

iForks

Product introduction



RAVAS

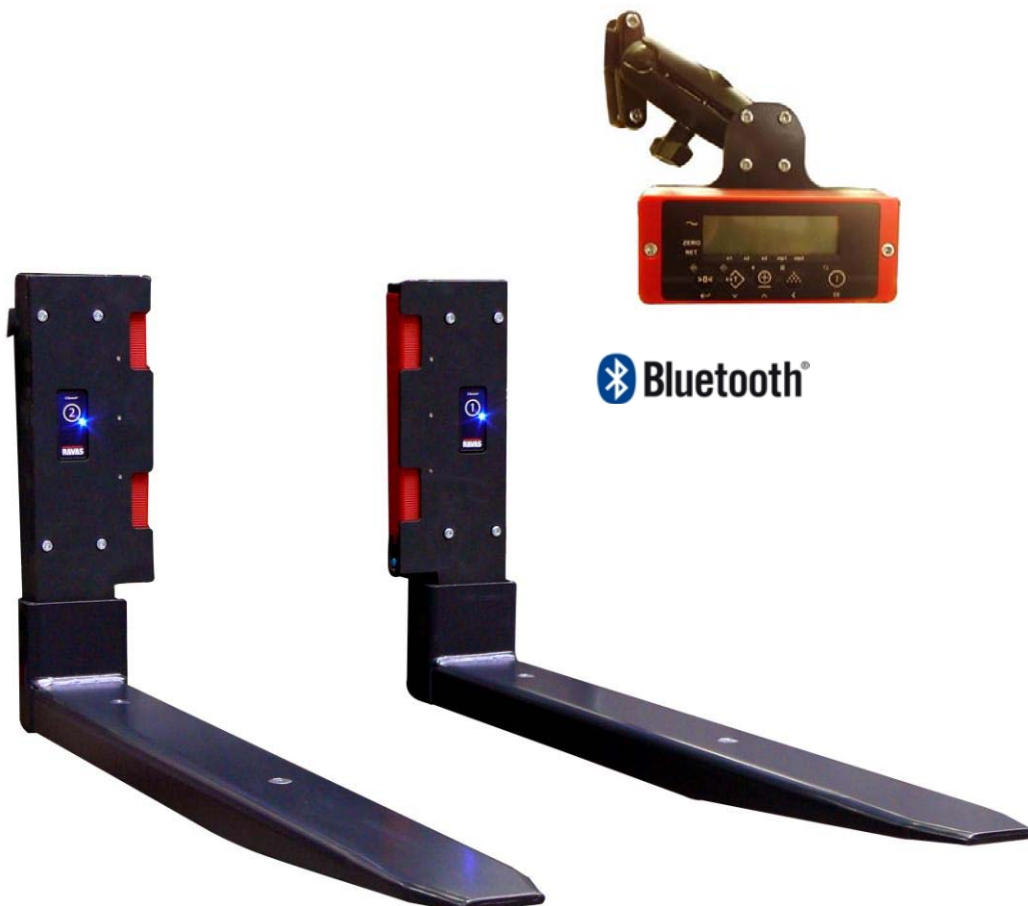
iForks

RAVAS introduces iForks

With **iForks** RAVAS introduces the next generation of weighing forks for counterbalanced trucks, reach trucks and narrow aisle trucks: a completely wireless system of which all components, including electronics and power supply, are integrated in the forks. The bulky housings on top of the forks are therefore a thing of the past. Each of the two forks has its own signal transfer to the indicator in the cabin, via Bluetooth, eliminating the cable between the forks.

Each fork has its own red, exchangeable battery module. The battery status is indicated by blinking LED's on the front of the forks and via a message on the indicator display. The indicator offers a menu in which the user can adjust the powermanagement to his own needs.

The **RAVAS iForks** are standard equipped with an indicator 4100 and its corresponding functions: code entry, piece counting, internal clock for date/time registration and backlight in the display. Data transfer is available via RS232, Bluetooth or WiFi. The digital calibration makes the **iForks** very maintenance friendly. Thanks to the RAM mount supplied with the indicator and the absence of any cabling, the **iForks** are installed onto any truck within five minutes: *Plug & Weigh!*



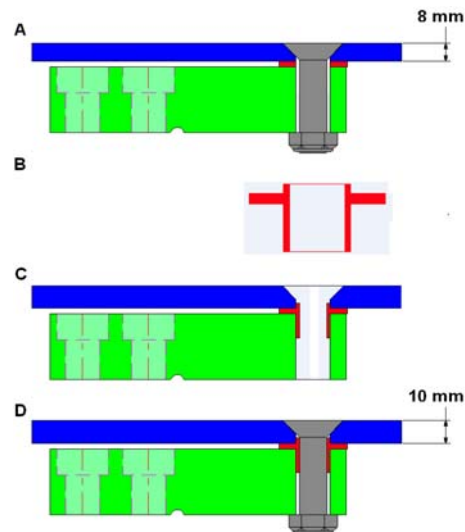
Technical concept of the iForks

RAVAS iForks is the first completely wireless weighing system for forklift trucks in the world, thanks to the integrated Bluetooth technology. Being wireless, the system can be installed onto any forklift in a matter of minutes: *Plug & Weigh*. Both scale forks communicate independently with the weight indicator in the cabin of the truck, each via its own Bluetooth transmitter mounted in a small niche in the vertical part of the fork. The status of the Bluetooth connection between the weighing forks and the indicator is shown by blue LED's:

- LED blinks every 1.5 seconds: Bluetooth connection with indicator is active.
- LED blinks every 4 seconds: the weighing system is in auto-shut-off mode.

When there is no communication between indicator and one of the forks, an error message is shown on the indicator display. The indicator also shows to which fork the error message applies. As the Bluetooth transmitters are sealed into the forks, and since vulnerable components such as calibration boards have been eliminated, downtime on the iForks will be extremely low.

Each fork is equipped with its own red battery module, making the old black hydraulic hose between the forks redundant. The battery modules are exchangeable, robust and integrated in the fork design. The bulky housings for battery and electronics on top of the forks are therefore no longer necessary. Even on forklift trucks with a safety rack above the carriage plate the iForks are easily installed. With a minor adjustment the forks are even suitable for use in combination with a fork spreader.



An extra 2mm of material has been added to the fork shoe: the thickness of the shoe is now 10mm instead of 8mm. This will prevent bending, even with longer forks and under maximum load.

The washer between load cell and fork shoe (see drawing A) has been replaced by a cylindrical bush (B-D). The bush absorbs horizontal forces and prevents loosening of the bolts.

The dimensions of the forks are based on the design introduced in 2007 for all RAVAS weighing forks: low and narrow forks for easy handling of all kinds of pallets and containers. The forks are only 133 mm wide and 58 mm high, remaining very close in size to standard forks (on a 2.5 T truck 100 mm and 45 mm respectively).

iForks standard equipped with indicator 4100

The 4100 indicator offers piece counting, code entry and date/time registration, next to the basic scale functions. For optimum readability of the display, the indicator is equipped with backlight. The backlight switches on and off automatically when using the indicator, and the intensity can be set in the power management menu. The indicator is standard supplied with RAM mount, making installation in the cabin of the truck fast and easy.

RAVAS iForks offer *Digital Calibration Technology*. Over the keyboard of the 4100 indicator the scale forks are calibrated, wireless and digitally. This makes calibration easy and corner adjustments much faster. The **iForks** are therefore very maintenance friendly. An extra advantage is that the electronics on the forks are very compact and integrated in the design of the scale forks. Load cell calibration boards are no longer necessary.



The 4100 indicator has a free com port for transfer of weight information and integration of the weighing system into existing information flows. Data transfer from the 4100 indicator can be done via:

- serial RS232 cable connection
- wireless Bluetooth connection
- wireless WiFi connection

Thus the weighing system can communicate via Bluetooth with the RAVAS SIR Mobile software for Windows CE/Mobile on a handheld terminal, or online via WiFi with WMS systems.

The **iForks** can be optionally equipped with electronic level correction. A sensor in the weighing fork measures the angle of the truck mast. Up to a maximum angle of 5 degrees the weight measurement is corrected by the software in the indicator. If the truck is more than 5 degrees out of level, the display shows an error message. By bringing the mast within the “vertical” range, the display switches back on.

Powermanagement via user menu

Both the forks and the indicator of the **iForks** have their own integrated power supply via batteries. The indicator 4100 is powered by the module with 4 AA-batteries that we know from the RAVAS-1100. The forks are each equipped with an exchangeable battery module that contains 4 D-batteries.



In order to optimise the autonomy of the batteries, the **iForks** have an auto-shut-off function. The forks are switched on via a blue button underneath the battery module. When no keys are used on the indicator for more than two hours, the forks are switched off via the auto-shut-off. For the next weighing cycle they have to be switched on again via the blue buttons.



The indicator also uses an auto-shut-off mode: this one is standard activated after two minutes of not using the indicator keys. Fifteen seconds before switch-off a countdown routine starts in the display. By pressing any key during this countdown, the auto-shut-off function is interrupted and a new two minute cycle starts. From the auto-shut-off mode the weighing system is activated via the normal on/off key: within seconds the Bluetooth connection with the forks is restored.

If the user uses the scale for prolonged dosing, or for other reasons does not want to use the auto-shut-off function, he can switch to continuous weighing, switching the scale on and off manually. It will be clear that using the continuous weighing mode limits the effective autonomy of the scale and that batteries will need to be replaced more often. The user can personally control the power management via a user menu on the indicator, where he can set the auto-shut-off time or even

completely switch off this function. This user menu functions separately from the calibration and parameter menu, to which the user normally has no access.

The blue LED's on the forks, apart from indicating the status of the Bluetooth connection, also provide information on the tension level of the battery modules: when the LED blinks twice, every 10 seconds, then the battery tension on that fork is low. The indicator too will show a LOW BAT message, specifying the fork: "FORK1" or "FORK2". The battery modules on the forks are optionally supplied with rechargeable batteries and a customized charger.

Positioning, pricing and model availability

The **RAVAS iForks** combine the strong points of the RWV Autonome (fast installation) with those of the RWV RF (indicator within reach in the cabin) and add to that a higher functionality, extra ruggedness, and the extra installation and maintenance friendliness. It is therefore RAVAS' intention that the **iForks** completely replace the RWV Autonome and RWV RF, once the model range is complete. The price level of the **iForks** will be brought as close to that of the current RWV Autonome as possible. At the introduction the list price will be 3,100 EUR for the 2,500kg version.

RAVAS expects to be able to supply the **iForks** in legal for trade version by mid 2009. The 3 en 5 Ton versions will follow later this year. The cabled RWV 2500 will of course be continued, for extended functionalities with the 6100 indicator. This model will be renamed RWV-C 2500, referring to 'cable version'.

Professional packaging concept

In order to minimize the risk of transport damage, to lower transport costs, and to facilitate stocking and forwarding by dealers and distributors, the **iForks** will be packaged in a flat box on a pallet. In the box are cut-out spaces for each component that may be part of a delivery: forks, indicator with support, battery modules, battery charger modules, a printer, the user manual, etc. This packaging concept will certainly add to the professional image of the product.



Summary of the iForks USP's

Technical concept:

- plug & weigh: installation within 5 minutes.
- no cabling: separate signal transfer from each fork to the indicator, via Bluetooth.
- no housings on top of the forks: no problems with safety racks, use in combination with fork spreaders is possible.
- compact fork dimensions: 133 x 58mm.
- elimination of vulnerable components, such as load cell calibration boards.

Scale functions:

- indicator 4100, with piece counting, code entry and date/time registration.
- digital calibration, fast and easy corner adjustment: maintenance friendly, low downtime, low cost of ownership.
- optionally available: level sensor for digital compensation of mast angles up to 5 degrees (at angles above 5 degrees the display shows an error message).

Data communication:

- via RS232, printer, Bluetooth or WiFi.

Power management:

- easily accessible, robust battery modules on the forks. Optionally available: battery charger for module with rechargeable batteries.
- Auto-shut-off mode, restart via on/off button on the indicator, via blue buttons on the forks; user menu for power management settings.
- LED indicators on the forks for battery tension level and status Bluetooth connection:
 - Blinking every 1.5 seconds Bluetooth connection OK
 - Blinking every 4 seconds: auto-shut-off mode active
 - Blinking twice every 10 seconds: battery tension level low on this fork
- LOW BAT indication per fork in indicator display