



TRANSPORT EVENTS

ASEAN Ports and
Shipping 2022
Exhibition & Conference



Dextra

YOUR SOLUTIONS
FOR PRODUCTIVE
CONSTRUCTION SITES

Session 5

Port Technology for Sustainable Operations, Improving Value Added Services and Reducing Carbon Emissions:

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

By

Mr. Julien Raybaud-Gines, General Manager – Bar Systems

Thursday 27th October 2022



Dextra

Vision

To be a global leader in engineering, manufacturing and delivery of high value-added quality product and services for the construction and the industry.

Values

Customer recognition
Integrity and transparency
Passion for results
Creativity and ability
Commitment and accountability

- Established in 1983
- Leader in the production of engineered construction products
- First ASME-certified manufacturer in Southeast Asia
- ISO 19443 (Nuclear Safety) since 2021



Ground Engineering
Solutions → Composite
Materials



Concrete Reinforcement
Products → Precast



Engineered Bar Systems
→ Wall Anchoring



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1,000 collaborators
worldwide



10,000+ projects
successfully delivered



3 factories
in 3 countries

Over 80 Distributors • 12 Offices • 3 Factories



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Manufacturing capabilities



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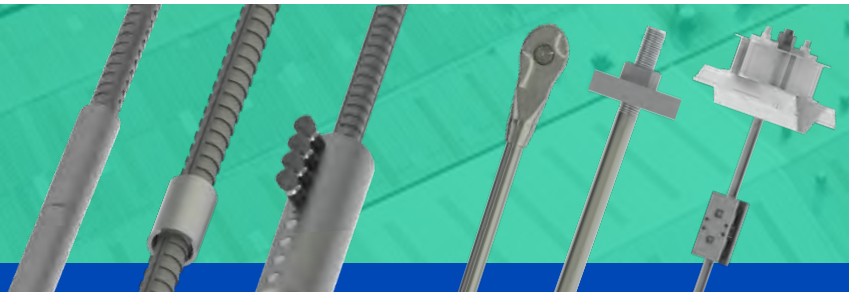
Bangkok, Thailand



Mumbai, India



Guangzhou, China



Worldwide reference



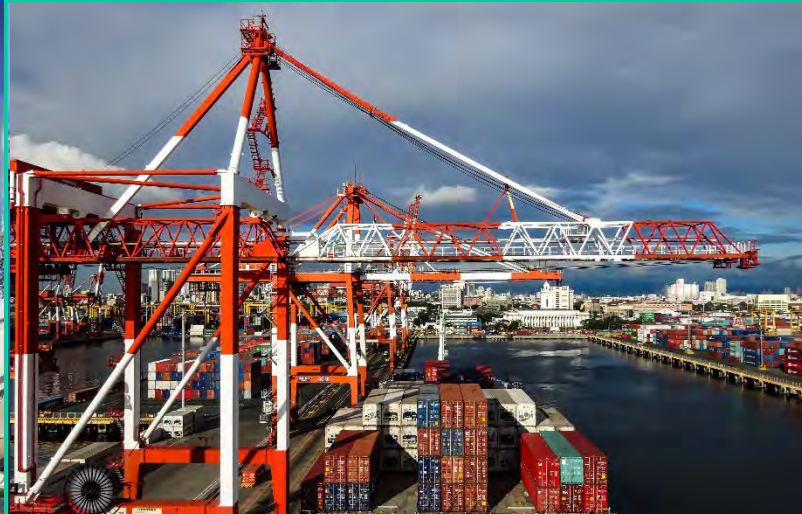
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Buildings



Metros



Ports



Airports



Nuclear



Oil & Gas



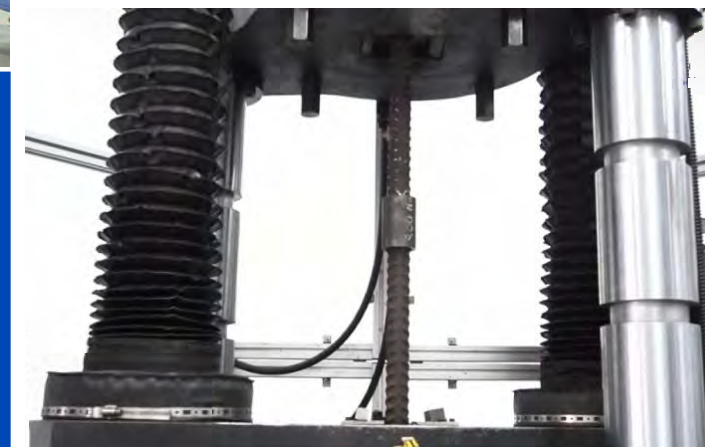
Stadia



Dams



Elevated structures



COMMITMENT TO QUALITY:
ISO-IEC 17025:2015 accredited
laboratory featuring worldwide
rebar library



Product Certification



Certificates from the nuclear industry

ISO 19443 since 2021



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Quality and Nuclear safety have always been Dextra's top priorities. This commitment is recognized by independent certificates from the nuclear industry :

- **ISO 19443** since 2021
- **ASME QSC** since 2009

To apply our thorough quality control process, we have equipped ourselves with our own testing laboratory, which is duly accredited :

- **ISO/IEC 17025** since 2013



Akkuyu 1-4, Turkey



Rajasthan (Kota) 5&6, India



Ostrovets 1&2, Belarus

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



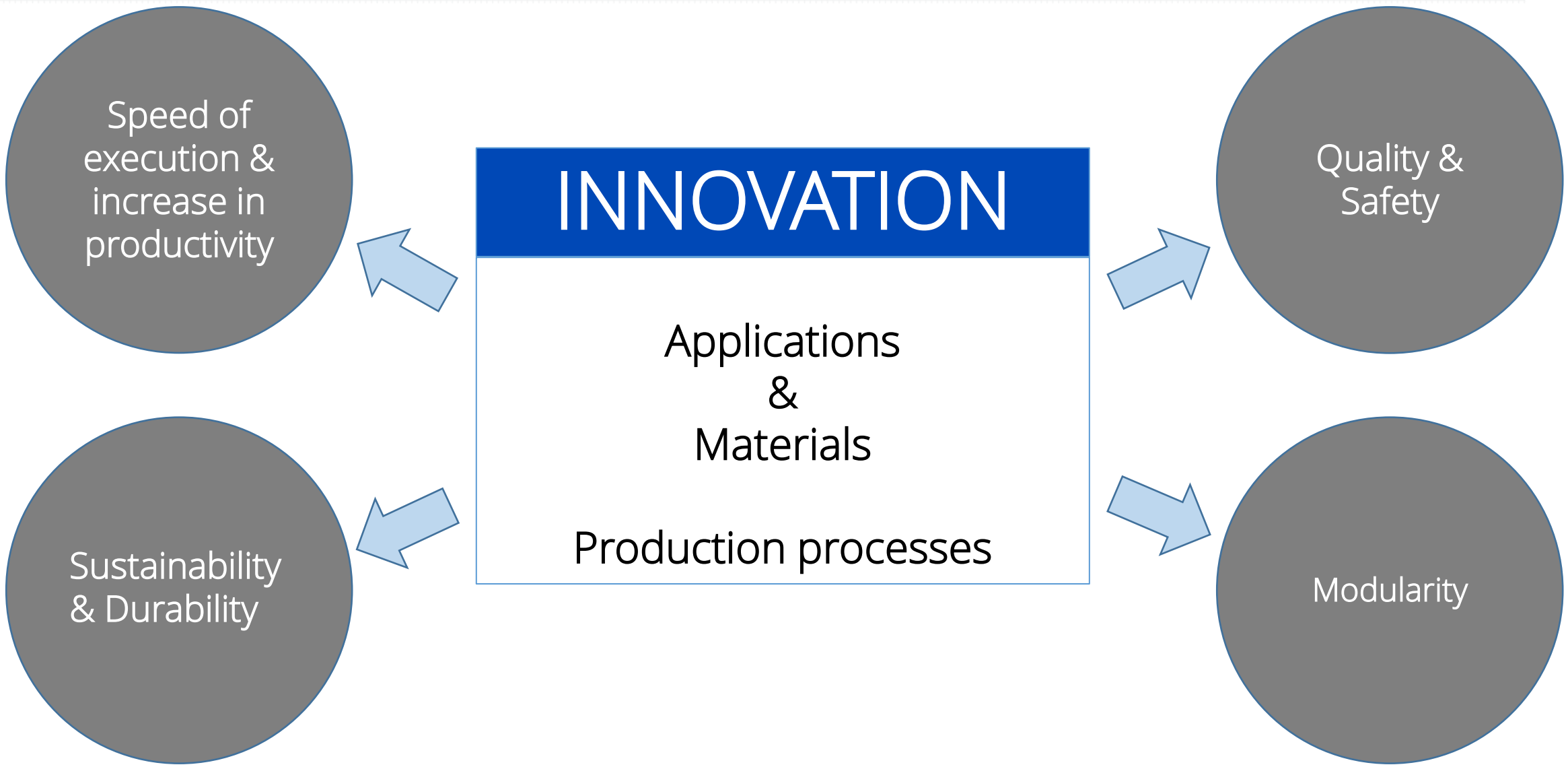
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INNOVATION

Applications
&
Materials

Production processes

Challenges & Opportunities for ports and shipping

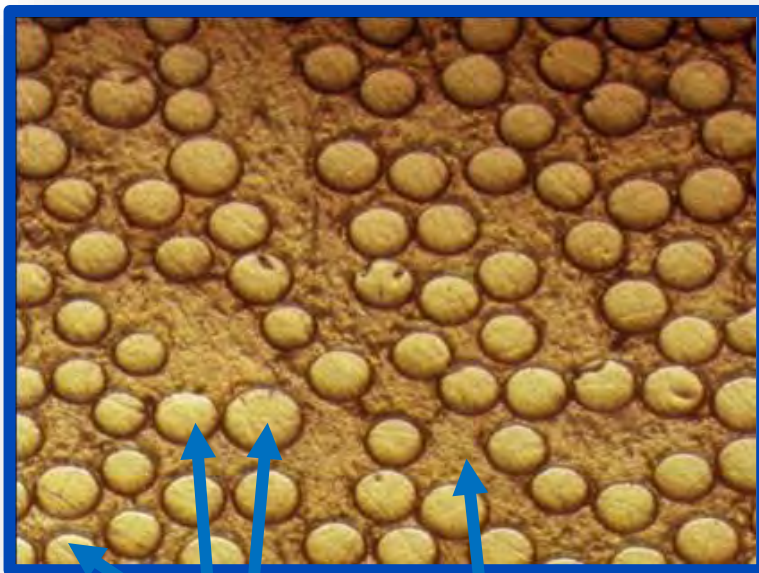
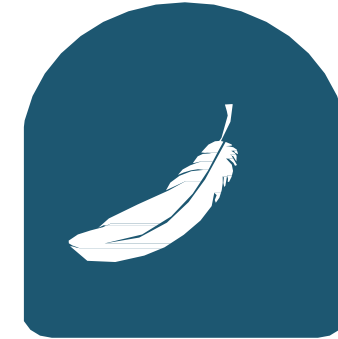


Introduction to Composite Materials & Precast Technology

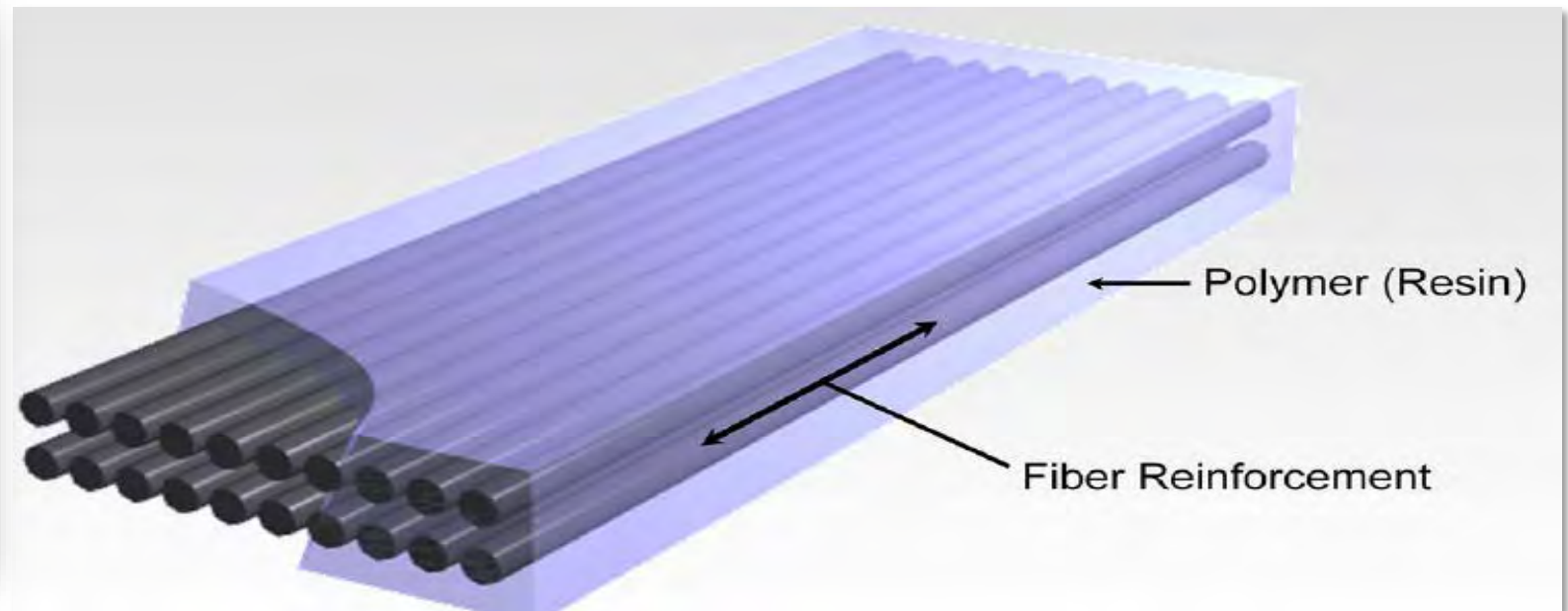


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- FRP = Fiber Reinforced Polymers
- Fiber = Glass / Aramid / Carbon / Basalt...
- Resin = Polyester / Vinylester / Epoxy ...



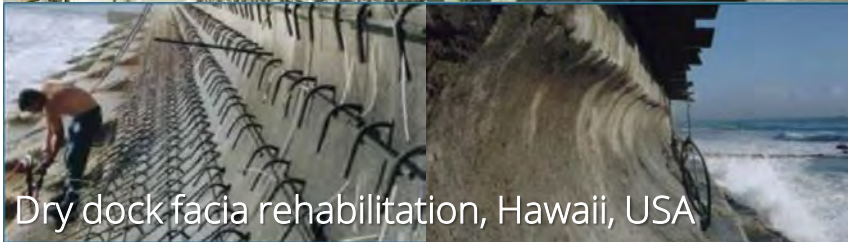
Fibers Resin



Marine reference



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Dry dock facade rehabilitation, Hawaii, USA



Dock of Armaco, KSA



Elizabeth Quay, Australia



Jizan Flood Mitigation Channel, Saudi Arabia

Construction of quay & jetty



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Outer skin of wall in contact with sea-water

Storage of Oil & Gas at port terminal



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Dry-Dock rehabilitation



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

Jetty Repair / External Strengthening



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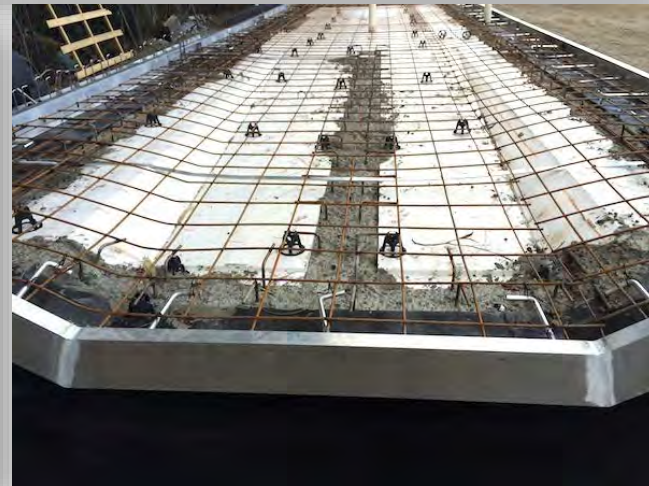


**Concrete with GFRP dowels
& post-tensioned steel bar**

Platforms and Floating Structures



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**Precast and Composite
Materials at glance**

Sea Walls



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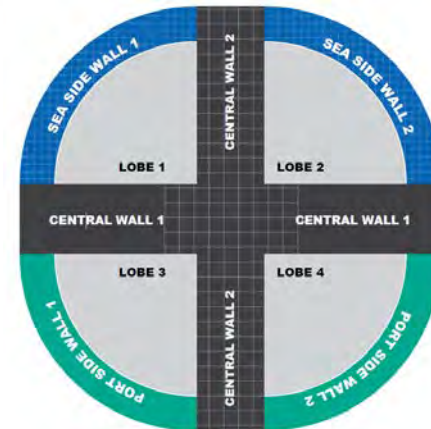


**Precast and Composite
Materials at glance**

Caissons Structures (1)



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



Caissons Structures (2)



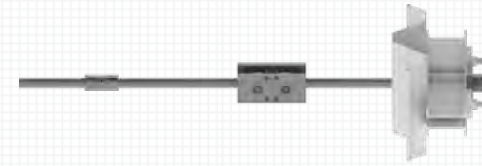
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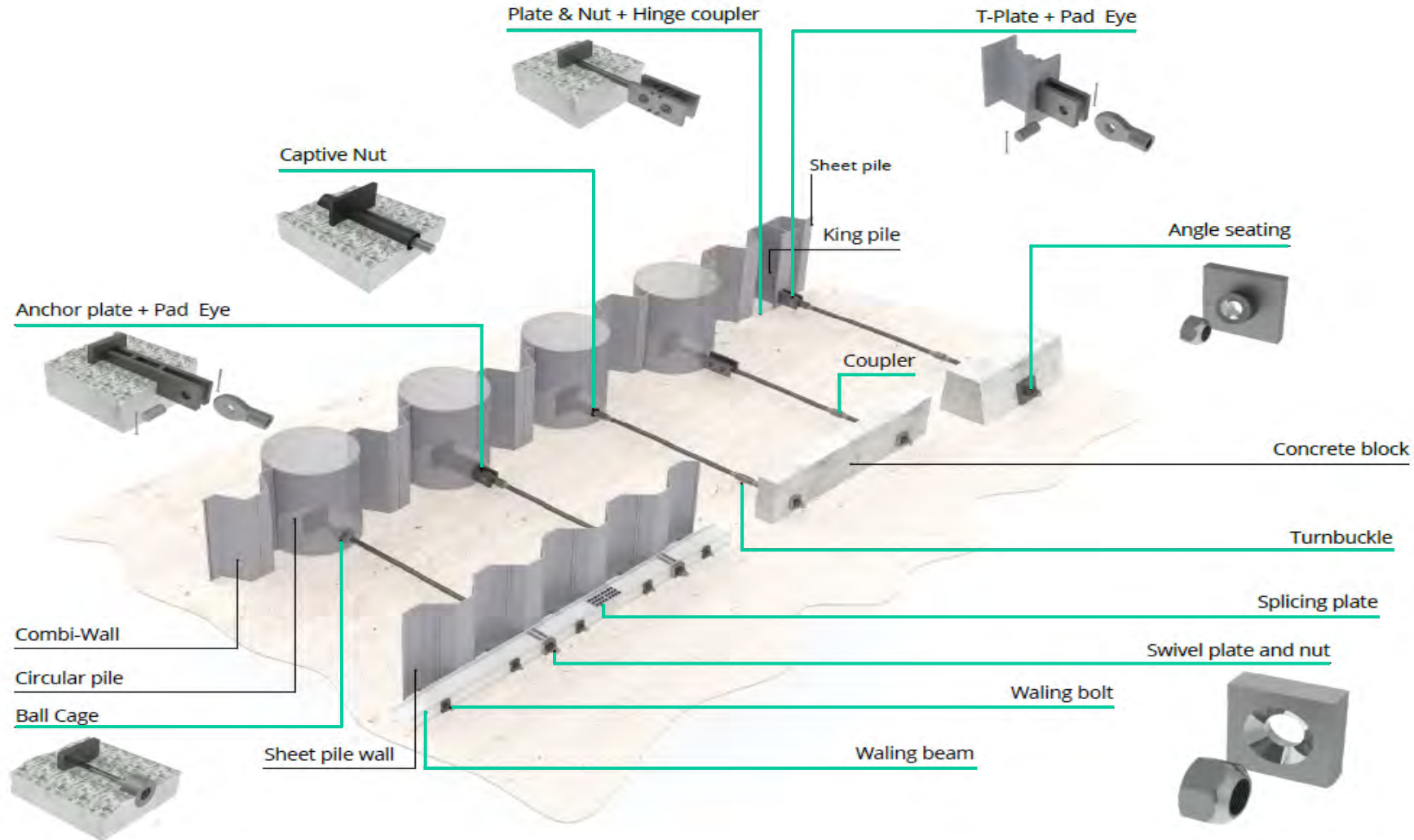
Dextra Marine Tie Bars



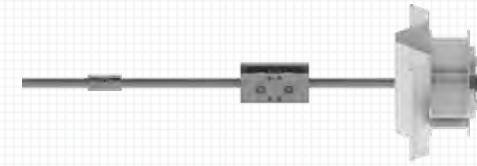
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“Dextra Marine Tie Bars are used in port construction to anchor waterfront structures”



Dextra Marine Tie Bars



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Steel Piles



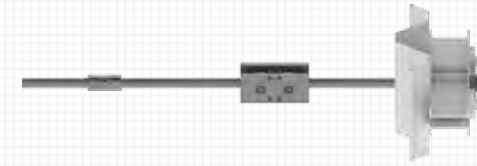
Diaphragm Wall



Tubular Piles



Dextra 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

-25 / 30%
Savings on weight

CAD & BIM Tools



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Get fast and precise 2D & 3D design



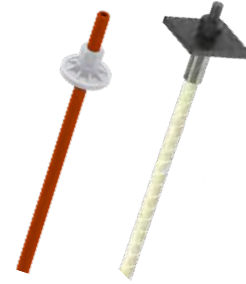
Easy to use



Up-to-date libraries



Dedicated support



Ground Engineering



Tension Rods



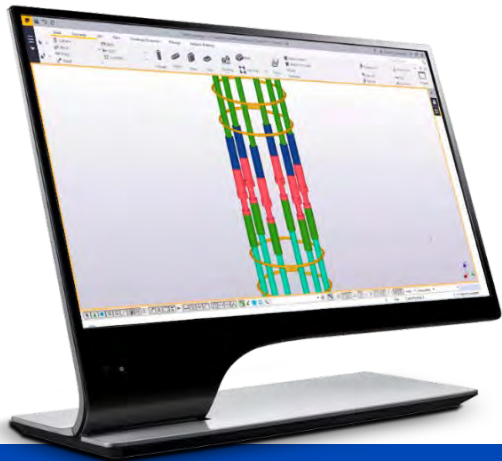
PT Bars



Marine Tie Bars



Rebar Couplers



Production Processes – what more can we do?



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ENVIRONMENTAL & SOCIAL MANAGEMENT SYSTEM



Production Processes – what more can we do?



Why an Environmental & Social Management System?



Financial gains



Industrial interest



Commercial demand



Ethical interest

“

A strong ESG proposition can enhance investment returns by allocating capital to more promising and more sustainable opportunities (for example, renewables, waste reduction, and scrubbers).

- McKinsey -

”

Source: Five ways that ESG creates value, McKinsey Quarterly, November 2019

Production Processes – what more can we do?



Production Processes – what more can we do?



IFC Standards Implementation Plan



Phase I : Study IFC standards

- Performance Standards
- Environmental, Health, and Safety Guidelines
- Environmental and social management system (ESMS) implementation Handbook and tools

Phase II : Gap analysis

- Established Team
- IFC Standards training
- ESMS Self-Assessment
- Roadmap and Time Estimate for Developing and Implementing an ESMS

Phase III : Implementation ESMS

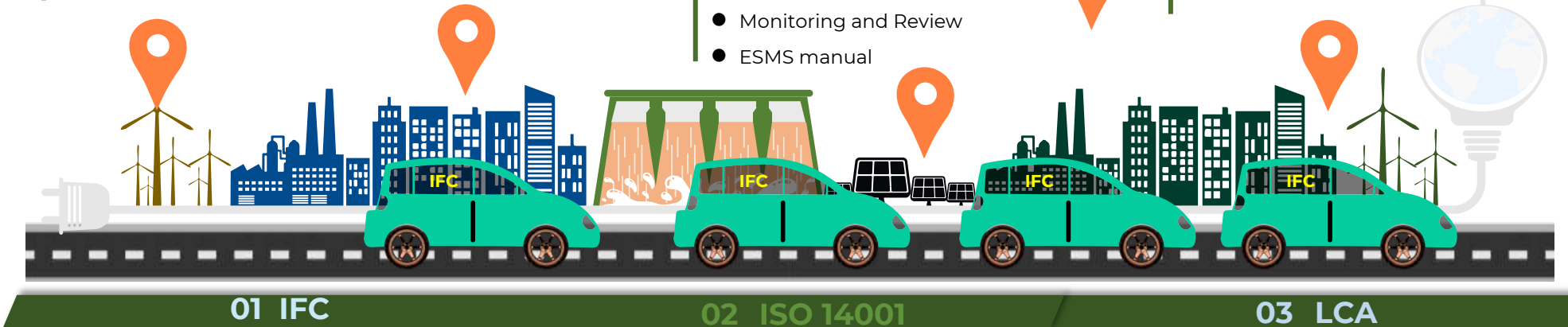
- Social responsibility policy
- Risk and Impact Identification
- Management Programs
- Organizational Capacity and Competency
- Emergency Preparedness and Response
- Stakeholder Engagement
- External Communication and Grievance Mechanism
- Ongoing Reporting to Affected Communities
- Monitoring and Review
- ESMS manual

Phase IV : Compliance check

- Compliance check
- Internal audit
- Group audit

Phase V : Continuous Improvement

- Correction from audit findings
- Maintain PDCA



Production Processes – what more can we do?

ISO 14001 – Environmental Management System (EMS)

Gap analysis

- Pre-audit

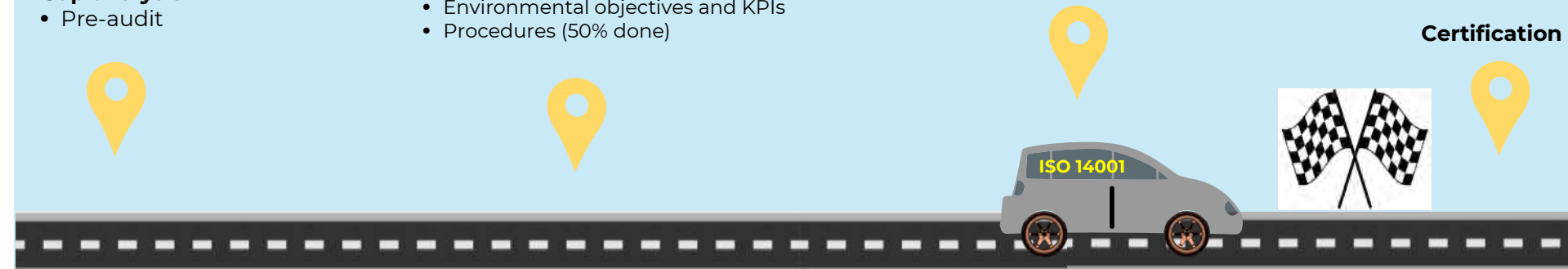
Plan

- Environmental manual & policy
- Roles and responsibilities
- Legal compliance evaluations
- Risks and opportunities analysis
- Environmental objectives and KPIs
- Procedures (50% done)

Do – Check – Act

- Trainings
- Operational controls (waste, wastewater, chemicals, air, noise)
- Awareness development
- Inspection & audit (26-27 Oct. 2022)
- Improvement actions

Certification

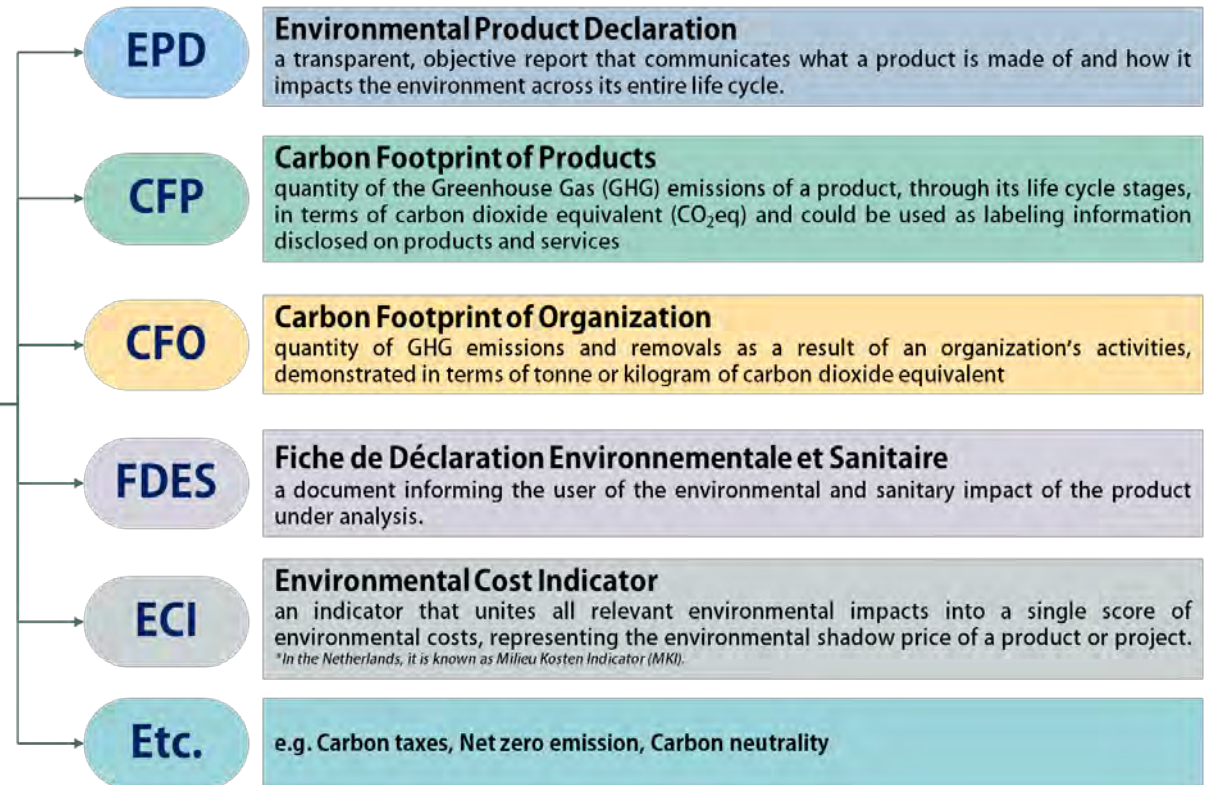


01 IFC

02 ISO 14001

03 LCA

LCA – Life Cycle Assessment



Production Processes – what more can we do?



Thank You



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