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MT-PSTC-R7-3P-DXK-90MVA-GMA-HT-LT-X6-BMFF-CZ-2ZZ-M2

90/120/150 MVA Substation Power Transformer, Conservator Type - 138000V Delta Primary, 34500Y/19920 Grounded Wye Secondary - ONAN/ONAF/ONAF, Mineral Oil - Dark Grey

Product ID: 332476

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



Image: MT-PSTC-R7-3P-DXK-90MVA-GMA-HT-LT-X6-BMFF-CZ-2ZZ-M2

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-DXK-90MVA-GMA-HT-LT-X6-BMFF-CZ-2ZZ-M4 Conservator Transformer

Transformer Type: Substation Power Transformer, Conservator Type
Transformer Configuration: Liquid Filled
Transformer Feed Type: N/A
Operation: Step-Down Operation (Approved for Step-Up)
Phase: Three Phase
Capacity (w/o Fans): 90 MVA (90,000 KVA)
Capacity (w/ Fans, Stage 1): 120 MVA (120,000 KVA)
Capacity (w/ Fans, Stage 2): 150 MVA (150,000 KVA)
Vector Group: DYN1
Primary Voltage: 138000V
Primary Voltage Switch: N/A
Primary Voltage Class: 145 kV Class
Primary Phasor: Delta
Primary BIL: 650 KV
Secondary Voltage: 34500Y/19920
Secondary Voltage Class: 35 kV Class
Secondary Phasor: Grounded Wye
Secondary BIL: 200 KV
Tertiary winding: N/A

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 C227.5
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 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 CSA C227.4

Frequency: 60 Hz
Temperature Rise: 65°C, 80°C Hot Spot
Insulation Rating: Class A Insulation
Cooling Class: ONAN/ONAF/ONAF
Forced Air (Fans): Included, Two-Stages, Totally Enclosed, Individually Protected Type, Fan Blades Of One-Piece Cast aluminum, Galvanized Fan Guards. w/ Automatic - Off - Manual operation for cooling control
Cooling Radiator: Included, Interchangeable, Has Upper And Lower Drain Plugs, ANSI #70 Sky Grey
H V Tap Changer: 5-Position No Load Tap Changer (NLTC)
H V Tap Qty: (1) FCAN Above Taps, (3) FCBN Below Taps
H V Tap %: 2.5%
H V Tap Changer Switch Rating: 144kV
H.V Tap Changer Switch Location: H.V Side, Side Mounted
L.V Tap Changer: 33-Position ON-Load Tap Changer (OLTC), Capable Of Interface With SCADA For Position And Control
L.V Tap Qty: (16) FCAN Above Taps, (16) FCBN Below Taps
L.V. Tap %: 10%
L.V Tap Changer Switch Rating: 35 KV
L.V Tap Changer Switch Location: L.V Side, Top Mounted In a Separate Oil Compartment Equipped With: Magnetic level indicator with form "C" alarm contacts, Breather, Drain, filter and sampling valves, Hinged maintenance door with oil-resistant gasket, Manhole for inspection of contacts without lowering oil level, Liquid temperature indicator with form "C" alarm contacts. These indicators have minimum 6" diameter dials, Cover-mounted mechanical pressure relief device with (automatic resealing operation, form "C" alarm contacts & Mechanical signal for indication of device operation), Pressure control switch with trip contacts, Filling plug located at the top of the compartment, a lip to prevent oil spills after draining compartment and open the door, motor drive which is easily accessible and not immersed in oil, Local position indicator, Operation counter. Includes Automatic, Digital Control, high limit/low blocking, line drop compensation, SCADA ready, with COM1 port, RS232 w/ RS-485 and fiber optic interfaces; DNP3.0 protocol, COM2 port, RS232, preferred manufacturer, Beckwith M-2001D or equal
Impedance (Typical): 9.5% @ 90 MVA
Primary Connection Type: Live Front, Porcelain Insulator w/ threaded stud type silver plated, Sky Gray (ANSI 70) w/ provision for power factor testing, Oil-filled condenser type
Primary Termination Arrangement: Inline, Top Mounted in ANSI Segment 3
Primary Termination: NEMA 4-Hole Pad connectors
Primary Bushing Qty: (3)
Primary Bushing Rating: 144 KV Class, 650 kV BIL, 108kV MCOV, Porcelain, ANSI #70 Sky Grey, with threaded stud type silver plated, oil-filled condenser type
Primary Neutral Connection: N/A
Primary Surge Arrestors: Included, (3) metal-oxide station type, ANSI #70 Sky Grey
Primary Surge Arrestor Voltage Rating: 144 KV
Primary Surge Arrestor MCOV Rating: 108 KV
Primary Over Current Protection (OCP): N/A
Primary Bushing CT: Included, (3) Per Each Phase, 1200:5 Ratio MR, C800 Accuracy Class, 5-Lead, 2.0 Thermal Rating Factor, Tap shall exit the tank through cast resin barrier block and terminated on CT shorting blocks in the control cabinet
Primary Over Current Protection Holder: N/A
Primary Grounding Provisions: Two copper faced ground pad (stainless steel) located at diagonal corners near base, w/ two-bolt terminal connectors,
Secondary Connection Type: Live Front, Porcelain Insulator w/ threaded stud type silver plated, Sky Gray (ANSI 70) w/ provision for power factor testing, Oil-filled condenser type
Secondary Termination Arrangement: Inline, Top Mounted
Secondary Termination: NEMA 4-Hole Pad connectors
Secondary Bushing Qty: (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 C802.1
Complies with CSA C50
Complies with CSA C88
Complies with CSA C88.1
Complies with CSA C88-16
Complies with NEMA TR1

Features

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 %: 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

Secondary Bushing Rating: 34.5 KV Class, 200 kV BIL, Porcelain, ANSI #70 Sky Grey, with threaded stud type silver plated, oil-filled condenser type
Secondary Neutral Connection: Included, 20 KV Class, 200 kV BIL, 1200 A, Porcelain, ANSI #70 Sky Grey, with threaded stud type silver plated, oil-filled condenser type
Secondary Over Current Protection (OCP): Included
Secondary Bushing CT: Included, (2) Per Each Phase, 3000:5 Ratio MR, C800 Accuracy Class, 5-Lead, 2.0 Thermal Rating Factor
Secondary Surge Arrestors: Included, (3) metal-oxide station type, ANSI #70 Sky Grey
Secondary Surge Arrestor Voltage Rating: 30 KV
Secondary Surge Arrestor MCOV Rating: 24.4 KV
Secondary Grounding Provisions: Included, (2) Grounding Pads (stainless steel) Located On Diagonally Opposite Corners Of The Tank Base For Grounding Of The Transformer With Bolt Type Connectors For Connection To 2/0 to 500 KCMIL Stranded Copper conductor
Secondary Neutral Bushing CT: Included, (1) 1200:5 Ratio MR, C800 Accuracy Class, 5-Lead, 2.0 Thermal Rating Factor
Metering Current Transformer (CT): Included
Metering Panel: Included, SEL-2533 annunciator with DC power supply w/ support for DNP 3.0 comm protocol w/ 14 digital inputs and 7 digital outputs
Auxiliary Control Panel : Included, 120/208 Vac single-phase for fans, space heaters and other accessories, 125 volts dc for control functions, w/ 120V 100W light fixture w/ SPST switch and 120V, 20A 1P duplex grounding type receptacle w/ protective fuses
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: 10 C Mineral Oil Fluid - Non-PCB Fluid
Fluid (Oil) Capacity*: TBD
Fluid (Oil) Weight*: TBD

Transformer Monitoring: Included, Qualitrol, Load and Thermal Monitor

Oil Level Indicator: Included, with low level alarm and critical low level trip contacts, 125 vdc alarm contacts
Winding Temperature Indicator: Included Thermometer, 120 C hot spot monitoring, 65 degree C over 40 degree C ambient
RTD: Included, for Ambient Air, Top Oil and Bottom Oil, Qualitrol Model 103-047 or equivalent
Oil Temperature Indicator: Included Thermometer,Maximum top oil 105 degree , 65 degree C over 40 degree C ambient
Pressure/Vacuum Indicator: Included, With Scale Range Of Plus Or Minus 10 PSI
Sudden Pressure Relay: Included, 125 vdc, with alarm and trip contacts
Tank Pressure Relief Relay: Included, visual signal flag and 125 vdc alarm contacts
Fan Undervoltage Monitoring: Included
On-line Dissolved Gas Analysis Monitor: Included
Pressure Reducer: Included, Three-Stage
Gas Relay: Included

Fault Indicator: Included, Buchholz Relay

Gas Sampler Valve: N/A
Fill Valve: Included, with vacuum filling
Fill Valve Location: Top Mounted
Drain Valve: Included W/ Sampling Port, with vacuum drying
Drain Valve Location: Side of transformer tank

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 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
Short-circuit Impedance Test (will not result in an impedance change exceeding 2% of the impedance value measured prior to short circuit testing)
Insulation Resistance Test
Voltage Ratio Error Test
Load Loss (Wattage) Test
Separate Source Voltage Withstand Test
Induced Voltage Withstand Test
No-load Loss (Wattage) Test
Pressure Integrity Test

Special Tests:

Temperature Rise Test
Insulation Power Factor Test - winding to winding & winding to ground
Lightning Impulse Test

Shipping:

Shipped on pallet on open flatbed

Winding Material: Copper
Ambient Temperature Rating: 40°C
Ambient Operating Temperature Range: -30°C to +40°C
Isokeraunic Level : 50 thunderstorm - days/year
Wind Velocity: 120 MPH
Sound Level: Complies with C57.12.90
Elevation (Altitude): 3300ft (1000 meters) Above Sea Level
Core Material: Silicon Steel Laminations, Grain Oriented, cold-rolled, non-aging, Round Core/Coil Design
Tank Material: Coated Steel
Cabinet Material: Coated Steel
Base Platform Material: Coated Steel
Hardware Material: Stainless Steel
Portability: Lifting lugs, provisions for jacking under base, w/ base construction suitable for pad foundation
Housing Type: Metal Casing Liquid Filled Transformer, Full vacuum and positive pressure applied at the cover at least 10 psig, 2 round manhole covers with 24" Diameter
Enclosure Rating: NEMA 4X Weatherproof, min 24" above the base top of the cabinet less than or equal to 78"
Seismic Rating: High seismic, According to IEEE-693 & IEEE C57.114
Paint Type: Applied corrosion-resisting primer to all surfaces, Applied top coat baked enamel to provide a minimum of 3 mils (.75 mm) thick, The top of the main tank and LTC compartment is a non-skid coating, Radiator is electrostatic coated
Finish Color: Dark Grey
Mounting: Supporting Structures
Conduit Opening: Bottom
Tank Cover Access Handhole: Included
Dimensions*: TBD
Weight*: TBD
*Please note that numbers are approximate and subject to change

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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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):

- **HigResPic1**(https://www.larsonelectronics.com/images/product/HigResPic1/332476.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)