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Challenges for Special Application cranes in constructing the next generation of infrastructure

INTERNATIONAL TOWER CRANES 2012, BERLIN

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Where the story began

Potain started building tower cranes 85 years ago

Born from the need for modular and easily transportable lifting equipment

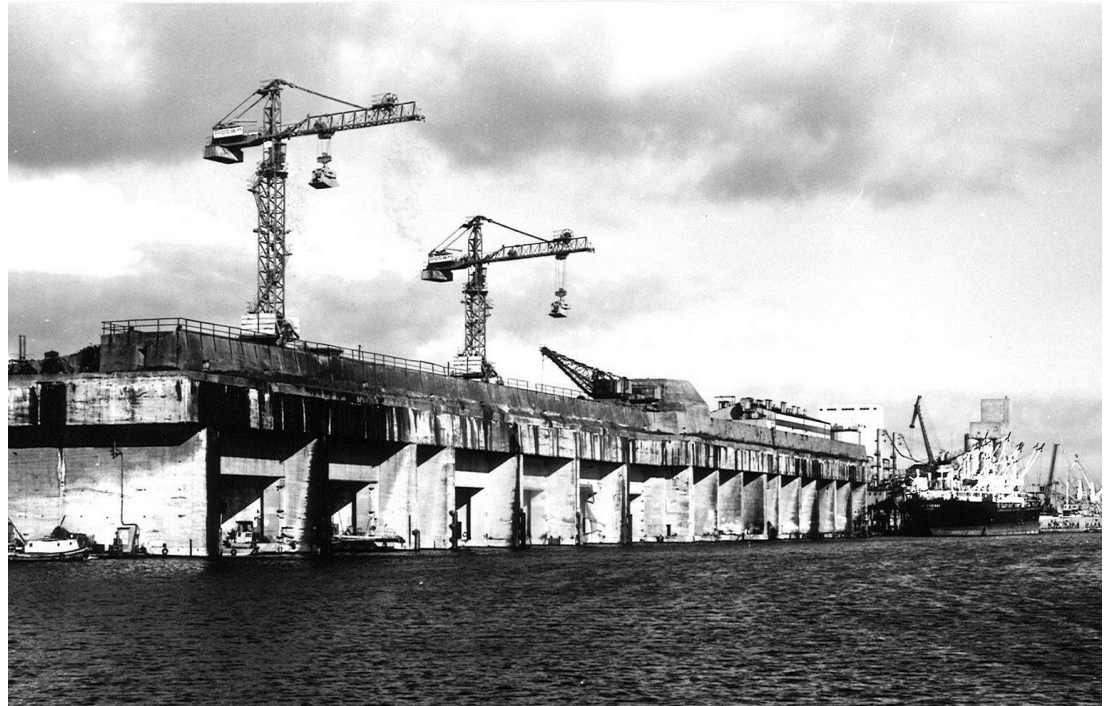Special Application cranes are adapted from standard cranes

French Power Plant in the 70s

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The birth of Special Application cranes

The first Special Application cranes appeared in the 60s

Main applications in power plants and shipyards

Harbour cranes in the 60s

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The future for Special Application cranes

Emerging countries represent strong potential

Special Application cranes are less sensitive to cyclical demand markets

Energy and Infrastructure generate strong demand

Dam project in India

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What are the key markets?

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Key markets

Dams

Bridges

Power plants

Shipyards

High-rise buildings

- Dams
- Bridges
- Shipyards
- Power plants
- High rise buildings

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Typical applications

Infrastructure

Shipyards

High-rise buildings

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Dam projects

Saddle jib cranes are preferred

Crane performance: from 500 to 3,000 tm

Typical loads: steelwork, scaffolding or mechanical components needed for power generation

Concrete conveyors are used for high volume concrete pouring

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Shipyards

Yard cranes are frequently equipped with traveling portals

Crane performance: from 500 to 1,000 tm

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High-rise buildings

Luffing-jib cranes are preferred

Crane performance: 90 to 10,000tm

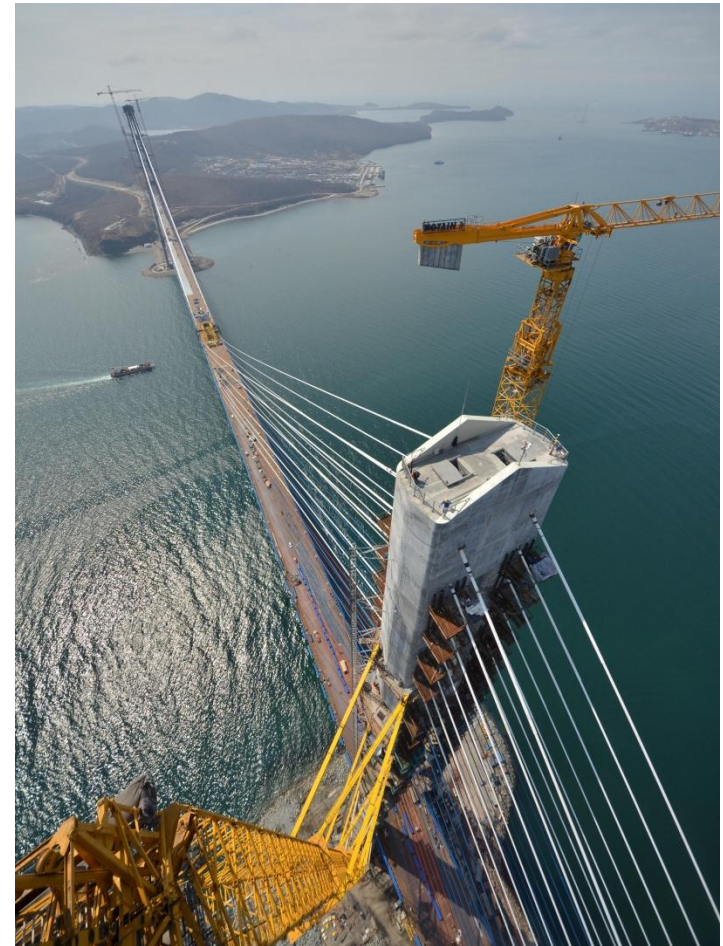Typical loads: prefabricated components or heavy steel trusses

High line speeds are key

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Bridges

Hammerhead cranes are preferred

Crane performance: 400 to 5,000tm

Typical loads: prefabricated components, heavy steel trusses or concrete buckets

High out of service winds need to be considered

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Nuclear Power

Hammerheads are preferred but luffing jib cranes offer higher "hook density"

Crane performance: 300 to 3,000tm

Typical loads: prefabricated components

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What products are available?

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Derived from serial production cranes

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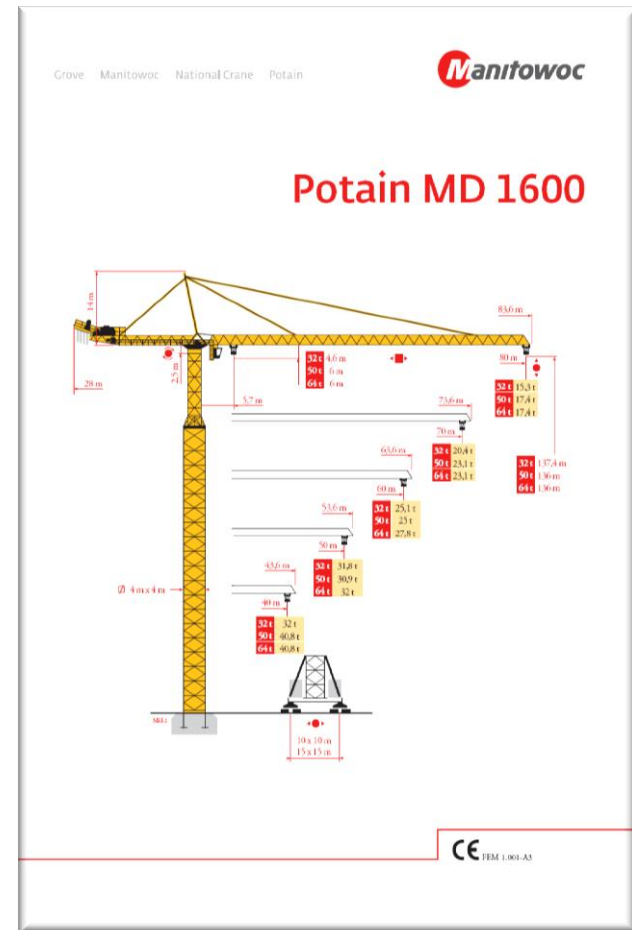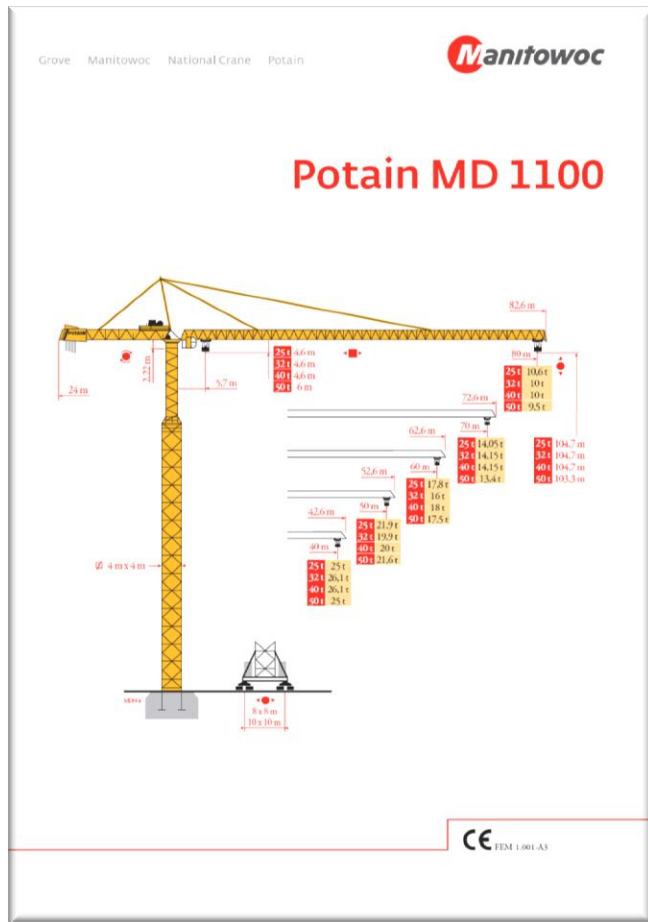
Customization

Customers require complete solutions incoporating:
- Technical engineering and studies
- Budget cost evaluation
- Training, maintenance and service

Shipyard

Dam

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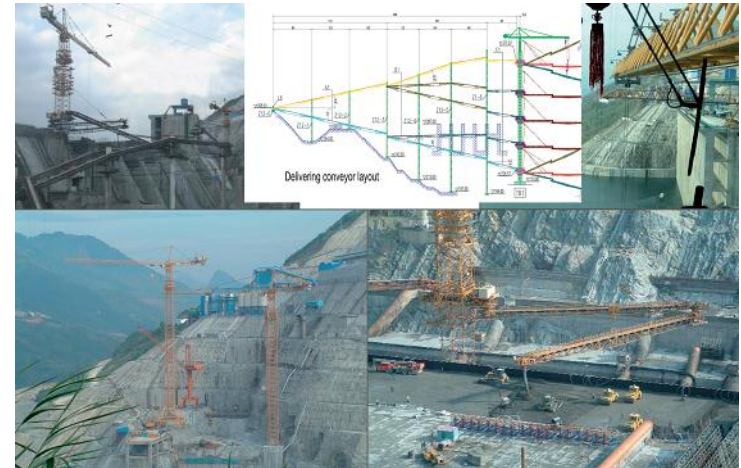
Customization

Tailor-made cranes better fit their application and maximize productivity

High-rise

Power plants

Bridges

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Adapting and customizing

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Special adaptations

Use of a standard « tool box » to adapt cranes

Special design to integrate other construction equipment (eg. concrete pumps or conveyor belts)

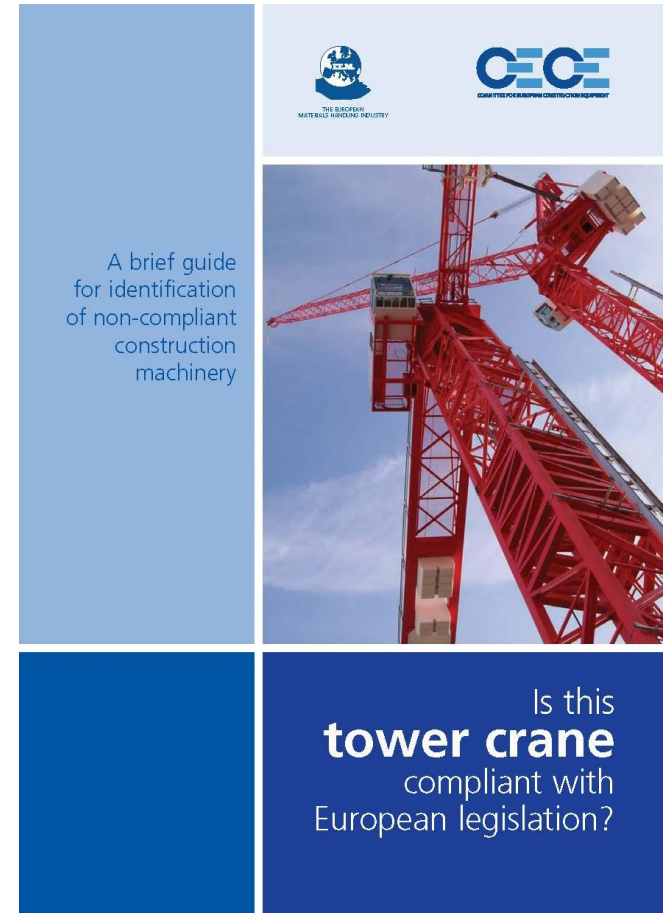Yard cranes often used with special traveling portals

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Tailored design and dimensions

Tower cranes are designed to recognized standards, such as EN14439

Guidelines have been published by CECE

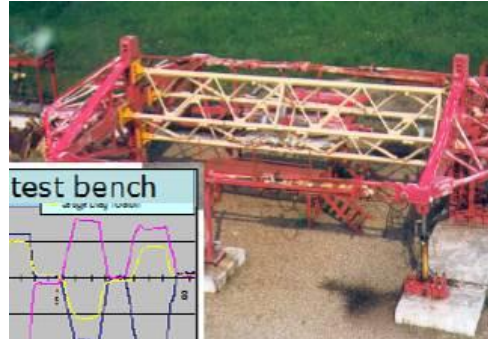Depending on the duty cycle of the crane, the design must be adapted

A brief guide for identification of non-compliant construction machinery

Is this **tower crane** compliant with European legislation?

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Design and manufacturing

Special Application cranes are based on proven design

Well organized manufacturing is prerequisite for delivering high quality products

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Transportation

Job sites are often remote

Crane needs to breakdown in small transportable units
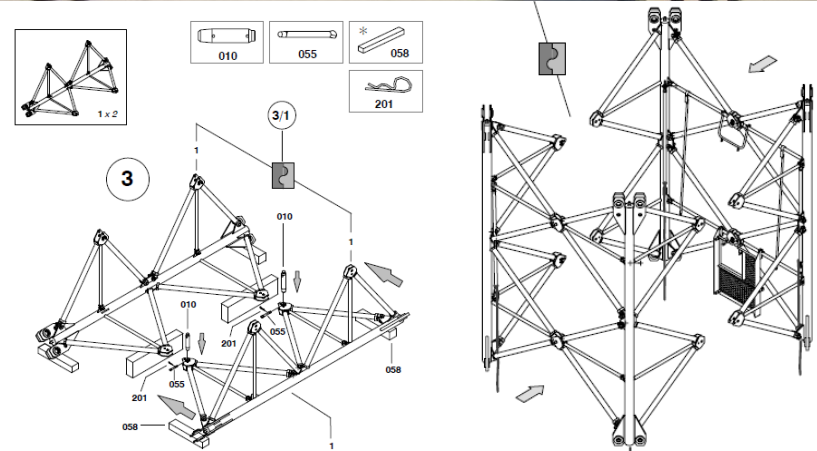

Must collapse to standard container size

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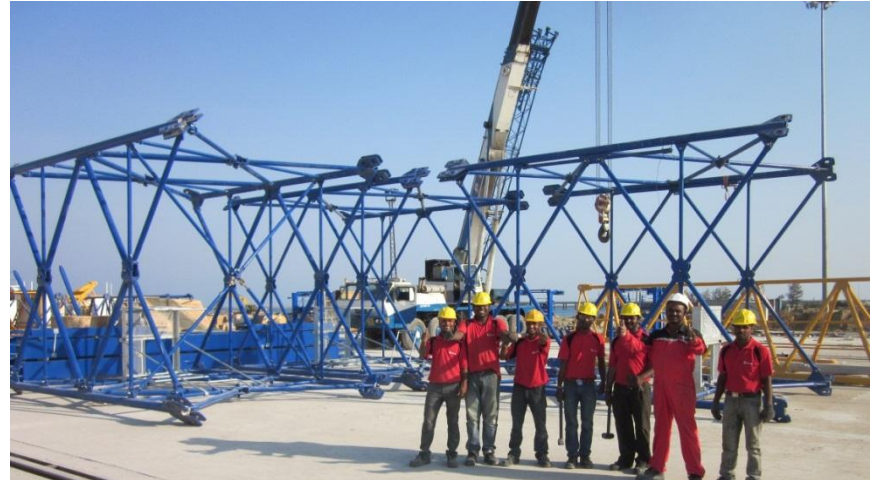Grove   Manitowoc   National Crane   Potain

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Easy to erect

Easy to assemble without sophisticated tooling

Capable of assembly by local workforce

Erection, commissioning, training managed by highly qualified supervisor

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Easy to dismantle

Dismantling is planned at the start

Bigger cranes are dismantled by smaller cranes

Smaller cranes are disassembled by small « recovery » or derrick cranes

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Lift planning and other service requirements

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Project management

Establish a dedicated team

Assure project management from inquiry to commissioning
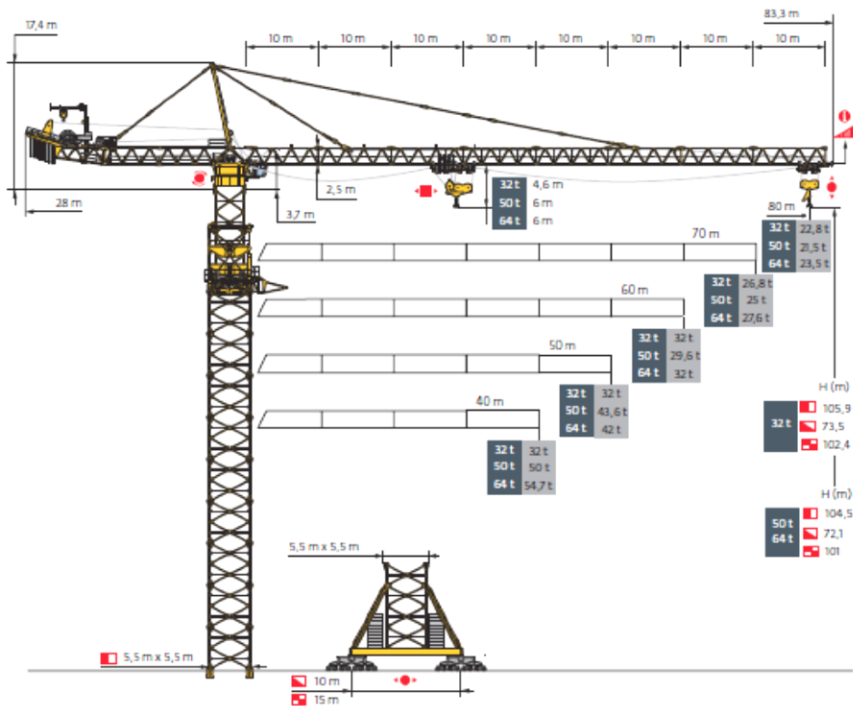
Set-up a multidisplinary project team

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Begin with initial job site layout

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Initial job site layout

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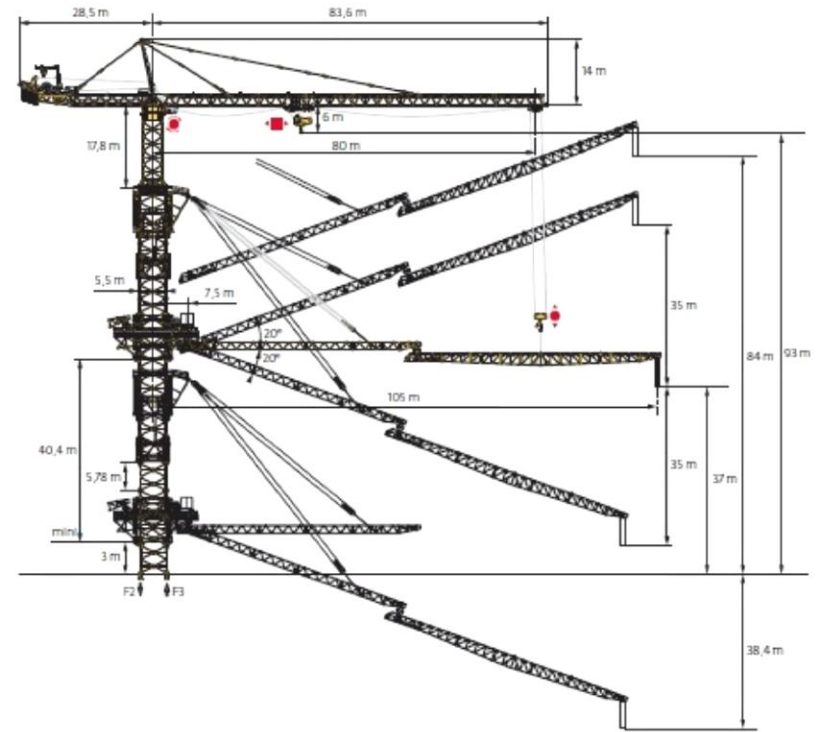Grove   Manitowoc   National Crane   Potain

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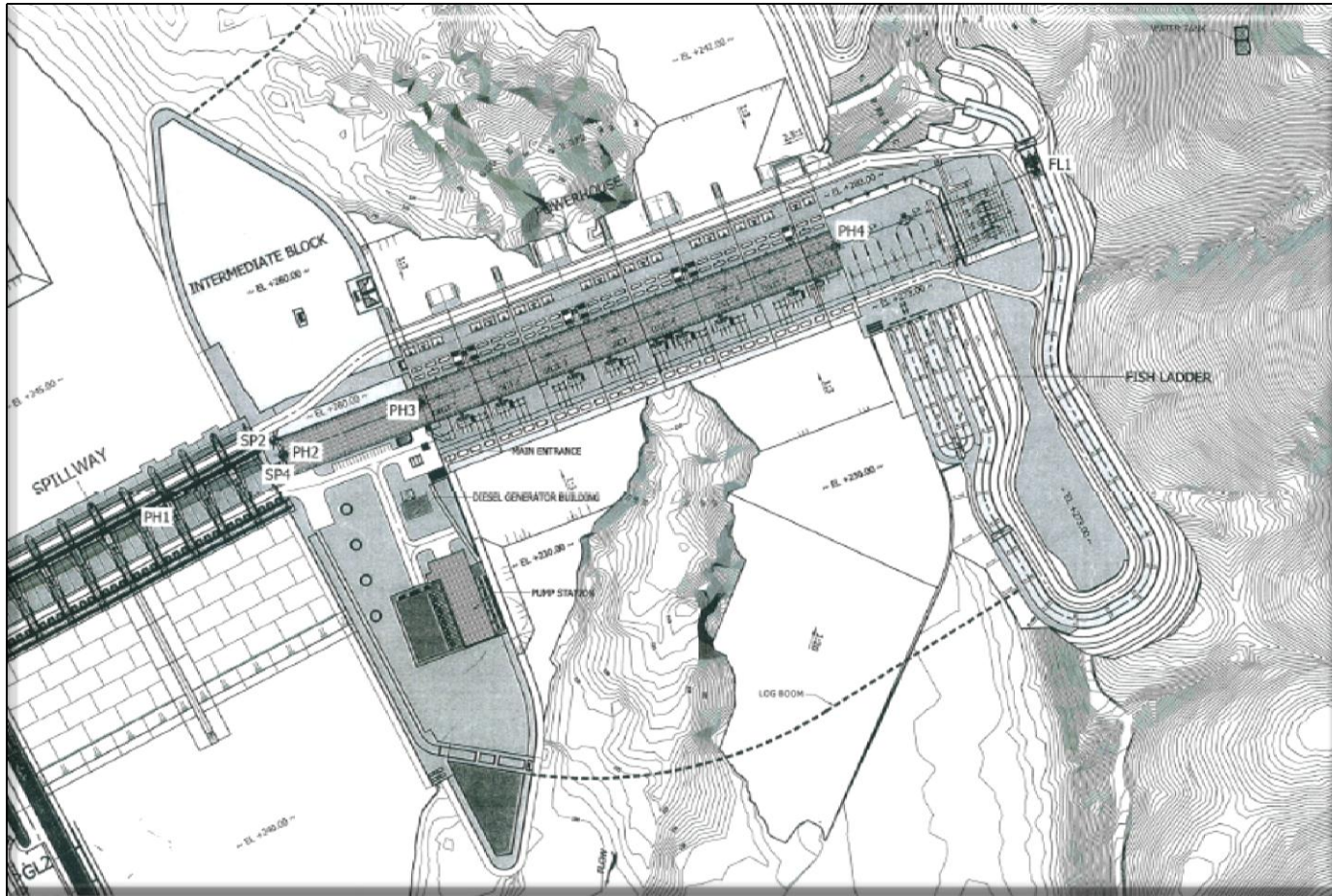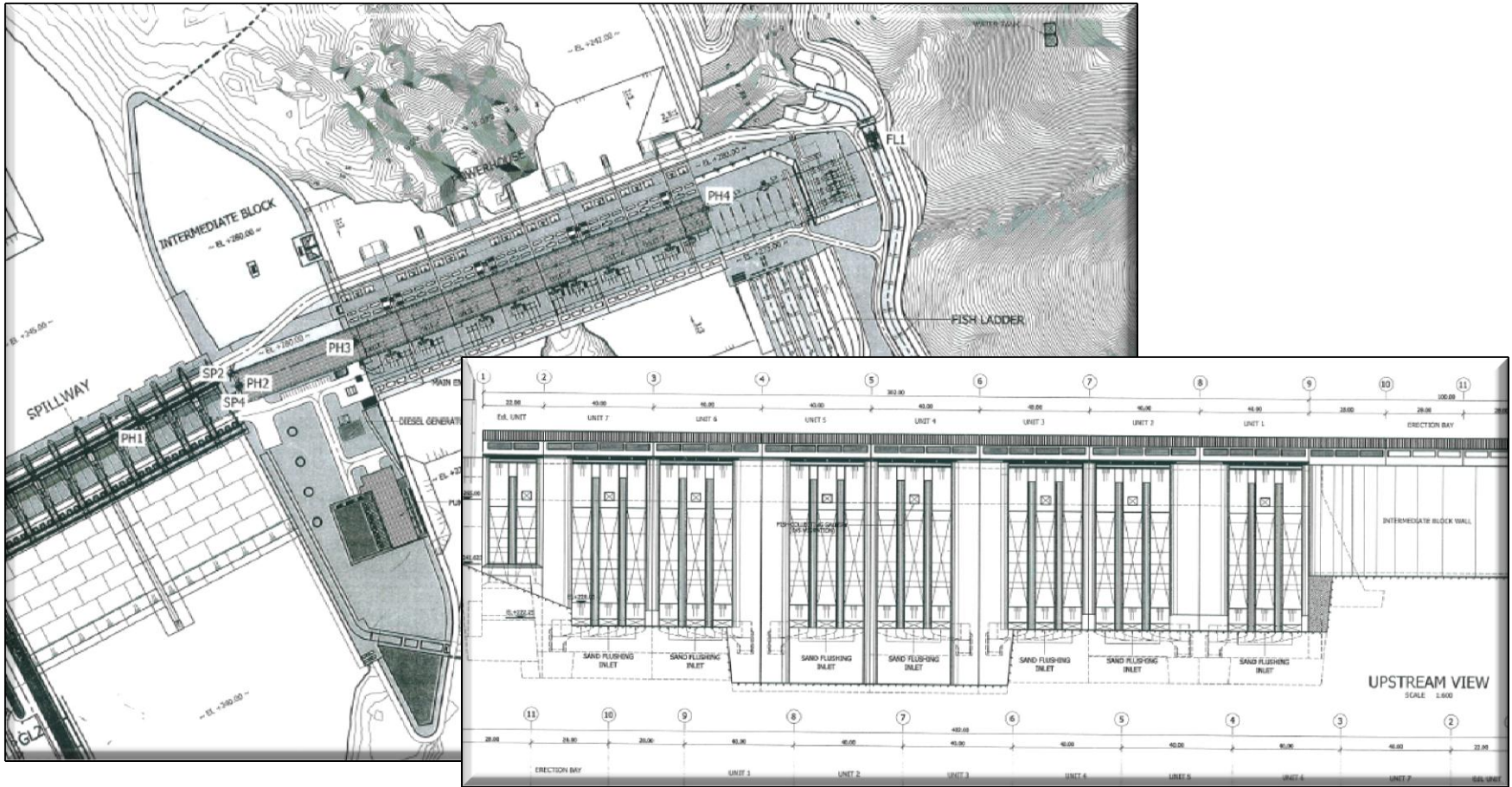
Standard cranes adapted to the job site

Potain MD 2200

Potain MD 2200 Topbelt 30

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Cranes implemented into the job site plan
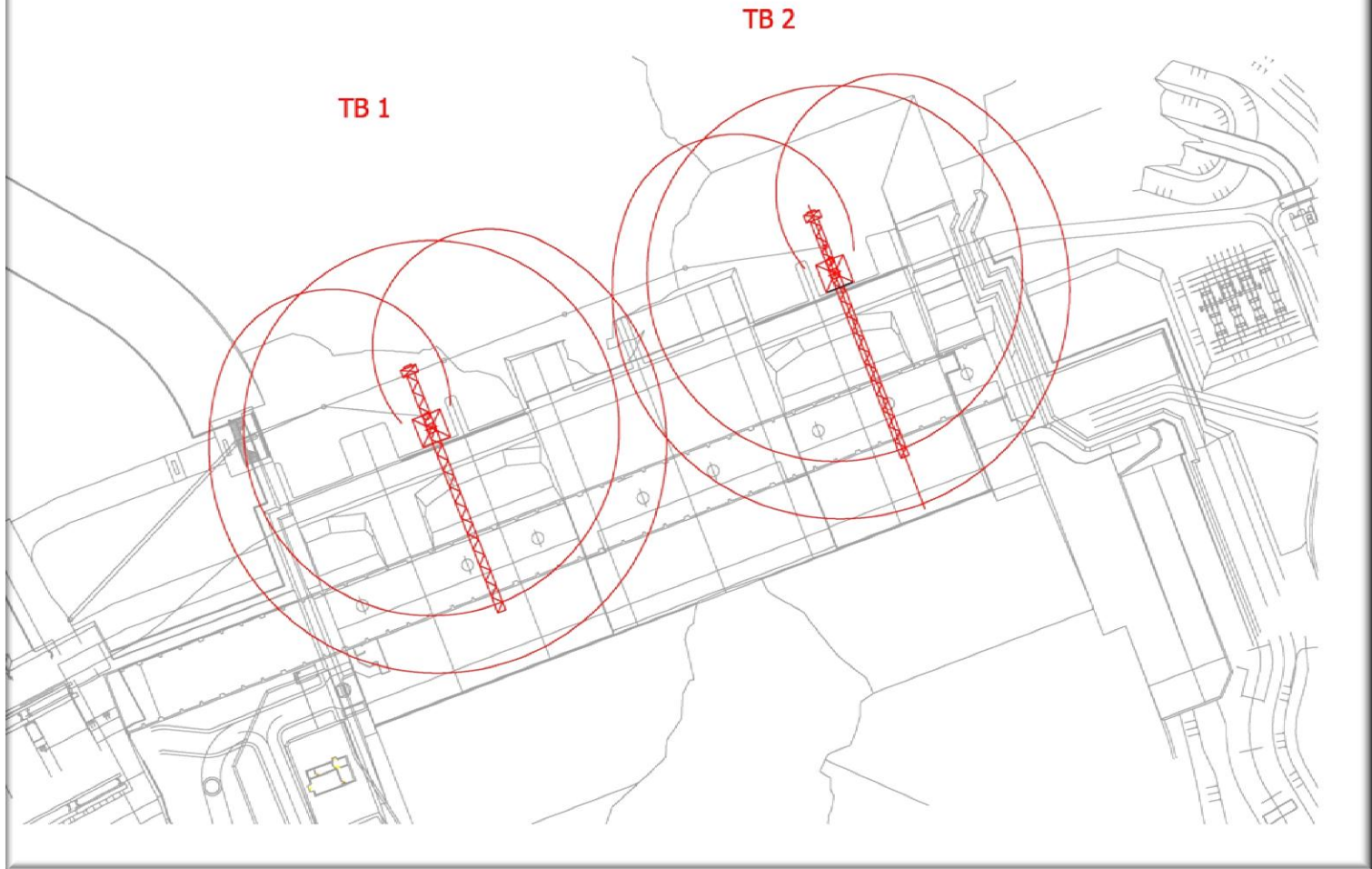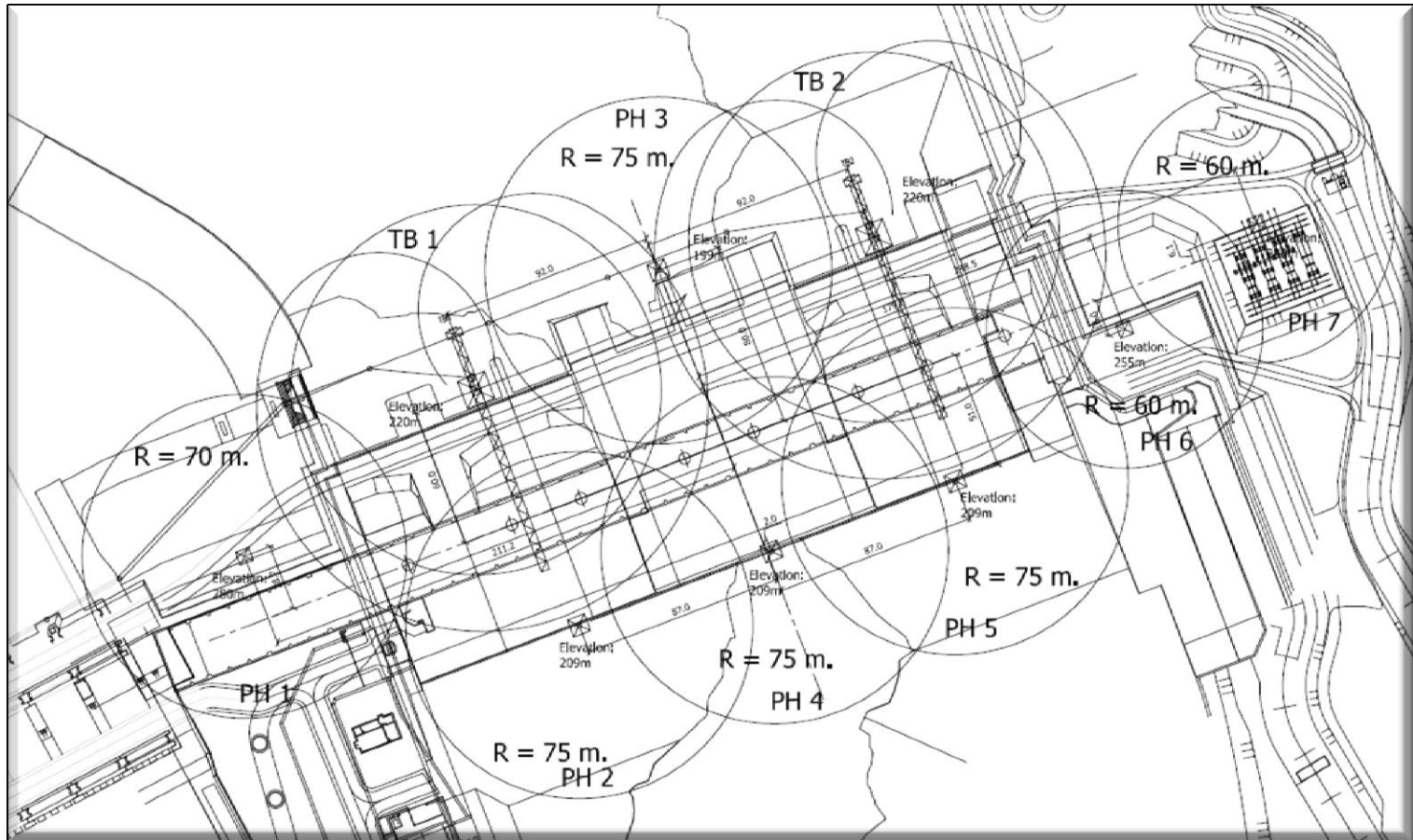
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Special Application and service cranes covering the job site

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Special Application and service cranes covering the job site

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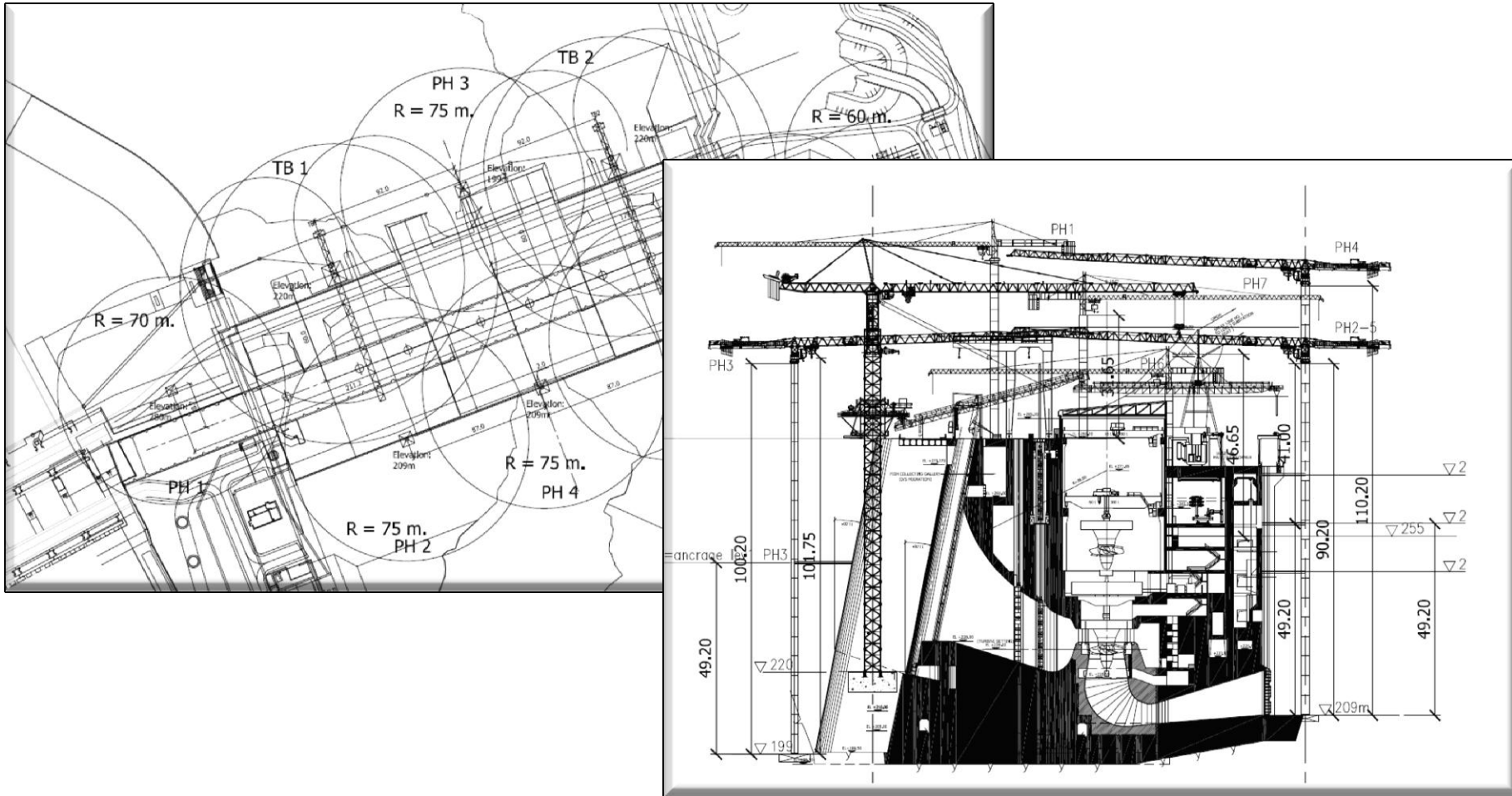
Special Application cranes on a dam project

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Maintenance and service a key factor in success

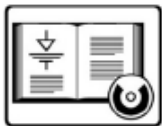- After sales services & Technical support

- Spare parts

- Training

- Technical publications

- Warranty administration

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CONCLUSION

Demanding but rewarding market segment

Special Application cranes are becoming more « standard »

- Shorter job site durations

- More heavy and prefabricated construction components

- Customers looking for highly skilled experts to propose the right lifting solutions

- Increase productivity and reduce costs

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