



Terex® Quaymate M50 – A Great Mate For Small Ports

The New Mobile Harbour Crane
From Terex Port Solutions

Most Comprehensive Product Range for Port Applications



Port Solutions



Ship-to-Shore Cranes



Mobile Harbour Cranes



Rail-Mounted and Rubber-Tyred Portal Harbour Cranes



Floating Cranes



Bulk Material Handlers



Sprinter Carriers



Automated Guided Vehicles



Automated Stacking Cranes



Rubber-Tyred Gantry Cranes



Rail-Mounted Gantry Cranes



Straddle Carriers



Reach Stackers



Full & Empty Container Handlers



Forklift Trucks



Hoppers

With a Dedicated Range of Harbour Cranes based on Mobile Harbour Crane Technology



Port Solutions



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Rubber-Tyred Gantry Cranes



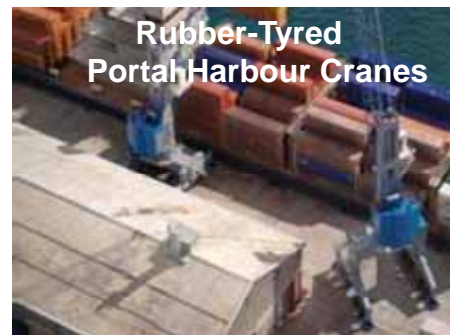
Rail-Mounted Gantry Cranes



Mobile Harbour Cranes



Rail-Mounted Portal Harbour Cranes



Rubber-Tyred Portal Harbour Cranes

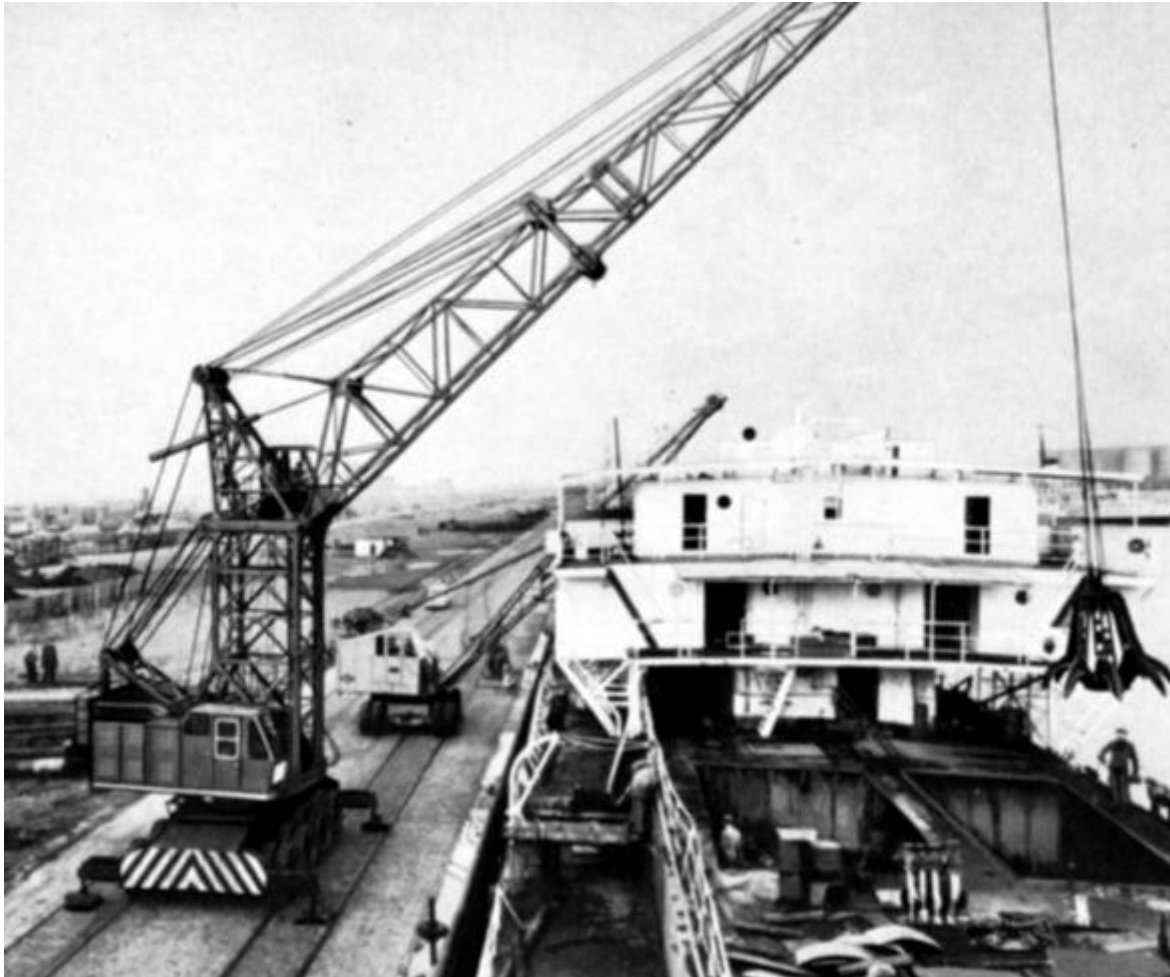


Floating Cranes

1956: The First Mobile Harbour Crane



Port Solutions



- ▶ TPS introduced the first mobile harbour crane some 60 Years ago to respond to changing requirements in many ports and terminals
- ▶ The design of our first crane was based on the design of a conventional truck-mounted crane

We couldn't have known that this product would form our core business today

Continuous Improvements over Five Generations



Chassis, superstructure and machinery was based on components from lattice girder mobile cranes. Boom pivot point and cab were positioned high on a lattice tower

Generation 1
1956 – 1974



Chassis no longer originates from truck cranes. Superstructure was designed as machinery house. Electrical drives. Tower could be tilted. Service life was up to 125.000 load cycles

Generation 2
1974 – 1985



Faster & heavier. Stronger engine. More rigid steel structure. Tower designed as A-frame. Service life: 500.000 load cycles

Generation 3
1985 – 1995



Generation 4
1995 – 2006

Machinery located in superstructure, Higher lifting capacities than ever. Service life: 1.000.000 load cycles



Generation 5
2006 – today

Higher capacities and greater radii. Turn away from single model design to platform design & standardized component kits. Service life: more than 1.000.000 load cycles

2014: Four Basic Configurations

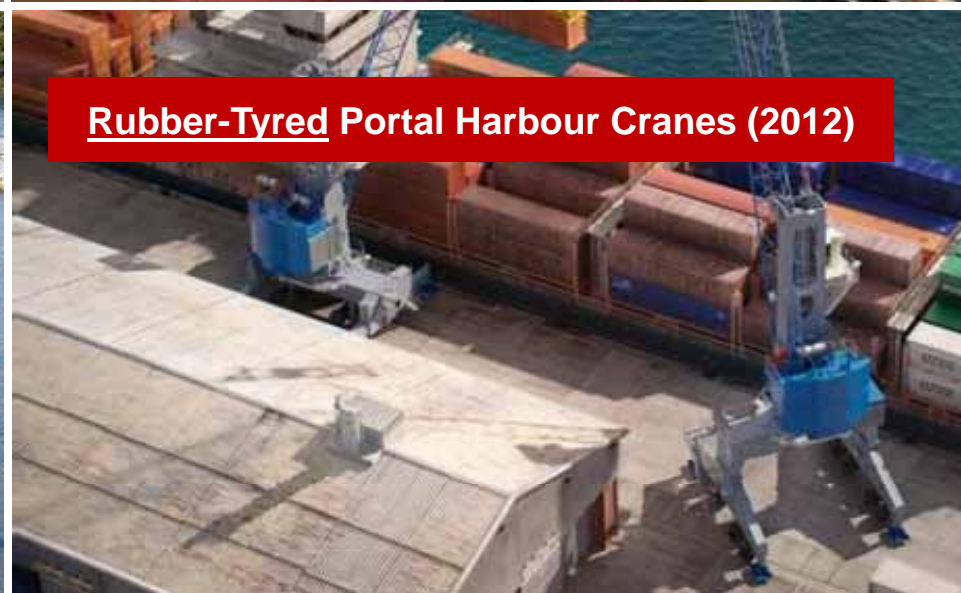
Mobile Harbour Cranes (1956)



Rail-Mounted Portal Harbour Cranes (1998)



Rubber-Tyred Portal Harbour Cranes (2012)



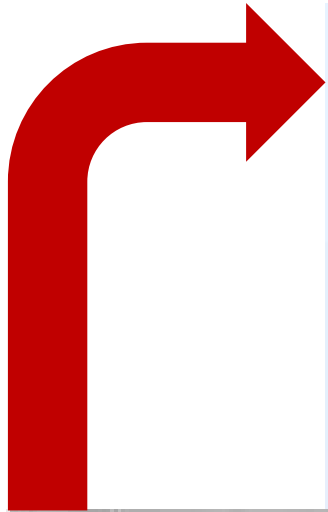
Floating Cranes (2004)



Almost 60 Years of Development



Port Solutions



- ▶ Fivefold increase in speeds
- ▶ Tenfold increase in service life (cycles)

- ▶ Drive systems
 - Hybrid drives – energy recovery from braking & lowering motions
- ▶ Smart crane features
 - Calibrated weighing system (trade scale)
 - Tandem lift assistant – controlled by one crane operator
- ▶ Teleservice & remote control
- ▶ Design features
 - Automatic propping
 - Crab steering
 - Point-to-point operation mode
 - Automatic lubrication

Over the years, our mobile harbour crane has gradually developed from a small universal to a large purpose-built crane

Recollection to the Routes after Having Reached out for Advanced Applications

Terex® Gottwald mobile harbour crane technology success story

Greater lifting capacities, working radii and hoisting speeds

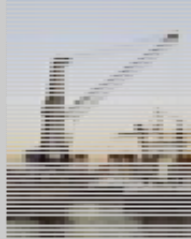
Crane

Working radius
Lifting capacity



HMK 300

50 m
100 t



HMK 360

56 m
120 t



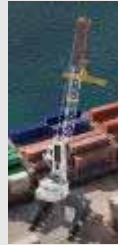
Model 8

58 m
200 t

New crane types based on mobile harbour crane technology



Rail-mounted &
rubber-tyred portal
harbour cranes



Floating
cranes

Solutions for dedicated cargo handling



4-rope grab cranes
for bulk handling
up to 1,850 tph



Tandem lifts for heavy
and bulky project cargo
up to 400 t



QUAYMATE MSO

▶ Small ports with light-duty utilization



▶ Medium-sized ports with heavy-duty utilization



Owing to its innovative drive and its focus on responding to competitive pressure at the higher end of the crane market, TPS has created a gap in the economy segment

Handling Equipment in Small Ports was Often Not Originally Designed for Harbour Use



Port Solutions



These cranes often don't offer the necessary harbour crane design features (selection)

- ▶ No horizontal load curve during luffing
- ▶ Boom pivot point is too low because it is not above the side of the ship
- ▶ No elevated cabs, operators have a poor view into the ship's hold.
- ▶ No sufficient drive power: The crane is too slow, the ship's berthing time is too long
- ▶ Service life (load cycles to the point of fatigue) is poor. Harbour cranes have a calculated service life 8 –10 x longer than construction cranes
- ▶ No torsionally stiff steel structures
- ▶ Hoist and luffing gear are not electrically but hydraulically driven
- ▶ Stairway to cab is located outside the tower. No weatherproof ascent for operators

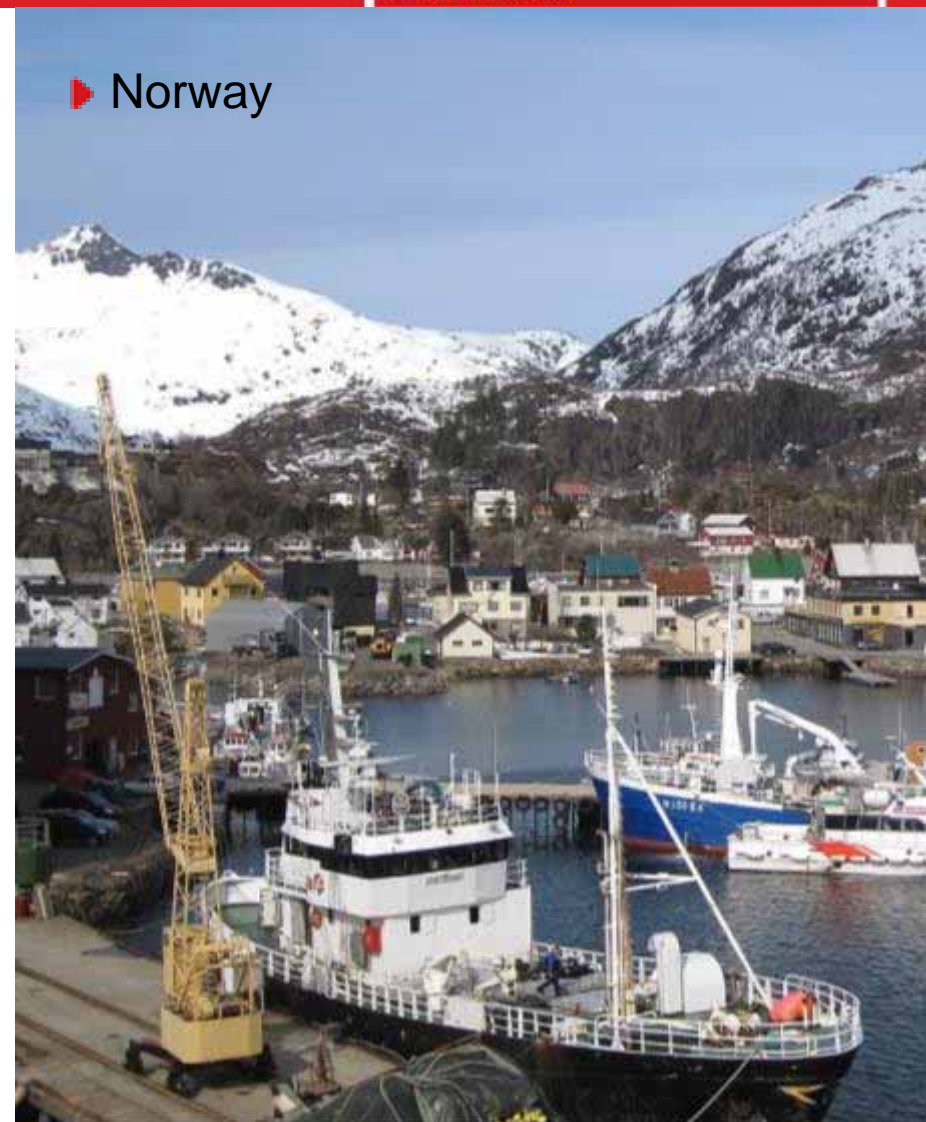
In the absence of affordable professional equipment many ports are using unsuitable cranes

Examples for Handling Equipment, which was not originally designed for Harbour use

▶ Christmas Islands, Australia



▶ Norway



Examples for Handling Equipment, which was not originally designed for Harbour use (USA)



Port Solutions



Some ports need Deck Cranes or use Equipment not designed for Harbour use (Ethiopia)



lattice girder construction crane

telescopic mobile crane

lattice girder construction crane

deck cranes, shipboard cranes



The common feature of all the examples: the equipment was not originally designed for port applications

Why not Start with the Right Tool?



Port Solutions



A tool, which makes port and terminal operators' life much easier

With our new Terex® Quaymate M50 for Example



I now like to introduce to you in more detail

Why Terex® Quaymate M50 Mobile Harbour Crane?



Port Solutions

- ▶ TPS responds to the needs for an entry model for small maritime & river ports
- ▶ These ports want to unlock their potential and like to grow
- ▶ Therefore they require a machine:
 - For light to medium-duty utilization
 - With continuous-shift capability
 - With life-cycle rating to match the application
 - With cost-effective high output
 - Which complies with limited investment budgets
- ▶ Terex® Quaymate M50 crane helps smaller ports to break through
- ▶ The Quaymate M50 mobile harbour crane outperforms telescopic, crawler and stationary cranes and excavators by proven mobile harbour crane technology



Terex® Quaymate M50

Mobile Harbour Crane – At A Glance



Port Solutions

- ▶ Impressive lifting capacity curve
 - 50 t maximum lifting capacity
 - 36 m maximum radius

- ▶ 50 m/min maximum hoisting speed

- ▶ Suitable for barges & coasters

- ▶ Handles containers with automatic or semi-automatic spreaders

- ▶ Handles bulk and scrap with motor grab

- ▶ Loads and unloads general & project cargo



Terex® Gottwald Harbour Crane Families



Port Solutions

Terex® Quaymate M50 mobile harbour crane is based on the proven design of the Terex® Gottwald small crane family



Small crane family



Medium-sized crane family



Large crane family

Terex® Quaymate M50 Mobile Harbour Crane



Port Solutions

A NEW CRANE, A NEW NAME

The product designation of this Terex® crane is simple:

QUAYMATE M50

crane name

crane type
M = mobile harbour crane
P = portal harbour crane

maximum lifting capacity in t



One Innovative Design Philosophy – Different Cranes for Different Target Groups



Port Solutions

Terex® Quaymate M50 Mobile Harbour Crane

Simplicity

Solid

Light to medium-duty
utilization

Compact

Reliable

Cost friendly

Functional

Basic solution



■ ■ ■ *Functionality driven
by German engineering*

Terex® Gottwald Harbour Cranes

High versatility

Long life cycle

High performance

High flexibility

High working speed

Complete equipment

Adaptable

Progressive



Terex® Quaymate M50 Mobile Harbour Crane – Entry Model for Small River and Maritime Ports



Port Solutions

- ▶ Manufactured in China with quality products and components of Asian and European origin
- ▶ 2-rope configuration
- ▶ Basic equipment, few options (e.g. portal, cable reel, electric hook rotator)
- ▶ Lower working speeds – hoisting: 50 m/min vs. 120 m/min
- ▶ Bulk handling with motor grab
- ▶ Maximum classification: A7 for bulk
- ▶ Use of small main components to approach even remote areas/smaller ports and to ease erection/assembly on site



Terex® Quaymate M50
for light to medium-duty
utilization



Terex® Gottwald
Large crane family
for heavy-duty utilization

Developed by Engineers from Western Europe, India & China, Manufactured in China



TEREX

Port Solutions

- ▶ Adaptation of proven Terex® Gottwald mobile harbour crane design philosophy
- ▶ Based on Terex® Gottwald Model 2 mobile harbour crane from TPS *small crane family*
- ▶ Developed by teams from Western Europe, India and China
- ▶ China as a starting point to enter other markets and to serve more applications



▶ Main site data:

- Founded: 1995
- Area: 280,000 m²

▶ Products manufactured

- Ship-to-shore cranes
- Rubber-tyred gantry cranes
- Rail-mounted gantry cranes
- Reach stackers
- Empty container handlers

• Presently:

**Terex[®] Quaymate M50
mobile harbour cranes**



Terex® Quaymate M50 Mobile Harbour Crane Assembly Line at Modern TPS Xiamen Site



TEREX

Port Solutions



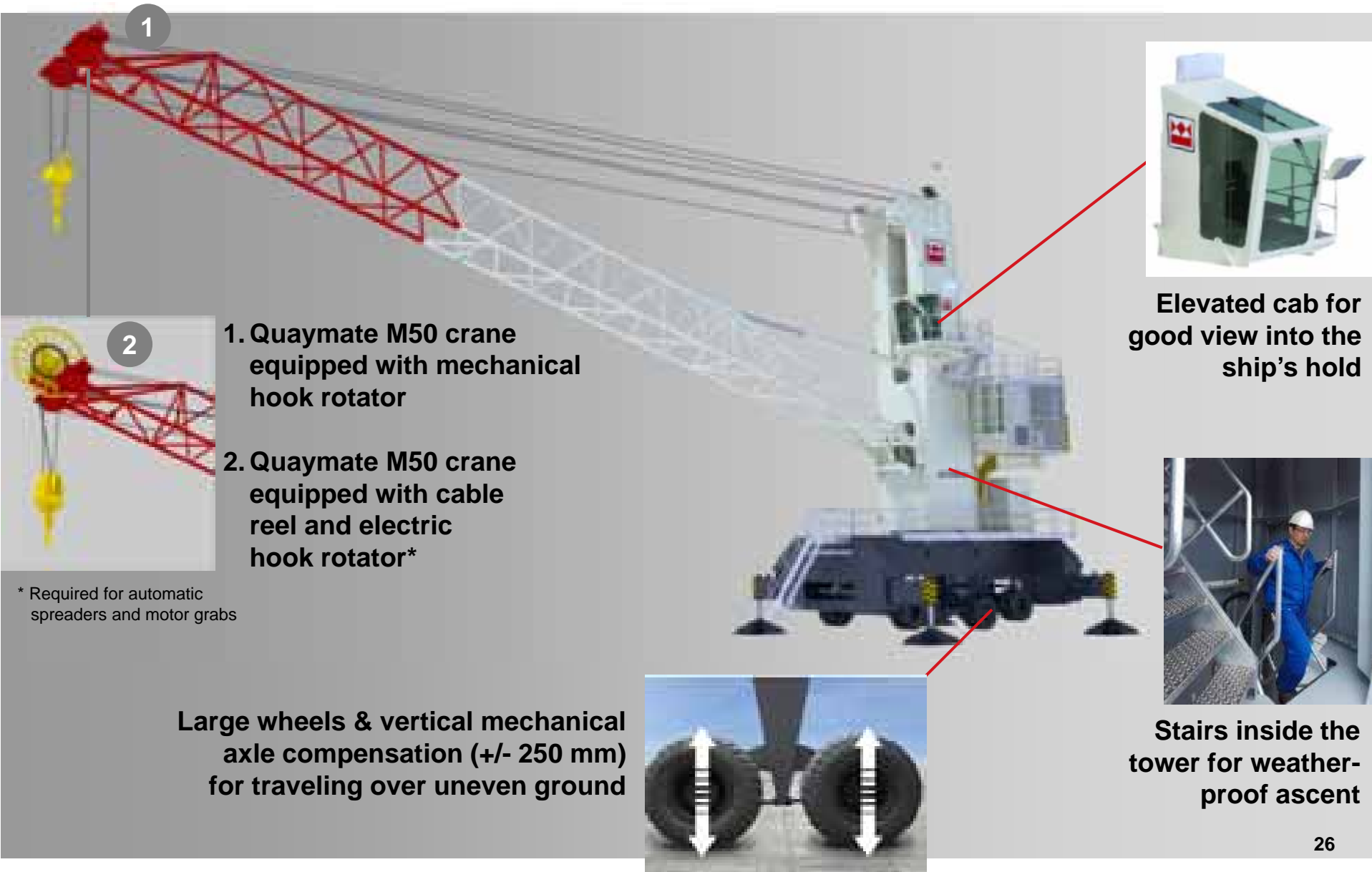
Deep Water Connection at TPS Xiamen



Port Solutions



Meet Your Mate – And its Full Scope of ...



1



Elevated cab for good view into the ship's hold

2

1. Quaymate M50 crane equipped with mechanical hook rotator

2. Quaymate M50 crane equipped with cable reel and electric hook rotator*



Stairs inside the tower for weather-proof ascent

Large wheels & vertical mechanical axle compensation (+/- 250 mm) for traveling over uneven ground



* Required for automatic spreaders and motor grabs

... Convincing Technology – Quaymate M50



Easily accessible hoist with three-phase drive (optional enclosure)



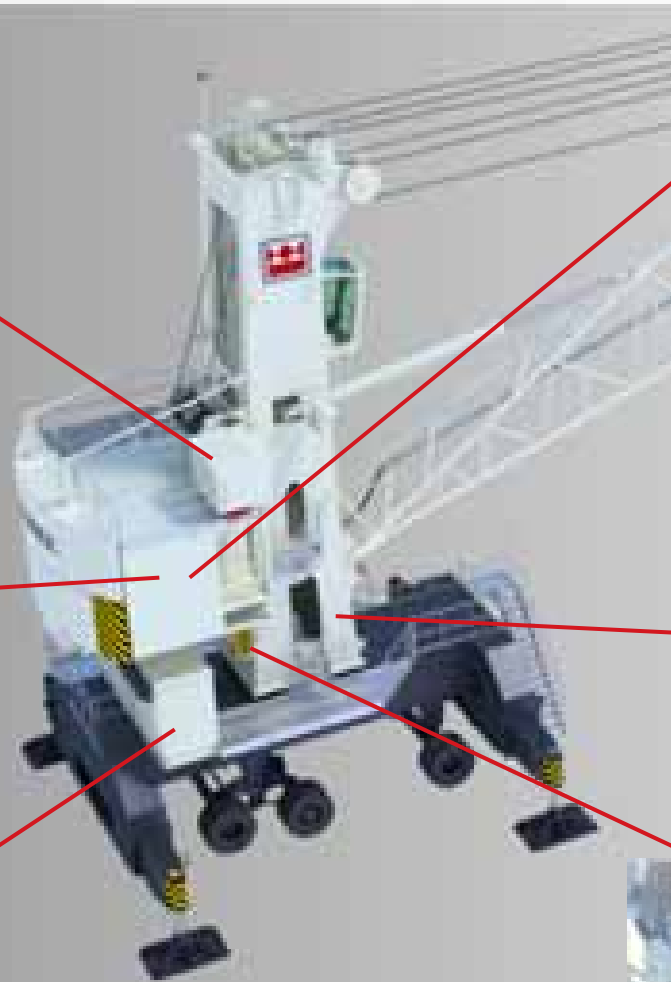
Hydraulics room with main pump and tank



Generously sized electrics room



Slewing gear drive using modern three-phase drive

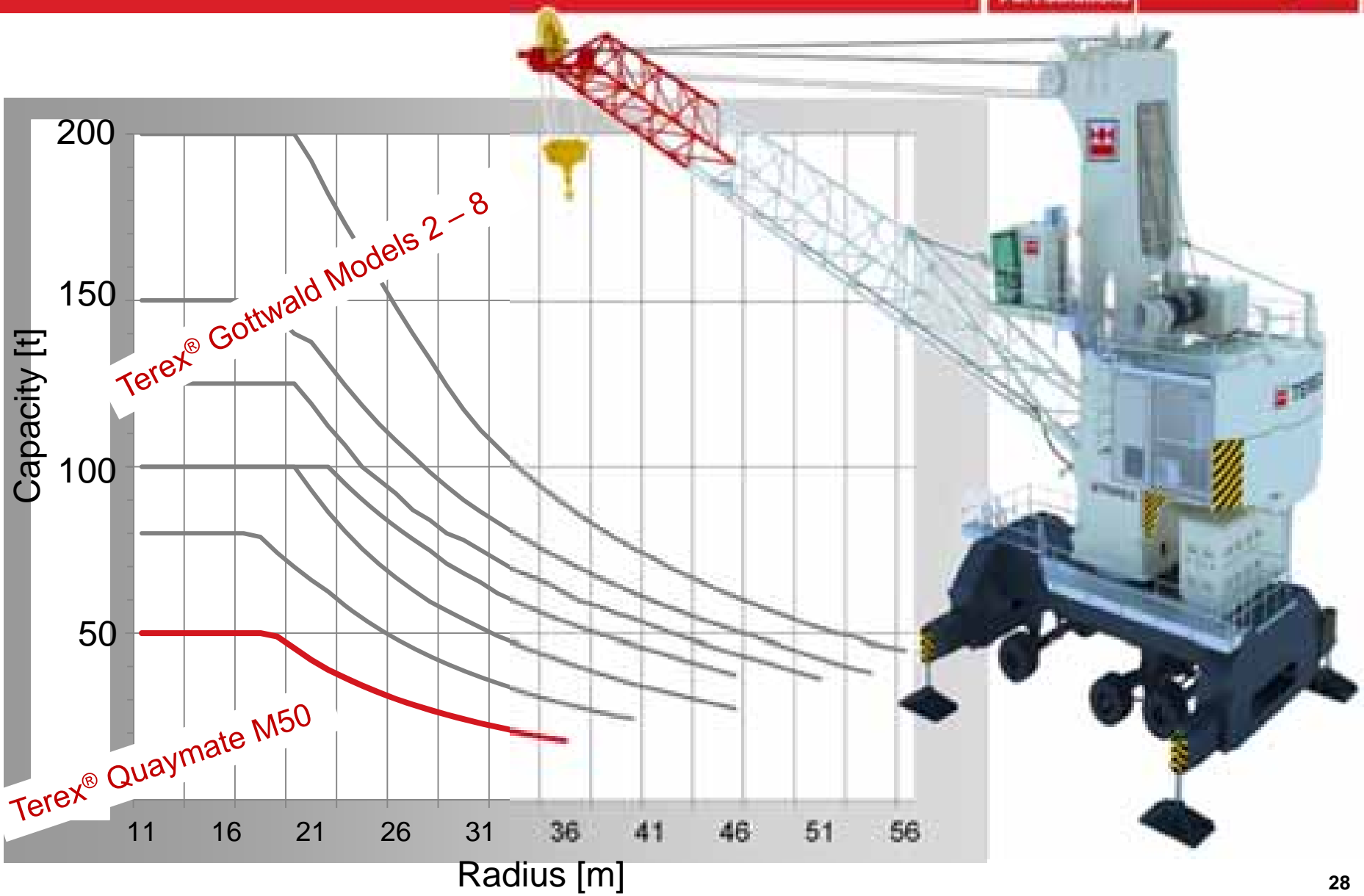


Platform on rear of the tower with machinery house



Diesel-powered generator in weatherproof, sound-insulated housing

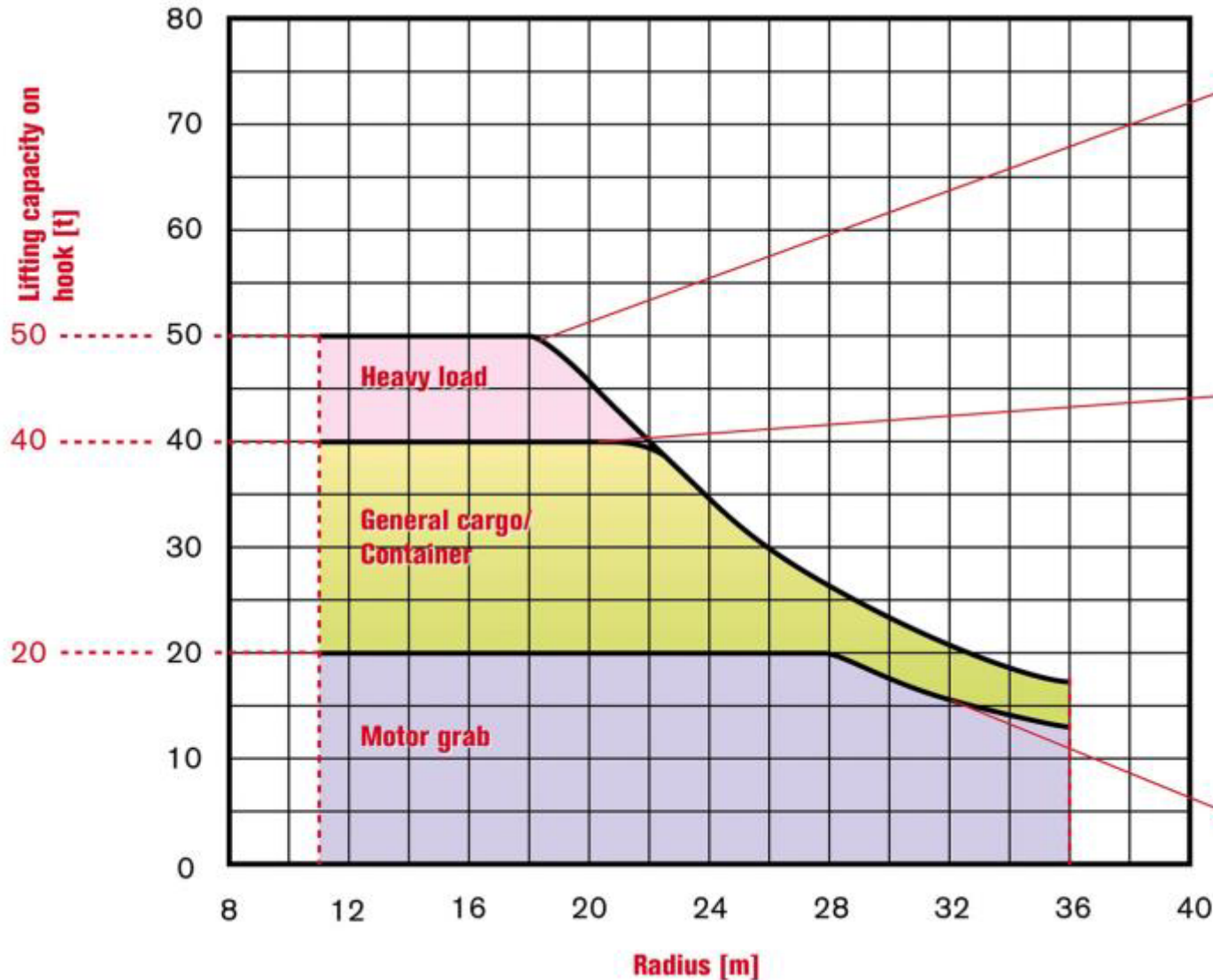
... and its Application-Oriented Lifting Curves



Terex® Quaymate M50 Mobile Harbour Crane – Offers Strong Lifting Capacity Curves



Port Solutions



Terex® Quaymate M50 Mobile Harbour Crane – In a Nutshell



- ▶ For handling of all kind of cargo
- ▶ Mobile, robust & compact
- ▶ Powerful lifting capacities over the entire working area
- ▶ Electrically driven, economical and 'green'
- ▶ For light to medium-duty utilization
- ▶ Cost-effective working speeds
- ▶ Life-cycle rating to match the application
- ▶ Easy to service



There is an Opportunity for Operators
to Start with the Right Tool ...



TEREX

Port Solutions



With the Terex® Quaymate M50 Mobile Harbour Crane



Port Solutions





Port Solutions

Thank You Very Much for Your Attention

