Shaw Pipeline Services
The global leader in non-destructive testing solutions
Fully-External Digital Real-Time Radiography System for Pipeline Girth Welds for 14” - 36” diameter pipelines

**Key points**

**Benefits**
- Increases productivity by reducing inspection times by 50% or more
- Eliminates the use of x-ray film, film chemistry and darkroom
- Eliminates the use of Isotope Sources and multiple exposures
- Instantaneous, Real-Time x-ray results, displayed as a single "strip" for ease of interpretation
- Digital archive/storage & database
- Image interpretation tools and report generation, linked to weld database
- Decreases barrier distances for increased personnel safety

**Features**
- High resolution and high contrast detection head with better than 50 μm resolution
- Sealed to IP65, cooled and rated for use in 40°C ambient temperature
- Constant potential 300kV or 200kV directional CP Source, highly collimated for increased safety
- Single deployment band for both x-ray source and detection system
- 2 x lightweight umbilical cables
- Rugged laptop computer for acquisition, viewing, interpretation and database archive
- Small, lightweight control units
- 110V AC operation from small, portable generator

**Typical applications**
- Tie-In Welds (landlines & offshore)
- Pipe Spool Yards
- Piggy back lines
- In-Service Inspection (gas only)
- Pipe welds where an internal radiation source is difficult to deploy

**Scanning buggy and band**

Detector/source drives: extra-wide Shaw buggies with quick release mechanism
Drive method: stepper motor/controller – 3 to 33 mm/s speed
Detector bug cooling: on-board liquid cooling for electronics and detector
Drive band: custom bands from 14” to 36” with precision laser cut rack

**Detection system**

Type: SIS HDRTR-1
Inspection width: 70 mm
Detector resolution: better than 50 μm/pixel
Wire IQI sensitivity: better than 2% (source side/single wall)
Digitization: 16 bit (65,536 grey levels)
Weight: 68.34 lbs (including buggy)

**X-ray tube**

Type: constant potential
X-ray beam: directional, collimated
$kV$ maximum: up to 200kV or 300kV
X-ray power: 900W
Current: up to 6 mA
Cooling: forced air
Weight: 97 lbs (300kV source)

**Performance**

<table>
<thead>
<tr>
<th>Pipe diameter</th>
<th>Distance (mm)</th>
<th>Scan speed (mm/sec)</th>
<th>Scan time (minutes)</th>
<th>Estimated cycle time (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14”</td>
<td>1,177</td>
<td>7.6</td>
<td>2.5</td>
<td>12.5</td>
</tr>
<tr>
<td>16”</td>
<td>1,277</td>
<td>7</td>
<td>3.2</td>
<td>13.2</td>
</tr>
<tr>
<td>24”</td>
<td>1,910</td>
<td>3.5</td>
<td>9.5</td>
<td>19.5</td>
</tr>
<tr>
<td>30”</td>
<td>2,075</td>
<td>3.2</td>
<td>11.4</td>
<td>21.0</td>
</tr>
<tr>
<td>36”</td>
<td>2,871</td>
<td>1.8</td>
<td>26.6</td>
<td>36.6</td>
</tr>
</tbody>
</table>

**Power, interface unit & cables**

Size (mm): 330 (W) x 320 (H) x 110 (D)
Weight: 22.04 lbs
Input: 105 to 250V AC 50/60Hz
Output: +32V DC
Interface: USB2 & Power to laptop
Cables: 2 x 25 m cables to scanner

**Software**

Comprehensive, easy to use providing:
- Weld inspection database with search, filter and report facilities
- Duplicate – Lossless data storage to removable media
- Comprehensive event logging
- Same software interface for all HDRTR detector systems and offline viewer
- Runs on laptop or desktop PC under Windows® 7, Windows Vista® or Windows® XP 32/64-bit os.
- Support for 10-bit medical imaging display (desktop PC only)
- Remote support available

**Typical applications**

- Tie-In Welds (landlines & offshore)
- Pipe Spool Yards
- Piggy back lines
- In-Service Inspection (gas only)
- Pipe welds where an internal radiation source is difficult to deploy

1 HDRTR-DW1 can be used up to 36” pipe with a 300kV portable x-ray tube, but may require water cooled option due to long exposure times

2 6 minutes to attach band, 10 bugs/detector/x-ray tube, put up safety barrier. 4 minutes to remove all equipment from band to vehicle = 10 minutes.
Software features

- Secure log-on with multi-level access
- Easy to use radiographic procedure setup and start scan wizards
- Auto-starts HDRTR detector scanning upon x-ray detection
- Displays weld radiograph in real-time as image is captured by detector system with electronic position ruler
- X-ray signal monitoring during scan
- Interpretation may commence during scanning reducing overall cycle time

Interpretation tools:

- Auto-contrast enhancement
- Zoom and scroll
- Linear measurement
- Circular measurement
- Area measurement
- Normalized signal-to-noise ratio
- Hot-spot area contrast enhancement
- Overlay shutters
- Image region saving

For additional information, please contact: info@sps.shawcor.com or in Canada, please contact infocanada@sps.shawcor.com