



OLYMPUS

REAR-LOADER WASTE COLLECTOR

Technical report
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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 is a rear-loading waste compactor collector with an elegant design and proven technology that offers the best quality and reliability for the most demanding waste collection. Its great adaptability for its intended use makes it the best equipment on the market.

With proven experience after years of operation with the backing of a leading company in the sector, Olympus is a sure bet.

Standard models combined with a wide 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 has been designed for optimal productivity and usability. Its many benefits include:

- Diversity of models: available in two widths, two heights and three hopper sizes and can be adapted to a wide variety of applications and functions.
- For use with factory installed bin-lifters or can be adapted for different commercial bin-lifters.
- Configurable HMI display: the majority of the equipment functions can be quickly and intuitively accessed from the cab.
- Safety in the workplace: equipped with automatic body and tailgate lock mechanisms, locking devices, side access door for inspection, weight footboards and ergonomic design.
- Economical maintenance characterised by low maintenance costs.
- Reduced environmental impact low noise level, certified at 101dB.



2.1 OLYMPUS MODELS

Olympus N (Narrow)

Our range of domestic waste collectors especially designed for narrow streets with optimised dimensions and available in 6 capacities ranging from 10 to 19 m³.

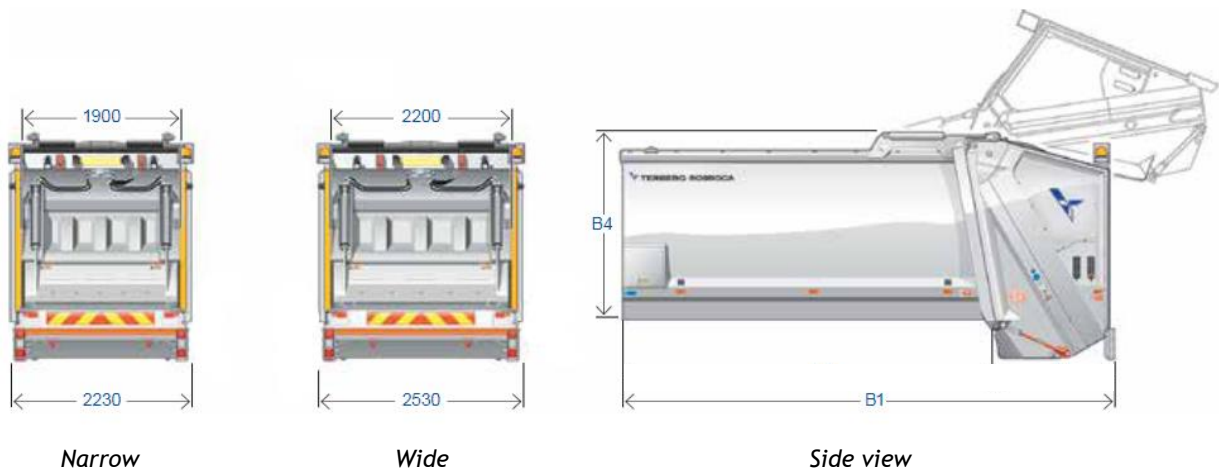
Olympus W (Wide)

Our range of domestic and semi-industrial waste collectors especially designed for urban and rural environments with 10 capacities ranging from 13 to 27 m³.

We also offer the Olympus W+ version with the same characteristics as those of the Olympus W but with greater capacity due to a slight increase in body height. This modification has enabled a 10% increase in capacity for the 3-axle chassis.

Olympus HCT (High Capacity)

Our range of domestic and semi-industrial waste collectors especially designed for collection using satellite equipment and underground containers. Equipped with a high-capacity hopper with a greater load volume.





2.2 SUMMARY TABLE OF OLYMPUS MODELS

	Capacity (m3)	Width (mm)	Total length (B1) (mm)	Height (B4) (mm)	Hopper volume (*) (m3)	GVW (t)	Wheelbase (mm) (1-2 axles)
Olympus N							
OL10N	10,3	2230	4725	2490	1,2 / 2,2 / 2,8	16	3100-3200
OL11N	11,3		4975			16	3400-3500
OL12N	12,5		5275			16	3700-3800
OL14N	13,6		5525			18-19	3800-3900
OL16N	16,0		6175			18-19	4500-4600
OL19N	18,6		6775			26	3800-4000
Olympus W / W+							
OL13W	13,0 / -	2530	4975	2490 / 2700	1,3 / 2,6 / 3,2	16	3400-3500
OL14W	13,7 / -		5125			16	3600-3700
OL15W	14,4 / -		5275			18-19	3700-3800
OL16W	15,6 / -		5525			18-19	3800-3900
OL17W	16,6 / 18,0		5725			18-19 / 26	4100-4200
OL19W	18,6 / 20,3		6175			26	3300-3400
OL20W DE	19,6 / -		6325			26	3400-3500
OL20W	20,0 / 21,8		6475			26	3500-3600
OL20,5W	20,7 / -		6625			26	3600-3700
OL21W	21,4 / 23,4		6775			26	3800-4000
OL23W	23,2 / 25,4		7175			26	4100-4200
OL25W	25,6 / 28,0		7675			26	4500-4600
OL27W	26,5 / 29,0		7875			32	(1)
Olympus HCT							
OL13HCT	13,4	2530	5275	2490	1,5 / 2,8 / 3,5	16	3400-3500
OL14HCT	14,1		5425			16	3600-3700
OL16HCT	15,9		5825			18-19	3800-3900
OL17HCT	16,9		6025			18-19	4100-4200
OL19HCT	18,9		6475			26	3300-3400
OL20HCT	20,3		6775			26	3500-3600
OL21HCT	21,7		7075			26	3800-4000
OL23HCT	23,6		7475			26	4100-4200
OL25HCT	25,9		7975			26	4500-4600
OL27HCT	26,9		8175			32	(1)

(*) Hopper volume / Hopper volume with rave rail (UPC) / Hopper volume with high rave rail (UPC).

(1) 4-axle chassis configuration (8X4) to consult.



3. TECHNICAL CHARACTERISTICS

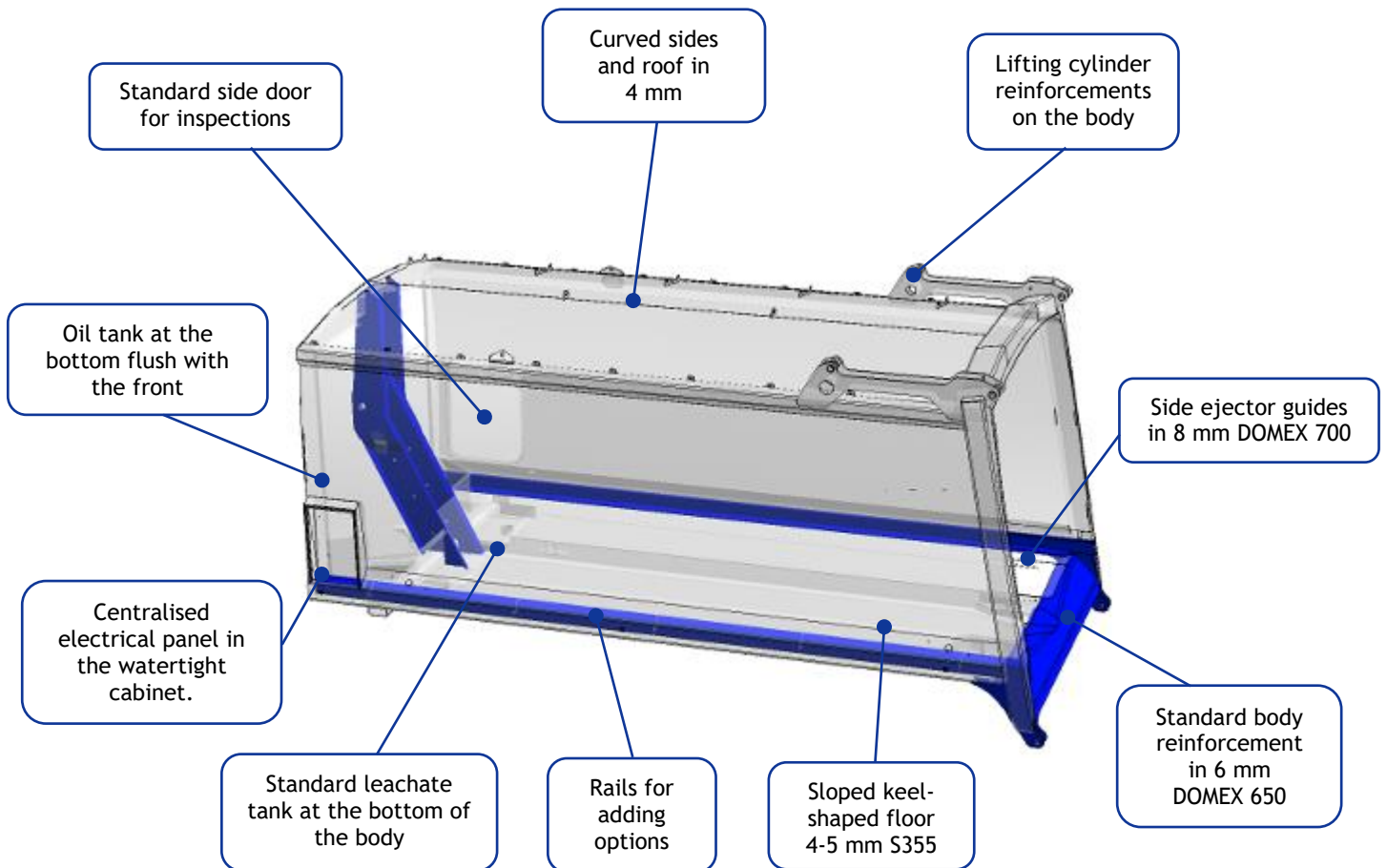
Below we describe each of the parts that make up the Olympus unit.

3.1 Body

The body is the part of the vehicle that transports the collected waste.

As explained in section 2.1, Olympus has two available body widths: Narrow and Wide. There are also two heights available: Wide and Wide+. Together, these account for a wide range of capacities (see section 2.2).

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 into a keel shape.



Olympus 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 **floor** design consists of **three pieces** to improve the strength of the system, as the thicker, **keel-shaped** central section works as a structural support for the entire body. This gives the unit greater capacity and its shape, with sides that slope toward the center, allow leachates to drain to the back of the body.

Detail of keel-shaped floor



In the inside front of the body there is a **leachate collection tray** which collects liquid wastes and makes it easier to clean the body. It has an outlet with a 2" valve and a drain hose. There is also a **metal sheet with a height of 800 mm** on the front that prevents leachates from spilling out from the body. *Optionally, an external leachate tank measuring up to 160 L can be included if a large volume of leachates is expected.*

Interior view of the tank and exterior view of the drain hose



The **oil tank** is also in the front. It is strategically located at the bottom of the body to improve the height of the unit's center of gravity. The tank is located in such a way so as not to protrude over the front of the body, reducing the separation between the body and the cab and the overall length of the unit while increasing its legal load limit.

Front view with the oil tank



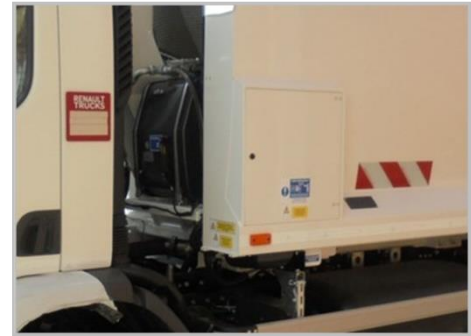
The **inspection door** is on the left side of the body. This door provides safe access inside the body through a 60x80 cm opening for maintenance and cleaning. The door has two safety locks that automatically stop all waste collecting operations when the door is open. *Optionally, an access stair with handle may be included.*

Inspection door with stair and handle





The **control panel** is in a watertight cabinet on the right side of the body. This control panel contains the PLC that centralises all the electronic connections. Its location allows easy access for maintenance tasks. *More information about the control system in section 3.6.*



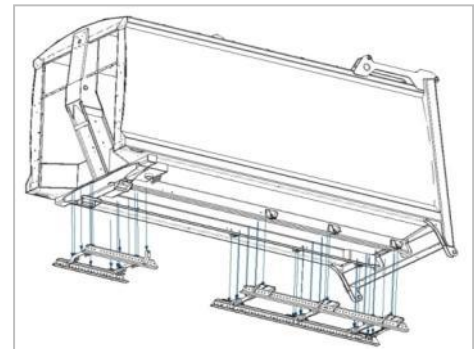
Centralised electrical panel

Along the bottom of the body there are **longitudinal rails** for assembling different accessories and options without having to weld them to the platform. This ensures the unit's corrosion protection. Onto these rails you can mount accessories such as fenders, cyclist protections and options such as extinguishers, washbasins, leachate tanks and toolboxes. *More information about available options in Anexo III.*



Cyclist protections and toolbox

To adapt the body to the different chassis available on the market, a **sub-frame** has been designed that allows it to be attached to any chassis regardless of weight and profiles, in compliance with the specifications of the vehicle's body-maker. The bottom of the body platform has two longitudinal profiles with reinforcements that attach it to the sub-frame using 8 anchoring points: 2 on the front with floating elastic supports and 6 fixed supports on the back. The sub-frame is made up of two independent pieces with stringers in a U-shaped structure, anchoring saddles, and cross-members for varying the width using a mobile system.



Sub-frame mounted on a chassis

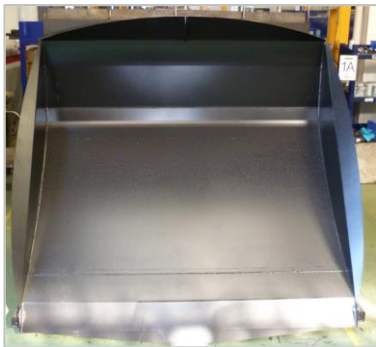


3.2 Ejector plate

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 ejector plate has been designed to fit perfectly in the body during the packing process. Its 4 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.



General view of the ejector plate



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.

To optimise 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 section 3.6). To easily maintain and change the slides, remove the fastening bolts and the closing plate.



3.3 Tailgate

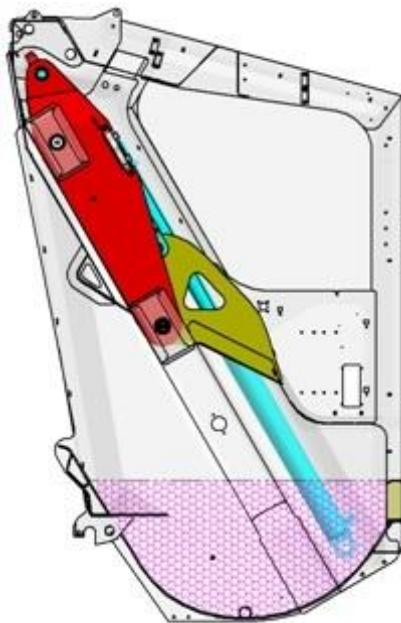
The tailgate is the back of the vehicle, connected to the body, which includes the hopper where waste is loaded either manually or mechanically and the packer system (see point 3.4).

There are 3 hopper capacities: one corresponds to the Narrow body, one to the Wide body and the third is high-capacity (HCT) and is suitable for Wide bodies; it is intended for the collection of satellites and underground containers (unloading with crane). Having different hopper capacities optimises sweeping volume to reduce the number of packer cycles, improve productivity, reduce noise levels and save fuel.

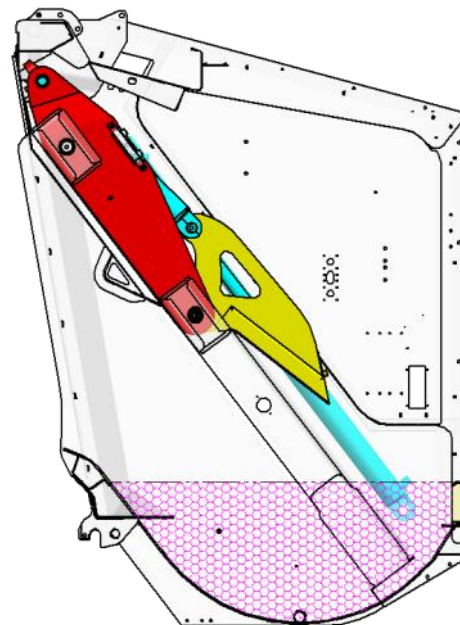
	Tailgate width (mm)	Tailgate length (mm)	Hopper volume (*) (m3)	Sweeping volume (m3)	Cycle time (s)	Absorption capacity (m3/min)
Narrow	2.230	1.515	1,2 / 2,2	1,7	18	5,7
Wide	2.530	1.515	1,3 / 2,6	1,9	18	6,4
HCT	2.530	1.815	1,5 / 2,8	2,0	18	6,6

(*) Hopper volume / Hopper volume with rail rave lifted (UPC)

The Narrow and Wide tailgates have the same overhang, the only difference is their width; meanwhile the HCT has different side dimensions:



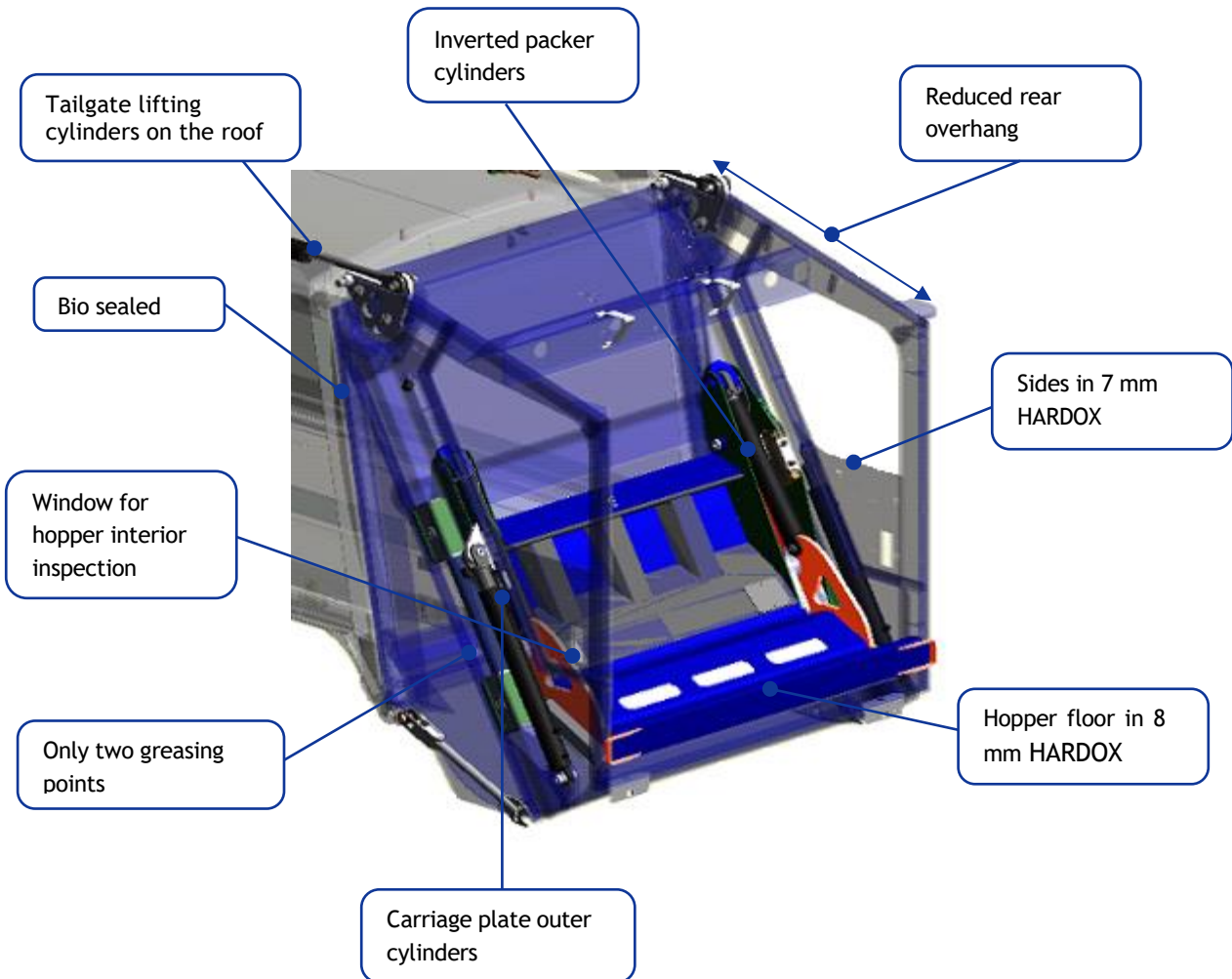
Standard tailgate (Narrow and Wide)



HCT



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



The rail rave is in 4 mm HARDOX 400, with a height for the open-back option (no bin-lifter) of over 1,050 mm, though always subject to the chassis height.

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, the tailgate lifting cylinders are on the roof and the carriage plate cylinders are on the exterior. Find more information about cylinders in section 3.5.



The unit has several built-in mechanisms to **minimise leachate spilling out of the tailgate and onto the ground**. These include:

- A **watertight gasket** (Bio seal) around the total perimeter of contact between the body and the tailgate to the maximum height.
- The **carriage lined** with a steel sheet to prevent gaps that waste could spill through.
- **Blind covers** fastened from the outside with fastening bolts in the carriage plate guides to prevent leachate spills.



Watertight gasket



Lined carriage



Blind covers

There is a 2" cap on both sides of the hopper base for the **leachate outlet**. *Optionally, a ball valve may be used and a leachate tray included at the bottom, with a quick-release opening, to collect any liquids that have leaked out.*

To ensure user safety, the **tailgate's automatic lock** with the body prevents users from being detained inside when it is closed.

There is also **1 safety prop** on the side for inspection tasks, and a second prop can be installed optionally. The safety prop is equipped with a pivot with a hollowed groove so it can be easily put into place by users without having to raise and lower the tailgate.



Safety prop



Prop in working position



There is an **inspection window** on either sides of the tailgate that allows operators to easily see the packer.



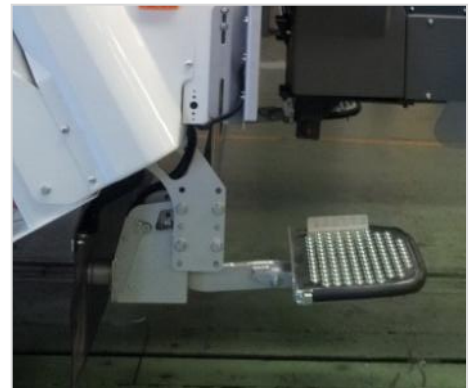
Inspection window on the tailgate

A safety device is enabled when the tailgate is open to empty the body or for maintenance reasons. This device includes a **self-locking system**: a strut at the top of the side prevents the unit from operating unless the hopper is all the way down. Once lowered, an **anchoring system** joins the tailgate to the body.



Anchor for locking the tailgate

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



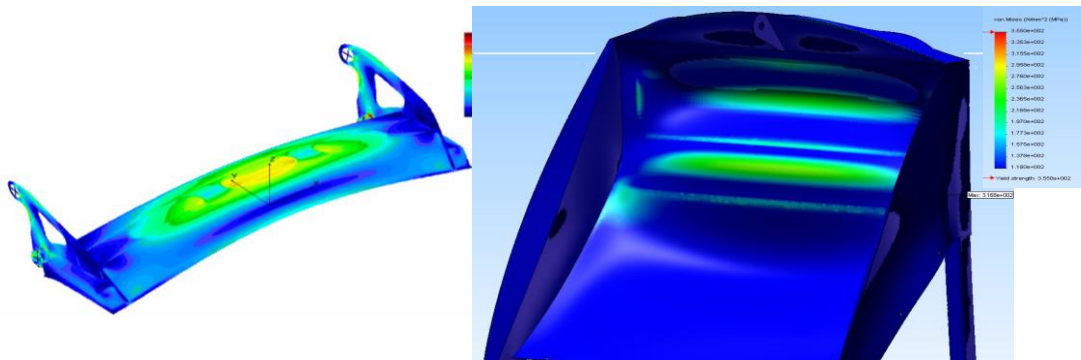
Footboards with weight sensor



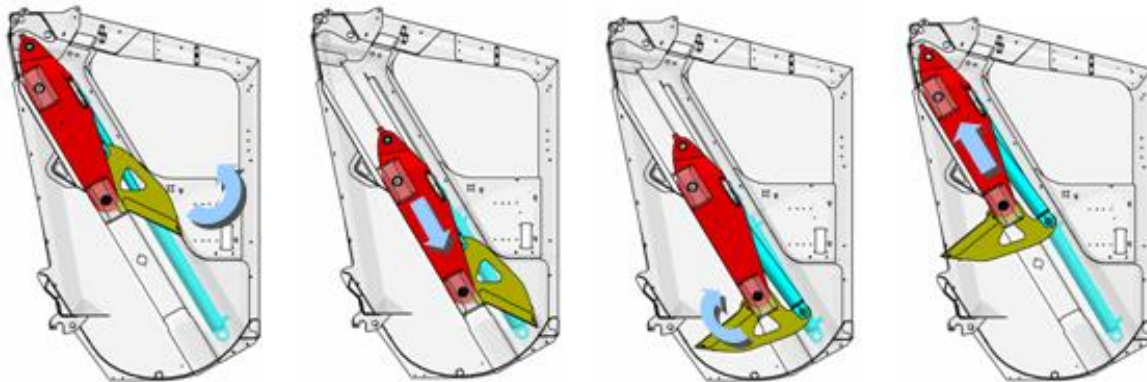
3.4 Packer

Once the waste is inside the hopper, the packer packs it to reduce its volume and increase the useful load; 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 calculated using the finite element method and has been optimised 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 based on the forces to be withstood with 7 mm steel. Formed in a single piece, they have **built-in guide rails** that house the **slides** for the carriage plate to move along, based on low-friction, self-lubricating bearings. Below we explain the sequence and terminology of the 4 **packer movements** with a total cycle time of 18 seconds.



- 1. Carriage plate up/ packer open
- 2. Carriage plate down/ packer open
- 3. Carriage plate down/ packer closed
- 4. Carriage plate up/ packer closed

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 improves packer performance and reduces the overhang of the tailgate.

The **carriage plate** is made from high-yield-strength steels: the base and tubular profiles in 4 mm HARDOX 400, the side arms in 8 mm DOMEX 400, 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 6 mm HARDOX 400 and the side arms in 30 mm STREX 700 steel, enabling it to be made from a single piece despite being an area with great fatigue.

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

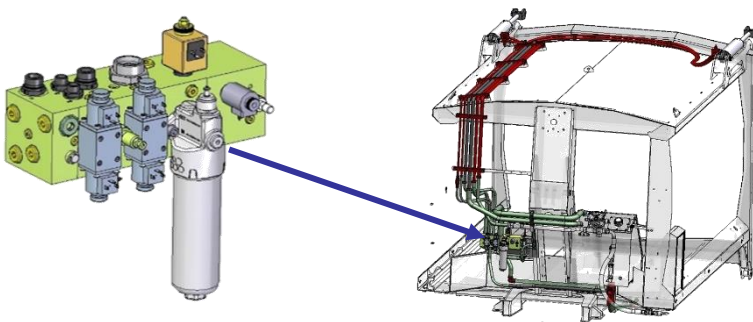


3.5 Hydraulic circuit

The hydraulic circuit is optimised to ensure maximum efficiency of the hydraulics and fuel consumption of the chassis. 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, the tailgate lifting and lowering movements, and the packer system. The other circuit drives the bin-lifter system.

The **control module** includes two hydraulic blocks with electro-valves and a pressure transducer. This allows for easy control and prevents future problems. The first block is located in the front of the body and is easily accessed from the ground for easier maintenance; it controls the ejector plate, the tailgate, the retention, the venting valves and the pressure relief valves. It has a 10 micron pressure filter. The second block is located on the roof of the tailgate to prevent damage when unloading or packing waste and reduces the distance to the cylinders, optimising response time (18 s packing cycle). This block controls the packer.



1st hydraulic block located at the front of the body



2nd hydraulic block located on the tailgate

The **oil tank** is flush with the front of the body, making it easier to attach to the chassis. Its capacity is 150L and it has a 10 micron return filter to ensure low pollution levels. It has a level indicator, a filter clogging indicator, a deaerator and an oil temperature sensor. To make it easier to fill the tank, there is a push-fit coupling located on the left side which is connected to the return filter to ensure filtering. *Optionally, a manual oil filling pump and a drain tap may be added.*



Oil tank at the front of the body



Detail of the push-fit coupling

The duplex **hydraulic pump** (two bodies, for the option that includes the bin-lifter) has vanes. It is driven via a direct power take-off or gearbox on the chassis at an operating speed that ranges between 900-1,000 rpm. The standard connection uses a cardan shaft with a DIN 100x6x8 outlet flange. It may also be



compact with a splined shaft, like the DIN 5462 with 8 spline teeth. There is a single pump for units with no bin-lifter (open back). The main pump features are:

Pump body	Flow (l/min)	Max. P. (Bar)	Notes
P1	70	230	Ejector + tailgate + packer
P2	55	160	Multi-purpose UPC bin-lifter

Optionally, an electro-clutch may be installed between the pump and the cardan shaft, or a proportional hydraulic circuit with a variable displacement pump.

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 waste load density. Its anchors to the ejector plate are easily accessed from the side inspection door. It is mounted with two easily-adjustable pivot-pin trunnions for reduced maintenance costs.
- The **tailgate lifting cylinders** are double-acting and are located at the top of the body. The kinematics of opening and closing reduces wear from gasket shearing and improves the watertightness between the body and the tailgate. This prevents leachates from spilling out onto the ground and fully prevents the cylinders from coming into contact with the waste.
The lifting cylinders are protected by overcenter pilot valves, which prevent the tailgate from falling if a hose breaks or there is an oil leak. If the tailgate is up when this occurs, it can be manually lowered using the adjustment bolts.



Tailgate fully closed/open



- 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 open and with fairing



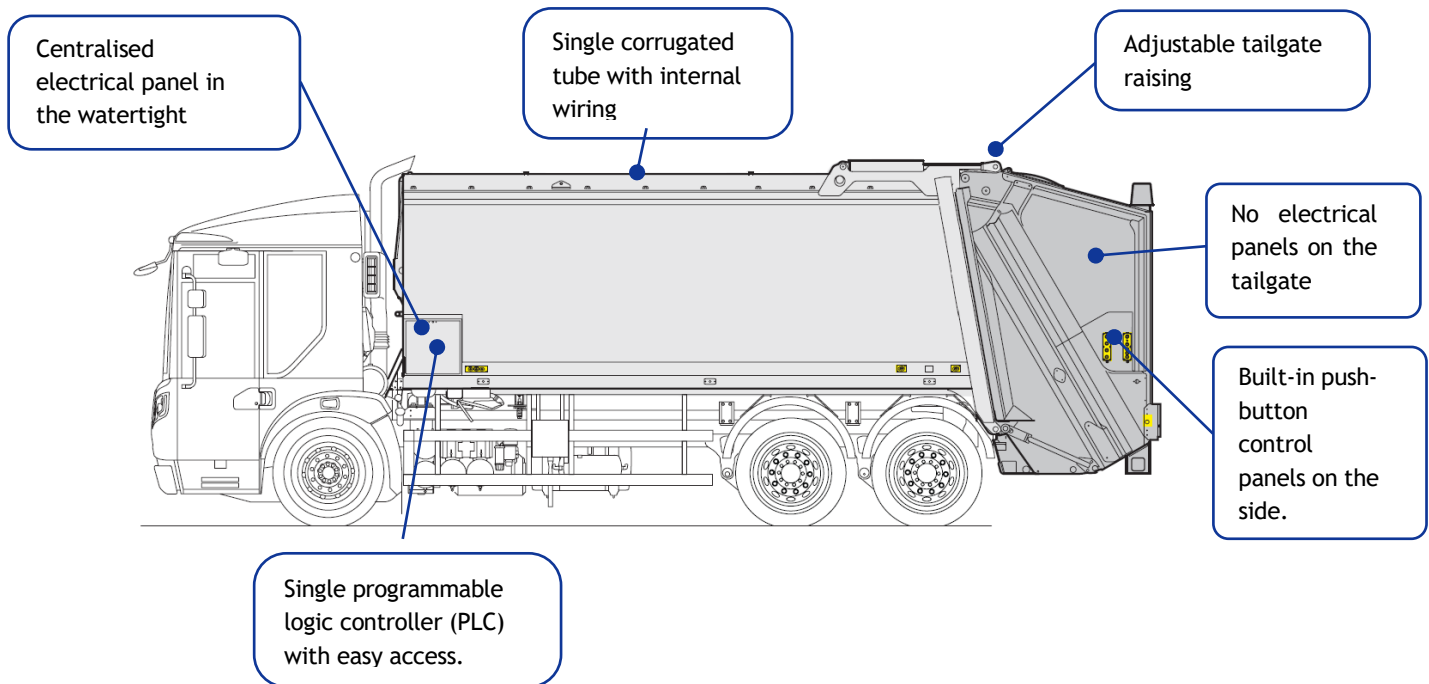
- The **packer cylinders** are double-acting and are mounted upside-down to avoid damage when unloading bins. The surfaces of the rods are treated with hard chrome plating to give them greater resistance when coming into contact with waste.

Chrome-plated packer cylinder and rod





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 extreme weather conditions and mechanical strength.

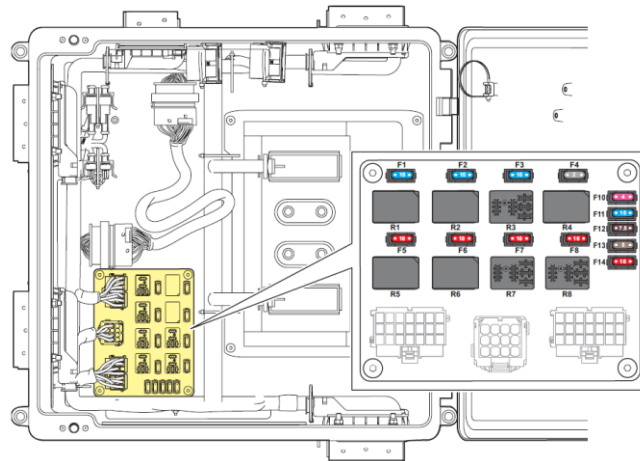
The automotive-type **wiring** is housed in an open corrugated tube. It has a built-in CAN Bus logical system with the CAN OPEN protocol, for the internal communication of all the components and accessories of the collector and complies with the chassis connection according to SAE J1939 protocol. *Optionally, an architecture with CleanOpen protocol has been implemented for communication between the elements established according to this protocol.* The wiring is the same for the packer and the lights system.

The **connectors** used are TYCO HDSCS, TYCO AMP SUPERSEAL and TYCO LEAVYSEAL. 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 mechanical 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 on the left side of the body and consists of two parts to ensure robustness as well as watertightness: there is an easily replaceable outer metal box that is opened by loosening 4 bolts with a triangular wrench; and a second inner plastic box with a quick release clasp and a push-in clasp.

Inside the cabinet there is a single board with 3 external connectors (input, output and external services). There are also the connectors to the collector duly labeled. This simplified wiring results in a clean and tidy arrangement and low replacement costs.



The **programmable logic controller (PLC)** controls the entire unit without the need for external safety relays. It has three control units with LED status-indicator lights and a power supply from 8 to 32 VDC. It complies with security parameters as stated in category ISO 13849-1: 2015 PL d and IEC 62061 SIL 2 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 +85 °C.

The PLC complies with weather conditions under EN 60068-2-30 (damp heat cyclic test), EN 60068-2-78 (damp heat, continuous test) and EN 60068-2-52 (salt mist, cyclic test) and with mechanical strength conditions for vibrations (under ISO 16750-3 and EN 60068-2-6) and for shocks (under ISO 16750-3).

The connection between the bin-lifter and the equipment can be made through a 32-pin connector “Plug and go” (according to EN 1501-5) or directly if the lifter is Terberg or UPC. The electronic mounting of the footboards is also “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, deactivating the automatic closing system when the tailgate is at a height of 1 m or stopping the opening when it is above 2.5 m. With this encoder, the exact tailgate height can be detected. This is very useful in places with height restrictions, as it avoids problems due to bumps. 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 7" TFT-LCD colour screen with a resolution of 800x420 pixels.

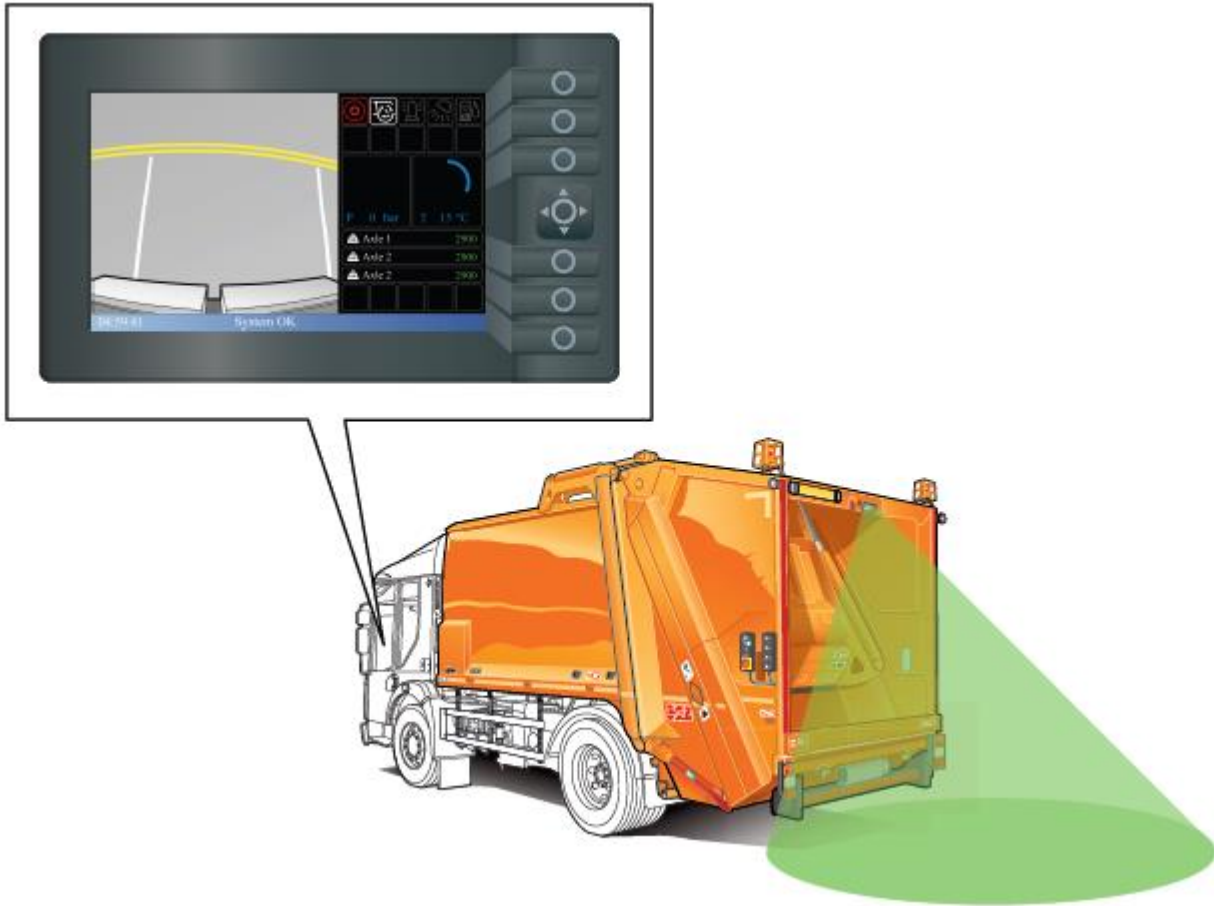
The information about the collector's status is displayed in clearly identifiable **pictograms** with a basic design and the option of configuring in several languages. It has a diagnostic system via the PDM (screen).



Colour control panel in the cab

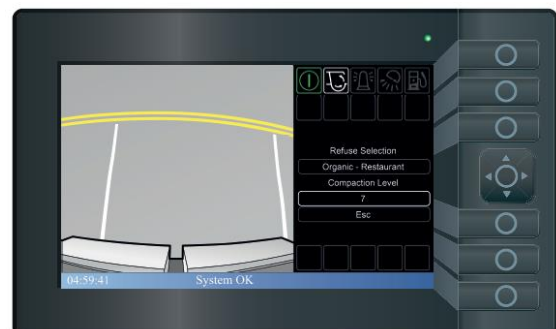
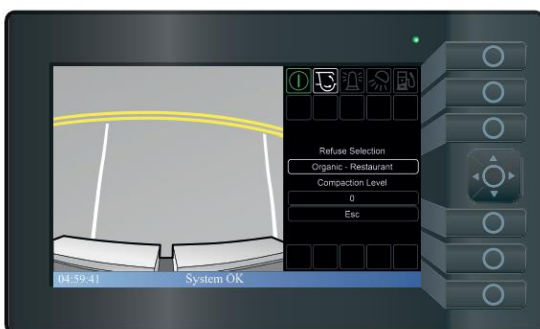


In accordance with regulations, the top of the tailgate has a rear-vision colour camera. The camera is digital with a protection level of IP 69K and a recording temperature range of -30 to +75 °C and a wide viewing angle to be able to get a full view of the rear work area. The camera view is displayed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



Rear-view digital camera on the tailgate

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.





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. They are located on:

- The right rear side of the tailgate:
 - Standard push-button panel with the functions of cycle run/start, indicator light, rescue, cab warning bell and emergency stop.
 - *Cycle decomposition push-button panel (optional). This push-button panel controls the functions of manual opening of the packer plate, manual lowering of the carriage plate, manual closing of the packer plate, and stop/lifting of the carriage plate.*

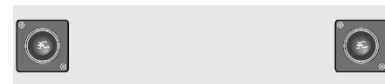


- The left rear side of the tailgate:
 - Standard push-button panel with the functions of *cycle run/start, indicator light, rescue, cab warning bell and emergency stop.*

- Left side of the body (unloading control):
 - Standard push-button panel with the functions of *moving the ejector plate forward, moving the ejector plate backwards and lifting the tailgate.*

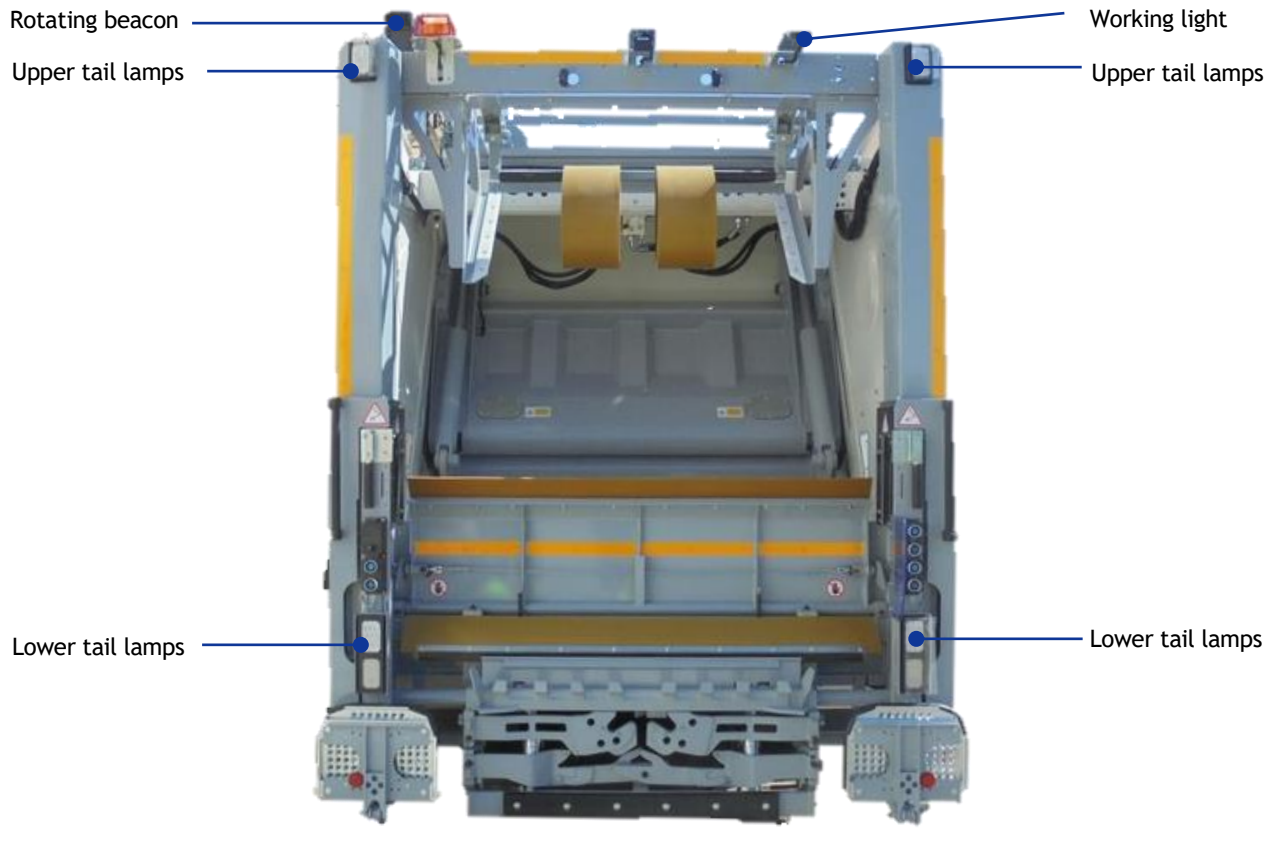


- Left rear side of the body (unloading control):
 - Standard push-button panel with the functions of *lowering the tailgate by pressing and holding twice, in accordance with the EN-574 safety directive.*





In terms of **lighting**, the unit has two lower tail lamps in the back, clearance reflectors, two upper tail lamps in the back, an amber rotating halogen beacon and a white working light. *Optionally, there are a wide range of lighting possibilities in terms of number, location, types of lamp, colors and types of operation. For more information see Anexo III.*





4. BIN-LIFTER

Olympus collectors are designed to be used with Ros Roca bin-lifters or bin-lifters from other commercial brands. Ros Roca has designed a bin-lifter multi-purpose for domestic and semi-industrial waste collection.

4.1 Multi-purpose UPC bin-lifter

Our multi-purpose bin-lifter for bins and containers is specially designed for domestic waste collection. It is a vertical-moving bin-lifter with electric/hydraulic drive and proportional hydraulics by means of an electro valve, that allows to increase energy efficiency, reduce cycle time, operate with smooth movements and improve the cube / container treatment.

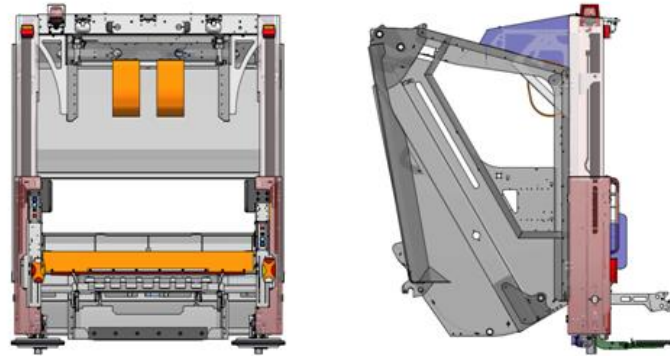
To save weight including a DIN support frame, the UPC bin-lifter is bolted directly onto the tailgate.



Multi-purpose UPC bin-lifter



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



Required hydraulic flow (l/min)		60
Maximum working pressure (Bar)		160
Electrical voltage (V DC)		24
Total bin-lifter weight (with frame, lid opener, retainers and rail rave) (Kg)		675 / 725 (1)
Lifting capacity (kN/Kg)		5000-500 / 8000-800 (1)
Cycle time for 2-wheel bins (s)		11 - 12
Cycle time for 4-wheel bins (s)		13 - 14
Container compatibility (in accordance with the EN-840 standard)	EN-840-1	2-wheel bin: 80-120-240-360l // 2 per cycle Lifting system: front loading (with comb)
	EN-840-2	4 wheels, flat lid: 660-770-1100l // 1 per cycle Lifting system: side loading (with DIN arms)
	EN-840-3	4 wheels, curved lid: 770-1300l // 1 per cycle Lifting system: side loading (with DIN arms)
Proportional Hydraulics		Proportional electro valve
Speed ramps to soften transitions		Turn and end of stroke
Position control		Magnetic sensors

(1) The standard lifting capacity is 500 Kg. Optionally, it can be 800 Kg.

The UPC bin-lifter **only moves vertically** and dumps over the axle. 4 polyamide with molybdenum disulphide slides on the interior of the guide rails ensure the movement and rotation is caused by the meshing of 2 gear rings fixed to the body of the bin-lifter and 2 racks with rollers connected to the columns. The rack rollers are detachable and interchangeable, as are the ring gears.

A great advantage of the UPC lifter is its flexibility to adapt to different **chassis heights**, being the maximum height of 1130mm (rear height of the chassis), but this height can be increased in case of very high chassis as 4x4 chassis or gas chassis with the bottles on top of the frame rails.

The bins can be handled using the **ventral comb**; then a central clamp is automatically operated by a hydraulic cylinder while the bin-lifter is rotating to support the bin. DIN-type bins may also be handled using **arms**. A sensor located on the central part of the bin-lifter determines if the load is a 2-wheel bucket or a 4-wheel bin.



The arms move using **gas shock absorbers**. The bin-lifter has two **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 a rubber profile for the same reason. The guiding and rotation mechanisms, hydraulic cylinders, etc. are protected under a metal-plastic housing.



Multi-purpose bin-lifter in down position



Multi-purpose bin-lifter in lifted position

The bin-lifter has a rear **push-button panel**, *optionally two*.

There are two **lid openers** in the upper rear part 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.

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.



Lid openers and retainers

The side fairings of the bin-lifter frame fold out to facilitate maintenance work.

The unit has a **folding rail rave** with semi-automatic operation. It is equipped with gas shock absorbers for lowering and it locks in with side clasps. The distance to the ground with the rail rave lifted always depends on the chassis height, but is approximately 1,400 mm. With the rail rave folded in it is 1,150 mm. *Optionally there can be a rail rave with a height of 1,600 mm.*



Rail rave in lifted position



Rail rave in folded position




4.2 Other lifters

The collector is designed to adapt to bin-lifters made by other manufacturers. It has a DIN-type frame assembled on the tailgate. The bin-lifters can be hydraulic (H) or electric (E).

The table below shows the most commonly installed Terberg bin-lifters and their main features. For more information about them or about other bin-lifters not installed, contact our sales department.

Bin-lifter	Type	Operation	Purpose of use	EN-12574-1 DIN 30737 Bins	EN 840 - 1/2/3 (comb)	EN 840 - 3 (arms)	Lifting Capacity [kg]	Bin-lifter frame	
Terberg OmniTrade									
	H	Bar lifter (1 body)	Manual	Domestic/Commercial	No	Standard	Standard	750	No
	E	Bar lifter (1 body)	Manual	Domestic/Commercial	No	Standard	Optional	500	No
Terberg EuroMax									
	H	Bar lifter (1 body)	Manual	Domestic/Commercial	Optional	Standard	Optional	750	No
Terberg EuroMax									
	H	Bar lifter (1 body)	Manual	Domestic/Commercial	Optional	Standard	Optional	750	No
Terberg OmniDel									
	H	Split chair (2 bodies)	Automatic	Domestic/Commercial	No	Standard	Standard	150/500	Yes
	E	Split chair (2 bodies)	Automatic	Domestic/Commercial	No	Standard	Optional	150/500	Yes
Terberg OmniDeka									
	H	Split chair (2 bodies)	Automatic	Domestic/Commercial	No	Standard	Optional	170/750	Yes
	E	Split chair (2 bodies)	Automatic	Domestic/Commercial	No	Standard	Optional	150/500	Yes
Terberg OmniMax									



<i>Bin-lifter</i>	<i>Type</i>	<i>Operation</i>	<i>Purpose of use</i>	<i>EN-12574-1 DIN 30737 Bins</i>	<i>EN 840 - 1/2/3 (comb)</i>	<i>EN 840 - 3 (arms)</i>	<i>Lifting Capacity [kg]</i>	<i>Bin- lifter frame</i>	
	H	Split chair (2 bodies)	Automatic	Domestic/ Commercial	No	Standard	Standard	170/750	No
	E	Split chair (2 bodies)	Automatic	Domestic/ Commercial	No	Standard	Optional	150/500	No



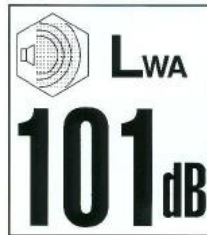
5. REGULATIONS AND SAFETY

Olympus 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 locking 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 hopper is all the way down.
- Tailgate lifting cylinders with overcenter pilot valves that prevent the tailgate from falling in the event of a rupture or leak.
- 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 door on the side of the body for inspections with automatic unit stop when the door is opened.
- 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.



Marking per Directive 2000/14/EC



ANEXO I. PAINTING AND FINISHING PROCESS (BODY AND TAILGATE)

All the surfaces of the collector-packer are scoured and then treated against corrosion with the following operations:

- (1) Total degreasing using a hot-water pressure washer and air blowing.
- (2) Drying of moisture in a temperature-controlled room.
- (3) Blasting with metal shot of all the surfaces to remove rust and calamine. Subsequent suctioning of debris with venturi and general air blowing. (SA 2 1/2 surface finishing)



Tailgate with metal shot

- (4) Priming with two-component polyurethane with a thickness of 70-100 microns.
- (5) Accelerated drying of the primer in a temperature-controlled room.
- (6) Silicon sealing of areas where moisture may build up. This prevents future rusting.



Bottom of the body painted and sealed



- (7) Painting with two coats of standard white paint (two-component aliphatic polyurethane quality) with a total thickness of 50 microns when dry.



Painting process

- (8) Drying in a furnace using a temperature-controlled room.
- (9) The average total thickness of the protection is 120 microns.



Body painted in polyurethane

At the end of the process, it is complied with a C4-H anti-corrosion protection level according to the UNE EN ISO 12944 standard and a 90% gloss level.



ANEXO II. 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>	4-5	S355 EN 10025	355	150/180
	<i>Ceiling</i>	4	S355 EN 10025	355	150/180
	<i>Rear frame profile</i>	5-6	S355 EN 10025	355	150/180
	<i>Guide rails</i>	8	DOMEX 700	700	---
	<i>Rear cross-member</i>	6	DOMEX 650	650	---
TAILGATE	<i>Hopper bottom</i>	8	HARDOX 400	1000	370/430
	<i>Sides</i>	7	HARDOX 400	1000	370/430
	<i>Rail rave</i>	4	DOMEX 700	700	---
EJECTOR PLATE	<i>Ejector surface</i>	3	S355 EN 10025	355	150/180
	<i>Lower part</i>	4	HARDOX 400	1000	370/430
CARRIAGE PLATE	<i>Base</i>	4	HARDOX 400	1000	370/430
PACKER PLATE	<i>Base</i>	6	HARDOX 400	1000	370/430
	<i>Side arms</i>	30	STRENX 700	700	---

(1) Thickness with manufacturing tolerances per EN10029.

The hydraulic cylinders are designed for there to be as few as possible in the range. Only 8 ejector cylinders are used for the 12 different capacities. This enables reduced stocks of spare parts

Location on the unit	Sleeve (mm)	Rod (mm)	Cylinder type	Capacities
EJECTOR PLATE	120	55	3 expansions	from 10 to 16 m3 (5 bodies)
	140	55	4 expansions	from 18 to 23 m3 (5 bodies)
	160	55	5 expansions	from 25 to 27 m3 (2 bodies)
CARRIAGE PLATE	100	80	Double-acting	All
PACKER PLATE	100	80	Double-acting	All
TAILGATE LIFTER	110	40	Double-acting	All



ANEXO III. OPTIONS

Ref. No.	Optional
009xxx	Side tailgate/packer reinforcement for paper haulage.
013xxx	Tailgate adaptation to use a crane to unload bins with a lower unloading door. Crane between cab and body or on the roof.
015xxx	Different sub-frames available.
018xxx	Adaptation or installation of several weighing systems
019020	Antiwear plataform.
020xxx	Cab overload detector. Only for chassis with pneumatic suspension.
21020	Vehicle weighing system activated. Without lock out.
022030	Electromagnetic clutch (client) installed between the power take-off and hydraulic pump.
023020	Auto Neutral
025xxx	Hydraulic pump. Different possibilities available.
026040	Quick connection for oil tank drainage
028020	Quick connections for the hydraulic functioning of the ejector and tailgate lifter via an external circuit.
029010	Hydraulic oil E32.
029040	Hydraulic oil BIO HM-46S.
029060	Hydraulic oil ARCTIC 32.
029050	Hydraulic oil BIO PE-B 30.
029070	Hydraulic oil PANOLIN HLP Synthetic.
030050	UPC 800 Kg multi-purpose bin-lifter.
030060	UPC 500 Kg multi-purpose bin-lifter.
031020	Bin-lifter with silent option for the UPC 500 Kg bin-lifter.
032020	4 wheel bin auto gather system for UPC.
033020	Ventral detention system (AFNOR).
034xxx	Preinstallation/installation of auxiliary bin-lifter. Includes hydraulic installation, 32-pin connection. No frame or rail rave.
035xxx	Different DIN frames or doors for auxiliary lifters. Does not include rail rave.
0370xx	Preparation and installation for winch.
038xxx	Arms for 4-wheel bins with bolts in accordance with (EN_840_2 and EN_840_3).
039020	Crew riding protection plate for UPC.
040xxx	Retainer specially designed for small bins.
041020	Lid openers for UPC.
043020	Preparation for loading SOTKON bins. Includes unloading of satellites.
045010	Second control station for UPC.
046020	Lifter shake while dumping.
050030	Tailgate reinforcement 10mm - HARDOX 400.
050040	Tailgate reinforcement 6mm - EURODUR.
050050	Hopper of 6 mm of thickness instead of 8mm, in Hardox 400.
050060	8mm Hardox 500 hopper thickness.
052xxx	"Pack on the move" option
053xxx	Soundproofing of the hopper or tailgate.
054xxx	Hopper leachate outlet with 2" valve
055xxx	Leachates-collection tank in the tailgate. Several models
056043	Leachates collection tank under the body.
0570xx	Several options for leachate outlet in front box.
059xxx	Brackets for advertising panels on both sides of the body



Ref. No.	Optional
062020	Safety protection in the front of the body to prevent access inside.
063020	Device for unloading satellite equipment.
064xxx	Rail rave in DIN door, adjusted to the proper height for the auxiliary bin-lifter installation.
064060	Folding rail rave with semi-automatic operation, 1,600 mm high, for the UPC bin-lifter.
064080	Folding rail rave with semi-automatic operation, 1,600 mm high, for Open Back configurations.
064100	Fixed rave rail at 1600mm height for UPC.
066020	Low noise carriage blocks.
068020	Steel plates to protect tailgate lifting cylinder rods.
071020	Access ladder and handle.
071030	Access handles (without ladder)
074xxx	Shovel and broom support (under the body, in the tailgate or in front of the body)
075020	Additional number plate bracket under the hopper.
076020	2 safety props on the tailgate.
077020	Lifeline at the top of the body.
077030	Double lifeline at the top of the body.
078xxx	Plastic toolbox on the side of the frame with lock and key.
0790xx	Pressurized water washing kit with one or two hose reels.
080020	Cold water hand washing station with soap dispenser.
080060	Hot water hand washing station with soap dispenser.
081xxx	6 or 9 kg extinguisher with bracket or box.
082020	Preinstallation for greasing the packer joint.
082xxx	Centralised greasing of the packer joint with a manual or automatic pump, or without pump.
083030	Installation of the automatic greasing system for the auxiliary bin-lifter (pump supplied by the customer and bin-lifter prepared for the greasing installation at a single point).
084xxx	Cyclist protections.
085030	Kit for lifting 4-wheel underground bins with drives for lifting and lowering, including a reel with 20 m of 3/8" hose.
087020	Speed limiter from 3 to 5 km/h with the rear door open.
088xxx	Folding footboards with presence detectors, anti-slip guards (especially for snow) on the footboards, rubber protections on the footboards, and a 30 km/h speed limiter and reverse prevention when an operator is on the footboard. Standard or fluorescent.
090xxx	Reverse buzzer. Regulable or White noise.
093040	Footboard splash-guard consisting of a rubber strip along the entire length of the tailgate under the footboards.
097023	IDEA container identification system preinstallation
099020	Preparation for PME weigh identification in lifter comb.
104020	"Green Mode". The press does not work if the ejector is back.
107xxx	Additional rear push-button panels for the decomposition of the packer cycle.
102020	Rear mounted control panels in some auxiliary lifters.
112040	An LED working light for lighting the interior of the body (located in the ejector's column), in white.
113040	An LED maintenance working light (located between the body and the cab), in white.
114xxx	Rear or additional camera options.
115xxx	Intercom between the back of the vehicle and the cab.
118xxx	A working light for lighting the interior of the hopper, halogen, LED.
119050	Upper rear marking lights.
120xxx	Lower rear marking lights.



Ref. No.	Optional
121xxx	One/two/three rear working light(s) for lighting the loading area, halogen or LED, in white or orange.
122xxx	One/two/three side working light (s) (under the body). White LED. With or without independent operation.
123090	Two exterior working lights (Led) on either side of the tailgate for lighting up the push-button control panels.
125xxx	1 or 2 LED working lights above the body, in white.
126xxx	1 or 2 rotating beacons on the tailgate, LED, with protective grates on the tailgate rotating beacon.
127xxx	A rotating beacon in the front of the body, halogen, LED, with lamp protection.
128xxx	2 or 4 flashing beacons, LED, body and/or tailgate.
129xxx	LED or bulb rear lights with or without protective grates.
130050	Metal sheet tailgate covers. Instead of standard in plastic.
132xxx	Various types of enders.
135030	Painting the body and the inside of the hopper in 2 colours from the RAL colour chart.
136020	Painting the body with metallic paint.
137020	Painting the UPC bin-lifter in a RAL colour other than the standard RAL 7001 grey. (Front and side columns + bin lifter + light bridge).
138020	Painting the bin-lifter frame in a RAL colour other than the standard RAL 7001 grey.
139xxx	Painting the packer and carriage plate in a RAL colour other than the standard RAL 7001 grey.
140010	Painting the inside of the hopper in a special colour from the RAL colour chart, different to the colour of the rest of the unit.
141030	Painting the platform a different colour than the rest of the unit.
142xxx	Reflective bands on the side and rear (white and/or yellow).
150020	Crossed management of footboards.
153020	SULO-ENVICOM system preinstallation.
159xxx	C2 reflective self adhesive tapes on the cab and unit (diagonal white and red self adhesive tapes).
148061	2 working lights that switch on when moving in reverse. LED, in white, with or without independent operation.
151030	Heating holders.
152xxx	Lighting indicator SESALY.
155020	Plate A.
157020	Equipment for containers DIN30720.
160020	Reflecting rear plates.
163xxx	Open back configuration (without lifter).
165020	Indicator 80-90 Km/h.
166xxx	Tectyl treatment and or cavity sealing.
167xxx	Installation for FMS systems.
169020	Road LED lights in the lifter
170020	Front end netting.
171020	CleAN open connection.
172020	Filter in line in the bin lift circuit.
173xxx	Flashing warning lights.
176020	360° view camera system.
178020	Simultaneous use of crane and lifter.
179030	Reinforcement of the tailgate sides.
180020	Lifter hydraulic couplings with open-back configuration.
181020	Folded footboard sensor.
182xxx	Electric PTOs powered by batteries.



Ref. No.	Optional
183020	Side marker flashing lights.
184020	Support for wheel chock.
185020	Footboard lock.
187020	Preinstallation of C-TRACE system.
188020	Body roof anti-slippery stickers.
189020	Rubber in packer.
190030	Two front body lights for crane.
195020	Hydraulic oil cooler.
197020	Leachate sump welded cover.
198020	Stainless steel bag dispenser.

For more information consult the sales representatives of Ros Roca.