



Pressure Equipment Directive

What Is the Ped ?

It's the European regulation which came into full effect on May 29, 2002 harmonising the Sector's legislation and replacing all the previous existing National Rules. After this date only equipment that satisfies PED requirements and bears the "CE" mark can be put on the market.

It applies to the design, manufacture and conformity assessment of pressure equipment with a maximum allowable pressure greater than 0,5 bar -(vessels, piping, safety accessories, pressure accessories and assemblies).

Equipment is classified by different Categories (Category I, II, III and IV) depending on their maximum allowable pressure, volume and the fluid for which they are intended.

It doesn't apply to pipelines (also for oil and gas outside industrial sites), networks for water, equipment for vehicles, items for nuclear use, engines, equipment used in petroleum, gas or geothermal exploration, and extraction, etc.

What Is Requested For Seamless Steel Tubes?

Seamless steel tubes are defined by PED as "Materials".

CE marking is not applicable being requested only for the pressure equipment.

Tubes must be suitable for such application. For this the pressure equipment manufacturer must define certification criteria and the characteristics necessary to comply with the essential requirements of PED, always including toughness and elongation.

"Unless other values are requested, ... elongation after rupture no less than 14% and ... ISO V test-piece no less than 27 J, at a temperature no greater than 20°C but no higher than the lowest scheduled operating temperature."

Which Standards Can Be Used For Ped?

EN 10216 series published by CEN (European Committee for Standardisation) on June 2002. They are aligned with PED, specify testing criteria and impact properties and contain requirements for the necessary inspection systems and certification. They are being published in each EU Country replacing all previously existing Corresponding European national standards (UNI, DIN, NF, ...). The Commission is currently considering their publication on the Official Journal as harmonised Standards. They represent the easiest and simplest system to satisfy PED requirements.

ASTM and other standards for "Pressure Purposes" are not directly usable. Supplementary requirements must be specified to permit compliance with essential requirements (e.g. toughness, controls and certification) with consequent increasing of costs. A "history of safe use" alone cannot replace the need for such supplementary requirements.

Tubes manufactured according to standards with field of application different from "Pressure Purposes" (e.g. API) are not considered.

Tenaris can supply materials ordered "according to EN 10216" or "according to other standards plus the necessary supplementary requirements for PED"; nevertheless the reference to EN 10216 minimises any possible inconvenience among distributors and end users.

Who Is The Equipment Manufacturer?

He is the subject (pressure equipment manufacturer or his authorised representative established within the Community) that has the complete responsibility for the equipment and for its full compliance with PED requirements. He is responsible for the design, choice of the suitable materials, manufacturing, assessment, declaration of conformity and affixing of "CE" marking. Depending on the equipment category he has to appoint a Notified Body to carry out the procedures referred to the conformity assessment.

Which are the criteria for choosing materials?

The equipment manufacturer must choose materials which fulfil one of the following requirements:

- Comply with an harmonised standard - EN 10216 series when published on the Official Journal as harmonised Standards.
- Be covered by a European Approval of Material (EAM) - No steel tubes are up to now covered by a EAM. The situation is expected to continue into the future.
- A Particular Material Appraisal (PMA) - It can be made by the equipment manufacturer itself for Categories I and II. A Notified Body shall make it for Categories III and IV. Materials conforming to National Standards (UNI, DIN, NF, ..., ASTM) must be previously complemented for the applicable essential requirements (e.g. ductility) and then must be submitted to this Appraisal.

Which Are The Correct Certificates?

"The equipment manufacturer must take appropriate measures to ensure that material used conforms to the required specification". In order to comply with this requirement, PED Annex I, 4.3 considers the case of "a material manufacturer who has an appropriate quality-assurance system, certified by a competent body established within the Community and having undergone a specific assessment for materials".

Tenaris operates a Quality Management System ISO 9001 certified by LRQA complying with such requirement.

An inspection certificate type 3.1.B, also declaring the conformity of the delivered material to the order, is considered appropriate when materials are purchased from such certified manufacturers. The Quality Management System ISO 9001 certificate itself is not sufficient to support material conformity.

Tubes released with a test report type 2.2 are not permitted to be used according to PED for category II, III and IV.

Who Is The Material Manufacturer?

The material manufacturer has the responsibility for production and delivery of materials conforming to the purchaser's order together with the requested certification. The material manufacturer has no possible control over the design and adequacy of delivered materials with their end use and application conditions. He can't be requested to directly attest the conformity of its products with PED.

Tenaris is a material manufacturer.

Which is the correct way to formalise a purchase order?

Orders asking for "materials conforming to any specification plus PED" are inconsistent with the Directive and as such shall be notified to the purchaser.

Correct formulation:

- **Materials ordered according to EN 10216**
EN 10216 parts 1-4 already includes all the necessary requirements (e.g. toughness and elongation) considered by PED.
- **Materials ordered according to other specifications (e.g. UNI, DIN, NF, ..., ASTM)**
These materials cannot be used in any case as according to PED, and supplementary requirements (with related costs) are usually necessary.

Tenaris' materials will be delivered with a specific inspection certificate type 3.1.B including the attestation of conformity with the order and the declaration that "the plant operates a certified Quality Management System according to Annex I, sect. 4.3 of PED."

Which Are The Requirements For Distributors?

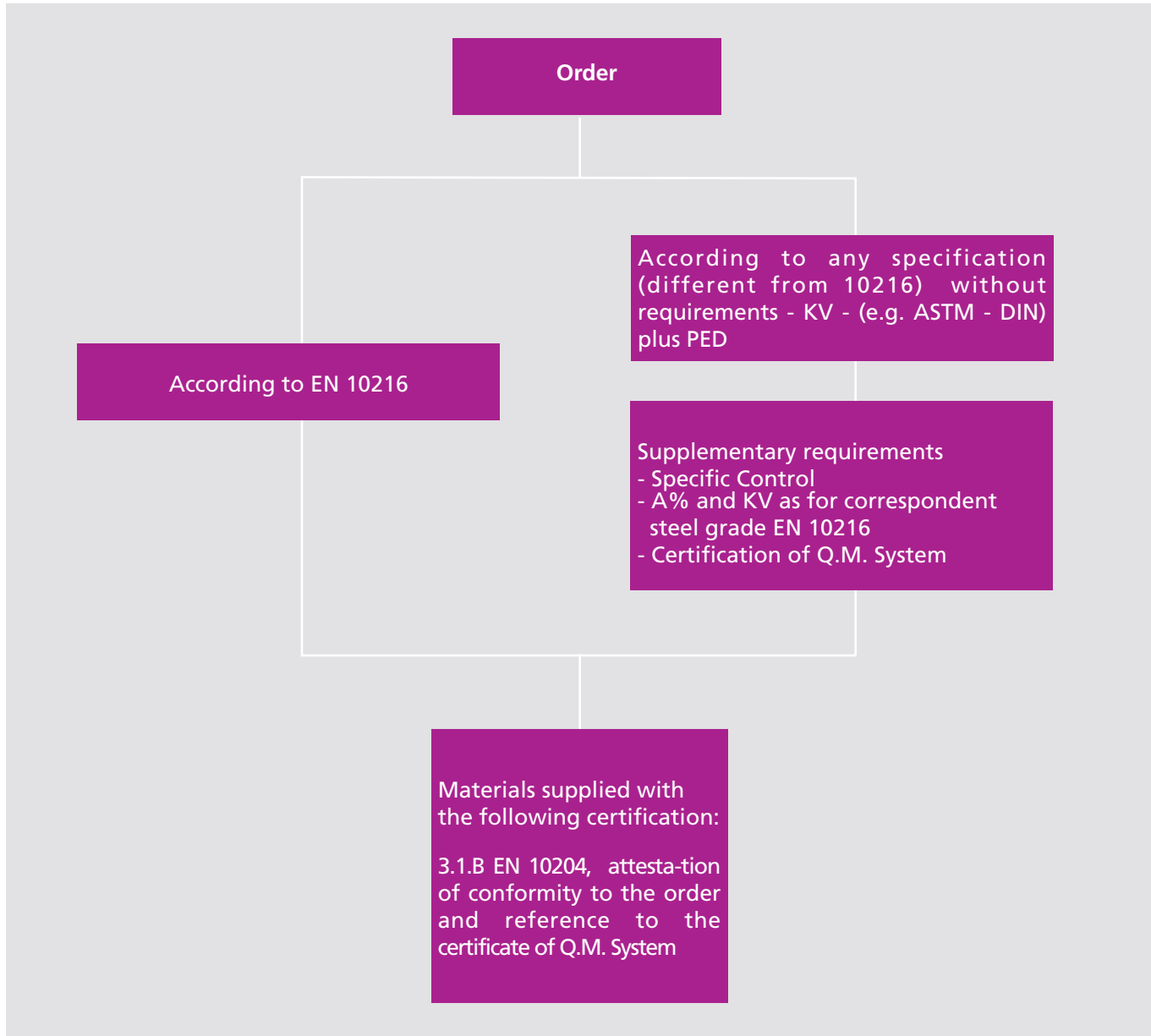
Material from stockists shall be accompanied by inspection documents from the material manufacturer. Certificates issued by the manufacturer can't be modified.

Distributors are only permitted to attest the conformity of sold materials through the inspection document issued by the material manufacturer. Requalification of materials is not permitted.

What About Welded Tubes?

Welded tubes are not considered as "Materials" but as "Components" because they include permanently joined zones. For categories III and IV welds and their Non Destructive Testings must be carried out according to established procedures and by qualified personnel approved by a competent and recognised Organisation.

ORDER FLOW CHART FOR THE MATERIALS - PED DIRECTIVE



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