



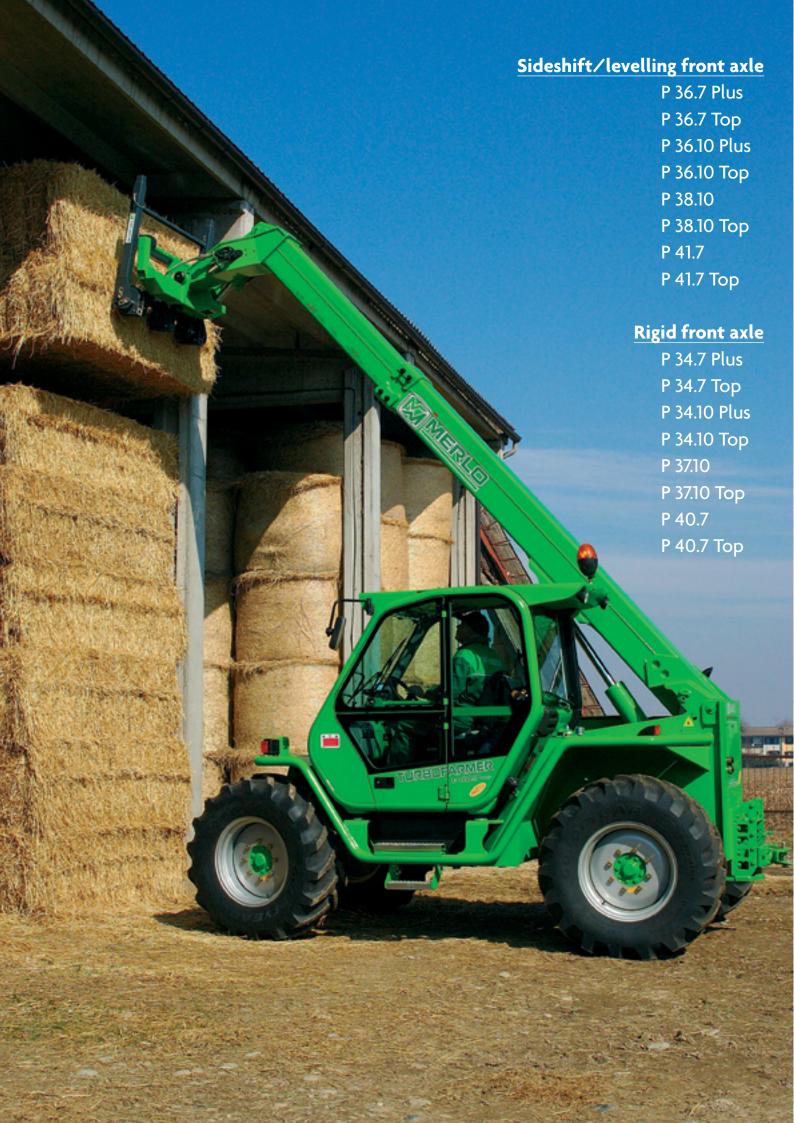
The supremacy of ideas.



# TURBOFARMER

## TURBOFARMER





## A NEW POWER IN FARMING



#### The cutting edge of technology

The TURBOFARMER farm handler range clearly demonstrates Merlo's innovation and technology. The combination of its boom design and an enviable towing performance for trailers and agricultural equipment provides the solution for a wide variety of handling problems for many farming applications.

For the first time, a 140HP aftercooled turbo engine can be matched to a high performance 'Load-Sensing' hydraulic system, incorporating fully proportional and independent control through

a 'Flow-Sharing' valve block.

This unequalled level of performance ensures that the TURBOFARMER is an extremely competitive product in the marketplace.

A further demonstration of Merlo's dedicated commitment to the design of high-tech farm machinery, the result of ongoing research and development, and the experience acquired during forty years of leading the handler market!

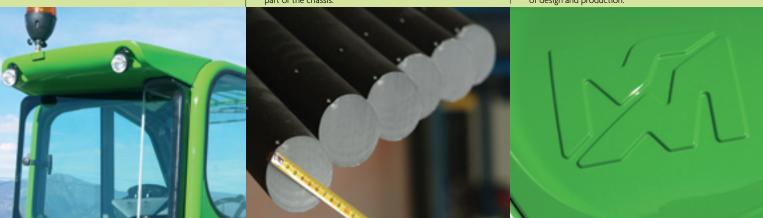
## **EXCLUSIVE FEATURES**



The front and rear windows and upper door section can be opened for 'natural' ventilation.

The periphery of the TURBOFARMER is protected against impact damage by a solid 'Ring of Steel', which is an integral part of the chassis.

Within Merlo, our specialisation in telescopic handlers guarantees continuing research into even the smallest details of design and production.



The TURBOFARMER farm handler family includes 16 models in the 7m and 10m class, with lifting capacities ranging from 3400 to 4100 kg. Their exclusive features ensure maximum performance and ease of operation in even the toughest of farm applications!

#### **Outstanding safety**

As a standard fitting, the longitudinal stability control mechanism locks the telescopic boom if the machine's stability limits are approached (key-selected feature).

#### Convenient operator controls and clear instrument panel

All controls are accessible and convenient to operate. In front of the operator is a comprehensive instrument display, which can be read in all lighting conditions.

#### **Total visibility**

The TURBOFARMER continues Merlo's legendary 360° visibility around the machine, particularly of both front and rear working areas.

#### **Maximum comfort**

The operator has the advantage of the widest handler cab currently available on the market, together with a redesigned driver's seat (with optional air suspension) that ensures excellent comfort.

#### Unequalled manoeuvrability

Merlo's design concept integrates all the components into an exceptionally compact package. The resulting excellent manoeuvrability and precision are further enhanced by a powerful engine and precise hydrostatic transmission!

#### Maximum accessibility

The side mounted engine and careful positioning of the transmission and hydraulic systems ensure excellent accessibility for maintenance. Technicians can work in total safety with their feet firmly on the ground.

#### High productivity

Their high operating speed, great precision, flexibility and outstanding performance ensure that the TURBOFARMER will produce the highest productivity in even the toughest conditions.

#### Plastic fuel tank

The fuel tank is formed from plastic, which is more resistant to damage than metal, and easier to service.

#### Standard Battery Isolator

All TURBOFARMER models are equipped with a manual battery isolator switch.
As an option, an automatic type is available.



#### The TURBOFARMER range offers much more

- Towing agricultural trailers up to 21 tonnes (where permitted)
  - The largest cab currently available on the handler market
- 4 cylinder turbocharged engines of 74.9kW (102HP) or 103kW (140HP) with aftercooler
  - 'Load-Sensing' hydraulic systems with fully proportional 'Flow-Sharing' on 140HP TOP models.
    - Integral boom side-shift
    - Frame levelling mechanism
  - Electronically controlled hydrostatic transmission
    - Permanent four wheel drive and 3 steer modes
    - 2-speed mechanical gearbox and optional 'Change-on-the-Go' electronic synchronisation
      - Maximum travel speed 40kph (self-limiting)
    - BSS boom suspension or EAS active front axle suspension (latter standard on certain models)







## INSTRUMENTS AND CONTROLS



#### Spacious and comfortable cab – a new standard to beat!

The TURBOFARMER cabin has been designed around the driver - a modern synthesis of comfort and safety. The cab frame conforms to ISO 3449 (FOPS) and ISO 3471 (ROPS) standards of protection and both steering wheel and seat are fully adjustable, to guarantee the best position for sitting and being able to reach all driving controls without a hand leaving the wheel.

The control layout is highly ergonomic and the generous cab interior is the widest on the current market

Sun blinds on the overhead window and the upper part of the windscreen keep the sun from the operator's head and eyes.

Excellent cool and hot air ventilation is provided through face and foot level vents, with a manually-controlled air conditioning system available as an option.

- 1 Main instrument panel
- 2 'Finger-Touch' forward/reverse direction lever
- 3 Potentiometer speed adjustment
- 4 Multi-purpose joystick
- 5 Stability control system indicator
- 6 Personal storage and hidden radio (when fitted)

The optional electrically controlled 'Change-on-the-Go' speed ratio gearbox is operated by two handy push button controls on the side of the steering column.

The joystick provides proportional control of all functions for easy and precise use.

The option air conditioning system ensures a very agreeable environment for the operator!







#### The ultimate in handler cab comfort

- 995 mm interior working width
- 360° all-round visibility
- Structure complies with ISO 3449 (FOPS) and ISO3471 (ROPS) standards
- Thinner window sealing to increase the practical glass area
- Ergonomic controls with intuitive actions
- Multi-purpose joystick for all boom controls

#### Easy access

Cab access is by means of a fully-opening, two section door (the upper section can be locked open), and is further facilitated by self-cleaning steps. The floor is flat and obstacle-free.

#### **Everything to hand**

Inside the cab are a number of boxes and shelves for personal storage. When fitted, the radio is housed in a secure compartment, out of sight.

#### **Sound-reduction**

An exceptional degree of cab sound-proofing results from detailed studies in active and passive sound-reduction engineering.

#### Protection from the sun

Roof and front window mounted sun blinds reduce glare from the sun, keeping the driver comfortable during the working day.



Newly contoured and strengthened, the TURBOFARMER seat is easily identified by the Merlo logo.

Fully adjustable forwards and backwards, it also features seat back and seat angle adjustment to comfortably accommodate any driver. As an option, a weight-adjustable air suspension seat isolates the driver from the majority of external vibrations, ensuring productive and safe working, especially during road travel.



Handling Cleaning Transport







## THE WINNING CONCEPT



#### Side-mounted engine

All 16 models in this TURBOFARMER family are fitted with a 4-cylinder Deutz low emission (Euro 2) turbocharged engine. Water-cooled, it develops 74.9kW (102HP) at 2400rpm. In the 'top of the range' models, an aftercooled version is used, which produces a massive 103kW (140HP). Not surprisingly, with this level of power and torque (49 kgm) available the speed, performance and towing ability has to be experienced to be believed!

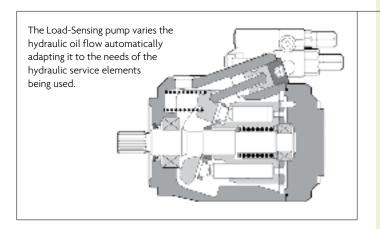
The engine is mounted to the right side of the chassis, ensuring safe, easy access and maintenance from ground level. Its weight balances that of the cab, assisting Merlo's traditional high stability.

The water and hydraulic fluid heat exchangers are easily cleaned after removing the quickly-detachable anti-straw protection grilles.

		Turbo aftercooler	Turbo
P 34.7 <sup>(1)</sup>	kW/HP	-	74.9/102
P 34.10 <sup>(1)</sup>	kW/HP	-	74.9/102
P 36.7 <sup>(1)</sup>	kW/HP	-	74.9/102
P 36.10 <sup>(1)</sup>	kW/HP	-	74.9/102
P 37.10 <sup>(1)</sup>	kW/HP	103/140	-
P 38.10 <sup>(1)</sup>	kW/HP	103/140	-
P 40.7 <sup>(1)</sup>	kW/HP	103/140	ر بر -
P 41.7 <sup>(1)</sup>	kW/HP	103/140	- ~
(1) All versions			
t .			



- 1 Axle
- 2 Hydrostatic oil reservoir
- 3 Propellor shaft
- 4 Hydrostatic pump
- **5** Heat exchangers
- 6 Diesel engine
- 7 Hydrostatic motor
- 8 Pipes



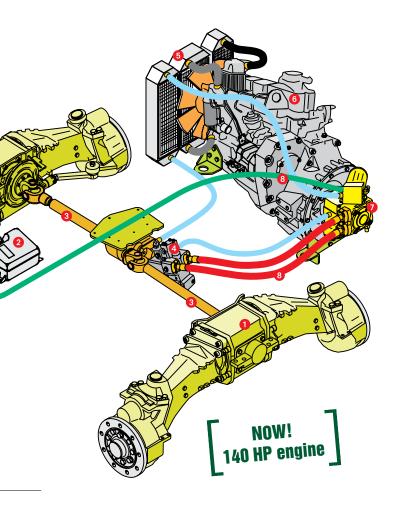
#### Hydrostatic transmission - today's most advanced technology

This type of transmission is rapidly becoming the norm for small, mobile equipment. It provides precise and accurate control, even at high engine power and at travel speeds up to 40kph.

An electrically selected, two-speed gearbox connects the hydrostatic motor output to the conventional main powerline.

There is also the option of an electronic 'Shift-on-the-Go' gearbox, patented by Merlo, which allows the driver to preselect the speed range whilst on the move.

Directional control is by a 'Finger-Touch' forward/reverse selector also mounted on the steering column, such that the driver's hand does not have to leave the wheel. Speed control of the machine is purely through the accelerator pedal, there being no 'gears' as such.



#### **Hydraulic systems**

Responding to the various needs of farmers, the hydrauilic circuit used depends upon the model.

**Gear Pump** (*P 34.7 PLUS, P 34.10 PLUS, P 36.7 PLUS, P 36.10 PLUS*). The hydraulic circuit is supplied by a 100 lpm gear pump, so the flow rate is always directly proportional to engine speed.

**'Load-Sensing' pump** (*P 34.7 TOP, P 34.10 TOP, P 36.7 TOP, P 36.10 TOP, P 37.10, P38.7, P 38.10, P 40.7, P 41.7*).

The variable-delivery 150 lpm axial piston pump has a management system which automatically matches the pump delivery according to the effort required, independent of the engine speed.

**'Flow-Sharing'** (P 37.10 TOP, P 38.10 TOP, P 40.7 TOP, P 41.7 TOP). In the 140HP TOP models, the 'Load-Sensing' pump feeds a 'Flow-Sharing' main valve block. This feeds each of the hydraulic services, dependent only upon the movement of the joystick. The speed of each service is determined only by the position of the joystick and is independent of the other services, the load imposed in each and of engine speed.

#### Four wheel braking

Transmission braking is immediately available, simply by releasing the accelerator pedal. In addition, 4 large hydraulic service disc brakes are located on the exit shafts of the differential, inside the axle casings.

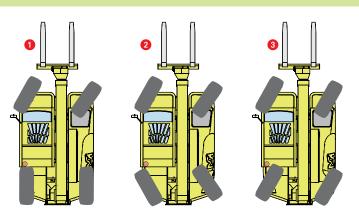
The braking system has two independent hydraulic circuits for safety and ease of operation. Air or hydraulic trailer braking systems are available as options, and are fitted when tractor homologation is required.

An independent disc parking brake is located on the main transmission shaft. It is a spring operated automatic locking type which is hydraulically unlocked on subsequent start-up. The operator is also free to engage the park brake as required.

#### Three steering modes

The four drive wheels are all steered using a hydraulic servoassisted system. The operator has a choice of three steering modes, as well as automatic wheel re-synchronisation in the event of misalignment.

- 1 Front wheel steer (for road use)
- 2 All wheel steer (for best manoeuvrability)
- 3 Crab steer (for sideways motion)



## TECHNOLOGY AT WORK



#### Two MERLO suspension systems

Depending upon the model chosen, TURBOFARMER machines can be fitted with one of two Merlo suspension systems to reduce driver fatigue and improve payload transport. These are an Electronically-controlled hydropneumatic Active Suspension for the front axle (EAS) or a hydraulic boom suspension system (BSS). Both systems provide efficient reduction in dynamic stress upon the vehicle and load, independent of the payload carried and without operator involvement.

Merlo suspension systems add greatly to driver comfort and can significantly reduce whole body vibration levels, increase dynamic stability, reduce payload lost in transit, improve roading performance, speed and productivity.

#### BSS

The BSS suspension system includes hydro-pneumatic accumulators fitted to the lift service hydraulic cylinder of the telescopic boom; providing an effective dampening action against any strain transmitted to the payload during travelling.

#### **EAS**

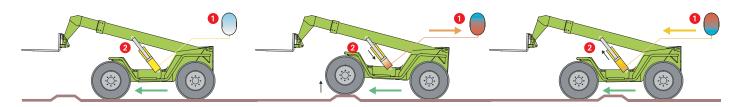
The Electronic Active Suspension system can be fitted to TURBOFARMER models fitted with the sideshift/levelling front axle. The EAS system utilises the axle's levelling cylinders (the tilt function is not effected). The active suspension works by integrating a system of hydropneumatic accumulators with a microprocessor electronic control device.

TURBOFARMER				P 36.10 Plus P 36.10 Top		P 38.10	Р 38.10 Тор	P 40.7 P 40.7 Top	P 41.7	Р 41.7 Тор
Suspension BSS (1)			•				-			-
Suspension EAS (1)	-	-			-			-	•	•

 $<sup>^{\</sup>left( 1\right) }$  Both systems cannot be fitted to the same machine

● Optional■ Standard

BSS

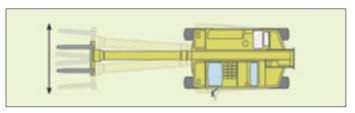


#### Boom sideshift – a Merlo exclusive!

The integral chassis sideshift mechanism gently swings the upper part of the chassis, and with it, the telescopic boom across the longitudinal axis of the machine. The load can be precisely placed without repositioning the machine. Using the sideshift mechanism in no way detracts from the performance or stability of the TURBOFARMER as it is an integral part of the design, not a mere attachment, and produces the following maximum sideways displacement.

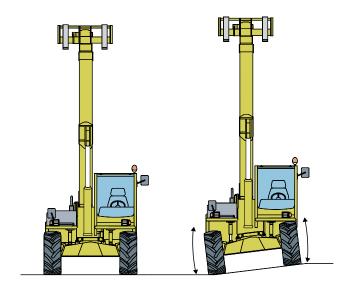
Sideshift		P 36.7 <sup>(1)</sup>	P 36.10 <sup>(1)</sup>	P 38.10 <sup>(1)</sup>	P 41.7 <sup>(1)</sup>
	mm	<b>±</b> 190	<b>±</b> 265	<b>±</b> 265	±190

<sup>(1)</sup> All versions



#### Frame levelling

Acting hydraulically upon the front axle, frame levelling allow the chassis to be tilted relative to the front axle, ensuring truly vertical lift on uneven surfaces. There is a maximum adjustment of  $\pm 10\%$ .



Frame levelling	P 36.7 <sup>(1)</sup>	P 36.10 <sup>(1)</sup>	P 38.10 <sup>(1)</sup>	P 41.7 <sup>(1)</sup>
-	±10%	±10%	±10%	±10%

<sup>(1)</sup> All versions

#### **Total safety**

The longitudinal stability control system includes a key-operated function that activates an automatic lockout if the movements of the boom approach preset stability limits. The operator is also notified with audible and visual warning signals.

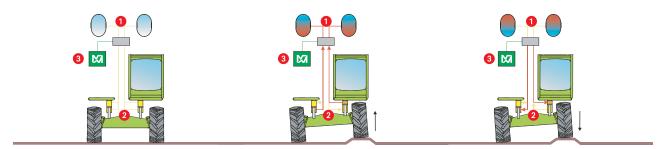


#### The telescopic boom

The sections comprising the telescopic boom are constructed of U-shaped steel fabrications welded together longitudinally close to their neutral axis.

The hydraulic extension mechanism, hydraulic hoses and electrical cables are totally enclosed within the boom for maximum protection against damage.

### **EAS**



## PERFORMANCE AND DIMENSIONS



	RIGID FRONT AXLE					SIDESHIFT/LEVELLING FRONT AXLE			
TURBOFARMER		P 34.7 Plus	P 34.10 Plus	P 37.10	P 40.7	P 36.7 Plus	P 36.10 Plus	P 38.10	P 41.7
		P 34.7 Top	P 34.10 Top	P 37.10 Top	P 40.7 Top	P 36.7 Top	P 36.10 Top	P 38.10 Top	P 41.7 Top
Weight									
Total empty weight (with forks)	kg	6600	7250	7250	6600	6760	7350	7350	6760
Performance									
Rated maximum load	kg	3400	3400	3700	4000	3600	3800	3800	4100
Maximum lift height	m	7	9.7	9.7	7	7	9.7	9.7	7
Maximum forward reach	m	3.6	6.3	6.3	3.6	3.6	6.2	6.2	3.6
Lift height at full capacity	m	7	5.5	5	6	7	8	8	7
Reach at full capacity	m	1.5	1.6	1.4	1.2	1.5	1.6	1.4	1.3
Capacity at full lift height	kg	3400	1200	1200	3500	3600	3000	3000	4100
Capacity at full forward reach	kg	1350	600	600	1350	1350	600	600	1350
Low emission (Euro 2) turbo engine	turbo	turbo	turbo	aftercooler	aftercooler	turbo	aftercooler	aftercooler	aftercooler
Power at 2400 rpm (97/68/CE)	kW/HP	74.9/102	74.9/102	103/140(2)	103/140(2)	74.9/102	74.9/102	103/140(2)	103/140(2)
Speed ratios									
1st gear(1)	kph	11	11	11	11	11	11	11	11
2 <sup>nd</sup> gear (self-limiting maximum spee	d) kph	40	40	40	40	40	40	40	40
(1) Maximum 1st gear speed with the 'Shift on the	Maximum 1st gear speed with the 'Shift on the Go' option is 16kph (2) Power at 2500 rpm (97/68/CE)								

	RIGID FR	ONT AXLE		LEVELLING Γ AXLE
	7 m	9.70 m	7 m	9.70 m
Gear pump - 102HP	P 34.7 Plus	P 34.10 Plus	P 36.7 Plus	P 36.10 Plus
Load-sensing - 102HP	P 34.7 Top	P 34.10 Top	P 36.7 Top	P 36.10 Top
Load-sensing - 140HP	P 40.7	P 37.10	P 41.7	P 38.10
LS-Flow Sharing - 140HP	P 40.7 Top	P 37.10 Top	-	-
LS-Flow sharing - 140HP - EAS	-	-	P 41.7 Top	P 38.10 Top

#### Cab

- Complies with ISO 3449 (FOPS) and ISO 3471 (ROPS) standards.
- '4 x 1' electro-mechanical Joystick with roller-operated proportional control of extension and auxiliary services.
- Fully electronic '4 x 1' Joystick with proportional control of all services on 140HP TOP models

#### **Boom**

- Telescopic, with sections sliding on adjustable low-friction pads.
- Hydraulic extension mechanism, hydraulic pipes and electrics are totally enclosed within the boom assembly to ensure maximum protection and reliability.
- Integral boom sideshift mechanism.

#### Quick-attach carriage

- The 'Tac-Lock' quick attachment fitting system is hydraulically controlled from the cab.
- Standard double-acting hydraulic service, with quick couplings, for the operation of hydraulically powered attachments.

#### Frame levelling

• Hydraulically operated from the cab.

#### **Forks**

- Floating type: length 1200 mm, section 130 x 50 mm.
- Fork spacing is manually adjustable between 450 and 1050 mm.

#### Steering

• Four drive/steer wheels, with automatic wheel synchronisation in the event of any misalignment and selection of three steering modes from the cab.

#### **Engine**

 Direct injection, water cooled 4 cylinder Deutz Euro 2 turbocharged diesel engine producing 74.9kW (102HP) at 2400rpm (97/68/CE) or 103kW (140HP) aftercooled.

#### Transmission

- Hydrostatic with electronically controlled variable displacement pump.
- Continuous and automatic speed variation, from zero to maximum speed, solely with the accelerator pedal.
- Two-speed mechanical range gearbox. Electronically synchronised 'Change on the Move' range gearbox available as an option (max speed in 1st gear 16kph).
- 'Inching-Control' pedal to proportionately reduce travel speed whilst maintaining high engine speed for hydraulic operation e.g. during loading operations.
- 'Finger-Touch' system makes it possible to change between forward and reverse direction with the driver keeping both hands firmly on the steering wheel.

- Permanent four-wheel drive.
- Portal axles ensuring excellent ground clearance.

#### Front/rear axle differential locking (option)

• Electrically operated by foot pedal.

#### **Braking system**

- Disk service brakes on all 4 wheels, hydraulically operated and acting on the differential output shafts.
- Disk parking brake with automatic locking feature and hydraulic release control, acting on the main transmission shaft.

#### **Hydraulic system**

Gear pump equipped systems.

- Maximum operating capacity: 100 lpm.
- Working pressure: 210 bar.

'Load-Sensing' pump equipped systems

- Maximum operating capacity: 150 lpm.
- Working pressure: 210 bar.

#### **Electrics**

- 12V system with 100Ah battery and 90A alternator.
- Full road lighting and rotating beacon.
- Three working lights on the cab (two front lights and one rear).
- Manual battery isolator switch (optional automatic switch).

#### **Service Capacities**

- Hydraulic oil: 105 litres
- Diesel fuel: 155 litres
- Hydrostatic oil: 12 llitres
- Engine oil: 8.5 litres
- Coolant: 12 litres

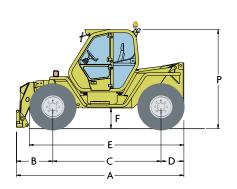
#### Tyres

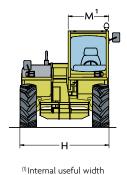
• 405/70-24 (optional 17.5LR24 and 460/70LR24).

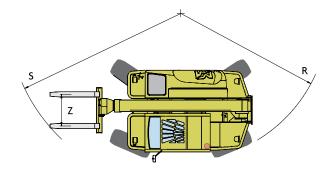
#### **Available options**

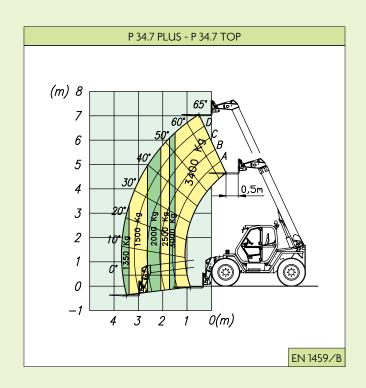
- Rear or rear/front axle differential lock
- Automatic battery isolator
- Manual control air conditioning
- Windscreen wiper on the roof window
- Two boom-mounted working lights plus one to cab rear
- Pneumatic seat

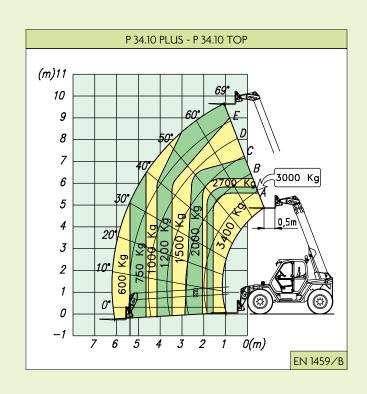
TURBOFARMER			P 34.10 Plus	P 37.10	P 40.7	P 36.7 Plus	P 36.10 Plus	P 38.10	P 41.7
Dimensions		P 34.7 Top	P 34.10 Top	P 37.10 Top	P 40.7 Top	Р 36.7 Тор	P 36.10 Top	P 38.10 Top	P 41.7 Top
A	mm	4180	4335	4335	4180	4300	4335	4335	4300
В	mm	905	1060	1060	905	980	1010	1010	980
C	mm	2700	2700	2700	2700	2750	2750	2750	2750
D	mm	570	570	570	570	570	570	570	570
E	mm	3865	3865	3865	3865	3915	3915	3915	3915
F	mm	565	565	565	565	565	565	565	565
Н	mm	2230	2230	2230	2230	2230	2230	2230	2230
M	mm	995	995	995	995	995	995	995	995
Р	mm	2475	2475	2475	2475	2475	2475	2475	2475
R	mm	3985	3985	3985	3985	4050	4050	4050	4050
S	mm	4670	4850	4850	4670	4800	4850	4850	4800
Z	mm	850	850	850	850	850	850	850	850

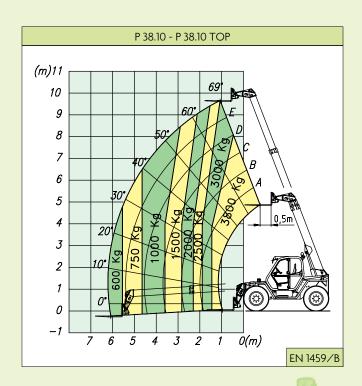


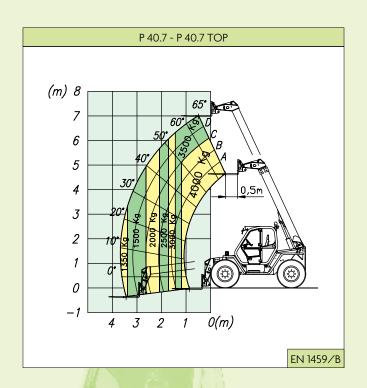


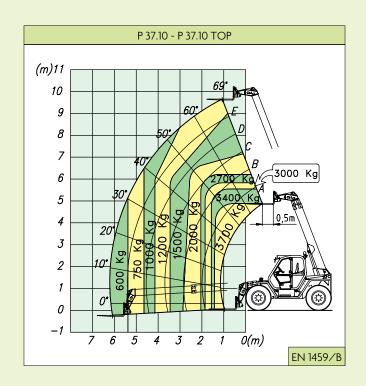


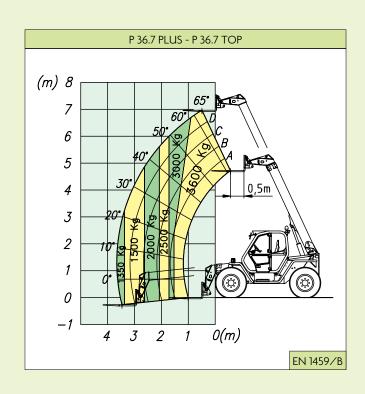


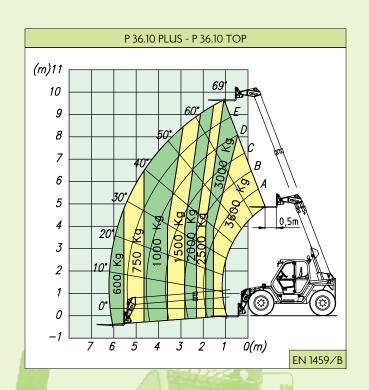


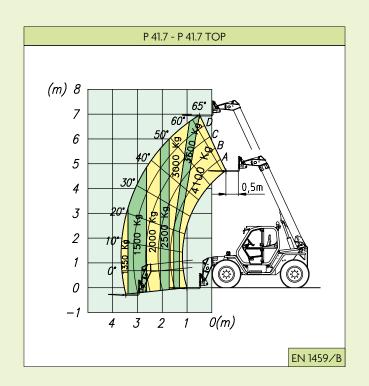




















#### Our winning card: a perfect mix of ideas, design and production

'Merlo' is synonymous with advanced technology in the world of telescopic handlers and operated plant, and its history is one of ideas and innovation. Not without reason do Merlo machines represent the perfect integration between the most diverse handling problems and the most innovative and productive technical solutions.

It means focussing on a single project and all the contemporaneous ones, on ideas and results, on designing to win, proposing innovative solutions, anticipating applications and possible changes in a very competitive market.

This winning attitude is to be seen in the drive for an integrated production process, in modern construction methods, automatic processes, integrated electronics, robotics and in many, many other ways.

The will to always maintain a closer bond with our users is reflected in programmes for training and updating personnel, in after sales service, and in the confidence of our dealers and salesmen.

And the results are compact and productive machines assuring unequalled levels of comfort, efficiency and safety.

That is why Merlo is the international reference point for handlers, world leader in handler design.



#### MERLO S.P.A.

VERLO has a policy of continual product research and development and specifications are subject to change without notice. Models illustrated may include attachments and options that are not standard

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