



OLYMPUS MINI

REAR-LOADER WASTE COLLECTOR

Technical report
Rev7.October 2022



INDEX

1. INTRODUCTION	3
2. GENERAL SPECIFICATIONS	4
2.1 Olympus MINI models	5
2.2 Summary table of Olympus MINI models.....	5
3. TECHNICAL CHARACTERISTICS	6
3.1 Body	6
3.2 Ejector plate	9
3.3 Tailgate	10
3.4 Packer	13
3.5 Hydraulic circuit.....	14
3.6 Electric control circuit	17
4. BIN-LIFTER	22
4.1 Multi-purpose MINI bin-lifter	22
5. REGULATIONS AND SAFETY	26
6. NOISE EMISSION.....	26
ANNEX I MATERIALS USED	27
ANNEX II OPTIONS	28

ROS ROCA (the company) reserves the right to change the specifications, design, materials and dimensions of the vehicles described in this document without prior warning at any time, in accordance with its ongoing policy of product improvement.



1. INTRODUCTION

Olympus MINI is a rear-loading packer especially designed to collect domestic waste, organic waste and recyclable materials in pedestrian areas, historic town centers and rural areas that have narrow streets or limited access and require a high degree of maneuverability.

Compact, with an elegant design and proven technology, it features the best quality and reliability for the most demanding waste collecting needs.

It is a newly-created unit in the Olympus family, which shares much of its technology. The Olympus family has a proven track record after years of operation, and with the backing of a leading sector company the Olympus MINI is a sure bet.

Combining the standard models with a variety of options make it versatile and suitable for many different applications.

Ros Roca Group introduced the Olympus unit design for the first time in 2009 and since then has produced more than 10,000 units which have been sold around the world.



2. GENERAL SPECIFICATIONS

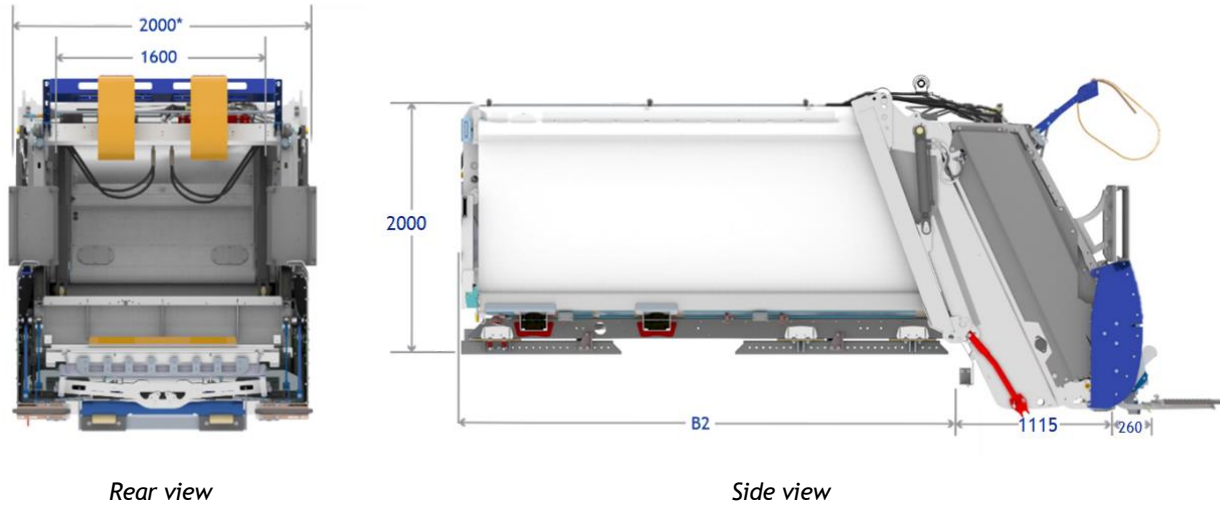
The unit was designed with optimal dimensions for use on narrow streets. Its many benefits include:

- Diversity of models: available in 6, 7 and 8 m³ capacities, designed to be highly maneuverable with a width of 2 m.
- It is easily mountable on small chassis (7.5-12t) and its low weight always maximizes the amount of waste that can be collected.
- Availability of a bin-lifter adapted to this type of waste collection.
- Configurable HMI display: the majority of the equipment functions can be quickly and intuitively accessed from the cab.
- Safety in the workplace: it has automatic locking mechanisms on the body and tailgate, lock devices, weight-detecting footboards and an ergonomic design.
- Economical maintenance characterized by low maintenance costs.
- Easy to use: it can be operated by a single person.



2.1 Olympus MINI models

Olympus MINI is our range of domestic waste collectors especially designed for narrow streets with optimized dimensions and available in 3 capacities ranging from 6 to 8 m³. It has been designed to be a compact and easy-to-drive collector with a width of 2 m and a height off the chassis platform of 2 m. The length of the body will vary depending on the capacity chosen, but the tailgate is the same for all models.



2.2 Summary table of Olympus MINI models

	Capacity (m ³)	Body width (mm)	Length (B2) (mm)	Height (*) (mm)	Hopper volume (m ³)	GVW (t)	Wheelbase (mm)
OL MINI 6	6		2915			7,5 - 8	2700-2900
OL MINI 7	7	2000(**)	3315	1900 / 2000	1	8,5 - 9	3100-3350
OL MINI 8	8		3715			10 -12	3500-3800

(*) Height from the chassis platform with low platform / Height from the chassis platform with standard platform. Platform height is chosen according to the chassis height.

(**) 2100mm with footboards and holders.

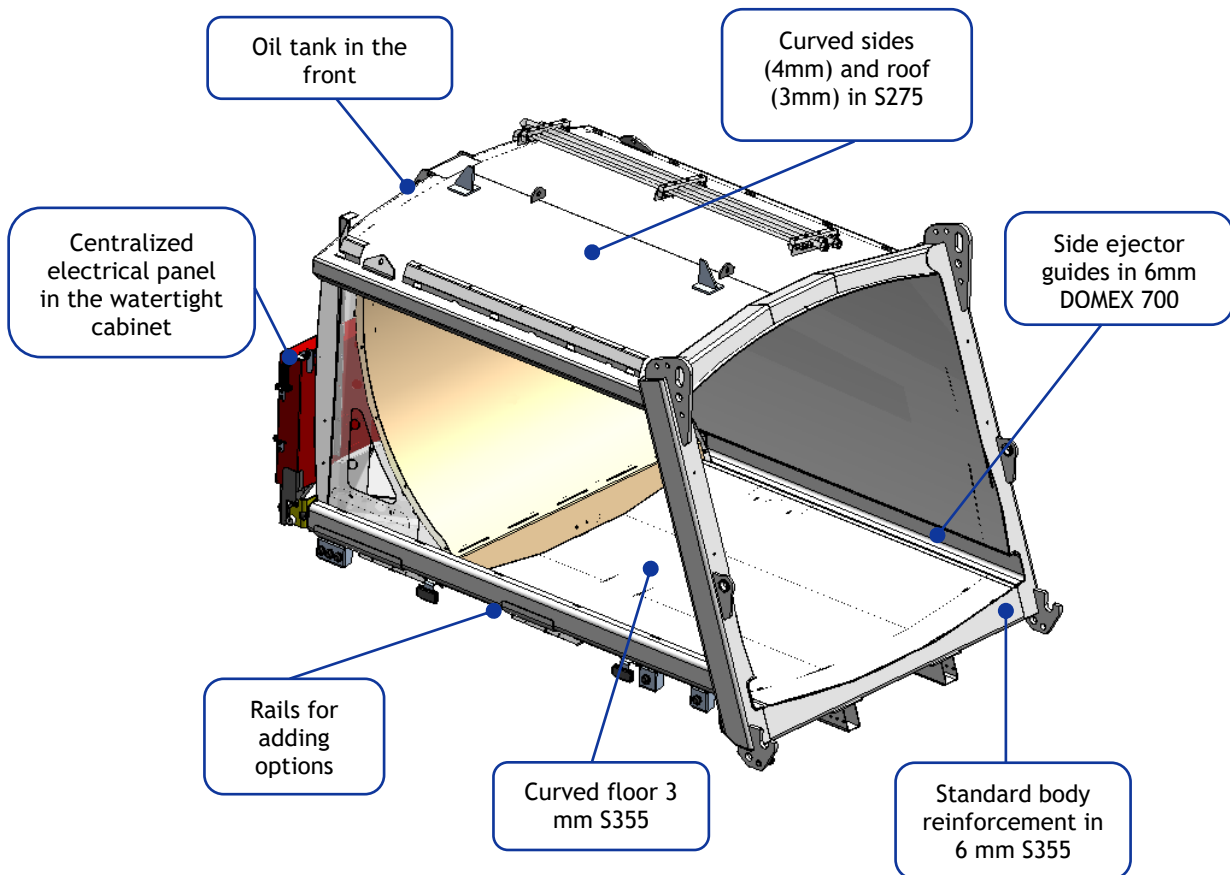


3. TECHNICAL CHARACTERISTICS

Below there is a description of each of the parts that make up the Olympus MINI unit.

3.1 Body

The body is the part of the vehicle that transports the collected waste. The body is made of **high-strength steel** for greater durability. The sides are hot-rolled in a single curved piece. There are shaped reinforcement profiles on the front-rear piece and the floor is curved for easier collection of leachates.



Olympus MINI units feature a **curved section** for increased strength and reduced weight, and so that the unit can carry more waste. Thanks to the curvature of the structure, external reinforcements are not necessary; these merely create stresses by reducing the normal flexibility of the side panels and creating fatigue in the structure, thus cutting short the unit's service life.



The body is drained using the tube located on the lower part of the body platform; the outlet is on the right side when facing the direction of travel. The drain is easy to reach and is controlled using a ball valve.

There is also a **metal sheet at a height of 360 mm** on the front that prevents leachates from spilling out from the body.

Exterior view of the drain hose



The **oil tank** is also in the front, on the right side when facing the direction of travel. The tank is located in such a way so as to minimize how much it protrudes over the front of the body and to reduce the separation between the body and the cab, reducing the overall length of the unit and optimizing load distribution.

Side view of the oil tank



The **control panel** is also on the front of the body in a watertight cabinet, on the other side from the oil tank. This control panel contains the PLC that centralizes all the electronic connections. More information about the control system in chapter 3.6.

The control panel is located in an easy-to-reach place and folds out; in its folded-out position it allows a person to get inside the body for cleaning and maintenance.

Electric panel in the front of the body and folded out





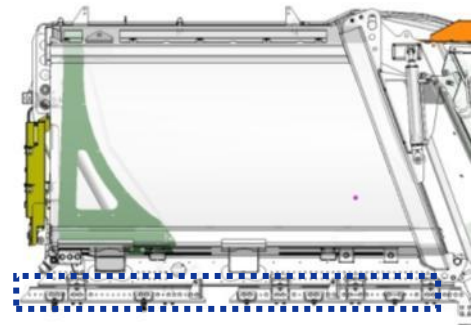
Along the bottom of the body there are **longitudinal rails** for mounting different accessories and options without having to weld them to the platform, thus ensuring corrosion protection. Mudguards, cyclist protections and options such as toolboxes are mounted in these rails. *More information about options is available in [¡Error! No se encuentra el origen de la referencia..](#)*

Cyclist protections assembled on the rails



An **auxiliary sub-frame** has been designed to adjust the body to the various chassis available and attach to them regardless of their widths and profiles shapes, in accordance with the specifications of the vehicle's body-maker.

Sub-frame





3.2 Ejector plate

When the body is full of waste, the ejector plate empties it by moving backwards after the tailgate has been opened. The ejector plate also helps to pack the waste, and thus moves forward as the body fills up with waste. The motion of the ejector plate is driven by the ejector cylinder.

The ejector plate was designed to have a minimum size and reduce the weight as much as possible, but also to fit perfectly in the body. The body's 3 mm sides provide greater uniformity, preventing waste from slipping through without having to use scrapers. The ejector plate's area of contact with the waste is made from steel with high yield strength and high abrasion resistance.

There are side guide rails made of high-strength steel to help the plate move along the length of the body. The ejector plate slides on four rectangular slides that are self-lubricated for long life.



Ejector plate with detail of the side rail with slide

The ejector plate is pass-through: it extends beyond the end of the body to ensure the waste is entirely emptied, also making it easier to clean the body.

To optimize packing, the ejector plate has a variable pressure selector based on the type of waste being loaded. This selector is located in the cab display. Based on the selection, the plate will move more or less readily, depending on the waste fraction of the desired packing result. (See chapter 3.6).

To easily maintain and change the slides, remove the fastening bolts and the closing plate.



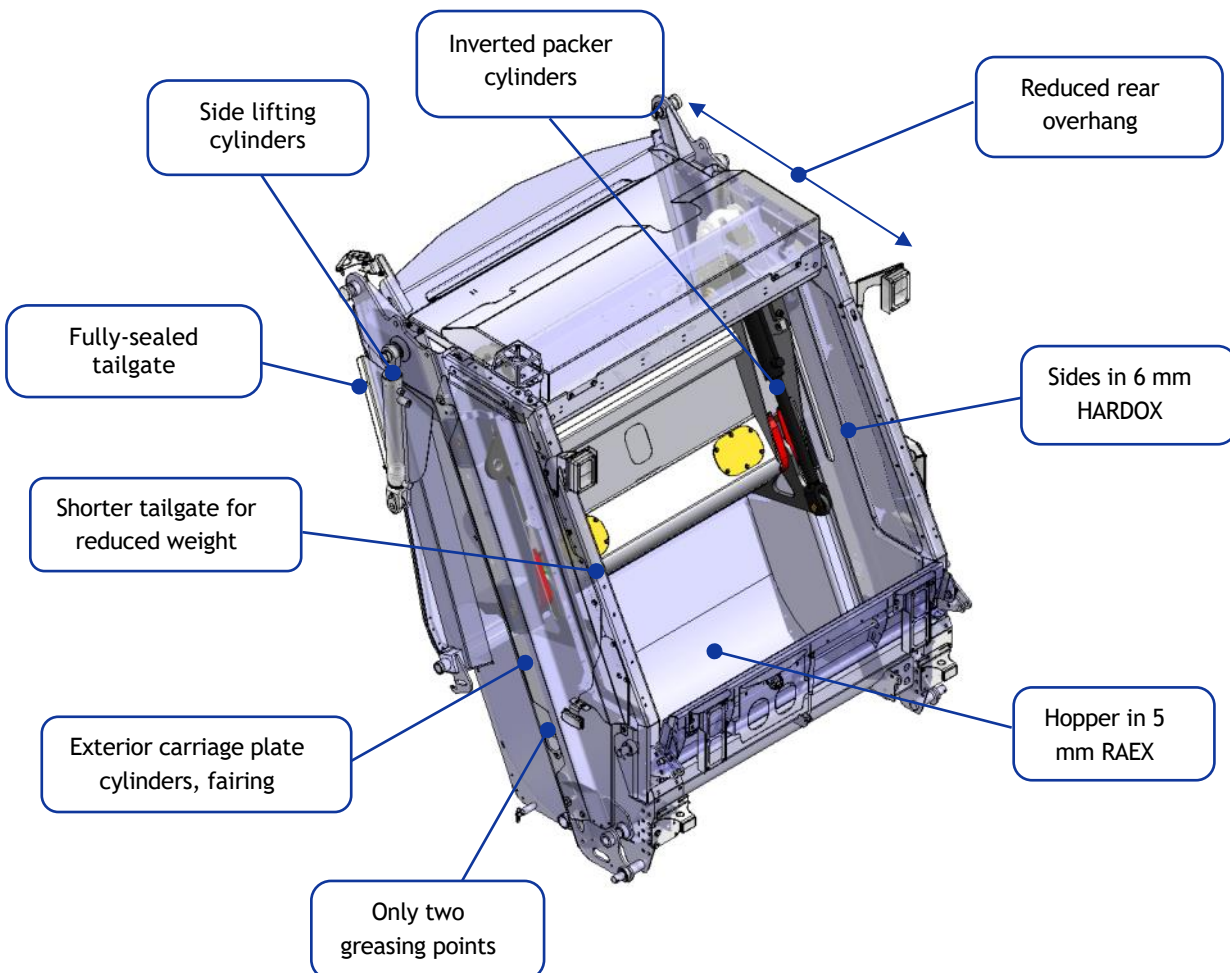
3.3 Tailgate

The tailgate is the back of the vehicle, connected to the body, which includes the hopper where waste is loaded either manually or mechanically, and the packer system (see point 3.4).

In the Olympus MINI line there is a single tailgate size for the entire range of capacities, so that all have the same overhang. The hopper is optimized to maximize sweeping volume and thus reduce the number of packer cycles, improve productivity, reduce noise levels and save fuel.

Tailgate exterior width (mm)	Tailgate length (mm)	Hopper volume (m3)	Sweeping volume (m3)	Cycle time (s)	Absorption capacity (m3/ min)
1.800	1.115	1	0,6	15	2,5

The tailgate has a **reduced rear overhang** for improved maneuverability and load distribution, and a wide opening for easy waste collection.





The rail rave is in 4 mm S355, with a height for the open-back option (no bin-lifter) of over 1,050 mm, though always subject to the chassis height.

The Olympus MINI tailgate has a shortened shape specially designed to reduce weight and increase the unit's useful load as much as possible.



Shortened tailgate

The tailgate has been specially designed to prevent waste from coming into contact with the unit's cylinders, improving maintenance tasks and allowing you to take full advantage of the volume of the hopper. For this reason, both the lifting cylinders and the carriage plate cylinders are on the exterior. Find more information about cylinders in chapter 3.5.

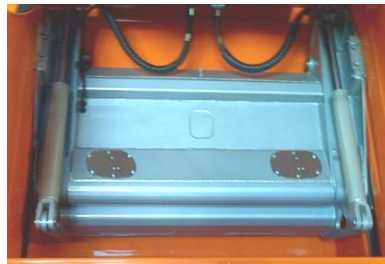
The unit has several built-in devices to minimize leachate spilling out onto the ground. These include:

- A **watertight gasket** around the total perimeter of contact between the body and the tailgate to the maximum height.
- **Carriage plate lined** with a steel sheet to prevent gaps that waste could spill through.
- Exterior **blind covers** on greasing point accesses, with fastening bolts in the carriage plate guide rails to prevent leachate spills.

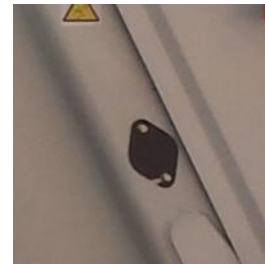
The hopper is drained through the valve on the left side.



Watertight gasket



Lined carriage plate



Blind covers

During waste unloading operation, the tailgate lifts, along with the bin-lifter if there is one, separating itself from the back of the body until the hooks attached to each side are released from their anchors. The tailgate is now "unlocked".

When the tailgate is open to empty the body or for maintenance reasons, a safety device is enabled that prevents the packer from switching on if the height does not exceed 2 m.



To ensure user safety, the body's **automatic lock** prevents users from being detained inside when it is closed. Once down, an **anchoring** system joins the tailgate to the body.

Anchor for automatic lock



There is also **1 safety prop** on the side to secure the tailgate during inspection tasks. The safety prop is equipped with a pivot with a hollowed groove so it can be easily put into place by users.

Safety prop



The unit has, optionally, folding **footboards** that feature a weight-detecting presence sensor; they are anchored to the bottom of the tailgate. They are made in anti-slip galvanized steel grating, per regulations. There are also two **handles per footboard**, which have ergonomic shapes and are located on either side.

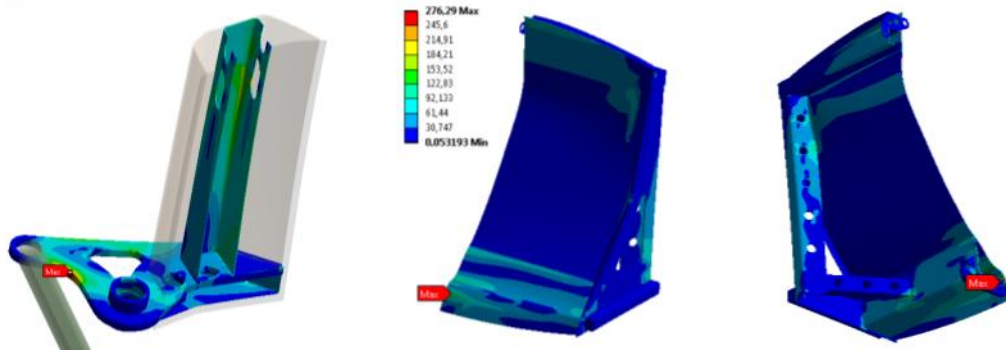
Footboards with weight sensor





3.4 Packer

Once the waste is inside the hopper, the packer packs it to reduce its volume; it is then deposited into the body. The packer basically consists of the carriage plate, the packer plate and the ejector plate (which controls the packer pressure). It has been analyzed using the finite element method and has been optimized and tested for excellent unit durability with minimum weight. This is achieved using high-yield strength steels like STREX, DOMEX and HARDOX.



The sides of the tailgate are designed to withstand forces in 6 mm HARDOX 400 steel. Formed in a single piece, they have **built-in guide rails** that house the **slides** for the carriage plate to move along. The packer plate joints are made from self-lubricating low-friction material.

The carriage plate moves by sliding and is driven by two hydraulic cylinders (carriage plate cylinders). The packer plate is suspended from the carriage plate and is driven by two hydraulic cylinders (packer plate cylinders). The packer plate and the carriage plate pack the waste which has been loaded into the hopper against the body's ejector plate. As the force pushing against the ejector plate increases, the hydraulic system controls its forward movement to ensure that the waste is packed evenly.

The packer's operating cycle is divided into **4 movements** (carriage plate up/packer open, carriage plate down/packer open, carriage plate down/packer closed, carriage plate up/packer closed), with a total cycle time of 15 seconds.

The pronounced **packer angle** improves the durability of the end of the body without needing to use reinforcements that would increase the unit's weight. It also reduces the overhang.

The **carriage plate** is made from high-yield-strength steels: the base in 4 mm HARDOX 400, the side arms in 6 mm DOMEX 700, and the rest of the structural elements in S355 steel. **The packer plate** is specially designed for excellent abrasion resistance and structural strength. The base is made in 4 mm HARDOX 400 and the side arms in 20 mm STREX 700 steel.

The system is designed to minimize maintenance. There are only **two greasing points** at the union of the carriage plate and the packer. An exterior fairing protects the greasing point and the carriage plate cylinder. *An optional automatic greasing system may also be installed at these two points.*



3.5 Hydraulic circuit

The hydraulic circuit is optimized to ensure maximum hydraulic efficiency and requires a minimum torque for the power take-off. It consists of a tank, a pump, control valves and hydraulic cylinders.

It is driven by a **hydraulic pump** connected to a power take-off on the chassis, which pumps the oil required to activate the system's hydraulic cylinders.

The hydraulic circuit consists of **two independent lines** that split the unit's power elements, which are protected by their own relief valves. One circuit drives the movements of the ejector plate and the packer system. The other circuit drives the tailgate's lifting and lowering movements and the bin-lifter movements.

The **control module** includes a single hydraulic block with electro-valves and a pressure transducer. This allows for easy control and prevents future problems. The block is located at the top of the tailgate and is protected with a cover. This prevents damage when unloading or packing waste and reduces the distance to the cylinders, optimizing response time and reducing loss of waste.



Hydraulic block

The **oil tank** is located at the front of the body, making it easier to attach to the chassis. Its capacity is 70 L and it has a 10 micron return filter and a 10 micron pressure filter to ensure low pollution levels. It has a level indicator, a filter clogging indicator, a deaerator and an oil temperature sensor.



Oil tank at the front of the body

The duplex **hydraulic pump** (two bodies) has vanes and is operated via a direct power take-off or gearbox in the chassis at a working speed of 1000-1100 rpm. It is connected by a cardan shaft with a DIN100 flange. The pump features are:

Pump body	Flow (l/min)	Max. P. (Bar)	Notes
P1	45	180	Ejector + packer
P2	15	180	Tailgate + Bin-Lifter



The **hydraulic pipe work** is held in place with rigid fasteners for maximum safety and easy maintenance.



The collector-packer has the following **hydraulic cylinders** to drive its various systems:

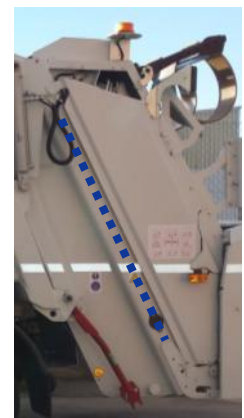
- The **ejector cylinder** is double-acting and telescopic for uniform loading density. Its anchors to the ejector plate are easily accessed from the front of the body. It is mounted with two easily-adjustable pivot-pin trunnions for reduced maintenance costs.
- The **tailgate lifting cylinders** are double-acting and are located on the sides, minimizing the unit's height and reducing its weight. The kinematics of opening and closing reduces wear from gasket shearing and improves the water tightness between the body and the tailgate. This prevents leachates from spilling out onto the ground and the cylinders from coming into contact with the waste.

The lifting cylinders are protected by rupture valves, which prevent the tailgate from falling if a hose breaks.



Lifting cylinder fully closed / opened

- The **carriage plate cylinders** are double-acting and are located on the exterior of the hopper. This facilitates maintenance and prevents contact with the waste, while making the limit switches easily accessible from the exterior. These cylinders are protected with a fairing.



Carriage plate cylinder with fairing



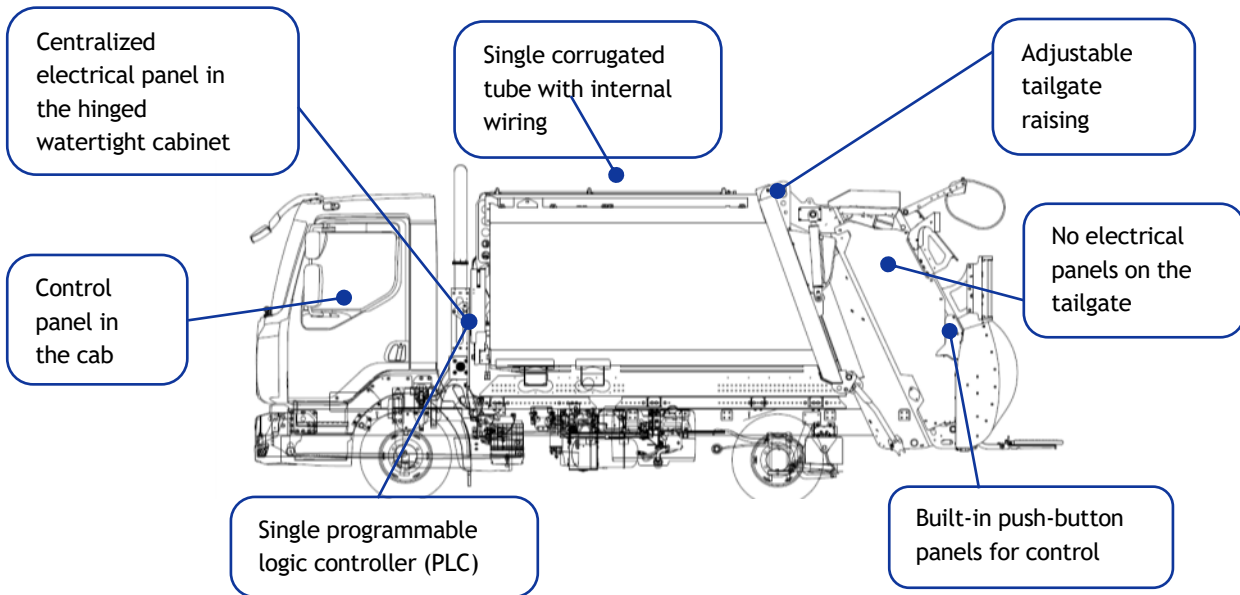
- The **packer plate cylinders** are double-acting and are mounted upside-down to avoid damage when unloading bins. The surfaces of the rods are treated with hard chrome plating to give them greater resistance when coming into contact with waste.



Inverted packer cylinder



3.6 Electric control circuit



The **electronic circuit** is designed to make using and maintaining the packer as easy as possible. The entire system is in accordance with the EN 1501 standard, meaning it meets the strictest usage requirements in terms of safety, extreme weather conditions and mechanical strength.

The automotive-type **wiring** is housed in an open corrugated tube. It has a built-in CAN Bus logical system with the CAN OPEN and CleANopen protocol, and meets the specifications for chassis connections included in protocol SAE J1939. The wiring is the same for the packer and the lights system.

The **connectors** used are DEUTSCH DT, TYCO AMP SUPERSEAL and TYCO HDSCS. They have an IP 67 watertightness protection level and work within a temperature range of -55 to +125 °C. Most of the external components have an IP 69K protection level. T-type joints are used to connect expansions, reducing the work required in case of a failure; the expansion need only be changed downstream from the joint or, if the central part fails, each T-joint can be disconnected and only the central part changed.

For the purposes of a simpler assembly, there is only **one corrugated tube** which runs across the entire structure. Additionally, connectors for some of the most common options are preinstalled as standard to make them easier to add; you just have to remove the connector at the final location where the option will be added.

The unit is controlled using a PLC located inside the **control cabinet**. This cabinet is located at the front of the body and folds out so that it can be easily opened. It consists of two parts to ensure robustness as well as watertightness: there is an outer metal box with a quick release; and a second inner plastic box that is easily replaceable and opens by loosening 4 bolts with a triangular wrench.

Inside the cabinet there is a single **board** with 2 connectors to the PLC. This simplified wiring results in a clean and tidy arrangement and low replacement costs.



Outer box



Inner box



Programmable logic controller (PLC)

The **programmable logic controller (PLC)** controls the entire unit without the need for external safety relays. It has two control units with LED status-indicator lights and a power supply from 10 to 32 VDC. It complies with category SK3 of the EN 954-1 standard and is programmed in accordance with IEC 61131-3. It has an IP 67 protection level and works within a temperature range of -40 to +75 °C.

The PLC complies with weather conditions under EN 60068-2-30 and the Db test ($\leq 95\%$ relative humidity and anti-condensation), and with mechanical strength conditions for vibrations under EN 60068-2-6 and the Fc test, for shocks under EN 60068-2-27 and the Ea test; and for bumps under EN 60068-2-29 and the Eb test.

The electronic assembly of the footboards is "plug and go".

The raising of the tailgate is controlled via a **position sensor** (encoder), the value of which can be read on the cab's display. It is used to control the closing of the tailgate from the cab when it is at a height of 1 m. The encoder is protected to prevent it being bumped by tree branches.

The **control panel** is installed inside the collector's cab for quick, clear and easy control of the packer's functions at all times. It is a 5.7" TFT color screen with a resolution of 320x240 pixels.

The information about the collector's status is displayed in clearly identifiable **pictograms** with a basic design and the option of configuring in several languages. It has a diagnostic system via the PDM (screen).



Color control panel in the cab



In accordance with regulations, the top of the tailgate has a rear-vision color camera. The camera is digital with a protection level of IP 69K and a working temperature range of -30 to +75 °C, with a wide viewing angle to be able to get a full view of the rear work area. The camera display is through the control panel.



Rear-view digital camera

The control panel can be used to **adjust the pressure of the ejector plate** based on the type of waste to be collected (municipal solid waste, paper/cardboard, organic or glass). It can be directly adjusted based on the type of waste or by selecting progressive levels. The packer cycles can also be adjusted in case of a continuous cycle.





The collector's operations may also be controlled by operators using the **push-button panels**. The push-button panels are on the side and are active indicators in accordance with EN 62204. They meet the requirements for protection level IP 67. The unit has the following push-button panels:

- Rear right side of the tailgate:

- Standard push-button panel with the functions of *emergency stop (press and release)*, *run/cycle start (press and release)*, *cab warning bell*, *indicator light*, *rescue*, and *raise/lower the bin-lifter (optional, press and hold)*.



- Rear left side of the tailgate:

- Standard push-button panel with the functions of *emergency stop (press and release)*, *cab warning bell*, *indicator light* and *rescue*. *Optionally, it can include all buttons.*

- Left side of the body (unloading control):

- Standard push-button panel with the functions of *Ejector plate out (press and hold)*, *ejector plate in (press and hold)*, and *lift the tailgate (press and hold)*.



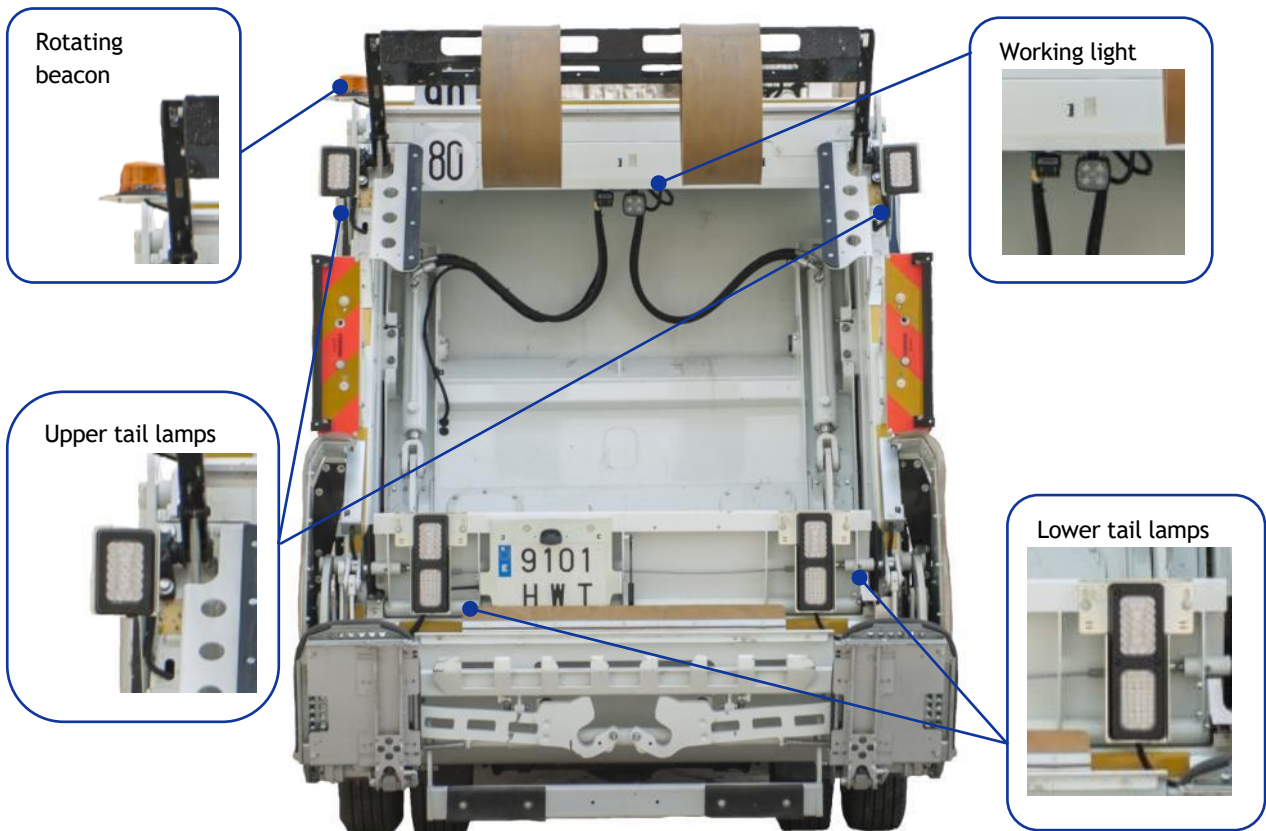
- Left side of the body, rear (tailgate lowering control):

- Standard push-button panel with the functions of lowering the tailgate by pressing and holding twice, in accordance with the EN-574 safety directive.





In terms of **lighting**, the unit has two lower tail lamps in the back, clearance reflectors, side position lights on both sides, two upper tail lamps in the back, an amber rotating beacon and a white working light. All the lamps are LED. *Optionally, the lighting configuration may be expanded. For more information see [Error! No se encuentra el origen de la referencia..](#)*



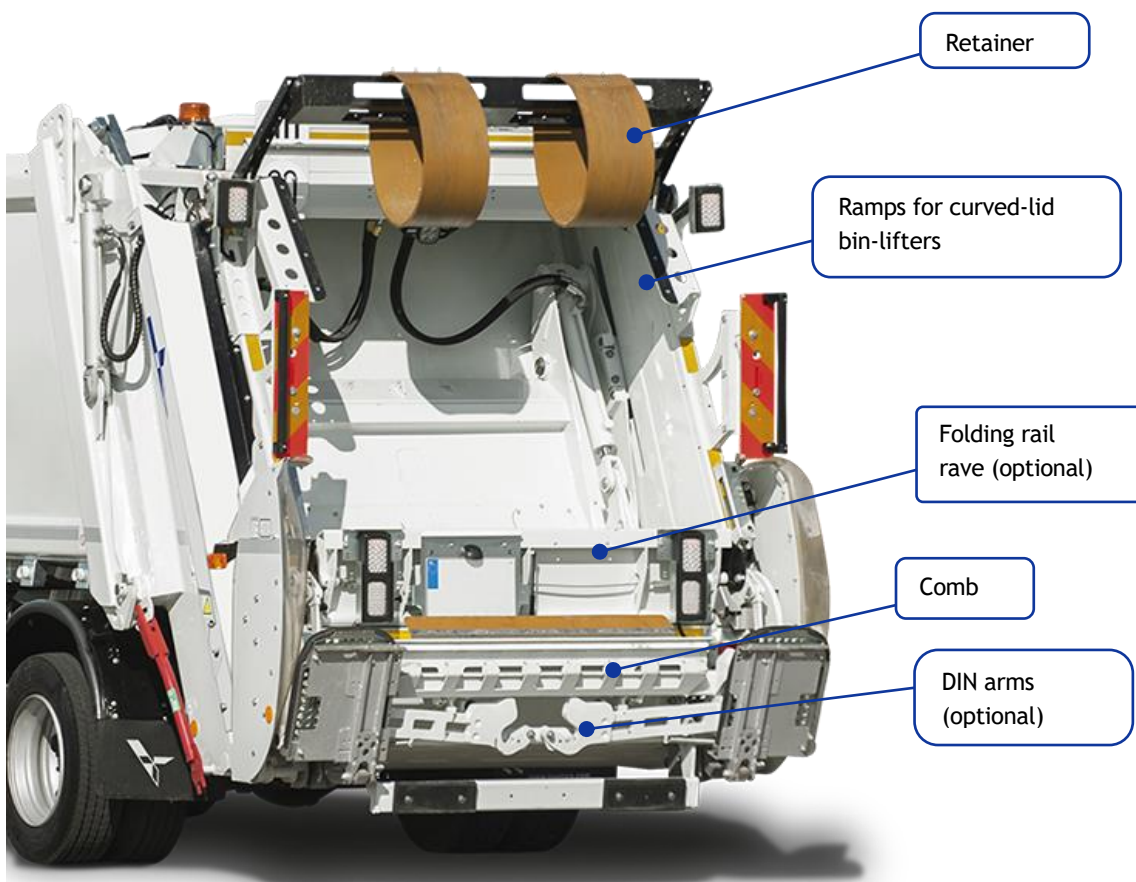


4. BIN-LIFTER

Olympus MINI collectors are designed to be used with the multi-purpose Ros Roca bin-lifter.

4.1 Multi-purpose MINI bin-lifter

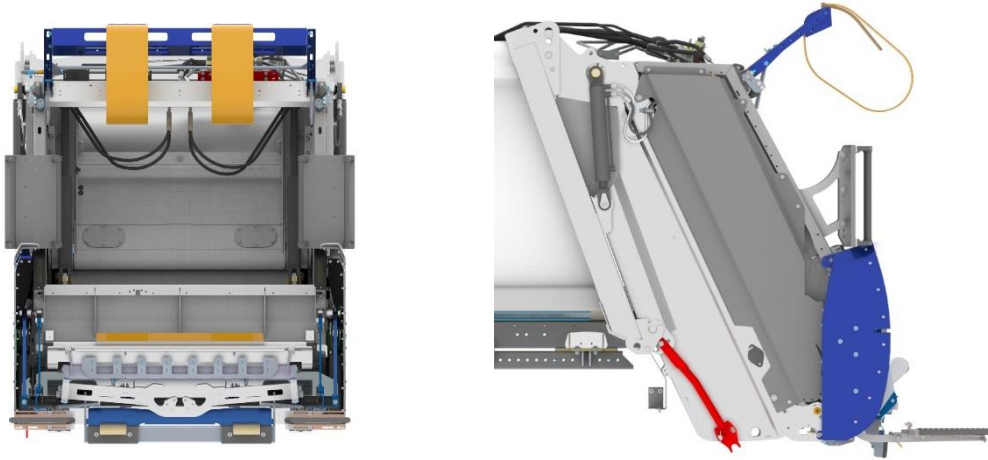
Our multi-purpose bin-lifter for bins and containers is specially designed for domestic waste collection. The bin-lifter moves via side arms operated manually using push-button panels. To save weight, the MINI bin-lifter is assembled directly onto the tailgate, without the need for a DIN frame.



Multi-purpose MINI bin-lifter



The main features of the MINI multi-purpose bin-lifter are:



Flow (l/in.)		15
Maximum working pressure (Bar)		180
Electrical voltage (V DC)		12 / 24
Cycle time (s)		11-12
Lifting capacity (kN/ Kg) (1)		5 / 500
Total bin-lifter weight (with ramps, lid opener and rail rave, in Kg)		250
Container compatibility (in accordance with the EN-840 standard)	EN 840-1	2-wheel bins: 80-120-240-360l
		2 per cycle
	EN 840-2	Lifting system: front loading (with comb)
		2 wheels, flat lid: 660-770-1100l
	EN 840-3	1 per cycle
		Lifting system: side loading (with DIN arms)
4 wheels, curved lid: 770-1300l		
		1 per cycle
		Lifting system: side loading (with DIN arms)

The MINI bin-lifter is designed for the Olympus MINI, to optimize functionality and reduce weight. The unit is exclusively designed for lifting and emptying bins containing domestic waste and urban solid waste in accordance with the standards EN-840-1, EN840-2 and EN840-3. It is made from steel with single-piece arms to optimize the rotation and geometry of the bin-lifter, and a high-strength transversal pipe with bolted end connections.

The bins can be handled using the **ventral comb**; then a central clamp is automatically enabled as the bin-lifter is rotating to support the bin. DIN-type bins may also be handled using **arms**.



The arms move using **springs**. The bin-lifter has **rubber stops** to reduce the noise produced by the impact of closing the arms and to serve as a buffer; the ventral bin support is made of a rubber profile for the same reason. The guiding and rotation mechanisms, hydraulic cylinders, etc. are protected under a metal-plastic housing for safety reasons.



Multi-purpose bin-lifter in down position



Multi-purpose bin-lifter in up position

The bin-lifter has a rear **push-button panel** to control the “Emergency stop”, “Raise” and “Lower” functions.

There are two **lid openers** in the upper rear to automatically open the curved lids of DIN-type bins. The area of contact with the lid bolts is coated with a screwed-in, interchangeable plastic material to avoid damaging the bins and reduce the noise level.



Lid openers

A hinged mechanism supports the plastic bins that are lifted ventrally at the end of the rotation, slowing their momentum. This **retention mechanism** has rubber strips that come into contact with the container.



Retainers



The bin-lifter has **side protections** as an anti-trapping safety device, and metal parts and plastic parts to maintain visibility.



Side protections

Optionally the unit can have a **folding rail rave** with semi-automatic operation. It is equipped with a gas damper for lowering and it locks in with side clasps. The distance to the ground with the rail rave up always depends on the chassis height, but is approximately 1,200 mm. With the rail rave folded in it is 1,050 mm.



5. REGULATIONS AND SAFETY

Olympus MINI collectors are in accordance with the 2006/42/EC Machinery Safety Directives and the EN 1501 standard, and meet all requirements for size, safety and hygiene. The following safety features are also worth mentioning:

- Automatic lock of the body and tailgate to remove the risk of getting trapped by moving parts.
- Locking devices to prevent the unit from operating unless the tailgate is all the way down.
- Lifting cylinders with rupture valves that prevent the tailgate from falling in the event of a rupture.
- Indicators on the cab display for the operations that the unit is performing at all times.
- Double unloading control in the cab and on the exterior.
- Access from the front of the body for inspections.
- Weight-detecting footboards using a sensor.
- Ergonomic circuit designed in accordance with Occupational Safety and Hygiene regulations.

6. NOISE EMISSION

The unit complies with European Directive 2000/14/EC on noise emissions into the environment from outdoor equipment, and includes a marking for the maximum sound power level with the corresponding CE Certificate.



ANNEX I. MATERIALS USED

To design the structures of the packer, the proper steels were selected for each type of work, resulting in excellent anti-wear, shaping, welding and anti-abrasion. Briefly, they are the following:

Location on the unit		Thickness (mm) (1)	Type of steel	Yield strength Re (N/mm2)	Brinell hardness (HB)
BODY	<i>Sides</i>	4	S275 EN 10025	275	150/180
	<i>Platform</i>	3	S355 EN 10025	355	150/180
	<i>Ceiling</i>	3	S355 EN 10025	355	150/180
	<i>Rear frame profile</i>	6	S355 EN 10025	355	150/180
	<i>Guide rails</i>	6	DOMEX 700	700	---
	<i>Rear cross-member</i>	6	S355 EN 10025	650	---
TAILGATE	<i>Hopper bottom</i>	5	RAEX 400	1000	370/430
	<i>Sides</i>	6	HARDOX 400	1000	370/430
	<i>Rail rave</i>	4	S355 EN 10025	1000	370/430
EJECTOR PLATE		4	STRENX 700	700	---
CARRIAGE PLATE	<i>Base</i>	4	HARDOX 400	1000	370/430
	<i>Tubular profiles</i>	3	S355 EN 10025	1000	370/430
	<i>Side arms</i>	6	DOMEX 700	1000	370/430
PACKER PLATE	<i>Base</i>	4	HARDOX 400	1000	370/430
	<i>Side arms</i>	20	STRENX 700	700	---

(1) Thickness with manufacturing tolerances per EN10029.



ANNEX II. OPTIONS

Ref.No.	Optional
2015020	Sub-frame.
2018xxx	Weighing system. Different configurations with and without printer in chassis cab.
2019020	Anti-wear platform.
20200xx	Overload detector KIMAX, with and without lock out of compaction mechanism.
2021030	Weighing system via CAN with lock out of compaction mechanism.
2025xxx	Hydraulic pump. Different options available.
2026060	Hydraulic oil tank filling from the bottom.
20290xx	Special hydraulic oil E32 or BIO HM-46S.
2030010	Open Back option. It includes standard hydraulic block, underrun protection and compatibility with fixed or foldable rave rail.
2030020	Multi-purpose Mini CE bin-lifter.
2032020	4 wheels bins auto gather system for bar lifter.
20380xx	DIN arms for 1100l or 800l containers Ochsner type.
2039020	Side protector lifter.
20400XX	Catcher bar.
2041020	Lid openers for roll top containers.
2043020	Continuous cycle.
2052020	Pack on the move.
2053020	Soundproofing of the exterior of the hopper.
20540xx	Tailgate leachates outlet. Different configurations.
20550xx	Leachates tank/tray at the bottom of the hopper.
20590xx	Advertising panels support. Different sizes.
2060020	Wood filled packer carrier guide.
2064050	Foldable rave rail.
2071020	Side inspection door.
2074030	Support for broom and shovel under de body.
2076020	2nd safety prop.
20770xx	Life-line on the top of the body. Different configurations.
2078030	Toolbox.
2080020	Hands washing tank (black plastic).
2081140	Box with 6Kg fire extinguisher.
20820xx	Sweeper central greasing with or without pump.
2084020	Standardized cycling protection. Only with FBU
2087020	Speed limit set to 3-5 km/h with raised tailgate.
2085020	Underground containers elevation kit.
2088xxx	Footboards with weight detection and handles. Standard or fluo paint.
20900xx	Reverse buzzer. Different possibilities.
2093040	Footboard rubber protection.
2097023	Pre-installation for IDEA system.
2101010	2nd rear pushbutton panel.
2112040	White LED barrier light in the ejector column.
21130xx	Maintenance light between cab and body, with or without independent drive.
2114110	Additional video camera. When reverse gear is engaged.
2115020	Intercom system between the cabin and the rear part of the RCV
2118070	x2 LED tailgate internal working lights.
2119050	Rear upper warning lights.
2120050	Rear lower warning lights.
2122XXX	LED body low working lights. Different configurations.



2123090	X2 LED side tailgate lights.
21260xx	Tailgate led flashing beacons with protection grid. Different configurations.
21270xx	x1 Led flashing beacon with protection at the front with the body.
2132021	RR mudguards. Only with FBU.
2135030	Body, inner side of the hopper and lifter painted in 2 RAL colours.
2136020	Body metallic painting.
2139040	Sweeper/packer colour.
2142xxx	Reflective band son sides and at back of the body. Different combinations possible.
2152070	Sesaly warning light system (centre).
2153020	Pre-installation for SULO-ENVICOMP system.
2155020	"A" Plate.
21590xx	C2 reflective band son cab and body ESC A/B/AVERY6100.
2160020	Red and yellow diagonal stripes rear reflective plate, mounted vertically in rear part of tailgate.
2165020	Maximum speed indicator discs.
2166030	Cavity sealing.
21677xx	Different configurations for Fleet Management System.
2171020	CleAN open connection.
21730xx	LED flashing warning lights. Different combinations.
2176020	360° view camera system.
2182020	e-PTO powered by batteries between cab and body.
2184020	Support for wheel chock.
2186020	POD COMBI preinstallation.
2187020	Preinstallation of C-TRACE system.
2195020	Hydraulic oil cooler.