

**March 11, 2010**
**PIPE BENDING HYDRAULIC BENDING MACHINE**
**Purpose/Application**

Pipe bending is often necessary when installing pipe line. Pipe needs to be bent to conform to the contours of the land or the needs of a current facility or structure. Pipe bending machines can either be human powered, hydraulic assisted or hydraulic motor driven. In the pipe bending operation the tube may be supported internally or externally to preserve the cross section of the pipe.

**PPE**

- Safety glasses
- Steel toed boots
- Hard hat
- Hearing protection
- High visibility vest
- Hearing protection

**TRAINING**
**TOOLS/EQUIPMENT**

- Orientation
- Side boom
- Bending shoe
- Slings
- Crane

#	Job Steps	Hazards	Control Measures
1	Scope bend and set up joint and bend location	Slips and falls	<ul style="list-style-type: none"> <li>▪ Watch footing (ice, snow, mud)</li> </ul>
2	Mount bending shoe on side boom	<ul style="list-style-type: none"> <li>▪ Pinch points</li> <li>▪ Strains</li> </ul>	<ul style="list-style-type: none"> <li>▪ Use boom to line to lift the shoe into position</li> <li>▪ Be aware of pinch points between the boom and the machine, between the shoe and the mounting plate, and the moving parts on the shoe itself</li> </ul>
3	Move side boom into position, roll the seam to the correct location and attach sling to pipe	<ul style="list-style-type: none"> <li>▪ Moving equipment</li> </ul>	<ul style="list-style-type: none"> <li>▪ Ensure back up alarm is working on the side boom</li> <li>▪ Use the spotter to move the boom around the vicinity of the pipe</li> </ul>



#	Job Steps	Hazards	Control Measures
4.	Block the back end of the pipe being bent.	<ul style="list-style-type: none"> <li>Pipe movement</li> </ul>	<ul style="list-style-type: none"> <li>Ensure pipe is secured and blocked. Use a pipeline skid or mechanical device to ensure securement</li> <li>Use pipeline skids to help support pipe behind the boom</li> <li>Move pipeline skids as necessary.</li> </ul>
4	Lift pipe into the shoe and pull bend	<ul style="list-style-type: none"> <li>Cable or hydraulic failures</li> </ul>	<ul style="list-style-type: none"> <li>Pull bend slowly and use a qualified signal person to bend pipe</li> <li>Check all sling, cables, and hydraulic connections prior to starting bending operations</li> <li>Reposition slings as necessary</li> <li>Use a second boom or lifting device to help control vertical end of bent pipe</li> <li>Ensure pipe remains straight as you bend it.</li> </ul>
5	Set completed bend down	<ul style="list-style-type: none"> <li>Awkward set, swinging or sliding pipe</li> </ul>	<ul style="list-style-type: none"> <li>Stand clear until the pipe is close to the ground and the lateral movement has stopped.</li> </ul>

**Additional Precautions:**

- REFERENCE/REGULATIONS**
- SWP 10 Noise
  - SWP 45 Operating Facilities
  - SWP 24 Overhead Power Lines

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