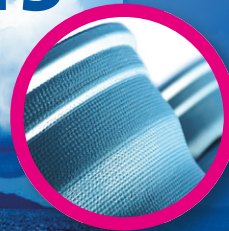


New standard **ISO 2531:2009** A new era begins

Water
supply and
distribution

Ductile
iron pipes,
fittings and
accessories



goodbye
KO

Comprehensive pipe systems

PAM
SAINT-GOBAIN

The new ISO standard 2531:2009 marks the beginning of a new era !

ISO 2531

NEW



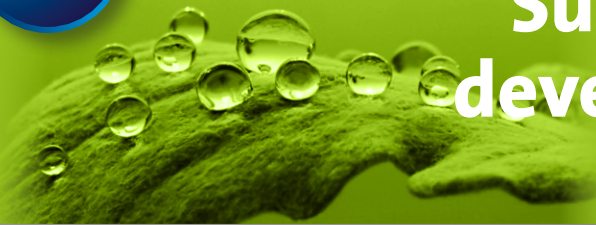
**Pressure
classes**

+



**Material
in contact with
drinking water**

NEW



**Sustainable
development**

NEW



**Quality
assurance**

+



Performance

ISO 2531 changes

Preferred pressure classes



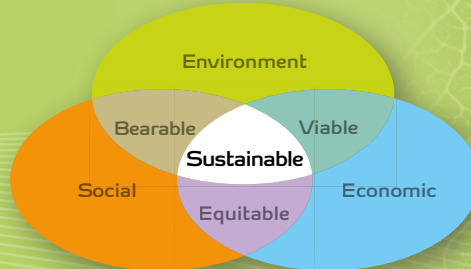
* allowable operating pressure (PFA)

- Simple organization in pressure classes for pipes and fittings (*Clause 4.2.1.1*)
- Preferred pressure classes for standard installations (*Clause 8.1 table 14/Clause 4.2.1.2*)
- Additional pressure classes for specific requirements up to 100 bar (*Annex C table C.1*)
- End of thickness classes (K9 etc.)



- Compliance with requirements of legislation or national standards covering materials in contact with drinking water (*Clause 4.1.4*)

- Approximately 20% reduction in the environmental footprint of products (*Clause 8.1 table 14*)
- Increased durability via recommendation of fields of use and a wide choice of protective coatings (*Annexes A and B*)




- Compliance with ISO 9001 required and certified by an accredited independent third party organization (*Annex E.3*)
- Type tests to demonstrate product compliance with the ISO 2531 standard (*Annex E.2*)
- Mandatory type tests on fittings and compatibility with pipes in the case of separate purchase (test reports provided by the supplier) (*Annex E.2*)
- Higher factors of safety (*Annex F*)


- Minimum angular deflection values increased by 0°30 (*Clause 5.2.2-b*)
- Type tests on resistance to negative pressure on joints (internal negative pressure) (*Clause 5.2.4*)

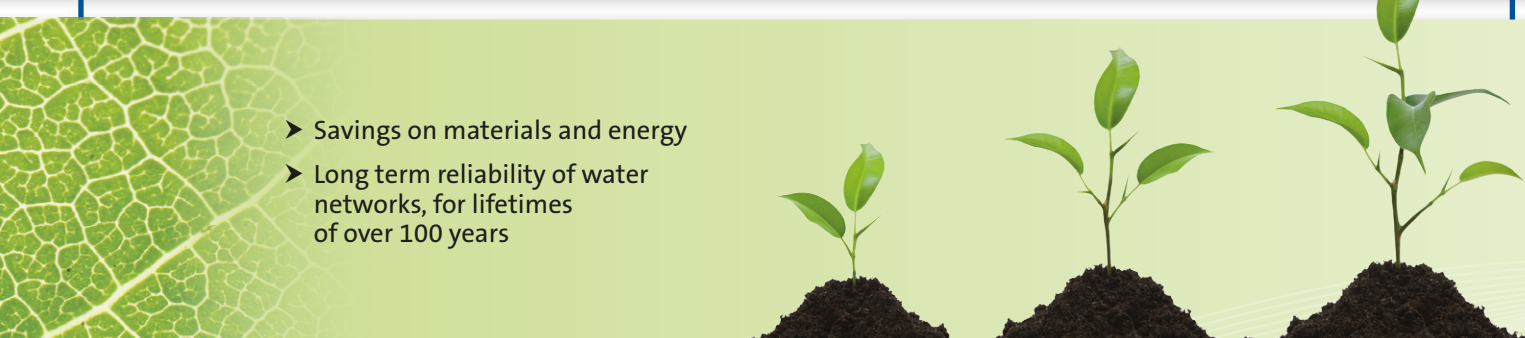
Minimum performance
in terms of angular deflection


DN 40 to 300	3°30
DN 350 to 600	2°30
DN 700 to 2000	1°30


ISO 2531 advantages

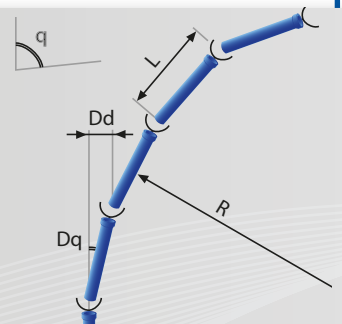
- 
- A clearer offer
 - Solutions for very high pressures
 - Calculation method of internal pressure resistance defined in the standard (*Clause 4.2.3.1*)
 - Simple correspondence between diameter and allowable operating pressure (PFA)

- 
- Assurance of high quality drinking water
 - Guarantee of compliance with national legislations or regulations

- 
- Savings on materials and energy
 - Long term reliability of water networks, for lifetimes of over 100 years

- 
- High quality certified
 - Undeniable proof of compliance
 - The highest safety level on the market

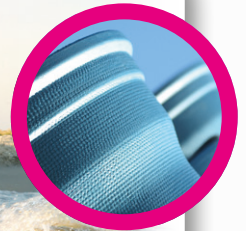
- 
- Assured leaktightness of joints
 - Better resistance to land movement and greater freedom on installation
 - Savings on fittings



PAM commitments

SAINT-GOBAIN

- PAM played the lead role in the development of new pressure classes
- NATURAL and HYDROCLASS (under development) available in preferred pressure classes
- HYDROPAM and ALPINAL for higher pressure ranges
- IRRIGAL for irrigation and URBITAL for recycled water



- PAM only uses certified materials in contact with drinking water
- PAM solutions comply with standards and legislation ; among which : France (ACS), United Kingdom (Regulation 31.4 and WRAS), Germany (DVGW) and the Netherlands (KIWA).



- PAM is certified to ISO 14001:2004 by a third party organization
- Zinalium external coating triples the lifetime of pipelines in most situations
- In 15 years, PAM has reduced energy requirements by an average of 30% to produce a pipe of the same DN



- PAM is certified to ISO 9001:2008 by a third party organization for design, manufacture and marketing of its products
- PAM has its own additional technical specifications, which are even more demanding than those of ISO 2531 standard
- PAM provides a complete, consistent and homogenous range of pipes, fittings and joints, designed and tested for the highest performances



Angular deflection of joints

DN 60 to 300	5°
DN 350 to 1200	4°
DN 1400 to 1600	3°
DN 1800	2°30
DN 2000	2°

- PAM has the performance of its joints certified by a third party organization
- The angular deflections at joints of PAM products are greater than those specified in the ISO 2531 standard
- PAM joints are certified by tests in COFRAC accredited laboratories



Welcome ISO 2531:2009!

What is ISO 2531:2009?

The ISO 2531:2009 standard is the international standard used within the framework of global exchanges, for ductile iron pipelines for water.

ISO 2531:2009, published in december 2009, supersedes and enhances the former version of the standard, dating from 1998.

An international standard

ISO 2531:2009 is the most international of the ISO 2531 standards! For the first time, it was developed with broad global participation by experts from America, Japan, France, UK, Italy, Spain and Germany, as well as China, India, Korea and Australia. Revision of the standard took 5 years.

An independent standard

The ISO 2531:2009 standard was approved after international consultation, in which all players in the water industry - water companies, engineering offices, installation companies and manufacturers were able to express their opinions. It is published under the authority of the International Organisation for Standardisation (ISO).

The ISO 2531:2009 standard is on sale online on the following websites:

- ISO - www.iso.org
- AFNOR - www.afnor.org
- BSI - www.bsigroup.com



Pressure classes C and disappearance of K9

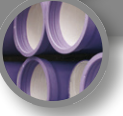
Material in contact with drinking water

Sustainable development

Quality assurance

Improved joint performance

Welcome pressure classes



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