LRFD Construction Specs
Visual Inspection

Section 26 – Metal Culverts
Section 27 – Concrete Culverts
Section 30 – Thermoplastic Pipe
Visual Inspection

• LazrRing C-Map Systems, Inc.
  – Video camera with laser light

• ORPHEUS RapidView IBAK USA
  – 40X zoom camera with laser

• Pearpoint SPX Corporation
  – Pan camera
LazrRing & Micro-LazrRing
ID Measurement, Laser-Scaling Tool for VideoRuler and Mission Manager

- **Precise Tube or Cavity Cross Sections**
  Looking down the bore of a pipe with a video camera gives a confusing view of an infinitely converging tunnel. Even with a sophisticated measuring system like VideoRuler, there is no practical method to make a diameter measurement from the video image. C-Map's LazrRing tools solve this problem!

- **Non-Contact Optical Reference**
  A LazrRing module mounts in front of a video camera or crawler and projects a 360-degree ring of bright red laser light around the inside circumference of any tubular structure or cavity. The red ring provides an instant visual indication of damage and an easy calibration reference for measurements. With LazrRing, measuring an internal diameter in C-Map's VideoRuler program is as easy as stretching a line or circle on the image with your mouse cursor.

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**LazrRing Specifications**

- 2.13" diam. X 3 3/4" waterproof, anodized-aluminum body
- Machined aluminum case
- Array of 6 mw, 10 mw, or 15 mw laser diodes
- Line-generating optics & adjustable mirrors for each diode
- Wet plug & single pin, waterproof connector
- 6 volt DC power requirement at 500 milliamps
- New! Modular laser sub-assemblies. Scalable to any total power output
ORPHEUS Mainline Inspection System

Pan - Tilt - Zoom - Laser Measurement - Electronic Elevating Device

Pipe Diameters From 6" to 48"

Orpheus Camera: [Download a brochure in PDF]
"IBAK-Orpheus pan and tilt camera".
- Adaptable to the IBAK MIDI-System
- 10x optical Zoom with auto focus and iris: automatic and remote controlled.
- Detector transmitter
- Inclinometer optional
- Reference measurement for possible determination of damage
- Length measurement with integrated laser
- white LED lighting
- Adaptation of lighting to objects in planning
Pearpoint

P400 Series:

P494 Pan & Tilt Camera
This approved, labeled and listed camera offers the unique advantage of pan/rotate capability in pipes as small as 6"/150mm in diameter. A full 360 degrees continuous panning range is available on the P494. The camera utilizes digital video processing, providing a superior image. It is ideally suited for use in hazardous and non-hazardous environments.

View sample survey footage

Features & Benefits:

- Versatile pan/rotate operation
- 75mm head operates in pipes 6"/150mm and larger in diameter
- Digital video processing for sharper, crisper images
- Rugged stainless steel and anodized aluminum construction
- Sealed to IP66
- 360 degrees continuous panning range
- Better than 1 lux sensitivity
- Approved, labeled and listed for Class I, Div 1, Gas Groups C & D, T3 environments
- Compatible with other Pearpoint Approved, Labeled and Listed system components

T-4 Construction
P420 4-6 Wheel Drive Tractor
P400 Series tractors are powered forward and reverse and provide significant performance advantages over track crawler systems in harsh environments such as unclean and debris filled lines.

Their compact length allows for easier manhole entry and maneuverability in difficult areas such as offset joints, tight spaces, 90° turns and small invert.

Features & Benefits
- A wide variety of peripherals such as lightheads and wheels are available for inspection versatility in various materials such as PVC, CVP and corrugated
- Capability to inspect 6”/153mm to 48”/1219mm diameter lines
- Rugged stainless steel and solid brass construction
- For use with Pearpoint EX series cameras (P494, P400 Series Zoom & P415 Mk2)
- Approved, labeled and listed for Class I, Div 1, Gas Groups C & D, T3 environments
- Compatible with other Pearpoint Approved, Labeled and Listed system components

P448 4-Wheel Drive Large, STEERABLE Auto-Elevator Tractor
Steerable tractor with automatic elevator control for large diameter pipe inspection

Features & Benefits
- For use with Pearpoint P494 and P400 Series Zoom Cameras
- Interchangeable wheels, lightheads and controllers
- Rugged stainless steel, brass and anodized aluminum construction
- Capability to inspect 21”/534mm and larger lines
- Approved, labeled and listed for Class I, Div 1, Gas Groups C & D, T3 environments
- Compatible with other Pearpoint Approved, Labeled and Listed system components

P400 4-Wheel Drive Large, Auto-Elevator Tractor
Non-steerable version of the P448. Slightly smaller body provides inspection capabilities in lines 20”/508mm and larger in diameter.

Features & Benefits
- For use with Pearpoint EX series cameras (P494, P400 Series Zoom & P415 Mk2)
- Interchangeable wheels, lightheads and controllers
- Rugged stainless steel, brass and anodized aluminum construction
- Capability to inspect 20”/508mm and larger lines
- Approved, labeled and listed for Class I, Div 1, Gas Groups C & D, T3 environments
- Compatible with other Pearpoint Approved, Labeled and Listed system components