EXTRUSION BLOW-MOULDING OF ITEMS FOR TOY INDUSTRY

As a result of more than 40 years of experience in many different fields, among which the toy industry, **Plastiblow** the well-known company based in Milan, has developed interesting blow moulding solutions for the production of items with non-conventional shapes. Working close with customers, Plastiblow is always accepting new technological challenges.
All Plastiblow blow-moulding machines can be personalized. The availability in the construction of tailor-made products is absolutely necessary when developing machines for the production of toys, a field in which Plastiblow boasts a remarkable experience.
For many reasons, both technical and economic, the extrusion blow moulding technology has acquired a relevant role among the methodologies for the productions of different toys, specifically those for children. The production becomes flexible and its often done in one single step with no need of additional finishing.
The items obtained from the blow moulding extrusion process are safe and naturally rounded. These parts can also be recycled and are lighter than the injected ones. Moreover, machines and moulds are less expensive than those of other technologies.
Thanks to the extrusion blow moulding technology it is possible to obtain items already finished, for example balls, rings or toys parts to be assembled. Plastiblow supplied several machines for the production of multicolour balls without holes (picture 1). Plastiblow offers blow moulding machines with special technologic peculiarities suitable to obtain high quality products. Two models are particularly interesting: the Plastiblow blow moulding machines PB5000/CF and PB10000/CF for the production of hollow bodies up to a maximum volume of 5-10 liters respectively.
In these models instead of a mould moved from the extrusion station to the blowing station, the parison is taken from the extrusion head to the internal part of the mould by pliers; the latter remains under the blowing nozzle and is provided with the only opening and closing movement. The elimination of the mould-holder carriage transfer brings some significant benefits like the vibration absence and a dramatic reduction of the dry cycle. Moreover, as a result of the specific disposition of the clamping unit it is to place the blowing nozzles on different parts of the mould and to assemble particularly high moulds. These peculiarities make the PB5000/CF e PB10000/CF blow moulding machines suitable for long shaped items (skittles, clubs etc.) and for the production with multiple cavity moulds, vertically disposed along the parison axis (wheels, balls, rings…) (picture 2).
All programming and control functions are ruled by a PLC through an operating panel on the machine with an active matrix screen, a membrane keyboard and a floppy disk unit. The machine sequence time, the thermoregulation temperatures, the parison thickness profiles and other parameters can be visualized and programmed through several specific pages. Besides, graphic and diagnostic pages as well as statistic control functions of the production are also available.
Regarding the production of complex, encumbering or big items, Plastiblow proposes the PB30/S e PB30/D, single or double station blow moulding machines with a 30 ton mould clamping force and a lower energy consumption than a machine using hydraulic cylinders of big dimensions and storage batteries (batterie di accumulatori). In such machines the mold holder slides on horizontal aligned linear guides by means of roller bearings and is ruled by a brushless motor. With a PB30/S blow moulding machine Plastiblow produced animal shaped toys, (for example an elephant shaped baby carriage and rocking horse) (picture 5).
Nowadays, Plastiblow blow moulding machines are working in several plants of sub-suppliers of European groups involved in this particular field using different types of thermoplastic materials

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Picture 1: Ball (without hole) produced on mod. PB5000/CF



Picture 2: Examples of items produced on blow moulding machines PB5000/CF and PB10000/CF



Picture 3: Parison transfer blow moulding machin PB5000/CF



Picture 4: Blow moulding machine PB30/S for items up to 30 litres



Picture 5: Elephant body made with PB30/S

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