TRANSFORMER

11KV OR 6 KV / 0.415 KV, 3 Phase, 50 Hz indoor mounting (Mineral oil filled)

Item No.	Description of Item	Unit	Rate (₹) Without GST & LWC
1	Supply, installation, testing and commissioning of **following capacity** (continuous loading) (Corresponding Level as per BIS amended upto date of receipt of tender) , step down, delta / star 3 Phase, 50 Hz, Dyn 11 vector group, ONAN (Oil Natural Air Natural) copper wound transformer (Electrolytic grade 99.9% pure copper, the core shall be built up with high grade, non-aging, low loss, high permeability Cold Rolled Grain Oriented (CRGO) Core grade MOH or better, suitable for indoor applications with Off load Tap Changer and manual operation on HV side in range of +5% to -5% in steps of 2.5%, having HV Cable End Box with terminals for connecting cable of suitable rating and LV Cable End Box with extended copper bar has to be provided for connecting multiple cable of suitable rating, complete with all accessories and safety provisions as per relevant IS Code including first filling of filtered dehydrated oil,incl. supplying and grouting of suitable M.S. Channel with all accessories and transformer shall be confirming to IS : 2026 (Part 1 to Part 5), IS : 1180.		
	The maximum flux density in any part of the core and yoke at rated voltage and frequency shall be such that the flux density with + 12.5 percent combined voltage and frequency variation from rated voltage and frequency does not exceed 1.9 Tesla. The permissible temperature-rise over ambient 40°C for oil and 45°C for winding. Inside of tank shall be painted with varnish or liquid resistant paint. For external surfaces one coat of thermo setting powder paint or one coat of epoxy primer followed by two coats of polyurethane base paint shall be used. IS: 1180 (Part 3) shall be referred to for paint thickness for normal to medium corrosive atmosphere. For highly polluted atmosphere and special application external paint work shall be as per direction of Engineer-in-Charge.		
	Design ambient condition : a) air temperature 50°C, b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. Noise level of the transformer between 55 dB to 62 dB. The transformer should have QR code which should contain drawing, test report OEM manual, Geo- Tag of manufacturing location etc. Marking Each transformer shall be provided with rating plate made of anodized aluminium/ stainless steel material securely fixed on the outer body, easily accessible, as per IS: 1180 Part-3. The entries on the rating plate shall be indelibly marked.		
	Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Oil level gauge indicating oil level at minimum, 30°C and maximum operating temperature; c) Air release device (for non-sealed type transformers) d) Rating and terminal marking plates; e) Silica gel breather f) Drain-cum-sampling valve (¾″ nominal size thread, IS 554) preferably steel with plug for three phase transformers; g)Thermometer pocket with cap; h) Oil filling holes having (1¼″ nominal size thread) with cover (for sealed type transformers without conservator); i)Lifting lugs for the complete transformer as well as for core and winding assembly; j) Pressure relief device or explosion vent k) Unidirectional flat rollers l) Inspection hole		

	m) **Buchholz** relay for transformers above 800kVA. n) Oil temperature indicator and winding temperature indicators with suitable tripping mechanism above permissible limit o) Jacking pads p) Additional Neutral separately brought out on bushing for earthing. q) Magnetic oil level gauge with low oil level alarm contact; r) Non return valve (for conducting pressure test); s) Pressure relief device or explosion vent t) Monogram Plate u)Inspection cover v) Detachable type radiators with top and bottom shutoff valve. w) Oil Conservator with Oil level indicator, minimum level marking and drain plug, x) Necessary hardware, clamps, lugs etc.		
	Testing: All routine tests as per IS: 2026 to be conducted, Type tests such as: Impulse test, Temperature rise test to be conducted if asked for. Manufacturer shall have in-house testing facilities.		
	Losses: Conforming to Energy Efficiency Level 2 of 1180 (Part-I):2014		
1.1	250KVA	Each	6,66,916.00
1.2	315KVA	Each	8,81,198.00
1.3	400KVA	Each	11,61,776.00
1.4	500KVA	Each	14,99,575.00
1.5	630KVA	Each	16,17,963.00
1.6	800KVA	Each	18,15,275.00
1.7	1000KVA	Each	19,73,125.00
1.8	1250KVA	Each	21,30,975.00
1.9	1600KVA	Each	24,46,675.00
1.10	2000KVA	Each	27,62,375.00

11KV OR 6 KV / 0.415 KV, 3 Phase, 50 Hz Cast Resin Dry Type Indoor mounting

Item No.	Description of Item	Unit	Rate (₹) Without GST & LWC
2	Supply, installation, testing and commissioning of **following capacity** (continuous loading) Delta/Star,step down, 3 Phase, 50 Hz, Dyn 11 vector group, Cast Resin **Dry Type**, copper wound transformer Electrolytic grade 99.9% pure copper, the core shall be built up with high grade, non-aging, low loss, high permeability Cold Rolled Grain Oriented (CRGO) Core grade MOH or better AN (air natural) cooled transformer suitable for **indoor** applications with Offload Tap Changer and manual operation on HV side in range of +5% to -5% in steps of 2.5%, insulation class F (minimum), suitable for environment conditions class E4, suitable for fire behaviour class F1,climate class-C1, having HV Cable End Box with terminals for connecting cable of suitable rating and LV Cable End Box with extended copper bar has to be provided for connecting multiple cable of suitable rating and complete with all accessories and safety provisions as per relevant IS Code, The transformer shall be provided with standard fittings/accessories as per relevant IS and mentioned below, protection alarm/trip protection.		
	Winding Temperature scanner (Digital) with alarm/Trip contacts with RTD Sensors per LV winding and space for mounting differential protection CT's in LV chamber with neutral brought out separately including supplying and laying of copper conductor multicore control cable from transformer to HT breaker/HT Panel for safety tripping, complete as confirming to IS-2026 Part-11,incl. supplying and grouting of suitable M.S. Channel with all accessories ,complete in all respects as required at site. Design ambient condition : a) 90° C over ambient air temperature of 50ºC, Core & Coils b) Relative Humidity 90 % Max, c) Seismic Zone as per location of site, d) Altitude as per location/site. The transformer should have QR code which should contain drawing, test report OEM manual,Geo- Tag of manufacturing location, rating plate as per relevant IS Code etc. All testing shall as per relevant IS Code. Noise level of the transformer between 55 dB to 62 dB.		
	Fitting and Accessories : The following fittings shall be provided:- a) Two earthing terminals with the earthing symbol b) Rating and terminal marking plates; c) Lifting lugs for the complete transformer as well as for core and winding assembly; d) Bi-directional flat rollers; e) Jacking pads f) Name Rating & Diagram Plate. g) Monogram Plate. h) Additional neutral separately brought out on bushing for earthing.		
	Testing: All routine tests as per IS: 2026 to be conducted, Type tests such as: Impulse test, Temperature rise test to be conducted if asked for. Manufacturer shall have in-house testing facilities.		
	Losses: Conforming to ECSBC building as per ECSBC Code 2024		
2.1	250 KVA	Each	11,60,198.00
2.2	315 KVA	Each	12,54,908.00
2.3	400 KVA	Each	14,04,865.00
2.4	500 KVA	Each	15,39,038.00
2.5	630 KVA	Each	16,49,533.00
2.6	750 KVA	Each	18,86,308.00
2.7	1000 KVA	Each	26,59,773.00
2.8	1250 KVA	Each	29,04,440.00
2.9	1600 KVA	Each	29,20,225.00
2.10	2000 KVA	Each	34,72,700.00