

**Structural classifications** 13

CEN EN 13689

AWWA M25

a) loose fitting      b) close-fitting

Independent pressure pipe liner

Interactive pressure pipe liner  
thin walled

Fully Structural  
Semi-Structural  
Non-Structural liners

**New structural classification Pressure Pipe liners** 14

being integrated in the latest CEN/ISO standards

Class A	Class B	Class C	Class D
loose-fit	close-fit	inherent ring stiffness	relies on adhesion
Fully Structural		Semi-Structural	Non-Structural
Independent		Interactive	

**New structural classification Pressure Pipe liners** 15

being integrated in the latest CEN/ISO standards

Liner characteristics	Class A	Class B	Class C	Class D
Can survive any failure of host pipe	✓	-	-	-
Long-term pressure rating ≥ MAOP	✓	-	-	-
Inherent ring stiffness <sup>1)</sup>	✓	✓	- <sup>2)</sup>	- <sup>2)</sup>
Long-term hole and gap spanning	✓	✓	✓	-
Provides internal barrier layer	✓	✓	✓	✓

1) minimum requirement: pipe self-supporting when depressurized  
2) reliant on adhesion to host to be self-supporting

**ISO/TC 138 again active on Renovation** 16

- 2004: Working Group re-emerged to bring the CEN standards to ISO level
- CEN standards will be lifted to ISO standards
 

EN 13689	->	ISO 11295
EN 13566	->	ISO 11296
EN 14409	->	ISO 11297
EN 14408	->	ISO 11298

 with all subsequent parts
- ISO standards will incorporate the latest views e.g. the Class A-D pressure liner classification

**Methods selection** 17

APPROACH:

- Pipeline condition assessment
- Rehabilitation requirements
- Capabilities of techniques
- Least cost solution

**Conclusions** 18

- Standards offer an independent means of comparing different techniques
- CEN has developed a range of product standards for renovation of pipelines
- Definitions, Technique families, „M“ & „I“ and pressure liner classifications are set
- Quality assurance of installed products prior to installation now possible
- Selection of the most suitable system is facilitated by this