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AENOR N Mark Specific Rules for mechanical-joint compression fittings for systems with plastics pipes under pressure

Note: This document is a translation of the Spanish document RP 001.86 rev. 2 approved by the Plastics Technical Certification Committee (CTC-001). Spanish version always prevails over this translation.

RP 001.86

Revision 2

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1 Purpose and scope

These specific rules describe, in compliance with section 3.2 of the General rules for the AENOR Certification of Products and Services with the N Mark, hereafter the General Rules, the certification scheme for mechanical-joint compression fittings for systems with pressure pipes for:

- Water supply for human consumption (W), including raw water prior to treatment and for water supply for general use.
- Gas supply (GAS).
- Drainage and buried sewer under pressure (P).
- Water supply for irrigation (I).
- Industrial applications (IS).

Complementing the AENOR Mark Specific Rules for plastic materials – common requirements (RP 001.00). The General Rules always prevail over the present Specific Rules.

The N Mark for mechanical-joint compression fittings for systems with plastics pipes under pressure, hereafter the Mark, denotes product compliance with the standard ISO 17885:2015, ISO 17885: AMMENDMENT 1: 2016 or SANS 17885:2019, hereafter the product standard.

2 Definitions and requirements

Serie: It is consider as the set of fittings produced for the same nominal pressure

Base material: Is the material of the body

Reference: it is considered a reference the set of fittings that have the same nominal dimensions and shape

Joint types classified by resistance capacity:

- **Full-end-load resistance (FEL)**

  Combination of component and joint design and characteristics such that under any load condition the plastic pipe will fail first.

- End-load resistance (EL)

  Resistance to end load transmitted via the connecting pipe and generated by internal pressure, pipeline external interference, and thermally induced pipe stresses in any combination

- Non-end-load resistance (NEL)

  Lack of resistance to axial loads without additional external mechanical axial support.

According to the medium used, it is defined:

- **W:** Water supply for human consumption, including raw water prior to treatment and for water supply for general use.
- **P:** Drainage and buried sewer under pressure.
- **I:** Water supply for irrigation.
- **IS:** Industrial applications.
- **GAS:** Supply of gaseous fuels.

WATER QUALITY FOR HUMAN CONSUMPTION

With regard to potential adverse effects on water quality for human consumption caused by the products covered by the standard UNE -EN ISO 21003, the clients will provide to AENOR during the inspection visit the evidence that their product complies with the RD 140/2003.

Article 14 of the mentioned document states that "Products that are in contact with the water of human consumption, by themselves or by the practices that are used, shall not transmit to the water for human consumption, substances or properties that contaminate or get worse its quality, and involve a failure to comply the requirements specified in Annex I or a risk to the health of the population supplied. For it, evidence must be provided of complying with the RD 140/2003 through migration test according to the UNE-EN 12873 Standard, performed every five years and / or certificates issued by competent authorities of compliance with the RD 140/2003.

3 Sampling and testing for granting and maintaining of the product N Mark certificate

3.1 Sampling and tests to be carried out by the laboratory (See RP 01.00)

AENOR will select and mark the necessary samples to carry out in the laboratory the test indicated in table 1 per material base of the fitting, per type of pipes and nominal pressure as appropriate.

The manufacturer will send the selected samples to the laboratories indicated by AENOR, within 7 days since the date of the inspection.

TABLE 1

TEST	GRANTING/ MAINTANING	RESULTS EVALUATION
Appearance	10 fittings randomly	1
Opacity	1 reference (the thinnest)	1
Verification of long-term behaviour (Note 1), just for plastic fittings)	Type test 1 reference randomly	1
Specific characteristics of the material of the fitting (according to table 5 of the standard, EJ PP: Flow Index)	1 reference randomly	1
Short-term Internal Pressure Resistance to the body of the fitting (according to Annex C of the standard)	50% of the diameters / máx. 4	1
Long-term Internal Pressure Resistance to the body of the fitting (according to Annex C of the standard)	1 reference randomly	1
Internal pressure tightness (Not necessary if bending)	50% of the diameters / máx. 4	1
Internal pressure tightness with bending (For DN ≤ 63)	50% of the diameters / máx. 4	1
Long-term leaktightness of the assembled fitting	1 reference randomly	1
Tear resistance at 23 °C	50% of the diameters / máx. 4	1
Leaktightness negative pressure (For DN ≤ 63)	50% of the diameters / máx. 4	1
Leaktightness with angular deviation and deformation (only fittings with elastic seal)	1 reference randomly	1
Leaktightness and resistance to bending and internal pressure (only for PVC- and W, P, I, I pipes)	50% of the diameters	1
Corrosion resistance (Accessories with brass components only)	1 reference randomly	1
Constant load resistance at 23°C of tube / tube or tube / accessory (Gas only)	50% of the diameters	1
End-load resistance at 80° C (Gas only)	50% of the diameters	
Leaktightness after thermal cycling (outdoor) (Gas only)	1 reference randomly	1
Flow ratio (Gas only)	1 reference randomly	1

Note 1: The long term behaviour of the material of the fitting body shall be verified in a type test on an injection-moulded pipe specimen with an outside diameter of not less than 32 mm produced according ISO 1167-2 with the same material as that of the body fitting body. For more information see point 8.2 of the product standard.

4 Manufacturer internal control

4.1 Raw materials ~~for~~ of the fittings

The manufacturer must guarantee that the mixtures, compounds, and alloys involved in the manufacture of the fittings have appropriate characteristics according to the requirements of the product standard for each application.

In addition, will assure that the specifications provided in the Certificate of Analysis, comply with the purchase requirements established and that these are the compounds and alloys declared in the application forms of as raw materials.

4.1.1 Plastic Materials

It should be used materials defined in Table 1 of the standard, in case of using a material declared as "No experience", the suitability of the material will be demonstrated by agreement between the manufacturer and the end user.

In the event that a plastic material is not included in Table 1, the material will be presented to the Committee for approval.

The raw material used for any fitting that is exposed to ultraviolet radiation must be resistant to ultraviolet radiation. Reprocessed material may be used, but external recycled materials will not be used. In the case of glass reinforced materials, only virgin material will be used.

4.1.2 Metallic materials

It should be used metallic materials defined in Table 2 of the Product standard.

In the event that a metallic material is not included in Table 2, the material will be presented to the Committee for approval.

4.1.3 Elastomeric joints

Elastomeric joints of the fittings will comply with the requirements indicated in the standard depending on their application.

W y P	Table 3
GAS	Table 4
IS e I	The manufacturer must present evidence of the suitability of the chosen material

4.1.4 Threads

Joints tightened by thread coupling must comply with ISO 7/1 and the threads of the pipes with ISO 228-1.

If the thread used for manufacturing is according to ISO 228-1, the female fittings shall have the housing for the joint to be sold together with the fitting.

It is recommended that plastic female thread fittings from 1 1/4" and collars in all dimensions, incorporate around the thread a reinforcing stainless-steel ring.

4.2 Final products control

Tests and their frequency are stated in table 2 as proceed 2 per material base of the fitting, per type of pipes and nominal pressure.

TABLE 2

TEST	GRANTING/ MAINTANING
Appearance	According to the manufacturer's internal procedure
Verification of long-term behaviour (Note 1), just for plastic fittings)	Type test
Specific characteristics of the material of the fitting (according to table 5 of the standard, EJ PP: Flow Index)	According to the manufacturer's internal procedure
Short-term Internal Pressure Resistance to the body of the fitting (according to Annex C of the standard)	Once a month
Long-term Internal Pressure Resistance to the body of the fitting (according to Annex C of the standard)	Once a month
Internal pressure tightness (Not necessary if bending)	Once per moth
Internal pressure tightness with bending (For DN ≤ 63)	Per manufacturing period
Long-term leaktightness of the assembled fitting	Once every 4 months
Tear resistance at 23 °C	Once per month per diameter
Leaktightness negative pressure (For DN ≤ 63)	Once per month per diameter
Leaktightness with angular deviation and deformation (only fittings with elastic seal)	Once a year
Leaktightness and resistance to bending and internal pressure (only for PVC- and W, P, I, I pipes)	Once a year
Corrosion resistance (Accessories with brass components only)	Once a year per alloy type
Constant load resistance at 23°C of tube / tube or tube / accessory (Gas only)	Once per month per diameter
End-load resistance at 80° C (Gas only)	Once a year
Leaktightness after thermal cycling (outdoor) (Gas only)	Once a year
Flow ratio (Gas only)	Once a year

Note 1: The long term behaviour of the material of the fitting body shall be verified in a type test on an injection-moulded pipe specimen with an outside diameter of not less than 32 mm produced according ISO 1167-2 with the same material as that of the body fitting body. For more information see point 8.2 of the product standard.

5 Marking of certified products

5.1 Marking of the fittings

The minimum required marking of the fitting is the following:

— The word AENOR;

— AENOR N Mark logotype;

— Number of the certificate AENOR: 001/XXX;

— Manufacturer identification, trademark;

— Type of fitting-body material;

— Nominal outside diameter of the pipe for which the fitting is intended;

— Nominal pressure;

— Nominal diameter of the thread, if apply;

— Thread type;

— Intended use;

— Manufacturing code (plastic fittings).

The manufacture´s name or trademark, Nominal outside diameter of the pipe, the nominal pressure of the fitting, and the nominal diameter of the thread shall be printed or embossed when marked on the fitting. Additional information may be given in the form of a label affixed to the fitting or package.

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Annex C

Descriptive questionnaire of the mechanical-joint compression fittings for systems with plastics pipes under pressure

CLIENT:

MANUFACTURER COMPANY:

FACTORY SITE:

TYPE OF FITTING-BODY MATERIAL:

MATERIAL OF OTHER FITTINGS COMPONENTS:

TYPE OF PIPE FOR WHICH THE FITTING IS INTENDED:

INTENDED USE: W ☐ P ☐ I ☐ IS ☐ GAS ☐

TRADEMARK(S):

DATE:

Please list all the fittings to be included in the scope of the certification:

FIGURE	DIAMETERS	INTERNAL REFERENCE OF THE MANUFACTURER	NOMINAL OUTSIDE DIAMETER OF THE PIPE	NOMINAL PRESSURE

For any change of these date, the client will send to the Committee Secretary this descriptive questionnaire updated.

…….…… on …… of …… 20….

SIGNATURE AND STAMP OF THE MANUFACTURER