

Twin-screw extrusion kneading

DJK

One Stop Satellite
Laboratories.

The superiority of twin-screw extruders as polymer kneaders

- High solid transport capacity
- High melt plasticizing capacity
- Self-cleaning property
- High distribution and dispersion capacity (kneading capacity)
- Segment structure with a high use of flexibility for screws
- High degassing capacity

○ Example of extrusion kneading test

- Polymer blend/alloying
- Filler (inorganic/functional filler) filling
- Reinforcement (GF, CF) formulation
- Additives (flame retardants, antistatic agents, nucleating agents, plasticizers, and modifiers)
- Reactive extrusion
- Degassing, desolvation, and removal of unreacted components

Equipment specifications

Twin screw extruder

Model name	ZSK32Mc18	OMega30H	TEX25αIII	HK25D-41	HK25D-41/61	Process11	KZW15-30MG
Screw diameter (mm)	Φ32	Φ30	Φ26.5	Φ25	Φ25	Φ11	Φ15
Screw length (mm)	1664	1800	1525	About 1025	1525	440	450
L/D	52	60	70	41	61	40	30
Number of vents	1~3	1~3	1~3	1~2	1~2	—	—
Screw speed (rpm)	50~1200	10~1200	50~960	50~500	50~950	~900	~500
Upper limit of set temperature (°C)	450	450	450	420	420	420	400
Minimum resin required amount (kg)	3.0	3.3	1.0	0.5	0.5	0.1	0.1
Standard recovery amount (kg)	1.0	1.5	0.5	0.2	0.2	0.05	0.05
Feature	Scale up Medium-volume prototype Filler high filling Special side feeder	Scale up Medium-volume prototype Elongation kneading Special side feeder Side vacuum vent	Small and medium volume prototype Special side feeder Software simulation	Small amount kneading Examination of small-volume prototype	Small amount kneading Reactive extrusion	Small amount kneading	Small amount kneading
Installation Office	Central Laboratory	Central Laboratory	Central Laboratory	Polymer Fusion Technology Laboratory	Polymer Processing Technology Laboratory	Central Laboratory	Polymer Fusion Technology Laboratory

Feature

- Support for small samples (effective use of valuable prototype samples)
- Use of a high-precision feeder reduces variability in the mixing ratio
- Liquid substance can be added (liquid addition, press-fitting)

Incidental facility

Feeder	Gravimetric single type (for pellet)
	Gravimetric twin type (for powder and flakes)
	Vibration type (pellet)
Liquid feed pump	Roller pump (wide supply range)
	Peristaltic tube pump (accurate liquid feeding)
Cooling	Water tanks (general purpose)
	Water-cooled and air-cooled conveyors (for non-aqueous, brittle materials)
Pelletizer	Rotary blade type strand cutter (general purpose)
	Fan cutters (for general and soft)
	Underwater cutter
	(water granulation, low viscosity products, stable particle size, micropellet)



TEX25αIII



ZSK32Mc18



OMega30H

Features of DJK's kneading service

- We can provide a One-Stop service, from extrusion kneading tests to test specimens preparation and physical property measurement.
- We support considering the formulation and examination of compounds.