Предмет *Subject*	**ПРОЕКТИРАНЕ, ИЗРАБОТКА И ДОСТАВКА НА ЗАГЛУШИТЕЛ ЗА ПРЕДПАЗЕН КЛАПАН** **DESIGN, MANUFACTURING AND DELIVERY OF SILENCER FOR RELIEF VALVE**
REV	Описание на ревизиите / *Description of Revisions*
0	За поръчка / *For order*

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1. SUBJECT

This technical specification provides the minimum requirements for the design, manufacturing and delivery of a silencer for live steam relief valve.

2. DEFINITIONS

CLIENT, OWNER, EMPLOYER – "ContourGlobal Maritsa East 3" and its representatives
CONTRACTOR, SUPPLIER – the company awarded with the contract/order subject to this procedure and who shall be responsible for the end result
SUB-CONTRACTOR, SUB-SUPPLIER – a company which supplies/produces equipment, components, materials and/or provides services for the CONTRACTOR for the purposes of.
AGL – above ground level
NTP – notice to proceed
PO – purchase order

3. GENERAL CHARACTERISTICS OF THE POWER PLANT

3.1 Description of the power plant

Maritsa East 3 TPP is located some 60 km southeast of Stara Zagora, 10 km south east of Galabovo and 2 km north of Mednikarovo village, Stara Zagora District, in close proximity to Troyanovo 3 open-cast mine. The Power Plant has a generating capacity of 908 MW (gross), with 4x227 MW Units burning local lignite coal.

3.2 Environmental characteristics

Annual average atmospheric pressure:	1004.5 hPa
Maximum outdoor air temperature:	45˚C
Minimum outdoor air temperature:	-28.5˚C
Annual average maximum temperature:	18.4 °C
Annual average minimum temperature	6.6 °C
Annual average air humidity:	73 %
Maximum relative air humidity:	100 %
Minimum relative air humidity:	14 %

4. TECHNICAL CHARACTERISTICS OF THE VENT SYSTEM.

Maximum flow rate	Kg/s	100
Medium	--	Steam
Operating pressure at valve inlet	Bar(g)	140
Maximum pressure at valve inlet	bar(g)	152
Operating temperature at valve inlet	°C	545
Maximum temperature at valve inlet		560
Operating pressure at valve outlet	Bar(g)	6
Maximum pressure at valve outlet	Bar(g)	8
Unsilenced Internal Sound Power Level of the valve	dB	161
Vent direction	--	Atmosphere
Valve in/out nominal diameter (DN)	mm	200/600
Exhaust pipe nominal diameter (DN)	mm	600
Elevation of exhaust pipe outlet AGL	m	30.00

5. SILENCERS TECHNICAL REQUIREMENTS

- Silencer type – diffuser silencer, vertically mounted
- For safety reasons the total weight of the silencer should be less than 2 300 kg
- The silencer have to reduce the sound pressure level to 65 dB(A) measured at 100 m from the exhaust in horizontal direction at the ground level and 45 dB(A) measured at 1500 m from the exhaust in horizontal direction at the ground level. These requirements are set in our IPCC and must be strictly met. There are no obstacles between the exhaust pipe and the measurement points;
- The silencer should be designed considering the maximum flow, temperature and pressure of steam.
- The silencer have to be designed and manufactured according to EU standards and best practices;
- The silencer have to be manufactured in a way that ensures safe installation and safe usage;
- The silencer will be installed outdoor therefore a proper protection against weather should be provided;
- The silencer have to be able to withstand continuous operation without malfunctions. A material with sufficient thickness and proper chemical composition have to be used for manufacturing;
- The silencer will be installed directly on the exhaust pipe which will be designed accordingly. The Contractor have to calculate the reaction forces of the silencer considering the worst possible operating conditions and deliver these calculations 3 weeks after placing of the purchase order. These calculations will serve as input data for exhaust pipe support structure design. The design of the support structure is not subject to this technical specification and the Contractor have no obligation to design such construction;
- If thermal insulation is required on the silencer body the Contractor should specify the thickness and type of insulation. Insulation delivery is not included in the Contractor's scope.

6. CODES AND STANDARDS

The following codes and standards should be followed during the design and manufacturing of the silencer:

- Quality Assurance according ISO 9001:2015
- PED 2014/68/EU - Pressure Equipment Directive for stationary pressure equipment
- EN 13480 – Metallic Industrial Piping design
- Surface treatment/blasting material according to EN ISO 12944-4, SA2 ½
- Welding procedure for pressure loaded and non-pressure loaded parts according to EN ISO 15614 / EN 15610
- Welder's qualification for pressure loaded and non-pressure loaded parts according to EN ISO 9606-1
- Scope of testing, test procedure and inspection criteria for NDE pressure loaded welding joints according to EN 13480 Part 5

7. DELIVERY TIME

The delivery time is not more than 16 weeks after written purchase order and release of production drawings.

8. DELIVERY PLACE

Delivery place is at the Contractor or Sub-contractor workshop or storage (Ex works)

9. PACKING

The manufacturer packs and labels the goods according to the requirements and rules for safe transportation and storage taking into account their physical and chemical nature.

The label must provide comprehensive information about the content of the package and its nature in order to ensure the health and safety of those who handle and store the package and to protect the Clients interests.

10. DOCUMENT LIST

The following documents must be produced and delivered by the Supplier:

Documents	Purpose [I] – For information [R] – For review	Submission time to Employer, weeks after PO placement	Remarks
Production drawings incl. materials specification	R	1	Employer together with supplier should agree on the final production drawings within one week.
Technical data sheet	I	1	
Maximum reaction forces of the silencer	I	3	The worst possible conditions should be considered for this calculation
Hand -over protocol	I	12	This protocol should be submitted one week prior to delivery to allow for comments from Employer.
Declaration of origin	I	13	Upon equipment delivery
Instruction manual for installation and O&M	I	13	Upon equipment delivery
QA certificates, material certificates, declaration of conformity	I	13	Upon equipment delivery
Insulation specification	I	13	Upon equipment delivery and If applicable
CE-marking according to PED 2014/68/EU Annex II, Diagram 7, Category III, Module B+F	I	13	