better together

HIGH-EFFICIENCY MIXING SYSTEMS

zenit.com
Why Mixers?

Essential components of water treatment and purification plants, the new Zenit mixers share the stylish looks, reliability and new-concept high-efficiency motors of the UNIQA range.

Submerged mixers are the most practical, efficient solution for mixing liquids in water treatment and purification plants. Suitably installed in tanks, these devices apply a force varying depending on the propeller diameter, shape and rotation speed to the liquid in which they are immersed, and keep the mass of fluid in motion to boost homogenisation and prevent sediment formation.

They can be adopted in single or multiple installations, or in combination with bottom aeration systems, depending on the process in which they are used. Their efficiency class IE3 motors, already applied on the Zenit UNIQA range of submersible pumps, keep running costs down, with low energy use and limited maintenance.

Their complete compatibility and vast assortment of accessories allow them to be installed in any point of the tank, both for optimal mixing and for use as replacements for obsolete devices in existing systems.

###Why Mixers?

The low propeller rpm, necessary in applications with sludges containing high solid concentrations, is achieved by means of a rugged planetary reduction gearbox rather than motors with a high number of poles, for greater mechanical reliability.
Zenit ZMD and ZMR series mixers can be used in equalisation, denitrification and homogenisation processes in industrial and civil plants. Their construction characteristics make them rugged and versatile, ideal for any application.

**Modular**

The ZMD and ZMR range of mixers is built on a modular criterion in which high-efficiency motors evolved from the UNIQA units are coupled with propellers with different shapes, sizes and materials. This means greater flexibility when selecting the product, which can be configured specifically for the application, and for liquids with different densities and concentrations.

**Innovative**

Zenit mixers are built with innovative materials and include state-of-the-art engineering solutions developed in a modern department which also conducts performance and endurance tests on the parts most subject to wear. This guarantees lower energy consumption and exceptional versatility, making them suitable for any type of installation.

**Reliable**

Meticulous design, machining on latest-generation machining centres and high quality components make Zenit mixers highly reliable. This ensures a long working life even with liquids containing high solid concentrations, and low maintenance, guaranteeing trouble-free, continuous system operation.
Your guide to Zenit Mixers

**MOTOR**

Premium IE3 class cold-running motor for high efficiency and minimal energy use. Isolation class H (180°C).

**MECHANICAL SEALS**

Two silicon carbide (SiC) mechanical seals in large, inspectable oil chamber. ZMR models equipped with 3 mechanical seals.

**PROPELLER**

Cast AISI 316 stainless steel propeller, designed with specially shaped blades to ensure high hydraulic efficiency and prevent fouling with filaments and solids. Extra thick for ruggedness and reliability even in heavy-duty conditions.

A special chopper system in the rear of the propeller prevents the entry of filaments which could become entangled around the drive shaft and impair its operation.

**MONITORING**

Water sensor detecting seepage into the mechanical seal oil chamber. The temperature sensors prevent possible damage due to overheating of the motor and bearings. (other monitoring options are available for the ZMR 065 models on request)
**CABLE GLAND**
Innovative cable gland system with cable holder. The universal thread ring-nut can be removed to fix a rigid or flexible duct to the cable gland to protect the cable from physical and mechanical stresses.

**INSTALLATION**
Wide range of rugged stainless steel accessories for optimal installation in relation to the system layout and when replacing existing devices.

**BEARINGS**
Ball bearings with lifetime lubrication designed to guarantee 100,000 working hours. Temperature sensor on request.

**REDUCTION GEARBOX (ZMR models)**
Rugged planetary reduction gearbox which provides high reduction ratios and torque transfer and withstands heavy radial loads, with compact size and light weight.
### Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Motor</th>
<th>Propeller</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$P_m$ [kW]</td>
<td>Number of poles [no.]</td>
</tr>
<tr>
<td>ZMD 020</td>
<td>0.75 ÷ 1.5</td>
<td>4</td>
</tr>
<tr>
<td>ZMD 030</td>
<td>1.5 ÷ 3.0</td>
<td>6</td>
</tr>
<tr>
<td>ZMD 045</td>
<td>3.0 ÷ 4.5</td>
<td>8</td>
</tr>
<tr>
<td>ZMR 065</td>
<td>4.0 ÷ 7.5</td>
<td>4</td>
</tr>
</tbody>
</table>

### Construction materials

<table>
<thead>
<tr>
<th></th>
<th>Standard</th>
<th>Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor complex</td>
<td>EN-GJL 250 grey cast iron</td>
<td>AISI 316 stainless steel (ZMD 020A-020B only)</td>
</tr>
<tr>
<td>Propeller</td>
<td>AISI 316 stainless steel</td>
<td>Duplex / With Vulkollan coating</td>
</tr>
<tr>
<td>Shaft</td>
<td>AISI 431 stainless steel</td>
<td>-</td>
</tr>
<tr>
<td>Mechanical seals</td>
<td>2 silicon carbide (SiC) in oil chamber</td>
<td>-</td>
</tr>
<tr>
<td>Nuts and bolts</td>
<td>A2-70 Stainless Steel</td>
<td>A4 stainless steel</td>
</tr>
<tr>
<td>Gaskets</td>
<td>NBR</td>
<td>Viton</td>
</tr>
<tr>
<td>Hook</td>
<td>AISI 304 stainless steel</td>
<td>AISI 316 stainless steel</td>
</tr>
<tr>
<td>Motor bracket</td>
<td>AISI 304 stainless steel</td>
<td>AISI 316 stainless steel</td>
</tr>
<tr>
<td>Paintwork</td>
<td>Bicomponent epoxy paint 200 μm</td>
<td>Bicomponent epoxy paint 400 μm</td>
</tr>
</tbody>
</table>

### Operating limits

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. ambient temperature</td>
<td>40°C</td>
</tr>
<tr>
<td>Max. immersion depth</td>
<td>20 m</td>
</tr>
<tr>
<td>pH of treated liquid</td>
<td>6-12</td>
</tr>
<tr>
<td>Max. starts/hour</td>
<td>15 (evenly distributed)</td>
</tr>
<tr>
<td>Max. acoustic pressure</td>
<td>70 dB</td>
</tr>
<tr>
<td>Duty</td>
<td>S1 – continuous operation</td>
</tr>
<tr>
<td>Density of treated liquid</td>
<td>1060 Kg/m³</td>
</tr>
<tr>
<td>Max. dynamic viscosity</td>
<td>500 mPas</td>
</tr>
</tbody>
</table>
Installation and accessories

To guarantee top mixer performance, ZENIT has developed a wide range of accessories for adjusting devices’ positions in the tank and lifting and removing them without having to drain the system.

The recommended installation modes are:

**Bottom installation (fig. A)**
Permanent installation, with the mixer connected to a base anchored to the bottom of the tank.
A special adjustment plate allows the mixer’s horizontal and vertical position to be set as specifically required by the system.

**Pendular installation (fig. B)**
Mobile installation in which the mixer can be both installed and removed with the tank full.
The mixer is suspended from a suspension pipe and fixed to a mounting bracket; it can be adjusted both horizontally and vertically.

**Mast installation (fig. C and D)**
The most widely used installation mode, suitable for mixers of any shape and size.
The mixer, fitted with a runner which is also compatible with existing installations, slides along a square post and can be removed with no need to drain the tank, thanks to rugged lifting jib cranes.
The mixer can be horizontally adjusted for the best possible position, while vertical adjustment is possible with the aid of special optional runners.

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The data provided are not binding. Zenit reserves the right to modify the product without advance notification.

For further information, visit www.zenit.com

The digital version of this catalogue is available for download at: www.zenit.com