Application example

**Intermediate cleaning of components for engines**

**Task**
Engines comprise many individual high-precision components. A wide range of process steps are required to manufacture these components. In many cases, intermediate cleaning is required between manufacturing steps to remove oil, protective coats, machining chips, etc.

**Solution**
Single-chamber cleaning systems are often used for intermediate cleaning, generally with ultrasonic components fitted in the chamber. The chamber volume dictates the number of integrated tube resonators, which are supplied with energy via ECO\textsuperscript{©} module generators. The generators are housed in the control cabinet of the cleaning system.

**Configuration advantages**
Using ultrasonics makes it possible to achieve deep cleaning. Even recesses, drill holes and undercuts can be cleaned as a result of the cavitation effect. Thanks to the radial radiation surface, the ultrasonic resonators produce an intensive and homogeneous ultrasonic field to meet the highest standards of cleaning. The tried-and-tested design and high quality requirements for the materials used guarantee the high efficiency and durability of the tube resonators and ECO\textsuperscript{©} generators.

Ultrasonic tube resonators, 20–40kHz frequency, and ECO\textsuperscript{©} module generators, built into a multi-chamber cleaning system.