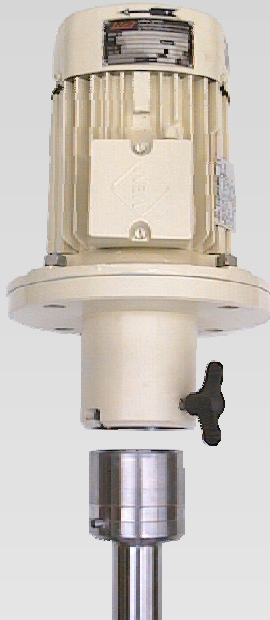


Ystral

Multipurpose-System X100 / X200 most flexible with interchangeable shaft and mixing/dispersing tool



A system which is well-established in laboratory and pilot plant is now available for production as well.

Machine with interchangeable shaft

With the Multipurpose system you get all the advantages of interchangeable shafts and tools - well known from the ystral X50 pilot plant system - for production of batch sizes up to 2.000 litres.

The machine consists of a drive, a mixing shaft with separate bearing, a stator tube and an encapsulated mechanical seal. The shaft can be easily removed and cleaned while the machine is operated with a second shaft. For hygienic reasons all connections are sealed with O-rings according to the GMP guidelines. Superior versatility is achieved when using the Multipurpose system with a ystral moveable lift or wall hoist.

Drive

X100: 2,2 + 4,0 kW / 230 V / 400 V / 500 V / 50/60 Hz / also in Ex

X200: 5,5 + 7,5 kW / 230 V / 400 V / 500 V / 50/60 Hz / also in Ex

Pole switchable 1.500/3.000 min⁻¹ / step-less up to 3.600 min⁻¹ with a frequency converter

Interchangeable shaft with rotating shaft separated from the motor, encapsulated mechanical seal and different tools, depending on the application





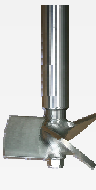
Mixing heads/Generators/WTools:

Jetstream mixer (Y), Dispermix (D), Batch disperser (X),

Dissolver disc, Propeller stirrer. Batch TDS



X100-TDS System
with moveable lift HG20.3

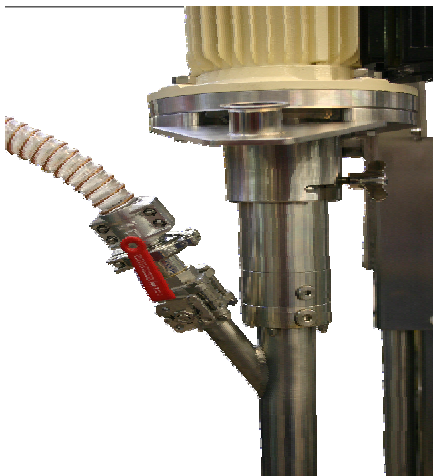
				
Jetstream Homogeneous mixing Suspending	Dispermix Homogenes Mischen, Dispergieren, Emulgieren	Batch Disperser Dispersing Emulsifying	Dissolver disc Dispersing Emulsifying	Stirrer Mixing Homogenising Suspending

Conversion possible

Universal changes over machines allow flexible processes and are the basis for a future oriented investment

Dr.-Ing. Hans-Joachim Jacob

The application engineer or the operational person again and again faces the question which machine has to be implemented into a process. He very well knows the daily business, and he is aware of the actual desired results and process requirements but he also knows that processes are being modified very often. Until today he cannot evaluate whether in one years time the range of products has to be extended, or whether new components have to be treated, which



TDS-Induction mixer

might be more sensitive to shear energy and for this reason may not be dispersed anymore. Very often the initiative comes from the purchasing department as they could manage to order a more cost effective raw material that is coarser and now suddenly requires much stronger dispersing.

Finally customers request may change as well, and there is also a permanent request for higher quality. It does not make any sense to order and install a new machine for each new demand. The subsequent modification requires projecting, and very often an interruption of the production, which might be very cost intensive during the required modification. In many cases it is necessary to install new piping or new flanges for the vessels, inspection certification, extension of the monitoring system and even electrical control systems - the consequential cost are very high.

Anticipatory planning, possible modifications, flexibility and future orientation are important aspects during the evaluation of the required investment. For laboratory scale equipment it is already long established practice to have easily exchanged tools. It is mandatory

for the whole palette of similar processes to realise the case with the same drive, the same installation and the same electrical control system. For this purpose, the drive is equipped with a coupling that allows a quick exchange of the actual mixing and dispersing tools.

Exchangeable tools for industrial machines

Now this system has been applied to industrial machines and it has proved to be very successful. The exchangeable shaft is designed in such a way that the rotating shaft is completely separated from the motor shaft. The sealing towards the product is effected by an integrated mechanical seal.

The coupling to the motor is easy to loosen and reconnect. The tool fitting (adapter) at the lower end of the exchangeable shaft is the very same for all different tools used. It is also possible to quickly and completely change the whole shaft including the tool or in case you use a single exchangeable shaft only to remove the shaft and then change the mixing tool only to meet the requirements of the process.

For complete homogeneous mixing and suspending a **Jetstream mixing head** is used. Without the use of baffles in the vessel, this mixer creates a vertical circulation in the tank without any rotation of the mixture.

For an intensive dispersing result, a **dispersing head** is being used instead. This head works according to the rotor-stator-principle of a teeth-shear-ring machine and is used for size reduction of solid particles or for emulsifying.

A combination of a disperser and a Jetstream mixer is the **Dispermix**. While a Jetstream mixer homogeneously mixes the contents of the vessel, a partial stream of the product is forced through a dispersing zone and becomes simultaneously dispersed. This machine is very interesting as different to simple dispersing it avoids an inhomogeneous distribution of the dispersing effect.

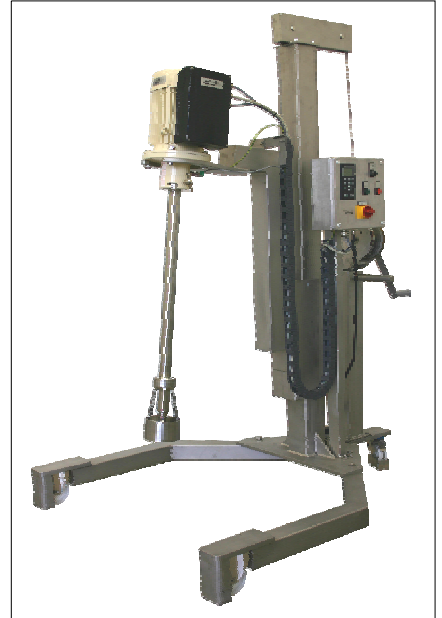
Without any need to install a second mixer, even high viscosity products in a vessel can be homogeneously dispersed. For this reason the Dispermix besides the normal dispersing tasks may be used for a fast dissolving of thickening agents and for the reduction of agglomerates. The Dispermix is capable of dissolving even highly thickening, swelling materials (CMC, Xanthan, Guar, Carbopol and similar) quickly and absolutely free of agglomerates.

The Dispermix is available in a special version to break large solid lumps into a liquid. A good example of this is the dispersing of fat and wax blocks, or the dispersing of materials as frozen blocks.

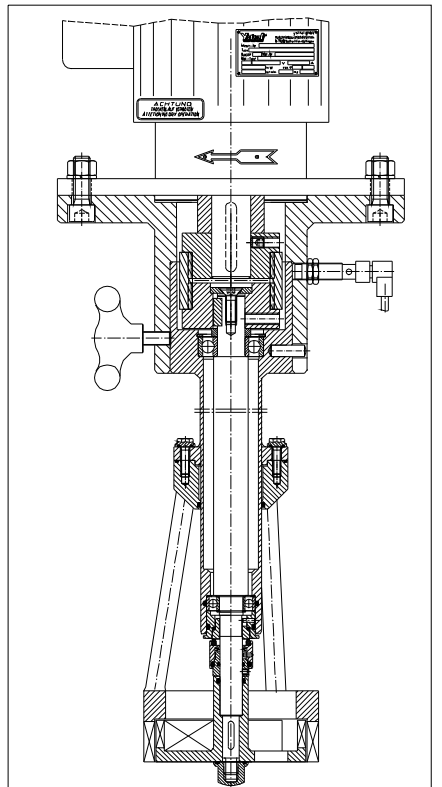
In this case the Dispermix provides an enormous reduction in processing time. With the three different tools mentioned above, all processing tasks from gentle

mixing to intensive dispersing may be carried out.

A newly developed system is the **TDS Induction Mixer** that may be used in combination with the Multipurpose-Machine. This mixer builds up a strong vacuum in the centre of the mixing head. With this vacuum, powders may be inducted **dust-free** directly from a bag into a liquid by using an induction tube and hose. The bags do not have to be lifted and poured into the vessel. The mixing-in of the powder is effected below the liquid surface. No crust builds up at the wall or at the shaft of the mixer.



Moveable unit with Jetstream mixer and stainless steel lift



Sectional drawing Multipurpose Machine with shaft position evaluation