

passion  
for precision



15/16

**Annual Report** of the FRAISA Group

## Board of Directors and Executive Board

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**Board of Directors and Executive Board  
of the FRAISA Group**  
(from left to right)

Josef Maushart  
Prof. Dr. Peter Ruf  
Dr. Fritz Gantert  
Ursula Maushart  
Dr. Markus Schibli  
Charlotte Froelicher-Stüdeli  
Thomas Nägelin  
Hanspeter Kocher

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# EDITORIAL



## Editorial

### Dear customers, colleagues, and readers

Industry makes prosperity possible! Without industrial production, the worldwide participation of increasingly broad populations in such commodities as health, longevity, long-distance travel, internet, telecommunications, clean water, and energy, would be impossible. This simple correlation is not the first thing people associate with industry, however. In the history of industrialization, our economies have too often been not sustainable, but rather exploitative of human beings and nature.

The young generation is no longer satisfied with this. It does not want prosperity or sustainability – but a combination of the two. It wants “smart industry”. We are called on to deliver this – and we are capable of doing so. In contrast to the 60s and 70s of the last century, which were also wild in industrial terms, we now possess the empirical and scientific knowledge of 100 years of modern industry since the assembly line production of the Model T by Ford. And we have the new dimension of total digitalization. The appropriate technologies are also available today for recycling, closing material cycles, and saving fossil fuels.

Those among us who do not recognize the signs of the times will disappear from the market. And size will offer no protection. The development of electromobility seems to me a fine example of this shift. A young team gathered around a visionary takes on the established automotive industry of the world, and shows the world with the Tesla electric car that it is possible after all. And they are not just talking about horsepower any more, but about their mission of sustainability. History will show what prevails. It is, however, already clear that such sustainability approaches “electrify” and excite the next generation.

FRAISA takes the sustainability challenge seriously, and accepts it. Sustainability resonates in every sentence of our corporate philosophy, which we formulated for the first time in 1996, but which was already a reality two generations earlier. With **ReToolBlue**, we are now going one step further and closing the material cycle for tungsten. Together with the cloud-based tool management system for new, used and

reconditioned tools (ToolCare 2.1), careful manufacturing of top-quality tools for the best possible raw-material-to-benefit ratio, and the consistent use of recycled material (dual blanks), we and our customers are going in the right direction. For this reason, we are dedicating this year’s Portrait to the subject of “Eco-cycle”.

Thank you, dear customers, for your trust. And you, dear colleagues, I would like to thank for your creativity and fellowship, which are what makes up a working environment we can really live in and love. I also wish to thank all partners in the supply chain, research institutions, and our many service providers, for their valuable and inspiring support. And I wish to thank all other interested followers of our company for their positive response and good wishes, which motivate and encourage us along our path from “strong industry” to “smart industry”.

Yours sincerely

**Josef Maushart**  
Chairman of the Board and CEO of the FRAISA Group

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## Overview of the group's key figures

(Financial figures according to SWISS GAAP FER)

**509**

EMPLOYEES

**492.2**

FULL-TIME EQUIVALENTS<sup>1</sup>

**88.7** million  
CHF

**BALANCE SHEET TOTAL**<sup>2</sup>

**44.0** million  
CHF

(49,6 %) **EQUITY**<sup>2</sup>

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**TURNOVER**<sup>2</sup>

**87.6** million  
CHF

**EBITDA**<sup>2</sup>

**15.5** million  
CHF

(17,7%) OF TURNOVER

**RESULT**<sup>2</sup>

**7.4** million  
CHF

(8.6%) OF TURNOVER

**EXPENDITURE**

**5.0** million  
CHF

for **product** and  
**technology development**

**INVESTMENTS**

**5.7** million  
CHF

for **machines, plants,**  
**vehicles** and **properties**

<sup>1</sup> as per 29 February 2016

<sup>2</sup> according to SWISS GAAP FER

<sup>3</sup> Consumption of resources per full-time equivalent and year  
(excluding travel to and from the workplace)

CONSUMPTION OF RESOURCES

**ELECTRICITY<sup>3</sup>**

**24,241**

kWh

CONSUMPTION OF RESOURCES

**FUEL<sup>3</sup>**

**662** l

CONSUMPTION OF RESOURCES

**NATURAL GAS<sup>3</sup>**

**3'961**

kWh

CONSUMPTION OF RESOURCES

**WOOD<sup>3</sup>**

**2,035**

kWh

CONSUMPTION OF RESOURCES

**WATER<sup>3</sup>**

**10.6** m<sup>3</sup>

**PRODUCTION  
AND RETAIL SPACE<sup>4</sup>**

**21,078**

m<sup>2</sup>

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**EXPENDITURE**

for **education** and  
**training**

**1'050'239** CHF

**EXPENDITURE**

for the support of  
**social** and  
**cultural activities**

**259'166** CHF

**approx.**

**1,100** h

**VOLUNTARY  
WORK<sup>5</sup>**

**444**

(87.2 %)

**EMPLOYEES**

**WITH COMPLETED  
PROFESSIONAL TRAINING**

**147**

(28.9 %)

**EMPLOYEES**

**WITH HIGHER EDUCATION**

**25**

(4.9 %)

**EMPLOYEES**

**IN THE DUAL VOCATIONAL  
TRAINING SYSTEM (CH AND D)**

4 The total area is divided up as follows:

**Production:** 15,393 m<sup>2</sup>, **Logistics:** 2,145 m<sup>2</sup>,  
**Sales:** 1,886 m<sup>2</sup>, **Administration:** 1,654 m<sup>2</sup>

5 Voluntary work by the members of the Management Board  
of all companies in societies, associations, political parties and  
other non-profit organisations.

# Company, targets and business development

After taking into consideration the effects of exchange rates and raw material prices, turnover growth remained moderate at 3.5%. Due to the massive increase in value of the Swiss Franc (CHF), and the equally considerable reduction in raw material prices, nominal turnover fell by 7%. This includes a sustainable price reduction of 10% for our Swiss customers. In view of the massive increase in value of the CHF, this price reduction represents our contribution in the spirit of solidarity to the competitiveness of Swiss industry.

For risk management reasons, we have built up a high cash position in the scope of 15 million CHF. In the previous year, this was only 3 million CHF. We consider the risk of renewed global economic upheavals to be relevant. In conjunction with a good rate of return, the comparatively large cash reserve gives us security in the event of major currency fluctuations and economic crises. The balance sheet total thus increased from 78 to 89 million CHF. The equity capital increased again by 4.6 million, to a new level of 44 million CHF.

Especially as we have not needed to handle any significant growth in volume, the investments in the scope of 5.7 million CHF have been invested in full in economic and ecological efficiency and in future-oriented technologies within the meaning of "smart industry".

For the current financial year 2016/17, thanks to exceptional innovation in the field of milling technology, growing business in the service sector, and a further expansion of our sales activities in the USA, Germany, Austria and Turkey, we are anticipating a growth in volume of at least 5%. Investments will increase to 7 million francs.

In the financial year 2015/16, we developed overall in keeping with our long-term strategy "Fundament21". In the financial year 2016/17, we will additionally focus on measurement technology, product technology, process control, services, and raw material management.

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**50** %<sup>1</sup>  
**EQUITY RATIO**

**21** %<sup>1</sup>  
**BANK FINANCING**

**7** %<sup>2</sup>  
**INVESTMENTS**

**-7** %  
**GROWTH IN  
TURNOVER**

**+3** %<sup>3</sup>  
**GROWTH IN  
TURNOVER**

**8** %<sup>2</sup>  
**PROFIT**

1 of the balance sheet total under Swiss GAAP FER

2 of the turnover under Swiss GAAP FER

3 currency and price adjusted

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SERVICES



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Technical advice



Training ToolSchool



Products



Central logistics



ToolCare®



Marketing advice



Applications support ToolSchool





# Range of services of the FRAISA Group

Services provided by the local branches

		FRAISA SA	FRAISA Deutschland	FRAISA France	FRAISA Italia	FRAISA Hungária	FRAISA USA	FRAISA China	
FOR CUSTOMERS	Technical advice	●	●	●	●	●	●	●	
	Machining training ToolSchool	●	●	●	●	●	●	●	
	Milling tools	Series product	●	●	●	●	●	●	●
		Custom-made products	●	●	●	●	●	●	●
	Threading tools	Series product	●	●	●	●	●		
		Custom-made products	●	●	●	●	●		
	Drilling tools	Series product	●	●	●	●	●	●	
		Custom-made products	●	●	●	●	●	●	
	Central logistics	●	●	●	●	●	●		
	Logistics solution ToolCare®	●	●	●	●	●	●		
	ReTool®	●	●	●	●	●	●		
	FOR SALES PARTNERS	Technical advice	●	●	●	●		●	●
		Machining training ToolSchool	●	●	●	●		●	●
Milling tools		Series product	●	●	●	●		●	●
		Custom-made products	●	●	●	●		●	●
Threading tools		Series product	●	●	●	●			
		Custom-made products	●	●	●	●			
Drilling tools		Series product	●	●	●	●			
		Custom-made products	●	●	●	●			
Central logistics		●	●	●	●		●		
ReTool®		●	●	●	●		●		
Marketing advice		●	●	●	●		●	●	
Applications support ToolSchool		●	●	●	●		●	●	

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# Network of the FRAISA Group

Services provided by the subsidiaries



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## FRAISA USA, Inc.

- Production:**
- Production of milling tools
  - Production ReTool® (North America)
- Service und advice:**
- Technical advice
  - ToolCare®
- Sales:**
- Central logistics (North America)
  - Sales USA, Canada and Mexico



## FRAISA Deutschland GmbH

- Principles:**
- Technology development
- Production:**
- Production of milling and drilling tools for special solutions
  - Production ReTool®
- Service und advice:**
- Technical advice
  - ToolCare®
- Sales:**
- Sales Germany



## FRAISA SA

- Principles:**
- Product and technology development
- Production:**
- Production of milling, threading and drilling tools
- Service und advice:**
- Technical advice
  - Training centre ToolSchool
  - ToolCare®
- Sales:**
- Central warehouse and logistics
  - Sales Switzerland, Europe, Asia and South America



## FRAISA France Sarl.

- Service und advice:**
- Technical advice
  - ToolCare®
- Sales:**
- Sales France, Belgium, Luxembourg, Spain and Portugal

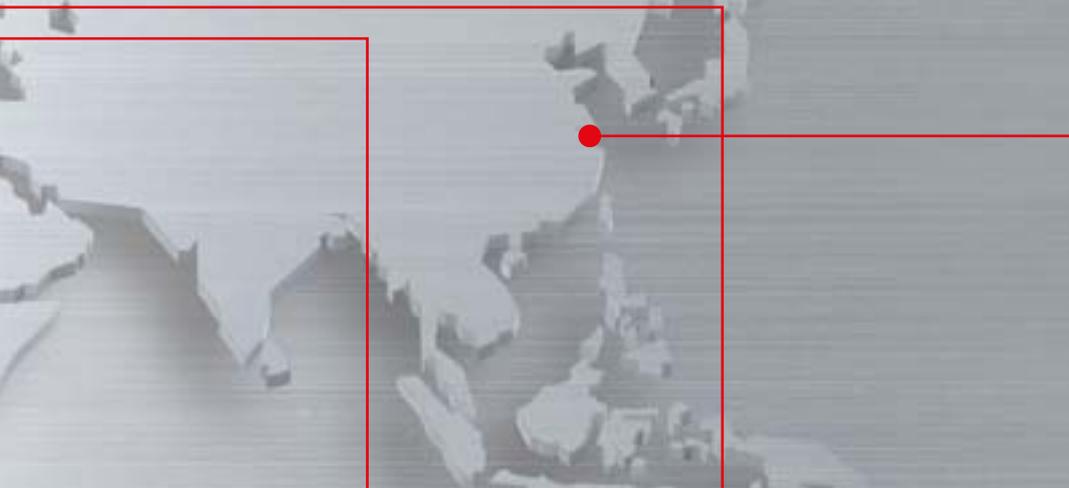
Each of our companies has special skills. All FRAISA companies cooperate in a network. In this way, we make all skills available to all customers. In doing so, we maximize the range of services for our partners and minimize the effort required to provide them.

Switzerland, for example, stands for product and technology development, while FRAISA Germany supplies special tools and ecologically valuable tool reconditioning for all European companies.

In turn, FRAISA Hungária produces tools at particularly good conditions which have already been perfected in technological terms and have to be produced in large quantities.

And our distribution companies and sales departments ensure that all of our knowledge flows into our customers' value creation process. At the same time, they are the bridge builders between the needs of our customers and the solutions of our technology departments.

All of our companies are certified according to ISO 9001, ISO 14001 and OHSAS 18001.



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#### FRAISA Italia s.r.l.

**Service und advice:**

- Technical advice
- ToolCare®

**Sales:**

- Sales Italy



#### FRAISA Hungária Kft.

**Production:**

- Production of milling and drilling tools
- Unfinished parts HSS

**Service und advice:**

- Technical advice
- ToolCare®

**Sales:**

- Sales Hungary



#### FRAISA SA China Rep Office

**Service und advice:**

- Technical advice

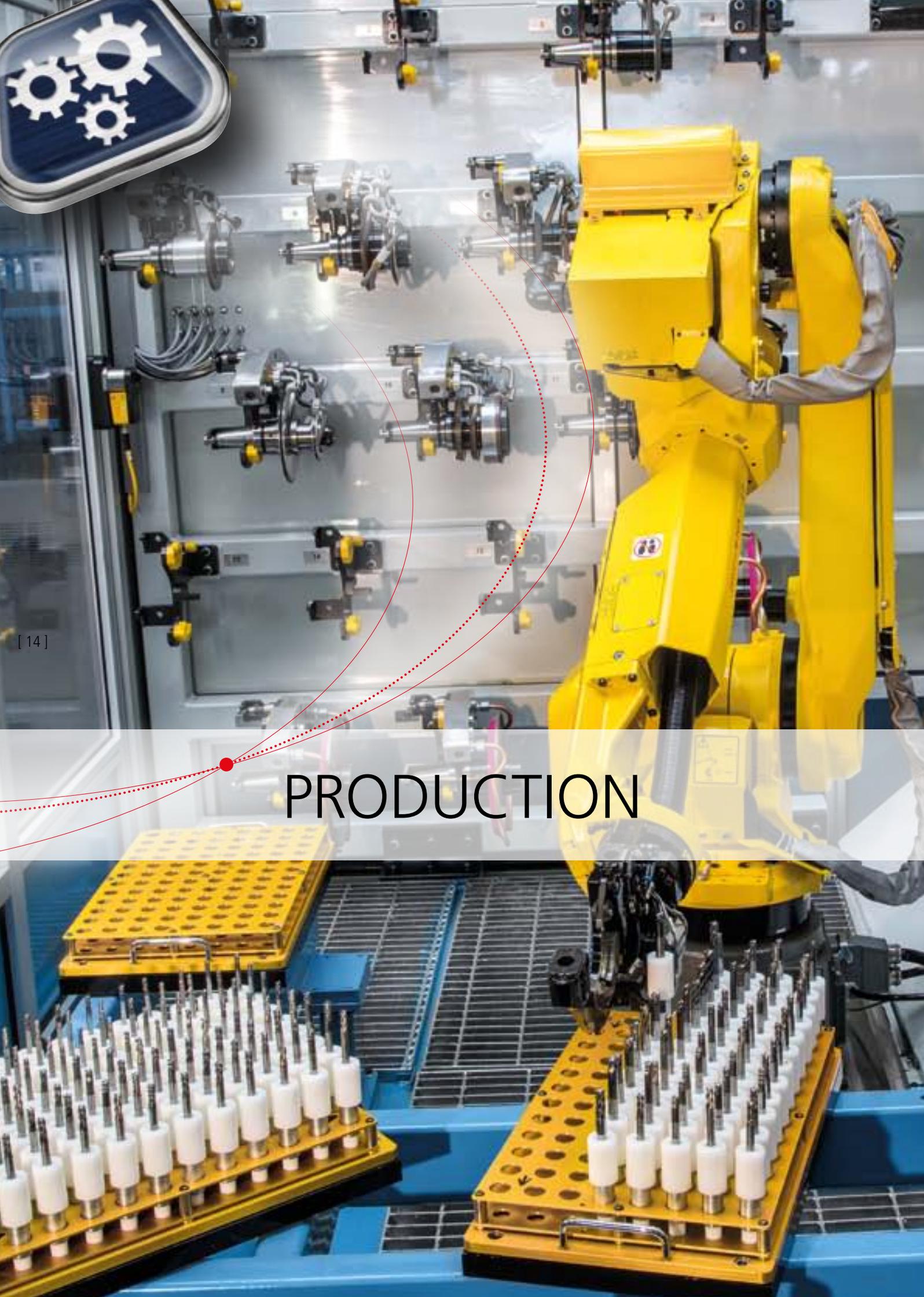
**Sales:**

- Sales China and Taiwan



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# PRODUCTION



## Production and quality assurance



After we successfully introduced autonomous (unmanned) grinding in series production with Rollomatic and Reinecker in 2014, this step also became possible in 2015 for tool reconditioning. At the service center of FRAISA GmbH in Willich, Germany, we traditionally work with machines manufactured by Anca. In close cooperation with Anca, the unmanned reconditioning of a wide range of tools based on dimensional specifications and type has been implemented for autonomous operation times of up to 30 hours. FRAISA GmbH in Willich thus underlines its extreme efficiency and competence in the field of tool reconditioning. FRAISA GmbH had already switched over to paperless order management in 2014. Solely on the basis of tool-specific QR codes, 30,000 tools from 1,000 different customers run through our production facility simultaneously, and meet up precisely on schedule to be transported back to our customers.

One milestone, and a very conspicuous example of Industry 4.0, is scanning technology, which we have been using as standard since the financial year 2015/16. The scanning technology from Walter Messtechnik allows us to create very precise 3D models of any real tool within just a few minutes. This allows us to generate virtual sample specimens for every validated tool, with which every future production batch can be compared to ensure an exact match.

This is particularly important when we produce repeat orders for custom tools. But the scanning technology also has major advantages when changing grinding machines or software standards. This allows not only the functional angles and mass to be compared, but also the total volume. And that is entirely capable of affecting the vibrations behavior or chip flow of tools during operation. Scanning technology allows us to reach the next level in guaranteeing perfect quality – entirely in keeping with our motto: passion for precision.



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# TEST CENTERS



## Test and application centers

During the financial year 2015/16, the FRAISA application center in Bellach, Switzerland, conducted 4700 person-days of training in 4 languages, and thus ensured that our technological progress becomes the applied productivity of our customers. Our application center has already provided training for 18,000 individuals since 2003.

We are also dedicated to the younger generation of professionals in our industry. Our application center has been holding the FRAISA ToolChampion competition since 1986, and is now holding it for the 30th time. In the context of this competition, trainees compete in their skills relating to machining technology. A total of 30,000 young people have by now taken part in the FRAISA ToolChampion competition, and fully 12,000 of these have visited us at our headquarters in Bellach, Switzerland, for the prize-giving ceremonies.

Our application centers also develop the technology data and associated software tools that allow our customers to optimize their use and hence achieve maximum benefit. High Speed Cutting (HSC), High Performance Cutting (HPC), and finally High Dynamic Cutting (HDC) were decisively shaped here!

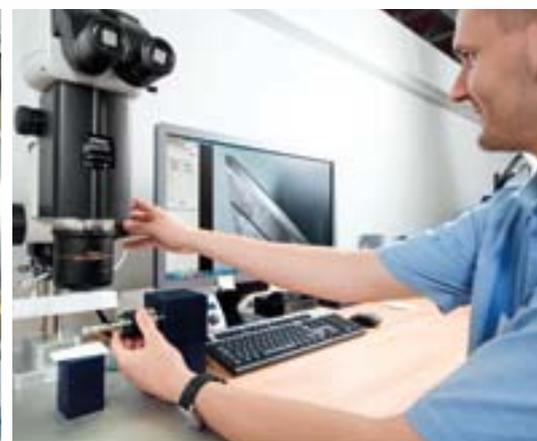
In 2015, among other things, the new ToolExpert Helix Ramp was developed. ToolExpert Helix Ramp quickly and reliably delivers the correct data for the unbelievably fast diving motions of the new, patented S Technology (NVDS, NVS).

With the data, apps and training courses of our application center, we generate real added value from our innovative high-performance tools. Potential is thus converted into productivity.

Hardware, brainware, software! It is the interplay of these factors that makes innovative products into "smart tools" for "smart industry".



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# PRODUCTS



# Products



With 4,200 series-produced products, FRAISA offers the largest milling tool product range of all manufacturers on the European market. Within the last 5 years, we have launched 30 new product lines (technologies) onto the market, and thus continuously contributed to increasing the benefit for our customers.

In October 2015, we generated a furor at EMO Milano with the new S Technology. Thanks to this special and patented face geometry, tools using S Technology can plunge into material diagonally and helically up to 15 times faster than conventional milling tools. This even allows drilling tasks to be solved economically! Because plunging operations have previously been comparatively time-consuming, S Technology allows main times to be reduced by up to 25%, depending on application!

Sphero-X allowed a breakthrough for mold construction in the spring of 2016. For the first time, a ball nose end mill can be used in the entire material spectrum from 40 to 70 HRC hardness with consistently high performance and long service life. Furthermore, Sphero-X is equally suitable for finishing and roughing operations. Sphero-X is thus currently the most universal high-performance tool for mold construction. The secret behind Sphero-X is twofold. On the one hand, the newly designed SC (Safe Center) cutting face facilitates finishing and roughing in equal measure, thanks to its extremely precise balancing of web width, precision and tolerances. And on the other hand, the latest FRAISA coating Duro-V allows extreme resistance to wear throughout the entire hard-

ness spectrum, from 40 to 70 HRC. This is facilitated through the use of state-of-the-art ARC PVD technology with rotating cathodes, from the firm Platit. This technology allows coatings with previously unachievable properties to be composed and reproduced.

The third groundbreaking innovation in this period is called Multicut XA. This tool concludes the most recent innovation cycle for the comprehensive machining of aluminum, which began with AX-NV (universal aluminum machining), and which was successfully continued in AX-RV (integral components for aviation). The multi-edged finishing cutter Multicut XA now also allows vibration-free fine machining on thin-walled aluminum components, and simultaneously guarantees high productivity. Multicut XA achieves this feat thanks to the combination of multiple exceptional technologies. The tools are thus consistently precision-balanced, have variable twist angles and targeted spacing deviations. In addition, the corners are designed with precision mini-rounding. All tool cutting edges are equipped with a precision circular grinding chamfer, and all functional surfaces have an ultra-precision mirror finish. Here again it can be seen that future-oriented product development is only possible through production development.

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**NB-NVDS**



**Sphero-X**



**Multicut XA**



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# CUSTOMER SERVICE

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## Customer service

On our path to “smart industry”, good-quality and innovative services are becoming increasingly important. Services are designed to minimize expense and resource consumption, and simultaneously to maximize the benefit derived from the product.

On the basis of this conviction, in the FY 2015/16 we have again made two important revisions in developing the range of services we offer: ToolCare 2.1 and ReToolBlue.

Tool care systems traditionally reduce the expense of procurement, prevent waste in the form of surplus tools purchased, and lead to increased productivity through standardization and subsequent optimization of operating data. With ToolCare 2.0, we already facilitated the management of any desired new tools from various manufacturers, and the management of reconditioned tools from the ReTool process. In the new version, ToolCare 2.1, the management of tools that have been used once is now also possible. This once again opens up enormous savings potential, because previously the lack of transparency and overview meant that new tools were used even though “somewhere” there are tools available, which have already been used once, but which can still be reused.

A simple idea, which we believe capable of achieving savings potential in new tool procurement of up to 25%. In addition to the familiar advantages, ToolCare 2.1 now also creates total transparency about the inventory of new, reconditioned and used tools! This is simple and effective for cost reduction.

Raw materials are finite, and a “smart”, sustainable industry needs to use them in a careful and frugal manner. This makes economic sense, but is also a matter of responsibility to future generations. With ReToolBlue, we are now taking the task of closing the raw material cycle into our own hands. We thus wish to offer our customers a complete service from a single supplier, and want to ensure that the return of the raw materials tungsten and cobalt into new tool production is as direct and energy-optimized as possible. By progressively adapting our new tools to use raw material that is manufactured wholly or in part (dual blank) from recycled material, the material cycle closes between the carbide manufacturer, tool manufacturer and customer.

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# Lifecycle-Management



## ReToolBlue

Means intelligent recycling for maximum economic efficiency

With **ReToolBlue**, used tools that are no longer sharp can be converted back into base/raw material for tool manufacturing.

For the first time, we at FRAISA are therefore creating a closed product cycle for sustainable, ecological and economical production.

The advantages:

- Resource-saving
- Economical
- Environmentally friendly

\* DualBlank = Shaft material made from high-quality recycled carbide.

**800**  
CUSTOMERS **ToolCare®**

**1,000**  
CUSTOMERS **ReTool®**

TOOLS **ReTool®**  
**340.000**

recycled  
**55.000<sup>1</sup>**  
kg TUNGSTEN

recycled  
**6.000<sup>1</sup>**  
kg COBALT

<sup>1</sup> Weight of the reconditioned tools and the recycled material removed by grinding

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SUSTAINABLE  
DEVELOPMENT



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# VALUES

# Values



When Hans Stüdeli handed the business over to members of a younger generation in 1995, after 41 years of formative and passionate work, they identified the key values of FRAISA together with the workforce and embedded it in its mission statement. And these key values continue to apply unchanged:

- **Quality and technological advancement** for the product and in production.
- **Collegial communication** and high personal responsibility.
- **Cooperation** with all partners for mutual benefit.
- **Environmentally friendly products** in ecologically compatible processes.
- **Fairness** in everything we do.
- **Preservation of autonomy** as an owner-run company.

Furthermore, the Supervisory Board and Management Board are committed to the ideas and work of the Global Ethic Foundation ([www.weltethos.de](http://www.weltethos.de)).

## For us, the most important principles of the global economic ethic are:

- The dignity of all people is inviolable.
- Sustainable business management never only serves one's own interests.
- The golden rule of reciprocity: Do unto others as you would have them do unto you. It stands for reciprocal responsibility, solidarity, fairness and tolerance.
- Occupational safety, product safety and safety of products are fundamental requirements.
- Responsibility, integrity, transparency and fairness are fundamental values of economic activities which are characterised by compliance and integrity.
- Corruption is unacceptable.
- Truthfulness, honesty and reliability are values without which sustainable economic relations, which safeguard human welfare, cannot thrive.
- The discrimination of people because of their sex, race, nationality or religion is unacceptable. Inhuman actions or dealings contrary to the principles of human rights will not be tolerated.

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# HEALTH



## Health and occupational safety

Comprehensive processes, institutions and regulations have been created in all countries to ensure occupational safety, and are subject to high levels of state regulation. They all have the objective of preventing accidents and avoiding injury, particularly lasting injury to employees. And the majority of these processes and precautions work very well. Serious occupational accidents have happily become rare in modern industries.

The non-attendance statistics of companies are dominated by sick leave. On average, 80 to 85% of all unplanned non-attendances are assigned to the category of sick leave. At FRAISA, employees were not fit for work on an average of 7.5 days in 2015. Of this, 6 days were accounted for by sick leave, one day by accidents in the private sphere, and half a day by occupational accidents. These values are far below the average for our industry. We are very happy about this. On the one hand, because this means that operating efficiency is higher, and on the other hand because illness always represents a burden for the individual.

We are convinced that illness often has something to do with the overall feeling of well-being and job satisfaction. For this reason, we have made personnel leadership one of the key topics for the corporate management in the years 2016 and 2017. Through the targeted professional development of all

persons with supervisory responsibility, we intend to further increase the quality of leadership and hence also job satisfaction. In future, we will systematically record job satisfaction. The first step will be taken in 2016 by FRAISA SA in Switzerland. All the other companies will then follow in 2017.

We all experience crises in our lives sooner or later. Sometimes we no longer see a way out and do not know what to do. In such situations, we sometimes also lack the courage to talk to a colleague or supervisor. In order to also provide assistance in such situations, FRAISA works around the world with ICAS. ICAS is one of the leading EAP (Employee Assistance Program) providers. All of our employees and their family members have direct telephone access to assistance and advice, 24/7. Within the framework of the EAP program, highly qualified personnel are available at all times for first contact. Starting from there, anything can be organized, from legal advice or family counseling to psychotherapy support. The service is anonymous and free of charge for the employees. Through EAP, we want to help our employees in personal crises, provide them with competent support in legal matters and life issues, and improve their overall satisfaction.

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# EDUCATION





## Education

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FRAISA invests in in-house and external training and professional development. During the financial year 2015/16, we invested 1.1 million CHF, or 1.2% of turnover, in professional development. Thanks to these efforts, we have been able to qualify our own junior staff for almost all departments ourselves, and have thus made an important contribution to productivity, innovation and reliability. The proportion of employees with completed vocational training has risen to a new high of 87.2%. The proportion of those persons with higher levels of training likewise rose to a new high, accounting for 28.9% of all personnel. At the same time, the proportion of staff without professional qualifications fell from 9 to 8% of all personnel, particularly through in-service vocational training.

Learning and qualifications give each individual security, prospects, better pay, motivation, and satisfaction. The company thus benefits in terms of dynamic development, which expresses itself in faster problem-solving, continuous improvement, shorter project times, and higher production efficiency. Because more qualifications are often associated with greater self-assurance and confidence, this also promotes team spirit and a positive working atmosphere.

An e-learning platform is currently being developed in the ToolSchool department. It is planned that it will be used for the first time in 2016 as a supplement to the traditional ToolSchool training for technical trainees, and as a result will be used for all forms of in-house professional development.

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# INNOVATIONS

# Innovations



In sales, FRAISA launched precisely 365 new articles in 2016 across 11 different fields of technology. These are supplemented by ToolCare 2.1 and ReToolBlue as important innovations in the service sector. Alongside this, however, hundreds of in-house innovations large and small are implemented each year. Some are only incremental improvements, and some are real revolutions in quality assurance, application technology or simply production efficiency.

This innovativeness is the basis for the success of our company, and for our sustainability. It is based on the high motivation and qualification of our employees. But it is also based at least as strongly on a positive working climate and toleration of errors. Fear of criticism inhibits creativity, and employees who never have time to formulate a thought beyond their "duties" also cannot be creative.

So that this creativity does not lead to deadlocks as a result of too many different ways of thinking, all employees need a frame of reference for their creativity. This frame of reference is our long-term strategy 2021, which describes our fields of activity and our targets, and whose key elements are known to all employees.

Innovation is also based on openness and cooperation with others, however. As an owner-run company, we are capable

of entering into very long-term and sustainable cooperation relations with other companies, research institutions and universities. Thus, for example, we work with ETH Zurich in Switzerland, and with RWTH Aachen University and the Fraunhofer Institute for Laser Technology in Germany. We have even acquired shares in Innocampus AG, a Swiss innovation center in Biel. In addition to this, a lot of progress is being made in bilateral projects with our partners around the world.

Innovation ultimately requires an open and motivating corporate culture, and the ability to think and act in longer time-frames. Owner-run companies like FRAISA have a strategic advantage here.

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# RESOURCES

# Resources



Electricity, fossil fuels, and the use of tungsten and cobalt (carbide) are the priority themes of our ecological improvement program. In the financial year 2015/16, we placed the operational focus on establishing a closed cycle for carbide. After a very successful test phase, the system has been available throughout Europe since 1 May 2016 (see Portrait).

In order to reduce the consumption of fossil fuels, we have commenced the test phase for electric vehicles in Switzerland. Charging stations have been built, electric hire cars have been made available for employees, and the procurement regulations for company cars have been amended in favor of purely electric or at least partly electric vehicles (plug-in hybrids). The first vehicles for use of the members of

the Executive Board have also been switched over to purely electric drive systems. Overall experience has been consistently positive. Within the next 5 years, the conversion of the vehicle pool to electric drive systems should lead to a significant improvement of our ecological performance, and simultaneously to a massive economic improvement.

In the field of electricity management, the largest electricity consumer in the Group, FRAISA Switzerland, will exclusively be using electricity from hydroelectric plants from 2017 onwards. During the procurement of new machinery, electricity consumption has been made a major selection criterion.

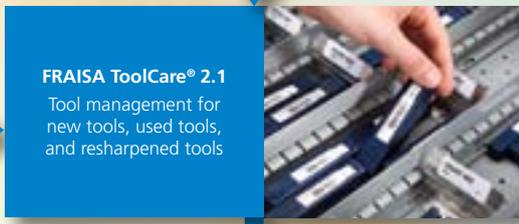




Carbide milling tool



Sintered carbide blank "DualBlank"\*



FRAISA ToolCare® 2.1  
Tool management for new tools, used tools, and reshaped tools



Carbide powder



Tool use in production process on the tool machine  
Tool worn?  
Yes  
Tool suitable for resharpening?



Recycling process



FRAISA ReTool®  
Resharpen and recoat tool for use with original operating data



FRAISA ReToolBlue  
Return the valuable carbide to the recycling process

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# PORTRAIT



\* DualBlank = Shaft material made from high-quality recycled carbide.



## Portrait FRAISA Eco-cycle

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The reuse of and economical use of resources are today considered politically correct. Awareness of the finite nature of resources and the vulnerability of our atmosphere has become a matter of course, not only for the younger generation, but particularly there. FRAISA has also been environmentally certified (ISO 14001) for 20 years. In May 2016, we have now completely closed the ecological cycle for our tools. We would like to use this occasion to explain once again the ecological aspects of the FRAISA milling tool cycle.

Modern milling tools are manufactured from carbide, which in turn consists of 90% tungsten carbide and 10% cobalt. Both of these are very expensive materials. The value of carbide is around 10 times higher than that of steel or aluminum!

The ecologically high-quality use of carbide begins with the product development process. This is already the point at which we define how much work a piece of carbide can later perform as a milling tool. The selection of the optimal tool for a specific task is just as important. Their application only becomes economical and ecological, however, through the use of suitable operating parameters. With 40 years of experience in supplying technology data and the largest manufacturer range of milling tools in Europe, FRAISA offers the best conditions for the ecologically optimal use of new tools.

Under real operational conditions, however, suboptimal tools are still often used, simply because they are immediately available, or because they are left over from a previous assignment. This is the starting point for our comprehensive tool management system ToolCare 2.1. ToolCare 2.1. covers local tool stores at the customer location. These are equipped on a customer-specific basis, and permit the management of a wide range of different tools from various manufacturers. The ToolCare system results in the repeated use of certain tool types, and hence to a "learning effect" in relation to the optimal use of the tools. The associated operating data come from the FRAISA Cloud, as does the tool management system itself. There are no longer any tools left over, and tools are no longer overlooked.

After one use of the tool, a number of questions are asked: Can the tool be used again later? Is "resharpening" really worth it? Tools that have been used once, and which only have minor wear, can continue to be managed in the FRAISA ToolCare system. If another tool of the same type is required, a notification appears that a used tool is available. If the tool is too heavily worn, an online price calculator allows an im-

mediate decision as to whether reconditioning would be cost-effective. For its own tools, and within the framework of the true-to-original ReTool reconditioning process, FRAISA guarantees a minimum of 80% of the original tool service life under unchanged operating conditions. ReTool tools can now likewise be managed using ToolCare. Every time tools are required, these are also identified as alternatives to new or used tools.

Tools that can no longer be resharpened are likewise returned to FRAISA within the framework of the new ReTool-Blue service, and the value of the carbide is refunded. FRAISA now cooperates with its raw material suppliers to ensure that this material is recycled. In the most energy-efficient case, this can take place through the recovery of the tungsten carbide powder. In a process that is more costly in terms of energy, however, it is also possible to manufacture metallic tungsten and cobalt. Our partners either process the material into powder, which in the shaft area consists of recycled material and for the cutting edge of new material, or they take the path of total recycling, and re-generate completely new carbide from the used material. This recovers the maximum amount of material, but this process is more costly in terms of energy.

Furthermore, today we are able to recover 75% of the carbide that is removed by grinding during the manufacturing process, and return it to the raw material cycle.

The ecologically optimized use of the carbide raw material thus extends from the product development stage, tool management and application optimization, all the way to repeated reconditioning and ultimately a staged recycling process. In this manner, not only is the material cycle closed, but the benefit obtained throughout the life cycle of the tool is maximized. This process is equally interesting from economic and ecological perspectives. FRAISA and FRAISA ToolCare customers join forces in making responsible use of global resources, and simultaneously reduce their costs.

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# COMPANIES

fraisa

Empfang  
Welcome

# Corporate Governance Bodies



## Board of Directors and Executive Board of FRAISA Holding AG

(from left to right)

Josef Maushart  
 Prof. Dr. Peter Ruf  
 Dr. Fritz Gantert  
 Ursula Maushart  
 Dr. Markus Schibli  
 Charlotte Froelicher-Stüdeli  
 Thomas Nägelin  
 Hanspeter Kocher



## Board of Directors and Executive Board of FRAISA SA

(from left to right)

Josef Maushart  
 Chairman of the Board,  
 Head of the Production Development Division,  
 Chairman of the Executive Board

Hanspeter Kocher  
 Head of the Financial Division, IT, Logistics, HR

Stefan Gutmann  
 Head of the Production Division

Charlotte Froelicher-Stüdeli  
 Member of the Board

Thomas Nägelin  
 Head of the Sales & Marketing Division

Dr. Markus Schibli  
 Member of the Board

## Authorized representatives with signing powers at FRAISA SA

Markus Baumann  
 Patrick Brand  
 Rolf Bücheli  
 Flavio Gugelmann  
 Adrian Hangartner  
 Adrian Hirschi  
 Michael Hirschi  
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Here, you will be provided with further information on the FRAISA Group.

You can also use our ordering service via our E-Shop and benefit from our changing offers.

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passion  
for precision

