

# Engineering & Processing News

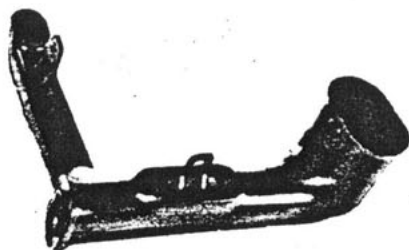
## Material savings system for blow-molding curved shapes, bellows

A whole new approach to blow molding complicated curved shapes, called by the developer, multidimensional extrusion-blow molding (MES), involves a moving extruder system that can extrude a pre-blown parison that follows contours of the tooling. Excell Mfg., subs Excell Corp. of Tokyo, is the manufacturer.

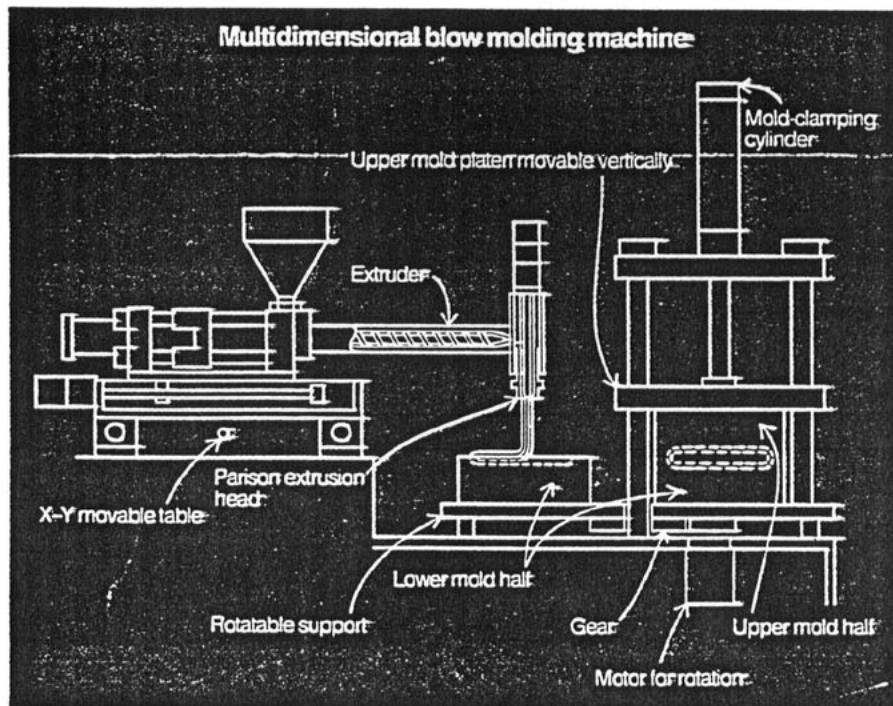
A 77-mm or 95-mm extruder, equipped with a parison accumulator head, is mounted on a moveable carriage capable of NC controlled X-Y movement along and at right angles to the extruder barrel in the horizontal plane. The accumulator head can also be made to move either vertically or rotatably with respect to the extruder axis (see diagram).

With this machine it is possible to extrude a sealed parison into the open mold half while moving the die head to follow any curved path defined by the

mold cavity. The end of the parison that is being extruded is sealed by the flash weld made when cutting off the previous parison. Collapse is prevented by low internal air pressure supplied through the die.



Air duct for Mazda 929 is blow molded in PP on new equipment from Japan. Diagram below shows how it works. (Illustrations, Excell Mfg.)



After cutting and clamping, the mold half is indexed 180 deg. into the vertical press, and the upper movable half of the mold is brought down, and the part is blown.

Blowing the part and extruding of the following parison are simultaneous. All functions are pre-programmed in relation to the material in use, and the part and mold design.

Advantages claimed by Excell include freedom from parison drawdown allowing parts with a contour length of up to 200 cm to be made; serpentine shapes in three dimensions can be produced, without heavy flash losses that occur with a parison that does not follow the tool shape; and bellows can be incorporated in any position without pinch-off scars.

The MES method also opens up the possibility of using low-melt strength polymers so far unsuitable for blow molding large articles, like nylon-6, -6/6, and nylon-12, ionomer resin, polyarylate U-polymer, flexible PVC, foamed plastics and so on. The method, says Excell, has worked effectively with various engineering plastics, with and without reinforcing fillers.

Commercial applications are predominantly in the automotive industry to date, and include one-piece defroster nozzles in HDPE for Datsun, formerly made in three pieces. Other products used on production cars are air hoses, air-intake tubes, air-tube connectors, all in PP (see photo), and side de-misting nozzles, in LDPE. Under development by Excell are automotive items such as bumpers, radiator hoses, and fuel filler necks.

And for other applications, air-conditioning ducts and hoses, various s- and p-shaped traps and complicated components for solar-energy collecting systems are under development.

Excell has filed worldwide patent applications for the MES method. Excell Corporation, Daisan Bldg., 3-15, Kyobashi 2-chome, Chu-Ko, Tokyo, Japan (CIRCLE 369 FOR READER SERVICE)