



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



SPEAKER:

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General Manager
Engineered Bars Systems
Dextra Group

Tuesday 10 to Thursday 12 March 2026
Solaire Resort, Manila, The Philippines

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

25 Million Splices p.a.

250 Equipment Sets p.a.





Pune, India

8.8 Million Splices p.a.

1.6 Million Linear Meters FRP bars p.a

285,000 Sonic Tubes p.a.



Guangzhou, China

12.2 Tons Bar Systems p.a.

2 Million Linear Meters FT bars p.a.

8.3 Million Linear Meters FRP bars p.a.

1.6 Million Linear Meters Core bars p.a.

400,000 Sonic Tubes p.a.



INNOVATIONS FOR PORTS INFRASTRUCTURE AND PERFORMANCE



Speed of execution & increase
in productivity



Quality & Safety

INNOVATION

Applications
&
Materials

Production processes



Sustainability & Durability



Modularity

DEXTRA FIBRE REINFORCED PRODUCTS



Fibers

Resin



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



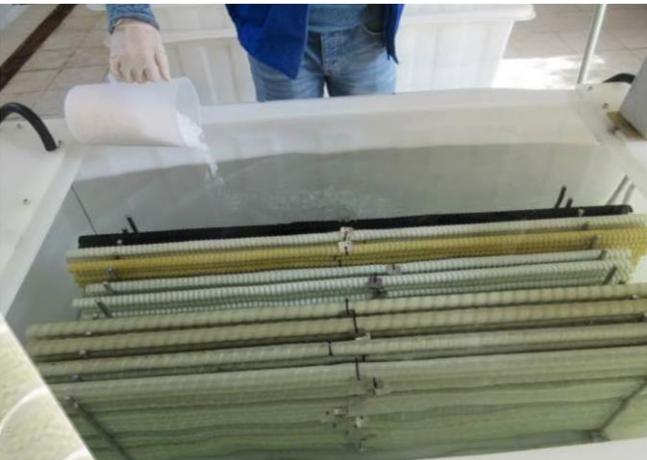
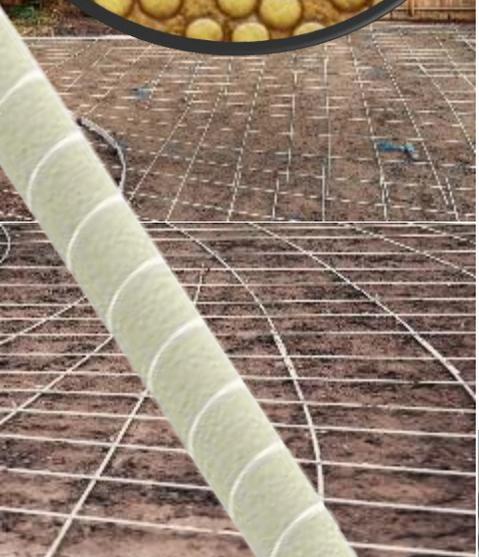
Non-corrosive, non-conductive

- 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 CO₂ 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



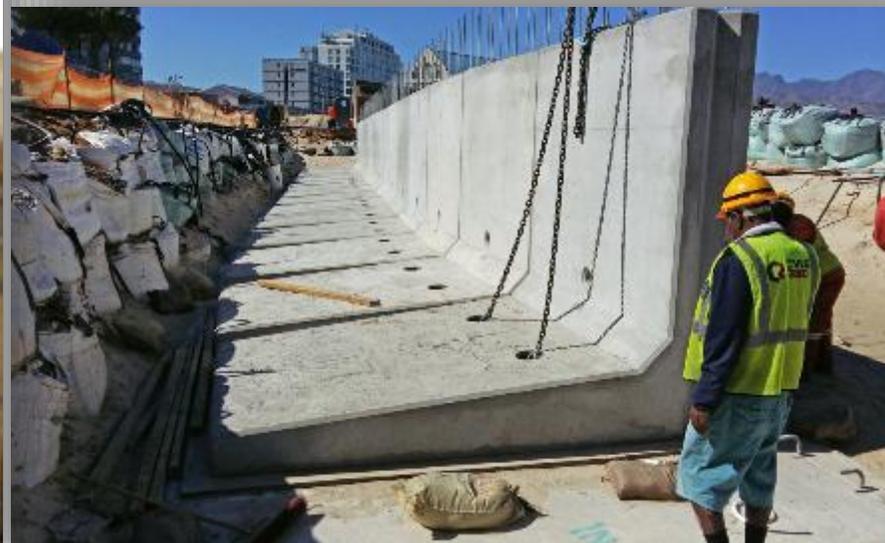
Concrete with GFRP dowels
& post-tensioned steel bar

Platforms and Floating Structures



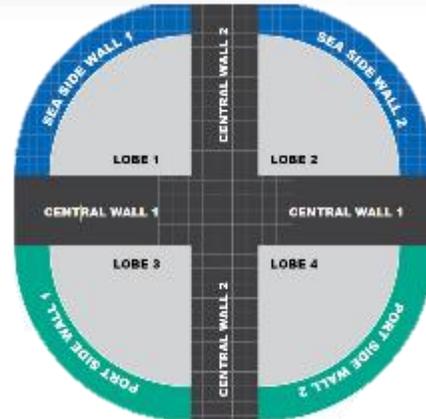
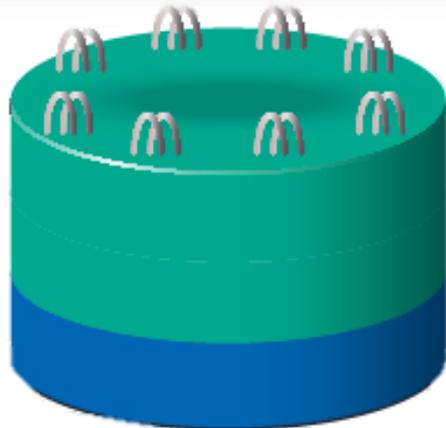
Precast and Composite
Materials at glance

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



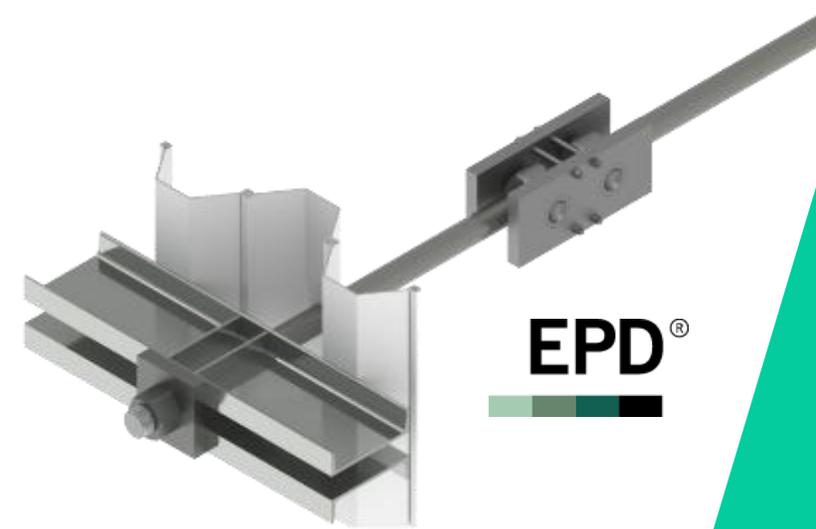
Control over delivery sequence



Overall efficiency in detailed design phase



Cost saving



Steel Piles



Diaphragm Wall



Tubular Piles



MARINE TIE BARS

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 (CO2)

Biggest impact is the reduction of CO2 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

	Rebar Couplers	Tension Rods	PT Bars	Marine Tie Bars	Ground Engineering
 Tekla.	✓	✓	✓	✓	
 AUTODESK™ AUTOCAD™	✓	✓	✓	✓	
 AUTODESK™ REVIT™	✓	✓	✓	✓	
ALLPLAN	✓				
 rocscience					✓

 DOWNLOAD

www.dextragroup.com

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



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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