

Owner: Public Company ORLEN Lietuva
Project: Revamp of Critical Equipment at OS-2
Location: MAŽEIKIAI, LITHUANIA

REQUISITION

No. OL26-01

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Air cooler AO-506 tube bundle

Unit: OS-2 KT-1/1 S-500 FCC Gasoline Hydrotreatment (PRIME-G+)		Goods: OS-2 KT-1/1 S-500 PRIME-G+ Air cooler AO-506 tube bundle	
Order No.:	Labor and/or materials:		
Edition:	00		
Date:	17/07/2026		
Description:	For Inquiry		
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**OS-2 KT-1/1 S-500 PRIME-G+
Air cooler AO-506 tube bundle**

REQUISITION

No.OL26-01

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I. SCOPE OF SUPPLY

- A.** Fabricate new tube bundle of air cooler based on provided documentation and information in requisition No.OL26-01 of an air cooler AO-506.

The newly fabricated tube bundle inlet and outlet nozzle, counter flanges connection diameters and technological process parameters must correspond to the design data provided in the documentation.

Before the beginning of the fabrication the manufacturer shall coordinate the detailed drawings and drawings of installation, strength calculations, quality control plan, welding procedures (WPS, WPQR) and PWHT technology of the new tube bundle of air cooler with the Owner. The following shall be presented: declaration of conformity of air cooler tube bundle, certificates of origin and test certificates for the materials used for fabrication, detailed drawings and drawings of installation, inspection, testing and manufacturing documentation (heat treatment documentation, NDT reports), quality control plan, strength calculations documentations and also documents as per requirements below.

- B.** Items to be supplied:

OS-2 KT-1/1 S-500 PRIME-G+ Air cooler AO-506 tube bundle:

Equipment No.	Required quantity	Description
AO-506	Tube bundle – 1 pcs.	OS-2 KT-1/1 S-500 PRIME-G+ Air cooler AO-506 tube bundle
Technical Data of Air Cooler		
Fluid Allocation		Tube side
Operating temperature (inlet/outlet)	°C	192/90
Operating pressure	bar	12,42
Design temperature	°C	250
Minimum design metal temperature	°C	-28
Design Pressure	bar	13,5
Number of tubes rows		3
Number of passes		6
MATERIAL SPECIFICATION		
Main parts	Materials, Standards	Additional requirements
Chambers	ASTM A-516 Gr. 60N	Normalized. C ≤ 0,23% wt., P≤0,01% wt., S≤0,002% wt., CE ≤ 0,43%.
Tubesheet	ASTM A-516 Gr. 60N	Normalized. C ≤ 0,23% wt., P≤0,01% wt., S≤0,002% wt., CE ≤ 0,43%.
Extruded finned tubes	ASTM A-179 + Al fins	Seamless. P ≤ 0,035%; S ≤0,015%.
Nozzles (pipes)	ASTM A-333 Gr.6	Normalized. C ≤ 0,23% wt., P≤0,025% wt., S≤0,02% wt., CE ≤ 0,43%.
Inlet nozzle flanges	ASTM A-105N	Normalized. C ≤ 0,23% wt., P≤0,025% wt., S≤0,02% wt., CE ≤ 0,43%.
Outlet nozzle flanges	ASTM A-105N	Normalized. C ≤ 0,23% wt., P≤0,025% wt., S≤0,02% wt., CE ≤ 0,43%.
NOTE: During competition the similar materials are available shall provide to OL for approval		

Specifications and/or standards referred to in the attached documentation but not expressly indicated herein shall not apply.

- C.** The tube bundle of air cooler will be installed at AB ORLEN Lietuva refinery, Mažeikių g. 75, Juodeikių k., 89467, Mažeikių r. sav., Lithuania.

II. TECHNICAL DOCUMENTATION

- A. New tube bundle of air cooler must be fabricated in accordance provided documentation. New tube bundle of air cooler shall be fabricated based on the new designed drawings approved by the Owner.

Item No.	Rev.	Number of pages	Technical documentation (drawings, data sheets, attachments)
1	00	2	Data sheet of air cooler tube bundle AO-506
2	00	1	AO-506 name plate
3	00	1	Tube bundle drawing No. 12713-01-1

- B. OL Specifications:

<u>Number</u>	<u>Name / Description</u>
OL-TR-GR-000	General. General
OL-TR-MR-000	Mechanical. General
OL-TR-MR-001	Mechanical. General Welding, Fabrication and Inspection
OL-TR-MVR-001	Mechanical. Pressure Vessels
OL-TR-MER-001	Mechanical. Air Cooled Heat Exchangers
OL-TR-MR-002	Mechanical. Positive Material Identification
OL-TR-MR-RP2	Positive Material Identification (PMI) Report Tech. Spec.
OL-TR-CR-011	Civil. Corrosion Protection and Lining. Painting

- C. Documentation format

Supplier shall fill in the data of the installations based on *OL-TR-MVR-001* ANNEX D example and deliver to OL together with the fabricated item.

III. CODES, REGULATIONS AND NORMS

- A. The dimensions (length and width) of the newly fabricated air cooler tube bundle, the layout of nozzles and connecting dimensions must be in accordance with attached documentation (See point II A.).
- B. The air cooler tube bundle designing (calculations, drawings) and fabrication according to: API 661 or ASME VIII div.1 (latest edition) and according to OL specifications.
- C. PED 2014/68/EU requirements are applicable.
- D. Required CE marking.

IV. SPECIFIC REQUIREMENTS

- A. Materials supplied from countries other than USA, Japan, Canada, European Union and Ukraine shall not be acceptable.
- B. Design and install the removable plate between tube sheet and untreated side of the tubes (up to fin of the tubes), to avoid an air bypass.
- C. During competition supplier may suggest alternative materials based on performed calculations which shall require OL approval.

- D.** Designing an extruded finned tubes the manufacturer shall be using provided information.
- E.** Connection of tubes and tubesheet – expansion, expansion through the whole thickness of tubesheet. Tubesheet holes shall contain 1 groove.
- F.** Hardness of chambers metals no more than 200HB. Welding seam and thermal impact zones shall be no more than 220HB.
- G.** All pressurized details are subject to 100% ultrasonic integrity test for discontinuity flaws.
- H.** Welding joints of pressurized elements are subject to NDT: BW – 100% ultrasonic testing (UT) or 100% radiographic testing (RT); FW – 100% penetration test (PT) or 100% magnetic test (MT).
- I.** Welding joints of pressurized elements are subject to full penetration welding, complete fusion. Welding joints quality assessment level shall be no less than B level according to the EN 5817 standard.
- J.** After fabrication chambers shall undergo post weld heat treatment (PWHT). After PWHT any welding works are prohibited.
- K.** Detailed drawings and drawing of installation, strength calculations, welding procedure specification (WPS, WPQR), quality control plan and welding procedure qualification records, PWHT technology and diagrams shall be submitted to OL for approval prior to fabrication.
- L.** The Supplier shall present the air cooler identification plate (label) as per the manufacturing standards.
- M.** Supplier shall submit a Quality Control Plan to OL for approval prior to fabrication. The Plan shall include a hydraulic test to be attended by OL inspector. Supplier shall inform the Owner 2 weeks in advance of hydraulic test, and provide the conditions for the participation of the Owner's representative.
- N.** Maximum allowable tension during hydraulic test shall not exceed 90% of material yield strength. Components not conforming to these requirements shall be recalculated.
- O.** During transportation, the item shall be properly protected against corrosion in accordance with OL specifications *OL-TR-MVR-001*.

V. PAINING

The external surface of the air cooler tube bundle shall be painted in light grey. Item surface shall be cleaned and painted in accordance with the paint specification and OL specification *OL-TR-CR-011* requirements

VI. DRAWINGS AND DOCUMENTATION

- A.** Supplier is required to submit all documents and drawings, which listed in this Item. Supplier shall submit 3 packages of documentation: original with signatures, documentation copies and electronical versions of documentation:

- 1) Air cooler passport (see on *OL-TR-MVR-001* ANNEX D for the form);
- 2) Declaration of Conformity with CE marking;
- 3) Design installation and detailed drawings;
- 4) Strength calculations;
- 5) Materials specifications and certificates according to EN10204 3.1;
- 6) Welding documents (WPS, WPQR, welders certificates, NDT test protocols, PWHT technology and diagrams);
- 7) Quality Control Plan (QCP);
- 8) Hydraulic test report;
- 9) Painting quality certificate.

VII. INSPECTION REQUIREMENTS

Supplier shall arrange for a third party assessment, inspection and approval, where such are required, and cover all the related expenses.

VIII. RESPONSIBILITY AND WARRANTY OF SUPPLIER

- A.** The supplier is responsible for the mechanical design of the equipment and compliance with technological parameters, including, but not limited to, thickness and structure of pressurized components, design of internals, welding procedures, PWHT and inspection procedure.
- B.** Thickness values indicated on the drawings are minimal. Supplier shall increase them if required under mechanical design without any additional cost when alternative materials are to be used under agreement with the Owner.
- C.** In case of any discrepancies among the documents listed herein, they shall be applied in the following order of priority:
1. OL requirements, Regulations, Standards.
- D.** Compliance with standards and specifications does not exempt the Supplier from the responsibility to deliver equipment and accessories which shall be duly designed and suitable for continuous operation without failures.
- E.** Supplier shall guarantee the mechanical design and the delivery of the item as per the Purchase Order requirements.