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T.Ş. 050.084
TECHNICAL SPECIFICATION FOR
PROCUREMENT OF THE COMPONENTS
OF
TLM16V185 TYPE DIESEL ENGINE

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1. SCOPE

This technical specification covers manufacturing, specifications, inspection and tests, acceptance and other demands concerning the materials listed in the annex and used on TLM16V185 type engines, manufactured, repaired, maintained and overhauled at TÜRASAS.

DEFINITIONS

TÜRASAS: Turkey Rail Vehicle Industry Co., Ltd. (Eskişehir Regional Directorate)

Firm: The company bidding on the Work defined in this Technical Specification.

Supplier: The company that is entitled to perform the work defined in this technical specification.

2. REQUIREMENTS

2.1. **Manufacturing:** The components shall be manufactured per the technical drawings at the specification annex.

2.2. **Material and Heat Treatment:** Material and Heat Treatment shall be as shown at the annex lists, technical drawing and purchase order.

2.3. **Measuremental Characteristics:** Dimensions and tolerances as shown at the annex lists and technical drawing.

2.4. **Sample Specifications:** Bidders have the right of inspecting the components regarding to the tender at Engine Factory at TÜRASAS before the tender. Bidders are allowed to take sealed samples providing return.

3. CONTROL AND TESTS

3.1. Tests, Controls and reports by Winner Firm

All of the components delivered to Acceptance Department are to be tested and inspected according to the specifications defined at the technical specification and annex technical drawings by the winner firm at an accredited lab. The results of inspections and tests shall be delivered to TÜRASAS at component delivering.

For the piston pins, a sample shall be manufactured whose outer surface is machined and carburisation and quenching treatment is performed on it. A sample shall be manufactured for every heat treatment batch. This sample shall be delivered with piston pins.

For the following tests and inspections the samples selection is signed with a letter at the annex.

The letters mean that;

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A- % 100 control

B- The number of sample is selected according to TS ISO 2859-1 Table 1 at General Inspection Level III with multiple normal control sample number according to Table 4-A at AQL (KEKS) 0,1.

C- The number of sample is selected according to TS ISO 2859-1 Table 1 at General Inspection Level III with multiple normal control sample number according to Table 4-A at AQL (KEKS) 0,4

3.1.1. Geometrical Inspection

Components shall be checked per the dimensions and tolerances on drawings and in norms.

3.1.2. Physical Inspection

Components shall be checked visually. Pitting, raw materials faults and faulty workmanship are not accepted.

3.1.3. Crack Inspection

Crack Inspection (RT/UT/MT/PT) shall be performed by at least level (1) staff certified per EN ISO 9712 and the result reports shall be approved by at least level (2) staff. The reports shall be delivered to TÜRASAS. Crack Inspection shall be performed on components defined in the specification by using one or more methods of 4 methods above.

3.1.4. Surface Roughness Inspection

Surfaces of components shall be inspected per Surface Roughness Qualities defined on drawings and in norms.

3.1.5. Chemical Analysis

Chemical analysis tests shall be performed whether the components comply with the material quality defined on technical drawings.

3.1.6. Mechanic Characteristic

The mechanic features of components shall be inspected whether they comply with the materials features and technical data on the drawings.

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3.2. Tests to be performed by TÜRASAS

TÜRASAS shall perform the following tests and inspections.

The componets, which will be taken as sample and destructive testing shall be made on them, shall be changed with new ones free of charge after the batches are accepted. The batches of the components, which are deemed as faulty or not enough, shall be rejected.

The number of sample for test and inspection which is performed at TÜRASAS, is selected like title 3.1.

TÜRASAS will perform all tests again if there is a necessity.

3.2.1.Measuremental Inspection

Choosen components shall be checked per the dimensional and tolerances on drawings and in norms.

3.2.2. Physical Inspection

Selected samples will be subjected to eye control. Pitting, raw material and workmanship errors are not acceptable.

3.2.3.Chemical Analysis

Chemical analysis tests shall be performed at TÜRASAS Labs whether the choosen components comply with the material quality defined on technical drawings.

3.2.4. Mechanic Characteristics

The mechanic features of choosen components shall be inspected whether they comply with the mechanic features on the drawings

4. MARKING

The components shall be marked without disrupting the function of component in proper manner .

Marking shall be as below:

Company Name-Material Quality-xxx-yy

xxx: successive and irreproducible number

yy: last two digits of the year

The packaging boxes of the components which are not suitable to be marked shall be marked .

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5. PACKAGING

The components to be submitted to the Accepting Department shall be delivered in quality and thick wooden, petroleum, products, etc made cases resisting the minor damages during loading and unloading to prevent any damage from dust, rain, snow, sun rays, wind, etc. and to be protected any harm during carrying in every weather condition. To prevent the spreading, durable string tape shall be wrapped.

The case shapes must be convenient to be lifted by a fork-lift. The weight of the cases shall be 400 kg when loaded with components. All writings on the cases must be readable, inerasable and weatherproof and the writings must contain supplier name, material name, order number, production date and drawing number.

Unless indicated otherwise on technical drawings, the machined surfaces of the components delivered to the Acceptance Department shall be lubricated with new oil against corrosion. The components shall be placed without touching each other in boxes after they are wrapped in bubble pack to prevent the components from rain, wind, snow and environment conditions during loading, unloading and stocking.

Should the contractor can not deliver the component to the Accepting Department as necessary manner. TÜRASAS shall reject the component at the Inspection area without unloading. In case the materials are rejected because of the improper packaging is presented to the Accepting Department after the duration defined in the Contract, delay penalty shall be applied. The supplier can not demand any rights due to packaging.

6. PROTOTYPE

The manufacturing period of the prototype shall be defined in the price offer. A group of ordered components in an engine shall be delivered to TÜRASAS. The inspection of component/s shall be accomplished in 20 days and the winner firm will be informed about the situation of the component

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and the component will be sealed after accepting the conformity. The next production shall be made according to this prototype. But accepting the prototype shall not be deemed as accepting the whole components. TÜRASAS has the right of terminating the Contract in case the prototypes are not accepted. Delivering the prototype the earliest period may be the reason for preference. The bidders, whose prototypes have been accepted before, may not be required to deliver a prototype.

7. DELIVERING PLACE

The components shall be delivered to TÜRASAS Eskişehir Regional Directorates Acceptance and Transfer Division Management

8. WARRANTY

The manufacturer shall give two calendar (2) years warranty starting from the date of delivering for the manufacturing faults, which are not recognized at Acceptance Department. Should any fault, which prevents the usage or shortens the life of the component, is noticed during the warranty period, the component/s shall be rejected. The rejected component/s are returned to the manufacturer and the firm is to change the component/s in 20 work days with new one/s.

9. GENERAL MATTERS

9.1. TÜRASAS has the right of inspecting the bidder firms' premises and inspecting the manufacturing stage of the winner firms.

9.2. The manufacturer shall have to inform TÜRASAS about the technical problems and inadequacies preventing the manufacturing on time.

9.3. The bidder shall deliver updated and current ISO 9001 or IRIS Certificate.

9.4. The bidder shall deliver TS EN 10204 3.1 certificate and inspection and test reports for each component defined in Article-3 to TÜRASAS with components.

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9.5. This technical specification, the annex specification, the annex drawings, administrative specification and the sources and documents constitute a whole.

9.6. The bidder shall take back the rejected and faulty components in warranty period within seven (7) days from TÜRASAS and after being informed. Provided the firm does not take them back in seven (7) days, the firm shall pay 0.3 % of contract fee for each day in which the components are at TÜRASAS. Supposed that the components are not taken back in fifteen (15) days after being informed, the components shall be thrown to TÜRASAS scrap yard. The bidder shall have no rights of claiming.

ANNEXES: Annex-1 Material List