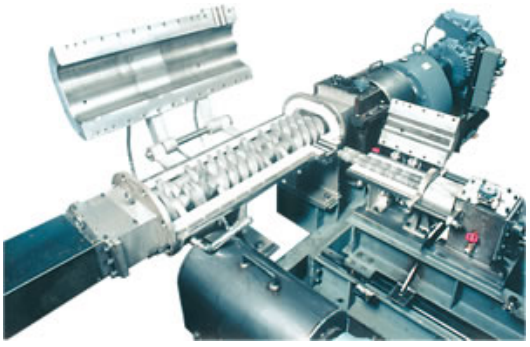
KURIMOTO Manufacturing the future

KRC Kneader -Twin Screw Continuous Kneader / Reactor-

Division for this product Plant Engineering and Machinery Division

Outline



KRC 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.

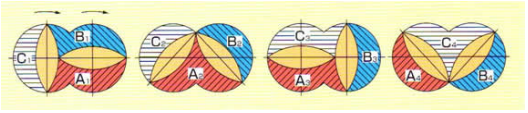
Kurimoto KRC Kneader is a horizontal, twin screw, closed type continuous kneading/reacting processor. KRC Kneader has more than 1,100 sets of delivery track records. And the KRC Kneader has a number of recent successful accomplishments as continuous polymerization / reacting processor for engineering plastics and others. Compared to twin screw extruder, KRC 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 KRC Kneader offers several advantages over batch mixing. If required longer residence time and higher production capacity, Hybrid Reactor (continuous reactor, plug-flow) is available.

Keyword Product genre Continuous system Kneader Reactor Extruder Mixer Polymerization Kneader Reactor Extruder Mixer Aramid Polyacetal POM

Features

Excellent kneading and dispersion capability despite short L/D

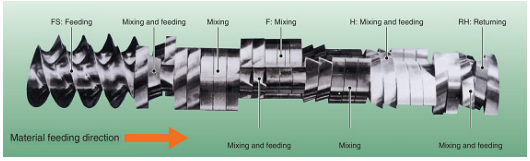
Compression and elongation action accompanying rotation of paddle and shearing action with narrow clearance provide improvement kneading and dispersion effect.



Volume of material is changed in compression and expansion according to paddle's rotation.Shearing actions between the barrel and paddle, and between paddles increases efficiency of kneading and dispersion.

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.



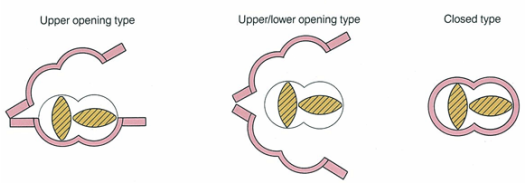
FS: Feed screw for conveying
RS: Reverse screw for reverse conveying
F: Flat paddle for kneading
H: Helical paddle for kneading and conveying
RH: Reverse helical paddle for kneading and reversing

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

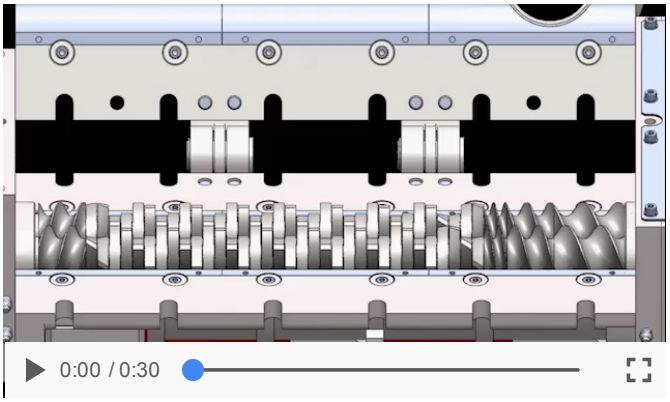
The barrel which is horizontally split as standard design is easy to open for disassembling and cleaning in short time compared with Extruder.



Three types of barrel are available

Replace from Batch to continuous processing

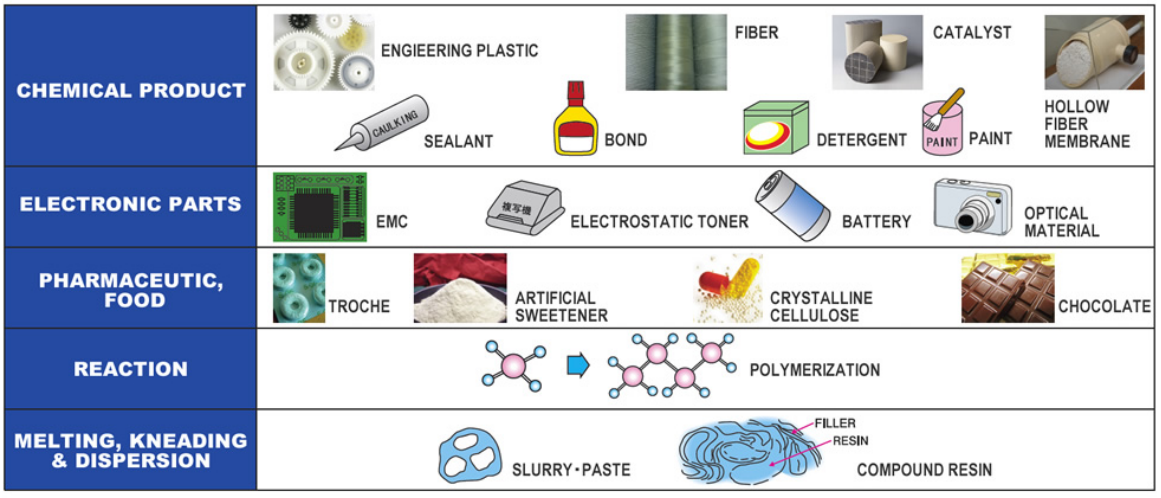
BENEFITS
- Total Enclosed
- Fewer Processor Steps
- Short Heat History
- No Batch to Batch Variations
- Shorter Cycle Time
- Lower Energy Consumption
- Reduce Labor
- Reduce Floor Space
- Eases Environmental Concerns



Click here, it can be seen that screws and paddles rotate in the same direction

Keyword Customer topic: Continuous system, Kneading, Twin-shaft, Reaction, Polymerization, Self-Cleaning, Depressurization, Heating, Cooling, Crystal Solidification, Low pressure Operation, Melting, Continuous Operation

Applications

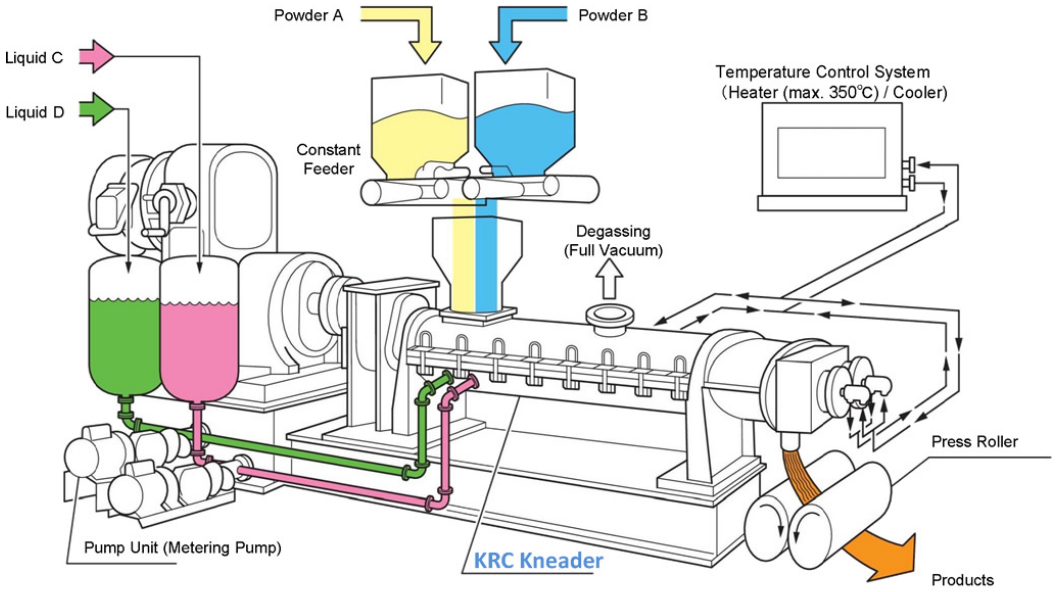


- Polymerization and Reaction for Engineering Plastics (Polyacetal, Polyamide, Polyurethane, etc.)
- Kneading for Plastics (Epoxy, Polyamide, Polyester, etc.)
- Kneading for Chemical Products (Sealing material, Powder Paints, etc.)
- Kneading for Electric Material Products (Battery material, Ceramic, Carbon , EMC, etc.)
- Lab test and pilot test can be performed. Typically in one to three days of testing, feasibility can be proven and the machine can be configured to suit the specific product and mixing needs.

Keyword Product application: Plastics, Battery material, Adhesive, Ceramic, Food, Pharmaceutics, Carbon, Sealant, Resin, Polymer, Lithium-ion Battery, Engineering Plastics, Aramid, Polyacetal, POM, etc.)

Details

Specification

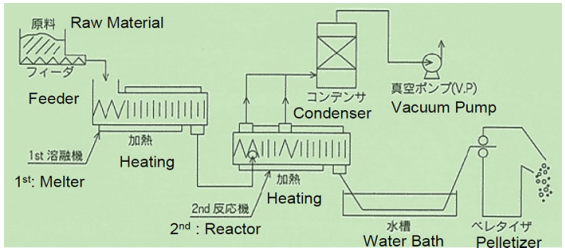


Model number	S1	S2	S4	S4	S6	S8	S10	S12	S15	S18	S20	S24
Paddle dia. (mm)	25	50	100	125	150	200	250	300	375	450	500	600
Length of barrel (mm)	255	440	720	900	1080	1440	1800	2160	2700	3240	3600	4320
	250	500	1000	1250	1500	2000	2500	3000	3750	4500	5000	6000
Paddle revolution	~480	~360	~360	~300	~300	~240	~240	~200	~200	~150	~100	~90
Motor capa. (kW)	1.5	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

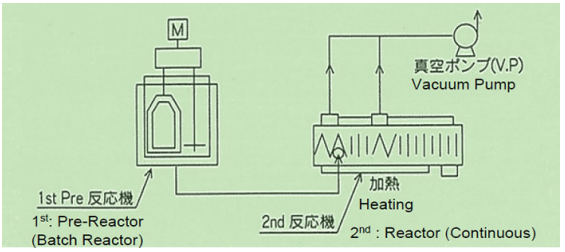
S1 KRC Kneader/Reactor is ideal for R&D

Sample Flow

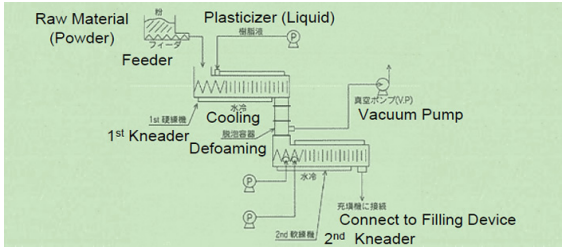
Reaction / Monomer Removal



Reaction / Batch Reactor + Continuous Reactor

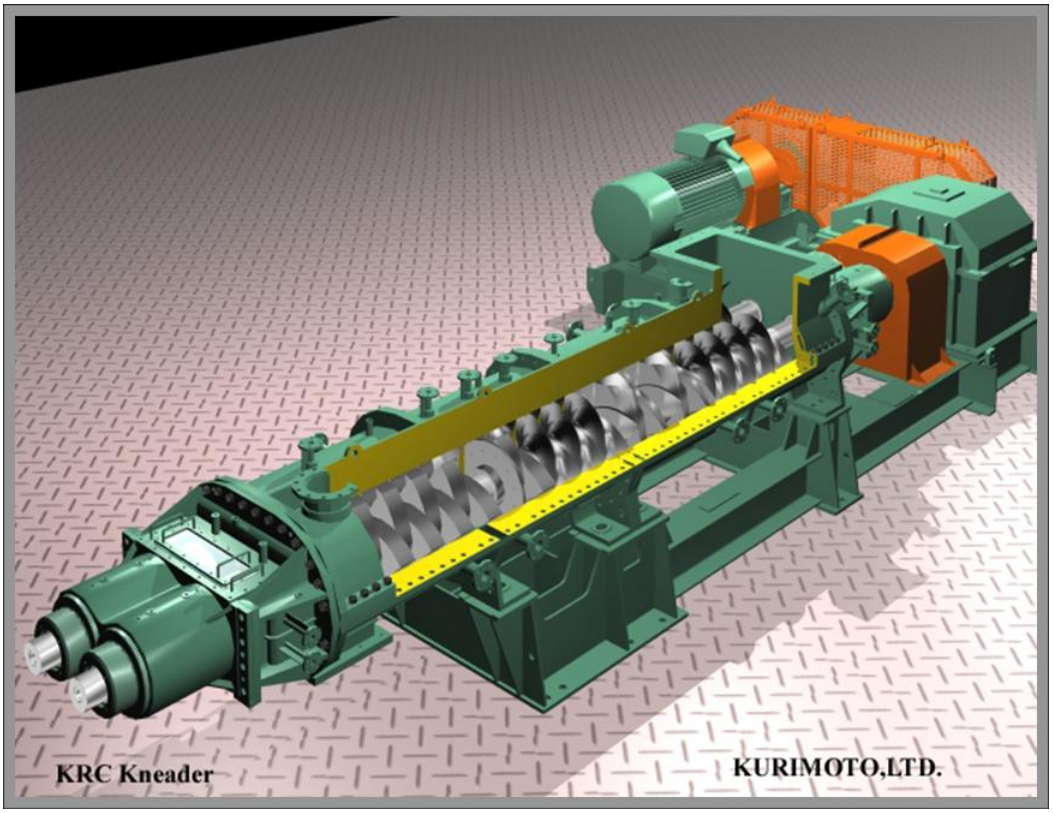


Kneading / Sealant Material



Others

Image of KRC Kneader



Example of Industrial Scale

PDF for printing

Keyword Applicable processes: Kneading, Reaction, polymerization, Continuous, Compound, Cooling, Crystal solidification, Dissolvent, Demonomer, Heating, Melting, Dispersion, Mixing

Keyword Applicable industries: Chemical, Plastics, Electrical Material, Battery Material, Pharmaceutics, Food, Lithium-ion battery, Engineering Plastics, Resin, Aramids, Polyacetal, POM.

Division for this page: Plant Engineering and Machinery Division