TECHNICAL REQUIREMENTS

Supply of safety heads (holders) and rupture discs manufactured by BS&B Safety Systems

1. Supply description

Supply of spare parts and consumables manufactured by BS&B Safety Systems

1.1. Description of the equipment or materials for manufacture and supply

1.1.1 The need to supply safety heads (holders) and rupture discs for 5YP20B01 Relief Tank (bubbler) is pressing due to the increased number of defects and the installation of rupture disks with high resistance to frequent deformation.

1.1.2 The precise nomenclature, quantity and technical characteristics of the holders and the rupture disks to be supplied are given in the table in Attachment No.1 of this Technical Specification.

The quantities needed and the technical specifications can be found in Table 1:

Table 1

No.	ID	Designation	Technical description	Total quantity - pcs
1.	142576	Rupture (bursting) disc	Rupture disc XN DN350 for bubblers type 03.8118.014; Nickel (NI200); Pburst = 8 (±5%) bar/40°C	6
2.	142577	Safety Head (Holder)	Safety head (Holder) NX-7R DN350 for rupture disc top XN DN350 for flange joints of bubblers type 03.8118.014	2

1.2. Non-standard/tailor-made components, spare parts and tools related to the procurement

N/A

1.3. Requirements to the Contractor

The Contractor shall be a manufacturer or an authorised manufacturer representative.

1.4. Delivery deadline

The goods shall be delivered not later than 90 calendar days from the date of contract signing.

2. Main characteristics of the equipment and materials

2.1. Equipment classification

The safety heads (holders) and rupture discs shall be installed on 5YP20B01 Relief Tank, which is classified as follows:

Safety class – 3 - H, according to General Provisions for the Safety of Nuclear Power Plants (НП-001-15);

Seismic category - 1 according to Design Norms of Seismic-Resistant Nuclear Power Plants, НП-031-01, 2002.

2.2. Physical and dimensional characteristics

The spare parts and consumables to be supplied shall comply with the manufacturer’s regulatory and technical documentation.

2.3. Material characteristics

The materials used in the fabrication of the spare parts and consumables to be supplied, shall comply with the manufacturer's regulatory and technical documentation, as well as the currently effective European regulations and standards.

2.4. Chemical, mechanical, metallurgical and/or other properties

These shall be in compliance with the manufacturer's regulatory and technical documentation as well as the currently effective European regulations and standards.

2.5. Conditions for operation in ionizing radiation environment

When in normal operation mode, the safety heads (holders) and rupture discs shall operate under the following ambient conditions:

- Temperature - from 15 °C to 60 °C;
- Pressure - from 0.085 to 0.103 MPa;
- Humidity - up to 90 %;
- Absorbed dose rate - up to 1 Gy/h;
- Volumetric activity - up to 7.4×10^7 Bq/m.

The room where the relief tank is located, is qualified for emergency modes operation under the following LOCA conditions:

- Maximum design temperature - ≤ 150 ºC;
- Maximum design pressure (absolute) - ≤ 5.0 kgf/cm²;
- Humidity, relative maximum design - steam-gas mixture;
- Volumetric activity, maximum design - ≤ 9.25×10^{13} Bq/m^3;
- Absorbed dose rate, maximum design - ≤ 10^3 Gy/h;
- Operating mode duration - ≤ 10 h;
- Post-accident temperature - 20 ÷ 60 ºC;
- Post-accident pressure - 0.51 ÷ 1.22 kgf/cm^2;
- Post-accident parameters duration - ≤ 30 days.

2.6. Regulatory and technical documentation

The spare parts and consumables to be supplied shall be manufactured in compliance with the manufacturer's standards and regulatory and technical documentation, as well as the currently effective European codes and standards.

2.7. Shelf life and service life requirements

The shelf life of the rupture discs shall be no less than 48 months from the date of delivery.

3. Packaging, transportation, interim storage

3.1. Delivery and packaging requirements

Rupture disks shall be delivered to the site of Kozloduy NPP EAD, Kozloduy.

The rupture discs packaging shall not allow damage during transportation, unloading and storage.

The marking of each package shall include the following:

- rupture disc type, size and drawing number;

- manufacturer;
- shelf life or the latest installation date.

The equipment shall allow transportation by any means of transport and to unlimited distance.

3.2. Storage conditions

The storage conditions for the entire shelf life until installation, as well as the period and requirements for re-application of surface protection for storage shall be specified in the supporting documentation accompanying the goods, on the packaging, or another suitable place.

The date of surface protection application and packaging, the validity period of the surface protection, and the storage life in the original factory packaging shall be indicated in the supporting documentation accompanying the goods, on the packaging, or another suitable place.

4. Receiving inspection

The rupture discs shall be subject to general receiving inspection on the territory of Kozloduy NPP EAD, pursuant to Quality Procedure for Conducting Receiving Inspection of the Supplied Raw Materials, Materials, and Additional Assembly Items at Kozloduy NPP, ID No.10.УД.00.ИК.112/*.

The supporting documents that shall accompany the rupture discs shall be as follows:
- Certificate of origin;
- Certificate/Declaration of conformity issued by the manufacturer;
- Drawings and technical conditions;
- Storage requirements;
- A document verifying the manufacturing date and shelf life of each product.

The documents accompanying the delivery shall be submitted in one hard copy in the original language and one copy of a translation into Bulgarian, as well as in electronic form via scanning.