



A Year in Review

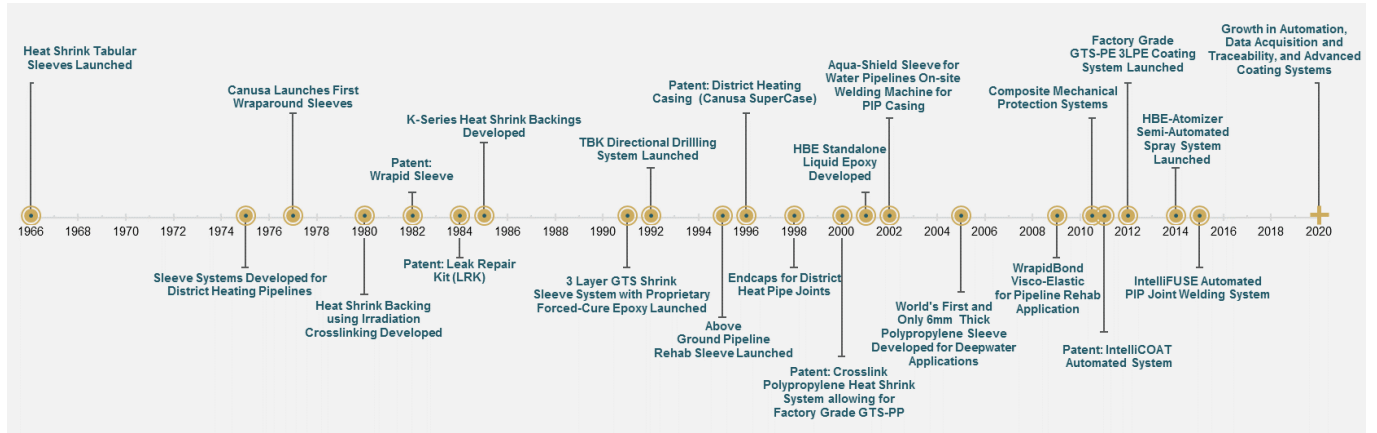
CANUSA-CPS

A Year in Review

In 2017, Shawcor focused on communicating its Canusa-CPS advanced field-applied coatings and technology evolution to our stakeholders. We showcased our products and hosting training demos, participating in global corrosion protection events and presenting at partner management summits.

The introduction of new technologies to meet emerging market needs has led to significant evolution of the field-applied coatings product range that Canusa-CPS has available today.

Canusa-CPS Technology Evolution



- With over two dozen patents filed, granted and pending on various products and technologies, our innovative pipe coating systems deliver maximum protection in the most extreme environmental conditions
- Our industry leading technologies, as well as our industry leading field service, have made Canusa-CPS the #1 provider of pipeline field applied coatings globally

Introducing New Fiber-Reinforced Composite Mechanical Protection System

In March 13, 2017, Houston, TX USA: NRI and Shawcor announced their strategic global partnership and exclusive distribution agreement relating to Scar-Guard®, Scar-Guard® XL and Scar-Guard® E composite products specific to in-trench pipeline coating protection for directional drilling applications. The product platform added superior mechanical protection to field joint coatings on directionally drilled pipelines.



CANUSA-CPS SCAR-GUARD ABRASION RESISTANT OVERCOAT (ARO)

The Scar-Guard® line of products fits perfectly within Canusa-CPS™'s brand of field-applied pipeline coating products, bolstering Canusa's mechanical protection technology offering. Some features and benefits include:

- Unparalleled protection against impact, abrasion, gouge, punctures and tears
- Moisture cured, composite system used to protect the anti-corrosion system
- Prevents abrasion over the weld bead

Today, both parties look forward to driving down user risks associated with horizontal directional drilling (HDD), thrust boring and micro-tunneling through superior mechanical protection.

For more information please visit [Canusa-CPS Scar-Guard](#).

Advancements in Automation

Canusa-CPS delivers innovative solutions to increase the integrity of pipelines with an ever-increasing focus on advanced corrosion protection, automation for consistency, productivity and safety and through the availability of data from field operations in real time to provide greater traceability for our customers.

The introduction of the patented Canusa-CPS [IntelliCOAT®](#) system in 2011 has brought the following key benefits to the industry including: fully controlled application ensuring that the coating is installed properly in the same way on each joint, consistent high quality regardless of pipe size, ambient condition or time of day and higher degree of safety.



Improving Safety Through Traceable Data Solutions

- Secure customer access to cloud-based web interface
- Permanent digital records of key quality and installation data
- Real time monitoring of coating productivity
- Accessibility to coating summary reports and production statistics
- Identification of GPS locations for all installed products



INTELLICOAT, CONTROL PANEL AND DATA ACQUISITION AND TRACEABILITY

2017 Application of IntelliCOAT® System in Eastern Hemisphere

Khazzan tight gas field within Block 61 in Oman, approximately 350 km SW of Muscat. Although Block 61 covers an area of 2800 km², the Khazzan project will develop the south of Block 61 that covers an area of circa 1544km². Block 61 will be developed in a series of projects and the Khazzan project represents the first development. Canusa-CPS had the opportunity to contribute by providing its Automation innovation on a section of the project. Our team made sure to support field service supervision during the entire project duration.

Project Name	Khazzan Project
Year	2016 - 2017
Market	Onshore
Country or Location	Oman
Scope	1,350 joints
Diameter	10.75"
Product	IntelliCOAT Equipment - PP Induction Heating Equipment



2017 Application of Scar-Guard® Fiberglass System in Western Hemisphere

Northwest Winnipeg Natural Gas Project consisted of approximately 50km of both YJ and ARO mainline coatings in 6" and 12" diameters. Initial bore tests had experienced damage to the mainline coating when directional drilled. It was determined that all directional drilling applications would require an extra form of mechanical protection to shield the corrosion coatings of both the mainline and girth welds from holidays.

The project had six major directional drilling sections, for a total of 1300 meters in heavy clay, rocks and limestone. Rocks ranged from 6 to 12 inches in diameter. A few options had been tested, some of which failed to protect the mainline coating sufficiently or the application was too time consuming, or in some cases a combination of both. This is where Canusa's Scar-Guard came to be trialed. Canusa's team worked directly with the contractor on site, in testing the product on a short bore section to see how quick the application would be and how the product would fair through a short HDD pull.

The initial application went quickly and when pulled through the first short bore of approximately 60 meters, no holidays were detected on the mainline or girth weld coatings. The remaining bore sections were all covered with the Scar-Guard, which proved to be effective in protecting the integrity of the corrosion coatings underneath.

Project Name	Northwest Winnipeg Natural Gas Project
Year	2017
Market	Onshore
Country or Location	Canada
Scope	133 joints (1300 meters) Full encapsulation
Diameter	6" and 12"
Product	Scar-Guard



Canusa-CPS Trends in Advanced Field Joint Coatings



Canusa-CPS is a Provider of Hundreds of Field-Applied Coating Products, Equipment and Services

In 2017, we focused on “delivering value to our stakeholders by presenting our differentiated industry leading performance and nine technology platforms at conventions and worldwide forums, including [NACE](#), [AMI](#), [NAPCA](#)” (Somaieh Salehpour, PhD, General Manager at Canusa-CPS, Shawcor).

[Learn more about our products.](#)



NACE 2017 AT NEW ORLEANS, LA USA

Technical Papers and Presentations by Canusa-CPS

We planned on presenting our field-applied coating solutions by looking at relevant topics to the field joint coatings market, structure and support systems to realize growth opportunities. In addition, we understood the need to solve problems concerning the application of technologies in challenging markets and realizing the level of protection needed in the most extreme environmental conditions.

Canusa-CPS global innovation, products and project management teams presented our nine key platforms, new technologies and applications, project track records and product customization to pipe coating associations, partners and pipe coating conferences. This is a list of our major papers and presentations executed and communicated in 2017 by our technical and project management teams:

Event	Subject	Region
Pipeline Coating 2017	<ul style="list-style-type: none"> Advancements in End-to-End Coatings: Smart, Connected Solutions 	Europe
AMI 2017 London	<ul style="list-style-type: none"> Offshore Field Joint Coatings – Why? 	Europe
NAPCA Convention 2017 California, USA	<ul style="list-style-type: none"> Developments Canusa-CPS 	North America
New Generation Visco-Elastic Anti-Corrosion Pipeline Coating Technology	<ul style="list-style-type: none"> Field Joints Technology Advancements 	Middle East
Customer Workshops	<ul style="list-style-type: none"> Canusa-CPS Product Offering Overview Visco Elastic Anti-Corrosion Coatings Automated Coating Technology Field Joint Coating Global Projects 	Global
McMaster University Canada	<ul style="list-style-type: none"> Advancements in Pipeline Anti-Corrosion Coating Technologies 	North America
AMI 2017 Houston, Texas, USA	<ul style="list-style-type: none"> Impact of exposed field joints on the integrity of offshore pipelines 	North America

Canusa-CPS General Manager note to our industry leading experts, teams and partners – “Thank you for being part of our success.” Our mission is to provide pipeline owners and contractors with differentiated industry leading products, reliable services, end-to-end pipeline coating solutions and product customization with the ability to meet and exceed our customer expectations.



ADVANCEMENTS IN FIELD JOINT COATINGS, MCMaster UNIVERSITY

Deep Experience and Understanding of Materials Science and How to Apply It

Our approach is to merge innovations and technology trends to meet customer needs in pipe coating market. One of our key success factors for the year was commitment to growth. We presented real cases and success stories following the Shawcor value propositions: **Integrity, Technology and Execution**. We showcased our continuous improvement program to help us execute complex customer projects safely, on-time and on-budget, providing superior customer satisfaction.

For instance, this year Shawcor's Pipeline Performance Products (**PPP**) introduced new competencies in the marketplace. With growth potential and product focused strategy, Jos Smit, Partner Manager at Pipeline Performance Products, Shawcor, conducted our annual Latin American Summit in Mexico. Our objective was to empower our partners with our technology evolution and demonstrate the significance of geographic expansion, acquisition and new product developments to promote consistent coating performance over entire pipeline networks.



SHAWCOR LATAM SUMMIT 2017, PIPELINE PERFORMANCE PRODUCTS

The product oriented brands under PPP are [Canusa-CPS](#) field-applied coatings, [Dhatec](#) products for pipes. Pipeline Performance Products mission is "to become the global leader in pipeline products to help safely build the pipeline infrastructure and extend the life of existing assets by offering engineered, differentiated and proven product based solutions through a global, value added distribution network supported by a consultative workforce, to achieve sustainable growth through geographic expansion, product developments and acquisitions."

CANUSA-CPS



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Shawcor, the world's leading integrated energy services company, designs and manufactures innovative solutions to protect the integrity of oil and gas, petrochemical, industrial, electrical, and automotive assets around the world. With a focus on five overarching disciplines—Pipeline Performance, Integrity Management, Composite Production Systems, Connectivity and Oilfield Asset Management—Shawcor operates 105 manufacturing and service facilities in 20 countries across the globe.