



JME
ADVANCED INSPECTION SYSTEMS

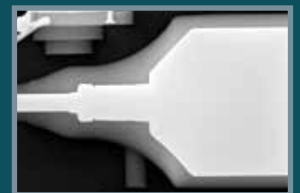
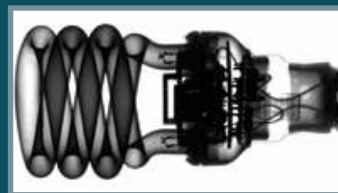
Digital X-Ray and Assessment Development for Subsea Cable Jointing

Digital X-Ray Camera DXr1

Global Marine present the first digital submarine cable X-ray Camera, DXr1, developed in conjunction with leading UK Radiography company, JME. This state-of-the-art camera will supersede the Type 13 cameras and eliminate film technology & wet chemical processing. The light bulb x-ray illustrates the clarity, detail & flexibility of radiographs obtained from the DXr1 camera.

The DXr1 is the successor to the Type 13 Mk III X-Ray Camera for submarine cable use and has the same rugged marine construction and radiation safety. As the camera is fully digital, system repair time is reduced by eliminating the film processing stage and allowing image assessment to commence as soon as the first image is available. The digital images can be stored in a dedicated folder on the vessel server and therefore immediately available for the assessor to assess them with special software, incorporating a range of drop-down tools such as wall-thickness and inclusion gauges. Image defects can be marked-up and stored together with comments. When all images have been assessed, a summary sheet is produced giving an overall result for the joint. The advanced software contains noise reduction features, brightness/contrast adjustment and identifies 16,000 levels of greyscale.

- › Windows Compatible
- › Rugged Marine Construction
- › Highest Radiography Safety
- › Power: 96-240v 5A 50/60 Hz
- › No Chemical Processing
- › No X-ray Films Required
- › No Lightbox or Graticules
- › No hard-copy film archiving
- › Higher image definition
- › System repair time reduced
- › Images can be emailed
- › Software Image Assessment
- › Touch-screen Control
- › Image Enhancement Software



Load joint into cabinet

Collect first image

Rotate cabinet and collect rest of images

Radiographer image viewer screen

Final report generated

Image being assessed

Assessor Software image selection table

Images accepted by radiographer and sent to server

DXR1 TECHNICAL SPECIFICATION

Dimension/Mechanical	
Height	127cm
Width	90cm
Length	110cm
Weight	155kg
Manoeuvrability	2 fixed castors, 2 free castors, Indicated lifting points, Lashing points provided

Power Requirements	
Voltage	96-240V AC @ 50/60Hz
Power	1.2kW maximum

Supported Cable Sizes (using appropriate collets)	
Maximum	90mm diameter

Supported Joint Sizes	
Maximum	101mm diameter

Dimension/Mechanical	
Type	Bespoke mono-block x-ray tube
Max tube voltage	50kV
Max tube current	2mA
Calibration	kV and mA settings optimized for polyethylene inspection

Detector	
Technology	CMOS
Resolution	3072 x 1944
Bit depth	14-bits per pixel (up to 16,383 grey scale levels)
Pixel pinch	75µm
Image area	145mm x 230mm

Image quality	
Sensitivity	Better than 3%
Un-sharpness	0.16

Positioning	
X-Ray source	Fully adjustable across width of cabinet, computer-controlled, motorized, 0.1mm accuracy
Imaging panel	Fully adjustable across width of cabinet, computer-controlled, motorized, 0.1mm accuracy
Joint	Guide-plate ensures user loads joint in correct position
Cabinet rotation	Manual operation with rotation lock and angle indication, Computer interface indicates required position, 0 to 165 degrees range of movement, Additional locking fastener at 0 degree position for storage and transportation

Imaging	
Quality indication	Bespoke IQI's installed in cabinet appear on each image
Image correction	Automatic dark, gain, and panel defect correction
Image enhancement	Multiple-exposure averaging gives high-quality low-noise images
Image size	Approximately 13MB per image
Image data	Embedded tags store detector position, joint serial numbers, job details, etc.
Archiving	Images sorted into folders to enable easy retrieval

User Interface	
Type	Touch-screen, graphical user interface
User functions	Step-by-step step guidance through inspection process, on-screen review of previous images, Export image sets to USB drive
Supervisor functions	Review and edit joint and cable definitions, add new joint and cable definitions
Engineer functions	Perform full system set up and calibration
Security	PIN protection option to prevent unauthorized access to settings

Safety Features	
Visual warnings	3-aspect coloured light signals (as per UK standards), high visibility markings highlight pinch-points around moving parts
Audible warnings	Integrated sounder, active during pre-inspection phase
Interlocks sensors:	Cable located, correct collets fitted, door closed, access panel secured, light signals operational
Emergency stop:	'Mushroom' button on control panel suspends all x-ray and motor operations
Access control:	Key switch to enable x-ray operation, lockable power switch
Shielding	Radiation levels less than 2.5µSv-h ⁻¹ at 50mm from all surfaces of x-ray cabinet

Image Inspection	
Full image inspection software package available:	
Advanced image enhancements	
Defect and wall-thickness measurement tools	
Image annotation	
Report generation	
Inspection software to be located on a PC elsewhere.	

For further information on Global Marine please visit: GLOBALMARINESYSTEMS.COM or contact our sales team.

UK: +44 1245 702000 | Asia: +65 65131300

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