

Highly flexible – even with small batch sizes

Filling Line for Cosmetics

Being a co-packer for the cosmetics industry, Dankwardt has to be extremely sensitive to the requests of its customers at all times. In order to master the daily challenges as to mass production, small batch sizes and, finally, frequent switches of the product to be filled itself, Dankwardt has opted for flexible filling lines with the so-called integrated puck system.

This might be of special interest to you

Puck System

- Less sturdy bottles and bottles with reduced accumulating capability are conveyed safely
- Nominal output up to 18,000 bph
- Short non-operation periods since no additional change parts are needed in the bottle positioning area
- As to capping format changes are smooth, fast and low-cost
- Usually one puck fits different sized bottles
- Although made of lightweight polyethylene, the pucks have proven to be extremely stable
- The Pucks Line is continually updated and expanded
- The wide selection of standard pucks is available from stock



Bild: Dankwardt

With its production sites in Norderstedt and Jessenitz-Werk/Lübtheen in Germany Rudolf Dankwardt is an established co-producer and -packer for cosmetics. According to the CEO Thomas Willig, "As one of the leading co-packers in the cosmetics industry in the country we work exclusively for clients representing popular brands." He states further, "It would be inappropriate for me to drop any names since we strictly adhere to the confidentiality agreement between us and the customer. Obviously, this also applies to the clients' know-how they have entrusted us with."

All 320 employees of both sites have contributed to annual earnings of 90 million Euros. The company enjoys a good reputation amongst all competitors because it not only produces aerosols and liquids but also immediately bottles each and completes the process with the assembly of the final product. In 2012 Dankwardt has produced 170 million care products of which 80 million were liquid products. "About eight years ago we arrived at a crossroads," says Willig. Furthermore, "We were contemplating to quit liquid bottling as our filling machines had become obsolete. Additionally, the cost and effort for the cleansing cycle after each product switch was becoming increasingly unprofitable. At the same time beauty products with less preservatives or even none at all were conquering the market which in turn faced us with new challenges concerning production and bottling. What is more, reduced production batches of 7,000 up to 500,000 have called for more frequent product switches. Pondering these facts, we have arrived at the decision to replace the existing filling lines. Presently speaking, we have six new Rationator filling

lines at both production sites."


One of the reasons why Willig opted for Rationator is the wide range of flexibility it offers concerning shape and size of the bottles to be filled. According to Willig, "The Pucks which hold and convey the bottles along the filling line are extremely cost-efficient when it comes to changing over to a new production batch. What impresses me the most is the fact that all change parts needed for each change over are compatible with all the filling lines."

Safe bottle transport

The Ratilight Pucks (RLP) are Rationator's trademark. The so-called RLPs are placed on the conveyer belt to hold even less sturdy bottles and ones with decreased accumulating capability in order to transport them safely. Peter Schindel, CEO Sales of Rationator Maschinenbau GmbH in Hillesheim, emphasizes, "One Puck usually fits different sized bottles. The puck doesn't have to be customized for each individual bottle as even a loose fitting is sufficient and is made up by the centering units at each station the bottle has to go through. Moreover, these units are constructed so that the spare parts are affordable." The process of changeover also requires only short non-operation periods because in the filling area only a swap of the appropriate pucks is needed. Despite the fact that the pucks are lightweight they are durable and on top of that available at a reasonable price. Schindel elaborates, "The Pucks Line is routinely brought up to date and expanded. What's more, it is in stock which enables the customer to introduce a new type of bottle within days."

RATIONATOR


Flexible Filling Lines

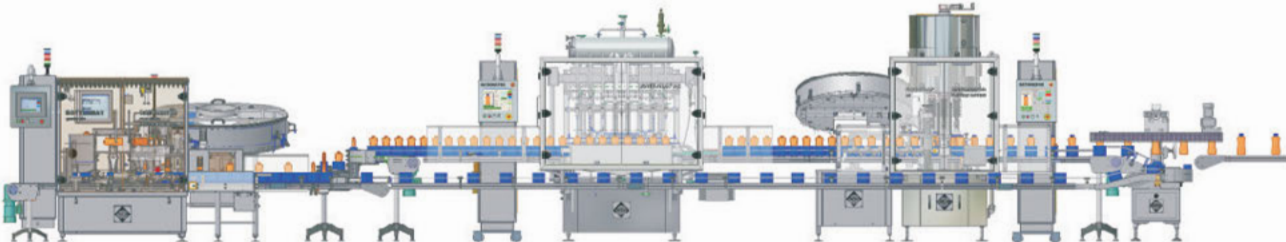


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RATIONATOR Maschinenbau GmbH
 Alsheimer Strasse 1
 67586 Hillesheim
 Germany

Tel +49 6733 9470-0
 Fax +49 6733 9470-109
 sales@rationator.de
 www.rationator.com



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1 Servo controlled piston filling machine for automated filling of thin, thick and foaming fluids from 30–1000ml..

2 Servo-controlled capping machine with 4-8 capping heads for an output of 3.000-10.000 bpm.

3 Only short downtimes while retrofitting the filling lines because no format parts in the bottle-guiding area are required. (Pictures: Lange)

This exact adaptability to each production batch is only one reason that made Willig decide to go with Rationator. In addition, he stresses the significance of the customized cleansing process, “It is a growing trend to produce small batch sizes and deliver these just in time to our customers since they tend to keep their stock low. Consequently, it is crucial that our filling machines are highly flexible, enable us to change over production batches smoothly and provide us with a cleansing program that works efficiently and quickly.

Accordingly, Rationator filling machines are equipped with an automated cleansing program. Schindel adds, “At our production site in Hillesheim we have specifically set up a cleansing station in order to contrive an automated cleansing process for each customer, i.e. a custom-made cleansing program that best suits the needs of each individual customer. In fact, we are currently working closely together with Dankwardt in order to figure out a universal cleansing process which applies to all of its machines as flexibility is still the main goal.”

Dankwardt’s latest acquiry is a filling machine consisting of a bottle handling system, a bottle unscrambler, an 8-point-filler along with a pump capper and sorting device and, finally, a second capping machine for closures. To start with, the bottles are packed haphazardly into the bottle handling system. From there they are transferred to the bottle unscrambler namely the Bottlemat gently. At this station the cosmetic containers are automatically and carefully placed into the pucks which then convey the bottles for the rest of their run throughout the machine. Thanks to the pucks no additional change parts are necessary. Besides, the optical devices imple-

mented raise the variety of bottles the machine is able to position into the pucks. What’s more, non-operation periods are kept short as Dankwardt can switch from one production batch to the next without any additional tools.

Bottling with precision

The next station for the bottles is the 8-point servo piston filling machine called Robomat. The servo-controlled piston machine is capable of filling precise dosing units of either thin, thick or even foaming fluids into the containers. “For years we have been constructing our filling machines with the emphasis on automated cleansing CIP or SIP (Cleaning or Sterilization in Place), i.e. the cleansing cycle can commence at any time without having to replace any change parts previously”, says Schindel. “Consequently, the person in charge of the machine is able to prepare the switch to a new production batch while the cleansing cycle is running.”

The servo-controlled capper Robocap accurately places most cap types onto most bottle types. Torque, speed and angular position can be selected digitally.

Inbetween the different units of the entire Rationator filling line Willig had had constructed additional loops to the conveyor belt. “This construction once again makes us highly flexible because it enables us to cap bottles which come in small batch sizes or with exceptionally complicated caps by hand instead of having to purchase supplementary parts for the capping machine.”



„In our production, a filling machine has to be highly flexible with short downtimes for retrofitting and perform efficient and rapid cleansing.“

Thomas Willig
Managing Director Dankwardt

Author

Oliver Lange