

NEWROTO  
0416 EN



# NEW ROTO 45.35S and 60.28S HYBRID 45.35S and 60.28S CVTRONIC





## New ROTO 45.35S and 60.28S

The new Roto 45.35S and 60.28S Hybrid and CVTronic versions set new standards in terms of safety, comfort and intuitiveness, boasting compliance with the new regulations on safety that will take effect from March 2017, a new cab, a man-machine interface, new controls and a hydro-pneumatic suspension.

### INCREASED SAFETY

- ✓ New stabilization technology based on the acclaimed MCSS system
- ✓ New structural ROPS-FOPS Lev. II structural cell that it responds to future safety regulations
- ✓ Hybrid engine for working in enclosed environments or those where conventional machines are prohibited

### GREATER INTUITIVENESS

- ✓ New simpler, more intuitive man-machine interface
- ✓ New wheels for more immediate, faster control
- ✓ New, more ergonomic commands

### IMPROVED COMFORT

- ✓ New tilting cab (unique on the market), facilitating working at great height
- ✓ New more comfortable, restful interior
- ✓ Hydro-pneumatic suspension on axles and boom

COMFORT = SAFETY



Cab

The new Roto 45.35S and Roto 60.28S have the same cab with super-advanced interior as the modular Merlo range.

Unique on the market, the cab can be tilted upwards by 20°, improving visibility at high lifting heights.

The structural cell is already compliant with the forthcoming regulations on safety, and is ROPS - FOPS Lev. II type-approved, boasting high safety standards with features that set new benchmarks in the category.

The new control are extremely ergonomic, making life on board more comfortable and rendering the machine easier to use: a rested and attentive operator is a more productive, aware operator.

- ✓ New tiltable cab: more comfort in all working conditions
- ✓ New ROPS - FOPS Lev. II structural cell: greater operator safety
- ✓ New man-machine interface: More user friendly
- ✓ New controls: superior manoeuvrability in any situation
- ✓ cameras at rear and at the end of the boom with visualisation on display





## New man-machine interface

The new man-machine interface of the Roto 45.35S and the Roto 60.28S sets the new benchmark in its category. The operator is at the centre of each control process, thanks to an ergonomic set-up for correct driving position and optimal positioning of each individual command in order to make everything simpler, faster and safer.

The operator only needs to focus on the load to be handled, making each manoeuvre safer.

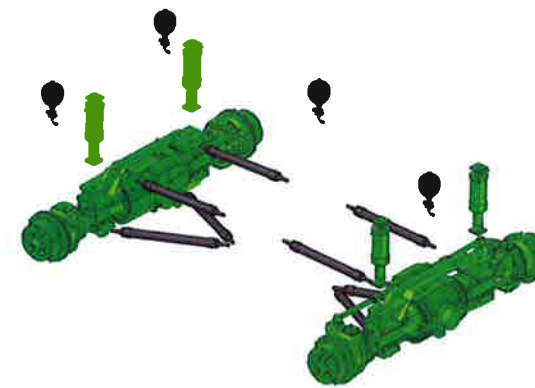
- ✓ More intuitive controls: increased safety
- ✓ More secure controls: increased safety
- ✓ More simple controls: increased safety



ERGONOMICS = SAFETY



## Hydro-pneumatic suspension



The axles of the new Roto 35.45S and Roto 60.28SS are designed to withstand high loads. The Merlo suspension system is unique on the market, with axles incorporated in the chassis by means of a quadrilateral solution (see image to side) that allows for the use of a hydro-pneumatic suspension system, with indisputable advantages in terms of stability, mobility in the most difficult conditions, and the ability to disengage in any situation. This unique patented system allows you to:

- ✓ Reduce vibration to the load whilst travelling
- ✓ Regulate the height of the machine
- ✓ Automatically adjust longitudinal and transversal level - a feature that is unique on the market
- ✓ Level the frame on wheels
- ✓ Increase operator comfort
- ✓ Improve the driveability of the machine
- ✓ Drive at 40 km/h in maximum safety



These features are further enhanced with the BSS boom suspension.

## THREE STEERING MODES

FRONT WHEEL STEERING



FOUR WHEEL COORDINATED STEERING



CRAB STEERING





## New dynamic load control system

The new technology developed by Merlo allows for real-time position monitoring of each stabilizer, the turret, the boom, the load being handled (centre of gravity/carriage distance) and the carriage's angle of rotation in order to achieve a continuous stability index.

At the same time, the load cells are used as a parameter for a double safety control so as to continuously monitor and report on the position of the machine's centre of gravity.

This lends the machine a greater stabilizing surface through a number of features, from the basic shape of the machine on the ground with the stabilizers closed ("in-size" stabilization) to the footprint of 6.00 meters at the centre of the stabilizers' feet. The dual-extension stabilizers are independently controlled. The new system, which is easily controlled from the new multifunction armrest, offers the following features:

- ✓ Automatically recognizes the attachments
- ✓ Stabilizes the handler in any position
- ✓ Continuously monitors the centre of gravity of the machine
- ✓ Achieves automatic interaction between the stabilizers, turret, boom, load and carriage inclination
- ✓ Achieves high standards of safety in any context
- ✓ Provides the operator with information about the actual operating capacity of the machine via the electronic display
- ✓ Makes complex lifting operations easy and safe
- ✓ Continuously displays the operating parameters and operational limits



### HYDRAULICS

- ✓ Separate pumps Load Sensing:
  - steering wheel and turret
  - attachments
- ✓ Hydraulic system innovative
- ✓ Newly-designed electronic distributor
- ✓ Electronic serve-command system

## Engine and Transmission

Merlo now offers the possibility to choose, between two different Powertrain system modes for the Roto 45.35S and the Roto 60.28S: Conventional and Hybrid.

The conventional system must be fitted with a classic 125 kW Stage IV diesel engine (Tier IV Final) while the hybrid system requires a 55 kW diesel engine coupled to a battery pack that feeds a high-power electric motor. The CVTronic continuous variation hydrostatic transmission and the Electronic Power Drive, both patented by Merlo, ensure fast, safe and economical movements at all time.

Leading-edge technology and safety are guaranteed in all environments, with the possibility of choosing the most suitable system for operating under specific limitations in terms of noise and gaseous emissions.

- ✓ Choice of two different Powertrain systems: Hybrid or conventional with CVTronic and EPD
- ✓ Increased flexibility: rapid and safe travel
- ✓ Greater economy thanks to the Hybrid system: Lower fuel consumption
- ✓ Lower environmental impact: two systems which comply with emission regulations
- ✓ Hybrid system: Possibility to operate in environments prohibited for conventional machines

PATENTED SYSTEM

### CONVENTIONAL ENGINES

Thermal engine with conventional transmission. Engine FPT NEF4.5 4.500cc, 4 cylinders, Tier 4 final. 125 kW – 170 HP with SCR (AdBlue) and DOC.



### HYBRID ENGINES

Thermal engine with HYBRID - Electric transmission. 55 kW thermal engine combined with battery pack and high power electric engine.





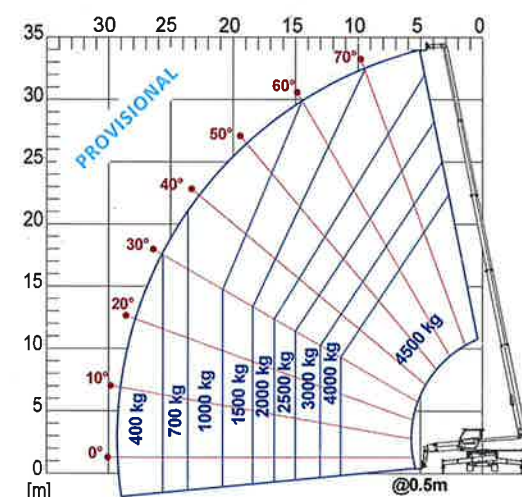
# Technical information

The new ROTO 45.35S and 60.28S handlers are high-profile professional machines which further add to the Merlo range, for conditions where high levels of performance in small spaces are necessary. It's not a small handler - it's a big handler in a compact package.

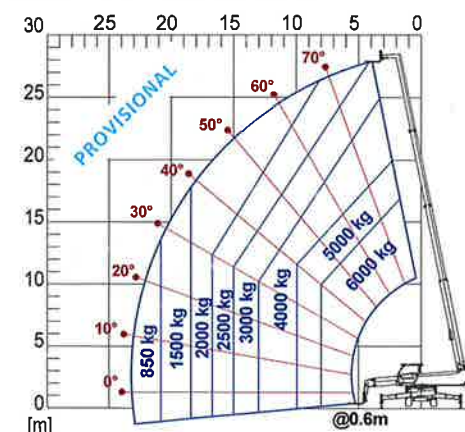
PERFORMANCE AND FEATURES	ROTO 45.35S	ROTO 60.28S	ROTO 45.35S HYBRID	ROTO 60.28S HYBRID	DIMENSIONS	ROTO 45.35S	ROTO 60.28S
Total unladen mass, with forks (kg)	23000	22500	23000	22500	Height (mm)	3310	3310
Maximum capacity (kg)	4500	6000	4500	6000	Width (mm)	2520	2520
Lifting height (m)	34,1	28	34,1	28	Length (mm)	8560	8300
Maximum reach (m)	29,2	23,1	29,2	23,1	Chassis length (mm)	6830	6830
Maximum operating height (m)	22,4	17	22,4	17	Width Stabilised (mm)	6350 (6000 at centre of foot)	6350 (6000 at centre of foot)
Maximum operating reach (m)	11,9	7,8	11,9	7,8	Wheelbase (mm)	3750	3750
Capacity at maximum height (kg)	2000	3000	2000	3000	Turret rotation	Continuous	Continuous
Capacity at maximum reach (kg)	400	850	400	850	Ground clearance (mm)	380	380
Turbo motor (displacement/cylinders)	4.5/4	4.5/4	n/d	n/d			
Engine power Tier 4 Interim (kW/CV)	125/170	125/170	n/d	n/d			
Maximum speed (km/h)	40	40	30	30			
Fuel tank (l)	160	160	90	90			
Double hydraulic pump Load-Sensing (bar-l/min)	240/165 240/65	240/165 240/65	n/d	n/d			
Hydraulic oil tank (l)	220	220	220	220			
FOPS (ISO 3449) and ROPS (ISO 3471) cab	●	●	●	●			
Tilting cab	20°	20°	20°	20°			
Electronic joystick command	●	●	●	●			
Tac-Lock attachment locking	●	●	●	●			
CVTronic hydrostatic transmission	●	●	-	-			
Hybrid transmission	-	-	●	●			
Finger-Touch	●	●	●	●			
Permanent four-wheel drive	●	●	●	●			
Four-wheel steering	●	●	●	●			
Configured for use with overhead platform	●	●	●	●			
Standard tyres	445/80-R25	445/80-R25	445/80-R25	445/80-R25			

● As standard. ○ On request.

ROTO45.35S WITH FORKS ON STABILISERS



ROTO60.28S WITH FORKS ON STABILISERS



## Attachments

Merlo has adopted a number simple yet effective guidelines to manage the product evolution process. Every last detail is studied and designed in the Group's factories - from conception to implementation. This simple rule also applies to our attachments, the operating tools used with our handlers - the fruit of the extensive experience gained by Merlo's expert technicians over time, through creating a broad and effective range of tools categorised according to type and operating capacity.

The new ROTO 40.35S and 60.28S models are equipped with dedicated Merlo original attachments, specifically designed for these machines. This standard provides access to the use of production attachments that are tested and interchangeable to ensure targeted applications, with the aim of facilitating work and reducing performance times.

CARRIAGE-MOUNTED HOOK



FLY JIB WITH WINCH



MIXING BUCKET FOR CONCRETE



CONCRETE MIXING BUCKET



LIFTING BOOM



WINCH



THREE-SIDED EXTENDIBLE PLATFORM





# Merlo Group

The Merlo brand has always been synonymous with advanced technology in the telehandler field and the history of the company, which dates back to 1964, is distinguished 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.

At Sima 2015, the new Medium Duty and Compact Turbofarmer modular range was crowned Machine of the Year 2015 in the handling and logistics sector.



## Merlo in figures

### Merlo's factories in San Defendente di Cervasca (Cuneo)

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



- > 1,100 employees
- Overall surface area of 300,000 m<sup>2</sup> of which 220,000 m<sup>2</sup> are indoors
- 90% of turnover generated by exports
- 600 dealers all over the world
- 8% of turnover invested in Research & Development
- 55 robots



New automated, high-precision, dual-robotics centre



