**Economic Significance of Corrosion Resistance Flexible Drop Pipe in Water Wells**

- Polyurethane and High Tenacity Fibers
- 100% Lead Free

**Where is it used?**

- Water Utilities
- Residential
- Agricultural
- Industrial
- Mining
- ASR
- Testing

**Drop Pipe Choices**

- Steel
- PVC
- HDPE (Polypipe)
- Flexible Drop Pipe
Flexible Drop Pipe VS. Steel Pipe

Tensile Strength

<table>
<thead>
<tr>
<th>Nominal Size</th>
<th>1</th>
<th>1 ½</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theoretical Tensile Strength (Pounds)</td>
<td>3,000</td>
<td>7,000</td>
<td>9,000</td>
<td>16,000</td>
<td>26,000</td>
<td>33,000</td>
<td>44,000</td>
<td>46,000</td>
</tr>
</tbody>
</table>

Minimal Head Loss 4”

Internal Growth and Corrosion

PSI & Depth Settings

<table>
<thead>
<tr>
<th>Nominal Size</th>
<th>1”</th>
<th>1 ½”</th>
<th>2”</th>
<th>3”</th>
<th>4”</th>
<th>5”</th>
<th>6”</th>
<th>8”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burst Pressure (psi)</td>
<td>980</td>
<td>920</td>
<td>920</td>
<td>850</td>
<td>820</td>
<td>800</td>
<td>800</td>
<td>600</td>
</tr>
<tr>
<td>Working Pressure (psi)</td>
<td>500</td>
<td>425</td>
<td>425</td>
<td>350</td>
<td>300</td>
<td>310</td>
<td>310</td>
<td>210</td>
</tr>
<tr>
<td>Maximum Depth Setting (feet)</td>
<td>1200</td>
<td>1100</td>
<td>1000</td>
<td>900</td>
<td>800</td>
<td>750</td>
<td>700</td>
<td>400</td>
</tr>
</tbody>
</table>

Installed 1994   Removed 2009
Weight Chart
(Ease of transport, install, and storage)

<table>
<thead>
<tr>
<th>Nominal Size</th>
<th>1&quot;</th>
<th>1 ½&quot;</th>
<th>2&quot;</th>
<th>3&quot;</th>
<th>4&quot;</th>
<th>5&quot;</th>
<th>6&quot;</th>
<th>8&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight of Boreline (pounds per foot)</td>
<td>.14</td>
<td>.22</td>
<td>.37</td>
<td>.64</td>
<td>.94</td>
<td>1.14</td>
<td>1.68</td>
<td>2.3</td>
</tr>
<tr>
<td>Weight for 100'</td>
<td>14</td>
<td>22</td>
<td>37</td>
<td>64</td>
<td>94</td>
<td>114</td>
<td>168</td>
<td>230</td>
</tr>
</tbody>
</table>

Shipping and Handling

Stainless Steel Fittings

- SS 316,
- Two Rings
- 3 Segment Clamps
- Re-useable
- Field Attachable
- Standard NPT thread

GRN Fitting

Fitting Compatibility

Joiners
Securing the Power Cable

Check Valve w/Break-off Plug

Cumbersome Installation and Removal of steel pipe

Installation Techniques

What is needed?
- Lifting Clamps
- Pulling Rig

Vertical Installation
Vertical Installation

What is needed?
- Lifting Clamps
- Pulling Rig
- Rolling Wheel

Horizontal

750’ x 3” in 8 Minutes

Horizontal Installation

Horizontal Installation 650’ of 5”
Shallow Depths By Hand

Pump Pullers

BPP 2.0
- Boreline 4” down to 800ft
- 5” and 6” down to 350ft

550’ of 3” Flexible Drop Pipe

ROI & Boreline Savings

- Time Savings
- Totally Non-corrosive
- 50 year warranty
- Pipe Replacement Costs
- Longer pump life
- Energy Efficient
- Safety
- Water Quality
Why do you not do Preventative Maintenance?

Pulling 750’ of 3”

Why Rehabilitate a Well?

Maintenance
This is now an option!

Preventative Maintenance

Call the Professionals
Is this the Safest and Most efficient choice?

Achieve Maximum Flow and Reduce Energy Cost!

Maximum Flow/Efficiency

What's Next

Why did you invest in Rehab?

Internal Growth and Corrosion

NEVER AGAIN!
Flexible Drop Pipe

- Rehab and Maintenance is Possible
- Minimal Head loss
- Energy Efficient
- Saves on Electricity, Installations and Retrieval
- Corrosion Resistant
- Maintain Maximum flow for the life of the well
- Longer Pump life
- Easy Installation
- 50 Year Warranty

“You are not the Guinea Pig”

History of Flexible Drop Pipe

- Boreline has been a product since 1990
- Has been used in the U.S.A. since 2000
- Hose Solutions Inc. has had an office in Arizona since 2001
- We have 2 Factories, one in Australia, and one in South Africa
- It has been installed in over 40 states and 50 countries
- Even The Military and NASA have used Flexible Drop Pipe

References

LADWP – Kelvin Hoang – (760) 873 0259
City of Santa Barbara - Brett Wieser – (805) 897 2625
Cobb Area Water, CA – Robert Stark – (707) 928 5262
City of Amarillo, TX - Kenneth McCoil – (806) 673 4631
Barrick Gold, NV – Scott Conley – (775) 468 4081
CAFarming, CA - Bob Puls – (559) 783 4148
Kinder Morgan, CA – Hoyt Ryales – (619) 517 5593
Ortman Drilling, IN – Rick Ortman – (765) 438 2278
Technosub, QC – Patrick Martel – (819) 797 3300

Completed Projects

- Phelps Dodge Miami, AZ
- Hargis & Associates, CA
- Clearlake, CA
- Gila Bend Power Station, AZ
- Kokomo, IN
- Platinum Mine
- NASA White Sands, NM
- Caltrans, CA
- ChevronTexaco, CA
- Las Vegas, NV
- Tohono O’odham Utility Auth, AZ
- Town of Fredonia, AZ
- Puls Farms, CA
- Entranosa Water Co, NM
- Aggressive Water
- Iron Bacteria
- Domestic
- Restricted Access
- Acidic Water
- 296 HP, 1500 GPM
- Environmental
- Slope Stabilization
- Ground Water
- Contaminated Water
- Potable Water
- Site Access Problems
- Agriculture
- Potable Water

Approvals

- NSF 61 Potable Water Certification
- MSHA
- WRAS (WRc)
- BS 6920:1996
- AWQC Australian Water Quality Centre
- ISO 9001 - 2000 SABS
Thank you

HoseSolutions Inc