EXHAUST GAS PURIFICATION
“ALL IN ONE“ FOR STATIONARY ENGINES

up to 4500 kW

combikat™ IMCC

hugengineering. A FAURECIA COMPANY
COMPACT AND PRE-ASSEMBLED

EFFICIENT AND COST-SAVING

The combikat™ IMCC all-in-one concept combines compact proportions with “plug and play” convenience. All exhaust gas components are integrated into a single housing unit. This compact unit reduces engineering and transport costs, saves space and simplifies project planning. The high degree of prefabrication simplifies field construction, making your project cost competitive and easier to manage.

VERSATILE AND INCLUSIVE

combikat™ IMCC targets stationary engine systems such as powerplants, cogeneration facilities and stand-by applications in a power range from 200 kW to 4500 kW. It is designed to minimize emissions from diesel, gas and dual-fuel engines burning a full range of liquid and gaseous fuels.

combikat™ IMCC WORLDWIDE

Better techniques and accumulated knowledge mean that our installations meet and exceed the latest and most demanding requirements in terms of environmental performance. Good to know that wherever you are in the world, our team of specialists has the expertise and experience to ensure that your installation will comply with increasingly stringent, local environmental legislation.

THE RIGHT NOₓ MEASUREMENT SYSTEM FOR YOUR NEEDS

The most critical part of any emissions treatment system is the control system dosing the urea/aqueous ammonia injection for NOₓ reduction, which is the core specialization of Hug Engineering. From a basic dosing system based on an engine-load signal to a state-of-the-art closed/nested loop system for dynamic applications requiring frequent adjustments to the injection rate, Hug will collaborate with you to optimize your system depending on the application and regulation. The closed-loop systems utilize a built-in emissions measuring system based on electrochemical cells, which are much more robust and will secure reliable and convenient operations compared to systems relying on automobile NOₓ sensors. All control systems are manufactured in-house and pre-commissioned in Hug’s factory in Elsau, Switzerland.

Your Benefits with combikat™ IMCC:
• “Plug and play” design results in lowest total cost of ownership (TCO)
• Prefabrication reduces cost, space, installation time, piping and risks
• Up to 99% NOₓ removal (<2.3 ppm) while meeting RICE NESHAP requirements
• Ammonia slip <1 ppm possible with state of the art controls and catalysts
• Versatile block arrangements, easily meet Tier 4f to AQMD III0.2 / CARB
• Inherent silencing capabilities
According to the application-specific configuration, the Hug combikat™ IMCC system is capable of significantly reducing pollutant exhaust gas constituents:

**TECHNOLOGY / PRODUCTS**
- Selective catalytic reduction (SCR)
- Particulate filter
- Oxidation catalyst
- Ammonia slip catalysts

**EMISSIONS**
- Oxides of nitrogen (NOx)
- Particulate matter (PM)
- Non-methane, non-ethane hydrocarbons (NMNEHC)
- Carbon monoxide (CO)
- Overall volatile organic compounds (VOC)
- Formaldehyde and HAPs

**EMISSIONS RESULTS:**

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx</td>
<td>&lt; 2.3 ppm*</td>
</tr>
<tr>
<td>PM (number)</td>
<td>&gt; 97 %</td>
</tr>
<tr>
<td>NMNEHC</td>
<td>&gt; 95 %</td>
</tr>
<tr>
<td>HCHO</td>
<td>&lt; 1 ppm</td>
</tr>
<tr>
<td>CO</td>
<td>&gt; 99 %</td>
</tr>
<tr>
<td>NH3</td>
<td>&lt; 1 ppm*</td>
</tr>
</tbody>
</table>

* at 15% O2

MODULAR AND CONFIGURABLE

Following the proven Hug philosophy, combikat™ IMCC consists of modular SCR, oxidation, combined with optional particulate filter cassettes, configured by Hug’s engineers to meet the emissions regulations in force and the customer’s own specifications. Thanks to the embedded mixing pipe, the system design is very compact. The total system is packaged in robust, easily transportable, acoustically and thermally insulated casings, ready for quick installation on site.

**Legend:**
- Reactant
- Air

**Table:** Typical spectrum of noise insertion loss across IMCC converters fitted with catalyst honeycombs
EMISSION REDUCTION: PROFESSIONAL, COMPACT AND COST-SAVING

COMBIKAT™ IMCC ALL-IN-ONE SYNERGY THROUGH CUSTOMER-ORIENTED INNOVATION

Many years of customer-oriented innovation has resulted in the combikat™ IMCC all-in-one concept. This advanced system combines experience and feedback from the market with the best available techniques. The combikat™ IMCC all-in-one concept is compact in size and uses the ‘plug-and-play principle’. This means savings on space and installation costs, and reduces possible assembly and installation risks on site.

ABOUT HUG ENGINEERING

With over 30 years of experience with stationary, mobile and marine applications, Hug Engineering has achieved a leading position in the field of diesel particulate filters and catalytic exhaust gas aftertreatment.

This success is based on intensive, targeted R&D and a wide and flexible scope of supply in advanced emissions reduction systems – from standardized modules to customized systems, based on the customers’ specifications and applicable legislation, and supplied and installed according to their individual preferences.