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Joining methods for CIPP products in pressure pipe systems

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Joining methods for CIPP products in pressure pipe systems

CIPP METHODS, DEFINITIONS



Pressure hose liner of classes A, B, C
in acc. with EN ISO 11295

Class A	Class B	Class C	Class D
loose-fit	close-fit	inherent ring stiffness	relies on adhesion
Independent	Interactive		
Fully structural	Semi-structural		Non-structural
Lining with continuous pipes			This International Standard is not applicable
	Lining with close-fit pipes		
	Lining with cured-in-place pipes		
		Lining with adhesive-backed hoses	
—	—	Lining with sprayed polymer material	—
NOTE 1 Lining with drawn-in hoses is still to be classified, as the development of product standards for these technical families is still pending.			
NOTE 2 The dots in the images for Classes C and D represent the gluing connections			

Joining methods for CIPP products in pressure pipe systems

CIPP METHODS



Inversion of a flexible
glass/needlefelt-liner and
curing by heat (steam)

Joining methods for CIPP products in pressure pipe systems

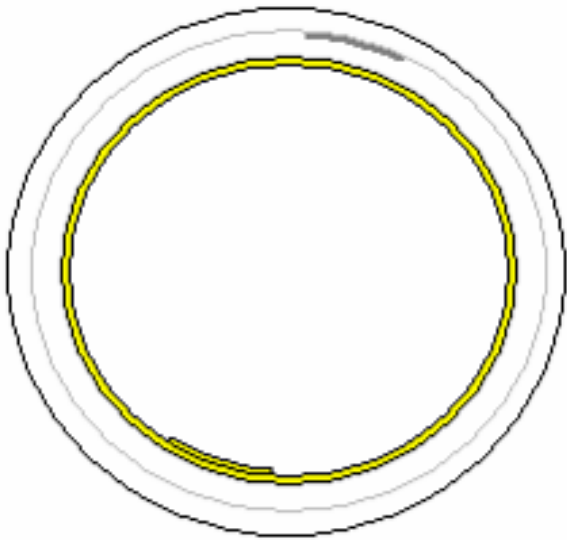
CIPP METHODS



Insertion (Pull-In) of a GRP Liner, UV curing

Joining methods for CIPP products in pressure pipe systems

CIPP METHODS - CHARACTERISTICS

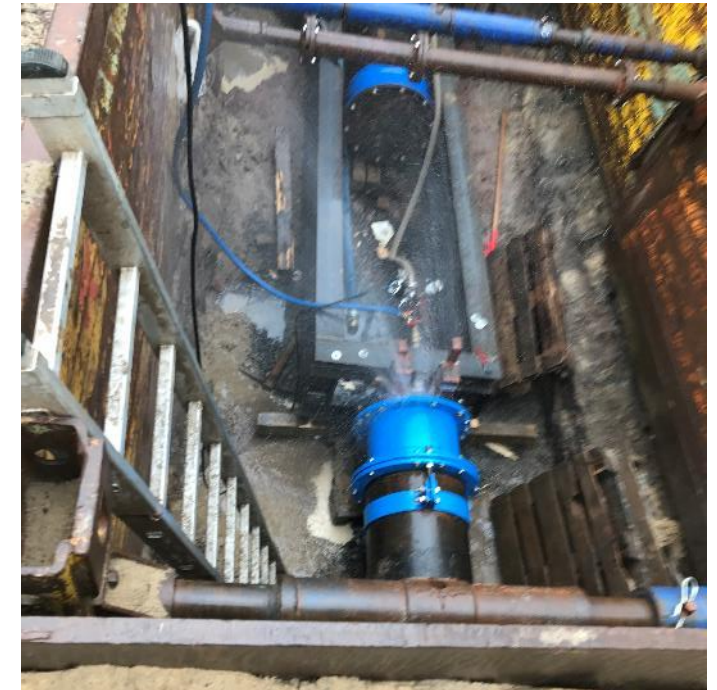


CIPP products are a composite of

- inner coating
- stability GRP (GRP/NF) layers
- (outer coating / foil)



They are not weldable like e.g. steel or PE



The CIPP product itself is useless without a proper joining method

Joining methods for CIPP products in pressure pipe systems

JOINING METHODS – SELECTION CRITERIA

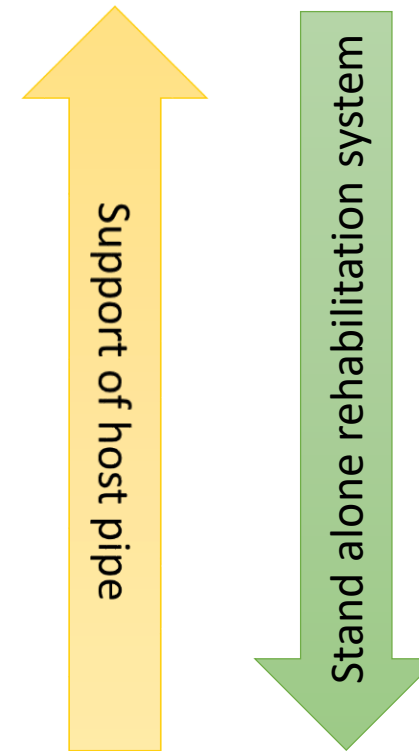
- Condition of host pipe
 - grade of deterioration
 - condition of inner surface
 - condition of potential inner coating
- Material of host pipe
 - weldable
 - clampable
 - force locking nature
- Diameter of host pipe
- Aspects of planning



Joining methods for CIPP products in pressure pipe systems

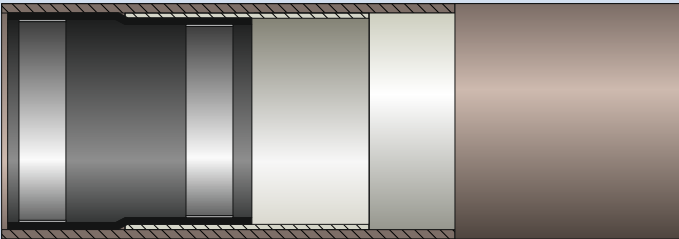
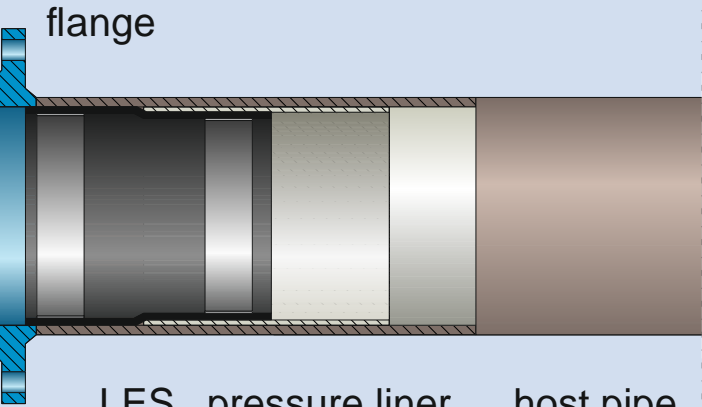
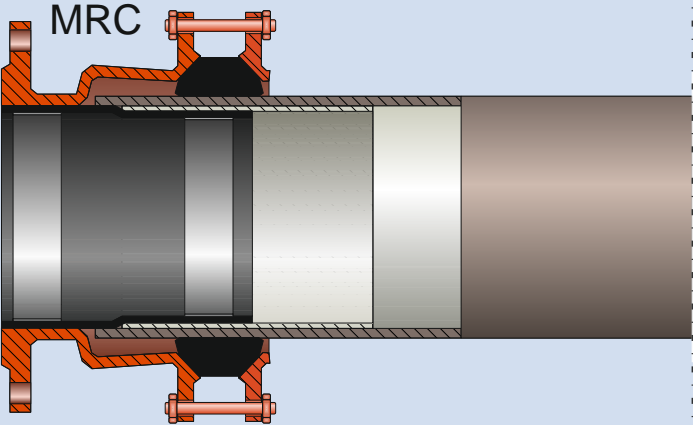
JOINING METHODS – REQUIREMENTS AND DEFINITIONS

- Connection via the old pipe
 - old pipe remains as full part of the system
 - structural
 - seal face
 - longitudinal forces
- Connection via a fitting
 - new fitting extends old pipe
 - old pipe only takes over longitudinal forces
- Connection via the pressure hose liner
 - stand alone solution
 - applicable even without host pipe





Joining methods for CIPP products in pressure pipe systems

JOINING METHODS – CONNECTION VIA THE OLD PIPE

old pipe – spigot end	welding neck flange	multi-range coupling
 <p>LES pressure liner host pipe</p>	 <p>flange</p> <p>LES pressure liner host pipe</p>	 <p>MRC</p> <p>LES pressure liner host pipe</p>
<p>\geq DN 200 / liner class A,B,C</p>	<p>\geq DN 200 / liner class A,B,C</p>	<p>\geq DN 200 / liner class A,B,C</p>

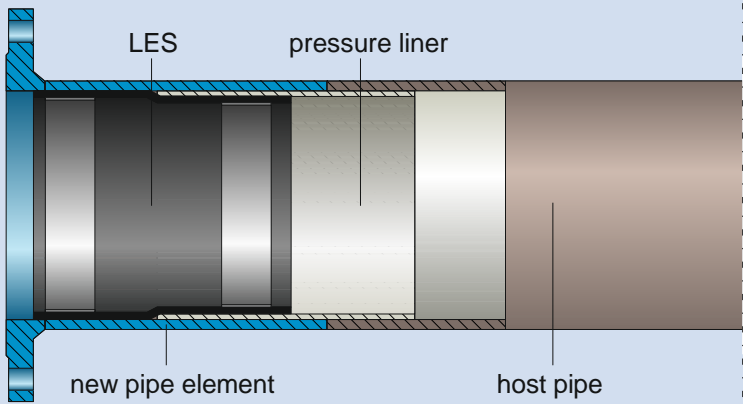
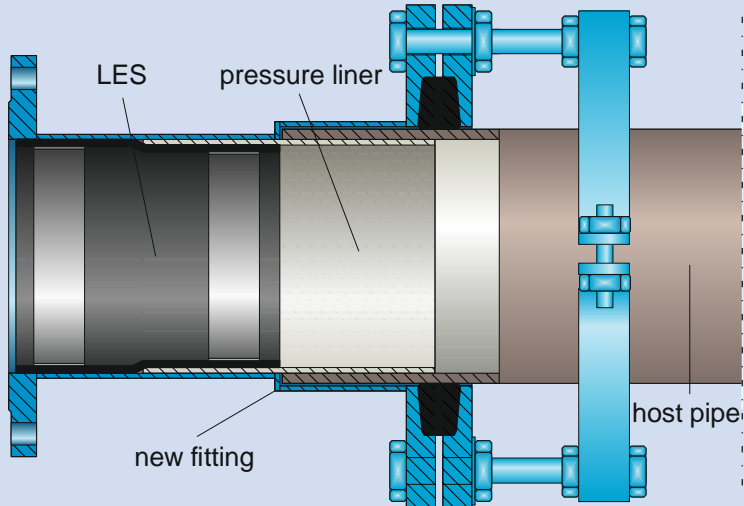
Joining methods for CIPP products in pressure pipe systems

JOINING METHODS – CONNECTION VIA THE OLD PIPE

old pipe – spigot end	welding neck flange	multi-range coupling
 <p>LES pressure liner host pipe</p>		
>= DN 200 / liner class A,B,C	>= DN 200 / liner class A,B,C	>= DN 200 / liner class A,B,C



Joining methods for CIPP products in pressure pipe systems

JOINING METHODS – CONNECTION VIA A FITTING

new pipe element with flange or spigot end	special flange with force lock
	
\geq DN 200 / liner class A,B,C	\geq DN 200 / liner class A,B,C

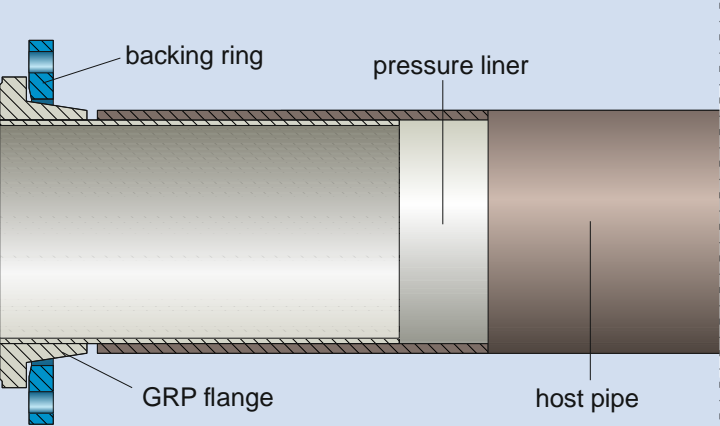
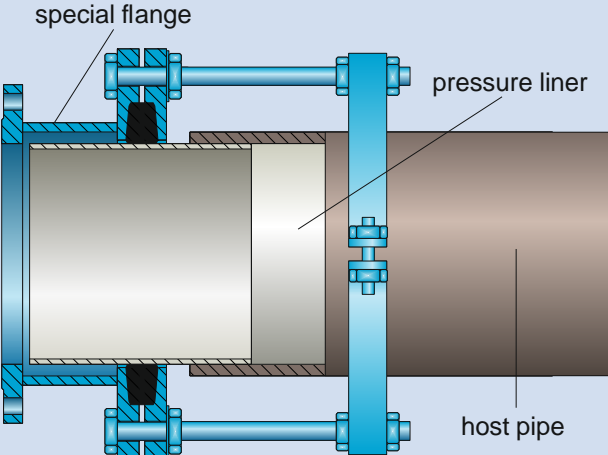
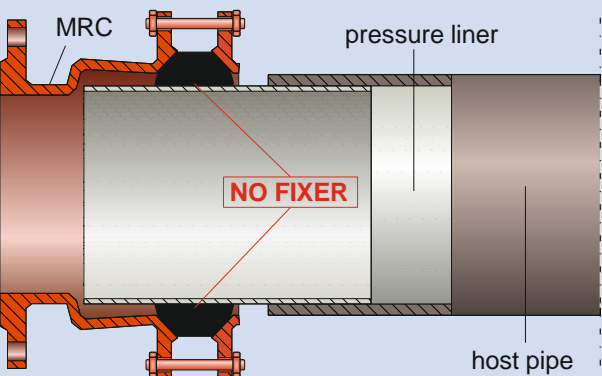
Joining methods for CIPP products in pressure pipe systems

JOINING METHODS – CONNECTION VIA A FITTING

new pipe element with flange or spigot end	special flange with force lock
	
>= DN 200 / liner class A,B,C	>= DN 200 / liner class A,B,C

Joining methods for CIPP products in pressure pipe systems

JOINING METHODS – CONNECTION VIA THE LINER

GRP-flange	special flange with force lock	multi-range coupling
		
\geq DN 100 / liner class A	\geq DN 100 / liner class A	\geq DN 100 / liner class A

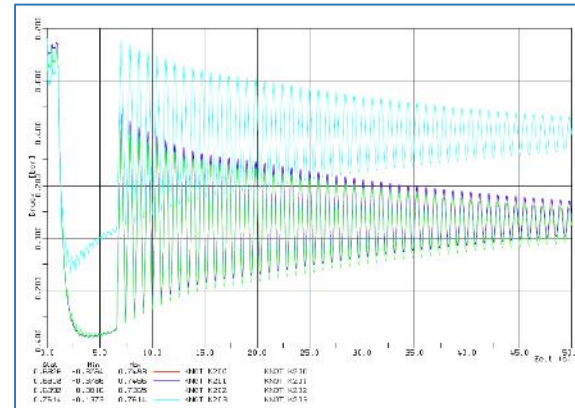
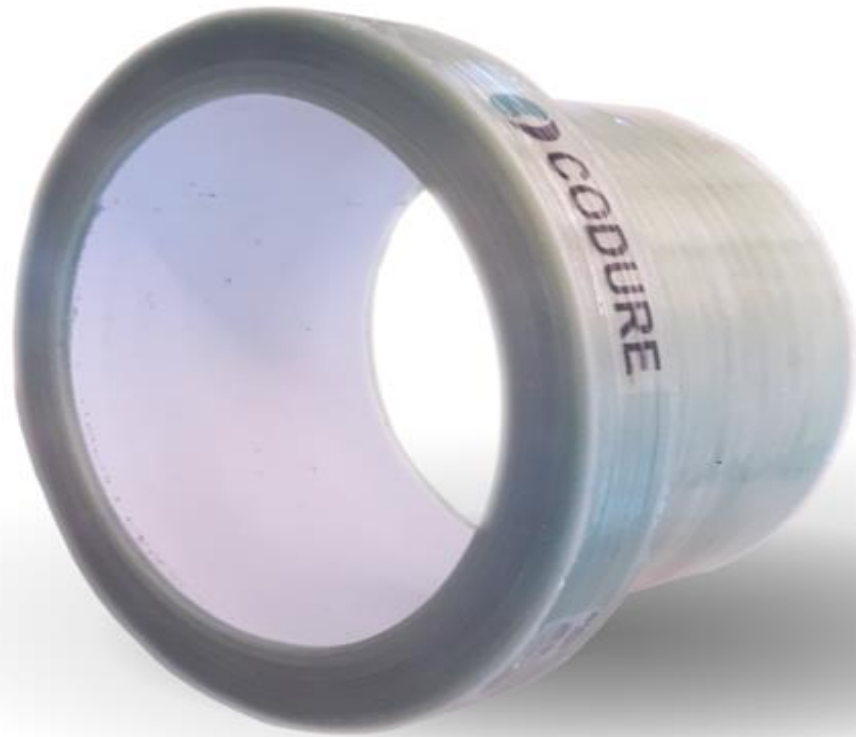
Joining methods for CIPP products in pressure pipe systems

JOINING METHODS – CONNECTION VIA THE LINER

GRP-flange	special flange with force lock	multi-range coupling
		
\geq DN 100 / liner class A	\geq DN 100 / liner class A	\geq DN 100 / liner class A

Joining methods for CIPP products in pressure pipe systems

EXAMPLE: PIPA-AQUA-TEC BLUELINE with MOCS CODURE

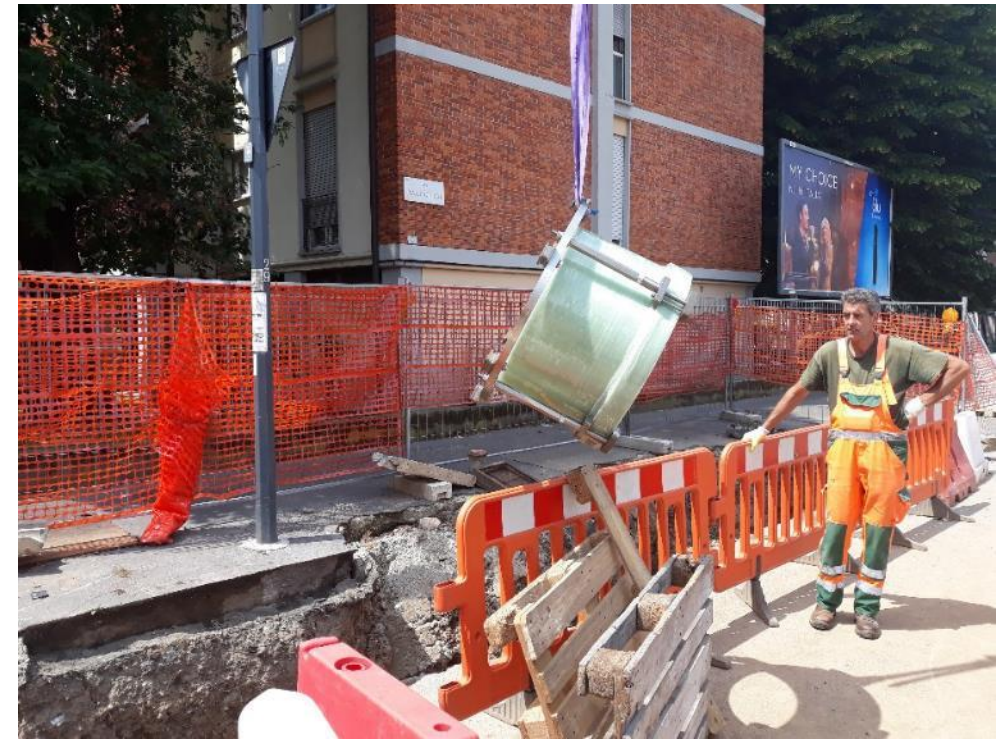


Joining methods for CIPP products in pressure pipe systems

EXAMPLE: PIPA-AQUA-TEC BLUELINE with MOCS CODURE



Mounting accessories



Transportation into installation pit

Joining methods for CIPP products in pressure pipe systems

EXAMPLE: PIPA-AQUA-TEC BLUELINE with MOCS CODURE



Alignment tool



Fixation at host pipe

Joining methods for CIPP products in pressure pipe systems

EXAMPLE: PIPA-AQUA-TEC BLUELINE with MOCS CODURE



Installation of BlueLiner (Starting point)



Exit point

Joining methods for CIPP products in pressure pipe systems

EXAMPLE: PIPA-AQUA-TEC BLUELINE with MOCS CODURE



Sealing of the cutting edge



Finished CODURE with sealing

Joining methods for CIPP products in pressure pipe systems

EXAMPLE: PIPA-AQUA-TEC BLUELINE with MOCS CODURE



Pressure test



No abudment to counter longitudinal forces

Joining methods for CIPP products in pressure pipe systems

EXAMPLE: PIPA-AQUA-TEC BLUELINE with MOCS CODURE



Connection works in a service chamber



Connected BlueLine with MOCS CODURE

Joining methods for CIPP products in pressure pipe systems

Thank you very much for your attention!



Grabenlos gut...

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