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MT-PSTH-R7-3P-GXK-38MVA-GMA-HT-LT-X6-BMF-CZ-1ZZ-M1

38/50/62 MVA Hermetically Sealed Substation Transformer - 138000Y/79769 Grounded Wye Primary, 34500Y/19920 Grounded Wye Secondary - 13800V Delta Tertiary Windings, ONAN/ONAF/ONAF, Light Grey

Product ID: 325133



Image: MT-PSTH-R7-3P-GXK-38MVA-GMA-HT-LT-X6-BMF-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-PSTH-R7-3P-GXK-38MVA-GMA-HT-LT-X6-BMF-CZ-1ZZ-M1 Hermetically Sealed Transformer

Transformer Type: Substation Power Transformer, Hermetically Sealed
Transformer Configuration: Liquid Filled Pad Mounted
Transformer Feed Type: Radial Feed
Operation: Approved for Step-Up and Step-Down Operations
Phase: Three Phase
Capacity (w/o Fans): 38 MVA (38000 KVA)
Capacity (w/ 1st Stage Fans): 50 MVA (50000 KVA)
Capacity (w/ 2nd Stage Fans): 62 MVA (62000 KVA)
Vector Group: YNynd1
Primary Voltage: 138000Y/79769
Primary Voltage Switch: N/A
Primary Voltage Class: 145 kV Class
Primary Phasor: Grounded Wye
Primary Line BIL: 650 kV
Primary Neutral BIL: 350 kV
Primary Short-Circuit Current (symmetrical): 31.5 kA
Secondary Voltage: 34500Y/19920
Secondary Voltage Class: 35 kV Class
Secondary Phasor: Grounded Wye
Secondary BIL: 200 kV
Secondary Short-Circuit Current (symmetrical): 25 kA
Tertiary Winding: 13800V Delta
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 ANSI / IEEE C57.12.131
Complies with CSA C88.1
Complies with ANSI / IEEE C57 12.35
Complies with ANSI / IEEE C57.12.70
Complies with ANSI / IEEE C57.12.110
Complies with CSA C227.4 & CSA C227.5
Complies with ANSI / IEEE C62.11
Complies with ANSI / IEEE C62.22
Complies with NEMA 260-1996
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 10 CFR Part 431
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 and fan Cooled
Forced Air (Fans): Included, Dual Stage Fans
Tap Changer: 33-Position ON-Load Tap Changer
Tap Qty: (16) FCAN Above Taps, (16) FCBN Below Taps
Tap %: 0.625% Taps
Tap Changer Switch Rating: 138 kV, ON-Load Rated
Tap Changer Switch Location: HV Side
Impedance (@ ONAF1): 11% ± 7.5%
Primary Connection Type: Live Front
Primary Termination Arrangement: Top Mounted Terminals
Primary Termination: Porcelain Bushings
Primary Connection Qty: (4) Primary Connections
Primary Bushing Rating: 145 kV Class, 650 kV BIL
Primary Neutral Connection: Included
Primary Current Transformer: Included, (2) Per Each Phase, 145 kV, 3000:5 MR, C800 Accuracy Class, 2.0 Rating Factor
Primary Surge Arrestors: N/A
Primary Surge Arrestor Voltage Rating: N/A
Primary Surge Arrestor MCOV Rating: N/A
Primary Overcurrent Protection (OCP): N/A
Primary Overcurrent Protection Method: N/A
Primary Overcurrent Protection Holder: N/A
Primary Grounding Provisions: (1) NEMA Ground Bar Attached to Tank via (2) Welded Ground Bungs
Secondary Connection Type: Live Front
Secondary Termination Arrangement: Top Mounted Porcelain Bushings
Secondary Connections: Porcelain Bushings
Secondary Connection Qty: (4)
Secondary Connection Supports: N/A
Secondary Surge Arrestors: N/A
Secondary Surge Arrestor Voltage Rating: N/A
Secondary Over Current Protection (OCP): N/A
Secondary Neutral Connection: Included
Secondary Current Transformer: Included, (2) Per Each Phase, 38 kV, 3000:5 MR, C800 Accuracy Class, 2.0 Rating Factor
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: 480Y/277V AC 3PH
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: Appropriate For Use With 6-Pulse Drive Equipment On Secondary Side
Insulation Fluid: Mineral Oil, Non-PCB
Fluid (Oil) Capacity*: TBD
Fluid (Oil) Weight*: TBD
Oil Level Indicator: Analog Dial Gauge with an alarm contact
Oil Temperature Indicator: Analog Dial Gauge with an alarm contact
Pressure/Vacuum Indicator: Analog Dial Gauge with an alarm contact
Pressure Relief Device: Included, Automatic Action
Fault Indicator: N/A
Gas Sampler Valve: N/A
Fill Valve: N/A
Fill Valve Location: N/A
Oil Drain Valve: 2" globe-type with 3/8" sampling valve
Drain Valve Location: Front Tank
Winding Material: Copper

Complies with ASTM D6871
Complies with CSA C802.1
Complies with CSA C802-3
Complies with CSA C50
Complies with CSA C88-16

Features
High-Fire Point Insulating Fluid
Non-PCB Insulating Fluid

Efficiency %: ≥ 99.69%
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
Separate Source Voltage Withstand Test
Pressure Integrity Test

Shipping:
Shipped on pallet on open flatbed

Ambient Temperature Rating: 40°C
Ambient Operating Temperature Range: -40°C to +40°C (-50°F to +104°F)

Sound Level (ONAF): 76 dBA

Elevation (Altitude): 3300ft (1000 meters) Above Sea Level
Core Material/Type: Grain Oriented Steel/Columns
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 Tank
Seismic Rating: Yes
Paint Type: Weatherproof and UV Resistant Epoxy Coating and Undercoating
Finish Color: Light Grey
Mounting: Skid Type Base w/ Lifting Lugs
Conduit Opening: N/A
Tank Cover Access Handhole: N/A
Dimensions*: 301.3" x 179.0" x 219.9"
Dry Weight (w/o Oil)*: 89,620 lbs
Total Weight (Liquid Filled)*: 184,590 lbs
*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
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-GXK-38MVA-GMA-HT-LT-X6-BMF-CZ-1ZZ-M1 Hermetically Sealed Transformer from Larson Electronics offers powerful, reliable, and efficient power distribution in indoor or 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 air tight transformer does not have doors and must be installed in a contained or protected area away from public access.

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 138000Y/79769 Grounded Wye and a secondary voltage of three-phase 34500Y/19920 Grounded Wye. This system carries the following ratings: 38 MVA (38000 KVA) [Natural Cooled] / 50 MVA (50000 KVA) [1st Stage Fan Cooled] / 62 MVA (62000 KVA) [2nd Stage Fan Cooled]. The unit has a primary radial feed and live front primary connections. We also offer systems with loop feed and dead front primary connections. This transformer features a 33-position tap changer with sixteen +0.625% taps above and sixteen -0.625% taps below to allow small changes in voltage. There are no load break switches, rapid rise relays, or protection fuses 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-GXK-38MVA-GMA-HT-LT-X6-BMF-CZ-1ZZ-M1 is completely sealed and features air tight construction. Designed for long-term performance, the transformer is maintenance free.

Temperature Rise: This unit features a 50°C ambient temperature rating and a 65°C

temperature rise for reduced heat waste, increased reliability, and longer life. At 65°C temperature rise, the transformer offers 38 MVA (38000 KVA) [Natural Cooled] / 50 MVA (50000 KVA) [1st Stage Fan Cooled] / 62 MVA (62000 KVA) [2nd 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-PSTH-R7-3P-GXK-38MVA-GMA-HT-LT-X6-BMF-CZ-1ZZ-M1 features mineral oil insulating fluid (ONAN/ONAF/ONAF).

Gauges: The following gauges are included with the system: oil level indicator, oil thermometer, and pressure/vacuum gauge. Standard oil level indicator, oil thermometer, 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. Surge arresters are 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-PSTH-R7-3P-GXK-38MVA-GMA-HT-LT-X6-BMF-CZ-1ZZ-M1 is equipped with an oil drain valve, an oil sampling valve, and a pressure relief valve.

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.

Terminal Connections: The primary and secondary terminal connections are located on the top of the transformer. We can configure the location to be top located or side located for both the high voltage and low voltage sides.

Mount: This hermetically sealed transformer is equipped with a skid type base with lifting lugs.

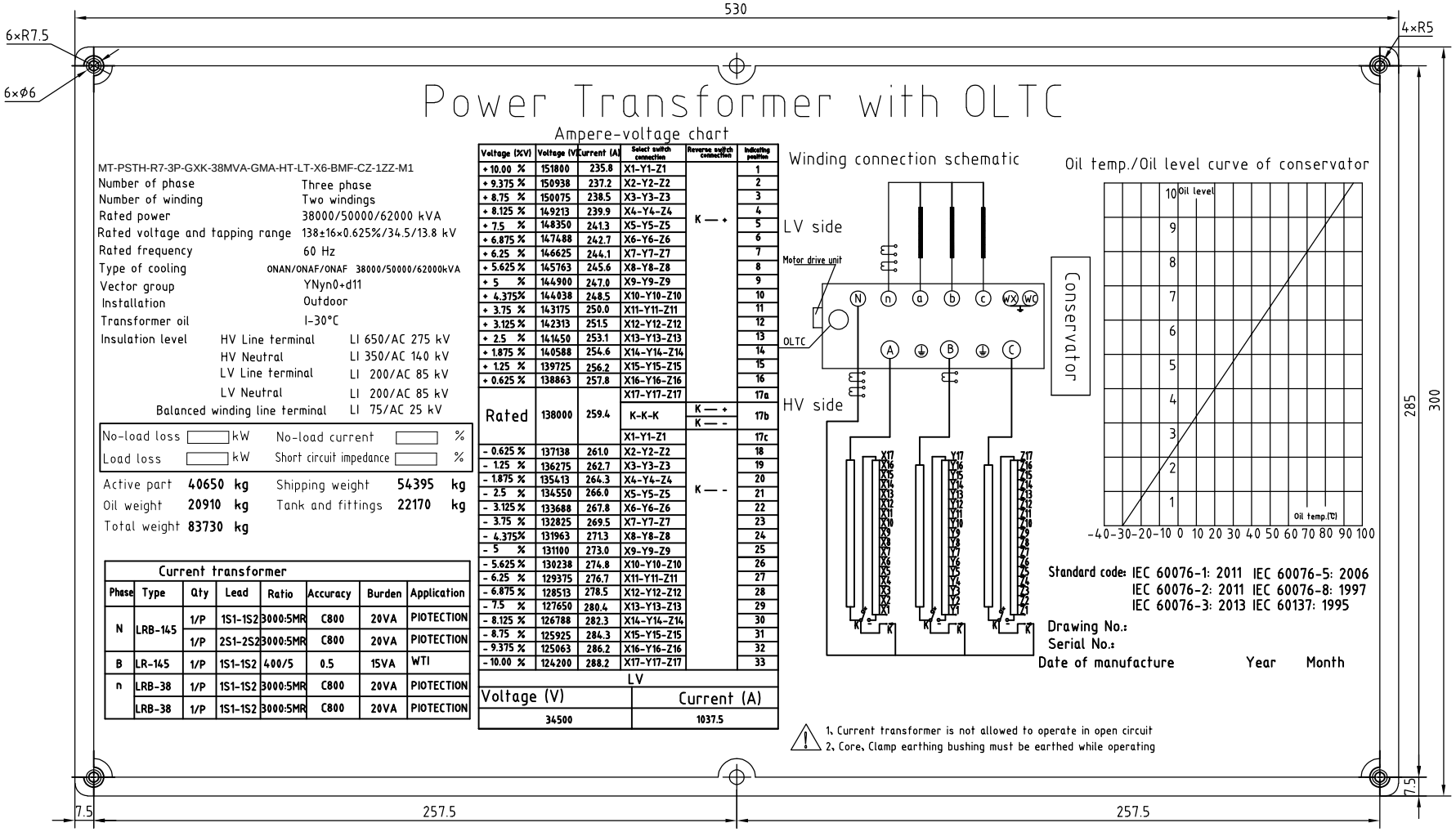
Benefits: The MT-PSTH-R7-3P-GXK-38MVA-GMA-HT-LT-X6-BMF-CZ-1ZZ-M1 transformer offers many benefits to consumers. This transformer provides owners with significant energy savings, as well as offering environmental benefits. Higher efficiency not only extends the life of the transformer, but also turns 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.

Power Transformer with OLTC



MT-PSTH-R7-3P-GXK-38MVA-GMA-HT-LT-X6-BMF-CZ-1ZZ-M1

Number of phase		Three phase
Number of winding		Two windings
Rated power		38000/50000/62000 kVA
Rated voltage and tapping range		138±16×0.625%/34.5/13.8 kV
Rated frequency		60 Hz
Type of cooling		ONAN/ONAF/ONAF 38000/50000/62000kVA
Vector group		YNyn0+d11
Installation		Outdoor
Transformer oil		I-30°C
Insulation level	HV Line terminal	LI 650/AC 275 kV
	HV Neutral	LI 350/AC 140 kV
	LV Line terminal	LI 200/AC 85 kV
	LV Neutral	LI 200/AC 85 kV
	Balanced winding line terminal	LI 75/AC 25 kV

No-load loss	kW	No-load current	%
Load loss	kW	Short circuit impedance	%

Active part	40650 kg	Shipping weight	54395 kg
Oil weight	20910 kg	Tank and fittings	22170 kg
Total weight	83730 kg		

Current transformer

Phase	Type	Qty	Lead	Ratio	Accuracy	Burden	Application
N	LRB-145	1/P	1S1-1S2	3000:5MR	C800	20VA	PIOTECTION
		1/P	2S1-2S2	3000:5MR	C800	20VA	PIOTECTION
B	LR-145	1/P	1S1-1S2	400/5	0.5	15VA	WTI
n	LRB-38	1/P	1S1-1S2	3000:5MR	C800	20VA	PIOTECTION
	LRB-38	1/P	1S1-1S2	3000:5MR	C800	20VA	PIOTECTION

Ampere-voltage chart

Voltage (%V)	Voltage (V)	Current (A)	Select switch connection	Reverse switch connection	Indicating position
+ 10.00 %	151800	235.8	X1-Y1-Z1		1
+ 9.375 %	150938	237.2	X2-Y2-Z2		2
+ 8.75 %	150075	238.5	X3-Y3-Z3		3
+ 8.125 %	149213	239.9	X4-Y4-Z4		4
+ 7.5 %	148350	241.3	X5-Y5-Z5	K — +	5
+ 6.875 %	147488	242.7	X6-Y6-Z6		6
+ 6.25 %	146625	244.1	X7-Y7-Z7		7
+ 5.625 %	145763	245.6	X8-Y8-Z8		8
+ 5 %	144900	247.0	X9-Y9-Z9		9
+ 4.375%	144038	248.5	X10-Y10-Z10		10
+ 3.75 %	143175	250.0	X11-Y11-Z11		11
+ 3.125 %	142313	251.5	X12-Y12-Z12		12
+ 2.5 %	141450	253.1	X13-Y13-Z13		13
+ 1.875 %	140588	254.6	X14-Y14-Z14		14
+ 1.25 %	139725	256.2	X15-Y15-Z15		15
+ 0.625 %	138863	257.8	X16-Y16-Z16		16
			X17-Y17-Z17		17a
Rated	138000	259.4	K-K-K	K — +	17b
				K — -	
			X1-Y1-Z1		17c
- 0.625 %	137138	261.0	X2-Y2-Z2		18
- 1.25 %	136275	262.7	X3-Y3-Z3		19
- 1.875 %	135413	264.3	X4-Y4-Z4		20
- 2.5 %	134550	266.0	X5-Y5-Z5	K — -	21
- 3.125 %	133688	267.8	X6-Y6-Z6		22
- 3.75 %	132825	269.5	X7-Y7-Z7		23
- 4.375%	131963	271.3	X8-Y8-Z8		24
- 5 %	131100	273.0	X9-Y9-Z9		25
- 5.625 %	130238	274.8	X10-Y10-Z10		26
- 6.25 %	129375	276.7	X11-Y11-Z11		27
- 6.875 %	128513	278.5	X12-Y12-Z12		28
- 7.5 %	127650	280.4	X13-Y13-Z13		29
- 8.125 %	126788	282.3	X14-Y14-Z14		30
- 8.75 %	125925	284.3	X15-Y15-Z15		31
- 9.375 %	125063	286.2	X16-Y16-Z16		32
- 10.00 %	124200	288.2	X17-Y17-Z17		33

LV

Voltage (V)	Current (A)
34500	1037.5

Winding connection schematic

Oil temp./Oil level curve of conservator

Standard code: IEC 60076-1: 2011 IEC 60076-5: 2006
IEC 60076-2: 2011 IEC 60076-8: 1997
IEC 60076-3: 2013 IEC 60137: 1995

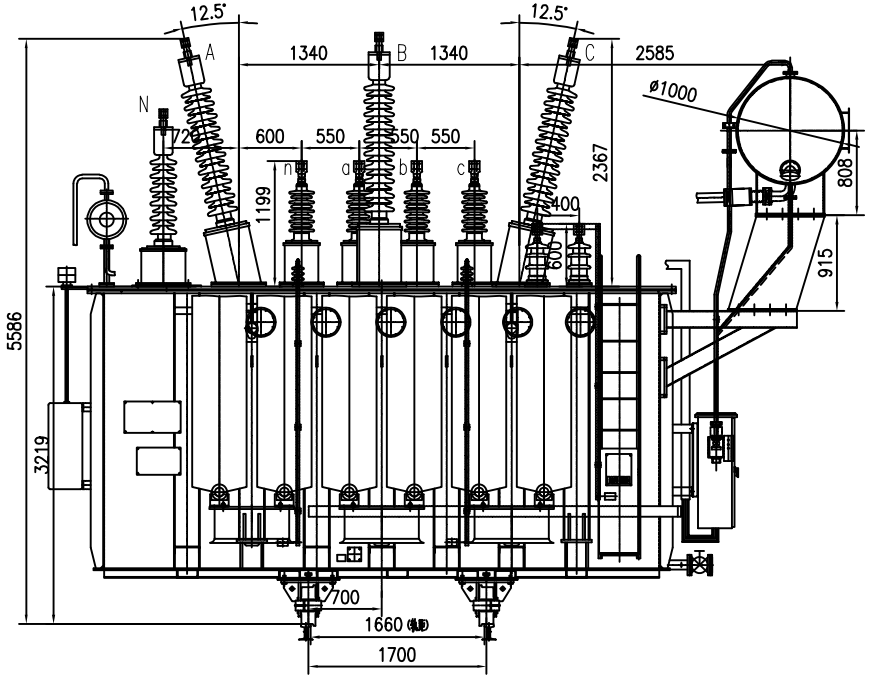
Drawing No.:
Serial No.:
Date of manufacture Year Month

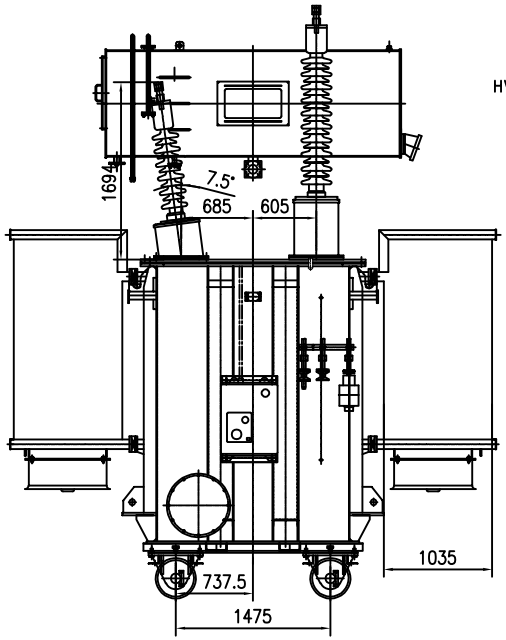
1. Current transformer is not allowed to operate in open circuit
2. Core, Clamp earthing bushing must be earthed while operating

Nameplate

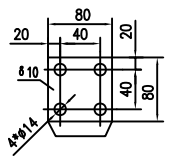
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MT-PSTH-R7-3P-GXK-38MVA-GMA-HT-LT-X6-BMF-CZ-1ZZ-M1

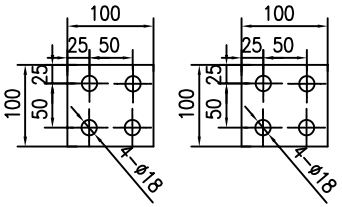




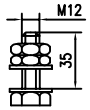
HV&neutral bushing terminal



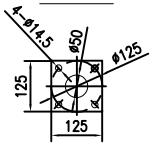
LV&neutral bushing terminal balance bushing terminal



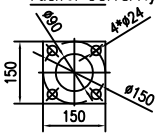
grounded bushing terminal



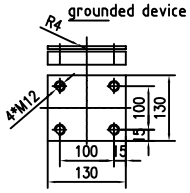
Item105butterfly flange



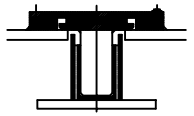
raditor butterfly flange

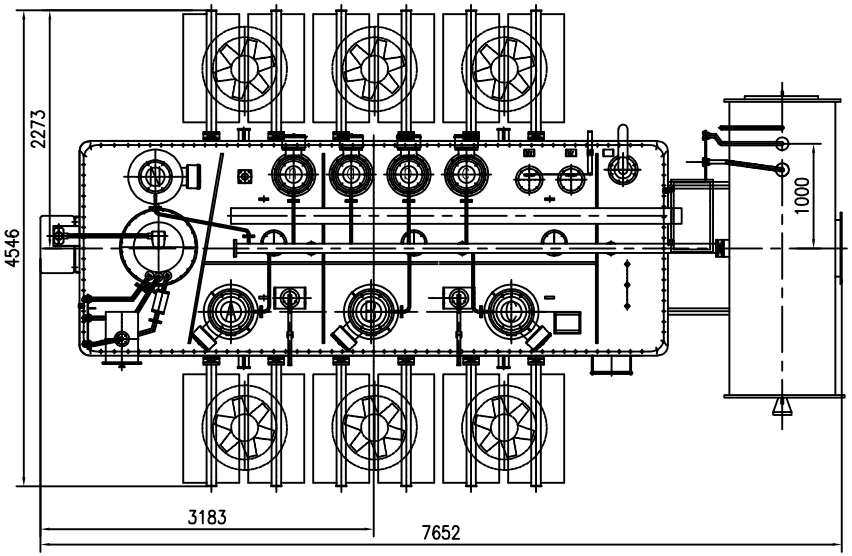


grounded device

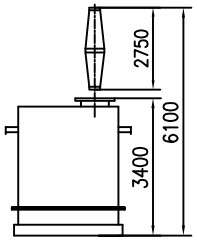


core&coil upper fixed

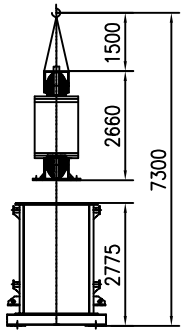




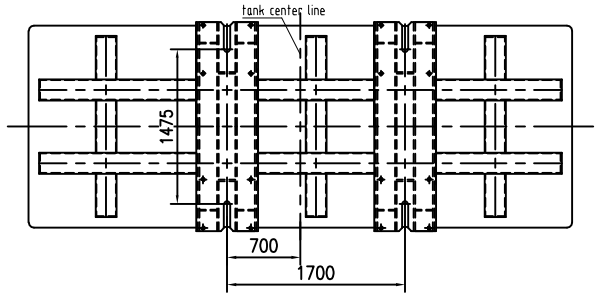
HV bushing Lifting high Dimension



core&coil Lifting high Dimension



foundation



weight data(kg)

name	weight
coil&core	40650
total oil weight	20910
total weight	83730
shipping weight(w/gas)	54395
upper tank	9430
removable accessories	10100
tank	22170
added oil	19237

mark	revision	signature	date
designed		standard	
checked		examined	
audited		date	
crafted		approved	

OLTC power tramsformer

pattern mark	Weight	scale
S		1:35

page

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used
signature
date

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Frequently Asked Questions (FAQ)

There are no Faqs