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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 in relation to the use and application of the below presented model documents by the design office which prepares technical documentation for LOTOS Group.

2 Scope of validity

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

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

2.1 Deviations

Any deviations from this specification and relevant specifications, standards and documents, including the bidder's proposals indicating a more economic design or solution, shall be submitted in writing for checking and approval by LOTOS Group S.A. No deviation or modification shall be permitted unless confirmed in writing by LOTOS Group S.A.

The bidder shall present in written form any ambiguity in this standard or any other LOTOS Group S.A standards as well as conflict with referenced documents/standards, and shall receive LOTOS Group's written explanation.

3 Description

The model documents enclosed to this standard shall be used when preparing technical documentation.

After the first copy of an isometric drawing of a pipeline, a material card, a specification of pipelines is made by the design office it shall be in each time submitted to the Plant Technical Supervision of LOTOS Group to obtain its opinion.

3.1 The piping discipline

Model documents for the piping discipline:

- Specification of pipelines
  - makes it possible to make a tabular specification of pipelines and their basic technical parameters.
- Isometric drawing of a pipeline
  - the documentation shall include isometric drawings of each of the designed pipelines.
- Material card
  - makes it possible to specify all elements necessary to install the given pipeline.
- Specification of pipeline supports
  - is a tabular specification of the type and quantity of attachments for the given pipeline.
- Material take off for pipes

- makes it possible to make a tabular specification of the range of pipes necessary to execute the project.

- Material take off for piping fittings
  - makes it possible to make a tabular specification of all pipe fittings necessary to execute the project.
- Material take off for valves
  - makes it possible to make a tabular specification of all fittings included in the project.
- Material take off for flanges
  - makes it possible to make a tabular specification of the range of flanges necessary to execute the project.
- Material take off for gaskets
  - makes it possible to make a tabular specification of the range of gaskets.
- Material take off for bolts, nuts and washers
  - makes it possible to make a tabular specification of the type and quantity of bolts with nuts and washers necessary to execute the project.
- Material take off for supports
  - is a tabular specification of the type and quantity of attachments with the specification of their characteristic quantities.
- Material take off for special piping elements
  - makes it possible to make a tabular specification of all special pipeline parts in the designed installation.

3.2 The instrumentation discipline

For small designs, documents entitled Specification of Instrumentation Measuring Points, Wiring of Junction Boxes and Secondary Electric Connections as per the enclosed model documents must be delivered to LOTOS Group. Appendices Nos. 13, 14, 15, 16, 17.

For large project designs prepared by Design Offices using specialist systems (software) for comprehensive designing, the structure and content of individual design documents resulting from the use of such software shall be accepted.

However, in each case the relevant agreements must be made with LG at the contracting stage.

Model documents for the instrumentation discipline:

- Specification of instrumentation circuits – Analyses.
- Diagrams of electronic circuits.
- Wiring of junction boxes.
- Image from the visualisation screen.
- Inside view of a control cubicle.

3.3 The electrical discipline

Model documents of the electrical discipline:

- Power balance.
- Data tables of electric consumers.
- Cable list.

4 Relevant documents

The following LOTOS Group S.A. specifications:

- 2600 – Technical Requirements for Piping
- 6100 – General requirements for supplied documentation
- 8800 – Piping subject to UDT/ZDT approval

5 Enclosures

- Enclosure No. 1 – Material take off for pipes
- Enclosure No. 2 – Material take off for piping fittings
- Enclosure No. 3 – Material take off for valves
- Enclosure No. 4 – Material take off for flanges
- Enclosure No. 5 – Material take off for gaskets
- Enclosure No. 6 – Material take off for stud bolts, nuts and washers
- Enclosure No. 7 – Material take off for special piping elements
- Attachment No. 8 – Piping line list
- Attachment No. 9 – Material card
- Attachment No. 10 – Specification of pipeline supports
- Attachment No. 11 – Material take off for supports
- Attachment No. 12 – Isometric drawing of the pipeline
- Attachment No. 13 – Specification of instrumentation circuits – Analyses
- Attachment No. 14 – Electronic circuit diagrams – an exemplary drawing
- Attachment No. 15 – Wiring of junction boxes – an exemplary drawing
- Attachment No. 16 – An example from the visualisation screen
- Attachment No. 17 – Inside view of a control cubicle – an exemplary drawing
- Attachment No. 18 – Electrical Power Balance
- Attachment No. 19 – Electrical consumer list
- Attachment No. 20 – Electrical Cable List
- Attachment No. 21 – Equipment List

Note:

When using a model document replace the inscription „Enclosure/Attachment No. ...” with the documentation number.

6 Record of changes

No.	Date	Description	Introduced by
1		This specification entirely replaces the former LOTOS Group S.A. standard No. PR 07 660 with the title “UDT/ZDT requirements for piping”.	B. Kowalewski
2	12.05.2011	Changed attachements No. 8, 9 and 12.	Z. Nowakowski
3	15.01.2014	changed attachment No. 8. Added attachment No. 21.	S. Zajączkowski
-	31-08-2015	Page layout corrections, no contents changes.	T. Wróbel

LOTOS	**ENCLOSURE NO. 1**	Spec. No.
	Material Take Off for Pipes	6600

No.	Type	Nominal diameter [mm]/inch	Nominal pressure [MPa]	Standard or catalogue No.	Material	Identification	Unit mass [kg]	Quantity [m] Total mass [kg] Rev. No. 0	1	2	3

LOTOS	**ENCLOSURE NO. 2**	Spec. No.
	Material Take Off for Piping Fittings	6600

No.	Type	Nominal diameter [mm]/inch	Wall thickness [mm]	Nominal pressure [MPa]	Standard or Catalogue No.	Material	Identification	Unit mass [kg]	Quantity [m] / Total mass [kg] / Rev. No. 0	1	2	3

LOTOS	**ENCLOSURE NO. 3**	Spec. No.
	Material Take Off for Valves	6600

No.	Type	Nominal diameter [mm]/inch	Nominal pressure [MPa]	Standard or Catalogue No.	Body material	Identification	Unit mass [kg]	Quantity [m] / Total mass [kg] / Rev. No. 0	1	2	3

LOTOS	ENCLOSURE NO. 4	Spec. No.
	Material Take Off for Flanges	6600

No.	Type	Nominal diameter	Wall thickness [mm]/inch	Nominal pressure [MPa]	Standard or Catalogue No.	Material	Identification	Unit mass [kg]	Quantity [m] / Total mass [kg] / Rev. No. 0	1	2	3

LOTOS	**ENCLOSURE NO. 5**	Spec. No.
	Material Take Off for Gaskets	6600

No.	Type	Nominal diameter [mm]/inch	Nominal pressure [MPa]	Standard or Catalogue No.	Material	Identification	Unit mass [kg]	Quantity [m] / Total mass [kg] / Rev. No. 0	1	2	3

LOTOS	ENCLOSURE NO. 6 **Material Take Off for Stud Bolts, Nuts and Washers**	Spec. No. 6600

No.	Type	Standard or Catalogue No.	Material	Identification	Unit mass [kg]	Quantity [m] Total mass [kg] Rev. No.			
						0	1	2	3

LOTOS	**ENCLOSURE NO. 7** **Material Take Off for Special Piping Elements**	Spec. No. 6600

No.	Type	Nominal diameter [mm]/inch	Wall thicknes [mm]	Nominale pressure [MPa]	Standard or Catalogue No.	Material	Identification	Unit mass [kg]	Quantity [m] Total mass [kg] Rev. No. 0	1	2	3