

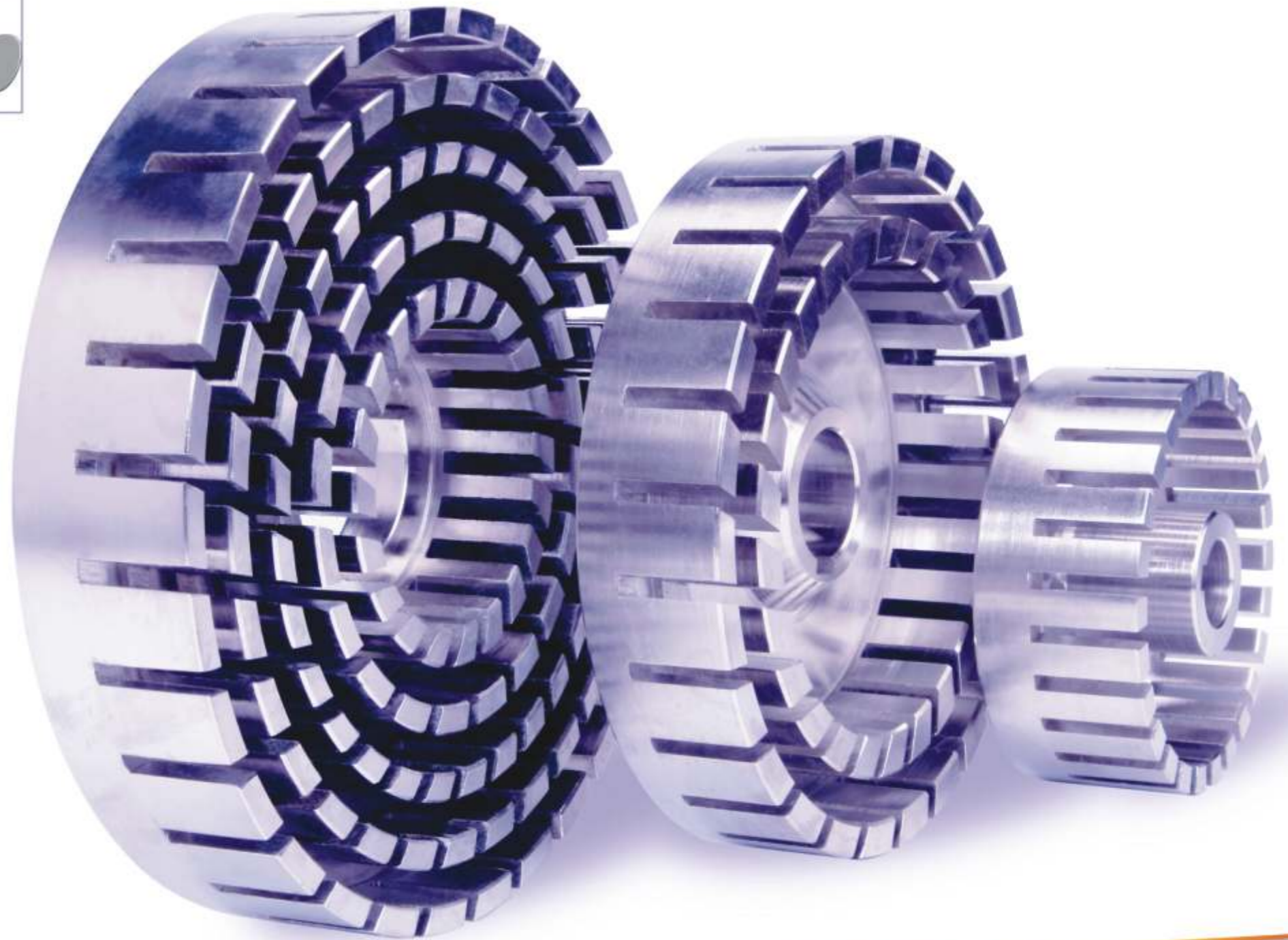
Fine Fluko

Fine Fluko

Dispersing - Emulsifying - Homogenizing - Mixing



Find more model selection information on professional catalogue ...



FLUKO.

FLUKO Equipment Shanghai Co.,Ltd.

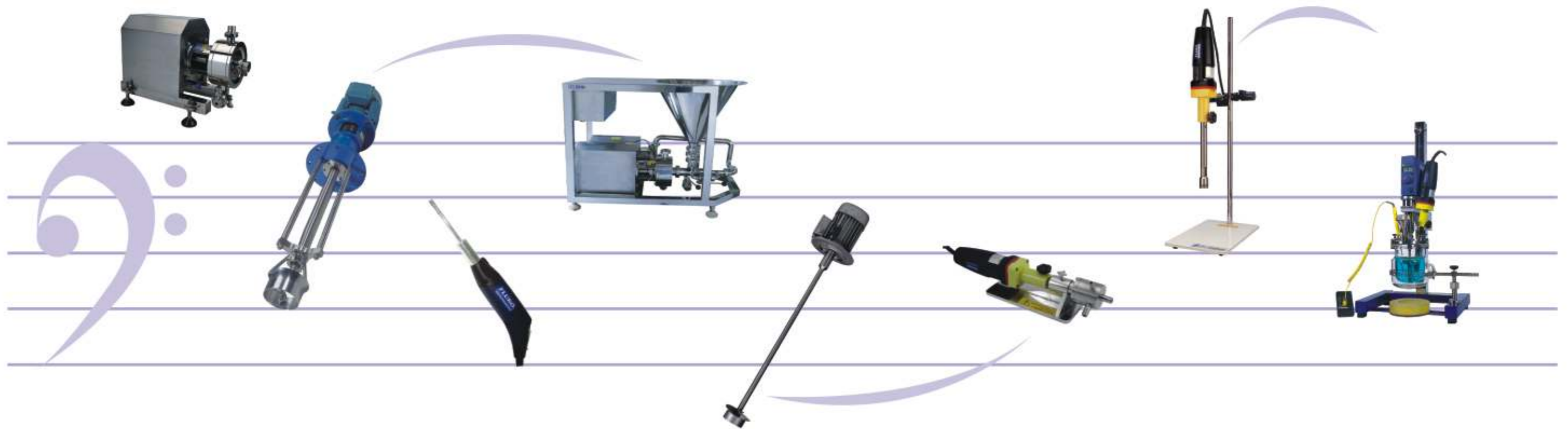
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FLUKO.

Comprehensive solution — from laboratory experiment to industrial production



- **Hishear.** High-shear dispersing emulsifier: Strong shear working head makes dispersing and emulsifying thoroughly.
- **Jetmixers.** Mixer: Perfect vertical jet flow makes efficient mixing.
- **PLM.** Powder /liquid Mixing system: High speed rotation of rotor brings strong vacuum in the working chamber, then powder is sucked in immediately and mixed evenly with the flowing liquid.
- **Fisco.** Reactor: Flexible modular combination can realize different function, which provides you individual solution to your laboratory test.
- **Eumix.** Mixer: Various agitators provided for interchangeable use, so as to meet your various technical requirements maximally.

Solution

Precise

Choose precision, show profession

The choice we made in each step determines whether we can succeed. FLUKO choose the principle of creating value for our client. So we assess carefully each order we get, not only to keep our reputation but also to make sure our client approve the value we created for them by our careful design.

With our profession in manufacture, strictness in management and honesty in working, FLUKO has become one of the world leaders in our field.

We provide comprehensive solution to your all demand for lab testing and production. This year, we established a new customer service center, which is specially provide for customer to do experiment, our professional engineer will guide you to select the right equipment for production by analyzing the result of experiment.

FLUKO's high shear dispersing and emulsifying equipment has been widely applied in a variety of high-tech industries, including space industry, aviation industry, biological engineering, pharmaceutical industry, food industry, new material, new resource and nano-technology.



take care each step of quality control
uality

Excellent quality and perfect service are the goals FLUKO persistently pursues. Our understanding of quality is not just confined to the product but also the commitment to our customers, the consistent service we provided and the use value, appearance and performance of the product. For instance, for each set of machine you purchased, we will put a card in the package, showing you how to install the machine correctly, as well as tips for useage.

FLUKO's commitment to high quality can be seen in every aspect from compact and reliable design, perfect technology, globally sourced assembly parts to satisfying after-sale services.

In 2006, FLUKO has passed the ISO 9001 quality system management authentication issued by the authoritative international organization---Germany TUV. More products inspected to meet international standard, some products also get CE certificate.



seize each inspiration of innovation
nnovation

Successful innovation can predict market. This prediction ability is acquired from thorough research of market and technology. So innovation revolution is badly needed under the situation that traditional products have reached their limits and the costs are mounting.

Experts in FLUKO have made the dream come true by inventing high shear dispersing emulsifier for mixing purpose; superfine dispersing machine with high linear velocity for fine dispersing purpose and PLM powder/liquid dispersing and mixing system for automatic and high efficiency purpose. Investment is our focus, and low cost will make our clients more competitive in the market.

Credibility:



Smiling services **ervice**

Familiar clients or new customers who want to know FLUKO products, FLUKO sales staff will offer equally heart warming services, professional solutions and technical support. Our goal is to provide our clients with the best and most effective solutions at any time, under any circumstances.

Our after-sales service staff will propose the best resolutions within the shortest time upon receiving your first call.



Value experience **anagement**

Successful experience ensures reliable model selection for customers, FLUKO owns the powerful database accumulated by over ten year's experience, which is the strong basis for supporting our customer to make right solution in practical.



all for higher value **alue**

FLUKO people have great passion to learn. We let our members share the responsibility and enjoyment of every success we made together. "fine fluko" is our basic business ethic, which is also pointing the way to our successful cooperation with our partners and customers.



More homogeneous, more exquisite, more stable

Hishear® High Shear Dispersing Emulsifier

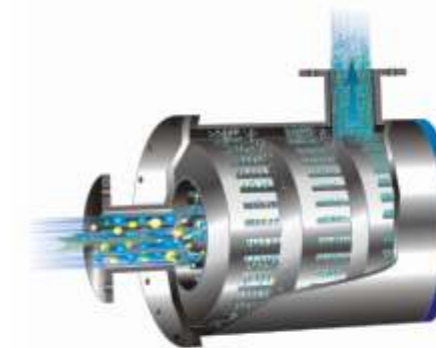
Stator and rotor is specially structured, during operation, high speed rotation of rotor generates strong high shear force, by which force, the particle diameter in the material is rapidly cut and reduced, then evenly distributed. With this process, emulsification is more stable, dispersing is also more even. FLUKO can provide you with a series of equipments from small, medium to large types applied in both lab testing and manufacturing, which totally meet your different installation conditions and non-standard equipments requirements.

Maximal capacity: 20m³/batch (for batch type)
Maximal flow rate: 200m³/h (for inline type)



Working Principle:

High Shear Dispersing and Homogenizing can be seen as the process in which two or several phases are mixed efficiently together under intense external forces, whereas under normal conditions they are not miscible. The high speed rotation of the rotor sucks materials into the narrow gap between the stator and rotor, where they are subjected to intense mechanical and hydraulic shear. Materials, as well as the proper additive agents are rapidly mixed, dispersed, emulsified and homogenized also with the function of mature technology, resulting in efficient particle size reduction and uniform, constant final products.



Superiority of inline processing:

- High capacity, ideal for continuous-duty production-scale operation
- Almost uniform particle size, high uniformity.
- Highly efficient, saving energy and dramatically cuts your process time.
- Low noise and smooth operation.
- Effectively eliminate the quality variation between different batches of products.
- No dead corner, materials are 100% sheared and dispersed.
- Short-distance and low-lift material transmission. Easy for operation and maintenance
- Actualize automatic control.

Hishear

Perfect vertical mixing ...

Jetmixers®

Driven by the high speed rotation of the propeller rotor and the draft tube stator together, a flow of liquid stream comes into being the vertical axial circulation, which raises the efficiency of mixing greatly. For your different requirements in processing, there are two types of agitators with the different function of shearing force and nonshearing force for your option. FLUKO Jetmixer series is flexible designed to meet different sizes of your container.

Maximal capacity: 50m³/ batch

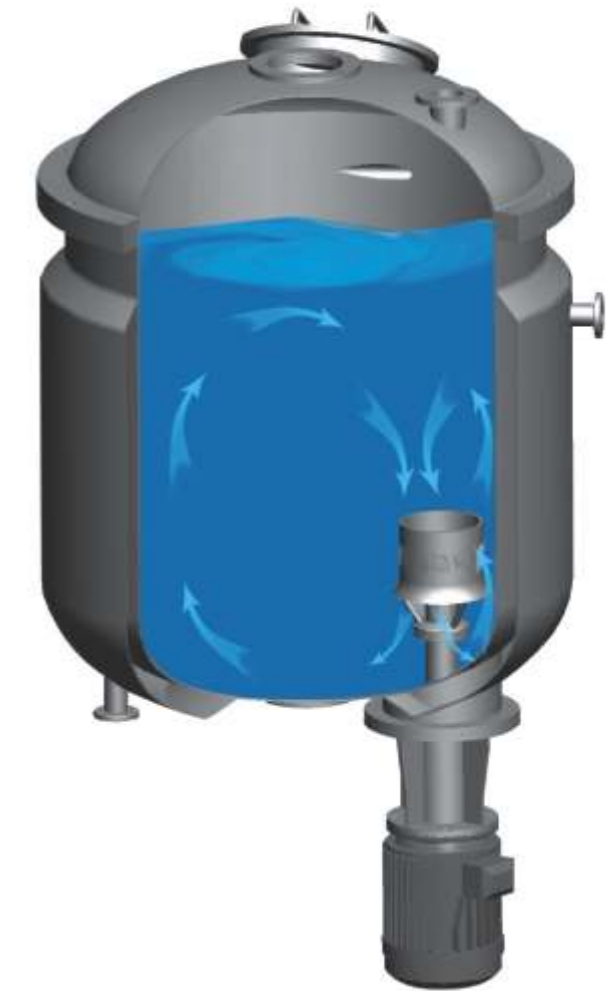
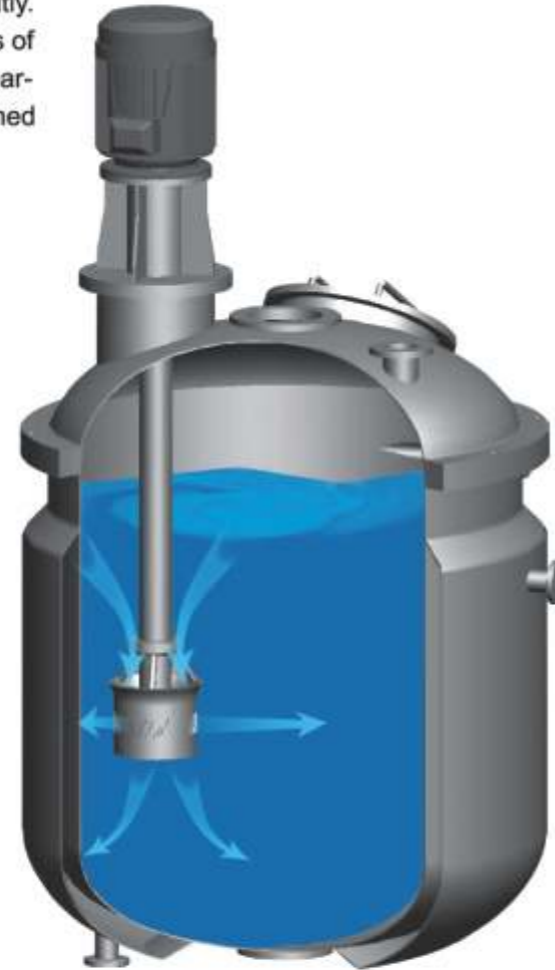
Working Principle:

Driven by the high speed rotation of the propeller rotor and supported by the draft tube stator together, the flowing material comes into being the vertical axial circulating stream, which brings all material circulating in the container. The first step of macromixing is achieved. Moreover, the high-speed rotating rotor can also generate a certain shear force, by which function, the liquid flow comes into being the turbulent flow and dispersed everywhere in the container. So that all material in the container can be dispersed and mixed thoroughly. The way of mixing is totally different from traditional ways.



Features:

1. Vertical dispersing & mixing
2. Little air penetration
3. Vortex-free in the flowing liquid stream
4. No sedimentation in the bottom of container.
5. High shear force, minimize the particle size and accelerate reaction. (FJ-X type)
6. High efficient mixing and emulsifying, easier for suspension production.
7. Can be either mounted in pressure container for operation, or installed with work stand.
8. Suitable for high-efficient dosing, liquid-liquid dispersing, powder-liquid dispersing, oversaturated dissolving.



Dust disappear . . .

PLM[®] (Powder & Liquid Mixing) System

PLM (Powder & Liquid Mixing System) is designed for optimally mixing and emulsifying powder with liquid in the shortest time with high efficiency. High speed rotation of the rotors brings vacuum in working chamber, by which force powder is quickly sucked in and evenly mixed with the flowing liquid stream, no agglomerate exists. Via high shear force of stator-rotor structure inside working chamber, liquid and powder is fully mixed and evenly distributed. The PLM System is specially featured by high capacity processing, high efficient mixing, dustless operation and no lumping in the interior wall of the container or pipe.

Maximal powder-suction capacity: 200kg/min

Maximal flow rate: 100 m³/h

Working Principle:

PD-X (PLM)

With the special-designed rotor rotating at high speed, vacuum forms in the center of the rotor, by which force powder is instantly sucked into the working chamber and mixed evenly with the flowing liquid stream. So the powder in the flowing liquid is completely moistened and no agglomeration left. As the powder is thoroughly moistened within the liquid at first step, no dry powder left, therefore, no skinning or lumping, which is always the headache of traditional way, formed on the liquid surface, stirring shaft or the interior wall of the container. It can be therefore seen from the above that PLM system will greatly enhance the product quality. The application of the PLM will reduce the dust effectively since the vacuum is generated by liquid, all powder is thoroughly led into the liquid, which implies the no need for installing environment-friendly auxiliary facilities required by the traditional processing technology.

PD-V (PLM)

Jet flow generates vacuum, by which force powder is evenly sucked into the pipeline, then completely dispersed into the liquid through high shear and dispersing without any agglomeration. This equipment is very suitable for dispersing large quantities of powder inline.



Correct model selection:

Before selecting the right model of PLM series, the characteristics of powder and powder-suction speed need to be evaluated at first.

Besides, PLM System also places requirements on the temperature and viscosity of the material.

In the model selection table for industrial-scale equipments, the capacity is indicated with H₂O as the reference. However, in practical, the capacity calculation usually depends on many factors such as material's viscosity, specific gravity, solid content and thixotropy, etc. As the viscosity and thixotropy prove hard to be defined, so it is usually very hard to determine the optimal capacity in the actual production, Therefore, a good technical communication with the FLUKO engineers is a necessity. Based on our powerful data and rich experience, we can come up with a solution for selecting model most approaching your operation condition.

PLM

Complex condition, easy dealing

Fisco® Reactor

Fisco is a perfect all-in-one dispersing & mixing system. It integrate mixing, homogenizing, heating and vacuum supply function modules into one set of system, which is ideally applied in cream production, chemical synthesis and high viscosity materials mixing. There are small and big types available for experiment and production use.

Capacity: 1L-5000L

Brief introduction:

Fisco vacuum homogenizer series is an integrated set of reaction system for homogenizing and emulsifying on vacuum operation. It is equipped with highly efficient macro mixer, high shear homogenizer and reliable vacuum sealing system and temperature control system.

The mixer is made on computer simulation. On operation, the mixer can continuously produce new interfaces for the material to be processed, and have a series of functions on material such as shearing, compression and folding, so that the material can be fed into the high shear homogenizer without intermission.

High shear homogenizer is a professional homogenizing emulsifier developed professionally by FLUKO. The exquisitely designed high-speed stator & rotor is capable of generating powerful shearing, impacting and turbulent flow, which makes for high homogenization and thinning efficiency.

The combined use of micro mixer and high shear homogenizer brings satisfactory solutions to homogenizing and emulsifying the materials of high viscosity and makes the products enjoy the unprecedented fineness.

Features:

By adopting German homogenization & emulsification technology and scheme, the reactor is designed specially for products homogenizing and fining. The stirring mixer can be interchanged with scraper or spiral agitators flexibly, easily to process high viscous material (1-300000cp)

Real-time monitor/ control unit can facilitate your control of parameters such as temperature, pressure and PH value.

Exquisitely designed component, applicable to CIP/SIP control and be consistent with international sanitation standard and specification.



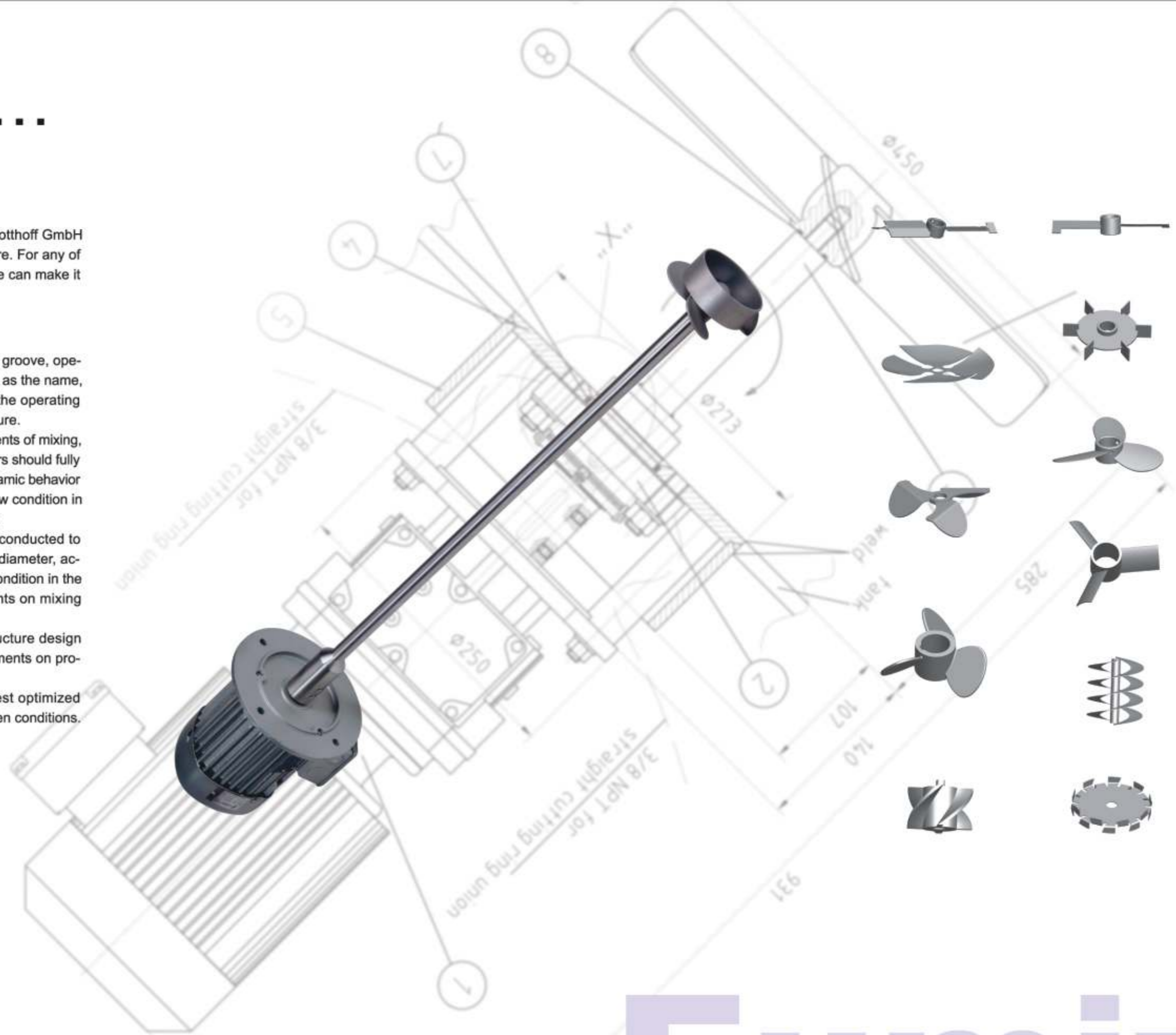
High performance . . .

Eumix® Stirrer

Original German stirrer is provided. German Fluid Kotthoff GmbH company has a fifty-year history of stirrer manufacture. For any of your individual requirements in design or function, we can make it for you.

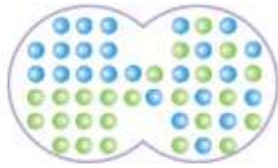
Correct model selection:

1. Specify the shape and size of the mixing tank and groove, operating condition and the related requirements, as well as the name, density, viscosity and components of material, and the operating conditions such as operating temperature and pressure.
 2. According to the technology, purpose and requirements of mixing, select the suitable type of mixer. In selecting, customers should fully take into account the following factors specified as dynamic behavior of the mixer, the cause-effect relation between the flow condition in the mixing process and the various mixing purposes.
 3. Experiments and computer simulation should be conducted to determine motor power, mixing rate and the mixer's diameter, according to the mixer type selected, material flowing condition in the mixing process, as well as the technical requirements on mixing time, settling velocity and dispersing result.
 4. Determine the special surface treatment and structure design of the equipment according to the sanitation requirements on production.
- The Engineers at FLUKO will provide to you the best optimized design scheme for mixer in accordance with your given conditions.



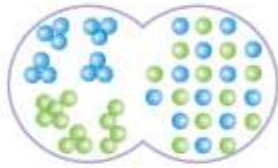
More information:

Mixing



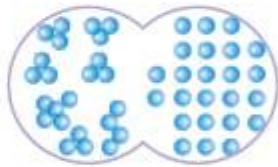
syrup, shampoo, detergent, juice concentrates, yogurt, desserts, mixed milk products, printing ink and ceramic glaze

Dispermixing



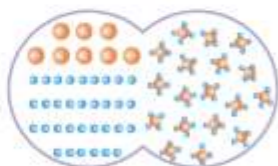
methylcellulose dissolution, adhesive plastid dissolution, carbide dissolution, oil-water emulsification, premixing, seasoning production, stabilizer dissolution, smoke and dust, salt, alumina, agricultural pesticide

Dispersing



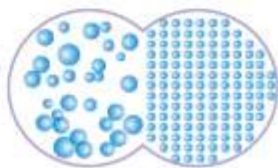
suspension, pill coating, drug depolymerization, paints dispersion, lipsticks, vegetable hoosh, mustard mixture, catalyst, flatting agent, metals, paints, modified asphalt, production and depolymerization of nano-materials

Emulsifying



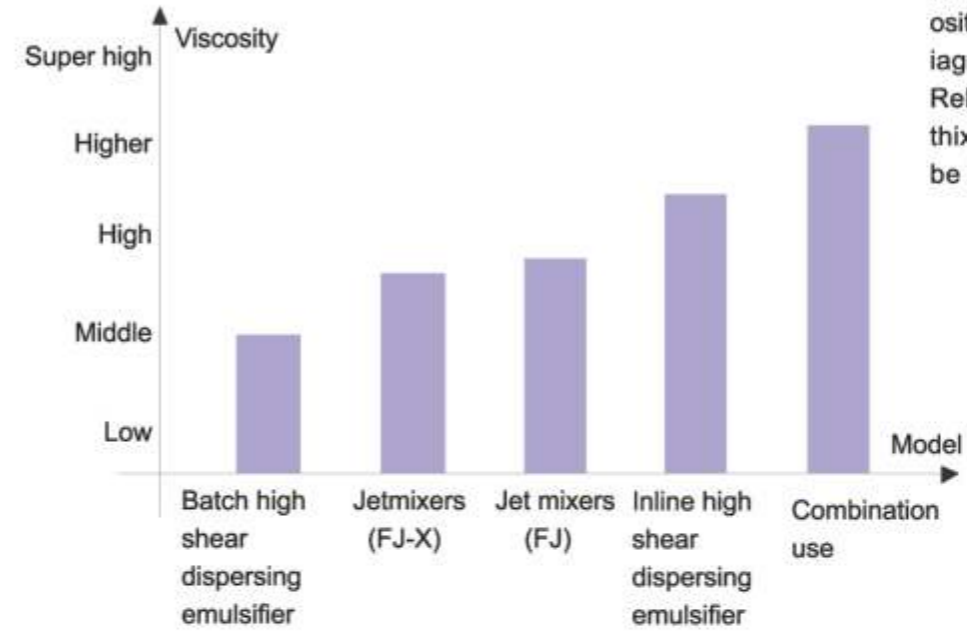
drug emulsion, ointment, cold cream, face-pack, facial cream, emulsified essence, oil-water emulsification, emulsified asphalt, resinification, wax emulsification, waterborne polyurethane emulsification, agricultural pesticide

Homogenizing



drug emulsion, ointment, cold cream, face-pack, facial cream, homogenates, milk product homogenization, juice, printing ink, confiture

Viscosity range applied by the equipment

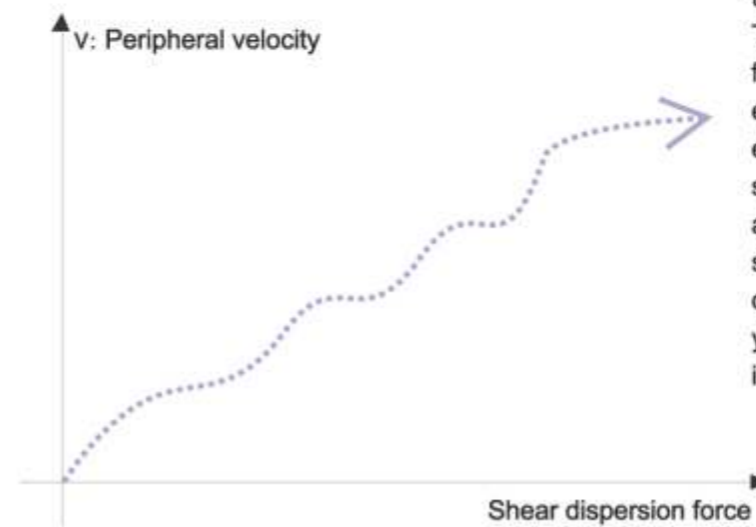


Note: Since measuring methods of viscosity varies in different industries, the diagram on the left is only for reference. Relative factors such as solid content, thixotropy and fluidity of material shall be taken into account in practical.

Relationship between peripheral speed and shear dispersion force

$$V = \pi \cdot d \cdot n / 60$$

V: peripheral velocity
 π : 3.141...
 d: diameter of rotor
 n: rotation speed



The result of dispersing and emulsifying, to a great extent, depend on the rate at which the material is transmitted to the shearing zone and the mechanical energy functioned on the material. The rate determines the processing time needed for dispersing & emulsifying, while mechanical energy determines the effect of dispersing & emulsifying. When rotor rotates at very high speed, the most effective shear force occurs at the edge of rotor, so that liner velocity is considered as the main factor in industrial-scale equipment selection. FLUKO engineer suggest you to do experiment first before purchasing industrial equipments.

Model selection is very important

Correct model selection:

If you are prepared to develop a new product, it is very important to obtain the correct data in the lab testing first, since it can avoid the wrong selection of the equipment for practical manufacture effectively and reduce the risk of production and investment.

The data obtained from the experiments are the key to the right model selection. The result of dispersing and emulsifying, to a great extent, depend on the rate at which the material is transmitted to the shearing zone and the mechanical energy functioned on the material. As for there are many data influenced the equipment selection, only the peripheral velocity of the rotor can be measured. In accordance with the rotation speed when the material is in ideal condition, calculate the linear velocity and select the equipment from an appropriate range of industrial-scale models.

The next question is how to determine the exact working capacity. In the model selection table for industrial-scale equipments, the capacity is indicated with H₂O as the reference. However, in practice, the capacity calculation usually depends on many factors such as material's viscosity, specific gravity, solid content and thixotropy, etc. As the viscosity and thixotropy prove hard to be defined, which accounts for the difficulty in determining the optimal capacity in the actual production, Therefore, a good technical communication with the FLUKO engineers is a necessity. Based on our powerful data and rich experience, we can come up with a solution for selecting model most approaching your operation condition.

Key points for selection:

Specify the desired result and confirm the relevant technology to be adopted.

Select the correct model on the basis of the data derived from lab testing.

List the foreseeable operating conditions first, e.g. inflammable, explosive, vacuum, corrosion proof and high temperature proof condition. In these conditions, make sure that the equipment selected meet these conditions and processing requirements.

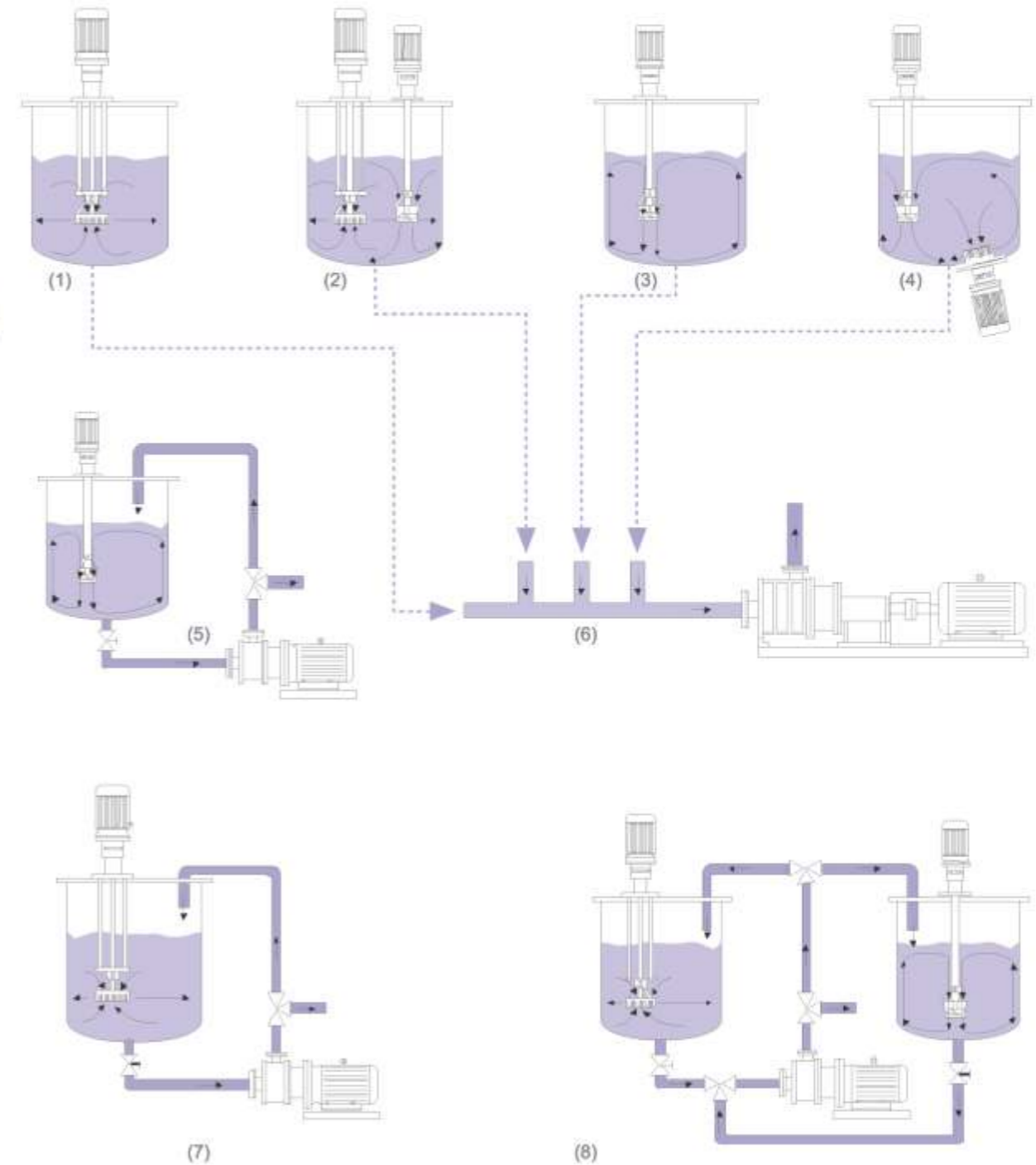
Determine the special requirements on surface treatment and structure design of the equipment according to the sanitation requirements on production.

It is advisable to be reserved in model selection in the event of too many unforeseeable factors and complex manufacturing technology.



Combining use makes optimal result

For different process requirements applied in various industries, FLUKO engineers have rich experience and will design the most suitable solution for your individual demand. Here following please see the common process and our recommended combining system.





MONSANTO



syngenta



Firmenich

SINOPEC

LG



GEA



Nestlé

DANISCO

Givaudan^o



Johnson & Johnson
强生



degussa.

VIP

