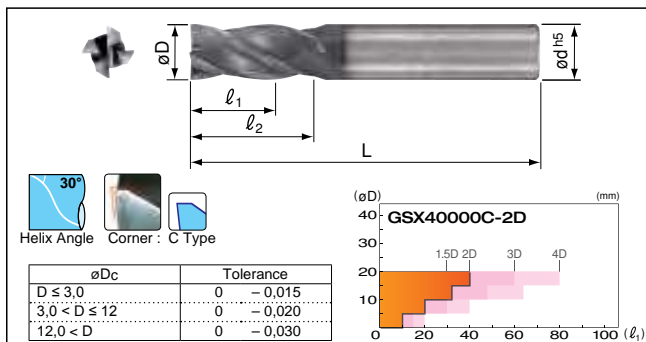
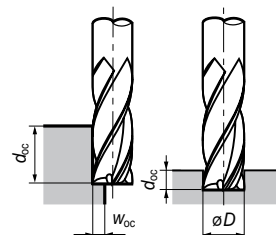


Coated Carbide Grades	GSX	Structural Steel	Carbon Steel	Alloy Steel	Pre-hardened Steel	Tempered Die Steel	Hardened Steel	Stainless Steel	Ti Alloy / Heat Resistant Alloy	Cast Iron	Al Alloy	Cu Alloy	Graphite
		○	○	○	○	○	○	○	○	○	○	○	○



Recommended Cutting Conditions

- For stable machining performance use rigid, high-precision machines and holders.
- Use air blowing when dry machining.
- Use wet machining for stainless steel, heat resistant alloy, and titanium alloy applications.
- If chattering is a problem, reduce the spindle speed and feed rate indicated in the table below by the same ratio, or reduce the depth of cut.
- If the machine cannot achieve the recommended spindle speed, please use the max. spindle speed available.



Endmills

Cat. No.	Stock	øD	l ₁	l ₂	L	ød
GSX 40100C-2D	●	1,0	2,0	3,0	40	4
GSX 40150C-2D	●	1,5	3,0	4,0	40	4
GSX 40200C-2D	●	2,0	4,0	5,0	40	4
GSX 40250C-2D	●	2,5	5,0	6,0	40	4
GSX 40300C-2D	●	3,0	6,0	7,5	45	6
GSX 40350C-2D	●	3,5	7,0	8,5	45	6
GSX 40400C-2D	●	4,0	8,0	9,5	45	6
GSX 40450C-2D	●	4,5	9,0	10,5	50	6
GSX 40500C-2D	●	5,0	10,0	12,0	50	6
GSX 40550C-2D	●	5,5	11,0	13,0	50	6
GSX 40600C-2D	●	6,0	12,0	-	50	6
GSX 40700C-2D	●	7,0	14,0	16,0	60	8
GSX 40800C-2D	●	8,0	16,0	-	60	8
GSX 40900C-2D	●	9,0	18,0	20,0	70	10
GSX 41000C-2D	●	10,0	20,0	-	70	10
GSX 41200C-2D	●	12,0	24,0	-	75	12
GSX 41400C-2D	●	14,0	28,0	31,5	90	16
GSX 41500C-2D	●	15,0	30,0	33,5	90	16
GSX 41600C-2D	●	16,0	32,0	-	90	16
GSX 42000C-2D	●	20,0	40,0	-	100	20

Shoulder Milling

Work Material Cond.	Structural Steel		Carbon Steel (150 to 250HB)		Cast Iron		Alloy Steel (25 to 35HRC)		Tempered Steel, Hardened Steel (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel		Heat Resistant Steel, Titanium Alloy	
	Spindle Speed (rpm)	Feed Rate (mm/min)	Spindle Speed (rpm)	Feed Rate (mm/min)	Spindle Speed (rpm)	Feed Rate (mm/min)	Spindle Speed (rpm)	Feed Rate (mm/min)	Spindle Speed (rpm)	Feed Rate (mm/min)	Spindle Speed (rpm)	Feed Rate (mm/min)	Spindle Speed (rpm)	Feed Rate (mm/min)	Spindle Speed (rpm)	Feed Rate (mm/min)
øD (mm)																
1,0	24.000	470	24.000	470	24.000	470	21.000	290	14.500	180	10.500	120	12.600	120	10.500	85
2,0	12.800	570	12.800	570	12.800	570	12.000	380	8.300	230	6.000	150	7.200	160	6.000	110
4,0	6.800	730	6.800	730	6.800	730	6.400	490	4.400	300	3.200	200	3.800	210	3.200	130
6,0	4.600	780	4.600	780	4.600	780	4.300	520	3.000	320	2.200	210	2.650	220	2.200	150
8,0	3.400	780	3.400	780	3.400	780	3.200	520	2.200	320	1.600	210	2.000	220	1.600	150
10,0	2.800	780	2.800	780	2.800	780	2.600	520	1.800	320	1.300	210	1.500	220	1.300	150
12,0	2.300	780	2.300	780	2.300	780	2.200	520	1.500	320	1.100	210	1.300	220	1.100	150
16,0	1.700	650	1.700	650	1.700	650	1.600	420	1.100	280	800	170	1.000	180	800	120
20,0	1.350	600	1.350	600	1.350	600	1.300	380	900	260	650	150	800	160	650	100
Shoulder cutting d _{sc} w _{oc}	1,5 D 0,05 D										1,0 D 0,02 D					

Shoulder Milling (High Speed Machining Centre)

Work Material Cond.	Structural Steel		Carbon Steel (150 to 250HB)		Cast Iron		Alloy Steel (25 to 35HRC)		Tempered Steel, Hardened Steel (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel		Heat Resistant Steel, Titanium Alloy	
	Spindle Speed (rpm)	Feed Rate (mm/min)	Spindle Speed (rpm)	Feed Rate (mm/min)	Spindle Speed (rpm)	Feed Rate (mm/min)	Spindle Speed (rpm)	Feed Rate (mm/min)	Spindle Speed (rpm)	Feed Rate (mm/min)	Spindle Speed (rpm)	Feed Rate (mm/min)	Spindle Speed (rpm)	Feed Rate (mm/min)	Spindle Speed (rpm)	Feed Rate (mm/min)
øD (mm)																
1,0	60.000	1.200	60.000	1.200	60.000	1.200	60.000	850	60.000	720	48.000	500	32.000	300	-	-
2,0	47.800	2.200	47.800	2.200	47.800	2.200	47.800	1.600	39.800	1.200	31.800	900	15.900	400	-	-
4,0	23.900	2.600	23.900	2.600	23.900	2.600	23.900	1.900	19.900	1.400	15.900	1.100	8.000	490	-	-
6,0	16.000	2.700	16.000	2.700	16.000	2.700	16.000	2.000	13.300	1.500	10.600	1.200	5.300	520	-	-
8,0	12.000	2.700	12.000	2.700	12.000	2.700	12.000	2.000	10.000	1.500	8.000	1.200	4.000	520	-	-
10,0	9.600	2.700	9.600	2.700	9.600	2.700	9.600	2.000	8.000	1.500	6.400	1.200	3.200	520	-	-
12,0	8.000	2.700	8.000	2.700	8.000	2.700	8.000	2.000	6.700	1.500	5.300	1.200	2.700	520	-	-
16,0	6.000	2.200	6.000	2.200	6.000	2.200	6.000	1.600	5.000	1.200	4.000	900	2.000	450	-	-
20,0	4.800	2.000	4.800	2.000	4.800	2.000	4.800	1.400	4.000	1.100	3.200	750	1.600	380	-	-
Shoulder cutting d _{sc} w _{oc}	1,5 D 0,05 D										1,0 D 0,02 D					

Grooving

Work Material Cond.	Structural Steel		Carbon Steel (150 to 250HB)		Cast Iron		Alloy Steel (25 to 35HRC)		Tempered Steel, Hardened Steel (35 to 45HRC)		Hardened Steel (45 to 55HRC)		Stainless Steel		Heat Resistant Steel, Titanium Alloy	
	Spindle Speed (rpm)	Feed Rate (mm/min)	Spindle Speed (rpm)	Feed Rate (mm/min)	Spindle Speed (rpm)	Feed Rate (mm/min)	Spindle Speed (rpm)	Feed Rate (mm/min)	Spindle Speed (rpm)	Feed Rate (mm/min)	Spindle Speed (rpm)	Feed Rate (mm/min)	Spindle Speed (rpm)	Feed Rate (mm/min)	Spindle Speed (rpm)	Feed Rate (mm/min)
øD (mm)																
1,0	24.000	380	24.000	470	24.000	470	21.000	290	14.500	180	10.500	120	12.600	85	5.200	30
2,0	12.800	460	12.800	570	12.800	570	12.000	380	8.300	230	6.000	150	7.200	110	3.000	40
4,0	6.800	580	6.800	730	6.800	730	6.400	490	4.400	300	3.200	200	3.800	130	1.600	55
6,0	4.600	620	4.600	780	4.600	780	4.300	520	3.000	320	2.200	210	2.650	160	1.100	65
8,0	3.400	620	3.400	780	3.400	780	3.200	520	2.200	320	1.600	210	2.000	160	800	65
10,0	2.800	620	2.800	780	2.800	780	2.600	520	1.800	320	1.300	210	1.600	160	650	65
12,0	2.300	620	2.300	780	2.300	780	2.200	520	1.500	320	1.100	210	1.300	160	550	65
16,0	1.700	520	1.700	560	1.700	560	1.600	420	1.100	280	800	170	1.000	130	400	55
20,0	1.350	480	1.350	600	1.350	600	1.300	380	900	260	650	150	800	110	320	50
Grooving d _c	0,2 D		0,5 D				0,2 D		0,05 D		0,2 D					