

Modern Twin screw Co-Rotating Extruders are widely used for engineering compounding of plastics, as well as in various Food Applications producing Snacks, Soy Nugget, etc. The heart of a TSE is the Twin screws which itself comprise of several individual segments uniquely designed and comprising of Feed screws, Conveying elements, Kneading and Mixing elements, Venter element, Pumping elements. These elements are assembled on individual central shafts at proper centers so that they run accurately to accomplish their task.

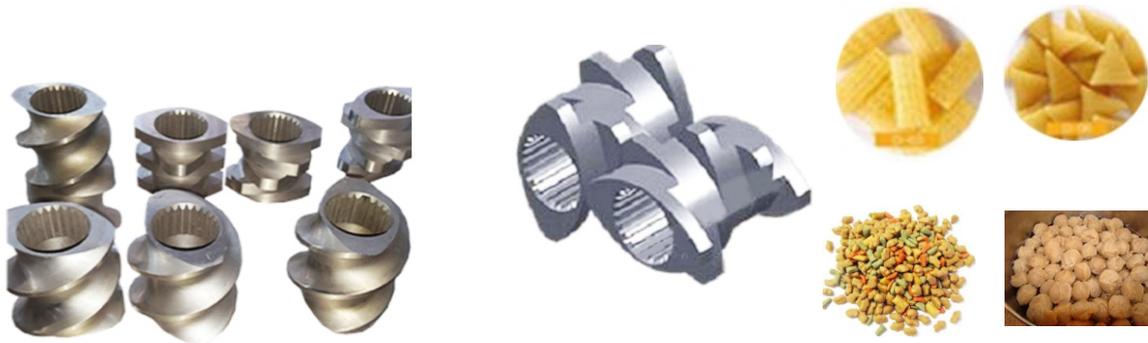
Typical Zones start from Feeding, Kneading, Mixing, Venter and Pumping zones.

It is usual on all twin screw designs now to build-up gradual compression (cooking on food screw) by reducing the pitch on succeeding elements, downstream the screw assembly, and ending up with final meter (pump) zone. Most Food TSEs though have Final Conical Delivery Zone just before the die. Design can differ from each manufacturer.

Further, the segments are provided, so that, the degree of shear (cooking) could be easily controlled by reducing the length of screw, and/or pitches of elements in the assembly to suit the specific application. Additionally, replacements become easy and less costly in case of future wear of screw.

However, to get full advantage of Twin screws, it is very important to design & select proper Materials, Manufacturing process, Heat treatment and finishing of the shafts and elements for most precision assembly and performance on Extruder. To this end, it involves use of specialized design software with simulating results, so that proper results be achieved for customer satisfaction.

Choice of materials: Gas Nitrided Alloy, Hardened Cr/Mo Tool steel, any other suitable. Shaft material is generally case hardened carbon steel for good torsional rigidity.



Feed screws, Conveying, kneading elements



Co-rotating Twin screws are normally used for plastics compounding as well as Food Applications like Snacks, Pellets, Break fast cereals, Soy Nugget, Petfood, etc.

Manufacturers:

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