

# The Future of Port Solutions

Building on A Strong Tradition

9th Southern Asia Ports,  
Logistics & Shipping 2014

Nov 27-28, 2014

# Terex Business Segments



## Aerial Work Platforms



## Construction



## Material Handling & Port Solutions



## Cranes



## Materials Processing





# Terex Business Groups within MHPS



# Terex Port Solutions – At A Glance



- ▶ Founded in 2012
- ▶ Employees: 2,400\*
- ▶ Sales: 708.6 m USD\*



\* Based on FY 2012 figures

\*\* The Reach Stacker product group is part of Terex Port Solutions

Group	
Business Segment	
Business Group	
Legal Entities	<p>Terex MHPS GmbH, Düsseldorf, Germany                  Noell Mobile Systems GmbH &amp;                  Noell Crane Systems GmbH, Würzburg, Germany                  Noell Crane Systems (China) Ltd., Xiamen, China                  Terex Operations Italy SRL, Lentigione, Italy                  Terex Cranes France SAS, Montceau-les-Mines, France**</p>

# Terex Port Solutions – Adding Value



 **TEREX** | GOTTWALD











 **TEREX**





# Terex Port Solutions – Sales Figures



## Loading & Unloading

Ship-to-Shore Cranes	266 units
Harbour Cranes	1,820 units
<b>In total</b>	<b>2,086 units</b>

## Transport

Sprinter & Straddle Carriers	2,500 units
Automated Guided Vehicles	647 units
<b>In total</b>	<b>3,147 units</b>

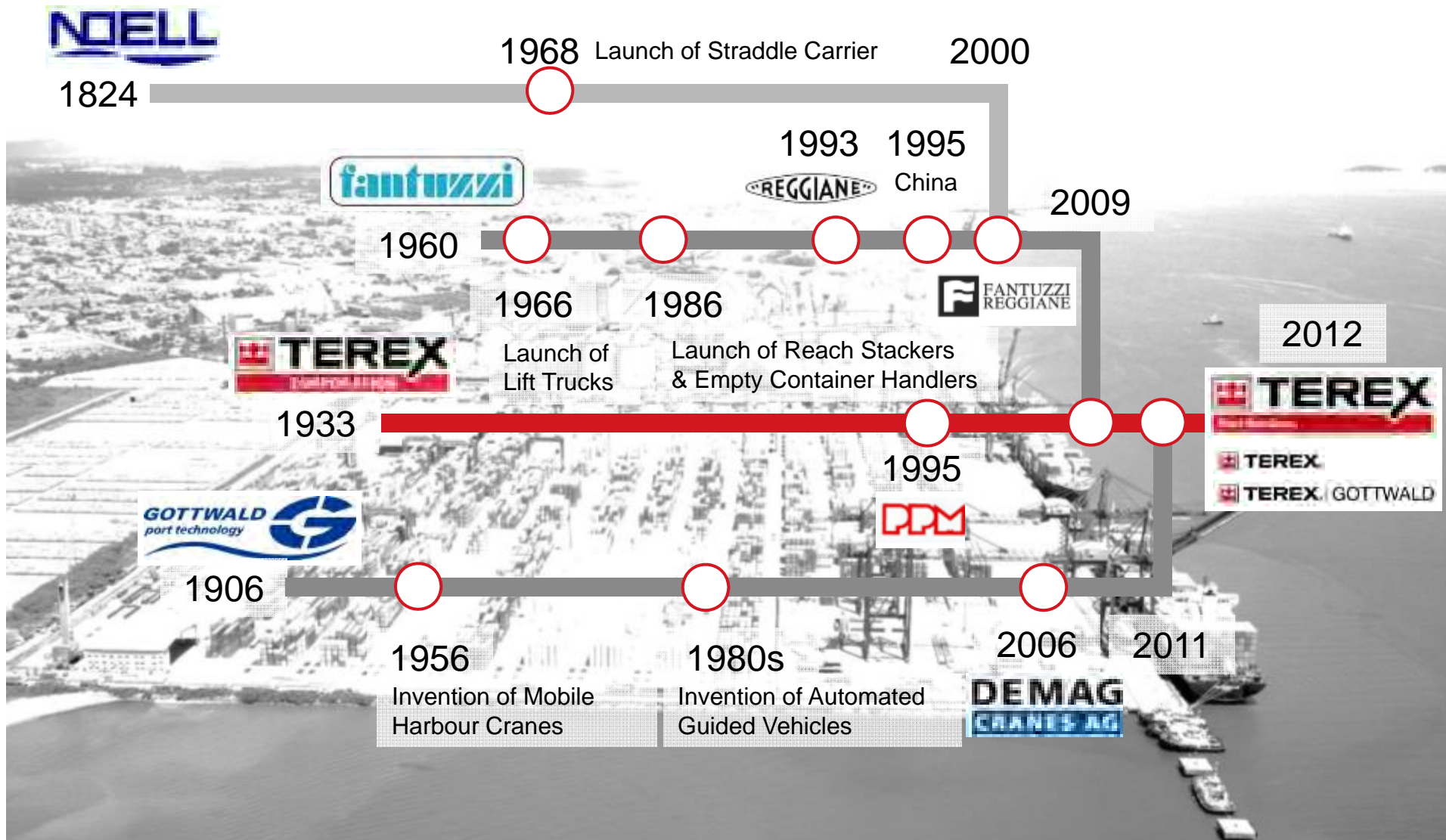
## Storage

Rubber-Tyred Gantry Cranes	771 units
Rail-Mounted Gantry Cranes	104 units
Automated Stacking Cranes	64 units
<b>In total</b>	<b>939 units</b>

## Handling

Reach Stackers	4,783 units
Lift Trucks	6,883 units
Hoppers	3 units
<b>In total</b>	<b>11,667 units</b>

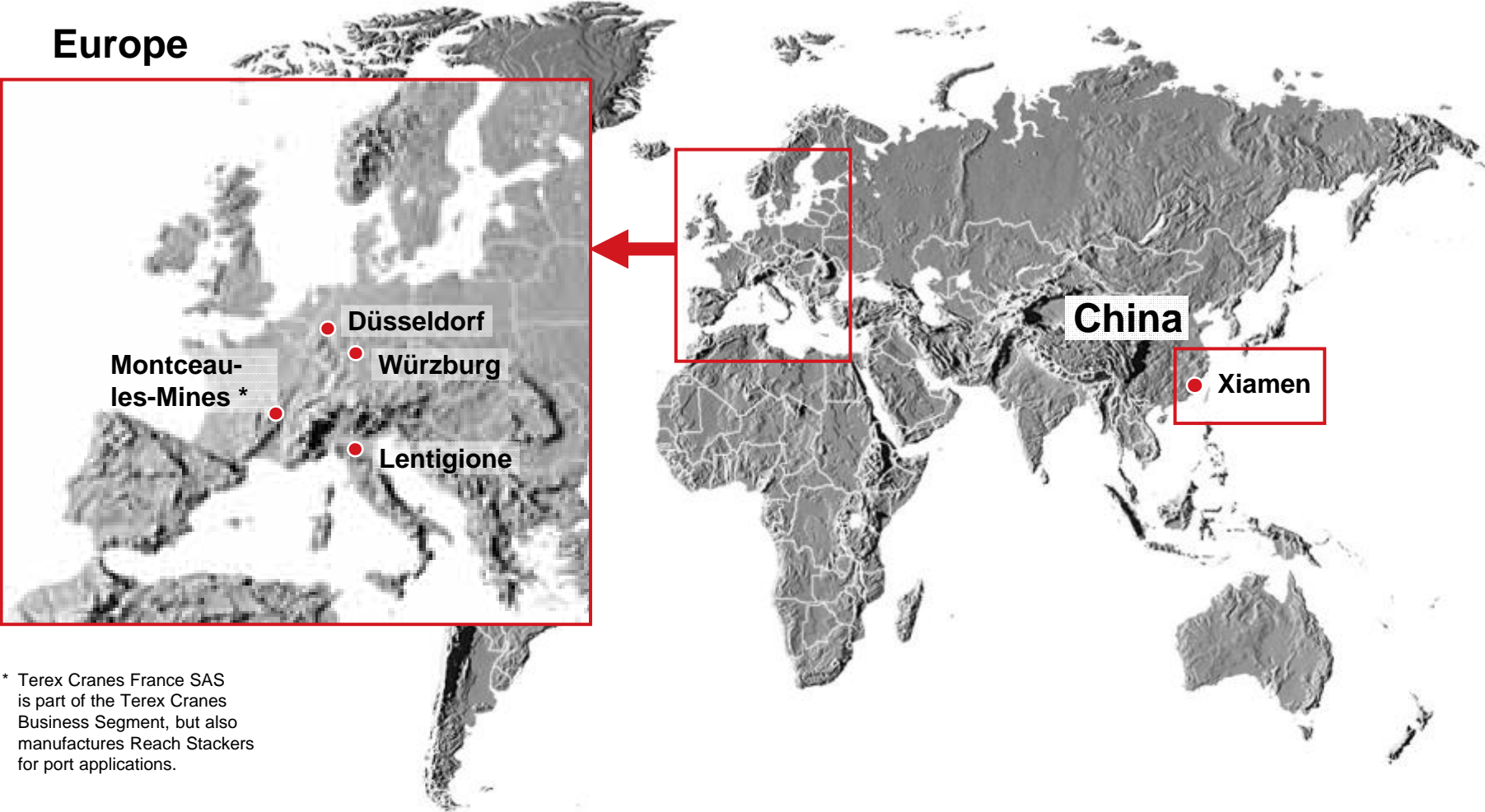
# Terex Milestones in Port Business



PPM, Fantuzzi, Reggiane, Noell, Demag Cranes and Gottwald are legacy brands of Terex® Corporation



# Manufacturing Locations



\* Terex Cranes France SAS is part of the Terex Cranes Business Segment, but also manufactures Reach Stackers for port applications.



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# Manufacturing Locations



## Xiamen, P.R. China



- ▶ **Production**
  - Ship-to-Shore Cranes
  - Rubber-Tyred Gantry Cranes
  - Rail-Mounted Gantry Cranes
  - Reach Stackers
  - Empty Container Handlers
- ▶ **Total area** 280,000 m<sup>2</sup>

## China

● Xiamen



# Product and Service Portfolio



## Loading & Unloading

- ▶ **Ship-to-Shore Cranes (STS)**
- ▶ **Harbour Cranes**
  - Mobile Harbour Cranes (G HMK)
  - Portal Harbour Cranes (G HSK)
  - Floating Cranes (G HPK)
  - Pedestal-Mounted Harbour Cranes (G HPK)
  - Rubber-Tyred Portal Harbour Cranes (G HRK)

## Transport

- ▶ **Straddle Carriers (SC) \***
- ▶ **Sprinter Carriers \***
- ▶ **Automated Guided Vehicles (AGV)**

*\* for transport & storage*

## System Capabilities

- ▶ **Planning & Consulting**
- ▶ **Software**
- ▶ **Service**

## Storage

- ▶ **Automated Stacking Cranes (ASC)**
- ▶ **Rubber-Tyred Gantry Cranes (RTG)**
- ▶ **Rail-Mounted Gantry Cranes (RMG)**

## Handling

- ▶ **Reach Stackers (RS)**
- ▶ **Empty Container Handlers (ECH)**
- ▶ **Full Container Handlers (FCH)**
- ▶ **Forklift Trucks**
- ▶ **Hoppers**
- ▶ **Bulk Material Handlers (BMH)**



# Product and Service Portfolio



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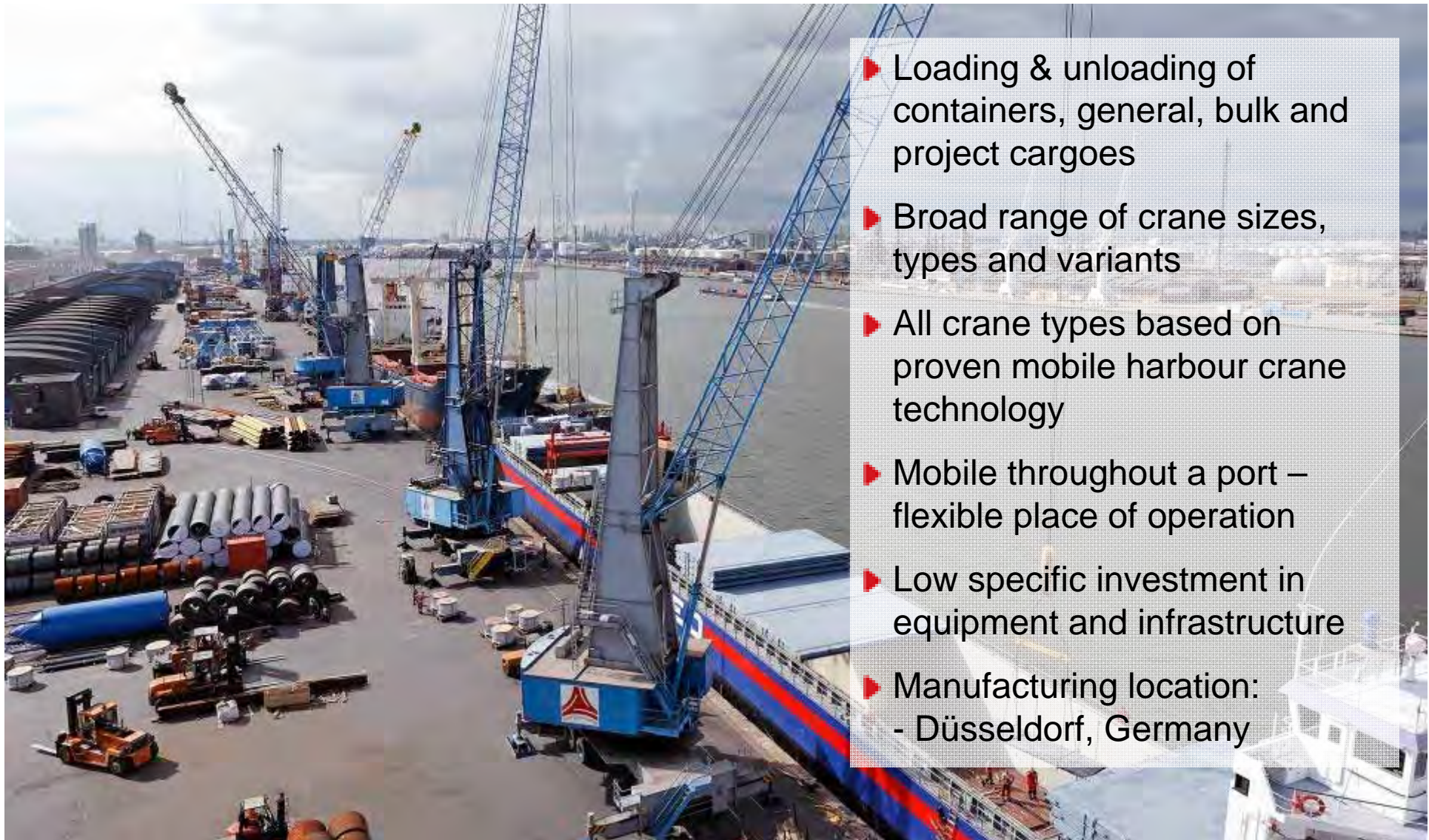
# Ship-to-Shore Cranes (STS)



- ▶ High capacity container handling
- ▶ Operation alongside various vessel sizes up to super post-Panamax
- ▶ Manufacturing location - Xiamen, China



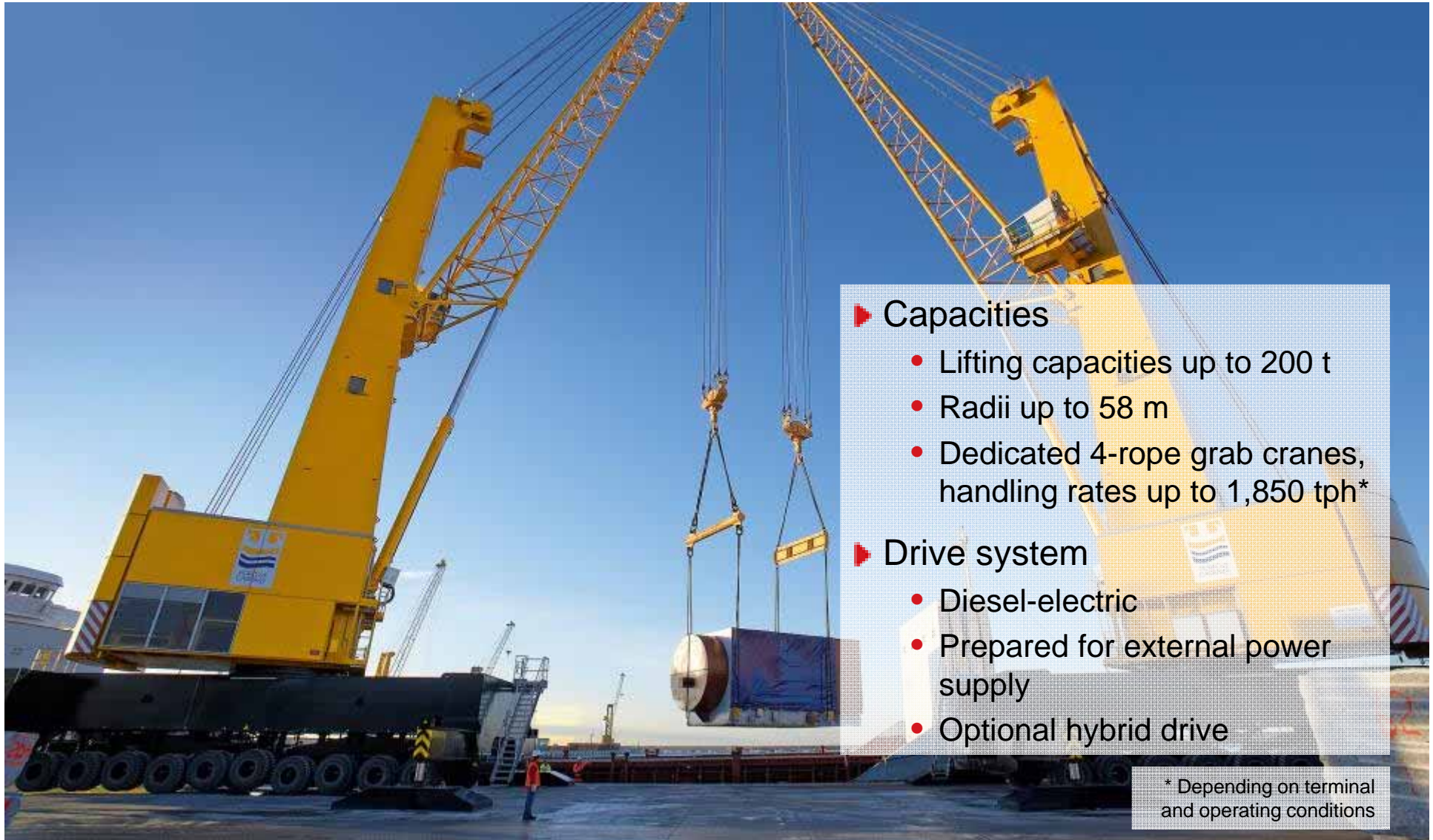
# Harbour Cranes



- ▶ Loading & unloading of containers, general, bulk and project cargoes
- ▶ Broad range of crane sizes, types and variants
- ▶ All crane types based on proven mobile harbour crane technology
- ▶ Mobile throughout a port – flexible place of operation
- ▶ Low specific investment in equipment and infrastructure
- ▶ Manufacturing location:  
- Düsseldorf, Germany



# Harbour Cranes



## ► Capacities

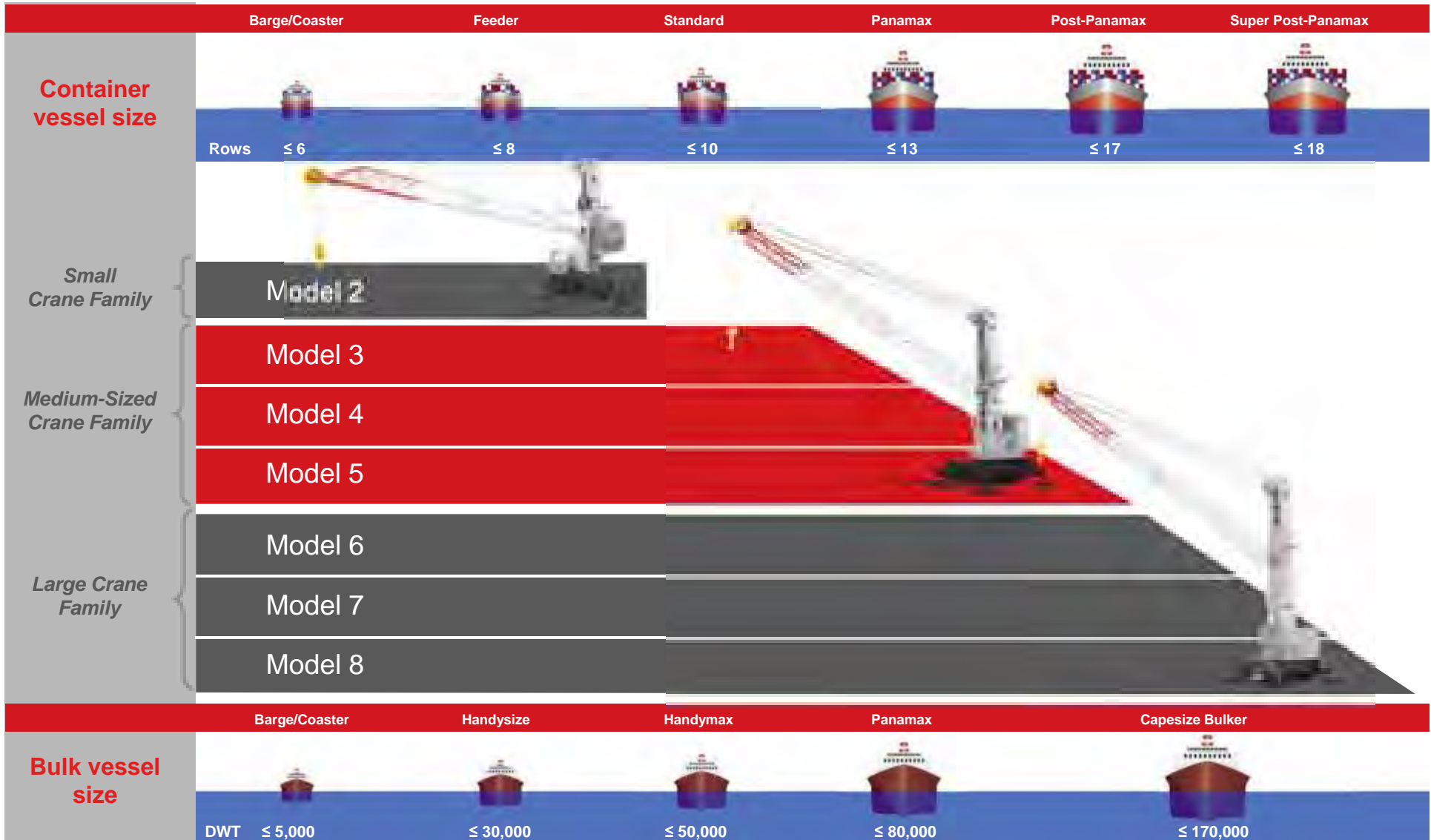
- Lifting capacities up to 200 t
- Radii up to 58 m
- Dedicated 4-rope grab cranes, handling rates up to 1,850 tph\*

## ► Drive system

- Diesel-electric
- Prepared for external power supply
- Optional hybrid drive

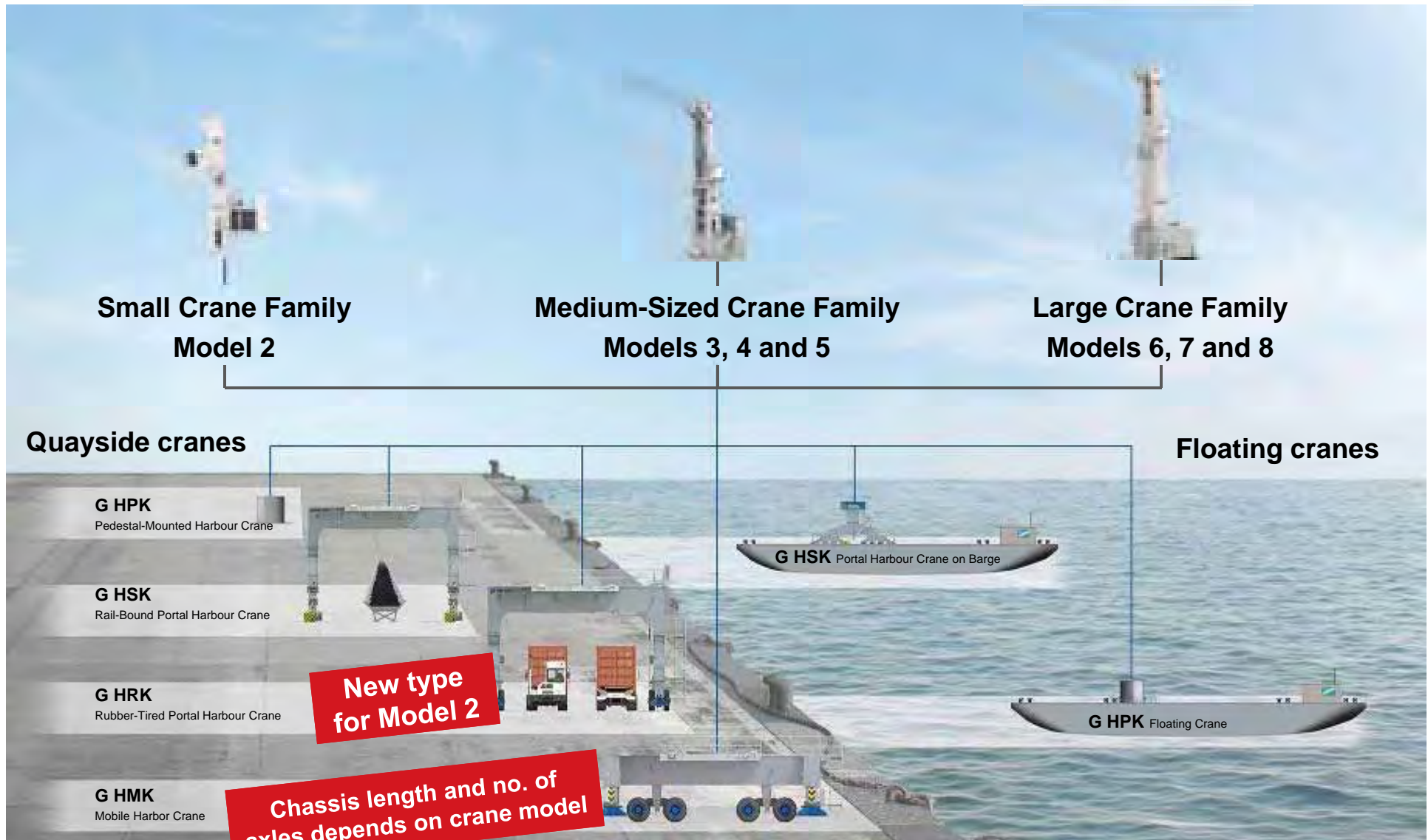
\* Depending on terminal and operating conditions

# Harbour Crane Range





# Modular Design of Harbour Cranes





# Harbour Crane Types



## Mobile Harbour Cranes

- ▶ Extremely versatile
- ▶ High performance
- ▶ Short lead times achieved by Advance Order Program
- ▶ Low specific investment in crane and infrastructure thanks to modular design

## Portal Harbour Cranes

- ▶ For narrow and special purpose quays
- ▶ Individually designed portal
  - Clearance height: 4 - 10 m
  - Track gauge: 10 - 20 m

## Floating Cranes

- ▶ Turnkey solution from barge to crane
- ▶ No additional investment in land or quay infrastructure
- ▶ Ship-to-ship or ship-to-shore handling
- ▶ Operation on quayside, mid-stream or on the open sea

## Rubber-Tyred Portal Harbour Cranes

- ▶ Combines mobility of a mobile harbour crane with the advantage of a portal solution
- ▶ Easy to drive under
- ▶ Easily manoeuvrable



# Product and Service Portfolio



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- ▶ Straddle Carriers (SC) \*
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- ▶ Planning & Consulting
- ▶ Software
- ▶ Service

## Storage

- ▶ Automated Stacking Cranes (ASC)
- ▶ Rubber-Tyred Gantry Cranes (RTG)
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## Handling

- ▶ Reach Stackers (RS)
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# Straddle Carriers (SC)

- ▶ Picking, carrying and stacking containers
- ▶ Ability to transfer, lift and stack
- ▶ Hydrostatic or diesel-electric drive
- ▶ Optional EcoCap energy saving system
- ▶ Manufacturing location  
- Würzburg, Germany





# Sprinter Carriers



- ▶ Picking and carrying containers
- ▶ Ability both to transfer and lift
- ▶ Hydrostatic or diesel-electric drive
- ▶ Manufacturing location - Würzburg, Germany



# Automated Guided Vehicles (AGV)

- ▶ Horizontal container transport
- ▶ Fully automated; fleet management and navigation software
- ▶ Lift AGV version; decouples transport from storage and thus reduces fleet size
- ▶ Manufacturing location:
  - Düsseldorf, Germany





# Automated Guided Vehicles (AGV)



- ▶ Handling 20' to 45' containers
- ▶ Capacity 40/60 t  
(1 container/2 x 20' containers)
- ▶ Speed up to 22 kph (6 m/s)
- ▶ Positioning accuracy +/- 25 mm
- ▶ Drive systems
  - Diesel-electric drive
  - Hybrid drive
  - Battery drive
- ▶ Battery drive system
  - Zero emissions in terminal
  - Fully automated battery exchange station





# Product and Service Portfolio



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# Automated Stacking Cranes (ASC)



- ▶ Accurate container stacking with very high storage density
- ▶ High-rigidity construction
- ▶ Fully automated; crane and stack management software
- ▶ Manufacturing location:
  - Düsseldorf, Germany

# Rubber-Tyred Gantry Cranes (RTG)



- ▶ Space-saving container stacking
- ▶ Mobile for flexible use
- ▶ Manufacturing location  
- Xiamen, China





# Rail-Mounted Gantry Cranes (RMG)



- ▶ Space-saving container stacking
- ▶ High performance, high span
- ▶ Manufacturing location:
  - Xiamen, China



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# Reach Stackers (RS)



- ▶ Handling and stacking of containers
- ▶ Dedicated multi-attachment versions for other cargo also available
- ▶ Manufacturing locations:
  - Montceau-les-Mines, France
  - Xiamen, China



# Reach Stackers (RS)



- ▶ Handling of 20' to 45' containers
- ▶ Capacities up to 70 t
- ▶ Stacking height up to 5+1
- ▶ Intermodal/piggyback spreader available for all models



# Empty Container Handlers (ECH)



- ▶ Handling and stacking of empty containers
- ▶ Handling of 20' to 45' containers
- ▶ Stacking height up to 7+1
- ▶ Single or double container handling mode
- ▶ Capacity under spreader up to 10 t
- ▶ Available with spreaders or forks
- ▶ Manufacturing location:
  - Lentigione, Italy
  - Xiamen, China



# Full Container Handlers (FCH)

- ▶ Handling and stacking of full containers
- ▶ Handling of 20' to 45' containers
- ▶ Heavy-duty, extreme stacking operations
- ▶ Stacking height up to 5+1
- ▶ Capacity under spreader up to 45 t
- ▶ Available with spreaders or forks
- ▶ Manufacturing location:  
- Lentigione, Italy





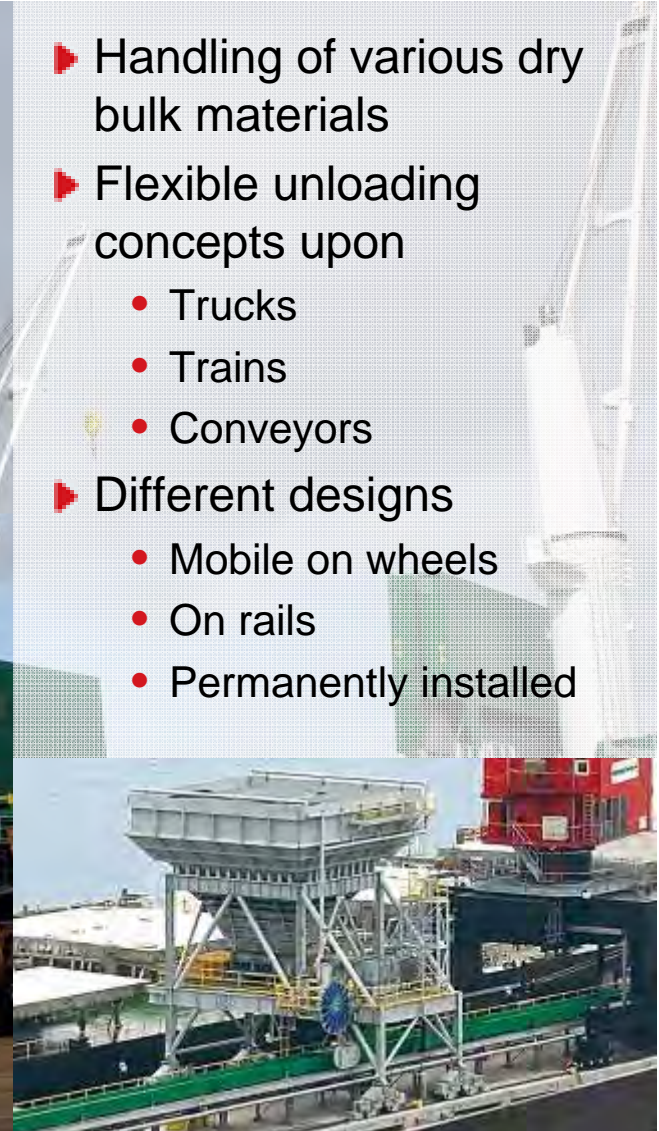
# Forklift Trucks

- ▶ Container or other heavy load handling (e.g. steel bars, coils, prefabricated concrete)
- ▶ Capacity up to 52 t
- ▶ Standard lifting height up to 5.1 m
- ▶ Other attachments available to handle a variety of cargo (ram, clamps, magnets)
- ▶ Manufacturing location: - Lentigione, Italy





# Hoppers



- ▶ Handling of various dry bulk materials
- ▶ Flexible unloading concepts upon
  - Trucks
  - Trains
  - Conveyors
- ▶ Different designs
  - Mobile on wheels
  - On rails
  - Permanently installed



# Terex® Fuchs Bulk Material Handlers



- ▶ For bulk vessels up to coasters
- ▶ Large working radius up to 24 m
- ▶ Fast work cycles provide handling capacity up to 1,000 tph\*
- ▶ Energy efficient drives for low operating costs



\* Handling rates dependent on terminal and operating conditions



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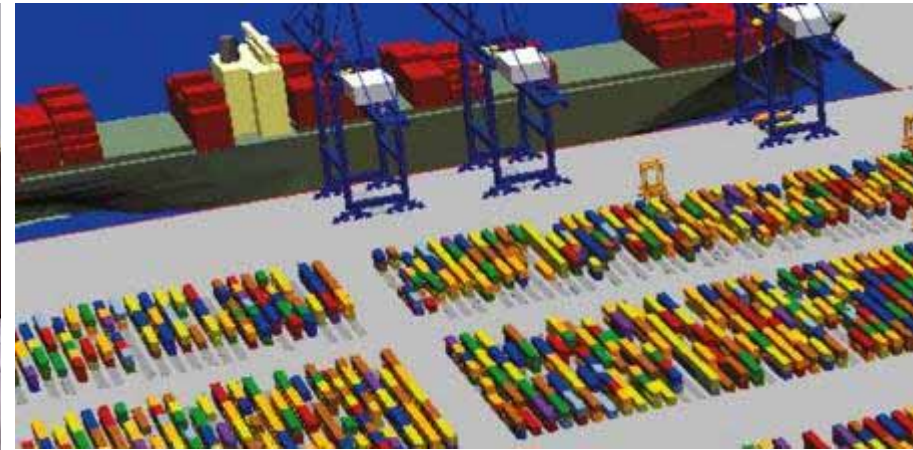
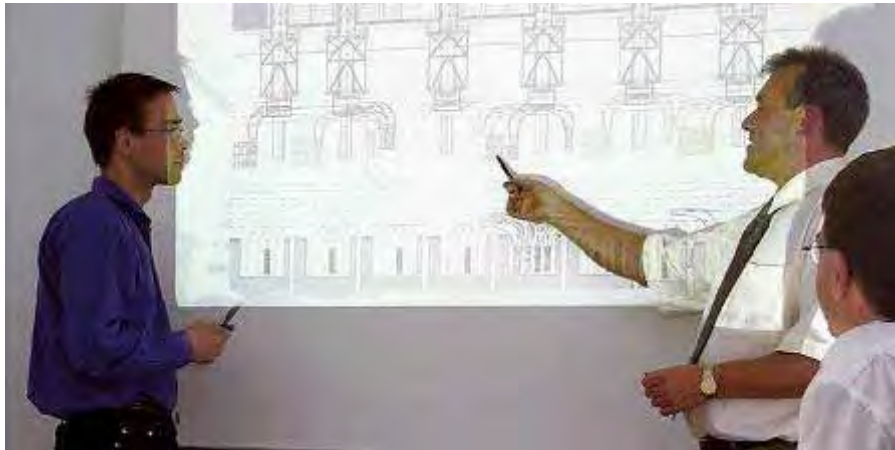
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# Planning & Consulting



- ▶ Project management from concept to startup
- ▶ Simulation and emulation of terminals

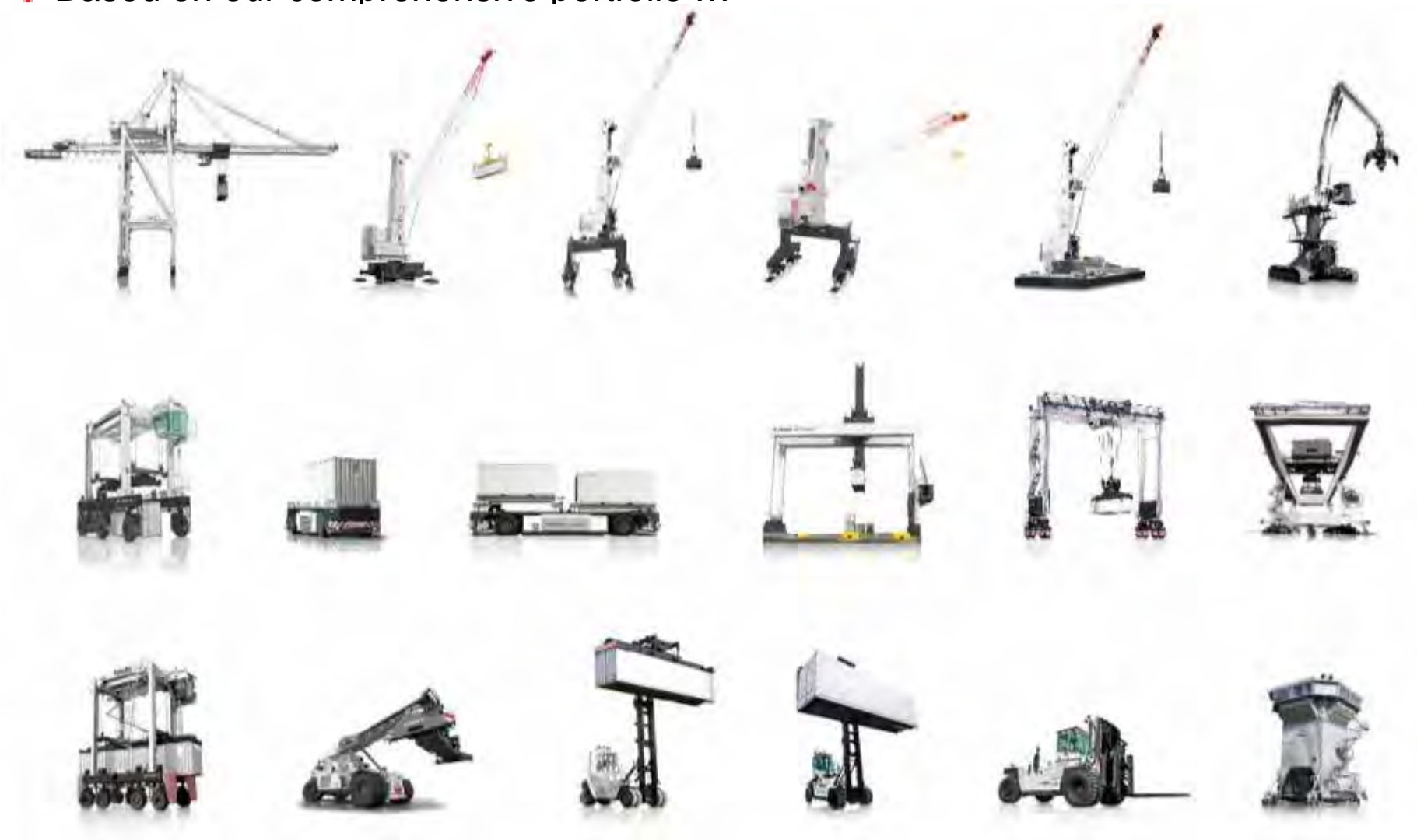




# The Future of Port Solutions



► Based on our comprehensive portfolio ...







Part Solutions

Do you have any questions?  
Feel free to ask

