

# Lift Solutions

## Catalog





### Potain, the world's leading tower crane manufacturer

Potain superior tower cranes for any jobsite.

No matter how challenging your construction project is, Potain has a tower crane perfectly suited for your needs.

Our product offering includes :

- Top slewing tower cranes (MCT, MDT City, MDT, MD, MD Maxi and Topbelt)
- Luffing jib tower cranes (MRH and MR)
- Self-erecting cranes (Igo, Igo M, Hup and Igo T)
- Special application cranes on demand

### Leader in Special Application Cranes

With 90 years in the tower crane business, we design and manufacture large tower cranes for special applications such as:

- Dams
- Bridges
- Shipyards
- Power plants
- Industries
- High rise buildings
- Specific applications

With the support of a strong worldwide sales organization, a highly qualified team provides support for these special projects and provides continuous service and support to their customers.

These full solutions embrace the following aspects:

- Complete technical engineering and studies for all applications
- General layout of equipment
- Budget cost evaluation including engineering, fabrication, erection, services
- Training, maintenance, and service supervision

Contact :

▶ email : [serviceliftsolutions@manitowoc.com](mailto:serviceliftsolutions@manitowoc.com)

▶ Tel : +33 (0)4 72 81 51 54

# Table of contents

---

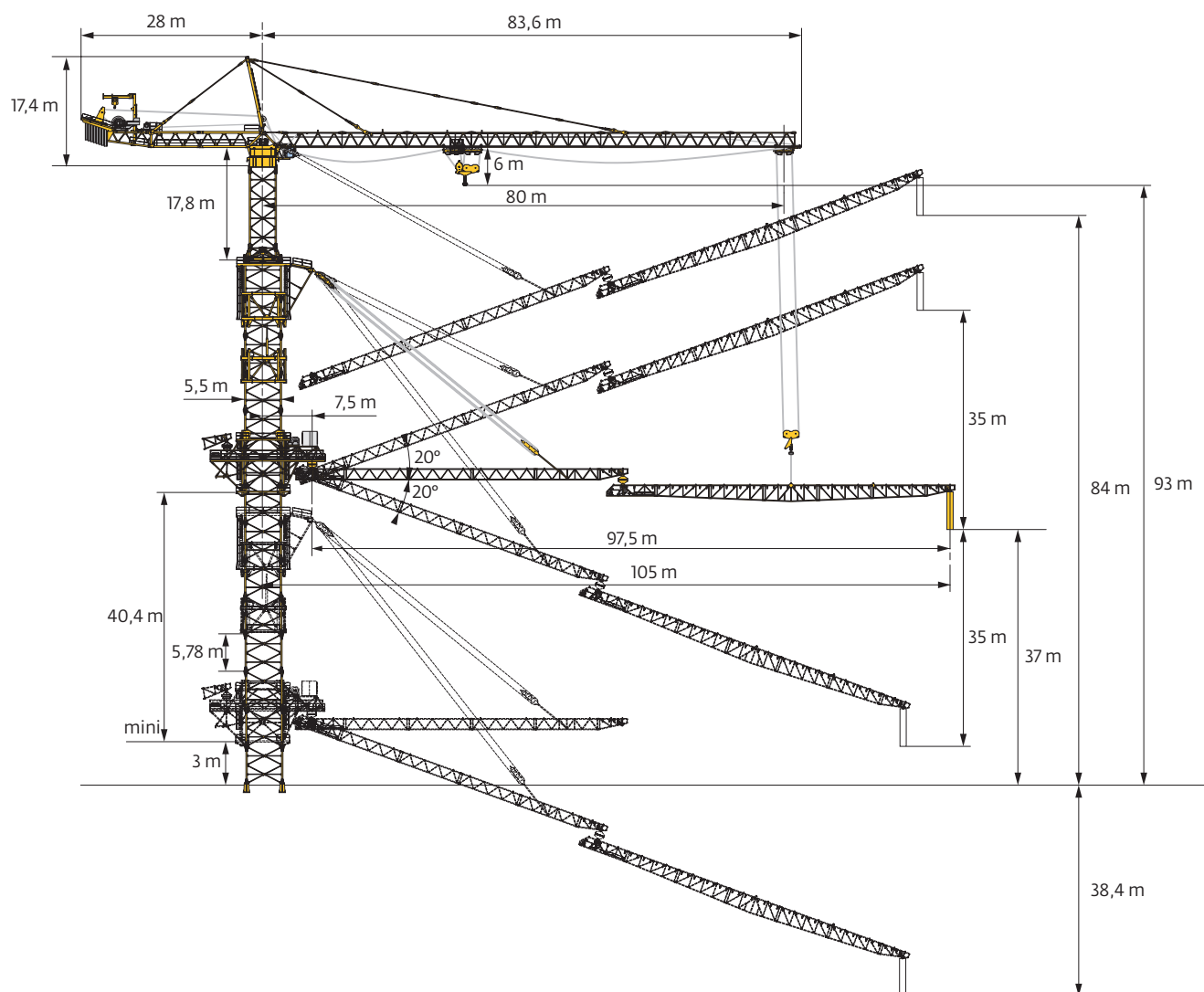
<b>Dam applications</b>	<b>6</b>
MD 2200 Topbelt 30 - Data	7
MD 2200 - Three Gorges Dam (China)	10
MD 2200 - Sesan 3 Dam (Vietnam)	11
MD 900 B - Sesan 3A Dam (Vietnam)	12
MD 2200, MD 2200 Topbelt, MD 1800 Longtan Dam (China)	13
MD 2200 & MD 1100 - Boyabat dam (Turkey)	14
MD 1600 Topbelt - Xayaburi Dam (Laos)	15
MD 1100 - Qingshuitang (China)	16
MD 1100 - Pirris (Costa Rica)	17
MD 650 - Tocomá (Venezuela)	18
<b>Bridge applications</b>	<b>20</b>
MD 3600 - Nanjing Bridge (China)	21
MD 3600 - Sutong bridge (China)	22
MD 600 - Rion Antirion bridge (Greece)	23
K5/50C - Millau bridge (France)	24
MD 560 - San Francisco bridge (USA)	25
MD 560 A - Rio Orinoco (Venezuela)	26
MD 1100 and MDT 368 - Vladivostok (Russia)	27
<b>Shipyard applications</b>	<b>28</b>
MD 3200 SP - Samsung (Nigeria)	29
MDN 2200 - Samsung (Korea)	30
MD 1100 - Chennai (India)	31
MD 1100 - CCB Agotnes (Norway)	32
MD 1100 - Dunkerque (France)	33
MD 1100 - Rongcheng (China)	34
MD 1100 - Hyundai Samho (Korea)	35
MD 1100 - Denul (Belgium)	36
MDTN 462 - Chantiers de l'Atlantique (France)	37
MDT 389 - Chantiers de l'Atlantique (France)	38
MD 569 - Chantier naval de Marseille (France)	39

<b>Industry applications</b>	<b>40</b>
MD 1600 & MD 1100- Ecoenergy (Italy)	41
MD 1100 - Jaypee Himachal (India)	42
MDN 650 - Steel stockyard (France)	43
MDT 218 & MD 485 B - Sakalhin (Russia)	44
<b>Power plant applications</b>	<b>46</b>
MD 3200 - Chernobyl (Ukraine)	47
MD 3200 - Flamanville (France)	48
MD 1600 - Bigge / Bechtel (USA)	49
MD 1100 - Sosnovyi (Russia)	50
MD 1100 and MD 485 - Medupi (South Africa)	51
MD 1100 - Chunjo (Korea)	52
MDT 219 - Cize Bolozon (France)	53
<b>High rise building applications</b>	<b>54</b>
MD 2200 - Convention Center (Australia)	55
MD 1400 - Madrid (Spain)	56
MD 1100 - Convention Center (U.A.E)	57
MD 550 and MDT 222 - Tour Incity Lyon (France)	58
MR 225 - Aspire Sports City Tower (Qatar)	59
MR 418 - Landmark 81 Tower (Vietnam)	60
<b>Specific application</b>	<b>62</b>
Hup C 40-30 - Crawler (Switzerland - Austria)	63
<b>References list</b>	<b>64</b>

# Dam applications



## MD 2200 Topbelt 30 - Data



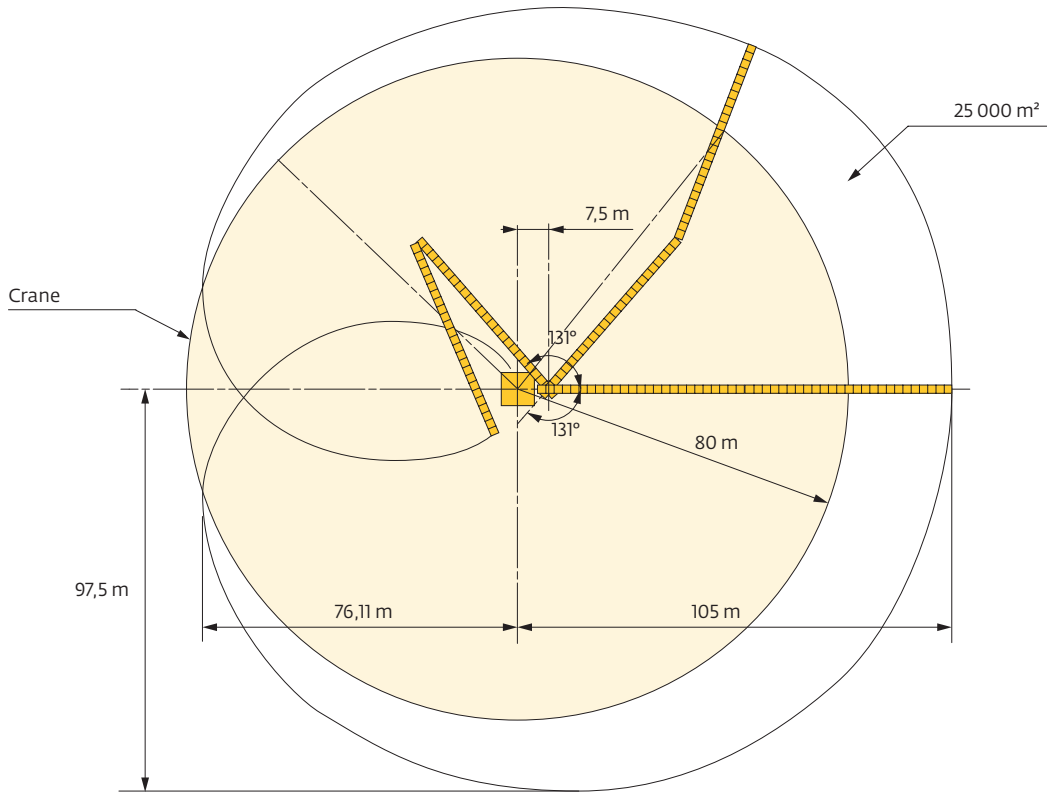
### Specifications

- Maximum load 60 t
- Radius 80 m
- Tip load 22,8 t
- Concrete bucket at maximum radius 9 m<sup>3</sup>
- Free standing height 93 m
- Belt conveyor capacity 400 m<sup>3</sup>/h
- Belt conveyor maximum radius 105 m

# Dam

## Concrete placing area

Max pouring radius = 105 m from mast center  
Topbelt covering area = 25000 m<sup>2</sup>



The Topbelt system can be set at various inclinations, and the platform can be telescoped along the mast as the work progresses.

It can also be folded in parking position to use the crane hook.


The crane is designed for heavy handling as well as conveyor support.





## MD 2200 : Main advantages

### Crane

- Hoisting 270 LVF / Power Control 
- Trolleying 25 DVF / progressive speed
- Slewing RVF / speed and torque regulation
- Ultra View cab
- Air conditioned control shelter
- Easy maintenance
- Fast hydraulic erection (1 m per hour)
- A7 FEM standard
- Use of Topbelt or 6/9 m<sup>3</sup> bucket

### Topbelt

- High rate of concrete pouring 400 m<sup>3</sup>/h
- 105 m max pouring radius
- Maximum inclined and declined angles: 20°
- No concrete segregation
- Unlimited dam height
- Quick hydraulic, telescopic Topbelt system (3 m per hour)
- Easy maintenance and service
- Belt long lasting, idlers, mechanical parts
- Control from the driver's cab of up to 10 overland conveyors

### Conveyor and bucket pouring



Conveyor extremity



6 to 9 m<sup>3</sup>

## MD 2200 - Three Gorges Dam (China)



The contractor CTGPC decided to pour the concrete from tower cranes on which articulated conveyors called Topbelt were attached.

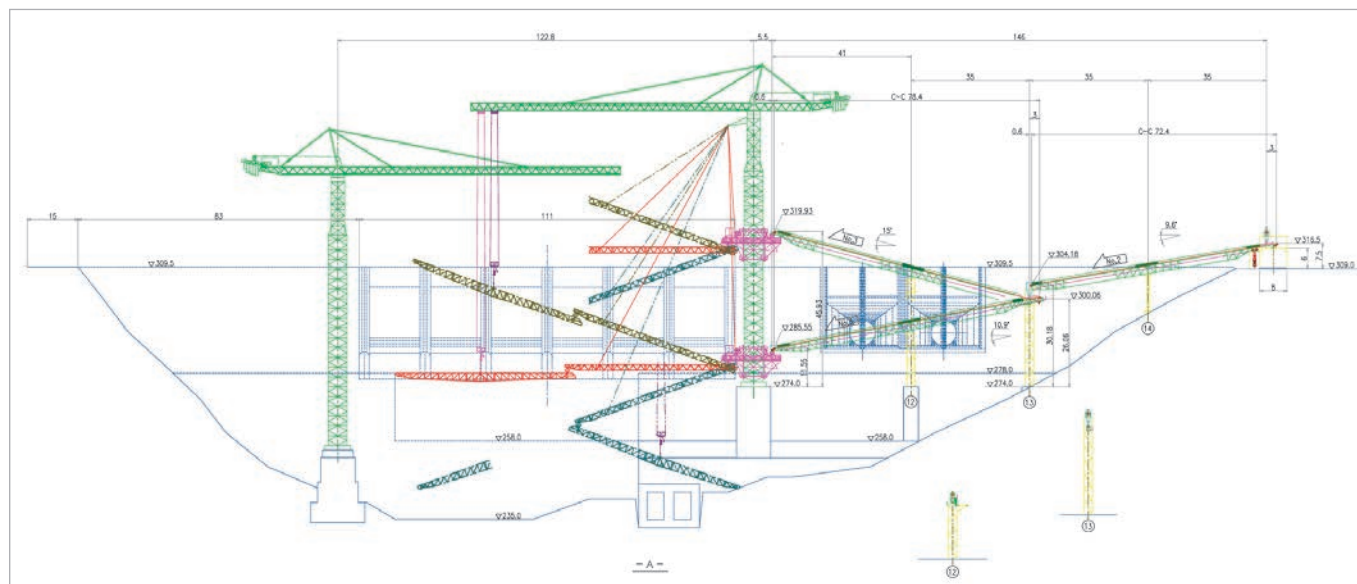
This conveyor's system allowed a production of 300 to 400 m<sup>3</sup> per hour with a maximum radius of 105 m and unlimited height.

### Jobsite specifications

- 2300 m crest length
- 175 m high
- 27 millions m<sup>3</sup> of concrete
- 600 000 t of steel
- 18 200 MW of capacity
- 10 years of study
- 17 years of work
- 30 000 people working night & day



# MD 2200 - Sesan 3 Dam (Vietnam)



## MD 900 B - Sesan 3A Dam (Vietnam)



The Vietnamese Son Da Corporation company ordered 4 MD 900 B cranes for dam construction. The 250 LCC hoisting mechanism enables a productivity of approx. 70-80 m<sup>3</sup>/h depending on the site conditions. Trolleying and slewing mechanisms with frequency variations.

### Crane specifications

- Radius 60 m, tip load 13,1 t
- Maximum load 50 t at 21,1 m
- Hook height 60,5 m
- 6 m<sup>3</sup> bucket hydraulic-control

### Applications

- 1 crane on Sesan 3 dam
- 1 crane on Sesan 3A dam in the south
- 2 cranes on Tuyen Quang dam in the north

## MD 2200, MD 2200 Topbelt, MD 1800 Longtan Dam (China)

The Longtan Hydropower Development Co Ltd purchased 3 Potain giant tower cranes, with latest technology, for the construction of the Longtan Dam in Guangxi Province.

The project was to build concrete gravity dam, with roller compacted concrete for the spillway and conventional concrete for the power house and the ship lock.

3 620 000 m<sup>3</sup> roller compacted concrete were poured, including 590 000 m<sup>3</sup> for the coffer dam. The final dam height is 190 m and the crest length is 750 m. Completion 2010.



### Cranes specifications

- 1 MD 2200: 185,6 m height equipped with a Topbelt system
- 1 MD 2200: 139 m height
- 1 MD 1800: 112,5 m height travelling on portal chassis 15 x 15 m

# MD 2200 & MD 1100 - Boyabat dam (Turkey)



The Boyabat dam project was made with conventional vibrated concrete (CVC), built by blocks using conveyor system and tower cranes. It is located in North Central Turkey near the Black Sea. The main purpose of the tower cranes is to handle 20 t loads such as reinforcement, rebars, conveyor trusses, penstocks and 9 or 6 m<sup>3</sup> of concrete buckets anywhere on the dam project.

The main tower cranes MD 2200 are equipped with a crane operator lift inside the tower.

### Cranes specifications

- Crane 1: MD 2200, hook height 104,5 m, radius 85 m/ tip load 20 t, maximum load 64 t
- Crane 2: MD 2200, hook height 225,7 m, radius 85 m/ tip load 20 t, maximum load 64 t
- Crane 3: MD 1100, hook height 137,1 m, radius 60 m/ tip load 18 t, maximum load 40 t
- Crane 4: MD 1100, hook height 120 m, radius 65 m/ tip load 15,9 t, maximum load 40 t

### Dam specifications

- Concrete total volume: 3 000 000 m<sup>3</sup>
- Height 195 m
- Crest length 263 m
- Width 213 m

## MD 1600 Topbelt - Xayaburi Dam (Laos)



Ch. Karnchang chose Potain for the construction of the hydropower mega project across the Mekong river in northern Laos, the Xayaburi dam (1285 MW, 820 m long).

Among 19 Potain cranes, 2 MD 1600 fitted with Topbelt concrete placing system have been erected.

Their primary task is to place the Roller Compacted Concrete at a rate of 250 m<sup>3</sup> per hour through the conveyor line coming directly from batching plant.

These giant 64 t capacity cranes work 24/7 on the project which has been planned for an 8 years duration.

### Cranes specifications

- Capacity 64 t at 24,6 m
- Maximum radius 80 m crane (tip load 17,4 t)
- Maximum radius for Topbelt conveyors 105 m
- RC Concrete placing rate 250 m<sup>3</sup> per hour
- Hook height 91,6 m
- Fixing angles

## MD 1100 - Qingshuitang (China)



The Qingshuitang Dam is located in the Hunan Province - China, 72 km from Huaihua city. Gezhouba corporation acquired 2 units of MD 1100 (40 t capacity version) for the dam concreting. Both cranes operate with 6 m<sup>3</sup> bucket (20 t) up to 52 m radius (jib 70 m) and 3 m<sup>3</sup> bucket (10 t) from 52 m to 80 m radius. Thanks to the LCC hoisting winch the power is optimized with any kind of load. An optimized speed of 46 m/min allows lifting 20 t (2 falls) while a 76 m/min optimized speed can lift 10 t.

### Cranes specifications

- Travelling crane on chassis 8 m x 8 m
- Hook height 86,7 m
- Radius 80 m, tip load 10 t
- Maximum load 40 t at 22,9 m
- Counter-jib length 24 m
- Hoisting winch 250 LCC 100 (180 kW) DC
- Trolleying and slewing equipped with frequency inverter technology
- Rack and pinion crane operator lift



## MD 1100 - Pirris (Costa Rica)



Pirris is one of the largest dams ever built in Costa Rica. ICE company purchased a new MD 1100 to build the dam. The crane has been chosen for its outstanding performance and its compactness for transportation. Considering the seismic constraints of the jobsite location, the crane was reinforced to withstand maximum accelerations of 0,16 g.

### Crane specifications

- Hook height 108 m with reinforced mast sections due to seismic constraints
- Radius 80 m / Tip load 10 t
- Maximum load 40 t
- Local power supply 460 V / 60 Hz

### MD 650 - Tocoma (Venezuela)



The Tocoma Dam is located on the Caroni river in the Guyana province. Odebrecht, one of the largest construction companies, acquired an MD 650 and 3 MC 475 (25 t capacity) for the dam concreting.

#### Crane specifications

- Travelling crane on chassis 8 m x 8 m
- Hook height 68 m
- Radius 70 m, tip load 7 t
- Maximum load 40 t at 15,1 m
- Hoisting winch 250 LCC 100 (180 kW) DC
- Vision cab equipped with air-conditioning, indicators and anemometer



# Bridge applications



## MD 3600 - Nanjing Bridge (China)



Two giant cranes MD 3600 participated to the construction of the the 3<sup>rd</sup> Nanjing bridge, located above the Yang Tse River. They were specially designed to lift steel structure elements of 160 t, used for the construction of the bridge piles.

The cable stay bridge, made of 2 x 230 m high piles and an overall reach of 648 m, had to be constructed within a very short time and had to resist 200 km/h out of service wind speeds.

The piles were made of 160 t pre-assembled steel elements bolted to each other. Then the steel elements were filled with concrete. Each crane was located at 10 m from the bridge median axis and anchored at 4 levels.

The 2 independent LCC hoist winches were equipped with 2 redundant brakes for service and safety. The 2 synchronized 250 hp winches lifted the 160 t loads with speeds from 0,2 to 10 m/min.

Slewing and trolleying mechanisms with frequency variation allowing reduced positioning speeds.



### MD 3600 - Sutong bridge (China)



The bridge is located above the Yang Tse river near Nantong. It was constructed with 2 steel and concrete piles reaching 300 m high. The bridge has an overall span of 1200 m. Each pile was built by a MD 3600 tower crane anchored at 6 levels. It was equipped with 2 hoist winches and trolleys : one 20 t trolley for constant loads and one 80 t trolley for heavy loads.

Cranes were equipped with an integrated operator lift.

Each 250 LCC hoist winch were equipped with redundant service and safety brakes.

Slewing and trolleying movements were based on frequency inverter technology with reduced positioning speeds.

A method has been determined for dismantling each crane by using mobile crane from the bridge deck after installation of the cable stays.

#### Cranes specifications

- MD 3600, 6 anchorings
- Front trolley: 80 t at 27,86 m, 38 t at 48,4 m
- Rear trolley: 20 t constant
- Hook height 306 m
- Max. out of service wind speed 220 km/h

## MD 600 - Rion Antirion bridge (Greece)



The construction work started in 1999 and the bridge was completed before the opening of the Olympic Games in 2004. The bridge links the Corinth Gulf shores with a overall length of 180 m.

Four MD 600 cranes were working night and day for the construction of four piers at sea. Each MD 600 crane was shifted along the side of the bridge floor in order to ensure the construction of the pier 125 m above the bridge floor and the fitting of the steel ropes. The piers were connected between each other by a steel bridge floor and special steel ropes. One MD 600 crane was utilized for the construction of each pier.

The 250 LCC hoisting winch allows concrete heaping with a 3 m<sup>3</sup> grab (10 tons) at 60 m/min during hoisting and 120 m/min during lowering.

All the cranes have been designed to comply with the seismic standards of this particular region, and the four MD 600 cranes were able to work with a 3% list during construction on a floating dock.

### Cranes specifications

- Maximum radius 70 m
- Maximum load 20 t

### K5/50C - Millau bridge (France)



The Millau viaduct is the tallest in the world with a full height of 343 m for the highest pile summit.

The Millau Viaduct is a 2460 m long construction running over the Tarn river at an altitude of 245 m. It is made of 6 x 340 m sections (distance between 2 piles) and 2 x 200 m sections. The deck was based on a steel structure with a width of 32 m, constructed on each side of the valley and raised over it before resting on the piles. Potain provided 7 K5/50 C cranes - 1 per pile. Those cranes were used for pouring concrete with a 6 m<sup>3</sup> concrete bucket. The tallest crane was erected at 265 m. All cranes were designed to meet special wind conditions.

#### Specifications

- 7 tower cranes type K5/50 C with hook height from 95,5 m to 264,4 m



## MD 560 - San Francisco bridge (USA)



14 Potain MD 560-40 tower cranes were used to build the San Francisco to Oakland bay bridge. The Bay bridge, built in 1936, accommodated more traffic than any other bridge in the US, but an earthquake in 1989 damaged the structure and highlighted that it was designed for only minimal seismic levels. Therefore it was decided to replace the old bridge. Contractor KFM selected Potain MD 560-40 tower cranes because of its 40 t heavy lift precast, its workhorse capabilities to set structural steelwork and its lifting capacity for precast concrete panels. The Potain MDs were used to build the «Skyway» viaduct for a 2,5 km long segment of the bridge. The 14 units had all been set up with different configurations which depended on the specific requirements at each pier.

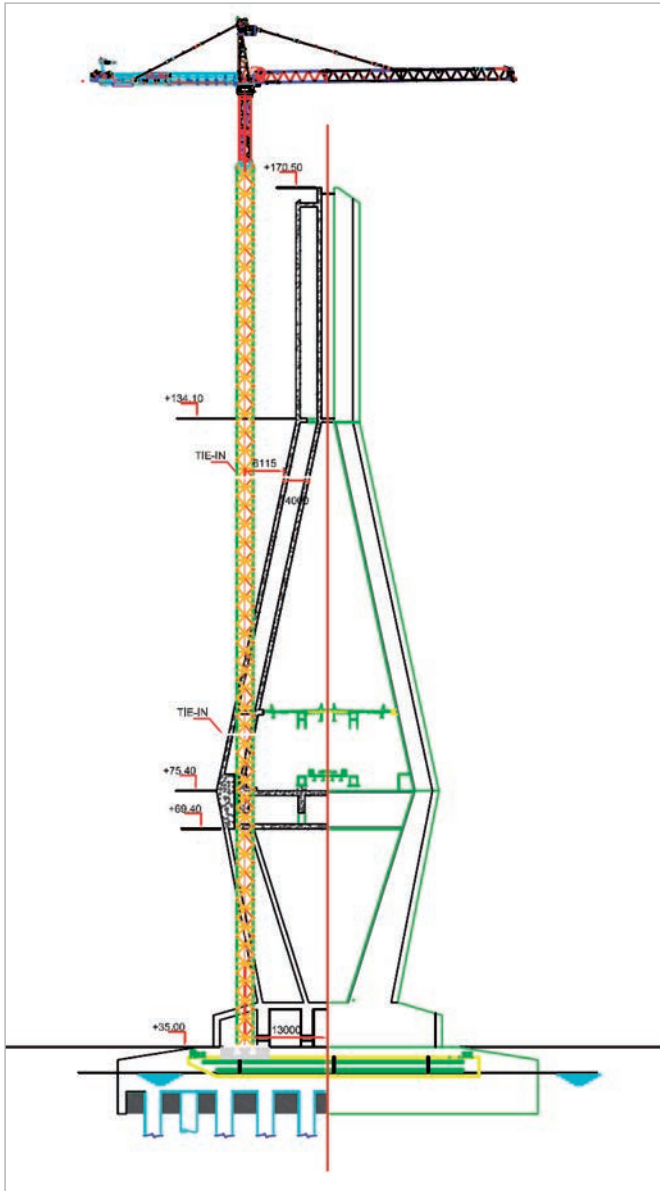
### Cranes specifications

- 14 tower cranes MD 560 40 t
- Radius 80 m
- Tip load 3,4 t

### Bridge specifications

- Bridge capacities: 270 000 vehicles/day and earthquake up to 8.2 on Richter scale
- Pier height: 50 m

## MD 560 A - Rio Orinoco (Venezuela)



The Mercosur bridge is one of the most prestigious projects in South America. It is built on the Rio Orinoco river in Caicara, Bolivar province in Venezuela.

It is composed of 2 concrete main piles of 137 m height, at a distance of 300 m.

Two MD 560 A were purchased by Odebrecht for the construction of each pile.

### Crane specifications

- Hook height 147,8 m
- Maximum radius 40 m
- Free standing height 66,9 m
- Maximum load 40 t at 17,3 m(4 falls)
- Tip load at 40 m : 16 t (2 falls)
- Second stage : 107,3 m with 1 anchorage
- Third stage : 147,8 m with 2 anchorages



## MD 1100 and MDT 368 - Vladivostok (Russia)



The Vladivostok bridge is one of the most prestigious bridge project realized with Potain special application cranes. The bridge is located in the bay of Vladivostok. The company Mostovik based in Omsk (Siberia) has a great experience in the bridge construction and has chosen Potain amongst the other suppliers.

The project is realized in 7 stages with 2 MD 1100 and MDT 368. The major advantage in using MDT 368 Topless is to optimize the hook heights of both cranes and assure collision free overflying.

The strong Potain mast elements assure world class free standing heights of 68,8 m above anchorage and strongly improved the job site productivity. The proximity of both cranes tremendously decreased the dismantling time of the MDT 368 by using the MD 1100.

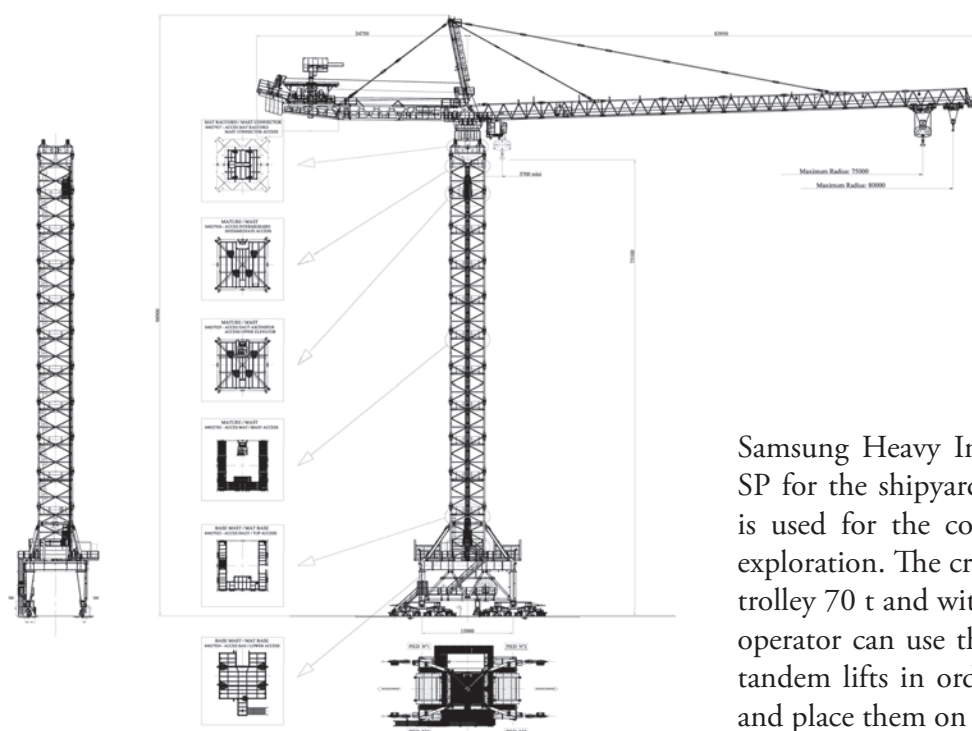
### Cranes specifications

- MD 1100: Max height 335 m, jib radius 60 m, max capacity 50 t
- MDT 368: Max height 324 m, jib radius 40 m, max capacity 16 t

# Shipyard applications



## MD 3200 SP - Samsung (Nigeria)



Samsung Heavy Industries ordered a MD 3200 SP for the shipyard of Ladol, Nigeria. The crane is used for the construction of ships for Petrol exploration. The crane is equipped with one main trolley 70 t and with a secondary trolley 25 t. The operator can use them separately or can perform tandem lifts in order to flip prefabricated blocks and place them on the ship under construction.

The crane is mounted on a traveling portal equipped with six bogies per corner powered and controlled by means of frequency converters. The portal clearance is six meters and rail span nine meters. Due to the corrosive environment, the crane is delivered with complete salt-water protection: weldments C5M-M paint system according to ISO12944, stainless steel electrical cabinets. To help the crane operator, a camera is installed on each trolley. Access to the cab can be done using operator lift on all the mast length.

### Crane specifications

- MD 3200 SP for tandem lift
- Main hoist 70 t / 35 t at 70 m (4 falls / 6 falls)
- Secondary hoist 25 t / 25 t at 80 m (2 falls / 4 falls)
- Tandem lift 50 t at 55 m
- HuH 75 m on travelling portal equipped with 6 bogies / corner

## MDN 2200 - Samsung (Korea)



The Samsung shipyard cranes MDN 2200 are used to lift:

- 45 t generators
- 40 t hatch covers
- 5 t waste boxes
- and turn 40 t ship blocks

In order to carry out such application, cranes are equipped with two hoisting winches and two trolleys that can be controlled separately or synchronised for tandem lifts.

Cranes are mounted on rail tracks with width of 7 or 14 m. They are equipped with a portal chassis and a single part-tubular mast connected by traction bolts.

Travelling, slewing, trolleying mechanisms are based on frequency inverter technology. Hoisting winches are equipped with DC motors. The operator cab is equipped with air conditioning ensures comfort, visibility and safety. An operator lift is mounted inside the tubular mast.

### Cranes specifications

Crane 1	Hook height 44 m Maximum load 50 t at 39,5 m	Radius 75 m Tip load 23,3 t at 75 m
Crane 2	Hook height 49 m Maximum load 50 t at 38 m	Radius 75 m Tip load 25 t at 75 m
Crane 3	Hook height 48 m Maximum load 50 t at 40 m	Radius 75 m Tip load 25 t at 75 m
Crane 4	Hook height 46 m Maximum load 50 t at 38 m	Radius 75 m Tip load 25 t at 75 m

## MD 1100 - Chennai (India)

L&T Ship building Limited (LTSB), a major indian company chose POTAIN for its Shipyard facility set up at Kattapulli near Chennai south east of India.

2 MD 1100 cranes were designed according to LTSB special needs, notably in terms of tracks and environment.

They will travel on a 254 m track for the first one and 450 m track for the second one.

Cranes assembly and erection have been carried out by our local Crane Care team.



### Cranes specifications

- Capacity 32 t at 33 m
- Maximum radius 60 m (15 t)
- Hook height 46 m
- Travelling on 8 x 8 m chassis, 8 motorized bogies
- Capacity 40 t at 25 m
- Maximum radius 70 m (14 t)
- Hook height 46 m
- Travelling on 10 x 12 m chassis, 8 motorized bogies

### MD 1100 - CCB Agotnes (Norway)



CCB (Coast Center Base), a Norwegian company specialized in providing services and supply to the offshore petroleum activities as well as maintenance for rigs and vessels, chose Potain for its new yard crane at its Agotnes (Bergen) facilities.

An MD 1100 chassis travelling tower crane was designed according to CCB special needs, 90 m jib, customized cab etc.

Due to the area environment (humidity and salty atmosphere), special marine paint (420  $\mu\text{m}$ ) has been applied and for the same reason connections parts did undergo special anti-corrosion treatment.

Upper mechanisms have been gathered under shelter making maintenance easier when rough weather.

Hoisting is carried out by the new 270 HP frequency variation winch 40 t capacity.

#### Crane specifications

- Maximum load 40 t at 17,7 m
- Maximum radius 90 m / Tip load 6 t
- Hook height 63 m
- Travelling on 8 x 8 m chassis / 8 motorized bogies



## MD 1100 - Dunkerque (France)



The Port Autonome of Dunkerque ordered a MD 1100 for its dry dock repair. The crane is a pure shipyard crane utilizing all up-to-date technologies such as frequency inverter mechanisms, maintenance aid technology, marine protection, etc ... Its main use is to handle boat diesel engines weighing 50 t. The typical lifts are 10 to 15 t. The crane is mounted for life and has a special marine paint of Manitowoc Red with an overall thickness 240 µm thick. The 150 LCC hoist winch is equipped with DC motors and frequency inverters for trolleying and slewing. The operator cab is equipped with air conditioning has global noise protection as well as facilities bringing maximum comfort to the operator. The crane is equipped with a 2/6 falls 50 t trolley. It can lift 16,5 t with 2 falls for small loads.

### Crane specifications

- Maximum radius 60 m / Tip load 13,8 t
- Maximum load 50 t at 20,20 m
- Hook height 56,3 m
- Travelling portal base with a foot print of 10,65 m x 10,65 m and a 8 m clearance through the portal. The portal is travelling on 12 bogies (16 frequency variation motors of 5 kW each)

### Shipyard specifications

- Travelling range 500 m

### MD 1100 - Rongcheng (China)



Samsung Rongcheng China has bought 2 units of MD 1100 for its shipyard in China. This is a typical shipyard crane using all modern technologies such as frequency variation mechanisms, special marine paint, etc ...

The travelling crane has a 7 x 8 m portal base with a 8 m clearance height on a 500 m special track.

Hoisting winch is 150 LCC DC technology while travelling, slewing, trolleying are equipped with frequency inverter technology.



#### Cranes specifications

- Travelling on 7 x 8 m portal base
- Hook height above ground level: 50 m
- Maximum radius 80 m / Tip load 10 t
- Maximum load 32 t at 27,8 m
- Special customized marine paint based on Samsung standards

## MD 1100 - Hyundai Samho (Korea)



Hyundai - Samho Heavy Industries has ordered a MD 1100 for its dry dock shipyard.

Thanks to its base platform, the crane can be either transported completely erected on a trailer carrier, or be moved by another crane.

This crane is a typical shipyard crane using all modern technologies such as frequency inverter mechanisms, special marine paint, etc ...

The crane is equipped with a 250 LCC hoisting winch based on DC motor technology. The slewing and trolleying mechanisms are based on frequency inverter technology.

### Crane specifications

- Travelling on 12 x 12 m portal base
- Hook height above ground level 60 m
- Maximum radius 80 m / Tip load 10 t
- Maximum load 40 t at 22,9 m

### MD 1100 - Denul (Belgium)



The crane is equipped with a 8 x 8 m portal that has been adapted to the existing rail track. It is operated through radio remote control. In this configuration the travelling base is equipped with 16 x 3 kW frequency inverter controlled travelling motors, allowing travelling speeds from 2 to 30 m/min. Due to the heavy duty cycles and life time request, the crane was designed according to the FEM A5 standard. Four bogies per corner (8 wheels) were necessary in order to reduce the maximum reaction on the rail track (22,8 t per wheel).

The crane is equipped with an automatic motorized slewing ring greasing system as well as the Dialog Easy condition monitoring system, to record all the necessary information for the maintenance personnel. Denul decided to replace the old Wolff crane by a new MD 1100 crane, that was especially modified for this project.

#### Crane specifications

- Hoisting winch 150 LCC: 16,5 t @ 32,4 m/min; 50 t @10,8 m/min equipped with an additional safety brake
- Trolley winch 25 DVF 25
- Slewing motion, frequency variation 2 x 18,5 kW
- Hook height 40,2 m
- Tip load 10,5 t at 70 m
- Special sea border paint with 240 µm

## MDTN 462 - Chantiers de l'Atlantique (France)



The previously Alstom Marine division - Chantiers de l'Atlantique company ordered a MDT crane with a special 20 t capacity to work under a giant overhead travelling crane. The use of the toplless technology enables maximum possible height under hook.

A permanent operator lift is installed inside the mast, with a maximum capacity of 300 kg, and provides easy access to the operator cab.

The crane upper works is fitted with access platforms designed for optimum safety during maintenance.

Travelling, slewing, trolleying mechanisms are based on frequency inverter technology. The hoisting winch is equipped with a DC motor. The operator cab is fitted with air-conditioner and sanitary WC.

### Crane specifications

- Radius 50 m, tip load 8,7 t and option to extend to 10 t
- Maximum load 20 t at 24,7 m
- Hook height 47,6 m
- Travelling portal on a 55 m long track
- Tubular mast

# MDT 389 - Chantiers de l'Atlantique (France)



Chantiers de l'Atlantique added a MDT 389 L12 on basin C to increase the productivity of the manufacture of large cruise ships. To protect the crane from the effects of salt water and the harsh environment close to the sea, the crane was delivered with a high durability paint system with metallization.

The MDT 389 L12 is installed on a travelling system with 3 bogies per corner. Hoisting, slewing, trolleying and traveling mechanisms are equipped with frequency variation technology providing smooth control of crane movements. Last generation hoisting winch, 75 HPL™ 30 with emergency brake on the drum, has also been installed.

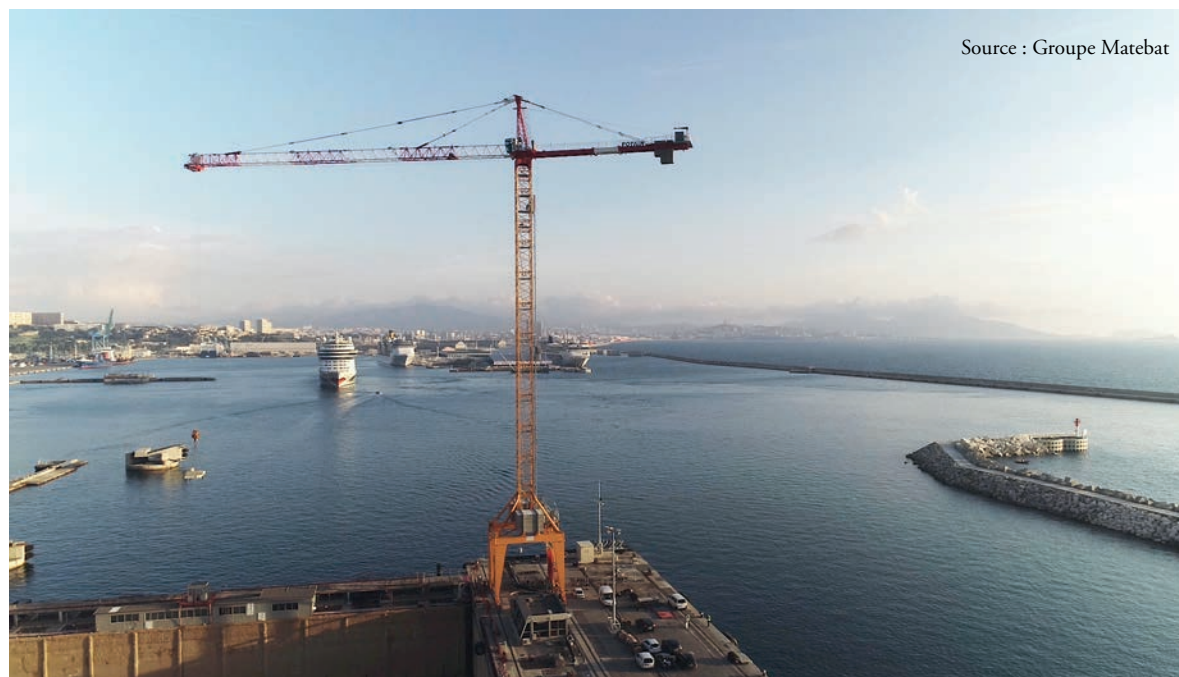
A permanent operator lift is installed outside of the mast to provide easy access to the operator cab. A Water Closet is also installed close to the operator cab. Chantiers de l'Atlantique has requested an anti-collision system between the two travelling cranes installed on the track. A complete lighting system with projectors installed on the jib and on the portal allows the cranes to operate at all times of the day.

### Crane specifications

- Maximum load 12 t at 24,5 m
- Radius 70 m / Tip load 3,4 t
- Hook Height 68,8 m
- Traveling portal 8 x 8 m (clearance 6 m) on a 270 m track
- High durability paint system including metallization



## MD 569 - Chantier naval de Marseille (France)



Drydock n° 10 of the Port of Marseille is used by Chantier Naval de Marseille to perform maintenance on large ships. In addition to the existing 150 t Caillard, a MD 569 has been installed on the 535 m long track of the dock. The crane is equipped with a portal with one of the highest clearances ever designed. It is also 10 m wide to fit with the existing track on the dock. The crane will be able to travel extensively along the track thanks to the 3 bogies installed per corner.

The permanent external operator lift and crane components are equipped with extra protection due to seaside conditions. Paint range is classified as C5-M according to ISO 12944. Hoisting, slewing, trolleying and traveling mechanisms are equipped with frequency variation technology providing smooth control of crane movements. A 100 LVF 40 winch has been specially installed on the crane.

### Crane specifications

- Maximum load 16 t at 33,9 m
- Radius 60 m / Tip load 8 t
- Hook Height 67,9 m
- Traveling portal 10 x 10 m (clearance 10 m) on a 535 m track

# Industry applications





## MD 1600 & MD 1100 - Ecoenergy (Italy)



Ecoenergy is the logistics manager for a Russian company's steel yard located in Vallese di Oppeano, Italy. In order to improve efficiency of the operation of loading and unloading the steel plate on truck, the company purchased one MD 1600 60 t and one MD 1100 60 t.

The MD 1100 is used to handle large steel plates from 15 to 20 t and dimensions until 12 m length. The MD 1600 is lifting steel slabs with smaller dimension but heavier weight, 50 t each. Both cranes have been customized in order to install magnet to lift safely the steel and optimize the time of operations.

Special software has been implemented on both cranes. The customer has access to real-time information such as working hours, number of cycles, and geo localization of the load in order to help the crane operator to place the steel in the closest available storage position.

### Cranes specifications

MD 1100 - 60 t	MD 1600 - 60 t
Maximum load 60 t	Maximum load 60 t
Tip load 23,1 t / jib radius 31,5 m	Tip load 57,7 t / jib radius 31 m
HuH 9,5 m	HuH 10,6 m
36 000 cycles / year during 10 years	
Custom software to provide geo localization and weight of the load	

### MD 1100 - Jaypee Himachal (India)



Jaiprakash construction company based in Delhi India acquired 5 units of MD 1100 for the construction of a large cement plant Jaypee Himachal.

2 of them were travelling until they reached the free standing height (86,7 m) and then they were anchored to the factory structure up to 144,5 m. They were equipped with an air conditioning operator cab as well as indicators and anemometer.

#### Cranes specifications

Cranes 1 and 2	Cranes 3, 4 and 5
Travelling on 8 x 8 m chassis	Travelling on 8 x 8 m chassis
Hook height 86,7 m	Hook height 75 m
Radius 60 m / Tip load 18 t	Radius 80 m / Tip load 10 t
Maximum load 40 t	Maximum load 40 t

## MDN 650 - Steel stockyard (France)



Baudin Chateaufneuf company is a metallurgical factory specialized in manufacturing welded assembled steel girders used for the construction of bridge floors.

This MDN 650 crane has been designed for a long lasting lifetime required for high performance industrial tools.

The tubular monoblock mast was made in only one piece without intermediate connection.

The 150 LCC hoisting winch combined with a trolley with 6 fall rope reeving ensures smoothness and precision. Trolleying, travelling and slewing mechanisms with frequency inverter technology ensure perfect progressive acceleration and deceleration.

The modern, ergonomic, silent and air-conditioned operator cab is equipped with an on-board computer and Top tracing system (anti collision system).

### Crane specifications

- Radius 60 m / Tip load 5,8 t
- 150 rail track
- 500 000 working cycles and 16 h/day
- Maximum load 32 t

## MDT 218 & MD 485 B - Sakalhin (Russia)



This project consists in the construction of an off shore platform in a drydock near Vladivostok (Eastern Russia). The yard is equipped with 5 cranes : 1 MDT 218 on a travelling chassis, 3 MD 485 B on fixing angles and 1 MD 485 B on chassis.

Cranes are designed to match the particular seismic conditions of the job site with potential horizontal acceleration of 0,1g.

### Cranes specifications

	Base	Hook height	Radius	Capacity
MD 485 B	Fixing angles	70,5 m	70 m	20 t
MD 485 B	Fixing angles	83,9 m	65 m	20 t
MD 485 B	Chassis	85,8 m	65 m	20 t
MD 485 B	Fixing angles	83,9 m	65 m	20 t
MDT 218	Travelling	26,9 m	50 m	10 t

- Hoisting winch 100 LVF 50 Optima (75 kW), frequency variation technology with service brake and safety brake
- 20 t at 18 m/min and 10 t at 36 m/min
- Trolley winch 10 DVF 10 (7,4 kW AC motor) frequency variation 20 t from 0 to 80 m/min
- Slewing mechanism RVF 183 Optima (3 x 9 kW AC motors) frequency variation technology
- Rpm 0 to 0,8
- Motorized greasing of turntable (inside bearing and tothing)



# Power plant applications



## MD 3200 - Chernobyl (Ukraine)



The MD 3200 was used to reinforce the collapsed nuclear power plant before complete recovery with the new shelter «sarcophage».

The crane was fully radio remote controlled. The crane driver operated from a ground level anti radiation air conditioning shelter equipped with all facilities such as camera screens, load moment and radius and height indicators, air conditioning shelter.

The Frequency variation control travelling equipment was made of 16 x 4 kW motors and automatic hydraulic rail brakes.

The 250 LCC 133 Hoisting winch, equipped with a service and security brake, can work with a 6/4 falls trolley-hook block device. All electric and electronic components were in compliance with the ISO radiation standard and located in an anti-radiation, air conditioning shelter.

### Crane specifications

- Hook height 72,5 m
- 15 x 15 m chassis
- 15 m rail-track / 100 m long
- Radius 70 m / Tip load 38,7 t
- Maximum load 80 t at 37 m

### MD 3200 - Flamanville (France)



Bouygues company purchased an MD 3200 to build the EPR nuclear power plant in Flamanville. The liner was made of 40 t curved steel plates welded on-site. Other general equipment were lifted by the crane. The MD 3200 overflowed the fleet of various types of tower cranes, mainly Topless, all calculated in accordance with the strong wind specifications of the French northwest coast (more than 200 km/h) as well as the proximity of the cliff.

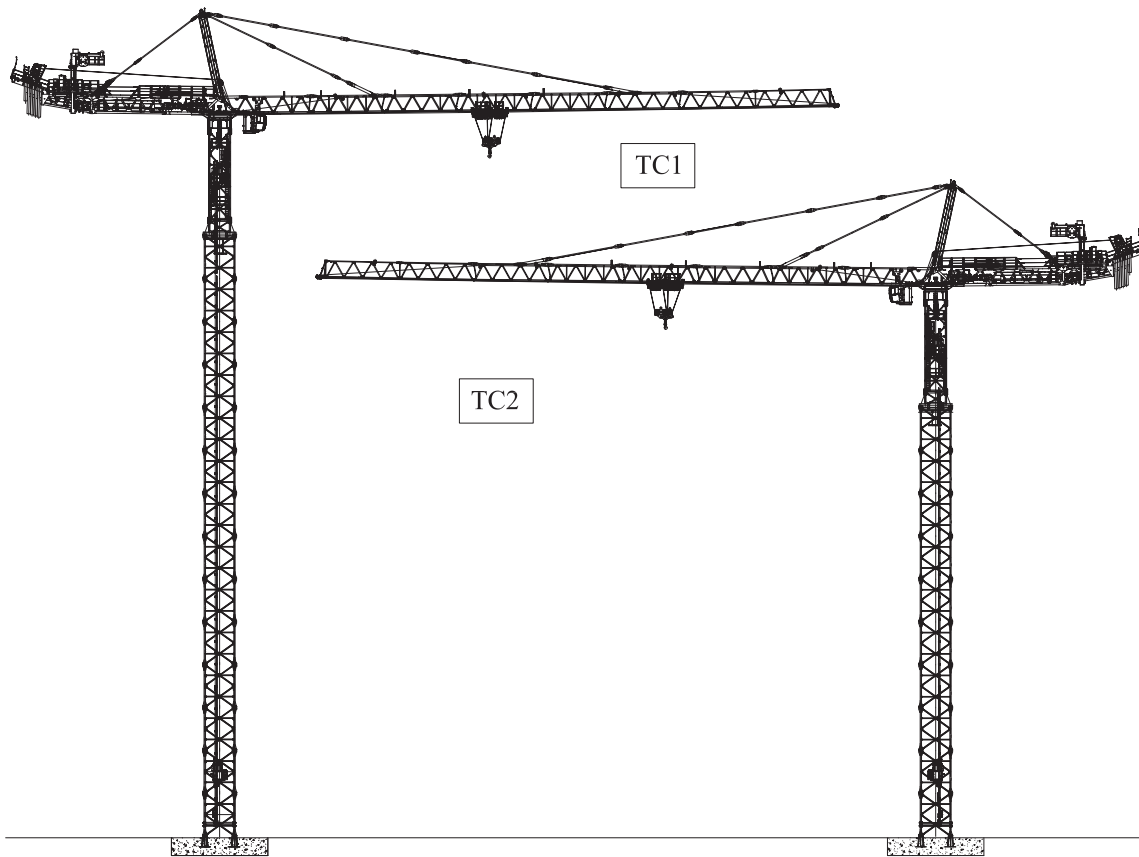
The crane was equipped with a rack and pinion lift located inside the mast structure.

#### Crane specifications

- 26,6 t at 80 m
- 40 t at 60 m
- 64 t at 40,5 m
- Hook height 89,44 m
- 15 x 15 m chassis / 16 motorized bogies



## MD 1600 - Bigge / Bechtel (USA)



Bigge placed an order for their customer Bechtel two MD 1600 units for a major construction jobsite in United States.

Both cranes were delivered in 40 t version with 1C/2C trolley. The cranes were erected on fixing angles at 68,5 m and 91,6 m according to United States wind code regulations. With the 80 m jib length, cranes were able to lift the maximum load of 40 t at a radius of 39,2 m and the tip load was 19,2 t. Both cranes are equipped with a UL/CSA TCL elevator.

### Cranes specifications

MD 1600 - 40 t	
Crane 1	Crane 2
HuH = 91,6 m	HuH = 68,5 m
Maximum load 40 t	
Tip load 19,2 t at 80 m	

### MD 1100 - Sosnovyi (Russia)



Tytan 2 company, located in St Petersburg ordered 2 sets of MD 1100 for the construction of the Sosnovyi nuclear power plant. It started in August 2009.

Cranes are equipped with 40 t double trolley and 250 DC hoisting winch. They can lift 20 t up to 46 m/min. The others mechanisms are frequency variation technology.

#### Cranes specifications

- Fixing angles version
- Hook height 73 m
- Radius 70 m / Tip load 10 t
- Maximum load 40 t
- Vision cab equipped with air conditioning, indicators, anemometer

## MD 1100 and MD 485 - Medupi (South Africa)



The Medupi power plant located in Lephallale (Province of Limpopo) near Bostwana border was built with two Potain tower cranes mainly for the power house.

MD 1100 was working with a 6 m<sup>3</sup> bucket at 55 m radius and MD 485 with a 3 m<sup>3</sup> bucket at 40 m.

Both cranes were used for general handling purposes such as concreting with bucket, handling formworks, lifting steel reinforcement and re bars.

### Cranes specifications

MD 1100	MD 485
Travelling chassis 8 x 8 m	Travelling chassis 13,5 x 13,5 m
Hook height 69 m	Hook height 33,72 m
Jib length 80 m / Tip Load 10 t	Jib length 40 m
Maximum load 32 t	Maximum load 25 t

### MD 1100 - Chunjo (Korea)



The Korean company Chunjo ordered 2 units of MD 1100 for the construction of the nuclear power plant based near Busan in Korea.

As the cranes interfered with each other, they were equipped with Top tracing non-collision system.

Operator cab were equipped with air conditioning, indicators and anemometer. Cranes were equipped with several other options such as jib lights, night time air traffic lighting.

#### Cranes specifications

- Fixing angles
- Hook height 90,8 m
- Radius 80 m / Tip load 10 t
- Maximum load 40 t

## MDT 219 - Cize Bolozon (France)



Électricité de France (EDF) has purchased a MDT 219 J10 to replace a crane installed on the Cize Bolozon Dam in 1929. The crane will be used to perform the maintenance on the dam, and more specifically on the flood-gates. The heaviest load is the cofferdams at 8,4 t, however with water effects on the cofferdam, the load will be closer to 10 t. Safety coefficients have been considered in order to use the crane for a high-risk application. During the operation, the hook block and the rope can go underwater thanks to a specific maintenance plan.

The crane is installed on a portal which spans the equipment room located at the top of the dam main structure in a very narrow area. It is operated by remote control. A Top Tracing 3 anti-collision system is avoiding the overflight of the high voltage. Paint range is classified C4A NV according to ISO12944. All the equipment of the crane is designed to withstand the very corrosive environment.

### Cranes specifications

- Maximum load 10 t at 10,2 m
- Radius 25 m / Tip load 3,3 t
- Hook Height 6,7 m – 40 m stroke below rail level
- Traveling portal 4,7 x 4,7 m with 3,4 m clearance

# High rise building applications

Source : Coteccons



### MD 2200 - Convention Center (Australia)



Verticon purchased an MD 2200 tower crane to build the new Convention center in Melbourne City. The crane was rented out to the builder Multiplex.

The crane was fixed into a large concrete massif and flew over 4 units of flat tower cranes.

The MD 2200 crane was the highest crane, it was also used to erect the surrounding topless cranes.

The 250 LCC 160 hoisting winch equipped with a safety brake worked with a 2/4 falls trolley-hook block device (2 falls 32 t / 4 falls 64 t).

#### Crane specifications

- Capacity 64 t at 31,2 m
- Radius 80 m / Tip load 23,5 m
- Hook height 81,4 m
- On fixing angles

### MD 1400 - Madrid (Spain)



The Spanish company REPSOL ordered one MD 1400 and two MDT 302 for the construction of the «REPSOL TOWER» in Madrid. MD 1400 was erected up to 277,3 m with 7 anchorings and was used to lift 36 t at 38 m radius at 250 m height. Additional 20 t steel structures were installed on the top.

Two MDT 302 moved up at the same time as the building grew up thanks to an internal climbing system (only 54 m of HUH necessary). They were used for concrete pouring, construction reinforcement and to lift additional 16 t loads.

The two MDT were dismantled with the MD 1400 and the construction lasted 18 months.

#### Crane specifications

- Maximum load 40 t
- 36 t at 38 m up to 250 m height
- Hoisting winch 250 LCC 100
- Drum capacity 1100 m



### MD 1100 - Convention Center (U.A.E)



Potain dealer NFT ordered 2 MD 1100 for its rental fleet. The 1<sup>st</sup> jobsite was a steel structural building of 200 m diameter. It used 2 MD 1100 equipped with curved rail-track and 2 MD 900 B. The 2 curved rail-tracks MD 1100 built the outside part of the project while the 2 straight rail-tracks MD 900 B built the center.

The maximum steel structure weight was 20 t lifted at 45 m radius with 80 m jib. The building was only 30 m high. One crane had a 40 m hook height while the other was 58 m height to avoid overfly problems.

The MD 1100s were equipped with a 250 LCC hoist winch and had full sea border protection against humidity and salty atmosphere.

#### Cranes specifications

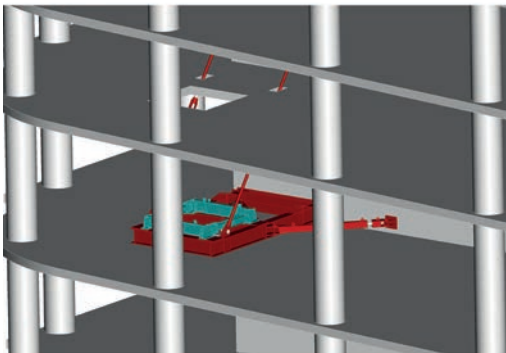
- Capacity 40 t at 22,9 m
- Maximum radius 80 m with load 10 t
- Hook height 57,8 m
- Travelling 8 x 8 m chassis

# MD 550 and MDT 222 - Tour Incity Lyon (France)

French contractor Bouygues used two POTAIN tower cranes one MD 550 and one MDT 222 for the construction of Incity Tower which have been one of the most notable skyscraper project in Lyon.

MD 550 crane reached an height under hook of 184,2 m and was erected outside the building using anchorage frames.

MDT 222 crane reached an height under hook of 173 m and was located in the middle of the building using a special internal climbing system: cantilever frames attached to the building concrete core.



Space restriction on the ground motivated this technical solution.

Close collaboration between Lift Solution engineer's team and Bouygues methods has been a key stage of this project.

Manitowoc has provided a complete package including design, manufacturing as well as a full Crane Care support.



### Cranes specifications

MD 550 crane

- Maximum radius 60 m
- Tip load 8 t
- Maximum load 16 t
- Final hook height 184,2 m

MDT 222 crane

- Radius 30 m
- Tip load 8,5 t
- Maximum load 12 t
- Final hook height 173 m

# MR 225 - Aspire Sports City Tower (Qatar)



Sports City Tower in Doha was constructed for the 15<sup>th</sup> annual Asian games held in Qatar on December 2006 as Doha's newest high rise tower.

The tower hosted the Olympic flame and set the record for the tallest ever positioning of the flame. The tower also included hotel, business center, restaurants and museum. The tower «scrapes the sky» at 300 m was made around a concrete core with the remainder of the building composed of steel structures. Midmac Besix, the main contractors of the project used Potain MR 225 luffing Jib cranes of Potain dealer NFT rental fleet.

Cranes were initially erected at free standing height of 61,7 m with mixed mast configuration (2,5 m / 2 m) before reaching final mast height 310 m.

### Crane specifications

- Radius 50 m
- Tip load 3,25 t reduced to 2 t on the top of the building
- Maximum load 14 t
- Final hook height 310 m
- 11 anchorages

# MR 418 - Landmark 81 Tower (Vietnam)

Source : Coteccons



Landmark 81 Tower is the tallest building in Vietnam with a height of 460 m. Potain dealer Minh Chi Co erected two units MR 418 type cranes in October 2016 on the project for customer Coteccons. 81st floor has been reached in February 2018.

Both cranes are climbing inside the core of the tower. The strong B850 equipment allows a tower height of 70 m with 50 m jib. The cranes are equipped with a special hoist 270 LVF to work up to 440 m height jib pivot two falls with 18-ton maximum load. One crane stopped at floor 60, and was dismantled by the second one. The second crane pursues on consoles outside the core up to 81st floor and will install the 60 m high mast on top of the tower.



Source : Coteccons

## Crane specifications

- Radius : 50 m
- Tip load : 7,9 t
- Max load : 18 t
- Hoist : special 270 LVF 120 with 950 m capacity for 18 t max load
- Climbing device : B850 with KMT 850.10A and KR 849A mast



---

# Specific application

### Hup C 40-30 - Crawler (Switzerland - Austria)



The Hup C 40-30 was designed from a dealer's request to have a self-erecting crane both able to maneuver in very rough terrain while remaining compact for transport. The crane was required to be self-propelled as well as able to reach the mountain job-site. The crawler undercarriage allows for a best in class 3,7 m transport height and allows for transport on a low bed trailer which is able to better maneuver within tunnels and along highways without a special permit.

Mobility is key on a jobsites. The Hup C 40-30 can move when folded on job sites with up to a 30% grade. The crane is also able to be repositioned while fully-erected with full ballast in H0 or H1 configuration providing greater flexibility on the job site. The Hup C 40-30 is totally autonomous and is ready to work in two-hours with the smart set up function. The embedded generator and its 2 remote control was designed for greater control : travelling and crane movements (hoist, trolley, slewing) can not be done at the same time.

#### Cranes specifications

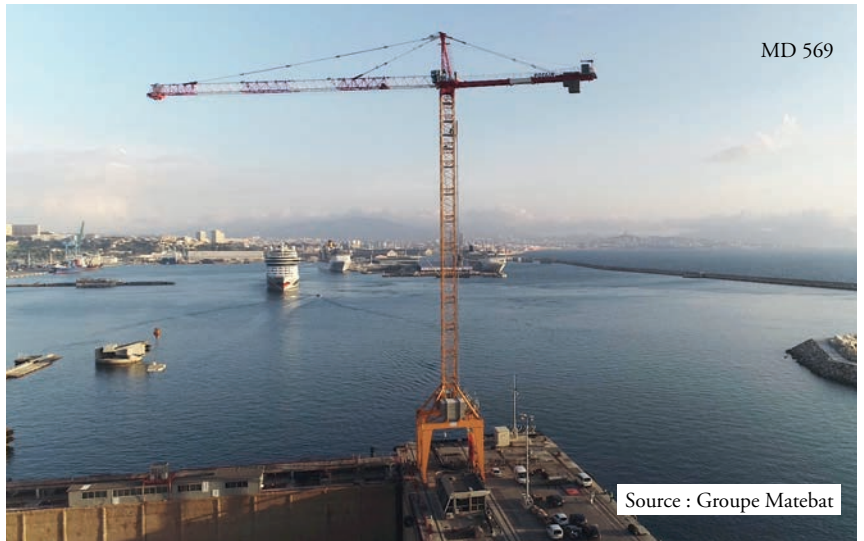
- Radius 40 m / Tip load 1 t
- Maximum load 4 t
- Hook height 30,7 m (H1 - horizontal jib aligned) / 40,7 m (H1 - jib raised : 20°)
- Crawler, maximum speed : 25 m/min (crane folded)

# References list

MDT 222



MD 569



Source : Groupe Matebat

MDT 219



MR 418



Source : Coteccons



## References list

Model	Buyer (country)	Application	Features	Year of shipment
MD 3600	SUTONG BRIDGE COMPANY (China)	Sutong bridge (China)	H = 306 m - R = 48,4 m Max load 80 t - Fixing angles	2005
MD 3600	SUTONG BRIDGE COMPANY (China)	Sutong bridge (China)	H = 306 m - R = 48,4 m Max load 80 t - Fixing angles	2005
MD 3600	NANJING 3rd BRIDGE COMPANY (China)	Nanjing bridge (China)	H = 230 m - R = 30 m Max load 160 t - Fixing angles	2003
MD 3600	NANJING 3rd BRIDGE COMPANY (China)	Nanjing bridge (China)	H = 230 m - R = 30 m Max load 160 t - Fixing angles	2003
MD 3200 SP	SAMSUNG HEAVY INDUSTRY (Korea)	Shipyards (Nigeria)	H = 75,1 m - R = 80 m Max load 70 t and 25 t Travelling portal	2015
MD 3200	BOUYGUES COMPANY (France)	Flamanville Nuclear plant (France)	H = 89,44 m - R = 80 m Max load 64 t - Traveling chassis	2007
MD 3200	UTEM (Ukraine)	Chernobyl Nuclear plant (Ukraine)	H = 72,5 m - R = 70 m Max load 80 t - Traveling chassis	2005
MD 2400	VENEZIA SHIPYARD (Italy)	Venezia Shipyards (Italy)	H = 40 m - R = 50 m Max load 80 t - Chassis	2001
MD 2200 Topbelt	SONG DA CORPORATION (Vietnam)	Sesan 3 Dam (Vietnam)	H = 75,6 m - R = 80 m Max load 60 t - Fixing angles	2003
MD 2200 Topbelt	LONGTAN COMPANY (China)	Longtan dam (Guangxi - China)	H = 185,6 m - R = 80 m Max load 60 t - Fixing angles	2003
MD 2200 Topbelt	CHINA RESSOURCES NATIONAL CORP (China)	Three Gorges dam (China)	H = 190 m - R = 80 m Max load 60 t - Fixing angles	1998
MD 2200 Topbelt	CHINA RESSOURCES NATIONAL CORP (China)	Three Gorges dam (China)	H = 190 m - R = 80 m Max load 60 t - Fixing angles	1998
MD 2200	DOGUS (Turkey)	Boyabat Dam (Turkey)	H = 104,5 m - R = 85 m Max load 64 t - Fixing angles	2009
MD 2200	DOGUS (Turkey)	Boyabat Dam (Turkey)	H = 225,7 m - R = 85 m Max load 64 t - Fixing angles	2009
MD 2200	SAMSUNG HEAVY INDUSTRY (Korea)	Shipyards (Korea)	H = 48 m - R = 75 m Max load 50 t and 25 t Travelling portal	2008
MD 2200	SAMSUNG HEAVY INDUSTRY (Korea)	Shipyards (Korea)	H = 46 m - R = 75 m Max load 50 t and 25 t Travelling portal	2008

## References list

MD 2200	VERTICON (Australia)	High rise building (Australia)	H = 81,4 m - R = 80 m Max load 64 t - Fixing angles	2006
MD 2200	SAMSUNG HEAVY INDUSTRY (Korea)	Shipyards (Korea)	H = 49 m - R = 75 m Max load 50 & 25 t Travelling portal	2005
MD 2200	LONGTAN Company (China)	Longtan dam (Guangxi - China)	H = 139 m - R = 80 m Max load 60 t - Fixing angles	2003
MD 2200	SONG DA Corporation (Vietnam)	Sesan 3 Dam (Vietnam)	H = 75,6 m - R = 80 m Max load 60 t	2003
MD 2200	SAMSUNG HEAVY INDUSTRY (Korea)	Shipyards (Korea)	H = 44 m - R = 75 m Max load 50 & 25 t Travelling portal	2002
MD 2200	PT INDAH KIAT PULP (Indonesia)	Paper Mill (Indonesia)	H = 93 m - R = 50 m Max load 64 t	1997
MD 2200	DOLINSKAYA Steelworks (Ukraine)	Steelworks (Ukraine)	H = 78 m - R = 80 m Max load 64 t - Chassis	1992
MD 2200	MACHINOIMPORT (Russia)"	Power plant (Lubmin - Germany)	H = 124 m - R = 80 m Max load 50 t - Chassis	1988
MD 2200	TAKRAF (Germany)	Power plant (Germany)	H = 91 m - R = 80 m Max load 64 t - Chassis	1986
MD 2200	TAKRAF (Germany)	Power plant (Germany)	H = 91 m - R = 80 m Max load 64 t - Chassis	1986
MD 1800	LONGTAN Company (China)	Longtan dam (Guangxi - China)	H = 112,5 m - R = 80 m Max load 60 t - Portal	2003
"MD 1600 Topbelt"	CHOR KARN- CHANG (Thailand)	Xayaburi dam (Laos)	H = 91,6 m - R = 80 m Max load 64 t - Fixing angles	2012
"MD 1600 Topbelt"	CHOR KARN- CHANG (Thailand)	Xayaburi dam (Laos)	H = 91,6 m - R = 80 m Max load 64 t - Fixing angles	2012
MD 1600	ECOENERGY (Italy)	Industry (Italy)	H = 10,6 m - R = 31 m Max load 60 t - Fixing angles	2017
MD 1600	BIGGE / BECHTEL (USA)	Power plant (USA)	H = 91,6 m - R = 80 m Max load 40 t - Fixing angles	2017
MD 1600	BIGGE / BECHTEL (USA)	Power plant (USA)	H = 68,5 m - R = 80 m Max load 40 t - Fixing angles	2017
MD 1400	REPSOL TOWER (Spain)	Building (Spain)	H = 277,3 m - R = 60 m Max load 40 t - Fixing angles	2005
MD 1400	BECHTEL (USA)	Power plant (USA)	H = 73 m - R = 80 m Max load 50 t - Fixing angles	2001
MD 1400	BECHTEL (USA)	Power plant (USA)	H = 73 m - R = 80 m Max load 50 t - Fixing angles	2001
MD 1400	BECHTEL (USA)	Power plant (USA)	"H = 73 m - R = 80 m Max load 50 t - Fixing angles"	2001

## References list

MD 1400	STROJEXPORT (Czechoslovakia)	Power plant (Temelin - Czech Republic)	H = 89 m - R = 50 m Max load 40 t - Fixing angles	1988
MD 1100	NFT (UAE)	Construction (Kuwait)	H = 63,5 m - R = 80 m Max load 40 t - Chassis	2018
MD 1100	NFT (UAE)	Construction (Kuwait)	H = 63,5 m - R = 80 m Max load 40 t - Chassis	2018
MD 1100	NFT (UAE)	Construction (Kuwait)	H = 63,5 m - R = 80 m Max load 40 t - Chassis	2017
MD 1100	NFT (UAE)	Construction (Kuwait)	H = 63,5 m - R = 80 m Max load 40 t - Chassis	2017
MD 1100	NFT (UAE)	Construction (Kuwait)	H = 63,5 m - R = 80 m Max load 40 t - Chassis	2017
MD 1100	NFT (UAE)	Construction (Kuwait)	H = 63,5 m - R = 80 m Max load 40 t - Chassis	2017
MD 1100	NFT (UAE)	Construction (Kuwait)	H = 90,8 m - R = 80 m Max load 40 t - Fixing angles	2017
MD 1100	NFT (UAE)	Construction (Kuwait)	H = 90,8 m - R = 80 m Max load 40 t - Fixing angles	2017
MD 1100	KIL-CHUNJO (Korea)	Construction (Korea)	H = 90,8 m - R = 80 m Max load 40 t - Fixing angles	2016
MD 1100	KIL-CHUNJO (Korea)	Construction (Korea)	H = 90,8 m - R = 80 m Max load 40 t - Fixing angles	2016
MD 1100	OMRAN (UAE)	Construction (UAE)	H = 90,8 m - R = 80 m Max load 40 t - Fixing angles	2016
MD 1100	NFT (UAE)	Power plant (Morocco)	H = 90,8 m - R = 80 m Max load 40 t - Fixing angles	2015
MD 1100	NFT (UAE)	Power plant (Morocco)	H = 90,8 m - R = 80 m Max load 40 t - Fixing angles	2015
MD 1100	ECOENERGY (Italy)	Industry (Italy)	H = 9,5 m - R = 31,5 m Max load 60 t - Fixing angles	2015
MD 1100	CHUNJO (Korea)	Power plant (Malaysia)	H = 113,9 m - R = 80 m Max load 40 t - Fixing angles	2014
MD 1100	CCB AGOTNES (Norway)	Shipyard (Norway)	H = 63 m - R = 90 m Max load 40 t - chassis	2014
MD 1100	NFT (UAE)	Building (Saudi Arabia)	H = 86,6 m - R = 80 m Max load 40 t - Fixing angles	2012
MD 1100	NFT (UAE)	Building (Saudi Arabia)	H = 90,8 m - R = 80 m Max load 40 t - Fixing angles	2012
MD 1100	TITAN (Russia)	Power plant (Russia)	H = 90,8 m - R = 80 m Max load 40 t - Fixing angles	2012
MD 1100	NFT (UAE)	Building (Saudi Arabia)	"H = 86,6 m - R = 85 m Max load 40 t - Chassis"	2012

## References list

MD 1100	NFT (UAE)	Building (Saudi Arabia)	H = 86,6 m - R = 80 m Max load 40 t - Chassis	2011
MD 1100	L & T (India)	Shipyards (India)	H = 46 m - R = 70 m Max load 40t - Chassis 10x12 m	2011
MD 1100	L & T (India)	Shipyards (India)	H = 46 m - R = 60 m Max load 32 t - Chassis	2011
MD 1100	TITAN (Russia)	Power plant (Russia)	H = 73,5 m - R = 80 m Max load 40 t - Fixing angles	2011
MD 1100	PIRRIS (Costa Rica)	Dam (Costa Rica)	H = 108 m - R = 80 m Max load 40 t - Fixing angles	2011
MD 1100	NFT (UAE)	Building (Saudi Arabia)	H = 90,8 m - R = 90 m Max load 40 t - Fixing angles	2010
MD 1100	NFT (UAE)	Building (Saudi Arabia)	H = 90,8 m - R = 80 m Max load 40 t - Fixing angles	2010
MD 1100	NIBM (Netherlands)	Erasmus building (Netherlands)	H = 79,2 m - R = 50 m Max load 40 t - Fixing angles	2010
MD 1100	NIBM (Netherlands)	Erasmus building (Netherlands)	H = 56 m - R = 60 m Max load 40 t - Fixing angles	2010
MD 1100	JAYPEE HIMACHAL (India)	Industry (India)	H = 75 m - R = 80 m Max load 40 t - Chassis	2010
MD 1100	JAYPEE HIMACHAL (India)	Industry (India)	H = 75 m - R = 80 m Max load 40 t - Chassis	2010
MD 1100	JAYPEE HIMACHAL (India)	Industry (India)	H = 75 m - R = 80 m Max load 40 t - Chassis	2009
MD 1100	MOSTOVIK (Russia)	Bridge (Russia)	H = 335 m - R = 60 m Max load 50 t - Fixing angles	2009
MD 1100	JAN DENUL (Belgium)	Shipyards (Belgium)	H = 40,2 m - R = 70 m Max load 50 t - Traveling portal	2009
MD 1100	MEDUPI (South Africa)	Power plant (South Africa)	H = 69 m - R = 80 m Max load 32 t - Chassis	2009
MD 1100	DOGUS (Turkey)	Boyabat Dam (Turkey)	H = 137,1 m - R = 60 m Max load 40 t - Fixing angles	2009
MD 1100	DOGUS (Turkey)	Boyabat Dam (Turkey)	H = 120 m - R = 65 m Max load 40 t - Fixing angles	2009
MD 1100	SAMSUNG HEAVY INDUSTRY (Korea)	Shipyards (Rong Cheng - China)	H = 50 m - R = 80 m Max load 32 t - Traveling portal	2009

## References list

MD 1100	SAMSUNG HEAVY INDUSTRY (Korea)	Shipyards (Rong Cheng - China)	H = 50 m - R = 80 m Max load 32 t - Traveling portal	2009
MD 1100	HYUNDAI SAMHO (Korea)	Shipyards (Korea)	H = 60 m - R = 80 m Max load 40 t - Chassis	2009
MD 1100	SOSNOVY BOR (Russia)	Power plant (Russia)	H = 73 m - R = 70 m Max load 40 t - Fixing angles	2009
MD 1100	DIGA ALTO CEDRINO (Italy)	Dam (Italy)	H = 80,9 m - R = 80 m Max load 40 t - Chassis	2008
MD 1100	JAYPEE HIMACHAL (India)	Industry (India)	H = 86,7 m - R = 60 m Max load 40 t - Chassis	2008
MD 1100	JAYPEE HIMACHAL (India)	Industry (India)	H = 86,7 m - R = 60 m Max load 40 t - Chassis	2008
MD 1100	MACAU VENEZIAN CASINO (China)	High rise building (China)	H = 73,5 m - R = 50 m Max load 40 t - Fixing angles	2008
MD 1100	CHUNJO (Korea)	Power plant (Korea)	H = 90,8 m - R = 80 m Max load 40 t - Fixing angles	2008
MD 1100	NFT (UAE)	Dubai drydocks (UAE)	H = 69,3 m - R = 80 m Max load 40 t - Chassis	2008
MD 1100	NFT (UAE)	Construction (UAE)	H = 57,8 m - R = 80 m Max load 40 t - Chassis	2008
MD 1100	NFT (UAE)	Construction (UAE)	H = 57,8 m - R = 80 m Max load 40 t - Chassis	2008
MD 1100	NFT (UAE)	Construction (UAE)	H = 57,8 m - R = 80 m Max load 40 t - Chassis	2007
MD 1100	NFT (UAE)	Construction (UAE)	H = 57,8 m - R = 80 m Max load 40 t - Chassis	2007
MD 1100	NFT (UAE)	Dubai drydock (UAE)	H = 69,3 m - R = 80 m Max load 40 t - Chassis	2007
MD 1100	DUNKERQUE (France)	Shipyards (France)	H = 56,3 m - R = 60 m Max load 50 t - Traveling portal	2007
MD 1100	GEZHOUBA (China)	Dam (Qingshuitang - China)	H = 86,7 m - R = 80 m Max load 40 t - Chassis	2007
MD 1100	GEZHOUBA (China)	Dam (Qingshuitang - China)	H = 86,7 m - R = 80 m Max load 40 t - Chassis	2006
MD 1000	SHIRKE (India)	Power plant (Gandhinagar - India)	H = 94 m - R = 50 m Max load 50 t - Chassis	1986
MD 1000	KUTLUTAS (Turkey)	Power plant (Sivas Kangal - Turkey)	H = 137 m - R = 80 m Max load 64 t - Chassis	1984
MD 1000	SHIRKE (India)	Power plant (India)	H = 94 m - R = 50 m Max load 50 t - Chassis	1984

## References list

MD 1000	NORMAN OLSEN (Norway)	Shipyard (Norway)	H = 31 m - R = 50 m Max load 64 t - Portal	1981
MD 1000	MIN Nis (Yugoslavia)	Power plant (Obrenovac - Serbia)	H = 149 m - R = 50 m Max load 50 t	1980
MD 1000	3 MAJ (Yugoslavia)	Shipyard (Rijeka - Croatia)	H = 40 m - R = 60 m Max load 50 t	1980
MD 1000	PSB (USSR)	Power plant (Dukova- ny - Czech Republic)	H = 73 m - R = 50 m Max load 30 t - Chassis	1979
MD 1000	PSB (USSR)	Power plant (Dukova- ny - Czech Republic)	H = 73 m - R = 50 m Max load 30 t - Chassis	1979
MD 1000	PSB (USSR)	Power plant (Dukova- ny - Czech Republic)	H = 73 m - R = 50 m Max load 30 t - Chassis	1979
MD 1000	PSB (USSR)	Power plant (Dukova- ny - Czech Republic)	H = 73 m - R = 50 m Max load 30 t - Chassis	1979
MD 1000	HYDROSTAV (Czechoslovakia)	Power Plant (Bohunice - Slovakia)	H = 73 m - R = 50 m Max load 30 t - Chassis	1978
MD 1000	HYDROSTAV (Czechoslovakia)	Power Plant (Bohunice - Slovakia)	H = 73 m - R = 50 m Max load 30 t - Chassis	1978
MD 900 B	WARUNA (Indonesia)	Shipyard (Indonesia)	H = 44,6 m - R = 60 m Max load 50 t - Traveling portal	2006
MD 900 B	SONG DA CORPORATION (Vietnam)	Sesan 3 Dam (Vietnam)	H = 60,5 m - R = 60 m Max load 50 t - Fixing angles	2004
MD 900 B	SONG DA CORPORATION (Vietnam)	Sesan 3 Dam (Vietnam)	H = 60,5 m - R = 60 m Max load 50 t - Fixing angles	2004
MD 900 B	SONG DA CORPORATION (Vietnam)	Sesan 3 Dam (Vietnam)	H = 60,5 m - R = 60 m Max load 50 t - Fixing angles	2004
MD 900 B	SONG DA CORPORATION (Vietnam)	Sesan 3 Dam (Vietnam)	H = 60,5 m - R = 60 m Max load 50 t - Fixing angles	2004
MD 900	BARCELONE CITY (Spain)	Construction (Spain)	H = 30 m - R = 60 m Max load 25 t - Chassis	2003
MD 900	MINISTRY OF IRRIGATION (Irak)	Construction (Irak)	H= 203 m - R= 70 m Max load 20 t - Chassis	2002
MD 900	MINISTRY OF IRRIGATION (Irak)	Construction (Irak)	H= 203 m - R= 70 m Max load 20 t - Chassis	2002
MD 900	SAMSUNG HEAVY INDUSTRY (Korea)	Shipyard (Korea)	H = 43 m - R = 70 m Max load 20 t - Portal	1994
MD 900	SAMSUNG HEAVY INDUSTRY (Korea)	Shipyard (Korea)	"H = 43 m - R = 70 m Max load 20 t - Portal"	1994

## References list

MD 900	VODNI STAVBY (Czechoslovakia)	Power plant (Temelin - Czech Republic)	H = 63 m - R = 50 m Max load 50 t - Chassis	1989
MD 900	VODNI STAVBY (Czechoslovakia)	Power plant (Temelin - Czech Republic)	H = 80 m - R = 50 m Max load 50 t - Chassis	1989
MD 900	ASTALDI (Italy)	Dam (Italy)	H = 40 m - R = 70 m Max load 25 t	1988
MD 900	STATE MACHINERY (Irak)	Badush Dam (Irak)	H = 105 m - R = 70 m Max load 32 t - Chassis	1987
MD 900	STATE MACHINERY (Irak)	Badush Dam (Irak)	H = 105 m - R = 70 m Max load 32 t - Chassis	1987
MD 900	PSB (USSR)	Krivoy Rog Iron Ore Basin (Ukraine)	H = 63 m - R = 70 m Max load 32 t - Chassis	1987
MD 900	PSB (USSR)	Krivoy Rog Iron Ore Basin (Ukraine)	H = 63 m - R = 70 m Max load 32 t - Chassis	1987
MD 900	PSB (USSR)	Krivoy Rog Iron Ore Basin (Ukraine)	H = 63 m - R = 70 m Max load 32 t - Chassis	1987
MD 900	PSB (USSR)	Krivoy Rog Iron Ore Basin (Ukraine)	H = 63 m - R = 70 m Max load 32 t - Chassis	1987
MD 900	PSB (USSR)	Krivoy Rog Iron Ore Basin (Ukraine)	H = 63 m - R = 70 m Max load 32 t - Chassis	1987
MD 900	PSB (USSR)	Krivoy Rog Iron Ore Basin (Ukraine)	H = 63 m - R = 70 m Max load 32 t - Chassis	1987
MD 900	PSB (USSR)	Krivoy Rog Iron Ore Basin (Ukraine)	H = 63 m - R = 70 m Max load 32 t - Chassis	1987
MD 900	VODNI STAVBY (Czechoslovakia)	Power plant (Temelin - Czech Republic)	H = 51 m - R = 50 m Max load 50 t - Chassis	1987
MD 900	PSB (USSR)	Power plant (Temelin - Czech Republic)	H = 64 m - R = 70 m Max load 32 t - Chassis	1987

## References list

MD 900	HYDROSTAV (Czechoslovakia)	Power plant (Mochovce - Slovakia)	H = 70 m - R = 60 m Max load 32 t - Chassis	1986
MD 900	HYDROSTAV (Czechoslovakia)	Power plant (Mochovce - Slovakia)	H = 70 m - R = 60 m Max load 32 t - Chassis	1986
MD 900	HYDROSTAV (Czechoslovakia)	Power plant (Mochovce - Slovakia)	H = 70 m - R = 60 m Max load 32 t - Chassis	1985
MD 830	BNFL (GB)	Thorp Nuclear Fuel (GB)	H = 60 m - R = 55 m Max load 25 t	1986
MD 830	BNFL (GB)	Thorp Nuclear Fuel (GB)	H = 60 m - R = 55 m Max load 25 t	1986
MD 650	"TOCOMA (Venezuela)"	Dam (Venezuela)	H = 68 - R = 70 m Max load 40 t - Travelling chassis	2008
MD 650	YEYWA (Myanmar)	Dam (Myanmar)	H = 67 m - R = 80 m Max load 25 t - Fixing angles	2007
MD 650	ALL ERECTION (USA)	Construction (USA)	R = 80 m Max load 40 t"	2001
MDN 650	"BAUDIN CHA- TEAUNEUF (France)"	Steel stockyard (France)	"H = 21 m - R = 60 m Max load 32 t - Traveling chassis"	2000
MR 605 B	NOVARKA (Ukraine)	"Chernobyl Nuclear plant (Ukraine)"	"H = 57,5 m - R = 60 m Max load 16 t - Traveling chassis"	2011
MR 605 B	NOVARKA (Ukraine)	"Chernobyl Nuclear plant (Ukraine)"	"H = 57,5 m - R = 60 m Max load 16 t - Traveling chassis"	2011
MR 605 B	NOVARKA (Ukraine)	Chernobyl Nuclear plant (Ukraine)	H = 57,5 m - R = 60 m Max load 16 t - Traveling chassis	2011
MR 605 B	NOVARKA (Ukraine)	Chernobyl Nuclear plant (Ukraine)	H = 57,5 m - R = 60 m Max load 16 t - Traveling chassis	2011
MD 600	SEP GEFYRA (Greece)	Rion Antirion bridge (Greece)	R = 70 m Max load 20 t	2000
MD 600	SEP GEFYRA (Greece)	Rion Antirion bridge (Greece)	R = 70 m Max load 20 t	2000
MD 600	SEP GEFYRA (Greece)	Rion Antirion bridge (Greece)	R = 70 m Max load 20 t	1999
MD 600	SEP GEFYRA (Greece)	Rion Antirion bridge (Greece)	R = 70 m Max load 20 t	1999



## References list

MD 600	MACHINE SAZI ARAK (Iran)	Dam (Iran)	R = 70 m Max load 20 t	1998
MD 600	MACHINE SAZI ARAK (Iran)	Dam (Iran)	R = 70 m Max load 20 t	1998
MD 600	MACHINE SAZI ARAK (Iran)	Dam (Iran)	R = 70 m Max load 20 t	1998
MD 600	MACHINE SAZI ARAK (Iran)	Dam (Iran)	R = 70 m Max load 20 t	1998
MD 600	MACHINE SAZI ARAK (Iran)	Dam (Iran)	R = 70 m Max load 20 t	1998
MD 600	NEREMAT (Singapour)	Construction (Singapore)	R = 70 m Max load 20 t	1998
MD 600	HOUSING FOUNDATION (Iran)	Construction (Iran)	R = 70 m Max load 20 t	1998
MD 600	BOUYGUES SA (France)	Construction (France)	R = 70 m Max load 20 t	1998
MD 569	CHANTIER NAVAL DE MARSEILLE (France)	Shipyards (France)	H = 67,9 m - R = 60 m Max load 16 t - Travelling portal	2018
MD 560 A	RIO ORINOCO (Venezuela)	Bridge (Venezuela)	H = 147,8 m - R = 40 m Max load 40 t - Fixing angles	2009
MD 550	BOUYGUES SA (France)	Incity Tower Lyon (France)	H = 184,2 m - R = 60 m Max load 16 t - Fixing angles	2014
MD 485 B	AKER SOLUTIONS (Russia)	Sakhalin Oil industry (Russia)	H = 83,9 m - R = 65 m Max load 20 t - Fixing angles	2010
MD 485 B	AKER SOLUTIONS (Russia)	Sakhalin Oil industry (Russia)	H = 84,9 m - R = 65 m Max load 20 t - Chassis	2010
MD 485 B	AKER SOLUTIONS (Russia)	Sakhalin Oil industry (Russia)	H = 70,5 m - R = 70 m Max load 20 t - Fixing angles	2010
MD 485 B	AKER SOLUTIONS (Russia)	Sakhalin Oil industry (Russia)	H = 83,9 m - R = 65 m Max load 20 t - Fixing angles	2010
MD 485	MEDUPI (South Africa)	Power plant (South Africa)	H = 33,72 m - R = 40 m Max load 25 t - Travelling chassis	2009

## References list

MDTN 462	CHANTIERS DE L'ATLANTIQUE (France)	Shipyard (France)	H = 47,6 m - R = 50 m Max load 20 t - Travelling portal	2006
MR 418	COTECCONS (Vietnam)	Landmark 81 Tower (Vietnam)	H = 430 m - R = 50 m Max load 18t - Internal climbing	2016
MR 418	COTECCONS (Vietnam)	Landmark 81 Tower (Vietnam)	H = 300 m - R = 50 m Max load 18t - Internal climbing	2016
MDT 389	CHANTIERS DE L'ATLANTIQUE (France)	Shipyard (France)	H= 68,8 m - R = 70 m Max load 12 t - Travelling portal	2018
MDT 368	MOSTOVIK (Russia)	Bridge (Russia)	H = 324 m - R = 40 m Max load 16 t - Fixing angles	2009
MD 365 B	SAMSUNG HEAVY INDUSTRY (Korea)	Shipyard (Korea)	H = 104,9 m - R = 70 m Max load 16 t - Static chassis	2011
MD 365 B	AKERYARDS (France)	Shipyard (France)	H= 65,6 m - R = 60 m Max load 16 t - Traveling portal	2008
MDT 222	BOUYGUES SA (France)	Incity Tower Lyon (France)	H = 173 m - R = 30 m Max load 12t -Internal Climbing	2014
MDT 219	BAUDIN-CHATEAUNEUF EDF (France)	Industrial (France)	H = 6,75 m - R = 25 m Max load 10 t - Travelling portal	2018
Hup C 40-30	STIRNIMANN (Switzerland - Austria)	Construction in mountain areas, residential (Switzerland - Austria)	H = 30,7 m (H1) - R = 40 m Max load 4 t - Crawler	2018





## Manitowoc Cranes

### Regional headquarters

#### Americas

**Milwaukee, Wisconsin, USA**

Tel: +1 414 760 4600

**Shady Grove, Pennsylvania, USA**

Tel: +1 717 597 8121

Fax: +1 717 597 4062

#### Europe and Africa

**Dardilly, France - TOWERS**

Tel: +33 (0)4 72 18 20 20

Fax: +33 (0)4 72 18 20 00

**Wilhelmshaven, Germany - MOBILE**

Tel: +49 (0) 4421 294 0

Fax: +49 (0) 4421 294 4301

#### APAC

**Shanghai, China**

Tel: +86 21 6457 0066

Fax: +86 21 6457 4955

**Singapore**

Tel: +65 6264 1188

Fax: +65 6862 4040

#### Middle East and India

**Dubai, UAE**

Tel: +971 4 8862677

Fax: +971 4 8862678/79



This document is non-contractual. Constant improvement and engineering progress make it necessary that we reserve the right to make specification, equipment, and price changes without notice. Illustrations shown may include optional equipment and accessories and may not include all standard equipment.