



37<sup>TH</sup> INTERNATIONAL  
**NO - DIG**  
FLORENCE 2019

Fortezza da Basso • FLORENCE (Italy)

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## **RedEx<sup>®</sup> + Pipe-Seal Internal sealing collars; Partial Repair and Liner End Sealing for sewage and drinking water pipes**

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RedEx® + Pipe-Seal Internal sealing collars;  
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The two systems of **PIPE SEALTEC**

**Pipe-Seal (-Fix / -Flex / -End)**



**RedEx®**



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## The two systems of **PIPE SEALTEC**

### Pipe-Seal (-Fix / -Flex / -End)

= Stainless steel sleeve with EPDM seal

DN 150 to DN 800

Partial repair and liner end seal,  
not for pressure pipes

DIBt approval Z-42.3-521

### RedEx®

= EPDM cuff with stainless steel bends

DN 800 to DN 6000

Partial repair in accessible pipes

DN 190 to DN 1200

Liner end seal (LES)

DIBt approval Z-42.3-520

Potable water approvals

The host pipe must be static stable for installation !

## Pipe-Seal

- Elastomer: EPDM
- Steel grade of the sleeve: V4A 1.4571 / 1.4404
- Can be used in almost all gravity pipelines.
  
- Installation width:            Pipe-Seal-End 250/300 mm  
   Pipe-Seal-Fix and -Flex 420/500 mm
- Pressure range:                up to 0.5 bar (gravity)
- Temperature resistant:    up to +120 °C



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**Pipe-Seal** Installation with displacement packers  
adapted TV or robotic systems



**Pipe-Seal-Fix** The standard solution for partial repair!



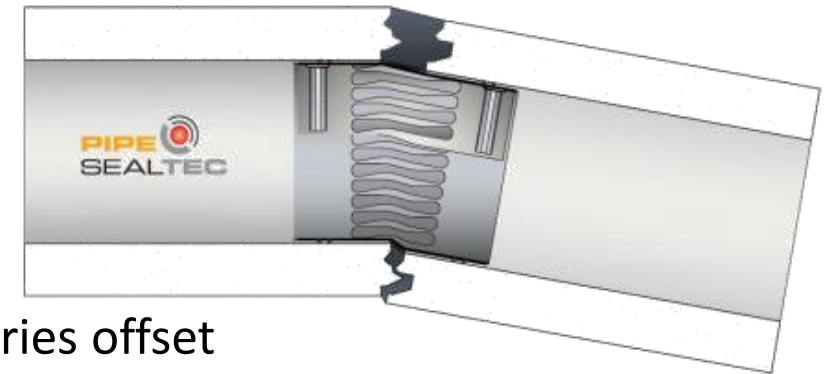
Single and series offset

DN mm/inch	Length mm/inch	Rubber seals mm/inch
150 / 6"	300/11,8"	286/11,3"
188–550 7,4"-21,6"	420/16,5"	500/19,7"
560–800 22"-31,5"	500/19,7"	590/23,2"

**Pipe-Seal-Flex** The flexible solution for partial repair!



Particularly suitable for pipe offsets and/or conical widening up to 30 mm incl. 8 ° axis bending.



Single and series offset

DN mm/inch	Length mm/inch	Rubber Seals mm/inch
200–600	420/16,5"	500/19,7"
	7,8"-23,6"	

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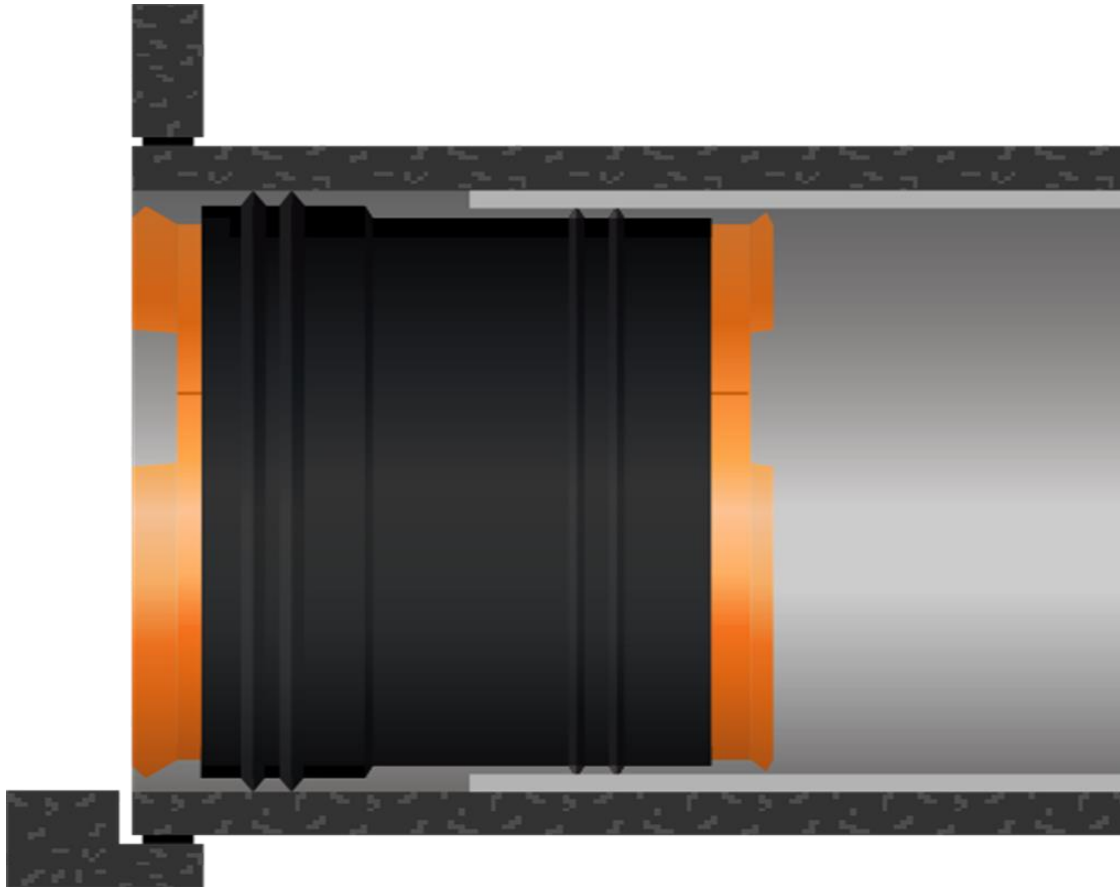
## Pipe-Seal-End The high quality solution for liner end seals (LES)!



DN mm/Inch	Length mm/Inch	Rubber seals mm/Inch
150–530 5,9″-20,8″	250/9,8″	195/7,6″
560–800 22″-31,5″	300/11,8″	245/9,6″



## Pipe-Seal-End *Function scetch*



Example shows an installation  
flush with shaft wall  
(offset into the pipe or into  
the shaft is possible as well)

End seal is still tight when liner  
is moving f.e. according to  
shrinkage.

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## Pipe-Seal-Flex *Patented lock system*



The patented lock system can widen the sleeve conically.  
The lock consists of 3 to 4 titanium axels, titanium gears and  
a locking mechanism.

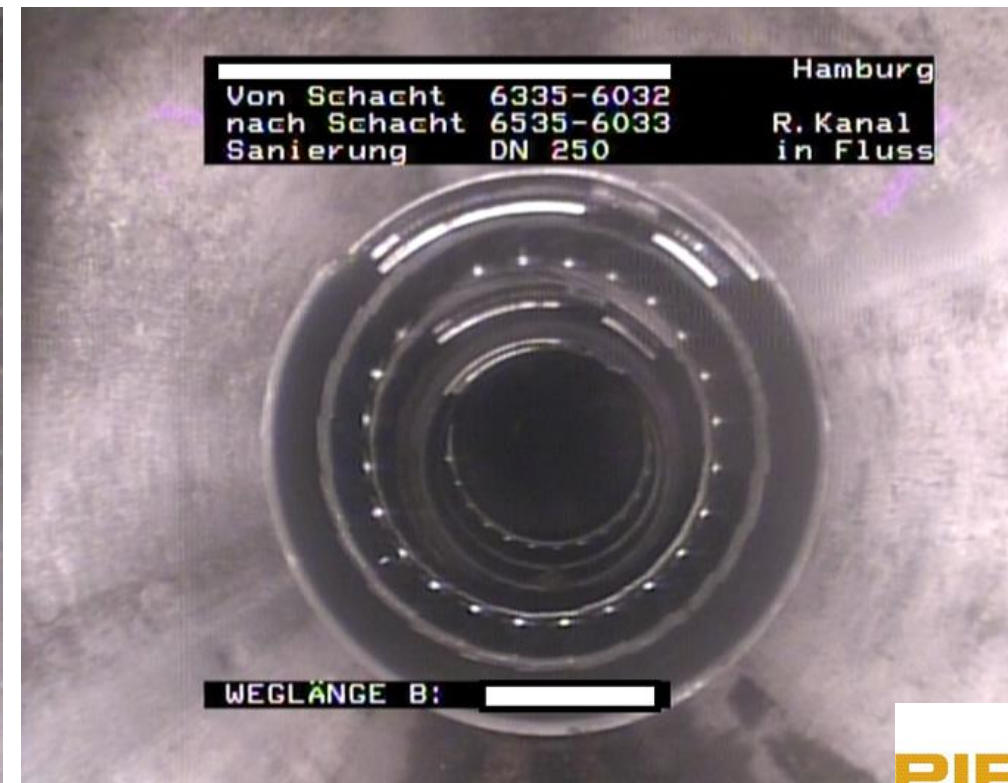
The Pipe-Seal-Flex Lock can also  
engage extremely obliquely on the  
double inner rack.  
This ensures flexibility!



## Pipe-Seal-Flex *Practice application examples*

DN250 pipe shows up to 30mm pipe offset with 8° axis deviation

→ tight with Pipe-Seal-Flex with no need for primer preparatory work



## Pipe-Seal-Flex *Practice application examples*



*DN 600 pipe with two materials and different internal diameters shows up to 50-120mm socket gap, 6 to 8° axis deviation and strong infiltration.*

*→ High flexibility and conical widening of the Pipe-Seal-Flex leads to tight connection.*

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**Red-Ex®** The allround talent for partial repair of accessible pipes



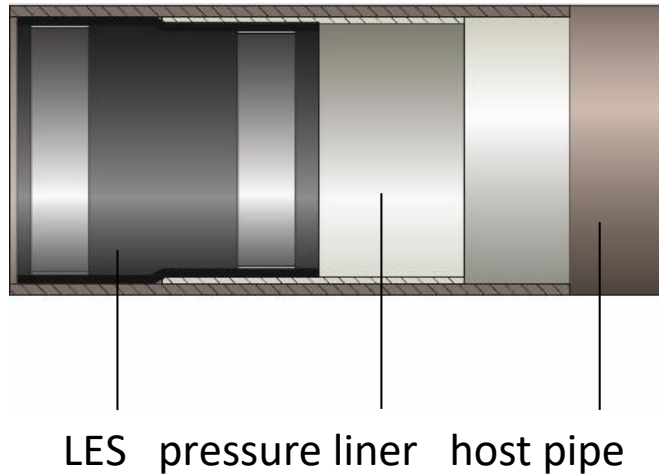
Single and series offset

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**Red-Ex<sup>®</sup>** The allround talent for partial repair of accessible pipes AND  
for liner end seals (LES) in sewage and drinking water pipes!



# RedEx® + Pipe-Seal Internal sealing collars; Partial Repair and Liner End Sealing for sewage and drinking water pipes

## Red-Ex®

- Elastomer: EPDM, NBR, SBR, Viton on request
- Steel grades: V4A 1.4571 / 1.4404 / 1.4307
- Can be used in almost all gravity and pressure pipes.
  
- Installation width: 260 mm / 360 mm / 500 mm
- Pressure range: -0.5 bar to 25 bar
- Temperature resistant: -25°C to +140 °C



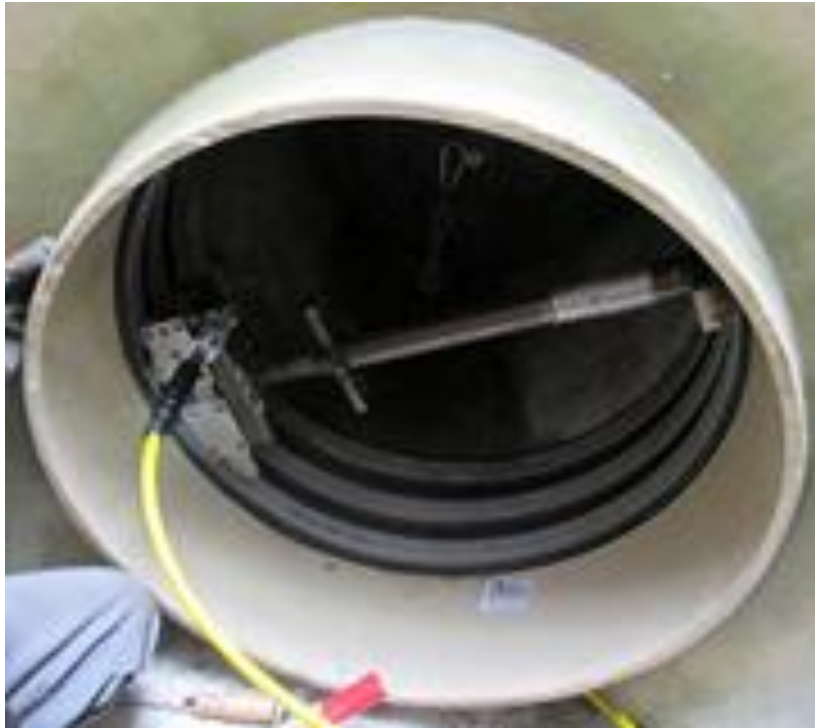
Installation by hand  
using an expander.

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## Red-Ex<sup>®</sup>




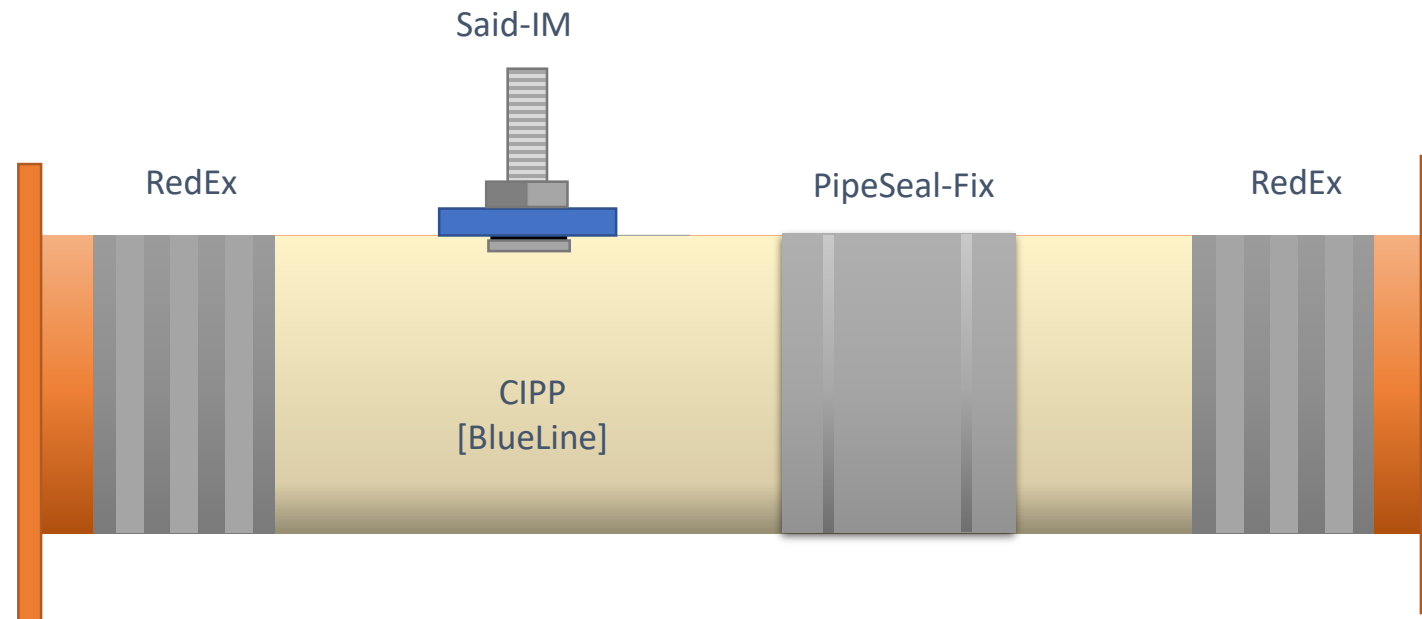
Squeezing pressure of 250 bar to 350 bar provided by a hydraulic pump (expander), the sleeve is pressed at a pressure of about 3,5 bar to 5,5 bar in a radial direction to the host pipe.





**Red-Ex®** Is currently the first and only sealing system worldwide **certified in DLT (dynamic load test)** with 10 million cycles of dynamic load changes between 10 bar and -0,9 bar.

↪ Test conception of  , test performance Siebert+Knipschild



**Red-Ex®** Is currently the first and only sealing system worldwide **certified in DLT (dynamic load test)** with 10 million cycles of dynamic load changes between 10 bar and -0,9 bar, 2Hz.

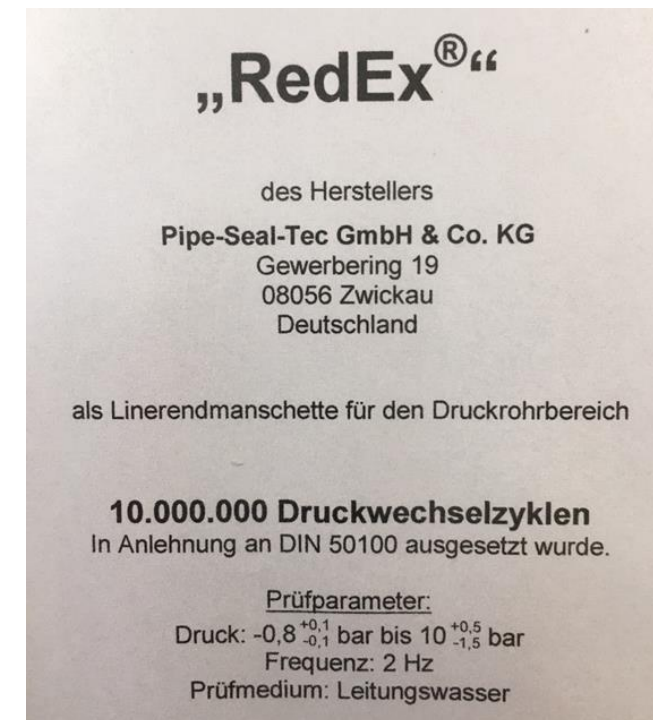
↪ Test conception of **IQS ENGINEERING AG**, test performance Siebert+Knipschild



# RedEx<sup>®</sup> + Pipe-Seal Internal sealing collars; Partial Repair and Liner End Sealing for sewage and drinking water pipes



**Red-Ex<sup>®</sup>** Is currently the first and only sealing system worldwide **certified in DLT (dynamic load test)** with 10 million cycles of dynamic load changes between 10 bar and -0,9 bar.



## Conclusion

- ✓ The systems are very suitable for repairing imperfections, leaking sleeves with strong infiltration, cracks etc. or for closing branches.
- ✓ Fast, safe and easy installable, permanently tight.
- ✓ No dangerous or harmful substances are released.
  
- ✓ Primer preparation of the host pipe is not required.
- ✓ High temperature and chemical resistance are also among the advantages of these systems.

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# Thank you for your attention

