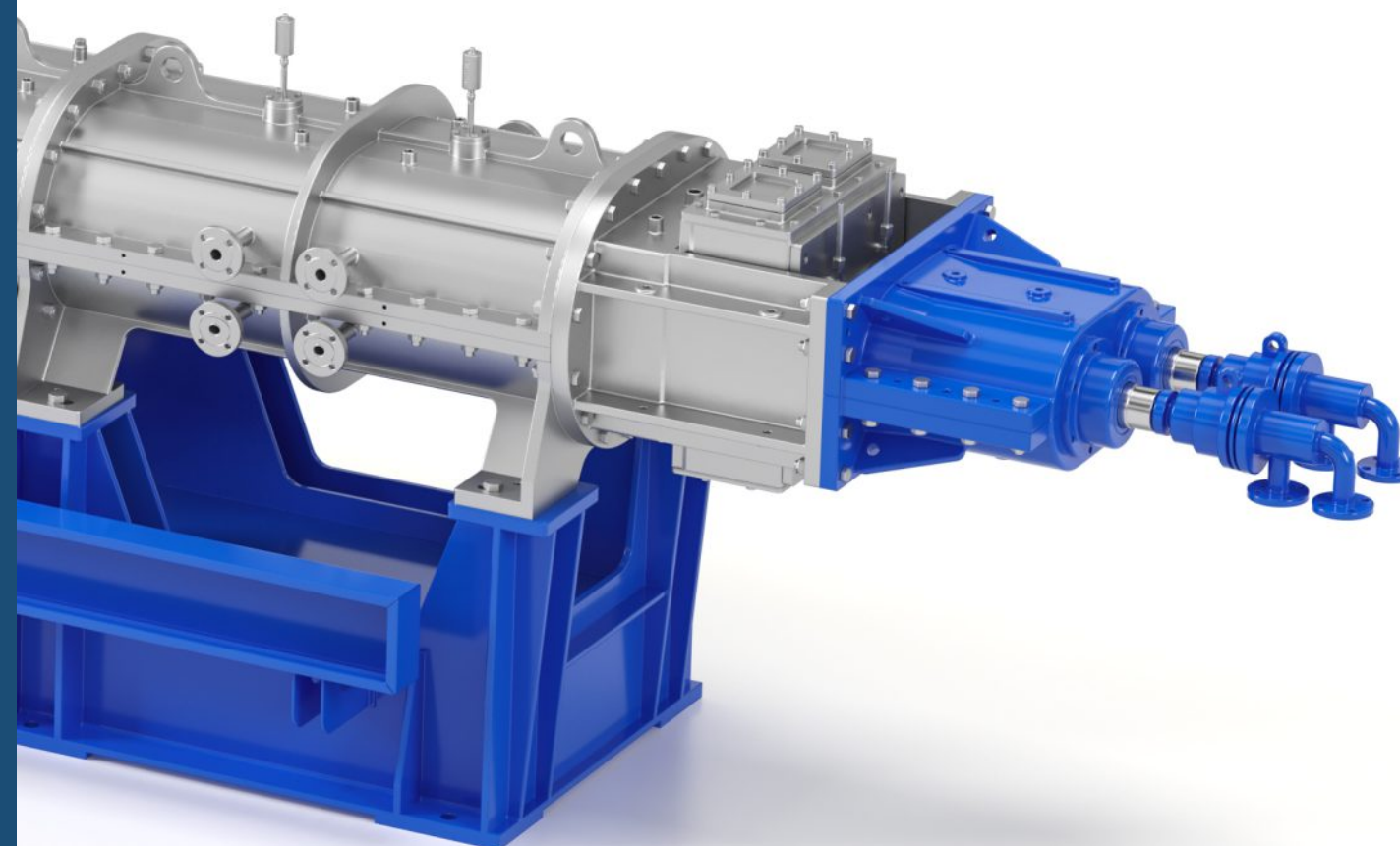




SUNKAIER



SUNKAIER

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REACTIVE KNEADER Technology

Jiangsu Sunkaier Industrial Technology Co.,Ltd.



Rely on the excellent plant engineering competence of SUNKAIER in high viscosity polymer processing:

- Optimize your production and sharpen your competitive edge by complete system solutions, turnkey production lines and customized services.
- Base your planning on high viscosity material processing concepts that:
 - Easily provide the uncompromising flexibility required for state-of-the-art production of the most varied products;
 - Ensure high availability throughout the entire service life;
 - Convince by the unparalleled productivity and cost effectiveness.



System Solutions - Service



Systems

- Modular design and interchangeable spare parts in stock to guarantee every equipment delivered.
- Worldwide service partners.



Solutions

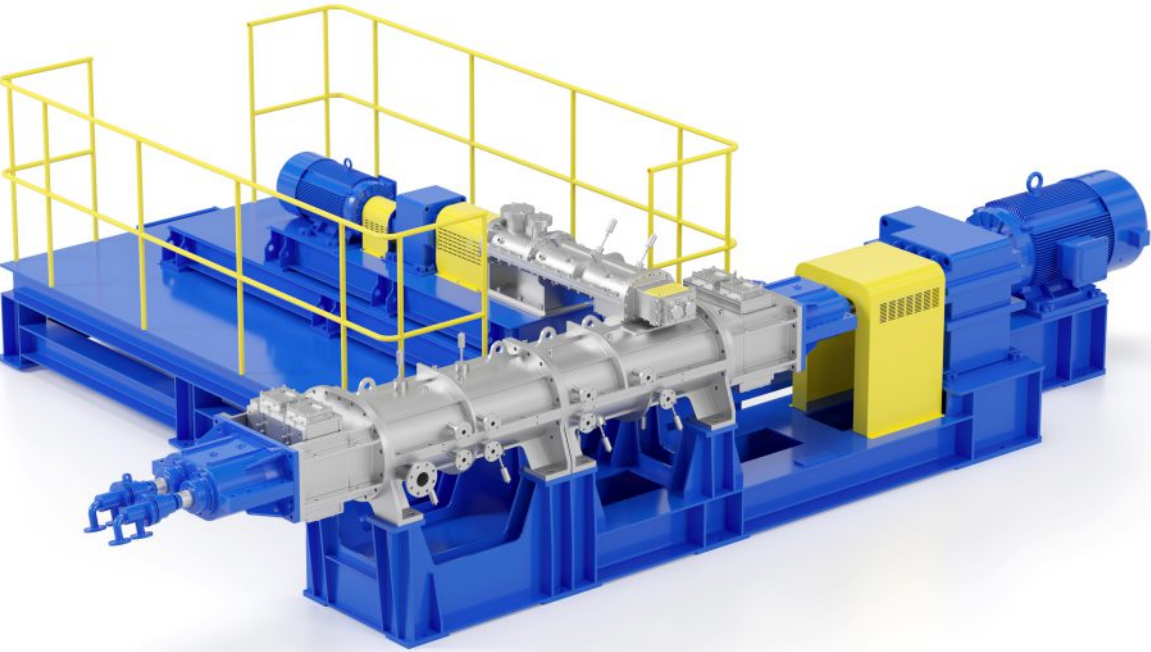
- Custom designed process for every specific application.



Service

- Complete line for high viscosity polymer process
- Modular units;
- Continuous innovation.

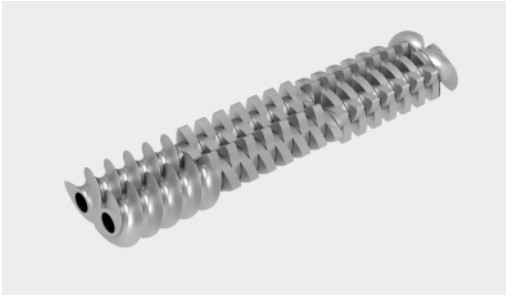
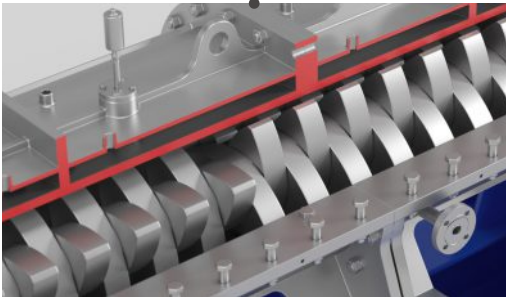
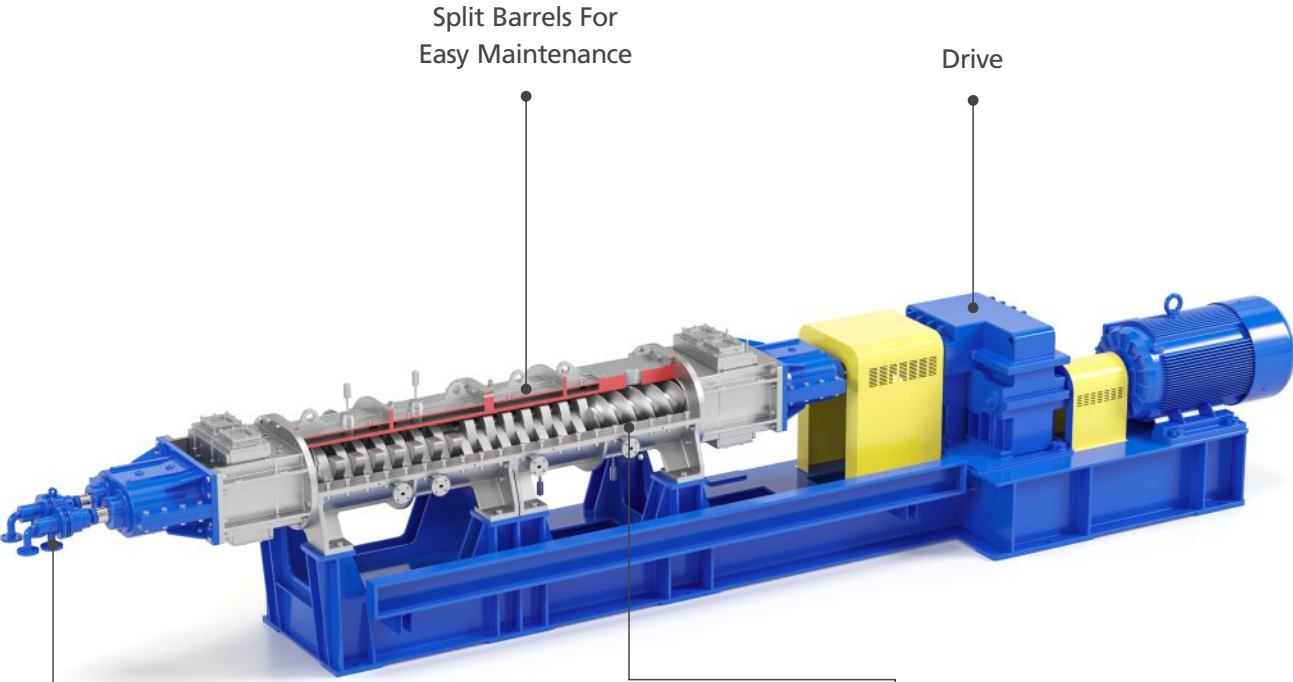
SK3000-Kneader Reactor



SK3000 Kneader is ideally suited for operations involving mixing, kneading, reaction, polymerization, crystallization, compounding and heating or cooling of materials up to many million centipoise viscosity.

SK3000 Kneader is a horizontal, twin screw, closed type continuous kneading/reacting processor. And the Kneader has a number of recent successful accomplishments as continuous polymerization / reacting processor for engineering plastics and others. Compared to twin screw

extruder, SK3000 Kneader has compact structure such as short L/D and low power while having equivalent kneading and dispersion performance and contributing to rationalization of manufacturing process and cost reduction. Especially SK3000 Kneader offers several advantages over batch mixing for longer residence time, higher heat exchange and higher production capacity,



Screw Elements

Operating Principle of Co-rotating Twin-screw Kneader

Co-rotating twin-screw extruders provide helical material transport and continuous material transfer between the screws within the figure 8 shaped barrel bore. Closely intermeshing screw elements along the entire processing section ensure excellent self-wiping characteristics. In conjunction with the shear energy input, this operating principle guarantees optimum compounding results in terms of dispersion and distribution.



Features

- **Excellent Kneading And Dispersion Capability Despite Short L/d**

Compression and elongation action accompanying rotation of paddle and shearing action with narrow clearance provide improvement kneading and dispersion effect.

- **Unlimited Arrangement Of Paddles**

The paddles can be changed individually. Therefore the optimum paddle arrangement pattern can be selected according to the application and purpose. These selections of paddle arrangement enable the Kneader to control residence time and axial pressure distribution of the materials.

- **Excellent Self-wiping Performance**

The co-rotating shafts and close clearances between paddles and between the paddles and barrel walls provide efficient uniform mixing. This prevents material build up inside the barrel and results in a self-wiping action.

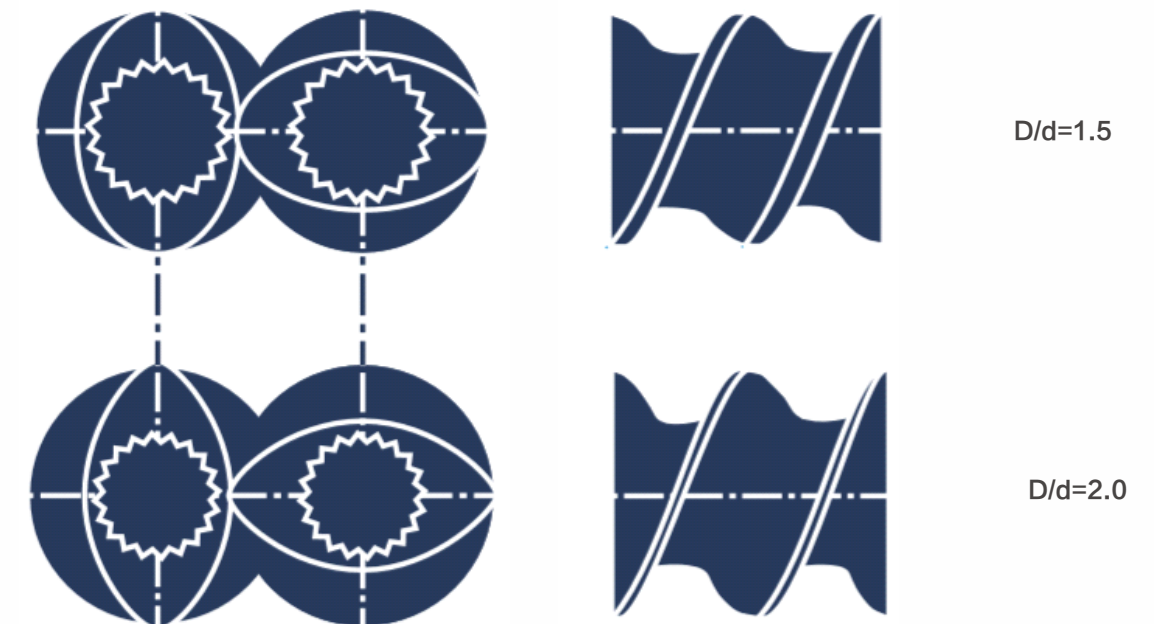
- **Easy Maintenance And Cleaning**

The barrel which is horizontally split as standard design is easy to open for disassembling and cleaning in short time compared with Extruder.

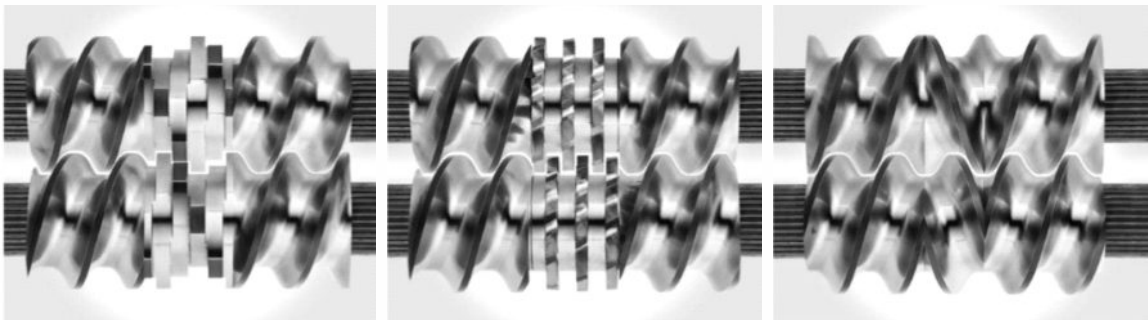
Process Implementation With Utmost Precision The Most Precise Way to Run Your Process.



The screw elements are configured as per the process requirement, but still keep the modular principle that the elements are interchangeable to the configuration.



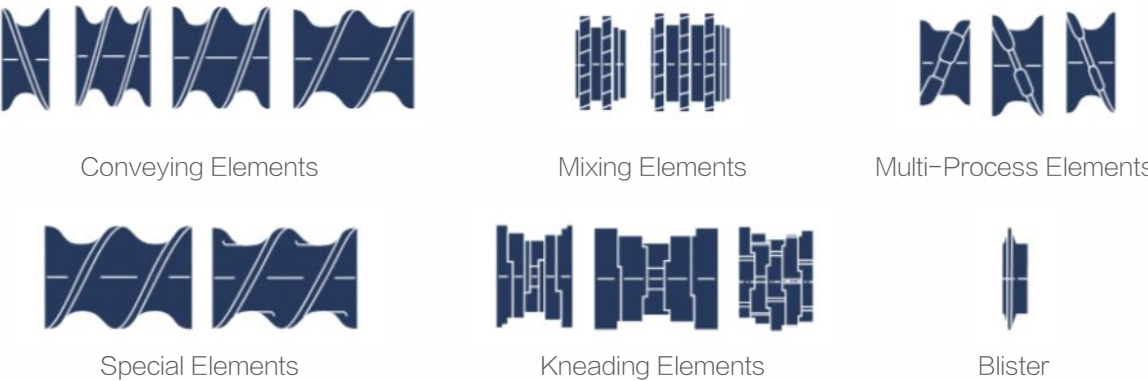
Screw Elements Configuration Freely



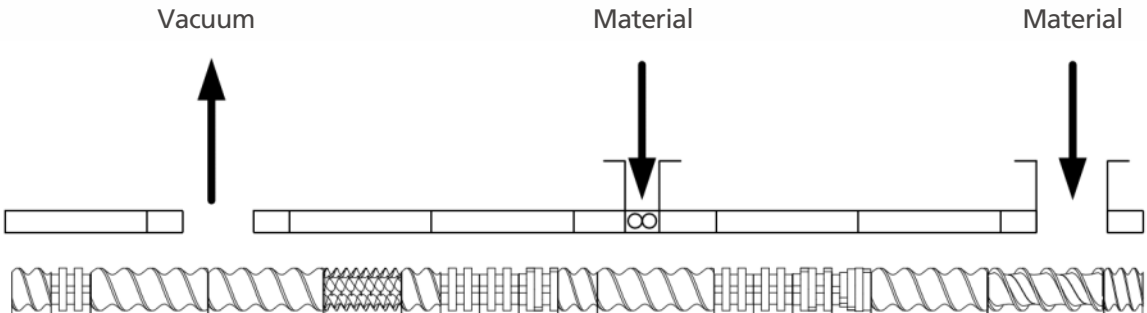
- Screw element varieties for each size.
- The screw element range:
- Conveying elements with different lengths and pitches, multi-start, self-wiping, laterally sealing or with pushing flight profile with increased free screw volume
 - Mixing elements in different lengths
 - Kneading elements in different lengths, offsets and pitch angles
 - Barrier elements in the form of blister discs and back-pumping elements

SK3000 screw elements are designed in strict accordance with the building block principle. Different surface treatments and the various element varieties allow the screw configuration to be matched exactly to your process.

Extract From The Screw Element Range



Typical Screw Configuration



Typically Compounding Screw Setup



Applications

Convert Batch To Continuous Processing

Benefits

- Total Enclosed
- Fewer Processor Steps
- Short Heat History
- No Batch to Batch Variations
- Shorter Cycle Time
- Lower Energy Consumption
- Reduce Labor
- Reduce Floor Space
- Eases Environmental Concerns

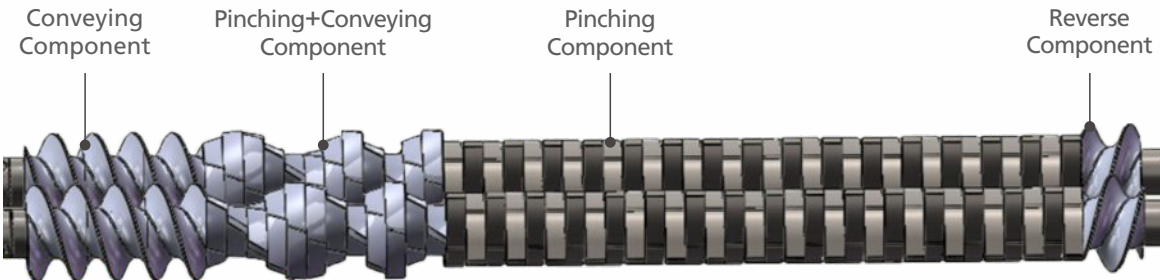
Reactive Process For Polymerization and Compounding

Reactiontype	Reactants	Products
Polyaddition	Polyol+diisocyanate+aromatic diamine	Polyurethane
Polycondensation	Bishydroxybutylterephthalate	Polyethyleneterephthalate
Freeradical Copolymerization	Styrene+acrylonitrile prepolymer	SAN
Grafting	Polystyrene+maleic anhydride	Polystyrene maleic anhydride adduct
Ionic Polymerization	Caprolactam	Polyamide 6
Hydrolysis	Polyurethane scrap	Polyol, amines



Kneading for Chemical Products (Sealing material, Powder Paints, etc.)

Kneading for Electric Material Products (Battery material, Ceramic, Carbon , EMC, etc.)



Standard QS Series Parameters (Standard Type)

Model Project	QS 25	QS 50	QS 100	QS 125	QS 150	QS 200	QS 250	QS 300	QS 375	QS 450	QS 500	QS 600
Component Diameter (mm)	25	50	100	125	150	200	250	300	375	450	500	600
Tube Length (mm)	255	440	720	900	1080	1440	1800	2160	2700	3240	3600	4320
Rap (rpm)	360	360	360	300	300	240	240	200	200	150	120	100
Power (KW)	0.37 ~ 0.75	1.5 ~ 11	3.7 ~ 30	7.5 ~ 55	11 ~ 75	30 ~ 90	55 ~ 132	75 ~ 200	90 ~ 300	110 ~ 355	132 ~ 600	160 ~ 800