

The INVENT CYBERPITCH[®]-Mixer

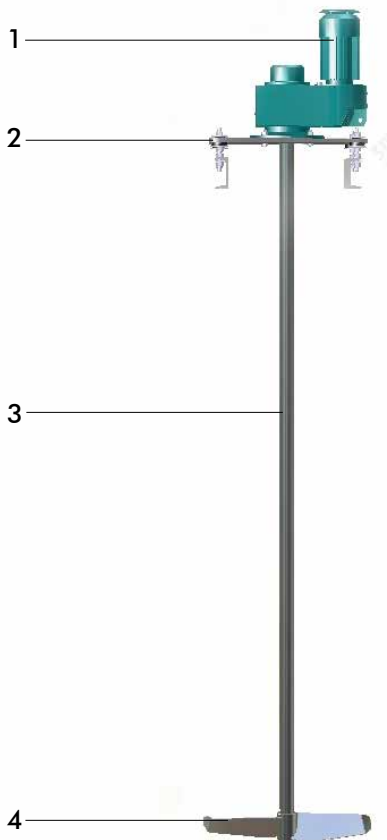
Rapid Mixing – Coagulation – Homogenization

More than 20 years of experience in the field of mixing and aeration lead **INVENT** to develop the **CYBERPITCH[®]**-Mixer. The innovative concept of the **CYBERPITCH[®]**-Mixer is the combination of sophisticated design and robust construction. The result is a high-quality mixer able to operate over a wide power input range while achieving uniform mixing and excellent homogenization.

DESIGN

The **CYBERPITCH[®]**-Mixer design was driven by optimizing flow pattern and mechanical strength considerations. It consists of an improved pitched blade mixer body which accelerates the fluid in both axial and radial directions providing superior mixing in rapid mixing applications.

It has a dry mounted drive unit for easy installation and maintenance and is mainly used in water and waste-water treatment in applications where intensive mixing is needed, e.g. for mixing in flocculants, chemical additive preparation and in small storage tanks.



CYBERPITCH[®]-Mixer – Schematic Representation



CYBERPITCH[®]-Mixer Body on the Shaft

CONSTRUCTION

1 Drive Unit

For the drive unit **INVENT** uses exclusively parallel shaft helical geared motors from well-known manufacturers with a high-quality corrosion protection coating, robust weather protective hood, humidity and acid protection of the winding (tropical protection) and optional PTC resistor for thermal protection of the motor. The gear is rated for a long bearing service life and for adverse operating conditions.

2 Mounting Base

The mounting base consists of a base plate mounted on rubber buffers connected permanently to the bridge/support by a bolted connection. The mounting base can be levelled using the threaded bolts which can be adjusted in height. The rubber buffers absorb start up torque, prevent any transfer of vibrations to the bridge and provide galvanic separation of the mixer from the bridge.

3 Shaft

The drive shaft of the **CYBERPITCH[®]**-Mixer is made from high quality stainless steel. It features a high resistance to chemical attack and corrosion.

4 Mixer Body

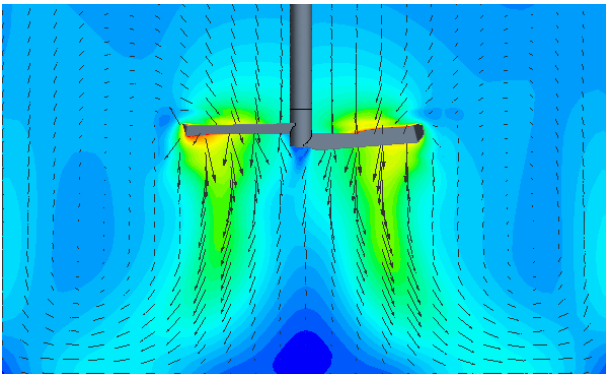
The **CYBERPITCH[®]**-Mixer Body, made from high quality stainless steel*, has a fluid-mechanical optimized shape without any mounted or fitted parts.

* Other materials on request

THE CYBERPITCH®-MIXER

Flash Mixing in General

The flash or rapid mixing process requires a sound design of all the involved components in order to make the whole process work perfectly. Typical hydraulic retention times for rapid mixing processes vary from 10 to 40 seconds and sometimes even less. Another design consideration for the flash mixing is the so-called G-value which is calculated from the fluid viscosity, the power intake of the mixer and the basin volume. In these applications a G-value of 150 to 400 1/s is typical and some processes even require G values up to 1,000 1/s. In these applications it is then not only to provide the required power intake but also to provide a mixer flow rate which assures excellent homogenization and good overall performance of the system.



CYBERPITCH®-Mixer – Flow Pattern

Flocculation

In a flocculation process, the **CYBERPITCH®-Mixer** can be used in the first stage where intensive mixing is required. The **CYBERPITCH®-Mixer** is typically followed by a series of **INVENT HYPERCLASSIC®-Mixers** in the subsequent stages where gentle mixing for the creation of easily settled flocs is required.

Activated Carbon Process

The **CYBERPITCH®-Mixer** is ideal for providing mixing in treatment processes that utilize powdered activated carbon.

Options and Accessories

Similar to the **HYPERCLASSIC®-Mixer** **INVENT** offers further options are available such as alternative coatings, food-grade or synthetic oils, thermistors for monitoring the oil temperature or monitors to check the mixers operating speed. To facilitate maintenance on the gearbox an oil drain is available.

Quality Control

Each **CYBERPITCH®-Mixer** is factory checked to verify that all components are within the acceptable range of manufacturing tolerances.

CYBERPITCH®-Mixer

The complete **CYBERPITCH®-Mixer** consists of the drive unit placed on a mounting base, the shaft and the optimized **CYBERPITCH®-Mixer** Body including stainless steel assembly hardware for the installation. This makes the installation in the field safe, easy and fast.

TECHNICAL DATA

Mixer Diameter	150 - 1,600 mm
Shaft Diameter	20 - 60 mm
Motor Power	0.12 kW to 15 kW
Mixer Speed	30 - 600 rpm
Mixer Flow Rate	60 - 7,100 m ³ /h

MATERIAL SPECIFICATION

Drive Unit	<ul style="list-style-type: none"> • High Quality Coating • Corrosivity Category C3 • Color RAL 5018 • Reinforced Bearings • Mineral Oil ISO VG 220 • Oil Gauge Site Glass • Efficiency Class IE 2 • Cooling Fan • Canopy • Humidity and Acidity Winding Protection • Enclosure IP 55
Mounting Base	Carbon steel with powder coating and vibration dampeners
Shaft	Stainless Steel 304/316*
Mixer Body	Stainless Steel 304/316*
Assembly Hardware	Stainless Steel 316

* Other materials on request