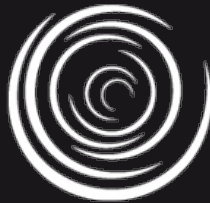


econovation<sup>®</sup>

the twirl behind your business



ecowirl<sup>®</sup>

a milestone, a technology,  
multidimensional vortex system



## dear partners and business associates,

an engineer finds special motivation in the task of designing complex processes in a more compact way while improving quality and productivity at the same time. With experience, will and courage it often succeeds to combine existing technologies for process optimization. The preoccupation with the ideas of nature and vortex researcher Viktor Schauburger as well as professional challenges gave the impulse for my multidimensional vortex system: The **ecowirl**<sup>®</sup> technology.

In the process of development we perfected a vortex generator, which now will be the driving force for several innovative engineering products. Thus, with great pleasure, I present you our system-platform **ecowirl**<sup>®</sup>, which has already led to demanding products with impressive results.

These smart devices set new ecological and economic standards.

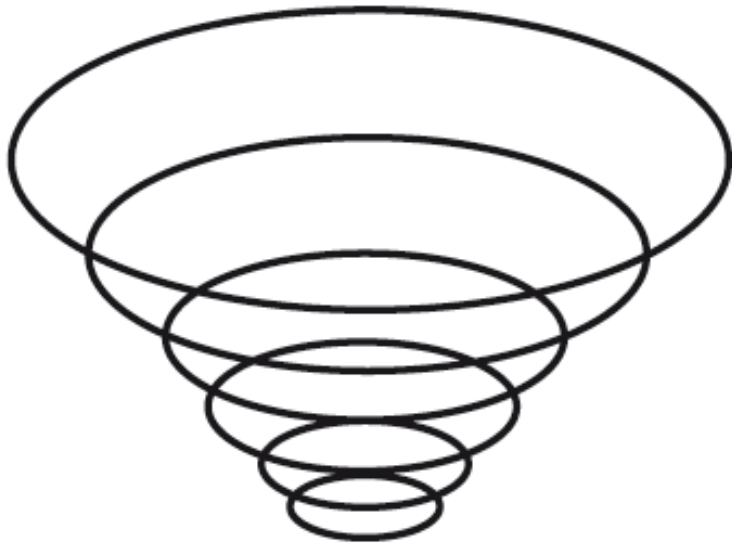
We look forward to contribute to the success of our partners.

Yours

Daan C. Waubert de Puiseau

Inventor and owner

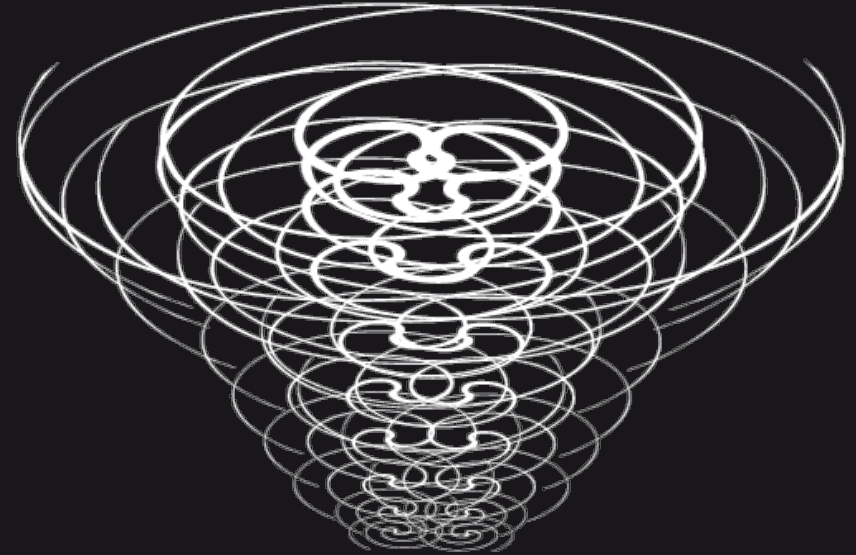
# conventional vortex system



one-dimensional vortex system

The principle of the conventional vortex can be observed in a basin with outflowing water. In industrial constructions a vortex is driven by a tangential inflow and accelerated inside a tapered tube. This situation is used for separation processes.

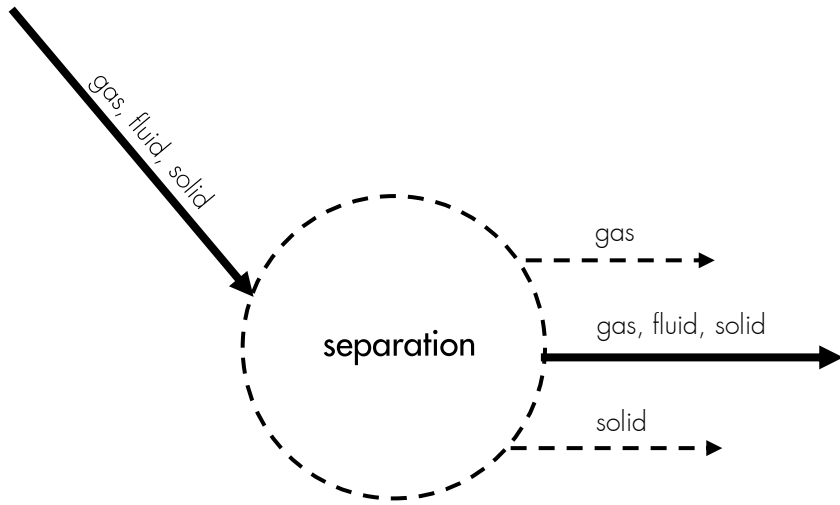
# ecowirl<sup>®</sup> vortex system



multidimensional vortex system

In a direct comparison, the ecowirl<sup>®</sup> vortex system is several times more effective. The constructions are supplied with multiple inflows by a patented vortex generator, in which the liquid already rotates. Thereby, a very stable vortex is successfully generated. Combined with the own rotation of the inflows, new innovative applications are possible.

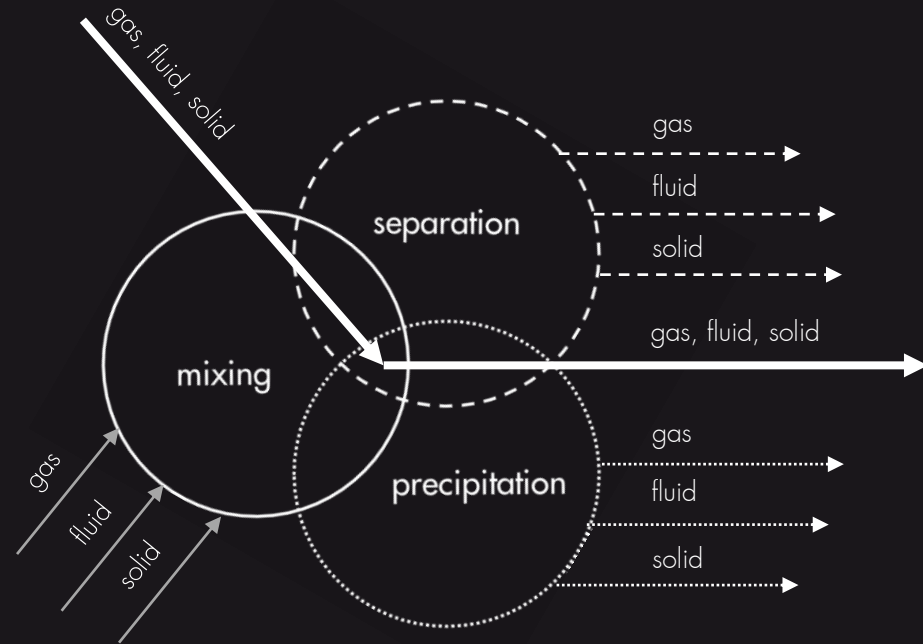
# traditional process



## separation process

A well-proven process for separation of insoluble substances with different weight-specific properties is the so-called »cyclonic separation«. Pulp and water have a nearly similar specific weight. Consequently, in the paper industry, gas bubbles and Styrofoam as well as sand and metal can be separated from the suspension.

# ecowirl® process



## multifunctional process

Here the base is a multidimensional vortex process. This technique can be applied to the fields of mixing, separation and precipitation almost simultaneously. The effect size in the different fields is determined plant-specifically and, if necessary, perfected by liquid-generated high-frequency ultrasound. Thus, absolutely new operational areas can be developed for the **ecowirl®** generator. Even disinfection of fluids by cavitation will be possible.

# ecowirl® design configuration

The **ecowirl®** technology is designed to meet the highest standards of hygiene and thereby fulfill the high demands of the food and pharmaceutical industry. In the standard version the system is built up of stainless steel, which can also be electropolished for highest surface quality. Deposition of contaminants during operation is excluded since sufficient flow velocity prevents dirt accumulation on limiting surfaces. With just little effort – and without the use of tools – the **ecowirl®** generators are disassembled in the main components. Therefore a fast and efficient maintenance without special tools is guaranteed.



## material demands

The **ecowirl®** is designed and built in a way that both, machinable production and material hardening, as well as plastic forming processes are possible. Hence, all aggressive and abrasive industrial fluids are treatable in their application areas by the **ecowirl®**.

# ecowirl® series

In combination with the specific fields of application the **ecowirl®** generator series covers a wide range of requirements, so that we can always offer you an optimal solution. From **ecowirl®** separation procedure via the degasification through to **ecowirl®** mixing procedure we have developed a suitable product for every industrial sector.

Our generators cover three different levels of capacity.

generator	nominal capacity
> ecowirl® g 50	1 m <sup>3</sup> /h
> ecowirl® g 100	6 m <sup>3</sup> /h
> ecowirl® g 300	50 m <sup>3</sup> /h

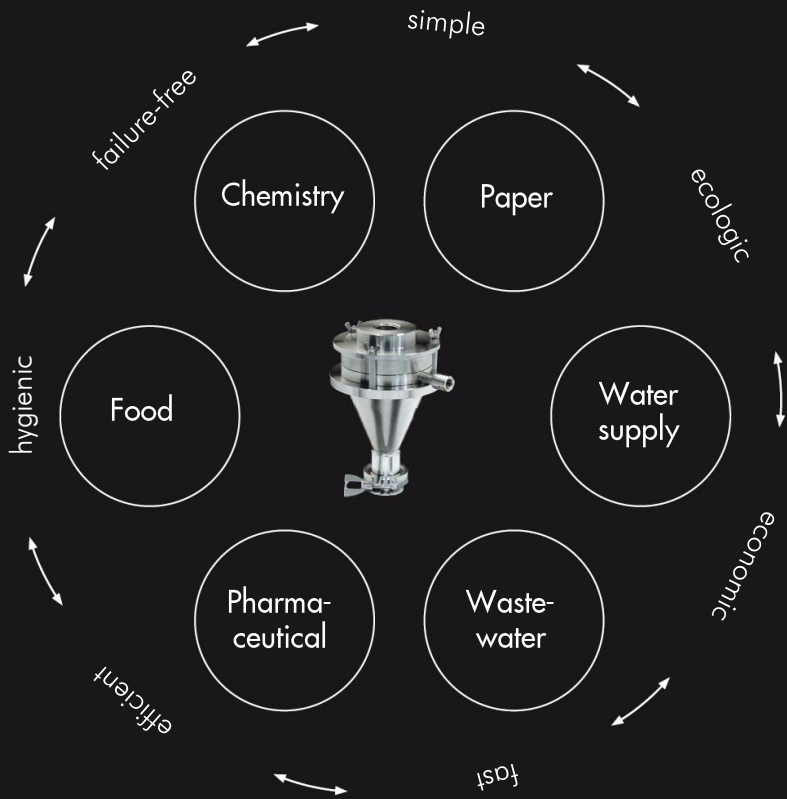
Flow rate capacities up to 500 m<sup>3</sup>/h can be realized due to the modular **ecowirl®** generator technique. In this way, small, medium-sized and big companies of many industrial sectors can benefit from our compact and efficient generators.

## highly versatile

Every industrial sector has different profile of requirements. And right there the **ecowirl®** technology comes into play. Optimized for any application area, the generators have been developed as a versatile, modular system. Therefore, currently flow rates up to 500 m<sup>3</sup>/h can be treated.



®



The **ecowirl®** system-platform provides high application versatility and satisfies the highest technical and technological demands of the mentioned industrial sectors.

#### ecowirl® a

The **ecowirl®** aerator handles the creation and the mix-in of fine air bubbles. This system was developed for flotation and is also used for aeration or stripping of fluids.

#### ecowirl® e

The **ecowirl®** emulsifier system allows the production of oil in water emulsions, such as wet strength agents. It allows the mix-in of protective colloids at the same time.

#### ecowirl® m

The **ecowirl®** mixer is the most compact system for uniform, hygienic mixing of highly viscous polymers and other chemicals into the process water. The higher degree of efficiency is achieved through a consequent **ecowirl®** mixing water pretreatment, polymer chain elongation and high contact rates.

#### ecowirl® s

The **ecowirl®** separation improves the effectiveness of the cyclonic separation and enables a reduction of the cascade number at the same time. Thereby, system expenditure and energy are economized.

#### ecowirl® p

The **ecowirl®** precipitation process allows the precipitation and separation of solved substances in pure and process water. It is suited to precipitate hardness components in water systems, such as heat exchangers, cooling towers and vacuum pumps with sealing water, in order to prevent depositions.

# ecowirl® generator

## economic efficiency



All installed systems so far provided the desired process improvements and are amortized within a year.

The success for our costumers lies especially in the ideal use of vortex forces inside the fluids and the integration of several meaningful process steps in one smart system. Thanks to the simultaneousness, energy must be expended only once.

The **ecowirl®** is an economically interesting innovation. It forms lean and fast processes that contribute to save resources.

paper industry



chemical industry



fresh water treatment



food industry



waste water technology



pharmaceutical industry





econovation gmbh  
gaussweg 14  
d-73035 göppingen

phone +49 (0) 7161 307 94 68  
info@econovation.de  
www.econovation.de

