



MANTSINEN 95

**LIFT YOUR EFFICIENCY
TO THE NEXT LEVEL**





Lift your efficiency to the next level with hydraulic speed and precision.

CONSIDER IT LOADED

Combining precision with efficiency, the Mantsinen multipurpose material handling machines are the perfect solution for various operations in ports and industrial terminals. They are suitable for handling any kind of bulk material, scrap, timber and breakbulk. Equipped with the Mantsinen quick coupling system, working with different attachments is easy, safe and efficient.

With more than 50 years experience in logistics services for heavy industry, Mantsinen immediately recognise the demands and challenges for material handling machines in differing operations. The balance of a contractor's mind, together with world-class manufacturing knowledge creates

unique solutions for efficient handling operations. With our deep knowledge, we can optimise your operation and machine configuration.

LIFELONG PRODUCTIVITY

Mantsinen material handling machines are a generational investment, in respect of life and durability. In-house manufacturing of machines and attachments ensures high quality without compromise. All the critical components are thoroughly analysed using the finite element method based on strain gauge tests in real operation. The minimum lifetime expectancy of our machines is over two million work cycles with maximum load.

SUSTAINABLE BY NATURE

More than two decades, Mantsinen has paved the way in energy-saving innovations and sustainable solutions. The machine has an energy-efficient, function-specific “power on demand” load-sensing LUDV hydraulic system. Additionally, the closed-loop swing hydraulics return kinetic energy back into the system during swing deceleration. The thermostat-adjusted hydraulic fans run with optimum speed, thus saving power and keeping noise levels down.

GET ELECTRIC

The electrically powered machines offer a cost-effective and ecological alternative to diesel-powered machines.

They provide the same performance level, with zero exhaust emissions, a low noise level and lower energy and maintenance costs. The E-series machines are available configured for local voltages upon request.

A variety of cable-reel solutions are available to meet differing travel demands, with all undercarriage types. An optional diesel-driven Mantsinen powerpack allows electric machines to travel independently of the electric supply. To keep the start currents low, IE3 efficiency class motors are started with a soft starter. A reactive power compensation system is also available as an option.



EVERYTHING UNDER CONTROL

MANTSINEN CONTROL SYSTEM (MCS)

The Mantsinen control system is engineered for cost-efficient material handling with today's technology. Its operator friendly user interface runs under an "Only what's important is shown" approach easing daily operation, and allows its operator to concentrate on the current task. The adjustable multi-function joysticks for front equipment are extremely ergonomic and comfortable. Electrically controlled proportional functions ensure smooth and efficient operation under all conditions.

Travel and steering are controlled by a one-grip joystick. Rail-mounted machines are driven by pedals. The system has electric end cushioning for the boom, the stick and the cab elevator to avoid unpleasant dynamic shocks.

HUMAN-MACHINE INTERFACE

- Graphic user interface with a 7" display
- Easy-to-use multifunction control dial
- Operating data and gauges
- Optional functions display information
- Onboard and remote diagnostics with detailed error description
- Acoustic signal for critical alarms
- Precision mode and heavy lift mode
- Settings for main functions and options
- Error logging
- Instantaneous power consumption measurement
- Periodic fuel or electric power consumption



CONTROL SYSTEM	STANDARD	OPTION
Auto-idle mode	•	
Heavy lift mode	•	
Precision mode	•	
Dead man switch on joysticks		•
Automatic clamshell bucket levelling while closing		•
Anemometer with alarm at 25 m/s, slowdown 30 m/s		•
Remote control for travel		•
Preparedness for temporary person lift		•
Turbo timer		•
Vertical lift		•
Container handling mode		•

SAFETY WITHOUT COMPROMISES

MANTSINEN SAFETY SYSTEM (MSS)

Mantsinen machines come standard equipped with an advanced safety system. Front equipment, swing and cab elevator are equipped with sensors so the whole machine operation is continuously under control.

There is an overload and stability control as well as cabin collision prevention with warning and motion cut function. The attachment menu is a part of the system as well. Real time load, reach and height information is provided on the graphic user interface, which features

a graphic animation of the machine's operation.

The system also enables various case-by-case adjusted safety features like maximum and minimum operational heights and banned sectors. There are also optional operator-assisting systems available. For example, the automatic levelling system lifts the bucket while closing to avoid cargo hold or railcar damage. The system gathers operational load cycle history that enables evaluation of machine utilisation.





LEAD BY DATA

MANTSINEN INSIGHT™

MANTSINEN INSIGHT™ provides comprehensive information from individual material handling machines to a whole fleet. By following over 150 outputs per machine we will ensure that you keep track of your operations, on-site and remotely - wherever you are. With Insight, you will improve your performance and remain at the leading edge of your business.

MANTSINEN INSIGHT™ enables data storing automatically with access to operational and service information. Insight offers data storage, making the machine's history easily available when needed. In addition to remote machine monitoring, Insight enables a connection to the machine control system as standard. These features combined with the onboard diagnostics ensure the best possible support for all machine-related needs.

MANTSINEN INSIGHT™ STANDARD	STANDARD
Asset reports	•
Productivity/efficiency views	•
Fleet view	•
Visualised sensor data	•
Upcoming services tool	•
History data	•
Data for dealer/factory support	•
Control system remote access for factory support	•
Global SIM card	•



Machine history



Resale



Service history



Productivity improvement



Machine reports



Immediate data

STRENGTH IS NOTHING WITHOUT VISION

STAINLESS STEEL CABIN

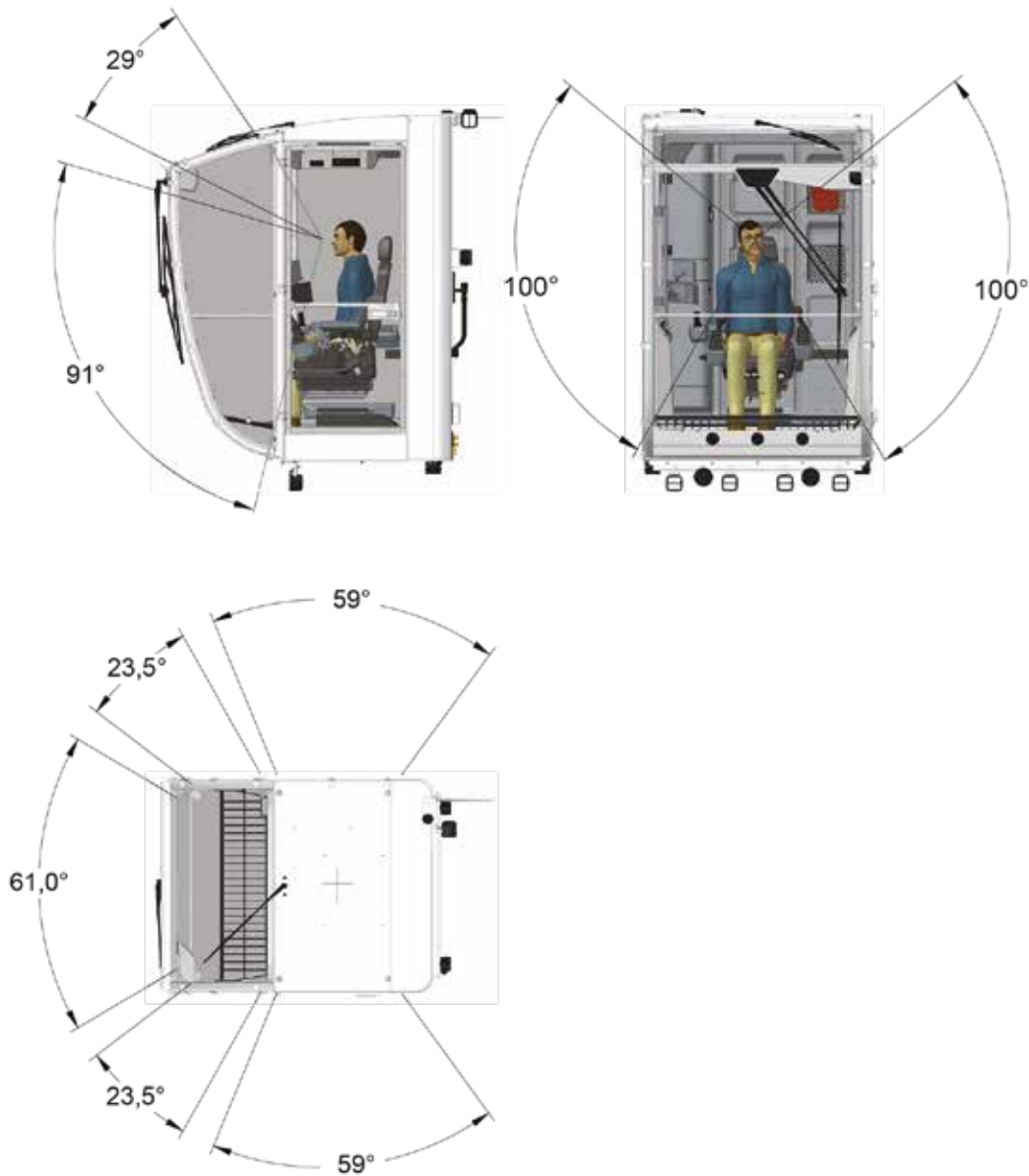
The spacious and modern operator cabin has excellent visibility with a large windscreen and floor window in one curved piece. The cabin is made of stainless steel, ideal for a long lifetime, even in the most demanding or corrosive working environments. Sound insulation, low vibration and high-quality interiors create the most comfortable environment for the operator.

The powerful heating and air conditioning, tinted glasses and adjustable sun shades make the cabin comfortable in all weather conditions. The windshield wiper has two speeds, an adjustable intermittent function and a washer. There is also a wiper for the skylight.

The operator works in an ergonomically designed environment. All joysticks, control panels and user interface displays can be easily controlled and operated.



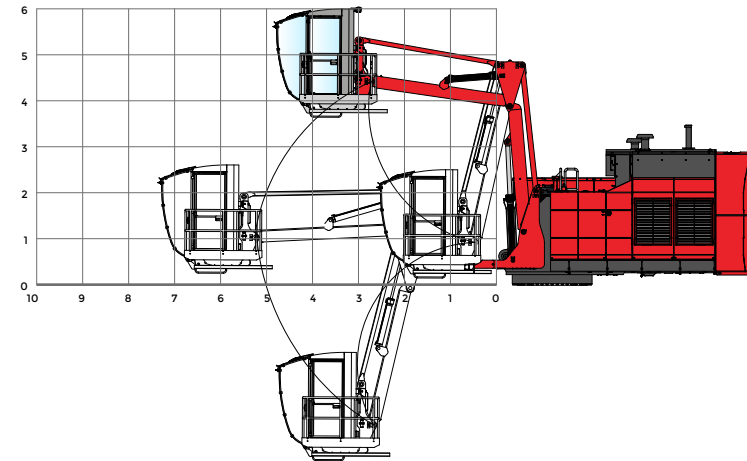
VISIBILITY FROM CABIN



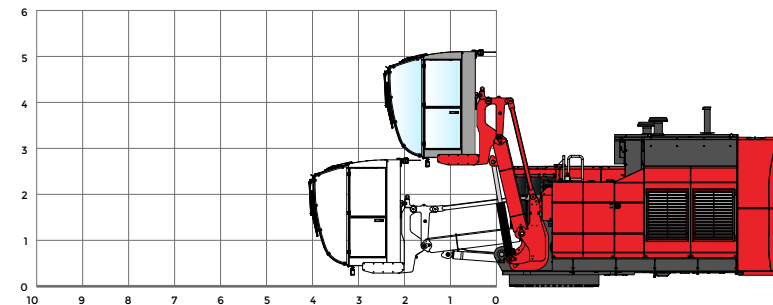
CABIN ELEVATORS

The Mantsinen 95 has two cab elevator options. The robust Mantsinen N2-5000 cab elevator features independent vertical and horizontal movement to position the operator for maximum visibility. The one-arm N1-3000 cab elevator, easily lifts the operator high in the air.

N2-5000



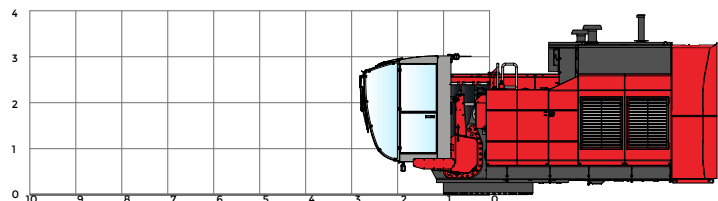
N1-3000



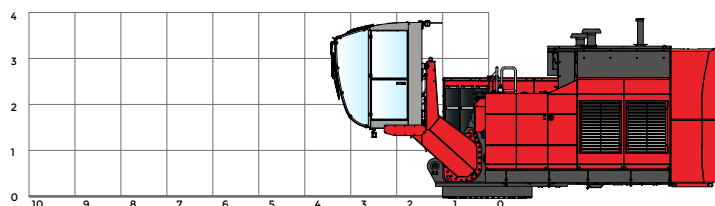
CABIN FIXED POSITIONS

The Mantsinen 95 has three fixed cab positions.

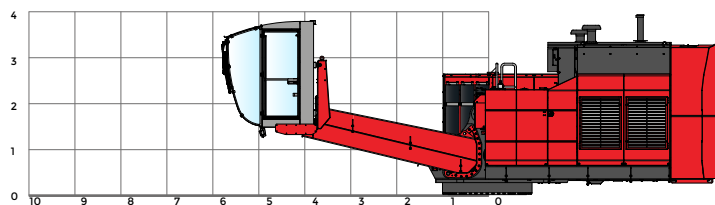
FIXED CAB POSITION 1.



FIXED CAB POSITION 2.



FIXED CAB POSITION 3.



CABIN EQUIPMENT AND OPERATOR SEAT	STANDARD	OPTION
Heating and air conditioning, in large cabin automatic	•	
One-piece curved windshield with heating	•	
Skylight	•	
Tinted window glasses	•	
Sunshades	•	
Folding instructor seat with seatbelt	•	
Signal horn	•	
Rear-view mirror	•	
Rescue harness and first aid kit	•	
Bluetooth CD/USB, MP3/WMA receiver	•	
Cup holder	•	
Literature compartment	•	
Two 12 V plugs for chargers	•	
Standard seat	•	
- Air suspension	•	
- Automatic weight adjustment	•	
- Seat belt	•	
- Heating	•	
- Fully adjustable	•	
Seat Be-Ge 3110 FC4 Airvent		•
Seat swivel function		•
Cabin protection guards, windshield and skylight		•
Impact-proof windshield		•
Sun protection foils, all windows except skylight		•
Emergency exit beam on top of cabin		•
Loudspeaker with gooseneck microphone and pedal		•
VHF-phone preparedness, microphone, pedal & harness		•
230 V AC socket in diesel machine cabin, max current 30 A		•
Alco lock system with SMS function		•
Additional air filtration unit including cabin pressure control		•
Camera with 7" display. Stick or rear-view camera		•
Camera with 12" display. Stick or rear-view camera		•
Stick, rear-view and right-view cameras with shared 12" display		•
Camera recording system with 160 h capacity		•
WiFi camera		•

DEVELOPED TO GET THE JOB DONE

UPPERSTRUCTURE

The Mantsinen upperstructure is specifically designed for fast and hard material handling applications. In-house experience of hundreds of millions tons in material handling provides a strong base for design, functionality and serviceability.

POWERLINE

Volvo Penta diesel engines are known in the material handling industry for their high performance, low fuel consumption and durability. The engine, or electric motor is located in a sound-insulated compartment.

The doors ensure easy access to service both sides. To reduce fire risk, the pump compartment is isolated from the engine compartment by a firewall.

HYDRAULICS

The main hydraulics consist of two variable displacement axial piston pumps and a closed-loop swing pump. There is a separate circuit for the rotator, cab elevator and optional attachment functions as well as for fans. Efficient filtration and a three-micron bleed-off fine filter with water absorption ensures continuously clean and dry oil, which increases uptime and extends component and oil lifetime.

The hydraulic oil cooler and the radiator are easily accessible for cleaning from the service platform. The fan reversal function cleans the cooler and radiator without interrupting the machine's operation.

RIGID MAIN FRAME

The rigid main frame and the large diameter pins guarantee a long lifetime for the machine.

SERVICE WALKWAYS ALSO INSIDE

The wide inside and outside service walkways satisfy international safety standards, providing unrestricted and safe access to all service points.

SWING MECHANISM

The Mantsinen 95 has a large-diameter heavy-duty, three-row, roller-type slewing ring with internal teeth running in a grease bath. Two heavy planetary swing gears have integrated automatic multi-disc brakes. The closed-loop swing hydraulic circuit operating with state-of-the-art electric control system ensures the extremely smooth and controllable swing. The closed-loop swing system saves a considerable amount of energy and provides maximum operating performance.

FRONT EQUIPMENT

A multitude of options with straight or curved boom and stick lengths are available to streamline the operation for maximum productivity. Mantsinen boom and stick structures are designed and analysed with modern FEM-methods based on real operation, measurements and long-term practical experience. Their minimum expected lifetime is over two million work cycles, assuming maximum load. Booms and sticks are manufactured in-house under close quality supervision to ensure a long lifetime for these structures under fatigue stresses.

MAIN BOOM

The main boom foot and bosses are constructed from steel castings, providing an excellent service life to one of the most critical structural components of the machine. The optimised box structure ensures maximum lifetime without compromise. Strong structure and large pin diameters minimise surface pressures and wear on bushings.

STICK

The stick foot including cylinder brackets is a one-piece cast steel structure. The use of cast structures in the high-load stress areas ensures the component's strength, durability and long service life.

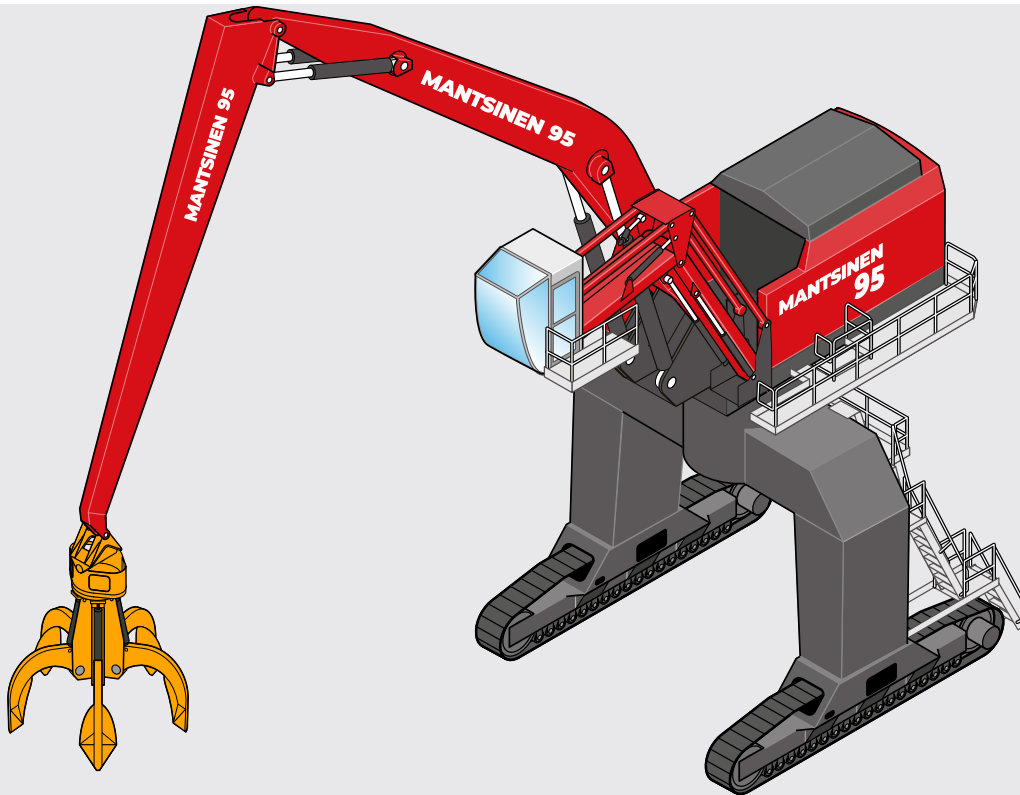
The stick box is constructed from four C-profiles using high tensile steel. The design allows the stick to be constructed with no welding seams in high-stress areas, making it light and extremely durable. Hydraulic lines are well protected on sides of the stick. As a consequence of the unique cast stick tip and link design, attachment hoses are not exposed for damages.

OPTIONS AND STANDARD FEATURES

EQUIPMENT	STANDARD	OPTION
Working lights, 24 V LED; 4 underneath cabin, 4 at stick, 1 on cab roof	•	
Central lubrication for front equipment and slewing ring raceway	•	
Central lubrication for mobile undercarriage	•	
Second pressure adjustment for attachments 250 bar	•	
Beacon and acoustic travel alarm	•	
Surface treatment for C3 medium according to ISO 12944-2	•	
User and service manuals, 2 printed, 2 on memory sticks	•	
Electronic spare part catalogue, 2 on memory sticks (English)	•	
HYDRAULICS		
Additional attachment function, 200 bar, 56 l/min		•
Second additional attachment function, 200 bar, 56 l/min		•
Magnet generator hydraulic preparedness, max flow 165 l/min		•
Magnet generator system 20 kW		•
Additional undercarriage hydraulic function with pedal		•
Biodegradable hydraulic oil		•
FILTRATION		
Large bypass fine filter with water absorption		•
Attachment line filters		•
Additional fuel filter with heating		•
LUBRICATION		
Automatic lubrication system up to link		•
Automatic lubrication system up to attachment		•
LIGHTS		
Additional 2 lights on boom		•
Undercarriage lights, one in each direction, 4 in total		•
Undercarriage pad lights, one directed to each pad, 4 in total		•
Travel lights for public roads		•

HEATING	STANDARD	OPTION
Electric heating for engine, hydraulics and cabin. 3-phase inlet socket		•
Automatic battery charger		•
Pre-heater for engine and cabin, by fuel. Including Multicontrol timer		•
REFILL		
Electric 24 V refuelling pump with 8 m 1" hose reel		•
Refuelling 24 V pump cabinet on undercarriage		•
Refuelling line 2" from ground level		•
AdBlue 24 V refill pump, harness, pistol & 15 m hose reel for IBC container		•
GENERAL		
Fire suppression systems		•
Safety access gate, doorbell + operator-openable electric lock		•
NATO jump start plug		•
Emergency stops in undercarriage, 2 pcs		•
Pull coupling		•
Stick corner covers, 4 pcs		•
Stick cover against grapple hits		•
Service lift SWL 500 Kg, 5m swing beam, electric 230VAC.		•
Toolbox in undercarriage, aluminium		•
BACK UP SYSTEMS		
Portable hydraulic unit for swing, main boom, stick, electric or engine driven		•
Preparedness for portable unit		•
Diesel powerpack Mantsinen 100 for travel with remote control		•
SURFACE TREATMENT OPTIONS		
C4 Medium. Main component exterior surfaces		•
C5 Medium. Main component exterior surfaces		•
Customer stickers		•
Custom colour: Front equipment, cover panels, counterweight, cab elevator		•

MANTSINEN 95R



Long and widely spaced tracks and rigid box type frame create an excellent stability foundation for the machine. The flat track shoes run smoothly on gravel, asphalt or concrete. The hydrostatic track drive system consists of two-speed axial piston travel motors and planetary trackdrives. There are spring-applied multidisc automatic brakes with hydraulic release.

CRAWLER GANTRY

The crawler gantry allows significant benefits for effective logistic layout design. The gantry style undercarriage allows trucks or rail cars to pass through. Additionally, the machine cycle time and truck waiting times are minimised due to the optimised swing angle.

95R

	CRAWLER UNDERCARRIAGE	CRAWLER GANTRY UNDERCARRIAGE
Undercarriage heights	2.5 m, with pylon 4.0 / 4.7 / 5.2 m	6.5 / 7.0 / 8.0 m, with pylon 8.0 / 8.7 m
Track gauge	6 060 mm	6 060 mm
Track length	6 800 mm	6 800 mm
Track shoes	850 mm flat	850 mm flat
Travel speed	Max 3.5 km/h	Max 3.5 km/h
OPTIONS		
Track shoes	670 mm flat	670 mm flat
Additional fuel tank	1x 1 000 l or 2x 1 000 l	1 x 1 000 l or 2 x 1 000 l
	Heavy-duty tracks for extreme conditions	Heavy-duty tracks for extreme conditions

Robust and proven versions of the undercarriage are designed for every demand and condition. Stability and robustness are the key features in all the Mantsinen undercarriages. All the machines are able to operate full 360° circle at full load.

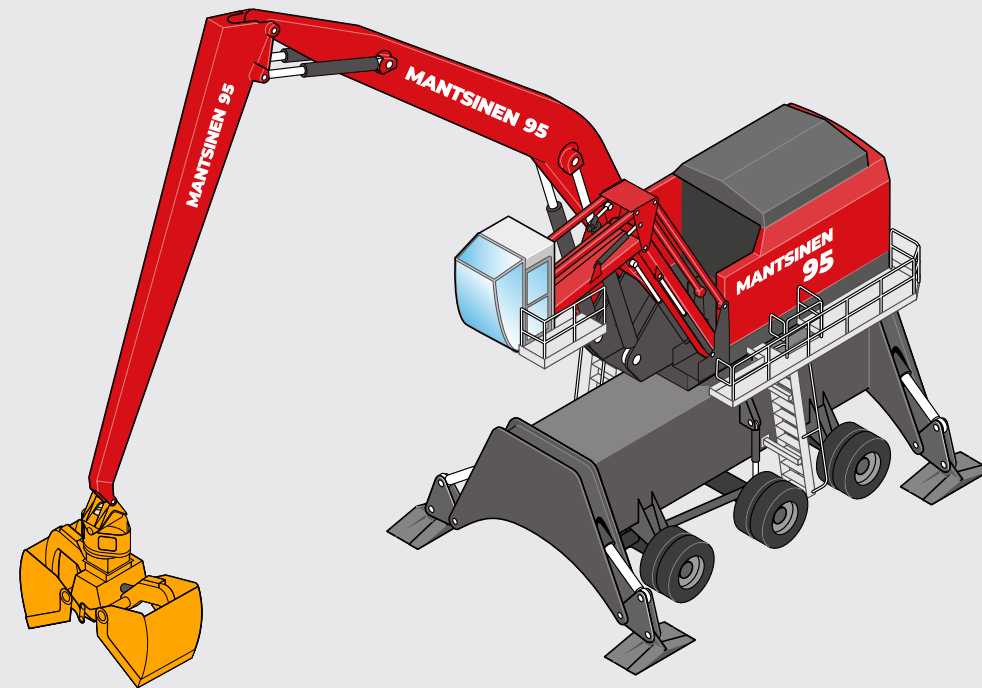
MANTSINEN 95M

The robust three-axle solid tyre mobile undercarriage provides great mobility in this machine size class with reduced axel loads. The two-axle drive and steering provides good drawbar pull and facilitates operation on uneven surfaces. There are hydraulic wet disc service brakes and spring-applied multi disc parking brakes on driven axels. Simultaneously or individually controllable outriggers permit stable 360° operation with full loads even in demanding conditions. Outrigger cylinder protection and automatic undercarriage lubrication are included standard.

MOBILE GANTRY UNDERCARRIAGE

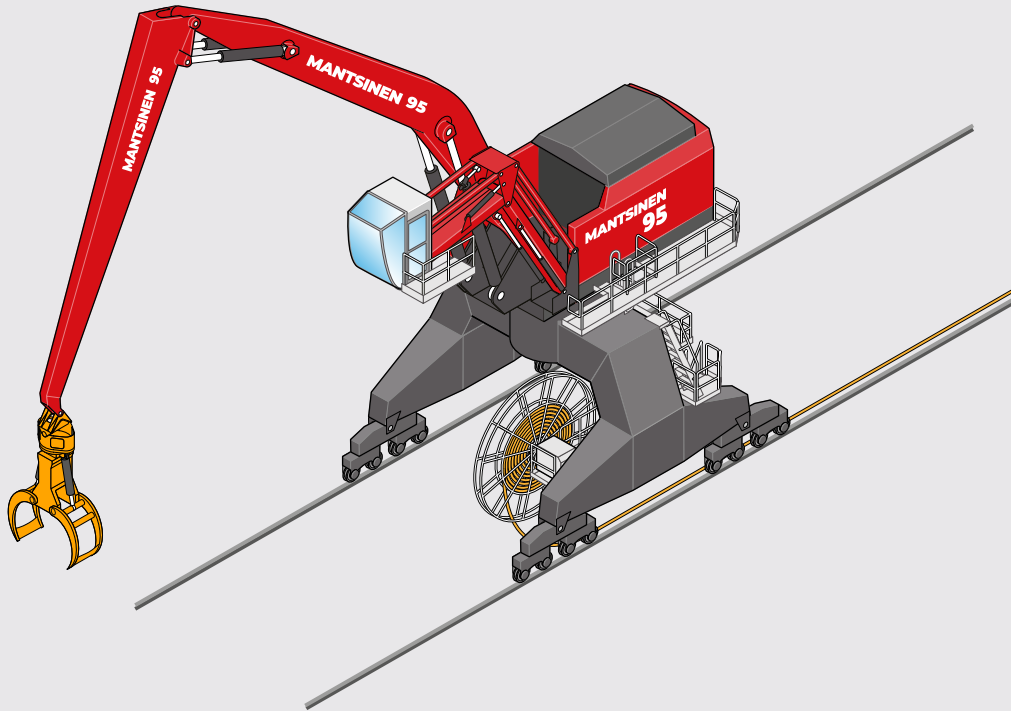
The Mantsinen 95's mobile gantry has a boxy rigid gantry frame. Six independently hydraulically suspended and steered oscillating axle units come standard and facilitate crab drive mode and lateral drive mode. The eight-wheel hydraulic drive has been implemented with variable displacement axial piston motors. Automatic levelling with 4-point hydraulic stabiliser cylinders as well as automatic undercarriage lubrication are included standard.

95M		
	MOBILE UNDERCARRIAGE	MOBILE GANTRY UNDERCARRIAGE
Undercarriage heights	3.0 m with pylon 4.5 / 5.2 / 5.7 m	6.5 / 7.0 / 8.0m, with pylon 8.7 m
Wheelbase	2 x 2 800 mm	2 x 2 900 mm
Wheel track width	4 145 mm c - c	6 340 mm c - c
Tyres	12x 14.00-25 solid tyres	12 x 14.00 x 25 solid tyres
Drive speed	Max 10 km/h	Max 5 km/h
Stabiliser pads	950 x 1 500 mm	1 500 x 1 500 mm
Turning radius (wheelset centreline)	9.3 m	11.9 m
OPTIONS		
Large pads with spherical bearings (w x l)	1 500 x 1 500 mm	3 000 x 1 500 mm
Additional fuel tank	1 x 1 000 l	1 x 1 000 l



Undercarriages are available in several different heights to optimise the operation, reach and visibility. Mantsinen organisation provides with support load information and operational drawings on a case-by-case and individually tailored basis.

MANTSINEN 95S



RAIL MOUNTED

Rail undercarriage can be tailored around existing rails. Both the wheel diameter and number of wheels can be optimised to match permissible rail loads. There are \varnothing 400 mm and \varnothing 630 mm wheel options available for different rail profiles. Hydraulic planetary wheel drives provide smooth travel and keep the machine steady throughout operation. The machine can be easily adapted to pull a hopper on rails. Rail cleaners, buffers and storm clamps are all available as options. Depending on gantry width, the undercarriage allows one or more rail wagons or trucks to pass through. Both diesel and electric versions are available for a rail-mounted machine.

FIXED

Fixed installation can be optimised using differing gantries or pylons. The machine, equipped with a diesel engine or an electric motor, can be adapted to an existing quay or pontoon.



TECHNICAL SPECIFICATIONS

FRONT EQUIPMENT

BOOM, STRAIGHT OR CURVED (m)	STICK (m)	HORIZONTAL REACH (m)
10	8	17.8
11	9	19.6
12	10	21.6
13	11	23.6
14	12	25.5
15	13	27.4

DIESEL ENGINE

Engine	TAD1384VE 375 kW Stage V TAD1344VE 352 kW Stage II /Tier 2 TAD1353VE 345 kW Stage IIIA
Displacement	12.8 l
Number of cylinders	6
Electric system	24 VDC, alternator 150 A / 24 V. Batteries 2 × 225 Ah / 12V

ELECTRIC MOTOR

Motor	250 kW IEC cast iron frame squirrel cage motor, 1500 rpm / 50 Hz
Voltages	380 to 690 V come standard, other voltages upon request

Specifications subject to change without prior notice. The photographs and/or drawings in this brochure are for illustrative purposes only. Refer to the Operator's Manual for instructions on the proper use of this equipment.



HYDRAULIC SYSTEM

Oil flow, front equipment and travel	2 × 420 l/min
Operating pressure, front equipment	330 bar
Operating pressure, travel and Heavy Lift mode	350 bar
Oil flow swing closed-loop system	410 l/min
Operating pressure, swing	270 bar
Swing speed	5.6 r/min
Swing torque	240 kNm

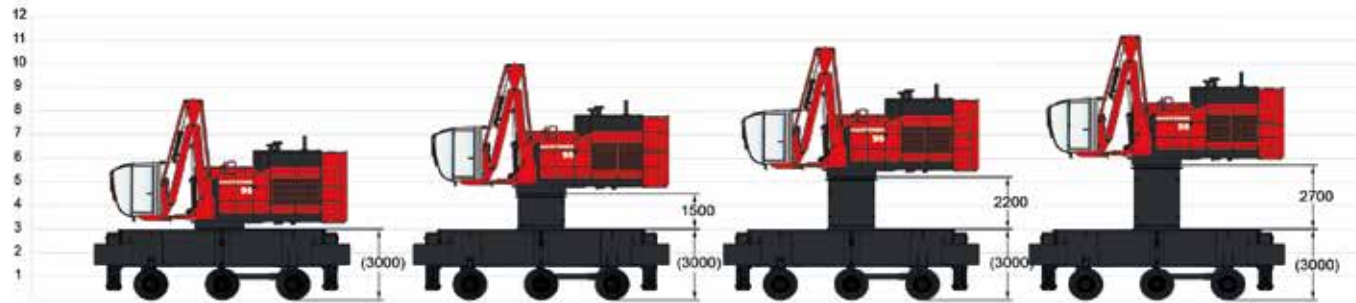
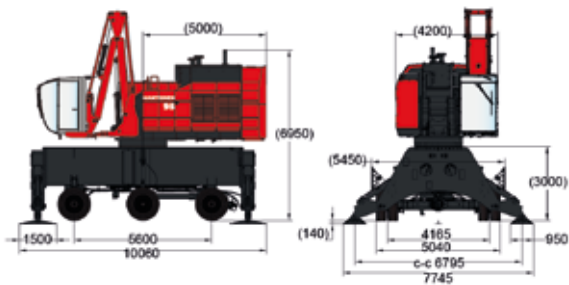
REFILL CAPACITIES

Hydraulic oil	1 000 l net volume
Fuel tank	1 500 l
Engine oil	36 l
AdBlue tank	160 l

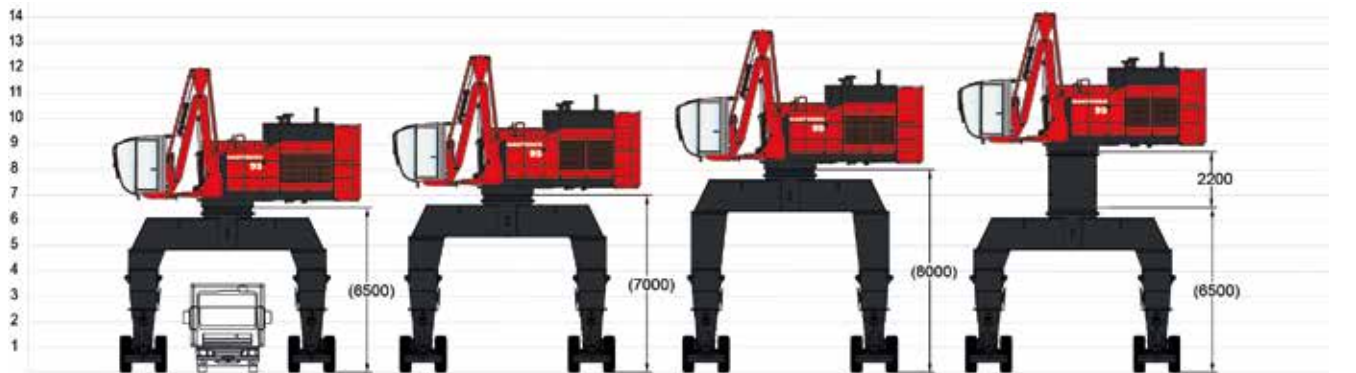
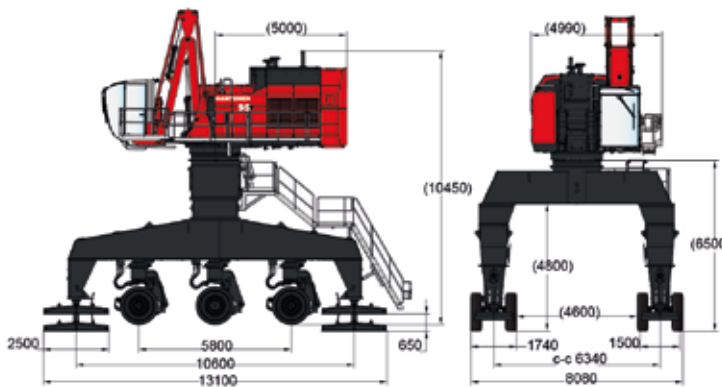


MAIN DIMENSIONS OF THE 95M

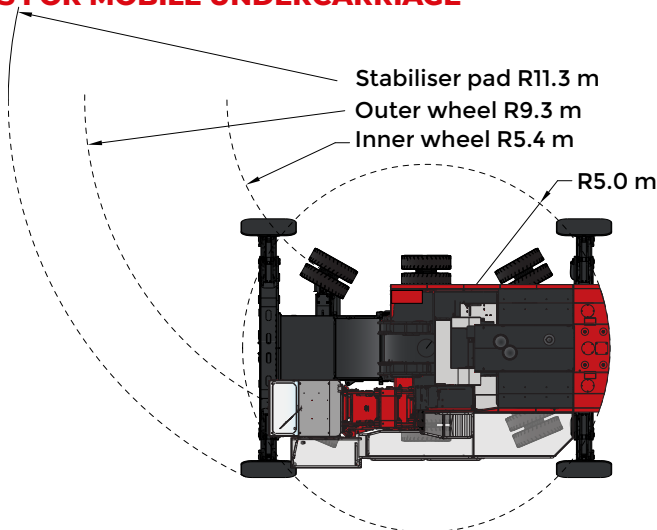
MOBILE UNDERCARRIAGE



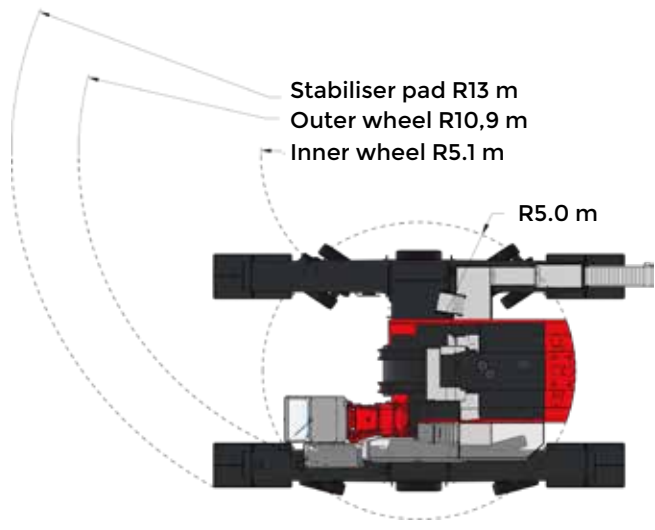
MOBILE GANTRY UNDERCARRIAGE



TURNING RADIUS FOR MOBILE UNDERCARRIAGE

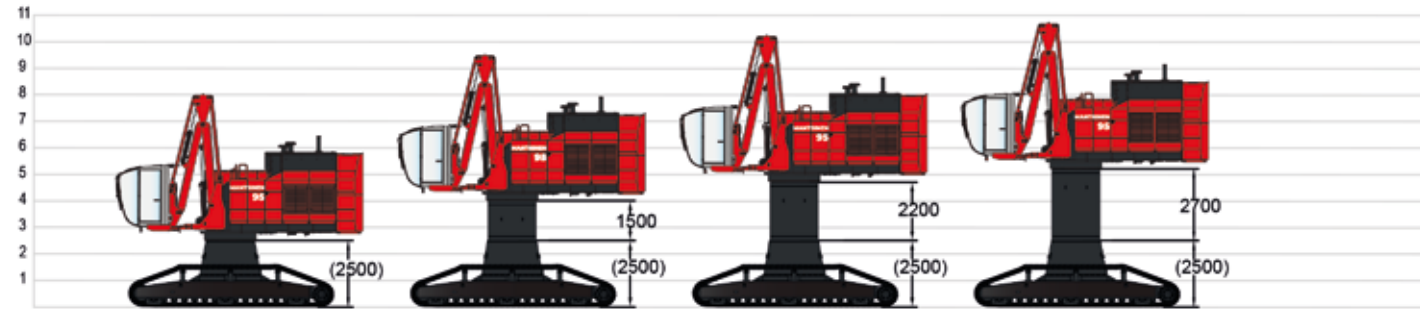
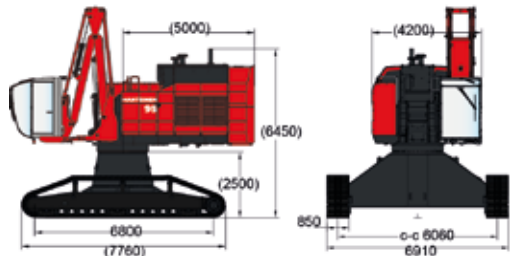


TURNING RADIUS FOR MOBILE GANTRY UNDERCARRIAGE

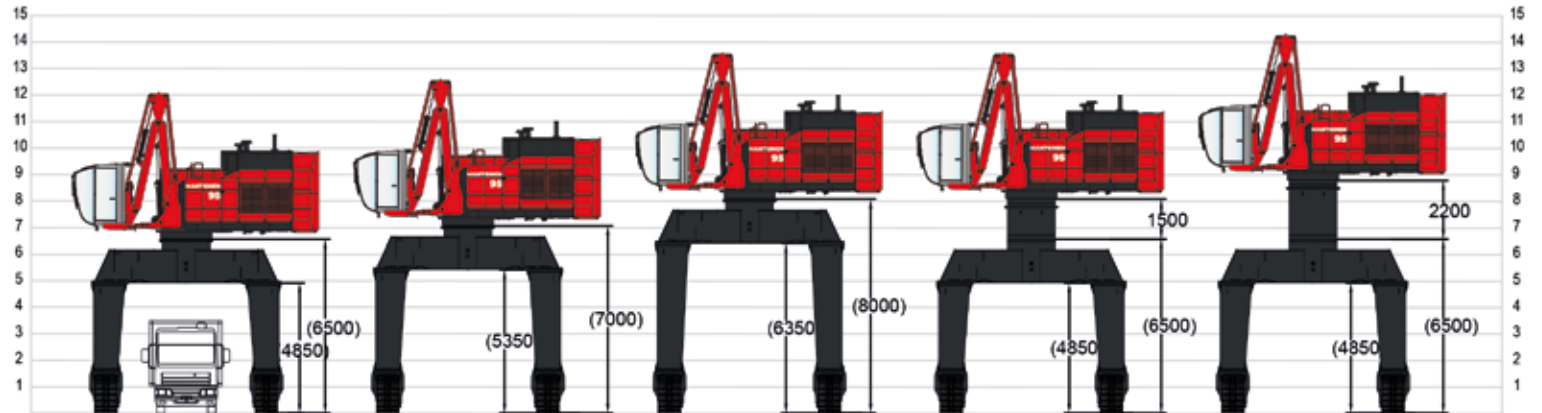
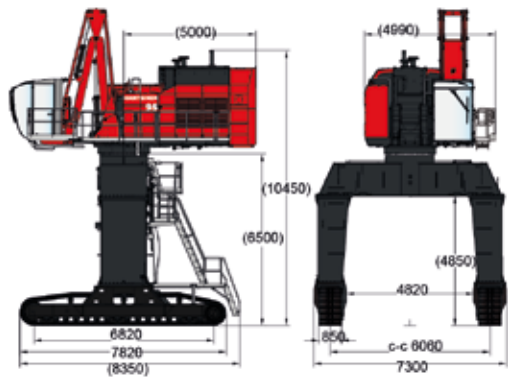


MAIN DIMENSIONS OF THE 95R

CRAWLER UNDERCARRIAGE



CRAWLER GANTRY UNDERCARRIAGE



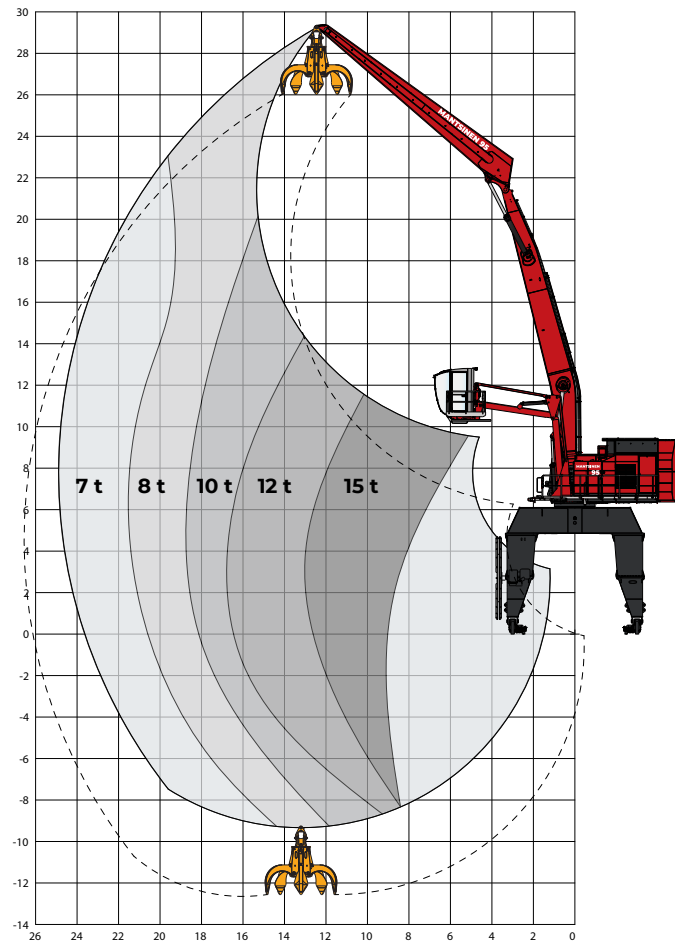
Measurements in this document are indicative only.
For detailed measurements, please consult your Mantsinen Professional.

REACH FOR PRODUCTIVITY

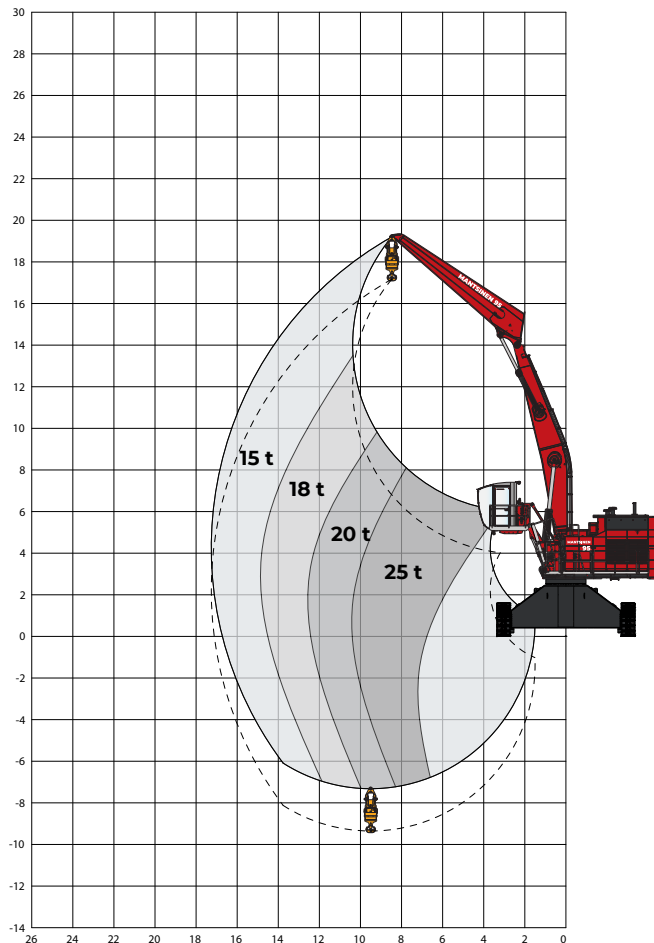
MANTSINEN 95

Contact your Mantsinen representative (www.mantsinen.com/en/sales/) for specific load diagrams for your operation.

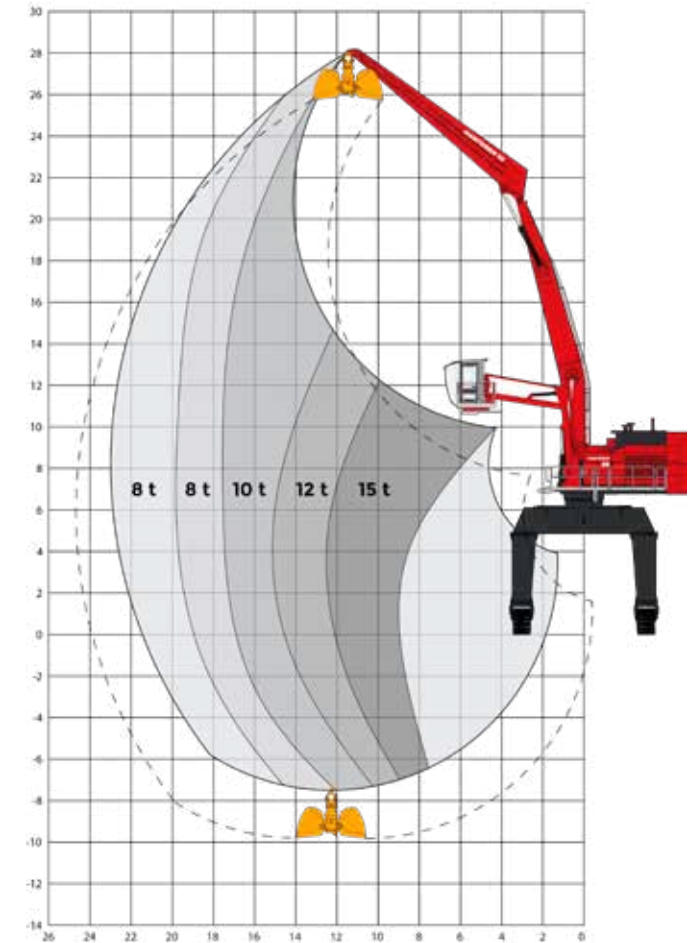
Lifting capacity range with 14 m curved main boom and 12 m stick.



Lifting capacity range with 10 m curved main boom and 8 m stick.

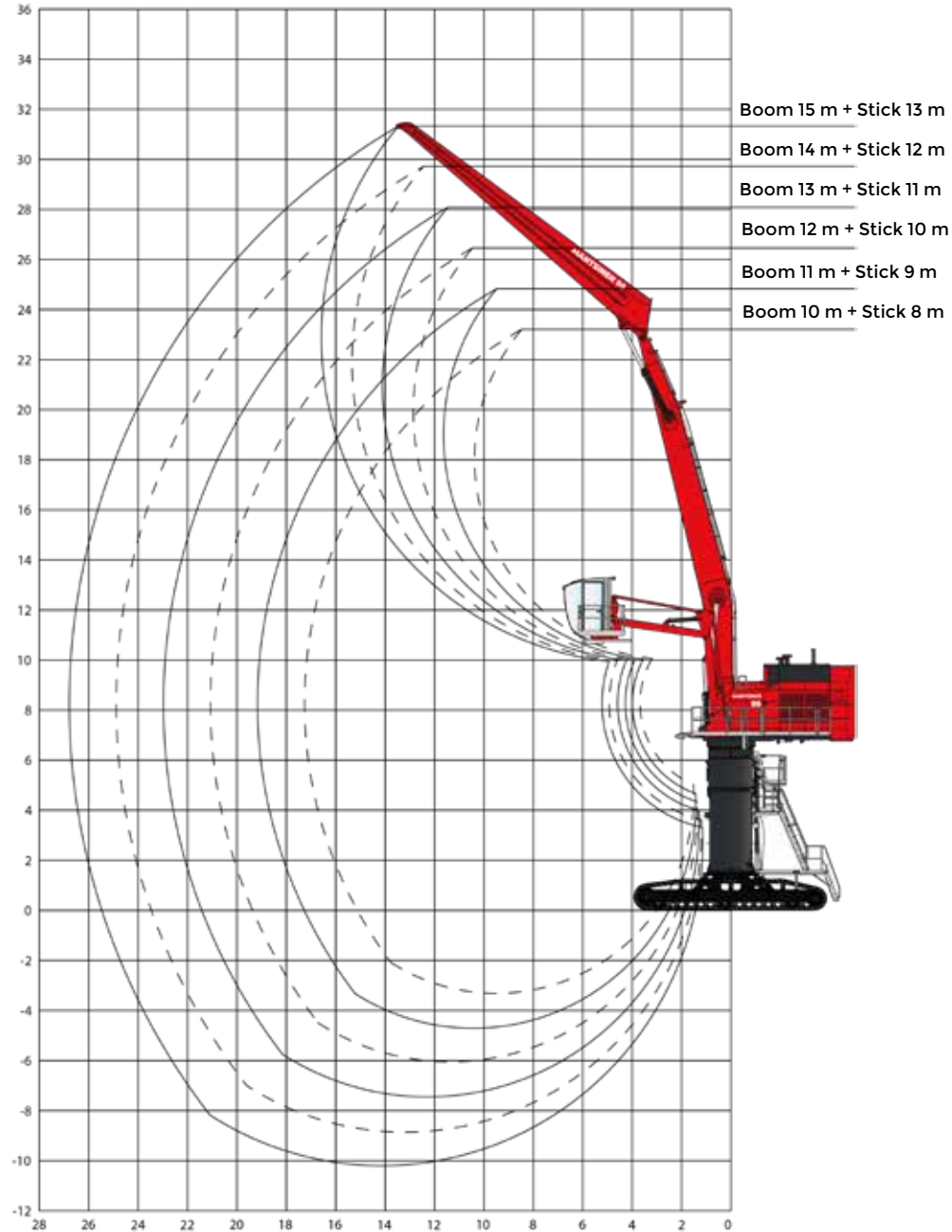


Lifting capacity range with 13 m curved main boom and 11 m stick.

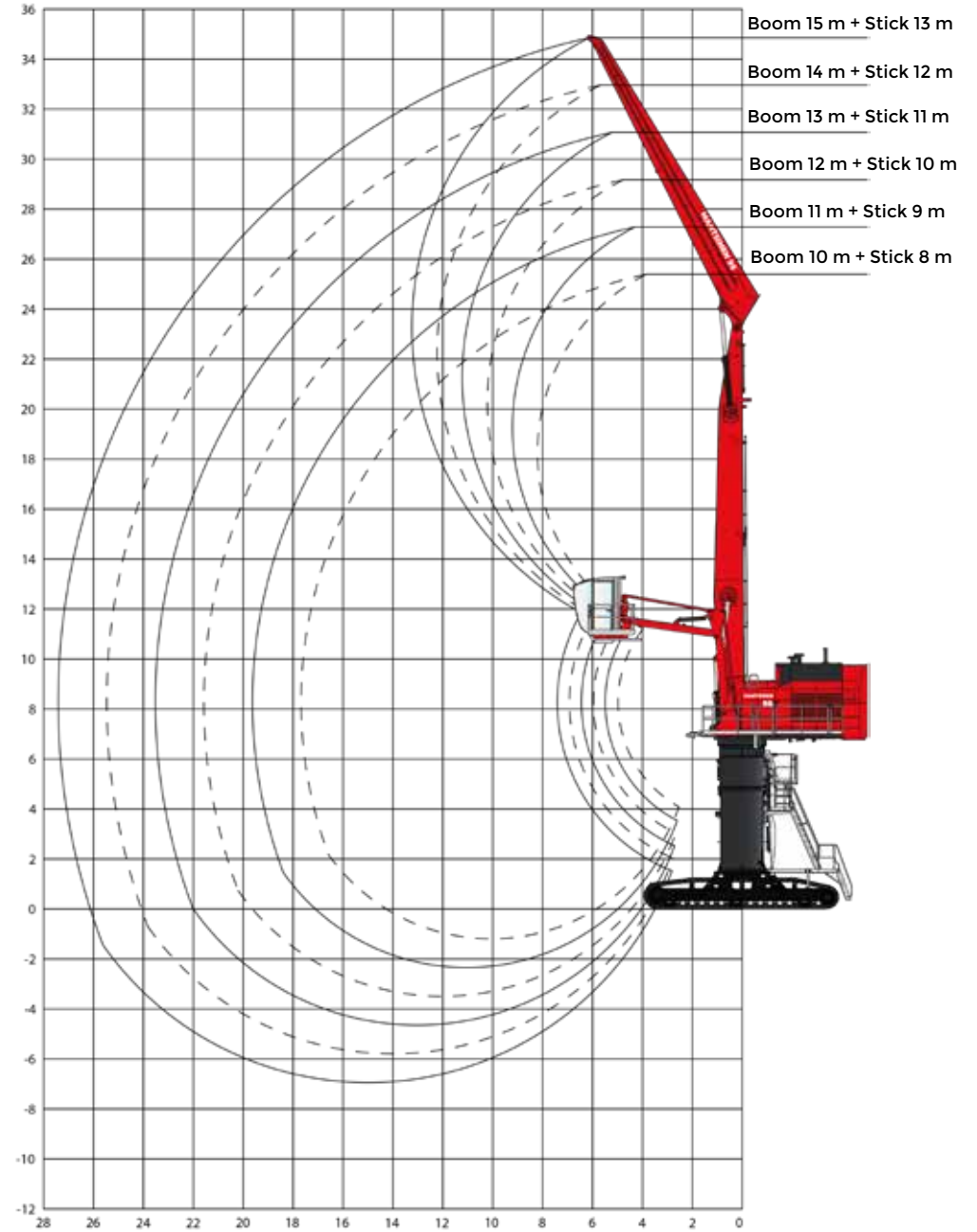


REACH WITH DIFFERENT BOOM AND STICK CONFIGURATIONS WITH 6.5 M UNDERCARRIAGE

CURVED BOOMS



STRAIGHT BOOMS



MAXIMUM PRODUCTIVITY

QUICK COUPLERS & ATTACHMENTS

Mantsinen offers a wide variety of attachments to optimise productivity for every operation. Semi-automatic attachments, for example for big bags, pallets, and lumber bundles, ensure an efficient and safe operation. Fully automatic attachments, for example, for handling pipes or pulp bales, maximise production with minimal labour. Customised attachments are available upon request.

Attachments can be equipped with a fixed rotator or with a separate quick coupling system. In both cases the hydraulic hoses from the machine to the attachment are routed directly through the rotator link. The rotator swivel can be equipped with two to six hydraulic lines and an optional electric slip ring column.

The Mantsinen hydraulic quick coupling system enables fast and safe attachment changes. It takes only a few minutes to transition from one attachment and operation to another.



ATTACHMENTS

RECOMMENDED ATTACHMENTS

CLAMSHELL BUCKET	Volume [m ³]	Attachment weight [t] with fixed R3 rotator and link		Total weight [t] with material density [t/m ³]			
		HBL series	HB series	0.5	1.0	1.5	2.0
		HB30-2 R3	3	3.0	3.7	4.5	6.0
HB35-2 R3	3,5	3.4	3.8	5.2	6.9	9.1	10.8
HB40-2 R3	4	3.5	3.9	5.5	7.9	9.9	11.9
HB50-2 R3	5	3.7	4.1	6.2	9.1	11.6	14.1
HB60-2 R3	6	3.9	4.3	6.9	10.3	13.3	16.3
HB70-2 R3	7	4.0	4.4	7.5	11.4	14.9	18.4
HB80-2 R3	8	4.2	4.6	8.2	12.6	16.6	20.6

= Preferred HBL attachment

= Preferred HB attachment

HBL=Light series



ORANGE PEEL GRAB (SEMI-OPEN)	Volume [m ³]	Attachment weight [t] with fixed R3 rotator and link	Total weight [t] with material density [t/m ³]			
			0.6	0.8	1.0	1.2
HG15-5 R3	1.5	3.1	4.0	4.3	4.6	4.9
HG20-5 R3	2	3.5	4.7	5.1	5.5	5.9
HG25-5 R3	2.5	3.7	5.2	5.7	6.2	6.7
HG30-5 R3	3	4.4	6.2	6.8	7.4	8.0
HG40-5 R3	4	4.8	7.2	8.0	8.8	9.6
HG50-5 R3	5	5.2	8.2	9.2	10.2	11.2

= Preferred attachment

The weight with semi-open tines



ROUND- WOOD GRAB	Size [m ²]	Attachment weight [t] with fixed R25 or R3 rotator and link	Total weight [t] with 0,6 t/m ³ (pile) with timber length [m]			
			3	4	5	6
			RGB15	1,5	2.4	5,1
RGB18	1,8	2,8	6,0	7,1	8,2	9,3
RGB20	2,0	2,9	6,5	7,7	8,9	10,1
RGB26	2,6	3,6	8,3	9,8	11,4	13,0
RGT16	1,6	2,8	5,7	6,6	7,6	8,6
RGT20	2,0	3,1	6,7	7,9	9,1	10,3
RGT25	2,5	3,4	7,9	9,4	10,9	12,4

= Preferred attachment

RGB = By-Pass
RGT = Tip-to-Tip







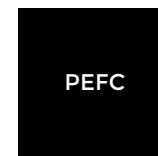


THE STRONGEST LINK IN THE GLOBAL LOGISTICS CHAIN

Mantsinen provides more efficiency, speed and capacity for our customers in the global logistics chain, operating with heavy and basic industry raw materials and semi-finished products. We are the hands-on frontrunner in material handling.

MANTSINEN GROUP LTD OY

Välikankaantie 3, 80400 Ylämylly, Finland | www.mantsinen.com



Edition: 11/2020 EN

Printing material: LumiSilk. LumiSilk is a woodfree, multicoated silk matt art printing paper.

Producer: Stora Enso Printing and Reading, Oulu Mill

Dealer area