

HM - G



The supremacy of ideas.



# PANORAMIC

**P 101.10 HM**

**P 80.9 HM**

**P 65.14 HM**

**P 45.18 HM**





# PERFORMANCE AND VERSATILITY



## **High tech excellence**

The HM series of PANORAMIC handlers further demonstrates that Merlo comes top in the innovative technology stakes. These machines have been specifically designed to enhance operational performance levels and to ensure highly effective solutions in all heavy-duty handling operations. The exclusive fittings further boost its intrinsic potential: the Load-Sensing hydraulic system with regenerating device is top-of-the range in terms of operating speed and efficiency, a

further performance enhancing feature is the six-cylinder turbocharged engine.

The MERlin system for the automated monitoring of all machine functions goes to further illustrate the advantages of the Merlo machines, and the company's commitment to offering the best in high-tech solutions which are the result of ongoing research and innovation, with the added guarantee provided by over forty years experience in the field.

# EXCLUSIVE TECHNOLOGY

## Power where it is needed

A double acting hydraulic distributor with quick couplings is a standard fitting for hydraulic service feed at the boom end.

## Outstanding versatility

The front tool-carrying carriage complete with hydraulic attachment locking ensures fast attachment changes controlled directly from the cab.

## Total protection

The telescopic boom extension components are located inside the boom to guarantee maximum protection and reliability.

## Boom sideshift

An exclusive feature enabling sideways movement of the chassis and telescopic boom allowing precise load placement.

## Side engine

The 6-cylinder turbo intercooled engine compliant to Euro 2 standard, ensures excellent power ratings and high performance.

## Complete control

The cab has a large glass area to ensure constant and complete visibility of the working area even at maximum working height.

## Energy savings

Thanks to the Load-Sensing variable displacement pump hydraulic system.

## Frame levelling

Hydraulically operated, allowing the machine and boom to be levelled for safer lifting on uneven ground.

## Hydrostatic transmission

Transmission of choice when high levels of precision and comfort are required.

## Safety first

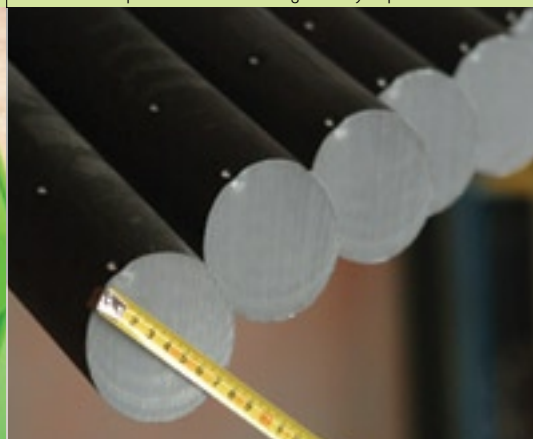
The longitudinal stability system with overload lock-out ensures operating safety.



The MERlin - Merlo Local Interactive Network has been conceived to visually monitor all machine functions - the advantages being clear in terms of efficiency, safety and performance levels.

The machine chassis is surrounded by a solid ring of steel, 70 mm in diameter, which serves an important structural function but also acts to protect the machine against any impact.

For Merlo 'specialization' means following every aspect of production and researching innovative solutions, even down to the smallest details; a winning production strategy.





The HM series of PANORAMIC models offer high lifting capacities of up to 10 tonnes. These exclusive features ensure maximum performance and comfort levels in even the most demanding operating environments.

#### **The ultimate in safety**

The on-board safety system ensures automatic and continuous monitoring of machine longitudinal stability in all operating conditions, giving the operator peace of mind to concentrate on the job at hand.

#### **Incomparable unloading heights and operational stability**

Top performance in all working conditions, and particularly in the handling and loading of loose materials, make the HM series of PANORAMIC handlers a valid alternative to traditional loaders.

#### **Ergonomic controls and clear instrumentation**

All the controls are both easily accessible and intuitive. The digital control panel includes a series of convenient analogue indicators for the easy and instant checking of machine operating parameters.

#### **Total visibility**

From the operator's position, working area visibility is always excellent.

#### **Optimum comfort**

The design of the machine is focused on driving comfort. The operator having the advantage of one of the widest cabs currently available on the telescopic handler market.

#### **Excellent manoeuvrability**

The unique compactness of the machine is the result of the integrated design of all its components. Making it truly top-of-the-range in terms of handling ease and operating accuracy, with the added advantage of a truly dynamic engine.

#### **Maximum accessibility**

The location of the engine, the transmission and the hydraulic systems make for extremely easy maintenance and assistance. The service technicians can work in total safety with their feet firmly on the ground.

#### **Enhanced performance**

The machine has been designed to ensure enhanced performance in even the toughest working conditions thanks to its high operating speeds, precision, operating potential and its great versatility.



#### **The PANORAMIC HM series offer much more**

- Deluxe cab
- Intercooler Euro 2 turbo engine with 6 cylinders rated at 107 kW (145 HP)
- Load-Sensing hydraulic system with regenerating device
  - Boom side-shift
  - Frame levelling device
- The electronic MERlin monitoring and control system
  - Electronically controlled hydrostatic transmission
    - Maximum speed of 40 kph (self-limiting)



Handling



Loading



Lifting



# INSTRUMENTS AND CONTROLS



## **The latest in comfort - a truly spacious and comfortable driver's cab**

The cab has been conceived to ensure the highest levels of safety and comfort, the ultimate in high-tech ergonomic design. The structure complies with ISO 3449 (FOPS) and ISO 3471 (ROPS) directives, both the driving wheel and the seat are adjustable to suit individual driving needs, whilst the road driving controls are designed so that they can be used without removing hands from the wheel. The whole arrangement complies with the latest concepts in driver ergonomics and functionality. The joints in the glass and window seals are slimline in order to increase the transparent surface area and the interior dimensions are one of the most spacious on the market.

An automatic air conditioning system is available as an option.

- ① MERlin system display
- ② Interactive control panel
- ③ Forward/reverse selector
- ④ Gear selector
- ⑤ Electronic multi-function joystick
- ⑥ Emergency stop button
- ⑦ Storage compartment

Electrical gear change control with switch conveniently positioned alongside the steering wheel.



The Finger-Touch forward/reverse control makes it possible for the operator to change driving direction without having to remove his hands from the steering wheel.



The electro-proportional joystick permits the variation of the boom lifting and extension speed according to the weight of the load being handled.





# MERlin

Integrated Control System

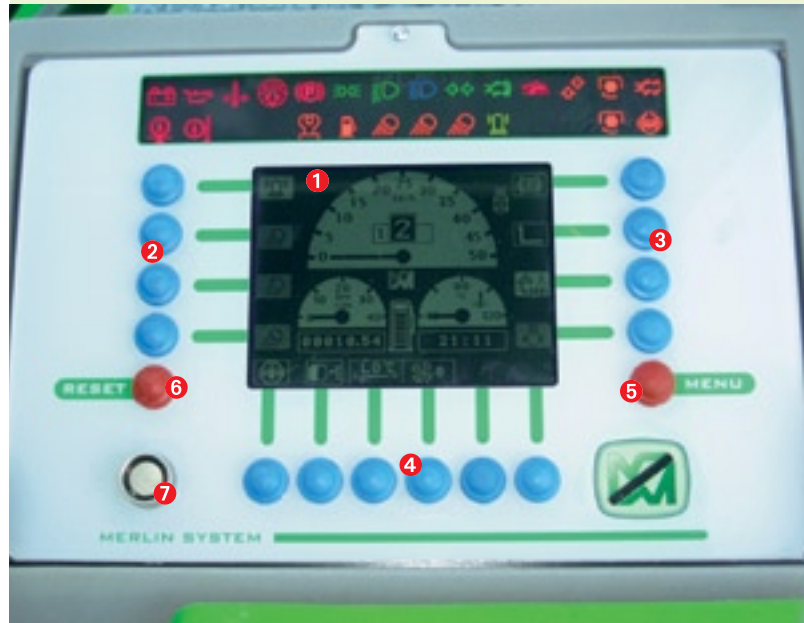
## The MERlin System

The MERlin – Merlo Local Interactive Network system is an advanced means of computerized monitoring of all machine functions, the traditional dashboard has been replaced with a LCD display and functional control panel which displays all the necessary information required by the operator. The heart of the system is a computer which processes in real time all input and output signals from the various operating units of the machine.

The operating conditions of these components are constantly displayed on the screen, so that their function can be easily checked at any time.

- Full control of all the safety functions.
- Displays a comprehensive picture of all the operating parameters.
- It is a sophisticated advanced and remote diagnostics device.
- It can provide an anti-theft and immobiliser system, guaranteeing extra security against theft.

The operating software makes it possible to select from various interactive screen displays, for access to the various system functions.



## Total control

Controls of devices managed by the MERlin system have been regrouped into a wide panel easily reached by the operator's right hand. The selection of the different menus is made through the switches which can be easily activated even with working gloves.

## Controls

- 1 LCD screen
- 2 Buttons controlling electric devices
- 3 Buttons controlling auxiliary devices
- 4 Operator environment control buttons
- 5 Button to change operating menu/screen
- 6 Reset button
- 7 Electronic key access port

## Regenerating device

The operator can adjust the boom lifting speed simply by adjusting the joystick. Therefore it is possible to half the working times with less delicate loads and increase the productivity.

## Service Menu

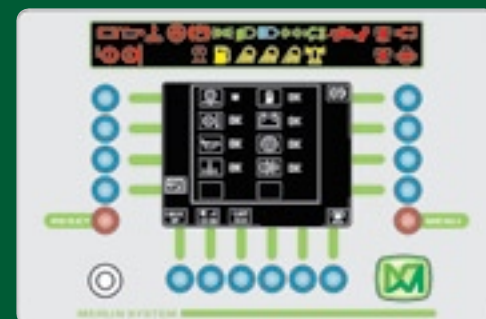
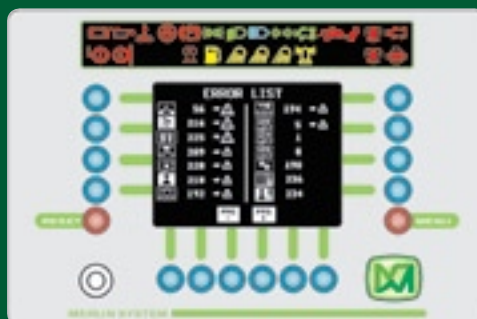
It acts as a 'black box' that records all the incoming information from all the various systems and also acts to remind the operator of maintenance schedules and deadlines.

## Check-Up Menu

The operator has access to all the necessary information on the functional state of the various components at the simple touch of a button.

## System Check Menu

There is also a summarizing screen display which shows the functional state of each element that has been checked for detailed on-board diagnosis.



# THE WINNING CONCEPT



## The side mounted engine

The 6 cylinder turbo intercooler Nef low emissions engine in accordance with Euro 2 directive, is liquid cooled and has a power rating of 107 kW (145 HP) at 2300 rpm.

The engine offers increased power and torque ratings throughout the entire functional range.

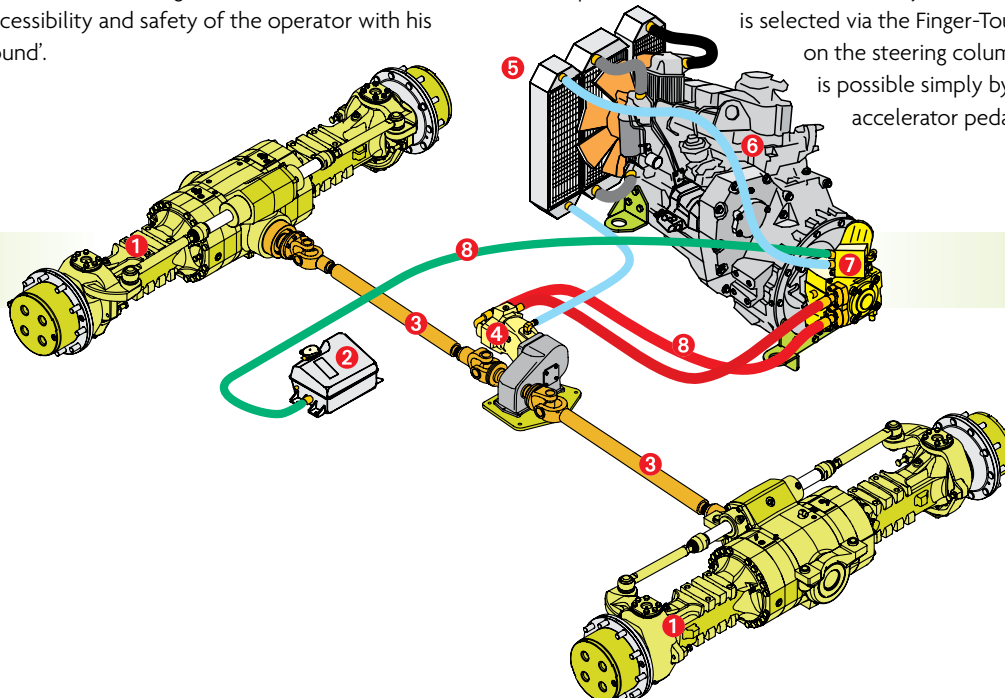
The engine group is positioned on the right side of the chassis for convenient service accessibility and safety of the operator with his feet 'firmly on the ground'.

## The latest high-tech hydrostatic transmission

This type of transmission ensures the highest performance levels and a wide range of speed adjustment at full power.

The infinite range of speed settings can be obtained simply by pressing the accelerator pedal, which means that there is no need for the continuous gear changes as in a traditional mechanical system, leaving the operator free to concentrate on the job at hand. Driving direction

is selected via the Finger-Touch control mounted on the steering column, while speed control is possible simply by pressing the accelerator pedal.



- ❶ Axle
- ❷ Hydraulic oil tank
- ❸ Propshaft
- ❹ Hydraulic motor
- ❺ Heat exchanger
- ❻ Diesel engine
- ❼ Hydraulic pump
- ❽ Hose



### The telescopic boom

The telescopic boom of the HM range of the PANORAMIC handlers is made up of two sections of high-yield steel formed in a U shape, which are longitudinally welded together on the neutral axis. Advanced research into ever more efficient solutions has led to the development of a hydraulic extension system which simultaneously controls the movement of all boom sections. All the components, the hydraulic hoses and electric cables are internally mounted to ensure maximum protection against site damage.

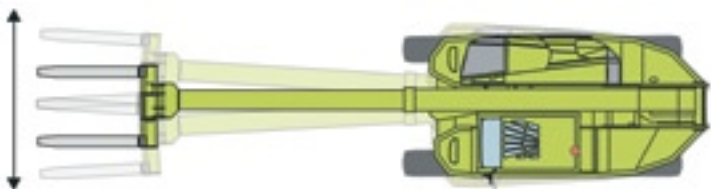
### Frame levelling device

This hydraulically operated levelling device acts on the front axle allowing the machine to adapt to specific ground conditions and lift in safety. The system allows lateral correction up to  $\pm 8\%$ .

### Boom side shift - Merlo exclusivity

The upper part of the chassis together with the telescopic boom can be shifted sideways in relation to the longitudinal machine axis in order to reach the required position with the greatest possible accuracy, without having to re-position the handler itself. The use of the integrated side-shift in no way impairs machine lifting performance and is available throughout the machine loading diagram without deration, whatever the extent of the shift made.

Side shift	P 101.10 HM	P 80.9 HM	P 65.14 HM	P 45.18 HM
Boom extended mm	$\pm 185$	$\pm 170$	$\pm 375$	$\pm 440$
Boom retracted mm	$\pm 100$	$\pm 100$	$\pm 100$	$\pm 120$

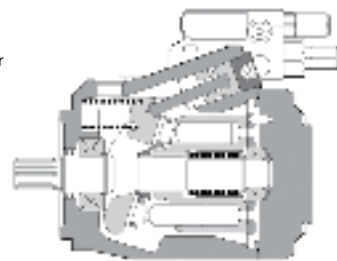


### The Load-Sensing hydraulic system

The hydraulic system has a single variable displacement piston pump with Load-Sensing control, which is directly mounted on the diesel engine.

This system permits the regulation of the hydraulic oil flow to immediately adapt to the demands at any given time. The oil flow is always equal to the request made by the control joystick stroke so that power wastage is reduced to a minimum. The advantages being reduced power consumption and longer component life. Smooth and accurate operations are also ensured thanks to its compensated hydraulic distributor.

The axial piston pump with Load-Sensing control ensures a rapid response to all operator requirements.



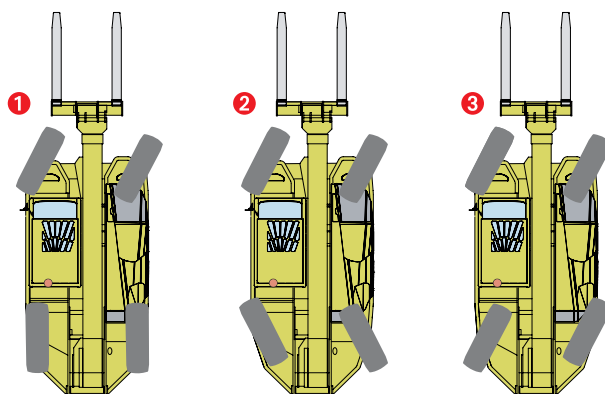
### Four-wheel braking

The oil immersed disc service brakes are hydraulically controlled and servo-assisted, and are positioned within the axle. The braking system is on both axles for maximum operating safety. The 'fail safe' parking brake is automatically engaged upon engine shutdown and is released when switched on again. The operator can also activate the park brake as and when required.

### Three- steering modes

The steering of all four driving wheels is hydraulically powered. The operator has the choice of three steering modes.

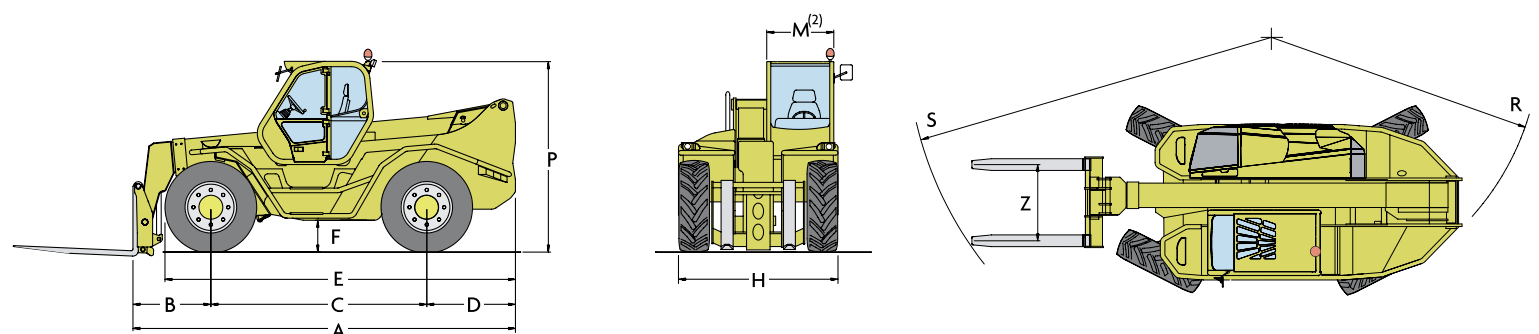
- 1 Front wheel steer (for road travel).
- 2 All wheel steer (for a reduced steering radius).
- 3 Crab steer (for lateral movement of the machine without any changes in the longitudinal alignment).



# PERFORMANCE AND DIMENSIONS



PANORAMIC		P 101.10 HM	P 80.9 HM	P 65.14 HM	P 45.18 HM	Dimensions	P 101.10 HM	P 80.9 HM	P 65.14 HM	P 45.18 HM	
<b>Weight</b>						A	mm	5740	5740	5910	6130
Total empty weight (with forks)	kg	15200	15100	15500	15400	B	mm	1160	1160	1335	1550
<b>Performance</b>						C	mm	3240	3240	3240	3240
Maximum rated capacity	kg	10000	8000	6500	4500	D	mm	1335	1335	1335	1335
Maximum lift height	m	9.8	9.1	13.9	17.8	E	mm	5235	5235	5235	5235
Maximum forward reach	m	5.7	5	9	13.2	F	mm	450	450	450	450
Maximum height at maximum load	m	7.1	7.5	10	10	H	mm	2400	2400	2400	2400
Forward reach at maximum load	m	1.8	1.7	3	4.3	M <sup>(2)</sup>	mm	995	995	995	995
Lift capacity at full lift height	kg	5000	5000	4000	2300	P	mm	2850	2850	2850	2850
Lift capacity at maximum forward reach	kg	2750	3000	1600	1000	R	mm	4300	4300	4300	4300
Low emission engine (Euro 2)		cylinder turbo intercooler				S	mm	5700	5700	5400	5440
Power at 2300 rpm (97/68/CE)	kW/HP	107/145				Z	mm	635÷1170	635÷1170	400÷850	400÷850
<b>Cycle times</b>						<sup>(1)</sup> With the regenerating device activated. <sup>(2)</sup> Internal width.					
Raise boom	s	9 <sup>(1)</sup> /19.1	9 <sup>(1)</sup> /19.2	7 <sup>(1)</sup> /16	10.9						
Extend boom	s	7.5	6.3	7.3 <sup>(1)</sup> /16.2	23.9						
<b>Speed</b>											
1 <sup>st</sup> range	kph	16	16	16	16						
2 <sup>nd</sup> range (self-lifting speed)	kph	40	40	40	40						





### Cab

- In compliance with ISO 3449 (FOPS) and ISO 3471 (ROPS) directives.
- '6 in 1' proportional electronic joystick control.

### Boom

- Telescopic with sections sliding on adjustable anti-friction pads.
- Hydraulic extension system mounted internally inside the boom for maximum reliability and protection.
- Integrated hydraulically operated device for side shift.

### Tool-carrier carriage

- Hydraulic quick coupling/detachment device directly controlled from the cab.
- Standard double acting hydraulic service at boom head for hydraulic attachment operation.

### Forks

- Of floating type: length 1800 mm. Section 200 x 80 mm (on P 45.18 HM and P 65.14 HM length 1200 mm, section 125 x 45 mm).
- The fork spread is manually adjustable.

### Steering

- Four wheel steer, with three steering modes selected from the cab.

### Engine

- 6 cylinder turbo intercooler Nef low emissions (Euro 2) diesel engine, with electronically regulated direct injection, water cooling and rated at 107 kW (145 HP) at 2300 rpm (97/68/CE).

### Transmission

- Hydrostatic with electronically regulated variable displacement motor.
- Automatic and continuous speed variation from standstill to maximum speed, simply by operating the accelerator pedal.
- Electrically operated two speed range gearbox.
- Finger-Touch system which permits change in driving direction even when the machine is moving, without the operator having to remove his hands from the steering wheel.
- Permanent four wheel drive traction.

### Brakes

- Hydraulically controlled oil immersed disc service brakes.
- Automatic hydraulic park brake with hydraulic release feature.

### Hydraulic system

- Load-Sensing type.
- Variable displacement axial hydraulic pump.
- Maximum flow: 138 l/min.
- Service pressure: 230 bar.

### Electrical system

- 12 V, 160 Ah battery and 90 A alternator.
- Road lighting complete with rotating beacon.

### Capacities

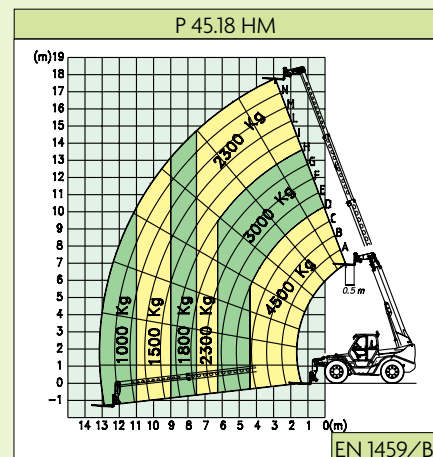
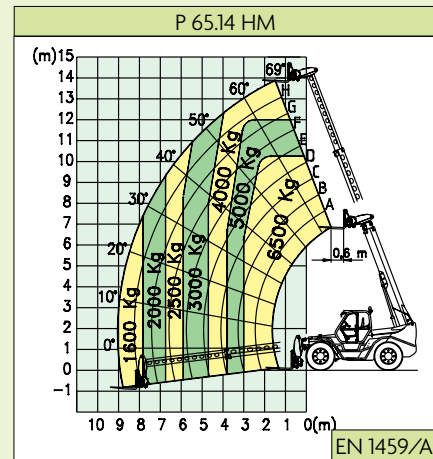
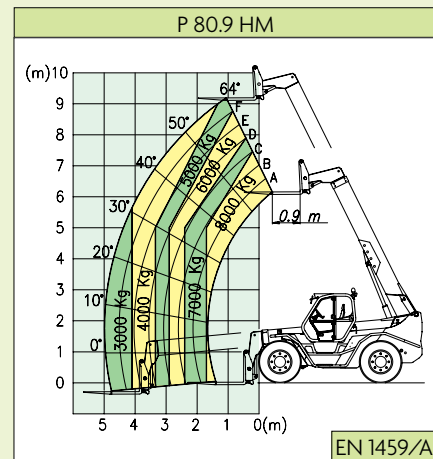
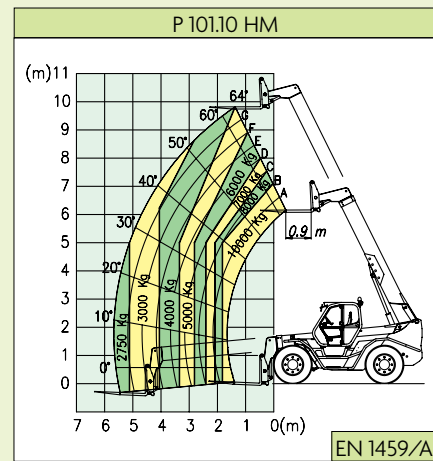
- Hydraulic system: 180 l
- Fuel tank: 185 l
- Hydrostatic oil: 12 l
- Engine oil: 12 l
- Engine cooling: 12 l

### Tyres

- 17.5-25 22 PR

### Options

- Radio-control for material lifting operations.
- Cab mounted working lights.
- Front screen guard.
- Prearrangement for attachments requiring two hydraulic services.
- Antitheft system with immobilising device.
- Air conditioning.





### **Help is always nearby**

Day after day, choosing a Merlo product brings the advantages of the most advanced technology and the practicality of safe and comfortable equipment, of which the very best can be expected.

Merlo Service ensures a close and continuing bond with the customer, provided by a worldwide network of more than 500 Service Centres guaranteeing experienced and trained technical assistance close at hand.

### **Building professionalism**

Evidently, carelessness and a lack of respect for the basic principles of safety are often the causes of accidents with lifting equipment, often through the lack of an adequate training scheme. The close link between training and safety is a part of everyone's experience and must be continually updated as part of our professional development, a role for which the new Merlo Research and Training Centre is admirably suited.



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