



Carbide end mills with WXS coating

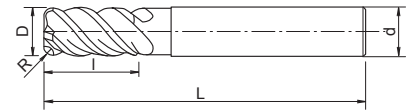
WXS-(CR)-EMS

Volume 1



WXS-CR-EMS

Milling | Solid carbide

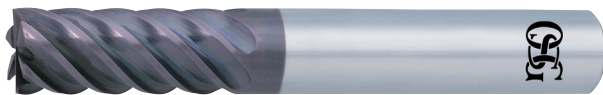


- Carbide end mill with WXS coating
- For hardened steels up to 65 HRC and stainless steels
- 6 flutes, corner radius

P ~45 HRC	P ~55 HRC	M ~35 HRC	K ~350 HB	S	H ~60 HRC	H ~65 HRC
CARBIDE	WXS	45°	SHRINK FIT			

EDP	Z	D	R	L	I	d	Price
48141061	6	6	0,5	90	15	6	
48141062	6	6	1	90	15	6	
48141081	6	8	0,5	100	20	8	
48141082	6	8	1	100	20	8	
48141083	6	8	2	100	20	8	
48141101	6	10	0,5	100	25	10	
48141102	6	10	1	100	25	10	
48141103	6	10	2	100	25	10	
48141121	6	12	0,5	110	30	12	
48141122	6	12	1	110	30	12	

WXS-EMS



- For hardened steels and stainless
- Multi flute, high speed machining

P ~45 HRC	P ~55 HRC	M ~35 HRC	K ~350 HB	S	H ~60 HRC	H ~65 HRC
CARBIDE	WXS	45°	SHRINK FIT			

EDP	Z	D	L	I	d	Price
3041010	4	1	60	2,5	6	
3041015	4	1,5	60	4	6	
3041020	4	2	60	6	6	
3041025	4	2,5	60	8	6	
3041030	4	3	60	8	6	
3041035	4	3,5	60	10	6	
3041040	4	4	60	11	6	
3041045	4	4,5	60	11	6	
3041050	4	5	60	13	6	
3041055	4	5,5	60	13	6	
3041060	6	6	60	13	6	
3041080	6	8	70	19	8	
3041100	6	10	80	22	10	
3041120	6	12	90	26	12	
3041140	6	14	100	26	16	
3041160	6	16	105	32	16	
3041180	6	18	110	32	16	
3041200	6	20	110	32	20	

Milling | Solid carbide



CUTTING CONDITIONS

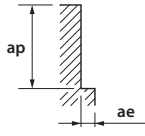
Milling | Endmills | Cutting conditions

WXS-CR-EMS

High speed milling

Ø	C≤0,2% - GG S55C • SS400 ~750 N/mm²		~30 HRC SKD • SKS • SNCM		30~38 HRC NAK55 • HPM1 • SKT		38~45 HRC-SUS SUS304 • X210CR12 X40CRMOV51		45~55 HRC HRS		55~60 HRC	
	S (min ⁻¹)	F (mm/min)	S (min ⁻¹)	F (mm/min)	S (min ⁻¹)	F (mm/min)	S (min ⁻¹)	F (mm/min)	S (min ⁻¹)	F (mm/min)	S (min ⁻¹)	F (mm/min)
6	23.500	4.400	21.000	3.750	15.500	2.800	13.000	2.000	7.950	1.200	6.350	960
8	17.500	4.300	15.500	3.750	11.500	2.800	9.900	2.050	5.950	1.250	4.750	955
10	14.000	4.250	12.500	3.750	9.500	2.800	7.950	2.100	4.750	1.250	3.800	955
12	11.500	3.950	10.500	3.500	7.950	2.600	6.600	1.950	3.950	1.150	3.150	875

Max cutting depth



D	ap	ae
< 12	1D	0,01D

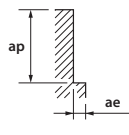
- Conditions to be used if slant is = 3 x dia.
If length is 5 x dia, than reduce feed and rotation by 10 to 20%.
If length is 6 x dia, than reduce feed and rotation by 40 to 60% and use 1/2 of aa and 1/3 of ar.
- Reduce speed to avoid distortion from deep passes or low rigidity
- For milling > 18 mm, machining centre ISO50 is recommended
- Use compressed air or a high quality coolant with a low co-efficient of smoke emission.

WXS-EMS

Side milling

Ø	~ 40 HRC NAK55 • HPM1 • SKT		40 ~ 45 HRC NAK80 • SKD11 • SKD61		45~55 HRC		55~60 HRC		60~65 HRC		65~70 HRC	
	S (min ⁻¹)	F (mm/min)	S (min ⁻¹)	F (mm/min)	S (min ⁻¹)	F (mm/min)	S (min ⁻¹)	F (mm/min)	S (min ⁻¹)	F (mm/min)	S (min ⁻¹)	F (mm/min)
1	20.000	800	20.000	800	20.000	800	20.000	560	20.000	480	16.000	335
2	20.000	1.600	20.000	1.600	16.000	1.250	12.000	670	11.000	535	7.950	335
3	15.000	1.800	13.500	1.600	10.500	1.250	7.950	670	7.450	535	5.300	335
4	11.000	1.800	9.950	1.600	7.950	1.250	5.950	670	5.550	535	4.000	335
5	8.900	1.800	7.950	1.600	6.350	1.250	4.800	670	4.450	535	3.200	335
6	7.450	2.650	6.650	2.400	5.300	1.900	4.000	1.000	3.700	800	2.650	505
8	5.550	2.650	4.950	2.400	4.000	1.900	3.000	1.000	2.800	800	2.000	505
10	4.450	2.650	4.000	2.400	3.200	1.900	2.400	1.000	2.250	800	1.600	505
12	3.700	2.650	3.300	2.400	2.650	1.900	2.000	1.000	1.850	800	1.350	505
14	3.100	2.500	2.800	2.250	2.250	1.800	1.700	1.000	1.550	800	1.100	505
15	2.850	2.400	2.600	2.200	2.100	1.750	1.550	950	1.450	800	1.050	505
16	2.700	2.400	2.400	2.100	1.950	1.700	1.450	930	1.350	800	995	505
18	2.400	2.250	2.200	2.000	1.750	1.600	1.300	895	1.200	800	885	505
20	2.200	2.150	1.950	1.900	1.550	1.500	1.150	845	1.100	695	800	505

Max cutting depth



D	ap	ae
< 1,5	1,5D	0,02D
1,5-2,5	1,5D	0,05D
> 2,5	1,5D	0,10D

ae max = 1mm

ap	ae
1,5D	0,05D

ae max = 1mm

ap	ae
1,5D	0,03D

ae max = 0,5mm

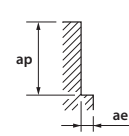
ap	ae
1D	0,02D

ae max = 0,5mm

High speed side milling

Ø	~ 40 HRC NAK55 • HPM1 • SKT		40 ~ 45 HRC NAK80 • SKD11 • SKD61		45~55 HRC		55~60 HRC		60~65 HRC		65~70 HRC	
	S (min ⁻¹)	F (mm/min)	S (min ⁻¹)	F (mm/min)	S (min ⁻¹)	F (mm/min)	S (min ⁻¹)	F (mm/min)	S (min ⁻¹)	F (mm/min)	S (min ⁻¹)	F (mm/min)
1	50.000	1.600	50.000	2.000	50.000	2.000	50.000	1.600	47.500	1.350	32.000	715
2	47.500	3.250	47.500	3.800	40.000	3.200	25.500	1.650	24.000	1.350	16.000	800
3	32.000	3.450	32.000	3.800	26.500	3.200	17.000	1.650	16.000	1.350	10.500	800
4	24.000	3.900	24.000	3.800	20.000	3.200	12.500	1.650	12.000	1.350	7.950	800
5	19.000	4.100	19.000	3.800	16.000	3.200	10.000	1.650	9.550	1.350	6.350	800
6	16.000	5.750	16.000	5.750	13.500	4.800	8.500	2.450	7.950	2.000	5.300	1.200
8	12.000	5.750	12.000	5.750	9.950	4.800	6.350	2.450	5.950	2.000	4.000	1.200
10	9.550	5.750	9.550	5.750	7.950	4.800	5.100	2.450	4.800	2.000	3.200	1.200
12	7.950	5.750	7.950	5.750	6.650	4.800	4.250	2.450	4.000	2.000	2.650	1.200
14	6.800	5.400	6.800	5.400	5.650	4.500	3.600	2.400	3.400	2.000	2.250	1.200
15	6.350	5.300	6.350	5.300	5.250	4.350	3.350	2.300	3.150	1.950	2.100	1.200
16	5.950	5.150	5.950	5.150	4.950	4.250	3.150	2.250	2.950	1.850	1.950	1.200
18	5.300	4.850	5.300	4.850	4.400	4.050	2.800	2.200	2.650	1.750	1.750	1.200
20	4.750	4.600	4.750	4.600	3.950	3.650	2.500	2.050	2.350	1.550	1.550	1.100

Max cutting depth



ap	ae
1D	0,05D

ae max = 0,5mm

ap	ae
1D	0,03D

ae max = 0,5mm

ap	ae
1D	0,02D

ae max = 0,2mm

ap	ae
1D	0,01D

ae max = 0,2mm

- Use a rigid and precise machine and holder.
- When chattering occurs, reduce the speed and feed simultaneously.
- Use a suitable cutting fluid with high smoke retardant properties.





shaping your dreams

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