

VIDEO

Factory Acceptance Test at Mantsinen factory, Finland

Moving 40' container

Material handler Mantsinen 300 R



***Material handling
machines and mobile
harbour cranes***

Asean Ports 2-2020 Jakarta



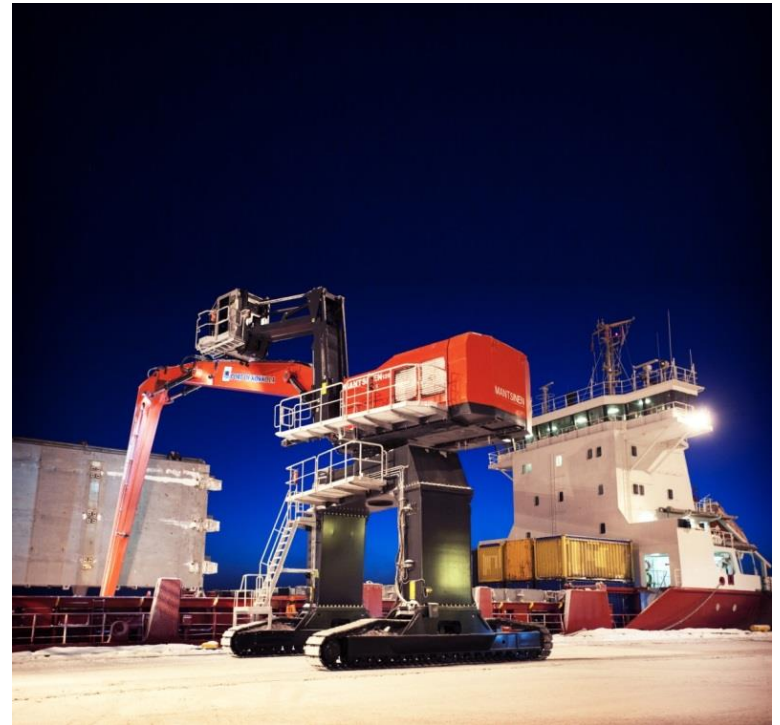
MANTSINEN GROUP LTD OY

1. Material handling machinery

- Personnel 250

2. Logistic services

- Personnel 300
- Handles 35 Mt/a



MANTSINEN 300, 160, 120, 70



EARLY MACHINES

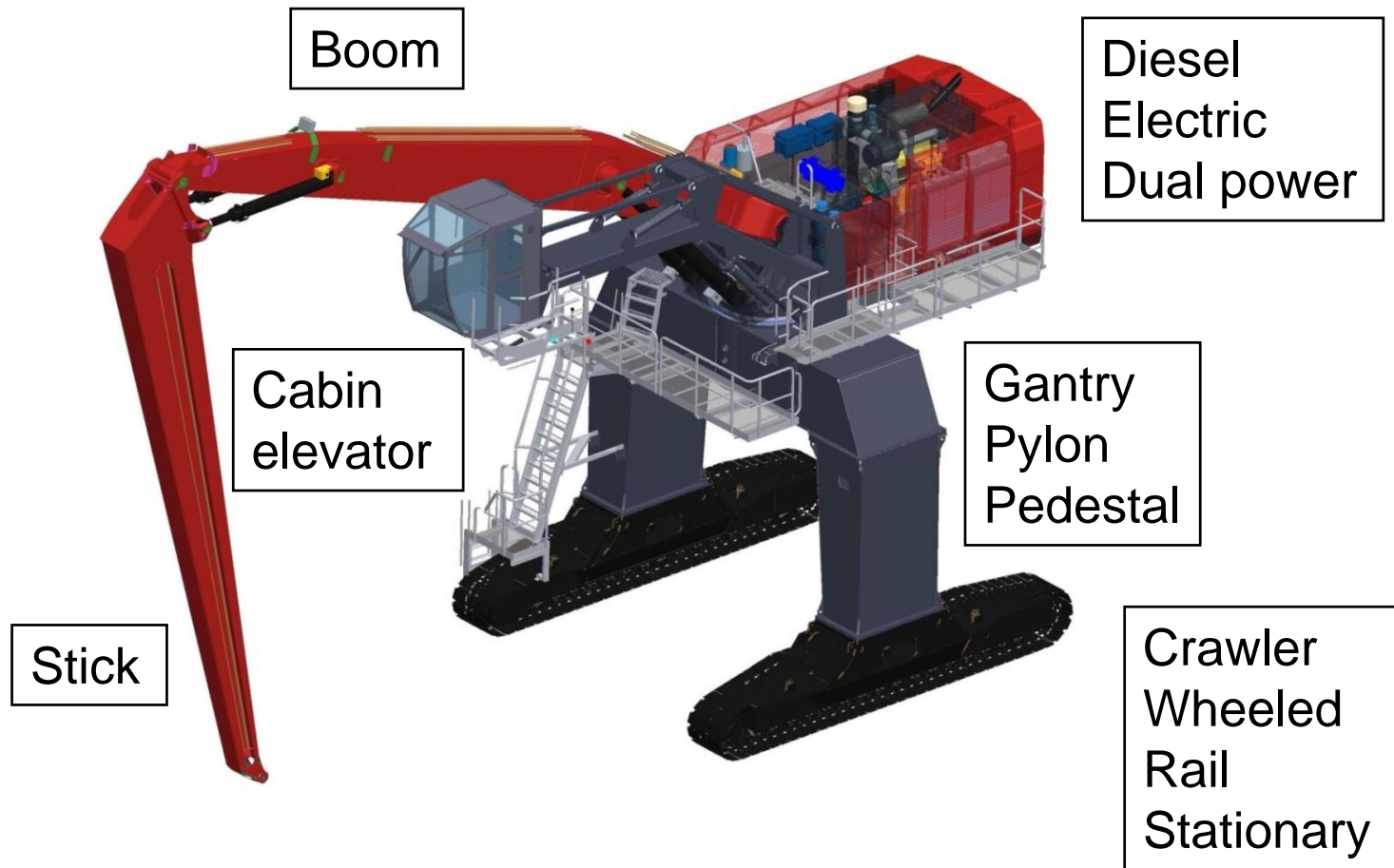
- **Early material handlers were modified excavators**
- **Suitable for rough and simple operations only**
 - Bulk
 - Small scale log handling etc.

MODERN MACHINES

- **Highly sophisticated hydraulics for speed and accuracy**
- **Effective energy saving systems**
 - **Correspond to 200 – 400 kW engine power**
- **Advanced telematics**

**Large material handlers are
hydraulic
mobile harbour cranes
with speed and accuracy of
material handlers**

Material Handling Machines



HYDRAULIC CRANE

- **Load always in control due to articulated arm**
- **Load fixed directly to boom tip**
 - **No rope between load and boom**
 - **Accurate load positioning**
 - **No sway**

HYDRAULIC CRANE

- Usually 2 – 3 times faster than conventional mobile harbour cranes
- Usually 4 - 5 times faster than ship cranes
- Usually 1.5 – 2 times faster than equilibrium cranes

HYDRAULIC CRANE

- **Same capacity with smaller machine**
- **Safer operation with less manpower**

**Lifting capacity is
NEVER
same thing as
handling capacity!**

**EVOLUTION
OR
REVOLUTION?**

**NEW THINGS
HAVE BECOME
POSSIBLE**

CHOICE BETWEEN TWO TECHNOLOGIES

HYDRAULIC CRANE IN CONTAINER HANDLING



HYDRAULIC CRANE IN CONTAINER HANDLING

**Handling capacity in
loading and unloading
40 – 60 box/h**

HYDRAULIC CRANE IN CONTAINER HANDLING

**Practical handling capacity
2 – 3 times higher than any
conventional
mobile harbour crane**

VIDEO

Container unloading in Antwerp Port, Belgium

**Unloading cycle time 50 – 60 seconds
or 60 – 70 box/h**

Material handler Mantsinen 200 M

VIDEO

Container loading in Antwerp Port, Belgium

**Loading cycle time 80 - 90 seconds
or 40 – 45 box/h**

Material handler Mantsinen 200 M

VIDEO

**Container unloading 40' in Antwerp
Port, Belgium**

**Unloading cycle time 70 - 80
seconds**

or 45 – 50 box/h

Material handler Mantsinen 300 M

CONTAINER HANDLING

- **Reach limited by articulated arm length and lifting capacity**
- **Full 40' containers up to 6 rows**
- **Full 20' containers up to 7 rows**

HYDRAULIC CRANE IN BULK HANDLING

Unloading 800 – 1200 t/h

Loading 1000 – 1500 t/h

HYDRAULIC CRANE IN BULK HANDLING

High capacity from speed

NOT

from maximum lifting capacity

BULK HANDLING

- **Same productivity possible with much smaller hydraulic machine**
- **Much larger clamshell bucket required from conventional cranes**

BULK HANDLING

- **Bulk unloading from up to Panamax class vessels**
- **Considerably higher unloading capacity from smaller vessels**

VIDEO

Bulk unloading from Panamax class vessel in Ghent Port, Belgium

**Unloading cycle time 55 - 65 seconds
1200 tons per hour**

Material handler Mantsinen 300 M

VIDEO

Wood chip unloading from dry bulk vessel in industrial port, Finland

**Unloading cycle time 25 - 30 seconds
250 tons per hour**

Material handler Mantsinen 90 M

HYDRAULIC CRANE IN GENERAL CARGO HANDLING

**Manual attachments 40 – 50
lifts per hour**

**Semi-automatic attachments
60 – 80 lifts per hour**

HYDRAULIC CRANE IN GENERAL CARGO HANDLING

**High capacity from accuracy
and reduced manual work**

VIDEO

Steel coil unloading in Antwerp Port, Belgium

**Unloading with double C-hook
50 lifts and 100 coils per hour**

Material handler Mantsinen 200 M

VIDEO

Pulp loading in Helsinki Port, Finland

**Loading with semi-automatic
attachment**

50 lifts and 300 bales per hour

Material handler Mantsinen 300 R

GENERAL CARGO HANDLING

- **Loading and unloading from up to Panamax class vessels**

**WHAT
WOULD IT MEAN
FOR
YOUR PORT?**

**IF YOU COULD HANDLE
MOST OF YOUR CARGO
TWO TIMES
FASTER?**

**IF YOU COULD
DOUBLE PORT CAPACITY
WITHOUT
INFRASTRUCTURE
INVESTMENTS?**

**IF YOU COULD CUT
TURN AROUND TIMES
BY 50 %?**

**IF YOU COULD ACCEPT
NON-GEARED VESSELS
AND HANDLE THEM FIVE
TIMES FASTER?**

HYDRAULIC AND OTHER MOBILE HARBOUR CRANES

- **Both machine types will be needed and used also in future**

**NO MACHINE
IS PERFECT FOR
EVERYTHING!**

HYDRAULIC AND OTHER MOBILE HARBOUR CRANES

- **New generation multipurpose hydraulic cranes will take market share from smallest conventional mobile harbour cranes**