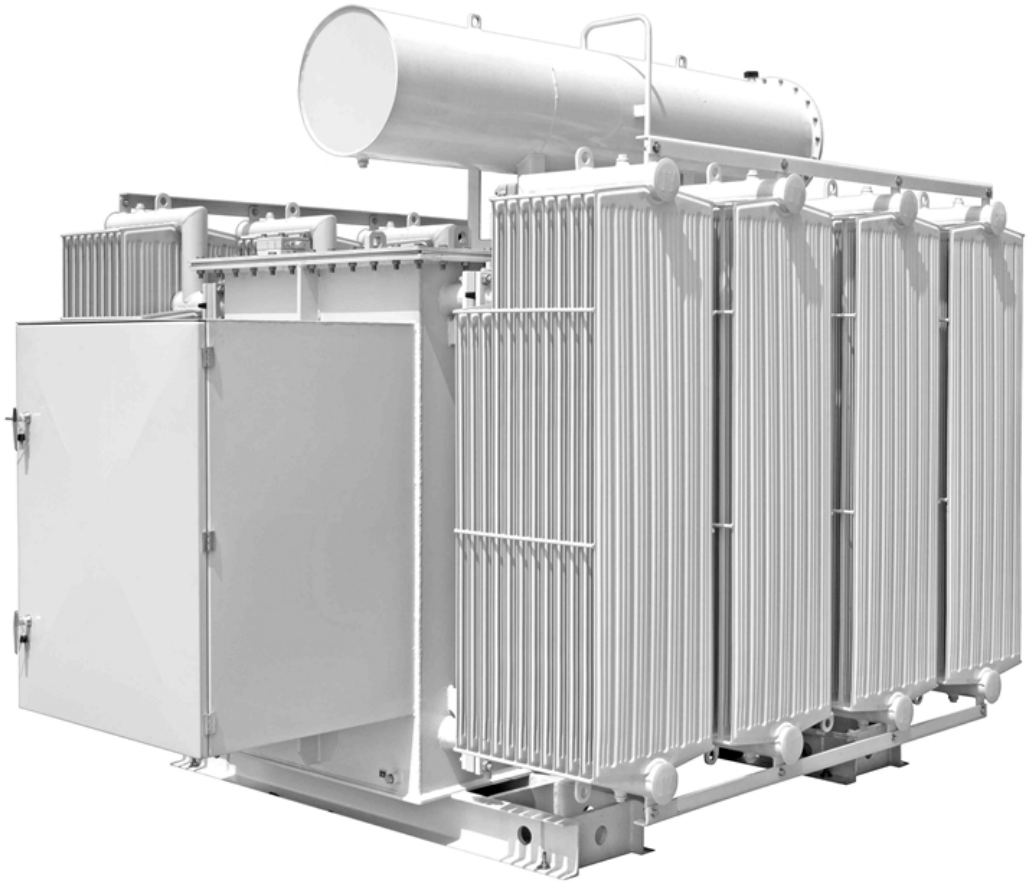


Image:



Image:

Product ID: 315058

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/315058.PDF)
- **HigResPic1**(https://www.larsonelectronics.com//images/product/HigResPic1/315058.JPG)
- **HigResPic2**(https://www.larsonelectronics.com//images/product/HigResPic2/315058.JPG)
- **HigResPic3**(https://www.larsonelectronics.com//images/product/HigResPic3/315058.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)