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T.Ş. 250.422

TECHNICAL SPECIFICATION OF PAINTING WAGON AND WAGON SUB-COMPONENTS

Manager of Incoming Control Division	Şükrü Baha BAYDIR		
Manager of Wagon Division	Özden BALKAN		
Manager of Wagon Factory	Murat GÖRÜR		
Manager of Locomotive Factory	Sertan DOĞAN		
Prepared by	Ahmet SÖNMEZ	Halis SAĞIR	Ahmet SEYREK
			
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1. SUBJECT AND SCOPE

This technical specification covers general issues regarding with painting works for undercarriage, bogie and similar equipments for wagons which belong to wagon or wagon components which are maintained, repaired and manufactured in TÜRASAS , their technical properties, minimum technical requirements, inspection and control, warranty, packaging, giving offer and other issues.

2. DEFINITIONS

Following items which are mentioned in several location of this specification will mean;

TÜRASAS; Turkish Rail System Vehicles Company Inc ,

Wagon Components; Bogie, undercarriage and similar equipments or all other parts belonging to wagon

Work; Cleaning, preparation of surfaces, painting and writing texts over Bogie, undercarriage and similar equipments or all other parts belonging to wagon

Contractor; Company which has undertaken work after concluding tender

Companies; Company which has given offer for tender

3. GENERAL ISSUES

3.1. First work to be done will have prototype property. Contractor will firstly provide work in prototype form to be accepted.

3.2. Acceptance of prototype will not mean acceptance of entire work, work which is subject matter of tender will be evaluated within itself and acceptance process will be realized.

3.3. Bidders will see work to be done in TÜRASAS and will survey the work, bidders which did not survey will be considered as made survey.

3.4. Unless otherwise is specified in written form before tender, Contractor will perform all cleaning, paint and text works or wagons, equipment and parts belonging to wagon in facilities which belong to contractor; all machine- vehicles, tools- equipments, paint and consumables which are required by work by itself. But in the event that place where work will be done is mentioned as TÜRASAS plants and paint, thinner, hardener to be used will be supplied by TÜRASAS, contractor will perform works according to these new opportunities.

3.5. As it is mentioned in article above (article 3.4), in the event that written permission is given before tender for work regarding that work will be performed in plants which are allocated by TÜRASAS, if plant or equipments belonging to plant are damaged due to use, repair and renewal of relevant plant and equipment belonging to plant will be under responsibility of contractor. This repair and renewal work will be realized as being loyal to original.

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3.6. If notification is made on same day or with future date, contractor will perform work on shift and date which is notified to it. It will perform works on daytime shift which are requested to be performed on daytime shift by TÜRASAS and on night shift which are requested to be realized at night by TÜRASAS in plants accordingly with article 3.4.

3.7. Contractor is obliged to supply all tools, equipments and devices to be used and personnel which are necessary for realizing work. As it is referred in Article 3.4, when written permission is given regarding with working in TÜRASAS, contractor will obey requirements which are specified in Annex-1 during works to be done in TÜRASAS.

3.8. All technical responsibility related to work which is subject matter of tender will belong to Contractor company

3.9. Issues which are not specified in technical specification are explained in administrative specification.

3.10. Summary of The Work:

Contractor is obliged to clean and mask the wagon and wagon components with several dimension to be painted(parts belonging to wagon such as undercarriage, bogie, bodywork and similar equipment and parts) according with paint plant and/or instructions which are given by TÜRASAS Paint shop officials within specified time period which will not interrupt wagon production program, to prepare surface for paint and paint, to complete text works accordingly with specification and complete and deliver work accordingly with specification.

4. TECHNICAL SPECIFICATIONS

4.0. Competencies of Painter Personnel and Equipments Belonging to Contractor:

4.0.1. Contractor will certify Painter personnel and quality control personnel after tender before starting to work accordingly with Occupation Competency Board(MYK) National Competency 11 UY005-4 Level 4 competency.

4.0.2. Contractor will supply paint thickness equipment and other control equipments with calibrated manner and will provide them to be approved by TÜRASAS Officials together with certificates before starting to work.

4.1. General Conformity and Completion Term for Work:

4.1.1. All information and document required for performing work will be supplied by TÜRASAS to Contractor and work will be realized accordingly with specified instructions.

4.1.2. In the event that change is made in paint plans, this case will be notified to Contractor by TÜRASAS and work will be painted according new Paint and Text Plan.

4.1.3.. Contractor has to complete work (between 08.00-24.00) including lining, topcoat, text works for at least 2 standard wagons (2 wagon x500 square meter area). Therefore paint workmanship capacity of contractor (contractor company) will have capacity to complete all paint works for 2 Nos standard type wagons.

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4.1.4. Retouch works for missing locations in paint work will be completed by contractor within same period (between 08.00-24.00 hours) by Contractor.

4.2. Paint and Other Materials To be Used :

4.2.1. Paint and Materials:

Regarding with work (in accordance with article 3.4); In the event that paint materials are allowed to be given by notifying in writing; paint, hardener, thinner (including cleaning thinner), putty and all consumables related to the work to be performed by the Contractor will be given by TÜRASAS before starting the Work.

4.3. Machine- Equipment- Tool and Other Material To be Used:

4.3.1. The Contractor will provide all machinery - equipment and tools (paint gun, sanding machine, etc.) to be used for the Work by itself, and will not make any demands from TÜRASAS in this regard.

4.3.2. As it is in all other tools, painting work will be made cylindered high pressure (over 7 bars) or normal paint gun which will be supplied by Contractor. However contractor can use roller or brush during work where paint gun can not enter provided that approval is taken from TÜRASAS paint shop officials.

4.3.4. Air, steam or electricity to be used:

As it is mentioned in article 3.4, in the event that written permission is given to contractor regarding with work in TÜRASAS, TÜRASAS will supply minimum 6 bar compressed air to be used in paint gun, steam for heating purposes in winder, electricity for lighting free of charge.

4.4. WORKS BEFORE PAINTING AND PAINT WORK APPLICATIONS

Works to be done by contractor are basically in 7 stages as following:

4.4.1. Pre-paint preparation

4.4.2. Masking

4.4.3. Protective Lining

4.4.4. Works for preparation of sensitive surfaces (For some equipment or parts)

4.4.5. Topcoat paint works

4.4.6. All text works

4.4.7. Retouching and Final control

4.4.1. Cleaning works for preparation to paint:

4.4.1.1. If the contractor is still present on all surfaces of wagon and wagon components (equipment or part belonging to wagon, bogie etc.), although it has been washed or cleaned before, it will remove the remaining dirt, oil, paint removed or blistered areas, own scraper, wire brush etc. he will scrape with his tools, thus preparing the material for painting. In addition, sandblasting will

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be carried out taking into account the revision periods specified in the YVBK published by TCDD Transportation inc. the final decision on this matter belongs to the TÜRASAS.

4.4.1.2. Contractor will complete chemical cleaning by using cleaning chemical agent for oily dirty surfaces.

4.4.1.3. After mechanical and chemical cleaning, the contractor will apply pressure blast all surfaces and equipment of the wagon suitable for blasting by using steel grit or steel granules with a minimum SA 2.5 quality according to ISO 8501-1 standard. In order to prevent deformation of the parts manufactured using thin sheet metal, the pressure will be reduced and sandblasted and care will be taken to prevent deformation of the sheet metal. After blasting, all surfaces and parts of the wagon such as recessed and protruding parts of the wagon, parts that are difficult to reach due to the structure, air ducts, brake system must be completely cleaned from the blasting material.

4.4.1.4. There will not be any impurity over material to be painted which may affect quality of paint.

4.4.2. Masking

Contractor will mask following items which may present in undercarriage, bogie or all parts belonging to wagon by masking bands band masking papers to be supplied by itself;

- All electrical and electronic accessories,
- All electrical cables,
- All rubber-seal parts,
- All processed shining surfaces,
- All labels,
- Brake equipment (Valve, regulator etc.)
- Sensitive parts which are reported by TÜRASAS paint shop officials as there is avoidance for painting.
- Parts and sections which are requested to be masked by TÜRASAS paint shop official.

4.4.3. Protective Lining :

4.4.3.1. Surfaces of all wagon, equipment or parts to be painted will be painted by Contractor by double component epoxy lining paint by paint gun such that 50 micron dry film thickness is maintained.

4.4.3.2. If a protective primer paint other than Epoxy Primer Paint is required, this situation will be notified to the contractor by the TÜRASAS Paint Shop authorities, and the contractor will perform the priming with the notified new protective primer paint.

4.4.4 Works for preparing sensitive surfaces (Puttying and sandpapering)

External surfaces of wagons where text will be written and equipments and parts which require sensitive paint work will be notified to Contractor by TÜRASAS paint shop officials and surface smoothness of such kind of surfaces before painting will be maintained in turn a) sandpapering cleaning b) puttying c) sandpapering d) intermediate layer lining works.

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4.4.4.1. Sandpaper cleaning: Contractor will make cleaning by no 80-120 sandpaper to remove fine impurities over sensitive surfaces by sandpaper machine to be supplied by itself.

4.4.4.2. Puttying: Contractor will make puttying in sections which are mentioned by TÜRASAS Paint Shop Officials by pastes to be supplies by TÜRASAS for maintain complete smoothness in pit or bulge areas over surface of which cleaning was made by sandpaper by tools to be supplied by itself.

4.4.4.3. Sandpapering: Contractor will perform sandpapering by sandpapering machine by using No 120 sandpaper or thinner sandpaper (No 180, No 240) for maintain 100 % slipperiness 100% surface smoothness when it is touched by hand after exercised paste is dried and then compressed air will be applied and will be wiped dust absorbing clot and dusts remaining at surfaces will be removed from surface completely.

4.4.4.4. Intermediate Layer Lining: After cleaning sandpaper dusts over sensitive surfaces Contractor will exercise intermediate layer lining paint by paint gun over surface such that minimum 25 micron dry paint film thickness is maintained.

4.4.5. Topcoat Paint Works:

4.4.5.1. After applied linings paints dry, contractor will paint surfaces to be paint with paint gun by minimum 2 layer polyurethane/acrylic topcoat paint such that minimum 50 micron dry paint film thickness (total 125 micron dry film thickness when epoxy lining and/or intermediate lining paint is added).

4.4.5.2. All valves, handles, hooks, harness, rings, plates etc belonging to wagons will be painted by topcoat paint according to wagon paint and text plan.

4.4.5.3. Topcoat paint works for wagon, equipment or part, types of paint, color and application information will be accordingly with technical information which is specified in Annex-2 unless any change is notified by TÜRASAS paint shop officials in written form or any opposite written instruction is given regarding with paint works. Contractor is assumed to accept all information and data (surface area data, color codes etc) beginning from moment when tender is awarded. Unless opposite instruction is given by TÜRASAS officials, information and data given in Annex 2 will be obeyed.

4.4.6. Realizing All Text Works(Text, Logo Etc)

4.4.6.1. Contractor will write all texts (text, logo, signs, wagon no) and marking operations which are mentioned in Wagon paint and Text plan will be made accordingly with instructions of TÜRASAS Paint shop officials after completing topcoat paint works for wagon, undercarriage, bogie and similar equipments. Contractor will not make any material template and similar request from TÜRASAS officials except paint and text plan.

4.4.6.2. Minimum paint thickness will be 10 micron for the text to be used in text works.

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4.4.7. Final Retouch operations and control to be made by CONTRACTOR:

First control regarding whether work was realized according to dimension, paint plant within technical drawing, whether realized accordingly with this specification will be realized by Contractor's Paint Quality Control Personnel. Contractor will have at least 1 Paint quality control personnel for this reason regarding with this work. Contractor will complete Paint control form which is given to it by TÜRASAS for each wagon and component and will deliver to TÜRASAS at the end of completion of each work item.

4.4.7.1. There will not be leakage, bubble, paint peeling, waves, bulges, scratches and color overflow between zones, spray traces, sandpaper and band traces in all paint surfaces of painted wagon, equipment or parts. Contractor will meet damages which may be caused from TÜRASAS wagon production process due to works which will not be accepted because of such kind of cases.

4.4.7.2. In the event that paint is damaged, scratched because of reason caused by contractor, retouch operations will be realized by contractor within 1 day.

4.4.7.3. Dry Paint Film Thickness and Other Tests:

4.4.7.3.1. Contractor will perform measurement operation by its own dry paint film thickness for determining that all surfaces of wagon, equipment or parts of which paint works are completed have sufficient thickness and there are not pores.

4.4.7.3.2. Thickness of epoxy lining paint thickness will be 50 micron, thickness of intermediate lining paint thickness will be minimum 25 micron, dry film thicknesses of topcoat paints will be minimum 50 micron.

4.4.7.3.3. Whatever the total paint thicknesses of all surfaces where topcoat application was made will be minimum 125 micron. Minimum paint thickness will be 135 micron for the parts which are painted and texts are written.

5. INSPECTION AND CONTROL

5.1. Paint Control:

5.1.1. Preliminary control whether work was realized accordingly with dimension in technical drawing and paint plan, accordingly with this technical specification will be made by TÜRASAS paint shop officials and final control will be realized by TÜRASAS Quality control personnel. If deficiencies regarding with work are found, contractor will meet material damages caused from deficiencies and will maintain complete conformity with specification and will eliminate these deficiencies on same day.

5.1.2. Preliminary control whether implemented paints have minimum paint thickness will be made by TÜRASAS paint shop officials and final control will be made by TÜRASAS Quality Control Department.

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5.1.3. Painted surfaces having thickness less than minimum paint thickness will be painted again by contractor within 1 day.

5.1.4. All texts, logos, signs in implemented texts will be clear and there will not be deviation from paint and text plan, paint leakage, paint overflow and similar paint-text defect.

5.2. Material supply regarding with rejected works of which nonconformity with technical drawing and specifications are determined will be under responsibility of contractor.

5.3. Contractor is responsible for work against customer (TCDD, other customer company) unless sales process is completed.

6. WARRANTY

6.1. Contractor will give minimum 2 years guarantee beginning from final acceptance date of work. Contractor will be responsible for all kind of nonconformities which are caused from contractor. Contractor has to eliminated nonconformities which are caused from itself within maximum 1 business day.

6.2. All kind of defect which are determined by TÜRASAS quality control department personnel and personnel who is assigned by Wagon Factory and/or TÜRASAS paint shop officials will be notified to contractor by forms, reports to be issued.

7. PACKAGING

7.1. Equipment and parts where sensitive paint application was made will be packaged by packaging material to be supplied by Contractor such that they will not be damaged and influenced from impact and environmental factors, outdoor climate conditions.

8. GIVING OFFER

8.1. Companies will consider issues which are specified in this specification and annexes and will complete specification annex (Annex:2- Wagon, Equipment Pricing Information) , price offer columns. Any additional price payment will not be made to company except price items which are present in items.

8.2. Complete wagon type and equipment type for which tender will be awarded will be defined separately in tender description and unit price for equipment and wagon type which is specified in Annex 2 will be considered as basis in evaluation to be made.

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9. OTHER ISSUES

9.1. Contractor may consult Paint Shop Workshop official which are affiliated to Locomotive Factory Directorate and Assigned Wagon factory regarding with paint technical problems which may arise regarding with work.

9.2. Provided that contractor is permitted to use TÜRASAS plants accordingly with article 3.4, it will be responsible from cleaning workshop plant and contractor will not leave wastes which appear after work, will classify wastes and will throw them into relevant waste container which are present in TÜRASAS paint shop and plant

ANNEXES

Annex-1 Contractor company responsibility and rules to be obeyed

Annex-2 Wagon- Equipment (Bogie) Paint information