

How Plastic Extrusion Works

In the extrusion process, plastic resin beads are fed into a hopper, along with any colours or additives. Heat is applied and the resin then feeds the beads down through onto a large spinning screw within a horizontal barrel.

The beads pass through the barrel on the screw while being heated to the melting temperature specific to that type of plastic. By the time it meets the end of the screw the plastic is thoroughly mixed and has a consistency like thick bubble gum.

At the end of the screw the extruded plastic flows across a screen and a breaker plate which serves two functions. The screen removes the containments or inconsistencies in the plastic, and the breaker plate changes the motion of the plastic from rotational to longitudinal. It's now ready for the die.

The continuous flow of molten plastic is forced through the die, and the plastic is then cooled. Depending on the shape of the die opening many different parts can be made including tube, piping and profiles.

Although it is possible, and sometimes necessary, to shape the plastic flow downstream after it leaves the die, it is the shape of the die opening that determines the shape of the finished product.

While the die determines the shape of the plastic flow, many different methods are used downstream to make different parts. The technique of making pipe differs from that of making profiles. In some instances a cooling water bath may be used while other times air jets, water sprays, fans, vacuum boxes or just air in the room may be used. In all cases some type of "take off" or pulling conveyor is used to pull the extrusion along the line. By changing the speed at which the take off, it may be sawed in special lengths, coiled, spooled, sheared, punched, depending on the requirements of the piece.

Once the cutting and packaging process has been completed the finished product is ready for delivery.

