STEER GENERATION NEXT
CO-ROTATING TWIN-SCREW EXTRUDERS

HOT MELT EXTRUSION SYSTEM

for Pharmaceutical Applications

STEER's OMEGA PHARMA twin-screw extruder created for pharmaceutical applications is modular in design. The HOT MELT EXTRUSION SYSTEM consists of co-rotating fully wiping twin-screws and clamshell barrel. The key tasks of the extruder are mixing, homogenizing and degassing. Its modular design offers a choice of screw elements which allow altering the configuration of the intake, mixing and metering zones with respect to different applications. Flexibility, continuous operation process capability and higher energy efficiency make the OMEGA PHARMA HOT MELT EXTRUSION SYSTEM the ideal pharma extruder.

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OMEGA PHARMA

TWIN-SCREW EXTRUDERS

FEATURES

- Conforms to GMP standards
- Clamshell design for easy cleaning
- Custom downstream ancillaries:
  Chill Roll Flaker Unit
- Precise temperature control in each zone
- 21 CFR part 11 compliant automation
- Realtime tracking of process parameters

STEER OMEGA
THE BEST *value* – OPTION –

ADVANTAGES

- Assured melt quality
- Better mixing capability
- Shorter residence time
- Continuous process
- Reliable data logging and recipe storage

APPLICATIONS

Hot Melt Extrusion formulations

- Solid Molecular dispersion
  - of poorly water soluble compounds
- Enhancing Bio-availability
- Taste Masking
- Sustained Release Mini-matrices

Clamshell Barrel

Clamshell Barrel: STEER Clamshell barrel provides easy access to the Screw elements and reduces the cleaning time of the barrels and elements. This inturn reduces the changeover time and hence the formulation changing in STEER extruder is much more simple and effective.

The **Extruder Processing Zone (EPZ)** is the 'heart' of a Co-rotating Twin-Screw Extruder that helps to achieve the desired performance. STEER screw elements ensure a fully wiping profile for any lead of screw, any number of starts and any machine parameter.

STEER EPZ Products: STEER the global leader in EPZ Products like Screw elements, Shafts and Barrels provide a host of services including replacement of screws

STEER Engineering is a globally recognized player in the extruder industry. STEER fulfills customer needs through its generation-next extruders that are well known for their 'varied applications, craftsmanship and engineering'. STEER's Twin-Screw Extruders offer the best feeding ability, greatest energy efficiency and highest torque capability.

STEER's OMEGA 30P created for pharmaceutical applications, is modular in design. It consists of co-rotating, fully wiping twin-screws and clamshell barrels. The key tasks of the extruder are mixing, homogenizing and drying. Its modular design offers a choice of screws elements which allow altering the configuration of the intake, mixing, and metering zones with respect to different applications. Flexibility, continuous operation process capability and higher energy efficiency make the OMEGA 30P an ideal pharma extruder.

STEER offers its exclusive EPZ configuration which offers superior outputs.

HOT MELT EXTRUSION SYSTEM

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OMicron12 PHARMA

TWIN-SCREW EXTRUDERS – LABORATORY

FEATURES

- Minimum quantity – 40gm
- Flexibility of feeding in any zone / liquid injection
- Modular/configurable screw elements
- Length - 42 D
- 8 Heating and cooling zones with vent ports
- Barrel Liner – SSX15 TN
- STEER EPZ Products

ENERGIZING *R & D*

ADVANTAGES

- Easy cleaning and changeover
- Low material loss
- Inline process control
- Easy scale up
- Processing of temperature - sensitive actives

APPLICATIONS

- Hot Melt Extrusion formulations
- Research & Development projects

Volumetric Feeder

Volumetric Feeder: The Volumetric Feeder in OMICRON 12 Pharma ensures consistent feeding into the extruder. These are optimized for high accuracy and repeatability.

These feeders are fully integrated with STEER OMICRON 12 Pharma extruders and can be controlled using a single PLC control.

The feeding rate varies from 20 gm/hr to 200 gm/hr.

OMICRON 12 PHARMA is a co-rotating twin-screw laboratory extruder, specifically designed and developed for the Pharmaceutical industry. The ability of this HOT MELT EXTRUSION SYSTEM is to generate outstanding dispersive and distributive mixing. It can produce material at an extremely low output rate, which helps in lowering the cost of development of new products. OMICRON 12 PHARMA offers the widest flexibility available in today's market for Research & Development projects with the ability to be customized for any given application.

HOT MELT EXTRUSION SYSTEM

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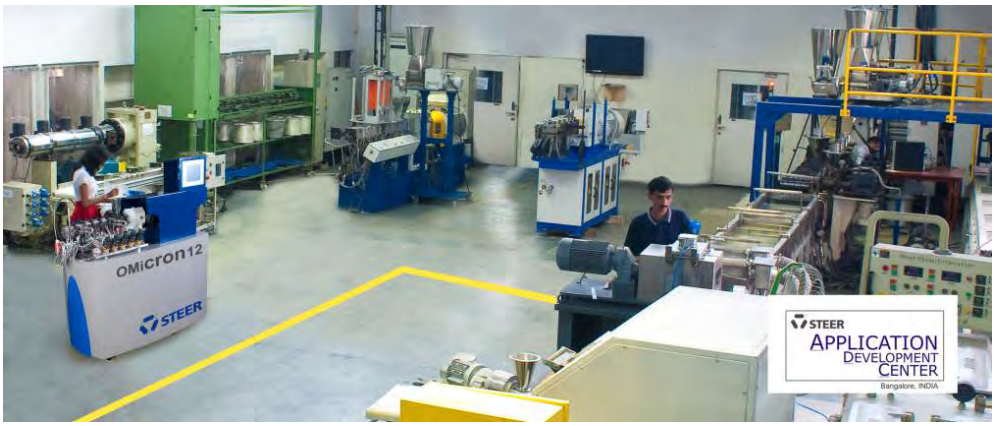
SPECIFICATIONS

DESCRIPTION	OMICRON 12P	OMEGA 20P	OMEGA 30P
Screw Diameter (mm)	12.0	19.67	29.7
Diameter Ratio (Do/Di)	1.45	1.71	1.71
Flight Depth (mm)	1.9	4.2	6.35
Max. Drive Power (kW)	1.5	7.5	60
Max. Screw Speed (rpm)	900	1200	1200
Specified Nominal Torque/shaft (Nm)	7.5	30	120
Specific Torque (Nm/cm^3)	6.5	7.3	8.6

Disclaimer 1: The information in this brochure does not constitute an offer of sale of the equipment listed. Certain configurations of diameter ratio, screw speed and torque may not be available in all geographic locations due to legal restrictions. Please contact your local STEER Sales Office for a full quotation of equipment configured to meet your specific needs.

Disclaimer 2: Due to continuous development actual values / parameters may differ from those mentioned in this list.

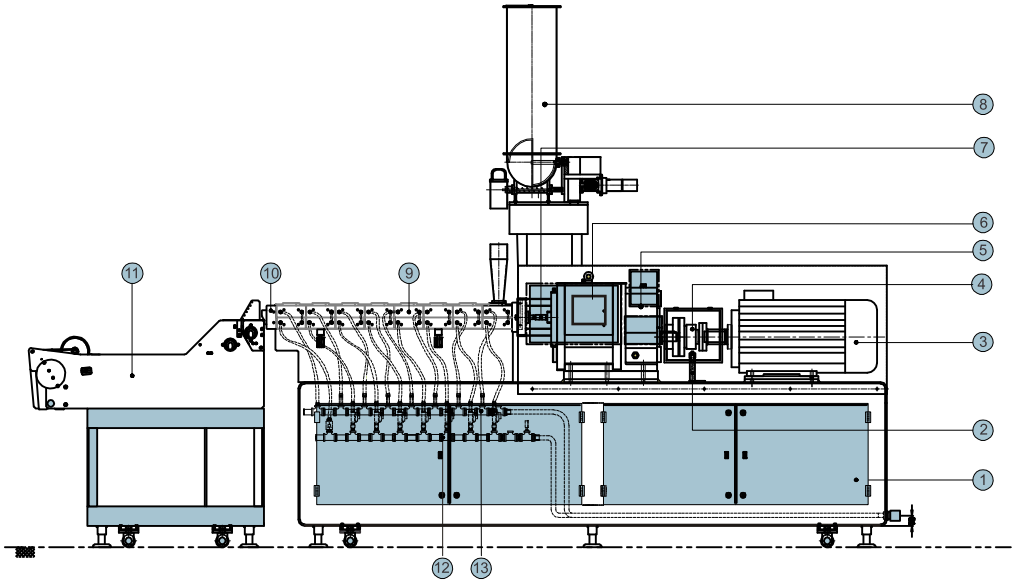


FORMULATION TRIALS are conducted at STEER's
Application Development Center situated in Bangalore, India

HOT MELT EXTRUSION SYSTEM

for Pharmaceutical Applications

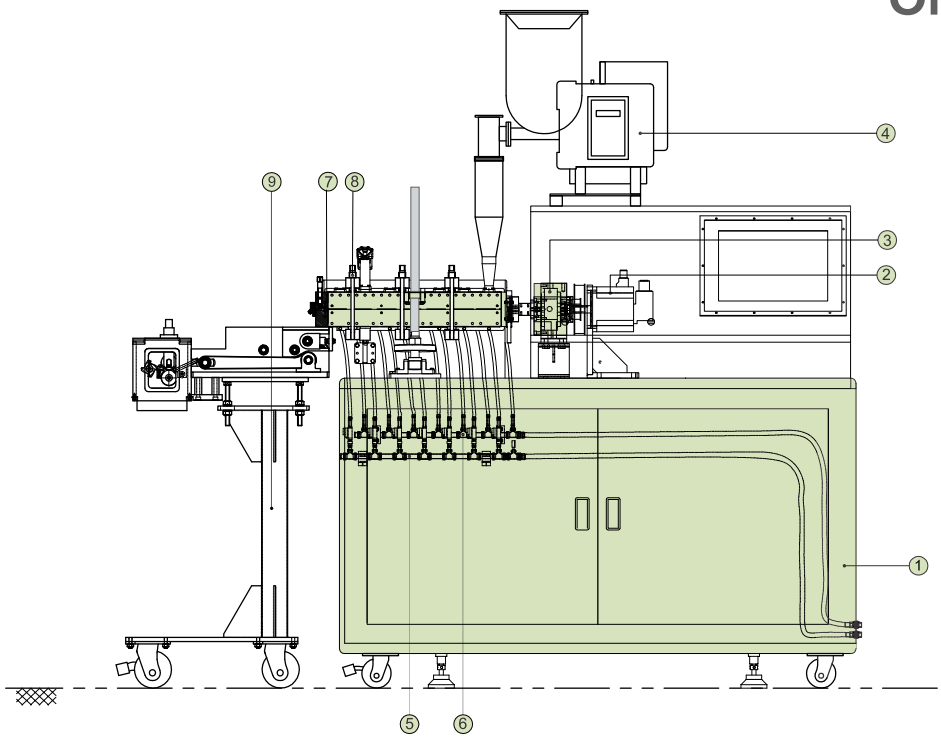
omega PHARMA
TWIN-SCREW EXTRUDERS



1. Machine Base
2. Proximity Sensor Fixture
3. Motor
4. Torque Limiter Coupling Assembly
5. Gearbox
6. HMI
7. Shaft-Adapter Assembly
8. Gravimetric Feeder
9. EPZ Elements
   (Screws, Shafts and Clamshell Barrel)
10. Die Assembly
11. Chiller Roll Flaker Unit
12. Inlet Manifold
13. Outlet Manifold

Schematic overview of STEER OMEGA Pharma Twin-Screw Extruders

OMICRON 12 PHARMA
TWIN-SCREW EXTRUDERS – LABORATORY



1. Machine base
2. Motor
3. Gearbox
4. Feeder
5. Input Manifold
6. Output Manifold
7. Die Assembly
8. Special C Clamp
9. Feeder stand

Schematic overview of STEER OMICRON Pharma Twin-Screw Extruders

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