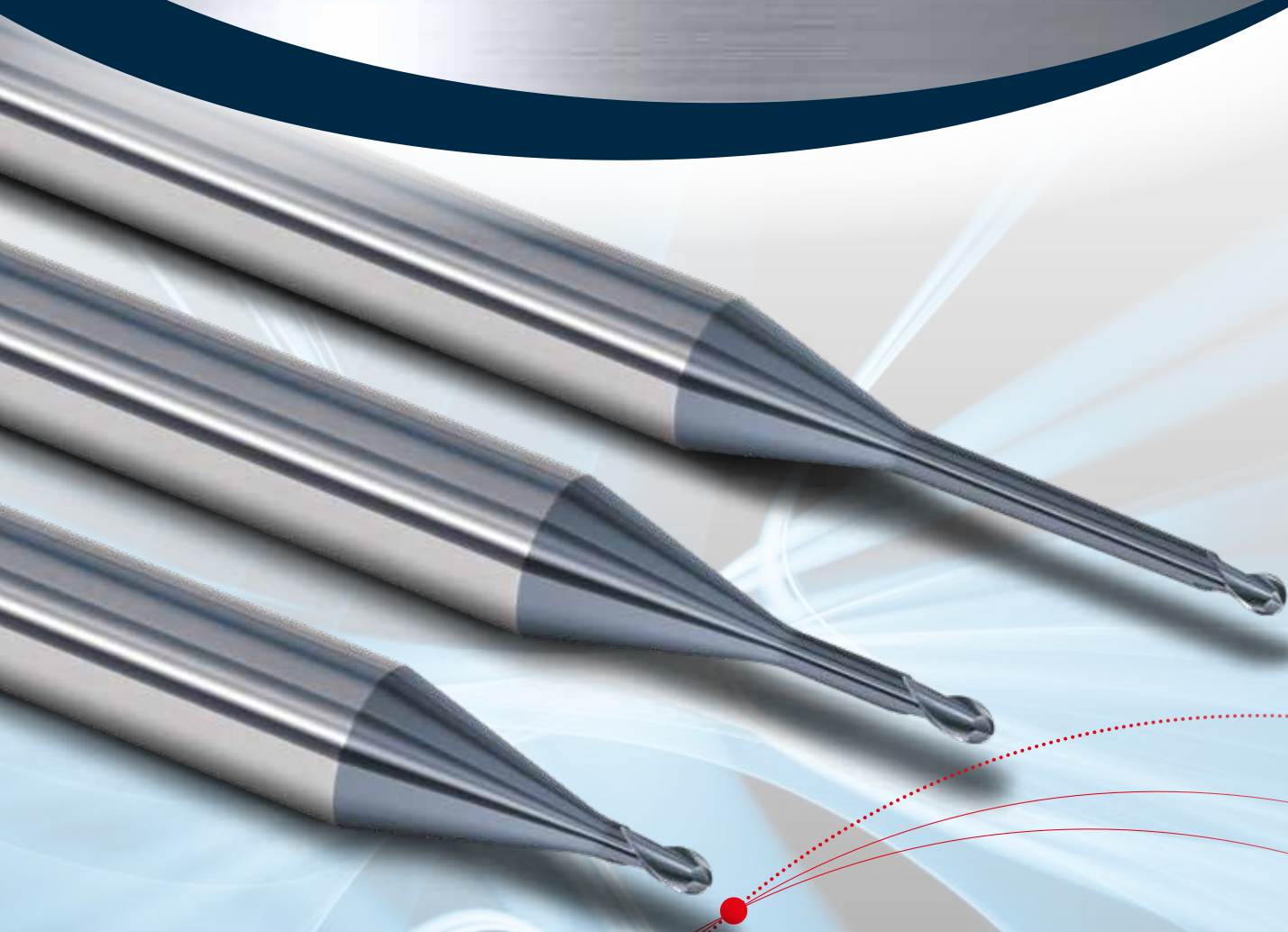


passion
for precision



MicroHX – new performance horizons for the milling of super-hard molds



Cutting
data calculator
ToolExpert

MicroHX – the best choice for super-hard steel

The successful and comprehensive MicroX range from FRAISA offers the right solution for every challenge in mold making. For particularly hard materials such as steel, the solution is: FRAISA MicroHX

With the **MicroHX** ball nose end mills from FRAISA, very hard materials with a hardness of **HRC > 60 can now also be machined extremely economically, efficiently, and precisely.** The new **MicroHX** tools have superior service lives, are extremely wear-resistant, and can be used for a very long time.

This is thanks to a completely new tool technology that revolutionizes machining and leads to impressive performance across-the-board: with their very strong and sharp cutting edge and a higher thermal load capacity, the cutters of the **MicroHX** series can be used up to four times longer than conventionally coated tools.

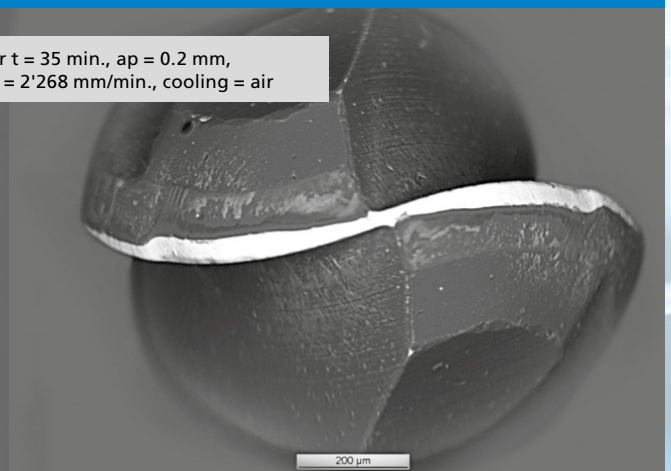
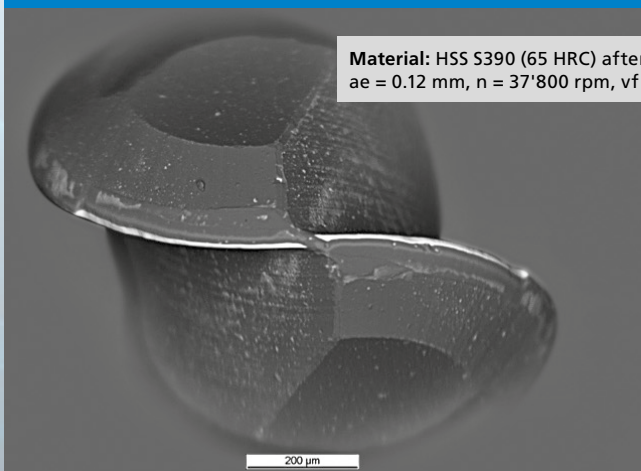
A sharp cutting edge, a thick coating, and optimum thermal management result in tool lifetimes that are 3 to 4 times longer than previous known values.



MicroHX: DURO-AI

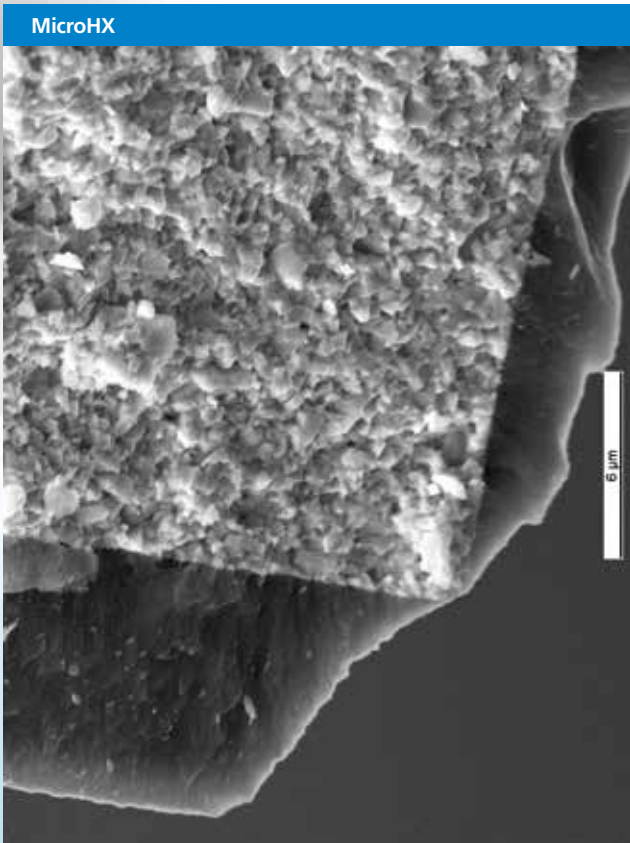
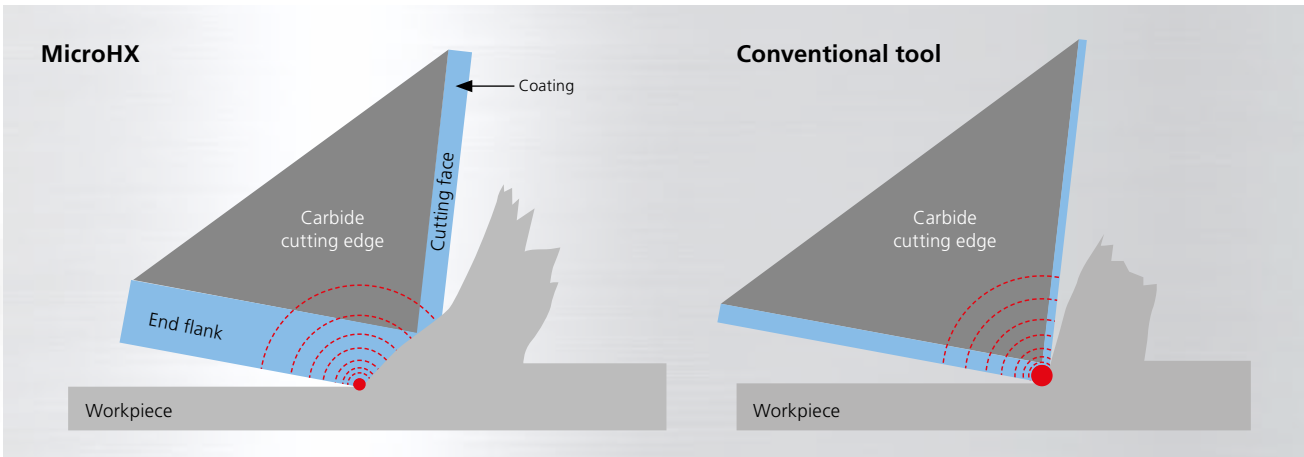
Competitor

Material: HSS S390 (65 HRC) after t = 35 min., ap = 0.2 mm, ae = 0.12 mm, n = 37'800 rpm, vf = 2'268 mm/min., cooling = air

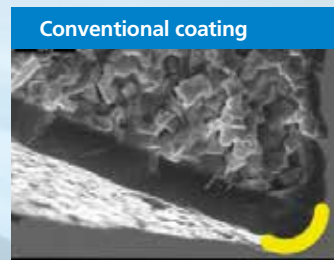


MicroHX from FRAISA is a highly innovative tool solution for the efficient production of complex, super-hard components.

A special feature of **MicroHX** milling tools is the positioning of the meshed contact point behind the cutting edge. This completely new technology greatly reduces the strain on the cutting edge. In addition, the cutting edge is extremely sharp and strong, minimizing material deformation and thermal stress.



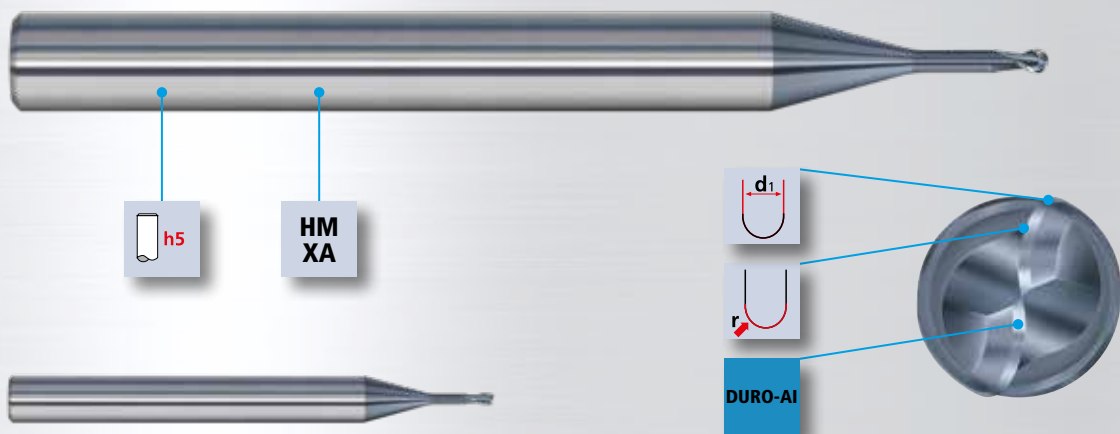
An innovative patent-pending mechanism makes this possible and provides controlled shearing of the outermost cutting edge radius in the area of the coating thickness. The residual stresses in the approx. 6 μm thick coating additionally support this effect.



MicroHX – maximum performance for the mold and die

MicroHX ball nose end mill

MicroHX ball nose end mill



6 mm precision shank with h5 tolerance

- High concentricity for best component qualities
- Ideal for modern precision tool holders



High-precision radius tolerance of ± 0.005 mm

- Specially configured position tolerances simplify programming and safe completion of the final contour
- High-precision tolerance zone for great dimensional accuracy



High-performance DURO-AI coat

- Internally developed, highly wear-resistant TiAlN/ALCrN coating for outstanding performance in the machining of high-strength steels



High-precision diameter

- High-precision tolerance zone across 180° of the ball for great dimensional accuracy
- Easy adjustability and exact measurement of the tool in the machine



XA carbide

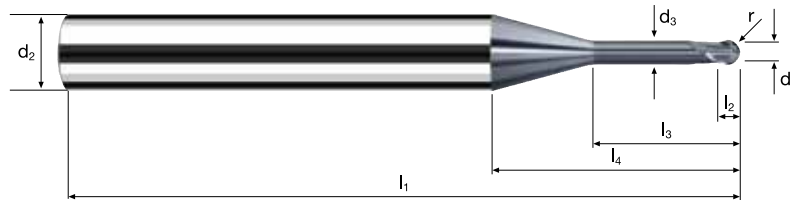
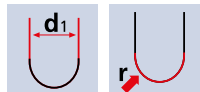
- Excellent ductility with a very high hardness reduces the risk of chipping and increases process reliability

MicroHX ball nose end mill

6 mm dia. shank, cylindrical neck, 2 teeth



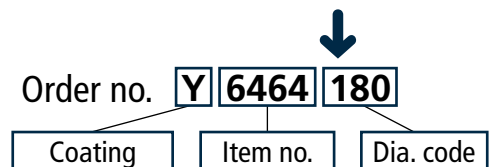
HM λ 30°
XA γ -10°



			Rm 1300-1500	HRC 48-56	HRC 56-60	HRC > 60	Inox Stainless	Ti Titanium	HSS
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d_1 ↓	l/d-ratio (l_3/d_1) →							
	1	2	2.5	3	3.5	4	4.5	5
	Y6460	Y6461	Y6481	Y6462	Y6482	Y6463	Y6483	Y6464
0.4	040	040	040	040	040	040	040	040
0.5	050	050	050	050	050	050	050	050
0.6	060	060	060	060	060	060	060	060
0.8	080	080	080	080	080	080	080	080
1.0	100	100	100	100	100	100	100	100
1.2				108				108
1.5	120	120		120		120		120
2.0	140	140		140		140		140
2.5				160				160
3.0				180				180

All tools are DURO-Al coated.



The fastest way to get more information is to scan this QR code.

For detailed information, see catalog.

First-class milling tools with a comprehensive service package

With the **MicroHX** range, FRAISA not only offers the perfect tools for the precise milling of super-hard components; it also offers services that go far beyond this and ensure maximum efficiency for production processes and workflows.

MAXIMUM CUSTOMER VALUE

✓ Maximum **precision** and best **component quality**

✓ Maximum **performance**, **process reliability**, and **reproducibility**

✓ **Reduced costs**

✓ Increased **productivity**

TECHNOLOGY

- **Tolerances** for balls ± 0.005 mm
- **6 mm precision shanks** with h5 tolerance for best component qualities
- Optimized suitability for **3-axis, 3+2-axis** and **5-axis** milling

APPLICATION

- **High availability** and **easy ordering**, with next-day delivery throughout Europe
- **ToolExpert**: Accurate and reliable **application data** for every tool available online
- **CAD data** available on website
- Maximum efficiency for **finishing and super-finishing** in steels from 40 > 60 HRC

SERVICE

- **ToolCare 2.1**: management, procurement, and information system for tools
- **ConcepTool**: custom-made special tools
- **ToolSchool**: initial and continuous training
- **FRAISA ReTool®**: Industrial tool reconditioning with performance guarantee

ToolExpert – the innovative online tool for your production

In the age of industry 4.0, it is essential to work productively and precisely at all times. FRAISA not only develops high-quality, high-performance tools, but also innovative software solutions such as the new ToolExpert.

The user-friendly online tool provides perfectly coordinated tool and material-specific cutting data for production quickly and easily – the optimum basis for the precise use of the FRAISA tools.

FRAISA experts thoroughly test the optimum operating points at in-house application centers.

All factors involved are considered and the optimal data is then bundled, collated, and permanently extended in the new ToolExpert.

For the use of tools this means:

- ✓ find the optimum application parameters quickly and reliably
- ✓ use perfectly coordinated, tool and material-specific cutting data
- ✓ download CAD data for selected tools



FRAISA ToolExpert offers numerous advantages:

- **Precise:** find perfectly coordinated tool and material-specific cutting data
- **Simple:** access data online at any time and from anywhere without software downloads
- **Fast:** find application parameters with just a few clicks without having to register
- **Order function:** order the selected tool directly in the e-shop via a link
- **Flexible:** search for tools or materials to be machined as required
- **Comprehensive:** call up cutting data for FRAISA tools from a database of more than 10,000 materials
- **User-friendly:** work intuitively thanks to the new, responsive design

[7]



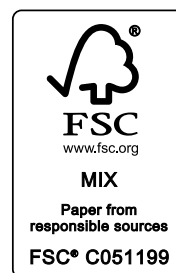
Cutting data calculator
ToolExpert



Scan this QR code to access more information about the FRAISA GROUP.



The fastest way to our E-Shop.



FRAISA SA

Gurzelenstr. 7 | CH-4512 Bellach |
Tel.: +41 (0) 32 617 42 42 | Fax: +41 (0) 32 617 42 41 |
mail.ch@fraisa.com | fraisa.com |

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passion
for precision

