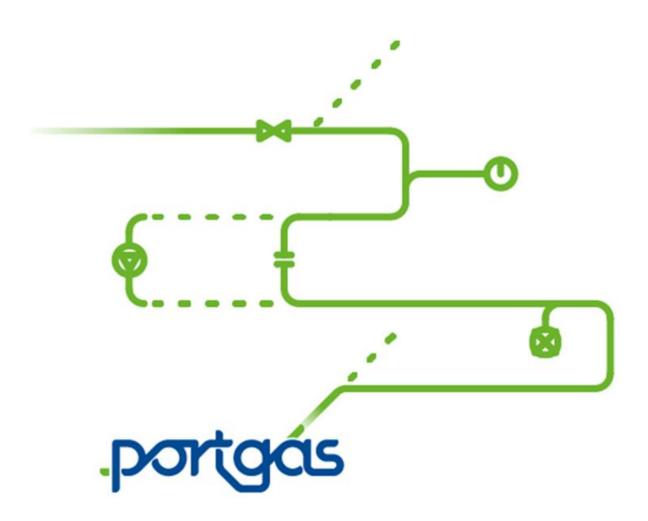
# **FINAL WORK REPORT**

ET 560

Revision No. 12 | 15 December 2022



# .portgás

## **Technical Specification**

**FINAL WORK REPORT** 

## ET 560

Revision 12

2022-12-15

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#### **Register of revisions**

Revision No.	Date	Motif
0 2004-01-28 Initial wording.		Initial wording.
1	2004-05-17	Preamble, chapters 3, 4, 5, 6, 7 and 11.
12	2022-12-15	General revision and inclusion of the obligation to provide manufacturing certificates for all materials included in the work

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#### Distribution of the document

External	Contractors ⊠ Qualified for Allotments □ Internet □ Other □
	CA □ AT ⊠ ACR ⊠
Internal	AT-ED □ AT-EX □ AT-GE □ AT-MS □
	ACR-DC □ ACR-GC □ ACR-RD □
Nominal	< name, function, position >

Caption:	
CA: Board of Directors	ACR: Clients and Networks Area
AT: Technical Area	ACR-DC: Clients and Networks Area - Commercial
AT-ED: Technical Area - Engineering and Development	Development
AT-EX: Technical Area - Exploration	ACR-GC: Clients and Networks Area - Large Consumption
AT-GE: Technical Area - Energy Management	ACR-RD: Clients and Networks Area - Networks
AT-MS: Technical Area - Maintenance and Systems	

Elaborated:	Check:	Approved:	
Carlos Correia	Ricardo Moreira	Rui Bessa	
The approval of this document formalised in this page, prevails over the totality of its contents.			



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#### **Preamble**

The twelfth revision of this technical specification results from Portgás' change in philosophy with regard to the process of archiving certificates for all materials incorporated into the construction site, namely piping and fittings, which will now be incorporated in their entirety into the final construction site report in digital format.

This revision of ET 560 cancels and replaces the previous revision dated 09 April 2020, and it is advisable to read this technical specification in full for a correct application of its provisions.

This technical specification should be given the status of a Portgás standard which establishes the rules to be followed to achieve the discriminated objective.

#### 1. Objective

The purpose of this technical specification is to define the requirements, standards and conditions to be met in the preparation, verification and approval of final reports for the construction of 2nd Stage Pipelines (primary network) and Distribution Networks (secondary network).

#### 2. Scope

This technical specification applies to the documentation referring to Portgás' primary network (works references with prefix P) and secondary network (works references with prefix S and L) works.

#### 3. References

#### 3.1 External references

<u>Portaria n.º 362/2000, de 29 de agosto</u>, com as alterações introduzidas pela <u>Portaria n.º 690/2001,</u> <u>de 10 de julho</u>

"Aprova os procedimentos relativos às inspeções e à manutenção das redes e ramais de distribuição e instalações de gás e o estatuto das entidades inspetoras das redes e ramais de distribuição e instalações de gás"

#### Portaria n.º 690/2001, de 10 de julho

"Introduz alterações às portarias: 361/98 de 26 de junho de 1998, 386/94 de 16 de junho e Portaria 362/2000"

#### Despacho nº 806-B/2022, de 19 de janeiro

"Regulamento da Rede Nacional de Distribuição de Gás"



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#### 3.2 Internal references

GLOSSARY - Definitions, acronyms and abbreviations

#### **ET 504**

Welding steel pipes

#### ET 561

Welding booklet for steel mesh

#### ET 643

Mechanical resistance and tightness tests: 2nd layer pipeline - Primary network

#### **ET 644**

Drying and inertization of steel networks. 2nd level gas pipeline - Primary network

#### ET 651

Mechanical resistance and watertightness tests. Distribution network - secondary network

Mod. 004/AT-ED - Final Construction Work Report: representative elements of the work

Mod. 019/AT-ED - STEEL NETWORKS: Welding booklet and testing of the dielectric strength of the coating.

**Entity Portal Manual** 

Note: All undated documents should be considered in their last version.

#### 4. Definitions / Acronyms

For the purposes of this procedure, the terms and definitions in the Portgás "Glossary of definitions, acronyms and abbreviations" shall apply, plus the following:

#### **Part**

Network section (of a works reference with prefix P, S or L) subject to analysis in the Final Construction Work Report (RFO).



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#### 5. Actions and responsibilities

#### 5.1. Responsibility for the preparation of the report

- a) For primary network works (works references with P prefix) and secondary network works (works references with S prefix), the use of mobile IT means is compulsory, in order to enable the preparation and validation of the RFO in the field; for secondary network works on allotments (works references with L prefix) the use of mobile IT means is optional.
- b) It is the Contractor's responsibility to prepare the RFO. This action shall commence simultaneously with the start of work.
- c) As the documents referred to in 5.2 below are presented by the Contractor to the Surveyor, and as the latter validates them, the data required in respect of these documents must be transferred to the document used as a basis for drawing up the RFO: Mod. 004/AT-ED.

#### 5.2. Documents to be validated by the Inspector

- a) All documents, whether they are part of the documentation to be included in the RFO, must be filed by the entities involved in their production and validation so as to ensure their traceability.
- b) The evidence of documents to the Inspector may be in two forms: paper-based or digital file.
- c) All documents listed below shall be presented by the Contractor on site to be submitted to the Surveyor for validation, in accordance with the provisions of paragraph 5.3 below.
  - · Licences and, where applicable, "specific Portgás accreditation" of gas technicians;
  - Licences, qualification certificates and, where applicable, "specific Portgás accreditation" of welders;
  - · Licences for gas network installers;
  - Welding procedure for steel networks, specified by the Contractor, qualified by an accredited entity and approved by Portgás;
  - Certificates of conformity for electro welded/top-to-top machines (only for polyethylene mesh);
  - Certificates for materials (pipes, fittings and valves) to be incorporated into the works, including certificates for materials supplied by Portgás;



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- Certificates of conformity of the pressure gauges/transducers used in the validation tests;
- Certificates of the PIGs used in the mechanical strength, watertightness, drying and inertization tests on steel nets:
- Certificates of conformity of the metric wheels used to measure the lengths of pipe installed in the field:
- Certificates of equipment for testing the external coating of steel nets for faults (Holiday Tester system);
- Certificates for thermometers, scales, hygrometers and equipment for measuring 02 content;
- · Certificates of torque wrenches and other equipment used;
- "Mod. 019/AT-ED, in accordance with ET 561 "Welding booklet for steel nets", where applicable;
- Reports of the tests and trials carried out, as specified and in accordance with the models approved by Portgás.
- The certificates of the materials used should be validated by the Inspector, who should stamp
  them, or sign them digitally in the case of digital documents, stamping the validation date and the
  reference of the respective work, without prejudice to later attaching them to the final or partial
  RFO.

#### 5.3 Approval rules

#### **5.3.1.** General

- a) All documents comprising the RFO must be approved by the Inspector. Such approval shall be given in accordance with the terms set out below:
  - a1) Documents submitted on paper are approved by means of the stamp of the Inspectorate, without prejudice to their attachment to the report in digital format referred to below (a2).
  - a2) Documents evidenced in digital files are approved and digitally signed by the Inspectorate, which shall incorporate them into the RFO, in accordance with the provisions of chapter 9.
- b) For secondary network works in housing developments (works references with prefix L), where mobile computer systems are not used, it is acceptable for the basic documents forming the RFO to be printed out and validated by the Inspector in the traditional manner: signature over the stamp of the entity.
- c) Tests and trials reports should be scanned from the originals, resulting in .pdf files for later integration in the final RFO file to be sent to Portgás.



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#### 5.3.2. Licences and certificates of the Contractor's technicians

- a) The first time they start work, welders, installers and gas technicians must present themselves to the Inspector, showing the licenses and qualification certificates required for the performance of their activity.
- b) Notwithstanding what is stated in paragraph a), in the construction of secondary networks (works references with prefix S), the Contractor's welders and gas technicians must, whenever requested, show the Inspector the credential issued by Portgás.
- c) The Inspector must check the validity of the documents mentioned in the previous paragraphs. If they are considered valid and consistent with the elements explained in the Mod. 004/AT-ED §5 form, he authorises the activity of the professionals on site.
- d) On primary network (works references with prefix P) and secondary network made of steel (works references with prefix S), the Contractor shall show the Inspector the welders' qualification certificates for the approved welding procedures. If they are considered suitable, he authorises their application on site and approves the documents in accordance with 5.3.1 above.

#### 5.3.3 Welding procedures

- a) In the works of primary network and secondary network built in steel, it is mandatory to specify welding procedures as established in the technical specification ET 504 "Welding of steel pipes".
- (b) The Contractor shall provide the Inspector with copies of the welding procedures for his approval.
- c) The Inspector shall verify the adequacy of the specified procedures against the requirements of ET 504. If they are considered adequate, he authorises their application on site and approves the documents in accordance with the provisions of 5.3.1 above.



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#### 5.3.4. Contractor's welding equipment certificates

- a) In the construction of secondary polyethylene networks (works references with prefixes S and L), and prior to use on site, the Contractor must provide the Inspector with certificates of conformity for welding equipment.
- b) The Inspector should check the validity of the certificates referred to in the previous paragraph: one year after their date of issue. If they are considered valid and in accordance with the elements explained in the Mod. 004/AT-ED §6 form, he authorises the use of the equipment on site.

#### 5.3.5. Certificates for individual or batch materials and accessories

- a) Prior to use on site, the Contractor must provide the Inspector with copies of material certificates (pipes, fittings and valves) or valid digital documents, with a view to their approval. This includes certificates for materials supplied by Portgás.
- b) The Inspector must verify the validity of the documents referred to in the previous sub-paragraph. If they are found to be valid and consistent with the elements explained in the Mod. 004/AT-ED §7 form, he shall proceed in one of the following ways
  - b1) In the case of primary and secondary networks built in steel, authorises the use of materials and accessories on site and approves the documents in accordance with 5.3.1 above.
  - b2) In the case of secondary network works built in polyethylene, authorises the use of materials and accessories on site.
  - b3) The inspector must stamp, or digitally sign in the case of digital documents, placing on them the validation date and the reference of the respective work, without prejudice to later attaching them to the final or partial RFO.

# 5.3.6. Certificates of the measuring equipment used in the mechanical strength, watertightness, drying and inertization tests (applicable to steel nets)

- a) Prior to carrying out mechanical strength, watertightness, drying and inertness tests, the Contractor must provide the Inspector with calibration certificates for the measuring equipment to be used.
- b) The Inspector must check the validity of the certificates referred to in the previous paragraph: one year from their date of issue. If they are considered valid and in conformity with the elements explained in the Mod. 004/AT-ED §8 form, he authorises the use of the equipment.



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# 5.3.7. Certificates of PIG used in the mechanical strength, leak-tightness, drying and inertization tests (applicable to steel mesh)

- a) Prior to carrying out mechanical strength, watertightness, drying and inertization tests on steel nets, the Contractor must provide the Inspector with the certificates of the PIGs to be used.
- b) The Inspector should check the state of repair and the suitability of the GIP for its use.

# 5.3.8. Equipment certificates: measuring wheels, equipment for testing the external coating of steel nets for faults ("*Holiday Tester*" system), torque wrenches and other equipment used

- a) Before using the above equipment, the Contractor shall provide the Inspector with calibration certificates for the equipment to be used.
- b) The Inspector must check the validity of the certificates referred to in the previous paragraph: one year from their date of issue. If they are considered valid and in conformity with the elements explained in the Mod. 004/AT-ED §8 form, he authorises the use of the equipment.

#### 5.3.9 Welded seam booklet (applicable to steel mesh)

The welding booklet, drawn up in accordance with the provisions of technical specification ET 561, will be validated by the Inspector whenever one sheet is filled in or a weld is complete.

#### 6.Constitution of the Final Report

a) The RFO to be sent to Portgás is entirely digital, consisting of two (2) distinct files with the extension .pdf, as follows:

#### RFO\_reference\_suffix.pdf

This file is the result of "page insertion", coming from separate files, in the following order:

- "Representative elements of the work" (part of Mod. 004/AT-ED);
- Approved welding procedure (only for works references with prefix P or S made of steel);
- Procedure for Filling, Cleaning and Emptying Steel Nets;
- · Procedure for Pre-drying, Drying and Inertization steel nets;



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- PIG list approved;
- Licences and certificates of qualification of steel welders (only for works references with prefix P
  or S built in steel);
- Certificates for all materials used in the work (only for references with a P or S prefix);
- Reports of the tests and trials carried out, as specified and in accordance with the models approved by Portgás;
- Welding booklet (only for references with P or S prefix);
- Term of Responsibility of the Installing Entity signed digitally;
- Digitally signed inspection certificate;

A separator (additional page with the description of the content of the chapter / group of documents) must be introduced to separate each chapter / group of documents.

#### UNIFILAR\_reference\_suffix.pdf

This file must correspond to the network single-line diagram with representation of the valves, branches, drains, RTU, PRM, PRP, PFM, insulating joints, potential outlets, "special points", if any, with the respective construction solution and routes; in the case of primary networks, the serial numbers of the abovementioned accessories and the cathodic protection measurement points must be represented.

- b) The name of the computer files will translate their content, the code of the work (Portgás reference) and the "part" of it.
  - b1) If the RFO corresponds in its entirety to the entire work, the file names will contain the suffix PF.
  - b2) When the RFO corresponds to a "part" of the work, the file names will contain the suffix P0# which will correspond to the sequential numbering of the "part" (e.g.: RFO\_SVNG2010001\_P01, UNIFILAR\_SVNG2010001\_P01; the last "part" of the work will correspond to files containing the suffix PF.
- c) In the case of secondary network works on allotments (works references with prefix L), where no mobile computer means are used, the RFO will be constituted from the scanning of printed documents which will originate the files referred to in a) above.
- d) Printed documents, when scanned, shall be in colour and with a resolution that ensures they are legible: a minimum resolution of 200 dpi is recommended.
- e) A summary table to facilitate the organisation of the files referred to in a) above is given in point 7 below.



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#### Other data to be provided via the Portal

In addition to the PDF documents referenced above, in the case of works with prefix S and P, the Contractor must also provide a set of data via the Portal. These include:

- · List of Stations running simultaneously;
- Auto network measurement;
- Other relevant information and indicated by the Portal.



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#### 7. Summary table of the contents of the files

File (*.pdf)	Content of the files	Type of Process		
		"P"	"S"	"L"
	"Representative elements of the work" (Mod. 004/AT-ED)	✓	✓	✓
	Approved welding procedure	✓	1	
	Procedure for Filling, Cleaning and Emptying Steel Nets	✓	1	
	Procedure for Pre-drying, Drying and Inertization Steel Nets	✓	1	
	List of approved PIGs	✓	1	
	Licences and certificates of qualification of steel welders	✓	1	
e_suffix	Certificates of the materials and equipment used in the work:  - Materials and accessories (pipes, tees, reducers, etc.);  - Welding equipment;  - Measuring equipment (manometers, pressure transducers, scales, hygrometers, thermometers, torque wrenches, metric wheels, Holiday Tester generators and O-measuring devices <sub>2</sub> );  - PIG	<b>√</b>	1	
RFO_reference_suffix	Reports of the tests carried out:  o Mechanical Resistance Test o Leakage test o Radiographic Tests	* * * * * * * * * * * * * * * * * * *	✓ 1 1	✓ ✓ 1
_	<ul> <li>Ultrasonic Testing</li> </ul>	1	1	
	<ul> <li>Magnetoscopy Testing</li> </ul>	1	1	
	<ul> <li>Liquid Penetrant Testing</li> <li>Steel Nets Drying and Inertization Tests</li> </ul>	1	1	
	<ul> <li>Other tests or trials</li> </ul>	1	1	1
	Solder's Notebook completed second: "STEEL NETWORKS: Weld and Coating Dielectric Strength Test Booklet" - Mod. 019/AT-ED (printed from ET 561)	<b>✓</b>	1	
	Term of Responsibility of the Installing Entity		1	1
	Inspection certificate			√ 2
UNIFILAR_reference _suffix	Network single-line diagram	~	*	~

<sup>&</sup>lt;sup>1</sup> Where applicable.



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#### 8. Provisional RFO (in case of works with prefix S and P)

#### 8.1 General

- a) The Interim RFO is an integral part of the RFO and is a simplified Final Construction Site Report as far as the information content is concerned.
- b) This reporting option can only be used by express indication of Portgás.
- c) Applies only in cases where, for operational reasons, there is a need to undertake the connection of a distribution network at a time when the RFO's own documentation is not yet available.
- (d)This Interim Report is identical to the provisions of the RFO described herein, except for the accompanying documentation, and shall be succeeded by an RFO prepared in accordance with the requirements listed above, which shall be delivered within the contractually established time frame.

#### 8.2. Construction requirements

a) This document can only be issued after pressure tests (Mechanical Strength and Watertightness) have been successfully carried out in accordance with Portgás' Technical Specifications (ET 643 and 651) and after drying and inertization of steel networks (ET 644) and is still dependent on the approval of pre-commissioning by the Inspector.

<sup>&</sup>lt;sup>2</sup> See §10(d) below.



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#### 8.3. Support Documentation

The Provisional Construction RFO consists of:

Final Construction Report - representative elements of the work - Mod. 004/AT-ED

In this document the fields: 1, 2, 4, 12 and 13 must be filled in, when applicable. In field 1-identification of the work, the "part" will be blank and the option "provisional" must be selected. Fields 12 and 13 must be filled in when applicable, in the case of secondary or primary network, respectively.

Single-line diagram, in the same terms as specified in point 6 of this document.

#### 8.4. Digital Media Files

- a) The name of the computer files will translate their content, the code of the work (Portgás reference and type of delivery).
- b) The file names will contain the suffix PR# which will correspond to the sequential numbering of the provisional delivery number (e.g.: RF0\_SVNG2010001\_PR1, UNIFILAR\_SVNG2010001\_PR1).

#### 8.5. Submission of the Provisional Report

a) Applies the same as specified in point 9 of this document, with the necessary adaptations in the submission of the report on the Portal. The option "Provisional" should be used. In its absence, the option "Partial" with a description/observation "Provisional" may be used.

#### 9. Submission of the Final Construction Work Report to Portgás: form and deadlines

#### 9.1 Computer files

- a) The RFO, embodied in the files described in 6 and 7 and 8 above, must be "loaded" into the Portal by the Contractor and submitted for approval by the Inspector, within the time limits contractually established.
- b) Portgás will assess the conformity of the RFO against the requirements of this technical specification.
- c) When Portgás finds non-conformities, it will communicate them to the Contractor and the Inspector via the Portal.
- d) Corrections will be sent to Portgás within the deadline established in the contract and in accordance with the provisions of sub-paragraph a) above.



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#### 9.2 Complementary documents

a) When there are radiographic examinations, the radiographic films should be delivered simultaneously with the RFO sent to Portgás. The radiographic films should be ordered sequentially, according to the respective welding booklet, and be properly packaged and identified with the reference of the work.

#### 10. final provisions

- a) The Contractor and the Inspectorate must keep records of the RFO sent to Portgás.
- b) In the case of radiographic films, the Contractor must deliver them to Portgás in physical format to proceed with their filing.
- c) The Inspection Certificate issued by the Surveyor, in accordance with the provisions of Portaria n.° 362/2000, of 20th June, with the changes introduced by Portaria n.° 690/2001, of 10th July, must explicitly mention "the monitoring of the mechanical construction" by the referred Surveyor.

# 11. Specificities of the RFO for distribution networks in housing developments works references with "L" prefix

#### 11.1 Documents to be approved by the Inspector

To the documents explained in §5.2 above are added:

"List of branches running simultaneously with the network" (part of Mod. 004/AT-ED), where applicable;

Network measuring log - last log with totals installed.

#### 11.2. Constitution of the Final Report

To the two files listed in §6 above are added:

#### AM\_reference\_suffix.pdf

This file must correspond to the deed of measurement of the part of the work.

#### RAMAIS\_reference\_suffix.pdf

This file must correspond to the "List of branches running simultaneously with the network" (part of Mod. 004/AT-ED), within the works section.

N.I.: When no branches have been made simultaneously with the network, this file is not produced.



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#### 11.3 Submission of the Final Construction Work Report to Portgás: form and deadlines

In relation to that established in §9 above, everything is maintained, except for the means used to convey the information: this must be sent by e-mail, between the Contractor and the Inspector, and between the latter and Portgás to the address relatoriodeobra@portgas.pt, with reference to the "subject" "Final Work Report: "work reference" and inside the text "We inform you that the files sent comply with the provisions of ET 560": this communication will always be made with the knowledge (Cc.:) of the Contractor and the zone Construction Manager.