



Skupina **hse**

**TERMoeLEKTRARNA
ŠOŠTANJ**

TECHNICAL SPECIFICATION FOR THE ORDER FOR THE

**LOT 30 AND 31: SUPPLY AND PARTIAL REPLACEMENT OF
HANGER TUBES ON RH 1**

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1 GENERAL

On the existing Unit 6 installed in the Šoštanj power plant since 2015, we intend to carry out a partial replacement of the existing hanger tubes on reheater 1. For this purpose, TEŠ is tendering a public contract. This contract is divided into two packages:

Lot 30: Supply of hanger tubes

Lot 31: Partial replacement of hanger tubes on RH 1

Footnote:

A tenderer may submit tenders for one or both Lots.

2 THE CONTENT OF THE CONTRACT

2.1 LOT 30: SUPPLY OF HANGER TUBES

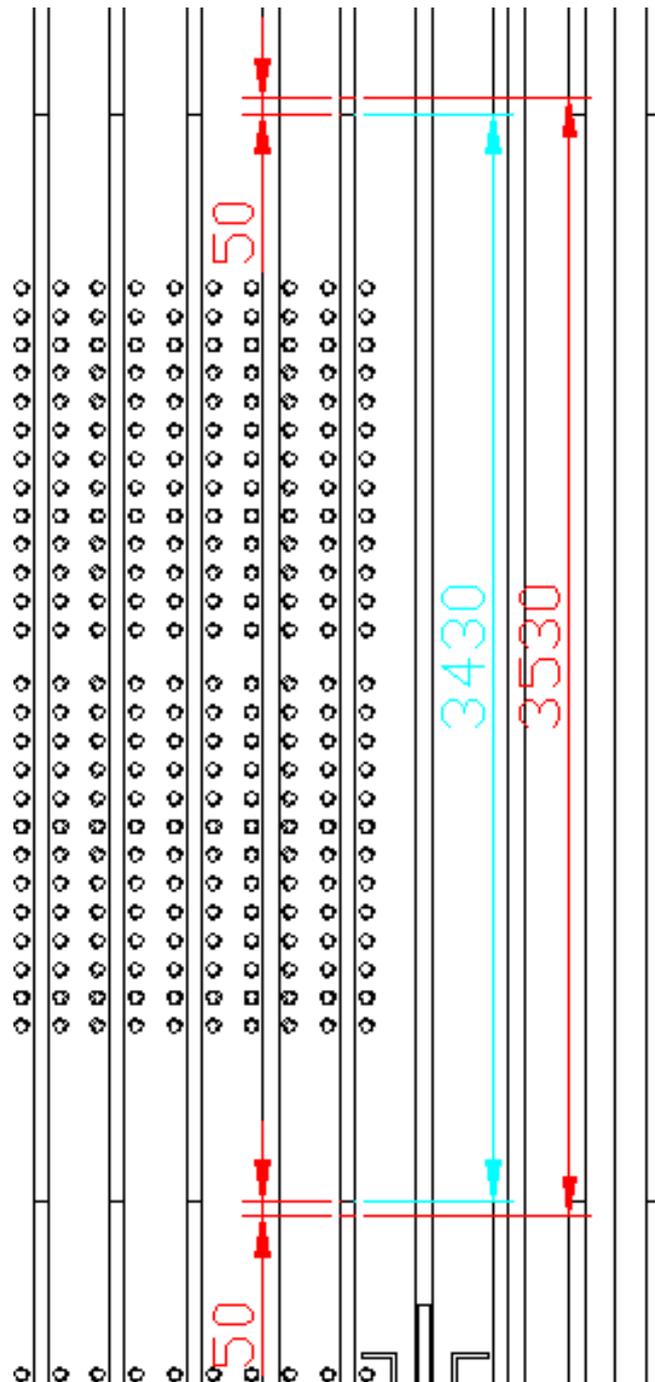
2.1.1 Hanger tubes

Technical requirements for ordering hanger tubes	
Tubes:	
Material	7CrMoVTiB10-10 (Wr.No. 1.7378)
Dimension	Ø48,3 x 11.0 x 3530mm
Quantity	130 pcs
Overheat pipe holders:	
Material	X10CrAlSi7 (Wr.No. 1.4713)
Dimension	Dimensioned by the contractor in accordance with added drawings and picture 2
Quantity	52 per hanger tube; $\Sigma = 6760$ psc
Barriers:	
Material	X10CrAlSi7 (Wr. No. 1.4713);
Dimension	35 x 20 x 6mm
Quantity	52 per hanger tube; $\Sigma = 6760$ psc
Plates:	
Material	X10CrAlSi7 (Wr. No. 1.4713)
Dimension	50 x 25 x 6mm
Quantity	4 per hanger tube; $\Sigma = 520$ psc

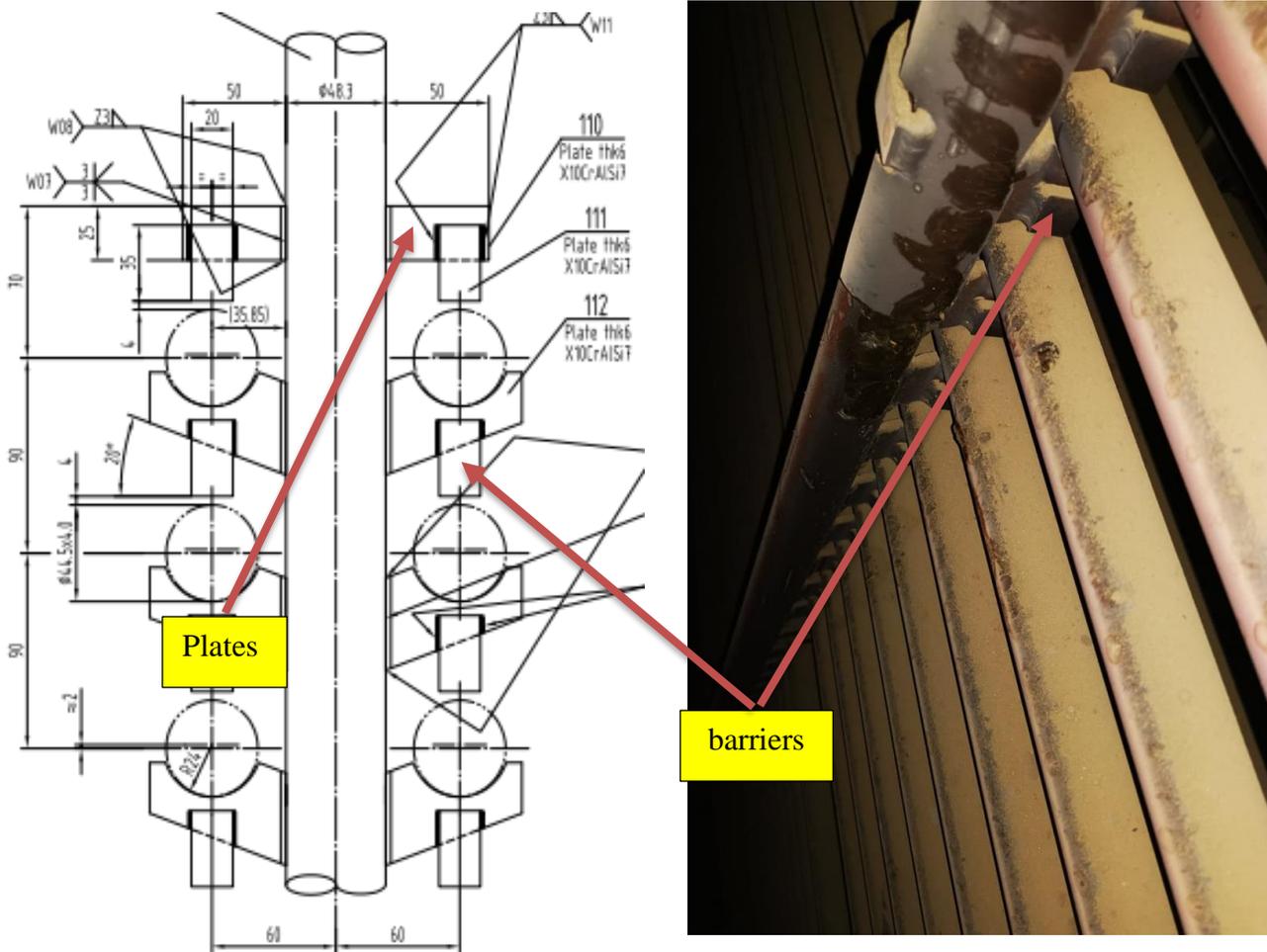
Requirements for ordering hanger tubes, holders, and barriers:

- The length of supplied tubes must be 3430 mm plus 50mm of extra length on each side due to the cutout of old welds. Therefore, the final length of the supplied hanger tubes must be **3530mm**. See attached drawings for detailed dimensions.
- Overheat pipe holders and plates must be welded to the hanger tubes. Material for holders and plates must be X10CrAlSi7 (Wr.No.1.4713). After welding the overheat pipe holders and plates, the hanger tubes must be annealed and aligned.
- Ends of all tubes must be prepared for welding and closed/protected by plastic caps.
- All hanger tubes must be anti-corrosion protected.
- All tubes must be delivered in accordance with standard EN 10216-2, and additional technical requirements stated in VdTUV Werkstoffblatt 511.

- Barriers (pipe protection plates) delivery is under this part of tender. Barrier material: X10 CrAlSi7 (Wr. No. 1.4713); dimension 35 x 20 x 6mm. Barrier plates will be welded on holders and hanger tubes after hanger tubes welding and after inserting overheating tubes into holders (this is mean – in the site).
- Holders, barriers, and plates must be compliant with the standard EN 10095.
- Holders, barriers, and plates must be marked in acc. with requirements of EN 10095 accompanied by material certificate 3.1 in acc. with EN 10204.
- Cutting residues must be removed by grinding.



Picture 1: delivery length of hanger tubes (look red dimension)



Picture 2 and 3: Movement limiters – barriers

Warranties:

The quality and dimensions of supplied tubes must be according to the order. The warranty period for supplied tubes must be at least one year.

The supplier must ensure delivery of all non-conform tubes, determined based on the Employer's entry quality inspection, within one month after written notice, at its own cost.

Quality control and manner of proving the quality of tubes:

The supplied tubes must be accompanied by a material certificate 3.2 in acc. with EN 10204.

Supply:

The deadline for delivery of tubes is the end of January 2024.

Attached drawings or sketches:

- Cross Section Boiler Convective Pass (pdf)
- Hanger Tubes Cross section (CAD)
- RH1 – tube coils assembly.....ID number: 1.48315/00 242-0111

Footnotes:

The client allows the following option: If, due to market condition, the provider will have to purchase the entire batch of pipes (7CrMoVTiB10-10; Ø48.3 x 11mm) to produce hanger tubes, he must acknowledge this in offer. The remaining tubes must be handed over to the client.

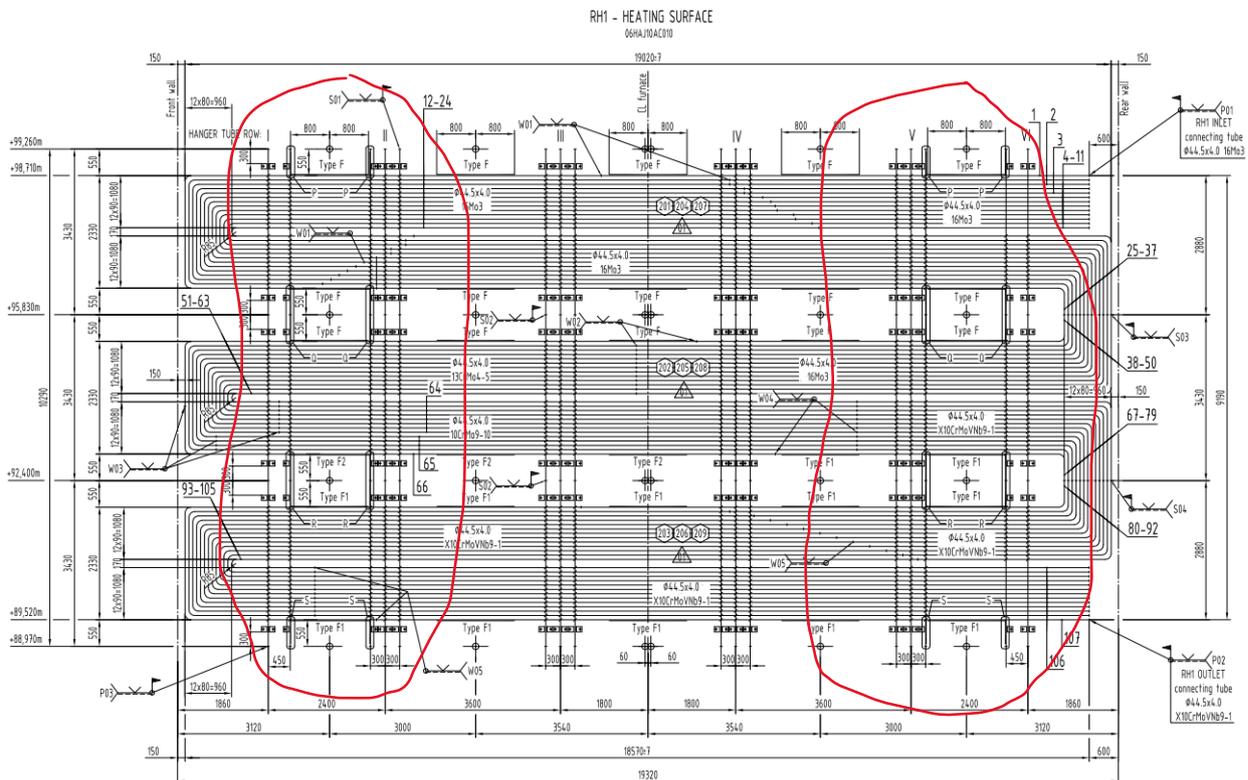
If the provider cannot procure tubes with wall thickness 11mm, then tube wall thickness 10mm are also acceptable, but in that case wall thickness tolerance must be -0.0 / +0,5mm (minimum).

2.2 LOT 31: PARTIAL REPLACEMENT OF HANGER TUBES ON RH1

2.2.1 Location and extent of the replacement of hanger tubes

Partial hanger tube replacement is planned on the existing RH1 area, on the levels: +84m, +92m and +94m.

The new hanger tubes will be longer than existing one for 50mm on each side, because old welds must be removed.



Picture 4: Hanger tubes partial replacement areas

2.2.2 Material data

The supply of hanger tubes and barriers for replacement are not a part of this package. The customer will hang over the hanger tubes and barriers for installation to the operator of the partial replacement of the hanger tubes.

Tubes:	
Material	7CrMoVTiB10-10 (Wr.No. 1.7378)
Dimension	Ø48,3x 11.0 x 3530mm
Quantity	130 pcs
Barriers:	
Material	X10CrAlSi7 (Wr. No. 1.4713);
Dimension	35 x 20 x 6mm
Quantity	52 per hanger tube; $\Sigma = 6760$ psc

2.2.3 Tube replacement

The data which hanger tubes will need to be replacement will be provided by customer. 130 hanger tubes will need to be replaced.

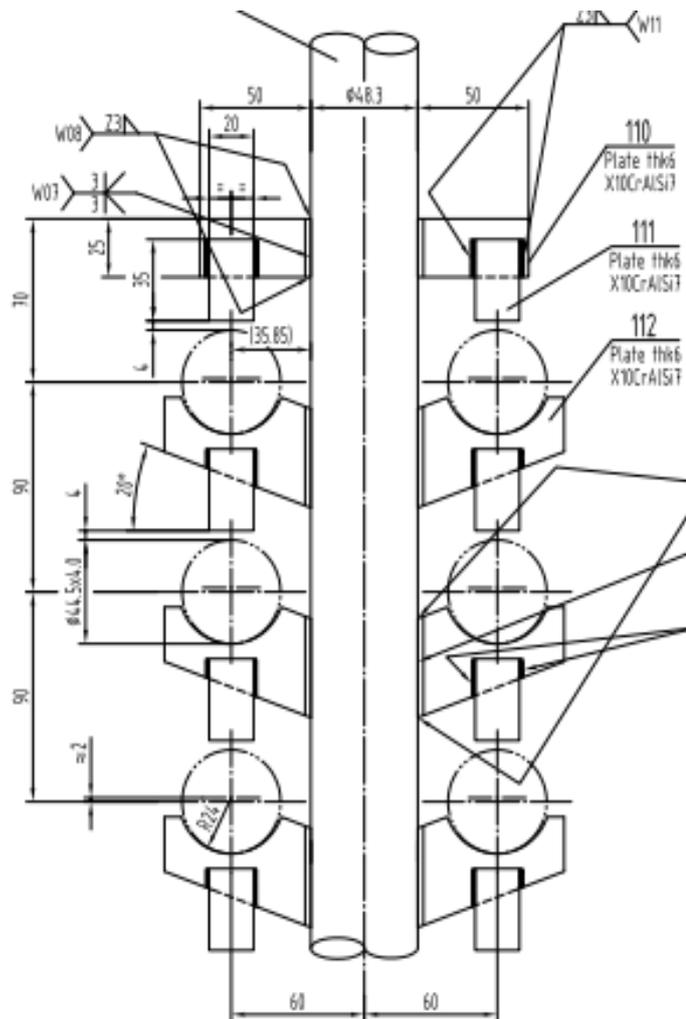
Tube replacement activities:

1. Preparation of new tubes:

- Purchase length of tube is 3530mm.
- Welding edge cleaning (remove anti-corrosion protection).
- Blow out the inside pipe with compressed air.
- Returning the protective plastic caps to the ends of the hanger pipes.
- Transport of hanger tubes to the installation place. Tubes will be inserted into the boiler across the control opening at the level +84m, 92m and 94m.

2. Dismantling of existing hanger tubes:

- Preparation of replacement space.
- Removal of overheat tube movement limiters (barriers) from hanger tubes.
- Remove the overheat tubes from holders.
- Cutting of hanger tubes (130 pcs) IMPORTANT: if the hanger tube is protected by armoring plate, then first remove armoring plate. Do not true away armoring plate.
- Transportation of dismantled hanger tubes through control openings.
- Transportation (parts of cut tubes) to the level +0 m. The contractor can use an existing lifting device. For all dismantled material, the Employer will provide waste containers. Emptying of containers is the responsibility of TEŠ.



Picture 5: Movement limiters – barrier

3. Installation of new tubes:

- Welding edge preparation.
- Placement of new tubes into the hanger tubes.
- Movement limiters/barriers welding
- Root protection system installation.
- Tube positioning - centering.
- Tube welding. TIG welding procedure is required. 2 welds per tube x 130 tubes = 260 welds. Tube material: 7CrMoVTiB10-10 (Wr.No. 1.7378), dimension: Ø48,3x 11,0 x 3530 mm.
- Barrier welding. TIG welding procedure is required. 1 weld per barrier = 4,800 welds. Barrier material: X10 CrAlSi7 (Wr. No. 1.4713); 10 x 30 x 6 mm.
- Control and Post Weld Heat Treatment on the tube welds are the responsibility of the contractor.
- Tube armors installation.

2.2.4 Auxiliary materials and working equipment

- All transport and lifting equipment are the responsibility of the contractor.
- All grinding machines, cutting machines, weld edge preparation machine. and auxiliary materials are the responsibility of the contractor.

- All filler material must be provided by the contractor.
- All manual tools are the responsibility of the contractor.
- All root protection material, technical gases, filler material, welding aggregates and equipment, PWHT machines and equipment are the responsibility of the contractor.
- All workers' protective equipment (working shoes, clothes, welding mask, gloves, dust and noise protectors, protective equipment for work at height, etc.) are the responsibility of the contractor.
- Containers for workers and working equipment are the responsibility of the contractor.
- Food and beverage for workers are the responsibility of the contractor. The company canteen at TEŠ is available for serving meals. If the contractor wishes to use the canteen services, they must conclude an agreement with the canteen manager (GORENJE GOSTINSTVO).

2.2.5 Preparatory and finishing works

Scaffolding:

- Supply of scaffolding (platforms), assembly and disassembly works are the responsibility of the contractor.
- The contractor must carry out all modification by itself.
- The contractor must make a complete barrier at a level of +82m (prevention of falling tools and materials on the lower sites).

Cleaning

- All cleaning works must be carried out by the contractor.
- The contractor must carry out the final site cleaning after completion of all works.
- The Employer will determine the location for disposing of the dismantled equipment.
- Waste containers will be provided by the Employer. The Employer is responsible for waste disposal.

Equipment transport

- The new equipment will be stored at the location of TEŠ power plant. The contractor itself must ensure all necessary transport from the storage area to the installation location as well lifting of equipment.

2.2.6 Drawings

The following drawings (sketch) are attached:

- RH – tube coils assembly.....ID number: 1.48315/00 242-0111

2.2.7 Site visiting

Site visiting is mandatory for all tenderers. The Employer will publish information about available date and time on the public portal.

Very important:

Providers who not participating in the site visit will be immediately excluded from further consideration of technical suitability!

2.2.8 Schedule

All new equipment will be available on the site (TEŠ store) by the end of January 2024. Unit 6 will be shut down at the end of April 2024. The overhaul must be finished by the end of June 2024. The Customer (TEŠ) will give the exact date of unit shutdown subsequently.

2.2.9 Documentation preparation

In attachments to the offer, the tenderer shall provide the following evidence:

- Certification according to EN ISO 3834-2 or-3
- List of WPQR`s which will be used in this project
- List of welders with scope of certificates
- List of equipment (lifting, welding, PWHT, machining, etc.) which will be used in this project
- Time schedule for site activities
- Dismantling and installation procedure
- List of sub-contractors with scope of works and its certificates (if appropriate)
- Reference list of similar projects in the past 5 years (min. 1 one on replacement or new installation of boiler heating surface tubes or headers - material: 7CrMoVTiB10-10, X10CrAlSi7

During the execution of works, the tenderer shall prepare and organize the quality documentation in accordance with EN 12952 requirements which must be presented to the contractor during site inspections and handed over after work completion.

2.2.10 Required standards

All works must be executed in accordance with PED, EN 12952 standard series and VGB-S-013.

2.2.11 Technical conditions for selecting the appropriate tenderer

Based on required documents the fulfilment of requirements of EN 12952 and VGB-S-013 will be checked.

Fulfilment of requirements for similar projects will be checked based on the reference list.

The tender must include:

- a preliminary time schedule that will cover all planned activities
- logistic plan
- WPQR for all used base materials and their combinations
- WPS for all base materials and their combinations
- List of welding and PWHT aggregate and their calibration certificates
- Reference list (min. one reference in the last 5 years on replacement or new installation of boiler heating surface tubes or headers – material: 7CrMoVTiB10-10, X10CrAlSi7