



WINDMÖLLER & HÖLSCHER

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May 2011 - Code-No. 05'11

interpack 
PROCESSES AND PACKAGING

Düsseldorf, Germany
12-18 May 2011
www.interpack.com

Hall 15, Stand C41/D42

OPAL FFS Packaging Machine for Dusty and Fluidized Products

The Advantages of the FFS Film Bag Are Now Available Even for Difficult Products

Hygroscopic, sticky, heavily aerated and extremely dusty products pose challenges during the packaging process. Frequently, these demands can only be met with valve-style bags specifically designed for a particular application – an expensive solution. However, problems still remain relative to dust generation during the bagging process, cleanliness of the bags, product protection, and storage duration as well as product appearance. A controlled filling process was previously not possible due to inconsistent flow-ability or the presence air build-up. Products contained in the sack might not be vented completely and on time, or perhaps the developing dust could potentially cause contamination of the top seal area. For the first time, Windmüller & Hölscher is offering an economical and functionally-convincing solution with the OPAL FFS machine for the effective packaging of these challenging products.



Good stack-ability in addition to optimum space utilization, and excellent protection from loss, spoilage or contamination make a strong case for the FFS film bag. With the specific design of the bag wall, e.g. two-ply constructions, the most extreme requirements can be met, even permitting the bagging of pesticides or hygroscopic products in a secure and consistent way. FFS packaging is easier logistically and, more importantly, more cost effective than the use of pre-made sacks.

The OPAL design was based on the TOPAS, the world's most successful FFS machine, with several hundred models having been sold worldwide. Compared to the original machine design, not only was the total concept of product feeding focused on difficult filling situations, but it was also adapted to the varying operational demands.

The central feature of the OPAL is the product feeding via an auger feed system with gross weighing and bottom-up filling. This means that a lifting system raises the empty bag until the auger tip reaches the bottom of the bag. After the filling process begins, the bag is lowered at a rate that keeps the outlet of the feed pipe underneath the product level. This effectively prevents the creation of dust, which in turn eliminates dirty sacks, as well as the possibility of an explosion. This also keeps the sealing area uncontaminated and ensures that a robust and high-strength top seal closes the bag permanently. Lifting the sack instead of the feed pipe is a design feature that does away with rotary joints, adding to the reliability of the machine right from the start.



Filling by auger means that the product reaches the sack in a controlled fashion, effectively preventing any air from mixing with the product while the sack simultaneously serves as a weighing container. During the filling process, its weight increase is under constant monitoring and the auger speed is adjusted accordingly via servo drive. As a result, exact dosing with high weight accuracy and an absolute minimum of dust development is achieved with many products. For even higher demands on weighing accuracy, the OPAL can be operated with separate full- and dribble flow by adjusting the auger feed speed accordingly. At the end of the filling cycle, the feed pipe outlet is sealed automatically, so that no additional product can be fed into the bag. Following the weighing process, air removal pipes ensure that aerated products are de-aerated before bag closure.

With its staggered arrangement of bag production and filling sections, the OPAL offers outstanding accessibility to the auger dosing assembly from three sides. Product changeovers, clean up and screw exchanges are, therefore, much easier to handle.

Based on its wide range of optional equipment, the OPAL can be optimized to any packaging requirement. Mitered corner sealing, for example, “squares up” the bag, improving stack-ability and preventing product residue from remaining in the bag after it has been emptied. The ATEX feature allows for machines to be operated even in explosion prone environments.

During production, the fully automatic bagging process of the OPAL limits the work of the operator to roll changes. In order to start up the



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machine with a new product, it is sufficient to simply enter the values for sack length and width, filling weight, sealing and cooling times via a touch screen. The OPAL fills bags up to weights of 50 kg with lengths between 60 and 100 cm, widths between 34 and 42 cm, and a maximum side gusset depth of 8 cm. The robust construction of the machine combined with advanced servo drive and operating technology reduces maintenance requirements and ensures high machine availability.

Windmüller & Hölscher has an OPAL machine available for packaging tests at any time in the in-house FFS bagging lab, giving potential buyers the opportunity to gain insights into the effectiveness of the machine by running trials with their own products prior to making the financial investment.

Windmüller & Hölscher is an international leader in the design, manufacture and distribution of machinery for the flexible packaging industry and is based in Lengerich, Germany. The product range includes flexographic and gravure printing presses, blown and cast film extrusion systems, multiwall equipment, plastic sack and bag making machines as well as form-fill-seal machinery.



PR 1211

OPAL, specialized FFS packaging machine for highly dusty and non free-flowing products



This article is available on the internet and can be downloaded as a pdf file under <http://www.wuh-group.com/en/pr/pr/index.html>

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