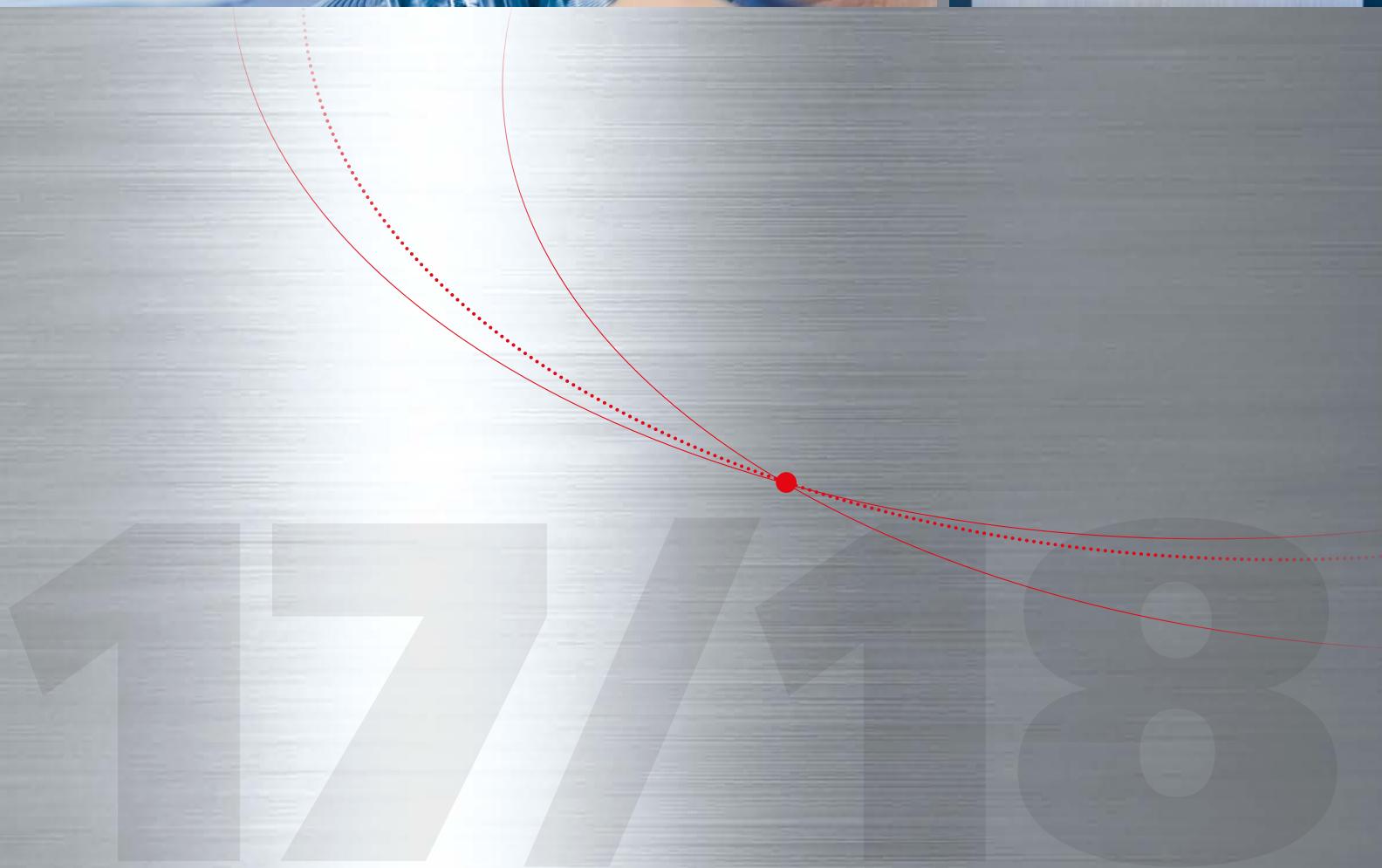


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Annual Report of the FRAISA Group

Board of Directors and Executive Board



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

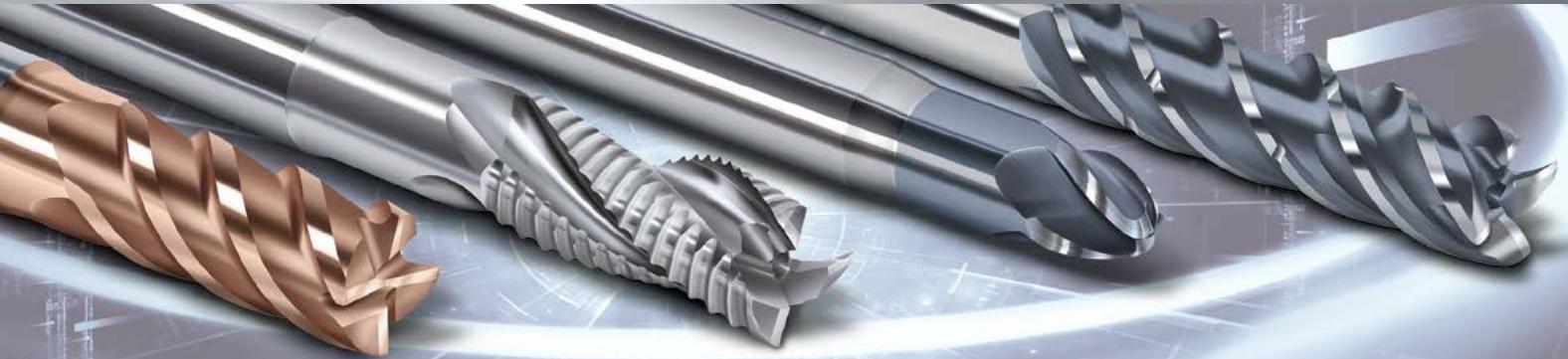
1st row:
Hanspeter Kocher
Charlotte Froelicher-Stüdeli
Ursula Maushart
Dr. Markus Schibli

2nd row:
Dr. Fritz Gantert
Florian Maushart
Josef Maushart
Dr. Dirk Kammermeier
Prof. Dr. Peter Ruf
Thomas Nägelin

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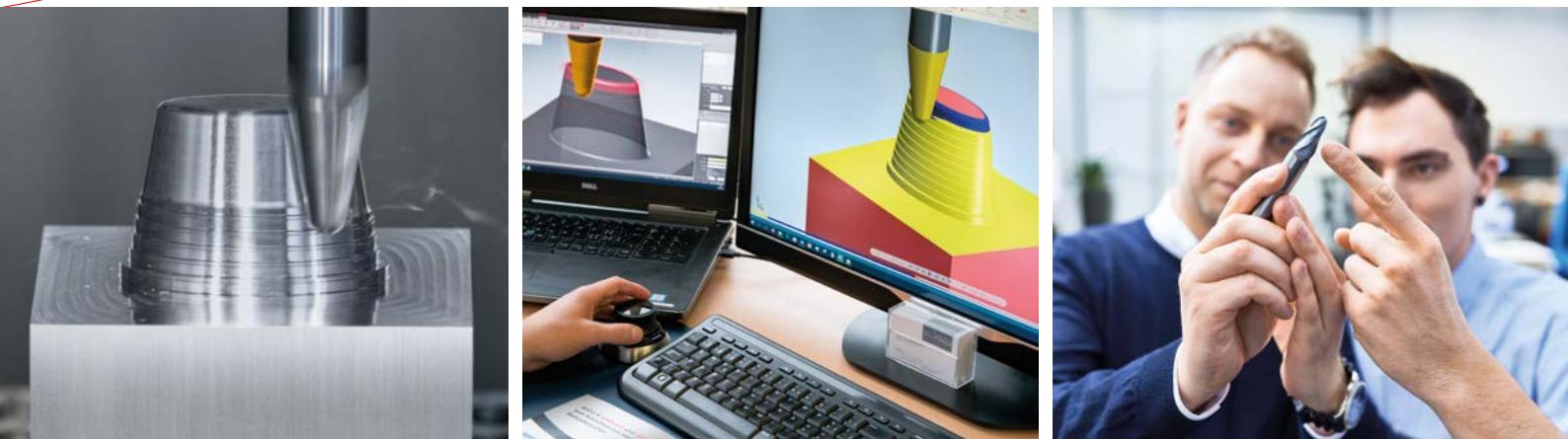
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[4]

EDITORIAL



Editorial



Dear Customers and Colleagues, Dear Readers,

On the occasion of our leading trade fair, the EMO 2017 in Hanover, we presented our ArCut X tool range. ArCut X stands for "milling with the arc". Thanks to state-of-the-art programming techniques, machines today can also process irregular shapes and eccentric curves in such a way that defined contours are nevertheless created in the workpiece. What sounds so self-evident ultimately leads to an acceleration of the milling processes by a **factor of 10!** A genuine revolution!

In my opinion, the latest MFC (Multi-Functional Cutting) tools belong to the same category. These are able to plunge their full length of 5.2xd and then mill as quietly as if this were the most natural thing in the world. A factor of 10 in terms of speed and a milling depth of 5.2xd in the roughing cut are revolutions in my personal opinion as well, even after 28 years of tool development, which I would not have thought possible until recently. This performance is the result of the interaction of 5-axis technology in the machines, intelligent software, super-fast computers and tools which have been specifically developed for these new requirements. ArCut X and MFC represent a preliminary highlight in the development of innovative tools. They promise to provide our customers with great potential for making savings. However, these technologies are still young and therefore not very well known. This is the reason why we are devoting this annual report to the main topic of "Revolutionary Milling Technology".

Our own financial year is coming to an end with a pleasing growth rate of 8.8 % – or 6.1 % when adjusted for exchange rate fluctuations. And the prospects for 2018 are better for us and for many of our customers than they have been for a long time.

I would like to thank you, our customers, for the trust you have placed in us. Special thanks also go to my 527 colleagues for their commitment, creativity and collegiality. I am also grateful to the partners of our management team for their understanding when we once again go the "extra mile" and add an extra hour to our working time in the interests of our customers.

[5]

I hope you all enjoy browsing through the annual report – have your mobile phone ready, because with a short scan the FRAISA Annual Report will come to life more than ever before!

Yours sincerely,

Josef Maushart

Chairman of the Board of Directors and Chief Executive Officer

Overview of the group's key figures

(Financial figures according to SWISS GAAP FER)

527

EMPLOYEES

507.6

FULL-TIME EQUIVALENTS¹

99.9

million
CHF

BALANCE SHEET TOTAL²

56.1

million
CHF

(56.2 %) EQUITY²

TURNOVER² million
CHF

102.8

EBITDA²

25.2 million
CHF

RESULT²

12.2 million
CHF

(24.5 %) OF TURNOVER

(11.9 %) OF TURNOVER

EXPENDITURE

5.9

million
CHF

for **product** and
technology development

INVESTMENTS

8.3

million
CHF

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

1 as per 28 February 2018

2 according to SWISS GAAP FER

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

CONSUMPTION OF RESOURCES

ELECTRICITY³

26,199
kWh

CONSUMPTION OF RESOURCES

FUEL³

627
l

CONSUMPTION OF RESOURCES

NATURAL GAS³

2,608
kWh

CONSUMPTION OF RESOURCES

WOOD³

2,457
kWh

CONSUMPTION OF RESOURCES

WATER³

11.0
m³

**PRODUCTION
AND RETAIL SPACE⁴**

21,078
m²

[7]

EXPENDITURE
for **education** and
training

1,684,429 CHF

EXPENDITURE
for the support of
social and
cultural activities

346,541 CHF

2,691_h
**VOLUNTARY
WORK⁵**

460

(87.6 %)

EMPLOYEES

**WITH COMPLETED
PROFESSIONAL TRAINING**

134

(25.5 %)

EMPLOYEES

WITH HIGHER EDUCATION

26

(5.0 %)

EMPLOYEES

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

4 The total area is divided up as follows:

Production: 15,393 m², **Logistics:** 2,145 m²,
Sales: 1,886 m², **Administration:** 1,654 m²

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

The FRAISA Group can once again look back on a successful financial year. Turnover increased by 8.8 % (6.1 % when adjusted for exchange rate fluctuations) compared to the previous year. As in the previous year, the markets developed particularly well – in France by CHF +2.2 million (+14 %) and Italy by CHF +1.1 million (+9.3 %). In China, too, we were able to achieve significant growth of CHF 0.4 million (+28 %). The positive development in Asia encouraged us to establish our own subsidiary in Shanghai.

The "Standard milling tools made of carbide" segment again grew disproportionately by 11 %, representing a 62 % share of the turnover in the meantime.

The consistent implementation of automation projects, the constant optimization of processes and a positive currency development contributed to a further improvement in the earnings situation. As a result, profits increased by 15 % to CHF 12.2 million.

[8]

One basic prerequisite for improving efficiency is investments in automation, new technologies and ongoing renewal investments. CHF 8.3 million was invested in the past financial year, with the largest shares flowing to the production sites in Switzerland (30 %), Germany (20 %) and Hungary (40 %).

In the annual risk review we are repeatedly confronted with new risks and changed valuations. We still consider the risk of distortions in the global economy to be relevant. Against this background, we are pleased that we have good earnings power, high levels of liquidity and a solid equity ratio of 56 %. These are essential prerequisites for being able to successfully master even difficult economic crises.

For the current 2018/19 financial year we expect volume growth of 5 % in a positive economic environment. Through the extensive consistent implementation of our strategy in the fields of innovation, automation and process optimization, we are confident that we will be able to achieve our ambitious economic targets in the current financial year again.

56 %¹

EQUITY RATIO

12 %¹

BANK FINANCING

8.1 %²

INVESTMENTS

+8.8 %

**GROWTH IN
TURNOVER**

+6.1 %³

**GROWTH IN
TURNOVER**

12 %²

PROFIT

¹ of the balance sheet total under Swiss GAAP FER

² of the turnover under Swiss GAAP FER

³ adjusted for exchange rate fluctuations

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SERVICES



[10]

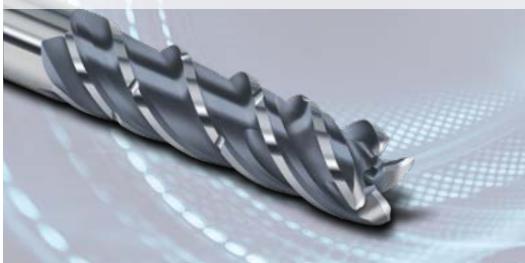
Technical advice



Training ToolSchool



Products



Central logistics



ToolCare® 2.1



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	●	●	●	●	●	●	●	●

*from September 1, 2018

[11]

Network of the FRAISA Group

Services provided by the subsidiaries

Each one of our companies has very specific skills and they cooperate with one another in a network. This is how we make the sum total of all our skills available to our customers all over the world.

In this way we maximize the range of services for our partners and minimize the effort for their creation.

FRAISA SA in Switzerland stands for product and technology development, highly automated production and – with the FRAISA ToolSchool – the transfer of such expertise to our customers.

FRAISA Germany provides the environmentally-valuable FRAISA ReTool® tool reconditioning system for all European companies.

FRAISA Hungary, on the other hand, produces high-performance tools on particularly favorable terms at its ultra-modern plant.

At our company in the USA, our employees produce tools with dimensions specified in inches and offer tool reconditioning for our customers in the US market.

Our sales companies and sales departments ensure that our know-how is incorporated in an ideal way into our customers' value creation process.

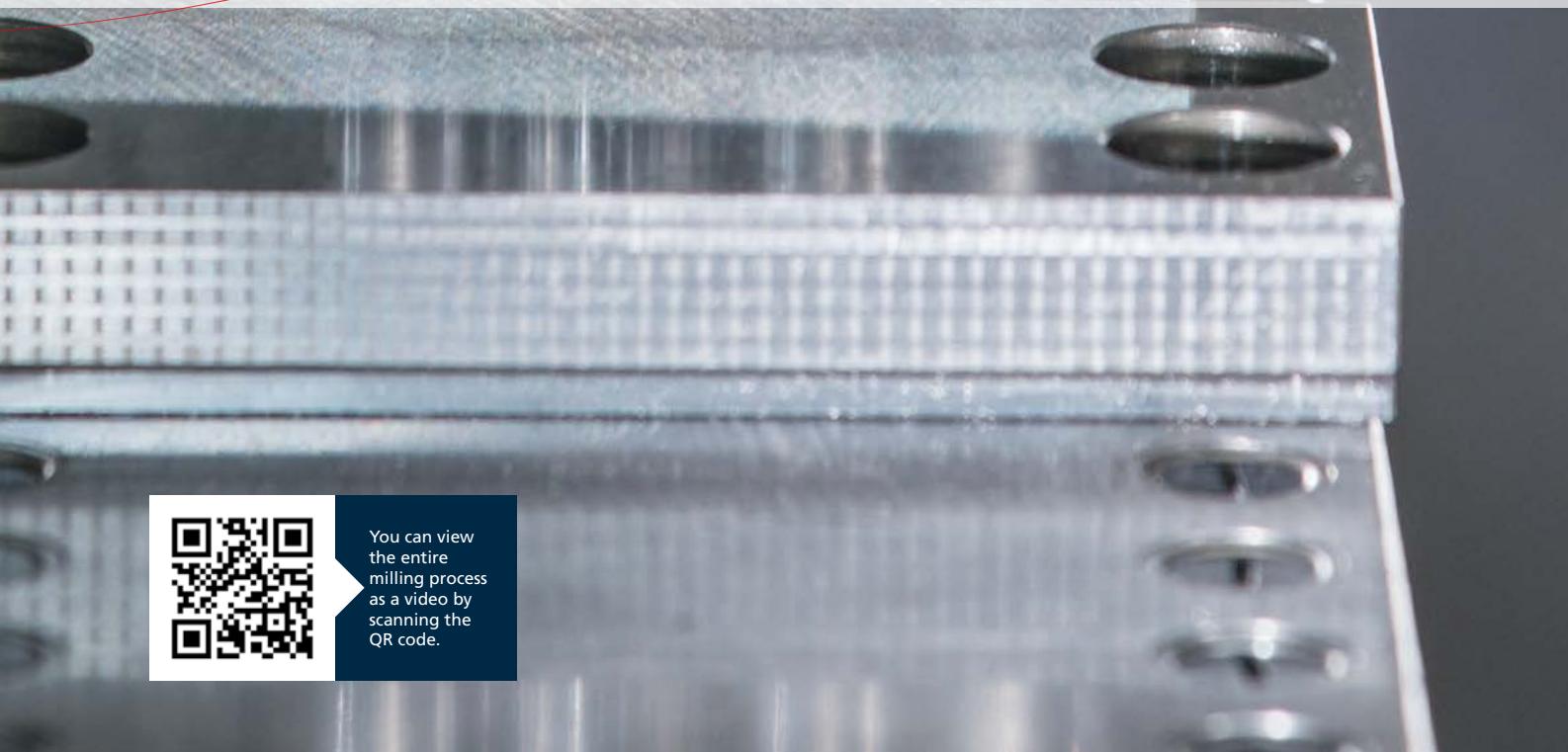
However, at the same time they are also the bridge-builders between the needs of our customers and our technology departments.

1 FRAISA SA 	Principles: <ul style="list-style-type: none"> - Product and technology development Production: <ul style="list-style-type: none"> - Production of milling, threading and drilling tools 	Service and advice: <ul style="list-style-type: none"> - Technical advice - Training center ToolSchool - ToolCare® Vertrieb: <ul style="list-style-type: none"> - Central Logistics - Switzerland, Europe, Asia and South America Sales
2 FRAISA Deutschland GmbH 	Principles: <ul style="list-style-type: none"> - Technology development Production: <ul style="list-style-type: none"> - Production of milling and drilling tools for special solutions - Production ReTool® 	Service and advice: <ul style="list-style-type: none"> - Technical advice - ToolCare® Sales: <ul style="list-style-type: none"> - Sales Germany
3 FRAISA Hungária Kft. 	Production: <ul style="list-style-type: none"> - Production of milling and drilling tools - Unfinished parts HSS Service and advice: <ul style="list-style-type: none"> - Technical advice - ToolCare® 	Sales: <ul style="list-style-type: none"> - Sales Hungary
4 FRAISA Italia s.r.l. 	Service and advice: <ul style="list-style-type: none"> - Technical advice - ToolCare® Sales: <ul style="list-style-type: none"> - Sales Italy 	
5 FRAISA France Sarl. 	Service and advice: <ul style="list-style-type: none"> - Technical advice - ToolCare® Sales: <ul style="list-style-type: none"> - Sales France, Belgium, Luxembourg, Spain and Portugal 	
6 FRAISA USA, Inc. 	Production: <ul style="list-style-type: none"> - Production of milling tools - Production ReTool® (North America) Service and advice: <ul style="list-style-type: none"> - Technical advice - ToolCare® 	Sales: <ul style="list-style-type: none"> - Central logistics (North America) - Sales USA, Canada and Mexico
7 FRAISA China 	Service and advice: <ul style="list-style-type: none"> - Technical advice Sales: <ul style="list-style-type: none"> - Central Logistics in China and Taiwan - Sales in China and Taiwan 	



[14]

H D C





High Dynamic Cutting (HDC)



Striving for productivity on the one hand and reducing costs on the other is as old as chipping itself. The development of new cutting materials and coatings was a driver to meet these demands for decades.

The rapid development of modern CAM (Computer-Aided Manufacturing) is opening up new horizons as to how tools can always be used at the optimum operating point, as a result of which the wear on the tool is significantly reduced and the volume machined per unit of time massively increased.

The load on a milling cutter is essentially determined by the temperature, i.e. the engagement time of the cutting edge and the load on the cutting edge or the chipping thickness.

The optimum operating points of the milling cutters are determined at FRAISA in the Application Center according to the materials to be processed and stored in the FRAISA ToolExpert. These data are at the heart of the system, enabling the maximum tool performance of the high-performance milling cutters to be accessed.

The information determined in this manner can then be processed in CAM software so that the tools always run at the optimum operating point. Whereas in the past milling cutters were simply guided through the material in a straight line during a full groove cut, today they are straight-line move-

ments that are superimposed with fast circular (trochoidal) movements. The kinematic superimposition of these movements is able to ensure that the milling cutters always work at the optimum operating point in terms of the temperature and chipping thickness.

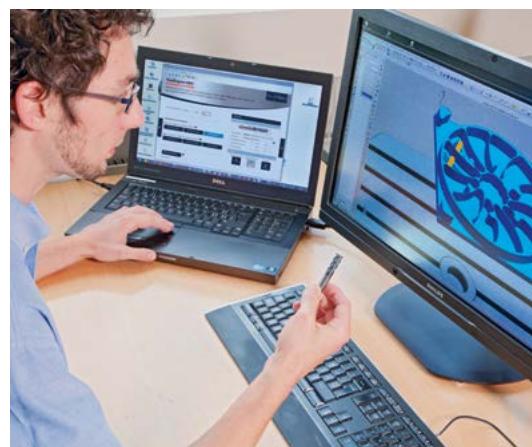
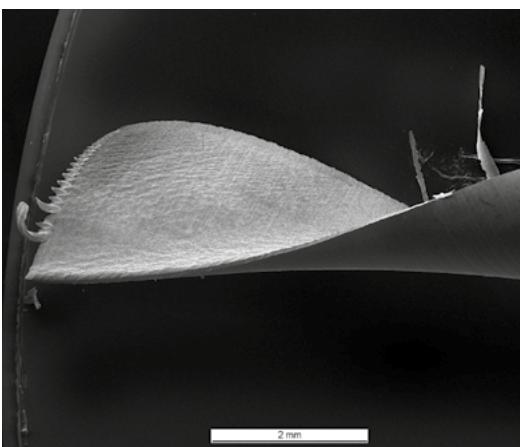
The fast trochoidal movement of the milling cutter must be generated by highly dynamic machines, from which the name High Dynamic Cutting (HDC) is derived.

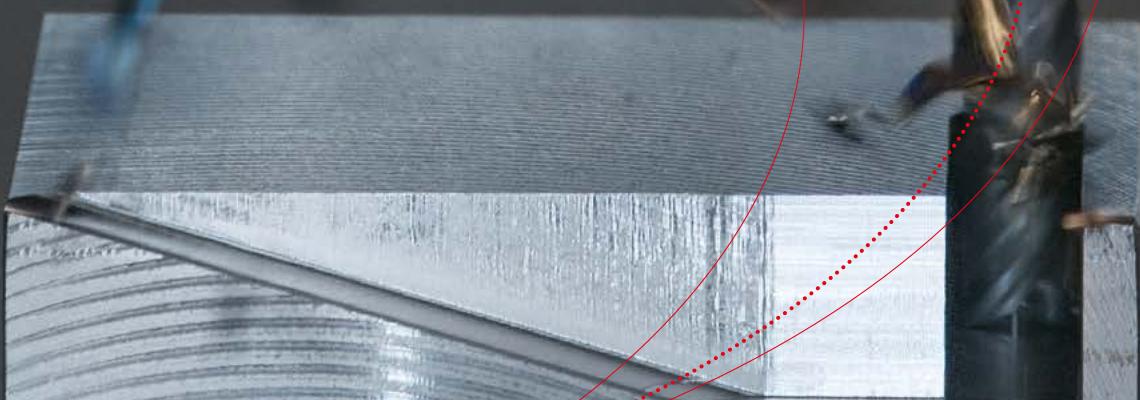
What are the advantages of this technology for FRAISA customers? With the HDC technology, the chip cross sections remain constant – and as a result, the cutting forces scarcely fluctuate. This huge advantage can be used to significantly increase the tool engagement depths in order to bring about a major increase in productivity. The constant cutting edge load leads to very uniform and low wear levels and a long tool life, as well as excellent reproducibility and excellent cost efficiency for the customer.

FRAISA supports its customers with the HDC machining with perfectly coordinated material-specific cutting data that can be called up from the FRAISA ToolExpert.

The harmonious coordination of the tool and cutting data may be one reason why many customers have come to appreciate FRAISA as their technology partner for HDC machining.

[15]





[16]

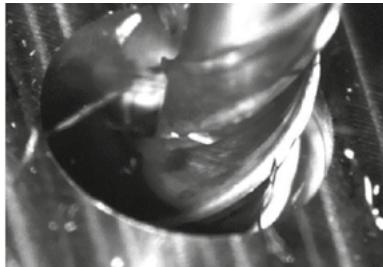
M F C



You can view
the entire
milling process
as a video by
scanning the
QR code.



Multi Functional Cutting (MFC)



Multi-functionality is the key to reducing complexity and lowering costs in the field of milling

The quest for maximum performance levels among tool manufacturers has not only pushed the number of different versions to an unprecedented level, but has also presented users with almost unsolvable problems in terms of finding the right tool for their applications.

FRAISA has intentionally distanced itself from this path and – with the MFC (Multi-Functional Cutting Technology) – provides a tool platform that combines up to 96 applications in one tool and therefore greatly simplifies tool selection. With the FRAISA ToolExpert, the customer is provided with excellent application software to quickly and reliably find the optimum application parameters. The data stored in the software have been tested in practical tests and optimally matched to the tool.

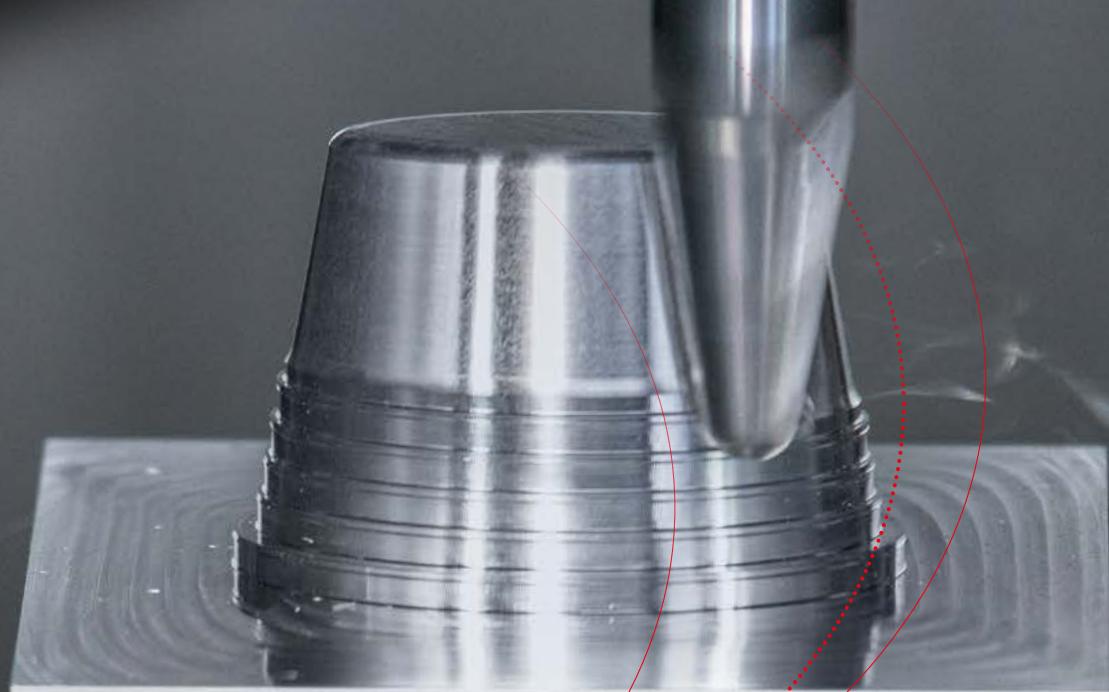
FRAISA considers the multi-functional tools (MFC), which have been designed for functional reliability – in combination with machining parameters that are perfectly matched to the materials used – to be an essential basis for effectively implementing the Industry 4.0 concept. Processes and components that will communicate with each other in the future must be designed to be robust and multi-functional in order to be able to reliably map process adjustments or changes.

The efficient production of very small lot sizes is part of the functional specifications of many companies in order to meet the constantly increasing numbers of different versions. This requirement is hindered by the limited number of tool magazine places. The MFC technology offers the solutions to this problem. Boreholes of different shapes and diameters can be produced with one milling cutter. Powerfully designed end cutting edges with adapted groove profiles also enable the manufacturing of deep bores within a short time. The easy-cutting peripheral cutting edges are designed in such a way that a wide range of materials can be machined with high performance levels without having to consider a tool change. Robust roughing operations as well as finishing cuts can be carried out with just one tool.

The tool inventory is regularly found on the lists of lean projects. Many tools also tie up capital accordingly. Tools that are designed only for very limited applications have to be managed with a sufficient minimum inventory level. If the manufacturer's portfolio contains numerous niche tools, this is a cost driver and a challenge for logistics. Here too, the MFC technology provides the right answers. A reduction in the number of variants and the complexity are strong arguments in favor of this innovative MFC technology.

The advantages:

- **Reduced logistics and inventory costs**
One tool for many applications
- **Reduced equipping and set-up times**
due to the greatly reduced number of variants
- **Reduced capital commitment**
for tools and tool holders
- **High process reliability**
Secure chip removal through central air/cooling duct
- **Optimized program cycles and performance**
The ToolExpert MFC supplies precise application data
- **Optimum life cycle**
through ToolCare tool management, ReTool® tool reconditioning and recycling through ReToolBlue



[18]

ArCut X



You can view
the entire
milling process
as a video by
scanning the
QR code.



ArCut X



Many mold makers still use ball nose end mills today and patiently produce the required surface qualities of their dies with small line jumps. This process works, but is extremely slow and therefore cost-intensive. FRAISA has launched a completely newly developed circular arc segment milling cutter (ArCut X). Under the motto "Feature-Based Milling Systems", a tool family has been developed which can not only be entered quickly and easily into a CAM system, but also generates the "feature" surface within a fraction of the previous time.

The ArCut X is a conical end milling cutter whose curved surface area has a radius of curvature of up to 1,000 mm. Due to the large radius of curvature, large line jumps can be produced without significantly influencing the theoretical roughness depth. The result is highly accurate surfaces with brilliant surface characteristics that can minimize the time-consuming polishing processes. In many cases it has been possible to reduce the machining time for finishing operations by up to 90 %. Since the ArCut X milling cutter has a perfectly formed spherical shape in the head area, it also offers all the advantages of a stable ball nose end mill.

Due to the large radius of curvature of the cutting edges, the tool possesses a large contact area, which significantly reduces the tool wear compared to a ball nose end mill. With a cleverly designed 5-axis finishing strategy, tools can also be fastened with relatively short spacing, resulting in very stable machining configurations that strongly suppress tool vibrations. The result of this development is short process times, very good surface qualities and maximum process reliability. This means that the tool also offers an almost perfect basis for autonomous machining on the shifts with few employees.

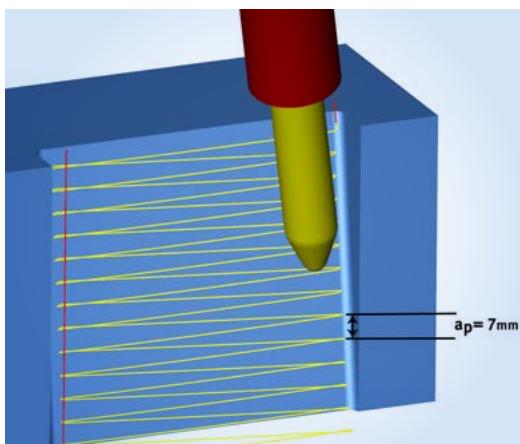
The close cooperation with CAM manufacturers has also made it much easier to enter the tools into the CAM system. It is no longer necessary to read in DXF files. The high-precision-milled tools can be described by simply entering radii and diameters, which significantly reduces the amount of programming required.

The FRAISA ToolExpert provides a comprehensive cutting data recommendation which has been tested with very high precision levels in realistic trials. With this well-rounded system of high-precision milling tools, simple CAM programming and tested cutting data, FRAISA customers are provided with new performance horizons for tool and mold construction, as well as for aerospace applications.

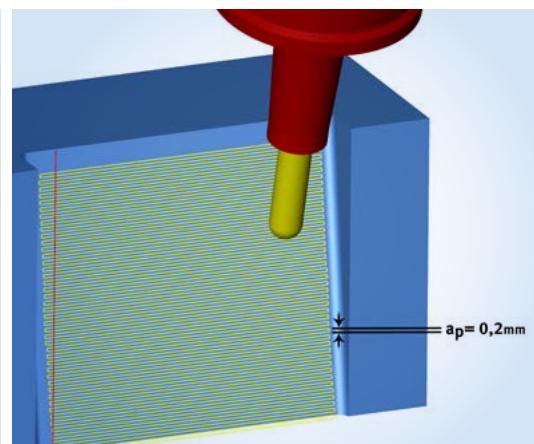
[19]



Source: OPEN MIND  THE CAM FORCE



Wide track distances =
short processing times (ArCut X)



Short track distances =
long processing times
(Ball nose milling cutter)



[20]

PRODUCTS





Products



New productivity horizons, extensive program expansions and new finishing strategies are just some of the keywords that describe the newly launched FRAISA products. The curious search for ways to increase the productivity of our customers and achieve large cost reduction potentials has led to a whole bunch of new products.

The further expansion of the FRAISA MFC product line is a response to our customers' wishes. The newly developed easy-cutting **MB-NVDS** milling cutter with a 10° cutting angle was presented at the EMO and is already very popular.

As a supplement to the cylindrical MFC milling cutters, the FRAISA **MB-RNVDS** milling cutter has also been developed, which combines the excellent easy-cutting properties of the MFC milling cutter with corner radii. Use of the tool is extremely universal and it is suitable for a wide variety of materials. Rapid plunging, low cutting forces and high chipping rates are characteristic features of the tool.

The FRAISA HX family has been completely re-conceived for the high-performance machining of hardened steels up to 68 HRC. The **HX-NVS** milling cutter is the first hard-machining tool on the market that excels with a plunging angle of over 5° and therefore significantly extends the range of applications for hard-machining tools. The core diameter has been massively increased and the surface refined with an extremely hard Duro-Si hard material layer. The success of these measures is long service lives, high process reliability and low shape deviations in the process.

However, the range of tools for machining aluminum has also been greatly expanded. The newly developed **AX-FPS** creates previously unimaginable performance horizons. Mirror-smooth spiral flutes ensure almost problem-free and ultra-fast chip removal. The extremely easy-cutting tool has a completely newly developed submerged face and is finely balanced to ensure smooth running even at high speeds. Maximum agility, full-slot milling up to 2xd and a plunging angle of 25° are just a few of the highlights that distinguish the tool.

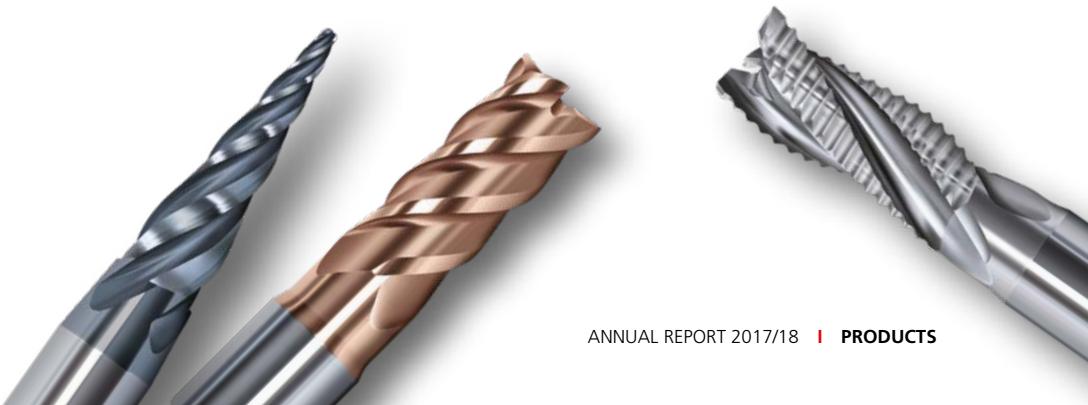
As this tool pushes the machine tool to its limits, extra cutting data have been developed in the **ToolExpert AX-FPS** to adapt the tool application parameters ideally to the machine environment.

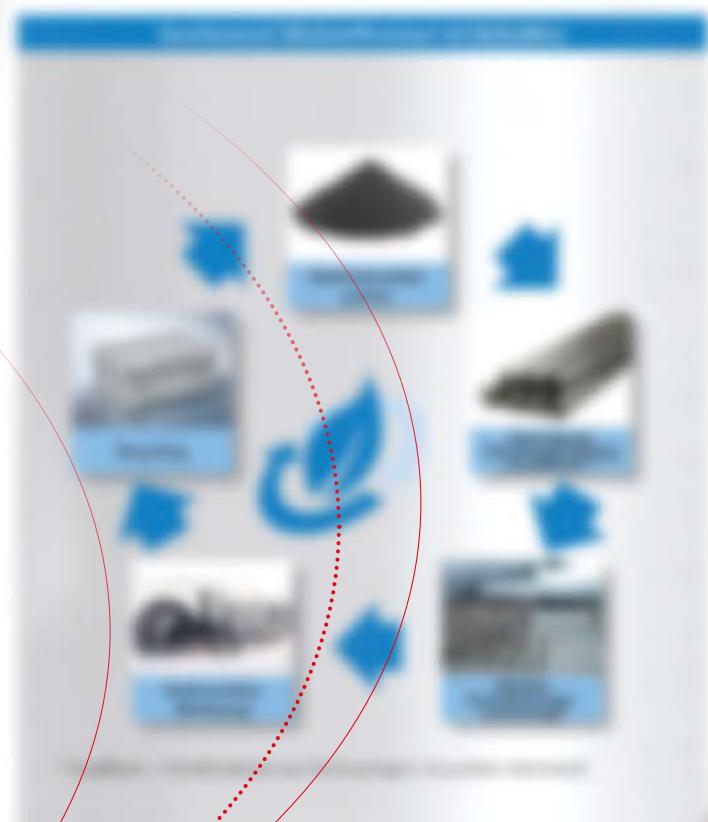
When new performance horizons are addressed, mention must also be made of the **ArCut X**. The circular arc segment tool has been specifically designed for high-performance finishing. On 5-axis machine tools, the machining times for finishing operations can be reduced by almost 90 % without negatively affecting the surface characteristics. Spherical cutting edges with huge radii create fantastic surfaces with the tightest tolerances on side, bottom or radius surfaces with deep cavities. Precise cutting data that has been developed in the ToolSchool and which can be retrieved in the ToolExpert support the use of the tools.

The milling program for **mold construction** has also been intensively studied and specifically supplemented. The focus here was on the significantly better coverage of high-precision mold construction. In the diameter range from 0.1 mm to 3.0 mm, very slender diameter and length variants have been launched in order to offer our customers a significantly more attractive range of products in this area. With 90 additional spherical and 84 new toric tool variants based on the successful Micro X milling cutter, our mold construction range has become significantly more powerful.

Last but not least, we would like to draw your attention to the additions to our indexable insert range. The new HX-HFC cutting bodies in the sizes of 10 mm and 13 mm have considerably upgraded our range of indexable inserts for steel machining in the hardness spectrum of 42-65 HRC. Optimized geometries and more wear-resistant substrates now satisfy even the highest performance requirements.

As part of the revision of the cutting body range, the SX corner plate has also been revised in the sizes of 8 mm and 12 mm in order that we can also offer a top product in this area.





[22]

CUSTOMER SERVICE





Customer service



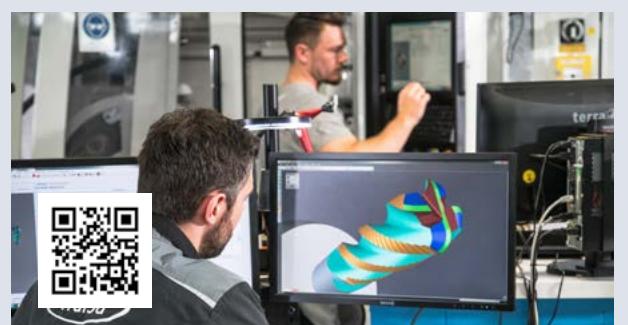
FRAISA's range of services is designed to reduce costs and the consumption of resources while at the same time maximizing the benefits of the product for our customers. The performance potential of high-performance milling tools is usually only exploited in full in combination with innovative services.

This is why FRAISA attaches particular importance to the development of new services with high potential benefits and the further development of the existing range of services.



ToolCare® 2.1

With ToolCare® 2.1, the comprehensive tool management system from FRAISA, the productivity can be increased considerably. With the cloud-based management software ToolCare® 2.1, the tools used in production can be stored in such a way that they can be quickly found and efficiently managed.



ConcepTool

Custom tools are "made-to-measure" tools. They are adapted to your specific needs and aligned to current market requirements. FRAISA makes use of the best machines and materials, the latest technology and the entire know-how of the technology leader.



ToolService

With the ReTool® re-sharpening service, FRAISA ensures that customers can achieve maximum operating data even when using re-sharpened tools. With the new ReToolBlue service we return the used tools to the recycling process and thereby close the material cycle.



ToolSchool

FRAISA not only produces new tools, but also provides future users in the in-house ToolSchool with instructions on how to optimally use the tools in practice, what are the latest technologies and what measures help to improve the customers' production processes and reduce costs. Recently, ToolSchool has started to communicate its know-how by means of an e-learning platform worldwide.

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for precision

fraisa



SUSTAINABLE
DEVELOPMENT





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).

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 characterized 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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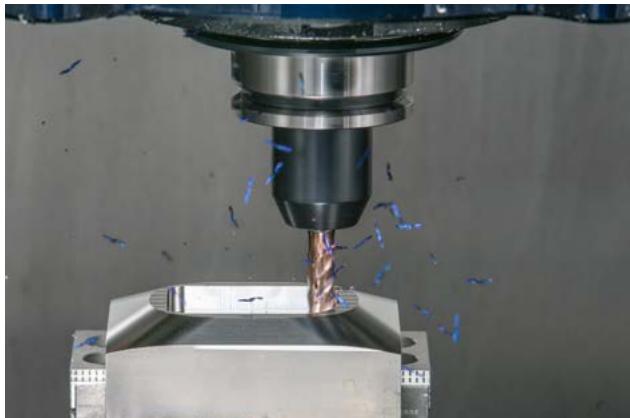


FRAISA family party 2017





Innovations



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When people think of innovations nowadays, the concept of Industry 4.0 very quickly comes to mind for many of them. Even if Industry 4.0 is explained as being the 4th Industrial Revolution, it has to be stated that this requires certain preconditions which are not currently being fulfilled. FRAISA is working on innovative technologies in order to create these preconditions.

In the world of Industry 4.0, the individual systems communicate with each other and adapt to the boundary conditions. This means that tools must become more flexible and cover a wide range of applications. A good example of this is the MFC milling cutter family, which can be used for more than 96 applications with very high process stability. Industry 4.0 cannot exist without very pronounced process stability.

Against this background, the tools do not have to be designed for maximum performance, but for reliability and durability. FRAISA is developing new coating systems that fulfill exactly these properties.

There is a clearly identifiable trend towards hard machining. The components are becoming smaller and smaller and the specific loads higher. Here too, universality and a long tool life are in demand. The completely newly developed HX milling platform from FRAISA is redefining innovation in this respect. The HX milling cutters are the only hard machining cutters that can be plunged more than 10 times faster than comparable tools of the competitors. Good plunging behavior significantly expands the application range of the tool and therefore precisely meets the demands of the market with respect to universality.

The manufacturing of mobile phone displays is setting new standards in graphite processing. Almost perfect surfaces are required for a material that is extremely abrasive. FRAISA is developing innovative tool solutions for this purpose, whereby the geometry and CVD diamond layer are optimally matched to one another in order to meet future market requirements.

However, not only the tool itself, but also consideration of the entire process enables many more productivity potentials to be leveraged. FRAISA works together with leading CAM manufacturers in order to develop machining strategies that are perfectly designed for the tools. Numerous application parameters are being developed at the FRAISA test centers with the aim of being able to provide customers with a perfect synthesis of a tool, a CAM strategy and cutting parameters. Under the slogan "Feature-Based Milling Systems", highly innovative milling strategies are being developed and tested in order to significantly simplify CAM programming in the future and eliminate time-consuming optimization processes. This is also one step towards providing control elements for communicating systems in digital production in the future.

The future challenges will go far beyond the hardware sector, with system solutions coming to the fore. FRAISA is embedded in a close-knit network with universities and industrial partners in order to be able to actively design and shape the coming challenges.





Health and Occupational Safety



Personal health, an interesting range of tasks, an ideally equipped workplace and a good working atmosphere are required for the purposes of overall well-being in the workplace.

FRAISA attempts to continuously optimize all of these areas. Depending on the company, we receive the relevant inputs for this from the suggestion system or from regular employee surveys. In the past year we have once again been able to implement a number of improvements. For example, a new catering concept from FELFEL in Switzerland. A vending machine provides fresh and healthy meals without artificial additives. The wide range of hot and cold dishes changes weekly. Furthermore, height-adjustable desks have been procured in all workplaces on request and courses in autogenic training as well as working techniques and time management have been organized. In Germany and Hungary, the production halls have been fitted with new air-conditioning equipment, which makes working in summer much more pleasant.

But there is also a wide range of offers for personal fitness. In Switzerland, for example, there is the annual skiing day, as well as a running and walking group, for which the highlight is the Bern Grand Prix. In the "Bike to Work" campaign, which takes place from May to June every year, many employees do not use their cars and come to work by bicycle. This increases fitness and protects the environment.

Comprehensive – and in many cases state-regulated – procedures, institutions and regulations have been established in all countries for the purposes of occupational safety. They all have the objective of preventing accidents and avoiding injury, particularly lasting injury to employees. These processes and measures have a very good effect and, fortunately, FRAISA has not had any significant occupational accidents in recent years.

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Training



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With Industry 4.0, technological development is progressing at high speed. In the medium term, this will significantly change our working environment and the requirements profile of our employees. Against this background, FRAISA is making every effort to further train its employees and qualify them for future requirements.

Learning and qualifications provide each and every one of us with security, perspectives, better pay, motivation and satisfaction. As a result, the development dynamics of the company improve, leading to faster problem-solving, continuous improvement, shorter project times and greater production efficiency. Because more qualification goes hand in hand with more self-assurance and self-confidence in many cases, the team spirit and positive working atmosphere are also promoted.

In the 2017/18 financial year we have invested CHF 1.7 million or 1.7 % of turnover or 13.9 % of the profit in further training.

When we consider the individual employees, this corresponds to 3.4 further training days per year and a cost burden of 3.277 francs per employee and year.

One of the highlights of last year was certainly the graduation ceremony of our 10 employees who successfully completed their catch-up training with a Swiss Federal Certificate of Competence. This was also of media interest throughout Switzerland, especially because half of these individuals were over 50 years of age when they graduated.

FRAISA enjoys a high reputation in the field of catch-up training and is often portrayed as a beacon in this field.



© Peter Geber





Resources



We use energy and raw materials for the production of tools, the provision of services or the mobility of our employees so that they can carry out their business activities. In order to protect the environment with our commercial activities, we are constantly striving to optimize the use of all resources. This is of interest both ecologically and economically. Protecting the environment saves money!

Our business process for carbide tools is an example of environmentally-friendly economic activities. By refurbishing used tools for further use or recycling them at the end of their life cycle, we significantly reduce the total cost of ownership.

The numbers speak for themselves. In the year under review, over 75 metric tons of valuable carbide was recycled with ReTool® and ReToolBlue!



The lifecycle management can also be viewed by scanning the QR code.

* DualBlank = shank material is made of high-quality recycled carbide (HM).

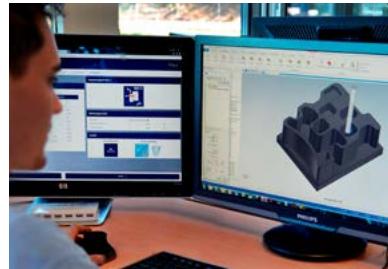






Portrait

Fankhauser Engineering AG



Fankhauser Engineering AG relies on MFC technology

Fankhauser Engineering AG is a family business in Oberdiessbach, Switzerland, and has made a good name for itself as a parts manufacturer for well-known companies. The core competence of the company is turning and milling machining from individual pieces to small series.

The range of materials that need to be machined extends from cast materials and conventional steels to high-alloy rust- and acid-resistant steels. The components requested from Fankhauser Engineering AG cover a huge variety of shapes in a wide range of dimensions. Numerous modern milling centers which can cover components of up to 1,500 mm are available for this purpose.

Managing Director Dany Fankhauser is fully aware that a production site in Switzerland can only work in a profitable manner if the machines are highly flexible and have long operating times. The modern Hermle milling centers are all equipped with pallet systems so that they can also work autonomously for many hours.

However, flexibility is not only required on the machine side. The wide range of components and materials also requires tools which are highly flexible. The MFC milling cutters from FRAISA offer a perfect platform for this. Up to 96 applications can be covered with one MFC milling cutter, which greatly simplifies tool selection. With the FRAISA ToolExpert, FRAISA provides excellent application software, so that customers can find the optimum application parameters quickly and reliably. Fankhauser Engineering AG greatly appreciates the precise application recommendations, as this enables the tools to be used with pinpoint accuracy, to work reliably and avoid time-consuming optimization steps. "Process reliability plays a decisive role in achieving long machine running times," says Managing Director Dany Fankhauser.

The tool inventory is also closely monitored at Fankhauser Engineering AG. Many tools also tie up large amounts of capital and tool locations in the magazines of the machine tools. Reducing the number of versions and complexity are strong arguments in favor of MFC technology. Numerous drilling operations have been substituted by the MFC milling cutters. The excellent plunging characteristics of the MFC milling cutters make it possible to produce boreholes of different shapes and diameters, which saves valuable store-room space. The MFC milling cutters can also easily cope with the wide range of materials – from cast materials to stainless steel. Positive cutting geometries, conditioned cutting edges and hard material layers that combine a high level of hardness with good all-round properties form the basis for this. The reduced number of tool variants significantly simplifies logistics and the number of ordering processes. Since clarity and organization are important success criteria for Fankhauser Engineering AG, the FRAISA ToolCare® tool management system is also installed in their production area. FRAISA's ReTool® reconditioning service is also being used intensively to further reduce tool costs.

We would like to thank Fankhauser Engineering AG for the trust they have placed in us and our cooperation with them, which is based on partnership.



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COMPANIES



Corporate Governance Bodies



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(from left to right)

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Ursula Maushart, Dr. Markus Schibli

2nd row:

Dr. Fritz Gantert, Florian Maushart, Josef Maushart,
Dr. Dirk Kammermeier, Prof. Dr. Peter Ruf, Thomas Nägelin



Board of Directors and Executive Board of FRAISA SA

(from left to right)

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Chairman of the Board,
Chairman of the Executive Board

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Charlotte Froelicher-Stüdeli
Member of the Board

Dr. Markus Schibli
Member of the Board

2nd row:

Stefan Gutmann
Head of the Production Division

Dr. Dirk Kammermeier
Head of the Production Development Division

Hanspeter Kocher
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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

faisa