Agitating and Mixing Technology
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We are your competent partner for solving your technical agitating problems.

The development of HOESCH agitators was started in 1937. Since that time we have established ourselves as one of the leading manufacturers on the international market.

Our process engineers have an extensive know-how and many years of experience in numerous fields of application. We manufacture a complete range of agitators for a large number of mixing processes. A plurality of applications is possible, e.g. in chemical, primary, food and beverage industry, in hydrometallurgy, in coal cleaning and ore dressing plants, in domestic sewage and industrial waste water treatment plants, in paper and cellulose mills, in environmental technology - especially in flue gas desulphurisation plants and garbage incineration stations.

Our success is based on the modern and perfected computer-aided design of our agitators and on the performance of agitating trials in our mechanical engineering laboratory.

Our Manufacturing Programme

Please consult us! We will inform you and gladly solve your technical agitating problems together with you.

Vertical Agitators
- Gear agitators
- Agitators, type HSR 40 – 125
- Agitators, standard sizes R1 – R6V, Shaft ø 50 – 200 mm
- Large-size agitators, type RS, Shaft ø 220 – 300 mm
- DIN agitators with quick change attachment for mechanical seal
- Rabbling devices

Horizontal Agitators
- Tank agitators, type RT, Shaft ø 40 – 100 mm

Counterflow Agitators
- Compulsory mixing process for all ranges of viscosity

Standard Agitator Seals

Mechanical seals
- As per DIN 28138
- With / without bearing
- single-acting
- double-acting
- Temperature range: -10 to 200 °C
- Pressure range: vacuum up to 6 bar resp. 16 bar

Extra equipment
- With cooling base ( T >  200 °C)
- Sealing pressure system
- Shut-down
- Supporting plate

Stuffing box
- Housing and gland with 3 or 5 packing rings depending on the requirement
- Temperature range: 130 °C
- Pressure range: max. 5 bar

Packing of stuffing box
- Integrated into the base plate with gland, 2 or 3 packing rings
- Temperature range: max. 130 °C
- Pressure range: max. 1 bar

Two-part disk made of polypropylene
- For unpressurized operation into open and closed tanks
- Pressure range: atmospheric

Two-part disk made of polypropylene
- For unpressurized operation into open and closed tanks with integrated packing rings
- Pressure range: atmospheric
Agitating Elements

<table>
<thead>
<tr>
<th>Name</th>
<th>Arrangement</th>
<th>Flow</th>
<th>Range of viscosity (Pa s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propeller</td>
<td></td>
<td>axial</td>
<td>&lt;10</td>
</tr>
<tr>
<td>Pitched blade agitator 6 blades</td>
<td></td>
<td>axial / radial</td>
<td>&lt;50</td>
</tr>
<tr>
<td>Pitched blade agitator with stabilizer ring 4 blades</td>
<td>axial / radial</td>
<td>&lt;50</td>
<td></td>
</tr>
<tr>
<td>Disk agitator</td>
<td>radial</td>
<td></td>
<td>&lt;10</td>
</tr>
<tr>
<td>Multiflow agitator</td>
<td>axial / radial</td>
<td></td>
<td>&lt;50</td>
</tr>
<tr>
<td>Multiflow propeller</td>
<td>axial / radial</td>
<td></td>
<td>&lt;50</td>
</tr>
<tr>
<td>Eco agitator</td>
<td>axial / radial</td>
<td></td>
<td>&lt;50</td>
</tr>
<tr>
<td>Trapezoid agitator</td>
<td>axial / radial</td>
<td></td>
<td>&lt;50</td>
</tr>
<tr>
<td>Tooth lock washer agitator</td>
<td>radial</td>
<td></td>
<td>&lt;10</td>
</tr>
<tr>
<td>Cyclone agitator</td>
<td>axial / radial</td>
<td></td>
<td>&lt;20</td>
</tr>
<tr>
<td>Helical ribbon agitator</td>
<td>axial</td>
<td></td>
<td>&lt;1000</td>
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</tbody>
</table>

Standard Programme Agitators, type RT

For different operating conditions in the individual fields of industry, tank agitators (type RT) with V-belt drive are available. Special designs with gear motor and flexible coupling.

Dimensioning of the agitator and selection of agitating element, speed, sealing and drive power are made according to the operating conditions.

The agitator lantern is made of special cast iron (or of welded steel) and has a hinged motor plate. The solid shafts are guided in two large antifriction bearings. The installed single or double-acting mechanical seal has a built-in antifriction bearing for the shaft. The second antifriction bearing is located in a screwable bearing housing, near the upper bearing lantern, so it is best located near the V-belt drive.

The photos show HOESCH tank agitators with V-belt drive. Complete single or double-acting mechanical seal with integrated antifriction bearing and a shut-down seal.

The mechanical seal can be exchanged even when the tank is filled. Second bearing near the V-belt drive.

Dimensioning of tank agitators for lateral installation is based on our basic knowledge thanks to extensive tests and supplies already since 1962 for crude oil, phosphoric acid plants with gypsum, titanium dioxide plants, washing agents as well as water glass, paints and varnishes, absorber discharges and residual discharges in flue gas desulphurisation, sewage, etc.

<table>
<thead>
<tr>
<th>Agitator ø, (nominal ø) d</th>
<th>300</th>
<th>350</th>
<th>400</th>
<th>450</th>
<th>500</th>
<th>550</th>
<th>600</th>
<th>650</th>
<th>700</th>
<th>800</th>
<th>900</th>
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<tbody>
<tr>
<td>Mounting plate ø, DIN or ANSI</td>
<td>395</td>
<td>445</td>
<td>505</td>
<td>565</td>
<td>670</td>
<td>780</td>
<td>895</td>
<td>1015</td>
<td>1115</td>
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<tr>
<td>Drive power N (kW)</td>
<td>5,5</td>
<td>7,5</td>
<td>11</td>
<td>15</td>
<td>18,5</td>
<td>22</td>
<td>30</td>
<td>45</td>
<td>55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agitator speed n₁</td>
<td>250</td>
<td>320</td>
<td>(360)</td>
<td>400</td>
<td>500</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</table>
**Agitators, type HSR**

Agitators, standard sizes HSR 40 to HSR 125

This advanced line of compact HSR agitators with one-piece lantern meets the high requirements made on industrial agitators in every respect.

The bearing lantern is equipped with a double antifriction bearing system to optimize shaft guiding. Different shaft diameters according to DIN.

Thanks to this special construction different types of sealings and drives can be used. HSR agitators are suited for demanding agitating tasks in all branches of industry.

- Up-to-date
- Compact
- Maintenance-optimized
- Universal use of drive and seal types
- Optimum layout related to the individual case of application
- Shaft ø from 40 to 125 mm

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### HSR Agitator with V-belt drive

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**Agitators, type R / Large-size Agitators, type RS**

Thanks to interchangeability of the individual lantern supports for seal and coupling, numerous combinations as to the bearing lantern are possible.

9 possible combinations using 3 basic elements

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### Standard size

<table>
<thead>
<tr>
<th></th>
<th>R</th>
<th>1</th>
<th>2</th>
<th>2V</th>
<th>3</th>
<th>3V</th>
<th>4</th>
<th>4V</th>
<th>5</th>
<th>5V</th>
<th>6</th>
<th>6V</th>
<th>RS</th>
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<tr>
<td>Shaft ø</td>
<td>d₁</td>
<td>50</td>
<td>70</td>
<td>80</td>
<td>90</td>
<td>100</td>
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<td>220 - 300</td>
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<tr>
<td>Housing ø</td>
<td>D</td>
<td>210</td>
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<td>320</td>
<td>400</td>
<td>400</td>
<td>500</td>
<td>500</td>
<td>600</td>
<td>800</td>
<td>800</td>
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<tr>
<td>Bearing support</td>
<td>H₁</td>
<td>300</td>
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<td>400</td>
<td>500</td>
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<td>800</td>
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<td>1000</td>
<td>1000</td>
<td>1200</td>
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<tr>
<td>Support</td>
<td>H₂</td>
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<td>250</td>
<td>250</td>
<td>350</td>
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<td>350</td>
<td>450</td>
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<tr>
<td>Support</td>
<td>H₃</td>
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<td>150</td>
<td>150</td>
<td>250</td>
<td>250</td>
<td>250</td>
<td>350</td>
<td>350</td>
<td>350</td>
<td>350</td>
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</tr>
</tbody>
</table>

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**HSR Agitator in horizontal design used in the paper industry**
Agitators, type R / Large-size Agitators, type RS

Vertical Agitators – Multipart Agitator Lanterns

HOESCH Agitators, type R / RS are very robust and suitable for all tank sizes.

The most important component parts are graded according to a modular system. Thanks to interchangeability of supports for seal and coupling, numerous combinations as to the bearing lantern are possible. An intermediate flange allows the use of different gear sizes. Agitator dimensioning and the selection of agitating elements, speed, type of sealing and drive power depend on the individual operating conditions. The either solid or hollow shafts are always supported by two anti-friction bearings located at a certain distance. Upon request, bottom guides are available. Shaft seals protect the bearings against lubricant leakage and contamination. The shaft is always connected with the drive unit by a flexible coupling. Very long shafts are made of several parts, connected by flanged couplings, to facilitate transport and assembly.

Agitators, type HSR

Mounting plate as per DIN 28141 or ANSI. For supporting structures of rectangular design

Flange coupling DIN 28155

Agitator shaft ø acc. to DIN Standard material 1.4571 Special materials Rubber- or plastic-lined steel

Technical data

<table>
<thead>
<tr>
<th>Type</th>
<th>d (mm)</th>
<th>H (mm)</th>
<th>D (mm)</th>
<th>F (mm)</th>
<th>L (mm)</th>
<th>Mounting plate Min. (mm)</th>
<th>Mounting plate Min. (mm)</th>
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<tr>
<td>HSR 40</td>
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<td>460</td>
<td>200</td>
<td>250</td>
<td>330</td>
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<tr>
<td>HSR 50</td>
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<td>275</td>
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<td>330</td>
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<td>640</td>
<td>275</td>
<td>350</td>
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<td>340</td>
<td>450</td>
<td>480</td>
<td>DN 300 PN 10</td>
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<td>1050</td>
<td>450</td>
<td>550</td>
<td>430</td>
<td>DN 400 PN 10</td>
<td>600 x 600</td>
</tr>
</tbody>
</table>

Drives with fixed or variable speed
Different variations possible

Torsionally flexible coupling installed in a protected place and adaptable to all drive-sided journals

Robust agitator lantern
Fixed and movable bearings, protected from splash water, separate lubrication, little maintenance, optimized bearing distance to minimize shaft excursions in the seal area

For shaft seals see “Standard Agitator Seals”

HOESCH – Agitator used in the zinc industry.
Agitators, type RFG

DIN Agitators with quick change attachment for simple and quick exchange of the mechanical seal. Standard sizes RFG 3 – RFG 6. Shaft ø from 80 to 200 mm.

HOESCH Agitators, type RFG, complete the range with well-proved standard series HSR, R and RS. On the photo you see an advanced unit where the mechanical seal can be laterally removed.

Thus, disassembly of the gear lantern is not necessary. The agitator lantern and the tank keep connected.

After removal of the intermediate shaft and coupling half, the complete mechanical seal with integrated antifriction bearing can be removed by means of a lifting device. We especially point to the low height of the agitator drive. Thus, no additional height is required for disassembly of the sealing.

The parts are easily accessible, since wide lantern openings facilitate disassembly. A two-part support plate below the base plate supports the whole agitator shaft.

Upon request, this series can be ordered with hydraulic lifting device.

Quick exchange of a mechanical seal with a HOESCH agitator, type RFG

The agitator lantern and the tank keep connected.

Undo connections of the mechanical seal.

Swing out the intermediate shaft.

Undo the lower coupling disk, lift it and swing it out.

Undo screw connections of the two flange couplings of the intermediate shaft.

Connect lifting and slewing device with the intermediate shaft.

Same action with the mechanical seal, i.e. lift and swing out the undone seal.

- Gear motor applicable in different types of construction.
- Rigid coupling from the drive to the intermediate shaft.
- One-piece intermediate shaft swinging out.
- Lower coupling half with clamping element.
- Mechanical seal with integrated antifriction bearing as a shaft seal, fitting dimensions as per DIN 28138.
- Mounting plate as per DIN 28141 with shaft supporting ring.
- Hydraulic lifting and slewing device for dismounting of the mechanical seal.
- Shaft coupling as per DIN 28155.

<table>
<thead>
<tr>
<th>Standard size</th>
<th>H</th>
<th>d2ø</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFG 3</td>
<td>1150</td>
<td>80</td>
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<tr>
<td></td>
<td></td>
<td>90</td>
</tr>
<tr>
<td>RFG 4</td>
<td>1250</td>
<td>100</td>
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<tr>
<td></td>
<td></td>
<td>125</td>
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<tr>
<td>RFG 5</td>
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<td>140</td>
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<td></td>
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<td>160</td>
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<tr>
<td>RFG 6</td>
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<tr>
<td></td>
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