

NETZSCH

Proven Excellence.

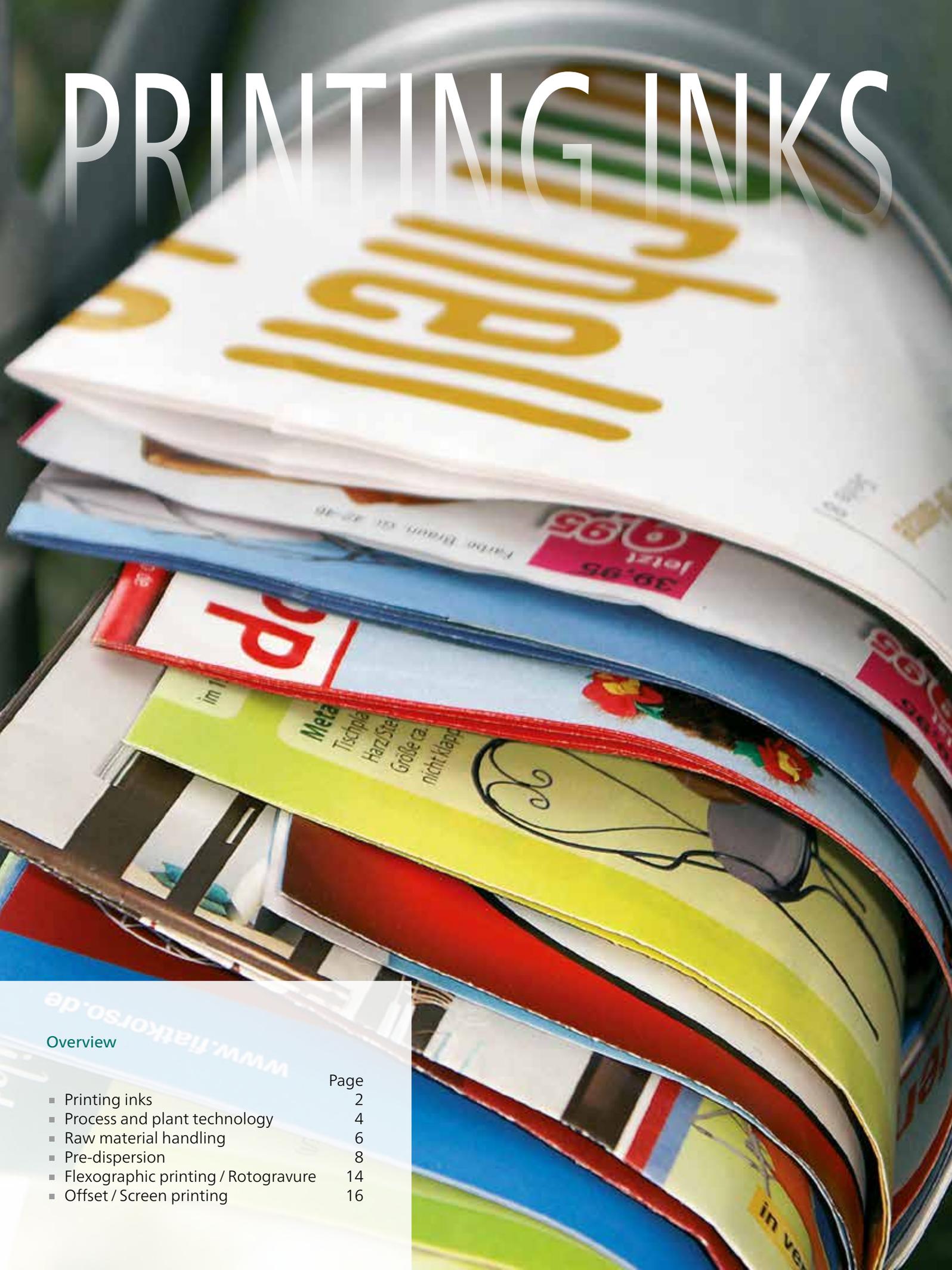


Process Technology for Printing Inks

We Color your Life!

CHEMICAL INDUSTRY | a Business Field of
NETZSCH Grinding & Dispersing

PRINTING INKS



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Always an idea ahead for you ...

Various requirements are imposed in the production of printing inks, such as color intensity, transparency and gloss, chemical and mechanical resistance, as well as properties related to production technology, which are necessary for further processing with respect to bending or deformation.

That is why you, as a printing ink manufacturer, demand efficient grinding and dispersing plants in order to guarantee that your products are of reproducible, consistently high quality for the consumer.

Savings on the raw materials side on the one hand, and the increase in productivity that accompanies a fully-automated plant design on the other hand, offer great potential for long-term market success with consistent quality.

Proven Excellence.■



RAW MATERIALS HANDLING

For Wet and Dry Materials



The dosing of raw materials is selected as a function of continuous or discontinuous process control. In general, a distinction is made between transport systems for wet and dry material. Intelligently-designed feed systems can be tailored to a number of machines and plants.

Many references demonstrate our know-how and capability for the design and implementation of feed systems.



PREDISPERSION

of the pigments into a binder solution



MASTERMIX® Dissolver

MASTERMIX® Dissolver is used for the dispersion of solids in liquids. The mixing process takes place in batches in an interchangeable tank. The speed of the high-speed dispersion disk is infinitely adjustable via a mechanical V-belt drive, hydraulically or via a frequency-controlled drive.

PMD-VC Intensive Mixer

The PMD-VC Intensive Mixers are stationary mixing and dispersing units for the processing of large batches. Separation of the mixing and dispersion functions provides for an extremely energy-efficient process that is especially useful for batches larger than 2,000 l. The compact and closed design of the Intensive Mixer facilitates integration into fully-automated plant designs and prevents exposure to gases and dust.



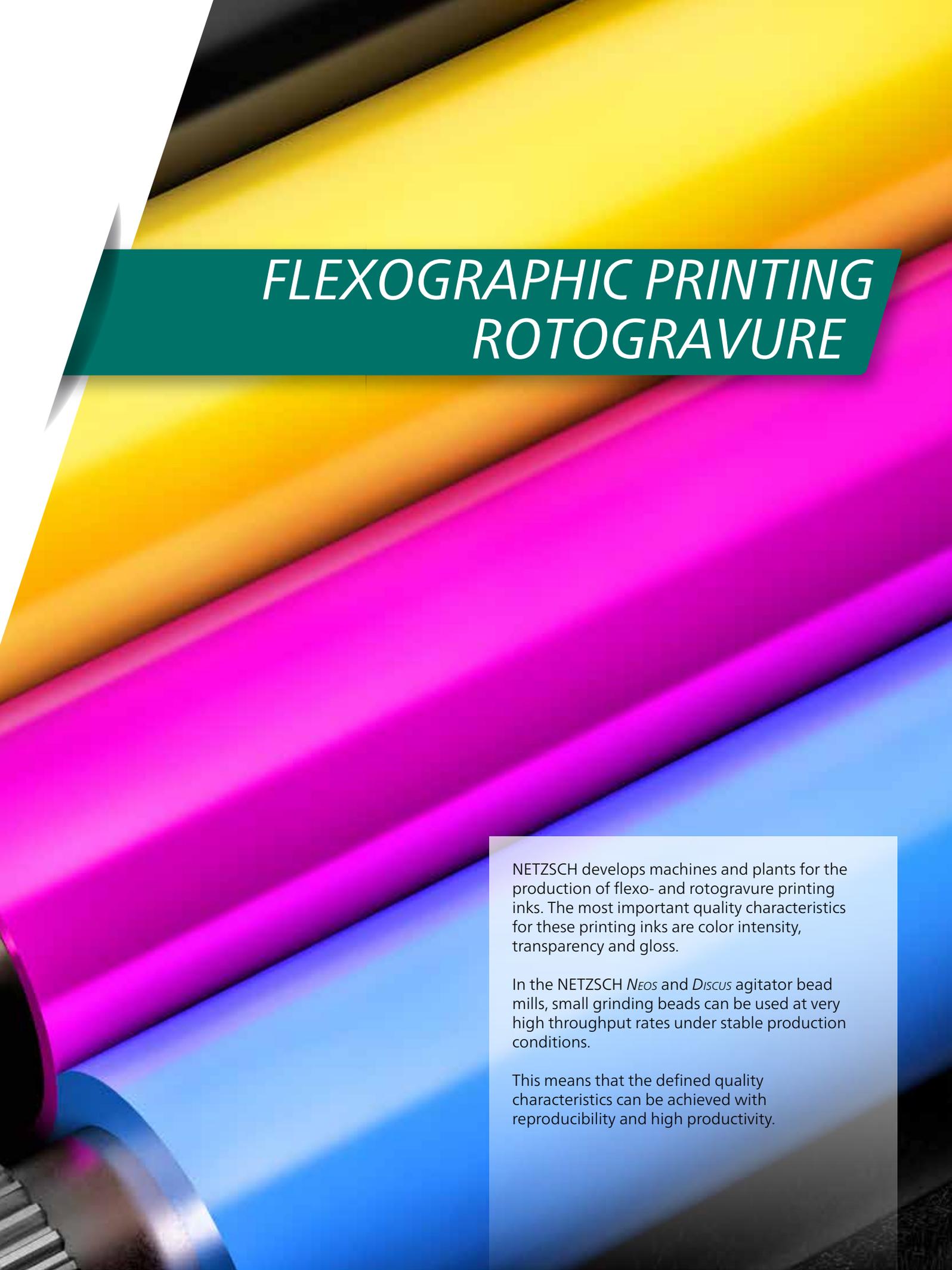
EPSILON Inline-Dispergierer

The *EPSILON* Inline Disperser is used in circulation mode, where the powder can be fed from a sack via suction lance, or from a sack feed station, or alternatively, BigBag or silo. The Epsilon operates similarly to a feed pump – with optimal flow control, an underpressure is created in the processing chamber during operation. This underpressure is used for powder induction, whereby, when combined with a suitable powder feed system, the intake of external air is minimized.



Ψ-Mix® Inline Disperser

The *Ψ-Mix*® Inline Disperser combines a new dispersion method, whereby the solid components are wetted on a large liquid surface, with emission and dust-free inline operation. With high productivity within a controlled process, the combination of vacuum dispersion, shearing and pressure wetting results in homogeneous, fine dispersions with very reproducible quality.



FLEXOGRAPHIC PRINTING ROTOGRAVURE

NETZSCH develops machines and plants for the production of flexo- and rotogravure printing inks. The most important quality characteristics for these printing inks are color intensity, transparency and gloss.

In the NETZSCH *NEOS* and *DISCUS* agitator bead mills, small grinding beads can be used at very high throughput rates under stable production conditions.

This means that the defined quality characteristics can be achieved with reproducibility and high productivity.

RAW MATERIAL
HANDLING
OF WET AND DRY
MATERIAL

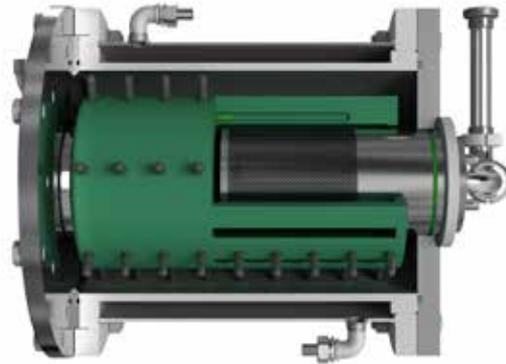
PREDISPERSION

FINE GRINDING

The *NEOS* Grinding System

The agitator cooling with the newly-developed *NEOS* grinding system stands for maximum performance, product quality and efficiency. Coupled with the reliable use of extremely small grinding beads, the required product quality can be achieved with lower specific energy consumption.

The grinding tank, agitator shaft and product outlet are designed for cooling and thus prevent overheating of the product despite extremely high power inputs. This guarantees a significant increase in production output.



The *DISCUS* Grinding System

The *DISCUS* Grinding System is the quantum leap in disk grinding technology.

With the combination of the further-optimized *DISCUS* disk agitator and the NETZSCH *DCC*® separator system, you are guaranteed the highest throughput rates with considerably narrower residence time distribution and thus more intensive grinding with consistent stress intensity. The power input of the mill is significantly increased, with a simultaneous increase in energy efficiency. The *DISCUS* grinding system activates and optimizes the movement of the grinding media between the disks, which leads to a higher power draw and grinding efficiency with low specific energy consumption. Thus, you benefit from a significant reduction in production costs, since the specific energy consumption decreases with increasing productivity.







Successfully implemented System Concept for Flexo Printing Inks

From site preparation through to commissioning and final plant inspection – NETZSCH delivered a true turnkey solution. An essential part of the project was the design and construction of the new PMD batch mixer for the production of NC whites without a milling phase and use of the upgraded ZETA® horizontal circulation mill as well as the revolutionary Ψ -MIX® inline disperser.

All products manufactured are either shipped directly to the end user or held in stock, ready to be bottled with one of the largest dispensing systems in Europe, provided by INKMAKER of Italy and installed by NETZSCH.

Mezzanine steelwork and big-bag lifting gantries; hoists and cruciforms, Big-Bag and Small-Bag discharge units, process valve instrumentation, process pipe work with lagging, the complex electrical installation, product filters, transfer pumps, dust extraction system, fume extraction system, compressed air system, chilled water and heating system and many hundreds of smaller items had to be integrated.

The revolutionary cleaning system allowed Sakata Inx to install 3 color-graded lines which included the Ψ -MIX®, mixing vessel, ZETA® agitator bead mill, let down and adjustment vessel and pallet filling equipment.

The cleaning system, which is a combination of cleaning heads and surface mounted nozzles, requires only 100 l - 2,500 l of cleaning fluid (some reusable for future batches) to clean the whole line so that it is ready for the next color.

Machines	Production Output [kg/h]	Batch [kg]	Dispersion Time [h]
NEOS 20	220	1 000	4:30
NEOS 10	135	500	3:40

Test your products with us in our pilot plant.



OFFSET / SCREEN PRINTING

NETZSCH develops machines and plants for the manufacture of offset and screen-printing inks.

The most important quality characteristics for these printing inks are color intensity, transparency and gloss.

When using the *TETRA*NEX® disks with the *DISCUS* grinding system, a production output of at least 30% is achieved while, at the same time, reducing the specific energy consumption compared to the previous disk geometry.

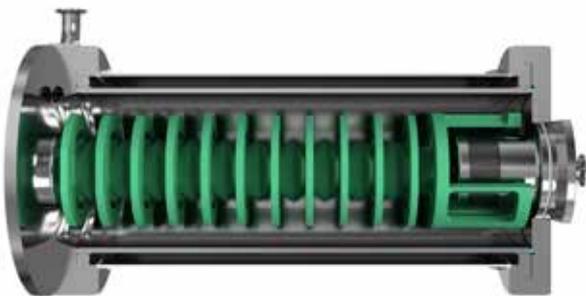
This means that the defined quality characteristics can be achieved with reproducibility and high productivity.



The *DISCUS* Grinding System

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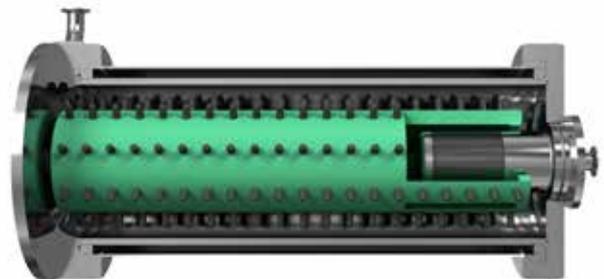
With the combination of the further-optimized *DISCUS* disk agitator and the NETZSCH *DCC*[®] separator system, you are guaranteed the highest throughput rates with considerably narrower residence time distribution and thus more intensive grinding with consistent stress intensity. The power input of the mill is significantly increased, with a simultaneous increase in energy efficiency. The *DISCUS* grinding system activates and optimizes the movement of the grinding media between the disks, which leads to a higher power draw and grinding efficiency with low specific energy consumption. Thus, you benefit from a significant reduction in production costs, since the specific energy consumption decreases with increasing productivity.



The *MACRO* Grinding System

The *MACRO* Grinding System represents the systematic advancement of the John Annular Chamber Mill System combined with the centrifugal force separator. The new peg system is designed for high power input in single and multi-pass operation.

The grinding system has an intensive cooling system for the grinding chamber and agitator shaft. This makes the *MACRO* the ideal machine for medium- to high-viscosity products, such as UV systems, at a low processing temperature.



Successfully implemented System Concept for

Offset / Heatset Printing Inks

Turnkey – from site preparation to installation and commissioning, through to final plant inspection – NETZSCH was responsible for every step of the process. An essential part of the project was the design and construction of the PMD batch mixer, the reliable and improved *Discus* horizontal agitator mill and the revolutionary *Ψ-Mix*® inline disperser.

Mezzanine steelwork and big-bag lifting gantries; hoists and cruciforms, Big-Bag and Small-Bag discharge units, process valve instrumentation, process pipe work with lagging, the complex electrical installation, product filters, transfer pumps, dust extraction system, fume extraction system, compressed air system, chilled water and heating system and many hundreds of smaller items had to be integrated.

Material	Machines	Production Output [kg/h]	Batch [kg]	Dispersion Time [h]
Heatset	<i>Ψ-Mix</i> ® + <i>Discus</i> ® 300	1 700	5 000	3:00 Single-pass Mode
UV Offset (yellow)	<i>MACRO</i> ® 20	88	500	5:45 Circulation Mode
Extender	<i>Ψ-Mix</i> ® + <i>Discus</i> ® 300	1 900	10 000	5:15 Single-pass Mode
UV Offset (blue)	<i>MACRO</i> ®20	75	500	6:45 Circulation Mode





The NETZSCH Group is an owner-managed, international technology company with headquarters in Germany. The Business Units Analyzing & Testing, Grinding & Dispersing and Pumps & Systems represent customized solutions at the highest level. More than 3,700 employees in 36 countries and a worldwide sales and service network ensure customer proximity and competent service.

Our performance standards are high. We promise our customers Proven Excellence – exceptional performance in everything we do, proven time and again since 1873.

Proven Excellence. ■

Business Unit Grinding & Dispersing – The World's Leading Grinding Technology

NETZSCH-Feinmahltechnik – Germany
NETZSCH Trockenmahltechnik – Germany
NETZSCH Vakumix – Germany
NETZSCH Lohnmahltechnik – Germany
NETZSCH Mastermix – Great Britain
NETZSCH FRÈRES – France
NETZSCH España – Spain
ECUTEC – Spain

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NETZSCH Tula – Russia
NETZSCH Makine Sanayi ve Ticaret – Turkey
NETZSCH Korea – Korea
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