**Testimonial** | INDUSTREX HPX-1 Plus Digital CR System

# INAMAR Redefines Quality and Efficiency with Carestream NDT's HPX-1 Plus CR System

For more than 65 years, Maestranza INAMAR Vapor SPA (INAMAR), part of the EMARESA Group, has helped contribute to the backbone and strength of Chile. The company is one of the leading manufacturers of gas tanks, boilers and pressure containers serving nearly every large mining, infrastructure, forestry, port and industrial project in Chile. INAMAR also serves customers across South and Central America and the Caribbean.

Cristian Meyer, General Manager at INAMAR, explained, "INAMAR has structural, mechanical, electrical, electronic and hydraulic specialties. We have also incorporated the latest in 2D and 3D assisted design systems to offer our clients the most efficient path to 100% customized solutions." By way of an example, he cited one of the company's largest projects: "We have a production line dedicated to LPG (liquid petroleum gas) tanks in Chile, delivering an estimated 6,500 tanks each year."

But massive jobs create massive responsibility. Each of those tanks and containers needs to be inspected, not only before they are placed into service, but at the time of any major repair or alteration as well as at mandated inspection intervals. The Chilean Nuclear Energy Commission imposes high standards and conducts frequent audits; NDT testing proactively ensures the integrity of the containers so that accidents don't happen.

"Regulations demand a complete inspection of the linear weld and a radiographic spot inspection every 15 meters, with an average of 35% of the weld volume," Mr. Meyer elaborated. "For longitudinal welding, we utilized fluoroscopy; for circumferential welding, we used gammagraphy."

INAMAR transitioned from film to Digital, and with the use of microfocus X-ray tube get a sharper focus on enhanced safety and brisk volume growth prompted the shift to digital radiography. Mr. Meyer explained, "Rapidly increasing production volumes required us to frequently staff up to three shifts to meet demand. We needed a smarter solution."

**Equal to the Challenge: HPX-1 Plus**

INAMAR purchased the Carestream NDT INDUSTREX HPX-1 Plus CR System in part because the equipment was available to deliver in less than a month and Carestream offered training support to facilitate a speedy transition from film to digital; within three months, two traditional film technicians were fully operational on digital processes.

**The INDUSTREX HPX-1 Plus has redefined efficiency at INAMAR. Mr. Meyer imparted, "The HPX-1 Plus created dramatic operational and productivity improvements. The simple fact that the technology enables us to obtain a high-quality image immediately and eliminate the development processes has broken production bottlenecks and eliminated double shifts."**

As the significant advantages of digital radiography became more obvious, INAMAR made the decision to migrate 100% of its process to digital radiography. Mr. Meyer revealed, "Before digital radiography, it would take up to 45 minutes per batch to image, plus another six hours to put together enough sets to have everything developed at once. Now, with the Carestream INDUSTREX HPX-1 Plus CR System, the entire process is completed in just the few seconds required to capture the images."

**Field-Ready Hardware, User-Friendly Software**

From mines to ports to forests, the HPX-1 Plus is designed for the field, with a filtered, positive pressure air system to keep dust out of the reader, ensuring plate integrity in scanning and clean images. It has the flexibility to handle long plates up to 60 inches, short plates, rigid cassettes and flexible plates in a single system.

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And the rubber feet absorb ambient vibrations from heavy equipment.

INDUSTREX 5.4.1 represents a simple but efficient tool to improve analysis and reduce time in the approval process. The INDUSTREX Digital Viewing Software – used for image analysis, file sharing and storage management in the HPX-1 Plus – enables INAMAR to set up customized parameters and pre-set filters for a project. The intuitive software makes learning how to run the imaging plates, and save, edit and annotate images, fast and easy. Additionally, quick scan times mean that by the time the imaging plate is erased, the next load can be initiated.

### Creating New Opportunities

The HPX-1 Plus delivered an unexpected benefit for INAMAR, a new revenue stream. "As an ASME-certified company, we have a repair division," Mr. Meyer shared. "With the HPX-1 Plus, we now have the ability to capture an image, immediately evaluate the problem and provide the customer with a service plan on the spot, instead of waiting for a report to be issued the following day."

### A Growing ROI

**Another pleasant surprise has been the shrinking time to ROI on the HPX-1 Plus. Mr. Meyer highlighted, "Although the equipment required a substantial investment, when we projected the initial ROI evaluation, we calculated a return of only 3.5 years."**

He continued, "After seven months, based on the quality of work we are achieving, our new estimate is 18 months." Mr. Meyer attributed this drop to expenses not originally considered, such as overtime, disposables and increased production.

**But the future is even brighter: "We now believe that the ROI estimate will drop to just 12 months due to the opportunity it gives us to start carrying out a higher level of inspections that we could not offer previously."**

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### HPX-1 Plus Product Benefits

**Powerful**
- Industry-leading viewing and analysis software
- Image resolution 50 um
- 25 um pixel size
- High speed for improved productivity

**Flexible**
- Accepts flexible plates and rigid cassettes
- Handles the widest range of plate sizes in the industry
- Reads multiple plates at one time
- Multiple laser intensities while maintaining spot integrity
- Adjustable PMT sensitivity

**Reliable**
- Only system built specifically for NDT applications
- Positive internal air pressure keeps contaminants out of critical areas
- Vibration damping fee



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