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MERLO
AN HISTORIC ITALIAN COMPANY



MACHINE
OF THE YEAR 2014

WEIENSTEINE
DER LANDTECHNIK



MERLO



PANORAMIC HIGH CAPACITY TIER 4 INTERIM

XG



Merlo's factories in San Defendente di Cervasca (Cuneo) cover an area of 300,000 m² (with 220,000 m² inside facilities)

1. Merlo SpA main offices
2. Final assembly lines
3. Lines for assembling components and cabs
4. Moulding of technopolymers
5. Automated storing and shipping centre
6. Machines plus attachments shipping centre
7. Final quality control
8. Technological centre
9. Steel and structural assembly lines centre
10. 3M attachments
11. CFRM (Training & Research Centre)

The Merlo Group

N° 1 for technology and safety

The Merlo brand has always been synonymous with advanced technology in the telehandler field and our history, since 1964, is hallmarked by experience based on determination and passion. The development of complex products, from the idea to the result, from design to sales, means being able to propose orientations of the most competitive markets.

The outcome of our efforts are compact, easy to handle telehandlers ensuring incomparable operating performance, comfort, efficiency and safety.

At Agritechnica 2013, three important awards were received that clearly demonstrate the technological and innovative superiority of our products:

- Turbofarmer 42.7 Hybrid: Gold Medal for innovation at Agritechnica.
- Turbofarmer II: Machine of the year 2014 in the "handling and logistics" category.
- Multifarmer: Selected as a "milestone" in agriculture.

• **> 1.100** employees

• Surface area of **300,000 m²**
of which **220,000 m²**
are indoors

• **90%** exports

• **600** dealers all over the world

• **8%** of turnover invested in R & D

• **54** robots



Automated boom bending workstation



Roto robotised welding of the chassis

High-capacity Merlo range:
Merlo strength at the service
of productivity



New high capacity families

Panoramic and HM

They have been updated to adopt the Tier 4 Interim engines and are even more innovative, performing and safe, in line with the evolution of the Merlo product.

The Panoramic and HM families offer the following advantages:

- + **Comfort**
 - ➔ Largest cab in its category
 - ➔ Best comfort level
- + **Safety**
 - ➔ Cab compliant with ROPS and FOPS level II standards*
 - ➔ M CDC Dynamic load control as standard
- + **Versatility**
 - ➔ Tilt correction and standard boom side shift
 - ➔ 60.10 and 72.10 with possibility of type approval as an agricultural machine
- + **Efficiency**
 - ➔ Tier 4 Interim Engines
 - Panoramic: powers of 101 HP (no DPF or SCR)
 - HM: power of 176 HP with SCR
 - ➔ -18% consumption with EPD (standard on HM)
 - ➔ CVTronic transmission (standard on HM)
 - ➔ Regenerative system (standard on HM)



- **Largest cab**
on the market - **1010 mm**
- **5 models** for every need:
2 Panoramic and **3 HM**
- **Levelling +**
standard shift
- **HM: EPD -18%** consumption
CVTronic Transmission
Regenerative system

* EN ISO 3449/2008, protection level II (highest protection level provided by the norm and equivalent to the fall of a 227 kg object from 5.22 metres)

High capacity family

Technology at the top of the market



Innovative Merlo systems

- Levelling + boom side shift
- Tac-Lock rapid coupling of the attachments

Performance Panoramic

- 10 metre booms
 - Capacities ranging from 6 to 7.2 tons
- ### HM
- Booms from 10 to 18 metres
 - Capacities ranging from 5 to 12 tons

Comfort

- Largest cab on the market 1010 mm
- Maximum comfort and excellent visibility

Safety

- M CDC Merlo dynamic load control
- Automatic attachment recognition
- Cab compliant with FOPS/ROPS

POWERTRAIN

Panoramic P60.10 and P72.10

- Tier 4 Interim Engines 101 HP, torque 390 Nm
- Hydrostatic transmission equipped with two ranges gearbox

HM

- Tier 4 Interim Engines 176 HP, torque 700 Nm
- CVTronic transmission
- EPD – Eco Power Drive – Savings: 18% diesel
- Regeneration system on lifting
- Electronic accelerator
- Flow -Sharing Distributor

Hydraulic

- Panoramic: P60.10 and P72.10 Load-Sensing pump and electronic joystick
- HM: Load-Sensing pump and electronic joystick and Flow-Sharing distributor, electronic accelerator on joystick and regenerative system

Panoramic P60.10 and P72.10

- Possibility of type approval as agricultural machine

High specifications for high performances

Even more advantages and benefits

MODEL	ENGINE		EPD	HYDRAULIC			CHASSIS	TRANSMISSION		SAFETY DEVICES	JOYSTICK COMMAND	
	101 - Tier 4 Interim	176 - Tier 4 Interim	Eco Power Drive	Load Sensing	Flow Sharing	Regeneration system	Levelling + Side shift	2 Speed	M CVTronic	M CDC + display + automatic attachment recognition	Electro-mechanical	Electronic with accelerator
PANORAMIC												
P60.10	X			X			X	X		X	X	opt
P72.10	X			X			X	X		X	X	opt
HM												
P50.18HM		X	X	X	X	X	X		X	X		X
P65.14HM		X	X	X	X	X	X		X	X		X
P120.10HM		X	X	X	X	X	X		X	X		X

Broad product offering:

- **5 models** available

Comfort:

- **Largest cab** on the market
- **1010 mm**

New technologies:

- **CVTronic** + torque + productivity
- “TT” versions **levelling + side shift** as standard
- **M CDC Merlo** for dynamic load control
- Standard **Load-Sensing** for the entire range

Versatility and productivity:

- **2 Tier 4 Interim** engines available - **101 HP** or **176 HP**
- Height from **10** to **18 metres**
- Capacities from **5** to **12 tonnes**

Tier 4 Interim engines
efficient performance



Tier 4 Interim engines

Higher performance and lower consumption

The High Capacity Duty models come equipped with Tier 4 Interim engines. The engines provide an increase in performance with a reduction in displacements, so as to significantly reduce consumption (downsizing). Merlo selects the engines that power its telehandlers after thorough testing in order to offer its customers high performance, maximum efficiency, low fuel consumption and low maintenance.

Panoramic P60.10 and P72.10

4 cylinders, 75 kW/101HP, 3.6 litres at 2600 rpm, torque of 390 Nm at 1600 rpm. Reduced operating costs thanks to the selected technology that makes it possible to comply with the emissions limits set for the Tier 4 Interim without particulate filter and without SCR.



HM models

4 cylinders, 129 kW/176HP, 4.5 litres at 2200 rpm, torque of 700 Nm at 1500 rpm. SCR post-treatment with AdBlue*.

SCR (Selective Catalytic Reduction)

The SCR system uses a catalyser that exploits a chemical reaction between the polluting agents and a mixture of Water and Urea, reducing the emissions. In practice, the urea decomposes the NOx nitrogen oxides into water vapour and simple nitrogen, two substances that are harmless to man and the environment. Urea consumption is about 5% of diesel consumption, and the tank is sized so that it is necessary to refill the AdBlue every other diesel refill.



- **high-performing** and **efficient** engines
- **"Downsizing" effect** to **reduce consumption**
- **Panoramic**: 3.6 litres, 101 HP (no DPF, no SCR) to ensure **low management costs**
- **HM**: 4.5 litres, 176 HP **SCR post-treatment**. **High performance** and **low consumption**

NOTE: the urea is found on the market as AdBlue®

Merlo CVTronic:
accelerations from 0 to 40 km/h without torque interruption
and without stop for gear shifting



HM: Merlo CVTronic technology and EPD

Merlo's own continuous variable transmission version

The CVTronic transmission follows Merlo's traditions in the hydrostatic field and ensures smooth acceleration without interrupting torque from zero to 40 km/h.

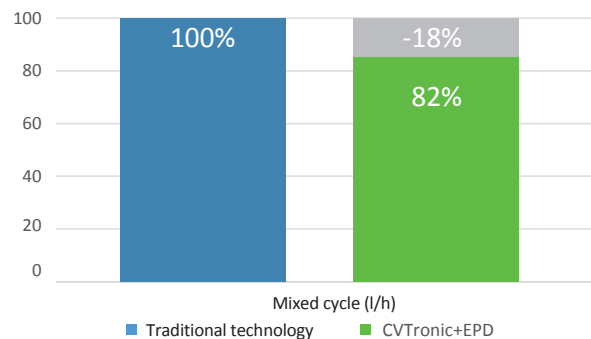
The transmission comprises two axial piston hydrostatic engines powered by the electronically-controlled hydraulic pump. At low work speeds they offer maximum torque by acting in tandem, with a +12% increase compared to conventional hydrostatic transmissions. During transport, the second hydrostatic engine is automatically disengaged from the control system and the oil from the pump powers the main hydrostatic engine that pushes the HM telehandlers to maximum speed. The CVTronic M transmission is equipped with EPD, a system designed by Merlo that helps to reduce diesel consumption by 18%. The EPD's electronic control unit is placed between the gas pedal and the diesel engine injectors. The operators sets the desired speed and the EPD system manages the number of diesel revs according to the parameters set in the control unit, ensuring maximum efficiency, high performance and minimum consumption.



Merlo CVTronic

Reduction in consumption

Merlo CVTronic technology + EPD



- **+12% torque** at low speeds vs. conventional hydrostatic transmissions
- Smooth and progressive **acceleration** from 0-40 km/h **without interruptions** for a gear change
- **-18% of consumption** thanks to the **EPD** system

Largest cab in the category

1. M CDC - Dynamic Load Control: Merlo-patented safety system with safety standards better than EN15000.
2. Electromechanical joystick. Electronic (HM) optional on P60.10 and P72.10.
3. New digital display.
4. Inching-Control: expanded sensitivity for creep movements.
5. Finger Touch reverse shuttle.
6. Glove box.



The record-breaking cab is more up-to-date than ever

More space on board offered as standard

The Merlo cab is known for ease of access to the driver's side and for its on board roominess.

At 1010 mm, it is the widest in the category and allows maximum comfort in daily use.

The machine's architecture, the low centre of gravity and the tapered hood ensure excellent visibility in every direction. The operator can visually follow the load to its maximum height, thanks to the transparent top. The 770 mm door is fitted with a 180° opening window for better natural ventilation.

The controls are placed according to accurate ergonomic studies.

All information is available clearly and precisely with the new on board panel and the new display for the M CDC.



New analogue-digital instrument panel

Standard specifications for HM models



HM: Dual-Shuttle reverse shuttle buttons



HM: Armrest and Joystick with reverse shuttle

- **1010 mm wide.** The cab is the largest in its category

- Driver's side access made easier with a **wide door (770 mm)**

- **360° visibility.**

Low hood thanks to careful engine layout

- **HM models** equipped with **armrest** and **Dual-Shuttle reverse shuttle** (on the Joystick and the steering wheel)

Merlo CDC,
when safety counts



Merlo CDC display

Merlo Dynamic Load Control

Safety as standard for everyone

The Merlo Group considers safety as an absolutely essential value and this is why it invented the M CDC system. The objective is to allow every operator to work in total safety by fully exploiting the potential of the telehandler and the attachment used.

With the Merlo CDC system, the High Capacity models can automatically recognise the attachment fitted and consequently calibrates its performance in relation to specific load charts.

The operator can check at any time the dynamic equilibrium of the vehicle, thanks to the led on the screen.

For manoeuvres that may give rise to a telehandler stability risk, the M CDC system will block the boom and prevent any further movements that may worsen the situation.



Rear video camera (optional)

Automatic attachment recognition



Sensor on the attachment



Sensor on the carriage

• **Safety** beyond even
EN15000 standards

• **Automatic
attachment*** recognition

• Recognition and memory of the **load***

• **ROPS** and **FOPS** protection,
no impact on comfort

**Valid for attachments built in Merlo factories and fitted with the M CDC sensor





Levelling and side shift:
versatility, precision
and safety

Merlo precision and technology

Merlo Boom, reliability and innovation

Merlo produces the booms mounted on its telehandlers in-house and has developed unique technologies to make them strong yet lightweight, protect handling mechanisms against accidental blows and allow users to position the load in the most precise manner possible.

- ✓ Boom sheet metal welded on the boom's neutral bending axis
- ✓ Cartridge protected handling system inside the boom, thanks to a patented solution that is easy to access if maintenance is needed
- ✓ Tac-Lock: hydraulic attachment clamping system from the cab
- ✓ Levelling: system for correcting tilt, built into the chassis, allowing the operator to correct ground slopes and work in complete safety
- ✓ Movement: the boom can be shifted sideways by the operator (up to 440 mm on the P50.18 HM) so that the load can be positioned with maximum precision, comfort and time-savings



Boom side shift



Levelling

- **Lighter** but **stronger** booms: robotised welding on the neutral axis, area with less strain
- **Extension mechanism**, protected inside the boom
- Unique **levelling** and **side shift**: with a patented system
- **HM**: Standard **Flow Sharing**

Electronic rpm management

Higher performance and lower consumption

The Merlo EPD system allows you to freely manage the revs of the thermal engine, dissociating it from the accelerator pedal and displacement speed.

To improve the productivity of Merlo telehandlers, the EPD has two additional capabilities: the **self-accelerating joystick** and the **rpm regulator**.

SELF-ACCELERATING JOYSTICK

This solution helps improve the productivity of Merlo telehandlers by automatically increasing the rpm when necessary to speed up boom movement.

This function is activated with the selector **1** and its functioning logic provides:

- ✓ Joystick movement (not to end of travel): rpm increased in proportion to the movement angle
- ✓ Joystick movement to end of travel: rpm at 80% of maximum rpm for quick and precise movement of boom
- ✓ Joystick movement to end of travel with 2 or more requested movements: rpm at maximum

RPM REGULATOR

The rpm regulator **2** allows the operator to set the minimum rpm desired. This is very useful during bucket loading and when using attachments on the boom that constantly require a minimum flow of oil. When the self-accelerating joystick mode is activated, the regular sets the maximum rpm to further reduce consumption.



- Self-accelerating joystick as **standard** on **HM**
- **Practical, intuitive** and effective
- **Improves** performances
- **Improves productivity** and ensures **savings in time**

Winning hydraulics

Practical and efficient systems



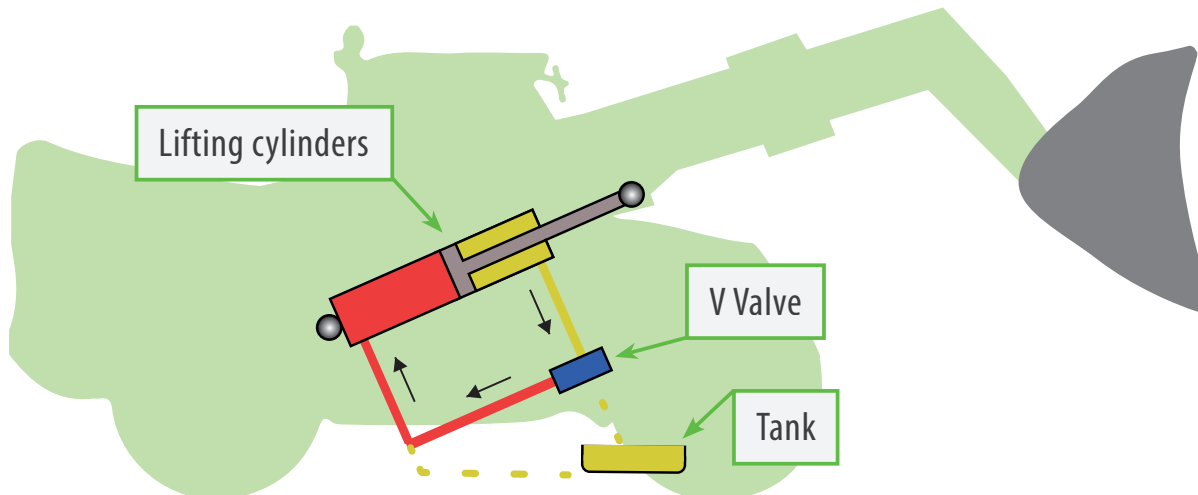
Panoramic and HM

REGENERATIVE SYSTEM

To improve productivity for the HM family, Merlo has adopted the regenerative system, designed to increase the boom's angular speed while handling loads. The system makes it possible to automatically increase the speed by 36% compared to similar systems without the regenerative function.

HOW IT WORKS

The boom lifting system is fitted with two dual effect cylinders, one of which is equipped with the regenerative system. The oil coming from the pump enters the cylinder's expansion chamber (in red in the diagram below), and since it is dual effect the oil in the opposite chamber is placed back into the pressure chamber (in yellow in the below diagram) instead of being discharged, being added to the oil from the pump, speeding up the filling of the cylinder and, as a result, the angular speed of the boom.



Regenerating system

+36%

angular speed of the boom when rising

- Panoramic and HM: standard **Load Sensing** pump:

Panoramic: 104 litres/min

HM: 115 litres/min


- HM: **Flow Sharing**

Allows three boom movements at the same time.

Increased productivity

- HM: **regenerative system**

Allows a **36% increase** in the angular speed of the boom



Sturdy, reliable axles
with excellent
ground clearance

485 mm
ground clearance
18-19.5 tyres

Panoramic

Axles and brakes, effective and efficient

Added value for tangible benefits

Our Panoramic range telehandlers are fitted with ideal axles uncompromisingly designed and built in-house.

The main body is in welded steel and the reducers are epicyclic.

The structure of the axles makes it possible to deal with operating loads above 17.700 kg (P72.10).

This type of axle has proven to be a winner for its sturdiness, reliability and duration.

It ensures a minimum turning radius of 3950 mm and a significant ground clearance of 485 mm

(at the centre of the axle with 18-19.5 tyres). They come with 4 dry brakes and the

parking brake engagement system that automatically activates when

the engine is turned off. They have been designed by Merlo engineers to be integrated into

the «TT» chassis with levelling and side shift, a winning combination that only Merlo can offer.

The axles adopted into the HM family are specific and structurally suited to support heavy loads in line with HM class.



THREE STEERING MODES WITH END-OF-TRAVEL RE-SYNCH

Four-wheel drive with hydraulic servo-assistance.



FRONT WHEEL STEERING

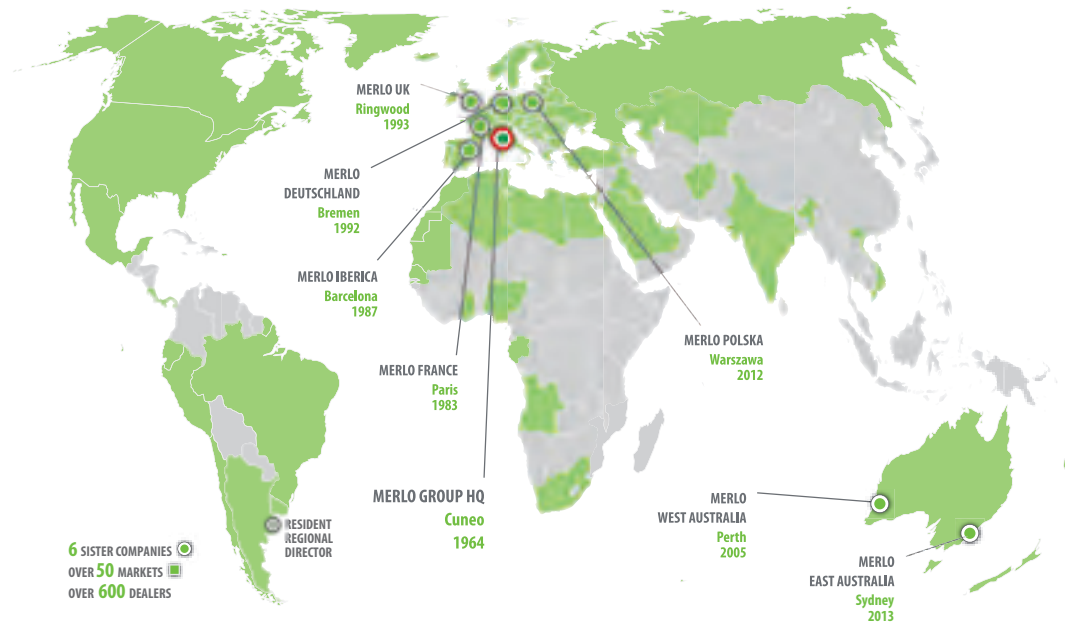


COORDINATED STEERING



CRAB STEERING

- Axles **conceived, designed** and **built** by Merlo (Panoramic)
- **485 mm ground clearance**
best value in the category (Panoramic)
- **Three steering modes**
- **Dry brakes** to reduce friction and consumption
- Automatic **parking brake** engagement system when engine switched off



TRAINING CENTRE

The Merlo Training and Research Centre (CFRM) has made safety training and instruction in the use of the machine its mission. The CFRM provides training courses for operators of person-carrying overhead platform, forklift trucks, telehandlers, cranes, earth-moving machinery, agricultural and forestry tractors, snow ploughs and urban cleaning vehicles.

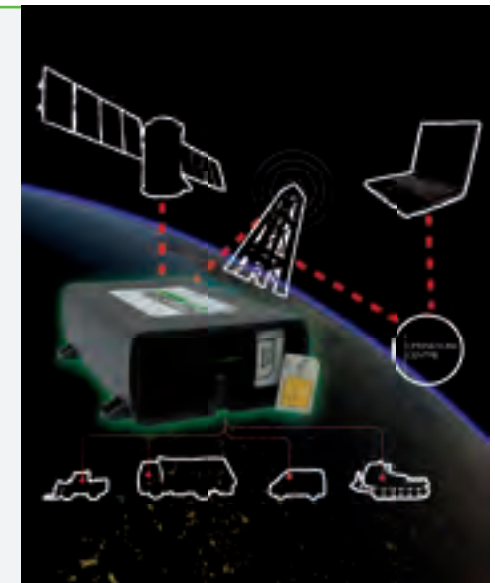


Countries where Merlo is a market leader



MOVIMATICA MERLO INFOMOBILITY

Is the new system, conceived and built within the Merlo Group, for managing vehicles: it enables GPS radio-localisation in real time, monitoring operation and use, receive and manage malfunction or burglar alarms and also send commands for handling events via the internet.



THE MERLO WORLD

In a globalised world, **the customer always comes first!**

From excellent products to excellent service. In 2008, Merlo has adapted its production process to meet the needs of the ISO 9001 quality control system. The process is perfected and improved continuously.

At the same time, the foundations have been laid to put the Customer first, implementing investments aimed at Services such as Financing, Training Assistance, Spare parts and Telematic Means such as remote diagnostics, thanks to the Merlo Mobility project.

Automatic spare parts warehouse	2011	2014
Storage volume	1000 m ³	10.000 m ³
Filling	100%	85%
Percentage of codes managed	50%	86%
Percentage of Lines managed	65%	94%
Pick-up time	90"	30"
Number of codes	8.000	17.000

NEW PARTS CENTRE

The new spare parts warehouse covers an area of 7,000 m², with storage capacity for of 10,000 m³ for a total of 20,000 different codes. Furthermore, it can automatically manage 94% of the order lines that are processed daily, with an average withdrawal time of 30" per line.

The first fill per order line is over 99% with delivery times for urgent orders within 24 hours.



Storage area and automatic pick-up



Order processing and shipment area

TECHNICAL INFORMATION	P60.10	P72.10	P50.18HM	P65.14HM	P120.10HM
Total unladen mass, without forks (kg)	9800	10650	15410	15500	15650
Maximum capacity (kg)	6000	7200	5000	6500	12000
Lifting height (m)	9,5	9,4	17,8	13,9	9,8
Maximum reach (m)	5,3	5,2	13,2	9	5,7
Maximum operating height (m)	7,2	6	12,7	10	6,5
Maximum operating reach (m)	1,5	1,5	3,9	3	1,4
Capacity at maximum height (kg)	3000	4000	3000	4000	5000
Capacity at maximum reach (kg)	1500	2000	400	1600	2750
Turbo motor (displacement/cylinders)	3,6/4	3,6/4	4,5/4	4,5/4	4,5/4
Tier 4 Interim motor power (kW/CV)	74,5/101	74,5/101	129/176	129/176	129/176
Eco Power Drive (EPD)	-	-	●	●	●
Maximum speed (km/h)	40	40	40	40	40
BSS hydro-pneumatic boom suspension	●	●	-	-	-
Fuel tank (l)	150	150	185	185	185
Hydraulic Load-Sensing pump (bar-l/min)	240/104	240/104	210/115	210/115	210/115
Flow Sharing	-	-	●	●	●
REGENERATIVE device (+50% boom speed)	-	-	●	●	●
Hydraulic oil tank (l)	150	150	180	180	180
FOPS (ISO 3449) and ROPS (ISO 3471) cab	●	●	●	●	●
Electronic joystick	○	○	●	●	●
Electromechanical joystick	●	●	●	●	-
Hydrostatic transmission	●	●	●	●	●
Differential lock (Front - Rear)	●	●	●	●	●
Reverse shuttle at steering wheel:	●	●	●	●	●
Inching-Control pedal movement control	●	●	●	●	●
Permanent four-wheel drive	●	●	●	●	●
Four-wheel steering	●	●	●	●	●
Automatic parking brake	●	●	●	●	●
Work headlights on cab (2 A + 2 P)	●	●	●	●	●
Change of speed	2 velocità	2 velocità	CVTronic	CVTronic	CVTronic
Chassis levelling + side shift	●	●	●	●	●
Dynamic load control M CDC + display + automatic attachment recognition	●	●	●	●	●
Regenerative system + Automatic accelerator	-	-	●	●	●
Standard tyres	18-19.5	18-19.5	17.5-25	17.5-25	17.5-25

● As standard. ○ On request.

From the idea to develop multi-applicability

Greater efficiency and productivity thanks to Merlo attachments

Merlo adopts simple and effective guidelines in the evolution of the product.

From conception to development, everything is studied, designed and created in the Group's plants. This simple "rule" also applies to attachments.

Backed by years of experience, Merlo's technicians have developed a wide range of attachments, divided by type and load capacity.

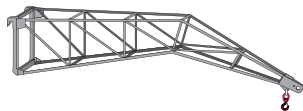
The multi-function Merlo systems, immediately operative in a multitude of different applications, are among the most advanced technology to offer efficiency, comfort and above all, safety in everyday work.



CARRIAGE-MOUNTED HOOK



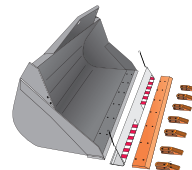
FLY JIB



FORKS



DIGGING BUCKET



LIFTING BOOM



CALIPER FOR TYRES

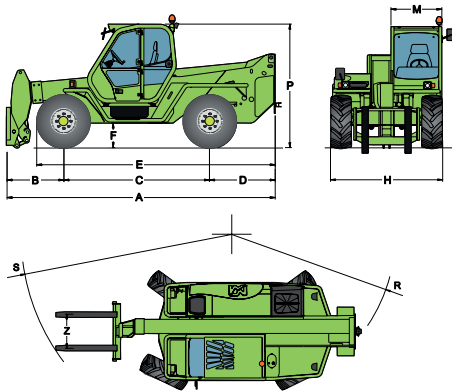


THREE-SIDED EXTENDIBLE PLATFORM



DATA

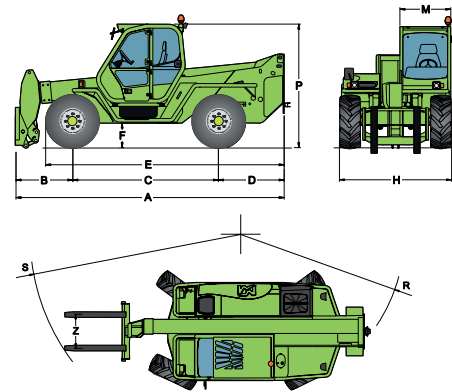
P.60.10



DIMENSIONS P 60.10

A (mm)	5345	F (mm)	480
B (mm)	1235	H (mm)	2240
C (mm)	2875	M (mm)	995
D (mm)	1300	P (mm)	2440
E (mm)	4645	R (mm)	3950

P.72.10



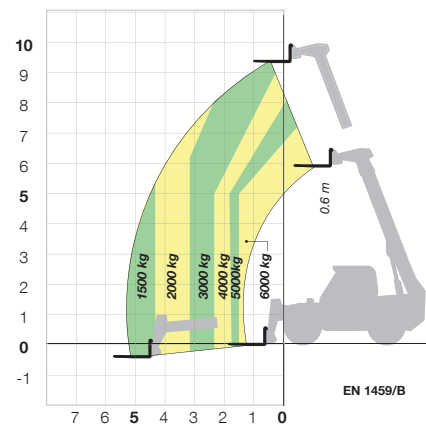
DIMENSIONS P 72.10

A (mm)	5345	F (mm)	480
B (mm)	1235	H (mm)	2240
C (mm)	2875	M (mm)	995
D (mm)	1300	P (mm)	2440
E (mm)	4645	R (mm)	3950

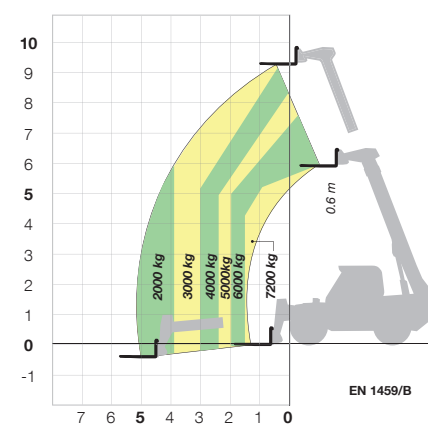


P72.10

P60.10 WITH FORKS



P72.10 WITH FORKS



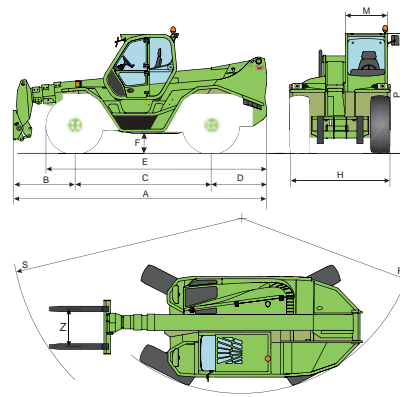
P120.10HM

TECHNICAL DATA

P65.14HM



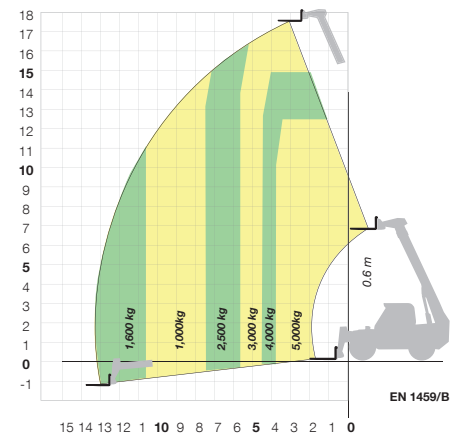
P 50.18 HM



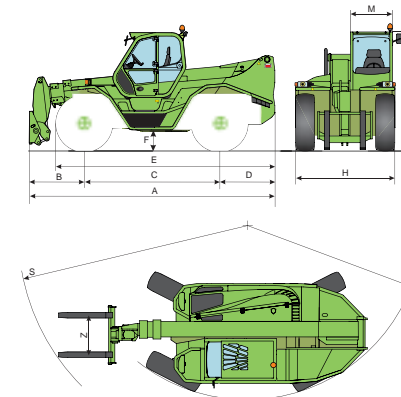
P P 50.18 HM DIMENSIONS

A (mm)	6180	F (mm)	450
B (mm)	1605	H (mm)	2400
C (mm)	3240	M (mm)	1010
D (mm)	1335	P (mm)	2850
E (mm)	5235	R (mm)	4300

P50.18 HM WITH FORKS



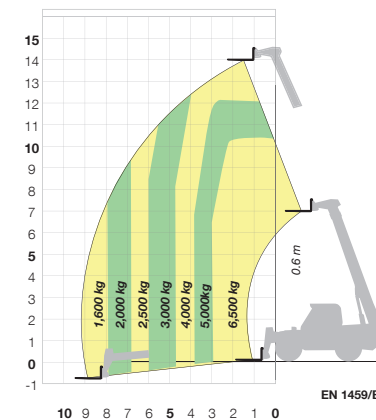
P65.14HM



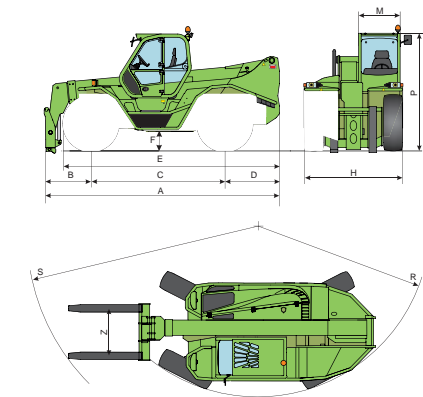
P P 65.14 HM DIMENSIONS

A (mm)	5910	F (mm)	450
B (mm)	1335	H (mm)	2400
C (mm)	3240	M (mm)	1010
D (mm)	1335	P (mm)	2850
E (mm)	5235	R (mm)	4300

P65.14 HM WITH FORKS



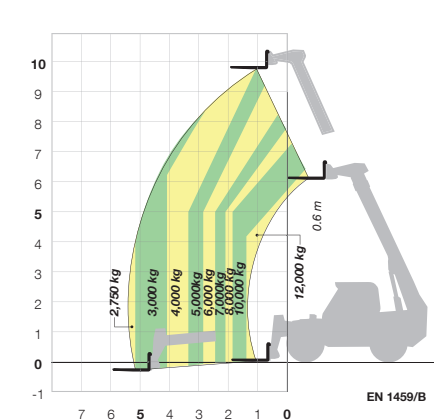
P120.10HM



P P 120.10 HM DIMENSIONS

A (mm)	5740	F (mm)	450
B (mm)	1160	H (mm)	2400
C (mm)	3240	M (mm)	1010
D (mm)	1335	P (mm)	2850
E (mm)	5235	R (mm)	4300

P120.10 HM WITH FORKS



50 YEARS OF CONSTANT COMMITMENT TO WORKING TOGETHER WITH YOU

- 1964** - Establishment of the Merlo Group
- 1966** - DM and DBM: the first dumper and the first self-loading concrete mixer
- 1981** - SM: the world's first telescopic handler
- 1987** - Panoramic: the world's first telehandler with side engine
- 1991** - Roto: the world's first telehandler with rotating turret
- 1996** - Turbofarmer: the first telehandler in Europe type-approved as an agricultural tractor
- 1998** - P26: the ultra-compact telehandlers
- 2000** - Multifarmer: the first agricultural tractor with telescopic boom
- 2001** - MM: the first forestry attachment-carrier
- 2010** - Hybrid: the first diesel/electric hybrid telehandler
- 2012** - Modular: a new concept of telescopic handler
- 2013** - Three important awards at the Agritechnica in Hanover:
 - Hybrid 42.7: gold medal for technological innovation
 - Turbofarmer II range: machine of the year 2014
 - Multifarmer 40.9: a milestone in agricultural machinery



MERLO S.P.A.

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The Telehandlers outlined in this documentation can be equipped with optional or special accessories that are not included in standard equipment but only on request.

In certain countries, not all models or attachments may be available because of market or regulatory restrictions.

Technical data and information are up-to-date at the time of printing this documentation. Merlo reserves the right to make modifications arising from natural technological evolution without any obligation on its part.

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