



Blow-moulding machines for
packaging, automotive and technical parts

Our Technology – Your Success

BEKUM Maschinenfabriken GmbH | Kitzingstraße 15/19 | D-12277 Berlin, Germany

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Information for the Interpack 2017

BEKUM: economical alternatives in the materials used for extrusion blow moulding

- **BEKUM focuses on strategies to increase added value and quality at the Interpack 2017**
- **EPET processing: the newly developed, fully transparent EPET IV material is recommended for attractive handle containers**
- **Reducing the cost of materials by using calcium carbonate (chalk) and PCR**
- **Significantly more performance due to high-tech spiral distributor blow heads**

Berlin (Germany), 12 March 2017: BEKUM will be focusing on the latest trends and production processes for extrusion-blown packaging at the Interpack 2017. Of crucial importance are the current machine and system solutions for the economic and ecological production of bottles, containers, cans, drums and IBCs made of plastic. On

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the material side, we focus on three aspects: the newly developed EPET IV materials, the processing of calcium carbonate (chalk) and the resource-saving recycling of materials. A further highlight of our exhibition at the trade fair will be on the importance of spiral distributor blow head technology to increase performance.

As a pioneer in the industry, BEKUM has intensively devoted itself for years to the material aspects of extrusion blow moulding. This has been in order to meet the requirements of the target group. The packaging industry continuously tries to keep the costs on the material side under control, as fluctuations in the prices of materials can greatly affect unit costing. Likewise, functionally convincing packaging, which has been developed in a resource-saving manner, provides scope for sustainability, added value and setting itself apart from the competition through product differentiation. Michael Mehnert, CEO of BEKUM Maschinenfabriken Traismauer GesmbH: "As a pioneer and technology leader in blow moulding, the requirements and desires of the packaging industry are of crucial importance to us. It is well known that the cost of materials has a decisive influence on the calculations of manufacturers. Our energy-efficient, flexible, high-performance machine and extrusion solutions of the latest generation grant manufacturers the opportunity of improving their added value through the intelligent and resource-saving use of materials, increasing the quality of their articles and, at the same time, achieving the ambitious sustainability targets."

Fully transparent EPET packaging with handle function

A key concept in the packaging industry is product differentiation. Accordingly, suppliers are constantly looking for innovative or recyclable materials for new product ideas. The fully transparent, newly introduced EPET class IV material, capable of being extrusion blow moulded, is an interesting candidate. This material has sufficient stability for extrusion blow

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moulding. The parameters of the improved class IV are higher than the 1.0 PET recycling stream launched on the market. The typical challenges of PET blow moulding are exceptionally well mastered by the high-quality EPET class IV materials. EPET IV has a comparatively high resistance to wear. The material can be completely melted in the extrusion unit without causing excessive wear. In respect of the machine, special requirements must be met to provide a robust, reliable, fully automatic production in a 3-layer operation. Blow-moulding machines from BEKUM, such as the HYBLOW 407 D, have been specially designed for high performance in these demanding EPET applications. The HYBLOW 407 D allows the reliable production of EPET bottles with flash removal and directed bottle transfer integrated into the machine. The current 07 series of machines with the C-frame clamping unit, patented by BEKUM, is perfect for EPET processing due to the high closing force per cavity, uniform force distribution and extremely quick force generation. Michael Mehnert: "BEKUM has numerous references in extrusion blow moulding of the most demanding PET and co-polyester materials. Customers accordingly have access to a comprehensive knowledge base on blow moulding PET materials. This is particularly true in respect of attractive handle containers made of transparent EPET IV for innovative new product ideas for our global customers."

Two options for reducing the cost of materials

In order to reduce the cost of materials, two methods are available to the packaging manufacturer. The use of calcium carbonate (CaCO_3 = chalk) and recycled material as a substitute in the middle layer. The proven multilayer co-extrusion technology from BEKUM provides the flexibility required and also offers advantages in the processing of both material strategies. Even the combined introduction of chalk and PCR material as a multilayer system is possible and has already been successfully implemented by BEKUM.

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Calcium carbonate for effectively cutting costs

The use of calcium carbonate (chalk) displays excellent barrier properties. The improved UV protection function is also attractive for packaging manufacturers. However, it is in respect of its extremely high cost effectiveness that the use of calcium carbonate (chalk) is decisive. Michael Mehnert: "With a 20 l canister for the packaging of cooking oil, 24% of the HDPE, based on a total weight of only 900 g, could be replaced by chalk at a far lower price. The cost difference between HDPE and chalk in this specific case was about USD 1,000 per tonne. At a machine output of 210 items per hour and 6,000 production hours per year, this results in possible savings of more than USD 270,000 per year. These are very exciting prospects for a packaging manufacturer."

Substitution by recycled material

The use of recycled materials (PCR = post consumer recycled) as a substitute in the middle layer is the other ideal route. The tri-extrusion technology from BEKUM is the right solution for the smooth and efficient production of multilayer systems. It provides the opportunity of including inexpensive, but varied, recycled polymers (old plastics) and their different rheology in the processing between the material layers of the new material. This option was presented to professionals in the industry as part of the launch of the new electric blow-moulding machine EBLow 37 at the K 2016. A three-layer 20 l canister with a combined material layer distribution made of chalk and PCR was shown. The production parameters in figures: an output of 240 20 l canisters/h (918 g net weight, 1,188 g gross weight) has a flash waste of 23%. The potential savings for packaging manufacturers are enormous. The flash waste generated during the production process is 100% reused in the production and processing. In addition, 20% of the HDPE new material can be replaced by the less expensive combination with chalk. There are also advantages when adding colour.

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The 2% proportion of colour pigments in a single-layer design can be reduced to 0.5%. The more expensive colour pigments (master batches) only need to be applied to the outer layers. The hidden core no longer needs to be coloured.

High extrusion quality with high-tech spiral distributor blow heads

At the Interpack 2017, the focus of our exhibition will once again be on the spiral distributor blow head technology from BEKUM. The unique spiral distributor blow heads are characterised by an excellent, uniform wall thickness distribution in the parison and in the end product. This results in a significant potential for packaging manufacturers to optimise the single-layer parison quality. However, the spiral distributor blow heads from BEKUM are even more impressive in respect of items with a multilayer structure. In this regard, manufacturers of packaging products do not need to dispense with user friendliness. The heads can be easily adjusted by the operator from the front of the machine. In addition, the head design enables faster colour changing times than conventional designs. The consequent significant increase in machine productivity is of enormous interest to packaging manufacturers in regard to flexibility and profitability. The consumption of change material for cleaning can also be reduced to a minimum by means of spiral distributor blow head technology. The compact design of the spiral distribution blow heads is a further advantage. Their smaller surfaces mean considerably less energy is required to heat them. All in all, the high-tech spiral distributor blow heads from BEKUM provide packaging manufacturers with interesting options to increase the quality of the items, save time and costs during production and a general improvement in adding value.

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BEKUM on INTERPACK 2017: Hall 5, Stand D37

Captions:

Caption 1 (opening image): The HYBLOW 407 D, with the C-frame clamping unit patented by BEKUM, enables the reliable production of EPET bottles with flash removal and directed bottle transfer integrated in the machine

Caption 2: Brilliant and elegant: The high transparency of glass-clear EPET IV container convincing at the point of sale

Caption 3: Michael Mehnert, CEO of BEKUM Maschinenfabriken Traismauer GesmbH (A): "As a pioneer and technology leader in blow moulding, the requirements and desires of the packaging industry are of crucial importance to us."

Caption 4: Significantly more performance in extrusion blow moulding due to high-tech spiral distributor blow heads from BEKUM

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Caption 5: In the example of a 20 l canister, a 24% proportion of chalk in the HDPE addition results in a saving of USD 270,000 in the cost of the materials

Caption 6: Using chalk to make smart savings in the materials, without compromising the visual appearance: 20 l HDPE canister with 24% chalk content

Caption 7: Structure of a three-layer system (tri-extrusion technology) for extrusion blow moulding

13,0 % Inner layer	98,5 %	HDPE
	1,5 %	Colour Blue
65,5 % Middle layer	30,0 %	Chalk (relation 81 % chalk and 19 % HDPE)
	34,7 %	Flash Waste
	35,3 %	Recycling Material
21,5 % Outer layers	98,5 %	HDPE
	1,5 %	Colour Blue

Image sources: All images BEKUM (unless otherwise indicated)

About BEKUM ++++++

Pioneer and Trendsetter in Blow Moulding Technology

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Founded in Berlin in 1959, BEKUM Maschinenfabriken GmbH is one of the world's leading manufacturers of extrusion blow moulding machines.

Founder Gottfried Mehnert conceived the name BEKUM as the acronym (**B**erliner **K**unststoff **M**aschinen).

The company began to flourish in its founding year with the development of the world's first neck-rim calibration. Numerous innovations and patents followed, confirming that BEKUM, with its innovative and customer-oriented machinery solutions, has always been ahead of its time – and remains so to this day.

When innovative and economical machinery solutions with high productivity for individual packaging requirements of hollow packaging are in demand, then BEKUM, with over 55 years of experience in blow-moulding technology, is the first choice worldwide.

Product Range and Applications in Food and Non-food

With future-oriented and reliable production processes and fully electric, as well as hydraulic machinery for the commercial production of blow moulded containers ranging from 5 ml to 3000 l, BEKUM offers everything for plastic packaging from one source.

Philosophy of the Company

Building and maintaining long-term relationships with market partners through future-oriented, predictable company policy determine the actions of the first and second generation of the family, represented by Michael Mehnert. This strategy ensures the jobs of dedicated and experienced staff. The preservation of traditional structures, an established network of partners and far-sighted adaptation to change form the basis for continuous development and inspiration for the company in the interest of partners, customers and employees.

Innovation and Technology

Process reliability, availability, efficiency and sophisticated design characterise the high standard of BEKUM production lines for blow moulding. BEKUM contributes the expertise that has grown based on these references, associated with various patents in blow moulding, to the fulfilment of every customer requirement.

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The level of process design is key for process reliability, reproducibility, parts quality and cost-efficiency. A high-quality production line for extrusion blow moulding, consisting of machine, die and automation which is impressive in terms of speed, wear resistance, availability, process reliability and stability alike, is critical for return on investment (ROI) and the level of added value.

Facts and figures

With 16,000 machines delivered and installed worldwide - about half of them still in use - the BEKUM Group has achieved by far the largest production of blow moulding machines of any brand.

The BEKUM Group serves approximately 100 countries around the world directly or through representatives.

Today, 330 employees work for the BEKUM group worldwide at three locations in Europe and in the US (Berlin (Germany), Traismauer (Austria) und Williamston (USA)), generating a turnover of EUR 80 million (2015).

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