China International Trenchless Technology Conference & Exhibition

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Rehabilitation of a 3000 mm water supply line under operating conditions in Buenos Aires

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Drinking water Supply of Buenos Aires

22.471 Km
Pipe network

2.949 Km²
Supply area

5.400.000 m³/d
Drinking water

10.500.000
Inhabitants

3 Waterworks
13 Pumping Stations

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Tendering and project planning

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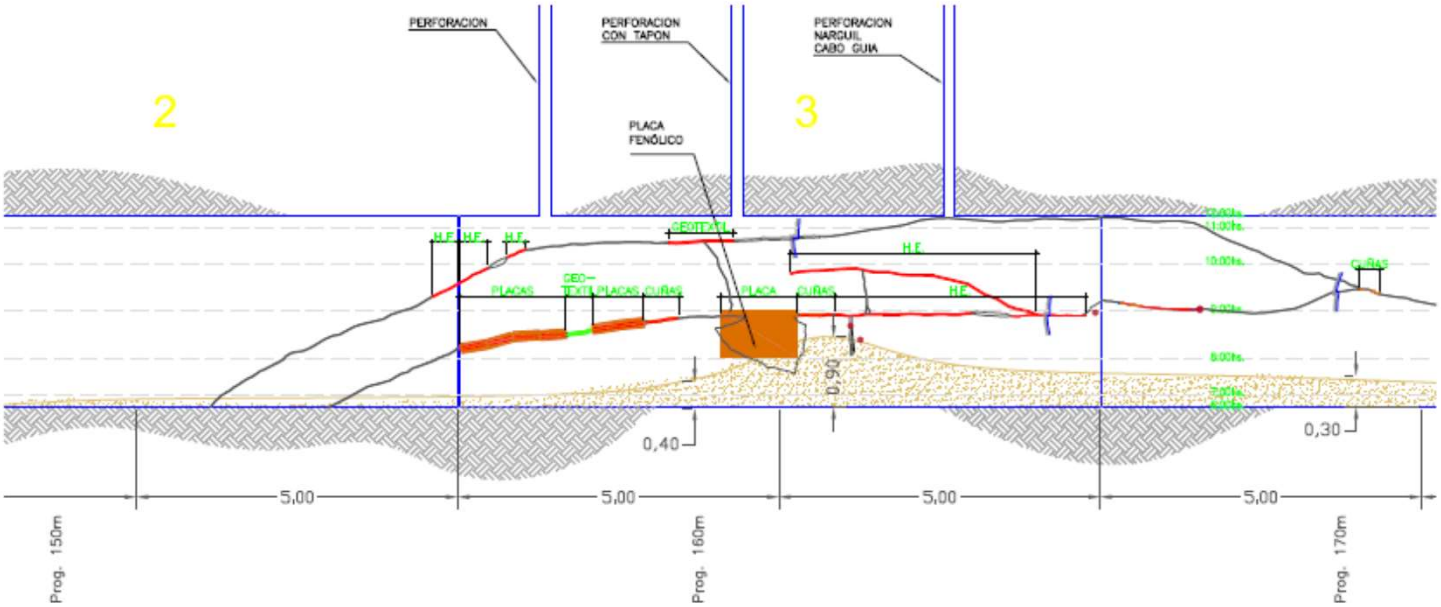
Tendering and project planning

Cracks / shards / concrete sedimentation from earlier external rehabilitation attempt



Situation was particularly critical, so that there was a danger of collapsing!

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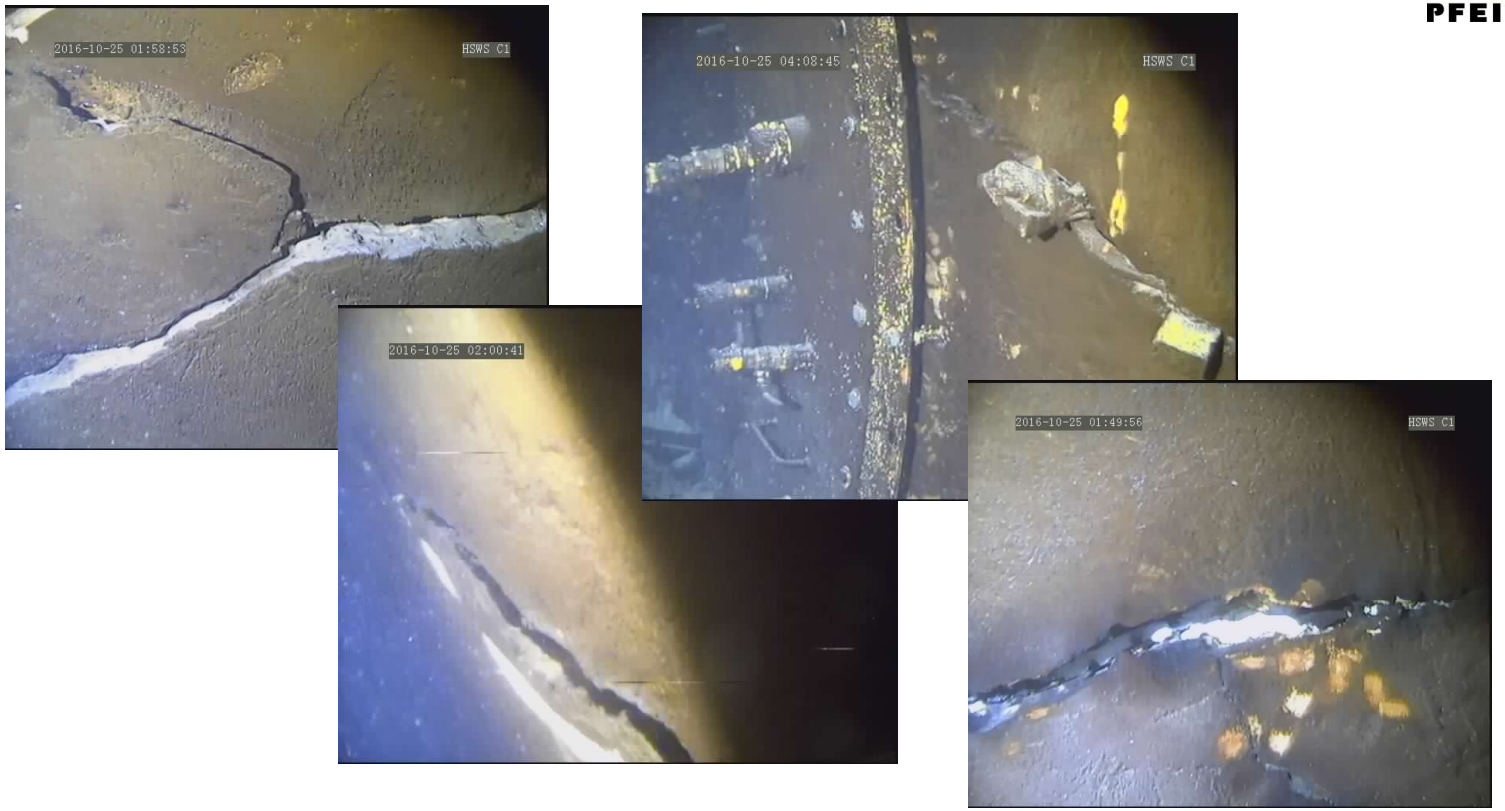
Tendering and project planning

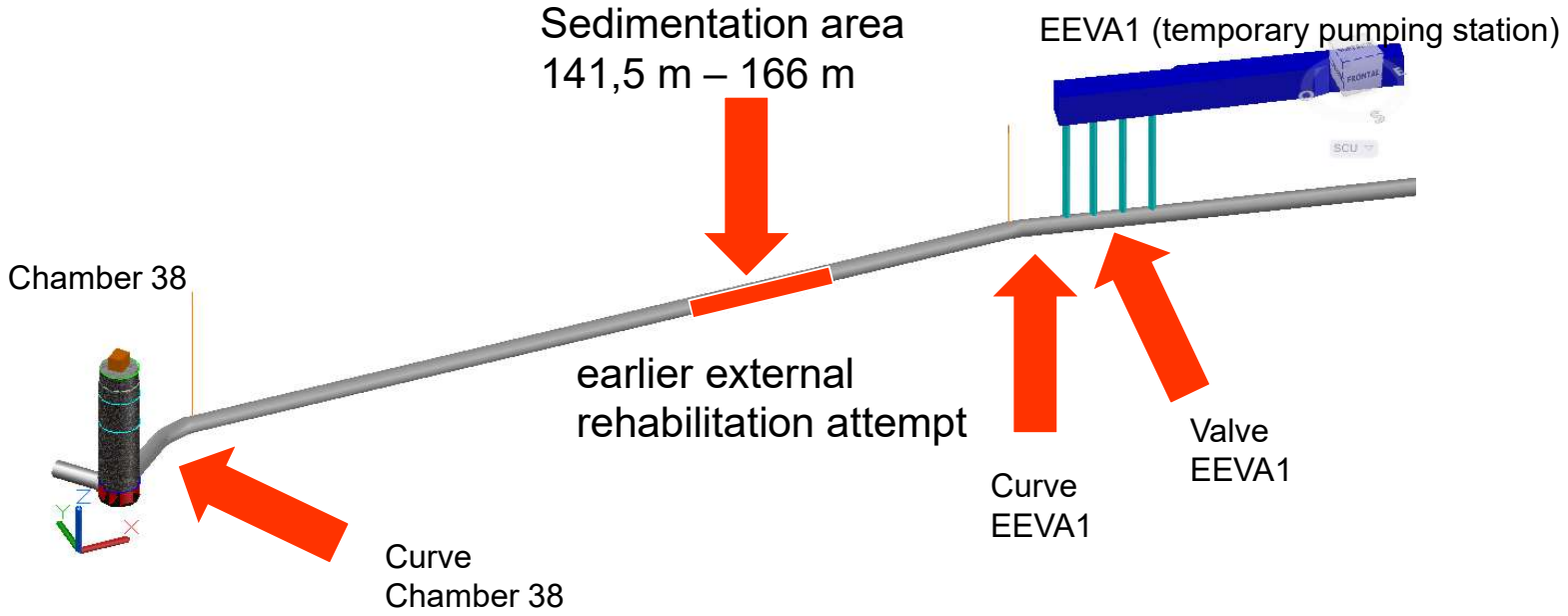


Old pipes were formed by mining as in-situ concrete pipes without steel reinforcement / groundwater infiltrating trough cracks

Tendering and project planning

Challenges in project planning / implementation

submit a rehabilitation concept → Ludwig Pfeiffer was awarded the contract to rehabilitate the pipeline under operating conditions



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Tendering and project planning

Chamber 38
Villa Adelina

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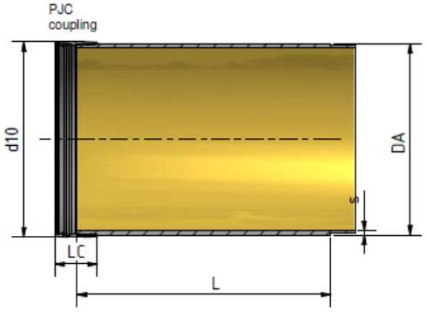
Tendering and project planning

Dimensioning / order GRP pipes and bends DA 2555 mm

Wall thickness (68 -72 mm)

section

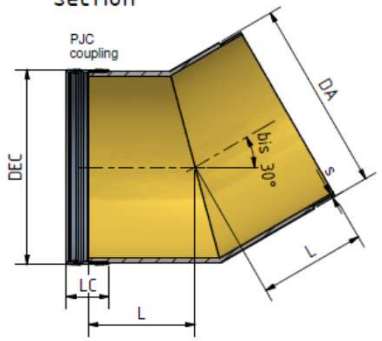


pipe DN 2550 (DA2555)					
SN	PN	s min	s max	s	M min
(N/m²)	(bar)	(mm)	(mm)	(mm)	(kg/m)
20000	2	68	72	69	1147

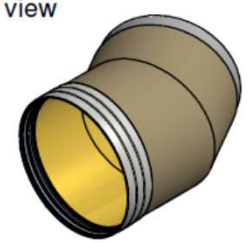
length: L = 2,92m +25/-10mm

bend DN 2550 (DA 2555)				
SN	PN	s	M (6°)	L
(N/m²)	(bar)	(mm)	(kg/m)	(mm)
20000	2	69	~ 2500	1000

section



3D - view



3D - view

Purpose:

HOBAS pipe as sewer pipe and pressure pipe drinking water according certifikate N 000472

Resin quality:

Polyester resin min. type 1130 acc. DIN 16946-2

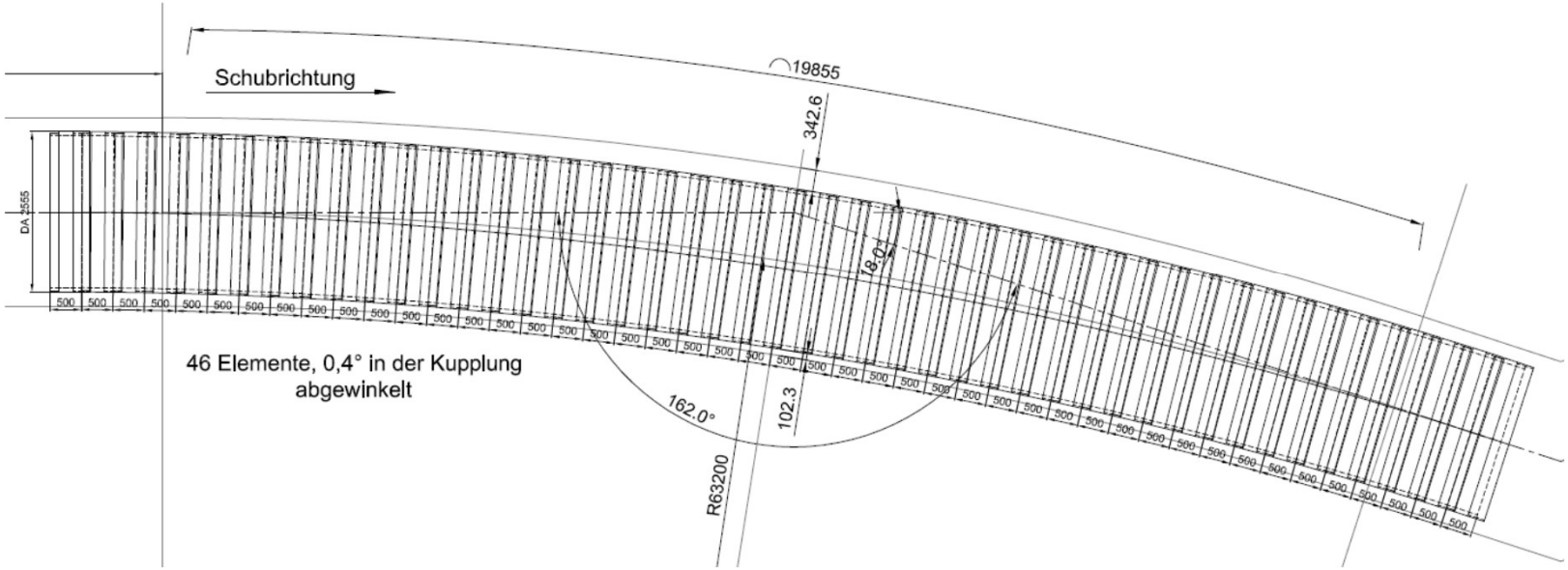
Pipe connection:

PJC coupling (stainless steel 1.4571) with EPDM-gasket

Tendering and project planning

Dimensioning / order GRP pipes and bends DA 2555 mm
Wall thickness (68 -72 mm)

46 Short Pipes 0,5 m with Stainless Steel couplings 0,4 degree angled



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Development of rehabilitation technology

Test and diver training site Ludwig Pfeiffer Kassel

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Development of rehabilitation technology

Test site Ludwig Pfeiffer Kassel / GRP Pipe with coupling device

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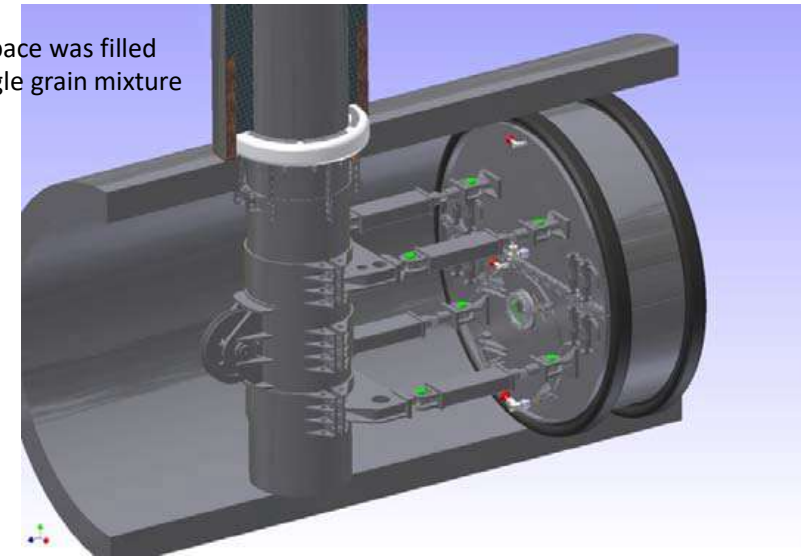
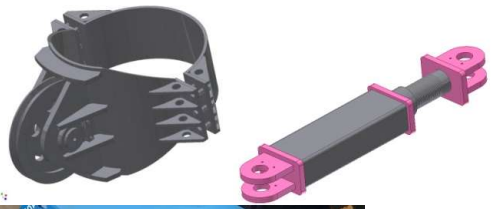
Development of rehabilitation technology

Test site Ludwig Pfeiffer Kassel

Development of rehabilitation technology

Annular space was filled with a single grain mixture





Design / Construction Valve and Abudment column

To perform some work it was necessary to seal off the work area

the valve was constructed in two parts to be able to swim it over the sedimentation area

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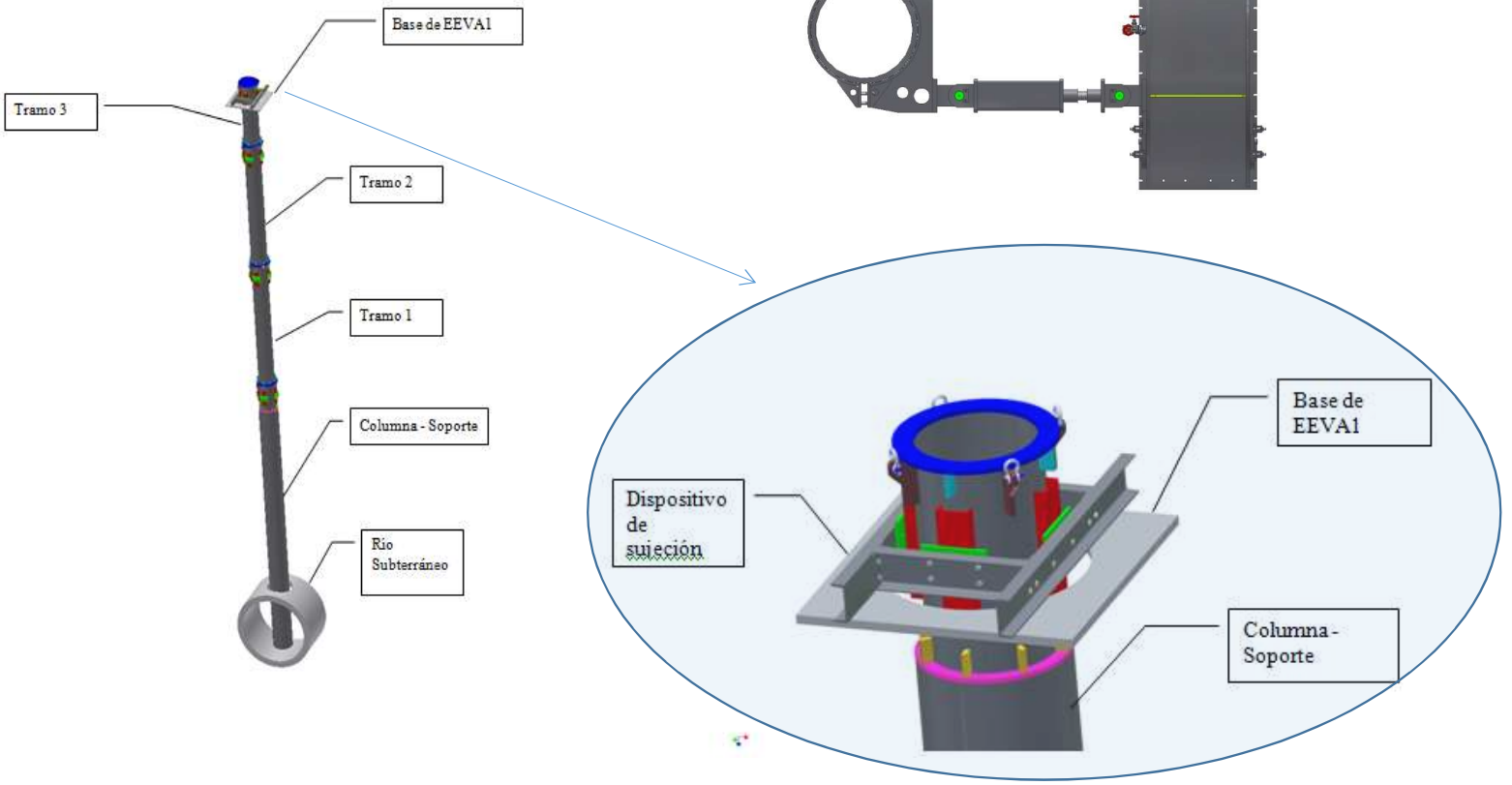
Development of rehabilitation technology

Construction abudment column



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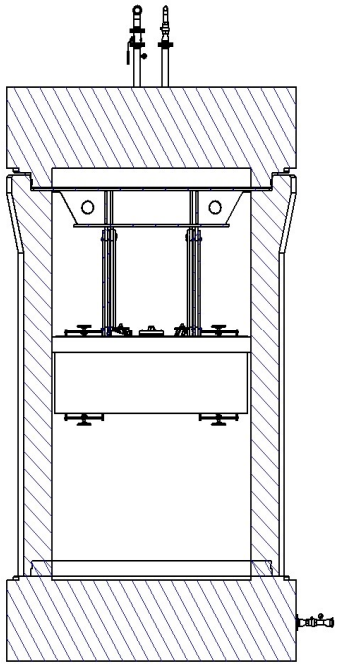
Development of rehabilitation technology



Test seal and valve

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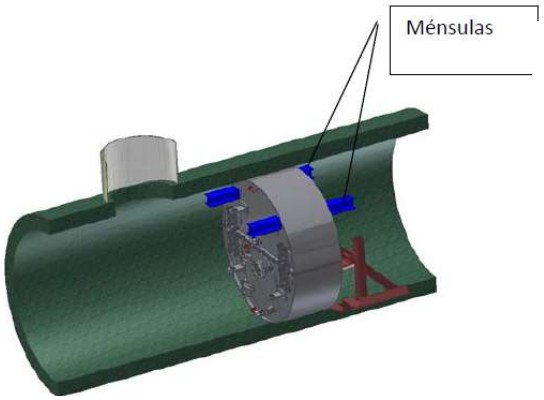
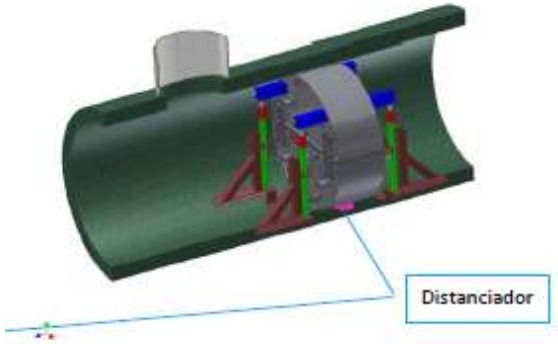
Development of rehabilitation technology



Development of special
Floating devices
by a marine engineer



Construction aids
for the divers

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Implementation of the rehabilitation

Construction site equipment
24 h/d (2 x 12 h shifts)
12 divers / d
2 diver doctors / d
Ambulance 24 h
Pressure chamber…

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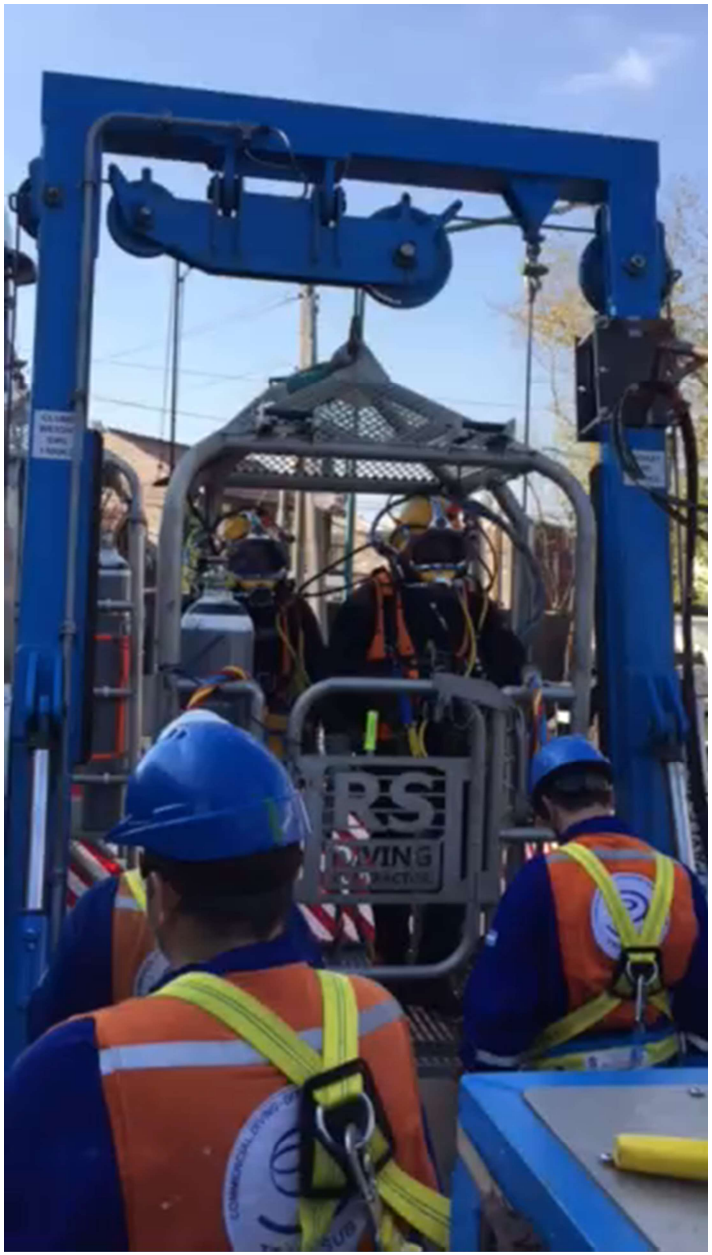
Implementation of the rehabilitation



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Implementation of the rehabilitation

Floating valve part

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Implementation of the rehabilitation

Diver control center

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Implementation of the rehabilitation

Expansion of concrete sedimentation by diamond saws an hydraulic splitter

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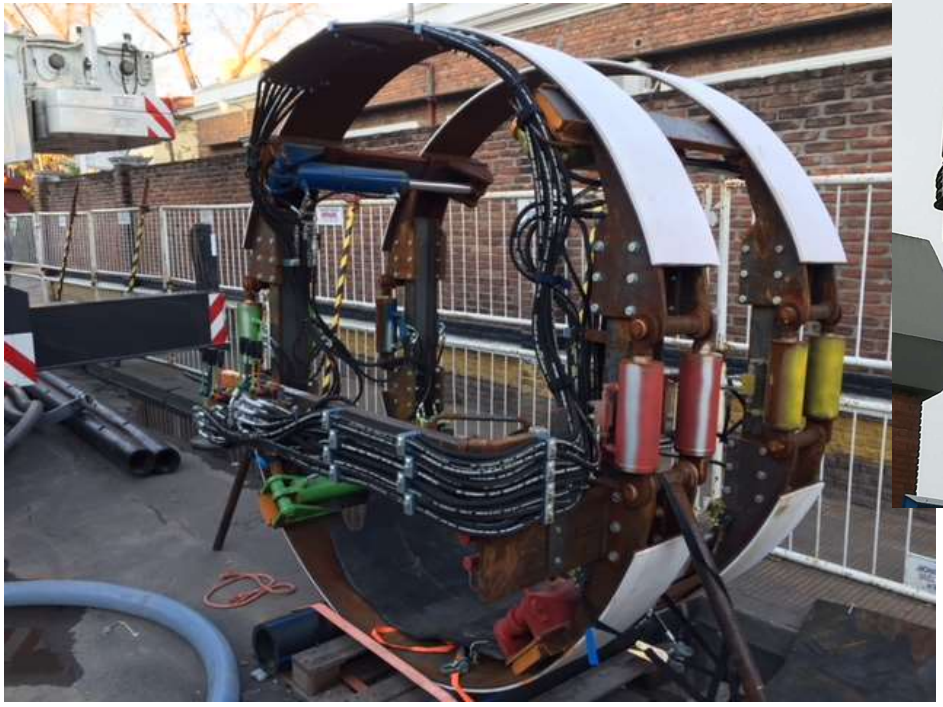
Implementation of the rehabilitation

Installation of Liner Plates DA 2,88 m

Implementation of the rehabilitation

Installation of the Coupling device



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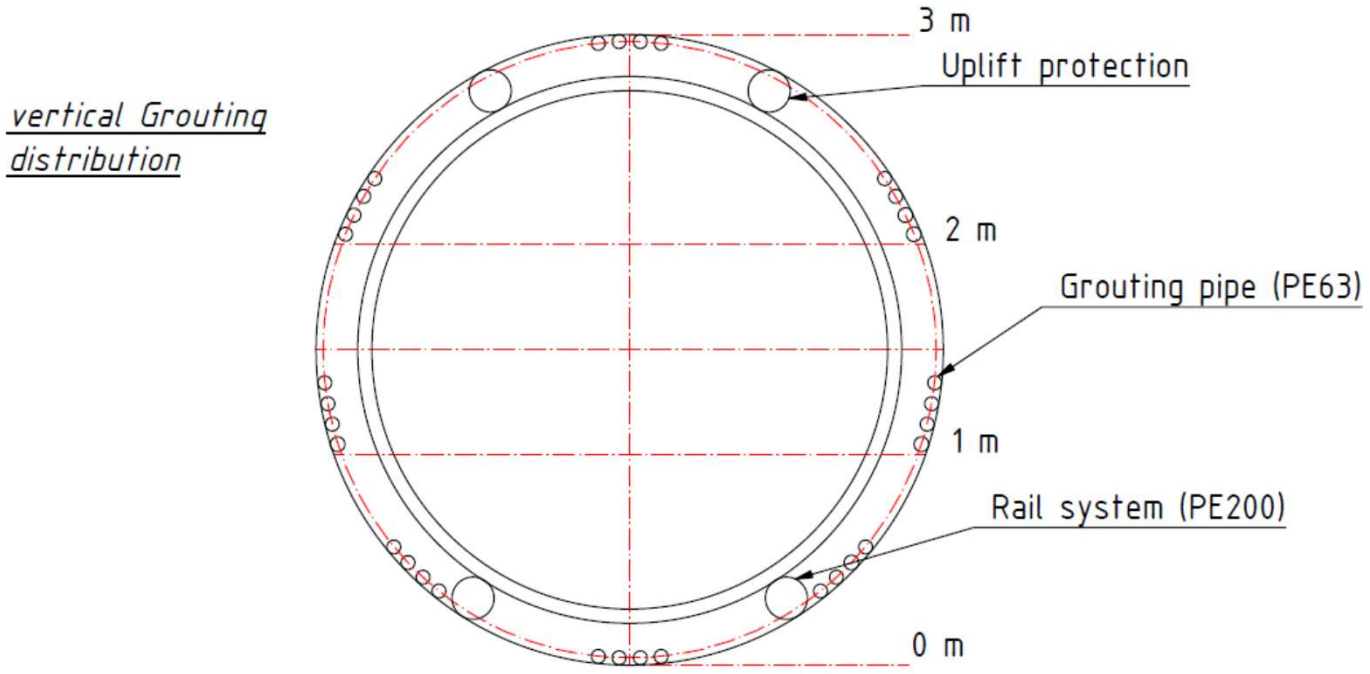
Implementation of the rehabilitation

Installation of GRP jacking pressure pipe

Implementation of the rehabilitation

Rio Subterraneo grouting the annular space



Questions?

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