

A two-stage planetary roller extruders consists of parts such as:

- **Raw Material Feeding Unit**
- **Feeding Screw & Barrel**
- **Planetary Roller System**
- **Degassing Chamber**
- **Second Stage Discharge Screw**
- **Pelletizing Die & Granulating Cutter**
- **Pneumatic Conveyor System**
- **Cooling System**
- **Packaging System**

RAW MATERIAL FEEDING UNIT:

- It is equipped with a mixer for feeding non-flowable PVC formulas
- Volumetric and gravimetric feeding systems can be used
- The feeding unit is equipped with an automatic feeding system
- It is recommended to use a metal detector in the feeding unit
- Pneumatic or helix conveying systems can be supplied by us for filling the bunker
- Multifeed bunkers can be used in the feeding section for feeding different products to the machine
- Designed with hinges for easy maintenance

PLANETARY SECTION:

- Resistance/Fan or Hot Oil alternatives can be used for heating/cooling of the planet section
- The features of the product can be optimized with the use of different front blades in the planet section
- The planetary group clamping flange is designed with hinges for changing the front blade easily

DEGASSING CHAMBER:

- Vacuum chamber is designed with hinges for easy maintenance
- Temperature measurement sensor is used for continuous measurement of product temperature in vacuum chamber
- One - Touch method is used for ease of removal

EXTRUDER:

- Provides necessary pressure formation in the output section
- Provides stable product feed
- Provides the removal of gas inside the product.

PELLETIZING & GRANULATING:

- It transforms the product to granular form
- Performs the first cooling process
- The cutting chamber is equipped with cooling system.

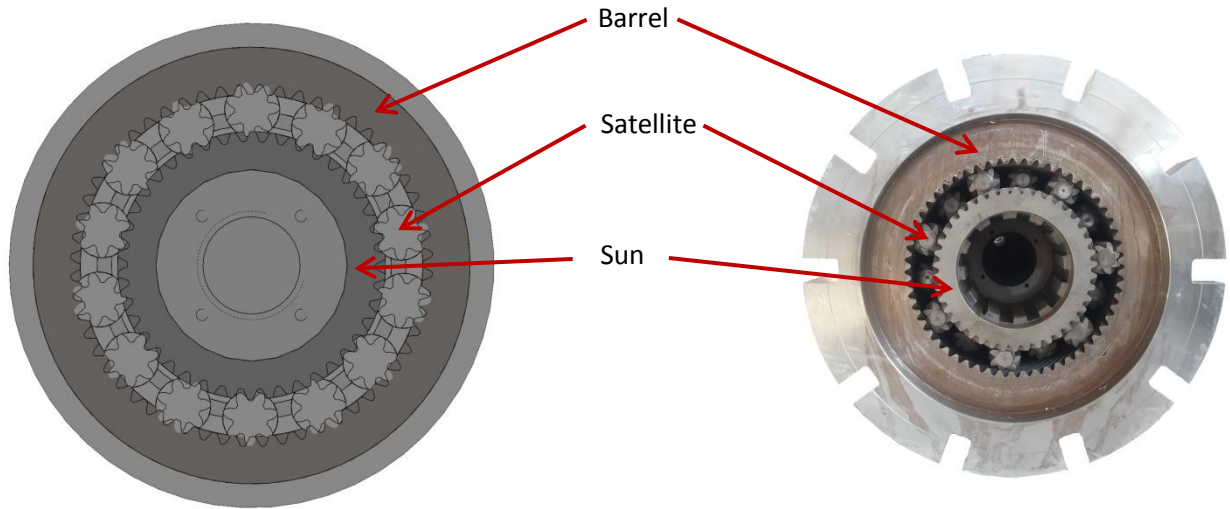
COOLING SYSTEM:

- Positive or negative airflow alternatives may be used to transport the product from the cutting chamber to the cooling screen
- Cooling screen works with adjustable vibration



WORKING PRINCIPLE:

Planetary roller extruders use the working principle of planetary screws. 3 different types of screws are used in planetary roller extruders. These are; sun, barrel and satellite screws.



In this system, the SUN makes the rotation movement. The section defined as the BARREL is fixed and the screws, which are defined as STARS, rotate around the axis of its own as well as around the axis of the sun. Thus, the polymer materials, which are forced into the planetary extruders section and are in powder form, are brought to the melt form by mixing together with the shifting motion of the star and the sun and being subjected to more controlled shear stress.

During the operation of the Planetary Extruder machine, the pure original or broken second hand material of plastic origin, defined as raw material and prepared as a formula, is first fed into the drive screw section with the help of the vertical coil in the feeding chamber. The product is fed to the planet unit by the displacement movement applied to the material in the drive screw section. There is a cooling system around the barrel in the drive screw unit to prevent the formation of early plastification. In the planetary unit, the product is crushed and disintegrated, so that as the material progresses in the planetary section, it gets mixed and melted by the shear stresses that are applied on the product. In addition, hot oil conditioners or electrical resistors with fans are used to control the temperature of the product in the planetary group. In order to obtain a better quality product after this process, the dough product is delivered to the degassing chamber and the air bubbles, volatile solvents and residual monomers contained in the product are removed by the vacuum process as much as possible. The product, which exits in a melted form from the planetary section, enters the extruder system and goes under the effect of the conditioning system again. By means of the screw in the extruder system, the product is pushed into the extruder exit die and is released as desired from the holes on the mold by the effect of pressure. Finally, it is referred to other departments for other stages of production.

