Cleaning of Pressure Pipelines

by means of

„Air-Water-Jetting LW87"

MTA Messtechnik GmbH, St. Veit an der Glan
Service and Products
for Potable Water,
Wastewater,
Hydropower
and Industrial Applications
We are focused on developing specialized solutions seeing ourselves as a technology leader for special problems.

Since 1985
More than 2,500m of pipes of all common materials buried or laid above ground ensure practice-oriented training and test facilities for professionals.
EUROPEAN PIPELINE CENTER

Founded and managed by MTA Messtechnik GmbH as a TEST, TRAINING and RESEARCH center for the European Water Management.

Since 2005
Periodical Maintenance and Cleaning

YOUR EXPECTATIONS

- Usable everywhere
- No excavations
- Effective prevention
- Without chemicals
- No water turbidity at customers
- Valve function improvement
- Pump relieve
- Energy cost reduction
- Large daily output
- Quantifiable cleaning results
Possible Pipeline Disruptions

- Turbidity of potable water
- Incrustations
- Blockages
Cleaning Procedure for Pressure Pipelines

- Until 1985 standard method: „Pigging“ (mechanical procedure)

- Since 1985: **Air-Water-Jetting** (procedure without insertion of solid objects)
The Birth of Air-Water-Jetting LW87

- 1985 Water loss analysis in Ystad by the company Läckage Analys AB, today named MTA Messtechnik GmbH

- Large quantities of air introduced into pipe

- Result: Removal of manganese sedimentation

< LW87 >
Impulse Flushing Procedure
1985-1987

Until 1987
- Uncontrolled pressure shocks - pipe damages up to pipe bursts

Since 1987
- Air-Water-Jetting LW87 procedure has been developed as known today
Air-Water-Jetting LW87 – The 2\textsuperscript{nd} Generation

- Constant pressure flushing procedure instead of impulse flushing procedure
- Air-Water-Mixture +
- Flushing pressure adjusted to pipe parameters
- Optimal cleaning efficiency
Air-Water-Jetting LW87

- Use of cooled, oilfree, sterile air
- Via computer controlled air treatment device
- Lower pressure than nominal operating pressure

- No pressure shocks
- No risk of pipe bursts
Flushing Pressure

- Higher flushing pressure is not equal higher cleaning effect
- The correct combination of flushing pressure and air-water mixing is responsible for the cleaning success and depends on the size of the pipe.
Example – LW87

Before cleaning:

• Raw water pipeline
• Length 1.5km, DN 150
• AZ-GG no treatment device
• 15 years of operation

5 l/s at 7.5bar pump pressure
Example – LW87

Result after cleaning:

- Sediments: gravel, sand, iron, manganese
- Energy costs savings: more than 50%
- Longer operating life of pumps and pipes

5.2 l/s at 2.5bar pump pressure
Flushing of Sediments and Deposits
**LW 87 Cleaning Report I**

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<table>
<thead>
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<th>Datum</th>
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<td>PLZ</td>
<td>9020</td>
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<tr>
<td>Ort</td>
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<tr>
<td>Reinigungsgebiet</td>
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<tr>
<td>Straße</td>
<td>Berthold Schwarz Straße - Tessendorfer Straße - Randgasse</td>
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<td>Durchmesser in mm:</td>
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### Spitzpunkte:

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### Bemerkungen:

- keine

### Wasserversorgung:

- kein

### Druckprobe:

- 4,5 auf 1 bar
LW87 Cleaning Report II
LW87 Quantifiable Cleaning Results

Measuring of cleaning air volume and pressure rate before and after cleaning process.
LW87 Quantifiable Cleaning Results

Measuring of cleaning air volume and pressure rate
Before and after cleaning process
Fields of Application

- Up to DN 1400
- Pressure pipelines
- Industrial pipelines
YOUR BENEFIT

- Usable everywhere
- No excavations
- Effective prevention
- Without chemicals
- No water turbidity at customers
- Valve function improvement
- Pump relieve
- Energy cost reduction
- Large daily output
- Quantifiable cleaning results
Air Water Jetting LW 87
Customer Assessment

Project “Non-invasive pipeline cleaning”
Execution and results
There has been not much care about the structures since the year 2000.

Wells
High concentrations of Mn and Fe.

Pipelines
High encrustation of Biofilm and deposit of Fe and Mn oxides.

Customers
In the past three years complaints of customers increased.

Coronel’s Integral Quality Plan
Analyzing whole process diagnosing, proposing and implementing solutions.

The method delivers high efficiency and performance in removing incrustations from pipelines.

Cleaning method for main pipelines (DN 250-600).

Inexpensive procedure considering the large extension of the network to intervene.

There is a pipeline cleaning technology that uses a mixture of compressed air and water to remove incrustations in the networks.
Cleaning method “Air Water Jetting LW 87”
Cleaning method Air Water Jetting LW 87

- Without further intervention on public roads
- High performance (diameter / length / time)
- Less water consumption compared to known methods
- Method to clean incrustations in cast iron
- Operation with a small number of employees
- Very low maintenance cost of the equipment
- Use of this advanced technology in Latin America enhances the corporate image
- Built-in software allows documentation of all interventions and review of data base.
Results Cleaning Works Essbio, Concepcion, Chile

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<th>VAN</th>
<th>TIR</th>
<th>PAYBACK</th>
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<tr>
<td>194 MM$</td>
<td>50%</td>
<td>&lt; 2 years</td>
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<td>★</td>
<td>Gravitation</td>
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<table>
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<td>Km. cleaned</td>
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<td>Savings $</td>
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Thank you for your Attention!

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