REASONED DOCUMENT IN RESPONSE TO UPLOADED DRAFT SCHEDULE OF TECHNICAL REQUIREMENTS (2023) FOR MANUFACTURE OF PSC SLEEPER

Para no.	S.N.	Modified clause of STR uploading for 30 days	Comments /Suggestions by approved vendors	RDSO's Remarks	Final Draft of STR is to be upload for 15 days
Name of STR		Schedule of Technical Requirement (~~2022~~) (2023) for Manufacture of PSC sleeper	No Comments /Suggestions has been received from stake holders	No change	Schedule of Technical Requirement (~~2022~~) (2023) for Manufacture of PSC sleeper
7.0	7.1.5	Laser based continuous profile measurement system for checking critical dimensions of PSC sleeper	**Vishal Nirmiti Pvt. Ltd. Kandori (NR) comments:** This Point was there in first introduction of STR and subsequently we Vishal Nirmiti Pvt. Ltd., along with RDSO (Then Director/QAC Sri Manuwalji) developed the system with Delhi based firm with per. Laser technology and the demo was given at RDSO/LKO during one of the meeting with members of COSMA and RDSO in presence of Railway Board officers. It was noticed that the system was very much cumbursive and heavy to handle and speed of works are very slow for measuring the critical dimensions of sleepers. Later on lot of changes made in the system in guidance of RDSO and the outcome was not encouraging. Hence in subsequent years the point in question was made optional and as such no manufacturer has developed the same and every one is achieving the stipulated tolerances with the existing system of checking to its fullest accuracy. SUGGESTION: If it is required to be introduced, better to have the suggested gauge to check all the moulds on a stipulated time interval for its required accuracy. When once moulds are ok, the outcome of sleepers were also good	Laser based system will ensure high accuracy in dimension tolerances, which is required for achieving stricter tolerance Therefore, firm's remarks not accepted. Hence, no change.	Laser based continuous profile measurement system for checking critical dimensions of PSC sleeper
	7.1.9	High Frequency 9000 RPM (+/-4%) Vibrator arrangement bottom fixing type. For PSC line sleepers and Turnout sleepers, vibrators of min 2.0KW capacity are to be used. The vibrator should have recording facility for recording date and time of each operation. RPM should be digitally displayed during operation. Fixing arrangement of Vibrator to the bottom of moulds should be effective enough to transfer the vibrations.	Capacity of Vibrators are 1.5KW for Single cavity moulds and 2.0KW for Twin cavity moulds. As the lifting of vibrators are Pneumatical, vibrators touches to the entire bottom of moulds and getting glossy finish with zero slump concrete in stress bench method of manufacturing. No special arrangement is required. Ensuring the transfer of vibration as the system of lifting vibrators is	The fixing of vibrator is to be ensured for its effectiveness. Therefore, firm's remarks not accepted. Hence no change	High Frequency 9000 RPM (+/-4%) Vibrator arrangement bottom fixing type. For PSC line sleepers and Turnout sleepers, vibrators of min 2.0KW capacity are to be used. The vibrator should have recording facility for recording date and time of each operation. RPM should be digitally displayed during operation. Fixing arrangement of Vibrator to the bottom of moulds should be effective enough to transfer the vibrations.

			being carried pneumatically.		
	7.2.5	Steam curing chamber of adequate size and capacity to hold not more than eight benches containing four moulds each. Provision should be made for perforated pipes of adequate dia, in the steam chamber for uniform distribution of steam along with provision of thermocouple at both the inlet end of pipe in the steam chamber. The steam curing should be with servo controlled valve with steam regulation with auto cut off arrangement following the steam curing cycle. The thermometers should be provided at both ends of steam chamber with digital display. The data of time v/s temperature in each chamber should be digitally displayed and stored and system should have sufficient memory to store at least on year's data with facility to take out print shift wise.	In Stress bench method of sleeper manufacturing, the Steam pipes inside steam chambers are being used with perforations made in pipes in staggered manner so that steam reaches for the entire length of chambers. The steam chamber temperature is being monitored at one side of the chamber and intermittently being checked at the other end also, which shows no any changes in steam temperature and the maximum temperature bracket is 55 - 60 degree centigrade and as of such monitoring/controlling on both sides is not required	Para has been modified. Thermometer is to be provided at both the ends of steam chamber.	Steam curing chamber of adequate size and capacity to hold not more than eight benches containing four moulds each. Provision should be made for perforated pipes of adequate dia, in the steam chamber for uniform distribution of steam along with provision of thermocouple at ~~both~~ the inlet end of pipe in the steam chamber. The steam curing should be with servo controlled valve with steam regulation with auto cut off arrangement following the steam curing cycle. The thermometers should be provided at both ends of steam chamber with digital display. The data of time v/s temperature in each chamber should be digitally displayed and stored and system should have sufficient memory to store at least on year's data with facility to take out print shift wise
	7.2.6	Pneumatic/Hydraulically operated tensioning gun with upto 2 KN load capacity or similar mechanized arrangement, for initial pulling of individual HTS strands so as to ensure uniform pulling of HTS strands.	For stress bench method of sleeper manufacturing, pulling of each strand with pneumatic/hydraulic operated tension gun with upto 2 KN load is very much time taking which results in output of works. Technically also for wider base sleepers the prestressing force is almost 80% of of UTS (29 KN on each strand) and use of 2KN force for initial pulling adds up to prestress which in turn may affect the durability of concrete and varies from assumed design parameters of PSC sleepers	Uneven initial pulling results in unequal stressing of strands which may cause premature cracks. This system is to ensure proper straightening of HTS strands in the moulds before application of total prestressing force. Firm's comments not accepted hence, no change.	Pneumatic/Hydraulically operated tensioning gun with upto 2 KN load capacity or similar mechanized arrangement, for initial pulling of individual HTS strands so as to ensure uniform pulling of HTS strands.
	7.2.7	Rubber lining fixture for Insert pocket with rubber lining for proper fixing of insert in the mould and for easy demoulding & prevention of slurry leakage.	The proposed rubber lining fixture for insert pockets wont long last and have to face frequent disturbance in maintaining required critical dimensions and fixing rubber with steel plate is not advisable and moreover the rubber quality and adhesive also in question due to steam curing of the same. As of now with the existing system no any remotest problem in demoulding is being noticed for so many years and with laser cut insert pockets no slurry leakage takes place. The proposal of the same is impractical.	In some of the plants it is working well hence no change	~~Rubber lining~~ fixture for Insert pocket with rubber lining for ~~proper fixing of~~ holding the insert in fixed position in the mould and for easy demoulding & prevention of slurry leakage.