



Canusa-CPS
A division of Shawcor Ltd.

Head Office
25 Bethridge Road
Toronto, Ontario, M9W 1M7, Canada
Tel: +1 416 743 7111
Fax: +1 416 743 5927

Canada
Dome Tower St. 2200
333-7th Avenue SW
Calgary, Alberta, T2P 2Z1, Canada
Tel: +1 403 218 8207
Fax: +1 403 264 3649

Americas
5875 N. Sam Houston Pkwy W.
Suite 200
Houston, TX 77086
Tel: +1 281 886 2350
Fax: +1 281 886 2353

Middle East
Plot # 37-WR43, Sector no.: ICAD III
Musaffah South, PO Box 2621
Abu Dhabi, The United Arab Emirates
Tel: +971 2 204 9800

Europe, Africa & Russia
Dellaertweg 9-E, Gebouw "Le Carrefour"
2316 WZ Leiden, The Netherlands (NL)
Tel: +31 71 80 802 70
Fax: +31 71 80 802 71

Asia-Pacific
101 Thomson Road, #17-01
United Square, Singapore 307591
Tel: +65 6477 5300
Fax: +65 6732 9073

Quality Management system
registered to ISO 9001

shawcor.com/contact
info@canusacps.com
canusacps.com



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.



CANUSA-CPS
HBE-OS



UNRIVALED OFFSHORE CORROSION PROTECTION

CANUSA-CPS IS THE INDUSTRY LEADER IN FIELD-APPLIED COATING TECHNOLOGY FOR THE PROTECTION OF SUBSEA PIPELINES WHERE THE DEMANDS FOR QUALITY, RELIABILITY AND PROVEN PROCEDURES ARE OF THE HIGHEST IMPORTANCE.

With the unique ability to provide field joint coating solutions that are tailored to match offshore construction methods, pipeline design parameters and service conditions, Canusa-CPS is trusted and relied upon by the world's leading offshore pipelay contractors.

The Canusa HBE-OS is the only liquid coating of its kind serving the offshore marketplace. It is a two-component epoxy coating system specifically formulated to withstand immediate force curing at high build thicknesses, and achieve superior mechanical performance and corrosion resistance. The HBE-OS coating design allows for the fastest offshore cycle-times and protects operating pipelines up to 120°C (248°F). This environmentally friendly, 100% solids, novolac epoxy system can either be spray applied or brush applied to the intended bare steel substrate.

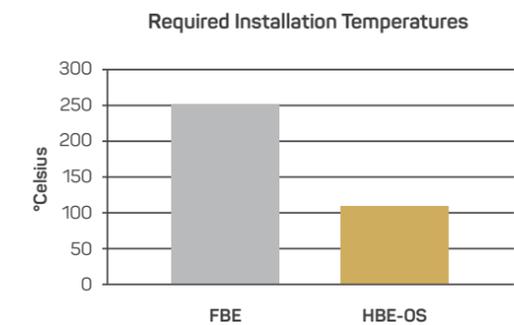
TOTAL INSTALLED COST SAVINGS

HBE-OS can consistently achieve significant cost savings versus competitive alternatives on a total installed cost basis. Cost savings directly relate to reductions in labour, mobilization, equipment, maintenance and production delays.

REDUCED INSTALLATION TEMPERATURES

HBE-OS installation requires significantly lower application temperatures compared to FBE application. This results in reduced total installation times and

reduced damage to the surrounding factory pipe coating, effectively providing a more resilient field joint coating.



REDUCED HEAVY EQUIPMENT REQUIREMENTS

The HBE-OS installation procedures result in significant reductions in heavy equipment requirements on-board the lay vessel, reducing operating costs, providing for additional working space and eliminating operations associated with calibrating, maintaining and repairing critical installation equipment.

PRODUCTIVITY RATES

HBE-OS application times are well in accordance with typical productivity requirements for offshore lay barge installation, as proven on major offshore projects around the world.

STATE-OF-THE-ART EPOXY FORMULATION



The high build liquid epoxy formulation is designed to be force cured immediately after brush or spray application to achieve 60-90 second cure times while maintaining perfect interface porosity ratings and cross sectional porosity ratings.

PROVEN GLOBAL PERFORMANCE

Offshore HBE Technology has been proven on the most challenging offshore conditions with Mobil Cepu, Exxon Mobil, GUFT, Oil Search Ltd. and GASCO.

COMPATIBLE WITH FBE MAINLINE COATING

HBE-OS is fully compatible with FBE pipe coatings. The systems have been designed to provide an extremely strong long-term bond (>2,000 psi pull-off adhesion) with low installation temperatures, providing a superior barrier to water intrusion in the field joint area.

RAPID APPLICATION: HBE ATOMIZER SYSTEM

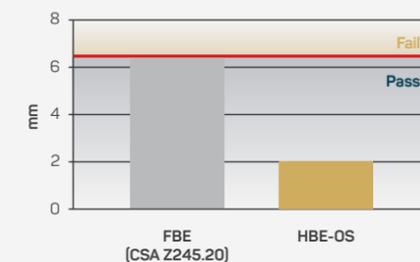
This rapid pneumatic spray system can apply Canusa's HBE liquid epoxy significantly faster than standard brush-applied methods and will provide competitive cycle times in comparison to automated FBE application. The HBE Atomizer setup includes a lightweight and easy-to-use Atomizer Gun, a custom volume HBE Atomizer Cartridge, and an Atomizer Mixing-Tip Nozzle for automated epoxy mixing. This installation technology is not only fast, but allows for consistent high build thicknesses and promotes repeatable corrosion resistant coatings – joint after joint. Other key features of the HBE Atomizer system include:

- Proven HBE application to large diameter girth weld field joints at high build thicknesses in less than 45 seconds
- Fast and efficient - when the cartridge is empty simply replace with a full conditioned cartridge and continue spraying
- Automated in-process mixing to eliminate operator and application errors
- Minimal equipment maintenance and associated down time versus FBE application
- Consistent output spray pattern and volume – a single pass can achieve a coating thickness of 20-40 mils (500-1,000 microns)

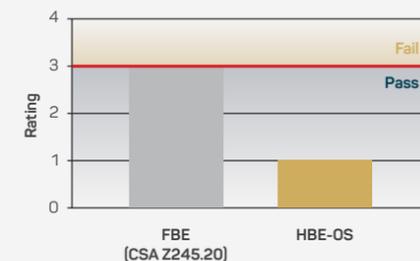


EXCEEDS PLANT APPLIED FBE REQUIREMENTS

Cathodic Disbondment at 65°C for 24 hours



Adhesion Rating at 75°C for 24 hours



Impact Resistance at 23°C and -30°C

