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-PSTH-R7-3P-DXF-30MVA-YMP-HT-LT-X6-CMFF-CZ-2ZZ-M1

30/40/50 MVA Hermetically Sealed Substation Power Transformer, 115000V Delta Primary, 13800Y/7967 Wye-N Secondary - ONAN/ONAF/ONAF, Mineral Oil - Light Grey

Product ID: 342707

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



Image: MT-PSTH-R7-3P-DXF-30MVA-YMP-HT-LT-X6-CMFF-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-PSTH-R7-3P-DXF-30MVA-YMP-HT-LT-X6-CMFF-CZ-2ZZ-M1 Conservator Transformer	Ratings
Transformer Type: Substation Power Transformer, Hermetically Sealed	Meets/Exceeds DOE 2016 Efficiency Ratings
Transformer Configuration: Liquid Filled	Meets/Exceeds CSA Efficiency Ratings
Transformer Feed Type: Radial Feed	Complies with ANSI / IEEE C57.12.00
Operation: Step-Down Operation (Not Approved for Step-Up)	Complies with ANSI / IEEE C57 12.28
Phase: Three Phase	Complies with ANSI / IEEE C57 12.29
Capacity (w/o Fans, @ 55/65°C) 30 MVA (30,000 KVA) / 33.6 MVA (33,600 KVA)	Complies with ANSI / IEEE C57 12.34
Capacity (w/ Fans, Stage 1, @ 55/65°C): 40 MVA (40,000 KVA) / 44.8 MVA (44,800 KVA)	Complies with CSA C802.1
Capacity (w/ Fans, Stage 2, @ 55/65°C): 50 MVA (50,000 KVA) / 56 MVA (56,000 KVA)	Complies with CSA C802-3
Vector Group: Dyn11	Complies with ANSI / IEEE C57 12.35
Primary Voltage: 115000V	Complies with ANSI / IEEE C57.12.70
Primary Voltage Switch: N/A	Complies with ANSI / IEEE C57.12.110
Primary Voltage Class: 121 kV Class	Complies with ANSI / IEEE C57.12.131
Primary Phasor: Delta	Complies with ANSI / IEEE C62.11
Primary BIL: 550 KV BIL (630 KV Chopped Wave / 460 KV Switching Impulse / 230 KV Applied)	Complies with ANSI / IEEE C62.22
Secondary Voltage: 13800Y/7967	Complies with ANSI / IEEE 386
Secondary Voltage Class: 15 kV Class	Complies with ANSI / IEEE C2
Secondary Phasor: Wye-N	Complies with ANSI / IEEE C37.47
Secondary BIL: 110 KV	Complies with ANSI Z535.4

Frequency: 60 Hz
Temperature Rise: 55/65°C
Insulation Rating: Class A Insulation
Cooling Class: ONAN/ONAF/ONAF
Forced Air (Fans): Included, (12) Two-Stage, 240V AC-1Ph, Sealed Ball-Bearing Motors w/ PF ≥0.8 and Thermal Overload (No Centrifugal Switch), POWERTECH KP070
Cooling Radiator: Included, (9) Hot-Dip Galvanized, Seismic-Rated Bracing, Upper/Lower Drain Plugs, ANSI #70 Sky Grey, Individual Shut-Off Valves, Interchangeable, 1 Spare Radiator Flange Provided
H.V Tap Changer: 5-Position De-energized Tap Changer (DETC), Rotary Type w/ Silver-Plated Copper Contacts (Non Ring-to-Round-Post Design), SPECIALTY 40B04-5311-U-12
H.V Tap Qty: (2) FCAN Above Taps, (2) FCBN Below Taps
H.V Tap %: 2.5%
H.V Tap Changer Switch Rating: 115 KV, 550 BIL, 800A
H.V Tap Changer Switch Location: H.V Side, Handwheel Located Approx. 1'-6" Below Transformer Base (Operator Accessible), Padlockable
L.V Tap Changer: 33-Position Load Tap Changer (LTC), Waukesha UZD, Vacuum Type Arcing Switch w/ Series/Preventative Autotransformer
L.V Tap Qty: (16) FCAN Above Taps, (16) FCBN Below Taps
L.V Tap %: 0.625%
L.V Tap Changer Switch Rating: 15 kV, 110 kV BIL
L.V Tap Changer Switch Location: Segment 2 of Tank (Opposite HV Bushings), Separate Bolted-Cover Compartment
Impedance: 11.5% Nominal, ±7.5% Tolerance (Base 30 MVA, 115kV @ 75°C)
Primary Connection Type: Live Front
Primary Termination Arrangement: Inline, Top Mounted
Primary Termination: NEMA 4-Hole Pad connectors, Gibbons GB453-SP, 12 TPI, Silver-Plated, Silicon Bronze Hardware (for 1.5" 12-TPI Bushing Stud)
Primary Bushing Qty: (3)
Primary Bushing Rating: 115 KV Class (High-Altitude), 550 KV BIL, 800 A, Porcelain, Min. Creep 103.9", ABB OPLUS-C, Cat. #115W0800XA, Draw-Through Lead Type w/ Capacitance Tap; 1 Spare Bushing Included
Primary Neutral Connection: N/A
Primary Surge Arrestors: Included, (3) Metal Oxide Polymer Housed Station Class, ANSI #70 Light Grey, Mounted ≥8'-6" Above Base, Connected to Stainless Steel Ground Pad at Base of Transformer
Primary Surge Arrestor Voltage Rating: 120 KV
Primary Surge Arrestor MCOV Rating: 98 KV rms
Primary Overcurrent Protection (OCP): N/A
Primary Overcurrent Protection Holder: N/A
Primary Bushing CT: Included, (2) Per HV Bushing (600/5 MR, TRF 2.0, C800, 5 Leads) + (2) Per HV Bushing (1200/5 MR, TRF 2.5, C800, 5 Leads)
Primary Grounding Provisions: N/A
Secondary Connection Type: Live Front
Secondary Termination Arrangement: Inline, Top Mounted
Secondary Termination: NEMA 4-Hole Pad connectors, Gibbons GB-1371-SP, 12 TPI, Silver-Plated, 4000A (for 4" Bushing Stud)
Secondary Bushing Qty: (4)
Secondary Bushing Rating: 25 KV Class, 150 KV BIL, 4000 A, Porcelain, Min. Creep 22.7", ABB O-PLUS-C, Cat. #O25W4000UU, Oil-Filled Condenser Type w/ Oil Sight Glass; 1 Spare Bushing Included
Secondary Neutral Connection: 25 KV Class, 150 KV BIL, Porcelain, ABB O-PLUS-C (Identical to LV Bushings), Oil-Filled Condenser Type w/ Oil Sight Glass, ≥32" Spacing from LV Bushings
Secondary Overcurrent Protection (OCP): N/A
Secondary Bushing CT: Included, (1) Per LV Bushing (3000/5 MR, TRF 2.0, C800, 5 Leads) + (2) Per LV Bushing (1500/3000:5, TRF 2.0, 0.15 B1.8 Metering Accuracy, 3 Leads)
Secondary Surge Arrestors: Included, (3) Metal Oxide Polymer Housed Station Class,

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 IEEE Std 693-2018
Complies with CSA C50
Complies with CSA C88
Complies with CSA C88.1
Complies with CSA C88-16
Complies with CSA C227.4
Complies with CSA C227.5

Features

Hot Stick Included, HV Door Mount
Penta-head Bolt Entry Assembly
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): 21800W, ±10% Tolerance
On-Load Loss (in watts): 120890W, ±10% Tolerance
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

ANSI #70 Light Grey, Mounted ≥8'-6" Above Base, Connected to Stainless Steel Ground Pad at Base of Transformer
Secondary Surge Arrestor Voltage Rating: 15 KV
Secondary Surge Arrestor MCOV Rating: 9 KV
Secondary Grounding Provisions: Included, (3) Arrester Ground Pads + (1) Dedicated Neutral Ground Pad w/ ½"x6" Copper Bus to Neutral Bushing
Neutral Bushing CT: Included, (2) Per Low-Side Neutral (1200/5 MR, TRF 2.0, C800, 5 Leads)
Metering Current Transformer (CT): Included — 0.15 B1.8 Class (1500/3000:5) LV Bushing CTs Provide Revenue-Metering Accuracy
Metering Panel: Included
Auxiliary Control Panel: Included, NEMA 4X Weatherproof Cabinet, Contains Power Sources 125 Vdc, 120/240 Vac-1Ph, Dual Thermostatically-Controlled 120VAC Heaters
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)
Current Total Harmonic Distortion: 5.0%
Insulation Fluid: Mineral Oil, Type II, Non-PCB Fluid
Fluid (Oil) Capacity*: 3775 Gallons
Fluid (Oil) Weight*: 27390 lbs
Silica Gel Breather: N/A for Main tank, Included for LTC Compartment (Stainless Steel Tubing, No Rubber Hose)
Liquid Level Indicator: Included, Qualitrol — (2) Indicators: Normal Type w/ High/Low Alarm Contacts + Second Emergency-Trip Type Mounted Below Normal
Winding Temperature Indicator: Included, Qualitrol — (2) Indicators: Normal Type w/ High/Low Alarm Contacts + Second Emergency-Trip Type Mounted Below Normal
Liquid Temperature Indicator: Included, Qualitrol Dial Hot-Oil Thermometer (Per Oil Compartment), 2 Non-Grounded Form C Contacts, Adjustable 65–110°C, Mounted 54"–72" Above Base
Thermal Well: Included, Qualitrol Dial Hot-Oil Thermometer (Per Oil Compartment), 2 Non-Grounded Form C Contacts, Adjustable 65–110°C, Mounted 54"–72" Above Base
Pressure/Vacuum Gauge: Included, Qualitrol (All Gauges Qualitrol per Spec), With Bleeder, ±15 PSI, Spare Contacts for Remote Monitoring, Mounted Under Tank Stiffeners
Rapid Rise Relay: Included, Qualitrol Model 900-010 w/ Seal-In Relay Qualitrol Model 909-300-01 (Operates at ≥0.5 psi/sec Pressure Rise)
Pressure Relief Device: Included, Qualitrol Self-Reseating Type, 10 PSI, Mechanical Indicator Visible From Base, 1 Non-Grounded Form C Contact — Provided on Main Tank AND Each Oil-Filled Compartment
Transformer Monitor And I/O Processor: Included — Dual SEL-2414 Architecture: (1) SEL-2414 LTC/Transformer Automation Controller (P/N 2414A1ADA5X2BE51832) for LTC control & Beckwith M-2948 tap-position monitoring; (1) separate SEL-2414 Transformer Monitoring Relay (P/N 2414A1ADA9X743A1830) for low-oil/sudden-pressure/PRD/oil-temp/winding
Nitrogen Oil Preservation System: Included, w/ Pressure-Vacuum Bleeder (Spare Contacts for Remote Monitoring); 1 Full Spare Nitrogen Cylinder Included (Becomes City Property)
Pressure Reducer: Included, Camlin Totus T1-G5 On-Line 5-Gas DGA Monitor(sealed N2 design does not use a conventional Buchholz-type gas-accumulator relay)
Gas Relay: Included
Fault Indicator: N/A
Gas Sampler Valve: N/A
Fill Valve: Included, 1" Hose-Type Connection (Pipe Nipple w/ External Cap — Threaded Plugs Not Acceptable), Separate From Vacuum Connection
Fill Valve Location: Top Mounted
Drain Valve: Included, 2" NPT Globe Type, Drains to Within 1" of Compartment Bottom, 3/8" Sampling Device w/ 5/16"x32 Male Thread & Cap (HJ DV1013-001)

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
Insulation Resistance Test
Voltage Ratio Error Test
No-load Loss (Wattage) Test
Induced Voltage Withstand Test
Load Loss (Wattage) Test
Separate Source Voltage Withstand Test
Pressure Integrity Test

Shipping:

Drain Valve Location: Bottom of Each Oil-Filled Compartment (Main Tank + LTC Compartment)
Winding Material: Copper
Ambient Temperature Rating: 45°C Maximum (30°C Assumed Average)
Ambient Operating Temperature Range: -45°C to +45°C
Sound Level: 65 / 67 / 68 dB (ONAN / ONAF1 / ONAF2 Stages, Respectively)
Elevation (Altitude): 5,100ft Above Sea Level
Core Material: Silicon Steel, Grain Oriented
Tank Material: Mild Steel
Cabinet Material: Mild Steel
Base Platform Material: Mild Steel
Hardware Material: Stainless Steel
Portability: Lifting Lugs (4-Sling Lift @ ≤30° From Vertical), Jacking Provisions Under Base, Base Suitable for Rollers/Skidding, 15° Tilt-Stable CG
Housing Type: Metal Casing Liquid Filled Transformer
Enclosure Rating: NEMA 4X Weatherproof Control Cabinet
Seismic Rating: Zone 1
Paint Type: Zinc-Chromate Epoxy Primer + Two-Part Urethane Enamel Topcoat (Exterior, ≥3 mil, per ANSI C57.12.28); White Oil-Resistant Epoxy Enamel (Interior); Radiators: Polyester Powder Coat, Baked 400°F
Finish Color: Munsell 10YR 6.0/3.0, Desert Tan
Mounting: Supporting Structures
Conduit Opening: N/A
Tank Cover Access Handhole: Included, ≥24" Diameter Main Access Covers + ≥16" Diameter Bushing-CT Access Holes
Dimensions: 181"-W, 189"-D, 168"-H
Dry Weight (w/o Oil)*: 85,070 Lbs
Total Weight (Liquid Filled)*: 112,460 Lbs
*Please note that numbers are approximate and subject to change

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

The MT-PSTH-R7-3P-DXF-30MVA-YMP-HT-LT-X6-CMFF-CZ-2ZZ-M1 Hermetically Sealed 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 69000V Delta and a secondary voltage of three-phase 13800Y/7967 Wye-N. This system is rated for 30 MVA (30,000 KVA) natural cooled, 40 MVA (40,000 KVA) first stage fan cooled and 50 MVA (50,000 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 5-position off-load tap changer with two +2.5% taps above and two -2.5% taps below to allow small changes in 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 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).

The MT-PSTH-R7-3P-DXF-30MVA-YMP-HT-LT-X6-CMFF-CZ-2ZZ-M1 has fans for forced air cooling.

Temperature Rise: This unit features 55/65°C temperature rise for reduced heat waste, increased reliability and longer life. At 55°C temperature rise, the transformer offers 30 MVA (30,000 KVA) natural cooled, 40 MVA (40,000 KVA) first stage fan cooled and 50 MVA (50,000 KVA) second stage fan cooled. At 65°C temperature rise, the transformer offers 33.6 MVA (33,600 KVA) natural cooled, 44.8 MVA (44,800 KVA) first stage fan cooled and 56 MVA (56,000 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-PSTH-R7-3P-DXF-30MVA-YMP-HT-LT-X6-CMFF-CZ-2ZZ-M1 features mineral oil insulation 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 Rapid Pressure Rise Relay and Seal-In Relay 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-PSTH-R7-3P-DXF-30MVA-YMP-HT-LT-X6-CMFF-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 transformer is installed on supporting structures, such as

the roof of the transformer main tank.

Benefits: The MT-PSTH-R7-3P-DXF-30MVA-YMP-HT-LT-X6-CMFF-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

Warranty: 24 Months.

Export Control Classification Number (ECCN): EAR99

Links (Click on the below items to view):

- **HigResPic1**(https://www.larsonelectronics.com/images/product/HigResPic1/342707.JPG)
- **Video1**(https://www.youtube.com/watch?v=4-JEyYeYcn8)
- **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)