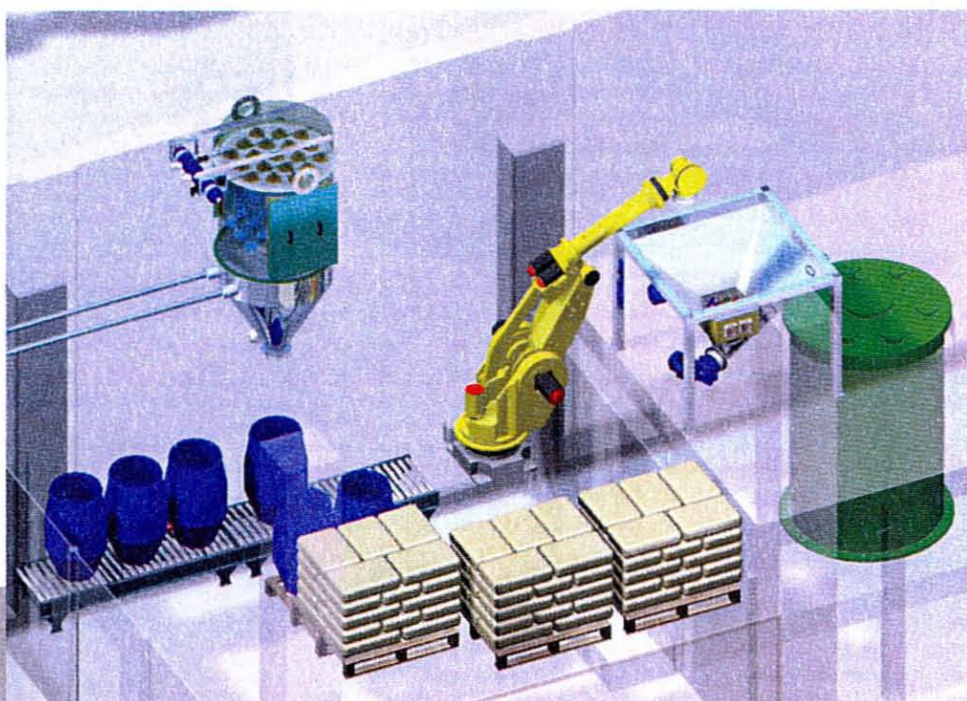


The new patented Smart Pick system by Costruzioni Meccaniche Sacchi resolves the problem of pallet unloading, cutting and automatic emptying of bags made of paper, plastic, raffia, jute and aluminium as well as drums and boxes.



## PALLET UNLOADING AND BAG CUTTING: A CONTRIBUTION TO REACH



The recent introduction of the Reach regulation, which aims to give a greater understanding of the risks and dangers derived from chemical products that circulate in the EU, gives priority to the matter of the safe handling of harmful substances in industrial processes. This directive envisages the progressive introduction, as from 1st June 2008, of a procedure by which the substances that are imported, produced or used will be classified in order to provide users with more detailed information on the harmful properties of the handled materials, the risks inherent in exposure to the same, and the safety measures to be adopted.

Whilst Reach envisages that initially those substances that are of "an extremely problematic" nature will need to be examined (especially those of a carcinogenic or mutagenic nature), the focus being on the fact that certain substances, that are widely adopted in the production processes of master batches and compounds, which whilst not forming part of this category, are nevertheless to be considered as being dangerous. For example:

- substances causing a sensitive reaction of the skin and lungs,
- toxic substances,
- inflammable and potentially explosive substances.

### DANGEROUS SUBSTANCES

From an analysis conducted in the community, it has emerged that

70% of the substances produced or introduced onto the market as from 1981 (the so-called "new" substances) are characterized by at least one harmful property.

Therefore according to the provisions of the Reach, chemical products are to be evaluated based on the degree of danger deriving from their use. The relative risk analysis will also involve the identification of a method that will reduce operator exposure and therefore the degree of damage involved.

Costruzioni Meccaniche Sacchi, which has been active since 1926 in the production of system for transportation, metering, storage, packing and pallet loading of loose materials in granule and powder form, in a variety of industrial sectors, according to the provisions of the Reach regulation, has developed various automated solutions dedicated to the chemical-plastics field in which it has always operates, aimed at reducing the exposure to problematic problems in an economical and effective manner.

### THE SYSTEM

In particular, the new Smart Pick system, that is covered by various patents resolves the problem of the pallet unloading, cutting and automatic unloading of bags made of paper, plastic, raffia, jute and aluminium as well as drums and boxes. With an anthropomorphic robot, fitted with a Smart Grip system and controlled by





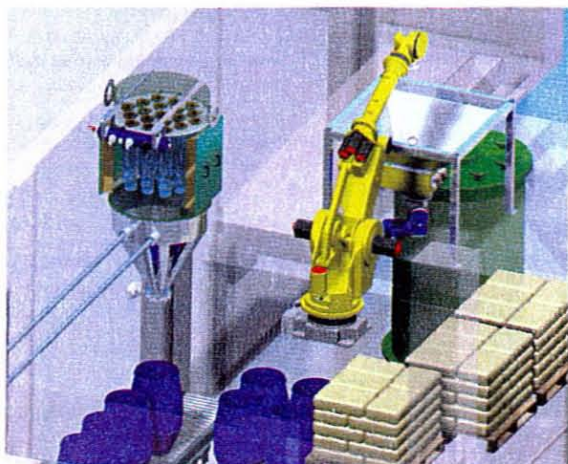
CMSmartPick software, that is capable of picking up the bags of several pallets accumulated on a roller or on fixed stations in sequence, which are then cut and emptied using the Smart Cut device. The package is then automatically disposed of and reduced to compact size. The finished product is then conveyed to the production plants by means of pneumatic or mechanical means of transport. Particular care has been taken in the development of the operator interface so that the system can be used even by those that are not familiar with automatic machines. In particular, a convenient graphic interface guides the operator in the learning about the use of the new pallet loading scheme in a simple and intuitive manner. The identification by the robot of the positions associated with the new pallet loading schemes, requires only a few minutes and once the teaching relative to a specific pallet is complete, it is possible to memorize the data, so that it is not longer necessary to repeat the programming procedures. The adoption of optional measurement and artificial vision systems, makes the system even more simple. The system has been developed in order that it may be interfaced to a PLC of the DCS, SAP area, as well as corporate processing systems; in order to be able to receive and process orders and recipes. The SmartMix option in particular, provides the possibility of picking up

the necessary bags from several pallets in order to complete the batch and according to the recipe received. The combination of SmartPick with the SmartDispense system means that quantities of product can be measured out that are fractions of the bag volume.

The adoption of an integrated weighing system makes it possible to check the amount of product included in the process. The transportation and removal of the pallets within the robot area can also be automated by use of automatic storage systems rather than AGV automatic guide trolleys. The reading of bar codes or RFID tags on the pallets or on the bags, also resolves the problem of lot traceability.

#### DIFFERENT CONFIGURATIONS

Smart Pick, available in various configurations, is suitable for both granules and powders (even those liable to packing phenomenon). The system is also applicable in Atex areas and in environments with toxic or corrosive atmosphere conditions. The use of SmartPick also resolves the worrying matter of extruder and reactor loading at over two metres from the ground. By making use of humanoid robots with a large field of action, the bags can be picked up from the ground in order to cut them and to empty them into a hopper positioned



This and the following images show the Smart Pick pallet unloading and automated bag cutting system by Costruzioni Meccaniche Sacchi

at a certain height.

Special attention has also been given to the analysis of the system payback. It has in fact been estimated that a return on the initial investment is possible in less than eighteen months in the majority of industrial situations; with the further added benefits derived from the complete fulfilment of the requirements of both the Italian decree no. 626 and the new Reach regulation.