Double Injection Molding

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Two-colour buttons, cell phone casings and toothbrushes are among the products that are produced by double injection moulding, one of the hottest technologies in plastics processing today. However, to design a single part that consists of two or more materials or colours will require some knowhow in order to eliminate problems during the development stage. This article intends to share some basic knowledge about double injection moulding.

WHAT IS DOUBLE INJECTION MOULDING?

Also called multi-shot injection moulding, double injection moulding is a type of moulding process that is more complex, and usually more expensive compared to single injection mould. A basic double injection process is shown in Figure 1.

Double injection moulding requires injecting two or more different materials sequentially or simultaneously into a special mould. It involves injecting different materials in a specified sequence either at the same or different gate locations. In this process, it is necessary to create a separate cavity space for each material in a single mould. This is accomplished by:

i) Translation of the entire mould
ii) Rotation of the entire mould
iii) A replacement of a part of the mould by translation or rotation

In producing parts that use two different materials, it is important to consider the physical properties (*e.g.* melting point) of each material during material selection. It is advisable to first inject a material which has the higher melting point to prevent the other material from melting off.

The advantage of double injection moulding is it gives the designer freedom to integrate different materials into a multifunctional component. Instead of manufacturing individual parts that require a secondary process, such as printing, we can now design the desired printing into 3D data and incorporate it in the same moulding. It can greatly reduce production time and manpower, which improves the manufacturing output and productivity. The primary disadvantage of the double mould injection process is its high production cost, therefore, it is essential that a high volume of production is available to support the investment.

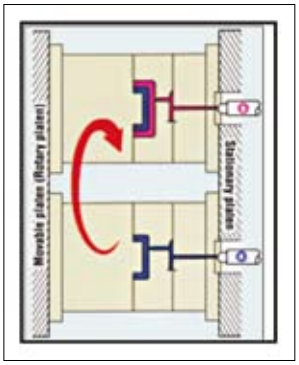

Figure 1: Rotary Platen of Double Injection

APPLICATIONS OF DOUBLE INJECTION MOULDING

Examples of products produced from double injection moulding:

i) Consumer goods; electric shavers, pen shells, spectacle frames, shell of phone's push buttons, bottle caps, cell phones, mp3 players, game machines, *etc.*
ii) Spare parts for car; lampshades, plastic steering wheels, knobs, *etc.*
iii) Medical equipment; thermometers, syringes, tubes, *etc.* ■

Networking Lunch

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In conjunction with the 2009 Annual General Meeting, METD organised its very first 'Networking Lunch' at Armada Hotel on 24 October 2009. As suggested by its name, the event was initiated with the main objective of providing a platform to industrial players, fellow members of IEM to meet, to network and to exchange ideas, besides raising fund for the IEM New Building Fund.

We are pleased that the event had received great support, and was well attended by representatives from corporations, industries as well as from within our fellow IEM members. The three-hour lunch had not only achieved its networking objective, but also raised more than RM6000 for the IEM New Building Fund. As attendees had requested for similar activities in the future, rest assured that this will not be the last. Information on all of our events is available at our official website - www.metd.org.

METD would like to thank all the organisations, companies, IEM members and the Secretariat for their crucial support and contributions to make the event a success. ■