



MANTSINEN 70

**SPEED, POWER AND
INTELLIGENCE**



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

CONSIDER IT LOADED

Combining precision with efficiency, the Mantsinen multipurpose material handling machine is the perfect solution for various operations in ports and industrial terminals. It is suitable for handling any kind of bulk material, scrap, timber and breakbulk.

With more than 55 years of experience in logistics services for heavy industry, Mantsinen has the knowledge of the demands and challenges of material handling in many different applications. The combination of this operational experience and world-class engineering know-how create unique solutions for efficient material handling operations. With our deep knowledge, we can

optimize your operation and machine configuration.

LIFELONG PRODUCTIVITY

The lifetime and durability makes Mantsinen Material Handling Machines an investment for generations. In many applications Mantsinen material handlers have reached over 50,000 working hours and still counting.

In-house manufacturing of the machines and attachments ensures high quality without a compromise. All of the critical components are thoroughly analyzed using the finite element method based on strain gauge tests in real operation.

SUSTAINABLE BY NATURE

For 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-controlled 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 different travel demands, with all undercarriage types.

CHOOSE MANTSINEN HYBRILIFT®

Introduced in 2006, the Mantsinen Hybrilift energy storage and recovery system increases energy efficiency, by up to 50 per cent. When the main boom is lowered, the boom potential energy is stored in the large volume Hybrilift accumulators and

again recovered next lift speeding up the operation. The optional Hybrilift system for Mantsinen 70 is equivalent to 110 hp of engine power at the average lifting speed. It boosts the operation and minimizes energy consumption and emissions accordingly. The system includes temperature compensation providing full lifting capacity also in varying ambient temperatures.



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 is important is shown" approach making daily operations easier, while allowing the operator to concentrate on their 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 onegrip joystick. The system has electric end cushioning for the boom, the stick and the cab elevator to avoid unpleasant dynamic shocks.

HUMAN-MACHINE INTERFACE

- A Graphic 7" user interface display
- Easy-to-use multifunction control jog
- 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



CONTROL SYSTEM	STANDARD	OPTION
Auto-idle mode	•	
Heavy lift mode	•	
Accuracy mode	•	
Dead man switch on joysticks		•
Automatic clamshell bucket levelling while closing		•
Anemometer with alarm at 56 mph, slowdown 67 mph		•
Remote control for travel		•
Temporary person lift prep		•
Turbo timer		•
Vertical lift		•
Container handling mode		•

SAFETY WITHOUT COMPROMISES

MANTSINEN SAFETY SYSTEM (MSS)

Mantsinen machines come equipped with an advanced safety system as a standard. The front equipment and swing and cab elevator are equipped with sensors ensuring online monitoring of the machine operation.

The system includes an overload and stability control, as well as cabin collision prevention with warning and automatic motion cut-off functions. Load, reach and height information is provided with animation of the machine's real time operation. The attachment menu is a part of the system as well.

The system also enables various advanced features like maximum and minimum operational heights, vertical lift, automatic bucket levelling and load cycle history monitoring.





LEAD BY DATA

MANTSINEN INSIGHT™

MANTSINEN INSIGHT™ provides comprehensive information from individual material handling machines to a complete 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 a standard. These features combined with the onboard diagnostics ensure the best possible support for all machine-related needs.

MANTSINEN INSIGHT™

STANDARD

Asset reports	•
Productivity/efficiency views	•
Fleet view	•
Visualized 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

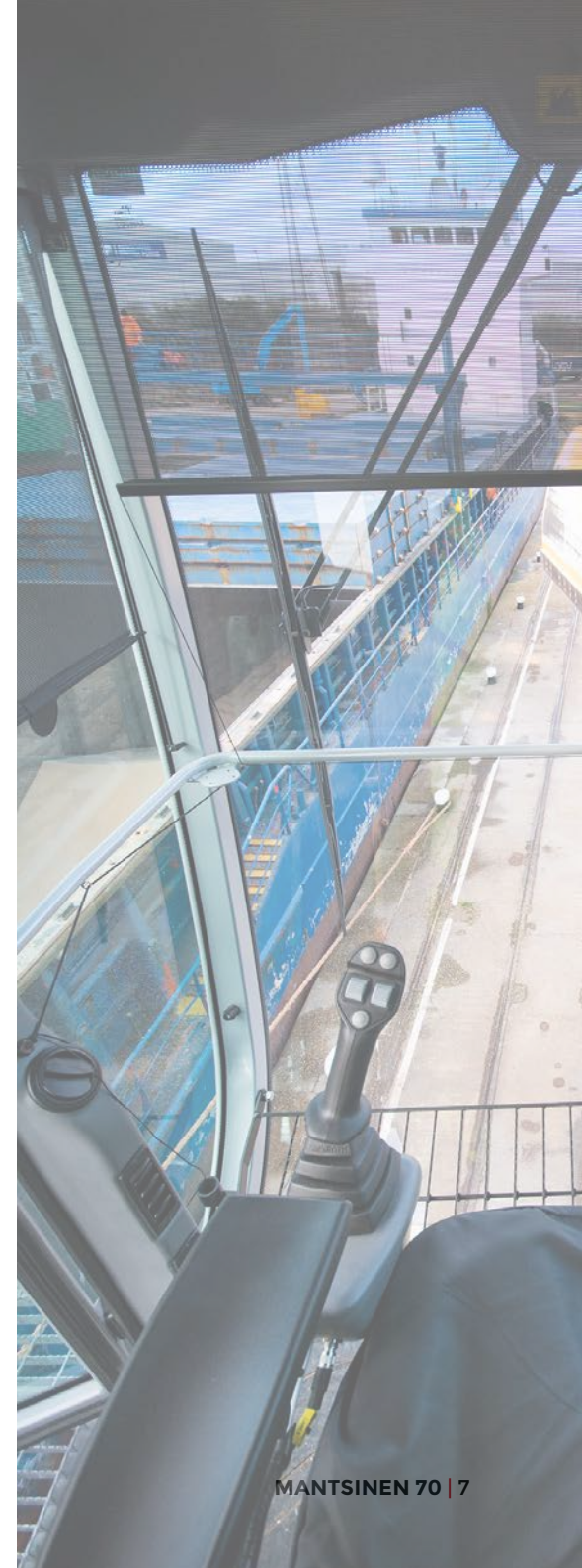
STRENGTH IS NOTHING WITHOUT VISION

STAINLESS STEEL CABIN

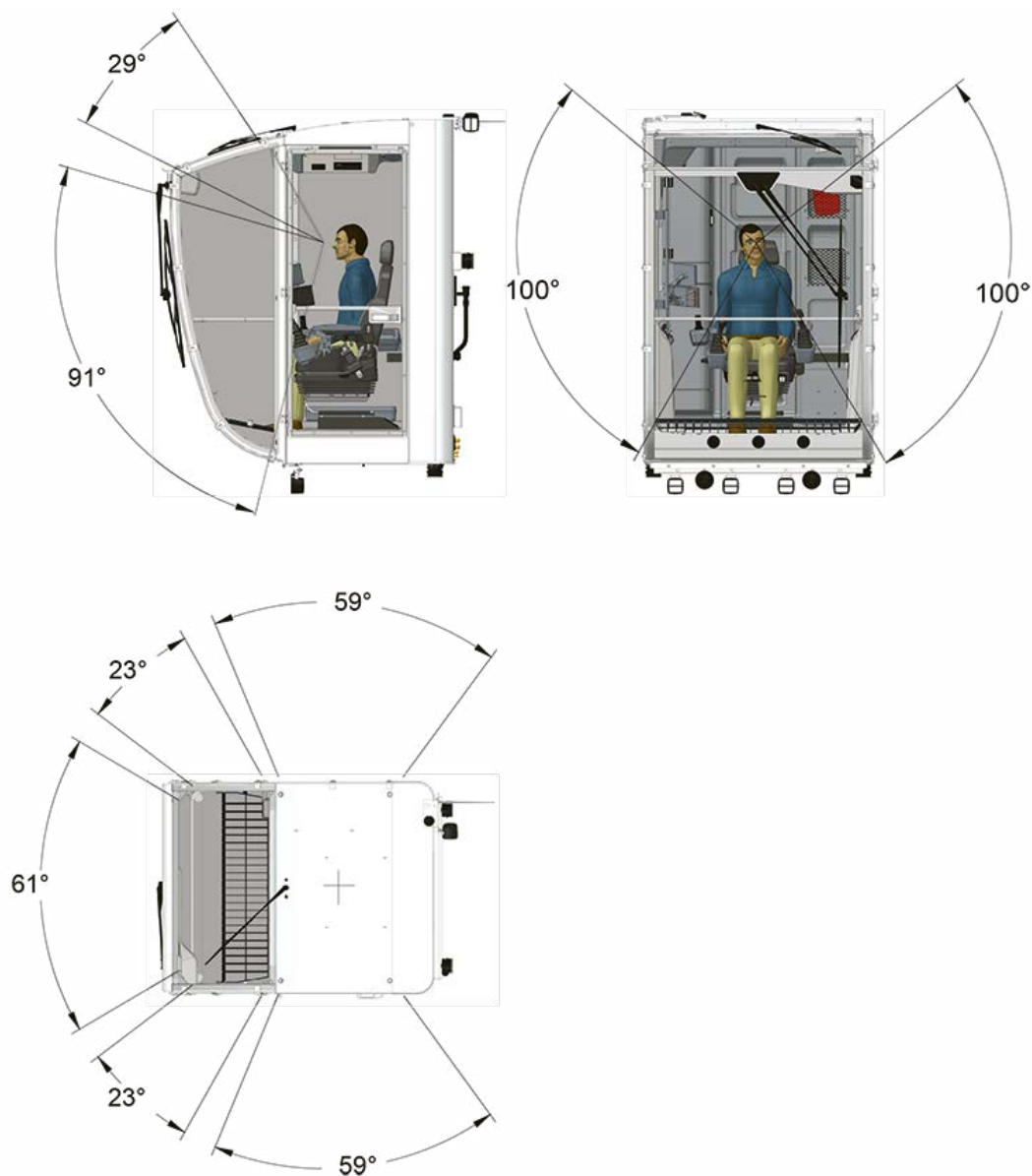
The spacious and modern operator's cabin has excellent visibility with a large one-piece curved windshield and floor window eliminating obstructions in the operator's view. The cabin is made of stainless steel for long lifetime even in the most demanding or corrosive working environments. Sound insulation,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

The powerful heating and air conditioning, tinted windows and adjustable sunshades 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.



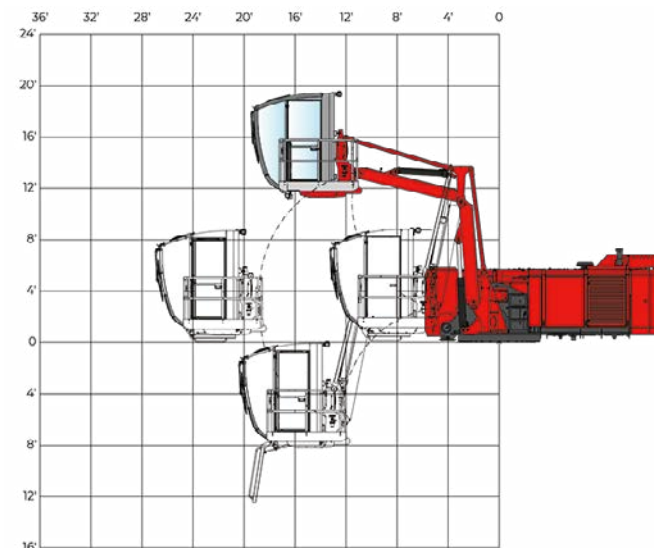
VISIBILITY FROM CABIN



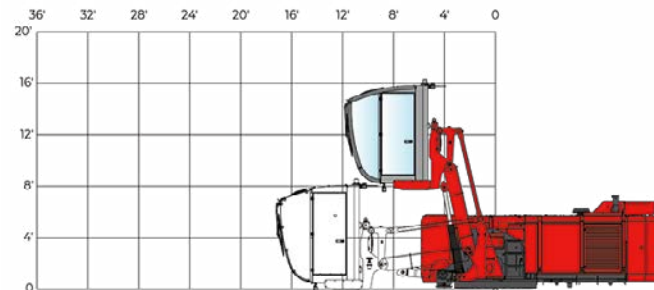
CABIN ELEVATORS

Mantsinen 70 has two cab elevator options. Robust Mantsinen N2-4000 cab elevator features independent vertical and horizontal movement to position the operator for maximum visibility. The one-arm cab elevator N1-3000 lifts the operator providing improved visibility.

N2-4000



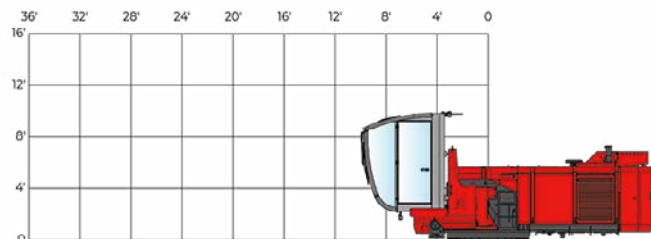
N1-3000



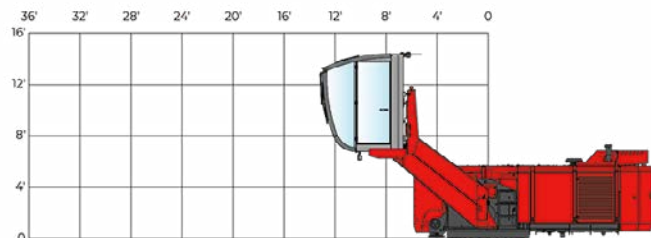
FIXED CABIN POSITIONS

Mantsinen 70 has three fixed cab positions.

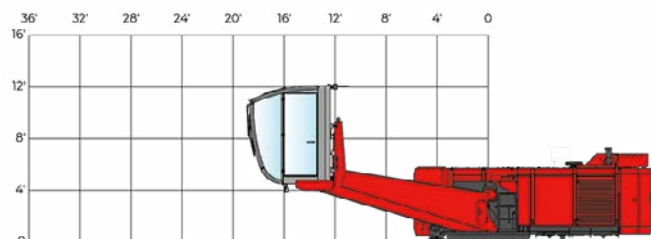
FIXED CAB POSITION 1.



FIXED CAB POSITION 2.



FIXED CAB POSITION 3.



CABIN EQUIPMENT AND OPERATOR'S SEAT	STANDARD	OPTION
Automatic heating and air conditioning with defrost	•	
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 turntable		•
Cabin protection guards, windshield and skylight		•
Impact proof windshield		•
Sun protection foils, all windows except skylight		•
Loudspeaker with gooseneck microphone and pedal		•
VHF-phone preparedness, microphone, pedal and harness		•
110 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		•
WiFi camera		•

DEVELOPED TO GET THE JOB DONE

UPPERSTRUCTURE

The Mantsinen upperstructure is specifically designed for fast and harsh material handling applications. In-house experience of hundreds of millions of 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-proofed compartment.

The doors ensure easy access to service on both sides. To reduce fire risk, the hydraulic 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 70 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 an extremely smooth and controllable swing. The closed-loop swing system saves a considerable amount of energy and provides maximum operating performance.

FRONT EQUIPMENT

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

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 a compromise. Strong structure and large pin diameters minimize surface pressures and wear on bushings.

STICK

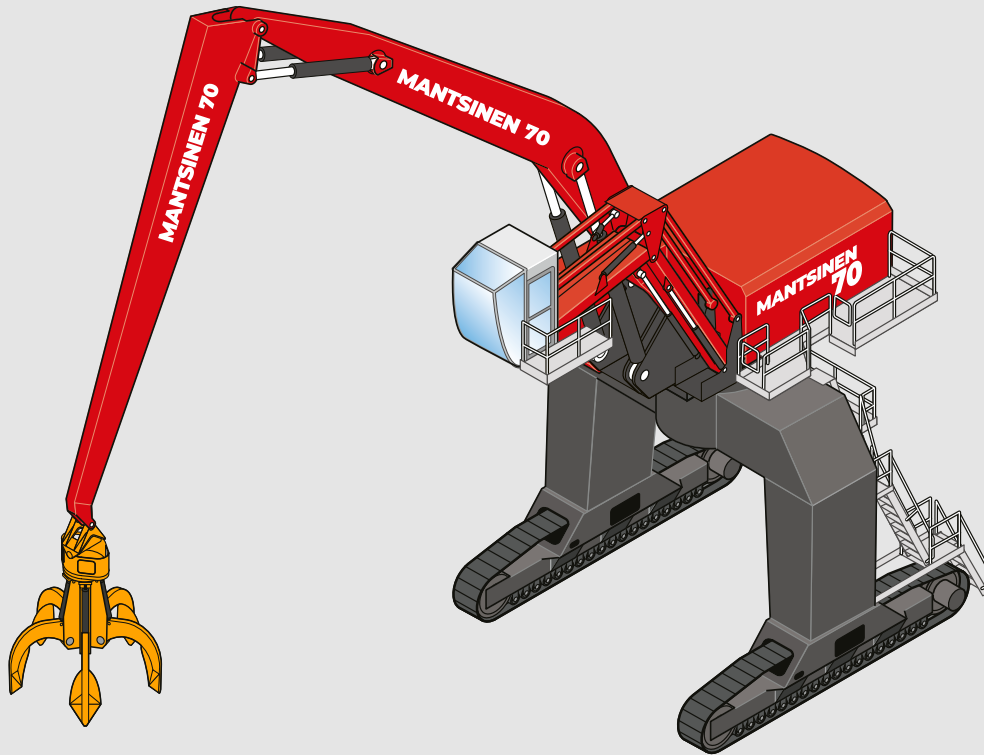
The stick box is constructed from high tensile steel profiles. The design allows the stick to be constructed with no welding seams in high-stress areas, making it light and extremely durable. Hydraulic lines are well protected inside of the channels. As a result of the unique cast stick tip and link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

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	•	
Bleed-off fine filter	•	
Second pressure adjustment for attachments 3600 psi	•	
Beacon and acoustic travel alarm	•	
Surface treatment for C4 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)	•	
Central lubrication for mobile undercarriage	•	
HYDRAULICS		
Additional attachment function, 2900 psi, 15 gallon/min		•
Second additional attachment function, 2900 psi, 15 gallon/min		•
Magnet generator system 27 hp (20 kW)		•
Additional undercarriage hydraulic function with pedal		•
Biodegradable hydraulic oil		•
FILTRATION		
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		•
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		•
Automatic battery charger		•
Heating cable 80 ft m spring reel		•
Pre-heater for engine and cabin, by fuel. Including Multicontrol timer		•
REFILL		
Electric 24 V re-fuelling pump with 26' 1" hose reel.		•
Re-fuelling line 2" from ground level		•
AdBlue 24 V refill pump, harness, pistol & 50' 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		•
Toolbox in undercarriage, aluminium		•
BACK UP SYSTEMS		
Portable hydraulic unit for swing, main boom, stick, electric or engine driven		•
Diesel powerpack Mantsinen 100 for travel with remote control		•
Lift cylinder and swing release kit		•
SURFACE TREATMENT OPTIONS		
C5 Medium. Main component exterior surfaces		•
Customer stickers		•
Custom color: Front equipment, cover panels, counterweight, cab elevator		•

MANTSINEN 70R



Long and widely extended tracks and rigid box type frame create an excellent and stable foundation for the machine. The flat track shoes run smoothly on gravel, asphalt or concrete. Hydrostatic track drive consists of two speed axial piston travel motors and planetary track drives. The machine is also equipped with spring loaded multi disc automatic brakes with hydraulic release.

CRAWLER GANTRY

Crawler gantry provides logistic freedom by allowing trucks or railcars pass through the material handler. Additionally the machine cycle time and truck waiting times can be optimized due to the optimized swing angle.

70R		
	CRAWLER UNDERCARRIAGE	CRAWLER GANTRY UNDERCARRIAGE
Undercarriage heights	6'3" with pylon 9'10" / 13'1" / 16'5"	20' / 21'8" / 24'11"
Track gauge	18'3"	19'11"
Track length	20'4"	19'11"
Track shoes	26" flat	26" flat
Travel speed	Max 2,6 mph	Max 2,6 mph
OPTIONS		
Track shoes	33" flat	33" flat
Additional fuel tank	1 x 265 gal or 2 x 265 gal	1 x 528 gal or 2 x 528 gal

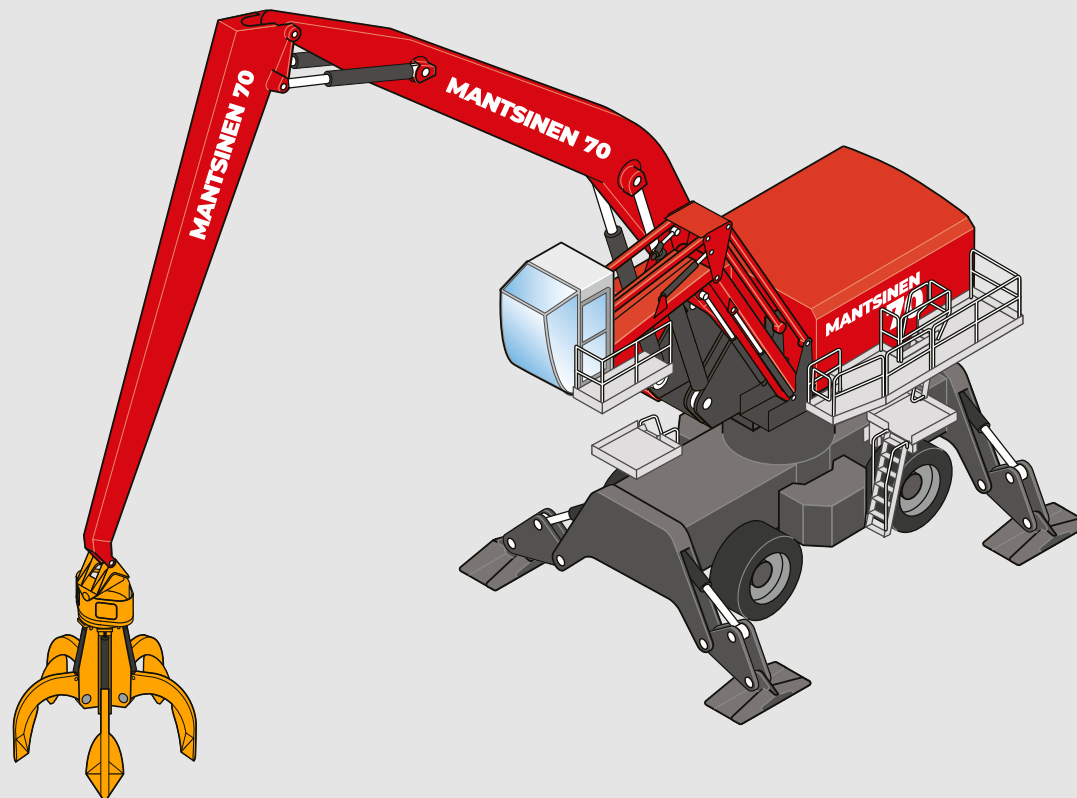
Robust and proven undercarriage versions are designed for every demand and condition. Stability and robust design are the key features in all the Mantsinen undercarriages. All the machines are able to operate 360° with full load.

MANTSINEN 70M

All wheel drive provides a good drawbar pull and facilitates operation on uneven surfaces. There are hydraulic service brakes on all hubs and automatic wet multiple disc parking brake on the front axle.

Simultaneously or individually controlled outriggers permit stable 360° operation with full loads even in demanding conditions. Outrigger cylinder protection comes as a standard. (Automatic undercarriage lubrication is provided as an option)

70M	
	MOBILE UNDERCARRIAGE
Undercarriage heights	6'3" with pylon 9'10" / 13'1" / 16'5"
Wheelbase	12'11"
Wheel track width c - c	9'3"
Tires	8x 14.00-24 solid tyres
Drive speed	Max 6,2 mph
Stabilizer pads (w x l)	25" x 25"
Turning radius (wheelset centreline)	36'
OPTIONS	
Large pads (w x l)	27" x 49"
Additional fuel tanks	1 x 265 gal or 2 x 265 gal



Undercarriages are available in several different heights to optimize the operation, reach and visibility. Mantsinen organization can provide ground pressure information and operational drawings case by case.

TECHNICAL SPECIFICATIONS

FRONT EQUIPMENT

BOOM STRAIGHT OR CURVED	STICK	HORIZONTAL REACH
32'10"	26'3"	59'9"
36'1"	29'6"	65'11"
39'1"	32'10"	72'6"
42'8"	36'1"	79'1"

DIESEL ENGINE

Volvo Penta	TAD1182VE 388 hp, Tier 4f
Displacement	661 in ³
Number of cylinders	6
Electric system	24 VDC, alternator 150 A / 24 V, Batteries 2 × 225 Ah / 12V

ELECTRIC MOTOR

Motor	270 Hp IEC cast iron frame squirrel cage motor, 1,800 rpm / 60 Hz
Voltages	460 V / 60 Hz as standard, Other voltages upon request

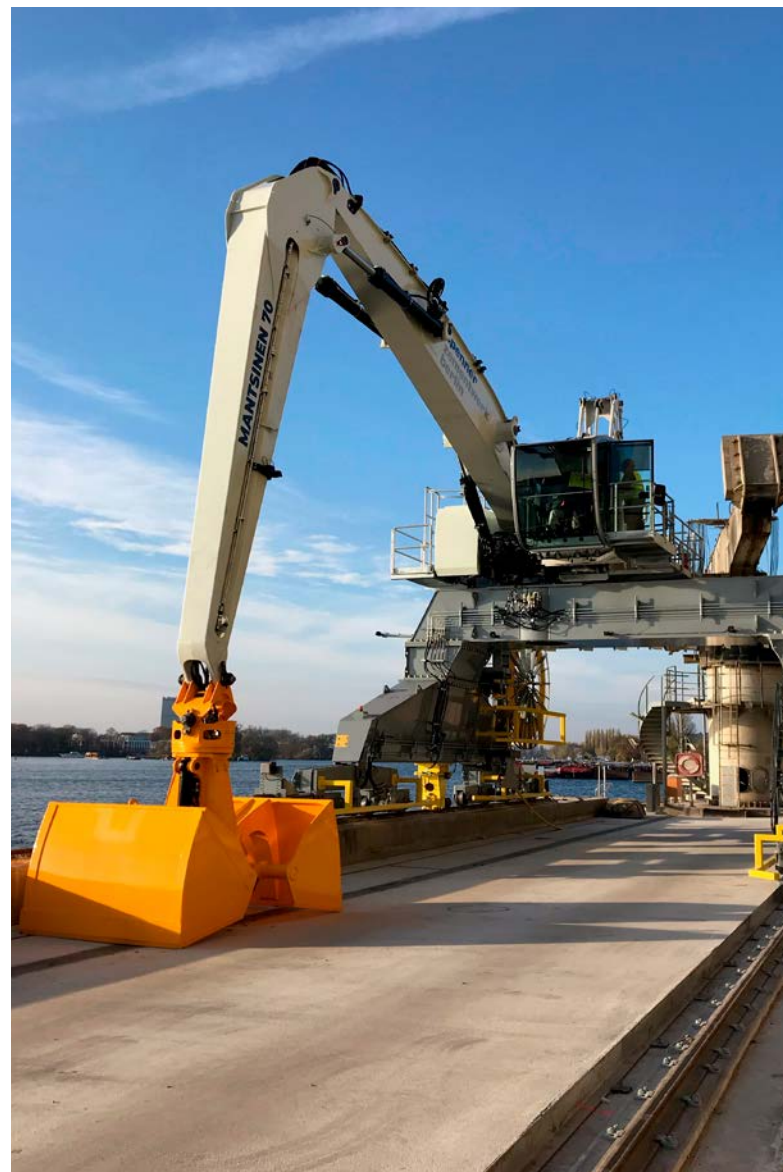
HYDRAULIC SYSTEM

Oil flow, front equipment and travel	2 × 114 gal/min
Operating pressure, front equipment	4,800 psi
Operating pressure, travel and Heavy Lift mode	5,100 psi
Oil flow swing closed loop system	108 gal/min
Operating pressure, swing	3,900 psi
Swing speed	8.0 rpm max
Swing torque	122,000 lbf x ft

REFILL CAPACITIES

Hydraulic oil	230 gal
Main fuel tank	230 gal
Engine oil	10 gal
AdBlue tank	18 gal

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.



ATTACHMENTS

RECOMMENDED ATTACHMENTS

CLAMSHELL BUCKET	Volume [yd³]	Attachment weight [lbs] with fixed R3 rotator and link		Total weight [lbs] with material density [lbs/yd³]			
		HBL series	HB series	843	1,686	2,528	3,371
HB20-2 R3	2.62	6,170	7,720	8,379	10,587	12,793	16,552
HB25-2 R3	3.27	6,390	7,830	9,147	11,903	14,657	18,853
HB30-2 R3	3.92	6,610	8,160	9,915	13,219	18,070	21,374
HB35-2 R3	4.58	7,500	8,380	11,361	15,222	19,958	23,819
HB40-2 R3	5.23	7,720	8,490	12,129	17,308	21,711	26,120
HB50-2 R3	6.54	8,160	9,040	13,673	20,066	25,573	
HB60-2 R3	7.85	8,600	9,480	15,218	22,715	29,325	
HB70-2 R3	9.16	8,820	9,700	16,542	25,144		
HB80-2 R3	10.46	9,260	10,140	18,078	27,776		

= Preferred HBL attachment

= Preferred HB attachment



HBL=Light series

ORANGE PEEL GRAB (SEMI-OPEN)	Volume [yd³]	Attachment weight [lbs] with fixed R3 rotator and link	Total weight [lbs] with material density [lbs/yd³]			
			1,012	1,349	1,686	2,023
HG15-5 R3	1.96	6,830	8,814	9,474	10,135	10,795
HG20-5 R3	2.62	7,720	10,371	11,254	12,137	13,020
HG25-5 R3	3.27	8,160	11,469	12,571	13,673	14,775
HG30-5 R3	3.92	9,700	13,667	14,988	16,309	17,630
HG40-5 R3	5.23	10,580	15,873	17,635	19,398	21,160

= Preferred attachment



The weight with semi-open tines

ROUND- WOOD GRAB	Size [yd³]	Attachment weight [lbs] with fixed R25 or R3 rotator and link	Total weight [lbs] with 1 012 lbs/yd³ (pile) with timber length [ft]			
			10'	13'	16'	20'
RGB12	1.44	4,630	9,480	11,023	12,566	14,110
RGB15	1.79	5,290	11,244	13,228	15,212	17,196
RGB18	2.15	6,170	13,228	15,653	18,078	20,503
RGB20	2.39	6,390	14,330	16,976	19,621	22,267
RGT16	1.91	6,170	12,580	14,551	16,755	18,960
RGT20	2.39	6,830	14,771	17,417	20,062	22,708

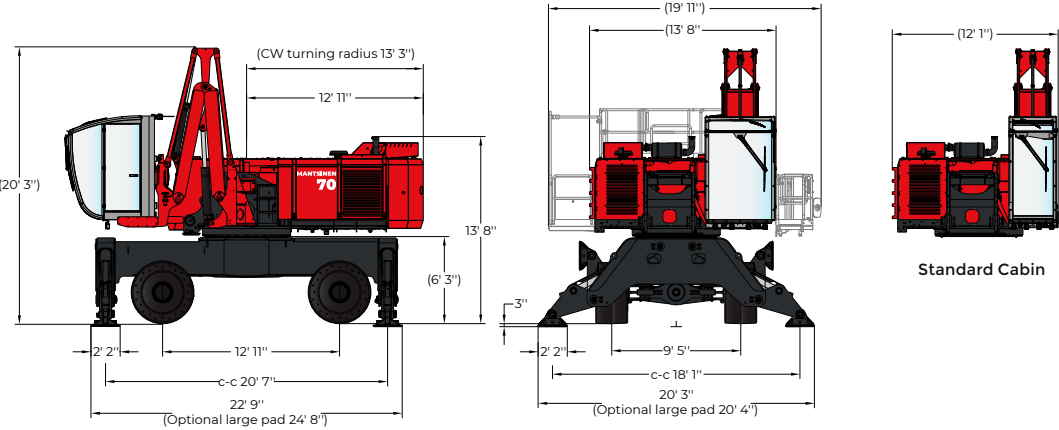
= Preferred attachment



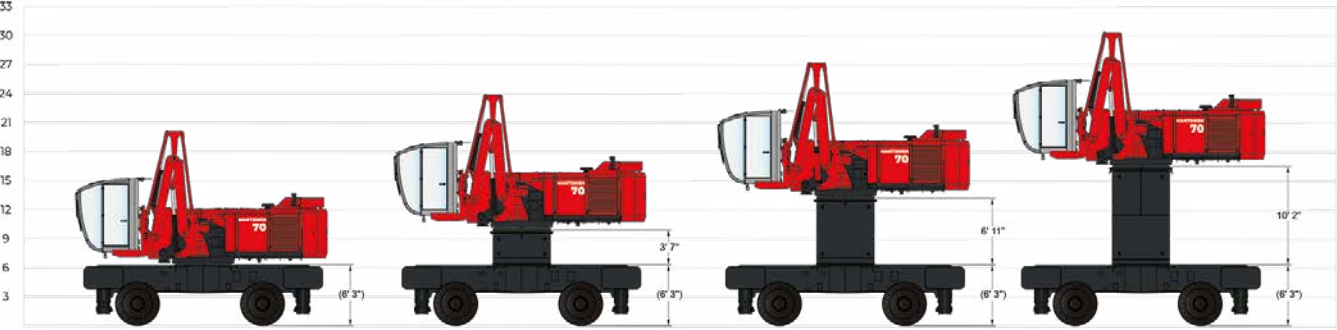
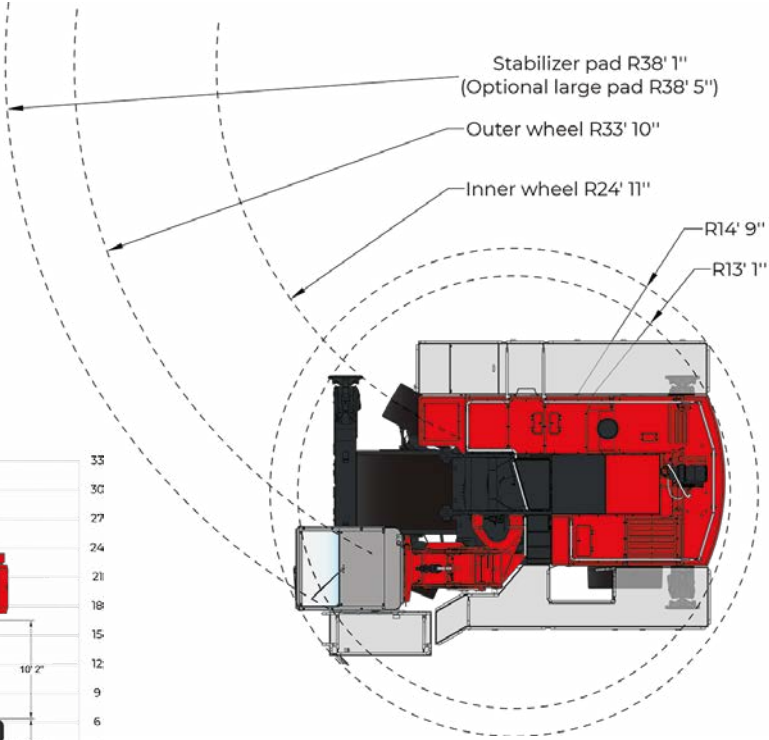
RGB = By-Pass
RGT = Tip-to-Tip

MAIN DIMENSIONS FOR 70M

MOBILE UNDERCARRIAGE

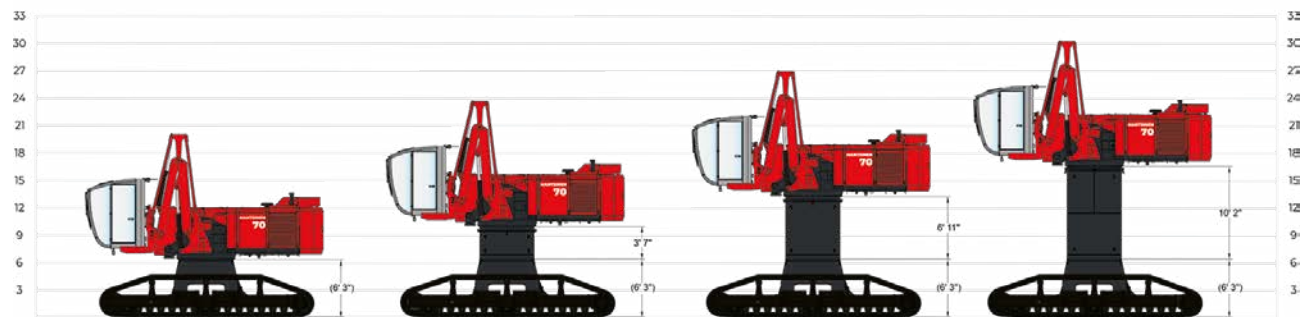
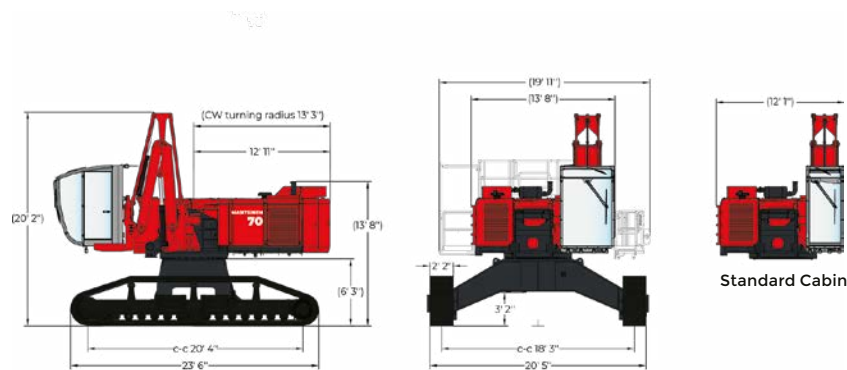


TURNING RADIUS FOR MOBILE UNDERCARRIAGE

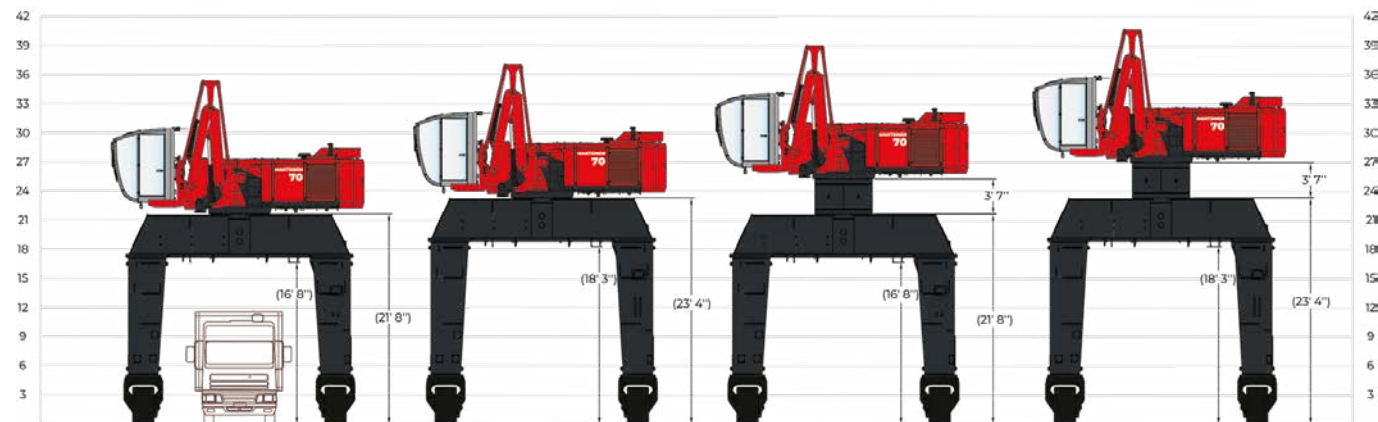
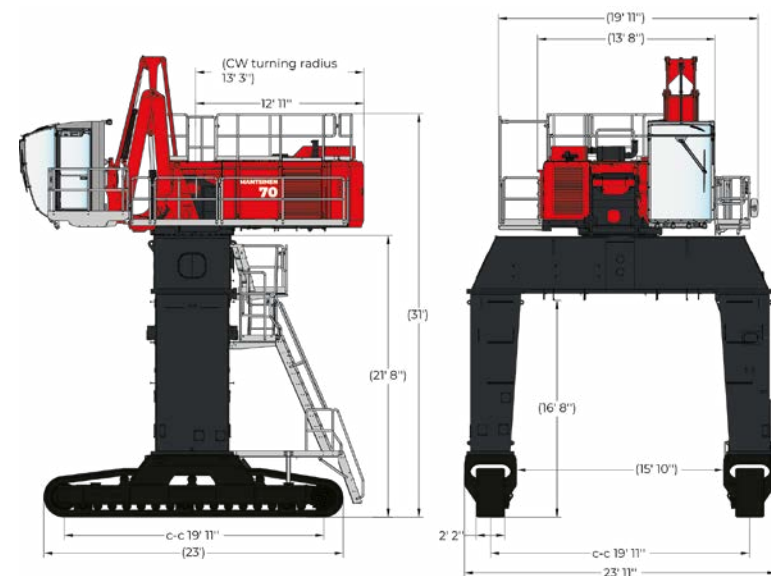


MAIN DIMENSIONS FOR 70R

CRAWLER UNDERCARRIAGE



CRAWLER GANTRY UNDERCARRIAGE

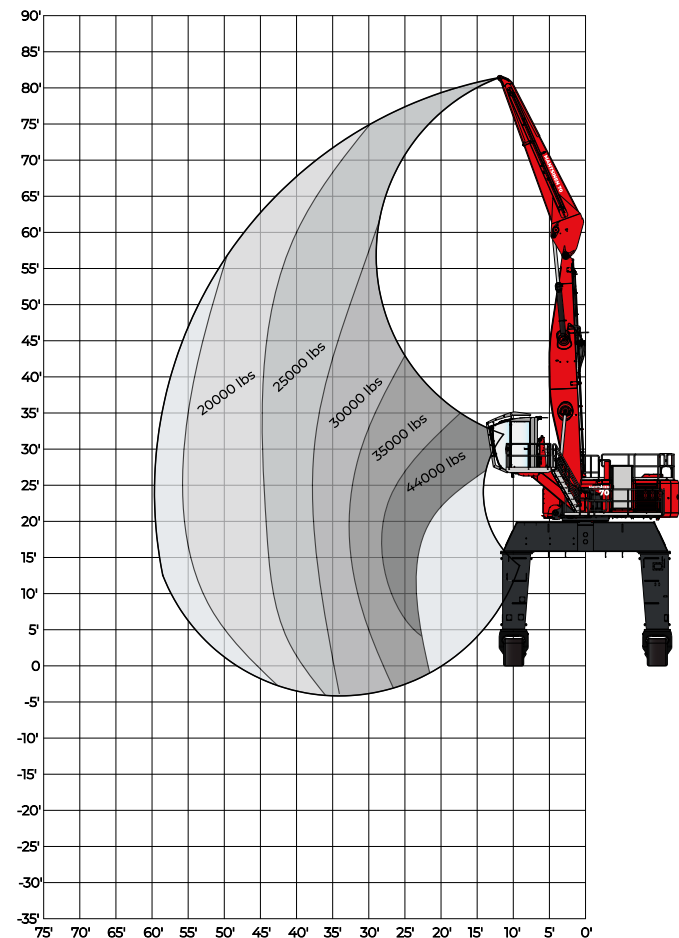


REACH FOR PRODUCTIVITY

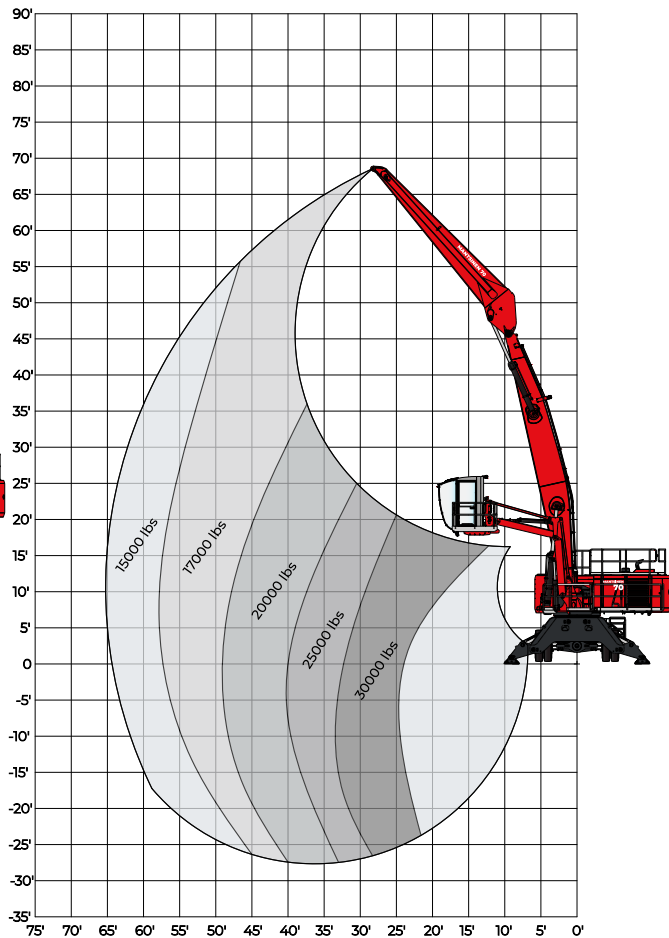
MANTSINEN 70

Contact your Mantsinen representative for specific load diagrams for your operation.

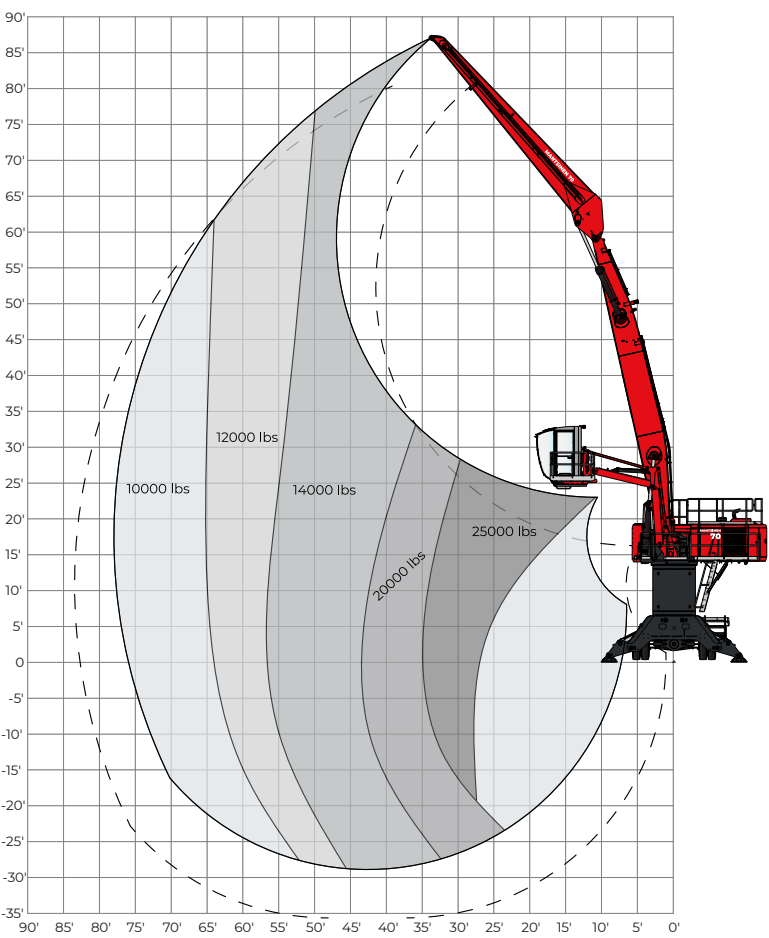
Lifting capacity range with 32'10" straight main boom and 26'1" stick.



Lifting capacity range with 32'10" curved main boom and 29'72" stick.

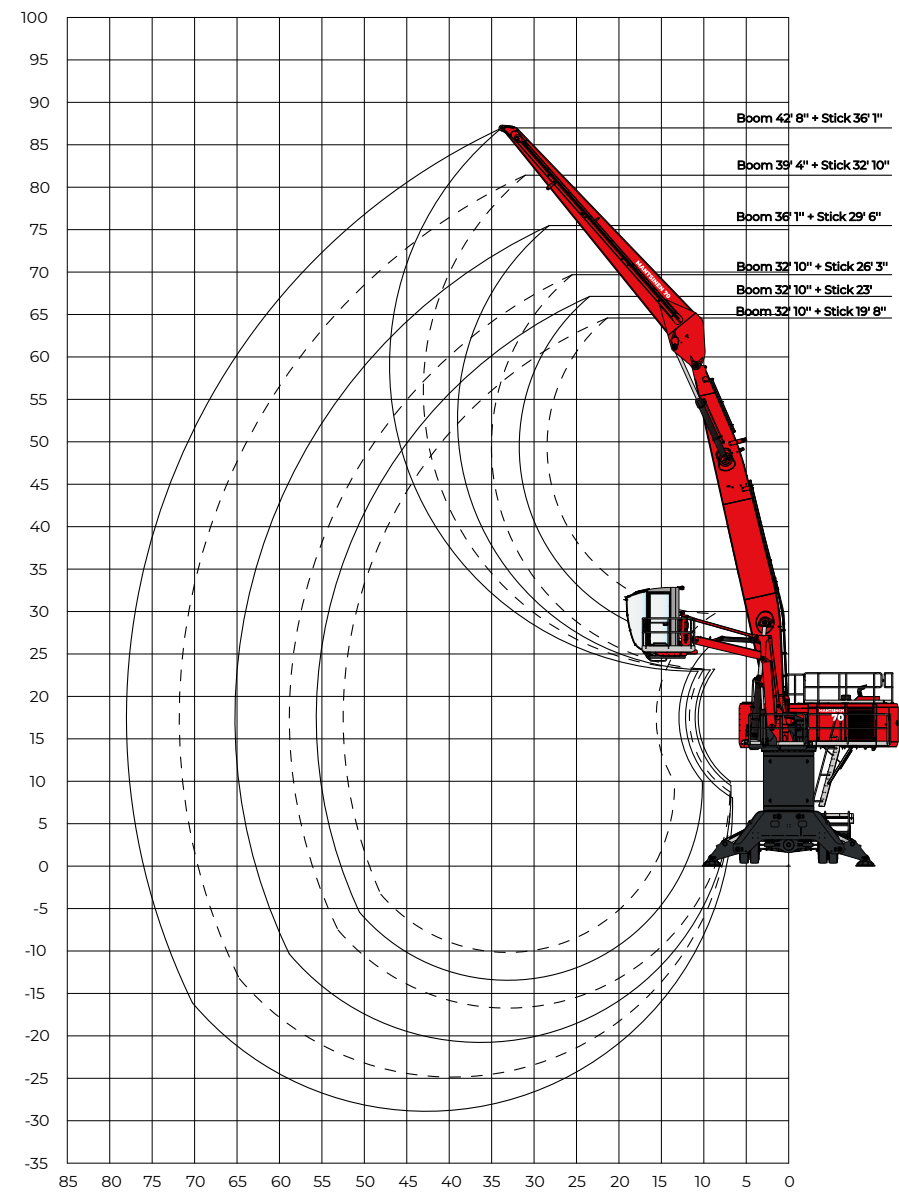


Lifting capacity range with 42'8" curved main boom and 36'1" stick.

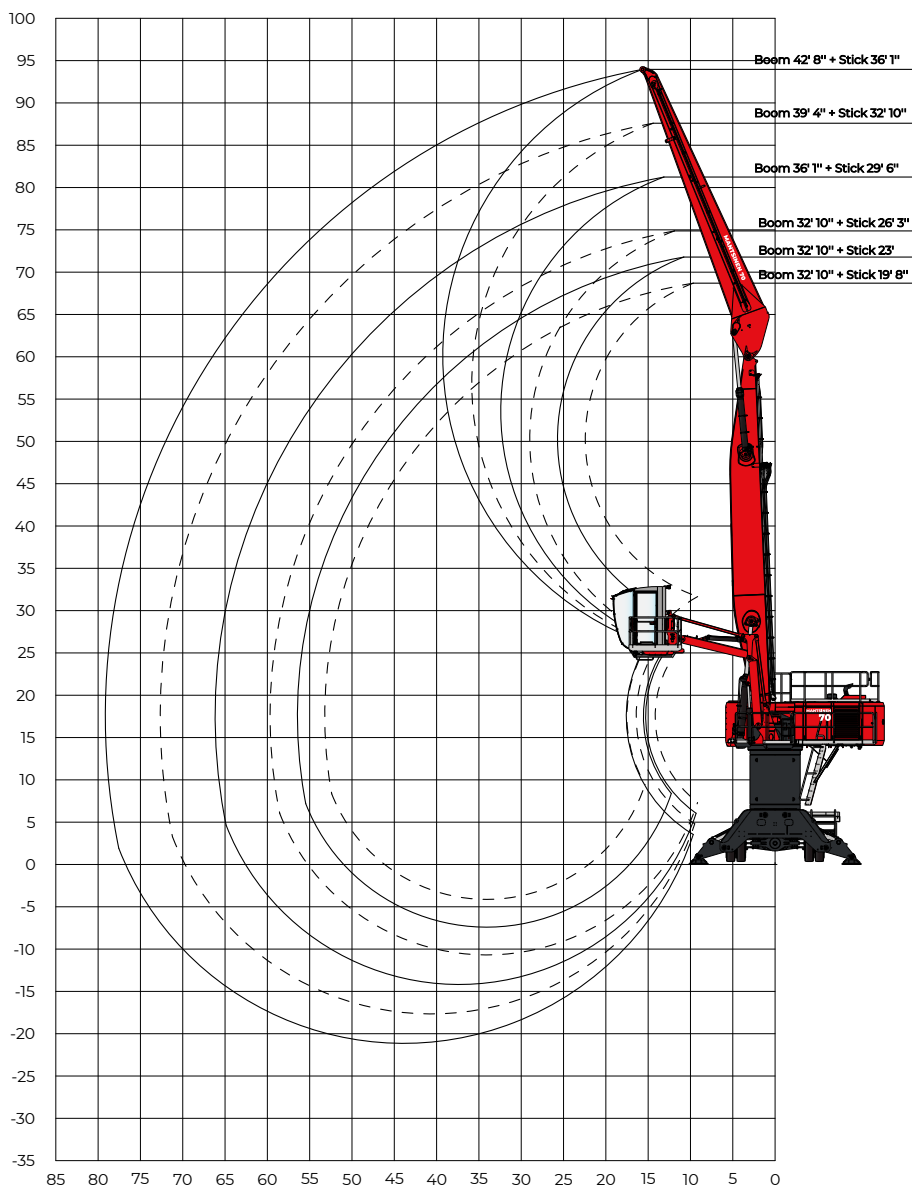


REACH WITH DIFFERENT BOOM AND STICK CONFIGURATIONS WITH 13'1" UNDERCARRIAGE

CURVED BOOMS



STRAIGHT BOOMS





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

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