EIRICH Intensive Mixer Type R

- economic efficiency
- reliability
- low maintenance

The Pioneer in Material Processing
The advantages of an innovative system

EIRICH intensive mixers of the Type R Series were developed for the most diverse jobs in the processing of raw materials, mechanical mixtures and compounds. Variable setting of machine components and the energy range ensures a high degree of efficiency.

Three components determine the characteristics of these mixers:
1. An inclined, rotating mixing pan
2. A rotating mixing tool
3. An adjustable multi-purpose wall-bottom scraper

The advantages resulting for the user are considerable:
- Optimum homogenization of the process material
- Shortest mixing times
- Little wear
- Low-maintenance design
- Excellent, constant quality of process material (permanently)
- Continuous or batchwise mode of operation
The spectrum of applications covered by EIRICH intensive mixers is as varied as the range of industrial processing operations in the fields of production and environmental protection.

Conventional EIRICH mixers are used for mixing under atmospheric pressure whereas EVACTHERM® mixers are used for mixing under vacuum and/or for combining complex preparation processes. Processing steps can be performed either singly or in combinations in one machine.

They include:
- mixing, reacting, dispersing, dissolving,
- slurrying, plasticizing, deaerating, fiberizing,
- solubilizing, agglomerating, disagglomerating,
- pelletizing, granulating, kneading, moistening,
- drying, heating, cooling, stripping, impregnating, coating, waterproofing.
EIRICH Type R intensive mixers can be set up for either counter-current or cross-current operation. This design provides optimum performance in both batch and continuous operation, using state-of-the-art processing technology to meet today’s special production requirements.

The Type R mixer’s excellent processing efficiency is guaranteed by:

- a rotating mixing pan that continually transports the material to the rotating mixing tool, inducing counter-flowing currents of material with a high velocity differential.
- an inclined rotating mixing pan, which together with a stationary multi-purpose wall-bottom scraper produces high vertical flow rates.
- a multi-purpose wall-bottom scraper designed to prevent residue accumulations on the walls and bottom surface of the mixing pan and to accelerate material discharge at the end of the mixing cycle.
The mixer configuration of the future

Stationary multi-purpose wall-bottom scraper

Durable tool designed for easy maintenance

Rotating mixing pan

Counter-flowing currents of material with a high velocity differential

Fig. 5.1: EIRICH mixing principle
The design features

With EIRICH Type R intensive mixers it is possible to work under atmospheric pressure and under vacuum over a wide range of temperature. The mixers are subject to minimum wear and they require minimum maintenance.

- The rotating mixing pan is enclosed by a static case.
- The seals of the moving parts do not come into contact with the process material.
- The mixing chamber is easy to reach. Access to the pan varies according to its size.

**EVACHTHERM®**
Mixers in vacuum-tight design for the combination of several process steps.

At the moment, the series comprises mixers with load capacities ranging from 1-5 liters (e.g. for the laboratory) to 7,000 litres.

**Drives**
Power requirement, speed and the type of power transmission are chosen in accordance with the particular application:
- Friction wheels or gear rim for the mixing pan.
- Standard motor with V-belt, and/or gear unit or geared motor for the rotating mixing tool.

**Motors**
Matched to the local conditions.

**Mixing pan**
Bottom, cover and side walls with smooth finished surfaces for easy cleaning.

**Mixing tool**
Rugged and minimum-maintenance design. Easy replacement of mixing blades. The shape and the number of mixing blades are adapted to the process material.

**Feeding and discharge**
Individually designed according to the product parameters and the conditions of installation.

<table>
<thead>
<tr>
<th>Cover and mixing tools are raised by motors. The mixing pan can be removed.</th>
<th>R01</th>
<th>R02</th>
<th>R02E</th>
<th>RV02E</th>
<th>R02VAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cover and mixing tool are swiveled up and open hydraulically</td>
<td>R05T</td>
<td>R08W</td>
<td>R08VAC</td>
<td>R09W</td>
<td>R09T</td>
</tr>
<tr>
<td>The mixing pan can be tilted</td>
<td>R05T</td>
<td>R09T</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access through large inspection doors</td>
<td>R08</td>
<td>R09</td>
<td>RV11VAC</td>
<td>R12</td>
<td>RV12</td>
</tr>
<tr>
<td></td>
<td>R15</td>
<td>RV15</td>
<td>RV15VAC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>R16</td>
<td>RV16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>R19</td>
<td>RV19</td>
<td>RV19VAC</td>
<td>RV23VAC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>R24</td>
<td>RV24</td>
<td>RV29VAC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RV32</td>
<td>RV32VAC</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

![Fig. 7.1: EVACHTHERM® mixer RV32VAC](image1)
![Fig. 7.2: Cross section of an EVACHTHERM® mixer](image2)
![Fig. 7.3: Mixer type R12 with maintenance hood on guide rail](image3)
![Fig. 7.4: Quick-acting closure](image4)
![Fig. 7.5: Friction wheel drive](image5)
![Fig. 7.6: Easy access through large inspection doors](image6)
![Fig. 7.7: Mixer type R02VAC](image7)
1 = mixing chamber (rotating mixing pan)
2 = mixing tool
3 = multi-purpose tool
4 = discharge opening
5 = stationary, vacuum-tight case
The range of high-performance types

Fig. 8.1: R01 with raised mixing tool

Fig. 8.2: R09T with raised mixing tool

Fig. 8.3: R12 with open maintenance hood
<table>
<thead>
<tr>
<th>Type 1)</th>
<th>Capacity 2)</th>
<th>Working principle</th>
<th>Operating modes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>liters kg max. batch continuous standard atmosphere under vacuum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R01 R 5)</td>
<td>5 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R02 R 3-5</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R02E R 3-5</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RV02E R 8-10</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R02VAC R 3-5</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R05ST R 40 65</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R08 R 75</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R08W R 75</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R08VAC R 75</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R09 R 150</td>
<td>240</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R09W R 150</td>
<td>240</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R09T R 150</td>
<td>240</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RV11VAC R 375 600</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R12 R 250</td>
<td>400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RV12 R 250</td>
<td>400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R12W R 250</td>
<td>400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RV12W R 250</td>
<td>400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R15 R 500</td>
<td>800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RV15 R 500</td>
<td>800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RV15VAC R 500 1200</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R16</td>
<td>600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RV16 R 960</td>
<td>960</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R19 R 1125</td>
<td>1800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RV19 R 1125</td>
<td>1800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RV19VAC R 1125 2400</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RV23VAC R 3000</td>
<td>4800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R24 R 2250</td>
<td>3600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RV24 R 2250</td>
<td>3600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RV29VAC R 4800</td>
<td>8400</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RV32 R 7000</td>
<td>11200</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RV32VAC R 7000</td>
<td>11200</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) All types can be designed to operate at temperatures up to 170 °C. Higher temperatures of individual mix components are possible during addition.

2) Product-specific

3) Pan can be removed

4) Mixing pan can be tilted

5) Cover and tool can be raised by motor

6) Configurable with induction heating up to 250 °C

7) Induction heating upon request

8) Capacity of 1 liter upon request
You can also select from among a range of proven supplementary components for your system. These accessories let you optimize your technology with special machine components and extensive automation.

**Protection against wear**

The materials and coatings used to manufacture those components that come into contact with abrasive substances are specifically selected for each individual application.

The standard EIRICH range lets you choose from among a number of proven materials for inhibiting wear:

- High quality steels as base material
- Bonded rubber seals and special synthetics
- Seals made of PTFE, Viton, etc.
- Armor coatings
- Hard metal plating
- Stainless steel
- Non-ferrous metals
- Ceramic tiles

![Fig. 10.1: Carbide tipped mixing blades](image1)
![Fig. 10.2: Ceramic tile lining on all surfaces](image2)
![Fig. 10.3: Mixing pan with rubber covering](image3)
![Fig. 10.4: Mixing blades with armoring](image4)
Applications

Automation

Open and closed-loop control is based on reliable systems for monitoring the parameters of mix quality and machine technology. You can benefit from the experience that EIRICH has gathered in designing countless solutions for special applications - experience that pays off in the form of thoroughly reliable systems.

- Level monitoring based on ultrasonic sensors, motor performance, electro-mechanical sensors and force monitors
- Temperature sensors
- Moisture sensors
- Residual water extraction systems
- Mixing pan cleaning equipment (dry and wet)
- Discharge aids, speed monitors for the pan and the mixing tool
- Central lubrication system
- Tooth flanks spray unit

Fig. 11.1: Retractable moisture sensor
Fig. 11.2: Automatic central lubrication
Fig. 11.3: Wet cleaning
Customized peripherals for every mixer

Special systems are also available for incorporating the EIRICH intensive mixer into the larger production process. These systems are precisely matched to machine size in order to provide optimum performance and ensure complete utilization of the mixer’s full potential.

- Formulas must be strictly observed if product quality is to be maintained

This means that all of the components have to be added in precisely the right sequence and quantities.

- The product should display maximum consistency when it leaves the mixing pan on its way to subsequent processing operations

EIRICH offers a complete range of products for storing, transporting, weighing, metering and controlling the entire process.

- Storage containers for granular substances or for fluids
- Conveyors based on belt, screw, and pneumatic technology, also skip hoists
- Electromechanical scales
- Feeding units featuring electropneumatic control systems
- Measuring devices, open and closed-loop control and process data technology, including self-regulating CIM-compatible systems

Fig. 12.1: Building and silos of a plant for adhesive mortar
Fig. 13.1: Scale assembly
Fig. 13.2: Additive storage and feeding
Fig. 13.3: Mixer with infeed by elevator
Fig. 13.4: Control room with CAQ system
Investment without risk

Machinery and equipment are available to test actual material response characteristics under a wide range of processing conditions. The effective capacities are designed for accurate simulation to ensure trouble-free full-scale operation. We can also provide units for materials that require explosion protection or need to be processed under vacuum.

A very special feature: We can supply a fully automated control system capable of maintaining optimum process conditions — automatically. The system can also record the trials for graphic display. These features reduce both the effort and the risk involved in designing your production facilities.
EIRICH offers you a comprehensive range of services. These start with the initial consultations and trials, and extend to include system design, measurement and control technology, transport, assembly and training. We can even help you when you start production. Our Customer Service ensures reliable access to spare parts, around the globe. Modern, computer-assisted procedures help us find the most economical solution for you.

Fig. 15.1: Complete plant for concrete

Fig. 15.2: Complete plant for dry mortar
Eirich stands worldwide for a comprehensive range of products and services in the field of preparation technology. Its particular focus is on mixing and fine grinding technology, with know-how developed over 145 years of close cooperation with industrial users, universities and research institutions.

Pursuing a corporate philosophy of operating internationally and thereby ensuring close proximity to every customer, the Eirich Group has secured its place in all the key economic regions of the world.

The focus is on innovative technology for machinery and plant engineering designed to offer solutions for high-standard preparation tasks from a single source.

Applications and process technology with own test centers, a high vertical range of production and comprehensive after-sales service provide the ideal basis for the development of modern and economical processes for a multitude of industries.

**Building materials – Ceramics – Glass – Carbon bodies – Battery pastes**

**Friction linings – Metallurgy – Foundries – Environmental protection**

---

**The Eirich Group worldwide:**

- **Maschinenfabrik Gustav Eirich GmbH & Co KG**
  - Postfach 11 60
  - 74732 Hardheim, Germany
  - Phone: +49 (0) 6283 51-0
  - Fax: +49 (0) 6283 51-325
  - E-mail: eirich@eirich.de
  - Internet: www.eirich.com

- **Groupe Eirich France SARL**
  - Villeurbanne, France

- **OOO Eirich Maschinentechnik**
  - Moscow, Russia

- **OOO Eirich Maschinentechnik**
  - Dnepropetrovsk, Ukraine

- **Eirich Machines, Inc.**
  - Gurnee, IL, USA

- **Eirich Industrial Ltda.**
  - Jandira S.P., Brazil

- **Nippon Eirich Co. Ltd.**
  - Chiba, Japan

- **Eirich East Asia/Pacific**
  - Seoul, Republic of Korea

- **Eirich Group China Ltd.**
  - Shanghai & Beijing, P.R. China

- **Eirich-EME**
  - Jiangyin, Jiangsu Province, P.R. China

- **Eirich India Pvt. Ltd.**
  - Mumbai, India

- **H. Birkenmayer (Pty.) Ltd.**
  - Isando, Republic of South Africa