Grupa LOTOS S.A.	**TECHNICAL SPECIFICATION**	Spec. No. 8400
	Safety valves and safety heads subject to Notified Body/UDT approval	

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1 Subject of specification

This specification used in conjunction with other technical specifications of LOTOS Group S.A. establishes the minimum requirements that shall be met by safety valves and safety heads that protect equipment subject to inspection by UDT.

2 Scope of validity

This specification applies to the preparation of tender documents, inquiries and contracts concerning new investments and modernisation projects planned by LOTOS Group S.A.

It shall also be a basis for preparing both detailed specifications and inquiries for individual or package supplies.

2.1 Deviations

Any deviation from this specification and the relevant specifications, standards and related documents including proposals, which the bidder claims to be economically and / or technically superior solutions, must be submitted in writing for review and approval by Grupa LOTOS SA. Non-approved exceptions are not acceptable by Grupa Lotos S.A.

The supplier must report in writing any ambiguity in this or any other specifications of Grupa LOTOS SA or non-compliance with the referred documents / standards and obtain a written explanation from Grupa Lotos SA.

3 Hierarchy of documents

In case of conflicts existing between this specification and other documents, the following order of precedence shall govern:

- The current Polish legislation
- Terms of purchase order / contract and other requirements agreed in writing with GLSA
- Data Sheets approved by GLSA
- This specification
- Other Specifications
- Drawings and other documents
- Standards

4 Definitions

GLSA – Grupa Lotos S. A.

Safety valve – a valve that prevents excessive pressure build-up by opening automatically and which closes automatically when the pressure drops.

Safety head – a device protecting against excessive pressure build-up, whose functioning consists in evacuating the working medium through a free cross-section created when a replaceable pressure element is destroyed.

5 Conditions for use

Only safety valves and heads which have been examined for compliance with the basic requirements of Directive 97/23/EC (PED) and which have CE marking may be used.

6 Requirements for safety valves and safety heads

Only safety valves and safety heads which have certificates issued by a manufacturer that has implemented an ISO 9000 quality system shall be admitted for work in LOTOS Group installations.

6.1 General requirements

Safety valves and safety heads must meet the requirements of the technical conditions stipulated in specification WUDT-UC/WO-A/01or meet the requirements of ASME standard "Pressure Vessels", part VIII and the requirements of the API standards specified in point 8 of std 8400.

Safety devices shall be installed in accessible and sufficiently illuminated places.

The design of safety devices shall ensure effective protection against an unintentional change of the setting of the equipment and its control elements.

The designer or manufacturer of a safety valve shall specify the frequency of inspections of the valve setting on a test bench, considering the placement of the valve in the installation, the type of the medium and its corrosive power as well as other factors affecting the reliability of the valve operation.

The designer shall provide for a possibility of dismantling the valve during the work of the installation.

Safety valves may be ordered only from manufacturers that are on LOTOS Group's suppliers list.

6.2 Technical documents

The technical documentation of the safety devices to which this specification applies shall comply with WUDT-UC-WO-D or shall comply with the relevant ASME and API standards specified in point 8 of std 8400.

The designer has to provide the list of protecting devices in compliance with the enclosure No. 1 and to deliver it to the Lotos Inspection Department and to deliver the second copy of the list to the Lotos Serwis together with valves for the purpose of the examinations about which is in the point 6.3.2.

Contractor is to deliver the set of the technical documentation according to point 6.2.1 or 6.2.2 for all protecting devices, mentioned in the list. - before the finish of the plant construction.

6.2.1 Scope of documentation for safety valves

Documentation supplied by the valve manufacturer shall contain the following:

- the declaration of the valve conformity with the basic requirements of Directive 97/23/EC (PED)
- the valve calculation sheet

- a cross-sectional drawing of the valve with a specification of the parts stating their materials and code numbers (for ordering spare parts)
- material certificates (chemical analysis and strength properties) of the casing, flanges and spring: material Inspection Certificate 3.1B as per PN-EN 10204
- a certificate stating the value of the coefficient of discharge issued by an inspection body authorised in the manufacturer's country
- a certificate from the tests of the valve according to API 527 for Polish and imported valves
- the valve operating manual in Polish language according to WUDT-UC-WO-A/01 point 6.4.2. or according to the ASME and API codes. If the operating manual is edited in English language then it shall be also delivered.

6.2.2 Scope of documentation for safety heads

For every safety head the manufacturer shall enclose documentation including:

- CE declaration of conformity
- an operating manual according to WUDT-UC-WO-A/01 for Polish-made safety heads, or according to ASME and API standards for imported safety heads (point 8 of std 8400).

6.3 Inspection

6.3.1 Inspection and testing to be done by manufacturer

Safety valves and heads are subject to the following inspection and testing:

- EC type testing – to define its full characteristics, if conformity assessment modules G or H1 according to Directive 97/23/EC (PED) are not used
- during manufacturing – inspection and tests carried out by the manufacturer's quality department, in order to verify the manufactured equipment conformity with the type and the technical documentation, including marking
- as part of inspection of the manufacturer's approved quality system

The scope of type testing covers the following:

- verification of the technical documentation including assessment of the stresses and safety of the structure
- assessment of materials used
- approval of manufacturing process procedures
- verification of the personnel performing welded joints and non-destructive tests
- verification of the construction conformity with the verified documentation
- carrying out of the pressure test of the housing
- definition of performance and flow characteristics.

6.3.2 Inspection and testing to be done by Lotos Serwis
All new PSV's are the subject of checking after dismounting from the plant. First, all the PSV's have to be installed and connected with pipes or equipment.

Scope of activity:

- pressure test (checking of opening pressure and leak tightness)
- establish the PSV card and the registration number
- sealing the PSV after test by Lotos Serwis Quality Control Department.

6.4 Marking

6.4.1 Marking of safety valves

A safety valve shall have a permanently attached data plate containing, as a minimum, the following data:

- the manufacturer's trademark
- type number
- the smallest diameter of the flow channel in mm
- the symbol of the working medium
- the allowable coefficient of discharge
- setting pressure in bar(g)
- cold differential test pressure CDTP in bar(g)
- serial number / year of manufacture
- CE marking
- the valve process number according to P&ID.

6.4.2 Marking of safety heads

Safety head components shall have at least the following marking:

- safety head housing:

- the manufacturer's name and trademark
- the head type
- rated pressure
- nominal diameter
- the direction of flow of the working medium
- process number according to P&ID
- CE marking

- pressure element

- the manufacturer's name and trademark
- the element type

- serial number or batch number
- year of manufacture
- the number of the type test of the respective head
- type of material
- the design area of the head inlet channel
- the highest and the lowest bursting pressure at ambient temperature and/or at working temperature or the rated bursting pressure and the dispersion of bursting pressures
- the direction of flow of the working medium

If the element dimensions do not allow placement of the above listed marking on the element, the marking shall be placed on the packaging. The packaging shall be factory sealed until the moment of installation of the elements.

Marking of a pressure element and of a safety head casing shall be made to be visible after installation. This requirement does not apply to small pressure elements. For pressure elements used without a special casing, the direction of flow must be indicated on the element.

7 The design of safety valves and heads

7.1 Safety valve design

7.1.1 Safety valves shall be designed, fabricated and tested in compliance with API 526, API 527 and ASME Code Section VIII or WUDT-UC/WO-A/01

7.1.2 Calculations of valve relief capacity and setpoint pressure shall comply with ASME Code Section VIII and API 520, API 521 or WUDT-UC/WO-A/01.

7.1.3 Only flanged valves shall be used.

7.1.4 All valves shall be fitted with release levers (if can be applied) and test gags.

7.1.5 Valves shall have replaceable heads, seats and bellows.

7.1.6 Valves operating with variable back pressure at outlet or with a back pressure exceeding 10% of the setting pressure shall be fitted with an compensating bellows.

7.2 Safety head design

7.2.1 Safety heads shall be designed, fabricated and tested in compliance with the requirements of technical specification WUDT-UC-WO-A/01or with the ASME and API standards specified in point 8 of std 8400.

7.2.2 Calculations of safety head relief capacity shall comply with ASME Code Section VIII and API 520 or WUDT-UC/WO-A/01.

8 Codes and standards

It is in each case understood that quoted standards, regulations, directives and orders are of their latest editions, along with amendments, annexes and supplements in force.

- Pressure Equipment Directive 97/23/EC
- ASME – Boiler and Pressure Vessel Code: Section VIII - Pressure Vessels, Division 1 and 2
- API 520 – Sizing, Selection, and Installation of Pressure - Relieving Devices in Refineries
- API 521 – Guide for Pressure-Relieving and Depressuring Systems
- API 526 – Flanged Steel Pressure Relief Valves
- API 527 – Seat Tightness of Pressure Relief Valves
- WUDT-UC/WO-A/01 – Conditions of the Office of Technical Inspection – Pressure Equipment, General Requirements, Accessories: Devices protecting against excessive pressure build-up.
- WUDT-UC/WO-D – Conditions of the Office of Technical Inspection – Pressure Equipment, General Requirements, Documentation.

9 Attachments

Attachment no 1 - Relief safety valves list for plant

10 Record of changes

No.	Date	Description	Introduced by
1		This specification entirely replaces the former LOTOS Group S.A. standard No. PR 07 840 with the same title.	B. Kowaleski
2	28-04-2011	This specification entirely replaces the former Grupa Lotos S.A. Specification No. 8400	W. Zaborowski
3	30-11-2013 (rev. 2)	Review, update, standardize and changes to the Standard within scope of order No. OK/990/2012	Editorial board coordinated by T.Wróbel
-	31-08-2015	Page layout corrections, no contents changes.	T. Wróbel