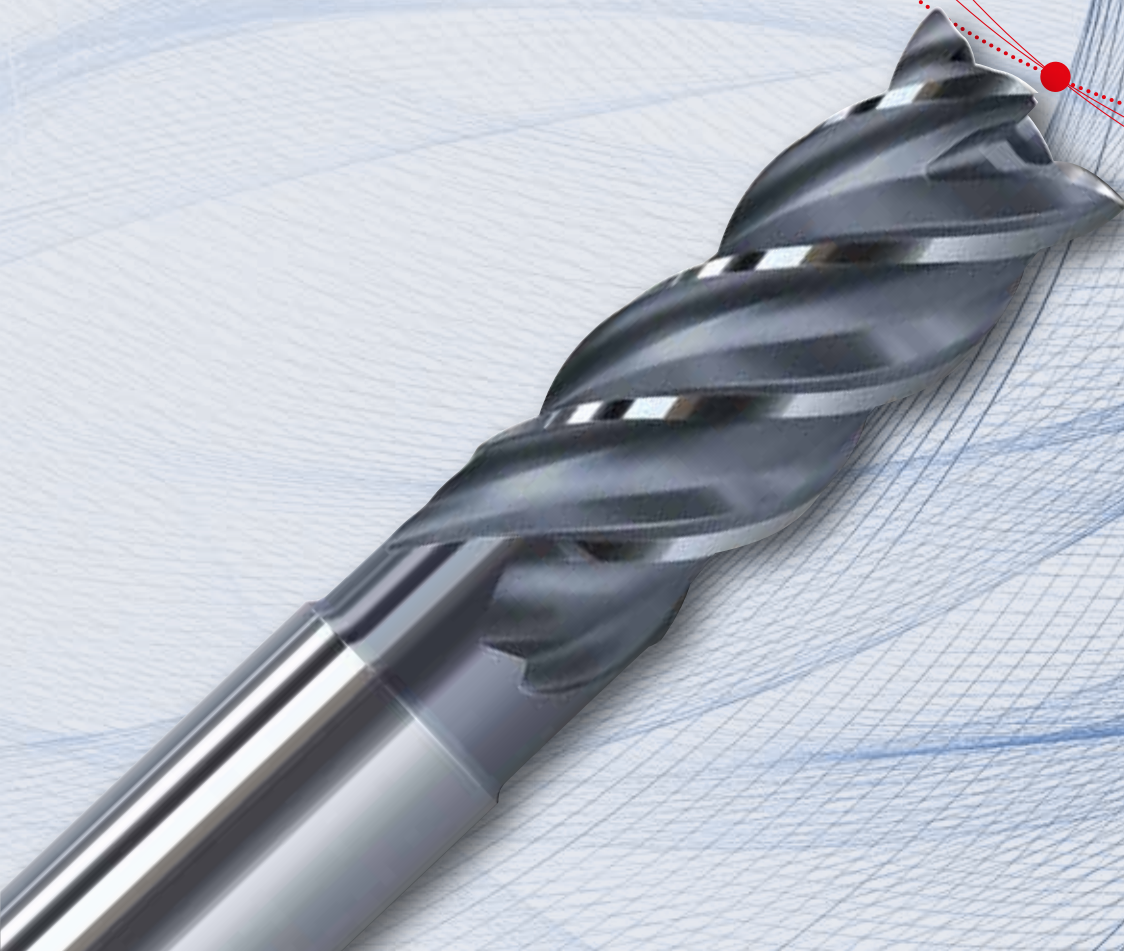


passion  
for precision



**NVS** – The new standard  
in **universal machining**



# NB-NVS cylindrical mills

## The new standard in universal machining

With its **NB-NVS** mills, FRAISA is launching a new standard in **universal machining**.

**NB-NVS** is an “easy-cut” tool and as such, **suitable for soft and stainless steels, hardened steels, titanium, annealed tool steels, non-ferrous metals and cast iron**. Applications range from **HPC milling** through small lateral infeed to **slot milling**. The penetration edge allows extra-large angles during penetration using **helical interpolation or ramping**.

### This combination of application options is new and unique!

The extensive **range of diameters from 2 to 20 mm** completes the universal NVS technology.

**NB-NVS** tools are reconditioned by FRAISA ReTool® so that they are as good as new. **This saves on raw materials and improves overall cost effectiveness.**

**NB-NVS** is made of a combination of carbides (HM). While the cutting part of the tool is made of virgin carbide, the shaft section comprises **recycled MG10 carbide**.

The **15° cutting angle, cutting-edge reconditioning, and variable helix angle** facilitate this universality. The reconditioning of the edges strengthens the sharp cutting blade, which in turn improves **tool life, performance and process reliability**.

The new NVS standard features the FRAISA **high-performance penetration edge** and a **short shank** to further enhance machining options and productivity.

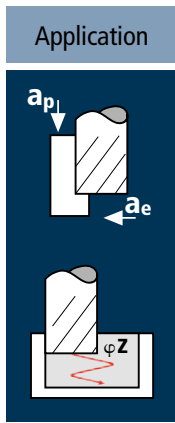
Thanks to FRAISA ReTool® and the combination of carbides, the **environmental friendliness and economics** of NVS technology are further improved upon.

**Maximum overall cost effectiveness** is obtained through the use of suitable cutting data and machining strategies. The necessary information is available under **ToolExpert** and **ToolExpert HelixRamp**.

### The advantages:

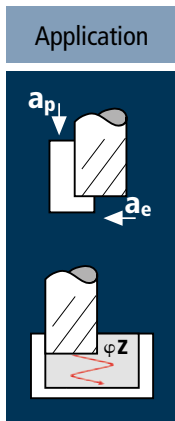
- **Simplification of stock-keeping and reduction of tool costs** through the extremely high level of universality of NVS technology
- Improved **tool life, performance and process reliability** thanks to edge reconditioning and variable helix angle
- **Extreme productivity increase during penetration**
- **Short shanks** for a wider range of applications
- Greater **sustainability, improved green credentials** and a better **price/performance ratio** by using carbide resources more sparingly and tapping the benefits of FRAISA ReTool® tool reconditioning
- **Greater flexibility** thanks to a large range of diameters from 2 to 20 mm
- **Advancement** compared with P5340/P5240 and P15327/P15227





Material
Steel < 850 N/mm <sup>2</sup>
Steel 850 - 1100 N/mm <sup>2</sup>
Stainless steel [Cr-Ni/1.4301]
Heat resistant steel Duplex steel [1.4462] [17-4 PH]

d1 [mm]	z	v <sub>c</sub> [m/min]	f <sub>z</sub> [mm]	a <sub>p</sub> [mm]	a <sub>e</sub> [mm]	n [min <sup>-1</sup> ]	v <sub>f</sub> / v <sub>fZ</sub> [mm/min]	Q [cm <sup>3</sup> /min]	φZ [°]	φA [°]
3	4	160	0.015	4.5	0.3	16975	1020		16°	See ToolExpert HelixRamp (www.fraisa.com)
4	4	160	0.020	6.0	0.4	12735	1020		16°	
5	4	160	0.025	7.5	0.5	10185	1020		16°	
6	4	160	0.035	9.0	0.6	8490	1190		16°	
8	4	160	0.045	12.0	0.8	6365	1145		16°	
10	4	160	0.055	15.0	1.0	5095	1120		16°	
12	4	160	0.065	18.0	1.2	4245	1105		16°	
16	4	160	0.075	24.0	1.6	3185	955		16°	
20	4	160	0.085	30.0	2.0	2545	865		16°	
3	4	135	0.015	4.5	0.3	14325	860		15°	See ToolExpert HelixRamp (www.fraisa.com)
4	4	135	0.020	6.0	0.4	10745	860		15°	
5	4	135	0.025	7.5	0.5	8595	860		15°	
6	4	135	0.030	9.0	0.6	7160	860		15°	
8	4	135	0.035	12.0	0.8	5370	750		15°	
10	4	135	0.045	15.0	1.0	4295	775		15°	
12	4	135	0.050	18.0	1.2	3580	715		15°	
16	4	135	0.060	24.0	1.6	2685	645		15°	
20	4	135	0.075	30.0	2.0	2150	645		15°	
3	4	90	0.010	4.5	0.3	9550	380		9°	See ToolExpert HelixRamp (www.fraisa.com)
4	4	90	0.015	6.0	0.4	7160	430		9°	
5	4	90	0.020	7.5	0.5	5730	460		9°	
6	4	90	0.025	9.0	0.6	4775	480		9°	
8	4	90	0.030	12.0	0.8	3580	430		9°	
10	4	90	0.035	15.0	1.0	2865	400		9°	
12	4	90	0.045	18.0	1.2	2385	430		9°	
16	4	90	0.055	24.0	1.6	1790	395		9°	
20	4	90	0.065	30.0	2.0	1430	370		9°	
3	4	50	0.010	4.5	0.3	5305	210		7°	See ToolExpert HelixRamp (www.fraisa.com)
4	4	50	0.015	6.0	0.4	3980	240		7°	
5	4	50	0.020	7.5	0.5	3185	255		7°	
6	4	50	0.025	9.0	0.6	2655	265		7°	
8	4	50	0.030	12.0	0.8	1990	240		7°	
10	4	50	0.035	15.0	1.0	1590	225		7°	
12	4	50	0.045	18.0	1.2	1325	240		7°	
16	4	50	0.055	24.0	1.6	995	220		7°	
20	4	50	0.065	30.0	2.0	795	205		7°	



Material
Steel < 850 N/mm <sup>2</sup>
Steel 850 - 1100 N/mm <sup>2</sup>
Stainless steel [Cr-Ni/1.4301]
Heat resistant steel Duplex steel [1.4462] [17-4 PH]

d1 [mm]	z	v <sub>c</sub> [m/min]	f <sub>z</sub> [mm]	a <sub>p</sub> [mm]	a <sub>e</sub> [mm]	n [min <sup>-1</sup> ]	v <sub>f</sub> / v <sub>fZ</sub> [mm/min]	Q [cm <sup>3</sup> /min]	φZ [°]	φA [°]
3	4	150	0.020	4.5	1.2	15915	1275	7.0	16°	See ToolExpert HelixRamp (www.fraisa.com)
4	4	150	0.025	6.0	1.6	11935	1195	11.5	16°	
5	4	150	0.030	7.5	2.0	9550	1145	17.0	16°	
6	4	150	0.035	9.0	2.4	7960	1115	24.0	16°	
8	4	150	0.045	12.0	3.2	5970	1075	41.5	16°	
10	4	150	0.060	15.0	4.0	4775	1145	68.5	16°	
12	4	150	0.065	18.0	4.8	3980	1035	89.5	16°	
16	4	150	0.075	24.0	6.4	2985	895	137.5	16°	
20	4	150	0.090	30.0	8.0	2385	860	206.5	16°	
3	4	125	0.015	4.5	1.2	13265	795	4.5	15°	See ToolExpert HelixRamp (www.fraisa.com)
4	4	125	0.020	6.0	1.6	9945	795	7.5	15°	
5	4	125	0.025	7.5	2.0	7960	795	12.0	15°	
6	4	125	0.030	9.0	2.4	6630	795	17.0	15°	
8	4	125	0.040	12.0	3.2	4975	795	30.5	15°	
10	4	125	0.055	15.0	4.0	3980	875	52.5	15°	
12	4	125	0.060	18.0	4.8	3315	795	68.5	15°	
16	4	125	0.070	24.0	6.4	2485	695	107.0	15°	
20	4	125	0.080	30.0	8.0	1990	635	152.5	15°	
3	4	85	0.015	4.5	1.2	9020	540	3.0	9°	See ToolExpert HelixRamp (www.fraisa.com)
4	4	85	0.020	6.0	1.6	6765	540	5.0	9°	
5	4	85	0.020	7.5	2.0	5410	435	6.5	9°	
6	4	85	0.025	9.0	2.4	4510	450	9.5	9°	
8	4	85	0.035	12.0	3.2	3380	475	18.0	9°	
10	4	85	0.045	15.0	4.0	2705	485	29.0	9°	
12	4	85	0.050	18.0	4.8	2255	450	39.0	9°	
16	4	85	0.060	24.0	6.4	1690	405	62.0	9°	
20	4	85	0.070	30.0	8.0	1355	380	91.0	9°	
3	4	45	0.015	4.5	1.2	4775	285	1.5	7°	See ToolExpert HelixRamp (www.fraisa.com)
4	4	45	0.020	6.0	1.6	3580	285	2.5	7°	
5	4	45	0.020	7.5	2.0	2865	230	3.5	7°	
6	4	45	0.025	9.0	2.4	2385	240	5.0	7°	
8	4	45	0.035	12.0	3.2	1790	250	9.5	7°	
10	4	45	0.045	15.0	4.0	1430	255	15.5	7°	
12	4	45	0.050	18.0	4.8	1195	240	20.5	7°	
16	4	45	0.060	24.0	6.4	895	215	33.0	7°	
20	4	45	0.070	30.0	8.0	715	200	48.0	7°	

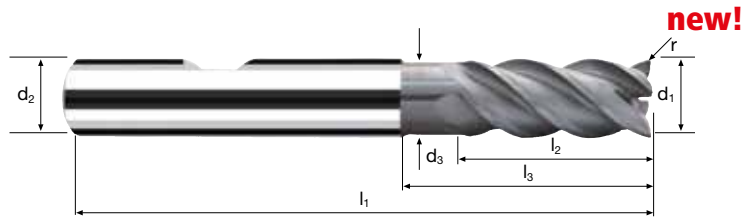
The above tables contain the basic data for two different lateral infeed rates a<sub>e</sub>. More cutting data and materials can be found under **ToolExpert** and **ToolExpert HelixRamp**.

# Cylindrical end mills NB-NVS

Smooth-edged, normal version with short neck  
High-performance penetration edge



**HM**  
**MG10**     $\lambda$  45°  
                   $\gamma$  15°



Roughing

Finishing

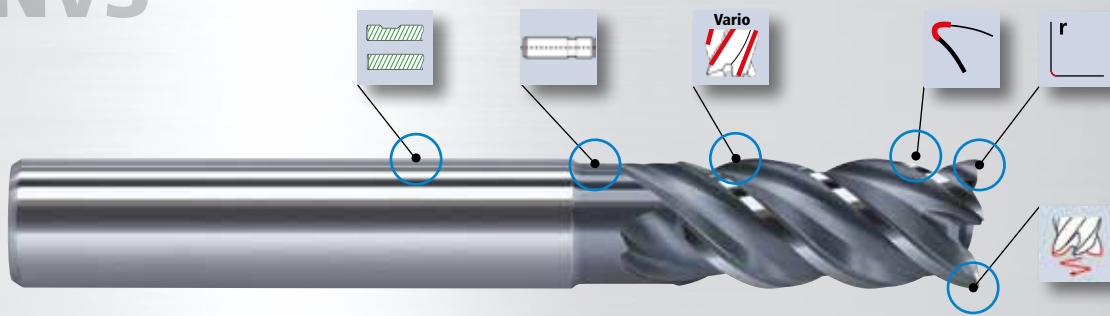

<b>Rm</b> < 850	<b>Rm</b> 850-1100	<b>Rm</b> 1100-1300					<b>Inox</b> Stainless	<b>Ti</b> Titanium	<b>GG(G)</b> Copper Tool Steel
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										POLYCHROM	
Example: Order-N°.										P8404	
										P8304	
$\emptyset$ Code	d1 e8	d2 h6	d3	l1	l2	l3	r	$\alpha$	z		
.140	2.0	6	1.9	57	7	10	0.05	7.0°	4		●
.160	2.5	6	2.3	57	8	10	0.05	6.5°	4		●
.178*	3.0	3	2.8	45	8	14	0.05	0.0°	4		●
.180	3.0	6	2.8	57	8	14	0.05	4.5°	4		●
.200	3.5	6	3.2	57	8	14	0.05	4.0°	4		●
.218*	4.0	4	3.7	50	11	16	0.10	0.0°	4		●
.220	4.0	6	3.7	57	11	16	0.10	3.0°	4		●
.240	4.5	6	4.1	57	12	16	0.10	2.5°	4		●
.258*	5.0	5	4.6	50	13	16	0.10	0.0°	4		●
.260	5.0	6	4.6	57	13	18	0.10	1.5°	4		●
.280	5.5	6	5.0	57	13	20	0.10	1.0°	4		●
.300	6.0	6	5.5	57	13	20	0.10	0.0°	4		●
.331	7.0	8	6.4	63	16	24	0.10	1.5°	4		●
.391	8.0	8	7.4	63	19	26	0.15	0.0°	4		●
.420	9.0	10	8.2	72	19	26	0.20	1.5°	4		●
.450	10.0	10	9.2	72	22	31	0.20	0.0°	4		●
.501	12.0	12	11.0	83	26	37	0.20	0.0°	4		●
.610	16.0	16	15.0	92	32	43	0.20	0.0°	4		●
.682	20.0	20	19.0	104	38	53	0.20	0.0°	4		●
* without clamping flat only											

NVS is an **enhancement** of our previous P15327/ P15227 and P5340/P5240 product lines. Compared with these, NVS offers a much wider range of applications with respect to milling strategies and materials. At the same time, NVS offers an improved **price/performance ratio** compared with the previous technology.


The ToolSchool used in this catalog shows you which of the old products have been superseded by these new ones.

# NVS


**Smaller corner radius**

- The cylindrical tool has a smaller corner radius that strengthens the cutting edge
- Higher thermal and mechanical resistance for more performance




**Milling tool with edge reconditioning**

- Reconditioning of the main cutting edge for greater cutting-edge stability
- Increased mechanical and thermal loading of the cutting edge
- Overall lengthening of tool life




**Milling tool with variable helix angle**

- Minimization of oscillation and vibration
- Increased material removal rate and tool life




**High-performance penetration edge**

- Easy-cut, high-performance penetration edge for high penetration angles
- Better performance, longer tool life and greater process reliability during penetration
- High functionality with ToolExpert HelixRamp cutting data



**Shank material made of high-quality recycled carbide (HM)**

- Ecological contribution for preserving valuable carbide resources
- Even more cost-effective in combination with FRAISA ReTool®



**Tools with a short shank**

- Tools with release feature from the end of the cutting edge to the shaft neck
- Enables repositioning for deeper infeeds beyond the length of the cutting edge
- Expansion of the tool's range of applications

**NB-NVS** tools with a cutting angle of 15° are ideally suitable for use in soft and hardened steels, in stainless steels, non-ferrous metals, annealed tool steel, cast iron and titanium.

Rm < 850	Rm 850-1100	Rm 1100-1300						Inox Stainless	Ti Titanium	GG(G) Copper Tool Steel
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Here, you will be provided with further information on the FRAISA Group.



The fastest way to our E-Shop can be found here.

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