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## THE TIGER DEPACK SYSTEM

**Tiger DePack** is the brand that encompasses the trademarked technologies developed for the depackaging of packaged products and the separation of materials for the Recovery, Production and Depackaging sectors.

Our flagship model, the HS 10 UNIT, is the technological benchmark in many countries and **Tiger DePack** is the trusted supplier and technological partner of the major benchmark companies in the production of daily consumer goods, waste treatment, animal nutrition, anaerobic digestion and composting in more than 80 plants throughout Europe, Australia, Canada and the US.

Manufacturing companies that want to directly recover their own production waste from their lines and waste treatment plants, represent our main customer base with whom we have honed this technology over the last 10 years.

Our brand is part of **Cesaro Mac Import SRL**, the Italian leader in the waste treatment plant sector.

### MASS BALANCE

#### BEFORE TIGER DEPACK TECHNOLOGY **INPUT** DEWATERING OUTPUT SHREDDDING FOR DISPOSAL 100% 30-70% + SCREENING HORIZONTAL IN WEIGHT SEPARATION **TECHNOLOGY OUTPUT MATERIAL** FOR RECYCLING 70-30% IN WEIGHT



\* Tiger DePack HS 10 Unit - New York (US)

The Tiger DePack project came about from the need to produce a dedicated technology capable of separating contents from their packaging.

Firstly, the Tiger DePack's separation process occurs using horizontal machine technology used in the farming or food industries which has been adapted to this purpose.

Tiger DePack has surpassed the limitations of the older systems, striking the optimal balance between its mass and the lowest amount of surface area possible.

The primary goal to be achieved was that of separating the organic matter from its packaging, beginning with various types of material and enabling a separating system able to provide a truly amazing end product.

A simple and fast system was required, with reduced dimensions and with markedly reduced operating costs per ton.

Designed to carry out the pretreatment of packaged products, extracting an excellent quality of output material in the smallest space possible, with the maximum possible connectivity and lowest possible energy consumption.

# THIS IS WHY WE DESIGNED TIGER DEPACK.

ABAA

## POTENTIAL APPLICATIONS

The main applications of the Tiger system include the depackaging of Source Separated Organic (SSO) or expired products, the recovery of waste treatment and production plant streams in which the Tiger is directly connected to the production line.

Tiger has been the best technological solution for the treatment of the most complex material to recover for over 10 years.

Tiger DePack technology can potentially be used in a multitude of applications. Conceptually, these can be grouped into three macro categories: **Depackaging**, **Recovery**, **Production**.

Tiger DePack's main product, the HS 10 UNIT was, up to last year, the only extremely high-performance machine in the Tiger DePack product line.

Its excellent results have led to widening of the product range to include machines with increasingly specific features aimed at **Depackaging**, **Recovery** and **Production**.

#### **DEPACKAGING / REFUSE**



ORGANIC FRACTION OF MUNICIPAL SOLID WASTE FROM DIFFERENTIATED WASTE DISPOSAL AND OUT-OF-DATE FOOD

# RECOVERY / WASTE MATERIALS



DRY WASTE FROM PAPER MILL PULP PLANTS DRYWALL



PRODUCTION / RAW MATERIALS | PROCESSED MATERIALS





DETERGENTS | TIN FOOD ICE-CREAM | BEVERAGES PET FOOD

# **DEPACKAGING**

## MSW AND EXPIRED PRODUCTS

DESCRIPTION	WASTE / SEPARATE ORGANIC FROM PACKAGING
MATRIX:	SSO: heterogeneous material originating from waste collections from the roadside, markets, shopping centers and large-scale retailers as well as from stations, ports and airports.  FAULTY/EXPIRED PRODUCTS: Foodstuffs, cosmetics and detergents
PERFORMANCE:	When introduced into waste treatment plants, the Tiger DePack can be used to recover the organic/content fraction as well as the dry material/packaging, obtaining 2 streams suitable for subsequent recycling and repurposing.





#### THIS IS THE MAIN SECTOR IN WHICH TIGER DEPACK HAS GAINED MOST OF ITS EXPERIENCE!

**Depackaging**, namely the need to recover packaging and its contents, obtaining clearly defined and reusable materials such as packaging for out-of-date food, such as cartons, tetrapack, ferrous and non-ferrous metal tins.

The advantage for the customer is that of obtaining two equally reusable materials: organic waste and packaging, both of which can be introduced into a dedicated recovery cycle without generating waste.

The two separate fractions are sent one (ORGANIC) to Anaerobic Digestion / Composting / animal nutrition processes. Whether they are WET or DRY organics, they process in the same way as direct composting.

The separated packaging has a very low weight and a quality suitable for for repurposing in the supply chain.

The units are made of resistant materials in environments with stressful conditions and the robust structure quarantees resistance to accidental impacts with loading equipment.



# **DEPACKAGING**

MSW AND EXPIRED PRODUCTS







#### \* MSW/Expired Products







# RECOVERY WASTE TREATMENT

DESCRIPTION	WASTE / SOURCE SEPARATED ORGANICS FROM PACKAGING
MATRIX:	Inorganic waste from the pre-treatment of MSW and expired material.  Pulp: Waste from the paper-making process  Drywall
PERFORMANCE:	Applied in processing the waste originating from waste treatment plants, Tiger DePack can effectively process a wide range of materials otherwise intended for disposal.



The second sector of application is the recovery of products originating from the disposal process.

When added to a pre-existing waste disposal line, the Tiger DePack can recover ALL of the organic material present.

From the experience gained in the recovery plants, we have found that from a weight of 27% of plastics sent for disposal with the use of Tiger DePack only 7% is sent for disposal.

Our particular technology additionally ensures the homogenisation of the material, reducing its size to make it suitable for the following applications: anaerobic digestion, composting, animal nutrition to the recovery of the raw material.

Staying in the "Recovery" sector, the Tiger DePack PPS was created to be employed in treating paper mill pulp, which is not a product but rather production waste from the process of paper making. The introduction of the Tiger DePack has also led to a considerable reduction in the amount of waste sent to disposal in this case, leading to 20% of pulp being recovered and reintroduced into the production cycle.



# RECOVERY WASTE TREATMENT







Inorganic waste from waste plants / Paper Pulp / Drywall /





# PRODUCTION MANUFACTURING WASTE

DESCRIPRION	MANUFACTURING ACTIVITY / SEPARATES CONTENT FROM ITS PACKAGING
MATRIX:	All types of production waste in paper/cardboard, tetrapack, non-ferrous, ferrous metals and plastics.
PERFORMANCE:	In an integrated production line, the Tiger DePack separates content from its packaging with an overall recovery approaching 100%.





#### The third sector for use is production.

Industrial manufacturing generates waste by way of quality control: such as distorted labels on packaging and test samples from product batches. By introducing the Tiger DePack into the production process, products can be broken down, and material recovered that would otherwise have been processing waste, allowing production waste to be eliminated at its source.

Tiger DePack is currently used in plants manufacturing pet food, ice cream and in companies that manufacture detergent.



# **PRODUCTION**

## MANUFACTURING WASTE







Detergents | tin food / Ice-cream | beverages / Pet food /







## **HOW IT WORKS**

### TIGER DEPACK'S TECHNOLOGY IS PATENTED!

Designed to fulfill the technological void left by the pre-existing technologies in terms of thickening, shreddings sorting, and horizontal separation, Tiger DePack followed a design process focussed on 3 points:



## TIGER DEPACK SYSTEM

**Vertical separation** is at the heart of the Tiger DePack system's technology. This results in the processing of heterogeneous material intended for disposal and the improvement in the handling of already processed material.

The technological solution that has allowed the feed hopper to be installed next to the separation assembly is the **feeding system**, both of which are managed by a single **operating software** that governs the augers' speed, based on the settings provided and by the characteristics of the material being loaded.

Thanks to its extremely compact design, the Tiger DePack is an **All-in-One** solution insofar as all the components it requires to operate are enclosed within its shell.

A power supply and the addition of filtration are all that is needed in order to begin: Plug & Play.

The development of **components and materials** such as Hardox and Stainless Steel has allowed spare parts to be replaced less than half as much as competing products.

Thanks to these features, Tiger DePack is the most compact and reliable machine on the market with the lowest operating costs (per ton processed).





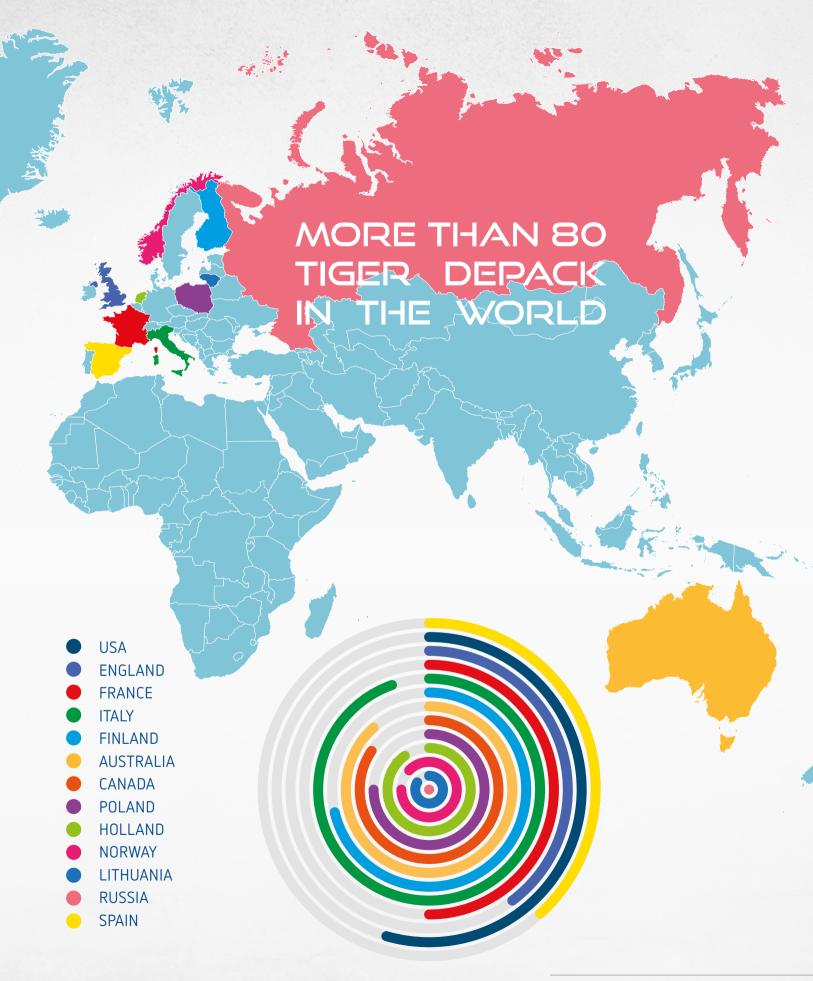
### **OUTPUT stream characteristics:**

- With a near 100% recovery of the wet material, value can often be added to the separated packaging or effectively repurposed.
- The vertical separation system ensures the recovery of the highest quality material possible, maximizing the influx of material and minimizing wear and tear of the machine.



All of our technology in a single machine

- Machines for manual or automatic processing cycles
- Machines suitable for indoor or outdoor processing
- Machines which can be introduced to the primary production cycle without the need to install additional equipment
- Production capacity over a 24/7 processing cycle
- Low maintenance
- Remote control system available
- Oversized electrical motor in relation to the power required
- Automated end-of-day cleaning cycle



## **PRODUCT LINE**

### TIGER HS20

Available in the UNIT setups

TIGER HS20 UNIT

Standard setup

TIGER HS20 PPS Setup for Paper Mill Pulp

**TIGER HS20 OSC** Setup for cleaning dry waste

### TIGER HS10

Available in the UNIT setup

TIGER HS10 UNIT Standard setup

### **TIGER HS5**

Available in the UNIT setup

**TIGER HS5 UNIT** 

Standard setup

TIGER HS5 PPS

Setup for Paper Mill Pulp

TIGER HS5 OSC

Setup for cleaning dry waste



The Tiger DePack brand encompasses an entire product range, each distinguishable by its features, size and productivity.

#### There are 3 main products:

- The **Tiger HS 10 UNIT**, known as the HS640 prior to 2017, is the machine that started everything.
- The **Tiger HS 20 UNIT** was created to handle increased processing capacities and sizes a little larger than the Tiger HS 10.
- The **Tiger HS 5 UNIT**: the main feature of this product is its extremely compact size for specific installations.

Within these 3 main types of machine, which can be distinguished primarily by their size and productivity, a series of technologies have been developed: the first called **Paper Pulp Solutions (PPS)** which can be applied to the Tiger HS 20 PPS and HS 5 PPS specifically for the treatment of paper mill pulp, the second called **Oversize Cleaning (OSC)** applicable to Tiger HS 20 OSC and HS 5 OSC machines specific for the treatment of oversize.

The goal for the next few years is to create additional technological solutions under the Tiger DePack brand to meet the continual evolution of the environmental and manufacturing treatment sectors which are becoming increasingly focussed and which will require dedicated machinery.







# TIGER DEPACK HS 20 UNIT

The **Tiger HS 20 UNIT** was created to handle increased processing capacities and sizes a little larger than the Tiger HS 10.

Applicable in the fields of Depackaging and Recovery where large production quantities are required. This is the largest and most powerful machine in the Tiger DePack range:

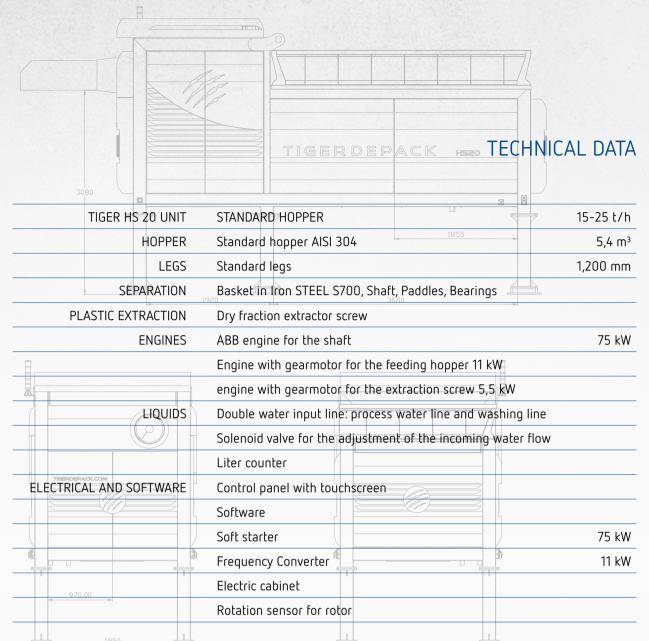


OPERATING DIMENSIONS	mm
A hopper loading height	3,300
<b>B</b> hopper loading width	3,500
C plastic discharge height	3,000

OVERALL MACHINE DIMENSIONS			
<b>D</b> max length	7,950 = <b>H+I</b>		
E max width	2,500		
<b>F</b> max frame height	2,960		
<b>G</b> max height	4,160 = <b>F+L</b>		
<b>H</b> external length of plastic extractor	1,700		
1 frame length	6,250		
L height of standard legs	1,200		







Specifiche soggette a modifiche tecniche. Le specifiche sono approssimative, le illustrazioni e le descrizioni potrebbero includere opzioni che non fanno parte dell'equipaggiamento standard.



## **TIGER DEPACK HS 20 PPS**

#### PAPER PULP SOLUTION

The technological evolution of the Tiger HS 20 UNIT, the **Tiger HS 20 PPS**, is the specific version designed to meet the processing requirements of a paper-making pulp.

The ease with which it can be added and connected to a production cycle already under way, both indoors or outdoors as a result of its compact form factor (it takes up only 21 m<sup>2</sup>), makes the Tiger HS 20 - PPS the solution to the needs of any paper mill.

A single machine with a selection system which reduces the material previously sent to landfill or incinerated by up to 70% in just one cycle.

The recovered material is made up of water, which can be reused in the production cycle, and as much as 20% pulp or paper fiber. This material was previously disposed of together with the pulp waste and therefore represented an additional financial loss for paper mills.

The Tiger DePack HS 20 Paper Pulp Solution's extremely low running costs and 24 H operating capacity make it the most efficient and effective tool to introduce to the paper production cycle.

#### TECHNICAL DATA

Power installed	85 kW
Average hourly electricity consumption	70 kW/h
Weight	12 t
Occupied surface area of	21 m <sup>2</sup>



#### PAPER MILL PULP INPUT

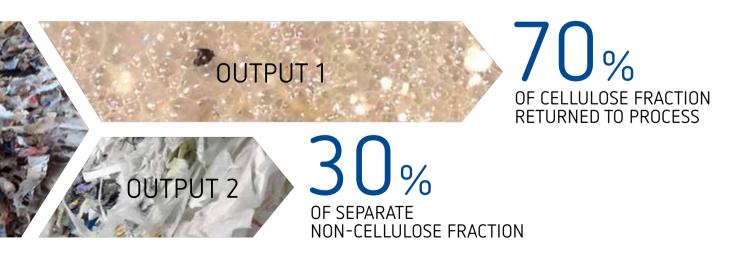








Specifications subject to technical modifications. Specifications are approximate, illustrations and descriptions may include options which are not part of the standard equipment.



## TIGER DEPACK HS 20 OSC

**OVERSIZE CLEANING** 

Tiger DePack HS 20 OSC. The specific Tiger DePack version for processing dry waste.

This is an extremely important application because it is designed to recover fractions of material which would otherwise be destined for the landfill.

Processing recycling dry waste with Tiger DePack makes it possible to obtain two fundamental advantages: a 90% reduction in the organic fraction still contained in the dry waste and the contemporary cleaning of the plastic material reduced to 10% of the material output.

A single machine affording a dual advantage, i.e. reducing the amount of material sent to the landfill and recovering a uniform organic component to be sent for composting, anaerobic digestion or animal nutrition.







#### **RECYCLING DRY WASTE**





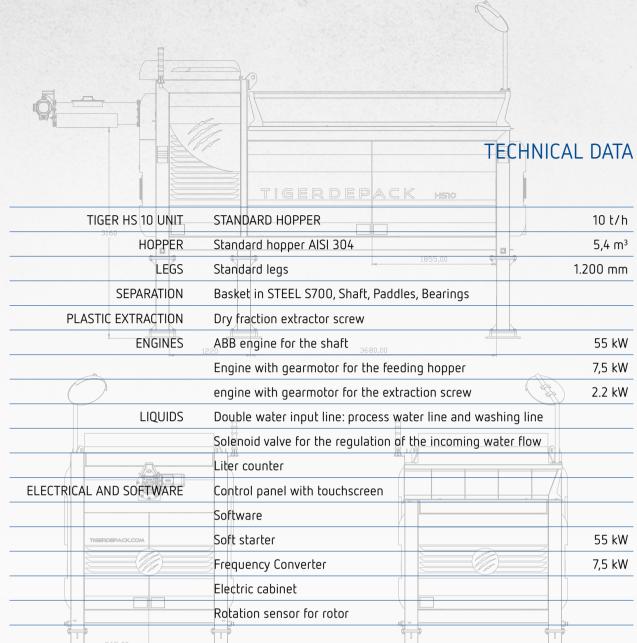
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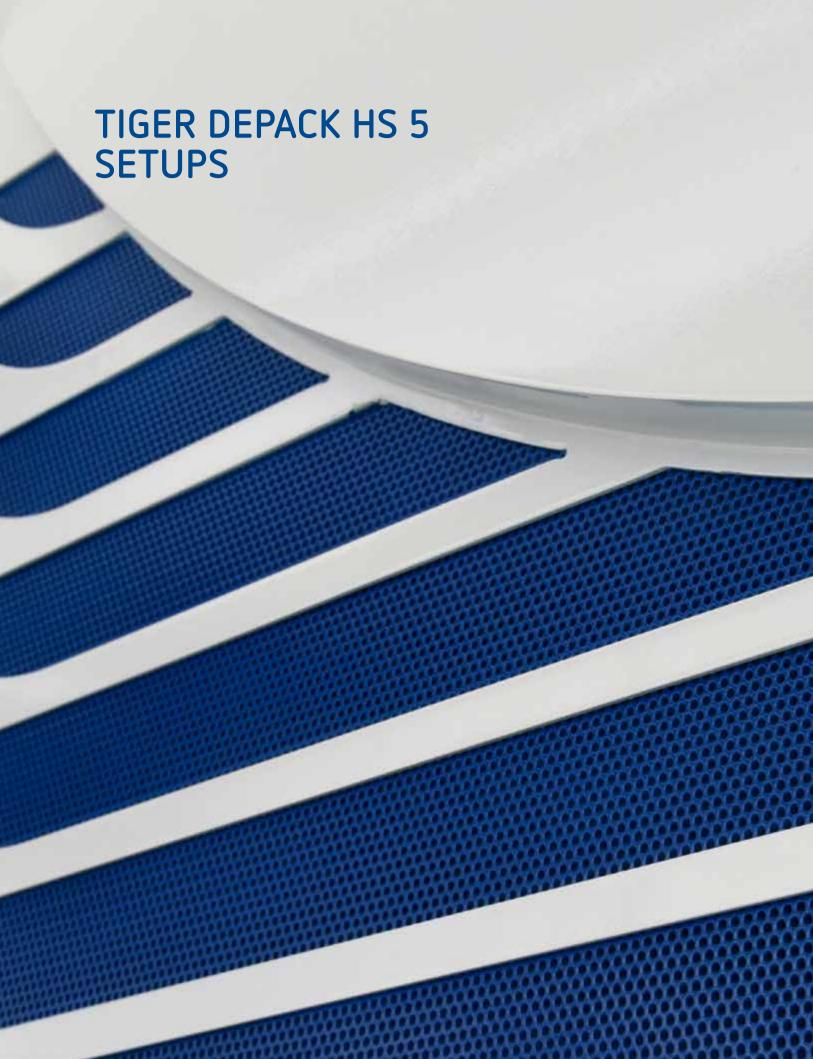


Specifications subject to technical modifications. Specifications are approximate, illustrations and descriptions may include options which are not part of the standard equipment.













The Tiger HS
5 UNIT is the smallest version of the Tiger DePack range.

Born from the specific need to be installed in more restricted spaces, the Tiger HS 5 UNIT features the same separation and depackaging qualities as the larger version.





OPERATING DIMENSIONS	mm
A hopper loading height	2,260
<b>B</b> hopper loading width	2,000
C plastic discharge height	2,000

OVERALL MACHINE DIMENSIONS		
<b>D</b> max length	4,820 = <b>H+I</b>	
E max width	2,000	
F max frame height	2,720	
<b>G</b> max height	3,420 = <b>F+L</b>	
<b>H</b> external length of plastic extractor	1,000	
I frame length	3,820	
L height of standard legs	700	

## TECHNICAL DATA

TIGER HS 5 UNIT	STANDARD HOPPER	3-7 t/h
HOPPER	Standard hopper AISI 304	1,5 m³
LEGS	Standard legs	700 mm
SEPARATION	Basket in STEEL S700, Shaft, Paddles, Bearings	00
PLASTIC EXTRACTION	Dry fraction extractor screw	
ENGINES	ABB engine for the shaft	30 kW
	Engine with gearmotor for the feeding hopper	4 kW
	engine with gearmotor for the extraction screw	2.2 kW
LIQUIDS	Double water input line: process water line and washing line	
	Solenoid valve for the regulation of the incoming water flow	
	Liter counter	
ELECTRICAL AND SOFTWARE	Control panel with touchscreen	
	Software	
	Soft starter	30 kW
	Frequency Converter	4 kW
	Electric cabinet	
	Rotation sensor for rotor	

Specifications subject to technical modifications. Specifications are approximate, illustrations and descriptions may include options which are not part of the standard equipment.



# TIGER DEPACK HS 5 PPS

## PAPER PULP SOLUTION

The Technological Upgrade of the Tiger HS 20 PPS. The specific version for the processing requirements of Paper Mill Pulp in systems with limited production needs.

The ease with which it can be introduced within an existing production cycle, both in indoor facilities as well as outdoors, owing to its reduced overall dimensions and its easy connection make the Tiger HS 5 PPS the perfect solution to the needs of any Paper Mill.

A single, unique machine which, owing to its particular selection system, is able in a single process to reduce by up to 70% the quantity of material currently sent for disposal at a landfill or incinerator.

The recovered material consists of water, which is then re-used in the production cycle, and up to 20% of Paper fiber or pulp. Up until now, this material was lost, together with the waste pulp, which therefore meant further economic loss for the Paper Mill.

The extra-low running costs and the 24-hour processing capacity of the Tiger DePack Hs 5 PPS make it the most efficient and effective tool to introduce into the paper production cycle.







### PAPER MILL PULP INPUT









Specifications subject to technical modifications. Specifications are approximate, illustrations and descriptions may include options which are not part of the standard equipment.



# TIGER DEPACK HS 5 OSC

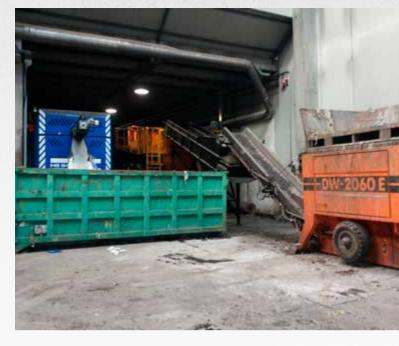
## **OVERSIZE CLEANING**

Tiger DePack HS 5 OSC. The specific Tiger DePack version for processing dry waste in plants with limited production volumes.

This is an extremely important application, heralding the evolution of the depackaging sector making it possible to recover fractions of material which would otherwise end up at the landfill.

Processing recycling dry waste with Tiger DePack makes it possible to obtain two fundamental advantages: a 90% reduction in the organic fraction still contained in the dry waste and the contemporary cleaning of the plastic material reduced to 10% of the material output.

A single machine affording a dual advantage, i.e. reducing the amount of material sent to the landfill and recovering a uniform organic component to be sent for composting or anaerobic digestion.







#### RECYCLING DRY WASTE





Specifications subject to technical modifications. Specifications are approximate, illustrations and descriptions may include options which are not part of the standard equipment.



# TIGER DEPACK REFERENCES







Tiger DePack HS 640 (Finland) / Organic fraction of urban solid waste from differentiated waste disposal /

Tiger DePack HS 640 (Italy) / Out-of-date food from Markets /

Tiger DePack HS 640 (England) / MSW from Restaurants and Cafeterias /







/Tiger DePack HS 10 LP (Lithuania) /Packaged foods

# SAFETY TECHNOLOGY

As industrial machines to be introduced into production cycles for the recovery of raw materials, waste treatment, and in manufacturing processes, Tiger DePack do not tolerate any compromise when it comes to the safety of their machines.

Passive and active systems control functionality, even from remote locations, which conform with the strictest laws on safety.

- Lockable and alarmed external hatches for accessing compartments with moving parts
- Open hatch alarms and automatic shut-down of moving parts
- Manual alarm buttons (min. 4 per machine)
- Hatches with self-locking screws to internal compartments
- Emergency lighting signalling In Use, Error and Attention
- // Integrated control board within the body of the machine in a protected and isolated position
- Integrated selector board
- Tiger DePack Emergency Circuit which can be integrated with the target system's emergency circuit
- Lifting hooks fitted for lifting/handling machinery
- Easy access to all parts of the machine for maintenance at any time
- Planned maintenance by specialist staff, worldwide









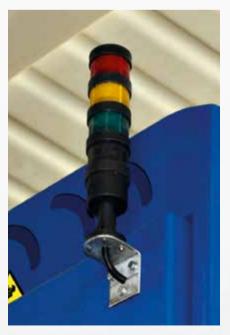
# THE TIGER DEPACK SYSTEM RELIABILITY AND EFFICIENCY

## ALL OF OUR TECHNOLOGY IN A SINGLE MACHINE

- Machines for manual or automatic processing cycles
- Machines suitable for indoor or outdoor processing
- Machines which can be introduced to the primary production cycle without the need to install the relevant framework
- Production capacity over a 24/7 processing cycle
- Low maintenance
- Remote control system available
- Oversized electrical motor in relation to the power required
- Automated end-of-day cleaning cycle









## TIGER DEPACK

### **ACCESSORIES AND INNOVATIONS**

The Tiger DePack's optional extras and accessories are available for all versions, offering increased adaptability to whatever manufacturing context they are installed in.

Elements whose function varies depending on the incoming material and which can also be modified at different times and phases after its purchase.

#### Under screen discharge systems

- Under screen discharge tank
- Under screen extraction pump
- Under screen tank with auger
- Complete before / after screen fraction drainage system

#### Optional extras for the loading hopper

- Additional bridge breaker with auger
- Hopper sprinkler system

## Integrated hardware/software and measuring accessories

- Profibus Module
- Loading cells

#### Struts and wheels

- Mobile Pack (Wheels with axles and drawbar)
- Strut extension (up to 2000 mm)

#### Door painting and lubrication

- Sliding doors
- Automatic lubrication device with timer
- Bodywork color options

















# **WORLDWIDE SERVICE**

The spearhead of the Tiger DePack System is the Worldwide Assistance Service it offers for its machines.

The ability to provide our customers with warranties and planned assistance, as well as the possibility of remote monitoring, make the Tiger DePack an efficient and effective system.

A system that can guarantee the availability of spare parts and qualified staff capable of providing a rapid response to our customer's needs.





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