

Where **high performance** is the **standard**®

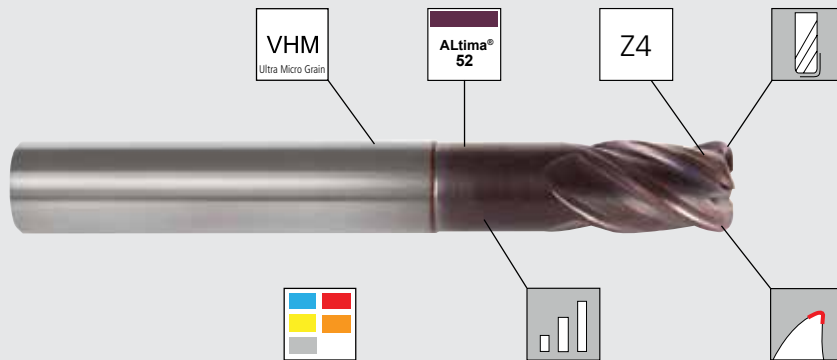
TuffCut® Series 158





Where **high performance** is the **standard**®

TuffCut® Series 158



Micro Grain Carbide Grade

- Multi application for roughing and finishing
- Covers wide range of materials



Proven ALtima52 Coating

- TiAlSiN Superhard Coating excels in hardened materials and Super Alloys



4 Flutes For Universal Application Range

- Increased core diameter for improved stiffness
- Unequal flute spacing for reduced vibration



Extensive Line-up of Corner Radius

- Large = High Feed Roughing
- Small-medium = Semi Finishing and Finishing



Wide Application Area

- Steels, Stainless Steel, Cast Iron, Titanium
- Hardened Steel, Super Alloys



Wide Lineup of Neck Lengths

- Ideal for Die & Mould and 3D machining applications



Special Cutting Edge Preparation

- Rounds edge for additional strength
- Reduces cutting edge stresses

Features

Application Materials

- Alloy Steels
- Tool Steels
- Cast iron
- Titanium
- Heat Resistant Super Alloys
- Hardened Steels upto HRC60

Application Areas

- Die & Mould
- 3D Complex Parts
- Motorsports Components
- High Speed 3D machining strategies

Innovation is what drives us and our TuffCut 158 Series is a perfect example of how our advanced tooling technologies combine to make a positive difference to your business.

The 158 Series is designed for 3D machining and milling, delivering outstanding metal removal rates and a high quality finish particularly where HSC strategies are used. The range includes a choice of different neck lengths and dedicated corner radius options for high feed roughing, semi-finishing and finishing applications.

By combining an asymmetrically spaced 4-flute design and special edge preparation, together with our proven ALtima52 coating and different corner radius options for high feed roughing or precision finishing, the 158 Series delivers exceptional performance and cutting efficiency with a diverse range of materials.



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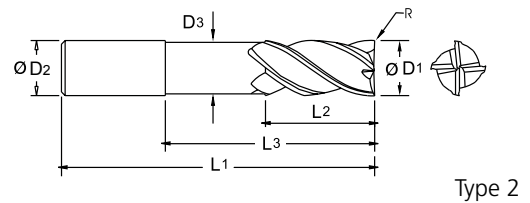
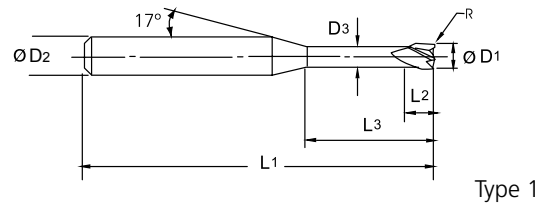
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TuffCut® Series 158

Corner Radius - High Feed Roughing



Diameter	Diameter Tolerance	CR Tolerance	Shank Ø Tolerance
Ø2.0 - Ø16	+0 / - 0.02	-0.02 / +0.02	h6



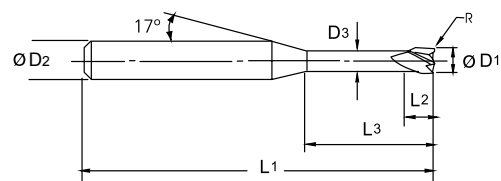
Tool No.	D1	D2	D3	L1	L2	L3	R	Type
158 02N08-0.5RA	2.0	6.0	1.9	63.0	3.0	8.0	R0.5	1
158 03N10-0.8RA	3.0	6.0	2.9	63.0	5.0	10.0	R0.8	1
158 04N12-1.0RA	4.0	6.0	3.9	63.0	6.0	12.0	R1.0	1
158 06N20-1.5RA	6.0	6.0	5.8	75.0	9.0	20.0	R1.5	2
158 06N30-1.5RA	6.0	6.0	5.8	100.0	9.0	30.0	R1.5	2
158 08N30-2.0RA	8.0	8.0	7.6	75.0	12.0	30.0	R2.0	2
158 08N40-2.0RA	8.0	8.0	7.6	100.0	12.0	40.0	R2.0	2
158 08N50-2.0RA	8.0	8.0	7.6	120.0	12.0	50.0	R2.0	2
158 10N30-2.0RA	10.0	10.0	9.6	75.0	15.0	30.0	R2.0	2
158 10N50-2.0RA	10.0	10.0	9.6	100.0	15.0	50.0	R2.0	2
158 10N60-2.0RA	10.0	10.0	9.6	130.0	15.0	60.0	R2.0	2
158 12N40-2.0RA	12.0	12.0	11.4	100.0	18.0	40.0	R2.0	2
158 12N60-2.0RA	12.0	12.0	11.4	140.0	18.0	60.0	R2.0	2
158 16N50-3.0RA	16.0	16.0	15.2	100.0	24.0	50.0	R3.0	2
158 16N70-3.0RA	16.0	16.0	15.2	150.0	24.0	70.0	R3.0	2

TuffCut® Series 158

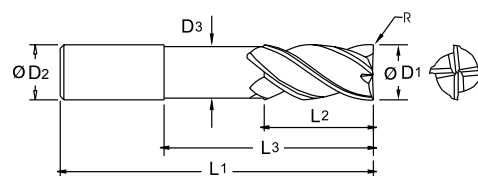
Corner Radius



Diameter	Diameter Tolerance	CR Tolerance	Shank Ø Tolerance
Ø2.0 - Ø16	+0 / - 0.02	-0.02 / +0.02	h6



Type 1



Type 2

Tool No.	D1	D2	D3	L1	L2	L3	R	Type
158 02N06-0.1RA	2.0	6.0	1.9	63.0	3.0	6.0	R0.1	1
158 02N08-0.1RA	2.0	6.0	1.9	63.0	3.0	8.0	R0.1	1
158 02N12-0.1RA	2.0	6.0	1.9	63.0	3.0	12.0	R0.1	1
158 02N16-0.1RA	2.0	6.0	1.9	63.0	3.0	16.0	R0.1	1
158 02N20-0.1RA	2.0	6.0	1.9	75.0	3.0	20.0	R0.1	1
158 02N06-0.2RA	2.0	6.0	1.9	63.0	3.0	6.0	R0.2	1
158 02N08-0.2RA	2.0	6.0	1.9	63.0	3.0	8.0	R0.2	1
158 02N12-0.2RA	2.0	6.0	1.9	63.0	3.0	12.0	R0.2	1
158 02N16-0.2RA	2.0	6.0	1.9	63.0	3.0	16.0	R0.2	1
158 02N20-0.2RA	2.0	6.0	1.9	75.0	3.0	20.0	R0.2	1
158 03N10-0.2RA	3.0	6.0	2.9	63.0	5.0	10.0	R0.2	1
158 03N12-0.2RA	3.0	6.0	2.9	63.0	5.0	12.0	R0.2	1
158 03N16-0.2RA	3.0	6.0	2.9	63.0	5.0	16.0	R0.2	1
158 03N20-0.2RA	3.0	6.0	2.9	75.0	5.0	20.0	R0.2	1
158 03N25-0.2RA	3.0	6.0	2.9	75.0	5.0	25.0	R0.2	1
158 03N30-0.2RA	3.0	6.0	2.9	75.0	5.0	30.0	R0.2	1
158 03N10-0.5RA	3.0	6.0	2.9	63.0	5.0	10.0	R0.5	1
158 03N12-0.5RA	3.0	6.0	2.9	63.0	5.0	12.0	R0.5	1
158 03N16-0.5RA	3.0	6.0	2.9	63.0	5.0	16.0	R0.5	1
158 03N20-0.5RA	3.0	6.0	2.9	75.0	5.0	20.0	R0.5	1
158 03N25-0.5RA	3.0	6.0	2.9	75.0	5.0	25.0	R0.5	1
158 03N30-0.5RA	3.0	6.0	2.9	75.0	5.0	30.0	R0.5	1

TuffCut® Series 158

Corner Radius

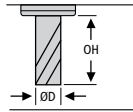


Tool No.	D1	D2	D3	L1	L2	L3	R	Type
158 04N10-0.2RA	4.0	6.0	3.9	63.0	6.0	10.0	R0.2	1
158 04N12-0.2RA	4.0	6.0	3.9	63.0	6.0	12.0	R0.2	1
158 04N16-0.2RA	4.0	6.0	3.9	63.0	6.0	16.0	R0.2	1
158 04N20-0.2RA	4.0	6.0	3.9	75.0	6.0	20.0	R0.2	1
158 04N25-0.2RA	4.0	6.0	3.9	75.0	6.0	25.0	R0.2	1
158 04N30-0.2RA	4.0	6.0	3.9	75.0	6.0	30.0	R0.2	1
158 04N10-0.5RA	4.0	6.0	3.9	63.0	6.0	10.0	R0.5	1
158 04N12-0.5RA	4.0	6.0	3.9	63.0	6.0	12.0	R0.5	1
158 04N16-0.5RA	4.0	6.0	3.9	63.0	6.0	16.0	R0.5	1
158 04N20-0.5RA	4.0	6.0	3.9	75.0	6.0	20.0	R0.5	1
158 04N25-0.5RA	4.0	6.0	3.9	75.0	6.0	25.0	R0.5	1
158 04N30-0.5RA	4.0	6.0	3.9	75.0	6.0	30.0	R0.5	1
158 06N20-0.3RA	6.0	6.0	5.8	75.0	9.0	20.0	R0.3	2
158 06N20-0.5RA	6.0	6.0	5.8	75.0	9.0	20.0	R0.5	2
158 06N20-1.0RA	6.0	6.0	5.8	75.0	9.0	20.0	R1.0	2
158 06N30-0.3RA	6.0	6.0	5.8	100.0	9.0	30.0	R0.3	2
158 06N30-0.5RA	6.0	6.0	5.8	100.0	9.0	30.0	R0.5	2
158 06N30-1.0RA	6.0	6.0	5.8	100.0	9.0	30.0	R1.0	2
158 08N30-0.3RA	8.0	8.0	7.6	75.0	12.0	30.0	R0.3	2
158 08N30-0.5RA	8.0	8.0	7.6	75.0	12.0	30.0	R0.5	2
158 08N30-1.0RA	8.0	8.0	7.6	75.0	12.0	30.0	R1.0	2
158 08N40-0.3RA	8.0	8.0	7.6	100.0	12.0	40.0	R0.3	2
158 08N40-0.5RA	8.0	8.0	7.6	100.0	12.0	40.0	R0.5	2
158 08N40-1.0RA	8.0	8.0	7.6	100.0	12.0	40.0	R1.0	2
158 08N50-0.3RA	8.0	8.0	7.6	120.0	12.0	50.0	R0.3	2
158 08N50-0.5RA	8.0	8.0	7.6	120.0	12.0	50.0	R0.5	2
158 08N50-1.0RA	8.0	8.0	7.6	120.0	12.0	50.0	R1.0	2
158 10N30-0.3RA	10.0	10.0	9.6	75.0	15.0	30.0	R0.3	2
158 10N30-0.5RA	10.0	10.0	9.6	75.0	15.0	30.0	R0.5	2
158 10N30-1.0RA	10.0	10.0	9.6	75.0	15.0	30.0	R1.0	2
158 10N50-0.3RA	10.0	10.0	9.6	100.0	15.0	50.0	R0.3	2
158 10N50-0.5RA	10.0	10.0	9.6	100.0	15.0	50.0	R0.5	2
158 10N50-1.0RA	10.0	10.0	9.6	100.0	15.0	50.0	R1.0	2
158 10N60-0.3RA	10.0	10.0	9.6	130.0	15.0	60.0	R0.3	2
158 10N60-0.5RA	10.0	10.0	9.6	130.0	15.0	60.0	R0.5	2
158 10N60-1.0RA	10.0	10.0	9.6	130.0	15.0	60.0	R1.0	2
158 12N40-0.3RA	12.0	12.0	11.4	100.0	18.0	40.0	R0.3	2
158 12N40-1.0RA	12.0	12.0	11.4	100.0	18.0	40.0	R1.0	2
158 12N60-0.3RA	12.0	12.0	11.4	140.0	18.0	60.0	R0.3	2
158 12N60-1.0RA	12.0	12.0	11.4	140.0	18.0	60.0	R1.0	2
158 16N50-0.3RA	16.0	16.0	15.2	100.0	24.0	50.0	R0.3	2
158 16N50-1.0RA	16.0	16.0	15.2	100.0	24.0	50.0	R1.0	2
158 16N70-0.3RA	16.0	16.0	15.2	150.0	24.0	70.0	R0.3	2
158 16N70-1.0RA	16.0	16.0	15.2	150.0	24.0	70.0	R1.0	2

TuffCut® Series 158

Recommended cutting data

HSC Roughing



Workpice Material Group		Material Type	Coolant		OH	Vc	Tool Diameter and Corner Radius								
							2.0 x R0.5			3.0 x R0.8			4.0 x R1.0		
			Air	Emulsion			Ap	Ae	Fz	Ap	Ae	Fz	Ap	Ae	Fz
Steel	P	Alloy & Tool Steel Below 260HB	●	○	3D	120	0.10	0.5	0.10	0.16	0.7	0.16	0.20	1.0	0.20
					4D	110	0.09			0.14		0.18	0.20		
					5D	100	0.09			0.14		0.17	0.20		
					6D	95	0.07			0.11		0.14	0.20		
					8D	85	0.06			0.10		0.12	0.20		
					10D	70	0.05			0.08		0.10	0.20		
		Pre-hardened Tool Steel HRC30-40	●	○	3D	95	0.08	0.5	0.09	0.13	0.7	0.14	0.16	1.0	0.18
					4D	85	0.07			0.12		0.14	0.18		
					5D	80	0.07			0.11		0.14	0.18		
					6D	75	0.05			0.09		0.11	0.18		
					8D	65	0.05			0.09		0.08	0.10		0.18
					10D	55	0.04			0.09		0.06	0.08		0.18
Stainless Steel	M	Stainless Steel 300 & PH series	x	●	3D	70	0.08	0.5	0.09	0.13	0.7	0.14	0.16	1.0	0.18
					4D	65	0.07			0.12		0.14	0.18		
					5D	60	0.07			0.11		0.14	0.18		
					6D	55	0.05			0.09		0.11	0.18		
					8D	50	0.05			0.09		0.08	0.10		0.18
					10D	40	0.04			0.09		0.06	0.08		0.18
Special Alloys	S	High Temp Alloys	x	●	3D	30	0.03	0.4	0.05	0.04	0.6	0.08	0.05	0.8	0.10
					4D	25	0.02			0.04		0.05	0.10		
					5D	25	0.02			0.03		0.04	0.10		
					6D	25	0.02			0.03		0.03	0.10		
					8D	20	0.02			0.02		0.03	0.10		
					10D	20	0.01			0.02		0.03	0.10		
		Titanium Alloys	x	●	3D	70	0.06	0.4	0.08	0.09	0.6	0.12	0.11	0.8	0.15
					4D	65	0.05			0.08		0.10	0.15		
					5D	60	0.05			0.07		0.09	0.15		
					6D	55	0.04			0.06		0.07	0.15		
					8D	50	0.03			0.05		0.07	0.15		
					10D	40	0.03			0.04		0.06	0.15		
Cast Iron	K	GG, GGG	●	●	3D	120	0.10	0.5	0.10	0.16	0.7	0.16	0.20	1.0	0.20
					4D	110	0.09			0.14		0.18	0.20		
					5D	100	0.09			0.14		0.17	0.20		
					6D	95	0.07			0.11		0.14	0.20		
					8D	85	0.06			0.10		0.12	0.20		
					10D	70	0.05			0.10		0.08	0.10		0.20
Hardened Steels	H	Hardened Steels HRC45-50	●	○	3D	80	0.06	0.5	0.07	0.10	0.7	0.11	0.12	1.0	0.14
					4D	70	0.05			0.09		0.11	0.14		
					5D	70	0.05			0.08		0.11	0.14		
					6D	65	0.04			0.07		0.08	0.14		
					8D	55	0.04			0.07		0.07	0.14		
					10D	50	0.03			0.07		0.05	0.06		0.14
		Hardened Steels HRC50-55	●	x	3D	60	0.05	0.4	0.05	0.08	0.6	0.08	0.10	0.8	0.10
					4D	55	0.05			0.07		0.08	0.10		
					5D	50	0.04			0.05		0.07	0.08		0.10
					6D	50	0.03			0.05		0.05	0.07		0.10
					8D	40	0.03			0.05		0.05	0.06		0.10
					10D	35	0.03			0.05		0.04	0.05		0.10

● Preferred ○ Possible x Not Possible

TuffCut® Series 158

Recommended cutting data

HSC Roughing

Tool Diameter and Corner Radius														
6.0 x R1.5			8.0 x R2.0			10.0 x R2.0			12 x R2.0			16 x R3.0		
Ap	Ae	Fz	Ap	Ae	Fz	Ap	Ae	Fz	Ap	Ae	Fz	Ap	Ae	Fz
0.30	1.5	0.30	0.40	2.0	0.4	0.40	3.0	0.40	0.40	4.0	0.40	0.60	5.0	0.6
0.27		0.30	0.36		0.4	0.36		0.40	0.36		0.40	0.54		0.6
0.26		0.30	0.34		0.4	0.34		0.40	0.34		0.40	0.51		0.6
0.20		0.30	0.27		0.4	0.27		0.40	0.27		0.40	0.41		0.6
0.18		0.30	0.24		0.4	0.24		0.40	0.24		0.40	0.36		0.6
0.15		0.30	0.20		0.4	0.20		0.40	0.20		0.40	0.30		0.6
0.24	1.5	0.27	0.32	2.0	0.36	0.32	3.0	0.36	0.32	4.0	0.36	0.48	5.0	0.54
0.22		0.27	0.29		0.36	0.29		0.36	0.29		0.36	0.43		0.54
0.20		0.27	0.27		0.36	0.27		0.36	0.27		0.36	0.41		0.54
0.16		0.27	0.22		0.36	0.22		0.36	0.22		0.36	0.33		0.54
0.14		0.27	0.19		0.36	0.19		0.36	0.19		0.36	0.29		0.54
0.12		0.27	0.16		0.36	0.16		0.36	0.16		0.36	1.28		0.54
0.24	1.5	0.27	0.32	2.0	0.36	0.32	3.0	0.36	0.32	4.0	0.36	0.48	5.0	0.54
0.22		0.27	0.29		0.36	0.29		0.36	0.29		0.36	0.43		0.54
0.20		0.27	0.27		0.36	0.27		0.36	0.27		0.36	0.41		0.54
0.16		0.27	0.22		0.36	0.22		0.36	0.22		0.36	0.33		0.54
0.14		0.27	0.19		0.36	0.19		0.36	0.19		0.36	0.29		0.54
0.12		0.27	0.16		0.36	0.16		0.36	0.16		0.36	1.28		0.54
0.08	1.2	0.15	0.10	1.6	0.20	0.10	2.5	0.20	0.10	3.5	0.20	0.15	4.3	0.30
0.07		0.15	0.09		0.20	0.09		0.20	0.09		0.20	0.14		0.30
0.06		0.15	0.09		0.20	0.09		0.20	0.09		0.20	0.13		0.30
0.05		0.15	0.07		0.20	0.07		0.20	0.07		0.20	0.10		0.30
0.05		0.15	0.06		0.20	0.06		0.20	0.06		0.20	0.09		0.30
0.04		0.15	0.05		0.20	0.05		0.20	0.05		0.20	0.08		0.30
0.17	1.2	0.23	0.22	1.6	0.30	0.22	2.5	0.30	0.22	3.5	0.30	0.33	4.3	0.45
0.15		0.23	0.20		0.30	0.20		0.30	0.20		0.30	0.30		0.45
0.14		0.23	0.19		0.30	0.19		0.30	0.19		0.30	0.28		0.45
0.11		0.23	0.15		0.30	0.15		0.30	0.15		0.30	0.22		0.45
0.10		0.23	0.13		0.30	0.13		0.30	0.13		0.30	0.20		0.45
0.08		0.23	0.11		0.30	0.11		0.30	0.11		0.30	0.17		0.45
0.30	1.5	0.30	0.40	2.0	0.4	0.40	3.0	0.40	0.40	4.0	0.40	0.60	5.0	0.6
0.27		0.30	0.36		0.4	0.36		0.40	0.36		0.40	0.54		0.6
0.26		0.30	0.34		0.4	0.34		0.40	0.34		0.40	0.51		0.6
0.20		0.30	0.27		0.4	0.27		0.40	0.27		0.40	0.41		0.6
0.18		0.30	0.24		0.4	0.24		0.40	0.24		0.40	0.36		0.6
0.15		0.30	0.20		0.4	0.20		0.40	0.20		0.40	0.30		0.6
0.18	1.5	0.21	0.24	2.0	0.28	0.24	3.0	0.28	0.24	4.0	0.28	0.36	5.0	0.42
0.16		0.21	0.22		0.28	0.22		0.28	0.22		0.28	0.32		0.42
0.15		0.21	0.20		0.28	0.20		0.28	0.20		0.28	0.31		0.42
0.12		0.21	0.16		0.28	0.16		0.28	0.16		0.28	0.24		0.42
0.11		0.21	0.14		0.28	0.14		0.28	0.14		0.28	0.22		0.42
0.09		0.21	0.12		0.28	0.12		0.28	0.12		0.28	0.18		0.42
0.15	1.2	0.15	0.20	1.6	0.20	0.20	2.5	0.20	0.20	3.5	0.20	0.30	4.3	0.30
0.14		0.15	0.18		0.20	0.18		0.20	0.18		0.20	0.27		0.30
0.13		0.15	0.17		0.20	0.17		0.20	0.17		0.20	0.26		0.30
0.10		0.15	0.14		0.20	0.14		0.20	0.14		0.20	0.20		0.30
0.09		0.15	0.12		0.20	0.12		0.20	0.12		0.20	0.18		0.30
0.08		0.15	0.10		0.20	0.10		0.20	0.10		0.20	0.15		0.30

TuffCut® Series 158

Recommended cutting data

Cutting Speed

Workpiece Material Group		Material Type	Coolant				
					Air	Emulsion	Slotting
			Vc-M/Min				
Steels	P	Alloy & Tool Steels Below 260HB	●	○	100	180	200
		Pre-hardened Tools Steel HRC30-40	●	●	70	120	180
Stainless Steels	M	Stainless Steels 300 & PH series	X	●	80	100	150
Special Alloys	S	High Temp Alloys	X	●	25	50	70
		Titanium Alloys	X	●	60	100	120
Cast Irons	K	GG, GGG	●	●	100	200	220
Hardened Steels	H	Hardened Steels HRC45-50	●	○	75	90	140
		Hardened Steels HRC50-55	●	○	40	70	120

● Preferred ○ Possible X Not Possible

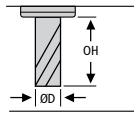
Feed Per Tooth

Workpiece Material Group	Material Type	Operation	Tool Diameter								
			2.0	3.0	4.0	6.0	8.0	10.0	12.0	16.0	
			fz-mm/tooth								
Steels	P	Alloy & Tool Steels Below 260HB	Slotting	0.010	0.015	0.020	0.030	0.040	0.050	0.060	0.080
		Pre-hardened Tool Steels HRC30-40	Profiling	0.020	0.030	0.040	0.060	0.080	0.100	0.120	0.160
			HSC 2D/3D	0.060	0.090	0.120	0.180	0.240	0.300	0.360	0.480
	M	Stainless Steel 300 & PH series	Slotting	0.008	0.012	0.016	0.024	0.032	0.040	0.048	0.064
			Profiling	0.016	0.024	0.032	0.048	0.064	0.080	0.096	0.128
			HSC 2D/3D	0.050	0.075	0.100	0.150	0.200	0.250	0.300	0.400
Stainless Steels	M	Stainless Steel 300 & PH series	Slotting	0.007	0.010	0.013	0.020	0.026	0.033	0.040	0.053
			Profiling	0.013	0.020	0.026	0.040	0.053	0.066	0.079	0.106
			HSC 2D/3D	0.040	0.060	0.080	0.120	0.160	0.200	0.240	0.320
	S	High Temp Alloys	Slotting	0.004	0.006	0.008	0.013	0.017	0.021	0.025	0.034
			Profiling	0.008	0.013	0.017	0.025	0.034	0.042	0.050	0.067
			HSC 2D/3D	0.020	0.030	0.040	0.060	0.080	0.100	0.120	0.160
Special Alloys	S	Titanium Alloys	Slotting	0.006	0.009	0.012	0.018	0.024	0.030	0.036	0.048
			Profiling	0.012	0.018	0.024	0.036	0.048	0.060	0.072	0.096
			HSC 2D/3D	0.040	0.060	0.080	0.120	0.160	0.200	0.240	0.320
	K	GG, GGG	Slotting	0.010	0.015	0.020	0.030	0.040	0.050	0.060	0.080
			Profiling	0.020	0.030	0.040	0.060	0.080	0.100	0.120	0.160
			HSC 2D/3D	0.060	0.090	0.120	0.180	0.240	0.300	0.360	0.480
Cast Irons	K	GG, GGG	Slotting	0.010	0.015	0.020	0.030	0.040	0.050	0.060	0.080
			Profiling	0.020	0.030	0.040	0.060	0.080	0.100	0.120	0.160
			HSC 2D/3D	0.060	0.090	0.120	0.180	0.240	0.300	0.360	0.480
	H	Hardened Steels HRC45-50	Slotting	0.007	0.010	0.013	0.020	0.026	0.033	0.040	0.053
			Profiling	0.013	0.020	0.026	0.040	0.053	0.066	0.079	0.106
			HSC 2D/3D	0.040	0.060	0.080	0.120	0.160	0.200	0.240	0.320
Hardened Steels	H	Hardened Steels HRC50-55	Slotting	0.005	0.008	0.010	0.015	0.020	0.025	0.030	0.040
			Profiling	0.010	0.015	0.020	0.030	0.040	0.050	0.060	0.080
			HSC 2D/3D	0.030	0.045	0.060	0.090	0.120	0.150	0.180	0.240

TuffCut® Series 158

Recommended cutting data

Depth of Cut
HSC 2D/3D Axial & Radial



Workpiece Material Group		Material Type	OH	Tool Diameter							
				2.0	3.0	4.0	6.0	8.0	10.0	12.0	16.0
				Ap-mm / Ae-mm							
Steels	P	Alloy & Tool Steels Below 260HB	3D-4D	0.06	0.09	0.12	0.18	0.24	0.30	0.36	0.48
			5D-6D	0.05	0.07	0.10	0.14	0.19	0.24	0.29	0.38
			8D-10D	0.04	0.05	0.07	0.11	0.14	0.18	0.22	0.29
		Pre-hardened Tool Steels HRC30-40	3D-4D	0.06	0.09	0.12	0.18	0.24	0.30	0.36	0.48
			5D-6D	0.05	0.07	0.10	0.14	0.19	0.24	0.29	0.38
			8D-10D	0.04	0.05	0.07	0.11	0.14	0.18	0.22	0.29
Stainless Steels	M	Stainless Steel 300 & PH series	3D-4D	0.06	0.09	0.12	0.18	0.24	0.30	0.36	0.48
			5D-6D	0.05	0.07	0.10	0.14	0.19	0.24	0.29	0.38
			8D-10D	0.04	0.05	0.07	0.11	0.14	0.18	0.22	0.29
Special Alloys	S	High Temp Alloys	3D-4D	0.04	0.06	0.08	0.12	0.16	0.20	0.24	0.32
			5D-6D	0.03	0.05	0.06	0.10	0.13	0.16	0.19	0.26
			8D-10D	0.02	0.04	0.05	0.07	0.10	0.12	0.14	0.19
		Titanium Alloys	3D-4D	0.06	0.09	0.12	0.18	0.24	0.30	0.36	0.48
			5D-6D	0.05	0.07	0.10	0.14	0.19	0.24	0.29	0.38
			8D-10D	0.04	0.05	0.07	0.11	0.14	0.18	0.22	0.29
Cast Irons	K	GG, GGG	3D-4D	0.06	0.09	0.12	0.18	0.24	0.30	0.36	0.48
			5D-6D	0.05	0.07	0.10	0.14	0.19	0.24	0.29	0.38
			8D-10D	0.04	0.05	0.07	0.11	0.14	0.18	0.22	0.29
Hardened Steels	H	Hardened Steels HRC45-50	3D-4D	0.05	0.08	0.10	0.15	0.20	0.25	0.30	0.40
			5D-6D	0.04	0.06	0.08	0.12	0.16	0.20	0.24	0.32
			8D-10D	0.03	0.05	0.06	0.09	0.12	0.15	0.18	0.24
		Hardened Steels HRC50-55	3D-4D	0.04	0.06	0.08	0.12	0.16	0.20	0.24	0.32
			5D-6D	0.03	0.05	0.06	0.10	0.13	0.16	0.19	0.26
			8D-10D	0.02	0.04	0.05	0.07	0.10	0.12	0.14	0.19

Notes:

For profile machining
adjust radial cut (Ae)

OH	Ae (x Ø)
3D-4D	0.1
5D-6D	0.07
8D-10D	0.05

Radial Cut (Ae)	Chip thickness Compensation factor
30%	1.10
20%	1.20
15%	1.40
10%	1.80
5%	2.30
1%	5.00

For slotting
adjust axial cut (Ap)

OH	Ap (x Ø)
3D-4D	0.1
5D-6D	0.07
8D-10D	0.05



Factory Reconditioning Service

Extend the life of your cutting tools with M.A.Ford's Factory Reconditioning / Recoating Service



Extend the life of your TuffCut 158 Series tools with our professional in-house reconditioning service.

When choosing our 158 Series tooling to increase your productivity, performance and machining quality, you'll want to get the best return on your investment to extend tool life and maximise cost effectiveness.

With this in mind, our dedicated tool regrind, remanufacture and modification service provides the perfect solution to keep your 158 Series end mills and other M.A.Ford tooling at peak performance for longer at a fraction of the cost of purchasing a new tool.

Like all our precision solutions, our regrinding service is managed and carried out by highly skilled manufacturing professionals to ensure that every tool is returned to you factory reconditioned to our own high OEM standards.



For further information please contact:
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TuffCut® XT

277NR 277NRW

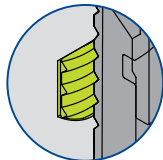
Guaranteed Non Pull-Out

With modern high performance machining and demanding production specifications, the risk of cutting tool 'pull-out' has become a very real concern for many companies. There are various tool holding solutions available, each provide varying degrees of success.

NOW, with the TuffCut® XT 277 NR and NRW range of tooling, M.A.FORD has arguably the highest performing and most cost effective system, incorporating a unique 'Non-pull out' feature - secuRgrip® that is ideal for use with our recommended tool holding solution from REGO-FIX®.

277 NR/NRW

- 'Non-pull out' shank form
- Innovative ALtima® Blaze coating
- Full radius range from stock
- Ideal for stainless steel and titanium
- M.A. Ford's unique Heli-Pitch geometry
- Necked, 3 x Diameter as standard to increase range of use



REGO-FIX® powRgrip® Clamping System

- More than 50% increase in transmitted torque over shrink-fit as standard (without Weldon feature)
- Holders capable of 20,000 insertion / extraction of collet without deterioration in clamping force
- Concentricity $\leq 3\mu\text{m}$
- Designed for roughing and finishing operations
- Eliminates the requirement to have expensive grooves ground in the shank of tool
- Anti vibration effect over standard shrink-fit allowing increased tool life and cutting parameters



Where **high performance** is the **standard**

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