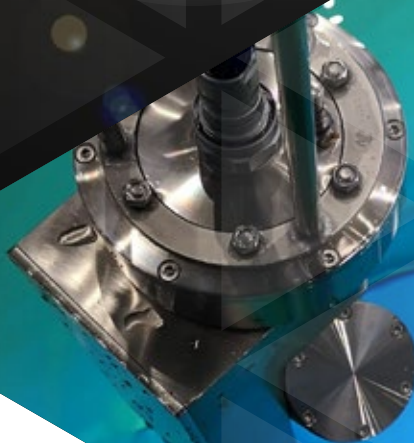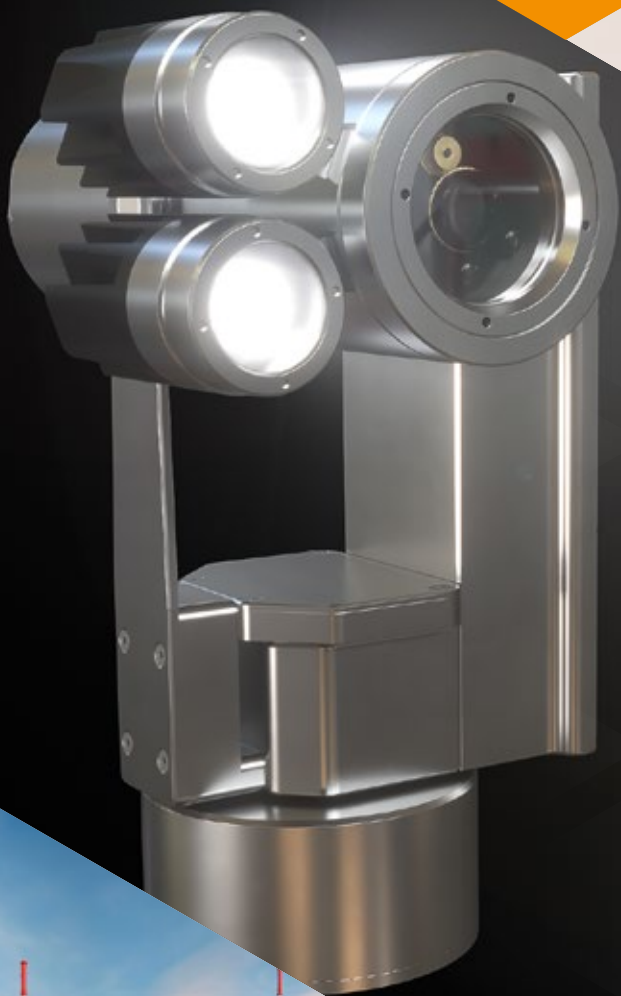*FME compliant*

Unique regeneration image technology for pixelation damage
► *No electronical maintenance needed*

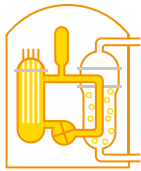*CE Certified*

RADCAM®
Soak

A radiation resistant underwater PTZ color camera designed for nuclear power plant applications

ISEC
MONITORING SYSTEMS

Designed for all key underwater reactor inspections

The RADCAM® Soak is the ideal choice for underwater high radiation inspections

Pressure Water Reactor
- Nuclear fuel inspections
- Nuclear fuel handling
- Reactor vessel upper internals
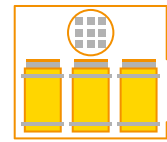- Special underwater investigations

Boiling Water Reactors
- Nuclear fuel inspections
- Nuclear fuel handling
- Reactor vessel upper internals
- Special underwater investigations

Heavy Water Reactors
- Nuclear pools
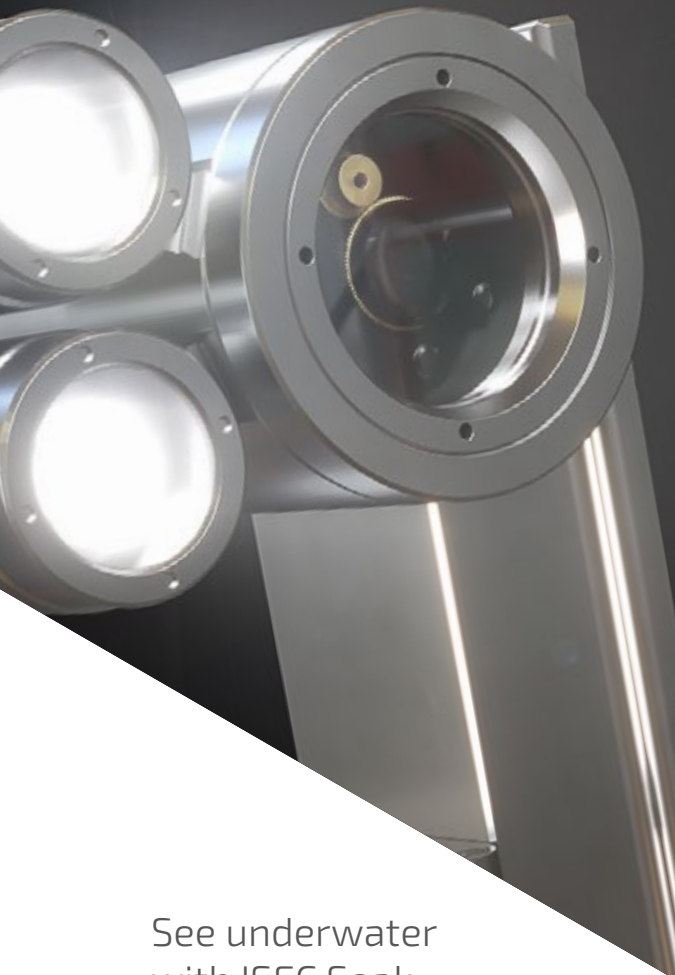- Special underwater investigations

Nuclear Back-End
- Nuclear fuel handling
- Nuclear pools
- Underwater dismantling
- Underwater waste handling
- Special underwater investigation

The ISEC Soak is a radiation-tolerant underwater inspection PTZ camera made to perform in the toughest environments. Designed for fuel loading and unloading inspections, underwater FME object searches in reactor pressure vessel internals and underwater handling monitoring, the ISEC Soak is the only camera you will need to carry out high radiation inspections.

Boost inspection safety, efficiency and get the information you need to make critical decisions with this lightweight, high gamma radiation tolerant camera. The ISEC Soak features unique regeneration image technology for pixilation damage, HD Color 720p image resolution and 10 X optical zoom. It s ready to use out of the box and requires no maintenance. When only the best will do, choose the ISEC Soak.
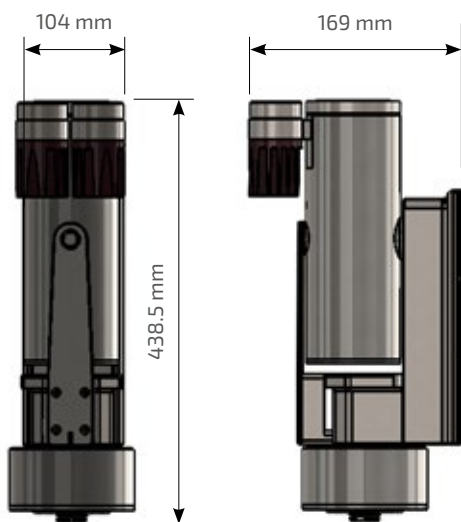
RADCAM® Soak

See underwater with ISEC Soak

The ISEC Soak was specially designed for nuclear power plant applications – it́s the only camera yoú ll need for all key underwater inspections.

- Fuel Loading and unloading inspections
- Under water FME object search in reactor pressure vessel internals
- Underwater handling monitoring

104 mm | 169 mm

438.5 mm

Simplicity

- No maintenance necessary – ready out of the box
- Easy integration into modern IP Video Management Station
- Gamma regeneration of electronics (no module change needed)
- Lightweight (13 kg / 29 lbs)

Excellence

- HD Color 720p image resolution & low latency SDI / HDMI output
- Advanced image control for optimal inspection and monitoring
- Fully integrated pan, tilt, zoom (×10), lights
- Easy integration into modern IP Video Management Station

Endurance

- High gamma radiation tolerance (>10 MRad / 100 kGray)
- Unique regeneration image technology for pixelation damage
- 100kGy accumulated dose
- Applied in EU nuclear power Plants (PWR)

RADCAM® Soak

TECHNICAL SPECIFICATIONS

Camera Module	
Sensor	HD 720p Colour sensor (CMOS, 1280 × 960 pixels)
Minimum lighting	100 lux on target
On board lights	LED, External module, 5 000 Lumen
Optical zoom	10x f=6.5 mm (Wide) to f=65 mm (Tele) Non-Browning lens
Horizontal viewing angle	40.0° (wide end) to 4° (tele end)
S / N ratio	44 dB
Focus adjustment	From 12 inch to ∞
Zoom / Focus / Iris	Remote motorized zoom, focus and iris

Physical features	
Pan / tilt	Pan adjustment: -170° to +170° Tilt adjustment: -38° to +240° Rotation speeds up to 15°/s
Housing	Standard material 316L stainless steel
Size	H: 15.2 inch (387 mm), ⌀: 7.4 inch (188 mm)
Weight	Approx. 28 lbs / 13 kg. (extra light module: + 0.5 lbs.)
Connectors	Push – Pull (LEMO, SOURIAU)

Cable	
Cable type	Special cable – waterproof
Standards	Fire resistance: C1 Halogen free according to IEC 60754-1-2 Resistance to irradiation 25 MRad or 250 kGy
Connectors	Supplied with wired male connector (camera side and control-command unit side) Push – Pull connector (LEMO, SOURIAU)
Length	max. 118 ft between camera and control-rack
Diameter	⌀ Dynamic cable: 7.28 inch (18.5 mm)

Control & Command Unit	
Type	Standard size 19" 2u rack
Weight	8.8 lbs / 4 kg
Power supply	230V AC / 110 V AC
Power consumption	< 300 W
Video output	HD-SDI / HDMI, 25 fps
Control output	Pelco D (RS-485), latency < 100 ms
Maintenance port	Proprietary – MODBUS

Environment	
IP class	IP 68
Operating Temp.	Up to 90°C
Humidity	0 – 100%

Radiation	
Radiation protection	Radiation hardened electronic
MTBF at 30°C	> 10 years or radiation resistance limit
Total camera integrated dose	> 10 MRad or 100 kGray
Sensor radiation dose rate	Up to 20 kRad/h or 200 Gray/h
Additional radiation exposure mitigation	Sensor refreshing technology Remote Refreshing management

Maintenance	
Maintenance needs	Maintenance Free

ISEC
MONITORING SYSTEMS

The innovative, cost-efficient choice in nuclear monitoring systems