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# Finishing cutter **Multicut XF** Surface Master

**NEW**

**new!**



# Multicut **XF**

## EXtreme Finishing

The new **Multicut XF** can be applied in circumstances with very stringent requirements with regard to shape and positional tolerances, surface qualities or machining productivity. In all three target areas, **Multicut XF** achieves levels of performance that could not be achieved with conventional finishing cutter tools. The advantages compared to conventional finishing cutters become apparent and are reflected in the productivity, the price-performance ratio as well as the improved surface quality. Additionally, thanks to their long service life, **Multicut XF** tools are better suited for automated processes than traditional finishing tools. In some sectors it is even possible to substitute grinding by using **Multicut XF**.

In principle, the **Multicut XF** tools distinguish themselves from conventional finishing cutter tools through their high helix angle, the unequal spacing and their odd number of teeth. These specific

geometric elements ensure a cut with minimal cutting force fluctuations, leading to an extreme running smoothness of these tools.

The vibration-free machining process is the outstanding feature of **Multicut XF**. While conventional finishing cutters vibrate most of the time depending on the infeed and the wrap angle, this does not happen with **Multicut XF** in conjunction with the recommended application data. Experts know that, in practice, vibration lines on finished surfaces cannot be corrected. Because the cutting parameters are perfectly matched to the **Multicut XF**, a reliable finishing cut can be achieved right away.

### The advantages:

- **Extreme dimensional and positional accuracy**
- **Extreme surface quality on the component**
- **Extreme process security**
- **No vibrations**
- **Shorter machining times**
- **Lower production costs**



## Reduction of the machining costs per workpiece

The ideal feed values are more than 50 % higher compared to conventional tools for finishing operations. Additionally, this tool enables finishing processes to be performed in only one step. These features lead to a reduction of the machining costs by more than 30 %.

## Cutting tooling costs

Due to the unequal spacing and the resulting excellent smooth running, as well as the particular hardness of the coating in combination with the highly wear-resistant carbide, better surface qualities can be achieved over a longer service life. The high helix angle assists this as it distributes the wear over a much longer cutting edge. Thus, the tool life is extended by at least 50 %, which results in a reduction of the tool costs by more than 30 %.

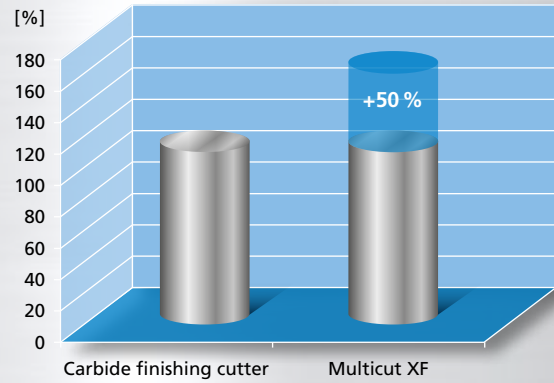
## The best surface quality of the components

The very robust and rigid geometry enables a more exact dimensional accuracy for the workpiece. Further machining processes can therefore be dispensed with. At the same time, the workpieces are finished with very high surface qualities, which are lower than  $Ra=0.4$  even after a milling time of 90 minutes. Thanks to the process safety at the highest surface removal volume, more components per cutting edge can be machined. This increases the degree of automation and reduces the number of tools.

## Resharpenering

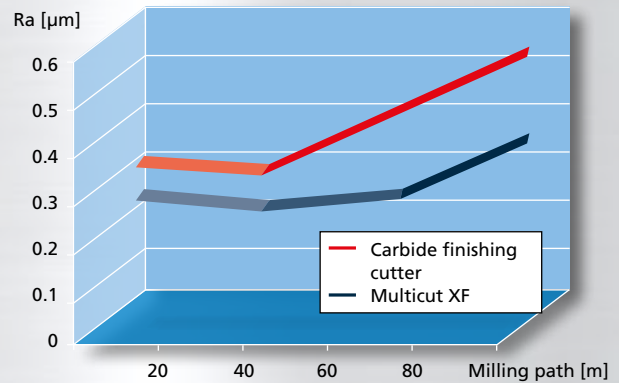
The **Multicut XF** can be resharpened several times, if handled by experts. The reproduction of the specific and complex geometries requires special knowledge. The resharpening service ReTool by FRAISA makes **Multicut XF** ever more attractive to you.

### Infeed rates



Material: Steel  $R_m=1000N/mm^2$ , dry

### Surface qualities



Material: low alloy steel ( $R_m=1000N/mm^2$ )

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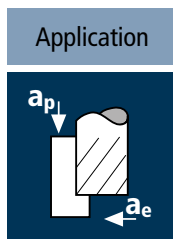


Where is it possible to ask questions concerning the product?

If you have any question, please send an email to [mail.ch@fraisa.com](mailto:mail.ch@fraisa.com). You may also directly contact our local customer consultant.

The FRAISA application engineers will be happy to advise you.

For further information, please refer to [www.fraisa.com](http://www.fraisa.com)



Material

Steel  
850 - 1100 N/mm<sup>2</sup>

Steel  
1100 - 1300 N/mm<sup>2</sup>

Hardened tool steel  
52 - 56 HRC

Hardened tool steel  
56 - 60 HRC

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> [mm/min]
3	5	180	0.010	5	0.05	19100	955
4	5	180	0.010	6	0.05	14325	715
5	5	180	0.015	8	0.05	11460	860
6	5	180	0.015	9	0.10	9550	715
8	7	180	0.025	12	0.10	7160	1255
10	7	180	0.030	15	0.10	5730	1205
12	7	180	0.035	18	0.10	4775	1170
16	7	180	0.045	24	0.20	3580	1130
20	7	180	0.055	30	0.20	2865	1105
3	5	150	0.010	5	0.05	15915	795
4	5	150	0.010	6	0.05	11935	595
5	5	150	0.015	8	0.05	9550	715
6	5	150	0.015	9	0.10	7960	595
8	7	150	0.025	12	0.10	5970	1045
10	7	150	0.030	15	0.10	4775	1005
12	7	150	0.035	18	0.10	3980	975
16	7	150	0.045	24	0.20	2985	940
20	7	150	0.055	30	0.20	2385	920
3	5	120	0.008	5	0.05	12735	510
4	5	120	0.010	6	0.05	9550	480
5	5	120	0.012	8	0.05	7640	460
6	5	120	0.016	9	0.10	6365	510
8	7	120	0.020	12	0.10	4775	670
10	7	120	0.026	15	0.10	3820	695
12	7	120	0.030	18	0.10	3185	670
16	7	120	0.040	24	0.20	2385	670
20	7	120	0.050	30	0.20	1910	670
3	5	100	0.008	5	0.05	10610	425
4	5	100	0.010	6	0.05	7960	400
5	5	100	0.012	8	0.05	6365	380
6	5	100	0.016	9	0.10	5305	425
8	7	100	0.020	12	0.10	3980	555
10	7	100	0.026	15	0.10	3185	580
12	7	100	0.030	18	0.10	2655	560
16	7	100	0.040	24	0.20	1990	555
20	7	100	0.050	30	0.20	1590	555

Material

Wrought aluminium  
Si < 6%

Cast iron  
(lamellar / spheroidal)

Titanium alloys  
>300 HB  
[Ti6Al4V]

Stainless steel  
[Cr-Ni/1.4301]

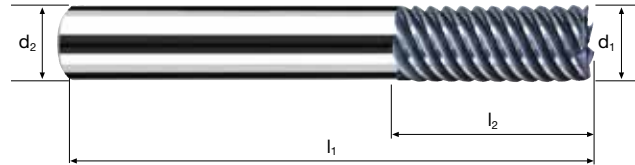
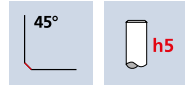
d1 [mm]	z	v <sub>c</sub> [m/min]	f <sub>z</sub> [mm]	a <sub>p</sub> [mm]	a <sub>e</sub> [mm]	n [min <sup>-1</sup> ]	v <sub>f</sub> [mm/min]
3	5	450	0.010	5	0.05	47750	2390
4	5	450	0.010	6	0.05	35810	1790
5	5	450	0.015	8	0.05	28650	2150
6	5	450	0.015	9	0.10	23875	1790
8	7	450	0.025	12	0.10	17905	3135
10	7	450	0.030	15	0.10	14325	3010
12	7	450	0.035	18	0.10	11935	2925
16	7	450	0.045	24	0.20	8955	2820
20	7	450	0.055	30	0.20	7160	2755
3	5	180	0.010	5	0.05	19100	955
4	5	180	0.010	6	0.05	14325	715
5	5	180	0.015	8	0.05	11460	860
6	5	180	0.015	9	0.10	9550	715
8	7	180	0.025	12	0.10	7160	1255
10	7	180	0.030	15	0.10	5730	1205
12	7	180	0.035	18	0.10	4775	1170
16	7	180	0.045	24	0.20	3580	1130
20	7	180	0.055	30	0.20	2865	1105
3	5	70	0.010	5	0.05	7425	370
4	5	70	0.010	6	0.05	5570	280
5	5	70	0.015	8	0.05	4455	335
6	5	70	0.015	9	0.10	3715	280
8	7	70	0.025	12	0.10	2785	485
10	7	70	0.030	15	0.10	2230	470
12	7	70	0.035	18	0.10	1855	455
16	7	70	0.045	24	0.20	1395	440
20	7	70	0.055	30	0.20	1115	430
3	5	80	0.010	5	0.05	8490	425
4	5	80	0.010	6	0.05	6365	320
5	5	80	0.015	8	0.05	5095	380
6	5	80	0.015	9	0.10	4245	320
8	7	80	0.025	12	0.10	3185	555
10	7	80	0.030	15	0.10	2545	535
12	7	80	0.035	18	0.10	2120	520
16	7	80	0.045	24	0.20	1590	500
20	7	80	0.055	30	0.20	1275	490

# Cylindrical end mills Multicut XF

Finishing, normal version



**HM**  
**XA**     $\lambda$  **65°**  
             $\gamma$  **8°**



Roughing



Finishing



<b>Rm</b> < 850	<b>Rm</b> 850-1100	<b>Rm</b> 1100-1300	<b>Rm</b> 1300-1500	<b>HRC</b> 48-56	<b>HRC</b> 56-60	<b>HRC</b> > 60	<b>Inox</b> Stainless	<b>Ti</b> Titanium	<b>GG(G)</b> Tool Steel Aluminium
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		Coating		Article-N°		ø-Code				<b>POLYCHROM</b>	
Example: Order-N°		<b>P</b>		<b>15250</b>		<b>.180</b>				<b>P15250</b>	
Ø Code	d1 e8	d2 h5	l1	l2	45°	α	z				
<b>.180</b>	3	6	57	8	-	6.0°	5			●	
<b>.220</b>	4	6	57	11	-	4.0°	5			●	
<b>.260</b>	5	6	57	13	-	2.0°	5			●	
<b>.300</b>	6	6	57	13	0.15	0.0°	5			●	
<b>.391</b>	8	8	63	19	0.15	0.0°	7			●	
<b>.450</b>	10	10	72	22	0.20	0.0°	7			●	
<b>.501</b>	12	12	83	26	0.20	0.0°	7			●	
<b>.610</b>	16	16	92	32	0.20	0.0°	7			●	
<b>.682</b>	20	20	104	38	0.20	0.0°	7			●	

## Multicut XF series

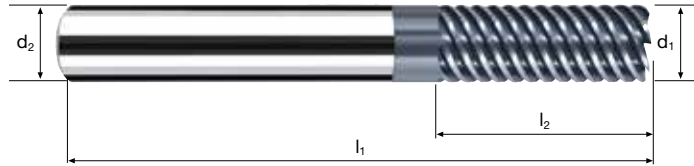
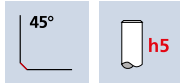
**Multicut XF** is available in three lengths: normal length (item P15250, illustration above), medium length (P15251), and an extra-long version (P15254).

# Cylindrical end mills Multicut XF

Finishing, medium length version



**HM  
XA**     $\lambda$  **65°**  
           $\gamma$  **8°**



Roughing



Finishing



<b>Rm</b> < 850	<b>Rm</b> 850-1100	<b>Rm</b> 1100-1300	<b>Rm</b> 1300-1500	<b>HRC</b> 48-56	<b>HRC</b> 56-60	<b>HRC</b> > 60	<b>Inox</b> Stainless	<b>Ti</b> Titanium	<b>GG(G)</b> Tool Steel Aluminium
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Example: Order-N°.							POLYCHROM	
		Coating	Article-N°.	ø-Code				
		<b>P</b>	<b>15251</b>	<b>.300</b>			<b>P15251</b>	
Ø Code	d1 e8	d2 h5	l1	l2	45°	z		
<b>.300</b>	6	6	63	19	0.15	5	●	
<b>.391</b>	8	8	72	28	0.15	7	●	
<b>.450</b>	10	10	84	34	0.20	7	●	
<b>.501</b>	12	12	97	40	0.20	7	●	
<b>.610</b>	16	16	108	48	0.20	7	●	
<b>.682</b>	20	20	122	56	0.20	7	●	

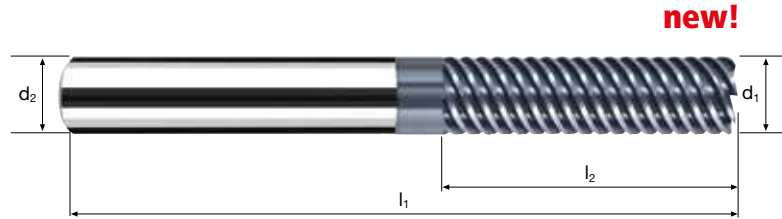
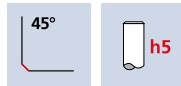
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# Cylindrical end mills Multicut XF

Finishing, long version



<b>HM XA</b>	$\lambda$ 65° $\gamma$ 8°
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Roughing

Finishing



<b>Rm</b> < 850	<b>Rm</b> 850-1100	<b>Rm</b> 1100-1300	<b>Rm</b> 1300-1500	<b>HRC</b> 48-56	<b>HRC</b> 56-60	<b>HRC</b> > 60	<b>Inox</b> Stainless	<b>Ti</b> Titanium	<b>GG(G) Tool Steel Aluminium</b>
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								POLYCHROM
Example: <b>Order-N°.</b> Coating: <b>P</b> Article-N°: <b>15254</b> ø-Code: <b>.300</b>								P15254
ø Code	d1 e8	d2 h5	l1	l2	45°	z		
.300	6	6	70	26	0.15	5		•
.391	8	8	80	36	0.15	7		•
.450	10	10	100	45	0.20	7		•
.501	12	12	110	53	0.20	7		•
.610	16	16	123	63	0.20	7		•
.682	20	20	141	75	0.20	7		•

You can obtain more information, such as detailed cutting parameters, from our brochure and through our cutting parameters software ToolExpert, which is available on our homepage [fraisa.com](http://fraisa.com).



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

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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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[youtube.com/fraisagroup](https://youtube.com/fraisagroup)

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