



AMERICANIZING EUROPEAN HOT WATER TECHNOLOGY

HW INSTALLATION TECHNIQUES

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EUROPEAN VS NORTH AMERICAN TECHNIQUES

- **ASMA vs EN standards**
- Flexible pipes
- Single use compensator
- Foam Ball
- Quality control and risk mitigation

DISTRICT HOT WATER DISTRIBUTION – EN 13941

EN 13941 is a complete system of standards just for district hot water distribution systems.

2 Normative references

The following referenced documents are indispensable for the application of this document (only the edition cited applies. For undated references, the latest edition of the referenced documents (which may include amendments) applies).

EN 253:2009, *District heating pipes — Preinsulated bonded pipe systems for directly buried pipe assembly of steel service pipe, polyurethane thermal insulation and outer casing*

EN 287-1, *Qualification test of welders — Fusion welding — Part 1: Steels*

EN 448:2009, *District heating pipes — Preinsulated bonded pipe systems for directly buried fitting assemblies of steel service pipes, polyurethane thermal insulation and outer casing*

EN 473, *Non-destructive testing — Qualification and certification of NDT personnel —*

EN 488, *District heating pipes — Preinsulated bonded pipe systems for directly buried valve assembly for steel service pipes, polyurethane thermal insulation and outer casing*

EN 489:2009, *District heating pipes — Preinsulated bonded pipe systems for directly buried joint assembly for steel service pipes, polyurethane thermal insulation and outer casing*

EN ISO 11-1, *Non-destructive testing — Fusion welding — Part 1: General principles*

EN 583-1, *Non-destructive testing — Ultrasonic examination — Part 1: General principles*

EN 970, *Non-destructive examination of fusion welds — Visual examination*

EN 1289, *Non-destructive examination of welds — Penetrant testing of welds — Acceptance level*

EN 1290, *Non-destructive examination of welds — Magnetic particle examination of welds*

EN 1291, *Non-destructive examination of welds — Magnetic particle testing of welds — Acceptance level*

EN 1418, *Welding personnel — Approval testing of welding operators for fusion welding and setters for fully mechanized and automatic welding of metallic materials*

EN 1435, *Non-destructive examination of welds — Radiographic examination of welded joints*

EN 1712, *Non-destructive examination of welds — Ultrasonic examination of welded joints — Acceptance level*

EN 1714, *Non-destructive examination of welds — Ultrasonic examination of welded joints*

EN 10204, *Metallic products — Types of inspection documents*

EN 10216-2, *Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 2: Alloy steel tubes with specified elevated temperature properties*

EN 10217-1, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 1: Tubes with specified room temperature properties*

EN 10217-2, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 2: Non-alloy and alloy steel tubes with specified elevated temperature properties*

EN 10217-5, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 5: Welded non-alloy and alloy steel tubes with specified elevated temperature properties*

EN 13018, *Non-destructive testing — Visual testing — General principles*

EN 13480-3:2002, *Metallic industrial piping — Part 3: Design and calculation*

EN 25817:1992, *Arc-welded joints in steel — Guidance on quality levels for imperfections (ISO 5817)*

EN ISO 3834-1, *Quality requirements for fusion welding of metallic materials — Part 1: Criteria for the appropriate level of quality requirements (ISO 3834-1:2005)*

EN ISO 3834-2, *Quality requirements for fusion welding of metallic materials — Part 2: Complementary requirements (ISO 3834-2:2005)*

EN ISO 3834-3, *Quality requirements for fusion welding of metallic materials — Part 3: Standard quality requirements (ISO 3834-3:2005)*

EN ISO 3834-4, *Quality requirements for fusion welding of metallic materials — Part 4: Elementary quality requirements (ISO 3834-4:2005)*

EN ISO 9692-2, *Welding and allied processes — Joint preparation — Part 2: Submerged arc welding of steels (ISO 9692-2:1998)*

EN ISO 14731:2006, *Welding coordination — Tasks and responsibilities (ISO 14731:2006)*

EN ISO 15607:2003, *Specification and qualification of welding procedures for metallic materials — General rules (ISO 15607:2003)*

EN ISO 15609-1, *Specification and qualification of welding procedures for metallic materials — Welding procedure specification — Part 1: Arc welding (ISO 15609-1:2004)*

EN ISO 15614-1, *Specification and qualification of welding procedures for metallic materials — Welding procedure test — Part 1: Arc and gas welding of steels and arc welding of nickel and nickel alloys (ISO 15614-1:2004)*

ISO 1000, *SI units and recommendations for the use of their multiples and of certain other units*

ISO 3419, *Non-alloy and alloy steel butt-welding fittings*

ISO/TR 15608:2000, *Welding — Guidelines for a metallic materials grouping system*

WELD LEAK TIGHTNESS TEST

- **X-Ray depends on project class**
- **TIG welding preferred since the alignment is to be within 1 mm**
- **Pressure test is not required, but weld leak tightness test of all welds is**

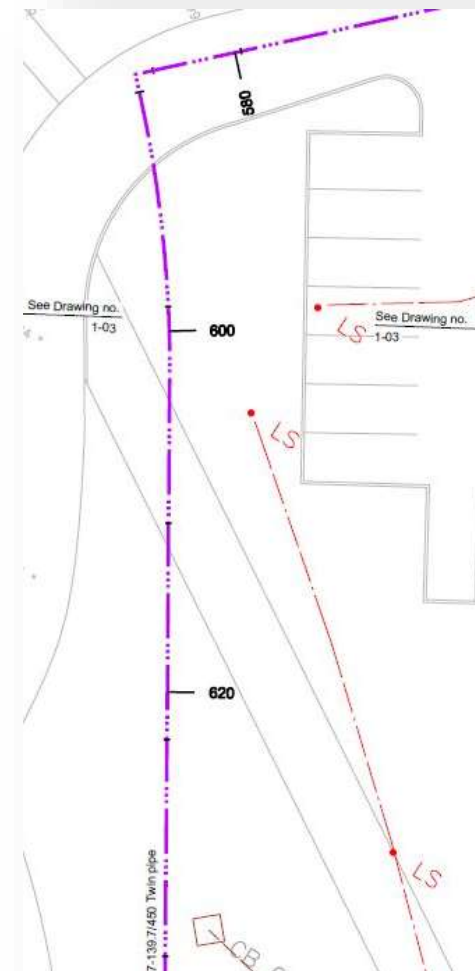
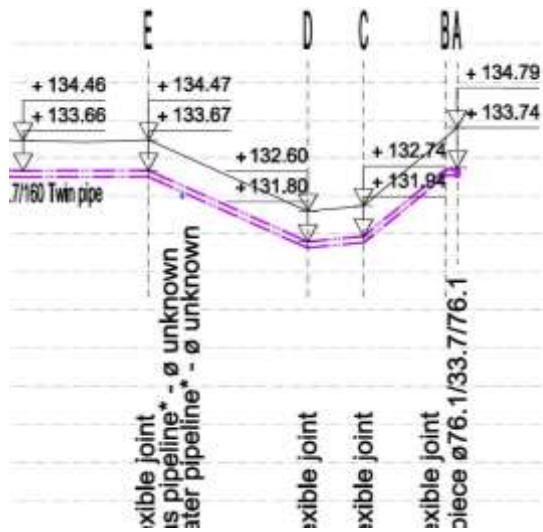
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PIPE FLEXIBILITY

BENEFITS

More flexible design in all directions



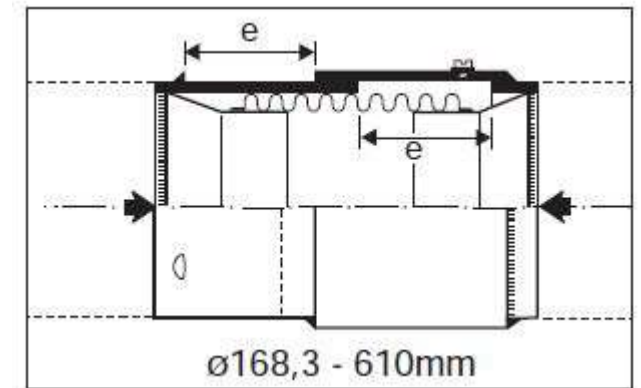
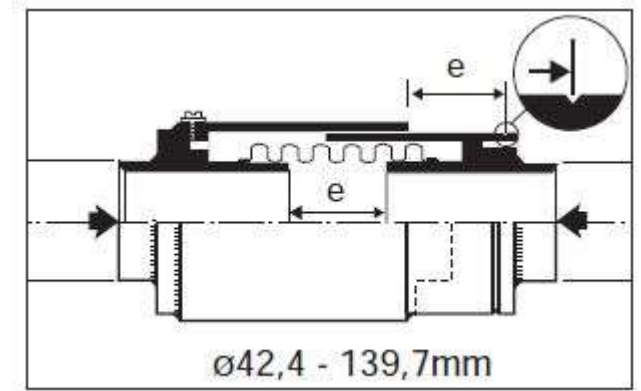
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SINGLE USE COMPENSATOR



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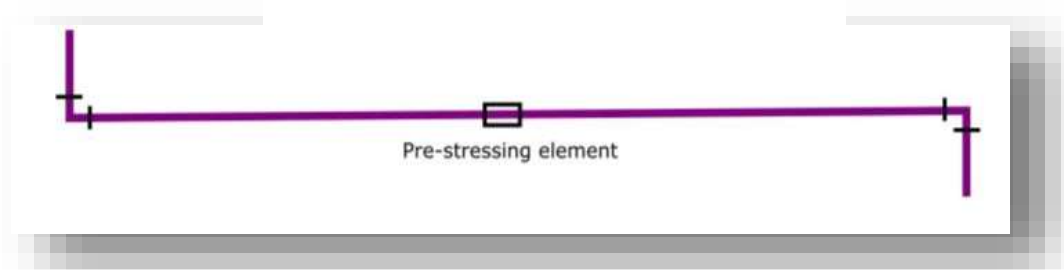


EXAMPLE, 300 FEET

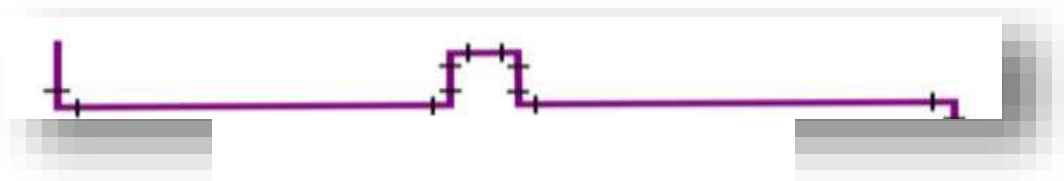
BENEFITS

**Reduced number of welds
and pipe lengths**

- Single-use compensator:



- Expansion loop:



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FOAM BALLS

BENEFITS

- Simple and Cost Effective.



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BENEFITS

It is all in the norm!

We have forms for everything!



QUESTIONS & ANSWERS

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