ATG-PLT Rules rev11 - 202501

Approval

These ATG-PLT Specific Rules:

- were approved on December 20th, 2024 by the General Director of CERTIGAZ after advice from the ATG-PLT Special Committee;
- are applicable from December 20th, 2024 except for modifications subject to a transitional period, see § 0-;
- cancel any previous version;
- may be modified by the General Director of CERTIGAZ after advice from the ATG-PLT Special Committee.

Summary

0- Summary of changes

Revision No.	date	Main changes made	Impact on the requirements of products already certified and/or transitional period; verification procedures for consideration/implementation
creation	04/15/2009	Creation of ATG-PLT Specific Rules	
Rev1	12/03/2013	- § 5.1.3 possibility of a simplified test plan in the event of modification - § 5.2.2 accuracy for monitoring of all DNs by annual rotation - Change of address of CERTIGAZ	

Rev 2	07/25/2013	- The Rules govern PLT kits and short hoses according to each CCH
		- For PLTs:
		  - CCH amendment decisions of 11/2012 for the implementation
		  - changing frequencies and sampling for production control
		  - details for the technical file and the wet nurses	

Rev 3	03/25/2014	- Addition of § 5.5.4 in appendix 2, details for wet nurses forgotten in Rev 2 - Presentation of technical file information, appendix 1, documents 2 & 3	
Rev 4	01/23/2015	- Only change of the brand name ATG-PLT instead of ATG-PLT/FC to address a discrepancy following the COFRAC audit concerning the registered name. However, the ATG-PLT rules concern PLT kits and short hoses (FC). - Details on the deadline for sending (1 month maximum) samples to the laboratory and informing CERTIGAZ (§ 5.2.2 and DOC1 of appendix 1) following sampling for monitoring tests.	
Rev 5	09/22/2015	- Taking into account revisions to the specifications in relation to the amended decree of July 16, 1980. - For short hoses, removal of high temperature resistance, tensile and salt spray resistance tests. Depending on the CCH version. - Integration of a 3rd family of products: PLT breeding kits. - Restructuring of the rules with an annex per product family. - Details for the abandonment of gas installations and the use of protective sleeves for PLT kits. Addition of prohibition note. - Modification of the ammonia stress resistance specifications for PLT and PLT breeding kits. Clarifications for chemical resistance tests (pipe/fitting junction and sheath repair) for PLT and PLT breeding kits. - PLT or PLT breeding fittings for LPG installation, M20x150 or G3/4. - Clarification on admission sampling, cross-checking or monitoring for FCs. - Details for tees and feeders of PLT kits.	Transition phase until end of 2015; new requirements imposed in 2016.
Rev 6	3/05/2016	- Integration of the 2 versions of the ISO9001 standard, 2008 and 2015 in §4.3.1 - In annexes 2 and 3, clarification for PLT end fittings with the use of JSC fittings according to standard NF E 29-536 mentioned in the normative references of CCH, GPL and "mixed"	No impact for products already certified No transitional period No verification to be carried out
Rev 7	10/11/17	- Addition of PLT 2 kits according to the XP E 29-826 standard with a transitional period of 3 years for the discontinuation of CCH2007-01 and CCH2010-02 with the details in appendix 5 - Information for the preparation of test tubes: • Management of chemical resistance and aging tests according to types of protection • Bending and affixing of protections by the manufacturer •	- Reduced test plan for extension of a PLT 500 mbar range to 2 bar - no prior verification,
Rev 8	February 2021	- Updated to mention the new regulatory texts relating to the decree of February 23, 2018 and the AMG guide - Removal of reference to ISO9001 version 2008 - Deletion of CCH2010-02, PLT breeding, replaced by standard XP E 29-826 - Deletion of tests according to CCH2007-01 - Addition of ATG certification for export markets according to EN15266 standard	- already applied since January 2020 - more impact since 2018 - no certification - covered by XP E 29-826 - new
Rev 9	04/26/2021	- Clarification in instructions for protecting PLTs waiting on site - Benchmark flow rates for FCPs - Request for maintenance - Management of multi-site, on-site, remote and subcontractor audits - Details on the technical file in unlocked pdf format - Various details and country of title or representative in Europe - Details for the bendability test - Frequency of tests every 5000 m possibly limited to 1/month - Frequency of AT for FC if the range is 1 reference increased to 2 years - clarification for marking	Already applied or applicable without delay
		- Testing of threaded connections	Applicable in 2021 monitoring of certified products
		- Certification of connections obtained by brazing several components - clarification	1 year after certification of NF540 brazed fittings
		- Marking durability test and its monitoring by the manufacturer - clarification	Transitional period for verifying certified products until 31/12/2021

Revision No.	date	Main changes made	Impact on the requirements of products already certified and/or transitional period; verification procedures for consideration/implementation
Rev10	02/01/2023	- Modification of the address of CERTIGAZ and various minor clarifications/corrections - Deletion of CCH2007-01 as of 12/31/2022 in accordance with the AMG guide	not applicable
		- §5.1.3.5 specific connections with brazing ➔NF540 certification - §3 and 5.2.2.4 details for marking and instructions - §5.1.3.3 and 5.2.2.3 details for testing of fittings in production or reception control (BRT) + annexes 2 §B and 3 tests §C, BRT - Annexes 1 DOC3 and Annex 2 §7.1 ➔Addition of earthing and conductivity collars - Appendix 2 §5.16 electrical conductivity test with collar - Annex 3 §B addition of tests of end fittings according to respective specifications	12 months maximum after the application date
Rev11	20/12/2024	- Addition of a cover page with ATG logo, approval and summary then summary of modifications in P2 - §3 Details for the GAZ or GAS marking of PLT kits and for the notices and information in compliance with the regulations, in particular the environmental code articles L and R 557 and decree of February 23rd, 2018 amended. Information to CERTIGAZ if modification of the process or ink for marking with new test. - §5.1.1 Details for the number of certificates per trademark and cases of maintenance as well as the re-invoicing of the instruction in the event of a file whose processing takes more than 12 months due to lack of information from the applicant Case of mixed fittings (ATG-Sert/ATG-PLT) - §5.1.2 during audits, stainless steel reception control with 3.1 certificate and recommendation on other components and widening of tolerance in the event of re-tests + video audit possible but conditioned for geopolitical reasons - §5.1.3.3 details for testing end fittings - §5.2.1 video audit possible for geopolitical reasons - §5.2.2 information for sampling and cases of non-manufacturing + addition of the concept of AT for monitoring and sampling - §5.2.2.1 addition of earth collars during sampling for AT - **§5.2.2.3 in BRT doubling of the resistance test of rotating nuts if the failure is less than 115% of the required torque** (see example). - §5.3 and 5.4 new: to specify the list and collection of REX and sales; - §5.3 addition of a reminder that the list briefly mentions the regulations - Appendix 2: §5.12.1 precision for the internal examination of the assembly of the test specimens of the chemical tests. Addition of recommendations for measuring the elongation of the tests §5.8 under 15 bar and §5.11 traction + §5.6 to specify that the test is carried out without additional protection + supplement to table 11 of the missing test §s + info §5.18 standard NF E 29-196 for the test of resistance to ammoniacal stresses Rebroadcast of the project following a file transmission error on February 19th, 2024	without impact on products already certified, therefore applicable upon approval of the Certification Rules **except for the details in § 5.2.2.3 which must be applied no later than 31/12/2025, as a transitional period**
		-	

1 Purpose and scope of application

These ATG mark product Certification Rules apply in addition to the ATG General Certification Rules and define the specific conditions for issuing and maintaining the ATG mark for different product families:

- **"PLT" kits, Foldable Linear Tube:**
  - **For the French market:**
    - Bendable corrugated stainless steel pipe kits for gas with a working pressure of up to 2 bar, compliant with the XP E 29-826 standard, within the scope of the decree of February 23rd, 2018, as amended, supplemented by the AMG guide. This decree recognizes the issuance of the ATG mark by CERTIGAZ as proof of conformity with product specifications, since January 2020.

      This standard also covers the PLT livestock application which was previously covered by CCH2010-02 up to DN25 max under 2 bar, recommended by GROUPAMA in the guide to the rules for the installation and use of gas heating in livestock farming and agricultural buildings more generally.

      For information, the decree of December 27th, 2013, deals with livestock facilities classified for environmental protection.
  - **For export markets:**
    - Stainless steel bendable corrugated pipe kits for gas with a working pressure of less than or equal to 0.5 bar, complying with EN15266.
- **Short flexible pipes (FC)** for connecting gas distribution works by pipeline in the scope of the decree of February 23rd, 2018 as amended and the AMG guide, in accordance with the AFG CCH 2006-01 specifications of March 2015. This decree recognizes the issue of the ATG mark by CERTIGAZ as proof of compliance with product specifications, since January 2020.

  Short hoses are classified into 3 types of use :
  - Flexible Penetration Hoses (FCP)
  - Meter Hoses (FCC)
  - Flexible pressure regulators (FCD)

These specifications are available on the France Gaz website, FranceGaz - Together, let's transform energy! under *technical activities* then *technical and regulatory documentation*.

2 Definitions

The definitions of the CCHs and standards, hereinafter referred to as *normative documents,* apply to their respective fields.

3 Marking

The rules for marking products, their packaging and instructions are defined in the respective normative documents.

In addition to these requirements, after ATG certification, the pipes and fittings constituting the PLT kits and short hoses must bear the letters ATG or the ATG logo under the same conditions as the other required markings.

Information required by other markets may be included in the product marking but must not be confusing and may be explained in the instructions. For PLT kits, the gas application marking is thus possible in a single language, French or English, with "GAZ" or "GAS".

Marking processes must ensure the sustainability of information.

Note : For testing, the marking may be incomplete compared to these requirements but the process must be the same. Any change in process or ink must be notified to CERTIGAZ and may lead to new tests.

The instructions, packaging and commercial documents relating to accessories approved for the ATG brand must refer to the ATG brand and bear the ATG logo without any possible interpretation if the accessories are not certified.

The instructions accompanying a product must be in French and in any language of the countries where the products are marketed and include the required instructions and safety information as well as the contact details of the holder, in accordance with the regulations, in particular the environmental code articles L and R 557, and the decree of February 23rd, 2018 as amended.

The notice must also describe the implementation:

- protections (tape width, length of heat-shrinkable sheath, shrinkage temperature, minimum coverage percentage on the pipe sheath and on all types of fittings, minimum coverage percentage on each pass of the tape, management of the possible expiry date of the sleeves, application recommendations to avoid soiling the protection, etc.).
- Equipotential bonding collars (grounding collars).

4 Certification criteria

4.1 Commitments

No specific commitments other than those specified in the application form (Annex 1).
These commitments meet the certification requirements of the NF EN ISO CEI 17065 standard.

4.2 Applicable requirements

4.2.1 For PLT kits

PLT kits carrying the ATG mark must comply with the following specifications:

- Standard XP E 29-826 for the French market or EN15266 for export mentioned in §1. The same product can satisfy both requirements depending on the previous marking conditions.
- Additional information on the test plans, mentioned in Appendix 2.

4.2.2 For short hoses

Short hoses bearing the ATG mark must comply with the following specifications:

- AFG CCH 2006-01 specifications mentioned in §1.
- Additional information to CCH 2006-01 for the implementation of the tests, mentioned in appendix 3.

4.3 Quality management requirements

4.3.1 Quality management system

The minimum quality assurance provisions that the applicant/holder must adopt and implement so that products bearing the ATG-PLT mark are manufactured and/or distributed at all times in compliance with this standard are specified below.

By using the ATG trademark, the holder makes a commitment to the permanent quality of the certified products that it manufactures and/or delivers to its customers. In the context of the ATG-PLT trademark, the applicant/holder provides proof of the existence and effectiveness of its quality file.

The objective to be achieved by the applicant/holder is the control of processes (within the meaning of standard NF EN ISO 9000) and the maintenance of the conformity of its products to the models initially accepted.

Achieving this objective requires that the applicant/holder implements its own means, the performance of which is assessed during the admission visit and verified during follow-up visits. The quality requirements of the ATG-PLT mark are defined below and are based on the requirements of standard NF EN ISO 9001, the scope of which is limited to the field of application.

The table below summarizes these requirements.

Quality Requirements	Requirements * § NF EN ISO 9001 (2015)	
General requirements	4.1 - 4.2	Required for processes related to the manufacturing of the product.
Documentation Requirements	4.4 – 7.5	Required
Management Responsibility		
Management Commitment	5.1 - 5.2	Required
Responsibility and authority	5.3	Required
Management Representative		Required
Management review	9.3	Required
Resource management	7.1 to 7.4	Required
Product realization		
Product Realization Planning	8.1	Required
Customer Related Processes	8.2	Required for customer complaints management
Purchases	8.4	Required
Mastery of production and service preparation	8.5.1	Required
Identification and traceability	8.5.2	Required
Product preservation	8.5.4 - 8.5.5	Required
Mastery of monitoring and measuring devices	7.1.5	Required
Measurement, analysis and improvement		
Product monitoring and measurement	8.6 - 9.1	Required
Control of non-compliant product	8.7 - 10.2	Required
Corrective action	10.2	Required

(*) These requirements also apply to any subcontractors

4.3.2 Manufacturing control plan

4.3.2.1 Materials

The characteristics of the materials used for the manufacture of accessories must be guaranteed by the manufacturer (material certificates or internal controls).

Traceability of batches of material in relation to batches of finished products must be ensured.

4.3.2.2 Dimensional characteristics

The manufacturer shall establish procedures to ensure that the manufacturing tolerances allowed for accessories (collapsible pipes, fittings, flexible hoses, coatings and components) are in compliance with the declared values resulting from the initial type tests.

The definition and frequency of the necessary metrological checks are left to the discretion of the manufacturer.

4.3.2.3 Minimum production testing, batch release (BRT) and process monitoring (PVT)

A batch of PLT bendable hose or short hoses is a set of products of the same definitions with the same nominal diameter (DN) and marking, manufactured on the same machine without modification of the manufacturing parameters, from the same batch of material. The batch is defined and identified by the manufacturer.

A batch of fittings, for the different PLT kits, is a set of fittings with identical dimensional characteristics, having the same nominal diameter and the same marking, manufactured during the same manufacturing campaign from the same batch of material.

A production campaign is understood to mean the period during which a defined and homogeneous quantity of the accessory is produced under uniform conditions. The batch is defined and identified by the manufacturer.

The characteristics and minimum frequencies of the tests must be in compliance with the data in the tables in Annex 2 for PLT kits or Annex 3 for FCs.

For PLT kits or FCs, in the event of non-conformity of a single sample from the tested lot, another batch of samples consisting of a minimum of twice the original batch of samples, from the same production lot, must be retested; and if one of the new samples is found to be non-conforming, the production lot must be rejected and for any non-conformity, analysis and corrective actions must be taken.

5 ATG Certification Process

5.1 Admission

5.1.1 Application file

The application file template is given in Appendix 1.

A range is split into several files and certificates by trademark and by PLT pipe manufacturing site or by type of hoses (FCP, FCD, FCC).

If an application file is not finalized within 12 months following the request due to lack of information from the applicant, the instruction may be subject to a second invoice.

Mixed fittings

In the case of a request for mixed fittings, resulting from an agreement between 2 manufacturers, with a crimping end (ATG-Sert) and an end to connect a PLT pipe (ATG-PLT), the fittings must comply with each of the certification rules, tests are carried out according to the DN and tests already evaluated on other models with identical characteristics. In addition, the markings and instructions must meet the requirements of each certification rule.
The certification request is made by each of the manufacturers with the 2 commitments signed by the 2 parties.
The fittings are present in each of the certificates and each of the product lists of the ATG-Sert and ATG-PLT marks.

Reconditioning of fittings

If a certified product is repackaged by an entity other than the initial applicant, with or without a change of trademark or references, this is a request for admission by maintenance, without modification of the certified characteristics except for the packaging.

In the event of maintenance, the manufacturer and the subcontractor are each responsible for the right to use the ATG mark relating to the product in question and undertake to apply the measures resulting from the sanctions taken in accordance with the Certification Rules.

A manufacturer whose right to use has been suspended cannot therefore subcontract products to another holder within the framework of this maintenance procedure.

Likewise, the subcontractor must inform its client of any sanctions which call into question its right to use.

Several cases can be considered depending on the responsibilities/actions/markings of the initial holder and/or the distributor with the following modalities:

CASE	Holder: T		Distributor: D	Certification management procedures			Manufacturer identification on packaging or instructions (3)
	Product marking (1)	Trademark packaging (1)		ATG mark retention?	Management methods	Trademark on ATG mark list	
No. 1	**T** marking	Packaging by **T** Trademark **T**	No change in packaging by **D**	NO	- Management of a basic certification by the **T holder** : no maintenance	YES	Holder **T**
No. 2	**T** marking	Packaging by **T** Trademark **D**	No change in packaging by **D**	NO (2)	- Indication on the packaging of one of the following two pieces of information: - "Product **T** – Commercial ref. XXXX or registered trademark" (the ref. or trademark is that of the owner **T**) - "Product **T** – CERTIGAZ certificate/file base number" - Management of notices and packaging by the holder **T** - Review of the management of notices during the admission or monitoring audit of the **T holder** by CERTIGAZ	NO	Holder **T**
No. 3				YES (2)	- Request for maintenance by the holder **T** or the distributor **D** - Management of notices and packaging by the holder **T** - Review of the management of notices during the admission audit, then monitoring of the **T holder** by CERTIGAZ	YES	Distributor **D**
No. 4	**T** marking	Packaging by **T** Trademark **T**	Modification of packaging by **D** Trademark **D**	YES	- Request for maintenance by distributor **D** - Management of notices and packaging by distributor **D** - Review of the management of notices during the admission audit, then monitoring of distributor **D** by CERTIGAZ	YES	Distributor **D**
No. 5	**T** marking	No conditioning by **T**	Packaging by **D** Trademark **D**	YES		YES	Distributor **D**
No. 6	**D** marking	Packaging by **T** Trademark **D**	No change in packaging by **D**	YES		YES	Distributor **D**
No. 7	**D** marking	No conditioning by **T**	Packaging by **D** Trademark **D**	YES		YES	Distributor **D**

(1) : for the same holder the marking and the trademark may be different

(2) : to comply with regulatory requirements (marking, manufacturer identification, etc.), the holder and the distributor organize themselves to choose between cases no. 2 and no. 3

(3) : compliance with paragraph R557-2-5 of the environmental code. The concept of manufacturer and distributor is clarified in article L557-3 of the same code.

5.1.2 Audits

The main manufacturing site is where batch release checks, packaging and product availability are carried out. It is always audited upon admission.

If it is different from the main manufacturing site, the manufacturing site for PLT pipes or short flexible hoses must be audited upon admission.

Other manufacturing sites for elements of the products covered by the application for admission are only audited when the manufacturer cannot demonstrate that he has sufficient control over them (ISO 9001 §8.4 and §9.1). They are hereinafter referred to as secondary manufacturing sites.

When the audited sites are ISO9001 certified, §§ 4, 5 and 9.3 of the ISO 9001 standard, specified in table § 4.3.1, may not be audited after analysis of the ISO9001 audit report.

The duration of the on-site audit will not be less than 1 day and a flat rate of 0.5 days is added for planning, preparation, drafting of the audit plan, drafting of the report and monitoring of any non-conformities.

If a manufacturer's request concerns several sites, by default, the audit duration for each site is one day unless the activity on the site does not justify a day. The audit plan details the duration and activities audited per site. In this case of multi-site audits, the editorial package is 0.75 days.

As an exception, the SQUAL100 procedure applies if the audit cannot be carried out physically for health or geopolitical reasons. However, this provision is not applicable for critical products that undergo 100% release tests.

If subcontracting is carried out with another third-party company and this activity may impact the quality of the products without possible analysis by the applicant, this company is also audited by CERTIGAZ.

In the event of maintenance, an audit reduced to 0.5 days and an editorial package of 0.5 days is carried out by CERTIGAZ to verify the conformity of markings, instructions and packaging.

During audits, for the reception control of stainless steel coils, a 3.1 casting analysis certificate is required. In accordance with standard EN 10028-7, in particular note a) of table 3, all appropriate precautions must be taken to avoid the addition of elements likely to affect the mechanical characteristics and the suitability for use of the steel.

It is therefore **recommended** that the manufacturer of corrugated pipes limit the content of components which are not defined in the selected alloy, in its purchasing specifications, with the following values:

Total of other components than those defined in the alloy, including those below < 1.0%		
Cu < 0.7%	Ti < 0.1%	Nb < 0.05%
Mo < 0.2%	Al < 0.1%	N < 0.05%

Furthermore, if chemical analysis counter-tests are carried out on the strip by the manufacturer during reception control, by batch or statistically, the admissible limits of table 3 are extended by taking into account the values of table 5 of standard EN 10028-7. The supplier may however be alerted.

5.1.3 Tests

Where possible, they are carried out on products taken by CERTIGAZ during the audits provided for in 0or, failing that, in stores or in the stocks of a reseller at the applicant's expense.

However, it is permitted to carry out these admission tests (TT for Type Test) on samples provided by the applicant provided that they guarantee their representativeness for the type submitted for admission.

The test pieces are produced by the manufacturer or its representative and then sent to the laboratory. The tests are carried out by CETIAT, which is an independent laboratory of the mark.

Any test report issued by a laboratory accredited according to ISO 17025 may be taken into account after analysis by CERTIGAZ. In this case a cross-check test will be carried out by CETIAT.

5.1.3.1 PLT Kit Specific Tests

The tests and admissions checks are:
- those defined in paragraphs 5 and 6 of standard XP E 29-826 and annex 2, for PLT kits dedicated to the French market.
- those defined in the EN15266 standard for export.
  In the case of products tested according to standard XP E 29-826, the extension is possible if the following tests are carried out and compliant:
  - Low temperature resistance of EN15266 §5.13;
  - Maximum load of PLT supports from EN15266 §5.19, if applicable.

The tests are carried out by CETIAT with the exception of the tests mentioned below which are carried out by other laboratories accredited according to ISO 17025 for these tests:
- aging of the sheath,
- high temperature resistance,
- reaction to fire,
- low temperature resistance (for EN15266),
- maximum load of PLT supports (for EN15266).

The cross-section tests are identical to the admission tests but are only carried out on two DNs (see appendix 2):
- 1 DN of family X,
- 1 DN of families Y or Z,

family	DN	PLT - XP E29-826 range overlap
X	10 - **12** - 15	1DN
Y	20 - **25** - 32	1DN preferably the largest or among DN32/40/50
Z	40 - **50**	

5.1.3.2 Specific tests for short hoses (FC)

The admission tests and controls are those defined in paragraphs 7 and 8 of CCH2006-01 and Annex 3 for the FCs.

The cross-check tests are identical to the monitoring tests for one DN of each type of hose (see appendix 3).

5.1.3.3 Specific tests of threaded ends, common to PLT and FC kits

Depending on the type of connection of standardized mechanical joints (JMN), the following normative documents apply per connection diameter:

connection type	Normative documents	
	For the dimensions	For testing
JPC/JPG	NF D36-136	NF E 29-532
JSC	NF D36-136	NF E 29-536
GPL	NF D36-136	CCH2020-04 (§4.3 and 4.4)
JMN with sealing in the net	EN10226-1	CCH2020 -05 (§4.3)

Note 1 : If the manufacturer and/or subcontractor are certified according to the NF540 rules for fittings of the same family, with the same material (standardized alloy grade) and the same DN, the tests are not repeated under the ATG mark, upon admission.

Note 2 : To perform the ammonia stress cracking resistance tests:
- The PLT part is not evaluated again with a type 2 sample and the latter consists of a type 1 test piece with a reduced length, 10 cm for example.
  These tests of resistance to ammoniacal stress cracking of PLT fittings and threaded ends can however be combined, with a type 2 test piece and reduced lengths, so as to comply with the sampling of 2 test pieces required in the normative documents.
- The FCD are the only ones concerned by a JSC junction. They can be shorter and in the form of semi-finished products (without braid or sheath) since it is the junction that is evaluated.

5.1.3.4 Specific tests for the durability of the marking

To verify the durability of the markings on the products, paragraph 9 of standard NF E 29-135 is applicable during admission and during modification of the marking process:

- First category: Name, acronym or registered trademark of the manufacturer, the GAZ application if required and the ATG conformity mark,
- Second category: All other elements of the marking.

PLT pipes are not subject to these tests because durability is assessed during the sheath ageing test and the marking sequence is every meter.

5.1.3.5 Specific tests for PLT connections from brazed assemblies

This is the case, for example, of “mixed” connections for specific junctions:

- with a PE tube whose brazing connection is certified according to NF136 rules;

- with a meter for which a specific connection is required (a cross or a 180° elbow). These connections are certified according to the NF540 rules with a copper tube brazed end;

- with a tap for which a specific connection is required (a gas stove butt for example). These connections are certified according to the NF540 rules with a copper tube brazed end;

- with a sphero-conical junction whose end is to be brazed. This type of fitting is certified according to the NF540 rules;

PLT brazing fittings must be ATG-PLT certified and used for the production of finished products obtained by brazing with or without the addition of copper tube. These finished products must be certified according to NF540 rules.

For information, the manufacturer or its subcontractor must make this request for NF540 certification and comply with the ATG B.600 specifications, the EN1254-1 standard and the SRACxxx-NF specifications (see the link NF 540 RAC GAZ | Downloads | CERTIGAZ) including among others:
- copper tubes, if used, must be NF090 certified;
- brazing couples must be ATG-Brasures certified;
- the dimensions and tolerances of sockets comply with EN1254-1;
- the external dimensions and tolerances of the brazed area comply with the SRAC, to guarantee uniform heating of the 2 components to be brazed.

These provisions are verified during audits as well as the qualification of soldering operators (DMOS and QMOS).

5.1.3.6 Special cases:

When the request concerns a product modification or a range extension, the test plan may be simplified. It is defined by CERTIGAZ according to the nature of the modification or extension.

The CETIAT laboratory may be requested by CERTIGAZ to establish a simplified test plan. In case of doubt, the specific committee of the mark may be contacted to give an opinion. If doubt persists, as a safety and precautionary measure, the initial tests are carried out.

For PLT kits , this simplified test plan is already defined for 2 cases:

- For a certification field dedicated to livestock buildings, the maximum DN is 25 with a MOP of 2 bar:
  - In the case of an extension of a range certified according to standard XP E 29-826, class 2, no testing is required.
  - In the case of an extension of a range certified according to standard XP E 29-826, class 1, the required plan is common to that below.
- For a request for certification of PLT kits up to 2 bar whose characteristics are identical to an already certified range of PLT kits under 0.5 bar, the test plan is in appendix 2.

For short hoses holding a GRDF employment authorization before 2012, the admission tests are reduced to monitoring tests for one DN of each type of hose.

5.2 Monitoring

5.2.1 Audit(s)

Monitoring audits are carried out under the same conditions as admission audits § 0.

Monitoring audits are carried out:

- Annually for the manufacturing and control of flexible pipes,
- Every 2 years for other activities covered by the admissions audit.
- In the case of maintenance or for outsourced activities with low impact on the product, the surveillance audit is only carried out once during the validity period of the 3-years certificate.

By way of exception, the SQUAL100 procedure applies if the audit cannot be carried out physically for health or geopolitical reasons.

5.2.2 Tests

surveillance tests (AT for Audit Test) are carried out each year by CETIAT on finished or semi-finished products in FC for example, taken by CERTIGAZ during the audits provided for in 5.2.1or failing that, and at choice:

- in a stock of the holder on a site other than the production site, a self-collection by the manufacturer is carried out on the basis of CERTIGAZ directives
- In the event of the absence of a sufficiently representative stock, in quantity or in manufacturing date, the samples may be taken by CERTIGAZ from a distributor or in the store, with re-invoicing of the purchase costs to the manufacturer. In this case, the holder is informed before the sample is taken.

Lack of production
In the absence of production since the last sample or since certification, the sample for monitoring may, as a priority, concern another DN, failing which, be postponed at the request of the holder if no DN is available.
Any deferral of direct debit must be requested in writing from CERTIGAZ by the holder, by email or on headed letter.
The sampling will take place as soon as possible depending on the production. Over a period of 3 years, there must be at least one monitoring test report.
Failure to comply with this obligation, as well as any false declaration noted by CERTIGAZ may lead to suspension or even withdrawal of the right to use the mark.

After collection, the test tubes are prepared by the holder and sent to CETIAT, at the holder's expense, within a maximum period of one month.

Regardless of the product, all DNs are tested over several years at a rate of one DN per year. A rotation is established so that all DNs are monitored over the shortest possible period.

5.2.2.1 PLT Kit Specific Tests

The monitoring tests are the same as the admission tests but they are carried out successively on a single DN of a single family X, Y or Z.

However, certain types of tests are not carried out as part of surveillance, see Annex 2.

Before shipping the products collected by CERTIGAZ, the manufacturer makes the test specimens for the laboratory. To respect the chronology of the field, for the test specimens of resistance to chemical agents, he bends the test specimens then applies the protection(s) recommended in the instructions.

It also includes instructions, grounding clamps and extra protective tape for repair.

5.2.2.2 Specific tests for short hoses (FC)

The monitoring tests are the same as the admission tests but they are carried out successively on a single DN per type of FC (FCP, FCC and FCD).

However, certain types of tests are not carried out as part of surveillance, see Annex 3.

5.2.2.3 Specific tests of threaded ends common to PLT and FC kits

Depending on the type of product connection, the following standards apply:

Family	Normative documents	Sampling in BRT	Sampling for ATs
JPC/JPG GPL	NF D36-136 dimensions and NF E 29-532 (§7 and 8) NF D 36-136 dimensions and CCH2020-04 (§4.3 and 4.4)	Statistical verification of each production batch or reception control only for the resistance of rotating nuts to tightening torque (2 samples minimum/lot)	one connection diameter per year
JSC JMN with sealing in the net	NF D 36-136 dimensions and NF E 29-536 (§ 7 and 8) EN10226-1 and CCH2020-05 (§4.3)		one connection diameter per year

Note 1 : **In BRT, for the nut tightening strength test** , a minimum sampling of 2 test pieces for 100% of the batches is tested in compliance with the reference standards documents , but if deformation or rupture occurs on at least 1 test piece at less than 115% of the minimum breaking torque, a new sampling is carried out to guarantee the conformity of the batch. If a test piece fails before reaching the minimum breaking resistance torque, the batch is rejected.

Example : For a JPG F DN12 G1/2" fitting, the minimum acceptable breaking or deformation torque is 50 Nm and the test must be continued if possible up to 100 Nm. However, if a failure, breakage or deformation occurs between 50 Nm and 57.5 Nm (115%), a new sample is taken from the batch to ensure a better probability of batch conformity with a failure greater than 50 Nm.

Note 2: For each of the third-party surveillance tests (AT), as for the admission tests (TT), the sampling is that of the normative documents, by connection diameter.

Note 3: When the range of FCD or FCC is reduced to 1 certified product, the monitoring frequency for the AT is 2 years instead of 1 year (see appendix 3).

5.2.2.4 Specific tests for the durability of the marking

Monitoring of the durability of the marking is carried out annually by the manufacturer in compliance with the requirements of paragraph 9 of standard NF E 29-135 and §5.1.3.4.

For PLT pipes, durability is checked during admission tests, so any change in process or marking ink (brand, type, composition, etc.) must be the subject of an extension request to CERTIGAZ, for an update of the file and possibly the performance of the aging test for 1 DN, in order to guarantee the durability of the marking.

These provisions are verified during audits.

5.3 Information

In addition to §6.1 of the ATG General Rules, the list of certified fittings also specifies the type of products:

- FC (FCP, FCD or FCC),
- PLT (pipes, protections, fittings) and pressure standards and classes.

A brief reminder of the regulations is also present on the list.

This list is available on the CERTIGAZ website: www.certigaz.fr

5.4 Complaints/Claims to the Holder

In addition to § 4.4 of the ATG General rules, CERTIGAZ collects annually from each holder, as it has undertaken to do, customer complaints (REX) and also sales on the French market by product family, quantity by type of FC and length of pipes by DN of PLT.

ANNEX 1
COMPILATION OF THE APPLICATION FILE

- Standard letter of application for admission reproduced on manufacturer's letterhead and drawn up according to the attached model (document no. 1)
- General information sheet (document no. 2)
- Product identification sheet (document no. 3 for PLT kits or no. 4 for FC)
- Technical file:

  NOTE : This technical file is sent in a single file in unlocked pdf format so that it can be validated by CERTIGAZ.

  PLT Kits

  - dimensional drawings of each pipe (diameters, thickness and waves), connection (compliance with §§ 4.4 and 4.5 of standard XP E 29-826), accessory and joint;
  - definition of markings and batches;
  - attached material conformity certificate according to NF EN 549 or NF EN 682;
  - instructions in accordance with §§ 7 and 8 of standard XP E 29-826 (assembly, installation, pressure loss instructions, implementation warning, etc.).

  Short hoses

  - overall side plans, side plans of each component (flexible corrugated metal conduit, end piece or connection end piece) with the definition of the materials;
  - definition of the metal braid (dimension and material of the wires, number of wires, number of strands, angle and pitch of the braid);
  - definition of plastic sheath (FCC and FCD);
  - definition of anti-corrosion coating (FCP);
  - installation and implementation instructions in accordance with § 11 of CCH 2006-01;
  - the method of protection and packaging in accordance with §§ 12 and 13 of CCH 2006-01.

DOCUMENT N° 1

ADMISSION APPLICATION FORM

(to be established on manufacturer's letterhead)

Letter to be sent to:

Madam Director General
CERTIGAZ
1, General Leclerc Street
CS 60254
92047 PARIS LA DEFENSE CEDEX

Subject: **Application for admission (initial, by maintenance, extension) to the ATG-PLT mark**

Madam Director General,

I have the honor to request authorization to affix the ATG mark on the products of my manufacture, in compliance with the corresponding normative document and the applying ATG-PLT Certification Rules, the characteristics of which appear in the appendix.

I declare that I have read the aforementioned texts and the ATG General Certification Rules.

I commit:

- to comply unreservedly with the requirements of the Certification Rules, as well as with the decisions taken or to be taken, in execution of said requirements;
- to only put on sale products bearing the ATG-PLT mark after having taken all the precautions necessary to ensure their compliance with standards and specifications;
- to reserve the mark and reference of the products presented under the ATG -PLT mark only for products conforming to those admitted;
- to take all necessary measures with regard to the protection of the commercial brand presented under the ATG-PLT mark in order to have an exclusive right to this mark under industrial property legislation;
- to affix the mark, unequivocally, on the admitted products and them alone;
- to carry out the manufacturing controls incumbent on me under the Certification Rules of the mark;
- to report without delay to CERTIGAZ any incident, any modification of design, method or organization of manufacturing, and more generally, any fact likely to lead to a variation in the conditions under which the mark was issued;
- to facilitate the task of auditors mandated by CERTIGAZ within the framework of their missions;
- to provide all supporting documents required in the context of the application of a sanction;
- to provide free of charge the products designated by CERTIGAZ for the checks and to send them at my expense and under my responsibility to the laboratory designated by CERTIGAZ, within a period of one month and to inform CERTIGAZ thereof;

DOCUMENT N° 1

(to be established on manufacturer's letterhead)

- to pay the amount of the application processing fees provided for by the mark's financial regime, and to make any subsequent payments that may be requested from me in compliance with the mark's regulations;
- not to indicate on all advertising materials or catalogues any characteristics other than those which are confirmed by the tests and which will be communicated.

(2) I also authorize the company .... ***(3)*** taken in the person of:

Mr/Ms *(name)* ..... as *(capacity)* …….....

to represent me on French territory for all questions relating to the use of the ATG-PLT mark.

(2) I request that the costs that are my responsibility to be invoiced to them directly. They will ensure payment on my behalf, as my agent, upon receipt of the invoices as they undertake to do by accepting this mandate.

I undertake to immediately notify CERTIGAZ of any new appointment of a representative to replace the representative designated above.

Please accept, Madam Director General, the expression of my highest consideration.

Date :

Stamp and signature of the representative ***(4)(5)*** *Stamp and signature of the applicant* ***(4)(5)***

Manufacturer's stamp and signature ***(6)***

PJ: General information sheet,
Product identification sheet,
Technical file.

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(2) Optional. This paragraph only concerns applicants located outside European territory (EEA and EFTA)

(3) The designation of the agent company includes: company name, form of the company, registered office, trade register number

(4) The signatures of the applicant and his representative in Europe (EEA and EFTA) must be preceded respectively by the handwritten words " *Good for mandate* " and " *Good for acceptance of mandate* "

(5) Precede the signature with the handwritten note " *Read and approved* "

(6) In the event of a maintenance

DOCUMENT N° 2
GENERAL INFORMATION SHEET
(to be attached to the technical file)

- **Company name and address of the applicant/holder:**

.....

.....

Contact: ..... Telephone: ..... Fax : .....

Email: .....

Billing information (VAT No., SIRET): .....

- If applicable, **name and address of the agent in Europe:**

.....

.....

Contact: ..... Telephone: ..... Fax : .....

Email: .....

Billing information (VAT No., SIRET): .....

- **Company name(s) and address(es) of the pipe manufacturing site(s):**

§ to be duplicated if several sites are concerned

.....

.....

Contact: ..... Telephone: ..... Fax : .....

Email: .....

- **Company name and address of the packaging unit** (if different) **:**

§ to be duplicated if several sites are concerned

.....

.....

Contact: ..... Telephone: ..... Fax : .....

Email: .....

- **Company name and address of the supplier of the fittings** (if different) **:**

§ to be duplicated if several sites are concerned

.....

.....

Contact: ..... Telephone: ..... Fax : .....

Email: .....

- **Company name and address of the site carrying out the liberation and PVT tests :**

§ to be duplicated if several sites are concerned

.....

.....

Contact: ..... Telephone: ..... Fax: .....

Email: .....

DOCUMENT N° 3

PRODUCT IDENTIFICATION SHEET – PLT Kits (XP E 29-826 standard)

(to be attached to the technical file)

- **Trademark:** .....
- **Commercial reference:** attach a table which includes the characteristics (reference, DN, designation, connections, etc.)

6 **Specification of materials** (standard designation and reference standard according to § 4 of standard XP E 29-826) **:**

- flexible corrugated stainless steel metal pipes:
- fittings (stainless steel, copper alloy, cast iron):
  - end fittings
  - coupling fittings
  - tee
  - manifold
- corrosion-resistant metal support:
- yellow/orange protective sheath (RAL material and shade):

7 **Characteristics of seals and/or sealing products** (§ 4.6 of standard XP E 29-826) **:**

- Supplier, nature, designation:
- Hardness (joint) and temperature class:
- Certification according to standard NF EN 549 or EN 682:
- Other :

8 **Marking** (according to § 7 of standard XP E 29-826 and the ATG-PLT Rules) **:**

- Pipes (PLT 2):
- Connections:

- **Resistance test pressure** (§ 5.6 of standard XP E 29-826):
- **Use of a protective sleeve for fittings** (§ 3.6.2 of standard XP E 29-826) **:**

	Heat shrink cuff (1)	Ribbon (1)	Other principle (1): ……
Material			
Supplier			
Designation			
Dimensions			
Color (RAL shade)			
Specifications			

(1) Cross out if not used and the method of application must be described in the instructions.

- **Tightening torque of fittings per DN (or tightness to the limit):**
- **Earthing collars by DN (designation, specifications, etc.):**
- **To complete general and detailed plans, pipes, fittings and components, earthing sleeves and collars**

DOCUMENT N° 4

PRODUCT IDENTIFICATION SHEET – Short Hoses

(to be attached to the technical file)

- **Trademark:** .....
- **Commercial reference:** attach a table which includes the characteristics (reference, DN, designation, type of hose, end connections of the FC, etc.)

9 **Material specification** (standard designation and reference standard) **:**

- flexible corrugated stainless steel metal pipes, § 6.1 of CCH2006-01:
- end piece, § 6.2 of CCH 2006-01 (steel or copper tube, stainless steel tubular part, nut, flange).

- **Welding process:**

10 **Marking** (according to § 10 of CCH2006-01 and the ATG-PLT Rules) **:**

- **Resistance test pressure** (PRM according to CCH2006-01):

11 Tightening torque of fittings by DN (types 3, sphero-conical junction for FCD and 4, flanged junction for FCC) **:**

- **Definition of the metal braid** (§ 6.3 of CCH2006-01 for the stainless steel grade, the Ø of the wires, the number of strands and wires per strand, the angle and the pitch of the FCD braid) **:**
- **Definition of plastic sheath** (according to CCH2006-01 for FCD and FCC) **:**
- **Definition of anti-corrosion coating** (§ 6.4 of CCH2006-01 for FCP) **:**
- **To complete general and detailed plans**

ANNEX 2
Additional information to the XP E 29-826 standard, PLT kits up to 2 bar

A- Details on the § of the XP E 29-826 standard

3.6.2 Cuff

In some cases, this sleeve is also used to repair the sheath when it has been torn, cut or torn during implementation or afterwards.

4.4 Threads and end of PLT fittings

“Mixed” fittings with an ATG-PLT end may appear in a catalogue when they are made by a factory brazed assembly. In this case each part is certified and marked according to the respective brand and the final fitting is NF540 certified.

4.5.3 Manifold and tee

Note 1 : Depending on the manufacturing process, a leak test of the manifold or tee may be necessary.
Note 2 : Two manifolds can be connected in series with a PLT pipe.
Note 3 : A T is similar to a manifold but without fixing.
Note 4 : The use of standard plumbing manifolds or tees with tapered or cylindrical threaded connections is not permitted. The PLT pipe must be connected directly.
Note 5 : One of the connections of a tee may be an end fitting intended to connect another type of gas pipe.

5.4 Foldability

In initial admission type testing (TT – type test) as in surveillance testing, batch release (BRT-Batch Release Test) by the manufacturer or third party organization (AT – Audit Test), it is necessary to continue this test beyond 12 cycles either until failure or at least up to 36 cycles to ensure the same level of performance of the pipe in each manufacturing batch.

For TT and AT, the tests are carried out with:
- 2 test tubes according to the standard operating procedure;
- 2 test pieces until rupture or 36 cycles maximum without stopping at 12 cycles to perform a leak test.
- For BRTs, the test is carried out with at least one specimen until rupture or 36 cycles maximum without stopping at 12 cycles to perform a leak test. If a rupture occurs before or at 16 cycles, a 2nd test with double sampling must be carried out and the leak tightness is checked after 12 cycles for 50% of specimens and until rupture for the other 50%. The leak tightness must be compliant for specimens having undergone 12 cycles. All results are recorded.

If the BRT test methods carried out by the manufacturer and those of CETIAT reveal a difference in the test results, CERTIGAZ may ask the manufacturer to carry out the BRTs on several test specimens and to apply a threshold other than 12 cycles to declare conformity, taking into account this correlation of results.

5.6 Stability under pressure

During this test, in admission (TT), third party monitoring (AT) or process monitoring (PVT), the specimens must not be equipped with additional protection, such as protective tape, heat-shrink tubing or any other protective device between fitting and pipe, which could influence the elongation result.

5.8 Structural strength test

During this test, in admission (TT), third party monitoring (AT) or process monitoring (PVT), the test pieces must not be equipped with additional protection (see §5.6).

It is recommended to measure the elongation of the test piece which can be a quantified indicator of the stability or not of the process and condition actions on the part of the manufacturer.

5.11 Tensile strength

During this test, in admission (TT), third party monitoring (AT) or process monitoring (PVT), the test pieces must not be equipped with additional protection (see §5.6).

It is recommended to measure the elongation of the test piece which can be a quantified indicator of the stability or not of the process and condition actions on the part of the manufacturer.

5.12 Resistance to chemical agents

5.12.1 Prescriptions

After the leak test of § 5.2.1.2 of standard XP E 29-826, the coupling fitting is dismantled (previously blowing the outside to prevent the diffusion of liquid during dismantling) for a visual examination of the internal parts of the assembly, on the components of the fitting and the bare stainless steel pipe, to detect liquid infiltration.
Note: Liquid infiltration could subsequently cause oxidation of the stainless steel and impair the seal. A retest is required after an improvement of the fittings, protections and/or their implementation.

5.12.2.2.2 Test method for resistance to household cleaning product

The bleaching agent is a 9% by volume sodium hypochlorite solution. For follow-up tests at the manufacturer's expense, the solution may be an industrial solution with a guaranteed concentration between 6 and 14%. The report mentions the solution used.

5.16 Electrical conductivity

5.16.2 Test method

4) The measurements are repeated and recorded also in the report but between the grounding collar, fixed on one end connection, and the other end connection. The requirements are unchanged.

5.18 Stress corrosion of fittings

For this test, the specifications for exposure to ammoniacal constraints of the XP E 29-826 standard or of the EN15266 standard are replaced by those of the NF E 29-196 standard, which are identical to those of the SROB100 specifications, annex 2, of 2011, i.e. for 120 h at a pH of 13.1 $^{+/-0.2}$.

7 Assembly and installation instructions

7.1 General

In addition, the installation guide must mention:

- PLTs awaiting connection on construction sites must be plugged to prevent the introduction of solid or liquid bodies and thus guarantee product performance.

Sampling and compliance criteria

Table 11 is completed to take into account the information specified in these rules:

Features	Admission	Cross-check (5)	Addition DN	Monitoring (AT)	§ standards XP E 29-826	§ standards EN 15266	Type ech.	Nb ech.	Compliance criteria
Dezincification	-	-	-	-	4.5.2	4.5.3	-	Supplier certificate	
Dimensional	All DN	2 DN X and (Y or Z)	DN	1DN	5.3	5.3	-	Tests in bold	Dimensions
Foldability (1)	All DN	2 DN X and (Y or Z)	DN	1DN	5.4	5.4	1	2+2	Waterproofing
Crush resistance	All DN	2 DN X and (Y or Z)	DN	1DN	5.5	5.5	1	4	Max. tightness and deformation.
Stability under pressure	All DN	2 DN X and (Y or Z)	DN	1DN	5.6	5.6	1	1	Waterproofness and elongation ≤3% (7)
Wear resistance of the outer sheath	All DN	2 DN X and (Y or Z)	DN	1DN	5.7	5.7	1	1	No full perforation
Structural resistance	All DN	2 DN X and (Y or Z)	DN	1DN	5.8	5.8	1	1	Waterproofing (7) elongation
Impact resistance	X and Y and Z	2 DN X and (Y or Z)	DN	1DN	5.9	5.9	2	1	Waterproofing
Penetration resistance	All DN	2 DN X and (Y or Z)	DN	1DN	5.10	5.10	1	1	Waterproofing
Tensile strength	All DN	2 DN X and (Y or Z)	DN	1DN	5.11	5.11	1	1	Waterproofing (7) elongation
Resistance to chemical agents	Y	Y	DN	1DN	5.12	5.12	2	2 /chemical agent (2)	Waterproof and no signs of external and internal deterioration
	Y	Y	DN	1DN	5.12	5.12	1	1 /chemical agent (3)	
Low temperature resistance	Y	-	-	-	NO	5.13	2	1	Waterproof and no signs of deterioration
Sheath aging and marking	X and (Y or Z) (4) (5)	-	-	-	5.13	5.14	2	2	Waterproof and no signs of deterioration
Fireproofing	X and Y and Z	-	-	-	5.14	5.15	2	2	Allowable leakage level
Reaction to fire	X and (Y or Z) (5)	-	-	-	5.15	5.16	Following annexes A and B		Euro class classification
Electrical conductivity **(6)**	X and Y and Z	2 DN X and (Y or Z)	DN	1DN	5.16	5.17	2	2	Electrical resistance
Pressure loss	All DN	-	DN	-	5.17	5.18	Tables 9 and 10		Declaration of pressure losses
Stress corrosion cracking (8)	All DN	2 DN X and (Y or Z)	DN	1DN	5.18	4.5.2	2 shorter	1	Waterproof and no breakage
Maximum load for PLT supports	X and Z	-	-	-	NO	5.19	pipes	2	Allowable deformation

(1) *With the details of §5.4 of this annex.*

(2) *If the certification request provides for 2 types of protection (tape or heat-shrink sheath):*
- *Admission or cross-check tests for resistance to chemical agents are carried out in half with each type of protection (1 sample per chemical agent and per type of protection),*
- *Surveillance tests are carried out by annual rotation of the type of protection.*

(3) *To ensure the performance of the repair tapes, during chemical tests, the sheath is damaged and then repaired in the following manner, by the laboratory on a test piece available to it:*
- *a strip approximately 30 mm long and 2 mm wide is cut from the axis of the pipe, on the central part of a type 1 test piece , or joint test on type 2 test pieces of chemical tests.*
- *the area is then protected with protective tape according to the recommendations described by the manufacturer, in the implementation instructions.*
- *the test piece is then formed into a U shape, if necessary, and tested like other type 2 test pieces.*

(4) *The test pieces are provided with protective sleeves on each half if heat-shrinkable tapes and sleeves are recommended. At the end of the aging test, these sleeves must remain in place to ensure their function.*

(5) *Preferably, the largest DN is retained for the family couple Y or Z, or among the DN32/40/50.*
(6) *One end of the test piece is equipped with a grounding collar to make measurements with and without the collar.*
(7) *In compliance with the additions to §5.6 and the recommendations of §5.8 and 5.11 of this Annex 2.*
(8) *According to the specification details of §5.18 of this annex 2.*

In addition to these tests, there are tests of the end fittings according to their specifications, § 5.1.3.3 and 5.2.2.3.

In the case of an extension from a 500 mbar PLT range to a PLT range up to 2 bar , the admission tests are reduced as follows:

- For a new DN, concerned by the service pressure of 2 bar, the tests concerned by DN are carried out according to the table above, DN addition column.
- For identical DNs, concerned by the service pressure of 2 bar, only the bendability test is carried out for each DN concerned, according to the table above.

B- Production monitoring plan, batch release (BRT) and process monitoring (PVT)

Features	DN or family to be tested	§ standard specifying the corresponding test	Minimum number of samples per test	Minimum test frequency	Type of monitoring
Waterproofing	All DN	5.2.2	100%	100%	production
Visual aspect	All DN		100%	100%	production
Dimensional	All DN	Compliance with the technical file	Statistical	Levy distributed / batch	release of batch (BRT)
Foldability (1)	All DN	5.4	1	Each batch of pipe	release of batch (BRT)
Resistance of rotating nuts to torque (JPC/JPG/GPL/JSC)	All DN	See § 5.2.2.3 of the ATG-PLT rules	Statistical 2 mini samples/lot	Each batch of fitting	release of batch (BRT)
Crush resistance	All DN	5.5	1	1 per year	Process PVT
Wear resistance of the outer sheath	X / Y / Z	5.7	1	4 per year	Process PVT
Structural strength test (3)	All DN/year	5.8	1	Every 5000 m (3) and at least 4 per year	Process PVT (4)
Shock resistance	All DN	5.9	1	1 per year	Process PVT
Tensile strength	All DN/year	5.11	1	4 per year	Process PVT (4)
Resistance to chemical agents (2)	X / Y / Z	5.12	1 / chemical agent	2 per year	Process PVT

(1) *With the details of §5.4 of this annex.*
(2) *If 2 types of protection (tape or heat shrink tubing) are certified, the process monitoring tests are carried out by half-yearly rotation of the type of protection.*
(3) *If production is such that this test can be repeated within a month, it is acceptable to only do one test per month.*
(4) *In compliance with the recommendations of §§ 5.8 and 5.11 of this Annex 2, to measure the elongation of the test pieces.*

For tests relating to families X/Y/Z, the DN tested is not systematically the one recommended in table 2. It is recommended to test each DN by rotation during successive test campaigns.

NOTE: The provisions are the same for an extension of PLT kits to export markets according to standard EN15266 with the tests:
- Low temperature resistance, §5.13;
- Maximum load for permissible deformation of PLT supports, §5.19 if applicable.

ANNEX 3
Additional information to CCH 2006-01, Flexible Courts

A- Details on the §§ of CCH 2006-01

7.2 Benchmark flow rate

7.2.1.3 Requirement

Table 8 is replaced with the following values:

DN	Minimum reference flow rate (m3 / h)
25	9
32	17
32/40	28
50	55

7.3 Waterproofing (correction partially made in the March 2015 revision of CCH2006-01)

7.3.3 Requirement

Helium sniffing method is possible. The leakage flow requirement is less than 10^{-4} mbar.l/s under PRM.

B- Test plan and sampling by test type

The sampling for each test, carried out by a third party body, is defined in the table below according to:

- The specifications of §7 of CCH 2006-01 and of these rules;
- The type of testing (admission, cross-check or annual monitoring);

Type of tests		**Admission**			**Cross-check**			**Surveillance *(4)***		
Test sampling	PMS/PRM	0.5/1	0.5/1	5/7	0.5/1	0.5/1	5/7	0.5/1	0.5/1	5/7
	§ of CCH 2006-01	**FCP**	**FCC**	**FCD**	**FCP**	**FCC**	**FCD**	**FCP**	**FCC**	**FCD**
Dimensional (a)	Miscellaneous + DT	2/DN	2/DN	2/DN	2 for 1 DN	2 for 1 DN	2 for 1 DN	1 DN	1 DN	1 DN
Reference flow rate, 20 mbar (a)	7.2	2/DN	No	No	2 for 1 DN	No	No	1 DN	No	No
Waterproofing, PRM (a)	7.3	2/DN	2/DN	2/DN	2 for 1 DN	2 for 1 DN	2 for 1 DN	1 DN	1 DN	1 DN
Burst, 4xPRM	7.4.1	3/DN	3/DN	3/DN	3 for 1 DN	3 for 1 DN	3 for 1 DN	1 DN	1 DN	1 DN
Elongation, PRM	7.4.2	3/DN	No	3/DN	3 for 1 DN	No	3 for 1 DN	1 DN	No	1 DN
Bending, PRM	7.4.3 *(3)*	3/DN	No	3/DN	3 for 1 DN	No	3 for 1 DN	1 DN	No	1 DN
Cyclic fatigue, PRM	7.4.4 *(3)*	3/DN	No	3/DN	3 for 1 DN	No	3 for 1 DN	No	No	No
Impact resistance, PRM	7.4.5	3 DN25	3/DN	3 DN15	3 for 1 DN	3 for 1 DN	3 for 1 DN	No	No	No
Compression/expansion, PRM	Table 5 + Annex B *(3)*	No	1 DN100	No	No	1 for 1 DN	No	No	No	No
Minimum number of samples		15/DN	9/DN	15/DN	15	7	15	3	2	3

(a) Samples are suitable for destructive testing.
(3) and (4) See § D for the specific conditions for carrying out tests and monitoring frequency.

In addition to these tests, there are tests of the end fittings according to their specifications, § 5.1.3.3 and 5.2.2.3.

C- Production monitoring plan, batch release (BRT) and process monitoring

In compliance with standard NF EN ISO 10380 and CCH 2006-01, the manufacturer of flexible corrugated metal pipes or the assembler must regularly monitor certain characteristics to ensure compliance with the declared values obtained during the initial type tests.

In production

Features	N and type of hose to be tested	Paragraph of CCH2006-01 specifying the corresponding test	Minimum number of samples per test	Minimum test frequency	Type of monitoring
Waterproofing	All DNs of each type	§ 9	100%	100%	production
Visual aspect			100%	100%	production
Dimensional (according to CCH2006-01 and critical dimensions)			Statistical 1/lot mini	Sample distributed over the lot	batch release
Appearance of welds		§ 9	2% minimum of the lot	Sample distributed over the lot	batch release
Resistance of rotating nuts to torque (JSC)	All FCD DNs	See § 5.2.2.3 of the rules ATG-PLT	Statistical 2 mini samples/lot	Each batch of fitting	batch release
Appearance of the hose before preparation, after cleaning and after application of the coating	All DNs for FCP	§9, table 12	100%	100%	production
°C and HR before coating application		§9, table 12	2/post	Measure distributed over the lot	production
Non-electrical porosity of the coating		§9, table 12	statistical	Sample distributed over the lot	batch release **(a)**
Tearing off the coating		§9, table 12	1%	Sample distributed over the coating batch	production
Coating flexibility		§9, table 12	1%	Sample distributed over the coating batch	production

(a) When the coating application is carried out with a mechanized and controlled process compared to a completely manual application (in the field for example), the monitoring of electrical non-porosity can be carried out periodically defined by the manufacturer and not during batch release.

In periodic monitoring (PVT)

Features	N and type of hose to be tested	Paragraph of CCH2006-01 specifying the corresponding test	Minimum number of samples per test	Minimum test frequency	Type of monitoring
Bursting	All DNs of each type	§ 7.4.1 *(1)*	3	max all 3 years	process
Elongation	All DNs for FCP and FCD	§ 7.4.2 *(2)*	3	max all 3 years	process
Bending		§ 7.4.3 *(3)*	3	max all 3 years	process
Cyclic fatigue		§ 7.4.4 *(3)*	3	max all 5 years	process
Mechanical resistance	All DNs for FCC	Annex 2 of the CCH *(3)*	3	max all 5 years	process

(1) (2) (3) see § D for the specific conditions for carrying out the tests

D- Special conditions for carrying out the tests

(1) **For burst tests** performed by the manufacturer, it is not necessary to perform the 20 steps to reach the test pressure; only the following 5 steps are required (3PRM – 3.25PRM – 3.5PRM – 3.75PRM – 4PRM). In case of dispute, CCH2006-01 applies.

(2) **For elongation tests** carried out by the manufacturer, the pressure holding time of 1 hour may be reduced but in the event of a dispute, CCH2006-01 applies.

(3) **For bending, cyclic fatigue and mechanical strength tests:**

In order to monitor the evolution of the level of pipe performance, it is recommended to conduct the tests beyond the acceptance thresholds of CCH2006-01:

- either until failure,
- or at least with a coefficient:
  - 3 times the threshold required for bending, i.e. 30 cycles,
  - 1.3 times the respective required thresholds for cyclic fatigue and mechanical strength (i.e. 13000 cycles in cyclic fatigue and 1300 cycles in mechanical strength).

(4) **For the frequency of monitoring of FCs:**
When a type of hoses (FCP, FCD or FCC) is reduced to 1 certified product, the monitoring frequency is 2 years instead of 1 year.

Note: points (1) and (2) were taken into account in the version of CCH 2006-01 of March 2015.