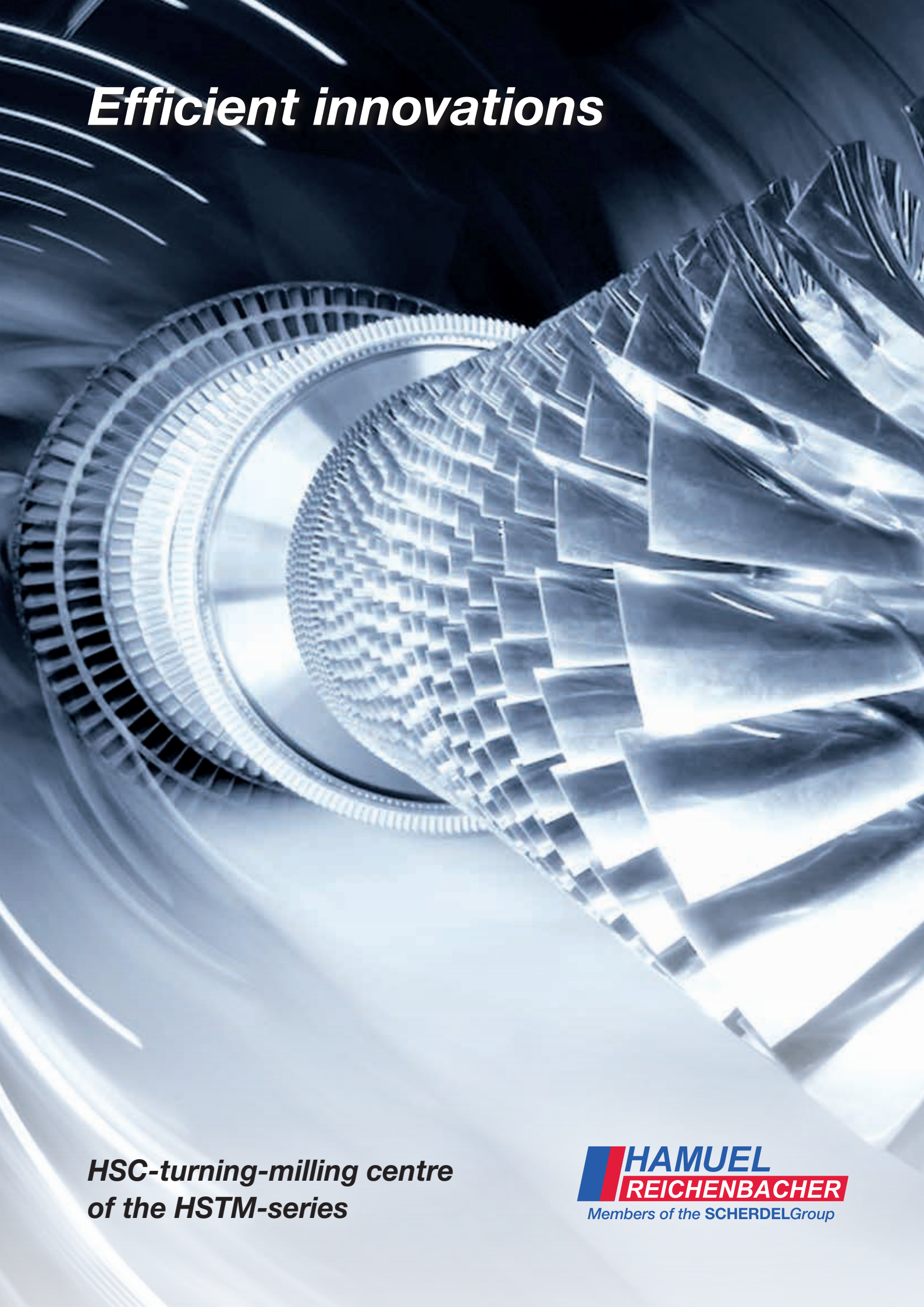
Efficient innovations



HSC-turning-milling centre of the HSTM-series

HAMUEL REICHENBACHER
Members of the SCHERDELGroup

Contents

The HSC-turning-milling centre HSTM, where the components are arranged horizontally, is especially suited for the machining of turbine and compressor blades, blisks and/or radial compressors, as well as many other intricate turning-milling parts. The slant bed slides are inclined to the front at an angle of 45° to ensure optimum mass distribution, excellent loading possibilities and a brilliant view of the working area.

Precision and economics
Where the attainable accuracies and surface qualities are concerned, the HSTM exceeds the greatest demands made on modern blade machining. Maximum productivity is continuously ensured by its sturdiness and rigidity, as well as an integrated HSC-support.

Machine designed for overhead crane hook handling to ensure its quick installation and start-up.

The axes for the component rotation possess an enormous torque for a processing that meets the highest quality demands as to the geometric characteristics of the components, this is particularly so at the entry and exit edges.

Integrated component loading device to achieve optimum machine productivity (as an option).

User-friendly, extremely dynamic and high-precision control systems are preferably used for the HSC-5-axes turning-milling process.

Y-Z-cross slide inclined by at 45° with respect to the machine bed:
- Optimum accessibility of the working area.
- Ideal visibility for process observation.
- Identical kinematic and dynamic conditions for the Z- and Y-axis.
- Chip chute at 45° for automatic chip removal.

The result of an optimum interaction between innovative solutions and efficiency

Machine construction with inherent rigidity. Thus, no special floor foundation is required.

The separation of the axes into components (X, A, C, U) and tool axes (Y, Z, B) permits excellent acceleration and machine dynamics.

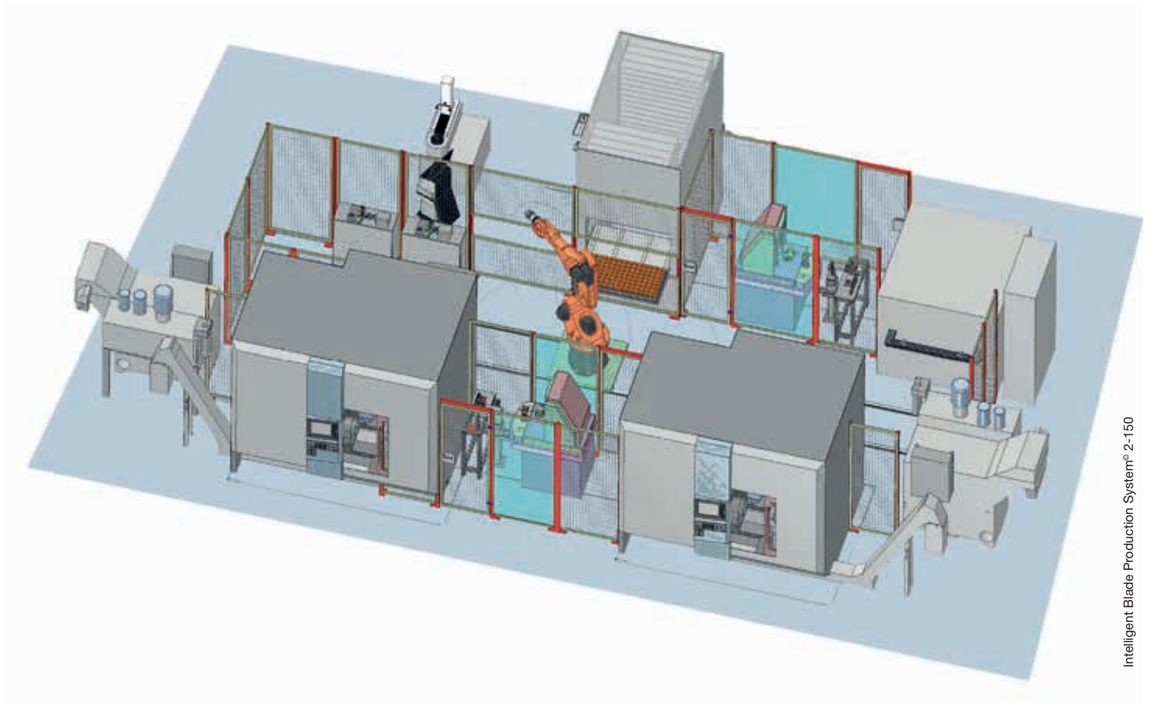
Universal machine for the processing of blade and wheel shapes (e.g. impeller).

Unmatched damping characteristics of the machine bed, slides and housings of the rotary axes guarantee the best quality and tool life for the 5-axes HSC-turning-milling process.

A vision becomes a reality

Automation to measure

Exploit your potential – make full use of your competitive advantage!



Intelligent Blade Production System® 2-150

Utmost adaptability
All machines can be equipped with component changing systems for the quick loading and unloading of blanks and finished turbine blades. Attaching component magazines permits a production run of several shifts without the presence of an operator. Different types of machinery can without any problem, be interlinked to form a flexible manufacturing cell. Here, the philosophy is put into practice so that any applicable work-part can be introduced into the cell and say, a turbine blade with complete documentation, meeting the demanding criteria of the aircraft engine industry, leaves the cell finished.

Ergonomics and productivity
The inclined position of the axes in the machining area guarantees an excellent chip removal. Standard interfaces at the rotary axes and peripheral components are the essential characteristics of this machine, being designed for utmost productivity. In arranging the operating and service elements, special importance was attached to their ergonomic layout.

Technical data

	TYPE OF MACHINE	Maximale Werkstückabmessungen inklusive Spannmittel		
		Width	Length	Max. Ø bei 150 mm WZ Länge
TURBINE BLADES AND BLISKS	**HSTM 300**	400 mm	700 mm	490 mm
	HSTM 500	400 mm	900 mm	490 mm
	HSTM 1000	400 mm	1450 mm	490 mm
	HSTM 1500	400 mm	1950 mm	490 mm
	HSTM 1500 XL	700 mm	1760 mm	935 mm
	HSTM 2000 XL	700 mm	2260 mm	935 mm
	HSTM 2500 XL	700 mm	2760 mm	935 mm
	HSTM 150 S2	450 mm	800 mm	625 mm
	HSTM 150 HD	300 mm	600 mm	4,350 mm
	HSTM 300 HD	400 mm	700 mm	800 mm
	HSTM 500 HD	400 mm	900 mm	800 mm
	HSTM 700 HD	400 mm	1,100 mm	800 mm
	HSTM 1000 HD	400 mm	1,450 mm	800 mm
BLISKS	**HSTM 150 Blisk**	450 mm		625 mm
	HSTM 850 Blisk	400 mm		850 mm
	HSTM 1500 XL-Blisk	800 mm		1,000 mm

Exakte maßliche Aussagen erfolgen an hand von realen Werkstückangaben

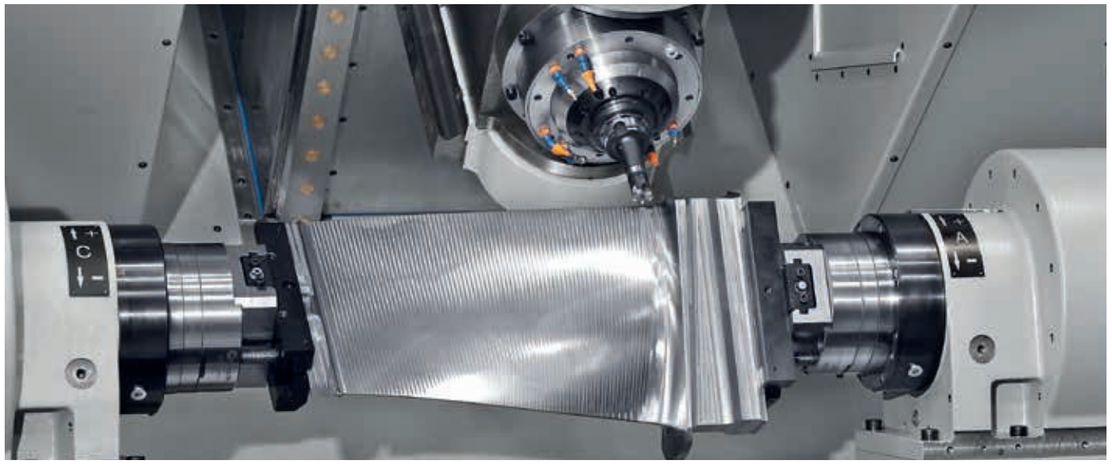
There is always more than one reason for success

The HSTM-series guarantees:

- Excellent up-time
- Great static and dynamic rigidity
- Thermo-stability in all axes
- Modular design – the same spare parts for all machines
- Ergonomic design
- Motor spindles with high speed and strong torque
- Utmost machine dynamics for short component processing times
- Excellent accessibility for maintenance and service
- Highest demands on accuracy and surface quality
- Automatic changing of tools and components
- Excellent surface quality due to hydrostatic A- and C-axes

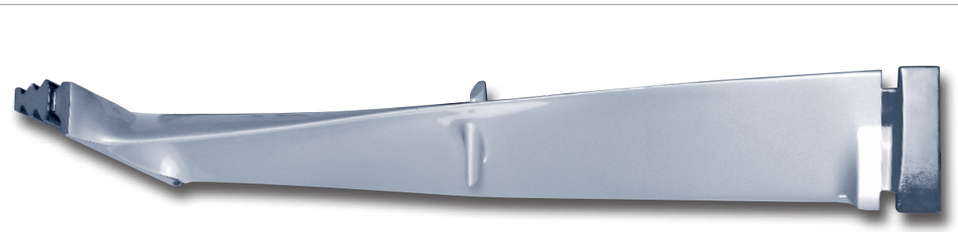
Machining of blisks

Machining of turbine blades

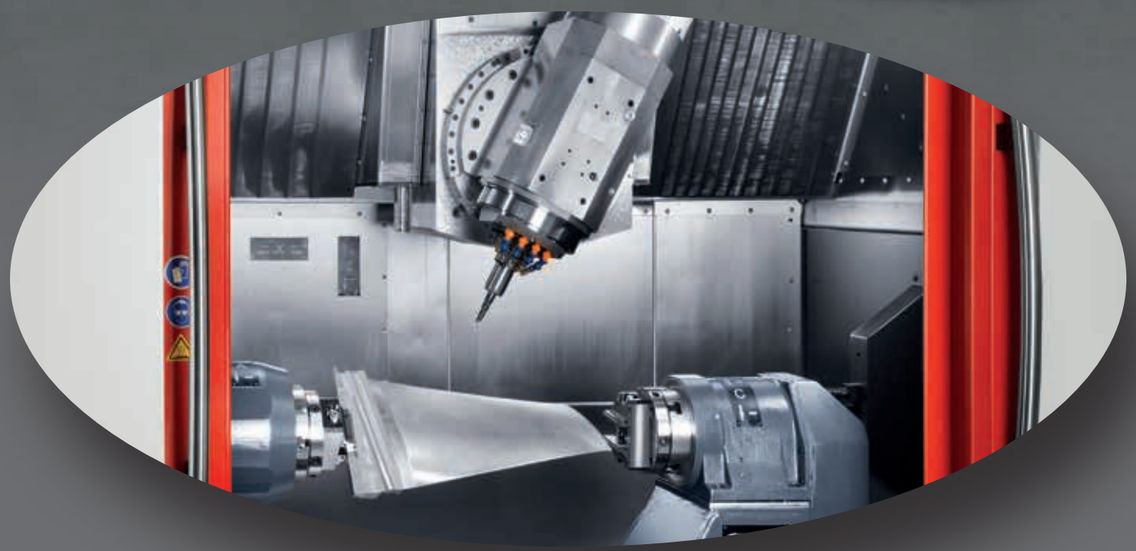


HSTM options

A- and C-axes available with anti-friction bearings or hydrostatic bearings design



More information about the HSTM 150 S2: Separate brochure!



- Werkstück Spanndruck Überwachung
- Hydrostatische Lagerung für die Werkstück-Spindeln
- Rotoclear Klarsichtfenster
- Handsteuergerät
- Automatisches Werkzeug vermessen
- Automatisches Werkstück vermessen
- Prozesskühlung CO_2
- Minimalmengenschmierung
- Hochdruck-Innenkühlmittel-Zuführung
- Bandfilter oder Rotationsfilter
- Werkzeugmagazine mit 24, 36 oder 60 Plätzen
- Werkstückwechler 1:1
- Programmier-Software

Splendid view to witness the process also with high pressure coolant.

High work-piece quality and accuracy, economic operating and maintenance factors as well as optimized production conditions support the user's goal to buttress his technology leadership on his market.

More information about the HSTM 150: Separate brochure!

Additive Manufacturing mit der Hybrid-Maschine für Laser Cladding und Dreh-Fräs-Technologie

Spare parts:
A great number of mechanical and electrical spare parts for a smooth and safe production at your plant are provided by us. Based on our comprehensive documentation, even the spare part supply for very old machines is ensured.

We do live by our service ideology – day by day!

Our products are renowned all over the world for their high machine capacity and availability, their extraordinary length of life, as well as their particular ease of operation, installation and maintenance. We will place at your disposal an experienced and, above all, prompt after-sales service for your HAMUEL-machinery worldwide to enable you to make unlimited use of our strengths at any time.

Your advantages in short:

- 24-hour service hotline
- Tele-diagnostics for the machines, interactive technical support
- Spare parts available at very short notice owing to in-house production and optimum logistics
- Highly qualified service technicians ready for action on an international basis
- Local service contacts in all delivery countries
- Short reaction times with flexible assistance for machine maintenance and repairs
- Customer training according to individual requirements
- Retrofit (service updates on older machines using most modern technology, e.g. control systems, HDDs)
- Preventive maintenance (replacement prior to failure)
- Service contracts/annual service carried out by experts from HAMUEL
- On-site service
- Inspection of the machine and examination of its geometric accuracy

Service hotline:
+49 9561 599 300

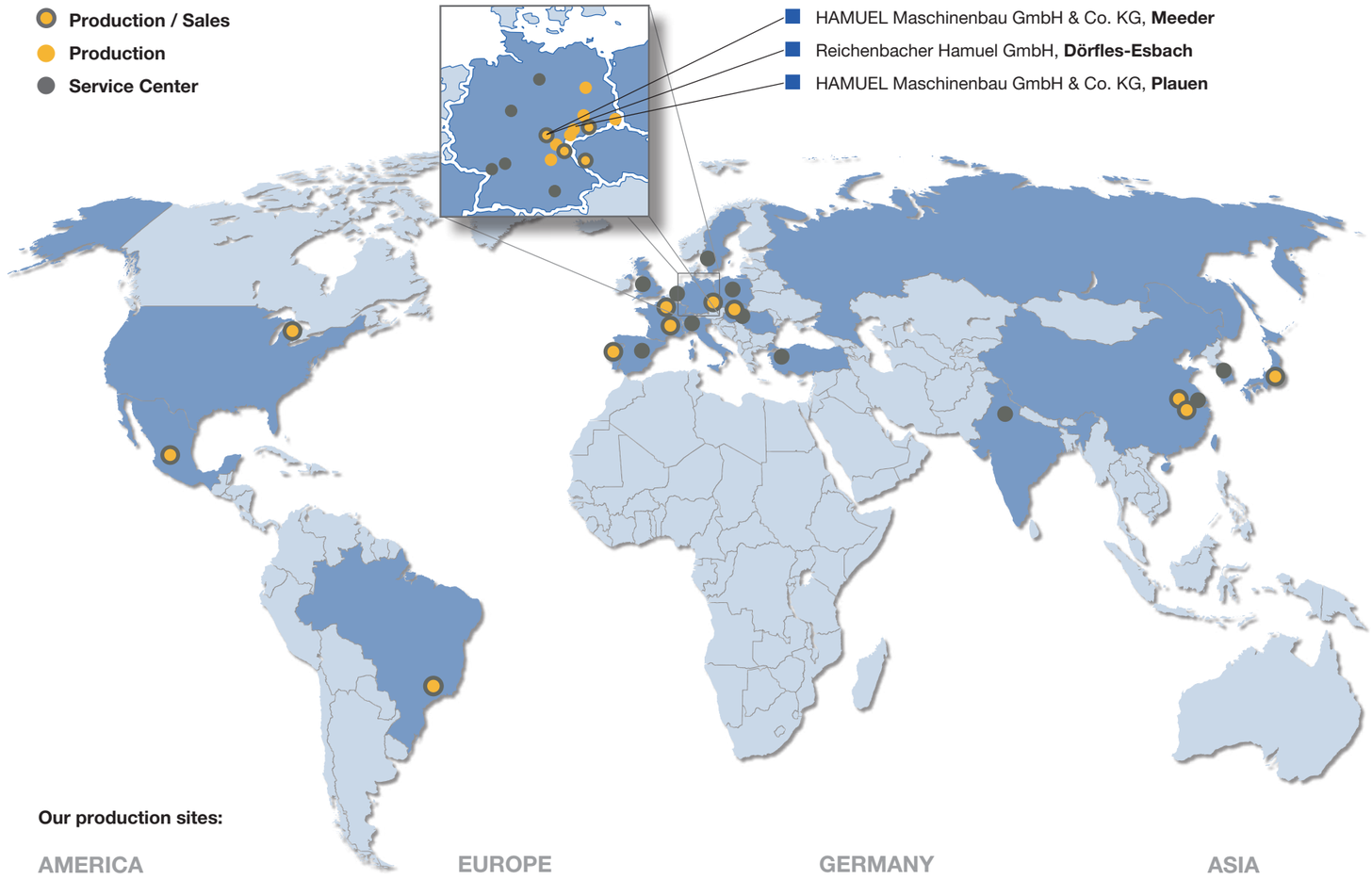
SCHERDEL

Local roots, worldwide presence

The SCHERDEL group of companies with its headquarters at Marktredwitz in the North-East of Bavaria has gone global featuring 30 locations with 40 production sites and more than 5,000 employees. The members of the SCHERDEL group offer to the market a wide range of products and services, while the individual companies are operating flexibly and autonomously in the market.

Each of these companies can resort to the longstanding experience and the know-how of the other members of the group. This results in precious synergies that will not only save the customer's time and money, but also present him with entirely new perspectives.

Only in the fields of mechanical and plant engineering, as well as tool manufacture, the SCHERDEL group employs more than 600 people. Our customers appreciate the strong synergies inherent in our group of companies, as in accordance with the "full-service-principle", they provide them with comprehensive solutions to their problems.



Our production sites:

AMERICA
Brazil, Sorocaba
Mexico, Silao
USA, Muskegon

EUROPE
France, L'Arbresle
France, Beauvais
Portugal, S. J. da Madeira
Russia, Kaluga
Slovakia, Myjava
Czech Republic, Bor

GERMANY
Berlin
Chemnitz
Coburg
Erlangen
Marktredwitz
and its region
Marienberg
Plauen
Röslau
Seifhennersdorf
Treuen

ASIA
China, Anqing
China, Huzhou
Japan, Aichi

HAMUEL REICHENBACHER

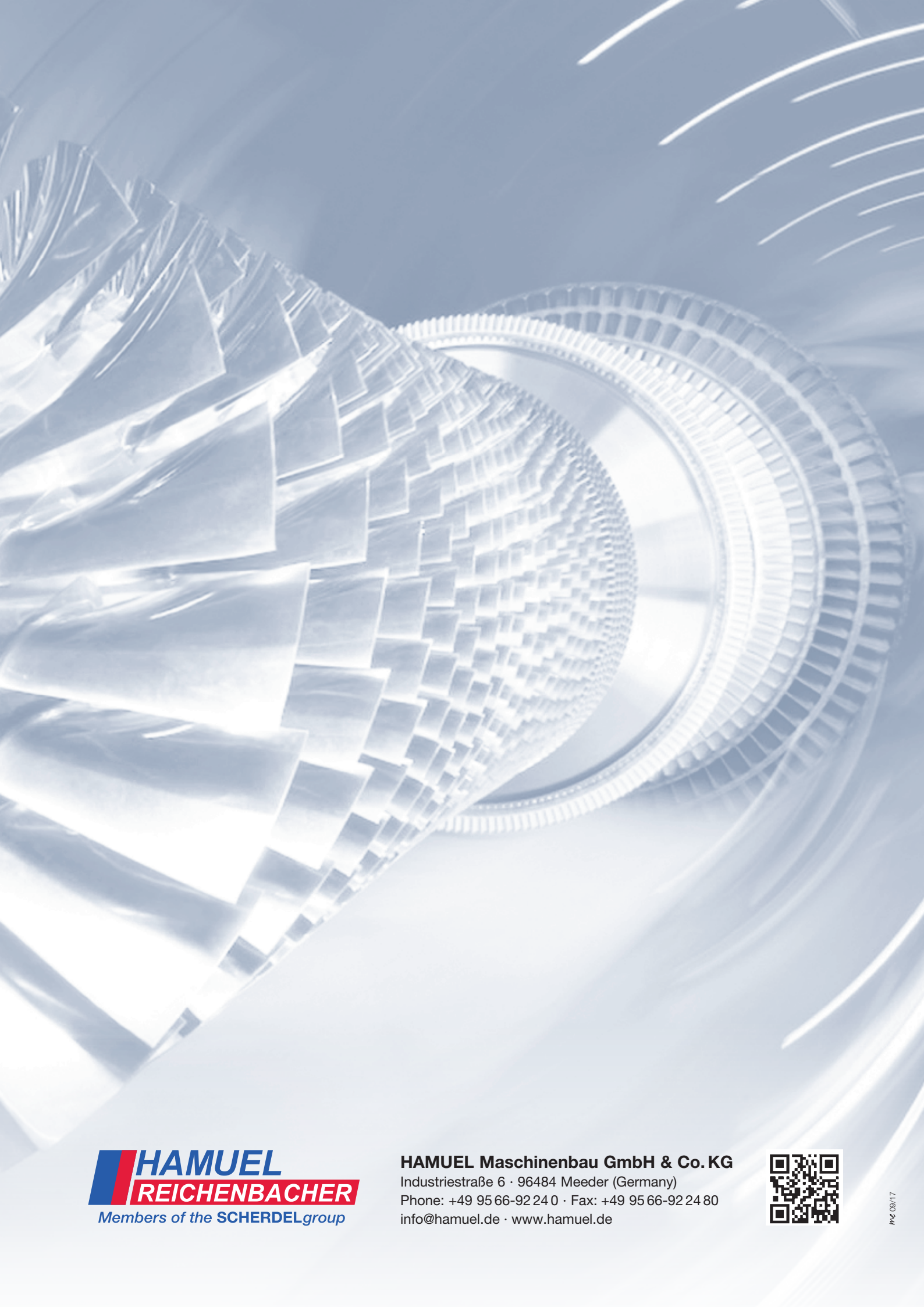
The HAMUEL REICHENBACHER group of companies

The HAMUEL Maschinenbau GmbH & Co. KG is part of the HAMUEL Reichenbacher group of companies. The other companies are the Reichenbacher Hamuel GmbH, as well as the HAMUEL Maschinenbau Plauen GmbH & Co. KG. These three companies operate under the name of HAMUEL Reichenbacher.

Almost 100 years of experience in mechanical engineering, as well as about 30 years of know-how in CNC-machining are self-explicatory: nearly 4,000 CNC-machines produced by this group are in use in the most diverse industries all over the world. Many in-house developments and patents document the great inventive capacity of this group of companies.

Our products:

- **HSC-TURN-MILLING CENTRES**
- Component manufacturing
- Mineral casting
- Software
- Machine installation
- Retrofit



HAMUEL
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