



Material handling
machines and hydraulic
mobile harbour cranes

4-2018



WHAT, IF YOU COULD HAVE...

- 50 % shorter turn-around time**
- 50 % higher capacity for jetty without infrastructure investments**
- Direct unloading to trucks and less material to be stored in port**

MANTSINEN GROUP LTD OY

1. Material handling machinery
2. Logistic services
 - Handles 35 Mt/a





Speed and accuracy
key for high
productivity

2-2019



MANTSINEN 300, 160, 120, 70



EARLY MACHINES

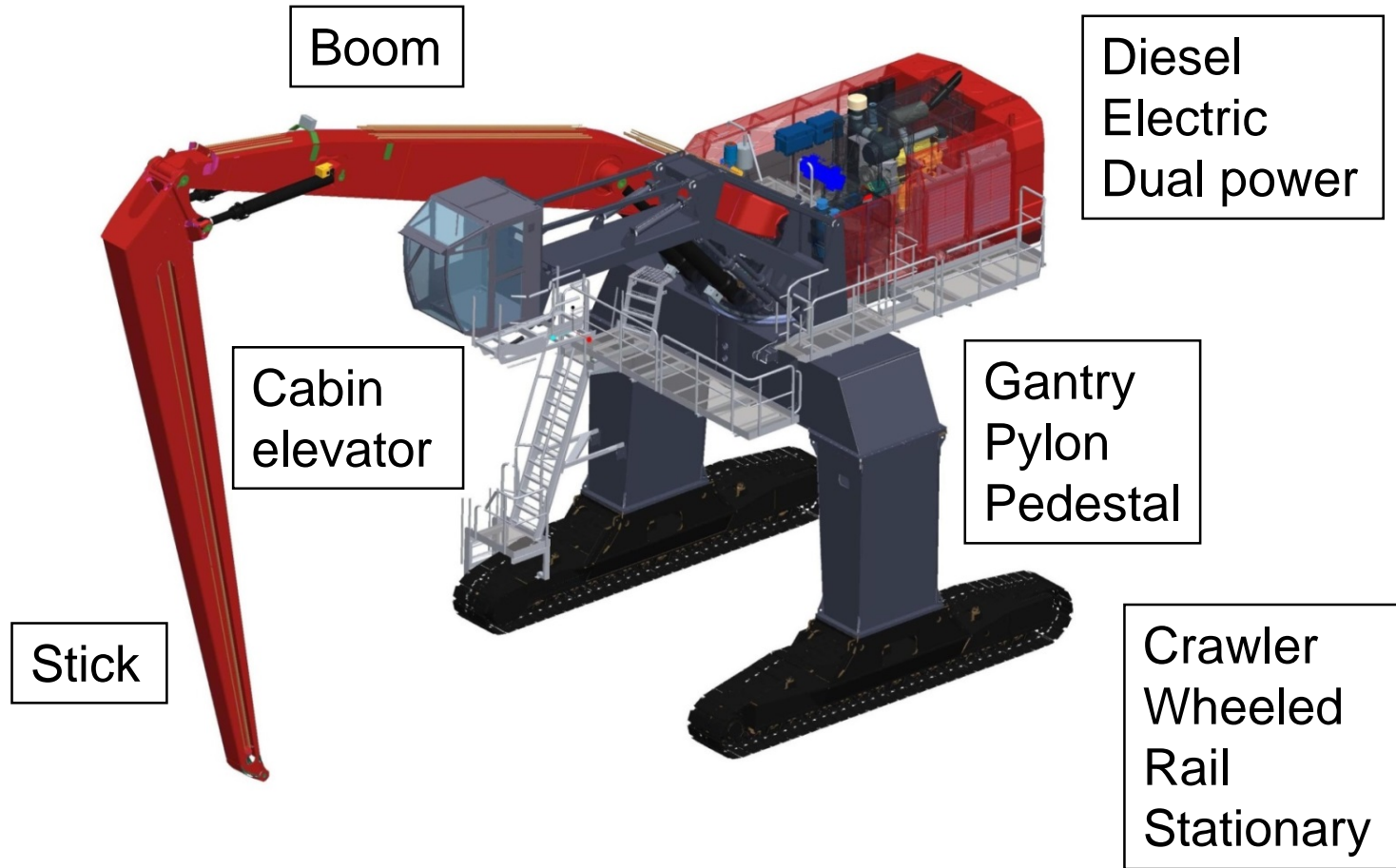
- **Early material handlers were modified excavators**
- **Suitable for rough and simple operations only**
 - Bulk
 - Small scale log handling etc.

MODERN MACHINES

- **Highly sophisticated hydraulics for speed and accuracy**
- **Energy recovery systems since 2005, second generation 2016**
 - **Correspond to 200 – 400 kW engine power**

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

Material Handling Machines



HYDRAULIC CRANE

- **Load fixed directly to boom tip**
 - **Enables high speed operation**
 - **Load always in control**
 - **Accurate load positioning**
 - **No rope between load and boom**
 - **No sway**

HYDRAULIC CRANE

- **Usually 2 – 3 times faster than conventional mobile harbour cranes**
- **Same capacity with smaller machine**
- **Safer operation with less manpower**

PRODUCTIVITY

- **No direct connection between lifting capacity and productivity**
- **Fast operation gives higher productivity than high lifting capacity**

HYDRAULIC CRANE IN CONTAINER HANDLING

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

HYDRAULIC CRANE IN CONTAINER HANDLING

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

VIDEO

Container unloading in Antwerp Port, Belgium

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

Material handler Mantsinen 200 M

VIDEO

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

**Unloading cycle time 70 – 90 seconds
or 40 – 45 box/h**

Material handler Mantsinen 300 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 loading in Laakdal,
river port terminal, Belgium**

**Loading cycle time 70 - 80 seconds
or 45 – 50 box/h**

Material handler Mantsinen 200 R

40' CONTAINER LOADING

**Container loading in Rahja Port in
Northern Baltic Sea, Finland**

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

Material handler Mantsinen 300 R

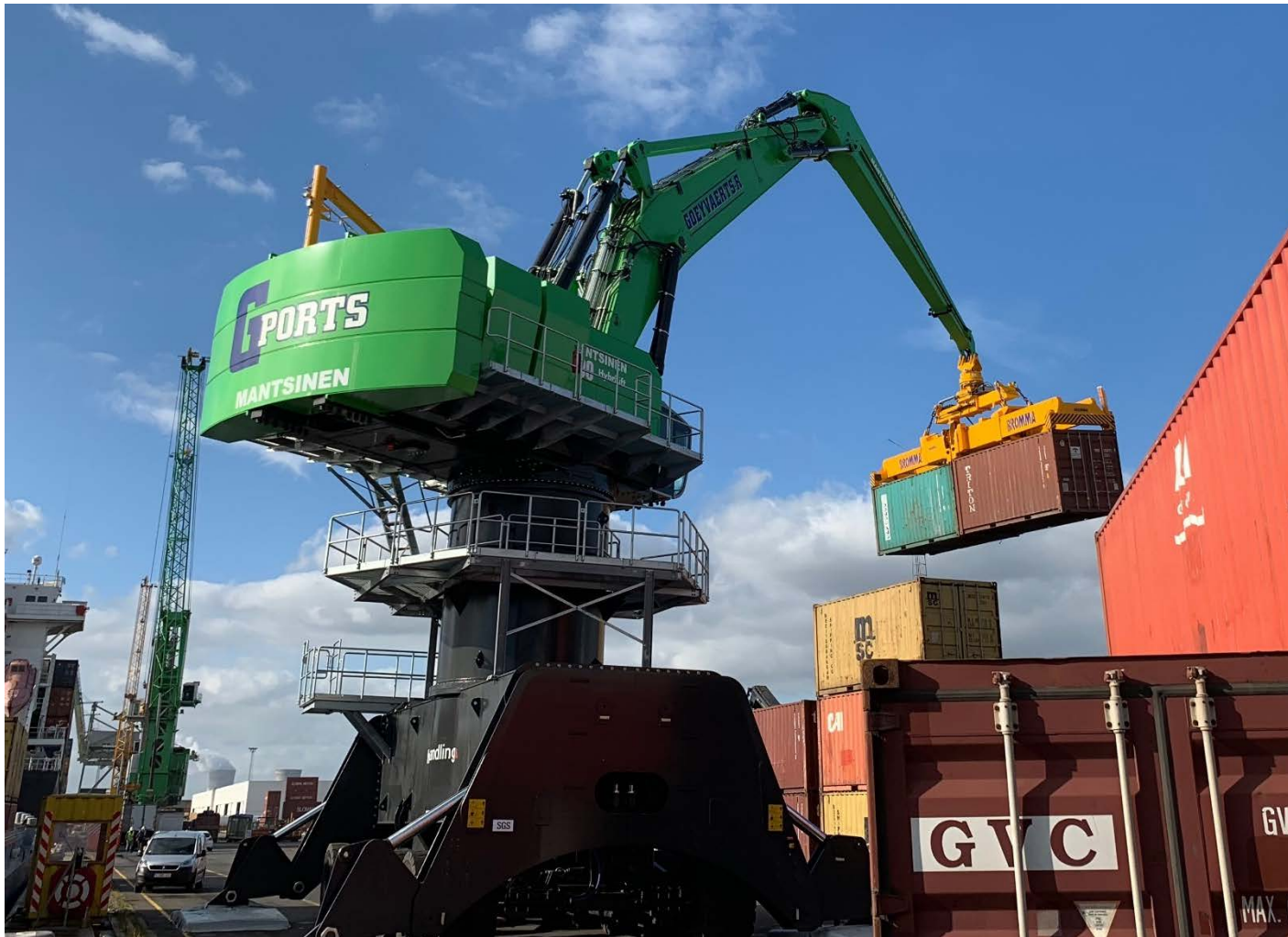


TWINLIFT 20' EMPTY

**Empty container unloading in Antwerp
Port, Belgium**

**Unloading cycle time 80 – 90 seconds
or 80 – 90 20' box 20'/h**

Material handler Mantsinen 300 M



CONTAINER HANDLING

- **Reach limited by articulated arm length**
- **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

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

VIDEO

Salt unloading from Panamax class vessel in Ghent Port, Belgium

**Unloading cycle time 50 - 60 seconds
1200 - 1300 tons per hour**

Material handler Mantsinen 300 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

HYDRAULIC AND OTHER MOBILE HARBOUR CRANES

- **Both machine types will be needed and used also in future**
- **NO MACHINE TYPE IS PERFECT FOR EVERYTHING!**

FAST HANDLING

- **What could it mean, if you had...**
- **50 % shorter turn-around time**
- **50 % higher capacity for jetty without infrastructure investments**
- **Direct unloading to trucks and less material to be stored in port**