passion
for precision

fraisa

Finishing cutter Multicut XF

Multicut XF
Finish EXtreme

The new **Multicut XF** can be applied in circumstances with increased 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, the **Multicut XF** tools are better suited for optimising 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. With **Multicut XF**, a safe finishing cut can be achieved right away without any existing risk of vibrations.

The advantages:

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

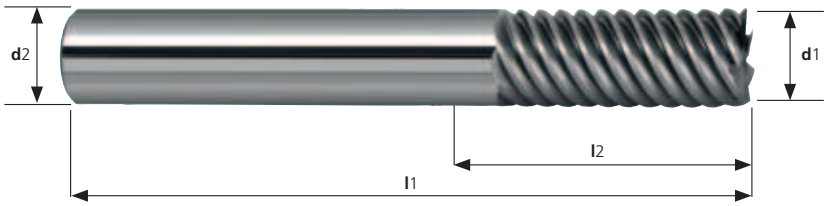
Cylindrical end mills Multicut XF

Finishing, normal version

HM
XA

λ 65°
γ 8°

45°



Roughing

Finishing

Rm < 850 | **Rm** 850–1100 | **Rm** 1100-1300 | **Rm** 1300-1500 | **HRC** 48-56 | **HRC** 56-60 | **HRC** > 60 | **Inox** Stainless | **Ti** Titanium | **GG(G)** **Tool steel** **Aluminium**

Example:
Order-N°. Coating **P** Article N°. **15250** Ø Code **.180**

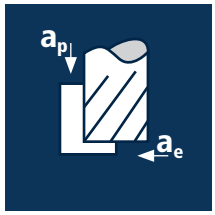
Ø Code	d_1 e8	d_2 h5	l_1	l_2	45°	α	Z	POLYCHROM P15250
.180	3	6	57	8	-	6.0°	5	●
.220	4	6	57	11	-	4.0°	5	●
.260	5	6	57	13	-	2.0°	5	●
.300	6	6	57	13	0.15	0.0°	5	●
.391	8	8	63	19	0.15	0.0°	7	●
.450	10	10	72	22	0.20	0.0°	7	●
.501	12	12	83	26	0.20	0.0°	7	●
.610	16	16	92	32	0.20	0.0°	7	●
.682	20	20	104	38	0.20	0.0°	7	●

Multicut XF Series

Multicut XF is available in two length versions: in the normal length (item P15250, illustration above) and in a medium-length version (P15251). In order to ensure the highest rotational accuracy, we design these tools exclusively with smooth cylindrical shanks.

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

Application



Material

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	
Steel 850 - 1100 N/mm² P								
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	
Steel 1100 - 1300 N/mm² P								
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	
Tool steel hardened 52 - 56 HRC P								
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	
Tool steel hardened 56 - 60 HRC P								
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

d1 [mm]	z	v_c [m/min]	f_z [mm]	a_p [mm]	a_e [mm]	n [min⁻¹]	v_f [mm/min]	
Wrought aluminium alloys Si < 6 % P								
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	
Cast iron (laminar / spheroidal) P								
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	
Titanium alloy, hardened. > 300 HB [Ti6Al4V] P								
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	
Stainless steel [Cr-Ni-Mo-.../1.4571] P								
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	

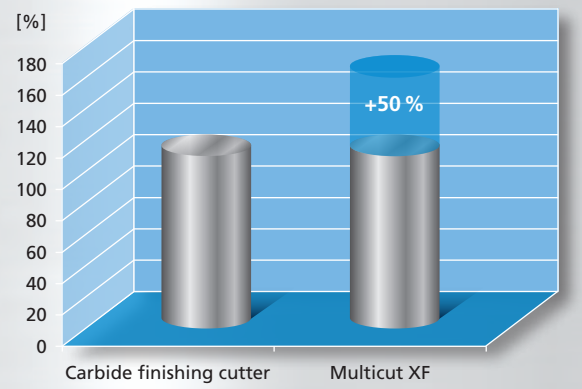
Reduction of the machining costs per workpiece

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 %.

Reduction of the tool costs

Due to the unequal spacing and the excellent smooth running previously mentioned, as well as the special hardness of the carbide used, 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 %.

Infeed rates

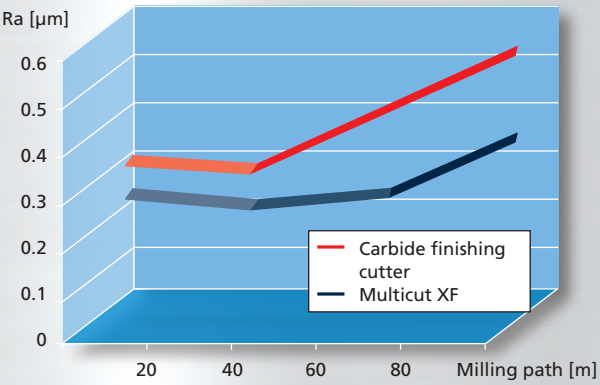


Material: Steel R_m=1000N/mm², dry

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.

Surface qualities



Material: low alloy steel (R_m=1000N/mm²)

Resharpening

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.

Where is it possible to ask questions concerning the product?

If you have any question, please send an email to **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**

Here, you will be provided with further information on the FRAISA Group.

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

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** |

You also find us at:
facebook.com/fraisagroup
youtube.com/fraisagroup

passion
for precision

fraisa