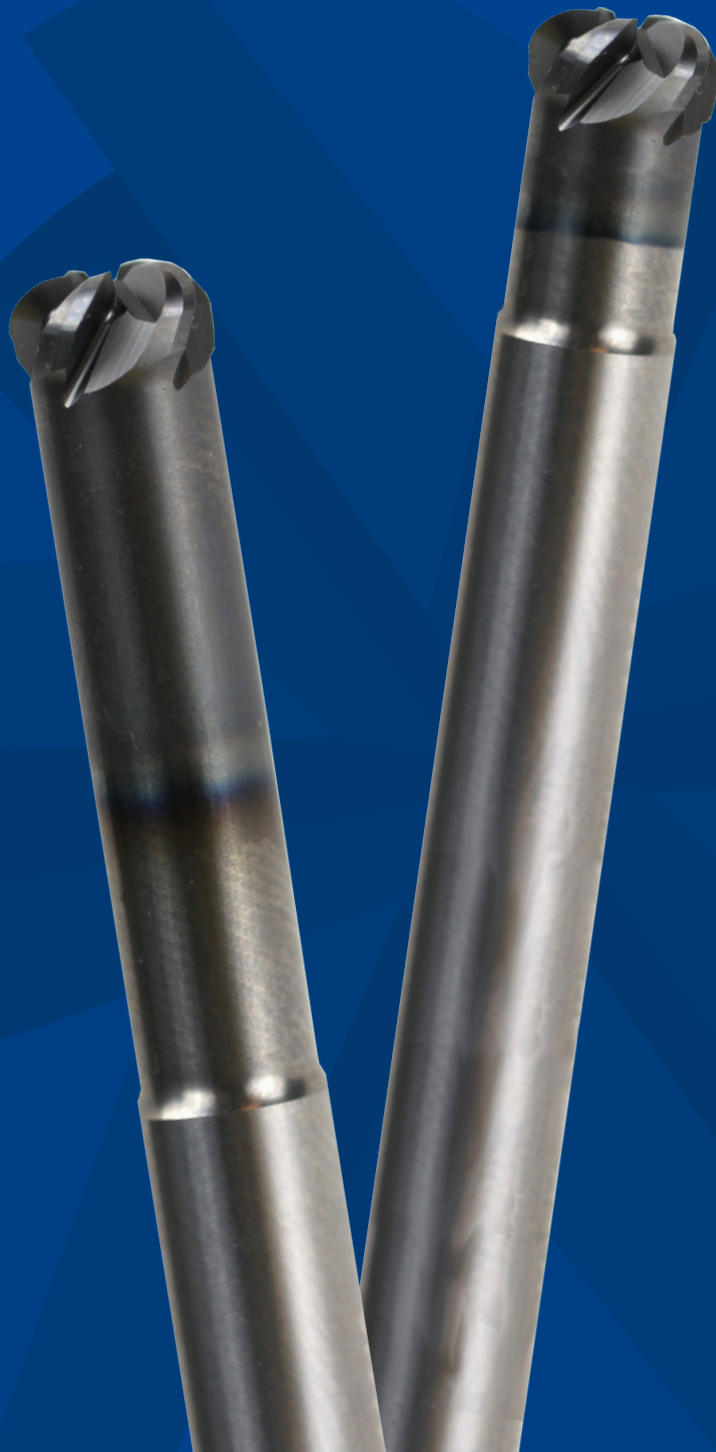




Corner radius end mills for hardened materials up to and over 65 HRC

# WXS-(HS)-CRE

Volume 3.1



# KEY FEATURES: WXS-(HS)-CRE

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**1** Multi flute with super radius

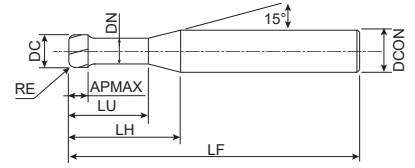
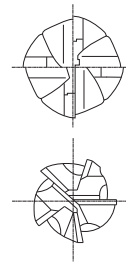
**2** WXS coating

**3** For hardened steels up to 65 HRC  
and stainless steels

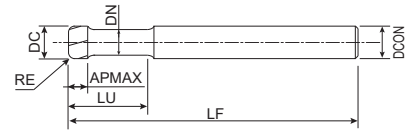


# WXS-CRE

Milling | Solid carbide



Type 1



Type 2

- Carbide end mill with WXS coating
- For hardened steels up to 65 HRC
- Multi flute with super radius



EDP	ZEFP	DC	RE	LU	LH	LF	APMX	DCON	DN	Type
48106421	4	2	0,5	8	15,8	50	0,8	6	1,8	1
48106433	5	3	0,75	12	17,9	55	1,3	6	2,7	1
48106445	5	4	1	12	16	55	1,6	6	3,6	1
48106467	5	6	1,5	12	-	90	2,4	6	5,4	2
48106489	5	8	2	16	-	100	3,2	8	7,2	2
48106509	5	10	2	20	-	100	4	10	9	2
48106533	5	12	3	24	-	110	4,8	12	11	2



# CUTTING CONDITIONS

Milling | Endmills | Cutting conditions

## WXS-CRE / WXS-HS-CRE

Regular milling

Ø	GG		30~38 HRC NAK55 • HPM1 • SKT • SKD		38~45 HRC SUS304 • SKD • HPM50 NAK80		45~55 HRC		55~60 HRC		60~ HRC	
	S (min <sup>-1</sup> )	F (mm/min)	S (min <sup>-1</sup> )	F (mm/min)	S (min <sup>-1</sup> )	F (mm/min)	S (min <sup>-1</sup> )	F (mm/min)	S (min <sup>-1</sup> )	F (mm/min)	S (min <sup>-1</sup> )	F (mm/min)
2 x R0,5	16.000	5.250	12.500	3.800	11.000	3.350	7.950	2.150	4.750	860	4.270	615
3 x R0,75	10.500	6.250	8.500	4.500	7.450	3.900	5.300	2.600	3.200	995	2.850	715
4 x R1	7.950	6.600	6.350	4.800	5.550	4.200	4.000	2.750	2.400	1.050	2.150	755
6 x R1,5	5.300	7.000	4.250	5.100	3.700	4.450	2.650	2.850	1.600	1.150	1.400	825
8 x R2	4.000	7.000	3.200	5.100	2.800	4.450	2.000	2.850	1.200	1.150	1.050	825
10 x R2	3.200	7.000	2.550	5.100	2.250	4.450	1.600	2.850	955	1.150	860	825
12 x R3	2.650	7.000	2.100	5.100	1.850	4.450	1.350	2.850	795	1.150	715	825

Max cutting depth		ap	ae
		RE≤2	0,2xRE 0,5D
		2<RE	0,5mm 0,5D

Max cutting depth		ap	ae
		RE≤2	0,2xRE 0,5D
		2<RE	0,4mm 0,5D

Max cutting depth		ap	ae
		RE≤2	0,1xRE 0,5D
		2<RE	0,2mm 0,5D

## High speed side milling

Ø	GG		30~38 HRC NAK55 • HPM1 • SKT • SKD		38~45 HRC SUS304 • SKD • HPM50 NAK80		45~55 HRC		55~60 HRC		60~ HRC	
	S (min <sup>-1</sup> )	F (mm/min)	S (min <sup>-1</sup> )	F (mm/min)	S (min <sup>-1</sup> )	F (mm/min)	S (min <sup>-1</sup> )	F (mm/min)	S (min <sup>-1</sup> )	F (mm/min)	S (min <sup>-1</sup> )	F (mm/min)
2 x R0,5	31.850	10.500	32.000	9.550	24.000	7.150	24000	6.450	16.000	2.850	14.400	2.050
3 x R0,75	21.000	12.500	21.000	12.000	16.000	8.400	16.000	7.850	10.500	3.300	9.450	2.370
4 x R1	16.000	13.000	16.000	12.000	12.000	9.000	12.000	8.200	7.950	3.550	7.150	2.550
6 x R1,5	10.600	14.000	10.600	12.700	7.950	9.550	7.950	8.600	5.300	3.800	5.300	3.800
8 x R2	7.950	14.000	7.950	12.700	5.950	9.550	5.950	8.600	4.000	3.800	4.000	3.800
10 x R2	6.350	14.000	6.350	12.700	4.750	9.550	4.750	8.600	3.200	3.800	3.200	3.800
12 x R3	5.300	14.000	5.300	12.700	4.000	9.550	4.000	8.600	2.650	3.800	2.650	3.800

Max cutting depth		ap	ae
		0,1xR	0,3D

Max cutting depth		ap	ae
		R<2	0,1xR 0,3D
		2<R	0,2mm 0,3D

Max cutting depth		ap	ae
		R<2	0,05xR 0,3D
		2<R	0,1mm 0,3D

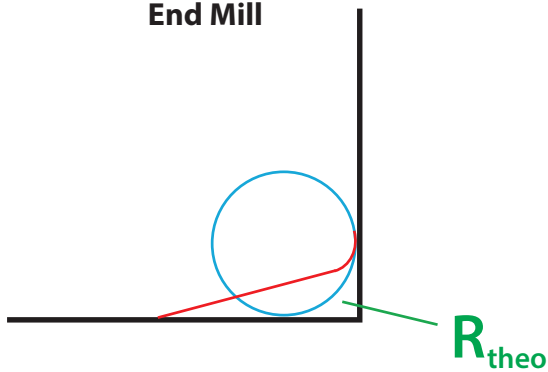
  

1. Use a rigid and precise machine and holder.
2. These milling conditions are based on milling with circular interpolation at corners. For milling without circular interpolation (such as right angle corners), reduce the speed to 50-70% and the cutting depth to 50-80% of the above conditions.
3. We suggest using air blow or MQL (mist).
4. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
5. When WXS(CRE) enters in Z axis, reduce the feed speed to 30-60% of the above conditions with machining incline angle  $\beta < 2^\circ$
6. These milling conditions are for a tool extension length: less than 4 x D. For a longer tool extension, reduce the speed, feed rate, and the cutting depth in accordance with the respective coefficients, to prevent chattering.



# TECHNICAL FEATURES

High Feed  
End Mill



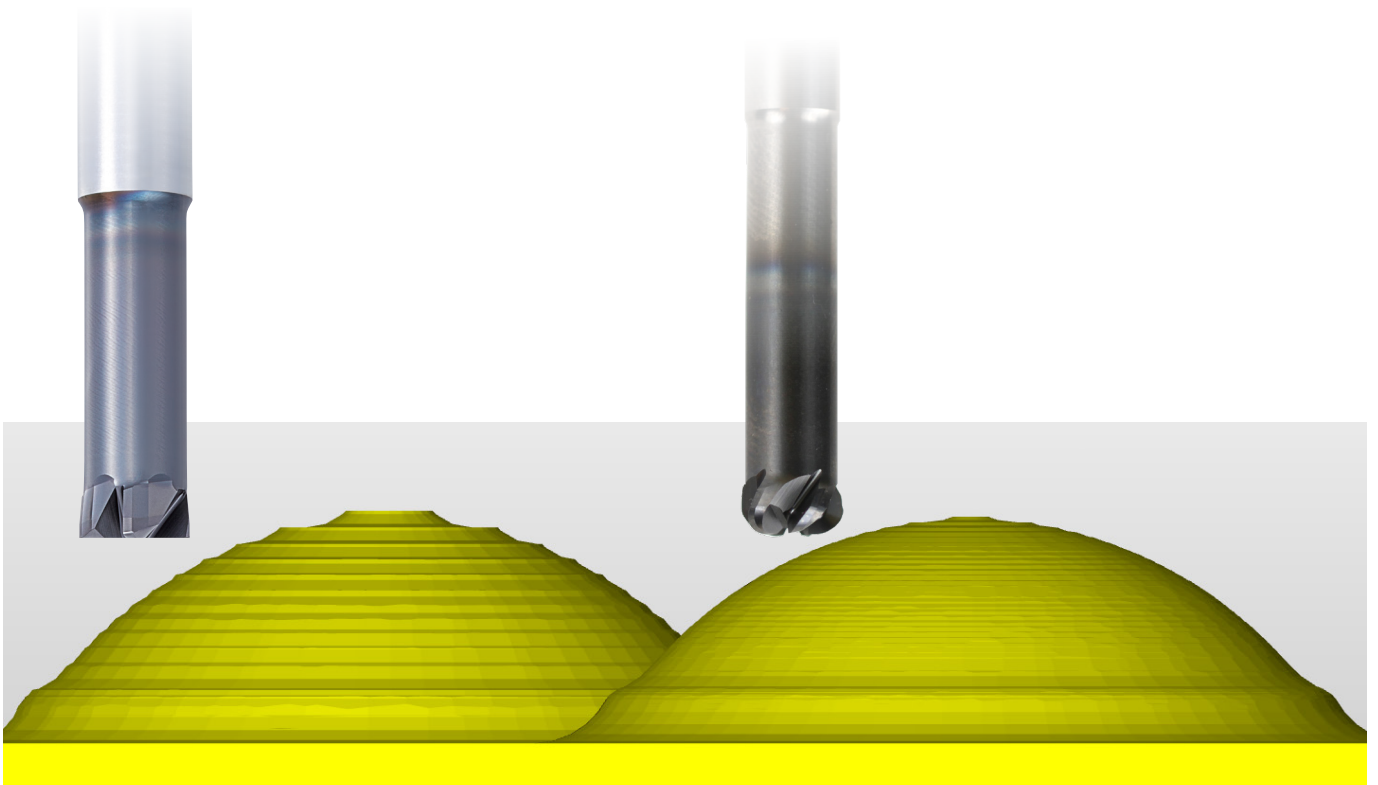
Due to its point geometry a high feed end mill does not produce a clearly defined corner radius on the work piece.

WXS-CRE



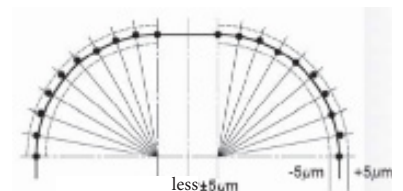
The WXS-CRE features a clearly defined corner radius.

Milling | Solid carbide



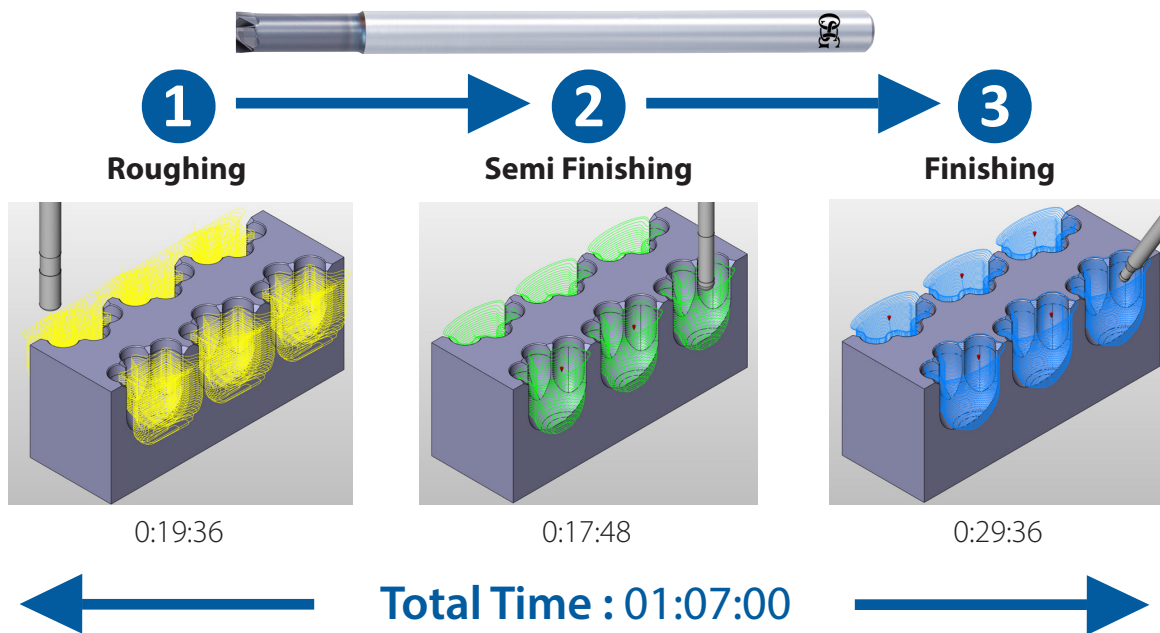
The WXS-CRE features a clearly defined corner radius and a tolerance like ball nose end mills used for finishing. OSG puts greatest emphasis on manufacturing the radii as precisely as possible over the entire contour to ensure maximum dimensional accuracy on the work piece, even in work environments where changing the tool working angle is not possible (e.g. 3-axis machines).

This results in an extremely precise surface even after the first roughing operation leaving very even residual material thus facilitating the follow up process. This eliminates the process of semi-roughing which results in enormous time saving!



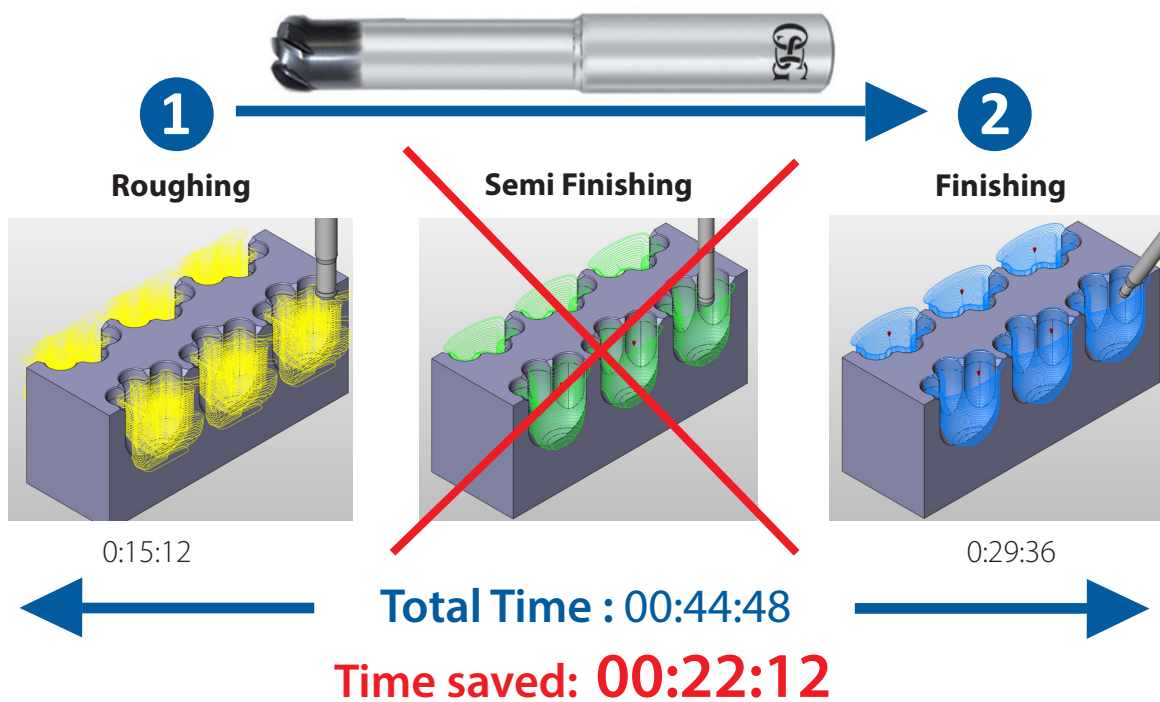
## Work with: HFC

Conventional machining strategies require three steps to produce the finished contour.



## Work with: WXS-CRE

The WXS-CRE produces a very high surface quality and smooth residual material even after roughing which eliminates semi-processes.







shaping your dreams

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