

POWER & DISTRIBUTION  

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TRANSFORMER

## The Company

Established in 1973, Marsons is a leading player in the business of manufacturing to Transformers based in India. We are on ISO 9001 certified company having an extensive product range of Power & Distribution Transformers from 10 KVA to 20,000 KVA upto 33 KV voltage class system. Our products are designed to meet the requirement of the global market.



## Design and R & D

MARSON'S Transformers are designed to meet all the latest national and international standards, including IS, IEC, ANSI, BS, DIN etc. All Marson's Transformers are designed in accordance with customers' specific requirement. High levels of experience and expertise in transformer design and regular investment in research and development has enabled Marson's to ensure excellence and competitiveness in quality, performance, price and delivery. Wide range of Transformers are tested and validated by authorised testing laboratories. All material used are of best quality and of the class most suitable for working under the specified conditions withstanding variations of temperature and atmospheric conditions. Above all, the design incorporates every reasonable precaution and provision for the safety of all those concerned in the operation and maintenance.



**Integrated In-House production & testing facilities supplemented by State-of-the-art technologies guarantee reliability and efficiency for the global markets.**

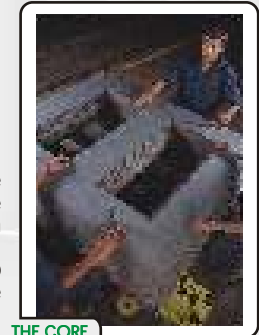
## The Manufacturing Process



THE WINDING

Rectangular and round conductors are used for the windings. The conductor is usually insulated with either high-grade multi-paper covering or with an insulating enamel coating. The

windings are such designed so as to ensure reduced axial stresses in Short Circuit conditions and also to withstand impulse and over-voltages. Some standard forms of coil windings are spiral, helical, interleaved disc and plain disc. For Power Transformers, both low voltage and high voltage windings are disc type, which give highest resistance against short circuits. It is ensured that proper tension is given on the winding for rigidity.



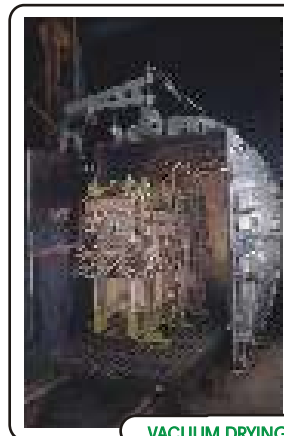
THE CORE

The prime core material in a transformer is the core. Marson's uses high quality Cold Rolled Grain Oriented Magnetic Silicon Steel to ensure optimum losses and most efficient working of the Transformer. The type of magnetic steel is chosen according to the desired loss level. The laminations are cut geometrically to ensure optimum flow of magnetic flux and minimum air gap between the joint of two consecutive sheets. The supporting structures and clamping devices of the core contribute to the compactness of the design and also ensure low sound levels.

The "active" part of the Transformer consists of the magnetic core with windings and accessories. The windings are placed over the core limbs and necessary connections are made as per the tappings and vector group. Sufficient ducts are provided between the coils to ensure heat dissipation through circulation of oil. Best quality insulation is provided at all joints and gaps. The optimum design of Core-Coil Assembly is achieved by considering the required technical particulars, cooling, size compactness and tapping arrangement. All leads and conductors are rigidly supported by special wooden frames.



CORE-COIL ASSEMBLY



VACUUM DRYING

The Core-Coil Assembly is placed in the vacuum oven for removal of moisture. After the drying process, the assembly is retightened to take up all shrinkage and then the unit ready for tanking.



TANK-UP

After removing the Core-Coil Assembly from the heating oven, it is thoroughly cleaned by pressurised air and then placed into the tank and bolted up. All necessary accessories / fittings such as bushings, valves, oil level indicator, pressure relief device, temperature indicator, tap changer etc. are fitted on to the tank body. High quality filtered transformer oil is then filled in the tank to completely immerse the assembly. Finally, connections of primary and secondary to the terminal



Tanks are made of high quality mild steel sheets and plates. State-of-the-Art welding technology is applied to give immaculate finish and leakproof tanks. Cooling is provided by either Pressed Steel type Radiators, which are attached by flange of welded directly onto the body, or by corrugated fin walls. Either types of tanks can be supplied as per customer's requirement, however, corrugated type tank has merits over conventional radiator type tank because of its compact size and aesthetics. Every tanks is rigorously tested for any leakage or seepage. air pressure test, fluid test and ultraviolet lamp test are conducted on each tank to ensure that no leakage takes place. Continuous efforts in Research and Development result in excellent finish, leakproof and rigid tanks.

PAINING



CORRUGATED TANKS



FABRICATION

# The Product Range



1600 KVA  
with CORRUGATED WALL PANEL



150 KVA Self Protected Type



8 MVA  
with OLTC



1000 KVA  
Ground Mounted



400 KVA Distrubution Transformer  
with CONSERVATIVE DRUM



10 MVA



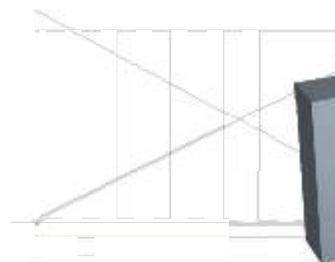
400 KVA Hermetically Sealed Type  
with Gas Cushion



1000 KVA Hermetically Sealed Type  
without Gas Cushion



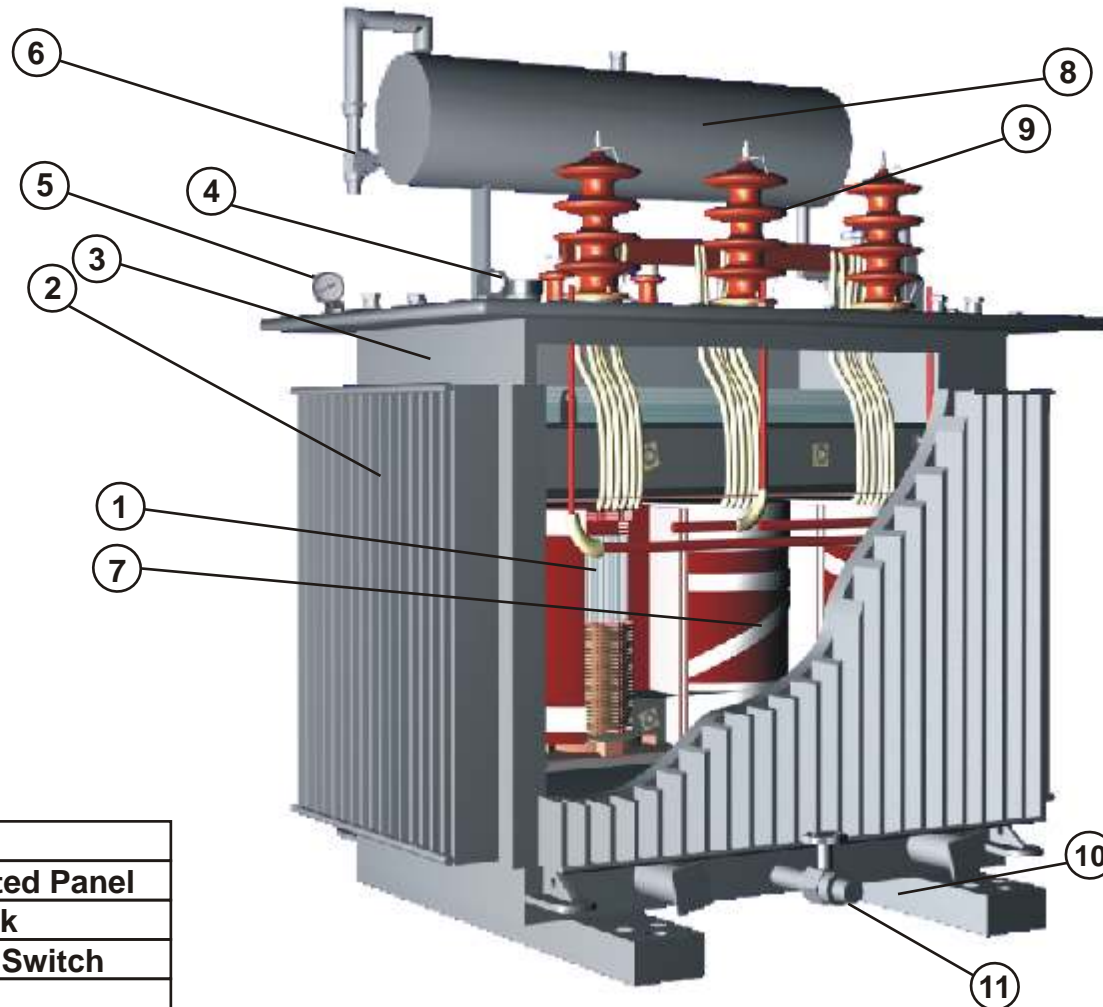
15000 KVA with OLTC



1000 KVA  
with both side CABLE BOX



## Sectional View of Transformer



1	Core
2	Corrugated Panel
3	M.S. Tank
4	Tapping Switch
5	WTI/OTI
6	Silicagel Breather
7	H.T. & L.T. Coils
8	Conservator Drum
9	Porcelain Bushing
10	Base Channel
11	Oil Drain Valve



### Notes :

1. The Technical Data relates to our standard range of products. Transformer can be designed as per customer's specific requirement of Primary/Secondary Voltages, No Load Loss, Impedance, Over all dimension and application of transformer.
2. Transformers can be designed / manufactured depending on Indoor or Outdoor type application.
3. Transformers can be designed / manufactured depending on Ground Mounted or Pole Mounted type.
4. Dual Rating Transformers based on the cooling type (e.g. ONAN, ONAF, OFAF) can be manufactured as per customer's requirement.
5. Step Up Transformer within 33 KV voltage class can be manufactured as per customer's specific requirement.
6. Hermetically sealed transformers with air / gas cushion can be manufactured as per customer's requirement.
7. Transformers with Header type radiators / Integral type radiators / corrugated wall panel type radiators can be manufactured as per customer's specific requirements.
8. Dual Ratio Transformers can also be manufactured as per customer's specific requirements.

# Technical Data



**Rated Primary Voltage : 11 KV    Rated Secondary Voltage: 0.4, 0.415, 0.433 KV**

Rating (in KVA)	Taps (%)	Losses (in Watts)		Imp (%)	Temp Rise (°C)	Dimension (in mm)			Total Weight (in Kgs)
		No Load	Load			L	W	H	
25	±2.5, ±5.0	120	660	4.00	50/55	840	600	1300	300
50	±2.5, ±5.0	180	950	4.50	50/55	1050	600	1300	400
100	±2.5, ±5.0	300	1800	4.50	50/55	1100	710	1350	550
150	±2.5, ±5.0	370	2800	4.50	50/55	1100	900	1400	650
200	±2.5, ±5.0	500	3000	4.50	50/55	1150	960	1450	850
250	±2.5, ±5.0	550	3700	4.75	50/55	1350	1000	1600	1100
315	±2.5, ±5.0	600	4300	4.75	50/55	1400	1200	1700	1250
400	±2.5, ±5.0	700	4500	4.75	50/55	1400	1215	1900	1650
500	±2.5, ±5.0	850	6000	5.00	50/55	1500	1300	1800	1900
630	±2.5, ±5.0	900	6700	5.00	50/55	1500	1400	1800	2040
750	±2.5, ±5.0	1000	8000	5.00	50/55	1800	1900	2100	2400
800	±2.5, ±5.0	1100	10700	5.00	50/55	1670	1150	1700	2500
1000	+2.5 to -7.5	1500	11000	5.00	50/55	2380	1650	2245	3100
1250	+2.5 to -7.5	1600	11500	5.00	50/55	2150	2200	2300	3350



**Rated Primary Voltage : 20 KV    Rated Secondary Voltage: 0.4 KV**

Rating (in KVA)	Taps (%)	Losses (in Watts)		Imp (%)	Temp Rise (°C)	Dimension (in mm)			Total Weight (in Kgs)
		No Load	Load			L	W	H	
50	±2.5, ±5.0	200	1000	4.5	50/55	1100	650	1500	450
100	±2.5, ±5.0	350	1850	4.5	50/55	1200	800	1500	650
200	±2.5, ±5.0	550	3200	4.5	50/55	1250	1050	1600	900
400	±2.5, ±5.0	700	4500	5.0	50/55	1380	780	1700	1600
1000	±2.5, ±5.0	1500	11000	6.0	50/55	1800	950	1900	3000
1600	±2.5, ±5.0	1950	11500	6.0	50/55	1930	1350	2240	4400



**Rated Primary Voltage : 33 KV    Rated Secondary Voltage: 0.4 KV**

Rating (in KVA)	Taps (%)	Losses (in Watts)		Imp (%)	Temp Rise (°C)	Dimension (in mm)			Total Weight (in Kgs)
		No Load	Load			L	W	H	
200	±5.0, ±10.0	460	2300	5.0	50/55	1090	950	1700	1130
300	±5.0, ±10.0	700	4500	5.0	50/55	1330	920	1850	1350
500	±5.0, ±10.0	950	6600	5.0	50/55	1450	1150	1950	1800



**Rated Primary Voltage : 33 KV    Rated Secondary Voltage: 11 KV**

Rating (in KVA)	Taps (%)	Losses (in Watts)		Imp (%)	Temp Rise (°C)	Dimension (in mm)			Total Weight (in Kgs)
		No Load	Load			L	W	H	
1600	+5.0 to -15.0 steps 1.25%	1600	12000	6.25	50/55	3100	2700	2750	6500 (OLTC)
2500	+5.0 to -15.0 steps 2.5%	3400	17700	6.25	50/55	3300	2400	2750	8300 (OLTC)
3150	+5.0 to -10.0 steps 2.5%	4000	23000	6.25	50/55	2900	3000	3200	8700
5000	+2.5 to -15.0	5000	31000	7.15	50/55	3450	2800	3300	12500
7500	+5.0 to -15% steps 2.5%	6100	48000	8.0	50/55	3595	3695	3050	15100
8000	N to -15.0	7000	48000	8.35	50/55	3530	3400	3450	17100
15000	+5.0 to -15.0 steps 2.5%	11000	91000	11.8	50/55	5540	3800	3750	25500 (OLTC)

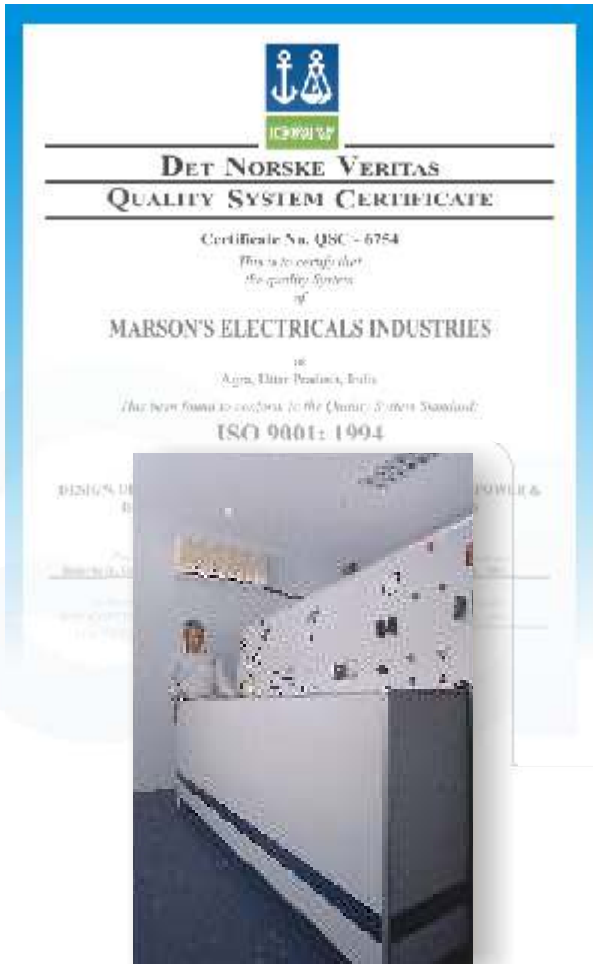


## Fitting & Accessories



Sn.	Description	Transformer Ratings (in KVA)				
		25-200	250-630	750-1500	1600-3000	3150-15000
1	Oil Filling hole with cover					
2	Oil conservator with drain plug and oil filling hole					
3	Oil level gauge					
4	Explosion vent with diaphragm					
5	Pressure relief device (PRV)					
6	Breather pipe					
7	Silicagel breather					
8	Air release device					
9	Inspection cover					
10	Lifting lugs for complete transformer					
11	Lifting lugs for top cover					
12	Bucholtz Relay					
13	Dial type oil temperature indicator					
14	Dial type winding temperature indicator					
15	Thermometer pocket for top oil temperature					
16	Shut-off valve for Bucholtz relay					
17	Shut-off valve for Conservator					
18	Shut-off valve for Radiators					
19	HV bushings with fittings					
20	LV bushings with fittings					
21	HV cable end box					
22	LV cable end box					
23	Oil filter valve					
24	Oil drain valve					
25	Oil sampling valve					
26	Radiators (Elliptical tubes/Pressed Steel/Corrugated panel)					
27	Name Rating & Diagram plate					
28	Terminal marking plates					
29	Tap changing switch					
30	Marshalling box					
31	Jacking lugs					
32	Skid and pulling eyes					
33	Two earthing terminals					
34	Under base arrangement					
35	Rollers					

## Quality Assurance & Testing

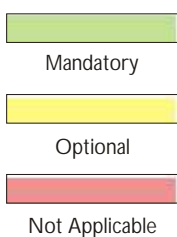


All Transformers are put through stringent Routine Tests as per relevant standards. Necessary field conditions are recreated in our testing lab while testing the transformers. Testing is done during all stages of design, development and manufacturing processes. Special type tests may also be conducted at an authorised external lab as per customers request. We encourage our clients to witness all the routine and final tests to their utmost satisfaction.

## After Sales Service

Marson's after sales service team is geared up for responding to customers' queries & problems "round the clock". We are fully equipped to carry out all kinds of maintenance work and our service engineers are well trained to guide the customers for proper commissioning & handling.

A World Organisation operating locally  
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