INTELLIGENT WASTE CONTAINERS

Waste containers volumes up to 5m³

Customized waste collectors

Waste collection can be part of your city

MADE IN GERMANY

ENGELS
serving logistics and the environment
WHO ARE WE?

HISTORY AND MISSION STATEMENT

The Engels Group supplies products serving logistics and the environment, with a strong focus on sustainability. We intend to maintain our growth towards a European pole position by being a professional partner for our clients as well as our suppliers. This by the:

- **Quality** of our products, consultation and service
- **Creativity** of our proposed solutions
- **Clarity** and accessibility of our communication
- **Completeness** of our product range

Our product range answers all questions concerning warehouse and transport bins, multiple use packaging, pallets and pallet boxes, retention bins, boxes approved for the transport of hazardous materials and plastic and steel waste containers. This supported by our electronics, software and services for waste collecting and logistics.

Engels Logistiek B.V. was officially founded in July 1960. In 1987, the company carried out its first large-scale projects related to logistics and the environment: the Royal Dutch Army became the first organisation in Europe to start using our collection containers for batteries and we supplied 1000 custom-built pallet boxes with extra high side walls for Lumenex, the first recycling plant for fluorescent lights in the Netherlands. In 1989, we started supplying our first recycling containers; since then, we have sold more than 2 million, not only in the Netherlands, but also in Norway, Sweden and Germany.


Engels has also been involved in waste separation for twenty years. We supply our glass and paper bins to the local authorities of, for example, 's-Hertogenbosch and Rivierenland as well as London, Oxford and Oporto. Today, the trend is to take measures that will prevent waste collectors from having to perform excessively heavy work; the emphasis has shifted from pick-up to drop-off systems. This was one of the reasons why Engels introduced its new underground and semi-underground waste containers product line in 2005.

Our Buzzard is up to twice the size of Capital containers, but fits in the same suspension frame. Despite the large volume, the container still has a slim appearance. The Buzzard has an indestructible outer bin made of powder-coated galvanised steel. The container and the door each consist of a single piece of material.

The Buzzard is ideal in classic and modern surroundings.

<table>
<thead>
<tr>
<th>art.nr.</th>
<th>dimensions mm</th>
<th>description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BZD-70</td>
<td>450x300x850</td>
<td>Buzzard trash bin, 70 litre</td>
</tr>
<tr>
<td>BZD-100</td>
<td>550x300x1100</td>
<td>Buzzard trash bin, 100 litre</td>
</tr>
<tr>
<td>BZD-FST</td>
<td>600x420x1220</td>
<td>Suspension frame for Buzzard</td>
</tr>
<tr>
<td>BRD-FBT</td>
<td>600x400x1400</td>
<td>Suspension frame for Buzzard with concrete feet</td>
</tr>
</tbody>
</table>

The user-friendly lightweight aluminium inner container is fitted with two ergonomic handles. The door is fitted with a sturdy lock mechanism and can be replaced separately (for example, after vandalism). It is hung on two stainless steel hinges. The container also has two drainage holes in its floor.

The bracket in the middle makes the waste disposal opening smaller. This prevents the dumping of unwanted household waste.

The door opens wider than 180 degrees. This makes the inner container easily accessible. The disposal section swings open together with the door so that the cover on the inner container (if present) will not simply fall off during removal.

The City bin is made for fixing to a (lamp-) post or wall. Made from plastic; stainless steel hinges & locks and a bin with a galvanised bracket are standard accessories. The range of available options includes an access restrictor.

City bin, the UV-resistent DIN standard 50-litre waste bin. Classic and reliable.

<table>
<thead>
<tr>
<th>art.nr.</th>
<th>dimensions (lxdxh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB50.200</td>
<td>430x345x750 mm, orange</td>
</tr>
<tr>
<td>AB50.600</td>
<td>430x345x750 mm, green</td>
</tr>
</tbody>
</table>

Capital: 50 litre waste bin made from weather-proof, incombustible aluminium

<table>
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<tbody>
<tr>
<td>VB688</td>
<td>400x300x725 mm</td>
</tr>
<tr>
<td>VB688B</td>
<td>1500 mm frame</td>
</tr>
</tbody>
</table>
The waste bins were designed and developed entirely in-house starting with in-depth analysis followed by conceptualisation and subsequently translating the finalised designs into a production model using our own CAD system.

We make waste disposal units for the SNCB to prevent litter in and around stations. The SNCB opted for a light, appealing design with plastic garbage bags.

The openings are made of aluminium. Separate compartments for various waste streams - glass, residual waste, paper and packaging - available from stock. The hundred-litre garbage bags hang in hinged holders made of steel. The garbage bags are not needed with units that are adapted for plastic bins.

Large numbers of waste disposal units have been supplied to the Belgian national railway company (SNCB).

The waste disposal unit can be modified to suit different situations. Models have been designed for 60 and 45-litre bins and for narrow passageways. The bins lock into the holder and cannot be removed without a key. We like to think with our customers.
STEEL (SEMI)-UNDERGROUND CONTAINERS

Tièrso Steel, 1/3 above ground

Quattro, 3/4 above ground

Apyra, total underground waste collection

ENGELS
state of the art technology
STEEL (SEMI)-UNDERGROUND CONTAINERS

MOTIVATIONS

**BECAUSE OF THE AESTHETIC VALUE**
You can throw anything in classic waste bins and they quickly fill up. At weekends, they are an easy target for people who dump waste. They are certainly not a good advertisement for a neighbourhood. If (semi-) underground waste containers could be installed instead at no extra cost, why wouldn’t you replace them?

**BECAUSE OF THE FIRE HAZARD**
All the rubbish that accumulates around waste bins and the nuisance that it causes attract vandalism. In the suburbs of Paris, more than 100 waste bins are set on fire every week. This is a major contributor in the creation of run-down ghettos. Steel (semi-) underground containers do not catch fire.

**Below ground, it is cooler just like in a cellar. This reduces odour nuisance.**

Because waste remains cooler underground, it does not smell as much. Underground containers also force people to use bags to dispose of their waste. The height of the container (approx. 2.4 metres) means that the bags at the bottom are compressed. Simply because of this, more bags fit per m³ in an underground container (even if it does not have a compactor) than in a plastic container.

**Plastic waste bins burn best!**

**Waste collection can be made to look chic and exclusive - something for the neighbourhood to be proud of!**

The above photo was taken one year after installation. We didn’t need to clean up anything before taking the snapshot. After public debate and consultation, this small town, St. Martin Belle Roche, overwhelmingly voted for underground waste separation. The people are proud of their system and treat it as a prized possession.
STEEL (SEMI)-UNDERGROUND CONTAINERS

MOTIVATIONS

Waste collection the difficult way: lots of exhaust gas, walking long distances, labour intensive and heavy physical work.

Access control and registration.

BECAUSE OF DUMPERS
(Semi-) underground containers can be fitted as standard with access control and registration. Users only have to pay for the residual waste that they put in the containers. In this way, separation is rewarded - you only pay for the waste you cause.

Do you have to put the bins out the night before, because they are emptied early in the morning?

THEY ARE USER-FRIENDLY
You take your waste to an underground container when you want to. Out of town for the day? You don’t have to ask anyone to put your bin out or bring it back in and you no longer have to worry that you might forget. And you sometimes meet people at the disposal point.

You do the maths:
Savings: 50% of the trucks, no more heavy physical work leading to disability before the age of 65. T.O.C. (Total cost of ownership): 50 euros per household (based on 20 households per residual waste container) per year with a 10-year full-operational lease. This price contains a complete user guarantee (excluding vandalism insurance, figures based on Dutch experiences).

Another way of getting the job done: one man picks up 450 kilos in five minutes without any effort at all.
ONE-STOP SHOPPING!
We use CAD/CAM, which means we can computer-design your products and manufacture and further process them with computer-controlled laser cutters. In this way, your ideas can become reality for minimum additional costs.

BLENDING INTO THE SURROUNDINGS
Our (semi-) underground collection systems can be manufactured completely in accordance with our customers' wishes.

CAM enables us to cut out products in steel precisely to specifications without having to use templates or make adjustments.

After the components are cut, our crew assembles them to complete products. Here an underground waste container.

Our german crew at your service

Apyra's in Brussels

Our production plant in Selmsdorf; we keep our best-selling model, the Avantgarde series, permanently in stock.
First, capacity of two times 1100L.

Now, a capacity of 3000L.

ENGELS
waste collection, more volume, better design
Going deep into the ground is not always expedient:

- Because of the cost price: delivering and installing concrete silos, digging the foundation pits can cost more than the actual waste containers especially if the underlying soil has a high groundwater level.
- Because of the practicalities: Cities usually have large amounts of underground infrastructure. Water and gas pipes, electricity and data cables, sewers and tunnels frequently make it difficult to dig 2.5-metre deep holes.

Unexpected pipes, a familiar problem!

But there are good reasons to say goodbye to your bunkers and containers:

- They are usually ugly.
- Emptying them takes time.
- DIFTAR systems do not work with them.

Quattro, the solution:

- Shallow excavation depth, no problems with pipes
- Inexpensive to install
- Faster and easier to empty than bunkers
- Larger volume than bunkers
- Suitable for DIFTAR systems

Quattros are easy to store, transport and install.

<table>
<thead>
<tr>
<th>article nr.</th>
<th>version</th>
<th>dimensions</th>
</tr>
</thead>
</table>
| QU3000      | 3000 litre | A: 1346x1346 mm  
B: total height 2047 mm 
C: of which underground 447 mm |
| QU4000      | 4000 litre | A: 1346x1346 mm  
B: total height 2248 mm 
C: of which underground 648 mm |

Installed years ago, but now usually too small.
Attractive design, available in your choice of colour. Fitted here with access control (model supplied to the Gaai & Vechtstreek Municipal Waste Service).

Similarly to all our containers, the Quattro has a modular design. Standard options include single hooking eye, three hooking eyes or Kinshofer pick-up head. Available with lidded disposal chute for residual waste or packaging, or for one, two or three separate compartments for glass.

The design is high quality: the top is made of 3-mm thick epoxy aluminium, the 60-litre disposal chute is made of stainless steel and the container is made of 2.5 mm Sendzimir galvanised epoxy steel. All other components are galvanised by full immersion.

Just like all our containers, options for the Quattro include access control, battery power or battery/solar cell combination.

Press the sensor.

The card reader is now “active”. Hold your card in front of the sensor.

Open the lid and throw in your bag.

Close the lid. The lid locks automatically after a few seconds and the system goes into sleep mode until the next user activates the card reader.
The ground casing is open at the bottom to allow water to drain away.

Project GAD, this photo shows the location of the solar collector for powering the access control system.

A profile strip is used to seal the gap between the casing and the container so that no dirt or leaves can blow in.

On a new housing estate in Veghel, also with access control.

The pick-up construction is modular (Quattros can be supplied with one, two or three hooking eyes or a Kinshofer pick-up head) and attached to the base frame. This allows durable aluminium to be used for the casing construction.

Quattro with a double lid for a higher filling capacity (front and back).
Designed to withstand harsh weather conditions

Suitable for DIFTAR systems

Vandal and snowplough proof!

indestructable waste collection
The concrete silo consists of two sections. The lower section is completely below ground, the top ring is the visible part of the Tièrso system. The two sections are glued together with a special adhesive to create a homogeneous unit. Because the system has two sections, the top (visible section) can have a different design.

The two-section concrete silo is used for both 4000 and 5000-litre systems. For 3000-litre systems, only the lower section is used.

The concrete silo meets the requirements of Traffic Class 45. Statistical calculations show that the silo cannot be pushed up out of the ground. Depending on the construction, it can be cleaned and/or fitted with a drainage cavity.

### The most important details in one table

<table>
<thead>
<tr>
<th>art.nr.</th>
<th>silo version (suitable for)</th>
<th>dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>T15000U</td>
<td>5000 litre</td>
<td>A: Ø 1950 mm&lt;br&gt;B: total height 2500 mm&lt;br&gt;C: of which underground 1600 mm</td>
</tr>
<tr>
<td>T13000</td>
<td>3000 litre</td>
<td>A: Ø 1900 mm&lt;br&gt;B: total height 1600 mm&lt;br&gt;C: of which underground 700 mm</td>
</tr>
</tbody>
</table>

**Concrete silo:**
- Two-part, concrete quality: C30/37 XC4, resistant to groundwater

**Disposal chute:**
- Steel, galvanized, powder coated in RAL-colours, a variety of lidded disposal chutes

**Container:**
- Steel, Sendzimir-galvanized
The top section of the Tièrso can be covered with wood, stainless steel or sheeting material. Compared with completely subterranean containers, the less expensive semi-underground alternative has the advantage that it can be placed on inclines with a steep gradient without any problems.

The smooth top section can be covered with, for example, wood, stainless steel, wire mesh or sheeting material. Alternatively, the concrete of the top section can, for example, be textured to give it a wood or gravel appearance. Users can opt for a top section with anti-graffiti treatment.

Just like our fully subterranean containers, our semi-underground containers also have a modular construction.

The silo is prefabricated and delivered with both sections glued together.

The top section protrudes approximately 90 cm out of the ground. This is done to prevent anyone falling into the silo when the container is emptied.

Tièrso system being emptied.
DURABLE
The containers are made of Sendzimir and/or hot-dip galvanised steel to make them corrosion-proof. An epoxy powder coating is a standard feature of the disposal chutes.

MAINTENANCE-FRIENDLY
Our (semi-) underground waste systems are practically indestructible. One maintenance inspection per year is sufficient. We will provide you with the necessary maintenance instructions.

The Tièrso is compatible with most common pick-up systems:

- One hooking eye system, combined with a simple trapdoor, the collection truck does not require special machinery. A standard jib crane is all you need.
- Two or three hooking eye systems, combined with multiple trapdoors and operating set.
- Kinshofer pick-up head, similar to two and three hooking eye systems, combined with multiple trapdoors and operating set.

With the two & three hooking-eye and Kinshofer pick-up models, the trapdoors are checked, opened and closed after emptying by a chain and steel cable mechanism. The operating system is designed in such a way that it does not come into contact with the waste. This avoids blockages/jamming during emptying.

The trapdoors and other welded parts are hot-dip galvanised. The container walls are made of hot-dip or Sendzimir galvanised steel plate. The operating system has no moving parts on the inside of the container, which means no waste can get stuck and prevent the system from working properly. Containers for glass can be supplied with sound-proofing.

We can always replace damaged parts. Because our systems are modular, most parts are interchangeable and can be replaced without too many problems.
The containers consist of the lid/cover and the actual container. The visible part of the Tièrso system is formed by the upper concrete ring, the lid and the disposal chute. The waste is deposited in the container via the disposal chute. Details:

- Disposal chute made from hot-dip galvanised steel; lid made from aluminium or Sendzimir galvanised steel plate.
- The disposal chute and lid have a powder coating, RAL colours with or without texturing are available.
- Lockable versions of the lids can also be supplied.
- An option for collecting residual waste is a 60-litre stainless steel disposal drum.
- Childproof

Tièrso disposal chute for Kinshofer pick-up head. Shown here with optional disposal drum.

It is impossible for us to describe all the variations. We always want to supply our customers with systems that are completely tailored to meet their requirements. We would be pleased to advise you in this respect. Standard options:

- Financing
- Electronic access control
- Modular disposal
- CAD support for special wishes
- Interchangeable parts
- Anti-graffiti treatment for the lids and the visible concrete section

Tièrso being prepared for a modular disposal chute that can always be replaced with an access-registration drum at a later time.

Our development and production team would be pleased to assist you in configuring your optimum system.
In the Alps around the Maurienné Valley (FR).

In the city of Gap (FR).

With lockable drum (Vught, NL)

Emptying a Tièrso container by the Route Nationale (FR)

In the mountains of Thones (FR).

Tièrso’s at the special careapartments in Pau (FR).
Choice from different volumes, pick-up systems and other options

And customer-specific lettering

Such as access registration and solar panels

state of the art technology
The concrete silos for the Apyra system are available in two different sizes, 4 and 5 m³. However, using a spacer ring makes it possible to place a 3 m³ silo in a 4 m³ shaft or a 4 m³ silo in a 5 m³ shaft. The silo meets the mandatory requirements of Traffic Class 45 and is made from C45/55 concrete. Statistical calculations show that the silo cannot be pushed up out of the ground. Depending on the construction, the silo can be cleaned and a drainage cavity is placed under the bottom.

The user platform rests on the container, which means the system can be installed on a slight incline without any problems. The top lip of the concrete silo is exactly at ground level.

### Article Numbers and Dimensions

<table>
<thead>
<tr>
<th>Article nr.</th>
<th>Silo Version</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>APYRA4000</td>
<td>4000 litre (suitable for 4000 ltr. and 3000 ltr. container)</td>
<td>A: Ø1820 x 1820 mm, B: total height 3400 mm, C: of which underground 2100 mm</td>
</tr>
<tr>
<td>APYRA5000</td>
<td>5000 litre (suitable for 5000 ltr. and 4000 ltr. container)</td>
<td>A: Ø1820 x 1820 mm, B: total height 3900 mm, C: of which underground 2600 mm</td>
</tr>
</tbody>
</table>

**Easy to Install**

Our Apyra and Tierso systems are delivered fully assembled; they are ready to use immediately after being placed in the concrete silo.
The disposal columns of the Apyra underground collection containers are made from 3-mm thick aluminium with epoxy coating. If preferred, the columns can also be made from (stainless) steel.

The disposal compartments (glass/paper and residual waste) can also be coated in different colours. The disposal drum for residual waste is made from stainless steel and can be optionally fitted with an electronic access code. The columns, pick-up systems and user platforms are interchangeable without any problems. In the event that the system is damaged, replacement parts are available from stock and can be easily fitted. (only 8 bolts have to be removed and refastened).

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The Apyra can be delivered with the most frequently used pick-up systems: one, two or three hooking eyes or Kinshofer pick-up head. Three hooking eye systems can always be converted to a Kinshofer pick-up head and vice versa at a later time.

With the two & three hooking-eye and Kinshofer pick-up systems, the trapdoors are checked, opened and closed after emptying by a chain and steel cable mechanism.

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Unit for glass disposal

Unit for waste. The disposal units are modular; a drum can, for example, easily be replaced with a unit for paper at a later time. The lids are made of plastic or “Bondalblech”, which makes them exceptionally low noise. A noise-reducing opening for glass is also possible.
The front panel of an Apyra column is interchangeable. This is not only practical for adapting the colour scheme to match your house style - instead of a panel a restaurant-type disposal chute can also be fitted. In this way, users with a key can throw away their bottles or old paper without jeopardising their safety.

Text plates or stickers of your choice can be placed on the front panels, for example, to mark compartments for different types of waste.

Restaurant-type chutes shown here on a column for glass disposal. One on a tear drop floor plate and one on a floor with rubber tiles. Rubber placed on the ground under containers certainly makes them quieter to use.

Apyna containers fitted with customer-specific front panels (Fuveau, France)

The user platform can be lifted off the container by unscrewing the column. In case of advances in technology it is therefore easy to switch from, for example, a tear drop floor plate to a coloured rubber coating.

Aluminium column with a “stainless steel look” coating. No rust guaranteed all the same!

We allow room for architectural creativity. We like supporting our customers’ ideas with our CAD system; this above photo shows the unique lettering of our customer, Brussels City Council (and perhaps this lad will be a famous goalkeeper one day).
STEEL UNDERGROUND CONTAINERS

REFERENCES

Utrecht, project with a contract value of 4,000,000 euros (NL).

Route Nationale car park near Macon (FR).

Assen (NL), compartments for two types of glass.

Amiens, near the cathedral (FR).

Middelkerke (BE) with pass reader and coin insertion.

Housing association, la Grande Synthe (FR).

Stainless steel disposal columns in Dunkirk (FR).
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Engels Eindhoven, the Netherlands.

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quality in steel

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