

## SKIP CONTAINER SYSTEM

**APPLICATION OBJECTIVE** - to facilitate the collection, pick-up, storage and transportation of various types of waste in a system with container exchange

### OUTLINE ON APPLICATION FRAMEWORK

#### PARTICULARLY APPLICABLE FOR WASTE TYPES

Glass	X	Light-weight packaging	X	Biowaste	X
Paper / paperboard	X	Mixed household waste	X	Bulky waste	X
Lamps		Textiles		Electrical and electronic waste	X
Scrap metal	X	Wood waste	X	C&D waste	X
Waste oil		Old paint & lacquer		Waste tyres	X
Hazardous waste					
Branch specific waste					
Other waste materials	X	for all types of solid waste, accruing in high amounts in smaller areas within a shorter period of time			

#### SPECIAL CHARACTERISTICS AND REQUIREMENTS OF THE APPLICATION

**Pre-treatment of the input material:**

not necessary, except of size reduction for oversized items to fit container dimension

**Options for the utilisation of the generated output:**

unlimited, no dependencies from type of container used

#### RESTRICTIONS OR INFLUENCE OF EXTERNALITIES ON THE APPLICATION

**Infrastructural conditions:**

The container system is especially useful in areas offering sufficient space and if set up at centralised locations with good access. They are perfectly suited to serve at bring stations/public amenity sites where bulky items, such as household devices, old furniture etc., and mass materials from households with a high density, like glass culets or graphic waste paper are collected.

The site should have a paved, compacted or otherwise stabilized surface in order to prevent the containers from sinking into the ground once they are getting filled. To set a skip container out and pick it up, a maximum ground inclination of 5 % should not be exceeded.

**Climatic conditions:**

Danger that container may sink into the ground in areas with soft soil and excessive rainfall or get frozen on the ground in cold climates.

## TECHNICAL DETAILS

### GENERAL OVERVIEW

**ABSTRACT**

The skip container system is one of the most widely used standard containers for collection and transportation as regards the specific manner in which the container is picked up and fixed at the transportation vehicle. Similar to the roll-off container system (see fact sheet "[Roll-off Container](#)"), this is a simple and very frequently used container version for the collection and transport of single large waste quantities in an exchange system (i.e. full container is exchanged against an empty one and then carried away). Beside vehicles with the appropriate chassis, there can also trailers be used for the transportation. Loading and unloading is normally done by the trucks.

**BASIC REQUIREMENTS**

- a plain and easily accessible space of appropriate size to set out the container and a suitable truck chassis with skip handler for pickup and transportation

<p><b>SPECIFIC ADVANTAGES</b></p>	<ul style="list-style-type: none"> <li>- interchangeability of the container</li> <li>- wide spectrum of applications for various types of goods to be transported</li> <li>- can be used during different waste management stages ( from collection to storage container for waste processing, but most particularly for transport)</li> <li>- many compatible versions</li> <li>- reasonable in price due to a high degree of standardisation</li> </ul>
<p><b>SPECIFIC DISADVANTAGES</b></p>	<ul style="list-style-type: none"> <li>- no compression within the container possible, except for special (press container) versions</li> <li>- there are more suitable solutions for long-distance transportation (See fact sheet “<a href="#">walking floor system</a>”)</li> </ul>
<p><b>APPLICATION DETAILS</b></p>	
<p><b>TECHNICAL SCHEME</b></p>	<p>Figure 1: Stacked skip containers (left) and loading process of a skip container (right) (picture sources left, right: Intecus GmbH)</p>  <p>Further modifications of the container system may include tipping and compressing installations for the mobile collection, stackable container versions or versions with foldout side- or back walls.</p> <p>Figure 2: Skip containers for the separate collection of waste (picture source left, right: Petra Hoeß, FABION Markt + Medien, www.abfallbild.de)</p> 
<p><b>QUANTITY ASPECTS</b></p>	<p>Carrying capacity is generally lower than capacity of roll-off container. The carrying capacity is limited by the allowed total load of the vehicle and the container type (permitted container load).</p>
<p><b>SCALE OF APPLICATION</b></p>	<p>The Volume of different skip containers has a range of 5–20 m<sup>3</sup> according to standardised norm. The total length varies between 1,500 and 4,800 mm with the width being normally 1,520 mm. The container height depends on the specific version, for the basic version it is about 1,500 mm. The container weight is in the range of 300 kg–1,500 kg, depending on the specific version (light, stable or heavy) and use.</p>
<p><b>INTEROPERABILITY</b></p>	<p>In addition to a number of special container versions with integrated functions there can also be a compacting unit attached to this container system to increase the carrying mass over volume. Further to a direct transportation on trucks there is also the possibility to put skip container on trailers. In this case, loading and unloading is normally done from the trucks.</p>

OPERATIONAL BENCHMARKS: RESOURCE CONSUMPTION	
HUMAN RESOURCES	1 truck driver (who executes also all necessary operations such as, e.g. loading/unloading).
AIDS AND ADDITIVES NEEDED	Trucks need to have a skip handler to transport skip containers. For a skip container with integrated compressing unit a heavy current supply is needed
SPATIAL NEEDS	A skip container requires at least a space of 3,000 x 1,900 mm, depending on the specific version. Additional space is needed to give access to the truck and to temporarily set out another container in exchange.
OPERATIONAL BENCHMARKS: COST DIMENSIONS	
INVESTMENT COSTS	- 1 truck (3 axes, 13 Mg carrying capacity): ~ 75,000–120,000 EUR - Container (basic version): ~ 1,500–3,500 EUR
OPERATING COSTS	- Repair and maintenance: per annum 11 % of the initial investment - Personnel: 1 person (2 in maximum, depending on the operation mode)
MISCELLANEOUS	
MARKET INFORMATION	
REFERENCE FACILITIES	Skip container systems are a well proven technology for waste collection and transportation with a large scale application and references worldwide.
RECOGNIZED PRODUCER AND PROVIDER FIRMS	<p><b>Truck superstructure:</b></p> <ul style="list-style-type: none"> <li>- F.X. Meiller Fahrzeug- und Maschinenfabrik GmbH &amp; Co KG, München <a href="http://www.meiller.com">www.meiller.com</a></li> <li>- PALFINGER GmbH, Ainring, <a href="http://www.palfinger.de">www.palfinger.de</a></li> </ul> <p><b>Container</b></p> <ul style="list-style-type: none"> <li>- Laudon GmbH &amp; Co. KG, Weilerswist <a href="http://www.laudon.de">www.laudon.de</a></li> <li>- Sirch GmbH &amp; Co. KG, Kaufbeuren-Neugablonz <a href="http://www.sirch.com">www.sirch.com</a></li> <li>- Werner &amp; Weber Deutschland GmbH, Oberhausen, <a href="http://www.werner-weber.com">www.werner-weber.com</a></li> <li>- Husmann Umwelttechnik GmbH, Dörpen <a href="http://www.recycling-umwelt-technik.de">www.recycling-umwelt-technik.de</a></li> </ul>
<i>(important note: the list of firms does not constitute a complete compilation of companies active in the specified fields)</i>	
REMARKS AND REFERENCE DOCUMENTS	
<p><b>Reference for applicable norms/standards in Germany:</b></p> <ul style="list-style-type: none"> <li>- <b>DIN 30720-1 and -2:</b> Containers for multi-bucket system vehicles; sizes, materials, performance</li> <li>- <b>DIN 30723-1 and -2:</b> Multi-bucket system vehicles, swivelling device - Dimensions, requirements</li> <li>- <b>DIN 30730:</b> Mobile waste packer - Multi-bucket system vehicles and roller contact tipper vehicles</li> <li>- <b>DIN 30735:</b> Containers with a maximum width of 1520 mm for multi-bucket system vehicles</li> </ul>	