



**MANTSINEN
SAFETY FIRST**





Founded in
1963

Employees
550

Sales 2020
**OVER \$100
MUSD**

**MATERIAL
HANDLERS**

Dealers in over
50 countries

**LOGISTIC
SERVICES**

20 operational sites
in Finland and Russia

THE MANTSINEN STORY – EXPERIENCE MATTERS

- Mantsinen has more hands-on experience in material handling than any other manufacturer
 - The company was founded in 1963 as a material handling and logistics provider by the Mantsinen brothers Veli and Juhani
 - The development of the first Mantsinen machines stemmed from our own demanding needs that no one else could fulfill
 - Over 300 Mantsinen employees use our own machines on daily basis
 - Unfiltered feedback on equipment performance and technology – including the safety of the machines - is available immediately from the operators back to our engineering and design teams
 - Over 655,000,000 yd³ of wood handled by Mantsinen employees over the last 55+ years
 - Mantsinen continues to be an innovator and a technology leader in the material handling machinery market
 - HybriLift energy recovery system
 - DualPower engine
 - Mantsinen Insight remote monitoring system
 - Etc.





DESIGNED WITH SAFETY AND OPERATOR IN MIND

- Given the history of the company and daily operation of the equipment all of the machines regardless of the size have been designed with the safety and the operator in mind
- Easy access to the cab through several cab lifter options bringing the operator's cab close to the ground
- Extra large stainless steel operator's cab for more space and better work environment
- Ergonomically placed displays or easy viewing of information and less strain on the operator
- One piece curved impact proof windshield for unobstructed view of the work area
- Quick coupler that can be operated from the cab limiting the need for personnel in the work area making changing the attachments quick and safe
- Comfortable operator's seat with air vents and adjustment options

SAFETY FEATURES

- DAFO
- Cab
 - Ground access
 - Large cab
 - Seamless windshield
 - Impact proof windshield
 - Window guards
 - Trainer's seat
- Proximity switches
- Ultrasound checks on welding seams
- Routing of hoses and cable
 - U shape channel
 - Through link and rotator
- Quick coupler
- Catwalks
- Engine room
- FEM standard / 2,000,000 full load cycles minimum



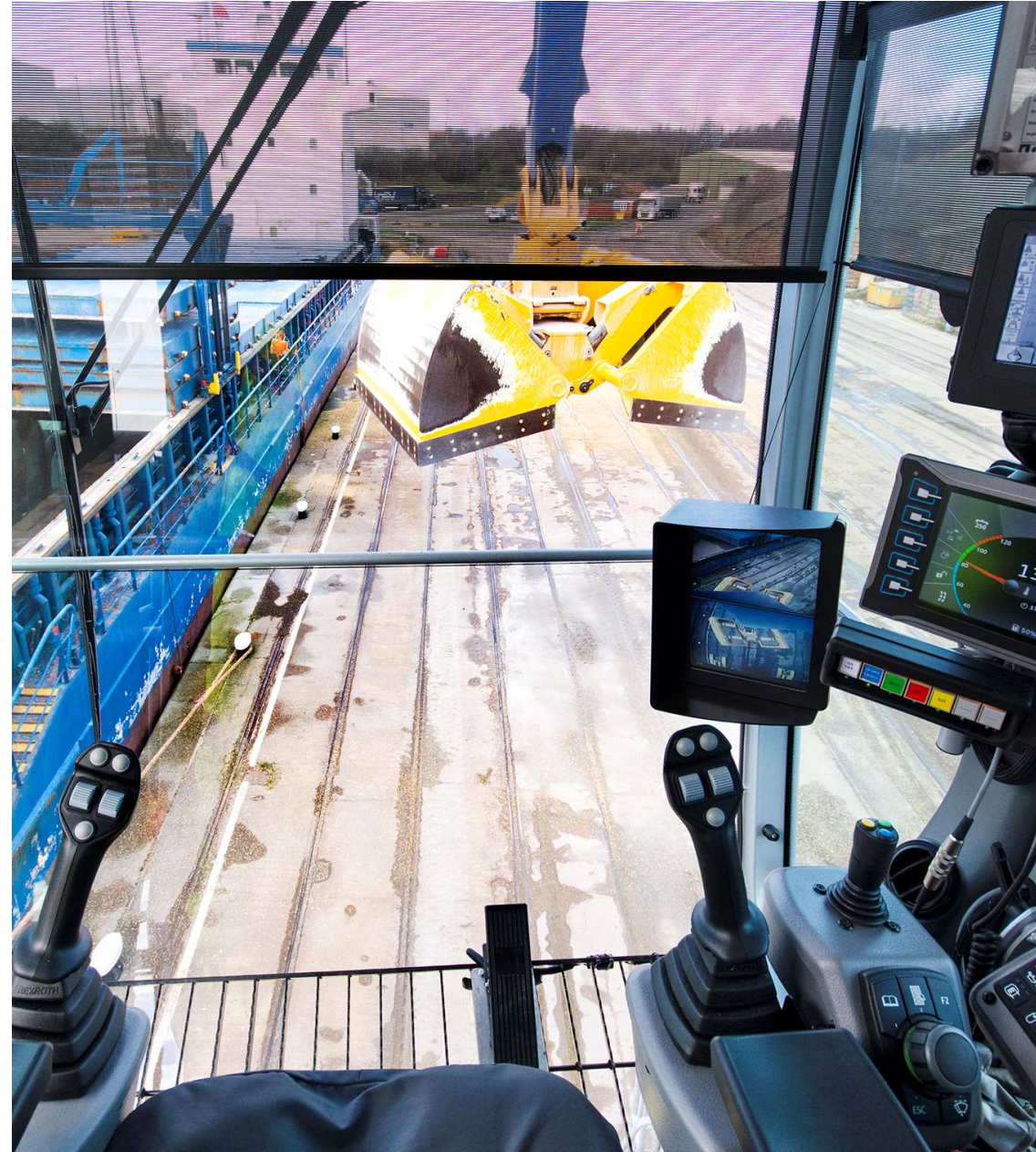


DAFO FIRE SUPPRESSION SYSTEM

- All machines are available with a factory installed fire suppression system
- Automatic heat detection and deployment of suppressant through nozzles placed in the engine compartment
- Cuts off the engine and fuel supply
- Includes a control display in the operator's cabin

LARGE OPERATOR CAB

- Extra large stainless steel cab as standard for the North American market
- Includes a trainer's seat for easy and safe training of new operators, no need to stand on a catwalk and tie off or instruct from the ground through a radio
- Adjustable and air vented seat for additional comfort and less fatigue
- One piece curved impact proof windshield with a view below and above the operator's cab
- Steel guard rails available for added protection
- Ergonomically placed electronic joystick controllers and displays for easy access and view of the operating information





LOAD LIMITER AND PROXIMITY SWITCHES

- All machines are equipped with load limiters preventing the operator from lifting more than the machine is rated for at a given lifting point
- Load limiter allows for moving the load closer or downward in case of an overload for safe completion of the operation
- Proximity switches can be adjusted per each individual application to allow the operator work in a limited workspace making the operation safer and taking the “human factor” out of the operation
- Proximity switches are pre-set at the factory to prevent
 - The operator’s cab from hitting the body of the machine
 - The stick and grapple combination from hitting the operator’s cab

ROUTING OF HOSES AND CABLES

- Mantsinen material handlers have a unique and well thought out design for routing of the cables and hoses
 - The main boom has hoses and cables routed on top of the main boom through conduit
 - The stick has hoses and cables routed into a concave U-channel on the outside of the stick
 - The attachment is fed through the opening at the end of the stick and link keeping everything secured
- This design eliminates snagging and cutting of hoses and cables, lessening the opportunity to create a hazardous work environment and obvious downtime for the machine





CATWALKS AND ENGINE COMPARTMENT

- Catwalks on the Mantsinen machines are made of galvanized steel
- The design of them provide wide platforms for safe access to the operator's cab and to the fully enclosed engine compartment
- The engine compartment has an entry door for easy access and safer work environment for the maintenance personnel completely eliminating climbing on top of the machine and potentially falling off the machine if the person is not properly tied down
- In addition to the easy engine access, the boom and stick have automatic greasers as a standard, so there is no need to have an aerial lift or other equipment for standard scheduled maintenance

QUICK COUPLER

- One machine can perform multiple tasks with various attachments
 - For example, the same machine can be used for bulk, pulp bales, roundwood, and containers
- Quick coupler makes changing of the attachments easy, effortless, and safe
 - Less down time and fewer interruptions to the operation
 - On average 5–10-minute change time when the quick coupler is used
 - Available automatic hydraulic operation coupler where the operator can perform the switch while remaining in the cab eliminating unnecessary personnel in the work area improving safety
- Two models available – MC620 and MC720
 - Both quick couplers can be delivered with rotators
 - Additional hydraulic lines
 - Electric supply for CAN Bus connection for attachment functions (container spreaders for example)
 - Two or four lifting hooks depending on the model
 - Automatic lubrication lines for the rotator and attachments





DESIGN AND MANUFACTURING PROCESS

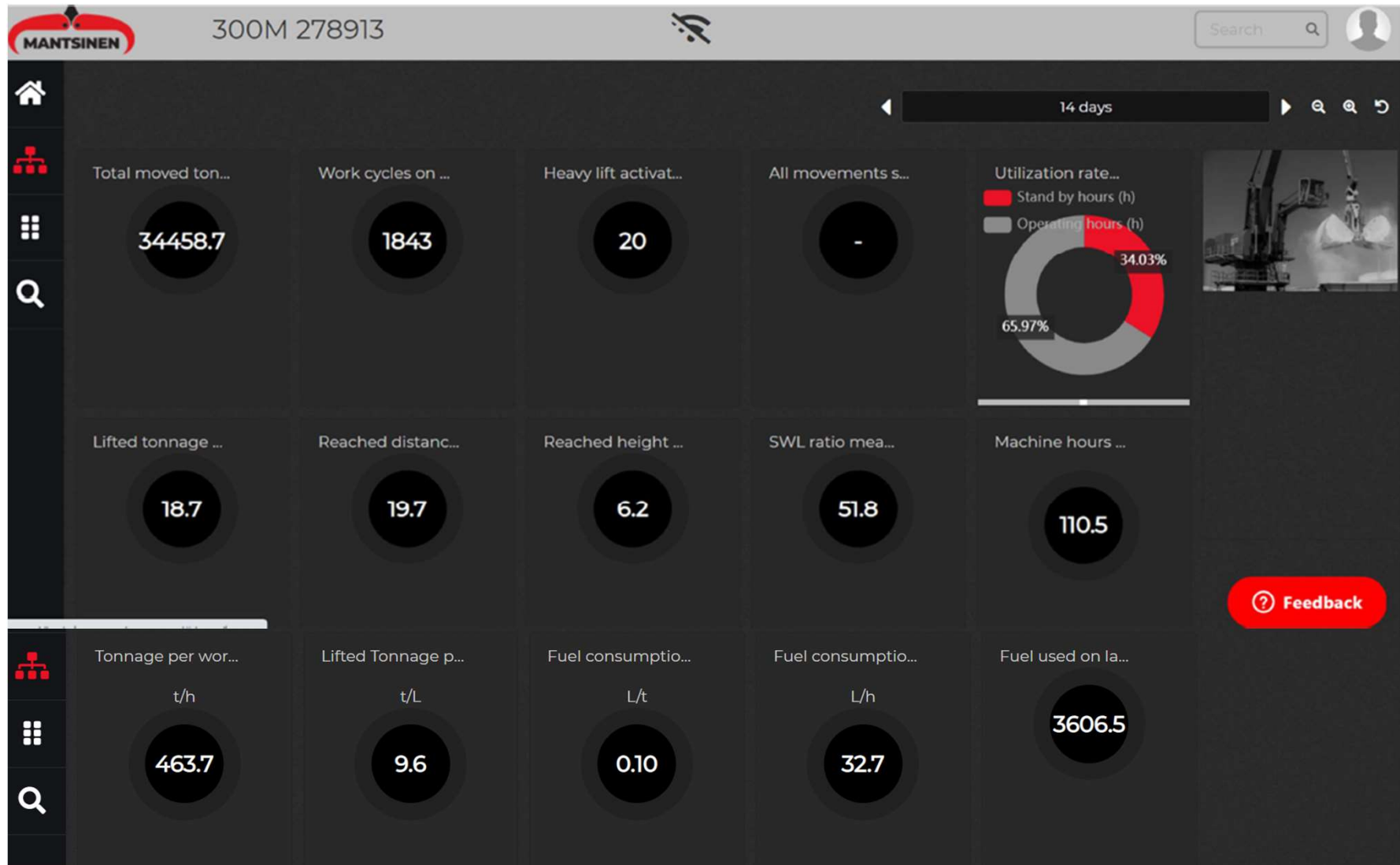
- Each machine is designed and purpose built for material handling, there are no compromises between excavating and material handling when it comes to the Mantsinen machines
- Mantsinen uses the F.E.M. standard as the design criteria, this classification is commonly used for overhead and harbor cranes and has very stringent design requirements
- All Mantsinen machines regardless of the size are **designed to meet 2-4 million FULL LOAD operation cycle lifetime expectancy**
 - Competition states “**up to 2 million HALF LOAD operation cycles**” as their design criteria
- All welded seams are inspected using ultrasound checks ensuring full penetration and no cracks

MANTSINEN INSIGHT

- A remote telematics connection to the specific machine
 - Ability to access and change parameters remotely
 - Ability to assist local service personnel with troubleshooting remotely
 - Visibility and history of fault codes
 - Shorter downtime if the machine has an issue
 - **Planned service based on actual machine use instead of calendar dates**
 - Ability to see individual machine and fleet performance metrics – efficiency and productivity
 - Energy consumption liters or kWh per hour
 - Energy consumption per handled ton
 - Tons handled per hour
 - Utilization rate - operating vs. stand-by hours
 - Total machine hours
- Connected to the Mantsinen Safety System
 - Can detect patterns of usage (incorrect use, operator habits, etc.)
 - Increased safety and lifetime of the machine and attachments
- Support for investment decision making
 - Actual data on operational costs
 - Reduction in service costs due to on demand vs. pre-scheduled maintenance



MANTSINEN INSIGHT EXAMPLE REPORT





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