



**MANTSINEN 60**

**COMPACT, YET  
STRONG AND  
SMART**





# 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 connecting link, working with different attachments is easy, safe and efficient.

With in excess of 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

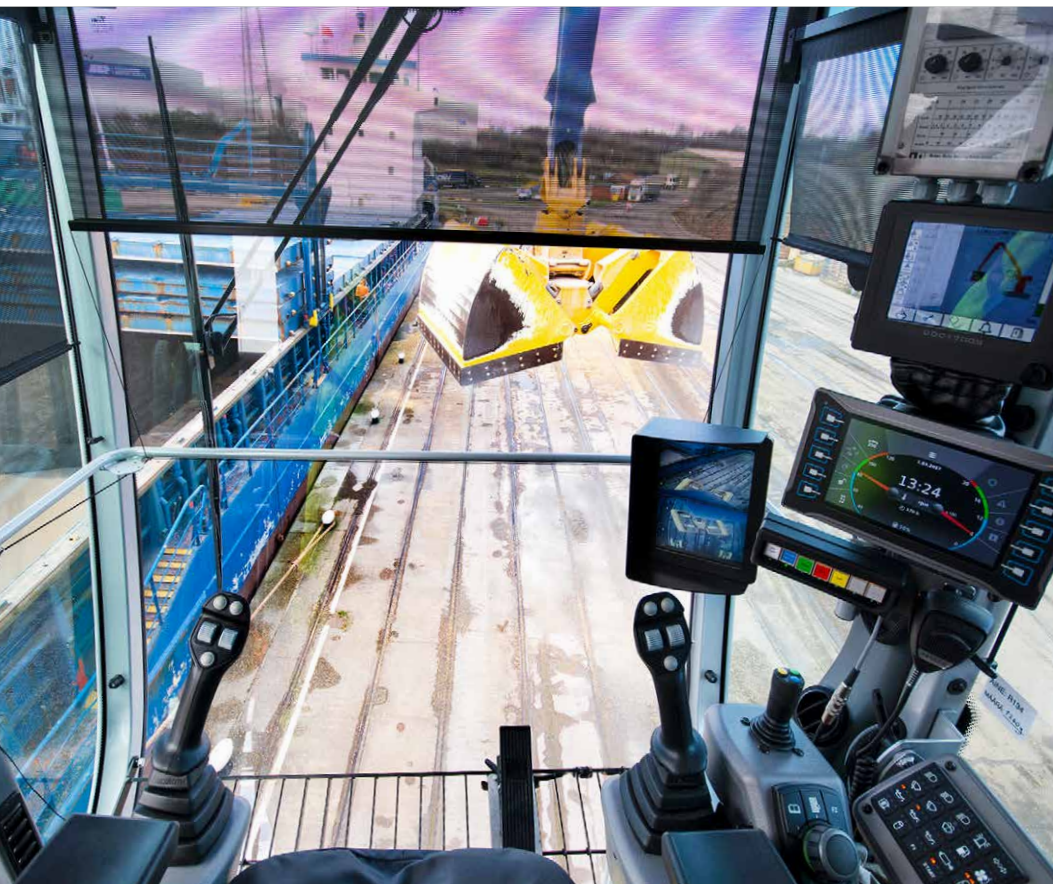
manufacturing knowledge creates unique solutions for efficient handling operations. With our deep knowledge, we can optimize your operation and machine configuration.

## **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 of the critical components are thoroughly Finite Element Method Analyzed based on strain gauge tests in real operation. Minimum lifetime expectancy is over two million work cycles with maximum load.



# EVERYTHING UNDER CONTROL



## MANTSINEN CONTROL SYSTEM (MCS)

Mantsinen control system is engineered for cost efficient material handling with today's technology. Operator friendly user interface adopts an "Only important is shown" approach easing daily operation, and allows operator to concentrate on the current task. Adjustable multi-function joysticks for front equipment are totally ergonomic and comfortable.

Travel and steering are controlled by a one-grip joystick. Rail mounted machines are driven by pedals. Electrically controlled proportional main functions ensure smooth and efficient operating under all conditions.

The system has an electric end cushioning for boom, stick and cab elevator to avoid unpleasant dynamic shocks.

### **HUMAN-MACHINE INTERFACE**

- Graphic user interface 7" display
- Easy to use multifunction control wheel
- Operating data and gauges
- Optional functions state information
- On board 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



# KEEP TRACK OF YOUR OPERATIONS

## MANTSINEN SAFETY SYSTEM (MSS)

Mantsinen machines are equipped with an advanced safety system as standard and the machine operation is all the time under control. There is an overload and stability control function with motion cut-out and various other adjustable safety features included in the system.

- Graphic user interface with 5,7" display
- Animated machine operation
- Load, reach and height information
- Cabin collision prevention
- Attachment menu

## STANDARD IoT – MANTSINEN TELEMATICS SYSTEM (MTS)

With the Mantsinen Telematics System (MTS) you can remotely monitor the operation and efficiency of your material handling machine in real time from your computer. Data from the machine is stored to cloud and available for 3 years. Visualization of the data makes

interpretation quick and simple. Features for the service make the service planning and documentation quick and easy (available also in MTS app). Automatic reports from the machine work can be scheduled to be sent over e-mail.

# DEVELOPED TO GET THE JOB DONE

## UPPER STRUCTURE

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

### POWERLINE

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

### 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 function, as well as for the hydraulics cooler fan. Efficient filtration and optional three-micron bleed-off fine filter with water absorption ensure continuously clean and dry oil, which increases uptime and extends component and oil lifetime. Optional

fan reversing function cleans the cooler and radiator without interrupting the machine operation.

### RIGID MAIN FRAME

The rigid main frame and the large diameter pin sizes guarantee a long lifetime to the machine.

### SERVICE

The internal service walkways provide unrestricted and safe access to all service points.

### SWING MECHANISM

Mantsinen 60 has a large diameter heavy-duty slewing ring with internal teeth running in grease bath.

Heavy planetary swing gear with integrated automatic multi disc brake operates in a closed loop. Together with the state-of-the-art electric controls the machine swing is extremely smooth, controllable, saves a considerable amount of energy and provides maximum operator performance.

## FRONT EQUIPMENT

A wide range of options with straight or curved booms and sticks are available to optimize the operation for maximum productivity. Mantsinen boom and stick structures are designed according to modern FEM-analyses based on real operation measurements and long-term practical experience.

Minimum lifetime expectation is over two million work cycles assuming maximum load. Booms and sticks are manufactured in-house under close quality supervision to ensure long lifetime of these structures under extreme fatigue stresses.

### MAIN BOOM

The main boom foot is constructed of steel castings, providing excellent service life to one of the most critical

structural components of the machine. Optimized box structure ensures maximum lifetime without compromise. Strong structure and large pin diameters minimize surface pressures and wear on bushings.

### STICK

The stick box is constructed of two profiles made of thermomechanically rolled 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 to the unique stick tip and rotator link design, no hoses are exposed from the rotator link or attachment assemblies.

# OPTIONS AND STANDARD FEATURES

EQUIPMENT	STANDARD	OPTION
Working lights, 24 V LED; 4 underneath of cabin, 4 at stick, 1 on cab roof	•	
Central lubrication for front equipment and slewing ring raceway	•	
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		•
Magnet generator hydraulic preparedness, max flow 100 l/min		•
Magnet generator system 20 kW		•
Additional undercarriage hydraulic function with pedal		•
Biodegradable hydraulic oil		•
FILTRATION		
By-pass fine filter 3µm with water absorption		•
Large by-pass 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		•
Automatic undercarriage lubrication 60M		•
LIGHTS		
Additional 2 lights on boom		•
Undercarriage lights, one in each direction, totally 4.		•
Undercarriage pad lights, one directed to each pad, totally 4		•
Travel lights for public roads		•

HEATING	STANDARD	OPTION
Electric heating for engine, hydraulics and cabin. 3-phase inlet socket		•
Additional automatic battery charger		•
Pre-heater for engine and cabin, by fuel. Including Multicontrol timer		•
REFILL		
Electric 24 V re-fuelling pump with 8 m 1" hose reel		•
AdBlue 24 V refill pump, harness, pistol & 15 m hose reel for IBC-container		•
GENERAL		
Preparedness for temporary person lift		•
Remote control for travel		•
Fire suppression systems (DAFO)		•
Safety access gate, doorbell + operator openable electric lock		•
Cleaning with reversing fan. Flex-Air for diesel engine radiator & hydraulics cooler		•
NATO jump start plug		•
Emergency stops at undercarriage, 2 pcs		•
Pull coupling		•
Stick cover against grapple hits		•
Toolbox at undercarriage, aluminium		•
BACK UP SYSTEMS		
Portable hydraulic unit for swing, main boom, stick, electric or engine driven		•
Preparedness for portable unit		•
Powerpack preparedness with quick connections, track versions		•
Main boom cylinder and swing release kit		•
SURFACE TREATMENT OPTIONS		
C4 Medium, main components exterior surfaces.		•
Customer stickers		•
Custom colour: Front equipment, cover panels, counterweight, cab elevator		•
Custom colour cabin		•

# STRENGTH IS NOTHING WITHOUT VISION

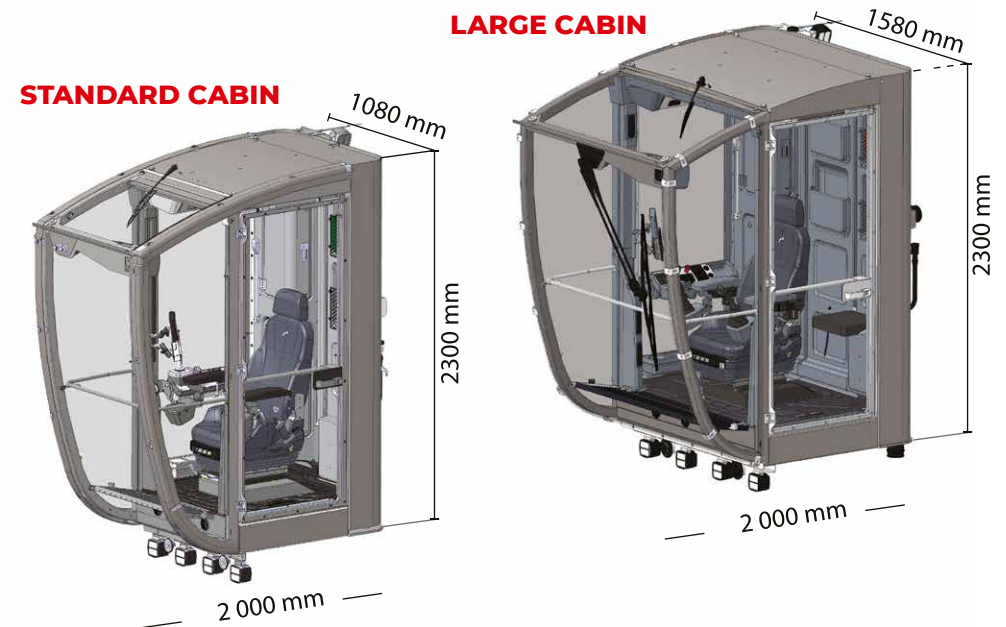
## STAINLESS STEEL CABIN

The spacious and modern operator cabin has an excellent visibility with a large windscreen and floor window in one curved piece. The cabin is made of stainless steel for 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. Windshield wiper has two speeds, an adjustable intermittent function and a washer. There is a separate 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.

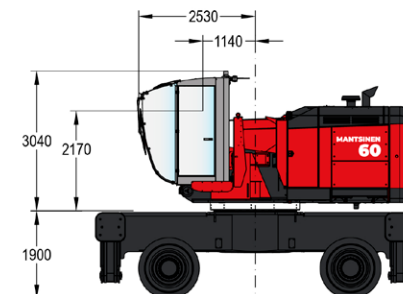
## CABIN OPTIONS



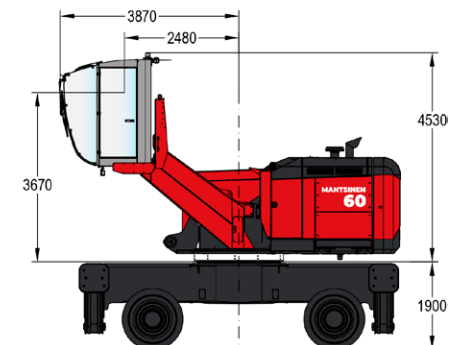
## CABIN FIXED POSITIONS

Mantsinen 60 has two fixed cab positions.

### FIXED CAB POSITION 1.



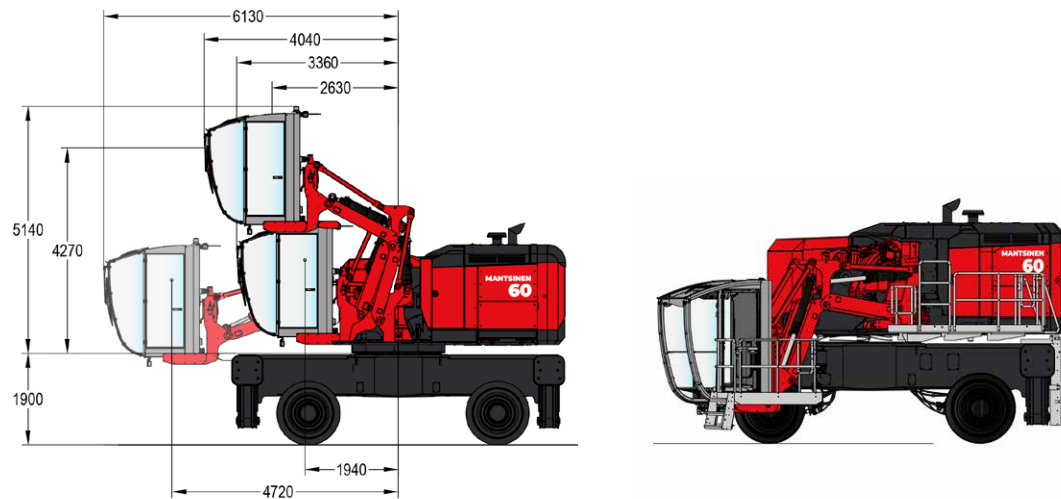
### FIXED CAB POSITION 2.



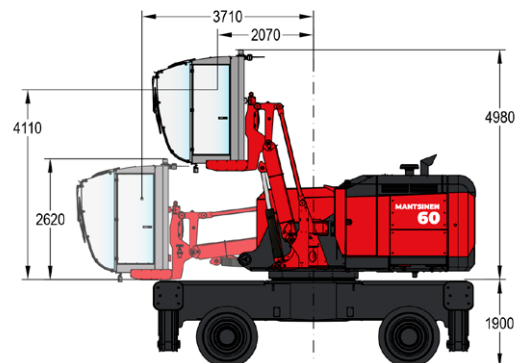
# CABIN ELEVATORS

Mantsinen 60 has two cab elevator options. Robust Mantsinen N2-3000 cab elevator features independent vertical and horizontal movement to position the operator for maximum visibility of loading targets. One-arm cab elevator N1-3000 simply brings the operator high up.

## N2-3000

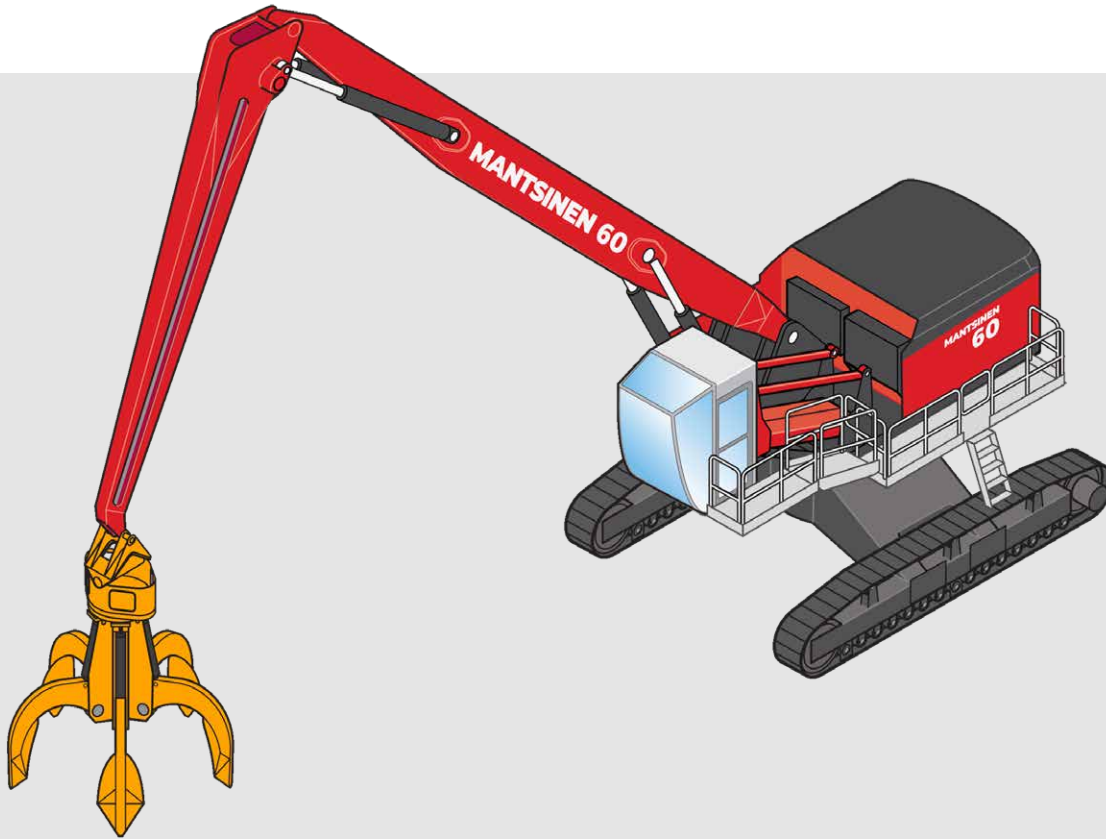


## N1-3000



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. Large cabin only	•	
Rear view camera connected to MCS display	•	
Auto-idle mode	•	
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	•	
Large stainless steel cabin. 1 600 mm wide		•
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		•
Dead man switches on joysticks		•
Automatic clamshell bucket levelling while closing		•
Anemometer with alarm and slow down		•
Turbo timer, 3 min delayed engine stop		•
Vertical lift		•
Camera with 7" display. Stick camera		•
Camera with 12" display. Stick camera		•
Additional right side camera with 12" display option		•
Camera recording system with 160 h capacity		•
WiFi camera		•

# MANTSINEN 60R



## CRAWLER UNDERCARRIAGES, STANDARD AND HEAVY DUTY

Long and wide apart tracks create an excellent stability foundation for the machine. Flat track shoes run smoothly on gravel, asphalt or concrete. Rigid box type frame and hydrostatic drive with two speeds. Planetary track drives with spring applied multidisc automatic brakes and hydraulic release.

### 60R, CRAWLER UNDERCARRIAGE

	STANDARD	HEAVY DUTY
Undercarriage heights	1,7 m, with pylon 2,8 / 3,8 / 4,8 m	1,8 m, with pylon 2,9 / 3,9 / 4,9 m
Track gauge	5 260 mm	5 260 mm
Track length	5 720 mm	6 210 mm
Track shoes	670 mm flat	670 mm flat
Travel speed	Max 4,2 km/h	Max 3,5 km / h
<b>OPTIONS</b>		
Track shoes	850 mm flat 550 mm three grouser	850 mm flat 850 mm cast flat 550 mm three grouser
Additional fuel tank	1 000 l	1 000 l

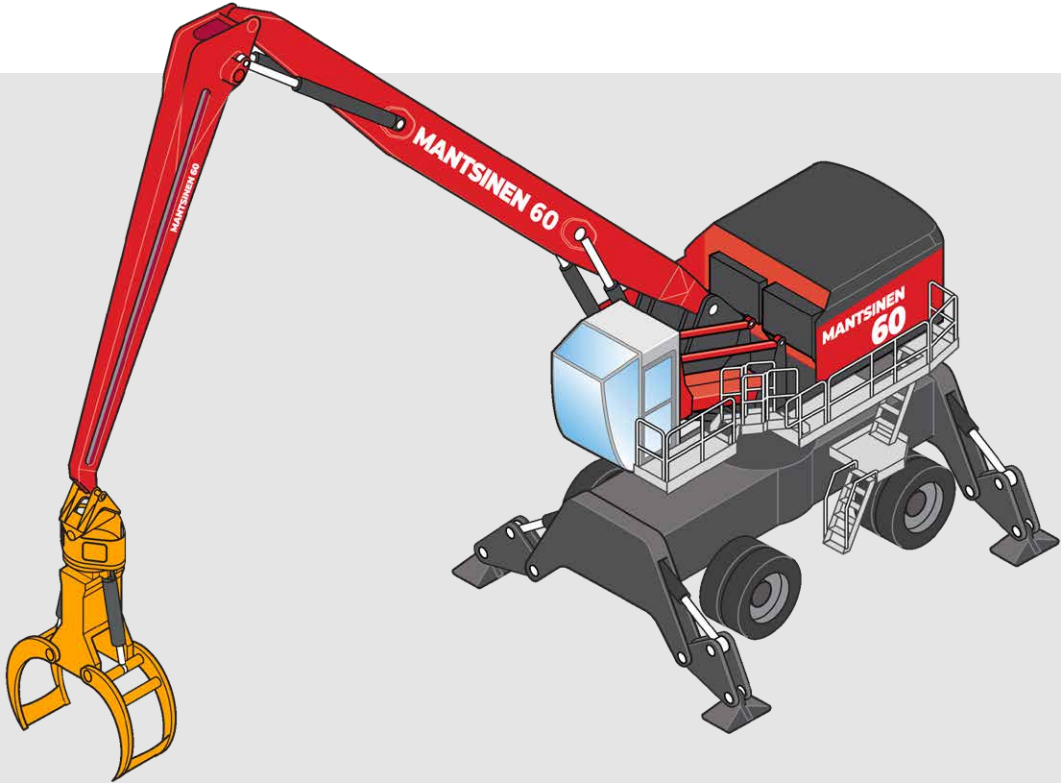
Robust and proven undercarriages are designed for every demand and conditions. Stability and robustness are the key features in all the Mantsinen undercarriages. All machines are able to operate a 360° sector with full load.

# MANTSINEN 60M

## MOBILE UNDERCARRIAGES, RUBBER TYRE STANDARD AND HEAVY DUTY

Rigidly mounted steering front and oscillating rear 70-ton axles with planetary reductions at wheel hubs. Hydrostatic four-wheel drive. Two variable displacement axial piston motors with two speeds. Service drum brakes at both axels. Automatic multiple disc brake at steering axle. 4-point outriggers with cylinder rod protections.

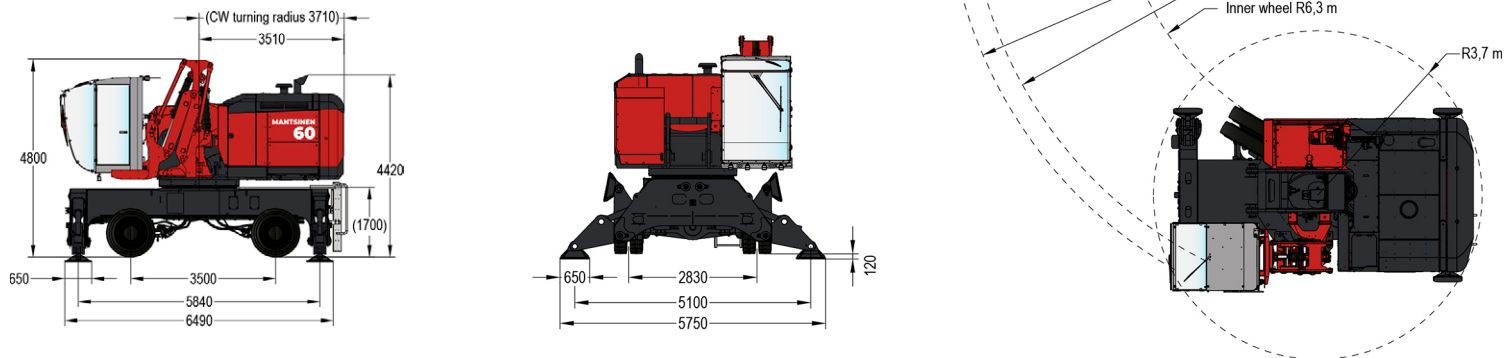
60M, RUBBER TYRE UNDERCARRIAGE		
	STANDARD	HEAVY DUTY
Undercarriage heights	1,7 m	1,9 m, with pylon 3,0 / 4,0 / 5,0 m
Wheelbase	3 500 mm	3 940 mm
Wheel gauge	2 830 mm	2 830 mm
Tyres	8 × 12.00-24 solid rubber	8 × 14.00-24 solid rubber
Drive speed	Max 10 km/h	Max 10 km/h
Stabilizer pads	650 x 650 mm	650 x 650 mm
Individual outrigger control	Optional	Standard
OPTIONS		
Large pads, with spherical bearings	700 x 1 250 mm	700 x 1 250 mm
Additional fuel tank	1 000 l	1 000 l
	Drive motor covers	Drive motor covers
	Automatic undercarriage lubrication	Automatic undercarriage lubrication



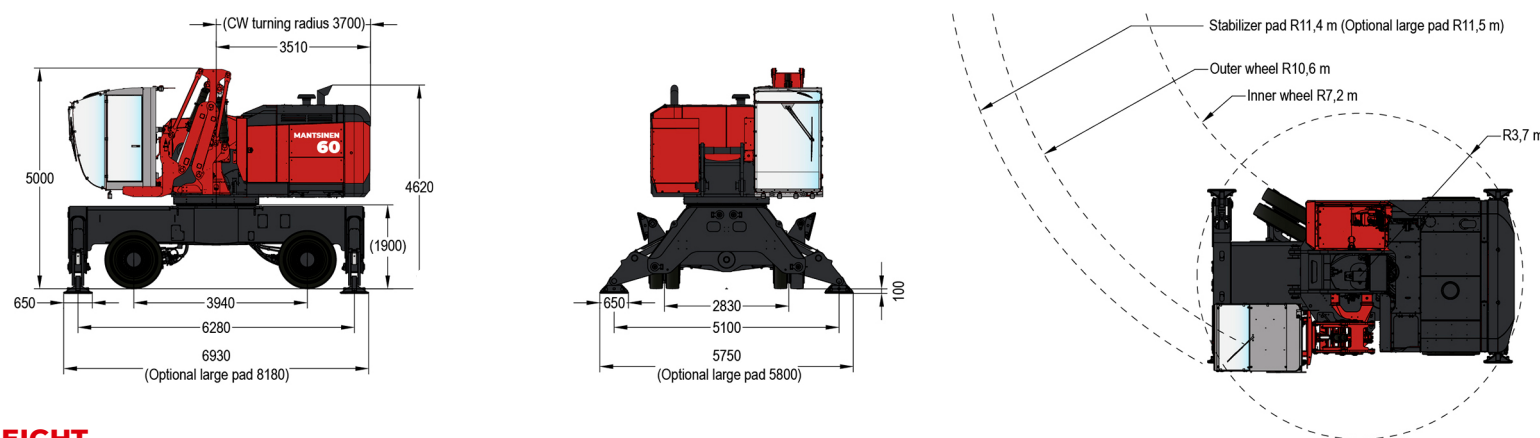
HD undercarriages available for the harshest conditions.  
Undercarriages are available in several different heights to optimize the operation, reach and visibility.

# MAIN DIMENSIONS FOR 60M

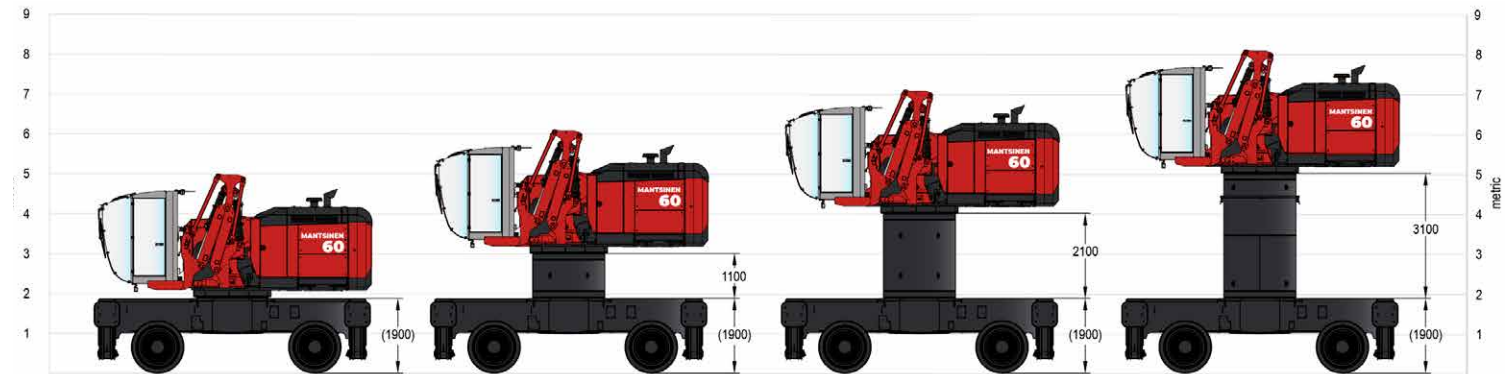
## 60M STANDARD



## 60M HEAVY DUTY

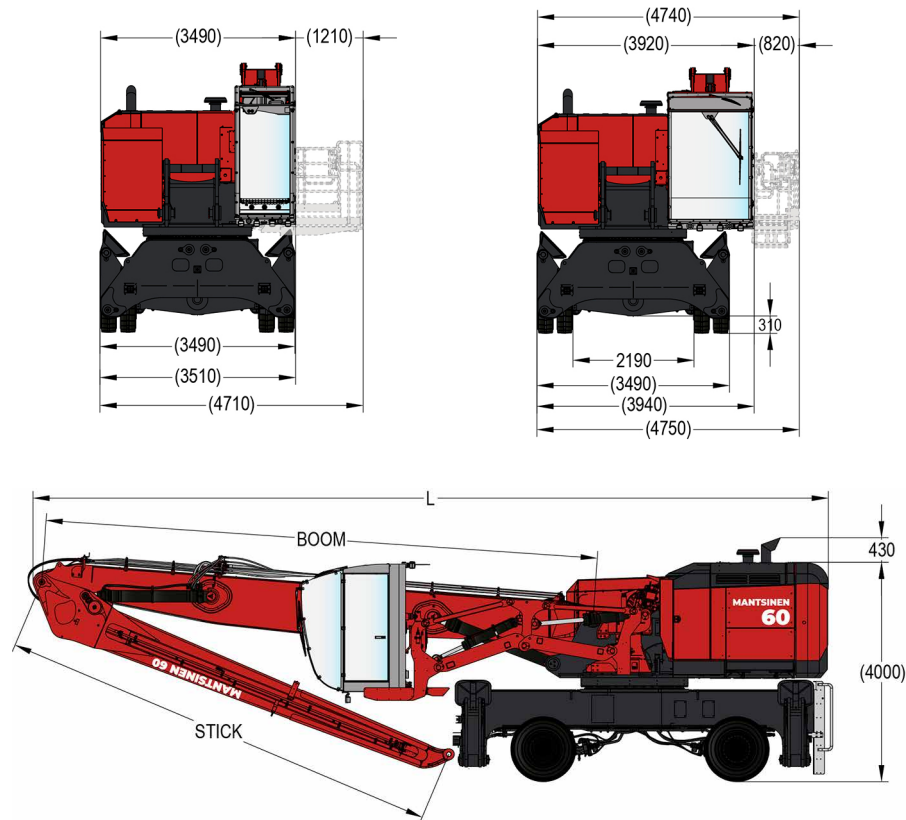


## 60M HEAVY DUTY HEIGHT



# TRANSPORT DIMENSIONS FOR 60M

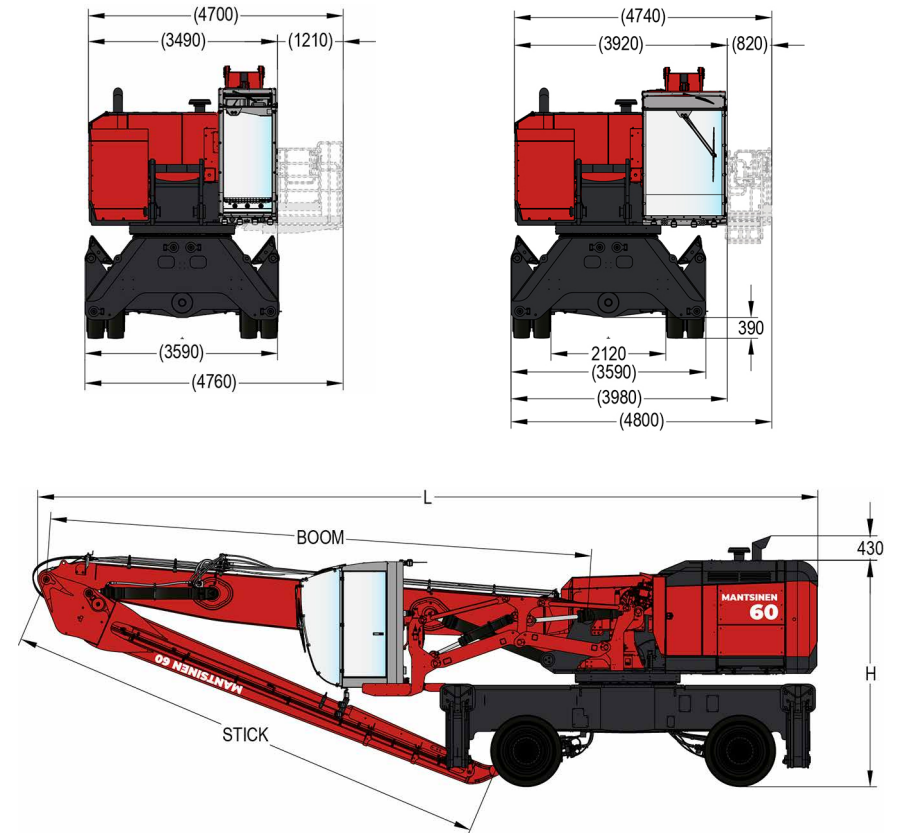
## 60M STANDARD



### DIMENSIONS FOR 60M STANDARD

Boom length	9.0 m straight	10.0 m straight	10.0 m curved	11.5 m straight
Machine length (L)	13,4 m	14,4 m	14,4 m	15,9 m
Undercarriage height	1,7 m	1,7 m	1,7 m	1,7 m

## 60M HEAVY DUTY

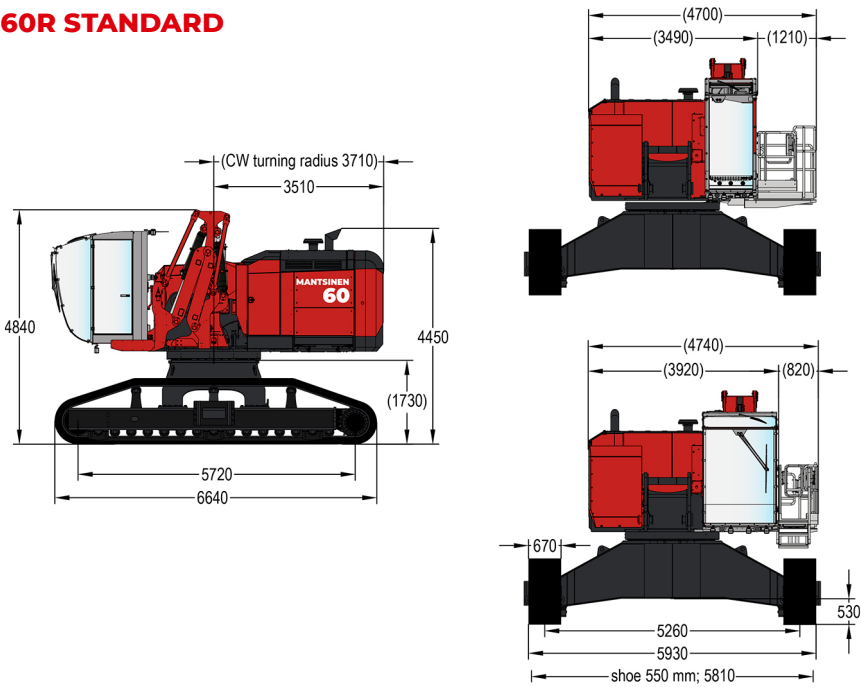


### DIMENSIONS FOR 60M HEAVY DUTY

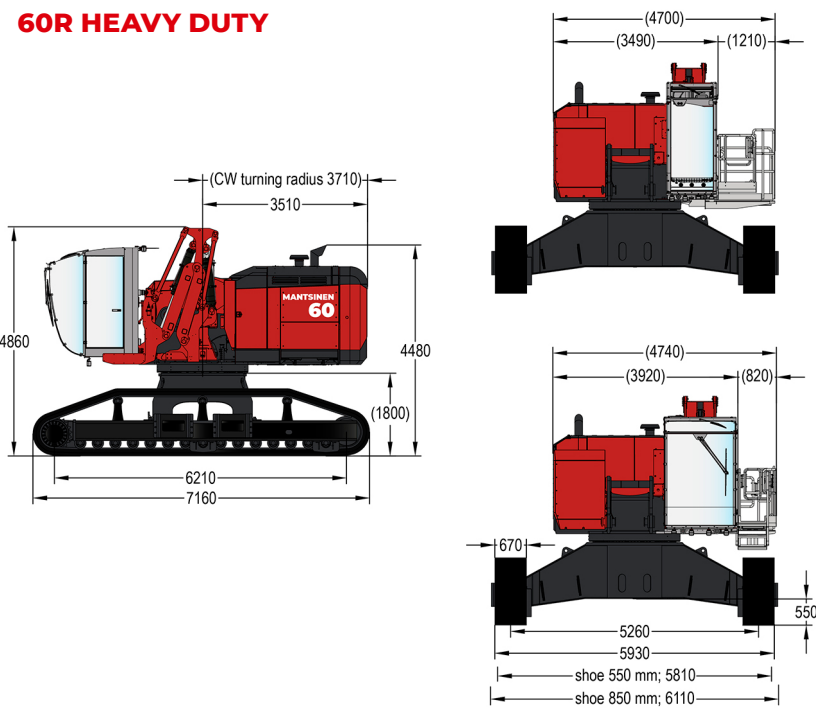
Boom length	9.0 m straight	10.0 m straight	10.0 m curved	11.5 m straight
Machine length (L)	13,4 m	14,4 m	14,4 m	15,9 m
Undercarriage height	1,9 m	3,0 m	4,0 m	5.0 m
Machine height (H)	4,2 m	5,3 m	6,3 m	7,3 m

# MAIN DIMENSIONS FOR 60R

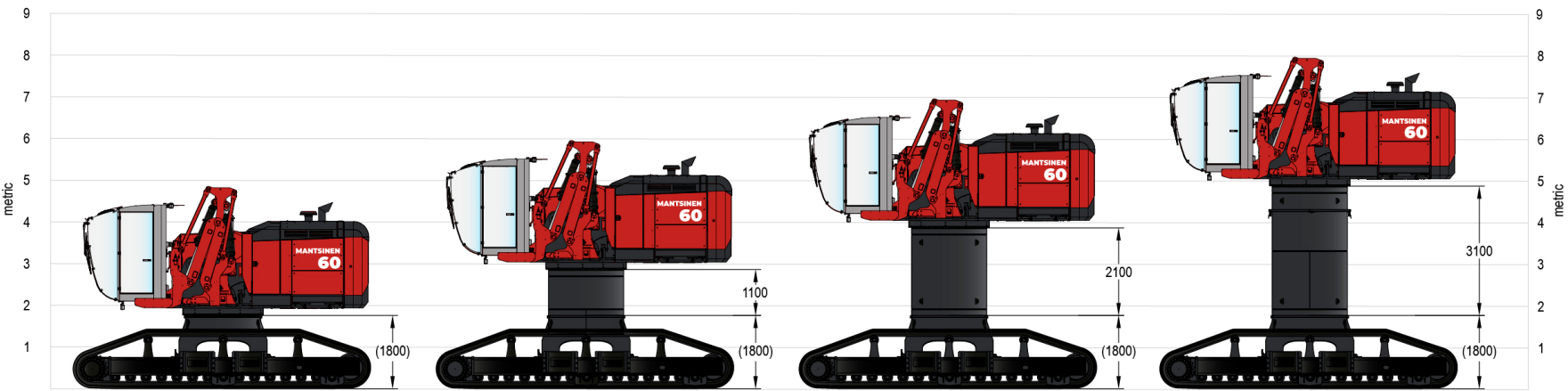
## 60R STANDARD



## 60R HEAVY DUTY

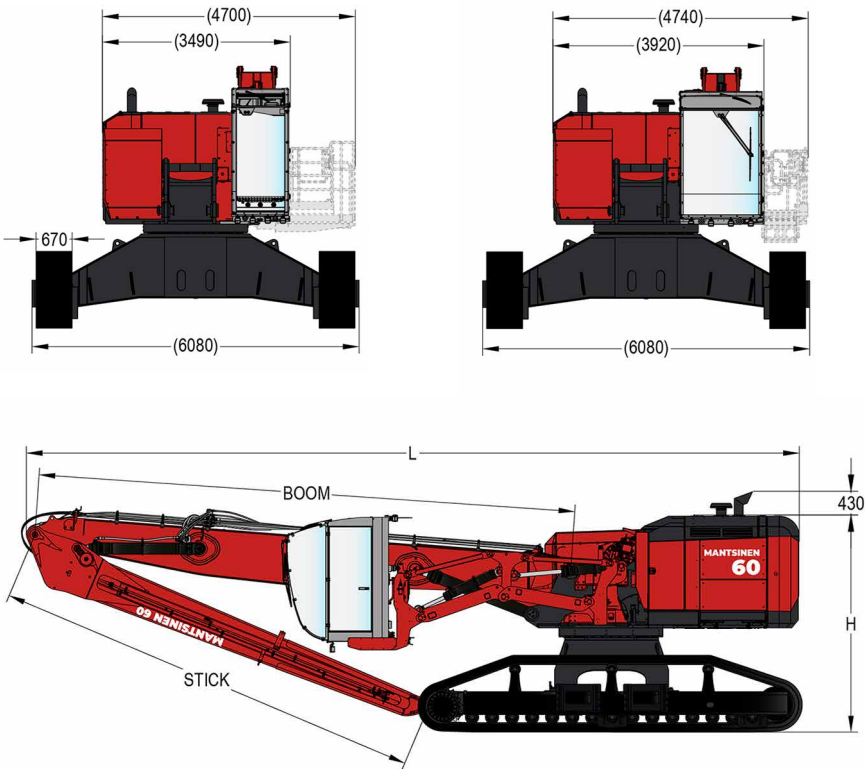


## 60R HEAVY DUTY



# TRANSPORT DIMENSIONS FOR 60R

## 60R HEAVY DUTY



DIMENSIONS FOR 60R HEAVY DUTY				
Boom length	9,0 m straight	10,0 m straight	10,0 m curved	11,5 m straight
Machine length (L)	13,4 m	14,4 m	14,4 m	15,9 m
Undercarriage height	1,8 m	2,9 m	3,9 m	4,9 m
Machine height (H)	4,1 m	5,2 m	6,2 m	7,2 m

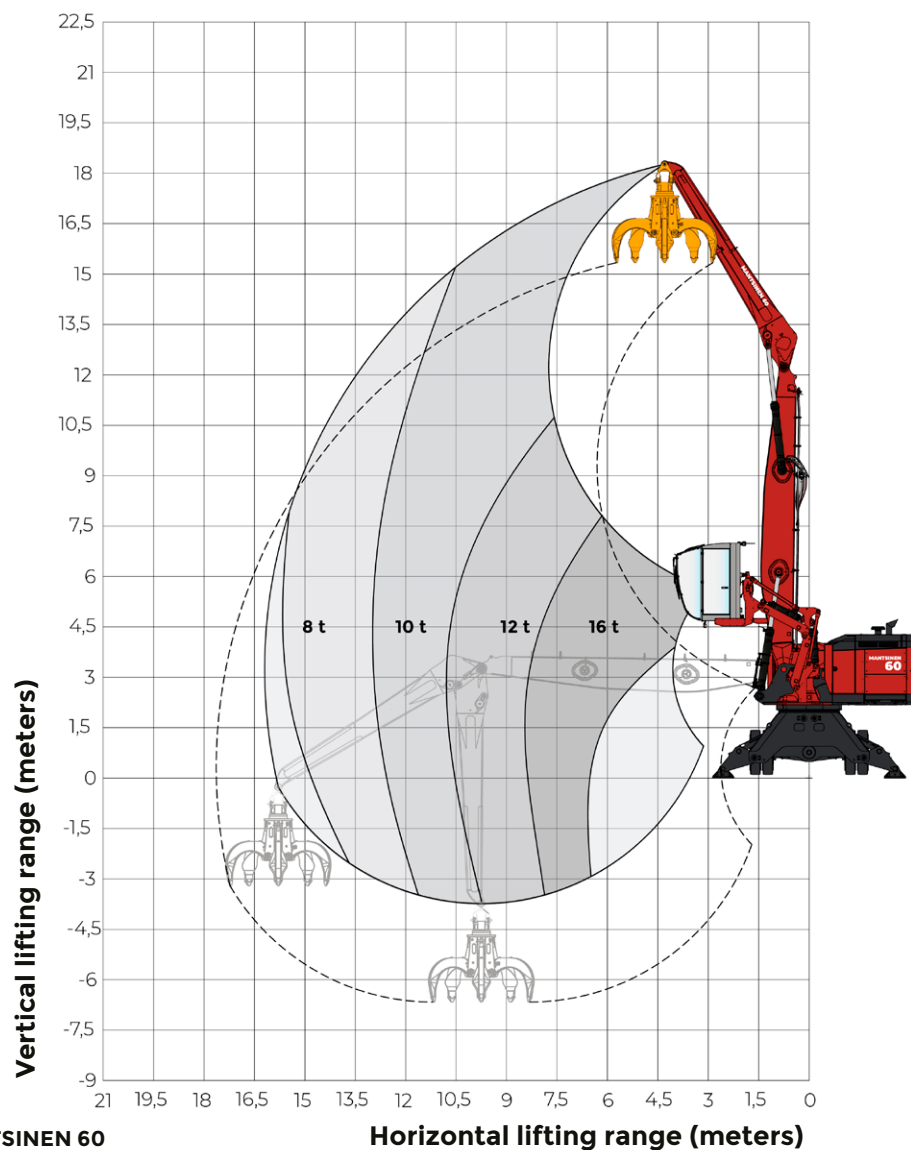


# REACH FOR PRODUCTIVITY

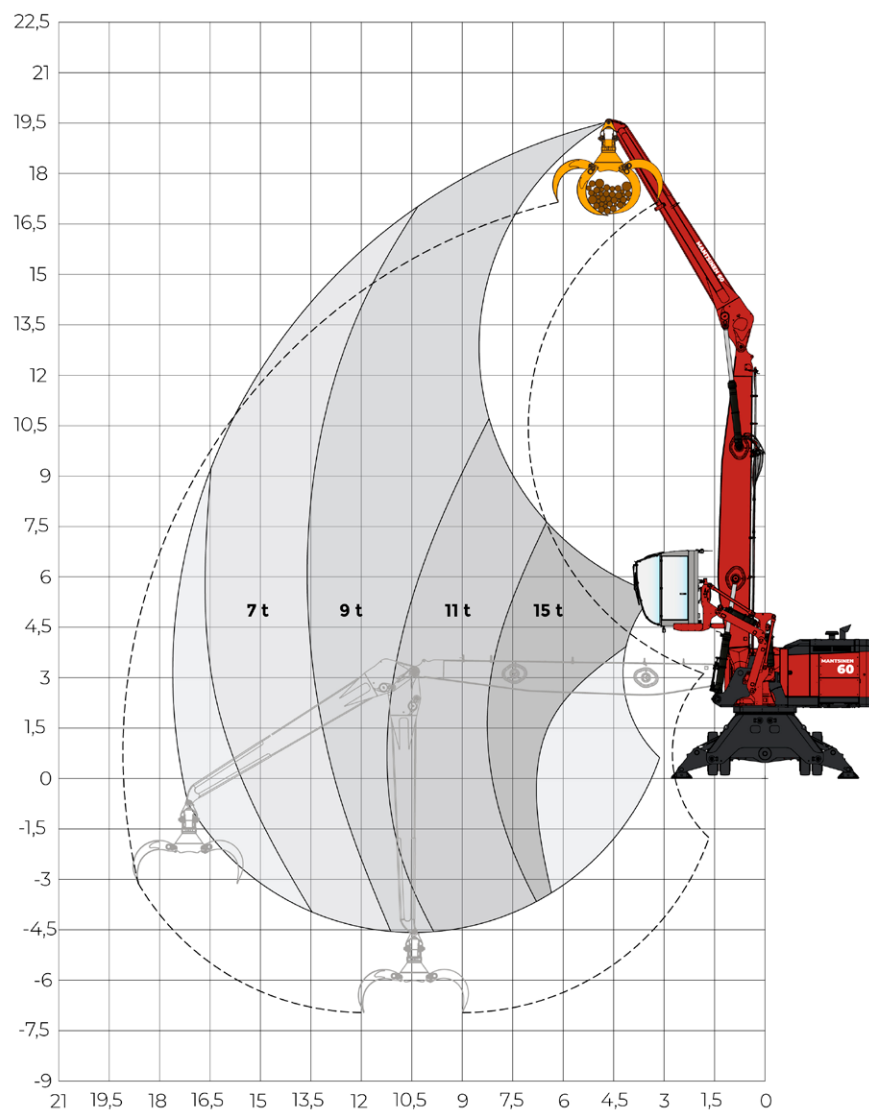
## MANTSINEN 60

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

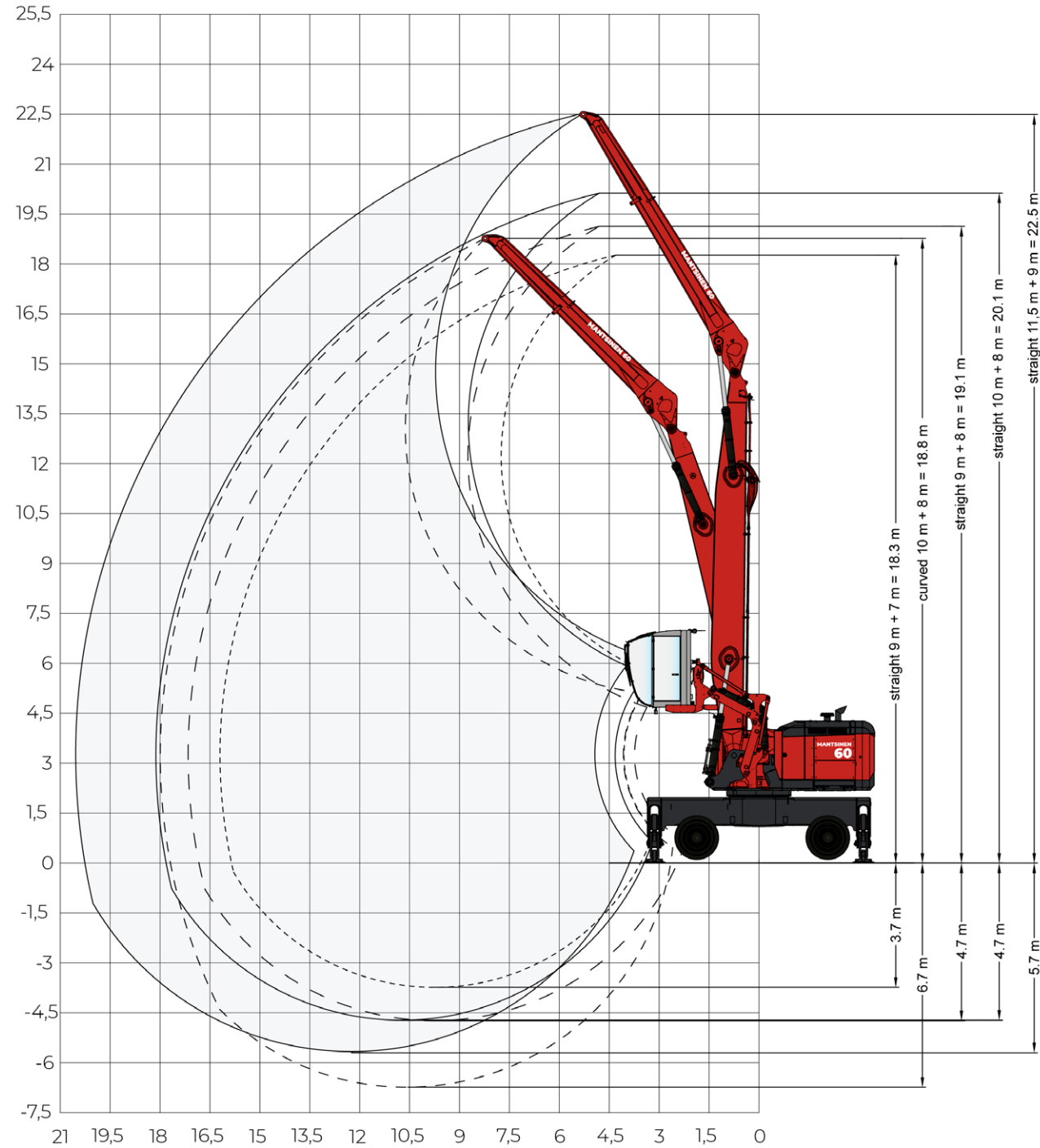
Lifting capacity range with 9 m straight main boom and 7 m stick



Lifting capacity range with 10 m straight main boom and 8 m stick



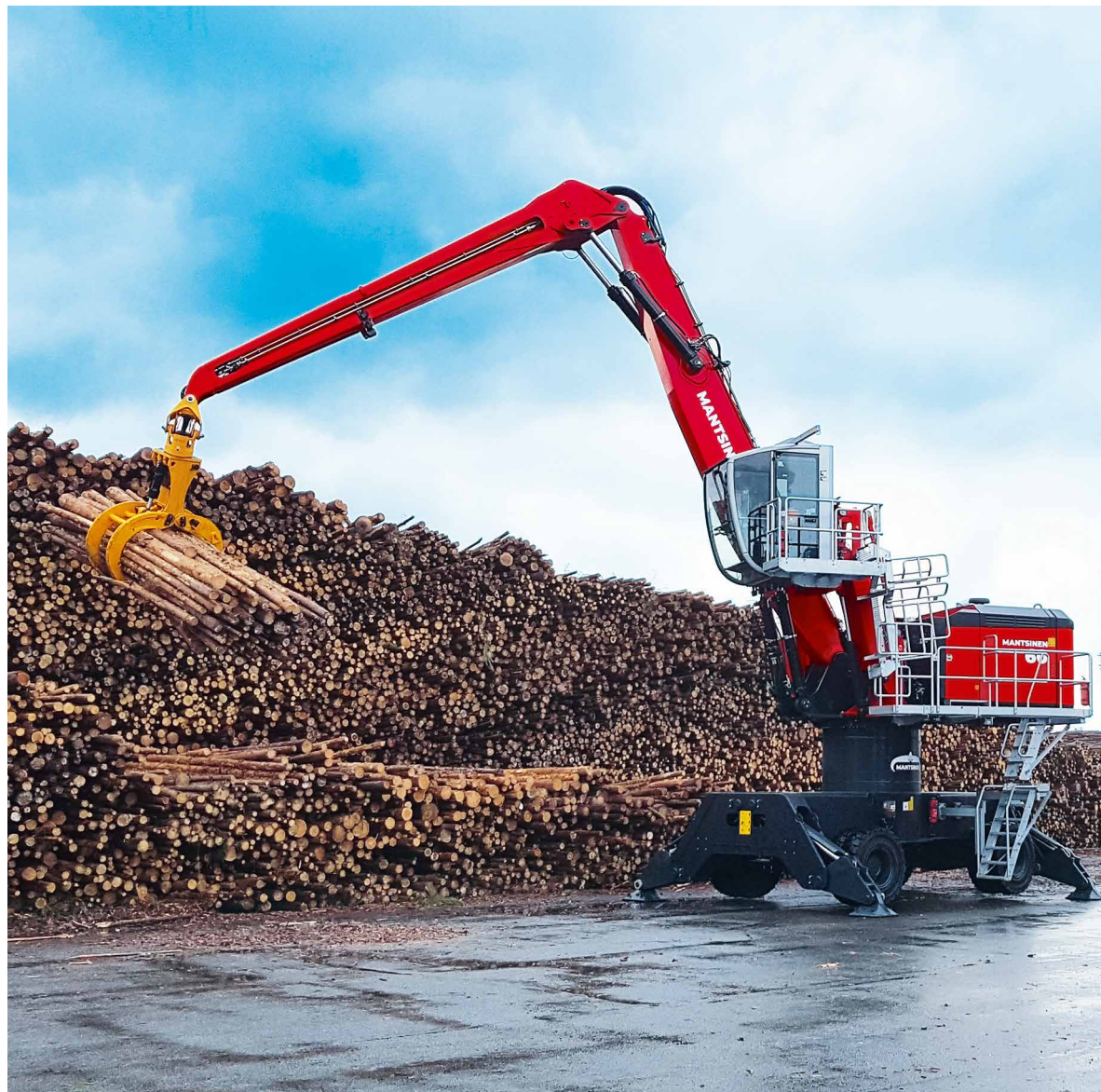
**REACH  
WITH DIFFERENT  
BOOM AND STICK  
CONFIGURATIONS**



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.

# TECHNICAL SPECIFICATIONS

OPERATING WEIGHT	
Total weight without attachment	65 to 80 tons according to configuration
FRONT EQUIPMENT	
Boom configuration (boom and stick length)	9,0 m straight + 7,0 m, Max. horizontal reach 16,2 m 9,0 m straight + 8,0 m, Max. horizontal reach 17,2 m 10,0 m straight + 8,0 m, Max. horizontal reach 18,2 m 11,5 m straight + 9,0 m, Max. horizontal reach 20,5 m 10,0 m curved + 8,0 m, Max. horizontal reach 17,9 m
DIESEL ENGINE	
Engine type	Volvo TAD 882 VE, Stage V
	Volvo TAD 852 VE, Stage 3A
Power	210 kW
Displacement	7,7 l
Number of cylinders	6
Electric system	24 VDC, alternator 130 A/24 V batteries 2 × 170 Ah/12 V
HYDRAULIC SYSTEM	
Oil flow, front equipment and travel	2 × 324 l/min
Operating pressure, front equipment and travel	350 bar
Oil flow, swing	230 l/min
Operating pressure, swing	270 bar
Max swing speed	6 r/min
Swing torque	124 kNm
REFILL CAPACITIES	
Hydraulic oil	650 l net volume
Fuel tank	500 l
Engine oil	27 l
AdBlue tank	45 l



# ATTACHMENTS

## RECOMMENDED ATTACHMENTS

CLAMSHELL BUCKET	Volume [m³]	Attachment weight [t] with fixed R3 rotator and link		Total weight [t] with material density [t/m³]			
		HBL series	HB series	0,5	1,0	1,5	2,0
HB20-2 R3	2	2,8	3,5	3,8	4,8	5,8	7,5
HB25-2 R3	2,5	2,9	3,6	4,1	5,4	6,6	8,6
HB30-2 R3	3	3,0	3,7	4,5	6,0	8,2	9,7
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	
HB60-2 R3	6	3,9	4,3	6,9	10,3	13,3	
HB70-2 R3	7	4,0	4,4	7,5	11,4		
HB80-2 R3	8	4,2	4,6	8,2	12,6		

HBL=Light series

= Preferred HBL attachment

= Preferred HB attachment



ORANGE PEEL GRAB (SEMI-OPEN)	Volume [m³]	Attachment weight [t] with fixed R3 rotator and link	Total weight [t] with material density [t/m³]			
			0,6	0,8	1,0	1,2
HG08-5 R3	0,8	2,8	3,3	3,4	3,6	3,8
HG11-5 R3	1,1	2,9	3,6	3,8	4,0	4,2
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

The weight with semi-open tines

= Preferred attachment



ROUND- WOOD GRAB	Size [m²]	Attachment weight [t] with fixed R25 or R3 rotator and link	Total weight [t] with 0,6 t/m³ (pile) with timber length [m]			
			3	4	5	6
RGB12	1,2	2,1	4,3	5,0	5,7	6,4
RGB15	1,5	2,4	5,1	6,0	6,9	7,8
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
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

RGB = By-Pass

RGT = Tip-to-Tip

= Preferred attachment





## THE STRONGEST LINK IN THE GLOBAL LOGISTICS CHAIN

Mantsinen provides more efficiency, speed and capacity for our customers in 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

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