

# The INVENT HYPERDIVE®-Mixer

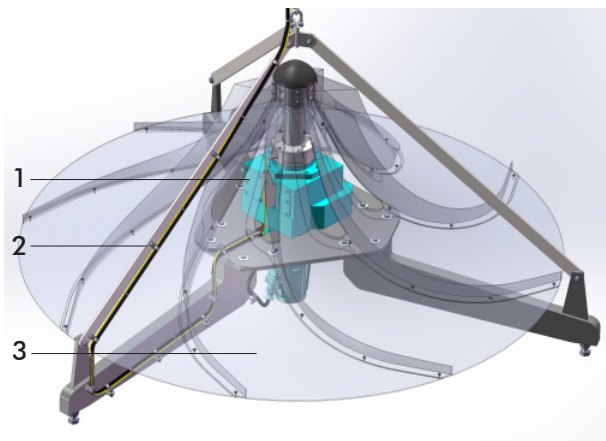
Hyperboloid Mixing Technology – Energy Saving Mixing

Complementary to the well-known **HYPERCLASSIC**®-Mixer Series with top mounted drive and shaft we also offer the submersed driven version. The **HYPERDIVE**®-Mixer Series features the same excellent mixing characteristics and advantages as the top mounted version but can be applied in cases where bridges cannot be realized or submersed driven solutions are preferred.

**INVENT** made a significant contribution to the efficiency and cost-effectiveness of water and wastewater treatment plants by introducing the hyperboloid mixing technology more than 25 years ago. Since then, the hyperboloid mixing technology has been continuously further developed and improved. Thousands of successful installations in municipal and industrial water and wastewater treatment plants worldwide impressively demonstrate that the hyperboloid mixing technology has already become the industrial standard in this field.

## DESIGN

The **HYPERDIVE**®-Mixer features exactly the same flow-pattern and fluid mechanical advantages as the **HYPERCLASSIC**®-Mixer. The main components such as the high performance hyperboloid mixer-body are identical.



The **HYPERDIVE**®-Mixer with submersible drive

## 1 Drive Unit

Only energy-saving and robust geared motors with reinforced bearings from renowned manufacturers are used. High service factors are selected and the calculated bearing life expectancy is more than 100,000 h.

## 2 Tripod and Lifting Frame

The tripod is made from massive coated carbon steel which provides a sufficient weight to keep the **HYPERDIVE**®-Mixer in position safely during operation and standstill. It supports the submersed drive and guides the electrical supplies away from the mixer-body.

A stainless steel lifting wire is attached to the top of the tripod to enable easy lifting in and out of the whole unit and also keeping the power and signal cable in place. The drive shaft and the hub of the **HYPERDIVE**®-Mixer are made from high quality stainless steel. They feature a high resistance to chemical attack and corrosion.

## 3 Mixer-Body

The hyperboloid mixer-body was developed in the **INVENT** laboratories applying the most up to date fluid mechanical expertise. The use of most modern plastic components results in a high-strength, corrosion-resistant and light-weight mixer-body.

The hyperboloid mixer-body is connected to the drive shaft by means of a shaft/hub connection. The **INVENT Safety Lock Technology**® is used for this purpose. This enables a simple and rapid assembly as well as a simple removal even after many years of operation. Under operation conditions the connection is safely protected against self-loosening.

The complete hyperboloid mixer is not just producing a favorable flow field but is also absolutely non-clogging because of the optimal shape and the motion fins which are seamlessly integrated into the mixer-body design.

The latest development step "Evolution 7" uses proprietary **INVENT Progressive Fin Technology**®. In conjunction with an enlarged opening for the secondary current an increase in efficiency of up to 25 % compared to previous models was achieved.

## INSTALLATION

The **HYPERDIVE**<sup>®</sup>-Mixer can be shipped as a complete and ready-to-use unit. Further assembly works on site are not necessary. Install the lifting wire at the basin rim, connect the power cables and the mixer is ready to operate!

## OPERATION

After a short test run and a check of the direction of rotation the **HYPERDIVE**<sup>®</sup>-Mixer can start operating without any further work. It is designed for permanent operation and does not require intensive maintenance work.



The **HYPERDIVE**<sup>®</sup>-Mixer ready to go

## OPTIONS AND ACCESSORIES

**INVENT** offers options such as alternative oil grades, thermistors for monitoring the motor temperature or a leakage sensor.

## TECHNICAL DATA

### 2,000 series

Mixer Diameter	2,000 mm
Motor Power	0.55 kW to 4 kW
Mixer Speed	20 – 42 rpm

### 2,500 series

Mixer Diameter	2,500 mm
Motor Power	0.75 kW to 7.5 kW
Mixer Speed	16 – 34 rpm

## MATERIAL SPECIFICATION

Drive Unit	<p>Gearbox housing made from cast iron with:</p> <ul style="list-style-type: none"><li>• 2 K Polyurea coating</li><li>• Color black</li><li>• Reinforced Bearings</li><li>• Mineral Oil ISO VG 220</li></ul> <p>Three-phase asynchronous motor suitable for direct start :</p> <ul style="list-style-type: none"><li>• Thermal Protection PTC-F</li><li>• Efficiency class IE 3</li><li>• Enclosure IP 68</li></ul>
Tripod and Lifting Frame	Carbon steel with high-quality Polyurea coating
Shaft/Hub	Stainless Steel 316
Mixer-Body	High-strength impact resistant polymer material
Assembly Hardware	Stainless Steel 316