

579094/2021/O/o PED/TI/RDSO

Reasoned Document for 50/75/150MVA, 220/132kV Three Phase Autotransformer

S N	Cl. No. (Final Draft)	Specification description	Comment of Firm on the uploaded draft of the specification	RDSO Remark on the comment
1.	1.5The assembly and placement of transformers on foundations shall also be included in the scope.....	M/s Prime Meiden Please refer clause 26.1, wherein it is mentioned as 'The Transformer shall be erected and commissioned by the Purchaser'. Hence, the content at clause 1.4 shall be deleted as the same shall be in scope of RDSO. Manufacturer shall deliver the Transformers at site. Further, erection, testing and commissioning shall be performed by RDSO. Manufacturer's engineer shall supervise the process	Comment may be accepted to remove the para as in another para it is mentioned as 'The Transformer shall be erected and commissioned by the Purchaser'.
2.	4.0 (8)	Maximum value of Percentage Impedance at the principal tap positions at rated MVA base and 75°C. (12 ± 0.5)% at principal tap	M/s Prime Meiden We request to kindly mention the values at extreme taps too.	It can be mentioned as (12 ± 0.5)% at principal tap & extreme taps
3.	4.0 (16)	Insulation level for winding 1.2x50 μsec kVP - 950/550 Power Frequency withstand Voltage (kV rms) - 395/230	M/s Prime Meiden Values mentioned at clause 4.1 (20) is contradictory to values of LV mentioned at clause 9.6 (Page 9) which is 650kVp/275kVrms. Please let us know the correct values.	In the specification value shall be mentioned as 950kVp/650kVp & 395kVrms/275kVrms
4.	4.0 (17)	Hot spot temperature - 105°C (max)	M/s Prime Meiden Values mentioned at clause 4.1 (21) is contradictory to values mentioned at clause 22.3.2.2 (Page 24) which is 115 degree C. Please let us know the correct values.	115 degree C shall be mentioned in the specification.
5.	4.0 (22)	Short Circuit Level for System MVA 220 KV 10000 132 KV 5000	M/s Prime Meiden Please confirm the values, as we understand the values mentioned are lower than that mentioned in standards.	Fault MVA in the Final Draft specification has been mentioned as 20,000 for 220kV & 10,000MVA for 132kV which is in line with values mentioned in other transformer specification.
6.	9.1 The configuration of the windings on each leg after the core shall normally be -LV wdg, HV wdg, regulating wdg (tap), unless approved by RDSO.....	M/s Prime Meiden We understand for Auto Transformers, the configuration shall be common-regulating-series type. Please confirm.	Comment is accepted. In the specification it has been mentioned that "..... The configuration of the windings on each leg after the core shall normally be common-regulating-series type, unless approved by RDSO.....

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7.	10.0	If the type of core construction demands Delta connected tertiary winding of suitable rating, the same shall be provided. The tertiary Delta connected winding if provided; the BIL shall be selected so that it is suitable for transferring surge from HV & LV side. The successful tenderer shall give recommended protective scheme in detail for protection of stabling windings.	M/s Prime Meiden We understand the requirement of Tertiary winding has been left over on the Transformer manufacturer. However, we wish to inform that, in case, Tertiary winding is not provided, the RSO (as is asked at clause 22.13 on Page 28) and PD measurement cannot be performed, as the Transformer being Auto Transformer. Further, Induced overvoltage withstand test (refer clause 22.13.9, Page 29), the test cannot be done applying twice on secondary.	In the specification tertiary winding has been mentioned mandatory and related values have been mentioned.
8.	15.1	Each transformer shall be provided with on load tap changing mechanism. This shall be designed suitable for remote control operation from switch boards in the control room, in addition to being capable of local manual as well as local electrical operation and the control scheme of tap changers of each single phase transformer shall be designed to ensure simultaneous operation of other two units of the 3 phase bank.....	M/s Prime Meiden We are unable to understand “the control scheme of tap changers of each single phase transformer shall be designed to ensure simultaneous operation of other two units of the 3 phase bank.’ As this specification is being for 3-phase Autotransformer	The commented para may be modified as “the control scheme of tap changers of each phase shall be designed to ensure simultaneous operation of other two units of the 3 phase bank.’
9.	19.15	Thermo Siphon Filter System is to be provided for absorbing the moisture present in the insulating oil with the natural convection. The full details for installation and subsequent maintenance have to be furnished to RDSO and the consignee	M/s Prime Meiden We recommend to remove the requirement of Themro Siphon Filter, as this is not necessary, since, entry of moisture into the tank does not take place because the conservator is fitted with AIR Cell type OIL preservation system. This system ensures that there is no direct contact of Transformer Oil with external atmosphere. Thermosiphon filter system is an obsolete system that was used by many Indian utilities earlier, where well established air cell type oil preservation system were not in place.	Comments of the firms may be accepted to remove the requirement of the thermo syphon filter as the Aircell is provided with the transformer.
10.	19.19	Henceforth, while ordering Traction Power Transformer, a copy RDSO approved SOGP should be called for by the users. This document shall form basis for ordering accessories in the future	M/s Prime Meiden We request to kindly revise ‘traction power transformer’.	Traction Power transformer word in the para may be replaced by Autotransformer
11.	22.1.1	From 3 rd line of Para,It is also clearly understood that any change or modification required by the above authorities to be done in the prototype shall be done expeditiously, notwithstanding approval having already been given	M/s Prime Meiden We recommend to include the timeline by which changes are to be informed, as the major change during manufacturing is not possible. Further, incase of changes leading to price implication and extension in delivery schedule, the same shall be	The requirement mentioned in the specification are clear. Communications are being as per the standard procedures

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		for the designs and drawings. Such change or modification shall be incorporated in the drawings.	accepted by RDSO on the email request of Manufacturer within 10 days of that request.	
12.	22.1.2	From 5 th line of Para, However, during the process of type testing or even later, the purchaser reserves the right to conduct any additional test(s), besides those specified herein, on any equipment / item so as to test the equipment/item to his satisfaction or for gaining additional information and knowledge. In case any dispute or disagreement arises between the manufacturer and representative of the purchaser/ DG(TI),RDSO, Lucknow, during the process of testing as regards the procedure for type tests and /or the interpretation and acceptability of the results of type tests , it shall be brought to the notice of the purchaser /DG(TI),RDSO, Lucknow, as the case may be, whose decision shall be final and binding.	M/s Prime Meiden We recommend to include the timeline of resolution by the Purchaser within 2 days of dispute. Further, we also recommend to include in the clause that, in case the dispute is transferred to the Purchaser and even if tests are repeated/new tests performed, the delivery schedule shall be extended accordingly and appropriately with no liability of delay on Manufacturer. The charges of representative of RDSO at manufacturer's place or any test lab shall be borne by Purchaser	RDSO ISO procedures are always being followed on every step.
13.	22.3.1 .1 (v)	The temperature of the hot - spot in the winding shall be the sum of the temperature of the top oil and 1.1 times the temperature rise of the winding above the average oil temperature.	M/s Prime Meiden Please confirm the value of 1.1 times, since, as per IS/IEC the value is 1.3 times. Further, Overload levels for determination of thermal time constant is not specified in the specification	Requirement of 1.1 is mentioned in the specification. Also Para has been modified as this is to be calculated by taking the ambient of 50degree Celsius.
14.	26.1	For this purpose prior intimation regarding the dates/period and locations at which the transformers are to be erected and testing / commissioning done shall be given by the Purchaser to the successful tenderer/manufacturer. No charges shall be payable by the purchaser to the successful tenderer/ manufacturer for the services of his engineer in this regard.	M/s Prime Meiden We recommend to add the intimation of requirement of Supervisor (SV) at site at least 2 weeks prior to the site requirements. Further, to avoid idleness of manpower (of Indian Railways and Transformer manufacturer), we shall submit a 'Site Readiness Checklist' alongwith the O&M Manual at the time of Transformer dispatch from Factory for validation by Indian Railways personnel at site/respectiive office, which shall be returned back to Transformer manufacturer to initiate and process the SV requirement.	Warranty clause has been modified in the final draft. This para has been removed.
15.	26.2	If any transformer has been received at site in a damaged condition and in	M/s Prime Meiden We recommend to delete "Any tests, as	Warranty clause has been modified in the final

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		the opinion of the Railway's Engineer at site it is required to be repaired at the successful tenderer /manufacturer's works, the transformer shall be taken back to the works promptly and after repair, all necessary tests including the routine tests shall be done on the complete transformer in the presence of and to the satisfaction of the Railway's Engineer prior to returning the transformer to site. Such tests are necessary to ensure that the quality of the workmanship during repairs is satisfactory and shall be done free of cost. Any tests, as decided by the Railway's Engineer at site shall also be conducted on the transformer at site free of cost.	decided by the Railway's Engineer at site shall also be conducted on the transformer at site free of cost".	draft. This para has been removed.
16.	28.2	From 4 th line of Para,However, if there are limitations on account of weight, the tank shall be filled with nitrogen under pressure and the oil for the first filling shall be supplied separately in steel drums. In case the tank is filled with inert gas the temperature and pressure at the time of filling shall be marked conspicuously on the transformer.	M/s Prime Meiden We recommend to change the mentioned clause of RDSO as: 'However, if there are limitations on account of weight, the tank shall be filled with nitrogen/dry air under pressure and the oil..... steel drums'.	Para can be modified as per the comments.
17.	-----	The manufacturer may quote separately his charges for short-circuit tests. No charges shall be payable for any other type and routine tests.	M/s Prime Meiden We recommend changing the mentioned clause of RDSO as: 'The manufacturer may quote separately his charges and time for short-circuit and temperature-rise tests. keeping in view the timelines of Short-circuit test at testing lab.	The existing Para may be removed from the specification as manufacturers should quote for complete transformer.
18.	Annex ure-1	Description of the NIFPES	Vimal Fire Controls Pvt. Limited Various comments on NIFPES	In the specification it shall be mentioned as, "The NIFPES shall be provided as per the technical requirements mentioned in the latest specification of single phase transformer." Specification of single phase transformer has been revised. On draft of this the comments of M/s Vimal Fire Controls Pvt. Limited have been received and considered in the revision. Thus it is

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				not required repeat again details of NIPES comments in this reasoned document.
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