

110% MIXING SOLUTIONS

A large, vibrant splash of orange liquid dominates the center of the page. Within the circular shape of the splash, a globe is formed, filled with various small, embossed industrial icons such as gears, a factory, a beaker, and a person. The liquid is captured in mid-motion, with droplets and a thick, swirling trail behind it, creating a sense of energy and movement.

Rethink Your Production Process

ystral.com

Ystral®
110% MIXING SOLUTIONS



110% MIXING SOLUTIONS

Our comprehensive knowledge of machine and processing systems and extensive manufacturing experience are the foundations of our custom-tailored solutions. We work with our customers to determine their individual needs and design targeted solutions that provide immediate and quantifiable added value.

We approach our work with passion and provide a full range of support for every step in your processes.



Whether your company is in the chemical industry, paint and lacquers, pharmaceuticals, the cosmetic industry or the food industry – at ystral, you'll find the optimal solution for your specific application, from laboratory scale up to production equipment.

As a medium-sized, owner-managed enterprise with subsidiaries in China, India and Singapore, along with numerous representatives world-wide, we are well positioned to meet any future demands.

Rethink your production process with ystral. Get in touch with us!



mixing powder wetting inline dispersing homogenising dispersing wet grinding stirring jetstream mixing emulsifying

Application Areas



CHEMISTRY

Adhesives
 Agrochemicals
 Anti-foams
 Battery gels
 Catalysts
 Concrete additives
 Enzyme solutions
 Fiber, foil and films
 Floor coatings
 Foams
 Home Care
 Mineral oils
 Paper coatings
 PVA-solutions
 Sealants
 Seed coatings
 Synthetics
 etc.



PAINT AND LACQUERS

Automotive OEM and
 refinish paints
 Coil and container coatings
 Decorative paints
 Floor Coatings
 Industrial coatings
 Marking paints
 Printing inks
 Wood protection lacquers
 and glazes
 etc.



COSMETICS

Creams
 Deodorants
 Fragrances
 Gels
 Hair lacquers
 Hand-washing paste
 Lip Stick mass
 Lotions
 Nail varnish
 Natural cosmetics
 Perfume and flavouring
 Pigment pastes
 Soaps
 Shampoo
 Sun protection
 Toothpaste and tooth gel
 etc.



FOOD

Aromas
 Baby food
 Chocolate masses
 Dips
 Drinks
 Fats
 Honey
 Ice cream pre-mix
 Margarine
 Marmalades and jams
 Milk products
 Mustard
 Parfait
 Sauces and dressings
 Soft drinks
 Starch solutions
 etc.



PHARMA

Active agent coatings
 Cough syrup
 Enterale food
 Gels
 Juices
 Ointments
 Vaccines
 etc.



BATTERY CELLS

Cathode slurries
 Anode slurries
 Intermediates
 (CMC, PVDF, C Paste)
 etc.

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ystral: About Us

Over 50 years of success!

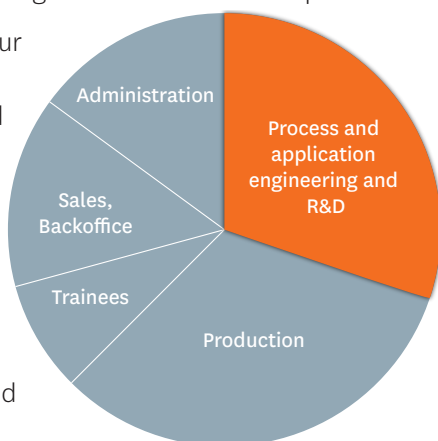
Our success is founded on our knowledge, our experience – and our passion for our work and our customers.

At ystral, our know-how is the basis of our solutions. Here, knowledge-sharing is encouraged and supported throughout the company. Our process and application engineers continually participate in a long-term training and education process to ensure their success in bringing their knowledge to the market. As a result, they are some of the most qualified specialists in their field, recognized world-wide as experts.

The large percentage of our employees working in engineering, process- and application engineering clearly shows ystral's focus and core competencies.

Our experts confer regarding the task at hand, discuss general fluid mechanics factors and exchange knowledge, all while keeping an eye on the details.

The targeted solutions they then develop fully deserve the claim: "110% MIXING SOLUTIONS".



Our employees – the minds behind "110% MIXING SOLUTIONS"



Management Team: Karl Prem, Peter Manke and David Manke (from left to right)



YSTRAL Jetstream Mixer

Consistent product quality
during mixing

The predominant mixing principle:

To achieve the consistent quality of a product across a range of applications, effective micro- and macro-mixing is essential. The YSTRAL Jetstream Mixer fulfils every requirement for creating a completely homogeneous mixture in a vessel.

With the YSTRAL Jetstream Mixer, there is no compromise on economy, optimised mixing efficiency, or ease-of-use.

Top advantages at a glance:

- Effective micro- and macro-mixing of the entire contents in the vessel, without air induction
- Vertical mixing ensures complete material exchange throughout all levels
- Applied energy is converted up to 90% in a vertical stream – no rotation of the contents in the vessel
- The directed stream suspends even heavy sediments
- No free running shaft or mixing tools
- No vortex formation, no introduction of air
- Can be installed on the vessel from top, bottom, side or mounted on a moveable lift
- For open vessels, no special fixing devices required



How the YSTRAL Jetstream Mixer Works:

- A fast-rotating rotor produces a vertical flow of liquid inside the stator that is directed to the bottom of the tank/vessel.
- This is divided at the bottom, produces an upward flow along the vessel's wall.
- When it reaches the surface, the liquid stream is again diverted towards the bottom of the vessel.



Technical Data

Power	0.5 – 55 kW
Voltage	230 / 400 V, 50 / 60 Hz, special voltages
Speed	750 / 1,500 min ⁻¹ , 1,500 / 3,000 min ⁻¹ , infinitely variable speed up to 3,600 min ⁻¹ with a frequency converter
Bearing flange	coated aluminium, stainless steel 1.4404 (AISI 316 L)
Submersed parts	stainless steel 1.4404 (AISI 316 L), special materials
Seal	Lip seal, mechanical seal, single or double action depending on operating conditions
Options	explosion-proof execution, certifications, qualifications



YSTRAL Dispermix

One-Step Mixing and Dispersing

Mixing and dispersing – all in just one machine

The YSTRAL Dispermix was designed for applications where mixing alone is not sufficient and additional dispersing is needed. The Dispermix enables intensive mixing of the contents of the vessel in the micro- and macro-range while simultaneously completely dispersing the product. In many cases, this makes additional treatment with a shear ring disperser unnecessary.

The Dispermix provides optimal mixing and dispersing efficiency, along with highest economy and ease of use of the installed mixing tools. It fulfils the highest requirements called for in challenging production processes.

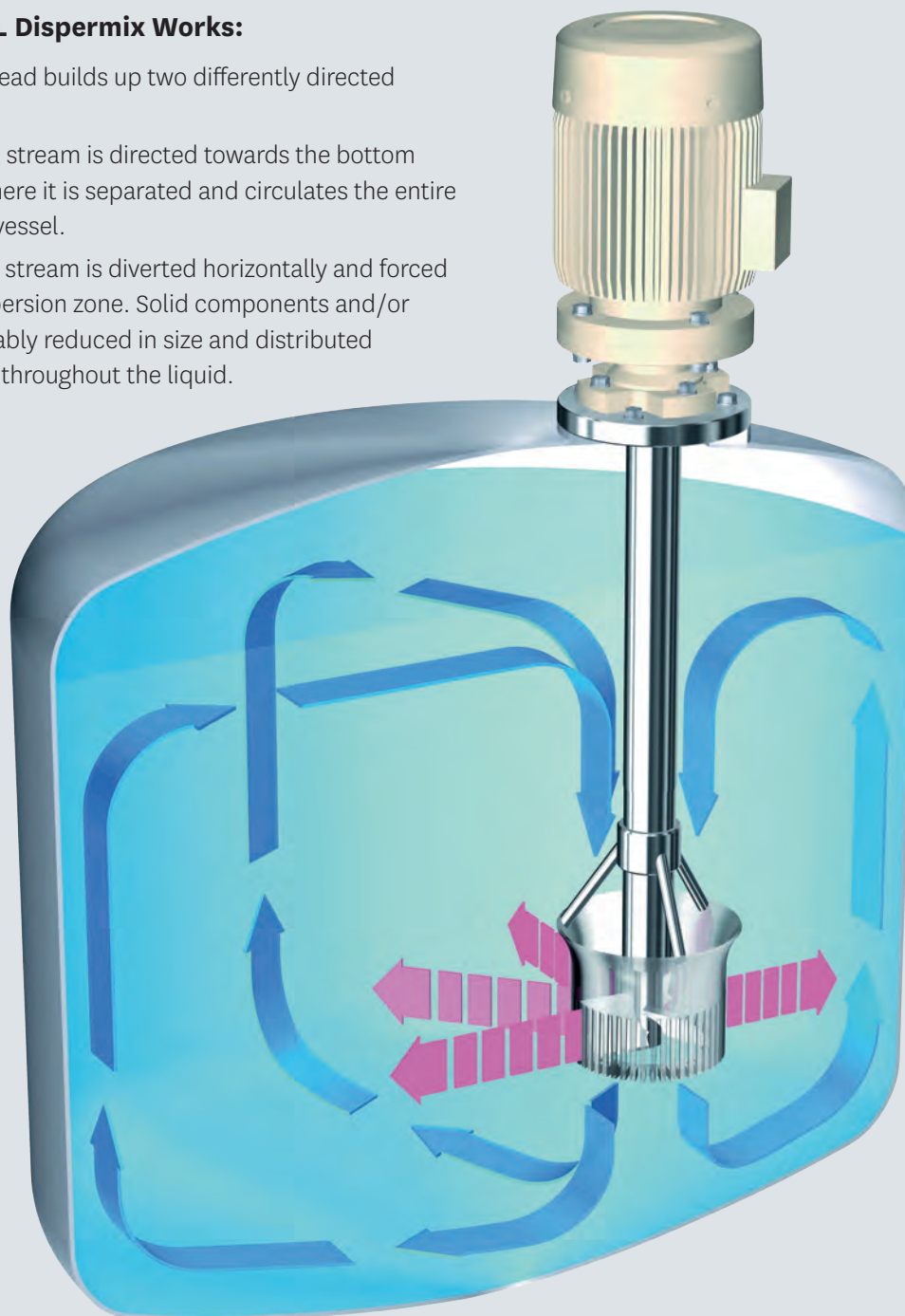
Top advantages at a glance:

- Effective micro- and macro-mixing of the complete contents of the vessel, with no introduction of air
- Simultaneous disintegration of agglomerates, ensuring better wetting
- Even heavy sediments are suspended and dispersed
- Varying slot sizes for easy adaption to the specific application
- No free running shaft or mixing/dispersing tools
- Can be installed on the vessel from top, bottom, side or mounted on a moveable lift



How the YSTRAL Dispermix Works:

- The Dispermix head builds up two differently directed liquid streams.
- A vertical partial stream is directed towards the bottom of the vessel, where it is separated and circulates the entire contents of the vessel.
- A second partial stream is diverted horizontally and forced through the dispersion zone. Solid components and/or droplets are reliably reduced in size and distributed homogeneously throughout the liquid.



Technical Data

Power	0.5 – 55 kW
Voltage	230 / 400 V, 50 / 60 Hz, special voltages
Speed	750 / 1,500 min ⁻¹ , 1,500 / 3,000 min ⁻¹ , infinitely variable speed up to 3,600 min ⁻¹ with a frequency converter
Bearing flange	coated aluminium, stainless steel 1.4404 (AISI 316 L)
Submersed parts	stainless steel 1.4404 (AISI 316 L), special materials
Seal	Lip seal, mechanical seal, single or double action depending on operating conditions
Options	explosion-proof execution, certifications, qualifications



YSTRAL X-Batch Disperser

Rotor-Stator Principle Dispersion

Highest shear gradients

The perfectly balanced interaction of different forces to reduce particle sizes enables the very fine distribution of solids (suspensions) and liquids (emulsions) in a basic liquid.

Highly precise dispersing tools are individually adapted to the specific processing task.

Top advantages at a glance:

- Robust rotor-stator tools with a narrow radial gap provide high shear gradient
- Combination of impact and highly frequent compression and decompression processes enables a powerful dispersing effect
- Solid components and/or droplets are reliably reduced in size and homogeneously distributed
- Different rotor-stator pairings allow adaptation to the specific application
- Batch dispersing directly inside the vessel
- No rotation of the contents – no vortex formation and no introduction of air
- No free running shaft or dispersing tools
- Can be installed on the vessel from top, bottom, side or mounted on a moveable lift



How the YSTRAL X-Batch Disperser Works:

- Robust rotor-stator tools with a narrow radial gap provide a high shear gradient.
- Impact, combined with extremely frequent pressure and decompression processes, produce a powerful dispersing effect.
- Solid components and/or droplets are reliably reduced in size and homogeneously distributed.



Technical Data

Power	1.5 – 55 kW
Voltage	230 / 400 V, 50 Hz, special voltages possible
Speed	1,500 / 3,000 min ⁻¹ , infinitely variable speed up to 3,600 min ⁻¹ with a frequency converter
Bearing flange	coated aluminium, stainless steel 1.4404 (AISI 316 L)
Submersed parts	stainless steel 1.4404 (AISI 316 L), special materials
Seal	Lip seal, mechanical seal, single or double action depending on operating conditions
Peripheral speed	10 – 54 m/s
Options	explosion-proof execution, certifications, qualifications



YSTRAL TDS-Induction Mixer

Dust-Free Operation

Dust-free induction, suspension and dissolution of powders in liquids

YSTRAL TDS-Induction Mixers induct powders, liquids or gases below the level of the liquid while simultaneously homogenising the entire contents of the vessel.

The vacuum required for induction is built up in the mixing head. The machine can be installed onto the top of a vessel by means of a flange or a traverse. Alternatively, the TDS-Induction Mixer may be attached to a lifting frame.

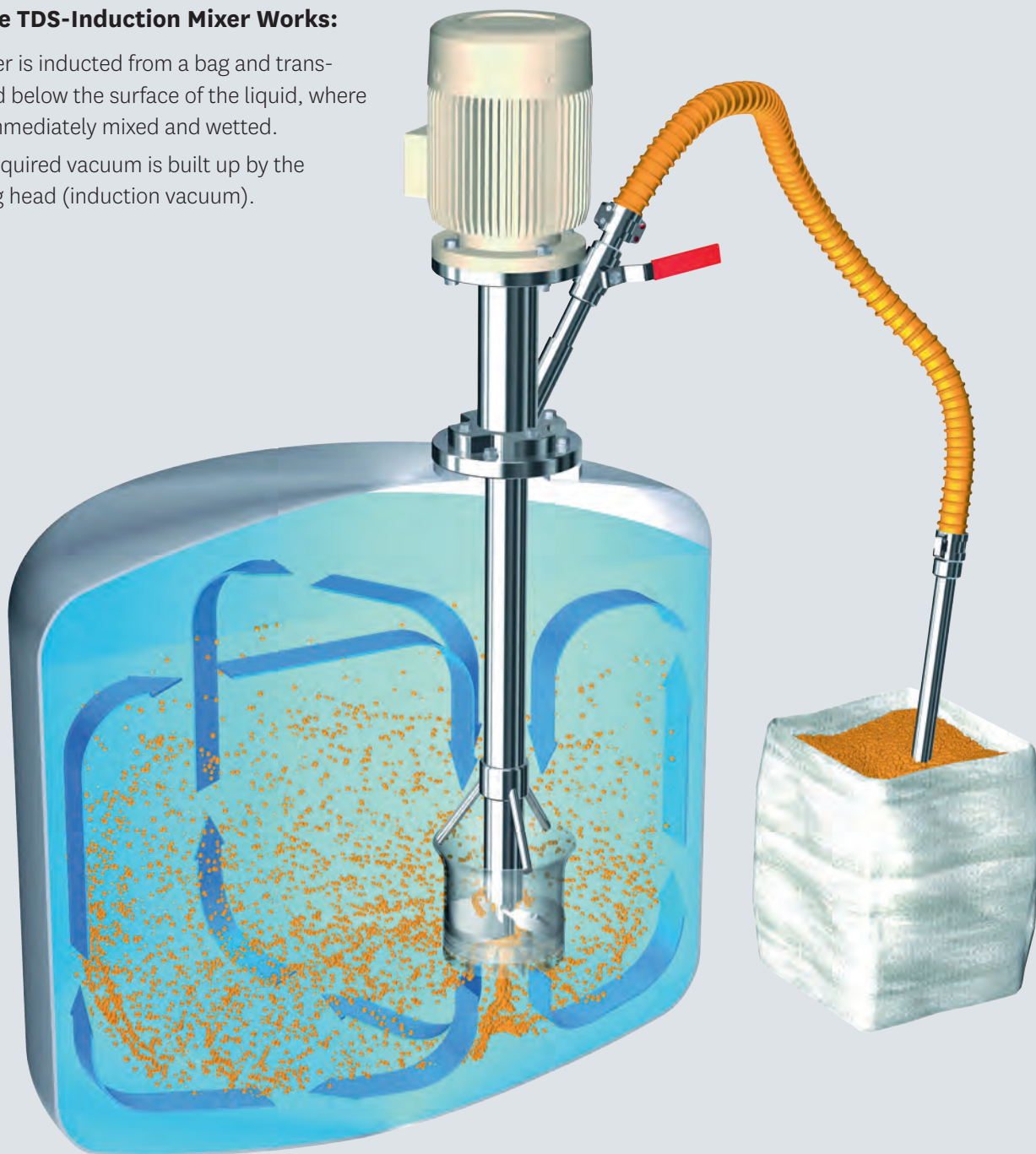
Top advantages at a glance:

- Dust-free induction of powder into liquids; only one machine needed for mixing and suspension
- Dust pollution during powder induction directly out of a paper sack is avoided
- Effective micro- and macro-mixing of the entire contents in the vessel with simultaneous powder induction
- Complete exchange of all materials and homogeneity over all the levels in the vessel due to the jet-stream mixing principle
- Induction even of liquids and gases
- Immediate wetting below the level of the liquid
- No sticking of product to the wall of the vessel or installed devices
- No free running shaft or mixing tools



How the TDS-Induction Mixer Works:

- Powder is inducted from a bag and transported below the surface of the liquid, where it is immediately mixed and wetted.
- The required vacuum is built up by the mixing head (induction vacuum).



Technical Data

Power	1.5 – 25 kW
Voltage	230 / 400 V, 50 Hz, special voltages
Speed	1,500 / 3,000 min ⁻¹ , infinitely variable speed up to 3,600 min ⁻¹ with a frequency converter
Bearing flange	coated aluminium, stainless steel 1.4404 (AISI 316 L)
Submersed parts	stainless steel 1.4404 (AISI 316 L), special materials
Seal	Lip seal, mechanical seal, single or double action depending on operational conditions
Options	explosion-proof execution, certifications, qualifications



YSTRAL Multipurpose X50/X100/X200

Flexibility is the Key

Interchangeable shafts and tools for multifunctionality

The great advantage of the YSTRAL Multipurpose components is their modular set-up: interchangeable shafts and interchangeable mixing and dispersing tools. Until now, this was primarily only found in the laboratory sector.

Now, the YSTRAL Multipurpose brings this advantage to production equipment as well. A wide variety of products and volumes can be treated in just one machine with the best-suited tools for the job. To meet the highest demands in hygienic fields of application, all connections are sealed in accordance with GMP guidelines.

A wide range of drives and lifting frames round out the Multipurpose system.

Top advantages at a glance:

- Highest flexibility provides confidence in the investment – short set-up times and simple handling
- The X50, X100 and X200 series cover batch sizes from 5 to 2,000 l
- A wide range of options for drives and lifting frames
- In combination with the X100 system, the X100/X50 adapter enables batch production with volumes from 5 l up to 1,000 l
- A simple exchange of the shafts enables use as a Jetstream Mixer, a Dispermix, a Disperser, or as a powder induction and wetting system

TOOLS



Jetstream Mixer:

Homogeneous mixing and suspension with no introduction of air



Dispermix:

One-step homogeneous mixing and dispersing



HS-Dispermix:

Dispermix with increased shear effect



Batch Disperser:

Dispersion with the highest shear gradient



TDS-Induction Mixer:

Dust-free induction and wetting of powders in liquids

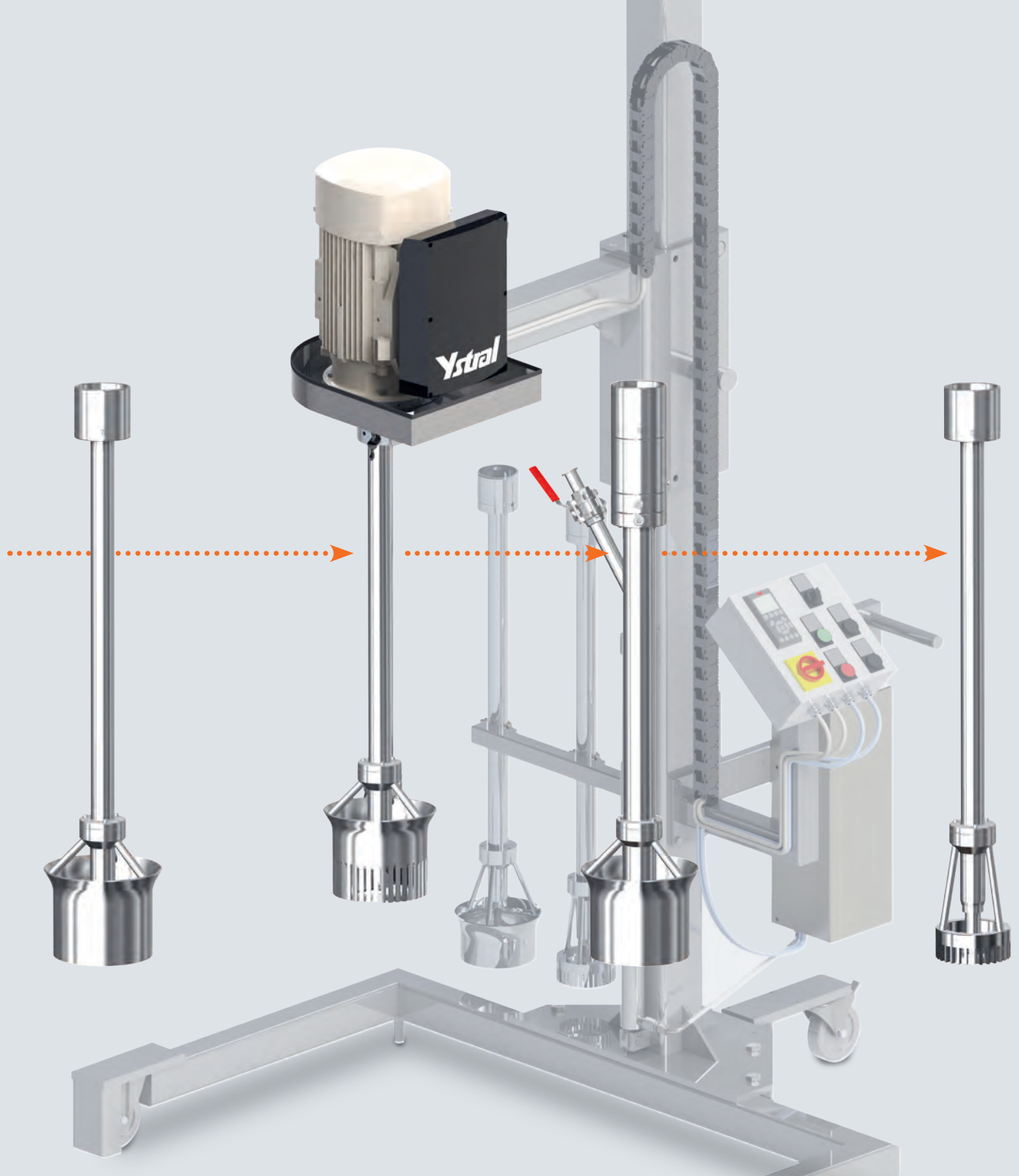


Additional tools available upon customer request

Small-Batch Adapter:

The adapter allows the use of a X50 shaft in combination with a YSTRAL Multipurpose X100 (for batch sizes starting with 100 l) to cover batch sizes in the range of 5 – 100 l.





Technical Data

Power	1.5 kW – 7.5 kW with exchangeable shafts and tools
Voltage	230 / 400 V, 50 / 60 Hz, special voltages
Speed	750 / 1,500 min ⁻¹ , 1,500 / 3,000 min ⁻¹ , infinitely variable speed up to 3,600 min ⁻¹ with a frequency converter
Shaft and tool	separate from the motor, with bearing supported shaft, plug-in connection to the drive
Submersed parts	stainless steel 1.4404 (AISI 316 L), special materials
Seal	Lip seal, mechanical seal, depending on operational conditions
Options	explosion-proof execution, certifications, qualifications



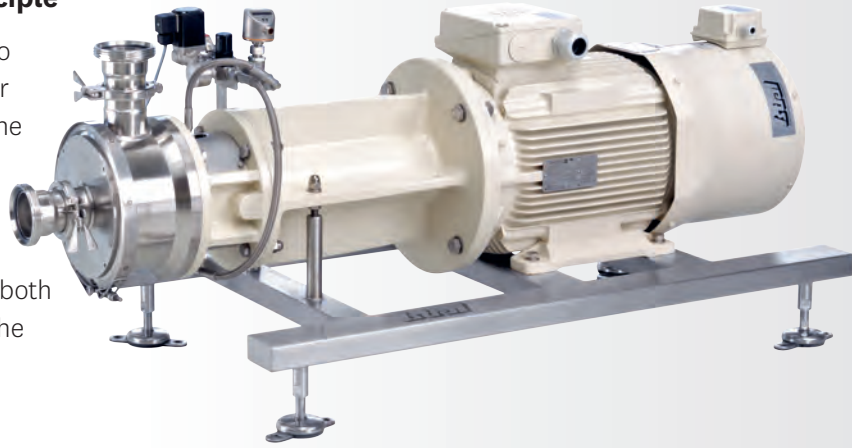
YSTRAL Z-Inline Disperser

Extremely Fine Distribution of Suspensions and Emulsions

High shear gradient with the rotor-stator principle

YSTRAL-Inline Dispersing machines operate according to the rotor-stator principle. The narrow gap between rotor and stator and the extremely high peripheral speed of the rotating rotor create a very strong shear gradient.

The product passes through the slots between the teeth of the rotor, reaches the shear zone and exits through the slots of the stator. The multiple teeth geometries of both rotor and stator apply additional mechanical forces to the product being dispersed.



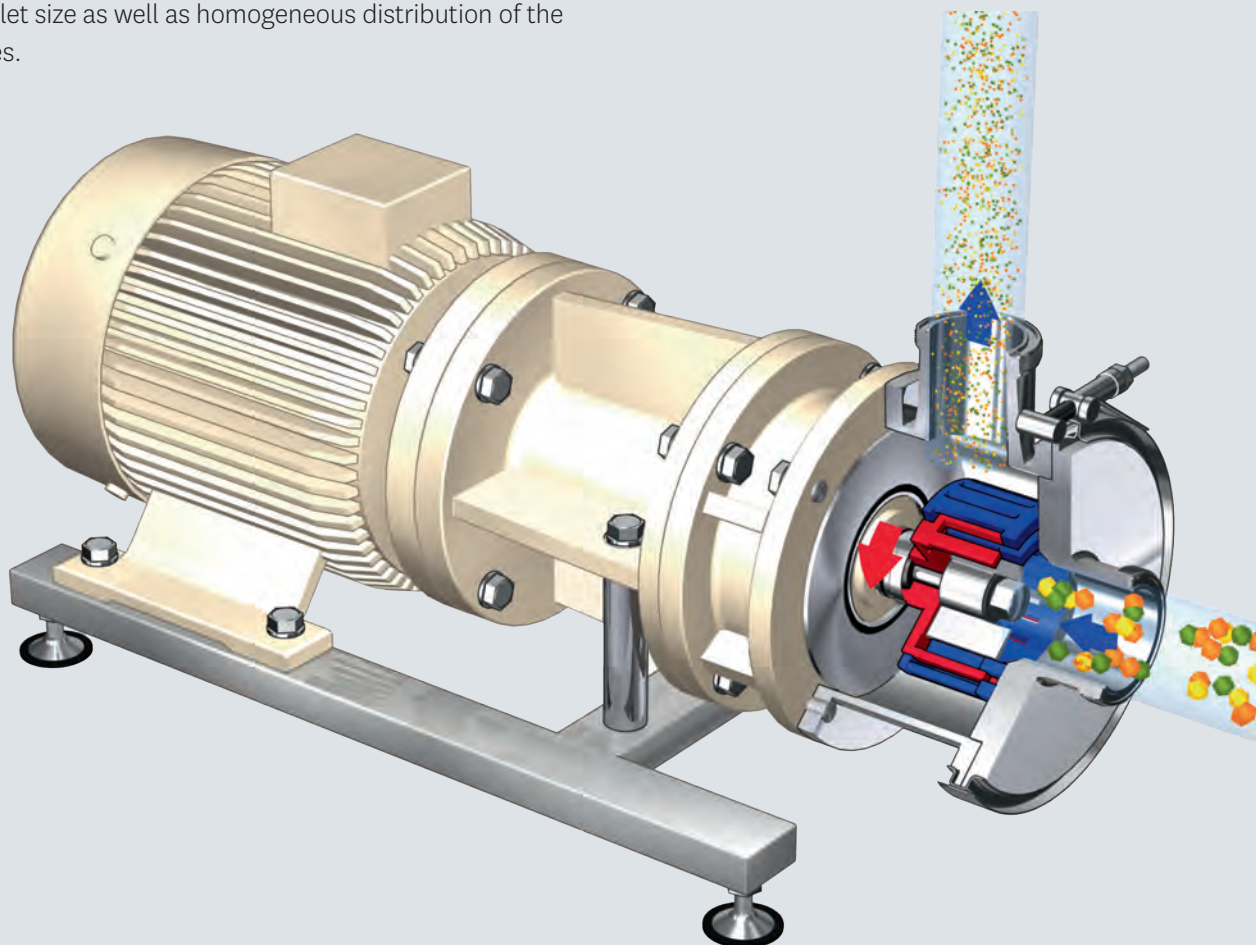
Top advantages at a glance:

- Batch dispersing in a loop or Inline dispersing in one passage
- Short and reproducible processes
- Precise shear tools; if required, also multi-stage
- Narrow droplet spectrum for emulsions as well as complete deagglomeration for suspensions
- 3A Certificate – simplified cleaning through CIP
- Self-pumping for low to medium viscosity products
- Peripheral speed up to 54 m/s



How the YSTRAL Z-Inline Disperser Works:

- The product is guided through a rotor-stator system.
- The inner rotor ring accelerates the product to maximum speed, the stator reduces the speed to zero, and the next rotor ring then accelerates it again.
- This results in a highly efficient reduction in particle and/or droplet size as well as homogeneous distribution of the particles.



Technical Data

Power	1.5 – 110 kW
Voltage	230 / 400 V, 50 / 60 Hz, special voltages
Speed	750 / 1,500 min ⁻¹ , 1,500 / 3,000 min ⁻¹ , Infinitely variable speed up to 3,600 min ⁻¹ with a frequency converter
Dispersing chamber	stainless steel 1.4404 (AISI 316 L), special materials
Flow rate for liquids	0.2 - 100 m ³ /h
Peripheral speed	10 – 54 m/s
Seal	configuration based on operational conditions
Options	explosion-proof execution, certifications, qualifications



YSTRAL Conti-TDS

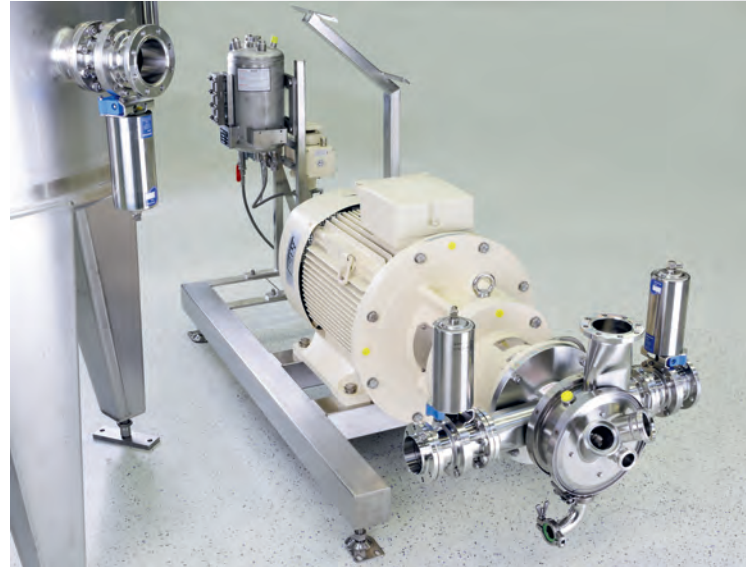
No. 1 in Powder-Wetting

Powder induction, wetting and dispersing – with the YSTRAL Conti-TDS

Dust- and loss-free powder container emptying and powder transport followed by wetting and dispersion down to complete deagglomeration, all carried out in a single machine – the YSTRAL Conti-TDS.

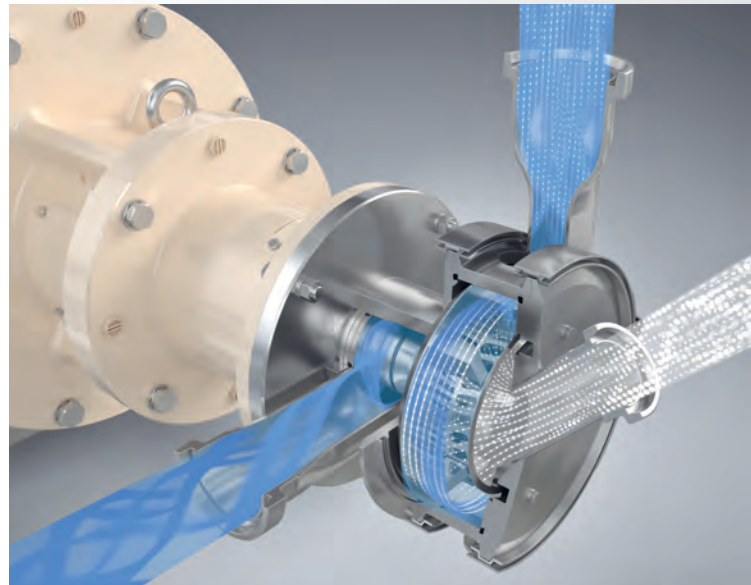
Powders are not only wetted but are dispersed into a liquid under vacuum, avoiding the formation of agglomerates. The natural result is higher efficiency incorporation of the raw materials and improved product quality.

Combining the processing steps in a single machine results in an enormous potential for process rationalisation.



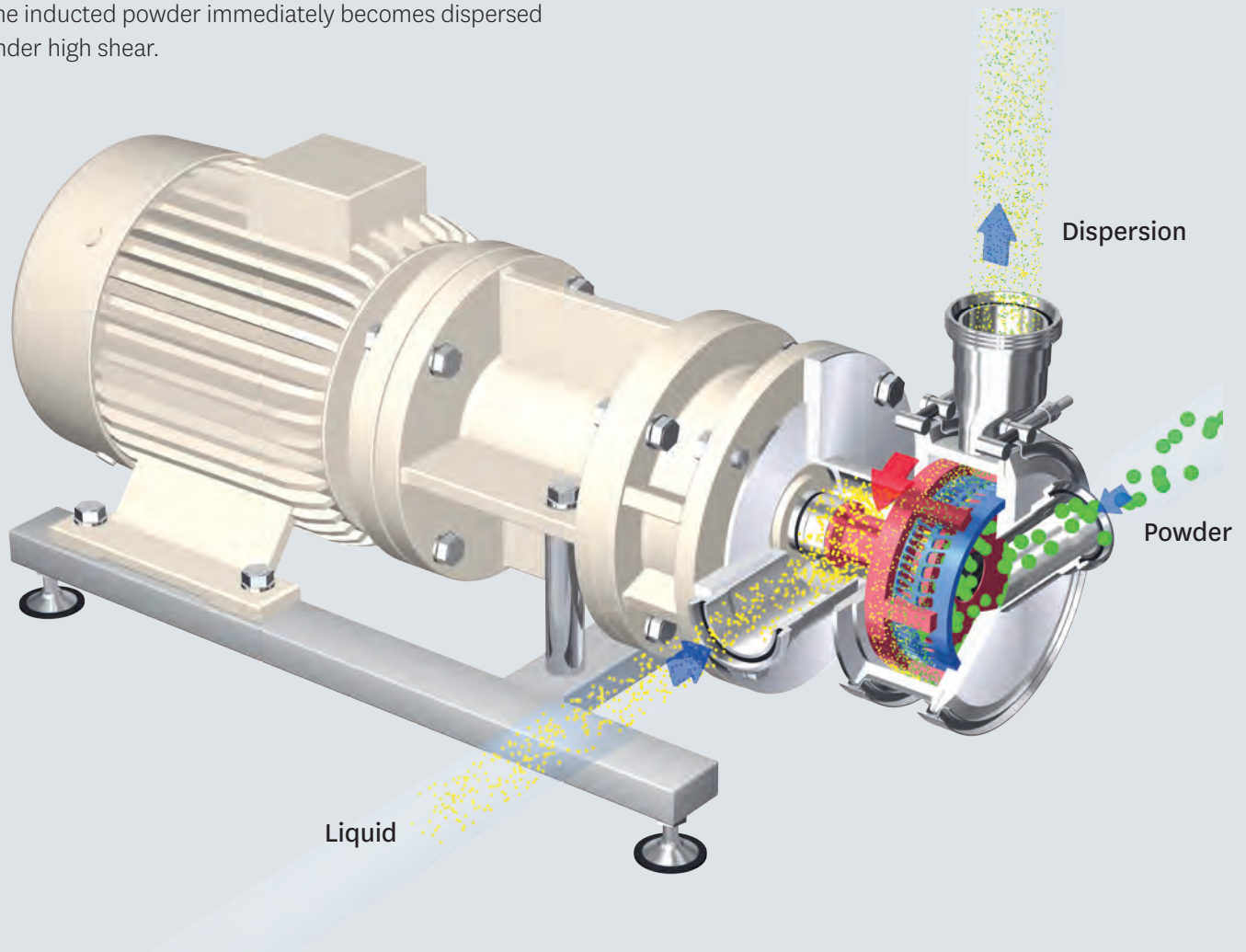
Top advantages at a glance:

- Production times are minimised
- Partial processing steps are completely eliminated
- Cost of production is reduced
- Clean process thanks to dust- and loss-free powder induction, even for difficult to wet, sticky or dusty powders
- Induction and dispersing of powders directly from silo (with intermediate buffer), Big Bag, hopper, sack, barrel, etc.
- No adhesion to the vessel or installed components
- 3A Certificate – simple cleaning through CIP
- Immediate, complete incorporation of the raw materials facilitates rapid, reproducible adjustment of the products
- Powder transportation under vacuum in the dense phase means no induction of false air



The function of the YSTRAL Conti-TDS:

- The YSTRAL Conti-TDS is based on the principle of an YSTRAL Inline dispersing machine.
- A special rotor-stator-system builds up a high vacuum and inducts powders dust- and loss-free directly into the liquid.
- The inducted powder immediately becomes dispersed under high shear.



Technical Data

Power	5.5 – 250 kW
Voltage	230 / 400 / 500 V, 50 Hz, special voltages possible
Speed	1,500 / 3,000 min ⁻¹ , Infinitely variable speed up to 3,600 min ⁻¹ with a frequency converter
Dispersing chamber	stainless steel 1.4404 (AISI 316 L), special materials, tools exchangeable, fast clamping system
Flow rate for liquids	10 – 200 m ³ /h
Induction speed	for powders up to 24 t/h
Maximal viscosity	200,000 mPas (depending on size and use of the machine)
Seal	configuration based on operational conditions
Options	explosion-proof execution, certifications, qualifications



YSTRAL Coflow

Continuous Powder-Wetting and Dispersing

Uninterrupted production without mixing tanks

The YSTRAL Coflow is a continuous, inline powder-wetting and dispersing machine for the production of dispersions. It allows powders to be mixed into liquids, homogenised and dispersed in proportion to quantity. The YSTRAL Coflow is suitable for a wide range of applications in a variety of industries. The intended focus is on products with easy-to-process powders and users with smaller product portfolios and/or relatively few product changes.

Top advantages at a glance:

- High productivity with low energy expenditure
- Ability to process high solid concentrations and higher product viscosities
- Specialised geometry of the mixing and dispersing tools reduces air intake to the product
- Low space requirement, no process vessel needed
- Low personnel requirement thanks to fully automatised operation
- Innovative measuring technology ensures consistent product quality
- Short cleaning time and minimal need for cleaning media



How the YSTRAL Coflow Works:

- Via volumetric or gravimetric dosing systems, powders are inducted, mixed and dispersed into a liquid stream in a controlled way and in proportion to quantity.
- Fine dispersion is achieved via a rotor-stator system, whereby the dispersing tools can be designed with differing geometries, depending on the application.
- An inducer installed between the premixing zone and the rotor-stator zone leads to lower residual air content in the product.



Technical data

Capacity	4.0 – 18.5 kW
Voltage	220 / 420 V, 50 / 60 Hz, special voltages
Seal	Double mechanical seal
Total throughput capacity	2,000 – 13,500 kg/h
Inlet (powder)	DN80 (Coflow 3), DN100 (Coflow 4)
Inlet (liquid)	DN40 (Coflow 3), DN50 (Coflow 4)
Outlet	DN50 (Coflow 3), DN65 (Coflow 4)



YSTRAL BATT-TDS

Dispersion Machine for Lithium-Ion-Electrode Slurries

Supercharge your battery slurry process

The YSTRAL Batt-TDS dispersion system is specifically tailored to the demands of battery slurry production. With a specially developed large stator diameter, the Batt-TDS' inline mixer is designed to be able to both process high viscosities and, at the same time, control the product exposure time within shear zone by decoupling the shear rate from the controlled powder and liquid throughputs. The shear rate can be tailored to the process requirements of each individual powder, without the need for different devices for each powder type.

Top advantages at a glance:

- Drastic shortening of process times for the production of lithium-ion-electrode slurries (anode and cathode slurries) as compared to conventional planetary mixers
- Wide process window within a single machine installation, allowing significantly higher flexibility as compared to extruder technology
- Low operating costs and high productivity per square metre of factory area
- Easy scale-up from laboratory scale to large-scale slurry production
- Safe and dust-free procedures
- High product quality and improved conductive morphology as compared to conventionally produced battery cells



How the YSTRAL Batt-TDS Works:

- A powerful vacuum is generated by a special rotor-stator system, allowing powders to be inducted directly into a liquid flow without dust or loss and enabling the powder particles to be dispersed within milliseconds.
- Circulation process with 3D mixer technology in the vessel for fast batch homogenisation.
- Independent control of key parameters, including flow and shear rates.



Technical data

Batt-TDS™	navi	pilot	PRO	
			mid	supra
Reference batch size (L)	12	2,000	5,000	10,000
Base area (m x m)		5.5 x 4.5	5.8 x 4.8	6.4 x 5.4
Height (m)		5.5	7.7	9.5
Slurry production (l/h) (NMC 622, 92 wt%, 72% solids)	R&D	800 – 1,300	2,000 – 2,800	4,000 – 5,100

Excluding the powder conveyor system.



YSTRAL PiloTec-Plant

ystral Technology at Laboratory and Pilot Plant Scale

Our machines designed for your product and process development

YSTRAL PiloTec-Plant is a multifunctional process system that uses ystral mixing technology for the handling of powders and liquids, measuring technology and sensors as well as additional components. The basic version of the YSTRAL PiloTec-Plant uses the Multipurpose system X50 as a Jetstream mixer as well as YSTRAL-Conti-TDS technology for the dust-free induction, wetting and dispersion of powders. A simple exchange of the tools also enables operation in the innovative Multi-Z- or Z-inline process technologies, in which the Conti-TDS chamber is used as an inline disperser.

Top advantages at a glance:

- Ideal for product and process development as well as the production of small series
- Can be used for products with viscosities of up to 10,000 mPas and solid content of up to 80%
- Different tools for different tasks – from dust-free powder induction to wetting and dispersion, all the way to mixing
- Simple scale-up to industrial scale
- Hygienic design for simple cleaning (CIP)
- Available as an explosion-proof version in accordance with ATEX or IEC-Ex



YSTRAL PiloTec-Plant Features:

- Dust-free inductong, wetting and dispersion under vacuum in a single operation with the YSTRAL PiloTec-Conti-TDS-1.
- Dispersion, emulsification, wet milling, homogenisation and suspension with YSTRAL Multi-Z or Z-Inline.
- Micro- and macro-mixing, homogenisation and suspension using the YSTRAL multi-purpose system X50 as Jetstream mixer.
- Dust- and loss-free powder induction using the vacuum created in the mixing chamber.
- With replaceable vessels, batch sizes between 8 l and 75 l total volume are feasible.



Technical data

Capacity	4 kW
Voltage	400 V, 50 Hz, special voltages
Speed	sinifinitely variable up to 12,000 rpm with frequency converter
Shear rate	up to 60 m/s
Dispersion chamber	1.4404 (AISI 316 L)
Batch sizes	flexible from 5 l to 200 l
Liquid throughput	2-14 m ³ /h
Powder suction capacity	up to 15 kg/min
Seal	Configurations as required
Options	explosion-proof design, certificates, qualifications



ystral Engineering and Consulting

Customer-Tailored Solutions for your Specific Applications

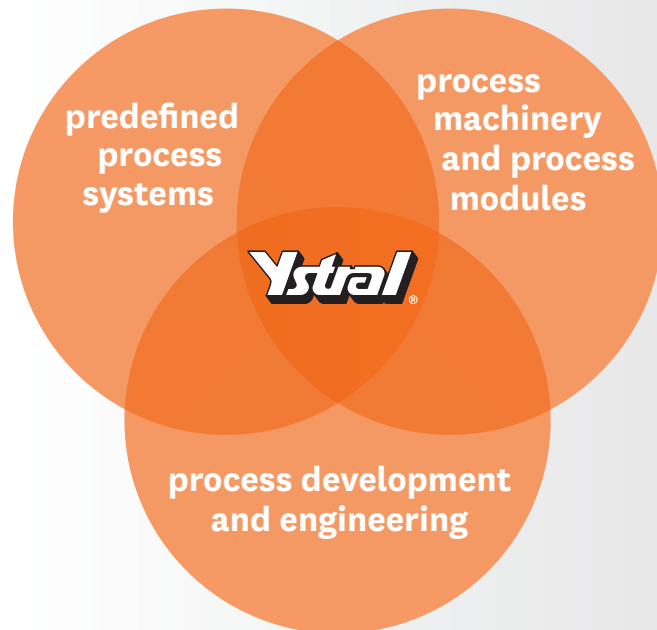
We put our cross-industry expertise and passion for innovation to work to develop tailor-made solutions for your production processes. Our focus is on your needs.

Whether for the Chemical, Pharmaceutical and Cosmetics Industries or for the food and beverage sector, along with our individual machines, ystral offers two primary solutions:

- 1. Modular components**
- 2. Processing systems**

Collaborative Development

From laboratory to production scale: ystral processing systems are developed individually and in collaboration with our customers. They are used as a standard world-wide. Our performance warranty ensures maximum reliability. At the core of all these systems are our mixing, dispersing and powder-wetting machines.



Your one-stop solution, from the development process to ready-made systems:

BASIC TRIALS

PLANT CONCEPT

BUDGETING

INITIAL LAYOUT



PLANNING

REALISATION

START UP

AFTER SALES

Ystral Plant Engineering

Modular Components for Your System

Along with mixing, dispersing and powder-wetting machines, ystral also offers a range of modular components to cover upstream and downstream processes.

Round out your processing technology with powder and liquid-handling devices, measuring and controlling technology, automation, cleaning technology, vessels and piping systems, all available upon request.

Integrated components tuned to the specific application guarantee the highest efficiency.

Powder handling

With the YSTRAL Conti-TDS, powders and other solids can be inducted directly into a liquid and dispersed.

We've developed a range of components that can be individually adapted to your application to achieve a uniform and stable flow of powder.

Liquid handling

Our processing systems are involved with the treatment of liquids, so we have acquired expert know-how that is a component of our process engineering:

Vessels, piping systems, pumps, valves and heat exchangers are integrated, as are filter systems and cleaning and monitoring systems. Additionally, similarly to powders, liquid components are also able to be inducted and emulsified.

Control techniques

Choose from recipe-controlled and fully automatic processing systems or individually monitored control units, weighing systems, controls for temperature and filling level sensors, CIP/SIP, visualization and documentation – you decide what best meets your needs.

We can adapt our program to your existing system and we strive to ensure a trouble-free integration.



Powder handling: Our daily challenge – Induction and dispersion of powders into liquids

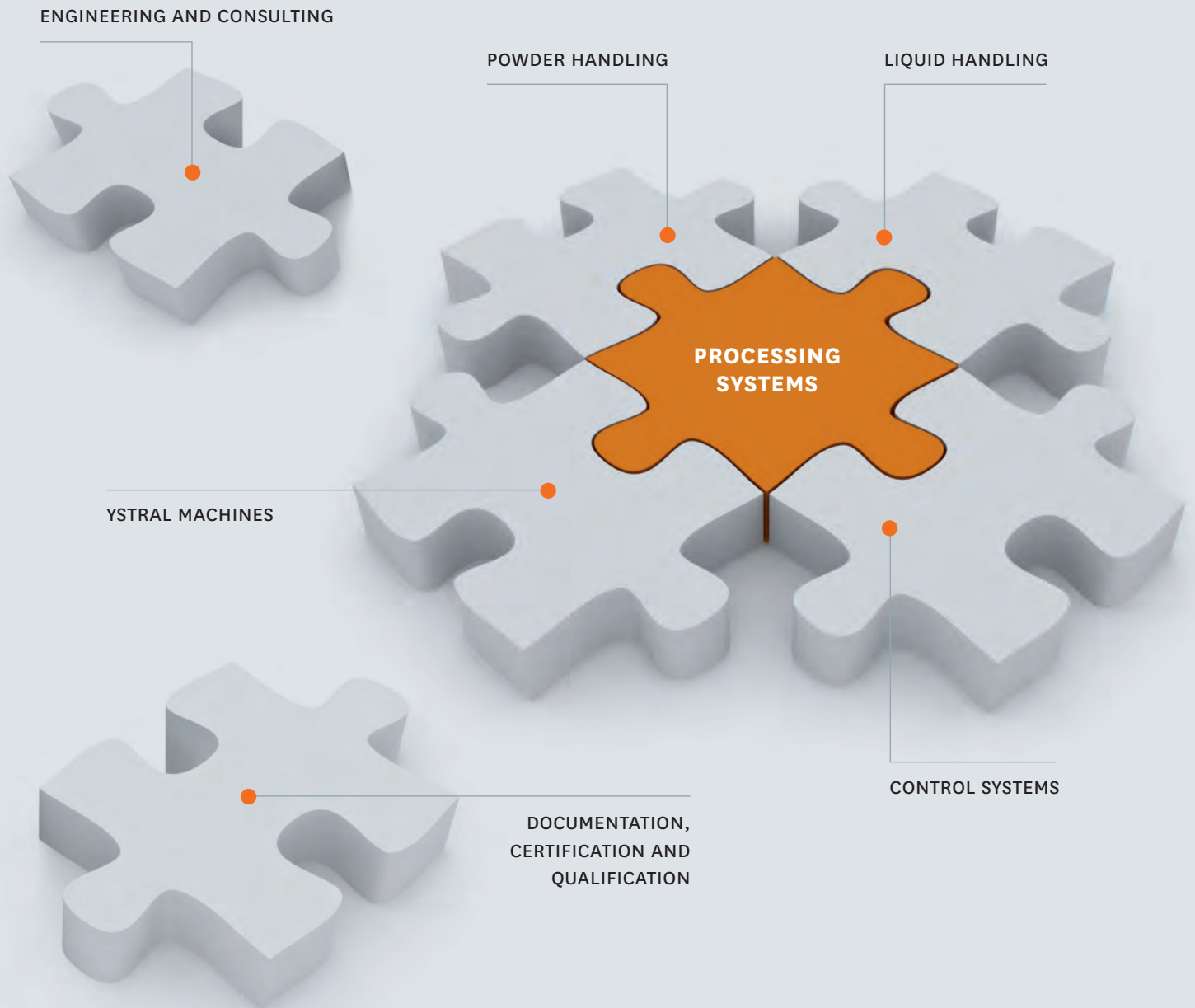


Liquid handling: Inducting, emulsifying, storing, transporting, dosing, heating and/or cooling



Control techniques: Choose between manual, semi-automatic or fully automatic operation

**ystral-manufactured processing systems can be combined modularly,
saving you time and expense.**



ystral Plant Engineering

Application-Specific Processing Systems – for Every Industry Branch

Paint and lacquers, adhesives, sealing and insulation compounds, coatings, spray emulsions, chocolate mass, milk products, active agent coatings, home care and personal care items and many other products are already being manufactured with ystral processing systems.

The economics and effectiveness of the production processes may be considerably improved with the help of our individual and space saving processing systems.

Our customers use processing systems developed by ystral as a standard worldwide.

Top advantages at a glance:

- Economy and efficiency with the smallest footprint
- Significant savings through the optimal integration of different processing steps
- Our own process development and our own plant engineering
- Flexible, durable and reliable systems ensure a secure investment
- Expert support with cross-industry competence and over 50 years of experience

We offer container systems that can be operated in different locations, like our Skidded Units, which are completely assembled on a base frame and can be thought of as automatic production units.

Recipe control, visualisation, weighing, measuring and controlling technology, vessels and piping systems, CIP systems – we assemble the units at our plant, then our customers test them under simulated production conditions until they are satisfied. Once the units are delivered to your site, our technicians will be ready to set up and start up the system. After this, specific services are provided.

This is what underpins our ystral processing guarantee.



Chemistry



Paint and Lacquers



Cosmetics



Food



Pharma



Batteries



ystral Trial Centre

We Share Our Know-How

In collaboration with our application engineers, you can develop new processing technologies or improve existing processes.

Onsite at our plant, we can provide nearly the complete range of ystral machines, from laboratory scale to production size.

Learn more about products and raw materials and conduct trial runs with the individual production machines – or use the laboratory or pilot plant systems for future scale-up.

Top advantages at a glance:

- More than 5,000 treated raw materials/solids to date
- Supervision by our process- and application engineers
- Documentation and analysis of the process parameters

A variety of measuring and analysis devices with specific recording parameters provide the basis for the extensive documentation of series of trial runs. To ensure the necessary process safety, we use this data as the basis of our processing guarantee.

In addition, customers have the option of hiring machines from our extensive pool of test equipment. Upon request, we will assist you with testing during the start-up on site.







- Headquarter and Subsidiaries: ystral gmbh, Ballrechten-Dottingen | ystral india, Bangalore | ystral asia, Singapore | ystral beijing, China
 ● Representatives



Our 110% MIXING SOLUTIONS – developed for you!

With our comprehensive know-how and extensive experience in process and application technology, we offer cross-sector, targeted and customer-oriented solutions – from laboratory equipment to production machines and plant technology.

We work with you to develop concepts and roll-outs for your individual applications, providing you with immediately achievable and quantifiable added value. With complete commitment, we enthusiastically support you at every stage of the process. Our philosophy includes going above and beyond what's required, and we dynamically work to determine how you can best apply each of the processes in your own way.

Together, we can achieve our shared goal: **110% MIXING SOLUTIONS**



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