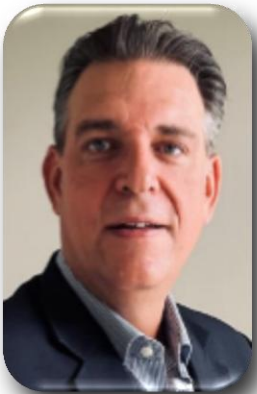




# Use of Composite & Steel Materials and Precast Technology in Marine Structures



**SPEAKER:**

**Julien Raybaud-Gines**

General Manager  
Engineered Bars Systems  
Dextra Group

**Tuesday 27 to Thursday 29 January 2026**  
**InterContinental Abu Dhabi, United Arab Emirates**

## Global leader in design and manufacturing of engineered solutions

Over 40 years of experience on 20,000+ of the world's most prestigious projects



Integrated engineering  
& manufacturing  
products & equipment



90+ fabricators &  
distributors worldwide



International  
& local contractors



Landmark projects:  
high-rise, infrastructure  
and energy projects



Compliance with  
international standards,  
approved by major  
consultants



# COMPANY INTRODUCTION



# GLOBAL FOOTPRINT



17

Locations

3

Manufacturing  
Plants



# MANUFACTURING CAPABILITIES







## Bangkok, Thailand

**16** Million Splices p.a.

**12,000** Tons Bars p.a.

**60,000** Sonic Tubes p.a.

**150** Equipment Sets p.a.







## Guangzhou, China

**8** Million Linear Meters FRP bars p.a.

**2** Million Linear Meters FT bars p.a.

**1.6** Million Linear Meters Core bars p.a.

**360,000** Sonic Tubes p.a.





**Pune, India**

**8** Million Splices p.a.

**3.4** Million Linear Meters FRP  
bars p.a

**540,000** Sonic Tubes p.a.





# INNOVATIONS FOR PORTS INFRASTRUCTURE AND PERFORMANCE



Speed of execution & increase  
in productivity



Quality & Safety



Sustainability & Durability

## INNOVATION

Applications  
&  
Materials

Production processes



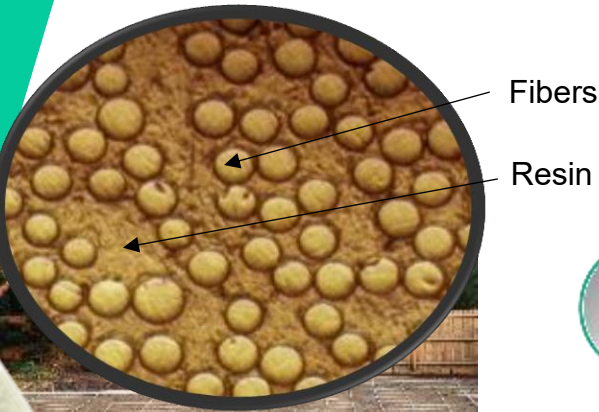
Modularity



# DEXTRA FIBRE REINFORCED PRODUCTS



The Perfect Alternative To Steel



## Stronger & Lighter than steel

- 2x the tensile strength of steel
- 1/4 weight of a steel bar of same diameter



## Non-corrosive, non-conductive

- Material doesn't corrode and offer high resistance to chlorides and alkali.
- Particularly suitable for environments exposed to water, salt, & humidity.
- Non-conductive. It's the perfect reinforcement solution for high voltage currents and magnetic fields.



## Simplified Installation

- Delivered in straight bars up to 11.8m or in coils.
- Labor required for installation reduced by 2x to 3x.



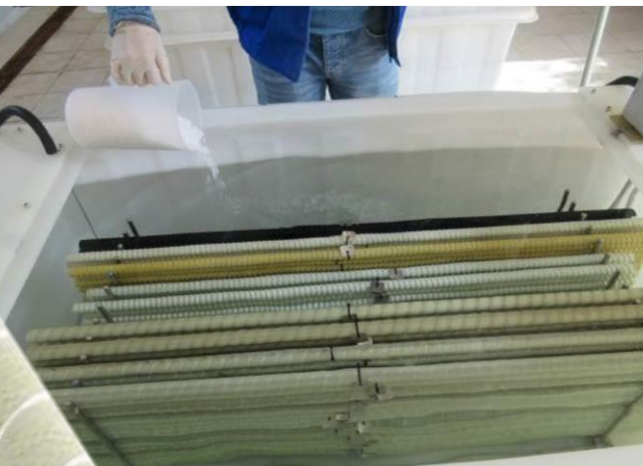
Material is safe & easy to handle, requiring much less labor for installation, generating both time & money saving.



Durable material, allowing to design for a longer lifetime of the structure. As no maintenance nor repair work is needed, ASTEC generates savings during the whole project life.



Sustainable material, with significantly less energy required and CO<sub>2</sub> emission, both at production stage and for its transportation & installation.





# MARINE APPLICATIONS





## Construction of Quay & Jetty



Outer skin of wall in contact with sea-water



# MARINE APPLICATIONS

## Storage of Oil & Gas at Port Terminal



2018 05 23





## Dry-Dock Rehabilitation



Grid of 19mm (#6) GFRP bars  
doweled and epoxied in place



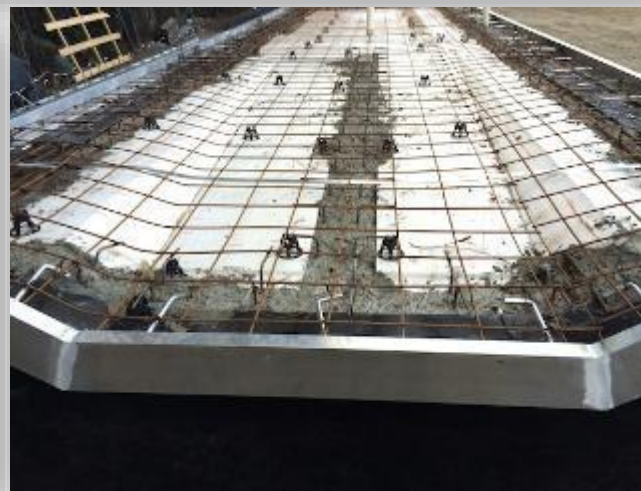
## Jetty Repair / External Strengthening



Concrete with GFRP dowels  
& post-tensioned steel bar



## Platforms and Floating Structures



Precast and Composite  
Materials at glance



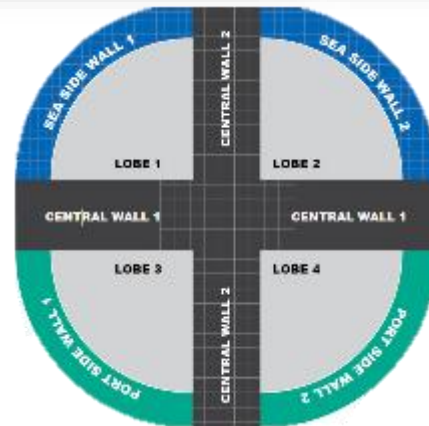
## Sea Walls



Precast and Composite  
Materials at glance



## Caissons Structures



Dextra couplers = splicing systems designed for the connection of concrete reinforcing bars



# MARINE TIE BARS



*Short installation time thanks to reduced assembly scope*



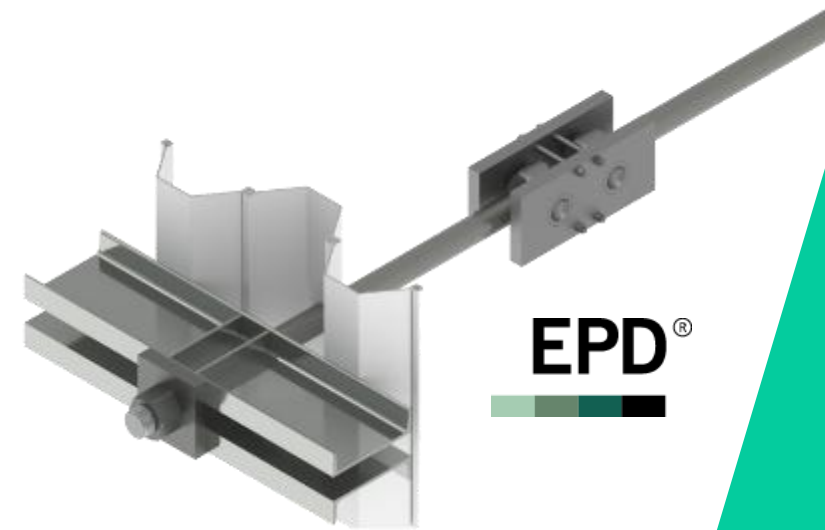
*Overall efficiency in detailed design phase*



*Control over delivery sequence*



*Cost saving*



Steel Piles



Diaphragm Wall



Tubular Piles





Increase steel grades, reduce diameters and go “lighter”

For a given working load of 4,400 kN



Grade	500	700
Diameter	110 mm	95 mm
Weight per 1m	75 Kg	56 Kg
Up to 25-30% savings for the contractor with Grade 700		



# SEA-SAND SEAWATER CONCRETE (SSC)



***Life cycle cost analysis of structural concrete using seawater, recycled concrete aggregate, and GFRP reinforcement have shown significant CO2 reductions along with cost savings***

*Substitute the use of freshwater with saltwater for concrete production ...*

*To construct durable and economical concrete infrastructures*

## **Key benefits:**

1. ***Resource Conservation***
2. ***Early Strength***
3. ***Sustainability***
4. ***Cost Efficiency***
5. ***Durability***



**Coastal Enhancement Works  
at Lei Yue Mun (HK)**



# SEA-SAND SEAWATER CONCRETE (SSC)



## SUSTAINABILITY

Beyond direct reductions of 60% to 70% of embodied carbon (CO<sub>2</sub>)

Biggest impact is the reduction of CO<sub>2</sub> from concrete itself: reduce the quantity - up to 30% - and change its composition with recycled materials

GFRP Rebars



Sea-sand Seawater



Recycled Concrete Aggregate (RCA)



## ACI Committee 243 - Seawater Concrete

New ACI committee whose mission is to develop and report information on concrete made with brackish, saline, and brine water and sea aggregates

*As of June 2024 - Dextra is associated member of this new committee*






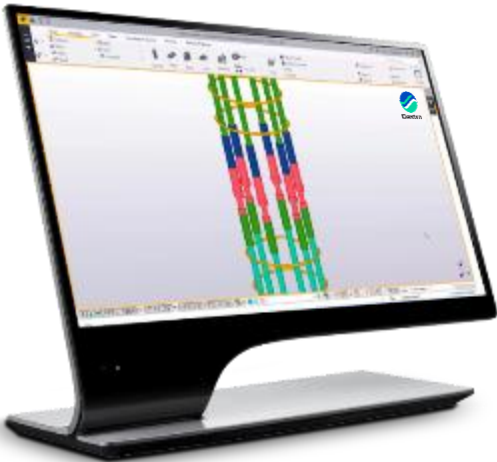
# CAD & BIM DETAILING TOOLS

 **Get fast and precise 2D & 3D design**

 **Easy to use**

 **Up-to-date libraries**

 **Dedicated support**



Rebar  
Couplers



Tension  
Rods



PT Bars



Marine  
Tie Bars



Ground  
Engineering

 **Tekla**



 **AUTODESK<sup>™</sup>  
AUTOCAD<sup>®</sup>**



 **AUTODESK<sup>™</sup>  
REVIT<sup>™</sup>**



**ALLPLAN**



 **rocscience**



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*We are fully committed to upholding our ESG principles, which encompass environmental stewardship, social policy initiatives, and sound governance practices to ensure responsible and sustainable business operations.*

## ENVIRONMENT

- Environmental protection
- Sustainable resource use
- Waste reduction
- Continual improvement



## GOVERNANCE

- Legal & regulatory compliance
- Code of conducts & ethics
- Risk management
- Stakeholder engagement



## SOCIAL

- Respect of human rights
- Working conditions
- Community health & safety
- Responsible supply chain





# ENVIRONMENTAL CERTIFICATIONS



THE INTERNATIONAL EPD® SYSTEM



Dextra solutions are **EPD (Environmental Product Declaration)** verified and officially listed on the **EPD Hub** website

- ✓ Marine Tie Bars
- ✓ Tension Rods
- ✓ Post-Tensioning Bars
- ✓ Rebar Couplers
- ✓ GFRP Rebars
- ✓ Steel Ground Anchors
- ✓ Steel Self-Drilling Rock-Bolts
- ✓ Steel Combination Bolts
- ✓ Sonitec CSL Tubes



# THANK YOU

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