

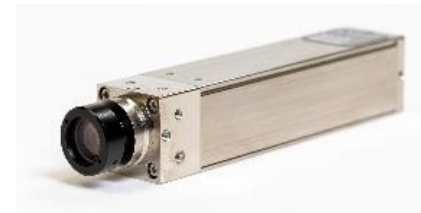
XIRIS Weld Camera Overview

Xiris Automation Inc.

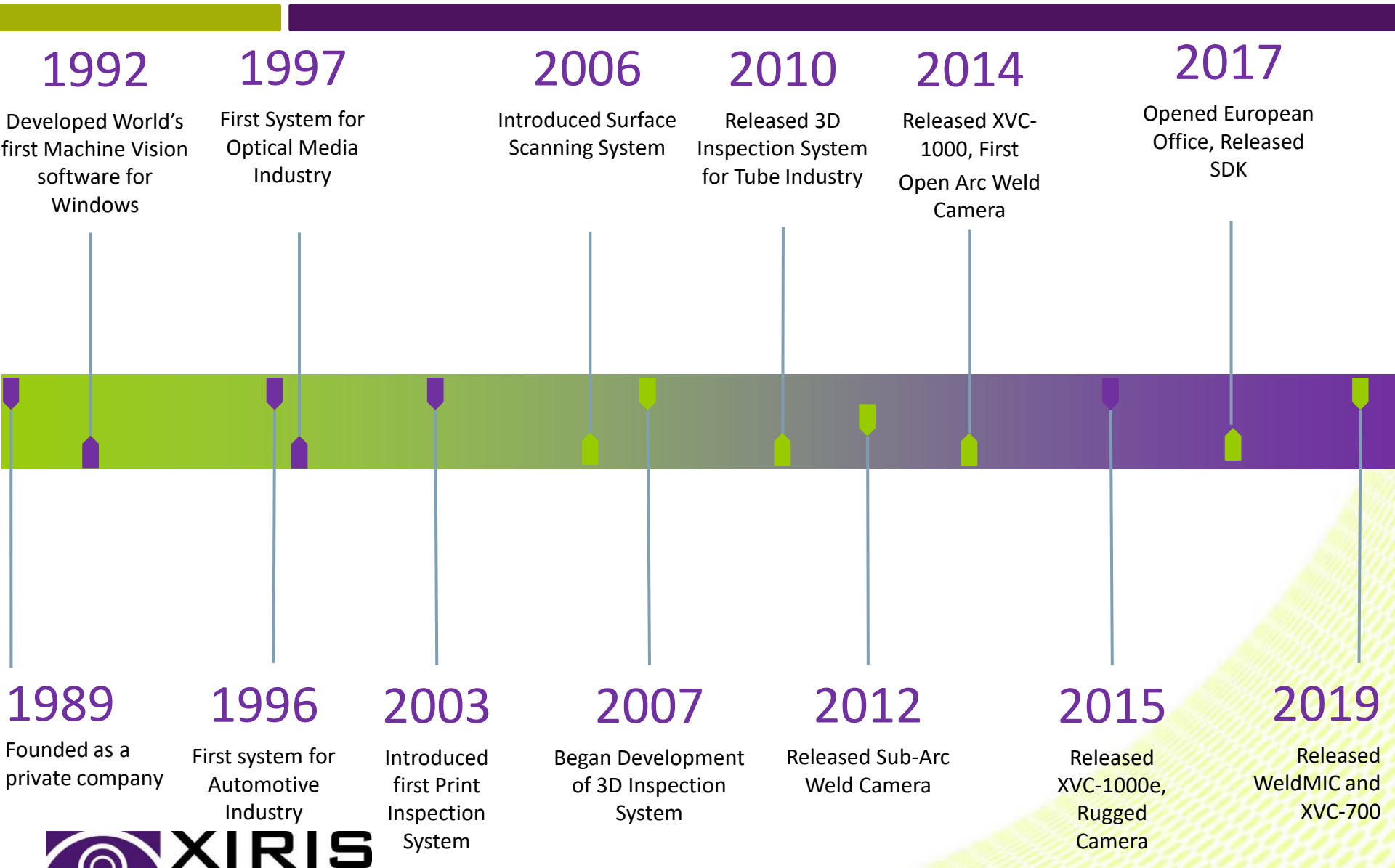


Xiris Automation Inc. - Corporate Overview

- Providing Machine Vision Technology since 1989
- Focus on Optics and Imaging Systems for Manufacturing
- Supplying Weld Industry since 2010
- R&D focused, >75% employees have Technical Background
- Sales made to over 30 countries
- Private Company, based outside of Toronto, Canada

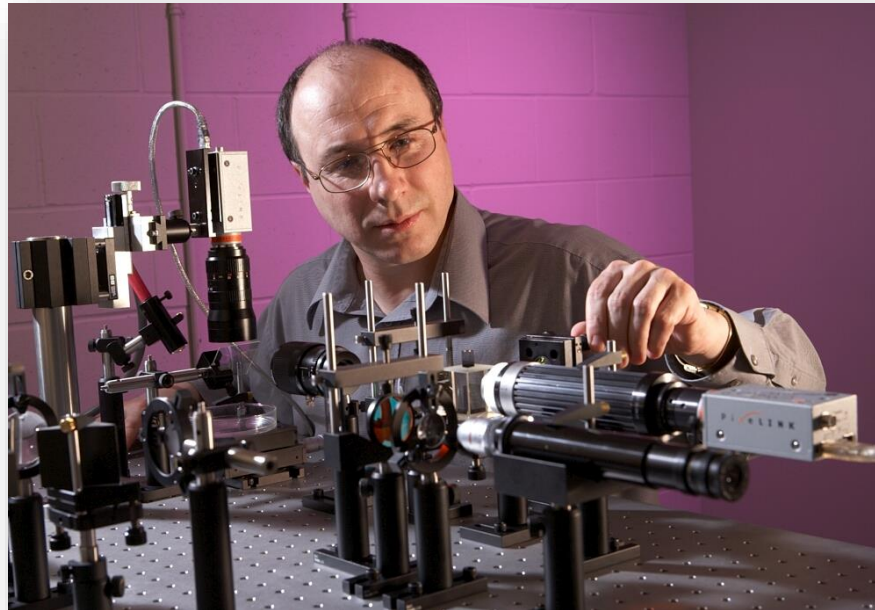


Xiris Automation Inc. - Corporate Timeline



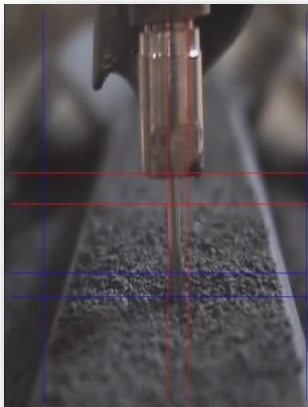
Xiris Automation Inc. - Engineering Team

- 100+ combined Years of Machine Vision Experience
- Electronic, Mechanical and Optical Engineers
- All Machine Vision Software Developed In-house



CAMERAS FOR WELD MONITORING

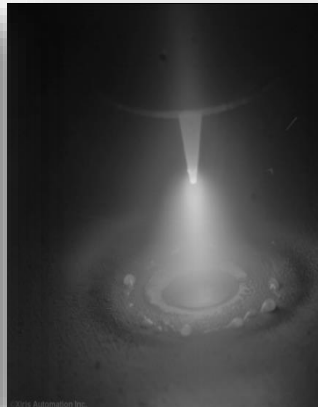
SUB-ARC



MIG



TIG



Plasma



Laser



Joining Processes and Additive Manufacturing

The Challenges with Welding

- **Health Hazards – Smoke, Fumes, Heat**
- **Difficult to Monitor 100% of Weld**
- **Dangerous to Monitor Some Welds**
- **Set Ups Require Multiple Test Welds**
- **“Low Tech” Image Amongst 15-24 Year Olds**
- **Global Shortage of Skilled Welders**
- **Push to Automate Process**

The Solution – Cameras

- **Camera(s) Mounted at the Weld Torch**
- **Display of Weld Process on Screen Remotely**
- **Operator can See Process in Safe Environment**
- **Ability to Record Video**
- **Ability to Process Images Through Software for Additional Functionality**

Welding Creates Bright Light

Challenge is to see in One Image:

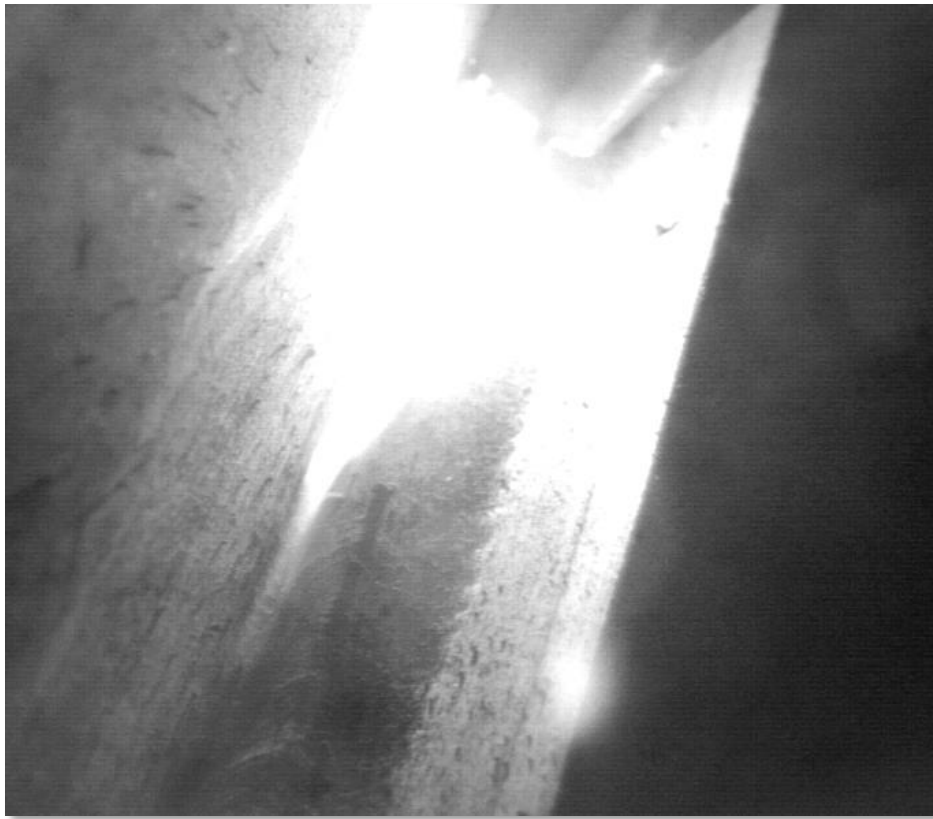
- The Weld Arc detail AND
- The Melt Pool AND
- The Seam and Immediate Background



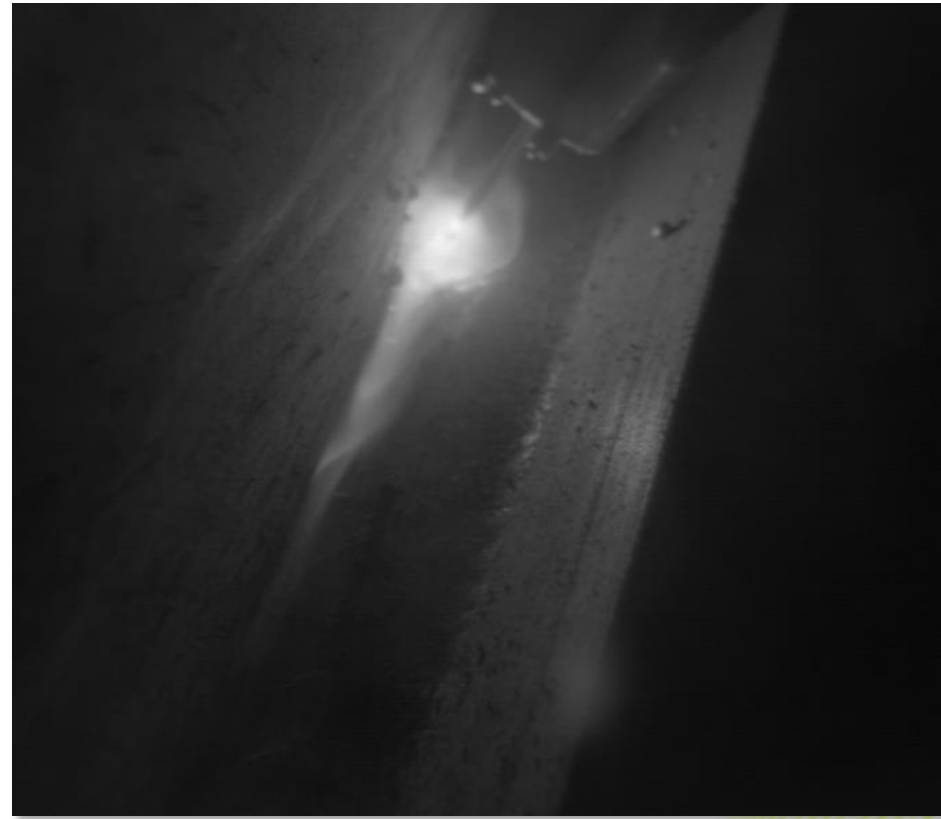
But...

- Most cameras are only capable of 1,000:1
- Human Eye is capable of ~ 1,000,000:1
- Live Weld Arc: Background is > 10,000,000:1

Linear vs Image Quality



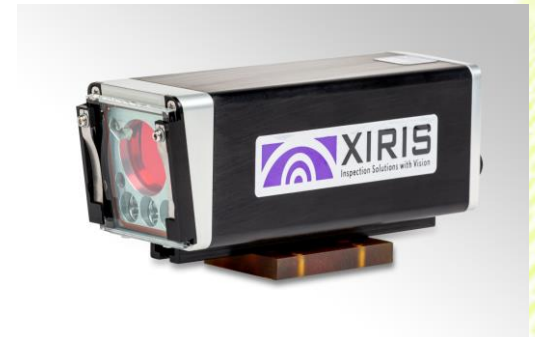
Linear



Xiris

Open Arc Weld Cameras

- Extreme HDR (+140dB) Sensor
- Digital Output using GigE Protocol
- Rolling and Global Shutter
- Up to 55 fps @ 1280 x 1024 Resolution
- Monochrome or Color



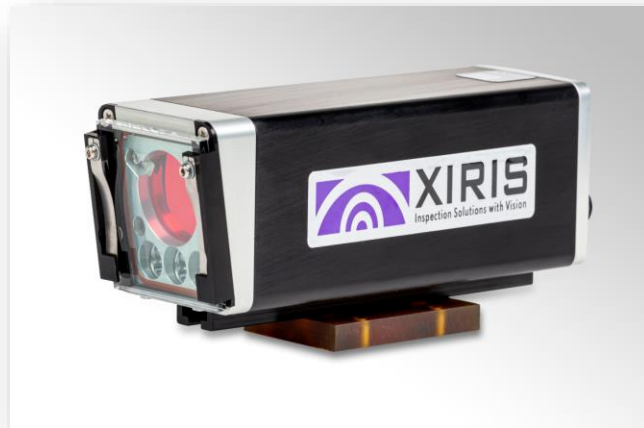
XVC-1000/1100 Weld Camera

- Small Format (42 x 40 x 70 mm)
- C/CS Mount Optics
- POE, I/O and Triggering
- Various Accessories and Kits



XVC-1000e/1100e Industrial Weld Camera

- IP65 Rated Air- or Water-Cooled Housing
- Integrated LED Lighting
- Integrated Optics with Motorized Focus
- Replaceable Protection Window
- High Temperature Kit Available



XVC-700/710 Weld Camera

- Lightweight Slimline Format (89g, 22 x 22 x 107 mm)
- Angled Off-axis S-Mount Optics: 0° to 90°
- Single Cable
- Various Accessories

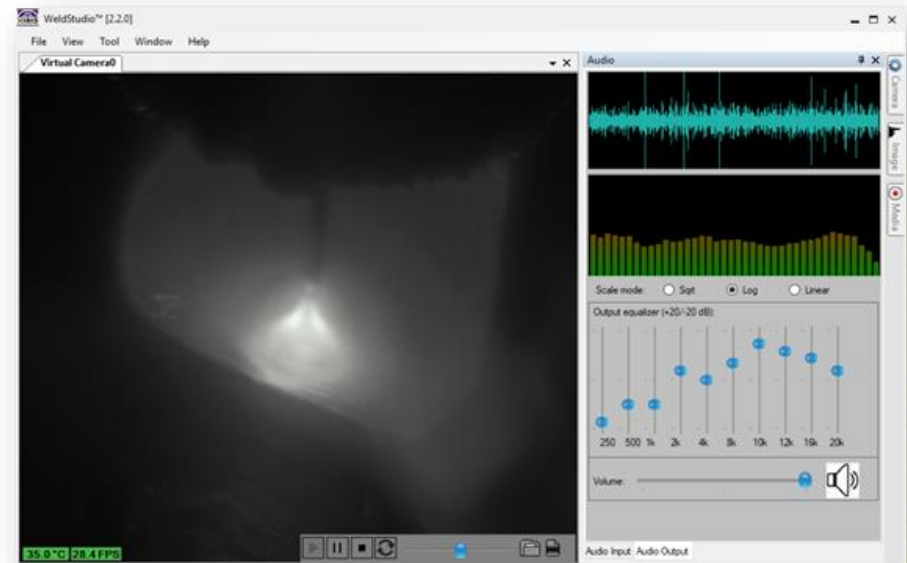




ACCESSORIES AND SOFTWARE

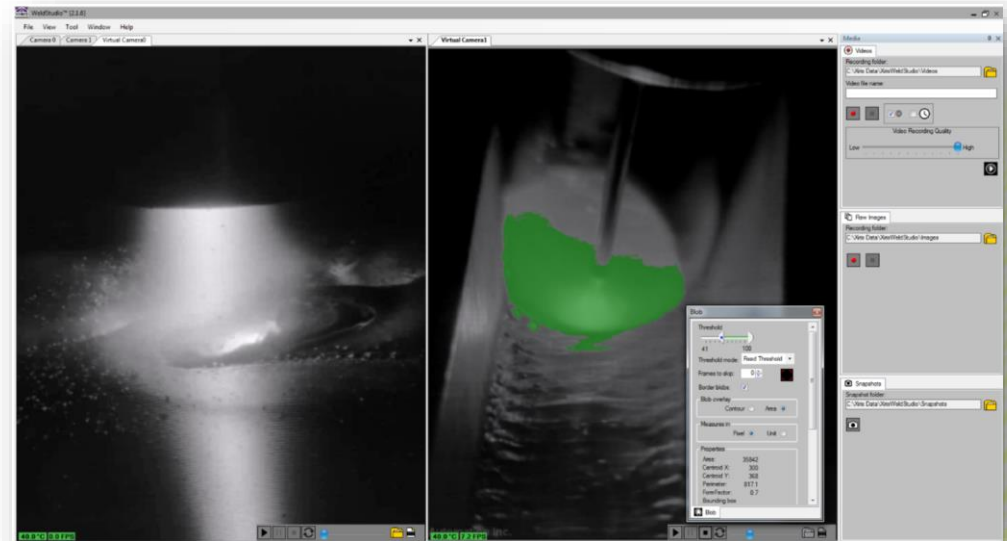
WeldMIC

- Rugged Microphone for Welding
- Adds Audio to Monitor and Fine Tune Welding
- Works with Xiris Cameras and Software
- Includes EQ and Visualizer



WeldStudio™

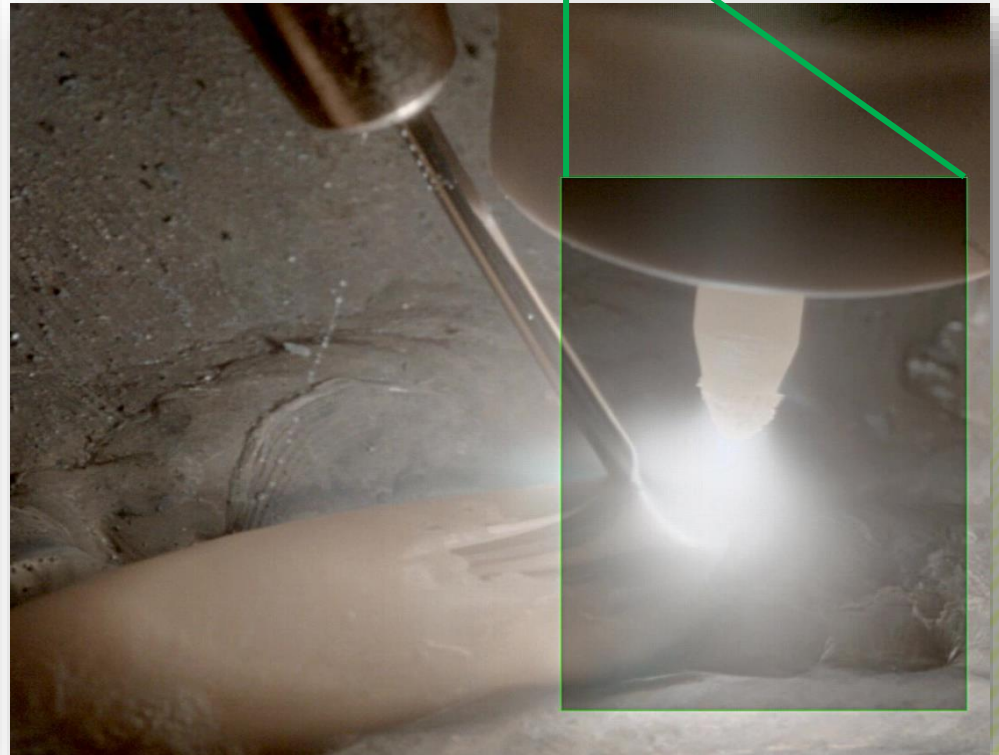
- Weld Camera Software Utility including:
 - Camera and Display Controls
 - Ability to Record and Playback video
 - Sample Image Processing and Machine Vision tools
 - Multi-camera Support
- WeldSDK available



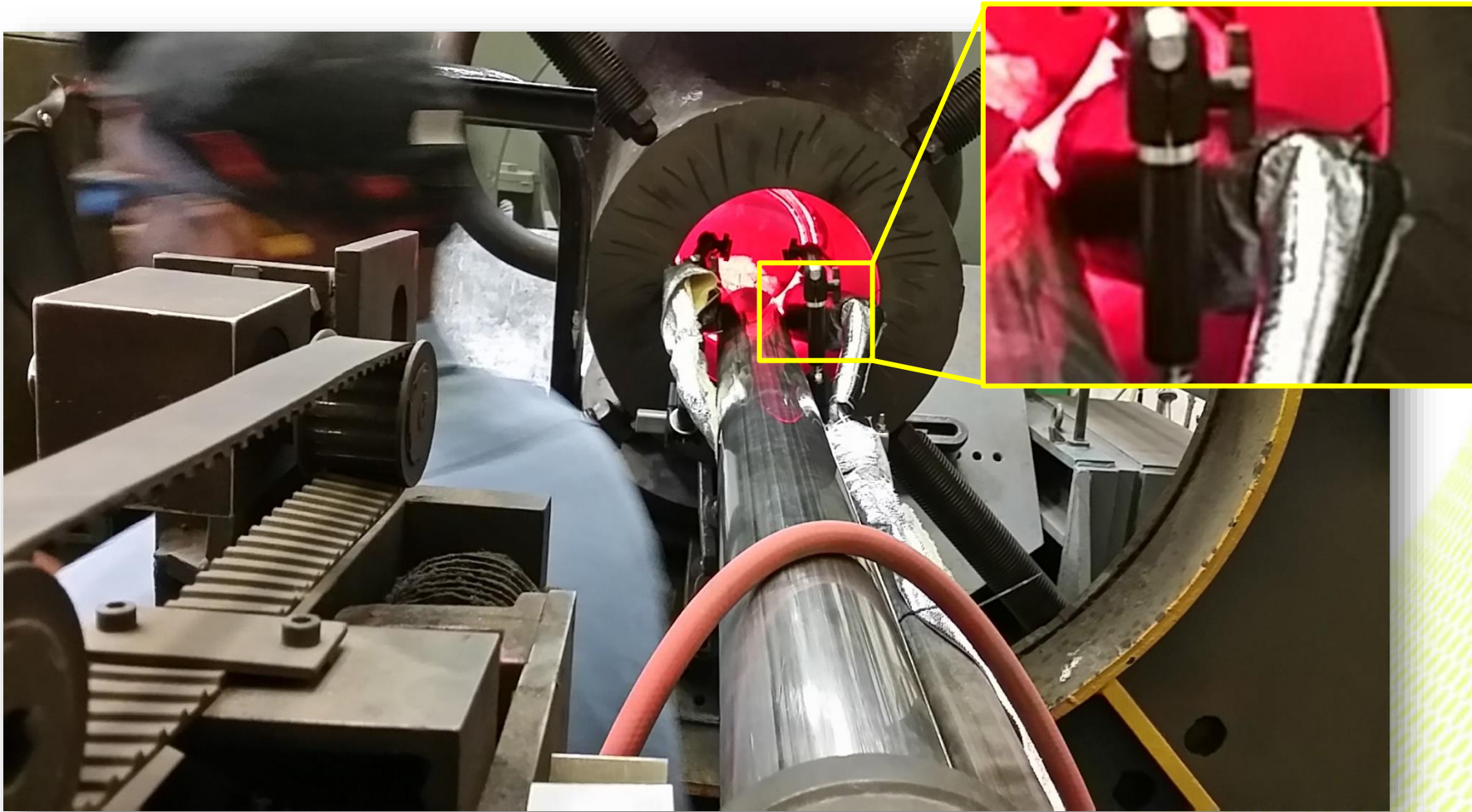
Orbital Welding



*Note detailed view set up through
WeldStudio™ software (PIP)*



ID Pipe Cladding



Education / Marketing / R&D

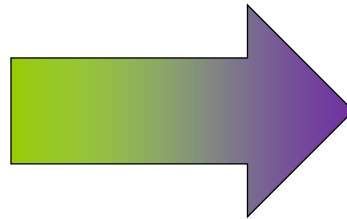
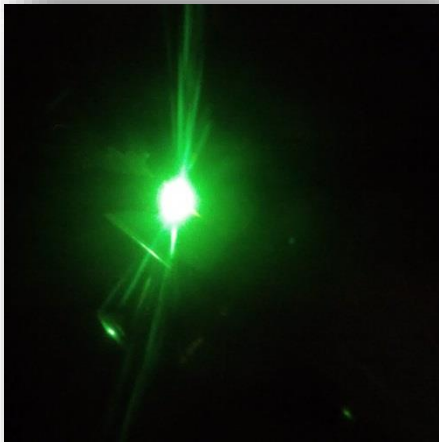
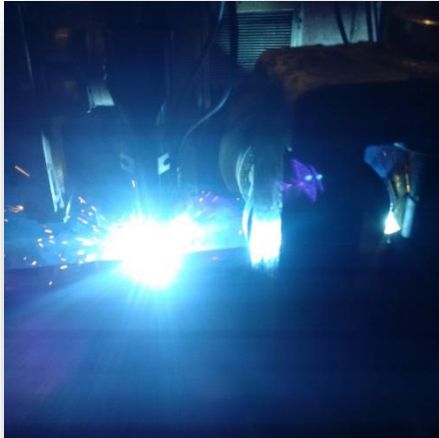


Benefits of XVC Weld Cameras

- Clear View of Weld Arc and Background
- Real Time Verification of Weld/Deposition
- Reduced Process Set Up Time
- Improved Health and Safety of Operators
- Recordable Video for For Traceability or Defect Location
- Training Tool

Welding in the 21st Century

From these...



...To this



Q & A